

SIEMENS



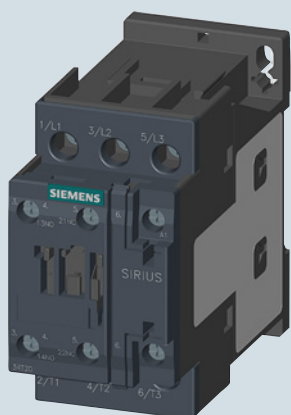
Industrial Controls

SIRIUS

Catalog
IC 20

Edition
2016

Switching Devices



1/2	SIRIUS 3RT6/3RT5 contactors
1/2	Introduction
1/5	General data
1/6	SIRIUS 3RT60/3RT50 contactors, 3-pole, 3 ... 250 kW
1/14	Link modules
1/16	Modules for contactor control
1/17	Accessories
1/20	Spare parts
1/21	Technical specifications
1/36	SIRIUS 3RH6 contactor relays
1/36	SIRIUS 3RH6 contactor relays, 4-pole
1/39	SIRIUS 3RH61 coupling contactors for switching auxiliary circuits, 4-pole
1/40	Technical specifications
1/43	Power contactors for switching motors
1/43	3TF6 vacuum contactors
1/52	Contactors for special applications
1/52	SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole
1/60	SIRIUS 3RA6 compact starters
1/60	General data
1/67	3RA61 direct-on-line starters
1/68	3RA62 reversing starters
1/69	Coupling relays with LZS/LZX plug-in relays
1/69	Coupling relays with plug-in relays

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Introduction

Overview



Size Type	S00 3RT601				S0 3RT602							
3RT60 contactors												
Type	3RT6015 3RT6016 3RT6017 3RT6018				3RT6023 3RT6024 3RT6025 3RT6026 3RT6027 3RT6028							
AC, DC operation	(p. 1/6, 1/7)				(p. 1/9, 1/9)							
AC-3												
I_e /AC-3/400 V	A	7	9	12	16	9	12	17	25	32	38	
400 V	kW	3	4	5.5	7.5	4	5.5	7.5	11	15	18.5	
230 V	kW	1.5	2.2	3	4	2.2	3	4	5.5	7.5	11	
690 V	kW	4	5.5	5.5	7.5	7.5	7.5	11	11	18.5	18.5	
1 000 V	kW	--	--	--	--	--	--	--	--	--	--	
AC-4 (for $I_a = 6 \times I_e$)												
400 V	kW	3	4	4	5.5	4	5.5	7.5	7.5	11	11	
400 V (200 000 operating cycles)	kW	1.15	2	2	2.5	2	2.6	3.5	4.4	6	6	
AC-1 (40 °C, ≤ 690 V)												
I_e	3RT60 A	18	22	22	22	40	40	40	40	50	50	
Accessories for contactors												
Auxiliary switch blocks	On front	3RH6911			(p. 1/18)	3RH6911			(p. 1/18)			
	Lateral	3RH6911			(p. 1/18)	3RH6921			(p. 1/18)			
Surge suppressors	3RT6916			(p. 1/19)			3RT6926			(p. 1/19)		
3RU61 thermal overload relays												
3RU61 thermal overload relays, CLASS 10	3RU6116	0.11 ... 16 A (Ch. 3)				3RU6126	1.8 ... 40 A (Ch. 3)					
3RV60 Motor starter protectors/circuit breakers												
Motor starter protectors/circuit breakers	3RV6011	0.11 ... 16 A (Ch. 3)				3RV6021	11 ... 40 A (Ch. 3)					



Size Type	S2 3RT503			S3 3RT504			
3RT50 contactors							
Type	3RT5034	3RT5035	3RT5036	3RT5044	3RT5045	3RT5046	
AC, DC operation	(p. 1/8, 1/10)			(p. 1/8, 1/10)			
AC-3							
I_e /AC-3/400 V	A	32	40	50	65	80	95
400 V	kW	15	18.5	22	30	37	45
230 V	kW	7.5	11	15	18.5	22	22
500 V	kW	18.5	22	30	37	45	55
690 V	kW	18.5	22	22	45	55	55
1 000 V	kW	--	--	--	30	37	37
AC-4 (for $I_a = 6 \times I_e$)							
400 V	kW	15	18.5	22	30	37	45
400 V (200 000 operating cycles)	kW	8.2	9.5	12.6	15.1	17.9	22
AC-1 (40 °C, ≤ 690 V)							
I_e	A	50	60	60	100	120	120
Accessories for contactors							
Auxiliary switch blocks	On front Lateral	3RH5921		(p. 1/18)			
		3RH5921		(p. 1/18)			
Terminal covers		--			3RT5946-4EA1/2		(p. 1/18)
Surge suppressors		3RT5926/36		(p. 1/19)			
3RU51 thermal overload relays							
3RU51 thermal overload relays, CLASS 10		3RU5136	5.5 ... 50	(Ch. 3)	3RU5146	18 ... 100 A	(Ch. 3)
3RV50 Motor starter protectors/circuit breakers							
Motor starter protectors/circuit breakers		3RV5031	22 ... 50	(Ch. 3)	3RV5041	45 ... 100 A	(Ch. 3)

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Introduction

1



Size
Type

S6
3RT505

S10
3RT506

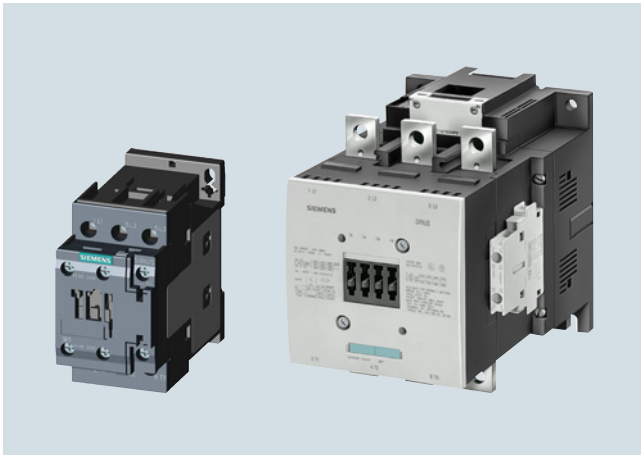
S12
3RT507

3RT50 contactors

Type		3RT5054	3RT5055	3RT5056	3RT5064	3RT5065	3RT5066	3RT5075	3RT5076
AC, DC operation		(p. 1/11)			(p. 1/11)			(p. 1/11)	
AC-3									
I_e /AC-3/400 V	A	115	150	185	225	265	300	400	500
400 V	kW	55	75	90	110	132	160	200	250
230 V	kW	37	45	55	55	75	90	132	160
500 V	kW	75	90	110	160	160	200	250	355
690 V	3RT50 kW	110	132	160	200	250	250	400	400/500
1 000 V	3RT50 kW	75	90	90	90	132	132	250	250/710
AC-4 (for $I_a = 6 \times I_e$)									
400 V	kW	55	75	90	110	132	160	200	250
400 V	3RT50 kW	29	38	45	54	66	71	84	98/161
(200 000 operating cycles)									
AC-1 (40 °C, ≤ 690 V)									
I_e	3RT50 A	160	185	215	275	330	330	430	610
Accessories for contactors									
Auxiliary switch blocks	On front Lateral	3RH5921 3RH5921		(p. 1/18) (p. 1/18)					
Terminal covers		3RT5966-4EA1		(p. 1/18)	3RT5966-4EA1		(p. 1/18)		
3RU51 thermal overload relays									
3RU51 thermal overload relays, CLASS 10		3RU5156		(Ch. 3)	3RU5166		(Ch. 3)	3RU5176	(Ch. 3)

Overview

Sizes S00 to S12, up to 250 kW



Standards

IEC 60947-1,
IEC 60947-4-1,
IEC 60947-5-1 (auxiliary switches)

3RT6 contactors are finger-safe according to EN 50274.

Auxiliary contact complement

Size S00 contactors have an auxiliary contact integrated in the basic unit. The basic units size S0 contain two integrated auxiliary contacts (1 NO + 1 NC).

Size S2/S3 contactors have no auxiliary contact integrated.

Size S6/S10/S12 contactors contain 4 integrated auxiliary contacts (2 NO + 2 NC).

All basic units (except coupling contactors) can be extended with auxiliary switch blocks:

- For sizes S00/S0/S2/S6/S10/S12, additional auxiliary switches with a maximum of four auxiliary contacts can be mounted.
- For size S3, additional auxiliary switches with a maximum of eight auxiliary contacts can be mounted.
- Of the maximum number of auxiliary contacts (integrated plus mountable) possible on the device, no more than four NC contacts are permitted.

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	
	□□□	□	□	□	□	-	□	□	□	□	
Power contactors	3 RT										
SIRIUS	5/6										
Device type (0 = 3-pole motor contactor)	0										
Contactor size (1 = S00, 2 = S0, 3 = S2, 4 = S3, 5 = S6, etc.)	□										
Power dependent on size (e. g. 27 = 15 kW)	□										
Connection type (1 = screw)	1										
Operating range / solenoid coil circuit (e. g. A = AC standard / without)	□										
Rated control supply voltage (e. g. P0 = 230 V, 50 Hz)	□ □										
Auxiliary switches (e. g. S0: 0 = 1 NO + 1 NC integrated)	□										
Example	3 RT	6	0	2	7	-	1	A	P	0 0	

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Contact reliability

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the 3RT6 contactor or 3RH61 contactor relay should be used as they guarantee a high level of contact reliability.

Connection methods

The 3RT6/3RT5 contactors are available with screw terminals.

Ratings of three-phase motors

The quoted rating (in kW) refers to the output power on the motor shaft (according to the nameplate).

Control supply voltage

Contactors S00 to S3 are available as versions for AC or DC operations.

Contactors S6 to S12 are available as AC/DC versions.

Surge suppression

The contactors S00-S3 can be equipped with surge suppressors like varistors, RC-elements or diode combinations.

Contactors S6-S12 are already equipped with varistor surge suppressors.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are equipped with surge suppressors (diode 6 to 10 times; diode assembly 2 to 6 times, varistor and suppressor diode +2 to 5 ms).

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

SIRIUS 3RT60/3RT50 contactors, 3-pole, 3 ... 250 kW


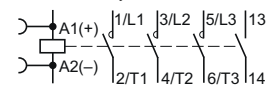
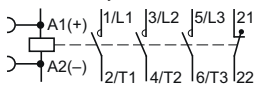
1

Selection and ordering data

AC operation, screw terminals



3RT601.-1A...

Rated data			Auxiliary contacts	Rated control supply voltage U_s at 50/60 Hz	Article No.
AC-2 and AC-3, T_U : Up to 60 °C Operational current I_e up to 400 V A	Rating of three-phase motors at 50 Hz and 400 V kW	AC-1, T_U : 40 °C Operational current I_e up to 690 V A	Ident. No.	Version	
				 NO NC V AC	
For screw and snap-on mounting onto TH 35 standard mounting rail					
Size S00¹⁾					
• With auxiliary contact 1 NO, Ident. No. 10			• With auxiliary contact 1 NC, Ident. No. 01		
 7 3 18				 10 1 -- 24 110 220	3RT6015-1AB01 3RT6015-1AF01 3RT6015-1AN21
			01	-- 1 24 110 220	3RT6015-1AB02 3RT6015-1AF02 3RT6015-1AN22
9	4	22	10	1 -- 24 110 220	3RT6016-1AB01 3RT6016-1AF01 3RT6016-1AN21
			01	-- 1 24 110 220	3RT6016-1AB02 3RT6016-1AF02 3RT6016-1AN22
12	5.5	22	10	1 -- 24 110 220	3RT6017-1AB01 3RT6017-1AF01 3RT6017-1AN21
			01	-- 1 24 110 220	3RT6017-1AB02 3RT6017-1AF02 3RT6017-1AN22
16	7.5	22	10	1 -- 24 110 220	3RT6018-1AB01 3RT6018-1AF01 3RT6018-1AN21
			01	-- 1 24 110 220	3RT6018-1AB02 3RT6018-1AF02 3RT6018-1AN22

¹⁾ For size S00: Coil operating range at 50 Hz: $0.8 \dots 1.1 \times U_s$, at 60 Hz: $0.85 \dots 1.1 \times U_s$.

Other voltages according to page 1/12 on request.

For accessories see page 1/18.

AC operation, screw terminals

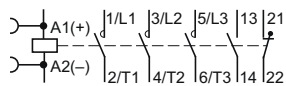


3RT602.-1A..0

Rated data		AC-1, T_U : 40 °C Operational current I_e up to 690 V	Auxiliary contacts		Rated control supply voltage U_s at 50/60 Hz	Article No.
AC-2 and AC-3, T_U : Up to 60 °C Operational current I_e up to 400 V	Rating of three-phase motors at 50 Hz and 400 V kW		Ident. No.	Version		
A		A		NO NC	V AC	

For screw and snap-on mounting onto TH 35 standard mounting rail

Size S0



9	4	40	11	1	1	24 110 220	3RT6023-1AC20 3RT6023-1AG20 3RT6023-1AN20
12	5.5	40	11	1	1	24 110 220	3RT6024-1AC20 3RT6024-1AG20 3RT6024-1AN20
17	7.5	40	11	1	1	24 110 220	3RT6025-1AC20 3RT6025-1AG20 3RT6025-1AN20
25	11	40	11	1	1	24 110 220	3RT6026-1AC20 3RT6026-1AG20 3RT6026-1AN20
32	15	50	11	1	1	24 110 220	3RT6027-1AC20 3RT6027-1AG20 3RT6027-1AN20
38	18.5	50	11	1	1	24 110 220	3RT6028-1AC20 3RT6028-1AG20 3RT6028-1AN20

Other voltages [according to page 1/12](#) on request.

For accessories [see page 1/18](#).

For spare parts [see page 1/20](#).

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

SIRIUS 3RT60/3RT50 contactors, 3-pole, 3 ... 250 kW

AC operation, screw terminals



3RT503.-1A..0



3RT504.-1A..0

Rated data			Auxiliary contacts		Rated control supply voltage U_s at 50/60 Hz		Article No.
AC-2 and AC-3, T_U : Up to 60 °C	Rating of three-phase motors at 50 Hz and	AC-1, T_U : 40 °C	Operational current I_e up to	Ident. No.	Version		
500 V	400 V	690 V	A			V AC	
	kW	A		NO	NC		
For screw and snap-on mounting onto TH 35 standard mounting rail							
Size S2							
32	15	50	--	--	--	24 110 220	3RT5034-1AC20 3RT5034-1AG20 3RT5034-1AN20
40	18.5	60	--	--	--	24 110 220	3RT5035-1AC20 3RT5035-1AG20 3RT5035-1AN20
50	22	60	--	--	--	24 110 220	3RT5036-1AC20 3RT5036-1AG20 3RT5036-1AN20
For screw and snap-on mounting onto TH 35 and TH 75 standard mounting rail							
Size S3							
65	30	100	--	--	--	24 110 220	3RT5044-1AC20 3RT5044-1AG20 3RT5044-1AN20
80	37	120	--	--	--	24 110 220	3RT5045-1AC20 3RT5045-1AG20 3RT5045-1AN20
95	45	120	--	--	--	24 110 220	3RT5046-1AC20 3RT5046-1AG20 3RT5046-1AN20

Other voltages [according to page 1/12](#) on request.

For accessories [see page 1/18](#).

For spare parts [see page 1/20](#).

DC operation, screw terminals

3RT601.-1B.40

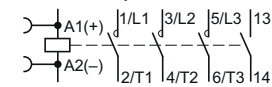


3RT602.-1B.40

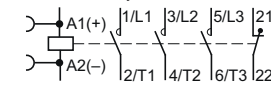
Rated data		AC-1, T_U : 40 °C Operational current I_e up to 690 V	Auxiliary contacts		Rated control supply voltage U_s	Article No.
AC-2 and AC-3, T_U : Up to 60 °C Operational current I_e up to 400 V	Rating of three-phase motors at 50 Hz and 400 V kW		Ident. No.	Version		
A		A		NO NC	V DC	

For screw and snap-on mounting onto TH 35 standard mounting rail**Size S00**

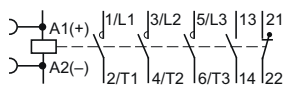
- With auxiliary contact 1 NO, Ident. No. **10**

7 **3** 18

- With auxiliary contact 1 NC, Ident. No. **01**

**10** 1 -- 24

						3RT6015-1BB41 3RT6015-1BM41
			01	--	1	24 220
9	4	22	10	1	--	24 220
			01	--	1	24 220
12	5.5	22	10	1	--	24 220
			01	--	1	24 220
16	7.5	22	10	1	--	24 220
			01	--	1	24 220

For screw and snap-on mounting onto TH 35 standard mounting rail**Size S0**9 **4** 40

			11	1	1	24	3RT6023-1BB40
12	5.5	40	11	1	1	24 220	3RT6024-1BB40 3RT6024-1BM40
17	7.5	40	11	1	1	24 220	3RT6025-1BB40 3RT6025-1BM40
25	11	40	11	1	1	24 220	3RT6026-1BB40 3RT6026-1BM40
32	15	50	11	1	1	24 220	3RT6027-1BB40 3RT6027-1BM40
38	18.5	50	11	1	1	24 220	3RT6028-1BB40 3RT6028-1BM40

Other voltages [according to page 1/12](#) on request.For accessories [see page 1/18](#).

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

SIRIUS 3RT60/3RT50 contactors, 3-pole, 3 ... 250 kW



DC operation, screw terminals



3RT503.-1B.40

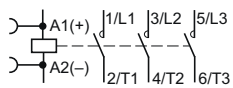


3RT504.-1B.40

Rated data			Auxiliary contacts	Rated control supply voltage U_s	Article No.
AC-2 and AC-3, T_U : Up to 60 °C		AC-1, T_U : 40 °C	Ident. No.		
Operational current I_e up to	Rating of three-phase motors at 50 Hz and	Operational current I_e up to	Version		
500 V	400 V	690 V	 		
A	kW	A	NO NC	V DC	

For screw and snap-on mounting onto TH 35 standard mounting rail

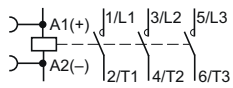
Size S2



32	15	50	--	--	--	24 220	3RT5034-1BB40 3RT5034-1BM40
40	18.5	60	--	--	--	24 220	3RT5035-1BB40 3RT5035-1BM40
50	22	60	--	--	--	24 220	3RT5036-1BB40 3RT5036-1BM40

For screw and snap-on mounting onto TH 35 and TH 75 standard mounting rail

Size S3



65	30	100	--	--	--	24 220	3RT5044-1BB40 3RT5044-1BM40
80	37	120	--	--	--	24 220	3RT5045-1BB40 3RT5045-1BM40
95	45	120	--	--	--	24 220	3RT5046-1BB40 3RT5046-1BM40

Other voltages [according to page 1/12](#) on request.

For accessories [see page 1/18](#).

For spare parts [see page 1/20](#).

UC operating mechanism - AC/DC operation (50/60 Hz and DC)

- Withdrawable coils with integrated surge suppressor (varistor)
- Control circuit: Screw terminals
- Main circuit: Busbar connections, for 3RT5054 (55 kW) box terminals



3RT5054-1A.36



3RT5055-6A.36



3RT506-.6A.36



3RT507-.6A.36

Rated data		AC-1, T_U : 40 °C		Auxiliary contacts, lateral		Rated control supply voltage U_s		Article No.	
AC-2 and AC-3, T_U : Up to 60 °C		Operational current I_e up to		Operational current I_e up to		Version			
500 V	Ratings of three-phase motors at 50 Hz and	230 V	400 V	500 V	690 V	690 V	NO	NC	V AC/DC
A	kW	kW	kW	kW	kW	A			
Conventional operating mechanisms									
Size S6									
115	37	55	75	110	160	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5054-1AB36 3RT5054-1AF36 3RT5054-1AP36
150	45	75	90	132	185	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5055-6AB36 3RT5055-6AF36 3RT5055-6AP36
185	55	90	110	160	215	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5056-6AB36 3RT5056-6AF36 3RT5056-6AP36
Size S10									
225	55	110	160	200	275	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5064-6AB36 3RT5064-6AF36 3RT5064-6AP36
265	75	132	160	250	330	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5065-6AB36 3RT5065-6AF36 3RT5065-6AP36
300	90	160	200	250	330	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5066-6AB36 3RT5066-6AF36 3RT5066-6AP36
Size S12									
400	132	200	250	400	430	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5075-6AB36 3RT5075-6AF36 3RT5075-6AP36
500	160	250	355	400	610	2	2	23 ... 26 110 ... 127 220 ... 240	3RT5076-6AB36 3RT5076-6AF36 3RT5076-6AP36

Other voltages [according to page 1/12](#) on request.
 For accessories [see page 1/18](#).
 For spare parts [see page 1/20](#).

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

SIRIUS 3RT60/3RT50 contactors, 3-pole, 3 ... 250 kW

Options

Rated control supply voltages, possible on request (change of 10th and 11th digit of the Article No.)

Rated control supply voltage U_s	Contactor type	3RT601, 3RH61	3RT602, 3RT503, 3RT504
------------------------------------	-----------------------	----------------------	-------------------------------

Sizes S00 to S3

AC operation

Solenoid coils for 50 Hz¹⁾

24 V AC	B0	B0
48 V AC	H0	H0
110 V AC	F0	F0
220 V AC	N2	M0
230 V AC	P0	P0
380 V AC	Q0	Q0

Solenoid coils for 50 and 60 Hz¹⁾

24 V AC	B0	C2
48 V AC	H0	
110 V AC	F0	G2
220 V AC	N2	N2
230 V AC	P0	L2
400 V AC 50 Hz/440 V AC 60 Hz	R6	R6

DC operation

24 V DC	B4	B4
48 V DC	W4	W4
110 V DC	F4	F4
220 V DC	M4	M4

Examples

AC operation	3RT60 23-1AN20	With solenoid coil for 50/60 Hz for rated control supply voltage 220 V AC
DC operation	3RT50 34-1BB40	For rated control supply voltage 24 V DC

Rated control supply voltage U_s	Contactor type	3RT5. 5.-.A
		3RT5. 6.-.A
		3RT5. 7.-.A

$U_{s \min} \dots U_{s \max}$ ²⁾

Sizes S6 to S12

AC/DC operation (50/60 Hz AC, DC)

23 ... 26 V AC/DC	B3
42 ... 48 V AC/DC	D3
110 ... 127 V AC/DC	F3
200 ... 220 V AC/DC	M3
220 ... 240 V AC/DC	P3
240 ... 277 V AC/DC	U3
380 ... 420 V AC/DC	V3
440 ... 480 V AC/DC	R3

¹⁾ Coil operating range:
at 50 Hz: 0.8 to 1.1 × U_s

²⁾ Operating range:
0.8 × $U_{s \min}$ to 1.1 × $U_{s \max}$

DC operation, screw terminals

- low consumption
- extended operating range, integrated surge suppressor



3RT601.-1K.4.



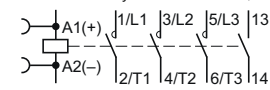
3RT602.-1K.40

Rated data		AC-1, T_U : 40 °C Operational current I_e up to 690 V	Auxiliary contacts		Rated control supply voltage U_s	Article No.
AC-2 and AC-3, T_U : Up to 60 °C Operational current I_e up to 400 V	Rating of three-phase motors at 50 Hz and 400 V kW		Ident. No.	Version		
A		A		NO NC	V DC	

For screw and snap-on mounting onto TH 35 standard mounting rail**Size S00**

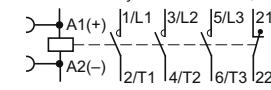
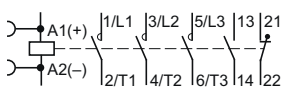
(No auxiliary contact block can be added)

- With auxiliary contact 1 NO, Ident. No. **10**



7 3 18

- With auxiliary contact 1 NC, Ident. No. **01**

**10** 1 -- 24
110**01** -- 1 24
1109 4 22 **10** 1 -- 24
110**01** -- 1 24
11012 5.5 22 **10** 1 -- 24
110**01** -- 1 24
110**For screw and snap-on mounting onto TH 35 standard mounting rail****Size S0**17 7.5 40 **11** 1 1 24
11025 11 40 **11** 1 1 24
11032 15 50 **11** 1 1 24
110**3RT6015-1KB41****3RT6015-1KF41****3RT6015-1KB42****3RT6015-1KF42****3RT6016-1KB41****3RT6016-1KF41****3RT6016-1KB42****3RT6016-1KF42****3RT6017-1KB41****3RT6017-1KF41****3RT6017-1KB42****3RT6017-1KF42****3RT6025-1KB40****3RT6025-1KF40****3RT6026-1KB40****3RT6026-1KF40****3RT6027-1KB40****3RT6027-1KF40**






Switching Devices



SIRIUS 3RT6/3RT5 Contactors

Link modules

1

Selection and ordering data

	For contactors Type	Size	Contactor clearance mm	Interlocking	Version	Article No.
Mechanical interlocks						
 <p>3RA1924-1A mounted onto two contactors</p>	3RT104 3RT134 3RT144	S3	5	Laterally mountable ¹⁾	Each with one auxiliary contact (1 NC contact) per contactor (can only be used to connect contactors which are not more than 1 size larger or smaller. The mounting depth of the smaller contactor has to be adapted.)	3RA1924-2B
	3RT104	S3	0	Can be mounted onto the front ²⁾	Onto contactor sizes S2 and S3 (for contactors of the same size) <u>Note:</u> Use 3RA1932-2C mechanical connectors, see below	3RA1924-1A
 <p>3RA1954-2A</p>	3RT1.5 3RT1.6 3RT1.7	S6 S10 S12	10	Laterally mountable	without auxiliary contacts; contactor sizes S6, S10 and S12 can be interlocked with each other as required; no adaptation of mounting depth is necessary	3RA1954-2A
	3RT104.-A with 3RT105	S3 with S6	10	Laterally mountable	For mechanical interlocking of S3 contactor (for AC operation only) with S6 contactor via 3RA1954-2A (must be ordered separately, see above) including connectors	3RA1954-2C
Mechanical connectors						
 <p>3RA1932-2D</p>	3RT1.4	S3-S3	0	Lateral	For 3-pole contactors (1 unit corresponds to 2 parts for 1 assembly)	3RA1932-2C
	 <p>3RA1932-2D</p>	3RT1.4 3RT1.5	S3-S3 S6-S6	10	Lateral	For 3-pole contactors (1 unit corresponds to 2 parts for 1 assembly)
 <p>3RA1942-2G</p>		3RT1.4	S3-S3	10	Lateral	For 4-pole contactors (1 unit corresponds to 2 parts for 1 assembly)

For contactors Type	Size	Version	Article No.	
Mechanical interlock assembly kits for two contactors for making 3 and 4-pole contactor assemblies				
 3RA29.2-2H	3RT201, 3RT231	S00-S00	Interlock assembly kits for lateral interlocking <ul style="list-style-type: none"> Interlock assembly kits without contactor clearance The connectors comprise a mechanical interlock and two connecting clips. 	3RA2912-2H
	3RT202, 3RT232	S0-S0	<ul style="list-style-type: none"> Interlock assembly kits without contactor clearance The connectors comprise a mechanical interlock and two connecting clips. 	3RA2922-2H
	3RT203	S2-S2	<ul style="list-style-type: none"> Connectors without contactor clearance for 3-pole design (two connectors are required per assembly) Connectors with 10 mm contactor clearance for 3-pole design (two connectors are required per assembly) 	3RA2932-2C 3RA2932-2D
	3RT233	S2-S2	<ul style="list-style-type: none"> Connectors with 20 mm contactor clearance for 4-pole design (two connectors are required per assembly) 	3RA2932-2G
	3RT203	S2-S2-S0, S2-S2-S2	Mechanical interlocks Note: For size S2, the mechanical interlock must be ordered separately	3RA2934-2B
Assembly kits¹⁾ for contactor assemblies for star-delta (wye-delta) starting for making 3-pole contactor assemblies				
 3RA2923-2BB1 3RA2924-2BB1	3RT201	S00-S00-S00	The assembly kit contains: Mechanical interlock, four connecting clips for three contactors; a star jumper, wiring modules on the top and bottom <ul style="list-style-type: none"> For main, auxiliary and control circuits 	3RA2913-2BB1
	3RT202	S0-S0-S0	The assembly kit contains: Mechanical interlock, four connecting clips for three contactors, a star jumper, wiring modules on the top and bottom <ul style="list-style-type: none"> For main, auxiliary and control circuits 	3RA2923-2BB1
	3RT202	S0-S0-S0	The assembly kit contains: Mechanical interlock, four connecting clips for three contactors, wiring modules on the top and bottom, three-phase infeed terminals <ul style="list-style-type: none"> For main, auxiliary and control circuits 	3RA2924-2BB1

¹⁾ When using the function modules for contactor assemblies for star-delta (wye-delta) starting, the wiring modules for the auxiliary current are not required.

Switching Devices

SIRIUS 3RT6/3RT5 Contactors


Modules for contactor control

1

Selection and ordering data



3RA2816-0EW20

For contactors	Size	Version	Rated control supply voltage U_s ¹⁾	Time setting range t	Screw terminals 
Type			V AC/DC	s	Article No.
3RA28 function modules for mounting on 3RT2 contactors and 3RH2 contactor relays					

For star-delta (wye-delta) starting

3RT201., 3RT202., 3RT203. ²⁾	S00 ... S2	Varistor integrated	24 ... 240	0.5 ... 60 (10, 30, 60; selectable)	3RA2816-0EW20
-----------------------------------------------	------------	---------------------	------------	----------------------------------------	----------------------

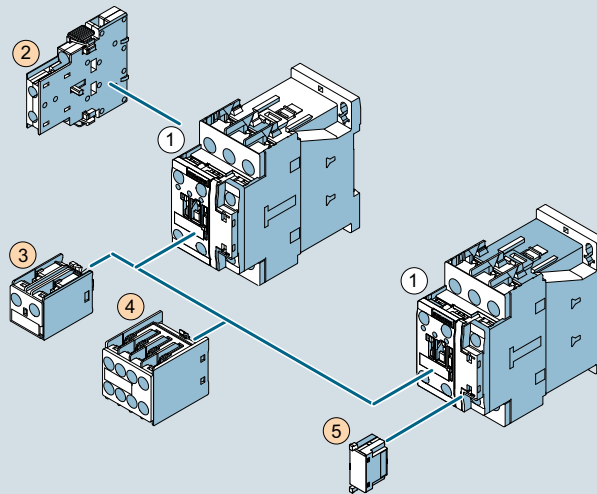
The electrical connection between the function module and the contactor assembly is established automatically by snapping on and plugging in the connecting cables.

Note:

When using the function modules for contactor assemblies for star-delta (wye-delta) starting, no other auxiliary switches are allowed to be connected to the basic units.

¹⁾ AC voltage values apply for 50 Hz and 60 Hz.

²⁾ Cannot be fitted onto coupling relays.

Overview**3RT6 contactors and coupling contactors
Size S0 with mountable accessories**

- ① Contactor size S0
- ② 2-pole auxiliary switch block, laterally mountable
- ③ 1-pole auxiliary switch block, for snapping onto the front
Cable entry from the top
- ④ 4-pole auxiliary switch block, for snapping onto the front
- ⑤ Surge suppressor






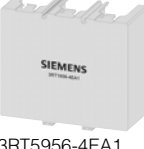
Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Accessories

1

Selection and ordering data

For contactors / contactor relays		Auxiliary contacts Version		Article No.
Type		NO	NC	
Auxiliary switch blocks for snapping onto the front				
 3RH6911-1HA22	Sizes S00 and S0			
	3RT6.1., 3RT6.2.	4-pole auxiliary switch blocks		3RH6911-1HA22
	3RH61, 3RH64	2-pole auxiliary switch blocks		3RH6911-1HA11
 3RH6911-1AA01		2	2	
		1	1	3RH6911-1AA10
	1	--		
Sizes S2 and S3				
 3RH5921-1FA22	3RT5.3, 3RT5.4	4-pole auxiliary switch blocks		3RH5921-1FA22
		2	2	
Sizes S2 to S12				
 3RH5921-1CA..	3RT5.3 ... 3RT5.7	1-pole auxiliary switch blocks		3RH5921-1CA10
		1	--	3RH5921-1CA01
	--	1		
Laterally mountable auxiliary switch blocks, mounting on the right and/or on the left				
 3RH6921-1DA..	Size S00			
	3RT6.1.	--	2	3RH6911-1DA02
		1	1	3RH6911-1DA11
	2	--		3RH6911-1DA20
Size S0				
3RT6.2.	--	2		3RH6921-1DA02
	1	1		3RH6921-1DA11
	2	--		3RH6921-1DA20
Sizes S2 to S12				
3RT5.3 ... 3RT5.7	1	1		3RH5921-1EA11
For contactors		Version		Article No.
Size	Type			
Covers				
 3RT5946-4EA1	Terminal covers for cable lugs and busbar connection¹⁾			
	For complying with the phase clearances and as touch protection if box terminal is removed (2 units required per contactor)			
	S3	3RT504	--	
S6	3RT5.5			3RT5956-4EA1
S10/S12	3RT5.6, 3RT5.7			3RT5966-4EA1

¹⁾ Also fits on contactors S6 to S12 with box terminals.

For contactors	Version	Rated control supply voltage U_s ¹⁾		Article No.
		AC operation	DC operation	
Type		V AC	V DC	

Surge suppressors

Size S00

For plugging onto the front side of the contactors
(with and without auxiliary switch block)

3RT6.1, 3RH6.	Varistor	24 ... 48	24 ... 70	3RT6916-1BB00 3RT6916-1BC00 3RT6916-1BD00 3RT6916-1BE00 3RT6916-1BF00
		48 ... 127	70 ... 150	
		127 ... 240	150 ... 250	
		240 ... 400	--	
		400 ... 600	--	
3RT6.1, 3RH6.	RC elements	24 ... 48	24 ... 70	3RT6916-1CB00 3RT6916-1CC00 3RT6916-1CD00 3RT6916-1CE00 3RT6916-1CF00
		48 ... 127	70 ... 150	
		127 ... 240	150 ... 250	
		240 ... 400	--	
		400 ... 600	--	
3RT6.1, 3RH6.	Diodes	--	12 ... 250	3RT6916-1DG00
3RT6.1, 3RH6.	Diode assemblies (diode and Zener diode) for DC operation	--	12 ... 250	3RT6916-1EH00

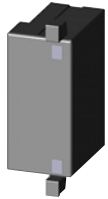


3RT6916-1B.00

Size S0

For plugging onto the front side of the contactors
(prior to mounting of the auxiliary switch block)

3RT6.2	Varistor	24 ... 48	24 ... 70	3RT6926-1BB00 3RT6926-1BC00 3RT6926-1BD00 3RT6926-1BE00 3RT6926-1BF00
		48 ... 127	70 ... 150	
		127 ... 240	150 ... 250	
		240 ... 400	--	
		400 ... 600	--	
3RT6.2	RC elements	24 ... 48	24 ... 70	3RT6926-1CB00 3RT6926-1CC00 3RT6926-1CD00 3RT6926-1CE00 3RT6926-1CF00
		48 ... 127	70 ... 150	
		127 ... 240	150 ... 250	
		240 ... 400	--	
		400 ... 600	--	
3RT6.2	Diode assembly for DC operation	--	24	3RT6926-1ER00 3RT6926-1ES00
		--	30 ... 250	



3RT6926-1E.00

Sizes S2 and S3

For fitting onto the coil terminals at top or bottom

3RT5.3, 3RT5.4	Varistor	24 ... 48	24 ... 70	3RT5926-1BB00 3RT5926-1BC00 3RT5926-1BD00 3RT5926-1BE00 3RT5926-1BF00
		48 ... 127	70 ... 150	
		127 ... 240	150 ... 250	
		240 ... 400	--	
		400 ... 600	--	
3RT5.3 ²⁾ , 3RT5.4	RC elements	24 ... 48	24 ... 70	3RT5936-1CB00 3RT5936-1CC00 3RT5936-1CD00 3RT5936-1CE00 3RT5936-1CF00
		48 ... 127	70 ... 150	
		127 ... 240	150 ... 250	
		240 ... 400	--	
		400 ... 600	--	
3RT5.3, 3RT5.4	Diode assembly for DC operation	--	24	3RT5936-1ER00 3RT5936-1ES00 3RT5936-1TR00 3RT5936-1TS00
		--	30 ... 250	
		--	24	
		--	30 ... 250	
		--	30 ... 250	



3RT5926-1B.00



3RT5936-1C.00

Sizes S6 to S12

For connecting to withdrawable coil for contactors with
• conventional operating mechanism 3RT5...-A...
• solid-state operating mechanism 3RT5...-N...

3RT5.5, 3RT5.6, 3RT5.7	RC elements	24 ... 48	24 ... 70	3RT5956-1CB00 3RT5956-1CC00 3RT5956-1CD00 3RT5956-1CE00 3RT5956-1CF00
		48 ... 127	70 ... 150	
		127 ... 240	150 ... 250	
		240 ... 400	--	
		400 ... 600	--	



3RT5956-1C.00

¹⁾ Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

²⁾ For 3RT5.3 with AC operation mountable only at the top.





Switching Devices


SIRIUS 3RT6/3RT5 Contactors

Spare parts

1

Selection and ordering data

Size	Type	Rated control supply voltage U_s				Article No.		
		AC			DC			
		50 Hz V	50/60 Hz V	60 Hz V	V			
Solenoid coils - AC operation								
	S0	3RT6023,	--	24	--	--	3RT6924-5AC21 3RT6924-5AG21 3RT6924-5AN21	
		3RT6024,	--	110	--	--		
		3RT6025	--	220	--	--		
	3RT6924-5A.01		3RT6026,	--	24	--	--	3RT6926-5AC21 3RT6926-5AG21 3RT6926-5AN21
			3RT6027,	--	110	--	--	
			3RT6028	--	220	--	--	
	S2	3RT5034	--	24	--	--	3RT5934-5AC21 3RT5934-5AG21 3RT5934-5AN21	
			--	110	--	--		
			--	220	--	--		
	3RT5934-5A.01		3RT5035,	--	24	--	--	3RT5935-5AC21 3RT5935-5AG21 3RT5935-5AN21
			3RT5036,	--	110	--	--	
				--	220	--	--	
	S3	3RT5044	--	24	--	--	3RT5944-5AC21 3RT5944-5AG21 3RT5944-5AN21	
			--	110	--	--		
			--	220	--	--		
	3RT5944-5A.01		3RT5045,	--	24	--	--	3RT5945-5AC21 3RT5945-5AG21 3RT5945-5AN21
			3RT5046	--	110	--	--	
				--	220	--	--	
Solenoid coils - DC operation								
	S2	3RT503	--	--	--	24	3RT5934-5BB41 3RT5934-5BM41	
			--	--	--	220		
	S3	3RT504	--	--	--	--	24	3RT5944-5BB41 3RT5944-5BM41
			--	--	--	--	220	
3RT5944-5B.41								

Size	Type	Rated control supply voltage		Article No.
		$U_{s \text{ min}}$	$U_{s \text{ max}}$	
		V AC/DC		
Solenoid coils - Withdrawable coils				
Conventional operating mechanisms				
	S6	3RT505	23 ... 26	3RT5955-5AB31 3RT5955-5AF31 3RT5955-5AP31
			110 ... 127	
			220 ... 240	
3RT5955-5A.1	S10	3RT506	23 ... 26	3RT5965-5AB31 3RT5965-5AF31 3RT5965-5AP31
			110 ... 127	
			220 ... 240	
	S12	3RT507	23 ... 26	3RT5975-5AB31 3RT5975-5AF31 3RT5975-5AP31
			110 ... 127	
			220 ... 240	

Note:

Contactors with AC and DC coils have different depths. That is why when replacing coils it is only possible to replace AC coils with AC coils and DC coils with DC coils.

Technical specifications

Endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching resistive and inductive AC loads (AC-1/AC-3) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched randomly, i. e. not synchronized with the phase angle of the supply system.

The rated operational current I_e complies with utilization category AC-4 (breaking six times the rated operational current) and is intended for a contact endurance of at least 200 000 operating cycles.

If a shorter contact endurance is sufficient, the rated operational current $I_e/AC-4$ can be increased.

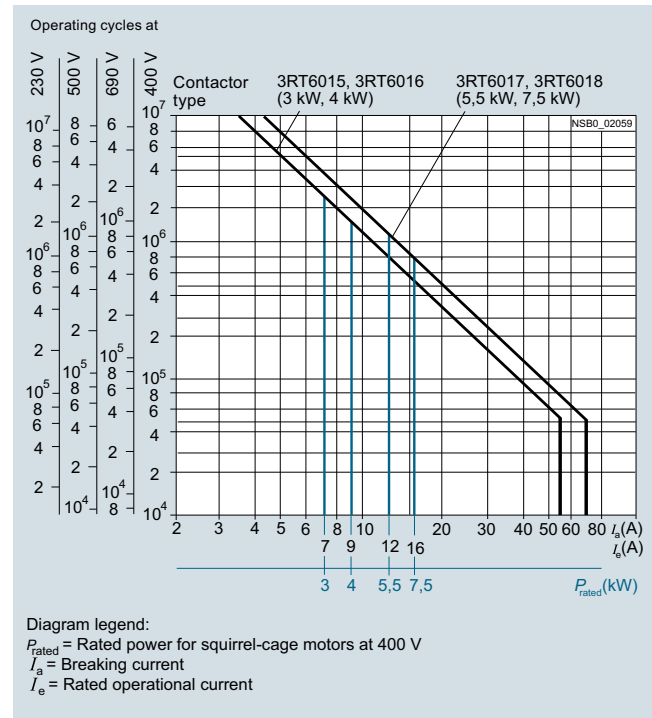
If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

$$X = \frac{A}{1 + \frac{C}{100} \left(\frac{A}{B} - 1 \right)}$$

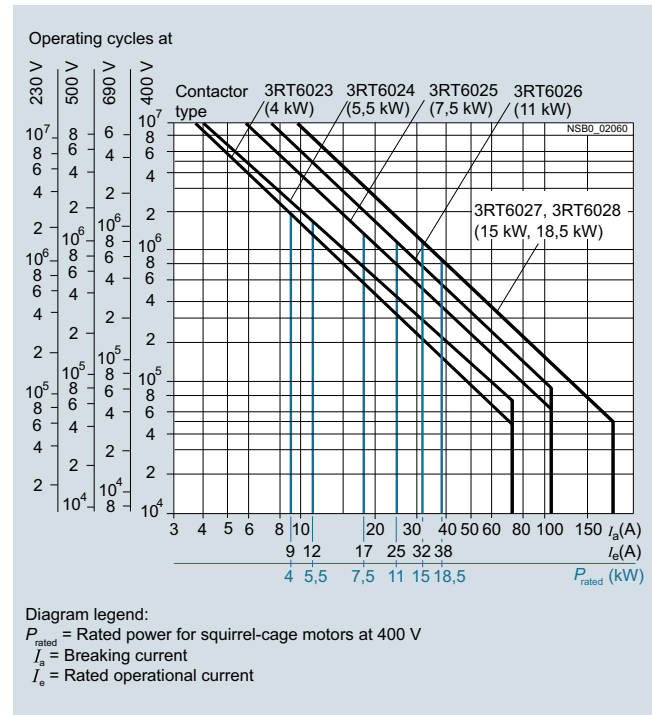
Characters in the equation:

- X Contact endurance for mixed operation in operating cycles
- A Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- B Contact endurance for inching ($I_a = \text{multiple of } I_e$) in operating cycles
- C Inching operations as a percentage of total switching operations

Size S00



Size S0



Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Technical specifications

1

Size S2

Operating cycles at

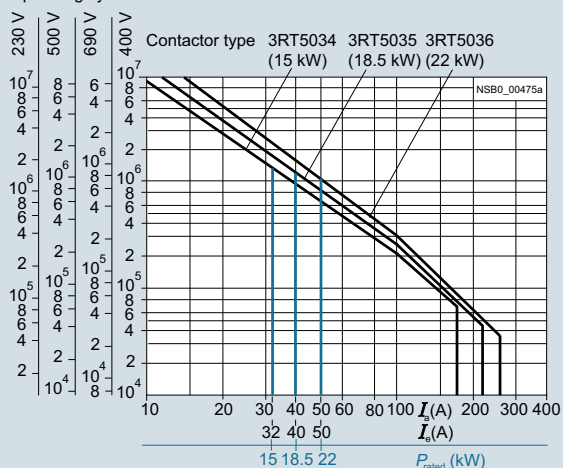


Diagram legend:

- P_{rated} = Rated power for squirrel-cage motors at 400 V
- I_a = Breaking current
- I_e = Rated operational current

Size S3

Operating cycles at

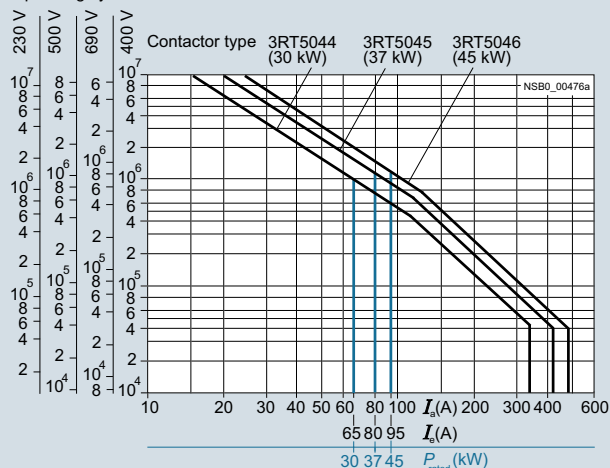


Diagram legend:

- P_{rated} = Rated power for squirrel-cage motors at 400 V
- I_a = Breaking current
- I_e = Rated operational current

Sizes S6 to S12

Operating cycles at

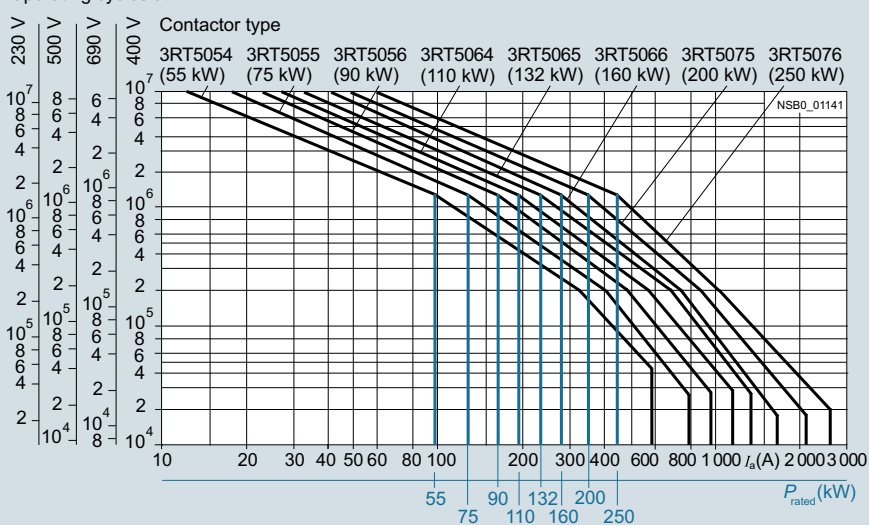


Diagram legend:

- P_{rated} = Rated power for squirrel-cage motors at 400 V
- I_a = Breaking current
- I_e = Rated operational current

Type	3RT6/3RT5		
Size	S00 to S12		
Rated data of the auxiliary contacts			
Acc. to IEC 60947-5-1 The data apply to integrated auxiliary contacts and contacts in the auxiliary switch blocks for contactor sizes S00 to S0			
Rated insulation voltage U_i (pollution degree 3)	V	690, for laterally mountable auxiliary switch blocks, only the rated operational voltages up to 500 V apply	
Conventional thermal current I_{th} = Rated operational current $I_e/AC-12$	A	10	
AC load			
Rated operational current $I_e/AC-15/AC-14$			
• For rated operational voltage U_e	Up to 230 V	A	6
	380 V	A	3
	400 V	A	3
	500 V	A	2
	660 V ²⁾	A	1
	690 V ²⁾	A	1
DC load			
Rated operational current $I_e/DC-12$			
• For rated operational voltage U_e	24 V	A	6
	60 V	A	6
	110 V	A	3
	125 V	A	2
	220 V	A	1
	440 V	A	0.3
	600 V ²⁾	A	0.15
Rated operational current $I_e/DC-13$			
• For rated operational voltage U_e	24 V	A	6
	60 V	A	2
	110 V	A	1
	125 V	A	0.9
	220 V	A	0.3
	440 V	A	0.14
	600 V ²⁾	A	0.1
Contact reliability at 17 V, 5 mA according to IEC 60947-5-4		Frequency of contact faults < 10^{-8} i.e. < 1 fault per 100 million operating cycles	

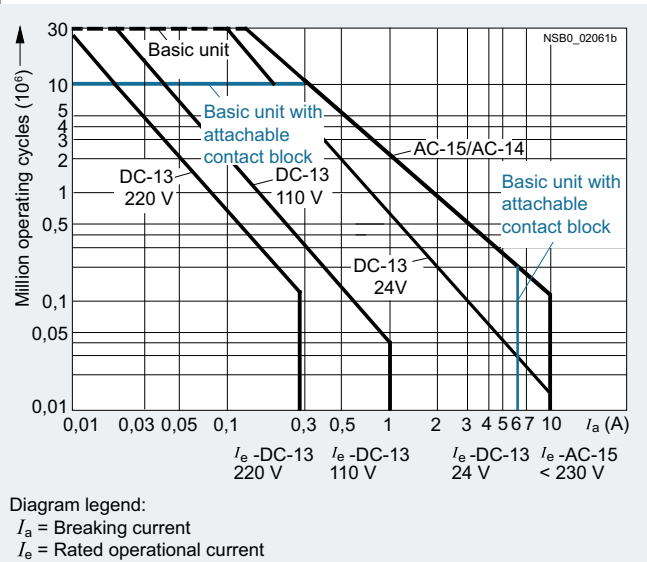
Endurance of the auxiliary contacts

It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The contact endurance is mainly dependent on the breaking current.

The characteristic curves apply to:

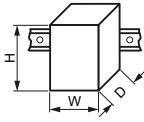
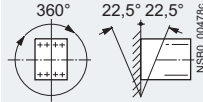
- Integrated auxiliary contacts on 3RT60
- 3RH6911, 3RH6921 auxiliary switch blocks¹⁾



Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Technical specifications


Type		3RT6015, 3RT6016	3RT6017, 3RT6018
Size		S00	S00
Dimensions (W x H x D) ¹⁾		45 x 57.5 x 73 / 45 x 70 x 73	
• With mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121
• With mounted function module		mm	45 x 57.5 x 142 / 45 x 70 x 142
General technical specifications			
Permissible mounting position			
The contactors are designed for operation on a vertical mounting surface.			
Mechanical endurance			
• Basic units	Operating cycles	30 million	
• Basic units with snap-on auxiliary switch block	Operating cycles	10 million	
Electrical endurance			
Rated insulation voltage U_i (pollution degree 3)		V	690
Rated impulse withstand voltage U_{imp}		kV	6
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N		V	400
Mirror contacts			
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.			
• 3RT601. (removable auxiliary switch block)		Yes, this applies to both the basic unit as well as to between the basic unit and the mounted auxiliary switch block acc. to IEC 60947-4-1, Appendix F	
Ambient temperature			
• During operation	°C	-25 ... +60	
• During storage	°C	-55 ... +80	
Degree of protection acc. to IEC 60947-1, Appendix C		IP20	
Touch protection acc. to EN 50274		Finger-safe	
Shock resistance rectangular pulse			
• AC operation	g/ms	6.7/5 and 4.2/10	7.3/5 and 4.7/10
• DC operation	g/ms	6.7/5 and 4.2/10	7.3/5 and 4.7/10
Shock resistance sine pulse			
• AC operation	g/ms	10.5/5 and 6.6/10	11.4/5 and 7.3/10
• DC operation	g/ms	10.5/5 and 6.6/10	11.4/5 and 7.3/10
Conductor cross-sections			
		3)	

¹⁾ Dimensions for devices with screw terminals.

²⁾ For contact endurance of the main contacts see page 1/21.

³⁾ For conductor cross-sections, see page 1/25.

Type			3RT6015	3RT6016	3RT6017	3RT6018
Size			S00	S00	S00	S00
Main circuit						
Load rating with AC						
Utilization category AC-1, Switching resistive loads						
• Rated operational current I_e	At 40 °C up to 690 V	A	18	22	22	22
	At 60 °C up to 690 V	A	16	20	20	20
• Rated power for AC loads ¹⁾	230 V	kW	6	7.5	7.5	7.5
P.f. = 0.95 (at 60 °C)	400 V	kW	10.5	13	13	13
	690 V	kW	18	22	22	22
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	2.5	4	4	4
	At 60 °C	mm ²	2.5	2.5	2.5	2.5
Utilization categories AC-2 and AC-3						
• Rated operational currents I_e	Up to 400 V	A	7	9	12	16
	440 V	A	7	9	11	14
	500 V	A	6	7.7	9.2	12.4
	690 V	A	4.9	6.7	6.7	8.9
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz	At 230 V	kW	1.5	2.2	3	4
	400 V	kW	3	4	5.5	7.5
	690 V	kW	4	5.5	5.5	7.5
Thermal load capacity	10 s current ²⁾	A	56	72	96	128
Power loss per conducting path	At I_e /AC-3	W	0.42	0.7	1.24	2.2
Utilization category AC-4 (for $I_a = 6 \times I_e$)						
• Rated operational current I_e , maximum	Up to 400 V	A	6.5	8.5	8.5	11.5
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	Up to 400 V	A	3	4	4	5.5
• The following applies to a contact endurance of about 200 000 operating cycles:						
- Rated operational currents I_e	Up to 400 V	A	2.6	4.1	4.1	5.5
	690 V	A	1.8	3.3	3.3	4.4
- Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 230 V	kW	0.67	1.1	1.1	1.5
	400 V	kW	1.15	2	2	2.5
	690 V	kW	1.15	2.5	2.5	3.5
Switching frequency						
Switching frequency z in operating cycles/hour						
Contactors without overload relays						
• No-load switching frequency	AC/DC	h ⁻¹	10 000			
• Switching frequency z during rated operation ³⁾						
- I_e /AC-1	At 400 V	h ⁻¹	1 000			
- I_e /AC-3	At 400 V	h ⁻¹	750			
- I_e /AC-4	At 400 V	h ⁻¹	250			
Contactors with overload relays						
• Mean value		h ⁻¹	15			
1) Industrial furnaces and electric heaters with resistance heating, etc. (increased power consumption on heating up has been taken into account).			3) Dependence of the switching frequency z' on the operational current I' and operational voltage U': $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$			
2) According to IEC 60947-4-1. Rated values for various start-up conditions see Chapter 7, "Protection Equipment" → "Overload Relays".						

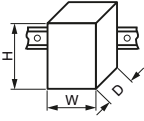
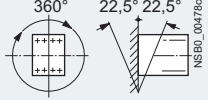
Type			3RT6015	3RT6016	3RT6017	3RT6018
Size			S00	S00	S00	S00
Conductor cross-sections						
Main and auxiliary conductors (1 or 2 conductors can be connected)						
• Solid or stranded	mm ²		 Screw terminals 2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ ; max. 2 x 4			
• Finely stranded with end sleeves (DIN 46228-1)	mm ²		2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾			
• AWG cables, solid or stranded	AWG		2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 2 x 12			
• Terminal screw			M3 (for Pozidriv size 2, Ø 5 ... 6)			
• Tightening torque	Nm		0.8 ... 1.2 (7 ... 10.3 lb.in)			
1) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.						

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Technical specifications

1

Type		3RT6023	3RT6024	3RT6025	3RT6026	3RT6027	3RT6028
Size		S0	S0	S0	S0	S0	S0
Dimensions (W x H x D) for AC operation ¹⁾		mm	45 x 85 x 97 / 45 x 101.5 x 97				
• With mounted auxiliary switch block		mm	45 x 85 x 141 / 45 x 101.5 x 144				
• With mounted function module		mm	45 x 85 x 166 / 45 x 101.5 x 166				
Dimensions (W x H x D) for DC operation ¹⁾		mm	45 x 85 x 107 / 45 x 101.5 x 107				
• With mounted auxiliary switch block		mm	45 x 85 x 151 / 45 x 101.5 x 154				
• With mounted function module		mm	45 x 85 x 176 / 45 x 101.5 x 176				
General data							
Permissible mounting position							
The contactors are designed for operation on a vertical mounting surface.							
Mechanical endurance							
• Basic units	Operating cycles	10 million					
• Basic units with snap-on auxiliary switch block	Operating cycles	10 million					
Electrical endurance							
2)							
Rated insulation voltage U_i (pollution degree 3)	V	690					
Rated impulse withstand voltage U_{imp}	kV	6					
Protective separation between the coil and the main contacts (acc. to IEC 60947-1, Appendix N)	V	400					
Mirror contacts							
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.							
• Integrated auxiliary switches		Yes, acc. to IEC 60947-4-1, Appendix F					
• 3RT602. (removable auxiliary switch block)		Yes, acc. to IEC 60947-4-1, Appendix F					
Permissible ambient temperature							
• During operation	°C	-25 ... +60					
• During storage	°C	-55 ... +80					
Degree of protection acc. to IEC 60947-1, Appendix C		IP20					
Touch protection acc. to EN 50274		Finger-safe					
Shock resistance rectangular pulse							
• AC operation	g/ms	7.5/5 and 4.7/10			8.3/5 and 5.3/10		
• DC operation	g/ms	10/5 and 7.5/10			10/5 and 7.5/10		
Shock resistance sine pulse							
• AC operation	g/ms	11.8/5 and 7.4/10			13.5/5 and 8.3/10		
• DC operation	g/ms	15/5 and 10/10			15/5 and 10/10		
Conductor cross-sections							
3)							


¹⁾ Dimensions for devices with screw terminals.

²⁾ For contact endurance of the main contacts see page 1/21.

Type			3RT6023	3RT6024	3RT6025	3RT6026	3RT6027	3RT6028
Size			S0	S0	S0	S0	S0	S0
Main circuit								
Load rating with AC								
Utilization category AC-1, switching resistive loads								
• Rated operational current I_e	At 40 °C up to 690 V	A	40				50	
	At 60 °C up to 690 V	A	35				42	
• Rated power for AC loads ¹⁾	230 V	kW	13.3				15.5	
P.f. = 0.95 (at 60 °C)	400 V	kW	23				27.5	
	690 V	kW	40				47.5	
• Minimum conductor cross-section for loads with I_e	At 40 °C	mm ²	10				10	
	At 60 °C	mm ²	10				10	
Utilization categories AC-2 and AC-3								
• Rated operational currents I_e	Up to 400 V	A	9	12	17	25	32	38
	440 V	A	9	12	17	22	32	35
	500 V	A	9	12	17	18	32	32
	690 V	A	9	9	13	13	21	21
• Rated power for slipping or squirrel-cage motors at 50 and 60 Hz	At 230 V	kW	2.2	3	4	5.5	7.5	11
	400 V	kW	4	5.5	7.5	11	15	18.5
	690 V	kW	7.5	7.5	11	11	18.5	18.5
Power loss per conducting path								
	At $I_e/AC-3$	W	0.4	0.5	0.9	1.6	2.7	3.8
Utilization category AC-4 (for $I_a = 6 \times I_e$)								
• Rated operational current I_e , max.	Up to 400 V	A	8.5	12.5	15.5	15.5	22	
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 400 V	kW	4	5.5	7.5	7.5	11	
• The following applies to a contact endurance of about 200 000 operating cycles:								
- Rated operational currents I_e	Up to 400 V	A	4.1	5.5	7.7	9	12	
	690 V	A	3.3	5.5	7.7	9	12	
- Rated power for squirrel-cage motors with 50 Hz and 60 Hz	At 110 V	kW	0.5	0.73	1	1.2	1.6	
	230 V	kW	1.1	1.5	2	2.5	3.4	
	400 V	kW	2	2.6	3.5	4.4	6	
	690 V	kW	2.5	4.6	6	7.7	10.3	
Switching frequency								
Switching frequency z in operating cycles/hour								
Contactors without overload relays								
• No-load switching frequency	AC	h ⁻¹	5 000					
	DC	h ⁻¹	1 500					
• Switching frequency z during rated operation ²⁾								
- $I_e/AC-1$	At 400 V	h ⁻¹	1 000					
- $I_e/AC-3$	At 400 V	h ⁻¹	1 000			750		
- $I_e/AC-4$	At 400 V	h ⁻¹	300			250		
Contactors with overload relays								
• Mean value		h ⁻¹	15					

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc. (increased power consumption on heating up has been taken into account).

²⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U' :
 $z' = z \cdot (I_e/I') \cdot (400 V/U')^{1.5} \cdot 1/h$

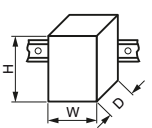
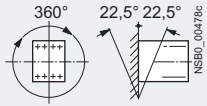
Type			3RT6023	3RT6024	3RT6025	3RT6026	3RT6027	3RT6028
Size			S0	S0	S0	S0	S0	S0
Conductor cross-sections (1 or 2 conductors connectable)								
Main conductors								
 Screw terminals								
Conductor cross-section								
• Solid or stranded		mm ²	2 x (1 ... 2.5) ¹⁾ ; 2 x (2.5 ... 10) ¹⁾					
• Finely stranded with end sleeves (DIN 46228-1)		mm ²	2 x (1 ... 2.5) ¹⁾ ; 2 x (2.5 ... 6) ¹⁾ ; 1 x 10					
• AWG cables, solid or stranded		AWG	2 x (16 ... 12) ¹⁾ ; 2 x (14 ... 8) ¹⁾					
• Terminal screws			M4 (for Pozidriv size 2, Ø 5 ... 6)					
- Tightening torque		Nm	2 ... 2.5 (18 ... 22 lb.in)					
Auxiliary conductors								
• Solid or stranded		mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾ ; 2 x 4					
• Finely stranded with end sleeves (DIN 46228-1)		mm ²	2 x (0.5 ... 1.5) ¹⁾ ; 2 x (0.75 ... 2.5) ¹⁾					
• Solid or stranded AWG (2 x)		AWG	2 x (20 ... 16) ¹⁾ ; 2 x (18 ... 14) ¹⁾ ; 2 x 12					
• Terminal screws			M3 (for Pozidriv size 2, Ø 5 ... 6)					
- Tightening torque		Nm	0.8 ... 1.2 (7 ... 10.3 lb.in)					

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Technical specifications

Type		3RT5034	3RT5035	3RT5036	3RT5044	3RT5045	3RT5046
Size		S2			S3		
Dimensions (W x H x D), AC operation		55 x 112 x 110			70 x 146 x 134		
• With mounted auxiliary switch block		55 x 112 x 159			70 x 146 x 183		
Dimensions (W x H x D), DC operation		55 x 112 x 125			70 x 146 x 147		
• With mounted auxiliary switch block		55 x 112 x 174			70 x 146 x 196		
General data							
Permissible mounting position							
The contactors are designed for operation on a vertical mounting surface.							
For DC operation and up to 22.5° inclination in front, the coil operating range is reduced to 0.85 ... 1.1 x U _S .							
Mechanical endurance							
• Basic units	Operating cycles	10 million					
• Basic units with snap-on auxiliary switch block	Operating cycles	10 million					
Electrical endurance							
1)							
Rated insulation voltage U_i (pollution degree 3)	V	690				1 000	
Rated impulse withstand voltage U_{imp}	kV	6				6	
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	400				690	
Mirror contacts							
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.							
• With removable auxiliary switch block		Yes, acc. to IEC 60947-4-1, Appendix F					
Permissible ambient temperature							
• During operation	°C	-25 ... +60					
• During storage	°C	-55 ... +80					
Degree of protection acc. to IEC 60947-1, Appendix C							
• Connection range		IP20					
Touch protection acc. to EN 50274		IP00/open (where applicable, use additional terminal covers)					
Shock resistance (AC and DC operation)		Finger-safe only for vertical contact from the front					
• Rectangular pulse	g/ms	10/5 and 5/10				6.8/5 and 4/10	
• Sine pulse	g/ms	15/5 and 8/10				10.6/5 and 6.2/10	
Conductor cross-sections							
2)							

1) For contact endurance of the main contacts see page 1/21.

2) For conductor cross-sections, see page 1/31.

Type Size		3RT5034 S2	3RT5035 S2	3RT5036 S2	3RT5044 S3	3RT5045 S3	3RT5046 S3
Main circuit							
Load rating with AC							
Utilization category AC-1							
Switching resistive loads							
• Rated operational currents I_e							
- At 40 °C up to 690 V	A	50	60	60	100	120	120
- At 40 °C up to 1 000 V	A	--	--	--	50	60	70
- At 60 °C up to 690 V	A	45	55	55	90	100	100
- At 60 °C up to 1 000 V	A	--	--	--	40	50	60
• Rated power for AC loads ¹⁾ with p.f.= 0.95 (at 60 °C)							
- At 230 V	kW	18	22	22	34	38	38
- At 400 V	kW	31	38	38	59	66	66
- At 690 V	kW	54	66	66	102	114	114
- At 1 000 V	kW	--	--	--	66	82	98
• Minimum conductor cross-section for loads with I_e							
- At 40 °C	mm ²	16	16	16	35	50	50
- At 60 °C	mm ²	10	16	16	35	35	35
Utilization categories AC-2 and AC-3							
• Rated operational currents I_e							
- Up to 400 V	A	32	40	50	65	80	95
- At 690 V	A	20	24	24	47	58	58
- At 1 000 V	A	--	--	--	25	30	30
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz							
- At 230 V	kW	7.5	11	15	18.5	22	22
- At 400 V	kW	15	18.5	22	30	37	45
- At 690 V	kW	18.5	22	22	45	55	55
- At 1 000 V	kW	--	--	--	30	37	37
Power loss per conducting path at $I_e/AC-3$	W	1.8	2.6	5	4.6	7.7	10.8
Utilization category AC-4 (for $I_a = 6 \times I_e$)							
• Rated operational current I_e , maximum							
- Up to 400 V	A	29	35	41	55	66	80
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz							
- At 400 V	kW	15	18.5	22	30	37	45
The following applies to a contact endurance of about 200 000 operating cycles:							
• Rated operational currents I_e							
- Up to 400 V	A	15.6	18.5	24	28	34	42
- Up to 690 V	A	15.6	18.5	24	28	34	42
- Up to 1 000 V	A	--	--	--	20	23	23
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz							
- At 230 V	kW	4.7	5.4	7.3	8.7	10.4	12
- At 400 V	kW	8.2	9.5	12.6	15.1	17.9	22
- At 690 V	kW	13	15.5	21.8	25.4	30.9	38
- At 1 000 V	kW	--	--	--	22	30	30

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc. (increased power consumption on heating up has been taken into account).

Switching Devices




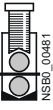
SIRIUS 3RT6/3RT5 Contactors

Technical specifications

Type Size		3RT5034 S2	3RT5035 S2	3RT5036 S2	3RT5044 S3	3RT5045 S3	3RT5046 S3
Main circuit							
Switching frequency							
Switching frequency z in operating cycles/hour							
Contactors without overload relays							
• No-load switching frequency AC	h ⁻¹	5 000			5 000		
• No-load switching frequency DC	h ⁻¹	1 500			1 000		
• Switching frequency z during rated operation ¹⁾							
- I _e /AC-1	At 400 V h ⁻¹	1 200	1 200	1 000	1 000	900	900
- I _e /AC-3	At 400 V h ⁻¹	1 000	1 000	800	1 000	1000	850
- I _e /AC-4	At 400 V h ⁻¹	250	300	300	300	300	250
Contactors with overload relays							
• Mean value	h ⁻¹	15					

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U:

$$z' = z \cdot (I_e/I') \cdot (400 \text{ V}/U)^{1.5} \cdot 1/\text{h}$$

Type Size		3RT503. S2	3RT504. S3	
Conductor cross-sections				
Main conductors (1 or 2 conductors can be connected)		 Screw terminals		
Box terminals				
	<ul style="list-style-type: none"> Terminal screws - Tightening torque 	Nm lb.in	3 ... 4.5 27 ... 40	
			4 ... 6 36 ... 53	
Front clamping point connected				
 NSBD_00479	<ul style="list-style-type: none"> Finely stranded with end sleeve Finely stranded without end sleeve Stranded Solid 	mm ² mm ² mm ² mm ²	0.75 ... 25 0.75 ... 25 0.75 ... 35 0.75 ... 16	
	<ul style="list-style-type: none"> AWG cables, solid or stranded Ribbon cable conductors (Number x Width x Thickness) 	AWG mm	18 ... 2 6 x 9 x 0.8	
				2.5 ... 35 10 ... 50 10 ... 70 2.5 ... 16
				10 ... 2/0 6 x 9 x 0.8
Rear clamping point connected				
 NSBD_00480	<ul style="list-style-type: none"> Finely stranded with end sleeve Finely stranded without end sleeve Stranded Solid 	mm ² mm ² mm ² mm ²	0.75 ... 25 0.75 ... 25 0.75 ... 35 0.75 ... 16	
	<ul style="list-style-type: none"> AWG cables, solid or stranded Ribbon cable conductors (Number x Width x Thickness) 	AWG mm	18 ... 2 6 x 9 x 0.8	
				2.5 ... 50 10 ... 50 10 ... 70 2.5 ... 16
				10 ... 2/0 6 x 9 x 0.8
Both clamping points connected				
 NSBD_00481	<ul style="list-style-type: none"> Finely stranded with end sleeve Finely stranded without end sleeve Stranded Solid 	mm ² mm ² mm ² mm ²	2 x (0.75 ... 16) 2 x (0.75 ... 16) 2 x (0.75 ... 25) 2 x (0.75 ... 16)	
	<ul style="list-style-type: none"> AWG cables, solid or stranded Ribbon cable conductors (Number x Width x Thickness) 	AWG mm	2 x (18 ... 2) 2 x (6 x 9 x 0.8)	
				2 x (2.5 ... 35) 2 x (10 ... 35) 2 x (10 ... 50) 2 x (2.5 ... 16)
				2 x (10 ... 1/0) 2 x (6 x 9 x 0.8)
Cable lug connection (without box terminals)				
	<ul style="list-style-type: none"> Finely stranded with cable lug Stranded with cable lug AWG cables, solid or stranded Terminal screws 	mm ² mm ² AWG --	-- -- -- M6	
			10 ... 50 ¹⁾ 10 ... 70 ¹⁾ 7 ... 1/0	
Auxiliary conductors				
	<ul style="list-style-type: none"> Solid Finely stranded with end sleeve AWG cables, solid or stranded Terminal screws - Tightening torque 	mm ² mm ² AWG Nm lb.in	2 x (0.5 ... 1.5) ²⁾ ; 2 x (0.75 ... 2.5) ²⁾ ; max. 2 x (0.75 ... 2) 2 x (0.5 ... 1.5) ²⁾ ; 2 x (0.75 ... 2.5) ²⁾ 2 x (20 ... 16) ²⁾ ; 2 x (18 ... 14) ²⁾ ; 1 x 12 M3 0.8 ... 1.2 7 ... 10.3	

¹⁾ Only with crimped cable lugs according to DIN 46234, max. 20 mm wide.

²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Technical specifications

1

Type		3RT5054	3RT5055, 3RT5056	3RT5064, 3RT5065, 3RT5066	3RT5075	3RT5076
Size		S6		S10	S12	
Dimensions (W x H x D)		120 x 172 x 170		145 x 210 x 202	160 x 214 x 225	
• With mounted auxiliary switch block		120 x 172 x 217		145 x 210 x 251	160 x 214 x 271	
		mm		mm		
General data						
Permissible mounting position						
The contactors are designed for operation on a vertical mounting surface.						
Mechanical endurance	Operating cycles	10 million				
Electrical endurance		1)				
Rated insulation voltage U_i (pollution degree 3)	V	1 000				
Rated impulse withstand voltage U_{imp}	kV	8				
Protective separation between the coil and the main contacts acc. to IEC 60947-1, Appendix N	V	690				
Mirror contacts		Yes, acc. to IEC 60947-4-1, Appendix F				
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.						
Permissible ambient temperature						
• During operation	°C	-25 ... +60				
• During storage	°C	-55 ... +80				
Degree of protection acc. to IEC 60947-1, Appendix C		IP00/open (where applicable, use additional terminal covers)				
Touch protection acc. to EN 50274		Finger-safe only for vertical contact from the front				
Shock resistance						
• Rectangular pulse	g/ms	8.5/5 and 4.2/10				
• Sine pulse	g/ms	13.4/5 and 6.5/10				
Conductor cross-sections						
2)						

1) For contact endurance of the main contacts [see page 1/21](#).2) For conductor cross-sections, [see page 1/35](#).

Type Size		3RT5054 S6	3RT5055 S6	3RT5056 S6	3RT5064 S10	3RT5065 S10	3RT5066 S10	3RT5075 S12	3RT5076 S12
Main circuit									
Load rating with AC									
Utilization category AC-1									
Switching resistive loads									
• Rated operational currents I_e									
- At 40 °C up to 690 V	A	160	185	215	275	330		430	610
- At 60 °C up to 690 V	A	140	160	185	250	300		400	550
- At 60 °C up to 1 000 V	A	80	90	100	100	150		200	200
• Rated power for AC loads ¹⁾ with p.f. = 0.95 (at 60 °C)									
- At 230 V	kW	53	60	70	94	113		151	208
- At 400 V	kW	92	105	121	164	197		263	362
- At 690 V	kW	159	181	210	283	340		454	624
- At 1 000 V	kW	131	148	165	164	246		329	329
• Minimum conductor cross-section for loads with I_e									
- At 40 °C	mm ²	70	95	95	150	185		2 x 150	2 x 185
- At 60 °C	mm ²	50	70	95	120	185		240	2 x 185
Utilization categories AC-2 and AC-3									
• Rated operational currents I_e									
- Up to 400 V	A	115	150	185	225	265	300	400	500
- At 690 V	A	115	150	170	225	265	280	400	450
- At 1 000 V	A	53	65	65	68	95	95	180	180
• Rated power for slipring or squirrel-cage motors at 50 and 60 Hz									
- At 230 V	kW	37	50	61	73	85	97	132	164
- At 400 V	kW	64	84	104	128	151	171	231	291
- At 690 V	kW	113	146	167	223	265	280	400	453
- At 1 000 V	kW	75	90	90	90	132	132	250	250
Power loss per main conducting path at $I_e/AC-3/500$ V									
	W	7	9	13	17	18	22	35	55

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc.
(increased power consumption on heating up has been taken into account).

Switching Devices

SIRIUS 3RT6/3RT5 Contactors

Technical specifications




Type Size	3RT5054 S6	3RT5055 S6	3RT5056 S6	3RT5064 S10	3RT5065 S10	3RT5066 S10	3RT5075 S12	3RT5076 S12
Main circuit								
Switching frequency								
Switching frequency z in operating cycles/hour								
Contactors without overload relays								
• No-load switching frequency	h ⁻¹ 2 000							
• Switching frequency z during rated operation ¹⁾								
- I _e /AC-1	At 400 V	h ⁻¹ 800	800	750	800	750	700	500
- I _e /AC-3	At 400 V	h ⁻¹ 1 000	750	500	700	500	500	420
- I _e /AC-4	At 400 V	h ⁻¹ 130	130	130	130	130	130	130

Contactors with overload relays

- Mean value h⁻¹ 60

¹⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U:

$$z' = z \cdot (I_e/I') \cdot (400 \text{ V}/U)^{1.5} \cdot 1/\text{h}$$

Type Size		3RT505. S6	3RT506. S10	3RT507. S12	
Conductor cross-sections					
Main conductors (1 or 2 conductors can be connected)		⊕ Screw terminals			
With mounted box terminals		Type	3RT59 55-4G (55 kW)	3RT59 56-4G	3RT59 66-4G
<ul style="list-style-type: none"> Terminal screws Tightening torque 		Nm	M10 (hexagon socket, A/F 4) 10 ... 12	M10 (hexagon socket, A/F 4) 10 ... 12	M12 (hexagon socket, A/F 5) 20 ... 22
		lb.in	90 ... 110	90 ... 110	180 ... 195
Front clamping point connected					
 <ul style="list-style-type: none"> Finely stranded with end sleeve Finely stranded without end sleeve Stranded AWG cables, solid or stranded Ribbon cable conductors (Number x Width x Thickness) 		mm ²	16 ... 70	16... 120	70 ... 240
		mm ²	16 ... 70	16 ... 120	70 ... 240
		mm ²	16 ... 70	16 ... 120	95 ... 300
		AWG	6 ... 2/0	6 ... 250 kcmil	3/0 ... 600 kcmil
		mm	Min. 3 x 9 x 0,8, max. 6 x 15,5 x 0,8	Min. 3 x 9 x 0,8, max. 10 x 15,5 x 0,8	Min. 6 x 9 x 0,8, max. 20 x 24 x 0,5
Rear clamping point connected					
 <ul style="list-style-type: none"> Finely stranded with end sleeve Finely stranded without end sleeve Stranded AWG cables, solid or stranded Ribbon cable conductors (Number x Width x Thickness) 		mm ²	16 ... 70	16... 120	120 ... 185
		mm ²	16 ... 70	16 ... 120	120 ... 185
		mm ²	16 ... 70	16 ... 120	120 ... 240
		AWG	6 ... 2/0	6 ... 250 kcmil	250 ... 500 kcmil
		mm	Min. 3 x 9 x 0,8, max. 6 x 15,5 x 0,8	Min. 3 x 9 x 0,8, max. 10 x 15,5 x 0,8	Min. 6 x 9 x 0,8, max. 20 x 24 x 0,5
Both clamping points connected¹⁾					
 <ul style="list-style-type: none"> Finely stranded with end sleeve Finely stranded without end sleeve Stranded AWG cables, solid or stranded Ribbon cable conductors (Number x Width x Thickness) 		mm ²	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 50, max. 2 x 185
		mm ²	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 50, max. 2 x 185
		mm ²	Max. 1 x 50, 1 x 70	Max. 1 x 95, 1 x 120	Min. 2 x 70, max. 2 x 240
		AWG	Max. 2 x 1/0	Max. 2 x 3/0	Min. 2 x 2/0, max. 2 x 500 kcmil
		mm	Max. 2 x (6 x 15,5 x 0,8)	Max. 2 x (10 x 15,5 x 0,8)	Max. 2 x (20 x 24 x 0,5)
Busbar connections					
<ul style="list-style-type: none"> Connecting bar (max. width) 		mm	17	25	
Cable lug connection (without box terminals)					
<ul style="list-style-type: none"> Finely stranded with cable lug²⁾³⁾ Stranded with cable lug²⁾³⁾ AWG cables, solid or stranded Terminal screws Tightening torque 		mm ²	16 ... 95	50 ... 240	50 ... 240
		mm ²	25 ... 120	70 ... 240	70 ... 240
		AWG	4 ... 250 kcmil	2/0 ... 500 kcmil	2/0 ... 500 kcmil
		Nm	M8 x 25 (A/F 13)	M10 x 30 (A/F 17)	M10 x 30 (A/F 17)
		lb.in	10 ... 14	14 ... 24	14 ... 24
		lb.in	90 ... 124	124 ... 210	124 ... 210
Auxiliary conductors					
<ul style="list-style-type: none"> Solid Finely stranded with end sleeve AWG cables, solid or stranded Terminal screws Tightening torque 		mm ²	2 x (0,5 ... 1,5) ⁴⁾ ; 2 x (0,75 ... 2,5) ⁴⁾ ; max. 2 x (0,75 ... 4)		
		mm ²	2 x (0,5 ... 1,5) ⁴⁾ ; 2 x (0,75 ... 2,5) ⁴⁾		
		AWG	2 x (18 ... 14)		
		Nm	M3 (Poqidriv size 2)		
		lb.in	0,8 ... 1,2		
		lb.in	7 ... 10,3		

¹⁾ Minimum cross-section 16 mm².

²⁾ 3RT505.: When connecting cable lugs to DIN 46235, use 3RT5956-4EA1 terminal cover for conductor cross-sections of 95 mm² and more to ensure phase spacing.

³⁾ 3RT506. and 3RT507.: When connecting cable lugs to DIN 46234, the 3RT5966-4EA1 terminal cover must be used for conductor cross-sections of 240 mm² and more as well as DIN 46235 for conductor cross-sections of 185 mm² and more to keep the phase clearance.

⁴⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Switching Devices

SIRIUS 3RH6 Contactor Relays

SIRIUS 3RH6 contactor relays, 4-pole

1

Overview

Standards

IEC 60947-1,
IEC 60947-4-1,
IEC 60947-5-1

The 3RH6 contactor relays have screw terminals.

The 3RH6 contactor relays are suitable for use in any climate. They are finger-safe according to EN 50274.

Contact reliability

High contact stability at low voltages and currents, suitable for solid-state circuits with currents ≥ 5 mA at a voltage of ≥ 17 V.

Surge suppression

RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode) can be plugged onto all 3RH6 contactor relays as surge suppressors. The plug-in direction is determined by a coding device.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are affected by the surge suppressors (diode 6 to 10 times; diode assembly 2 to 6 times, varistor +2 to 5 ms).

Article No. scheme

Digit of the article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th			
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Contactor relays	3 R H												
SIRIUS	6												
Device type (1 = 4-pole contactor relay)	<input type="checkbox"/>												
Number of NO contacts (e.g. 2 = 2 NO)	<input type="checkbox"/>												
Number of NC contacts (e.g. 2 = 2 NC)	<input type="checkbox"/>												
Connection type (1 = screw)	1												
Operating range / solenoid coil circuit (e.g. A = AC standard / without)	<input type="checkbox"/>												
Rated control supply voltage (e.g. P0 = 230 V, 50 Hz)	<input type="checkbox"/>												
No significance	<input type="checkbox"/>												
Example	3	R	H	6	1	2	2	-	1	A	P	0	0

Note:

The article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

Accessories

The accessories for the 3RT6 contactors in size S00 can also be used for the 3RH6 contactor relays (see Chapter 2).

Auxiliary switch blocks

The 3RH61 contactor relays can be expanded by up to four contacts by the addition of snap-on auxiliary switch blocks.

The auxiliary switch block can easily be snapped onto the front of the contactor relays. The auxiliary switch block has a centrally positioned release lever for disassembly.

All contactor relays with the identification numbers 40E, 31E and 22E can be extended with auxiliary switch blocks to obtain contactor relays with 5 to 8 contacts.

Of the auxiliary contacts (integrated plus mountable) possible on the device, no more than four NC contacts are permitted.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.



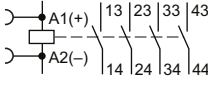
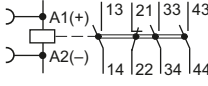
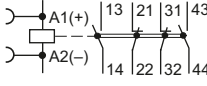
Selection and ordering data

AC operation

Size S00



3RH61...-1B.40

Rated operational current $I_{th}/AC-15/AC-14$ at 230 V	Contacts		Rated control supply voltage U_s at 50/60 Hz ¹⁾	Article No.
	Ident. No.	Version		
		 	V AC	
A		NO NC		
For screw fixing and snap-on mounting onto TH 35 standard mounting rail				
Terminal designations according to EN 50011				
4 NO, Ident. No. 40E	3 NO + 1 NC, Ident. No. 31E	2 NO + 2 NC, Ident. No. 22E		
				
10	40E	4 --	24 110 220	3RH6140-1AB00 3RH6140-1AF00 3RH6140-1AN20
	31E	3 1	24 110 220	3RH6131-1AB00 3RH6131-1AF00 3RH6131-1AN20
	22E	2 2	24 110 220	3RH6122-1AB00 3RH6122-1AF00 3RH6122-1AN20

¹⁾ Coil operating range
at 50 Hz: 0.8 to 1.1 x U_s
at 60 Hz: 0.85 to 1.1 x U_s .

Other voltages on request.

Accessories [see page 1/17](#).

Switching Devices

SIRIUS 3RH6 Contactor Relays

SIRIUS 3RH6 contactor relays, 4-pole

DC operation

Size S00



3RH61..-1B.40

Rated operational current
 I_{e} /AC-15/AC-14
at **230 V**

Contacts
Ident. No.

Version

Rated control
supply voltage U_{s}

Article No.

A

NO

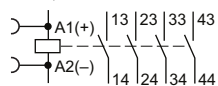
NC

V DC

For screw fixing and snap-on mounting onto TH 35 standard mounting rail

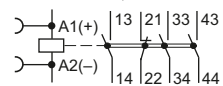
Terminal designations according to EN 50011

4 NO, Ident. No. **40E**



10

3 NO + 1 NC, Ident. No. **31E**



40E

4

--

24
220

31E

3

1

24
220

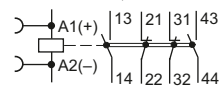
22E

2

2

24
220

2 NO + 2 NC, Ident. No. **22E**



3RH6140-1BB40
3RH6140-1BM40

3RH6131-1BB40
3RH6131-1BM40

3RH6122-1BB40
3RH6122-1BM40

Other voltages on request.

Accessories [see page 1/17](#).

SIRIUS 3RH61 coupling contactors for switching auxiliary circuits, 4-pole

Selection and ordering data

DC operation

Low power consumption

Extended operating range of the coil

Integrated coil circuit



3RH61..-1K.40

Rated operational current I_o /AC-15/ AC-14 at 230 V	Auxiliary contacts Ident. No. acc. to EN 50011		Rated control supply voltage U_s	Article No.
	Version			
A		NO	24 110	
		NC		

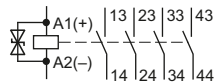
For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S00

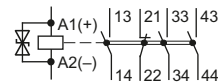
With integrated surge suppressor (suppressor diode)

(auxiliary switch blocks cannot be mounted)

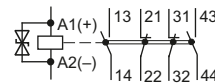
4 NO, Ident. No. **40E**



3 NO + 1 NC, Ident. No. **31E**



2 NO + 2 NC, Ident. No. **22E**



Rated control supply voltage $U_s = 24$ V DC,

operating range **0.7 to 1.25 x U_s**

Power consumption of the solenoid coils **2.8 W** at 24 V

10	40E	4	--	24 110	3RH6140-1KB40 3RH6140-1KF40
	31E	3	1	24 110	3RH6131-1KB40 3RH6131-1KF40
	22E	2	2	24 110	3RH6122-1KB40 3RH6122-1KF40

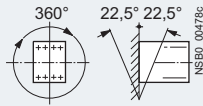

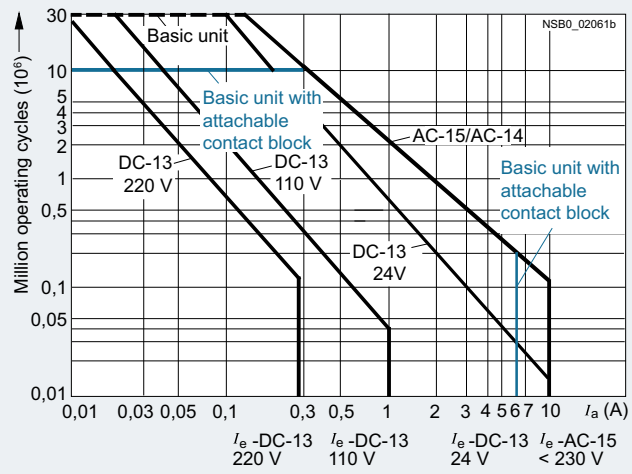
Switching Devices

SIRIUS 3RH6 Contactor Relays

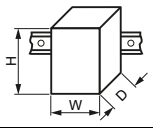

Technical specifications

1

Technical specifications

Contactor relays	Type Size	3RH6 S00
Permissible mounting position		
The contactor relays are designed for operation on a vertical mounting surface.		
Upright mounting position		 NSBO_00477a Special version required (3RH6122-2K.40 coupling relays and contactor relays with extended operating range on request)
Positively-driven operation of contacts in contactor relays		
3RH6: Yes , in the basic unit and the auxiliary switch block as well as between the basic unit and the front-mounted auxiliary switch block (removable) according to IEC 60947-5-1, Appendix L		<p>Explanations: There is positively-driven operation if it is ensured that the NC and NO contacts cannot be closed at the same time.</p> <p>IEC 60947-5-1, Appendix L Low-voltage switchgear and controlgear, Special requirements for positively-driven contacts</p>
Contact reliability		
Contact reliability at 17 V, 5 mA acc. to IEC 60947-5-4		Frequency of contact faults $< 10^{-8}$ i.e. < 1 fault per 100 million operating cycles
Contact endurance for AC-15/AC-14 and DC-13 utilization categories		
<p>The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.</p> <p>If magnetic circuits other than the contactor coil systems or solenoid valves are present, e.g. magnetic brakes, protective measures for the load circuits are necessary, e.g. in the form of RC elements and free-wheel diodes.</p> <p>The characteristic curves apply to:</p> <ul style="list-style-type: none"> • 3RH61 contactor relays¹⁾ • 3RH6911 auxiliary switch blocks¹⁾ • Auxiliary switch blocks for snapping onto the front, max. 4-pole and for mounting onto the side in size S00 		 <p>Diagram legend: I_a = Breaking current I_e = Rated operational current</p>

¹⁾ 3RH6911: $I_e = 6$ A for AC-15/AC-14 and DC-13.

Type			3RH61
Size			S00
Dimensions (W x H x D) with screw terminals		mm	45 x 57.5 x 73
• With mounted auxiliary switch block		mm	45 x 57.5 x 116
General technical specifications			
Mechanical endurance			
• Basic units	Operating cycles		30 million
• Basic unit with snap-on auxiliary switch block	Operating cycles		10 million
Rated insulation voltage U_i (pollution degree 3)	V		690
Rated impulse withstand voltage U_{imp}	kV		6
Protective separation between the coil and the contacts in the basic unit acc. to IEC 60947-1, Appendix N	V		400
Permissible ambient temperature			
• During operation	°C		-25 ... +60
• During storage	°C		-55 ... +80
Degree of protection acc. to IEC 60947-1, Appendix C			IP20
Touch protection acc. to EN 50274			Finger-safe
Shock resistance			
• Rectangular pulse	- AC operation	g/ms	7.3/5 and 4.7/10
	- DC operation	g/ms	10/5 and 5/10
• Sine pulse	- AC operation	g/ms	11.4/5 and 7.3/10
	- DC operation	g/ms	15/5 and 8/10
Conductor cross-sections			
Auxiliary conductors and coil terminals (1 or 2 conductors can be connected)			
• Solid or stranded • Finely stranded with end sleeve • AWG cables, solid or stranded	mm ²		 Screw terminals 2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾ , max. 2 x 4 2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾ 2 x (20 ... 16) ¹⁾ , 2 x (18 ... 14) ¹⁾
	mm ²		
	AWG		
• Terminal screw - Tightening torque	Nm		M3 (for Pozidriv size 2, Ø 5 ... 6 mm) 0.8 ... 1.2 (7 ... 10.3 lb.in)

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Switching Devices

SIRIUS 3RH6 Contactor Relays

Technical specifications

Contactor relays	Type	3RH6.	
	Size	S00	
Load side			
Load rating with AC			
Rated operational currents I_e			
AC-12	A	10	
AC-15/AC-14 for rated operational voltage U_s	Up to 230 V	A	10
	400 V	A	3
	690 V	A	1
Load rating with DC			
Rated operational currents I_e			
DC-12 for rated operational voltage U_s			
• 1 conducting path	24 V	A	6
	60 V	A	6
	110 V	A	3
	220 V	A	1
	440 V	A	0.3
• 2 conducting paths in series	24 V	A	10
	60 V	A	10
	110 V	A	4
	220 V	A	2
	440 V	A	1.3
• 3 conducting paths in series	24 V	A	10
	60 V	A	10
	110 V	A	10
	220 V	A	3.6
	440 V	A	2.5
DC-13 for rated operational voltage U_s			
• 1 conducting path	24 V	A	6
	60 V	A	2
	110 V	A	1
	220 V	A	0.3
	440 V	A	0.14
• 2 conducting paths in series	24 V	A	10
	60 V	A	3.5
	110 V	A	1.3
	220 V	A	0.9
	440 V	A	0.2
• 3 conducting paths in series	24 V	A	10
	60 V	A	4.7
	110 V	A	3
	220 V	A	1.2
	440 V	A	0.5
Switching frequency			
Switching frequency z in operating cycles/hour			
• For rated operation	AC-12/DC-12	h^{-1}	1 000
• For utilization category	AC-15/AC-14	h^{-1}	1 000
	DC-13	h^{-1}	1 000
• No-load switching frequency		h^{-1}	10 000
Dependence of the switching frequency z' on the operational current I' and operational voltage U :			
$z' = z \cdot I_e/I' \cdot (U_e/U)^{1.5} \cdot 1/h$			

Overview

Vacuum contactors

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The SIRIUS 3TF68/3TF69 vacuum contactors are suitable for use in any climate. They are finger-safe according to EN 60529. Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

Connection methods

The vacuum contactors are available with screw terminals (box terminals).

Contact reliability

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the vacuum contactors or 3RH contactor relays should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

Short-circuit protection

For more information about vacuum contactors without overload relay, see [Technical specifications, page 1/46](#).

For short-circuit protection of the vacuum contactors with overload relays, see the Configuration Manual "Configuring SIRIUS – Selection Data for Fuseless Load Feeders", <https://support.industry.siemens.com/cs/ww/en/view/40625241>.

Electromagnetic compatibility (EMC)

The contactors with solid-state operating mechanism comply with the international standards IEC/EN 60947-1, IEC/EN 60947-4-1.

These contactors have been developed for environment A.

Note:

Environment A refers to private low-voltage or industrial networks/locations/plants, including high-grade sources of interference.

Environment A corresponds to devices of Class A with CISPR 11, EN 55011.

Note:

In connection with converters, the control cables must be routed separately from the load cables to the converter.

Motor protection

For protection against overload, 3RU11 thermal overload relays or 3RB20/3RB21 electronic overload relays can be mounted on the vacuum contactors. These must be ordered separately.

Ratings of three-phase motors

The quoted rating (in kW) refers to the output power on the motor shaft (according to the nameplate).

The power rating specifications of the vacuum contactors in kW are guide values for 4-pole standard motors at 50 Hz AC and specified voltage (e.g. 400 V). The actual starting and rated data of the motor to be switched must be considered when selecting the units.

Surge suppression

The vacuum contactors can be retrofitted with varistors for damping opening surges in the coil.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (varistor +2 to 5 ms).

Vacuum contactors are basically unsuitable for switching DC voltage.

Auxiliary contact complement

The 3RT12 vacuum contactors of sizes S10 and S12 are supplied with laterally mounted auxiliary switch blocks.

These can be fitted with up to eight lateral auxiliary contacts (identical auxiliary switch blocks for S10 and S12). Of these, no more than four are permitted to be NC contacts.

3TF6 vacuum contactors, 3-pole, 335 to 450 kW

Main contacts

Contact erosion indication with 3TF68/3TF69 vacuum contactors:

The contact erosion of the vacuum interrupters can be checked during operation with the help of three white double slides on the contactor base. If the distance indicated by one of the double slides is < 0.5 mm while the contactor is in the closed position, then the vacuum interrupter must be replaced. To ensure maximum reliability, it is recommended to replace all 3 vacuum interrupters simultaneously.

Auxiliary contacts

Contact reliability:

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

Protection of the main current paths

An integrated RC varistor connection for the main current paths dampens the switching overvoltage rises to safe values. This prevents multiple restricting. It can therefore be assumed that the motor winding cannot be damaged by switching overvoltages with steep voltage rises.

During operation in installations in which the emitted interference limits cannot be observed, e.g. when used for output contactors in converters, 3TF68/3TF69...Q vacuum contactors – without connection of the main current path circuit – are recommended.

Switching Devices

Power Contactors for Switching Motors

3TF6 vacuum contactors

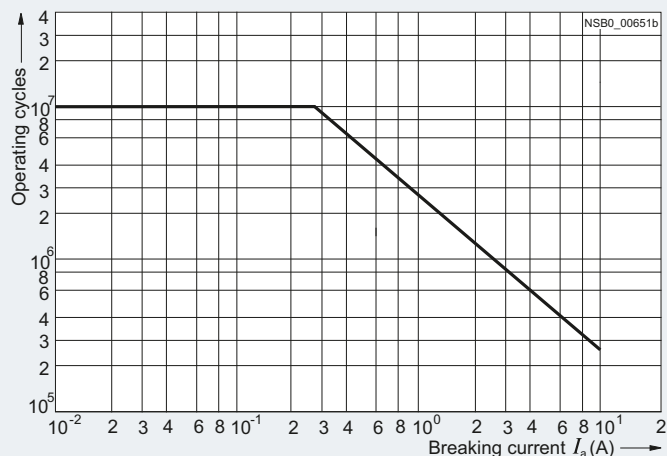
Technical specifications

		Vacuum contactors	
Type		3TF68 and 3TF69	
Size		14	
Rated data of the auxiliary contacts		According to IEC 60947-5-1	
Rated insulation voltage U_i (pollution degree 3)	V	690	
Conventional thermal current I_{th} = Rated operational current $I_e/AC-12$	A	10	
AC load			
Rated operational current $I_e/AC-15/AC-14$			
• For rated operational voltage U_e			
- At 24 V	A	10	
- At 110 V	A	10	
- At 125 V	A	10	
- At 220 V	A	6	
- At 230 V	A	5.6	
- At 380 V	A	4	
- At 400 V	A	3.6	
- At 500 V	A	2.5	
- At 660 V	A	2.5	
- At 690 V	A	2.3	
DC load			
Rated operational current $I_e/DC-12$			
• For rated operational voltage U_e			
- At 24 V	A	10	
- At 60 V	A	10	
- At 110 V	A	3.2	
- At 125 V	A	2.5	
- At 220 V	A	0.9	
- At 440 V	A	0.33	
- At 600 V	A	0.22	
Rated operational current $I_e/DC-13$		Auxiliary contacts with delayed NC contact:	
• For rated operational voltage U_e		NS = No specification	
- At 24 V	A	10	6
- At 60 V	A	5	NS
- At 110 V	A	1.14	0.98
- At 125 V	A	0.98	NS
- At 220 V	A	0.48	NS
- At 440 V	A	0.13	NS
- At 600 V	A	0.07	0.07
Ⓢ and Ⓜ rated data of the auxiliary contacts			
Rated voltage, max.	V AC	600	
Switching capacity		A 600, P 600	

Endurance of the auxiliary contacts

The contact endurance for utilization category AC-12 or AC-15/AC-14 depends mainly on the breaking current. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The characteristic curves apply to 230 V AC.



Type	Vacuum contactors
Size	3TF68 and 3TF69
	14

Contact erosion indication with vacuum contactors

The contact erosion of the vacuum interrupters can be checked during operation with the help of three white double slides on the contactor base.

If the distance indicated by one of the double slides is < 0.5 mm while the contactor is in the closed position, the vacuum interrupter must be replaced. To ensure maximum reliability, it is recommended to replace all three vacuum interrupters at once.

Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching resistive and inductive AC loads (AC-1/AC-3) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched randomly, i.e. not synchronized with the phase angle of the supply system.

The rated operational current I_e complies with utilization category AC-4 (breaking 6 times the rated operational current) and is intended for a contact endurance of approx. 200 000 operating cycles.

If a shorter contact endurance is sufficient, the rated operational current I_e /AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

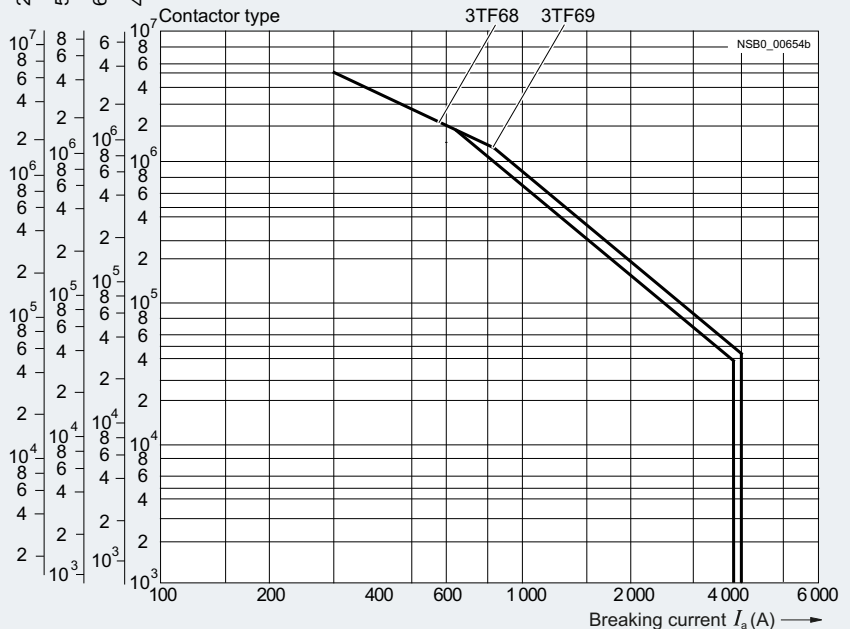
$$X = \frac{A}{1 + \frac{C}{100} \left(\frac{A}{B} - 1 \right)}$$

Characters in the equation:

- X Contact endurance for mixed operation in operating cycles
- A Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- B Contact endurance for inching ($I_a = \text{multiple of } I_e$) in operating cycles
- C Inching operations as a percentage of total switching operations

Operating cycles at

V V V V
230 500 690 400

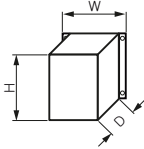
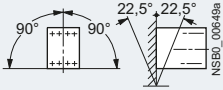


Switching Devices

Power Contactors for Switching Motors

3TF6 vacuum contactors

1

		Vacuum contactors	
		3TF68	3TF69
Type			
Size		14	
General data			
Dimensions (W x H x D)		mm	230 x 276 x 237
			230 x 295 x 237
Permissible mounting position	The contactors are designed for operation on a vertical mounting surface.		
• To easily replace the laterally mounted auxiliary switches it is recommended to maintain a minimum distance of 30 mm between the contactors.		Yes	
• If mounted at a 90° angle (current paths are horizontally above each other), the switching frequency is reduced by 80 % compared with the normal values.		Yes	
Mechanical endurance	Operating cycles	5 million	
Electrical endurance	Contact endurance of the main contacts	see page 1/44	
Rated insulation voltage U_i (pollution degree 3)	kV	1	
Rated impulse withstand voltage U_{imp}	kV	8	
Protective separation between the coil and the main contacts, acc. to IEC 60947-1, Appendix N	V	1 000	
Mirror contacts	A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.	Yes, acc. to IEC 60947-4-1, Appendix F	One NC contact each must be connected in series for the right and left auxiliary switch block respectively.
Permissible ambient temperature			
• During operation	°C	-25 ... +55 ¹⁾	
• During storage	°C	-55 ... +80	
Degree of protection acc. to IEC 60529			
• Connecting terminal		IP00 (for higher degree of protection, use additional terminal covers)	
Touch protection acc. to IEC 60529		Finger-safe for vertical touching from the front with cover	
Shock resistance			
• Rectangular pulse			
- AC operation	g/ms	8.1/5 and 4.7/10	9.5/5 and 5.7/10
- DC operation	g/ms	9/5 and 5.7/10	8.6/5 and 5.1/10
• Sine pulse			
- AC operation	g/ms	12.8/5 and 7.4/10	13.5/5 and 7.8/10
- DC operation	g/ms	14.4/5 and 9.1/10	13.5/5 and 7.8/10
Electromagnetic compatibility (EMC)			
Short-circuit protection			
Main circuit			
Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1			
• Type of coordination "1"	A	1 000	1 250
• Type of coordination "2"	A	500	630
• Weld-free (test conditions according to IEC 60947-4-1)	A	400	500
Auxiliary circuit			
Short-circuit test			
• Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE (weld-free protection $I_k \leq 1$ kA)	A	10	
• Miniature circuit breakers with C characteristic (short-circuit current $I_k \leq 400$ A)	A	10	
Short-circuit protection for contactors with overload relays		See Configuration Manual "Configuring SIRIUS – Selection Data for Fuseless Load Feeders", https://support.industry.siemens.com/cs/ww/en/view/40625241	

¹⁾ For ambient temperatures > 55 °C, only 3TF6.33-.Q.-Z A02 contactors (= without connection of the main current path circuits) can be used. Then derating is also possible with these contactors:
- AC-1: $I_e = 782$ A, 644 operating cycles/h;
- AC-3: operating range 0.85 to 1.05 x U_s , 460 operating cycles/hour, mech. endurance 5 million operating cycles, lateral clearance 10 mm.

		Vacuum contactors	
Type		3TF68	3TF69
Size		14	
Control			
Solenoid coil operating range	AC/DC	$0.8 \times U_{s \text{ min}} \dots 1.1 \times U_{s \text{ max}}$	
Power consumption of the solenoid coils (for cold coil and $1.0 \times U_s$)			
<u>Solid-state operating mechanisms</u>			
• AC operation			
- Closing at $U_{s \text{ min}}/U_{s \text{ max}}$	VA	1 200/1 850	600/950
- P.f.		1	0.98
- Closed at $U_{s \text{ min}}/U_{s \text{ max}}$	VA	13.5/49	12.9/30.6
- P.f.		0.15	0.31
• AC operation for 3TF68/3TF69...-Q			
- Closing at $U_{s \text{ min}}$	VA	1 000	1 150
- P.f.		0.99	
- Closed at $U_{s \text{ min}}$	VA	11	
- P.f.		1	
• DC operation			
- Closing at $U_{s \text{ min}}/U_{s \text{ max}}$	W	--	
- Closed at $U_{s \text{ min}}/U_{s \text{ max}}$	W	--	
• DC economy circuit ¹⁾			
- Closing at $U_{s \text{ min}}$	W	1 010	960
- Closed at $U_{s \text{ min}}$	W	28	20.6
Operating times (Total break time = Opening delay + Arcing time)		(Values apply to cold and warm coil)	
<u>Solid-state operating mechanism, actuated via A1/A2</u>			
• AC operation at $0.8 \times U_{s \text{ min}} \dots 1.1 \times U_{s \text{ max}}$			
- Closing delay	ms	70 ... 120 (22 ... 65) ²⁾	80 ... 120
- Opening delay	ms	70 ... 100	70 ... 80
• AC operation for 3TF68/3TF69...-Q at $U_{s \text{ min}}$ (including reversing contactor)			
- Closing delay	ms	35 ... 90	45 ... 160
- Opening delay	ms	65 ... 90	30 ... 80
• AC operation at $U_{s \text{ min}} \dots U_{s \text{ max}}$			
- Closing delay	ms	80 ... 100 (30 ... 45)	85 ... 100
- Opening delay	ms	70 ... 100	70
<u>Solid-state operating mechanism, actuated via PLC input</u>			
• For $0.8 \times U_{s \text{ min}} \dots 1.1 \times U_{s \text{ max}}$			
- Closing delay	ms	--	
- Opening delay	ms	--	
• DC economy circuit for $0.8 \times U_{s \text{ min}} \dots 1.1 \times U_{s \text{ max}}$			
- Closing delay	ms	76 ... 110	86 ... 280
- Opening delay	ms	50	19 ... 25
• For $U_{s \text{ min}} \dots U_{s \text{ max}}$			
- Closing delay	ms	--	
- Opening delay	ms	--	
• DC economy circuit for $U_{s \text{ min}} \dots U_{s \text{ max}}$			
- Closing delay	ms	80 ... 90	90 ... 125
- Opening delay	ms	50	19 ... 25
• Arcing time	ms	10 ... 15	10
Minimum command duration	Standard	ms	120
for closing	Reduced make-time	ms	90
			--
Minimum interval time between two ON commands		ms	100
			300

¹⁾ At 24 V DC; for further voltages, deviations of up to $\pm 10\%$ are possible.

²⁾ Values in brackets apply to contactors with reduced operating times.

Switching Devices

Power Contactors for Switching Motors

3TF6 vacuum contactors


		Vacuum contactors	
Type		3TF68	3TF69
Size		14	
Rated data of the main contacts			
Load rating with AC			
Utilization category AC-1			
Switching resistive loads			
• Rated operational currents I_e	- At 40 °C up to 690 V - At 40 °C up to 1 000 V - At 55 °C up to 690 V - At 55 °C up to 1 000 V - At 60 °C up to 1 000 V	A A A A A	700 -- 630 450 --
			910 -- 850 800 --
• Rated powers for AC loads ¹⁾ with p.f. = 0.95	- At 230 V - At 400 V - At 500 V - At 690 V - At 1 000 V	kW kW kW kW kW	At 55 °C 240 415 545 720 780
			At 55 °C 323 558 735 970 1 385
• Minimum conductor cross-section for loads with I_e	- At 40 °C - At 55 °C - At 60 °C	mm ² mm ² mm ²	2 x 240 2 x 185 --
			$I_e \geq 800$ A: 2 x 60 x 5 (copper busbars) $I_e < 800$ A: 2 x 240 --
Utilization categories AC-2 and AC-3			
• Rated operational currents I_e	- Up to 690 V - Up to 1 000 V	A A	630 435
			820 580
• Rated power for slipping or squirrel-cage motors at 50 and 60 Hz	- At 230 V - At 400 V - At 500 V - At 690 V - At 1 000 V	kW kW kW kW kW	200 347 434 600 600
			260 450 600 800 800
Thermal load capacity , 10 s current ²⁾		A	5 040
			7 000
Power loss per conducting path at $I_e/AC-3$		W	45
			70
Utilization category AC-4 (for $I_a = 6 \times I_e$)			
Maximum values:			
• Rated operational current I_e	- Up to 690 V	A	610
			690
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	- At 400 V	kW	355
			400
The following applies to a contact endurance of about 200 000 operating cycles:			
• Rated operational currents I_e	- Up to 690 V - Up to 1 000 V	A A	300 210
			360 250
• Rated power for squirrel-cage motors with 50 Hz and 60 Hz	- At 230 V - At 400 V - At 500 V - At 690 V - At 1 000 V	kW kW kW kW kW	97 168 210 ³⁾ 278 ³⁾ 290 ³⁾
			110 191 250 ³⁾ 335 ³⁾ 350 ³⁾
Switching frequency			
Switching frequency z in operating cycles/hour			
Contactors without overload relays			
• No-load switching frequency	- AC - DC	h ⁻¹ h ⁻¹	2 000 1 000
			1 000
• Switching frequency z during rated operation ⁴⁾	- $I_e/AC-1$ at 400 V - $I_e/AC-2$ at 400 V - $I_e/AC-3$ at 400 V - $I_e/AC-4$ at 400 V	h ⁻¹ h ⁻¹ h ⁻¹ h ⁻¹	700 200 500 150
Contactors with overload relays			
• Mean value		h ⁻¹	15

¹⁾ Industrial furnaces and electric heaters with resistance heating, etc. (increased power consumption on heating up has been taken into account).

²⁾ According to IEC 60947-4-1.

³⁾ Max. permissible rated operational current $I_e/AC-4 = I_e/AC-3$ up to 500 V, for reduced contact endurance and reduced switching frequency.

⁴⁾ Dependence of the switching frequency z' on the operational current I' and operational voltage U' :
 $z' = z \cdot (I_e/I') \cdot (U_e/U')^{1.5} \cdot 1/h$.

		Vacuum contactors	
		3TF68	3TF69
Type		14	
Size			
Conductor cross-sections			
Main conductors (1 or 2 conductors connectable)		 Screw terminals	
<u>Busbar connections</u>			
<ul style="list-style-type: none"> • Finely stranded with cable lug • Stranded with cable lug • Solid or stranded • Connecting bar (max. width) 	mm ² mm ² AWG mm	50 ... 240 70 ... 240 2/0 ... 500 MCM 50	50 ... 240 2/0 ... 500 MCM 60 ($U_e \leq 690$ V), 50 ($U_e > 690$ V)
<ul style="list-style-type: none"> • Terminal screws - Tightening torque 	Nm lb.in	M10 x 30 14 ... 24 124 ... 210	M12 x 40 20 ... 35 177 ... 310
<u>With box terminal</u>			
<ul style="list-style-type: none"> • Connectable copper bars • Width • Max. thickness • Terminal screw • Tightening torque 	mm mm Nm	Yes 15 ... 25 1 x 26 or 2 x 11 A/F 6 (hexagon socket) 25 ... 40 (221 ... 354 lb.in)	15 ... 38 1 x 46 or 2 x 18 A/F 8 (hexagon socket) 35 ... 50 (266 ... 443 lb.in)
Auxiliary conductors (1 or 2 conductors can be connected)			
<ul style="list-style-type: none"> • Solid • Finely stranded with end sleeve (DIN 46228-1) • Pin-end connector to DIN 46231 • AWG cables, solid or stranded • Terminal screws - Tightening torque 	mm ² mm ² mm ² AWG Nm	2 x (0.5 ... 1) ⁴⁾ /2 x (1 ... 2.5) ⁴⁾ 2 x (0.5 ... 1) ⁴⁾ /2 x (0.75 ... 2.5) ⁴⁾ 2 x (1 ... 1.5) 2 x (18 ... 12) -- 0.8 ... 1.4 (7 ... 12 lb.in)	
Ⓢ and Ⓣ rated data			
Rated insulation voltage	V AC	600	
Uninterrupted current , at 40 °C, open and enclosed	A	630	820
Maximum horsepower ratings (Ⓢ and Ⓣ approved values)			
• Rated power for three-phase motors at 60 Hz			
- At 200 V	hp	231	290
- At 230 V	hp	266	350
- At 460 V	hp	530	700
- At 575 V	hp	664	860
NEMA/EEMAC ratings			
SIZE	hp	6	7
• Uninterrupted current			
- Open	A	600	820
- Enclosed	A	540	810
• Rated power for three-phase motors at 60 Hz			
- At 200 V	hp	150	--
- At 230 V	hp	200	300
- At 460 V	hp	400	600
- At 575 V	hp	400	600

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Switching Devices

Power Contactors for Switching Motors

3TF6 vacuum contactors

Selection and ordering data

3TF6 vacuum contactors, 3-pole, 335 ... 450 kW

AC operation, 50/60 Hz

- Main conductors: Busbar connections
- Auxiliary and control conductors: Screw terminals
- With overvoltage protection of the coil (varistor)



3TF68/3TF69

Size	Rated data							Auxiliary contacts		Rated control supply voltage U_s	Screw terminals	Article No.
	AC-2 and AC-3, T_U : Up to 55 °C							Lateral				
	Operational current I_e up to							NO				
	Ratings of three-phase motors at 50 Hz and up to							NC				
	690 V	230 V	400 V	500 V	690 V	1 000 V	690 V					
	A	kW	kW	kW	kW	kW	A			V AC		
AC operation 50/60 Hz¹⁾												
14	630	200	335²⁾	434	600	--	700	4	4	110 ... 132 200 ... 240	3TF6844-0CF7 3TF6844-0CM7	
							600	700	4	4	110 ... 132 200 ... 240	3TF6844-8CF7 3TF6844-8CM7
14	820	260	450³⁾	600	800	--	910	4	4	110 ... 132 200 ... 240	3TF6944-0CF7 3TF6944-0CM7	
							800	910	4	4	110 ... 132 200 ... 240	3TF6944-8CF7 3TF6944-8CM7

¹⁾ For use of 3TF6 vacuum contactors in the environment of frequency converters, we recommend ordering a special version: **3TF6...-...-Z A02**. 3TF68/3TF69 vacuum contactors in their basic version are supplied with integrated overvoltage damping for the main current paths. The surge suppression circuit is not required for operation in circuits with DC choppers, frequency converters or speed-variable operating mechanisms, for example.

The circuit could be damaged by the voltage peaks and harmonics and thus cause phase-to-phase short circuits. For this reason, the contactors can also be supplied without integrated overvoltage damping. Without additional price.

The article number must be supplemented by **"-Z"** and the order code **"A02"**.

²⁾ When using 3TF68 vacuum contactors with IE3 motors from 8.5 times the starting current, please use 3TF69 vacuum contactors.

³⁾ Use of 3TF69 vacuum contactors with IE3 motors on request.

Rated control supply voltages (change of the 10th and 11th digits of the Article No.)

Rated control supply voltage U_s	Contactor type	3TF6844-.C.. 3TF6944-.C..
	Size	14

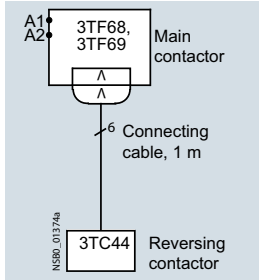
AC operation

Solenoid coils for 50/60 Hz

110 ... 132 V AC	F7
200 ... 240 V AC	M7
230 ... 277 V AC	P7
380 ... 460 V AC	Q7
500 ... 600 V AC	S7

DC operation and for AC operation which is subject to strong interference

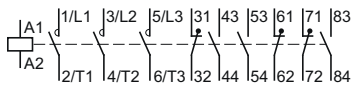
- Main conductors: Busbar connections
- Auxiliary and control conductors: Screw terminals
- DC solenoid system with 3TC44 reversing contactor for series resistor



3TF6.33-Q.7

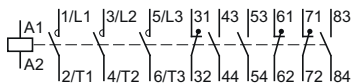
Size	Rated data						Auxiliary contacts		Rated control supply voltage U_s	Screw terminals
	AC-2 and AC-3, T_U : Up to 55 °C						Lateral			
	Operational current I_e up to			Ratings of three-phase motors at 50 Hz and up to			AC-1, T_U : 40 °C			
	690 V			230 V 400 V 500 V 690 V 1 000 V 690 V			Operational current I_e up to			
	A	kW	kW	kW	kW	kW	A	NO NC	V AC	

DC operation · DC economy circuit¹⁾²⁾



14	630	200	335 ³⁾	434	600	--	700	3	3	24 DC	3TF6833-1DB4
						600	700	3	3	24 DC	3TF6833-8DB4
14	820	260	450 ⁴⁾	600	800	--	910	3	3	24 DC	3TF6933-1DB4
						800	910	3	3	24 DC	3TF6933-8DB4

AC operation 50/60 Hz with DC economy circuit²⁾⁵⁾
For AC operation which is subject to strong interference



14	630	200	335 ³⁾	434	600	--	700	3	3	110 ... 120 AC 220 ... 240 AC 380 ... 420 AC	3TF6833-1QG7 3TF6833-1QL7 3TF6833-1QV7
						600	700	3	3	220 ... 240 AC	3TF6833-8QL7
14	820	260	450 ⁴⁾	600	800	--	910	3	3	110 ... 120 AC 220 ... 240 AC 380 ... 420 AC	3TF6933-1QG7 3TF6933-1QL7 3TF6933-1QV7
						800	910	3	3	110 ... 120 AC 220 ... 240 AC	3TF6933-8QG7 3TF6933-8QL7

1) On this version, a magnetic system is used in the DC economy circuit. A varistor can be retrofitted. A 3TC4417-4A.. reversing contactor is included in the scope of delivery of the vacuum contactor.

2) For use of 3TF6 vacuum contactors in the environment of frequency converters, we recommend ordering a special version: **3TF6...-...-Z A02**. 3TF68/3TF69 vacuum contactors in their basic version are supplied with integrated overvoltage damping for the main current paths. The surge suppression circuit is not required for operation in circuits with DC choppers, frequency converters or speed-variable operating mechanisms, for example.

The circuit could be damaged by the voltage peaks and harmonics and thus cause phase-to-phase short circuits. For this reason, the contactors can also be supplied without integrated overvoltage damping. Without additional price. The article number must be supplemented by "-Z" and the order code "A02".

3) When using 3TF68 vacuum contactors with IE3 motors from 8.5 times the starting current, please use 3TF69 vacuum contactors.

4) Use of 3TF69 vacuum contactors with IE3 motors on request.

5) On this version, a magnetic system with rectifier is used in the DC economy circuit. Varistor integrated. A 3TC4417-... reversing contactor with preassembled connecting cable (approx. 1 m) and plug is included in the scope of supply of the vacuum contactor.

Rated control supply voltages
(change of the 10th and 11th digits of the Article No.)

Rated control supply voltage U_s	Contactor type	3TF6833-.D.. 3TF6933-.D..
	Size	14

DC operation

Solenoid coils for DC economy circuit

24 V DC	B4
110 V DC	F4
125 V DC	G4
220 V DC	M4
230 V DC	P4

Switching Devices

Contactors for Special Applications

SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

Overview

Standards

IEC 60947-1, EN 60947-1,
IEC 60947-4-1, EN 60947-4-1,
IEC 60947-5-1, EN 60947-5-1,
IEC 60831-1, EN 60831-1,
IEC 61921, EN 61921

The 3RT26 contactors are suitable for use in any climate. They are finger-safe according to IEC 60529.

Function

The 3RT26 contactors for capacitive loads (AC-6b) are special versions of the 3RT20 contactors size S00, S0 and S2 which are configured for switching banks of capacitors.

They are designed to convey the inrush current in such applications, and are weld-resistant in compliance with the technical specifications.

The 3RT26 contactors are suitable for choked and unchoked capacitors. Besides switching power capacitors in reactive-current compensation systems, they are also used to switch converters.

In the case of 3RT26 contactors, the precharging resistors are an integral component of the contactor. The precharging resistors are activated via leading auxiliary contacts before the main contacts close. During switching, after attenuation of the peak current, they are decoupled again. Attenuation of the inrush current peaks also reduces interfering harmonics in the supply.

Notes:

Only switching onto discharged capacitors is permitted with 3RT26 contactors.

Manual operation for function tests is not permitted. The series resistors must not be removed.

Auxiliary switches

The variance of unassigned auxiliary switches has been increased; available versions, see "Selection and ordering data" page 1/57. Details of deviating versions are available on request.

In sizes S00 and S0, the auxiliary switch block which is snapped onto the capacitor contactor contains the three leading NO contacts and one unassigned auxiliary contact. In addition, another one (S00) or two (S0) unassigned auxiliary contacts are provided in the basic unit.

The fitting of auxiliary switches for 3RT26 contactors in sizes S00 and S0 of the respective version is not expandable. For size S2, unassigned auxiliary switches are implemented by means of lateral auxiliary switch blocks. More auxiliary switch blocks can be mounted laterally corresponding to the 3RT20 contactors.

Devices with 2 NC contacts are now consistently available in all power quantities.

Technical specifications

Type

3RT26

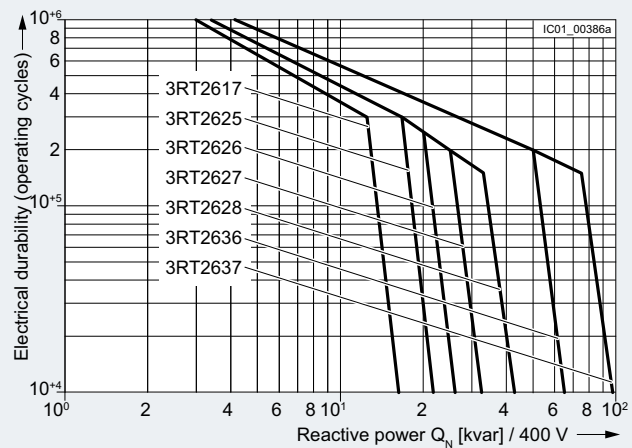
Size

S00 ... S2

Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching capacitive loads (AC-6b) depending on the reactive power Q_N and rated operational voltage.

The rated operational current I_e complies with utilization category AC-6b (breaking 1.35 times the rated operational current) and is intended for a contact endurance of approximately 150 000 to 200 000 operating cycles.

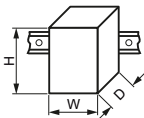
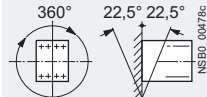


Switching Devices

Contactors for Special Applications

SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

1

Type		3RT261.	3RT2625	3RT2626	3RT2627	3RT2628	3RT2636	3RT2637	
Size		S00	S0				S2		
General data									
Dimensions (W x H x D) including auxiliary switches and connecting cables									
• AC operation	mm	45 x 125 x 120	45 x 135 x 155			45 x 150 x 155	65 x 114 x 130		
• DC operation, AC/DC operation	mm	45 x 125 x 120	45 x 135 x 165			45 x 150 x 165	65 x 114 x 130		
Permissible mounting position The contactors are designed for operation on a vertical mounting surface.									
Mechanical endurance									
• Basic units with mounted auxiliary switch block	Oper. cycles		3 million						
Electrical endurance									
For apparent power at 400 V	kvar	12.5	16.7	20	25	33	50	75	
	Oper. cycles	300 000	200 000			150 000	200 000	150 000	
Rated insulation voltage U_i (pollution degree 3)	V	690							
Rated impulse withstand voltage U_{imp}	kV	6							
Protective separation between the coil and the main contacts, acc. to IEC 60947-1, Appendix N	V	400							
Permissible ambient temperature									
• During operation ¹⁾	°C	-25 ... +60							
• During storage	°C	-55 ... +80							
Degree of protection acc. to IEC 60529									
• On front		IP20							
• Connecting terminal		IP20							
		IP00 (for higher degree of protection, use additional terminal covers)							
Touch protection acc. to IEC 60529									
		Finger-safe							
		Finger-safe for vertical touching from the front							
Shock resistance									
• Rectangular pulse	g/ms	6.7/5 and 4.2/10	7.5/5 and 4.7/10	8.3/5 and 5.3/10			6.8/5 and 4/10		
• Sine pulse	g/ms	10.5/5 and 6.6/10	11.8/5 and 7.4/10	13.5/5 and 8.3/10			10.6/5 and 6.2/10		
Short-circuit protection									
Main circuit									
• Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1 - Type of coordination "1"	A	25 ... 40	32 ... 80	40 ... 80	50... 100	63 ... 100	100 ... 160	160 ... 200	
Auxiliary circuit									
• With fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1	A	10							
• With miniature circuit breakers with C characteristic with short-circuit current $I_k = 400$ A	A	10							

¹⁾ A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

Switching Devices

Contactors for Special Applications

SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

Type		3RT2617 -1A, -1B	3RT2625 -1A, -1B	3RT2626 -1A, -1B	3RT2627 -1A, -1B	3RT2628 -1A, -1B	3RT2636 -1A	3RT2637 -1A
Size		S00	S0				S2	
Control								
Solenoid coil operating range								
• AC operation	50 Hz	0.8 ... 1.1 x U_s		0.85 ... 1.1 x U_s		--		
	60 Hz	1.1 x U_s		0.8 ... 1.1 x U_s		--		
• DC operation	At 50 °C	0.8 ... 1.1 x U_s		--		--		
	At 60 °C	0.85 ... 1.1 x U_s		--		--		
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)								
• AC operation, 50 Hz, standard version								
- Closing	VA	--	77				190	
- P.f.		--	0.82				0.72	
- Closed	VA	--	9.8				16	
- P.f.		--	0.25				0.37	
• AC operation, 50/60 Hz, standard version								
- Closing	VA	49	81/79				210/188	
- P.f.		0.8	0.72/0.74				0.69/0.65	
- Closed	VA	7.8	10.5/8.5				17.2/16.5	
- P.f.		0.25	0.25/0.28				0.36/0.39	
• DC operation								
- Closing	W	4	5.9				--	
- Closed	W	4	5.9				--	
Maximum permissible residual current of the electronics (with 0 signal) ¹⁾								
• AC operation (230 V/ U_s)	mA	4 ¹⁾	7				--	
• DC operation (24 V/ U_s)	mA	10 ¹⁾	16				--	
Operating times for 0.8 ... 1.1 x U_s ²⁾ Total break time = Opening delay + Arcing time								
• AC operation								
- Closing delay	ms	8 ... 33	9 ... 38	8 ... 40			10 ... 80	
- Opening delay	ms	4 ... 15	4 ... 16				10 ... 18	
• DC operation								
- Closing delay	ms	30 ... 100	55 ... 80	50 ... 170			--	
- Opening delay	ms	7 ... 13	16 ... 17	15 ... 18			--	
• Arcing time	ms	10 ... 15						

¹⁾ Size S00: The 3RT2916-1GA00 additional load module is recommended for higher residual currents.

²⁾ With size S00, DC operation: Operating times for 0.85 to 1.1 x U_s .

Type		3RT262.-1NB35	3RT262.-1NF35	3RT262.-1NP35	3RT263.-1N.35
Size		S0			S2
Control					
Solenoid coil operating range					
• AC/DC operation (50/60 Hz AC and DC)		--	0.7 ... 1.3 x U_s		0.8 ... 1.1 x U_s
Power consumption of the solenoid coils (for cold coil and 1.0 x U_s)					
• AC operation, 50/60 Hz, standard version					
- Closing	VA	6.6/6.7	11.9/12.0	12.7/14.7	40
- P.f.		0.98/0.98			0.64/0.5
- Closed	VA	1.9/2.0	1.6/1.8	3.9/4.3	2
- P.f.		0.86/0.82	0.79/0.74	0.51/0.56	0.36/0.39
• DC operation					
- Closing	W	5.9	10.2	14.3	25
- Closed	W	1.4	1.3	1.9	1
Maximum permissible residual current of the electronics (with 0 signal)					
• AC operation (230 V/ U_s)	mA	7			< 20
• DC operation (24 V/ U_s)	mA	16			< 20
Operating times for 0.8 ... 1.1 x U_s Total break time = Opening delay + Arcing time					
• AC/DC operation					
- Closing delay	ms	50 ... 70			50 ... 100
- Opening delay	ms	35 ... 45			34 ... 62
• Arcing time	ms	10 ... 15			

SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

1

Type		3RT2617	3RT2625	3RT2626	3RT2627	3RT2628	3RT2636	3RT2637	
Size		S00	S0				S2		
Auxiliary circuit									
Auxiliary contacts (unassigned)		1 NO + 1 NC, 2 NC	1 NO + 2 NC				1 NO + 1 NC, 2 NC		
Another auxiliary contact can be mounted laterally		--					✓ ¹⁾	✓ ¹⁾	
Rated data of the main contacts									
Load rating with AC									
Utilization category AC-6b									
Switching of AC capacitors									
Rated operational current I_g at AC									
• At ambient temperature of 40 °C	A	18.9	25.3	30.2	37.8	50	75.8	113.4	
• At ambient temperature of 60 °C	A	18	24	29	36	47.6	72.2	108	
Rated operational reactive power at rated operational voltage	230 V, 50/60 Hz	kvar	0 ... 7.2	3 ... 9.6	4 ... 11.5	5 ... 14	6 ... 19	10 ... 29	14 ... 43
	400 V, 50/60 Hz	kvar	0 ... 12.5	6 ... 16.7	7 ... 20	8 ... 25	11 ... 33	17 ... 50	25 ... 75
	500 V, 50/60 Hz	kvar	0 ... 15	7 ... 21	8 ... 25	10 ... 31	14 ... 41	21 ... 63	31 ... 94
	690 V, 50/60 Hz	kvar	0 ... 21	10 ... 29	11 ... 34	14 ... 43	19 ... 57	29 ... 86	43 ... 129
Switching frequency									
No-load switching frequency	AC operation	1/h	500						
	DC operation	1/h	500						
Max. switching frequency z in operating cycles/hour									
• At I_g /AC-6b and at	230 V, 50/60 Hz	1/h	180		100				
	400 V, 50/60 Hz	1/h	180		100			100 / 80 ²⁾	
	480 V, 50/60 Hz	1/h	180		100		70	60	
	500 V, 50/60 Hz	1/h	180		100		65	55	
	600 V, 50/60 Hz	1/h	180		100		45	40	
	690 V, 50/60 Hz	1/h	180	150	100	72	36	30	
Ⓢ and Ⓞ rated data									
Rated insulation voltage	V AC		600						
Operational reactive power at AC-6b, 3-phase, at operational voltage	110 ... 120 V	kvar	3.4	4.6	5.5	6.3	8.3	14	19
	200 ... 208 V	kvar	6.2	8.3	10	11	15	25	34
	220 ... 230 V	kvar	6.9	9.2	11	13	17	27	38
	460 ... 480 V	kvar	14	18	22	25	33	55	75
	575 ... 600 V	kvar	17	23	27	31	41	69	94
Short-circuit protection	At 600 V	kA	5					10	
Fuse for main circuit	Class RK5	A	40	80			100	250	


¹⁾ No more than one lateral auxiliary switch block.

²⁾ Operating cycles/h: 100 with AC operation; 80 with AC/DC operation.

Switching Devices

Contactors for Special Applications

SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

Type		3RT2617-1....	3RT2625-1...., 3RT2626-1...., 3RT2627-1....	3RT2628-1....	3RT2636-1....	3RT2637-1....
Size		S00	S0 ¹⁾		S2 ²⁾	
Conductor cross-sections						
Main conductors (1 or 2 conductors can be connected)		 Screw terminals				
• Solid or stranded	mm ²	2 x (0.5 ... 1.5) ³⁾ ; 2 x (0.75 ... 2.5) ³⁾ ; max. 2 x 4	2 x (1 ... 2.5) ³⁾ ; 2 x (2.5 ... 10) ³⁾	1 x (2.5 ... 25)	2 x (2.5 ... 35); 1 x (2.5 ... 50)	
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ³⁾ ; 2 x (0.75 ... 2.5) ³⁾	2 x (1 ... 2.5) ³⁾ ; 2 x (2.5 ... 6) ³⁾ ; 1 x 10	1 x (2.5 ... 16)	2 x (1 ... 25); 1 x (1 ... 35)	--
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) ³⁾ ; 2 x (18 ... 14) ³⁾ ; 2 x 12	2 x (16 ... 12) ³⁾ ; 2 x (14 ... 8) ³⁾	1 x (10 ... 4)	2 x (18 ... 2); 1 x (18 ... 0)	
• Terminal screw		M3 (for Pozidriv size 2; Ø 5 ... 6)	M4 (for Pozidriv size 2; Ø 5 ... 6)	M8	M6 (for Pozidriv size 2; Ø 5 ... 6)	
• Tightening torque	Nm lb.in	0.8 ... 1.2 7 ... 10.3	2 ... 2.5 18 ... 22	3 ... 4 27 ... 36	3 ... 4.5 27 ... 40	
Auxiliary conductors (1 or 2 conductors can be connected)						
• Solid or stranded	mm ²	2 x (0.5 ... 1.5) ³⁾ ; 2 x (0.75 ... 2.5) ³⁾ ; max. 2 x 4				
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ³⁾ ; 2 x (0.75 ... 2.5) ³⁾				
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) ³⁾ ; 2 x (18 ... 14) ³⁾ ; 2 x 12				
• Terminal screw		M3 (for Pozidriv size 2; Ø 5 ... 6)				
• Tightening torque	Nm lb.in	0.8 ... 1.2 7 ... 10.3				

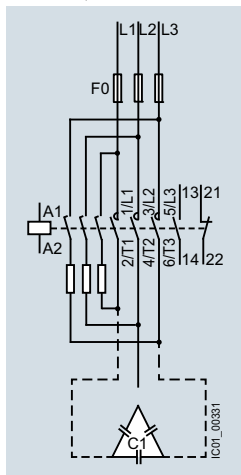
¹⁾ Three-phase infeed terminal 3RV2925-5AB available. With 3RT2628, the three-phase infeed terminal is included in the scope of delivery.

²⁾ Three-phase infeed terminal 3RV2935-5A available.

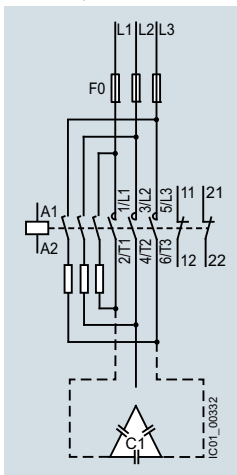
³⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

Circuit diagrams

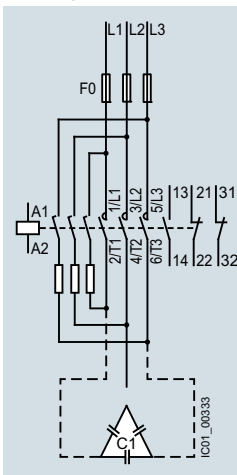
3RT2617-1A..3
Size S00, 1 NO + 1 NC



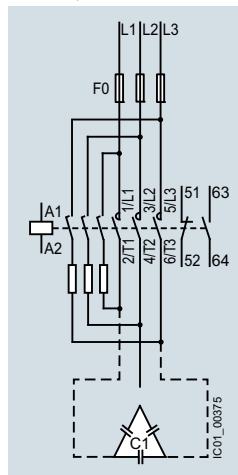
3RT2617-1A..5
Size S00, 2 NC



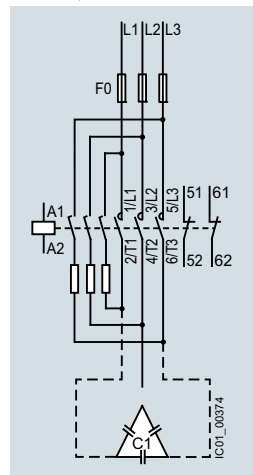
3RT262-1A..5
Size S0, 1 NO + 2 NC



3RT263.-1A..3
Size S2, 1 NO + 1 NC



3RT263.-1A..5
Size S2, 2 NC



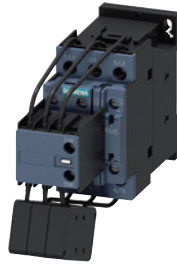
Selection and ordering data

AC operation

Main, auxiliary and control conductors: Screw terminals




3RT2617-1A.05



3RT262.-1A.05

3RT2628-1A.05
with feeder terminal

3RT263.-1A.05

Utilization category AC-6b				Auxiliary contacts, unassigned		Rated control supply voltage U_s ¹⁾		Screw terminals 	Article No.
Switching AC capacitors at an ambient temperature of 60 °C				Version					
Capacitor rating at operational voltage 50/60 Hz									
At 230 V	At 400 V	At 500 V	At 690 V	NO	NC	V AC	Hz		
kvar	kvar	kvar	kvar						
For screw fixing and snap-on mounting onto TH 35 standard mounting rail									
Size S00									
0 ... 7.2	0 ... 12.5	0 ... 15	0 ... 21	1	1	24 110 230	50/60	3RT2617-1AB03 3RT2617-1AF03 3RT2617-1AP03	
0 ... 7.2	0 ... 12.5	0 ... 15	0 ... 21	0	2	24 110 230	50/60	3RT2617-1AB05 3RT2617-1AF05 3RT2617-1AP05	
Size S0²⁾									
3 ... 9.6	6 ... 16.7	7 ... 21	10 ... 29	1	2	24 110 230	50	3RT2625-1AB05 3RT2625-1AF05 3RT2625-1AP05	
4 ... 11.5	7 ... 20	8 ... 25	11 ... 34	1	2	24 110 230	50	3RT2626-1AB05 3RT2626-1AF05 3RT2626-1AP05	
5 ... 14	8 ... 25	10 ... 31	14 ... 43	1	2	24 110 230	50	3RT2627-1AB05 3RT2627-1AF05 3RT2627-1AP05	
6 ... 19	11 ... 33	14 ... 41	19 ... 57	1	2	24 110 230	50	3RT2628-1AB05 3RT2628-1AF05 3RT2628-1AP05	
Size S2³⁾									
10 ... 29	17 ... 50	21 ... 63	29 ... 86	1	1	24 110 230	50	3RT2636-1AB03 3RT2636-1AF03 3RT2636-1AP03	
10 ... 29	17 ... 50	21 ... 63	29 ... 86	0	2	24 110 230	50	3RT2636-1AB05 3RT2636-1AF05 3RT2636-1AP05	
14 ... 43	25 ... 75	31 ... 94	43 ... 129	1	1	24 110 230	50	3RT2637-1AB03 3RT2637-1AF03 3RT2637-1AP03	
14 ... 43	25 ... 75	31 ... 94	43 ... 129	0	2	24 110 230	50	3RT2637-1AB05 3RT2637-1AF05 3RT2637-1AP05	

1) Coil operating range
 - at 50 Hz: 0.8 to 1.1 x U_s
 - at 60 Hz: 0.85 to 1.1 x U_s .

2) Three-phase infeed terminal 3RV2925-5AB available. With 3RT2628, the three-phase infeed terminal is included in the scope of delivery.

3) Three-phase infeed terminal 3RV2935-5A available.

Switching Devices

Contactors for Special Applications

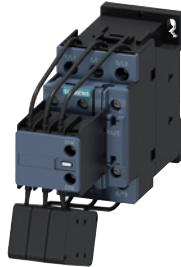
SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

DC operation

Main, auxiliary and control conductors: Screw terminals



3RT2617-1B.45



3RT262.-1B.45



3RT2628-1N.35
with feeder terminal

Utilization category AC-6b

Switching AC capacitors
at an ambient temperature of 60 °C

Capacitor rating at
operational voltage 50/60 Hz

At 230 V **At 400 V** At 500 V At 690 V

kvar

kvar

kvar

kvar



NO

NC

V DC

Auxiliary
contacts,
unassigned
Version

Rated control supply
voltage U_s ¹⁾

Screw terminals



Article No.

For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S00

0 ... 7.2	0 ... 12.5	0 ... 15	0 ... 21	1	1	24 110	3RT2617-1BB43 3RT2617-1BF43
0 ... 7.2	0 ... 12.5	0 ... 15	0 ... 21	0	2	24 110	3RT2617-1BB45 3RT2617-1BF45

Size S0²⁾

3 ... 9.6	6 ... 16.7	7 ... 21	10 ... 29	1	2	24 110	3RT2625-1BB45 3RT2625-1BF45
4 ... 11.5	7 ... 20	8 ... 25	11 ... 34	1	2	24 110	3RT2626-1BB45 3RT2626-1BF45
5 ... 14	8 ... 25	10 ... 31	14 ... 43	1	2	24 110	3RT2627-1BB45 3RT2627-1BF45
6 ... 19	11 ... 33	14 ... 41	19 ... 57	1	2	24 110	3RT2628-1BB45 3RT2628-1BF45

¹⁾ Operating range: 0.8 to 1.1 x U_s .

²⁾ Three-phase infeed terminal 3RV2925-5AB available. With 3RT2628, the three-phase infeed terminal is included in the scope of delivery.

SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

1

AC/DC operation (50/60 Hz AC and DC)

Main, auxiliary and control conductors: Screw terminals



3RT262.-1N.35

3RT2628.-1N.35
with feeder terminal

3RT263.-1N.35

Utilization category AC-6b

Switching AC capacitors
at an ambient temperature of 60 °C

Capacitor rating at
operational voltage 50/60 Hz

At 230 V **At 400 V** At 500 V At 690 V

kvar **kvar** kvar kvar NO NC V AC V DC

Auxiliary
contacts,
unassigned
Version



Rated control supply
voltage U_s ¹⁾

Screw terminals



Article No.

For screw fixing and snap-on mounting onto TH 35 standard mounting rail

Size S0²⁾

3 ... 9.6	6 ... 16.7	7 ... 21	10 ... 29	1	2	21 ... 28 95 ... 130 200 ... 280	21 ... 28 95 ... 130 200 ... 280	3RT2625-1NB35 3RT2625-1NF35 3RT2625-1NP35
4 ... 11.5	7 ... 20	8 ... 25	11 ... 34	1	2	21 ... 28 95 ... 130 200 ... 280	21 ... 28 95 ... 130 200 ... 280	3RT2626-1NB35 3RT2626-1NF35 3RT2626-1NP35
5 ... 14	8 ... 25	10 ... 31	14 ... 43	1	2	21 ... 28 95 ... 130 200 ... 280	21 ... 28 95 ... 130 200 ... 280	3RT2627-1NB35 3RT2627-1NF35 3RT2627-1NP35
6 ... 19	11 ... 33	14 ... 41	19 ... 57	1	2	21 ... 28 95 ... 130 200 ... 280	21 ... 28 95 ... 130 200 ... 280	3RT2628-1NB35 3RT2628-1NF35 3RT2628-1NP35

Size S2³⁾

10 ... 29	17 ... 50	21 ... 63	29 ... 86	0	2	20 ... 33 83 ... 155 175 ... 280	20 ... 33 83 ... 155 175 ... 280	3RT2636-1NB35 3RT2636-1NF35 3RT2636-1NP35
14 ... 43	25 ... 75	31 ... 94	43 ... 129	0	2	20 ... 33 83 ... 155 175 ... 280	20 ... 33 83 ... 155 175 ... 280	3RT2637-1NB35 3RT2637-1NF35 3RT2637-1NP35

¹⁾ Coil operating range: 0.7 to 1.3 x U_s .

²⁾ Three-phase infeed terminal 3RV2925-5AB available. With 3RT2628, the three-phase infeed terminal is included in the scope of delivery.

³⁾ Three-phase infeed terminal 3RV2935-5A available.

Switching Devices

SIRIUS 3RA6 Compact Starters

General data

1

Overview

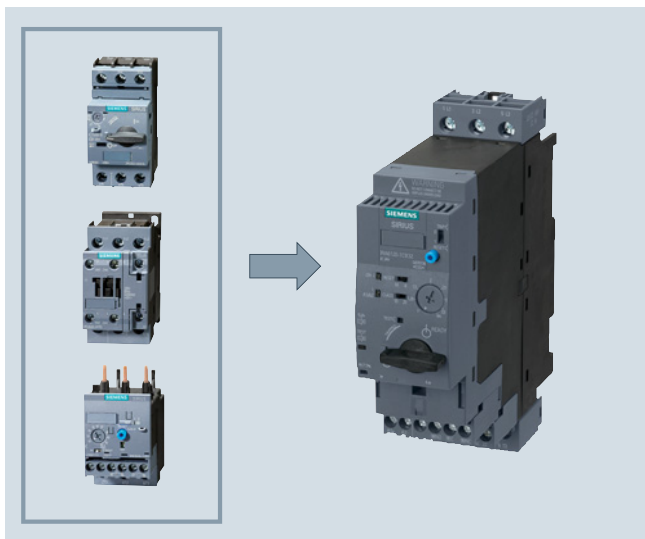
3RA6 fuseless compact starters and infeed system for 3RA6



3RA62 reversing starter

Integrated functionality

The SIRIUS 3RA6 compact starters are a generation of innovative load feeders with the integrated functionality of a motor starter protector, contactor and electronic overload relay. In addition, various functions of optional mountable accessories (e.g. auxiliary switches, surge suppressors) are already integrated in the SIRIUS compact starter.



3RA6 compact starters with the integrated functionality of a motor starter protector, contactor and electronic overload relay.

Applications

SIRIUS compact starters can be used wherever standard three-phase motors or resistive loads up to 32 A (approx. 15 kW/400 V) are directly started or switched.

The compact starters are not suitable for the protection of DC loads.

Approvals according to IEC, UL, CSA and CCC standards have been issued for the compact starters.

Low variance of devices

Thanks to wide setting ranges for the rated current and wide voltage ranges, the equipment variance is greatly reduced compared to conventional load feeders.

Very high operational reliability

The high short-circuit breaking capacity and defined shut-down when the end of service life is reached means that the SIRIUS compact starter achieves a very high level of operational reliability that would otherwise have only been possible with considerable additional outlay. This sets it apart from devices with similar functionality.

Safe disconnection

The auxiliary switches (NC contacts) of the 3RA6 compact starters are designed as mirror contacts. This enables their use for safe disconnection – e.g. EMERGENCY STOP up to SIL 1 (IEC 62061) or PL c (ISO 13849-1) or, if used in conjunction with an additional infeed contactor, up to SIL 3 (IEC 62061) or PL e (ISO 13849-1).

Communications integration through AS-Interface

For the integration of communication via AS-Interface there is an AS-i add-on module available in several versions for mounting instead of the control circuit terminals on the SIRIUS compact starter.

The design of the AS-i add-on module permits a group of up to 62 feeders with a total of four cables to be connected to the control system. This reduces wiring work considerably compared to the parallel wiring method.

Screw and spring-type terminals

The SIRIUS compact starters and the infeed system for 3RA6 are available with screw and spring-type terminals.



Screw terminals



Spring-type terminals

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

System configurator for engineering

A free system configurator is available to reduce further the amount of engineering work for selecting the required compact starters and matching infeed.

Use of load feeders in conjunction with IE3 motors

Note:

For the use of SIRIUS 3RA6 compact starters in conjunction with highly energy-efficient IE3 motors, please observe the information on dimensioning and configuring, see "Configuration Manual for SIRIUS Controls with IE3 Motors", <https://support.industry.siemens.com/cs/ww/en/view/94770820>.

For more information, see Preface, page 5.

Types of infeed for the 3RA6 fuseless compact starters

On the whole four different infeed possibilities are available:

- Parallel wiring
- Use of 3-phase busbars (combination with SIRIUS motor starter protectors and SIRIUS contactors possible)
- 8US busbar adapters
- SIRIUS infeed system for 3RA6

To comply with the clearance and creepage distances demanded according to UL 508 there are the following infeed possibilities:

Type of infeed	Infeed terminal (according to UL 508, type E)	Type
Parallel wiring	Terminal block for "Self-Protected Combination Motor Controller (Type E)"	3RV2928-1H
Three-phase busbars	Three-phase infeed terminal for constructing "Type E Starters", UL 508	3RV2925-5EB
Infeed systems for 3RA6	Infeed on left, 50/70 mm ² , screw terminal with 3 sockets, outgoing terminal with screw/spring-type terminals incl. PE bar	3RA6813-8AB (screw terminals), 3RA6813-8AC (spring-type terminals)

SIRIUS 3RA6 compact starters

SIRIUS 3RA6 compact starters are universal motor feeders according to IEC 60947-6-2. As control and protective switching devices (CPS) they can connect, convey and disconnect the thermal, dynamic and electrical loads from short-circuit currents up to $I_{cs} = 53$ kA, i. e. they are practically weld-free. They combine the functions of a motor starter protector, a contactor and an electronic overload relay in one enclosure. 45-mm-wide direct-on-line starters and 90-mm-wide reversing starters are available as variants.

The reversing starter version comes with not only an internal electrical interlock but also with a mechanical interlock to prevent simultaneous actuation of both directions of rotation.

The compact starters have isolating features in accordance with IEC 60947.2 and can be used as disconnecter units (main control switch according to EN 60204 or DIN VDE 0113). Isolation is effected by moving the actuator into the "OFF" position; disconnection by means of the control contacts is not enough.

3RA6 fuseless compact starters are available in five current setting ranges. The 3RA61 and 3RA62 have two control voltage ranges (AC/DC), and the 3RA64 and 3RA65 have one control voltage range (DC):

Current setting range	At 400 V AC for three-phase motors Standard output P	Rated control supply voltage for 3RA61, 3RA62 compact starters
A	kW	V AC/DC
0.1 ... 0.4	0.09	24
0.32 ... 1.25	0.37	110 ... 240
1 ... 4	1.5	
3 ... 12	5.5	
8 ... 32	15	

Note:

The 3RA1 load feeders can be used for fuseless load feeders > 32 A up to 100 A.

The SENTRON 3VL circuit breakers and the SIRIUS 3RT contactors can be used for fuseless load feeders > 100 A.

Operating conditions

The SIRIUS 3RA6 compact starters are suitable for use in any climate. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. Suitable covers must be provided for installation in dusty and damp locations.

The SIRIUS compact starters are generally designed to degree of protection IP20. The permissible ambient temperature during operation is -20 to +60 °C.

The rated short-circuit current I_{CS} according to IEC 60947-6-2 is 53 kA at 400 V.

Note:

The maximum permissible short-circuit currents of the device versions for the various line system configuration and currents are available on request from Technical Assistance:
Tel.: +49 (0) 911-895-5900
Email: technical-assistance@siemens.com

Overload tripping times

The tripping time in the event of overload can be set on the device to normal starting conditions (CLASS 10) and to heavy starting conditions (CLASS 20). As the breaker mechanism still remains closed after an overload, resetting is possible by either local manual reset or auto reset after three minutes cooling time.

With auto reset, there is no need to open the control cabinet.

Diagnostics options

The compact starter provides the following diagnostics options:

- With LEDs
 - Connection to the control voltage
 - Position of the main contacts
- With mechanical display
 - Tripping due to overload
 - Tripping due to short circuit
 - Tripping due to malfunction (end of service life reached because of worn switching contacts or a worn switching mechanism or faults in the control electronics)

These states can also be evaluated in the higher-level control system:

- With parallel wiring using the integrated auxiliary and signaling switches of the compact starter
- With AS-Interface or IO-Link in even greater detail using the respective communication interface

Four complement versions for 3RA61 and 3RA62 compact starters

- For standard mounting rail or screw fixing:
Basic version including 1 pair of main circuit terminals and 1 pair of control circuit terminals
- For standard mounting rail or screw fixing when using the AS-i add-on module:
Without control circuit terminals because the AS-i add-on module is plugged on instead
- For use with the infeed system for 3RA6:
Without main circuit terminals because they are supplied with the infeed system and the expansion modules
- For use with the infeed system for 3RA6 and AS-i add-on module:
Without terminal complement (also for reordering when replacing the compact starter)

The control circuit terminals are always required by the compact starters for IO-Link; the main circuit terminals depend on the use of the infeed system.

Switching Devices

SIRIUS 3RA6 Compact Starters

General data

More components of the 3RA6

Apart from the control supply voltage, "Overload" (1 CO) and "Short circuit / Function fault" (1 NO) signaling contacts are already integrated into the 3RA61/3RA62 – and lockable via two 6-pole removable control circuit terminals. The 3RA61 has two auxiliary contacts (1 NO + 1 NC) for displaying the position of the main contacts. Unlike the 3RA61 direct-on-line starter, the 3RA62 reversing starter has one auxiliary contact (1 NO) per direction of rotation per main contact.

Available for the 3RA61 and 3RA64 direct-on-line starters is a slot for an optional auxiliary switch block (optionally 2 NO, 2 NC or 1 NO + 1 NC) and for the 3RA62 and 3RA65 reversing starters there are two slots.

Article No. scheme

Digit of the Article No.	1st - 4th	5th	6th	7th	8th	9th	10th	11th	12th	
	□□□□	□	□	□	-	□	□	□	□	
SIRIUS 3RA6 compact starters	3 R A 6									
Version (direct-on-line starter = 1, reversing starter = 2, infeed system = 8, accessories = 9)		□								
Details of accessories			□	□						
Connection method (0 = without terminals, 1 = screw terminals, 2 = spring-type terminals)						□				
Setting range							□			
Rated control supply voltage								□	□	
Terminals complement variant									□	
Special versions										
Example	3 R A 6	1	2	0	-	0	A	B	3 0	

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

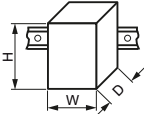
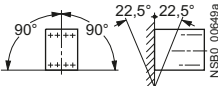
For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Positively-driven operation of the auxiliary contacts

Positively-driven operation between individual auxiliary circuits exists for the compact starter in the version as a direct-on-line starter for parallel wiring (3RA61) between the auxiliary circuits of the NC contacts (NC 21-22) and the NO contacts (NO 13-14) in the basic unit.

In addition, the optional auxiliary switch block offers positively driven contacts in the 3RA6913-1A version, each with one normally closed contact and one normally open contact.

Technical specifications

Type		3RA61	3RA62
Size		S0	
Number of poles		3	
Mechanics and environment			
Mounting dimensions (W x H x D)		mm	45 x 170 x 165
<ul style="list-style-type: none"> Screw terminals Spring-type terminals 		mm	45 x 191 x 165
			90 x 170 x 165 90 x 191 x 165
Depth from standard mounting rail		mm	160
Permissible ambient temperature		°C	-20 ... +70, restriction as from 60 depending on design
<ul style="list-style-type: none"> During operation (for permissible operational current, see the following section "Electrical specifications") During storage During transport 		°C	-55 ... +80
		°C	-55 ... +80
Permissible mounting position			
Shock resistance (sine-wave pulse)			$a = 60 \text{ m/s}^2 = 6 \text{ g}$ with 10 ms; for every 3 shocks in all axes
Vibratory load			$f = 4 \dots 5.8 \text{ Hz}$; $d = 15 \text{ mm}$; $f = 5.8 \dots 500 \text{ Hz}$; $a = 20 \text{ m/s}^2$; 10 cycles
Degree of protection	Acc. to IEC 60947-1		IP20
Installation altitude		m	Up to 2 000 above sea level without restriction
Relative air humidity		%	10 ... 90
Degree of pollution			3
Electrical specifications			
Device standard			IEC 60947-6-2
Maximum rated operational voltage U_e		V	690
		V	400 at 3RA6250-E... and 3RA6500-E... (Reversing starter 32 A designs)
Rated frequency		Hz	50/60
Rated insulation voltage U_i (Pollution degree 3)		V	690
Rated impulse withstand voltage U_{imp}		kV	6
Rated operational current I_e¹⁾	0.1 ... 0.4 A	A	0.4
And setting range for overload release	0.32 ... 1.25 A	A	1.25
	1 ... 4 A	A	4
	3 ... 12 A	A	12
	8 ... 32 A	A	32
Permissible operational current of the compact starter²⁾	When several compact starters are mounted side-by-side in the infeed system for 3RA6 (for more details on the various design variants, see System Manual "SIRIUS 3RA6 Compact Feeders", https://support.industry.siemens.com/cs/ww/en/view/27865747)		
	• For a control cabinet inside temperature of +40 °C	%	100
	• For a control cabinet inside temperature of +60 °C	%	80
	• For a control cabinet inside temperature of +70 °C	%	60
Trip class (CLASS)	Acc. to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102)		10/20
Overload function			1:4
Ratio of lower to upper current mark			
Rated service short-circuit breaking capacity I_{CS} at 50/60 Hz, 400 V AC		kA	53
Rated service short-circuit breaking capacity I_{CSIT} at 50/60 Hz 400/690 V AC in IT systems		kA	1.5
Power loss P_v max of all main current paths	0.4 A	mW	10
Dependent on rated current I_e	1.25 A	mW	100
(upper setting range)	4 A	W	1
	12 A	W	1.8
	32 A	W	5.4
Max. switching frequency	AC-41	1/h	750
	AC-43	1/h	250
	AC-44	1/h	15
No-load switching frequency		1/h	3 600
Touch protection	Acc. to DIN VDE 0106, Part 100		Finger-safe

¹⁾ For use of 3RA6 compact starters in conjunction with highly energy-efficient IE3 motors, please observe the information on dimensioning and configuring in the "Configuration Manual for SIRIUS Controls with IE3 Motors", see <https://support.industry.siemens.com/cs/ww/en/view/94770820>.

²⁾ Details about installation conditions and the use of the compact starters, and particularly about the derating of the rated current, can be found in the System Manual "SIRIUS Compact Starters and Accessories".

Switching Devices

SIRIUS 3RA6 Compact Starters

General data

Type			3RA61	3RA62
Size			S0	
Number of poles			3	
Electrical specifications (continued)				
Isolating features of the compact starter	Acc. to IEC 60947-3		✓	Isolation is assured only by moving the actuator into the "OFF" position.
Main and EMERGENCY-STOP switch characteristics of the compact starter and accessories	Acc. to IEC 60204		✓	
Protective separation	Acc. to IEC 60947-2			
Control circuit to auxiliary circuit		V	Up to 400	
• Horizontal standard mounting rail		V	Up to 250	
• Other mounting position				
Auxiliary circuit to auxiliary circuit		V	Up to 400	
• Horizontal standard mounting rail		V	Up to 250	
• Other mounting position				
Main circuit to auxiliary circuit		V	Up to 400	
• Any mounting position				
EMC interference immunity	Acc. to IEC 60947-1		Corresponds to degree of severity 3	
Conducted interference	BURST Acc. to IEC 61000-4-4			
• In the main circuit		kV	4	
• In the auxiliary circuit		kV	3	
Conducted interference	SURGE Acc. to IEC 61000-4-5			
• In the main circuit		kV	4	
- Conductor - Ground		kV	2	
• In the auxiliary circuit		kV	2	
- Conductor - Ground		kV	1	
- Conductor - Conductor				
Auxiliary switches				
• Integrated			1 NO + 1 NC	2 NO
- Position of the main contacts			1 CO/1 NO	
- Overload/short circuit and malfunction signal				
• Expandable			2 NO, 2 NC, 1 NO, 1 NC	
- Position of the main contacts				
Surge suppressors			Integrated (Varistor)	
Electromagnetic operating mechanisms				
Control voltage		V	24 AC/DC	
		V	110 ... 240 AC/DC	
Frequency	At AC	Hz	50/60 (±5 %)	
Operating range			0.7 ... 1.25 U_s	
No-load switching frequency		1/h	3 600	
Line protection	At 10 kA At 50 kA	mm ² mm ²	2.5 4	
Shock resistance		<i>g</i>	25	
• Breaker mechanism OFF		<i>g</i>	15	
• Breaker mechanism ON				
Normal switching duty				
Making capacity			12 x I_n	
Breaking capacity			10 x I_n	
Switching capacity dependent on rated current	Up to 12 A Up to 32 A	kW kW	5.5 15	
Endurance in operating cycles				
• Electrical endurance	At $I_e = 0.9 \times I_n$ and 400 V		3 ... 10 000 000	2 x 3 ... 10 000 000

✓ Function available

Type	3RA6120-□B3., 3RA6250-□B3. □ = A, B, C or D Rated operational current ≤ 12 A				3RA6120-EB3., 3RA6250-EB3. Rated operational current 32 A				
Rated control supply voltage	V	24 AC		24 DC		24 AC		24 DC	
Inrush peak current	A	0.59		0.47		0.59		0.47	
Hold current	A	0.13		0.12		0.17		0.14	
Closed	W	2.8		2.9		3.5		3.1	
Operating times, typical									
• On	ms	<160		<140		<160		<140	
• Off	ms	<35		<35		<30		<30	
Type	3RA6 20-□P3., 3RA6250-□P3. □ = A, B, C or D Rated operational current ≤ 12 A				3RA6120-EP3., 3RA6250-EP3. Rated operational current 32 A				
Rated control supply voltage	V	110 AC	240 AC	110 DC	240 DC	110 AC	240 AC	110 DC	240 DC
Inrush peak current	A	0.24	0.40	0.17	0.29	0.24	0.40	0.17	0.29
Hold current	A	0.06	0.08	0.03	0.02	0.06	0.07	0.04	0.03
Closed	W	3.8	6	3.1	5.1	3.7	5.2	3.4	5.8
Operating times, typical									
• On	ms	<160	<140	<150	<140	<160	<140	<150	<140
• Off	ms	<50	<80	<50	<70	<40	<60	<40	<60
Type			3RA61		3RA62				
Size			S0		S0				
Number of poles			3		3				
Control circuit									
Rated operational voltage			V		400/690				
• External auxiliary switch block			V		400/690				
• Internal auxiliary switch			V		400				
• Short-circuit signaling switch			V		400				
• Overload signaling switch			V		400				
Switching capacity									
• External auxiliary switch block	AC-15								
		• Up to $U_e = 230$ V	A	6					
		• Up to $U_e = 400$ V	A	3					
		• Up to $U_e = 289/500$ V	A	2					
		• Up to $U_e = 400/690$ V	A	1					
		DC-13							
		• Up to $U_e = 24$ V	A	6					
		• Up to $U_e = 60$ V	A	0.9					
		• Up to $U_e = 125$ V	A	0.55					
		• Up to $U_e = 250$ V	A	0.27					
• Internal auxiliary switch		AC-15							
		• Up to $U_e = 230$ V	A	6					
		• Up to $U_e = 400$ V	A	3					
		• Up to $U_e = 289/500$ V	A	2					
		• Up to $U_e = 400/690$ V	A	1					
		DC-13							
		• Up to $U_e = 24$ V	A	10					
		• Up to $U_e = 60$ V	A	2					
		• Up to $U_e = 125$ V	A	1					
		• Up to $U_e = 250$ V	A	0.27					
		• Up to $U_e = 480$ V	A	0.1					
• Signaling switches		AC-15							
		• Up to $U_e = 230$ V	A	3					
		• Up to $U_e = 400$ V	A	1					
		DC-13							
		• Up to $U_e = 24$ V	A	2					
		• Up to $U_e = 250$ V	A	0.11					

Switching Devices

SIRIUS 3RA6 Compact Starters

General data

Type			3RA61	3RA62
Size			S0	
Number of poles			3	
External auxiliary switch blocks, internal auxiliary switches				
Endurance in operating cycles				
• Mechanical endurance			10 000 000	
• Electrical endurance	AC-15, 230 V		200 000	
	• Up to 6 A		500 000	
	• Up to 3 A		2 000 000	
	• Up to 1 A		10 000 000	
	• Up to 0.3 A			
	DC-13, 24 V		30 000	
	• Up to 6 A		100 000	
	• Up to 3 A		2 000 000	
	• Up to 0.5 A		10 000 000	
	• Up to 0.2 A			
	DC-13, 110 V		40 000	
	• Up to 1 A		100 000	
	• Up to 0.55 A		300 000	
	• Up to 0.3 A		2 000 000	
	• Up to 0.1 A		10 000 000	
	• Up to 0.04 A			
	DC-13, 220 V		110 000	
	• Up to 0.3 A		650 000	
	• Up to 0.1 A		2 000 000	
	• Up to 0.05 A		10 000 000	
	• Up to 0.018 A			
Contact reliability	At 17 V and 5 mA	Operating cycles	1 incorrect switching operation per 100 000 000	
Short-circuit protection				
• Short-circuit current $I_{K} \leq 1.1$ kA	Fuse links, operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	10	
• Short-circuit current $I_{K} < 400$ A	Miniature circuit breaker up to 230 V with C characteristic	A	10	
Signaling switches				
Endurance in operating cycles				
• Mechanical endurance			20 000	
• Electrical endurance AC-15	At 230 V and 3 A		6 050	
Contact reliability	At 17 V and 5 mA	Operating cycles	1 incorrect switching operation per 100 000 000	
Short-circuit protection				
• Short-circuit current $I_{K} \leq 1.1$ kA	Fuse links operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	6	
• Short-circuit current $I_{K} < 400$ A	Miniature circuit breaker up to 230 V with C characteristic	A	6	
Overload (short-circuit current $I_{K} \leq 1.1$ kA)	Fuse links operational class gG - NEOZED Type 5SE - DIAZED Type 5SB - LV HRC Type 3NA	A	4	

More information

Notes on safety

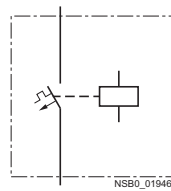
System networking requires suitable protective measures (including network segmentation for IT security) in order to ensure safe plant operation.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

Selection and ordering data



Direct-on-line start



Width 45 mm

Rated short-circuit current $I_{CS} = 53 \text{ kA}$ at 400 V

A set of 3A6940-0A adapters is required for screw fixing.

3RA6120-1CB32

3RA6120-2EB32

Standard three-phase motor
4-pole at 400 V AC¹⁾
Standard output P

Setting range for solid-state overload release

Instantaneous overcurrent release

Article No.

Article No.

Configurator



Configurator



kW

A

A

For use in the infeed system for 3RA6 and with AS-i add-on module or as a replacement device, without main and control circuit terminals

0.09	0.1 ... 0.4	56
0.37	0.32 ... 1.25	56
1.5	1 ... 4	56
5.5	3 ... 12	168
15	8 ... 32	448

3RA6120-0A□30
3RA6120-0B□30
3RA6120-0C□30
3RA6120-0D□30
3RA6120-0E□30

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Screw terminals



Spring-type terminals



For standard mounting rail or screw fixing, including 1 pair of main circuit terminals and 1 pair of control circuit terminals

0.09	0.1 ... 0.4	56
0.37	0.32 ... 1.25	56
1.5	1 ... 4	56
5.5	3 ... 12	168
15	8 ... 32	448

3RA6120-1A□32
3RA6120-1B□32
3RA6120-1C□32
3RA6120-1D□32
3RA6120-1E□32

3RA6120-2A□32
3RA6120-2B□32
3RA6120-2C□32
3RA6120-2D□32
3RA6120-2E□32

For use in the infeed system for 3RA6, without main circuit terminals with 1 pair of control circuit terminals

0.09	0.1 ... 0.4	56
0.37	0.32 ... 1.25	56
1.5	1 ... 4	56
5.5	3 ... 12	168
15	8 ... 32	448

3RA6120-1A□33
3RA6120-1B□33
3RA6120-1C□33
3RA6120-1D□33
3RA6120-1E□33

3RA6120-2A□33
3RA6120-2B□33
3RA6120-2C□33
3RA6120-2D□33
3RA6120-2E□33

Article No. supplements for rated control supply voltage

- 24 V AC/DC
- 110 ... 240 V AC/DC

B
PB
P

For standard mounting rail or screw fixing for use with AS-i add-on module, with 1 pair of main circuit terminals without control circuit terminals
Rated control supply voltage 24 V AC/DC

0.09	0.1 ... 0.4	56
0.37	0.32 ... 1.25	56
1.5	1 ... 4	56
5.5	3 ... 12	168
15	8 ... 32	448

3RA6120-1AB34
3RA6120-1BB34
3RA6120-1CB34
3RA6120-1DB34
3RA6120-1EB34

3RA6120-2AB34
3RA6120-2BB34
3RA6120-2CB34
3RA6120-2DB34
3RA6120-2EB34

For the online configurator, see www.siemens.com/sirius/configurators.

¹⁾ The actual starting and rated data of the motor to be protected must be considered when selecting the units.

Switching Devices

SIRIUS 3RA6 Compact Starters

3RA62 reversing starters

Selection and ordering data

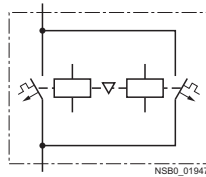


3RA6250-1CP32



3RA6250-2DP32

Reversing duty



NSB0_01947

Width 90 mm

Rated short-circuit current $I_{CS} = 53 \text{ kA}$ at 400 V

Two sets of 3RA6940-0A adapters are required for screw fixing.

Standard three-phase motor 4-pole at 400 V AC ¹⁾ Standard output P	Setting range for electronic overload release	Instantaneous overcurrent release	Article No.	Article No.
			Configurator	Configurator
kW	A	A		
For use in the infeed system for 3RA6 and with AS-i add-on module or as a replacement device, without main and control circuit terminals				
0.09	0.1 ... 0.4	56	3RA6250-0A□30	--
0.37	0.32 ... 1.25	56	3RA6250-0B□30	--
1.5	1 ... 4	56	3RA6250-0C□30	--
5.5	3 ... 12	168	3RA6250-0D□30	--
15	8 ... 32	448	3RA6250-0E□30	--
			Screw terminals	Spring-type terminals
For standard mounting rail or screw fixing, including 1 pair of main circuit terminals and 1 pair of control circuit terminals				
0.09	0.1 ... 0.4	56	3RA6250-1A□32	3RA6250-2A□32
0.37	0.32 ... 1.25	56	3RA6250-1B□32	3RA6250-2B□32
1.5	1 ... 4	56	3RA6250-1C□32	3RA6250-2C□32
5.5	3 ... 12	168	3RA6250-1D□32	3RA6250-2D□32
15	8 ... 32	448	3RA6250-1E□32	3RA6250-2E□32
For use in the infeed system for 3RA6, without main circuit terminals with 1 pair of control circuit terminals				
0.09	0.1 ... 0.4	56	3RA6250-1A□33	3RA6250-2A□33
0.37	0.32 ... 1.25	56	3RA6250-1B□33	3RA6250-2B□33
1.5	1 ... 4	56	3RA6250-1C□33	3RA6250-2C□33
5.5	3 ... 12	168	3RA6250-1D□33	3RA6250-2D□33
15	8 ... 32	448	3RA6250-1E□33	3RA6250-2E□33
Article No. supplements for rated control supply voltage				
<ul style="list-style-type: none"> • 24 V AC/DC • 110 ... 240 V AC/DC 				
For standard mounting rail or screw fixing for use with AS-i add-on module, with 1 pair of main circuit terminals without control circuit terminals				
Rated control supply voltage 24 V AC/DC				
0.09	0.1 ... 0.4	56	3RA6250-1AB34	3RA6250-2AB34
0.37	0.32 ... 1.25	56	3RA6250-1BB34	3RA6250-2BB34
1.5	1 ... 4	56	3RA6250-1CB34	3RA6250-2CB34
5.5	3 ... 12	168	3RA6250-1DB34	3RA6250-2DB34
15	8 ... 32	448	3RA6250-1EB34	3RA6250-2EB34

For the online configurator, see www.siemens.com/sirius/configurators.

¹⁾ The actual starting and rated data of the motor to be protected must be considered when selecting the units.

Overview

Coupling relays with plug-in relays can be ordered as complete units or as individual modules for customer assembly.

Function

The coupling relays with semiconductor output have low power consumption and are therefore particularly well suited to solid-state systems. In the versions equipped with LEDs, these indicate the switching state. The LZS:PT/MT coupling relays have a test button. This can be used to force the relays into the switching state and to lock it without electrical control. This is indicated by a raised petrol-colored lever.

Control with solid-state output

In the case of solid-state outputs (e.g. proximity switches) with overload and short-circuit protection, you must make allowance during configuration for the temporarily flowing capacitor charging currents! This is possible, for example, by using a suitable LZS coupling relay with plug-in relay.

Surge suppression

The 24 V DC relays LZX:RT and LZX: PT with LEDs can be supplied with, all others without integral surge suppression (freewheel diode connected in parallel with A1/A2). The positive control supply voltage must be connected to coil terminal A1.

Mounting

The relays are plugged into the base and this is snapped onto a TH 35 standard mounting rail according to IEC 60715.

A retaining bracket can be ordered for the MT series that additionally fixes the relay into a plug-in base (under conditions of increased mechanical stress). For the RT and PT series, a combined retaining and ejection bracket is available which can be used to disassemble the relay where access is difficult, for example, when relays are mounted side-by-side.

They can be mounted as required.

Logical separation

The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for coil. Logical separation is not necessarily protective separation.

Protective separation

For protective separation, transfer of the voltage of one circuit to another circuit is prevented to a suitable degree of safety (requirements and tests are described in IEC 60947-1 in Appendix N).

Notes on the previous LZX series

The complete units and accessory parts of the LZX series are no longer listed in this catalog. The complete units of the LZS series are fully compatible with the corresponding units of the LZX series. Prices for the LZS series are lower than for the previous LZX series.

The LZX plug-in relays are available unchanged and are used accordingly in both the LZS and the LZX series.

Note:

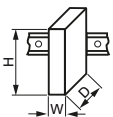

Due to differences in geometry the LED modules, plug-in bases, retaining brackets and labels can be combined and/or used in only the respective series, LZS or LZX.

Switching Devices

Coupling Relays with LZS/LZX Plug-In Relays

Coupling relays with plug-in relays

Technical specifications

Relay type		LZX:RT print relay, 8-pole, (12.7 mm) 1 CO / 2 CO				LZX:PT industrial relay, 8-, 11- and 14-pole, (22.5 mm) 2 CO / 3 CO / 4 CO				
General data										
Dimensions (W x H x D)										
• LZX:RT.A4 / LZX:PT.A5		mm	15.5 x 78 x 71				28 x 74 x 72			
• LZX:RT.B4 / LZX:PT.B5		mm	15.5 x 77 x 71				28 x 77 x 79			
• LZX:RT.D4 / LZX:PT.D5		mm	15.5 x 98 x 71				28 x 98 x 79			
Rated control supply voltage U_s¹⁾	V	24 DC	24 AC	115 AC	230 AC	24 DC	24 AC	115 AC	230 AC	
Rated insulation voltage U_i (Pollution degree 3)	V	250								
Overvoltage category acc. to IEC 60664-1		III								
Protective separation Between coil and contacts Acc. to IEC 60947-1, Appendix N		Up to 250 V (with plug-in base LZS:RT78726) No (for complete units with standard socket)				No				
Degree of protection • Relays • Bases		IP67 IP20				IP50				
Permissible ambient temperature • During operation • During storage	°C	-40 ... +70 -40 ... +80								
Conductor cross-sections										
Connection type		 Screw terminals								
• Solid	mm ²	2 x 2.5								
• Finely stranded with end sleeve	mm ²	2 x 1.5								
• Corresponding opening tool		Screwdriver, size 3.0 ... 3.5 mm x 0.5 mm (3RA2908-1A)								
Control side										
Operating range at 20 °C	V	16.8 ... 52	18 ... 52	86.3 ... 127	172 ... 264	18 ... 40.8	19.2 ... 39.6	92 ... 190	184 ... 380	
Power consumption at U_s • AC • DC	VA W	-- 0.4	0.75			-- 0.75	1			
Release voltage	V	2.4	7.2	34.5	69	3.6	7.2	34.5	69	
Protection circuit		Freewheel diode for complete unit	--				Freewheel diode in LED module	--		
Load side										
Switching voltage AC/DC	V	24 ... 250								
Rated currents²⁾										
• Conventional thermal current I_{th}	A									
- 1 CO contact	A	16				--				
- 2 CO contacts	A	6				12				
- 3 CO contacts	A	--				10				
- 4 CO contacts	A	--				6				
• Rated operational current I_g AC-15 acc. to utilization categories (IEC 60947-5-1)	A	RT3 (1 changeover contact): 6 RT4 (2 changeover contacts): 2.5				PT2 (2 changeover contacts): 5 PT3 (3 changeover contacts): 5 PT5 (4 changeover contacts): 4 (DC coils), 2 (AC coils)				
• Rated operational current I_g DC-13 with suppressor diode acc. to utilization categories (IEC 60947-5-1)	A	2 at 24 V, 0.27 at 230 V				PT2, PT3: 5 at 24 V PT5: 4 at 24 V 0.5 at 230 V				
Short-circuit protection										
Short-circuit test with fuse links of operational class gG With short-circuit current $I_k = 1$ kA Acc. to IEC 60947-5-1										
• DIAZED, type 5SB	A	10				6				
Min. contact load (Reliability: 1 ppm)		Standard 17 V, 10 mA; hard gold-plated 17 V/0.1 mA				Standard 17 V, 10 mA; hard gold-plated 20 mV/1 mA				
Mechanical endurance	Operating cycles	30 x 10 ⁶		10 x 10 ⁶						
Electrical endurance (resistive load at 250 V AC)	Operating cycles	1 x 10 ⁵								

¹⁾ AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10 %; the power loss will reduce slightly.

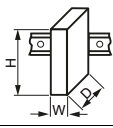

²⁾ Capacitive loads can result in micro-welding on the contacts.

Switching Devices

Coupling Relays with LZS/LZX Plug-In Relays

Coupling relays with plug-in relays

1

Relay type	MT industrial relay, 11-pole (35.5 mm) 3 CO				
General data					
Dimensions (W x H x D)		mm	36 x 69 x 36		
Rated control supply voltage U_s¹⁾	V	24 DC	24 AC	115 AC	230 AC
Rated insulation voltage U_i (Pollution degree 3)	V	250			
Overvoltage category Acc. to IEC 60664-1	III				
Protective separation Between coil and contacts Acc. to IEC 60947-1, Appendix N	No				
Degree of protection of relay/base	IP50 IP20				
Permissible ambient temperature	°C	-40 ... +60	-45 ... +50		
• During operation	°C	-45 ... +80			
• During storage					
Conductor cross-sections					
Connection type	 Screw terminals				
• Solid	mm ²	2 x 2.5			
• Finely stranded with or without end sleeve	mm ²	2 x 1.5			
• Corresponding opening tool	Screwdriver, size 1 or Pozidriv 1				
Control side					
Operating range at 20 °C	V	18 ... 38	19.2 ... 38	92 ... 137	184 ... 264
Power consumption	VA	--	2.3		
• AC	W	1.2	--		
• DC					
Release voltage	V	2.4	9.6	46	92
Protection circuit	--				
Load side					
Switching voltage	V	24 ... 250			
• AC/DC					
Rated currents²⁾	A	10			
• Conventional thermal current I_{th}	A	2 at 24 V, 0.27 at 230 V			
• Rated operational current I_e /DC-13 Acc. to utilization categories (IEC 60947-5-1)	A	5 at 24 V and 230 V			
• Rated operational current I_e /AC-15 Acc. to utilization categories (IEC 60947-5-1)					
Short-circuit protection	Short-circuit test with fuse links of operational class gG With short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1				
• DIAZED, type 5SB	A	10			
Min. contact load (Reliability: 1 ppm)	12 V DC/10 mA				
Mechanical endurance	Operating cycles	20 x 10 ⁶			
Electrical endurance (Resistive load at 250 V AC)	Operating cycles	4 x 10 ⁵			

¹⁾ AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10 %; the power loss will reduce slightly.

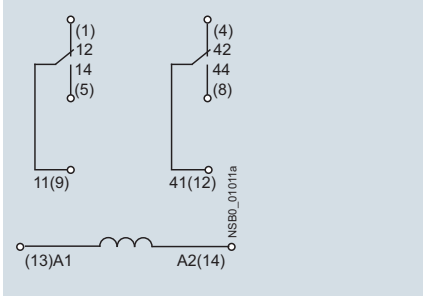
²⁾ Capacitive loads can result in micro-welding on the contacts.

Switching Devices

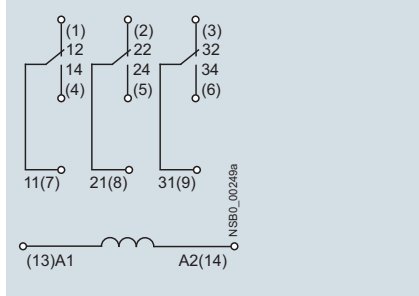
Coupling Relays with LZS/LZX Plug-In Relays

Coupling relays with plug-in relays

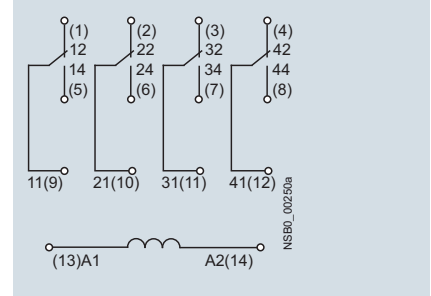
Circuit diagrams



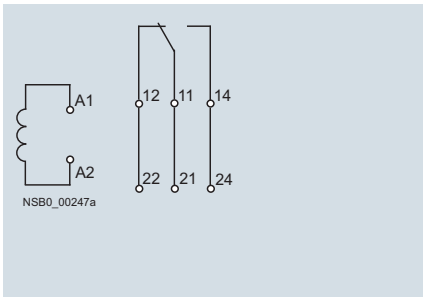
LZX:PT270
2-pole



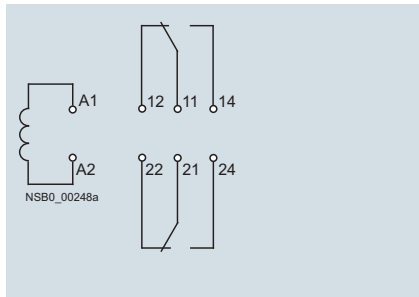
LZX:PT370
3-pole



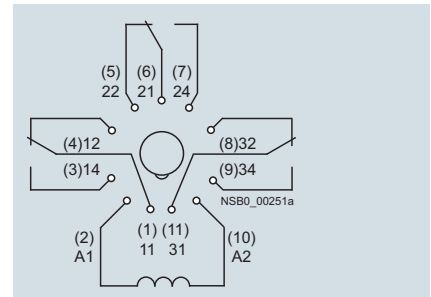
LZX:PT520, LZX:PT570, LZX:PT580
4-pole



LZX:RT3
1-pole



LZX:RT4
2-pole



LZX:MT32
3-pole

Note:

Values in brackets: Plug-in base designations
Without brackets: Contact/coil designations

Selection and ordering data

Version	Rated control supply voltage U_s (at AC: 50/60 Hz)	Contacts, number of CO contacts	Width mm	Article No.
	V		mm	

Complete units, 11- and 14-pole, PT series



LZS:PT3A5L24

Complete units with plug-in base

For snap-on mounting onto TH 35 standard mounting rail
Comprising:

- Coupling relays with plug-in relays
- Standard plug-in base with screw terminals
- LED module (version 24 V DC: LED module with freewheel diode)
- Fixing/ejection brackets
- Labels

3 CO contacts	24 DC	3	28
	24 AC		
4 CO contacts	115 AC	4	28
	230 AC		
	24 DC		

4 CO contacts	24 AC	4	28
	115 AC		
	230 AC		

Complete units with plug-in base

With logical separation

For snap-on mounting onto TH 35 standard mounting rail
Comprising:

- Coupling relays with plug-in relays
- Plug-in base with logical separation and screw terminals
- LED module (version 24 V DC: LED module with freewheel diode)
- Fixing/ejection brackets
- Labels

4 CO contacts	24 DC	4	28
	24 AC		
	115 AC		
	230 AC		

Screw terminals



LZS:PT3A5L24
LZS:PT3A5R24
LZS:PT3A5S15
LZS:PT3A5T30

LZS:PT5A5L24
LZS:PT5A5R24
LZS:PT5A5S15
LZS:PT5A5T30

LZS:PT5B5L24
LZS:PT5B5R24
LZS:PT5B5S15
LZS:PT5B5T30

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

Switching Devices

Coupling Relays with LZS/LZX Plug-In Relays

Coupling relays with plug-in relays

Version	Rated control supply voltage U_c at AC 50/60 Hz	Contacts, number of CO contacts	Width	Article No.
	V		mm	

Individual modules for customer assembly, PT series

Industrial relays, 8-, 11-, and 14-pole

Mini industrial relays

- With test bracket and mechanical switch position indicator, without LED¹⁾



LZX:PT370024

24 DC	2 3 4	22.5	LZX:PT270024 LZX:PT370024 LZX:PT570024
24 AC	2 3 4	22.5	LZX:PT270524 LZX:PT370524 LZX:PT570524
115 AC	2 3 4	22.5	LZX:PT270615 LZX:PT370615 LZX:PT570615
230 AC	2 3 4	22.5	LZX:PT270730 LZX:PT370730 LZX:PT570730

- With hard gold-plating

24 DC 230 AC	4	22.5	LZX:PT580024 LZX:PT580730
-----------------	---	------	------------------------------

- Without test bracket

24 DC 230 AC	4	22.5	LZX:PT520024 LZX:PT520730
-----------------	---	------	------------------------------


Plug-in bases for PT relays

Standard plug-in bases

For mounting onto TH 35 standard mounting rail



LZS:PT78740

			Screw terminals 
--	2 3 4	28	LZS:PT78720 LZS:PT78730 LZS:PT78740

Plug-in bases with logical separation

For mounting onto TH 35 standard mounting rail



LZS:PT78722

--	2 4	28	LZS:PT78722 LZS:PT78742
----	--------	----	----------------------------

¹⁾ The test bracket is designed to be non-latching. If the test bracket is pressed further until 90° has been reached, two small lugs break off and the test bracket can be latched in position.

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

Version	Rated control supply voltage U_c at AC 50/60 Hz	Contacts, number of CO contacts	Width	Article No.
	V		mm	

Individual modules for customer assembly, PT series

More individual modules

LED modules

• Red

- With freewheel diode	24 DC	--	12.5	LZS:PTML0024
- Without freewheel diode	24 AC/DC			LZS:PTML0524
	110 ... 230 AC/DC			LZS:PTML0730

• Green

- With freewheel diode	24 DC	--	12.5	LZS:PTMG0024
- Without freewheel diode	24 AC/DC			LZS:PTMG0524
	110 ... 230 AC/DC			LZS:PTMG0730

Fixing/ejection brackets for PT base with logical separation

Screw terminals and plug-in terminals (push-in)	--	--	26	LZS:PT17021
-------------------------------------------------	----	----	----	--------------------

Fixing/ejection brackets for standard plug-in base without logical separation

Screw terminals	--	--	26	LZS:PT17024
-----------------	----	----	----	--------------------

Labels

	--	--	26	LZS:PT17040
--	----	----	----	--------------------

RC elements

	6 ... 60 AC	--	26	LZS:PTMU0524
	110 ... 230 AC			LZS:PTMU0730

Freewheel diodes with connection to A1

	6 ... 230 DC	--	26	LZS:PTMT00A0
--	--------------	----	----	---------------------

Connecting cables, 24-pole

Current carrying capacity 12 A, with supply cable, blue				3TX7004-8BA00
---------------------------------------------------------	--	--	--	----------------------

Connecting combs for PT screw base

6-pole, 10 A current carrying capacity, natural-colored				LZS:PT170R6
---------------------------------------------------------	--	--	--	--------------------

Connecting brackets for PT push-in base

2-pole, 10 A current carrying capacity, natural-colored				LZS:PT170P1
---------------------------------------------------------	--	--	--	--------------------



3TX7004-8BA00

Individual modules for customer assembly, MT series

Industrial relays, 11-pole

Industrial relays with test bracket

Without LED	24 DC	3	35.5	LZX:MT321024
With LED				LZX:MT323024
Without LED	24 AC	3	35.5	LZX:MT326024
With LED				LZX:MT328024
Without LED	115 AC	3	35.5	LZX:MT326115
With LED				LZX:MT328115
Without LED	230 AC	3	35.5	LZX:MT326230
With LED				LZX:MT328230

Plug-in bases

For mounting onto TH 35 standard mounting rail				Screw terminals
	--	--	38	LZS:MT78750

Retaining brackets

	--	--	38	LZS:MT28800
--	----	----	----	--------------------



LZS:MT78750

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

Note:

SITOP DC power supplies such as 6EP1331-5BA00 or 6EP1331-5BA10 can be used for unavailable coil voltages.




Switching Devices

Coupling Relays with LZS/LZX Plug-In Relays

Coupling relays with plug-in relays

Version	Rated control supply voltage U_s at AC 50/60 Hz	Contacts, number of CO contacts	Width	Article No.
	V		mm	

Complete units, 8-pole, 5 mm pinning, RT series

Image	Version	Rated control supply voltage U_s at AC 50/60 Hz	Contacts, number of CO contacts	Width	Article No.
 LZS:RT4A4T30	Complete units with standard plug-in base for snap-on mounting onto TH 35 standard mounting rail comprising: <ul style="list-style-type: none"> • Coupling relays with plug-in relays • Standard plug-in base with screw terminals • LED module (version 24 V DC: LED module with freewheel diode) • Fixing/ejection brackets • Labels 				
	1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5	Screw terminals  LZS:RT3A4L24 LZS:RT3A4R24 LZS:RT3A4S15 LZS:RT3A4T30 LZS:RT4A4L24 LZS:RT4A4R24 LZS:RT4A4S15 LZS:RT4A4T30
	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5	
	Complete units with plug-in base With logical separation For snap-on mounting onto TH 35 standard mounting rail Comprising: <ul style="list-style-type: none"> • Coupling relays with plug-in relays • Plug-in base with logical separation and screw terminals • LED module (version 24 V DC: LED module with freewheel diode) • Fixing/ejection brackets • Labels 				
1 CO contact	24 DC 24 AC 115 AC 230 AC	1	15.5		
 LZS:RT4B4T30	2 CO contacts	24 DC 24 AC 115 AC 230 AC	2	15.5	LZS:RT3B4L24 LZS:RT3B4R24 LZS:RT3B4S15 LZS:RT3B4T30 LZS:RT4B4L24 LZS:RT4B4R24 LZS:RT4B4S15 LZS:RT4B4T30

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

	Version	Rated control supply voltage U_c at AC 50/60 Hz	Contacts, number of CO contacts	Width	Article No.
		V		mm	
Individual modules for customer assembly, RT series					
	Print relays, 8-pole, 5 mm pinning				
LZX:RT314024	Print relays With hard gold-plating Version with 1 CO contact				
		24 DC 230 AC	1	12.7	LZX:RT315024 LZX:RT315730
	Print relays Version with 1 CO contact				
LZS:RT78725		24 DC 24 AC 115 AC 230 AC	1	12.7	LZX:RT314024 LZX:RT314524 LZX:RT314615 LZX:RT314730
	Print relays Version with 2 CO contacts				
LZS:RT78726		12 DC 24 DC 24 AC 115 AC 230 AC	2	12.7	LZX:RT424012 LZX:RT424024 LZX:RT424524 LZX:RT424615 LZX:RT424730
	Standard plug-in bases For mounting onto TH 35 standard mounting rail				
LZS:RT78726		--	--	15.5	Screw terminals  LZS:RT78725
	Plug-in bases with logical separation For mounting onto TH 35 standard mounting rail				
LZS:RT78726		--	--	15.5	LZS:RT78726
	LED modules				
LZS:PTML0024					
	• Red				
	With freewheel diode	24 DC	--	15.5	LZS:PTML0024
	Without freewheel diode	24 AC/DC 110 ... 230 AC/DC	--		LZS:PTML0524 LZS:PTML0730
	• Green				
	With freewheel diode	24 DC	--	15.5	LZS:PTMG0024
	Without freewheel diode	24 AC/DC 110 ... 230 AC/DC	--		LZS:PTMG0524 LZS:PTMG0730
	Fixing/ejection brackets For RT base				
LZS:RT17016		--	--	15.5	LZS:RT17016
	Labels				
LZS:RT17040		--	--	15.5	LZS:RT17040
	RC elements				
LZS:RT17040		6 ... 60 AC 110 ... 230 AC	--	15.5	LZS:PTMU0524 LZS:PTMU0730
	Freewheel diodes with connection to A1				
LZS:PTMT0730		6 ... 230 DC	--	15.5	LZS:PTMT00A0
	Connecting cables, 24-pole Current carrying capacity -- 12 A, with supply cable, blue				
LZS:PTMT0730		--	--	--	3TX7004-8BA00
	Connecting combs for RT screw base				
LZS:RT170R8		--	--	--	LZS:RT170R8
	Connecting brackets for push-in base				
3TX7004-8BA00		--	--	--	LZS:RT170P1

Note:

SITOP DC power supplies such as 6EP1331-5BA00 or 6EP1331-5BA10 can be used for unavailable coil voltages.

Switching Devices

Coupling Relays with LZS/LZX Plug-In Relays

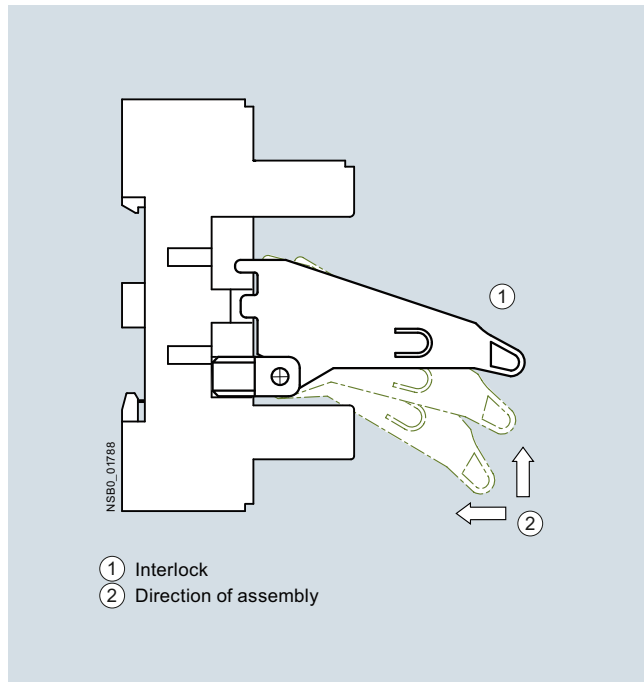
Coupling relays with plug-in relays

More information

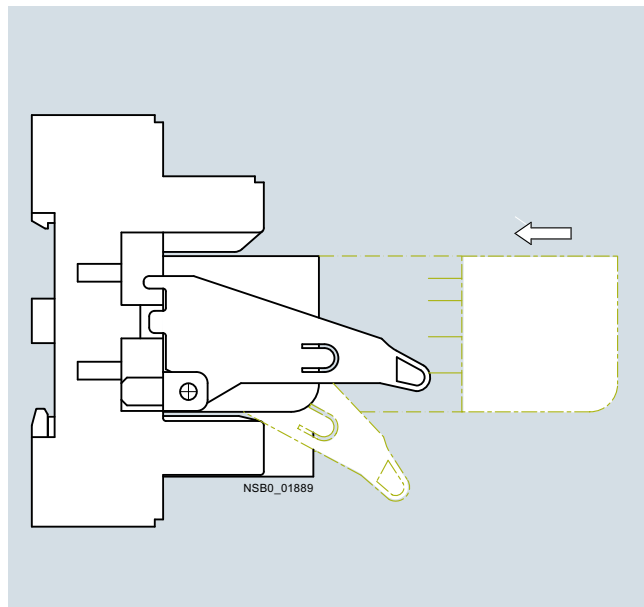
Notes on configuration

PT series

Mounting the LZS:PT17024 fixing/ejection bracket on the standard plug-in base with LZS:PT787.0 screw terminal



Mounting the coupling relay with plug-in relay

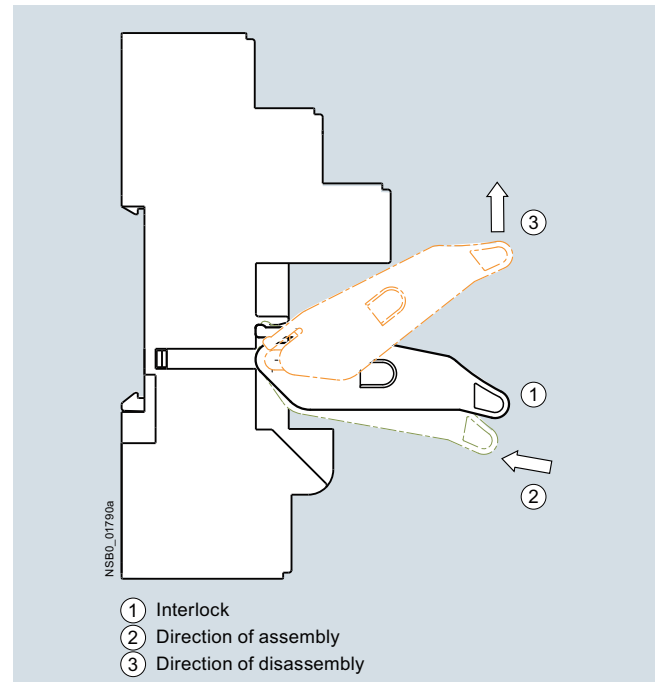


Note:

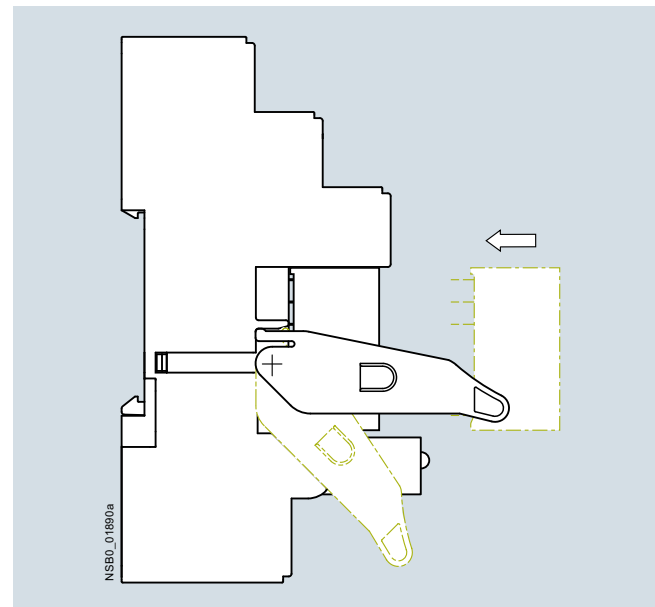
The LZS:PT17021 and LZS:PT17024 ejection brackets of the coupling relays with plug-in relay are not status displays!

RT series

Mounting the LZS:RT17016 fixing/ejection bracket on the LZS:RT7872 plug-in base

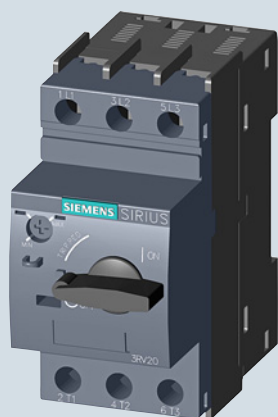


Mounting the coupling relay with plug-in relay



Note:

The LZS:RT17016 ejection brackets of the coupling relays with plug-in relay are not status displays!



2/2 SIRIUS 3RV6/3RV5 motor starter protectors/circuit breakers

- 2/2 Introduction
- 2/3 General data
- 2/10 For motor protection
- 2/11 For starter combinations
- 2/12 For transformer protection
- 2/13 Mountable accessories
- 2/15 Mounting accessories
- 2/16 Rotary operating mechanisms
- 2/17 Technical specifications

2/20 SIRIUS 3RU6/3RU5 thermal overload relays

- 2/20 Introduction
- 2/21 General data
- 2/23 3RU61 up to 40 A for standard applications
- 2/24 3RU51 up to 100 A for standard applications
- 2/25 Accessories
- 2/27 Technical specifications

2/33 SIRIUS 3RB2/3RB3 electronic overload relays

- 2/33 General data
- 2/36 3RB30, 3RB31 for standard applications
- 2/45 Accessories for 3RB30, 3RB31
- 2/47 3RB20, 3RB21 for standard applications
- 2/57 Accessories for 3RB20, 3RB21

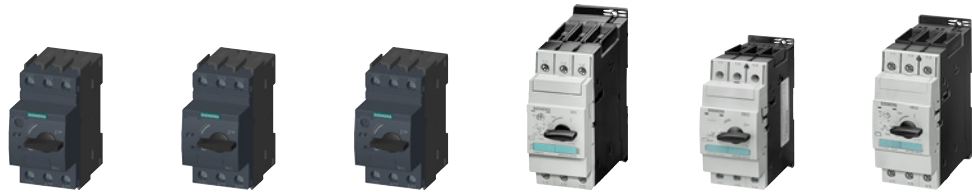
Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

Introduction

Overview

2



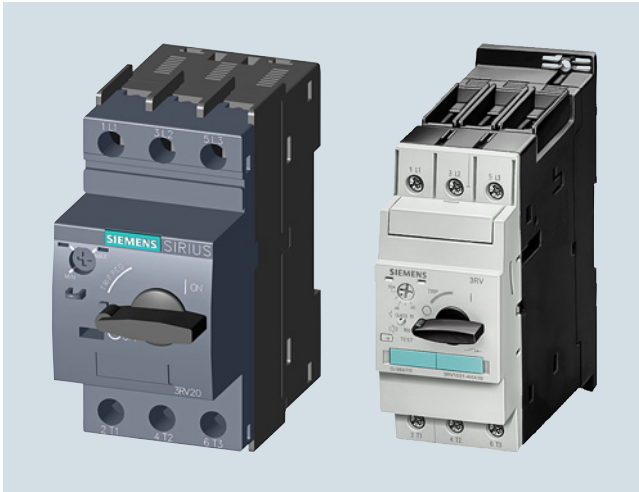
Type	3RV60	3RV63	3RV64	3RV50	3RV53	3RV54
SIRIUS 3RV6/3RV5 motor starter protectors/circuit breakers up to 100 A						
Applications						
• System protection	✓ ¹⁾	--	--	✓ ¹⁾	--	--
• Motor protection	✓	--	--	✓	--	--
• Starter combinations	--	✓	--	--	✓	--
• Transformer protection	--	--	✓	--	--	✓
Size	S00, S0	S00, S0	S00, S0	S2, S3	S2, S3	S2
Rated current I_n						
• Size S00	A Up to 16	Up to 16	Up to 16	--	--	--
• Size S0	A Up to 40	Up to 40	Up to 25	--	--	--
• Size S2				Up to 50	Up to 50	Up to 40
• Size S3				Up to 100	Up to 100	--
Rated operational voltage U_e according to IEC	V 690 AC ²⁾	690 AC ²⁾	690 AC ²⁾	690 AC ²⁾	690 AC ²⁾	690 AC ²⁾
Rated frequency	Hz 50/60	50/60	50/60	50/60	50/60	50/60
Trip class	CLASS 10	--	CLASS 10	CLASS 10, 20	--15	CLASS 10
Thermal overload releases	A 0.11 ... 0.16 up to A 34 ... 40	Without ³⁾	0.11 ... 0.16 up to 20 ... 25	11 ... 16 up to 80 ... 100	Without ³⁾	11 ... 16 up to 28 ... 40
Short-circuit release A multiple of the rated current	13 times	13 times	20 times	13 times	13 times	20 times
Short-circuit breaking capacity I_{cu} at 400 V AC	kA 20/55/100	20/55/100	55/100	50/100	50/100	50/100
Pages	2/10	2/11	2/12	2/10	2/11	2/12

Accessories						
For sizes	S00 S0	S00 S0	S00 S0	S2 S3	S2 S3	S2
Auxiliary switches	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Signaling switches	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Undervoltage releases	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Shunt releases	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Isolator modules ⁴⁾	✓ ✓	✓ ✓	✓ ✓	✓ --	✓ --	✓
Insulated three-phase busbar system ⁴⁾	✓ ✓	✓ ✓	✓ ✓	✓ --	✓ --	✓
Busbar adapters ⁴⁾	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Door-coupling rotary operating mechanisms	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Remote motorized operating mechanisms ⁴⁾	-- --	-- --	-- --	✓ ✓	✓ ✓	✓
Link modules ⁴⁾	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Enclosures for surface mounting ⁴⁾	✓ ✓	✓ ✓	✓ ✓	-- --	-- --	--
Enclosures for flush mounting ⁴⁾	✓ ✓	✓ ✓	✓ ✓	✓ --	✓ --	✓
Front plates ⁴⁾	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Infeed system ⁴⁾	✓ ✓	✓ ✓	✓ ✓	-- --	-- --	--
Sealable scale covers for setting knobs ⁴⁾						
Pages	2/13					

- ✓ Has this function or can use this accessory
 -- Does not have this function or cannot use this accessory
 1) For symmetrical loading of the three phases.
 2) With molded-plastic enclosure 500 V AC.

- 3) For overload protection of the motors, appropriate overload relays must be used.
 4) See catalog IC 10.

Overview



SIRIUS motor starter protector with screw terminals, size S00 (left), size S2 (right)



The SIRIUS 3RV6/3RV5 motor starter protectors/circuit breakers are compact, current limiting motor starter protectors/circuit breakers which are optimized for load feeders. The motor starter protectors/circuit breakers are used for switching and protecting three-phase motors of up to 45 kW at 400 V AC and for other loads with rated currents of up to 100 A.

The 3RV6/3RV5 motor starter protectors are usually approved according to IEC and UL/CSA. 3RV6/3RV5 motor starter protectors/circuit breakers are approved according to UL 508 as:

- "Manual Motor Controllers"
- "Manual Motor Controllers" for "Group Installations"
- "Manual Motor Controllers Suitable for Tab Conductor Protection in Group Installations"
- "Self-Protected Combination Motor Controllers (Type E)"
Please note that for this approval the 3RV6/3RV5 motor starter protectors must be equipped with additional infeed terminals.

Corresponding short-circuit values [see pages 2/5 to 2/6](#).

Type of construction



The 3RV6/3RV5 motor starter protectors are available in two sizes:

- Size S00 - width 45 mm, max. rated current 16 A, at 400 V AC suitable for three-phase motors up to 7.5 kW
- Size S0 - width 45 mm, max. rated current 40 A, at 400 V AC suitable for three-phase motors up to 18.5 kW

The 3RV5 motor starter protectors/circuit breakers are available in two framesizes:

- Size S2 - width 55 mm, max. rated current 50 A, at 400 V AC suitable for three-phase motors up to 22 kW
- Size S3 - width 70 mm, max. rated current 100 A, at 400 V AC suitable for three-phase motors up to 45 kW

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
	□□□	□	□	□	□	-	□	□	□	□
Motor starter protectors/circuit breakers	3 R V									
SIRIUS	5/6									
Type of motor starter protector/circuit breaker	□									
Size	□									
Breaking capacity	□									
Setting range for overload release	□ □									
Trip class (CLASS)	□									
Connection methods	1									
With or without auxiliary switch	□									
Special versions										
Example	3 R V	6	0	1	1	-	1	A	A	1 0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

General data

Application

Operating conditions

3RV6/3RV5 motor starter protectors/circuit breakers are suitable for use in any climate. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. When installed in dusty and damp areas, suitable enclosures must be provided.

3RV6/3RV5 motor starter protectors/circuit breakers can optionally be fed from the top or from below.

The permissible ambient temperatures, the maximum switching capacities, the tripping currents and other boundary conditions can be found in the technical specifications and tripping characteristics.

3RV6/3RV5 motor starter protectors/circuit breakers are suitable for operation in IT systems (IT networks). In this case, the different short-circuit breaking capacity in the IT system must be taken into account, [see page 1/6](#).

Since operational currents, starting currents and current peaks are different even for motors with identical power ratings due to the inrush current, the motor ratings in the selection tables are only guide values. The specific rated and start-up data of the motor to be protected is always paramount to the choice of the most suitable motor starter protector/circuit breaker. This also applies to motor starter protectors for transformer protection.



Possible uses

The 3RV6/3RV5 motor starter protectors can be used:

- For short-circuit protection
- For motor protection (also with overload relay function)
- For system protection
- For short-circuit protection for starter combinations
- For transformer protection
- As main and EMERGENCY-STOP switches
- For switching of DC currents

Technical specifications

Short-circuit breaking capacity I_{cu} , I_{cs} according to IEC 60947-2

This table shows the rated ultimate short-circuit breaking capacity I_{cu} and the rated service short-circuit breaking capacity I_{cs} of the 3RV6/3RV5 motor starter protectors/circuit breakers with different operating voltages dependent on the rated current I_n of the motor starter protectors/circuit breakers.

The maximum rated current of this back-up fuse is indicated in the tables. The rated ultimate short-circuit breaking capacity then applies as specified on the fuse.

Power can be supplied to the motor starter protectors/circuit breakers via the terminals at the top or at the bottom without restricting the rated data. If the short-circuit current at the place of installation exceeds the rated short-circuit breaking capacity of the motor starter protector/circuit breaker as specified in the table, a back-up fuse is required. It is also possible to install an upstream motor starter protector/circuit breaker with a limiter function.

Motor starter protectors/circuit breakers	Rated current I_n	Up to 240 V AC ¹⁾			Up to 400 V AC ^{1)/} 415 V AC ²⁾			Up to 440 V AC ^{1)/} 460 V AC ²⁾			Up to 500 V AC ^{1)/} 525 V AC ²⁾			Up to 690 V AC ¹⁾		
		I_{cu}	I_{cs}	Max. fuse (gG)	I_{cu}	I_{cs}	Max. fuse (gG) ³⁾	I_{cu}	I_{cs}	Max. fuse (gG) ³⁾	I_{cu}	I_{cs}	Max. fuse (gG) ³⁾	I_{cu}	I_{cs}	Max. fuse (gG) ³⁾⁴⁾
Type	A	kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A	kA	kA	A
Size S00																
3RV6.11	0.16 ... 1.6	100	100	°	100	100	°	100	100	°	100	100	°	100	100	°
	2; 2.5	100	100	°	100	100	°	100	100	°	100	100	°	10	10	25
	3.2	100	100	°	100	100	°	100	100	°	100	100	°	10	10	32
	4; 5	100	100	°	100	100	°	100	100	°	100	100	°	6	4	32
	6.3	100	100	°	100	100	°	100	100	°	100	100	°	6	4	50
	8	100	100	°	100	100	°	50	50	63	42	42	63	6	4	50
	10	100	100	°	100	100	°	50	50	80	42	42	63	6	4	50
12.5	100	100	°	100	100	°	50	50	80	42	42	80	6	4	63	
16	100	100	°	55	30	100	50	10	80	10	5	80	4	4	63	
Size S0																
3RV6.21	16	100	100	°	55	25	100	50	10	80	10	5	80	4	2	63
	20	100	100	°	55	25	125	50	10	80	10	5	80	4	2	63
	22; 25	100	100	°	55	25	125	50	10	100	10	5	80	4	2	63
	28; 32	100	100	°	55	25	125	30	10	125	10	5	100	4	2	100
	36; 40	100	100	°	20	10	125	12	8	125	6	3	100	3	2	100
Size S2																
3RV5.31	16	100	100	°	50	25	100	50	25	100	12	6	63	5	3	63
	20	100	100	°	50	25	100	50	25	100	12	6	80	5	3	63
	25	100	100	°	50	25	100	50	15	100	12	6	80	5	3	63
	32	100	100	°	50	25	125	50	15	125	10	5	100	4	2	63
	40; 45	100	100	°	50	25	160	50	15	125	10	5	100	4	2	63
	50	100	100	°	50	25	160	50	15	125	10	5	100	4	2	80
Size S3																
3RV5.41	40	100	100	°	50	25	125	50	20	125	12	6	100	6	3	63
	50	100	100	°	50	25	125	50	20	125	12	6	100	6	3	80
	63	100	100	°	50	25	160	50	20	160	12	6	100	6	3	80
	75	100	100	°	50	25	160	50	20	160	8	4	125	5	3	100
	90; 100	100	100	°	50	25	160	50	20	160	8	4	125	5	3	125

° No back-up fuse required, since short-circuit resistant up to 100 kA

1) 10 % overvoltage.

2) 5 % overvoltage.

3) Back-up fuse only required if the short-circuit current at the place of installation > I_{cu} .

4) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

General data

Short-circuit breaking capacity I_{cuIT} in the IT system (IT network) according to IEC 60947-2

3RV6/3RV5 motor starter protectors/circuit breakers are suitable for use in IT systems. The values of I_{cu} and I_{cs} apply for the three-pole short circuit. In case of a double ground fault in different phases at the input and output side of a motor starter protector, the special short-circuit breaking capacity I_{cuIT} applies. The specifications in the table below apply to 3RV6/3RV5 motor starter protectors/circuit breakers.

If the short-circuit current at the place of installation exceeds the motor starter protector/circuit breaker's specified rated short-circuit breaking capacity, you will need to use a back-up fuse. The maximum rated current of this back-up fuse is indicated in the tables. The rated short-circuit breaking capacity then applies as specified on the fuse.

Motor starter protectors/ circuit breakers	Rated current I_n	Up to 240 V AC ¹⁾		Up to 400 V AC ^{1)/415 V AC²⁾}		Up to 500 V AC ^{1)/525 V AC²⁾}		Up to 690 V AC ¹⁾⁵⁾	
		I_{cuIT}	Max. fuse (gG) ³⁾	I_{cuIT}	Max. fuse (gG) ³⁾⁴⁾	I_{cuIT}	Max. fuse (gG) ³⁾	I_{cuIT}	Max. fuse (gG) ³⁾
Type	A	kA	A	kA	A	kA	A	kA	A
Size S00									
3RV6.11	0.16 ... 0.4	100	°	100	°	100	°	100	°
	0.5	100	°	100	°	100	°	0.5	4
	0.63; 0.8	100	°	100	°	100	°	0.5	6
	1	100	°	100	°	8	10	2	10
	1.25	100	°	100	°	8	16	2	16
	1.6	100	°	100	°	8	20	2	16
	2; 2.5	100	°	8	25	8	25	2	20
	3.2	100	°	8	32	8	32	2	25
	4; 5	100	°	4	32	2	32	2	25
	6.3; 8	100	°	4	50	2	40	1.5	35
	10	100	°	4	50	2	40	1.5	40
	12.5	100	°	4	63	2	50	1.5	40
	16	55	80	4	63	2	50	1.5	40
Size S0									
3RV6.21	16	55	80	4	63	2	50	1.5	40
	20 ... 25	55	80	4	63	2	50	1.5	50
	28; 32	55	80	2	63	2	63	1.5	63
	36; 40	20	80	2	63	2	63	1.5	63
Size S2									
3RV5.31	16	50	100	8	100	6	80	5	63
	20; 25	50	125	8	100	6	80	5	63
	32	50	125	6	125	4	100	3	80
	40 ... 50	50	160	6	125	4	100	3	80
Size S3									
3RV5.41	40	50	125	10	63	5	50	5	50
	50	50	125	8	80	3	63	3	63
	63	50	160	6	80	3	63	3	63
	75	50	160	5	100	2	80	2	80
	90; 100	50	160	5	125	2	100	2	100

° No back-up fuse required, since short-circuit resistant up to 100 kA

1) 10 % overvoltage.

2) 5 % overvoltage.

3) Back-up fuse only required if short-circuit current at the place of installation $> I_{cuIT}$.

4) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

5) Overvoltage category II applies for applications in IT systems > 600 V.

Permissible rated data of devices approved for North America (UL/CSA)

Motor starter protectors of the 3RV6/3RV5 series are approved for UL/CSA, and according to UL508 and CSA C22.2 No. 14, they can be used on their own or as load feeders in combination with a contactor.

These motor starter protectors can be used as "Manual Motor Controllers" for "Group Installations", as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" and as "Self-Protected Combination Motor Controllers" (Type E).

3RV6/3RV5 motor starter protectors as "Manual Motor Controllers"

If used as a "Manual Motor Controller", the motor starter protector is always operated in combination with an upstream short-circuit protection device. Approved fuses or circuit breakers according to UL 489/CSA C22.2 No. 5 can be used. These devices must be dimensioned according to the National Electrical Code (UL) or Canadian Electrical Code (CSA).

The file numbers for the approval of the 3RV6 as a Manual Motor Controller are as follows:

- UL File No. 47705, CCN: NLRV
- CSA Master Contract 165071, Product Class: 3211 05

Motor starter protectors		hp rating ¹⁾ for FLA ²⁾ max.		Rated current I_n A	240 V AC		480 V AC		600 V AC	
Type	V	Single-phase	3-phase		UL $I_{bc}^{(3)}$ kA	CSA $I_{bc}^{(3)}$ kA	UL $I_{bc}^{(3)}$ kA	CSA $I_{bc}^{(3)}$ kA	UL $I_{bc}^{(3)}$ kA	CSA $I_{bc}^{(3)}$ kA
Size S00										
3RV6011, 3RV6311, 3RV6411				0.16 ... 12.5 16	65 65	65 65	65 65	65 65	30 --	30 --
FLA ²⁾ max.	115	1	2							
16 A, 480 V;	200	2	3							
12.5 A, 600 V	230	2	5							
	460	--	10							
	575/600	--	10							
Size S0										
3RV6021, 3RV6321, 3RV6421				0.16 ... 12.5 16 ... 25	65 65	65 65	65 65	65 65	30 --	30 --
FLA ²⁾ max.	115	3	5							
40 A, 480 V;	200	5	10							
12.5 A, 600 V	230	7 1/2	10							
	460	--	30							
	575/600	--	--							
Size S2										
3RV5031, 3RV5331				16 ... 50	65	65	65	65	25	25
FLA ²⁾ max.	115	3	--							
50 A, 600 V	200	7 1/2	15							
	230	10	20							
NEMA size 2	460	--	40							
	575/600	--	50							
Size S3										
3RV5041/3RV5042, 3RV5142, 3RV5341/3RV5342				16 ... 75 90; 100	65 65	65 65	65 65	65 65	30 10	30 10
FLA ²⁾ max.	115	7 1/2	--							
99 A, 600 V	200	20	30							
	230	20	40							
NEMA size 3	460	--	75							
	575/600	--	100							

-- No approval

1) hp rating = Power rating in horse power (maximum motor rating).

2) FLA = Full Load Amps/motor full load current.

³⁾ Corresponds to "short-circuit breaking capacity" according to UL/CSA.

Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

General data

3RV60/3RV50 motor starter protectors (up to 100 A) as "Manual Motor Controller Suitable for Tap Conductor Protection in Group Installations"

The application as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" is only available for UL.

CSA does not recognize this approval! When the motor starter protector is used as a "Manual Motor Controller Suitable for Tap Conductor Protection in Group Installations", it must always be combined with upstream short-circuit protection. Approved fuses or a circuit breaker according to UL 489 can be used.

These devices must be dimensioned according to the National Electrical Code.

The 3RV60/3RV50 motor starter protectors are approved as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" under the following file number:

- UL File No. 47705, CCN: NLRV

Motor starter protectors		hp rating ¹⁾ for FLA ²⁾ max.		Rated current I_n A	240 V AC	Up to 480 Y/277 V AC	Up to 600 Y/347 V AC
Type	V	Single-phase	3-phase		UL I_{bc} ³⁾ kA	UL I_{bc} ³⁾ kA	UL I_{bc} ³⁾ kA
Size S00							
3RV6011				0.16 ... 12.5 16	65 65	65 65	30 --
FLA ²⁾ max.	115	1	2				
16 A, 480 V;	200	2	3				
12.5 A, 600 V	230	2	5				
	460	--	10				
	575/600	--	10				
Size S0							
3RV6021				0.16 ... 12.5 16 ... 25 28; 32	65 65 50	65 65 50	30 -- --
FLA ²⁾ max.	115	2	5				
32 A, 480 V	200	3	7 1/2				
	230	5	10				
	460	--	20				
	575/600	--	--				
Size S2							
3RV5031				16 ... 50	65	65	25
FLA ²⁾ max.	115	3	--				
50 A, 600 V	200	7 1/2	15				
	230	10	20				
NEMA size 2	460	--	40				
	575/600	--	50				
Size S3							
3RV504.				16 ... 75 90; 100	65 65	65 65	30 --
FLA ²⁾ max.	115	7 1/2	--				
100 A, 480 V	200	20	30				
75 A, 600 V	230	20	40				
	460	--	75				
NEMA size 3	575/600	--	75				

-- No approval

¹⁾ hp rating = Power rating in horse power (maximum motor rating).

²⁾ FLA = Full Load Amps/motor full load current.

³⁾ Corresponds to "short-circuit breaking capacity" according to UL.

3RV60/3RV50 motor starter protectors (up to 100 A) as "Self-Protected Combination Motor Controller (Type E)"

UL 508 approval demands 1-inch clearance and 2-inch creepage distance at line side for "Self-Protected Combination Motor Controller Type E".

Therefore, 3RV60 motor starter protectors of size S00 and S0 are approved according to UL 508 in combination with the terminal blocks listed below.

The 3RV50 motor starter protectors in size S2 conform with the required clearance and creepage distances without a terminal block. With size S3, these terminal blocks cannot be used in combination with a transverse auxiliary switch.

CSA does not require these extended clearances and creepage distances. According to CSA, these terminal blocks can be omitted when the device is used as a "Self-Protected Combination Motor Controller".

The 3RV60/3RV50 motor starter protectors are approved as "Self-Protected Combination Motor Controllers" under the following file numbers:

- UL File No. E156943, CCN: NKJH
- CSA Master Contract 165071, Product Class: 3211 08

Motor starter protectors		hp rating ¹⁾ for FLA ²⁾ max.		Rated current I_n	Up to 240 V AC		Up to 480 Y/277 V AC		Up to 600 Y/347 V AC	
		Single-phase	3-phase		UL I_{bc} ³⁾	CSA I_{bc} ³⁾	UL I_{bc} ³⁾	CSA I_{bc} ³⁾	UL I_{bc} ³⁾	CSA I_{bc} ³⁾
Type	V			A	kA	kA	kA	kA	kA	kA
Size S00										
3RV6011 + 3RV2928-1H⁴⁾⁵⁾				0.16 ... 12.5 16	65 65	65 65	65 65	65 65	30 --	30 --
FLA ²⁾ max.	115	1	2							
16 A, 480 V;	200	2	3							
12.5 A, 600 V	230	2	5							
	460	--	10							
	575/600	--	10							
Size S0										
3RV6021 + 3RV2928-1H⁴⁾⁵⁾				0.16 ... 12.5 16 ... 25 28; 32	65 65 50	65 65 50	65 65 50	65 65 50	30 -- --	30 -- --
FLA ²⁾ max.	115	2	5							
32 A, 480 V	200	3	7 1/2							
	230	5	10							
	460	--	20							
	575/600	--	--							
Size S2										
3RV5031				16 ... 50	65	65	65	65	25	25
FLA ²⁾ max.	115	3	--							
50 A, 600 V	200	7 1/2	15							
	230	10	20							
NEMA size 2	460	--	40							
	575/600	--	50							
Size S3										
3RV5041 + 3RT1946-4GAA07⁴⁾⁶⁾				16 ... 75 90; 100	65 65	65 65	65 65	65 65	30 --	30 --
FLA ²⁾ max.	115	10	--							
100 A, 480 V	200	20	30							
75 A, 600 V	230	20	40							
	460	--	75							
NEMA size 3	575/600	--	75							

-- No approval

1) hp rating = Power rating in horse power (maximum motor rating).

2) FLA = Full Load Amps/motor full load current.

3) Corresponds to "short-circuit breaking capacity" according to UL/CSA.

4) Not required for CSA.

5) Alternatively, the 3RV2928-1K can also be used. Part of Catalog IC10.

6) 3RT1946-4GAA07 as replacement to the standard terminal box. Part of Catalog IC10.

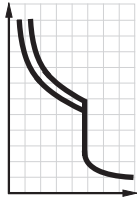
Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

For motor protection

Selection and ordering data

CLASS 10, screw terminals, with or without auxiliary switches



3RV6011-..A1.



3RV6021-4.A1.



3RV5031-4.A10



3RV6021-4.A10

Rated current	Suitable for three-phase motors ¹⁾ with P	Setting range for thermal overload release	Instantaneous overcurrent release	Short-circuit breaking capacity at 400 V AC	Without auxiliary switch	With transverse auxiliary switch (1 NO + 1 NC)
I_n				I_{cu}	Article No.	Article No.
A	kW	A	A	kA		
Size S00						
0.16	0.04	0.11 ... 0.16	2.1	100	3RV6011-0AA10	3RV6011-0AA15
0.2	0.06	0.14 ... 0.2	2.6	100	3RV6011-0BA10	3RV6011-0BA15
0.25	0.06	0.18 ... 0.25	3.3	100	3RV6011-0CA10	3RV6011-0CA15
0.32	0.09	0.22 ... 0.32	4.2	100	3RV6011-0DA10	3RV6011-0DA15
0.4	0.09	0.28 ... 0.4	5.2	100	3RV6011-0EA10	3RV6011-0EA15
0.5	0.12	0.35 ... 0.5	6.5	100	3RV6011-0FA10	3RV6011-0FA15
0.63	0.18	0.45 ... 0.63	8.2	100	3RV6011-0GA10	3RV6011-0GA15
0.8	0.18	0.55 ... 0.8	10	100	3RV6011-0HA10	3RV6011-0HA15
1	0.25	0.7 ... 1	13	100	3RV6011-0JA10	3RV6011-0JA15
1.25	0.37	0.9 ... 1.25	16	100	3RV6011-0KA10	3RV6011-0KA15
1.6	0.55	1.1 ... 1.6	21	100	3RV6011-1AA10	3RV6011-1AA15
2	0.75	1.4 ... 2	26	100	3RV6011-1BA10	3RV6011-1BA15
2.5	0.75	1.8 ... 2.5	33	100	3RV6011-1CA10	3RV6011-1CA15
3.2	1.1	2.2 ... 3.2	42	100	3RV6011-1DA10	3RV6011-1DA15
4	1.5	2.8 ... 4	52	100	3RV6011-1EA10	3RV6011-1EA15
5	1.5	3.5 ... 5	65	100	3RV6011-1FA10	3RV6011-1FA15
6.3	2.2	4.5 ... 6.3	82	100	3RV6011-1GA10	3RV6011-1GA15
8	3	5.5 ... 8	104	100	3RV6011-1HA10	3RV6011-1HA15
10	4	7 ... 10	130	100	3RV6011-1JA10	3RV6011-1JA15
12.5	5.5	9 ... 12.5	163	100	3RV6011-1KA10	3RV6011-1KA15
16	7.5	11 ... 16	208	55	3RV6011-4AA10	3RV6011-4AA15
Size S0						
16	7.5	11 ... 16	208	55	3RV6021-4AA10	3RV6021-4AA15
20	7.5	14 ... 20	260	55	3RV6021-4BA10	3RV6021-4BA15
22	11	17 ... 22	286	55	3RV6021-4CA10	3RV6021-4CA15
25	11	20 ... 25	325	55	3RV6021-4DA10	3RV6021-4DA15
28	15	23 ... 28	364	55	3RV6021-4NA10	3RV6021-4NA15
32	15	27 ... 32	400	55	3RV6021-4EA10	3RV6021-4EA15
36 ²⁾	18.5	30 ... 36	432	20	3RV6021-4PA10	3RV6021-4PA15
48 ²⁾	18.5	34 ... 40	480	20	3RV6021-4FA10	3RV6021-4FA15
Size S2						
16	7.5	11 ... 16	208	50	3RV5031-4AA10	--
20	7.5	14 ... 20	260	50	3RV5031-4BA10	--
25	11	18 ... 25	325	50	3RV5031-4DA10	--
32	15	22 ... 32	416	50	3RV5031-4EA10	--
40	18.5	28 ... 40	520	50	3RV5031-4FA10	--
45	22	36 ... 45	585	50	3RV5031-4GA10	--
50	22	40 ... 50	650	50	3RV5031-4HA10	--
Size S3						
40	18.5	28 ... 40	520	50	3RV5041-4FA10	--
50	22	36 ... 50	650	50	3RV5041-4HA10	--
63	30	45 ... 63	819	50	3RV5041-4JA10	--
75	37	57 ... 75	975	50	3RV5041-4KA10	--
90	45	70 ... 90	1 170	50	3RV5041-4LA10	--
100	45	80 ... 100	1 235	50	3RV5041-4MA10	--

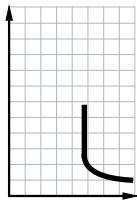
¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

²⁾ The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required.

Auxiliary switches and other accessories can be ordered separately (see "Accessories" on page 2/14 onwards).

Selection and ordering data

Screw terminals, without auxiliary switches



3RV6311-.C10



3RV6321-4.C10



3RV5331-4.C10



3RV5341-4.C10

Rated current	Suitable for three-phase motors ¹⁾ with P	Thermal overload release ²⁾	Instantaneous overcurrent release	Short-circuit breaking capacity at 400 V AC	Article No.
I_n				I_{cu}	
A	kW	A	A	kA	
Size S00					
0.16	0.04	Without	2.1	100	3RV63 11-0AC10
0.2	0.06	Without	2.6	100	3RV6311-0BC10
0.25	0.06	Without	3.3	100	3RV6311-0CC10
0.32	0.09	Without	4.2	100	3RV6311-0DC10
0.4	0.09	Without	5.2	100	3RV6311-0EC10
0.5	0.12	Without	6.5	100	3RV6311-0FC10
0.63	0.18	Without	8.2	100	3RV6311-0GC10
0.8	0.18	Without	10	100	3RV6311-0HC10
1	0.25	Without	13	100	3RV6311-0JC10
1.25	0.37	Without	16	100	3RV6311-0KC10
1.6	0.55	Without	21	100	3RV6311-1AC10
2	0.75	Without	26	100	3RV6311-1BC10
2.5	0.75	Without	33	100	3RV6311-1CC10
3.2	1.1	Without	42	100	3RV6311-1DC10
4	1.5	Without	52	100	3RV6311-1EC10
5	1.5	Without	65	100	3RV6311-1FC10
6.3	2.2	Without	82	100	3RV6311-1GC10
8	3	Without	104	100	3RV6311-1HC10
10	4	Without	130	100	3RV6311-1JC10
12.5	5.5	Without	163	100	3RV6311-1KC10
16	7.5	Without	208	55	3RV6311-1AC10
Size S0					
16	7.5	Without	208	55	3RV6321-4AC10
20	7.5	Without	260	55	3RV6321-4BC10
22	11	Without	286	55	3RV6321-4CC10
25	11	Without	325	55	3RV6321-4DC10
28	15	Without	364	55	3RV6321-4NC10
32	15	Without	400	55	3RV6321-4EC10
36 ³⁾	18.5	Without	432	20	3RV6321-4PC10
40 ³⁾	18.5	Without	480	20	3RV6321-4FC10
Size S2					
16	7.5	Without	208	50	3RV5331-4AC10
20	7.5	Without	260	50	3RV5331-4BC10
25	11	Without	325	50	3RV5331-4DC10
32	15	Without	416	50	3RV5331-4EC10
40	18.5	Without	520	50	3RV5331-4FC10
45	22	Without	585	50	3RV5331-4GC10
50	22	Without	650	50	3RV5331-4HC10
Size S3					
40	18.5	Without	520	50	3RV5341-4FC10
50	22	Without	650	50	3RV5341-4HC10
63	30	Without	819	50	3RV5341-4JC10
75	37	Without	975	50	3RV5341-4KC10
90	45	Without	1 170	50	3RV5341-4LC10
100	45	Without	1 235	50	3RV5341-4MC10

¹⁾ Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

²⁾ For overload protection of the motors, appropriate overload relays must be used.

³⁾ The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required.

Auxiliary switches and other accessories can be ordered separately (see "Accessories" on page 2/14 onwards).

Protection Devices

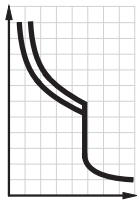
SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

For transformer protection

Selection and ordering data

CLASS 10, screw terminals, without auxiliary switches

Motor starter protectors for the protection of transformers with high inrush current



3RV6411-..A10



3RV6421-4.A10



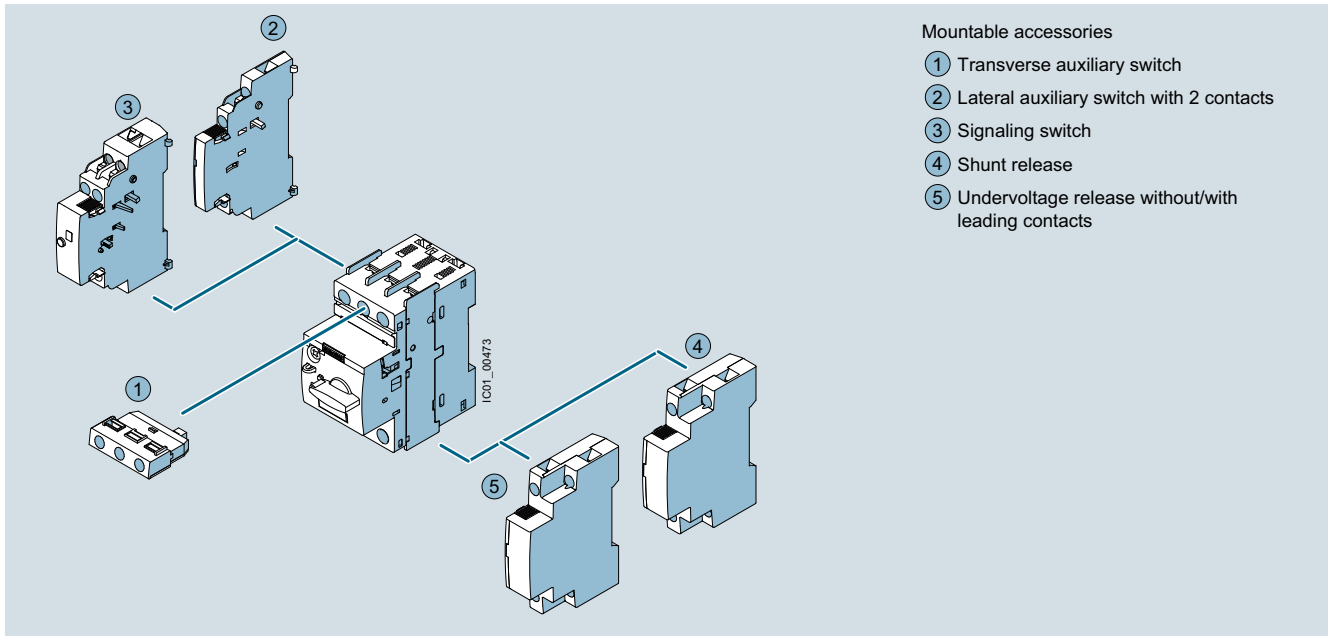
3RV5431-4.A10

Rated current I_n A	Setting range for thermal overload release A	Instantaneous overcurrent release A	Short-circuit breaking capacity at 400 V AC I_{cu} kA	Article No.
Size S00				
0.16	0.11 ... 0.16	3.3	100	3RV6411-0AA10
0.2	0.14 ... 0.2	4.2	100	3RV6411-0BA10
0.25	0.18 ... 0.25	5.2	100	3RV6411-0CA10
0.32	0.22 ... 0.32	6.5	100	3RV6411-0DA10
0.4	0.28 ... 0.4	8.2	100	3RV6411-0EA10
0.5	0.35 ... 0.5	10	100	3RV6411-0FA10
0.63	0.45 ... 0.63	13	100	3RV6411-0GA10
0.8	0.55 ... 0.8	16	100	3RV6411-0HA10
1	0.7 ... 1	21	100	3RV6411-0JA10
1.25	0.9 ... 1.25	26	100	3RV6411-0KA10
1.6	1.1 ... 1.6	33	100	3RV6411-1AA10
2	1.4 ... 2	42	100	3RV6411-1BA10
2.5	1.8 ... 2.5	52	100	3RV6411-1CA10
3.2	2.2 ... 3.2	65	100	3RV6411-1DA10
4	2.8 ... 4	82	100	3RV6411-1EA10
5	3.5 ... 5	104	100	3RV6411-1FA10
6.3	4.5 ... 6.3	130	100	3RV6411-1GA10
8	5.5 ... 8	163	100	3RV6411-1HA10
10	7 ... 10	208	100	3RV6411-1JA10
12.5	9 ... 12.5	260	100	3RV6411-1KA10
16	11 ... 16	286	55	3RV6411-4AA10
Size S0				
16	11 ... 16	286	55	3RV6421-4AA10
20	14 ... 20	325	55	3RV6421-4BA10
22	17 ... 22	364	55	3RV6421-4CA10
25	20 ... 25	400	55	3RV6421-4DA10
Size S2				
16	11 ... 16	325	50	3RV5431-4AA10
20	14 ... 20	416	50	3RV5431-4BA10
25	18 ... 25	520	50	3RV5431-4DA10
32	22 ... 32	660	50	3RV5431-4EA10
40	28 ... 40	836	50	3RV5431-4FA10

Auxiliary switches and other accessories can be ordered separately (see "Accessories" on page 2/14 onwards).

Overview

The following illustration shows our 3RV6 motor starter protector/circuit breaker with the accessories which can be mounted for the sizes S00 and S0, see also "Introduction" → "Overview", page 2/2.







Mountable accessories for SIRIUS 3RV6 motor starter protectors/circuit breakers

Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

Mountable accessories

Selection and ordering data

Version	For motor starter protectors/ circuit breakers	Article No.																												
Size																														
Auxiliary switches¹⁾																														
 3RV6901-1E	Transverse auxiliary switches for front mounting 1 CO 1 NO + 1 NC ²⁾ 2 NO	S00, S0 3RV6901-1D 3RV6901-1E 3RV6901-1F																												
	1 CO 1 NO + 1 NC ²⁾ 2 NO	S2, S3 3RV5901-1D 3RV5901-1E 3RV5901-1F																												
 3RV6901-1A	Lateral auxiliary switches mountable on the left 1 NO + 1 NC ²⁾ 2 NO 2 NC	S00, S0 3RV6901-1A 3RV6901-1B 3RV6901-1C																												
	1 NO + 1 NC 2 NO	S2, S3 3RV5901-1A 3RV5901-1B																												
Signaling switches																														
 3RV6921-1M	Signaling switches One signaling switch can be mounted on the left per motor starter protector. Separate tripped and short-circuit alarms, 1 NO + 1 NC each	S00, S0 S2, S3 3RV6921-1M 3RV5921-1M																												
<table border="1"> <thead> <tr> <th colspan="5">Rated control supply voltage U_s</th> <th>For motor starter protectors/ circuit breakers</th> <th>Article No.</th> </tr> <tr> <th>AC 50 Hz</th> <th>AC 60 Hz</th> <th>AC 50/60 Hz</th> <th>AC/DC 50/60 Hz, DC</th> <th>DC</th> <th>Size</th> <th></th> </tr> </thead> <tbody> <tr> <td>V</td> <td>V</td> <td>V</td> <td>V</td> <td>V</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>100 % ON period²⁾</td> <td>5 s ON period³⁾</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Rated control supply voltage U_s					For motor starter protectors/ circuit breakers	Article No.	AC 50 Hz	AC 60 Hz	AC 50/60 Hz	AC/DC 50/60 Hz, DC	DC	Size		V	V	V	V	V					100 % ON period ²⁾	5 s ON period ³⁾			
Rated control supply voltage U_s					For motor starter protectors/ circuit breakers	Article No.																								
AC 50 Hz	AC 60 Hz	AC 50/60 Hz	AC/DC 50/60 Hz, DC	DC	Size																									
V	V	V	V	V																										
		100 % ON period ²⁾	5 s ON period ³⁾																											
Auxiliary releases⁴⁾																														
 3RV6902-1A.0	Undervoltage releases 230 240 -- -- -- S00, S0 400 440 -- -- -- S00, S0 230 240 -- -- -- S2, S3 400 440 -- -- -- S2, S3	3RV6902-1AP0 3RV6902-1AV0 3RV5902-1AP0 3RV5902-1AV0																												
	Shunt releases -- -- 20 ... 24 20 ... 70 -- S00, S0 -- -- 210 ... 240 190 ... 330 -- S00, S0 -- -- 350 ... 415 330 ... 500 -- S00, S0 -- -- 20 ... 24 20 ... 70 -- S2, S3 -- -- 210 ... 240 190 ... 330 -- S2, S3 -- -- 350 ... 415 330 ... 500 -- S2, S3	3RV6902-1DB0 3RV6902-1DP0 3RV6902-1DV0 3RV5902-1DB0 3RV5902-1DP0 3RV5902-1DV0																												

¹⁾ Each motor starter protector/circuit breaker can be fitted with one transverse and one lateral auxiliary switch.

²⁾ The voltage range is valid for 100 % (infinite) ON period. The response voltage lies at 0.9 of the lower limit of the voltage range.

³⁾ The voltage range is valid for 5 s ON period at AC 50/60Hz and DC. The response voltage lies at 0.85 of the lower limit of the voltage range.

⁴⁾ One auxiliary release can be mounted on the right per motor starter protector.

Selection and ordering data

Version	For motor starter protectors/ circuit breakers	Article No.
	Size	

Fixing accessories



3RV6928-0B

Push-in lugs

For screwing the motor starter protector/circuit breaker onto mounting plates

For each motor starter protector/circuit breaker, two units are required.

S00, S0

3RV6928-0B

Protection Devices

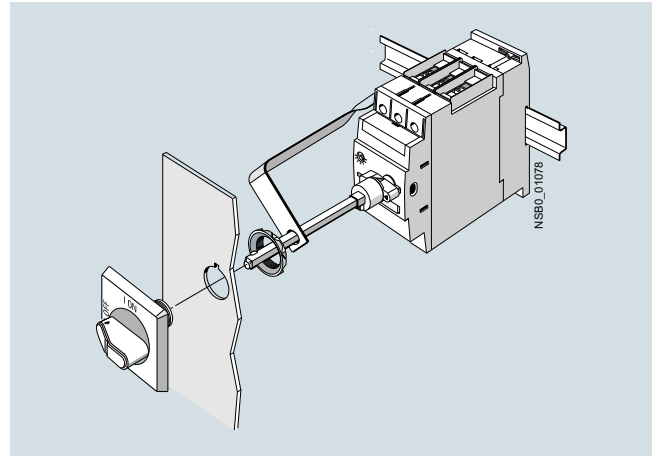
SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

Rotary operating mechanisms

Overview

Door-coupling rotary operating mechanisms

Motor starter protectors/circuit breakers with a rotary operating mechanism can be mounted in a control cabinet and operated externally by means of a door-coupling rotary operating mechanism. When the cabinet door with motor starter protector/circuit breaker is closed, the operating mechanism is coupled. When the motor starter protector/circuit breaker closes, the coupling is locked which prevents the door from being opened unintentionally. This interlock can be defeated by the maintenance personnel. In the OPEN position, the rotary operating mechanism can be secured against reclosing with up to three padlocks. Inadvertent opening of the door is not possible in this case either.



SIRIUS 3RV6926-0K door-coupling rotary operating mechanism

Selection and ordering data

Version	Color of handle	Version of extension shaft mm	For MSPs/ circuit breakers Size	Article No.
---------	-----------------	----------------------------------	---------------------------------------	-------------

Door-coupling rotary operating mechanisms



3RV6926-0B

The door-coupling rotary operating mechanisms consist of a knob, a coupling driver and a 130/330 mm long extension shaft (6 mm x 6 mm).

The door-coupling rotary operating mechanisms are designed to degree of protection IP64. The door locking device prevents accidental opening of the control cabinet door in the ON position of the motor starter protector/circuit breaker. The OFF position can be locked with up to three padlocks.

Door-coupling rotary operating mechanisms

Black

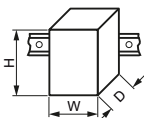
130

330

S00, S0, S2, S3
S00, S0, S2, S3

3RV6926-0B
3RV6926-0K

Technical specifications



General data		3RV6.1.	3RV6.2.	3RV5.3.	3RV5.4.	
Type		S00	S0	S2	S3	
Size		45 x 97 x 91	45 x 97 x 91	55 x 140 x 144	70 x 165 x 169	
Dimensions (W x H x D)		mm				
Standards		Yes	Yes	Yes	Yes	
• IEC 60947-1, EN 60947-1 (VDE 0660 Part 100)		Yes	Yes	Yes	Yes	
• IEC 60947-2, EN 60947-2 (VDE 0660 Part 101)		Yes	Yes	Yes	Yes	
• IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102)		Yes	Yes	Yes	Yes	
• UL 508, CSA C22.2 No. 14		Yes	Yes	Yes	Yes	
Number of poles		3				
Max. rated current $I_{n \max}$ (= max. rated operational current I_e)		A	16	40	50	100
Permissible ambient temperature		°C	-50 ... +80			
• Storage/transport		°C	-20 ... +70 (current reduction above +60 °C)			
• Operation	I_n : 0.16 ... 32 A	°C	-20 ... +70 (current reduction above +60 °C)			
	I_n : 36 ... 40 A	°C	-20 ... +40 ¹⁾			
	I_n : 16 ... 100 A	°C	-20 ... +70 (current reduction above +60 °C)			
Permissible rated current at inside temperature of control cabinet		%	100			
• +60 °C		%	87			
• +70 °C		%	87			
Permissible rated current at ambient temperature of enclosure (applies for motor starter protector/circuit breaker inside enclosure)		%	100			
• +35 °C		%	87			
• +60 °C		%	87			
Rated operational voltage U_e		V AC	690 (with molded-plastic enclosure 500 V)			
• Acc. to IEC		V AC	600			
• Acc. to UL/CSA		V AC	600			
Rated frequency		Hz	50/60			
Rated insulation voltage U_i		V	690			
Rated impulse withstand voltage U_{imp}		kV	6			
Utilization category		A	AC-3			
• IEC 60947-2 (motor starter protector/circuit breaker)		A	AC-3			
• IEC 60947-4-1 (motor starter)		A	AC-3			
Trip class CLASS	Acc. to IEC 60947-4-1		10	10	10	10
DC short-circuit breaking capacity (time constant $t = 5$ ms)		kA	10			
• 1 conducting path 150 V DC		kA	10			
• 2 conducting paths in series 300 V DC		kA	10			
• 3 conducting paths in series 450 V DC		kA	10			
Power loss P_v for each motor starter protector/circuit breaker		W	5			--
Dependent on the rated current I_n (upper setting range)	I_n : 0.16 ... 0.63 A	W	6			--
	I_n : 0.8 ... 6.3 A	W	7			--
	I_n : 8 ... 16 A	W				--
	I_n : 16 A	W	--	7		--
	I_n : 20 ... 25 A	W	--	8		--
	I_n : 28 ... 32 A	W	--	11		--
	I_n : 36 ... 40 A	W	--	14		--
	I_n : 16 ... 25 A	W	--		12	--
	I_n : 32 A	W	--		15	--
	I_n : 40 ... 50 A	W	--		20	--
	I_n : 16 ... 63 A	W	--			20
	I_n : 75 and 90 A	W	--			30
	I_n : 100 A	W	--			38
Shock resistance	Acc. to IEC 60068-2-27	g/ms	25/11 (square and sine pulse)			
Degree of protection	Acc. to IEC 60529		IP20			
Touch protection			Finger-safe for vertical contact from the front			
Temperature compensation	Acc. to IEC 60947-4-1	°C	-20 ... +60			
Phase failure sensitivity	Acc. to IEC 60947-4-1		Yes (not for 3RV53 and 3RV63)			
Isolating function	Acc. to IEC 60947-2		Yes			
Main and EMERGENCY-STOP switch characteristics	Acc. to EN 60204-1		Yes			
(with corresponding accessories)						
Protective separation between main and auxiliary circuits, required for PELV applications	Acc. to IEC 60947-1		Yes			
• Up to 400 V + 10 %			Yes			
• Up to 415 V + 5 % (higher voltages on request)			Yes			
Permissible mounting position			Any, acc. to IEC 60447 start command "I" right-hand side or top			
Mechanical endurance	Operating cycles		100 000		50 000	
Electrical endurance	Operating cycles		100 000		25 000	
Max. switching frequency per hour (motor starts)	1/h		15			

¹⁾ The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required.

Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

Technical specifications

Conductor cross-sections of main circuit					
Type		3RV6.1	3RV6.2	3RV5.3.	3RV5.4
Size		S00	S0	S2	S3
Connection type		 Screw terminals			
Terminal screw		M3, Pozidriv size 2	M4, Pozidriv size 2	Pozidriv size 2	4 mm hexagon socket screw
Operating devices	mm	∅ 5 ... 6	∅ 5 ... 6		
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5	3 ... 4.5	4 ... 6
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid	mm ²	2 x (0.75 ... 2.5) ¹⁾ , 2 x 4	2 x (1 ... 2.5) ¹⁾ , 2 x (2.5 ... 10) ¹⁾	2 x (0.75 ... 16)	2 x (2.5 ... 16)
• Stranded	mm ²	2 x (0.75 ... 2.5) ¹⁾ , 2 x 4	2 x (1 ... 2.5) ¹⁾ , 2 x (2.5 ... 10) ¹⁾	2 x (0.75 ... 25), 1 x (0.75 ... 35)	2 x (10 ... 50), 1 x (10 ... 70)
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾	2 x (1 ... 2.5) ¹⁾ , 2 x (2.5 ... 6) ¹⁾ , 1 x 10	2 x (0.75 ... 16), 1 x (0.75 ... 25)	2 x (2.5 ... 35), 1 x (2.5 ... 50)
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) ¹⁾ , 2 x (18 ... 12) ¹⁾	2 x (16 ... 12) ¹⁾ , 2 x (14 ... 8) ¹⁾	2 x (18 ... 2), 1 x (18 ... 2)	2 x (10 ... 1/0), 1 x (10 ... 2/0)
Ribbon cable conductors (Number x Width x Thickness)	mm	--		2 x (6 x 9 x 0.8)	
Removable box terminals²⁾					
• With copper bars ³⁾		--			18 x 10
• With cable lugs ⁴⁾		--			up to 2 x 70
Conductor cross-sections for auxiliary and control circuits					
Connection type		 Screw terminals			
Terminal screw		M3, Pozidriv size 2			
Operating devices	mm	∅ 5 ... 6			
Prescribed tightening torque	Nm	0.8 ... 1.2			
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid or stranded	mm ²	2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾			
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾			
• AWG cables, solid or stranded	AWG	2 x (18 ... 14) ¹⁾ , 2 x (20 ... 16) ¹⁾		2 x (18 ... 14)	

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

²⁾ Cable lug and busbar connection possible after removing the box terminals.

³⁾ If bars larger than 12 mm x 10 mm are connected, a 3RT1946-4EA1 cover is needed to comply with the phase clearance. Part of Catalog IC10.

⁴⁾ When connecting conductors which are larger than 25 mm², the 3RT1946-4EA1 cover must be used to keep the phase clearance. Part of Catalog IC10.

Protection Devices

SIRIUS 3RV6/3RV5 Motor Starter Protectors/Circuit Breakers

Technical specifications

Front transverse auxiliary switches

			Switching capacity for different voltages	
			1 CO	1 NO + 1 NC, 2 NO
Rated operational current I_e				
• At AC-15, alternating voltage				
- 24 V	A	4		2
- 230 V	A	3		0.5
• At AC-12 = I_{th} , alternating voltage				
- 24 V	A	10		2.5
- 230 V	A	10		2.5
• At DC-13, direct voltage L/R 200 ms				
- 24 V	A	1		1
- 48 V	A	--		0.3
- 60 V	A	--		0.15
- 110 V	A	0.22		--
- 220 V	A	0.1		--
Minimum load capacity			V	17
			mA	1

Lateral auxiliary switches with signaling switch

			Switching capacity for different voltages:	
			Lateral auxiliary switch with 1 NO + 1 NC, 2 NO, 2 NC Signaling switch	
Rated operational current I_e				
• At AC-15, alternating voltage				
- 24 V	A	6		
- 230 V	A	4		
- 400 V	A	3		
- 690 V	A	1		
• At AC-12 = I_{th} , alternating voltage				
- 24 V	A	10		
- 230 V	A	10		
- 400 V	A	10		
- 690 V	A	10		
• At DC-13, direct voltage L/R 200 ms				
- 24 V	A	2		
- 110 V	A	0.5		
- 220 V	A	0.25		
- 440 V	A	0.1		
Minimum load capacity			V	17
			mA	1

Auxiliary releases

			Undervoltage releases	Shunt releases
Power consumption				
• During pick-up				
- AC voltages	VA/W	20.2/13		20.2/13
- DC voltages	W	20		13 ... 80
• During uninterrupted duty				
- AC voltages	VA/W	7.2/2.4		--
- DC voltages	W	2.1		--
Response voltage				
• Tripping	V	0.35 ... 0.7 x U_s		0.7 ... 1.1 x U_s
• Pick-up	V	0.85 ... 1.1 x U_s		--
Opening time maximum	ms	20		

Short-circuit protection for auxiliary and control circuits

Melting fuses operational class gG	A	10
Miniature circuit breakers C characteristic	A	6 (prospective short-circuit current < 0.4 kA)

Protection Devices

SIRIUS 3RU6/3RU5 Thermal Overload Relays

Introduction

Overview

2



Type	3RU61	3RU51	3RU5156	3RU5166	3RU5176
SIRIUS overload relays					
Applications					
• System protection	✓ ¹⁾	✓ ¹⁾	✓ ¹⁾	✓ ¹⁾	✓ ¹⁾
• Motor protection	✓	✓	✓	✓	✓
• Alternating current, three-phase	✓	✓	✓	✓	✓
• Alternating current, single-phase	✓	✓	✓	✓	✓
• Direct current	✓	✓	✓	--	--
Size contactor	S00, S0	S2, S3	S6	S10	S12
Rated operational current I_e					
• Size S00	A Up to 16	--	--	--	--
• Size S0	A Up to 40	--	--	--	--
• Size S2	A --	Up to 50	--	--	--
• Size S3	A --	Up to 100	--	--	--
• Size S6	A --	--	Up to 205	--	--
• Size S10	A --	--	--	Up to 320	--
• Size S12	A --	--	--	--	Up to 500
Rated operational voltage U_e	V 690 AC	690/1 000 AC ²⁾	1 000	1 000	1 000
Rated frequency	Hz 50/60	50/60	50/60	50/60	50/60
Trip class	CLASS 10	CLASS 10	CLASS 10	CLASS 10	CLASS 10
Thermal overload releases	A 0.11 ... 0.16 up to A 34 ... 40	5.5 ... 8 up to 80 ... 100	55 ... 205	140 ... 320	280 ... 500
Rating for three-phase motor at 400 V AC	kW 0.04 ... 18.5	3 ... 45	55 ... 90	110 ... 160	200 ... 250
Pages	2/23	2/24			

Accessories							
For sizes	S00	S0	S2	S3	S6	S10	S12
Terminal supports for stand-alone installation	✓	✓	✓	✓	✓	✓	✓
Mechanical RESET	✓	✓	✓	✓	✓	✓	✓
Cable releases for RESET	✓	✓	✓	✓	✓	✓	✓
Electrical remote RESET	✓	✓	✓	✓	--	--	--
Terminal covers	✓	✓	✓	✓			
• Three-pole					--	✓	✓
• Single-pole					✓ ²⁾	✓ ²⁾	✓ ²⁾
Sealable covers for setting knobs	✓	✓	Integrated in the unit		--	--	--
Connecting busbars							
• Ribbon cable					✓ ²⁾	--	--
• Busbars					✓	✓	✓
Pages	2/25						

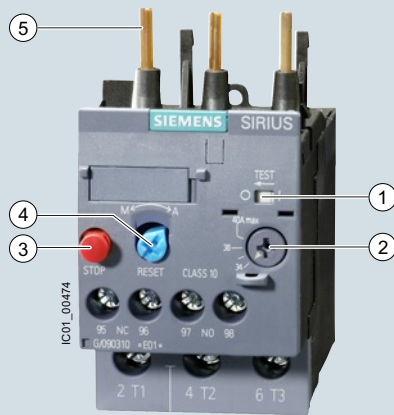
✓ Has this function or can use this accessory

-- Does not have this function or cannot use this accessory

¹⁾ The units are responsible in the main circuit for overload protection of the assigned electrical loads (e.g. motors), feeder cable, and other switching and protection devices in the respective load feeder.

²⁾ Not for 3RU5156-3NB2.

Overview



- ① Switch position indicator and TEST function of the wiring:
Indicates a trip and enables the wiring test.
- ② Motor current setting:
Setting the device to the rated motor current is easy with the large rotary knob.
- ③ STOP button:
If the STOP button is pressed, the NC contact is opened. This switches off the contactor downstream. The NC contact is closed again when the button is released.
- ④ Selector switch for manual/automatic RESET and RESET button:
With this switch you can choose between manual and automatic RESET. A device set to manual RESET can be reset locally by pressing the RESET button. A remote RESET is possible using the RESET modules (accessories), which are independent of size.
- ⑤ Connection for mounting onto contactors:
Optimally adapted in electrical, mechanical and design terms to the contactors. The overload relay can be connected directly to the contactor using these pins. Stand-alone installation is possible as an alternative (in conjunction with a terminal bracket for stand-alone installation).

A sealable transparent cover can be optionally mounted (accessory). It secures the motor current setting against adjustment.

The 3RU61 thermal overload relays up to 40 A have been designed for inverse-time delayed protection of loads with normal starting against excessive temperature rises due to overload or phase failure.

An overload or phase failure results in an increase of the motor current beyond the set rated motor current. Via heating elements, this current rise heats up the bimetal strips inside the device which then bend and as a result trigger the auxiliary contacts by means of a tripping mechanism. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and current setting I_e and is stored in the form of a long-term stable tripping characteristic.

The "tripped" status is signaled by means of a switch position indicator. Resetting takes place either manually or automatically after a recovery time has elapsed.

SIRIUS 3RU6126-4FB0 thermal overload relay

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	
Thermal overload relays	□□□	□	□	□	□	-	□	□	□	□
SIRIUS		6								
Device series			1							
Size, rated operational current and power				□	□					
Setting range of the overload release							□	□		
Connection methods									B	
Installation type										□
Example	3 R U	6	1	1	6	-	0	A	B	0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Protection Devices

SIRIUS 3RU6/3RU5 Thermal Overload Relays

General data

Application

Industries

The 3RU61 and 3RU51 thermal overload relays are suitable for customers from all industries who want to guarantee optimum in-verse-time delayed protection of their electrical loads (e.g. motors) under normal starting conditions (CLASS 10).

Application

The 3RU thermal overload relays have been designed for the protection of three-phase and single-phase AC and DC motors.

If single-phase AC or DC loads are to be protected by the 3RU thermal overload relays, all three bimetal strips must be heated. For this purpose, all main current paths of the relay must be connected in series.

Ambient conditions

The 3RU thermal overload relays have temperature compensation according to IEC 60947-4-1 for the temperature range of -40 to +60 °C¹⁾. For temperatures from +60 to +70 °C, the upper set value of the setting range must be reduced by the factor listed in the table below.

Ambient temperature °C	Derating factor for the upper set value			
	Current ranges			
	0.11 ... 20 A	17 ... 40 A	55 ... 205 A	140 ... 320 A/ 280 ... 500 A
+55	--	--	1.0	--
+60	1.0	1.0	0.94	1.0
+65	0.94	0.97	0.88	0.94
+70	0.87	0.94	0.82	0.87

¹⁾ 55 °C for 3RU5156...

Selection and ordering data

3RU61 thermal overload relays for mounting onto contactor or for stand-alone installation, CLASS 10

Features and technical specifications:

- Screw terminals
- Overload and phase failure protection
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Switch position indicator
- TEST function
- STOP button



3RU6116-...B0



3RU6116-...B1



3RU6126-...B0



3RU6126-4.B1

Size contactor ¹⁾	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination ²⁾ , operational class gG ²⁾	For mounting onto contactor Article No.	For stand-alone installation Article No.
Size S00				
S00	0.11 ... 0.16	0.5	3RU6116-0AB0	3RU6116-0AB1
	0.14 ... 0.2	1	3RU6116-0BB0	3RU6116-0BB1
	0.18 ... 0.25	1	3RU6116-0CB0	3RU6116-0CB1
	0.22 ... 0.32	1.6	3RU6116-0DB0	3RU6116-0DB1
	0.28 ... 0.4	2	3RU6116-0EB0	3RU6116-0EB1
	0.35 ... 0.5	2	3RU6116-0FB0	3RU6116-0FB1
	0.45 ... 0.63	2	3RU6116-0GB0	3RU6116-0GB1
	0.55 ... 0.8	4	3RU6116-0HB0	3RU6116-0HB1
	0.7 ... 1	4	3RU6116-0JB0	3RU6116-0JB1
	0.9 ... 1.25	4	3RU6116-0KB0	3RU6116-0KB1
	1.1 ... 1.6	6	3RU6116-1AB0	3RU6116-1AB1
	1.4 ... 2	6	3RU6116-1BB0	3RU6116-1BB1
	1.8 ... 2.5	10	3RU6116-1CB0	3RU6116-1CB1
	2.2 ... 3.2	10	3RU6116-1DB0	3RU6116-1DB1
2.8 ... 4	16	3RU6116-1EB0	3RU6116-1EB1	
3.5 ... 5	20	3RU6116-1FB0	3RU6116-1FB1	
4.5 ... 6.3	20	3RU6116-1GB0	3RU6116-1GB1	
5.5 ... 8	25	3RU6116-1HB0	3RU6116-1HB1	
7 ... 10	35	3RU6116-1JB0	3RU6116-1JB1	
9 ... 12.5	35	3RU6116-1KB0	3RU6116-1KB1	
11 ... 16	40	3RU6116-4AB0	3RU6116-4AB1	
Size S0				
S0	1.8 ... 2.5	10	3RU6126-1CB0	--
	2.2 ... 3.2	10	3RU6126-1DB0	--
	2.8 ... 4	16	3RU6126-1EB0	--
	3.5 ... 5	20	3RU6126-1FB0	--
	4.5 ... 6.3	20	3RU6126-1GB0	--
	5.5 ... 8	25	3RU6126-1HB0	--
	7 ... 10	35	3RU6126-1JB0	--
	9 ... 12.5	35	3RU6126-1KB0	--
	11 ... 16	40	3RU6126-4AB0	--
	14 ... 20	50	3RU6126-4BB0	3RU6126-4BB1
	17 ... 22	63	3RU6126-4CB0	3RU6126-4CB1
	20 ... 25	63	3RU6126-4DB0	3RU6126-4DB1
	23 ... 28	63	3RU6126-4NB0	3RU6126-4NB1
	27 ... 32	80	3RU6126-4EB0	3RU6126-4EB1
30 ... 36	80	3RU6126-4PB0	3RU6126-4PB1	
34 ... 40	80	3RU6126-4FB0	3RU6126-4FB1	

¹⁾ Observe maximum rated operational current of the devices.

²⁾ Maximum protection by fuse only for overload relay, type of coordination "2". Fuse values in connection with contactors.

Protection Devices

SIRIUS 3RU6/3RU5 Thermal Overload Relays

3RU51 up to 100 A for standard applications

Selection and ordering data

3RU51 thermal overload relays with screw terminals on the auxiliary current side for mounting onto contactor or for stand-alone installation, CLASS 10

Features and technical specifications:

- Overload and phase failure protection
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Switch position indicator
- TEST function
- STOP button
- Sealable cover



3RU5136-..B0



3RU5146-4.B0



3RU5156-2.B2



3RU5166-5.B1



3RU5176-5.B1

Size contactor ¹⁾	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG	For mounting onto contactor Article No.	For stand-alone installation Article No.
Size S2	A	A		
	5.5 ... 8	25	3RU5136-1HB0	--
	7 ... 10	35	3RU5136-1JB0	--
	9 ... 12.5	35	3RU5136-1KB0	--
	11 ... 16	40	3RU5136-4AB0	--
	14 ... 20	50	3RU5136-4BB0	--
	18 ... 25	63	3RU5136-4DB0	--
	22 ... 32	80	3RU5136-4EB0	--
	28 ... 40	80	3RU5136-4FB0	--
	36 ... 45	100	3RU5136-4GB0	3RU5136-4GB1
	40 ... 50	100	3RU5136-4HB0	3RU5136-4HB1
Size S3				
	18 ... 25	63	3RU5146-4DB0	--
	22 ... 32	80	3RU5146-4EB0	--
	28 ... 40	80	3RU5146-4FB0	--
	36 ... 50	125	3RU5146-4HB0	--
	45 ... 63	125	3RU5146-4JB0	3RU5146-4JB1
	57 ... 75	160	3RU5146-4KB0	3RU5146-4KB1
	70 ... 90	160	3RU5146-4LB0	3RU5146-4LB1
	80 ... 100	200	3RU5146-4MB0	3RU5146-4MB1
Size S6				
	55 ... 80	160	--	3RU5156-2HB2 ²⁾
	63 ... 90	160	--	3RU5156-2WB2 ²⁾
	80 ... 110	200	--	3RU5156-2XB2 ²⁾
	90 ... 120	224	--	3RU5156-3HB2 ²⁾
	110 ... 135	224	--	3RU5156-3JB2 ²⁾
	120 ... 150	250	--	3RU5156-3KB2 ²⁾
	135 ... 160	250	--	3RU5156-3LB2 ²⁾
	150 ... 180	250	--	3RU5156-3MB2 ²⁾
	170 ... 205	250	--	3RU5156-3NB2 ²⁾
Size S10				
	140 ... 200	400	--	3RU5166-5EB1
	180 ... 250	400	--	3RU5166-5FB1
	220 ... 320	400	--	3RU5166-5GB1
Size S12				
	280 ... 400	500	--	3RU5176-5HB1
	350 ... 500	500	--	3RU5176-5JB1

¹⁾ Observe maximum rated operational current of the devices.






²⁾ For contactor mounting use auxiliary part 3RU5956-3AA01.

Overview

The following optional accessories are available for the 3RU6/3RU5 thermal overload relays:

- Terminal support for stand-alone installation with screw terminals for every size
- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)



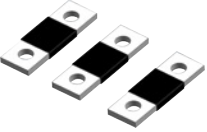
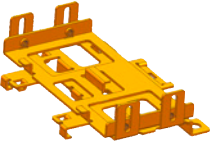
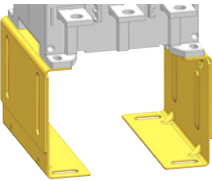
Selection and ordering data

Version	Size	Article No.		
Terminal supports for stand-alone installation				
 3RU6926-3AA01	For stand-alone mounting of the overload relays; screw and snap-on mounting onto TH 35 standard mounting rail; size S3 also for TH 75 standard mounting rail	S00 S0 S2 S3	3RU6916-3AA01 3RU6926-3AA01 3RU5936-3AA01 3RU5946-3AA01	
	Mechanical RESET			
	 3RU6900-1A with pushbutton and extension plunger	Resetting plungers, holders and formers	S00, S0, S6, S10, S12 S2, S3	3RU6900-1A 3RU5900-1A
		Pushbuttons with extended stroke (12 mm), IP65, \varnothing 22 mm	S00, S0, S2, S3, S6, S10, S12	3SB3000-0EA11
Extension plungers For compensation of the distance between the pushbutton and the unlatching button of the relay		S00, S0, S2, S3, S6, S10, S12	3SX1335	
Cable releases with holder for RESET				
 3RU6900-1.	For \varnothing 6.5 mm holes in the control panel; max. control panel thickness 8 mm			
	• Length 400 mm	S00, S0, S6, S10, S12 S2, S3	3RU6900-1B 3RU5900-1B	
	• Length 600 mm	S00, S0, S6, S10, S12 S2, S3	3RU6900-1C 3RU5900-1C	
Terminal covers				
 3RT5966-4EA1	Terminal covers for cable lugs and busbar connection	S10/S12	3RT5966-4EA1	
	 3TX6526-3B	S6 ¹⁾	3TX6526-3B	

Protection Devices

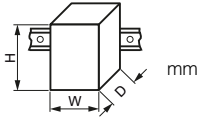
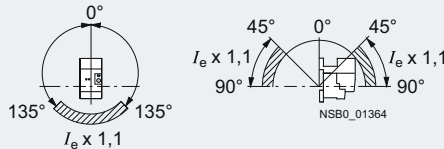
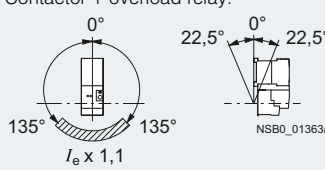
SIRIUS 3RU6/3RU5 Thermal Overload Relays

Accessories

Version	Size	Article No.
Busbars		
 <p>For contactor connecting</p> <p>3UX1210</p>	S6 ¹⁾	3UX1210
 <p>3RU5956-5AA01</p>	S6	3RU5956-5AA01
 <p>3RU5966-5AA01</p>	S10/S12	3RU5966-5AA01
Overload relay adaptor bracket		
 <p>Adjustable base for device</p> <p>3RU5956-3AA01</p>	S6	3RU5956-3AA01
 <p>3RU5966-3AA01</p>	S10/S12	3RU5966-3AA01

¹⁾ Not applicable for 3RU5156-3NB2.


Technical specifications

Type		3RU6116	3RU6126	3RU5136	3RU5146
Size		S00	S0	S2	S3
Dimensions (W x H x D) (overload relay with stand-alone installation support)	 mm	45 x 89 x 80	45 x 97 x 95	55 x 105 x 118	70 x 120 x 140
General data					
Trips in the event of		Overload and phase failure			
Trip class acc. to IEC 60947-4-1	CLASS	10			
Reset and recovery		Manual, Automatic			
• Reset options after tripping					
• Recovery time					
- For automatic RESET	min	Depends on the strength of the tripping current and characteristic			
- For manual RESET	min	Depends on the strength of the tripping current and characteristic			
Features					
• Display of operating state on device		Yes, by means of TEST function/switch position indicator slide			
• TEST function		Yes			
• RESET button		Yes			
• STOP button		Yes			
Ambient temperature					
• Storage/transport	°C	-55 ... +80			
• Operation	°C	-40 ... +70		-20 ... +70	
• Temperature compensation	°C	Up to 60			
• Permissible rated current at					
- Temperature inside control cabinet 60 °C	%	100 (over +60 °C current reduction is not required)			
- Temperature inside control cabinet 70 °C	%	87			
Repeat terminals					
• Coil repeat terminals		Yes	Not required		
• Auxiliary contact repeat terminal		Yes	Not required		
Degree of protection acc. to IEC 60529		IP20		IP20 (terminal compartment: IP00 degree of protection)	
Touch protection acc. to IEC 61140		Finger-safe for vertical contact from the front			
Shock resistance with sine acc. to IEC 60068-2-27	g/ms	15/11 (auxiliary contacts 95/96 and 97/98: 8 g/11 ms)		8/10	
Resistance to extreme climates – air humidity	%	90			
Installation altitude above sea level	m	Up to 2 000; above this on request			
Mounting position		<p>The diagrams show the permissible mounting positions for mounting onto contactors and stand-alone installation. For mounting position in the hatched area, a setting correction of 10 % must be implemented.</p> <p>Stand-alone installation:</p>  <p>Contactor + overload relay:</p> 			
Type of mounting		Mounting onto contactor/stand-alone installation with terminal support For screw and snap-on mounting onto TH 35 standard mounting rail.		Direct mounting/stand-alone installation with terminal support For screw and snap-on mounting onto TH 35 standard mounting rail; size S3 also for TH 75 standard mounting rail.	


Protection Devices

SIRIUS 3RU6/3RU5 Thermal Overload Relays

Technical specifications

Type		3RU6116	3RU6126	3RU5136	3RU5146
Size		S00	S0	S2	S3
Main circuit					
Rated insulation voltage U_i (pollution degree 3)	V	690			1 000
Rated impulse withstand voltage U_{imp}	kV	6			8
Rated operational voltage U_e	V	690			1 000
Type of current					
• Direct current		Yes			
• Alternating current		Yes, frequency range up to 400 Hz			
Current setting					
	A	0.11 ... 0.16 up to 11 ... 16	1.8 ... 2.5 up to 34 ... 40	5.5 ... 8 up to 40 ... 50	18 ... 25 up to 80 ... 100
Power loss per unit (max.)	W	4.1 ... 6.3	6.2 ... 7.5	6 ... 9	10 ... 16.5
Protective separation between main and auxiliary current paths acc. to IEC 60947-1	V	440	690: Setting ranges ≤ 25 A	500	690
Conductor cross-sections of main circuit					
Connection type		 Screw terminals			
Terminal screw		M3, Pozidriv size 2	M4, Pozidriv size 2	M6, Pozidriv size 2	M8, 4 mm hexagon socket screw
Operating devices		mm ∅ 5 ... 6	∅ 5 ... 6	∅ 5 ... 6	4 mm hexagon socket screw
Prescribed tightening torque		Nm 0.8 ... 1.2	2 ... 2.5	3 ... 4.5	4 ... 6
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid	mm ²	2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾ , max. 2 x 4	2 x (1 ... 2.5) ¹⁾ , 2 x (2.5 ... 10) ¹⁾	2 x (0.75 ... 16)	2 x (2.5 ... 16)
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ¹⁾ , 2 x (0.75 ... 2.5) ¹⁾	2 x (1 ... 2.5) ¹⁾ , 2 x (2.5 ... 6) ¹⁾ , max. 1 x 10	2 x (0.75 ... 16), 1 x (0.75 ... 25)	2 x (2.5 ... 35), 1 x (2.5 ... 50)
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) ¹⁾ , 2 x (18 ... 14) ¹⁾ , 2 x 12	2 x (16 ... 12) ¹⁾ , 2 x (14 ... 8) ¹⁾	2 x (18 ... 3), 1 x (18 ... 1)	2 x (10 ... 1/0), 1 x (10 ... 2/0)
• Ribbon cable conductors (Number x Width x Thickness) mm	--	--	--	2 x (6 x 9 x 0.8)	2 x (6 x 9 x 0.8)

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

Type		3RU6116	3RU6126	3RU5136	3RU5146
Size		S00	S0	S2	S3
Auxiliary circuit					
Number of NO contacts		1			
Number of NC contacts		1			
Auxiliary contacts – assignment		1 NO for the signal "tripped"; 1 NC for disconnecting the contactor			
Rated insulation voltage U_i (pollution degree 3)	V	690			
Rated impulse withstand voltage U_{imp}	kV	6			
Contact rating of the auxiliary contacts					
• NC contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :					
- 24 V	A	4			
- 120 V	A	4			
- 125 V	A	4			
- 230 V	A	3			
- 400 V	A	2			
- 600 V	A	0.75			
- 690 V	A	0.75			
• NO contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :					
- 24 V	A	3			
- 120 V	A	3			
- 125 V	A	3			
- 230 V	A	2			
- 400 V	A	1			
- 600 V	A	0.75			
- 690 V	A	0.75			
• NC contact, NO contact with direct current DC-13, rated operational current I_e at U_e :					
- 24 V	A	1			
- 60 V	A	On request			
- 110 V	A	0.22			
- 125 V	A	0.22			
- 220 V	A	0.11			
• Conventional thermal current I_{th}	A	6			
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes			
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	440			
CSA, UL, UR rated data					
Auxiliary circuit – switching capacity		B600, R300			
Conductor cross-sections for auxiliary circuit					
Connection type		 Screw terminals			
Terminal screw		M3, Pozidriv size 2			
Operating devices	mm	∅ 5 ... 6			
Prescribed tightening torque	Nm	0.8 ... 1.2			
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected					
• Solid	mm ²	2 x (0.5 ... 1.5) ² , 2 x (0.75 ... 2.5) ²			
• Finely stranded with end sleeves (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ² , 2 x (0.75 ... 2.5) ²			
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) ² , 2 x (18 ... 14) ²		2 x (18 ... 14)	

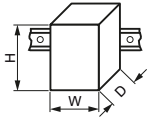
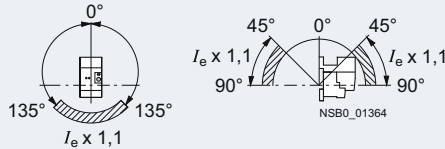
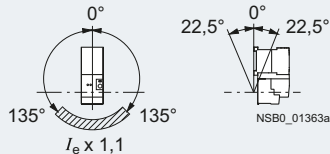
¹⁾ Up to $I_k \leq 0.5$ kA; $U \leq 260$ V.

²⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.


Protection Devices

SIRIUS 3RU6/3RU5 Thermal Overload Relays

Technical specifications

Type		3RU5156	3RU5166	3RU5176
Size		S6	S10	S12
Dimensions (W x H x D)	mm	104 x 106 x 149	145 x 178 x 152.5	145 x 178 x 152.5
General data				
Trips in the event of		Overload and phase failure		
Trip class acc. to IEC 60947-4-1		CLASS 10		
Reset and recovery		Manual, Automatic and Remote RESET (Remote RESET in combination with the corresponding accessories)		
• Reset options after tripping				
• Recovery time		Depends on the strength of the tripping current and characteristic		
- For automatic RESET		min		
- For manual RESET		min		
Features				
• Display of operating state on device		Yes		
• TEST function		Yes		
• RESET button		Yes		
• STOP button		Yes		
Ambient temperature				
• Storage/transport		°C	-55 ... +80	-55 ... +80
• Operation		°C	-25 ... +55	-20 ... +60
• Temperature compensation		°C	70	80
• Permissible rated current at				
- Temperature inside control cabinet 60 °C		%	94	100
- Temperature inside control cabinet 70 °C		%	82	87
Repeat terminals				
• Coil repeat terminals		--		
• Auxiliary contact repeat terminal		--		
Degree of protection acc. to IEC 60529		IP00(open), IP20 (terminal cover)		
Touch protection acc. to IEC 61140		Finger-safe (terminal cover)		
Shock resistance with sine acc. to IEC 60068-2-27		g/ms	8/10	
Resistance to extreme climates – air humidity		%	90	100
Installation altitude above sea level		m	Up to 2 000; above this on request	
Mounting position		<p>The diagrams show the permissible mounting positions for mounting onto contactors and stand-alone installation. For mounting position in the hatched area, a setting correction of 10 % must be implemented.</p> <p>Stand-alone installation:</p>  <p>Contactor + overload relay:</p> 		
Type of mounting		Direct mounting/ mounting with contactor	Direct mounting	Direct mounting


¹⁾ For 3RU51 56-3NB2, M8 and M10 screw are needed.

Type		3RU5156	3RU5166	3RU5176
Size		S6	S10	S12
Main circuit				
Rated insulation voltage U_i (pollution degree 3)	V	1000		
Rated impulse withstand voltage U_{imp}	kV	8		
Rated operational voltage U_e	V	1000		
Type of current		Yes	No	
• Direct current		Yes	No	
• Alternating current		Yes, frequency range up to 400 HZ		
Current setting	A	55 ... 80 up to 170 ... 205	140 ... 200 up to 220 ... 320	280 ... 400 up to 350 ... 500
Power loss per unit (max.)	W	24	21	36
Protective separation between main and auxiliary current paths acc. to IEC 60947-1	V	1000		
Conductor cross-sections of main circuit				
Connection type		 Screw terminals		
Terminal screw		M8 (hexagon socket) ¹⁾	M10 (hexagon socket)	M10 (hexagon socket)
Prescribed tightening torque	Nm	10...14	14...24	14...24
Conductor cross-sections (min./max.) 1 or 2 conductors can be connected				
• Finely stranded with end sleeve	mm ²	2 × (35...95)	2 × (35...150)	2 × (35...150)
• AWG cables, solid or stranded	AWG	2 × (1/0 to 250) kcmil	2 × (1/0 to 500) kcmil	2 × (1/0 to 500) kcmil
• Ribbon cable conductors/busbar (Number x Width x Thickness)	mm	2 × (20x3)	2 × 25 × 6	2 × 25 × 6
Auxiliary circuit				
Number of NO contacts		1		
Number of NC contacts		1		
Auxiliary contacts – assignment		1 NO for the signal "tripped"; 1 NC for disconnecting the contactor		
Rated insulation voltage U_i (pollution degree 3)	V	690		
Rated impulse withstand voltage U_{imp}	kV	8		
Contact rating of the auxiliary contacts				
• NC contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :				
- 24 V	A	4		
- 120 V	A	4		
- 125 V	A	4		
- 230 V	A	3		
- 400 V	A	2		
- 600 V	A	0.75		
- 690 V	A	0.75		
• NO contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :				
- 24 V	A	3		
- 120 V	A	3		
- 125 V	A	3		
- 230 V	A	2		
- 400 V	A	1		
- 600 V	A	0.75		
- 690 V	A	0.75		
• NC contact, NO contact with direct current DC-13, rated operational current I_e at U_e :				
- 24 V	A	1		
- 60 V	A	On request		
- 110 V	A	0.22		
- 125 V	A	0.22		
- 220 V	A	0.11		
• Conventional thermal current I_{th}	A	6		
• Contact reliability		suitability for solid circuit; 17 V, 5 mA		
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	≥ 440		

Protection Devices

SIRIUS 3RU6/3RU5 Thermal Overload Relays

Technical specifications

Type	3RU5156	3RU5166	3RU5176
Size	S6	S10	S12
Conductor cross-sections for auxiliary circuit			
Connection type	 Screw terminals		
Terminal screw	M3, Pozidriv size 2		
Prescribed tightening torque	Nm	0.8...1.2	
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid	mm ²	2×(0.5 ... 1.5) ¹⁾ , 2×(0.75 ... 2.5) ¹⁾	
• Finely stranded with end sleeve	mm ²	2×(0.5 ... 1.5) ¹⁾ , 2×(0.75 ... 2.5) ¹⁾	
• AWG cables, solid or stranded	AWG	2×(20 ... 16) ¹⁾ , 2×(18 ... 14) ¹⁾	

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

Overview



Features	3RB30/3RB31	3RB20/3RB21	Benefits
General data			
Sizes	S00 ... S2	S3 ... S12	<ul style="list-style-type: none"> • Are coordinated with the dimensions, connections and technical characteristics of the other devices in the SIRIUS modular system (contactors, etc., ...) • Permit the mounting of slim and compact load feeders in widths of 45 mm (S00, S0), 55 mm (S2), 70 mm (S3), 120 mm (S6) and 145 mm (S10/S12); this does not include the current measuring modules for the 3RB22 to 3RB24 evaluation modules sizes S00 to S3 • Simplify configuration
Seamless current range	0.1 ... 80 A	12.5 ... 630 A	<ul style="list-style-type: none"> • Allows easy and consistent configuration with one series of overload relays (for small to large loads)
Protection functions			
Tripping due to overload	✓	✓	<ul style="list-style-type: none"> • Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to overload
Tripping due to phase unbalance	✓	✓	<ul style="list-style-type: none"> • Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to phase unbalance
Tripping due to phase failure	✓	✓	<ul style="list-style-type: none"> • Minimizes heating of three-phase motors during phase failure
Protection of single-phase loads	--	--	<ul style="list-style-type: none"> • Enables the protection of single-phase loads
Tripping due to overtemperature by integrated thermistor motor protection function	-- ²⁾	-- ²⁾	<ul style="list-style-type: none"> • Provides optimum temperature-dependent protection of loads against excessive temperature rises e.g. for stator-critical motors or in the event of insufficient coolant flow, contamination of the motor surface or for long starting or braking operations • Eliminates the need for additional special equipment • Saves space in the control cabinet • Reduces wiring outlay and costs
Tripping due to ground fault by internal ground-fault detection (can be activated)	✓ (only 3RB31)	✓ (only 3RB21)	<ul style="list-style-type: none"> • Provides optimum protection of loads against high-resistance short circuits or ground faults due to moisture, condensed water, damage to the insulation material, etc. • Eliminates the need for additional special equipment • Saves space in the control cabinet • Reduces wiring outlay and costs
Features			
RESET function	✓	✓	<ul style="list-style-type: none"> • Allows manual or automatic resetting of the device
Remote RESET function	✓ (only with 3RB31 and external auxiliary voltage 24 V DC)	✓ (only with 3RB21 and external auxiliary voltage 24 V DC)	<ul style="list-style-type: none"> • Allows the remote resetting of the device
TEST function for auxiliary contacts	✓	✓	<ul style="list-style-type: none"> • Allows easy checking of the function and wiring
TEST function for electronics	✓	✓	<ul style="list-style-type: none"> • Allows checking of the electronics
Status display	✓	✓	<ul style="list-style-type: none"> • Displays the current operating state
Large current adjustment button	✓	✓	<ul style="list-style-type: none"> • Makes it easier to set the relay exactly to the correct current value
Integrated auxiliary contacts (1 NO + 1 NC)	✓	✓	<ul style="list-style-type: none"> • Allows the load to be switched off if necessary • Can be used to output signals
Integrated auxiliary contacts (1 CO and 1 NO in series)	--	--	<ul style="list-style-type: none"> • Enables the controlling of contactors directly from the higher-level control system through IO-Link
Connection of optional hand-held device	--	--	<ul style="list-style-type: none"> • Enables local operation

✓ Available
-- Not available

¹⁾ Motor currents up to 820 A can be recorded and evaluated by a current measuring module, e.g. 3RB2906-2BG1 (0.3 to 3 A), in combination with a 3UF1868-3GA00 (820 A/1 A) series transformer.

²⁾ The SIRIUS 3RN thermistor motor protection devices can be used to provide additional temperature-dependent protection.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

General data



Features	3RB30/3RB31	3RB20/3RB21	Benefits
Design of load feeders			
Short-circuit strength up to 100 kA at 690 V (in conjunction with the corresponding fuses or the corresponding motor starter protector)	✓	✓	<ul style="list-style-type: none"> Provides optimum protection of the loads and operating personnel in the event of short circuits due to insulation faults or faulty switching operations
Electrical and mechanical matching to 3RT contactors	✓	✓	<ul style="list-style-type: none"> Simplifies configuration Reduces wiring outlay and costs Enables stand-alone installation as well as space-saving direct mounting
Straight-through transformers for main circuit (in this case the cables are routed through the feed-through openings of the overload relay and connected directly to the box terminals of the contactor)	✓ (S2)	✓ (S3 ... S6)	<ul style="list-style-type: none"> Reduces the contact resistance (only one point of contact) Reduces wiring costs (easy, no need for tools, and fast) Saves material costs Reduces installation costs
Other features			
Temperature compensation	✓	✓	<ul style="list-style-type: none"> Allows the use of the relays at high temperatures without derating Prevents premature tripping Allows compact installation of the control cabinet without distance between the devices/load feeders Simplifies configuration Enables space to be saved in the control cabinet
Very high long-term stability	✓	✓	<ul style="list-style-type: none"> Provides safe protection for the loads even after years of use in severe operating conditions
Wide setting ranges	✓ (1:4)	✓ (1:4)	<ul style="list-style-type: none"> Minimize the configuration outlay and costs Minimize storage overheads, storage costs, tied-up capital
Fixed trip class	3RB30: CLASS 10E or CLASS 20E	3RB20: CLASS 10 or CLASS 20	<ul style="list-style-type: none"> Optimum motor protection for standard starts
Trip classes adjustable on the device CLASS 5E, 10E, 20E, 30E	3RB31: ✓	3RB21: ✓	<ul style="list-style-type: none"> Enables solutions for very fast starting motors requiring special protection (e.g. Ex motors) Enables heavy starting solutions Reduces the number of variants Minimizes the configuring outlay and costs Minimizes storage overhead, storage costs, and tied-up capital
Low power loss	✓	✓	<ul style="list-style-type: none"> Reduces energy consumption and energy costs (up 98 % less energy is used than for thermal overload relays). Minimizes temperature rises of the contactor and control cabinet – in some cases this may eliminate the need for controlgear cabinet cooling. Direct mounting to contactor saves space, even for high motor currents (i.e. no heat decoupling is required).
Internal power supply	✓	✓	<ul style="list-style-type: none"> Eliminates the need for configuration and connecting an additional control circuit

✓ Available

-- Not available

Overview of overload relays – matching contactors

Overload relays	Current measurement	Current range	Contactors (type, size, rating in kW)							
			3RT201.	3RT202.	3RT203.	3RT104.	3RT105.	3RT106.	3RT107.	3TF68/3TF69
Type	A		S00	S0	S2	S3	S6	S10	S12	14
			3/4/5.5/7.5	5.5/7.5/11/15/18.5	15/18.5/22/30/37/45	30/37/45	55/75/90	110/132/160	200/250	375/450

SIRIUS 3RB30 electronic overload relays¹⁾

3RB30

3RB301	Integrated	0.1 ... 16	✓	--	--	--	--	--	--	--
3RB302	Integrated	0.1 ... 40	--	✓	--	--	--	--	--	--
3RB303	Integrated	12.5 ... 80	--	--	✓	--	--	--	--	--

SIRIUS 3RB31 electronic overload relays¹⁾

3RB31

3RB311	Integrated	0.1 ... 16	✓	--	--	--	--	--	--	--
3RB312	Integrated	0.1 ... 40	--	✓	--	--	--	--	--	--
3RB313	Integrated	12.5 ... 80	--	--	✓	--	--	--	--	--

SIRIUS 3RB20 electronic overload relays¹⁾

3RB20

3RB204	Integrated	12.5 ... 100	--	--	--	✓	--	--	--	--
3RB205	Integrated	50 ... 200	--	--	--	--	✓	--	--	--
3RB206	Integrated	55 ... 630	--	--	--	--	--	✓	✓	✓
3RB201 + 3UF18	Integrated	630 ... 820	--	--	--	--	--	--	--	✓

SIRIUS 3RB21 electronic overload relays¹⁾

3RB21

3RB214	Integrated	12.5 ... 100	--	--	--	✓	--	--	--	--
3RB215	Integrated	50 ... 200	--	--	--	--	✓	--	--	--
3RB216	Integrated	55 ... 630	--	--	--	--	--	✓	✓	✓
3RB211 + 3UF18	Integrated	630 ... 820	--	--	--	--	--	--	--	✓

- ✓ Can be used
-- Cannot be used

¹⁾ "Technical specifications" for the use of overload relays with trip class \geq CLASS 20 can be found in "Short-circuit protection with fuses for motor feeders", see Configuration Manuals
- "SIRIUS Configuration – Selection Data for Fuseless Load Feeders", <https://support.industry.siemens.com/cs/ww/en/view/40625241>
- "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders", <https://support.industry.siemens.com/cs/ww/en/view/39714188>.

Connection methods

3RB3 electronic overload relays

- Sizes S00 and S2:
 - Main and auxiliary circuit: Screw terminals

3RB2 electronic overload relays

3RB20 and 3RB21 overload relays:

- Size S3:
 - Main circuit: Screw terminals with box terminal or as straight-through transformer
 - Auxiliary circuit: Screw terminals
- Size S6:
 - Main circuit: With busbar connection or as straight-through transformer
 - Auxiliary circuit: Screw terminals
- Sizes S10/S12:
 - Main circuit: With busbar connection
 - Auxiliary circuit: Screw terminals



Screw terminals



Busbar connections



Straight-through transformers

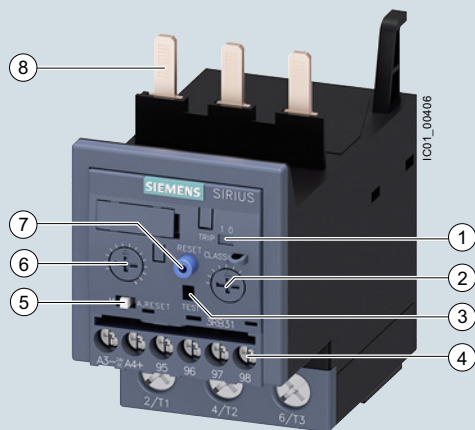
The terminals and straight-through transformers are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB30, 3RB31 for standard applications

Overview



- ① Switch position indicator and TEST function of the wiring:
Indicates a trip and enables the wiring test.
- ② Trip class setting/internal ground-fault detection (only 3RB31):
Using the rotary switch you can set the required trip class and activate the internal ground-fault detection dependent on the start-up conditions.
- ③ Solid-state test (device test):
Enables a test of all important device components and functions.
- ④ Connecting terminals (removable joint block for auxiliary circuits):
Depending on the device version, the terminals for screw connection are configured for the main and auxiliary circuit.
- ⑤ Selector switch for manual/automatic RESET:
With the slide switch you can choose between manual and automatic RESET.
- ⑥ Motor current setting:
Setting the device to the rated motor current is easy with the large rotary knob.
- ⑦ A device set to manual RESET can be reset locally by pressing the RESET button. On 3RB31 overload relays an electrical remote RESET is integrated.
- ⑧ Connection for mounting onto contactors:
Optimally adapted in electrical, mechanical and design terms to the contactors 3RT2. The overload relay can be connected directly using these connection pins. Stand-alone installation is possible as an alternative (in conjunction with a terminal support for stand-alone installation).

A sealable transparent cover can be optionally mounted (accessory). It secures the motor current setting against adjustment.

SIRIUS 3RB3133-4.B0 electronic overload relay

The 3RB30/3RB31 electronic overload relays up to 80 A with internal power supply have been designed for inverse-time delayed protection of loads with normal and heavy starting (for "Function", see the manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <https://support.industry.siemens.com/cs/ww/en/view/60298164> against excessive temperature rises due to overload, phase unbalance or phase failure. An overload, phase unbalance or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by the current transformers integrated into the devices and evaluated by corresponding solid-state circuits which then output a pulse to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and the current setting I_e and is stored in the form of a long-term stable tripping characteristic curve, see "Characteristic Curves" <https://support.industry.siemens.com/cs/ww/en/ps/16276/char>.

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase unbalance and phase failure, the 3RB31 electronic overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for wye-delta starting). This provides protection of loads against high-resistance short circuits due to damage to the insulation material, moisture, condensed water etc.

The "tripped" status is signaled by means of a switch position indicator. Resetting takes place either manually or automatically after the recovery time has elapsed (for "Function", see manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <https://support.industry.siemens.com/cs/ww/en/view/60298164>).

The 3RB3 electronic overload relays are suitable for operation with frequency converters. For information on this, see Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <https://support.industry.siemens.com/cs/ww/en/view/60298164>.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

3RB20 and 3RB21 overload relays in sizes S3 to S10/S12, see page 2/54 onwards.

Use in hazardous areas

The 3RB30/3RB31 electronic overload relays are suitable for the overload protection of motors with the following types of protection:

- Ex II (2) G [Ex e] [Ex d] [Ex px]
- Ex II (2) D [Ex t] [Ex p]

EC type test certificate for Group II, Category (2) G/D exists. It has the number PTB 09 ATEX 3001.

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th
	□□□	□	□	□	□	-	□	□	□
Electronic overload relays	3 R B								
SIRIUS 3rd generation		3							
Device series			□						
Size, rated operational current and power				□					
Version of the automatic RESET, electrical remote RESET					□				
Trip class (CLASS)							□		
Setting range of the overload release								□	
Connection methods									□
Installation type									□
Example	3 R B	3	0	1	6	-	1	R	B 0

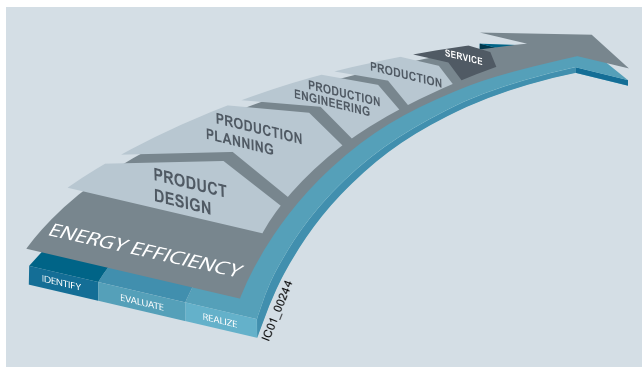
Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

The most important features and benefits of the 3RB30/3RB31 electronic overload relays are listed in the overview table (see "General Data" page 2/33 onwards.)

Advantages through energy efficiency

Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative products of the SIRIUS industrial controls portfolio can also make a substantial contribution to a plant's energy efficiency (see www.siemens.com/sirius/energysaving).

3RB30/3RB31 electronic overload relays contribute to energy efficiency throughout the plant as follows:

- Reduced inherent power loss
- Less heating of the control cabinet
- Smaller control cabinet air conditioners can be used

Application**Industries**

The 3RB30/3RB31 electronic overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5E to 30E), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

Application

The 3RB30/3RB31 electronic overload relays have been designed for the protection of three-phase motors in sinusoidal 50/60 Hz voltage networks. The relays are not suitable for the protection of single-phase AC or DC loads.

The 3RU21 thermal overload relay or the 3RB22/3RB23 electronic overload relay can be used for single-phase AC loads. For DC loads we recommend the 3RU21 thermal overload relay.

Ambient conditions

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, ageing and temperature fluctuations.

For the temperature range from -25 °C to +60 °C, the 3RB30/3RB31 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

Use of SIRIUS protection devices in conjunction with IE3 motors**Note:**

For the use of 3RB30/3RB31 electronic overload relays in conjunction with highly energy-efficient IE3 motors, please read the information on dimensioning and configuration in the "Configuration Manual for SIRIUS Controls with IE3 Motors", <https://support.industry.siemens.com/cs/ww/en/view/94770820>.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

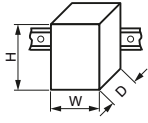
3RB30, 3RB31 for standard applications

Technical specifications

The following technical information is intended to provide an initial overview of the various types of device and functions.

Detailed information, see

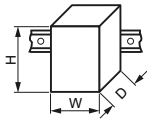
- Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", <https://support.industry.siemens.com/cs/document/60298164>
- or specific information on a particular article number via the product data sheet, <https://support.industry.siemens.com/cs/ww/en/ps/16276/td>

Type		3RB301., 3RB311.	3RB302., 3RB312.	3RB3036, 3RB3133
Size		S00	S0	S2
Dimensions (W x H x D) (overload relay with stand-alone installation support)		mm		
• Screw terminals		45 x 89 x 80	45 x 97 x 94	55 x 105 x 117
General data				
Tripping in the event of		Overload, phase failure and phase unbalance + ground fault (for 3RB31 only)		
Trip class acc. to IEC 60947-4-1	CLAS S	3RB30: 10E, 20E; 3RB31: 5E, 10E, 20E or 30E adjustable		
Phase failure sensitivity		Yes		
Reset and recovery		Manual and automatic RESET, 3RB31 has an integrated connection for electrical remote RESET (24 V DC)		
• Reset options after tripping		Approx. 3 min Immediately Immediately		
• Recovery time				
- For automatic RESET				
- For manual RESET				
- For remote RESET				
Features		Yes, by means of switch position indicator slide		
• Display of operating state on device		Yes, test of electronics by pressing the TEST button/test of auxiliary contacts and wiring of control circuit by actuating the switch position indicator slide/self-monitoring		
• TEST function		Yes		
• RESET button		No		
• STOP button				
Protection and operation of explosion-proof motors		PTB 09 ATEX 3001 II (2) G [Ex e] [Ex d] [Ex px] II (2) G [Ex t] [Ex p] see https://support.industry.siemens.com/cs/ww/en/view/40591327		
EC type-examination certificate number according to directive 94/9/EC (ATEX)				
Ambient temperatures				
• Storage/transport	°C	-40 ... +80		
• Operation	°C	-25 ... +60		
• Temperature compensation	°C	+60		
• Permissible rated current at				
- Temperature inside control cabinet 60 °C	%	100		
- Temperature inside control cabinet 70 °C		On request		
Repeat terminals				
• Coil repeat terminals		Yes	Not required	
• Auxiliary contact repeat terminal		Yes	Not required	
Degree of protection acc. to IEC 60529				
• Screw terminals		IP20	- IP20 (front side) - Terminal IP00 (use additional terminal covers for higher degree of protection)	
• Straight-through transformers		--	IP20	
Touch protection acc. to IEC 60529		Finger-safe	Finger-safe, for vertical contact from the front	
Shock resistance with sine acc. to IEC 60068-2-27	g/ms	15/11 (signaling contact 97/98 in "Tripped" position: 9 g/11 ms)	15/11 (signaling contact 97/98 in "Tripped" position: 8 g/11 ms)	

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB30, 3RB31 for standard applications



Type		3RB301., 3RB311.	3RB302., 3RB312.	3RB3036, 3RB3133	
Size		S00	S0	S2	
Dimensions (W x H x D) (overload relay with stand-alone installation support)		mm	45 x 89 x 80	45 x 97 x 94	55 x 105 x 117
General data (continued)					
Electromagnetic compatibility (EMC) – Interference immunity					
• Conductor-related interference		kV	2 (power ports), 1 (signal port)		
- Burst acc. to IEC 61000-4-4 (corresponds to degree of severity 3)		kV	2 (line to earth), 1 (line to line)		
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)		kV	8 (air discharge), 6 (contact discharge)		
• Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3)		kV	10		
• Field-related interference acc. to IEC 61000-4-3 (corresponds to degree of severity 3)		V/m	10		
Electromagnetic compatibility (EMC) – Emitted interference					
Degree of severity B acc. to EN 55011 (CISPR 11) and EN 55022 (CISPR 22)					
Resistance to extreme climates – air humidity					
%					
95					
Dimensions					
"Dimensional drawings", see • Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/60298164 • Product data sheet, https://support.industry.siemens.com/cs/ww/en/ps/16276/td					
Installation altitude above sea level					
m					
Up to 2 000					
Mounting position					
Any					
Type of mounting					
Direct mounting/stand-alone installation with terminal support					

Type		3RB301., 3RB311.	3RB302., 3RB312.	3RB3036, 3RB3133
Size		S00	S0	S2
Main circuit				
Rated insulation voltage U_i (pollution degree 3)				
	V	690		
Rated impulse withstand voltage U_{imp}				
	kV	6		
Rated operational voltage U_e				
	V	690		
Type of current				
• Direct current		No		
• Alternating current		Yes, 50/60 Hz \pm 5 %		
Current setting				
	A	0.1 ... 0.4 up to	0.1 ... 0.4 up to	12.5 ... 50 and
	A	4 ... 16	10 ... 40	20 ... 80
Heavy starting				
See Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/60298164				
Power loss per unit (max.)				
	W	0.05 ... 0.2		
Short-circuit protection				
• With fuse without contactor		See "Selection and ordering data", pages 2/42 ... 2/44		
• With fuse and contactor		"Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders" see the Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders", see https://support.industry.siemens.com/cs/ww/en/view/39714188 .		
Protective separation between main and auxiliary current paths acc. to IEC 60947-1 (pollution degree 2)				
• For systems with grounded neutral point	V	690		
• For systems with ungrounded neutral point	V	600		

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB30, 3RB31 for standard applications

Type	3RB301., 3RB311.		3RB302., 3RB312.	3RB3036, 3RB3133
Size	S00		S0	S2
Conductor cross-sections of main circuit				
Connection type	 Screw terminals			
Terminal screw	M3, Pozidriv size 2		M4, Pozidriv size 2	
Operating devices	mm	∅ 5 ... 6	∅ 5 ... 6	
Prescribed tightening torque	Nm	0.8 ... 1.2	2 ... 2.5	
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected	mm ²	2 x (0.5 ... 1.5) ¹⁾ 2 x (0.75 ... 2.5) ¹⁾ 2 x (0.5 ... 4) ¹⁾	2 x (1 ... 2.5) ¹⁾ 2 x (2.5 ... 10) ¹⁾	1 x (1 ... 50) ¹⁾ 2 x (1 ... 35) ¹⁾
• Solid or stranded	mm ²	2 x (0.5 ... 1.5) ¹⁾ 2 x (0.75 ... 2.5) ¹⁾	2 x (1 ... 2.5) ¹⁾ 2 x (2.5 ... 6) ¹⁾ max. 1 x 10	2 x (1 ... 25) ¹⁾ 1 x (1 ... 35) ¹⁾
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	2 x (0.5 ... 1.5) ¹⁾ 2 x (0.75 ... 2.5) ¹⁾	2 x (1 ... 2.5) ¹⁾ 2 x (2.5 ... 6) ¹⁾ max. 1 x 10	2 x (1 ... 25) ¹⁾ 1 x (1 ... 35) ¹⁾
• AWG cables, solid or stranded	AWG	2 x (20 ... 16) ¹⁾ 2 x (18 ... 14) ¹⁾	2 x (16 ... 12) ¹⁾ 2 x (14 ... 8) ¹⁾	2 x (18 ... 2) ¹⁾ 1 x (18 ... 1) ¹⁾
Connection type	 Straight-through transformers			
Diameter of opening	mm	--		15
Auxiliary circuit				
Number of NO contacts	1			
Number of NC contacts	1			
Auxiliary contacts – assignment	1 NO for the signal "tripped"; 1 NC for disconnecting the contactor			
Rated insulation voltage U_i (pollution degree 3)	V	300		
Rated impulse withstand voltage U_{imp}	kV	4		
Auxiliary contacts – contact rating				
• NC contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :				
- 24 V	A	4		
- 120 V	A	4		
- 125 V	A	4		
- 250 V	A	3		
• NO contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :				
- 24 V	A	4		
- 120 V	A	4		
- 125 V	A	4		
- 250 V	A	3		
• NC, NO contacts with direct current DC-13, rated operational current I_e at U_e :				
- 24 V	A	2		
- 60 V	A	0.55		
- 110 V	A	0.3		
- 125 V	A	0.3		
- 250 V	A	0.11		
• Conventional thermal current I_{th}	A	5		
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes		
Short-circuit protection				
• With fuse, operational class gG	A	6		
Ground-fault protection (only 3RB31)				
• Tripping value I_{Δ}		The information refers to sinusoidal residual currents at 50/60 Hz. > $0.75 \times I_{motor}$		
• Operating range I		Lower current setting < I_{motor} < $3.5 \times$ upper current setting		
• Response time t_{trip} (in steady-state condition)	s	< 1		
Integrated electrical remote RESET (only 3RB31)				
Connecting terminals A3, A4		24 V DC, max. 200 mA for approx. 20 ms, then < 10 mA		
Protective separation between auxiliary current paths acc. to IEC 60947-1	V	300		

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

Type	3RB301., 3RB311.	3RB302., 3RB312.	3RB3036, 3RB3133
Size	S00	S0	S2
CSA, UL, UR rated data			
Auxiliary circuit – switching capacity	3RB30: B600, R300; 3RB31: B300, R300		
Conductor cross-sections for auxiliary circuit			
Connection type	⊕ Screw terminals		
Terminal screw	M3, Pozidriv size 2		
Operating devices	mm	∅ 5 ... 6	
Prescribed tightening torque	Nm	0.8 ... 1.2	
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid or stranded	mm ²	1 × (0.5 ... 4) ¹⁾ , 2 × (0.5 ... 2.5) ¹⁾	
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	1 × (0.5 ... 2.5) ¹⁾ , 2 × (0.5 ... 1.5) ¹⁾	
• AWG cables, solid or stranded	AWG	2 × (20 ... 14)	

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB30, 3RB31 for standard applications

Selection and ordering data

3RB30 electronic overload relays, CLASS 10E

Features and technical specifications:

- Connection methods
 - Sizes S00 and S0: Main and auxiliary circuit: Screw terminals
 - Size S2: Main circuit: Screw terminals with box terminal or as straight-through transformer, Auxiliary circuit: Screw terminals
- Overload protection, phase failure protection and unbalance protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)



3RB3016-2.B0




3RB3026-2.B0



3RB3036-2.B0



3RB3036-2.W1

Size contactor ²⁾	Trip class	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG ¹⁾	Screw terminals 
	CLASS	A	A	Article No.
Size S00				
S00	Devices for mounting onto contactor²⁾			
	10E	0.1 ... 0.4	4	3RB3016-1RB0
	10E	0.32 ... 1.25	6	3RB3016-1NB0
	10E	1 ... 4	20	3RB3016-1PB0
	10E	3 ... 12	25	3RB3016-1SB0
	10E	4 ... 16	25	3RB3016-1TB0
Size S0				
S0	Devices for mounting onto contactor²⁾			
	10E	0.1 ... 0.4	4	3RB3026-1RB0
	10E	0.32 ... 1.25	6	3RB3026-1NB0
	10E	1 ... 4	20	3RB3026-1PB0
	10E	3 ... 12	25	3RB3026-1SB0
	10E	6 ... 25	50	3RB3026-1QB0
	10E	10 ... 40	50	3RB3026-1VB0
Size S2				
S2	Devices with screw terminals (main current side) and for mounting onto contactor²⁾			
	10E	12.5 ... 50	250	3RB3036-1UB0
	10E	20 ... 80	250	3RB3036-1WB0
	Devices with straight-through transformer for stand-alone installation			
	10E	12.5 ... 50	250	3RB3036-1UW1
	10E	20 ... 80	250	3RB3036-1WW1

¹⁾ Maximum protection by fuse only for overload relay, type of coordination "2".
Fuse values in connection with contactors, see Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders",
<https://support.industry.siemens.com/cs/ww/en/view/39714188>.

²⁾ With the appropriate terminal supports (see "Accessories", page 2/45), these overload relays can also be installed as stand-alone units.

Note:

For reliable information regarding operational current reduction (derating), refer to Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays":
<https://support.industry.siemens.com/cs/document/60298164>

3RB30 electronic overload relays, CLASS 20E

Features and technical specifications:

- Connection methods
 - Sizes S00 and S0: Main and auxiliary circuit: Screw terminals
 - Size S2: Main circuit: Screw terminals with box terminal or as straight-through transformer, Auxiliary circuit: Screw terminals
- Overload protection, phase failure protection and unbalance protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)



3RB3016-1.B0




3RB3026-1.B0



3RB3036-1.B0



3RB3036-1.W1

Size contactor ²⁾	Trip class	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG ¹⁾	Screw terminals 
	CLASS	A	A	Article No.
Size S00				
S00	Devices for mounting onto contactor²⁾			
	20E	0.1 ... 0.4	4	3RB3016-2RB0
	20E	0.32 ... 1.25	6	3RB3016-2NB0
	20E	1 ... 4	20	3RB3016-2PB0
	20E	3 ... 12	25	3RB3016-2SB0
	20E	4 ... 16	25	3RB3016-2TB0
Size S0				
S0	Devices for mounting onto contactor²⁾			
	20E	0.1 ... 0.4	4	3RB3026-2RB0
	20E	0.32 ... 1.25	6	3RB3026-2NB0
	20E	1 ... 4	20	3RB3026-2PB0
	20E	3 ... 12	25	3RB3026-2SB0
	20E	6 ... 25	50	3RB3026-2QB0
	20E	10 ... 40	50	3RB3026-2VB0
Size S2				
S2	Devices with screw terminals (main current side) and for mounting onto contactor²⁾			
	20E	12.5 ... 50	250	3RB3036-2UB0
	20E	20 ... 80	250	3RB3036-2WB0
	Devices with straight-through transformer for stand-alone installation			
	20E	12.5 ... 50	250	3RB3036-2UW1
	20E	20 ... 80	250	3RB3036-2WW1

¹⁾ Maximum protection by fuse only for overload relay, type of coordination "2".
Fuse values in connection with contactors, see Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders",
<https://support.industry.siemens.com/cs/ww/en/view/39714188>.

²⁾ With the appropriate terminal supports (see "Accessories", page 2/45), these overload relays can also be installed as stand-alone units.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB30, 3RB31 for standard applications

3RB31 electronic overload relays, CLASS 5E, 10E, 20E or 30E (adjustable)

Features and technical specifications:

- Connection methods
 - Sizes S00 and S0: Main and auxiliary circuit: Screw terminals
 - Size S2: Main circuit: Screw terminals with box terminal or as straight-through transformer, Auxiliary circuit: Screw terminals
- Overload protection, phase failure protection and unbalance protection
- Internal ground-fault detection (activatable)
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Electrical remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)



3RB3113-4TB0




3RB3123-4VB0



3RB3133-4.B0



3RB3133-4.W1

Size contactor ²⁾	Trip class	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG ¹⁾	Screw terminals 
	CLASS	A	A	Article No.
Size S00				
S00	Devices for mounting onto contactor²⁾			
	5E, 10E, 20E or 30E adjustable	0.1 ... 0.4	4	3RB3113-4RB0
		0.32 ... 1.25	6	3RB3113-4NB0
		1 ... 4	20	3RB3113-4PB0
		3 ... 12	25	3RB3113-4SB0
		4 ... 16	25	3RB3113-4TB0
Size S0				
S0	Devices for mounting onto contactor²⁾			
	5E, 10E, 20E or 30E adjustable	0.1 ... 0.4	4	3RB3123-4RB0
		0.32 ... 1.25	6	3RB3123-4NB0
		1 ... 4	20	3RB3123-4PB0
		3 ... 12	25	3RB3123-4SB0
		6 ... 25	50	3RB3123-4QB0
		10 ... 40	50	3RB3123-4VB0
Size S2				
S2	Devices with screw terminals (main current side) and for mounting onto contactor²⁾			
	5E, 10E, 20E or 30E adjustable	12.5 ... 50	250	3RB3133-4UB0
		20 ... 80	250	3RB3133-4WB0
	Devices with straight-through transformer for stand-alone installation			
	5E, 10E, 20E or 30E adjustable	12.5 ... 50	250	3RB3133-4UW1
		20 ... 80	250	3RB3133-4WW1

¹⁾ Maximum protection by fuse only for overload relay, type of coordination "2".
Fuse values in connection with contactors, see Configuration Manual "Configuring SIRIUS Innovations – Selection Data for Fuseless and Fused Load Feeders",
<https://support.industry.siemens.com/cs/ww/en/view/39714188>.






²⁾ With the appropriate terminal supports (see "Accessories", page 2/45), these overload relays can also be installed as stand-alone units.

Overview

The following optional accessories are available for the 3RB30/3RB31 electronic overload relays:

- Size-specific terminal support for stand-alone installation
- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Sealable cover (for all sizes)

Selection and ordering data

Version	Size	Article No.
Terminal supports for stand-alone installation		
 3RU2916-3AA01	Terminal supports for overload relays with screw terminals	
	For separate mounting of the overload relays; screw and snap-on mounting onto standard mounting rail	
	S00	Screw terminals  3RU2916-3AA01 3RU2926-3AA01 3RU2936-3AA01
	S0	
S2		
 3RU2926-3AA01		
 3RU2936-3AA01		
Mechanical RESET...		
 3RB3980-0A with pushbutton and extension plunger	Resetting plungers, holders and formers	
	S00 ... S2	3RB3980-0A
	Pushbuttons with extended stroke (12 mm), IP65, ø 22 mm	
S00 ... S2	3SB3000-0EA11	
Extension plungers For compensation of the distance between a pushbutton and the unlatching button of the relay		
S00 ... S2	3SX1335	

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

Accessories for 3RB30, 3RB31

Version	Size	Article No.
---------	------	-------------

Cable releases with holder for RESET



For \varnothing 6.5 mm holes in the control panel;
max. control panel thickness 8 mm

- Length 400 mm
- Length 600 mm

S00 ... S2

S00 ... S2

3RB3980-0B**3RB3980-0C**

3RB3980-0.

Sealable covers



For covering the setting knobs

S00 ... S2

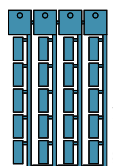
3RB3984-0

3RB3984-0

General accessories

Version	Size	Color	For overload relays	Article No.
---------	------	-------	---------------------	-------------

Blank labels



Unit labeling plates¹⁾
For SIRIUS devices

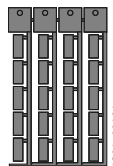
20 mm x 7 mm

Pastel
turquoise

3RB3

3RT1900-1SB20

3RT1900-1SB20



20 mm x 7 mm

Titanium
gray

3RB3

3RT2900-1SB20

3RT2900-1SB20

¹⁾ PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH see www.murrplastik.de.

More information

Manuals

- System Manual "SIRIUS Innovations – System Overview":
<https://support.industry.siemens.com/cs/ww/en/view/60311318>
- Manual "SIRIUS Innovations – SIRIUS 3RU2/3RB3 Overload Relays"
<https://support.industry.siemens.com/cs/ww/en/view/60298164>

Industry Online Support

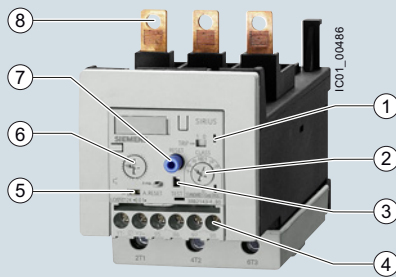
- <https://support.industry.siemens.com/cs/ww/en/ps/16270>

Overview

Note:

The 3RB20 and 3RB21 devices (sizes S00/S0 to S12) can be found

- in the Catalog Add-On IC 10 AO · 2016 at the Information and Download Center
- in the interactive Catalog CA 01
- in the Industry Mall



- 1 Switch position indicator and TEST function of the wiring: Indicates a trip and enables the wiring test.
- 2 Trip class setting/internal ground-fault detection (only 3RB21): Using the rotary switch you can set the required trip class and activate the internal ground-fault detection dependent on the start-up conditions.
- 3 Solid-state test (device test): Enables a test of all important device components and functions.
- 4 Connecting terminals (removable terminal block for auxiliary circuits): The generously sized terminals permit connection of two conductors with different cross-sections for the main and auxiliary circuits. The auxiliary circuit can be connected with screw terminals.
- 5 Selector switch for manual/automatic RESET: With the slide switch you can choose between manual and automatic RESET.
- 6 Motor current setting: Setting the device to the rated motor current is easy with the large rotary knob.
- 7 A device set to manual RESET can be reset locally by pressing the RESET button. On the 3RB21 overload relay a solid-state remote RESET is integrated.
- 8 Connection for mounting onto contactors: Optimally adapted in electrical, mechanical and design terms to the contactors 3RT1. These connecting pins can be used for direct mounting of the overload relay to the contactor. Stand-alone installation is possible as an alternative (partly in conjunction with a terminal bracket for stand-alone installation).

SIRIUS 3RB2143-4EB0 electronic overload relay

The 3RB20 and 3RB21 electronic overload relays up to 630 A with internal power supply have been designed for inverse-time delayed protection of loads with normal and heavy starting ("Function", see Reference Manual Protection Equipment – 3RU1, 3RB2 Overload Relays, <https://support.industry.siemens.com/cs/ww/en/view/35681830>) against excessive temperature rises due to overload, phase unbalance or phase failure.

An overload, phase unbalance or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by the current transformers integrated into the devices and evaluated by corresponding solid-state circuits which then output a pulse to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and the current setting I_e and is stored in the form of a long-term stable tripping characteristic curve, see "Characteristic Curves": <https://support.industry.siemens.com/cs/ww/en/ps/16277/char>.

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase unbalance and phase failure, the 3RB21 electronic overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). This provides protection of loads against high-resistance short circuits due to damage to the insulation material, moisture, condensed water etc.

The "tripped" status is signaled by means of a switch position indicator. The relay is reset manually or automatically after the recovery time has elapsed.

The 3RB2 electronic overload relays are suitable for operation with frequency converters. For further details, see Reference Manual Protection Equipment – 3RU1, 3RB2 Overload Relays <https://support.industry.siemens.com/cs/ww/en/view/35681830>.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

For 3RB30 and 3RB31 overload relay sizes S00 to S2, see page 2/36 onwards.

Use in hazardous areas

The 3RB20/3RB21 electronic overload relays are suitable for the overload protection of motors with the following types of protection:

- II (2) G [Ex e] [Ex d] [Ex px]
- II (2) D [Ex t] [Ex p]

EC type test certificate for Group II, Category (2) G/D exists. It has the number PTB 06 ATEX 3001.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB20, 3RB21 for standard applications

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	
	□□□	□	□	□	□	-	□	□	□	
Electronic overload relays	3 R B									
SIRIUS 2nd generation	2									
Device series	□									
Size, rated operational current and power	□									
Version of the automatic RESET, electrical remote RESET	□									
Trip class (CLASS)	□									
Setting range of the overload release	□									
Connection methods	□									
Installation type	□									
Example	3 R B	2	0	4	6	-	1	Q	B	0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

The most important features and benefits of the 3RB20/3RB21 electronic overload relays are listed in the overview table (see "General Data", page 2/33 onwards)

Application

Industries

The 3RB20 and 3RB21 electronic overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5 to 30), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

Application

The 3RB20 and 3RB21 electronic overload relays have been designed for the protection of three-phase motors in sinusoidal 50/60 Hz voltage networks. The relays are not suitable for the protection of single-phase AC or DC loads.

The 3RU11 thermal overload relays or the 3RB22 to 3RB24 electronic overload relays can be used for single-phase AC loads. For DC loads we recommend the 3RU11 thermal overload relay.

Ambient conditions

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, ageing and temperature fluctuations.

For the temperature range from -25 °C to +60 °C, the 3RB20 and 3RB21 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

For the 3RB20 and 3RB21 electronic overload relays with the sizes S6, S10 and S12, the upper set value of the setting range must be reduced for ambient temperatures > 50 °C by a certain factor.

Use of SIRIUS protection devices in conjunction with IE3 motors

Note:

For the use of 3RB20 and 3RB21 electronic overload relays in conjunction with highly energy-efficient IE3 motors, please read the information on dimensioning and configuration, see "Configuration Manual for SIRIUS Controls with IE3 Motors", <https://support.industry.siemens.com/cs/ww/en/view/94770820>.

Protection Devices

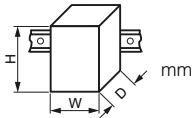
SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB20, 3RB21 for standard applications

Technical specifications

The following technical information is intended to provide an initial overview of the various types of device and functions.

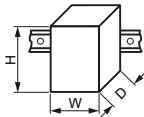
For detailed information, see
["Protection Equipment – 3RU1, 3RB2 Overload Relays"](https://support.industry.siemens.com/cs/ww/en/view/35681830)
<https://support.industry.siemens.com/cs/ww/en/view/35681830>

Type		3RB2046, 3RB2143	3RB2056, 3RB2153	3RB2066, 3RB2163
Size Dimensions (W x H x D) (overload relay with stand-alone installation support)	mm	S3 70 x 86 x 124	S6 120 x 119 x 155	S10/S12 145 x 147 x 156
General data				
Tripping in the event of		Overload, phase failure and phase unbalance + ground fault (for 3RB21 only)		
Trip class acc. to IEC 60947-4-1	CLASS	3RB20: 10 or 20; 3RB21: 5, 10, 20 and 30 adjustable		
Phase failure sensitivity		Yes		
Overload warning		No		
Reset and recovery		3RB20: Manual and automatic RESET; 3RB21: Manual, Automatic and Remote RESET		
• Reset options after tripping		Approx. 3 min Immediately Immediately		
• Recovery time				
- For automatic RESET				
- For manual RESET				
- For remote RESET				
Features		Yes, by means of switch position indicator slide		
• Display of operating state on device		Yes, test of electronics by pressing the TEST button/test of auxiliary contacts and wiring of control circuit by actuating the switch position indicator slide/self-monitoring		
• TEST function		Yes		
• RESET button		No		
• STOP button				
Protection and operation of explosion-proof motors		PTB 06 ATEX 3001 Ex II (2) G [Ex e] [Ex d] [Ex px] Ex II (2) G [Ex t] [Ex p] see https://support.industry.siemens.com/cs/ww/en/view/23814648		
EC type-examination certificate number according to directive 94/9/EC (ATEX)				
Ambient temperatures				
• Storage/transport	°C	-40 ... +80		
• Operation	°C	-25 ... +60		
• Temperature compensation	°C	+60		
• Permissible rated current at				
- Temperature inside control cabinet 60 °C, stand-alone installation	%	100	100	100 or 90 ¹⁾
- Temperature inside control cabinet 60 °C, mounted on contactor	%	100	70	70
- Temperature inside control cabinet 70 °C	%	On request		
Degree of protection acc. to IEC 60529		- IP20 (front side) - Terminal IP00 (use additional terminal covers for higher degree of protection)		
• Screw terminals/busbar connections		IP20		
• Straight-through transformers				




Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB20, 3RB21 for standard applications

Type		3RB2046, 3RB2143	3RB2056, 3RB2153	3RB2066, 3RB2163
Size		S3	S6	S10/S12
Dimensions (W x H x D) (overload relay with stand-alone installation support)	 mm	70 x 86 x 124	120 x 119 x 155	145 x 147 x 156
Touch protection acc. to IEC 60529				
• Screw terminals/busbar connections			Finger-safe, for vertical contact from the front	
• Straight-through transformers			Finger-safe	
Shock resistance with sine acc. to IEC 60068-2-27	g/ms	15/11 (signaling contact 97/98 in position "tripped": 4 g/11 ms)		
Electromagnetic compatibility (EMC) – Interference immunity				
• Conductor-related interference				
- Burst acc. to IEC 61000-4-4 (corresponds to degree of severity 3)	kV	2 (power ports), 1 (signal port)		
- Surge acc. to IEC 61000-4-5 (corresponds to degree of severity 3)	kV	2 (line to earth), 1 (line to line)		
• Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3)	kV	8 (air discharge), 6 (contact discharge)		
• Field-related interference acc. to IEC 61000-4-3 (corresponds to degree of severity 3)	V/m	10		
Electromagnetic compatibility (EMC) – Emitted interference		Degree of severity B acc. to EN 55011 (CISPR 11) and EN 55022 (CISPR 22)		
Resistance to extreme climates – air humidity	%	100		
Dimensions		"Dimensional drawings" see Reference Manual Protection Equipment – 3RU1, 3RB2 Overload Relays, http://support.automation.siemens.com/cs/ww/en/view/35681830		
Installation altitude above sea level	m	Up to 2 000		
Mounting position		Any		
Type of mounting		Direct mounting/stand-alone installation with terminal support	Direct mounting/stand-alone installation	

¹⁾ 90 % for relay with current setting range 160 A to 630 A.




Type	3RB2046, 3RB2143	
Size	S3	
Main circuit		
Rated insulation voltage U_i (pollution degree 3)	V	1 000
Rated impulse withstand voltage U_{imp}	kV	8
Rated operational voltage U_e	V	1 000
Type of current		
• Direct current	No	
• Alternating current	Yes, 50/60 Hz \pm 5 %	
Current setting	A	12.5 ... 50, 25 ... 100
Power loss per unit (max.)	W	0.05
Short-circuit protection		
• With fuse without contactor	See "Selection and ordering data", pages 2/54 ... 2/56 "Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders" see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", https://support.industry.siemens.com/cs/ww/en/view/35681830 → "Technical Specifications" → "Short-Circuit Protection with Fuses for Motor Feeders"	
• With fuse and contactor		
Protective separation between main and auxiliary current paths acc. to IEC 60947-1 (pollution degree 2)		
• For systems with grounded neutral point	V	690
• For systems with ungrounded neutral point	V	600
Conductor cross-sections of the main circuit		
Connection type	 Screw terminals with box terminal	
Terminal screw	M8, 4 mm Allen screw	
Operating devices	mm	4 mm Allen screw
Prescribed tightening torque	Nm	4 ... 6
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected		
• Solid	mm ²	2 × (2.5 ... 16)
• Finely stranded without end sleeve	mm ²	--
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	2 × (2.5 ... 35) ¹⁾ , 1 × (2.5 ... 50) ¹⁾
• Stranded	mm ²	2 × (10 ... 50) ¹⁾ , 1 × (10 ... 70) ¹⁾
• AWG cables, solid or stranded	AWG	2 × (10 ... 1/0) ¹⁾ , 1 × (10 ... 2/0) ¹⁾
• Ribbon cables (Number x Width x Thickness)	mm	2 × (6 × 9 × 0.8)
Connection type	 Busbar connections	
Terminal screw	M6 × 20	
Prescribed tightening torque	Nm	4 ... 6
Conductor cross-sections (min./max.)		
• Finely stranded with cable lug	mm ²	2 × 70
• Stranded with cable lug	mm ²	2 × 70
• AWG cables, solid or stranded, with cable lug	AWG	2/0
• With connecting bars (max. width)	mm	12
Connection type	 Straight-through transformers	
Diameter of opening	mm	18

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB20, 3RB21 for standard applications

Type		3RB2056, 3RB2153	3RB2066, 3RB2163
Size		S6	S10/S12
Main circuit			
Rated insulation voltage U_i (pollution degree 3)	V	1 000	
Rated impulse withstand voltage U_{imp}	kV	8	
Rated operational voltage U_e	V	1 000	
Type of current		No	
• Direct current		Yes, 50/60 Hz ± 5 %	
• Alternating current			
Current setting	A	50 ... 200	55 ... 250, 160 ... 630
Power loss per unit (max.)	W	0.05	
Short-circuit protection		See "Selection and ordering data", pages 2/54 ... 2/56 "Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders" See Reference Manual Protection Equipment – 3RU1, 3RB2 Overload Relays https://support.industry.siemens.com/cs/ww/en/view/35681830 → "Technical Specifications" → "Short-Circuit Protection with Fuses for Motor Feeders"	
Protective separation between main and auxiliary current paths acc. to IEC 60947-1 (pollution degree 2)			
• For systems with grounded neutral point	V	690	
• For systems with ungrounded neutral point	V	600	
Conductor cross-sections of the main circuit			
Connection type		 Screw terminals with box terminal	
Terminal screw	mm	4 mm Allen screw	5 mm Allen screw
Operating devices	mm	4 mm Allen screw	5 mm Allen screw
Prescribed tightening torque	Nm	1 ... 12	20 ... 22
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid	mm ²	--	--
• Finely stranded without end sleeve	mm ²	With 3RT1955-4G box terminal: 2 × (1 × max. 50, 1 × max. 70), 1 × (10 ... 70); With 3RT1956-4G box terminal: 2 × (1 × max. 95, 1 × max. 120), 1 × (10 ... 120)	2 × (50 ... 185), Front clamping point only: 1 × (70 ... 240); Rear clamping point only: 1 × (120 ... 185)
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	With 3RT1955-4G box terminal: 2 × (1 × max. 50, 1 × max. 70), 1 × (10 ... 70); With 3RT1956-4G box terminal: 2 × (1 × max. 95, 1 × max. 120), 1 × (10 ... 120)	2 × (50 ... 185), Front clamping point only: 1 × (70 ... 240); Rear clamping point only: 1 × (120 ... 185)
• Stranded	mm ²	With 3RT1955-4G box terminal: 2 × (max. 70), 1 × (16 ... 70); With 3RT1956-4G box terminal: 2 × (max. 120), 1 × (16 ... 120)	2 × (70 ... 240), Front clamping point only: 1 × (95 ... 300); Rear clamping point only: 1 × (120 ... 240)
• AWG cables, solid or stranded	AWG	With 3RT1955-4G box terminal: 2 × (max. 1/0), 1 × (6 ... 2/0); With 3RT1956-4G box terminal: 2 × (max. 3/0), 1 × (6 ... 250 kcmil)	2 × (2/0 ... 500 kcmil), Front clamping point only: 1 × (3/0 ... 600 kcmil); Rear clamping point only: 1 × (250 kcmil ... 500 kcmil)
• Ribbon cables (Number x Width x Thickness)	mm	With 3RT1955-4G box terminal: 2 × (6 × 15.5 × 0.8), 1 × (3 × 9 × 0.8 ... 6 × 15.5 × 0.8); With 3RT1956-4G box terminal: 2 × (10 × 15.5 × 0.8), 1 × (3 × 9 × 0.8 ... 10 × 15.5 × 0.8)	2 × (20 × 24 × 0.5), 1 × (6 × 9 × 0.8 ... 20 × 24 × 0.5)
Connection type		 Busbar connections	
Terminal screw		M8 × 25	M10 × 30
Prescribed tightening torque	Nm	10 ... 14	14 ... 24
Conductor cross-sections (min./max.)			
• Finely stranded with cable lug	mm ²	16 ... 95 ¹⁾	50 ... 240 ²⁾
• Stranded with cable lug	mm ²	25 ... 120 ¹⁾	70 ... 240 ²⁾
• AWG cables, solid or stranded, with cable lug	AWG	4 ... 250 kcmil	2/0 ... 500 kcmil
• With connecting bars (max. width)	mm	15	25
Connection type		 Straight-through transformers	
Diameter of opening	mm	24.5	--


¹⁾ When connecting cable lugs according to DIN 46235 with conductor cross-sections of 95 mm² and more, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance.

²⁾ When connecting cable lugs according to DIN 46234 for conductor cross-sections from 240 mm², as well as DIN 46235 for cable cross-sections from 185 mm², the 3RT1956-4EA1 terminal cover must be used to ensure phase spacing.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB20, 3RB21 for standard applications

Type	3RB2046, 3RB2143	3RB2056, 3RB2153	3RB2066, 3RB2163
Size	S3	S6	S10/S12
Auxiliary circuit			
Number of NO contacts	1		
Number of NC contacts	1		
Auxiliary contacts – assignment	1 NO for the signal "tripped"; 1 NC for disconnecting the contactor		
Rated insulation voltage U_i (pollution degree 3)	V	300	
Rated impulse withstand voltage U_{imp}	kV	4	
Auxiliary contacts – contact rating			
• NC contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :			
- 24 V	A	4	
- 120 V	A	4	
- 125 V	A	4	
- 250 V	A	3	
• NO contact with alternating current AC-14/AC-15, rated operational current I_e at U_e :			
- 24 V	A	4	
- 120 V	A	4	
- 125 V	A	4	
- 250 V	A	3	
• NC, NO contacts with direct current DC-13, rated operational current I_e at U_e :			
- 24 V	A	2	
- 60 V	A	0.55	
- 110 V	A	0.3	
- 125 V	A	0.3	
- 250 V	A	0.11	
• Conventional thermal current I_{th}	A	5	
• Contact reliability (suitability for PLC control; 17 V, 5 mA)		Yes	
Short-circuit protection			
• With fuse, operational class gG	A	6	
Ground-fault protection (only 3RB21)			
• Tripping value I_{Δ}		The information refers to sinusoidal residual currents at 50/60 Hz. > $0.75 \times I_{motor}$	
• Operating range I		Lower current setting < I_{motor} < $3.5 \times$ upper current setting	
• Response time t_{trip} (in steady-state condition)	s	< 1	
Integrated electrical remote RESET (only 3RB21)			
Connecting terminals A3, A4		24 V DC, 100 mA, 2.4 W short-term	
Protective separation between auxiliary current paths acc. to IEC 60947-1 V		300	
CSA, UL, UR rated data			
Auxiliary circuit – switching capacity		B300, R300	
Conductor cross-sections of the auxiliary circuit			
Connection type		 Screw terminals	
Terminal screw		M3, Pozidriv size 2	
Operating devices	mm	Ø 5 ... 6	
Prescribed tightening torque	Nm	0.8 ... 1.2	
Conductor cross-sections (min./max.), 1 or 2 conductors can be connected			
• Solid and stranded	mm ²	1 × (0.5 ... 4) ¹⁾ , 2 × (0.5 ... 2.5) ¹⁾	
• Finely stranded without end sleeve	mm ²	--	
• Finely stranded with end sleeve (DIN 46228-1)	mm ²	1 × (0.5 ... 2.5) ¹⁾ , 2 × (0.5 ... 1.5) ¹⁾	
• AWG cables, solid or stranded	AWG	2 × (20 ... 14)	

¹⁾ If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB20, 3RB21 for standard applications

Selection and ordering data

3RB20 electronic overload relays for mounting onto contactors and stand-alone installation, CLASS 10

Features and technical specifications:

- Connection methods
 - Size S3
Main circuit: Busbar connection with box terminal or as straight-through transformer,
Auxiliary circuit: Screw terminals
 - Size S6
Main circuit: With busbar connection or as straight-through transformer,
Auxiliary circuit: Screw terminals
 - Sizes S10/S12:
Main circuit: With busbar connection,
Auxiliary circuit: Screw terminals
- Overload protection, phase failure protection and unbalance protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Switch position indicator
- TEST function and self-monitoring




3RB2046-1ED0



3RB2056-1FW2



3RB2066-1MF2

Size contactor	Trip class	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG ¹⁾	Screw terminals (on auxiliary current side) 
	CLASS	A	A	Article No.
Size S3				
Devices with screw terminals, for mounting onto contactor				
S3	10	12.5 ... 50	160	3RB2046-1UB0
S3	10	25 ... 100	315	3RB2046-1EB0
Devices with straight-through transformer, for stand-alone installation				
S3	10	25 ... 100	315	3RB2046-1EW1
Size S6				
Devices with busbar connection, for mounting onto contactor and stand-alone installation				
S6	10	50 ... 200	315	3RB2056-1FC2
Devices with straight-through transformer, for mounting onto contactor and stand-alone installation				
For mounting onto S6 contactors with box terminals	10	50 ... 200	315	3RB2056-1FW2
Size S10/S12				
Devices with busbar connection, for mounting onto contactor and stand-alone installation				
S10/S12	10	55 ... 250	400	3RB2066-1GC2
and size 14 (3TF68/3TF69) ²⁾	10	160 ... 630	800	3RB2066-1MC2

¹⁾ Maximum protection by fuse only for overload relay, type of coordination "2". For fuse values in connection with contactors, see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", <https://support.industry.siemens.com/cs/ww/en/view/35681830> → "Technical Specifications" → "Short-Circuit Protection with Fuses for Motor Feeders".

²⁾ For 3TF68/3TF69 contactors, direct mounting is not possible.

3RB20 electronic overload relays for mounting onto contactors and stand-alone installation, CLASS 20

Features and technical specifications:

- Connection methods
 - Size S3
Main circuit: Busbar connection with box terminal or as straight-through transformer,
Auxiliary circuit: Screw terminals
 - Size S6
Main circuit: With busbar connection or as straight-through transformer,
Auxiliary circuit: Screw terminals
 - Sizes S10/S12:
Main circuit: With busbar connection,
Auxiliary circuit: Screw terminals
- Overload protection, phase failure protection and unbalance protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Switch position indicator
- TEST function and self-monitoring




3RB2046-2ED0



3RB2056-2FW2



3RB2066-2MF2

Size contactor	Trip class	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG ¹⁾	Screw terminals (on auxiliary current side) 
	CLASS	A	A	Article No.
Size S3				
Devices with screw terminals, for mounting onto contactor				
S3	20	12.5 ... 50	160	3RB2046-2UB0
S3	20	25 ... 100	315	3RB2046-2EB0
Devices with straight-through transformer, for stand-alone installation				
S3	20	25 ... 100	315	3RB2046-2EW1
Size S6				
Devices with busbar connection, for mounting onto contactor and stand-alone installation				
S6	20	50 ... 200	315	3RB2056-2FC2
Devices with straight-through transformer, for mounting onto contactor and stand-alone installation				
For mounting onto S6 contactors with box terminals	20	50 ... 200	315	3RB2056-2FW2
Size S10/S12²⁾				
Devices with busbar connection, for mounting onto contactor and stand-alone installation				
S10/S12 and size 14 (3TF68/3TF69) ²⁾	20	55 ... 250	400	3RB2066-2GC2
	20	160 ... 630	800	3RB2066-2MC2

¹⁾ Maximum protection by fuse only for overload relay, type of coordination "2". For fuse values in connection with contactors, see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", <https://support.industry.siemens.com/cs/ww/en/view/35681830> → "Technical Specifications" → "Short-Circuit Protection with Fuses for Motor Feeders".

²⁾ For 3TF68/3TF69 contactors, direct mounting is not possible.

Protection Devices

SIRIUS 3RB2/3RB3 Electronic Overload Relays

3RB20, 3RB21 for standard applications

3RB21 electronic overload relays for mounting onto contactors and stand-alone installation, CLASS 5, 10, 20 and 30 adjustable

Features and technical specifications:

- Connection methods
 - Size S3
Main circuit: Busbar connection with box terminal or as straight-through transformer,
Auxiliary circuit: Screw terminals
 - Size S6
Main circuit: With busbar connection or as straight-through transformer,
Auxiliary circuit: Screw terminals
 - Sizes S10/S12:
Main circuit: With busbar connection,
Auxiliary circuit: Screw terminals
- Overload protection, phase failure protection and unbalance protection
- Internal ground-fault detection (activatable)
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and automatic RESET
- Electrical remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring




3RB2143-4EBO



3RB2153-4FW2



3RB2163-4MC2

Size contactor	Trip class	Current setting value of the inverse-time delayed overload release	Short-circuit protection with fuse, type of coordination "2", operational class gG ¹⁾	Screw terminals (on auxiliary current side) 
	CLASS	A	A	Article No.
Size S3				
Devices with screw terminals, for mounting onto contactor				
S3	5, 10, 20 and 30	12.5 ... 50	160	3RB2143-4UB0
S3	adjustable	25 ... 100	315	3RB2143-4EB0
Devices with straight-through transformer, for stand-alone installation				
S3				3RB2143-4EW1
Size S6				
Devices with busbar connection, for mounting onto contactor and stand-alone installation				
S6	5, 10, 20 and 30 adjustable	50 ... 200	315	3RB2153-4FC2
Devices with straight-through transformer, for mounting onto contactor and stand-alone installation				
For mounting onto S6 contactors with box terminals	5, 10, 20 and 30 adjustable			3RB2153-4FW2
Size S10/S12²⁾				
Devices with busbar connection, for mounting onto contactor and stand-alone installation				
S10/S12 and size 14 (3TF68/3TF69) ²⁾	5, 10, 20 and 30 adjustable	55 ... 250 160 ... 630	400 800	3RB2163-4GC2 3RB2163-4MC2

¹⁾ Maximum protection by fuse only for overload relay, type of coordination "2". For fuse values in connection with contactors, see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays", <https://support.industry.siemens.com/cs/ww/en/view/35681830> → "Technical Specifications" → "Short-Circuit Protection with Fuses for Motor Feeders".

²⁾ For 3TF68/3TF69 contactors, direct mounting is not possible.






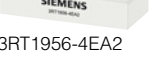

Overview

Overload relays for standard applications

The following optional accessories are available for the 3RB20 and 3RB21 electronic overload relays:

- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Sealable cover (for all sizes)
- Terminal covers for sizes S3 to S10/S12
- Box terminal blocks for sizes S6 and S10/S12

Selection and ordering data

Version	Size	Article No.
Mechanical RESET		
 <p>3RU1900-1A with pushbutton and extension plunger</p>	Resetting plungers, holders and formers	S3 ... S10/S12 3RU1900-1A
	Pushbuttons with extended stroke (12 mm), IP65, ø 22 mm	S3 ... S10/S12 3SB3000-0EA11
	Extension plungers For compensation of the distance between a pushbutton and the unlatching button of the relay	S3 ... S10/S12 3SX1335
Cable releases with holder for RESET		
 <p>3RU1900-1.</p>	For ø 6.5 mm holes in the control panel; max. control panel thickness 8 mm <ul style="list-style-type: none"> • Length 400 mm • Length 600 mm 	S3 ... S10/S12 3RU1900-1B 3RU1900-1C
Sealable covers		
 <p>3RB2984-0</p>	For covering the setting knobs	S3 ... S10/S12 3RB2984-0
Terminal covers		
 <p>3RT1956-4EA1</p>	Covers for cable lugs and busbar connections <ul style="list-style-type: none"> • Length 55 mm • Length 100 mm • Length 120 mm 	S3 S6 S10/S12 3RT1946-4EA1 3RT1956-4EA1 3RT1966-4EA1
	 <p>3RT1956-4EA2</p>	Covers for box terminals <ul style="list-style-type: none"> • Length 20.8 mm • Length 25 mm • Length 30 mm
 <p>3RT1956-4EA3</p>		Covers for screw terminals between contactor and overload relay, without box terminals (1 unit required per combination)
Box terminal blocks		
 <p>3RT195.-4G</p>	For round and ribbon cables <ul style="list-style-type: none"> • Up to 70 mm² • Up to 120 mm² • Up to 240 mm² 	S6 ¹⁾ S6 S10/S12 3RT1955-4G 3RT1956-4G 3RT1966-4G
<p>For technical specifications for conductor cross-sections, see Reference Manual "Protection Equipment – 3RU1, 3RB2 Overload Relays" https://support.industry.siemens.com/cs/ww/en/view/35681830.</p>		

¹⁾ In the scope of supply for 3RT1054-1 contactors (55 kW).

Protection Devices

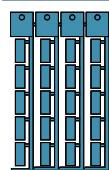
SIRIUS 3RB2/3RB3 Electronic Overload Relays

Accessories for 3RB20, 3RB21

General accessories

Version	Size	Color	For overload relays	Article No.
---------	------	-------	---------------------	-------------

Blank labels



3RT1900-1SB20

Unit labeling plates¹⁾

For SIRIUS devices

20 mm x 7 mm

Pastel

3RB2

3RT1900-1SB20

20 mm x 7 mm

Titanium

3RB2

3RT2900-1SB20

gray

Adhesive inscription labels¹⁾

(labels)

For SIRIUS devices

19 mm x 6 mm

Pastel

3RB2

3RT1900-1SB60

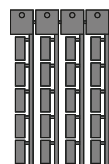
19 mm x 6 mm

Zinc

3RB2

3RT1900-1SD60

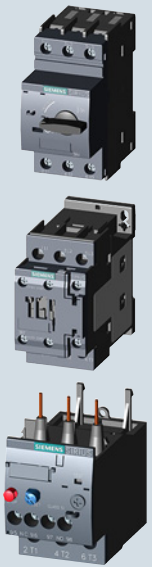
yellow



3RT2900-1SB20

¹⁾ PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH see www.murrplastik.de.

Load Feeders



3/2
3/4

General data
Selection tables 400 V AC

Load Feeders

General data

Overview

General criteria for the selection of devices

The motor starter protectors, contactors, solid-state switching devices, soft starters and overload relays in the following tables are all specified in their basic versions with screw terminals, i.e. (in particular) without accessories.

The contactors listed have a rated control supply voltage U_s of 230 V AC, 50 Hz. Versions with other voltages can also be used.

The 3RU61 thermal overload relay can be directly mounted onto the contactor. In their basic version, these devices are specified with a rated control supply voltage of 230 V AC.

Mounting the combinations

The technical data of the individual devices must be taken into account when selecting a device.

400 V AC

The tables below are primarily structured for the 400 V line voltages for grounded networks (at 50 and 60 Hz) generally found in IEC regions.

Ambient conditions

A maximum ambient temperature of 60 °C applies to all electro-mechanical controlgear, and 40 °C to soft starters and solid-state contactors. Higher temperatures are possible with derating. For details, contact Technical Assistance.

Motor protection

The 3RU overload relays can be either mounted onto the line contactor or separately fitted. It must be set to 0.58 times the rated motor current.

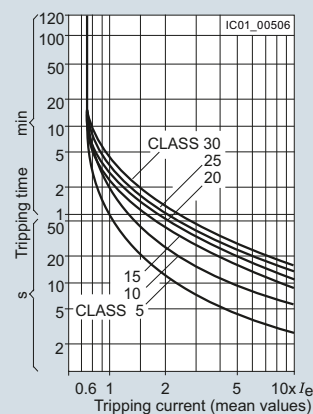
Trip classes

CLASS 5, CLASS 10, CLASS 20, CLASS 30 and CLASS 40

Trip classes, according to IEC 60947-4-1, define the time intervals within which the protection equipment (overload release of a motor starter protector or overload relay) must trip from the cold state, for a symmetrical, three-phase load with a 7.2-fold set current I_e .

The tripping times are as follows:

- CLASS 5 and CLASS 10 between 2 s and 10 s,
- CLASS 20 between 4 s and 20 s,
- CLASS 30 between 9 s and 30 s,
- CLASS 40 between 30 s and 40 s.



In practice, devices with trip CLASS 5 and CLASS 10 are generally used. These devices are designed for standard applications. CLASS 5 and CLASS 10 are often referred to as normal starting.

Combinations for CLASS 20, CLASS 30 and CLASS 40 are available for applications where a higher starting current is required for a prolonged period. In this case, using standard devices of CLASS 5 and CLASS 10 would result in unwanted tripping. CLASS 20, CLASS 30 and CLASS 40 are also known as heavy starting devices. Large fan motors are an example of this type of application.

As well as the overload protection devices, the contactors and short-circuit protection devices must also be designed for these long starting times. This is why combinations acc. to CLASS 5 and CLASS 10 are generally more cost-effective. CLASS 20, CLASS 30 and CLASS 40 are only generally used if genuinely necessitated by the application.

With or without overload relay

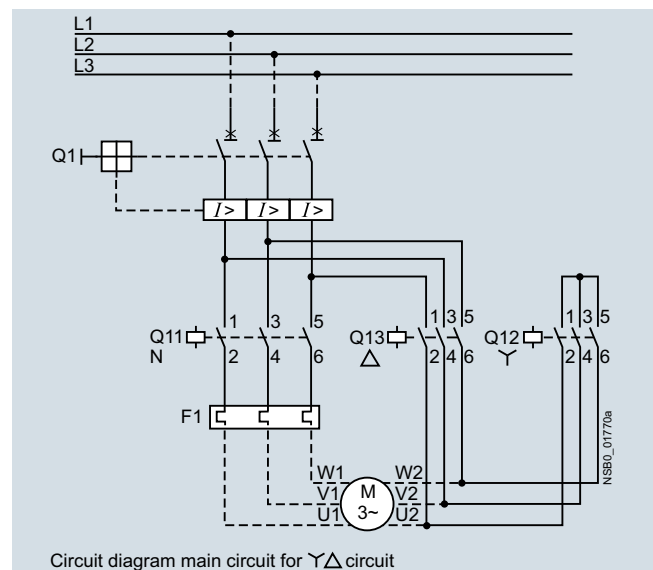
In addition to the combinations comprising a motor starter protector (for motor protection) and contactor, combinations are also available with motor starter protector (for starter protection), contactor and overload relay.

In the first case, the motor starter protector assumes the dual function of overload protection and short-circuit protection, while in the second case, the motor starter protector assumes only the short-circuit protection function and the overload relay the overload protection function. The tripping behavior of both solutions under overload and short-circuit conditions is technically comparable.

Star(wye)(Y)-delta function(Δ) starting

In order to keep the current peaks in the line supply as low as possible, contactor assembly are frequently used as star(wye)-delta starters to start three-phase motors. However, to make worthwhile use of Y Δ starting, a low load torque is required during starting. Only then can the motor approximately reach its rated speed in the Y stage before switching to Δ operation.

An overload relay should be used for motor overload protection. Normally, this is located directly in the motor feeder cable U1, V1, W1, as shown in the circuit diagram. Using this arrangement, the overload protection is effective in both the Y and Δ circuit. The overload relay should be set for 58% of the rated motor current.



Circuit diagram main circuit for Y Δ circuit

The control current wiring and switching from Y to Δ are implemented with plug-on function modules for the SIRIUS innovations. The switching time can be set between 1 and 100 s. The function modules thus perform the function of the timing relay.

Load Feeders

Selection tables 400 V AC

Overview

Motor starter protector + contactor

CLASS 10



400 V AC

Standard three-phase motor		Setting range	Motor starter protector	Contactor ¹⁾	Size
Standard output P	Motor current I	Overload release	Motor protection		
kW	A	Motor starter protector	Article No.	Article No.	
0.04	0.16	0.11 ... 0.16	3RV6011-0AA10	3RT6015-1AP01	S00/S00
0.06	0.2	0.14 ... 0.20	3RV6011-0BA10	3RT6015-1AP01	S00/S00
0.06	0.2	0.18 ... 0.25	3RV6011-0CA10	3RT6015-1AP01	S00/S00
0.09	0.3	0.22 ... 0.32	3RV6011-0DA10	3RT6015-1AP01	S00/S00
0.09	0.3	0.28 ... 0.40	3RV6011-0EA10	3RT6015-1AP01	S00/S00
0.12	0.4	0.35 ... 0.50	3RV6011-0FA10	3RT6015-1AP01	S00/S00
0.18	0.6	0.45 ... 0.63	3RV6011-0GA10	3RT6015-1AP01	S00/S00
0.18	0.6	0.55 ... 0.80	3RV6011-0HA10	3RT6015-1AP01	S00/S00
0.25	0.85	0.70 ... 1.00	3RV6011-0JA10	3RT6015-1AP01	S00/S00
0.37	1.1	0.90 ... 1.25	3RV6011-0KA10	3RT6015-1AP01	S00/S00
0.55	1.5	1.1 ... 1.6	3RV6011-1AA10	3RT6015-1AP01	S00/S00
0.75	1.9	1.4 ... 2.0	3RV6011-1BA10	3RT6015-1AP01	S00/S00
0.75	1.9	1.8 ... 2.5	3RV6011-1CA10	3RT6015-1AP01	S00/S00
1.1	2.7	2.2 ... 3.2	3RV6011-1DA10	3RT6015-1AP01	S00/S00
1.5	3.6	2.8 ... 4.0	3RV6011-1EA10	3RT6015-1AP01	S00/S00
1.5	3.6	3.5 ... 5.0	3RV6011-1FA10	3RT6015-1AP01	S00/S00
2.2	5	4.5 ... 6.3	3RV6011-1GA10	3RT6015-1AP01	S00/S00
3	6.5	5.5 ... 8.0	3RV6011-1HA10	3RT6015-1AP01	S00/S00
4	8.5	7.0 ... 10.0	3RV6011-1JA10	3RT6016-1AP01	S00/S00
5.5	11.5	9.0 ... 12.5	3RV6011-1KA10	3RT6017-1AP01	S00/S00
7.5	15.5	11 ... 16	3RV6011-4AA10	3RT6018-1AP01	S00/S00
7.5	15.5	14 ... 20	3RV6021-4BA10	3RT6025-1AP00	S0/S0
11	22	20 ... 25	3RV6021-4DA10	3RT6026-1AP00	S0/S0
15	29	27 ... 32	3RV6021-4EA10	3RT6027-1AP00	S0/S0
18.5 ²⁾	35	30 ... 36	3RV6021-4PA10	3RT6028-1AP00	S0/S0
18.5 ²⁾	35	34 ... 40	3RV6021-4FA10	3RT6028-1AP00	S0/S0

Standard three-phase motor		Setting range	Motor starter protector /	Contactor ¹⁾	Size
Standard output P	Motor current I	Overload release	circuit breaker		
kW	(guide value)	Motor starter protector /	Article No.	Article No.	
	A	circuit breaker			
15 ²⁾	29	22.0 ... 32.0	3RV5031-4EA10	3RT5034-1AP00	S2/S2
18.5 ²⁾	35	28.0 ... 40.0	3RV5031-4FA10	3RT5035-1AP00	S2/S2
22 ²⁾	41	36.0 ... 45.0	3RV5031-4GA10	3RT5036-1AP00	S2/S2
22 ²⁾	41	40.0 ... 50.0	3RV5031-4HA10	3RT5036-1AP00	S2/S2
30 ²⁾	55	45.0 ... 63.0	3RV5041-4JA10	3RT5044-1AP00	S3/S3
37 ²⁾	66	57.0 ... 75.0	3RV5041-4KA10	3RT5045-1AP00	S3/S3
45 ²⁾	80	70.0 ... 90.0	3RV5041-4LA10	3RT5046-1AP00	S3/S3
45 ²⁾	80	80.0 ... 100	3RV5041-4MA10	3RT5046-1AP00	S3/S3

¹⁾ Rated control supply voltage 230 V AC, 50 Hz. Other control voltages are also possible.

²⁾ Discrete mounting only, without a link module.

Circuit breaker + contactor + thermal overload relay

CLASS 10



400 V AC

Standard three-phase motor 4-pole at 400 V AC ¹⁾		Motor starter protector Motor protection	Contactor ²⁾	Size	Thermal overload relay	Setting range Overload release Overload relay
Standard output P kW	Motor current I A	Article No.	Article No.		Article No.	A
0.06 ³⁾	0.2	3RV6311-0BC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0BB0	0.14 ... 0.20
0.06 ³⁾	0.2	3RV6311-0CC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0CB0	0.18 ... 0.25
0.09 ³⁾	0.3	3RV6311-0DC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0DB0	0.22 ... 0.32
0.09 ³⁾	0.3	3RV6311-0EC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0EB0	0.28 ... 0.40
0.12 ³⁾	0.4	3RV6311-0FC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0FB0	0.35 ... 0.50
0.18 ³⁾	0.6	3RV6311-0GC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0GB0	0.45 ... 0.63
0.18 ³⁾	0.6	3RV6311-0HC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0HB0	0.55 ... 0.80
0.25 ³⁾	0.85	3RV6311-0JC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0JB0	0.70 ... 1.00
0.37 ³⁾	1.1	3RV6311-0KC10	3RT6015-1AP01	S00/S00/S00	3RU6116-0KB0	0.90 ... 1.25
0.55 ³⁾	1.5	3RV6311-1AC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1AB0	1.1 ... 1.6
0.75 ³⁾	1.9	3RV6311-1BC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1BB0	1.4 ... 2.0
0.75 ³⁾	1.9	3RV6311-1CC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1CB0	1.8 ... 2.5
1.1 ³⁾	2.7	3RV6311-1DC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1DB0	2.2 ... 3.2
1.5 ³⁾	3.6	3RV6311-1EC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1EB0	2.8 ... 4.0
1.5 ³⁾	3.6	3RV6311-1FC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1FB0	3.5 ... 5.0
2.2 ³⁾	5	3RV6311-1GC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1GB0	4.5 ... 6.3
3 ³⁾	6.5	3RV6311-1HC10	3RT6015-1AP01	S00/S00/S00	3RU6116-1HB0	5.5 ... 8.0
4 ³⁾	8.5	3RV6311-1JC10	3RT6016-1AP01	S00/S00/S00	3RU6116-1JB0	7.0 ... 10.0
5.5 ³⁾	11.5	3RV6311-1KC10	3RT6017-1AP01	S00/S00/S00	3RU6116-1KB0	9.0 ... 12.5
7.5 ³⁾	15.5	3RV6311-4AC10	3RT6018-1AP01	S00/S00/S00	3RU6116-4AB0	11 ... 16
7.5 ³⁾	15.5	3RV6321-4AC10	3RT6025-1AP00	S0/S0/S0	3RU6126-4AB0	11 ... 16
7.5 ³⁾	15.5	3RV6321-4BC10	3RT6025-1AP00	S0/S0/S0	3RU6126-4BB0	14 ... 20
11 ³⁾	22	3RV6321-4DC10	3RT6026-1AP00	S0/S0/S0	3RU6126-4DB0	20 ... 25
15 ³⁾	29	3RV6321-4EC10	3RT6027-1AP00	S0/S0/S0	3RU6126-4EB0	27 ... 32
18.5 ³⁾	35	3RV6321-4PC10	3RT6028-1AP00	S0/S0/S0	3RU6126-4PB0	30 ... 36
18.5 ³⁾	35	3RV6321-4FC10	3RT6028-1AP00	S0/S0/S0	3RU6126-4FB0	34 ... 40

Standard three-phase motor 4-pole at 400 V AC		Setting range Overload release	Motor starter protector	Contactor ²⁾	Size	Overload relay	Setting range Overload release Overload relay
Standard output P kW	Motor current I (guide value) A	Motor starter protector A	Article No.	Article No.		Article No.	A
15 ³⁾	29	None	3RV5331-4EC10	3RT5034-1AP00	S2/S2	3RU5136-4EB0	22.0 ... 32.0
18.5 ³⁾	35	None	3RV5331-4FC10	3RT5035-1AP00	S2/S2	3RU5136-4FB0	28.0 ... 40.0
22 ³⁾	41	None	3RV5331-4GC10	3RT5036-1AP00	S2/S2	3RU5136-4GB0	36.0 ... 45.0
22 ³⁾	41	None	3RV5331-4HC10	3RT5036-1AP00	S2/S2	3RU5136-4HB0	40.0 ... 50.0
30 ³⁾	55	None	3RV5341-4JC10	3RT5044-1AP00	S3/S3	3RU5146-4JB0	45.0 ... 63.0
37 ³⁾	66	None	3RV5341-4KC10	3RT5045-1AP00	S3/S3	3RU5146-4KB0	57.0 ... 75.0
45 ³⁾	80	None	3RV5341-4LC10	3RT5046-1AP00	S3/S3	3RU5146-4LB0	70.0 ... 90.0
45 ³⁾	80	None	3RV5341-4MC10	3RT5046-1AP00	S3/S3	3RU5146-4MB0	80.0 ... 100

¹⁾ Guide value for 4-pole standard motors at 400 V AC, 50 Hz. Selection depends on the concrete startup and rated data of the protected motor.

²⁾ Rated control supply voltage 230 V AC, 50 Hz, other control voltages possible.

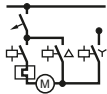
³⁾ Discrete mounting only, without a link module.

Load Feeders

Selection tables 400 V AC

Motor starter protector + star (wye)-delta starting + 3RU61 thermal overload relay

CLASS 10



400 V AC

Standard three-phase motor 4-pole at 400 V AC ¹⁾		Motor starter protector	Contactors ³⁾		Size	Overload relay (thermal)	Setting range Overload release Overload relay
Standard output P kW	Motor current I A		Line contactor + delta contactor Article No.	Star contactor Article No.			
5.5 ⁴⁾	11.5	3RV6311-1KC10	3RT6015-1AP01	3RT6015-1AP01	S00/S00/S00	3RU6116-1HB0	5.5 ... 8.0
7.5 ⁴⁾	15.5	3RV6311-4AC10	3RT6016-1AP01	3RT6015-1AP01	S00/S00/S00	3RU6116-1JB0	7.0 ... 10.0
7.5 ⁴⁾	15.5	3RV6321-4AC10	3RT6016-1AP01	3RT6015-1AP01	S0/S00/S00	3RU6116-1JB0	7.0 ... 10.0
7.5 ⁴⁾	15.5	3RV6321-4AC10	3RT6024-1AP00	3RT6024-1AP00	S0/S0/S0	3RU6126-1JB0	7.0 ... 10.0
11 ⁴⁾	22	3RV6321-4DC10	3RT6025-1AP00	3RT6024-1AP00	S0/S0/S0	3RU6126-4AB0	11.0 ... 16.0
15 ⁴⁾	29	3RV6321-4EC10	3RT6025-1AP00	3RT6024-1AP00	S0/S0/S0	3RU6126-4BB0	14.0 ... 20.0

Standard three-phase motor 4-pole at 400 V AC ¹⁾		Setting range Overload release Motor starter protector ²⁾	Motor starter protector	Contactors ³⁾		Size	Overload relay	Setting range Overload release Overload relay
Standard output P kW	Motor current I (guide value) A			Line contactor + delta contactor Article No.	Star contactor Article No.			
18.5 ⁴⁾	35	None	3RV5331-4FC10	3RT6026-1AP00	3RT6024-1AP00	S2/S0/S0	3RU6126-4DB0	20.0 ... 25.0
22 ⁴⁾	41	None	3RV5331-4GC10	3RT5034-1AP00	3RT5026-1AP00	S2/S0/S0	3RU5136-4EB0	22.0 ... 32.0
30 ⁴⁾	55	None	3RV5341-4JC10	3RT5034-1AP00	3RT5034-1AP00	S3/S2/S2	3RU5136-4FB0	28.0 ... 40.0
37 ⁴⁾	66	None	3RV5341-4KC10	3RT5035-1AP00	3RT5034-1AP00	S3/S2/S2	3RU5136-4GB0	36.0 ... 45.0
45 ⁴⁾	80	None	3RV5341-4LC10	3RT5036-1AP00	3RT5034-1AP00	S3/S2/S2	3RU5136-4HB0	40.0 ... 50.0

¹⁾ Guide value for 4-pole standard motors at 400 V AC, 50 Hz. Selection depends on the concrete startup and rated data of the protected motor.

²⁾ The motor starter protector / circuit breaker is to be set to maximum current value.

³⁾ Rated control supply voltage 230 V AC, 50 Hz. Other control voltages are also possible.

⁴⁾ Discrete mounting only, without a link module.

Switching Devices – Soft Starters



4/2	General data
4/5	3RW30, 3RW40 for standard applications
4/5	3RW30
4/16	3RW40
4/16	General data
4/23	SIRIUS 3RW40 for normal starting (CLASS 10)
4/26	SIRIUS 3RW40 for heavy starting (CLASS 20)
4/29	Accessories
4/34	3RW44 for High Feature applications
4/34	General data
4/45	SIRIUS 3RW44 for normal starting (CLASS 10) in inline circuit
4/48	SIRIUS 3RW44 for heavy starting (CLASS 20) in inline circuit
4/51	SIRIUS 3RW44 for very heavy starting (CLASS 30) in inline circuit
4/54	SIRIUS 3RW44 for normal starting (CLASS 10) in inside-delta circuit
4/56	SIRIUS 3RW44 for heavy starting (CLASS 20) in inside-delta circuit
4/58	SIRIUS 3RW44 for very heavy starting (CLASS 30) in inside-delta circuit
4/60	Accessories
4/65	Contactors for Special Applications
4/65	SIRIUS 3RM1 motor starters

Switching Devices – Soft Starters

General data

Overview



		SIRIUS 3RW30 Standard applications	SIRIUS 3RW40 Standard applications	SIRIUS 3RW44 High Feature applications
Rated current at 40 °C	A	3 ... 106	12.5 ... 432	29 ... 1 214
Rated operational voltage	V	200 ... 480	200 ... 600	200 ... 690 ^{B)}
Motor rating at 400 V				
• Inline circuit	kW	1.5 ... 55	5.5 ... 250	15 ... 710
	hp	1.5 ... 75	7.5 ... 300	15 ... 950
• Inside-delta circuit	kW	--	--	22 ... 1 200
	hp	--	--	30 ... 1 700
Ambient temperature	°C	-25 ... +60	-25 ... +60	0 ... +60
Soft starting/ramp-down		✓ ¹⁾	✓	✓
Voltage ramp		✓	✓	✓
Starting/stopping voltage	%	40 ... 100	40 ... 100	20 ... 100
Starting and ramp-down time	s	0 ... 20 ¹⁾	0 ... 20	0 ... 360
Torque control		--	--	✓
Starting/stopping torque	%	--	--	20 ... 100
Torque limit	%	--	--	20 ... 200
Integral bypass contact system		✓	✓	✓
Intrinsic device protection		--	✓	✓
Motor overload protection		--	✓ ⁷⁾	✓
Thermistor motor protection		--	✓ ²⁾	✓
Integrated remote RESET		--	✓ ³⁾	✓
Adjustable current limiting		--	✓	✓
Inside-delta circuit		--	--	✓
Breakaway pulse		--	--	✓
Creep speed in both directions of rotation		--	--	✓
Pump ramp-down (torque control)		--	--	✓ ⁴⁾
DC braking		--	--	✓ ⁴⁾ 5)
Combined braking		--	--	✓ ⁴⁾ 5)
Motor heating		--	--	✓
Communications		--	--	PROFIBUS/PROFINET (optional)
External display and operator module		--	--	(optional)
Operating measured value display		--	--	✓
Error logbook		--	--	✓
Event list		--	--	✓
Slave pointer function		--	--	✓
Trace function		--	--	✓ ⁶⁾
Programmable control inputs and outputs		--	--	✓
Number of parameter sets		1	1	3
Parameterization software (Soft Starter ES)		--	--	✓
Power semiconductors (thyristors)		2 controlled phases	2 controlled phases	3 controlled phases
Screw terminals		✓	✓	✓
UL/CSA		✓	✓	✓
CE marking		✓	✓	✓
Soft starting under heavy starting conditions		--	--	✓ ⁴⁾
Configuring support		Electronic selection slider ruler, Simulation Tool for Soft Starters (STS), Technical Assistance: Phone: +49 (0) 911-895-5900, email: technical-assistance@siemens.com		

✓ Function available, -- Function not available

¹⁾ Only soft starting available for 3RW30.

²⁾ Optional up to size S3 (device version).

³⁾ For 3RW402. to 3RW404.; for 3RW405. and 3RW407. optional.

⁴⁾ Calculate soft starter and motor with size allowance where required.

⁵⁾ Not possible in inside-delta circuit.

⁶⁾ Trace function with Soft Starter ES software.

⁷⁾ When using the motor overload protection according to ATEX, an upstream contactor is required.

⁸⁾ In inside-delta circuit up to 600 V.

More information, see www.siemens.com/softstarters.

Selection aid for soft starters



Application	SIRIUS 3RW30 Standard applications	SIRIUS 3RW40 Standard applications	SIRIUS 3RW44 High Feature applications
Normal starting (CLASS 10)			
Pumps	●	●	●
Pumps with special pump ramp-down (to prevent water hammer)			●
Heat pumps	●	●	●
Hydraulic pumps	○	●	●
Presses	○	●	●
Conveyor belts	○	●	●
Roller conveyors	○	●	●
Screw conveyors	○	●	●
Escalators		●	●
Piston compressors		●	●
Screw compressors		●	●
Small fans ¹⁾		●	●
Centrifugal blowers		●	●
Bow thrusters		●	●
Heavy starting (CLASS 20)			
Stirrers		○	●
Extruders		○	●
Lathes		○	●
Milling machines		○	●
Very heavy starting (CLASS 30)			
Large fans ²⁾			●
Circular saws/bandsaws			●
Centrifuges			●
Mills			●
Breakers			●

● Recommended soft starter

○ Possible soft starter

¹⁾ The mass inertia of the fan is <10 times the mass inertia of the motor.²⁾ The mass inertia of the fan is ≥10 times the mass inertia of the motor.**Boundary conditions**

Type	Maximum starting time	Current loading	Starts per hour
	s	%	1/h
Normal starting (CLASS 10)			
• 3RW30	3	300	20
• 3RW40/44	10	300	5
Heavy starting (CLASS 20)			
• 3RW402., 3RW403., 3RW404.	20	300	5
• 3RW405., 3RW407., 3RW44	40	350	1
Very heavy starting (CLASS 30)			
• 3RW44	60	350	1

The motor ratings listed in the Selection and Ordering Data are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor. 3RW soft starters are designed for easy starting conditions. In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application,

see the manuals:

<https://support.industry.siemens.com/cs/ww/en/view/38752095>,
<https://support.industry.siemens.com/cs/ww/en/view/21772518>.

For dimensioning soft starters, we recommend our Simulation Tool for Soft Starters (STS):

<https://support.industry.siemens.com/cs/ww/en/view/101494917>
 or our Technical Assistance: Phone: +49 (0) 911-895-5900,
 email: technical-assistance@siemens.com.

Motor rating data in kW and hp are based on IEC 60947-4-1.

Switching Devices – Soft Starters

General data

Article No. scheme

Digit of the article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	
	□□□	□	□	□	□	-	□	□	□	□	-	□	□	□	
SIRIUS soft starters	3 R W														
SIRIUS soft starter generation (30/40/44)	□ □														
Size (e.g. for 3RW30/40: 1 = S00, 2 = S0, 3 = S2, 4 = S3, 5 = S6, 7 = S12)	□														
Rated operational current I_e	□														
Connection type (screw terminals)	□														
Soft starter functionality (bypass, thermistor, etc.)	□ □														
Rated control supply voltage U_s	□														
Rated operational voltage U_e	□														
Special versions	□ □ □ □														
Example	3 R W 4 0 2 4 - 1 B B 1 4														

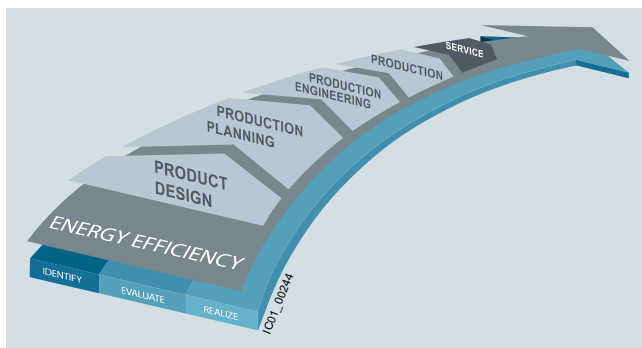
Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

Advantages through energy efficiency



Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative products of the SIRIUS industrial controls portfolio can also make a substantial contribution to a plant's energy efficiency (see www.siemens.com/sirius/energysaving).

The soft starters contribute to energy efficiency throughout the plant as follows:

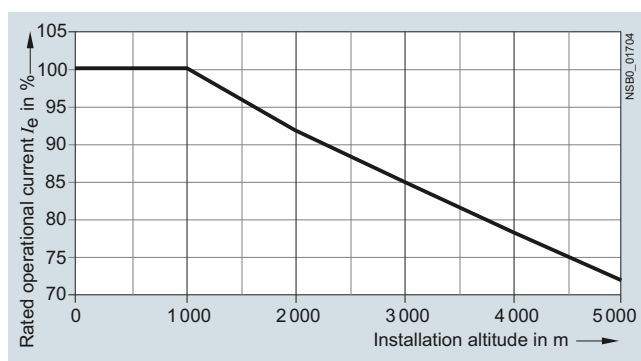
- Energy management
Provision of energy data such as current, voltage and power (3RW44) by bus to higher-level systems
- Current management
Avoidance of current peaks, thus reducing the load on the grid and the mechanical system
- Reduced heating of the control cabinet
Technology-reduced inherent power loss as speed-controlled drive systems, resulting in lower cooling costs and a more compact design. All sizes are equipped with bypass contactor, resulting in lower power losses after start up

Product advantages

- Soft starting and ramp-down (only soft starting available for 3RW30)
- Stepless starting
- Reduction of current peaks
- Avoidance of mains voltage fluctuations during starting
- Reduced load on the power supply network
- Reduction of the mechanical load in the operating mechanism
- Considerable space savings and reduced wiring compared with conventional starters
- Maintenance-free switching
- Very easy handling
- Fits perfectly in the SIRIUS modular system

Technical specifications

Permissible installation altitude



At an installation altitude above 2 000 m, max. permissible operational voltage is reduced to 460 V.

Overview

The SIRIUS 3RW30 soft starters reduce the motor voltage through variable phase control and increase it in ramp-like mode from a selectable starting voltage up to mains voltage. During starting, these devices limit the torque as well as the current and prevent the shocks which arise during direct starts or wye-delta starts. In this way, mechanical loads and mains voltage dips can be reliably reduced.

Soft starting reduces the stress on the connected equipment and results in lower wear and therefore longer periods of trouble-free production. The selectable start value means that the soft starters can be adjusted individually to the requirements of the application in question and unlike wye-delta starters are not restricted to two-stage starting with fixed voltage ratios.

The SIRIUS 3RW30 soft starters are characterized above all by their small space requirements. Integrated bypass contacts mean that no power loss has to be taken into the bargain at the power semiconductors (thyristors) after the motor has started up. This cuts down on heat losses, enabling a more compact design and making external bypass circuits superfluous.

Various versions of the SIRIUS 3RW30 soft starters are available:

- Standard version for fixed-speed three-phase motors, sizes S00, S0, S2 and S3, with integrated bypass contact system
- Version for fixed-speed three-phase motors in a 22.5 mm enclosure without bypass

Soft starters rated up to 55 kW (at 400 V) for standard applications in three-phase networks are available. Extremely small sizes, low power losses and simple commissioning are just three of the many advantages of this soft starter.

Functionality

The space required by the compact SIRIUS 3RW30 soft starter is often only about one third of that required by a contactor assembly for wye-delta starting of comparable rating. This not only saves space in the control cabinet and on the standard mounting rail but also does away completely with the wiring work needed for wye-delta starters. This is notable in particular for higher motor ratings which are only rarely available as fully wired solutions.

At the same time the number of cables from the starter to the motor is reduced from six to three. Compact dimensions, short start-up times, easy wiring and fast commissioning make themselves felt as clear-cut cost advantages.

The bypass contacts of these soft starters are protected during operation by an integrated solid-state arc quenching system. This prevents damage to the bypass contacts in the event of a fault, e.g. brief disconnection of the control voltage, mechanical shocks or life-related component defects on the coil operating mechanism or main contact spring.

The new series of devices comes with the "polarity balancing control method", which is designed to prevent direct current components in two-phase controlled soft starters. On two-phase controlled soft starters the current resulting from superimposition of the two controlled phases flows in the uncontrolled phase. This results for physical reasons in an asymmetric distribution of the three phase currents during the motor ramp-up. This phenomenon cannot be influenced, but in most applications it is non-critical.

Controlling the power semiconductors results not only in this asymmetry, however, but also in the previously mentioned direct current components which can cause severe noise generation on the motor at starting voltages of less than 50 %. The control method used for these soft starters eliminates these direct current components during the ramp-up phase and prevents the braking torque which they can cause.

It creates a motor ramp-up that is uniform in speed, torque and current rise, thus permitting a particularly gentle, two-phase starting of the motors. At the same time the acoustic quality of the starting operation comes close to the quality of a three-phase controlled soft starter. This is made possible by the on-going dynamic harmonizing and balancing of current half-waves of different polarity during the motor ramp-up. Hence the name "polarity balancing".

- Soft starting with voltage ramp; the starting voltage setting range U_s ranges from 40 to 100 %, and the ramp time t_R can be set from 0 to 20 s
- Integrated bypass contact system to minimize power loss
- Setting with two potentiometers
- Simple mounting and commissioning
- Mains voltages 50/60 Hz, 200 to 480 V
- Two control voltage versions 24 V AC/DC and 110 to 230 V AC/DC
- Wide temperature range from -25 to +60 °C
- The built-in auxiliary contact ensures user-friendly control and possible further processing within the system (for status graphs, [see page 4/15](#)).

Application

The 3RW30 soft starters are suitable for soft starting of three-phase asynchronous motors.

Due to two-phase control, the current is kept at minimum values in all three phases throughout the entire starting time. Due to continuous voltage influencing, the current and torque peaks which are unavoidable in the case of wye-delta starters for instance do not occur.

Application areas

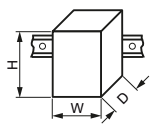
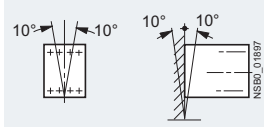
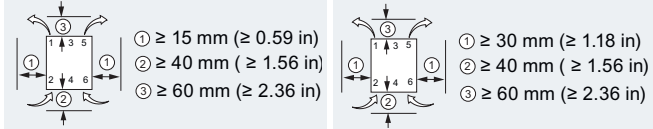
See "Selection aid for soft starters", page 4/3.

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

Technical specifications

Type		3RW301.	3RW302.	3RW303.	3RW304.	
Mechanics and environment						
Mounting dimensions (W x H x D)						
• Screw terminals		mm	45 x 95 x 151	45 x 125 x 151	55 x 144 x 168	70 x 160 x 186
Permissible ambient temperature						
During operation	°C	-25 ... +60; (derating from +40)				
During storage	°C	-40 ... +80				
Weight	kg	0.58	0.69	1.20	1.71	
Permissible mounting position¹⁾ (auxiliary fan not available)						
Installation type¹⁾	Stand-alone installation					
Permissible installation altitude	m	5 000 (derating from 1 000, see "Characteristic Curves", page 4/4); higher on request				
Degree of protection		IP20 for 3RW301. and 3RW302.; IP00 for 3RW303. and 3RW304.				

¹⁾ In the case of deviations, please observe derating, see manual in the chapter "Configuring":
<https://support.industry.siemens.com/cs/ww/en/view/38752095>.

Type		3RW301., 3RW302.	3RW303., 3RW304.
Control electronics			
Rated values	Terminal A1/A2		
Rated control supply voltage	V	24	110 ... 230
• Tolerance	%	± 20	-15/+10
Rated frequency	Hz	50/60	
• Tolerance	%	± 10	

Type		3RW301.	3RW302.	3RW303.	3RW304.
Power electronics					
Rated operational voltage	V AC	200 ... 480			
Tolerance	%	-15/+10			
Rated frequency	Hz	50/60			
Tolerance	%	± 10			
Uninterrupted duty at 40 °C (% of I_e)	%	115			
Minimum load (% of I_e)	%	10 (at least 1 A)			
Maximum cable length between soft starter and motor	m	300			

Type		3RW3013	3RW3014	3RW3016	3RW3017	3RW3018
Power electronics						
Load rating with rated operational current I_e						
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53A						
- At 40 °C	A	3.6	6.5	9	12.5	17.6
- At 50 °C	A	3.3	6	8	12	17
- At 60 °C	A	3	5.5	7	11	14
Power loss						
• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.						
W		0.25	0.5	1	2	4
• During starting with 300 % I _M (40 °C)						
W		24	52	80	80	116
Permissible rated motor current and starts per hour for normal starting (CLASS 10) at 40 °C / 50 °C						
- Rated motor current I _M ²⁾ , starting time 3 s	A	3.6/3.3	6.5/6.0	9/8	12.5/12.0	17.6/17.0
- Starts per hour ³⁾	1/h	200/150	87/60	50/50	85/70	62/46
- Rated motor current I _M ²⁾ , starting time 4 s	A	3.6/3.3	6.5/6.0	9/8	12.5/12.0	17.6/17.0
- Starts per hour ³⁾	1/h	150/100	64/46	35/35	62/47	45/32

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ With 300 % I_M, T_U = 40 °C / 50 °C.

³⁾ For intermittent duty S4 with ON period = 30 %, T_U = 40 °C / 50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

Type		3RW3026	3RW3027	3RW3028
Power electronics				
Load rating with rated operational current I_e				
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a				
- At 40 °C	A	25.3	32.2	38
- At 50 °C	A	23	29	34
- At 60 °C	A	21	26	31
Power loss				
• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.	W	8	13	19
• During starting with 300 % I_M (40 °C)	W	188	220	256
Permissible rated motor current and starts per hour for normal starting (CLASS 10) at 40 °C / 50 °C				
- Rated motor current $I_M^{(2)}$, starting time 3 s	A	25/23	32/29	38/34
- Starts per hour ³⁾	1/h	23/23	23/23	19/19
- Rated motor current $I_M^{(2)}$, starting time 4 s	A	25/23	32/29	38/34
- Starts per hour ³⁾	1/h	15/15	16/16	12/12

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ With 300 % I_M , $T_U = 40$ °C / 50 °C.

³⁾ For intermittent duty S4 with ON period = 30 %, $T_U = 40$ °C / 50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency with deviating mounting position, direct mounting, side-by-side mounting see manual in the chapter "Configuring":
<https://support.industry.siemens.com/cs/ww/en/view/38752095>.

Type		3RW3036	3RW3037	3RW3038	3RW3046	3RW3047
Power electronics						
Load rating with rated operational current I_e						
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a						
- At 40 °C	A	45	65	72	80	106
- At 50 °C	A	42	58	62.1	73	98
- At 60 °C	A	39	53	60	66	90
Power loss						
• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.	W	6	12	15	12	21
• During starting with 300 % I_M (40 °C)	W	316	444	500	576	768
Permissible rated motor current and starts per hour for normal starting (CLASS 10) at 40 °C / 50 °C						
- Rated motor current $I_M^{(2)}$, starting time 3 s	A	45/42	63/58	72/62	80/73	106/108
- Starts per hour ³⁾	1/h	38/38	23/23	22/22	22/22	15/15
- Rated motor current $I_M^{(2)}$, starting time 4 s	A	45/42	63/58	72/62	80/73	106/98
- Starts per hour ³⁾	1/h	26/26	15/15	15/15	15/15	10/10

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ With 300 % I_M , $T_U = 40$ °C / 50 °C.

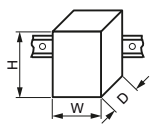
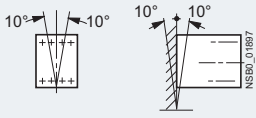
³⁾ For intermittent duty S4 with ON period = 30 %, $T_U = 40$ °C / 50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

4

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

Type	3RW3003-1CB54	
Mechanics and environment		
Mounting dimensions (W x H x D) • Screw terminals		mm 22.5 x 100 x 120
Permissible ambient temperature	°C	-25 ... +60; (derating from +40)
During operation	°C	-40 ... +80
During storage		
Weight	kg	0.207
Permissible mounting position		
Permissible installation altitude	m	5 000 (derating from 1 000, see "Characteristic Curves", page 4/4); higher on request
Degree of protection acc. to IEC 60529	IP20 (IP00 terminal compartment)	
Control electronics		
Rated values		
Rated control supply voltage	V	24 ... 230 AC/DC
• Tolerance	%	± 10
Rated frequency at AC	Hz	50/60
• Tolerance	%	± 10
Power electronics		
Rated operational voltage	V AC	200 ... 400
Tolerance	%	± 10
Rated frequency	Hz	50/60
Tolerance	%	± 10
Uninterrupted duty (% of I_e)	%	100
Minimum load¹⁾ (% of I_e); at 40 °C	%	9
Maximum conductor length between soft starter and motor	m	100 ²⁾
Load rating with rated operational current I_e		
• According to IEC and UL/CSA for individual mounting at 40 / 50 / 60 °C, AC-53a	A	3/2.6/2.2
• According to IEC and UL/CSA for side-by-side-mounting at 40 / 50 / 60 °C, AC-53a	A	2.6/2.2 / 1.8
Power loss		
• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.	W	6.5
• At utilization of maximum switching frequency	W	3
Permissible starts per hour (cannot be increased by using a fan)		
• For intermittent duty S4 $T_{ij} = 40$ °C, stand-alone installation vertical	1/h	1 500
• ON period = 70 % for 300 % I_e	1/s	0.2
Dead time after uninterrupted duty		
With I_e before restart	s	0

¹⁾ The rated motor current (specified on the motor's name plate) should at least amount to the specified percentage of the SIRIUS soft starter unit's rated operational current I_e .

²⁾ If this value is exceeded, problems with line capacities may arise, which can result in false firing.

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

Motor feeders with soft starters

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, then semiconductor fuses must be fitted in the motor feeder.

T_{OC} 1

Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

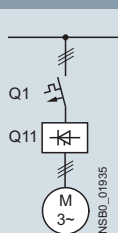
T_{OC} 2

Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Fuseless version



Soft starters		Motor starter protectors ¹⁾		
T _{OC} 1		Nominal current	Rated current	
Q11 Type	A	Q1 Type	I _{q max} kA	A
Type of coordination "1"				
3RW3003	3	3RV2011-1EA	50	4
3RW3013	3.6	3RV2011-1FA	5	5
3RW3014	6.5	3RV2011-1HA	5	8
3RW3016	9	3RV2011-1JA	5	10
3RW3017	12.5	3RV2011-1KA	5	12.5
3RW3018	17.6	3RV2021-4BA	5	20
3RW3026	25	3RV2021-4DA	55	25
3RW3027	32	3RV2021-4EA	55	32
3RW3028	38	3RV2021-4FA	55	40
3RW3036	45	3RV2031-4WA10	10	45
3RW3037	63	3RV2031-4JA10	10	63
3RW3038	72	3RV2031-4KA10	10	75
3RW3046	80	3RV1041-4LA10	11	90
3RW3047	106	3RV1041-4MA10	11	100

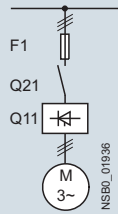
¹⁾ The rated motor current must be considered when selecting the devices.

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

Fused version (line protection only)



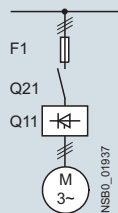
Soft starters Q11 Type	Nominal current A	Line protection, maximum F1 Type	Rated current A	Size	Line contactors (optional) Q21 Type
Type of coordination "1"¹⁾: $I_q = 65 \text{ kA at } 480 \text{ V} + 10 \%$					
3RW3003²⁾	3	3NA3805 ³⁾	20	000	3RT2015
3RW3013	3.6	3NA3803-6	10	000	3RT2015
3RW3014	6.5	3NA3805-6	16	000	3RT2015
3RW3016	9	3NA3807-6	20	000	3RT2016
3RW3017	12.5	3NA3810-6	25	000	3RT2018
3RW3018	17.6	3NA3814-6	35	000	3RT2026
3RW3026	25	3NA3822-6	63	00	3RT2026
3RW3027	32	3NA3824-6	80	00	3RT2027
3RW3028	38	3NA3824-6	80	00	3RT2028
3RW3036	45	3NA3130-6	100	1	3RT1036
3RW3037	63	3NA3132-6	125	1	3RT1044
3RW3038	72	3NA3132-6	125	1	3RT1045
3RW3046	80	3NA3136-6	160	1	3RT1045
3RW3047	106	3NA3136-6	160	1	3RT1046

¹⁾ The type of coordination "1" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

²⁾ $I_q = 50 \text{ kA at } 400 \text{ V}$.

³⁾ 3NA3805-1 (NH00), 5SB261 (DIAZED), 5SE2201-6 (NEOZED).

Fused version with 3NE1 SITOR fuses (semiconductor and line protection)



Matching fuse bases, see www.siemens.com/sitor.

Soft starters Q11 Type	Nominal current A	All-range fuses F1 Type	Rated current A	Size	Line contactors (optional) Q21 Type
Type of coordination "2"¹⁾: $I_q = 65 \text{ kA at } 480 \text{ V} + 10 \%$					
3RW3003²⁾	3	3NE1813-0 ³⁾	16	000	3RT2015
3RW3013	3.6	3NE1813-0	16	000	3RT2015
3RW3014	6.5	3NE1813-0	16	000	3RT2015
3RW3016	9	3NE1813-0	16	000	3RT2016
3RW3017	12.5	3NE1813-0	16	000	3RT2018
3RW3018	17.6	3NE1814-0	20	000	3RT2026
3RW3026	25	3NE1803-0	35	000	3RT2026
3RW3027	32	3NE1020-2	80	00	3RT2027
3RW3028	38	3NE1020-2	80	00	3RT2028
3RW3036	45	3NE1020-2	80	00	3RT1036
3RW3037	63	3NE1820-0	80	000	3RT1044
3RW3038	72	3NE1820-0	80	000	3RT1045
3RW3046	80	3NE1021-0	100	00	3RT1045
3RW3047	106	3NE1022-0	125	00	3RT1046

¹⁾ The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

²⁾ $I_q = 50 \text{ kA at } 400 \text{ V}$.

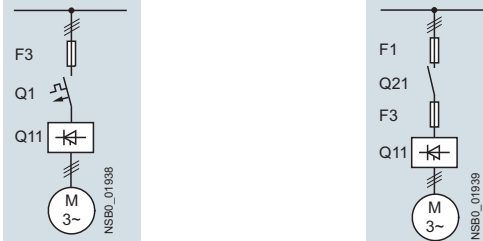
³⁾ No SITOR fuse required!
Alternatively: 3NA3803 (NH00), 5SB221 (DIAZED), 5SE2206 (NEOZED).

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

Fused version with 3NE3 SITOR fuses (semiconductor protection by fuse, line and overload protection by motor starter protector; alternatively, installation with contactor and overload relay possible)



For matching fuse bases, see www.siemens.com/sitor.

Soft starters Q11 Type	Nominal current A	Semiconductor fuses, minimum			Semiconductor fuses, maximum			Semiconductor fuses, minimum		
		F3 Type	Rated current A	Size	F3 Type	Rated current A	Size	F3 Type	Rated current A	Size
Type of coordination "2"¹⁾: I_q = 65 kA at 480 V + 10 %										
3RW3003 ²⁾	3	--	--	--	--	--	--	--	--	--
3RW3013	3.6	--	--	--	--	--	--	3NE4101	32	0
3RW3014	6.5	--	--	--	--	--	--	3NE4101	32	0
3RW3016	9	--	--	--	--	--	--	3NE4101	32	0
3RW3017	12.5	--	--	--	--	--	--	3NE4101	32	0
3RW3018	17.6	--	--	--	3NE3221	100	1	3NE4101	32	0
3RW3026	25	--	--	--	3NE3221	100	1	3NE4102	40	0
3RW3027	32	--	--	--	3NE3222	125	1	3NE4118	63	0
3RW3028	38	--	--	--	3NE3222	125	1	3NE4118	63	0
3RW3036	45	--	--	--	3NE3224	160	1	3NE4120	80	0
3RW3037	63	--	--	--	3NE3225	200	1	3NE4121	100	0
3RW3038	72	3NE3221	100	1	3NE3227	250	1	--	--	--
3RW3046	80	3NE3222	125	1	3NE3225	200	1	--	--	--
3RW3047	106	3NE3224	160	1	3NE3231	350	1	--	--	--

Soft starters Q11 Type	Nominal current A	Semiconductor fuses max.			Semiconductor fuses min.			Semiconductor fuses max.			Cylindrical fuses	
		F3 Type	Rated current A	Size	F3 Type	Rated current A	Size	F3 Type	Rated current A	Size	F3 Type	Rated current A
Type of coordination "2"¹⁾: I_q = 65 kA at 480 V + 10 %												
3RW3003 ²⁾	3	--	--	--	3NE8015-1	25	00	3NE8015-1	25	00	3NC1010	10
3RW3013	3.6	--	--	--	3NE8015-1	25	00	3NE8015-1	25	00	3NC2220	20
3RW3014	6.5	--	--	--	3NE8015-1	25	00	3NE8015-1	25	00	3NC2220	20
3RW3016	9	--	--	--	3NE8015-1	25	00	3NE8015-1	25	00	3NC2220	20
3RW3017	12.5	--	--	--	3NE8015-1	25	00	3NE8018-1	63	00	3NC2250	50
3RW3018	17.6	--	--	--	3NE8003-1	35	00	3NE8021-1	100	00	3NC2263	63
3RW3026	25	3NE4117	50	0	3NE8017-1	50	00	3NE8021-1	100	00	3NC2263	63
3RW3027	32	3NE4118	63	0	3NE8018-1	63	00	3NE8022-1	125	00	3NC2280	80
3RW3028	38	3NE4118	63	0	3NE8020-1	80	00	3NE8022-1	125	00	3NC2280	80
3RW3036	45	3NE4120	80	0	3NE8020-1	80	00	3NE8024-1	160	00	3NC2280	80
3RW3037	63	3NE4121	100	0	3NE8021-1	100	00	3NE8024-1	160	00	--	--
3RW3038	72	--	--	--	3NE8022-1	125	00	3NE8024-1	160	00	--	--
3RW3046	80	--	--	--	3NE8022-1	125	00	3NE8024-1	160	00	--	--
3RW3047	106	--	--	--	3NE8024-1	160	00	3NE8024-1	160	00	--	--

Soft starters Q11 Type	Nominal current A	Line contactors (optional) Q21	Motor starter protectors		Line protection, maximum		
			400 V + 10 % Q1 Type	Rated current A	F1 Type	Rated current A	Size
Type of coordination "2"¹⁾: I_q = 65 kA at 480 V + 10 %							
3RW3003 ²⁾	3	3RT2015	3RV2011-1EA	4	3NA3805 ³⁾	20	000
3RW3013	3.6	3RT2015	3RV2011-1FA	5	3NA3803-6	10	000
3RW3014	6.5	3RT2015	3RV2011-1HA	8	3NA3805-6	16	000
3RW3016	9	3RT2016	3RV2011-1JA	10	3NA3807-6	20	000
3RW3017	12.5	3RT2018	3RV2011-1KA	12.5	3NA3810-6	25	000
3RW3018	17.6	3RT2026	3RV2021-4BA	20	3NA3814-6	35	000
3RW3026	25	3RT2026	3RV2021-4DA	25	3NA3822-6	63	00
3RW3027	32	3RT2027	3RV2021-4EA	32	3NA3824-6	80	00
3RW3028	38	3RT2028	3RV2021-4FA	40	3NA3824-6	80	00
3RW3036	45	3RT1036	3RV2031-4WA10	45	3NA3130-6	100	1
3RW3037	63	3RT1044	3RV2031-4JA10	63	3NA3132-6	125	1
3RW3038	72	3RT1045	3RV2031-4KA10	75	3NA3132-6	125	1
3RW3046	80	3RT1045	3RV1041-4LA10	90	3NA3136-6	160	1
3RW3047	106	3RT1046	3RV1041-4MA10	100	3NA3136-6	160	1

¹⁾ The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

²⁾ I_q = 50 kA at 400 V.

³⁾ 3NA3805-1 (NH00), 5SB261 (DIAZED).

4

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

Selection and ordering data



3RW ambient temperature 40 °C				3RW ambient temperature 50 °C				Size		
Rated values of three-phase motors				Rated values of three-phase motors						
Operational current I_e	Rating at operational voltage U_e			Operational current I_e	Rating at operational voltage U_e					
	230 V	400 V	500 V		200 V	230 V	460 V			
A	kW	kW	kW	A	hp	hp	hp	hp	Configurator	Article No.
Rated operational voltage U_e 200 ... 480 V										
3.6	0.75	1.5	--	3	0.5	0.5	1.5	--	S00	3RW3013-1BB□4
6.5	1.5	3	--	6	1	1	3	--	S00	3RW3014-1BB□4
9	2.2	4	--	8	2	2	5	--	S00	3RW3016-1BB□4
12.5	3	5.5	--	12	3	3	7.5	--	S00	3RW3017-1BB□4
17.6	4	7.5	--	17	3	3	10	--	S00	3RW3018-1BB□4
25	5.5	11	--	23	5	5	15	--	S0	3RW3026-1BB□4
32	7.5	15	--	29	7.5	7.5	20	--	S0	3RW3027-1BB□4
38	11	18.5	--	34	10	10	25	--	S0	3RW3028-1BB□4
45	11	22	--	42	10	15	30	--	S2	3RW3036-1BB□4
63	18.5	30	--	58	15	20	40	--	S2	3RW3037-1BB□4
72	22	37	--	62	20	20	40	--	S2	3RW3038-1BB□4
80	22	45	--	73	20	25	50	--	S3	3RW3046-1BB□4
106	30	55	--	98	30	30	75	--	S3	3RW3047-1BB□4
Connection type										
• With screw terminals										
Article No. supplement for rated control supply voltage U_s										
• 24 V AC/DC										
• 110 ... 230 V AC/DC										
Soft starters for easy starting conditions and high switching frequency, rated operational voltage U_e 200 ... 400 V, rated control supply voltage U_s 24 ... 230 V AC/DC										
3	0.55	1.1	--	2.6	0.5	0.5	--	--	22.5 mm	3RW3003-1CB54
• With screw terminals										

For online configurator, see www.siemens.com/sirius/configurators.











Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The SIRIUS 3RW30 solid-state soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 3
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 20
- Stand-alone installation (side-by-side see manual, <https://support.industry.siemens.com/cs/ww/en/view/38752095>)

Accessories

	Conductor cross-section			Tightening torque	For soft starters size	Article No.																																																											
	Solid or stranded	Finely stranded with end sleeve	AWG cables, solid or stranded																																																														
	mm ²	mm ²	AWG	Nm																																																													
Three-phase infeed terminals																																																																	
 3RV2925-5AB	2.5 ... 25	2.5 ... 16	10 ... 4	3 ... 4	S00 (3RW301.) S0 (3RW302.)	3RV2925-5AB																																																											
	For soft starters					Article No.																																																											
Type		Size																																																															
Auxiliary terminals																																																																	
 3RT1946-4F	Auxiliary terminals, 3-pole					3RT1946-4F																																																											
	3RW304. S3																																																																
Covers for soft starters																																																																	
 3RT2936-4EA2	Terminal covers for box terminals					3RT2936-4EA2 3RT1946-4EA2																																																											
	Additional touch protection to be fitted at the box terminals (2 units required per device)																																																																
3RW303. S2		3RW304. S3																																																															
 3RT1946-4EA1	Terminal covers for cable lugs and busbar connections					3RT1946-4EA1																																																											
	For complying with the voltage clearances and as touch protection if box terminal is removed (2 units required per device)																																																																
3RW304. S3																																																																	
<table border="1"> <thead> <tr> <th>For motor starter protectors</th> <th>For soft starters</th> <th>Version</th> <th>Article No.</th> </tr> <tr> <th>Size</th> <th>Size</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td colspan="7">Mounting rails for mounting contactors for the customer assembly of 3RA21 load feeders with busbar adapters for 60 mm systems</td> </tr> <tr> <td rowspan="2">  8US1998-7CB45 </td> <td>--</td> <td>S0</td> <td>For the discrete configuration of direct-on-line starters a further mounting rail is needed for the contactor in addition to the mounting rail existing on the busbar adapter.</td> <td rowspan="2">8US1998-7CB45</td> </tr> <tr> <td colspan="3">For pushing onto the busbar adapter, including fixing screws</td> </tr> <tr> <td colspan="7">Standard mounting rail adapters</td> </tr> <tr> <td rowspan="2">  3RA2932-1CA00 </td> <td>S2</td> <td>S2</td> <td>For mechanical fixing of motor starter protector and soft starter; for snapping onto standard mounting rail or for screw fixing</td> <td rowspan="2">3RA2932-1CA00</td> </tr> <tr> <td colspan="3">Single-unit packaging</td> </tr> <tr> <td colspan="7">Manual for SIRIUS 3RW30/3RW40 soft starters¹⁾</td> </tr> <tr> <td colspan="4">The manual is available free on the Internet as a PDF download, see</td> <td colspan="3"></td> </tr> <tr> <td colspan="4">https://support.industry.siemens.com/cs/ww/en/view/38752095.</td> <td colspan="3"></td> </tr> </tbody> </table>							For motor starter protectors	For soft starters	Version	Article No.	Size	Size			Mounting rails for mounting contactors for the customer assembly of 3RA21 load feeders with busbar adapters for 60 mm systems							 8US1998-7CB45	--	S0	For the discrete configuration of direct-on-line starters a further mounting rail is needed for the contactor in addition to the mounting rail existing on the busbar adapter.	8US1998-7CB45	For pushing onto the busbar adapter, including fixing screws			Standard mounting rail adapters							 3RA2932-1CA00	S2	S2	For mechanical fixing of motor starter protector and soft starter; for snapping onto standard mounting rail or for screw fixing	3RA2932-1CA00	Single-unit packaging			Manual for SIRIUS 3RW30/3RW40 soft starters¹⁾							The manual is available free on the Internet as a PDF download, see							https://support.industry.siemens.com/cs/ww/en/view/38752095 .						
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¹⁾ The Operating Instructions 3RW30 (3ZX1012-0RW30-2DA1) are included in the scope of supply of the soft starter, or are available (like the manual) as a PDF download in the Industry Online Support Portal, see <https://support.industry.siemens.com/cs/ww/en/view/26378636>.

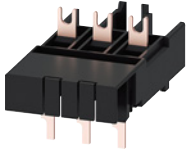
Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW30

For soft starters	Motor starter protectors	Article No.
Type	Size	Size

Link modules to motor starter protectors¹⁾



3RA2921-1BA00

- With screw terminals

3RW301.	S00	S00
3RW302.	S0	S00/S0
3RW3036.	S2	S2
3RW3046., 3RW3047.	S3	S3

3RA2921-1BA00
3RA2921-1BA00
3RA2931-1AA00
3RA1941-1AA00

- ¹⁾ Can be used in size S0 up to maximum 32 A.
 Can be used in size S2 up to maximum 65 A in combination with 3RA2932-1AC00 standard mounting rail adapter (specially for soft starters). Can be used in size S3 only for 3RV1 motor starter protectors.

Version	Functionality Functions	Use	Article No.
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Covers and push-in lugs (only for 3RW30 03)



3RP1902

Sealable covers For securing against unauthorized adjustment of setting knobs
 For devices with 1 or 2 CO contacts

3RP1902



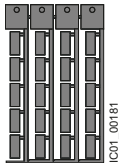
3RP1903

Push-in lugs
 For screw fixings
 For devices with 1 or 2 CO contacts

3RP1903

Version	Article No.
---------	-------------

Blank labels



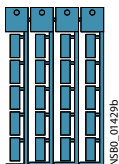
3RT2900-1SB20

Unit labeling plates¹⁾

For SIRIUS devices

- 20 mm x 7 mm, titanium gray

3RT2900-1SB20



3RT1900-1SB20

- 20 mm x 7 mm, pastel turquoise

3RT1900-1SB20

- ¹⁾ PC labeling systems for individual inscription of unit labeling plates are available from: murrplastik Systemtechnik GmbH see www.murrplastik.de.

More information

Application examples for normal starting (CLASS 10)

Normal starting CLASS 10 (up to 20 s with 300 % $I_{n, motor}$, one start per hour)
The soft starter rating can be selected to be as high as the rating of the motor used

Application	Conveyor belts	Roller conveyors	Compressors	Small fans ¹⁾	Pumps	Hydraulic pumps
Starting parameters						
• Voltage ramp and current limiting						
- Starting voltage	% 70	60	50	40	40	40
- Starting time	s 10	10	20	20	10	10

¹⁾ The mass inertia of the fan is <10 times the mass inertia of the motor.

Note:

These tables present sample set values and device dimensions. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during commissioning. The soft starter dimensions should be checked where necessary with the help of Technical Assistance.

Configuration

The 3RW solid-state motor controllers are designed for easy starting conditions. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device.

If necessary, an overload relay for heavy starting must be selected where long starting times are involved. PTC sensors are recommended.

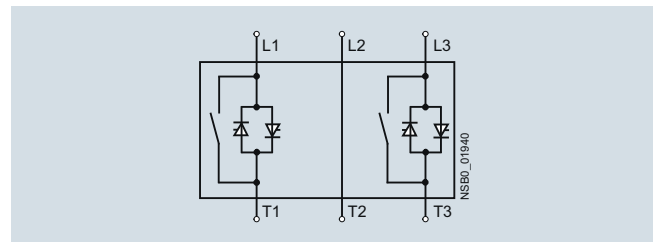
No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses, controls and overload relays) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately. Please observe the maximum switching frequencies specified in the technical specifications.

Note:

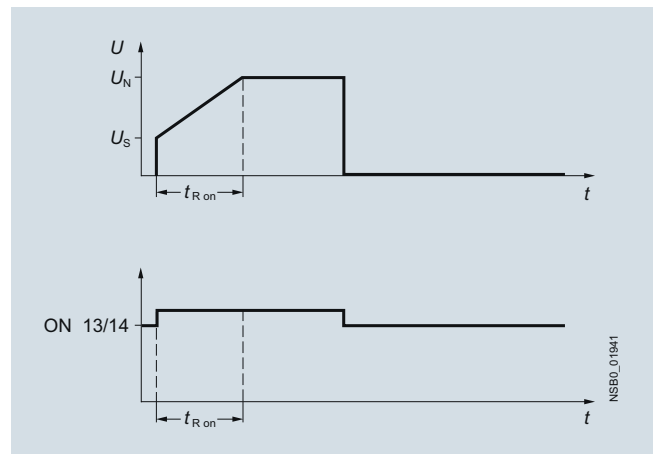
When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

Schematic circuit diagram of power electronics



A bypass contact system is already integrated in the 3RW30 soft starter and therefore does not have to be ordered separately.

Status graphs



Manual for SIRIUS 3RW30/40

In addition to relevant configuration, commissioning, and service information, the manual also contains example circuits and technical specifications for all devices, see <https://support.industry.siemens.com/cs/ww/en/view/38752095>.

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications
3RW40

General data

Overview

SIRIUS 3RW40 soft starters have all the same advantages as the 3RW30 soft starters.

The SIRIUS 3RW40 soft starters are characterized above all by their small space requirements. Integrated bypass contacts mean that no power loss has to be taken into the bargain at the power semiconductors (thyristors) after the motor has started up. This cuts down on heat losses, enabling a more compact design and making external bypass circuits superfluous.

At the same time this soft starter comes with additional integrated functions such as adjustable current limiting, motor overload and intrinsic device protection, and optional thermistor motor protection. The higher the motor rating, the more important these functions because they make it unnecessary to purchase and install protection equipment such as overload relays.

Internal intrinsic device protection prevents the thermal overloading of the thyristors and the power section defects this can cause. As an option the thyristors can also be protected by semiconductor fuses from short-circuiting.

Thanks to integrated status monitoring and fault monitoring, this compact soft starter offers many different diagnostics options. Up to four LEDs and relay outputs permit differentiated monitoring and diagnostics of the operating mechanism by indicating the operating state as well as for example mains or phase failure, missing load, non-permissible tripping time/CLASS setting, thermal overloading or device faults.

Soft starters rated up to 250 kW (at 400 V) for standard applications in three-phase networks are available. Extremely small sizes, low power losses and simple start up are just three of the many advantages of the SIRIUS 3RW40 soft starters.

"Increased safety" type of protection EEx e according to ATEX directive 94/9/EC

The 3RW40 soft starter sizes S0 to S12 are suitable for the starting of explosion-proof motors with "increased safety" type of protection EEx e.

Functionality

The space required by the compact SIRIUS 3RW40 soft starter is often only about one third of that required by a contactor assembly for wye-delta starting of comparable rating. This not only saves space in the control cabinet and on the standard mounting rail but also does away completely with the wiring work needed for wye-delta starters. This is notable in particular for higher motor ratings which are only rarely available as fully wired solutions.

At the same time the number of cables from the starter to the motor is reduced from six to three. Compact dimensions, short start-up times, easy wiring and fast commissioning make themselves felt as clear-cut cost advantages.

The bypass contacts of these soft starters are protected during operation by an integrated solid-state arc quenching system. This prevents damage to the bypass contacts in the event of a fault, e.g. brief disconnection of the control voltage, mechanical shocks or life-related component defects on the coil operating mechanism or main contact spring.

The starting current of particularly powerful operating mechanisms can place an unjustifiable load on the local supply system. Soft starters reduce this starting current by means of their voltage ramp. Thanks to the adjustable current limiting, the SIRIUS 3RW40 soft starter takes even more pressure off the supply system. It leaves the set start ramp during the ramp-up – the ramp gradient is fixed by the starting voltage and the ramp time – as soon as the selected current limit is reached.

From this moment the voltage of the soft starter is controlled so that the current supplied to the motor remains constant. This process is ended either by completion of the motor ramp-up or by tripping by the intrinsic device protection or the motor overload protection. As the result of this function the actual motor ramp-up can well take longer than the ramp time selected on the soft starter.

Thanks to the integrated motor overload protection according to IEC 60947-4-2, there is no need for an additional overload relay on the new soft starters. The rated motor current, the setting of the overload tripping time (CLASS times) and the reset of the motor overload protection function can be adjusted easily and quickly. Using a 4-step rotary potentiometer it is possible to set different overload tripping times on the soft starter. In addition to CLASS 10, 15 and 20 it is also possible to switch off the motor overload protection if a different motor management control device is to be used for this function, e.g. with connection to PROFIBUS.

Device versions with thermistor motor protection evaluation are available up to a rating of 55 kW (at 400 V). A "Thermoclick" measuring probe can be connected directly, as can a PTC of type A. Thermal overloading of the motor, open circuits and short circuits in the sensor circuit all result in the direct disconnection of the soft starter. And if ever the soft starter trips, various reset options are available the same as with intrinsic device protection and motor load protection: manually with the reset button, automatically or remotely through brief disconnection of the control voltage.

The new series of devices comes with the "polarity balancing" control method, which is designed to prevent direct current components in two-phase controlled soft starters. On two-phase controlled soft starters the current resulting from superimposition of the two controlled phases flows in the uncontrolled phase. This results for physical reasons in an asymmetric distribution of the three phase currents during the motor ramp-up. This phenomenon cannot be influenced, but in most applications it is non-critical.

Controlling the power semiconductors results not only in this asymmetry, however, but also in the previously mentioned direct current components which can cause severe noise generation on the motor at starting voltages of less than 50 %.

The control method used for these soft starters eliminates these direct current components during the ramp-up phase and prevents the braking torque which they can cause. It creates a motor ramp-up that is uniform in speed, torque and current rise, thus permitting a particularly gentle, two-phase starting of the motors. At the same time the acoustic quality of the starting operation comes close to the quality of a three-phase controlled soft starter. This is made possible by the on-going dynamic harmonizing and balancing of current half-waves of different polarity during the motor ramp-up. Hence the name "polarity balancing".

Application

The SIRIUS 3RW40 solid-state soft starters are used for the soft starting and stopping of three-phase asynchronous motors.

Due to two-phase control, the current is kept at minimum values in all three phases throughout the entire starting time and disturbing direct current components are eliminated in addition. This not only enables the two-phase starting of motors up to 250 kW (at 400 V) but also avoids the current and torque peaks which occur e.g. with wye-delta starters.

Application areas

See "Selection aid for soft starters", on page 4/3.

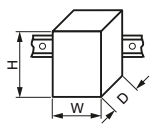
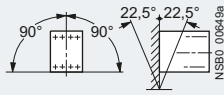
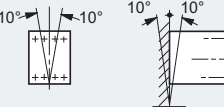
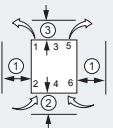
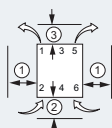
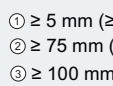
Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

General data

Technical specifications

Type		3RW402.	3RW403.	3RW404.	3RW405.	3RW407.	
Mechanics and environment							
Mounting dimensions (W x H x D)							
• Screw terminals		mm	45 x 125 x 154	55 x 144 x 170	70 x 160 x 188	120 x 198 x 250	160 x 230 x 278
Permissible ambient temperature							
During operation	°C	-25 ... +60; (derating from +40)					
During storage	°C	-40 ... +80					
Weight	kg	0.77	1.35	1.9	4.9 (.55.)	8.9	
Permissible mounting position¹⁾							
• With auxiliary fan (for 3RW402. ... 3RW404.)							
• Without auxiliary fan (for 3RW402. ... 3RW404.)							
		-- (fan integrated in the soft starter)					
Installation type¹⁾	Stand-alone installation	3RW402.	3RW403., 3RW404.		3RW405., 3RW407.		
							
		① ≥ 15 mm (≥ 0.59 in) ② ≥ 40 mm (≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in)	① ≥ 30 mm (≥ 1.18 in) ② ≥ 40 mm (≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in)		① ≥ 5 mm (≥ 0.2 in) ② ≥ 75 mm (≥ 3 in) ③ ≥ 100 mm (≥ 4 in)		
Permissible installation altitude	m	5 000 (derating from 1 000, see "Characteristic Curves", page 4/4); higher on request					
Degree of protection		IP20 for 3RW402.; all others IP00					

¹⁾ In the case of deviations, please observe derating, see manual in the chapter "Configuring":
<https://support.industry.siemens.com/cs/ww/en/view/38752095>.

Type		3RW402., 3RW403., 3RW404.	3RW405., 3RW407.	
Control electronics				
Rated values	Terminal			
Rated control supply voltage	A1/A2	V	24 DC/AC 110 ... 230 AC/DC	115 AC 230 AC
• Tolerance		%	± 20	-15/+10
Rated frequency		Hz	50/60	
• Tolerance		%	± 10	

Type		3RW402.-..B.4, 3RW403.-..B.4, 3RW404.-..B.4	3RW402.-..B.5, 3RW403.-..B.5, 3RW404.-..B.5	3RW405.-..BB.4, 3RW407.-..BB.4	3RW405.-..BB.5, 3RW407.-..BB.5
Power electronics					
Rated operational voltage	V AC	200 ... 480	400 ... 600	200 ... 460	400 ... 600
Tolerance	%	-15/+10			
Maximum blocking voltage (thyristor)	V AC	1 600		1 400	1 800
Rated frequency	Hz	50/60			
Tolerance	%	± 10			
Uninterrupted duty at 40 °C (% of I_e)	%	115			
Minimum load (% of minimum selectable rated motor current I_M)	%	20 (at least 2 A)			
Maximum cable length between soft starter and motor	m	300			

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

General data

Type		3RW4024	3RW4026	3RW4027	3RW4028
Power electronics					
Load rating with rated operational current I_e					
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a					
- At 40 °C	A	12.5	25.3	32.2	38
- At 50 °C	A	11	23	29	34
- At 60 °C	A	10	21	26	31
Smallest adjustable rated motor current I_M					
For the motor overload protection					
	A	5	10	17	23
Power loss					
• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.					
	W	2	8	13	19
• During starting with current limit set to 300 % I_M (40 °C)					
	W	68	188	220	256
Permissible rated motor current and starts per hour at 40 °C / 50 °C					
• For normal starting (CLASS 10)					
- Rated motor current $I_M^{(2)}$, starting time 3 s	A	12.5/11	25/23	32/29	38/34
- Starts per hour ³⁾	1/h	50/50	23/23	23/23	19/19
- Rated motor current $I_M^{(2)}$, starting time 4 s	A	12.5/11	25/23	32/29	38/34
- Starts per hour ³⁾	1/h	36/36	15/15	16/16	12/12
• For heavy starting (CLASS 15)					
- Rated motor current $I_M^{(2)}$, starting time 4.5 s	A	11/10	23/21	30/27	34/31
- Starts per hour ³⁾	1/h	49/49	21/21	18/18	18/18
- Rated motor current $I_M^{(2)}$, starting time 6 s	A	11/10	23/21	30/27	34/31
- Starts per hour ³⁾	1/h	36/36	14/14	13/13	13/13
• For heavy starting (CLASS 20)					
- Rated motor current $I_M^{(2)}$, starting time 6 s	A	10/9	21/19	27/24	31/28
- Starts per hour ³⁾	1/h	47/47	21/21	20/20	18/18
- Rated motor current $I_M^{(2)}$, starting time 8 s	A	10/9	21/19	27/24	31/28
- Starts per hour ³⁾	1/h	34/34	15/15	14/14	13/13

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ Current limit on soft starter set to 300 % I_M , $T_u = 40$ °C / 50 °C. Maximum adjustable rated motor current I_M dependent on CLASS setting.

³⁾ For intermittent duty S4 with ON period = 30 %, $T_u = 40$ °C / 50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency in other mounting position, direct mounting, side-by-side mounting, and implementation of optional auxiliary fan, see manual in the chapter "Configuring":
<https://support.industry.siemens.com/cs/ww/en/view/38752095>.

Type		3RW4036	3RW4037	3RW4038	3RW4046	3RW4047
Power electronics						
Load rating with rated operational current I_e						
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a						
- At 40 °C	A	45	63	72	80	106
- At 50 °C	A	42	58	62.1	73	98
- At 60 °C	A	39	53	60	66	90
Smallest adjustable rated motor current I_M						
For the motor overload protection						
	A	23	26	35	43	46
Power loss						
• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.						
	W	6	12	15	12	21
• During starting with current limit set to 300 % I_M (40 °C)						
	W	316	444	500	576	768
Permissible rated motor current and starts per hour at 40 °C / 50 °C						
• For normal starting (CLASS 10)						
- Rated motor current $I_M^{(2)}$, starting time 3 s	A	45/42	63/58	72/62	80/73	106/98
- Starts per hour ³⁾	1/h	38/38	23/23	22/22	22/22	15/15
- Rated motor current $I_M^{(2)}$, starting time 4 s	A	45/42	63/58	72/62	80/73	106/98
- Starts per hour ³⁾	1/h	26/26	15/15	15/15	15/15	10/10
• For heavy starting (CLASS 15)						
- Rated motor current $I_M^{(2)}$, starting time 4.5 s	A	42/38	50/46	56/52	70/64	84/77
- Starts per hour ³⁾	1/h	30/30	34/34	34/34	24/24	23/23
- Rated motor current $I_M^{(2)}$, starting time 6 s	A	42/38	50/46	56/52	70/64	84/77
- Starts per hour ³⁾	1/h	21/21	24/24	24/24	16/16	17/17
• For heavy starting (CLASS 20)						
- Rated motor current $I_M^{(2)}$, starting time 6 s	A	38/34	46/42	50/46	64/58	77/70
- Starts per hour ³⁾	1/h	30/30	31/31	34/34	23/23	23/23
- Rated motor current $I_M^{(2)}$, starting time 8 s	A	38/34	46/42	50/46	64/58	77/70
- Starts per hour ³⁾	1/h	21/21	22/22	24/24	16/16	16/16

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ Current limit on soft starter set to 300 % I_M , $T_u = 40$ °C / 50 °C. Maximum adjustable rated motor current I_M dependent on CLASS setting.

³⁾ For intermittent duty S4 with ON period = 30 %, $T_u = 40$ °C / 50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. For factors for permissible switching frequency in the case of different installation position, direct mounting, side-by-side mounting, and the use of an optional auxiliary fan, see the manual in the chapter "Configuring":
<https://support.industry.siemens.com/cs/ww/en/view/38752095>.

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

General data

Type		3RW4055	3RW4056	3RW4073	3RW4074	3RW4075	3RW4076
Power electronics							
Load rating with rated operational current I_e							
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a							
- At 40 °C	A	134	162	230	280	356	432
- At 50 °C	A	117	145	205	248	315	385
- At 60 °C	A	100	125	180	215	280	335
Smallest adjustable rated motor current I_M							
For the motor overload protection							
	A	59	87	80	130	131	207
Power loss							
• In operation after completed starting with uninterrupted rated operational current (40 °C) approx.							
	W	60	75		90	125	165
• During starting with current limit set to 350 % ²⁾ I_M (40 °C)							
	W	1043	1355	2448	3257	3277	3600
Permissible rated motor current and starts per hour at 40 °C / 50 °C							
• For normal starting (CLASS 10)							
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	134/117	162/145	230/205	280/248	356/315	432/385
- Starts per hour ³⁾	1/h	20/20	8/8	14/14	20/20	16/16	17/17
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	134/117	162/145	230/205	280/248	356/315	432/385
- Starts per hour ³⁾	1/h	7/7	1.4/1.4	3/3	8/8	5/5	5/5
• For heavy starting (CLASS 15)							
- Rated motor current $I_M^{(2)}$, starting time 15 s	A	134/117	152/140	210/200	250/220	341/315	402/385
- Starts per hour ³⁾	1/h	11/11	8/8	11/11	13/13	11/11	12/12
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	134/117	152/140	210/200	250/220	341/315	402/385
- Starts per hour ³⁾	1/h	1.2/1.2	1.7/1.7	1/1	6/6	2/2	2/2
• For heavy starting (CLASS 20)							
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	124/112	142/132	200/185	230/205	311/280	372/340
- Starts per hour ³⁾	1/h	12/12	9/9	10/10	10/10	10/10	10/10
- Rated motor current $I_M^{(2)}$, starting time 40 s	A	124/112	142/132	200/185	230/205	311/280	372/340
- Starts per hour ³⁾	1/h	2/2	2/2	1/1	5/5	1/1	1/1

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ Current limit on soft starter set to 350 % I_M , $T_u = 40 °C / 50 °C$. Maximum adjustable rated motor current I_M dependent on CLASS setting.

³⁾ For intermittent duty S4 with ON period = 70 %, $T_u = 40 °C / 50 °C$, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications
3RW40

General data

Motor feeders with soft starters

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, then semiconductor fuses must be fitted in the motor feeder.

ToC 1

Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

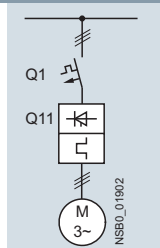
ToC 2

Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

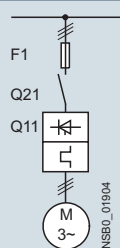
Fuseless version



Soft starters		Motor starter protectors ¹⁾								
ToC 1	Nominal current	400 V + 10 %		400 V + 10 %		Rated current		575 V + 10 %		
Q11	A	Q1	Q1	$I_{q \max}$	A	Q1	$I_{q \max}$	Rated current		
Type	A	Type	Type	kA	A	Type	kA	A		
Type of coordination "1"										
3RW4024	12.5	3RV2021-4AA/ 3RV2011-4AA (in size S00)	3RV2321-4AC/ 3RV2311-4AC (in size S00)	55	16	--	--	--		
3RW4026	25	3RV2021-4DA	3RV2321-4DC	55	25	--	--	--		
3RW4027	32	3RV2021-4EA	3RV2321-4EC	55	32	--	--	--		
3RW4028	38	3RV2021-4FA	3RV2321-4FC	55	40	--	--	--		
3RW4036	45	3RV2031-4WA10	3RV2321-4WC	10	45	--	--	--		
3RW4037	63	3RV2031-4JA10	3RV2331-4JC	10	63	--	--	--		
3RW4038	72	3RV2031-4KA10	3RV2331-4KC	10	75	--	--	--		
3RW4046	80	3RV1041-4LA10	3RV1341-4LC10	11	90	--	--	--		
3RW4047	106	3RV1041-4MA10	3RV1341-4MC10	11	100	--	--	--		
3RW4055	134	3VL3720-2DC36	--	35	200	3VL3720-1DC36	12	200		
3RW4056	162	3VL3720-2DC36	--	35	200	3VL3720-1DC36	12	200		
3RW4073	230	3VL4731-2DC36	--	65	315	3VL5731-3DC36	35	315		
3RW4074	280	3VL4731-2DC36	--	65	315	3VL5731-3DC36	35	315		
3RW4075	356	3VL4740-2DC36	--	65	400	3VL5740-3DC36	35	400		
3RW4076	432	3VL5750-2DC36	--	65	500	3VL5750-3DC36	35	500		

¹⁾ The rated motor current must be considered when selecting the devices. 3RV13/3RV23 motor starter protectors are designed for starter combinations (without motor protection). Motor protection is provided in this case by the 3RW40 soft starter.

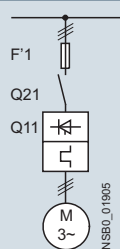
Fused version (line protection only)



Soft starters	Nominal current	Line protection, maximum	Rated current	Size	Line contactors (optional)
Q11 Type	A	F1 Type	A		Q21 Type
Type of coordination "1"¹⁾: $I_q = 65 \text{ kA at } 600 \text{ V} + 5 \%$					
3RW4024	12.5	3NA3820-6	50	00	3RT2025/ 3RT2018 (in size S00)
3RW4026	25	3NA3822-6	63	00	3RT2026
3RW4027	32	3NA3824-6	80	00	3RT2027
3RW4028	38	3NA3824-6	80	00	3RT2028
3RW4036	45	3NA3130-6	100	1	3RT1036
3RW4037	63	3NA3132-6	125	1	3RT1044
3RW4038	72	3NA3132-6	125	1	3RT1045
3RW4046	80	3NA3136-6	160	1	3RT1045
3RW4047	106	3NA3136-6	160	1	3RT1046
3RW4055	134	3NA3244-6	250	2	3RT1055-6A.36
3RW4056	162	3NA3244-6	250	2	3RT1056-6A.36
3RW4073	230	2 x 3NA3354-6	2 x 355	3	3RT1065-6A.36
3RW4074	280	2 x 3NA3354-6	2 x 355	3	3RT1066-6A.36
3RW4075	356	2 x 3NA3365-6	2 x 500	3	3RT1075-6A.36
3RW4076	432	2 x 3NA3365-6	2 x 500	3	3RT1076-6A.36

¹⁾ The type of coordination "1" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

Fused version with 3NE1 SITOP fuses (semiconductor and line protection)



Matching fuse bases, see www.siemens.com/sitor.

Soft starters	Nominal current	All-range fuses	Rated current	Size	Line contactors (optional)
Q11 Type	A	F'1 Type	A		Q21 Type
Type of coordination "2"¹⁾: $I_q = 65 \text{ kA at } 600 \text{ V} + 5 \%$					
3RW4024	12.5	3NE1814-0	20	000	3RT2025/ 3RT2018 (in size S00)
3RW4026	25	3NE1803-0	35	000	3RT2026
3RW4027	32	3NE1020-2	80	00	3RT2027
3RW4028	38	3NE1020-2	80	00	3RT2028
3RW4036	45	3NE1020-2	80	00	3RT1036
3RW4037	63	3NE1820-0	80	000	3RT1044
3RW4038	72	3NE1820-0	80	000	3RT1045
3RW4046	80	3NE1021-0	100	00	3RT1045
3RW4047	106	3NE1022-0	125	00	3RT1046
3RW4055	134	3NE1227-2	250	1	3RT1055-6A.36
3RW4056	162	3NE1227-2	250	1	3RT1056-6A.36
3RW4073	230	3NE1331-2	350	2	3RT1065-6A.36
3RW4074	280	3NE1333-2	450	2	3RT1066-6A.36
3RW4075	356	3NE1334-2	500	2	3RT1075-6A.36
3RW4076	432	3NE1435-2	560	3	3RT1076-6A.36

¹⁾ The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

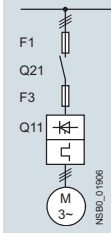
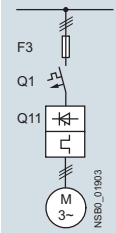
Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

General data

Fused version with 3NE3 SITOR fuses (semiconductor protection by fuse, line and overload protection by motor starter protector; alternatively, installation with contactor and overload relay possible)



Matching fuse bases, see www.siemens.com/sitor.

Soft starters Q11 Type	Nominal current A	Semiconductor fuses, minimum			Semiconductor fuses, maximum			Semiconductor fuses, minimum		
		F3 Type	Rated current A	Size	F3 Type	Rated current A	Size	F3 Type	Rated current A	Size
Type of coordination "2" ¹⁾ : $I_q = 65 \text{ kA at } 600 \text{ V} + 5 \% \text{ } ^{(1)}$ see previous page)										
3RW4024	12.5	--	--	--	--	--	--	3NE4101	32	0
3RW4026	25	--	--	--	3NE3221	100	1	3NE4102	40	0
3RW4027	32	--	--	--	3NE3224	160	1	3NE4118	63	0
3RW4028	38	--	--	--	3NE3224	160	1	3NE4118	63	0
3RW4036	45	--	--	--	3NE3224	160	1	3NE4120	80	0
3RW4037	63	--	--	--	3NE3225	200	1	3NE4121	100	0
3RW4038	72	3NE3221	100	1	3NE3227	250	1	--	--	--
3RW4046	80	3NE3222	125	1	3NE3225	200	1	--	--	--
3RW4047	106	3NE3224	160	1	3NE3231	350	1	--	--	--
3RW4055	134	3NE3227	250	1	3NE3335	560	2	--	--	--
3RW4056	162	3NE3227	250	1	3NE3335	560	2	--	--	--
3RW4073	230	3NE3232-0B	400	1	3NE3333	450	2	--	--	--
3RW4074	280	3NE3233	450	1	3NE3336	630	2	--	--	--
3RW4075	356	3NE3335	560	2	3NE3336	630	2	--	--	--
3RW4076	432	3NE3337-8	710	2	3NE3340-8	900	2	--	--	--

Soft starters Q11 Type	Nominal current A	Semiconductor fuses max.			Semiconductor fuses min.			Semiconductor fuses max.			Cylindrical fuses	
		F3 Type	Rated current A	Size	F3 Type	Rated current A	Size	F3 Type	Rated current A	Size	F3 Type	Rated current A
Type of coordination "2" ¹⁾ : $I_q = 65 \text{ kA at } 600 \text{ V} + 5 \% \text{ } ^{(1)}$ see previous page)												
3RW4024	12.5	3NE4117	50	0	3NE8015-1	25	00	3NE8017-1	50	00	3NC2240	40
3RW4026	25	3NE4117	50	0	3NE8017-1	50	00	3NE8021-1	100	00	3NC2263	63
3RW4027	32	3NE4118	63	0	3NE8018-1	63	00	3NE8022-1	125	00	3NC2280	80
3RW4028	38	3NE4118	63	0	3NE8020-1	80	00	3NE8024-1	160	00	3NC2280	80
3RW4036	45	3NE4120	80	0	3NE8020-1	80	00	3NE8024-1	160	00	3NC2280	80
3RW4037	63	3NE4121	100	0	3NE8021-1	100	00	3NE8024-1	160	00	--	--
3RW4038	72	--	--	--	3NE8022-1	125	00	3NE8024-1	160	00	--	--
3RW4046	80	--	--	--	3NE8022-1	125	00	3NE8024-1	160	00	--	--
3RW4047	106	--	--	--	3NE8024-1	160	00	3NE8024-1	160	00	--	--
3RW4055	134	--	--	--	--	--	--	--	--	--	--	--
3RW4056	162	--	--	--	--	--	--	--	--	--	--	--
3RW4073	230	--	--	--	--	--	--	--	--	--	--	--
3RW4074	280	--	--	--	--	--	--	--	--	--	--	--
3RW4075	356	--	--	--	--	--	--	--	--	--	--	--
3RW4076	432	--	--	--	--	--	--	--	--	--	--	--

Soft starters Q11 Type	Nominal current A	Line contactors (optional) Q21 Type	Motor starter protectors			Line protection, maximum			
			400 V + 10 % Q1 Type	Rated current A	575 V + 10 % Q1 Type	Rated current A	Rated current A	Size	
Type of coordination "2" ¹⁾ : $I_q = 65 \text{ kA at } 600 \text{ V} + 5 \% \text{ } ^{(1)}$ see previous page)									
3RW4024	12.5	3RT2025/ 3RT2018 (in size S00)	3RV2021-4AA/ 3RV2011-4AA (in size S00)	16	--	--	3NA3820-6	50	00
3RW4026	25	3RT2026	3RV2021-4DA	25	--	--	3NA3822-6	63	00
3RW4027	32	3RT2027	3RV2021-4EA	32	--	--	3NA3824-6	80	00
3RW4028	38	3RT2028	3RV2021-4FA	40	--	--	3NA3824-6	80	00
3RW4036	45	3RT1036	3RV2031-4WA10	45	--	--	3NA3130-6	100	1
3RW4037	63	3RT1044	3RV2031-4JA10	63	--	--	3NA3132-6	125	1
3RW4038	72	3RT1045	3RV2031-4KA10	75	--	--	3NA3132-6	125	1
3RW4046	80	3RT1045	3RV1041-4LA10	90	--	--	3NA3136-6	160	1
3RW4047	106	3RT1046	3RV1041-4MA10	100	--	--	3NA3136-6	160	1
3RW4055	134	3RT1055-6A.36	3VL3720	200	3VL3720	200	3NA3244-6	250	2
3RW4056	162	3RT1056-6A.36	3VL3720	200	3VL3720	200	3NA3244-6	250	2
3RW4073	230	3RT1065-6A.36	3VL4731	315	3VL5731	315	2 x 3NA3354-6	2 x 355	3
3RW4074	280	3RT1066-6A.36	3VL4731	315	3VL5731	315	2 x 3NA3354-6	2 x 355	3
3RW4075	356	3RT1075-6A.36	3VL4740	400	3VL5740	400	2 x 3NA3365-6	2 x 500	3
3RW4076	432	3RT1076-6A.36	3VL5750	500	3VL5750	500	2 x 3NA3365-6	2 x 500	3

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

SIRIUS 3RW40 for normal starting (CLASS 10)

Selection and ordering data



3RW402.



3RW403.



3RW404.

3RW ambient temperature 40 °C				3RW ambient temperature 50 °C				Size	Normal starting (CLASS 10)	
Rated values of three-phase motors				Rated values of three-phase motors						
Operational current I_e	Rating at operational voltage U_e			Operational current I_e	Rating at operational voltage U_e			Article No.		
	230 V	400 V	500 V		200 V	230 V	460 V		575 V	
A	kW	kW	kW	A	hp	hp	hp	hp		
Rated operational voltage U_e 200 ... 480 V										
12.5	3	5.5	--	11	3	3	7.5	--	S0	3RW4024-1BB□4
25	5.5	11	--	23	5	5	15	--	S0	3RW4026-1BB□4
32	7.5	15	--	29	7.5	7.5	20	--	S0	3RW4027-1BB□4
38	11	18.5	--	34	10	10	25	--	S0	3RW4028-1BB□4
45	11	22	--	42	10	15	30	--	S2	3RW4036-1BB□4
63	18.5	30	--	58	15	20	40	--	S2	3RW4037-1BB□4
72	22	37	--	62	20	20	40	--	S2	3RW4038-1BB□4
80	22	45	--	73	20	25	50	--	S3	3RW4046-1BB□4
106	30	55	--	98	30	30	75	--	S3	3RW4047-1BB□4
Rated operational voltage U_e 400 ... 600 V										
12.5	--	5.5	7.5	11	--	--	7.5	10	S0	3RW4024-1BB□5
25	--	11	15	23	--	--	15	20	S0	3RW4026-1BB□5
32	--	15	18.5	29	--	--	20	25	S0	3RW4027-1BB□5
38	--	18.5	22	34	--	--	25	30	S0	3RW4028-1BB□5
45	--	22	30	42	--	--	30	40	S2	3RW4036-1BB□5
63	--	30	37	58	--	--	40	50	S2	3RW4037-1BB□5
72	--	37	45	62	--	--	40	60	S2	3RW4038-1BB□5
80	--	45	55	73	--	--	50	60	S3	3RW4046-1BB□5
106	--	55	75	98	--	--	75	75	S3	3RW4047-1BB□5

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_c

- 24 V AC/DC
- 110 ... 230 V AC/DC

For online configurator, see www.siemens.com/sirius/configurators.

Notes:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan (side-by-side see manual, <https://support.industry.siemens.com/cs/ww/en/view/38752095>, increased switching frequency possible using auxiliary fans)

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

SIRIUS 3RW40 for normal starting (CLASS 10)



3RW402.



3RW403.



3RW404.

3RW ambient temperature 40 °C				3RW ambient temperature 50 °C				Size	Normal starting (CLASS 10)	Configurator	Article No.	
Rated values of three-phase motors				Rated values of three-phase motors								
Operational current I_e	Rating at operational voltage U_e			Operational current I_e	Rating at operational voltage U_e			A	hp	hp	hp	hp
	230 V	400 V	500 V		200 V	230 V	460 V					
A	kW	kW	kW	A	hp	hp	hp	hp				
Rated operational voltage U_e 200 ... 480 V, with thermistor motor protection, rated control supply voltage U_s 24 V AC/DC												
12.5	3	5.5	--	11	3	3	7.5	--	S0	3RW4024-1TB04		
25	5.5	11	--	23	5	5	15	--	S0	3RW4026-1TB04		
32	7.5	15	--	29	7.5	7.5	20	--	S0	3RW4027-1TB04		
38	11	18.5	--	34	10	10	25	--	S0	3RW4028-1TB04		
45	11	22	--	42	10	15	30	--	S2	3RW4036-1TB04		
63	18.5	30	--	58	15	20	40	--	S2	3RW4037-1TB04		
72	22	37	--	62	20	20	40	--	S2	3RW4038-1TB04		
80	22	45	--	73	20	25	50	--	S3	3RW4046-1TB04		
106	30	55	--	98	30	30	75	--	S3	3RW4047-1TB04		
Rated operational voltage U_e 400 ... 600 V, with thermistor motor protection, rated control supply voltage U_s 24 V AC/DC												
12.5	--	5.5	7.5	11	--	--	7.5	10	S0	3RW4024-1TB05		
25	--	11	15	23	--	--	15	20	S0	3RW4026-1TB05		
32	--	15	18.5	29	--	--	20	25	S0	3RW4027-1TB05		
38	--	18.5	22	34	--	--	25	30	S0	3RW4028-1TB05		
45	--	22	30	42	--	--	30	40	S2	3RW4036-1TB05		
63	--	30	37	58	--	--	40	50	S2	3RW4037-1TB05		
72	--	37	45	62	--	--	40	60	S2	3RW4038-1TB05		
80	--	45	55	73	--	--	50	60	S3	3RW4046-1TB05		
106	--	55	75	98	--	--	75	75	S3	3RW4047-1TB05		

Connection type

- With screw terminals

For online configurator, see www.siemens.com/sirius/configurators.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on [page 4/3](#)):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan (side-by-side [see manual](#), <https://support.industry.siemens.com/cs/ww/en/view/38752095>, increased switching frequency possible using auxiliary fans)

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

SIRIUS 3RW40 for normal starting (CLASS 10)



3RW405.



3RW407.

3RW ambient temperature 40 °C				3RW ambient temperature 50 °C				Size	Normal starting (CLASS 10)	
Rated values of three-phase motors				Rated values of three-phase motors						
Operational current I_e	Rating at operational voltage U_e			Operational current I_e	Rating at operational voltage U_e			Configurator	Article No.	
	230 V	400 V	500 V		200 V	230 V	460 V			575 V
A	kW	kW	kW	A	hp	hp	hp	hp		
Rated operational voltage U_e 200 ... 460 V										
134	37	75	--	117	30	40	75	--	S6	3RW4055-6BB□4 3RW4056-6BB□4
162	45	90	--	145	40	50	100	--		
230	75	132	--	205	60	75	150	--	S12	3RW4073-6BB□4 3RW4074-6BB□4
280	90	160	--	248	75	100	200	--		
356	110	200	--	315	100	125	250	--		3RW4075-6BB□4 3RW4076-6BB□4
432	132	250	--	385	125	150	300	--		
Rated operational voltage U_e 400 ... 600 V										
134	--	75	90	117	--	--	75	100	S6	3RW4055-6BB□5 3RW4056-6BB□5
162	--	90	110	145	--	--	100	150		
230	--	132	160	205	--	--	150	200	S12	3RW4073-6BB□5 3RW4074-6BB□5
280	--	160	200	248	--	--	200	250		
356	--	200	250	315	--	--	250	300		3RW4075-6BB□5 3RW4076-6BB□5
432	--	250	315	385	--	--	300	400		

Connection type¹⁾

- With screw terminals

Article No. supplement for rated control supply voltage U_s ²⁾

- 115 V AC
- 230 V AC

For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Main circuit connection: busbar connection.

²⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on [page 4/3](#)):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation (side-by-side see [manual](http://support.industry.siemens.com/cs/ww/en/view/38752095), <https://support.industry.siemens.com/cs/ww/en/view/38752095>)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see [manual](#).

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications
3RW40

SIRIUS 3RW40 for heavy starting (CLASS 20)

Selection and ordering data



3RW402.



3RW403.



3RW404.

3RW ambient temperature 40 °C				3RW ambient temperature 50 °C				Size	Heavy starting (CLASS 20)	
Rated values of three-phase motors				Rated values of three-phase motors					Configurator	
Operational current I_e	Rating at operational voltage U_e			Operational current I_e	Rating at operational voltage U_e			Article No.	⚙️	
	230 V	400 V	500 V		200 V	230 V	460 V			575 V
A	kW	kW	kW	A	hp	hp	hp	hp		
Rated operational voltage U_e 200 ... 480 V										
12.5	3	5.5	--	11	3	3	7.5	--	S0	3RW4026-1BB□4
25	5.5	11	--	23	5	5	15	--	S0	3RW4027-1BB□4
32	7.5	15	--	29	7.5	7.5	20	--	S2	3RW4036-1BB□4
38	11	18.5	--	34	10	10	25	--	S2	3RW4037-1BB□4
45	11	22	--	42	10	15	30	--	S2	3RW4037-1BB□4
63	18.5	30	--	58	15	20	40	--	S3	3RW4047-1BB□4
72	22	37	--	62	20	20	40	--	S3	3RW4047-1BB□4
Rated operational voltage U_e 400 ... 600 V										
12.5	--	5.5	7.5	11	--	--	7.5	10	S0	3RW4026-1BB□5
25	--	11	15	23	--	--	15	20	S0	3RW4027-1BB□5
32	--	15	18.5	29	--	--	20	25	S2	3RW4036-1BB□5
38	--	18.5	22	34	--	--	25	30	S2	3RW4037-1BB□5
45	--	22	30	42	--	--	30	40	S2	3RW4037-1BB□5
63	--	30	37	58	--	--	40	50	S3	3RW4047-1BB□5
72	--	37	45	62	--	--	40	60	S3	3RW4047-1BB□5

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s

- 24 V AC/DC
- 110 ... 230 V AC/DC

⚙️ For online configurator, see www.siemens.com/sirius/configurators.

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Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on [page 4/3](#)):

- Maximum starting time in s: 20
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan (side-by-side see [manual](#), <https://support.industry.siemens.com/cs/ww/en/view/38752095>, increased switching frequency possible using auxiliary fans)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see [manual](#).

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

SIRIUS 3RW40 for heavy starting (CLASS 20)



3RW402.



3RW403.



3RW404.

3RW ambient temperature 40 °C				3RW ambient temperature 50 °C				Size	Heavy starting (CLASS 20)	Configurator	Article No.	
Rated values of three-phase motors				Rated values of three-phase motors								
Operational current I_e	Rating at operational voltage U_e			Operational current I_e	Rating at operational voltage U_e			A	hp	hp	hp	hp
	230 V	400 V	500 V		200 V	230 V	460 V					
A	kW	kW	kW	A	hp	hp	hp	hp				
Rated operational voltage U_e 200 ... 480 V, with thermistor motor protection, rated control supply voltage U_s 24 V AC/DC												
12.5	3	5.5	--	11	3	3	7.5	--	S0		3RW4026-1TB04	
25	5.5	11	--	23	5	5	15	--	S0		3RW4027-1TB04	
32	7.5	15	--	29	7.5	7.5	20	--	S2		3RW4036-1TB04	
38	11	18.5	--	34	10	10	25	--	S2		3RW4037-1TB04	
45	11	22	--	42	10	15	30	--	S2		3RW4037-1TB04	
63	18.5	30	--	58	15	20	40	--	S3		3RW4047-1TB04	
72	22	37	--	62	20	20	40	--	S3		3RW4047-1TB04	
Rated operational voltage U_e 400 ... 600 V, with thermistor motor protection, rated control supply voltage U_s 24 V AC/DC												
12.5	--	5.5	7.5	11	--	--	7.5	10	S0		3RW4026-1TB05	
25	--	11	15	23	--	--	15	20	S0		3RW4027-1TB05	
32	--	15	18.5	29	--	--	20	25	S2		3RW4036-1TB05	
38	--	18.5	22	34	--	--	25	30	S2		3RW4037-1TB05	
45	--	22	30	42	--	--	30	40	S2		3RW4037-1TB05	
63	--	30	37	58	--	--	40	50	S3		3RW4047-1TB05	
72	--	37	45	62	--	--	40	60	S3		3RW4047-1TB05	

Connection type

- With screw terminals

For online configurator, see www.siemens.com/sirius/configurators.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on [page 4/3](#)):

- Maximum starting time in s: 20
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5
- Stand-alone installation without auxiliary fan (side-by-side [see manual](#), <https://support.industry.siemens.com/cs/ww/en/view/38752095>, increased switching frequency possible using auxiliary fans)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, [see manual](#).

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

SIRIUS 3RW40 for heavy starting (CLASS 20)



3RW405.



3RW407.

3RW ambient temperature 40 °C				3RW ambient temperature 50 °C				Size	Heavy starting (CLASS 20)	Configurator	Article No.
Rated values of three-phase motors				Rated values of three-phase motors							
Operational current I_e	Rating at operational voltage U_e			Operational current I_e	Rating at operational voltage U_e			A	hp	hp	hp
	230 V	400 V	500 V		200 V	230 V	460 V				
A	kW	kW	kW	A	hp	hp	hp				
Rated operational voltage U_e 200 ... 460 V											
80	22	45	--	73	20	25	50	--	S6		3RW4055-6BB□4
106	30	55	--	98	25	30	60	--	S6		3RW4055-6BB□4
134	37	75	--	117	30	40	75	--	S6		3RW4056-6BB□4
162	45	90	--	145	40	50	100	--	S12		3RW4073-6BB□4
230	75	132	--	205	60	75	150	--	S12		3RW4074-6BB□4
280	90	160	--	248	75	100	200	--	S12		3RW4075-6BB□4
356	110	200	--	315	100	125	250	--	S12		3RW4076-6BB□4
Rated operational voltage U_e 400 ... 600 V											
80	--	45	55	73	--	--	50	60	S6		3RW4055-6BB□5
106	--	55	75	98	--	--	60	75	S6		3RW4055-6BB□5
134	--	75	90	117	--	--	75	100	S6		3RW4056-6BB□5
162	--	90	110	145	--	--	100	150	S12		3RW4073-6BB□5
230	--	132	160	205	--	--	150	200	S12		3RW4074-6BB□5
280	--	160	200	248	--	--	200	250	S12		3RW4075-6BB□5
356	--	200	250	315	--	--	250	300	S12		3RW4076-6BB□5

Connection type¹⁾

- With screw terminals

Article No. supplement for rated control supply voltage U_s ²⁾

- 115 V AC
- 230 V AC

For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Main circuit connection: busbar connection.

²⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The 3RW40 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1
- Stand-alone installation
(side-by-side see manual, <https://support.industry.siemens.com/cs/ww/en/view/38752095>)

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. Detailed technical information for a configuration which is tailored exactly to the application, see manual.

Selection and ordering data

Conductor cross-section			Tightening torque	For soft starters size	Article No.
Solid or stranded	Finely stranded with end sleeve	AWG cables, solid or stranded			
mm ²	mm ²	AWG	Nm		

Three-phase infeed terminals



3RV2925-5AB

2.5 ... 25	2.5 ... 16	10 ... 4	3 ... 4	S0 (3RW402.)	3RV2925-5AB
------------	------------	----------	---------	-----------------	--------------------

For soft starters		Version	Article No.
Type	Size		

Box terminal blocks for soft starters



For round and ribbon cables (2 units required for each device)		Auxiliary conductor connection for box terminals	Article No.
3RW405.	S6		
3RW407.	S12	<ul style="list-style-type: none"> Up to 240 mm² (with auxiliary conductor connection) 	3RT1966-4G

Auxiliary terminals



3RT1946-4F

Auxiliary terminals, 3-pole		Article No.
3RW404.	S3	

Covers for soft starters



3RT1936-4EA2

Terminal covers for box terminals		Additional touch protection to be fitted at the box terminals (2 units required per device)	Article No.
3RW403.	S2		
3RW404.	S3		
3RW405.	S6		
3RW407.	S12		

Terminal covers for cable lugs and busbar connections



3RW404.	S3	For complying with the voltage clearances and as touch protection if box terminal is removed (2 units required per device)	3RT1946-4EA1 3RT1956-4EA1 3RT1966-4EA1
3RW405.	S6		
3RW407.	S12		

Also fits in case of S6 and S12 on mounted box terminals

Sealing covers



3RW402. to 3RW404.	S0, S2, S3	3RW4900-0PB10
3RW405. and 3RW407.	S6, S12	3RW4900-0PB00

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

Accessories

For motor starter protectors	For soft starters	Version	Article No.
Size	Size		

Standard mounting rail adapters



3RA2932-1CA00

For soft starters	Version	Article No.
Type	Size	
S2	S2	3RA2932-1CA00

For mechanical fixing of motor starter protector and soft starter; for snapping onto standard mounting rail or for screw fixing

Single-unit packaging

Modules for RESET¹⁾



Modules for remote RESET, electrical

Operating range 0.85 ... 1.1 x U_s ,
power consumption AC 80 VA, DC 70 W,
ON period 0.2 ... 4 s,
switching frequency 60/h

3RW405. and **S6**, • 24 ... 30 V AC/DC
3RW407. **S12** • 110 ... 127 V AC/DC
• 220 ... 250 V AC/DC

3RU1900-2AB71
3RU1900-2AF71
3RU1900-2AM71



Mechanical RESET comprising

3RW405. and **S6**, • Resetting plungers, holders and
3RW407. **S12** formers
• Matching pushbutton IP65,
Ø 22 mm, 12 mm stroke
• Extension plungers

3RU1900-1A
3SB3000-0EA11
3SX1335



Cable releases with holder for RESET

For Ø 6.5 mm holes in the control panel;
max. control panel thickness 8 mm

3RW405. and **S6**, • Length 400 mm
3RW407. **S12** • Length 600 mm

3RU1900-1B
3RU1900-1C

¹⁾ Remote RESET already integrated in the 3RW402. to 3RW404. soft starters.

For soft starters	Article No.
Type	Size

Fan (to increase the switching frequency and for device mounting in positions different from the normal position)



3RW402. **S0**
3RW403. **S2**,
3RW404. **S3**

3RW4928-8VB00
3RW4947-8VB00

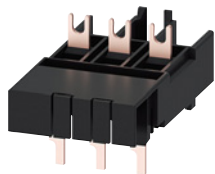
Manual for SIRIUS 3RW30/3RW40 soft starters¹⁾

The manual can be downloaded free of charge in PDF format from the Internet, see <https://support.industry.siemens.com/cs/ww/en/view/38752095>.

¹⁾ The respective Operating Instructions 3RW402./3./4. (3ZX1012-0RW40-2DA1) or 3RW405./7. (3ZX1012-0RW40-1AA1) are included in the scope of supply of the soft starter, or are available (like the manual) as a PDF download in the Industry Online Support Portal, see <https://support.industry.siemens.com/cs/ww/en/ps/16131/man>.

For soft starters		Motor starter protectors		Article No.
Type	Size	Size		

Link modules to motor starter protectors¹⁾



3RA2921-1BA00

- With screw terminals

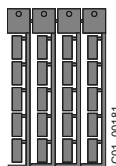
3RW402.	S0	S00/S0
3RW4036.	S2	S2
3RW4046., 3RW4047.	S3	S3

3RA2921-1BA00
3RA2931-1AA00
3RA1941-1AA00

- ¹⁾ Can be used in size S0 up to maximum 32 A.
Can be used in size S2 up to maximum 65 A in combination with 3RA2932-1AC00 standard mounting rail adapter (specially for soft starters). Can be used in size S3 only for 3RV1 motor starter protectors.

Version	Article No.
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Blank labels



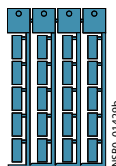
3RT2900-1SB20

Unit labeling plates¹⁾

For SIRIUS devices

- 20 mm x 7 mm, titanium gray

3RT2900-1SB20



3RT1900-1SB20

- 20 mm x 7 mm, pastel turquoise

3RT1900-1SB20

- ¹⁾ PC labeling systems for individual inscription of unit labeling plates are available from: murrplastik Systemtechnik GmbH see www.murrplastik.de.

Spare parts

For soft starters		Version		Article No.
Type	Size	Rated control supply voltage U_s		



Fans

3RW405.-.BB3.	S6	115 V AC
3RW405.-.BB4.	S6	230 V AC
3RW407.-.BB3.	S12	115 V AC
3RW407.-.BB4.	S12	230 V AC

3RW4936-8VX30
3RW4936-8VX40
3RW4947-8VX30
3RW4947-8VX40

Switching Devices – Soft Starters

3RW30, 3RW40 for Standard Applications

3RW40

Accessories

More information

Application examples for normal starting (CLASS 10)

Normal starting CLASS 10 (up to 20 s with 350 % $I_{n, motor}$, one start per hour)

The soft starter rating can be selected to be as high as the rating of the motor used.

Application		Conveyor belts	Roller conveyors	Compressors	Small fans ¹⁾	Pumps	Hydraulic pumps
Starting parameters							
• Voltage ramp and current limiting							
- Starting voltage	%	70	60	50	40	40	40
- Starting time	s	10	10	10	10	10	10
- Current limiting value		$5 \times I_M$	$5 \times I_M$	$4 \times I_M$	$4 \times I_M$	$4 \times I_M$	$4 \times I_M$
Stopping time	s	5	5	0	0	10	0

¹⁾ The mass inertia of the fan is <10 times the mass inertia of the motor.

Application examples for heavy starting (CLASS 20)

Heavy starting CLASS 20 (up to 40 s with 350 % $I_{n, motor}$, one start per hour)

The soft starter has to be selected at least one performance class higher than the motor used.

Application		Stirrers	Centrifuges
Starting parameters			
• Voltage ramp and current limiting			
- Starting voltage	%	40	40
- Starting time	s	20	20
- Current limiting value		$4 \times I_M$	$4 \times I_M$
Stopping time		0	0

Note:

These tables present sample set values and device dimensions. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during commissioning.

The soft starter dimensions should be checked where necessary with the help of Technical Assistance.

Configuration

The solid-state 3RW soft starters are designed for easy starting conditions. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device.

Where long starting times are involved, the integrated electronic overload relay for heavy starting should not be disconnected. PTC sensors are recommended. This also applies for the soft ramp-down because during the ramp down time an additional current loading applies in contrast to coasting down.

In the case of high switching frequencies in S4 mode, Siemens recommends the use of PTC sensors. For corresponding device versions with integrated thermistor motor protection or separate thermistor evaluation devices, see [Catalog IC 10](#).

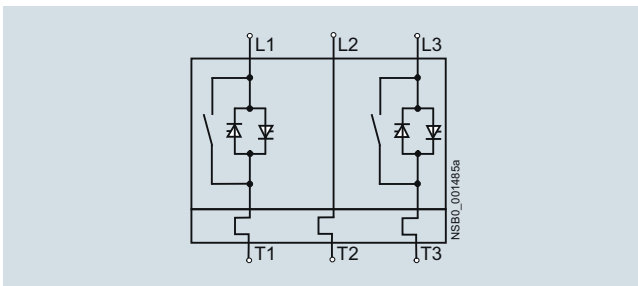
No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and controls) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately. Please observe the maximum switching frequencies specified in the technical specifications.

Note:

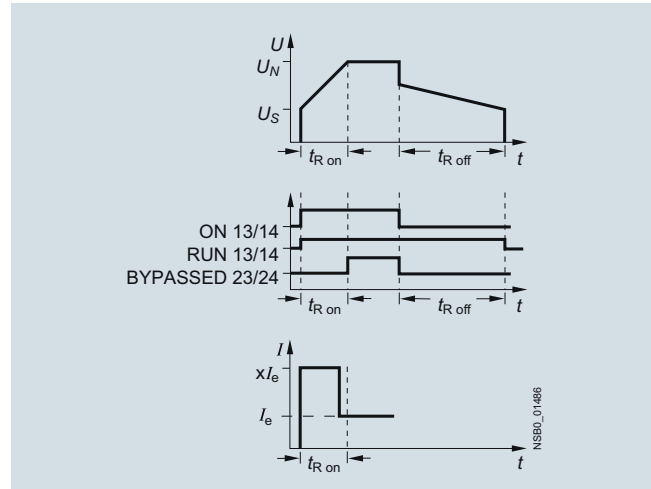
When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

Schematic circuit diagram of power electronics



A bypass contact system and electronic overload relay are already integrated in the 3RW40 soft starter and therefore do not have to be ordered separately.

Status graphs



Manual for SIRIUS 3RW30/40

In addition to relevant configuration, commissioning, and service information, the manual also contains example circuits and technical specifications for all devices, see <https://support.industry.siemens.com/cs/ww/en/view/38752095>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Overview



3RW44 soft starter with PROFINET communication module

In addition to soft starting and soft ramp-down, the solid-state SIRIUS 3RW44 soft starters provide numerous functions for higher-level requirements. They cover a performance range up to 710 kW (at 400 V) in the inline circuit and up to 1200 kW (at 400 V) in the inside-delta circuit.

The 3RW44 soft starters are characterized by a compact design for space-saving and clearly arranged control cabinet layouts. For optimized motor starting and stopping the innovative SIRIUS 3RW44 soft starters are an attractive alternative with considerable savings potential compared to applications with a frequency converter. The new torque control and adjustable current limiting enable the High Feature soft starters to be used in nearly every conceivable task. They guarantee the reliable avoidance of sudden torque applications and current peaks during motor starting and stopping. This creates savings potential when calculating the size of the switchgear and when servicing the machinery installed. Be it for inline circuits or inside-delta circuits – the SIRIUS 3RW44 soft starter offers savings especially in terms of size and equipment costs.

The bypass contacts already integrated in the soft starter bypass the thyristors after a motor ramp-up is detected. This results in a further great reduction in the heat loss occurring during operation of the soft starter at rated value.

Combinations of various starting, operating and ramp-down possibilities ensure an optimum adaptation to the application-specific requirements. Operation and commissioning can be performed with the menu-controlled keypad and a menu-prompted, multi-line graphic display with background lighting. The optimized motor ramp-up and ramp-down can be effected quickly, easily and reliably by means of just a few settings with a previously selected language. Four-key operation and plain-text displays for each menu point guarantee full clarity at every moment of the parameterization and operation.

Applicable standards

- IEC 60947-4-2
- UL/CSA

Functionality

Equipped with modern, ergonomic user prompting the 3RW44 soft starters can be commissioned quickly and easily using a keypad and a menu-prompted, multi-line graphic display with background lighting. The optimized motor ramp-up and ramp-down can be effected quickly, easily and reliably by means of just a few settings with a selectable language. Four-key operation and plain-text displays for each menu point guarantee full clarity at every moment of the parameterization and operation. During operation and when control voltage is applied, the display field continuously presents measured values and operating values as well as warnings and fault

messages. An external display and operator module can be connected by means of a connection cable to the soft starter, thus enabling active indications and the like to be read directly from the control cabinet door.

The SIRIUS 3RW44 soft starters are equipped with optimum functionality. An integral bypass contact system reduces the power loss of the soft starter during operation. This reliably prevents heating of the switchgear environment. The SIRIUS 3RW44 soft starters have internal intrinsic device protection. This prevents thermal overloading of the power section's thyristors, e.g. due to unacceptably high closing operations.

Wiring outlay for installing an additional motor overload relay is no longer needed as the SIRIUS 3RW44 soft starters perform this function too. In addition they offer adjustable trip classes and a thermistor motor protection function. As an option the thyristors can also be protected by SITOR semiconductor fuses from short-circuiting so that the soft starter is still functional after a short circuit (type of coordination "2"). And even inrush current peaks are reliably avoided thanks to adjustable current limiting.

Optionally, SIRIUS 3RW44 soft starters can be upgraded with a PROFIBUS DP or PROFINET module. Thanks to their communication capability and their programmable control inputs and relay outputs the SIRIUS 3RW44 soft starters can be very easily and quickly integrated in higher-level controllers.

In addition a creep speed function is available for positioning and setting jobs. With this function the motor can be controlled in both directions of rotation with reduced torque and an adjustable, low speed.

On the other hand the SIRIUS 3RW44 soft starters offer a new, combined DC braking function for the fast stopping of driving loads.

Highlights

- Soft starting with breakaway pulse, torque control or voltage ramp, adjustable torque or current limiting as well as any combination of these, depending on load type
- Integrated bypass contact system to minimize power loss
- Various setting options for the starting parameters such as starting torque, starting voltage, ramp-up and ramp-down time, and much more in three separate parameter sets
- Start-up detection
- Inside-delta circuit for savings in terms of size and equipment costs
- Various ramp-down modes selectable: coasting down, torque-controlled pump stop, combined DC braking
- Solid-state motor overload and intrinsic device protection
- Thermistor motor protection
- Keypad with a menu-prompted, multi-line graphic display with background lighting
- Interface for communication with the PC for more accurate setting of the parameters as well as for control and monitoring
- Simple integration to the motor feeder
- Simple mounting and commissioning
- Display of operating states and fault messages
- Connection to PROFIBUS and PROFINET with optional PROFIBUS DP or PROFINET module
- External display and operator module
- Mains voltages from 200 to 690 V, 50 to 60 Hz
- Can be used up to 60 °C (derating from 40 °C)

Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Soft Starter ES software program

The Soft Starter ES software is used for the parameterization, monitoring and service diagnostics of SIRIUS 3RW44 High Feature soft starters.

SIRIUS 3RW44 soft starter block library for SIMATIC PCS 7

The SIRIUS 3RW44 soft starter PCS 7 block library can be used for simple and easy integration of SIRIUS 3RW44 soft starters into the SIMATIC PCS 7 process control system.

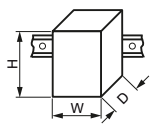
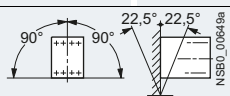
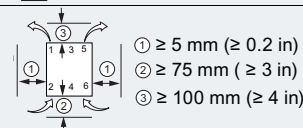
Application

The SIRIUS 3RW44 solid-state soft starters are suitable for the torque-controlled soft starting and ramp-down as well as braking of three-phase asynchronous motors.

Application areas

See "Selection aid for soft starters", on page 4/3.

Technical specifications

Type		3RW442.	3RW443.	3RW444.	3RW445.	3RW446.	
Mechanics and environment							
Mounting dimensions (WxHxD)							
• Screw terminals		mm	170 x 184 x 270	170 x 198 x 270	210 x 230 x 298	510 x 638.5 x 290	576 x 667 x 290
Permissible ambient temperature							
During operation		°C	0 ... +60; (derating from +40)				
During storage		°C	-25 ... +80				
Weight		kg	6.5	7.9	11.5	50	78
Permissible mounting position							
Installation type	Stand-alone installation						
							
Permissible installation altitude		m	5 000 (derating from 1 000, see "Characteristic Curves", page 4/4); higher on request				
Degree of protection	IP00						

Type	Terminal		3RW44...BC3.	3RW44...BC4.
Control electronics				
Rated values				
Rated control supply voltage	A1/A2/PE	V	115 AC	230 AC
• Tolerance		%	-15/+10	
Rated frequency		Hz	50 ... 60	
• Tolerance		%	± 10	

Type		3RW44...BC.4	3RW44...BC.5	3RW44...BC.6
Power electronics				
Rated operational voltage for inline circuit	V AC	200 ... 460	400 ... 600	400 ... 690
Tolerance	%	-15/+10		
Maximum blocking voltage (thyristor)	V AC	1 400	1 800	
Rated operational voltage for inside-delta circuit	V AC	200 ... 460	400 ... 600	
Tolerance	%	-15/+10		
Rated frequency	Hz	50 ... 60		
Tolerance	%	± 10		
Uninterrupted duty at 40 °C (% of I_e)	%	115		
Minimum load (% of set motor current I_M)	%	8		
Maximum cable length between soft starter and motor	m	500 ¹⁾		

¹⁾ At the project configuration stage, it is important to make allowance for the voltage drop on the motor cable up to the motor connection. If necessary, higher values for the rated operational voltage or current must be calculated accordingly for the soft starter.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Type		3RW4422	3RW4423	3RW4424	3RW4425	3RW4426	3RW4427
Power electronics							
Rated operational current I_e		29	36	47	57	77	93
Load rating with rated operational current I_e							
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a - At 40 / 50 / 60 °C	A	29/26/23	36/32/29	47/42/37	57/51/45	77/68/59	93/82/72
Smallest adjustable rated motor current I_M For the motor overload protection	A	5	7	9	11	15	18
Power loss							
• In operation after completed starting with uninterrupted rated operational current (40 / 50 / 60 °C) approx.	W	8/7.5/7	10/9/8.5	32/31/29	36/34/31	45/41/37	55/51/47
• During starting with current limit set to 350 % I_M (40 / 50 / 60 °C)	W	400/345/290	470/410/355	600/515/440	725/630/525	940/790/660	1160/980/830
Permissible rated motor current and starts per hour at 40 °C / 50 °C / 60 °C							
• For normal starting (CLASS 5)							
- Rated motor current $I_M^{(2)}$, starting time 5 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	77/68/59	93/82/72
- Starts per hour ³⁾	1/h	41	34	41	41	41	41
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	77/68/59	93/82/72
- Starts per hour ³⁾	1/h	20	15	20	20	20	20
• For normal starting (CLASS 10)							
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	77/68/59	93/82/72
- Starts per hour ³⁾	1/h	20	15	20	20	20	20
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	77/68/59	93/82/72
- Starts per hour ³⁾	1/h	10	6	10	10	8	8
• For normal starting (CLASS 15)							
- Rated motor current $I_M^{(2)}$, starting time 15 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	77/68/59	93/82/72
- Starts per hour ³⁾	1/h	13	9	13	13	13	13
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	77/68/59	93/82/72
- Starts per hour ³⁾	1/h	6	4	6	6	6	6
• For heavy starting (CLASS 20)							
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	29/26 / 23	36/32.5/29	47/42/37	57/51/45	77/68/59	88/80/72
- Starts per hour ³⁾	1/h	10	6	10	10	10	10
- Rated motor current $I_M^{(2)}$, starting time 40 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	77/68/59	88/80/72
- Starts per hour ³⁾	1/h	4	2	4	5	1.8	0.8
• For very heavy starting (CLASS 30)							
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	65/60/54	77/70/63
- Starts per hour ³⁾	1/h	6	4	6	6	6	6
- Rated motor current $I_M^{(2)}$, starting time 60 s	A	29/26/23	36/32.5/29	47/42/37	57/51/45	65/60/54	77/70/63
- Starts per hour ³⁾	1/h	1.8	0.8	3.3	1.5	2	1

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ Current limit on soft starter set to 350 % I_M , ON period = 70 %. Maximum adjustable rated motor current I_M , dependent on CLASS setting.

³⁾ For intermittent duty S4 with ON period = 70 %, $T_U = 40 / 50 / 60$ °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

Type		3RW4434	3RW4435	3RW4436
Power electronics				
Rated operational current I_e		113	134	162
Load rating with rated operational current I_e				
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a - At 40 / 50 / 60 °C	A	113/100/88	134/117/100	162/145/125
Smallest adjustable rated motor current I_M	A	22	26	32
For the motor overload protection				
Power loss				
• In operation after completed starting with uninterrupted rated operational current (40 / 50 / 60 °C) approx.	W	64/58/53	76/67/58	95/83/71
• During starting with current limit set to 350 % I_M (40 / 50 / 60 °C)	W	1350/1 140/970	1700/1 400/1 140	2460/1 980/1 620
Permissible rated motor current and starts per hour at 40 °C / 50 °C / 60 °C				
• For normal starting (CLASS 5)				
- Rated motor current $I_M^{(2)}$, starting time 5 s	A	113/100/88	134/117/100	162/145/125
- Starts per hour ³⁾	1/h	41	39	41
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	113/100/88	134/117/100	162/145/125
- Starts per hour ³⁾	1/h	20	15	20
• For normal starting (CLASS 10)				
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	113/100/88	134/117/100	162/145/125
- Starts per hour ³⁾	1/h	20	15	20
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	113/100/88	134/117/100	162/145/125
- Starts per hour ³⁾	1/h	9	6	7
• For normal starting (CLASS 15)				
- Rated motor current $I_M^{(2)}$, starting time 15 s	A	113/100/88	134/117/100	162/145/125
- Starts per hour ³⁾	1/h	13	9	12
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	113/100/88	134/117/100	162/145/125
- Starts per hour ³⁾	1/h	6	6	1
• For heavy starting (CLASS 20)				
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	106/97/88	125/113/100	147/134/122
- Starts per hour ³⁾	1/h	9	9	10
- Rated motor current $I_M^{(2)}$, starting time 40 s	A	106/97/88	125/113/100	147/134/122
- Starts per hour ³⁾	1/h	1.5	2	1
• For very heavy starting (CLASS 30)				
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	91/84/76	110/100/90	120/110/100
- Starts per hour ³⁾	1/h	6	6	6
- Rated motor current $I_M^{(2)}$, starting time 60 s	A	91/84/76	110/100/90	120/110/100
- Starts per hour ³⁾	1/h	2	2	2

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ Current limit on soft starter set to 350 % I_M ,
ON period = 70 %. Maximum adjustable rated motor current I_M ,
dependent on CLASS setting.

³⁾ For intermittent duty S4 with ON period = 70 %, $T_U = 40 / 50 / 60$ °C,
stand-alone installation vertical. The quoted switching frequencies do not
apply for automatic mode.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Type		3RW4443	3RW4444	3RW4445	3RW4446	3RW4447
Power electronics						
Rated operational current I_e		203	250	313	356	432
Load rating with rated operational current I_e						
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a - At 40 / 50 / 60 °C	A	203/180/156	250/215/185	313/280/250	356/315/280	432/385/335
Smallest adjustable rated motor current I_M	A	40	50	62	71	86
For the motor overload protection						
Power loss						
• In operation after completed starting with uninterrupted rated operational current (40 / 50 / 60 °C) approx.	W	89/81/73	110/94/83	145/126/110	174/147/126	232/194/159
• During starting with current limit set to 350 % I_M (40 / 50 / 60 °C)	W	3350/2600/2150	4000/2900/2350	4470/4000/3400	5350/4050/3500	5860/5020/4200
Permissible rated motor current and starts per hour at 40 °C / 50 °C / 60 °C						
• For normal starting (CLASS 5)						
- Rated motor current $I_M^{(2)}$, starting time 5 s	A	203/180/156	250/215/185	313/280/250	356/315/280	432/385/335
- Starts per hour ³⁾	1/h	41	41	41	41	39
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	203/180/156	250/215/185	313/280/250	356/315/280	432/385/335
- Starts per hour ³⁾	1/h	20	20	19	17	16
• For normal starting (CLASS 10)						
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	203/180/156	250/215/185	313/280/250	356/315/280	432/385/335
- Starts per hour ³⁾	1/h	20	20	19	17	16
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	203/180/156	250/215/185	313/280/250	356/315/280	432/385/335
- Starts per hour ³⁾	1/h	9	10	6	4	5
• For normal starting (CLASS 15)						
- Rated motor current $I_M^{(2)}$, starting time 15 s	A	203/180/156	240/215/185	313/280/250	325/295/265	402/385/335
- Starts per hour ³⁾	1/h	13	13	10	13	11
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	203/180/156	240/215/185	313/280/250	325/295/265	402/385/335
- Starts per hour ³⁾	1/h	3	6	1	2	1
• For heavy starting (CLASS 20)						
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	195/175/155	215/195/180	275/243/221	285/263/240	356/326/295
- Starts per hour ³⁾	1/h	10	10	10	10	10
- Rated motor current $I_M^{(2)}$, starting time 40 s	A	195/175/155	215/195/180	275/243/221	285/263/240	356/326/295
- Starts per hour ³⁾	1/h	1	5	1	3	1
• For very heavy starting (CLASS 30)						
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	162/148/134	180/165/150	220/201/182	240/223/202	285/260/235
- Starts per hour ³⁾	1/h	6	6	6	6	6
- Rated motor current $I_M^{(2)}$, starting time 60 s	A	162/148/134	180/165/150	220/201/182	240/223/202	285/260/235
- Starts per hour ³⁾	1/h	3	3	3	2	1

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ Current limit on soft starter set to 350 % I_M .
ON period = 70 %. Maximum adjustable rated motor current I_M , dependent on CLASS setting.

³⁾ For intermittent duty S4 with ON period = 70 %, $T_U = 40 / 50 / 60$ °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

Type		3RW4453	3RW4454	3RW4455	3RW4456	3RW4457	3RW4458	3RW4465	3RW4466
Power electronics									
Rated operational current I_e		551	615	693	780	880	970	1076	1214
Load rating with rated operational current I_e									
• According to IEC and UL/CSA ¹⁾ , for individual mounting, AC-53a									
- At 40 / 50 / 60 °C	A	551/494/438	615/551/489	693/615/551	780/693/615	880/780/693	970/850/760	1076/970/880	1214/1076/970
Smallest adjustable rated motor current I_M	A	110	123	138	156	176	194	215	242
For the motor overload protection									
Power loss									
• In operation after completed starting with uninterrupted rated operational current (40 / 50 / 60 °C) approx.	W	159/135/113	186/156/130	220/181/152	214/176/146	250/204/168	270/215/179	510/420/360	630/510/420
• During starting with current limit set to 350 % I_M									
- At 40 °C	W	7 020	8 100	9 500	11 100	13 100	15 000	15 000	17 500
- At 50 °C	W	6 111	7 020	8 100	9 500	11 000	12 500	13 000	15 000
- At 60 °C	W	5 263	5 996	7 020	8 100	8 100	10 700	11 500	13 000
Permissible rated motor current and starts per hour at 40 °C / 50 °C / 60 °C									
• For normal starting (CLASS 5)									
- Rated motor current $I_M^{(2)}$, starting time 5 s	A	551/494/438	615/551/489	693/615/551	780/693/615	880/780/693	970/850/760	1076/970/880	1214/1076/970
- Starts per hour ³⁾	1/h	41	41	37	33	22	17	30	20
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	551/494/438	615/551/489	693/615/551	780/693/615	880/780/693	970/850/760	1076/970/880	1214/1076/970
- Starts per hour ³⁾	1/h	20	20	16	13	8	5	10	6
• For normal starting (CLASS 10)									
- Rated motor current $I_M^{(2)}$, starting time 10 s	A	551/494/438	615/551/489	693/615/551	780/693/615	880/780/693	970/850/760	1076/970/880	1214/1076/970
- Starts per hour ³⁾	1/h	20	20	16	13	8	5	11	6
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	551/494/438	615/551/489	693/615/551	780/693/615	880/780/693	970/850/760	1076/970/880	1214/1076/970
- Starts per hour ³⁾	1/h	10	9	6	4	0.3	0.3	3	0.5
• For normal starting (CLASS 15)									
- Rated motor current $I_M^{(2)}$, starting time 15 s	A	551/494/438	615/551/489	666/615/551	723/693/615	780/710/650	821/755/693	1020/950/850	1090/1000/920
- Starts per hour ³⁾	1/h	13	13	11	9	8	8	7	5
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	551/494/438	615/551/489	666/615/551	723/693/615	780/710/650	821/755/693	1020/950/850	1090/1000/920
- Starts per hour ³⁾	1/h	6	4	3	1	0.4	0.5	1	1
• For heavy starting (CLASS 20)									
- Rated motor current $I_M^{(2)}$, starting time 20 s	A	551/494/438	591/551/489	633/615/551	670/634/576	710/650/590	740/685/630	970/880/810	1030/940/860
- Starts per hour ³⁾	1/h	10	10	7	8	8	9	7	5
- Rated motor current $I_M^{(2)}$, starting time 40 s	A	551/494/438	591/551/489	633/615/551	670/634/576	710/650/590	740/685/630	970/880/810	1030/940/860
- Starts per hour ³⁾	1/h	4	2	1	1	0.4	1	1	1
• For very heavy starting (CLASS 30)									
- Rated motor current $I_M^{(2)}$, starting time 30 s	A	500/480/438	525/489/455	551/520/480	575/540/490	600/550/500	630/580/530	880/810/740	920/850/780
- Starts per hour ³⁾	1/h	6	6	6	6	6	6	6	6
- Rated motor current $I_M^{(2)}$, starting time 60 s	A	500/480/438	525/489/455	551/520/480	575/540/490	600/550/500	630/580/530	880/810/740	920/850/780
- Starts per hour ³⁾	1/h	2	1	1	1	1.5	1	1	1

¹⁾ Measurement at 60 °C according to UL/CSA not required.

²⁾ Current limit on soft starter set to 350 % I_M , ON period = 70 %. Maximum adjustable rated motor current I_M , dependent on CLASS setting.

³⁾ For intermittent duty S4 with ON period = 70 %, $T_{11} = 40 / 50 / 60$ °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Motor feeders with soft starters

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, semiconductor fuses must be fitted in the motor feeder.

ToC 1

Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

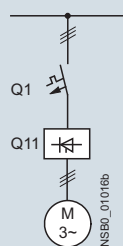
ToC 2

Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

Inline circuit fuseless version



Soft starters

Q11
Type

Nominal current
A

Motor starter protectors¹⁾

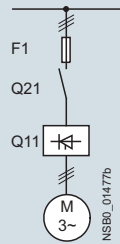
440 V +10 %
Q1
Type

Rated current
A

Type of coordination "1": 3RW4422 ... 3RW4427: $I_q = 32$ kA; 3RW4434 and 3RW4435: $I_q = 16$ kA; 3RW4436 ... 3RW4466: $I_q = 65$ kA

3RW4422	29	3RV2331-4EC10	32
3RW4423	36	3RV2331-4UC10	40
3RW4424	47	3RV2331-4WC10	52
3RW4425	57	3RV2331-4XC10	59
3RW4426	77	3RV2331-4RC10	80
3RW4427	93	3RV1042-4MA10	100
3RW4434	113	3VL1716-2DD36	160
3RW4435	134	3VL1716-2DD36	160
3RW4436	162	3VL3725-2DC36	250
3RW4443	203	3VL4731-3DC36	315
3RW4444	250	3VL4731-3DC36	315
3RW4445	313	3VL4740-3DC36	400
3RW4446	356	3VL4740-3DC36	400
3RW4447	432	3VL5750-3DC36	500
3RW4453	551	3VL6780-3SB36	800
3RW4454	615	3VL6780-3SB36	800
3RW4455	693	3VL6780-3SB36	800
3RW4456	780	3VL7710-3SB36	1 000
3RW4457	880	3VL7710-3SB36	1 000
3RW4458	970	3VL7712-3SB36	1 250
3RW4465	1 076	3VL7712-3SB36	1 250
3RW4466	1 214	3VL7712-3SB36	1 250

¹⁾ The rated motor current must be considered when selecting the devices.

Inline circuit fused version (line protection only)


Soft starters Q11 Type	Nominal current A	Line protection, maximum			Line contactor up to 400 V (optional) Q21 Type	Braking contactors ¹⁾²⁾ (example circuit, see manual 3RW44 ⁴⁾)	
		F1 Type	Rated current A	Size		Q91 Type	Q92 Type
Type of coordination 1³⁾: $I_q = 65$ kA							
3RW4422	29	3NA3820-6	50	00	3RT1034	3RT2526	--
3RW4423	36	3NA3822-6	63	00	3RT1035	3RT2526	--
3RW4424	47	3NA3824-6	80	00	3RT1036	3RT1535	--
3RW4425	57	3NA3830-6	100	00	3RT1044	3RT1535	--
3RW4426	77	3NA3132-6	125	1	3RT1045	3RT2024	3RT1035
3RW4427	93	3NA3136-6	160	1	3RT1046	3RT2025	3RT1036
3RW4434	113	3NA3244-6	250	2	3RT1054	3RT1034	3RT1044
3RW4435	134	3NA3244-6	250	2	3RT1055	3RT1036	3RT1045
3RW4436	162	3NA3365-6	500	3	3RT1056	3RT1044	3RT1045
3RW4443	203	2 x 3NA3354-6	2 x 355	3	3RT1064	3RT1044	3RT1054
3RW4444	250	2 x 3NA3354-6	2 x 355	3	3RT1065	3RT1044	3RT1055
3RW4445	313	2 x 3NA3365-6	2 x 500	3	3RT1075	3RT1054	3RT1056
3RW4446	356	2 x 3NA3365-6	2 x 500	3	3RT1075	3RT1054	3RT1056
3RW4447	432	2 x 3NA3365-6	2 x 500	3	3RT1076	3RT1055	3RT1064
3RW4453	551	2 x 3NA3365-6	2 x 500	3	3TF68	3RT1064	3RT1066
3RW4454	615	2 x 3NA3365-6	2 x 500	3	3TF68	3RT1064	3RT1075
3RW4455	693	2 x 3NA3365-6	2 x 500	3	3TF69	3RT1065	3RT1075
3RW4456	780	2 x 3NA3365-6	2 x 500	3	3TF69	3RT1065	3RT1075
3RW4457	880	2 x 3NA3365-6	2 x 500	3		3RT1075	3RT1076
3RW4458	970	3 x 3NA3365-6	3 x 500	3		3RT1075	3RT1076
3RW4465	1 076	3 x 3NA3365-6	3 x 500	3		3RT1075	3TF68
3RW4466	1 214	3 x 3NA3365-6	3 x 500	3		3RT1076	3TF68

1) If the ramp-down function "Combined braking" is selected, no braking contactor is required.
If the ramp-down function "DC braking" is selected, a braking contactor must be used in addition (see table for type).
For applications with large centrifugal masses ($J_{Load} > J_{Motor}$) we recommend the function "DC braking".

2) Additional auxiliary relay K4:
LZS:RT4A4T30
(3RW44 soft starter with rated control supply voltage 230 V AC),
LZS:RT4A4S15
(3RW44 soft starter with rated control supply voltage 115 V AC).

3) The type of coordination "1" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

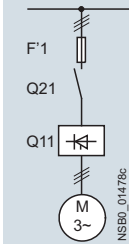
4) <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Inline circuit fused version with 3NE1 SITOR all-range fuse (semiconductor and line protection)



Matching fuse bases, see www.siemens.com/sitor.

Soft starters Q11 Type	Nominal current A	All-range fuses				Line contactor up to 400 V (optional) Q21 Type	Braking contactors ¹⁾²⁾ (example circuit, see manual 3RW44 ⁴⁾)	
		F1 Type	Rated current A	Voltage V	Size		Q91 Type	Q92 Type
Type of coordination 2³⁾: $I_q = 65 \text{ kA}$								
3RW4422	29	3NE1020-2	80	690 +5 %	00	3RT1034	3RT2526	--
3RW4423	36	3NE1020-2	80	690 +5 %	00	3RT1035	3RT2526	--
3RW4424	47	3NE1021-2	100	690 +5 %	00	3RT1036	3RT1535	--
3RW4425	57	3NE1022-2	125	690 +5 %	00	3RT1044	3RT1535	--
3RW4426	77	3NE1022-2	125	690 +5 %	00	3RT1045	3RT2024	3RT1035
3RW4427	93	3NE1224-2	160	690 +5 %	1	3RT1046	3RT2025	3RT1036
3RW4434	113	3NE1225-2	200	690 +5 %	1	3RT1054	3RT1034	3RT1044
3RW4435	134	3NE1227-2	250	690 +5 %	1	3RT1055	3RT1036	3RT1045
3RW4436	162	3NE1227-2	250	690 +5 %	1	3RT1056	3RT1044	3RT1045
3RW4443	203	3NE1230-2	315	600 +10 %	1	3RT1064	3RT1044	3RT1054
3RW4444	250	3NE1331-2	350	460 +10 %	2	3RT1065	3RT1044	3RT1055
3RW4445	313	3NE1333-2	450	690 +5 %	2	3RT1075	3RT1054	3RT1056
3RW4446	356	3NE1334-2	500	690 +5 %	2	3RT1075	3RT1054	3RT1056
3RW4447	432	3NE1435-2	560	690 +5 %	3	3RT1076	3RT1055	3RT1064
3RW4453	551	2 x 3NE1334-2	500	690 +10 %	2	3TF68	3RT1064	3RT1066
3RW4454	615	2 x 3NE1334-2	500	690 +10 %	2	3TF68	3RT1064	3RT1075
3RW4455	693	2 x 3NE1334-2	500	690 +10 %	2	3TF69	3RT1065	3RT1075
3RW4456	780	2 x 3NE1435-2	560	690 +10 %	3	3TF69	3RT1065	3RT1075
3RW4457	880	2 x 3NE1435-2	560	690 +10 %	3		3RT1075	3RT1076
3RW4458	970	2 x 3NE1435-2	560	690 +10 %	3		3RT1075	3RT1076
3RW4465	1076	3 x 3NE1334-2	500	690 +10 %	2		3RT1075	3TF68
3RW4466	1214	3 x 3NE1435-2	560	690 +10 %	3		3RT1076	3TF68

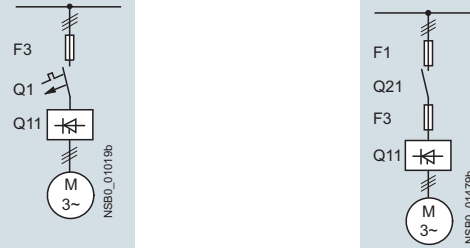
- 1) If the ramp-down function "Combined braking" is selected, no braking contactor is required.
If the ramp-down function "DC braking" is selected, a braking contactor must be used in addition (see table for type).
For applications with large centrifugal masses ($J_{Load} > J_{Motor}$) we recommend the function "DC braking".
- 2) Additional auxiliary relay K4:
LZS:RT4A4T30
(3RW44 soft starter with rated control supply voltage 230 V AC),
LZS:RT4A4S15
(3RW44 soft starter with rated control supply voltage 115 V AC).
- 3) The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.
- 4) <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Inline circuit fused version with 3NE or 3NC SITOR semiconductor fuse
(semiconductor protection by fuse, line and overload protection by motor starter protector)



Matching fuse bases, see www.siemens.com/sitor.

Soft starters Q11 Type	Nominal current A	Semiconductor fuses, minimum			Semiconductor fuses, maximum			Semiconductor fuses (cylinder)		
		690 V +10 % F3 Type	Rated current A	Size	690 V +10 % F3 Type	Rated current A	Size	F3 Type	Rated current A	Size
Type of coordination 2³⁾: I_q = 65 kA										
3RW4422	29	3NE4120	80	0	3NE4121	100	0	3NC2280	80	22 x 58
3RW4423	36	3NE4121	100	0	3NE4121	100	0	3NC2200	100	22 x 58
3RW4424	47	3NE4121	100	0	3NE4122	125	0	3NC2200	100	22 x 58
3RW4425	57	3NE4122	125	0	3NE4124	160	0			
3RW4426	77	3NE4124	160	0	3NE4124	160	0			
3RW4427	93	3NE3224	160	1	3NE3332-0B	400	2			
3RW4434	113	3NE3225	200	1	3NE3335	560	2			
3RW4435	134	3NE3225	200	1	3NE3335	560	2			
3RW4436	162	3NE3227	250	1	3NE3333	450	2			
3RW4443	203	3NE3230-0B	315	1	3NE3333	450	2			
3RW4444	250	3NE3230-0B	315	1	3NE3333	450	2			
3RW4445	313	3NE3233	450	1	3NE3336	630	2			
3RW4446	356	3NE3333	450	2	3NE3336	630	2			
3RW4447	432	3NE3335	560	2	3NE3338-8	800	2			
3RW4453	551	2 x 3NE3335	560	2	3 x 3NE3334-0B	500	2			
3RW4454	615	2 x 3NE3335	560	2	3 x 3NE3334-0B	500	2			
3RW4455	693	2 x 3NE3335	560	2	3 x 3NE3334-0B	500	2			
3RW4456	780	2 x 3NE3336	630	2	2 x 3NE3340-8	900	2			
3RW4457	880	2 x 3NE3336	630	2	2 x 3NE3340-8	900	2			
3RW4458	970	2 x 3NE3336	630	2	2 x 3NE3340-8	900	2			
3RW4465	1076	2 x 3NE3340-8	900	2	3 x 3NE3338-8	800	2			
3RW4466	1214	2 x 3NE3340-8	900	2	3 x 3NE3338-8	800	2			

Soft starters Q11 Type	Nominal current A	Line contactor up to 400 V (optional) Q21 Type	Braking contactors ¹⁾²⁾ (example circuit, see manual 3RW44 ⁴⁾)		Motor starter protectors		Line protection, maximum			
			Q91 Type	Q92 Type	440 V +10 % Q1 Type	Rated current A	690 V +5 % F1 Type	Rated current A	Size	
Type of coordination 2³⁾: I_q = 65 kA										
3RW4422	29	3RT1034	3RT2526	--	3RV2331-4EC10	32		3NA3820-6	50	00
3RW4423	36	3RT1035	3RT2526	--	3RV2331-4UC10	40		3NA3822-6	63	00
3RW4424	47	3RT1036	3RT1535	--	3RV2331-4WC10	52		3NA3824-6	80	00
3RW4425	57	3RT1044	3RT1535	--	3RV2331-4XC10	59		3NA3830-6	100	00
3RW4426	77	3RT1045	3RT2024	3RT1035	3RV2331-4RC10	80		3NA3132-6	125	1
3RW4427	93	3RT1046	3RT2025	3RT1036	3RV1042-4MA10	100		3NA3136-6	160	1
3RW4434	113	3RT1054	3RT1034	3RT1044	3VL1716	160		3NA3244-6	250	2
3RW4435	134	3RT1055	3RT1036	3RT1045	3VL1716	160		3NA3244-6	250	2
3RW4436	162	3RT1056	3RT1044	3RT1045	3VL3725	250		3NA3365-6	500	3
3RW4443	203	3RT1064	3RT1044	3RT1054	3VL4731	315		2 x 3NA3354-6	2 x 355	3
3RW4444	250	3RT1065	3RT1044	3RT1055	3VL4731	315		2 x 3NA3354-6	2 x 355	3
3RW4445	313	3RT1075	3RT1054	3RT1056	3VL4740	400		2 x 3NA3365-6	2 x 500	3
3RW4446	356	3RT1075	3RT1054	3RT1056	3VL4740	400		2 x 3NA3365-6	2 x 500	3
3RW4447	432	3RT1076	3RT1055	3RT1064	3VL5750	500		2 x 3NA3365-6	2 x 500	3
3RW4453	551	3TF68	3RT1064	3RT1066	3VL6780	800		2 x 3NA3365-6	2 x 500	3
3RW4454	615	3TF68	3RT1064	3RT1075	3VL6780	800		2 x 3NA3365-6	2 x 500	3
3RW4455	693	3TF69	3RT1065	3RT1075	3VL6780	800		2 x 3NA3365-6	2 x 500	3
3RW4456	780	3TF69	3RT1065	3RT1075	3VL7710	1000		2 x 3NA3365-6	2 x 500	3
3RW4457	880		3RT1075	3RT1076	3VL7710	1000		2 x 3NA3365-6	2 x 500	3
3RW4458	970		3RT1075	3RT1076	3VL7712	1250		3 x 3NA3365-6	3 x 500	3
3RW4465	1076		3RT1075	3TF68	3VL7712	1250		3 x 3NA3365-6	3 x 500	3
3RW4466	1214		3RT1076	3TF68	3VL7712	1250		3 x 3NA3365-6	3 x 500	3

1) If the ramp-down function "Combined braking" is selected, no braking contactor is required. If the ramp-down function "DC braking" is selected, a braking contactor must be used in addition (see table for type). For applications with large centrifugal masses ($J_{Load} > J_{Motor}$) we recommend the function "DC braking".

2) Additional auxiliary relay K4:
LZS:RT4A4T30
(3RW44 soft starter with rated control supply voltage 230 V AC),

LZS:RT4A4S15
(3RW44 soft starter with rated control supply voltage 115 V AC).

3) The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.

4) <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

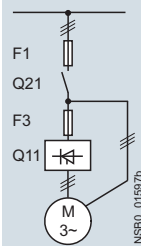
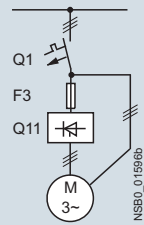
Switching Devices – Soft Starters

3RW44 for High Feature Applications

General data

Inside-delta circuit fused version with 3NE or 3NC SITOR fuses

(semiconductor protection by fuse, line and overload protection by motor starter protector)



Matching fuse bases, see www.siemens.com/sitor.

Soft starters Q11 Type	Nominal current A	Semiconductor fuses, minimum			Semiconductor fuses, maximum			Semiconductor fuses (cylinder)		
		F3 Type	Rated current A	Size	F3 Type	Rated current A	Size	F3 Type	Rated current A	Size
Type of coordination 2¹⁾										
3RW4422	50	3NE4120	80	0	3NE4121	100	0	3NC2280	80	22 x 58
3RW4423	62	3NE4121	100	0	3NE4121	100	0	3NC2200	100	22 x 58
3RW4424	81	3NE4121	100	0	3NE4122	125	0	3NC2200	100	22 x 58
3RW4425	99	3NE4122	125	0	3NE4124	160	0			
3RW4426	133	3NE4124	160	0	3NE4124	160	0			
3RW4427	161	3NE3224	160	1	3NE3332-0B	400	2			
3RW4434	196	3NE3225	200	1	3NE3335	560	2			
3RW4435	232	3NE3225	200	1	3NE3335	560	2			
3RW4436	281	3NE3227	250	1	3NE3333	450	2			
3RW4443	352	3NE3230-0B	315	1	3NE3333	450	2			
3RW4444	433	3NE3230-0B	315	1	3NE3333	450	2			
3RW4445	542	3NE3233	450	1	3NE3336	630	2			
3RW4446	617	3NE3333	450	2	3NE3336	630	2			
3RW4447	748	3NE3335	560	2	3NE3338-8	800	2			
3RW4453	954	2 x 3NE3335	560	2	3 x 3NE3334-0B	500	2			
3RW4454	1065	2 x 3NE3335	560	2	3 x 3NE3334-0B	500	2			
3RW4455	1200	2 x 3NE3335	560	2	3 x 3NE3334-0B	500	2			
3RW4456	1351	2 x 3NE3336	630	2	2 x 3NE3340-8	900	2			
3RW4457	1524	2 x 3NE3336	630	2	3 x 3NE3340-8	900	2			
3RW4458	1680	2 x 3NE3336	630	2	3 x 3NE3340-8	900	2			
3RW4465	1864	2 x 3NE3340-8	900	2	3 x 3NE3338-8	800	2			
3RW4466	2103	2 x 3NE3340-8	900	2	3 x 3NE3338-8	800	2			

Soft starters Q11 Type	Nominal current A	Line contactor up to 400 V (optional) Q21 Type	Motor starter protectors		Line protection, maximum		
			440 V +10 % Q1 Type	Rated current A	690 V +5 % F1 Type	Rated current A	Size
Type of coordination 2¹⁾							
3RW4422	50	3RT1036-1AP04	3RV1042-4KA10	75	3NA3824-6	80	00
3RW4423	62	3RT1044-1AP04	3RV1042-4LA10	90	3NA3830-6	100	00
3RW4424	81	3RT1046-1AP04	3RV1042-4MA10	100	3NA3132-6	125	1
3RW4425	99	3RT1054-1AP36	3VL2716	160	3NA3136-6	160	1
3RW4426	133	3RT1055-6AP36	3VL2716	160	3NA3240-6	200	2
3RW4427	161	3RT1056-6AP36	3VL3720	200	3NA3244-6	250	2
3RW4434	196	3RT1064-6AP36	3VL3725	250	3NA3360-6	400	3
3RW4435	232	3RT1065-6AP36	3VL4731	315	3NA3360-6	400	3
3RW4436	281	3RT1066-6AP36	3VL4740	400	2 x 3NA3360-6	2 x 400	3
3RW4443	352	3RT1075-6AP36	3VL4740	400	2 x 3NA3365-6	2 x 500	3
3RW4444	433	3RT1076-6AP36	3VL5750	500	2 x 3NA3365-6	2 x 500	3
3RW4445	542	3TF6844-OCM7	3VL5763	630	3 x 3NA3365-6	3 x 500	3
3RW4446	617	3TF6844-OCM7	3VL6780	800	3 x 3NA3365-6	3 x 500	3
3RW4447	748	3TF69	3VL6780	800	3 x 3NA3365-6	3 x 500	3
3RW4453	954		3VL7710	1000	3 x 3NA3365-6	3 x 500	3
3RW4454	1065		3VL7712	1250	3 x 3NA3365-6	3 x 500	3
3RW4455	1200		3VL8716	1600	3 x 3NA3365-6	3 x 500	3
3RW4456	1351		3VL8716	1600	3 x 3NA3372	3 x 630	3
3RW4457	1524		3VL8716	1600	3 x 3NA3372	3 x 630	3
3RW4458	1680		3WL1220	2000	2 x 3NA3480	2 x 1000	4
3RW4465	1864		3WL1225	2500	2 x 3NA3482	2 x 1250	4
3RW4466	2103		3WL1225	2500	2 x 3NA3482	2 x 1250	4

¹⁾ The type of coordination "2" refers to soft starters in combination with the stipulated protective device (motor starter protector/fuse), not to any additional components in the feeder.
If the F3 semiconductor fuse is not used, the type of coordination "2" is reduced to type of coordination "1" for soft starters in combination with the stipulated protective device.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for normal starting (CLASS 10) in inline circuit

Selection and ordering data



3RW442.



3RW443.



3RW444.



3RW445.



3RW446.

3RW ambient temperature 40 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	230 V	400 V	500 V	690 V
A	kW	kW	kW	kW

3RW ambient temperature 50 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	200 V	230 V	460 V	575 V
A	hp	hp	hp	hp

Normal starting (CLASS 10) in inline circuit

Configurator

Article No.

Inline circuit, rated operational voltage 200 ... 460 V

29	5.5	15	--	--	26	7.5	7.5	15	--	3RW4422-1BC□4
36	7.5	18.5	--	--	32	10	10	20	--	3RW4423-1BC□4
47	11	22	--	--	42	10	15	25	--	3RW4424-1BC□4
57	15	30	--	--	51	15	15	30	--	3RW4425-1BC□4
77	18.5	37	--	--	68	20	20	50	--	3RW4426-1BC□4
93	22	45	--	--	82	25	25	60	--	3RW4427-1BC□4
113	30	55	--	--	100	30	30	75	--	3RW4434-6BC□4
134	37	75	--	--	117	30	40	75	--	3RW4435-6BC□4
162	45	90	--	--	145	40	50	100	--	3RW4436-6BC□4
203	55	110	--	--	180	50	60	125	--	3RW4443-6BC□4
250	75	132	--	--	215	60	75	150	--	3RW4444-6BC□4
313	90	160	--	--	280	75	100	200	--	3RW4445-6BC□4
356	110	200	--	--	315	100	125	250	--	3RW4446-6BC□4
432	132	250	--	--	385	125	150	300	--	3RW4447-6BC□4
551	160	315	--	--	494	150	200	400	--	3RW4453-6BC□4
615	200	355	--	--	551	150	200	450	--	3RW4454-6BC□4
693	200	400	--	--	615	200	250	500	--	3RW4455-6BC□4
780	250	450	--	--	693	200	250	600	--	3RW4456-6BC□4
880	250	500	--	--	780	250	300	700	--	3RW4457-6BC□4
970	315	560	--	--	850	300	350	750	--	3RW4458-6BC□4
1076	355	630	--	--	970	350	400	850	--	3RW4465-6BC□4
1214	400	710	--	--	1076	350	450	950	--	3RW4466-6BC□4

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on 4/3):


- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for normal starting (CLASS 10) in inline circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors				Normal starting (CLASS 10) in inline circuit		
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e			Configurator 	Article No.	
	230 V	400 V	500 V	690 V		200 V	230 V	460 V			575 V
A	kW	kW	kW	kW	A	hp	hp	hp			
Inline circuit, rated operational voltage 400 ... 600 V											
29	--	15	18.5	--	26	--	--	15	20	3RW4422-1BC□5	
36	--	18.5	22	--	32	--	--	20	25	3RW4423-1BC□5	
47	--	22	30	--	42	--	--	25	30	3RW4424-1BC□5	
57	--	30	37	--	51	--	--	30	40	3RW4425-1BC□5	
77	--	37	45	--	68	--	--	50	50	3RW4426-1BC□5	
93	--	45	55	--	82	--	--	60	75	3RW4427-1BC□5	
113	--	55	75	--	100	--	--	75	75	3RW4434-6BC□5	
134	--	75	90	--	117	--	--	75	100	3RW4435-6BC□5	
162	--	90	110	--	145	--	--	100	125	3RW4436-6BC□5	
203	--	110	132	--	180	--	--	125	150	3RW4443-6BC□5	
250	--	132	160	--	215	--	--	150	200	3RW4444-6BC□5	
313	--	160	200	--	280	--	--	200	250	3RW4445-6BC□5	
356	--	200	250	--	315	--	--	250	300	3RW4446-6BC□5	
432	--	250	315	--	385	--	--	300	400	3RW4447-6BC□5	
551	--	315	355	--	494	--	--	400	500	3RW4453-6BC□5	
615	--	355	400	--	551	--	--	450	600	3RW4454-6BC□5	
693	--	400	500	--	615	--	--	500	700	3RW4455-6BC□5	
780	--	450	560	--	693	--	--	600	750	3RW4456-6BC□5	
880	--	500	630	--	780	--	--	700	850	3RW4457-6BC□5	
970	--	560	710	--	850	--	--	750	900	3RW4458-6BC□5	
1076	--	630	800	--	970	--	--	850	1 100	3RW4465-6BC□5	
1214	--	710	900	--	1 076	--	--	950	1 200	3RW4466-6BC□5	

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):


- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for normal starting (CLASS 10) in inline circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors					Normal starting (CLASS 10) in inline circuit	
Opera- tional current I_e	Rating at operational voltage U_e				Opera- tional current I_e	Rating at operational voltage U_e				Configurator 	Article No.
	230 V	400 V	500 V	690 V		200 V	230 V	460 V	575 V		
A	kW	kW	kW	kW	A	hp	hp	hp	hp		
Inline circuit, rated operational voltage 400 ... 690 V											
29	--	15	18.5	30	26	--	--	15	20	3RW4422-1BC□6	
36	--	18.5	22	37	32	--	--	20	25	3RW4423-1BC□6	
47	--	22	30	45	42	--	--	25	30	3RW4424-1BC□6	
57	--	30	37	55	51	--	--	30	40	3RW4425-1BC□6	
77	--	37	45	75	68	--	--	50	50	3RW4426-1BC□6	
93	--	45	55	90	82	--	--	60	75	3RW4427-1BC□6	
113	--	55	75	110	100	--	--	75	75	3RW4434-6BC□6	
134	--	75	90	132	117	--	--	75	100	3RW4435-6BC□6	
162	--	90	110	160	145	--	--	100	125	3RW4436-6BC□6	
203	--	110	132	200	180	--	--	125	150	3RW4443-6BC□6	
250	--	132	160	250	215	--	--	150	200	3RW4444-6BC□6	
313	--	160	200	315	280	--	--	200	250	3RW4445-6BC□6	
356	--	200	250	355	315	--	--	250	300	3RW4446-6BC□6	
432	--	250	315	400	385	--	--	300	400	3RW4447-6BC□6	
551	--	315	355	560	494	--	--	400	500	3RW4453-6BC□6	
615	--	355	400	630	551	--	--	450	600	3RW4454-6BC□6	
693	--	400	500	710	615	--	--	500	700	3RW4455-6BC□6	
780	--	450	560	800	693	--	--	600	750	3RW4456-6BC□6	
880	--	500	630	900	780	--	--	700	850	3RW4457-6BC□6	
970	--	560	710	1 000	850	--	--	750	900	3RW4458-6BC□6	
1 076	--	630	800	1 100	970	--	--	850	1 100	3RW4465-6BC□6	
1 214	--	710	900	1 200	1 076	--	--	950	1 200	3RW4466-6BC□6	

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for heavy starting (CLASS 20) in inline circuit

Selection and ordering data



3RW442.



3RW443.



3RW444.



3RW445.



3RW4466.

3RW ambient temperature 40 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	230 V	400 V	500 V	690 V
A	kW	kW	kW	kW

29	5.5	15	--	--
36	7.5	18.5	--	--
47	11	22	--	--
57	15	30	--	--
77	18.5	37	--	--
93	22	45	--	--
113	30	55	--	--
134	37	75	--	--
162	45	90	--	--
203	55	110	--	--
250	75	132	--	--
313	90	160	--	--
356	110	200	--	--
432	132	250	--	--
551	160	315	--	--
615	200	355	--	--
693	200	400	--	--
780	250	450	--	--
880	250	500	--	--
970	315	560	--	--

3RW ambient temperature 50 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	200 V	230 V	460 V	575 V
A	hp	hp	hp	hp

26	7.5	7.5	15	--
32	10	10	20	--
42	10	15	25	--
51	15	15	30	--
68	20	20	50	--
82	25	25	60	--
100	30	30	75	--
117	30	40	75	--
145	40	50	100	--
180	50	60	125	--
215	60	75	150	--
280	75	100	200	--
315	100	125	250	--
385	125	150	300	--
494	150	200	400	--
551	150	200	450	--
615	200	250	500	--
693	200	250	600	--
780	250	300	700	--
850	300	350	750	--

Heavy starting (CLASS 20) in inline circuit
Configurator


Article No.

Inline circuit, rated operational voltage 200 ... 460 V

29	5.5	15	--	--	26	7.5	7.5	15	--	3RW4422-1BC□4
36	7.5	18.5	--	--	32	10	10	20	--	3RW4423-1BC□4
47	11	22	--	--	42	10	15	25	--	3RW4424-1BC□4
57	15	30	--	--	51	15	15	30	--	3RW4425-1BC□4
77	18.5	37	--	--	68	20	20	50	--	3RW4427-1BC□4
93	22	45	--	--	82	25	25	60	--	3RW4434-6BC□4
113	30	55	--	--	100	30	30	75	--	3RW4435-6BC□4
134	37	75	--	--	117	30	40	75	--	3RW4436-6BC□4
162	45	90	--	--	145	40	50	100	--	3RW4443-6BC□4
203	55	110	--	--	180	50	60	125	--	3RW4445-6BC□4
250	75	132	--	--	215	60	75	150	--	3RW4446-6BC□4
313	90	160	--	--	280	75	100	200	--	3RW4447-6BC□4
356	110	200	--	--	315	100	125	250	--	3RW4447-6BC□4
432	132	250	--	--	385	125	150	300	--	3RW4453-6BC□4
551	160	315	--	--	494	150	200	400	--	3RW4453-6BC□4
615	200	355	--	--	551	150	200	450	--	3RW4455-6BC□4
693	200	400	--	--	615	200	250	500	--	3RW4457-6BC□4
780	250	450	--	--	693	200	250	600	--	3RW4465-6BC□4
880	250	500	--	--	780	250	300	700	--	3RW4465-6BC□4
970	315	560	--	--	850	300	350	750	--	3RW4465-6BC□4

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):


- Maximum starting time in s: 40
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for heavy starting (CLASS 20) in inline circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors				Heavy starting (CLASS 20) in inline circuit	
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e			Configurator 	Article No.
	230 V	400 V	500 V	690 V		200 V	230 V	460 V		
A	kW	kW	kW	kW	A	hp	hp	hp		
Inline circuit, rated operational voltage 400 ... 600 V										
29	--	15	18.5	--	26	--	--	15	20	3RW4422-1BC□5
36	--	18.5	22	--	32	--	--	20	25	3RW4423-1BC□5
47	--	22	30	--	42	--	--	25	30	3RW4424-1BC□5
57	--	30	37	--	51	--	--	30	40	3RW4425-1BC□5
77	--	37	45	--	68	--	--	50	50	3RW4427-1BC□5
93	--	45	55	--	82	--	--	60	75	3RW4434-6BC□5
113	--	55	75	--	100	--	--	75	75	3RW4435-6BC□5
134	--	75	90	--	117	--	--	75	100	3RW4436-6BC□5
162	--	90	110	--	145	--	--	100	125	3RW4443-6BC□5
203	--	110	132	--	180	--	--	125	150	3RW4445-6BC□5
250	--	132	160	--	215	--	--	150	200	3RW4446-6BC□5
313	--	160	200	--	280	--	--	200	250	3RW4447-6BC□5
356	--	200	250	--	315	--	--	250	300	3RW4447-6BC□5
432	--	250	315	--	385	--	--	300	400	3RW4453-6BC□5
551	--	315	355	--	494	--	--	400	500	3RW4453-6BC□5
615	--	355	400	--	551	--	--	450	600	3RW4454-6BC□5
693	--	400	500	--	615	--	--	500	700	3RW4457-6BC□5
780	--	450	560	--	693	--	--	600	750	3RW4465-6BC□5
880	--	500	630	--	780	--	--	700	850	3RW4465-6BC□5
970	--	560	710	--	850	--	--	750	900	3RW4465-6BC□5

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):


- Maximum starting time in s: 40
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for heavy starting (CLASS 20) in inline circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors					Heavy starting (CLASS 20) in inline circuit	
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e				Configurator 	Article No.
	230 V	400 V	500 V	690 V		200 V	230 V	460 V	575 V		
A	kW	kW	kW	kW	A	hp	hp	hp	hp		
Inline circuit, rated operational voltage 400 ... 690 V											
29	--	15	18.5	30	26	--	--	15	20	3RW4422-1BC□6	
36	--	18.5	22	37	32	--	--	20	25	3RW4423-1BC□6	
47	--	22	30	45	42	--	--	25	30	3RW4424-1BC□6	
57	--	30	37	55	51	--	--	30	40	3RW4425-1BC□6	
77	--	37	45	75	68	--	--	50	50	3RW4427-1BC□6	
93	--	45	55	90	82	--	--	60	75	3RW4434-6BC□6	
113	--	55	75	110	100	--	--	75	75	3RW4435-6BC□6	
134	--	75	90	132	117	--	--	75	100	3RW4436-6BC□6	
162	--	90	110	160	145	--	--	100	125	3RW4443-6BC□6	
203	--	110	132	200	180	--	--	125	150	3RW4445-6BC□6	
250	--	132	160	250	215	--	--	150	200	3RW4446-6BC□6	
313	--	160	200	315	280	--	--	200	250	3RW4447-6BC□6	
356	--	200	250	355	315	--	--	250	300	3RW4447-6BC□6	
432	--	250	315	400	385	--	--	300	400	3RW4453-6BC□6	
551	--	315	355	560	494	--	--	400	500	3RW4453-6BC□6	
615	--	355	400	630	551	--	--	450	600	3RW4455-6BC□6	
693	--	400	500	710	615	--	--	500	700	3RW4457-6BC□6	
780	--	450	560	800	693	--	--	600	750	3RW4465-6BC□6	
880	--	500	630	900	780	--	--	700	850	3RW4465-6BC□6	
970	--	560	710	1 000	850	--	--	750	900	3RW4465-6BC□6	

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for very heavy starting (CLASS 30) in inline circuit

Selection and ordering data



3RW442.

3RW443.

3RW444.

3RW445.

3RW446.

3RW ambient temperature 40 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	230 V	400 V	500 V	690 V
A	kW	kW	kW	kW

3RW ambient temperature 50 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	200 V	230 V	460 V	575 V
A	hp	hp	hp	hp

Very heavy starting (CLASS 30) in inline circuit

Configurator 

Article No.

Inline circuit, rated operational voltage 200 ... 460 V

29	5.5	15	--	--	26	7.5	7.5	15	--	3RW4422-1BC□4
36	7.5	18.5	--	--	32	10	10	20	--	3RW4424-1BC□4
47	11	22	--	--	42	10	15	25	--	3RW4425-1BC□4
57	15	30	--	--	51	15	15	30	--	3RW4425-1BC□4
77	18.5	37	--	--	68	20	20	50	--	3RW4434-6BC□4
93	22	45	--	--	82	25	25	60	--	3RW4435-6BC□4
113	30	55	--	--	100	30	30	75	--	3RW4443-6BC□4
134	37	75	--	--	117	30	40	75	--	3RW4443-6BC□4
162	45	90	--	--	145	40	50	100	--	3RW4443-6BC□4
203	55	110	--	--	180	50	60	125	--	3RW4446-6BC□4
250	75	132	--	--	215	60	75	150	--	3RW4447-6BC□4
313	90	160	--	--	280	75	100	200	--	3RW4453-6BC□4
356	110	200	--	--	315	100	125	250	--	3RW4453-6BC□4
432	132	250	--	--	385	125	150	300	--	3RW4453-6BC□4
551	160	315	--	--	494	150	200	400	--	3RW4455-6BC□4
615	200	355	--	--	551	150	200	450	--	3RW4458-6BC□4
693	200	400	--	--	615	200	250	500	--	3RW4465-6BC□4
780	250	450	--	--	693	200	250	600	--	3RW4465-6BC□4
880	250	500	--	--	780	250	300	700	--	3RW4465-6BC□4
970	315	560	--	--	850	300	350	750	--	3RW4466-6BC□4

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):


- Maximum starting time in s: 60
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for very heavy starting (CLASS 30) in inline circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors				Very heavy starting (CLASS 30) in inline circuit	
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e			Configurator 	Article No.
	230 V	400 V	500 V	690 V		200 V	230 V	460 V		
A	kW	kW	kW	kW	A	hp	hp	hp		
Inline circuit, rated operational voltage 400 ... 600 V										
29	--	15	18.5	--	26	--	--	15	20	3RW4422-1BC□5
36	--	18.5	22	--	32	--	--	20	25	3RW4424-1BC□5
47	--	22	30	--	42	--	--	25	30	3RW4425-1BC□5
57	--	30	37	--	51	--	--	30	40	3RW4425-1BC□5
77	--	37	45	--	68	--	--	50	50	3RW4434-6BC□5
93	--	45	55	--	82	--	--	60	75	3RW4435-6BC□5
113	--	55	75	--	100	--	--	75	75	3RW4443-6BC□5
134	--	75	90	--	117	--	--	75	100	3RW4443-6BC□5
162	--	90	110	--	145	--	--	100	125	3RW4443-6BC□5
203	--	110	132	--	180	--	--	125	150	3RW4446-6BC□5
250	--	132	160	--	215	--	--	150	200	3RW4447-6BC□5
313	--	160	200	--	280	--	--	200	250	3RW4453-6BC□5
356	--	200	250	--	315	--	--	250	300	3RW4453-6BC□5
432	--	250	315	--	385	--	--	300	400	3RW4453-6BC□5
551	--	315	355	--	494	--	--	400	500	3RW4455-6BC□5
615	--	355	400	--	551	--	--	450	600	3RW4458-6BC□5
693	--	400	500	--	615	--	--	500	700	3RW4465-6BC□5
780	--	450	560	--	693	--	--	600	750	3RW4465-6BC□5
880	--	500	630	--	780	--	--	700	850	3RW4465-6BC□5
--	--	--	--	--	850	--	--	750	900	3RW4466-6BC□5

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):


- Maximum starting time in s: 60
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for very heavy starting (CLASS 30) in inline circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors				Very heavy starting (CLASS 30) in inline circuit	
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e			Configurator 	Article No.
	230 V	400 V	500 V	690 V		200 V	230 V	460 V		
A	kW	kW	kW	kW	A	hp	hp	hp		
Inline circuit, rated operational voltage 400 ... 690 V										
29	--	15	18.5	30	26	--	--	15	20	3RW4422-1BC□6
36	--	18.5	22	37	32	--	--	20	25	3RW4424-1BC□6
47	--	22	30	45	42	--	--	25	30	3RW4425-1BC□6
57	--	30	37	55	51	--	--	30	40	3RW4425-1BC□6
77	--	37	45	75	68	--	--	50	50	3RW4434-6BC□6
93	--	45	55	90	82	--	--	60	75	3RW4435-6BC□6
113	--	55	75	110	100	--	--	75	75	3RW4443-6BC□6
134	--	75	90	132	117	--	--	75	100	3RW4443-6BC□6
162	--	90	110	160	145	--	--	100	125	3RW4443-6BC□6
203	--	110	132	200	180	--	--	125	150	3RW4446-6BC□6
250	--	132	160	250	215	--	--	150	200	3RW4447-6BC□6
313	--	160	200	315	280	--	--	200	250	3RW4453-6BC□6
356	--	200	250	355	315	--	--	250	300	3RW4453-6BC□6
432	--	250	315	400	385	--	--	300	400	3RW4453-6BC□6
551	--	315	355	560	494	--	--	400	500	3RW4455-6BC□6
615	--	355	400	630	551	--	--	450	600	3RW4458-6BC□6
693	--	400	500	710	615	--	--	500	700	3RW4465-6BC□6
780	--	450	560	800	693	--	--	600	750	3RW4465-6BC□6
880	--	500	630	900	780	--	--	700	850	3RW4465-6BC□6
--	--	--	--	--	850	--	--	750	900	3RW4466-6BC□6

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for normal starting (CLASS 10) in inside-delta circuit

Selection and ordering data



3RW442.



3RW443.



3RW444.



3RW445.



3RW446.

3RW ambient temperature 40 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	230 V	400 V	500 V	690 V
A	kW	kW	kW	kW

50	15	22	--	--
62	18.5	30	--	--
81	22	45	--	--
99	30	55	--	--
133	37	75	--	--
161	45	90	--	--
196	55	110	--	--
232	75	132	--	--
281	90	160	--	--

3RW ambient temperature 50 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	200 V	230 V	460 V	575 V
A	hp	hp	hp	hp

45	10	15	30	--
55	15	20	40	--
73	20	25	50	--
88	25	30	60	--
118	30	40	75	--
142	40	50	100	--
173	50	60	125	--
203	60	75	150	--
251	75	100	200	--

Normal starting (CLASS 10) in inside-delta circuit

Configurator

Article No.

Inside-delta circuit, rated operational voltage 200 ... 460 V

50	15	22	--	--	45	10	15	30	--	3RW4422-1BC□4
62	18.5	30	--	--	55	15	20	40	--	3RW4423-1BC□4
81	22	45	--	--	73	20	25	50	--	3RW4424-1BC□4
99	30	55	--	--	88	25	30	60	--	3RW4425-1BC□4
133	37	75	--	--	118	30	40	75	--	3RW4426-1BC□4
161	45	90	--	--	142	40	50	100	--	3RW4427-1BC□4
196	55	110	--	--	173	50	60	125	--	3RW4434-6BC□4
232	75	132	--	--	203	60	75	150	--	3RW4435-6BC□4
281	90	160	--	--	251	75	100	200	--	3RW4436-6BC□4
352	110	200	--	--	312	100	125	250	--	3RW4443-6BC□4
433	132	250	--	--	372	125	150	300	--	3RW4444-6BC□4
542	160	315	--	--	485	150	200	400	--	3RW4445-6BC□4
617	200	355	--	--	546	150	200	450	--	3RW4446-6BC□4
748	250	400	--	--	667	200	250	600	--	3RW4447-6BC□4
954	315	560	--	--	856	300	350	750	--	3RW4453-6BC□4
1065	355	630	--	--	954	350	400	850	--	3RW4454-6BC□4
1200	400	710	--	--	1065	350	450	950	--	3RW4455-6BC□4
1351	450	800	--	--	1200	450	500	1050	--	3RW4456-6BC□4
1524	500	900	--	--	1351	450	600	1200	--	3RW4457-6BC□4
1680	560	1000	--	--	1472	550	650	1300	--	3RW4458-6BC□4
1864	630	1100	--	--	1680	650	750	1500	--	3RW4465-6BC□4
2103	710	1200	--	--	1864	700	850	1700	--	3RW4466-6BC□4

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5


In the selection table, the unit rated current I_e refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for normal starting (CLASS 10) in inside-delta circuit

3RW ambient temperature 40 °C					3RW ambient temperature 50 °C				Normal starting (CLASS 10) in inside-delta circuit		
Rated values of three-phase motors					Rated values of three-phase motors				Configurator 		
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e			Article No.		
	230 V	400 V	500 V	690 V		200 V	230 V	460 V			575 V
A	kW	kW	kW	kW	A	hp	hp	hp	hp		
Inside-delta circuit, rated operational voltage 400 ... 600 V											
50	--	22	30	--	45	--	--	30	40	3RW4422-1BC□5	
62	--	30	37	--	55	--	--	40	50	3RW4423-1BC□5	
81	--	45	45	--	73	--	--	50	60	3RW4424-1BC□5	
99	--	55	55	--	88	--	--	60	75	3RW4425-1BC□5	
133	--	75	90	--	118	--	--	75	100	3RW4426-1BC□5	
161	--	90	110	--	142	--	--	100	125	3RW4427-1BC□5	
196	--	110	132	--	173	--	--	125	150	3RW4434-6BC□5	
232	--	132	160	--	203	--	--	150	200	3RW4435-6BC□5	
281	--	160	200	--	251	--	--	200	250	3RW4436-6BC□5	
352	--	200	250	--	312	--	--	250	300	3RW4443-6BC□5	
433	--	250	315	--	372	--	--	300	350	3RW4444-6BC□5	
542	--	315	355	--	485	--	--	400	500	3RW4445-6BC□5	
617	--	355	450	--	546	--	--	450	600	3RW4446-6BC□5	
748	--	400	500	--	667	--	--	600	750	3RW4447-6BC□5	
954	--	560	630	--	856	--	--	750	950	3RW4453-6BC□5	
1065	--	630	710	--	954	--	--	850	1050	3RW4454-6BC□5	
1200	--	710	800	--	1065	--	--	950	1200	3RW4455-6BC□5	
1351	--	800	900	--	1200	--	--	1050	1350	3RW4456-6BC□5	
1524	--	900	1000	--	1351	--	--	1200	1500	3RW4457-6BC□5	
1680	--	1000	1200	--	1472	--	--	1300	1650	3RW4458-6BC□5	
1864	--	1100	1350	--	1680	--	--	1500	1900	3RW4465-6BC□5	
2103	--	1200	1500	--	1864	--	--	1700	2100	3RW4466-6BC□5	

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 10
- Maximum starting current in % of motor current I_e : 300
- Maximum number of starts per hour in 1/h: 5

In the selection table, the unit rated current I_e refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for heavy starting (CLASS 20) in inside-delta circuit

Selection and ordering data



3RW442.

3RW443.

3RW444.

3RW445.

3RW446.

3RW ambient temperature 40 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	230 V	400 V	500 V	690 V
A	kW	kW	kW	kW

3RW ambient temperature 50 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	200 V	230 V	460 V	575 V
A	hp	hp	hp	hp

Heavy starting (CLASS 20) in inside-delta circuit
Configurator


Article No.

Inside-delta circuit, rated operational voltage 200 ... 460 V

50	15	22	--	--	45	10	15	30	--	3RW4423-1BC□4
62	18.5	30	--	--	55	15	20	40	--	3RW4424-1BC□4
81	22	45	--	--	73	20	25	50	--	3RW4425-1BC□4
99	30	55	--	--	88	25	30	60	--	3RW4425-1BC□4
133	37	75	--	--	118	30	40	75	--	3RW4427-1BC□4
161	45	90	--	--	142	40	50	100	--	3RW4434-6BC□4
196	55	110	--	--	173	50	60	125	--	3RW4435-6BC□4
232	75	132	--	--	203	60	75	150	--	3RW4436-6BC□4
281	90	160	--	--	251	75	100	200	--	3RW4443-6BC□4
352	110	200	--	--	312	100	125	250	--	3RW4444-6BC□4
433	132	250	--	--	372	125	150	300	--	3RW4445-6BC□4
542	160	315	--	--	485	150	200	400	--	3RW4447-6BC□4
617	200	355	--	--	546	150	200	450	--	3RW4447-6BC□4
748	250	400	--	--	667	200	250	600	--	3RW4453-6BC□4
954	315	560	--	--	856	300	350	750	--	3RW4453-6BC□4
1065	355	630	--	--	954	350	400	850	--	3RW4455-6BC□4
1200	400	710	--	--	1065	350	450	950	--	3RW4457-6BC□4
1351	450	800	--	--	1200	450	500	1050	--	3RW4465-6BC□4
1524	500	900	--	--	1351	450	600	1200	--	3RW4465-6BC□4
1680	560	1000	--	--	1472	550	650	1300	--	3RW4465-6BC□4
--	--	--	--	--	1680	650	750	1500	--	3RW4466-6BC□4

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal -24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1


In the selection table, the unit rated current I_e refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual device current is approximately 58 % of this value.

For higher requirements a larger device may have to be selected. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for heavy starting (CLASS 20) in inside-delta circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors				Heavy starting (CLASS 20) in inside-delta circuit	
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e			Configurator 	Article No.
	230 V	400 V	500 V	690 V		200 V	230 V	460 V		
A	kW	kW	kW	kW	A	hp	hp	hp	hp	
Inside-delta circuit, rated operational voltage 400 ... 600 V										
50	--	22	30	--	45	--	--	30	40	3RW4423-1BC□5
62	--	30	37	--	55	--	--	40	50	3RW4424-1BC□5
81	--	45	45	--	73	--	--	50	60	3RW4425-1BC□5
99	--	55	55	--	88	--	--	60	75	3RW4425-1BC□5
133	--	75	90	--	118	--	--	75	100	3RW4427-1BC□5
161	--	90	110	--	142	--	--	100	125	3RW4434-6BC□5
196	--	110	132	--	173	--	--	125	150	3RW4435-6BC□5
232	--	132	160	--	203	--	--	150	200	3RW4436-6BC□5
281	--	160	200	--	251	--	--	200	250	3RW4443-6BC□5
352	--	200	250	--	312	--	--	250	300	3RW4444-6BC□5
433	--	250	315	--	372	--	--	300	350	3RW4445-6BC□5
542	--	315	355	--	485	--	--	400	500	3RW4447-6BC□5
617	--	355	450	--	546	--	--	450	600	3RW4447-6BC□5
748	--	400	500	--	667	--	--	600	750	3RW4453-6BC□5
954	--	560	630	--	856	--	--	750	950	3RW4453-6BC□5
1 065	--	630	710	--	954	--	--	850	1 050	3RW4455-6BC□5
1 200	--	710	800	--	1 065	--	--	950	1 200	3RW4457-6BC□5
1 351	--	800	900	--	1 200	--	--	1 050	1 350	3RW4465-6BC□5
1 524	--	900	1 000	--	1 351	--	--	1 200	1 500	3RW4465-6BC□5
1 680	--	1 000	1 200	--	1 472	--	--	1 300	1 650	3RW4465-6BC□5
--	--	--	--	--	1 680	--	--	1 500	1 900	3RW4466-6BC□5

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 40
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In the selection table, the unit rated current I_e refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for very heavy starting (CLASS 30) in inside-delta circuit

Selection and ordering data



3RW442.

3RW443.

3RW444.

3RW445.

3RW446.

3RW ambient temperature 40 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	230 V	400 V	500 V	690 V
A	kW	kW	kW	kW

3RW ambient temperature 50 °C

Rated values of three-phase motors

Operational current I_e	Rating at operational voltage U_e			
	200 V	230 V	460 V	575 V
A	hp	hp	hp	hp

Very heavy starting (CLASS 30) in inside-delta circuit

Configurator 

Article No.

Inside-delta circuit, rated operational voltage 200 ... 460 V

50	15	22	--	--	45	10	15	30	--	3RW4423-1BC□4
62	18.5	30	--	--	55	15	20	40	--	3RW4424-1BC□4
81	22	45	--	--	73	20	25	50	--	3RW4425-1BC□4
99	30	55	--	--	88	25	30	60	--	3RW4425-1BC□4
133	37	75	--	--	118	30	40	75	--	3RW4427-1BC□4
161	45	90	--	--	142	40	50	100	--	3RW4435-6BC□4
196	55	110	--	--	173	50	60	125	--	3RW4436-6BC□4
232	75	132	--	--	203	60	75	150	--	3RW4443-6BC□4
281	90	160	--	--	251	75	100	200	--	3RW4443-6BC□4
352	110	200	--	--	312	100	125	250	--	3RW4445-6BC□4
433	132	250	--	--	372	125	150	300	--	3RW4447-6BC□4
542	160	315	--	--	485	150	200	400	--	3RW4453-6BC□4
617	200	355	--	--	546	150	200	450	--	3RW4453-6BC□4
748	250	400	--	--	667	200	250	600	--	3RW4453-6BC□4
954	315	560	--	--	856	300	350	750	--	3RW4455-6BC□4
1065	355	630	--	--	954	350	400	850	--	3RW4458-6BC□4
1200	400	710	--	--	1065	350	450	950	--	3RW4465-6BC□4
1351	450	800	--	--	1200	450	500	1050	--	3RW4465-6BC□4
1524	500	900	--	--	1351	450	600	1200	--	3RW4465-6BC□4
--	--	--	--	--	1472	550	650	1300	--	3RW4466-6BC□4

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1


In the selection table, the unit rated current I_e refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

SIRIUS 3RW44 for very heavy starting (CLASS 30) in inside-delta circuit

3RW ambient temperature 40 °C Rated values of three-phase motors					3RW ambient temperature 50 °C Rated values of three-phase motors					Very heavy starting (CLASS 30) in inside-delta circuit	
Operational current I_e	Rating at operational voltage U_e				Operational current I_e	Rating at operational voltage U_e				Configurator 	Article No.
	230 V	400 V	500 V	690 V		200 V	230 V	460 V	575 V		
A	kW	kW	kW	kW	A	hp	hp	hp	hp		
Inside-delta circuit, rated operational voltage 400 ... 600 V											
50	--	22	30	--	45	--	--	30	40	3RW4423-1BC□5	
62	--	30	37	--	55	--	--	40	50	3RW4424-1BC□5	
81	--	45	45	--	73	--	--	50	60	3RW4425-1BC□5	
99	--	55	55	--	88	--	--	60	75	3RW4425-1BC□5	
133	--	75	90	--	118	--	--	75	100	3RW4427-1BC□5	
161	--	90	110	--	142	--	--	100	125	3RW4435-6BC□5	
196	--	110	132	--	173	--	--	125	150	3RW4436-6BC□5	
232	--	132	160	--	203	--	--	150	200	3RW4443-6BC□5	
281	--	160	200	--	251	--	--	200	250	3RW4443-6BC□5	
352	--	200	250	--	312	--	--	250	300	3RW4445-6BC□5	
433	--	250	315	--	372	--	--	300	350	3RW4447-6BC□5	
542	--	315	355	--	485	--	--	400	500	3RW4453-6BC□5	
617	--	355	450	--	546	--	--	450	600	3RW4453-6BC□5	
748	--	400	500	--	667	--	--	600	750	3RW4453-6BC□5	
954	--	560	630	--	856	--	--	750	950	3RW4455-6BC□5	
1 065	--	630	710	--	954	--	--	850	1 050	3RW4458-6BC□5	
1 200	--	710	800	--	1 065	--	--	950	1 200	3RW4465-6BC□5	
1 351	--	800	900	--	1 200	--	--	1 050	1 350	3RW4465-6BC□5	
1 524	--	900	1 000	--	1 351	--	--	1 200	1 500	3RW4465-6BC□5	
--	--	--	--	--	1 472	--	--	1 300	1 650	3RW4466-6BC□5	

Connection type

- With screw terminals

Article No. supplement for rated control supply voltage U_s ¹⁾

- 115 V AC
- 230 V AC

 For online configurator, see www.siemens.com/sirius/configurators.

¹⁾ Control by way of the internal 24 V DC supply and direct control via PLC possible.

Note:

The listed motor ratings are rough guide values. The soft starter should always be designed on the basis of the required rated operational current of the motor.

The solid-state SIRIUS 3RW44 soft starters are designed for easy starting conditions. The selection and ordering data were determined for the following boundary conditions (see also the notes on page 4/3):

- Maximum starting time in s: 60
- Maximum starting current in % of motor current I_e : 350
- Maximum number of starts per hour in 1/h: 1

In the selection table, the unit rated current I_e refers to the three-phase motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

In case of additional requirements, it may be necessary to choose a larger device. In some cases, however, the safety margins taken into account in the selection also permit the listed units to be used in boundary conditions which are slightly more demanding. For detailed technical specifications to enable dimensioning precisely tailored to the application, see the manual, <https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

Accessories

Selection and ordering data

Version

Article No.

Software



Soft Starter ES

Parameterization and service software for SIRIUS 3RW44 High Feature soft starters

3ZS1313-4CC10-0YA5

3ZS1313-4CC10-0YA5







Block library for SIMATIC PCS 7

The SIRIUS 3RW44 High Feature soft starters can be integrated simply and conveniently into the SIMATIC PCS 7 process control system using the block library with its integrated AS blocks and faceplates

3ZS1633-1XX00-0YA0



3ZS1633-1XX00-0YA0

Version	Article No.	
USB PC cables		
	For PC/PG communication with SIRIUS 3RW44 soft starters Through the system interface, for connecting to the USB interface of the PC/PG	3UF7941-0AA00-0
3UF7941-0AA00-0		
Communication modules		
	PROFIBUS communication module For 3RW44 soft starter integration in the PROFIBUS network with DPV1 slave functionality. With firmware version E04 and higher (or date of manufacture 01.05.2009 and later) of the module, DPV1 operation of the soft starter on a Y-link is also possible (only DPV0 operation possible with < E04).	3RW4900-0KC00
3RW4900-0KC00		
	PROFINET communication module For 3RW44 soft starter integration in the PROFINET network, suitable for devices with firmware version E12 or higher	3RW4900-0NC00
3RW4900-0NC00		
External display and operator module		
	For indicating and operating the functions provided by the soft starter using an externally mounted display and operator module in degree of protection IP54 (e.g. in the control cabinet door)	3RW4900-0AC00
3RW4900-0AC00		
Connection cables		
From the device interface (serial) of the 3RW44 soft starter to the external display and operator module		3UF7932-0AA00-0 3UF7932-0BA00-0 3UF7937-0BA00-0 3UF7933-0BA00-0
<ul style="list-style-type: none"> • Length 0.5 m, flat 		
<ul style="list-style-type: none"> • Length 0.5 m, round 		
<ul style="list-style-type: none"> • Length 1.0 m, round • Length 2.5 m, round 		

Switching Devices – Soft Starters

3RW44 for High Feature Applications

Accessories

For soft starters Type	Version	Article No.
Box terminal blocks for soft starters		
 3RT19	Box terminal block (2 units are required for each device) 3RW442. Included in the scope of supply 3RW443. <ul style="list-style-type: none"> • Up to 70 mm² • Up to 120 mm² 	3RT1955-4G 3RT1956-4G 3TX7500-0A
	Auxiliary conductor connection for box terminals 3RW444. <ul style="list-style-type: none"> • Up to 240 mm² (with auxiliary conductor connection) 	3RT1966-4G
	Terminal covers for box terminals	
Additional touch protection to be fitted at the box terminals (2 units required per device) 3RW442. and 3RW443. 3RW444.		3RT1956-4EA2 3RT1966-4EA2
 3RT19.6-4EA1	Terminal covers for cable lugs and busbar connections 3RW442. and 3RW443. For complying with the voltage clearances and as touch protection (2 units required per contactor) 3RW444. Also fits on mounted box terminals.	3RT1956-4EA1 3RT1966-4EA1
	Manual for SIRIUS 3RW44 soft starters¹⁾	
The manual can be downloaded free of charge in PDF format from the Internet, see https://support.industry.siemens.com/cs/ww/en/view/21772518 .		

¹⁾ The Operating Instructions 3RW44 (3ZX1012-0RW44-0AA0) are included in the scope of supply of the soft starter, or are available (like the manual) as a PDF download in the Industry Online Support Portal, see <https://support.industry.siemens.com/cs/ww/en/view/21189750>.

Spare parts

For soft starters Type	Version	Article No.
Fans		
 3RW49	Fans 3RW442. and 115 V AC 3RW443. 230 V AC 3RW444. 115 V AC 230 V AC	3RW4936-8VX30 3RW4936-8VX40 3RW4947-8VX30 3RW4947-8VX40
	3RW445. and 115 V AC 3RW446. ¹⁾ 230 V AC 3RW446. ²⁾ 115 V AC 230 V AC	3RW4957-8VX30 3RW4957-8VX40 3RW4966-8VX30 3RW4966-8VX40

¹⁾ 3RW446. mounting on output side.

²⁾ For mounting on front side.

More information

Application examples for normal starting (CLASS 10)

Normal starting CLASS 10 (up to 20 s with 350 % $I_{n\ motor}$, one start per hour)
The soft starter rating can be selected to be as high as the rating of the motor used

Application	Conveyor belts	Roller conveyors	Compressors	Small fans ¹⁾	Pumps	Hydraulic pumps
Starting parameters						
• Voltage ramp and current limiting						
- Starting voltage	%	70	60	50	30	30
- Starting time	s	10	10	10	10	10
- Current limiting value		Deactivated	Deactivated	$4 \times I_M$	$4 \times I_M$	Deactivated
• Torque ramp						
- Start torque		60	50	40	20	10
- Final torque		150	150	150	150	150
- Starting time		10	10	10	10	10
• Breakaway pulse						
		Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)
Ramp-down mode						
		Soft stop	Soft stop	Free ramp-down	Free ramp-down	Pump ramp-down

Application examples for heavy starting (CLASS 20)

Heavy starting CLASS 20 (up to 40 s with 350 % $I_{n\ motor}$, one start per hour)
The soft starter has to be selected one performance class higher than the motor used

Application	Stirrers	Centrifuges	Milling machines
Starting parameters			
• Voltage ramp and current limiting			
- Starting voltage	%	30	30
- Starting time	s	30	30
- Current limiting value		$4 \times I_M$	$4 \times I_M$
• Torque ramp			
- Start torque		30	30
- Final torque		150	150
- Starting time		30	30
• Breakaway pulse			
		Deactivated (0 ms)	Deactivated (0 ms)
Ramp-down mode			
		Free ramp-down	Free ramp-down or DC braking

Application examples for very heavy starting (CLASS 30)

Very heavy starting CLASS 30 (up to 60 s with 350 % $I_{n\ motor}$, one start per hour)
The soft starter has to be selected two performance classes higher than the motor used

Application	Large fans ²⁾	Mills	Breakers	Circular saws/bandsaws
Starting parameters				
• Voltage ramp and current limiting				
- Starting voltage	%	30	50	30
- Starting time	s	60	60	60
- Current limiting value		$4 \times I_M$	$4 \times I_M$	$4 \times I_M$
• Torque ramp				
- Start torque		20	50	20
- Final torque		150	150	150
- Starting time		60	60	60
• Breakaway pulse				
		Deactivated (0 ms)	80 %, 300 ms	Deactivated (0 ms)
Ramp-down mode				
		Free ramp-down	Free ramp-down	Free ramp-down

¹⁾ The mass inertia of the fan is <10 times the mass inertia of the motor.

²⁾ The mass inertia of the fan is ≥ 10 times the mass inertia of the motor.

Note:

These tables present sample set values and device dimensions. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during commissioning.

The soft starter dimensions should be checked where necessary with the help of Technical Assistance.

Switching Devices – Soft Starters

3RW44 for High Feature Applications

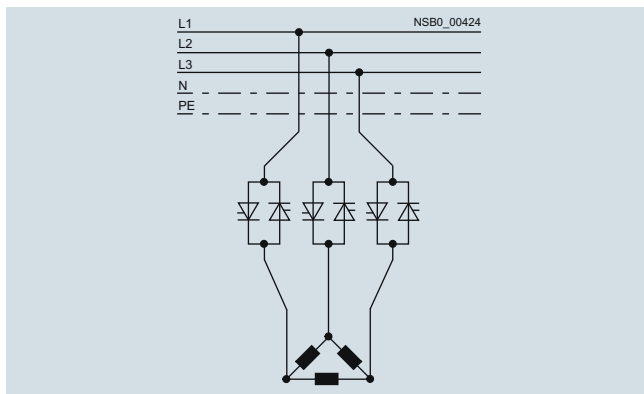
Accessories

Circuit concept

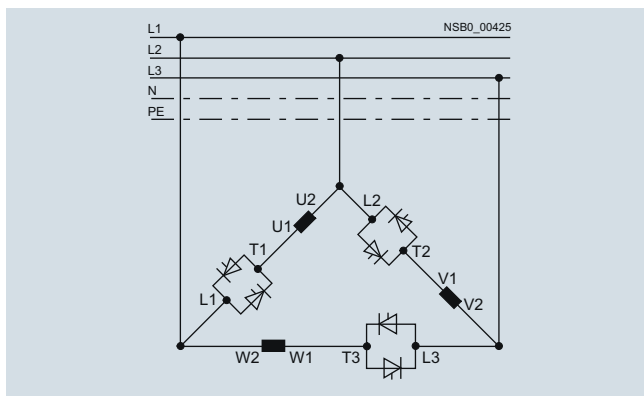
The SIRIUS 3RW44 soft starters can be operated in two different types of circuit:

- **Inline circuit**
The controls for isolating and protecting the motor are simply connected in series with the soft starter. The motor is connected to the soft starter with three cables.
- **Inside-delta circuit**
The wiring is similar to that of wye-delta starters. The phases of the soft starter are connected in series with the individual motor windings. The soft starter then only has to carry the phase current, amounting to about 58 % of the rated motor current (conductor current).

Comparison of the types of circuit:



Inline circuit:
Rated current I_g corresponds to the rated motor current I_n , 3 cables to the motor



Inside-delta circuit:
Rated current I_g corresponds to approx. 58 % of the rated motor current I_n , 6 cables to the motor (as with wye-delta starters)

Which circuit?

Using the inline circuit involves the lowest wiring outlay. If the soft starter to motor connections are long, this circuit is preferable.

The wiring complexity is twice as high when using the inside-delta circuit, but a smaller device can be used with the same rating.

Thanks to the choice of operating mode between the inline circuit and inside-delta circuit, it is always possible to select the most favorable solution.

The braking function is possible only in the inline circuit.

Configuration

The solid-state 3RW44 soft starters are designed for normal starting. In case of heavy starting or increased starting frequency, a larger device must be selected.

For long starting times it is recommended to have a PTC sensor in the motor. This also applies for the ramp-down modes smooth ramp-down, pump ramp-down and DC braking, because during the ramp-down time in these modes, an additional current loading applies in contrast to free ramp-down.

No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and controls) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately.

A bypass contact system and electronic overload relay are already integrated in the 3RW44 soft starter and therefore do not have to be ordered separately.

The harmonic component load for starting currents must be taken into consideration for the selection of motor starter protectors (selection of release).

Note:

When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

For dimensioning soft starters, we recommend our Simulation Tool for Soft Starters (STS):

<https://support.industry.siemens.com/cs/ww/en/view/101494917>
or our Technical Assistance: Phone: +49 (0) 911-895-5900,
email: technical-assistance@siemens.com.

Device interface, PROFIBUS DP/PROFINET communication module, Soft Starter ES parameterizing and operating software

The solid-state 3RW44 soft starters have a PC interface for communicating with the Soft Starter ES software or for connecting the external display and operator module. If the optional PROFIBUS/PROFINET communication module is used, the 3RW44 soft starter can be integrated in the PROFIBUS/PROFINET network and communicate using the GSD file or Soft Starter ES Premium software.

SIRIUS 3RW44 Soft Starter block library for SIMATIC PCS 7

The SIRIUS 3RW44 Soft Starter PCS 7 block library can be used for simple and easy integration of SIRIUS 3RW44 soft starters into the SIMATIC PCS 7 process control system. The SIRIUS 3RW44 soft starter PCS 7 block library contains the diagnostics and driver blocks corresponding with the SIMATIC PCS 7 diagnostics and driver concept as well as the elements (symbols and faceplates) required for operator control and process monitoring.

Manual for SIRIUS 3RW44

In addition to relevant configuration, commissioning, and service information, the manual also contains example circuits and technical specifications for all devices:

<https://support.industry.siemens.com/cs/ww/en/view/21772518>.

Overview



3RM13 motor starter with reversing functionality, electronic overload protection and safety-related shutdown

Further information

Detailed information about functions, properties and applications can be found at:

www.siemens.com/motorstarter/3RM1

SIRIUS 3RM1 motor starters are compact devices 22.5 mm wide, combining a large number of functions in a single enclosure. They consist of combinations of relay contacts, power semiconductors (hybrid technology), and an electronic overload relay for operational switching of three-phase motors up to 3 kW (at 400 V) and resistive loads up to 10 A at AC voltages up to 500 V.

The 3RM1 motor starters with overload protection with wide setting range are offered as direct-on-line starters and reversing starters and as versions with safety-related shutdown up to SIL3 / PL e.

Product versions		Article number		
Product function	Direct-on-line starters	3RM10	0 □ □ AA □ 4	
	Failsafe direct-on-line starters	3RM11	0 □ □ AA □ 4	with ATEX certification and safety-related shutdown
	Reversing starters	3RM12	0 □ □ AA □ 4	
	Failsafe reversing starters	3RM13	0 □ □ AA □ 4	with ATEX certification and safety-related shutdown
Wide setting range for electronic overload release	0.1 ... 0.5 A	1		for motor standard output 0 ... 0.12 kW ²⁾
	0.4 ... 2.0 A	2		for motor standard output 0.09 ... 0.75 kW ²⁾
	1.6 ... 7.0 A (10 A) ¹⁾	7		for motor standard output 0.55 ... 3 kW ²⁾
Connection methods	Screw terminals	1		
	Push-in connection (spring-type terminal)	2		
	Mixed connection method:	3		Control circuit: push-in connection (spring-type terminals), Main circuit: screw terminals
Rated control supply voltage U_s	24 V DC	0		
	110 ... 230 V AC, 110 V DC	1		

¹⁾ Operation of resistive loads with maximum 10 A.

²⁾ Standard three-phase motor, basis 4-pole at 400 V AC, the actual startup characteristics of the motor as well as its rated data are important factors here.

Benefits

Product advantages

- Less space required in the control cabinet (20 to 80 %) thanks to high functional density, which also means reduced wiring and testing
- Greater endurance and reduced heat losses thanks to hybrid technology, see www.siemens.com/sirius/energysaving
- Lower costs for stock keeping and configuration as a result of the wide setting range of the electronic overload release (up to 1:5)
- Fast wiring without tools for rigid conductors or conductors equipped with end sleeves thanks to push-in connections (spring-type terminals)
- Safety-orientated shutdown in accordance with SIL 3 / PL e by shutting down the control supply voltage without additional devices in the main circuit
- The motor starters can be ideally combined with 3SK safety relays for safety-related shutdown (see pages 11/13)
- Motor status feedback to the higher-level control system in the case of 3RM10 and 3RM12 motor starters in the 24 V DC version
- Virtually error-free wiring on the mains connection side and reduction in short-circuit protective devices by means of 3RM19 infeed system
- ATEX certification of the overload protection of the 3RM1 Failsafe motor starters "Increased safety" type of protection EE e according to ATEX directive 94/9/EC
- The 3RM1 motor starters can be used with highly energy-efficient IE3 motors. In this regard, please observe the information on dimensioning and configuring, see "Configuration Manual for SIRIUS Controls with IE3 Motors", <https://support.industry.siemens.com/cs/ww/en/view/94770820>. For further information on IE3, see the Preface, page 5.

Standards and approvals

- IEC/EN 60947-4-2
- UL 508
- ATEX
- IEC 61508-1: SIL 3
- ISO 13849: PL e
- CCC approval for China

Switching Devices – Soft Starters

Contactors for Special Applications

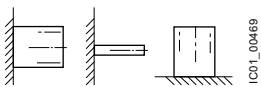
SIRIUS 3RM1 motor starters

Technical specifications

Further information

You can find the full technical specifications in the data sheets for the individual items in the Industry Mall www.siemens.com/product?3RM1

You will find all information on configuring and dimensioning in the 3RM1 manual: <https://support.industry.siemens.com/cs/ww/en/view/66295730>
Further helpful tips and information can be found in the FAQs on 3RM1: <https://support.industry.siemens.com/cs/de/en/ps/16311/faq>

Type		3RM10, 3RM12	3RM11, 3RM13
General technical specifications			
Dimensions (W x H x D)	mm	22.5 x 100 x 141.6 mm	
Ambient temperature			
• During operation	°C	-25 ... +60	
• During storage	°C	-40 ... +70	
• During transport	°C	-40 ... +70	
Installation altitude at height above sea level maximum	m	4 000	2 000
Shock resistance		6 g / 11 ms	
Vibration resistance		1 ... 6 Hz, 15 mm; 20 m/s ² , 500 Hz	
IP degree of protection		IP20	
Mounting position		Vertical, horizontal, standing	
			

Type		3RM1.01	3RM1.02	3RM1.07
Main circuit				
Operational voltage rated value maximum	V	500		
Operating frequency	Hz	50/60		
Operational current at AC-53a at 400 V at an ambient temperature of 40 °C	A	0.5	2	7
Minimum load [% of IM]	%	20		
Adjustable current response value of the inverse-time delayed overload release	A	0.1 ... 0.5	0.4 ... 2	1.6 ... 7

Type		3RM1.0.-AA04	3RM1.0.-AA14
Control circuit			
Type of voltage of the control supply voltage		DC	AC/DC
Control supply voltage			
• At DC	V	24	110
• At AC at 50 Hz	V	--	110 ... 230
Frequency of the control supply voltage	Hz	--	50/60

Type		3RM1.0.-1AA..	3RM1.0.-3AA..	3RM1.0.-2AA..
Connections/terminals				
Type of electrical connection for the main circuit		Screw terminals		Push-in connection (spring-type terminals)
Connectable conductor cross-section for main contacts				
• Solid or stranded	mm ²	0.5 ... 4		
• Finely stranded				
- With end sleeve	mm ²	0.5 ... 2.5		
- Without end sleeve	mm ²	--		0.5 ... 4
Type of electrical connection for auxiliary and control circuits		Screw terminals	Push-in connection (spring-type terminal)	
Connectable conductor cross-section for auxiliary contacts				
• Solid or stranded	mm ²	0.5 ... 2.5	0.5 ... 1.5	
• Finely stranded				
- With end sleeve	mm ²	0.5 ... 2.5	0.5 ... 1	
- Without end sleeve	mm ²	--	0.5 ... 1.5	
AWG number as coded connectable conductor cross-section				
• For main contacts		20 ... 12		
• For auxiliary contacts		20 ... 14	20 ... 16	

Accessories

Further information

You will find all information on configuring and dimensioning the accessories in the 3RM1 manual:

<https://support.industry.siemens.com/cs/ww/en/view/66295730>

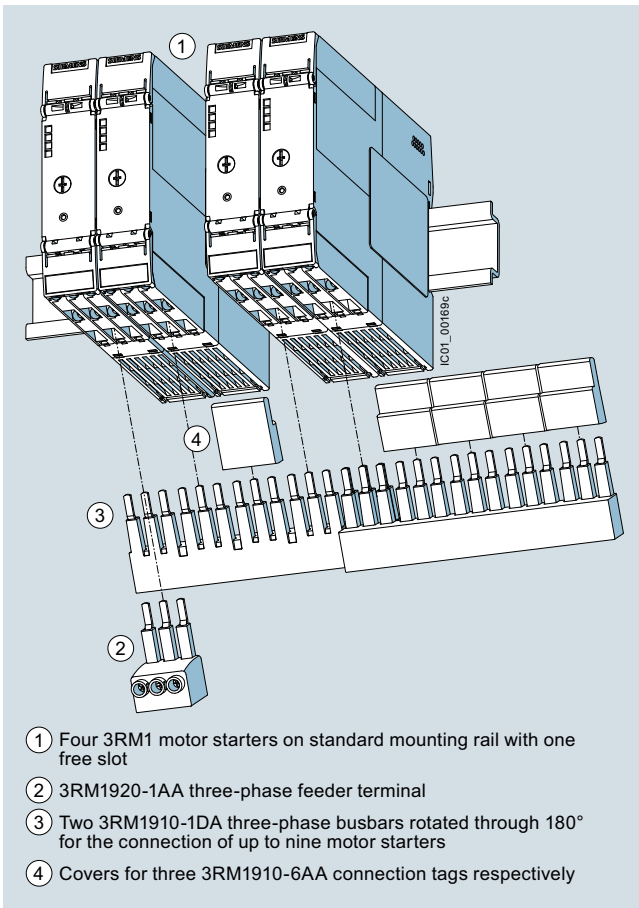
3-phase infeed system (3RM19 3-phase busbar system)

The system permits an easy, time-saving and safe means of feeding two or more 3RM1 motor starters. It can be used only with motor starters with screw terminals in the main circuit.

The maximum summation current must not exceed 25 A. The primary infeed is connected via a 3-phase infeed terminal.

The busbars are available in three lengths, with two, three or five sockets. More than five devices can be connected by clamping the connection tags of a second busbar rotated by 180°.

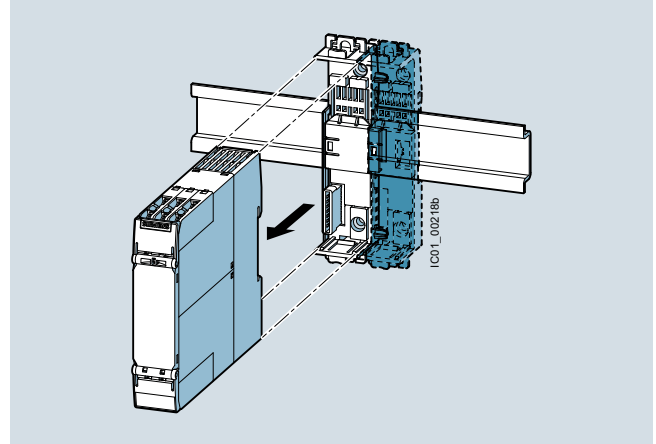
The 3-phase busbars are finger-safe but empty connection tags must be fitted with covers.



3RM19 infeed system with three-phase infeed terminal: In the above example, two three-phase busbars (5-pole busbars) rotated through 180° allow up to 9 3RM1 motor starters to be connected. Contact with the unused connection tags in unoccupied positions is prevented safely by the covers.

Device connectors for the control circuit

The device connectors for 3RM1 motor starters (only 24 V DC control supply voltage) reduce the outlay for cabling by looping through the control supply voltage. The device connectors can be snapped onto a standard mounting rail or fixed to a level mounting panel using screws.



Device connectors with 3RM1 motor starter

Using the device connectors exclusively for feeding in the control supply voltage

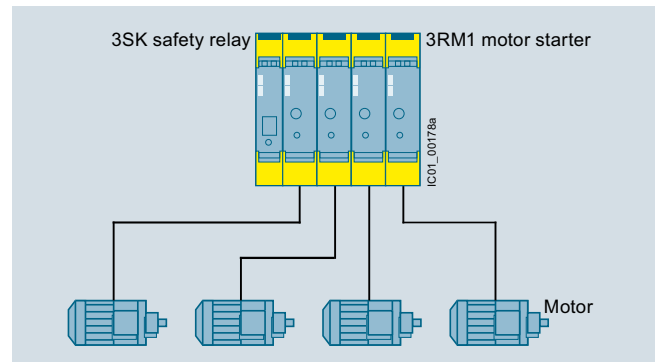
By using device connectors, a maximum of five motor starters can be supplied with 24 V DC control supply voltage. This requires the control supply voltage to be applied to the A1 and A2 terminals of only one motor starter.

Device daisy chain connectors can be used for gaps between two motor starters. Device termination connectors terminate a group.

Using the device connectors for safe group shutdown

In combination with the 3RM11 and 3RM13 Failsafe motor starters, the device connector can also be used for safety-related shutdown. For this application, groups of no more than five Failsafe motor starters can be connected using a device connector, and the group must be terminated with a terminating connector. Removing the control voltage supply from the first motor starter will safely shut down the whole group.

Safe group shutdown can be implemented particularly easily in conjunction with 3SK safety relays. In this case, up to five motor starters can be directly connected to 3SK safety relays via the device connector and then safely shut down (see page 11/13).



Ideal connection: Combination of four SIRIUS 3RM1 Failsafe motor starters with SIRIUS 3SK1 safety relay

Switching Devices – Soft Starters

Contactors for Special Applications





SIRIUS 3RM1 motor starters

Selection and ordering data

Further information

Selection and ordering of the products in the Industry Mall:

www.siemens.com/product?3RM1  Configurator

	Rating for three-phase motor at 400 V ¹⁾	Adjustable current response value of the inverse-time delayed overload release	Control supply voltage		Article No.
			At DC	At AC at 50 Hz	
	kW	A	V	V	
Direct-on-line starters					
	0 ... 0.12	0.1 ... 0.5	24	--	3RM1001-□AA04
	0.09 ... 0.75	0.4 ... 2	24	--	3RM1002-□AA04
	0.55 ... 3	1.6 ... 7	24	--	3RM1007-□AA04
	0 ... 0.12	0.1 ... 0.5	110	110 ... 230	3RM1001-□AA14
	0.09 ... 0.75	0.4 ... 2	110	110 ... 230	3RM1002-□AA14
	0.55 ... 3	1.6 ... 7	110	110 ... 230	3RM1007-□AA14
Reversing starters					
	0 ... 0.12	0.1 ... 0.5	24	--	3RM1201-□AA04
	0.09 ... 0.75	0.4 ... 2	24	--	3RM1202-□AA04
	0.55 ... 3	1.6 ... 7	24	--	3RM1207-□AA04
	0 ... 0.12	0.1 ... 0.5	110	110 ... 230	3RM1201-□AA14
	0.09 ... 0.75	0.4 ... 2	110	110 ... 230	3RM1202-□AA14
	0.55 ... 3	1.6 ... 7	110	110 ... 230	3RM1207-□AA14
Failsafe direct-on-line starters					
	0 ... 0.12	0.1 ... 0.5	24	--	3RM1101-□AA04
	0.09 ... 0.75	0.4 ... 2	24	--	3RM1102-□AA04
	0.55 ... 3	1.6 ... 7	24	--	3RM1107-□AA04
	0 ... 0.12	0.1 ... 0.5	110	110 ... 230	3RM1101-□AA14
	0.09 ... 0.75	0.4 ... 2	110	110 ... 230	3RM1102-□AA14
	0.55 ... 3	1.6 ... 7	110	110 ... 230	3RM1107-□AA14
Failsafe reversing starters					
	0 ... 0.12	0.1 ... 0.5	24		3RM1301-□AA04
	0.09 ... 0.75	0.4 ... 2	24		3RM1302-□AA04
	0.55 ... 3	1.6 ... 7	24		3RM1307-□AA04
	0 ... 0.12	0.1 ... 0.5	110	110 ... 230	3RM1301-□AA14
	0.09 ... 0.75	0.4 ... 2	110	110 ... 230	3RM1302-□AA14
	0.55 ... 3	1.6 ... 7	110	110 ... 230	3RM1307-□AA14

Type of electrical connection

- Screw terminals for main circuit, screw terminals for control circuit
- Push-in connection (spring-type terminals) for main circuit, push-in connection (spring-type terminals) for control circuit
- Screw terminals for main circuit, push-in connections (spring-type terminals) for control circuit

¹⁾ The actual startup characteristics of the motor as well as its rated data are important factors here.






1
2
3

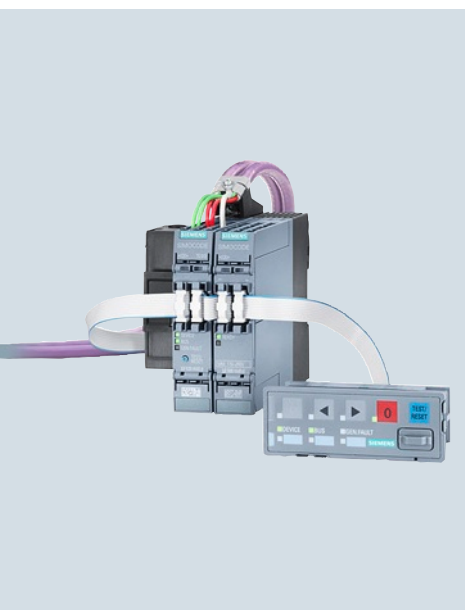
Product designation	Article No.	
3-phase infeed system for 3RM1 with screw terminals		
 <p>3RM1920-1AA</p>	<p>3-phase infeed terminals</p>	<p>3RM1920-1AA</p>
 <p>3RM1910-1AA</p>	<p>3-phase busbars</p> <ul style="list-style-type: none"> • For 2 motor starters 	<p>3RM1910-1AA</p>
 <p>3RM1910-1BA</p>	<ul style="list-style-type: none"> • For 3 motor starters 	<p>3RM1910-1BA</p>
 <p>3RM1910-1DA</p>	<ul style="list-style-type: none"> • For 5 motor starters 	<p>3RM1910-1DA</p>
 <p>3RM1910-6AA</p>	<p>Covers For 3 connection tags of the 3-phase busbars</p>	<p>3RM1910-6AA</p>
Device connectors		
 <p>3ZY1212-2EA00</p>	<p>Device connectors, type 2 For 3RM1 motor starters 24 V DC, 22.5 mm</p>	<p>3ZY1212-2EA00</p>
 <p>3ZY1212-2AB00</p>	<p>Device daisy chain connectors For 3RM1 motor starters 24 V DC, 22.5 mm for gaps without motor starters in assemblies</p>	<p>3ZY1212-2AB00</p>
 <p>3ZY1212-2FA00</p>	<p>Device termination connectors, type 2 For 3RM1 motor starters 24 V DC, 22.5 mm</p>	<p>3ZY1212-2FA00</p>

Switching Devices – Soft Starters

Contactors for Special Applications

SIRIUS 3RM1 motor starters

Product designation	Article No.
Removable terminals	
 <p>Terminal for main circuit, 2-pole</p> <ul style="list-style-type: none"> • Screw terminals, 1 x 4 mm² • Push-in connection, 1 x 4 mm² <p>3ZY1122-1BA00</p>	<p>3ZY1122-1BA00 3ZY1122-2BA00</p>
 <p>Terminal for control circuit, 3-pole</p> <ul style="list-style-type: none"> • Screw terminals, 1 x 2.5 mm² • Push-in connection, 1 x 2.5 mm² <p>3ZY1131-1BA00</p>	<p>3ZY1131-1BA00 3ZY1131-2BA00</p>
Further accessories	
 <p>Push-in lugs for wall mounting 2 lugs per device are required</p> <p>3ZY1311-0AA00</p>	<p>3ZY1311-0AA00</p>
 <p>Sealable cover, 22.5 mm For simple protection against unauthorized access</p> <p>3ZY1321-2AA00</p>	<p>3ZY1321-2AA00</p>
 <p>Coding pins for removable terminals For mechanical coding</p> <p>3ZY1440-1AA00</p>	<p>3ZY1440-1AA00</p>



5/2 SIMOCODE 3UF motor management and control devices

- 5/2 General data
- 5/11 Basic units
- 5/13 Expansion modules
- 5/14 Fail-safe expansion modules
- 5/16 Accessories

5/19 Software

- 5/19 SIMOCODE ES (TIA Portal)
- 5/24 SIMOCODE ES
- 5/28 SIMOCODE pro block library for SIMATIC PCS 7

5/31 Timing relays

- 5/31 SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm
- 5/48 7PV15 timing relays in enclosure, 17.5 mm

5/54 SIRIUS 3UG45, 3UG46 monitoring relays for stand-alone installation

- 5/54 General data
- 5/57 Line monitoring
- 5/62 Voltage monitoring
- 5/65 Current monitoring
- 5/68 Power factor and active current monitoring
- 5/71 Residual current monitoring
- 5/71 Residual-current monitoring relays
- 5/74 3UL23 residual-current transformers
- 5/75 Insulation monitoring
- 5/75 General data
- 5/77 For ungrounded AC networks
- 5/80 For ungrounded DC and AC networks
- 5/85 Level monitoring
- 5/85 Level monitoring relays
- 5/88 Probes for filling level monitoring
- 5/89 Speed monitoring
- 5/92 Accessories

5/93 SIRIUS 3RN1 thermistor motor protection

- 5/93 For PTC sensors

5/102 Interface converters

- 5/102 SIRIUS 3RS17 interface converters

5/108 SIRIUS 3RS18 coupling relays with industrial enclosure

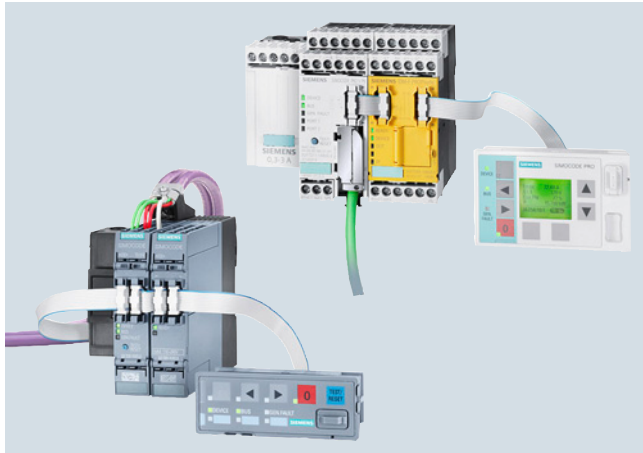
- 5/108 Coupling relays with relay output

Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

General data

Overview



SIMOCODE pro S for efficient entry into motor management and SIMOCODE pro V for maximum functionality

SIMOCODE pro is a flexible, modular motor management system for motors with constant speeds in the low-voltage performance range. It optimizes the connection between I&C and motor feeder, increases plant availability and allows significant savings to be made for installation, commissioning, operation and maintenance of a system.

When SIMOCODE pro is installed in the low-voltage switchboard, it is the intelligent interface between the higher-level automation system and the motor feeder and includes the following:

- Multifunctional, solid-state full motor protection that is independent of the automation system
- Integrated control functions instead of hardware for the motor control
- Detailed operational, service and diagnostics data
- Open communication through PROFIBUS DP, PROFINET, Modbus RTU and OPC UA
- Safety relay function for the fail-safe disconnection of motors up to SIL 3 (IEC 61508, IEC 62061) or PL e with Category 4 (EN ISO 13849-1)
- SIMOCODE ES is the software package for SIMOCODE pro parameterization, start up and diagnostics.

Device series

SIMOCODE pro is structured into several functionally tiered series:

- SIMOCODE pro C, as a compact system for direct-on-line starters and reversing starters or for controlling a motor starter protector.
- SIMOCODE pro S – the smart system for direct-on-line, reversing, and wye-delta starters or for controlling a motor starter protector or soft starter. Its expandability with a multifunction module provides comprehensive input/output project data volume, precise ground-fault detection via the 3UL23 residual-current transformers and temperature measurement.
- SIMOCODE pro V, as a variable system with all control functions and with the possibility of expanding the inputs, outputs and functions of the system at will using expansion modules.

Expansion possibilities	SIMOCODE			
	pro C PROFIBUS	pro S PROFIBUS	pro V ¹⁾ PROFIBUS ²⁾ Modbus RTU ²⁾	PROFINET
Operator panels	✓	✓	✓	✓
Operator panels with display	--	--	✓	✓
Current measuring modules	✓	✓	✓	✓
Current/voltage measuring modules	--	--	✓	✓
Decoupling modules	--	--	✓	✓
Expansion modules:				
• Digital modules	--	--	2	2
• Fail-safe digital modules ³⁾	--	--	1	1
• Analog module	--	--	1	2
• Ground-fault module	--	--	1	1
• Temperature module	--	--	1	2
• Multifunction modules	--	1	--	--

✓ Available

-- Not available

¹⁾ Maximum of 5 expansion modules.

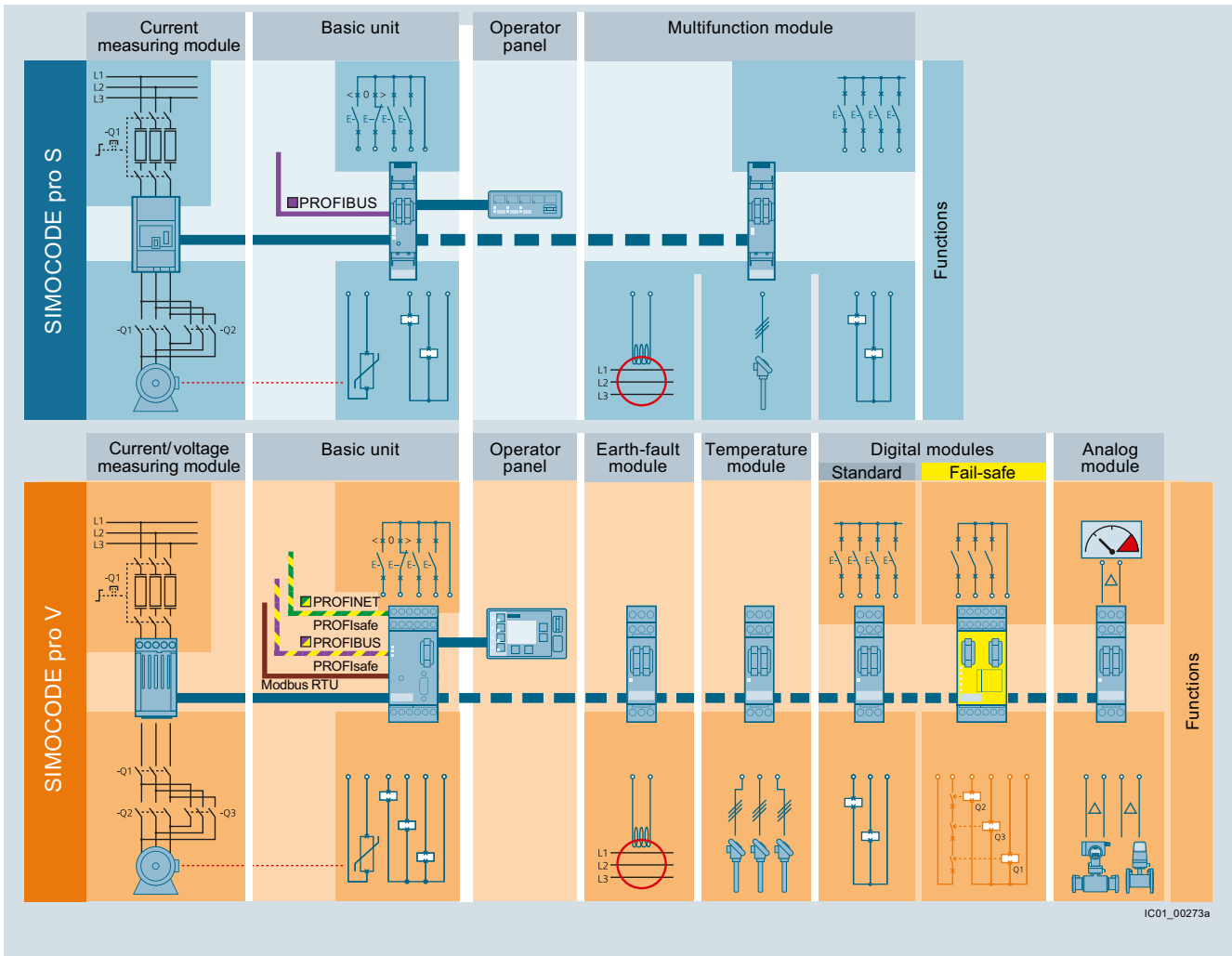
²⁾ When an operator panel with display and/or a decoupling module are used, more restrictions on the number of expansion modules connectable per basic unit must be observed, see page 5/10.

³⁾ The fail-safe digital module can be used instead of one of the two digital modules.

Per feeder each system always comprises one basic unit and one separate current measuring module. The two modules are connected together electrically through the system interface with a connection cable and can be mounted mechanically connected as a unit (one behind the other) or separately (side by side). The motor current to be monitored is decisive only for the choice of the current measuring module.

An operator panel for mounting in the control cabinet door is optionally connectable through a second system interface on the basic unit. Both the current measuring module and the operator panel are electrically supplied by the basic unit through the connection cable. More inputs, outputs and functions can be added to the SIMOCODE pro V and SIMOCODE pro S by means of optional expansion modules, thus supplementing the inputs and outputs already existing on the basic unit. With the DM-F Local and DM-F PROFIsafe fail-safe digital modules it is also possible to integrate the fail-safe disconnection of motors in the SIMOCODE pro V motor management system.

All modules are connected by connection cables. The connection cables are available in various lengths. The maximum distance between the modules (e.g. between the basic unit and the current measuring module) must not exceed 2.5 m. The total length of all the connection cables per system interface of the basic unit may be up to 3 m.



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SIMOCODE pro S and SIMOCODE pro V: System structure

Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

General data

Article No. scheme

Digit of the Article No.	1 st - 4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th		
	□□□□	□	□	□	-	1	□	□	0	□	-	0
SIMOCODE pro motor management system	3 U F 7											
Type of unit/module	□											
Functional version of the unit/module	□ □											
Connection type of the current transformer	□											
Voltage version	□											
Color	□											
Example	3 U F 7 0 1 0 - 1 A B 0 0 - 0											

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

General customer benefits

- Integrating the whole motor feeder into the process control by means of PROFIBUS DP, PROFINET, Modbus RTU or OPC UA significantly reduces the wiring outlay between the motor feeder and PLC
- Decentralization of the automated processes by means of configurable control and monitoring functions in the feeder saves resources in the automation system and ensures full functionality and protection of the feeder even if the I&C or bus system fails
- The acquisition and monitoring of operating, service and diagnostics data in the feeder and process control system increases plant availability as well as maintenance and service-friendliness
- The high degree of modularity allows users to perfectly implement their plant-specific requirements for each motor feeder
- The SIMOCODE pro system offers functionally graded and space-saving solutions for each customer application
- The replacement of the control circuit hardware with integrated control functions decreases the number of hardware components and wiring required and in this way limits stock keeping costs and potential wiring errors
- The use of electronic full motor protection permits better utilization of the motors and ensures long-term stability of the tripping characteristic and reliable tripping even after years of service

Multifunctional, electronic full motor protection for rated motor currents up to 820 A

SIMOCODE pro offers comprehensive protection of the motor feeder by means of a combination of different, multi-step and delayable protection and monitoring functions:

- Inverse-time delayed electronic overload protection (CLASS 5 to 40)
- Thermistor motor protection
- Phase failure/unbalance protection
- Stall protection
- Monitoring of adjustable limit values for the motor current
- Voltage and power monitoring
- Monitoring of the power factor (motor idling/load shedding)
- Ground-fault monitoring
- Temperature monitoring, e.g. over PT100/PT1000
- Monitoring of operating hours, downtime and number of starts etc.

Recording of measuring curves

SIMOCODE pro can record measuring curves and therefore is able, for example, to present the progression of motor current during motor start up.

Flexible motor control implemented with integrated control functions (instead of comprehensive hardware interlocks)

Many predefined motor control functions have already been integrated into SIMOCODE pro, including all necessary logic operations and interlocks:

- Overload relays
- Direct-on-line and reversing starters
- Wye/delta starters (also with direction reversal)
- Two speeds, motors with separate windings (pole-changing starter); also with direction reversal
- Two speeds, motors with separate Dahlander windings (also with direction reversal)
- Positioner actuation
- Solenoid valve actuation
- Actuation of a motor starter protector
- Soft starter actuation (also with direction reversal)

These control functions are predefined in SIMOCODE pro and can be freely assigned to the inputs and outputs of the PROFIBUS/PROFINET device (including the process image).

These predefined control functions can also be flexibly adapted to each customized configuration of a motor feeder by means of freely configurable logic modules (truth tables, counters, timers, edge evaluation, etc.) and with the help of standard functions (power failure monitoring, emergency start, external faults, etc.), without additional auxiliary relays being necessary in the control circuit.

SIMOCODE pro makes a lot of additional hardware and wiring in the control circuit unnecessary which results in a high level of standardization of the motor feeder in terms of its design and circuit diagrams.

Detailed operational, service and diagnostics data

SIMOCODE pro makes different operating, service and diagnostics data available and helps to detect potential faults in time and to prevent them by means of preventative measures. In the event of a malfunction, a fault can be diagnosed, localized and rectified very quickly – there are no or very short downtimes.

Operating data

- Motor switching state derived from the current flow in the main circuit
- All phase currents
- All phase voltages and phase-to-phase voltages
- Active power, apparent power and power factor
- Phase unbalance and phase sequence
- Ground-fault current
- Time to trip
- Motor temperature
- Remaining cooling time etc.

Service data

- Motor operating hours
- Motor stop times
- Number of motor starts
- Number of overload trips
- Interval for compulsory testing of the enabling circuits
- Energy consumed
- Internal comments stored in the device etc.

Diagnostics data

- Numerous detailed early warning and fault messages
- Internal device fault logging with time stamp
- Time stamping of freely selectable status, alarm or fault messages etc.

Easy operation and diagnosticsOperator panel

The operator panel is used to control the motor feeder and can replace all conventional pushbuttons and indicator lights to save space. It makes SIMOCODE pro or the feeder directly operable in the control cabinet. It features all the status LEDs available on the basic unit and externalizes the system interface for simple parameterization or diagnosis on a PC/PG.

Operator panel with display

As an alternative to the 3UF720 standard operator panel for SIMOCODE pro V, a 3UF721 operator panel with display is also available. This can additionally indicate current measured values, operational and diagnostics data or status information of the motor feeder at the control cabinet. The pushbuttons of the operator panel can be used to control the motor. Also, when SIMOCODE pro V PROFINET is used it is possible to set parameters such as rated motor current, limit values, etc. directly via the operator panel with display.

Communications

SIMOCODE pro has either an integrated PROFIBUS DP or Modbus RTU interface (SUB-D or terminal connection) or a PROFINET interface (2 x RJ45).

Fail-safe disconnection through PROFIBUS or PROFINET with the PROFIsafe profile is also possible in conjunction with a fail-safe controller (F-CPU) and the DM-F PROFIsafe fail-safe digital module.

SIMOCODE pro for PROFIBUS

SIMOCODE pro for PROFIBUS supports for example:

- Cyclic services (DPV0) and acyclic services (DPV1)
- Extensive diagnostics and hardware interrupts
- Time stamp with high timing precision (SIMATIC S7) for SIMOCODE pro V
- DPV1 communication after the Y-Link

SIMOCODE pro for PROFINET

SIMOCODE pro for PROFINET supports for example:

- Line and ring bus topology thanks to an integrated switch
- Media redundancy via MRP protocol
- Operating, service and diagnostics data via standard web browser
- OPC UA server for open communication with visualization and control system
- NTP-synchronized time
- Interval function and measured values for power management via PROFenergy
- Module exchange without PC memory module through proximity detection
- Extensive diagnostics and maintenance alarms

System redundancy with SIMOCODE pro for PROFINET

The device supports the system redundancy mechanisms of PROFINET IO and therefore can be operated directly on fault-tolerant systems such as SIMATIC S7-400 H. As such, SIMOCODE pro can provide decisive added value also for the field level of plants in which plant availability and control system redundancy are priorities.

SIMOCODE pro for Modbus RTU

SIMOCODE pro for Modbus RTU supports, for example:

- Communication at baud rates 1200/2400/4800/9600/19200/57600
- Access to freely parameterizable process image via Modbus RTU
- Access to all operating, service and diagnostics data via Modbus RTU

Notes on safety

For connection of an internal system to an external system, suitable protective measures must be taken to ensure safe operation of the plant (including IT security, e.g. network segmentation).

For more information, see www.siemens.com/industrialsecurity.

For SIMOCODE pro motor management and control devices with communication function, see [page 5/11 onwards](#).

For accessories, see [page 5/16 onwards](#).

For more information, e.g. on software, see [page 5/19](#).

Autonomous operation

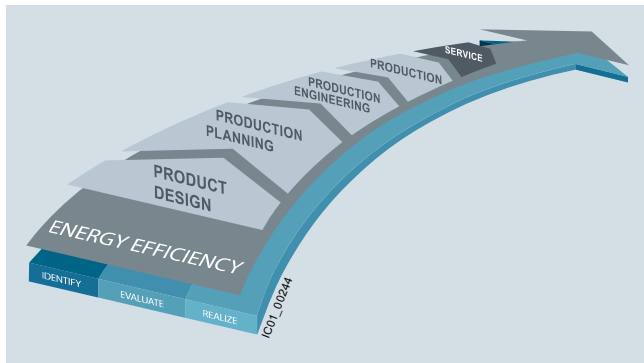
An essential feature of SIMOCODE pro is the autonomous execution of all protection and control functions, even when communication to the I&C system is interrupted. This means that even in the event of bus system or automation system failure, full functionality of the feeder is ensured or a specific behavior can be parametrized in case of such a fault, e.g. targeted shutdown of the feeder or execution of particular parametrized control mechanisms (such as reversal of the direction of rotation).

Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

General data

Advantages through energy efficiency



Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative SIRIUS industrial controls products can also make a major contribution to the energy efficiency of a plant (www.siemens.com/sirius/energysaving).

The SIMOCODE pro 3UF7 motor management system makes the following contribution to the energy efficiency of the plant as a whole:

- **Energy consumption:**
Clear display of the energy consumption of a motor feeder or process element by means of the acquisition and transmission of all operating and consumption data, such as current, voltage, active and reactive power, energy consumption, motor temperature etc.
- **Energy management:**
Evaluation of energy measured values (e.g. limit value monitoring) with exporting of local or central actions (= forwarding to higher-level).
- **PROFenergy:**
SIMOCODE pro V PROFINET supports the PROFenergy functions. Reduced energy consumption thanks to automatic disconnection in the intervals and forwarding of the measured values for higher-level energy management systems.

Application

SIMOCODE pro is often used for automated processes where plant downtimes are very expensive (e.g. chemical, oil/gas, water/wastewater, steel or cement industries) and where it is important to prevent plant downtimes through detailed operational, service and diagnostics data or to localize faults very quickly when they occur.

SIMOCODE pro is modular and space-saving and suited especially for operation in motor control centers (MCCs) in the process industry and for power plant technology.

Applications

Protection and control of motors in hazardous areas for types of protection EEx e/d according to ATEX guideline 94/9/EC

- With heavy starting (paper, cement, metal and water industries)
- In high-availability plants (chemical, oil, raw material processing industries, power plants)

Use of SIMOCODE pro 3UF7 with IE3 motors

Note:

When using the SIMOCODE pro 3UF7 in conjunction with highly energy-efficient IE3 motors, please observe the information on dimensioning and configuring, see "Configuration Manual for SIRIUS Controls with IE3 Motors", <https://support.industry.siemens.com/cs/ww/en/view/94770820>.

Safety technology for SIMOCODE pro

The safe disconnection of motors in the process industry is becoming increasingly important as the result of new and revised standards and requirements in the safety technology field.

With the DM-F Local and DM-F PROFIsafe fail-safe expansion modules it is easy to integrate functions for fail-safe disconnection into the SIMOCODE pro V motor management system while retaining service-proven concepts. The strict separation of safety functions and operational functions proves particularly advantageous for planning, configuring and construction. Seamless integration in the motor management system leads to greater transparency for diagnostics and during operation of the system.

Suitable components for this purpose are the DM-F Local and DM-F PROFIsafe fail-safe expansion modules, depending on the requirements:

- The DM-F Local fail-safe digital module for when direct assignment between a fail-safe hardware shutdown signal and a motor feeder is required, or
- The DM-F PROFIsafe fail-safe digital module for when a fail-safe controller (F-CPU) creates the signal for the disconnection and transmits it in a fail-safe manner through PROFIBUS/PROFIsafe or PROFINET/PROFIsafe to the motor management system

Technical specifications

General data		
Type		3UF7
Permissible ambient temperature		
• During operation	°C	-25 ... +60; 3UF721: 0 ... +60
• During storage and transport	°C	-40 ... +80; 3UF721: -20 ... +70
Degree of protection (acc. to IEC 60529)		
• Measurement modules with busbar connection		IP00
• Operator panel (front) and door adapter (front) with cover		IP54
• Other components		IP20
Shock resistance (sine pulse)	g/ms	15/11
Mounting position		Any
Frequency	Hz	50/60 ± 5 %
EMC interference immunity (according to IEC 60947-1)		Corresponds to degree of severity 3
• Conducted interference, burst acc. to IEC 61000-4-4	kV	2 (power ports)
	kV	1 (signal port)
	V	10
• Conducted interference, high frequency acc. to IEC 61000-4-6	kV	2 (line to ground); 3UF7320-1AB, 3UF7330-1AB: 1 (line to ground)
• Conducted interference, surge acc. to IEC 61000-4-5	kV	1 (line to line); 3UF7320-1AB, 3UF7330-1AB: 0.5 (line to line)
• Electrostatic discharge, ESD acc. to IEC 61000-4-2	kV	8 (air discharge); 3UF7020: Only operate front side during operation
	kV	6 (contact discharge); 3UF721: 4 (contact discharge)
• Field-related interference acc. to IEC 61000-4-3	V/m	10
EMC emitted interference (according to IEC 60947-1)		EN 55011/EN 55022 (CISPR 11/CISPR 22)
• Conducted and radiated interference emission		(corresponds to degree of severity A)
Protective separation (acc. to IEC 60947-1)		All circuits in SIMOCODE pro are safely separated from each other according to IEC 60947-1, i.e. they are designed with doubled creepage paths and clearances. In this context, compliance with the instructions in the test report "Safe Isolation" No. 2668 is required.
Basic units		
Type		3UF7000-1AU00-0 3UF7010-1AU00-0 3UF7011-1AU00-0 3UF7020-1AU01-0 3UF7012-1AU00-0
		3UF7000-1AB00-0 3UF7010-1AB00-0 3UF7011-1AB00-0 3UF7020-1AB01-0 3UF7012-1AB00-0
Control circuit		
Rated control supply voltage U_s (according to IEC 61131-2)		110 ... 240 AC/DC; 50/60 Hz
Operating range		24 V DC
• SIMOCODE pro C (3UF7000) and SIMOCODE pro V (3UF7010/3UF7012)		0.85 ... 1.1 × U_s
• SIMOCODE pro V PN (3UF7011) and SIMOCODE pro S (3UF7020)		0.80 ... 1.2 × U_s
- Operation		0.85 ... 1.1 × U_s
- Start up		0.85 ... 1.1 × U_s
Power consumption		
• SIMOCODE pro C (3UF7000) and SIMOCODE pro S (3UF7020)		7 VA/5 W
• SIMOCODE pro V (3UF7010/3UF7012) incl. two connected expansion modules		10 VA/7 W
• SIMOCODE pro V PN (3UF7011) incl. two connected expansion modules		11 VA/8 W
Rated insulation voltage U_i	V	300 (at pollution degree 3)
Rated impulse withstand voltage U_{imp}	kV	4
Relay outputs		
• Number		3 monostable relay outputs
- SIMOCODE pro C, SIMOCODE pro V, SIMOCODE pro V PN		2 monostable relay outputs
- SIMOCODE pro S		
• Specified short-circuit protection for auxiliary contacts (relay outputs)		
- Fuse links		6 A operational class gG; 10 A quick-response (IEC 60947-5-1)
- Miniature circuit breaker		1.6 A, C characteristic (IEC 60947-5-1); 6 A, C characteristic (Ik < 500 A)
• Rated uninterrupted current	A	6
• Rated switching capacity		
- AC-15		6 A/24 V AC 6 A/120 V AC 3 A/230 V AC
- DC-13		2 A/24 V DC 0.55 A/60 V DC 0.25 A/125 V DC
Inputs (binary)		4 inputs supplied internally by the device electronics (with 24 V DC) and connected to a common potential
Thermistor motor protection (binary PTC)		
• Summation cold resistance	kΩ	≤ 1.5
• Response value	kΩ	3.4 ... 3.8
• Return value	kΩ	1.5 ... 1.65

Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

General data

Current measuring modules or current/voltage measuring modules						
Type		3UF71.0	3UF71.1	3UF71.2	3UF71.3	3UF71.4
Main circuit						
Current setting I_e	A	0.3 ... 3	2.4 ... 25	10 ... 100	20 ... 200	63 ... 630
Rated insulation voltage U_i	V	690; 3UF7103 and 3UF7104: 1 000 (at pollution degree 3)				
Rated operational voltage U_e	V	690				
Rated impulse withstand voltage U_{imp}	kV	6; 3UF7103 and 3UF7104: 8				
Rated frequency	Hz	50/60				
Type of current		Three-phase current				
Short circuit		Additional short-circuit protection is required in the main circuit				
Accuracy of current measurement (in the range of 1 x minimum current setting I_u to 8 x max. current setting I_o)	%	±3				
Typical voltage measuring range						
• Phase-to-phase voltage/line-to-line voltage (e.g. U_{L1L2})	V	110 ... 690				
• Phase voltage (e.g. U_{L1N})	V	65 ... 400				
Accuracy						
• Voltage measurement (phase voltage U_L in the range 230 ... 400 V)	%	±3 (typical)				
• Power factor measurement (in the rated load range p.f. = 0.4 ... 0.8)	%	±5 (typical)				
• Apparent power measurement (in the rated load range)	%	±5 (typical)				
Notes on voltage measurement						
• In insulated, high-resistance or asymmetrically grounded forms of power supply system and for single-phase systems		In these networks the current/voltage measuring module can be used only with an upstream decoupling module on the system interface.				
• Supply lines for voltage measurement		In the supply lines from the main circuit for voltage measurement of SIMOCODE pro it may be necessary to provide additional line protection!				
Digital modules or multifunction modules						
Type		3UF7300, 3UF7310, 3UF7600				
Control circuit						
Rated insulation voltage U_i	V	300 (at pollution degree 3)				
Rated impulse withstand voltage U_{imp}	kV	4				
Relay outputs						
• Number		2 monostable or bistable relay outputs (depending on the version)				
• Specified short-circuit protection for auxiliary contacts (relay outputs)		6 A operational class gG; 10 A quick-response (IEC 60947-5-1)				
- Fuse links		1.6 A, C characteristic (IEC 60947-5-1); 6 A, C characteristic (Ik < 500 A)				
- Miniature circuit breaker		6				
• Rated uninterrupted current	A	6 A/24 V AC 6 A/120 V AC 3 A/230 V AC				
• Rated switching capacity		2 A/24 V DC 0.55 A/60 V DC 0.25 A/125 V DC				
- AC-15						
- DC-13						
Inputs (binary)		4 inputs, electrically isolated, supplied externally with 24 V DC or 110 ... 240 V AC/DC depending on the version, connected to a common potential				
Ground-fault modules or multifunction modules						
Type		3UF7510, 3UF7600				
Control circuit						
Connectable residual-current transformers		3UL23				
Type of current for monitoring		Type A (AC and pulsating DC residual currents)				
Adjustable response value		30 mA ... 40 A				
Relative measurement error		7.5 %				
Temperature modules or multifunction modules						
Type		3UF7600, 3UF7700				
Sensor circuit						
Number of temperature sensors						
• 3UF7700		3 temperature sensors				
• 3UF7600		1 temperature sensor				
Typical sensor circuits						
• PT100	mA	1 (typical)				
• PT1000/KTY83/KTY84/NTC	mA	0.2 (typical)				
Open-circuit/short-circuit detection						
• Sensor type		PT100/PT1000	KTY83-110	KTY84	NTC	
- Open circuit		✓	✓	✓	--	
- Short circuit		✓	✓	✓	✓	
- Measuring range	°C	-50 ... +500	-50 ... +175	-40 ... +300	80 ... 160	
Measuring accuracy at 20 °C ambient temperature (T20)	K	< ±2				
Deviation due to ambient temperature (in % of measuring range)	%	0.05 per K deviation from T20				
Conversion time	ms	500				
Connection type		Two- or three-wire connection				

✓ Detection possible

-- Detection not possible

Analog modules					
Type		3UF74			
Control circuit					
Inputs					
• Channels		2 (passive)			
• Parameterizable measuring ranges	mA	0/4 ... 20			
• Shielding		Up to 30 m shield recommended, from 30 m shield required			
• Max. input current (destruction limit)	mA	40			
• Accuracy	%	±1			
• Input resistance	Ω	50			
• Conversion time	ms	150			
• Resolution	Bit	12			
• Open-circuit detection		With measuring range 4 ... 20 mA			
Outputs					
• Channels		1			
• Parameterizable output range	mA	0/4 ... 20			
• Shielding		Up to 30 m shield recommended, from 30 m shield required			
• Max. voltage at output	V DC	30			
• Accuracy	%	±1			
• Max. output load	Ω	500			
• Conversion time	ms	25			
• Resolution	Bit	12			
• Short-circuit proof		Yes			
Connection type		Two-wire connection			
Electrical separation of inputs/output to the device electronics		No			
Fail-safe digital modules					
Type		3UF7320-1AB00-0	3UF7320-1AU00-0	3UF7330-1AB00-0	3UF7330-1AU00-0
Control circuit					
Rated control supply voltage U_s	V	24 DC	110 ... 240 AC/DC; 50/60 Hz	24 DC	110 ... 240 AC/DC; 50/60 Hz
Power consumption		3 W	9.5 VA/4.5 W	4 W	11 VA/5.5 W
Rated insulation voltage	V	300			
Rated impulse withstand voltage U_{imp}	kV	4			
Relay outputs					
• Number		2 relay enabling circuits, 2 relay outputs			
Version of the fuse link For short-circuit protection of the relay enabling circuit	A	4, operational class gG			
Rated uninterrupted current	A	5			
Rated switching capacity					
• AC-15		3 A/24 V AC; 3 A/120 V AC; 1.5 A/230 V AC			
• DC-13		4 A/24 V DC; 0.55 A/60 V DC; 0.22 A/125 V DC			
Inputs (binary)		5 (with internal power supply from the device electronics)			
Cable length					
• Between sensor/start signal and evaluation electronics	m	1 500			
• For further digital signals	m	300			
Safety data¹⁾					
SIL level max. according to IEC 61508		3			
Performance level PL according to EN ISO 13849-1		e			
Category according to EN ISO 13849-1		4			
Stop category according to EN 60204-1		0			
Probability of a dangerous failure (at 40 °C) for SIL 3 applications					
• Per hour (PFH _d) at a high demand rate according to IEC 62061	1/h	4.5 x 10 ⁻⁹	4.6 x 10 ⁻⁹	4.4 x 10 ⁻⁹	4.4 x 10 ⁻⁹
• On demand (PFD _{avg}) at a low demand rate according to IEC 61508		5.4 x 10 ⁻⁶	5.5 x 10 ⁻⁶	5.1 x 10 ⁻⁶	5.2 x 10 ⁻⁶
T1 value for proof-test interval or service life according to IEC 61508	a	20			

¹⁾ More safety data, see system manual "SIMOCODE pro Safety Fail-Safe Digital Modules", <https://support.industry.siemens.com/cs/ww/en/view/50564852>.

Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

General data

More information

Configuration instructions when using an operator panel with display and/or a decoupling module with SIMOCODE pro V with PROFIBUS or Modbus RTU

If you want to use an operator panel with display and/or a decoupling module in the SIMOCODE pro V system with PROFIBUS or Modbus RTU, then the following configuration instructions concerning the type and number of connectable expansion modules must be observed.

The following tables show the maximum possible configuration of the expansion modules for the various combinations.

The DM-F Local and DM-F PROFIsafe fail-safe expansion modules behave in this connection like digital modules for standard applications.

Use of an operator panel with display

Digital module 1	Digital module 2	Analog module	Temperature module	Ground-fault module
Only operator panel with display for SIMOCODE pro V (24 V DC or 110 ... 240 V AC/DC)				
Max. 4 expansion modules can be used				
Operator panel with display and current/voltage measurement with SIMOCODE pro V (110 ... 240 V AC/DC)				
Max. 3 expansion modules can be used or:				
--	--	✓	✓	--

✓ Available

-- Not available

Use of a decoupling module

(voltage measurement in insulated networks)

Digital module 1	Digital module 2	Analog module	Temperature module	Ground-fault module
SIMOCODE pro V (24 V DC)				
✓ ¹⁾	✓ ¹⁾	✓	✓	✓
SIMOCODE pro V (110 ... 240 V AC/DC)				
✓	✓	--	✓	✓
✓ ¹⁾	✓ ¹⁾	✓	✓	--
✓	--	✓	✓	--
✓	--	✓	--	✓

✓ Available

-- Not available

¹⁾ No bistable relay outputs and no more than 5 of 7 relay outputs active simultaneously (> 3 s).

Use of a decoupling module

(voltage measurement in insulated networks)

in combination with an operator panel with display

Digital module 1	Digital module 2	Analog module	Temperature module	Ground-fault module
SIMOCODE pro V (24 V DC)				
✓	--	✓	✓	✓
✓	✓	--	✓	✓
SIMOCODE pro V (110 ... 240 V AC/DC)				
✓ ¹⁾	--	✓	✓	✓
✓	✓	--	--	--
✓ ²⁾	✓ ²⁾	✓ ³⁾	--	--
✓	--	--	✓	✓

✓ Available

-- Not available

¹⁾ No bistable relay outputs and no more than 3 of 5 relay outputs active simultaneously (> 3 s).

²⁾ No bistable relay outputs and no more than 5 of 7 relay outputs active simultaneously (> 3 s).

³⁾ Analog module output is not used.

Protective separation

All circuits in SIMOCODE pro are safely isolated from each other in accordance with IEC 60947-1. That is, they are designed with double creepages and clearances. In the event of a fault, therefore, no parasitic voltages can be formed in neighboring circuits. The instructions of Test log No. 2668 must be complied with.

Types of protection EEx e and EEx d

The overload protection and the thermistor motor protection of the SIMOCODE pro system comply with the requirements for overload protection of explosion-proof motors to the type of protection:

- EEx d "flameproof enclosure" e.g. according to IEC 60079-1
- EEx e "increased safety" e.g. according to IEC 60079-7

When using SIMOCODE pro devices with a 24 V DC control voltage, electrical separation must be ensured using a battery or a safety transformer according to IEC 61558-2-6.

EC type test certificate: BVS 06 ATEX F 001

Test log: BVS PP 05.2029 EG.

Selection data for type-tested assemblies/load feeders

For configuration tables according to type of coordination "1" or "2", see

- Manual "Configuring SIRIUS", <https://support.industry.siemens.com/cs/ww/en/view/40625241>
- Manual "Configuring SIRIUS Innovations", <https://support.industry.siemens.com/cs/ww/en/view/39714188>
- SIMOCODE pro PROFIBUS System Manual, <https://support.industry.siemens.com/cs/ww/en/view/20017780>
- SIMOCODE pro PROFINET System Manual, <https://support.industry.siemens.com/cs/ww/en/view/61896631>

System manual







The SIMOCODE pro system manual describes the motor management system and its functions in detail. It provides information on configuration, start up, servicing and maintenance. A typical example of a reversing starter application is used to teach the user quickly and practically how to use the system. In addition to help on how to identify and rectify faults in the event of a malfunction, the manual also contains special information for servicing and maintenance. For selection of equipment and for configuration, it is recommended to consult the system manual.

For a detailed description of the DM-F Local and DM-F PROFIsafe fail-safe expansion modules, see the system manual "SIMOCODE pro Safety Fail-Safe Digital Modules" at <https://support.industry.siemens.com/cs/ww/en/view/50564852>.

Internet

For more information, see www.siemens.com/simocode.

Selection and ordering data

Version	Screw terminals 	
SIMOCODE pro PROFIBUS		Article No.
 <p>3UF7000-1A.00-0</p>	<p>SIMOCODE pro C PROFIBUS DP interface, 12 Mbit/s, RS 485 4 I/3 O freely assignable, input for thermistor connection, monostable relay outputs Rated control supply voltage U_g: • 24 V DC • 110 ... 240 V AC/DC</p>	<p>3UF7000-1AB00-0 3UF7000-1AU00-0</p>
 <p>3UF7020-1A.01-0</p>	<p>SIMOCODE pro S¹⁾ PROFIBUS DP interface, 1.5 Mbit/s, RS 485 4 I/2 O freely assignable, input for thermistor connection, monostable relay outputs, can be expanded by a multifunction module Rated control supply voltage U_g: • 24 V DC • 110 ... 240 V AC/DC</p>	<p>3UF7020-1AB01-0 3UF7020-1AU01-0</p>
 <p>3UF7010-1A.00-0</p>	<p>SIMOCODE pro V PROFIBUS DP interface, 12 Mbit/s, RS 485 4 I/3 O freely assignable, input for thermistor connection, monostable relay outputs, can be expanded by expansion modules Rated control supply voltage U_g: • 24 V DC • 110 ... 240 V AC/DC</p>	<p>3UF7010-1AB00-0 3UF7010-1AU00-0</p>
SIMOCODE pro PROFINET		
 <p>3UF7011-1A.00-0</p>	<p>SIMOCODE pro V PROFINET ETHERNET/PROFINET IO, OPC UA server and web server, 100 Mbit/s, 2 x connection to bus through RJ45, PROFINET system redundancy, media redundancy protocol, 4 I/3 O freely assignable, input for thermistor connection, monostable relay outputs, can be expanded by expansion modules, web server in German/English/Chinese/Russian, Rated control supply voltage U_g: • 24 V DC • 110 ... 240 V AC/DC</p>	<p>3UF7011-1AB00-0 3UF7011-1AU00-0</p>
SIMOCODE pro Modbus RTU		
 <p>3UF7012-1A.00-0</p>	<p>SIMOCODE pro V Modbus RTU²⁾ Modbus RTU interface, 57.6 kbit/s, RS 485; 4I/3O freely assignable; input for thermistor connection; monostable relay outputs; can be expanded by expansion modules Rated control supply voltage U_g: • 24 V DC • 110 ... 240 V AC/DC</p>	<p>NEW 3UF7012-1AB00-0 NEW 3UF7012-1AU00-0</p>







¹⁾ The connection cable to the current measuring module must be at least 30 cm.

²⁾ When using an operator panel with display, the product version must be E09 or higher (from 05/2015). The software SIMOCODE ES (TIA Portal) V13 is necessary for parameterization.

Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

Basic units

Version	Current setting	Width	Screw terminals 	Article No.
	A	mm		
SIMOCODE pro (continued)				
	Current measuring modules			
	• Straight-through transformers	0.3 ... 3	45	3UF7100-1AA00-0
		2.4 ... 25	45	3UF7101-1AA00-0
		10 ... 100	55	3UF7102-1AA00-0
		20 ... 200	120	3UF7103-1AA00-0
	• Bus connection	20 ... 200	120	3UF7103-1BA00-0
		63 ... 630	145	3UF7104-1BA00-0
	Current/voltage measuring modules for SIMOCODE pro V			
	Voltage measuring up to 690 V If required in connection with a decoupling module			
	• Straight-through transformers	0.3 ... 3	45	3UF7110-1AA00-0
		2.4 ... 25	45	3UF7111-1AA00-0
		10 ... 100	55	3UF7112-1AA00-0
		20 ... 200	120	3UF7113-1AA00-0
	• Bus connection	20 ... 200	120	3UF7113-1BA00-0
		63 ... 630	145	3UF7114-1BA00-0
	Decoupling modules			
	For connecting upstream from a current/voltage measuring module on the system interface when using voltage detection in insulated, high-resistance or asymmetrically grounded systems and in single-phase systems			3UF7150-1AA00-0
	Operator panels			
	Installation in control cabinet door or front plate, for plugging into all SIMOCODE pro basic units, 10 LEDs for status indication and user-assignable buttons for controlling the motor			
	• Light gray			3UF7200-1AA00-0
	• Titanium gray			3UF7200-1AA01-0
	Operator panel with display for SIMOCODE pro V			
	Installation in control cabinet door or front plate, for plugging into SIMOCODE pro V and SIMOCODE pro V PN, 7 LEDs for status indication and user-assignable buttons for controlling the motor, multilingual display, e.g. for indication of measured values, status information or fault messages			
	English/German/French/Spanish/Portuguese/ Italian/Polish/Finnish			3UF7210-1AA00-0
	English/Chinese/Russian			3UF7210-1BA00-0

Notes:

"SIMOCODE pro PROFIBUS" System Manual, see <https://support.industry.siemens.com/cs/ww/en/view/20017780>.

"SIMOCODE pro V PROFINET" System Manual, see <https://support.industry.siemens.com/cs/ww/en/view/61896631>.

"SIMOCODE pro Modbus RTU" Configuration Manual, see <https://support.industry.siemens.com/cs/ww/en/view/108681641>.

SIMOCODE pro V basic unit in a hardened version via SIPLUS extreme upon request.

Selection and ordering data

Version	Screw terminals 
	Article No.

Expansion modules for SIMOCODE pro V

With SIMOCODE pro V, it is possible to expand the type and number of inputs and outputs in steps. Each expansion module has two system interfaces on the front. Through the one system interface the expansion module is connected to the system interface of the SIMOCODE pro V using a connection cable; through the second system interface, further expansion modules or the operator panel can be connected. The power supply for the expansion modules is provided by the connection cable through the basic unit.

Note:

Please order connection cable separately, [see page 5/16](#).

Digital modules

Up to two digital modules can be used to add additional binary inputs and relay outputs to the basic unit. The input circuits of the digital modules are supplied from an external power supply.

4 binary inputs and 2 relay outputs,
up to 2 digital modules can be connected

Relay outputs	Input voltage	
Monostable	24 V DC 110 ... 240 V AC/DC	3UF7300-1AB00-0 3UF7300-1AU00-0
Bistable	24 V DC 110 ... 240 V AC/DC	3UF7310-1AB00-0 3UF7310-1AU00-0



3UF7300-1AU00-0

Analog modules

Basic unit can be optionally expanded with analog inputs and outputs (0/4 ... 20 mA) by means of the analog module.

2 inputs (passive) for input and 1 output for output of 0/4 ... 20 mA signals, max. 1 analog module can be connected per pro V basic unit and max. 2 analog modules per pro V PN basic unit



3UF7400-1AA00-0

Ground-fault modules¹⁾

Ground-fault monitoring using 3UL23 residual-current transformers and ground-fault modules is used in cases where precise detection of the ground-fault current is required or power systems with high impedance are grounded.

With the ground-fault module, it is possible to determine the precise fault current as a measured value, and to define freely selectable warning and trip limits in a wide range from 30 mA ... 40 A.

1 input for connecting a 3UL23 residual-current transformer, up to 1 ground-fault module can be connected

Note:

For corresponding residual-current transformers, [see page 5/74](#).



3UF7510-1AA00-0

Temperature module

Independently of the thermistor motor protection of the basic units, up to 3 analog temperature sensors can be evaluated using a temperature module.

Sensor types: PT100/PT1000, KTY83/KTY84 or NTC

3 inputs for connecting up to 3 analog temperature sensors, up to 1 temperature module can be connected per pro V basic unit and max. 2 temperature modules per pro V PN basic unit



3UF7700-1AA00-0

¹⁾ Possible with pro V basic unit from product version E10 or pro V PN basic unit from product version E04, operator panel with display from product version E07.

Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

Expansion modules

Selection and ordering data

Version

Screw terminals



Article No.

Expansion modules for SIMOCODE pro S

With SIMOCODE pro S, it is possible to expand the type and number of inputs and outputs. The expansion module has two system interfaces on the front. Through the one system interface the expansion module is connected to the system interface of the SIMOCODE pro S using a connection cable; through the second system interface, the operator panel can be connected. The power supply for the expansion module is provided by the connection cable through the basic unit.

Note:

Please order connection cable separately, [see page 5/16](#).

Multifunction modules

The multifunction module is the expansion module of the SIMOCODE pro S device series with the following functions:

- Digital module function with four digital inputs and two monostable relay outputs
- Ground-fault module function with an input for the connection of a 3UL23 residual-current transformer with freely selectable warning and trip limits in a wide zone of 30 mA ... 40 A
- Temperature module function with an input for connecting an analog temperature sensor PT100, PT1000, KTY83, KTY84, or NTC

Max. 1 multifunction module can be connected per pro S basic unit

Input voltage of the digital inputs:

- 24 V DC
- 110 ... 240 V AC/DC

3UF7600-1AB01-0

3UF7600-1AU01-0



3UF7600-1AU01-0

Selection and ordering data

Version	Screw terminals 
	Article No.

Fail-safe expansion modules for SIMOCODE pro V

Thanks to the fail-safe expansion modules, SIMOCODE pro V can be expanded with the function of a safety relay for the fail-safe disconnection of motors. A maximum of 1 fail-safe digital module can be connected; it can be used instead of a digital module.

The fail-safe expansion modules are equipped likewise with two system interfaces at the front for making the connection to other system components. Unlike other expansion modules, power is supplied to the modules through a separate terminal connection.

Note:

Please order connection cable separately, [see page 5/16](#).

DM-F Local fail-safe digital modules¹⁾

For fail-safe disconnection using a hardware signal
2 relay enabling circuits, joint switching; 2 relay outputs, common potential disconnected fail-safe; inputs for sensor circuit, start signal, cascading and feedback circuit, safety function adjustable using DIP switches
Rated control supply voltage U_s :

- 24 V DC
- 110 ... 240 V AC/DC

3UF7320-1AB00-0
3UF7320-1AU00-0



3UF7320-1AB00-0

DM-F PROFIsafe fail-safe digital modules¹⁾²⁾

For fail-safe disconnection using PROFIBUS/PROFIsafe or PROFINET/PROFIsafe

2 relay enabling circuits, joint switching; 2 relay outputs, common potential disconnected fail-safe; 1 input for feedback circuit; 3 binary standard inputs
Rated control supply voltage U_s :

- 24 V DC
- 110 ... 240 V AC/DC

3UF7330-1AB00-0
3UF7330-1AU00-0



3UF7330-1AB00-0

¹⁾ Possible with SIMOCODE pro V basic unit, product version E07 and higher (from 05/2011) or SIMOCODE pro V PN basic unit.

²⁾ Cannot be used in conjunction with SIMOCODE pro V for Modbus RTU communication

Note:






For System Manual "SIMOCODE pro Safety Fail-Safe Digital Modules", [see https://support.industry.siemens.com/cs/ww/en/view/50564852](#).

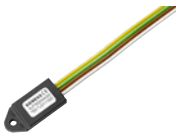





Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

Accessories

Selection and ordering data








Version	Article No.																
Connection cables (essential accessory)																	
 <p>Connection cables In different lengths for connecting basic unit, current measuring module, current/voltage measuring module, operator panel or expansion modules or decoupling module</p> <table border="1"> <thead> <tr> <th>Version</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>Flat</td> <td>0.025 m</td> </tr> <tr> <td>Flat</td> <td>0.1 m</td> </tr> <tr> <td>Flat</td> <td>0.3 m</td> </tr> <tr> <td>Flat</td> <td>0.5 m</td> </tr> <tr> <td>Round</td> <td>0.5 m</td> </tr> <tr> <td>Round</td> <td>1.0 m</td> </tr> <tr> <td>Round</td> <td>2.5 m</td> </tr> </tbody> </table>	Version	Length	Flat	0.025 m	Flat	0.1 m	Flat	0.3 m	Flat	0.5 m	Round	0.5 m	Round	1.0 m	Round	2.5 m	<p>3UF7930-0AA00-0 3UF7931-0AA00-0 3UF7935-0AA00-0 3UF7932-0AA00-0</p> <p>3UF7932-0BA00-0 3UF7937-0BA00-0 3UF7933-0BA00-0</p>
Version	Length																
Flat	0.025 m																
Flat	0.1 m																
Flat	0.3 m																
Flat	0.5 m																
Round	0.5 m																
Round	1.0 m																
Round	2.5 m																
PC cables and adapters																	
 <p>USB PC cables For connecting to the USB interface of a PC/PG, for communication with SIMOCODE pro through the system interface</p>	<p>3UF7941-0AA00-0</p>																
<p>USB/serial adapters To connect an RS 232 PC cable to the USB interface of a PC, recommended for use in conjunction with SIMOCODE pro 3UF7</p>	<p>3UF7946-0AA00-0</p>																
Memory modules																	
 <p>Memory module for SIMOCODE pro C, SIMOCODE pro S and SIMOCODE pro V For saving the complete parameterization of a SIMOCODE pro C, SIMOCODE pro S or SIMOCODE pro V system</p>	<p>3UF7900-0AA00-0</p>																
<p>Memory module for SIMOCODE pro V PROFINET For saving the complete parameterization of a SIMOCODE pro V PROFINET system</p>	<p>3UF7901-0AA00-0</p>																
Interface covers																	
 <p>Interface covers For system interface</p> <ul style="list-style-type: none"> • Light gray • Titanium gray 	<p>3UF7950-0AA00-0 3RA6936-0B</p>																
Addressing plugs																	
 <p>Addressing plugs For assigning the PROFIBUS or Modbus RTU address without using a PC/PG to SIMOCODE pro through the system interface</p>	<p>3UF7910-0AA00-0</p>																

Version	Article No.								
Accessories for motor control center									
<p>With the draw-out technology often used in motor control centers it is possible to integrate a SIMOCODE pro initialization module in the switchboard on a permanent basis. Feeder-related parameter and address data can then be permanently assigned to this feeder.</p>									
 <p>Initialization module</p> <p>For automatic parameterization of:</p> <ul style="list-style-type: none"> • pro V basic unit, product version E09 or higher (11/2012) • pro S basic unit • pro V PROFINET basic unit • pro V Modbus RTU basic unit 	3UF7902-0AA00-0								
<p>Y connection cable</p> <p>For use in conjunction with the initialization module; connects the basic unit, current measuring module or current/voltage measuring module, and initialization module</p> <table border="1"> <thead> <tr> <th>System interface length</th> <th>Open cable end</th> </tr> </thead> <tbody> <tr> <td>0.1 m</td> <td>1.0 m</td> </tr> <tr> <td>0.5 m</td> <td>1.0 m</td> </tr> <tr> <td>1.0 m</td> <td>1.0 m</td> </tr> </tbody> </table>	System interface length	Open cable end	0.1 m	1.0 m	0.5 m	1.0 m	1.0 m	1.0 m	<p>3UF7931-0CA00-0</p> <p>3UF7932-0CA00-0</p> <p>3UF7937-0CA00-0</p>
System interface length	Open cable end								
0.1 m	1.0 m								
0.5 m	1.0 m								
1.0 m	1.0 m								
Bus connection terminals									
 <p>Bus connection terminals</p> <p>For shield support and strain relief of the PROFIBUS cable on a SIMOCODE pro S</p>	3UF7960-0AA00-0								
Door adapters									
 <p>Door adapters</p> <p>For external connection of the system interface, e.g. outside a control cabinet</p>	3UF7920-0AA00-0								
Adapters for operator panel									
 <p>Adapters for operator panel</p> <p>The adapter enables the smaller 3UF7200 operator panel from SIMOCODE pro to be used in a front panel cutout in which previously, e.g. after a change of system, a larger 3UF52 operator panel from SIMOCODE-DP had been used, degree of protection IP54</p>	3UF7922-0AA00-0								
Labeling strips									
 <p>Labeling strips</p> <ul style="list-style-type: none"> • For pushbuttons of the 3UF720 operator panel • For pushbuttons of the 3UF721 operator panel with display • For LEDs of the 3UF720 operator panel 	<p>3UF7925-0AA00-0</p> <p>3UF7925-0AA01-0</p> <p>3UF7925-0AA02-0</p>								
Push-in lugs									
 <p>Push-in lugs for screw fixing</p> <p>E.g. on mounting plate, 2 units required per device</p> <ul style="list-style-type: none"> • Can be used for 3UF71.0, 3UF71.1 and 3UF71.2 • Can be used for 3UF700, 3UF701, 3UF73, 3UF74, 3UF75 and 3UF77 • Can be used for 3UF7020, 3UF7600 	<p>3RV2928-0B</p> <p>3RP1903</p> <p>3ZY1311-0AA00</p>								

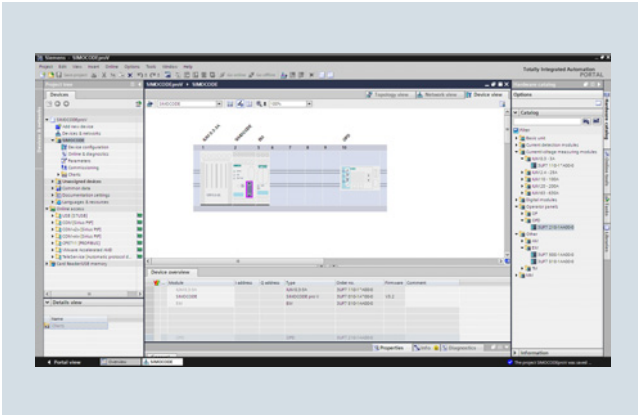
Monitoring and Control Devices

SIMOCODE 3UF motor management and control devices

Accessories

Version	Article No.
Terminal covers	
 <p>3RT1956-4EA1</p>  <p>3RT1956-4EA2</p>	<p>Covers for cable lugs and busbar connections</p> <ul style="list-style-type: none"> Length 100 mm, can be used for 3UF71.3-1BA00-0 Length 120 mm, can be used for 3UF71.4-1BA00-0 <p>Covers for box terminals</p> <ul style="list-style-type: none"> Length 25 mm, can be used for 3UF71.3-1BA00-0 Length 30 mm, can be used for 3UF71.4-1BA00-0 <p>Covers for screw terminals</p> <p>Between contactor and current measuring module or current/voltage measuring module for direct mounting</p> <ul style="list-style-type: none"> Can be used for 3UF71.3-1BA00-0 Can be used for 3UF71.4-1BA00-0
	<p>3RT1956-4EA1</p> <p>3RT1966-4EA1</p> <p>3RT1956-4EA2</p> <p>3RT1966-4EA2</p> <p>3RT1956-4EA3</p> <p>3RT1966-4EA3</p>
Box terminal blocks	
 <p>3RT195.-4G</p>	<p>Box terminal blocks</p> <p>For round and ribbon cables</p> <ul style="list-style-type: none"> Up to 70 mm², can be used for 3UF71.3-1BA00-0 Up to 120 mm², can be used for 3UF71.3-1BA00-0 Up to 240 mm², can be used for 3UF71.4-1BA00-0
	<p>3RT1955-4G</p> <p>3RT1956-4G</p> <p>3RT1966-4G</p>
Bus termination modules	
 <p>3UF1900-1KA00</p>	<p>Bus termination modules</p> <p>With separate control supply voltage for bus termination following the last unit on the bus line</p> <p>Supply voltage:</p> <ul style="list-style-type: none"> 115/230 V AC 24 V DC
	<p>3UF1900-1KA00</p> <p>3UF1900-1KB00</p>
Software	
 <p>3ZS1322-.C.11-0Y.5</p>	<p>SIMOCODE ES (TIA Portal)</p> <p>Software for configuring, commissioning, operating and diagnosing SIMOCODE pro based on the TIA Portal, see page 5/19.</p>
 <p>3ZS1312-.C.10-0Y.5</p>	<p>SIMOCODE ES</p> <p>Software for configuring, commissioning, operating and diagnosing SIMOCODE pro in Version 2007, see page 5/25.</p>
 <p>3ZS1632-.XX02-0Y.0</p>	<p>SIMOCODE pro block library for SIMATIC PCS 7</p> <p>The PCS 7 block library can be used for simple and easy integration of SIMOCODE pro into the SIMATIC PCS 7 process control system, see page 5/28.</p>

Overview



Selecting the SIMOCODE pro device configuration in SIMOCODE ES (TIA Portal)

SIMOCODE ES is the central software for configuration, startup, operation and diagnostics of SIMOCODE pro.

Version 13, which is based on the central engineering framework Totally Integrated Automation Portal (TIA Portal), is available in addition to SIMOCODE ES Version 2007.

SIMOCODE ES V13 is integrated seamlessly when further TIA Portal-based software exists such as STEP 7 or WinCC, thus enabling users to achieve a consistent, efficient and intuitive solution for all automation tasks.

But also users of SIMOCODE ES V13 as standalone software will benefit from these advantages.

Three program versions

The user can choose between three different versions of SIMOCODE ES: SIMOCODE ES Basic, SIMOCODE ES Standard and SIMOCODE ES Premium. While SIMOCODE ES Basic is a powerful tool for startup or maintenance personnel, SIMOCODE ES Standard and Premium are the perfect tools for engineers or configuration engineers on account of their larger scope of functions and integrated graphics editor. Unlike the Standard version, SIMOCODE ES Premium also permits parameterization and diagnostics through PROFIBUS/PROFINET. Indication of all operating, service and diagnostics data supplies important information about the current state of the motor and plant at all times – everywhere on PROFIBUS/PROFINET.

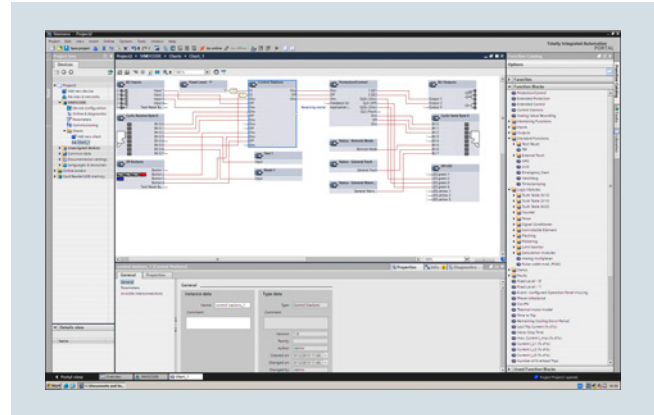
Working with libraries

Users can create copy templates for SIMOCODE pro device configuration and can manage them in global or project libraries.

Thus, individual modules and diagrams and also complete device configurations can be saved as reusable elements for frequently occurring tasks.

Integrated graphics editor

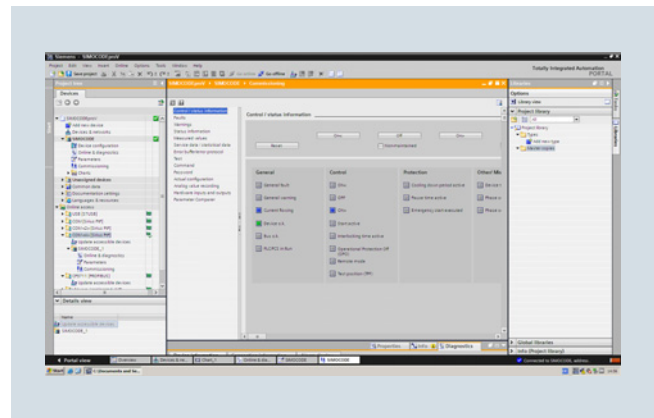
The graphics editor is a part of SIMOCODE ES Standard and SIMOCODE ES Premium. It is based on the Continuous Function Chart (CFC) and adds a powerful tool to the parameterizing interface that enables easy parameterization of devices by Drag&Drop. Extremely compact documentation of all configured parameters is possible, as is the graphic online presentation of the configured device functions including all signal states during operation.



Parameterize easily and ergonomically with the CFC-based graphics editor of SIMOCODE ES V13

Online functions for startup and diagnostics

To this end, SIMOCODE ES provides powerful functions for startup and diagnostics of motor feeders. Besides a detailed display of status information and the causes of faults, all available measurement and statistics data can be retrieved online. Access to the fault and event memory and also to analog values recorded on the device, e.g. current or voltage, is also possible.



Startup functions of SIMOCODE ES V13

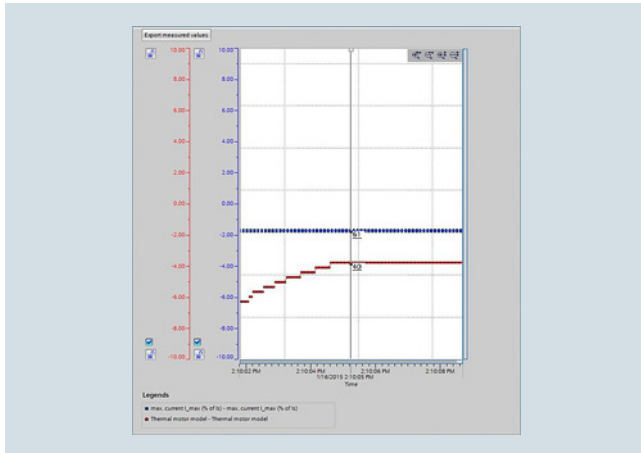
Monitoring and Control Devices

Software

SIMOCODE ES (TIA Portal)

Trend display of measured values

With this online function, SIMOCODE ES Standard or Premium can present the trend of up to five different measured values. It is thus possible for example to record and evaluate the startup characteristic of a motor or its behavior in different load conditions.



Live trend display of SIMOCODE ES V13

Efficient engineering with three program versions

SIMOCODE ES V13	Basic	Standard	Premium
Access through the local interface on the device	✓	✓	✓
Parameter assignment in list form	✓	✓	✓
Parameter printing in list form	✓	✓	✓
Operating	✓	✓	✓
Diagnostics	✓	✓	✓
Test	✓	✓	✓
Service data	✓	✓	✓
Analog value recording ¹⁾	✓	✓	✓
Trend display of measured values	--	✓	✓
Parameterizing with convenient graphical display	--	✓	✓
Parameterizing with the integrated graphics editor (CFC-based)	--	✓	✓
Printing of diagrams	--	✓	✓
Parameter comparison	--	✓	✓
Access through PROFIBUS/PROFINET	--	--	✓
Teleservice through MPI	--	--	✓
S7-Routing ²⁾	--	--	✓

✓ Function available

-- Function not available

¹⁾ For SIMOCODE pro V.

²⁾ For SIMOCODE pro basic units with PROFIBUS.

Additional functions

SIMOCODE ES V13 offers numerous advantages of the TIA Portal that can be used in an integrated working environment.

- Seamless integration when using other TIA Portal-based software such as STEP 7 or WinCC.
Thus, for example, the configuration for devices and networks for all components used is created in a standardized environment.
- Working with libraries
Users can create copy templates for device configuration and can manage them in global libraries. In this way, frequently used functions can be managed in a clearly structured fashion.

Types of delivery and licenses

SIMOCODE ES V13 is available with the following licenses:

- Floating license – the license for any one user at any one time
 - Authorizes any one user
 - Independent of the number of installations (unlike the single license which is allowed to be installed once only)
 - Only the actual use of the program has to be licensed
 - Trial license (free use of all program functions for 21 days for test and evaluation purposes, included on every product DVD, available in the download file of the SIRIUS ES program in the Service&Support portal)
- Combo license - license for parallel use
 - Licensed parallel use of the TIA Portal version and SIRIUS ES Version 2007
 - For all other properties, [see above under floating license](#)

The following delivery versions are also available for SIMOCODE ES V13:

- Upgrade
Upgrade of an old version to a new version with expanded functions, e.g. upgrade from SIMOCODE ES 2007 to SIMOCODE ES V13; includes a combo license for parallel use of SIMOCODE ES 2007 and SIMOCODE ES V13
- Powerpack
Special pack for switching within the same software version to a more powerful version with more functionality, e.g. Powerpack SIMOCODE ES V13 Premium for switching from Standard to Premium
- Software Update Service
To keep you up to date at all times we offer a special service which supplies you automatically with all service packs and upgrades
- License/software download
Simply download your new software and license key from the Internet via the Online Software Delivery (OSD) platform. After you have placed your order in our mall, you will receive your access data by email, which will allow you to immediately download the license or software you have ordered.
For more information, [see www.siemens.com/tia-online-software-delivery](#).

System requirements

SIMOCODE ES V13 parameterization, startup and diagnostics software for SIMOCODE pro	
Operating system	Windows 7 32/64-bit Professional/Ultimate/Enterprise (Service Pack 1), Windows Server 2012 R2, Windows Server 2008 R2 (Service Pack 1) Windows 8.1, 64-bit Professional/Enterprise
Processor	≥ 3.3 GHz (Core i5-320M)
RAM	≥ 8 GB
Monitor resolution	≥ 15.6" wide screen display (1920 x 1080)
Graphics cards	≥ 32 Mbyte RAM, 24-bit color intensity
Free space on hard disk	≥ 300 GB SSD
CD-ROM/DVD drive	DVD-ROM (only when installing from DVD)
Interface	Depends on PC cable: serial (COM) or USB
PC cable/parameterization cable/connection cable	Yes, USB
PROFIBUS interface	Optional, for parameterization and diagnostics through PROFIBUS
Ethernet interface	Optional, for parameterization and diagnostics through Ethernet/PROFINET

Benefits

- Easy parameterization with the graphics editor based on the Continuous Function Chart (CFC) reduces engineering work and shortens start up times
- Clear plant documentation by means of graphic presentation
- Detailed information, also when there are faults, is a help for maintenance personnel and shortens downtimes
- Universally applicable through stand-alone version or seamless integration into the central engineering framework when other TIA Portal-based software such as STEP 7 or WinCC are available
- Parameter changes are also possible during normal operation
- Users can create copy templates for device configurations and can manage them in global libraries

Monitoring and Control Devices

Software

SIMOCODE ES (TIA Portal)



Selection and ordering data

Parameterization and service software for SIMOCODE pro 3UF7

- Delivered without PC cable

Note:


SIMOCODE ES V12 licenses can also be used for SIMOCODE ES V13.

Version	Article No.
SIMOCODE ES V13 Basic	
 <p>Floating license for one user Engineering software, software and documentation on DVD, 6 languages (German/English/French/Italian/Spanish/Chinese), for all SIMOCODE pro, online functions through system interface</p> <ul style="list-style-type: none"> • Combo license for parallel use of versions 2007 and V13 of SIRIUS ES, license key on USB stick, Class A • License key download, Class A 	<p>3ZS1322-4CC11-0YA5</p> <p>3ZS1322-4CE11-0YB5</p>
SIMOCODE ES V13 Standard	
 <p>Floating license for one user Engineering software, software and documentation on DVD, 6 languages (German/English/French/Italian/Spanish/Chinese), for all SIMOCODE pro, online functions through system interface, parameterizing with integrated graphics editor (CFC-based)</p> <ul style="list-style-type: none"> • Combo license for parallel use of versions 2007 and V13 of SIRIUS ES, license key on USB stick, Class A • License key download, Class A 	<p>3ZS1322-5CC11-0YA5</p> <p>3ZS1322-5CE11-0YB5</p>
<p>Upgrade for SIMOCODE ES 2007 Floating license for one user, engineering software, software and documentation on DVD, license key on USB stick, Class A, 6 languages (German/English/French/Italian/Spanish/Chinese), combo license for parallel use of versions 2007 and V13 of SIRIUS ES, for all SIMOCODE pro, online functions through system interface, parameterizing with integrated graphics editor (CFC-based)</p>	<p>3ZS1322-5CC11-0YE5</p>
<p>Powerpack for SIMOCODE ES V13 Basic Floating license for one user, engineering software, license key on USB stick, Class A, 6 languages (German/English/French/Italian/Spanish/Chinese), for all SIMOCODE pro, online functions through system interface, parameterizing with integrated graphics editor (CFC-based)</p>	<p>3ZS1322-5CC11-0YD5</p>
<p>Software Update Service For 1 year with automatic extension, assuming software version of SIMOCODE ES (TIA Portal) is in use, engineering software, software and documentation on DVD, online functions through system interface, parameterizing with integrated graphics editor (CFC-based)</p>	<p>3ZS1322-5CC11-0YL5</p>


Notes:

Please order PC cable separately, [see page 5/23](#).

For description of the software versions, [see page 5/20](#).

Version	Article No.
SIMOCODE ES V13 Premium	
 <p>Floating license for one user Engineering software, software and documentation on DVD, 6 languages (German/English/French/Italian/Spanish/Chinese), for all SIMOCODE pro, online functions through system interface and PROFIBUS/PROFINET, parameterizing with integrated graphics editor (CFC-based)</p> <ul style="list-style-type: none"> • Combo license for parallel use of versions 2007 and V13 of SIRIUS ES, license key on USB stick, Class A • License key download, Class A 	<p>3ZS1322-6CC11-0YA5</p> <p>3ZS1322-6CE11-0YB5</p>
<p>Upgrade for SIMOCODE ES 2007 Floating license for one user, engineering software, software and documentation on DVD, license key on USB stick, Class A, 6 languages (German/English/French/Italian/Spanish/Chinese), combo license for parallel use of versions 2007 and V13 of SIRIUS ES, for all SIMOCODE pro, online functions through system interface and PROFIBUS/PROFINET, parameterizing with integrated graphics editor (CFC-based)</p>	<p>3ZS1322-6CC11-0YE5</p>
<p>Powerpack for SIMOCODE ES V13 Standard Floating license for one user, engineering software, license key on USB stick, Class A, 6 languages (German/English/French/Italian/Spanish/Chinese), for all SIMOCODE pro, online functions through system interface and PROFIBUS/PROFINET, parameterizing with integrated graphics editor (CFC-based)</p>	<p>3ZS1322-6CC11-0YD5</p>
<p>Software Update Service For 1 year with automatic extension, assuming software version of SIMOCODE ES (TIA Portal) is in use, engineering software, software and documentation on DVD, online functions through system interface and PROFIBUS/PROFINET, parameterizing with integrated graphics editor (CFC-based)</p>	<p>3ZS1322-6CC11-0YL5</p>
SIMOCODE ES V13 software download	
<p>Trial license, Class A Engineering software, 6 languages (German/English/French/Italian/Spanish/Chinese), for all SIMOCODE pro, online functions through system interface and PROFIBUS/PROFINET, parameterizing with integrated graphics editor (CFC-based)</p>	<p>3ZS1322-6CE11-0YG8</p>

Notes:Please order PC cable separately, [see Accessories](#).For description of the software versions, [see page 5/20](#).**Accessories**

Version	Article No.
Optional accessories	
 <p>USB PC cables For connecting to the USB interface of a PC/PG, for communication with SIMOCODE ES through the system interface</p>	<p>3UF7941-0AA00-0</p>
<p>USB/serial adapters For connecting an RS 232 PC cable to the USB interface of a PC, recommended for use in conjunction with SIMOCODE ES</p>	<p>3UF7946-0AA00-0</p>

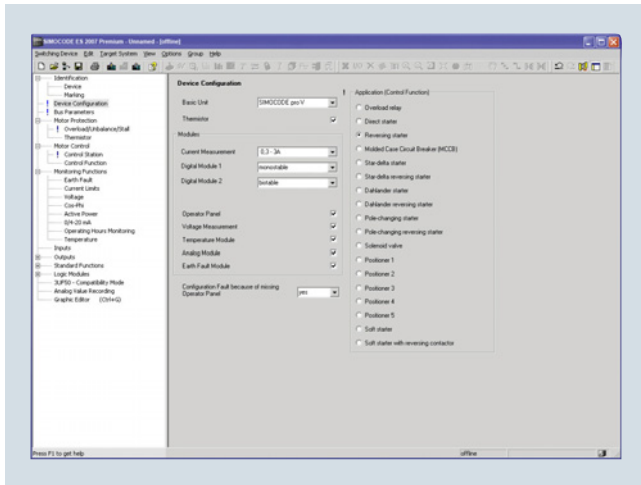
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Monitoring and Control Devices

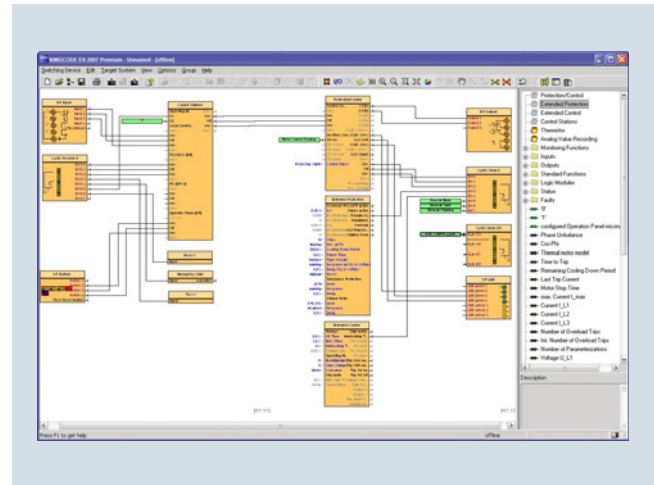
Software

SIMOCODE ES

Overview



Selection of predefined control functions in SIMOCODE ES



Easy and ergonomic parameterizing with the graphics editor

Besides SIMOCODE ES Version 12, which is based on the central engineering framework Totally Integrated Automation Portal (TIA Portal), the 2007 version of the software continues to be available for commissioning, operation and diagnostics of SIMOCODE pro.

As a result, unnecessary plant downtimes can be consistently prevented, for example, by changing parameters online during operation. Control functions, protection functions and the wiring of the control circuit are implemented in SIMOCODE pro by predefined control functions and can be readily configured using SIMOCODE ES.

Three program versions

The user can choose between three different versions of SIMOCODE ES: SIMOCODE ES Basic, SIMOCODE ES Standard and SIMOCODE ES Premium. While SIMOCODE ES Basic is a powerful tool for startup or maintenance personnel, SIMOCODE ES Standard and Premium are the perfect tools for engineers or configuration engineers on account of their larger scope of functions and integrated graphics editor. Unlike the Standard version, SIMOCODE ES Premium also permits parameterization and diagnostics through PROFIBUS/PROFINET. Indication of all operating, service and diagnostics data supplies important information about the current state of the motor and plant at all times – everywhere on PROFIBUS/PROFINET.

Object Manager for SIMATIC S7

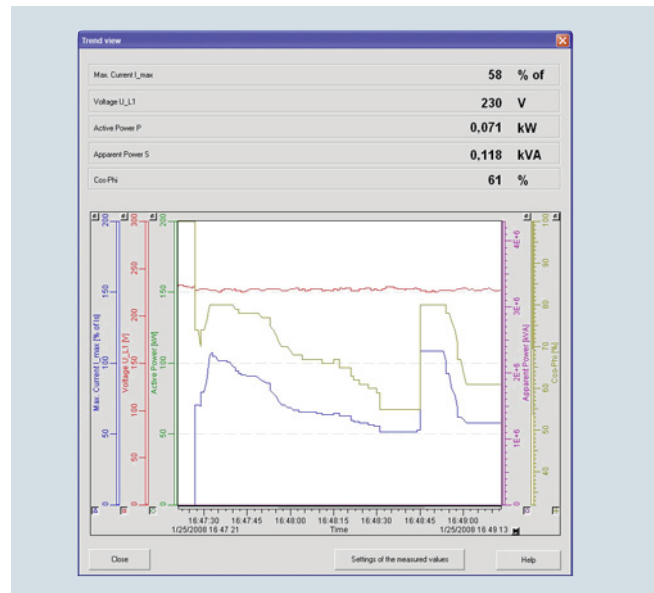
The Object Manager is a component of SIMOCODE ES Premium. Thanks to this software tool, SIMOCODE ES is totally integrated in SIMATIC S7. If the two software packages are installed on the PG/PC with which the SIMATIC S7 hardware configuration is performed, then SIMOCODE ES can be called up directly from STEP 7.

Integrated graphics editor

The graphics editor is a part of SIMOCODE ES Standard and SIMOCODE ES Premium. It adds a powerful tool to the parameterizing interface that enables easy parameterization of devices by Drag&Drop. Extremely compact documentation of all configured parameters is possible, as is the graphic online presentation of the configured device functions including all signal states during operation.

Trend display of measured values

With this online function, SIMOCODE ES Standard or Premium can present the trend of up to five different measured values. It is thus possible for example to record and evaluate the startup characteristic of a motor or its behavior in different load conditions.



Trend displays of measured values in SIMOCODE ES

Efficient engineering with three program versions

SIMOCODE ES	Basic	Standard	Premium
Access through the local interface on the device	✓	✓	✓
Parameter assignment	✓	✓	✓
Operating	✓	✓	✓
Diagnostics	✓	✓	✓
Test	✓	✓	✓
Service data	✓	✓	✓
Parameterizing with the integrated graphics editor	--	✓	✓
Creation of typicals	--	✓	✓
Parameter export	--	✓	✓
Comparison functions	--	✓	✓
Trend display of measured values	--	✓	✓
Parameter comparison	--	✓	✓
Analog value recording ¹⁾	--	✓	✓
Standard-compatible printout according to EN ISO 7200	--	✓	✓
Group functions	--	--	✓
Access through PROFIBUS/PROFINET	--	--	✓
Teleservice through MPI	--	--	✓
S7-Routing ²⁾	--	--	✓
STEP7 Object Manager	--	--	✓

✓ Function available

-- Function not available

¹⁾ For SIMOCODE pro V.

²⁾ For SIMOCODE pro basic units with PROFIBUS.

Additional functions

In addition to device-specific parameterization, SIMOCODE ES 2007 also offers the following functionality in a uniform look and feel. These functions are available in many SIRIUS ES programs.

- **Standard-compatible printouts**
The software tool greatly simplifies machine documentation. It enables parameterization printouts according to EN ISO 7200. The elements to be printed are easy to select and group as required.
- **Easy creation of typicals**
Typicals can be created for devices and applications with only minimum differences in their parameters. These typicals contain all the parameters which are needed for the parameterization. In addition it is possible to specify which of these parameters are fixed and which can be adapted, e.g. by the startup engineer.

System requirements

SIMOCODE ES 2007 parameterization, startup and diagnostics software for SIMOCODE pro

Operating system	Windows XP Professional (Service Pack 2 or 3), Windows 7 32/64 bit Professional/Ultimate/Enterprise (Service Pack 1)
Processor	≥ Pentium 800 MHz/≥ 1 GHz (Windows 7)
RAM	≥ 512 Mbyte (Windows XP Professional)/≥ 1 GB (Windows 7 32 bit)/ ≥ 2 GB (Windows 7 64 bit)
Monitor resolution	≥ 1024 × 768
Free space on hard disk	≥ 280 Mbyte
CD-ROM/DVD drive	Yes (only when installing from CD)
Interface	USB
PC cable/parameterization cable/connection cable	Yes
Network adapter	≥ 100 Mbit/s Ethernet, for parameterization and diagnostics through PROFINET
PROFIBUS card/PROFIBUS processor	Optional, for parameterization and diagnostics through PROFIBUS

- **Group function**
For the user-friendly parameterization of numerous devices or applications of the same type, the programs of the SIRIUS ES software family offer a group function which enables the parameterization of several devices to be read out or written through PROFIBUS/PROFINET. In conjunction with typicals it is even possible to selectively adapt the same parameters in any number of parameterizations.
- **Teleservice through MPI**
The SIMOCODE ES Premium version supports the use of MPI Teleservice (comprising the Teleservice software and various Teleservice adapters) for remote diagnostics of the devices. This facilitates diagnostics and maintenance, and it shortens response times for service purposes.

Types of delivery and licenses

SIMOCODE ES is available with the following licenses:

- **Floating license** – the license for any one user at any one time
 - Authorizes any one user
 - Independent of the number of installations (unlike the single license which is allowed to be installed once only)
 - Only the actual use of the program has to be licensed
 - Trial license (free use of all program functions for 14 days for test and evaluation purposes, included on every product CD, available in the download file of the SIRIUS ES program in the Service & Support portal)

Following delivery versions are available in addition for SIMOCODE ES 2007:

- **Upgrade**
Switching from an old to a new version with expanded functions, e.g. upgrade from SIMOCODE ES 2004 to SIMOCODE ES 2007
- **Powerpack**
Special pack for switching within the same software version to a more powerful version with more functionality, e.g. Powerpack SIMOCODE ES 2007 Premium for switching from Standard to Premium
- **Software Update Service**
To keep you up to date at all times we offer a special service which supplies you automatically with all service packs and upgrades
- **License download**
User-friendly license key download from our Mall (for selected countries) as an easy and quick way for you to receive additional licenses for your software.
For more information see www.siemens.com/tia-online-software-delivery.

Monitoring and Control Devices

Software

SIMOCODE ES



Benefits

- Easy parameterization reduces the amount of engineering work and shortens start up times
- Clear plant documentation by means of graphic presentation
- Detailed information, also when there are faults, is a help for maintenance personnel and shortens downtimes
- Stand-alone version and integration in SIMATIC STEP 7 enable universal use
- Parameter changes are also possible during normal operation
- Consistent data storage and easy configuration by means of integration in TIA (Totally Integrated Automation)

Selection and ordering data

Parameterization and service software for SIMOCODE pro 3UF7

- Delivered without PC cable


Version	Article No.
SIMOCODE ES 2007 Basic	
 <p>Floating license for one user Engineering software, software and documentation on CD, 3 languages (German/English/French), communication through system interface</p> <ul style="list-style-type: none"> • License key on USB stick, Class A • License key download, Class A 	<p>3ZS1312-4CC10-0YA5 3ZS1312-4CE10-0YB5</p>
3ZS1312-4CC10-0YA5	
SIMOCODE ES 2007 Standard	
 <p>Floating license for one user Engineering software, software and documentation on CD, 3 languages (German/English/French), communication through system interface, integrated graphics editor</p> <ul style="list-style-type: none"> • License key on USB stick, Class A • License key download, Class A 	<p>3ZS1312-5CC10-0YA5 3ZS1312-5CE10-0YB5</p>
3ZS1312-5CC10-0YA5	
Upgrade for SIMOCODE ES 2004 and later	
<p>Floating license for one user, engineering software, software and documentation on CD, license key on USB stick, Class A, 3 languages (German/English/French), communication through system interface, integrated graphics editor</p>	<p>3ZS1312-5CC10-0YE5</p>
Powerpack for SIMOCODE ES 2007 Basic	
<p>Floating license for one user, engineering software, license key on USB stick, Class A, 3 languages (German/English/French), communication through system interface integrated graphics editor</p>	<p>3ZS1312-5CC10-0YD5</p>
Software Update Service¹⁾	
<p>For 1 year with automatic extension, assuming the current software version is in use, engineering software, software and documentation on CD, communication through system interface, integrated graphics editor</p>	<p>3ZS1312-5CC10-0YL5</p>

¹⁾ The Software Update Service for the SIRIUS ES software family (e.g. SIMOCODE ES 2007) is not automatically transferred to the TIA Portal software family (e.g. SIMOCODE ES V13).

Notes:

Please order PC cable separately, [see page 5/27](#).

For description of the software versions, [see page 5/25](#).

Version	Article No.
SIMOCODE ES 2007 Premium	
 3ZS1312-6CC10-0YA5 Floating license for one user Engineering software, software and documentation on CD, 3 languages (German/English/French), communication through PROFIBUS/PROFINET or system interface, integrated graphics editor, STEP7 Object Manager <ul style="list-style-type: none"> • License key on USB stick, Class A • License key download, Class A 	3ZS1312-6CC10-0YA5 3ZS1312-6CE10-0YB5
Upgrade for SIMOCODE ES 2004 and later Floating license for one user, engineering software, software and documentation on CD, license key on USB stick, Class A, 3 languages (German/English/French), communication through PROFIBUS/PROFINET or system interface, integrated graphics editor, STEP7 Object Manager	3ZS1312-6CC10-0YE5
Powerpack for SIMOCODE ES 2007 Standard Floating license for one user, engineering software, license key on USB stick, Class A, 3 languages (German/English/French), communication through PROFIBUS/PROFINET or system interface, integrated graphics editor, STEP7 Object Manager	3ZS1312-6CC10-0YD5
Software Update Service¹⁾ For 1 year with automatic extension, assuming the current software version is in use, engineering software, software and documentation on CD, communication through PROFIBUS/PROFINET or system interface, integrated graphics editor, STEP7 Object Manager	3ZS1312-6CC10-0YL5


¹⁾ The Software Update Service for the SIRIUS ES software family (e.g. SIMOCODE ES 2007) is not automatically transferred to the TIA Portal software family (e.g. SIMOCODE ES V13).

Notes:

Please order PC cable separately, see [Accessories](#).

For description of the software versions, see [page 5/25](#).

Accessories

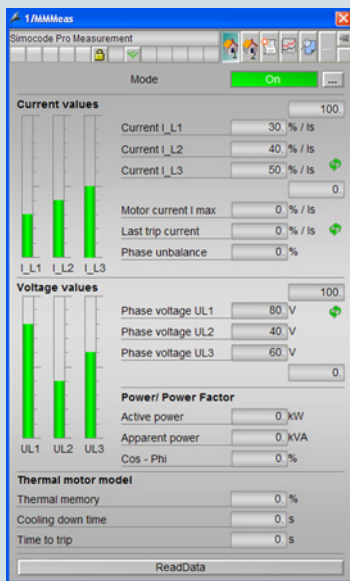
Version	Article No.
Optional accessories	
 3UF7941-0AA00-0 USB PC cables For connecting to the USB interface of a PC/PG, for communication with SIMOCODE ES through the system interface	3UF7941-0AA00-0
USB/serial adapters For connecting an RS 232 PC cable to the USB interface of a PC, recommended for use in conjunction with SIMOCODE ES	3UF7946-0AA00-0

Monitoring and Control Devices

Software

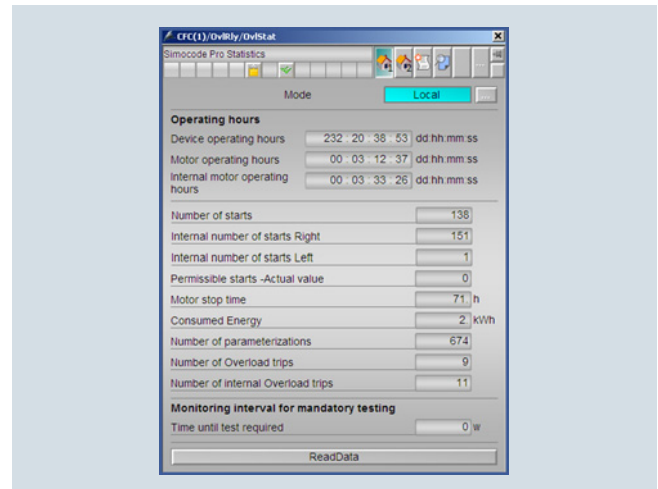
SIMOCODE pro block library for SIMATIC PCS 7

Overview



Types of delivery and licenses

The SIMOCODE pro PCS 7 block library supplied on CD-ROM allows users to run the required engineering software on an engineering station (single license) including the runtime software for executing the AS modules in an automation system (single license). If the AS modules are to be used in additional automation systems, the corresponding number of runtime licenses are required which are supplied without a data carrier.



Advanced Process Library (APL) - faceplates and blocks for statistical data of the SIMOCODE pro library for PCS 7

5


Advanced Process Library (APL) - faceplates and blocks for control and measured data of the SIMOCODE pro library for PCS 7

The PCS 7 block library can be used for simple and easy integration of SIMOCODE pro into the SIMATIC PCS 7 process control system. One focus here is on easy configuration, because the number of required configuration steps is reduced crucially. The configuration of the modules is based on the PCS 7 standard configuration processes and is optimally harmonized with the functions of SIMOCODE pro. Users who have previously integrated conventional motor feeders into PCS 7 will therefore find it easy to switch to SIMOCODE pro.

Benefits

- Uniform and continuous integration into SIMATIC PCS 7
- Standardized blocks for simple integration and optimal operation
- Greater process transparency due to greater information density in the process control system


Selection and ordering data

Version	Article No.
SIMOCODE pro block library for SIMATIC PCS 7 Version V8 with Advanced Process Library (APL)	
 <p>Engineering software V8</p> <p>For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English</p> <p>Scope of supply: AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V8.0 and higher</p> <p>Type of delivery: Software and documentation on CD, one license for one engineering station, one license for one automation system</p>	3ZS1632-1XX02-0YA0
<p>Runtime license V8</p> <p>For execution of the AS modules in an automation system (single license)</p> <p>Required for using the AS modules of the engineering software V8 within a plant</p> <p>Type of delivery: One license for one automation system, without software and documentation</p>	3ZS1632-2XX02-0YB0
<p>Upgrade for PCS 7 block library SIMOCODE pro, V6.0 or V7 to version SIMOCODE pro V8</p> <p>For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English</p> <p>Scope of supply: AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, with Advanced Process Library for PCS 7 version V8.0 and higher</p> <p>Type of delivery: Software and documentation on CD, one license for one engineering station, one license for one automation system</p>	3ZS1632-1XX02-0YE0

Monitoring and Control Devices

Software

SIMOCODE pro block library for SIMATIC PCS 7

Version	Article No.
SIMOCODE pro block library for SIMATIC PCS 7 Version V7 without Advanced Process Library (APL)	
 <p>3UF7982-0AA00-0</p> <p>Engineering software V7</p> <p>For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English/French</p> <p>Scope of supply: AS modules and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, for PCS7 version V7.0/V7.1</p> <p>Type of delivery: Software and documentation on CD, one license for one engineering station, one license for one automation system</p>	3UF7982-0AA10-0
<p>Runtime license V7</p> <p>For execution of the AS modules in an automation system (single license)</p> <p>Required for using the AS modules of the engineering software V7 or the engineering software migration V7-V8 on an additional automation system within a plant</p> <p>Type of delivery: One license for one automation system, without software and documentation</p>	3UF7982-0AA11-0
<p>Upgrade for PCS 7 block library SIMOCODE pro, V6.0 or V6.1 to version SIMOCODE pro V7.0/V7.1</p> <p>For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English/French</p> <p>Scope of supply: AS modules and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, for PCS7 version V7.0 or V7.1</p> <p>Type of delivery: Software and documentation on CD, one license for one engineering station, one license for one automation system</p>	3UF7982-0AA13-0
<p>Engineering software migration V7-V8</p> <p>For upgrading (migrating) an existing engineering software V7 of the SIMOCODE pro block library for PCS 7</p> <p>Conditions of use: Availability of the engineering software V7 (license) of the SIMOCODE pro block library for PCS 7 for the PCS 7 version V7.0 or V7.1</p> <p>The engineering software migration V7-V8 can be installed directly onto a system with PCS 7 version V8; installation of the previous version is unnecessary.</p> <p>For one engineering station (single license) including runtime software for execution of the AS modules in an automation system (single license), German/English/French</p> <p>Scope of supply: AS modules and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, for PCS 7 version V8.0 and higher</p> <p>Type of delivery: Software and documentation on CD, license for upgrading an existing license for one engineering station and a plant's assigned runtime licenses</p>	3UF7982-0AA20-0

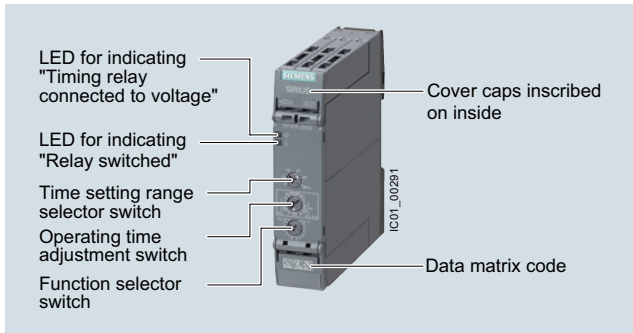
5

More information

Programming and Operating Manual for the "SIMOCODE pro PCS 7 Library V8.1" block libraries, [see https://support.industry.siemens.com/cs/ww/en/view/103954289](https://support.industry.siemens.com/cs/ww/en/view/103954289).

Programming and Operating Manual for the "SIMOCODE pro PCS 7 Library V8.0 + SP2" block libraries, [see https://support.industry.siemens.com/cs/ww/en/view/84626047](https://support.industry.siemens.com/cs/ww/en/view/84626047).

Overview



SIRIUS 3RP25 timing relays

Electronic timing relays for general use in control systems and mechanical engineering with:

- 1 or 2 CO, 1 NO (semiconductor) or 3 NO
- Monofunction or multifunction
- Combination voltage
- Wide voltage range
- Single or selectable time setting ranges
- Switch position indication and voltage indication by LED

Standards

The timing relays comply with:

- IEC 60721-3-3 "Classification of environmental conditions"
- IEC 61812-1/DIN VDE 0435 Part 2021 "Specified time relays for industrial use"
- IEC 61000-6-2, IEC 61000-6-3 and IEC 61000-6-4 "Electromagnetic compatibility"
- IEC 60947-5-1 "Low-voltage switchgear and controlgear – Electromechanical control circuit devices"

3RP2505 multifunctional timing relays

The functions of the 3RP2505 multifunctional timing relays can be set by means of the function selector switch. Whether both CO contacts are switched in parallel or one CO contact with a delay and one instantaneously and the choice of time setting range are set by means of the time setting range selector switch. The exact operating time can be adjusted with the operating time switch.

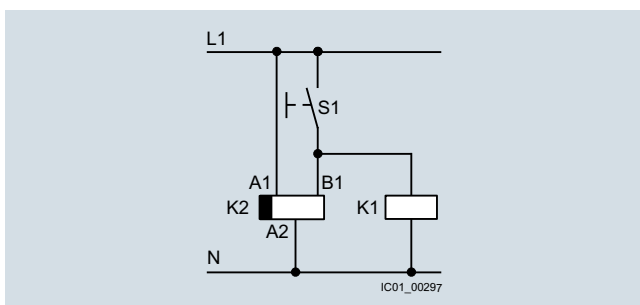
With a set of foil labels the timing relay can be legibly marked with the functions which can be selected on the timing relay. This is supplied together with the multifunctional timing relay.

The same potential must be applied to terminals A. and B.

Functions, [see the overview of functions on page 5/32](#).

Note:

The activation of loads parallel to the start input is permissible when using AC/DC control voltage ([see diagram](#)).



Diagram

Accessories



Push-in lugs for wall mounting



Sealable cover 17.5 mm



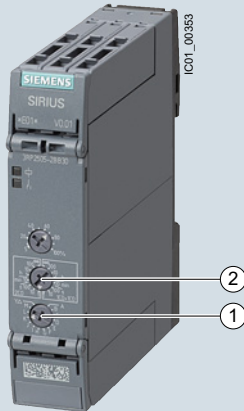
Sealable cover 22.5 mm

Monitoring and Control Devices

Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

Two setting options for implementing the multifunctions (A-M):



- ① Determination of 13 functions by the setting A to M, with 1 CO, 1 NO, 2 CO that switch in parallel.
- ② Extended function variance by selecting the time range and determining, whether 2 CO switch in parallel or whether 1 CO switches with delay + 1 CO switches immediately (1 CO + 1 CO)

Setting the functions on the device

Overview of functions of the 3RP2505 multifunctional timing relay

Identification letter	13 functions 1 CO, 1 NO (semiconductor) or 2 CO switched in parallel	27 functions 13 functions (A - M) 2 CO switched in parallel + 13 functions (A - M) 1 CO delayed + 1 CO instantaneous (1 CO + 1 CO) and wye-delta function
A	ON-delay	ON-delay and instantaneous contact
B	OFF-delay with control signal	OFF-delay with control signal and instantaneous contact
C	ON-delay/OFF-delay with control signal	ON-delay/OFF-delay with control signal and instantaneous contact
D	Flashing, symmetrical, starting with interval	Flashing, symmetrical, starting with interval and instantaneous contact
E	Passing make contact, interval relay	Passing make contact, interval relay and instantaneous contact
F	Retriggerable interval relay with deactivated control signal (passing break contact with control signal)	Retriggerable interval relay with deactivated control signal (passing break contact with control signal) and instantaneous contact
G	Passing make contact, with control signal, not retriggerable (pulse-forming with control signal)	Passing make contact, with control signal, not retriggerable (pulse-forming with control signal) and instantaneous contact
H	Additive ON-delay, instantaneous OFF with control signal	Additive ON-delay, instantaneous OFF with control signal and instantaneous contact
I	Additive ON-delay with control signal	Additive ON-delay with control signal and instantaneous contact
J	Flashing, symmetrical, starting with pulse	Flashing, symmetrical, starting with pulse and instantaneous contact
K	Pulse-delayed (fixed pulse (at 1 s) and settable pulse delay)	Pulse-delayed (fixed pulse (at 1 s) and settable pulse delay) and instantaneous contact
L	Pulse-delayed with control signal (fixed pulse (at 1 s) and settable pulse delay)	Pulse-delayed with control signal (fixed pulse (at 1 s) and settable pulse delay) and instantaneous contact
M	Retriggerable interval relay with activated control signal (watchdog)	Retriggerable interval relay with activated control signal and instantaneous contact (watchdog)
--	--	Wye-delta function

Note:

Conversion tool e.g. from 3RP15 to 3RP25, see www.siemens.com/sirius/conversion-tool.

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

Article No. scheme

Digit of the Article No.	1 st - 5 th	6 th	7 th	-	8 th	9 th	10 th	11 th	12 th
	□□□□□	□	□	-	□	□	□	□	0
Timing relays in industrial enclosure 17.5 mm and 22.5 mm	3 R P 25								
Functions/time setting ranges		□	□						
Connection type					□				
Contacts						□			
Rated control supply voltage							□	□	
Example	3 R P 25	0	5	-	1	A	W	3	0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

- Easy stock keeping and logistics thanks to low variance of devices
- Reduced space requirement in the control cabinet thanks to variants in width 17.5 mm and 22 mm
- Consistent for all functions thanks to wide voltage range from 12 to 240 V AC/DC
- Up to 27 functions according to IEC 61812 in the multifunctional timing relay with wide voltage range
- Multifunctional timing relay with semiconductor output for high switching frequencies, bounce-free and wear-free switching

Application

Timing relays are used in control, starting, and protective circuits for all switching operations involving time delays. They guarantee a high level of functionality and a high repeat accuracy of timer settings.

Enclosure version

All timing relays are suitable for snap-on mounting onto TH 35 standard mounting rails according to IEC 60715 or for screw fixing.

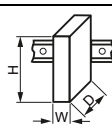
Monitoring and Control Devices

Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

Technical specifications

Type	3RP2505-A, 3RP2505-C, 3RP251., 3RP2525-A, 3RP2527, 3RP253., 3RP255.	3RP2505-B, 3RP2505-R, 3RP2525-B, 3RP254., 3RP256., 3RP257.
Width	mm 17.5	22.5
Height	mm 100	100
Depth	mm 90	90

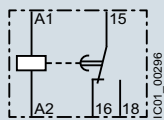


Type	3RP25...-AB30, 3RP25...-AW30, 3RP25...-BB30, 3RP25...-BW30, 3RP25...-NW30, 3RP25...-SW30	3RP25...-BT20, 3RP25...-NM20	3RP25...-CW30	3RP25...-EW30	3RP25...-RW30
Insulation voltage For overvoltage category III According to IEC 60664 For pollution degree 3, rated value	V AC 300	500	300	--	300
Ambient temperature • During operation • During storage	°C -25 ... +60 °C -40 ... +85				-40 ... +70
Operating range factor Of the control supply voltage, rated value • At AC - At 50 Hz - At 60 Hz • At DC	0.85 ... 1.1 0.85 ... 1.1 0.85 ... 1.1	--	0.85 ... 1.1	0.85 ... 1.1	0.7 ... 1.1 0.7 ... 1.1 0.7 ... 1.1
Switching capacity current With inductive load	A 0.01 ... 3	0.01 ... 3	0.01 ... 1	0.01 ... 6	0.01 ... 3
Operational current of the auxiliary contacts • At AC-15 - At 24 V - At 250 V - At 400 V • At DC-12 - At 24 V - At 125 V - At 250 V • At DC-13 - At 24 V - At 125 V - At 250 V	A 3 A 3 A -- A -- A -- A -- A 1 A 0.2 A 0.1	3 3 3	1 1 -- 1 1 1	-- -- -- -- -- --	3 3 -- -- -- -- 1 0.2 0.1
Uninterrupted thermal current I_{th}	A 5	5	1	0.6	5
Mechanical endurance (Operating cycles) Typical	10×10^6				
Electrical endurance For AC-15 at 230 V, typical	(Operating cycles) 1×10^5				

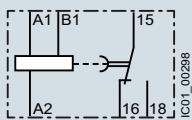
Type	3RP25
Connection type	 Screw terminals
• Design of thread of connection screw	M3
• Solid	mm ² 1 x (0.5 ... 4.0)/2 x (0.5 ... 2.5)
• Finely stranded with end sleeve	mm ² 1 x (0.5 ... 4)/2 x (0.5 ... 1.5)
• Solid for AWG cables	AWG 1 x (20 ... 12), 2 x (20 ... 14)
• Stranded for AWG cables	AWG 1 x (20 ... 12), 2 x (20 ... 14)
• Tightening torque	Nm 0.6 ... 0.8

Internal circuit diagrams 3RP25

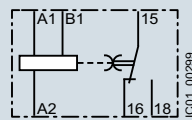
Multifunction 3RP2505-.A, 13 functions, 1 CO



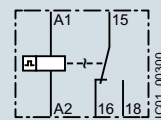
3RP2505-.A (A)
ON-delay



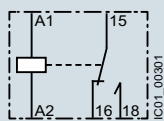
3RP2505-.A (B)
OFF-delay with control signal



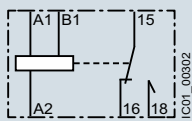
3RP2505-.A (C)
ON-delay/OFF-delay
with control signal



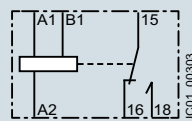
3RP2505-.A (D)
Flashing, symmetrical,
starting with interval



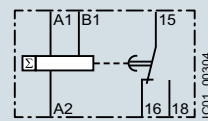
3RP2505-.A (E)
Passing make contact, interval relay



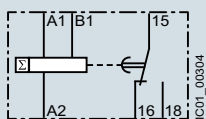
3RP2505-.A (F)
Retriggerable interval relay with
deactivated control signal (passing
break contact with control signal)



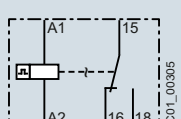
3RP2505-.A (G)
Passing make contact with
control signal (pulse-forming with
control signal)



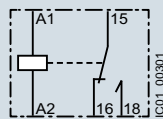
3RP2505-.A (H)
Additive ON-delay, instantaneous OFF
with control signal



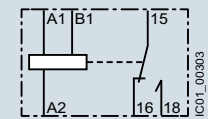
3RP2505-.A (I)
Additive ON-delay with control signal



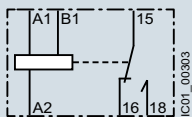
3RP2505-.A (J)
Flashing, symmetrical,
starting with pulse



3RP2505-.A (K)
Pulse-delayed (fixed pulse (at 1 s)
and settable pulse delay)



3RP2505-.A (L)
Pulse-delayed with control signal (fixed
pulse (at 1 s) and settable pulse delay)



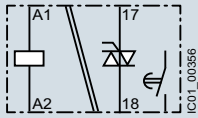
3RP2505-.A (M)
Retriggerable interval relay with
activated control signal (watchdog)

Monitoring and Control Devices

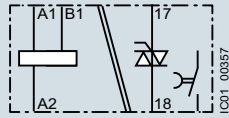
Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

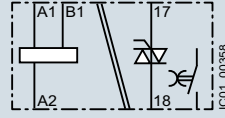
Multifunction 3RP2505-C, 13 functions, 1 NO (semiconductor)



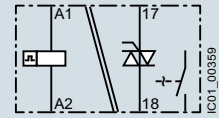
3RP2505-C (A)
ON-delay



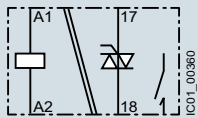
3RP2505-C (B)
OFF-delay with control signal



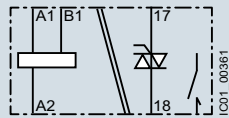
3RP2505-C (C)
ON-delay/OFF-delay
with control signal



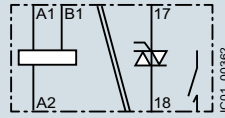
3RP2505-C (D)
Flashing, symmetrical,
starting with interval



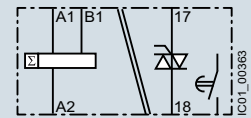
3RP2505-C (E)
Passing make contact, interval relay



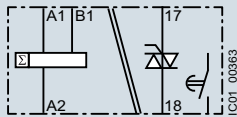
3RP2505-C (F)
Retriggerable interval relay with
deactivated control signal (passing
break contact with control signal)



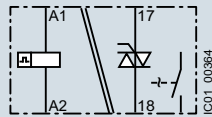
3RP2505-C (G)
Passing make contact with
control signal, not retriggerable
(pulse-forming with control signal)



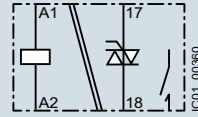
3RP2505-C (H)
Additive ON-delay, instantaneous OFF
with control signal



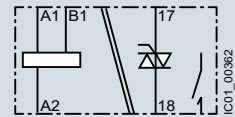
3RP2505-C (I)
Additive ON-delay with control signal



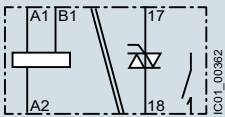
3RP2505-C (J)
Flashing, symmetrical,
starting with pulse



3RP2505-C (K)
Pulse-delayed (fixed pulse (at 1 s)
and settable pulse delay)



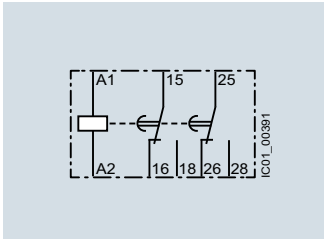
3RP2505-C (L)
Pulse-delayed with control signal (fixed
pulse (at 1 s) and settable pulse delay)



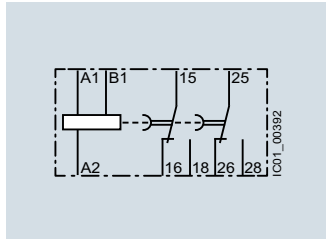
3RP2505-C (M)
Retriggerable interval relay with
activated control signal (watchdog)

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

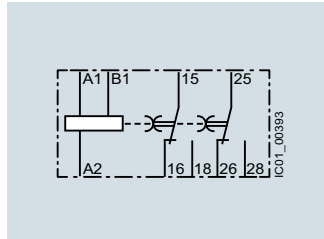
Multifunction 3RP2505-.B, 27 functions, 2 CO switched in parallel with delay/
multifunction 3RP2505-.R, 13 functions, 2 CO positively driven, and switched in parallel with delay (see also note below)



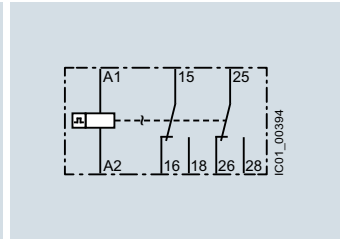
3RP2505-.B (A)
ON-delay



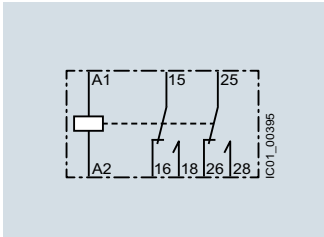
3RP2505-.B (B)
OFF-delay with control signal



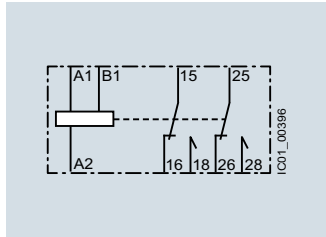
3RP2505-.B (C)
ON-delay/OFF-delay
with control signal



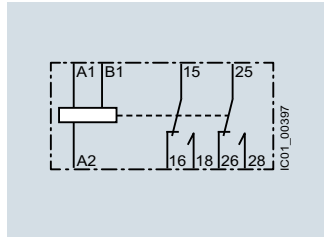
3RP2505-.B (D)
Flashing, symmetrical,
starting with interval



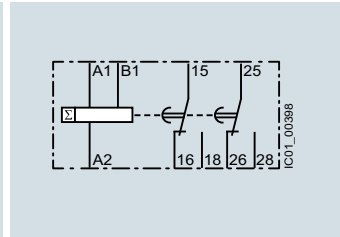
3RP2505-.B (E)
Passing make contact, interval relay



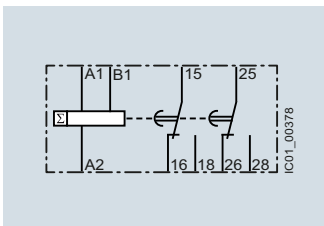
3RP2505-.B (F)
Retriggerable interval relay with
deactivated control signal (passing
break A2 contact with control signal)



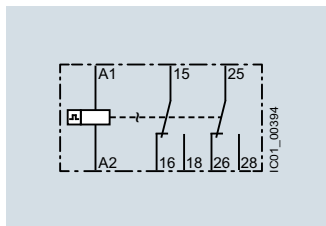
3RP2505-.B (G)
Passing make contact with
control signal, not retriggerable
(pulse-forming with control signal)



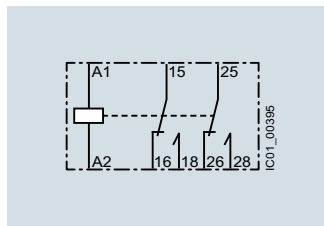
3RP2505-.B (H)
Additive ON-delay, instantaneous OFF
with control signal



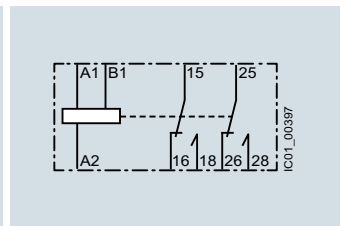
3RP2505-.B (I)
Additive ON-delay with control signal



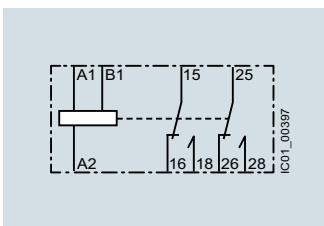
3RP2505-.B (J)
Flashing, symmetrical,
starting with pulse



3RP2505-.B (K)
Pulse-delayed (fixed pulse (at 1 s)
and settable pulse delay)



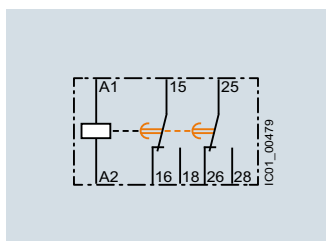
3RP2505-.B (L)
Pulse-delayed with control signal (fixed
pulse (at 1 s) and settable pulse delay)



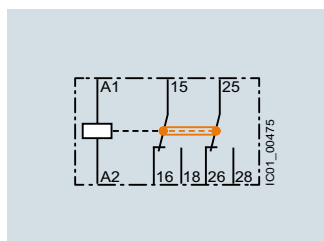
3RP2505-.B (M)
Retriggerable interval relay with
activated control signal (watchdog)

Note:

3RP2505-.RW30 has 13 functions (A to M) like 3RP2505-.B switched in parallel with delay, but with positively driven contacts. The circuit diagrams are identical except for the representation of the symbols for these contacts, see also the example on the right for 3RP2505-.RW30 of the function (A) with ON-delay.



3RP2505-.B (A)
ON-delay



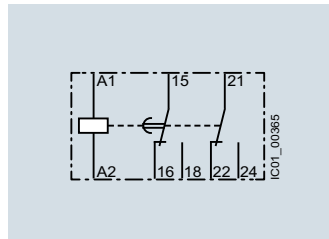
3RP2505-.R (A)
with positively driven contacts
ON-delay

Monitoring and Control Devices

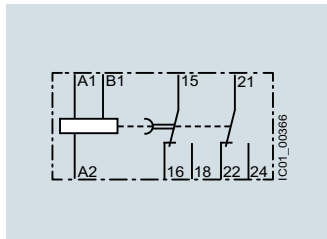
Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

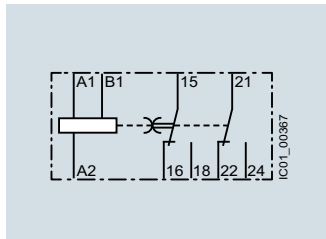
Multifunction 3RP2505-.B, 27 functions, 1 CO delayed + 1 CO instantaneous (continued)



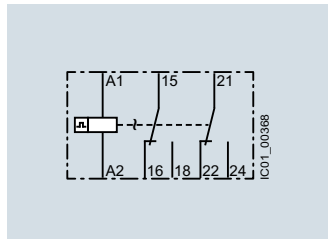
3RP2505-.B (A)
ON-delay and instantaneous contact



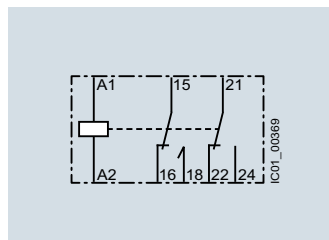
3RP2505-.B (B)
OFF-delay with control signal and instantaneous contact



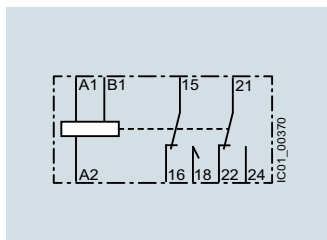
3RP2505-.B (C)
ON-delay/OFF-delay with control signal and instantaneous contact



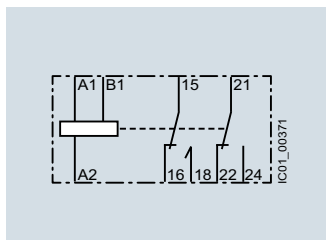
3RP2505-.B (D)
Flashing, symmetrical, starting with interval and instantaneous contact



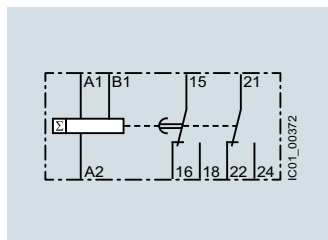
3RP2505-.B (E)
Passing make contact, interval relay and instantaneous contact



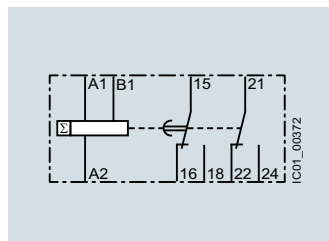
3RP2505-.B (F)
Retriggerable interval relay with deactivated control signal (passing break contact with control signal) and instantaneous contact



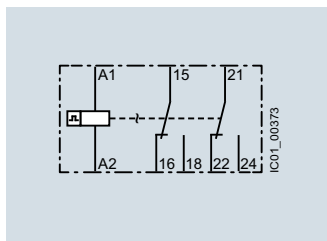
3RP2505-.B (G)
Passing make contact with control signal, not retriggerable (pulse-forming with control signal) and instantaneous contact



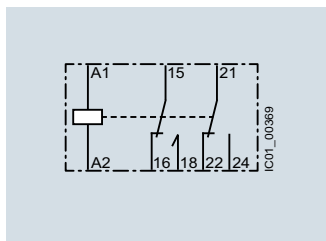
3RP2505-.B (H)
Additive ON-delay, instantaneous OFF with control signal and instantaneous contact



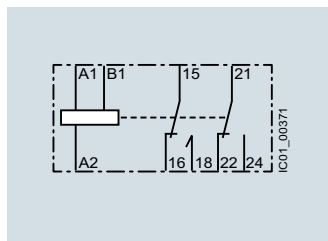
3RP2505-.B (I)
Additive ON-delay with control signal and instantaneous contact



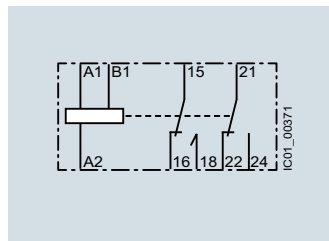
3RP2505-.B (J)
Flashing, symmetrical, starting with pulse and instantaneous contact



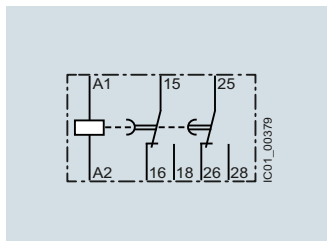
3RP2505-.B (K)
Pulse-delayed (fixed pulse (at 1 s) and settable pulse delay) and instantaneous contact



3RP2505-.B (L)
Pulse-delayed with control signal (fixed pulse (at 1 s) and settable pulse delay) and instantaneous contact



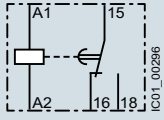
3RP2505-.B (M)
Retriggerable interval relay with activated control signal and instantaneous contact (watchdog)



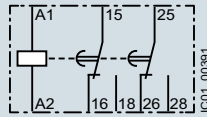
3RP2505-.B
Wye-delta function

Monofunctions 3RP251. up to 3RP257.¹⁾

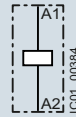
SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm



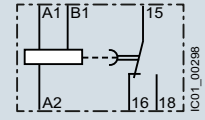
3RP251., 3RP2525-A
ON-delay



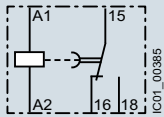
3RP2525-B
ON-delay



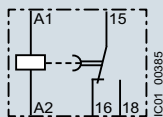
3RP2527
ON-delay, two-wire design



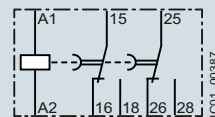
3RP2535
OFF-delay with control signal



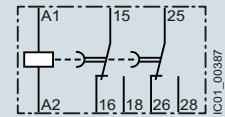
3RP2540-A (N)¹⁾
OFF-delay



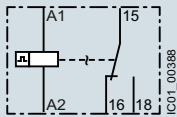
3RP2540-A (O)¹⁾
Positive passing make contact



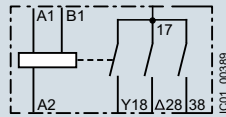
3RP2540-B (N)¹⁾
OFF-delay



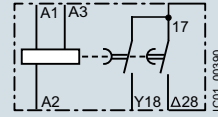
3RP2540-B (O)¹⁾
Positive passing make contact



3RP2555
Flashing, asymmetrical, starting with interval (clock-pulse relay)



3RP2560
Wye-delta function with overtravel function (idling)



3RP257.
Wye-delta function

¹⁾ 3RP2540 has a double function:
Function N = OFF-delay
Function O = Positive passing make contact.

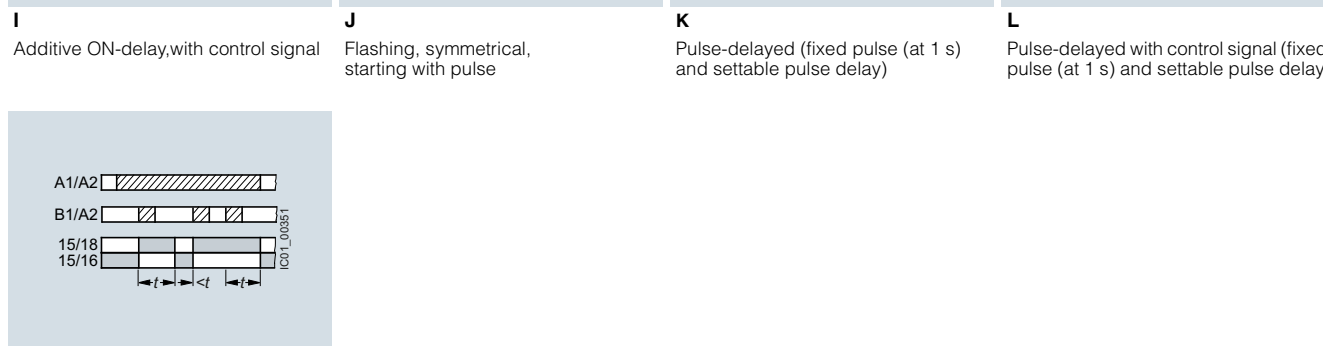
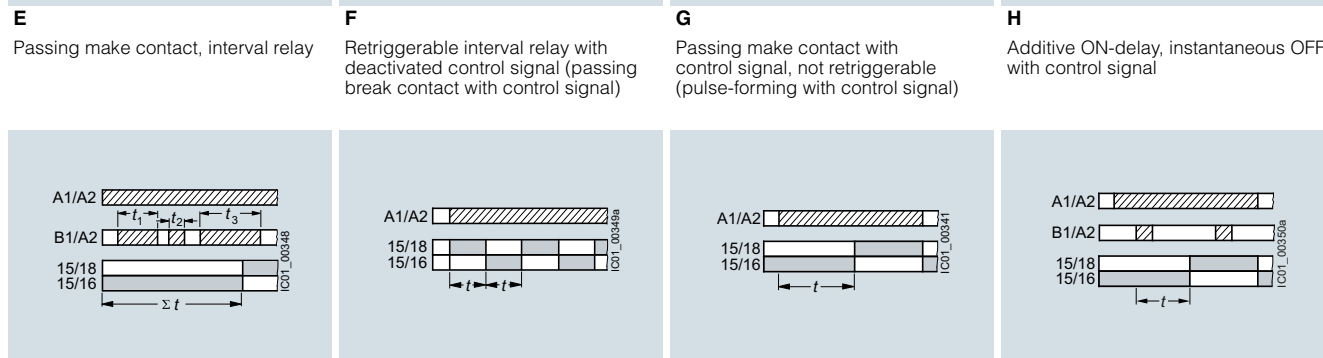
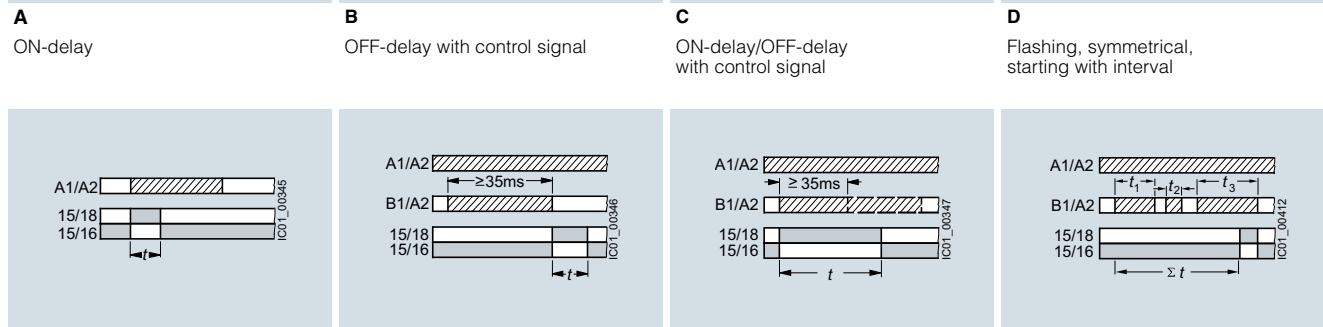
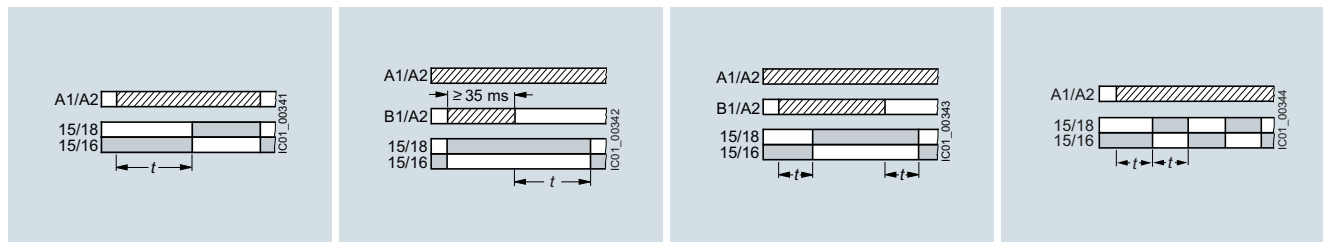
Monitoring and Control Devices

Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

3RP25 function diagrams

Multifunction 3RP2505-.A, 1 CO, 13 functions and 3RP2505-.C, 1 NO (semiconductor), 13 functions



M Retriggerable interval relay with activated control signal (watchdog)

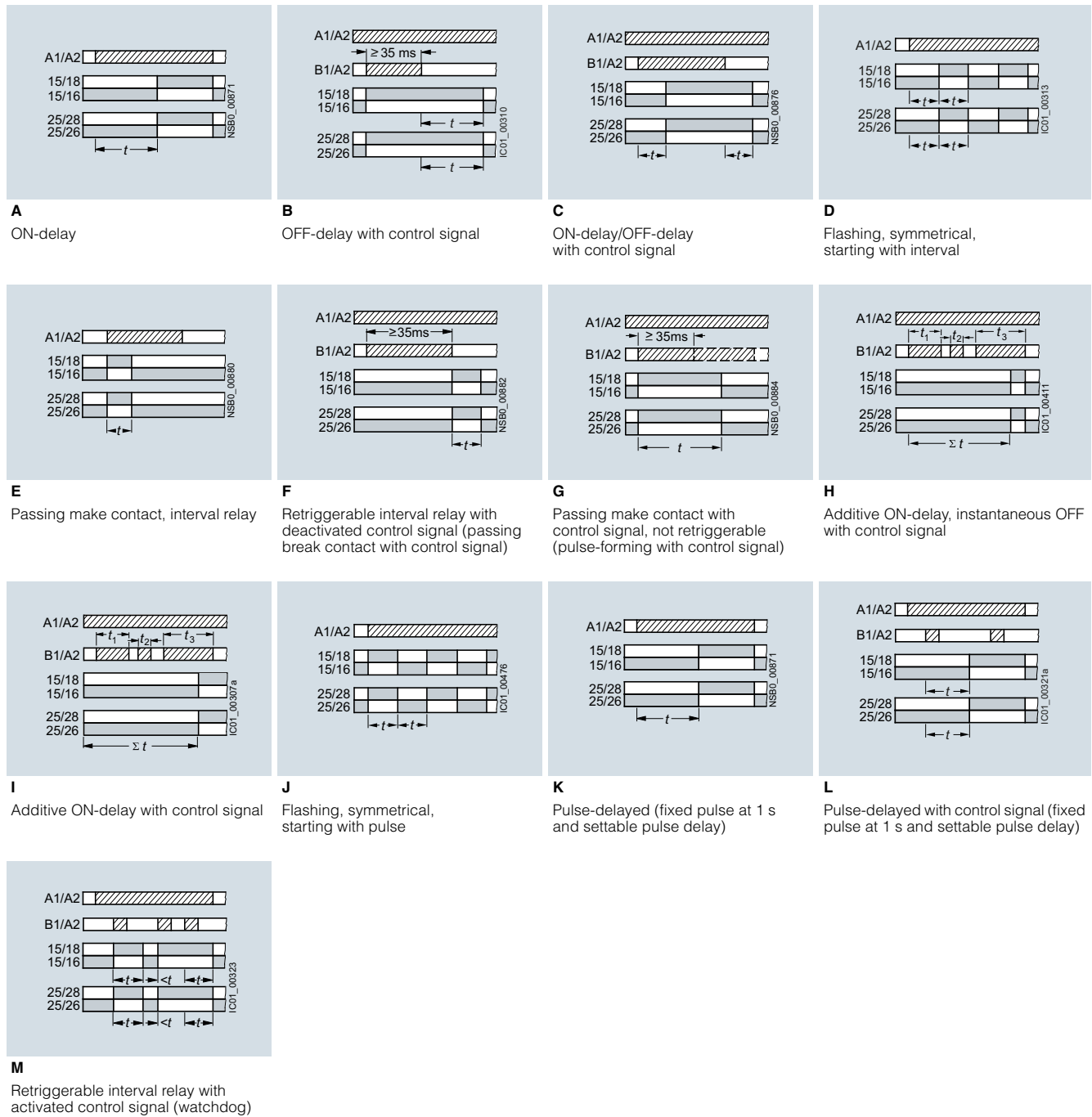
Legend

- A ... M** Identification letters
- Timing relay energized
- Contact closed
- Contact open

5

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

Multifunction 3RP2505-.B, 13 functions, 2 CO positively driven and switched in parallel with delay



Legend

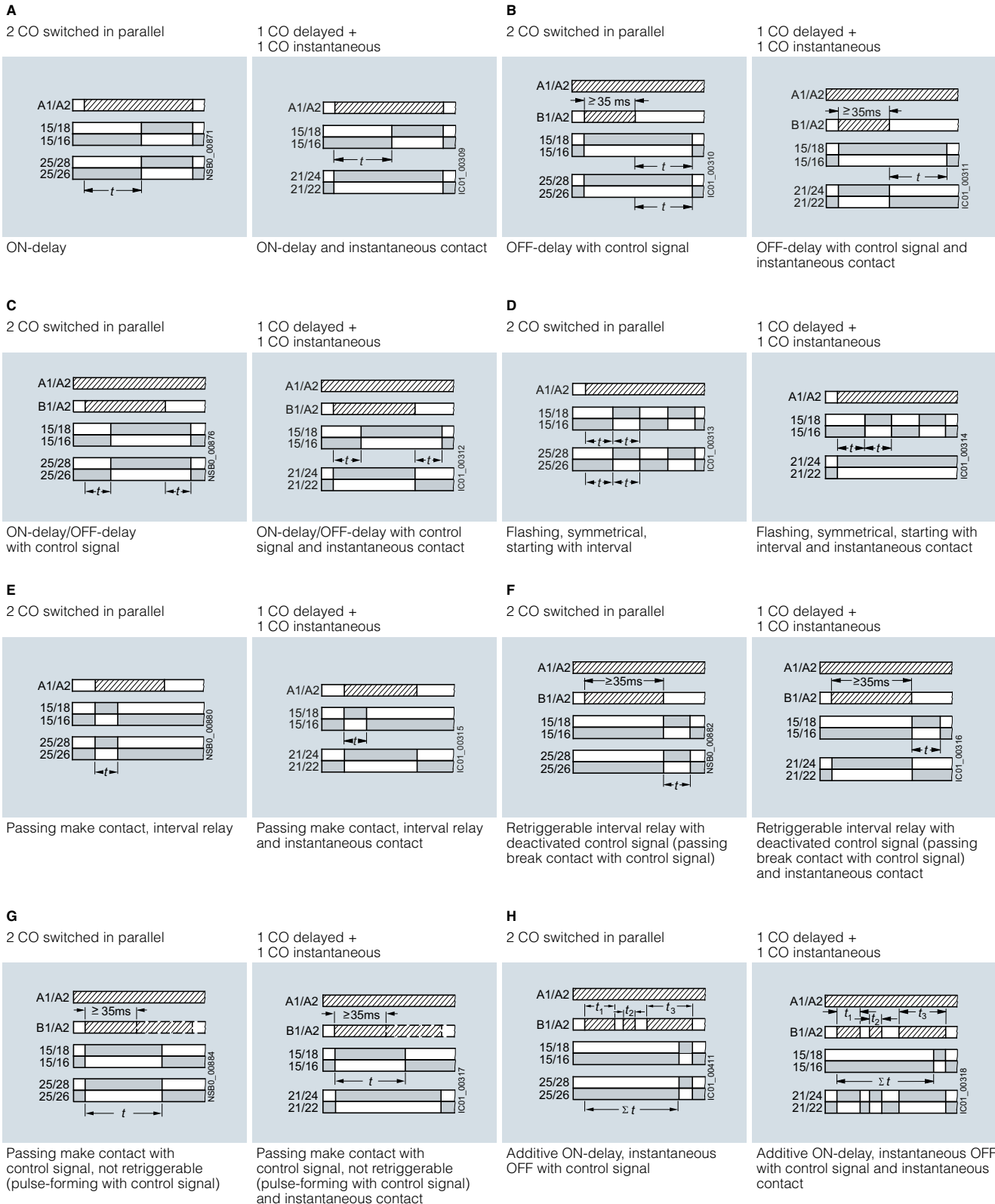
- A ... M** Identification letters
- Timing relay energized
- Contact closed
- Contact open

Monitoring and Control Devices

Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

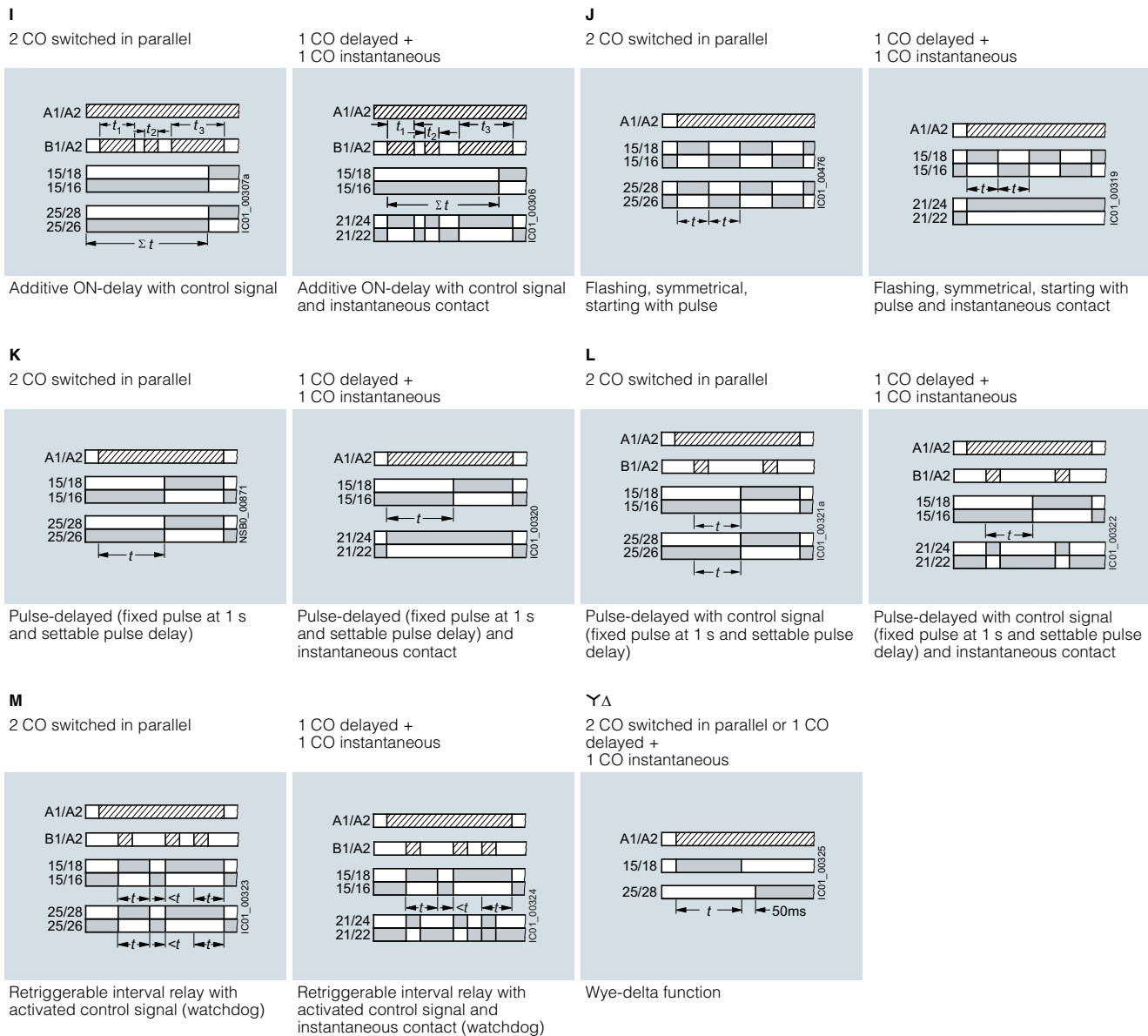
Multifunction 3RP2505-.B, 27 functions, 2 CO



Legend

- A ... M** Identification letters
- Timing relay energized
- Contact closed
- Contact open

Multifunction 3RP2505-B, 27 functions, 2 CO (continued)



Legend

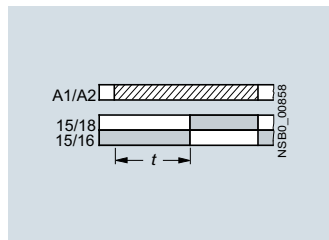
- A ... M** Identification letters
- Timing relay energized
- Contact closed
- Contact open

Monitoring and Control Devices

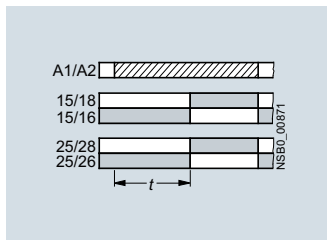
Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

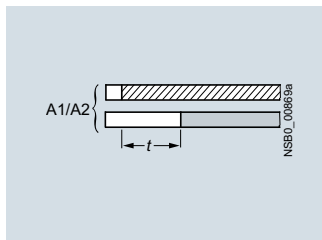
Monofunctions 3RP251. up to 3RP257.¹⁾



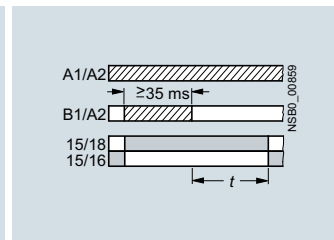
3RP251..AW30, 1 CO, ON-delay



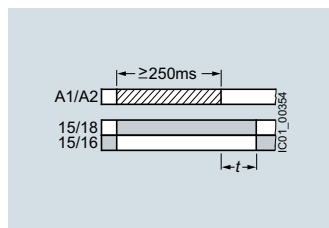
3RP2525..W30, 2 CO, ON-delay



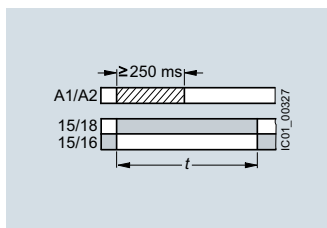
3RP2527..EW30, 1 NO (semiconductor), ON-delay



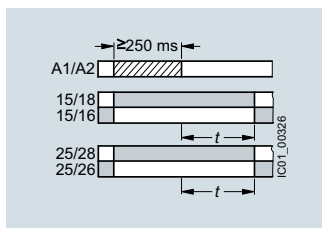
3RP2535..AW30, 1 CO, OFF-delay with control signal



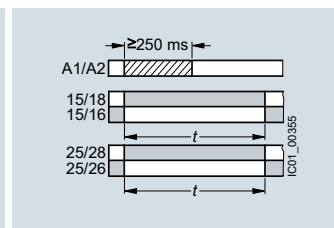
3RP2540..A.30, 1 CO, OFF-delay (N)¹⁾



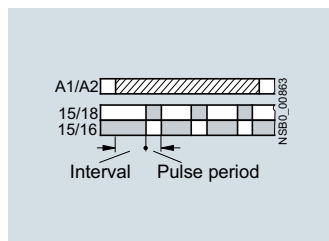
3RP2540..A.30, 1 CO, positive passing make contact (O)¹⁾



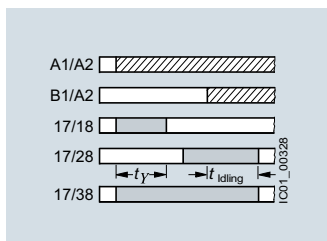
3RP2540..B.30, 2 CO, OFF-delay (N)¹⁾



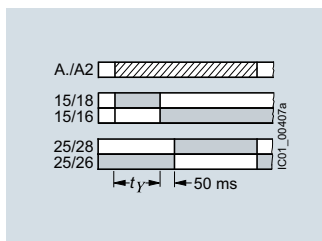
3RP2540..B.30, 2 CO, positive passing make contact (O)¹⁾



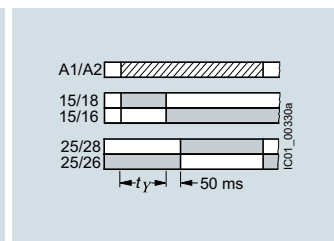
3RP2555..AW30, 1 CO, flashing, asymmetrical, starting with interval (clock-pulse relay)



3RP2560..SW30, 3 NO, wye-delta function with overtravel function (idling)



3RP257..NM20, 2 NO, wye-delta function



3RP257..NM30, 2 NO, wye-delta function

Legend

- Timing relay energized
- Contact closed
- Contact open

¹⁾ 3RP2540 has a double function:
Function N = OFF-delay
Function O = positive passing make contact.

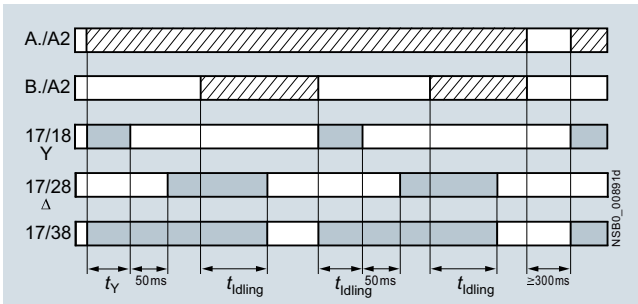
Possibilities of operation of the 3RP2560-.SW30 timing relay

Operation 1: Start contact B./A2 is open when control supply voltage A./A2 is applied

The control supply voltage is applied to A./A2 and there is no control signal on B./A2. This starts the $\Upsilon\Delta$ timing. The idling time (coasting time) is started by applying a control signal to B./A2. When the set time t_{idling} (30 ... 600 s) has elapsed, the output relays (17/38 and 17/28) are reset. If the control signal on B./A2 is switched off (minimum OFF period 270 ms), a new timing is started.

Note:

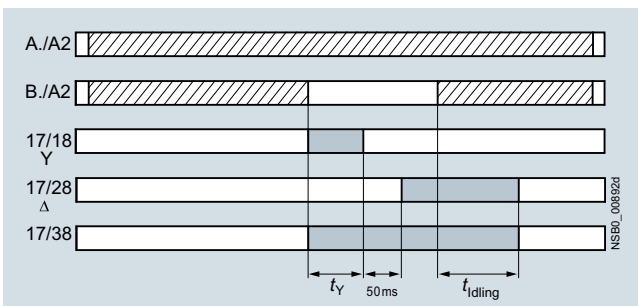
Observe response time (dead time) of 400 ms on energizing control supply voltage until contacts 17/18 and 17/16 close.



Operation 1

Operation 2: Start contact B./A2 is closed when control supply voltage A./A2 is applied

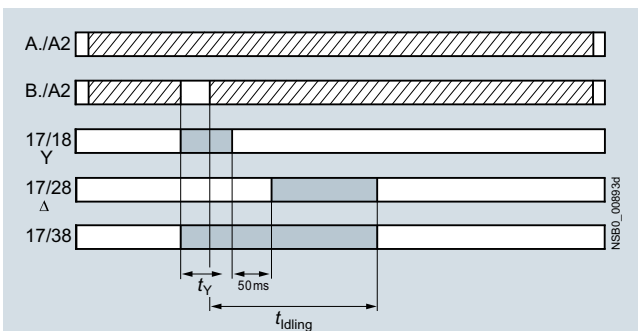
If the control signal B./A2 is already present when the control supply voltage A./A2 is applied, **no** timing is started. The timing is only started when the control signal B./A2 is switched off.



Operation 2

Operation 3: Start contact B./A2 closes while star time is running

If the control signal B./A2 is applied again during the star time, the idling time starts and the timing is terminated normally.

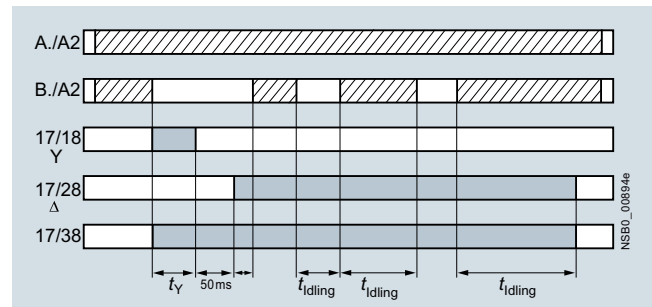


Operation 3

Operation 4: Start contact B./A2 opens while delta time is running and is applied again

If the control signal on B./A2 is applied and switched off again during the delta time, although the idling time has not yet

elapsed, the idling time (coasting time) is reset to zero. If the control signal is re-applied to B./A2, the idling time is restarted.



Operation 4

Legend

- Timing relay energized
- Contact closed
- Contact open

t_Y = Star time 1 ... 20 s

t_{idling} = Idling time (coasting time) 30 ... 600 s

Note:

The following applies to all operations: The pressure switch controls the timing via B./A2.

Application example based on standard operation (operation 1): For example, use of 3RP2560 for compressor control

Frequent starting of compressors strains the network, the machine, and the increased costs for the operator. The new timing relay prevents frequent starting at times when there is high demand for compressed air. A special control circuit prevents the compressor from being switched off immediately when the required air pressure in the tank has been reached. Instead, the valve in the intake tube is closed and the compressor runs in "Idling" mode, i.e. in no-load operation for a specific time which can be set from 30 ... 600 s.

If the pressure falls within this time, the motor does not have to be restarted again, but can return to nominal load operation from no-load operation.

If the pressure does not fall within this idling time, the motor is switched off.

The pressure switch controls the timing via B./A2.

The control supply voltage is applied to A./A2 and the start contact B./A2 is open, i.e. there is no control signal on B./A2 when the control supply voltage is applied. The pressure switch signals "too little pressure in system" and starts the timing by way of terminal B./A2. The compressor is started, enters $\Upsilon\Delta$ operation, and fills the pressure tank.

When the pressure switch signals "sufficient pressure", the control signal B./A2 is applied, the idling time (coasting time) is started, and the compressor enters no-load operation for the set period of time from 30 ... 600 s. The compressor is then switched off. The compressor is only restarted if the pressure switch responds again (low pressure).

Monitoring and Control Devices

Timing relays

SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

Selection and ordering data



3RP2505-1AB30



3RP2505-1BB30



3RP2525-1AW30



3RP2540-1AW30



3RP2555-1AW30



3RP2576-1NW30

Number of NO contacts		Number of CO contacts		Semi-conductor output	Adjustable time	Control supply voltage		Screw terminals
Instantaneous switching	Delayed switching	Instantaneous switching	Delayed switching			At AC 50/60 Hz V	At DC V	

3RP2505-.A and 3RP2505-.C timing relays, 13 functions

The functions can be adjusted by means of function selector switches on the device. With a set of foil labels the timing relay can be legibly marked with the functions which can be selected on the timing relay. This is supplied together with the multifunctional timing relay. The same potential must be applied to terminals A. and B. Functions, [see the overview of functions on page 5/32](#)

0	0	0	1	--	0.05 s ... 100 h	24 12 ... 240	24 12 ... 240	3RP2505-1AB30 3RP2505-1AW30
0	1	0	0	✓	0.05 s ... 100 h	12 ... 240	12 ... 240	3RP2505-1CW30

3RP2505-.R timing relays suitable for railway applications, 13 functions

Start of delivery planned for 11/2015

The functions can be adjusted by means of function selector switches on the device. With a set of foil labels the timing relay can be legibly marked with the functions which can be selected on the timing relay. This is supplied together with the multifunctional timing relay. The same potential must be applied to terminals A. and B. Functions, [see the overview of functions on page 5/32](#)

0	0	--	2 ¹⁾	--	0.05 s ... 100 h	24 ... 240	24 ... 240	3RP2505-1RW30
---	---	----	-----------------	----	------------------	------------	------------	----------------------

3RP2505-.B timing relay, 27 functions

The functions can be adjusted by means of function selector switches on the device. With a set of foil labels the timing relay can be legibly marked with the functions which can be selected on the timing relay. This is supplied together with the multifunctional timing relay. The same potential must be applied to terminals A. and B. Functions, [see the overview of functions on page 5/32](#)

0	0	--	2 ²⁾	--	0.05 s ... 100 h	24 400 ... 440 12 ... 240	24 -- 12 ... 240	3RP2505-1BB30 3RP2505-1BT20 3RP2505-1BW30
---	---	----	-----------------	----	------------------	---------------------------------	------------------------	----------------------------------------------------------------------

3RP251. and 3RP252. timing relays, ON-delay

0	0	0	1	--	0.5 ... 10 s	12 ... 240	12 ... 240	3RP2511-1AW30 3RP2512-1AW30 3RP2513-1AW30 3RP2525-1AW30
					1 ... 30 s	12 ... 240	12 ... 240	
					5 ... 100 s	12 ... 240	12 ... 240	
					0.05 s ... 100 h	12 ... 240	12 ... 240	

0	0	0	2	--	0.05 s ... 100 h	24 12 ... 240	24 12 ... 240	3RP2525-1BB30 3RP2525-1AW30
0	1	0	0	✓	0.05 s ... 240 s	12 ... 240	12 ... 240	3RP2527-1EW30

3RP2535 timing relays, OFF-delay with control signal

0	0	0	1	--	0.05 s ... 100 h	12 ... 240	12 ... 240	3RP2535-1AW30
---	---	---	---	----	------------------	------------	------------	----------------------

3RP2540 timing relays, OFF-delay, without control signal, non-volatile, passing make contact

0	0	0	1	--	0.05 s ... 600 s	24 12 ... 240	24 12 ... 240	3RP2540-1AB30 3RP2540-1AW30
0	0	0	2	--	0.05 s ... 600 s	12 ... 240	24 12 ... 240	3RP2540-1BB30 3RP2540-1BW30

3RP2555 timing relays, clock-pulse relay, flashing, asymmetrical

0	0	0	1	--	0.05 s ... 100 h	12 ... 240	12 ... 240	3RP2555-1AW30
---	---	---	---	----	------------------	------------	------------	----------------------

3RP2560 timing relays, wye-delta function with overtravel function (idling)

1	2	0	0	--	1 ... 20 s	12 ... 240	12 ... 240	3RP2560-1SW30
---	---	---	---	----	------------	------------	------------	----------------------

3RP257. timing relays, wye-delta function

1	1	0	0	--	1 ... 20 s	380 ... 440 ³⁾ 12 ... 240	-- 12 ... 240	3RP2574-1NM20 3RP2574-1NW30
1	1	0	0	--	3 ... 60 s	380 ... 440 ³⁾ 12 ... 240	-- 12 ... 240	3RP2576-1NM20 3RP2576-1NW30

- ✓ Available
-- Not available






1) Positively-driven contacts.

2) Optionally 1 CO delayed + 1 CO instantaneous.

3) With 3RP2574-.NM20 and 3RP2576-.NM20, connection of 200 ... 240 V AC, 50/60 Hz control voltage is also possible.

For accessories, [see page 5/47](#).

Accessories

Version	Article No.
Accessories for enclosures	
 3ZY1321-1AA00	Sealing covers • 17.5 mm 3ZY1321-1AA00
 3ZY1321-2AA00	• 22.5 mm 3ZY1321-2AA00
 3ZY1311-0AA00	Push-in lugs For wall mounting 3ZY1311-0AA00
 3ZY1440-0AA00	Coding pins For removable terminals of SIRIUS devices in the industrial standard mounting rail enclosure; enable the mechanical coding of terminals 3ZY1440-1AA00
Terminals for SIRIUS devices in the industrial standard mounting rail enclosure	
 3ZY1122-1BA00	Removable terminals • 2-pole, screw terminals 1 x 4 mm ² 3ZY1122-1BA00
	Screw terminals 3ZY1122-1BA00

Monitoring and Control Devices

Timing relays

7PV15 timing relays in enclosure, 17.5 mm

Overview



7PV15 timing relay

Electronic timing relays for general use and in control systems, mechanical engineering and infrastructure with:

- 1 or 2 CO contacts
- Multifunction or monofunction
- Wide voltage range or combination voltage
- Single or selectable time setting ranges
- Switch position indication and voltage indication by LED

Standards

The timing relays comply with:

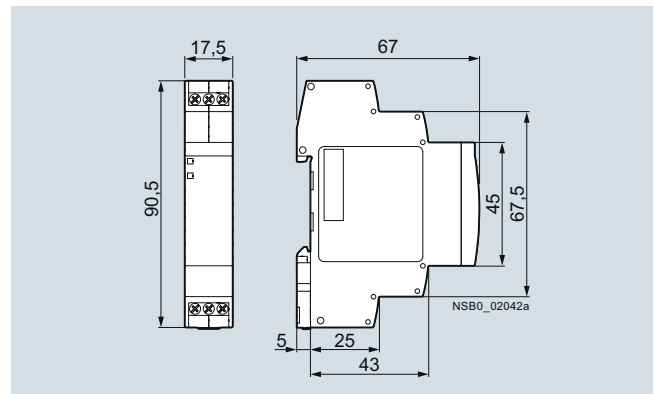
- IEC 60721-3-3 "Classification of environmental conditions"
- IEC 61812-1 "Time relays for industrial and residential use"
- IEC 61000-6-2 and EN 61000-6-4 "Electromagnetic compatibility"
- IEC 60947-5-1 "Low-voltage switchgear and controlgear – Electromechanical control circuit devices"
- DIN 43880 "Built-in equipment for electrical installations; overall dimensions and related mounting dimensions"

Multifunction

The functions of the 7PV1508-1A multifunctional timing relays can be set by means of rotary switches. The identification letters A to G are printed on the front alongside the rotary selector switch of the unit. The related function can be found in the form of a bar graph on the side of the device.

Enclosure version

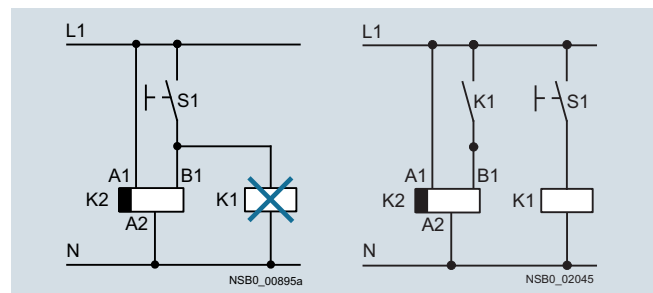
All timing relays are suitable for snap-on mounting onto TH 35 standard mounting rails according to IEC 60715. The enclosure complies with DIN 43880, 1 MW.



Dimensions

Note:

The activation of loads parallel to the start input is not permissible when using AC control voltage (see diagrams).



Diagrams

Article No. scheme

Digit of the Article No.	1 st - 5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
	□□□□□	□	□	-	□	□	□	□
Timing relays in industrial enclosure, 17.5 mm	7	P	V	1	5			
Functions/time setting ranges		□	□					
Connection type					□			
Contacts						□		
Rated control supply voltage							□	□
Example	7	P	V	1	5	0	8	- 1 A W 3 0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.


Benefits

- Wide voltage range 12 to 240 V AC/DC
- High switching capacity, e.g. AC-15 at 230 V, 3 A
- Combination voltage, e.g. 24 V AC/DC and 200 to 240 V AC
- Changes to the time setting range during operation
- Changes to the function in the de-energized state
- High level of functionality and a high repeat accuracy of timer settings
- Integrated surge suppressor
- Function charts printed on the side of the device for reliable device adjustment

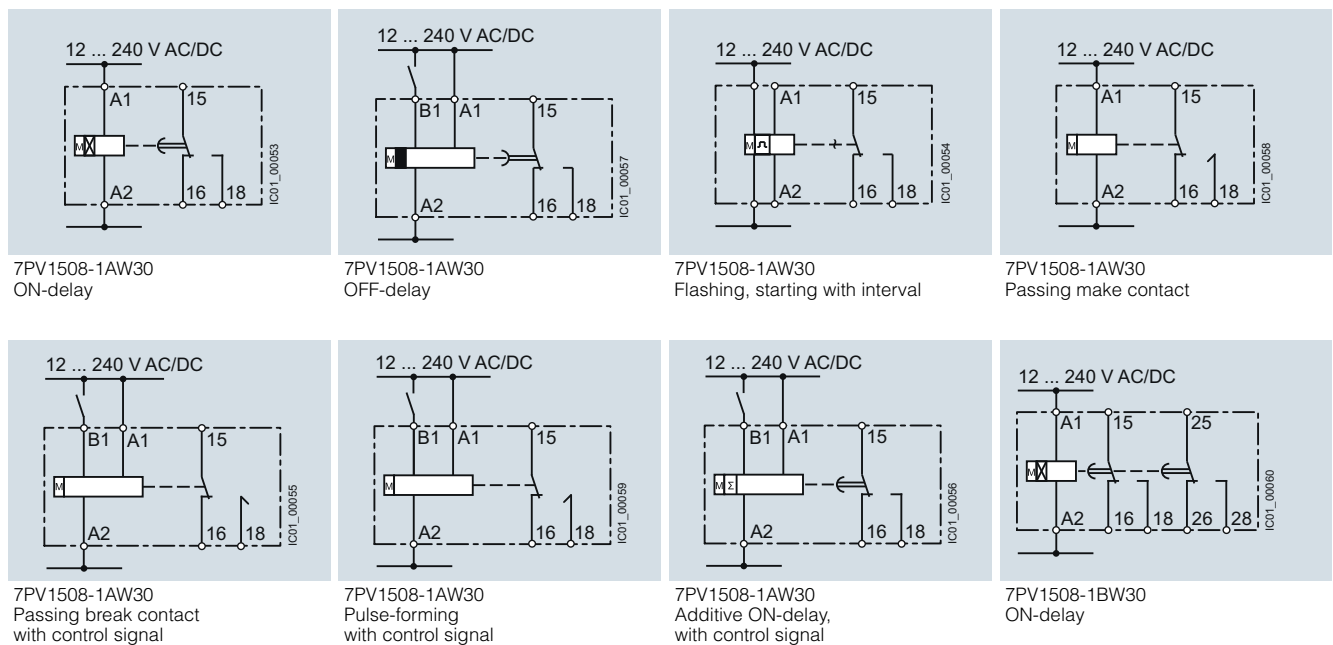
Application

Timing relays are used in control, starting and protective circuits for all switching operations involving time delays, e.g. in non-residential buildings, airports, industrial buildings etc.

Technical specifications

Type	7PV15	
Rated insulation voltage Pollution degree 2, overvoltage category III	V AC	300
Permissible ambient temperature	°C	-25 ... +55
• During operation	°C	-40 ... +70
• During storage		
Operating range at excitation¹⁾		0.85 ... 1.1 x U_s at V AC/DC, 50/60 Hz 0.8 ... 1.25 x U_s 24 V DC 0.95 ... 1.05 times the rated frequency
Rated operational current I_e	A	3
• AC-15 at 24 ... 240 V, 50 Hz		
• DC-13 at	A	1
- 24 V	A	0.2
- 125 V		
Uninterrupted thermal current I_{th}	A	5
Mechanical endurance	Operating cycles	1×10^6
Electrical endurance at I_e	Operating cycles	1×10^5
Connection type	 Screw terminals	
• Terminal screw	M3 (for standard screwdriver, size 2 and Pozidriv 2)	
• Solid	mm ²	1 x (0.2 ... 2.5)
• Finely stranded with end sleeve	mm ²	1 x (0.25 ... 1.5)
• Finely stranded without end sleeve	mm ²	1 x (0.2 ... 1.5)
• AWG cables, solid or stranded	AWG	1 x (24 ... 14)
• Tightening torque	Nm	0.4 ... 0.5

¹⁾ If nothing else is stated.

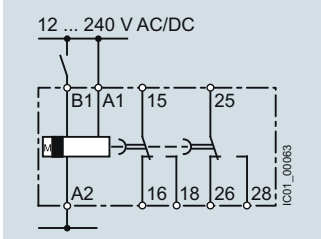
7PV15 internal circuit diagrams

Monitoring and Control Devices

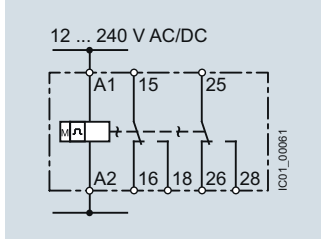
Timing relays

7PV15 timing relays in enclosure, 17.5 mm

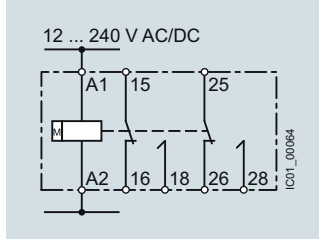
7PV15 internal circuit diagrams (continued)



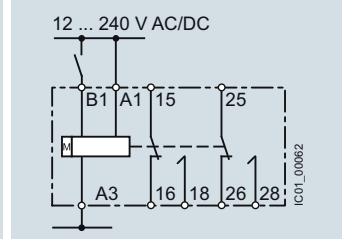
7PV1508-1BW30
OFF-delay
with control signal



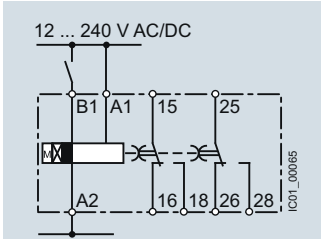
7PV1508-1BW30
Flashing,
starting with interval



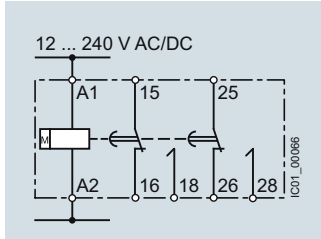
7PV1508-1BW30
Passing make contact



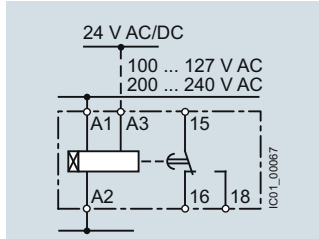
7PV1508-1BW30
Pulse-forming
with control signal



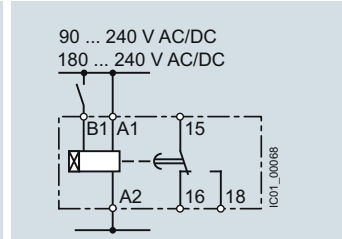
7PV1508-1BW30
ON and OFF-delay



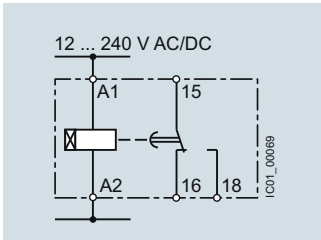
7PV1508-1BW30
Fixed pulse after ON-delay



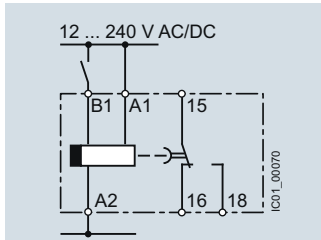
7PV151.-1AQ30, 7PV151.-1AP30
ON-delay



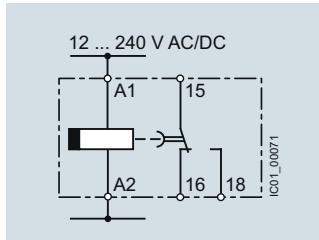
7PV1518-1AJ30, 7PV1518-1AN30
ON-delay



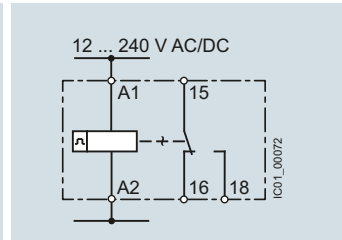
7PV1518-1AW30
ON-delay



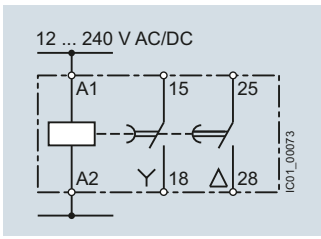
7PV1538-1AW30
OFF-delay
with control signal



7PV1540-1AW30
OFF-delay
without control signal



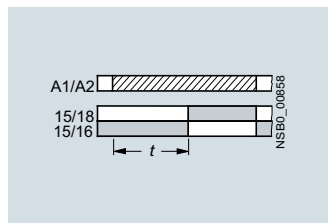
7PV1558-1AW30
Clock-pulse relay



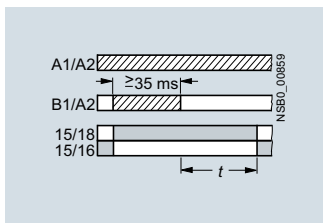
7PV1578-1BW30
Wye-delta

7PV15 function diagrams

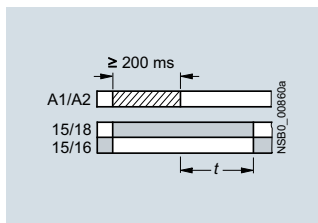
1 CO contact



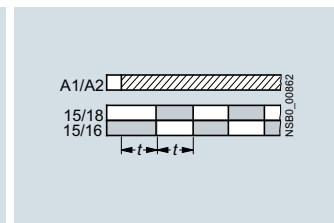
A
7PV1508-1A, 7PV1511, 7PV1512,
7PV1513, 7PV1518
ON-delay



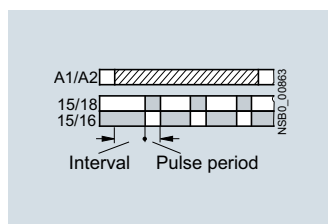
B¹⁾
7PV1508-1A, 7PV1538
OFF-delay with control signal



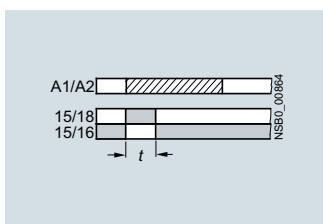
--
7PV1540
OFF-delay without control signal



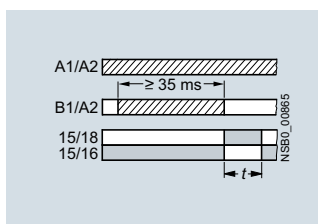
C
7PV1508-1A
Flashing, starting with interval
(pulse/interval 1:1)



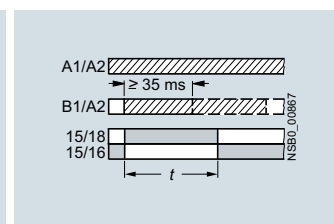
--
7PV1558
Clock-pulse, starting with interval
(dead period, pulse time, and time
setting ranges each separately
adjustable)



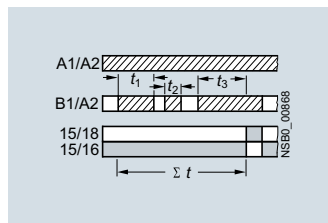
D
7PV1508-1A
Passing make contact



E¹⁾
7PV1508-1A
Passing break contact with control
signal



F¹⁾
7PV1508-1A
Pulse-forming with control signal
(pulse generation at the output does
not depend on duration of energizing)



G¹⁾
7PV1508-1A
Additive ON-delay with control signal

Legend

A ... G Identification letters for 7PV1508

▨ Timing relay energized

■ Contact closed

□ Contact open

¹⁾ Note on function with start contact: A new control signal at terminal B, after the operating time has started, resets the operating time to zero (retriggerable). This does not apply to E, F and G, which are not retriggerable.

Note:

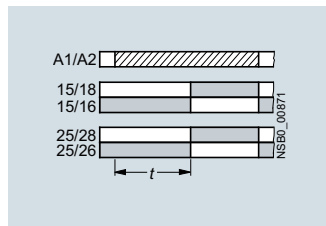
With the 7PV1508-1A multifunctional relay the identification letters A to G are printed on the front alongside the rotary selector switch of the unit. The related function can be found in the form of a bar graph on the side of the device.

Monitoring and Control Devices

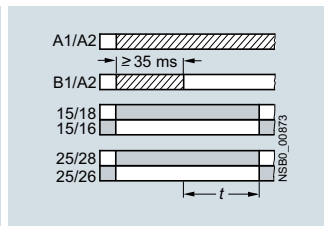
Timing relays

7PV15 timing relays in enclosure, 17.5 mm

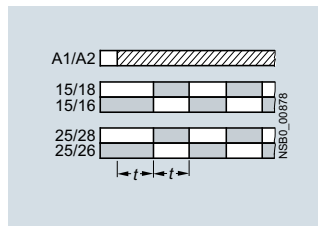
2 CO contacts



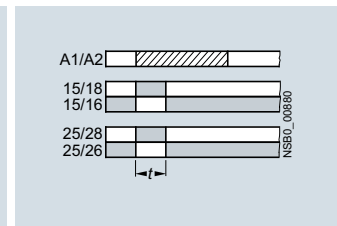
A
7PV1508-1B
ON-delay



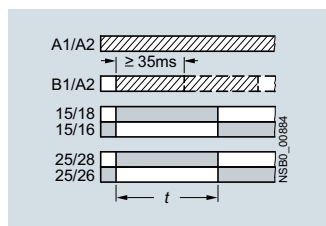
B¹⁾
7PV1508-1B
OFF-delay with control signal



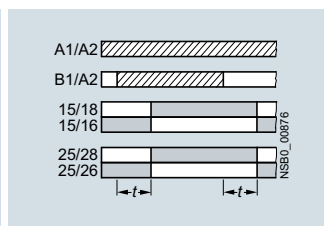
C
7PV1508-1B
Flashing, starting with interval
(pulse/interval 1:1)



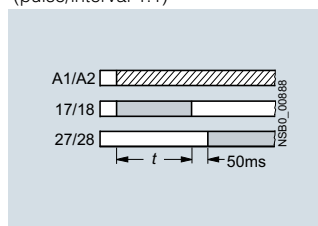
D
7PV1508-1B
Passing make contact



F¹⁾
7PV1508-1B
Pulse-forming with control signal
(pulse generation at the output does
not depend on duration of
energizing)

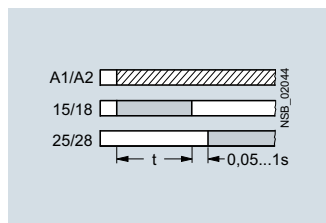


H¹⁾
7PV1508-1B
ON-delay and OFF-delay
with control signal



I
7PV1508-1B
Fixed pulse after ON-delay

2 NO contacts



--
7PV1578
Wye-delta function²⁾

Legend

A ... D, F, H, I Identification letters for 7PV1508

▨ Timing relay energized

■ Contact closed

□ Contact open

¹⁾ Note on function with start contact: A new control signal at terminal B, after the operating time has started, resets the operating time to zero (retriggerable). This does not apply to E, F and G, which are not retriggerable.

²⁾ With 7PV1578 the contacts 16 and 26 are not needed for the wye-delta function.

Note:

With the 7PV1508-1B multifunctional relay the identification letters A to D, F, H, I are printed on the front alongside the rotary selector switch of the unit. The related function can be found in the form of a bar graph on the side of the device.

Selection and ordering data



7PV1508-1AW30



7PV1512-1AP30



7PV1518-1AW30



7PV1538-1AW30




7PV1540-1AW30



7PV1558-1AW30



7PV1578-1BW30

Version	Time setting range t adjustable by rotary switch to	Rated control supply voltage U_s		Screw terminals 	Article No.
		50/60 Hz AC V	DC V		

7PV1508 timing relays, multifunction, 7 time setting ranges

The functions can be adjusted by means of rotary switches. The same potential must be applied to terminals A. and B.

With LED and 1 CO contact, 7 functions	0.05 ... 1 s 0.5 ... 10 s 5 ... 100 s	12 ... 240	12 ... 240	7PV1508-1AW30
With LED and 2 CO contacts, 7 functions	30 s ... 10 min 3 min ... 1 h 30 min ... 10 h 5 ... 100 h	12 ... 240	12 ... 240	7PV1508-1BW30

7PV151. timing relays, ON-delay, 1 time setting range

With LED and 1 CO contact	0.05 ... 1 s	24/200 ... 240	24	7PV1511-1AP30
	0.5 ... 10 s	24/100 ... 127	24	7PV1512-1AQ30
		24/200 ... 240	24	7PV1512-1AP30
	5 ... 100 s	24/100 ... 127	24	7PV1513-1AQ30 7PV1513-1AP30

7PV1518 timing relays, ON-delay, 7 time setting ranges

With LED and 1 CO contact	0.05 ... 1 s	12 ... 240	12 ... 240	7PV1518-1AW30
	0.5 ... 10 s	90 ... 127	90 ... 127	7PV1518-1AJ30
	5 ... 100 s	180 ... 240	180 ... 240	7PV1518-1AN30
	30 s ... 10 min			
	3 min ... 1 h			
	30 min ... 10 h			
	5 ... 100 h			

7PV1538 timing relays, OFF-delay, with control signal, 7 time setting range

With LED and 1 CO contact	0.05 ... 1 s	12 ... 240	12 ... 240	7PV1538-1AW30
	0.5 ... 10 s			
	5 ... 100 s			
	30 s ... 10 min			
	3 min ... 1 h			
	30 min ... 10 h			
	5 ... 100 h			

7PV1540 timing relays, OFF-delay, without control signal, 7 time setting ranges

With LED and 1 CO contact	0.05 ... 1 s	12 ... 240	12 ... 240	7PV1540-1AW30
	0.15 ... 3 s			
	0.3 ... 6 s			
	0.5 ... 10 s			
	1.5 ... 30 s			
	3 ... 60 s			
	5 ... 100 s			

7PV1558 timing relays, clock-pulse relay, 7 time setting ranges

With LED and 1 CO contact	0.05 ... 1 s	12 ... 240	12 ... 240	7PV1558-1AW30
	0.5 ... 10 s			
	5 ... 100 s			
	30 s ... 10 min			
	3 min ... 1 h			
	30 min ... 10 h			
	5 ... 100 h			

7PV1578 timing relays, wye-delta function, 7 time setting ranges

With LED and 2 NO contacts, dead interval 0.05 ... 1 s adjustable	0.05 ... 1 s	12 ... 240	12 ... 240	7PV1578-1BW30
	0.5 ... 10 s			
	5 ... 100 s			
	30 s ... 10 min			
	3 min ... 1 h			
	30 min ... 10 h			
	5 ... 100 h			

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

General data

Overview



SIRIUS 3UG4 monitoring relay

The field-proven SIRIUS monitoring relays for electrical and mechanical variables enable constant monitoring of all important characteristic quantities that provide information about the functional capability of a plant. Both sudden disturbances and gradual changes, which may indicate the need for maintenance, are detected. Thanks to their relay outputs, the monitoring relays permit direct disconnection of the affected system components as well as alerting (e.g. by switching a warning lamp). Thanks to adjustable delay times the monitoring relays can respond very flexibly to brief faults such as voltage dips or load changes. This avoids unnecessary alarms and disconnections while enhancing plant availability.

The individual 3UG4 monitoring relays offer the following functions in various combinations:

- Undershooting and/or overshooting of liquid levels
- Phase sequence
- Phase failure, neutral conductor failure
- Phase asymmetry
- Undershooting and/or overshooting of limit values for voltage
- Undershooting and/or overshooting of limit values for current
- Undershooting and/or overshooting of limit values for power factor
- Monitoring of the active current or the apparent current
- Monitoring of the residual current
- Monitoring of the insulation resistance
- Undershooting and/or overshooting of limit values for speed

5

Article No. scheme

Digit of the Article No.	1 st - 3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	
Monitoring relays	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generation	3 U G		<input type="checkbox"/>								
Type of setting			<input type="checkbox"/>								
Functions				<input type="checkbox"/>	<input type="checkbox"/>						
Connection methods							<input type="checkbox"/>				
Contacts								<input type="checkbox"/>			
Supply voltage									<input type="checkbox"/>		
Signal type of the control supply voltage										<input type="checkbox"/>	
Special version										<input type="checkbox"/>	
Example	3 U G	4	5	1	1	-	1	A	N	2 0	

Notes:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Monitoring and Control Devices

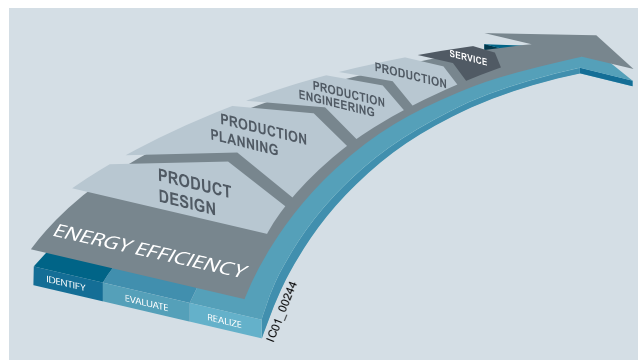
SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

General data

Benefits

- Fast commissioning thanks to menu-guided parameterization and actual value display for limit value determination
- Reduced space requirement in the control cabinet thanks to a consistent width of 22.5 mm
- Parameterizable monitoring functions, delay times, reset response, etc.
- Reduced stockkeeping thanks to minimized variance and large measuring ranges
- Wide-voltage power supply units for global applicability
- Device replacement without renewed wiring thanks to removable terminals
- Reliable system diagnostics thanks to actual value display and connectable fault memory
- Rapid diagnostics thanks to unambiguous error messages on the display

Advantages through energy efficiency



Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative SIRIUS industrial controls products can also make a major contribution to the energy efficiency of a plant (www.siemens.com/sirius/energysaving).

The 3UG4 monitoring relays contribute to energy efficiency throughout the plant as follows:

- Shutdown in the event of no-load operation (e.g. pump no-load operation)
- Reactive-power compensation by means of power factor monitoring
- Load shedding of predefined loads in the event of current overshoots

Application

The SIRIUS 3UG4 monitoring relays monitor the most diverse electrical and mechanical quantities in the feeder, and provide reliable protection against damage in the plant. For this purpose, they offer freely parameterizable limit values and diverse options for adapting to the respective task, and in the event of a fault, they provide clear diagnostics information.

The digitally adjustable products also display the current measured values direct on the device. This not only facilitates the display of valuable plant status information during operation, it also enables adjustment of the monitored limit values in accordance with the actual conditions.

The positive result: More selective avoidance of production faults – sustained increases in availability and productivity.

The 3UG4 monitoring relays are available for the following applications:

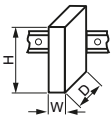

- Line and single-phase voltage monitoring
- Single-phase current monitoring or power factor and active current monitoring
- Residual current monitoring
- Insulation monitoring
- Level monitoring
- Speed monitoring

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

General data

Technical specifications

Type	3UG	
General data		
Dimensions (W x H x D)		
<ul style="list-style-type: none"> For 2 terminal blocks - Screw terminals 		mm 22.5 x 83 x 91
<ul style="list-style-type: none"> For 3 terminal blocks - Screw terminals 		mm 22.5 x 92 x 91
<ul style="list-style-type: none"> For 4 terminal blocks - Screw terminals 		mm 22.5 x 103 x 91
Permissible ambient temperature		
<ul style="list-style-type: none"> During operation 	°C	-25 ... +60
Connection type		 Screw terminals
<ul style="list-style-type: none"> Terminal screw Solid Finely stranded with end sleeve AWG cables, solid or stranded 	mm ² mm ² AWG	M3 (for standard screwdriver, size 2 and Pozidriv 2) 1 x (0.5 ... 4)/2 x (0.5 ... 2.5) 1 x (0.5 ... 2.5)/2 x (0.5 ... 1.5) 2 x (20 ... 14)

More information

Manual

For manual "3UG45/3UG46 and 3RR21/3RR22 Monitoring Relays", see <https://support.industry.siemens.com/cs/ww/en/view/54397927>.

Overview



SIRIUS 3UG4615 monitoring relay

Solid-state line monitoring relays provide maximum protection for mobile machines and plants or for unstable networks. Network and voltage faults can thus be detected early and rectified before far greater damage ensues.

Depending on the version, the relays monitor phase sequence, phase failure with and without N conductor monitoring, phase asymmetry, undervoltage or overvoltage.

Phase asymmetry is evaluated as the difference between the greatest and the smallest phase voltage relative to the greatest phase voltage. Undervoltage or overvoltage exists when at least one phase voltage deviates by 20 % from the set rated system voltage or the directly set limit values are overshoot or undershot. The rms value of the voltage is measured.

With the 3UG4617 or 3UG4618 relay, a wrong direction of rotation can also be corrected automatically.

Benefits

- Can be used without auxiliary voltage in any network from 160 to 630 V AC worldwide thanks to wide voltage range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Permanent display of ACTUAL value and network fault type on the digital versions
- Automatic correction of the direction of rotation by distinguishing between power system faults and wrong phase sequence
- All versions with removable terminals

Application

The relays are used above all for mobile equipment, e.g. air conditioning compressors, refrigerating containers, building site compressors and cranes.

Function	Application
Phase sequence	<ul style="list-style-type: none"> • Direction of rotation of the drive
Phase failure	<ul style="list-style-type: none"> • A fuse has tripped • Failure of the control supply voltage • Broken cable
Phase asymmetry	<ul style="list-style-type: none"> • Overheating of the motor due to asymmetrical voltage • Detection of asymmetrically loaded networks
Undervoltage	<ul style="list-style-type: none"> • Increased current on a motor with corresponding overheating • Unintentional resetting of a device • Network collapse, particularly with battery power
Overvoltage	<ul style="list-style-type: none"> • Protection of a plant against destruction due to overvoltage

Technical specifications

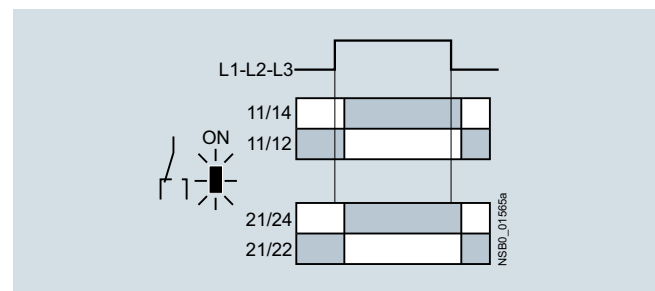
3UG4511 monitoring relays

The 3UG4511 phase sequenced relay monitors the phase sequence in a three-phase network. No adjustments are required for operation. The device has an internal power supply and works using the closed-circuit principle. If the phase sequence at the terminals L1-L2-L3 is correct, the output relay picks up after the delay time has elapsed and the LED is lit. If the phase sequence is wrong, the output relay remains in its rest position.

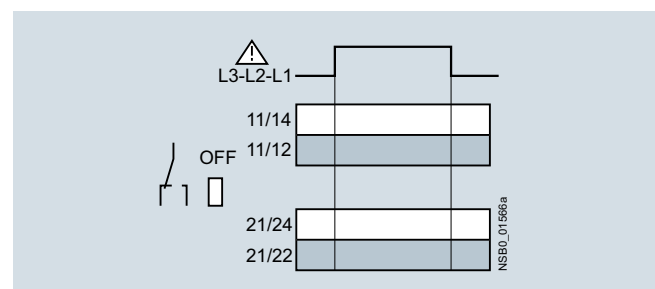
Note:

When one phase fails, connected loads (motor windings, lamps, transformers, coils, etc.) create a feedback voltage at the terminal of the failed phase due to the network coupling. Because the 3UG4511 relays are not resistant to voltage feedback, such a phase failure is not detected. Should this be required, then the 3UG4512 monitoring relay must be used.

Correct phase sequence



Wrong phase sequence



Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Line monitoring

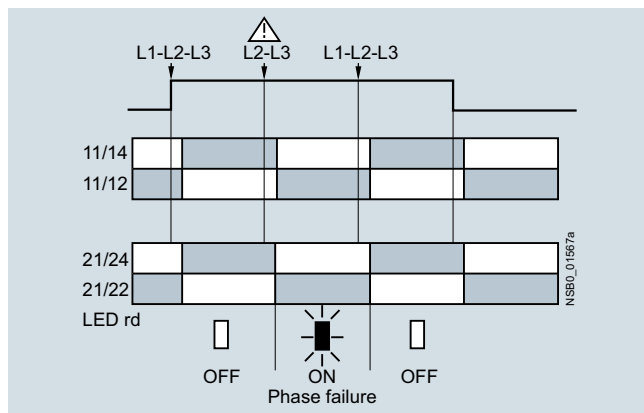
3UG4512 monitoring relays

The 3UG4512 line monitoring relay monitors three-phase networks with regard to phase sequence, phase failure and phase unbalance of 10 %. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V and feedback through the load of up to 90 %. The device has an internal power supply and works using the closed-circuit principle. No adjustments are required. When the mains voltage is switched on, the green LED is lit. If the phase sequence at the terminals L1-L2-L3 is correct, the output relay picks up. If the phase sequence is wrong, the red LED flashes and the output relay remains in its rest position. If a phase fails, the red LED is permanently lit and the output relay drops.

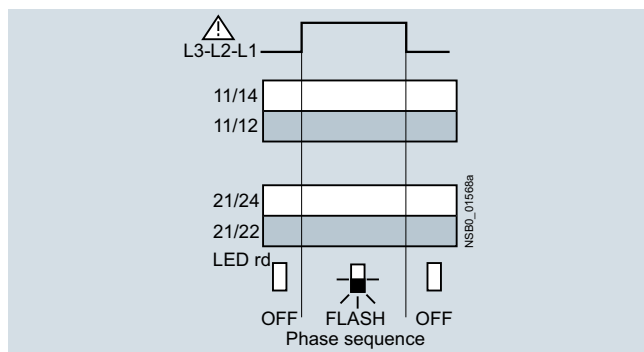
Note:

The red LED is a fault diagnostic indicator and does not show the current relay status. The 3UG4512 monitoring relay is suitable for line frequencies of 50/60 Hz.

Phase failure



Wrong phase sequence



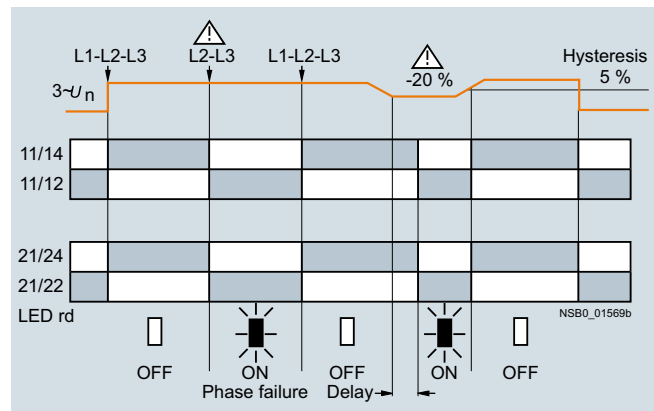
3UG4513 monitoring relays

The 3UG4513 line monitoring relay monitors three-phase networks with regard to phase sequence, phase failure, phase asymmetry and undervoltage of 20 %. The device has an internal power supply and works using the closed-circuit principle. The hysteresis is 5 %. The integrated response delay time is adjustable from 0 to 20 s and responds to undervoltage. If the direction is incorrect, the device switches off immediately. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V and feedback through the load of up to 80 %. When the mains voltage is switched on, the green LED is lit. If the phase sequence at the terminals L1-L2-L3 is correct, the output relay picks up. If the phase sequence is wrong, the red LED flashes and the output relay remains in its rest position. If a phase fails, the red LED is permanently lit and the output relay drops.

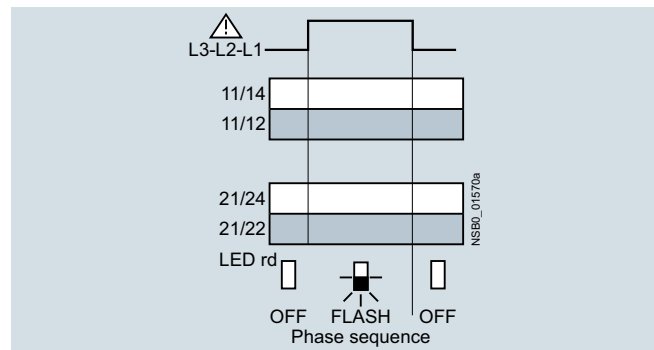
Note:

The red LED is a fault diagnostic indicator and does not show the current relay status. The 3UG4513 monitoring relay is suitable for line frequencies of 50/60 Hz.

Phase failure and undervoltage



Wrong phase sequence



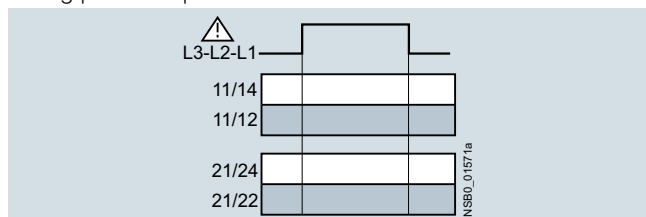
3UG4614 monitoring relays

The 3UG4614 line monitoring relay has a wide voltage range input and an internal power supply. The device is equipped with a display and is parameterized using three buttons. The unit monitors three-phase networks with regard to phase asymmetry from 5 to 20 %, phase failure, undervoltage and phase sequence. The hysteresis is adjustable from 1 to 20 V. In addition the device has a response delay and ON-delay from 0 to 20 s in each case. The integrated response delay time responds to phase asymmetry and undervoltage. If the direction is incorrect, the device switches off immediately. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V and feedback through the load of up to 80 %.

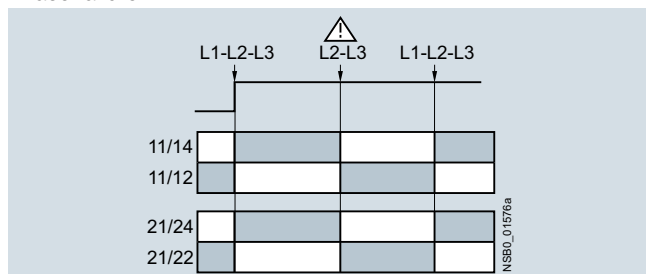
The 3UG4614 monitoring relay can be operated on the basis of either the open-circuit or closed-circuit principle and with manual or Auto RESET.

With the closed-circuit principle selected

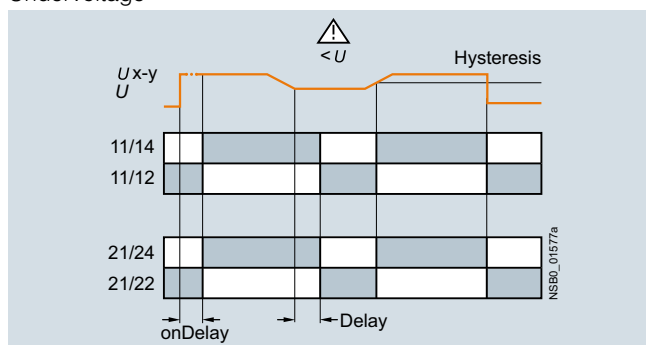
Wrong phase sequence



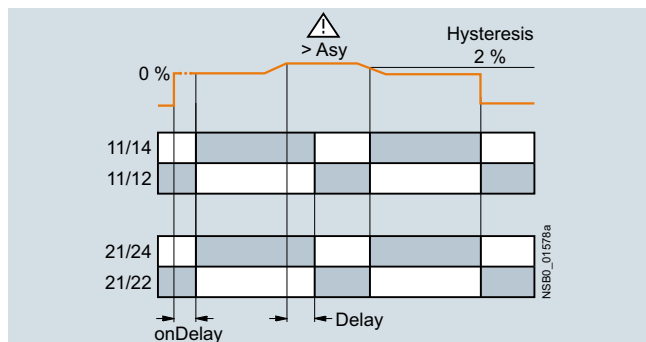
Phase failure



Undervoltage



Unbalance

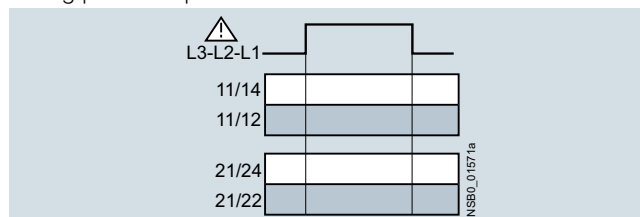
**3UG4615/3UG4616 monitoring relays**

The 3UG4615/3UG4616 line monitoring relay has a wide voltage range input and an internal power supply. The device is equipped with a display and is parameterized using three buttons. The 3UG4615 device monitors three-phase networks with regard to phase failure, undervoltage, overvoltage and phase sequence. The 3UG4616 monitoring relay monitors the neutral conductor as well. The hysteresis is adjustable from 1 to 20 V. In addition the device has two separately adjustable delay times for overvoltage and undervoltage from 0 to 20 s in each case. If the direction is incorrect, the device switches off immediately. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V and feedback through the load of up to 80 %.

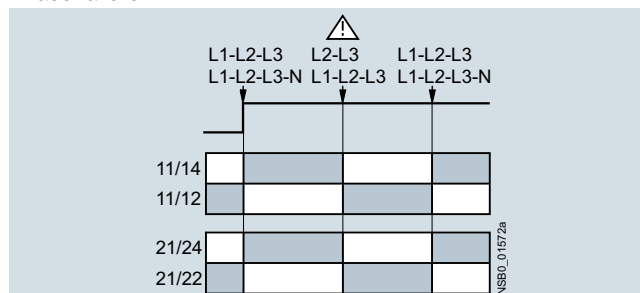
The 3UG4615/3UG4616 monitoring relay can be operated on the basis of either the open-circuit or closed-circuit principle and with manual or Auto RESET.

With the closed-circuit principle selected

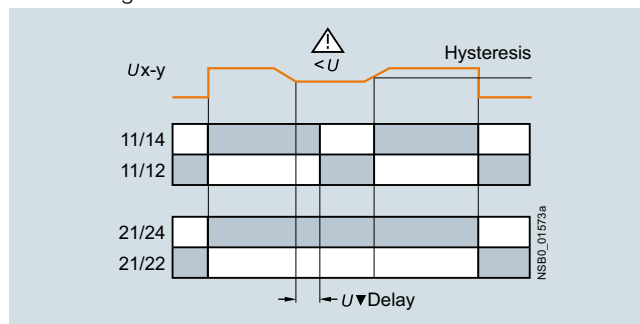
Wrong phase sequence



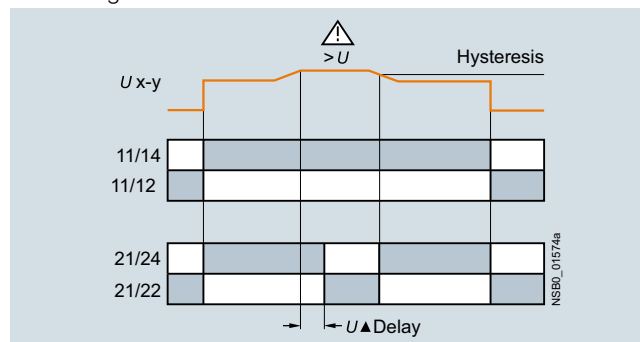
Phase failure



Undervoltage



Overvoltage



Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

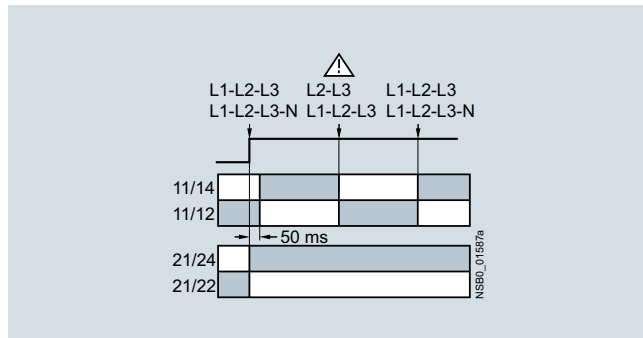
Line monitoring

3UG4617/3UG4618 monitoring relays

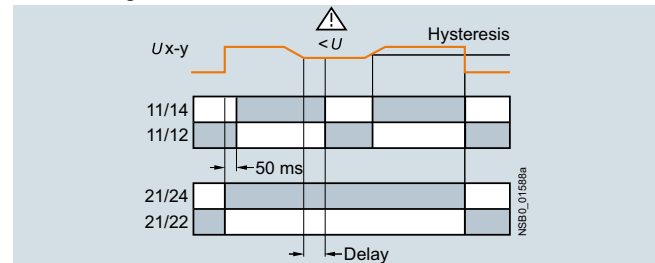
The 3UG4617/3UG4618 line monitoring relay has an internal power supply and can automatically correct a wrong direction of rotation. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V AC and feedback through the load of up to 80 %. The device is equipped with a display and is parameterized using three buttons. The 3UG4617 line monitoring relay unit monitors three-phase networks with regard to phase sequence, phase failure, phase unbalance, undervoltage and overvoltage. The 3UG4618 monitoring relay monitors the neutral conductor as well. The hysteresis is adjustable from 1 to 20 V. In addition the device has delay times from 0 to 20 s in each case for overvoltage, undervoltage, phase failure and phase unbalance. The 3UG4617/3UG4618 monitoring relay can be operated on the basis of either the open-circuit or closed-circuit principle and with manual or Auto RESET. The one changeover contact is used for warning or disconnection in the event of power system faults (voltage, unbalance), the other responds only to a wrong phase sequence. In conjunction with a contactor reversing assembly it is thus possible to change the direction automatically.

With the closed-circuit principle selected

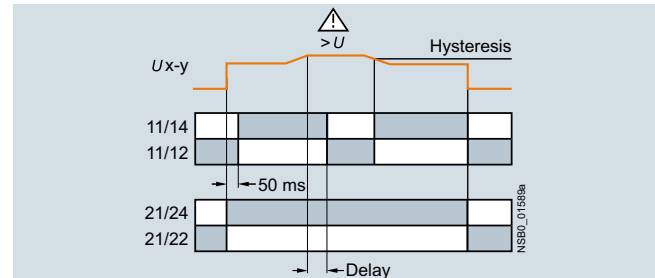
Phase failure



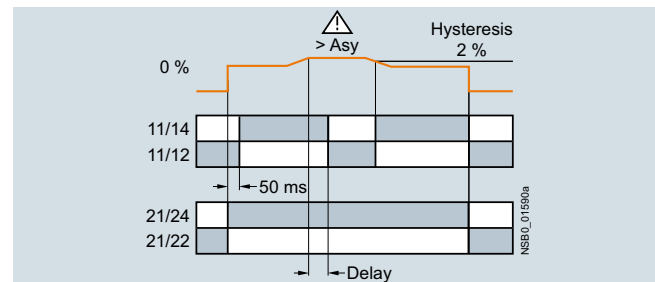
Undervoltage



Overvoltage

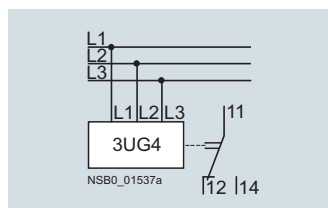


Unbalance

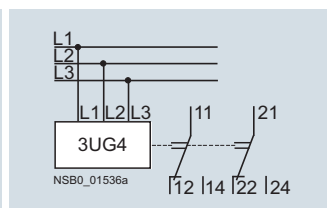


Type	3UG4511 ... 3UG4513, 3UG4614 ... 3UG4618	
General data		
Rated insulation voltage U_i	V	690
Pollution degree 3 Overvoltage category III acc. to VDE 0110		
Rated impulse withstand voltage U_{imp}	kV	6
Control circuit		
Load capacity of the output relay		
• Conventional thermal current I_{th}	A	5
Rated operational current I_e at		
• AC-15/24 ... 400 V	A	3
• DC-13/24 V	A	1
• DC-13/125 V	A	0.2
• DC-13/250 V	A	0.1
Minimum contact load at 17 V DC	mA	5
Electrical endurance AC-15	Million operating cycles	0.1
Mechanical endurance	Million operating cycles	10

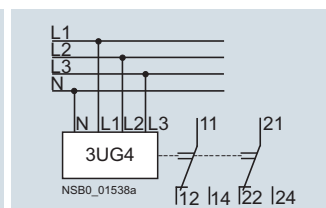
Circuit diagrams



3UG4511-A,
3UG4512-A



3UG4511-B, 3UG4512-B,
3UG4513, 3UG4614,
3UG4615, 3UG4617



3UG4616,
3UG4618

Note:

It is not necessary to protect the measuring circuit for device protection. The protective device for line protection depends on the cross-section used.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Line monitoring

Selection and ordering data



3UG4511-1AP20



3UG4615-1CR20



3UG4616-1CR20



3UG4617-1CR20

Adjustable hysteresis	Undervoltage detection	Oversvoltage detection	Stabilization time adjustable stDEL	Tripping delay time adjustable Del	Version of auxiliary contacts	Measurable mains voltage ¹⁾	Screw terminals
			s	s	CO contact	V	Article No.
Monitoring of phase sequence							
Auto RESET							
--	--	--	--	--	1 2	160 ... 260 AC	3UG4511-1AN20 3UG4511-1BN20
					1 2	320 ... 500 AC	3UG4511-1AP20 3UG4511-1BP20
					1 2	420 ... 690 AC	3UG4511-1AQ20 3UG4511-1BQ20
Monitoring of phase sequence, phase failure and phase unbalance							
Auto RESET, closed-circuit principle, unbalance threshold permanently 10 %							
--	--	--	--	--	1 2	160 ... 690 AC	3UG4512-1AR20 3UG4512-1BR20
Monitoring of phase sequence, phase failure, unbalance and undervoltage							
Analogically adjustable, Auto RESET, closed-circuit principle, unbalance and undervoltage threshold permanently 20 %							
5 % of set value	✓	--	--	0.1 ... 20	2	160 ... 690 AC	3UG4513-1BR20
Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle, unbalance threshold 0 or 5 ... 20 %							
Adjustable 1 ... 20 V	✓	--	0.1 ... 20	0.1 ... 20	2	160 ... 690 AC	3UG4614-1BR20
Monitoring of phase sequence, phase failure, overvoltage and undervoltage							
Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle							
Adjustable 1 ... 20 V	✓	✓	--	0.1 ... 20 ²⁾	2 ²⁾	160 ... 690 AC	3UG4615-1CR20
Monitoring of phase sequence, phase and N conductor failure, overvoltage and undervoltage							
Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle							
Adjustable 1 ... 20 V	✓	✓	--	0.1 ... 20 ²⁾	2 ²⁾	90 ... 400 AC against N	3UG4616-1CR20
Automatic direction correction in case of wrong phase sequence, phase failure, phase unbalance, overvoltage and undervoltage							
Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle, unbalance threshold 0 or 5 ... 20 %							
Adjustable 1 ... 20 V	✓	✓	--	0.1 ... 20	2 ³⁾	160 ... 690 AC	3UG4617-1CR20
Automatic correction of the direction of rotation in case of wrong phase sequence, phase and N conductor failure, phase unbalance, overvoltage and undervoltage							
Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle, unbalance threshold 0 or 5 ... 20 %							
Adjustable 1 ... 20 V	✓	✓	--	0.1 ... 20	2 ³⁾	90 ... 400 AC against N	3UG4618-1CR20

✓ Function available

-- Function not available

1) Absolute limit values.

2) 1 CO contact each and 1 tripping delay time each for U_{min} and U_{max} .

3) 1 CO contact each for power system fault and phase sequence correction.

For accessories, see page 5/92.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Voltage monitoring

Overview



SIRIUS 3UG4631 monitoring relay

The relays monitor single-phase AC voltages (rms value) and DC voltages against the set threshold value for overshoot and undershoot. The devices differ with regard to their power supply (internal or external).

Benefits

- Versions with wide voltage supply range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display of ACTUAL value and status messages
- All versions with removable terminals

Application

- Protection of a plant against destruction due to overvoltage
- Switch-on of a plant at a defined voltage and higher
- Protection from undervoltage due to overloaded control supply voltages, particularly with battery power
- Threshold switch for analog signals from 0.1 to 10 V

Technical specifications

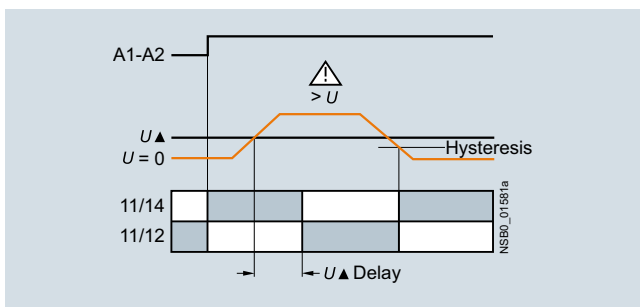
3UG4631/3UG4632 monitoring relays

The 3UG4631/3UG4632 voltage monitoring relay is supplied with an auxiliary voltage of 24 V AC/DC or 24 to 240 V AC/DC and performs overshoot, undershoot or range monitoring of the voltage depending on parameterization. The device is equipped with a display and is parameterized using three buttons.

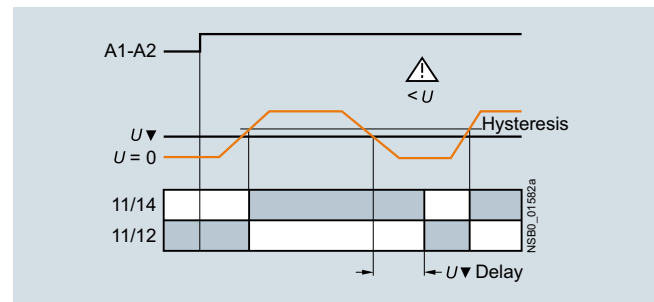
The measuring range extends from 0.1 to 60 V or 10 to 600 V AC/DC. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the delay time has elapsed. This delay time U_{Del} can be set from 0.1 to 20 s. The hysteresis can be set from 0.1 to 30 V or 0.1 to 300 V. The device can be operated on the basis of either the open-circuit or closed-circuit principle and with manual or Auto RESET. One output changeover contact is available as signaling contact.

With the closed-circuit principle selected

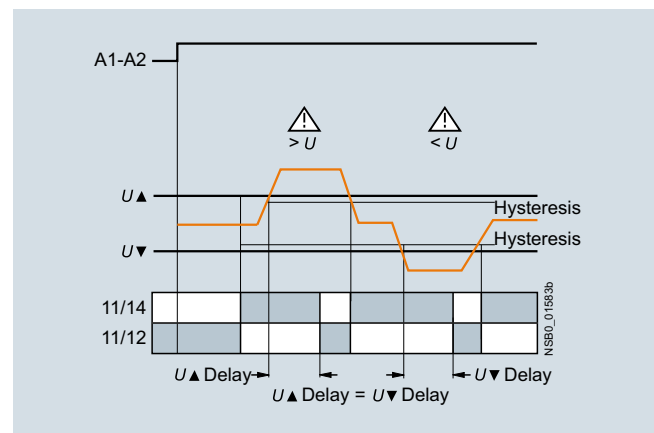
Overvoltage



Undervoltage



Range monitoring



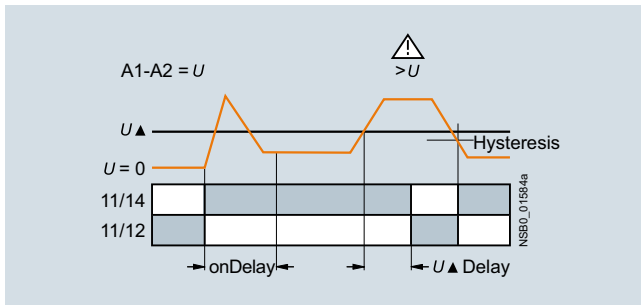
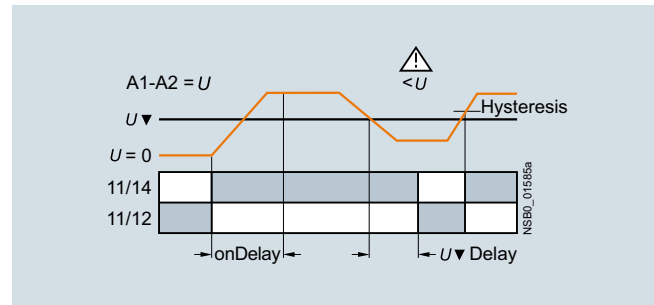
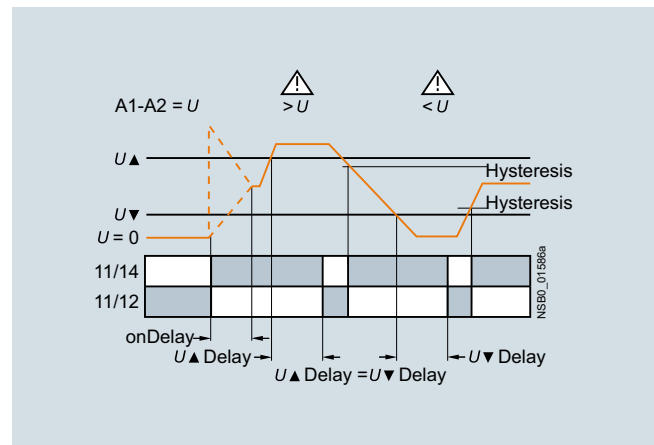
3UG4633 monitoring relays

The 3UG4633 voltage monitoring relay has an internal power supply and performs overshoot, undershoot or range monitoring of the voltage depending on parameterization. The device is equipped with a display and is parameterized using three buttons.

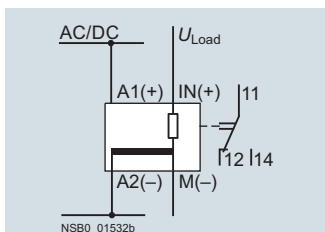
The operating and measuring range extends from 17 to 275 V AC/DC. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the tripping delay time has elapsed. This delay time U_{Del} can be set from 0.1 to 20 s like the ON-delay time on_{Del} .

The hysteresis is adjustable from 0.1 to 150 V. The device can be operated on the basis of either the open-circuit or closed-circuit principle and with manual or Auto RESET. One output change-over contact is available as signaling contact.

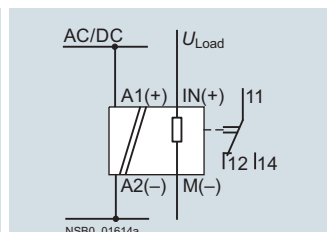
With the closed-circuit principle selected

Overvoltage**Undervoltage****Range monitoring**

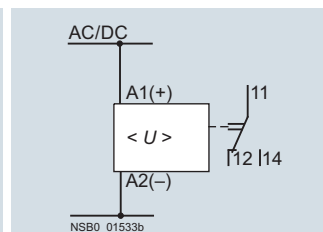
Type	3UG4631	3UG4632	3UG4633
General data			
Rated insulation voltage U_i	V	690	
Pollution degree 3 Overvoltage category III according to VDE 0110			
Rated impulse withstand voltage U_{imp}	kV	6	
Measuring circuit			
Permissible measuring range single-phase AC/DC voltage	V	0.1 ... 68	10 ... 275
Measuring frequency	Hz	40 ... 500	
Setting range single-phase voltage	V	0.1 ... 60	10 ... 275
Control circuit			
Load capacity of the output relay			
• Conventional thermal current I_{th}	A	5	
Rated operational current I_e at			
• AC-15/24 ... 400 V	A	3	
• DC-13/24 V	A	1	
• DC-13/125 V	A	0.2	
• DC-13/250 V	A	0.1	
Minimum contact load at 17 V DC	mA	5	

Circuit diagrams

3UG4631-..AA30,
3UG4632-..AA30



3UG4631-..AW30,
3UG4632-..AW30



3UG4633

Note:

It is not necessary to protect the measuring circuit for device protection. The protective device for line protection depends on the cross-section used.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation


Voltage monitoring

Selection and ordering data

- Digitally adjustable, with illuminated LCD
- Auto or Manual RESET
- Open or closed-circuit principle
- 1 CO contact



3UG4631-1AA30

Measuring range	Adjustable hysteresis	Rated control supply voltage U_s	Screw terminals 
V	V	V	Article No.
Internal power supply without auxiliary voltage, ON-delay and tripping delay times can be adjusted separately 0.1 ... 20 s			
17 ... 275 AC/DC	0.1 ... 150	17 ... 275 AC/DC ¹⁾	3UG4633-1AL30
Supplied from an external auxiliary voltage, tripping delay time adjustable 0.1 ... 20 s			
0.1 ... 60 AC/DC 10 ... 600 AC/DC	0.1 ... 30 0.1 ... 300	24 AC/DC	3UG4631-1AA30 3UG4632-1AA30
0.1 ... 60 AC/DC 10 ... 600 AC/DC	0.1 ... 30 0.1 ... 300	24 ... 240 AC/DC	3UG4631-1AW30 3UG4632-1AW30

¹⁾ Absolute limit values.

For accessories, see [page 5/92](#).

Overview



SIRIUS 3UG4621 monitoring relay

The relays monitor single-phase AC currents (rms value) and DC currents against the set threshold value for overshoot and undershoot. They differ with regard to their measuring ranges and control supply voltage types.

Benefits

- Versions with wide voltage supply range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display of ACTUAL value and status messages
- All versions with removable terminals

Application

- Overcurrent and undercurrent monitoring
- Monitoring the functionality of electrical loads
- Open-circuit monitoring
- Threshold switch for analog signals from 4 to 20 mA

Technical specifications

3UG4621/3UG4622 monitoring relays

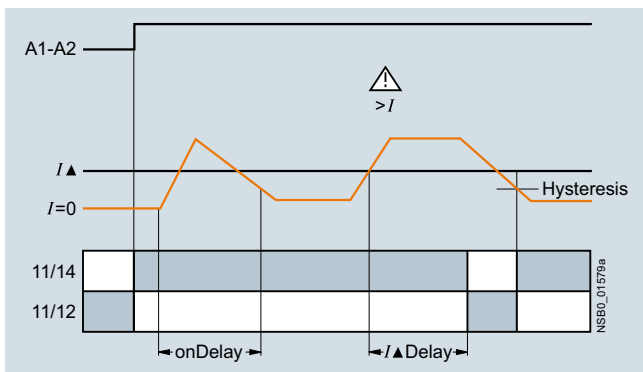
The 3UG4621 or 3UG4622 current monitoring relay is supplied with an auxiliary voltage of 24 V AC/DC or 24 to 240 V AC/DC and performs overshoot, undershoot or range monitoring of the current depending on parameterization. The device is equipped with a display and is parameterized using three buttons.

The measuring range extends from 3 to 500 mA or 0.05 to 10 A. The rms value of the current is measured. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the tripping delay time I_{Del} has elapsed. This time and the ON-delay time on_{Del} are adjustable from 0.1 to 20 s.

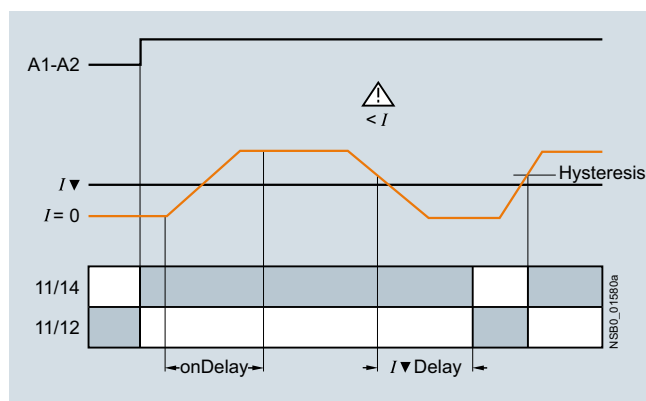
The hysteresis is adjustable from 0.1 to 250 mA or 0.01 to 5 A. The device can be operated with manual or Auto RESET and on the basis of either the open-circuit or closed-circuit principle. Following options are available: Response of the output relay when the control supply voltage $U_s = ON$ is applied or not until the lower measuring range limit of the measuring current ($I > 3 \text{ mA}/50 \text{ mA}$) is reached. One output changeover contact is available as signaling contact.

With the closed-circuit principle selected upon application of the control supply voltage

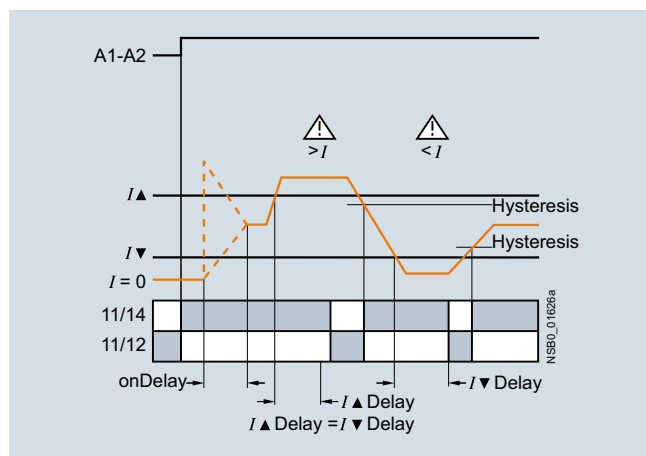
Current overshoot



Current undershoot



Range monitoring



Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

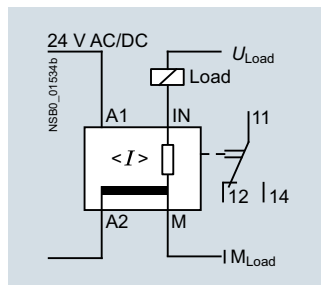
Current monitoring

Type		3UG4621-.AA	3UG4621-.AW	3UG4622-.AA	3UG4622-.AW
General data					
Rated insulation voltage U_i	V	690			
Pollution degree 3; overvoltage category III according to VDE 0110					
Rated impulse withstand voltage U_{imp}	kV	6			
Measuring circuit					
Measuring range single-phase AC/DC current	A	0.003 ... 0.6		0.05 ... 15	
Measuring frequency	Hz	40 ... 500			
Setting range for single-phase current	A	0.003 ... 0.5		0.05 ... 10	
Load supply voltage	V	24	Max. 300 ¹⁾ Max. 500 ²⁾	24	Max. 300 ¹⁾ Max. 500 ²⁾
Control circuit					
Load capacity of the output relay	A	5			
• Conventional thermal current I_{th}					
Rated operational current I_e at	A	3			
• AC-15/24 ... 400 V					
• DC-13/24 V					
• DC-13/125 V					
• DC-13/250 V					
Minimum contact load at 17 V DC	mA	5			

1) With protective separation.

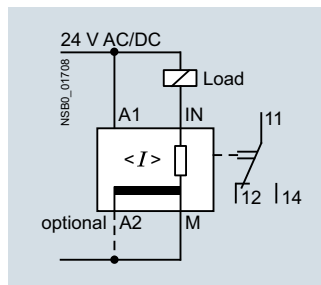
2) With simple separation.

Circuit diagrams



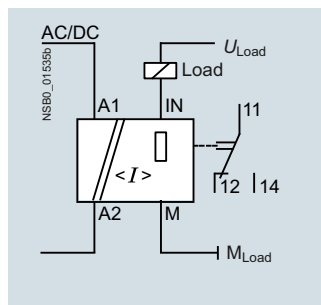
3UG4621-.AA30,
3UG4622-.AA30

Operation with separate
control circuit and load circuit



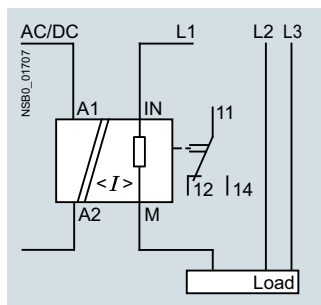
3UG4621-.AA30,
3UG4622-.AA30

Operation with joint
control circuit and load circuit



3UG4621-.AW30,
3UG4622-.AW30

Single-phase operation

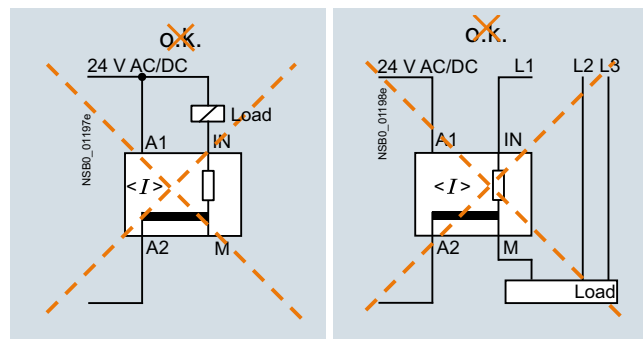
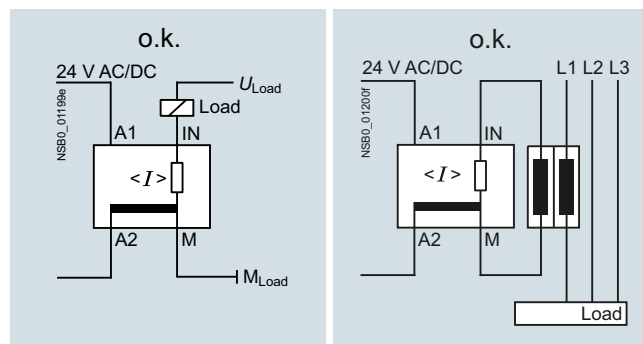


3UG4621-.AW30,
3UG4622-.AW30

Three-phase operation

Connection diagrams for 24 V AC/DC (only 3UG462-.AA30)

From the following circuit diagrams it is clear that loads in measuring circuits have to be in the current flow upstream from the monitoring relay. Otherwise, the monitoring relay could be destroyed and the short-circuit current could cause damage to the plant.



Configuring note:

A2 and M are electrically connected internally.

For applications in which the load to be monitored and the monitoring relay are supplied from the same power supply, there is no need for connection A2.


The load current must always flow through M or the monitoring relay may be destroyed.

Selection and ordering data

- Digitally adjustable, with illuminated LCD
- Auto or Manual RESET
- Open or closed-circuit principle
- 1 CO contact



3UG4621-1AA30

Measuring range	Adjustable hysteresis	Rated control supply voltage U_s	Screw terminals 
			Article No.
V			
Monitoring of undercurrent and overcurrent, start up delay and tripping delay times can be adjusted separately 0.1 ... 20 s			
3 ... 500 mA AC/DC 0.05 ... 10 A AC/DC	0.1 ... 250 mA 0.01 ... 5 A	24 AC/DC ¹⁾	3UG4621-1AA30 3UG4622-1AA30
3 ... 500 mA AC/DC 0.05 ... 10 A AC/DC	0.1 ... 250 mA 0.01 ... 5 A	24 ... 240 AC/DC ²⁾	3UG4621-1AW30 3UG4622-1AW30

¹⁾ No electrical separation. Load supply voltage 24 V.

²⁾ Electrical separation between control circuit and measuring circuit.
Load supply voltage for protective separation max. 300 V, for simple isolation max. 500 V.

For accessories, see [page 5/92](#).

With AC currents $I > 10$ A it is possible to use 4NC current transformers as an accessory, see [Catalog LV 10 "Low-Voltage Power Distribution and Electrical Installation Technology"](#).

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Power factor and active current monitoring

Overview



SIRIUS 3UG4641 monitoring relay

The 3UG4641 power factor and active current monitoring device enables the load monitoring of motors.

Whereas power factor monitoring is used above all for monitoring no-load operation, the active current monitoring option can be used to observe and evaluate the load factor over the entire torque range.

Benefits

- Can be used worldwide thanks to wide voltage range from 90 to 690 V (absolute limit values)
- Monitoring of even small single-phase motors with a no-load supply current below 0.5 A
- Simple determination of threshold values by the direct collection of measured variables on motor loading
- Range monitoring and active current measurement enable detection of cable breaks between control cabinets and motors, as well as phase failures
- The power factor or I_{res} (active current) can be selected as measurement principle
- Width 22.5 mm
- All versions with removable terminals

Application

- No-load monitoring and load shedding, such as in the event of a V-belt tear
- Underload monitoring in the low performance range, e.g. in the event of pump no-load operation
- Monitoring of overload, e.g. due to a dirty filter system
- Simple power factor monitoring in power systems for control of compensation equipment
- Broken cable between control cabinet and motor

Technical specifications

3UG4641 monitoring relays

The 3UG4641 monitoring relay is self-powered and serves the single-phase monitoring of the power factor or performs overshoot, undershoot or range monitoring of the active current depending on how it is parameterized. The load to be monitored is connected upstream of the IN terminal. The load current flows through the terminals IN and Ly/N. The setting range for the power factor is 0.1 to 0.99 and for the active current I_{res} 0.2 to 10 A. If the control supply voltage is switched on and no load current flows, the display will show $I < 0.2$ and a symbol for over-range, under-range or range monitoring. If the motor is now switched on and the current exceeds 0.2 A, the set ON-delay time begins. During this time, if the set limit values are undershot or exceeded, this does not lead to a relay reaction of the changeover contact. If the operational flowing active current and/or the power factor value falls below or exceeds the respective set threshold value, the spike delay begins. When this time has expired, the relay changes its switch position. The relevant measured variables for overshooting and undershooting in the display flash. If the monitoring of active current undershooting is deactivated ($I_{res} \nabla = \text{OFF}$) and the load current drops below the lower measuring range threshold (0.2 A), then the CO contacts remain unchanged. If a threshold value is set for the monitoring of active current undershooting, then undershooting of the measuring range threshold (0.2 A) will result in a response of the CO contacts.

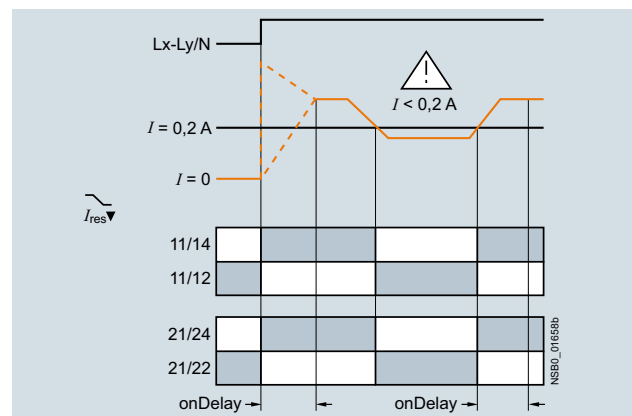
The relay operates either according to the open-circuit or closed-circuit principle. If the device is set to Auto RESET (Memory = No), depending on the set principle of operation, the switching relay returns to its initial state and the flashing ends when the hysteresis threshold is reached.

If Manual RESET is selected in the menu (Memory = Yes), the switching relay remains in its current switching state and the current measured value and the symbol for undershooting and overshooting continues to flash, even when the measured variable reaches a permissible value again. This stored fault status can be reset by pressing the UP▲ or DOWN▼ key simultaneously for 2 seconds, or by switching the supply voltage off and back on again.

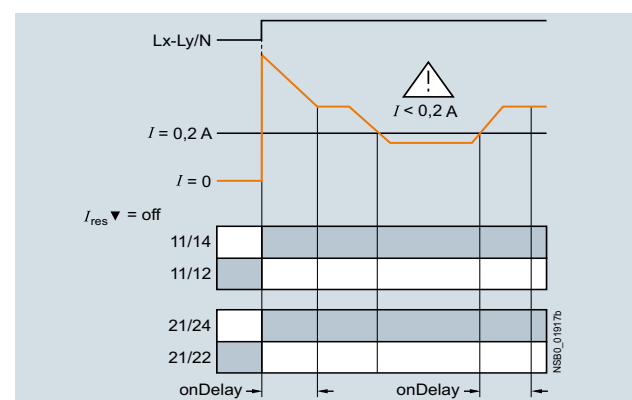
With the closed-circuit principle selected

Response in the event of undershooting the measuring range limit

- With activated monitoring of $I_{res} \nabla$



- With deactivated monitoring of active current undershooting

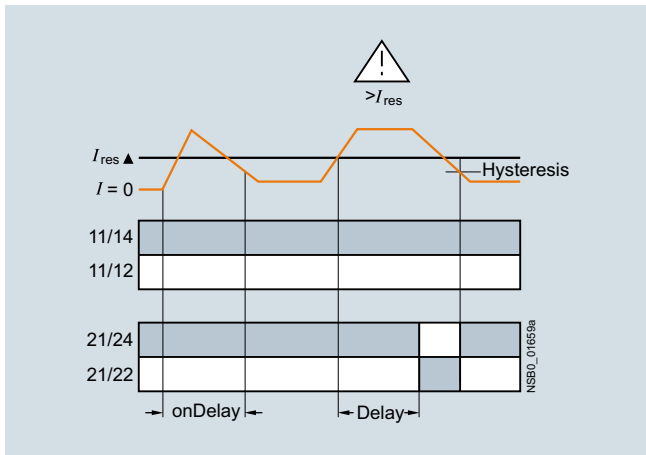


Monitoring and Control Devices

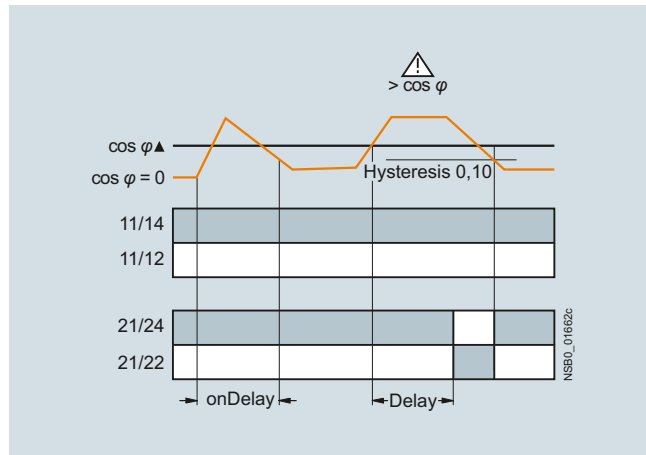
SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Power factor and active current monitoring

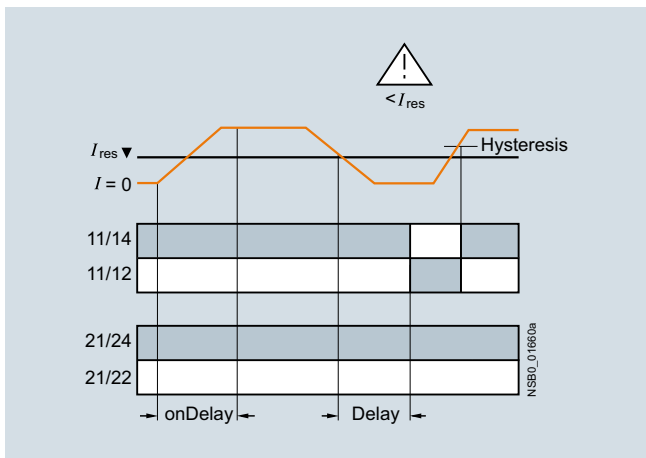
Overshooting of active current



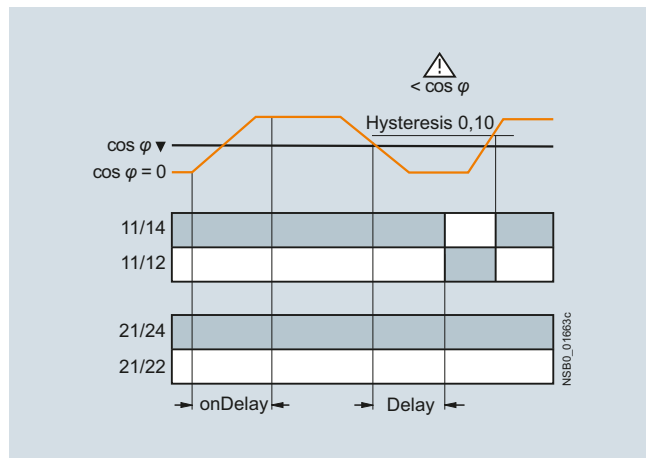
Overshooting of power factor



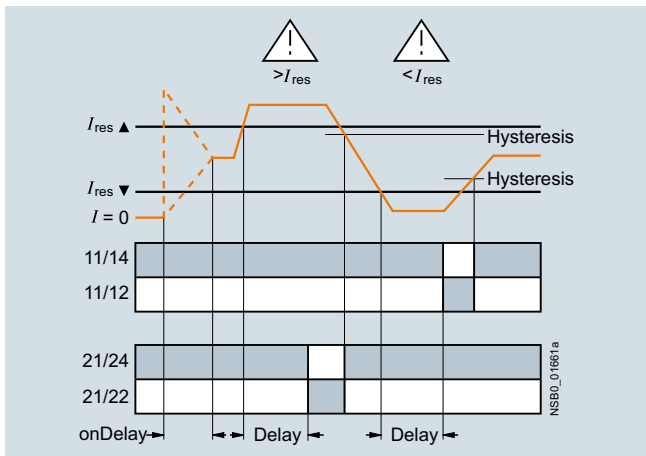
Undershooting of active current



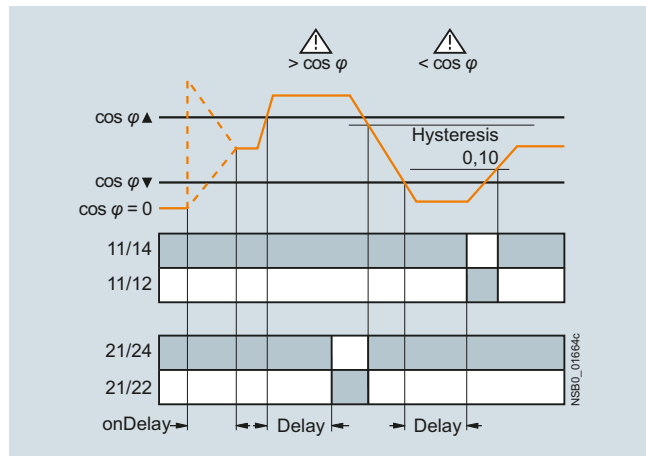
Undershooting of power factor



Range monitoring of active current



Range monitoring of power factor



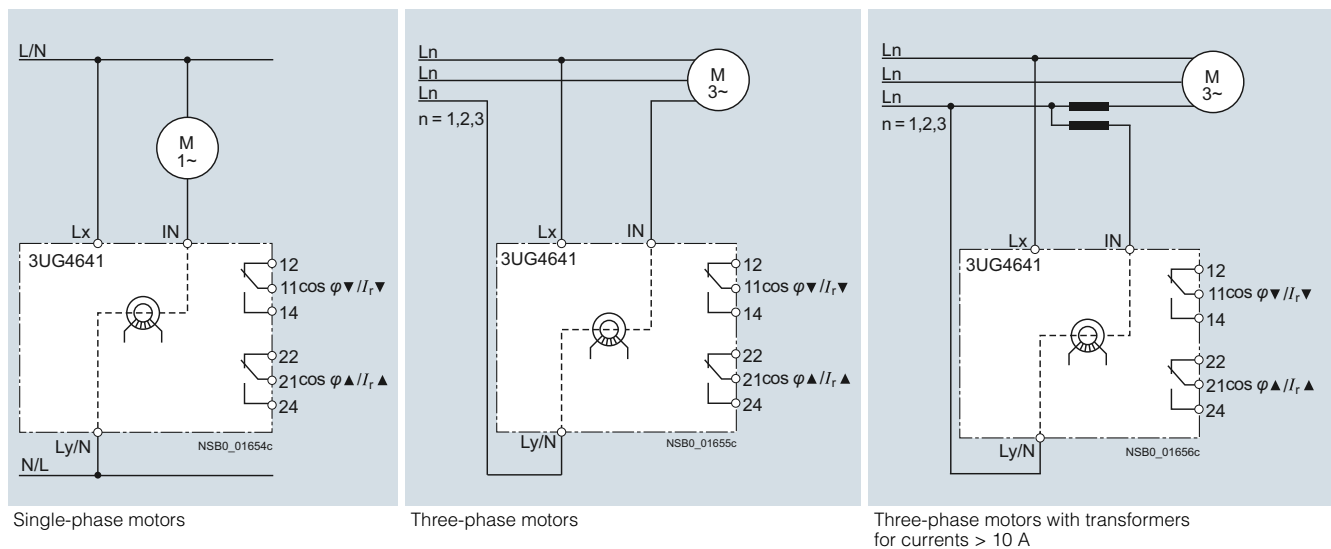
Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Power factor and active current monitoring


Type	3UG4641	
General data		
Rated insulation voltage U_i Pollution degree 3 Overvoltage category III acc. to VDE 0110	V	690
Rated impulse withstand voltage U_{imp}	kV	6
Control circuit		
Number of CO contacts for auxiliary contacts		2
Load capacity of the output relay		
• Conventional thermal current I_{th}	A	5
Rated operational current I_g at		
• AC-15/24 ... 400 V	A	3
• DC-13/24 V	A	1
• DC-13/125 V	A	0.2
• DC-13/250 V	A	0.1
Minimum contact load at 17 V DC	mA	5

Circuit diagrams



Selection and ordering data

- For monitoring the power factor and the active current I_{res} (p.f. $\times I$)
- Suitable for single- and three-phase currents
- Digitally adjustable, with illuminated LCD
- Overshoot, undershoot or range monitoring adjustable
- Upper and lower threshold value can be adjusted separately
- Permanent display of actual value and tripping state
- 1 changeover contact each for undershoot/overshoot

Measuring range		Adjustable hysteresis		ON-delay time adjustable onDel	Tripping delay time adjustable /▲Del/ ▼Del/ φ▲Del/ φ▼Del	Rated control supply voltage U_s ¹⁾ 50/60 Hz AC	Screw terminals 
For power factor	For active current I_{res}	For power factor	For active current I_{res}				
P.f.	A	P.f.	A	s	s	V	Article No.
0.10 ... 0.99	0.2 ... 10.0	0.1	0.1 ... 2.0	0 ... 99	0.1 ... 20.0	90 ... 690	3UG4641-1CS20

¹⁾ Absolute limit values.

For accessories, see page 5/92.

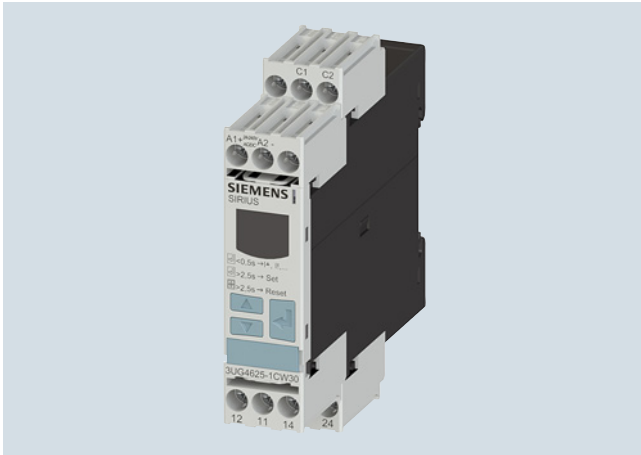
With AC active currents $I_{res} > 10$ A it is possible to use 4NC current transformers as an accessory, see Catalog LV 10 "Low-Voltage Power Distribution and Electrical Installation Technology".

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Residual Current Monitoring

Residual-current monitoring relays

Overview



SIRIUS 3UG4625 monitoring relay

The 3UG4625 residual-current monitoring relays are used in conjunction with the 3UL23 residual-current transformers for monitoring plants in which higher residual currents are increasingly expected due to ambient conditions. Monitoring encompasses pure AC residual currents or AC residual currents with a pulsating DC fault current component (transformer type A in accordance with DIN VDE 0100-530/IEC TR 60755).

Benefits

- Worldwide use thanks to wide voltage range from 24 to 240 V AC/DC
- High measuring accuracy $\pm 7.5\%$
- Permanent self-monitoring
- Variable threshold values for warning and disconnection
- Freely configurable delay times and RESET response
- Permanent display of the actual value and fault diagnostics via the display
- High level of flexibility and space saving through installation of the transformer inside or outside the control cabinet
- Width 22.5 mm
- All versions with removable terminals

Application

Monitoring of plants in which residual currents can occur, e.g. due to dust deposits or moisture, porous cables and leads, or capacitive residual currents.

Technical specifications

3UG4625 monitoring relays

The main conductor, and any neutral conductor to which a load is connected, are routed through the opening of the annular ring core of a residual-current transformer. A secondary winding is placed around this annular strip-wound core to which the monitoring relay is connected.

If operation of a plant is fault-free, the sum of the inflowing and outward currents equals zero. No current is then induced in the secondary winding of the residual-current transformer.

However, if an insulation fault occurs downstream of the residual current operated circuit breaker, the sum of the inflowing currents is greater than that of the outward currents. The differential current – the residual current – induces a secondary current in the secondary winding of the transformer. This current is evaluated in the monitoring relay and is used on the one hand to display the actual residual current and on the other, to switch the relay if the set warning or tripping threshold is overshoot.

If the measured residual current exceeds the set warning value, the associated changeover contact instantly changes the switching state and an indication appears on the display.

If the measured residual current exceeds the set tripping value, the set delay time begins and the associated relay symbol flashes. On expiry of this time, the associated changeover contact changes the switching state.

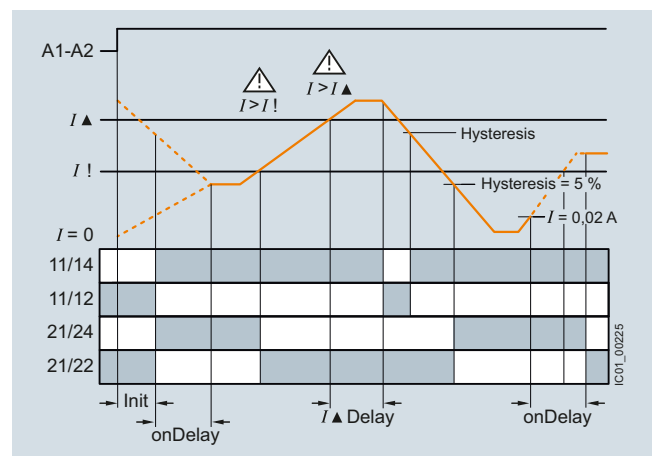
ON-delay time for motor start

To be able to start a drive when a residual current is detected, the output relays switch to the OK state for an adjustable ON-delay time depending on the selected open-circuit principle or closed-circuit principle.

The changeover contacts do not react if the set threshold values are overshoot during this period.

With the closed-circuit principle selected

Residual current monitoring with Auto RESET (Memory = no)



If the device is set to Auto RESET, the relay switches back to the OK state for the tripping value once the value falls below the set hysteresis threshold and the display stops flashing.

The associated relay changes its switching state if the value falls below the fixed hysteresis value of 5% of the set warning value.

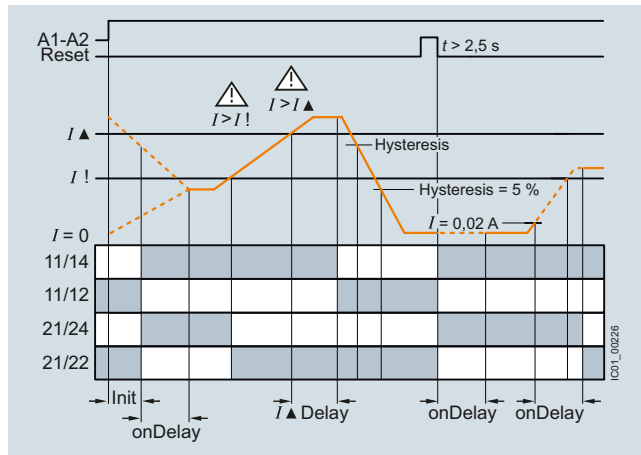
Any overshoots are therefore not stored.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Residual Current Monitoring

Residual-current monitoring relays

Residual current monitoring with Manual RESET (Memory = yes)



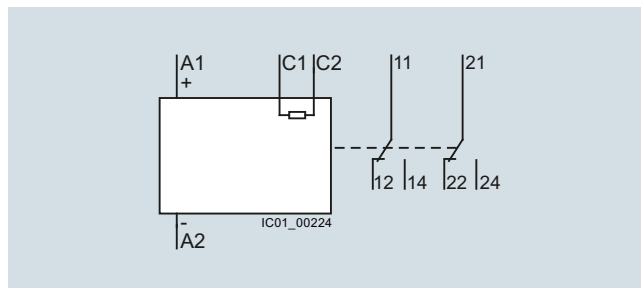
If Manual RESET is selected in the menu, the output relays remain in their current switching state and the current measured value and the symbol for overshooting continues to flash, even when the measured residual current returns to a permissible value. This stored fault status can be reset by pressing the UP▲ or DOWN▼ key simultaneously for > 2 seconds, or by switching the supply voltage off and back on again.

Note:

Do not ground the neutral conductor downstream of the residual-current transformer as otherwise residual current monitoring functions can no longer be ensured.

Type	3UG4625-1CW30	
General data		
Insulation voltage for overvoltage category III to IEC 60664 for pollution degree 3 rated value	V	300
Impulse withstand voltage rated value U_{imp}	kV	4
Control circuit		
Number of CO contacts for auxiliary contacts		2
Thermal current of the non-solid-state contact blocks maximum	A	5
Current carrying capacity of the output relay	A	3
• At AC-15 at 250 V at 50/60 Hz		
• At DC-13		
- At 24 V	A	1
- At 125 V	A	0.2
- At 250 V	A	0.1
Operational current at 17 V minimum	mA	5

Circuit diagram



3UG4625

Note:

It is not necessary to protect the measuring circuit for device protection. The protective device for line protection depends on the cross-section used.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Residual Current Monitoring


Residual-current monitoring relays

Selection and ordering data

- For monitoring residual currents from 0.03 to 40 A, from 16 to 400 Hz
- For 3UL23 residual-current transformers with feed-through opening from 35 to 210 mm
- Permanent self-monitoring
- Certified in accordance with IEC 60947, functionality corresponds to IEC 62020
- Digitally adjustable, with illuminated LCD
- Permanent display of actual value and tripping state
- Separately adjustable limit value and warning threshold
- 1 changeover contact each for warning threshold and tripping threshold



3UG4625-1CW30

Measurable current	Adjustable response value current	Switching hysteresis	Adjustable ON-delay time	Control supply voltage			Screw terminals 
				For AC at 50 Hz rated value	For AC at 60 Hz rated value	At DC rated value	
A	A	%	s	V	V	V	Article No.
0.01 ... 43	0.03 ... 40	0 ... 50	0 ... 20	24 ... 240	24 ... 240	24 ... 240	3UG4625-1CW30

For accessories, [see page 5/92](#).

3UL23 residual-current transformers, [see page 5/74](#).

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Residual Current Monitoring

3UL23 residual-current transformers

Overview



SIRIUS 3UL23 residual-current transformer

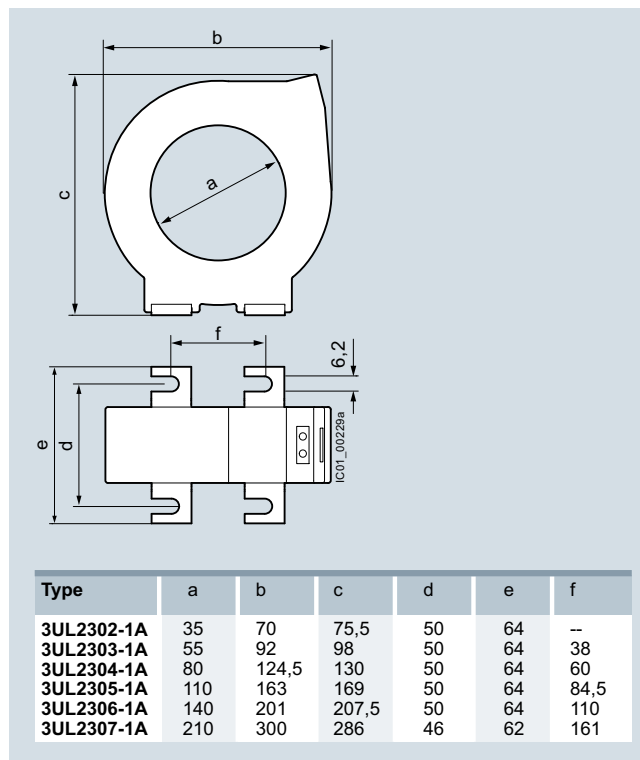
The 3UL23 residual-current transformers detect residual currents in machines and plants. They are suitable for pure AC residual currents or AC residual currents with a pulsating DC fault current component (transformer type A in accordance with DIN VDE 0100-530/IEC TR 60755).

Together with the 3UG4625, 3UG4825 residual-current monitoring relays for IO-Link or the SIMOCODE 3UF motor management and control device they enable residual-current and ground-fault monitoring.

The 3UL2302-1A and 3UL2303-1A residual-current transformers with a feed-through opening from 35 to 55 mm can be mounted in conjunction with the 3UL2900 accessories on a TH 35 standard mounting rail according to IEC 60715.


Technical specifications

Dimensional drawing




5

Selection and ordering data

Diameter of the bushing opening	Connectable cross-section of the connecting terminal	Screw terminals 	Article No.
mm	mm ²		
Residual-current transformer (essential accessory for 3UG4625, 3UG4825 or SIMOCODE 3UF)			
35	2,5	3UL2302-1A 3UL2303-1A 3UL2304-1A	
55	2,5		
80	2,5		
110	2,5	3UL2305-1A 3UL2306-1A 3UL2307-1A	
140	2,5		
210	4		

Accessories

Version	Article No.
 Adapters For mounting onto standard rail for 3UL23 to diameter 55 mm	3UL2900

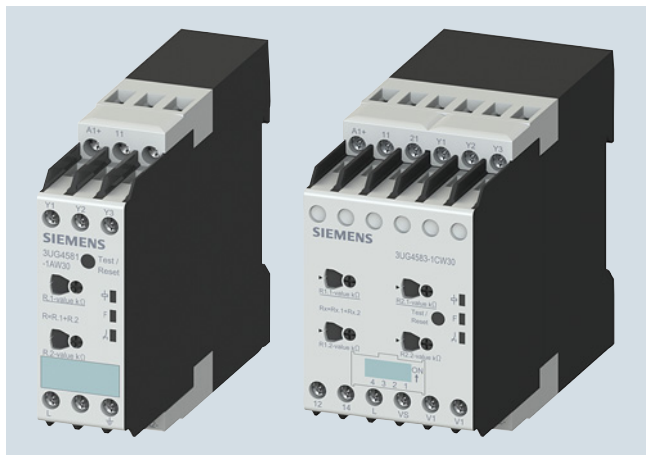
3UL2900

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Insulation Monitoring

General data

Overview



SIRIUS 3UG458. insulation monitor

Insulation monitoring relays are used for monitoring the insulation resistance between ungrounded single or three-phase AC supplies and a protective conductor.

Ungrounded, i.e. isolated networks (IT networks) are always used where high demands are placed on the reliability of the power supply, e.g. emergency lighting systems. IT systems are supplied via an isolating transformer or by power supply sources such as batteries or a generator. While an initial insulation fault between a phase conductor and the ground effectively grounds the conductor, as a result no circuit has been closed, so it is possible to continue work in safety (single-fault safety). However, the fault must be rectified as quickly as possible before a second insulation fault occurs (e.g. according to DIN VDE 0100-410). For this purpose insulation monitoring relays are used, which constantly measure the resistance to ground of the phase conductor and the neutral conductor, reporting a fault immediately if insulation resistance falls below the set value so that either a controlled shutdown can be performed or the fault can be rectified without interrupting the power supply.

Two device series

- 3UG4581 insulation monitoring relays for ungrounded AC networks
- 3UG4582 and 3UG4583 insulation monitoring relays for ungrounded DC and AC networks

Benefits

- Devices for AC and DC systems
- All devices have a wide control supply voltage range
- Direct connection to networks with mains voltages of up to 690 V AC and 1 000 V DC by means of a voltage reducer module
- For AC supply systems: Frequency range 15 to 400 Hz
- Monitoring of broken conductors
- Monitoring of setting errors
- Safety in use thanks to integrated system test after startup
- Option of resetting and testing (by means of button on front or using control contact)
- New predictive measurement principle allows very fast response times

Application

IT networks are used, for example:

- In emergency power supplies
- In safety lighting systems
- In industrial production facilities with high availability requirements (chemical industry, automobile manufacturing, printing plants)
- In shipping and railways
- For mobile generators (aircraft)
- For renewable energies, such as wind energy and photovoltaic power plants
- In the mining industry

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Insulation Monitoring

General data

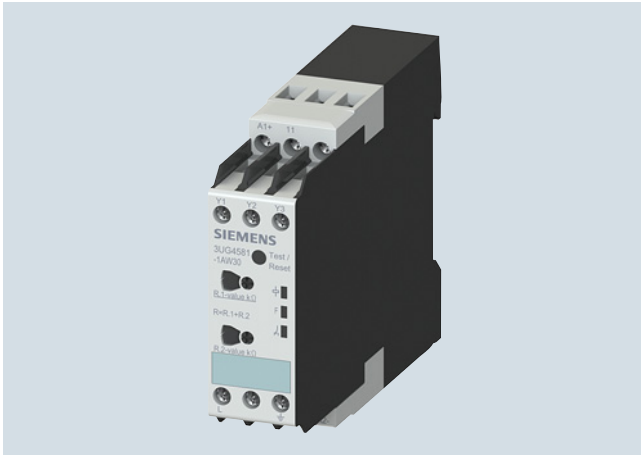
Technical specifications

Type	3UG4581-1AW30	3UG4582-1AW30	3UG4583-1CW30
General data			
Setting range for the setpoint response values			
• 1 ... 100 kΩ	✓	✓	✓
• 2 ... 200 kΩ	--	--	✓
Rated voltage of the network being monitored			
• 0 ... 250 V AC	--	✓	--
• 0 ... 440 V AC	✓	--	✓ ¹⁾
• 0 ... 690 V AC	--	--	✓ ¹⁾
• 0 ... 300 V DC	--	✓	--
• 0 ... 600 V DC	--	--	✓
• 0 ... 1 000 V DC	--	--	✓ ¹⁾
Max. leakage capacitance of the system			
• 10 μF	✓	✓	--
• 20 μF	--	--	✓
Output contacts			
• 1 CO	✓	✓	--
• 2 CO or 1 CO + 1 CO, adjustable	--	--	✓
Number of limit values			
• 1	✓	✓	--
• 1 or 2, adjustable	--	--	✓
Principle of operation	Closed-circuit principle	Closed-circuit principle	Open-circuit/closed-circuit principle, adjustable
Rated control supply voltage			
• 24 ... 240 V AC/DC	✓	✓	✓
Rated frequency			
• 15 ... 400 Hz	--	3	✓
• 50/60 Hz	✓	--	--
Auto or Manual RESET	✓ Adjustable	✓ Adjustable	✓ Adjustable
Remote RESET	✓ Via control input	✓ Via control input	✓ Via control input
Non-volatile error memory	--	--	✓ Adjustable
Broken wire detection	--	--	✓ Adjustable
Replacement for			
Rated control supply voltage U_s	Voltage range of the network being monitored		
3UG3081-1AK20			
110 ... 130/220 ... 240 V AC/DC	3 x 230/400 V AC	✓	--
3UG3081-1AW30			
24 ... 240 V AC/DC	3 x 230/400 V AC	✓	--
3UG3082-1AW30			
24 ... 240 V AC/DC	24 ... 240 V DC	--	✓

✓ Available

-- Not available

1) With voltage reducer module.

Overview

SIRIUS 3UG4581 insulation monitor

The 3UG4581 insulation monitoring relays are used to monitor insulation resistance according to IEC 61557-8 in ungrounded AC networks with rated voltages of up to 400 V.

These devices can monitor control circuits (single-phase) and main circuits (three-phase).

They measure insulation resistances between system cables and system ground. If the value falls below the threshold value, the output relays are switched to fault status.

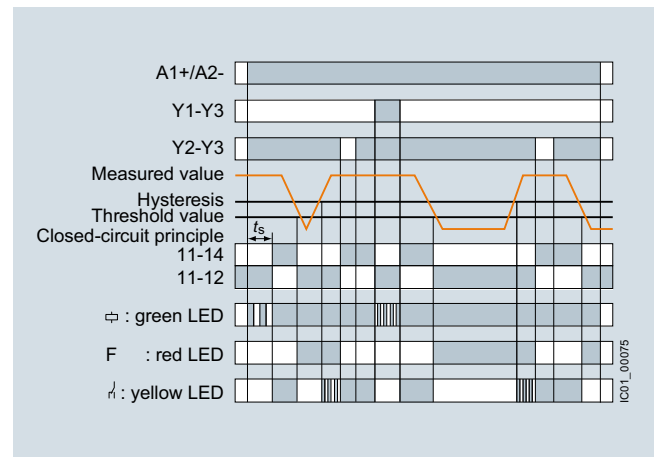
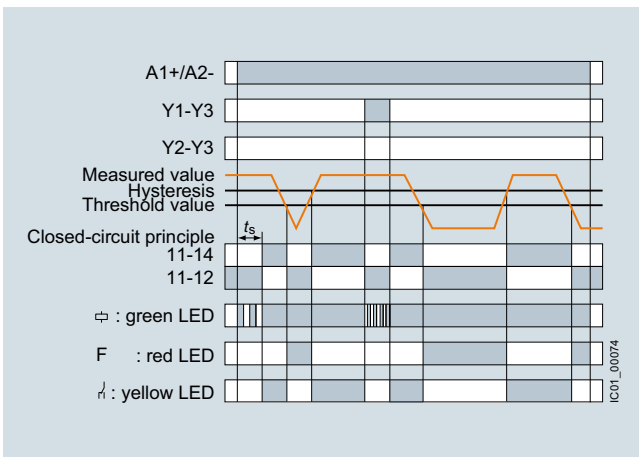
In the case of 3UG4581 a higher-level DC measuring signal is used. The higher-level DC measuring signal and the resulting current are used to determine the value of the insulation resistance of the network which is to be measured.

Technical specifications**3UG4581 monitoring relays**

With the closed-circuit principle selected

Insulation resistance monitoring without fault storage, with Auto RESET

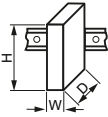
Insulation resistance monitoring with fault storage and Manual RESET



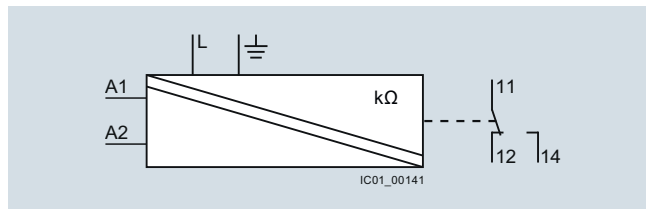
Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Insulation Monitoring

For ungrounded AC networks

Type	3UG4581	
Dimensions (W x H x D)	mm	22.5 x 100 x 100
		
Connection type	⊕ Screw terminals	
• Solid	mm ²	2 x (0.5 ... 4)
• Finely stranded with end sleeve	mm ²	2 x (0.75 ... 2.5)
• AWG cables, solid or stranded	AWG	2 x (20 ... 14)
General data		
Rated insulation voltage U_i Pollution degree 3 Overvoltage category III acc. to IEC 60664	V	400 supply circuit/measuring circuit 300 supply circuit/output circuit
Rated impulse withstand voltage U_{imp}	kV	6
Rated control supply voltage	V	24 ... 240 AC/DC
Rated frequency	Hz	15 ... 400
Measuring circuit		
Rated mains voltage of the network being monitored	V	0 ... 400
Rated frequency of the network being monitored	Hz	50 ... 60
Setting range for insulation resistance	k Ω	1 ... 100
Control circuit		
Load capacity of the output relay • Conventional thermal current I_{th}	A	4
Rated operational current I_e at		
• AC-15/24 ... 400 V	A	3
• DC-13/24 V	A	2
Minimum contact load at 24 V DC	mA	10

Circuit diagram

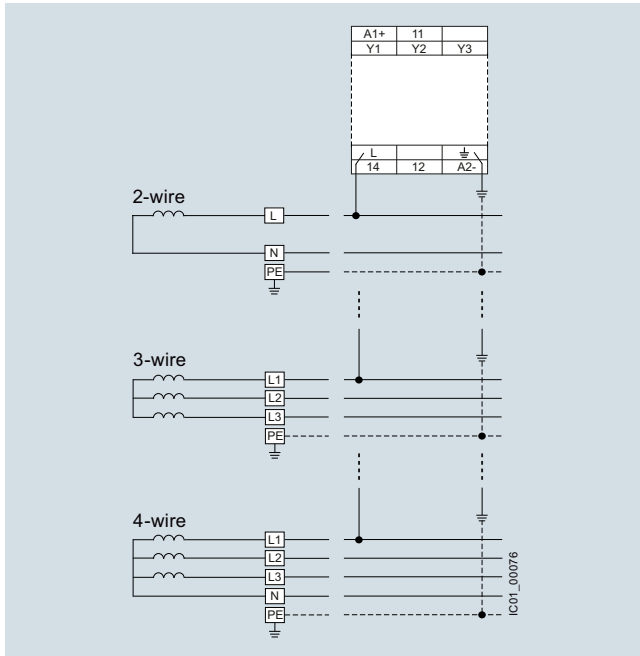


3UG4581

Note:

It is not necessary to protect the measuring circuit for device protection. The protective device for line protection depends on the cross-section used.

Connection diagrams for networks up to 400 V AC



Selection and ordering data

- Auto or Manual RESET
- Closed-circuit principle
- 1 CO contact
- Fault memory adjustable using control input (Y2-Y3)
- Reset by means of button on front or using control input (Y2-Y3)
- Test by means of button on front or using control input (Y1-Y3)

Rated mains voltage U_n	Measuring range U_e	Rated control supply voltage U_s	System leakage capacitance	Screw terminals
V AC	k Ω	V	μ F	
0 ... 400	1 ... 100	24 ... 240 AC/DC	Max. 10	Article No. 3UG4581-1AW30

Insulation monitors for ungrounded AC networks



3UG4581-1AW30

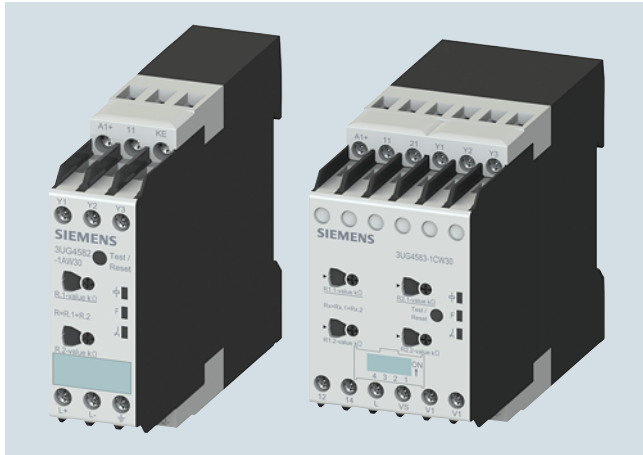
For accessories, see page 5/92.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Insulation Monitoring

For ungrounded DC and AC networks

Overview



SIRIUS 3UG4582 and 3UG4583 insulation monitors

The 3UG4582 and 3UG4583 insulation monitoring relays are used to monitor insulation resistance in ungrounded IT AC or DC networks according to IEC 61557-8.

They measure insulation resistances between system cables and system ground. If the value falls below the threshold value, the output relays are switched to fault status. With these devices, which are suitable for both AC and DC networks, a pulsed test signal is fed into the network to be monitored and the isolation resistance is determined.

The pulsed test signal changes its form according to insulation resistance and network loss capacitance. The changed form is used to predict the changed insulation resistance.

If the predicted insulation resistance matches the insulation resistance calculated in the next measurement cycle, and is lower than the threshold value, the output relays are activated or deactivated, depending on the device configuration. This measurement principle is also suitable for identifying symmetrical insulation faults.

3UG4983 voltage reducer module

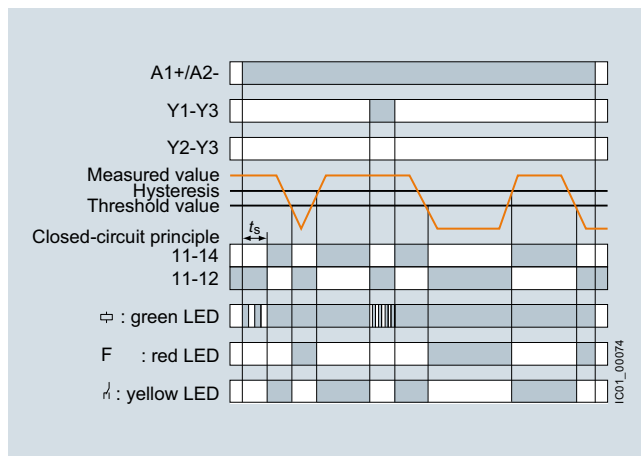
The 3UG4983 passive voltage reducer module can be used to allow the 3UG4583 insulation monitoring relay to be used for insulation monitoring of IT networks with rated voltages of up to 690 V AC and 1 000 V DC.

Technical specifications

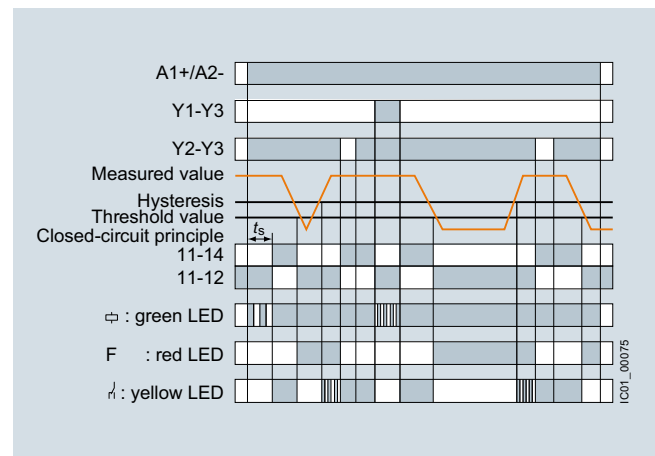
3UG4582 monitoring relays

With the closed-circuit principle selected

Insulation resistance monitoring without fault storage, with Auto RESET



Insulation resistance monitoring with fault storage and Manual RESET



Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

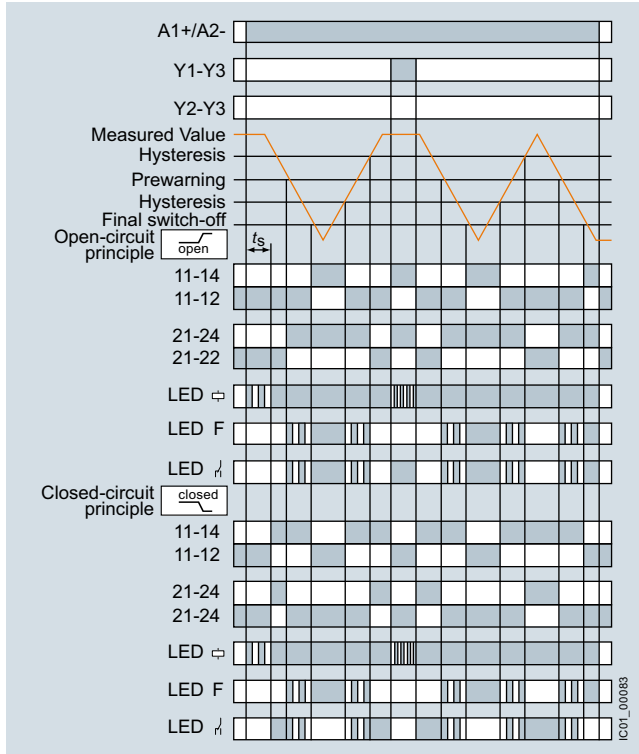
Insulation Monitoring

For ungrounded DC and AC networks

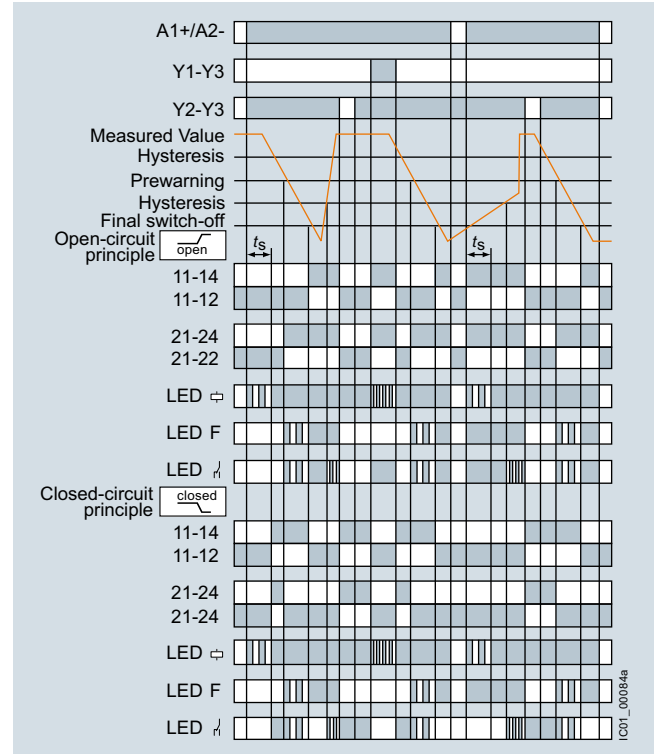
3UG4583 monitoring relays

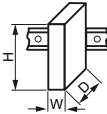

With the closed-circuit principle selected

Insulation resistance monitoring without fault storage, with Auto RESET



Insulation resistance monitoring with fault storage and Manual RESET



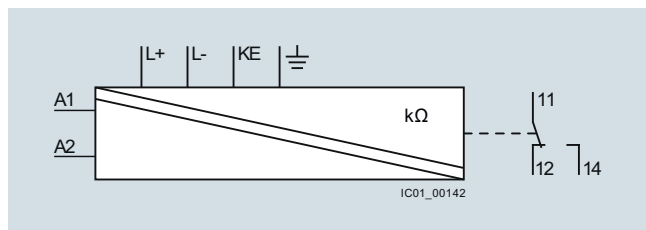
Type		3UG4582	3UG4583
Dimensions (W x H x D)		mm 22.5 x 100 x 100	45 x 100 x 100
Connection type		 Screw terminals	
<ul style="list-style-type: none"> Solid Finely stranded with end sleeve AWG cables, solid or stranded 	mm ² mm ² AWG	2 x (0.5 ... 4) 2 x (0.75 ... 2.5) 2 x (20 ... 14)	
General data			
Rated insulation voltage U_i Pollution degree 3 Overvoltage category III acc. to IEC 60664	V	400 supply circuit/measuring circuit, 300 supply circuit/output circuit	400 supply circuit/measuring circuit, 300 supply circuit/output circuit, 300 output circuit 1/output circuit 2
Rated impulse withstand voltage U_{imp}	kV	6	
Rated control supply voltage	V AC/DC	24 ... 240	
Rated frequency	Hz	15 ... 400	
Measuring circuit			
Rated mains voltage of the network being monitored	V	0 ... 250 AC, 0 ... 300 DC	0 ... 300 AC, 0 ... 690 AC with 3UG4983 0 ... 600 DC, 0 ... 1 000 DC with 3UG4983
Rated frequency of the network being monitored	Hz	DC or 15 ... 400	
Setting range for insulation resistance	k Ω	1 ... 100	1 ... 100 2 ... 200 for 2nd limit value (disconnectable)
Control circuit			
Number of CO contacts for auxiliary contacts		1	2 or 1 + 1, adjustable
Load capacity of the output relay			
<ul style="list-style-type: none"> Conventional thermal current I_{th} 	A	4	
Rated operational current I_e at			
<ul style="list-style-type: none"> AC-15/24 ... 400 V DC-13/24 V 	A	3 2	
Minimum contact load at 24 V DC	mA	10	

Monitoring and Control Devices

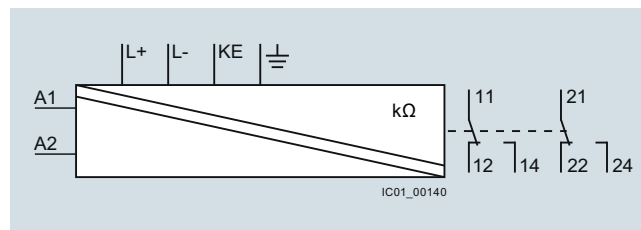
SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Insulation Monitoring

For ungrounded DC and AC networks

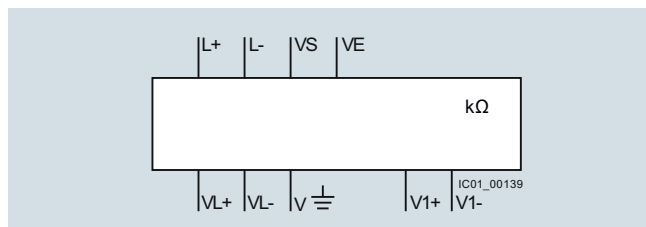
Circuit diagrams



3UG4582



3UG4583



3UG4983

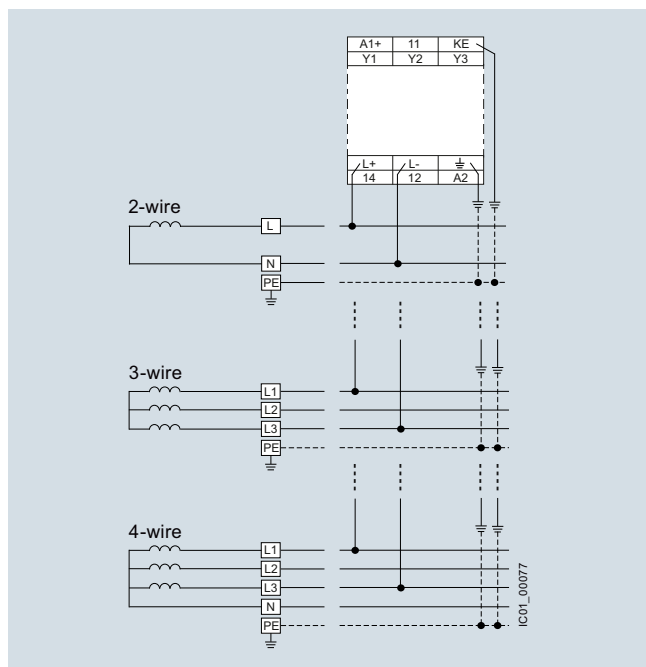
Note:

It is not necessary to protect the measuring circuit for device protection. The protective device for line protection depends on the cross-section used.

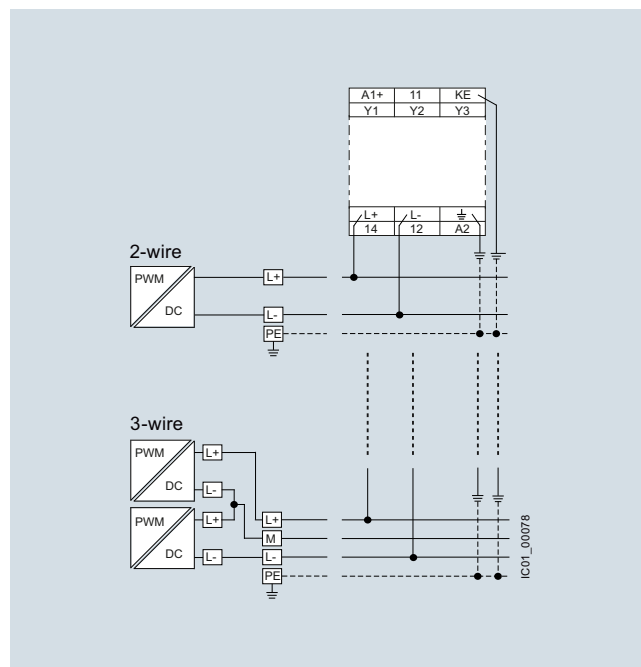
Connection diagrams

3UG4582

AC network, 2-wire, 3-wire or 4-wire



DC network, 2-wire or 3-wire

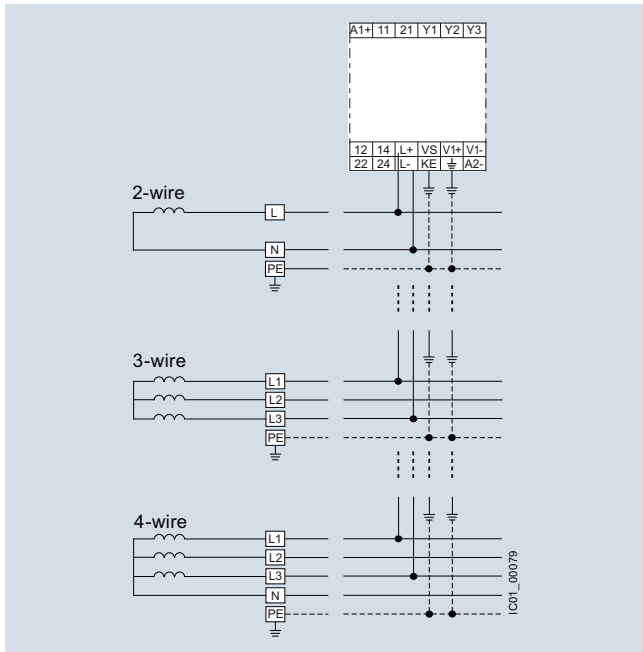


Note:

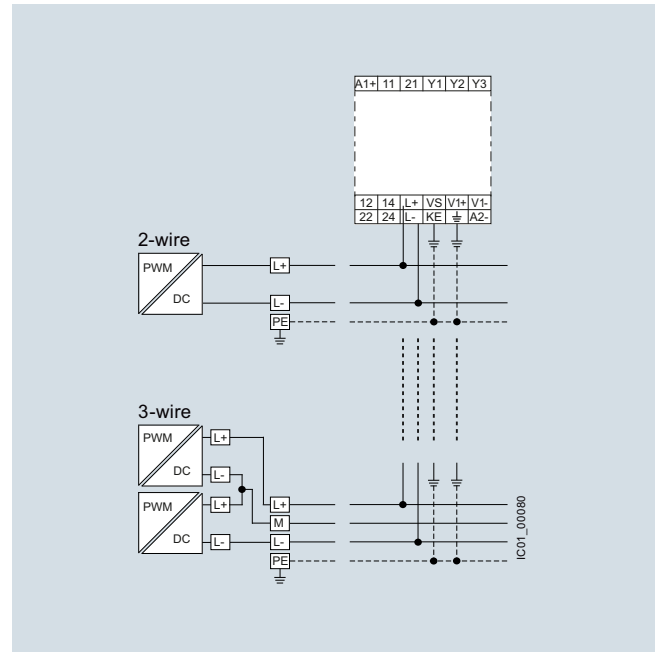
L+ and L- can be connected to any wire, but each to a different wire. $U_n \leq 250$ V AC or 300 V DC.

3UG4583

AC network, 2-wire, 3-wire or 4-wire



DC network, 2-wire or 3-wire

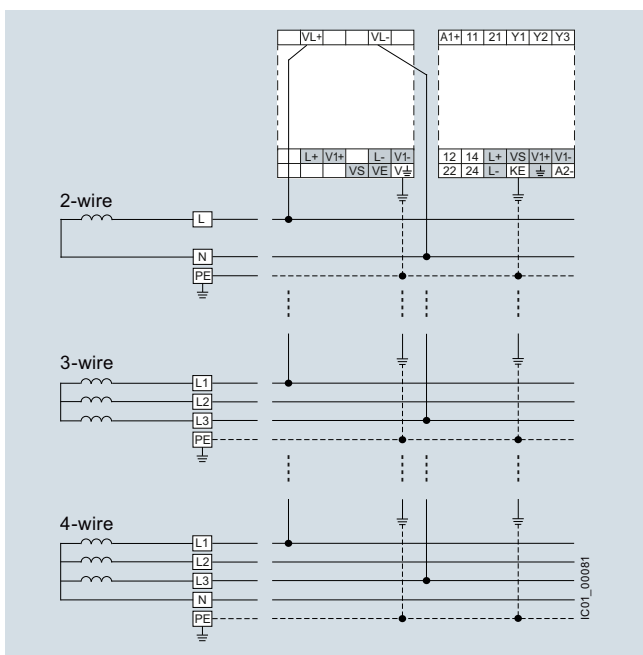


Note:

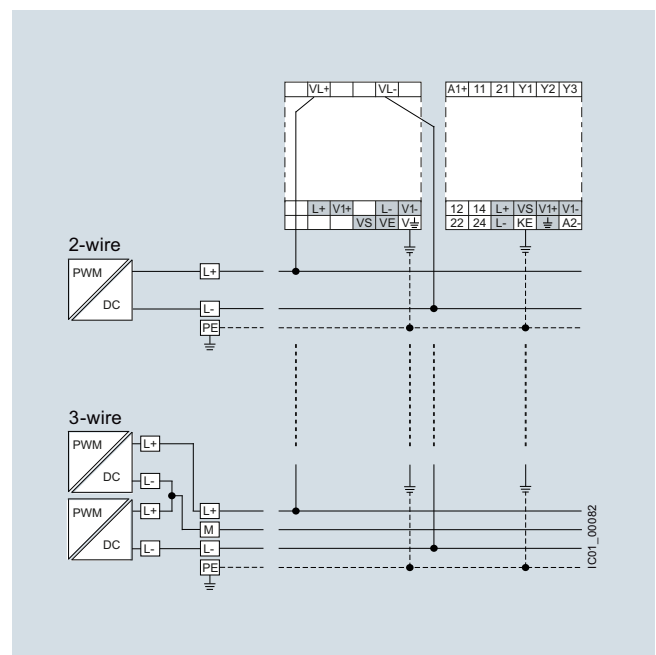
L+ and L- can be connected to any wire, but each to a different wire. $U_n \leq 400$ V AC or 600 V DC.
Use a voltage reducer module to monitor systems with higher voltages.

3UG4983 voltage reducer module

AC network, 2-wire, 3-wire or 4-wire



DC network, 2-wire or 3-wire



Note:

L+ and L- can be connected to any wire, but each to a different wire. $U_n \leq 400$ V AC or 600 V DC.
Use a voltage reducer module to monitor systems with higher voltages.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Insulation Monitoring





For ungrounded DC and AC networks

Selection and ordering data

- Auto or Manual RESET
- Rated control supply voltage U_s 24...240 V AC/DC
- 3UG4582: Closed-circuit principle
- 3UG4583: Open-circuit or closed-circuit principle, adjustable
- 1 or 2 CO contacts
- Fault memory adjustable using control input (Y2-Y3)
- Reset by means of button on front or using control input (Y2-Y3)
- Test by means of button on front or using control input (Y1-Y3)
- 3UG4583: Non-volatile fault storage can be configured
- 3UG4583: 2 separate limit values (e.g. for warning and disconnection) or 2 CO contacts for one limit value (e.g. for a local alarm and signaling to the PLC via separate circuits) can be configured

Note:

With the 3UG4983-1A coupling unit, connection to networks with voltages of up to 690 V AC and 1 000 V DC is possible, [see below](#).

	Rated mains voltage U_n	System leakage capacitance	Output relays	Measuring range U_e	Broken wire detection in the measuring range	Screw terminals 	Article No.
	V	μF		k Ω			
3UG4582 insulation monitors							
	0 ... 250 AC, 0 ... 300 DC	Max. 10	1 CO	1 ... 100	✓		3UG4582-1AW30
3UG4583 insulation monitors							
	0 ... 400 AC, 0 ... 600 DC ¹⁾	Max. 20	2 CO or 1 CO + 1 CO, adjustable	1 ... 100, 2 ... 200 for 2nd limit value, adjustable	✓ Adjustable		3UG4583-1CW30
	Voltage reducer module for 3UG4583 For extending the mains voltage range to max. 690 V AC and 1 000 V DC						3UG4983-1A
✓ Available							

¹⁾ With 3UG4983-1A voltage reducer module suitable also for the insulation monitoring of IT networks of up to 690 V AC and 1 000 V DC.

For accessories, [see page 5/92](#).

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Level Monitoring

Level monitoring relays

Overview



SIRIUS 3UG4501 monitoring relay

The 3UG4501 level monitoring relay is used in combination with 2- or 3-pole sensors to monitor the levels of conductive liquids.

Benefits

- Can be used worldwide thanks to wide voltage range from 24 to 240 V (absolute limit values)
- Individually shortenable 2 and 3-pole wire electrodes for easy mounting from above/below
- Bow electrodes for installation from the side, for larger filling levels and minimum space requirements
- Can be flexibly adapted to different conductive liquids through analog setting of the sensitivity from 2 to 200 k Ω
- Compensation for wave movements through tripping delay times from 0.1 to 10 s
- Upstream or downstream function selectable
- All versions with removable terminals

Application

- Single-point and two-point level monitoring
- Overflow protection
- Dry run protection
- Leak monitoring

Technical specifications

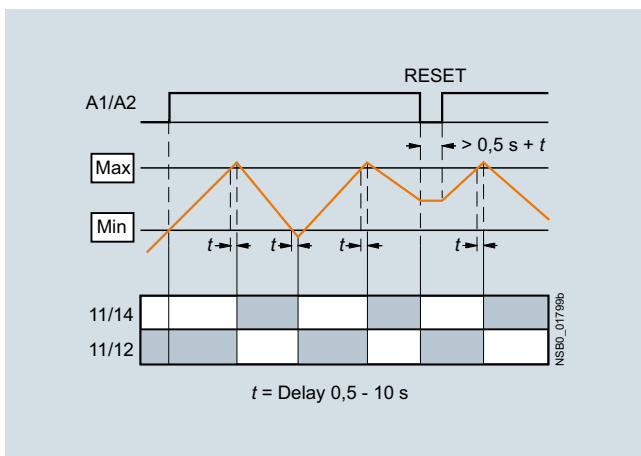
3UG4501 monitoring relays

The principle of operation of the 3UG4501 level monitoring relay is based on measuring the electrical resistance of the liquid between two immersion sensors and a reference terminal. If the measured value is lower than the sensitivity set at the front, the output relay changes its switching state. In order to exclude electrolytic phenomena in the liquid, the sensors are supplied with alternating current.

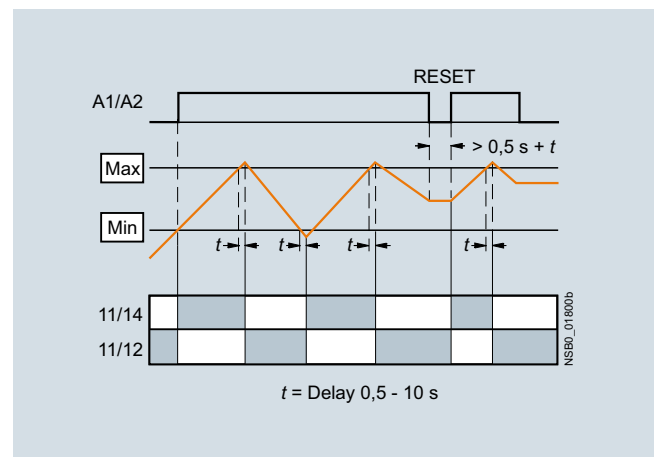
Two-point control

The output relay changes its switching state as soon as the liquid level reaches the maximum sensor, while the minimum sensor is submerged. The relay returns to its original switching state as soon as the minimum sensor no longer has contact with the liquid.

OVER, two-point control



UNDER, two-point control



Note:

It is also possible to connect other resistance sensors to the Min and Max terminals in the range 2 to 200 k Ω , e.g. photoresistors, temperature sensors, encoders based on resistance, etc. The monitoring relay can therefore also be used for other applications as well as for monitoring the levels of liquids.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Level Monitoring

Level monitoring relays

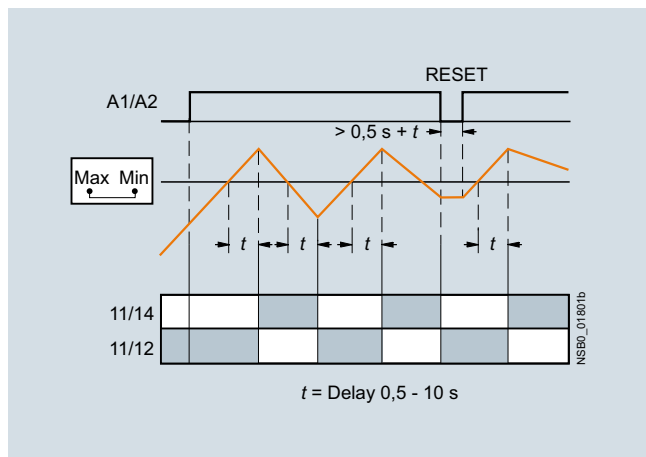
Single-point control

If only one level is being controlled, the terminals for Min and Max on the monitoring relay are bridged. The output relay changes its switching state as soon as the liquid level is reached and returns to its original switching state once the sensor no longer has contact with the liquid.

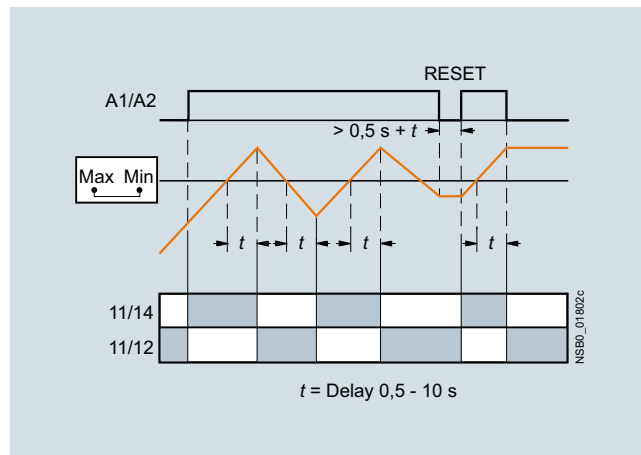
In order to prevent premature tripping of the switching function caused by wave motion or frothing, even though the set level has not been reached, it is possible to delay this function by 0.5 ... 10 s.

For safe resetting, the control supply voltage must be interrupted for at least the set delay time of +0.5 s.

OVER, single-point control



UNDER, single-point control



5

Type	3UG4501	
General data		
Rated insulation voltage U_i Pollution degree 3, Overvoltage category III acc. to VDE 0110	V	300
Rated impulse withstand voltage U_{imp}	kV	4
Measuring circuit		
Electrode current, max. (typ. 70 Hz)	mA	1
Electrode voltage, max. (typ. 70 Hz)	V	15
Sensor feeder cable	m	Max. 100
Conductor capacity of sensor cable¹⁾	nF	Max. 10
Control circuit		
Load capacity of the output relay Conventional thermal current I_{th}	A	5
Rated operational current I_o at		
• AC-15/24 ... 400 V	A	3
• DC-13/24 V	A	1
• DC-13/125 V	A	0.2
• DC-13/250 V	A	0.1
Minimum contact load at 17 V DC	mA	5

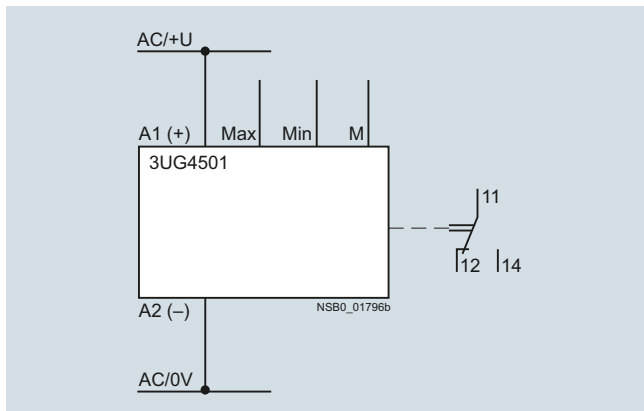
¹⁾ The sensor cable does not necessarily have to be shielded, but we do not recommend installing this cable parallel to the power supply lines. It is also possible to use a shielded cable, whereby the shield has to be connected to the M terminal.

Monitoring and Control Devices

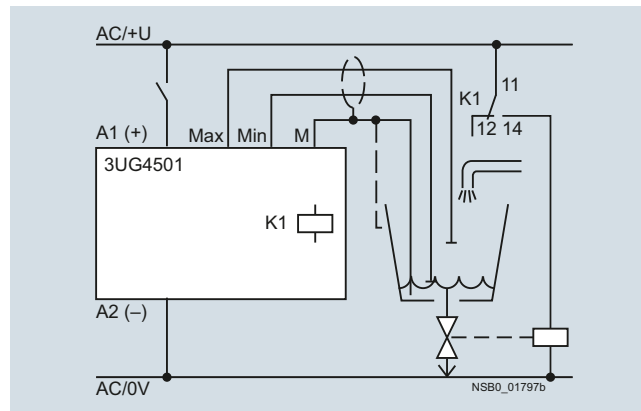
SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Level Monitoring

Level monitoring relays

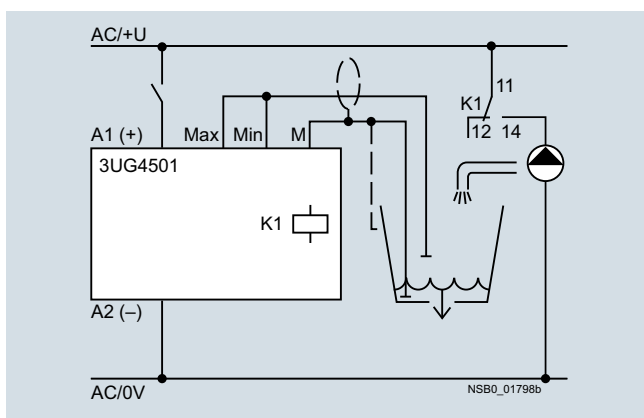
Circuit diagrams



Schematic circuit diagram



Circuit example of two-point control with outlet monitoring



Circuit example of single-point control with inlet monitoring

Selection and ordering data

- For level monitoring of electrically conductive liquids
- Control principle: inlet or sequence control adjustable per rotary switch
- Single-point and two-point control possible
- Analogically adjustable sensitivity (specific resistance of the liquid)

- Analogically adjustable tripping delay time
- 1 yellow LED for displaying the relay state
- 1 green LED for displaying the applied control supply voltage
- 1 CO contact

Sensitivity	Tripping delay time	Rated control supply voltage U_s	Screw terminals
k Ω	s	V AC/DC	Article No.
2 ... 200	0.5 ... 10	24 ¹⁾	3UG4501-1AA30
		24 ... 240	3UG4501-1AW30

¹⁾ The rated control supply voltage and the measuring circuit are not electrically separated.

For accessories, [see page 5/92](#).

For level monitoring sensors, [see page 5/88](#).

Monitoring and Control Devices

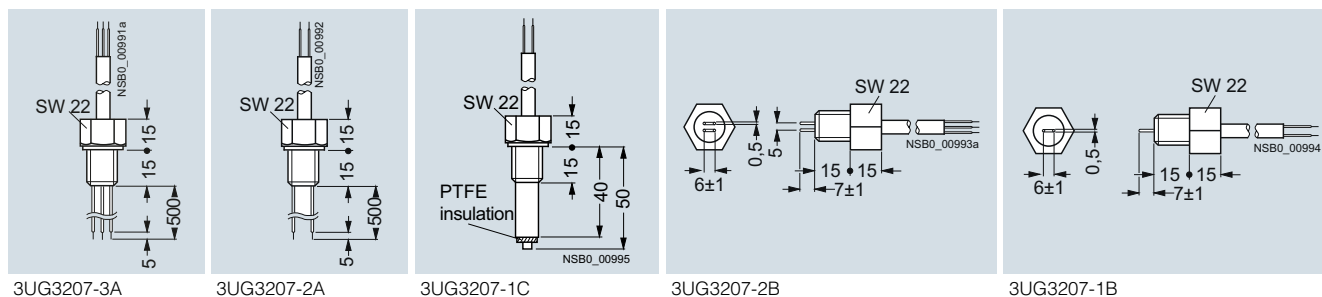
SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation Level Monitoring

Probes for filling level monitoring






Technical specifications

Type		3UG3207-3A Three-pole	3UG3207-2A Two-pole	3UG3207-2B Two-pole	3UG3207-1B Single-pole	3UG3207-1C Single-pole
Length	mm	500		--		
Insulation	Teflon insulation (PTFE)	Yes			--	Yes
Installation		Vertical		Lateral		
Screw-in gland width A/F		22				
Thread	inch	R 3/8				
Connecting cable	mm ²	3 x 0.5, 2 m long				
Operating temperature	°C	90				
Operating pressure	bar	10				
Cable/electrode assignment						
• Cable brown		Center electrode	Not assignable	Gland		
• Cable white		Not assignable			Electrode	
• Cable green		Not assignable	--	Not assignable	--	

Dimensional drawings



Selection and ordering data

Version	Article No.
Level monitoring sensors (essential accessory)	
<p>The wire electrodes can be cut or bent to the required length before or after installation. The Teflon insulation must be removed over a length of approx. 5 mm.</p> <p>Three-pole wire electrodes, 500 mm long</p> <p>For 2-point liquid level control in an insulating tank. One electrode each for the min. and max. value and a common reference electrode.</p>  <p>3UG3207-3A</p>	3UG3207-3A
<p>Two-pole wire electrodes, 500 mm long</p> <p>For alarm indication in the event of overflow or low level and for 2-point liquid level control, when the conductive tank is used as the reference electrode.</p>  <p>3UG3207-2A</p>	3UG3207-2A
<p>Two-pole bow electrodes</p> <p>Thanks to the small space requirements due to lateral fitting, ideal for use in small containers and pipes, as a leak monitor and level monitor or for warning of water entering an enclosure.</p>  <p>3UG3207-2B</p>	3UG3207-2B
<p>Single-pole bow electrodes for lateral fitting</p> <p>As a max. value electrode for lateral fitting or for alarm indication in conductive tanks or pipes.</p>  <p>3UG3207-1B</p>	3UG3207-1B
<p>Single-pole rod electrodes for lateral fitting</p> <p>For high flow velocities or for intensively sparkling fluids.</p>  <p>3UG3207-1C</p>	3UG3207-1C

Overview



SIRIUS 3UG4651 monitoring relay

The 3UG4651 monitoring relay is used in combination with a sensor to monitor motor drives for overspeed and/or under-speed.

Furthermore, the monitoring relay is ideal for all functions where a continuous pulse signal needs to be monitored (e.g. belt travel monitoring, completeness monitoring, passing monitoring, clock-time monitoring).

Benefits

- Can be used worldwide thanks to wide voltage range from 24 to 240 V (absolute limit values)
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Permanent display of actual value and fault type
- Use of up to 10 sensors per rotation for extremely slowly rotating motors
- 2- or 3-wire sensors and sensors with a mechanical switching output or semiconductor output can be connected
- Auxiliary voltage for sensor integrated
- All versions with removable terminals

Application

- Slip or tear of a belt drive
- Overload monitoring
- Transport monitoring for completeness

Technical specifications

3UG4651 monitoring relays

The speed monitoring relay operates according to the principle of period duration measurement.

In the monitoring relay, the time between two successive rising edges of the pulse encoder is measured and compared to the minimum and/or maximum permissible period duration calculated from the set limit values for the speed.

Thus, the period duration measurement recognizes any deviation in speed after just two pulses, even at very low speeds or in the case of extended pulse gaps.

By using up to ten pulse encoders evenly distributed around the circumference, it is possible to shorten the period duration, and in turn the response time. By taking into account the number of sensors in the monitoring relay, the speed continues to be indicated in rpm.

ON-delay time for motor start

To be able to start a motor drive, and depending on whether the open-circuit or closed-circuit principle is selected, the output relay switches to the GO state during the ON-delay time, even if the speed is still below the set value.

The ON-delay time is started by either switching on the auxiliary voltage or, if the auxiliary voltage is already applied, by actuating the respective NC contact (e.g. auxiliary contact).

Speed monitoring with Auto RESET (Memory = no)

If the device is set to Auto RESET, the output relay switches to the GO state, once the adjustable hysteresis threshold is reached in the range of 0.1 ... 99.9 rpm and the flashing stops. Any overshoots or undershoots are therefore not stored.

Speed monitoring with Manual RESET (Memory = yes)

If Manual RESET is selected in the menu, the output relay remains in its current switching state and the current measured value and the symbol for overshooting/undershooting continue to flash, even when the speed returns to a permissible value. This stored fault status can be reset by pressing the UP▲ and DOWN▼ buttons simultaneously for > 2 s, by connecting the RESET device terminal to 24 V DC or by switching the control supply voltage off and back on again.

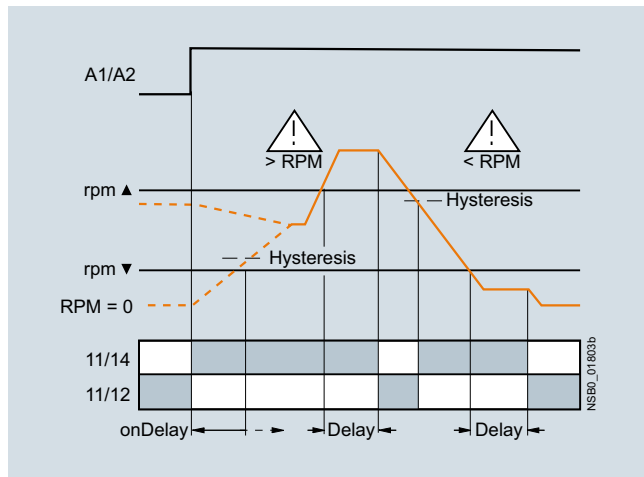
Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

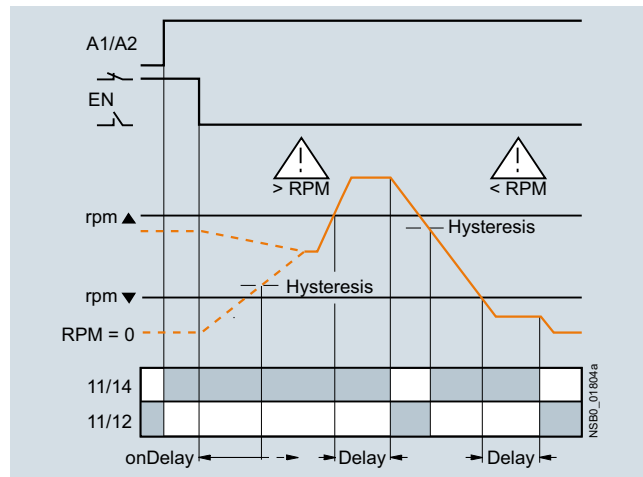
Speed monitoring

With the closed-circuit principle selected

Range monitoring without enable input

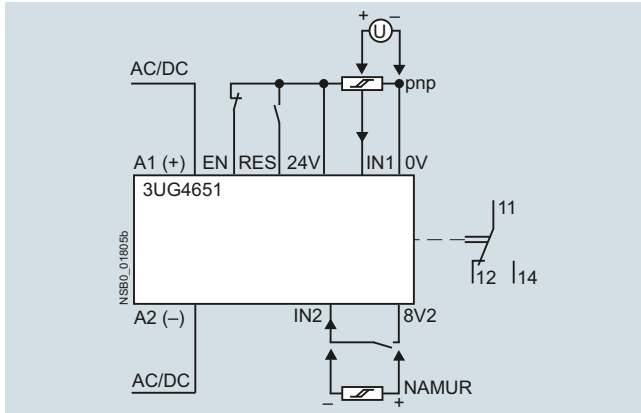


Range monitoring with enable input

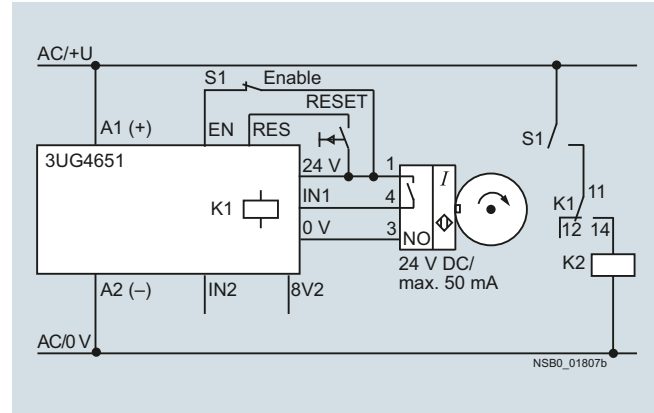


Type	3UG4651	
General data		
Rated insulation voltage U_i Pollution degree 3, Overvoltage category III acc. to VDE 0110	V	300
Rated impulse withstand voltage U_{imp}	kV	4
Measuring circuit		
Sensor supply		
• For three-wire sensor (24 V/0 V)	mA	Max. 50
• For 2-wire NAMUR sensor (8V2)	mA	Max. 8.2
Signal input		
• IN1	k Ω	16, three-wire sensor, pnp operation
• IN2	k Ω	1, floating contact, 2-wire NAMUR sensor
Voltage level		
• For level 1 at IN1	V	4.5 ... 30
• For level 0 at IN1	V	0 ... 1
Current level		
• For level 1 at IN2	mA	> 2.1
• For level 0 at IN2	mA	< 1.2
Minimum pulse duration of signal	ms	5
Minimum interval between 2 pulses	ms	5
Control circuit		
Number of CO contacts for auxiliary contacts		1
Load capacity of the output relay Conventional thermal current I_{th}	A	5
Rated operational current I_e at		
• AC-15/24 ... 400 V	A	3
• DC-13/24 V	A	1
• DC-13/125 V	A	0.2
• DC-13/250 V	A	0.1
Minimum contact load at 17 V DC	mA	5

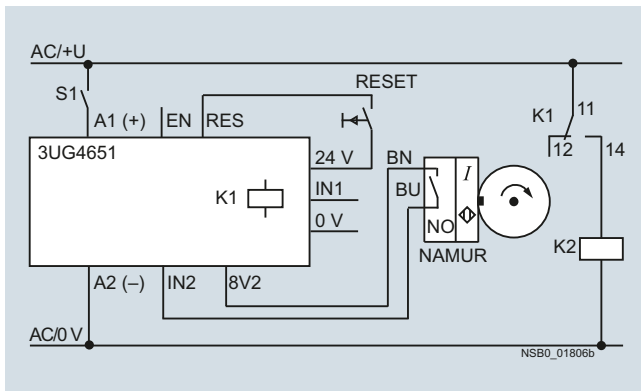
Circuit diagrams



Schematic circuit diagram




Circuit example with enable input



Circuit example without enable input

Selection and ordering data

- For speed monitoring in revolutions per minute (rpm)
- Two- or three-wire sensor with mechanical or electronic switching output can be connected
- Two-wire NAMUR sensor can be connected
- Sensor supply 24 V DC/50 mA integrated
- Input frequency 0.1 to 2 200 pulses rpm (0.0017 to 36.7 Hz)
- With or without enable signal for the drive to be monitored
- Digitally adjustable, with illuminated LCD
- Overshoot, undershoot or range monitoring adjustable
- Number of pulses per revolution can be adjusted
- Upper and lower threshold value can be adjusted separately
- Auto, manual or remote RESET options after tripping
- Permanent display of actual value and tripping state
- 1 CO contact

Measuring range	Hysteresis	ON-delay time	Tripping delay time	Pulses per revolution	Rated control supply voltage U_s AC/DC	Screw terminals 
rpm	rpm	s	s		V	Article No.
0.1 ... 2 200	OFF 0.1 ... 99.9	0 ... 900	0.1 ... 99.9	1 ... 10	24 ¹⁾ 24 ... 240	3UG4651-1AA30 3UG4651-1AW30

¹⁾ The rated control supply voltage and the measuring circuit are not electrically separated.

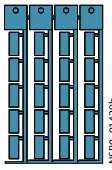


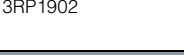


For accessories, see page 5/92.

Monitoring and Control Devices

SIRIUS 3UG45, 3UG46 Monitoring Relays for Stand-Alone Installation

Accessories

Selection and ordering data

	Use	Version	Article No.
Blank labels			
 3RT1900-1SB20	For 3UG4	Unit labeling plates For SIRIUS devices 20 mm x 7 mm, pastel turquoise ¹⁾	3RT1900-1SB20
	For 3UG4	Adhesive labels For SIRIUS devices <ul style="list-style-type: none"> • 19 mm x 6 mm, pastel turquoise • 19 mm x 6 mm, zinc yellow 	3RT1900-1SB60 3RT1900-1SD60
Push-in lugs and covers			
 3RP1903	For 3UG4	Push-in lugs For screw fixing, 2 units are required for each device	3RP1903
 3RP1902	For 3UG4	Sealable covers For securing against unauthorized adjustment of setting knobs	3RP1902
 3TK2820-0AA00	For 3UG45	Sealing foil For securing against unauthorized adjustment of setting knobs	3TK2820-0AA00
Covers for insulation monitoring relays			
 3UG4981-0C	For 3UG4581 and 3UG4582	Sealable, transparent covers	3UG4981-0C
	For 3UG4583		3UG4983-0C
 3UG4983-0C			

¹⁾ PC labeling system for individual inscription of unit labeling plates available from:
murrplastik Systemtechnik GmbH
See www.murrplastik.de.

Notes:

For products for mechanical bearing monitoring, e.g. condition monitoring systems, see www.siemens.com/siplus-cms.

Overview



SIRIUS 3RN1 thermistor motor protection

Thermistor motor protection devices are used for direct monitoring of the motor winding temperature. For this purpose, the motors are equipped with temperature-dependent resistors (PTC) that are directly installed in the motor winding and abruptly change their resistance at their temperature limit.

Article No. scheme

Digit of the Article No.	1 st - 5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
	□□□□□	□	□	-	□	□	□	□
Thermistor motor protection	3 R N 1 0							
Number and version of the sensor circuits		□						
RESET response			□					
Connection type				□				
Type and number of outputs					□			
Control supply voltage						□		
Protective separation							□	
Behavior in the event of voltage failure								□
Example	3 R N 1 0	0	0	-	1	A	B	0 0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Benefits

- Thanks to direct motor protection, overdimensioning of the motors is not necessary
- No settings on the device are necessary
- Semiconductor compatible output thanks to versions with hard gold-plated contacts
- Rapid error diagnosis thanks to versions that indicate open and short circuits in the sensor circuit
- All versions with removable terminals

Application

Direct motor protection through temperature monitoring of the motor winding offers 100 % motor protection even under the most difficult ambient conditions, without the need to make adjustments on the device. Versions with hard gold-plated contacts ensure, in addition, a high switching reliability that is even higher than an electronic control.

Direct motor protection

- At increased ambient temperatures
- When switching frequency is too high
- When start up and braking procedures are too long
- Used together with frequency converters (at low speeds)

ATEX approval for operation in areas subject to explosion hazard

The SIRIUS 3RN1 thermistor motor protection relay for PTC sensors is certified according to ATEX Ex II (2) G and D for environments with explosive gas or dust loads.

Monitoring and Control Devices

SIRIUS 3RN1 Thermistor Motor Protection

For PTC sensors

Motor protection using current- and temperature-dependent protective devices

EN 60204 and IEC 60204 stipulate that motors must be protected from overheating at a rating of 0.5 kW and higher. The protection can take the form of overload protection, over-temperature protection or current limiting.

For motors with frequent starting and braking and in environments where cooling may be impaired (e.g. by dust), it is recommended to use the overtemperature protection option in the form of a protective device coordinated with this mode of operation. A good choice in this case is the use of 3RN1 thermistor motor protection devices.

On rotor-critical motors, overtemperature detection in the stator windings can lead to delayed and hence inadequate protection. In this case the standards stipulate additional protection, e.g. by means of an overload relay.

This combination of thermistor motor protection and an overload relay is recommended for full motor protection in case of frequent starting and braking of motors, irregular intermittent duty or excessive switching frequency. To prevent premature tripping of the overload relay in such operating conditions, a higher setting than that normally required for the operational current is chosen. The overload relay then performs the stall protection, and the 3RN1 thermistor motor protection device monitors the temperature of the motor windings.

Application	Motor protection		
	Only current-dependent, e.g. with overload relay	Only temperature-dependent, e.g. with thermistor motor protection relay	Current- and temperature-dependent
Motor protection in case of			
Overloading in uninterrupted duty	✓	✓	✓
Long start up and braking operations	○	✓	✓
Irregular intermittent duty	○	✓	✓
Excessively high switching frequency	○	✓	✓
Single-phase operation and current unbalance	✓	✓	✓
Voltage and frequency fluctuations	✓	✓	✓
Stalling of the rotor	✓	✓	✓
Switching on a stalled rotor of a stator-critical motor	✓	✓	✓
Switching on a stalled rotor of a rotor-critical motor	✓	○	✓
Elevated ambient temperature	--	✓	✓
Impeded cooling	--	✓	✓

- ✓ Full protection
- Conditional protection
- No protection

Technical specifications

The 3RN1 evaluation units are suitable for use in any climate and finger-safe according to IEC 60529.

They comply with:

- IEC 60947-8. Low-voltage switchgear and controlgear – Part 8: "Control units for built-in thermal protection (PTC) for rotating electrical machines"
- IEC 61000-6-2 and IEC 61000-6-4 "Electromagnetic compatibility of I&C equipment in industrial process engineering"

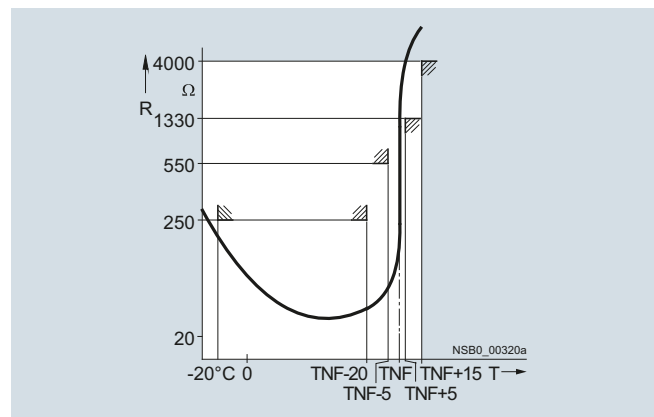
The terminals of the auxiliary contacts are designated in accordance with EN 60947-1.

The 3RN1 evaluation units are suitable for snap-on mounting onto TH 35 standard mounting rails according to IEC 60715 or for screw fixing using an adapter (Accessories).

Any mounting position is possible.

For devices with the "Manual RESET" function, the test function can be activated and a trip simulated by pressing the blue Test/RESET button for > 2 seconds.

If a Type A temperature sensor is connected to a Type A evaluation unit, compliance with the operating temperatures is asured (on pick-up and reset) according to IEC 60947-8.



Characteristic curve of the 3RN1 evaluation unit

The characteristic curves of the Type A temperature sensors are described in IEC 60947-8, DIN 44081 and EN 44082 standards.

Use in areas subject to explosion hazard for gases

All devices are approved for Equipment Group II, Category (2) in Area "G" (areas that contain explosive gases, vapor, spray and air mixtures).

With PTB 01 ATEX 3218 ex II (2) G, compliance with directive 94/9 EC Appendix II is confirmed. The safety devices must be selected with suitable settings for the safe operation of motors of the "Increased safety" (EEx e) and "Flameproof enclosure" (EEx d) types of protection and are used outside the area subject to explosion hazard.

PTB 01 ATEX 3218 ex II (2) G

The increased danger in areas subject to explosion hazard demands careful analysis of the operating manual, the safety and commissioning instructions and the standard (EN 60079-14/VDE 0165) for electronic equipment in areas subject to gas explosion hazards.

A risk analysis must be performed for the complete plant or machine. If this risk analysis results in a minimal potential for danger (Safety Category 1), all 3RN1 TMS evaluation units can be implemented taking into account the safety notes. In the case of plants or machines with a high potential risk, device versions with integrated short-circuit detection in the sensor circuit are necessary.

Use in areas subject to explosion hazard for dust

PTB 01 ATEX 3218 ex II (2) GD

3RN1011-.B/-G, 3RN1012-.B/-G and 3RN1013-...0 evaluation units can be used as protective devices for motors in areas subject to gas explosion hazard for protection against impermissible overheating due to overload. If the ATEX identification has the extension "D:=Dust", these units can also be used as protective devices for motors in areas subject to dust explosion hazard (IEC 61241-14).

Additional information is provided in the EC type test certificate which can be obtained from the Internet. The units comply with the requirements of the following classes:

Device	Class
3RN1000, 3RN1010, 3RN1011-.C, 3RN1012-.C, 3RN1022, 3RN1062	EN ISO 13849-1: Category 1
3RN1011-.B, 3RN1011-.G, 3RN1012-.B, 3RN1012-.G, 3RN1013	EN ISO 13849-1: Category 2

The measuring circuit leads must be routed as separate control cables. It is not permitted to use cores from the supply line of the motor or any other main supply cables. If extreme inductive or capacitive interference is expected as a result of power lines routed in parallel, shielded control cables must be used.

Cable routing

Maximum cable length for sensor circuit cables

Cable cross-section	Cable length for evaluation units	
	Without short-circuit detection 3RN1000, 3RN1010, 3RN1011-.C, 3RN1012-.C, 3RN1022, 3RN1062	With short-circuit detection ¹⁾ 3RN1011-.B/-G, 3RN1012-.B/-G, 3RN1013
mm ²	m	m
2.5	2 x 2 800	2 x 250
1.5	2 x 1 500	2 x 150
0.5	2 x 500	2 x 50

¹⁾ A short circuit in the sensor circuit will be detected up to this maximum cable length.

Notes:

Tripping of the thermistor motor protection relay even in combination with a converter must directly result in disconnection. This must be implemented with circuitry.

Mounting and installation must only be performed by qualified personnel who observe the applicable regulations! For mounting, use the mounting instructions Article No.: 3ZX1012-ORN10-1AA1.

The 3RN10 is not intended for installation in hazardous areas. For installation in areas subject to explosion hazards, the 3RN10 must be enclosed in a flameproof casing.

For evaluation units with a 24 V AC/DC control voltage, electrical separation must be secured with a battery network or a safety transformer.

When evaluation units with Auto RESET function are used, resetting is performed automatically after the cooling time has expired. It must be ensured by means of an external interlock (latching with a separate ON and OFF button) that the machine to be monitored does not start up again spontaneously.

Units with the "Auto RESET" function must not be used in applications in which the unexpected restart can lead to personal injury or property damage.

In the case of evaluation units without short-circuit detection, during commissioning or after modifications or maintenance work (assembly, disassembly) on the equipment, the sensor resistance must be measured using a suitable measuring device. For resistances of < 50 W the sensor circuit must be checked for a short circuit.

If 3RN1000 units are used to protect EEx e motors, separate monitoring of the control voltage is recommended because there is no Ready LED to indicate connection to the supply voltage.

If 3RN1013-.BW01 unit are used to protect EEx e motors, separate monitoring of the control voltage is recommended because the switching state of the auxiliary contacts does not change if the control voltage fails (use of a bistable relay is recommended).

Before commissioning, the effectiveness of the protection function must be checked.

Monitoring and Control Devices

SIRIUS 3RN1 Thermistor Motor Protection

For PTC sensors

Principle of operation

The 3RN1 evaluation units operate in accordance with the closed-circuit principle and therefore monitor themselves for open circuit (except: warning output in the case of 3RN1022). A momentary voltage failure of less than 50 ms does not change the status of the auxiliary contacts. The 3RN1011, 3RN1012 and 3RN1013 units with 2 changeover contacts are also equipped with short-circuit detection in the sensor circuit. The unit will trip in the event of a short circuit in the sensor circuit (resistance in sensor circuit < 20 Ω).

All evaluation units (except for 24 V AC/DC) feature electrical separation between the control circuit and the sensor circuit.

3RN1000 compact evaluation unit

The compact unit is equipped with a red LED (TRIPPED) for the tripped indicator and a changeover contact.

After the unit has tripped, it is automatically reset once the thermistors have cooled down. The root of the changeover contact is connected to the control voltage (95 is connected to terminal A1).

This unit is particularly suitable in circuits in which the control circuit and signaling circuit have the same potential, e.g. in local control cabinets.

3RN1010, 3RN1011, 3RN1012, 3RN1013 standard evaluation units

The standard units are equipped with two LEDs (READY and TRIPPED) for an operating and tripped display and are available with either 1 NO + 1 NC or with 2 CO contacts. They are available depending on the version with Auto RESET (3RN1010), Manual/Remote RESET (3RN1011) or Manual/Auto and Remote RESET (3RN1012 and 3RN1013). Remote RESET can be achieved by connecting an external pushbutton with a normally-open function to terminals Y1 and Y2. If terminals Y1 and Y2 are bridged, tripping will be followed by an Auto RESET.

The 3RN1011, 3RN1012 and 3RN1013 units with 2 CO contacts also have short-circuit monitoring in the sensor circuit.

The 3RN1012 and the 3RN1013 are non-volatile. This means that even if the control supply voltage fails, a trip preceding it will be saved.

In the case of the 3RN1013 evaluation unit, tripping due to a short circuit in the sensor circuit will be indicated by a flashing red LED. The monostable version also indicates open circuit in the sensor circuit by flashing of the red LED.

3RN1022 "Warning and disconnection" evaluation units

Two sensor circuits can be connected to one 3RN1022 evaluation unit that acts on one output relay with 1 NO contact for warning and 1 CO contact for disconnection. Temperature sensors with different rated response temperatures TNF are used to implement the "Warning" and "Disconnection" functions. When the "Warning" sensor circuit responds, a yellow LED is lit and when the "Disconnection" circuit responds, a red LED is lit.

The sensor circuits have a different reset response and operating behavior:

- "Warning" (terminals 2T1, T2) only features Auto RESET and uses the open-circuit principle.
- "Disconnection" (terminals 1T1, T2) can be changed from Manual RESET to Auto RESET by linking terminals Y1 and Y2. Remote RESET is implemented by connecting an external pushbutton with a normally-open function.

3RN1062 multiple motor protection evaluation units

Up to 6 sensor circuits can be connected to the 3RN1062 evaluation unit, all of which act on one output relay. The simultaneous protection of several motors (up to 6) is an advantage for multi-motor drives (e.g. if one motor is overloaded, all the other motors of the drive will be shut down). Apart from the red LED "TRIPPED", which signals the switching state of the evaluation unit, an LED is assigned to each sensor circuit which indicates the sensor circuit that has responded during tripping. Unused sensor circuits must be short-circuited.

The reset response of the 3RN1062 evaluation units can be changed from Manual RESET to Auto RESET by linking terminals Y1 and Y2. Remote RESET is implemented by connecting an external pushbutton with a normally-open function.

Response of the evaluation units in the event of control voltage failure

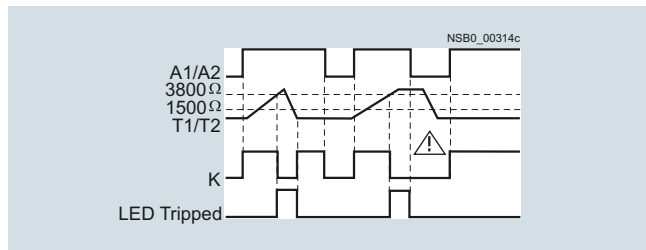
Behavior	Monostable	Non-volatile, monostable	Bistable
	3RN1000, 3RN1010, 3RN1011	3RN1012, 3RN1013-....0, 3RN1022, 3RN1062	3RN1013-....01
In case of failure of the control voltage	Device trips	Device trips	No change in switching state of the auxiliary contacts
In case of return of the control voltage without a preceding tripping operation	Device resets	Device resets	No change in switching state of the auxiliary contacts
In case of return of the control voltage after a preceding tripping operation	Device resets	The device remains tripped	No change in switching state of the auxiliary contacts

Protective separation

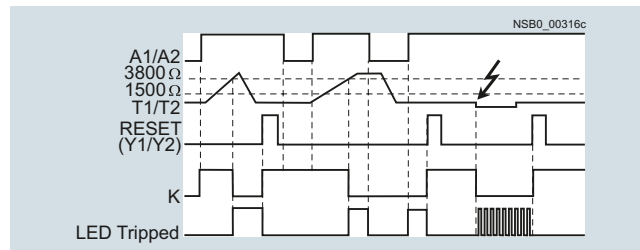
All circuits (outputs, control circuits, sensors and RESET circuits) of the multifunction evaluation units 3RN1013-1BW10 and 3RN1013-1GW10 (wide voltage range, monostable output relay and screw connection) are safely isolated from each other up to a rated voltage of 300 V according to IEC 60947-1.

Function diagrams

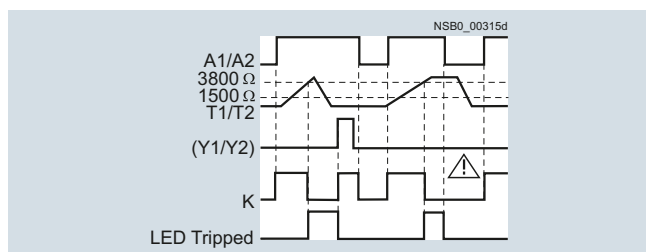
3RN1000, 3RN1010 (Auto RESET)



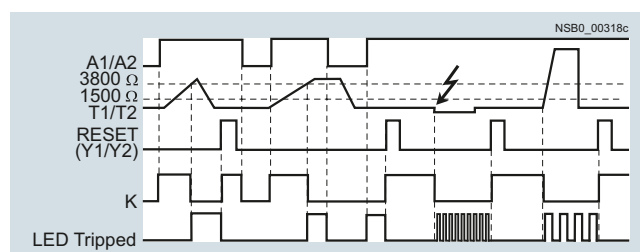
3RN1013-.BW01



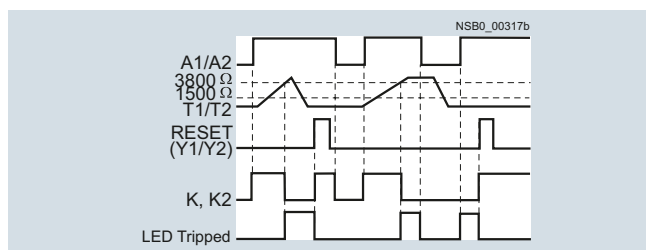
3RN1011¹⁾



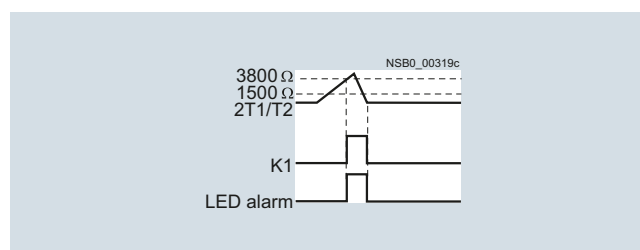
3RN1013-...00



3RN1012/3RN1022/3RN1062¹⁾



3RN1022 only



¹⁾ For versions with 2 CO contacts and short-circuit detection in the sensor circuit, see function diagram 3RN1013.

Type	Compact units		Standard devices			Multifunction units	Warning + disconnection	Multiple motor protection	
	3RN1000	3RN1010	3RN1011	3RN1012	3RN1013	3RN1022	3RN1062		
General data									
Dimensions (W x H x D)									
• For 2 terminal blocks - Screw terminals			mm	22.5 x 83 x 91					45 x 83 x 91
• For 3 terminal blocks - Screw terminals			mm	22.5 x 92 x 91					--
• For 4 terminal blocks - Screw terminals	mm	22.5 x 102 x 91					45 x 106 x 91		
Number of connectable sensor circuits	1					2	6		
Response in the event of control voltage failure	See page 5/96								
Manual RESET	--		✓						
Auto RESET	✓		--			✓			
Remote RESET	--		✓ ¹⁾			✓			
TEST button	--		✓						
Short-circuit detection for sensor circuit	--		✓ (for 2-CO units)			✓	--		
Short-circuit and open-circuit display	--					✓ ²⁾	--		
Warning and disconnection in one unit	--					✓	--		
Permissible ambient temperature									
• During operation	°C	-25 ... +60							

✓ Function available-
-- Function not available


¹⁾ Remote RESET possible by disconnecting control voltage.

²⁾ Open circuits are only indicated by monostable versions (3RN1013-...0).

Monitoring and Control Devices

SIRIUS 3RN1 Thermistor Motor Protection

For PTC sensors

Type	Compact units		Standard devices			Multifunction units	Warning + disconnection	Multiple motor protection
	3RN1000	3RN1010	3RN1011	3RN1012	3RN1013	3RN1022	3RN1062	
Evaluation unit								
Rated insulation voltage U_i (pollution degree 3)	V	300						
Rated impulse withstand voltage U_{imp}	kV	4						
Connection type	 Screw terminals							
<ul style="list-style-type: none"> Terminal screw Solid Finely stranded with end sleeve AWG cables, solid or stranded 	mm ² mm ² AWG	M3 (for standard screwdriver, size 2 and Pozidriv 2) 1 x (0.5 ... 4)/2 x (0.5 ... 2.5) 1 x (0.5 ... 2.5)/2 x (0.5 ... 1.5) 2 x (20 ... 14)						
Sensor circuit								
Measuring circuit load at $R_F \leq 1.5 \text{ k}\Omega$	mW	≤ 5						
Voltage in sensor circuit at $R_F \leq 1.5 \text{ k}\Omega$	V	≤ 2						
Response temperature (depends on sensor)	°C	60 ... 180						
Coupling time (depends on sensor)	s	About 5						
Summation PTC resistance R_F (per sensor loop)	k Ω	≤ 1.5 ; response value 3.4 ... 3.8; return value 1.5 ... 1.65						
Response tolerance	°C	± 6						
Control circuit								
Rated control supply voltage U_s	see pages 5/100 and 5/101							
Operating range	<ul style="list-style-type: none"> 110/230 V AC 24 ... 240 V AC/DC 24 V AC/DC 							
Rated power AC/DC	W	< 2						
Auxiliary circuit								
Conventional thermal current I_{th}	A	5						
Rated operational current I_e	<ul style="list-style-type: none"> AC-15/24 ... 250 V DC-13 at <ul style="list-style-type: none"> - 24 V - 125 V - 240 V 							
DIAZED fuse protection	A	6 ¹⁾						
CSA and UL rated data, control circuit								
Rated control voltage 50/60 Hz	<ul style="list-style-type: none"> AC DC 							
Switching capacity	R 300/B 300							
Protective separation up to 300 V acc. to IEC 60947-1	--				✓ 3RN1013- 1BW10, 3RN1013- 1GW10		--	

- ✓ Function available-
-- Function not available

¹⁾ $I_n > 1 \text{ kA}$ weld-free according to IEC 60947-5-1.

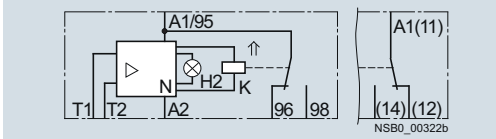
Monitoring and Control Devices

SIRIUS 3RN1 Thermistor Motor Protection

For PTC sensors

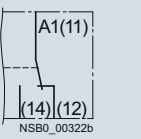
Circuit diagrams

Illustrated with control voltage applied



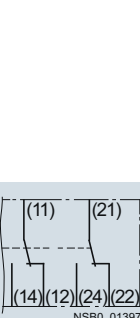
3RN1000, 1 CO

Illustrated with control voltage not applied



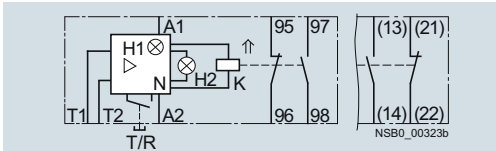
NSB0_00322b

Illustrated with control voltage not applied

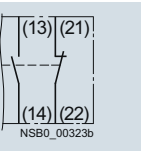


3RN1010, 2 CO

NSB0_01397



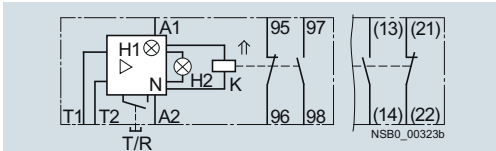
3RN1010, 1 NO + 1 NC



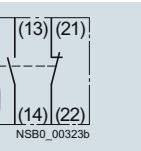
NSB0_00323b

General legend

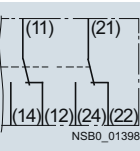
A1, A2, A3 Terminals of the control voltage
 N Amplifier
 T/R TEST/RESET button
 Y1, Y2 Terminals for Remote RESET (jump-ered = Auto RESET)
 ↑ The double arrow indicates an operating state of the contact according to EN 60617-7 which deviates from the norm (here: Position of the contacts when control voltage is applied to terminals A1 and A2)
 H1 LED "READY"
 H2 LED "TRIPPED"
 K Output relay
 T1, T2 Connections of the sensor loop



3RN1011¹⁾, 1 NO + 1 NC



NSB0_00323b

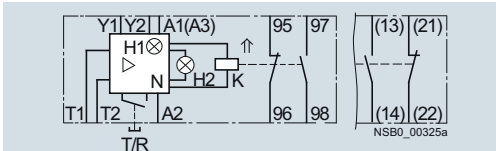


3RN1011, 2 CO

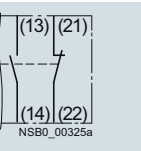
NSB0_01398

Legend for 3RN1022

H1 LED "READY"
 H2 LED "TRIPPED"
 H3 LED "ALARM"
 K1 Output relay for warning threshold (LED "ALARM")
 K2 Output relay for disconnect (LED "TRIPPED")
 1T1 and T2 Terminals of the sensor loop
 2T1 and T2 Terminals of the sensor loop

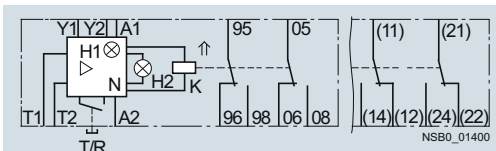


3RN1012, 2 CO

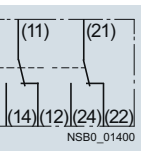


NSB0_01399a

Important!
 Short-circuit unconnected sensor circuits.



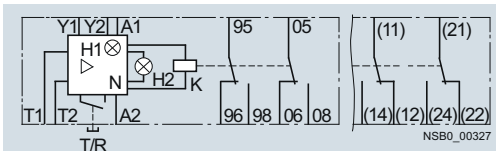
3RN1013-...0 (monostable)



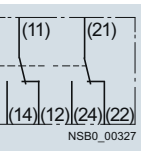
NSB0_01400

Legend for 3RN1062

H1 to H6 LED of the tripped sensor loop
 H7 LED "READY"
 H8 LED "TRIPPED"
 K Output relay
 1T1, 1T2 Terminals of the 1st sensor loop
 6T1, 6T2 Terminals of the 6th sensor loop

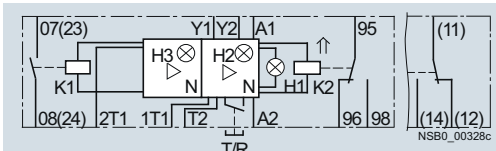


3RN1013-...1 (bistable)

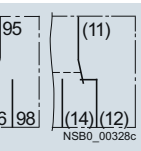


NSB0_00327

Important!
 Short-circuit unconnected sensor circuits.



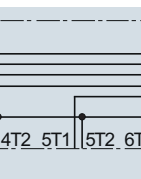
3RN1022



NSB0_00328c



3RN1062



NSB0_00329a

¹⁾ For units with combination voltages 230/110 V AC (3RN1011-.CK00 and 3RN1012-.CK00) A1 and A2 apply: 230 V AC, A3 and A2: 110 V AC.


Monitoring and Control Devices

SIRIUS 3RN1 Thermistor Motor Protection

For PTC sensors

Selection and ordering data

- For monitoring the motor winding temperature using temperature-dependent resistors (PTCs, type A) that are directly installed in the motor winding by the manufacturer
- Monostable versions with closed-circuit principle, i.e. relays respond in the event of control supply voltage failure
- 3RN1013-.BW01: Bistable version, does not trigger in the event of control supply voltage failure
- All devices have PTB01 ATEX approval for dust or gas
- All devices except for 24 V AC/DC feature electrical separation
- Versions with safe isolation up to 300 V according to IEC 60947-1
- Non-volatile versions
- Versions with short-circuit and open-circuit detection in sensor circuit
- Versions with solid-state compatible, hard gold-plated contacts
- Versions for up to 6 sensor circuits
- Versions with Manual RESET, Remote RESET, Auto RESET and test button
- Terminal labeling according to EN 60947-1
- All terminals are removable
- Width 22.5 mm (45 mm on version for several sensor circuits)

RESET	Contacts	Rated control supply voltage U_s 50/60 Hz	Screw terminals 
		V	Article No.

Compact signal evaluation units, width 22.5 mm, 1 LED

Terminal A1 is jumpered with the root of the changeover contact
Auto

1 CO	24 AC/DC 110 AC 230 AC	3RN1000-1AB00 3RN1000-1AG00 3RN1000-1AM00
------	------------------------------	----------------------------------------------------------------------

Standard evaluation units, width 22.5 mm, 2 LEDs



3RN1011-1BB00

Auto	1 NO + 1 NC	24 AC/DC 110 AC 230 AC 24 ... 240 AC/DC	3RN1010-1CB00 3RN1010-1CG00 3RN1010-1CM00 3RN1010-1CW00
	2 CO	24 AC/DC 110 AC 230 AC	3RN1010-1BB00 3RN1010-1BG00 3RN1010-1BM00
	2 CO, hard gold-plated	24 AC/DC	3RN1010-1GB00
Manual/ Remote ¹⁾	1 NO + 1 NC	24 AC/DC 110/230 AC	3RN1011-1CB00 3RN1011-1CK00



3RN1012-1CK00

Short-circuit detection for sensor circuit Manual/ Remote ¹⁾	2 CO	24 AC/DC 110 AC 230 AC	3RN1011-1BB00 3RN1011-1BG00 3RN1011-1BM00
	2 CO, hard gold-plated	24 AC/DC	3RN1011-1GB00

Non-volatile ²⁾ Manual/ Auto/Remote	1 NO + 1 NC	24 AC/DC 110/230 AC	3RN1012-1CB00 3RN1012-1CK00
---------------------------------------------------	-------------	------------------------	----------------------------------------------

Non-volatile ²⁾ , short-circuit detection in sensor circuit Manual/ Auto/Remote	2 CO	24 AC/DC 110 AC 230 AC	3RN1012-1BB00 3RN1012-1BG00 3RN1012-1BM00
	2 CO, hard gold-plated	24 AC/DC	3RN1012-1GB00



3RN1013-1BB00

Non-volatile ²⁾ , short-circuit and open-circuit detection and display in sensor circuit; wide voltage range versions with screw terminal with safe isolation Manual/ Auto/Remote	2 CO	24 AC/DC 24 ... 240 AC/DC	3RN1013-1BB00 3RN1013-1BW10
	2 CO, hard gold-plated	24 ... 240 AC/DC	3RN1013-1GW10

For bimetal sensors, without short-circuit detection Manual/ Remote	2 CO	230 V AC	3RN1014-1BM00
------------------------------------------------------------------------	------	----------	----------------------

Bistable evaluation units, width 22.5 mm

Test/RESET button, non-volatile²⁾, short-circuit and open-circuit detection and display in sensor circuit
Manual/ Auto/Remote

2 CO	24 ... 240 AC/DC	3RN1013-1BW01
------	------------------	----------------------



¹⁾ The unit can be reset with the RESET button or by disconnecting the control supply voltage.

²⁾ Protection against voltage failure or non-volatile fault storage means that previous tripping due to a fault remains stored even if the control supply voltage fails. The monitoring device is not reset if the voltage fails. With an active fault, meaning a fault which has not been manually confirmed, an automatic restart of the plant upon recovery of the power is prevented therefore and plant safety increased as the result.

Monitoring and Control Devices

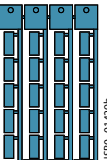

SIRIUS 3RN1 Thermistor Motor Protection

For PTC sensors

RESET	Contacts	Rated control supply voltage U_s 50/60 Hz	Screw terminals 
		V	Article No.
Evaluation units for 2 sensor circuits, warning and disconnection, width 22.5 mm, 3 LEDs			
Test/RESET button, non-volatile ¹⁾ Manual/Auto/Remote	1 NO + 1 CO	24 ... 240 AC/DC	3RN1022-1DW00
Evaluation units for 6 sensor circuits, multiple motor protection, width 45 mm, 8 LEDs			
 3RN1062-1CW00	Test/RESET button, non-volatile ¹⁾ Manual/Auto/Remote	1 NO + 1 NC	24 ... 240 AC/DC
			3RN1062-1CW00

¹⁾ Protection against voltage failure or non-volatile fault storage means that previous tripping due to a fault remains stored even if the control supply voltage fails. The monitoring device is not reset if the voltage fails. With an active fault, meaning a fault which has not been manually confirmed, an automatic restart of the plant upon recovery of the power is prevented therefore and plant safety increased as the result.

Accessories

Use	Version	Article No.
Blank labels		
 3RT1900-1SB20	For 3RN1	Unit labeling plates For SIRIUS devices 20 mm x 7 mm, pastel turquoise ¹⁾
	For 3RN1	Adhesive labels For SIRIUS devices <ul style="list-style-type: none"> • 19 mm x 6 mm, pastel turquoise • 19 mm x 6 mm, zinc yellow
 3RP1903	For 3RN1	Push-in lugs For screw fixing, 2 units are required for each device
		3RP1903

¹⁾ PC labeling system for individual inscription of unit labeling plates available from:
murrplastik Systemtechnik GmbH
See www.murrplastik.de.

Monitoring and Control Devices

Interface Converters

SIRIUS 3RS17 interface converters

Overview



SIRIUS 3RS17 interface converters

Interface converters perform the coupling function for analog signals on both the input side and the output side. They are indispensable when processing analog values with electronic controls. Under harsh industrial conditions in particular, it is often necessary to transmit analog signals over long distances. Electrical separation is then needed as a result of the different power supplies. The resistance of the wiring causes potential differences and losses which must be prevented.

Electromagnetic disturbance and overvoltages can affect the signals on the input side in particular or even destroy the analog modules. All terminals of the 3RS17 interface converters are safe up to a voltage of DC 30 V and protected against switching poles. Short-circuit protection is an especially important function for the outputs.

The devices are EMC-tested according to

- IEC 61000-6-4 (basic standard for emitted interference)
- IEC 61000-6-2 (basic standard for interference immunity)

The analog signals comply with

- IEC 60381-1/2

Article No. scheme

Digit of the Article No.	1st - 5th	6th	7th	8th	9th	10th	11th	12th
	□□□□□	□	□	-	□	□	□	□
Interface converters	3 R S 1 7							
Type of input signal		□	□					
Connection methods				□				
Type of output signal					□			
Current type and type of isolation						□		
Measuring range							□	
Example	3 R S 1 7 0 0 - 1 A E 0 0							

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Application

Converters are used in analog signal processing for

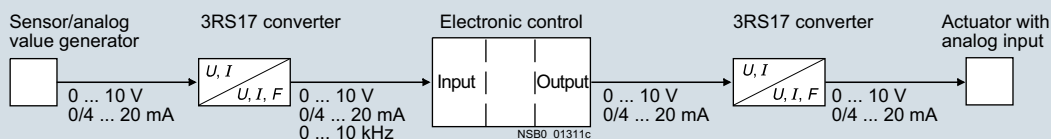
- Electrical separation
- Conversion of normalized and non-normalized signals
- Amplification and impedance adaptation
- Conversion to a frequency for processing by a digital input
- Overvoltage and EMC protection
- Short-circuit protection of the outputs
- Potential duplication

3RS1725 manual/automatic converter

For special applications in which analog signals have to be simulated, or during plant commissioning when the actual process value is not yet available, the 3RS1725 devices feature an adjustable potentiometer for manual setpoint selection and a manual/automatic switch.

The adjustable potentiometer for the 3RS1725 devices is used to simulate analog output signals when the selector switch is set to "manual mode" and the control supply voltage is applied, without the need for an analog input signal; and the scale ranges from 0 to 100 %.

Example: When it is set for an output of 4 to 20 mA, the 0 % scale value on the potentiometer represents an output current of 4 mA and the 100 % scale value represents an output current of 20 mA. In the "Auto" switch position, the output signal follows the input signal proportionally regardless of the potentiometer setting.



Application example: Interface converter in analog signal evaluation

Technical specifications**Active interface converters**

Active interface converters provide maximum flexibility for the application by the use of an external control supply voltage. Configuration with active interface converters is extremely easy because input and output resistances and voltage drops are compensated by the auxiliary supply. They support electrical separation as well as conversion from one signal type to another or reinforcement. The load of the measured value transmitter is negligible.

Passive interface converters

Passive interface converters do not require an external control supply voltage. This advantage can only be used by current signals that are converted 1:1. Reinforcement or conversion is not possible. The converters are used for complete electrical separation of current signals and to protect the inputs and outputs. Passive separators do not operate reaction-free, i.e. any load on the output produces an equal load on the input signal. When the passive converter is to be used, the output power of the sensor and the input resistance of the analog input must be analyzed. This technique is being increasingly implemented in the case of pure current signals.

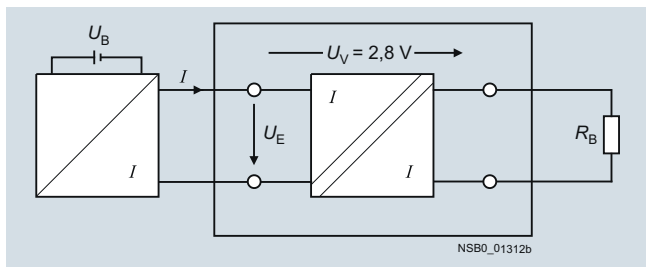
Calculation guide for passive converters

Important: Please note the following when using passive separators:

The current-driving voltage of the measuring transducer U_E must be sufficient to drive the maximum current of 20 mA over the passive separators with a voltage loss of $U_V = 2.8$ V and the load R_B .

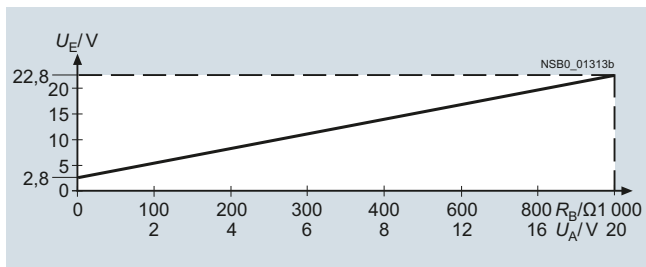
This means that:

$$U_B \geq U_E = 2.8 \text{ V} + 20 \text{ mA} \times R_B$$



Distribution of the voltages in the case of passive separators

The following figure shows the input voltage U_E as a function of the load R_B taking into account the voltage loss U_V . If the load is known, the y-axis shows the minimum voltage that has to be supplied by the current source in order to drive the maximum current of 20 mA over the passive separator and load.



Input voltage depending on the load at $I_a = 20$ mA

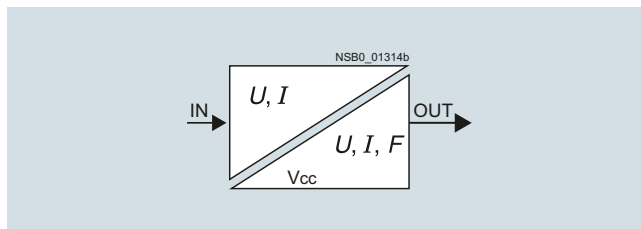
Load rating of the outputs

A maximum output load is specified for current signals. This resistance value specifies how large the input resistance of the next device connected in series can be as a result of the power of the converter.

For voltage signals, the maximum current that can be drawn from the output is the decisive factor.

2-way separation

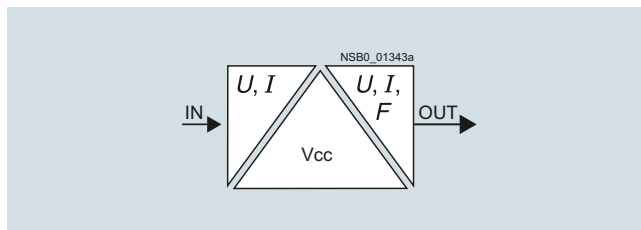
In the case of 2-way separation, the input is electrically separated from the output. The "zero potential" of the control supply voltage is the same as the reference potential for the analog output signal.



2-way separation

3-way separation

For the 3-way separation, each circuit is electrically separated from the other circuits, i.e. input, output, and control supply voltage do not have equipotential bonding.

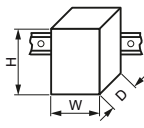



3-way separation

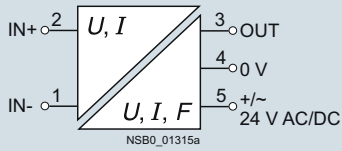
Monitoring and Control Devices

Interface Converters

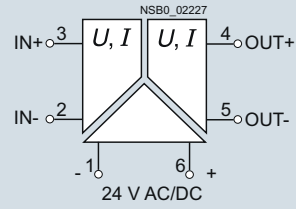
SIRIUS 3RS17 interface converters

Type 3RS17		24 V AC/DC	24 ... 240 V AC/DC
General data			
Dimensions (W x H x D)			
<ul style="list-style-type: none"> • 3RS1700, 3RS1702, 3RS1703, 3RS1705-.FD, 3RS1705-.FE, 3RS1705-.KD, 3RS1720 • 3RS170-.E00 • 3RS1705-.FW, 3RS1705-.KW, 3RS1706, 3RS1725 • 3RS1721, 3RS1722 		mm	6.2 x 80 x 84
		mm	6.2 x 90 x 92.5
		mm	17.5 x 80 x 84
		mm	12.5 x 80 x 84
Electrical separation of input/output		Active disconnecter: 1500 V, 50 Hz, 1 min; Passive disconnecter: 500 V, 50 Hz, 1 min	4000 V, 50 Hz, 1 min
Rated insulation voltage U_i Pollution degree 2 Overvoltage category III acc. to DIN VDE 0100		V	50
Permissible ambient temperature • During operation		°C	-25 ... +60
Connection type		 Screw terminals	
<ul style="list-style-type: none"> • Terminal screw • Solid • Finely stranded with end sleeve 	mm ² mm ²	M3	
		0.5 ... 2.5 (AWG 20 ... 14)	
		0.5 ... 2.5 (AWG 20 ... 14); at 3RS170.-1.E00: 0.5 ... 1.5 (AWG 20 ... 16)	
Inputs			
Impedance	Voltage inputs	kΩ	330
	Current inputs, active	Ω	100
Input voltage max.	Voltage inputs	V	30 AC/DC
	Current inputs, active	V	30 AC/DC
Operating currents	Current inputs, passive	μA	100/250 (6.2 mm width)
Voltage drop	Current inputs, passive	V	2.7 at 20 mA
Outputs			
Internal resistance	Voltage output, 0 ... 10 V	Ω	55
Output load	Current 0/4 ... 20 mA active, max.	Ω	400
	Current 0 ... 20 mA passive, max.	Ω	1 000 at 20 mA
	Frequency, min.	Ω	2 400
Output voltage	Frequency	V	20.9
Output current	Voltage output, 0 ... 10 V, max.	mA	21; note the terminating resistor (> 500 Ω)!
	Frequency, max.	mA	10
Short-circuit current	Voltage output, 0 ... 10 V	mA	40
	Current output, 0 ... 20 mA, passive	mA	Corresponds to the input current
	Frequency	mA	15
Protection of the outputs		Short-circuit proof	
Max. overvoltage at output		V	30

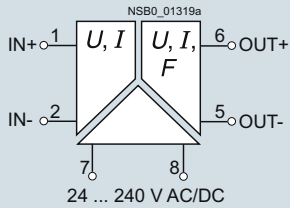
Circuit diagrams



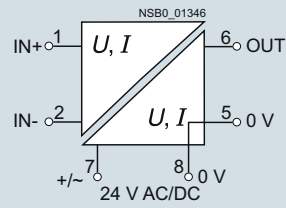
3RS1700-..D.., 3RS1702-..D..,
3RS1703-..D.., 3RS1705-..D..



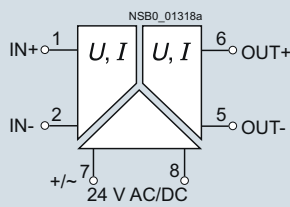
3RS1700-..E00, 3RS1702-..E00,
3RS1703-..E00, 3RS1705-..E00



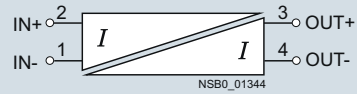
3RS170-..W00



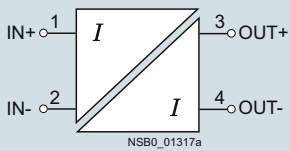
3RS1706-..FD00



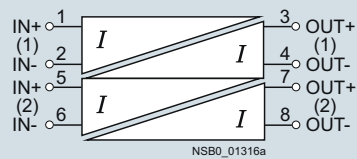
3RS1706-..FE00



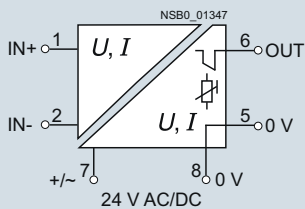
3RS1720-..ET00



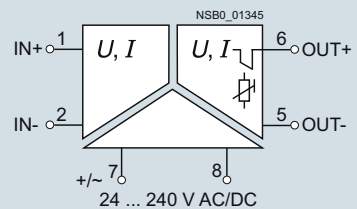
3RS1721-..ET00



3RS1722-..ET00



3RS1725-..FD00



3RS1725-..FW00

Monitoring and Control Devices

Interface Converters

SIRIUS 3RS17 interface converters

Selection and ordering data


All transformers except the passive single interface converters have a yellow LED for displaying "Power on".




3RS1706-1FD00





3RS1720-1ET00

Inputs	Outputs	Width	Rated control supply voltage U_s	Electrical separation	Screw terminals 
		mm	V		Article No.
Single interface converters, active					
0 ... 10 V	0 ... 10 V	6.2	24 AC/DC	2 paths	3RS1700-1AD00
				3 paths	3RS1700-1AE00
	0 ... 20 mA	6.2	24 AC/DC	2 paths	3RS1700-1CD00
				3 paths	3RS1700-1CE00
	4 ... 20 mA	6.2	24 AC/DC	2 paths	3RS1700-1DD00
				3 paths	3RS1700-1DE00
0 ... 20 mA	0 ... 10 V	6.2	24 AC/DC	2 paths	3RS1702-1AD00
				3 paths	3RS1702-1AE00
	0 ... 20 mA	6.2	24 AC/DC	2 paths	3RS1702-1CD00
				3 paths	3RS1702-1CE00
	4 ... 20 mA	6.2	24 AC/DC	2 paths	3RS1702-1DD00
				3 paths	3RS1702-1DE00
4 ... 20 mA	0 ... 10 V	6.2	24 AC/DC	2 paths	3RS1703-1AD00
				3 paths	3RS1703-1AE00
	0 ... 20 mA	6.2	24 AC/DC	2 paths	3RS1703-1CD00
				3 paths	3RS1703-1CE00
	4 ... 20 mA	6.2	24 AC/DC	2 paths	3RS1703-1DD00
				3 paths	3RS1703-1DE00
Switchable multi-range converters, active					
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, selectable	0 ... 10 V,	6.2	24 AC/DC	2 paths	3RS1705-1FD00
	0 ... 20 mA,			3 paths	3RS1705-1FE00
	4 ... 20 mA, selectable	17.5	24 ... 240 AC/DC	3 paths	3RS1705-1FW00
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, selectable	0 ... 50 Hz,	6.2	24 AC/DC	2 paths	3RS1705-1KD00
	0 ... 100 Hz,	17.5	24 ... 240 AC/DC	3 paths	3RS1705-1KW00
	0 ... 1 kHz, 0 ... 10 kHz, selectable				
Switchable universal converters, active, with 16 input ranges and 3 output ranges					
0 ... 60 mV, 0 ... 100 mV, 0 ... 300 mV, 0 ... 500 mV, 0 ... 1 V, 0 ... 2 V, 0 ... 5 V, 0 ... 10 V, 0 ... 20 V, 2 ... 10 V, 0 ... 5 mA, 0 ... 10 mA, 0 ... 20 mA, 4 ... 20 mA, +/-5 mA, +/-20 mA, selectable	0 ... 10 V,	17.5	24 AC/DC	2 paths	3RS1706-1FD00
	0 ... 20 mA,			3 paths	3RS1706-1FE00
	4 ... 20 mA, selectable			24 ... 240 AC/DC	3 paths
Switchable multi-range converters, active, with manual/automatic switch and single potentiometer as manual analog signal transmitter					
0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, selectable	0 ... 10 V,	17.5	24 AC/DC	2 paths	3RS1725-1FD00
	0 ... 20 mA, 4 ... 20 mA, selectable		24 ... 240 AC/DC	3 paths	3RS1725-1FW00

SIRIUS 3RS17 interface converters

Inputs	Outputs	Width	Number of channels	Electrical separation	Screw terminals 
					Article No.
		mm			
Single interface converters, passive					
0/4 ... 20 mA	0/4 ... 20 mA	6.2	1	2 paths	3RS1720-1ET00
		12.5	1	2 paths	3RS1721-1ET00
			2	2 paths	3RS1722-1ET00

Accessories

Use	Version	Article No.
Connecting combs, blue		
 3TX7014-7AA00	For 3RS17...-E00 Connecting combs For linking the same potentials, 16 terminals, current carrying capacity for infeed max. 6 A	3TX7014-7AA00
Galvanic isolation plates		
 3TX7014-7CE00	For 3RS17...-E00 Galvanic isolation plates	3TX7014-7CE00

Monitoring and Control Devices

SIRIUS 3RS18 Coupling Relays with Industrial Enclosure

Coupling relays with relay output

Overview

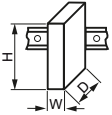
The 3RS18 coupling relays are coupling relays in the proven 22.5 mm industrial enclosure.

The series comprises devices with up to 3 changeover contacts with screw terminals as combination voltage or wide voltage range versions. The relay coils are protected internally with noise suppression diodes.

Versions:

- Wide voltage range: One connection for a wide voltage range
- Combination voltage: Two connections for different voltage ranges
- Versions with solid-state compatible outputs (hard gold-plating)
- 1, 2 or 3 changeover contacts

Technical specifications

Type		3RS1800-A...	3RS1800-B...	3RS1800-H...
General data				
Dimensions (W x H x D)	 mm	22.5 x 86 x 84	22.5 x 86 x 94	22.5 x 86 x 103
Rated insulation voltage U_i (pollution degree 3)	V	500		
Protective separation acc. to IEC 60947-1, Appendix N between the coil and the contacts and between the individual contacts.	V	300		
Permissible ambient temperature				
• During operation	°C	-25 ... +60		
• During storage	°C	-40 ... +80		
Degree of protection acc. to IEC 60529				
• Enclosure		IP20		
Short-circuit protection				
Short-circuit test with fuse links of operational class gG, with short-circuit current $I_k = 1$ kA acc. to IEC 60947-5-1	A	4		
Conductor cross-sections				
For 3RS1800-1:			Screw terminals	
• Solid	mm ²	1 x (0.5 ... 4); 2 x (0.5 ... 2.5)		
• Finely stranded with end sleeve	mm ²	2 x (0.5 ... 2.5)		
• AWG cables, solid or stranded	mm ²	2 x (20 ... 14)		
• Terminal screw		M3.5		
- Corresponding opening tool		Screwdriver, size 3.0 mm x 0.5 mm (3RA2908-1A)		
• Tightening torque	Nm	0.8 ... 1.2		
Control side				
Operating range			0.85 ... 1.1 x U_s	
Power consumption, max.	AC or DC VA/W		8 / 1	
Load side				
Conventional thermal current I_{th}	A		6	
Rated operational currents I_e				
• AC-15	At 24 ... 400 V A		3	
• DC-13	At 24 V A		1	
	At 110 V A		0.2	
	At 230 V A		0.1	
Switching current for resistive load				
• AC-12	At 24 ... 400 V A		5	
• DC-12	At 24 V A		5	
	At 115 V A		0.2	
	At 230 V A		0.2	
Switching voltage				
• Max. AC	V		400	
• Max. DC	V		250	
Min. contact load				
• Standard contacts			17 V DC, 5 mA at 1 ppm fault	
• Hard gold-plated contacts			5 V DC, 1 mA at 1 ppm fault	
Mechanical endurance	Operating cycles		10×10^6	
Electrical endurance at I_e	Operating cycles		1×10^5	

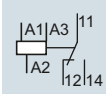
Monitoring and Control Devices

SIRIUS 3RS18 Coupling Relays with Industrial Enclosure

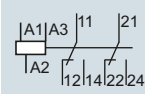
Coupling relays with relay output

Circuit diagrams

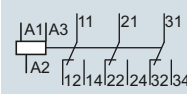
Terminal designations acc. to EN 50005



3RS1800-AP00,
3RS1800-AQ00

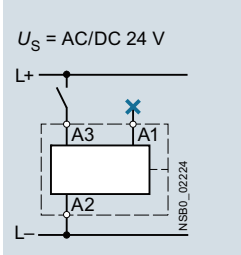


3RS1800-BP00,
3RS1800-BQ00,
3RS1800-BW00

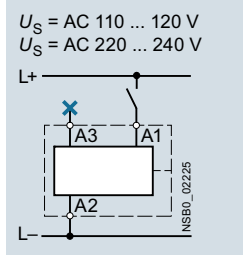


3RS1800-HP00,
3RS1800-HQ00,
3RS1800-HW00

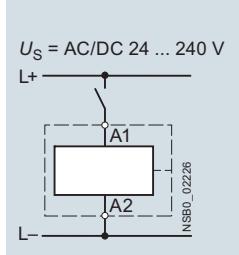
Connection of the control supply voltage U_s



3RS1800-..P0.,
3RS1800-..Q0.



3RS1800-..P0.,
3RS1800-..Q0.



3RS1800-..W0.

Note:

The position of the connection points on the device is based on the principle of logical separation, i.e. the coil terminals A1, A2, A3 are above and the terminals for the changeover contacts 11, 12, 14 etc. are below.

Selection and ordering data

Rated control supply voltage U_s (at AC: 50/60 Hz)	Connection U_s	Contacts Version	Article No.
V			

Coupling relays in industrial enclosure, 22.5 mm



3RS1800-1H...

Screw terminals



Wide voltage range

24 ... 240 AC/DC	A1 - A2	2
		3
		3 ¹⁾

3RS1800-1BW00
3RS1800-1HW00
3RS1800-1HW01

Combination voltage

24 AC/DC and 110 ... 120 AC	A3 - A2 or A1 - A2	1
		2
		3
		3 ¹⁾
24 AC/DC and 220 ... 240 AC	A3 - A2 or A1 - A2	1
		2
		3
		3 ¹⁾

3RS1800-1AQ00
3RS1800-1BQ00
3RS1800-1HQ00
3RS1800-1HQ01

3RS1800-1AP00
3RS1800-1BP00
3RS1800-1HP00
3RS1800-1HP01

¹⁾ Hard gold-plated contacts.

Monitoring and Control Devices

Notes

Position and Safety Switches



	SIRIUS 3SE5
	Mechanical safety switches
6/2	General data
	<u>3SE5, plastic enclosures</u>
6/13	Enclosure width 31 mm acc. to EN 50047
6/19	Enclosure width 40 mm acc. to EN 50041
6/23	Enclosure width 50 mm
	<u>3SE5, metal enclosures</u>
6/27	Enclosure width 31 mm acc. to EN 50047
6/31	Enclosure width 40 mm acc. to EN 50041
6/35	Enclosure width 56 mm
6/39	Enclosure width 56 mm, XL
6/42	Compact design
	<u>Open-type</u>
6/44	Enclosure width 30 mm
6/45	<u>Accessories and spare parts</u>
	<u>With separate actuator</u>
6/48	General data
6/53	3SE5, plastic enclosures
6/56	3SE5, metal enclosures
6/58	Accessories
	<u>With tumbler</u>
6/59	General data
6/63	3SE5, plastic enclosures
6/65	3SE5, metal enclosures
6/66	Accessories
	SIRIUS 3SE5
	Mechanical safety hinge switches
6/67	General data
6/69	3SE5, plastic enclosures
6/70	3SE5, metal enclosures
	SIRIUS 3SE5
	Mechanical position switches
	for ambient temperatures of -40 °C
	<u>Shock and vibration test</u> NEW
6/71	SIRIUS 3SE5 mechanical position switches - 3SE5, plastic enclosures
6/72	SIRIUS 3SE5 mechanical safety switches with tumbler - 3SE5, plastic enclosures
6/73	SIRIUS 3SE5 mechanical safety hinge switches - 3SE5, plastic enclosures
	<u>Shock and vibration test</u> <u>according to railway standard</u>
6/71	SIRIUS 3SE5 mechanical position switches - 3SE5, plastic enclosures
6/78	- 3SE5, metal enclosures
6/83	SIRIUS 3SE5 mechanical safety switches with separate actuator - 3SE5, plastic enclosures
6/72	SIRIUS 3SE5 mechanical safety switches with tumbler - 3SE5, plastic enclosures
	SIRIUS 3SE7 cable-operated switches
6/85	3SE7 metal enclosures

SIRIUS 3SE5 Mechanical Position Switches

General data

Overview

The innovative SIRIUS 3SE5 position switches are modern in design, compact, modular and simple to connect. They save time and increase flexibility during installation of a whole range of switch variants. In principle it is possible to combine any enclosure with any operating mechanism, paying due consideration to the EN 50041 and EN 50047 standards where necessary.

Complete units

Popular versions of the position switches in standard enclosures are available as complete units.



3SE5 position switches with plastic and metal enclosures

Modular system

The 3SE5 series is the modular system comprising different sizes of the basic switch and an actuator which must be ordered separately. Thanks to the modular design of the switch the user can select the right solution for his application from numerous versions and install it himself in a very short time.

Simple plug-in mounting enables fast replacement of the actuator heads.



Examples of selection options in the modular system

Design

All enclosure variants have an integrated chlorinated rubber diaphragm for high functional safety in cold and aggressive environments.

Enclosure sizes

The 3SE5 switches are available in five different enclosure sizes with 2 or 3 contacts and with the XL enclosure:

- Open-type position switch IP20 or IP10
- Plastic enclosures according to EN 50047, 31 mm wide, IP65, 1 cable entry
- Metal enclosures according to EN 50047, 31 mm wide, IP66/IP67, 1 cable entry
- Plastic and metal enclosures according to EN 50041, 40 mm wide, IP66/IP67, 1 cable entry
- Plastic enclosures, 50 mm wide, IP66/IP67, 2 cable entries
- Metal enclosures, 56 mm wide, IP66/IP67, 3 cable entries
- XL metal enclosures with 4 to 6 contacts, 56 mm wide, IP66/IP67, 3 cable entries

Enclosure versions

Various basic switches can be selected for the enclosures of the 3SE5 series:

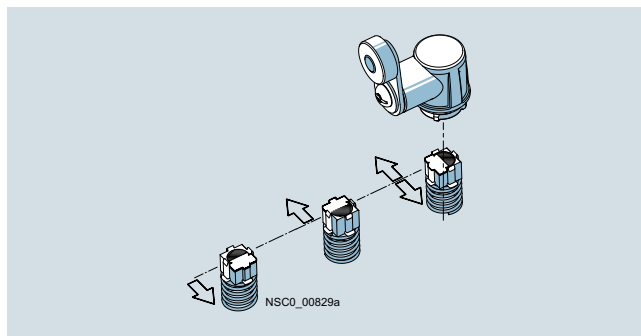
- With contact blocks with two or three contacts (screw terminals) designed as slow-action or snap-action contacts; the slow-action contacts also with make-before-break
- Optional LED status display
- With mounted four- or five-pole M12 connector socket (available for the wide enclosures as an accessory for self-assembly)
- With 6-pole connector socket + PE on the metal enclosures
- Versions with increased corrosion protection
- Versions for operating temperature down to $-40\text{ }^{\circ}\text{C}$

Actuator variants

All operating mechanisms can be rotated around the axis in increments of 22.5° . The following actuator variants are available:

- Standard, rounded and roller plungers
- Roller levers and angular roller levers
- Spring rod
- Twist levers and rod actuators with twist lever actuator
- Fork levers with twist lever actuator

The actuator rollers are available with various materials and diameters.



Twist actuators for twist levers and rod levers, with setting of switching direction to right, left, or right/left (standard for all twist lever actuators except fork levers)

Cover design

The mechanical position switches have a turquoise cover, and the mechanical safety switches have a yellow cover.



On request the switches can be delivered ex works with a yellow cover. The cover has no effect on the mode of operation. Both versions can be used in safety applications (see also page 6/15).

Diverse contact types

Exchangeable two and three-pole contact blocks for all enclosure sizes



The three-pole contact block with snap-action or slow-action contacts is regularly available for all enclosure forms. The same installation space is required as for a two-pole block. The version with 1 NO + 2 NC offers for example more safety through redundant shutdowns (2 NC contacts) with simultaneous signaling (NO contact). The three-pole blocks are also available with make-before-break and with 2 NO + 1 NC.

Contact reliability

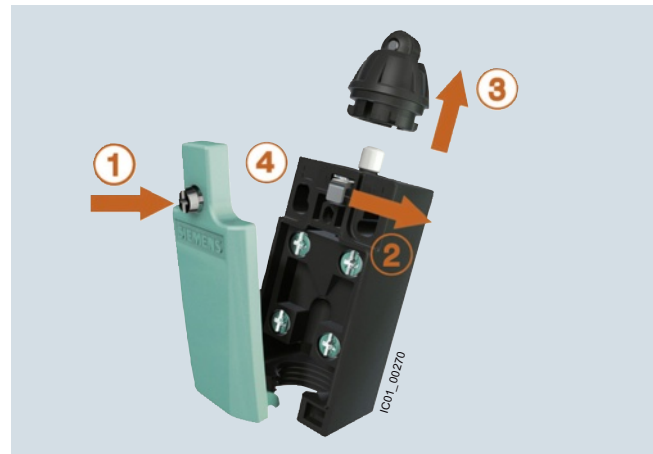
The contact blocks ensure an extremely high contact stability. This applies even when the devices are switching low voltages and currents, e.g. 1 mA at 5 V DC.

Positive opening 

The NC contacts of the switch are forced open mechanically, positively-driven and reliably by the plunger. This is referred to as "positive opening".

Mounting

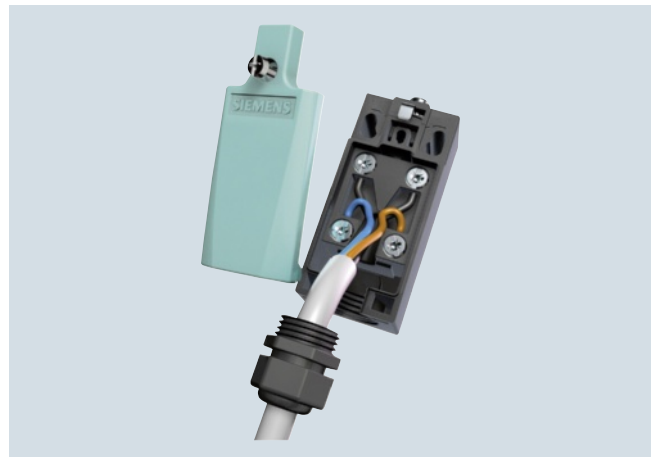
Simple plug-in mounting for fast replacement of the actuator heads



Open the cover (1)
Actuate the locking lever (2)
Replace the head (turnable by 16 x 22.5°) (3)
Lock and close the cover (4)

Quick-connect technology

For plastic enclosures with a width of 31 mm



These position switches can be wired quickly and easily as an added customer benefit. The connecting cable is first connected to the terminals of the contact block and then guided through a slit into the cable gland opening. The time saved through this new connection method is approx. 20 to 25 %.

A cable gland with seal must be used with the quick-connect method.

Optional LED indicators

LED indicators are available for all enclosure sizes except for XL. The enclosures are supplied with an LED signaling indicator (1 x green + 1 x yellow). This is the first time that optical signaling equipment is also available for small standard enclosures according to EN 50047. The LEDs are implemented in 24 V DC and 230 V AC.

SIRIUS 3SE5 Mechanical Position Switches

General data

Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
	□□□	□	□	□	□	-	□	□	□	□	-	□	□	□
SIRIUS position and safety switches	3 S E													
Series	5													
Standard (1 = EN 50041, 2 = EN 50047, 3 = with tumbler)	□													
Enclosure material and width (e.g. 1 = metal, narrow)	□													
Connection (2 = cable entry, 4, 5 = connector socket)	□													
LED (0 = none, 1 = 24 V DC, 2 = 115 V AC, 3 = 230 V AC)	□													
Version of contacts (e.g. C = snap-action 1 NO + 1 NC)	□													
Version of operating mechanism (e.g. C02 = rounded plunger)	□ □ □													
Additional details (optional)	□ □ □ □													
Example	3 S E	5	1	1	2	-	0	C	C	0	2			

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Manuals

For more information, see [System Manual "SIRIUS 3SE5/3SF1 Position Switches"](https://support.industry.siemens.com/cs/ww/en/view/43920150), <https://support.industry.siemens.com/cs/ww/en/view/43920150>.

Benefits

The 3SE5 position switches differ from the previous series through the following new characteristics:

- The modular design of the product range allows a number of versions with a smaller number of bearing types for enclosures and operating mechanisms.
- All actuators can be turned around the axis in increments of 22.5° (see picture, page 6/3).
- Rounded and roller plungers according to EN 50041 with 3 mm overtravel (total travel 9 mm) for greater tolerance when switching.
- All enclosure sizes – now also including the small enclosure 31 mm wide – are optionally available with an LED signaling indicator (see picture, page 6/3).
- All enclosure variants have an integrated chlorinated rubber diaphragm for high functional safety in cold and aggressive environments.
- All contact blocks are replaceable (see page 6/46).

- The three-pole contact blocks are available for all enclosure sizes (see picture, page 6/3).
- Elements with 1 NO + 2 NC slow-action contacts with make-before-break and 2 NO + 1 NC.
- The short-stroke contact block 1 NO + 1 NC improves the precision of the switching operation through a reduced actuation path.
- The contact block with 1 NO + 1 NC snap-action contacts with 2 x 2 mm contact opening is suitable for simultaneous disconnection and signaling, particularly in the elevator industry.
- XL metal enclosures for accommodating two 2 or 3-pole contact blocks.
- The plastic enclosure with a width of 31 mm has simple and fast wiring equipment which saves approx. 20 to 25 % of the time when connecting (see picture, page 6/3).

Application

With the standard position switches, mechanical positions of moving machine parts are converted into electrical signals. Through their modular and uniform design and large number of variants, the devices can comply with practically all requirements in industry.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the best contact blocks suited for the particular purpose. And many different actuator variants are available to match the mechanical configuration of the moving machined parts. Dimensions, fixing points and characteristics are largely in accordance with the EN 50041 or EN 50047 standards.

The devices are suitable for use in any climate.

Standards

IEC 60947-5-1 or EN 60947-5-1

The protective measure of "total insulation" by the molded-plastic enclosure is guaranteed by the use of molded-plastic screw glands.

Safety position switches

For controls according to IEC 60204-1 or EN 60204-1 the devices can be used as a safety position switch. They comply with the standard EN ISO 14119. A TÜV certificate is available. To secure position switches against changes in their position, keyed techniques must be employed on installation.

Safety circuits

Standards IEC 60947-5-1 and EN 60947-5-1 require positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked in accordance with the IEC standard 60947-5-1 with the symbol ☞.

Category 2 according to EN ISO 13849-1 can be attained with 3SE5 position switches with ☞, and category 3 or 4 when using an additional position switch, if the corresponding fail-safe evaluation units are selected and correctly connected. Example: 3SK or 3TK28 safety relays, SIMATIC or SINUMERIK programs. The operating mechanisms (actuators) must also be connected to the enclosure by keyed techniques. The corresponding operating mechanisms are marked in the catalog with ☞.

Contacts for every application

- **Snap-action contacts:** NC and NO contacts switch simultaneously – regardless of the actuating speed ($v_{\min} = 0.01$ m/s) and contact erosion.
- **Slow-action contacts:** Difference in travel between "NC contact opens" and "NO contact closes"; the switching speed is the same as or proportional to the actuating speed ($v_{\min} = 0.4$ m/s).
- **Slow-action contacts with make-before-break:** e.g. suitable for adding a second function to a sequence control.

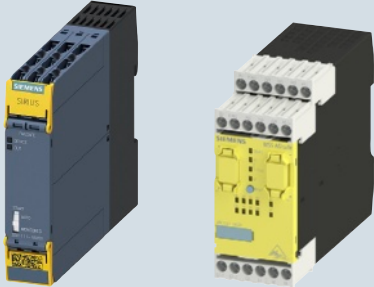


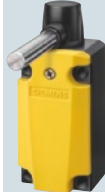


Operating mechanisms for every applicationStandard, rounded and roller plungers

- Operation in direction of the plunger axis or in case of roller plunger with bar at right angles to the plunger axis.
- The roller plunger is recommended for lateral actuation and relatively long overtravel.

Roller levers and angular roller levers

- For actuators made of finely ground steel in the form of cams, straight-edges (approach angle 30°) or cam disks.

Monitoring with fail-safe evaluation units from the 3SK and 3RK3 series

Safe evaluation units	Maximum achievable safety level according to type of switch				
	Compact	Standard	Hinge	Separate actuator	Tumbler
 <p>3SK 3RK3</p>	 <p>3SE54</p>	 <p>3SE51 / 3SE52</p>	 <p>3SE51 / 3SE52</p>	 <p>3SE51 / 3SE52</p>	 <p>3SE53</p>
Use of only one position switch/safety switch					
Monitoring with 1 contact: 1 x NC contact	SIL 1 / PL c				
Monitoring with 2 contacts: 2 x NC contact or 1 x NC contact + 1 x NO contact	SIL 1 / PL c	SIL 2 / PL d			
Use of a second position switch/safety switch					
Standard switch	3SE51 / 3SE52				
Safety switch / hinge switch	3SE51 / 3SE52				
Safety switch with separate actuator	3SE51 / 3SE52				
Safety switches with tumbler	3SE53				
SIL 3 / PL e					

Note:

Taking account of certain fault exclusions (e.g. actuator breakage), use of just one hinge switch or a switch with separate actuator with or without tumbler up to SIL 2 or PL d is possible as described in the table.

Since the machine manufacturer must provide proof of fault exclusion, the component manufacturer is unable to carry out a definitive assessment of the measures taken.

Spring rod

- Can be used for undefined actuations and changing starting conditions
- Starting from any direction is possible

Twist levers and rod actuators

- For a high starting speed ($v = 1.5$ m/s)
- Variety of starting options
- Insensitive to oil, grinding dust and coarse-grained material
- Adjustment of the lever in increments of 10°
- Can be adjusted with left or right switching

Fork lever

- Switchable in two directions
- Latching actuator
- For reciprocating movements

For more information, see <https://support.industry.siemens.com/cs/ww/en/view/35443942>.

The maximum achievable SIL or PL always depends on other assumptions as well. Factors to be taken into account include the DC (Declaration), the CCF (*), and the number of actuations.

SIRIUS 3SE5 Mechanical Position Switches

General data

Technical specifications

Type		3SE51..., 3SE52..	3SE541.	3SE542.
General data				
Standards		IEC 60947-5-1, EN 60947-5-1, EN ISO 14119		
Rated insulation voltage U_i	V	400 ¹⁾	400	
Degree of pollution according to IEC 60664-1		Class 3	Class 3	
Rated impulse withstand voltage U_{imp}	kV	6	4	
Rated operational voltage U_e	V	400 AC; over 300 V AC Same potential only ²⁾		300 AC
Conventional thermal current I_{th}	A	6	10	
Rated operational current I_e		2-pole	3-pole	2-pole
• With alternating current 50/60 Hz		I_e / AC-15	I_e / AC-15	I_e / AC-15
- At 24 V	A	6	6	6
- At 120 V	A	6	3	6
- At 240 V	A	3	1.5	3
• For direct current		I_e / DC-13	I_e / DC-13	I_e / DC-13
- At 24 V	A	3	3	3
- At 125 V	A	0.55	0.55	0.55
- At 250 V	A	0.27	0.27	0.27
Short-circuit protection³⁾				
• With DIAZED fuse links, Operational class gG	A	6	10	
• With miniature circuit breaker, Char. C	A	1	3	
Mechanical endurance				
• Basic switch		15 × 10 ⁶ operating cycles	30 × 10 ⁶ operating cycles	30 × 10 ⁶ operating cycles
• With spring rod, 3SE5...-R..		10 × 10 ⁶ operating cycles	--	--
• With fork lever, 3SE51...-T..		1 × 10 ⁶ operating cycles	--	--
Electrical endurance				
• With 3RH.1, 3RT contactors in size S00, S0		10 × 10 ⁶ operating cycles	10 × 10 ⁶ operating cycles	5 × 10 ⁶ operating cycles
• For utilization category AC-15 when switching off I_e /AC-15 at 240 V		100 000 operating cycles	--	--
• With utilization category DC-12/DC-13		For direct current depending on the loading of the switch		
Switching frequency		6 000 operating cycles/h	1 800 operating cycles/h	
With 3RH.1, 3RT contactors in size S00, S0				
Switching accuracy	mm	0.05	0.05	
For repeated switching, measured at the plunger of the contact block				
• With twist actuators		1°	1°	
Rated data according to \mathcal{E}, \mathcal{Q} and \mathcal{N}				
• Rated voltage	V	300	300	
• Uninterrupted current	A	6	10	
• Switching capacity		Heavy duty, A 300 / B 300 / Q 300 A 300 / Q 300		

¹⁾ For slow-action contacts 1 NO + 2 NC with make-before-break ("M") and 2 NO + 1 NC ("P") the following applies: 250 V.

²⁾ For slow-action contacts 1 NO + 2 NC with make-before-break ("M") and 2 NO + 1 NC ("P") the following applies: over 250 V AC only equal potential.

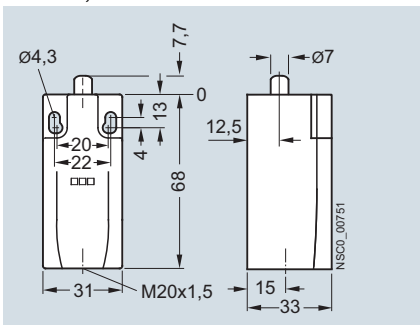
³⁾ Without any welds according to IEC 60947-5-1.

Type		3SE523.	3SE513.	3SE524.	3SE521.	3SE511.	3SE512., 3SE516.	3SE54..	3SE525.
Enclosure									
Enclosure		Ultramid A3X2G7			Zinc diecasting GD Zn Al4 Cu1			Zn/Al	--
• Material		31	40	50	31	40	56	30 / 40	30
• Width	mm								
Degree of protection acc. to IEC 60529		IP65	IP66/IP67 ¹⁾					IP67	IP20, IP10
Ambient temperature									
• During operation	°C	-25 ... +85						-25 ... +85	-25 ... +85
• In operation, switch with LEDs	°C	-25 ... +60						--	--
• Storage, transport	°C	-40 ... +90						-40 ... +90	-40 ... +90
Mounting position		Any							
Connection									
Cable entry		1x (M20x1.5)		2x (M20x1.5)	1x (M20x1.5)		3x (M20x1.5)	--	--
Conductor cross-sections									
• Solid	mm ²	1 x (0.5 ... 1.5), 2 x (0.5 ... 0.75)							
• Finely stranded with/without end sleeve	mm ²	1 x (0.5 ... 1.5), 2 x (0.5 ... 0.75)							
• AWG cables, solid or stranded	AWG	1 x (AWG 20 ... 16), 2 x (AWG 20 ... 19)							
Tightening torque , contact block	Nm	0.8 ... 1.0							
Protective conductor connection inside enclosure		--			M3.5		--		--

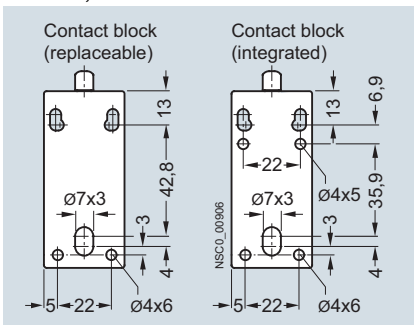
¹⁾ For twist actuators with spring rod and rod actuators: IP65/IP67.

Dimensions of the basic switches

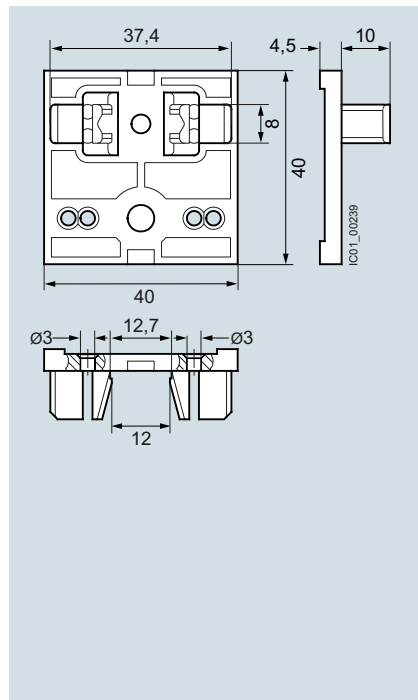
Enclosure width 31 mm, EN 50047,
With connecting thread M20 × 1.5
3SE5232, 3SE5212



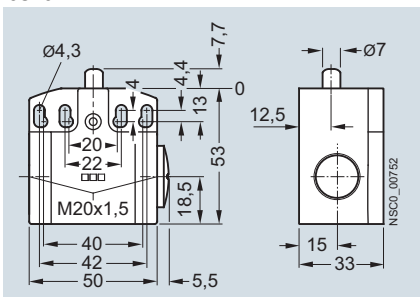
Enclosure width 31 mm, EN 50047,
Rear side with fixing drill holes
3SE5232, 3SE5212



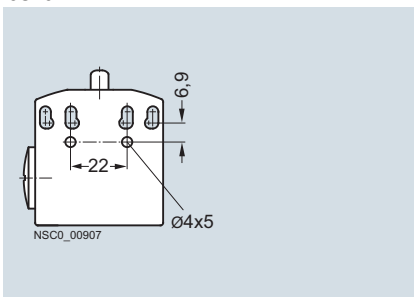
Mounting plate
for 3SE5232, 3SE5212 position switches
3SX5100-1A



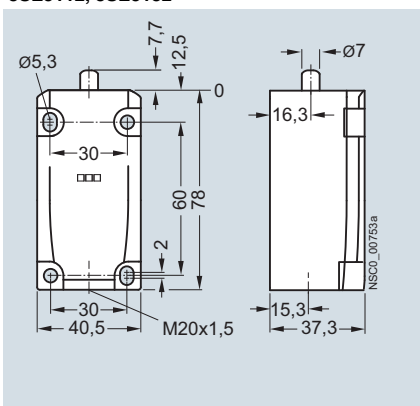
Enclosure width 50 mm,
With connecting thread M20 × 1.5
3SE5242



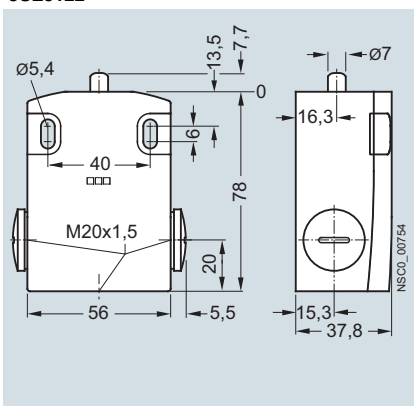
Enclosure width 50 mm,
Rear side with fixing drill holes
3SE5242



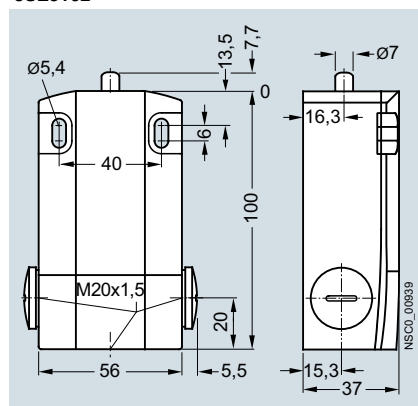
Enclosure width 40 mm, EN 50041,
With connecting thread M20 × 1.5
3SE5112, 3SE5132



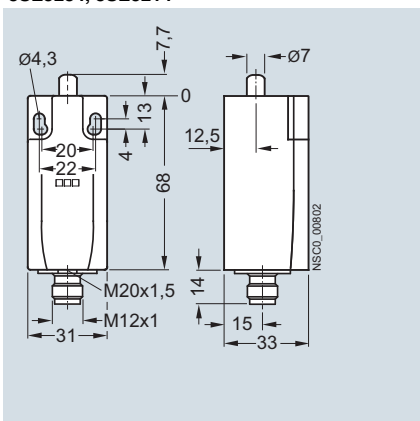
Enclosure width 56 mm,
With connecting thread M20 × 1.5
3SE5122



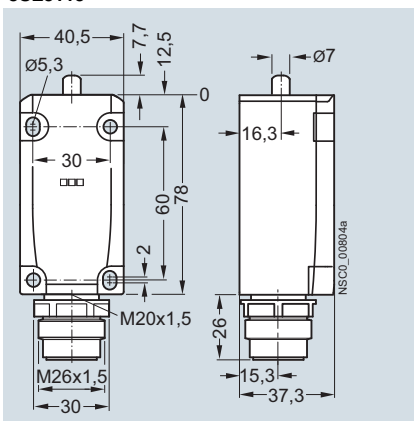
XL enclosures, width 56 mm,
With connecting thread M20 × 1.5
3SE5162



Enclosure width 31 mm, EN 50047,
with M12 connector socket
3SE5234, 3SE5214



Enclosure width 40 mm, EN 50041,
With plug connector, 6-pole
3SE5115



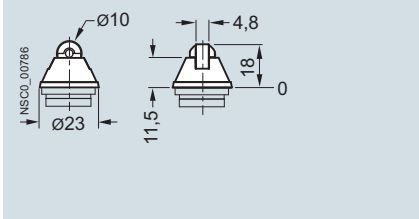
For operating mechanisms for basic switches, see pages 6/8 and 6/9.

SIRIUS 3SE5 Mechanical Position Switches

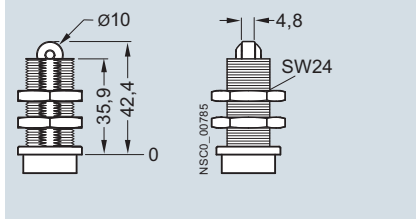
General data

Operating mechanisms for enclosure widths 31 mm and 50 mm

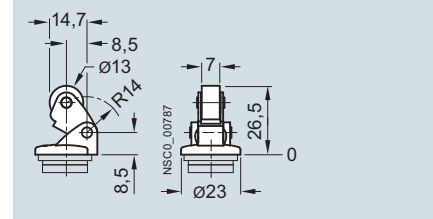
Roller plungers, type C, acc. to EN 50047



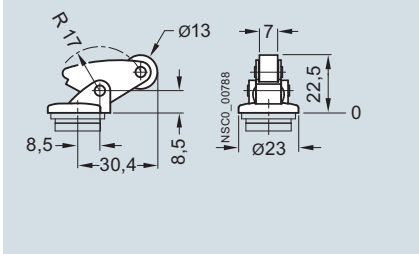
Roller plungers with central fixing



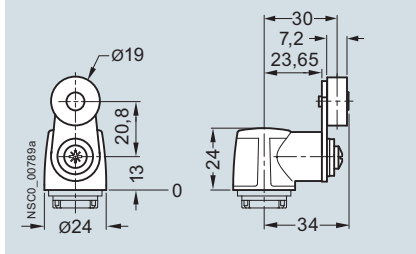
Roller levers, type E, acc. to EN 50047



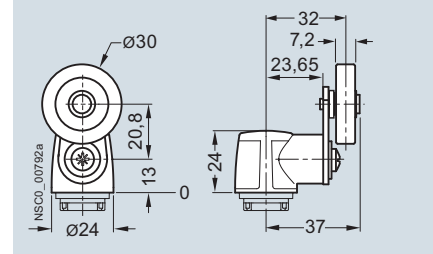
Angular roller levers



Twist levers, type A, acc. to EN 50047

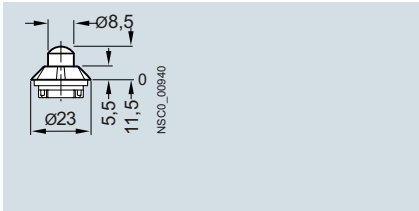


Twist levers, roller 30 mm

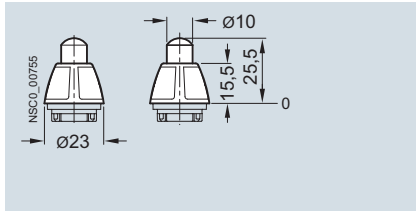


Operating mechanisms for enclosure widths 40 mm and 56 mm

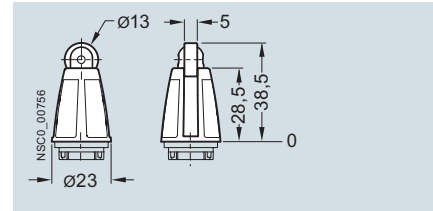
Plain plungers



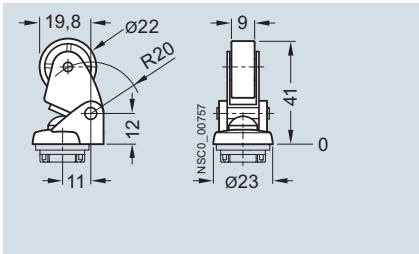
Rounded plungers, type B, acc. to EN 50041



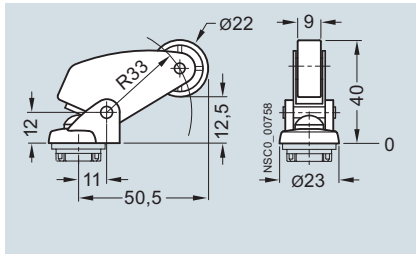
Roller plungers, type C, acc. to EN 50041



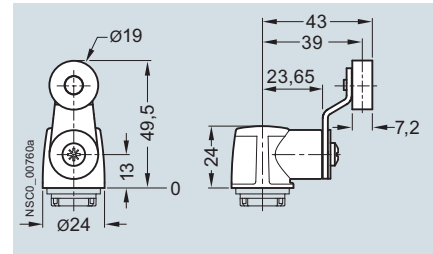
Roller levers



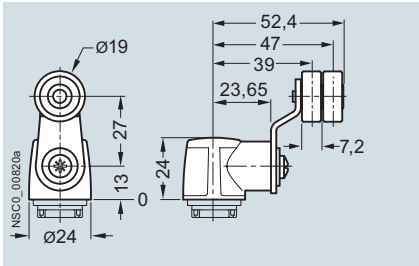
Angular roller levers



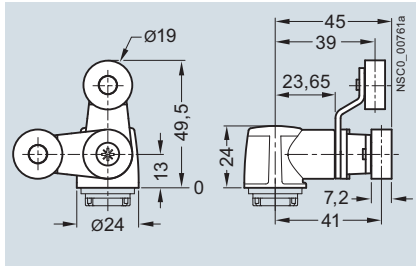
Twist levers, type A, acc. to EN 50041



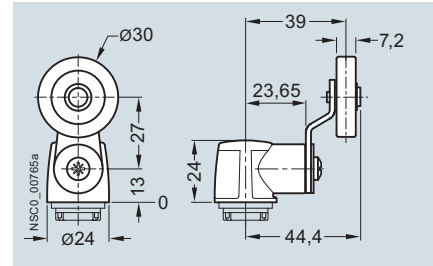
Twist levers, 2 rollers 19 mm



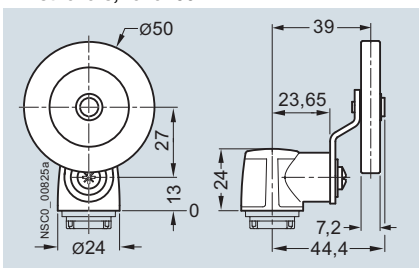
Fork levers, roller 19 mm



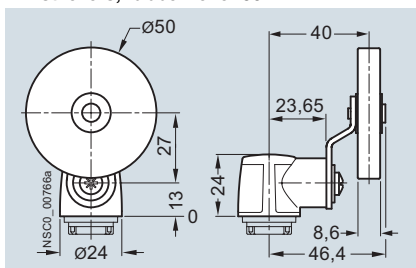
Twist levers, roller 30 mm



Twist levers, roller 50 mm

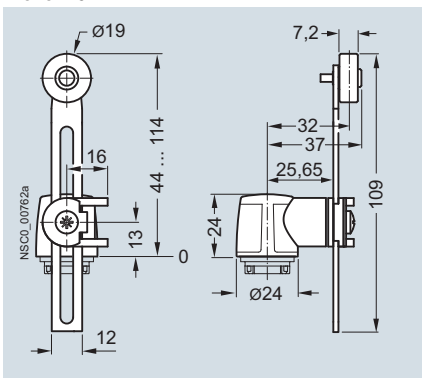


Twist levers, rubber roller 50 mm

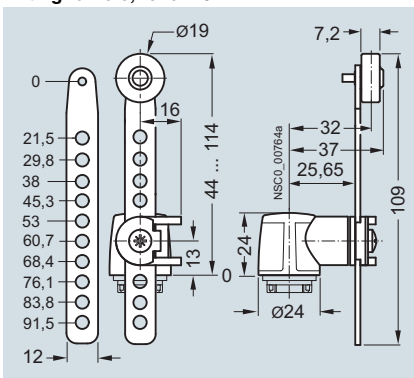


Operating mechanisms for all enclosure widths

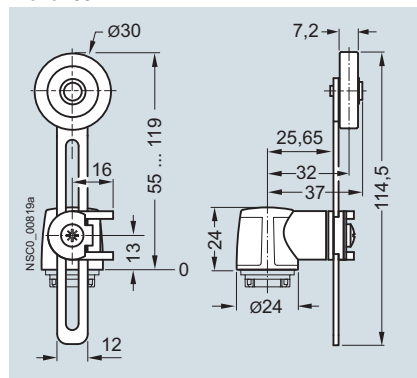
**Twist levers, adjustable length
Roller 19 mm**



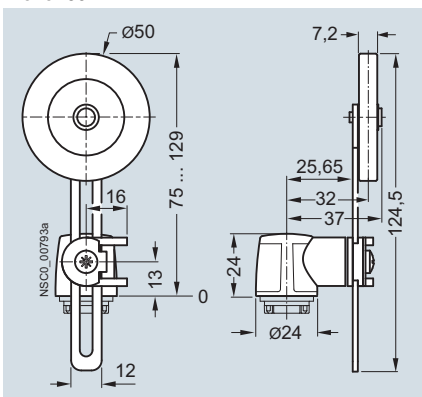
**Twist levers, adjustable length,
with grid hole, roller 19 mm**



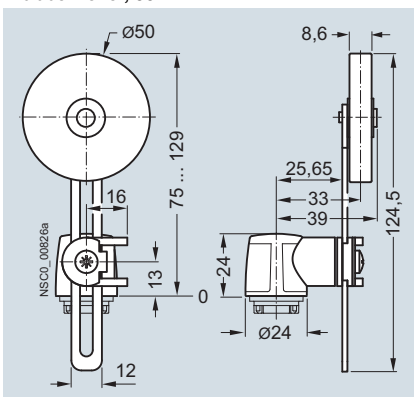
**Twist levers, adjustable length
Roller 30 mm**



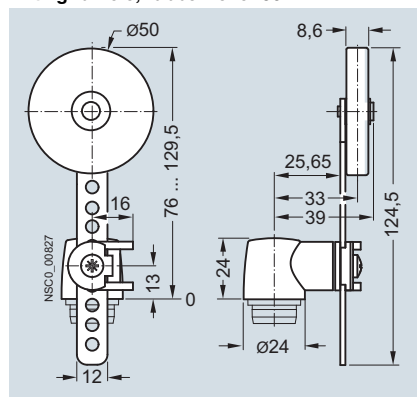
**Twist levers, adjustable length
Roller 50 mm**



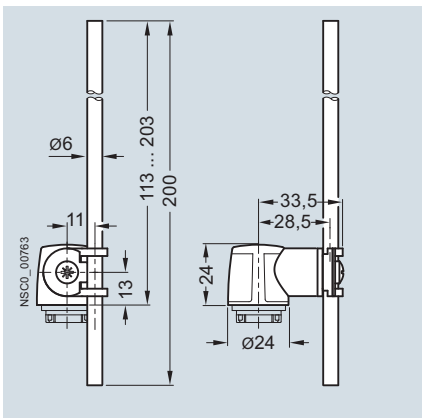
**Twist levers, adjustable length
Rubber roller, 50 mm**



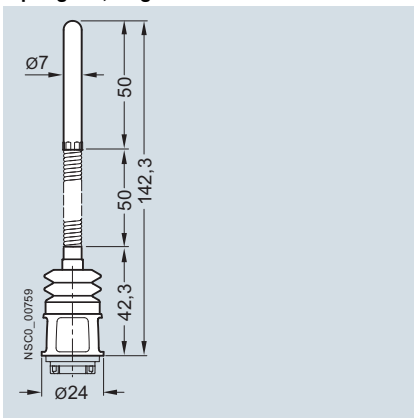
**Twist levers, adjustable length,
with grid hole, rubber roller 50 mm**



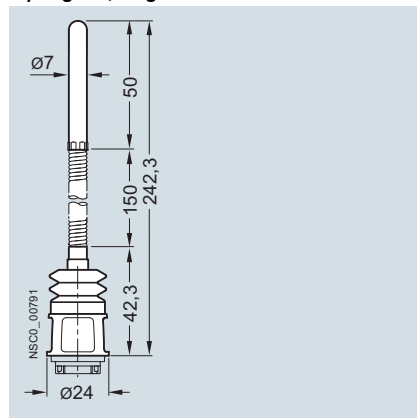
Rod actuator



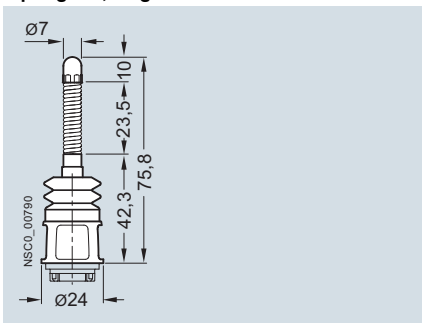
Spring rod, length 142.5 mm



Spring rod, length 242.5 mm



Spring rod, length 76 mm

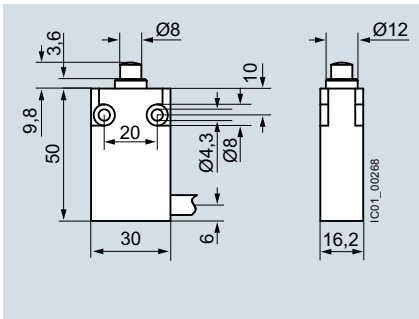


SIRIUS 3SE5 Mechanical Position Switches

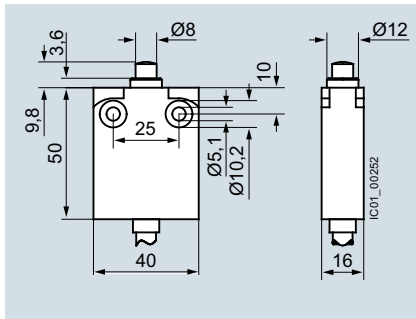
General data

Dimensions of the switches in compact design

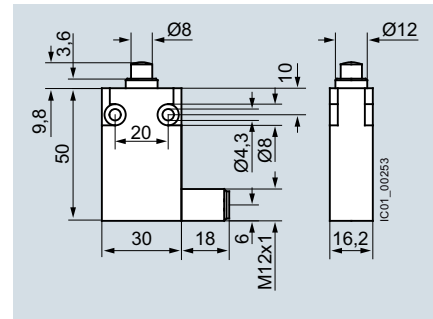
Rounded plungers, enclosure width 30 mm,
with connecting cable
3SE5413-0CC20-1EA2



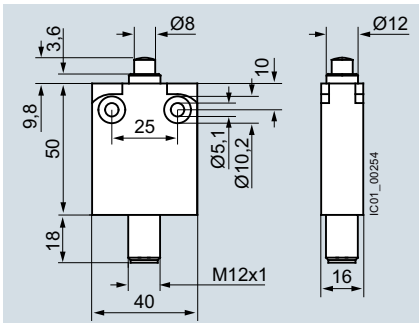
Rounded plungers, enclosure width 40 mm,
with connecting cable
3SE5423-0CC20-1EA2



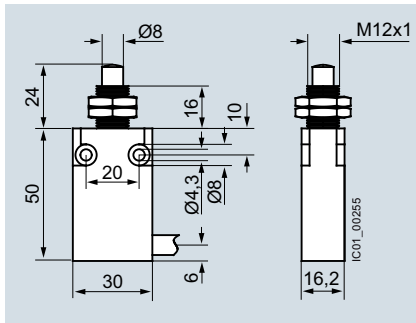
Rounded plungers, enclosure width 30 mm,
with M12 connector socket
3SE5413-0CC20-1EB1



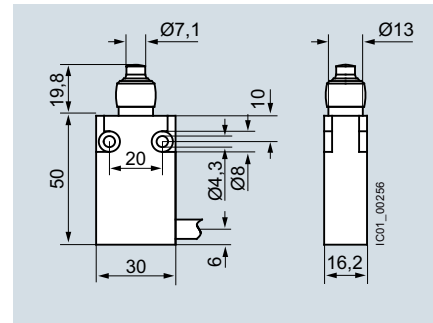
Rounded plungers, enclosure width 40 mm,
with M12 connector socket
3SE5423-0CC20-1EB1



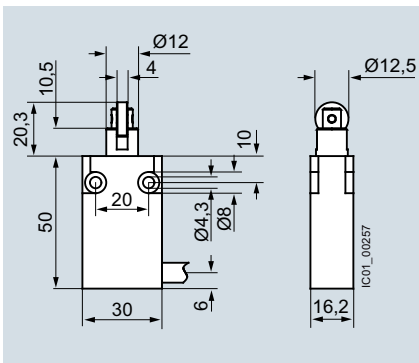
Rounded plungers, enclosure width 30 mm,
with central fixing
3SE5413-0CC21-1EA2



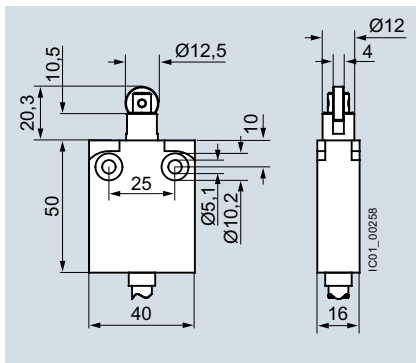
Rounded plungers, enclosure width 30 mm,
with external seal
3SE5413-0CC22-1EA2



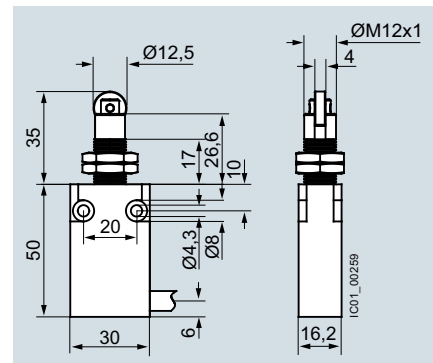
Roller plungers, enclosure width 30 mm,
with connecting cable
3SE5413-0CD20-1EA2



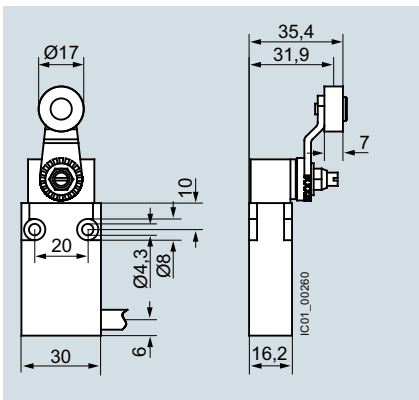
Roller plungers, enclosure width 40 mm,
with connecting cable
3SE5423-0CD20-1EA2



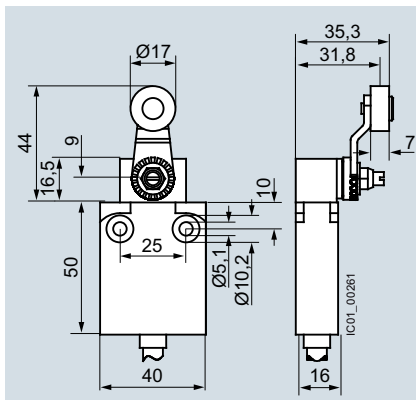
Roller plungers, enclosure width 30 mm,
with central fixing
3SE5413-0CD21-1EA2



Twist levers, enclosure width 30 mm,
with connecting cable
3SE5413-0CN20-1EA2



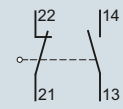
Twist levers, enclosure width 40 mm,
with connecting cable
3SE5423-0CN20-1EA2



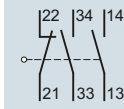
Circuit diagrams

Enclosure widths 31, 40, 50 and 56 mm

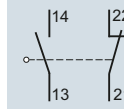
Slow-action contacts
1 NO + 1 NC
3SE5...-B..., -R...



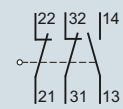
Slow-action contacts
2 NO + 1 NC
3SE5...-P...



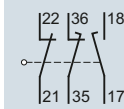
Snap-action contacts
1 NO + 1 NC
3SE5...-C..., -F..., -G..., -H..., -N...



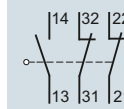
Slow-action contacts
1 NO + 2 NC
3SE5...-K..., -Q...



Slow-action contacts
1 NO + 2 NC, with make-before-break, 3SE5...-M...

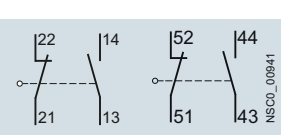


Snap-action contacts
1 NO + 2 NC
3SE5...-L...

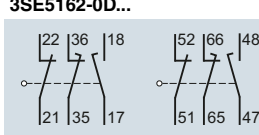


XL enclosures, width 56 mm

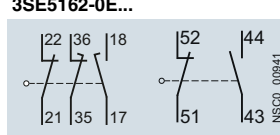
Slow-action contacts
2 x (1 NO + 1 NC)
3SE5162-0B...



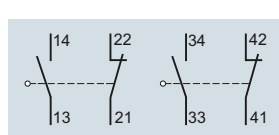
Slow-action contacts
2 x (1 NO + 2 NC), with make-before-break, 3SE5162-0D...



Slow-action contacts
1 NO + 2 NC, with make-before-break, 1 NO + 1 NC
3SE5162-0E...



Snap-action contacts
2 x (1 NO + 1 NC)
3SE5162-0C...

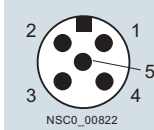


3SE5 connector assignment

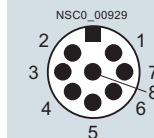
M12 connector socket, 4-pole
3SY3 127



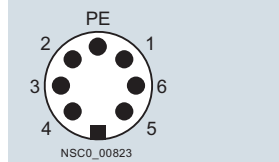
M12 connector sockets, 5-pole
3SY3 128



M12 connector sockets, 8-pole
3SY3 134



Connector sockets, 6-pole + PE
3SY3 131



Article No.	Connector sockets Type	Contacts Version	LEDs Version	Connections										
				Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	PE		
M12 connector sockets, 4-, 5- or 8-pole														
3SE5..4-0....-1AC4	3SY3127	1 NO + 1 NC	--	21	22	13	14	--	--	--	--	--	--	--
3SE5..4-0....-1AC5	3SY3128	1 NO + 1 NC	--	21	22	13	14	PE	--	--	--	--	--	--
3SE5..4-0....-1AE0	3SY3127	2 NC	--	21	22	31	32	--	--	--	--	--	--	--
3SE5..4-0....-1AE1	3SY3128	2 NC	--	21	22	31	32	PE	--	--	--	--	--	--
3SE5..4-1C...-1AF3	3SY3128	1 NO + 1 NC Snap-action	2 LEDs	21	22	13 / LED gn	14 / LED ye	Ground LED	--	--	--	--	--	--
3SE5..4-1B...-1AF3	3SY3128	1 NO + 1 NC Slow-action	2 LEDs	21	22	14 / LED gn	13 / LED ye	Ground LED	--	--	--	--	--	--
3SE5..4-1L...-1AD4	3SY3134	1 NO + 2 NC Snap-action	2 LEDs	21	22	13 / LED gn	14 / LED ye	31	32	Ground LED	PE	--	--	--
3SE5..4-1K...-1AD4	3SY3134	1 NO + 2 NC Slow-action	2 LEDs	21	22	14 / LED gn	13 / LED ye	31	32	Ground LED	PE	--	--	--
Connector sockets, 6-pole + PE														
3SE5..5-0....-1AD0	3SY3131	1 NO + 1 NC	--	21	22	13	14	--	--	--	--	--	--	✓
3SE5..5-0....-1AD1	3SY3131	1 NO + 2 NC	--	21	22	13	14	31	32	--	--	--	--	✓
3SE5..5-C...-1AF2	3SY3131	1 NO + 1 NC Snap-action	2 LEDs	21	22	13 / LED gn	14 / LED ye	--	Ground LED	--	--	--	--	✓
3SE5..5-B...-1AF2	3SY3131	1 NO + 1 NC Slow-action	2 LEDs	21	22	14 / LED gn	13 / LED ye	--	Ground LED	--	--	--	--	✓
3SE5..5-L...-1AD2	3SY3131	2 NC Snap-action	2 LEDs	21	22	31	32	13 / LED gn	Ground LED	--	--	--	--	✓
3SE5..5-K...-1AD2	3SY3131	2 NC Slow-action	2 LEDs	21	22	31	32	14 / LED gn	Ground LED	--	--	--	--	✓

gn Green
ye Yellow

✓ Connected
-- Not available

SIRIUS 3SE5 Mechanical Position Switches

General data

Options

On the following pages you will find selection tables for complete units as well as components of the modular system.

Complete units

Modular system

The differences between the units are indicated in the selection and ordering data by the symbols shown on orange backgrounds.

Using the modular system you can assemble switch variants which are not available as complete units. Each complete unit can also be supplied as a module.

A basic switch for the modular system comprises an enclosure with a contact block and a cover. Among the basic switches the following versions, for example, can be selected:

- Basic enclosure with teflon plunger
- Version with increased corrosion protection
- Version with M12 connector socket and/or with 2 LEDs
- Version with M12 connector socket or 6-pole + PE

Support functions

The 3SE5/3SF1 position and safety switches can also be ordered using an online configurator.



Configurator available in the Industry Mall

The online configurator is indicated in the corresponding tables by the symbol shown on an orange background.

This also enables a complete documentation to be prepared:

- Product data sheets
- Dimensional drawings
- Operating travel diagrams
- CAD data in 2D and 3D model images
- Ordering data
- Product photos

For more information, see www.siemens.com/sirius/configurators.

Complete units

Ordering example

Required:

- Position switch according to EN 50047 in a plastic enclosure
- Contact block with slow-action contacts 1 NO + 1 NC
- Angular roller lever, metal lever and plastic roller

To be ordered:

Version	Complete units
	<input type="checkbox"/>
Article No.	

Complete units • Enclosure width 31 mm



Angular roller lever with metal lever and Plastic roller 13mm

Slow-action contacts
1 NO + 1 NC

3SE5232-0BF10

Modular system

Ordering example 1

Required:

- Position switch according to EN 50047 in a plastic enclosure
- Contact block with slow-action contacts 1 NO + 1 NC
- Angular roller lever, metal lever and plastic roller

To be ordered separately:

Version	Modular system
	<input checked="" type="checkbox"/>
Article No.	

Basic switches • Enclosure width 31 mm



With teflon plunger
Slow-action contacts
1 NO + 1 NC

3SE5232-0BC05

+

Operating mechanisms



Angular roller levers
Metal lever,
Plastic roller

3SE5000-0AF10

Ordering example 2

Required:

- Position switch according to EN 50047 in a plastic enclosure
- Contact block with slow-action contacts 1 NO + 1 NC
- Twist levers, high-grade steel lever and plastic roller

To be ordered separately:

Version	Modular system
	<input checked="" type="checkbox"/>
Article No.	

Basic switches • Enclosure width 31 mm



With teflon plunger
Slow-action contacts
1 NO + 1 NC

3SE5232-0BC05

+

Twist actuators



Twist actuators

3SE5000-0AK00



Twist levers
Stainless steel lever,
Plastic roller

3SE5000-0AA31

SIRIUS 3SE5 Mechanical Position Switches






3SE5, Plastic Enclosures

Enclosure width 31 mm acc. to EN 50047

Selection and ordering data

Complete units for installation in control cabinets

2 contacts · Degree of protection IP40 · Cable entry by means of a locking plug with Ø 6 mm

Version	Contacts	LEDs	Complete units	Article No.
Complete units¹⁾ · Enclosure width 31 mm				
Control cabinet type, IP40, Rounded plungers, type B, acc. to EN 50047				
	Flat cover Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5232-0HC05-1AB1
Rounded plunger, flat cover				
	Flat cover With mounting plate and screws for attachment profile Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5232-0HC05-1AB2
Rounded plunger, flat cover, mounting plate				
	Standard cover Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5232-0HC05-1AB3
Rounded plunger, standard cover				
	Standard cover With mounting plate and screws for attachment profile Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5232-0HC05-1AB4
Rounded plunger, standard cover, mounting plate				
Accessories				
	Mounting plate For 3SE523. position switches 3SE521. position switches with a width of 31 mm	--	--	3SX5100-1A
Mounting plate				

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

1) The control cabinet types are not basic switches for the modular system.

2) Subsequent replacement of contact blocks is not possible.


SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures






Enclosure width 31 mm acc. to EN 50047

Complete units

2 or 3 contacts · Degree of protection IP65 · Cable entry M20 × 1.5)¹⁾

Version	Contacts	LEDs	Complete units
			<input type="checkbox"/>
			
			Article No.

Complete units²⁾ · Enclosure width 31 mm

Image	Description	Contacts	LEDs	Article No.
 Rounded plunger	Rounded plungers, type B, acc. to EN 50047			
	With teflon plunger			
	Slow-action contacts	1 NO + 1 NC --	↻	3SE5232-0BC05
	Snap-action contacts	1 NO + 1 NC --	↻	3SE5232-0CC05
	Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0HC05
	Snap-action contacts • Short stroke, integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0FC05
	Snap-action contacts • 2 × 2 mm contact gap	1 NO + 1 NC --	↻	3SE5232-0GC05
	Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0KC05
	Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LC05
	Slow-action contacts with make-before-break	1 NO + 2 NC --	↻	3SE5232-0MC05
Slow-action contacts	2 NO + 1 NC --	↻	3SE5232-0PC05	
 With increased corrosion protection	With increased corrosion protection			
	Slow-action contacts	1 NO + 1 NC --	↻	3SE5232-0BC05-1CA0
	Snap-action contacts	1 NO + 1 NC --	↻	3SE5232-0CC05-1CA0
	Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0KC05-1CA0
	Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LC05-1CA0
	Slow-action contacts with make-before-break	1 NO + 2 NC --	↻	3SE5232-0MC05-1CA0
	Slow-action contacts	2 NO + 1 NC --	↻	3SE5232-0PC05-1CA0
 With 2 LEDs	With M12 connector socket, 4-pole (250 V, 4 A)			
	Slow-action contacts	1 NO + 1 NC --	↻	3SE5234-0BC05-1AC4
	Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5234-0HC05-1AC4
	Slow-action contacts	2 NC --	↻	3SE5234-0KC05-1AE0
	Snap-action contacts	2 NC --	↻	3SE5234-0LC05-1AE0
 With 2 LEDs	With 2 LEDs, yellow/green			
	Slow-action contacts	1 NO + 2 NC 24 V DC	↻	3SE5232-1KC05
	Snap-action contacts	1 NO + 2 NC 24 V DC	↻	3SE5232-1LC05
	Slow-action contacts	1 NO + 2 NC 230 V AC	↻	3SE5232-3KC05
	Snap-action contacts	1 NO + 2 NC 230 V AC	↻	3SE5232-3LC05
 With 2 LEDs	With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs			
	Slow-action contacts	1 NO + 1 NC 24 V DC	↻	3SE5234-1BC05-1AF3
	Snap-action contacts	1 NO + 1 NC 24 V DC	↻	3SE5234-1CC05-1AF3

 For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ A cable gland with seal must be used with the quick-connect method.

²⁾ Popular versions.

³⁾ Subsequent replacement of contact blocks is not possible.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 31 mm acc. to EN 50047

2 or 3 contacts · Degree of protection IP65 · Cable entry M20 × 1.5¹⁾

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units²⁾ · Enclosure width 31 mm

Roller plunger

Roller plungers, type C, acc. to EN 50047**With plastic roller 10 mm**

Slow-action contacts	1 NO + 1 NC --	↻	3SE5232-0BD03
Snap-action contacts • Integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0HD03
Snap-action contacts • Short stroke, integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0FD03
Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0KD03
Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LD03

Actuator head rotated by 90°

Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LD03-1AH0
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With M12 connector socket, 4-pole (250 V, 4 A)

Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5234-0HD03-1AC4
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With yellow cover

Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LD03-1AG0
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Roller plunger
with yellow cover**Roller plungers with central fixing**

With plastic roller 10 mm			
Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0HD10
Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0KD10

Roller plunger
with central
fixing**Roller levers, type E acc. to EN 50047****With metal lever and plastic roller 13 mm**

Slow-action contacts	1 NO + 1 NC --	↻	3SE5232-0BE10
Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0HE10
Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0KE10
Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LE10



Roller lever

**With increased corrosion protection,
with high-grade steel lever and plastic roller 13 mm**

Snap-action contacts	1 NO + 1 NC --	↻	3SE5232-0CE12-1CA0
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With M12 connector socket, 4-pole (250 V, 4 A)

Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5234-0HE10-1AC4
------------------------------------------------	----------------	---	---------------------------

With high-grade steel lever and plastic roller 13 mm

Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LE12
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Angular roller lever**With metal lever and plastic roller 13 mm**

Slow-action contacts	1 NO + 1 NC --	↻	3SE5232-0BF10
Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0HF10
Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0KF10
Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LF10

Angular roller
lever

For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ A cable gland with seal must be used with the quick-connect method.

²⁾ Popular versions.

³⁾ Subsequent replacement of contact blocks is not possible.

SIRIUS 3SE5 Mechanical Position Switches






3SE5, Plastic Enclosures

Enclosure width 31 mm acc. to EN 50047

2 or 3 contacts · Degree of protection IP65 · Cable entry M20 × 1.5¹⁾

Version	Contacts	LEDs	Complete units <input type="checkbox"/>
			Configurator
			Article No.

Complete units²⁾ · Enclosure width 31 mm

	Spring rod			
	Length 142.5 mm, with plastic plunger 50 mm			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5232-0HR01
	With M12 connector socket, 4-pole (250 V, 4 A)			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5234-0HR01-1AC4
	Twist levers, type A, acc. to EN 50047			
	With metal lever 21 mm and plastic roller 19 mm			
	Slow-action contacts	1 NO + 1 NC --	↻	3SE5232-0BK21
	Snap-action contacts, integrated ³⁾	1 NO + 1 NC --	↻	3SE5232-0HK21
	Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0KK21
	Snap-action contacts	1 NO + 2 NC --	↻	3SE5232-0LK21
	With M12 connector socket, 4-pole (250 V, 4 A)			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5234-0HK21-1AC4
	With metal lever 35 mm and plastic roller 19 mm			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5232-0HK15
	Twist levers, adjustable length			
	With metal lever with grid hole and plastic roller 19mm			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5232-0HK60
	With metal lever and plastic roller 19 mm			
	Slow-action contacts	1 NO + 1 NC --		3SE5232-0BK50
	Snap-action contacts, integrated ³⁾	1 NO + 1 NC --		3SE5232-0HK50
	Snap-action contacts	1 NO + 2 NC --		3SE5232-0LK50
		With M12 connector socket, 4-pole (250 V, 4 A)		
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5234-0HK50-1AC4
	Rod actuator			
	With aluminum rod, length 200 mm			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5232-0HK80
	With plastic rod, length 200 mm			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5232-0HK82
	With M12 connector socket, 4-pole (250 V, 4 A)			
	Snap-action contacts, integrated ³⁾ 1 NO + 1 NC --			3SE5234-0HK82-1AC4

For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ A cable gland with seal must be used with the quick-connect method.

²⁾ Popular versions.

³⁾ Subsequent replacement of contact blocks is not possible.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/17.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures






Enclosure width 31 mm acc. to EN 50047

Modular system

2 or 3 contacts · Degree of protection IP65 · Cable entry M20 × 1.5¹⁾

Version	Contacts	LEDs		
Modular system				
Configurator				
Article No.				

Basic switches · Enclosure width 31 mm (with rounded plunger²⁾)

 Basic switch	With teflon plunger			
	Slow-action contacts	1 NO + 1 NC --		3SE5232-0BC05
	Snap-action contacts	1 NO + 1 NC --		3SE5232-0CC05
	Snap-action contacts, integrated ³⁾	1 NO + 1 NC --		3SE5232-0HC05
	Snap-action contacts • Short stroke, integrated ³⁾	1 NO + 1 NC --		3SE5232-0FC05
	Snap-action contacts • 2 × 2 mm contact gap	1 NO + 1 NC --		3SE5232-0GC05
	Slow-action contacts	1 NO + 2 NC --		3SE5232-0KC05
	Snap-action contacts	1 NO + 2 NC --		3SE5232-0LC05
	Slow-action contacts with make-before-break	1 NO + 2 NC --		3SE5232-0MC05
	Slow-action contacts	2 NO + 1 NC --		3SE5232-0PC05
 With increased corrosion protection	With increased corrosion protection⁴⁾			
	Slow-action contacts	1 NO + 1 NC --		3SE5232-0BC05-1CA0
	Snap-action contacts	1 NO + 1 NC --		3SE5232-0CC05-1CA0
	Slow-action contacts	1 NO + 2 NC --		3SE5232-0KC05-1CA0
	Snap-action contacts	1 NO + 2 NC --		3SE5232-0LC05-1CA0
	Slow-action contacts with make-before-break	1 NO + 2 NC --		3SE5232-0MC05-1CA0
 With M12 plug	With M12 connector socket, 4-pole (250 V, 4 A)			
	Slow-action contacts	1 NO + 1 NC --		3SE5234-0BC05-1AC4
	Snap-action contacts, integrated ³⁾	1 NO + 1 NC --		3SE5234-0HC05-1AC4
	Slow-action contacts	2 NC --		3SE5234-0KC05-1AE0
	Snap-action contacts	2 NC --		3SE5234-0LC05-1AE0
 With 2 LEDs	With 2 LEDs, yellow/green			
	Slow-action contacts	1 NO + 2 NC 24 V DC		3SE5232-1KC05
	Snap-action contacts	1 NO + 2 NC 24 V DC		3SE5232-1LC05
	Slow-action contacts	1 NO + 2 NC 230 V AC		3SE5232-3KC05
 With M12 plug and 2 LEDs	With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs			
	Slow-action contacts	1 NO + 1 NC 24 V DC		3SE5234-1BC05-1AF3
	Snap-action contacts	1 NO + 1 NC 24 V DC		3SE5234-1CC05-1AF3

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

¹⁾ A cable gland with seal must be used with the quick-connect method.

²⁾ For enclosures with widths of 31 mm, the basic switch is a complete unit with rounded plungers.

³⁾ Subsequent replacement of contact blocks is not possible.

⁴⁾ Use corresponding high-grade steel lever.

Note:

For the selection aid, see page 6/12.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 31 mm acc. to EN 50047

Version	Diameter	Modular system	Article No.
	mm		
Operating mechanisms			
	Roller plungers, type C, acc. to EN 50047		
	Plastic rollers	10	↻ 3SE5000-0AD03
Roller plunger	High-grade steel rollers	10	↻ 3SE5000-0AD04
	Roller plungers with central fixing		
	Plastic rollers	10	↻ 3SE5000-0AD10
Central fixing	High-grade steel rollers	10	↻ 3SE5000-0AD11
	Roller levers, type E, acc. to EN 50047		
	Metal lever, plastic roller	13	↻ 3SE5000-0AE10
	Metal lever, high-grade steel roller	13	↻ 3SE5000-0AE11
	High-grade steel lever, plastic roller	13	↻ 3SE5000-0AE12
Roller lever	High-grade steel lever, high-grade steel roller	13	↻ 3SE5000-0AE13
	Angular roller levers		
	Metal lever, plastic roller	13	↻ 3SE5000-0AF10
	Metal lever, high-grade steel roller	13	↻ 3SE5000-0AF11
	High-grade steel lever, plastic roller	13	↻ 3SE5000-0AF12
Angular roller lever	High-grade steel lever, high-grade steel roller	13	↻ 3SE5000-0AF13
	Spring rod		
	(Only for switches with snap-action contacts)		
	Plunger made of plastic, high-grade steel spring: 7		
	• Length 142.5 mm (spring 50 mm, plunger 50 mm)		3SE5000-0AR01
	• Length 76 mm (spring 23.5 mm, plunger 10 mm)		3SE5000-0AR03
• Length 242.5 mm (spring 150 mm, plunger 50 mm)		3SE5000-0AR04	
Plunger and spring made of high-grade steel: 7			
• Length 142.5 mm (spring 50 mm, plunger 50 mm)		3SE5000-0AR02	
Spring rod			
Twist actuators			
	Twist actuators, for 31/50 mm, EN 50047		
	Switching right and/or left, adjustable		↻ 3SE5000-0AK00
	Levers		
	Twist levers 21 mm, straight, type A acc. to EN 50047		
	Metal lever, plastic roller	19	↻ 3SE5000-0AA21
	Metal lever, high-grade steel roller	19	↻ 3SE5000-0AA22
	Metal lever, high-grade steel roller, ball bearing	19	↻ 3SE5000-0AA23
	Metal lever, plastic roller	30	↻ 3SE5000-0AA25
	High-grade steel lever, plastic roller	19	↻ 3SE5000-0AA31
High-grade steel lever, high-grade steel roller	19	↻ 3SE5000-0AA32	
	Twist levers 30 mm, straight		
	Metal lever, plastic roller	19	↻ 3SE5000-0AA24
	Metal lever, plastic roller	30	↻ 3SE5000-0AA26
	Twist levers, adjustable length, with grid hole		
	Metal lever, plastic roller	19	↻ 3SE5000-0AA60
	Metal lever, high-grade steel roller	19	↻ 3SE5000-0AA61
Metal lever, plastic roller	50	↻ 3SE5000-0AA67	
Metal lever, rubber roller	50	↻ 3SE5000-0AA68	
High-grade steel lever, plastic roller	19	↻ 3SE5000-0AA62	
High-grade steel lever, high-grade steel roller	19	↻ 3SE5000-0AA63	
	Twist levers, adjustable length		
	Metal lever, plastic roller	19	3SE5000-0AA50
	Metal lever, high-grade steel roller	19	3SE5000-0AA51
	Metal lever, plastic roller	30	3SE5000-0AA55
	Metal lever, plastic roller	50	3SE5000-0AA57
	Metal lever, rubber roller	50	3SE5000-0AA58
	High-grade steel lever, plastic roller	19	3SE5000-0AA52
	High-grade steel lever, high-grade steel roller	19	3SE5000-0AA53
Rod actuator			
Aluminum rod, length 200 mm	6	3SE5000-0AA80	
Spring rod, length 200 mm	6	3SE5000-0AA81	
Plastic rod, length 200 mm	6	3SE5000-0AA82	
Rod actuator			

↻ Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 40 mm acc. to EN 50041







Selection and ordering data

Complete units

2 or 3 contacts · Degree of protection IP66/67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 40 mm

 Plain plunger	Plain plungers				
	With high-grade steel plunger				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5132-0BB01	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5132-0CB01	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5132-0KB01	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5132-0LB01	
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5132-0PB01	
 Rounded plunger	Rounded plungers, type B, acc. to EN 50041				
	With plastic plunger				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5132-0BC03	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5132-0CC03	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5132-0KC03	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5132-0LC03	
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5132-0PC03	
 Roller plunger	Roller plungers, type C, acc. to EN 50041				
	With plastic roller 13 mm				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5132-0BD05	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5132-0CD05	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5132-0KD05	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5132-0LD05	
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5132-0PD05	
 Roller lever	Roller levers				
	With metal lever and plastic roller 22 mm				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5132-0BE05	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5132-0CE05	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5132-0KE05	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5132-0LE05	
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5132-0PE05	
 Angular roller lever	Angular roller lever				
	With metal lever and plastic roller 22 mm				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5132-0BF05	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5132-0CF05	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5132-0LF05	
 Spring rod	Spring rod				
	Length 142.5 mm, with plastic plunger 50 mm				
	Snap-action contacts	1 NO + 1 NC --		3SE5132-0CR01	
	Snap-action contacts	1 NO + 2 NC --		3SE5132-0LR01	

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 40 mm acc. to EN 50041

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Complete units <input type="checkbox"/>
			Configurator
			Article No.

Complete units¹⁾ · Enclosure width 40 mm



Twist lever

Twist levers, type A, acc. to EN 50041

With metal lever 27 mm and plastic roller 19 mm

Slow-action contacts	1 NO + 1 NC --		3SE5132-0BJ01
Snap-action contacts	1 NO + 1 NC --		3SE5132-0CJ01
Slow-action contacts	1 NO + 2 NC --		3SE5132-0KJ01
Snap-action contacts	1 NO + 2 NC --		3SE5132-0LJ01
Slow-action contacts	2 NO + 1 NC --		3SE5132-0PJ01

Twist levers, adjustable length

With metal lever with grid hole and plastic roller 19mm

Snap-action contacts	1 NO + 1 NC --		3SE5132-0CJ60
Snap-action contacts	1 NO + 2 NC --		3SE5132-0LJ60



Twist lever, adj. length, with grid hole

With metal lever and plastic roller 19 mm

Snap-action contacts	1 NO + 1 NC --		3SE5132-0CJ50
Snap-action contacts	1 NO + 2 NC --		3SE5132-0LJ50



Twist lever, adjustable length

Rod actuators, type D, acc. to EN 50041

With aluminum rod, length 200 mm

Snap-action contacts	1 NO + 1 NC --		3SE5132-0CJ80
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With plastic rod, length 200 mm

Snap-action contacts	1 NO + 1 NC --		3SE5132-0CJ82
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Rod actuator

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/21.



SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures


























Enclosure width 40 mm acc. to EN 50041

Modular system


2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Modular system	Configurator	Article No.
					

Basic switches • Enclosure width 40 mm

With connecting thread M20 × 1.5					
 Basic switch	Slow-action contacts	1 NO + 1 NC	--		3SE5132-0BA00
	Snap-action contacts	1 NO + 1 NC	--		3SE5132-0CA00
	• Gold-plated contacts				3SE5132-0CA00-1AC1
	Slow-action contacts	1 NO + 2 NC	--		3SE5132-0KA00
	Snap-action contacts	1 NO + 2 NC	--		3SE5132-0LA00
	Slow-action contacts with make-before-break	1 NO + 2 NC	--		3SE5132-0MA00
	Slow-action contacts	2 NO + 1 NC	--		3SE5132-0PA00
With increased corrosion protection¹⁾					
 With increased corrosion protection	Slow-action contacts	1 NO + 1 NC	--		3SE5132-0BA00-1CA0
	Snap-action contacts	1 NO + 1 NC	--		3SE5132-0CA00-1CA0
	Slow-action contacts	1 NO + 2 NC	--		3SE5132-0KA00-1CA0
	Snap-action contacts	1 NO + 2 NC	--		3SE5132-0LA00-1CA0
	Slow-action contacts with make-before-break	1 NO + 2 NC	--		3SE5132-0MA00-1CA0
	Slow-action contacts	2 NO + 1 NC	--		3SE5132-0PA00-1CA0
With M12 connector socket, 4-pole (250 V, 4 A)					
 With M12 plug	Slow-action contacts	1 NO + 1 NC	--		3SE5134-0BA00-1AC4
	Snap-action contacts	1 NO + 1 NC	--		3SE5134-0CA00-1AC4
	Slow-action contacts	2 NC	--		3SE5134-0KA00-1AE0
	Snap-action contacts	2 NC	--		3SE5134-0LA00-1AE0
With 2 LEDs, yellow/green					
 With 2 LEDs	Slow-action contacts	1 NO + 2 NC	24 V DC		3SE5132-1KA00
	Snap-action contacts	1 NO + 2 NC	24 V DC		3SE5132-1LA00
	Slow-action contacts	1 NO + 2 NC	230 V AC		3SE5132-3KA00
	Snap-action contacts	1 NO + 2 NC	230 V AC		3SE5132-3LA00

 For the online configurator, see www.siemens.com/sirius/configurators.

 Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

¹⁾ Use corresponding high-grade steel lever.










Note:

For the selection aid, see page 6/12.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 40 mm acc. to EN 50041

Version	Diameter	Modular system	Article No.
	mm		
Operating mechanisms			
 Plain plunger	Plain plungers High-grade steel plunger	10	3SE5000-0AB01
 Plunger	Rounded plungers, type B, acc. to EN 50041 Plastic plungers	10	3SE5000-0AC03
	Roller plungers, type C, acc. to EN 50041 Plastic plunger, plastic roller	13	3SE5000-0AD05
	Plastic plunger, high-grade steel roller	13	3SE5000-0AD06
 Roller lever	Roller levers Metal lever with plastic roller, plastic base	22	3SE5000-0AE05
 Ang. roller lever	Angular roller levers Metal lever with plastic roller, plastic base	22	3SE5000-0AF05
 Spring rod	Spring rods (for switches with snap-action contacts only) Plunger made of plastic, high-grade steel spring: • Length 142.5 mm (spring 50 mm, plunger 50 mm) • Length 76 mm (spring 23.5 mm, plunger 10 mm) • Length 242.5 mm (spring 150 mm, plunger 50 mm) Plunger and spring made of high-grade steel: • Length 142.5 mm (spring 50 mm, plunger 50 mm)	7 7	3SE5000-0AR01 3SE5000-0AR03 3SE5000-0AR04 3SE5000-0AR02
Twist actuators			
 Twist actuator	Twist actuators , for 40 mm, EN 50041 • For twist levers and rod levers, Switching right and/or left, adjustable		3SE5000-0AJ00
 Twist lever	Levers Twist levers, offset, type A, acc. to EN 50041 Metal lever 27 mm, plastic roller	19	3SE5000-0AA01
	Metal lever 27 mm, high-grade steel roller	19	3SE5000-0AA02
	Metal lever 27 mm, high-grade steel roller, ball bearing	19	3SE5000-0AA03
	Metal lever 27 mm, 2 plastic rollers	19	3SE5000-0AA04
	Metal lever 27 mm, plastic roller	30	3SE5000-0AA05
	Metal lever 27 mm, rubber roller	50	3SE5000-0AA08
	High-grade steel lever 27 mm, plastic roller	19	3SE5000-0AA11
	High-grade steel lever 27 mm, high-grade steel roller	19	3SE5000-0AA12
	Metal lever 35 mm, plastic roller	19	3SE5000-0AA15
	High-grade steel lever 35 mm, plastic roller	19	3SE5000-0AA16
 Twist lever, adjustable length	Twist levers 30 mm, straight Metal lever, plastic roller	19	3SE5000-0AA24
	Metal lever, plastic roller	30	3SE5000-0AA26
	Twist levers, adjustable length, with grid hole Metal lever, plastic roller	19	3SE5000-0AA60
	Metal lever, high-grade steel roller	19	3SE5000-0AA61
	Metal lever, rubber roller	50	3SE5000-0AA68
	High-grade steel lever, plastic roller	19	3SE5000-0AA62
	High-grade steel lever, high-grade steel roller	19	3SE5000-0AA63
 Rod actuator	Twist levers, adjustable length Metal lever, plastic roller	19	3SE5000-0AA50
	Metal lever, high-grade steel roller	19	3SE5000-0AA51
	Metal lever, plastic roller	30	3SE5000-0AA55
	Metal lever, rubber roller	50	3SE5000-0AA58
	High-grade steel lever, plastic roller	19	3SE5000-0AA52
	High-grade steel lever, high-grade steel roller	19	3SE5000-0AA53
	Rod actuators, type D, acc. to EN 50041 Aluminum rod, length 200 mm	6	3SE5000-0AA80
	Spring rod, length 200 mm	6	3SE5000-0AA81
	Plastic rod, length 200 mm	6	3SE5000-0AA82

Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 50 mm





Selection and ordering data

Complete units

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 2 × (M20 × 1.5)

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 50 mm

 Rounded plunger	Rounded plungers				
	With teflon plunger				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5242-0BC05	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5242-0CC05	
	Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5242-0HC05	
	Snap-action contacts • Short stroke, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5242-0FC05	
	Snap-action contacts • 2 × 2 mm contact gap	1 NO + 1 NC --	⊕	3SE5242-0GC05	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5242-0KC05	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5242-0LC05	
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5242-0MC05	
Slow-action contacts	2 NO + 1 NC --	⊕	3SE5242-0PC05		
 With increased corrosion protection	With increased corrosion protection				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5242-0BC05-1CA0	
	Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5242-0HC05-1CA0	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5242-0KC05-1CA0	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5242-0LC05-1CA0	
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5242-0MC05-1CA0	
Slow-action contacts	2 NO + 1 NC --	⊕	3SE5242-0PC05-1CA0		
 With 2 LEDs	With 2 LEDs, yellow/green				
	Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5242-1KC05	
	Snap-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5242-1LC05	
	Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5242-3KC05	
Snap-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5242-3LC05		
 Roller plunger	Roller plunger				
	With plastic roller 10 mm				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5242-0BD03	
	Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5242-0HD03	
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5242-0LD03		

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

²⁾ Subsequent replacement of contact blocks is not possible.

SIRIUS 3SE5 Mechanical Position Switches




3SE5, Plastic Enclosures

Enclosure width 50 mm

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 2 × (M20 × 1.5)

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 50 mm

 Roller lever	Roller levers				
	With metal lever and plastic roller 13 mm				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5242-0BE10	
	Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5242-0HE10	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5242-0LE10	
	With M12 connector socket, 4-pole right (250 V, 4 A)				
	Snap-action contacts	2 NC --	⊕	3SE5244-0LE10-1AE0	
 Twist lever	Twist levers				
	With metal lever 21 mm and plastic roller 19 mm				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5242-0BK21	
	Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	⊕	3SE5242-0HK21	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5242-0LK21	
 Twist lever, adjustable length	Twist levers, adjustable length				
	With metal lever and plastic roller 19 mm				
	Snap-action contacts, integrated ²⁾	1 NO + 1 NC --		3SE5242-0HK50	

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

²⁾ Subsequent replacement of contact blocks is not possible.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/25.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 50 mm

Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 2 × (M20 × 1.5)

Version	Contacts	LEDs	Modular system	
			Configurator	
			Article No.	

Basic switches • Enclosure width 50 mm (with rounded plunger¹⁾)



Basic switch

With teflon plunger

Slow-action contacts	1 NO + 1 NC --		3SE5242-0BC05
Snap-action contacts	1 NO + 1 NC --		3SE5242-0CC05
Snap-action contacts, integrated ²⁾	1 NO + 1 NC --		3SE5242-0HC05
Snap-action contacts • Short stroke, integrated ²⁾	1 NO + 1 NC --		3SE5242-0FC05
Snap-action contacts • 2 × 2 mm contact gap	1 NO + 1 NC --		3SE5242-0GC05
Slow-action contacts	1 NO + 2 NC --		3SE5242-0KC05
Snap-action contacts	1 NO + 2 NC --		3SE5242-0LC05
Slow-action contacts with make-before-break	1 NO + 2 NC --		3SE5242-0MC05
Slow-action contacts	2 NO + 1 NC --		3SE5242-0PC05

With increased
corrosion
protection

With increased corrosion protection³⁾

Slow-action contacts	1 NO + 1 NC --		3SE5242-0BC05-1CA0
Snap-action contacts, integrated ²⁾	1 NO + 1 NC --		3SE5242-0HC05-1CA0
Slow-action contacts	1 NO + 2 NC --		3SE5242-0KC05-1CA0
Snap-action contacts	1 NO + 2 NC --		3SE5242-0LC05-1CA0
Slow-action contacts with make- before-break	1 NO + 2 NC --		3SE5242-0MC05-1CA0
Slow-action contacts	2 NO + 1 NC --		3SE5242-0PC05-1CA0



With 2 LEDs

With 2 LEDs, yellow/green

Slow-action contacts	1 NO + 2 NC 24 V DC		3SE5242-1KC05
Snap-action contacts	1 NO + 2 NC 24 V DC		3SE5242-1LC05
Slow-action contacts	1 NO + 2 NC 230 V AC		3SE5242-3KC05
Snap-action contacts	1 NO + 2 NC 230 V AC		3SE5242-3LC05

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

¹⁾ For enclosures with widths of 50 mm, the basic switch is a complete unit with rounded plungers.

²⁾ Subsequent replacement of contact blocks is not possible.

³⁾ Use corresponding high-grade steel lever.

Note:

For the selection aid, see page 6/12.

Version	Diameter	Modular system	
		Article No.	

Operating mechanisms



Roller plunger

Roller plungers, type C, acc. to EN 50047

Plastic rollers	10		3SE5000-0AD03
High-grade steel rollers	10		3SE5000-0AD04

With central
fixing

Roller plungers with central fixing









Plastic rollers	10		3SE5000-0AD10
High-grade steel rollers	10		3SE5000-0AD11

Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Plastic Enclosures

Enclosure width 50 mm

Version	Diameter	Modular system	Article No.	
	mm			
Operating mechanisms				
	Roller levers, type E, acc. to EN 50047			
	Metal lever, plastic roller	13	☞	3SE5000-0AE10
	Metal lever, high-grade steel roller	13	☞	3SE5000-0AE11
	High-grade steel lever, plastic roller	13	☞	3SE5000-0AE12
	High-grade steel lever, high-grade steel roller	13	☞	3SE5000-0AE13
	Angular roller levers			
	Metal lever, plastic roller	13	☞	3SE5000-0AF10
	Metal lever, high-grade steel roller	13	☞	3SE5000-0AF11
	High-grade steel lever, plastic roller	13	☞	3SE5000-0AF12
	High-grade steel lever, high-grade steel roller	13	☞	3SE5000-0AF13
	Spring rod (Only for switches with snap-action contacts)			
	Plunger made of plastic, high-grade steel spring: 7			
	• Length 142.5 mm (spring 50 mm, plunger 50 mm)			3SE5000-0AR01
	• Length 76 mm (spring 23.5 mm, plunger 10 mm)			3SE5000-0AR03
	• Length 242.5 mm (spring 150 mm, plunger 50 mm)			3SE5000-0AR04
	Plunger and spring made of high-grade steel: 7			
	• Length 142.5 mm (spring 50 mm, plunger 50 mm)			3SE5000-0AR02
Twist actuators				
	Twist actuators, for 31/50 mm, EN 50047			
	Switching right and/or left, adjustable		☞	3SE5000-0AK00
	Levers			
	Twist levers 21 mm, straight, type A acc. to EN 50047			
	Metal lever, plastic roller	19	☞	3SE5000-0AA21
	Metal lever, high-grade steel roller	19	☞	3SE5000-0AA22
	Metal lever, high-grade steel roller with ball bearing	19	☞	3SE5000-0AA23
	Metal lever, plastic roller	30	☞	3SE5000-0AA25
	High-grade steel lever, plastic roller	19	☞	3SE5000-0AA31
	High-grade steel lever, high-grade steel roller	19	☞	3SE5000-0AA32
	Twist levers 30 mm, straight			
	Metal lever, plastic roller	19	☞	3SE5000-0AA24
	Metal lever, plastic roller	30	☞	3SE5000-0AA26
	Twist levers, adjustable length, with grid hole			
Metal lever, plastic roller	19	☞	3SE5000-0AA60	
Metal lever, high-grade steel roller	19	☞	3SE5000-0AA61	
Metal lever, plastic roller	50	☞	3SE5000-0AA67	
Metal lever, rubber roller	50	☞	3SE5000-0AA68	
	High-grade steel lever, plastic roller	19	☞	3SE5000-0AA62
	High-grade steel lever, high-grade steel roller	19	☞	3SE5000-0AA63
	Twist levers, adjustable length			
	Metal lever, plastic roller	19		3SE5000-0AA50
	Metal lever, high-grade steel roller	19		3SE5000-0AA51
	Metal lever, plastic roller	30		3SE5000-0AA55
	Metal lever, plastic roller	50		3SE5000-0AA57
	Metal lever, rubber roller	50		3SE5000-0AA58
	High-grade steel lever, plastic roller	19		3SE5000-0AA52
	High-grade steel lever, high-grade steel roller	19		3SE5000-0AA53
Rod actuator				
Aluminum rod, length 200 mm	6		3SE5000-0AA80	
Spring rod, length 200 mm	6		3SE5000-0AA81	
Plastic rod, length 200 mm	6		3SE5000-0AA82	

☞ Positively driven actuator, necessary in safety circuits.






Selection and ordering data

Complete units

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 31 mm

 Rounded plunger	Rounded plungers, type B, acc. to EN 50047				
	With plunger				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BC05	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CC05	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KC05	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LC05	
 With increased corrosion protection	With increased corrosion protection				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BC05-1CA0	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CC05-1CA0	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KC05-1CA0	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LC05-1CA0	
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5212-0MC05-1CA0	
 With 2 LEDs	With M12 connector socket, 5-pole (125 V, 4 A)				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5214-0BC05-1AC5	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5214-0CC05-1AC5	
	Slow-action contacts	2 NC --	⊕	3SE5214-0KC05-1AE1	
	Snap-action contacts	2 NC --	⊕	3SE5214-0LC05-1AE1	
	With 2 LEDs, yellow/green				
Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5212-1KC05		
Snap-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5212-1LC05		
Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5212-3KC05		
Snap-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5212-3LC05		
 Plain plunger	With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs				
	Slow-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5214-1BC05-1AF3	
	Snap-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5214-1CC05-1AF3	
	Plain plungers				
	With high-grade steel plunger				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BB01	
Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CB01		
Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KB01		
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LB01		
 Roller plunger	Roller plungers, type C, acc. to EN 50047				
	With plastic roller 10 mm				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BD03	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CD03	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KD03	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LD03	

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 31 mm acc. to EN 50047

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 31 mm



Roller plunger with central fixing

Roller plungers with central fixing

With plastic roller 10 mm

Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KD10
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Roller lever

Roller levers, type E acc. to EN 50047

With metal lever and plastic roller 13 mm

Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BE10
Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CE10
Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KE10
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LE10



Angular roller lever

Angular roller lever

With metal lever and plastic roller 13 mm

Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BF10
Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CF10
Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KF10
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LF10



Twist lever

Twist levers, type A, acc. to EN 50047

With metal lever 21 mm and plastic roller 19 mm

Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BK21
Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CK21
Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KK21
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LK21



Twist lever, adjustable length, with grid hole

Twist levers, adjustable length

With metal lever with grid hole and plastic roller 19mm

Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CK60
Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KK60
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LK60

With metal lever and plastic roller 19 mm

Slow-action contacts	1 NO + 1 NC --		3SE5212-0BK50
Snap-action contacts	1 NO + 1 NC --		3SE5212-0CK50
Snap-action contacts	1 NO + 2 NC --		3SE5212-0LK50

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/29.



SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures






Enclosure width 31 mm acc. to EN 50047

Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Modular system	
				
			Configurator 	
			Article No.	

Basic switches · Enclosure width 31 mm (with rounded plunger¹⁾)

	With plunger				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BC05	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CC05	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KC05	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LC05	
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5212-0MC05	
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5212-0PC05	
	With increased corrosion protection²⁾				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5212-0BC05-1CA0	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5212-0CC05-1CA0	
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5212-0KC05-1CA0	
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5212-0LC05-1CA0	
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5212-0MC05-1CA0	
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5212-0PC05-1CA0	
	With M12 connector socket, 5-pole (125 V, 4 A)				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5214-0BC05-1AC5	
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5214-0CC05-1AC5	
	Slow-action contacts	2 NC --	⊕	3SE5214-0KC05-1AE1	
	Snap-action contacts	2 NC --	⊕	3SE5214-0LC05-1AE1	
	With 2 LEDs, yellow/green				
	Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5212-1KC05	
	Snap-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5212-1LC05	
	Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5212-3KC05	
	Snap-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5212-3LC05	
	With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs				
	Slow-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5214-1BC05-1AF3	
	Snap-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5214-1CC05-1AF3	

 For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

¹⁾ For enclosures with widths of 31 mm, the basic switch is a complete unit with rounded plungers.



²⁾ Use corresponding high-grade steel lever.

Note:

For the selection aid, see page 6/12.

Version	Diameter	Modular system	
	mm		
		Article No.	

Operating mechanisms








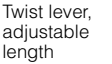

	Plain plungers			
	High-grade steel plunger	10	⊕	3SE5000-0AB01
	Roller plungers, type C, acc. to EN 50047			
	Plastic rollers	10	⊕	3SE5000-0AD03
	High-grade steel rollers	10	⊕	3SE5000-0AD04

⊕ Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 31 mm acc. to EN 50047

Version	Diameter	Modular system	Article No.
	mm		
Operating mechanisms			
 Central fixing	Roller plungers with central fixing		
	Plastic rollers	10	☞ 3SE5000-0AD10
	High-grade steel rollers	10	☞ 3SE5000-0AD11
 Roller lever	Roller levers, type E, acc. to EN 50047		
	Metal lever, plastic roller	13	☞ 3SE5000-0AE10
	Metal lever, high-grade steel roller	13	☞ 3SE5000-0AE11
	High-grade steel lever, plastic roller	13	☞ 3SE5000-0AE12
	High-grade steel lever, high-grade steel roller	13	☞ 3SE5000-0AE13
 Ang. roller lever	Angular roller levers		
	Metal lever, plastic roller	13	☞ 3SE5000-0AF10
	Metal lever, high-grade steel roller	13	☞ 3SE5000-0AF11
	High-grade steel lever, plastic roller	13	☞ 3SE5000-0AF12
	High-grade steel lever, high-grade steel roller	13	☞ 3SE5000-0AF13
 Spring rod	Spring rods (for switches with snap-action contacts only)		
	Plunger made of plastic, high-grade steel spring: 7		
	• Length 142.5 mm (spring 50 mm, plunger 50 mm)		3SE5000-0AR01
	• Length 76 mm (spring 23.5 mm, plunger 10 mm)		3SE5000-0AR03
	• Length 242.5 mm (spring 150 mm, plunger 50 mm)		3SE5000-0AR04
	Plunger and spring made of high-grade steel: 7		
	• Length 142.5 mm (spring 50 mm, plunger 50 mm)		3SE5000-0AR02
Twist actuators			
 Twist actuator	Twist actuators , for 31/50 mm, EN 50047		
	Switching right and/or left, adjustable		☞ 3SE5000-0AK00
 Twist lever	Levers		
	Twist levers, straight, type A, acc. to EN 50047		
	Metal lever 21 mm, plastic roller	19	☞ 3SE5000-0AA21
	Metal lever 21 mm, high-grade steel roller	19	☞ 3SE5000-0AA22
	Metal lever 21 mm, high-grade steel roller with ball bearing	19	☞ 3SE5000-0AA23
	Metal lever 21 mm, plastic roller	30	☞ 3SE5000-0AA25
	High-grade steel lever 21 mm, plastic roller	19	☞ 3SE5000-0AA31
	High-grade steel lever 21 mm, high-grade steel roller	19	☞ 3SE5000-0AA32
 Twist lever, adjustable length	Twist levers 30 mm, straight		
	Metal lever, plastic roller	19	☞ 3SE5000-0AA24
	Metal lever, plastic roller	30	☞ 3SE5000-0AA26
 Twist lever, adjustable length	Twist levers, adjustable length, with grid hole		
	Metal lever, plastic roller	19	☞ 3SE5000-0AA60
	Metal lever, high-grade steel roller	19	☞ 3SE5000-0AA61
	Metal lever, plastic roller	50	☞ 3SE5000-0AA67
	Metal lever, rubber roller	50	☞ 3SE5000-0AA68
	High-grade steel lever, plastic roller	19	☞ 3SE5000-0AA62
	High-grade steel lever, high-grade steel roller	19	☞ 3SE5000-0AA63
 Rod actuator	Twist levers, adjustable length		
	Metal lever, plastic roller	19	3SE5000-0AA50
	Metal lever, high-grade steel roller	19	3SE5000-0AA51
	Metal lever, plastic roller	30	3SE5000-0AA55
	Metal lever, plastic roller	50	3SE5000-0AA57
	Metal lever, rubber roller	50	3SE5000-0AA58
	High-grade steel lever, plastic roller	19	3SE5000-0AA52
	High-grade steel lever, high-grade steel roller	19	3SE5000-0AA53
	Rod actuators, type D, acc. to EN 50041		
	Aluminum rod, length 200 mm	6	3SE5000-0AA80
Spring rod, length 200 mm	6	3SE5000-0AA81	
Plastic rod, length 200 mm	6	3SE5000-0AA82	
Plastic rod, length 330 mm	6	3SE5000-0AA83	

☞ Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 40 mm acc. to EN 50041



Selection and ordering data

Complete units

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 40 mm

	Plain plungers				
	With high-grade steel plunger				
	Slow-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0BB01
	Snap-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0CB01
	Slow-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0KB01
	Snap-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0LB01
	Rounded plungers, type B, acc. to EN 50041				
	With high-grade steel plungers, with 3 mm overtravel				
	Slow-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0BC02
	Snap-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0CC02
	Slow-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0KC02
	Snap-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0LC02
	Snap-action contacts	1 NO + 1 NC	--	⊕	3SE5114-0CC02-1AC4
	With M12 connector socket, 4-pole				
	Roller plungers, type C, acc. to EN 50041				
	With high-grade steel roller 13 mm, with 3 mm overtravel				
	Slow-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0BD02
	Snap-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0CD02
	Slow-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0KD02
	Snap-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0LD02
		With M12 connector socket, 5-pole (125 V, 4 A) and 2 LEDs			
Snap-action contacts	1 NO + 1 NC	24 V DC	⊕	3SE5114-1CD02-1AF3	
	Roller levers				
	With metal lever and plastic roller 22 mm				
	Slow-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0BE01
	Snap-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0CE01
	Slow-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0KE01
	Snap-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0LE01
	Angular roller lever				
	With metal lever and plastic roller 22 mm				
	Slow-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0BF01
	Snap-action contacts	1 NO + 1 NC	--	⊕	3SE5112-0CF01
	Snap-action contacts	1 NO + 2 NC	--	⊕	3SE5112-0LF01
	Spring rod				
	Length 142.5 mm, with plastic plunger 50 mm				
	Snap-action contacts	1 NO + 1 NC	--		3SE5112-0CR01

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 40 mm acc. to EN 50041

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Complete units <input type="checkbox"/>
			Configurator
			Article No.

Complete units¹⁾ · Enclosure width 40 mm



Twist lever

Twist levers, type A, acc. to EN 50041

With metal lever 27 mm and plastic roller 19 mm

Slow-action contacts	1 NO + 1 NC --	⊕	3SE5112-0BH01
Snap-action contacts	1 NO + 1 NC --	⊕	3SE5112-0CH01
Slow-action contacts	1 NO + 2 NC --	⊕	3SE5112-0KH01
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5112-0LH01

With M12 connector socket, 5-pole (125 V, 4 A)

Snap-action contacts	1 NO + 1 NC --	⊕	3SE5114-0CH01-1AC5
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With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs

Snap-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5114-1CH01-1AF3
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With metal lever 27 mm and high-grade steel roller 19 mm

Slow-action contacts	1 NO + 1 NC --	⊕	3SE5112-0BH02
Snap-action contacts	1 NO + 1 NC --	⊕	3SE5112-0CH02

With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs

Snap-action contacts	1 NO + 1 NC --	⊕	3SE5114-1CH02-1AF3
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With metal lever 30 mm and plastic roller 19 mm

Snap-action contacts	1 NO + 1 NC --	⊕	3SE5112-0CH24
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Twist levers, adjustable length

With metal lever with grid hole and plastic roller 19 mm

Slow-action contacts	1 NO + 1 NC --	⊕	3SE5112-0BH60
Snap-action contacts	1 NO + 1 NC --	⊕	3SE5112-0CH60
Snap-action contacts	1 NO + 2 NC --	⊕	3SE5112-0LH60

Twist lever, adj. length, with grid hole

With metal lever and plastic roller 19 mm

Slow-action contacts	1 NO + 1 NC --		3SE5112-0BH50
Snap-action contacts	1 NO + 1 NC --		3SE5112-0CH50
Snap-action contacts	1 NO + 2 NC --		3SE5112-0LH50

With M12 connector socket, 8-pole (30 V, 2A), and 2 LEDs

Snap-action contacts	1 NO + 2 NC 24 V DC		3SE5114-1LH50-1AD4
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With metal lever and high-grade steel roller 19 mm

Snap-action contacts	1 NO + 1 NC --		3SE5112-0CH51
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Twist lever, adjustable length

Fork levers, latching

With metal lever and 2 plastic rollers 19 mm

Snap-action contacts	1 NO + 1 NC --	⊕	3SE5112-0CT11
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Fork lever

Rod actuators, type D, acc. to EN 50041

With aluminum rod, length 200 mm

Snap-action contacts	1 NO + 1 NC --		3SE5112-0CH80
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With plastic rod, length 200 mm

Snap-action contacts	1 NO + 1 NC --		3SE5112-0CH82
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Rod actuator

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/33.



SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures










Enclosure width 40 mm acc. to EN 50041

Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Contacts	LEDs	Modular system
			
			Configurator 
			Article No.

Basic switches • Enclosure width 40 mm

	With connecting thread M20 × 1.5			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5112-0BA00
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5112-0CA00
	• Gold-plated contacts		⊕	3SE5112-0CA00-1AC1
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5112-0KA00
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5112-0LA00
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5112-0MA00
	With increased corrosion protection¹⁾			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5112-0BA00-1CA0
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5112-0CA00-1CA0
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5112-0KA00-1CA0
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5112-0LA00-1CA0
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5112-0MA00-1CA0
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5112-0PA00
	With M12 connector socket, 5-pole (125 V, 4 A)			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5114-0BA00-1AC5
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5114-0CA00-1AC5
	Slow-action contacts	2 NC --	⊕	3SE5114-0KA00-1AE1
	Snap-action contacts	2 NC --	⊕	3SE5114-0LA00-1AE1
	With connector socket, 6-pole + PE (250 V, 10 A)			
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5115-0KA00-1AD1
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5115-0LA00-1AD1
	With connector socket, 6-pole + PE (250 V, 10 A), and quick-release device			
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5115-0CA00-1AD0
	With 2 LEDs, yellow/green			
	Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5112-1KA00
	Snap-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5112-1LA00
	Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5112-3KA00
	Snap-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5112-3LA00
	With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs			
	Slow-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5114-1BA00-1AF3
	Snap-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5114-1CA00-1AF3
	With M12 connector socket, 8-pole (30 V, 2A), and 2 LEDs			
	Snap-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5114-1LA00-1AD4
	With connector socket, 6-pole + PE (10 A), and 2 LEDs			
	Slow-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5115-1BA00-1AF2
	Snap-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5115-1CA00-1AF2
	Snap-action contacts	2 NC 24 V DC	⊕	3SE5115-1LA00-1AD2

 For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

¹⁾ Use corresponding high-grade steel lever.

Note:

For the selection aid, see page 6/12.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 40 mm acc. to EN 50041

Version	Diameter	Modular system	Article No.
	mm		
Operating mechanisms			
	Plain plungers		
	High-grade steel plunger	10	⊕ 3SE5000-0AB01
	Rounded plungers, type B, acc. to EN 50041		
	High-grade steel plungers, with 3 mm overtravel	10	⊕ 3SE5000-0AC02
	Roller plungers, type C, acc. to EN 50041		
	High-grade steel roller, with 3 mm overtravel	13	⊕ 3SE5000-0AD02
	Roller levers		
	Metal lever, plastic roller	22	⊕ 3SE5000-0AE01
	Metal lever, high-grade steel roller	22	⊕ 3SE5000-0AE02
	High-grade steel lever, plastic roller	22	⊕ 3SE5000-0AE03
	High-grade steel lever, high-grade steel roller	22	⊕ 3SE5000-0AE04
	Angular roller levers		
	Metal lever, plastic roller	22	⊕ 3SE5000-0AF01
	Metal lever, high-grade steel roller	22	⊕ 3SE5000-0AF02
	High-grade steel lever, plastic roller	22	⊕ 3SE5000-0AF03
	High-grade steel lever, high-grade steel roller	22	⊕ 3SE5000-0AF04
	Spring rods (for switches with snap-action contacts only)		
	Plunger made of plastic, high-grade steel spring:	7	
	• Length 142.5 mm (spring 50 mm, plunger 50 mm)		⊕ 3SE5000-0AR01
	• Length 76 mm (spring 23.5 mm, plunger 10 mm)		⊕ 3SE5000-0AR03
	• Length 242.5 mm (spring 150 mm, plunger 50 mm)		⊕ 3SE5000-0AR04
Plunger and spring made of high-grade steel:	7		
• Length 142.5 mm (spring 50 mm, plunger 50 mm)		⊕ 3SE5000-0AR02	
Twist actuators			
	Twist actuators , for 40/56/56 XL mm EN 50041		
	• For twist levers and rod levers, Switching right and/or left, adjustable	⊕	3SE5000-0AH00
	• For fork levers, latching	⊕	3SE5000-0AT10
Levers			
	Twist levers, offset, type A, acc. to EN 50041		
	Metal lever 27 mm, plastic roller	19	⊕ 3SE5000-0AA01
	Metal lever 27 mm, high-grade steel roller	19	⊕ 3SE5000-0AA02
	Metal lever 27 mm, high-gr. steel roller, ball bearing	19	⊕ 3SE5000-0AA03
	Metal lever 27 mm, 2 plastic rollers	19	⊕ 3SE5000-0AA04
	Metal lever 27 mm, plastic roller	30	⊕ 3SE5000-0AA05
	Metal lever 27 mm, rubber roller	50	⊕ 3SE5000-0AA08
	High-grade steel lever 27 mm, plastic roller	19	⊕ 3SE5000-0AA11
	High-gr. steel lever 27 mm, high-grade steel roller	19	⊕ 3SE5000-0AA12
	Metal lever 35 mm, plastic roller	19	⊕ 3SE5000-0AA15
	High-grade steel lever 35 mm, plastic roller	19	⊕ 3SE5000-0AA16
		Twist levers 30 mm, straight	
Metal lever, plastic roller		19	⊕ 3SE5000-0AA24
	Metal lever, plastic roller	30	⊕ 3SE5000-0AA26
	Twist levers, adjustable length, with grid hole		
	Metal lever, plastic roller	19	⊕ 3SE5000-0AA60
	Metal lever, high-grade steel roller	19	⊕ 3SE5000-0AA61
	Metal lever, rubber roller	50	⊕ 3SE5000-0AA68
	High-grade steel lever, plastic roller	19	⊕ 3SE5000-0AA62
	High-grade steel lever, high-grade steel roller	19	⊕ 3SE5000-0AA63
	Twist levers, adjustable length		
	Metal lever, plastic roller	19	⊕ 3SE5000-0AA50
	Metal lever, high-grade steel roller	19	⊕ 3SE5000-0AA51
	Metal lever, plastic roller	30	⊕ 3SE5000-0AA55
	Metal lever, rubber roller	50	⊕ 3SE5000-0AA58
	High-grade steel lever, plastic roller	19	⊕ 3SE5000-0AA52
	High-grade steel lever, high-grade steel roller	19	⊕ 3SE5000-0AA53
	Fork levers (for switches with snap-action contacts only)		
	2 metal levers, 2 plastic rollers	19	⊕ 3SE5000-0AT01
	2 metal levers, 2 high-grade steel rollers	19	⊕ 3SE5000-0AT02
	2 high-grade steel levers, 2 plastic rollers	19	⊕ 3SE5000-0AT03
Rod actuators, type D, acc. to EN 50041			
	Aluminum rod, length 200 mm	6	3SE5000-0AA80
	Spring rod, length 200 mm	6	3SE5000-0AA81
	Plastic rod, length 200 mm	6	3SE5000-0AA82

⊕ Positively driven actuator, necessary in safety circuits.






Selection and ordering data

Complete units

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 3 × (M20 × 1.5)

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 56 mm

 Plain plunger	Plain plungers			
	With high-grade steel plunger			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5122-0BB01
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5122-0CB01
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0KB01
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5122-0LB01
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5122-0PB01
 Rounded plunger	Rounded plungers			
	With high-grade steel plungers, with 3 mm overtravel			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5122-0BC02
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5122-0CC02
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0KC02
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5122-0LC02
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5122-0PC02
 Roller plunger	Roller plunger			
	With high-grade steel roller 13 mm, with 3 mm overtravel			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5122-0BD02
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5122-0CD02
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0KD02
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5122-0LD02
 Roller lever	Roller levers			
	With metal lever and plastic roller 22 mm			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5122-0BE01
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5122-0CE01
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0KE01
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5122-0LE01
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5122-0PE01
 Angular roller lever	Angular roller lever			
	With metal lever and plastic roller 22 mm			
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5122-0BF01
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5122-0CF01
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5122-0PF01

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

SIRIUS 3SE5 Mechanical Position Switches



3SE5, Metal Enclosures

Enclosure width 56 mm

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 3 × (M20 × 1.5)

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 56 mm

	Spring rod				
	Length 142.5 mm, with plastic plunger 50 mm				
Spring rod	Snap-action contacts	1 NO + 1 NC --			3SE5122-0CR01
	Twist levers				
	With metal lever 27 mm and plastic roller 19 mm				
	Slow-action contacts	1 NO + 1 NC --	↻		3SE5122-0BH01
	Snap-action contacts	1 NO + 1 NC --	↻		3SE5122-0CH01
	Slow-action contacts	1 NO + 2 NC --	↻		3SE5122-0KH01
	Snap-action contacts	1 NO + 2 NC --	↻		3SE5122-0LH01
Twist lever	With metal lever 27 mm and high-grade steel roller 19 mm				
	Slow-action contacts	2 NO + 1 NC --	↻		3SE5122-0PH01
	Snap-action contacts	1 NO + 1 NC --	↻		3SE5122-0CH02
	Snap-action contacts	1 NO + 2 NC --	↻		3SE5122-0LH02
	Twist levers, adjustable length				
	With metal lever with grid hole and plastic roller 19mm				
	Slow-action contacts	1 NO + 1 NC --	↻		3SE5122-0BH60
	Snap-action contacts	1 NO + 1 NC --	↻		3SE5122-0CH60
	Snap-action contacts	1 NO + 2 NC --	↻		3SE5122-0LH60
	Twist lever, adj. length, with grid hole	With metal lever and plastic roller 19 mm			
Slow-action contacts		1 NO + 1 NC --			3SE5122-0BH50
Snap-action contacts		1 NO + 1 NC --			3SE5122-0CH50
Fork lever	Fork levers, latching				
	With metal lever and 2 plastic rollers 19 mm				
	Snap-action contacts	1 NO + 1 NC --	↻		3SE5122-0CT11
	Rod actuator				
	With aluminum rod, length 200 mm				
Rod actuator	Snap-action contacts	1 NO + 1 NC --			3SE5122-0CH80
	With plastic rod, length 200 mm				
	Snap-action contacts	1 NO + 1 NC --			3SE5122-0CH82

For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/37.



SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures




Enclosure width 56 mm

Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 3 × (M20 × 1.5)

Version	Contacts	LEDs	Modular system	
				
			Configurator 	
			Article No.	

Basic switches · Enclosure width 56 mm

With 3 × connection thread M20 × 1.5				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5122-0BA00
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5122-0CA00
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0KA00
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5122-0LA00
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5122-0MA00
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5122-0PA00
With increased corrosion protection ¹⁾				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5122-0BA00-1CA0
	Snap-action contacts	1 NO + 1 NC --	⊕	3SE5122-0CA00-1CA0
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0KA00-1CA0
	Snap-action contacts	1 NO + 2 NC --	⊕	3SE5122-0LA00-1CA0
	Slow-action contacts with make-before-break	1 NO + 2 NC --	⊕	3SE5122-0MA00-1CA0
	Slow-action contacts	2 NO + 1 NC --	⊕	3SE5122-0PA00-1CA0
With 2 LEDs, yellow/green				
	Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5122-1KA00
	Snap-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5122-1LA00
	Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5122-3KA00
	Snap-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5122-3LA00

 For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.


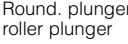



¹⁾ Use corresponding high-grade steel lever.

Note:

For the selection aid, see page 6/12.

Version	Diameter	Modular system	
	mm		
		Article No.	
































Operating mechanisms


Plain plungers				
	High-grade steel plungers	10	⊕	3SE5000-0AB01
	Rounded plungers, type B, acc. to EN 50041			
	High-grade steel plungers, with 3 mm overtravel	10	⊕	3SE5000-0AC02
Roller plungers, type C, acc. to EN 50041				
	High-grade steel roller, with 3 mm overtravel	13	⊕	3SE5000-0AD02
	Roller levers			
	Metal lever, plastic roller	22	⊕	3SE5000-0AE01
	Metal lever, high-grade steel roller	22	⊕	3SE5000-0AE02
	High-grade steel lever, plastic roller	22	⊕	3SE5000-0AE03
	High-grade steel lever, high-grade steel roller	22	⊕	3SE5000-0AE04
Angular roller levers				
	Metal lever, plastic roller	22	⊕	3SE5000-0AF01
	Metal lever, high-grade steel roller	22	⊕	3SE5000-0AF02
	High-grade steel lever, plastic roller	22	⊕	3SE5000-0AF03
	High-grade steel lever, high-grade steel roller	22	⊕	3SE5000-0AF04
Spring rods (for switches with snap-action contacts only)				
	Plunger made of plastic, high-grade steel spring: 7			
	• Length 142.5 mm (spring 50 mm, plunger 50 mm)			3SE5000-0AR01
	• Length 76 mm (spring 23.5 mm, plunger 10 mm)			3SE5000-0AR03
	• Length 242.5 mm (spring 150 mm, plunger 50 mm)			3SE5000-0AR04
	Plunger and spring made of high-grade steel: 7			
• Length 142.5 mm (spring 50 mm, plunger 50 mm)			3SE5000-0AR02	

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 56 mm

Version	Diameter	Modular system	Article No.
	mm		
Twist actuators			
	Twist actuators , for 40/56/56 XL mm EN 50041		
Twist actuator	<ul style="list-style-type: none"> For twist levers and rod levers, Switching right and/or left, adjustable For fork levers, latching 	<ul style="list-style-type: none">  3SE5000-0AH00  3SE5000-0AT10 	
Levers			
	Twist levers 27 mm, offset, type A, acc. to EN 50041		
Twist lever	Metal lever, plastic roller 19  3SE5000-0AA01 Metal lever, high-grade steel roller 19  3SE5000-0AA02 Metal lever, high-grade steel roller with ball bearing 19  3SE5000-0AA03 Metal lever, 2 plastic rollers 19  3SE5000-0AA04 Metal lever, plastic roller 30  3SE5000-0AA05 Metal lever, plastic roller 50  3SE5000-0AA07 Metal lever, rubber roller 50  3SE5000-0AA08 High-grade steel lever, plastic roller 19  3SE5000-0AA11 High-grade steel lever, high-grade steel roller 19  3SE5000-0AA12		
Twist levers 35 mm, offset			
	Metal lever, plastic roller 19  3SE5000-0AA15 High-grade steel lever, plastic roller 19  3SE5000-0AA16		
Twist levers 30 mm, straight			
	Metal lever, plastic roller 19  3SE5000-0AA24 Metal lever, plastic roller 30  3SE5000-0AA26		
Twist levers, adjustable length, with grid hole			
	Metal lever, plastic roller 19  3SE5000-0AA60 Metal lever, high-grade steel roller 19  3SE5000-0AA61 Metal lever, plastic roller 50  3SE5000-0AA67 Metal lever, rubber roller 50  3SE5000-0AA68 High-grade steel lever, plastic roller 19  3SE5000-0AA62 High-grade steel lever, high-grade steel roller 19  3SE5000-0AA63		
Twist lever, adjustable length			
Twist levers, adjustable length			
	Metal lever, plastic roller 19 3SE5000-0AA50 Metal lever, high-grade steel roller 19 3SE5000-0AA51 Metal lever, plastic roller 30 3SE5000-0AA55 Metal lever, plastic roller 50 3SE5000-0AA57 Metal lever, rubber roller 50 3SE5000-0AA58 High-grade steel lever, plastic roller 19 3SE5000-0AA52 High-grade steel lever, high-grade steel roller 19 3SE5000-0AA53		
Fork levers (for switches with snap-action contacts only)			
	2 metal levers, 2 plastic rollers 19  3SE5000-0AT01 2 metal levers, 2 high-grade steel rollers 19  3SE5000-0AT02 2 high-grade steel levers, 2 plastic rollers 19  3SE5000-0AT03 2 high-grade steel levers, 2 high-grade steel rollers 19  3SE5000-0AT04		
Fork lever			
Rod actuators, type D, acc. to EN 50041			
	Aluminum rod, length 200 mm 6 3SE5000-0AA80 Spring rod, length 200 mm 6 3SE5000-0AA81 Plastic rod, length 200 mm 6 3SE5000-0AA82		
Rod actuator			

 Positively driven actuator, necessary in safety circuits.

Selection and ordering data

Complete units

4 or 5 contacts · Degree of protection IP66/IP67 · Cable entry 3 × (M20 × 1.5)

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 56 mm, XL

	Plain plungers With high-grade steel plunger Snap-action contacts	2 × (1 NO + 1 NC) --	⊕	3SE5162-0CB01
	Rounded plungers With high-grade steel plungers, with 3 mm overtravel Slow-action contacts Slow-action contacts with make-before-break 2 mm travel difference	1 NO + 1 NC and 1 NO + 2 NC	--	⊕ 3SE5162-0EC02
	Roller plunger With high-grade steel roller 13 mm, with 3 mm overtravel Slow-action contacts Snap-action contacts	2 × (1 NO + 1 NC) -- 2 × (1 NO + 1 NC) --	--	⊕ 3SE5162-0BD02 ⊕ 3SE5162-0CD02
	Roller levers With metal lever and plastic roller 22 mm Slow-action contacts Snap-action contacts	2 × (1 NO + 1 NC) -- 2 × (1 NO + 1 NC) --	--	⊕ 3SE5162-0BE01 ⊕ 3SE5162-0CE01
	Angular roller lever With metal lever and plastic roller 22 mm Snap-action contacts	2 × (1 NO + 1 NC) --	--	⊕ 3SE5162-0CE02 ⊕ 3SE5162-0CF01
	Twist levers With metal lever 27 mm and plastic roller 19 mm Snap-action contacts	2 × (1 NO + 1 NC) --	--	⊕ 3SE5162-0CH01

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Popular versions.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/40.



SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 56 mm, XL

Modular system

4 or 6 contacts · Degree of protection IP66/IP67 · Cable entry 3 × (M20 × 1.5)




Version	Contacts	LEDs	Modular system	
				
			Configurator	
			Article No.	

Basic switches · Enclosure width 56 mm, XL






Basic switch


With 3 × connection thread M20 × 1.5

Slow-action contacts	2 × (1 NO + 1 NC)	--		3SE5162-0BA00
Snap-action contacts	2 × (1 NO + 1 NC)	--		3SE5162-0CA00
Slow-action contacts with make-before-break	2 × (1 NO + 2 NC)	--		3SE5162-0DA00

With increased corrosion protection¹⁾

Slow-action contacts	2 × (1 NO + 1 NC)	--		3SE5162-0BA00-1CA0
Snap-action contacts	2 × (1 NO + 1 NC)	--		3SE5162-0CA00-1CA0
Slow-action contacts with make-before-break	2 × (1 NO + 2 NC)	--		3SE5162-0DA00-1CA0

 For the online configurator, see www.siemens.com/sirius/configurators.

 Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

¹⁾ Use corresponding high-grade steel lever.

Note:

For the selection aid, see page 6/12.

Version	Diameter	Modular system	
	mm		
		Article No.	

Operating mechanisms



Plain plunger

Plain plungers

High-grade steel plunger	10		3SE5000-0AB01
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Rounded plunger

Rounded plungers, type B, acc. to EN 50041

High-grade steel plungers, with 3 mm overtravel	10		3SE5000-0AC02
-------------------------------------------------	----	-------------------------------------------------------------------------------------	----------------------



Roller plunger





Roller plungers, type C, acc. to EN 50041

High-grade steel roller, with 3 mm overtravel	13		3SE5000-0AD02
-----------------------------------------------	----	-------------------------------------------------------------------------------------	----------------------



Roller lever





Roller levers

Metal lever, plastic roller	22		3SE5000-0AE01
Metal lever, high-grade steel roller	22		3SE5000-0AE02
High-grade steel lever, plastic roller	22		3SE5000-0AE03
High-grade steel lever, high-grade steel roller	22		3SE5000-0AE04



Angular roller lever

Angular roller levers


Metal lever, plastic roller	22		3SE5000-0AF01
Metal lever, high-grade steel roller	22		3SE5000-0AF02
High-grade steel lever, plastic roller	22		3SE5000-0AF03
High-grade steel lever, high-grade steel roller	22		3SE5000-0AF04



Spring rod

Spring rods (for switches with snap-action contacts only)







































Plunger made of plastic, spring of high-grade steel:	7		
• Length 142.5 mm (spring 50 mm, plunger 50 mm)			3SE5000-0AR01
• Length 76 mm (spring 23.5 mm, plunger 10 mm)			3SE5000-0AR03
• Length 242.5 mm (spring 150 mm, plunger 50 mm)			3SE5000-0AR04
Plunger and spring made of high-grade steel:	7		
• Length 142.5 mm (spring 50 mm, plunger 50 mm)			3SE5000-0AR02


 Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Enclosure width 56 mm, XL

Version	Diameter	Modular system	Article No.
	mm		
Twist actuators			
	Twist actuators, for 40/56/56 XL mm EN 50041		
Twist actuator	<ul style="list-style-type: none"> For twist levers and rod levers, switching right and/or left, adjustable For fork levers, latching 	<ul style="list-style-type: none">  3SE5000-0AH00  3SE5000-0AT10 	
Levers			
	Twist levers 27 mm, offset, type A, acc. to EN 50041		
Twist lever	<ul style="list-style-type: none"> Metal lever, plastic roller 19 Metal lever, high-grade steel roller 19 Metal lever, high-grade steel roller with ball bearing 19 Metal lever, 2 plastic rollers 19 Metal lever, plastic roller 30 Metal lever, plastic roller 50 Metal lever, rubber roller 50 High-grade steel lever, plastic roller 19 High-grade steel lever, high-grade steel roller 19 	<ul style="list-style-type: none">  3SE5000-0AA01  3SE5000-0AA02  3SE5000-0AA03  3SE5000-0AA04  3SE5000-0AA05  3SE5000-0AA07  3SE5000-0AA08  3SE5000-0AA11  3SE5000-0AA12 	
Twist levers 35 mm, offset			
	<ul style="list-style-type: none"> Metal lever, plastic roller 19 High-grade steel lever, plastic roller 19 	<ul style="list-style-type: none">  3SE5000-0AA15  3SE5000-0AA16 	
Twist levers 30 mm, straight			
	<ul style="list-style-type: none"> Metal lever, plastic roller 19 Metal lever, plastic roller 30 	<ul style="list-style-type: none">  3SE5000-0AA24  3SE5000-0AA26 	
	Twist levers, adjustable length, with grid hole		
Twist lever, adjustable length	<ul style="list-style-type: none"> Metal lever, plastic roller 19 Metal lever, high-grade steel roller 19 Metal lever, plastic roller 50 Metal lever, rubber roller 50 High-grade steel lever, plastic roller 19 High-grade steel lever, high-grade steel roller 19 	<ul style="list-style-type: none">  3SE5000-0AA60  3SE5000-0AA61  3SE5000-0AA67  3SE5000-0AA68  3SE5000-0AA62  3SE5000-0AA63 	
Twist levers, adjustable length			
	<ul style="list-style-type: none"> Metal lever, plastic roller 19 Metal lever, high-grade steel roller 19 Metal lever, plastic roller 30 Metal lever, plastic roller 50 Metal lever, rubber roller 50 High-grade steel lever, plastic roller 19 High-grade steel lever, high-grade steel roller 19 	<ul style="list-style-type: none">  3SE5000-0AA50  3SE5000-0AA51  3SE5000-0AA55  3SE5000-0AA57  3SE5000-0AA58  3SE5000-0AA52  3SE5000-0AA53 	
	Fork levers (for switches with snap-action contacts only)		
Fork lever	<ul style="list-style-type: none"> 2 metal levers, 2 plastic rollers 19 2 metal levers, 2 high-grade steel rollers 19 2 high-grade steel levers, 2 plastic rollers 19 2 high-grade steel levers, 2 high-grade steel rollers 19 	<ul style="list-style-type: none">  3SE5000-0AT01  3SE5000-0AT02  3SE5000-0AT03  3SE5000-0AT04 	
	Rod actuators, type D, acc. to EN 50041		
Rod actuator	<ul style="list-style-type: none"> Aluminum rod, length 200 mm 6 Spring rod, length 200 mm 6 Plastic rod, length 200 mm 6 Plastic rod, length 330 mm 6 	<ul style="list-style-type: none"> 3SE5000-0AA80 3SE5000-0AA81 3SE5000-0AA82 3SE5000-0AA83 	

 Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches

3SE5, Metal Enclosures

Compact design

Overview



Compact design in width 30 mm

Particularly in harsh environments or on equipment with limited space, the small 3SE54 position switches in compact design with a depth of 16 mm and a weight of only 80 g (without cable) are ideal. Above all the versions with molded cable can be mounted in the most confined spaces.

3SE54 compact position switches are available in two different widths as complete units:

- The 3SE5413 series complies with the EU standard and features a 30 mm wide enclosure with drilled holes at a distance of 20 mm.
- The 3SE5423 series meets the requirements of the US market and features a 40-mm-wide enclosure with drilled holes at a spacing of 25 mm.

Both the enclosure and the actuator head are made of metal and comply with the high IP67 degree of protection. The following actuators are available:

- Rounded plungers
- Rounded plungers with central fixing
- Rounded plungers with external seal
- Roller plungers
- Roller plungers with central fixing
- Twist levers

The contact block is designed with snap-action contacts 1 NO + 1 NC. The NC contact complies with the requirements for positive opening acc. to IEC 60947-5-1.

Use in safety circuits up to Category 4 according to EN ISO 13849-1.

Connection:








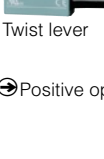
- With molded cable, 2 m or 5 m long
- With M12 connector socket

Benefits

- Very compact yet with the same rating as the 3SE51 standard switches, for notable space savings in confined installation conditions
- Various actuator versions available
- Roller plungers can be rotated through 90°
- Twist levers, can be rotated through 180°; twist lever can be adjusted in 15° increments
- Time is saved when mounting the fully assembled unit
- With metal enclosure of degree of protection IP67, ideal for use in rough industrial environments
- Insensitive to electromagnetic interference

Selection and ordering data

2 snap-action contacts 1 NO + 1 NC · Degree of protection IP67 · With connecting cable or M12 connector socket

Operating mechanism	Enclosure width		Configurator	
	mm		Article No.	
Complete units • Enclosure width 30 or 40 mm				
Rounded plungers				
 Rounded plunger	• Standard mounting			
	- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CC20-1EA2
		40	↻	3SE5423-0CC20-1EA2
	- With 5 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CC20-1EA5
	- With M12 connector socket, 5-pole	30	↻	3SE5413-0CC20-1EB1
		40	↻	3SE5423-0CC20-1EB1
 With central fixing	• With central fixing M12 x 1			
	- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CC21-1EA2
	40	↻	3SE5423-0CC21-1EA2	
 With external seal	• With external seal			
	- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CC22-1EA2
	40	↻	3SE5423-0CC22-1EA2	
Roller plunger				
 Roller plunger	• Standard mounting			
	- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CD20-1EA2
		40	↻	3SE5423-0CD20-1EA2
	- With 5 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CD20-1EA5
	- With M12 connector socket, 5-pole	30	↻	3SE5413-0CD20-1EB1
		40	↻	3SE5423-0CD20-1EB1
 With central fixing	• With central fixing M12 x 1			
	- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CD21-1EA2
	40	↻	3SE5423-0CD21-1EA2	
 With plug	• Actuator head rotated 90°			
- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CD23-1EA2	
 With plug, enclosure width 40 mm	Twist levers			
	• Standard mounting			
	- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CN20-1EA2
		40	↻	3SE5423-0CN20-1EA2
	- With 5 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CN20-1EA5
	- With M12 connector socket, 5-pole	30	↻	3SE5413-0CN20-1EB1
		40	↻	3SE5423-0CN20-1EB1
 Twist lever	• Twist levers with a smaller mounting depth and lower height			
	- With 2 m cable 5 x 0.75 mm ²	30	↻	3SE5413-0CP20-1EA2

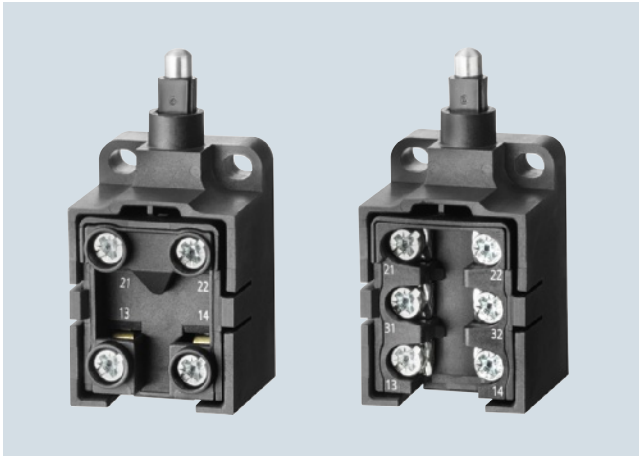
↻ Positive opening according to IEC 60947-5-1, Appendix K.

SIRIUS 3SE5 Mechanical Position Switches

Open-type

Enclosure width 30 mm

Overview



Open-Type

Their compact design makes these switches particularly suitable for use in confined conditions. The fixing dimensions and operating points are according to EN 50047.

The switches are equipped with two or three contacts in snap-action, slow-action or slow-action with make-before-break versions. The stroke is 6 mm.





The empty enclosure can be equipped with all contact block versions (see page 6/46).

Improved version

NEW: The switches now have a robust metal plunger with increased abrasion resistance (instead of the teflon plunger). This enables the switch to be approached from a 30° angle.

Selection and ordering data

2 or 3 contacts · Degree of protection IP20 (2 contacts), IP10 (3 contacts)














Version	Contacts		Configurator	Article No.
Plastic enclosures · Enclosure width 30 mm				
With metal plunger, Ø 6 mm				
	Slow-action contacts	1 NO + 1 NC	↻	3SE5250-0BC05
	Snap-action contacts	1 NO + 1 NC	↻	3SE5250-0CC05
	Slow-action contacts	1 NO + 2 NC	↻	3SE5250-0KC05
	Snap-action contacts	1 NO + 2 NC	↻	3SE5250-0LC05
	Slow-action contacts with make-before-break	1 NO + 2 NC	↻	3SE5250-0MC05
	Slow-action contacts	2 NO + 1 NC	↻	3SE5250-0PC05
	Empty enclosures without contact block	--	↻	3SE5250-0AC05
Contact blocks with 2 contacts for open-type¹⁾				
	• Slow-action contacts	1 NO + 1 NC	↻	3SE5050-0BA00
	• Snap-action contacts	1 NO + 1 NC	↻	3SE5050-0CA00
	- Standard		↻	3SE5050-0GA00
	- 2 × 2 mm switching interval		↻	3SE5050-0GA00
	- Short stroke		↻	3SE5050-0NA00

↻ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Contact blocks with 3 contacts, see page 6/46.

Selection and ordering data

The quick-release devices and plug-in connections are used for fast installation and replacement of position switches.

Version		Article No.
Quick-release devices for enclosure width 40 mm		
		Adapter plates with screws Base plate with locking lever
3SY3110	3SY3027	3SY3110 3SY3027
Plug-in connections for M20 × 1.5 connecting threads		
		Connector sockets (6-pole + PE), for M20 × 1.5 For up to 250V, 10 A With connecting cable 0.75 mm ² , Plastic, degree of protection IP65, Ambient temperature -40 to +90 °C
3SY3131	3SY3136	3SY3131 3SY3136
		Connector sockets (4-pole), M12, for M20 × 1.5, fixed For max. 250 V, 4 A, $U_{imp} = 2500$ V With 4 connecting cables 0.25 mm ² , Plastic, degree of protection IP67, Ambient temperature -40 to +85 °C
3SY3127	3SY3134	3SY3127
		Connector sockets (5-pole), M12, for M20 × 1.5, fixed For max. 125 V, 4 A, $U_{imp} = 1500$ V With 5 connecting cables 0.25 mm ² , Plastic, degree of protection IP67, Ambient temperature -40 to +85 °C
3SY3127	3SY3134	3SY3128
		Connector sockets (8-pole), M12, for M20 × 1.5, fixed, metal version for max. 30 V, 2 A, $U_{imp} = 800$ V With 8 connecting cables 0.25 mm ² , Metal, degree of protection IP67, Ambient temperature -25 to +85 °C
3SY3127	3SY3134	3SY3134
Adapters and cable glands for M20 × 1.5 connecting threads		
		Adapters acc. to G, M and NPT For cable entry from M20 × 1.5 to NPT 1/2
3SX9917	3SX9918	• Metal • Plastic
		Cable glands M20 × 1.5 Plastic
3SX9926		3SX9926
		High degree of protection IP69, IEC 60529
		3SX5601-1A

¹⁾ For wiring, a crimping tool is necessary.
Conductor cross-section max. 1 mm².

SIRIUS 3SE5 Mechanical Position Switches

Accessories and spare parts

Version	Color/ Contacts	Article No.
Optional accessories for 3SE51, 3SE52		
 Protective cap	Protective caps, rubber For rounded plunger acc. to EN 50047, 3SE5...-C05	Black 3SE5000-0AC30
 Adapter	Adapters with screw¹⁾ For an increase in the mounting depth on the 3SE5000-0AH00 twist actuator, in combination with twist lever with adjustable length or rod actuator	3SX5100-3B
 Mounting plate	Mounting plate Suitable for 3SE523. and 3SE521. position switches with a width of 31 mm (especially for control cabinet types)	3SX5100-1A
Spare parts for 3SE51, 3SE52		
 Enclosure width 31 mm	Empty enclosures, plastic Enclosure width 31 mm • With increased corrosion protection Enclosure width 40 mm Enclosure width 50 mm • With increased corrosion protection	Turquoise 3SE5232-0AC05 3SE5232-0AC05-1CA0 3SE5132-0AA00 3SE5242-0AC05 3SE5242-0AC05-1CA0
 Enclosure width 40 mm	Empty enclosures, metal Enclosure width 31 mm • With increased corrosion protection Enclosure width 40 mm • With increased corrosion protection Enclosure width 56 mm • With increased corrosion protection Enclosure width 56 mm, XL ²⁾	Turquoise 3SE5212-0AC05 3SE5212-0AC05-1CA0 3SE5112-0AA00 3SE5112-0AA00-1CA0 3SE5122-0AA00 3SE5122-0AA00-1CA0 3SE5162-0AA00
 2 contacts	Contact blocks with 2 contacts³⁾ • Slow-action contacts • Snap-action contacts - Standard - Gold-plated contacts - 2 x 2 mm switching interval - Short stroke	1 NO + 1 NC ⊕ 1 NO + 1 NC ⊕ ⊕ ⊕ ⊕ ⊕ 3SE5000-0BA00 3SE5000-0CA00 3SE5000-0CA00-1AC1 3SE5000-0GA00 3SE5000-0NA00
 3 contacts	Contact blocks with 3 contacts • Slow-action contacts • Snap-action contacts • Slow-action contacts with make-before-break • Slow-action contacts	1 NO + 2 NC ⊕ 1 NO + 2 NC ⊕ 1 NO + 2 NC ⊕ 2 NO + 1 NC ⊕ 3SE5000-0KA00 3SE5000-0LA00 3SE5000-0MA00 3SE5000-0PA00
 2 contacts	Contact blocks for XL enclosure²⁾ • Slow-action contacts • Snap-action contacts • Slow-action contacts with make-before-break	1 NO + 1 NC ⊕ 1 NO + 1 NC ⊕ 1 NO + 2 NC ⊕ 3SE5060-0BA00 3SE5060-0CA00 3SE5060-0MA00

⊕ Positive opening according to IEC 60947-5-1, Appendix K.







¹⁾ Possibly required for the conversion from 3SE21 to 3SE51.

²⁾ Equip XL enclosures only with contact combinations according to pages 6/11, 6/39 and 6/40.

³⁾ Unsuitable for open-type position switches; see page 6/44.

Manual

For System Manual "SIRIUS 3SE5/3SF1 Position Switches", see <https://support.industry.siemens.com/cs/ww/en/view/43920150>.

Version	Rated voltage LEDs	Article No.	
V			
Spare parts for 3SE51, 3SE52			
 31 mm, turquoise with LED	Covers for plastic enclosures, width 31 mm		
	• Turquoise with LED	24 DC 230 AC	3SE5230-1AA00 3SE5230-3AA00
	• Yellow	--	3SE5230-0AA00-1AG0
	• Yellow with LED	24 DC 230 AC	3SE5230-1AA00-1AG0 3SE5230-3AA00-1AG0
	Covers for plastic enclosures, width 40 mm		
 40 mm, yellow with LED	• Turquoise with LED	24 DC 230 AC	3SE5130-1AA00 3SE5130-3AA00
	• Yellow	--	3SE5130-0AA00-1AG0
	• Yellow with LED	24 DC 230 AC	3SE5130-1AA00-1AG0 3SE5130-3AA00-1AG0
	Covers for plastic enclosures, width 50 mm		
	 50 mm, turquoise with LED	• Turquoise with LED	24 DC 230 AC
• Yellow		--	3SE5240-0AA00-1AG0
• Yellow with LED		24 DC 230 AC	3SE5240-1AA00-1AG0 3SE5240-3AA00-1AG0
Covers for metal enclosures, width 31 mm			
 31 mm, turquoise with LED		• Turquoise with LED	24 DC 230 AC
	• Yellow	--	3SE5210-0AA00-1AG0
	• Yellow with LED	24 DC 230 AC	3SE5210-1AA00-1AG0 3SE5210-3AA00-1AG0
	Covers for metal enclosures, width 40 mm		
	 40 mm, yellow with LED	• Turquoise with LED	24 DC 230 AC
• Yellow		--	3SE5110-0AA00-1AG0
• Yellow with LED		24 DC 230 AC	3SE5110-1AA00-1AG0 3SE5110-3AA00-1AG0
Covers for metal enclosures, width 56 mm			
 56 mm, yellow with LED		• Turquoise with LED	24 DC 230 AC
	• Yellow	--	3SE5120-0AA00-1AG0
	• Yellow with LED	24 DC 230 AC	3SE5120-1AA00-1AG0 3SE5120-3AA00-1AG0
	Covers for XL metal enclosures, width 56 mm		
	• Yellow	--	3SE5160-0AA00-1AG0

Manual

For System Manual "SIRIUS 3SE5/3SF1 Position Switches", see <https://support.industry.siemens.com/cs/ww/en/view/43920150>.

SIRIUS 3SE5 Mechanical Position Switches

With Separate Actuator

General data

Overview

Safety switches with separate actuator are used where the position of doors, covers or protective grilles must be monitored for safety reasons.

3SE5 safety switches with separate actuator have the same enclosures as the 3SE5 position switches (modular system).



3SE5 safety switches with head for separate actuator

Design

Enclosure sizes

The 3SE5 safety switches are available in four different enclosure sizes:

- Plastic enclosures according to EN 50047, 31 mm wide, IP65, 1 cable entry
- Metal enclosures according to EN 50047, 31 mm wide, IP66/IP67, 1 cable entry
- Plastic and metal enclosures according to EN 50041, 40 mm wide, IP66/IP67, 1 cable entry
- Plastic enclosures, 50 mm wide, IP66/IP67, 2 cable entries
- Metal enclosures, 56 mm wide, IP66/IP67, 3 cable entries

Also available are safety switches in the 3SE2 series which have been developed in this form according to general market requirements:

- Molded-plastic enclosures outside of the standards, enclosure width 52 mm, IP67

Enclosure versions

Various basic versions can be selected for the enclosures of the 3SE5 series:

- Available with two or three-pole contact blocks designed as slow-action contacts
- Optional LED status display
- With mounted four or five-pole M12 connector socket (available for the wide enclosures as an accessory for self-assembly)
- With 6-pole connector socket + PE on the metal enclosures
- Similarly with a combination of connector socket and LED indicators

For a description of the basic switches, [see page 6/2](#)

Operation

The actuator head is included in the scope of supply. For actuation from four directions it can be adjusted through $4 \times 90^\circ$. The switches can also be approached from above.

The actuator heads of the 3SE2243 and 3SE2257 switches with special enclosures cannot be changed. The switches can be approached from the two broad sides and from above.

The actuators are not included in the scope of supply of the safety switches and must be ordered separately from a choice of different versions to suit the application ([see page 6/58](#)).

The actuator is encoded. Simple overruling by hand or auxiliary devices is impossible.

Radius actuators

The safety switches with radius actuators are particularly suitable for rotary protective devices. The movable actuation key allows even small radii to be approached. Damage to the switch and the actuator due to inaccurate approach is prevented.

Locking devices

A high-grade steel blocking insert for attaching up to eight padlocks is available for even more security ([see page 6/58](#)).



Blocking inserts with padlock

Dust protection

A rubber cap to protect the actuator entry of the actuator head from contamination is available for operation in dusty environments ([see page 6/58](#)).

Contact reliability

The contact blocks ensure an extremely high contact stability. This applies even when the devices are switching low voltages and currents, e.g. 1 mA at 5 V DC.

Positive opening

The NC contacts of the switch are forced open mechanically, positively-driven and reliably by the plunger. This is referred to as "positive opening".

SIRIUS 3SE5 Mechanical Position Switches

With Separate Actuator

General data

Benefits

The 3SE5 safety switches with separate actuator differ from the previous series through the following new characteristics:

- All enclosure sizes with increased corrosion protection.
- All enclosure sizes are optionally available with an LED signaling indicator.
- The three-pole contact block 1 NO + 2 NC is available for all enclosure sizes.
- The plastic enclosure has simple and fast wiring equipment which makes it possible to save approx. 20 to 25 % of the time when connecting.

Application

Safety switches with separate actuator are used where the position of doors, covers or protective grilles must be monitored for safety reasons.

The safety switch can only be operated with the matching coded actuator. Simple overruling by hand or auxiliary devices is impossible.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the best contact blocks suited for the particular purpose. Dimensions, fixing points of the enclosure are in accordance with EN 50041 or EN 50047 standards. The devices are suitable for use in any climate.

Standards

IEC 60947-5-1 or EN 60947-5-1.

The protective measure of "total insulation" by the molded-plastic enclosure is guaranteed by the use of molded-plastic screw glands.

Safety position switches

For controls according to IEC 60204-1 or EN 60204-1 the devices can be used as a safety position switch. They comply with the standard EN ISO 14119. A TÜV certificate is available. To secure position switches against changes in their position, keyed techniques must be employed on installation.

Safety circuits

Standards IEC 60947-5-1 and EN 60947-5-1 require positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked in accordance with the IEC standard 60947-5-1 with the symbol ☺.

Category 3 according to EN ISO 13849-1 can be attained with a safety switch with separate actuator if the corresponding fail-safe evaluation units are selected and correctly installed, e.g. the 3SK or 3TK28 safety relays, SIMATIC or SINUMERIK product ranges.

Category 4 can be achieved when using an additional 3SE5 safety switch.

Technical specifications

Type		3SE51...V., 3SE52...V.	3SE2257-XX..	3SE2243-XX..
General data				
Standards		IEC 60947-5-1, EN 60947-5-1, EN ISO 14119		
Rated insulation voltage U_i	V	400	500	
Degree of pollution according to IEC 60664-1		Class 3	Class 3	
Rated impulse withstand voltage U_{imp}	kV	6		
Rated operational voltage U_e	V	400 AC; over 300 V AC Same potential only	500 AC; over 380 V AC Same potential only	
Conventional thermal current I_{th}	A	6	10	
Rated operational current I_e		2-pole	3-pole	1-pole
• With alternating current 50/60 Hz		I_e / AC-15	I_e / AC-15	I_e / AC-12
- At 24 V	A	6	6	10
- At 120 V	A	6	3	10
- At 240 V	A	3	1.5	6
- At 400 V	A	--	--	10
- At 500 V	A	--	--	4
• For direct current		I_e / DC-13	I_e / DC-13	I_e / DC-13
- At 24 V	A	3	3	10
- At 125 V	A	0.55	0.55	--
- At 250 V	A	0.27	0.27	--
- At 110 V	A	--	--	4
- At 220 V	A	--	--	1
- At 440 V	A	--	--	0.5
Short-circuit protection				
• With DIAZED fuse links, Operational class gG	A	6	6	
• With fuse links, quick	A	--	10	
• With miniature circuit breaker, Char. C	A	1	--	
• With miniature circuit breaker, Char. B	A	2	--	
Mechanical endurance		1 × 10 ⁶ operating cycles		
Electrical endurance				
• With 3RH.1, 3RT contactors in size S00, S0		10 × 10 ⁶ operating cycles	> 1 × 10 ⁶ operating cycles	
• For utilization category AC-15 when switching off I_e / AC-15 at 240 V		100 000 operating cycles	500 000 operating cycles	
Switching frequency		6 000 operating cycles/h		
With 3RH.1, 3RT contactors in size S00, S0				
Minimum pull-out force for positive opening	N	20	10	30

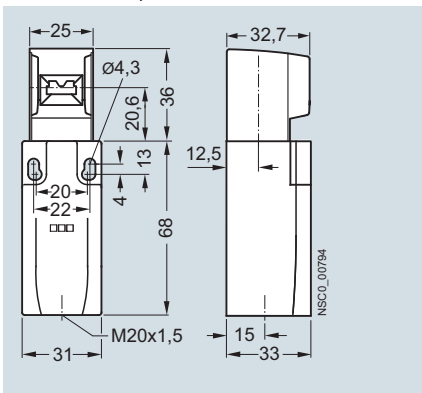
SIRIUS 3SE5 Mechanical Position Switches

With Separate Actuator

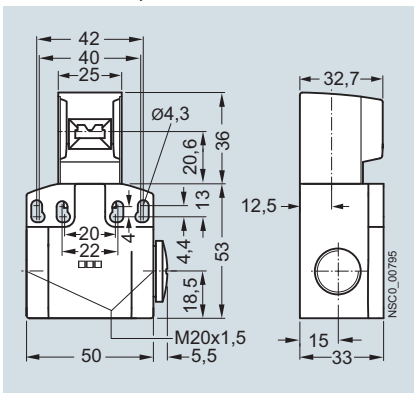
General data

3SE51, 3SE52 configuration

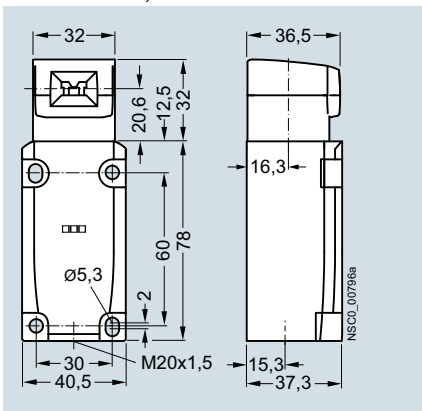
Enclosure width 31 mm
3SE523.-.QV40, 3SE523.-.RV40



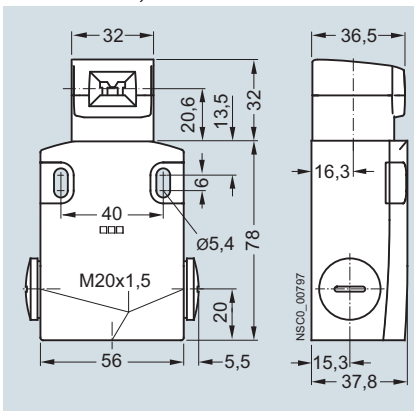
Enclosure width 50 mm
3SE524.-.QV40, 3SE524.-.RV40



Enclosure width 40 mm
3SE511.-.QV10, 3SE511.-.RV10

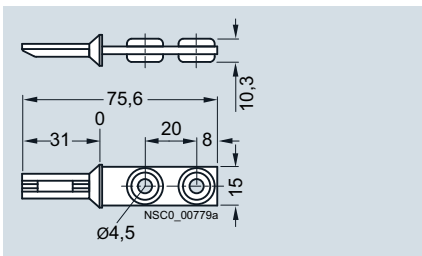


Enclosure width 56 mm
3SE512.-.QV10, 3SE512.-.RV10

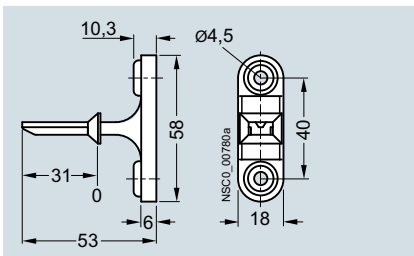


Actuators

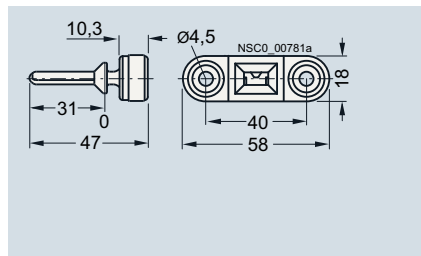
Standard actuator
3SE5000-0AV01



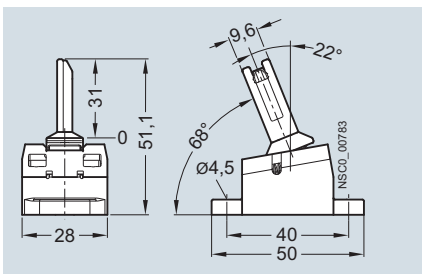
Actuator with vertical fixing
3SE5000-0AV02



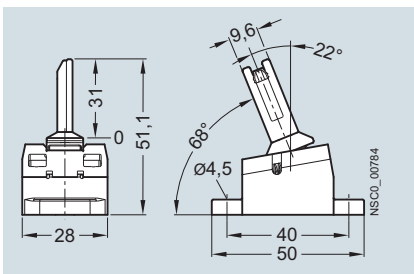
Actuator with horizontal fixing
3SE5000-0AV03



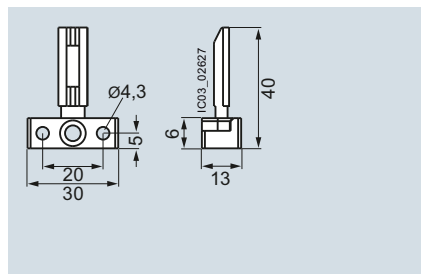
Radius actuator, approach from left
3SE5000-0AV04



Radius actuator, approach from right
3SE5000-0AV06



Actuator with horizontal fixing
3SE5000-0AW11

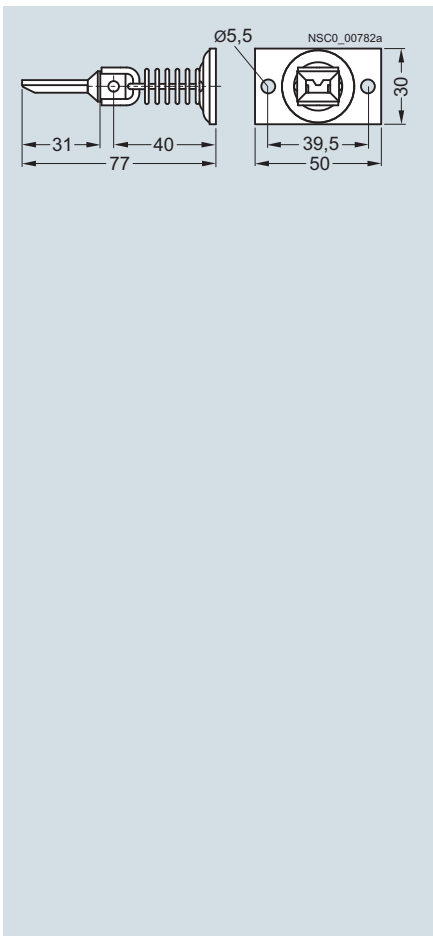


6

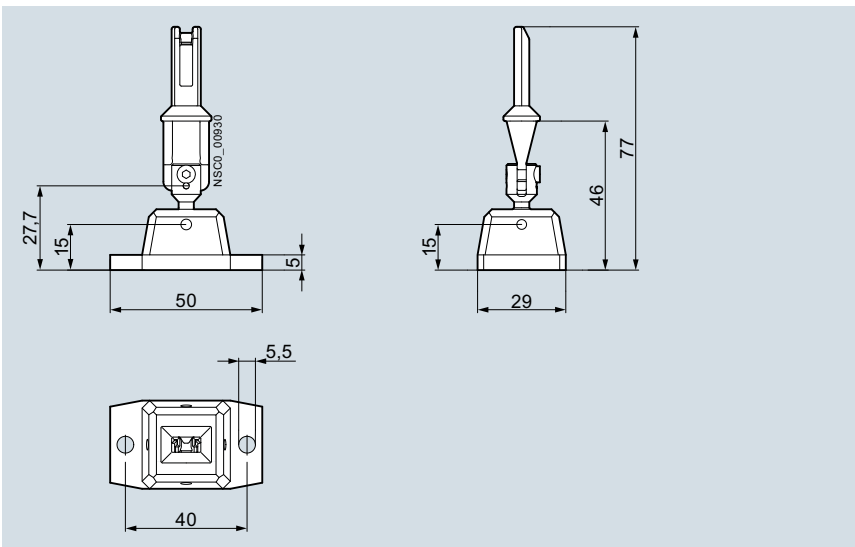
SIRIUS 3SE5 Mechanical Position Switches With Separate Actuator

General data

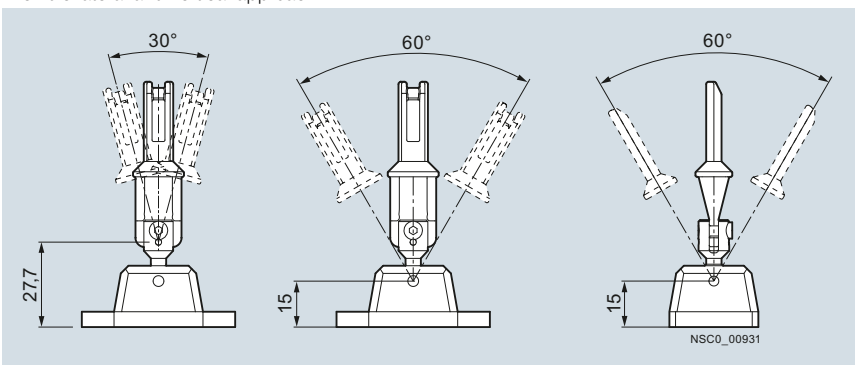
Universal radius actuator 3SE5000-0AV05



Universal radius actuator, heavy duty 3SE5000-0AV07



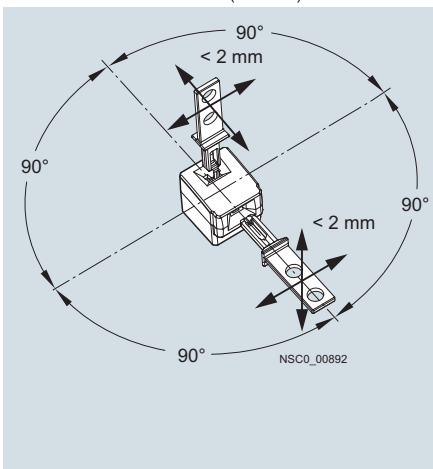
Flexible lateral and vertical approach



Actuation and travel

Standard actuator

Axial and lateral actuation (4 × 90°)



Lateral actuation (4 × 90°)

Slow-action contacts

1 NO + 1 NC, Ident. No. 11

1 NO + 2 NC, Ident. No. 12

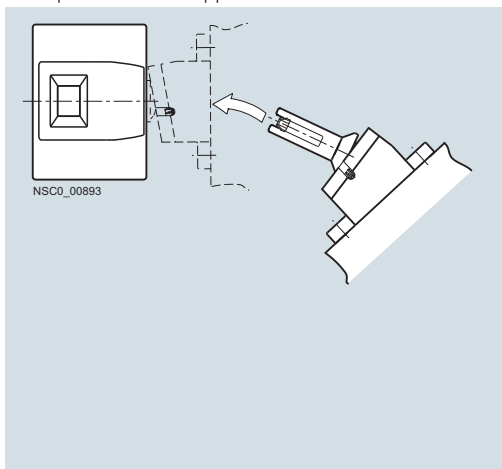
Contact closed
 Contact open

Actuator in actuator head:
NC is closed

** Positive opening point

Radius actuators (all directions of approach)

Example: Direction of approach from the left



Circuit diagrams and connector assignment, see page 6/11.

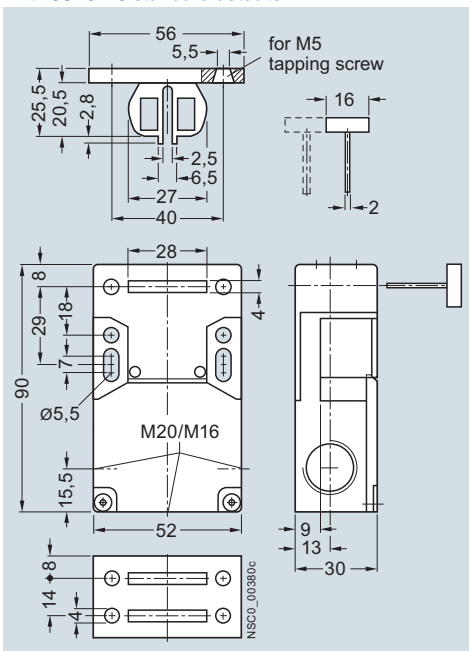
SIRIUS 3SE5 Mechanical Position Switches

With Separate Actuator

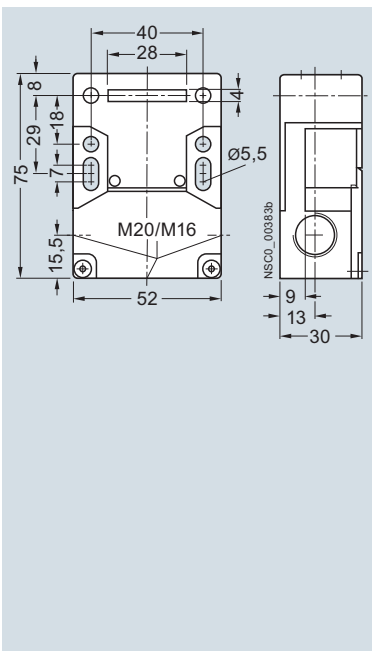
General data

3SE2243, 3SE2257 configuration

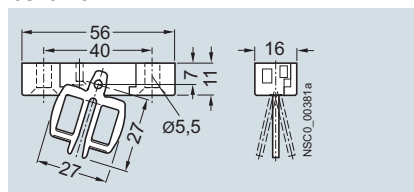
3SE2243, lateral and front-end actuation, with 3SX3218 standard actuator



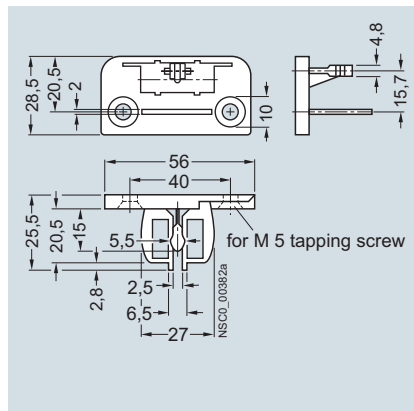
3SE2257, lateral and front-end actuation



Universal radius actuator 3SX3228



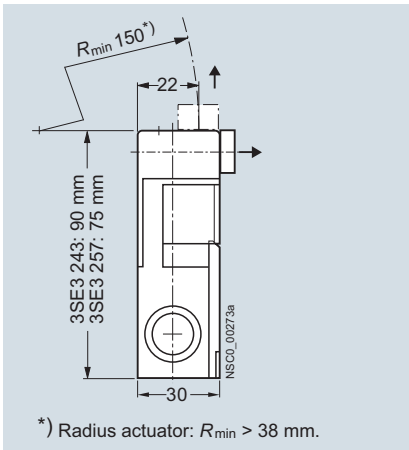
Actuator with ball locating 3SX3217



Actuation and travel

Standard and radius actuators

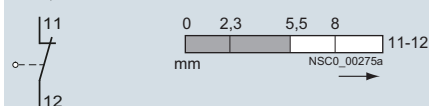
Axial and lateral actuation



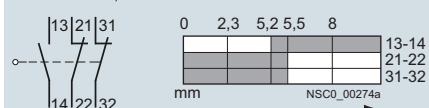
Lateral actuation

Slow-action contacts

1 NC, Ident. No. 01



1 NO + 2 NC, Ident. No. 12



■ Contact closed
□ Contact open

Actuator in actuator head:
NC is closed

SIRIUS 3SE5 Mechanical Position Switches


With Separate Actuator

3SE5, plastic enclosures, enclosure widths 31 mm according to EN 50047 and 50 mm

Selection and ordering data

Complete units

2 or 3 contacts · 5 directions of approach · Degrees of protection IP65 (31 mm) or IP66/IP67 (50 mm) · Cable entry M20 × 1.5

Version ¹⁾	Contacts	LEDs	Complete units	
			<input type="checkbox"/>	
				
			Article No.	

Enclosure width 31 mm acc. to EN 50047



With separate actuator

5 directions of approach

Slow-action contacts	1 NO + 1 NC --	↻	3SE5232-0RV40
Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0QV40
With increased minimum pull-out force 30 N			
Slow-action contacts	1 NO + 2 NC --	↻	3SE5232-0QV40-1AA1



With M12 plug

With M12 connector socket, 4-pole (250 V, 4 A)

Slow-action contacts	1 NO + 1 NC --	↻	3SE5234-0RV40-1AC4
Slow-action contacts	2 NC --	↻	3SE5234-0QV40-1AE0



With 2 LEDs

With 2 LEDs, yellow/green

Slow-action contacts	1 NO + 1 NC 24 V DC	↻	3SE5232-1RV40
Slow-action contacts	1 NO + 1 NC 230 V AC	↻	3SE5232-3RV40

With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs

Slow-action contacts	1 NO + 1 NC 24 V DC	↻	3SE5234-1RV40-1AF3
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 For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Supplied without actuator. Please order separately (see page 6/58).

SIRIUS 3SE5 Mechanical Position Switches



With Separate Actuator

3SE5, plastic enclosures, enclosure width 40 mm acc. to EN 50041

Selection and ordering data

Complete units

2 or 3 contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version ¹⁾	Contacts	LEDs	Complete units	Configurator	Article No.
Enclosure width 40 mm acc. to EN 50041					
	5 directions of approach Slow-action contacts	1 NO + 2 NC --	⊕	<input type="checkbox"/>	3SE5132-0QV20
With separate actuator					
	With 2 LEDs, yellow/green Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	<input type="checkbox"/>	3SE5132-1QV20
With 2 LEDs	Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	<input type="checkbox"/>	3SE5132-3QV20

⚙ For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Supplied without actuator. Please order separately (see page 6/58).

SIRIUS 3SE5 Mechanical Position Switches

With Separate Actuator

3SE5, plastic enclosures, enclosure width 50 mm

Selection and ordering data

Complete units

2 or 3 contacts · 5 directions of approach · Degrees of protection IP65 (31 mm) or IP66/IP67 (50 mm) · Cable entry M20 × 1.5

Version ¹⁾	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Enclosure width 50 mm



With separate actuator

5 directions of approach

Slow-action contacts	1 NO + 2 NC --	↻	3SE5242-0QV40
With increased minimum pull-out force 30 N			
Slow-action contacts	1 NO + 1 NC --	↻	3SE5242-0RV40-1AA1

With 2 LEDs, yellow/green

Slow-action contacts	1 NO + 2 NC 24 V DC	↻	3SE5242-1QV40
Slow-action contacts	1 NO + 2 NC 230 V AC	↻	3SE5242-3QV40



With 2 LEDs

For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Supplied without actuator. Please order separately (see page 6/58).

SIRIUS 3SE5 Mechanical Position Switches


With Separate Actuator

3SE5, metal enclosures, enclosure width 31 mm according to EN 50047

Selection and ordering data

Complete units

2 or 3 contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry M20 × 1.5



Version ¹⁾	Contacts	LEDs	Complete units	
			<input type="checkbox"/>	
				
			Article No.	

Enclosure width 31 mm acc. to EN 50047



With separate actuator



5 directions of approach

Slow-action contacts	1 NO + 1 NC --		3SE5212-0RV40
Slow-action contacts	1 NO + 2 NC --		3SE5212-0QV40




With 2 LEDs

With 2 LEDs, yellow/green

Slow-action contacts	1 NO + 1 NC 24 V DC		3SE5212-1RV40
Slow-action contacts	1 NO + 1 NC 230 V AC		3SE5212-3RV40

 For the online configurator, see www.siemens.com/sirius/configurators.

 Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Supplied without actuator. Please order separately (see page 6/58).

SIRIUS 3SE5 Mechanical Position Switches

With Separate Actuator

3SE5, metal enclosures, enclosure widths 40 mm according to EN 50041 and 56 mm





Selection and ordering data

Complete units



2 or 3 contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version ¹⁾	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Enclosure width 40 mm acc. to EN 50041

	5 directions of approach				
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5112-0QV10	
With separate actuator	With increased minimum pull-out force 30 N				
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5112-0QV10-1AA7	
	With M12 connector socket, 5-pole (125 V, 4 A)				
	Slow-action contacts	1 NO + 1 NC --	⊕	3SE5114-0RV10-1AC5	
With M12 plug	With connector socket, 6-pole + PE (250 V, 10 A)				
	Slow-action contacts	2 NC --	⊕	3SE5114-0QV10-1AE1	
	With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs				
	Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5112-1QV10	
With 2 LEDs	With connector socket, 6-pole + PE (10 A), and 2 LEDs				
	Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5112-3QV10	
	With M12 connector socket, 5-pole (125 V, 4 A), and 2 LEDs				
	Slow-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5114-1RV10-1AF3	
With 2 LEDs	With connector socket, 6-pole + PE (10 A), and 2 LEDs				
	Slow-action contacts	1 NO + 1 NC 24 V DC	⊕	3SE5115-1RV10-1AF2	

Enclosure width 56 mm

	5 directions of approach				
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0QV10	
With separate actuator	With increased minimum pull-out force 30 N				
	Slow-action contacts	1 NO + 2 NC --	⊕	3SE5122-0QV10-1AA7	
	With 2 LEDs, yellow/green				
	Slow-action contacts	1 NO + 2 NC 24 V DC	⊕	3SE5122-1QV10	
With 2 LEDs	With 2 LEDs, yellow/green				
	Slow-action contacts	1 NO + 2 NC 230 V AC	⊕	3SE5122-3QV10	

For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.













¹⁾ Supplied without actuator. Please order separately (see page 6/58).

SIRIUS 3SE5 Mechanical Position Switches

With Separate Actuator

Accessories

Selection and ordering data

Version	Article No.
Actuators for 3SE51, 3SE52	
 3SE5000-0AV01	Standard actuator <ul style="list-style-type: none"> Length 75.6 mm
 3SE5000-0AV02	<ul style="list-style-type: none"> With vertical fixing, length 53 mm
 3SE5000-0AV03	<ul style="list-style-type: none"> With transverse fixing, length 47 mm
 3SE5000-0AW11	<ul style="list-style-type: none"> With transverse fixing, plastic¹⁾, length 40 mm
 3SE5000-0AV06	Radius actuators, length 51 mm <ul style="list-style-type: none"> Direction of approach from the left Direction of approach from the right
 3SE5000-0AV05-1AA6	Universal radius actuator <ul style="list-style-type: none"> Length 77 mm Length 77 mm, tab rotated 90°
 3SE5000-0AV07	Universal radius actuator, heavy duty <ul style="list-style-type: none"> Length 67 mm Length 77 mm
Optional accessories for 3SE5	
 3SE5000-0AV08-1AA2	Protective caps made of black rubber for the actuator head, to protect the actuator openings from contamination (Only for enclosure width 40 or 56 mm)
 3SE5000-0AV08-1AA3	Blocking inserts , high-grade steel, for actuator head, for up to eight padlocks
Connections for 3SE5, 3SE2	
 3SY3127	Connector sockets (4-pole), M12, fixed for M20 x 1.5 for max. 250 V, 4 A With connecting cable 0.25 mm ² , Plastic, degree of protection IP67, Ambient temperature -40 to +85 °C
 3SY3128	Connector sockets (5-pole), M12, fixed for M20 x 1.5 for max. 125 V, 4 A With connecting cable 0.25 mm ² , Plastic, degree of protection IP67, Ambient temperature -40 to +85 °C
 3SX9926	Cable glands M20 x 1.5 Plastic

¹⁾ Not suitable for safety switches with tumbler.

Overview

The safety switches with tumbler are exceptional safety-related devices which prevent an unforeseen or intentional opening of protective doors, protective grilles or other covers as long as a dangerous situation is present (e.g. follow-on motion of the switched-off machine).



3SE5 safety switch with tumbler

The safety switches with tumbler comprise a switch part with electromechanical tumbler and a mechanical actuator which has to be ordered separately.

They are rugged protective devices that enable the greatest possible safety for man and machine.

The safety switches with tumbler are offered in plastic or metal enclosures.

Dimensions (W × H × D): 54 mm × 185 mm × 43.5 mm

Operation

The actuator head is included in the scope of supply. For actuation from four directions it can be adjusted through $4 \times 90^\circ$. The switches can also be approached from above.

The actuators are not included in the scope of supply of the safety switches and must be ordered separately from a choice of different versions to suit the application (see page 6/66).

Actuation data:

- Maximum actuating speed $v_{\max} = 1.5 \text{ m/s}$
- Minimum actuating speed $v_{\min} = 0.4 \text{ mm/s}$
- Minimum force in the direction of actuation $F_{\min} = 30 \text{ N}$

The actuator is encoded. Simple overruling by hand or auxiliary devices is impossible.

Radius actuators

The safety switches with radius actuators are particularly suitable for rotary protective devices. The movable actuation key allows even small radii to be approached. Damage to the switch and the actuator due to inaccurate approach is prevented.

Locking devices

A high-grade steel locking device for attaching up to eight padlocks is available for even more security (see page 6/66).

Dust protection

A rubber cap to protect the actuator entry of the actuator head from contamination is available for operation in dusty environments (see page 6/66).

Tumbler

There are two versions for interlocking the actuator:

- Spring-actuated lock (closed-circuit principle) with various release mechanisms
- Solenoid-locked (open-circuit principle)

The spring-actuated lock switch is equipped with an auxiliary release for emergency situations or setup mode. Available as options:

- Escape release or
- Emergency release

Contact blocks

The safety switches with tumbler have one switching block each for:

- Monitoring the actuator or the position of the protective door
- Monitoring the position of the solenoid

The mechanical design of the switches corresponds to the requirements of the fail-safe principle according to EN ISO 14119.

Optical signaling equipment

The safety switches with tumbler are available with an optional optical signaling device.

The signaling device indicates the switch position of the interlock and the protective device optically by means of 2 LEDs on the front.

Protective device	Tumbler	Display	Meaning
Closed	Released		Actuators able to be pulled
Closed	Locked		Actuators locked
Open	Released		Actuators pulled

Internal wiring:

- The yellow LED is pre-wired to the magnetic monitoring NO contact.
- The green LED is pre-wired to the actuator monitoring NC contact.
- LED ground is pre-wired to the ground of the solenoid.

Note:

- The operational voltage must be connected to the corresponding contacts by the customer.
- This voltage for the LEDs must match the operational voltage of the solenoid (same potential).

SIRIUS 3SE5 Mechanical Position Switches

With Tumbler

General data

Benefits

The new generation of 3SE53 safety switches offers:

- More safety through higher locking forces:
 - 1300 N with plastic enclosure
 - 2600 N with metal enclosure
- Various release mechanisms: Lock release, escape release and emergency release
- Two contact blocks each with three contacts as standard equipment, hence fewer versions needed
- Same dimensions for all enclosure versions: Plastic and metal
- An extensive range of actuators
- An optional LED status display 24 V DC, 115 V AC or 230 V AC for all switch versions
- 3SE5322-1S.21-1AG4 series with high degree of protection IP69, IP69K in accordance with IEC 60529, cover with foamed seal

Application

The safety switches with tumbler are exceptional safety-related devices which prevent an unforeseen or intentional opening of protective doors, protective grilles or other covers as long as a dangerous situation is present (e.g. follow-on motion of the switched-off machine).

The safety position switches with tumbler have the following functions:

- Enabling the machine or process with closed and locked protective device
- Locking the machine or process with opened protective device
- Position monitoring of the protective device and tumbler

Standards

The switches comply with the standards IEC 60947-1 (Low-Voltage Switchgear and Controlgear, General) and IEC 60947-5-1 (Electromechanical Control Circuit Devices).

The mechanical design of the switch corresponds to the requirements of the fail-safe principle according to EN ISO 14119.

Approvals

The switches are approved for use with locking devices according to EN ISO 14119 and EN 292, Parts 1 and 2.

Category 3 according to EN ISO 13849-1 can be attained with a safety switch with tumbler if the corresponding fail-safe evaluation units are selected and correctly installed, e.g. the 3SK or 3TK28 safety relays or matching units from the SIMATIC or SINUMERIK product ranges.

Category 4 can be achieved when using an additional 3SE5 safety switch.

These switches are approved according to UL 508, UL 50 and UL 746-C.

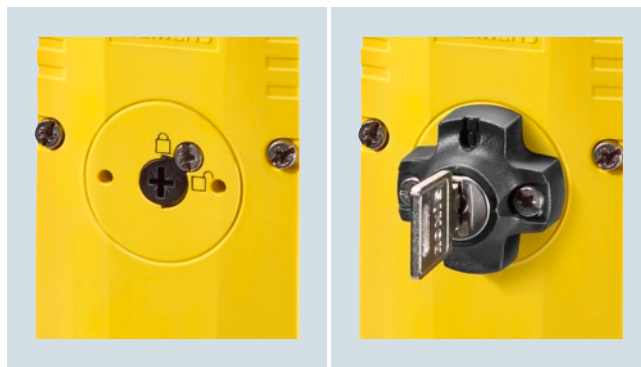
Tumbler

The separate actuator operates in a similar way to the coding of a key and protects against manipulation. It transmits the locking force to the protective device and helps to monitor its position.

There are two versions of locking:

Spring-actuated lock (closed-circuit principle)

- In the standard version, the safety switch locks by means of spring force and releases by means of electromagnetic force. In the case of voltage failure, it reliably prevents the protective device from opening when machine parts are still moving.
- The switch is equipped with an auxiliary release for emergency situations or setup mode.
- An auxiliary release which can be secured with a lock to prevent misuse is available as a version.

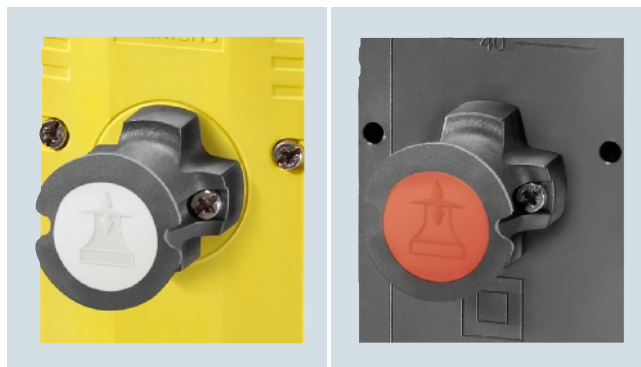


Auxiliary release

Auxiliary release with lock

The 3SE53 safety switches are also available with an escape release or emergency release.

- Personnel working inside the hazard zone can use the escape release feature to manually release the tumbler without tools from the escape side (hazardous area side) so that they can exit the hazard area. An intentional act (in this case pulling the gray actuator) is required to release the locking mechanism and restore the normal operating state.
- The emergency release enables someone in an emergency situation to manually release the tumbler without tools from the access side (outside the hazardous area). Releasing the lock and restoring the normal operating state must require effort which is comparable to repair activity, in this case disassembly of the red actuator and resetting the mechanical lock.



Escape release from the front

Emergency release from the back

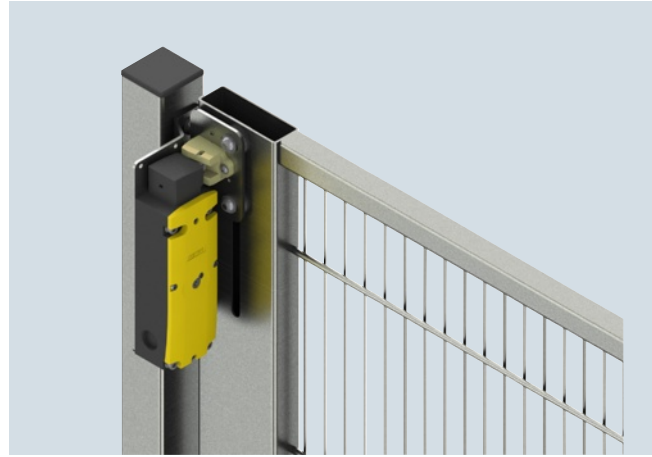
Solenoid-locked (open-circuit principle)

- The second version offers locking by means of electromagnetic force and release by means of spring force. This version has an advantage when it is necessary to quickly access the machine after a power failure occurs, or in the case of very short coasting times.

Examples of door interlocking



X-Lock door interlocking from Axelent



Door interlocking from Brühl

For the addresses of the door interlock manufacturers, see [page 16/21](#).

Technical specifications

Type	3SE5322	3SE5312
General data		
Standards	IEC 60947-5-1, EN 60947-5-1, EN ISO 14119	
Rated insulation voltage U_i	V	250
Degree of pollution according to IEC 60664-1	Class 3	
Rated impulse withstand voltage U_{imp}	kV	4
Rated operational voltage U_e		
• DC	V	24
• 50/60 Hz AC	V	230
Conventional thermal current I_{th}	A	6
Rated operational current I_e		
• With alternating current 50/60 Hz	I_e / AC-15 or B300	
- At 24 V	A	6
- At 120 V	A	3
- At 230 V	A	1.5
• For direct current	I_e / DC-13 or Q300	
- At 24 V	A	3
- At 125 V	A	0.55
- At 250 V	A	0.27
Solenoid		
• Locking force, max.	N	1 300 2 600
• Locking force according to GS-ET 19	N	1 000 2 000
• Power consumption at U_c	W	3.5
Short-circuit protection¹⁾		
• With DIAZED fuse links, Operational class gG	A	6
• With miniature circuit breaker, Char. C	A	0.5
Mechanical endurance	1 × 10 ⁶ operating cycles	
Electrical endurance		
• With 3RH.1, 3RT contactors in size S00, S0	1 × 10 ⁶ operating cycles	
• For utilization category AC-15 when switching off I_e / AC-15 at 230 V	100 000 operating cycles	
• With utilization category DC-12/DC-13	For direct current depending on the loading of the switch	
Switching frequency	6 000 operating cycles/h	
With 3RH.1, 3RT contactors in size S00, S0		
Shock resistance acc. to IEC 60068-2-27	30 g / 11 ms	

¹⁾ Without any welds according to IEC 60947-5-1.

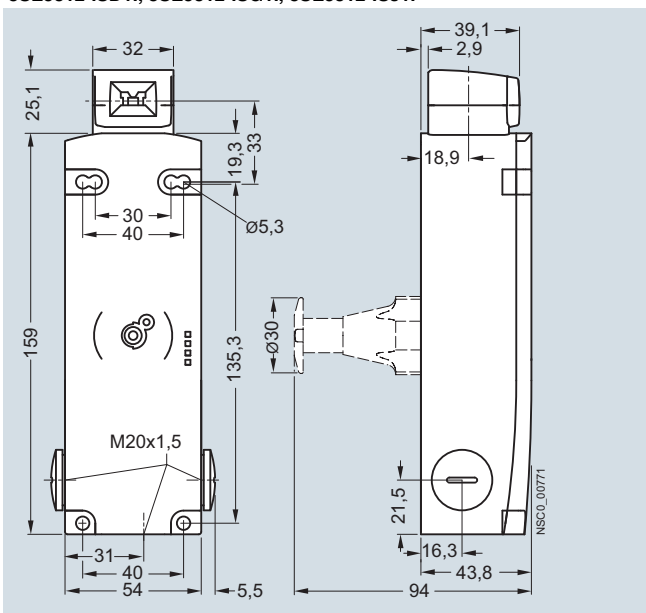
SIRIUS 3SE5 Mechanical Position Switches

With Tumbler

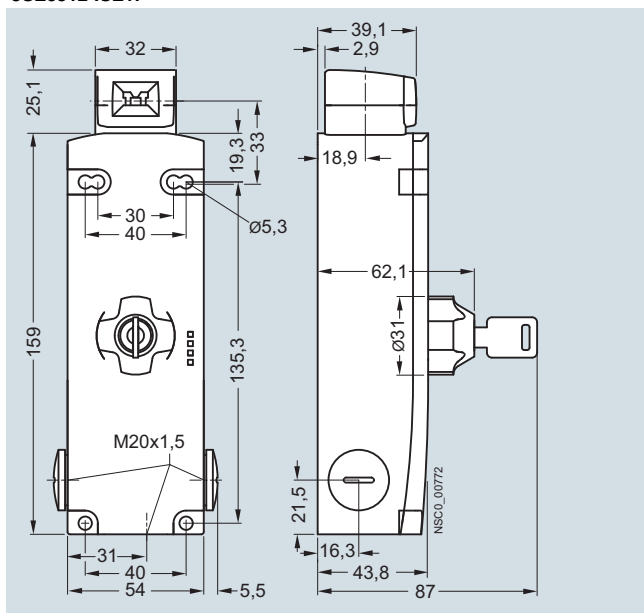
General data

3SE53 configuration

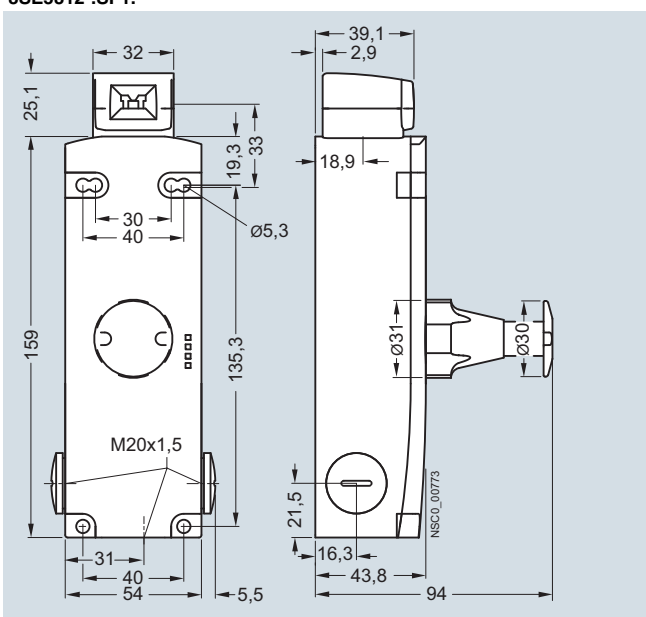
Spring-actuated lock, with auxiliary release
 3SE5322-SD2., 3SE5322-SG2., 3SE5322-SJ2.,
 3SE5312-SD1., 3SE5312-SG1., 3SE5312-SJ1.



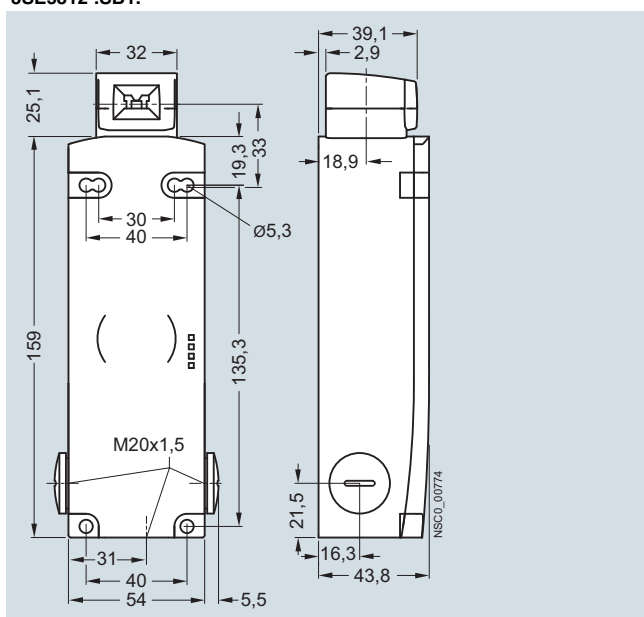
Spring-actuated lock, with auxiliary release with lock
 3SE5322-SE2.,
 3SE5312-SE1.



Spring-actuated lock, with escape release
 3SE5322-SF2.,
 3SE5312-SF1.



Solenoid-locked
 3SE5322-SB2.,
 3SE5312-SB1.



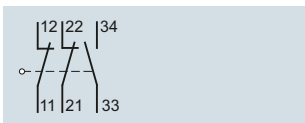
Note:

The plastic enclosures have knock-out openings behind the connecting thread; and are supplied without protective caps because of this.

Circuit diagrams

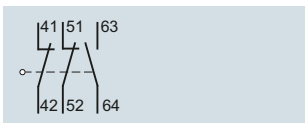
Monitoring the actuator

Slow-action contacts 1 NO + 2 NC



Monitoring the solenoid

Slow-action contacts 1 NO + 2 NC



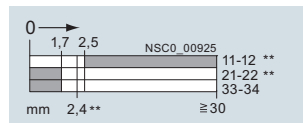
For actuators, see pages 6/50 and 6/51.

For operation, see page 6/51.

Operating travel

Monitoring the actuator

Slow-action contacts 1 NO + 2 NC



SIRIUS 3SE5 Mechanical Position Switches

With Tumbler

3SE5, plastic enclosures with locking force greater than 1200 N

Selection and ordering data

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 × M20 × 1.5 · Locking force 1 300 N

Tumbler ¹⁾	LEDs	Solenoid, rated operational voltage	Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC Configurator Article No.
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1 300 N locking force · Enclosure width 54 mm

	Spring-actuated lock • With auxiliary release	--	24 DC	↻	3SE5322-0SD21			
		--	115 AC	↻	3SE5322-0SD22			
		--	230 AC	↻	3SE5322-0SD23			
		Yellow/Green	24 DC	↻	3SE5322-1SD21			
		Yellow/Green	115 AC	↻	3SE5322-2SD22			
		Yellow/Green	230 AC	↻	3SE5322-3SD23			
	• With auxiliary release With lock	--	24 DC	↻	3SE5322-0SE21			
		--	115 AC	↻	3SE5322-0SE22			
		--	230 AC	↻	3SE5322-0SE23			
		Yellow/Green	24 DC	↻	3SE5322-1SE21			
		Yellow/Green	115 AC	↻	3SE5322-2SE22			
		Yellow/Green	230 AC	↻	3SE5322-3SE23			
	• With escape release from the front	--	24 DC	↻	3SE5322-0SF21			
		--	115 AC	↻	3SE5322-0SF22			
		--	230 AC	↻	3SE5322-0SF23			
		Yellow/Green	24 DC	↻	3SE5322-1SF21			
		Yellow/Green	115 AC	↻	3SE5322-2SF22			
		Yellow/Green	230 AC	↻	3SE5322-3SF23			
	• With escape release from the front and emergency release from the back	--	24 DC	↻	3SE5322-0SL21			
		• With escape release from the back and front auxiliary release	--	24 DC	↻	3SE5322-0SG21		
			--	115 AC	↻	3SE5322-0SG22		
			--	230 AC	↻	3SE5322-0SG23		
			Yellow/Green	24 DC	↻	3SE5322-1SG21		
			Yellow/Green	115 AC	↻	3SE5322-2SG22		
Yellow/Green	230 AC		↻	3SE5322-3SG23				
	• With escape release from the back and auxiliary release with lock from the front	--	24 DC	↻	3SE5322-0SH21			
		• With emergency release from the back and front auxiliary release	--	24 DC	↻	3SE5322-0SJ21		
			--	115 AC	↻	3SE5322-0SJ22		
			--	230 AC	↻	3SE5322-0SJ23		
			Yellow/Green	24 DC	↻	3SE5322-1SJ21		
			Yellow/Green	115 AC	↻	3SE5322-2SJ22		
Yellow/Green	230 AC		↻	3SE5322-3SJ23				
	Solenoid-locked	--	24 DC	↻	3SE5322-0SB21			
		--	115 AC	↻	3SE5322-0SB22			
		--	230 AC	↻	3SE5322-0SB23			
		Yellow/Green	24 DC	↻	3SE5322-1SB21			
		Yellow/Green	115 AC	↻	3SE5322-2SB22			
		Yellow/Green	230 AC	↻	3SE5322-3SB23			

 ⚙ For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.


¹⁾ Supplied without actuator. Please order separately (see page 6/66).

SIRIUS 3SE5 Mechanical Position Switches

With Tumbler


3SE5, plastic enclosures with locking force greater than 1200 N

6 slow-action contacts · 5 directions of approach · **Degree of protection IP69K** · Cable entry 3 × M20 × 1.5 · Locking force 1 300 N
 • With foamed seal and special cover

Tumbler ¹⁾	LEDs	Solenoid, rated operational voltage	Complete units Position monitoring: <input type="checkbox"/> Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC Configurator  Article No.
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V

1 300 N locking force · Enclosure width 54 mm · Degree of protection IP69K

Spring-actuated locks					
	• With auxiliary release	Yellow/Green	24 DC	⊕	3SE5322-1SD21-1AG4
	• With auxiliary release • With lock	Yellow/Green	24 DC	⊕	3SE5322-1SE21-1AG4
	• With escape release from the front	Yellow/Green	24 DC	⊕	3SE5322-1SF21-1AG4
	• With escape release from the back and front auxiliary release	Yellow/Green	24 DC	⊕	3SE5322-1SG21-1AG4

 For the online configurator, see www.siemens.com/sirius/configurators.

⊕ Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Supplied without actuator. Please order separately (see page 6/66).

Accessories

Version	Article No.
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Accessories



Cable glands M20 × 1.5
 Plastic
 high degree of protection IP69, IEC 60529

3SX5601-1A

SIRIUS 3SE5 Mechanical Position Switches

With Tumbler

3SE5, metal enclosures with locking force greater than 2 000 N

Selection and ordering data

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 × M20 × 1.5 · Locking force 2 600 N

Tumbler ¹⁾	LEDs	Solenoid, rated operational voltage	Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC Configurator Article No.
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2 600 N locking force · Enclosure width 54 mm

	Spring-actuated locks • With auxiliary release	--	24 DC	↻	3SE5312-OSD11	
		--	115 AC	↻	3SE5312-OSD12	
		--	230 AC	↻	3SE5312-OSD13	
		Yellow/Green	24 DC	↻	3SE5312-1SD11	
		Yellow/Green	115 AC	↻	3SE5312-2SD12	
		Yellow/Green	230 AC	↻	3SE5312-3SD13	
		• With auxiliary release With lock	--	24 DC	↻	3SE5312-OSE11
			--	115 AC	↻	3SE5312-OSE12
			--	230 AC	↻	3SE5312-OSE13
		Yellow/Green	24 DC	↻	3SE5312-1SE11	
		Yellow/Green	115 AC	↻	3SE5312-2SE12	
		Yellow/Green	230 AC	↻	3SE5312-3SE13	
	• With escape release from the front	--	24 DC	↻	3SE5312-OSF11	
		--	115 AC	↻	3SE5312-OSF12	
		--	230 AC	↻	3SE5312-OSF13	
		Yellow/Green	24 DC	↻	3SE5312-1SF11	
		Yellow/Green	115 AC	↻	3SE5312-2SF12	
		Yellow/Green	230 AC	↻	3SE5312-3SF13	
	• With escape release from the back and auxiliary release from the front	--	24 DC	↻	3SE5312-OSG11	
		--	115 AC	↻	3SE5312-OSG12	
		--	230 AC	↻	3SE5312-OSG13	
		Yellow/Green	24 DC	↻	3SE5312-1SG11	
		Yellow/Green	115 AC	↻	3SE5312-2SG12	
		Yellow/Green	230 AC	↻	3SE5312-3SG13	
	• With escape release from the back and auxiliary release with lock from the front	--	24 DC	↻	3SE5312-OSH11	
		• With emergency release from the back and front auxiliary release	--	24 DC	↻	3SE5312-OSJ11
	--		115 AC	↻	3SE5312-OSJ12	
	--		230 AC	↻	3SE5312-OSJ13	
		Yellow/Green	24 DC	↻	3SE5312-1SJ11	
Yellow/Green		115 AC	↻	3SE5312-2SJ12		
Yellow/Green		230 AC	↻	3SE5312-3SJ13		
	Solenoid-locked	--	24 DC	↻	3SE5312-OSB11	
		--	115 AC	↻	3SE5312-OSB12	
		--	230 AC	↻	3SE5312-OSB13	
		Yellow/Green	24 DC	↻	3SE5312-1SB11	
		Yellow/Green	115 AC	↻	3SE5312-2SB12	
		Yellow/Green	230 AC	↻	3SE5312-3SB13	

 ⚙ For the online configurator, see www.siemens.com/sirius/configurators.

↻ Positive opening according to IEC 60947-5-1, Appendix K.





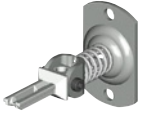





¹⁾ Supplied without actuator. Please order separately (see page 6/66).

SIRIUS 3SE5 Mechanical Position Switches

With Tumbler

Accessories

Selection and ordering data

Version	Article No.
Actuators for 3SE53	
 3SE5000-0AV01	Standard actuator <ul style="list-style-type: none"> Length 75.6 mm
 3SE5000-0AV02	<ul style="list-style-type: none"> With vertical fixing, length 53 mm
 3SE5000-0AV03	<ul style="list-style-type: none"> With transverse fixing, length 47 mm
 3SE5000-0AV04	Radius actuators, length 51 mm <ul style="list-style-type: none"> Direction of approach from the left Direction of approach from the right
 3SE5000-0AV05-1AA6	Universal radius actuator <ul style="list-style-type: none"> Length 77 mm Length 77 mm, tab rotated 90°
 3SE5000-0AV07	Universal radius actuator, heavy duty <ul style="list-style-type: none"> Length 67 mm Length 77 mm
Optional accessories for 3SE5	
 3SE5000-0AV08-1AA2	Protective caps made of black rubber for the actuator head, to protect the actuator openings from contamination
 3SE5000-0AV08-1AA3	Blocking inserts , high-grade steel, for actuator head, for up to eight padlocks
Spare parts for 3SE53	
	Spare keys
	3SX5100-1F
Connection for 3SE5	
 3SY3127	Connector sockets (4-pole), M12, fixed for M20 × 1.5 For max. 250 V, 4 A With connecting cable 0.25 mm ² Plastic, degree of protection IP67 Ambient temperature -40 to +85 °C
 3SX9926	Connector sockets (5-pole), M12, fixed for M20 × 1.5 For max. 125 V, 4 A With connecting cable 0.25 mm ² Plastic, degree of protection IP67 Ambient temperature -40 to +85 °C
	Cable glands M20 × 1.5 Plastic High degree of protection IP69, IEC 60529
	3SX9926 3SX5601-1A

Overview

3SE5 hinge switches have the same enclosures as the 3SE5 position switches (modular system).



Hinge switches

Design

Enclosure sizes

The 3SE5 switches are available as complete units in two enclosure sizes:

- Plastic enclosures according to EN 50047, 31 mm wide, IP65, 1 cable entry
- Metal enclosures according to EN 50047, 31 mm wide, IP66/IP67, 1 cable entry
- Plastic and metal enclosures according to EN 50041, 40 mm wide, IP66/IP67, 1 cable entry

Enclosure versions

Various basic versions can be selected for the enclosures:

- Available with two or three-pole switching elements designed as snap-action contacts

For a description of the basic switches, [see page 6/2](#).

Operating mechanism

The hinge switches are provided for mounting on hinges. The actuator head is included in the scope of supply. There are two versions:

- Operating mechanism with hollow shaft, inner diameter 8 mm, outer 12 mm
- Operating mechanism with solid shaft, diameter 10 mm

3SE2283 hinge switches

The 3SE2283 hinge switches with integrated hinge are available in a special design. They are particularly suitable for use in machine doors and flaps.

Benefits

The 3SE5 hinge switches differ from the previous series through the following new characteristics:

- All actuators can be turned around the axis in increments of 22.5° ([see picture, page 6/3](#)).
- The new three-pole contact block 1 NO + 2 NC is available for all enclosure sizes ([see picture, page 6/3](#)).
- The plastic enclosure with a width of 31 mm has simple and fast wiring equipment which makes it possible to save approx. 20 to 25 % of the time when connecting ([see picture, page 6/3](#)).

Application

The hinge switches are used in those areas where the position of swiveling protective devices such as doors or flaps must be monitored. With these switches, the position of the doors and flaps is converted into electric signals. The switches allow shutdown and signaling without delay in the event of a small opening angle through the snap-action contacts with an operating angle of 10°.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the contact blocks best suited for the particular purpose. Dimensions and fixing points of the enclosures are in accordance with EN 50041 or EN 50047 standards.

The devices are suitable for use in any climate.

Standards

IEC 60947-5-1 or EN 60947-5-1.

The protective measure of "total insulation" by the molded-plastic enclosure is ensured by the use of molded-plastic screw glands.

Safety position switches

For controls according to IEC 60204-1 or EN 60204-1 the devices can be used as a safety position switch. To secure position switches against changes in their position, keyed techniques must be employed on installation.

Safety circuits

Standards IEC 60947-5-1 and EN 60947-5-1 require positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked in accordance with IEC 60947-5-1 with the symbol ☞.

Category 4 according to EN ISO 13849-1 can be attained with the 3SE5 hinge switches with ☞ if the corresponding fail-safe evaluation units are selected and correctly installed, e.g. the 3SK or 3TK28 safety relays or matching devices from the SIMATIC or SINUMERIK product ranges.

SIRIUS 3SE5 Mechanical Safety Hinge Switches

General data

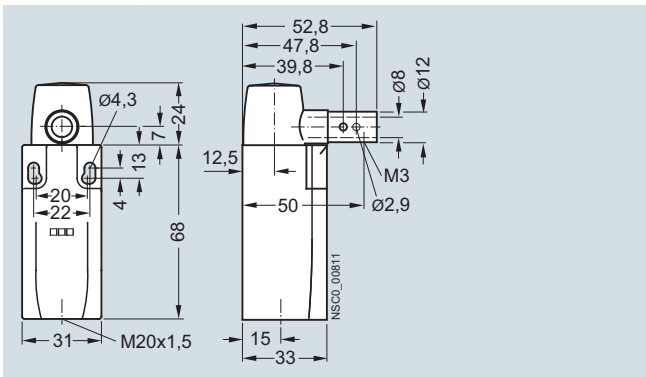
Technical specifications

The technical specifications are the same as for the standard switches (see page 6/6).

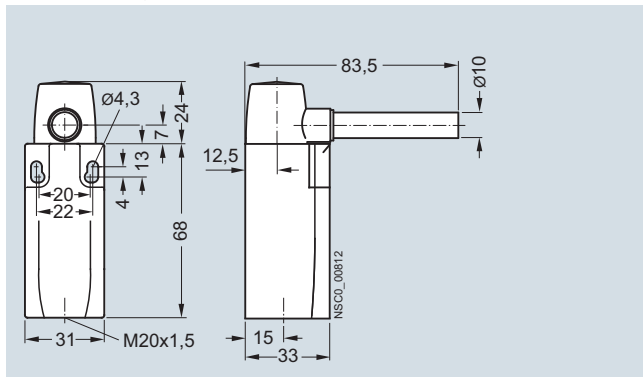
Configuration

Enclosure width 31 mm

With hollow shaft
3SE5212-0.U21, 3SE5232-0.U21

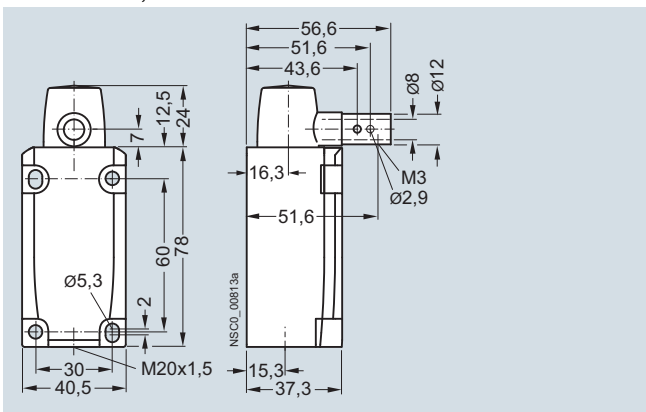


With solid shaft
3SE5212-0.U22, 3SE5232-0.U22

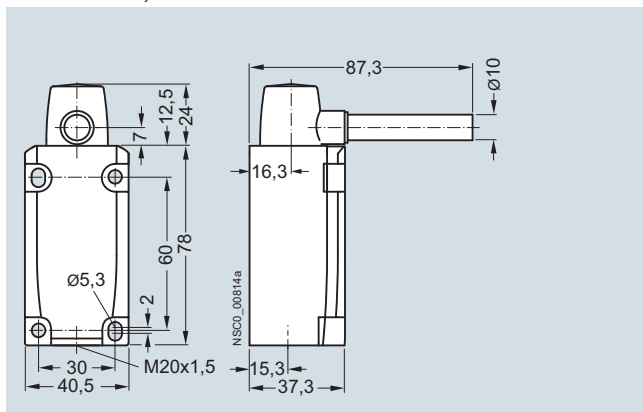


Enclosure width 40 mm

With hollow shaft
3SE5112-0.U21, 3SE5132-0.U21



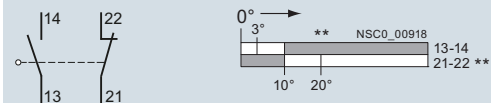
With solid shaft
3SE5112-0.U22, 3SE5132-0.U22



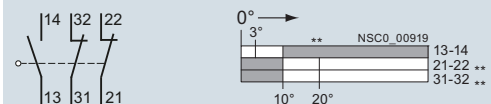
Operating travel of the shaft

Snap-action contacts

1 NO + 1 NC, Ident. No. 11



1 NO + 2 NC, Ident. No. 12



■ Contact closed

□ Contact open

** Positive opening point

SIRIUS 3SE5 Mechanical Safety Hinge Switches

3SE5, Plastic Enclosures

Enclosure widths 31 mm / 40 mm

Selection and ordering data

Complete units

2 or 3 contacts · Degrees of protection IP65 (31 mm) or IP67/IP68 (40 mm) · Cable entry M20 × 1.5

Version	Snap-action contacts	Complete units <input type="checkbox"/>
		Configurator
		Article No.

Plastic enclosures · Enclosure width 31 mm acc. to EN 50047



With hollow shaft

With hollow shaft

Operating angle 10°

1 NO + 1 NC¹⁾

Operating angle 10°

1 NO + 2 NC

3SE5232-0HU21**3SE5232-0LU21**

With solid shaft

With solid shaft

Operating angle 10°

1 NO + 1 NC¹⁾

Operating angle 10°

1 NO + 2 NC

3SE5232-0HU22**3SE5232-0LU22**

Plastic enclosures · Enclosure width 40 mm acc. to EN 50041



With hollow shaft

With hollow shaft

Operating angle 10°

1 NO + 2 NC

3SE5132-0LU21

With solid shaft

With solid shaft

Operating angle 10°

1 NO + 2 NC

3SE5132-0LU22
 For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Contact blocks permanently integrated, replacement not available.

Spare parts

Version	Article No.
---------	-------------

Actuator heads



With hollow shaft

With hollow shaft

Operating angle 10°

3SE5000-0AU21

With solid shaft

With solid shaft

Operating angle 10°

3SE5000-0AU22

Note:

The respective actuators are included in the scope of supply for the complete units.

SIRIUS 3SE5 Mechanical Safety Hinge Switches


3SE5, Metal Enclosures

Enclosure widths 31 mm / 40 mm

Selection and ordering data

Complete units

3 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5

Version	Snap-action contacts	Complete units <input type="checkbox"/>	
		Configurator 	
		Article No.	


Metal enclosures · Enclosure width 31 mm according to EN 50047



With hollow shaft

With hollow shaft

Operating angle 10°

1 NO + 2 NC 


3SE5212-0LU21



With solid shaft

With solid shaft

Operating angle 10°

1 NO + 2 NC 

3SE5212-0LU22


Metal enclosures · Enclosure width 40 mm according to EN 50041



With hollow shaft

With hollow shaft

Operating angle 10°

1 NO + 2 NC 


3SE5112-0LU21



With solid shaft


With solid shaft

Operating angle 10°

1 NO + 2 NC 

3SE5112-0LU22

 For the online configurator, see www.siemens.com/sirius/configurators.

 Positive opening according to IEC 60947-5-1, Appendix K.

Spare parts

Version	Article No.	
---------	-------------	--

Actuator heads



With hollow shaft

With hollow shaft

Operating angle 10°

3SE5000-0AU21



With solid shaft

With solid shaft

Operating angle 10°

3SE5000-0AU22

Note:

The respective actuators are included in the scope of supply for the complete units.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° CShock and Vibration Test
SIRIUS 3SE5 Mechanical Safety Switches


3SE5, plastic enclosures

Selection and ordering data**Complete units**

2 or 3 contacts · Degree of protection IP65 or IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ · Enclosure width 31 mm *NEW*

	Twist levers, 21 mm long, according to EN 50047 With plastic roller 19 mm, with M20 connector socket Snap-action contacts	1 NO + 2 NC --	3SE5232-0LK21-1AY0
	Roller levers, according to EN 50047 With plastic roller 13 mm, with M20 connector socket Snap-action contacts	1 NO + 2 NC --	3SE5232-0LE10-1AY0
	Rod actuators, according to EN 50047 Plastic rod, length 200 mm, with M20 connector socket Snap-action contacts	1 NO + 1 NC --	3SE5232-0HK82-1AY0
	Spring rod, according to EN 50047 With M20 connector socket Snap-action contacts	1 NO + 1 NC --	3SE5232-0HR01-1AY0

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Subsequent replacement of contact blocks is not possible.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test

SIRIUS 3SE5 Mechanical Safety Switches with Tumbler

3SE5, plastic enclosures

Selection and ordering data

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 × M20 × 1.5 · Locking force 1 300 N

Tumbler ¹⁾	LEDs	Solenoid, rated operational voltage	Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC	<input type="checkbox"/>
			Configurator	
		V	Article No.	

1 300 N locking force · Enclosure width 54 mm *NEW*

Spring-actuated locks

- With front auxiliary release

24 DC


3SE5322-0SD21-1AY0

 For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Supplied without actuator. Please order separately.

Accessories/spare parts

Version	Article No.
---------	-------------

Accessories

Standard actuator

- Length 75.6 mm

3SE5000-0AV01


SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C


Shock and Vibration Test

SIRIUS 3SE5 Safety Switches and Hinge Switches

3SE5, plastic enclosures

Selection and ordering data

With enhanced corrosion protection.


Version	Contacts	LEDs	Complete units <input type="checkbox"/>
			Configurator 
			Article No.

Complete units¹⁾ • Enclosure width 31 mm *NEW***Hinge switches, according to EN 50047****With hollow shaft D = 8 mm, operating angle 10 degrees, with M20 connector socket**

Snap-action contacts 1 NO + 1 NC -- ↻

3SE5232-0HU21-1AY0

Hinge switches

 For the online configurator, see www.siemens.com/sirius/configurators. Positive opening according to IEC 60947-5-1, Appendix K.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, plastic enclosures

Selection and ordering data

Complete units

2 or 3 contacts · Degrees of protection IP65 or IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units¹⁾ • Enclosure width 31 mm



Roller plunger

Roller plungers, type C, acc. to EN 50047

With plastic roller 10 mm, with M12 connector socket, 4-pole (250 V, 4 A)

Snap-action contacts 1 NO + 1 NC -- **3SE5234-0CD03-1AJ1**

Roller plunger, central fixing

Roller plungers with central fixing

Snap-action contacts 1 NO + 1 NC -- **3SE5232-0CD10-1AJ0**

Twist lever

Twist levers, type A, acc. to EN 50047

With high-grade steel lever 21 mm and plastic roller 19 mm

Snap-action contacts 1 NO + 1 NC -- **3SE5232-0CK31-1AJ0**

Twist lever, adj. length, with grid hole

Twist levers, adjustable length

With high-grade steel lever with grid hole and plastic roller 19mm

Snap-action contacts 1 NO + 1 NC -- **3SE5232-0CK62-1AJ0**Snap-action contacts 1 NO + 2 NC -- **3SE5232-0LK62-1AJ0**

Complete units¹⁾ • Enclosure width 50 mm



Twist lever, adj. length, with grid hole

Twist levers

With metal lever 21 mm and plastic roller 19 mm

Snap-action contacts, integrated²⁾ 1 NO + 1 NC -- **3SE5242-0HK21-1AJ0**

Twist levers, adjustable length

With high-grade steel lever with grid hole and plastic roller 19mm

Snap-action contacts, integrated²⁾ 1 NO + 1 NC -- **3SE5242-0HK62-1AJ0**

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Subsequent replacement of contact blocks is not possible.

Note:

If the device you require is not available as a complete unit, see "Modular System", page 6/75.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C



Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches




3SE5, plastic enclosures

Modular system

2 or 3 contacts · Degrees of protection IP65 or IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs		
			Modular system	
			Configurator	
			Article No.	



Basic switches • Enclosure width 31 mm (with rounded plunger¹⁾)**With teflon plunger**

Snap-action contacts	1 NO + 1 NC --	
Slow-action contacts	1 NO + 2 NC --	
Snap-action contacts	1 NO + 2 NC --	

3SE5232-0CC05-1AJ0**3SE5232-0KC05-1AJ0****3SE5232-0LC05-1AJ0**


Basic switch

Basic switches • Enclosure width 50 mm (with rounded plunger¹⁾)**With teflon plunger**

Slow-action contacts	1 NO + 1 NC --	
Snap-action contacts, integrated ²⁾	1 NO + 1 NC --	

3SE5242-0BC05-1AJ0**3SE5242-0HC05-1AJ0**

Basic switch

 For the online configurator, see www.siemens.com/sirius/configurators. Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.¹⁾ For enclosures with widths of 31 and 50 mm, the basic switch is a complete unit with rounded plungers.²⁾ Subsequent replacement of contact blocks is not possible.Note:


















For the selection aid, see page 6/12.


SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, plastic enclosures

Version	Diameter	Modular system	Article No.
	mm		
Operating mechanisms			
 Roller plunger	Roller plungers, type C, acc. to EN 50047		3SE5000-0AD03-1AJ0
	Plastic roller	10 	
 Roller lever	Roller levers, type E, acc. to EN 50047		3SE5000-0AE10-1AJ0
	Metal lever, plastic roller	13 	
	High-grade steel lever, plastic roller	13 	3SE5000-0AE12-1AJ0
 Angular roller lever	Angular roller levers		3SE5000-0AF10-1AJ0
	Metal lever, plastic roller	13 	
	High-grade steel lever, plastic roller	13 	3SE5000-0AF12-1AJ0
Twist actuators			
 Twist actuator	Twist actuators, for 31/50 mm, EN 50047		3SE5000-0AK00-1AJ0
Switching right and/or left, adjustable			
Levers			
 Twist lever	Twist levers straight, 21 mm, type A acc. to EN 50047		3SE5000-0AA21-1AJ0
	Metal lever, plastic roller	19 	
	High-grade steel lever, plastic roller	19 	3SE5000-0AA31-1AJ0
 Twist lever, adjustable length	Twist levers, adjustable length, with grid hole		3SE5000-0AA60-1AJ0
	Metal lever, plastic roller	19 	
	High-grade steel lever, plastic roller	19 	3SE5000-0AA62-1AJ0

 Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, plastic enclosures

Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs	Modular system	
			Configurator	
			Article No.	

Basic switches • Enclosure width 40 mm

Basic switch

With connecting thread M20 × 1.5

Snap-action contacts	1 NO + 1 NC --		3SE5132-0CA00-1AJ0
Slow-action contacts	1 NO + 2 NC --		3SE5132-0KA00-1AJ0
Snap-action contacts	1 NO + 2 NC --		3SE5132-0LA00-1AJ0

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

Note:

For the selection aid, see page 6/12.

Version	Diameter	Modular system	
	mm	Article No.	

Operating mechanisms

Rounded plunger

Rounded plungers, type B, acc. to EN 50041			
Plastic plungers	10		3SE5000-0AC03-1AJ0



Roller plunger

Roller plungers, type C, acc. to EN 50041			
Plastic plunger, plastic roller	13		3SE5000-0AD05-1AJ0



Roller lever

Roller levers			
Metal lever with plastic roller, plastic base	22		3SE5000-0AE05-1AJ0



Twist actuator

Twist actuators, for 31/50 mm, EN 50047			
• For twist levers and rod levers, Switching right and/or left, adjustable			3SE5000-0AJ00-1AJ0



Twist lever

Levers			
Twist levers, type A, acc. to EN 50041			
Metal lever, plastic roller	19		3SE5000-0AA01-1AJ0
High-grade steel lever, plastic roller	19		3SE5000-0AA11-1AJ0



Twist lever, adjustable length

Twist levers, adjustable length, with grid hole			
Metal lever, plastic roller	19		3SE5000-0AA60-1AJ0
High-grade steel lever, plastic roller	19		3SE5000-0AA62-1AJ0

Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, metal enclosures

Selection and ordering data

Complete units

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs	Modular system	Configurator	Article No.

Complete units • Enclosure width 31 mm

Rounded plungers, type B, acc. to EN 50047



Rounded plunger

Snap-action contacts	1 NO + 1 NC --		3SE5212-0CC05-1AJ0
Slow-action contacts	1 NO + 2 NC --		3SE5212-0KC05-1AJ0
Snap-action contacts	1 NO + 2 NC --		3SE5212-0LC05-1AJ0

Twist levers, type A, acc. to EN 50047



Twist lever

With metal lever 21 mm and high-grade steel roller 19 mm, twist actuator in metal version

Snap-action contacts	1 NO + 1 NC --		3SE5212-0CH22-1AJ0
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For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

Note:

If the device you require is not available as a complete unit, see "Modular system" on page 6/77.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, metal enclosures

Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs	Modular system	Configurator	Article No.

Basic switches • Enclosure width 31 mm (with rounded plunger¹⁾)



Basic switch

With plunger

Snap-action contacts	1 NO + 1 NC --		3SE5212-0CC05-1AJ0
Slow-action contacts	1 NO + 2 NC --		3SE5212-0KC05-1AJ0
Snap-action contacts	1 NO + 2 NC --		3SE5212-0LC05-1AJ0

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K, or positively driven actuator, necessary in safety circuits.

¹⁾ For enclosures with widths of 31 mm, the basic switch is a complete unit with rounded plungers.

Note:

For the selection aid, see page 6/12.

Version	Diameter	Modular system	Article No.
	mm		

Operating mechanisms



Roller plunger

Roller plungers, type C, acc. to EN 50047

Plastic roller	10		3SE5000-0AD03-1AJ0
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Roller lever

Roller levers, type E, acc. to EN 50047

Metal lever, plastic roller	13		3SE5000-0AE10-1AJ0
High-grade steel lever, plastic roller	13		3SE5000-0AE12-1AJ0



Angular roller lever

Angular roller levers

Metal lever, plastic roller	13		3SE5000-0AF10-1AJ0
High-grade steel lever, plastic roller	13		3SE5000-0AF12-1AJ0

Twist actuators



Twist actuator

Twist actuators, for 31/50 mm, EN 50047

Switching right and/or left, adjustable			3SE5000-0AK00-1AJ0
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Levers



Twist lever

Twist levers straight, 21 mm, type A acc. to EN 50047

Metal lever, plastic roller	19		3SE5000-0AA21-1AJ0
High-grade steel lever, plastic roller	19		3SE5000-0AA31-1AJ0



Twist lever, adjustable length

Twist levers, adjustable length, with grid hole

Metal lever, plastic roller	19		3SE5000-0AA60-1AJ0
High-grade steel lever, plastic roller	19		3SE5000-0AA62-1AJ0

Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, metal enclosures

Complete units

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs	Complete units	Configurator	Article No.
			<input type="checkbox"/>		

Complete units • Enclosure width 40 mm



Rounded plunger

Rounded plungers, type B, acc. to EN 50041
With high-grade steel plungers, with 3 mm overtravel
 Snap-action contacts 1 NO + 1 NC -- ↻

3SE5112-0CC02-1AJ0



Twist lever

Twist levers, type A, acc. to EN 50041
With high-grade steel lever 27 mm and plastic roller 19 mm
 Snap-action contacts 1 NO + 2 NC -- ↻

3SE5112-0LH11-1AJ0

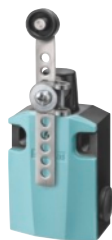


Twist lever, adj. length, with grid hole

Twist levers, adjustable length
With high-grade steel lever with grid hole and plastic roller 19mm
 Snap-action contacts 1 NO + 1 NC -- ↻

3SE5112-0CH62-1AJ0

Complete units • Enclosure width 56 mm, XL



Twist lever, adj. length, with grid hole

Twist levers, adjustable length
With metal lever with grid hole and plastic roller 19mm
 Snap-action contacts 1 NO + 1 NC -- ↻

3SE5162-0CH60-1AJ0

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K or positively driven actuator, necessary in safety circuits.

Note:

If the device you require is not available as a complete unit, see "Modular system" on page 6/81.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C



Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, metal enclosures

Modular system

2, 3 or 4 contacts · Degree of protection IP66/IP67 · Cable entry M20 × 1.5, with enhanced corrosion protection

Version	Contacts	LEDs		
			Modular system	
			Configurator	
			Article No.	

Basic switches • Enclosure width 40 mm

Basic switch



With connecting thread M20 × 1.5

Snap-action contacts	1 NO + 1 NC	--		3SE5112-0CA00-1AJ0
Slow-action contacts	1 NO + 2 NC	--		3SE5112-0KA00-1AJ0
Snap-action contacts	1 NO + 2 NC	--		3SE5112-0LA00-1AJ0

Basic switches • Enclosure width 56 mm

Basic switch



With 3 x connecting thread M20 × 1.5

Snap-action contacts	1 NO + 1 NC	--		3SE5122-0CA00-1AJ0
Slow-action contacts	1 NO + 2 NC	--		3SE5122-0KA00-1AJ0
Snap-action contacts	1 NO + 2 NC	--		3SE5122-0LA00-1AJ0


Basic switches • Enclosure width 56 mm, XL

Basic switch

With 3 x connection thread M20 × 1.5

Slow-action contacts	2 × (1 NO + 1 NC)	--		3SE5162-0BA00-1AJ0
Snap-action contacts	2 × (1 NO + 1 NC)	--		3SE5162-0CA00-1AJ0

 For the online configurator, see www.siemens.com/sirius/configurators.

 Positive opening according to IEC 60947-5-1, Appendix K or positively driven actuator, necessary in safety circuits.

Note:




















For the selection aid, see page 6/12.


SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Position Switches

3SE5, metal enclosures

Version	Diameter	Modular system	Article No.
	mm		
Operating mechanisms			
 Rounded plunger	Rounded plungers, type B, acc. to EN 50041 High-grade steel plunger, with 3 mm overtravel	10	 3SE5000-0AC02-1AJ0
 Roller plunger	Roller plungers, type C, acc. to EN 50041 High-grade steel roller, with 3 mm overtravel	10	 3SE5000-0AD02-1AJ0
 Roller lever	Roller levers Metal lever, plastic roller High-grade steel lever, plastic roller	13 13	 3SE5000-0AE01-1AJ0  3SE5000-0AE03-1AJ0
 Angular roller lever	Angular roller levers Metal lever, plastic roller High-grade steel lever, plastic roller	13 13	 3SE5000-0AF01-1AJ0  3SE5000-0AF03-1AJ0
Twist actuators			
 Twist actuator	Twist actuators, for 40/56/56 XL mm EN 50041 Switching right and/or left, adjustable		 3SE5000-0AH00-1AJ0
 Twist lever	Levers Twist levers, type A, acc. to EN 50041 Metal lever, plastic roller High-grade steel lever, plastic roller	19 19	 3SE5000-0AA01-1AJ0  3SE5000-0AA11-1AJ0
 Twist lever, adjustable length	Twist levers, adjustable length, with grid hole Metal lever, plastic roller High-grade steel lever, plastic roller	19 19	 3SE5000-0AA60-1AJ0  3SE5000-0AA62-1AJ0

 Positively driven actuator, necessary in safety circuits.

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C


Shock and Vibration Test According to Railway Standard
SIRIUS 3SE5 Mechanical Safety Switches with Separate Actuator

3SE5, plastic enclosures

Selection and ordering data

Complete units

2 or 3 contacts · 5 directions of approach · Degrees of protection IP65 (31 mm) or IP66/IP67 (50 mm) · Cable entry M20 × 1.5

Version ¹⁾	Contacts	LEDs	Complete units	
			<input type="checkbox"/>	
				
			Article No.	

Enclosure width 31 mm acc. to EN 50047



-40 °C, with increased corrosion protection

Ambient temperature down to -40° C

With increased corrosion protection

Slow-action contacts

1 NO + 1 NC --



3SE5232-0RV40-1AJ0

SIRIUS 3SE5 Mechanical Position Switches for Ambient Temperatures of -40° C

Shock and Vibration Test According to Railway Standard

SIRIUS 3SE5 Mechanical Safety Switches with Tumbler

3SE5, plastic enclosures

Selection and ordering data

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 × M20 × 1.5 · Locking force 1 300 N

Tumbler ¹⁾	Solenoid, rated operational voltage	Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC	<input type="checkbox"/>
		Configurator	
		Article No.	

V

1 300 N locking force · Enclosure width 54 mm



Spring-actuated locks

- With escape release from the front and emergency release from the back

24 DC


3SE5322-0SL21-1AJ0

For the online configurator, see www.siemens.com/sirius/configurators.

Positive opening according to IEC 60947-5-1, Appendix K.

¹⁾ Supplied without actuator. Please order separately.

Accessories/spare parts

Version	Article No.
---------	-------------

Accessories

Standard actuator

- Length 75.6 mm


3SE5000-0AV01

Overview



3SE7 cable-operated switches

The cable-operated switches are used for monitoring or for EMERGENCY STOP devices on particularly endangered system components.

As the effective range of a cable-operated switch is only limited by the length of the trip-wire, large systems can also be protected. Cable-operated switches (requiring pulling at both ends) and conveyor belt unbalance trackers are used primarily for monitoring very long belt systems.

Contact blocks

The switches for wire lengths up to 50 m are supplied with 1 NO + 1 NC or 2 NC contacts and those up to 75 m with 1 NO + 3 NC contacts. The switches for wire lengths from 2 x 75 m and the conveyor belt unbalance protection device are supplied with 2 NO + 2 NC contacts.

The NC contacts of the cable-break or cable-pull signaling are positive opening. The NO contact can be used, for example, for signaling purposes.

Free position and display

Cable-operated switches with one-side operation are held in free position by the pre-tension on the turnbuckle.

On switches with interlocking, with a pretensioned cable, the locking must be deactivated beforehand in order to return the cable-operated switch to its original position.

The cable-operated switch and the conveyor belt unbalance tracker can be supplied optionally with a factory-fitted LED (red, 24 V DC). This light in innovative chip-on-board technology allows the operating state of the switch to be visible at a distance of at least 50 m.

Application

Standards

The switches are equipped with positive latching and positive NC contacts and are thus suitable for operation in EMERGENCY STOP devices according to EN ISO 13850.

Technical specifications

Type	3SE7120	3SE7150	3SE7140	3SE7141	3SE7160	3SE7310
General data						
Standards	IEC 60947-5-1, DIN EN 60947-5-1; IEC 60204-1, DIN EN 60204-1; DIN EN ISO 13850					
Approvals	UL/CSA					
Electrical design	Contacts electrically isolated from each other					
Electrical load	<ul style="list-style-type: none"> • 2-pole, at AC-15 • 3-pole, at AC-15 • 4-pole, at AC-15 • Minimum 					
	400 V AC, 6 A		400 V AC, 6 A	250 V AC, 2 A	400 V AC, 6 A	--
	250 V AC, 2 A		--	--	--	--
	--		--	--	400 V AC, 6 A	400 V AC, 6 A
	24 V AC/DC, 10 mA					
Short-circuit protection	A	6 (slow)				
Mechanical endurance	> 1 million operating cycles					
Contact material	Fine silver					
Operation	By pulling or breaking of wire					
Wire length, maximum	m	10	25	50	75	2 x 75
Distance between wire supports, max.	m	2.5	3	5		--
Enclosures						
Enclosure material	GD Al alloy, coated (color), dark black RAL 9005					
Cover	Shock-resistant thermoplast					
Degree of protection acc. to IEC 60529	IP65			IP67	IP65	
Ambient temperature	°C	-25 ... +70				
Mounting	Designed for M5					
Fixing spacing	mm	30 and 40				
Cable entry	2 x (M20 x 1.5)		1 x (M16 x 1.5)	3 x (M20 x 1.5)	2 x (M25 x 1.5)	
Connection type	Screw terminals M3.5, self-lifting clamp terminal					

SIRIUS 3SE7 Cable-Operated Switches

3SE7 metal enclosures

Selection and ordering data

Version	Wire length m	Contacts	Article No.	
Cable-operated switches				
 3SE7120-1BH00	Metal enclosures, IP65 (cover made of molded plastic)	10		
		<ul style="list-style-type: none"> Without latching, only cable pull monitoring 	1 NO + 1 NC 	3SE7120-2DD01
		<ul style="list-style-type: none"> With latching and button reset - With yellow lid 	2 NC  1 NO + 2 NC 	3SE7120-1BF00 3SE7120-1BH00
 3SE7150-1BD00 3SE7150-1BH00	Metal enclosures, IP65 (cover made of molded plastic), with alignment window	25		
		<ul style="list-style-type: none"> Without latching With latching and button reset - With yellow lid With latching and key unlatching 	1 NO + 1 NC  1 NO + 1 NC  2 NC  1 NO + 2 NC  1 NO + 1 NC 	3SE7150-2DD00 3SE7150-1BD00 3SE7150-1BF00 3SE7150-1BH00 3SE7150-1CD00
 3SE7150-1BD04	Metal enclosures, IP65 (cover made of molded plastic), with alignment window, with LED, red, 24 V DC	25		
		<ul style="list-style-type: none"> Without latching With latching and button reset 	1 NO + 1 NC  1 NO + 1 NC 	3SE7150-2DD04 3SE7150-1BD04
 3SE7140-1B.00	Metal enclosures, IP65 (cover made of molded plastic)	50		
		<ul style="list-style-type: none"> With latching and button reset In addition with LED, red, 24 V DC With latching and key unlatching 	1 NO + 1 NC  2 NC  1 NO + 1 NC  1 NO + 1 NC 	3SE7140-1BD00 3SE7140-1BF00 3SE7140-1BD04 3SE7140-1CD00
 3SE7141-1EG10	Metal enclosures, IP67 (cover made of molded plastic), with EMERGENCY STOP mush- room, With rotate-to-unlatch mechanism	75		
		<ul style="list-style-type: none"> Without latching 	1 NO + 3 NC 	3SE7141-1EG10
 3SE7160-1AE00	Metal enclosures, IP65 With actuation on both sides	2 x 75		
		<ul style="list-style-type: none"> With latching and button reset In addition with LED, red, 24 V DC 	2 NO + 2 NC  1 NO + 1 NC  2 NO + 2 NC 	3SE7160-1AE00 3SE7160-1BD00 3SE7160-1AE04

 Positive opening according to IEC 60947-5-1, Annex K.

Version	Contacts	Article No.
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Conveyor belt unbalance trackers



Metal enclosures, IP65

- With latching and button reset
- In addition with LED, red, 24 V DC

- 2 NO + 2 NC
- 2 NO + 2 NC

- 3SE7310-1AE00**
- 3SE7310-1AE04**

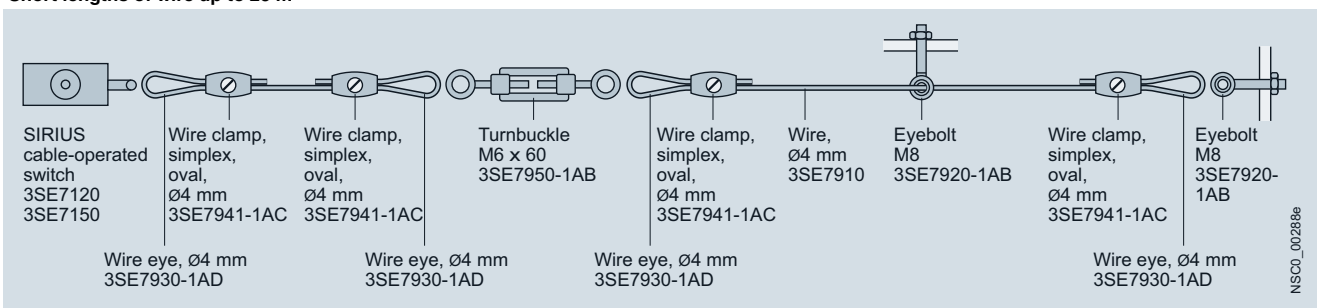
3SE7310-1AE00

➔ Positive opening according to IEC 60947-5-1, Annex K.

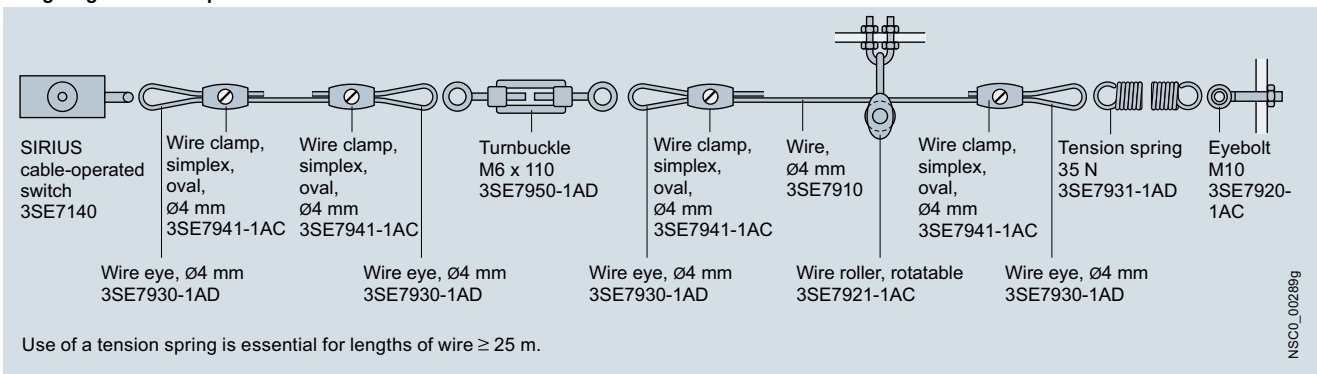
Accessories

Configuration of the cable-operated switches

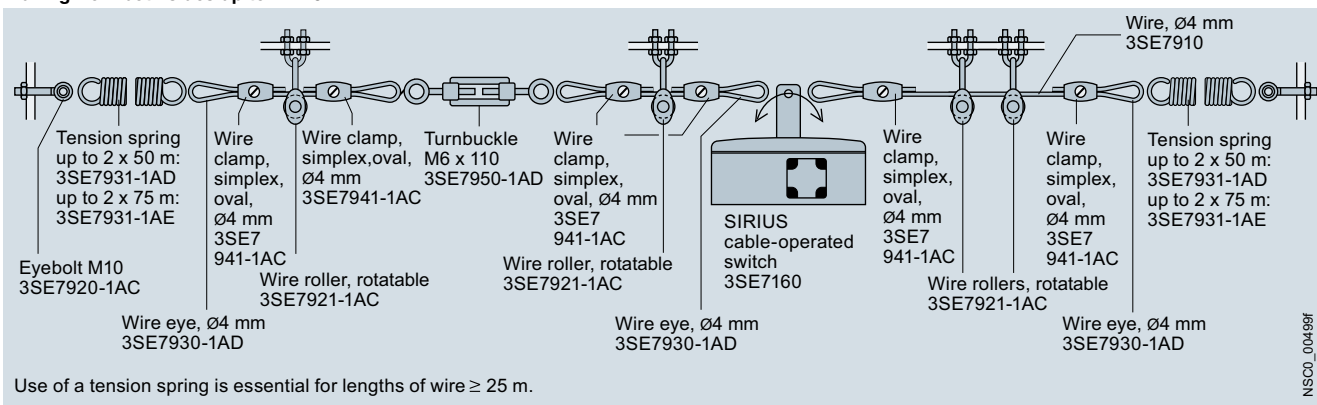
Short lengths of wire up to 25 m



Long lengths of wire up to 50 m



Pulling from both sides up to 2 x 75 m












Note:

Large temperature fluctuations require corresponding compensation springs. For reliable connection the PVC sheath must be removed from the clamping area of the steel bowden wire.

Bowden wire supports must be used at the recommended intervals.

SIRIUS 3SE7 Cable-Operated Switches

3SE7 metal enclosures

Version	Length/ diameter	Article No.	
Trip-wire with fixing			
	Steel wires , with red plastic sheath, diameter 4 mm ¹⁾		
	10 m	3SE7910-3AA	
	15 m	3SE7910-3AB	
	20 m	3SE7910-3AC	
	50 m	3SE7910-3AH	
	Wire clamps , galvanized white		
	• Oval	2 x Ø 4 mm	3SE7941-1AC
	• Single (1 set = 4 units)	2 x Ø 4 mm	3SE7942-1AA
	• Simplex (1 set = 4 units)	2 x Ø 4 mm	3SE7943-1AC
	• Duplex (1 set = 4 units)	2 x Ø 4 mm	3SE7944-1AC
	Tension springs (zinc-plated) To maintain the counter tension		
	• 13 N	3SE7931-1AB	
	• 35 N, for bowden wires up to 50 m	3SE7931-1AD	
	• > 35 N, for Bowden wires up to 2 x 75 m	3SE7931-1AE	
	Wire rollers for changing the direction of the wire, rotatable	Ø 4 mm	3SE7921-1AC
	Fixtures for the wire rollers (incl. fixing nuts)		3SE7921-1AA
	Wire eyes for changes in wire direction and improved power transmission at the fixing points (1 set = 4 units)	Ø 4 mm	3SE7930-1AD
	Eyebolts for fixing the wire		
	• Including M8 nut • Including M10 nut		3SE7920-1AB 3SE7920-1AC
	Turnbuckles for precise adjustment of the pretension		
	• M6 x 60 • M6 x 110		3SE7950-1AB 3SE7950-1AD
Spare parts			
	LED lamps , red 24 V DC Diameter 25 mm; for M20 x 1.5 connection		3SX3235

¹⁾ Diameter including casing; the diameter of the steel wire is 3.2 mm.

Commanding and Signaling Devices



7/2 3SB6 Pushbuttons and Indicator Lights, 22 mm

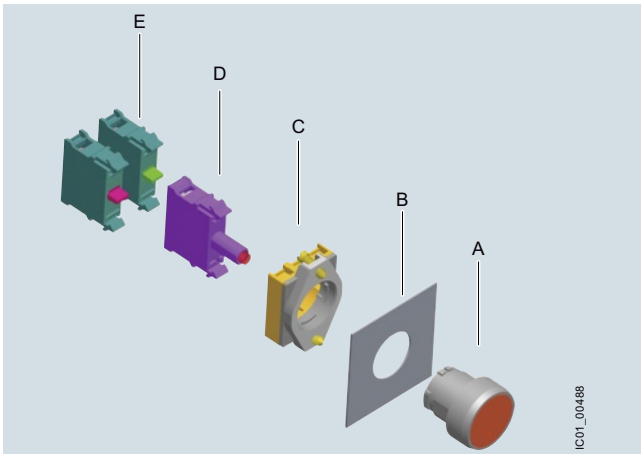
- 7/2 General data
- 7/3 [Actuators, metal shiny, round, 22 mm](#)
- 7/3 Complete units
- 7/6 Actuators and indicators
- 7/11 [Actuators, plastic black, round, 22 mm](#)
- 7/11 Complete units
- 7/14 Actuators and indicators
- 7/19 [Compact pushbuttons and indicator lights, plastic, round, 22 mm](#)
- 7/19 Complete units
- 7/20 [Components for actuators](#)
- 7/20 Contact blocks and illumination modules
- 7/21 [Enclosures](#)
- 7/21 Empty enclosures
- 7/22 [Accessories](#)
- 7/22 Miscellaneous accessories
- 7/23 [Technical specifications](#)
- 7/24 [Dimensional drawings](#)

3SB6 Pushbuttons and Indicator Lights, 22 mm

General data

Design

The 3SB6 series is a modular and compact combination of commanding and signaling devices for front panel mounting. Depending on the specific application, various versions can be assembled. Complete units are offered for the most commonly used applications



A: Actuator B: Panel C: Holder D: Illumination module E: Contact blocks

The 3SB6 series is available:

- Modular metal shiny: Consists of metal actuator, metal holder and contact blocks and/or illumination module
- Modular plastic black: Consists of plastic actuator, plastic holder and contact blocks and/or illumination module
- Compact plastic version: Offer simple standard functions in a compact design
- Enclosures/accessories: Can be matched with metal shiny, plastic black and the compact plastic version.

The 3SB6 series of pushbuttons and indicator lights distinguishes itself with a high degree of functionality as well as a modern industrial design. The modular series provides a high degree of flexibility: Multiple contact blocks can be combined with both plastic and metal actuators.

One command point comprises:

- One actuator in front of the control panel.
- One holder for mounting behind the control panel.
- Up to 6 contact blocks or four contact blocks and one illumination module behind the control panel.
(Contact blocks: stackable, max. 2 layers)

The contact blocks are fitted with a slow-action contact (1 NO contact or 1 NC contact) with double operating contacts. Additionally, it ensures a high switching reliability even with in small voltage and current level.

Configuration

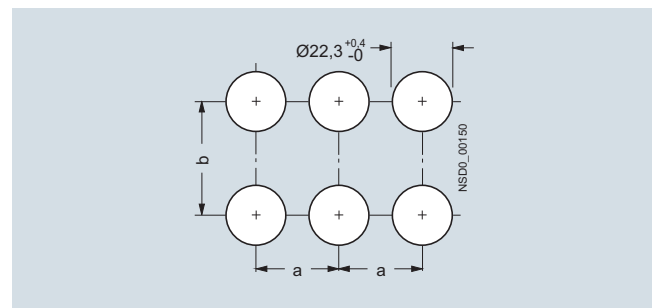
Mounting and fixing

The 3SB6 devices can be easily and quickly mounted:

- Actuators are positioned in the opening of the control panel from the front.
- Position the holder from the rear.
- Tighten the screws on the holder.
- Snap on the contact blocks or illumination module directly onto the actuator from the back.

The 3SB6 series allows a flexibility of the panel thickness of 1 mm to 6 mm. When label holders, protective caps or similar accessories are used, the greatest permissible control panel thickness must be reduced by the wall thickness of the accessory part.

Mounting dimensions



Minimum clearance		a	b
<ul style="list-style-type: none"> • Pushbuttons • Mushroom pushbuttons, Ø 30 mm • Selector switches, short handle • Key-operated switches • Emergency-stop pushbuttons, Ø 30 mm 	mm	32	50
<ul style="list-style-type: none"> • Mushroom pushbuttons, Ø 40 mm • Selector switches, long handle • Emergency-stop pushbuttons, Ø 40 mm 	mm	42	50
<ul style="list-style-type: none"> • Twin pushbuttons 	mm	32	58
<ul style="list-style-type: none"> • Mushroom pushbuttons, Ø 60 mm 	mm	62	62

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm

Complete units























Selection and ordering data

	Rated voltage of lamp	Color of handle	Contacts	Article No.	
Pushbuttons					
 <p>Pushbutton with flat button</p>	Pushbuttons with flat button, momentary				
	--	Black	1 NO	3SB6160-0AB10-1BA0	
		Black		1 NC	3SB6160-0AB10-1CA0
		Red		1 NC	3SB6160-0AB20-1CA0
		Yellow	1 NO		3SB6160-0AB30-1BA0
		Green	1 NO		3SB6160-0AB40-1BA0
		Blue	1 NO		3SB6160-0AB50-1BA0
	White	1 NO		3SB6160-0AB60-1BA0	
 <p>Pushbutton with raised button</p>	Pushbuttons with raised button, momentary				
	--	Black	1 NO	3SB6160-0BB10-1BA0	
		Black		1 NC	3SB6160-0BB10-1CA0
		Red		1 NC	3SB6160-0BB20-1CA0
		Yellow	1 NO		3SB6160-0BB30-1BA0
		Green	1 NO		3SB6160-0BB40-1BA0
		Blue	1 NO		3SB6160-0BB50-1BA0
	White	1 NO		3SB6160-0BB60-1BA0	
 <p>Illuminated pushbutton with flat button</p>	Illuminated pushbuttons with flat button, momentary with integrated LED				
	24V AC/DC	Red		1 NC	3SB6163-0DB20-1CA0
		Yellow	1 NO		3SB6163-0DB30-1BA0
		Green	1 NO		3SB6163-0DB40-1BA0
		Blue	1 NO		3SB6163-0DB50-1BA0
		White	1 NO		3SB6163-0DB60-1BA0
	110V AC/DC	Red		1 NC	3SB6165-0DB20-1CA0
		Yellow	1 NO		3SB6165-0DB30-1BA0
		Green	1 NO		3SB6165-0DB40-1BA0
		Blue	1 NO		3SB6165-0DB50-1BA0
		White	1 NO		3SB6165-0DB60-1BA0
	220V AC	Red		1 NC	3SB6166-0DB20-1CA0
		Yellow	1 NO		3SB6166-0DB30-1BA0
		Green	1 NO		3SB6166-0DB40-1BA0
		Blue	1 NO		3SB6166-0DB50-1BA0
	White	1 NO		3SB6166-0DB60-1BA0	
Mushroom pushbuttons					
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 40 mm, momentary				
	--	Black	1 NO	3SB6160-1BC10-1BA0	
		Black		1 NC	3SB6160-1BC10-1CA0
		Red		1 NC	3SB6160-1BC20-1CA0
		Yellow	1 NO		3SB6160-1BC30-1BA0
		Green	1 NO		3SB6160-1BC40-1BA0
		Blue	1 NO		3SB6160-1BC50-1BA0
	White	1 NO		3SB6160-1BC60-1BA0	
Mushroom pushbuttons, Ø 40 mm, pull to release					
--	Red		1 NC	3SB6160-1BA20-1CA0	

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm



Complete units



	Version	Color of handle	Contacts	Article No.
Selector switches				
 Selector switch, short handle	Selector switches with 2 switch positions, short handle			
	90° operating angle			
		Black	1 NO	3SB6160-2AA10-1BA0
	Selector switches with 3 switch positions, short handle			
	2x60° operating angle			
	Black	2 x 1 NO	3SB6160-2AL10-1NA0	
	Black	2 x 1 NO	3SB6160-2AM10-1NA0	
	Black	2 x 1 NO	3SB6160-2AN10-1NA0	
	Black	2 x 1 NO	3SB6160-2AP10-1NA0	
 Selector switch, long handle	Selector switches with 2 switch positions, long handle			
	90° operating angle			
		Black	1 NO	3SB6160-2BA10-1BA0
	Selector switches with 3 switch positions, long handle			
	2x60° operating angle			
	Black	2 x 1 NO	3SB6160-2BL10-1NA0	
	Black	2 x 1 NO	3SB6160-2BM10-1NA0	
	Black	2 x 1 NO	3SB6160-2BN10-1NA0	
	Black	2 x 1 NO	3SB6160-2BP10-1NA0	
Key-operated switches				
 Key-operated switch	Key-operated switches, 2 switch positions			
	With 2 keys, 90° operating angle			
		Black	1 NO	3SB6160-4AA01-1BA0
		Black	1 NO	3SB6160-4AA11-1BA0
	Black	1 NO	3SB6160-4AA21-1BA0	
Key-operated switches, 3 switch positions				
With 2 keys, 2x60° operating angle				
	Black	2 x 1 NO	3SB6160-4AL01-1NA0	
	Black	2 x 1 NO	3SB6160-4AL11-1NA0	
	Black	2 x 1 NO	3SB6160-4AM01-1NA0	
Legend:  Latching  Momentary  Key removal positions				

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm

Complete units

	Rated voltage of lamp	Color of handle	Contacts		Article No.
Twin pushbuttons					
 Twin pushbutton	Twin pushbuttons with flat and raised buttons, with I/O inscription				3SB6160-3AA24-1MK0
	--	Green/Red	1 NO	1 NC	
 Illuminated twin pushbutton	Illuminated twin pushbuttons with flat and raised buttons, with I/O inscription with integrated LED				3SB6163-3CA24-1MK0 3SB6165-3CA24-1MK0 3SB6166-3CA24-1MK0
	24 V AC/DC	Green/Red	1 NO	1 NC	
	110 V AC/DC	Green/Red	1 NO	1 NC	
	220 V AC	Green/Red	1 NO	1 NC	

	Version	Color of handle	Contacts	Article No.
Emergency-stop pushbuttons				
 Emergency-stop pushbutton	Emergency-stop pushbuttons, Ø 40 mm			3SB6160-1HB20-1CA0 3SB6160-1HA20-1CA0 3SB6160-1HD20-1CA0
	Twist to release	Red	1 NC	
	Pull to release	Red	1 NC	
	Key to release	Red	1 NC	
 Emergency-stop pushbutton, with trigger action	Emergency-stop pushbuttons, Ø 40 mm, with trigger action¹⁾			3SB6160-1EB20-1CA0 3SB6160-1EA20-1CA0 3SB6160-1ED20-1CA0
	Twist to release	Red	1 NC	
	Pull to release	Red	1 NC	
	Key to release	Red	1 NC	

¹⁾ Ensure NC contacts open only when operation distance reaches latching position, thus efficiently avoid unintentional malfunction.

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm

Actuators and indicators

Selection and ordering data

Version	Color of handle	Article No.
Pushbuttons with holder		
 <p>Pushbutton with flat button</p>	Pushbuttons with flat button, momentary	
	Black	3SB6060-0AB10-0YA0
	Red	3SB6060-0AB20-0YA0
	Yellow	3SB6060-0AB30-0YA0
	Green	3SB6060-0AB40-0YA0
	Blue	3SB6060-0AB50-0YA0
	White	3SB6060-0AB60-0YA0
 <p>Pushbutton with raised button</p>	Pushbuttons with flat button, latching	
	Black	3SB6060-0AA10-0YA0
	Red	3SB6060-0AA20-0YA0
	Yellow	3SB6060-0AA30-0YA0
	Green	3SB6060-0AA40-0YA0
	Blue	3SB6060-0AA50-0YA0
	White	3SB6060-0AA60-0YA0
 <p>Illuminated pushbutton with flat button</p>	Pushbuttons with raised button, momentary	
	Black	3SB6060-0BB10-0YA0
	Red	3SB6060-0BB20-0YA0
	Yellow	3SB6060-0BB30-0YA0
	Green	3SB6060-0BB40-0YA0
	Blue	3SB6060-0BB50-0YA0
	White	3SB6060-0BB60-0YA0
 <p>Illuminated pushbutton with raised button</p>	Pushbuttons with raised button, latching	
	Black	3SB6060-0BA10-0YA0
	Red	3SB6060-0BA20-0YA0
	Yellow	3SB6060-0BA30-0YA0
	Green	3SB6060-0BA40-0YA0
	Blue	3SB6060-0BA50-0YA0
	White	3SB6060-0BA60-0YA0
 <p>Illuminated pushbutton with flat button</p>	Illuminated pushbuttons with flat button, momentary	
	Red	3SB6061-0AB20-0YA0
	Yellow	3SB6061-0AB30-0YA0
	Green	3SB6061-0AB40-0YA0
	Blue	3SB6061-0AB50-0YA0
	White	3SB6061-0AB60-0YA0
	 <p>Illuminated pushbutton with raised button</p>	Illuminated pushbuttons with flat button, latching
Red		3SB6061-0AA20-0YA0
Yellow		3SB6061-0AA30-0YA0
Green		3SB6061-0AA40-0YA0
Blue		3SB6061-0AA50-0YA0
White		3SB6061-0AA60-0YA0
 <p>Illuminated pushbutton with flat button</p>		Illuminated pushbuttons with raised button, momentary
	Red	3SB6061-0BB20-0YA0
	Yellow	3SB6061-0BB30-0YA0
	Green	3SB6061-0BB40-0YA0
	Blue	3SB6061-0BB50-0YA0
	White	3SB6061-0BB60-0YA0
	 <p>Illuminated pushbutton with raised button</p>	Illuminated pushbuttons with raised button, latching
Red		3SB6061-0BA20-0YA0
Yellow		3SB6061-0BA30-0YA0
Green		3SB6061-0BA40-0YA0
Blue		3SB6061-0BA50-0YA0
White		3SB6061-0BA60-0YA0

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm









Actuators and indicators

Version	Color of handle	Article No.
Mushroom pushbuttons with holder		
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 30 mm, momentary	
	Black	3SB6060-1AC10-0YA0
	Red	3SB6060-1AC20-0YA0
	Yellow	3SB6060-1AC30-0YA0
	Green	3SB6060-1AC40-0YA0
	Blue	3SB6060-1AC50-0YA0
	White	3SB6060-1AC60-0YA0
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 40 mm, momentary	
	Black	3SB6060-1BC10-0YA0
	Red	3SB6060-1BC20-0YA0
	Yellow	3SB6060-1BC30-0YA0
	Green	3SB6060-1BC40-0YA0
	Blue	3SB6060-1BC50-0YA0
	White	3SB6060-1BC60-0YA0
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 60 mm, momentary	
	Black	3SB6060-1CC10-0YA0
	Red	3SB6060-1CC20-0YA0
	Yellow	3SB6060-1CC30-0YA0
	Green	3SB6060-1CC40-0YA0
	Blue	3SB6060-1CC50-0YA0
	White	3SB6060-1CC60-0YA0
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 40 mm, pull to release	
	Black	3SB6060-1BA10-0YA0
	Red	3SB6060-1BA20-0YA0
	Yellow	3SB6060-1BA30-0YA0
	Green	3SB6060-1BA40-0YA0
	Blue	3SB6060-1BA50-0YA0
	White	3SB6060-1BA60-0YA0
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 60 mm, pull to release	
	Black	3SB6060-1CA10-0YA0
	Red	3SB6060-1CA20-0YA0
	Yellow	3SB6060-1CA30-0YA0
	Green	3SB6060-1CA40-0YA0
	Blue	3SB6060-1CA50-0YA0
	White	3SB6060-1CA60-0YA0
 <p>Illuminated mushroom pushbutton</p>	Illuminated mushroom pushbuttons, Ø 30 mm, momentary	
	Red	3SB6061-1AC20-0YA0
	Yellow	3SB6061-1AC30-0YA0
	Green	3SB6061-1AC40-0YA0
	Blue	3SB6061-1AC50-0YA0
	White	3SB6061-1AC60-0YA0
	 <p>Illuminated mushroom pushbutton</p>	Illuminated mushroom pushbuttons, Ø 40 mm, momentary
Red		3SB6061-1BC20-0YA0
Yellow		3SB6061-1BC30-0YA0
Green		3SB6061-1BC40-0YA0
Blue		3SB6061-1BC50-0YA0
White		3SB6061-1BC60-0YA0
 <p>Illuminated mushroom pushbutton</p>		Illuminated mushroom pushbuttons, Ø 60 mm, momentary
	Red	3SB6061-1CC20-0YA0
	Yellow	3SB6061-1CC30-0YA0
	Green	3SB6061-1CC40-0YA0
	Blue	3SB6061-1CC50-0YA0
	White	3SB6061-1CC60-0YA0

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm

Actuators and indicators

	Version	Color of handle	Short handle Article No.	Long handle Article No.
Selector switches with holder				
 <p>Selector switch, short handle</p>	Selector switches with 2 switch positions			
	90° operating angle 	Black	3SB6060-2AA10-0YA0	3SB6060-2BA10-0YA0
		Red	3SB6060-2AA20-0YA0	3SB6060-2BA20-0YA0
		Yellow	3SB6060-2AA30-0YA0	3SB6060-2BA30-0YA0
		Green	3SB6060-2AA40-0YA0	3SB6060-2BA40-0YA0
		Blue	3SB6060-2AA50-0YA0	3SB6060-2BA50-0YA0
		White	3SB6060-2AA60-0YA0	3SB6060-2BA60-0YA0
90° operating angle 	Black	3SB6060-2AB10-0YA0	3SB6060-2BB10-0YA0	
	Red	3SB6060-2AB20-0YA0	3SB6060-2BB20-0YA0	
	Yellow	3SB6060-2AB30-0YA0	3SB6060-2BB30-0YA0	
	Green	3SB6060-2AB40-0YA0	3SB6060-2BB40-0YA0	
	Blue	3SB6060-2AB50-0YA0	3SB6060-2BB50-0YA0	
	White	3SB6060-2AB60-0YA0	3SB6060-2BB60-0YA0	
 <p>Selector switch, long handle</p>	Selector switches with 3 switch positions			
	2×60° operating angle 	Black	3SB6060-2AL10-0YA0	3SB6060-2BL10-0YA0
		Red	3SB6060-2AL20-0YA0	3SB6060-2BL20-0YA0
		Yellow	3SB6060-2AL30-0YA0	3SB6060-2BL30-0YA0
		Green	3SB6060-2AL40-0YA0	3SB6060-2BL40-0YA0
		Blue	3SB6060-2AL50-0YA0	3SB6060-2BL50-0YA0
		White	3SB6060-2AL60-0YA0	3SB6060-2BL60-0YA0
	2×60° operating angle 	Black	3SB6060-2AM10-0YA0	3SB6060-2BM10-0YA0
		Red	3SB6060-2AM20-0YA0	3SB6060-2BM20-0YA0
		Yellow	3SB6060-2AM30-0YA0	3SB6060-2BM30-0YA0
		Green	3SB6060-2AM40-0YA0	3SB6060-2BM40-0YA0
		Blue	3SB6060-2AM50-0YA0	3SB6060-2BM50-0YA0
		White	3SB6060-2AM60-0YA0	3SB6060-2BM60-0YA0
	2×60° operating angle 	Black	3SB6060-2AN10-0YA0	3SB6060-2BN10-0YA0
		Red	3SB6060-2AN20-0YA0	3SB6060-2BN20-0YA0
		Yellow	3SB6060-2AN30-0YA0	3SB6060-2BN30-0YA0
		Green	3SB6060-2AN40-0YA0	3SB6060-2BN40-0YA0
		Blue	3SB6060-2AN50-0YA0	3SB6060-2BN50-0YA0
		White	3SB6060-2AN60-0YA0	3SB6060-2BN60-0YA0
2×60° operating angle 	Black	3SB6060-2AP10-0YA0	3SB6060-2BP10-0YA0	
	Red	3SB6060-2AP20-0YA0	3SB6060-2BP20-0YA0	
	Yellow	3SB6060-2AP30-0YA0	3SB6060-2BP30-0YA0	
	Green	3SB6060-2AP40-0YA0	3SB6060-2BP40-0YA0	
	Blue	3SB6060-2AP50-0YA0	3SB6060-2BP50-0YA0	
	White	3SB6060-2AP60-0YA0	3SB6060-2BP60-0YA0	

Legend:









 Latching

 Momentary

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm

Actuators and indicators

Version	Color of handle	Short handle	Long handle	
		Article No.	Article No.	
Illuminated selector switches with holder				
Selector switches with 2 switch positions				
 Illuminated selector switch with short handle	90° operating angle	Red	3SB6061-2AA20-0YA0	3SB6061-2BA20-0YA0
		Yellow	3SB6061-2AA30-0YA0	3SB6061-2BA30-0YA0
		Green	3SB6061-2AA40-0YA0	3SB6061-2BA40-0YA0
		Blue	3SB6061-2AA50-0YA0	3SB6061-2BA50-0YA0
		White	3SB6061-2AA60-0YA0	3SB6061-2BA60-0YA0
90° operating angle	Red	3SB6061-2AB20-0YA0	3SB6061-2BB20-0YA0	
	Yellow	3SB6061-2AB30-0YA0	3SB6061-2BB30-0YA0	
	Green	3SB6061-2AB40-0YA0	3SB6061-2BB40-0YA0	
	Blue	3SB6061-2AB50-0YA0	3SB6061-2BB50-0YA0	
	White	3SB6061-2AB60-0YA0	3SB6061-2BB60-0YA0	
Selector switches with 3 switch positions				
 Illuminated selector switch with long handle	2×60° operating angle	Red	3SB6061-2AL20-0YA0	3SB6061-2BL20-0YA0
		Yellow	3SB6061-2AL30-0YA0	3SB6061-2BL30-0YA0
		Green	3SB6061-2AL40-0YA0	3SB6061-2BL40-0YA0
		Blue	3SB6061-2AL50-0YA0	3SB6061-2BL50-0YA0
		White	3SB6061-2AL60-0YA0	3SB6061-2BL60-0YA0
2×60° operating angle	Red	3SB6061-2AM20-0YA0	3SB6061-2BM20-0YA0	
	Yellow	3SB6061-2AM30-0YA0	3SB6061-2BM30-0YA0	
	Green	3SB6061-2AM40-0YA0	3SB6061-2BM40-0YA0	
	Blue	3SB6061-2AM50-0YA0	3SB6061-2BM50-0YA0	
	White	3SB6061-2AM60-0YA0	3SB6061-2BM60-0YA0	
2×60° operating angle	Red	3SB6061-2AN20-0YA0	3SB6061-2BN20-0YA0	
	Yellow	3SB6061-2AN30-0YA0	3SB6061-2BN30-0YA0	
	Green	3SB6061-2AN40-0YA0	3SB6061-2BN40-0YA0	
	Blue	3SB6061-2AN50-0YA0	3SB6061-2BN50-0YA0	
	White	3SB6061-2AN60-0YA0	3SB6061-2BN60-0YA0	
2×60° operating angle	Red	3SB6061-2AP20-0YA0	3SB6061-2BP20-0YA0	
	Yellow	3SB6061-2AP30-0YA0	3SB6061-2BP30-0YA0	
	Green	3SB6061-2AP40-0YA0	3SB6061-2BP40-0YA0	
	Blue	3SB6061-2AP50-0YA0	3SB6061-2BP50-0YA0	
	White	3SB6061-2AP60-0YA0	3SB6061-2BP60-0YA0	

Legend:

 Latching

 Momentary

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Metal Shiny, Round, 22 mm

Actuators and indicators

Version	Color of handle	Article No.		
Key-operated switches with holder				
 <p>Key-operated switch</p>	Key-operated switches, 2 switch positions with 2 keys, 90° operating angle			
		Black	3SB6060-4AA21-0YA0	
		Black	3SB6060-4AA01-0YA0	
		Black	3SB6060-4AA11-0YA0	
		Black	3SB6060-4AB01-0YA0	
		Black	3SB6060-4AG01-0YA0	
 <p>Key-operated switch</p>	Key-operated switches, 3 switch positions with 2 keys 2×60° operating angle			
		Black	3SB6060-4AL01-0YA0	
		Black	3SB6060-4AL11-0YA0	
		Black	3SB6060-4AM01-0YA0	
		Black	3SB6060-4AP01-0YA0	
		Black	3SB6060-4AP61-0YA0	
		Black	3SB6060-4AN01-0YA0	
		Black	3SB6060-4AN51-0YA0	
Twin pushbuttons with holder				
 <p>Twin pushbutton</p>	Twin pushbuttons with one flat, one raised button, with I/O inscription Red/green	3SB6060-3AA24-0YK0		
	 <p>Illuminated twin pushbutton</p>	Illuminated twin pushbuttons with one flat, one raised button, with I/O inscription Red/green	3SB6061-3AA24-0YK0	
Emergency-stop pushbuttons with holder				
 <p>Emergency-stop pushbutton</p>	Emergency-stop pushbuttons, Ø 30 mm Twist to release Red Key to release Red	3SB6060-1GB20-0YA0 3SB6060-1GD20-0YA0		
	 <p>Emergency-stop pushbutton</p>	Emergency-stop pushbuttons, Ø 40 mm Twist to release Red Pull to release Red Key to release Red	3SB6060-1HB20-0YA0 3SB6060-1HA20-0YA0 3SB6060-1HD20-0YA0	
		 <p>Emergency-stop pushbutton with trigger action</p>	Emergency-stop pushbuttons, Ø 40 mm, with trigger action¹⁾ Twist to release Red Pull to release Red Key to release Red	3SB6060-1EB20-0YA0 3SB6060-1EA20-0YA0 3SB6060-1ED20-0YA0

Legend:

 Latching
  Momentary
  Key removal positions

¹⁾ Ensure NC contacts open only when operation distance reaches latching position, thus efficiently avoid unintentional malfunction.

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm

Complete units























Selection and ordering data

	Rated voltage of lamp	Color of handle	Contacts		Article No.
Pushbuttons					
 <p>Pushbutton with flat button</p>	Pushbuttons with flat button, momentary				
	--	Black	1 NO		3SB6110-0AB10-1BA0
		Black		1 NC	3SB6110-0AB10-1CA0
		Red		1 NC	3SB6110-0AB20-1CA0
		Yellow	1 NO		3SB6110-0AB30-1BA0
		Green	1 NO		3SB6110-0AB40-1BA0
		Blue	1 NO		3SB6110-0AB50-1BA0
	White	1 NO		3SB6110-0AB60-1BA0	
 <p>Pushbutton with raised button</p>	Pushbuttons with raised button, momentary				
	--	Black	1 NO		3SB6110-0BB10-1BA0
		Black		1 NC	3SB6110-0BB10-1CA0
		Red		1 NC	3SB6110-0BB20-1CA0
		Yellow	1 NO		3SB6110-0BB30-1BA0
		Green	1 NO		3SB6110-0BB40-1BA0
		Blue	1 NO		3SB6110-0BB50-1BA0
	White	1 NO		3SB6110-0BB60-1BA0	
 <p>Illuminated pushbutton with flat button</p>	Illuminated pushbuttons with flat button, momentary with integrated LED				
	24 V AC/DC	Red		1 NC	3SB6113-0DB20-1CA0
		Yellow	1 NO		3SB6113-0DB30-1BA0
		Green	1 NO		3SB6113-0DB40-1BA0
		Blue	1 NO		3SB6113-0DB50-1BA0
		White	1 NO		3SB6113-0DB60-1BA0
	110 V AC/DC	Red		1 NC	3SB6115-0DB20-1CA0
		Yellow	1 NO		3SB6115-0DB30-1BA0
		Green	1 NO		3SB6115-0DB40-1BA0
		Blue	1 NO		3SB6115-0DB50-1BA0
		White	1 NO		3SB6115-0DB60-1BA0
	220 V AC	Red		1 NC	3SB6116-0DB20-1CA0
		Yellow	1 NO		3SB6116-0DB30-1BA0
		Green	1 NO		3SB6116-0DB40-1BA0
		Blue	1 NO		3SB6116-0DB50-1BA0
	White	1 NO		3SB6116-0DB60-1BA0	
Mushroom pushbuttons					
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 40 mm, momentary				
	--	Black	1 NO		3SB6110-1BC10-1BA0
		Black		1 NC	3SB6110-1BC10-1CA0
		Red		1 NC	3SB6110-1BC20-1CA0
		Yellow	1 NO		3SB6110-1BC30-1BA0
		Green	1 NO		3SB6110-1BC40-1BA0
		Blue	1 NO		3SB6110-1BC50-1BA0
	White	1 NO		3SB6110-1BC60-1BA0	
	Mushroom pushbuttons, Ø 40 mm, pull to release				
--	Red		1 NC	3SB6110-1BA20-1CA0	

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm



Complete units



	Version	Color of handle	Contacts	Article No.
Selector switches				
 Selector switch, short handle	Selector switches with 2 switch positions, short handle			
	90° operating angle			
		Black	1 NO	3SB6110-2AA10-1BA0
	Selector switches with 3 switch positions, short handle			
	2×60° operating angle			
	Black	2 x 1 NO	3SB6110-2AL10-1NA0	
	Black	2 x 1 NO	3SB6110-2AM10-1NA0	
	Black	2 x 1 NO	3SB6110-2AN10-1NA0	
	Black	2 x 1 NO	3SB6110-2AP10-1NA0	
 Selector switch, long handle	Selector switches with 2 switch positions, long handle			
	90° operating angle			
		Black	1 NO	3SB6110-2BA10-1BA0
	Selector switches with 3 switch positions, long handle			
	2×60° operating angle			
	Black	2 x 1 NO	3SB6110-2BL10-1NA0	
	Black	2 x 1 NO	3SB6110-2BM10-1NA0	
	Black	2 x 1 NO	3SB6110-2BN10-1NA0	
	Black	2 x 1 NO	3SB6110-2BP10-1NA0	
Key-operated switches				
 Key-operated switch	Key-operated switches, 2 switch positions			
	With 2 keys, 90° operating angle			
		Black	1 NO	3SB6110-4AA01-1BA0
		Black	1 NO	3SB6110-4AA11-1BA0
	Black	1 NO	3SB6110-4AA21-1BA0	
Key-operated switches, 3 switch positions				
With 2 keys, 2×60° operating angle				
	Black	2 x 1 NO	3SB6110-4AL01-1NA0	
	Black	2 x 1 NO	3SB6110-4AL11-1NA0	
	Black	2 x 1 NO	3SB6110-4AM01-1NA0	
Legend:  Latching  Momentary  Key removal positions				

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm

Complete units

	Rated voltage of lamp	Color of handle	Contacts		Article No.
Twin pushbuttons					
 Twin pushbutton	Twin pushbuttons with flat and raised buttons, with I/O inscription		1 NO	1 NC	3SB6110-3AA24-1MK0
	--	Green/Red			
Illuminated twin pushbuttons					
 Illuminated twin pushbutton	with flat and raised buttons, with I/O inscription with integrated LED				
	24 V AC/DC	Green/Red	1 NO	1 NC	3SB6113-3CA24-1MK0
	110 V AC/DC	Green/Red	1 NO	1 NC	3SB6115-3CA24-1MK0
	220 V AC	Green/Red	1 NO	1 NC	3SB6116-3CA24-1MK0

	Version	Color of handle	Contacts	Article No.
EMERGENCY-STOP pushbuttons				
 Emergency-stop pushbutton	EMERGENCY-STOP pushbuttons, Ø 40 mm			
	Twist to release	Red	1 NC	3SB6110-1HB20-1CA0
	Pull to release	Red	1 NC	3SB6110-1HA20-1CA0
	Key to release	Red	1 NC	3SB6110-1HD20-1CA0
 EMERGENCY-STOP pushbutton with trigger action	Emergency-stop pushbuttons, Ø 40 mm, with trigger action¹⁾			
	Twist to release	Red	1 NC	3SB6110-1EB20-1CA0
	Pull to release	Red	1 NC	3SB6110-1EA20-1CA0
	Key to release	Red	1 NC	3SB6110-1ED20-1CA0

¹⁾ Ensure NC contacts open only when operation distance reaches latching position, thus efficiently avoid unintentional malfunction.

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm

Actuators and indicators



Selection and ordering data

Version	Color of handle	Article No.
Pushbuttons with holder		
 Pushbutton with flat button	Pushbuttons with flat button, momentary	
	Black	3SB6010-0AB10-0YA0
	Red	3SB6010-0AB20-0YA0
	Yellow	3SB6010-0AB30-0YA0
	Green	3SB6010-0AB40-0YA0
	Blue	3SB6010-0AB50-0YA0
	White	3SB6010-0AB60-0YA0
 Pushbutton with raised button	Pushbuttons with flat button, latching	
	Black	3SB6010-0AA10-0YA0
	Red	3SB6010-0AA20-0YA0
	Yellow	3SB6010-0AA30-0YA0
	Green	3SB6010-0AA40-0YA0
	Blue	3SB6010-0AA50-0YA0
	White	3SB6010-0AA60-0YA0
 Pushbutton with raised button	Pushbuttons with raised button, momentary	
	Black	3SB6010-0BB10-0YA0
	Red	3SB6010-0BB20-0YA0
	Yellow	3SB6010-0BB30-0YA0
	Green	3SB6010-0BB40-0YA0
	Blue	3SB6010-0BB50-0YA0
	White	3SB6010-0BB60-0YA0
 Illuminated pushbutton with flat button	Pushbuttons with raised button, latching	
	Black	3SB6010-0BA10-0YA0
	Red	3SB6010-0BA20-0YA0
	Yellow	3SB6010-0BA30-0YA0
	Green	3SB6010-0BA40-0YA0
	Blue	3SB6010-0BA50-0YA0
	White	3SB6010-0BA60-0YA0
 Illuminated pushbutton with flat button	Illuminated pushbuttons with flat button, momentary	
	Red	3SB6011-0AB20-0YA0
	Yellow	3SB6011-0AB30-0YA0
	Green	3SB6011-0AB40-0YA0
	Blue	3SB6011-0AB50-0YA0
	White	3SB6011-0AB60-0YA0
	 Illuminated pushbutton with raised button	Illuminated pushbuttons with flat button, latching
Red		3SB6011-0AA20-0YA0
Yellow		3SB6011-0AA30-0YA0
Green		3SB6011-0AA40-0YA0
Blue		3SB6011-0AA50-0YA0
White		3SB6011-0AA60-0YA0
 Illuminated pushbutton with raised button		Illuminated pushbuttons with raised button, momentary
	Red	3SB6011-0BB20-0YA0
	Yellow	3SB6011-0BB30-0YA0
	Green	3SB6011-0BB40-0YA0
	Blue	3SB6011-0BB50-0YA0
	White	3SB6011-0BB60-0YA0
	 Illuminated pushbutton with raised button	Illuminated pushbuttons with raised button, latching
Red		3SB6011-0BA20-0YA0
Yellow		3SB6011-0BA30-0YA0
Green		3SB6011-0BA40-0YA0
Blue		3SB6011-0BA50-0YA0
White		3SB6011-0BA60-0YA0

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm



Actuators and indicators

Version	Color of handle	Article No.	
Mushroom pushbuttons with holder			
 <p>Mushroom pushbutton</p>	Mushroom pushbuttons, Ø 30 mm, momentary		
	Black	3SB6010-1AC10-0YA0	
	Red	3SB6010-1AC20-0YA0	
	Yellow	3SB6010-1AC30-0YA0	
	Green	3SB6010-1AC40-0YA0	
	Blue	3SB6010-1AC50-0YA0	
	White	3SB6010-1AC60-0YA0	
Mushroom pushbuttons, Ø 40 mm, momentary	Black	3SB6010-1BC10-0YA0	
	Red	3SB6010-1BC20-0YA0	
	Yellow	3SB6010-1BC30-0YA0	
	Green	3SB6010-1BC40-0YA0	
	Blue	3SB6010-1BC50-0YA0	
	White	3SB6010-1BC60-0YA0	
	Mushroom pushbuttons, Ø 60 mm, momentary	Black	3SB6010-1CC10-0YA0
Red		3SB6010-1CC20-0YA0	
Yellow		3SB6010-1CC30-0YA0	
Green		3SB6010-1CC40-0YA0	
Blue		3SB6010-1CC50-0YA0	
White		3SB6010-1CC60-0YA0	
Mushroom pushbuttons, Ø 40 mm, pull to release		Black	3SB6010-1BA10-0YA0
	Red	3SB6010-1BA20-0YA0	
	Yellow	3SB6010-1BA30-0YA0	
	Green	3SB6010-1BA40-0YA0	
	Blue	3SB6010-1BA50-0YA0	
	White	3SB6010-1BA60-0YA0	
	Mushroom pushbuttons, Ø 60 mm, pull to release	Black	3SB6010-1CA10-0YA0
Red		3SB6010-1CA20-0YA0	
Yellow		3SB6010-1CA30-0YA0	
Green		3SB6010-1CA40-0YA0	
Blue		3SB6010-1CA50-0YA0	
White		3SB6010-1CA60-0YA0	
 <p>Illuminated mushroom pushbutton</p>		Illuminated mushroom pushbuttons, Ø 30 mm, momentary	
	Red	3SB6011-1AC20-0YA0	
	Yellow	3SB6011-1AC30-0YA0	
	Green	3SB6011-1AC40-0YA0	
	Blue	3SB6011-1AC50-0YA0	
	White	3SB6011-1AC60-0YA0	
	Illuminated mushroom pushbuttons, Ø 40 mm, momentary	Red	3SB6011-1BC20-0YA0
Yellow		3SB6011-1BC30-0YA0	
Green		3SB6011-1BC40-0YA0	
Blue		3SB6011-1BC50-0YA0	
White		3SB6011-1BC60-0YA0	
Illuminated mushroom pushbuttons, Ø 60 mm, momentary		Red	3SB6011-1CC20-0YA0
		Yellow	3SB6011-1CC30-0YA0
	Green	3SB6011-1CC40-0YA0	
	Blue	3SB6011-1CC50-0YA0	
	White	3SB6011-1CC60-0YA0	

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm

Actuators and indicators

	Version	Color of handle	Short handle Article No.	Long handle Article No.
Selector switches with holder				
 <p>Selector switch, short handle</p>	Selector switches with 2 switch positions			
	90° operating angle ∨	Black	3SB6010-2AA10-0YA0	3SB6010-2BA10-0YA0
		Red	3SB6010-2AA20-0YA0	3SB6010-2BA20-0YA0
		Yellow	3SB6010-2AA30-0YA0	3SB6010-2BA30-0YA0
		Green	3SB6010-2AA40-0YA0	3SB6010-2BA40-0YA0
		Blue	3SB6010-2AA50-0YA0	3SB6010-2BA50-0YA0
		White	3SB6010-2AA60-0YA0	3SB6010-2BA60-0YA0
90° operating angle ∩	Black	3SB6010-2AB10-0YA0	3SB6010-2BB10-0YA0	
	Red	3SB6010-2AB20-0YA0	3SB6010-2BB20-0YA0	
	Yellow	3SB6010-2AB30-0YA0	3SB6010-2BB30-0YA0	
	Green	3SB6010-2AB40-0YA0	3SB6010-2BB40-0YA0	
	Blue	3SB6010-2AB50-0YA0	3SB6010-2BB50-0YA0	
	White	3SB6010-2AB60-0YA0	3SB6010-2BB60-0YA0	
 <p>Selector switch, long handle</p>	Selector switches with 3 switch positions			
	2×60° operating angle ∩	Black	3SB6010-2AL10-0YA0	3SB6010-2BL10-0YA0
		Red	3SB6010-2AL20-0YA0	3SB6010-2BL20-0YA0
		Yellow	3SB6010-2AL30-0YA0	3SB6010-2BL30-0YA0
		Green	3SB6010-2AL40-0YA0	3SB6010-2BL40-0YA0
		Blue	3SB6010-2AL50-0YA0	3SB6010-2BL50-0YA0
		White	3SB6010-2AL60-0YA0	3SB6010-2BL60-0YA0
2×60° operating angle ∩	Black	3SB6010-2AM10-0YA0	3SB6010-2BM10-0YA0	
	Red	3SB6010-2AM20-0YA0	3SB6010-2BM20-0YA0	
	Yellow	3SB6010-2AM30-0YA0	3SB6010-2BM30-0YA0	
	Green	3SB6010-2AM40-0YA0	3SB6010-2BM40-0YA0	
	Blue	3SB6010-2AM50-0YA0	3SB6010-2BM50-0YA0	
	White	3SB6010-2AM60-0YA0	3SB6010-2BM60-0YA0	
2×60° operating angle ∩	Black	3SB6010-2AN10-0YA0	3SB6010-2BN10-0YA0	
	Red	3SB6010-2AN20-0YA0	3SB6010-2BN20-0YA0	
	Yellow	3SB6010-2AN30-0YA0	3SB6010-2BN30-0YA0	
	Green	3SB6010-2AN40-0YA0	3SB6010-2BN40-0YA0	
	Blue	3SB6010-2AN50-0YA0	3SB6010-2BN50-0YA0	
	White	3SB6010-2AN60-0YA0	3SB6010-2BN60-0YA0	
2×60° operating angle ∩	Black	3SB6010-2AP10-0YA0	3SB6010-2BP10-0YA0	
	Red	3SB6010-2AP20-0YA0	3SB6010-2BP20-0YA0	
	Yellow	3SB6010-2AP30-0YA0	3SB6010-2BP30-0YA0	
	Green	3SB6010-2AP40-0YA0	3SB6010-2BP40-0YA0	
	Blue	3SB6010-2AP50-0YA0	3SB6010-2BP50-0YA0	
	White	3SB6010-2AP60-0YA0	3SB6010-2BP60-0YA0	

Legend:



∨ Latching


∩ Momentary

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm

Actuators and indicators

	Version	Color of handle	Short handle Article No.	Long handle Article No.
Illuminated selector switches with holder				
 <p>Illuminated selector switch with short handle</p>	Selector switches with 2 switch positions			
	90° operating angle ∨	Red	3SB6011-2AA20-0YA0	3SB6011-2BA20-0YA0
		Yellow	3SB6011-2AA30-0YA0	3SB6011-2BA30-0YA0
		Green	3SB6011-2AA40-0YA0	3SB6011-2BA40-0YA0
		Blue	3SB6011-2AA50-0YA0	3SB6011-2BA50-0YA0
		White	3SB6011-2AA60-0YA0	3SB6011-2BA60-0YA0
90° operating angle ∩	Red	3SB6011-2AB20-0YA0	3SB6011-2BB20-0YA0	
	Yellow	3SB6011-2AB30-0YA0	3SB6011-2BB30-0YA0	
	Green	3SB6011-2AB40-0YA0	3SB6011-2BB40-0YA0	
	Blue	3SB6011-2AB50-0YA0	3SB6011-2BB50-0YA0	
	White	3SB6011-2AB60-0YA0	3SB6011-2BB60-0YA0	
 <p>Illuminated selector switch with long handle</p>	Selector switches with 3 switch positions			
	2×60° operating angle ∨	Red	3SB6011-2AL20-0YA0	3SB6011-2BL20-0YA0
		Yellow	3SB6011-2AL30-0YA0	3SB6011-2BL30-0YA0
		Green	3SB6011-2AL40-0YA0	3SB6011-2BL40-0YA0
		Blue	3SB6011-2AL50-0YA0	3SB6011-2BL50-0YA0
		White	3SB6011-2AL60-0YA0	3SB6011-2BL60-0YA0
	2×60° operating angle ∩	Red	3SB6011-2AM20-0YA0	3SB6011-2BM20-0YA0
		Yellow	3SB6011-2AM30-0YA0	3SB6011-2BM30-0YA0
		Green	3SB6011-2AM40-0YA0	3SB6011-2BM40-0YA0
		Blue	3SB6011-2AM50-0YA0	3SB6011-2BM50-0YA0
		White	3SB6011-2AM60-0YA0	3SB6011-2BM60-0YA0
	2×60° operating angle ∩	Red	3SB6011-2AN20-0YA0	3SB6011-2BN20-0YA0
		Yellow	3SB6011-2AN30-0YA0	3SB6011-2BN30-0YA0
		Green	3SB6011-2AN40-0YA0	3SB6011-2BN40-0YA0
		Blue	3SB6011-2AN50-0YA0	3SB6011-2BN50-0YA0
		White	3SB6011-2AN60-0YA0	3SB6011-2BN60-0YA0
	2×60° operating angle ∩	Red	3SB6011-2AP20-0YA0	3SB6011-2BP20-0YA0
		Yellow	3SB6011-2AP30-0YA0	3SB6011-2BP30-0YA0
Green		3SB6011-2AP40-0YA0	3SB6011-2BP40-0YA0	
Blue		3SB6011-2AP50-0YA0	3SB6011-2BP50-0YA0	
White		3SB6011-2AP60-0YA0	3SB6011-2BP60-0YA0	

	Version	Color of handle	Article No.
Key-operated switches with holder			
 <p>Key-operated switch</p>	Key-operated switches, 2 switch positions		
	with 2 keys, 90° operating angle	Black	3SB6010-4AA21-0YA0
		Black	3SB6010-4AA01-0YA0
		Black	3SB6010-4AA11-0YA0
		Black	3SB6010-4AB01-0YA0
		Black	3SB6010-4AG01-0YA0
Key-operated switches, 3 switch positions			
with 2 keys 2×60° operating angle	Black	3SB6010-4AL01-0YA0	
	Black	3SB6010-4AL11-0YA0	
	Black	3SB6010-4AM01-0YA0	
	Black	3SB6010-4AP01-0YA0	
	Black	3SB6010-4AP61-0YA0	
	Black	3SB6010-4AN01-0YA0	
	Black	3SB6010-4AN51-0YA0	


Legend:

∨ Latching ∩ Momentary ⊠ Key removal positions

3SB6 Pushbuttons and Indicator Lights, 22 mm

Actuators, Plastic Black, Round, 22 mm

Actuators and indicators

Version	Color of handle	Article No.
Twin pushbuttons with holder		
 <p>Twin pushbutton</p>	<p>Twin pushbuttons with one flat, one raised button, with I/O inscription Red/green</p>	3SB6010-3AA24-0YK0
 <p>Illuminated twin pushbutton</p>	<p>Illuminated twin pushbuttons with one flat, one raised button, with I/O inscription Red/green</p>	3SB6011-3AA24-0YK0
Emergency-stop pushbuttons with holder		
 <p>Emergency-stop pushbutton</p>	<p>Emergency-stop pushbuttons, Ø 30 mm Twist to release Red Key to release Red</p>	<p>3SB6010-1GB20-0YA0 3SB6010-1GD20-0YA0</p>
	<p>Emergency-stop pushbuttons, Ø 40 mm Twist to release Red Pull to release Red Key to release Red</p>	<p>3SB6010-1HB20-0YA0 3SB6010-1HA20-0YA0 3SB6010-1HD20-0YA0</p>
	<p>Emergency-stop pushbuttons, Ø 40 mm, with trigger action¹⁾ Twist to release Red Pull to release Red Key to release Red</p>	<p>3SB6010-1EB20-0YA0 3SB6010-1EA20-0YA0 3SB6010-1ED20-0YA0</p>



¹⁾ Ensure NC contacts open only when operation distance reaches latching position, thus efficiently avoid unintentional malfunction.

3SB6 Pushbuttons and Indicator Lights, 22 mm

Compact Pushbuttons and Indicator Lights, Plastic, Round, 22 mm

Complete units

Selection and ordering data



	Rated voltage of lamp	Color of handle	Contacts	Article No.	
Compact pushbuttons					
 Compact pushbutton	Compact pushbuttons, momentary				
	--	Black	1 NO	1 NC	3SB6210-0AB10-1FA0
		Red	1 NO	1 NC	3SB6210-0AB20-1FA0
		Yellow	1 NO	1 NC	3SB6210-0AB30-1FA0
		Green	1 NO	1 NC	3SB6210-0AB40-1FA0
		Blue	1 NO	1 NC	3SB6210-0AB50-1FA0
		White	1 NO	1 NC	3SB6210-0AB60-1FA0
	--	Black	1 NO		3SB6210-0AB10-1BA0
		Black		1 NC	3SB6210-0AB10-1CA0
		Red		1 NC	3SB6210-0AB20-1CA0
		Yellow	1 NO		3SB6210-0AB30-1BA0
		Green	1 NO		3SB6210-0AB40-1BA0
		Blue	1 NO		3SB6210-0AB50-1BA0
		White	1 NO		3SB6210-0AB60-1BA0
Indicator lights					
 Indicator light	Indicator lights				
	6 V AC/DC	Red			3SB6211-6AA20-1AA0
		Yellow			3SB6211-6AA30-1AA0
		Green			3SB6211-6AA40-1AA0
		Blue			3SB6211-6AA50-1AA0
		White			3SB6211-6AA60-1AA0
	12 V AC/DC	Red			3SB6212-6AA20-1AA0
		Yellow			3SB6212-6AA30-1AA0
		Green			3SB6212-6AA40-1AA0
		Blue			3SB6212-6AA50-1AA0
		White			3SB6212-6AA60-1AA0
	24 V AC/DC	Red			3SB6213-6AA20-1AA0
		Yellow			3SB6213-6AA30-1AA0
		Green			3SB6213-6AA40-1AA0
		Blue			3SB6213-6AA50-1AA0
		White			3SB6213-6AA60-1AA0
	48 V AC/DC	Red			3SB6214-6AA20-1AA0
		Yellow			3SB6214-6AA30-1AA0
		Green			3SB6214-6AA40-1AA0
		Blue			3SB6214-6AA50-1AA0
		White			3SB6214-6AA60-1AA0
	110 V AC/DC	Red			3SB6215-6AA20-1AA0
		Yellow			3SB6215-6AA30-1AA0
		Green			3SB6215-6AA40-1AA0
		Blue			3SB6215-6AA50-1AA0
		White			3SB6215-6AA60-1AA0
	125 V AC/DC	Red			3SB6210-6AB20-1AA0
		Yellow			3SB6210-6AB30-1AA0
	Green			3SB6210-6AB40-1AA0	
	Blue			3SB6210-6AB50-1AA0	
	White			3SB6210-6AB60-1AA0	
220 V AC	Red			3SB6216-6AA20-1AA0	
	Yellow			3SB6216-6AA30-1AA0	
	Green			3SB6216-6AA40-1AA0	
	Blue			3SB6216-6AA50-1AA0	
	White			3SB6216-6AA60-1AA0	
220 V DC	Red			3SB6217-6AA20-1AA0	
	Yellow			3SB6217-6AA30-1AA0	
	Green			3SB6217-6AA40-1AA0	
	Blue			3SB6217-6AA50-1AA0	
	White			3SB6217-6AA60-1AA0	
380 V AC	Red			3SB6218-6AA20-1AA0	
	Yellow			3SB6218-6AA30-1AA0	
	Green			3SB6218-6AA40-1AA0	
	Blue			3SB6218-6AA50-1AA0	
	White			3SB6218-6AA60-1AA0	

3SB6 Pushbuttons and Indicator Lights, 22 mm

Components for Actuators

Contact blocks and illumination modules



Selection and ordering data

	Rated voltage of lamp	Color of lamp	Contacts	Article No.
Contact blocks				
 <p>Contact block</p>	Contact blocks with one contact			
			1 NO	3SB6400-1AA10-1BA0
			1 NC	3SB6400-1AA10-1CA0
Illumination modules				
 <p>Illumination module</p>	Illumination modules, with integrated LED			
	6 V AC/DC	Red		3SB6401-1BA20-1AA0
		Yellow		3SB6401-1BA30-1AA0
		Green		3SB6401-1BA40-1AA0
		Blue		3SB6401-1BA50-1AA0
		White		3SB6401-1BA60-1AA0
	12 V AC/DC	Red		3SB6402-1BA20-1AA0
		Yellow		3SB6402-1BA30-1AA0
		Green		3SB6402-1BA40-1AA0
		Blue		3SB6402-1BA50-1AA0
		White		3SB6402-1BA60-1AA0
	24 V AC/DC	Red		3SB6403-1BA20-1AA0
		Yellow		3SB6403-1BA30-1AA0
		Green		3SB6403-1BA40-1AA0
		Blue		3SB6403-1BA50-1AA0
		White		3SB6403-1BA60-1AA0
	48 V AC/DC	Red		3SB6404-1BA20-1AA0
		Yellow		3SB6404-1BA30-1AA0
		Green		3SB6404-1BA40-1AA0
		Blue		3SB6404-1BA50-1AA0
		White		3SB6404-1BA60-1AA0
	110V AC/DC	Red		3SB6405-1BA20-1AA0
		Yellow		3SB6405-1BA30-1AA0
		Green		3SB6405-1BA40-1AA0
		Blue		3SB6405-1BA50-1AA0
		White		3SB6405-1BA60-1AA0
	220V AC	Red		3SB6406-1BA20-1AA0
Yellow			3SB6406-1BA30-1AA0	
Green			3SB6406-1BA40-1AA0	
Blue			3SB6406-1BA50-1AA0	
White			3SB6406-1BA60-1AA0	
220V DC	Red		3SB6407-1BA20-1AA0	
	Yellow		3SB6407-1BA30-1AA0	
	Green		3SB6407-1BA40-1AA0	
	Blue		3SB6407-1BA50-1AA0	
	White		3SB6407-1BA60-1AA0	
380V AC	Red		3SB6408-1BA20-1AA0	
	Yellow		3SB6408-1BA30-1AA0	
	Green		3SB6408-1BA40-1AA0	
	Blue		3SB6408-1BA50-1AA0	
	White		3SB6408-1BA60-1AA0	

3SB6 Pushbuttons and Indicator Lights, 22 mm Enclosures

Empty enclosures

Selection and ordering data








	Version	Color	Number of command points	Article No.
Empty enclosures, plastic				
 Standard enclosure	Standard enclosures			
		Grey	1	3SB6811-0AA10-0BA0
		Grey	2	3SB6812-0AA10-0BA0
		Grey	3	3SB6813-0AA10-0BA0
		Grey	4	3SB6814-0AA10-0BA0
		Grey	5	3SB6815-0AA10-0BA0
 Enclosure for EMERGENCY-STOP pushbutton	Enclosures for EMERGENCY-STOP pushbuttons			
		Yellow/Black	1	3SB6811-0AA20-0BA0

3SB6 Pushbuttons and Indicator Lights, 22 mm

Accessories

Miscellaneous accessories

Selection and ordering data

Version	Use	Color	Inscriptions	Article No.	PS*		
Protective caps							
	Protective caps	Flat or raised button	Clear	3SB6900-0BC	10 units		
		Twin pushbutton	Clear	3SB6900-0BJ	10 units		
3SB6900-0BC							
							
3SB6900-0BJ							
Lens							
Lens for indicator lights							
	Indicator lights	Red		3SB6901-0GH20	10 units		
		Yellow		3SB6901-0GH30	10 units		
		Green		3SB6901-0GH40	10 units		
		Blue		3SB6901-0GH50	10 units		
		White		3SB6901-0GH60	10 units		
Lens for indicator lights							
Insert labels							
Insert labels							
	For self-inscription	Indicator lights	White	Blank	3SB6900-0PG	10 units	
	With inscription	Indicator lights	White	START	3SB6900-0NA		
		Indicator lights	White	STOP	3SB6900-0NB	10 units	
		Indicator lights	White	ON	3SB6900-0NC	10 units	
		Indicator lights	White	OFF	3SB6900-0ND	10 units	
		Indicator lights	White	UP	3SB6900-0NE	10 units	
		Indicator lights	White	DOWN	3SB6900-0NF	10 units	
		Indicator lights	White	OPEN	3SB6900-0NG	10 units	
		Indicator lights	White	CLOSE	3SB6900-0NH	10 units	
		Indicator lights	White	RESET	3SB6900-0NJ	10 units	
		Indicator lights	White	AUTO	3SB6900-0NK	10 units	
		Indicator lights	White	O (standard symbol)	3SB6900-0NL	10 units	
		Indicator lights	White	I (standard symbol)	3SB6900-0NM	10 units	
		Indicator lights	White	II (standard symbol)	3SB6900-0NN	10 units	
		Indicator lights	White	→(ISO symbol)	3SB6900-0NP	10 units	
		Indicator lights	White	I (ISO symbol)	3SB6900-0NQ	10 units	
		Indicator lights	White	O (ISO symbol)	3SB6900-0NR	10 units	
		Insert label for indicator light					
		Yellow name plates					
Yellow name plates							
	External diameter 60 mm	EMERGENCY-STOP pushbuttons	Yellow	EMERGENCY STOP	3SB6900-0GC	10 units	
	External diameter 90 mm	EMERGENCY-STOP pushbuttons	Yellow	EMERGENCY STOP	3SB6900-0GF	10 units	
Yellow name plates							
Label holders							
Label holders, blank							
	Size: 25 mm × 10 mm		Black	3SB6900-0HA	10 units		
	Size: 25 mm × 18 mm		Black	3SB6900-0HB	10 units		
Label holder							
Blanking plug							
Blanking plugs							
	Plastic		Black	3SB6900-0AV60	10 units		
Plastic black							

Technical specifications

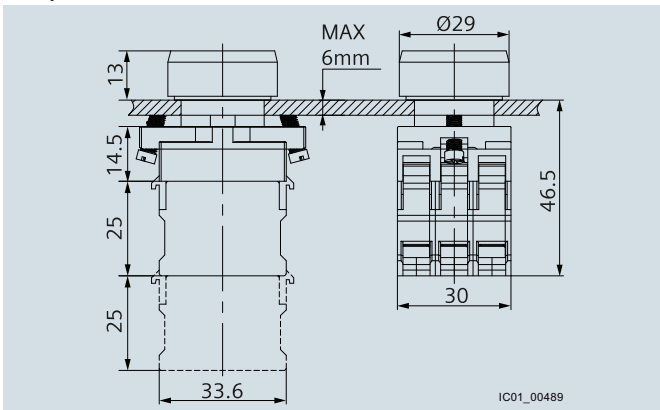
Standards		IEC 60947 Part1, IEC 60947 Part 5-1, IEC 60947 Part 5-5 GB 14048.5, GB 14048.1, ISO 13850		
Connection type		Screw terminals		
Rated insulation voltage U_i	V	AC 600, 50 Hz		
Illumination modules	V	AC 440, 50 Hz; DC 250		
Indicator lights	V	AC 440, 50 Hz; DC 250		
Pollution degree		Class 3		
Continuous thermal current I_{th}				
Modular pushbuttons	A	10		
Compact pushbuttons	A	5		
Rated operational current I_e				
At rated operational voltage U_e				
• Alternating current (50-60 Hz)		Module	Compact pushbuttons	
- At 24V	A	$I_e/AC-12$	$I_e/AC-15$	$I_e/AC-15$
- At 110V	A	10	6	
- At 220V/230V	A	10	6	2
- At 380/400/415V	A	10	6	
• Direct current		$I_e/DC-12$	$I_e/DC-13$	$I_e/DC-13$
- At 24V DC	A	10	6	1
- At 48V DC	A	8	4	
- At 110V DC	A	3.5	1.2	
- At 220V DC	A	1	0.4	
Contact stability				
Test voltage/current	V DC/mA	7 / 5, ? < 10 ⁻⁶		
Short-circuit protection				
Fast fuse	A	16		
Delay fuse	A	10		
Mechanical endurance				
• Pushbutton and contact blocks		3 × 10 ⁶ operating cycles		
• Illuminated pushbuttons		3 × 10 ⁶ operating cycles		
• Pushbuttons, latching		3 × 10 ⁵ operating cycles		
• Selector switches		3 × 10 ⁵ operating cycles		
Electrical endurance				
• With 3TH30, 3TF30/31		3 × 10 ⁶ operating cycles		
• With operational class AC-15		5 × 10 ⁵ operating cycles at 220 V/230 V		
Operating frequency		1200 operating cycles per hour		
Ambient temperature				
• During operation		-25 ... +70 °C		
• During storage, transport		-40 ... +80 °C		
IP degree				
• Except following types		IP65		
• With protective caps		IP67		
• Key-operated switches		IP54		
• Contact blocks and illumination modules		IP20		
Conductor cross-sections				
• Finely stranded, with end sleeves	mm ²	2 × 0.5 to 1.5		
• Solid	mm ²	2 × 1 to 2.5		
• Solid, with end sleeves	mm ²	2 × 0.5 to 0.75		
• Finely stranded, with end sleeves	mm ²	2 × 1 to 1.5 (For indicator lights)		
Tightening torque				
• Metal holders	Nm	Max. 1		
• Plastic holders	Nm	Max. 0.5		
• Terminal screws	Nm	0.8 to 1.2		
Shock resistance acc. to IEC 60068 2-27				
• Shock duration	ms	11		
• Max. acceleration	g	15		
Vibration resistance acc. to IEC 60068 2-6				
• Max. acceleration	g	5		
• Frequency	Hz	10 ... 500		

3SB6 Pushbuttons and Indicator Lights, 22 mm

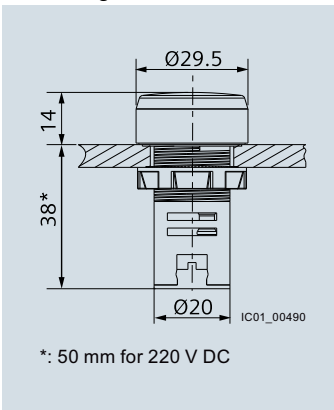
Dimensional drawings

Dimensional drawings

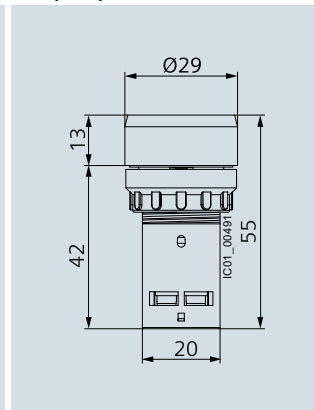
Complete units



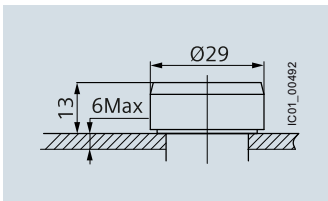
Indicator lights



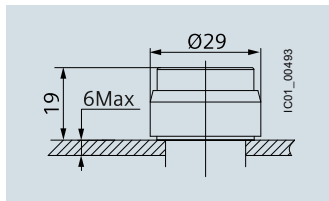
Compact pushbuttons



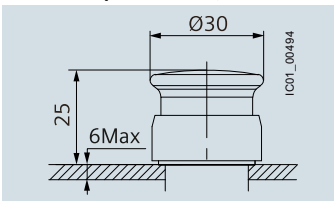
Pushbuttons with flat button



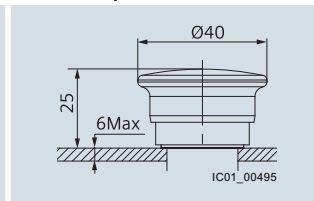
Pushbuttons with raised button



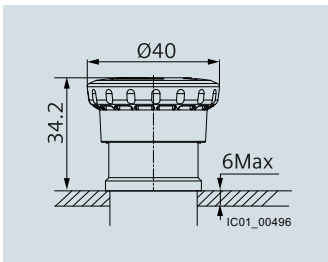
Mushroom pushbuttons, Ø 30 mm



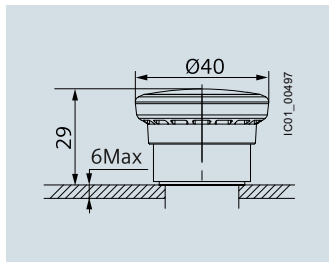
Mushroom pushbuttons, Ø 40 mm



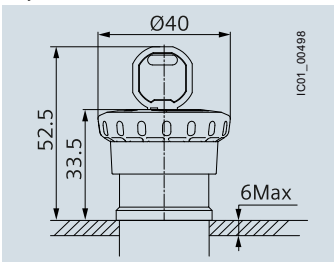
EMERGENCY-STOP pushbuttons
Twist to release



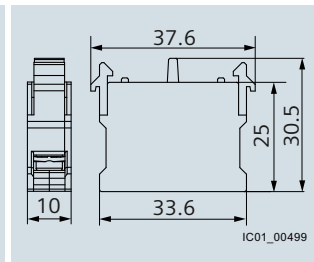
EMERGENCY-STOP pushbuttons
Pull to release



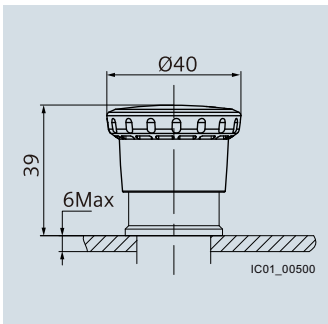
EMERGENCY-STOP pushbuttons
Key to release



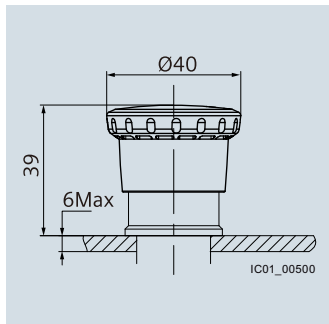
Contact blocks



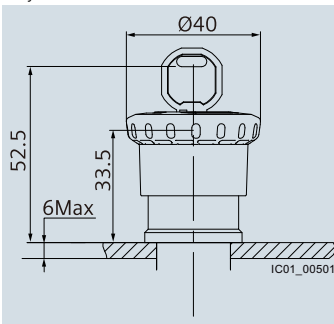
EMERGENCY-STOP pushbuttons
With trigger action
Twist to release



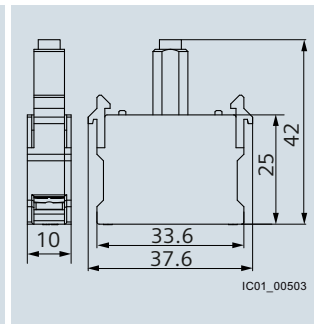
EMERGENCY-STOP pushbuttons
With trigger action
Pull to release



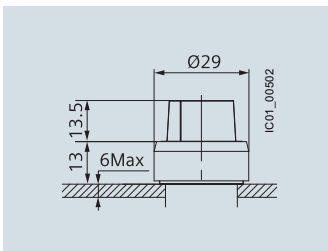
EMERGENCY-STOP pushbuttons
With trigger action
Key to release



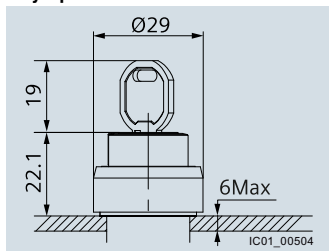
Illumination modules



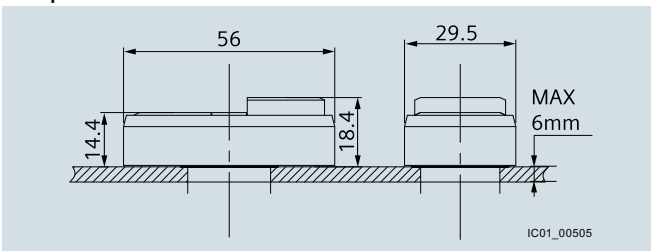
Selector switches

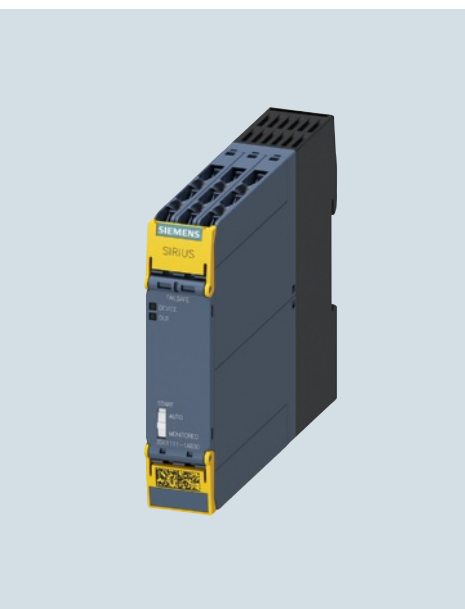


Key-operated switches



Twin pushbuttons



**8/2 SIRIUS 3SK Safety Relays**

8/2 General data

8/12 Basic Units

8/12 SIRIUS 3SK1 Standard basic units

8/13 SIRIUS 3SK1 Advanced basic units

8/14 SIRIUS 3SK2 basic units

8/15 Expansion Modules

8/15 Output expansions

8/17 Input expansions

8/18 Accessories

Safety Technology

SIRIUS 3SK Safety Relays

General data

Overview



SIRIUS 3SK safety relays

SIRIUS 3SK safety relays are the key elements of a consistent, cost-effective safety chain. Whether you need EMERGENCY-STOP disconnection, protective door monitoring, light arrays, laser scanners or the protection of presses or punches – with SIRIUS safety relays, all safety applications can be implemented within a minimum width to optimum effect in terms of engineering and price.

The following safety-related functions are available:

- Monitoring the safety functions of sensors
- Monitoring the sensor leads
- Monitoring the correct device function of the safety relay
- Monitoring the actuators in the shutdown circuit
- Safety-related disconnection when dangers arise

SIRIUS 3SK safety relays are approved for applications up to SIL 3 (IEC 61508/IEC 62061) or PL e (EN ISO 13849-1).

Device series

SIRIUS 3SK safety relays stand out due to their flexibility for both parameterization and system designs with several evaluation units. Optimized solutions when selecting components are facilitated by a clearly structured component range:

- 3SK1 Standard basic units
- 3SK1 Advanced basic units
- 3SK2 basic units
- 3SK output expansions
- 3SK1 input expansions
- Accessories

3SK1 Standard basic units

The 3SK1 Standard basic units are characterized by the following features:

- Compact design
- Simple operation
- Relay and semiconductor outputs
- Economical solution

3SK1 Advanced basic units

The 3SK1 Advanced basic units also offer:

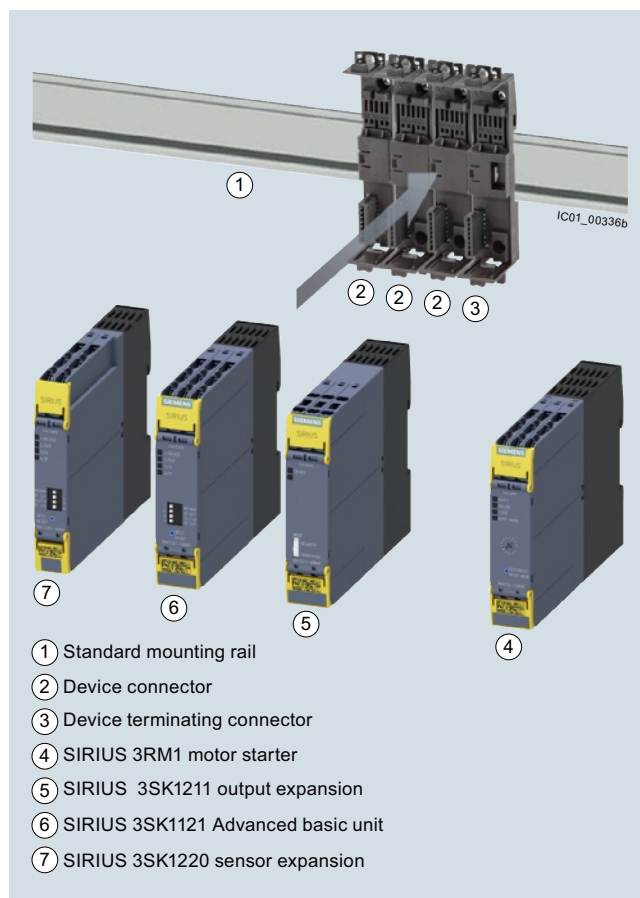
- Universal application possibilities thanks to multifunctionality
- Time-delayed outputs
- Expansion of inputs and outputs

3SK2 basic units

The 3SK2 basic units also offer:

- Up to six fail-safe shutdown functions
- Flexible in use thanks to software parameterization
- Powerful semiconductor outputs
- User-friendly diagnostics using diagnostics display and configuring software

In the case of 3SK1 Advanced basic units or 3SK2 basic units, the 3ZY12 device connector allows safety functions involving several sensors and actuators to be constructed very quickly.



System configuration example

The 3SK1 and 3SK2 Standard and Advanced series are a high-quality replacement for the 3TK28 safety relays. In their narrower design, and equipped with greater functionality, they can replace every 3TK28 device. The only exception to this are the 3TK2810 devices.

Note:

Conversions from 3TK28 to 3SK, see www.siemens.com/sirius/conversion-tool.

Overview of functions of the 3SK series

Type	3SK1 Standard basic units		3SK1 Advanced basic units		3SK2 basic units	
	Safe relay outputs	Safe semiconductor outputs	Safe relay outputs	Safe semiconductor outputs	22.5 mm Safe semiconductor outputs	45 mm Safe semiconductor outputs
Sensors						
• Mechanical	✓	✓	✓	✓	✓	✓
• Single-ended	✓ ¹⁾	✓	✓	✓	✓	✓
• Antivalent	--	--	✓	✓	✓	✓
• Expandable	--	✓ by means of cascading	✓	✓	--	--
Inputs						
• Freely parameterizable	--	--	--	--	10 single-channel, 5 two-channel	20 single-channel, 10 two-channel
Parameters						
• Start (auto/monitored)	✓	✓	✓	✓	A variety of functions can be set for each input/output by means of software parameterization.	
• Sensor connection, 2 x 1-channel/ 1 x 2-channel	✓ by means of wiring	✓	✓	✓		
• Cross-circuit detection	✓ by means of wiring	✓	✓	✓		
• Start test ON/OFF	--	✓	✓	✓		
• Monitoring of two-hand operator controls according to EN 574	--	--	✓	✓		
• Pressure-sensitive mat	--	--	✓	✓		
Safe outputs						
• Instantaneous	✓	✓	✓	✓	Parameterizable	Parameterizable
• Time-delayed	--	--	✓	✓	Parameterizable	Parameterizable
• Expandable with safe relay outputs	✓ by means of wiring	✓ by means of wiring	✓	✓	✓	✓
• Independent	--	--	--	--	✓ ⁴⁾	✓ ⁵⁾
• Device connectors	--	--	✓	✓	✓	✓
Options						
• External memory module	--	--	--	--	--	✓
• Display on the device	--	--	--	--	--	✓
• External diagnostics module can be connected	--	--	--	--	✓	✓
Rated control supply voltage						
• 24 V DC	✓ ²⁾	✓	✓	✓	✓	✓
• 115 ... 240 V AC/DC	✓	--	✓ ³⁾	✓ ³⁾	--	--

✓ Available

-- Not available

1) 24 V basic units only.

2) 24 V AC/DC.

3) Possible using 3SK1230 power supply via device connector.

4) Up to 4 independent safe outputs, two of which via device connectors.

5) Up to 6 independent safe outputs, two of which via device connectors.

Safety Technology

SIRIUS 3SK Safety Relays

General data

Parameterization

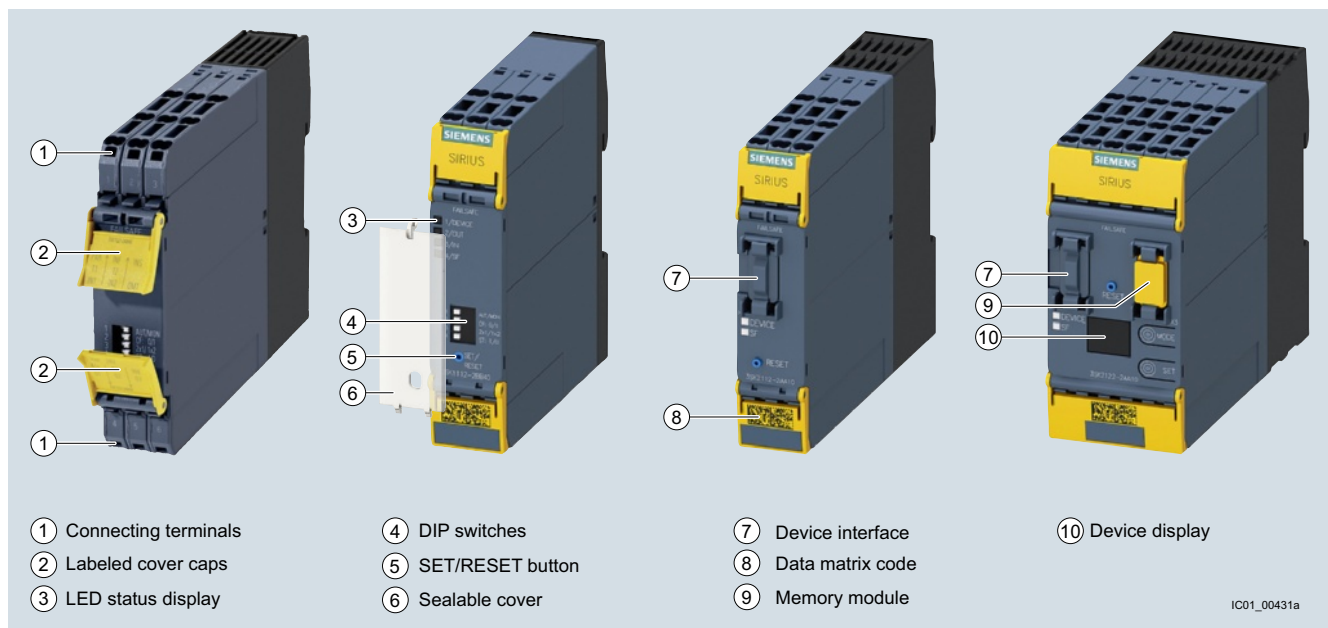
3SK112 and 3SK1112 with DIP switch

The 3SK112 and 3SK1112 safety relays are configurable safety relays. They are used as evaluation units for typical safety chains (identify, evaluate, realize). A number of functions can be set using the DIP switches on the front. 3SK112 and 3SK1112 are therefore universally applicable.

DIP switch No.	OFF	ON	Schematic
1	Sensor input Autostart	Sensor input Monitored start	
2	Without crossover monitoring	With crossover monitoring	
3	2 x single-channel sensor connection	1 x 2-channel sensor connection	
4	With start test	Without start test	

3SK2 with software

The 3SK2 safety relays are configured with the SIRIUS Safety ES software. The behavior of a 3SK2 device as well as the functioning of the individual safe outputs can thus be parameterized simply and conveniently in the logic diagram. In addition, the configuration can be printed out for documentation purposes. The software also supports users in commissioning and troubleshooting by means of online diagnostics and the option of "forcing" signals in the logic diagram. The 3SK2 safety relays thus offer maximum flexibility and universal application options.



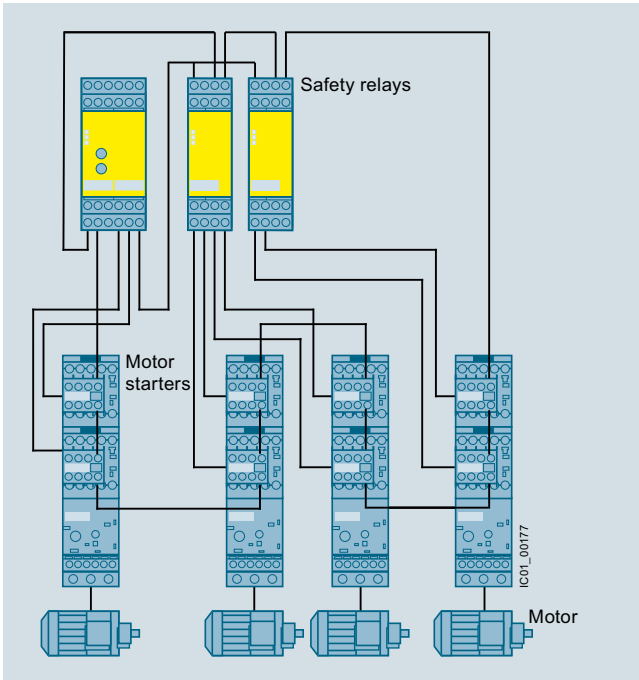
Innovative enclosure concept for SIRIUS 3SK safety relays

Expansion option by adding the 3RM1 motor starter

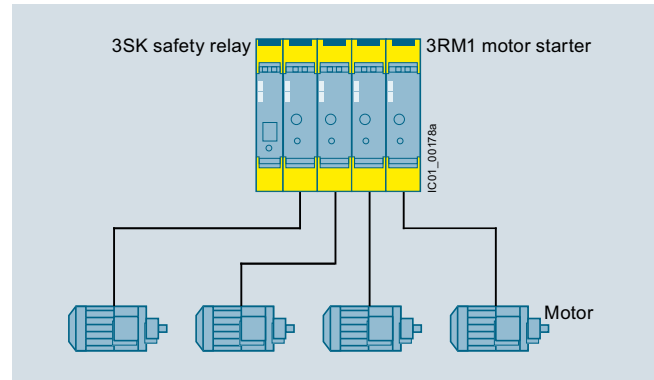
With previous safety relay and motor feeder configurations, a huge amount of wiring was required to monitor the motor feeders in safety applications.

With the integration of the SIRIUS 3RM1 motor starter into the SIRIUS 3SK safety relay system family, this wiring has been minimized for the first time.

Motor starters up to 3 kW can easily be integrated into the safety relay system using SIRIUS 3ZY12 device connectors, without additional wiring between the evaluation unit and the motor starter.



Conventional system configuration



System design using 3SK and 3RM1

Article No. scheme

3SK1

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	
	□□□	□	□	□	□	-	□	A	□	□	□
Safety relays	3SK										
Generation	<input type="checkbox"/>										
Device version	<input type="checkbox"/>										
Device series	<input type="checkbox"/>										
Type of outputs	<input type="checkbox"/>										
Connection type	<input type="checkbox"/>										
Rated control supply voltage	<input type="checkbox"/>										
Type of rated control supply voltage	<input type="checkbox"/>										
Time delay	<input type="checkbox"/>										
Example	3SK	1	1	2	1	-	1	A	B	4	0

3SK2

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	
	□□□	□	□	□	□	-	□	A	A	1	0
Safety relays	3SK										
Generation	<input type="checkbox"/>										
Device version	<input type="checkbox"/>										
Device version, alternative volume of project data	<input type="checkbox"/>										
Type of outputs	<input type="checkbox"/>										
Connection type	<input type="checkbox"/>										
Example	3SK	2	1	1	2	-	1	A	A	1	0

Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the catalog in the Selection and ordering data.

Safety Technology

SIRIUS 3SK Safety Relays

General data

Benefits

General

- Approved for all safety applications because of its compliance with the highest safety requirements (SIL 3 and PL e)
- Universally usable thanks to adjustable parameters
- Usable worldwide thanks to globally valid certificates
- Compact SIRIUS design
- Device connectors with standard rail mounting for flexible connectability and expandability
- Removable terminals for greater plant availability
- Yellow terminal covers clearly identify the device as a safety component.
- Sensor cable up to 2 000 m long allows it to be used in extensive plants.

Relay outputs

- Different voltages can be switched through the floating contacts.
- The power relay contacts allow currents of up to 5 A at AC-15/DC-13 to be connected.

Semiconductor outputs

- Wear-free
- Suitable for operation in fast switching applications
- Insensitive to vibrations and dirt
- Good electrical endurance

Power outputs (3SK1213 output expansion)

- Different voltages can be switched through the floating contacts.
- The power relay contacts allow currents of up to 10 A AC-15/DC-13 to be connected.
- High mechanical and electrical endurance
- Protective separation between the safe outputs and between safe outputs and electronics

Expansion option by adding the 3RM1 motor starter

SIRIUS 3SK safety relays are ideal for combining with the SIRIUS 3RM1 motor starters.

Combinations are made by means of

- SIRIUS 3ZY12 device connectors (in combination with 3SK1 Advanced/3SK2) or
- Conventional wiring (for all 3SK1 and 3SK2 basic units).

This makes collective shutdown very easy in assemblies. The wiring, and ultimately the shutting down of the control supply voltage for the expansion components in EMERGENCY-STOP situations, is performed via the device connector. There is no further need for complex looping of the connecting cables between the safety relay and the motor starters.

The 3RM1 motor starter combines the benefits of semiconductor technology and relay technology. This combination is also known as hybrid technology.

The hybrid technology in the motor starter is characterized by the following features:

- The inrush current in the case of motorized loads is conducted briefly via the semiconductors. Advantages include protection of the relay contacts and a long service life due to low wear.
- The uninterrupted current is conducted via relay contacts. Advantages include lower heat losses compared with the semiconductor.
- Shutdown is implemented again via the semiconductor. The contacts are only slightly exposed to arcs, and this results in a longer service life.
- Integrated overload protection

3ZY12 device connectors

Using 3ZY12 device connectors to combine devices reduces the time required to configure and wire the components. At the same time errors are avoided during wiring, and this considerably reduces the testing required for the fully-assembled application.

Configuration and stock keeping

Variable setting options by means of DIP switches or software, a wide voltage range (3SK1111) and a special power supply unit (3SK1 only) reduce the cost of keeping stocks and the considerations involved in configuration where the evaluation units to be selected are concerned.

Application

3SK1 safety relays

SIRIUS 3SK1 safety relays are used mainly in autonomous safety applications which are not connected to a safety-related bus system. Their function here is to evaluate the sensors and the safety-related shutdown of hazards. Also they check and monitor the sensors, actuators and safety-related functions of the safety relay.

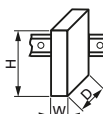
3SK2 safety relays

SIRIUS 3SK2 safety relays are used primarily in autonomous, more complex safety applications for which the functional scope of the 3SK1 devices is no longer sufficient, such as in the implementation of independent shutdown functions. Their function here is to evaluate the sensors and the safety-related shutdown of hazards. Also they check and monitor the sensors, actuators and safety-related functions of the safety relay.

Technical specifications

SIRIUS 3SK1 safety relays

Type		3SK1111- .AB30, 3SK1211- .BB00, 3SK1211- .BB40	3SK1111- .AW20, 3SK1121, 3SK1211- .BW20	3SK1112	3SK1120	3SK1122	3SK1213	3SK1220
Dimensions								
• Width	mm	22.5	22.5	22.5	17.5	22.5	90	17.5
• Height	mm	100	100	100	100	100	100	100
• Depth	mm	121.6	121.6	91.6	121.6	121.6	121.6	121.6



General data

Ambient temperature								
• During operation	°C	-25 ... +60						
• During storage	°C	-40 ... +80						
Installation altitude at height above sea level maximum	m	2 000						
Air pressure According to SN 31205	kPa	90 ... 106						
Shock resistance		10 g / 11 ms					5 g / 10 ms	10 g / 11 ms
Vibration resistance Acc. to IEC 60068-2-6		5 ... 500 Hz: 0.75 mm						
IP degree of protection of the enclosure		IP20						
Touch protection against electric shock		Finger-safe						
Insulation voltage, rated value	V	300		50			300	50
Rated impulse withstand voltage	V	4 000		500			4 000	800
Safety integrity level (SIL) According to IEC 61508		SIL 3						
Performance level (PL) According to ISO 13849-1		e						
T1 value for proof test interval or service duration According to IEC 61508	a	20						
EMC emitted interference		IEC 60947-5-1, class B		IEC 60947-5-1, class A			IEC 60947-5-1, class B	IEC 60947-5-1, class A
Certificate of suitability								
• UL certification		Yes						
• TÜV approval		Yes						

Type		3SK1111, 3SK1121-.AB40, 3SK1211	3SK1112, 3SK1122	3SK1120	3SK1121-.CB4.	3SK1213
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Switching capacity

Switching capacity current of the NO contacts of the relay outputs						
• At AC-15 at 230 V	A	5	--		3	10
• At DC-13 at 24 V	A	5	--		3	6
Switching capacity current of the semiconductor outputs						
• At DC-13 at 24 V	A	--	2	0.5	--	

Type		3SK1111- .AB30, 3SK1211	3SK1111- .AW20	3SK1112, 3SK1220	3SK1120, 3SK1122- .AB40	3SK1121- .AB40	3SK1121- .CB4.	3SK1122- .CB4.	3SK1213
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PFHd and PFDavg values

PFHD with high demand rate according to EN 62061	1/h	1.7×10^{-9}	1.5×10^{-9}	1.0×10^{-9}	1.3×10^{-9}	2.5×10^{-9}	3.7×10^{-9}	1.5×10^{-9}	1.0×10^{-9}
Average probability of failure of the safety function upon demand (PFDavg) at a low demand rate acc. to IEC 61508		1.0×10^{-6}		7.0×10^{-6}					1.0×10^{-6}

Note:

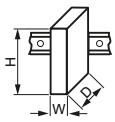
For the 3SK1230 technical specifications, see Manual "3SK1 Safety Relays", <https://support.industry.siemens.com/cs/ww/en/view/67585885>.

Safety Technology

SIRIUS 3SK Safety Relays

General data

SIRIUS 3SK2 safety relays

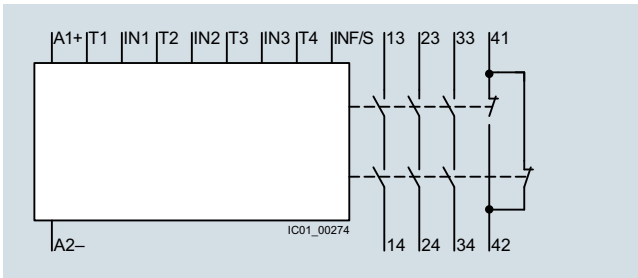
Type	3SK2112-AA10		3SK2122-AA10				
Dimensions:							
• Width					mm	22.5	45
• Height					mm	100	100
• Depth					mm	124.5	124.5
General data							
Ambient temperature							
• During operation	°C	-25 ... +60					
• During storage	°C	-40 ... +80					
Installation altitude at height above sea level maximum	m	2 000					
Air pressure According to SN 31205	kPa	90 ... 106					
Shock resistance		15 g / 11 ms					
Vibration resistance acc. to IEC 60068-2-6		5 ... 500 Hz: 0.75 mm					
IP degree of protection of the enclosure		IP20					
Touch protection against electric shock		Finger-safe					
Insulation voltage, rated value	V	50					
Rated impulse withstand voltage	V	800					
Safety integrity level (SIL) According to IEC 61508		SIL 3					
Performance level (PL) According to EN ISO 13849-1		e					
T1 value for proof test interval or service duration According to IEC 61508	y	20					
EMC emitted interference According to IEC 60947-1		Class A					
Certificate of suitability							
• UL certification		Yes					
• TÜV approval		Yes					
Switching capacity							
Switching capacity current of the semiconductor outputs • At DC-13 at 24 V	A	4					
PFHd and PFDavg values							
PFHd with high demand rate according to EN 62061	1/h	1 x 10 ⁻⁸	1.2 x 10 ⁻⁸				
PFDavg at low demand rate according to IEC 61508		1.5 x 10 ⁻⁵	1.8 x 10 ⁻⁵				

Note:

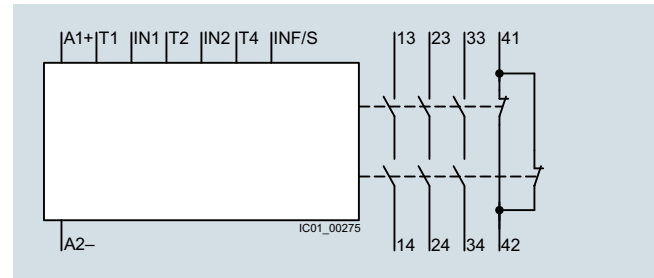
Manual "3SK2 Safety Relays", see <https://support.industry.siemens.com/cs/ww/en/ps/16386>.

Circuit diagrams

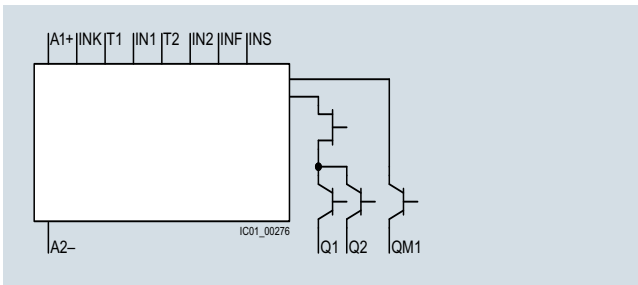
3SK1 basic units



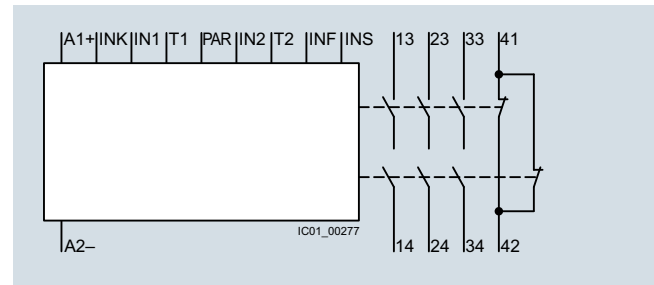
Basic unit 3SK1111-.AB30, Standard relay instantaneous (24 V AC/DC)



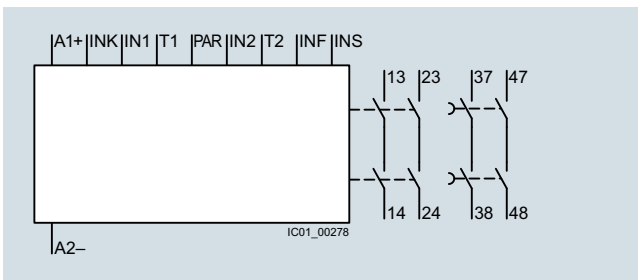
Basic unit 3SK1111-.AW20, Standard relay instantaneous (110 ... 240 V AC/DC)



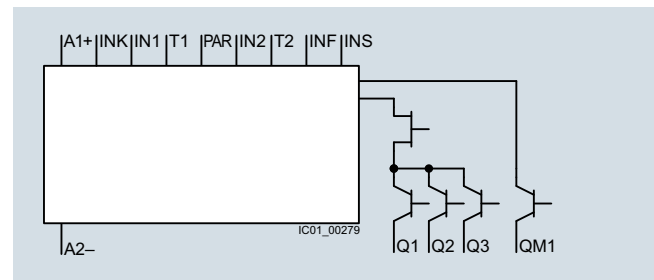
Basic unit 3SK1112-.BB40, Standard solid-state (24 V DC)



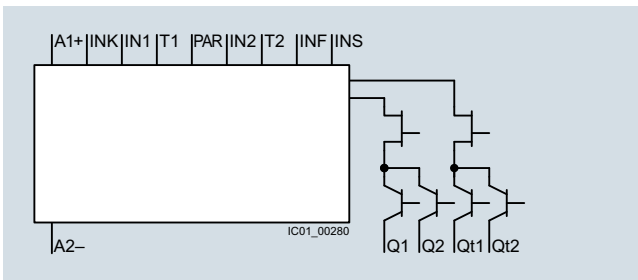
3SK1121-.AB40, Advanced relay instantaneous basic unit



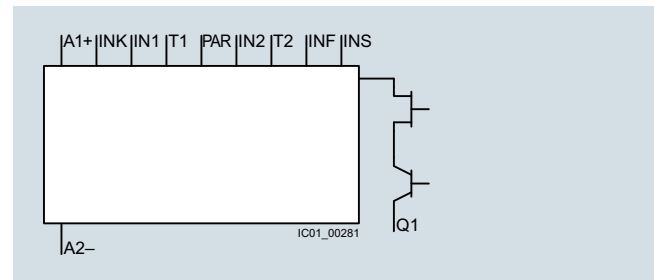
3SK1121-.CB4, Advanced relay instantaneous basic unit



3SK1122-.AB40, Advanced solid-state instantaneous basic unit



3SK1122-.CB4, Advanced solid-state instantaneous basic unit



3SK1120-.AB40, Advanced 17.5 mm solid-state instantaneous basic unit

Legend:

A1, A2 = Power supply of the device
 13/14 to 33/34 = Instantaneous safe outputs, relays
 41/42 = Feedback contact
 T1, T2 = Test signal
 IN1, IN2 = Sensor input
 INF = Feedback circuit

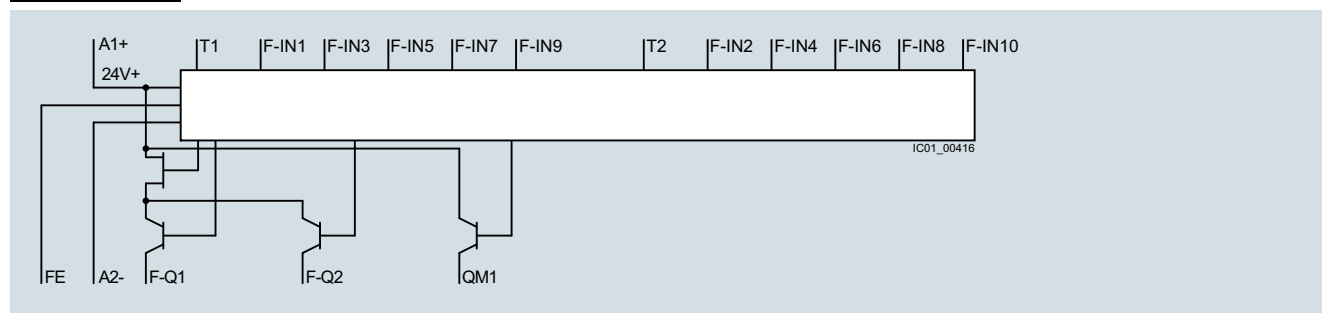
INS = Start circuit
 INK = Cascading input
 PAR = Parameterizing input (NO/NC monitoring)
 Q1, Q2, Q3 = Instantaneous enabling circuit, solid-state
 QM1 = Signaling output, solid-state

Safety Technology

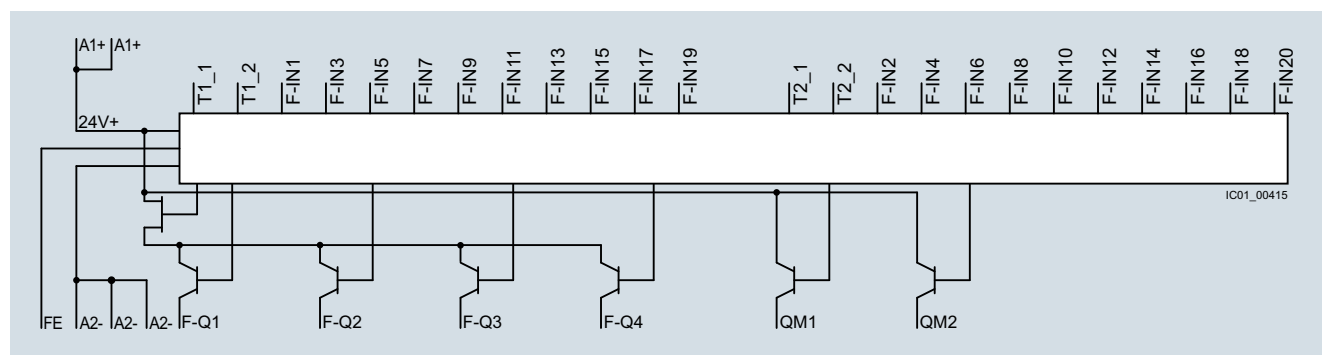
SIRIUS 3SK Safety Relays

General data

3SK2 basic units



3SK2112 basic unit



3SK2122 basic unit

Legend:

A1, A2 = Power supply of the device

FE = Functional ground

T1, T2 = Test signal

T1_1, T2_1 = First pair of test signals

T2_1, T2_2 = Second pair of test signals

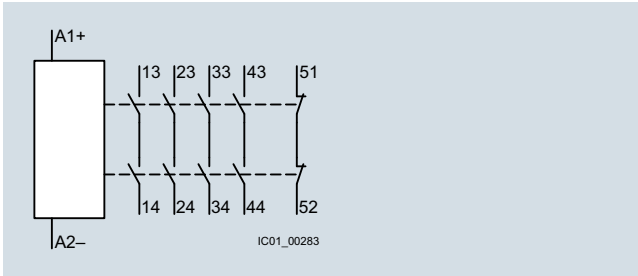
F-IN1 to F-IN20 = Fail-safe sensor inputs 1 to 20

F-Q1 to F-Q4 = Fail-safe outputs, solid-state

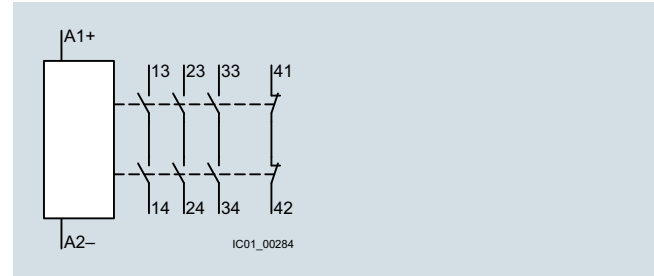
QM1, QM2 = Signaling outputs, solid-state

Circuit diagrams

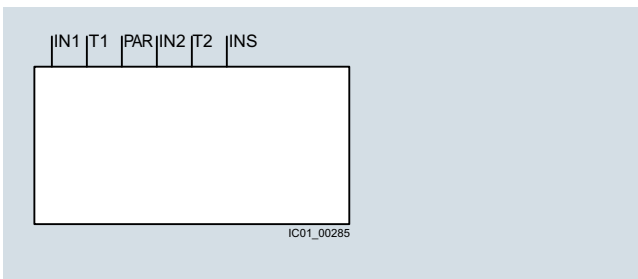
Expansion modules



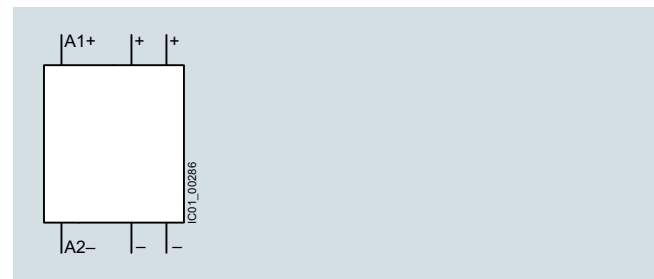
4RO 3SK1211 output expansion



3RO 3SK1213 output expansion



3SK1220 input expansion



3SK1230 power supply

Legend:

A1, A2 = Power supply of the device
 13/14 to 43/44 = Safe outputs, relays
 41/42 to 51/52 = Feedback contact
 T1, T2 = Test signal

IN1, IN2 = Sensor input
 INS = Start circuit
 PAR = Parameterizing input (NO/NC monitoring)

More information

For the manual "3SK1 Safety Relays", see <https://support.industry.siemens.com/cs/ww/en/view/67585885>.

For the manual "3SK2 Safety Relays", see <https://support.industry.siemens.com/cs/ww/en/ps/16386>.

Safety Technology

SIRIUS 3SK Safety Relays

Basic Units

SIRIUS 3SK1 Standard basic units

Overview



3SK111 Standard basic units

The 3SK111 Standard basic units are characterized by simple, variable functionality. These devices are recommended for safety functions requiring only a few sensors and a small number of outputs on the safety relay.

Number of safe outputs

	Type and number of safe outputs				Signal- ing circuits	Device connec- tors
	Relays		Semiconductors			
	Instanta- neous	Time- delayed	Instanta- neous	Time- delayed		
3SK1 Standard basic units						
3SK1111-.A..0	3	--	--	--	1	--
3SK1112-.BB40	--	--	2	--	1	--

-- Not available

Selection and ordering data



3SK1111-1AB30



3SK1111-1AW20



3SK1112-1BB40

Rated control supply voltage U_s

At 50 Hz
At AC


V

At DC

V

Screw terminals 

Article No.

**Spring-type terminals
(push-in)** 

Article No.

**Standard basic units
with 3 safe relay outputs**

24

24

3SK1111-1AB30

3SK1111-2AB30

110 ... 240

110 ... 240

3SK1111-1AW20

3SK1111-2AW20

**Standard basic units
with 2 safe semiconductor outputs**

--

24

3SK1112-1BB40

3SK1112-2BB40

Overview



3SK112 Advanced basic units

The 3SK112 Advanced basic units form an innovative system landscape that allows even complex safety functions with large numbers of sensors and outputs to be built up using the device connectors. It is possible to increase both the number of inputs for sensors and the number of safe outputs of the basic unit without the need for wiring outlay between the devices.

Number of safe outputs

	Type and number of safe outputs				Signal-ing circuits	Device connectors
	Relays		Semiconductors			
	Instantaneous	Time-delayed	Instantaneous	Time-delayed		
3SK1 Advanced basic units						
3SK1120-.AB40	--	--	1	--	--	✓
3SK1121-.AB40	3	--	--	--	1	✓
3SK1121-.CB4.	2	2	--	--	--	✓
3SK1122-.AB40	--	--	3	--	1	✓
3SK1122-.CB4.	--	--	2	2	--	✓

✓ Available

-- Not available

Selection and ordering data



3SK1121-1AB40





3SK1120-1AB40



3SK1122-1AB40



3SK1122-1CB41

Rated control supply voltage U_s at DC	Adjustable OFF-delay time	Number of outputs				Screw terminals 	Spring-type terminals (push-in) 
		as contacting contact block		as contactless semiconductor contact block			
V	s	Instantaneous switching	Delayed switching	Instantaneous switching	Delayed switching	Article No.	Article No.
Advanced basic units with safe relay outputs							
24	--	3	--	--	--	3SK1121-1AB40	3SK1121-2AB40
24	0.05 ... 3	2	2	--	--	3SK1121-1CB41	3SK1121-2CB41
24	0.5 ... 30	2	2	--	--	3SK1121-1CB42	3SK1121-2CB42
24	5 ... 300	2	2	--	--	3SK1121-1CB44	3SK1121-2CB44
Advanced basic units with safe semiconductor outputs							
24	--	--	--	1	--	3SK1120-1AB40	3SK1120-2AB40
24	--	--	--	3	--	3SK1122-1AB40	3SK1122-2AB40
24	0.05 ... 3	--	--	2	2	3SK1122-1CB41	3SK1122-2CB41
24	0.5 ... 30	--	--	2	2	3SK1122-1CB42	3SK1122-2CB42
24	5 ... 300	--	--	2	2	3SK1122-1CB44	3SK1122-2CB44

Safety Technology

SIRIUS 3SK Safety Relays

Basic Units

SIRIUS 3SK2 basic units

Overview



3SK2 basic units

The 3SK2 basic units have a large number of inputs and outputs within a narrow width. In addition, demanding safety applications can be implemented simply with several independent safety functions. Flexible application options are enabled by powerful semiconductor outputs, as well as by expandability with additional 3SK output expansions and 3RM1 Failsafe motor starters. Flexible time functions and diagnostics options are also available.

Number of safe outputs

	Type and number of safe outputs Semiconductors	Signaling circuits Semi-conductors	Fail-safe outputs by means of device connectors
3SK2 basic units			
3SK2112-AA10	2	1	2
3SK2122-AA10	4	2	2



Selection and ordering data



3SK2112



3SK2122

Rated control supply voltage U_s At DC V	Number of outputs, safety-related 2-channel	Width mm	Screw terminals 	Spring-type terminals (push-in) 
3SK2 basic units			Article No.	Article No.
24	2	22.5	3SK2112-1AA10	3SK2112-2AA10
24	4	45	3SK2122-1AA10	3SK2122-2AA10

Overview



3SK121 output expansion

The 3SK121 output expansions can be used to expand all 3SK basic units.

3SK1211 output expansion

The 3SK1211 output expansion is used to expand the safe outputs of a basic unit by adding another four safe outputs. These outputs have a switching capacity of AC-15 5 A at a switching voltage of 230 V. The devices can be connected to any 3SK basic unit by means of wiring. In addition, the devices with a 24 V DC control supply voltage can also be connected to 3SK1 Advanced and 3SK2 basic units by means of the 3ZY12 device connectors.

3SK1213 output expansion

The 3SK1213 output expansion is used to expand the safe outputs of a basic unit by adding three safe outputs with high switching capacity. These outputs have a switching capacity of AC-15 10 A at a switching voltage of 230 V. The devices can be connected to any 3SK basic unit by means of wiring. As with the 3SK1211, the devices with a 24 V DC control supply voltage can also be connected to 3SK1 Advanced and 3SK2 basic units by means of the 3ZY12 device connectors.

Note:

It is only possible to expand the Standard basic units by means of wiring. Advanced basic units and 3SK2 basic units can be expanded using the 3ZY12 device connector.

Number of safe outputs

	Type and number of safe outputs		Signaling circuits	Device connectors
	Instantaneous	Time-delayed		
Relays				

3SK output expansions

• 4RO				
3SK1211	4	--	1 ¹⁾	✓ ²⁾
• 3RO				
3SK1213	3	--	1 ¹⁾	✓ ²⁾

✓ Available

-- Not available

¹⁾ Feedback circuit.

²⁾ For 24 V DC.

Benefits

- Perfect adaptation of the number of inputs
- Simple expansion of instantaneous and time-delayed safe outputs of the Advanced basic units by means of backplane connection
- Another two freely parameterizable shutdown functions on 3SK2 basic units
- Expansion with power contacts for high AC-15/DC-13 currents in the control circuit
- No safe output required in the evaluation unit to control the expansion modules
- Wiring of the feedback circuit to the expansion modules not required
- Shorter installation times
- Less configuring and testing required

Safety Technology

SIRIUS 3SK Safety Relays

Expansion Modules

Output expansions



Selection and ordering data



3SK1211-1BB00



3SK1213-1AB40

Rated control supply voltage U_s		Screw terminals 	Spring-type terminals (push-in) 
At 50 Hz At AC	At DC	Article No.	Article No.
V	V		
3SK1211 output expansions with 4RO			
24	--	3SK1211-1BB00	3SK1211-2BB00
--	24	3SK1211-1BB40	3SK1211-2BB40
110 ... 240	110 ... 240	3SK1211-1BW20	3SK1211-2BW20
3SK1213 output expansions with 3RO			
--	24	3SK1213-1AB40	3SK1213-2AB40
115	--	3SK1213-1AJ20	3SK1213-2AJ20
230	--	3SK1213-1AL20	3SK1213-2AL20

Overview



3SK1220 sensor expansion

With the input expansions

- 3SK1220 sensor expansion
- 3SK1230 power supply

the 3SK1 Advanced basic units can be made more flexible.

3SK1220 input expansion

The 3SK1220 input expansion allows additional sensors to be integrated easily and flexibly. The device monitors two 1-channel sensors or one 2-channel sensor, whatever their output technology (floating/single-ended).

Note:

The 3SK1220 sensor expansion can only be connected to the 3SK1 Advanced basic units by means of the 3ZY12 device connector.

3SK1230 power supply

The 3SK1230 power supply makes the 3SK1 devices universally usable, whatever control supply voltage is to be used.

Both devices can be combined with the 3SK112 basic units in the Advanced series without the need for wiring.

Note:

Alongside the 3ZY12 device connector, the 3SK1230 power supply can also be wired to act as a power supply for 3SK1 devices.

Benefits

- A wide voltage range of 110 ... 240 V AC/DC allows the devices to be used worldwide
- Low stock keeping due to little variance
- Flexible expansion of the number of sensors without the need for additional wiring between the devices
- Perfect adaptation of the number of inputs to suit the application
- Universal use thanks to the wide range of adjustable parameters for sensor expansion (parameters as for 3SK1 Advanced basic units)



Selection and ordering data



3SK1220-1AB40



3SK1230-1AW20

Version	Screw terminals 	Spring-type terminals (push-in) 
	Article No.	Article No.
3SK1220 sensor expansions		
Sensor expansions for safety-related expansion of the 3SK1 Advanced basic units by adding a further 2-channel sensor or two 1-channel sensors	3SK1220-1AB40	3SK1220-2AB40
<u>Note:</u> Can only be used in conjunction with 3ZY12 device connectors, see page 8/18.		
3SK1230 power supplies		
Power supplies for supplying 3SK1 Advanced basic units via 3ZY12 device connectors at voltages of 110 ... 240 V AC/DC	3SK1230-1AW20	3SK1230-2AW20

Safety Technology

SIRIUS 3SK Safety Relays

Accessories

Overview

The following accessories are available for SIRIUS 3SK safety relays:

- Device connectors
- Terminals
- Sealing covers
- Push-in lugs
- Coding pins
- Inscription labels
- Tools

And additionally for 3SK2:

- Connection cables (essential accessory)
- USB PC cables and adapters
- Diagnostics modules
- Memory modules
- Interface covers
- Door adapters

Device connectors for 3SK112., 3SK12.. and 3SK2

The device connector can be used to connect devices of the 3SK/3RM1 system together, with the last device in a system configuration being placed on a device terminating connector.

Device connectors are available in various versions specifically for the 3SK safety relays:

For type	Device connectors				Device terminating connectors	
	3ZY1212-1BA00 (for 3SK1, width 17.5 mm)	3ZY1212-2BA00 (for 3SK1, width 22.5 mm)	3ZY1212-2GA00 (for 3SK2, width 22.5 mm)	3ZY1212-4GA01 (for 3SK2, width 45 mm)	3ZY1212-2DA00 (for 3SK1, width 22.5 mm)	3ZY1212-0FA01 (for 3SK1, set for enclosures ≥ 45 mm)
3SK1 Advanced basic units						
3SK1120	✓	--	--	--	--	--
3SK1121	--	✓	--	--	✓	--
3SK1122	--	✓	--	--	✓	--
3SK2 basic units						
3SK2112	--	--	✓	--	--	--
3SK2122	--	--	--	✓	--	--
Output expansions						
3SK1211	--	✓	✓	✓	✓	--
3SK1213	--	--	✓	✓	--	✓
Input expansions						
3SK1220	✓	--	--	--	--	--
3SK1230	--	✓	--	--	--	--

✓ Available

-- Not available

Removable terminals for 3SK

The following removable terminals are available for the 3SK safety relays for pre-wiring of the terminals in the control cabinet, or for replacing terminals:

For type	Removable terminals			
	Screw terminals		Spring-type terminals (push-in)	
	2-pole 3ZY1121-1BA00	3-pole 3ZY1131-1BA00	2-pole 3ZY1121-2BA00	3-pole 3ZY1131-2BA00
3SK1 basic units				
3SK1111	--	✓	--	✓
3SK1112	✓	--	✓	--
3SK1120	--	✓	--	✓
3SK1121	--	✓	--	✓
3SK1122	✓ bottom	✓ top	✓ bottom	✓ top
3SK2 basic units				
3SK2112	--	✓	--	✓
3SK2122	--	✓ ¹⁾	--	✓ ¹⁾
Output expansions				
3SK1211	✓	--	✓	--
3SK1213	--	--	--	--
Input expansions				
3SK1220	--	✓ top	--	✓ top
3SK1230	✓ bottom	--	✓ bottom	--

✓ Available

-- Not available

¹⁾ Two sets of terminals are required for 3SK2122.

Selection and ordering data








Version	Article No.
Device connectors for the electrical connection of SIRIUS devices in the industrial standard mounting rail enclosure	
 3ZY1212-1BA00  3ZY1212-4GA01  3ZY1212-2DA00	Device connectors for 3SK1 <ul style="list-style-type: none"> • Width 17.5 mm • Width 22.5 mm Device connectors for 3SK2 <ul style="list-style-type: none"> • Width 22.5 mm NEW • Width 45 mm NEW Device terminating connectors For 3SK1, width 22.5 mm <u>Note:</u> Observe positions of the slide switch, see Manual "3SK1 Safety Relays", https://support.industry.siemens.com/cs/ww/en/view/67585885 Device terminating connector set For 3SK1213, width > 45 mm, comprising 3ZY1212-2FA00 and 3ZY1210-2AA00
Terminals for SIRIUS devices in the industrial standard mounting rail enclosure	
 3ZY1121-1BA00	Removable terminals <ul style="list-style-type: none"> • 2-pole, screw terminals up to 2 x 1.5 mm² or 1 x 2.5 mm² • 3-pole, screw terminals up to max. 2 x 1.5 mm² or 1 x 2.5 mm² ¹⁾ • 2-pole, push-in terminals up to max. 2 x 1.5 mm² • 3-pole, push-in terminals up to max. 2 x 1.5 mm² ¹⁾ Screw terminals 3ZY1121-1BA00 3ZY1131-1BA00 Spring-type terminals (push-in) 3ZY1121-2BA00 3ZY1131-2BA00
Connection cables for 3SK2 (essential accessory)	
 3UF7932-0AA00-0	Connection cables For connecting diagnostics module to 3SK2 basic unit <ul style="list-style-type: none"> • Length 0.1 m (flat) • Length 0.3 m (flat) • Length 0.5 m (flat) • Length 0.5 m (round) • Length 1.0 m (round) • Length 2.5 m (round) 3UF7931-0AA00-0 3UF7935-0AA00-0 3UF7932-0AA00-0 3UF7932-0BA00-0 3UF7937-0BA00-0 3UF7933-0BA00-0
PC cables and adapters for 3SK2	
 3UF7941-0AA00-0	USB PC cables For connecting to the USB interface of a PC/PG, for communication with 3SK2 through the system interface, recommended for use in connection with 3SK2 3UF7941-0AA00-0
	USB/serial adapters For connecting an RS 232 PC cable to the USB interface of a PC 3UF7946-0AA00-0

¹⁾ Two sets of terminals are required for 3SK2122.

Safety Technology

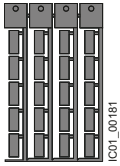
SIRIUS 3SK Safety Relays

Accessories

Version	Article No.
Operating and monitoring modules for 3SK2	
 Diagnostics modules From product version E04 or higher, for direct display of errors, e.g. of cross-circuits 3RK3611-3AA00	3RK3611-3AA00
Door adapters for 3SK2	
 Door adapters For external connection of the system interface, e.g. outside a control cabinet 3UF7920-0AA00-0	3UF7920-0AA00-0
Interface covers for 3SK2	
 Interface covers For system interface 3UF7950-0AA00-0	3UF7950-0AA00-0
Memory modules for 3SK2	
 Memory modules For backing up the complete parameterization of the 3SK2 safety system without a PC/PG through the system interface 3RK3931-0AA00	3RK3931-0AA00
Accessories for enclosures	
 Sealing covers <ul style="list-style-type: none"> • 17.5 mm (for 3SK1120 and 3SK1220) • 22.5 mm (for all 3SK1 devices except 3SK1120 and 3SK1220) 3ZY1321-2AA00	3ZY1321-1AA00 3ZY1321-2AA00
 Push-in lugs For wall mounting 3ZY1311-0AA00	3ZY1311-0AA00
 Coding pins For removable terminals of SIRIUS devices in the industrial standard mounting rail enclosure. They enable the mechanical coding of terminals, see Manual "3SK1 Safety Relays", https://support.industry.siemens.com/cs/ww/en/view/67585885 3ZY1440-0AA00	3ZY1440-1AA00

Version	Article No.
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Blank labels



3RT2900-1SB20

Unit labeling plates
For SIRIUS devices
20 mm x 7 mm, titanium gray¹⁾

3RT2900-1SB20

Tools for opening spring-type terminals



3RA2908-1A

Screwdrivers
For all SIRIUS devices with spring-type terminals;
3.0 mm x 0.5 mm; length approx. 200 mm, titanium
gray/black, partially insulated

Spring-type terminals

3RA2908-1A

Software for 3SK2



3ZS1316-C.10-0Y.5

SIRIUS Safety ES
For software for configuring, commissioning,
operating and diagnosing of 3SK2 and 3RK3,
[see page](#)

NEW

¹⁾ PC labeling system for individual inscription of unit labeling plates available from:
murrplastik Systemtechnik GmbH,
Fabrikstraße 10
D-71570 Oppenweiler
Tel.: +49 (7191) 482-0
Fax: +49 (7191) 482-280
E-Mail: info@murrplastik.de
Internet: www.murrplastik.de

Safety Technology
SIRIUS 3SK Safety Relays

Notes

Get more information

Control Components and Systems Engineering:
www.siemens.com/sirius

Security information

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