SIEMENS

Data sheet

6ES7217-1AG40-0XB0

SIMATIC S7-1200, CPU 1217C, compact CPU, DC/DC/DC, 2 PROFINET ports onboard I/O: 10 DI 24 V DC; 4 DI RS422/485; 6 DO 24 V DC; 0.5A; 4 DO RS422/485; 2 AI 0-10 V DC, 2 AO 0-20 mA Power supply: DC 20.4-28.8V DC, Program/data memory 150 KB



General information	
Product type designation	CPU 1217C DC/DC/DC
Firmware version	V4.5
Engineering with	
 Programming package 	STEP 7 V17 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Input current	
Current consumption (rated value)	600 mA; CPU only
Current consumption, max.	1 600 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
² t	0.5 A ² ·s
Output current	
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
 integrated 	150 kbyte
expandable	No
Load memory	
integrated	4 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes
maintenance-free	Yes
without battery	Yes

about the productions, typ. 0.08 pis / Instruction for word operations, typ. 17 pis / instruction for word operations, typ. 17 pis / instruction GPU biolocks 23 pis / Operation Number of biolocks (rotal) DBs, FCs, FBs, counters and timers. The maximum number of addressable biolock angress from 1 to 65355. There is no restriction, the entire working memory can be used OB • Number of biolocks (rotal) OB as a rate and their referintity Peak mass and their referintity Peak mass and their referintity 14 kbyte Field • Size, max. Local data 16 kbyte, Friority class 1 (program cycle): 16 KB, ptiority class 2 to 28; 6 KB Address area 16 kbyte, Friority class 1 (program cycle): 16 KB, ptiority class 2 to 28; 6 KB Address area 16 kbyte Process image 1 kbyte • Outputs, digitable 1 kbyte • O	CPU processing times	
for word operations, typ. 17 / us/ instruction for frading point antimules, typ. 2.3 µs/ / Denation CPU-blocks DBs, FCs, FBs, counters and timers. The maximum number of and the working method yus/ blocks ranges from 1 to 55335. There is no restriction, the and the working method yus/ blocks ranges from 1 to 55355. There is no restriction, the and anti-working method yus/ BAM for code OB • Number, max. Limited only by RAM for code OB • Restriction of the standard of the standar		0.08 µs; / instruction
For facting point arithmetic, typ. 2.3 µs; / Operation CRU-blocks DBs, FCs, FBs, counters and timers. The maximum number of antiges minory scale build OB • Number of blocks (total) Data areas and their retentivity Elimited only by RAM for code Pateritive data are (incl. timers, counters, flags), max. 14 ktyte Flag • Size, max. 8 kbyte; Size of bit memory address area Local data • per priority class, max. 8 kbyte; Size of bit memory address area Local data • per priority class, 14 ktyte • per priority class, max. 16 ktyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB Address area • Per priority class, adjustable 1 ktyte • Outputs, adjustable 1 ktyte • Backup inne 420 nr. Typical • Backup inne 420 nr. Typical • Backup inne 420 nr. Typical • Outputs, input 14: Integrated • Or which inputs usable for technological functions 50 • Facted value (ICC) 24 V • For signal "		
CPUE-backs DBK_FCL_FEB_counters and times. The maximum number of addressable blocks ranges from 1 to e5535. There is no restriction, the entre working memory can be used OR Limited only by RAM for code Data areas and their retentivity 14 kbyte Fleig Size, max. B kbyte, Size of bit memory address area Local data Example Number of address area • per priority class, max. 16 kbyte, Priority class 1 (program cycle): 16 KB, priority class 2 to 26.6 KB Address area Its kbyte, Priority class 1 (program cycle): 16 KB, priority class 2 to 26.6 KB Process image • huptin, adjustable 1 kbyte • Outputs, adjustable 1 kbyte • Clock • Address clock (real-time) • Randware clock (real-time) Yes • Backup line 480 h; Tyrical • Backup line 480 h; Tyrical • Clock • Hardware clock (real-time) • Withdware clock (real-time) Yes • Backup line 480 h; Tyrical • Backup line 5 V		
Number of blocks (total) DBs. FCs. FBs. counters and times. The maximum number of addressable block argos from 1 to 6555. There is no restriction, the entire working memory can be used OB - OB - Pate areas and their retentivity - Fleg - • Ster, max. B kbyte, Size of bit memory address area Local data - • per priority class, max. B kbyte, Size of bit memory address area Local data - • per priority class, max. 1 k kbyte • Process image - • Inputs, adjustable 1 kbyte • Data data - • Outputs, adjustable 1 kbyte • Data data - • Outputs, adjustable 1 kbyte • Data data - • Outputs, adjustable 1 kbyte • Data data - Clock - • Backup time 480 h; Typical • Backup time 480 h; Typical • Backup time - • Data inputs - Numbor of digital inputs		
Aumber, max. Linkled only by RAM for code Data areas and their rotentivity Eater areas and their rotentivity Reterive data area (incl. timers, counters, flags), max. Reterive data, suggest area Reterive data area (incl. times, counters, flags), max. Reterive data area (incl. times, counters, flags), max. Reterive data area (incl. times, area, a	Number of blocks (total)	addressable blocks ranges from 1 to 65535. There is no restriction, the
Data areas and their retentivity 14 kbyte Refer tive data area (incl. timers, counters, flags), max. 14 kbyte Flag 8 kbyte; Size of bit memory address area Local data - • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26; 6 KB Addres5 area - Process image - • Inputs, adjustable 1 kbyte • Ind day Clock • Backup time 480 h; Typical • Backup time 480 h; Typical • Backup time 480 h; Typical • Digital inputs 14: Integrated • Or which inputs usable for technological functions 5 v DC at 1 mA sourcelsink input 14 Input deskip (created value of input voltage) 6 v signal '0" • Fore signal '0" 5 V DC at 2 5 mA <	OB	
Retentive data area (incl. timers, counters, flags), max. 14 kbyte Filig • Size, max. 8 kbyte; Size of bit memory address area Local data 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 28: 6 KB Address area Percess image • Inputs, adjustable 1 kbyte • Outputs, adjustable 1 kbyte • Cutputs, adjustable 1 kbyte • Cutputs, adjustable 1 kbyte • Cordputs, adjustable 1 kbyte • Cordputs, adjustable 1 kbyte • Cordputs, adjustable 1 kbyte • Clock • Hardware clock (real-time) • Backup time 480 h; Typical • Deviation per day, max. 14 (Integrated • Outputs, input Yes Number of digital inputs 14 (Integrated • Outputs, input Yes Number of simultaneously controllable inputs 14 (Integrated • For signal "0" 5 V DC at 1 mA • For signal "1" 15 V DC at 1 mA • For signal "1", min, 2, zms • a art 0" to "1", min, 2, zms • art 0" to "1", min, 2, zms • parameterizable Single phase: 3 (@ 100 kHz & 3 (@ 30 kHz, differential: 3 (@ 80 kHz & 3 (@ 30 kHz &		Limited only by RAM for code
Fing 8 kbyte; Size of bit memory address area Local data 8 kbyte; Size of bit memory address area Local data 16 kbyte; Pirority class 1 (program cycle); 16 KB, priority class 2 to 26; 6 KB Address area Process image Inputs, adjustable I kbyte Outputs, adjustable I kbyte Inputs, adjustable I kbyte Outputs, adjustable I kbyte Inme of day Clock Clock Backup time 480 h; Typical to day Clock Outputs, adjustable I (Hintegrated I I I I (Hintegrated I I I I (Hintegrated I I I I I (Hintegrated I I I I I I I (Hintegrated I I I I I I I I I I I I I I I I I I I	Data areas and their retentivity	
• Size max. 8 kbyte; Size of bit memory address area Local data • per priority class, max. • per priority class, max. 16 kbyte; Priority class 1 (program cycle); 16 KB, priority class 2 to 26: 6 KB Address area • Process image • Inputs, adjustable 1 kbyte • Cutoputs, adjustable 1 kbyte • Cutoputs, adjustable 1 kbyte • Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day • Hardware clock (real-time) • Kardware clock (real-time) Yes • Backup time 480 h; Typical • Deviation per day, max. ±60 s/month at 25 °C Digital inputs 14; Integrated • of which inputs usable for technological functions 14; Integrated • of which inputs usable for technological functions 14 Input were of simultaneously controllable inputs 14 Input veltage • explain 1°* • of which inputs 24 V • for signal 1°* 5 V DC at 1 mA • for signal 1°* 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at 1°* to *1*, min. 0.2 ms - at 1°		14 kbyte
Local data 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26. 6 KB Address area 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26. 6 KB Process image 1 kbyte - Inputs, adjustable 2 kbyte - Inputs, adjustable 1 kbyte - Inputs, adjustable 1 kbyte - Backup time 480 h; Typical - Deviation per day, max. 2 k0 Kmonth at 25 °C Digital inputs 1 ki Integrated - of which inputs usable for technological functions 6; HSC (High Speed Counting) Sourcesrink input Yes Number of input soutable 14 Input odlage - up to 40 °C, max. - up to 40 °C, max. 14 Input delay (for rated value of input v	Flag	
• per priority class, max. 16 kbyte: Priority class 1 (program cycle): 16 KB, priority class 2 to 28: 6 KB Address area Process image • Inputs, adjustable 1 kbyte · Outputs, adjustable 1 kbyte · Inputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. 2 comm. modules, 1 signal board, 8 signal modules Time of day Clock · Hardware clock (real-time) Yes Backup time · Deviation per day, max. 260 s/month at 25 °C Digital inputs · Order of system · Order of system · Deviation per day, max. 260 s/month at 25 °C Digital inputs · Order of system · Order of system · Deviation per day, max. · Deviation per day, max. · Digital inputs · Order of system · Order of		8 kbyte; Size of bit memory address area
KB Address image Inputs, adjustable Inputs, adjustable Iskyte Outputs, adjustable Hardware configuration Number of modules per system, max. The of day Clock Elackup time • Backup time • Of which inputs usable for technological functions • Under of simultaneously controllable inputs all mounting positions		
Process image • Inputs, adjustable 1 kbyte • Outputs, adjustable 1 kbyte Hardware configuration 3 comm. modules, 1 signal board, 8 signal modules Time of day 3 comm. modules, 1 signal board, 8 signal modules Clock • • Hardware clock (real-time) Yes • Backup time 480 h; Typical • Deviation per day, max. ±60 s/month at 25 °C Digital inputs 14: Integrated • of which input usable for technological functions 6: HSC (High Speed Counting) Source/sink input Yes Number of signal 70° 5 V DC at 1 mA • for signal 70° 5 V DC at 1 mA • for signal 70° 5 V DC at 1 mA • for signal 71° 15 V DC at 2.5 mA Input delay (for rated value of input voltage) 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at 70° to 71°, min. 0.2 ms - parameterizable Yes for interrupt inputs - parameterizable - parameterizable Yes for interrupt inputs Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differentiat: 3 @ 80 kHz & 3 @ 30 m, for technological functions	 per priority class, max. 	
 Inputs, adjustable I kbyte Outputs, adjustable I kbyte Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock Hardware colock (real-time) Sextup time Bevialion per day, max. Bevialion per day. Itigital inputs Itigital inputs<td>Address area</td><td></td>	Address area	
Outputs, adjustable Ikbyte Identify and the signal modules of signal modules Imme of digital inputs Imme of day Identify and the signal modules of signal modules Imme of digital inputs Imme of digital input setup: Imme of digital input setup: Imme of digital input setup: Imme of digital inputs Imme of digital outputs Imme of digital outputs Imme of digital outputs		
Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock 480 h; Typical Backup lime Bokup lime<td></td><td></td>		
Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock Backup time Backup time Deviation per day, max. beviation per day, max. contexpiration per day, max. contexpiration per day, max. contexpiration per day day down per day, max. contexpiration per day, max. <licontexpiration day,="" li="" max.<="" per=""></licontexpiration>		1 kbyte
Time of day Clock Hardware clock (real-time) Backup time Backing time Backup time Ba	Hardware configuration	
Clock Hardware clock (real-time) Hardware clock (real-time)	Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
• Hardware clock (real-time) Yes • Backup time 480 h; Typical • Deviation per day, max. ±60 s/month at 25 °C Digital inputs 14; Integrated • of which inputs usable for technological functions 6; HSC (High Speed Counting) Sourcersink input Yes Number of simultaneously controllable inputs 14 all mounting positions	Time of day	
 Backup time 480 h; Typical 25 °C Digital inputs Number of digital inputs usable for technological functions 6; HSC (High Speed Counting) Source/sink input Yes Number of simultaneously controllable inputs all mounting positions 	Clock	
Deviation per day, max. ±60 s/month at 25 °C Digital inputs Number of digital inputs of which inputs usable for technological functions Source/sink input Yes Number of simultaneously controllable inputs all mounting positions	Hardware clock (real-time)	Yes
Digital inputs Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	Backup time	480 h; Typical
Number of digital inputs 14; Integrated • of which inputs usable for technological functions 6; HSC (High Speed Counting) Source/sink input Yes Number of simultaneously controllable inputs 14 all mounting positions	• Deviation per day, max.	±60 s/month at 25 °C
• of which inputs usable for technological functions 6; HSC (High Speed Counting) Source/sink input Yes Number of simultaneously controllable inputs all mounting positions -up to 40 °C, max. 14 Input voltage • • Rated value (DC) 24 V • for signal °0" 5 V DC at 1 mA • for signal °1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage) 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at °0" to °1", min. 0.2 ms - at °0" to °1", max. 12.8 ms for technological functions - - parameterizable Yes for technological functions - - parameterizable Yes for technological functions - - parameterizable Yes for technological functions - - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs 10 • of which high-speed o	Digital inputs	
Source/sink input Yes Number of simultaneously controllable inputs all mounting positions	Number of digital inputs	14; Integrated
Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage)	of which inputs usable for technological functions	6; HSC (High Speed Counting)
all mounting positions 14 Input voltage 14 Input voltage 24 V • Rated value (DC) 5 V DC at 1 mA • for signal "1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage) 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - parameterizable 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs	Source/sink input	Yes
	Number of simultaneously controllable inputs	
Input voltage 24 V • Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage) 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for technological functions 0.3 0 kHz - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length shielded, max. • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions • unshielded, max. 500 m; 50 m for technological functions Imute of digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A		
• Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage) - for standard inputs - - parameterizable 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for technological functions - - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length - • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 500 m; for technological functions • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A	— up to 40 °C, max.	14
• for signal "0"5 V DC at 1 mA• for signal "1"15 V DC at 2.5 mAInput delay (for rated value of input voltage)15 V DC at 2.5 mAfor standard inputs0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four- at "0" to "1", min.0.2 ms- at "0" to "1", max.12.8 msfor interrupt inputs parameterizableYesfor technological functions parameterizableSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHzCable length-• shielded, max.500 m; 50 m for technological functions @ 30 kHz• unshielded, max.500 m; 50 m for technological functions @ 30 kHz• unshielded, max.500 m; 50 m for technological functions @ 30 kHzNumber of digital outputs10• of which high-speed outputs4; 100 kHz Pulse Train OutputLimitation of inductive shutdown voltage toL+ (-48 V)Switching capacity of the outputs0.5 A	Input voltage	
• for signal "1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs - parameterizable 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for technological functions - - parameterizable Yes for technological functions - - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length - • shielded, max. 300 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions • of which high-speed outputs 4; 100 kHz Pulse Train Output		24 V
Input delay (for rated value of input voltage) for standard inputs	-	5 V DC at 1 mA
for standard inputs 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four at "0" to "1", min. 0.2 ms at "0" to "1", max. 12.8 ms for interrupt inputs parameterizable parameterizable Yes for technological functions parameterizable parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length \$00 m; 50 m for technological functions • shielded, max. \$00 m; 50 m for technological functions • unshielded, max. \$00 m; for technological functions Number of digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A		15 V DC at 2.5 mA
- parameterizable0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four- at "0" to "1", min.0.2 ms- at "0" to "1", max.12.8 msfor interrupt inputs parameterizableYesfor technological functions parameterizableSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHzCable length-• shielded, max.500 m; 50 m for technological functions • unshielded, max.Digital outputs10Number of digital outputs10• of which high-speed outputs4; 100 kHz Pulse Train OutputLimitation of inductive shutdown voltage toL+ (-48 V)Switching capacity of the outputs0.5 A		
in groups of four - at "0" to "1", min. - at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable Yes for technological functions - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length • shielded, max. • unshielded, max. • 0.5 A	· ·	
at "0" to "1", max.12.8 msfor interrupt inputs parameterizableYesfor technological functions parameterizableSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHzCable length• shielded, max.500 m; 50 m for technological functions 300 m; for technological functions 00 m; for technological functions• unshielded, max.500 m; 50 m for technological functions 300 m; for technological functions 4; 100 kHz Pulse Train Output• of which high-speed outputs10 4; 100 kHz Pulse Train OutputLimitation of inductive shutdown voltage to Switching capacity of the outputsL+ (-48 V)• with resistive load, max.0.5 A		in groups of four
for interrupt inputs parameterizable Yes for technological functions parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A		
— parameterizableYesfor technological functionsSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz— parameterizableSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHzCable length•• shielded, max.500 m; 50 m for technological functions 300 m; for technological functions: NoDigital outputs300 m; for technological functions: NoNumber of digital outputs10 4; 100 kHz Pulse Train OutputLimitation of inductive shutdown voltage toL+ (-48 V)Switching capacity of the outputs0.5 A		12.8 ms
for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length • shielded, max. • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A		
— parameterizableSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHzCable length• shielded, max.• unshielded, max.• unshielded, max.300 m; 50 m for technological functions• unshielded, max.300 m; for technological functions: NoDigital outputsNumber of digital outputs• of which high-speed outputs4; 100 kHz Pulse Train OutputLimitation of inductive shutdown voltage toLimitation of the outputs• with resistive load, max.0.5 A		Yes
@ 30 kHz Cable length • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs 300 m; for technological functions: No Number of digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A		
 shielded, max. unshielded, max. unshielded, max. 300 m; for technological functions: No Digital outputs Digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A	— parameterizable	
• unshielded, max. 300 m; for technological functions: No Digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A	Cable length	
Digital outputs 10 Number of digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A	• shielded, max.	-
Number of digital outputs 10 • of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A	• unshielded, max.	300 m; for technological functions: No
• of which high-speed outputs 4; 100 kHz Pulse Train Output Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A	Digital outputs	
Limitation of inductive shutdown voltage to L+ (-48 V) Switching capacity of the outputs 0.5 A	Number of digital outputs	10
Switching capacity of the outputs • with resistive load, max. 0.5 A	of which high-speed outputs	4; 100 kHz Pulse Train Output
• with resistive load, max. 0.5 A	Limitation of inductive shutdown voltage to	L+ (-48 V)
	Switching capacity of the outputs	
• on lamp load, max. 5 W	 with resistive load, max. 	0.5 A
	 on lamp load, max. 	5 W

Output voltage	
• for signal "0", max.	0.1.V: with 10 kOhm load
• for signal "1", min.	0.1 V; with 10 kOhm load 20 V
Output current	20 V
for signal "1" rated value	0.5 A
 for signal "0" residual current, max. 	0.1 mA
Output delay with resistive load	0.110
• "0" to "1", max.	1 µs
• "1" to "0", max.	5 µs
Switching frequency	
 of the pulse outputs, with resistive load, max. 	100 kHz
Relay outputs	
Number of relay outputs	0
Cable length	
 shielded, max. 	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	-
Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
Output ranges, current	2
• 0 to 20 mA	Yes
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
Integration time, parameterizable	Yes
Conversion time (per channel)	625 µs
Analog value generation for the outputs	020 μ0
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
Encoder	
Connectable encoders	Vec
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	N/
RJ 45 (Ethernet)	Yes
Number of ports	2
integrated switch	Yes
Protocols	Vac
PROFINET IO Controller PROFINET IO Davisa	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
 Media redundancy 	Yes
PROFINET IO Controller • Transmission rate, max.	100 Mbit/s

Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	No
— Prioritized startup	Yes
 — Number of IO devices with prioritized startup, max. 	16
— Number of connectable IO Devices, max.	16
— Number of connectable IO Devices, max. — Number of connectable IO Devices for RT,	16
max.	10
— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
— Number of IO Devices that can be	8
simultaneously activated/deactivated, max.	
— Updating time	The minimum value of the update time also depends on the
	communication component set for PROFINET IO, on the number of IO
	devices and the quantity of configured user data.
PROFINET IO Device	
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
— Shared device	Yes
 Number of IO Controllers with shared device, 	2
max.	
Protocols	Ver
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client
— MRPD	No
SIMATIC communication	
S7 routing	Yes
Open IE communication	
• TCP/IP	Yes
— Data length, max.	8 kbyte
 ISO-on-TCP (RFC1006) 	Yes
— Data length, max.	8 kbyte
• UDP	Yes
• UDP — Data length, max.	1 472 byte
— Data length, max.	
— Data length, max. Web server	1 472 byte
— Data length, max.Web serversupported	1 472 byte Yes
 — Data length, max. Web server supported User-defined websites 	1 472 byte Yes
 — Data length, max. Web server supported User-defined websites OPC UA 	1 472 byte Yes Yes
 — Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server 	1 472 byte Yes Yes Yes: Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required
 — Data length, max. Web server supported User-defined websites OPC UA Runtime license required 	1 472 byte Yes Yes Yes: "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15,
 — Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server 	1 472 byte Yes Yes Yes: Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required

	10
 Number of sessions, max. 	10
 Number of subscriptions per session, max. 	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
— Number of server methods, max.	20
— Number of monitored items, max.	1 000
 Number of server interfaces, max. 	2
 — Number of nodes for user-defined server interfaces, max. 	2 000
Further protocols	
MODBUS	Yes
communication functions / header	
S7 communication	
supported	Yes
supported as server	Yes
• as client	Yes
 User data per job, max.	
• User data per job, max. Number of connections	See online help (S7 communication, user data size)
	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved /
overall	 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max
Test commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	· · · · · · · · · · · · · · · · · · ·
Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
 Number of configurable Traces 	2
 Memory size per trace, max. 	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Integrated Functions	
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	4; With integrated outputs
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	4 1 MHz
Potential separation	
Potential separation digital inputs	
Potential separation digital inputs Potential separation digital inputs	No
 Potential separation digital inputs between the channels, in groups of 	1
Potential separation digital outputs	
Potential separation digital outputs	Yes
between the channels	No
 between the channels, in groups of 	1
EMC	
 Interference immunity against discharge of static electricity Interference immunity against discharge of static 	Yes
electricity acc. to IEC 61000-4-2	
— Test voltage at air discharge	8 kV

— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
Interference immunity to cable borne interference Interference immunity on supply lines acc. to IEC 61000-4-4	Yes
 Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 	Yes
61000-4-5	
Interference immunity against conducted variable disturbance	ce induced by high-frequency fields
Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	Yes
Emission of radio interference acc. to EN 55 011	
 Limit class A, for use in industrial areas 	Yes; Group 1
 Limit class B, for use in residential areas 	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
 horizontal installation, min. 	-20 °C
 horizontal installation, max. 	60 °C
 vertical installation, min. 	-20 °C
 vertical installation, max. 	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
Operation, max.	95 %; no condensation
Vibrations	
Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
 Operation, tested according to IEC 60068-2-6 	Yes
Shock testing	
• tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Pollutant concentrations	
 SO2 at RH < 60% without condensation 	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	

Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
 User program protection/password protection 	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
 protection of confidential configuration data 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
Width	150 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	530 g

last modified:

7/19/2022 🖸