

SIEMENS



# SINAMICS V20

The cost-effective, reliable and easy-to-use  
AC drive for basic applications

[usa.siemens.com/sinamics-v20](http://usa.siemens.com/sinamics-v20)

Answers for industry.

# SINAMICS V20

## The perfect drive solution for basic applications

### Power range

0.12–30kW  
(1/6–40 hp)

### Voltage range

1AC 200V ... 240V (+ / -10%)  
3AC 380V ... 480V (+10 % / -15%)

### Control modes

V/f V<sup>2</sup>/f FCC V/f multi-point



### SINAMICS V20, the simple and versatile drive system for basic demands

Today, in an increasing number of applications, automation and drive solutions are required to automate motion sequences.

The SINAMICS V20 from Siemens offers a simple drive solution for these types of applications. It sets itself apart with its quick commissioning times, robustness, ease-of-operation and cost-efficiency.

With five frame sizes, it covers a power range extending from 0.12 kW up to 30 kW (1/6 hp up to 40 hp).

### Minimize your costs

In today's competitive environment, engineering, commissioning and operating costs must be kept to a minimum. With SINAMICS V20, you have the precise answer. To increase energy efficiency, the drive uses a control technique, which automatically reduces motor flux when the motor is not operating at optimal loading (ECO mode). The V20 displays actual energy consumption and has a "hibernate" mode for periods when the drive is not being used — allowing energy consumption to be drastically reduced.

### Easy-to-install

- Push-through and wall mounting — side-by-side possible for both
- USS and Modbus RTU at terminals
- Integrated braking chopper for 7.5–30 kW (10–40 hp)

### Easy-to-use

- Parameter loading without power supply
- Integrated application and connection macros
- Keep Running Mode for uninterrupted operation
- Advanced cooling design and coated PCBs increase robustness

### Easy to save money

- ECO mode for V/f, V<sup>2</sup>/f
- Hibernation mode
- DC coupling
- High overload and low overload mode for FSE

## Typical applications and SINAMICS V20 benefits



- Centrifugal pumps
- Radial / axial fans
- Compressors

### Pumping, ventilating and compressing

- High availability through automatic restart and flying restart after power failures
- Broken belt detection by monitoring the load torque
- Pump protection against cavitation
- Hammer start and blockage clearing modes for clogged pumps
- PID controller for process values (e.g. temperature, pressure, level, flow)
- PID auto tuning to optimize controller parameters
- Hibernation mode stops the motor when demand is low
- Motor staging extends the flow range by adding two more fixed-speed drives (cascade)
- Frost and condensation protection prevents moisture in motors under extreme environmental conditions



- Belt conveyors
- Roller conveyors
- Chain conveyors

### Moving

- Soft, jerk-free acceleration reduces the stress on the gear units, bearings, drums and rollers
- Super torque start for conveyor belts with high breakaway torque
- Dynamic behavior by using braking resistor or DC braking
- Direct control of mechanical holding brake
- Broken belt detection by monitoring the load torque
- Precise stopping with Quick Stop (switch-off positioning) independently from the control cycle



### Processing

- **Single drives in the process industry** such as mills, mixers, kneaders, crushers, agitators, centrifuges
- **Main drives in machines with mechanically coupled axes** such as ring spinning machines, braiding machines for textile, ropes and wire
- Frost and condensation protection prevents moisture in motors under extreme environmental conditions
- Higher productivity with uninterrupted production due to Keep Running Mode
- Exchange of regenerative energy via the DC link
- Super torque start for machines with a high breakaway torque

# SINAMICS V20 — Easy-to-install

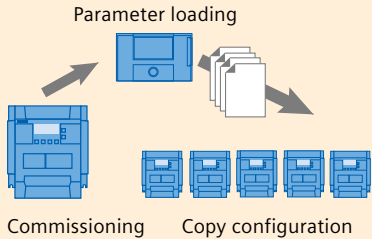
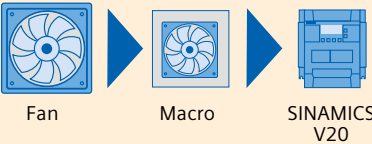

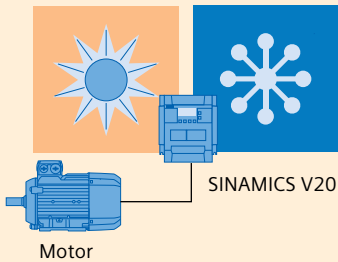


Installation		
<p>Side-by-side mounting No space required</p> <p>Wall mounting Cooling</p> <p>Push-through mounting Cooling</p>	<p><b>SINAMICS V20 feature</b></p> <p>Compact design, side-by-side mounting and flexible device installation for both wall mounting and push-through mounting.</p> <p>Operation without additional option modules possible.</p>	<p><b>Your benefits</b></p> <ul style="list-style-type: none"> <li>■ Compact installation allows smaller cabinets to be used</li> <li>■ Push-through mounting allows the cabinet to be cooled more easily</li> <li>■ Can be run “out-of-the-box” without other options</li> <li>■ Basic operator actions at a built-in BOP (Basic Operator Panel)</li> </ul>

Communication		
<p>Siemens products</p> <p>Other products</p> <p>Standard library</p> <p>USS</p> <p>Modbus</p> <p>SINAMICS V20</p>	<p><b>SINAMICS V20 feature</b></p> <p>The communication port is available at the terminals. The preset parameters of the USS and Modbus RTU are defined in the connection macro.</p>	<p><b>Your benefits</b></p> <ul style="list-style-type: none"> <li>■ Easy integration into existing systems</li> <li>■ Easy integration into micro automation systems</li> <li>■ Easier commissioning through standard libraries and connection macros</li> </ul>

Braking module		
<p>SINAMICS V20</p> <p>Motor</p> <p>Braking module</p> <p>Resistor</p>	<p><b>SINAMICS V20 feature</b></p> <p>The dynamic energy is dissipated as heat in a braking resistor with an adjustable duty cycle of between 5–100%.</p>	<p><b>Your benefits</b></p> <ul style="list-style-type: none"> <li>■ Possible to use dynamic braking to increase braking performance</li> <li>■ Drives <math>\geq 7.5</math> kW have an integrated braking module. In this case, the braking resistor can be directly connected.</li> </ul>

# SINAMICS V20 — Easy-to-use

Parameter cloning		
	SINAMICS V20 feature	Your benefits
 <p>Parameter loading</p> <p>Commissioning    Copy configuration</p>	<p>Parameter settings can be easily transferred from one unit to another using the parameter loader — even without a power supply.</p>	<ul style="list-style-type: none"> <li>■ Less technical support required</li> <li>■ Short commissioning time</li> <li>■ The product is delivered to the customer already preset</li> </ul>
Macro approach		
	SINAMICS V20 feature	Your benefits
 <p>Fan    Macro    SINAMICS V20</p>	<p>Connection and application macros to simplify I/O configuration and make the appropriate settings.</p>	<ul style="list-style-type: none"> <li>■ Shorter training and commissioning time</li> <li>■ Integrated and optimized application setting</li> <li>■ Simple connection and application macros can be selected instead of configuring long complicated parameter lists</li> <li>■ Errors caused by wrong parameter settings can be avoided</li> </ul>
Keep Running Mode		
	SINAMICS V20 feature	Your benefits
 <p>SINAMICS V20    Motor</p>	<p>The function provides higher productivity in production by automatic adaptation in the case of unstable line supplies.</p>	<ul style="list-style-type: none"> <li>■ Stable operation under difficult line supply conditions</li> <li>■ Higher productivity through prevention of interruptions of the production line</li> <li>■ Adaptation to application-relevant reactions through flexible definition in case of fault / alarm</li> </ul>
Robustness		
	SINAMICS V20 feature	Your benefits
 <p>Motor    SINAMICS V20</p>	<p>Better cooling design and coated PCB increase robustness of the drive in difficult application environments.</p>	<ul style="list-style-type: none"> <li>■ Operation possible when the line supply voltage fluctuates</li> <li>■ Reliable operation for line voltages: 1AC 200V ... 240V (-10% / +10%) 3AC 380V ... 480V (-15% / +10%)</li> <li>■ Operation up to an ambient temperature of 60° C</li> </ul>

# SINAMICS V20 — Easy to save money

Energy reduction during operation		
<p>UP TO <b>60%</b> ENERGY-SAVINGS POTENTIAL</p> <p><sup>1)</sup></p>	<p><b>SINAMICS V20 feature</b></p> <p>Integrated ECO mode for V/f and V<sup>2</sup>/f automatically adapts the flux to save energy. The energy consumption can be shown in kWh, CO<sub>2</sub> or even in the local currency.</p>	<p><b>Your benefits</b></p> <ul style="list-style-type: none"> <li>■ Energy saving during low dynamic load cycles</li> <li>■ If the setpoint changes, the ECO mode is automatically deactivated</li> <li>■ Tells end-users the actual energy that has been saved</li> </ul>
Energy reduction during operation — DC coupling		
<p>Energy generation    Energy consumption</p> <p>SINAMICS V20    SINAMICS V20</p> <p>Energy</p>	<p><b>SINAMICS V20 feature</b></p> <p>Applications that use SINAMICS V20 drives with the same power rating can share a common DC bus to reuse the regenerative energy.</p>	<p><b>Your benefits</b></p> <ul style="list-style-type: none"> <li>■ Generate and save energy in applications that use coupled motors</li> <li>■ Pairs of identical drives can optimally share resources</li> <li>■ Reduce the need for dynamic braking and external components</li> </ul>
Energy reduction during standby — hibernation mode		
<p>f</p> <p>Save energy</p> <p>threshold</p> <p>t</p>	<p><b>SINAMICS V20 feature</b></p> <p>Inverter and motor only operate when the plant or machine requires them to. Hibernation mode will be automatically activated when the frequency demand or the feedback from a sensor drops below a specific threshold.</p>	<p><b>Your benefits</b></p> <ul style="list-style-type: none"> <li>■ Smart hibernation saves energy</li> <li>■ Extended lifetime of motor</li> <li>■ Reduced pump wear at low speed</li> <li>■ Less time to program PLC code for pump / fan applications (PLC)</li> </ul>
Cost-savings at low overload application		
<p>High Overload    Low Overload</p> <p>HO    LO</p> <p>t</p>	<p><b>SINAMICS V20 feature</b></p> <p>SINAMICS V20 FSE (22 kW and 30 kW) integrated two different load cycles.</p> <ul style="list-style-type: none"> <li>■ Low Overload (LO): 110% I<sub>L</sub><sup>2)</sup> for 60 s (cycle time: 300 s)</li> <li>■ High Overload (HO): 150% I<sub>H</sub><sup>3)</sup> for 60 s (cycle time: 300 s)</li> </ul>	<p><b>Your benefits</b></p> <ul style="list-style-type: none"> <li>■ With low overload cycle, the drive can reach a higher output current and power. A smaller drive can be used.</li> <li>■ Optimally designed for a variety of applications: <ul style="list-style-type: none"> <li>■ Low Overload for applications with a low dynamic response (continuous duty)</li> <li>■ High Overload for applications with a high dynamic response (cyclic duty)</li> </ul> </li> </ul>

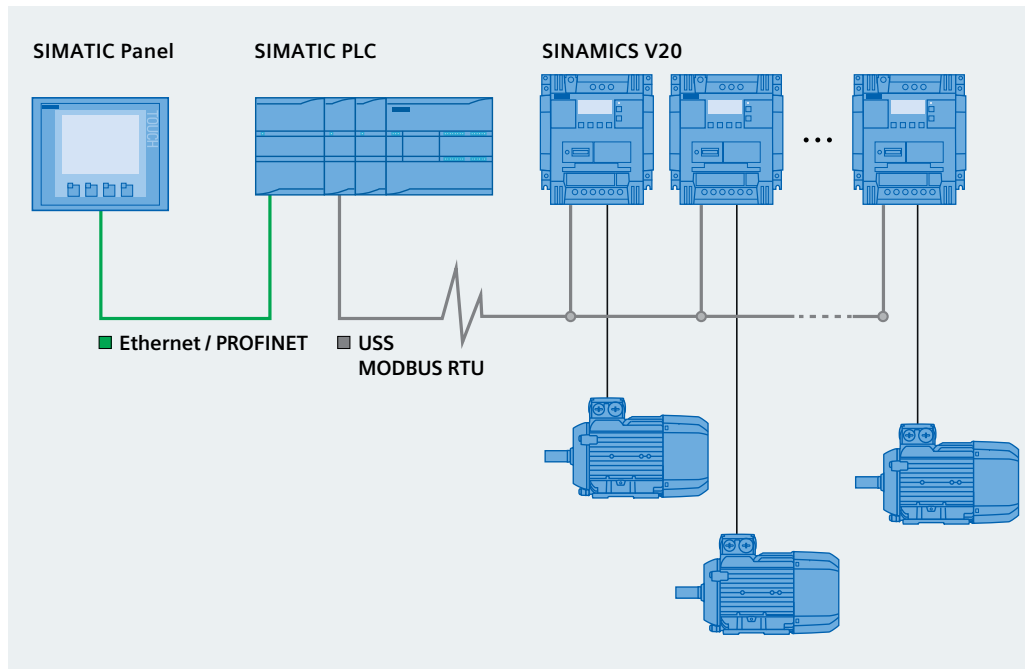
<sup>1)</sup> Application and machine-type dependent

<sup>2)</sup> The output current I<sub>L</sub> is based upon the duty cycle for low overload (LO).

<sup>3)</sup> The output current I<sub>H</sub> is based upon the duty cycle for high overload (HO).

# Combining SINAMICS V20 drives with SIMATIC PLC

## Easy automation system



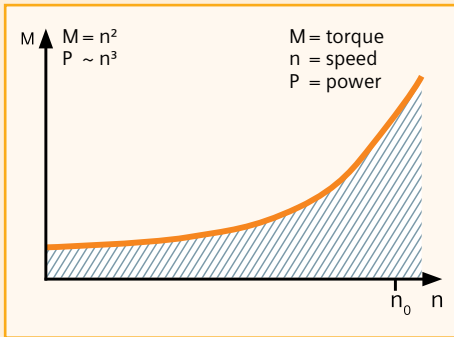
## Saving time and minimizing errors

- Easy system configuration with pre-defined macros in the drive and pre-built Totally Integrated Automation Portal function blocks for quick connection to SIMATIC S7-1200\*\*
- One cable to connect SINAMICS V20 with USS or MODBUS RTU
- Integrated communication interface

\*\* Application example with function blocks can be downloaded from Siemens Industry Online Support: <http://support.automation.siemens.com/WW/view/en/63696870>



# SINAMICS V20 — Overload capability characteristics



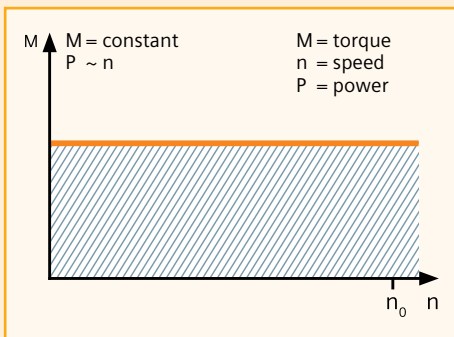
**Low Overload (LO)** is generally used for applications demanding a low level of dynamic performance (continuous duty), square-law torque characteristic with low breakaway torque and low speed precision.

**For example:** centrifugal pumps, radial / axial fans, reciprocating blowers, radial compressors, vacuum pumps, agitators, etc.

## Low overload (LO) capability

110%  $I_L$ <sup>1)</sup> for 60 s within a cycle time of 300 s

<sup>1)</sup> The output current  $I_L$  is based on the duty cycle for low overload (LO).



**High Overload (HO)** is generally used for applications demanding a higher dynamic performance (cyclic duty), as well as constant torque characteristics with a high breakaway torque.

**For example:** conveyor belts, geared pumps, eccentric worm pumps, mills, mixers, crushers, vertical conveying equipment, centrifuges, etc.

## High overload (HO) capability

150%  $I_H$ <sup>2)</sup> for 60 s within a cycle time of 300 s

<sup>2)</sup> The output current  $I_H$  is based on the duty cycle for high overload (HO).

# SINAMICS V20 — best-in-class service and support

## At home or across the globe

- Global hotline support
- Comprehensive service network of factory-trained repair specialists
- Multiple language web-based support and FAQs

Country	Hotline
USA	+1 423 262 5710 / +1 800 333 7421
Germany	+49 911 895 7222
India	+91 22 2760 0150
China	+86 400 810 4288

## Online Support

The comprehensive online information platform supports you in all aspects of our service and support at any time and from any location in the world.

[siemens.com/automation/service&support](https://www.siemens.com/automation/service&support)

## Technical support

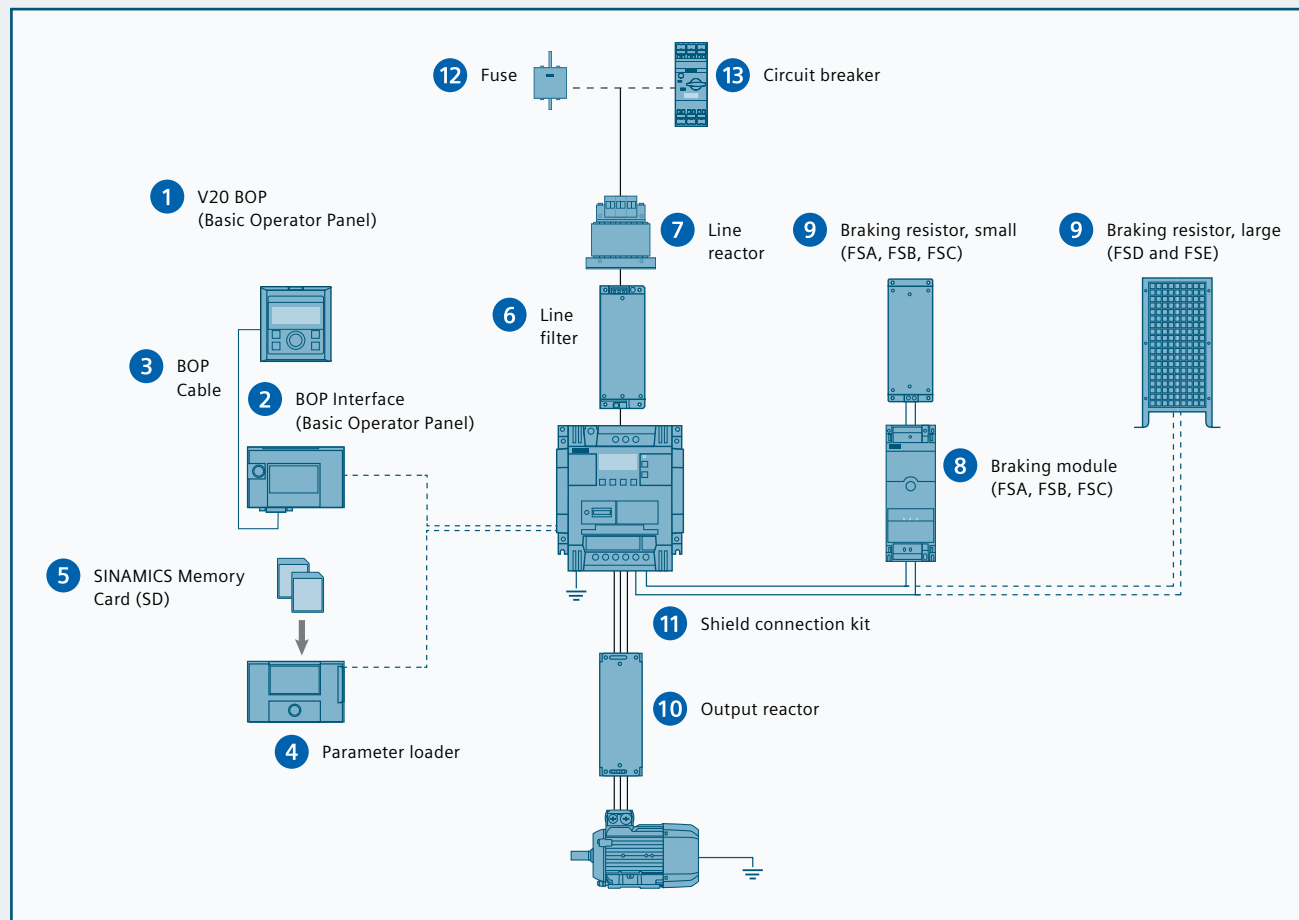
Expert advice on technical questions with a wide range of demand-optimized services for all our products and systems.

Additional service contact information:

[siemens.com/automation/support-request](https://www.siemens.com/automation/support-request)



# SINAMICS V20 — Full range of options, everything you need...



## SINAMICS V20 — Options

- 1 V20 BOP**  
Same functionality as the integrated Basic Operator Panel (BOP), but can be used for remote mounting. The value and setpoint are changed by rotating the wheel.
- 2 BOP interface**
  - Connection between inverter and BOP
- 3 BOP cable**  
3 m cable with connectors
- 4 Parameter loader**  
Up to 100 parameter sets with parameter settings can be written from the memory card to the inverter or saved from the inverter to the memory card without connecting the inverter to the line supply.
- 5 SINAMICS Memory Card (SD)**
  - 512 MB
- 6 Line filter**
  - Improved EMC performance
  - Longer motor cable for FSA
- 7 Line reactor**
  - Reduces the harmonic current
  - Improves the power factor
  - Recommended if input current (RMS value) is higher than the rated current of the drive.
- 8 Braking module**
  - Shortens the deceleration ramp time
  - Suitable for 1AC 230V and 3AC 400V
  - Adjustable duty cycle from 5–100%
  - FSD and FSE already have an integrated braking unit
- 9 Braking resistor**
  - Dissipates regenerative energy as heat
  - 5% duty cycle as default setting
- 10 Output reactor**  
Longer motor cable:
  - 3AC 400V shielded and unshielded cable: 150 m
  - 1AC 230V shielded and unshielded cable: 200 m
- 11 Shield connection kit**
  - Shield connection
  - Strain relief
- 12 Fuse**  
Recommended fuse corresponding to the EC/UL standard
- 13 Circuit breaker**  
Recommended circuit breaker corresponding to the EC/UL standard

# Technical information

Power and control	
Voltage	1AC 230V: 1AC 200V ... 240V (-10% ... +10%) 3AC 400V: 3AC 380V ... 480V (-15% ... +10%)
Maximum output voltage	100% of input voltage
Supply frequency	50 / 60 Hz
Line supply type	TN, TT, TT earthed line, IT <sup>1)</sup>
Power range	1AC 230V 0.12 ... 3.0 kW (1/6 ... 4 hp) 3AC 400V 0.37 ... 30 kW (1/2 ... 40 hp)
cos φ / Power factor	≥ 0.95 / 0.72
Overload capability	up to 15 kW: High Overload (HO): 150% I <sub>H</sub> for 60 s within a cycle time of 300 s from 18.5 kW: Low Overload (LO): 110% I <sub>L</sub> for 60 s within a cycle time of 300 s High Overload (HO): 150% I <sub>H</sub> for 60 s within a cycle time of 300 s
Output frequency	0 ... 550 Hz resolution: 0.01 Hz
Efficiency factor	98%
Control modes	Voltage / frequency control mode: linear V/f, square law V/f, multi-point V/f Flux current control mode: FCC

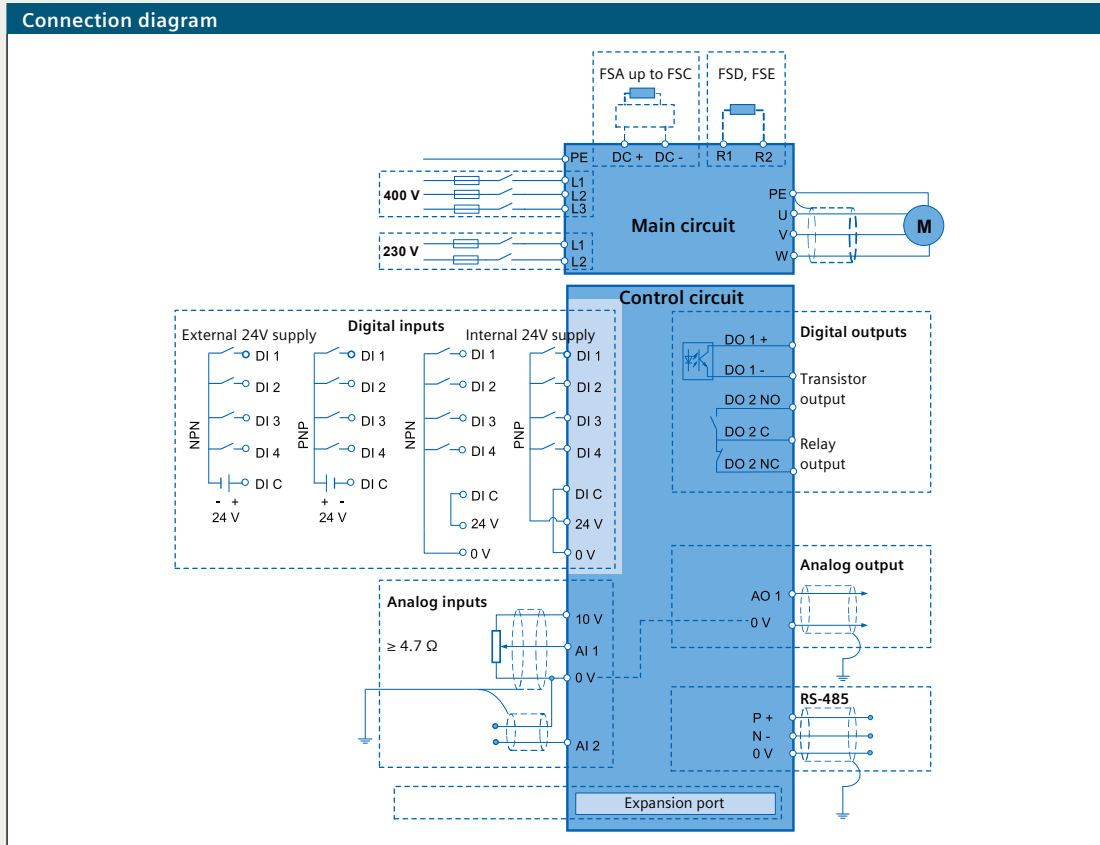
Standards	
Standards	CE, cULus, C-tick, KC
EMC standards, radiated emissions and disturbance voltage (conducted emissions)	<p><b>EN61800-3 category C2, 1st environment (domestic premises):</b></p> <ul style="list-style-type: none"> <li>1AC 230V with integrated line filter, shielded cables ≤ 25 m (FSA ≤ 10 m<sup>2</sup>)</li> <li>3AC 400V without integrated line filter with external line filter, shielded cables FSA up to FSD ≤ 25 m, FSE ≤ 50 m</li> </ul> <p><b>EN61800-3 category C3, 2nd environment (industrial premises):</b></p> <ul style="list-style-type: none"> <li>3AC 400V with integrated line filter, shielded cables FSA ≤ 10 m, FSB up to FSD ≤ 25 m, FSE ≤ 50 m</li> </ul>

Features	
Energy savings	<ul style="list-style-type: none"> <li>ECO mode</li> <li>Hibernation mode</li> <li>Energy consumption monitoring</li> </ul>
Ease-of-use	<ul style="list-style-type: none"> <li>Connection and application macro</li> <li>Parameter cloning</li> <li>Keep Running Mode</li> <li>USS / Modbus RTU communication</li> <li>Customized default value</li> <li>List of modified parameters</li> <li>Drive status at fault</li> <li>Automatic restart</li> <li>Flying start</li> <li>DC-link voltage control</li> <li>I<sub>max</sub> control</li> </ul>
Application	<ul style="list-style-type: none"> <li>PID controller</li> <li>BICO function</li> <li>Hammer start</li> <li>Super torque mode</li> <li>Blockage clearing mode</li> <li>Motor staging</li> <li>Flexible boost control</li> <li>Wobble function</li> <li>Slip compensation</li> <li>Dual ramp</li> <li>Adjustable PWM modulation</li> </ul>
Protection	<ul style="list-style-type: none"> <li>Frost protection</li> <li>Condensation protection</li> <li>Cavitation protection</li> <li>Kinetic buffering</li> <li>Load failure detection</li> </ul>

<sup>1)</sup> Only 3AC 400V unfiltered devices can be operated at IT network.

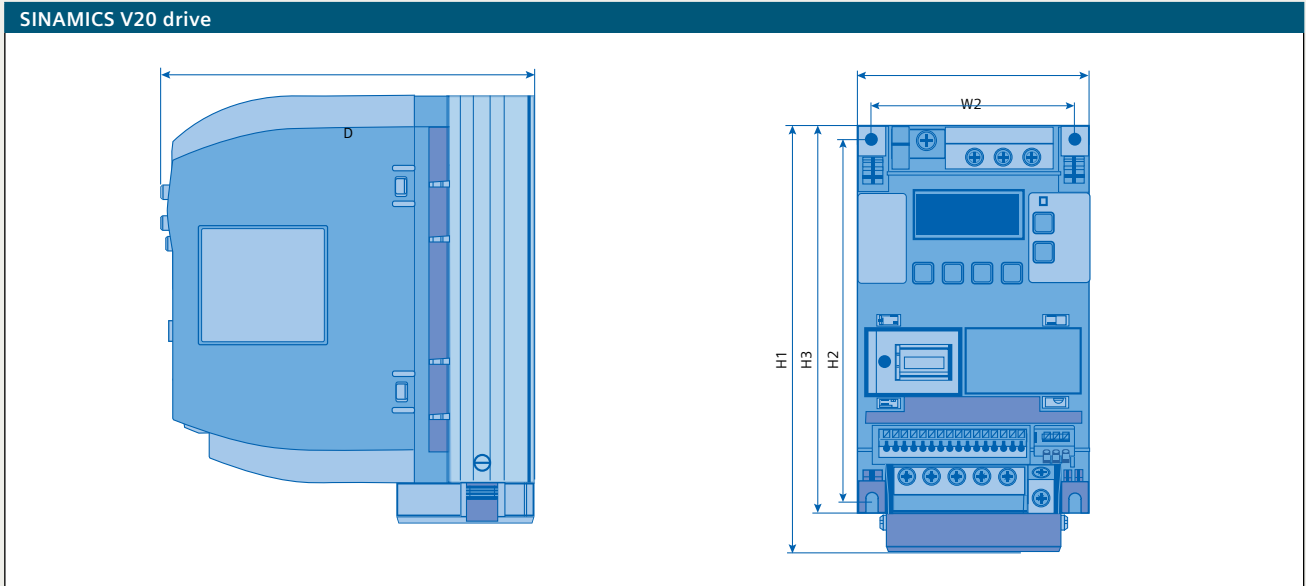
<sup>2)</sup> To achieve 25 m shielded motor cable length also with FSA, unfiltered devices with external filter have to be used.

Signal inputs and outputs		
Analog inputs	A11: bipolar current / voltage mode	A12: unipolar current / voltage mode
	Can be used as digital inputs	
Analog outputs	A01: 0 ... 20 mA	
Digital inputs	DI1–DI4, optically isolated PNP/NPN selectable by terminal	
Digital outputs	DO1: transistor output	DO2: relay output <ul style="list-style-type: none"> <li>■ 250V AC 0.5 A with resistive load</li> <li>■ 30V DC 0.5 A with resistive load</li> </ul>

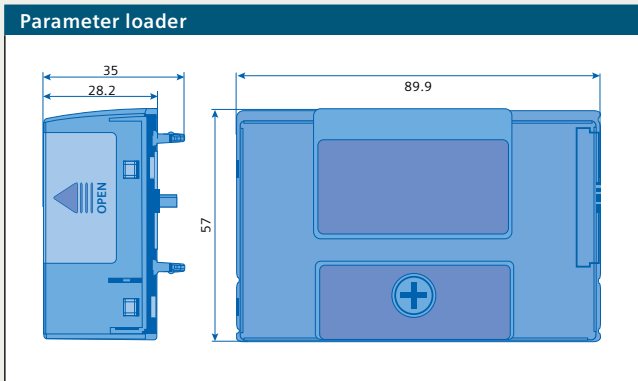
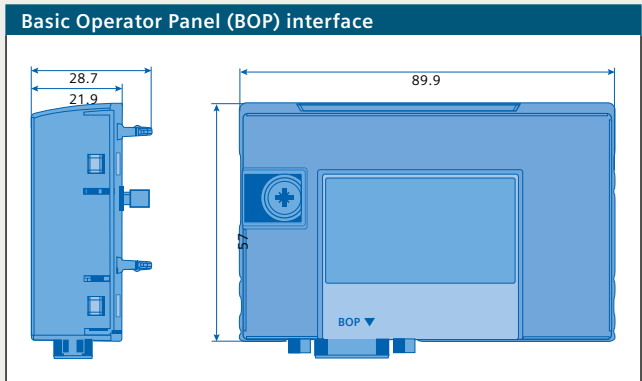
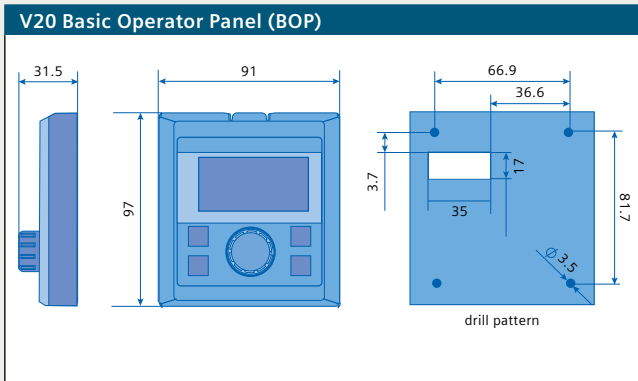


Mounting and environment	
Degree of protection	IP20
Mounting	Wall mounting, side-by-side mounting, push-through mounting for FSB, FSC, FSD and FSE
Cooling	<ul style="list-style-type: none"> <li>■ FSA up to 0.75 kW: convection cooling</li> <li>■ FSA up to FSE: power electronics cooled using heat sinks with external fan</li> </ul>
Ambient temperature	<p>In operation</p> <ul style="list-style-type: none"> <li>■ -10 ... 60° C (14 ... 140° F)</li> <li>■ 40 ... 60° C (104 ... 140° F) with derating</li> </ul> <p>In Storage</p> <ul style="list-style-type: none"> <li>■ -40 ... 70° C (-40 ... 158° F)</li> </ul>
Relative humidity	95% (non-condensing)
Altitude	<ul style="list-style-type: none"> <li>■ Up to 4000 m above sea level</li> <li>■ 1000 ... 4000 m: output current derating</li> <li>■ 2000 ... 4000 m: supply voltage derating</li> </ul>
Motor cable length	<ul style="list-style-type: none"> <li>■ Unshielded cable: 50 m for FSA up to FSD, 100 m for FSE</li> <li>■ Shielded cable: 25 m for FSA up to FSD, 50 m for FSE</li> <li>■ Longer motor cables possible with output reactor (see options)</li> </ul>
Dynamic braking	Option module for FSA, FSB and FSC; integrated for FSD and FSE

# Dimensions



Frame size	Width (mm)		Height (mm)			Depth (mm)	Weight (kg)
	W1	W2	H1	H2	H3	D	WT approx.
FSA without fan	79	90	–	140	150	145.5	1
FSA	79	90	166	140	150	145.5	1.05
FSB	127	140	160	135	–	164.5	1.8
FSC	170	184	182	140	–	169	2.6
FSD	223	240	206.5	166	–	172.5	4.3
FSE	228	245	264.5	206	–	209	6.6





# Ordering information

## 1AC 230V

Rated data						
P <sub>rated</sub> (HO)		I <sub>n</sub>	Part number	Fans	Frame size	
kW	hp	A				
0.12	1/6	0.9	6SL3210-5BB11-2	V0	–	FSA
0.25	1/3	1.7	6SL3210-5BB12-5	V0	–	
0.37	1/2	2.3	6SL3210-5BB13-7	V0	–	
0.55	3/4	3.2	6SL3210-5BB15-5	V0	–	
0.75	3/4	3.9	6SL3210-5BB17-5	V0	–	
0.75	1	4.2	6SL3210-5BB18-0	V0	1	FSB
1.1	1–1/2	6	6SL3210-5BB21-1	V0	1	
1.5	2	7.8	6SL3210-5BB21-5	V0	1	FSC
2.2	3	11	6SL3210-5BB22-2	V0	1	
3	4	13.6	6SL3210-5BB23-0	V0	1	

### EMC Standards

With integrated line filter category C2 <sup>6)</sup>	A
Without integrated filter	U

## 1AC 230V options

FS	P <sub>rated</sub> (HO) kW	Braking resistor 6SE6400-...	Line reactor 6SE6400-...	Output reactor 6SE6400-...	Shield connection kit 6SL3266-...	Line filter class B <sup>3)</sup> 6SE6400-...	Corresponding to the IEC standard		
							Standard fuse <sup>4)</sup>		Circuit breaker <sup>4)</sup>
							Current in A	Part number	Part number
A	0.12	4BC05-0AA0	3CC00-4AB3	3TC00-4AD3	1AA00-0VA0	2FL01-0AB0	10	3NA3803	3RV2011-1DA10
	0.25						10	3NA3803	3RV2011-1FA10
	0.37		3CC01-0AB3				10	3NA3803	3RV2011-1HA10
	0.55		10				3NA3803	3RV2011-1JA10	
	0.75		16				3NA3805	3RV2011-1KA10	
B	1.1	4BC11-2BA0	3CC02-6BB3	3TC01-0BD3	1AB00-0VA0	–	20	3NA3807	3RV2021-4BA10
	1.5						32	3NA3812	3RV2021-4CA10
C	2.2	4BC12-5CA0	3CC03-5CB3	3TC03-2CD3	1AC00-0VA0	–	35	3NA3814	3RV2021-4EA10
	3						50	3NA3820	3RV1031-4FA10

## Accessories

Name	Part number
Parameter loader	6SL3255-0VE00-0UA0
BOP (Basic Operator Panel) interface	6SL3255-0VA00-2AA0
Braking module ▪ 1AC 230V: 8A ▪ 3AC 400V: 7A	6SL3201-2AD20-8VA0
V20 BOP (Basic Operator Panel)	6SL3255-0VA00-4BA0
BOP cable 3 m incl. 4 mounting screws	6SL3256-0VP00-0VA0
SINAMICS Memory Card (SD) 512 MB	6SL3054-4AG00-2AA0
RS485 Terminators (50 pieces)	6SL3255-0VC00-0HA0
SINAMICS V20 training case	6AG1067-2AA00-0AB6
DIN Rail mounting kit	FSA: 6SL3261-1BA00-0AA0 <sup>5)</sup> FSB: 6SL3261-1BB00-0AA0

## Spare parts

Replacement fan	
Frame size	Part number
FSA	6SL3200-0UF01-0AA0
FSB	6SL3200-0UF02-0AA0
FSC	6SL3200-0UF03-0AA0
FSD	6SL3200-0UF04-0AA0
FSE	6SL3200-0UF05-0AA0

### 3AC 400V

Rated data											
P <sub>rated</sub> (LO)		I <sub>L</sub> 400 V <sup>1)</sup>	I <sub>L</sub> 480 V	P <sub>rated</sub> (HO)		I <sub>H</sub> 400 V <sup>2)</sup>	I <sub>H</sub> 480 V	Part number	Fans	Frame size	
kW	hp	A	A	kW	hp	A	A				
0.37	1/2	1.3	1.3	0.37	1/2	1.3	1.3	6SL3210-5BE13-7	V0	–	FSA
0.55	3/4	1.7	1.7	0.55	3/4	1.7	1.7	6SL3210-5BE15-5	V0	–	
0.75	1	2.2	2.2	0.75	1	2.2	2.2	6SL3210-5BE17-5	V0	–	
1.1	1–1/2	3.1	3.1	1.1	1–1/2	3.1	3.1	6SL3210-5BE21-1	V0	1	
1.5	2	4.1	4.1	1.5	2	4.1	4.1	6SL3210-5BE21-5	V0	1	
2.2	3	5.6	4.8	2.2	3	5.6	4.8	6SL3210-5BE22-2	V0	1	
3	4	7.3	7.3	3	4	7.3	7.3	6SL3210-5BE23-0	V0	1	FSB
4	5	8.8	8.24	4	5	8.8	8.24	6SL3210-5BE24-0	V0	1	
5.5	7–1/2	12.5	11	5.5	7–1/2	12.5	11	6SL3210-5BE25-5	V0	1	FSC
7.5	10	16.5	16.5	7.5	10	16.5	16.5	6SL3210-5BE27-5	V0	2	FSD
11	15	25	21	11	15	25	21	6SL3210-5BE31-1	V0	2	
15	20	31	31	15	20	31	31	6SL3210-5BE31-5	V0	2	
22	30	45	40	18.5	25	38	34	6SL3210-5BE31-8	V0	2	FSE
30	40	60	52	22	30	45	40	6SL3210-5BE32-2	V0	2	

EMC Standards	
With integrated line filter category C3 <sup>7)</sup>	C
Without integrated filter	U

### 3AC 400V options

FS	P <sub>rated</sub> (LO) kW	P <sub>rated</sub> (HO) kW	Braking resistor 6SL3201-...	Line reactor 6SL3203-...	Output reactor 6SL3202-...	Shield connection kit 6SL3266-...	Line filter class B <sup>3)</sup> 6SL3203-...	Corresponding to the IEC standard		
								Standard fuse <sup>4)</sup>		Circuit breaker <sup>4)</sup>
								Current in A	Part number	Part number
FSA	0.37	0.37	OBE14-3AA0	OCE13-2AA0	OAE16-1CA0	1AA00-0VA0	OBE17-7BA0	6	3NA3801	3RV2011-1CA10
	0.55	0.55						6	3NA3801	3RV2011-1DA10
	0.75	0.75						6	3NA3801	3RV2011-1EA10
	1.1	1.1						6	3NA3801	3RV2011-1FA10
	1.5	1.5						10	3NA3803	3RV2011-1HA10
	2.2	2.2						16	3NA3805	3RV2011-1JA10
FSB	3	3	OBE21-0AA0	OCE21-0AA0	OAE18-8CA0	1AB00-0VA0	OBE21-8BA0	16	3NA3805	3RV2011-1KA10
	4	4						20	3NA3807	3RV2021-4AA10
FSC	5.5	5.5	OBE21-8AA0	OCE21-8AA0	OAE23-8CA0	1AC00-0VA0	OBE23-8BA0	32	3NA3812	3RV2021-4BA10
FSD	7.5	7.5	OBE23-8AA0	OCE23-8AA0	OAE23-8CA0	1AD00-0VA0		–	–	3VL1103-1KM30-0AA0
	11	11						–	–	3VL1104-1KM30-0AA0
	15	15					–	–	3VL1105-1KM30-0AA0	
			6SE6400-...	6SE6400-...	6SE6400-...	6SL3266-...	6SL3203-...			
FSE	22	18.5	4BD21-2DA0	3CC05-2DD0	3TC05-4DD0	1AE00-0VA0	OBE23-8BA0	63	3NA3022	3VL1108-1KM30-0AA0
	30	22		3CC08-3ED0			OBE27-5BA0	80	3NA3024	3VL1108-1KM30-0AA0

<sup>1)</sup> The output current I<sub>L</sub> is based on the duty cycle for low overload (LO).

<sup>2)</sup> The output current I<sub>H</sub> is based on the duty cycle for high overload (HO).

<sup>3)</sup> See specification of EMC standards, page 10

<sup>4)</sup> Additional information about the listed fuses and circuit breakers can be found in Catalogs LV 10, IC 10 and IC 10 A0 [siemens.com/drives/infocenter](http://siemens.com/drives/infocenter)

<sup>5)</sup> Installation of FSA with fan — please refer to SINAMICS V20 manual.

<sup>6)</sup> EN61800-3 Category C2, 1<sup>st</sup> environment (residential domestic)

<sup>7)</sup> EN61800-3 Category C3, 2<sup>nd</sup> environment (industry)

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