SIEMENS

SINAMICS V20

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

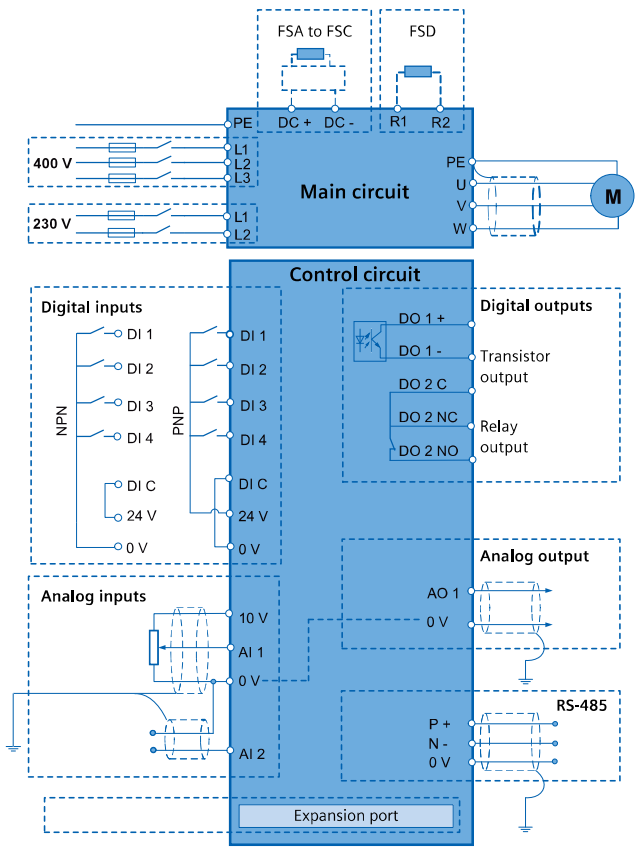
siemens.com/sinamics-v20

Answers for industry.

Technical data

Power and control	
Voltage	**1AC 230 V: 1AC 200 V ... 240 V (–10 % ... + 10 %)** **3AC 400 V: 3AC 380 V ... 480 V (–15 % ... + 10 %)**
Maximum output voltage	1AC 230 V: 240 V 3AC 400 V: 480 V
Supply frequency	50/60 Hz
Line supply type	TN, TT, IT, TT earthed line
Power range	1AC 230 V 0.12 ... 3.0 kW (1/6 ... 4 hp) 3AC 400 V 0.37 ... 15.0 kW (1/2 ... 20 hp)
cos φ / Power factor	≥ 0.95 / 0.72
Overload	150 % rated output current for 60 s, cycle time 300 s
Output frequency	0 ... 599 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)	**EN61800-3 category C2, 1st environment (domestic premises):** • 1AC 230 V with integrated line filter, shielded cables ≤ 25 m (FSA ≤ 10 m *) • 3AC 400 V without integrated line filter with external line filter, shielded cables ≤ 25 m **EN61800-3 category C3, 2nd environment (industrial premises):** • 3AC 400 V with integrated line filter, shielded cables ≤ 25 m (FSA ≤ 10 m *)
Features	
Energy saving	• ECO mode • Hibernation mode • Energy consumption monitoring
Ease of use	• Connection and application macro • Parameter cloning • Keep Running Mode • USS/MODBUS RTU communication • Customized default value • Automatic restart • Flying start • DC-link voltage control • Imax control
Application	• PID controller • BICO function • Hammer start • Super torque mode • Blockage clearing mode • Motor staging • Flexible boost control • Wobble function • Slip compensation • Dual ramp • Adjustable PWM modulation
Protection	• Frost protection • Condensation protection • Cavitation protection • Kinetic buffering • Load failure detection
Signal inputs and outputs	
Analog inputs	AI1: bipolar current / voltage mode AI2: 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 – 250 V AC 0.5 A with resistive load – 30 V DC 0.5 A with resistive load

Connection diagram



Mounting and environment	
Degree of protection	IP20
Mounting	Wall mounting, side-by-side mounting, push-through mounting for FSB, C and D
Cooling	• FSA up to 0.75 kW: convection cooling • FSA, FSB, FSC, FSD: power electronics cooled using heat sinks with external fan
Ambient temperature	In operation • 0 ... 60 °C (32 ... 140 °F) • 40 ... 60 °C (104 ... 140 °F) with derating Storage • –40 ... 70 °C (–40 ... 158 °F)
Relative humidity	95 % (non-condensing)
Altitude	• Up to 4000 m above sea level • 1000 ... 4000 m: output current derating • 2000 ... 4000 m: supply voltage derating
Motor cable length	• Unshielded cable: 50 m • Shielded cable: 25 m • Longer motor cables possible with output reactor (see options)
Dynamic braking	Option module for FSA, FSB and FSC; integrated for FSD

*) To achieve 25 m shielded motor cable length also with FSA, unfiltered devices with external filter have to be used.

Dimensions

1AC 230 V options

		Braking resistors				Line reactors				Output reactors				Braking module				EMC filter			
P_{rated} kW 1AC 230 V	FS	W	H	D	WT	W	H	D	WT	W	H	D	WT	W	H	D	WT	W	H	D	WT
0.12	A	72	230	43.5	1	75.5	200	50	1.4	75	200	50	1.3	90	150	88	0.71	73	200	43.5	0.5
0.25																					
0.37																					
0.55																					
0.75																					
1.1	B	149	239		1.6	150	213		2.2	150	213	80	4.1					149	213	50.5	1
1.5																					
2.2	C																				
3		185	285	150	3.8	185	245		5.1	185	245		6.6					–			

3AC 400 V options

		Braking resistors				Line reactors				Output reactors				Braking module				EMC filter			
P_{rated} kW 3AC 400 V	FS	W	H	D	WT	W	H	D	WT	W	H	D	WT	W	H	D	WT	W	H	D	WT
0.37	A	72	230	43.5	1	125	120	71	1.1	75.5	200	110	2	90	150	80	0.71	73	202	65	1.75
0.55																					
0.75																					
1.1																					
1.5						125	140	71	2.1												
2.2		149	239	43.5	1.6					150	213	70	3.4								
3	B																	100	297	85	4
4																					
5.5	C	185	285	150	3.8	125	145	91	2.95	150	213	80	5.6								
7.5	D					190	220	91	7.8					integrated				140	359	95	7.3
11																					
15		270	515	175	7.4																

FS = frame size, WT = weight in kg, W = width in mm, H = height in mm, D = depth in mm

Simple entry using the DT Configurator

The DT Configurator supports you with:

- Selecting the drive based on the application
- The subsequent ordering process

DT Configurator supplies you with

- A drive that is optimally tailored to your requirements
- 2D/3D models
- Operating instructions
- Data sheets

You can directly order the selected components through the Industry Mall – the Siemens e-commerce website – and without having to duplicate entries. In order to avoid making ordering mistakes, the order number is checked to ensure that it is correct. **siemens.com/dt-configurator**