

## SINAMICS V20

### Quick launch guide

siemens.com/sinamics-v20



#### Safety information

For full safety information, please reference the SINAMICS V20 Getting Started Manual (Section 1, pages 1–3)

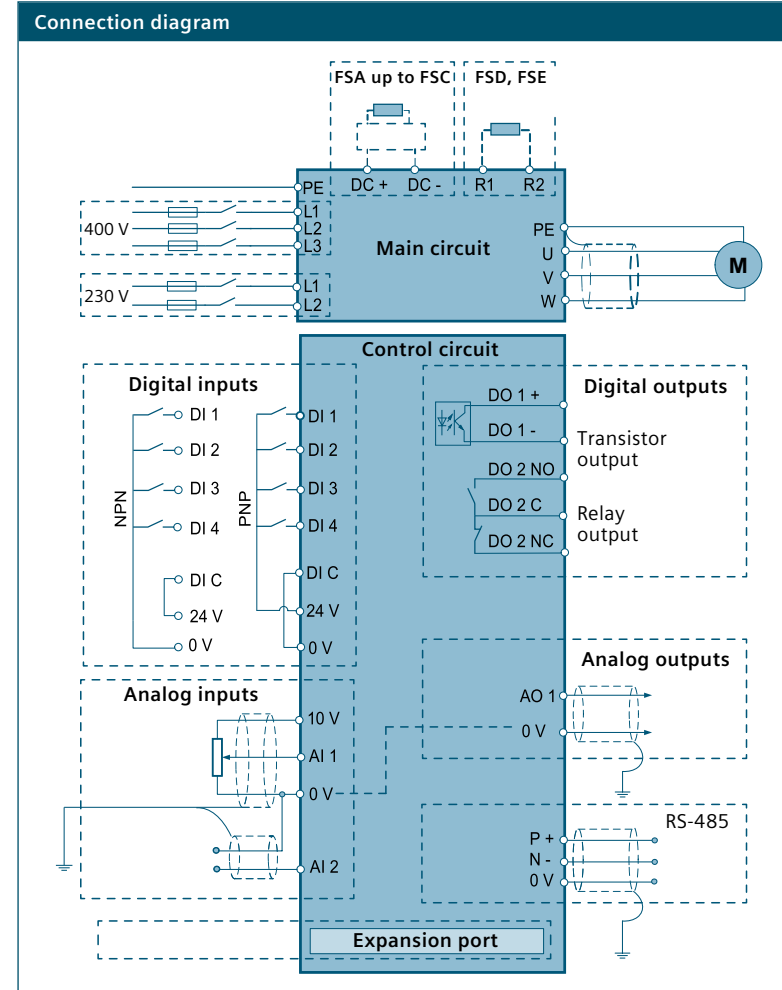
#### Technical support information

For technical assistance in your area:

U.S.A. +1 423 262 5710  
Germany +49 911 895 7222  
China +86 400 810 4288

Additional service contact information:  
siemens.com/automation/support-request

### Wiring and terminal description



### Basic operator panel (BOP)

#### Button functions

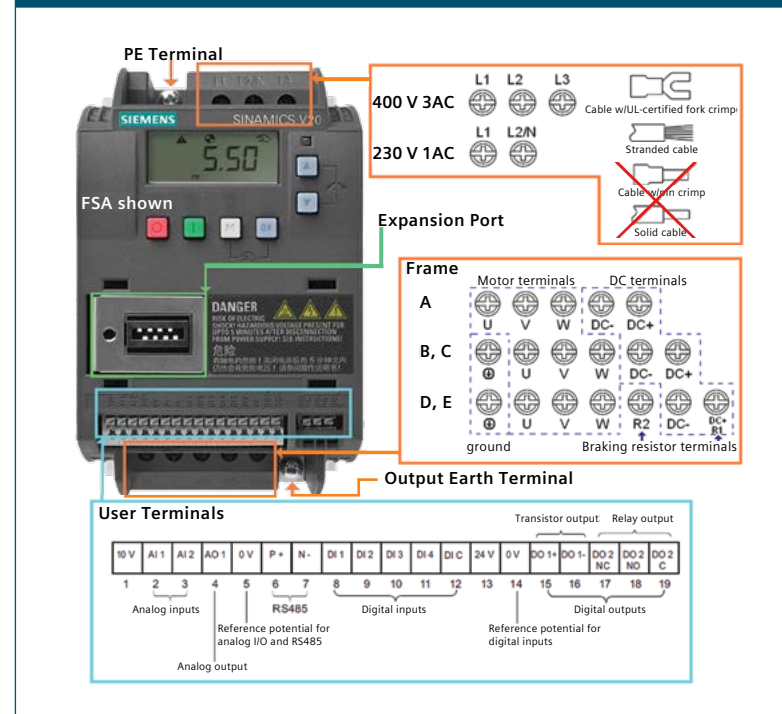
- STOP** (Red circle with diagonal line)
  - Stops the drive
  - Single press: OFF1 stop reaction in HAND mode
  - Double press (< 2 s) or long press (> 3 s) OFF2 stop reaction: the drive allows the motor to coast to a stop without ramp-down times
- FUNCTION** (Green bar)
  - Starts the drive in HAND / JOG mode
- M** (Multi-function button)
  - Multi-function button
  - Short press (< 2 s):
    - Enters parameter menu or moves to next screen
    - Restarts digit by digit editing on selected item
    - Press twice in digit by digit editing to discard change and return
  - Long press (> 2 s):
    - Returns the status screen
    - Enters the setup menu
- OK** (Green circle)
  - Short press (< 2 s):
    - Switches between status values
    - Enters edit value mode or change to the next digit
    - Clears faults
  - Long press (> 2 s): quick parameter number or value edit
- OK + M**
  - Press to switch between HAND (with hand icon) / JOG (with flashing hand icon) / AUTO (no icon) mode
  - Note: Jog mode is only available if the motor is stopped
- ▲** (Up arrow)
  - Moves the selection up through a menu, increases a value or a setpoint
  - Long press (> 2 s): To quickly scroll up the values
- ▼** (Down arrow)
  - Moves the selection down through a menu, decreases a value or a setpoint
  - Long press (> 2 s): To quickly scroll down the values
- ▲ + ▼**
  - Reverses the direction of the rotation of the motor

### Dimensions

Frame size	Width (mm)		Height (mm)			Depth (mm) D	Weight (kg) WT approx.	Ø	Screw ↑ type
	W1	W2	H1	H2	H3				
FSA without fan	79	90	-	140	150	145.5	1	4.6 mm	M4
FSA	79	90	166	140	150	145.5	1.05	4.6 mm	M4
FSB	127	140	160	135	-	164.5	1.8	4.6 mm	M4
FSC	170	184	182	140	-	169	2.6	5.8 mm	M5
FSD	223	240	206.5	166	-	172.5	4.3	5.8 mm	M5
FSE	228	243.5	264.5	206	-	209	6.6	5.8 mm	M5

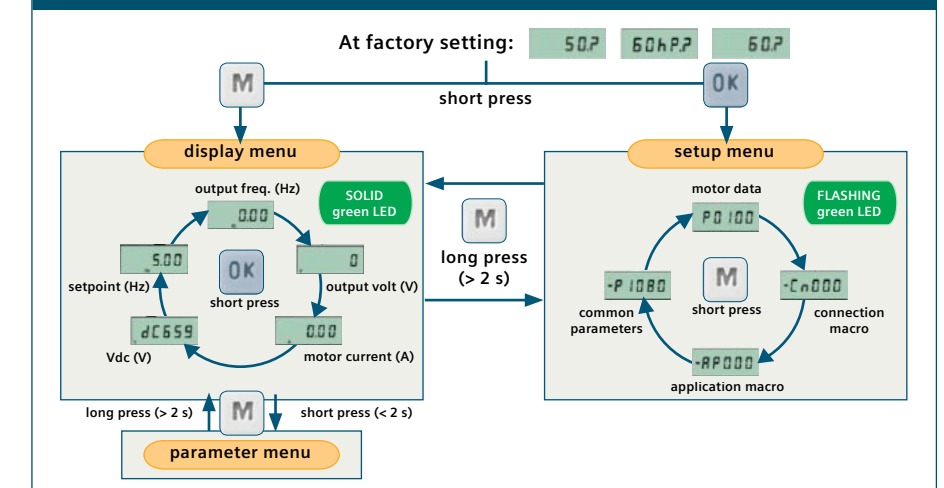
Please refer to Section 2.1 (page 4) of the SINAMICS V20 Getting Started Manual for full dimensions (shown in mm).

### Terminal diagram

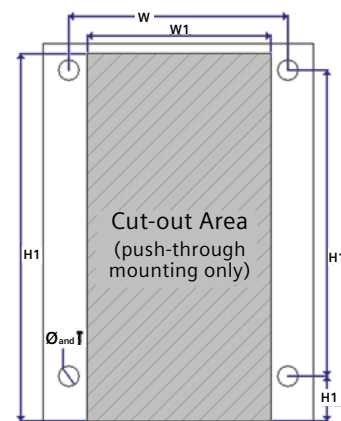
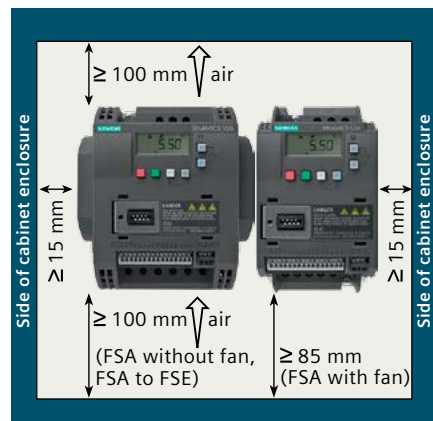


Recommended fuse types for different frame sizes can be found in Section 2.2 (page 6) of the SINAMICS V20 Getting Started Manual.

### Navigation between menus with the M button



Upon power up, the drive defaults to the display menu, Section 3 (page 11) of the SINAMICS V20 Getting Started Manual.



**Starting the motor**

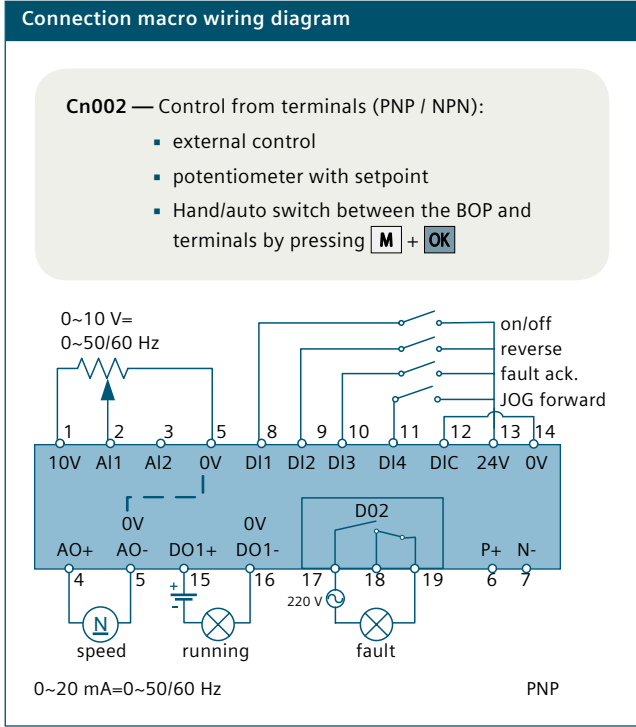
- Power up the drive**
- Set to factory default**
- Enter motor data**
- Select connection macros**
  - Cn000 — No chosen connection macro
  - Cn001 — BOP as the only control source
  - Cn002 — Control from terminals (PNP / NPN)
  - Cn003 — Fixed speeds
  - Cn004 — Fixed speeds in binary mode
  - Cn005 — Analog input and fixed frequency
  - Cn006 — External push button control
  - Cn007 — External push buttons with analog control
  - Cn008 — PID control with analog reference
  - Cn009 — PID control with the fixed value reference
  - Cn010 — USS control
  - Cn011 — MODBUS RTU control
- Select application macro**
  - AP000 — Factory default setting
  - AP010 — Simple pump applications
  - AP020 — Simple fan applications
  - AP021 — Compressor applications
  - AP030 — Conveyor applications
- Set general parameter settings**
- Start motor**

← Connection macro wiring diagrams found in the SINAMICS V20 Getting Started Manual (section 3.2.2, page 13)

← Connection macros are fixed and cannot be modified. If your setup requires different parameters, select Ch000 to set parameters manually

← Application macro and factory default settings are found in the SINAMICS V20 Getting Started Manual (section 3.2.3, page 16)

← Common parameter descriptions can be found in the SINAMICS V20 Getting Started Manual (section 3.2.4, page 16)



**SINAMICS V20 programming example**

The example below walks through a quick commissioning for a basic conveyor application (AP030) that is controlled by the BOP using the connection Cn001. The motor will be set to have a minimum frequency of 5 Hz and is characterized by the following:

**Enter relevant motor data in the underlined sections and highlighted boxes below:**

Voltage: \_\_\_\_\_ ex: 400 V      Power: \_\_\_\_\_ ex: 0.37 kW      Freq.: \_\_\_\_\_ ex: 50/60 Hz  
 Current: \_\_\_\_\_ ex: 1.10 A      Eff.: \_\_\_\_\_ ex: 70 %      Motor RPM: \_\_\_\_\_ ex: 1500 RPM

Step	Current display value	Press button	New display value	Press button	Comments
<b>1 Power up drive</b>					
Starting from display menu					
<b>2 Set to factory default</b>					
2.1	Any	<b>M</b> < 2 s			Switches to the parameter menu
Parameter menu					
2.2	Any	▲ or ▼	P0010	<b>OK</b>	
2.3	0	▲	30	<b>OK</b>	Commissioning parameters → factory reset
2.4	P0010	▲	P0970	<b>OK</b>	
2.5	0	▲	21	<b>OK</b>	Activates factory reset
2.5	50?				
<b>3 Enter motor data</b>					
3.1	50?	<b>OK</b>		<b>OK</b>	Set P0100 = 0, motor type IEC, kW
3.2	P0304	<b>OK</b>		<b>OK</b>	
3.3	460	▲ or ▼		<b>OK</b>	P0304 — Motor voltage
3.4	P304	▲	P0305	<b>OK</b>	
3.5	1.10	▲ or ▼		<b>OK</b>	P0305 — Motor current
3.6	P0305	▲	P0307	<b>OK</b>	
3.7	0.50	▲ or ▼		<b>OK</b>	P0307 — Motor Hp
3.8	P0307	▲	P0309	<b>OK</b>	
3.9	0.7	▲ or ▼		<b>OK</b>	P0309 — Motor efficiency
3.10	P0309	▲	P0310	<b>OK</b>	
3.11	60.00	▲ or ▼		<b>OK</b>	P0310 — Motor Hz.
3.12	P0310	▲	P0311	<b>OK</b>	
3.13	1750	▲ or ▼		<b>OK</b>	P0311 — Motor RPM
3.14	P0311	▲	P1900	<b>OK</b>	
3.15	0	▲	2	<b>OK</b>	Activate motor ID tune
Alarm icon appears on screen					
<b>4 Select connection macro</b>					
4.1	P1900	<b>M</b> < 2 s			
4.2	-Cn000	▲	Cn001	<b>OK</b>	Select connection macro 1
4.3	-Cn001	<b>M</b> < 2 s			
<b>5 Select application macro</b>					
5.1	-AP000	▲	AP030	<b>OK</b>	Select application macro 30
5.2	-AP030	<b>M</b> < 2 s			
88888 briefly fills the display					
Drive processing internal data					
<b>6 Set general parameter settings</b>					
6.1	P1080	<b>OK</b>			
6.2	20.00	▼	5.0	<b>OK</b>	Lower minimum frequency
6.3	P1080	<b>M</b> > 2 s			Exit quick commissioning
<b>7 Start motor</b>					

**Troubleshooting**

**Common fault acknowledgement**

Fault code list			
Fault	Description	Fault	Description
F1	Overcurrent	F62	Parameter cloning contents invalid
F2	Overvoltage	F63	Parameter cloning contents incompatible
F3	Undervoltage	F64	Drive attempted to do an automatic clone during startup
F4	Drive overtemperature	F71	USS setpoint fault
F5	Drive I <sup>2</sup> t	F72	USS / MODBUS setpoint fault
F6	Chip temperature rise exceeds critical levels	F80	AI lost input signal
F11	Motor overtemperature	F85	External fault
F12	Drive temperature signal lost	F100	Watchdog reset
F20	DC ripple too high	F101	Stack overflow
F35	Auto restart after n	F221	PID feedback below minimum value
F41	Motor data identification failure	F222	PID feedback above maximum value
F51	Parameter EEPROM fault	F350	Configuration vector for the drive failed
F52	Drive software fault	F395	Acceptance test / confirmation pending
F60	Asic timeout	F410	Cavitation protection failure
F61	MMC / SD card parameter cloning failed	F452	Belt failure

- To navigate through the current list of faults, press ▲ or ▼
- To clear / acknowledge the fault, press **OK** or acknowledge externally if the drive has been setup so
- To ignore the fault, press **M**
- After you acknowledge or ignore the fault, the screen returns to the previous display. The fault icon remains active until the fault is cleared / acknowledged

**Setting common parameters**

Parameter	Description	Parameter	Description
P1080[0]	Minimum motor frequency	P1001[0]	Fixed frequency setpoint 1
P1082[0]	Maximum motor frequency	P1002[0]	Fixed frequency setpoint 2
P1120[0]	Ramp-up time	P1003[0]	Fixed frequency setpoint 3
P1121[0]	Ramp-down time	P2201[0]	Skip frequency setpoint 1
P1058[0]	JOG frequency	P2202[0]	Skip frequency setpoint 2
P1060[0]	JOG ramp-up time	P2203[0]	Skip frequency setpoint 3