

## SINAMICS G120 standard inverters

0.37 kW to 250 kW (0.5 hp to 400 hp)

### SINAMICS G120 standard inverters

#### Design (continued)

Description	Fieldbus	Profile	Inputs Outputs	Integrated safety technology	Fail-safe digital inputs digital outputs	Control Unit  Article No.
<b>CU230P-2 series - the specialist for pumps, fans, compressors, water, buildings</b>						
Technology functions (selection): Free function blocks (FFB), 4 × PID controller, cascade connection, hibernation mode, essential service mode, multi-zone control						
<b>CU230P-2 HVAC</b>	<ul style="list-style-type: none"> <li>USS</li> <li>Modbus RTU</li> <li>BACnet MS/TP</li> <li>FLN P1</li> </ul>	–	6 DI 4 AI  3 DO 2 AO	–	–	<b>6SL3243-0BB30-1HA3</b>
<b>CU230P-2 DP</b>	<ul style="list-style-type: none"> <li>PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> </ul>				<b>6SL3243-0BB30-1PA3</b>
<b>CU230P-2 PN</b>	<ul style="list-style-type: none"> <li>PROFINET</li> <li>EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> <li>PROFIdrive</li> <li>PROFIdrive</li> </ul>				<b>6SL3243-0BB30-1FA0</b>
<b>CU240E-2 series – for standard applications in general machinery construction, such as conveyor belts, mixers and extruders – without encoder</b>						
Technology functions (selection): Free function blocks (FFB), 1 × PID controller, motor holding brake						
<b>CU240E-2</b>	<ul style="list-style-type: none"> <li>USS</li> <li>Modbus RTU</li> </ul>	–	6 DI 2 AI  3 DO 2 AO	STO	1 F-DI (opt. for each 2 DI)	<b>6SL3244-0BB12-1BA1</b>
<b>CU240E-2 DP</b>	<ul style="list-style-type: none"> <li>PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> <li>PROFIsafe</li> </ul>				<b>6SL3244-0BB12-1PA1</b>
<b>CU240E-2 PN</b>	<ul style="list-style-type: none"> <li>PROFINET</li> <li>EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> <li>PROFIsafe</li> <li>PROFIdrive</li> </ul>				<b>6SL3244-0BB12-1FA0</b>
<b>CU240E-2 F</b>	<ul style="list-style-type: none"> <li>USS</li> <li>Modbus RTU</li> </ul>	–		STO, SS1, SLS, SDI	3 F-DI (opt. for each 2 DI)	<b>6SL3244-0BB13-1BA1</b>
<b>CU240E-2 DP-F</b>	<ul style="list-style-type: none"> <li>PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> <li>PROFIsafe</li> </ul>		STO, SS1, SLS, SSM <sup>1)</sup> , SDI		<b>6SL3244-0BB13-1PA1</b>
<b>CU240E-2 PN-F</b>	<ul style="list-style-type: none"> <li>PROFINET</li> <li>EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> <li>PROFIsafe</li> <li>PROFIdrive</li> </ul>				<b>6SL3244-0BB13-1FA0</b>
<b>CU250S-2 series – for complex applications such as extruders and centrifuges – with and without encoder (basic positioner (EPos) optional)</b>						
Technology functions (selection): Free function blocks (FFB), 1 × PID controller, motor holding brake						
<b>CU250S-2</b>	<ul style="list-style-type: none"> <li>USS</li> <li>Modbus RTU</li> </ul>	–	11 DI 2 AI  3 DO 2 AO	STO, SBC, SS1	3 F-DI (opt. for each 2 DI)	<b>6SL3246-0BA22-1BA0</b>
<b>CU250S-2 DP</b>	<ul style="list-style-type: none"> <li>PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> <li>PROFIsafe</li> </ul>	4 DI/DO (DI can be used as high-speed inputs)		1 F-DO (opt. for each 2 DO)	<b>6SL3246-0BA22-1PA0</b>
<b>CU250S-2 PN</b>	<ul style="list-style-type: none"> <li>PROFINET</li> <li>EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	<ul style="list-style-type: none"> <li>PROFIdrive</li> <li>PROFIsafe</li> <li>PROFIdrive</li> </ul>				<b>6SL3246-0BA22-1FA0</b>
<b>CU250S-2 CAN</b>	<ul style="list-style-type: none"> <li>CANopen</li> </ul>	–				<b>6SL3246-0BA22-1CA0</b>

<sup>1)</sup> SSM is possible only with PROFIsafe.

## SINAMICS G120 standard inverters

0.37 kW to 250 kW (0.5 hp to 400 hp)

### Control Units

#### Selection and ordering data

Description	Fieldbus	Profile	Inputs Outputs	Integrated safety technology	Fail-safe digital inputs digital outputs	Control Unit  Article No.
<b>CU230P-2 series - the specialist for pumps, fans, compressors, water, buildings</b>						
Technology functions (selection): Free function blocks (FFB), 4 × PID controller, cascade connection, hibernation mode, essential service mode, multi-zone control						
<b>CU230P-2 HVAC</b>	<ul style="list-style-type: none"> <li>• USS</li> <li>• Modbus RTU</li> <li>• BACnet MS/TP</li> <li>• FLN P1</li> </ul>	–	6 DI 4 AI  3 DO 2 AO	–	–	<b>6SL3243-0BB30-1HA3</b>
<b>CU230P-2 DP</b>	<ul style="list-style-type: none"> <li>• PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> </ul>				<b>6SL3243-0BB30-1PA3</b>
<b>CU230P-2 PN</b>	<ul style="list-style-type: none"> <li>• PROFINET</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> <li>• PROFInergy</li> </ul>				<b>6SL3243-0BB30-1FA0</b>
	<ul style="list-style-type: none"> <li>• EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	–				
<b>CU240E-2 series – for standard applications in general machinery construction, such as conveyor belts, mixers and extruders – without encoder</b>						
Technology functions (selection): Free function blocks (FFB), 1 × PID controller, motor holding brake						
<b>CU240E-2</b>	<ul style="list-style-type: none"> <li>• USS</li> <li>• Modbus RTU</li> </ul>	–	6 DI 2 AI  3 DO 2 AO	STO	1 F-DI (opt. for each 2 DI)	<b>6SL3244-0BB12-1BA1</b>
<b>CU240E-2 DP</b>	<ul style="list-style-type: none"> <li>• PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> <li>• PROFIsafe</li> </ul>				<b>6SL3244-0BB12-1PA1</b>
<b>CU240E-2 PN</b>	<ul style="list-style-type: none"> <li>• PROFINET</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> <li>• PROFIsafe</li> <li>• PROFInergy</li> </ul>				<b>6SL3244-0BB12-1FA0</b>
	<ul style="list-style-type: none"> <li>• EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	–				
<b>CU240E-2 F</b>	<ul style="list-style-type: none"> <li>• USS</li> <li>• Modbus RTU</li> </ul>	–		STO, SS1, SLS, SDI	3 F-DI (opt. for each 2 DI)	<b>6SL3244-0BB13-1BA1</b>
<b>CU240E-2 DP-F</b>	<ul style="list-style-type: none"> <li>• PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> <li>• PROFIsafe</li> </ul>		STO, SS1, SLS, SSM <sup>1)</sup> , SDI		<b>6SL3244-0BB13-1PA1</b>
<b>CU240E-2 PN-F</b>	<ul style="list-style-type: none"> <li>• PROFINET</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> <li>• PROFIsafe</li> <li>• PROFInergy</li> </ul>				<b>6SL3244-0BB13-1FA0</b>
	<ul style="list-style-type: none"> <li>• EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	–				
<b>CU250S-2 series – for complex applications such as extruders and centrifuges – with and without encoder (basic positioner (EPos) optional)</b>						
Technology functions (selection): Free function blocks (FFB), 1 × PID controller, motor holding brake						
<b>CU250S-2</b>	<ul style="list-style-type: none"> <li>• USS</li> <li>• Modbus RTU</li> </ul>	–	11 DI 2 AI  3 DO 2 AO	STO, SBC, SS1	3 F-DI (opt. for each 2 DI)	<b>6SL3246-0BA22-1BA0</b>
<b>CU250S-2 DP</b>	<ul style="list-style-type: none"> <li>• PROFIBUS DP</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> <li>• PROFIsafe</li> </ul>	4 DI/DO (DI can be used as high-speed inputs)		1 F-DO (opt. for each 2 DO)	<b>6SL3246-0BA22-1PA0</b>
<b>CU250S-2 PN</b>	<ul style="list-style-type: none"> <li>• PROFINET</li> </ul>	<ul style="list-style-type: none"> <li>• PROFIdrive</li> <li>• PROFIsafe</li> <li>• PROFInergy</li> </ul>				<b>6SL3246-0BA22-1FA0</b>
	<ul style="list-style-type: none"> <li>• EtherNet/IP</li> <li>- ODVA AC drive</li> <li>- SINAMICS profile</li> </ul>	–				
<b>CU250S-2 CAN</b>	<ul style="list-style-type: none"> <li>• CANopen</li> </ul>	–				<b>6SL3246-0BA22-1CA0</b>

<sup>1)</sup> SSM is possible only with PROFIsafe.

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## Control Units

### Technical specifications (continued)

Control Unit	CU230P-2 series	CU240E-2 series	CU250S-2 series
	6SL3243-0BB30-1 . A3 6SL3243-0BB30-1FA0	6SL3244-0BB1 . -1 . A1 6SL3244-0BB1 . -1FA0	6SL3246-0BA22-1 . A0
<b>Integrated bus interface</b>			
<b>USS, Modbus RTU</b> RS485 connected at a terminal, isolated, bus terminating resistor can be switched in, slave address can be set using DIP switches  USS: max. 187.5 kBaud Modbus RTU: 19.2 kBaud	CU230P-2 HVAC 6SL3243-0BB30-1HA3	CU240E-2 6SL3244-0BB12-1BA1 CU240E-2 F 6SL3244-0BB13-1BA1	CU250S-2 6SL3246-0BA22-1BA0
<b>BACnet MS/TP, FLN P1</b> RS485 connected to a terminal, isolated, bus terminating resistor can be switched in Max. 187.5 kBaud	CU230P-2 HVAC 6SL3243-0BB30-1HA3	–	–
<b>PROFIBUS DP</b> - PROFIdrive profile  9-pin SUB-D socket, isolated, PROFIdrive profile V4.1, slave address can be set using DIP switches Max. 12 Mbit/s	CU230P-2 DP 6SL3243-0BB30-1PA3	CU240E-2 DP 6SL3244-0BB12-1PA1 incl. PROFIsafe CU240E-2 DP-F 6SL3244-0BB13-1PA1 incl. PROFIsafe	CU250S-2 DP 6SL3246-0BA22-1PA0 incl. PROFIsafe
<b>PROFINET</b> - PROFIdrive profile - PROFInergy profile  2 × RJ45, PROFIdrive profile V4.1, device name can be stored on the device Max. 100 Mbit/s (full duplex)	CU230P-2 PN 6SL3243-0BB30-1FA0	CU240E-2 PN 6SL3244-0BB12-1FA0 incl. PROFIsafe CU240E-2 PN-F 6SL3244-0BB13-1FA0 incl. PROFIsafe	CU250S-2 PN 6SL3246-0BA22-1FA0 incl. PROFIsafe
<b>EtherNet/IP</b> - ODVA AC drive - SINAMICS profile	CU230P-2 PN 6SL3243-0BB30-1FA0	CU240E-2 PN 6SL3244-0BB12-1FA0 CU240E-2 PN-F 6SL3244-0BB13-1FA0	CU250S-2 PN 6SL3246-0BA22-1FA0
<b>CANopen</b> 9-pin SUB-D connector, isolated, slave address can be set using DIP switches, bus terminating resistor can be switched in Max. 1 Mbit/s	–	–	CU250S-2 CAN 6SL3246-0BA22-1CA0
<b>Tool interfaces</b>			
<b>Memory card</b>	SINAMICS SD card		
<b>Operator panels</b>	<ul style="list-style-type: none"> <li>• IOP-2 supported connection options between Control Unit and IOP-2: Can be directly plugged on, door mounting or handheld</li> <li>• BOP-2 Supported connection options between Control Unit and BOP-2: can be directly plugged on or door-mounted</li> </ul>		
<b>PC interface</b>	USB (connection via PC inverter connection kit 2)		
<b>Open-loop/closed-loop control techniques</b>			
<b>V/f linear/square/parameterizable</b>	✓		
<b>V/f with flux current control (FCC)</b>	✓		
<b>V/f ECO; linear/square-law</b>	✓		
<b>Vector control, sensorless</b>	✓		
<b>Vector control, with sensor</b>	–	–	✓
<b>Torque control, sensorless</b>	–	✓	✓
<b>Torque control, with sensor</b>	–	–	✓
<b>Software functions</b>			
<b>Application macro</b>	✓		
<b>Setpoint input, can be parameterized</b>	✓		
<b>Fixed frequencies</b>	16, parameterizable		
<b>JOG</b>	✓		
<b>Digital motorized potentiometer (MOP)</b>	✓		
<b>Ramp smoothing</b>	✓		
<b>Extended ramp-function generator (with ramp smoothing OFF3)</b>	✓		
<b>Slip compensation</b>	✓		