



# sinamics

SINAMICS G110  
Inverters  
0.12 kW to 3 kW



**SIEMENS**

# SINAMICS G110

## Description



SINAMICS G110, frame sizes A, B, C



SINAMICS G110, frame size A with flat plate heatsink

### Overview

SINAMICS® G110 is a frequency inverter with basic functions for a variety of industrial variable-speed drive applications. The particularly compact SINAMICS G110 inverter operates with voltage frequency control on single-phase supplies (200 V to 240 V).

It is the ideal low-cost frequency inverter solution for the lower power range of the SINAMICS family.

### Benefits

- Easy to install, parameterize and commission
- rugged EMC design
- comprehensive range of parameters enabling configuration for a wide range of applications
- simple cable connection
- scaleable functionality due to analog and USS variants
- high pulse frequencies for low-noise motor operation
- status information and alarm messages with the optional Basic Operator Panel (BOP)
- time saving parameter cloning with the optional Basic Operator Panel (BOP)
- external options for PC communications and Basic Operator Panel (BOP)
- careful handling of the machine mechanical system due to a skip frequency band in case of resonance, parameterizable ramp up/ramp down times up to 650 s, ramp smoothing, as well as bringing the inverter into circuit on turning motor (flying start)
- increasing the installation availability by automatic restart facility following power failure or fault
- fast current limit (FCL) for trip-free operation in case of sudden load changes

- fast, repeatable digital input response time for fast reaction applications
- fine speed adjustment using a high resolution 10-bit analog input (analog variants only)
- LED for status information
- versions with internal EMC filters Class A or B
- DIP switch for easy setting of 50 Hz or 60 Hz applications
- DIP switch for easy bus termination on the RS485 (USS) variant
- RS485 serial interface (USS variants only) facilitates connection to a networked drive system.

### Area of application

SINAMICS G110 is especially suited for use with pumps and fans, or as a drive in various industrial sectors, such as the food, textile and packaging industries, as well as for conveyor systems, factory gate and garage door drives, and as a universal drive for moving billboards.

### Design

- Compact design
- latest IGBT technology
- digital microprocessor control
- heat dissipation through self ventilation (convection) on FS A; forced air cooling (fan) on FS B and FS C
- mains and motor connections are separated for optimum electromagnetic compatibility and clear connection
- screwless control terminals
- variant with a flat plate heatsink for use in lower depth cabinets (FS A only).

FS = frame size

# SINAMICS G110

## Technical Data

Input voltage and power ranges	200 V to 240 V 1 AC ±10 %	0.12 kW to 3.0 kW		
Input frequency	47 Hz to 63 Hz			
Output frequency	0 Hz to 650 Hz			
cos phi	≥ 0.95			
Inverter efficiency	Inverters < 0.75 kW Inverters ≥ 0.75 kW	90 % to 94 % ≥ 95 %		
Overload capability	Overload current 1.5 x rated output current (i.e. 150 % overload capability) for 60 s, then 0.85 x rated output current for 240 s, cycle time 300 s			
Inrush current	less than rated input current			
Control method	linear V/f (with programmable voltage boost); quadratic V/f; multipoint characteristic (programmable V/f)			
Pulse frequency	8 kHz (standard)	2 kHz to 16 kHz (in 2 kHz steps)		
Fixed frequencies	3, programmable			
Skip frequency band	1, programmable			
Setpoint resolution	0.01 Hz digital 0.01 Hz serial 10 bit analog (motor potentiometer 0.1 Hz)			
Digital inputs	3 programmable digital inputs, non isolated; PNP type, SIMATIC compatible			
Analog input (analog variant)	1, for setpoint (0 V to 10 V, scaleable or for use as 4th digital input)			
Digital output	1 isolated optocoupler output (24 V DC, 50 mA, resistive, NPN type)			
Serial interface (USS variant)	RS485, for operation with USS protocol			
Motor cable length	max. 25 m (shielded)	max. 50 m (unshielded)		
Electromagnetic compatibility	all devices with internal EMC filter for power drive systems in category 2 installations (restricted availability), limit complies with EN 55 011, Class A, Group 1	furthermore all filtered devices with shielded cables with a max. length of 5 m comply with the limits of EN 55 011, Class B		
Braking	DC braking			
Protection level	IP 20			
Temperature range	−10 °C to +40 °C		up to +50 °C with derating	
Storage temperature	−40 °C to +70 °C			
Humidity	95 % (non-condensing)			
Operational altitudes	up to 1000 m above sea level without derating	<ul style="list-style-type: none"><li>Rated output current at 4000 m above sea level: 90 %</li><li>Mains voltage up to 2000 m above sea level: 100 % at 4000 m above sea level: 75 %</li></ul>		
Protection features for	under-voltage, over-voltage, earth faults, short circuits, stall prevention, I²t motor thermal protection, inverter over-temperature, motor over-temperature			
Conformity with standards	UL, cUL, <b>CE</b> , c-tick			
<b>CE</b> marking	conformity with EC low voltage directive 73/23/EC			
Dimensions and weights (without options)	Frame size (FS)	H x W x D mm	Weight, approx. (kg) unfiltered    filtered	
	A ≤ 0.37 kW	150 x 90 x 116	0.7	0.8
	A 0.55 kW and 0.75 kW	150 x 90 x 131	0.8	0.9
	A ≤ 0.37 kW with flat plate heatsink	150 x 90 x 101	0.6	0.7
	A 0.55 kW and 0.75 kW with flat plate heatsink	150 x 90 x 101	0.7	0.8
	B 1.1 kW and 1.5 kW	160 x 140 x 142	1.4	1.5
	C 2.2 kW	181 x 184 x 152	1.9	2.1
	C 3.0 kW	181 x 184 x 152	2.0	2.2

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## Selection and Ordering Data

Rated output		Rated input current <sup>1)</sup> A	Rated output current A	Frame size	Version	Order No.	
kW	hp					SINAMICS G110 without filter	with internal filter
0.12	0.16	2.3	0.9	FS A	Analog USS Analog (with flat plate) USS (with flat plate)	6SL3211-0AB11-2UA0	6SL3211-0AB11-2BA0
						6SL3211-0AB11-2UB0	6SL3211-0AB11-2BB0
						6SL3211-0KB11-2UA0	6SL3211-0KB11-2BA0
						6SL3211-0KB11-2UB0	6SL3211-0KB11-2BB0
0.25	0.33	4.5	1.7	FS A	Analog USS Analog (with flat plate) USS (with flat plate)	6SL3211-0AB12-5UA0	6SL3211-0AB12-5BA0
						6SL3211-0AB12-5UB0	6SL3211-0AB12-5BB0
						6SL3211-0KB12-5UA0	6SL3211-0KB12-5BA0
						6SL3211-0KB12-5UB0	6SL3211-0KB12-5BB0
0.37	0.5	6.2	2.3	FS A	Analog USS Analog (with flat plate) USS (with flat plate)	6SL3211-0AB13-7UA0	6SL3211-0AB13-7BA0
						6SL3211-0AB13-7UB0	6SL3211-0AB13-7BB0
						6SL3211-0KB13-7UA0	6SL3211-0KB13-7BA0
						6SL3211-0KB13-7UB0	6SL3211-0KB13-7BB0
0.55	0.75	7.7	3.2	FS A	Analog USS Analog (with flat plate) USS (with flat plate)	6SL3211-0AB15-5UA0	6SL3211-0AB15-5BA0
						6SL3211-0AB15-5UB0	6SL3211-0AB15-5BB0
						6SL3211-0KB15-5UA0	6SL3211-0KB15-5BA0
						6SL3211-0KB15-5UB0	6SL3211-0KB15-5BB0
0.75	1.0	10.0	3.9 (at 40 °C)	FS A	Analog USS Analog (with flat plate) USS (with flat plate)	6SL3211-0AB17-5UA0	6SL3211-0AB17-5BA0
						6SL3211-0AB17-5UB0	6SL3211-0AB17-5BB0
						6SL3211-0KB17-5UA0	6SL3211-0KB17-5BA0
						6SL3211-0KB17-5UB0	6SL3211-0KB17-5BB0
1.1	1.5	14.7	6.0	FS B	Analog USS	6SL3211-0AB21-1UA0	6SL3211-0AB21-1AA0
						6SL3211-0AB21-1UB0	6SL3211-0AB21-1AB0
1.5	2.0	19.7	7.8 (at 40 °C)	FS B	Analog USS	6SL3211-0AB21-5UA0	6SL3211-0AB21-5AA0
						6SL3211-0AB21-5UB0	6SL3211-0AB21-5AB0
2.2	3.0	27.2	11.0	FS C	Analog USS	6SL3211-0AB22-2UA0	6SL3211-0AB22-2AA0
						6SL3211-0AB22-2UB0	6SL3211-0AB22-2AB0
3.0	4.0	35.6	13.6 (at 40 °C)	FS C	Analog USS	6SL3211-0AB23-0UA0	6SL3211-0AB23-0AA0
						6SL3211-0AB23-0UB0	6SL3211-0AB23-0AB0

The current data applies for an ambient temperature of 50 °C unless otherwise specified.

All SINAMICS G110 inverters are supplied without a Basic Operator Panel (BOP). Any Basic Operator Panel or other options have to be ordered separately.

## Options

Options	Order No.
Basic Operator Panel (BOP)	6SL3255-0AA00-4BA0
Connection kit for PC to inverter	6SL3255-0AA00-2AA0
Adapter for mounting on DIN rail, Size 1 (FS A)	6SL3261-1BA00-0AA0
Commissioning tool STARTER on CD-ROM, including: operating instructions, parameter list, getting started guide <sup>2)</sup>	6SL3271-0CA00-0AG0

1) The value applies to the rated mains voltage of 230 V.

2) Documentation is also available on the Internet at <http://www.siemens.com/sinamics-g110>

# SINAMICS G110

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The deciding factors are the AL or ECCN export authorization indicated on order confirmations, delivery notes and invoices.

Subject to change and errors excepted without prior notice.

# SINAMICS G110

- Frequency inverter 0.12 kW to 3 kW
- For single-phase supplies 200 V to 240 V
- World-wide use due to easy setting of 50 Hz/60 Hz (DIP switch)
- Ready for connection, thus fast installation
- Clearly arranged power terminals as with contactors
- Compact – particularly for inverters with flat plate
- Analog and USS variants
- Time saving parameter cloning with optional Basic Operator Panel
- Low cost



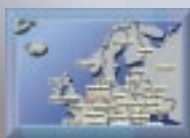
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