

SIEMENS



SINAMICS Drives

SINAMICS G120E

Configured enclosed drive for industry
Technical Data Sheet July, 2015

Overview of SINAMICS G120E

SINAMICS G120E is a configurable enclosed drive for a broad range of stand-alone applications ranging from simple pumps and fans to sophisticated machines requiring closed loop speed and position control with extended integrated safety functionality. This rugged drive is based on SINAMICS G120 modular components that allow it to be configured to best meet the demands of the application, the environment and the power supply system.

The key to its versatility is the ability to combine different power circuit configurations with a control unit offering the required control functionality and bus communications interface. A comprehensive range of predesigned standard options completes the package. Additionally, please consult the factory for any custom options that may be needed.

Depending on power ratings, the drive enclosure is either a wall mount box or free standing enclosure. The most common standard options can be accommodated in the base enclosure. A few options including output filters and reduced voltage soft start (RVSS) bypass require an add-on or separate options enclosure.

Attention to detail is evident in the design of the drive. For example, the enclosure ventilation fans are controlled via a relay to run only when needed, i.e. when the drive is running. This not only saves energy costs, but also reduces noise levels in the electrical room.

Accessories for SINAMICS G120E

The utilization of certain features of SINAMICS G120E may require the purchase of loose accessories. These accessories include braking resistors for dynamic braking, an optional SD card to store or download parameter sets, or licenses for firmware functions. (Refer to page 8).

UL listing

SINAMICS G120E is an enclosed drive listed to UL508C (Power Conversion Equipment) per UL file # E319311. Listing per UL508C means that the drive is a predesigned standard product that has been evaluated and tested by UL.

In contrast to a UL508A industrial control panel listing, listing per UL508C implies that the SINAMICS G120E drive is listed as a factory built assembly that may not be modified by third parties (not even by a UL508A listed panel shop). However, third parties may add options in an external enclosure which may be listed per UL508A. If any additional components or wiring not included within the scope of available standard options are to be included inside the base drive enclosure, please contact the factory to provide a quotation.

Note that options provided in an add-on or separate options cabinet may be listed to UL508A.

Operator interface

The door mounted Intelligent Operator Panel IOP is a user-friendly and powerful operator panel. For many standard applications such as pumps and compressors (both variable and constant torque (positive displacement)) as well as fans and conveyors, application wizards interactively guide you when commissioning without reference to parameter number.

Commissioning of drives is also easy due to the plain text display. User defined parameter lists allow the number of parameters displayed to be reduced. Help texts for parameters, faults and alarms can be obtained by pressing the INFO button.

Local manual control is done via buttons and the navigation wheel, and there is dedicated local/remote button.



Process values can be displayed numerically in technological units. Up to 2 process values can be displayed graphically as bar graphs. The IOP also allows graphical trending of values.

Motor and drive sizing

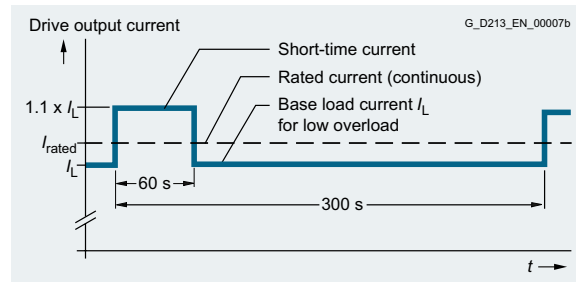
Service Factor must be considered for motors operating at Service Factors beyond 1.0. Please consult factory for assistance sizing the drive.

For motors with ratings larger than the drive, please consult factory as nuisance tripping may occur if drive is not properly sized. In sensorless vector control, the rated motor current (FLA) must be at least 1/4 of the rated drive output current. With lower motor currents, operation is possible in Volts/Hz control mode only.

Overload ratings

The SINAMICS G120E drive may be operated with both variable torque and constant torque loads at either light or high overload duties. The criterion for overload is that the drive is operated with its base load current before and after the overload occurs. Light overload duty is based on 110% base load current for 60 sec or 150% for 3 sec, repeated every 300 sec.

High overload duty is based on 150% base load current for 60 sec or 200% (<125 HP) or 175% (125 & 150 HP) for 3 sec, repeated every 300 sec.



Power circuit configurations

SINAMICS G1 20E can be provided with two power circuit configurations:

Power circuit variant	Standard 6-pulse	Clean Power 18-pulse
Application	Typical industrial	When harmonics are a concern
Harmonic performance (depends on supply impedance)	THID approx. 25 – 50% (With 5% line reactor option THID approx. 20 – 30%)	THID < 5% at VFD input terminals, always meets IEEE 519-1992
Power supply system/emergency power	Strong and weak supply systems, emergency power generators may require oversizing due to harmonics	Strong and weak supply systems. Very generator friendly due to low harmonics, able to operate also on small generators
Braking	Integrated braking chopper for dynamic braking (requires external braking resistor)	Integrated braking chopper for dynamic braking (requires external braking resistor)
Summary	Basic, compact and low cost configuration	Clean power eliminates harmonic disturbances affecting other users, reduces losses in and maximizes utilization of power distribution system including transformers

Control units

Each of the power circuit variants above can be combined with one of three control unit types listed below, to best match the required functionality and I/O count. All control units also feature:

- Free Function Blocks and BICO (Binector-Connector) technology for configuring on-board logic
- Integrated USB interface for local commissioning and diagnostics
- Optional memory card (SD) for parameter backup and copying. Software licenses (e.g. for CU250S-2 extended functions EPos (Easy Positioning) or extended safety) can also be purchased on an SD card.

Control Unit type	CU230P-2	CU240E-2	CU250S-2
Application	Pump, fan and compressor drives	General purpose	Enhanced performance
Control modes	V/Hz, sensorless vector	V/Hz, sensorless vector	V/Hz, sensorless vector, closed loop vector with speed encoder, positioning (EPos) with position encoder (requires license)
Functionality	<ul style="list-style-type: none"> • 4x integrated PID controllers • Pump staging • Hibernation • Essential service mode for fire pump or smoke extraction fan duty 	<ul style="list-style-type: none"> • 1x integrated PID controller • Motor holding brake 	<ul style="list-style-type: none"> • 1x integrated PID controller • Motor holding brake
Inputs	6 digital (24 V), 4 analog (2x V or mA, 1 x mA or temp sensor, 1x temp sensor)	6 digital (24 V) 2 analog Up to 1 Fail Safe FS-DI (uses 2 DI) Safety (F) version up to 3 FS-DI	11 digital (24 V) 2 analog 4 selectable DI/DO Up to 3 Fail Safe DI (each uses 2 DI)
Outputs	3 digital (2x relay, 240 V AC, 1x 24V DC) 2 analog	3 digital (24 V) 2 analog	3 digital (24 V) 2 analog
Integrated Safety (encoderless)	N/A	Basic function STO Safety version CU240E-2 F/DP-F/ PN-F also SS1, SLS, SDI, SSM	Basic Functions STO, SS1, SBC Extended safety functions (requires license) SLS, SDI, SSM

Communication bus interface

Each control unit is available with three different types of bus interface, with a range of communication protocols.

Bus interface type	Serial RS485	PROFIBUS DP	Industrial Ethernet
Communication protocol (selectable by parameter)	<ul style="list-style-type: none"> • USS • Modbus RTU For CU230P-2 HVAC additionally: <ul style="list-style-type: none"> • BACnet MS/TP • Siemens FLN P1 	<ul style="list-style-type: none"> • PROFIBUS DP (with PROFI-safe profile for bus communications with Integrated Safety) 	<ul style="list-style-type: none"> • PROFINET With (PROFI-safe and PROFIenergy profiles) • EtherNet/IP

Product Specification

Note: Drive HP ratings are provided as a guide only, for standard 2, 4 or 6 pole motors. Actual motor currents may be higher, especially for motors with 8 or more poles. Select a drive based on motor FLA (full load amps) and overloads.

Light overload		High overload		Rated output current ¹⁾	Approx. max. input current ²⁾	Power module frame size	Enclosure mount type	SINAMICS G120E enclosed drive Model No.
Output (at 460V, 60 Hz) HP	Base load current ¹⁾ for 110% overload A	Output (at 460V, 60 Hz) HP	Base load current ¹⁾ for 150% overload A					
Standard 6-pulse drive								
1	2.2	1	2.2	2.2	4.3	A	Wall	6SL3710-1BJ12-2AU0
1.5	3.1	1.5	3.1	3.1	5.2	A	Wall	6SL3710-1BJ13-1AU0
2	4.1	2	4.1	4.1	6.3	A	Wall	6SL3710-1BJ14-1AU0
3	5.9	3	5.9	5.9	8.1	B	Wall	6SL3710-1BJ16-0AU0
4	7.7	4	7.7	7.7	10.0	B	Wall	6SL3710-1BJ17-7AU0
5	10.2	5	10.2	10.2	12.4	B	Wall	6SL3710-1BJ21-0AU0
10	16	7.5	13.2	16	18.6	C	Wall	6SL3710-1BJ21-8AU0
15	22	10	19	22	25	C	Wall	6SL3710-1BJ22-5AU0
20	27	15	26	27	30	C	Wall	6SL3710-1BJ23-2AU0
25	34	20	32	34	38	D	Wall	6SL3710-1BJ23-8AU0
30	41	25	38	41	45	D	Wall	6SL3710-1BJ24-5AU0
40	54	30	45	54	59	D	Wall	6SL3710-1BJ26-0AU0
50	68	40	60	68	73	E	Wall	6SL3710-1BJ27-5AU0
60	80	50	75	80	86	E	Wall	6SL3710-1BJ29-0AU0
75	100	60	90	100	108	F	Floor	6SL3710-1BJ31-1AU0
100	130	75	110	130	138	F	Floor	6SL3710-1BJ31-5AU0
125	160	100	145	160	170	F	Floor	6SL3710-1BJ31-8AU0
150	186	125	178	186	194	F+	Floor	6SL3710-1BJ32-0AU0
200	240	150	205	240	249	F+	Floor	6SL3710-1BJ32-5AU0
Clean power 18-pulse drive								
50	68	40	60	68	68	E	Floor	6SL3710-3BJ27-5AU0
60	80	50	75	80	80	E	Floor	6SL3710-3BJ29-0AU0
75	100	60	90	100	91	F	Floor	6SL3710-3BJ31-1AU0
100	130	75	110	130	118	F	Floor	6SL3710-3BJ31-5AU0
125	160	100	145	160	143	F	Floor	6SL3710-3BJ31-8AU0
150	186	125	178	186	170	F+	Floor	6SL3710-3BJ32-0AU0
200	240	150	205	240	217	F+	Floor	6SL3710-3BJ32-5AU0

¹⁾ The output current is derated to allow for the temperature rise inside the enclosure at an (external) ambient temperature of 104°F (40°C).

²⁾ The input current is based on the input current of the power module and includes:

- For Standard 6-pulse drives an allowance of 2.0 A (≤ 60 HP) or 2.5 A (> 60 HP) for auxiliary circuits.
- For Clean Power 18-pulse drives an allowance of 10.0 A for auxiliary circuits.

The SINAMICS G120E enclosed drive includes as standard:

- NEMA 1 enclosure
- UL508C listing (file no. E319311)
- SCCR (short circuit current rating) 65 kA
- Circuit breaker disconnect with flange mount operator handle, and mechanical door interlock
- Intelligent operator panel (IOP), door mounted & wired
- Enclosure fans with associated control
- Control power transformer for internal control power
- Cable entry top or bottom, line and motor side
- Power module with PWM IGBT inverter, and
Standard 6-pulse drive:
- Power module PM240 (non-regenerative), with integral braking chopper, 6-pulse diode rectifier and line reactor
- **Clean power 18-pulse drive:**
- Power module PM240 (non-regen.), with integral braking chopper, input fuses, 18-pulse diode rectifier, phase shifting autotransformer/line reactor assembly

Standard Options

Pre-designed standard options are available to tailor the SINAMICS G120 enclosed drive to customer specifications, maintaining short ex factory delivery times.

The SINAMICS G120E drive is always supplied with a control unit, chosen from the list below (mandatory option). Please refer to catalog D31 or the operating manuals for more detailed information and technical data of the various SINAMICS G120 control units.

NOTE: Some of the control unit inputs and/or outputs may be used for options.

Option code	Description	Functionality	Digital & Analog Inputs & Outputs	Bus communication interface
Control Unit: Mandatory Option		Always choose one Control Unit option		
G80	CU230P-2 HVAC	Pump & Fan	6DI/3DO/4AI/2AO	RS485: USS, Modbus RTU, BACnet MS/TP, P1
G81	CU230P-2 DP	Pump & Fan	6DI/3DO/4AI/2AO	PROFIBUS DP
G82	CU230P-2 PN	Pump & Fan	6DI/3DO/4AI/2AO	PROFINET, EtherNet/IP
G83	CU240E-2	General purpose	6DI/3DO/2AI/2AO, up to 1 FS-DI*	RS485: USS, Modbus RTU
G84	CU240E-2 DP	General purpose	6DI/3DO/2AI/2AO, up to 1 FS-DI*	PROFIBUS DP
G85	CU250S-2	Enhanced performance ¹⁾	11DI/3DO/2AI/2AO, 4DI/DO, up to 3 FS-DI*	RS485: USS, Modbus RTU
G86	CU250S-2 DP	Enhanced performance ¹⁾	11DI/3DO/2AI/2AO, 4DI/DO, up to 3 FS-DI*	PROFIBUS DP
G87	CU250S-2 PN	Enhanced performance ¹⁾	11DI/3DO/2AI/2AO, 4DI/DO, up to 3 FS-DI*	PROFINET, EtherNet/IP
G88	CU240E-2 PN	General purpose	6DI/3DO/2AI/2AO, up to 1 FS-DI*	PROFINET, EtherNet/IP
G93	CU240E-2 F	General purpose, extended safety	6DI/3DO/2AI/2AO, up to 3 FS-DI*	RS485: USS, Modbus RTU
G94	CU240E-2 DP-F	General purpose, extended safety	6DI/3DO/2AI/2AO, up to 3 FS-DI*	PROFIBUS DP
G98	CU240E-2 PN-F	General purpose, extended safety	6DI/3DO/2AI/2AO, up to 3 FS-DI*	PROFINET, EtherNet/IP

¹⁾ CU250S-2 accepts both speed and position encoders

* FS-DI = Fail-Safe Input; each FS-DI utilizes 2 standard DI

Option code	Description	Comment	Option applicable to	
			6-pulse	18-pulse
Enclosure Options ¹⁾				
M12	NEMA12 filters		✓	✓
L50	Cabinet light & outlet		✓	✓
L55	Cabinet space heaters (120VAC)		✓	✓
L56	Motor space heater supply		✓	✓
Y09	Special enclosure paint color [specify color]		✓	✓
Power Circuit & Protection Options				
L08	Output reactor		✓	✓
L10	Output dV/dt filter	In additional options enclosure	✓	✓
L13	Input isolation contactor. Coil wired to terminals.		✓	✓
L15	Output sinusoidal filter	In additional options enclosure	✓	✓
L24	5% input reactor		✓	—
L27	Input fuses		✓	— (std)
L28	2 contactor bypass (output/bypass contactors with overload relay)		✓	✓
L29	RVSS manual bypass (includes RVSS input & output contactor)	In additional options enclosure	✓*	✓
L32	Output isolation contactor. Coil wired to terminals.		✓	✓
L96	Input Surge Protective Device		✓	✓
L98	Motor thermal overload relay (already included in option L28)		✓	✓
L99	Motor protection relay (Multilin 369)		✓*	✓
P10	Input voltage monitor (Siemens type 3UG4)		✓	✓
Control Options				
E86	Isolation Amplifier for one Analog input		✓	✓
E87	Isolation Amplifier for two Analog outputs		✓	✓
K20	Pilot lights (qty. 3), door mounted – Ready, Run, Fault		✓	✓
K21	Additional local controls (L-R & H-O-A switches, speed potentiometer, Start/Stop pushbuttons)		✓	✓
K22	Elapsed time (hour) meter, door mounted, non-resettable		✓	✓
L87	Ground Fault Monitor for ungrounded supplies		✓*	✓
L97	RTD monitor for 8x Pt100 temperature sensors		✓	✓
N55	ALL STOP mushroom pushbutton, latching, coast to stop		✓	✓
Other Options				
H20	Seismic certification per IBC 2012 [provide specification]		✓	✓
N75	Expanded voltage range (380 V - 480 V supply system)		✓	✓
U91	cUL listing for Canada		✓	✓

Please consult factory for additional custom options.

✓ = option available

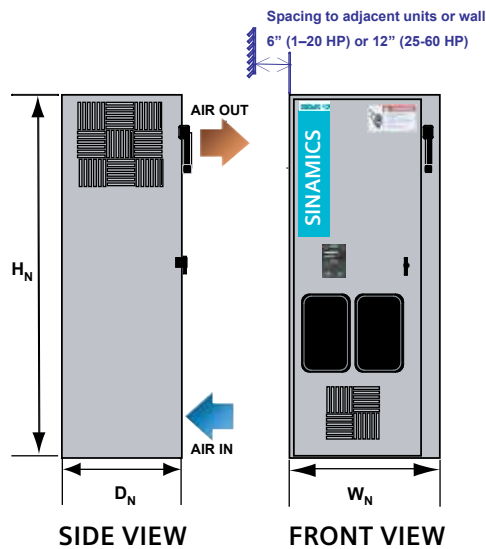
— = option not available

* = only for 75 to 200 HP (floor standing enclosure)

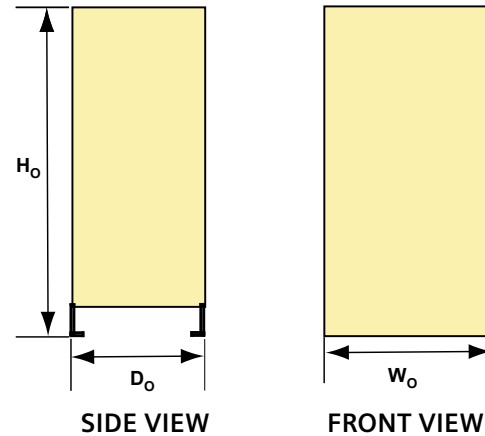
¹⁾ For wall mount drives, enclosure options listed above are available only for the VFD enclosure itself, not for the separate options enclosures.

Design Data

WALL MOUNT DRIVE ENCLOSURE



SEPARATE OPTIONS ENCLOSURE (FLOOR MOUNT)



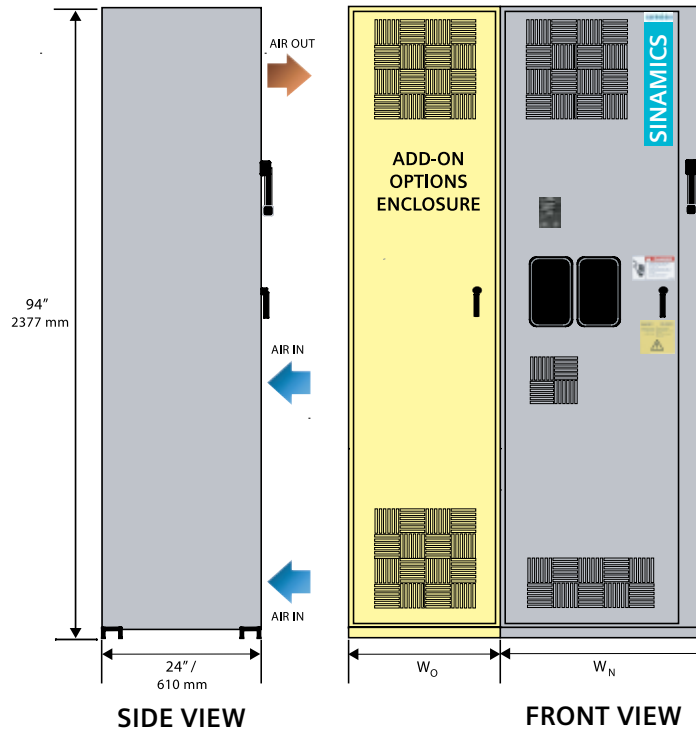
Notes:

- To assure proper air circulation, please allow minimum 6" (1–20 HP) respectively 12" (25–60 HP) space between adjacent wall mount drive enclosures or to a side wall.
- Dimensions are nominal for enclosure, tolerance 0.5" (12 mm), excluding protruding components. Please refer to drawings for exact details.
- The separate options enclosure is always NEMA 1 (also if the drive enclosure is ordered with option M12 NEMA 12 filters), color ANSI 61 grey, and is listed to UL508A.

SINAMICS G120E Enclosed drive	Output (Light Overload) (at 460V, 60 Hz)	Noise level L _{pA} (1m) at 60 Hz	Cooling air flow demand	Heat loss	Weight approx.		Drive enclosure Nominal Size W _N x D _N x H _N	
Model No.	HP	dB (A)	cfm	kW	lb.	kg	inch	mm
Wall mount enclosure								
6SL3710-1BJ12-2AU0	1	64	77	0.14	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ13-1AU0	1.5	64	77	0.15	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ14-1AU0	2	64	77	0.15	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ16-0AU0	3	64	115	0.18	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ17-7AU0	4	64	115	0.19	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ21-0AU0	5	64	115	0.24	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ21-8AU0	10	64	182	0.38	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ22-5AU0	15	64	182	0.44	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ23-2AU0	20	64	182	0.47	230	104	20 x 16 x 48	508 x 440 x 1219
6SL3710-1BJ23-8AU0	25	67	318	0.58	330	150	26 x 20 x 60	660 x 508 x 1524
6SL3710-1BJ24-5AU0	30	67	318	0.68	330	150	26 x 20 x 60	660 x 508 x 1524
6SL3710-1BJ26-0AU0	40	67	318	0.85	330	150	26 x 20 x 60	660 x 508 x 1524
6SL3710-1BJ27-5AU0	50	67	360	1.27	330	150	26 x 20 x 60	660 x 508 x 1524
6SL3710-1BJ29-0AU0	60	67	360	1.49	330	150	26 x 20 x 60	660 x 508 x 1524

SINAMICS G120E ADD-ON OPTIONS ENCLOSURE	Output (Light Overload) (at 460V, 60 Hz)	Option enclosure L10 output dV/dt filter	Option enclosure L15 output sinusoidal filter
Model No.	HP	W _O x D _O x H _O Inch / mm	Weight lb / kg
6SL3710-1BJ12-2AU0	1	13 x 13 x 13 / 330 x 330 x 330	18 / 8
6SL3710-1BJ13-1AU0	1.5	13 x 13 x 13 / 330 x 330 x 330	18 / 8
6SL3710-1BJ14-1AU0	2	13 x 13 x 13 / 330 x 330 x 330	18 / 8
6SL3710-1BJ16-0AU0	3	13 x 13 x 13 / 330 x 330 x 330	18 / 8
6SL3710-1BJ17-7AU0	4	13 x 13 x 13 / 330 x 330 x 330	18 / 8
6SL3710-1BJ21-0AU0	5	13 x 13 x 13 / 330 x 330 x 330	18 / 8
6SL3710-1BJ21-8AU0	10	13 x 13 x 13 / 330 x 330 x 330	19 / 9
6SL3710-1BJ22-5AU0	15	13 x 13 x 13 / 330 x 330 x 330	22 / 10
6SL3710-1BJ23-2AU0	20	13 x 13 x 13 / 330 x 330 x 330	22 / 10
6SL3710-1BJ23-8AU0	25	13 x 13 x 13 / 330 x 330 x 330	24 / 11
6SL3710-1BJ24-5AU0	30	13 x 13 x 13 / 330 x 330 x 330	24 / 11
6SL3710-1BJ26-0AU0	40	13 x 13 x 13 / 330 x 330 x 330	32 / 15
6SL3710-1BJ27-5AU0	50	13 x 13 x 13 / 330 x 330 x 330	40 / 18
6SL3710-1BJ29-0AU0	60	13 x 13 x 13 / 330 x 330 x 330	40 / 18

FLOOR MOUNT ENCLOSURE



Notes: Dimensions are nominal for enclosure, tolerance 0.5" (12 mm), excluding protruding components. Please refer to drawings for exact details.

SINAMICS G120E FLOOR STANDING ENCLOSURE	Output (Light Overload) (at 460V, 60 Hz)	Noise level L _{PA} (1m) at 60 Hz	Cooling air flow demand	Heat loss	Weight approx.		Drive enclosure Nominal Size W _N x D _N x H _N	
Model No.	HP	dB (A)	cfm	kW	lb.	kg	inch	mm
Standard 6-pulse Drives								
6SL3710-1BJ31-1AU0	75	69	504	1.90	720	327	30 x 24 x 94	762 x 610 x 2377
6SL3710-1BJ31-5AU0	100	69	504	2.40	720	327	30 x 24 x 94	762 x 610 x 2377
6SL3710-1BJ31-8AU0	125	69	504	2.80	720	327	30 x 24 x 94	762 x 610 x 2377
6SL3710-1BJ32-0AU0	150	69	504	2.83	760	345	30 x 24 x 94	762 x 610 x 2377
6SL3710-1BJ32-5AU0	200	69	504	2.93	760	345	30 x 24 x 94	762 x 610 x 2377
Clean Power 18-pulse Drives								
6SL3710-3BJ27-5AU0	50	70	591	1.55	930	422	30 x 24 x 94	762 x 610 x 2377
6SL3710-3BJ29-0AU0	60	70	591	1.95	930	422	30 x 24 x 94	762 x 610 x 2377
6SL3710-3BJ31-1AU0	75	70	866	2.47	1120	508	36 x 24 x 94	914 x 610 x 2377
6SL3710-3BJ31-5AU0	100	70	866	3.27	1160	526	36 x 24 x 94	914 x 610 x 2377
6SL3710-3BJ31-8AU0	125	70	866	3.91	1260	572	36 x 24 x 94	914 x 610 x 2377
6SL3710-3BJ32-0AU0	150	70	866	4.78	1460	662	36 x 24 x 94	914 x 610 x 2377
6SL3710-3BJ32-5AU0	200	70	866	5.41	1660	753	36 x 24 x 94	914 x 610 x 2377

SINAMICS G120E ADD-ON OPTIONS ENCLOSURE	Output (Light Overload) (at 460V, 60 Hz)	Option enclosure L10 output dV/dt filter		Option enclosure L15 output sinusoidal filter		Option enclosure L29 Soft start bypass	
		Width W ₀	Weight	Width W ₀	Weight	Width W ₀	Weight
Model No.	HP	Inch / mm	lb / kg	Inch / mm	lb / kg	Inch / mm	lb / kg
Floor standing enclosure							
6SL3710-3BJ27-5AU0	50	20 / 508	386 / 175	20 / 508	440 / 200	20 / 508	408 / 185
6SL3710-3BJ29-0AU0	60	20 / 508	386 / 175	20 / 508	440 / 200	20 / 508	408 / 185
6SL3710-xBJ31-1AU0	75	20 / 508	452 / 205	20 / 508	540 / 245	20 / 508	463 / 210
6SL3710-xBJ31-5AU0	100	20 / 508	452 / 205	20 / 508	540 / 245	20 / 508	463 / 210
6SL3710-xBJ31-8AU0	125	20 / 508	452 / 205	20 / 508	540 / 245	20 / 508	463 / 210
6SL3710-xBJ32-0AU0	150	20 / 508	452 / 205	24 / 610	660 / 300	20 / 508	463 / 210
6SL3710-xBJ32-5AU0	200	20 / 508	452 / 205	24 / 610	660 / 300	20 / 508	463 / 210

x = 1 for Standard 6-pulse drive
 x = 3 for Clean Power 18-pulse drive

Technical data

Electrical data			
Supply voltages and output ranges	460 V to 480 V (optionally 380 V to 480 V) 3 ph AC, ±10%, 1 to 200 HP		
Supply systems	Grounded or ungrounded supplies		
Line frequency	47 Hz to 63 Hz		
Output frequency	0 Hz to 266 Hz (up to 550 Hz with derating)		
Power factor fundamental approx.	0.95		
Drive efficiency	6-pulse: 93% to 97% Clean Power 18-pulse: 94% to 96%		
Short circuit current rating	SCCR 65kA		
Control method	V/Hz control, V/Hz with flux current control (FCC), Vector control, sensorless or closed loop with encoder		
Fixed speeds	16 fixed frequencies		
Skipped frequency ranges	4, programmable		
Braking operation	Integral brake chopper for dynamic braking, also DC and compound braking.		
Mechanical data			
Type of enclosure and color	NEMA 1, optionally NEMA12 (ventilated), ANSI 61 gray		
Type of cooling	Forced air ventilation		
Noise level L _{pA} (1 m)	64 to 70 dB(A) at 60 Hz line frequency		
Environmental protection	Nickel plated busbars, varnish coated electronic boards		
Compliance with standards and certifications			
UL listing	Listed to UL508C, file no. E319311. Some options in options enclosure may be listed UL508A.		
Seismic certification	Optional seismic certification per IBC 2012 State of California OSHPD special seismic pre-certification: Certificate # OSP-0346-10		
Ambient conditions	Operation	Storage	Transport
Ambient temperature	32°F to 104°F (0°C to +40°C) Up to +122°F/+50°C with derating	-13°F (-25°C) to 131°F (+55°C)	-13°F (-25°C) to 158°F (+70°C) Down to -40°F (-40 °C) for 24 hours
Relative humidity (non-condensing)	5% to 95%	5% to 95%	5% to 95% at 40°C
Installation altitude	Up to 3,300 ft (1000 m) above sea level without reduction in performance, > 3,300 ft see derating data		

Seismic certification

The complete SINAMICS G120E range can be provided with seismic certification in accordance with the International Building Code IBC 2012 and earlier versions (select option code H20). Certification levels are valid for installation in essential and critical infrastructure projects in all US States including California. The seismic certificate is available online at www.usa.siemens.com/drives

In addition, SINAMICS G120E has special seismic precertification from the State of California Office of Statewide Health Planning and Development (OSHPD). Certificate # OSP-0346-10.

Accessories

Order no.s for purchasing accessories as loose parts are provided below.

SD cards and Licenses		
6SL30544AG002AA0	SD card (empty)	
6SL30544AG002AA0-Z F01	SD card with Extended Safety license for SLS, SDI, SSM for CU250S-2	
6SL30544AG002AA0-Z E01	SD card with Extended Function license for EPos (Easy Positioning) for CU250S-2	
6SL30544AG002AA0-Z F01+E01	SD card with both Extended Safety and Function licenses for CU250S-2	
License Code		
6SL30544AG002AA0	Empty SD card PLUS	
6SL30740AA100AA0	Extended Safety license code with SLS, SDI, SSM for CU250S-2	
6SL30747AA040AA0	Extended Function license code with EPOS for CU250S-2	
Braking Resistors		For drive HP rating:
6SE64004BD110AA0	Braking resistor 0.1 kW (2 kW /12s), 390 ohm	1-2 HP
6SL32010BE120AA0	Braking resistor 0.2 kW (4 kW /12s), 160 ohm	3-5 HP
6SE64004BD165CA0	Braking resistor 0.65 kW (11 kW /12s), 56 ohm	10-20 HP
6SE64004BD212DA0	Braking resistor 1.2 kW (24 kW /12s), 27 ohm	25-40 HP
6SE64004BD222EA1	Braking resistor 2.2 kW (44 kW /12s), 15 ohm	50-60 HP
6SE64004BD240FA0	Braking resistor 4 kW (80 kW /12s), 8.2 ohm	75-125 HP
6SE64004BD260FA0	Braking resistor 5.6 kW (120 kW /12s), 5.5 ohm	150-200 HP

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