SIEMENS

TECHNICAL DOCUMENTATION

SINAMICS G120X an infrastructure drive for pumps, fans and compressors

Available in power ratings up to 700 hp (630 kW)

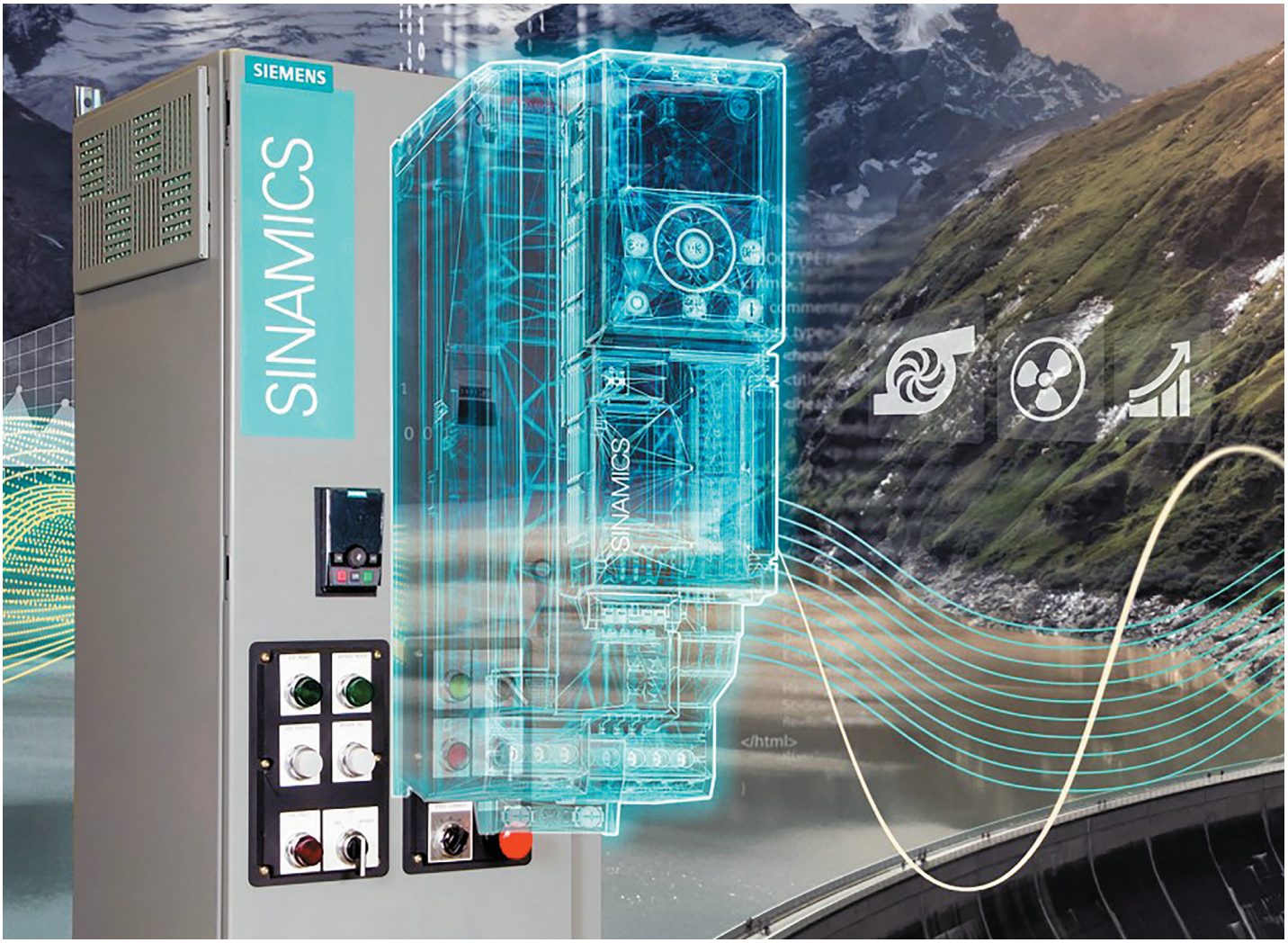
usa.siemens.com/sinamics-g120x

Introducing **SINAMICS G120X**

Siemens introduces an exciting new addition to the existing SINAMICS product portfolio — the G120X — an "infrastructure" drive up to 700 hp (630kW), which is targeted for pump, fan and compressor applications in the water / wastewater, HVAC, irrigation / agriculture and industrial chiller and refrigeration industries.

Seamless for higher efficiency

SINAMICS G120X is simple, seamless, cost- and energy-efficient, robust, reliable and fit for digitalization. It integrates easily into existing applications, works with any standard motor (induction, synchronous and synchronous reluctance) and can be configured for cost-optimization and resource-saving operation, which ultimately helps reduce total cost-of-ownership. SINAMICS G120X meets all the latest industry standards when it comes to energy efficiency and product safety, and offers enhanced safety with SIL3-rated safety functions and up to 100kA short-circuit current rating according to new UL61800-5-1 design.



Technical data

Line voltage and output power range	
FSA...FSF	3AC 200V (-20%)...240V (+10%) 1 hp...75 hp (0.75kW...55kW)
FSA...FSG	3AC 380V (-20%)...480V (+10%) 1 hp...400 hp (0.75kW...250kW)
FSH, FSJ	3AC 380V (-15%)...480V (+10%) 400 hp...700 hp (315kW...560kW)
FSD...FSG	3AC 500V (-20%)...690V (+10%) 4 hp...250 hp (3kW...250kW)
FSH, FSJ	3AC 500V (-15%)...690V (+10%) 350 hp...700 hp (315kW...630kW)

Ratings for 1AC (L-L) operation with derated 3 AC output	
FSA...FSF	1AC (L-L) 220V...240V input derated output 3AC 220V...240V ½ hp....30 hp
FSA...FSG	1AC (L-L) 440V...480V input derated output 3AC 440V...480V ½ hp...125 hp

Output voltage	3AC 0V....line voltage x 0.97
Input frequency	47 Hz...63 Hz

Output frequency	
FSA...FSG	0 Hz...550 Hz (depending upon the control mode)
FSH, FSJ	0 Hz...150 Hz (depending upon the control mode)

Fundamental power factor (Cos φ)	0.96...0.99
Efficiency class	IE2 (based upon power losses according to EN 50598-2 and IEC 61800-9-2)
Efficiency (η)	98% (approximately)
Motor control	▪ V/Hz control (linear, linear with flux current control / FCC, parabolic and eco mode) ▪ Sensorless less vector control (SLVC)
Supported motor types	▪ Asynchronous (induction) motor ▪ Permanent magnet synchronous motor (PMSM) ▪ Synchronous reluctance motor (SRM)
Degree of protection	IP20 / UL Open Type
Operating temperature	-4° F to 113° F (-20° C to 45° C) without derating > 113° F up to 140° F (> 45° C up to 60° C) with derating For PROFINET, EtherNet / IP™ up to 55° C (131° F) with derating

Overload	
Low Overload (LO) / Variable Torque (VT)	110% x I_L for 60s
High Overload (HO) / Constant Torque (CT)	150% x I_H for 60s

Communication	PROFINET, EtherNet / IP™, USS, Modbus RTU, BACnet MS / TP, PROFIBUS DP
Functional safety	Hardware-based SIL3 Safe Torque Off (STO) function with on / off switch
Short-circuit current rating (SCCR)	Up to 100kA according to NEW UL 61800-5-1 design

Control inputs and outputs	
6 Digital Inputs (DI 0 ... DI 5)	24V (12–30V) electrically isolated, 4mA current, PNP / NPN switchable
2 Digital (Relay) Outputs (DO 0...DO 1)	Type C, 250V AC, 2A / 30V DC, 2A for resistive, inductive or capacitive load
2 Analog Inputs (AI 0...AI 1)	Differential input 0V... 10V or -10V ... +10V: typical current drain: 0.1 mA, max. voltage 35V 0/4 mA ... 20 mA: 120 Ω input resistance, voltage < 10V, current < 80 mA
1 Analog Output (AO 0)	Not isolated, switchable between voltage (0V... 10V) and current (0/4 mA ... 20 mA) via parameter setting
1 motor temperature sensor input	PTC, KTY, PT1000, bi-metallic switch with normally closed contact
1 failsafe digital input	STO — electrically isolated
1 internal aux. supply voltage	24V DC, max. 250 mA 10V DC, max. 10 mA
1 external aux. supply voltage	24V DC (20.4 ... 28.8V DC), current consumption 0.5A
1 memory card slot	For optional SD memory cards (as a backup storage device for saving of the settings after drive commissioning, and also for a series commissioning of a several identical drives via cloning of the settings)

Additional control inputs and outputs (With optional I/O Extension Module)	
2 Digital Inputs (DI 6...DI 7)	24V (12–30V) electrically isolated, 4mA current, PNP / NPN switchable
4 Digital (Relay) Outputs (DO 2...DO 5)	2x Type A and 2x Type C relay outputs rated 250V AC, 2A / 30V DC, 2A for resistive, inductive or capacitive load
1 Analog Input (AI 2)	Analog current input (0/4 mA ... 20 mA) or temperature sensor input (Pt1000 / LG-Ni1000 / DIN-Ni1000)
1 motor temperature sensor input (AI 3)	Temperature sensor input (Sensor Pt1000 / LG-Ni1000 / DIN-Ni1000)
2 Analog Output (AO 1 ... AO 2)	Not isolated, switchable between voltage (0V... 10V) and current (0/4 mA ... 20 mA) via parameter setting

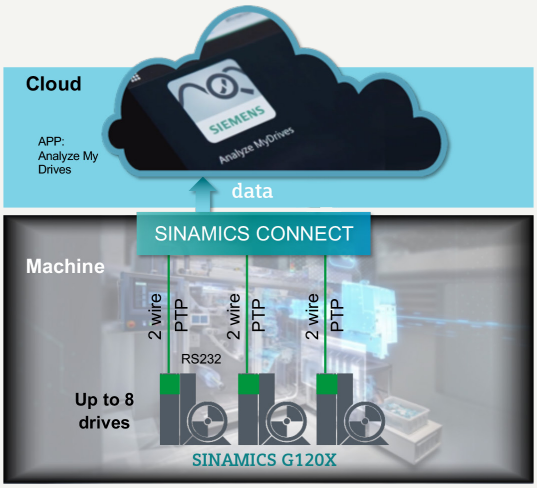
User interface

Standard	Intelligent Operator Panel (IOP-2) — a high-resolution graphical color keypad
Optional	Smart Access Module (SAM) Part number: 6SL3255-0AA00-5AA0 — a WiFi-based web server module and engineering tool for quick setup and diagnostics using a mobile device (PC, smartphone, tablet, etc.) Basic Operator Panel (BOP-2) — a basic keypad Blank (no Operator Panel / keypad)

SINAMICS G120X — It's the simple, seamless and easy-to-use drive — right out of the box.

Digitalization and IoT-based secured health monitoring

SINAMICS CONNECT 300 and Analyze MyDrives	SINAMICS CONNECT 300 (Part number: 6SL3255-0AG30-0AA0) is the IoT gateway. It is designed to acquire data through the serial port of the SINAMICS G120X and synchronize the data to MindSphere (cloud-based open IoT operating system of Siemens) using the MindSphere application Analyze MyDrives (AMD). This offers users the opportunity to analyze valuable operating data gathered from the drive and enables the visualization and analysis of status information, providing users with valuable data which can be used as the basis for process optimization and maintenance strategies. For more information visit: www.siemens.com/sinamics-digitalization



Certification / marking

- cULus marking according to UL61800-5-1 and CSA C22.2 No. 274 with SCCR up to 100kA
- **CE** marking according to European Low-Voltage Directive 2014/35/EU EU and IEC/EN 61800-5-1, Machinery directive 2006/42/EC and IEC/EN 61800-5-2, EMC Directive 2014/30/EU and IEC/EN 61800-3, RoHS directive 2011/65/EU and EN 50581
- IE2 efficiency level based upon power losses according to EN 50598-2 and IEC 61800-9-2
- Safe torque off (STO) SIL3 rating according to IEC/EN 61800-5-2
- EAC, K, RCM (formerly C-Tick), REACH, RoHS II, SEMI F47, UKCA (UK Conformity Assessed) marking

Application functions

Pump-specific	▪ Deragging or blockage protection ▪ Pipe filling ▪ Multi-pump control – Pump switchover – Stop mode – Service mode – Cascade control mode	▪ Blockage, leakage and dry-running protection ▪ Cavitation protection ▪ Condensation protection ▪ Frost protection
Fan-specific	▪ Flying restart ▪ Automatic restart ▪ Skip frequency bands	▪ Fire mode (essential service mode) ▪ No load, torque and rotation (belt) monitoring with sensor
Increase energy efficiency and system performance	▪ Eco mode ▪ Hibernation or sleep mode ▪ Bypass mode ▪ Energy / flow calculator	▪ Support to high efficiency motors (PMSM and SRM) ▪ Real time clock and programmable timer (3)
Optimize pump and fan operation and increase system availability	▪ Keep running mode ▪ PID controller	▪ Dual ramp ▪ Multi-speed setpoints

Protection functions

- Phase-loss detection for both supply and motor
- Overvoltage controller
- Undervoltage controller
- Drive overtemperature protection
- Loss of analog input signal monitoring
- External fault and warning monitoring (up to 3)
- Motor overtemperature protection (with and without sensor)
- Motor overload monitoring and protection
- Motor short-circuit and ground fault protection
- Speed and torque monitoring
- Blocking and stalling monitoring and protection
- Detection of missing communication telegrams
- Detection of communication bus interruption

SINAMICS G120X—dimensions and clearance distances FSA...FSJ

Frame size	Dimensions					Max. weight of frame	
	H mm (inch)	W mm (inch)	D mm (inch)	Additional depth with: Operator Panel mm (inch)	Additional depth with: I/O extension module mm (inch)	No filter kg (lbs)[1]	With filter kg (lbs)[1]
FSA	232 (9.1)	73 (2.9)	209 (8.2)	9 (0.4)	27 (1.1)	3.4 (7.5)	3.6 (8)
FSB	275 (10.8)	100 (3.9)				5.8 (12.8)	6.2 (13.7)
FSC	295 (11.6)	140 (5.5)				7.11 (15.7)	7.7 (17)
FSD	472 (18.6)	200 (7.9)	239 (9.4)			18.8 (41.5)	19.5 (43)
FSE	551 (21.7)	275 (10.8)				26.7 (59)	28.7 (63.3)
FSF	709 (27.9)	305 (12)	360 (14.2)			66.5 (146.6)	71 (156.53)
FSG	999.4 (39.3)	305 (12)				–	120 (264.6)
FSH	1696 (66.8)	548 (21.6)	393 (15.5)	–			162 (357.2)
FSJ	1621 (63.8)	801 (31.5)					250 (551.16)

[1] Refer to SINAMICS G120X operating instructions or rating plate information of a unit to obtain the weight specific to each rating / order number

3AC 200...240V SINAMICS G120X selection and ordering data—3AC output with 3AC 240V input

		Output Ratings with 3AC 240V Input					
		3AC LO (VT) [1]		3AC HO (CT) [2]			
Frame size	3AC LO (VT) Output kW (240V)	hp (240V)	Rated Output Current I_L, A (240V)	hp (240V)	Rated Output Current I_H, A (240V)	Rated Input Current LO (VT), A@3AC 240V	Order number
FSA	0.75	1	4.2	0.75	3.2	3.8	6SL3210-0YC10-0UF0
	1.1	1.5	6	1	4.2	5.4	6SL3210-0YC12-0UF0
	1.5	2	7.4	1.5	6	6.7	6SL3210-0YC14-0UF0
FSB	2	3	10.4	2	7.4	9.6	6SL3210-0YC16-0UF0
	3	4	13.6	3	10.4	12.7	6SL3210-0YC18-0UF0
	4	5	17.5	4	13.6	16.3	6SL3210-0YC20-0UF0
FSC	5.5	7.5	22	5	17.5	20.8	6SL3210-0YC22-0UF0
	7.5	10	28	7.5	22	26.3	6SL3210-0YC24-0UF0
FSD	11	15	42	10	28	40	6SL3210-0YC26-0UF0
	15	20	54	15	42	51	6SL3210-0YC28-0UF0
	18.5	25	68	20	54	64	6SL3210-0YC30-0UF0
FSE	22	30	80	25	68	76	6SL3210-0YC32-0UF0
	30	40	104	30	80	98	6SL3210-0YC34-0UF0
FSF	37	50	130	40	104	126	6SL3210-0YC36-0UF0
	45	60	154	50	130	149	6SL3210-0YC38-0UF0
	55	75	192	60	154	172	6SL3210-0YC40-0UF0

Order number	
Special coating according to IEC/EN 60721-3-3	
Class 3C2 (Standard coating or sealing)	2
Class 3C3*	3
User interface	
Blank (No operator panel/keypad)	1
BOP-2 (Basic keypad, Class 3C3*)	2
IOP-2 (Standard—high-resolution graphical color keypad, Class 3C3*)	3
I/O extension	
without I/O extenstion module (Standard)	0
with I/O extenstion module, Class 3C3*	1
EMC class	
No filter (Standard—without integrated EMI/RFI filter)	U
Communication interface	
PROFINET, EtherNet/IP™ (Standard)	F
USS, Modbus, RTU, BACnet MS/TP	B
PROFIBUS DP	P

* Special coating or sealing for operation of a drive in harsh/corrosive environments

[1] Rated power and output current based upon the base-load current I_L. The base-load current I_L is based upon the duty cycle for low overload (LO) or Variable Torque (VT) i.e. 110% x I_L for 60s every 300s

[2] Rated power and output current based upon the base-load current I_H. The base-load current I_H is based upon the duty cycle for high overload (HO) or Constant Torque (CT) i.e. 150% x I_H for 60s every 600s

3AC 380...480V SINAMICS G120X selection and ordering data — 3AC output with 3AC 480V input

		Output Ratings with 3AC 480V Input																						
		3AC LO (VT) [1]		3AC HO (CT) [2]																				
Frame size	3AC LO (VT) Output kW (400V)	hp (480V)	Rated Output Current I_L, A (480V)	hp (480V)	Rated Output Current I_H, A (480V)	Rated Input Current LO (VT), A@3AC 480V	Order number																	
FSA	0.75	1	2.1	0.75	1.6	2	6	S	L	3	2		0	–		Y	E	1	0	–				0
	1.1	1.5	3	1	2.1	2.7	6	S	L	3	2		0	–		Y	E	1	2	–				0
	1.5	2	3.4	1.5	3	3	6	S	L	3	2		0	–		Y	E	1	4	–				0
	2.2	3	4.8	2	3.4	4.6	6	S	L	3	2		0	–		Y	E	1	6	–				0
	3	4	6.2	3	4.8	5.8	6	S	L	3	2		0	–		Y	E	1	8	–				0
FSB	4	5	7.6	4	6.2	9.75	6	S	L	3	2		0	–		Y	E	2	0	–				0
	5.5	7.5	11	5	7.6	12	6	S	L	3	2		0	–		Y	E	2	2	–				0
	7.5	10	14	7.5	11	17	6	S	L	3	2		0	–		Y	E	2	4	–				0
FSC	11	15	21	10	14	24.5	6	S	L	3	2		0	–		Y	E	2	6	–				0
	15	20	27	15	21	29.5	6	S	L	3	2		0	–		Y	E	2	8	–				0
FSD	18.5	25	34	20	27	32	6	S	L	3	2		0	–		Y	E	3	0	–				0
	22	30	40	25	34	37	6	S	L	3	2		0	–		Y	E	3	2	–				0
	30	40	52	30	40	49	6	S	L	3	2		0	–		Y	E	3	4	–				0
	37	50	65	40	52	61	6	S	L	3	2		0	–		Y	E	3	6	–				0
FSE	45	60	77	50	65	74	6	S	L	3	2		0	–		Y	E	3	8	–				0
	55	75	96	60	77	91	6	S	L	3	2		0	–		Y	E	4	0	–				0
FSF	75	100	124	75	96	120	6	S	L	3	2		0	–		Y	E	4	2	–				0
	90	125	156	100	124	151	6	S	L	3	2		0	–		Y	E	4	4	–				0
	110	150	180	125	156	174	6	S	L	3	2		0	–		Y	E	4	6	–				0
	132	200	240	150	180	232	6	S	L	3	2		0	–		Y	E	4	8	–				0
FSG	160	250	302	200	240	301	6	S	L	3	2		0	–		Y	E	5	0	–				0
	200	300	361	250	302	356	6	S	L	3	2		0	–		Y	E	5	2	–				0
	250	400	477	300	361	471	6	S	L	3	2		0	–		Y	E	5	4	–				0
FSH	315	400	477	300	390	486	6	S	L	3	2	2	0	–		Y	E	5	6	–		C		0
	355	450	515	300	394	525	6	S	L	3	2	2	0	–		Y	E	5	8	–		C		0
	400	500	590	350	452	602	6	S	L	3	2	2	0	–		Y	E	6	0	–		C		0
FSJ	450	500	663	450	542	687	6	S	L	3	2	2	0	–		Y	E	6	2	–		C		0
	500	600	724	500	591	751	6	S	L	3	2	2	0	–		Y	E	6	4	–		C		0
	560	700	830	500	652	862	6	S	L	3	2	2	0	–		Y	E	6	6	–		C		0

Option	Code
Special coating according to IEC / EN 60721-3-3	
Class 3C2 (Standard coating or sealing)	**2**
Class 3C3*	**3**
User interface	
Blank (No operator panel / keypad)	**1**
BOP-2 (Basic keypad, Class 3C3*)	**2**
IOP-2 (Standard — high-resolution graphical color keypad, Class 3C3*)	**3**
I / O extension module	
without I/O extenstion module (Standard)	**0**
with I/O extenstion module, Class 3C3*	**1**
EMC class	
No filter (Standard — without integrated EMI / RFI filter) for FSA to FSF only	**U**
Filter C2 (With integrated EMI / RFI filter Category C2) for FSA to FSG only	**A**
Filter C3 (Standard — with integrated EMI / RFI filter Category C3) for FSG to FSJ only [3]	**C**
Communication interface	
PROFINET, EtherNet / IP™ (Standard)	**F**
USS, Modbus, RTU, BACnet MS / TP	**B**
PROFIBUS DP	**P**

* Special coating or sealing for operation of a drive in harsh / corrosive environments

[1] Rated power and output current based upon the base-load current I_L. The base-load current I_L is based upon the duty cycle for low overload (LO) or Variable Torque (VT) i.e. 110% x I_L for 60s every 300s

[2] Rated power and output current based upon the base-load current I_H. The base-load current I_H is based upon the duty cycle for high overload (HO) or Constant Torque (CT) i.e. 150% x I_H for 60s every 600s

[3] "Standard" design of FSG, FSH or FSJ has a built-in Category C3 EMI / RFI filter. This filter can be deactivated by removing a grounding screw / clip for applications on an ungrounded or a high-resistance grounded or a corner-grounded supply system. Please refer to the SINAMICS G120X Operating Instructions (https://support.industry.siemens.com/cs/us/en/view/109781534) for more information.

3AC 500...690V SINAMICS G120X selection and ordering data—3AC output with 3AC 600V input

		Output Ratings with 3AC 600V (L-L) Input					
		3AC LO (VT) [1]		3AC HO (CT) [2]			
Frame size	3AC LO (VT) Output kW (690V)	hp (600V)	Rated Output Current I_L, A (600V)	hp (600V)	Rated Output Current I_H, A (600V)	Rated Input Current LO (VT), A@3AC 600V	Order number
FSD	3	4	5	3	4	5	6SL3210-0YH18-0A0
	4	5	6.3	4	5	6	6SL3210-0YH20-0A0
	5.5	7.5	9	5	6.3	9	6SL3210-0YH22-0A0
	7.5	10	11	7.5	9	11	6SL3210-0YH24-0A0
	11	10	14	10	11	14	6SL3210-0YH26-0A0
	15	15	19	10	14	18	6SL3210-0YH28-0A0
	18.5	20	23	15	19	22	6SL3210-0YH30-0A0
	22	25	27	20	23	25	6SL3210-0YH32-0A0
	30	30	35	25	27	33	6SL3210-0YH34-0A0
	37	40	42	30	35	40	6SL3210-0YH36-0A0
FSE	45	50	52	40	42	50	6SL3210-0YH38-0A0
	55	60	62	50	52	59	6SL3210-0YH40-0A0
FSF	75	75	80	60	62	78	6SL3210-0YH42-0A0
	90	100	100	75	80	97	6SL3210-0YH44-0A0
	110	125	125	100	100	121	6SL3210-0YH46-0A0
	132	150	144	125	125	138	6SL3210-0YH48-0A0
FSG	160	150	171	150	144	171	6SL3210-0YH50-0AC0
	200	200	208	150	171	205	6SL3210-0YH52-0AC0
	250	250	250	200	208	249	6SL3210-0YH54-0AC0
FSH	315	350	345	250	295	375	6SL3210-0YH56-0AC0
	355	400	388	300	320	408	6SL3210-0YH58-0AC0
	400	450	432	350	367	461	6SL3210-0YH60-0AC0
	450	500	487	450	423	526	6SL3210-0YH62-0AC0
FSJ	500	500	546	450	482	591	6SL3210-0YH64-0AC0
	560	600	610	500	523	665	6SL3210-0YH66-0AC0
	630	700	679	500	580	737	6SL3210-0YH68-0AC0

Special coating according to IEC/EN 60721-3-3	
Class 3C2 (Standard coating or sealing)	2
Class 3C3*	3
User interface	
Blank (No operator panel/keypad)	1
BOP-2 (Basic keypad, Class 3C3*)	2
IOP-2 (Standard—high-resolution graphical color keypad, Class 3C3*)	3
I/O extension module	
without I/O extenstion module (Standard)	0
with I/O extenstion module, Class 3C3*	1
EMC class	
No filter (Standard—without integrated EMI/RFI filter) for FSD to FSF only	U
Filter C2 (With integrated EMI/RFI filter Category C2) for FSD to FSE only	A
Filter C3 (Standard—with integrated EMI/RFI filter Category C3) for FSF to FSJ only, standard for FSG to FSJ [3]	C
Communication interface	
PROFINET, EtherNet/IP™ (Standard)	F
USS, Modbus, RTU, BACnet MS/TP	B
PROFIBUS DP	P

* Special coating or sealing for operation of a drive in harsh/corrosive environments

[1] Rated power and output current based upon the base-load current I_L. The base-load current I_L is based upon the duty cycle for low overload (LO) or Variable Torque (VT) i.e. 110% x I_L for 60s every 300s

[2] Rated power and output current based upon the base-load current I_H. The base-load current I_H is based upon the duty cycle for high overload (HO) or Constant Torque (CT) i.e. 150% x I_H for 60s every 600s

[3] "Standard" design of FSG, FSH or FSJ has a built-in Category C3 EMI/RFI filter. This filter can be deactivated by removing a grounding screw/clip for applications on an ungrounded or a high-resistance grounded or a corner-grounded supply system. Please refer to the SINAMICS G120X Operating Instructions (https://support.industry.siemens.com/cs/us/en/view/109781534) for more information.

SINAMICS G120X for 1AC input / 3AC output operation

Important notes

- Adhere to the rating tables because the specifications below are unique to 1AC (Line-to-Line) input supply system configuration and differ from the standard specifications for applications of SINAMICS G120X on 3AC input supply system.

- Use the motor rating plate data including the motor horsepower (hp) and full load amps (FLA). The selected SINAMICS G120X ratings, based upon the tables on the following pages, shall meet or exceed both the hp rating and FLA requirements of the motor rating plate.

- Account for any known operating conditions and overloads, such as operating the motor into its service factor by using the service factor horsepower and amperage of the motor while selecting a rating of the SINAMICS G120X from the tables found on the following pages.

- 1AC (Line-to-Neutral) 200...240V or 380...480V input supply system is not permitted in the US and Canada by the National Electrical Code (NEC) and Canadian Electrical Code (CEC).

- 1AC (Line-to-Line) input supply can be connected to any two input line terminals of the SINAMICS G120X through appropriate UL-approved branch circuit or overcurrent protective device (OCPD) from the SINAMICS G120X overcurrent protective devices and SCCR product information sheet available on the Siemens Industry Online Support website: (https://support.industry.siemens.com/cs/us/en/view/109762895)

- Selected circuit breaker or MSP shall be suitable and UL-listed for the use on 1AC (Line-to-Line) application and wired as specified in the circuit breakers and MSP manual. An example of such wiring is also shown in the illustration on the next page.

- An OCPD must be dimensioned to the appropriate SINAMICS G120X 1AC input current as specified in the rating tables on pages 13 and 14.

- Recommended current rating of OCPD = smaller of the TWO ratings described in item **a)** and **b)** as follows:

  a) no more than 125% of SINAMICS G120X 1AC input current rating as specified in the rating tables on pages 13 and 14.

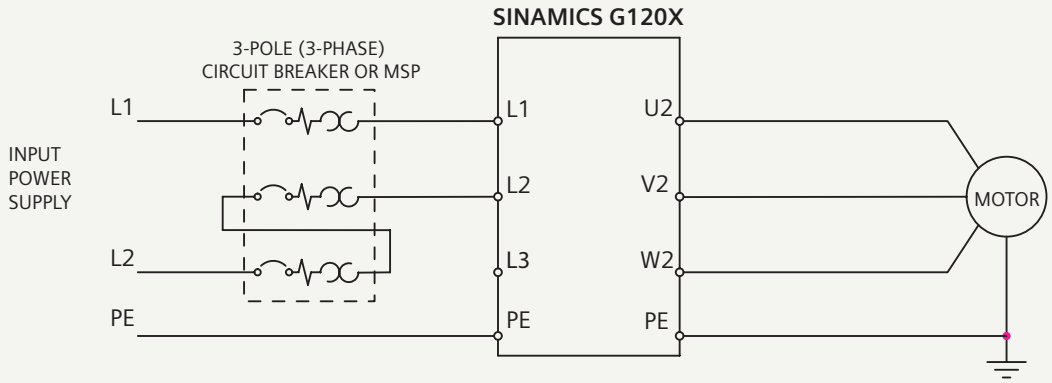
  or

  b) maximum OCPD current rating specified in the SINAMICS G120X overcurrent protective devices and SCCR product information sheet (https://support.industry.siemens.com/cs/us/en/view/109762895)

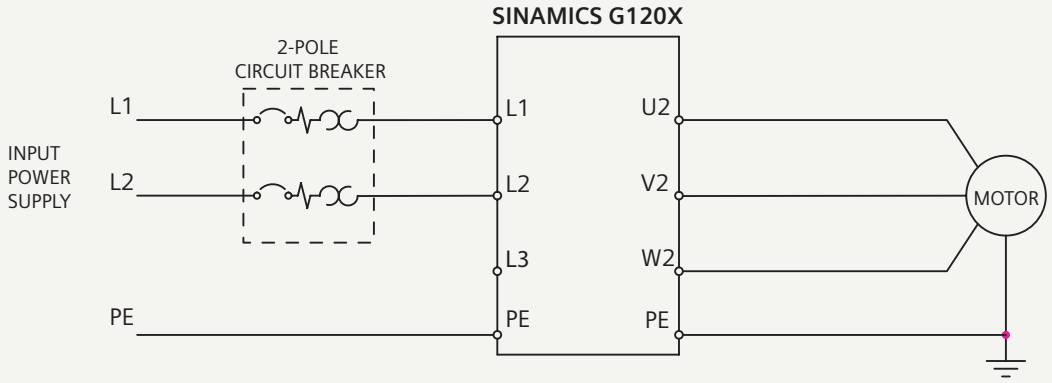
Examples of 1AC (Line-to-Line) input connection to SINAMICS G120X

The electrical diagrams illustrated in the figures below are provided to demonstrate the examples of power wiring for operation of SINAMICS G120X with 1AC input and are not complete. Please refer to the SINAMICS G120X operating instructions (https://support.industry.siemens.com/cs/us/en/view/109781534) for more details and follow the requirements of National Electrical Code and / or local electrical codes and regulations for proper and compliant installation and wiring of the drive and motor circuit.

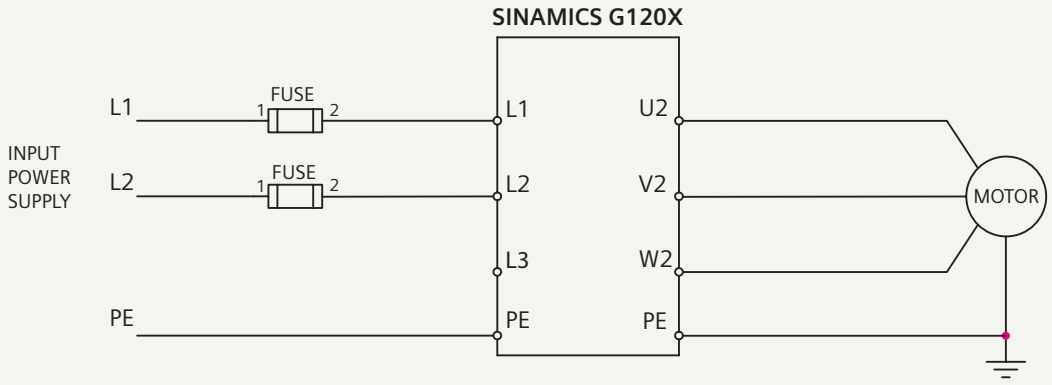
Using 3-pole (3-phase) circuit breaker or MSP (Motor Starter Protector)



Using 2-pole circuit breaker



Using fuses



3AC 200...240V SINAMICS G120X selection and ordering data—DERATED 3AC output with 1AC 240V (L-L) input

	Output Ratings with 1AC 240V (L-L) Input					
	3AC LO (VT) [1]		3AC HO (CT) [2]			
Frame size	hp (240V)	Rated Output Current I_L, A (240V)	hp (240V)	Rated Output Current I_H, A (240V)	Rated Input Current, A @ 1AC 240V (L-L)	Order number
FSA	–	1.9	–	1.4	3.8	6SL3210-0YC10-0U0
	0.5	2.7	–	1.9	5.2	6SL3210-0YC12-0U0
	0.75	3.4	0.5	2.8	6.5	6SL3210-0YC14-0U0
FSB	1	4.7	0.75	3.3	9.2	6SL3210-0YC16-0U0
	1.5	6.2	1	4.7	12.1	6SL3210-0YC18-0U0
	2	8	1.5	6.2	15.5	6SL3210-0YC20-0U0
FSC	3	10	2	8	20	6SL3210-0YC22-0U0
	3	13	3	10.2	25	6SL3210-0YC24-0U0
FSD	5	17	3	11.3	40	6SL3210-0YC26-0U0
	7.5	22	5	17.1	51	6SL3210-0YC28-0U0
	10	28	7.5	22.2	52	6SL3210-0YC30-0U0
FSE	10	32	7.5	27.2	74	6SL3210-0YC32-0U0
	15	42	10	32.3	94	6SL3210-0YC34-0U0
FSF	20	54	15	43.2	121	6SL3210-0YC36-0U0
	25	68	20	57.4	141	6SL3210-0YC38-0U0
	30	80	20	64.2	170	6SL3210-0YC40-0U0

	Order number
Special coating according to IEC/EN 60721-3-3	
Class 3C2 (Standard coating or sealing)	2
Class 3C3*	3
User interface	
Blank (No operator panel/keypad)	1
BOP-2 (Basic keypad, Class 3C3*)	2
IOP-2 (Standard—high-resolution graphical color keypad, Class 3C3*)	3
I/O extension module	
without I/O extenstion module (Standard)	0
with I/O extenstion module, Class 3C3*	1
EMC class	
No filter (Standard—without integrated EMI/RFI filter)	U
Communication interface	
PROFINET, EtherNet/IP™ (Standard)	F
USS, Modbus, RTU, BACnet MS/TP	B
PROFIBUS DP	P

* Special coating or sealing for operation of a drive in harsh/corrosive environments

[1] Rated power and output current based upon the base-load current I_L. The base-load current I_L is based upon the duty cycle for low overload (LO) or Variable Torque (VT) i.e. 110% x I_L for 60s every 300s

[2] Rated power and output current based upon the base-load current I_H. The base-load current I_H is based upon the duty cycle for high overload (HO) or Constant Torque (CT) i.e. 150% x I_H for 60s every 600s

3AC 380...480V SINAMICS G120X selection and ordering data — DERATED 3AC output with 1AC 480V (L-L) input

Output Ratings with 1AC 480V (L-L) Input						
3AC LO (VT) [1]		3AC HO (CT) [2]				
Frame size	hp (480V)	Rated Output Current I_L, A (480V)	hp (480V)	Rated Output Current I_H, A (480V)	Rated Input Current, A @ 1AC 480V (L-L)	Order number
FSA	–	0.8	–	0.6	2	6SL3210-0YE10-0U0
	0.5	1.2	–	0.8	2.7	6SL3210-0YE12-0U0
	0.5	1.4	0.5	1.2	3	6SL3210-0YE14-0U0
	0.75	1.9	0.5	1.3	4.6	6SL3210-0YE16-0U0
	1	2.5	0.75	1.9	5.8	6SL3210-0YE18-0U0
FSB	1.5	3	1	2.4	9.75	6SL3210-0YE20-0U0
	2	4.4	1.5	3	12	6SL3210-0YE22-0U0
	3	5.6	2	4.4	17	6SL3210-0YE24-0U0
FSC	5	8.4	3	5.6	24.5	6SL3210-0YE26-0U0
	5	10.8	5	8.4	29.5	6SL3210-0YE28-0U0
FSD	7.5	11	5	8.7	28	6SL3210-0YE30-0U0
	7.5	12	5	10.2	30	6SL3210-0YE32-0U0
	10	16	7.5	12.3	41	6SL3210-0YE34-0U0
	15	21	10	16.8	55	6SL3210-0YE36-0U0
FSE	15	23.5	10	19.8	61	6SL3210-0YE38-0U0
	20	29	15	23.3	74	6SL3210-0YE40-0U0
FSF	30	40	20	31	104	6SL3210-0YE42-0U0
	40	52	30	41.3	132	6SL3210-0YE44-0U0
	50	65	40	56.3	160	6SL3210-0YE46-0U0
	60	77	40	57.8	174	6SL3210-0YE48-0U0
FSG	75	96	50	76.3	210	6SL3210-0YE50-0C0
	100	124	75	103.7	276	6SL3210-0YE52-0C0
	125	156	75	118.1	339	6SL3210-0YE54-0C0

Special coating according to IEC/EN 60721-3-3	
Class 3C2 (Standard coating or sealing)	2
Class 3C3*	3
User interface	
Blank (No operator panel / keypad)	1
BOP-2 (Basic keypad, Class 3C3*)	2
IOP-2 (Standard — high-resolution graphical color keypad, Class 3C3*)	3
I/O extension module	
without I/O extenstion module (Standard)	0
with I/O extenstion module, Class 3C3*	1
EMC class	
No filter (Standard — without integrated EMI / RFI filter)	U
Filter C3 (Standard — with integrated EMI / RFI filter Category C3) for FSG only [3]	C
Communication interface	
PROFINET, EtherNet / IP™ (Standard)	F
USS, Modbus, RTU, BACnet MS / TP	B
PROFIBUS DP	P

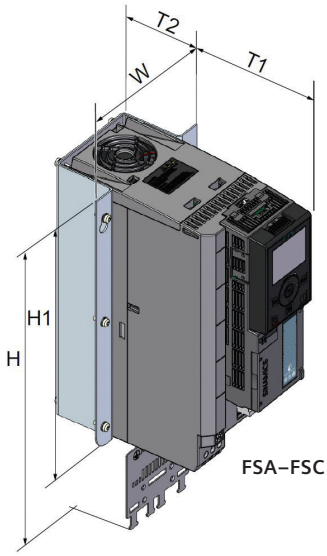
* Special coating or sealing for operation of a drive in harsh / corrosive environments

[1] Rated power and output current based upon the base-load current I_L. The base-load current I_L is based upon the duty cycle for low overload (LO) or Variable Torque (VT) i.e. 110% x I_L for 60s every 300s

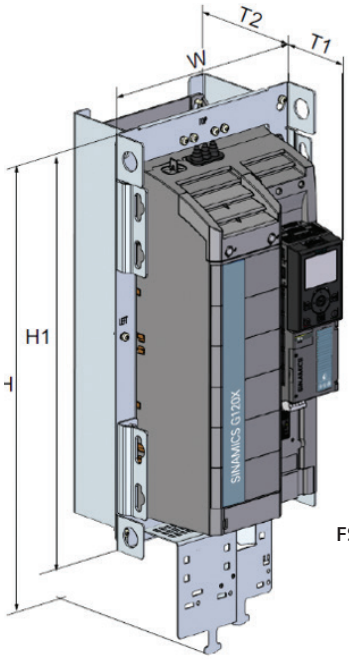
[2] Rated power and output current based upon the base-load current I_H. The base-load current I_H is based upon the duty cycle for high overload (HO) or Constant Torque (CT) i.e. 150% x I_H for 60s every 600s

[3] "Standard" design of FSG has a built-in Category C3 EMI / RFI filter. This filter can be deactivated by removing a grounding screw / clip for applications on an ungrounded or a high-resistance grounded or a corner-grounded supply system. Please refer to the SINAMICS G120X Operating Instructions (https://support.industry.siemens.com/cs/us/en/view/109781534) for more information.

SINAMICS G120X IP20 Push-Through kits



FSA–FSC with PT kit



FSD–FSG with PT kit

SINAMICS G120X	Push-Through kit (PT)	Overall dimensions of SINAIMCS G120X with PT kit installed				
		Width mm (inch)	Height mm (inch)		Depth mm (inch)	
Frame size	Part number	W	H = with shield plate	H1= without shield plate	T1 = front of PT bracket	T2 = back of PT bracket
FSA	6SL3261-6GA00-0BA0	127 (5.0)	324 (12.8)	234 (9.2)	160 (6.3)	57 (2.2)
FSB	6SL3261-6GB00-0BA0	154 (6.1)	384 (15.1)	279 (11.0)	153 (6.0)	66 (2.6)
FSC	6SL3261-6GC00-0BA0	192 (7.6)	407 (16.0)	295 (11.6)	154 (6.1)	65 (2.6)
FSD	6SL3261-6GD00-0BA0	271 (10.7)	647 (25.5)	514 (20.2)	142 (5.6)	98 (3.9)
FSE	6SL3261-6GE00-0BA0	360 (14.2)	773 (30.4)	600 (23.6)	145 (5.7)	93 (3.7)
FSF	6SL3261-6GF00-0BA0	396 (15.6)	1003 (39.5)	749 (29.5)	185 (7.3)	185 (7.3)
FSG	6SL3261-6GG00-0BA0	384 (15.1)	1275 (50.2)	1026 (40.4)	184 (7.3)	188 (7.4)

SINAMICS G120X — options and features

Options

- Special coating (Class 3C3) for operation of a drive in harsh environments where corrosive gases, for example, Hydrogen Sulfide (H_2S), Chlorine (Cl) or Ammonia (NH_3), are often present
- Add-on Push-Through (PT) kit to enable UL Open Type / IP20 drive in to UL Open Type / IP20 push-through drive (up to FSG)
- Input and output reactors
- Output du / dt filter
- Output Sinusoidal filter
- Passive line harmonic filter
- EMI / RFI filters
- Communication: PROFINET, EtherNet / IP™, USS, Modbus RTU, BACnet MS / TP and PROFIBUS DP
- I/O extension module

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