

Data sheet for SINAMICS G120X

Article No. : 6SL3220-3YE20-0UF0



Figure similar

Client order no. :
Order no. :
Offer no. :
Remarks :

Item no. :
Consignment no. :
Project :

Rated data

Input

Number of phases	3 AC	
Line voltage	380 ... 480 V +10 % -20 %	
Line frequency	47 ... 63 Hz	
Rated voltage	400V IEC	480V NEC
Rated current (LO)	9.75 A	8.00 A
Rated current (HO)	7.75 A	6.50 A

Output

Number of phases	3 AC	
Rated voltage	400V IEC	480V NEC¹⁾
Rated power (LO)	4.00 kW	5.00 hp
Rated power (HO)	3.00 kW	4.00 hp
Rated current (LO)	10.20 A	7.60 A
Rated current (HO)	7.70 A	6.20 A
Rated current (IN)	10.50 A	
Max. output current	14.00 A	
Pulse frequency	4 kHz	
Output frequency for vector control	0 ... 200 Hz	
Output frequency for V/f control	0 ... 550 Hz	

Overload capability

Low Overload (LO)	110% base load current IL for 60 s in a 300 s cycle time
High Overload (HO)	150% x base load current IH for 60 s within a 600 s cycle time

General tech. specifications

Power factor λ	0.70 ... 0.85
Offset factor $\cos \varphi$	0.96
Efficiency η	0.97
Sound pressure level (1m)	63 dB
Power loss ³⁾	0.142 kW
Filter class (integrated)	Unfiltered
EMC category (with accessories)	without

Ambient conditions

Standard board coating type	Class 3C2, according to IEC 60721-3-3: 2002
Cooling	Air cooling using an integrated fan
Cooling air requirement	0.005 m ³ /s (0.177 ft ³ /s)
Installation altitude	1,000 m (3,280.84 ft)

Ambient temperature

Operation	-20 ... 45 °C (-4 ... 113 °F)
Transport	-40 ... 70 °C (-40 ... 158 °F)
Storage	-25 ... 55 °C (-13 ... 131 °F)

Relative humidity

Max. operation	95 % At 40 °C (104 °F), condensation and icing not permissible
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Mechanical data

Degree of protection	IP20 / UL open type
Size	FSB
Net weight	5.83 kg (12.85 lb)
Dimensions	
Width	100 mm (3.94 in)
Height	275 mm (10.83 in)
Depth	218 mm (8.58 in)

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Inputs / outputs

Standard digital inputs

Number	6
Switching level: 0 → 1	11 V
Switching level: 1 → 0	5 V
Max. inrush current	15 mA

Fail-safe digital inputs

Number	1
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Digital outputs

Number as relay changeover contact	2
Output (resistive load)	DC 30 V, 5.0 A
Number as transistor	0

Analog / digital inputs

Number	2 (Differential input)
Resolution	10 bit

Switching threshold as digital input

0 → 1	4 V
1 → 0	1.6 V

Analog outputs

Number	1 (Non-isolated output)
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PTC/ KTY interface

1 motor temperature sensor input, sensors that can be connected: PTC, KTY and Thermo-Click, accuracy $\pm 5^\circ\text{C}$

Closed-loop control techniques

V/f linear / square-law / parameterizable	Yes
V/f with flux current control (FCC)	Yes
V/f ECO linear / square-law	Yes
Sensorless vector control	Yes
Vector control, with sensor	No
Encoderless torque control	Yes
Torque control, with encoder	No

Communication

Communication	PROFINET, EtherNet/IP
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Connections

Signal cable

Conductor cross-section	0.15 ... 1.50 mm ² (AWG 24 ... AWG 16)
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Line side

Version	screw-type terminal
Conductor cross-section	1.50 ... 6.00 mm ² (AWG 16 ... AWG 10)

Motor end

Version	Screw-type terminals
Conductor cross-section	1.50 ... 6.00 mm ² (AWG 16 ... AWG 10)

DC link (for braking resistor)

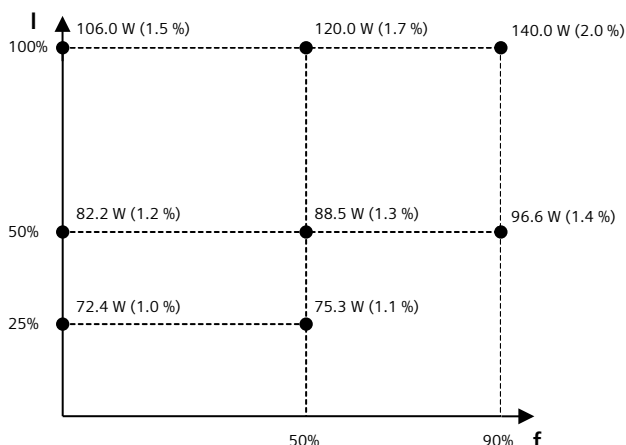
PE connection	On housing with M4 screw
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Max. motor cable length

Shielded	150 m (492.13 ft)
Unshielded	300 m (984.25 ft)

Converter losses to IEC61800-9-2*

Efficiency class	IE2
Comparison with the reference converter (90% / 100%)	33.0 %



The percentage values show the losses in relation to the rated apparent power of the converter.

The diagram shows the losses for the points (as per standard IEC61800-9-2) of the relative torque generating current (I) over the relative motor stator frequency (f). The values are valid for the basic version of the converter without options/components.

*converted values

Standards

Compliance with standards	UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH
CE marking	EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC

¹⁾The output current and HP ratings are valid for the voltage range 440V-480V

³⁾Typical value. More information can be found in the element group "Converter losses to IEC 61800-9-2" in this datasheet.

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Operator panel: Intelligent Operator Panel (IOP-2)

Screen

Display design	LCD color
Screen resolution	320 x 240 Pixel

Mechanical data

Degree of protection	IP55 / UL type 12
Net weight	0.134 kg (0.30 lb)

Dimensions

Width	70.00 mm (2.76 in)
Height	106.85 mm (4.21 in)
Depth	19.65 mm (0.77 in)

Ambient conditions

Ambient temperature

Operation	0 ... 50 °C (32 ... 122 °F) 55 °C only with door mounting kit
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Storage	-40 ... 70 °C (-40 ... 158 °F)
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Transport	-40 ... 70 °C (-40 ... 158 °F)
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Relative humidity at 25°C during

Max. operation	95 %
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Approvals

Certificate of suitability	CE, cULus, EAC, KCC, RCM
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