# SIEMENS

### Data sheet for SINAMICS G120X

#### Article No. :

#### 6SL3220-3YE64-0CP0



Figure similar

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

Rated data		
Input		
Number of phases	3 AC	
Line voltage	380 480 V +10 %	% -10 %
Line frequency	47 63 Hz	
Rated voltage	400V IEC	480V NEC
Rated current (LO)	924.00 A	751.00 A
Rated current (HO)	756.00 A	614.00 A
Output		
Number of phases	3 AC	
Rated voltage	400V IEC	480V NEC <sup>1)</sup>
Rated power (LO)	500.00 kW	600.00 hp
Rated power (HO)	400.00 kW	500.00 hp
Rated current (LO)	890.00 A	724.00 A
Rated current (HO)	820.00 A	591.00 A
Rated current (IN)	910.00 A	
Max. output current	1,202.00 A	
Pulse frequency	4 kHz	
Output frequency for vector control	0 100 Hz	
Output frequency for V/f control	0 100 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 $\lambda$	0.75 0.93	
Offset factor $\cos \phi$	0.96	
Efficiency η	0.98	
Sound pressure level (1m)	74 dB	
Power loss <sup>3)</sup>	10.500 kW	
Filter class (integrated) RFI suppression filter for Category C3		
EMC category (with accessories) Category C3		
Safety function "Safe Torque Off"	without	
Communication		

Communication

PROFIBUS DP

ltem no. : Consignment no. : Project :

Inputs / outputs		
Standard digital inputs		
Number	6	
Switching level: $0 \rightarrow 1$	11 V	
Switching level: $1 \rightarrow 0$	5 V	
Max. inrush current	15 mA	
Fail-safe digital inputs		
Number	1	
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		
$0 \rightarrow 1$	4 V	
1 → 0	1.6 V	
Analog outputs		
Number	1 (Non-isolated output)	
PTC/ KTY interface		
1 motor temperature sensor input, sen Thermo-Click, accuracy $\pm 5~^\circ\text{C}$	nsors that can be connected PTC, KTY and	

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	No	
Torque control, with encoder	No	

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Ambie	ent conditions
Standard board coating type	Class 3C2, according to IEC 60721-3-3: 2002
Cooling	Air cooling using an integrated fan
Cooling air requirement	0.450 m³/s (15.892 ft³/s)
Installation altitude	1,000 m (3,280.84 ft)
Ambient temperature	
Operation	0 45 °C (32 113 °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
Co	nnections
Signal cable	
Conductor cross-section	0.15 1.50 mm² (AWG 24 AWG 16)
Line side	
Version	M12 screw
Conductor cross-section	6 x 240.00 mm² (MCM 4 x 500 MCM 6 x 500)
Motor end	
Version	M12 screw
Conductor cross-section	6 x 240.00 mm² (MCM 4 x 500 MCM 8 x 500)
DC link (for braking resistor)	
PE connection	M12 screw
Max. motor cable length	
Shielded	150 m (492.13 ft)

Number weight 250 kg (551.16 lb)   Dimensions 801 mm (31.54 in)   Height 1,621 mm (63.82 in)   Depth 393 mm (15.47 in)   Depth 393 mm (15.47 in)   Compliance with standards UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH   Emarking EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC   Efficiency class IE2   Comparison with the reference converter (90% / 100%) 4.07 %   100 <sup>+</sup> 8,050.0 W (1.3 %) 9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   50% 3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)	M	echanical data	
Net weight 250 kg (551.16 lb)   Dimensions 801 mm (31.54 in)   Width 801 mm (31.54 in)   Height 1,621 mm (63.82 in)   Depth 393 mm (15.47 in)   Standards   UL, cUL, CE, C-Tick (RCM), EAC, KCC, SCM [F47, REACH   Compliance with standards   Converter losses   IEC61800-9-2*   Efficiency class   IE2   Converter losses   IE2   Converter losses   IE2   Omy (100%)   9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   100% 3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)	Degree of protection	IP20 / UL open type	
Dimensions     Width   801 mm (31.54 in)     Height   1,621 mm (63.82 in)     Depth   393 mm (15.47 in)     Standards     Compliance with standards     COmpliance with standards     COnverter losses to IEC61800-9-2*     Efficiency class     IE2     Comparison with the reference converter (90% / 100%)     9,130.0 W (1.4 %)   10,500.0 W (1.7 %)     50%   3,820.0 W (0.6 %)   4,280.0 W (0.7 %)   4,810.0 W (0.8 %)	Frame size	FSJ	
Width 801 mm (31.54 in)   Height 1,621 mm (63.82 in)   Depth 393 mm (15.47 in)   Standards   UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH   Compliance with standards   COnverter losses to IEC61800-9-2*   Efficiency class   IE2   Comparison with the reference converter (90% / 100%)   9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   50% 3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)	Net weight	250 kg (551.16 lb)	
Height 1,621 mm (63.82 in)   Depth 393 mm (15.47 in)   Standards   Compliance with standards   Compliance with standards   Comperiance with standards   CONVERTER IOSSES TO IEC61800-9-2*   Efficiency class   IE2   Comparison with the reference converter (90% / 100%)   9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   100% 8,050.0 W (1.3 %) 9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   50% 3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)	Dimensions		
Depth 393 mm (15.47 in)   Standards   Compliance with standards UL, CUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH   Comperter losses UEC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC   Converter losses to IEC61800-9-2*   Efficiency class   IE2   Comparison with the reference converter (90% / 100%)   9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   100% 8,050.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)   50% 3,820.0 W (0.6 %) 2,730.0 W (0.4 %) 4,810.0 W (0.8 %)	Width	801 mm (31.54 in)	
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   Converter losses to IEC61800-9-2*   Efficiency class IE2   Comparison with the reference converter (90% / 100%) 9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   100% 8,050.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)   50% 3,820.0 W (0.4 %) 2,730.0 W (0.4 %) 4,810.0 W (0.8 %)	Height	1,621 mm (63.82 in)	
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   Converter losses to IEC61800-9-2*   Efficiency class IE2   Comparison with the reference converter (90% / 100%) 40.7 %   100% 8,050.0 W (1.3 %) 9,130.0 W (1.4 %)   100% 3,820.0 W (0.6 %) 4,280.0 W (0.7 %)   3,820.0 W (0.6 %) 2,730.0 W (0.4 %)	Depth	393 mm (15.47 in)	
Compliance with standards SEMI F47, REACH   CE marking EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC   Converter losses to IEC61800-9-2*   Efficiency class IE2   Comparison with the reference converter (90% / 100%) 40.7 %   100% 8,050.0 W (1.3 %) 9,130.0 W (1.4 %) 10,500.0 W (1.7 %)   50% 3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)		Standards	
Certaining   Voltage Directive 2006/95/EC     Converter losses to IEC61800-9-2*     Efficiency class   IE2     Comparison with the reference converter (90% / 100%)   40.7 %     100%   9,130.0 W (1.4 %)     100%   9,130.0 W (1.4 %)     10,500.0 W (1.7 %)   4,810.0 W (0.8 %)     50%   2,520.0 W (0.4 %)	Compliance with standards		
Efficiency class IE2 Comparison with the reference 40.7 % 8,050.0 W (1.3 %) 9,130.0 W (1.4 %) 10,500.0 W (1.7 %) 3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %) 2,520.0 W (0.4 %) 2,730.0 W (0.4 %)	CE marking		
Comparison with the reference converter (90% / 100%) 40.7 % 8,050.0 W (1.3 %) 9,130.0 W (1.4 %) 10,500.0 W (1.7 %) 3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %) 2,520.0 W (0.4 %) 2,730.0 W (0.4 %)	Converter l	osses to IEC61800-9-2*	
1 40.7 %   40.7 %   40.7 %   100%   8,050.0 W (1.3 %)   9,130.0 W (1.4 %)   10,500.0 W (1.7 %)   3,820.0 W (0.6 %)   2,520.0 W (0.4 %)   2,520.0 W (0.4 %)	Efficiency class	IE2	
100% 3,820.0 W (0.6 %) 2,520.0 W (0.4 %) 3,820.0 W (0.4 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %)		40.7 %	
3,820.0 W (0.6 %) 4,280.0 W (0.7 %) 4,810.0 W (0.8 %) 2,520.0 W (0.4 %) 2,730.0 W (0.4 %)		9,130.0 W (1.4 %) 10,500.0 W (1.7 %)	
2,520.0 W (0.4 %) 2,730.0 W (0.4 %)			
		4,280.0 W (0.7 %) 4,810.0 W (0.8 %)	
		2,730.0 W (0.4 %)	

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

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

<sup>3)</sup>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	Ambient temperature
Screen resolution	320 x 240 Pixel	Operation
	Mechanical data	Storage
Degree of protection	IP55 / UL type 12	Transport
Net weight	0.134 kg (0.30 lb)	Relative humidity at 25°C
Dimensions		Max. operation
Width	70.00 mm (2.76 in)	
Height	106.85 mm (4.21 in)	
Depth	19.65 mm (0.77 in)	Certificate of suitability

Ambient conditions		
Ambient temperature		
Operation	0 50 °C (32 122 °F)	
	55 °C only with door installation kit	
Storage	-40 70 °C (-40 158 °F)	
Transport	-40 70 °C (-40 158 °F)	
elative humidity at 25°C durin	ıg	
Max. operation	95 %	
	Approvals	
ertificate of suitability	CE, cULus, EAC, KCC, RCM	