# SIEMENS

Data sheet for SINAMICS G120X

#### Article No. :

#### 6SL3230-2YE24-0AP0



Figure similar

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

Rated data		
Input		
Number of phases	3 AC	
Line voltage	380 480 V +10 9	% -20 %
Line frequency	47 63 Hz	
Rated voltage	400V IEC	480V NEC
Rated current (LO)	17.00 A	14.30 A
Rated current (HO)	13.25 A	10.60 A
Output		
Number of phases	3 AC	
Rated voltage	400V IEC	480V NEC <sup>1)</sup>
Rated power (LO)	7.50 kW	10.00 hp
Rated power (HO)	5.50 kW	7.50 hp
Rated current (LO)	18.00 A	14.00 A
Rated current (HO)	13.20 A	11.00 A
Rated current (IN)	18.50 A	
Max. output current	24.00 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 $\lambda$	0.70 0.85	
Offset factor $\cos \phi$	0.96	
Efficiency η	0.97	
Sound pressure level (1m)	63 dB	
Power loss <sup>3)</sup>	0.259 kW	
Filter class (integrated)	RFI suppression filter for Category C2	
EMC category (with accessories)	Category C2	
Safety function "Safe Torque Off"	without SIRIUS device (e.g. via S7- 1500F)	
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 → 1	4 V	
$1 \rightarrow 0$	1.6 V	
Analog outputs		
Number	1 (Non-isolated output)	
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	No
Torque control, with encoder	No

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Ambient conditions		
Standard board coating type	Class 3C3, according to IEC 60721-3-3: 2002	
Cooling	Air cooling using an integrated fan	
Cooling air requirement	0.009 m³/s (0.325 ft³/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	
Connections		
Signal cable		
Conductor cross-section	0.15 1.50 mm² (AWG 24 AWG 16)	
Line side		
Version	screw-type terminal	
Conductor cross-section	1.50 6.00 mm² (AWG 16 AWG 10)	
Motor end		
Version	Screw-type terminals	
Conductor cross-section	1.50 6.00 mm² (AWG 16 AWG 10)	
DC link (for braking resistor)		
PE connection	On housing with M4 screw	
Max. motor cable length		
Shielded	150 m (492.13 ft)	

Frame size   FSB     Net weight   6.16 kg (13.58 lb)     Dimensions   100 mm (3.94 in)     Height   275 mm (10.83 in)     Depth   218 mm (8.58 in)     Standards     Compliance with standards     UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Converter losses to IEC61800-9-2*     Converter losses to IEC61800-9-2*     Efficiency class     IE2     Comparison with the reference converter (90% / 100%)     38.3 %     100%     100%   179.0 W (1.4 %)   209.0 W (1.7 %)   259.0 W (2.1 %)     50%     109.0 W (0.9 %)   121.0 W (1.0 %)   138.0 W (1.1 %)	Me	echanical data	
Number weight weight   6.16 kg (13.58 lb)     Dimensions     Width   100 mm (3.94 in)     Height   275 mm (10.83 in)     Depth   218 mm (8.58 in)     Compliance with standards   UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Compliance with standards   EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC     Converter losses   IE2     Comparison with the reference converter (90% / 100%)   38.3 %     100, for (1.4 %)   209.0 W (1.7 %)   259.0 W (2.1 %)     50%   109.0 W (0.9 %)   121.0 W (1.0 %)   138.0 W (1.1 %)	Degree of protection	IP20 / UL open type	
Dimensions     Width   100 mm (3.94 in)     Height   275 mm (10.83 in)     Depth   218 mm (8.58 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%)     209.0 W (1.7 %)     259.0 W (2.1 %)     10.0 W (0.9 %)     121.0 W (1.0 %)     138.0 W (1.1 %)     50%     8.0 W (0.7 %)	Frame size	FSB	
Width   100 mm (3.94 in)     Height   275 mm (10.83 in)     Depth   218 mm (8.58 in)     Standards     Compliance with standards     COnverter Iosses     EMC Directive 2004/108/EC, Low- Voltage Directive 2006/95/EC     Efficiency class     IE2     Converter Iosses     IE2     Omparison with the reference converter (90% / 100%)     100%   179.0 W (1.4 %)   209.0 W (1.7 %)   259.0 W (2.1 %)     100%   109.0 W (0.9 %)   121.0 W (1.0 %)   138.0 W (1.1 %)     50%   87.5 W (0.7 %)   92.8 W (0.7 %)   138.0 W (1.1 %)	Net weight	6.16 kg (13.58 lb)	
Height   275 mm (10.83 in)     Depth   218 mm (8.58 in)     Standards     Compliance with standards     Compliance with standards     Converter losses     Converter losses to IEC61800-9-2*     Efficiency class     IE2     Comparison with the reference converter (90% / 100%)     100%   179.0 W (1.4 %)     209.0 W (1.7 %)   259.0 W (2.1 %)     50%   109.0 W (0.9 %)   121.0 W (1.0 %)   138.0 W (1.1 %)	Dimensions		
Depth   218 mm (8.58 in)     Standards     Compliance with standards     Compliance with standards     CE marking     Converter losses     Converter losses to IEC61800-9-2*     Efficiency class     IE2     Comparison with the reference converter (90% / 100%)     10%   179.0 W (1.4 %)     209.0 W (1.7 %)   259.0 W (2.1 %)     50%   109.0 W (0.9 %)   121.0 W (1.0 %)   138.0 W (1.1 %)     50%   87.5 W (0.7 %)   92.8 W (0.7 %)   138.0 W (1.1 %)	Width	100 mm (3.94 in)	
Standards     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%)   38.3 %     100%   179.0 W (1.4 %)   209.0 W (1.7 %)   259.0 W (2.1 %)     50%   109.0 W (0.9 %)   121.0 W (1.0 %)   138.0 W (1.1 %)     50%   87.5 W (0.7 %)   92.8 W (0.7 %)   138.0 W (1.1 %)	Height	275 mm (10.83 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%)   38.3 %     100%   179.0 W (1.4 %)     209.0 W (1.7 %)   259.0 W (2.1 %)     50%   109.0 W (0.9 %)     109.0 W (0.9 %)   121.0 W (1.0 %)     121.0 W (1.0 %)   138.0 W (1.1 %)	Depth	218 mm (8.58 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%)   38.3 %     100%   179.0 W (1.4 %)   209.0 W (1.7 %)   259.0 W (2.1 %)     50%   109.0 W (0.9 %)   121.0 W (1.0 %)   138.0 W (1.1 %)     50%   87.5 W (0.7 %)   92.8 W (0.7 %)   138.0 W (1.1 %)		Standards	
Cernarking     Voltage Directive 2006/95/EC       Converter losses to IEC61800-9-2*       Efficiency class     IE2       Comparison with the reference converter (90% / 100%)     38.3 %       1     179.0 W (1.4 %)     209.0 W (1.7 %)       100%     109.0 W (0.9 %)     121.0 W (1.0 %)     138.0 W (1.1 %)       50%     87.5 W (0.7 %)     92.8 W (0.7 %)     138.0 W (1.1 %)	Compliance with standards		с,
Efficiency class IE2 Comparison with the reference converter (90% / 100%) 38.3 % 100% 179.0 W (1.4 %) 209.0 W (1.7 %) 259.0 W (2.1 %) 100% 109.0 W (0.9 %) 121.0 W (1.0 %) 138.0 W (1.1 %) 50% 87.5 W (0.7 %) 92.8 W (0.7 %)	CE marking		
Comparison with the reference converter (90% / 100%) 38.3 % 100% 100% 109.0 W (1.4 %) 209.0 W (1.7 %) 259.0 W (2.1 %) 109.0 W (0.9 %) 121.0 W (1.0 %) 138.0 W (1.1 %) 87.5 W (0.7 %) 92.8 W (0.7 %)	Converter lo	osses to IEC61800-9-2*	
100% 179.0 W (1.4 %) 209.0 W (1.7 %) 259.0 W (2.1 %)   100% 109.0 W (0.9 %) 121.0 W (1.0 %) 138.0 W (1.1 %)   50% 87.5 W (0.7 %) 92.8 W (0.7 %)	Efficiency class	IE2	
100% 109.0 W (0.9 %) 100% 109.0 W (0.9 %) 109.0 W (0.9 %) 121.0 W (1.0 %) 138.0 W (1.1 %) 138.0 W (1.1 %) 87.5 W (0.7 %) 92.8 W (0.7 %)		38.3 %	
50% •	• 🗭 179.0 W (1.4 %)	209.0 W (1.7 %) 259.0 W (2.1 %)	
50% •• 87.5 W (0.7 %) 92.8 W (0.7 %)			
		121.0 W (1.0 %) 138.0 W (1.1 %)	
		92.8 W (0.7 %)	
		50% 90% <b>f</b>	

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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#### Article No. :

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#### Operator panel: Basic Operator Panel (BOP-2)

Screen		
Display design	LCD, monochrome	
	Mechanical data	
Degree of protection	IP55 / UL type 12	
Net weight	0.140 kg (0.31 lb)	
Dimensions		
Width	70.00 mm (2.76 in)	
Height	106.85 mm (4.21 in)	
Depth	19.60 mm (0.77 in)	

Amb	Ambient conditions		
Ambient temperature			
Operation	0 50 °C (32 122 °F)		
Storage	-40 70 °C (-40 158 °F)		
Transport	-40 70 °C (-40 158 °F)		
Relative humidity at 25°C during	I		
Max. operation	95 %		
	Approvals		
Certificate of suitability	CE, cULus, EAC, KCC, RCM		

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