# SIEMENS

Data sheet for SINAMICS G120X

### Article No. :

### 6SL3230-1YH40-0UB0



Figure similar

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

Rated data		
Input		
Number of phases	3 AC	
Line voltage	500 690 V +10 % -20 %	
Line frequency	47 63 Hz	
Rated voltage	690V IEC	600V NEC
Rated current (LO)	59.00 A	59.00 A
Rated current (HO)	54.40 A	54.40 A
Output		
Number of phases	3 AC	
Rated voltage	690V IEC	600V NEC <sup>1)</sup>
Rated power (LO)	55.00 kW	60.00 hp
Rated power (HO)	45.00 kW	50.00 hp
Rated current (LO)	62.00 A	62.00 A
Rated current (HO)	52.00 A	52.00 A
Rated current (IN)	64.00 A	
Max. output current	84.00 A	
Pulse frequency	2 kHz	
Output frequency for vector control	0 200 Hz	
Output frequency for V/f control	0 550 Hz	
Overland comphility		

### **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 $\lambda$	0.90 0.95		
Offset factor $\cos \phi$	0.99		
Efficiency η	0.98		
Sound pressure level (1m)	70 dB		
Power loss <sup>3</sup> ) 1.360 kW			
Filter class (integrated) Unfiltered			
EMC category (with accessories) without			
Safety function "Safe Torque Off" without SIRIUS device (e.g. via S7- 1500F)			
Communication			

Communication

USS, Modbus RTU, BACnet MS/TP

ltem no. : Consignment no. : Project :

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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, set Thermo-Click, accuracy $\pm 5~^\circ\mathrm{C}$	nsors that can be connected PTC, KTY and	
Closed-loop co	ntrol techniques	

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	0.083 m³/s (2.931 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	
Conr	nections	
Signal cable		
Conductor cross-section	0.15 1.50 mm² (AWG 24 AWG 16)	
Line side		
Version	screw-type terminal	
Conductor cross-section	25.00 70.00 mm² (AWG 6 AWG 3/0)	
Motor end		
Version	Screw-type terminals	
Conductor cross-section	25.00 70.00 mm² (AWG 6 AWG 3/0)	
DC link (for braking resistor)		
PE connection	Screw-type terminals	
Max. motor cable length		
Shielded	300 m (984.25 ft)	
Unshielded	450 m (1,476.38 ft)	

Net weight   26.7 kg (58.86 lb)     Dimensions     Width   275 mm (10.83 in)     Height   551 mm (21.69 in)     Depth   248 mm (9.76 in)     Depth     Standards     UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Compliance with standards     UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Converter losses to IEC61800-9-2*     Efficiency class     IE2     Comparison with the reference converter (90% / 100%)     100%   1,010.0 W (1.4 %)   1,130.0 W (1.5 %)   1,350.0 W (1.8 %)     1,350.0 W (1.8 %)	Me	chanical data	
Net weight   26.7 kg (58.86 lb)     Dimensions   275 mm (10.83 in)     Width   275 mm (21.69 in)     Depth   248 mm (9.76 in)     Depth   248 mm (9.76 in)     Compliance with standards   UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Ct marking   EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC     Converter losses   IE2     Comparison with the reference converter (90% / 100%)   38.9 %     100%   1,010.0 W (1.4 %)   1,130.0 W (1.5 %)   1,350.0 W (1.8 %)     50%   616.0 W (0.8 %)   659.0 W (0.9 %)   727.0 W (1.0 %)	Degree of protection	IP20 / UL open type	
Dimensions       Width     275 mm (10.83 in)       Height     551 mm (21.69 in)       Depth     248 mm (9.76 in)       Standards       Compliance with standards       CMC Directive 2004/108/EC, Low- Voltage Directive 2006/95/EC       Converter Iosses to IEC61800-9-2*       Efficiency class     IE2       Comparison with the reference converter (90% / 100%)     38.9 %       100%     1.010.0 W (1.4 %)     1.130.0 W (1.5 %)     1.350.0 W (1.8 %)       50%     616.0 W (0.8 %)     659.0 W (0.9 %)     727.0 W (1.0 %)	Frame size	FSE	
Width   275 mm (10.83 in)     Height   551 mm (21.69 in)     Depth   248 mm (9.76 in)     Standards     UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Compliance with standards   UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Comperison with standards   UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     Efficiency class   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%)   1,130.0 W (1.5 %)   1,350.0 W (1.8 %)     100%   4.616.0 W (0.8 %)   659.0 W (0.9 %)   727.0 W (1.0 %)   727.0 W (1.0 %)	Net weight	26.7 kg (58.86 lb)	
Height   551 mm (21.69 in)     Depth   248 mm (9.76 in)     Standards     Compliance with standards     Compliance with standards     Converter losses     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%)     100%   1,010.0 W (1.4 %)   1,130.0 W (1.5 %)   1,350.0 W (1.8 %)     50%   616.0 W (0.8 %)   659.0 W (0.9 %)   727.0 W (1.0 %)	Dimensions		
Depth   248 mm (9.76 in)     Standards     Compliance with standards     Compliance with standards     CIL, CUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH     CE marking     Converter losses to IEC61800-9-2*     Efficiency class     IE2     Comparison with the reference converter (90% / 100%)     1.010.0 W (1.4 %)   1.130.0 W (1.5 %)   1.350.0 W (1.8 %)     50%   616.0 W (0.8 %)   659.0 W (0.9 %)   727.0 W (1.0 %)	Width	275 mm (10.83 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%)   38.9 %     100%   1,010.0 W (1.4 %)   1,130.0 W (1.5 %)   1,350.0 W (1.8 %)     50%   616.0 W (0.8 %)   659.0 W (0.9 %)   727.0 W (1.0 %)	Height	551 mm (21.69 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%)   38.9 %     1,010.0 W (1.4 %)   1,130.0 W (1.5 %)   1,350.0 W (1.8 %)     50%   616.0 W (0.8 %)   659.0 W (0.9 %)   727.0 W (1.0 %)	Depth	248 mm (9.76 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%)   38.9 %     1,010.0 W (1.4 %)   1,130.0 W (1.5 %)   1,350.0 W (1.8 %)     50%   616.0 W (0.8 %)   659.0 W (0.9 %)   727.0 W (1.0 %)		Standards	
Certaining     Voltage Directive 2006/95/EC       Converter losses to IEC61800-9-2*       Efficiency class     IE2       Comparison with the reference converter (90% / 100%)     38.9 %       1,010.0 W (1.4 %)     1,130.0 W (1.5 %)     1,350.0 W (1.8 %)       616.0 W (0.8 %)     659.0 W (0.9 %)     727.0 W (1.0 %)	Compliance with standards		(RCM), EAC, KCC,
Efficiency class IE2 Comparison with the reference 38.9 % 1,00% 1,010.0 W (1.4 %) 1,130.0 W (1.5 %) 1,350.0 W (1.8 %) 616.0 W (0.8 %) 50% 616.0 W (0.8 %) 727.0 W (1.0 %)	CE marking		
Comparison with the reference converter (90% / 100%) 38.9 % 1,010.0 W (1.4 %) 1,130.0 W (1.5 %) 1,350.0 W (1.8 %) 1,00% 616.0 W (0.8 %) 659.0 W (0.9 %) 727.0 W (1.0 %)	Converter lo	osses to IEC61800-9-2*	•
1,010.0 W (1.4 %) 1,130.0 W (1.5 %) 1,350.0 W (1.8 %)   100%  616.0 W (0.8 %) 659.0 W (0.9 %)   50%  727.0 W (1.0 %)	Efficiency class	IE2	
1,010.0 W (1.4 %) 1,130.0 W (1.5 %) 1,350.0 W (1.8 %) 616.0 W (0.8 %) 50% 616.0 W (0.8 %) 727.0 W (1.0 %) 727.0 W (1.0 %)		38.9 %	
100% 616.0 W (0.8 %) 50% 659.0 W (0.9 %) 727.0 W (1.0 %)	I ▲ 1,010.0 W (1.4 %)	1,130.0 W (1.5 %)	1,350.0 W (1.8 %)
50%	100% •	•	
		659.0 W (0.9 %)	727.0 W (1.0 %)
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	474.0 W (0.6 %)	492.0 W (0.7 %)	

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

90% **f** 

50%

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 550V-600V

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

### **Mouser Electronics**

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