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Data sheet for SINAMICS G120X

Article No. :

6SL3230-1YE24-0AP0



Figure similar

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

Rated data			
Input			
Number of phases	3 AC		
Line voltage	380 480 V +10 °	% -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 ¹⁾	
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 λ 0.70 0.85			
Offset factor $\cos \phi$	0.96		
Efficiency η	0.97		
Sound pressure level (1m) 63 dB			
Power loss ³) 0.259 kW			
Filter class (integrated) RFI suppression filter for Category C2			
EMC category (with accessories) Category C2			
Safety function "Safe Torque Off"	without		
Communication			

Communication

PROFIBUS DP

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 → 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			

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		
Co	nnections		
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			
	450 (402.42.6)		
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	chanical data	
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) 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 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 %)	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) Compliance with standards CUL, CUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH Comperiance with standards 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 %) 50% 87.5 W (0.7 %) 92.8 W (0.7 %) 138.0 W (1.1 %)	Frame size	FSB	
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Height 275 mm (10.83 in) Depth 218 mm (8.58 in) Compliance with standards Compliance with standards Comperiance 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 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%) 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 Iosses 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)	
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Certaining 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 %) 259.0 W (2.1 %) 50% 109.0 W (0.9 %) 121.0 W (1.0 %) 87.5 W (0.7 %) 92.8 W (0.7 %)	Compliance with standards		
Efficiency class IE2 Comparison with the reference 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*	
1 179.0 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 %) 100% 121.0 W (1.0 %) 138.0 W (1.1 %) 87.5 W (0.7 %) 92.8 W (0.7 %)		38.3 %	
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 %)	• 🗭 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 %)			
	109.0 W (0.9 %)	121.0 W (1.0 %)	138.0 W (1.1 %)
		92.8 W (0.7 %)	

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

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.