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Data sheet for SINAMICS G120X

Article No. :

6SL3220-2YE48-0AF0



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)	241.00 A	232.00 A
Rated current (HO)	218.00 A	191.00 A
Output		
Number of phases	3 AC	
Rated voltage	400V IEC	480V NEC ¹⁾
Rated power (LO)	132.00 kW	200.00 hp
Rated power (HO)	110.00 kW	150.00 hp
Rated current (LO)	250.00 A	240.00 A
Rated current (HO)	205.00 A	180.00 A
Rated current (IN)	256.00 A	
Max. output current	338.00 A	
Pulse frequency	2 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	0.90 0.95	
Offset factor $\cos \phi$	0.99	
Efficiency η	0.98	
Sound pressure level (1m)	72 dB	
Power loss ³⁾	3.160 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

PROFINET, EtherNet/IP

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 → 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 3C2, according to IEC 60721-3-3: 2002	
Cooling	Air cooling using an integrated fan	
Cooling air requirement	0.153 m³/s (5.403 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	M10 screw	
Conductor cross-section	35.00 2 x 120.00 mm² (AWG 1 AWG 2 x 4/0)	
Motor end		
Version	M10 screw	
Conductor cross-section	35.00 2 x 120.00 mm² (AWG 1 AWG 2 x 4/0)	
DC link (for braking resistor)		
PE connection	M10 screw	
Max. motor cable length		
Max. motor cable length Shielded	150 m (492.13 ft)	

Ν	Aechanical data	
Degree of protection	IP20 / UL open	type
Frame size	FSF	
Net weight	71 kg (156.53	lb)
Dimensions		
Width	305 mm (12.01	1 in)
Height	709 mm (27.9 ⁻	1 in)
Depth	369 mm (14.53	3 in)
	Standards	
Compliance with standards	UL, cUL, CE, C- SEMI F47, REAC	Tick (RCM), EAC, KCC, CH
CE marking	EMC Directive 2 Voltage Directiv	2004/108/EC, Low- ve 2006/95/EC
Converter	losses to IEC61800-9	9-2*
Efficiency class	IE2	
Comparison with the reference converter (90% / 100%)	44.6 %	
L ▲ 2,010.0 W (1.2 %) 100% ●	2,430.0 W (1.4 %)	3,160.0 W (1.8 %)
1,050.0 W (0.6 %)	1,210.0 W (0.7 %)	1,440.0 W (0.8 %)
25% 745.0 W (0.4 %)	810.0 W (0.5 %)	
	50%	90% f

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.

*calculated 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.

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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)	

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		
Max. operation	95 %	
Approvals		
Certificate of suitability	CE, cULus, EAC, KCC, RCM	