# SIEMENS

Data sheet for SINAMICS G120X

#### Article No. :

#### 6SL3220-3YH34-0UB0



Figure similar

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

Rate	ed 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)	33.00 A	33.00 A
Rated current (HO)	28.00 A	28.00 A
Output		
Number of phases	3 AC	
Rated voltage	690V IEC	600V NEC <sup>1)</sup>
Rated power (LO)	30.00 kW	30.00 hp
Rated power (HO)	22.00 kW	25.00 hp
Rated current (LO)	35.00 A	35.00 A
Rated current (HO)	27.00 A	27.00 A
Rated current (IN)	36.00 A	
Max. output current	48.00 A	
Pulse frequency	2 kHz	
Output frequency for vector control	0 200 Hz	
Output frequency for V/f control	0 550 Hz	
Overload capability		

#### 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> ) 0.802 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 :

First stand digital inputsNumber6Switching level: 0 → 111 VSwitching level: 1 → 05 VMax. inrush current15 mAJander Stafe digital inputs1Number1Jumber N1Output (resistive load)0Number as transistor0Jumber as transistor0Jumber as transistor0Number as transistor0Jumber as transistor0Jumber as transistor10 bitJumber as transistor16 VSwitching threshold as digital inputsJumber as transistor1.6 VJumber	Inputs / outputs		
Number11 VSwitching level: $1 \rightarrow 0$ 5 VMax. inrush current15 mAFail-safe digital inputsVumber1Output fresive load)Number as relay changeover contact2Output (resistive load)DC 30 V, 5.0 ANumber as transistor0Output fresive load)Number as transistor0Number as transistorNumber $2$ (Differential input)Resolution10 bitOutput freshold as digital input $0 \rightarrow 1$ $4 V$ $1 \rightarrow 0$ $1.6 V$ Halog outputs	Standard digital inputs		
Switching level: $1 \rightarrow 0$ $5 \vee$ Max. inrush current $15 \text{ mA}$ Fail-safe digital inputs $10$ Jumber $1$ Output $2$ Output (resistive load) $DC 30 \lor, 5.0 A$ Number as relay changeover contact $2$ Output (resistive load) $DC 30 \lor, 5.0 A$ Number as transistor $0$ Analog / digital inputs $2$ (Differential input)         Resolution $10$ bit         To $\rightarrow 1$ $4 \lor$ $1 \rightarrow 0$ $1.6 \lor$ Analog outputs $4 \lor$	Number	6	
Max. inrush current15 mAFail-safe digital inputs1Number1Digital outputs2Number as relay changeover contact2Output (resistive load)DC 30 V, 5.0 ANumber as transistor0Number as transistor0Kesolution2 (Differential input)Resolution10 bit $q \rightarrow 1$ 4 V $1 \rightarrow 0$ 1.6 VKesolutputs	Switching level: $0 \rightarrow 1$	11 V	
Fail-safe digital inputs       1         Number       1         Digital outputs       2         Output (resistive load)       DC 30 V, 5.0 A         Number as relay changeover contact       2         Output (resistive load)       DC 30 V, 5.0 A         Number as transistor       0         Anaber of digital inputs       2         Number as transistor       0         Anaber of digital inputs       2         Resolution       10 bit         Switching threshold as digital input       10 bit         1 → 0       4 V         1 → 0       1.6 V	Switching level: $1 \rightarrow 0$	5 V	
Number       1         bigital outputs       2         Number as relay changeover contact       2         Output (resistive load)       DC 30 V, 5.0 A         Number as transistor       0         Aumber as transistor       2 (Differential input)         Resolution       10 bit         tribug outputs       4 V         1 → 0       1.6 V         Analog outputs       1.6 V	Max. inrush current	15 mA	
Digital outputs         Number as relay changeover contact       2         Output (resistive load)       DC 30 V, 5.0 A         Number as transistor       0         Analog / digital inputs       2 (Differential input)         Resolution       10 bit         Switching threshold as digital input       1.6 V         I $\rightarrow 0$ 1.6 V	Fail-safe digital inputs		
Number as relay changeover contact       2         Output (resistive load)       DC 30 V, 5.0 A         Number as transistor       0         Analog / digital inputs       2 (Differential input)         Resolution       10 bit         Switching threshold as digital input       4 V $0 \rightarrow 1$ 4 V $1 \rightarrow 0$ 1.6 V         Analog outputs       1.6 V	Number	1	
Output (resistive load)DC 30 V, 5.0 ANumber as transistor0Analog / digital inputs2 (Differential input)Number2 (Differential input)Resolution10 bitSwitching threshold as digital input $0 \rightarrow 1$ 4 V $1 \rightarrow 0$ 1.6 VAnalog outputs	Digital outputs		
Number as transistor0Analog / digital inputs2Number2Resolution10 bitSwitching threshold as digital input $0 \rightarrow 1$ 4 V $1 \rightarrow 0$ 1.6 VAnalog outputs	Number as relay changeover contact	2	
Analog / digital inputsNumber2 (Differential input)Resolution10 bitSwitching threshold as digital input $0 \rightarrow 1$ 4 V $1 \rightarrow 0$ 1.6 VAnalog outputs	Output (resistive load)	DC 30 V, 5.0 A	
Number2 (Differential input)Resolution10 bitSwitching threshold as digital input $0 \rightarrow 1$ $4 \vee$ $1 \rightarrow 0$ $1.6 \vee$ Analog outputs	Number as transistor	0	
Resolution10 bitSwitching threshold as digital input $4 \vee$ $0 \rightarrow 1$ $4 \vee$ $1 \rightarrow 0$ $1.6 \vee$ Analog outputs	Analog / digital inputs		
Switching threshold as digital input $0 \rightarrow 1$ $4 \vee$ $1 \rightarrow 0$ $1.6 \vee$ Analog outputs $4 \vee$	Number	2 (Differential input)	
$\begin{array}{c} 0 \rightarrow 1 \\ 1 \rightarrow 0 \end{array} \qquad \qquad 4 \lor \\ 1.6 \lor \\ \begin{array}{c} \end{array} \\ \end{array}$	Resolution	10 bit	
$1 \rightarrow 0$ 1.6 V Analog outputs	Switching threshold as digital input		
Analog outputs	0 → 1	4 V	
	$1 \rightarrow 0$	1.6 V	
Number 1 (Non-isolated output)	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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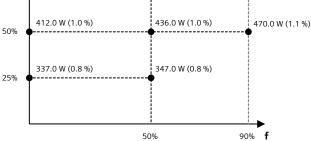
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Ambient conditions		
Standard board coating type	Class 3C2, according to IEC 60721-3-3: 2002	
Cooling	Air cooling using an integrated fan	
Cooling air requirement	0.055 m³/s (1.942 ft³/s)	
Installation altitude	1,000 m (3,280.84 ft)	
Ambient temperature		
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	onnections	
Signal cable		
Conductor cross-section	0.15 1.50 mm² (AWG 24 AWG 16)	
Line side		
Version	screw-type terminal	
Conductor cross-section	10.00 35.00 mm <sup>2</sup> (AWG 8 AWG 2)	
Motor end		
Version	Screw-type terminals	
Conductor cross-section	10.00 35.00 mm² (AWG 8 AWG 2)	
DC link (for braking resistor)		
PE connection	Screw-type terminals	
Max. motor cable length		
Shielded	200 m (656.17 ft)	
Unshielded	300 m (984.25 ft)	

Me	chanical data	
Degree of protection	IP20 / UL oper	n type
Frame size	FSD	
Net weight	16.6 kg (36.60	) lb)
Dimensions		
Width	200 mm (7.87	'in)
Height	472 mm (18.5	58 in)
Depth	248 mm (9.76	5 in)
	Standards	
Compliance with standards	UL, cUL, CE, C SEMI F47, REA	-Tick (RCM), EAC, KCC, ICH
CE marking		2004/108/EC, Low- ive 2006/95/EC
Converter lo	osses to IEC61800	9-2*
Efficiency class	IE2	
Comparison with the reference converter (90% / 100%)	39.8 %	
623.0 W (1.5 %)	687.0 W (1.6 %)	797.0 W (1.9 %)
412.0 W (1.0 %)	436.0 W (1.0 %)	470.0 W (1.1 %)



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 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.

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	Operator pan	el: Intelligent
	Screen	
Display design	LCD color	
Screen resolution	320 x 240 Pixel	
	Mechanical data	
Degree of protection	IP55 / UL type 12	
Net weight	0.134 kg (0.30 lb)	
Dimensions		
Width	70.00 mm (2.76 in)	
Height	106.85 mm (4.21 in)	
Depth	19.65 mm (0.77 in)	

Operator Panel (IOP-2)		
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)	
Relative humidity at 25°C durin	ıg	
Max. operation	95 %	
Approvals		
Certificate of suitability	CE, cULus, EAC, KCC, RCM	