# SIEMENS

Data sheet for SINAMICS G120X

#### Article No. :

#### 6SL3220-3YC30-0UB0



Figure similar

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

Rated data		
Input		
Number of phases	3 AC	
Line voltage	200 240 V +10 9	% -20 %
Line frequency	47 63 Hz	
Rated voltage	200V IEC	240V NEC
Rated current (LO)	64.00 A	64.00 A
Rated current (HO)	51.00 A	51.00 A
Output		
Number of phases	3 AC	
Rated voltage	200V IEC	240V NEC 1)
Rated power (LO)	18.50 kW	25.00 hp
Rated power (HO)	15.00 kW	20.00 hp
Rated current (LO)	68.00 A	68.00 A
Rated current (HO)	54.00 A	54.00 A
Rated current (IN)	70.00 A	
Max. output current	92.00 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 $\lambda$	0.90 0.95	
Offset factor $\cos \phi$	0.99	
Efficiency η	0.96	
Sound pressure level (1m)	70 dB	
Power loss <sup>3)</sup>	0.843 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 :

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		
$0 \rightarrow 1$	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

# SIEMENS

### Data sheet for SINAMICS G120X

#### Article No. :

#### 6SL3220-3YC30-0UB0

CoolingAir cooling using an integrated fanCooling air requirement0.055 m³/s (1.942 ft³/s)Installation altitude1,000 m (3,280.84 ft)Ambient temperatureOperation-20 45 °C (-4 113 °F)Transport-40 70 °C (-40 158 °F)Storage-25 55 °C (-13 131 °F)Relative humidity95 % At 40 °C (104 °F), condensation and icing not permissibleMax. operation95 % At 40 °C (104 °F), condensation and icing not permissibleSignal cableConnectionsConductor cross-section0.15 1.50 mm² (AWG 24 AWG 16)Line sideUVersionscrew-type terminal (AWG 8 AWG 2)Motor end10.00 35.00 mm² (AWG 8 AWG 2)VersionScrew-type terminals conductor cross-sectionConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)PL tink (for braking resistor)10.00 35.00 mm² (AWG 8 AWG 2)PE connectionScrew-type terminals conductor cross-sectionJ0.00 35.00 mm² (AWG 8 AWG 2)PE connectionScrew-type terminalsPE connectionScrew-type terminalsMax. motor cable lengthScrew-type terminalsShielded200 m (656.17 ft)	Ambient conditions		
Cooling air requirement     0.055 m³/s (1.942 ft³/s)       Installation altitude     1,000 m (3,280.84 ft)       Ambient temperature     -20 45 °C (-4 113 °F)       Transport     -40 70 °C (-40 158 °F)       Storage     -25 55 °C (-13 131 °F)       Relative humidity     Max. operation       Max. operation     95 % At 40 °C (104 °F), condensation and icing not permissible       Signal cable	Standard board coating type		
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 25 % At 40 °C (104 °F), condensation and icing not permissible Conductor cross-section 0.15 1.50 mm² (AWG 24 AWG 16) Line side Version cross-section 10.00 35.00 mm² (AWG 24 AWG 2) Motor end Version Screw-type terminal Conductor cross-section 10.00 35.00 mm² (AWG 8 AWG 2) Motor end Version Screw-type terminals Conductor cross-section 10.00 35.00 mm² (AWG 8 AWG 2) DUINK (for braking resistor) PE connection Screw-type terminals Ambient Screw-type terminals Ambient Screw-type terminals Ambient Screw-type terminals Conductor cross-section 10.00 35.00 mm² (AWG 8 AWG 2) DUINK (for braking resistor) PE connection Screw-type terminals Shielded 200 m (656.17 ft)	Cooling	Air cooling using an integrated fan	
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   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Version     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     PL ink (for braking resistor)   Version     PE connection   Screw-type terminals     Max. motor cable length   Screw-type terminals     Max. motor cable length   Support (AWG 8 AWG 2)	Cooling air requirement	0.055 m³/s (1.942 ft³/s)	
Operation-20 45 °C (-4 113 °F)Transport-40 70 °C (-40 158 °F)Storage-25 55 °C (-13 131 °F)Relative humidityMax. operationMax. operation95 % At 40 °C (104 °F), condensation and icing not permissibleConnectionsSignal cableConductor cross-sectionConductor cross-section0.15 1.50 mm² (AWG 24 AWG 16)Line sideVersionscrew-type terminal (AWG 8 AWG 2)Conductor cross-sectionVersionScrew-type terminalsconductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)VersionScrew-type terminalsConductor cross-sectionPE connectionScrew-type terminalsPE connectionScrew-type terminalsMax. motor cable lengthScrew-type terminalsScrew-type terminalsScrew-type terminals	Installation altitude	1,000 m (3,280.84 ft)	
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     Max. operation   95 % At 40 °C (104 °F), condensation and icing not permissible     Connections     Connections     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 mm² (AWG 8 AWG 2)     Wersion     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Determinals     Conductor cross-section     10.00 35.00 mm² (AWG 8 AWG 2)   10.00 35.00 mm² (AWG 8 AWG 2)     Determinals     Determinals     Conductor cross-section     10.00 35.00 mm² (AWG 8 AWG 2)   10.00 35.00 mm² (AWG 8 AWG 2)     Determinals     Determinals     Max. motor cable length     Bail (Ain Colspan= 2)     Determinals <	Ambient temperature		
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     Onductor cross-section   0.15 1.50 mm² (AWG 24 AWG 16)     Line side     Version   screw-type terminal     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Version     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Version     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     PE connection   Screw-type terminals     PE connection   Screw-type terminals     Max. motor cable length   Stielded     Shielded   200 m (656.17 ft)	Operation	-20 45 °C (-4 113 °F)	
Note of the second sec	Transport	-40 70 °C (-40 158 °F)	
Max. operation   95 % At 40 °C (104 °F), condensation and icing not permissible     Karring and permissible   Connections     Signal cable   0.15 1.50 mm² (AWG 24 AWG 16)     Conductor cross-section   0.15 1.50 mm² (AWG 24 AWG 16)     Line side   Version     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Version     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Version     Version   Screw-type terminals     Pe connection   Screw-type terminals     PE connection   Screw-type terminals     Shielded   200 m (656.17 ft)	Storage	-25 55 °C (-13 131 °F)	
Max. operation   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   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Version     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   10.00 35.00 mm² (AWG 8 AWG 2)     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     DC link (for braking resistor)   PE connection     PE connection   Screw-type terminals     Max. motor cable length   200 m (656.17 ft)	Relative humidity		
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 mm² (AWG 8 AWG 2)     Motor end     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Uersion     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Det link (for braking resistor)   Uersion     PE connection   Screw-type terminals     Max. motor cable length   200 m (656.17 ft)	Max. operation		
Conductor cross-section0.15 1.50 mm² (AWG 24 AWG 16)Line sideVersionscrew-type terminalConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)Motor endVersionVersionScrew-type terminalsConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)DeterminalScrew-type terminalsPE connectionScrew-type terminalsMax. motor cable lengthScrew-type terminalsShielded200 m (656.17 ft)	Connections		
Conductor cross-section(AWG 24 AWG 16)Line sideVersionscrew-type terminalConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)Motor endVersionScrew-type terminalsConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)Motor endVersionScrew-type terminalsConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)DC link (for braking resistor)PE connectionScrew-type terminalsMax. motor cable length200 m (656.17 ft)	Signal cable		
Versionscrew-type terminalConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)Motor endVersionVersionScrew-type terminalsConductor cross-section10.00 35.00 mm² (AWG 8 AWG 2)DC link (for braking resistor)PE connectionPE connectionScrew-type terminalsMax. motor cable length200 m (656.17 ft)	Conductor cross-section		
Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     Motor end   Version     Version   Screw-type terminals     Conductor cross-section   10.00 35.00 mm² (AWG 8 AWG 2)     DC link (for braking resistor)   DC link (for braking resistor)     PE connection   Screw-type terminals     Max. motor cable length   200 m (656.17 ft)	Line side		
Conductor cross-section (AWG 8 AWG 2)   Motor end Version   Version Screw-type terminals   Conductor cross-section 10.00 35.00 mm² (AWG 8 AWG 2)   DC link (for braking resistor) Version   PE connection Screw-type terminals   Max. motor cable length 200 m (656.17 ft)	Version	screw-type terminal	
Version Screw-type terminals   Conductor cross-section 10.00 35.00 mm² (AWG 8 AWG 2)   DC link (for braking resistor) PE connection   PE connection Screw-type terminals   Max. motor cable length 200 m (656.17 ft)	Conductor cross-section		
Conductor cross-section 10.00 35.00 mm² (AWG 8 AWG 2)   DC link (for braking resistor) PE connection   Strew-type terminals   Max. motor cable length   Shielded 200 m (656.17 ft)	Motor end		
Conductor cross-section (AWG 8 AWG 2)   DC link (for braking resistor) PE connection   PE connection Screw-type terminals   Max. motor cable length 200 m (656.17 ft)	Version	Screw-type terminals	
PE connection Screw-type terminals   Max. motor cable length 200 m (656.17 ft)	Conductor cross-section		
Max. motor cable length   Shielded   200 m (656.17 ft)	DC link (for braking resistor)		
Shielded     200 m (656.17 ft)	PE connection	Screw-type terminals	
	Max. motor cable length		
	Shielded	200 m (656.17 ft)	
Unshielded 300 m (984.25 ft)	Unshielded	300 m (984.25 ft)	

Me	echanical data	
Degree of protection	IP20 / UL oper	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	in)
	Standards	
Compliance with standards	UL, cUL, CE, C SEMI F47, REA	-Tick (RCM), EAC, KCC, CH
CE marking	EMC Directive Voltage Direct	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%)	60.0 %	
↓ 545.0 W (1.9 %)	660.0 W (2.3 %)	843.0 W (3.0 %)
310.0 W (1.1 %)	353.0 W (1.3 %)	413.0 W (1.5 %)
234.0 W (0.8 %)	252.0 W (0.9 %)	

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

50%

90% **f** 

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

<sup>1)</sup>The output current and HP ratings are valid for the voltage range 220V-240V

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

# SIEMENS

### Data sheet for SINAMICS G120X

#### Article No. :

#### 6SL3220-3YC30-0UB0

Operator panel: Intellige		
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 during	3	
Max. operation	95 %	
Approvals		
Certificate of suitability	CE, cULus, EAC, KCC, RCM	