

### MLFB-Ordering data

6SL3210-1KE21-3UB1



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

Item no.: Consignment no. : Project:

Rated da	ıta
nput	
Number of phases	3 AC
Line voltage	380 480 V +10 % -20 %
Line frequency	47 63 Hz
Rated current (LO)	16.50 A
Rated current (HO)	12.80 A
Output	
Number of phases	3 AC
Rated voltage	400 V
Rated power IEC 400V (LO)	5.50 kW
Rated power NEC 480V (LO)	7.50 hp
Rated power IEC 400V (HO)	4.00 kW
Rated power NEC 480V (HO)	5.00 hp
Rated current (IN)	13.00 A
Rated current (LO)	12.50 A
Rated current (HO)	8.80 A
Max. output current	17.60 A
Pulse frequency	4 kHz
Output frequency for vector control	0 240 Hz
Output frequency for V/f control	0 550 Hz

Overload ca	apability
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### Low Overload (LO)

150 % base load current IL for 3 s, followed by 110 % base load current IL for 57 s in a 300 s cycle time

### High Overload (HO)

200 % base load current IH for 3 s, followed by 150 % base load current IH for 57 s in a 300 s cycle time

General tech. specifications		
Power factor λ	0.70 0.85	
Office to feet and a second	211 2 111 2122	
Offset factor cos φ	0.95	
Efficiency η	0.97	
Sound pressure level (1m)	63 dB	
Power loss	0.18 kW	
Filter class (integrated)	Unfiltered	

Ambient conditions		
Cooling	Air cooling using an integrated fan	
Cooling air requirement	0.009 m³/s (0.318 ft³/s)	
Installation altitude	1000 m (3280.84 ft)	
Ambient temperature		
Operation	-10 40 °C (14 104 °F)	
Transport	-40 70 °C (-40 158 °F)	
Storage	-40 70 °C (-40 158 °F)	
Relative humidity		

Max. operation	95 % At 40 °C (104 °F), condensation and icing not permissible
Max. operation	and icing not permissible

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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Degree of protection IP20 / UL open type Communication  Size FSB CC  Net weight 2.30 kg (5.07 lb) Signal cable  Width 100 mm (3.94 in) Conductor cross-section  Height 196 mm (7.72 in) Line side  Depth 203 mm (7.99 in) Version  Inputs / outputs Conductor cross-section  Number 6 Version  Switching level: 0→1 11 V Conductor cross-section  Max. inrush current 15 mA  Switching level: 1→0 5 V  Max. inrush current 15 mA  Version  Conductor cross-section  Version  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Output (resistive load) DC 30 V, 0.5 A Shielded  Number as transistor 1 Unshielded	F
let weight  2.30 kg (5.07 lb)  Signal cable  Conductor cross-section  Line side  Version  Conductor cross-section  Inputs / outputs  Inputs / outputs  Conductor cross-section  Conductor cross-section  Motor end  Version  Conductor cross-section  Motor end  Version  Conductor cross-section  Motor end  Version  Conductor cross-section  DC link (for braking resiston  Max. inrush current  Is mA  Version  Conductor cross-section  DC link (for braking resiston  Version  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Dutput (resistive load)  DC 30 V, 0.5 A  Shielded  Unshielded  Dutput (resistive load)  DC 30 V, 0.5 A  Compliance with standards  Lumber  Line side  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Conductor cross-section  Co	mmunication
Net weight  2.30 kg (5.07 lb)  Signal cable  Conductor cross-section  Line side  Depth  203 mm (7.99 in)  Version  Conductor cross-section  Motor end  Version  Conductor cross-section  Switching level: 0→1  11 V  Conductor cross-section  DC link (for braking resiston  Max. inrush current  15 mA  Version  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Number as relay changeover contact  1  Output (resistive load)  DC 30 V, 0.5 A  Shielded  Unshielded  Compliance with standards  Number  1 (Differential input)	USS/MODBUS RTU
Midth 100 mm (3.94 in) Conductor cross-section Height 196 mm (7.72 in) Line side  Depth 203 mm (7.99 in) Version  Conductor cross-section  Motor end  Version  Conductor cross-section  Motor end  Version  Conductor cross-section  Motor end  Version  Conductor cross-section  DC link (for braking resiston  Max. inrush current 15 mA  Version  Conductor cross-section  DC link (for braking resiston  Version  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Dutput (resistive load) DC 30 V, 0.5 A  Number as rransistor 1  Dutput (resistive load) DC 30 V, 0.5 A  Compliance with standards  Number 1 (Differential input)	onnections
Height 196 mm (7.72 in)  Line side  Depth 203 mm (7.99 in)  Version  Conductor cross-section  Motor end  Version  Switching level: 0→1 11 V  Conductor cross-section  Switching level: 1→0 5 V  DC link (for braking resiston  Max. inrush current 15 mA  Version  Conductor cross-section  DC link (for braking resiston  Maxill-safe digital inputs  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Output (resistive load)  DC 30 V, 0.5 A  Number as transistor  DC 30 V, 0.5 A  Inalog / digital inputs  Compliance with standards  Number 1 (Differential input)	
Depth       203 mm (7.99 in)       Version         Inputs / outputs       Conductor cross-section         Motor end         Version         Switching level: 0→1       11 V       Conductor cross-section         Switching level: 1→0       5 V       DC link (for braking resiston)         Max. inrush current       15 mA       Version         Conductor cross-section         Line length, max.         PE connection         Max. motor cable length         Output (resistive load)       DC 30 V, 0.5 A       Shielded         Output (resistive load)       DC 30 V, 0.5 A       Compliance with standards         Number       1 (Differential input)	0.15 1.50 mm² (AWG 24 A
Inputs / outputs       Conductor cross-section         tandard digital inputs       Motor end         Number       6       Version         Switching level: 0→1       11 V       Conductor cross-section         Switching level: 1→0       5 V       DC link (for braking resiston         Max. inrush current       15 mA       Version         ail-safe digital inputs       Conductor cross-section         Number       1       Line length, max.         PE connection       Max. motor cable length         Output (resistive load)       DC 30 V, 0.5 A       Shielded         Number as transistor       1       Unshielded         Output (resistive load)       DC 30 V, 0.5 A       Compliance with standards         Number       1 (Differential input)	
Number 6 Version   Switching level: 0→1 11 V Conductor cross-section   Switching level: 1→0 5 V DC link (for braking resiston)   Max. inrush current 15 mA Version   ail-safe digital inputs Conductor cross-section   Number 1 Line length, max.   pE connection Max. motor cable length   Mumber as relay changeover contact 1 Max. motor cable length   Output (resistive load) DC 30 V, 0.5 A Shielded   Number as transistor 1 Unshielded   Output (resistive load) DC 30 V, 0.5 A Compliance with standards   Number 1 (Differential input)	Plug-in screw terminals
Number       6       Version         Switching level: 0→1       11 V       Conductor cross-section         Switching level: 1→0       5 V       DC link (for braking resiston         Max. inrush current       15 mA       Version         ail-safe digital inputs       Conductor cross-section         Number       1       Line length, max.         igital outputs       PE connection         Number as relay changeover contact       1       Max. motor cable length         Output (resistive load)       DC 30 V, 0.5 A       Shielded         Number as transistor       1       Unshielded         Output (resistive load)       DC 30 V, 0.5 A       Compliance with standards         Number       1 (Differential input)	4.00 6.00 mm² (AWG 12 A
Switching level: 0→1 11 V Conductor cross-section  Switching level: 1→0 5 V  Max. inrush current 15 mA  wersion  Conductor cross-section  Version  Conductor cross-section  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Output (resistive load) DC 30 V, 0.5 A  Shielded  Output (resistive load) DC 30 V, 0.5 A  Compliance with standards  Number  1 (Differential input)	
Switching level: 1→0 5 V  DC link (for braking resiston Version Version Conductor cross-section Line length, max. PE connection Max. motor cable length Output (resistive load) DC 30 V, 0.5 A  Number as ransistor 1 Unshielded  Number as ransistor 1 Unshielded  Number (resistive load) DC 30 V, 0.5 A  Compliance with standards  Number 1 (Differential input)	Plug-in screw terminals
Max. inrush current  Is mA  Version  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Output (resistive load)  Number as transistor  DC 30 V, 0.5 A  Shielded  Unshielded  Output (resistive load)  DC 30 V, 0.5 A  Compliance with standards  Number  1 (Differential input)	4.00 6.00 mm² (AWG 12 A
Version  Aumber 1  Digital outputs  Number as relay changeover contact 1  Output (resistive load)  Number as transistor 1  Output (resistive load)  DC 30 V, 0.5 A  Number as transistor 1  Output (resistive load)  Output (resistive load)  Output (resistive load)  DC 30 V, 0.5 A  Compliance with standards  Number 1 (Differential input)	or)
Number 1  Number 1  Number as relay changeover contact 1  Output (resistive load) DC 30 V, 0.5 A  Number as transistor 1  Output (resistive load) DC 30 V, 0.5 A  Shielded  Output (resistive load) DC 30 V, 0.5 A  Conductor cross-section  Line length, max.  PE connection  Max. motor cable length  Shielded  Unshielded  Output (resistive load) DC 30 V, 0.5 A  Compliance with standards  Number 1 (Differential input)	Plug-in screw terminals
Line length, max.  PE connection  Number as relay changeover contact  Output (resistive load)  DC 30 V, 0.5 A  Shielded  Number as transistor  Unshielded  Output (resistive load)  DC 30 V, 0.5 A  Compliance with standards  Number  1 (Differential input)	4.00 6.00 mm² (AWG 12 A
Number as relay changeover contact  Output (resistive load)  Number as transistor  Output (resistive load)  DC 30 V, 0.5 A  Shielded  Unshielded  Output (resistive load)  DC 30 V, 0.5 A  Compliance with standards  Number  1 (Differential input)	15 m (49.21 ft)
Number as relay changeover contact  Output (resistive load)  DC 30 V, 0.5 A  Shielded  Unshielded  Output (resistive load)  DC 30 V, 0.5 A  Unshielded  Output (resistive load)  DC 30 V, 0.5 A  Compliance with standards  Number  1 (Differential input)	On housing with M4 screw
Number as transistor 1 Unshielded  Output (resistive load) DC 30 V, 0.5 A  Inalog / digital inputs  Number 1 (Differential input)	On nousing with wire screw
Output (resistive load)  DC 30 V, 0.5 A  Compliance with standards  Number  1 (Differential input)	50 m (164.04 ft)
nalog / digital inputs  Compliance with standards  1 (Differential input)	150 m (492.13 ft)
Number 1 (Differential input)	Standards
Number 1 (Differential input)	UL, cUL, CE, C-Tick (RCM)
Resolution 10 bit CE marking	. , , , ,
	EMC Directive 2004/108/EC, Lov Directive 2006/95/EC
switching threshold as digital input	

0→1	4 V
1→0	1.6 V

### **Analog outputs**

Number	1 (Non-isolated output)
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### PTC/ KTY interface

1 motor temperature sensor input, sensors that can be connected: PTC, KTY and Thermo-Click, accuracy  $\pm 5~^{\circ}\text{C}$ 



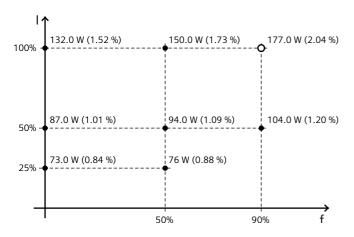
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# Converter losses to EN 50598-2\*

Efficiency class	IE2
Comparison with the reference converter (90% / 100%)	-66.06 %



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 EN 50598) 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.

<sup>\*</sup>converted values