

### **MLFB-Ordering data**

6SL3220-2YE12-0AF0



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

Item no.: Consignment no. : Project :

47 63 Hz 400V IEC	+10 % -20 %	Power factor λ  Offset factor cos φ  Efficiency η  Sound pressure level (1m)	0.70 0.85 0.96 0.98
380 480 V 47 63 Hz 400V IEC		Offset factor cos φ Efficiency η	0.96
380 480 V 47 63 Hz 400V IEC		Efficiency η	
47 63 Hz 400V IEC			0.98
400V IEC	480V NEC	Sound proceure level (1m)	
	480V NEC	Sound pressure level (1111)	55 dB
2 00 4	TOOV NEC	Power loss	0.050 kW
2.80 A	2.70 A		RFI suppression filter for
1.99 A	2.00 A		Category C2
		Ambier	nt conditions
3 AC			
400V IEC	480V NEC	Cooling	Air cooling using an integrated
1.10 kW	1.50 hp	Cooling air requirement	0.005 m³/s (0.177 ft³/s)
0.75 kW	1.00 hp	Installation altitude	1000 m (3280.84 ft)
3.10 A	3.00 A	Ambient temperature	
2.20 A	2.10 A	Operation	-20 45 °C (-4 113 °F)
3.20 A		Transport	-40 70 °C (-40 158 °F)
3.40 A		Storage	-25 55 °C (-13 131 °F)
4 kHz		Relative humidity	
0 200 Hz		Max. operation	95 % At 40 °C (104 °F), condens and icing not permissible
0 550 Hz		Closed-loon o	control techniques
	3 AC 400V IEC 1.10 kW 0.75 kW 3.10 A 2.20 A 3.20 A 3.40 A 4 kHz 0 200 Hz	3 AC 400V IEC 480V NEC  1.10 kW 1.50 hp 0.75 kW 1.00 hp 3.10 A 3.00 A 2.20 A 2.10 A 3.20 A 3.40 A 4 kHz 0 200 Hz	Ambier  3 AC  400V IEC 480V NEC  1.10 kW 1.50 hp Cooling air requirement  0.75 kW 1.00 hp Installation altitude  3.10 A 3.00 A Ambient temperature  2.20 A 2.10 A Operation  3.20 A Transport  3.40 A Storage  4 kHz Relative humidity  0 200 Hz Max. operation

Overload capability
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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

<b>.</b>	<u>-</u>
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	Yes
Torque control, with encoder	No



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Size FSA Connections  Net weight 3 kg (7.50 lb) Signal cable  Width 73 mm (2.87 in) Conductor cross-section 0.15 1.50 mm² (AWG 24 AW  Height 232 mm (9.13 in) Line side  Depth 209 mm (8.23 in) Version screw-type terminal  Inputs / outputs Conductor cross-section 1.50 2.50 mm² (AWG 18 AW  Motor end  Number 6 Version Screw-type terminals  Switching level: 0-1 11 V Conductor cross-section 1.50 2.50 mm² (AWG 18 AW  Switching level: 1-0 5 V DC link (for braking resistor)  Max. inrush current 15 mA  ail-safe digital inputs  Number 1 1  igital outputs  Number 2 1  igital outputs  Number 3 relay changeover contact 2  Output (resistive load) DC 30 V, 5.0 A  Number as relay changeover contact 2  Compliance with standards UL, cUL, CE, C-Tick (RCM), EAC, KC F47, REACH  CE marking  CE marking  EMC Directive 2004/108/EC, LowA  Directive 2006/95/EC  EMC Directive 2004/108/EC, LowA  Directive 2006/95/EC				Fig
Size	Mechanical	data	Com	nmunication
Net weight 3 kg (7.50 lb)  Signal cable  Width 73 mm (2.87 in) Conductor cross-section 0.15 1.50 mm² (AWG 24 AWG 24 AWG 25 mm (2.87 in)  Depth 209 mm (8.23 in)  Version Screw-type terminal  Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 25 mm² (AWG 18	Degree of protection	IP20 / UL open type	Communication	PROFINET / EtherNet/IP
Width 73 mm (2.87 in) Conductor cross-section 0.15 1.50 mm² (AWG 24 AWG 24 AWG 24 AWG 25 mm (9.13 in) Line side  Depth 209 mm (8.23 in) Version screw-type terminal  Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 25 mm) Motor end  Version Screw-type terminals  Number 6 Version Screw-type terminals  Switching level: 0→1 11 V Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 25 mm) Motor end  Version Screw-type terminals  Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 25 mm) Motor end  Version Screw-type terminals  Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 25 mm) Motor end  Version Screw-type terminals  Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 25 mm) Motor end  Version Screw-type terminal end	Size	FSA	Co	onnections
Height 232 mm (9.13 in)  Line side  Inputs / outputs  Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 18 A	Net weight	3 kg (7.50 lb)	Signal cable	
Depth   209 mm (8.23 in)   Version   Screw-type terminal	Width	73 mm (2.87 in)	Conductor cross-section	0.15 1.50 mm² (AWG 24 AWG
Inputs / outputs  tandard digital inputs  Motor end  Version Screw-type terminals  Switching level: 0→1 11 V Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG 50 Motor end)  Max. inrush current 15 mA  Max. inrush current 15 mA  PE connection On housing with M4 screw Max. motor cable length  Number 1 Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Standards  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  nalog / digital inputs  CE marking EMC Directive 2004/108/EC, Low-V Directive 2006/95/EC  witching threshold as digital input  0→1 4 V	Height	232 mm (9.13 in)	Line side	
Number 6 Version Screw-type terminals  Switching level: 0→1 11 V Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG  Switching level: 1→0 5 V DC link (for braking resistor)  Max. inrush current 15 mA  PE connection On housing with M4 screw Max. motor cable length  Shielded 200 m (656.17 ft)  igital outputs  Number 1 Shielded 300 m (984.25 ft)  Number as relay changeover contact 2 Standards  Output (resistive load) DC 30 V, 5.0 A  Number as transistor 0  nalog / digital inputs  Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  0→1 4 V	Depth	209 mm (8.23 in)	Version	screw-type terminal
Number 6 Version Screw-type terminals  Switching level: 0→1 11 V Conductor cross-section 1.50 2.50 mm² (AWG 18 AWG  Switching level: 1→0 5 V DC link (for braking resistor)  Max. inrush current 15 mA  PE connection On housing with M4 screw  Max. motor cable length  Number 1 Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Number as relay changeover contact 2 Standards  Output (resistive load) DC 30 V, 5.0 A  Number as transistor 0 Compliance with standards  Number 2 (Differential input)  Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  0→1 4 V	Inputs / ou	tputs	Conductor cross-section	1.50 2.50 mm² (AWG 18 AWG
Switching level: 0 → 1  11 V  Conductor cross-section  1.50 2.50 mm² (AWG 18 AWG of 18	tandard digital inputs		Motor end	
Switching level: 1 → 0  Max. inrush current  ail-safe digital inputs  Number  igital outputs  Number as relay changeover contact  Number as transistor  Number as transistor  nalog / digital inputs  Number  2 (Differential input)  Resolution  10 bit  CE marking  Connection  On housing with M4 screw  Max. motor cable length  Shielded  200 m (656.17 ft)  Unshielded  300 m (984.25 ft)  Compliance with standards  UL, cUL, CE, C-Tick (RCM), EAC, KCC F47, REACH  EMC Directive 2004/108/EC, Low-Vi Directive 2006/95/EC  CE marking	Number	6	Version	Screw-type terminals
Max. inrush current ail-safe digital inputs  Number 1 Shielded 200 m (656.17 ft) Unshielded 300 m (984.25 ft)  Number as relay changeover contact 2 Standards  Output (resistive load) DC 30 V, 5.0 A Number as transistor 0  nalog / digital inputs  Number 2 (Differential input) Resolution 10 bit  witching threshold as digital input  0→1  4 V	Switching level: 0→1	11 V	Conductor cross-section	1.50 2.50 mm² (AWG 18 AWG
All-safe digital inputs  Number 1  Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Number as relay changeover contact 2  Standards  Output (resistive load) DC 30 V, 5.0 A  Number as transistor 0  nalog / digital inputs  Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  0 1  A V	Switching level: 1→0	5 V	DC link (for braking resistor	)
Number 1  igital outputs  Number as relay changeover contact 2  Output (resistive load)  Number as transistor  nalog / digital inputs  Number  2 (Differential input)  Resolution  10 bit  Shielded  200 m (656.17 ft)  Unshielded  300 m (984.25 ft)  Compliance with standards  UL, cUL, CE, C-Tick (RCM), EAC, KCC F47, REACH  F47, REACH  EMC Directive 2004/108/EC, Low-Vin Directive 2006/95/EC  CE marking  EMC Directive 2006/95/EC	Max. inrush current	15 mA	PE connection	On housing with M4 screw
Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Unshielded 300 m (984.25 ft)  Standards  Output (resistive load) DC 30 V, 5.0 A  Number as transistor 0  nalog / digital inputs  Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  0→1 4 V	ail-safe digital inputs		Max. motor cable length	
igital outputs  Number as relay changeover contact  Output (resistive load)  Number as transistor  nalog / digital inputs  Number  2 (Differential input)  Resolution  10 bit  Unshielded  300 m (984.25 ft)  Compliance with standards  UL, cUL, CE, C-Tick (RCM), EAC, KCC F47, REACH  CE marking  EMC Directive 2004/108/EC, Low-Vi Directive 2006/95/EC	Number	1	Shielded	200 m (656.17 ft)
Number as relay changeover contact  Output (resistive load)  Number as transistor  Number  Number  2 (Differential input)  Resolution  10 bit  Standards  Output (resistive load)  DC 30 V, 5.0 A  Compliance with standards  F47, REACH  CE marking  CE marking  CE marking  CE marking  CE marking  CE marking	igital outputs		Unshielded	
Number as transistor 0  nalog / digital inputs  Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  0→1 4 V	Number as relay changeover contact	2	S	
Number as transistor 0  nalog / digital inputs  Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  0→1 4 ∨	Output (resistive load)	DC 30 V, 5.0 A		
Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  4 ∨	Number as transistor	0	Compliance with standards	
Number 2 (Differential input)  Resolution 10 bit  witching threshold as digital input  0→1 4 ∨	Analog / digital inputs			
witching threshold as digital input  0→1 4 ∨	Number	2 (Differential input)	CE marking	
0→1 4 V	Resolution	10 bit		
	witching threshold as digital in	put		
<b>1→0</b> 1.6 V	0→1	4 V		
	1→0	1.6 V		

## PTC/ KTY interface

**Analog outputs** 

Number

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

1 (Non-isolated output)



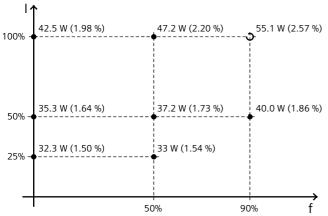
#### **MLFB-Ordering data**

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#### Converter losses to EN 50598-2\*

Efficiency class	IE2
Comparison with the reference converter (90% / 100%)	-31.30 %



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.

# Operator panel: Basic Operator Panel (BOP-2)

S	creen	Ambi	ent conditions	
Display design	LCD, monochrome	Ambient temperature duri	during	
		Operation	0 50 °C (32 122 °F)	
Mech	anical data	Storage	-40 70 °C (-40 158 °F)	
Degree of protection	IP55 / UL type 12	Transport	-40 70 °C (-40 158 °F)	
Net weight	0.14 kg (0.31 lb)	Relative humidity at 25°C d	luring	
Width	70.0 mm (2.76 in)	Max. operation	95 %	
Height	106.85 mm (4.21 in)		Approvals	
Depth	19.60 mm (0.77 in)		ημιοναίο	
		Certificate of suitability	CE, cULus, EAC, KCC, RCM	

<sup>\*</sup>converted values