

## **MLFB-Ordering data**

6SL3220-2YE40-0AF0



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

Item no.: Consignment no. : Project :

Rated da	ta		General tec	h. specifications
nput			Power factor λ	0.90 0.95
Number of phases	3 AC		Offset factor cos φ	0.99
Line voltage	380 480 V	+10 % -20 %	Efficiency η	0.98
Line frequency	47 63 Hz		Sound pressure level (1m)	70 dB
Rated voltage	400V IEC	480V NEC	Power loss	1.550 kW
Rated current (LO)	107.00 A	91.00 A	Filter class (integrated)	RFI suppression filter for
Rated current (HO)	94.00 A	80.00 A	Titler class (integrated)	Category C2
utput			Ambient conditions	
Number of phases	3 AC			
Rated voltage	400V IEC	480V NEC	Cooling	Air cooling using an integrated fan
Rated power (LO)	55.00 kW	75.00 hp	Cooling air requirement	0.083 m³/s (2.931 ft³/s)
Rated power (HO)	45.00 kW	50.00 hp	Installation altitude	1000 m (3280.84 ft)
Rated current (LO)	110.00 A	96.00 A	Ambient temperature	
Rated current (HO)	90.00 A	77.00 A	Operation	-20 45 °C (-4 113 °F)
Rated current (IN)	113.00 A		Transport	-40 70 °C (-40 158 °F)
Max. output current	149.00 A		Storage	-25 55 °C (-13 131 °F)
Pulse frequency	4 kHz		Relative humidity	
Output frequency for vector control	0 200 Hz		Max. operation	95 % At 40 °C (104 °F), condensati and icing not permissible
Output frequency for V/f control	0 550 Hz		Closed-loop o	control techniques

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

Yes
Yes
Yes
Yes
No
Yes
No



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tize FSE Connections  Signal cable  Vidth 275 mm (10.83 in) Conductor cross-section 0.15 1,50 mm² (AWG 24 deight 551 mm (21.69 in) Line side  Version screw-type terminal  Conductor cross-section 25.00 95,00 mm² (AWG 34 deight 239 mm (9.41 in) Version screw-type terminal  Conductor cross-section 25.00 95,00 mm² (AWG 34 deight 34 deight 35 mm (21.69 in) Line side  Version screw-type terminal  Motor end  Version Screw-type terminals  Max. inrush current 15 mA  PE connection Screw-type terminals  Max. motor cable length  Version Screw-type terminals  Version Scr	03	163220-21E40-0AF0		
tize FSE Connections  Signal cable  Vidith 275 mm (10.83 in) Conductor cross-section 0.15 1,50 mm² (AWG 24 teight 551 mm (21.69 in) Line side  Version screw-type terminal  Conductor cross-section 25.00 95,00 mm² (AWG 24 teight 239 mm (9.41 in) Version screw-type terminal  Inputs / outputs Conductor cross-section 25.00 95,00 mm² (AWG 24 teight 239 mm (9.41 in) Version Screw-type terminal  Motor end  Version Screw-type terminals  Motor end  Version Screw-type terminals  Version Screw-type terminals  Version Screw-type terminals  Version Screw-type terminals  Motor end  Version Screw-type terminals  Version Screw-type terminals  Max. inrush current 15 mA  PE connection Screw-type terminals  Max. motor cable length  Version Screw-type terminals  Version Screw-type terminals  Version Screw-type terminal  Version Screw-type terminals  Version Screw-type terminals  Version Screw-type terminals  Version	Mechanica	data	Com	ımunication
Signal cable  Vidith 275 mm (10.83 in) Conductor cross-section 0.15 1,50 mm² (AWG 24 leight 551 mm (21.69 in) Line side  Version screw-type terminal  Inputs / outputs Conductor cross-section 25.00 95.00 mm² (AWG 24 leight 239 mm (9.41 in) Version screw-type terminal  Inputs / outputs Conductor cross-section 25.00 95.00 mm² (AWG 24 lumber 6 Version Screw-type terminals lumber 11 V Conductor cross-section 25.00 95.00 mm² (AWG 25 lumber 25.00 95.00 mm² (AWG 26 lumber 25.00 lumber 25.0	Degree of protection	IP20 / UL open type	Communication	PROFINET / EtherNet/IP
Conductor cross-section 0.15 1.50 mm² (AWG 24 leight 551 mm (21.69 in) Line side  Line side  Line side  Line side  Line side  Conductor cross-section 55.00 95.00 mm² (AWG 24 leight 551 mm (21.69 in) Version screw-type terminal  Conductor cross-section 25.00 95.00 mm² (AWG 24 leight 551 mm (21.69 in) Version screw-type terminal  Conductor cross-section 55.00 95.00 mm² (AWG 24 leight 551 mm (21.69 in) Version Screw-type terminals  Line side  Motor end  Version Screw-type terminals  Conductor cross-section 25.00 95.00 mm² (AWG 24 leight 551 mm (21.69 in) Screw-type terminals  Witching level: 0→1 11 V Conductor cross-section 25.00 95.00 mm² (AWG 24 leight 65 leight 6	Size	FSE	Co	nnections
Line side  239 mm (9.41 in)  Inputs / outputs  Conductor cross-section  25.00 95.00 mm² (AWG Motor end  Version  Screw-type terminal  Motor end  Version  Screw-type terminals  De link (for braking resistor)  Max. inrush current  15 mA  PE connection  Screw-type terminals  Max. motor cable length  Max. motor cable length  Shielded  200 m (656.17 ft)  Unshielded  300 m (984.25 ft)  Unshielded  300 m (984.25 ft)  Motor end  Version  Screw-type terminals  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), InfeRCH  F47, REACH  EMC Directive 2004/108/EC  Directive 2006/95/EC  Witching threshold as digital input  A V	Net weight	29 kg (63.93 lb)	Signal cable	
Inputs / outputs  Conductor cross-section 25.00 95.00 mm² (AWG and ard digital inputs  Motor end  Version Screw-type terminals  Motor end  Version Screw-type terminals  Witching level: 0→1 11 V Conductor cross-section 25.00 95.00 mm² (AWG witching level: 1→0 5 V DC link (for braking resistor)  Max. inrush current 15 mA  PE connection Screw-type terminals  Max. motor cable length  Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Mumber as relay changeover contact 2  Standards  DC 30 V, 5.0 A  Lumber as transistor 0  Lumber as transistor 0  Lumber 2 (Differential input)  Lumber 2 (Differential input)  Lumber 3 (Differential input)  Lumber 4 (Differential input)  Lumber 4 (Differential input)  Lumber 5 (Differential input)  Lumber 6 (Differential input)  Lumber 7 (Differential input)  Lumber 8 (Differential input)	Width	275 mm (10.83 in)	Conductor cross-section	0.15 1.50 mm² (AWG 24
Inputs / outputs  Inputs / outputs  Motor end  Version Screw-type terminals  witching level: 0→1 11 V Conductor cross-section 25.00 95.00 mm² (AWG  witching level: 1→0 5 V DC link (for braking resistor)  Max. inrush current 15 mA  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)  Lumber as relay changeover contact 2  Standards  Lumber as transistor 0  Lumber as transistor 0  Lumber as transistor 0  Lumber 2 (Differential input)  Lumber 2 (Differential input)  Lumber 10 bit  Attriching threshold as digital input	Height	551 mm (21.69 in)	Line side	
Motor end  Version Screw-type terminals  witching level: 0→1 11 V Conductor cross-section 25.00 95.00 mm² (AWG  witching level: 1→0 5 V  Max. inrush current 15 mA  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)  Lumber as relay changeover contact 2  Standards  PE connection Screw-type terminals  Max. motor cable length  Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Compliance with standards  PE connection Screw-type terminals  Max. motor cable length  Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Compliance with standards  PE connection Screw-type terminals  Max. motor cable length  Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  EMC Directive 2004/108/EC  Directive 2006/95/EC  PE marking  EMC Directive 2004/108/EC  Directive 2006/95/EC	Depth	239 mm (9.41 in)	Version	screw-type terminal
Number 6 Version Screw-type terminals vitching level: 0→1 11 V Conductor cross-section 25.00 95.00 mm² (AWG witching level: 1→0 5 V DC link (for braking resistor)  Max. inrush current 15 mA  PE connection Screw-type terminals Max. motor cable length  Itumber 1 Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Unshielded 300 m (984.25 ft)  Unshielded 300 m (984.25 ft)  Unshielded Unshielded ULL, cUL, CE, C-Tick (RCM), IF F47, REACH  Itumber as transistor 0  Itumber as transistor 2 (Differential input)  Itumber 2 (Differential input)  essolution 10 bit  Itumber 4 V	Inputs / ou	tputs	Conductor cross-section	25.00 95.00 mm² (AWG 4
witching level: 0→1  11 V  Conductor cross-section  25.00 95.00 mm² (AWG witching level: 1→0  Max. inrush current  15 mA  PE connection  Max. motor cable length  Shielded  200 m (656.17 ft)  Unshielded  300 m (984.25 ft)  Unshielded  Standards  Standards  Standards  Standards  Standards  UL, cUL, CE, C-Tick (RCM), I F47, REACH  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), I F47, REACH  EMC Directive 2004/108/EC Directive 2006/95/EC  CE marking  EMC Directive 2006/95/EC	tandard digital inputs		Motor end	
witching level: 1→0 5 V  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)  Unshielded 300 m (984.25 ft)  Compliance with standards  PE connection Screw-type terminals  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), IF F47, REACH  PE connection Screw-type terminals  Max. motor cable length  Unshielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Compliance with standards  UL, cUL, CE, C-Tick (RCM), IF F47, REACH  EMC Directive 2004/108/EC  Directive 2006/95/EC  PE connection Screw-type terminals  Max. motor cable length  Compliance with standards  UL, cult, CE, C-Tick (RCM), IF F47, REACH  EMC Directive 2004/108/EC  Directive 2006/95/EC	Number	6	Version	Screw-type terminals
Aax. inrush current  Is mA  PE connection  Max. motor cable length  Shielded  Shielded  200 m (656.17 ft)  Unshielded  300 m (984.25 ft)  Unshielded  Standards  Standards  Compliance with standards  Lumber as transistor  Lumber as transistor  Lumber as transistor  Lumber 2 (Differential input)  Lumber 2 (Differential input)  Lumber 3 (Differential input)  Lumber 4 (Directive 2006/95/EC)  Lumber 4 (Directive 2006/95/EC)  Lumber 4 (Directive 2006/95/EC)  Lumber 4 (Directive 2006/95/EC)	Switching level: 0→1	11 V	Conductor cross-section	25.00 95.00 mm² (AWG <sup>2</sup>
PE connection Screw-type terminals  Max. motor cable length  Shielded 200 m (656.17 ft) Unshielded 300 m (984.25 ft)  Unshielded Uns	Switching level: 1→0	5 V	DC link (for braking resistor)	)
Shielded 200 m (656.17 ft)  Shielded 200 m (656.17 ft)  Unshielded 300 m (984.25 ft)  Unshielded 300 m (984.25 ft)  Standards  Standards  Compliance with standards F47, REACH  Lumber as transistor 0  Lumber as transistor 2 (Differential input)  Lumber 2 (Differential input)  Limber 2 (Differential input)  Limber 2 (Differential input)  Limber 2 (Differential input)  Limber 3 (Differential input)  Limber 4 (Differential input)  Limber 4 (Differential input)  Limber 4 (Differential input)	Max. inrush current	15 mA	PE connection	Screw-type terminals
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  Unshielded 300 m (984.25 ft)  Compliance with standards UL, cUL, CE, C-Tick (RCM), I F47, REACH  Compliance with standards EMC Directive 2004/108/EC Directive 2006/95/EC  CE marking  CE marking  CE marking	ail-safe digital inputs		Max. motor cable length	
Unshielded 300 m (984.25 ft)  Standards  Definition of the standards of t	Number	1	Shielded	200 m (656.17 ft)
Dutput (resistive load)  DC 30 V, 5.0 A  Compliance with standards  LUL, cUL, CE, C-Tick (RCM), In F47, REACH  Compliance with standards  LUL, cUL, CE, C-Tick (RCM), In F47, REACH  Compliance with standards  LUL, cUL, CE, C-Tick (RCM), In F47, REACH  CE marking  EMC Directive 2004/108/EC  Directive 2006/95/EC  A V	igital outputs		Unshielded	300 m (984.25 ft)
Compliance with standards  Compliance with standards  F47, REACH  EMC Directive 2004/108/EC  Directive 2006/95/EC  CE marking  CE marking  CE marking  A V	Number as relay changeover contact	2	S	tandards
lumber as transistor 0  ralog / digital inputs lumber 2 (Differential input)  resolution 10 bit  vitching threshold as digital input  4 ∨  4 ∨	Output (resistive load)	DC 30 V, 5.0 A		III alli CE C Tial (DCM) E
lumber 2 (Differential input)  esolution 10 bit  vitching threshold as digital input  4 ∨	Number as transistor	0	Compliance with standards	
lumber 2 (Differential input)  esolution 10 bit  vitching threshold as digital input  4 V	nalog / digital inputs			EMC D' - 1' - 2004 400 EC
vitching threshold as digital input  →1 4 V	Number	2 (Differential input)	CE marking	-: .:
→ <b>1</b> 4 V	Resolution	10 bit		
	witching threshold as digital in	put		
→ <b>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**

#### 6SL3220-2YE40-0AF0

90%



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

Efficier	ncy class		IE2
Compa 100%)	rison with the reference o	converter (90% /	-48.30 %
1	1190.7 W (1.56 %)	. 1390.6 W (1.82 %)	1727.8 W (2.27 %)
100% →			
50% →	660.7 W (0.87 %)	733.1 W (0.96 %)	840.6 W (1.10 %)
25% →	481.9 W (0.63 %)	512 W (0.67 %)	
		 	•

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

50%

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	ng
		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