

### MLFB-Ordering data

6SL3210-1KE23-8UB1



Figure similar

Client order no. :

Order no. :

Offer no. :

Remarks :

Item no. :

Consignment no. :

Project :

Rated data	General tech. specifications																																								
<b>Input</b> <table> <tr> <td>Number of phases</td><td>3 AC</td></tr> <tr> <td>Line voltage</td><td>380 ... 480 V +10 % -20 %</td></tr> <tr> <td>Line frequency</td><td>47 ... 63 Hz</td></tr> <tr> <td>Rated current (LO)</td><td>48.20 A</td></tr> <tr> <td>Rated current (HO)</td><td>45.20 A</td></tr> </table>	Number of phases	3 AC	Line voltage	380 ... 480 V +10 % -20 %	Line frequency	47 ... 63 Hz	Rated current (LO)	48.20 A	Rated current (HO)	45.20 A	<table> <tr> <td>Power factor <math>\lambda</math></td><td>0.70 ... 0.85</td></tr> <tr> <td>Offset factor <math>\cos \varphi</math></td><td>0.95</td></tr> <tr> <td>Efficiency <math>\eta</math></td><td>0.97</td></tr> <tr> <td>Sound pressure level (1m)</td><td>66 dB</td></tr> <tr> <td>Power loss</td><td>0.50 kW</td></tr> </table>	Power factor $\lambda$	0.70 ... 0.85	Offset factor $\cos \varphi$	0.95	Efficiency $\eta$	0.97	Sound pressure level (1m)	66 dB	Power loss	0.50 kW																				
Number of phases	3 AC																																								
Line voltage	380 ... 480 V +10 % -20 %																																								
Line frequency	47 ... 63 Hz																																								
Rated current (LO)	48.20 A																																								
Rated current (HO)	45.20 A																																								
Power factor $\lambda$	0.70 ... 0.85																																								
Offset factor $\cos \varphi$	0.95																																								
Efficiency $\eta$	0.97																																								
Sound pressure level (1m)	66 dB																																								
Power loss	0.50 kW																																								
<b>Output</b> <table> <tr> <td>Number of phases</td><td>3 AC</td></tr> <tr> <td>Rated voltage</td><td>400 V</td></tr> <tr> <td>Rated power IEC 400V (LO)</td><td>18.50 kW</td></tr> <tr> <td>Rated power NEC 480V (LO)</td><td>25.00 hp</td></tr> <tr> <td>Rated power IEC 400V (HO)</td><td>15.00 kW</td></tr> <tr> <td>Rated power NEC 480V (HO)</td><td>20.00 hp</td></tr> <tr> <td>Rated current (IN)</td><td>38.00 A</td></tr> <tr> <td>Rated current (LO)</td><td>37.00 A</td></tr> <tr> <td>Rated current (HO)</td><td>31.00 A</td></tr> <tr> <td>Max. output current</td><td>62.00 A</td></tr> <tr> <td>Pulse frequency</td><td>4.000 kHz</td></tr> <tr> <td>Output frequency for vector control</td><td>0 ... 240 Hz</td></tr> <tr> <td>Output frequency for V/f control</td><td>0 ... 550 Hz</td></tr> </table>	Number of phases	3 AC	Rated voltage	400 V	Rated power IEC 400V (LO)	18.50 kW	Rated power NEC 480V (LO)	25.00 hp	Rated power IEC 400V (HO)	15.00 kW	Rated power NEC 480V (HO)	20.00 hp	Rated current (IN)	38.00 A	Rated current (LO)	37.00 A	Rated current (HO)	31.00 A	Max. output current	62.00 A	Pulse frequency	4.000 kHz	Output frequency for vector control	0 ... 240 Hz	Output frequency for V/f control	0 ... 550 Hz	<b>Ambient conditions</b> <table> <tr> <td>Cooling</td><td>Air cooling using an integrated fan</td></tr> <tr> <td>Cooling air requirement</td><td>0.018 m³/s (0.636 ft³/s)</td></tr> <tr> <td>Installation altitude</td><td>1000 m (3280.84 ft)</td></tr> </table> <b>Ambient temperature</b> <table> <tr> <td>Operation</td><td>-10 ... 40 °C (14 ... 104 °F)</td></tr> <tr> <td>Transport</td><td>-40 ... 70 °C (-40 ... 158 °F)</td></tr> <tr> <td>Storage</td><td>-40 ... 70 °C (-40 ... 158 °F)</td></tr> </table> <b>Relative humidity</b> <table> <tr> <td>Max. operation</td><td>95 % At 40 °C (104 °F), condensation and icing not permissible</td></tr> </table>	Cooling	Air cooling using an integrated fan	Cooling air requirement	0.018 m³/s (0.636 ft³/s)	Installation altitude	1000 m (3280.84 ft)	Operation	-10 ... 40 °C (14 ... 104 °F)	Transport	-40 ... 70 °C (-40 ... 158 °F)	Storage	-40 ... 70 °C (-40 ... 158 °F)	Max. operation	95 % At 40 °C (104 °F), condensation and icing not permissible
Number of phases	3 AC																																								
Rated voltage	400 V																																								
Rated power IEC 400V (LO)	18.50 kW																																								
Rated power NEC 480V (LO)	25.00 hp																																								
Rated power IEC 400V (HO)	15.00 kW																																								
Rated power NEC 480V (HO)	20.00 hp																																								
Rated current (IN)	38.00 A																																								
Rated current (LO)	37.00 A																																								
Rated current (HO)	31.00 A																																								
Max. output current	62.00 A																																								
Pulse frequency	4.000 kHz																																								
Output frequency for vector control	0 ... 240 Hz																																								
Output frequency for V/f control	0 ... 550 Hz																																								
Cooling	Air cooling using an integrated fan																																								
Cooling air requirement	0.018 m³/s (0.636 ft³/s)																																								
Installation altitude	1000 m (3280.84 ft)																																								
Operation	-10 ... 40 °C (14 ... 104 °F)																																								
Transport	-40 ... 70 °C (-40 ... 158 °F)																																								
Storage	-40 ... 70 °C (-40 ... 158 °F)																																								
Max. operation	95 % At 40 °C (104 °F), condensation and icing not permissible																																								
<b>Overload capability</b> <table> <tr> <td>Low Overload (LO)</td><td>150 % base load current IL for 3 s, followed by 110 % base load current IL for 57 s in a 300 s cycle time</td></tr> <tr> <td>High Overload (HO)</td><td>200 % base load current IH for 3 s, followed by 150 % base load current IH for 57 s in a 300 s cycle time</td></tr> </table>	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	<b>Closed-loop control techniques</b> <table> <tr> <td>V/f linear / square-law / parameterizable</td><td>Yes</td></tr> <tr> <td>V/f with flux current control (FCC)</td><td>Yes</td></tr> <tr> <td>V/f ECO linear / square-law</td><td>Yes</td></tr> <tr> <td>Sensorless vector control</td><td>Yes</td></tr> <tr> <td>Vector control, with sensor</td><td>No</td></tr> <tr> <td>Encoderless torque control</td><td>No</td></tr> <tr> <td>Torque control, with encoder</td><td>No</td></tr> </table>	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																						
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																																								
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																																								
	<b>Communication</b> <table> <tr> <td>Communication</td><td>RS485</td></tr> </table>	Communication	RS485																																						
Communication	RS485																																								



Figure similar

Mechanical data	
Degree of protection	IP20 / UL open type
Size	FSC
Net weight	4.40 kg (9.70 lb)
Width	140 mm (5.51 in)
Height	295 mm (11.61 in)
Depth	203 mm (7.99 in)

### Inputs / outputs

#### Standard digital inputs

Number	6
Switching level: 0→1	11 V
Switching level: 1→0	5 V
Max. inrush current	15 mA

#### Fail-safe digital inputs

Number	1
--------	---

#### Digital outputs

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

#### Analog / digital inputs

Number	1 (Differential input)
Resolution	10 bit

#### Switching threshold as digital input

0→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 ±5 °C
------------------------------------------------------------------------------------------------------------

### Connections

#### Signal cable

Conductor cross-section	0.15 ... 1.50 mm² (AWG 24 ... AWG 16)
-------------------------	---------------------------------------

#### Line side

Version	Plug-in screw terminals
---------	-------------------------

Conductor cross-section	6.00 ... 16.00 mm² (AWG 10 ... AWG 6)
-------------------------	---------------------------------------

#### Motor end

Version	Plug-in screw terminals
---------	-------------------------

Conductor cross-section	6.00 ... 16.00 mm² (AWG 10 ... AWG 6)
-------------------------	---------------------------------------

#### DC link (for braking resistor)

Version	Plug-in screw terminals
---------	-------------------------

Conductor cross-section	6.00 ... 16.00 mm² (AWG 10 ... AWG 6)
-------------------------	---------------------------------------

Line length, max.	15 m (49.21 ft)
-------------------	-----------------

PE connection	On housing with M4 screw
---------------	--------------------------

#### Max. motor cable length

Shielded	150 m (492.13 ft)
----------	-------------------

Unshielded	150 m (492.13 ft)
------------	-------------------

### Standards

Compliance with standards	UL, cUL, CE, C-Tick (RCM)
---------------------------	---------------------------

CE marking	EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC
------------	-------------------------------------------------------------

MLFB-Ordering data

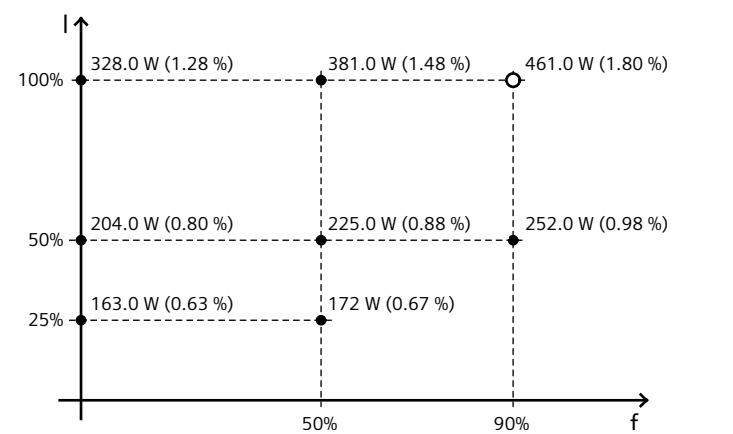
6SL3210-1KE23-8UB1



Figure similar

Converter losses to EN 50598-2\*

Efficiency class	IE2
Comparison with the reference converter (90% / 100%)	-64.36 %



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.

\*converted values