



Figure similar

MLFB-Ordering data

6SL3210-1KE28-4AF1

Client order no. :

Order no. :

Offer no. :

Remarks :

Item no. :

Consignment no. :

Project :

Rated data	General tech. specifications																																								
Input <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>76.00 A</td></tr> <tr> <td>Rated current (HO)</td><td>69.00 A</td></tr> </table>	Number of phases	3 AC	Line voltage	380 ... 480 V +10 % -20 %	Line frequency	47 ... 63 Hz	Rated current (LO)	76.00 A	Rated current (HO)	69.00 A	<table> <tr> <td>Power factor λ</td><td>0.90 ... 0.95</td></tr> <tr> <td>Offset factor $\cos \phi$</td><td>0.99</td></tr> <tr> <td>Efficiency η</td><td>0.98</td></tr> <tr> <td>Sound pressure level (1m)</td><td>72 dB</td></tr> <tr> <td>Power loss</td><td>1.02 kW</td></tr> <tr> <td>Filter class (integrated)</td><td>Class A</td></tr> </table>	Power factor λ	0.90 ... 0.95	Offset factor $\cos \phi$	0.99	Efficiency η	0.98	Sound pressure level (1m)	72 dB	Power loss	1.02 kW	Filter class (integrated)	Class A																		
Number of phases	3 AC																																								
Line voltage	380 ... 480 V +10 % -20 %																																								
Line frequency	47 ... 63 Hz																																								
Rated current (LO)	76.00 A																																								
Rated current (HO)	69.00 A																																								
Power factor λ	0.90 ... 0.95																																								
Offset factor $\cos \phi$	0.99																																								
Efficiency η	0.98																																								
Sound pressure level (1m)	72 dB																																								
Power loss	1.02 kW																																								
Filter class (integrated)	Class A																																								
Output <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>45.00 kW</td></tr> <tr> <td>Rated power NEC 480V (LO)</td><td>50.00 hp</td></tr> <tr> <td>Rated power IEC 400V (HO)</td><td>37.00 kW</td></tr> <tr> <td>Rated power NEC 480V (HO)</td><td>40.00 hp</td></tr> <tr> <td>Rated current (IN)</td><td>82.50 A</td></tr> <tr> <td>Rated current (LO)</td><td>82.50 A</td></tr> <tr> <td>Rated current (HO)</td><td>68.00 A</td></tr> <tr> <td>Max. output current</td><td>136.00 A</td></tr> <tr> <td>Pulse frequency</td><td>4 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)	45.00 kW	Rated power NEC 480V (LO)	50.00 hp	Rated power IEC 400V (HO)	37.00 kW	Rated power NEC 480V (HO)	40.00 hp	Rated current (IN)	82.50 A	Rated current (LO)	82.50 A	Rated current (HO)	68.00 A	Max. output current	136.00 A	Pulse frequency	4 kHz	Output frequency for vector control	0 ... 240 Hz	Output frequency for V/f control	0 ... 550 Hz	Ambient conditions <table> <tr> <td>Cooling</td><td>Air cooling using an integrated fan</td></tr> <tr> <td>Cooling air requirement</td><td>0.055 m³/s (1.942 ft³/s)</td></tr> <tr> <td>Installation altitude</td><td>1000 m (3280.84 ft)</td></tr> </table> Ambient temperature <table> <tr> <td>Operation</td><td>-20 ... 40 °C (-4 ... 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> Relative humidity <table> <tr> <td>Max. operation</td><td>95 % RH, condensation not permitted</td></tr> </table>	Cooling	Air cooling using an integrated fan	Cooling air requirement	0.055 m³/s (1.942 ft³/s)	Installation altitude	1000 m (3280.84 ft)	Operation	-20 ... 40 °C (-4 ... 104 °F)	Transport	-40 ... 70 °C (-40 ... 158 °F)	Storage	-40 ... 70 °C (-40 ... 158 °F)	Max. operation	95 % RH, condensation not permitted
Number of phases	3 AC																																								
Rated voltage	400 V																																								
Rated power IEC 400V (LO)	45.00 kW																																								
Rated power NEC 480V (LO)	50.00 hp																																								
Rated power IEC 400V (HO)	37.00 kW																																								
Rated power NEC 480V (HO)	40.00 hp																																								
Rated current (IN)	82.50 A																																								
Rated current (LO)	82.50 A																																								
Rated current (HO)	68.00 A																																								
Max. output current	136.00 A																																								
Pulse frequency	4 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	0.055 m³/s (1.942 ft³/s)																																								
Installation altitude	1000 m (3280.84 ft)																																								
Operation	-20 ... 40 °C (-4 ... 104 °F)																																								
Transport	-40 ... 70 °C (-40 ... 158 °F)																																								
Storage	-40 ... 70 °C (-40 ... 158 °F)																																								
Max. operation	95 % RH, condensation not permitted																																								
Overload capability <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	Closed-loop control techniques <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																																								



Figure similar

MLFB-Ordering data

6SL3210-1KE28-4AF1

Mechanical data	
Degree of protection	IP20 / UL open type
Size	FSD
Net weight	19.50 kg (42.99 lb)
Width	200 mm (7.87 in)
Height	472 mm (18.58 in)
Depth	237 mm (9.33 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
--

Communication	
---------------	--

Communication	PROFINET, EtherNet/IP
---------------	-----------------------

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	Screw-type terminals
Conductor cross-section	10.00 ... 35.00 mm² (AWG 8 ... AWG 2)

DC link (for braking resistor)

Version	Screw-type terminals
Conductor cross-section	10.00 ... 35.00 mm² (AWG 8 ... AWG 2)
Line length, max.	10 m (32.81 ft)
PE connection	Screw-type terminals

Max. motor cable length

Shielded	200 m (656.17 ft)
Unshielded	300 m (984.25 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

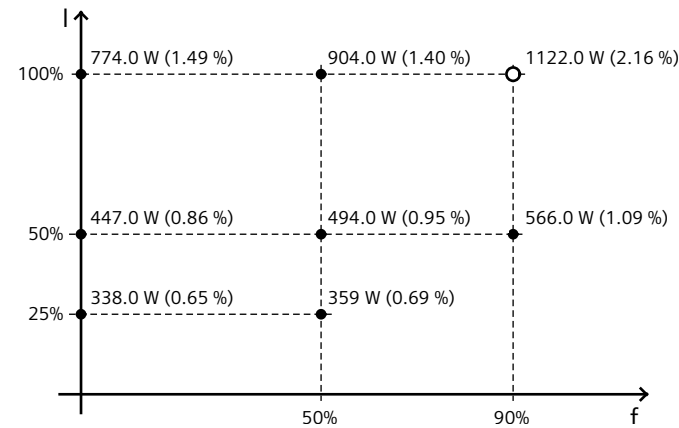
6SL3210-1KE28-4AF1



Figure similar

Converter losses to EN 50598-2*

Efficiency class	IE2
Comparison with the reference converter (90% / 100%)	-54.91 %



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