



Figure similar

### MLFB-Ordering data

6SL3210-1KE18-8AF1

Client order no. :

Order no. :

Offer no. :

Remarks :

Item no. :

Consignment no. :

Project :

### Rated data

#### Input

|                    |                           |
|--------------------|---------------------------|
| Number of phases   | 3 AC                      |
| Line voltage       | 380 ... 480 V +10 % -20 % |
| Line frequency     | 47 ... 63 Hz              |
| Rated current (LO) | 11.40 A                   |
| Rated current (HO) | 10.60 A                   |

#### Output

|                                     |              |                        |
|-------------------------------------|--------------|------------------------|
| Number of phases                    | 3 AC         |                        |
| Rated voltage                       | 400V IEC     | 480V NEC <sup>1)</sup> |
| Rated power (LO)                    | 4.00 kW      | 5.00 hp                |
| Rated power (HO)                    | 3.00 kW      | 4.00 hp                |
| Rated current (LO)                  | 8.80 A       |                        |
| Rated current (HO)                  | 7.30 A       |                        |
| Rated current (IN)                  | 9.00 A       |                        |
| Max. output current                 | 14.60 A      |                        |
| Pulse frequency                     | 4 kHz        |                        |
| Output frequency for vector control | 0 ... 240 Hz |                        |
| Output frequency for V/f control    | 0 ... 550 Hz |                        |

### Overload capability

#### 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 $\lambda$    | 0.70 ... 0.85 |
| Offset factor $\cos \phi$ | 0.95          |
| Efficiency $\eta$         | 0.97          |
| Sound pressure level (1m) | 52 dB         |
| Power loss                | 124.0 W       |
| Filter class (integrated) | Class A       |

### Ambient conditions

|                         |  |
|-------------------------|--|
| Cooling                 | Air cooling using an integrated fan                |
| Cooling air requirement | 0.005 m <sup>3</sup> /s (0.177 ft <sup>3</sup> /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 |
|----------------|--|

### 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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#### Mechanical data

|                      |                     |
|----------------------|---------------------|
| Degree of protection | IP20 / UL open type |
| Size                 | FSA                 |
| Net weight           | 1.70 kg (3.75 lb)   |
| Width                | 73 mm (2.87 in)     |
| Height               | 196 mm (7.72 in)    |
| Depth                | 208 mm (8.19 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  $\pm 5$  °C

#### Communication

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

#### Connections

##### Signal cable

|                         |   |
|-------------------------|---|
| Conductor cross-section | 0.15 ... 1.50 mm <sup>2</sup> (AWG 24 ... AWG 16) |
|-------------------------|---|

##### Line side

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

|                         |   |
|-------------------------|---|
| Conductor cross-section | 1.00 ... 2.50 mm <sup>2</sup> (AWG 18 ... AWG 14) |
|-------------------------|---|

##### Motor end

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

|                         |   |
|-------------------------|---|
| Conductor cross-section | 1.00 ... 2.50 mm <sup>2</sup> (AWG 18 ... AWG 14) |
|-------------------------|---|

##### DC link (for braking resistor)

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

|                         |   |
|-------------------------|---|
| Conductor cross-section | 1.00 ... 2.50 mm <sup>2</sup> (AWG 18 ... AWG 14) |
|-------------------------|---|

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

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

##### Max. motor cable length

|          |                  |
|----------|------------------|
| Shielded | 50 m (164.04 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 |
|------------|---|



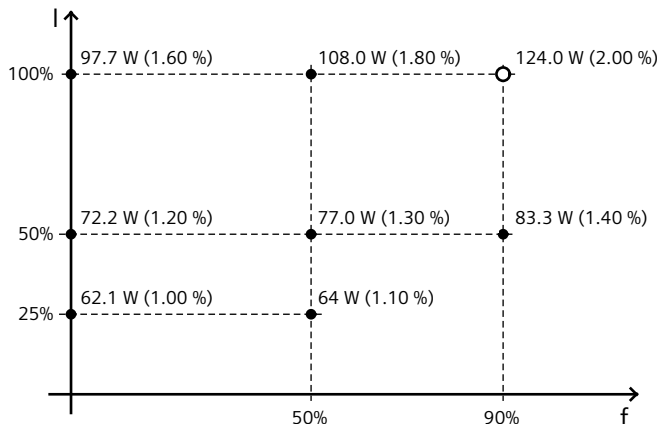
Figure similar

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### Converter losses to IEC61800-9-2\*

|  |         |
|--|---------|
| Efficiency class                                     | IE2     |
| Comparison with the reference converter (90% / 100%) | 33.80 % |



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 IEC61800-9-2) 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

<sup>1)</sup> The output current and HP ratings are valid for the voltage range 440V-480V