



Figure similar

### MLFB-Ordering data

6SL3210-1KE21-3AF1

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>16.50 A</td></tr> <tr> <td>Rated current (HO)</td><td>12.80 A</td></tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Number of phases                                                                                          | 3 AC                                                                                                      | Line voltage       | 380 ... 480 V +10 % -20 %                                                                                 | Line frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 47 ... 63 Hz                              | Rated current (LO)        | 16.50 A                             | Rated current (HO)        | 12.80 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>63 dB</td></tr> <tr> <td>Power loss</td><td>0.18 kW</td></tr> <tr> <td>Filter class (integrated)</td><td>Class A</td></tr> </table> | Power factor $\lambda$    | 0.70 ... 0.85      | Offset factor $\cos \varphi$ | 0.95               | Efficiency $\eta$          | 0.97               | Sound pressure level (1m)    | 63 dB               | Power loss | 0.18 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 16.50 A                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Rated current (HO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 12.80 A                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Power factor $\lambda$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.70 ... 0.85                                                                                             |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Offset factor $\cos \varphi$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.95                                                                                                      |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Efficiency $\eta$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.97                                                                                                      |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Sound pressure level (1m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 63 dB                                                                                                     |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Power loss                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.18 kW                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Filter class (integrated)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Class A                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| <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>5.50 kW</td></tr> <tr> <td>Rated power NEC 480V (LO)</td><td>7.50 hp</td></tr> <tr> <td>Rated power IEC 400V (HO)</td><td>4.00 kW</td></tr> <tr> <td>Rated power NEC 480V (HO)</td><td>5.00 hp</td></tr> <tr> <td>Rated current (IN)</td><td>13.00 A</td></tr> <tr> <td>Rated current (LO)</td><td>12.50 A</td></tr> <tr> <td>Rated current (HO)</td><td>8.80 A</td></tr> <tr> <td>Max. output current</td><td>17.60 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5.50 kW                                   | Rated power NEC 480V (LO) | 7.50 hp                             | Rated power IEC 400V (HO) | 4.00 kW                     | Rated power NEC 480V (HO)                                                                                                                                                                                                                                                                                                                                                                              | 5.00 hp                   | Rated current (IN) | 13.00 A                      | Rated current (LO) | 12.50 A                    | Rated current (HO) | 8.80 A                       | Max. output current | 17.60 A    | Pulse frequency | 4 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>0.009 m³/s (0.318 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 | 0.009 m³/s (0.318 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.50 kW                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Rated power NEC 480V (LO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7.50 hp                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Rated power IEC 400V (HO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.00 kW                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Rated power NEC 480V (HO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.00 hp                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Rated current (IN)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 13.00 A                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Rated current (LO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 12.50 A                                                                                                   |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Rated current (HO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8.80 A                                                                                                    |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |
| Max. output current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 17.60 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.009 m³/s (0.318 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                                                                                                        |                                                                                                           |                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                           |                           |                                     |                           |                             |                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                    |                              |                    |                            |                    |                              |                     |            |                 |                           |                                     |              |                                  |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                     |                         |                          |                       |                     |           |                               |           |                                |         |                                |                |                                                                |



Figure similar

### Mechanical data

|                      |                     |
|----------------------|---------------------|
| Degree of protection | IP20 / UL open type |
| Size                 | FSB                 |
| Net weight           | 2.30 kg (5.07 lb)   |
| Width                | 100 mm (3.94 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 ±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                 | Plug-in screw terminals               |
| Conductor cross-section | 4.00 ... 6.00 mm² (AWG 12 ... AWG 10) |

#### Motor end

|                         |                                       |
|-------------------------|---------------------------------------|
| Version                 | Plug-in screw terminals               |
| Conductor cross-section | 4.00 ... 6.00 mm² (AWG 12 ... AWG 10) |

#### DC link (for braking resistor)

|                         |                                       |
|-------------------------|---------------------------------------|
| Version                 | Plug-in screw terminals               |
| Conductor cross-section | 4.00 ... 6.00 mm² (AWG 12 ... AWG 10) |
| 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 |
|------------|-------------------------------------------------------------|

MLFB-Ordering data

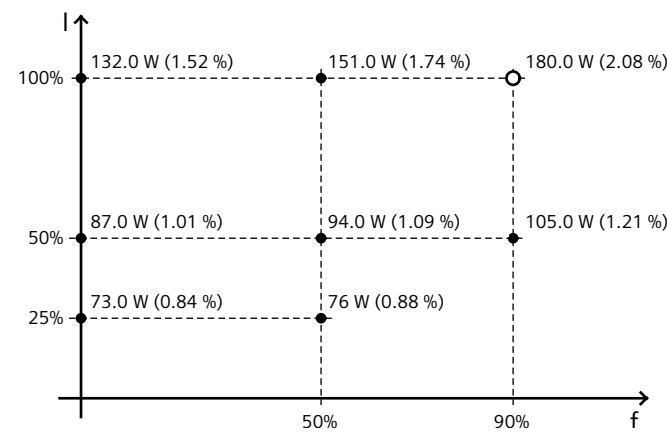
6SL3210-1KE21-3AF1



Figure similar

Converter losses to EN 50598-2\*

|                                                      |          |
|------------------------------------------------------|----------|
| Efficiency class                                     | IE2      |
| Comparison with the reference converter (90% / 100%) | -65.39 % |



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