

Article No. : 6SL3220-1YE38-0AB0



Figure similar

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

Item no. :  
Consignment no. :  
Project :

### Rated data

#### Input

|                      |                           |                 |
|----------------------|---------------------------|-----------------|
| Number of phases     | 3 AC                      |                 |
| Line voltage         | 380 ... 480 V +10 % -20 % |                 |
| Line frequency       | 47 ... 63 Hz              |                 |
| <b>Rated voltage</b> | <b>400V IEC</b>           | <b>480V NEC</b> |
| Rated current (LO)   | 86.00 A                   | 74.00 A         |
| Rated current (HO)   | 78.00 A                   | 69.00 A         |

#### Output

|                                     |                 |                              |
|-------------------------------------|-----------------|------------------------------|
| Number of phases                    | 3 AC            |                              |
| <b>Rated voltage</b>                | <b>400V IEC</b> | <b>480V NEC<sup>1)</sup></b> |
| Rated power (LO)                    | 45.00 kW        | 60.00 hp                     |
| Rated power (HO)                    | 37.00 kW        | 50.00 hp                     |
| Rated current (LO)                  | 90.00 A         | 77.00 A                      |
| Rated current (HO)                  | 75.00 A         | 65.00 A                      |
| Rated current (IN)                  | 93.00 A         |                              |
| Max. output current                 | 122.00 A        |                              |
| Pulse frequency                     | 4 kHz           |                              |
| Output frequency for vector control | 0 ... 200 Hz    |                              |
| Output frequency for V/f control    | 0 ... 550 Hz    |                              |

#### Overload capability

Low Overload (LO)  
110% base load current IL for 60 s in a 300 s cycle time

High Overload (HO)  
150% x base load current IH for 60 s within a 600 s cycle time

### General tech. specifications

|                                   |                                           |
|-----------------------------------|-------------------------------------------|
| Power factor $\lambda$            | 0.90 ... 0.95                             |
| Offset factor $\cos \varphi$      | 0.99                                      |
| Efficiency $\eta$                 | 0.97                                      |
| Sound pressure level (1m)         | 70 dB                                     |
| Power loss <sup>3)</sup>          | 1.340 kW                                  |
| Filter class (integrated)         | RFI suppression filter for Category C2    |
| EMC category (with accessories)   | Category C2                               |
| Safety function "Safe Torque Off" | without SIRIUS device (e.g. via S7-1500F) |

### Communication

Communication USS, Modbus RTU, BACnet MS/TP

### 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 | 2              |
| Output (resistive load)            | DC 30 V, 5.0 A |
| Number as transistor               | 0              |

#### Analog / digital inputs

|            |                        |
|------------|------------------------|
| Number     | 2 (Differential input) |
| Resolution | 10 bit                 |

#### Switching threshold as digital input

|       |       |
|-------|-------|
| 0 → 1 | 4 V   |
| 1 → 0 | 1.6 V |

#### Analog outputs

|        |                         |
|--------|-------------------------|
| Number | 1 (Non-isolated output) |
|--------|-------------------------|

#### PTC/ KTY interface

1 motor temperature sensor input, sensors that can be connected PTC, KTY and Thermo-Click, accuracy  $\pm 5$  °C

### Closed-loop control techniques

|                                           |     |
|-------------------------------------------|-----|
| V/f linear / square-law / parameterizable | Yes |
| V/f with flux current control (FCC)       | Yes |
| V/f ECO linear / square-law               | Yes |
| Sensorless vector control                 | Yes |
| Vector control, with sensor               | No  |
| Encoderless torque control                | No  |
| Torque control, with encoder              | No  |

## Data sheet for SINAMICS G120X

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### Ambient conditions

|                             |                                                    |
|-----------------------------|----------------------------------------------------|
| Standard board coating type | Class 3C2, according to IEC 60721-3-3: 2002        |
| Cooling                     | Air cooling using an integrated fan                |
| Cooling air requirement     | 0.083 m <sup>3</sup> /s (2.931 ft <sup>3</sup> /s) |
| Installation altitude       | 1,000 m (3,280.84 ft)                              |

### Ambient temperature

|           |                                |
|-----------|--------------------------------|
| Operation | -20 ... 45 °C (-4 ... 113 °F)  |
| Transport | -40 ... 70 °C (-40 ... 158 °F) |
| Storage   | -25 ... 55 °C (-13 ... 131 °F) |

### Relative humidity

|                |                                                                |
|----------------|----------------------------------------------------------------|
| Max. operation | 95 % At 40 °C (104 °F), condensation and icing not permissible |
|----------------|----------------------------------------------------------------|

### Connections

#### Signal cable

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

#### Line side

|                         |                                                        |
|-------------------------|--------------------------------------------------------|
| Version                 | screw-type terminal                                    |
| Conductor cross-section | 25.00 ... 70.00 mm <sup>2</sup><br>(AWG 6 ... AWG 3/0) |

#### Motor end

|                         |                                                        |
|-------------------------|--------------------------------------------------------|
| Version                 | Screw-type terminals                                   |
| Conductor cross-section | 25.00 ... 70.00 mm <sup>2</sup><br>(AWG 6 ... AWG 3/0) |

#### DC link (for braking resistor)

|               |                      |
|---------------|----------------------|
| PE connection | Screw-type terminals |
|---------------|----------------------|

#### Max. motor cable length

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

### Mechanical data

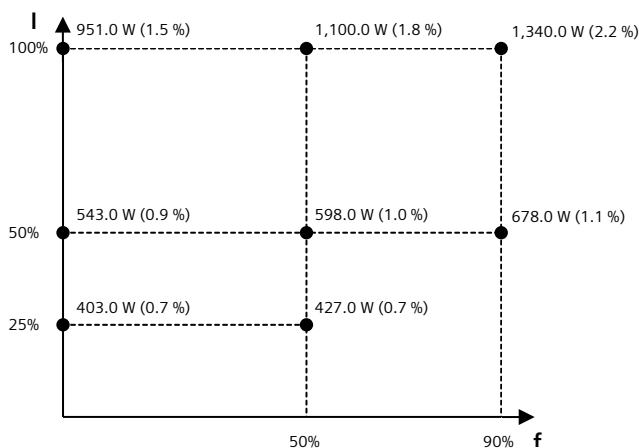
|                      |                     |
|----------------------|---------------------|
| Degree of protection | IP20 / UL open type |
| Frame size           | FSE                 |
| Net weight           | 29 kg (63.93 lb)    |
| <b>Dimensions</b>    |                     |
| Width                | 275 mm (10.83 in)   |
| Height               | 551 mm (21.69 in)   |
| Depth                | 248 mm (9.76 in)    |

### Standards

|                           |                                                             |
|---------------------------|-------------------------------------------------------------|
| Compliance with standards | UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH        |
| CE marking                | EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC |

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

|                                                      |        |
|------------------------------------------------------|--------|
| Efficiency class                                     | IE2    |
| Comparison with the reference converter (90% / 100%) | 45.5 % |



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

The diagram shows the losses for the points (as per standard IEC61800-9-2) of the relative torque generating current (I) over the relative motor stator frequency (f). The values are valid for the basic version of the converter without options/components.

\*calculated values

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

<sup>3)</sup>Typical value. More information can be found in the element group "Converter losses to IEC 61800-9-2" in this datasheet.