

Article No. : 6SL3220-1YE22-0AP0

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

Item no. :  
Consignment no. :  
Project :

Figure similar



| Rated data                                                     |                                           |                        |
|----------------------------------------------------------------|-------------------------------------------|------------------------|
| Input                                                          |                                           |                        |
| Number of phases                                               | 3 AC                                      |                        |
| Line voltage                                                   | 380 ... 480 V +10 % -20 %                 |                        |
| Line frequency                                                 | 47 ... 63 Hz                              |                        |
| Rated voltage                                                  | 400V IEC                                  | 480V NEC               |
| Rated current (LO)                                             | 12.00 A                                   | 10.60 A                |
| Rated current (HO)                                             | 9.75 A                                    | 8.00 A                 |
| Output                                                         |                                           |                        |
| Number of phases                                               | 3 AC                                      |                        |
| Rated voltage                                                  | 400V IEC                                  | 480V NEC <sup>1)</sup> |
| Rated power (LO)                                               | 5.50 kW                                   | 7.50 hp                |
| Rated power (HO)                                               | 4.00 kW                                   | 5.00 hp                |
| Rated current (LO)                                             | 13.20 A                                   | 11.00 A                |
| Rated current (HO)                                             | 10.20 A                                   | 7.60 A                 |
| Rated current (IN)                                             | 13.60 A                                   |                        |
| Max. output current                                            | 18.00 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 λ                                                 | 0.70 ... 0.85                             |                        |
| Offset factor cos φ                                            | 0.96                                      |                        |
| Efficiency η                                                   | 0.97                                      |                        |
| Sound pressure level (1m)                                      | 63 dB                                     |                        |
| Power loss <sup>3)</sup>                                       | 0.191 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                                                  | PROFIBUS DP                               |                        |

| 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 ±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

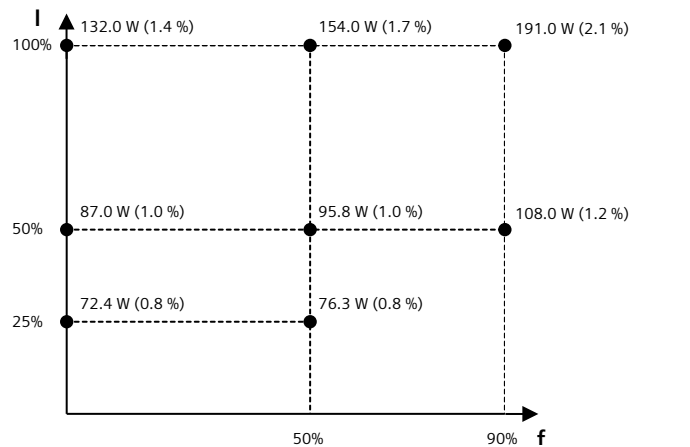
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| Ambient conditions          |                                                                |
|-----------------------------|----------------------------------------------------------------|
| Standard board coating type | Class 3C2, according to IEC 60721-3-3: 2002                    |
| Cooling                     | Air cooling using an integrated fan                            |
| Cooling air requirement     | 0.009 m³/s (0.325 ft³/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 mm² (AWG 24 ... AWG 16) |
| Line side                      |                                       |
| Version                        | screw-type terminal                   |
| Conductor cross-section        | 1.50 ... 6.00 mm² (AWG 16 ... AWG 10) |
| Motor end                      |                                       |
| Version                        | Screw-type terminals                  |
| Conductor cross-section        | 1.50 ... 6.00 mm² (AWG 16 ... AWG 10) |
| DC link (for braking resistor) |                                       |
| PE connection                  | On housing with M4 screw              |
| Max. motor cable length        |                                       |
| Shielded                       | 150 m (492.13 ft)                     |

| Mechanical data           |                                                             |
|---------------------------|-------------------------------------------------------------|
| Degree of protection      | IP20 / UL open type                                         |
| Frame size                | FSB                                                         |
| Net weight                | 6.16 kg (13.58 lb)                                          |
| Dimensions                |                                                             |
| Width                     | 100 mm (3.94 in)                                            |
| Height                    | 275 mm (10.83 in)                                           |
| Depth                     | 218 mm (8.58 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%) | 35.7 % |



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

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

\*converted values

<sup>1)</sup>The output current and HP ratings are valid for the voltage range 440V-480V  
<sup>3)</sup>Typical value. More information can be found in the element group "Converter losses to IEC 61800-9-2" in this datasheet.