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# Data sheet for SINAMICS G120X

## MLFB-Ordering data

**6SL3220-2YE20-0UP0**

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 | |
| **Rated voltage** | **400V IEC** | **480V NEC** |
| **Rated current (LO)** | 9.75 A | 9.75 A |
| **Rated current (HO)** | 7.36 A | 7.75 A |

### Output

| | | |
|---|---|---|
| **Number of phases** | 3 AC | |
| **Rated voltage** | **400V IEC** | **480V NEC** |
| **Rated power (LO)** | 4.00 kW | 5.00 hp |
| **Rated power (HO)** | 3.00 kW | 4.00 hp |
| **Rated current (LO)** | 10.20 A | 7.60 A |
| **Rated current (HO)** | 7.70 A | 6.20 A |
| **Rated current (IN)** | 10.50 A | |
| **Max. output current** | 14.00 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** | 0.98 |
| **Sound pressure level (1m)** | 63 dB |
| **Power loss** | 0.138 kW |
| **Filter class (integrated)** | Unfiltered |
| **EMC category (with accessories)** | without |

## 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** | 0.005 m³/s (0.177 ft³/s) |
| **Installation altitude** | 1000 m (3280.84 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 |

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Figure similar

## Mechanical data

| | |
|---|---|
| **Degree of protection** | IP20 / UL open type |
| **Size** | FSB |
| **Net weight** | 6 kg (12.85 lb) |
| **Width** | 100 mm (3.94 in) |
| **Height** | 275 mm (10.83 in) |
| **Depth** | 218 mm (8.58 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** | 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** | Yes |
| **Torque control, with encoder** | No |

## Communication

| | |
|---|---|
| **Communication** | PROFIBUS DP |

## 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) |
| **Unshielded** | 300 m (984.25 ft) |

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# Data sheet for SINAMICS G120X

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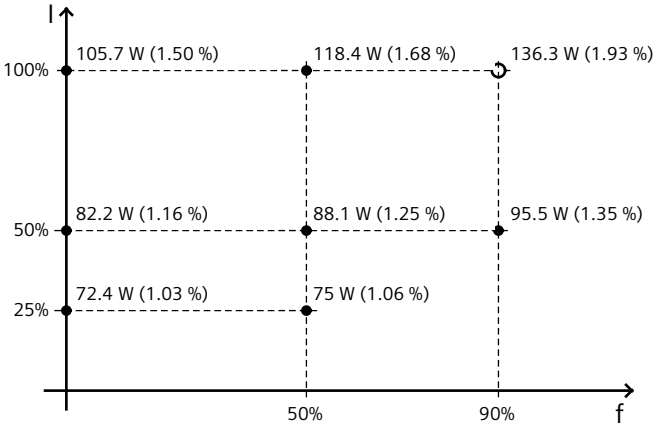
Figure similar

## Converter losses to EN 50598-2*

| | |
|---|---|
| Efficiency class | IE2 |
| Comparison with the reference converter (90% / 100%) | -32.10 % |




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

## 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 |

## Operator panel: Basic Operator Panel (BOP-2)

### Screen

| | |
|---|---|
| **Display design** | LCD, monochrome |

### Mechanical data

| | |
|---|---|
| **Degree of protection** | IP55 / UL type 12 |
| **Net weight** | 0.14 kg (0.31 lb) |
| **Width** | 70.0 mm (2.76 in) |
| **Height** | 106.85 mm (4.21 in) |
| **Depth** | 19.60 mm (0.77 in) |

### Ambient conditions

**Ambient temperature during**

| | |
|---|---|
| **Operation** | 0 ... 50 °C (32 ... 122 °F) |
| **Storage** | -40 ... 70 °C (-40 ... 158 °F) |
| **Transport** | -40 ... 70 °C (-40 ... 158 °F) |

**Relative humidity at 25°C during**

| | |
|---|---|
| **Max. operation** | 95 % |

### Approvals

| | |
|---|---|
| **Certificate of suitability** | CE, cULus, EAC, KCC, RCM |