



Figure similar

Article No. : 6SL4113-0JP27-0BFO

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

Item no. :  
Consignment no. :  
Project :

### Rated data

#### Input

|                                      |                                     |                                     |
|--------------------------------------|-------------------------------------|-------------------------------------|
| Number of phases                     | 3 AC                                |                                     |
| Line voltage                         | 380...415V / 440...500V (~±10 %)    |                                     |
| Line frequency                       | 50/60 Hz (47 ... 63 Hz)             |                                     |
| <b>Voltage range (voltage class)</b> | <b>380 ... 415 V<br/>(400V IEC)</b> | <b>440 ... 500 V<br/>(480V NEC)</b> |
| Rated current                        | 106.0 A                             | 88.0 A                              |

#### Output

|                                      |                                     |                                     |
|--------------------------------------|-------------------------------------|-------------------------------------|
| Number of phases                     | 3 AC                                |                                     |
| <b>Voltage range (voltage class)</b> | <b>380 ... 415 V<br/>(400V IEC)</b> | <b>440 ... 500 V<br/>(480V NEC)</b> |
| Rated power (LO)                     | 55.00 kW                            | 75.00 hp                            |
| Rated power (HO)                     | 45.00 kW                            | 60.00 hp                            |
| Rated current (LO)                   | 112.0 A                             | 96.0 A                              |
| Rated current (HO)                   | 90.0 A                              | 77.0 A                              |
| Rated current (IN)                   | 114.9 A                             | 98.5 A                              |
| Rated Current (SRM)                  | 123.0 A                             |                                     |

Max. output current 180.0 A

Pulse frequency (factory setting) 4 kHz

Output frequency for vector control 0 ... 480 Hz

Output frequency for V/f control 0 ... 550 Hz

#### Overload capability

##### Low Overload (LO)

150% rated current (LO) for 3 s, followed by 110% rated current (LO) for 57 s in a 300 s cycle time

##### High Overload (HO)

200% rated current (HO) for 3 s, followed by 150% rated current (HO) for 57 s in a 300 s cycle time

### Electronic power supply

Voltage 24 V (20.4 ... 28.8 V)

Current demand, max. 3.00 A

### General tech. specifications

Power factor  $\lambda$  (typical)

Displacement factor  $\cos \phi$  (typical) 0.98

Efficiency  $\eta$  0.98

Sound pressure level (1m) 70 dB

Filter class (integrated) Unfiltered

### Communication

Communication PROFINET, Modbus TCP, EtherNet/IP

### SINAMICS SDI Standard Operator Panel

#### User interface

|                          |  |
|--------------------------|--|
| Operator element version | Integrated SDI standard for monitoring and diagnostics |
| Interface design         | RJ45 with 100 MBit/s Ethernet                          |
| Display design           | 1.4" graphic display                                   |
| Screen resolution        | 128 x 160 Pixel  |

### Inputs / outputs

#### Standard digital inputs

|                        |  |
|------------------------|--|
| Number                 | 6 (additionally 2 AI configurable as 2 DI) |
| Switching level: 0 → 1 | 11 V                                       |
| Switching level: 1 → 0 | 5 V  |
| Max. inrush current    | 4 mA                                       |
| Number as rapid input  | 1 (DI5)                                    |

#### Fail-safe digital inputs

|        |   |
|--------|---|
| Number | 1 (additionally 4 DI configurable as 2 FDI) |
|--------|---|

#### Digital outputs

|                                    |                     |
|------------------------------------|---------------------|
| Number as relay changeover contact | 2                   |
| Output (resistive load)            | DC 30 V, max. 0.5 A |
| Number as transistor               | 1                   |
| Output (resistive load)            | DC 30 V, max. 0.4 A |

#### Analog inputs

|            |                        |
|------------|------------------------|
| Number     | 2 (Differential input) |
| Resolution | 16 bit                 |

#### Operating mode

|                   |              |
|-------------------|--------------|
| Voltage bipolar   | -10 ... 10 V |
| Voltage unipolar  | 0 ... 10 V   |
| Current           | 0 ... 20 mA  |
| Current monitored | 4 ... 20 mA  |

#### Switching threshold as digital input

|       |      |
|-------|------|
| 0 → 1 | 11 V |
| 1 → 0 | 5 V  |

## Data sheet for SINAMICS G220

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### Analog outputs

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

#### Operating mode

|                  |            |
|------------------|------------|
| Voltage unipolar | 0 ... 10 V |
|------------------|------------|

|         |             |
|---------|-------------|
| Current | 0 ... 20 mA |
|---------|-------------|

|                   |             |
|-------------------|-------------|
| Current monitored | 4 ... 20 mA |
|-------------------|-------------|

### Motor temperature interface

1 input for motor temperature, connectable PTC, KTY 84, PT1000, and bimetal temperature switch

### PTC interface

Short-circuit monitoring < 200Ωm, overtemperature>1650Ωm

### KTY84 interface

Short-circuit monitoring < 500Ωm; wire breakage>2120Ωm; measurement current 2mA

### PTC1000 interface

Short-circuit monitoring < 6030Ωm; wire breakage>21200Ωm; measurement current 2mA

### 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 | Yes |
|-----------------------------|-----|

|                            |     |
|----------------------------|-----|
| Encoderless torque control | Yes |
|----------------------------|-----|

|                              |     |
|------------------------------|-----|
| Torque control, with encoder | Yes |
|------------------------------|-----|

### Ambient conditions

|         |                                     |
|---------|-------------------------------------|
| Cooling | Air cooling using an integrated fan |
|---------|-------------------------------------|

|                         |  |
|-------------------------|--|
| Cooling air requirement | 0.065 m <sup>3</sup> /s (2.295 ft <sup>3</sup> /s) |
|-------------------------|--|

|  |                    |
|--|--------------------|
| Installation altitude (without derating) | 1,000 m (3,281 ft) |
|--|--------------------|

|  |       |
|--|-------|
| Max. ambient temperature with derating | 50 °C |
|--|-------|

|   |       |
|---|-------|
| Ambient temperature with high overload (without derating) | 45 °C |
|---|-------|

|  |       |
|--|-------|
| Ambient temperature with low overload (without derating) | 40 °C |
|--|-------|

### Relative humidity during

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

### Environmental conditions

#### Chemically active substances

|           |   |
|-----------|---|
| Operation | Class 3C2, according to IEC 60721-3-3: 2002 |
|-----------|---|

|           |   |
|-----------|---|
| Transport | Class 2C2 according to IEC 60721-3-2:1997<br>in marine- and weather-resistant transport packaging |
|-----------|---|

|         |  |
|---------|--|
| Storage | Class 1C2 according to IEC 60721-3-1: 2002<br>in the transport packaging |
|---------|--|

#### Biologically active substances

|           |  |
|-----------|--|
| Operation | Class 3B1 according to IEC 60721-3-3: 2002 |
|-----------|--|

|           |   |
|-----------|---|
| Transport | Class 2B1 according to IEC 60721-3-2:1997<br>in the transport packaging |
|-----------|---|

|         |   |
|---------|---|
| Storage | Class 1B1 according to IEC 60721-3-1:1997<br>in the transport packaging |
|---------|---|

#### Mechanically active substances

|           |   |
|-----------|---|
| Operation | Class 3S2 according to IEC 60721-3-3: Ed. 2.2 2002<br>(Conductive dusts are not permitted.) |
|-----------|---|

#### Climatic environmental conditions

|           |  |
|-----------|--|
| Operation | Class 3K3 according to IEC 60721-3-3 Ed. 2.2: 2002 |
|-----------|--|

|           |  |
|-----------|--|
| Transport | Class 2K4 according to IEC 60721-3-2:1997<br>in the transport packaging; temperature -40 ... +70 °C; relative atmospheric humidity 5..95% (without condensation) |
|-----------|--|

|         |   |
|---------|---|
| Storage | Class 1K4 according to IEC 60721-3-1:1997<br>in the transport packaging; temperature -25 ... +55 °C; relative atmospheric humidity 5..95% (without condensation), storage altitude <=4000m; condensation, spray water, ice formation, salt mist not permissible |
|---------|---|

#### Mechanical environmental conditions

|           |  |
|-----------|--|
| Operation | Class 3M1 according to IEC 60721-3-3 Ed. 2.2: 2002 |
|-----------|--|

|           |   |
|-----------|---|
| Transport | Class 2M3 according to IEC 60721-3-2:1997<br>in the transport packaging |
|-----------|---|

|         |   |
|---------|---|
| Storage | Class 1M2 according to IEC 60721-3-1:1997<br>in the transport packaging |
|---------|---|

### Integrated Safety functions

|                                   |     |
|-----------------------------------|-----|
| Safety function "Safe Torque Off" | Yes |
|-----------------------------------|-----|

|                   |     |
|-------------------|-----|
| Safe Stop 1 (SS1) | Yes |
|-------------------|-----|

|                              |    |
|------------------------------|----|
| Safe Motor Temperature (SMT) | No |
|------------------------------|----|

Extended software functions can be enabled with a license using an SD card.

## Data sheet for SINAMICS G220

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### Connections

#### Signal cable

|                         |   |
|-------------------------|---|
| Type                    | Push-in connection                            |
| Conductor cross-section | 0.20 ... 2.50 mm <sup>2</sup> (24 ... 12 AWG) |

#### Line side

|      |                |
|------|----------------|
| Type | screw terminal |
|------|----------------|

#### Conductor cross-section

|                        |   |
|------------------------|---|
| for single-core cables | 35.00 ... 95.00 mm <sup>2</sup> (2 ... 3/0 AWG) |
| for multi-core cables  | 35.00 ... 70.00 mm <sup>2</sup> (2 ... 2/0 AWG) |

#### Motor end

|                         |   |
|-------------------------|---|
| Type                    | screw terminal                                  |
| Conductor cross-section | 35.00 ... 95.00 mm <sup>2</sup> (2 ... 3/0 AWG) |

#### DC link

|                         |   |
|-------------------------|---|
| Type                    | screw terminal                                  |
| Conductor cross-section | 35.00 ... 95.00 mm <sup>2</sup> (2 ... 3/0 AWG) |

#### PE connection

|                         |   |
|-------------------------|---|
| Type                    | M8, screw terminal                              |
| Conductor cross-section | 35.00 ... 95.00 mm <sup>2</sup> (2 ... 3/0 AWG) |
| Type                    | stud terminal, M8                               |
| Conductor cross-section | 35.00 ... 95.00 mm <sup>2</sup> (2 ... 3/0 AWG) |

#### Max. motor cable length

|            |                |
|------------|----------------|
| Shielded   | 200 m (656 ft) |
| Unshielded | 300 m (984 ft) |

### Mechanical data

|                      |                     |
|----------------------|---------------------|
| Degree of protection | IP55 / UL type 12   |
| Frame size           | FSE                 |
| Net weight           | 48.1 kg (106.04 lb) |

#### Dimensions

|        |                   |
|--------|-------------------|
| Width  | 327 mm (12.87 in) |
| Height | 778 mm (30.63 in) |
| Depth  | 314 mm (12.36 in) |

### Memory card

|                    |                          |
|--------------------|--------------------------|
| 1 slot for SD card | SINAMICS SD card, 8GByte |
|--------------------|--------------------------|

### Certificates

|                            |   |
|----------------------------|---|
| Certificate of suitability | CE, cULus (UL 61800-5-1, CSA 22.2 No. 274), EAC, UKCA |
|----------------------------|---|

#### CE marking

EMC directive 2014/30/EU; Low Voltage Directive 2014/35/EU; RoHS Directive 2011/65/EU; energy efficiency and eco design 2009/125/EU

|   |  |
|---|--|
| Verification of suitability for fail-safety | SIL 3 according to IEC 61508 and IEC 61800-5-2, PL e according to ISO 13849-1, Category 4 according to ISO 13849-1 |
|---|--|

|                             |                                |
|-----------------------------|--------------------------------|
| Environmental compatibility | RoHS II, REACH, Green Passport |
|-----------------------------|--------------------------------|

|                      |   |
|----------------------|---|
| Explosion protection | - |
|----------------------|---|

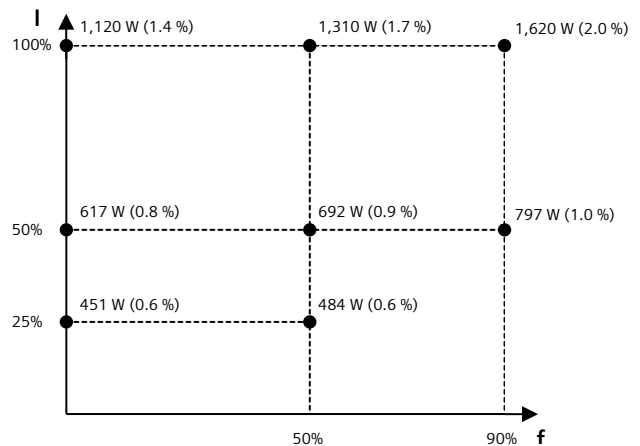
|                       |    |
|-----------------------|----|
| shipbuilding approval | No |
|-----------------------|----|

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

|                                 |                         |
|---------------------------------|-------------------------|
| Efficiency class                | IE2                     |
| In scope of Ecodesign Directive | No (in the valid range) |
| Reason of exception             | no exception            |

#### IEC power loss data based on

|                       |   |
|-----------------------|---|
| Input                 | 3 AC 400 V, 50 Hz                                       |
| Output                | 3 AC 0 - 400 V, 50 Hz,<br>4 kHz Space-vector modulation |
| Rated apparent power  | 79.6 kVA  |
| Power loss in standby | 40.7 W (0.1%)   |



## Data sheet for SINAMICS G220

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### NEC power loss data based on

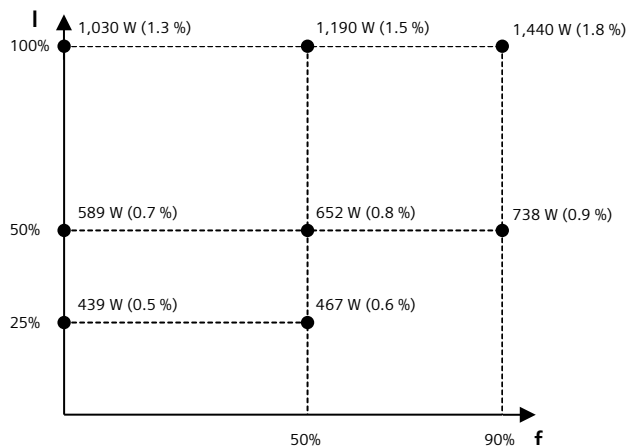
|                       |   |
|-----------------------|---|
| Input                 | 3 AC 480 V, 60 Hz                                       |
| Output                | 3 AC 0 - 480 V, 60 Hz,<br>4 kHz Space-vector modulation |
| Rated apparent power  | 81.9 kVA  |
| Power loss in standby | 40.7 W (0.1%)   |

the absolute power losses for motor voltages according to NEC (AC 230 V, AC 460 V, AC 575 V) are approximately 2 % lower

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



## Data sheet for SINAMICS G220

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### Data sheet for Option Module OM-DQ (Drive CLiQ)

#### Electrical data

|                        |   |
|------------------------|---|
| Operating voltage (DC) | 24.0 V (20.4 ... 28.8 V)  |
|                        | External 24 V power supply required if 24 V supply via DRIVE-CLiQ |
| Current demand, max.   | 0.70 A  |
| Power loss             | 2.4 W   |

#### Inputs / outputs

##### DRIVE-CLiQ interface

|        |                 |
|--------|-----------------|
| Number | 2               |
|        | RJ45, 100Mbit/s |

#### Mechanical data

|                      |                     |
|----------------------|---------------------|
| Degree of protection | IP20 / UL open type |
| Net weight           | 71.8 g (2.53 oz)    |

##### Dimensions

|        |                   |
|--------|-------------------|
| Width  | 65.2 mm (2.57 in) |
| Height | 44.8 mm (1.76 in) |
| Depth  | 38.3 mm (1.51 in) |

#### Ambient conditions

##### Ambient temperature during

|           |                                |
|-----------|--------------------------------|
| Operation | -20 ... 60 °C (-4 ... 140 °F)  |
| Transport | -40 ... 70 °C (-40 ... 158 °F) |
| Storage   | -25 ... 55 °C (-13 ... 131 °F) |

##### Relative humidity

|                      |      |
|----------------------|------|
| without condensation | 95 % |
|----------------------|------|

#### Certificates

|                            |   |
|----------------------------|---|
| Certificate of suitability | CU, cULus (UL 61800-5-1, CSA 22.2 No. 274), EAC, RoHS II, REACH, safety according to EC 61800-5-2 and ISO 13849-1, Green Passport |
|----------------------------|---|

|                             |                                |
|-----------------------------|--------------------------------|
| Environmental compatibility | RoHS II, REACH, Green Passport |
|-----------------------------|--------------------------------|