

Article No. : 6SL4113-0DA21-0AF0



Figure similar

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

Item no. :  
Consignment no. :  
Project :

Rated data		
<b>Input</b>		
Number of phases	3 AC	
Line voltage	380...415V / 440...500V (-20+10 %)	
Line frequency	50/60 Hz (47 ... 63 Hz)	
<b>Voltage range (voltage class)</b>	380 ... 415 V (400V IEC)	440 ... 500 V (480V NEC)
Rated current	45.0 A	38.0 A
<b>Output</b>		
Number of phases	3 AC	
<b>Voltage range (voltage class)</b>	380 ... 415 V (400V IEC)	440 ... 500 V (480V NEC)
Rated power (LO)	22.00 kW	30.00 hp
Rated power (HO)	18.50 kW	25.00 hp
Rated current (LO)	46.0 A	40.0 A
Rated current (HO)	40.0 A	34.0 A
Rated current (IN)	47.2 A	41.1 A
Rated Current (SRM)	50.0 A	
Max. output current	80.0 A	
Pulse frequency (factory setting)	4 kHz	
Output frequency for vector control	0 ... 480 Hz	
Output frequency for V/f control	0 ... 550 Hz	
<b>Overload capability</b>		
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.	2.00 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 with the control cabinet closed	
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	

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### Analog outputs

Number	1 (Non-isolated output)
<b>Operating mode</b>	
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
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### PTC interface

Short-circuit monitoring < 200Ohm, overtemperature > 1650Ohm
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### KTY84 interface

Short-circuit monitoring < 500Ohm; wire breakage > 2120Ohm; measurement current 2mA
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### PTC1000 interface

Short-circuit monitoring < 603Ohm; wire breakage > 2120Ohm; measurement current 2mA
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### 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	0.039 m <sup>3</sup> /s (1.377 ft <sup>3</sup> /s)
Installation altitude (without derating)	1,000 m (3,281 ft)
Max. ambient temperature with derating	60 °C
Ambient temperature with high overload (without derating)	50 °C
Ambient temperature with low overload (without derating)	45 °C

### Relative humidity during

Max. operation	95 %
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### Environmental conditions

#### Chemically active substances

Operation	Class 3C3, according to IEC 60721-3-3: 2002
Transport	Class 2C2 according to IEC 60721-3-2:1997 in marine- and weather-resistant transport packaging
Storage	Class 1C2 according to IEC 60721-3-1: 2002 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 in the transport packaging
Storage	Class 1B1 according to IEC 60721-3-1:1997 in the transport packaging

#### Mechanically active substances

Operation	Class 3S1 according to IEC 60721-3-3: Ed. 2.2 2002 (Conductive dusts are not permitted.)
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#### 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 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 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 in the transport packaging
Storage	Class 1M2 according to IEC 60721-3-1:1997 in the transport packaging

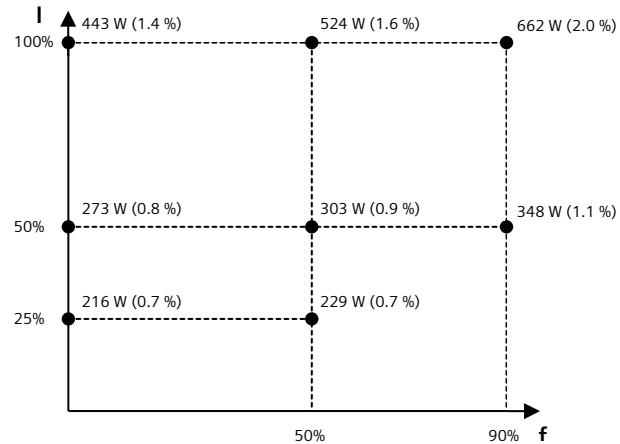
### Integrated Safety functions

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.	

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Connections		Certificates	
<b>Signal cable</b>		Certificate of suitability	CE, cULus (UL 61800-5-1, CSA 22.2 No. 274), EAC, UKCA
Type	Push-in connection	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
Conductor cross-section	0.20 ... 2.50 mm <sup>2</sup> (24 ... 12 AWG)	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
<b>Line side</b>		Environmental compatibility	RoHS II, REACH, Green Passport
Type	screw terminal	Explosion protection	-
<b>Conductor cross-section</b>		Shipbuilding approval	No
for single-core cables	6.00 ... 35.00 mm <sup>2</sup> (10 ... 2 AWG)	<b>Converter losses to IEC61800-9-2*</b>	
for multi-core cables	6.00 ... 35.00 mm <sup>2</sup> (10 ... 2 AWG)	Efficiency class	IE2
<b>Motor end</b>		In scope of Ecodesign Directive	No (in the valid range)
Type	screw terminal	Reason of exception	no exception
Conductor cross-section	6.00 ... 35.00 mm <sup>2</sup> (10 ... 2 AWG)	<b>IEC power loss data based on</b>	
<b>DC link</b>		Input	3 AC 400 V, 50 Hz
Type	screw terminal	Output	3 AC 0 - 400 V, 50 Hz, 4 kHz Space-vector modulation
Conductor cross-section	6.00 ... 35.00 mm <sup>2</sup> (10 ... 2 AWG)	Rated apparent power	32.7 kVA
<b>PE connection</b>		Power loss in standby	25.3 W (0.1%)
Type	M5, screw terminal		
Conductor cross-section	6.00 ... 35.00 mm <sup>2</sup> (10 ... 2 AWG)		
<b>Max. motor cable length</b>			
Shielded	200 m (656 ft)		
Unshielded	300 m (984 ft)		
<b>Mechanical data</b>			
Degree of protection	IP20 / UL open type		
Frame size	FSD1		
Net weight	16.5 kg (36.38 lb)		
<b>Dimensions</b>			
Width	150 mm (5.91 in)		
Height	400 mm (15.75 in)		
Depth	245 mm (9.65 in)		
<b>Memory card</b>			
1 slot for SD card	SINAMICS SD card, 8GByte		



**NEC power loss data based on**

Input	3 AC 480 V, 60 Hz
Output	3 AC 0 - 480 V, 60 Hz, 4 kHz Space-vector modulation
Rated apparent power	34.2 kVA
Power loss in standby	25.3 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

