

SINAMICS S120 drive system

Chassis format

Line-side power components for chassis format

Technical specifications

General technical specifications

Unless clearly specified otherwise, the following technical data are valid for all the following system components of the air-cooled and liquid-cooled SINAMICS S120 drive system in the chassis format.

Electrical specifications			
Rated voltages	380 ... 480 V 3 AC ±10 % (-15 % <1 min) 500 ... 690 V 3 AC ±10 % (-15 % <1 min)		
Line supply types	Grounded TN/TT systems and non-grounded IT systems		
Line frequency	47 ... 63 Hz		
Overvoltage category	III to EN 61800-5-1		
Electronics power supply	24 V DC, -15 % +20 % implemented as PELV circuit in accordance with EN 61800-5-1 Ground = negative pole grounded via the electronics		
Mechanical specifications			
Degree of protection	IP00 or IP20 dependent on type		
Protection class	I acc. to EN 61800-5-1		
Touch protection	EN 50274/DGUV regulation 3 when used as intended		
Ambient conditions	Storage ¹⁾	Transport ¹⁾	Operation
Ambient temperature	-25 ... +55 °C (-13 ... +131 °F) Class 1K4 acc. to EN 60721-3-1	-25 ... +70 °C (-13 ...+158 °F) Class 2K4 acc. to EN 60721-3-2	Line-side components: 0 ... 40 °C (32 ...104 °F) without derating Up to 55 °C (131 °F), see derating data Control Units, supplementary system components, and Sensor Modules: 0 ... 55 °C (32 ... 131 °F) (for operation in a control cabinet) DC link components and motor-side components: 0 ... 55 °C (32 ... 131 °F)
Relative humidity Condensation, splashwater, and ice formation not permitted (EN 60204, Part 1)	5 ... 95 % Class 1K4 acc. to EN 60721-3-1	5 ... 95 % at 40 °C (104 °F) Class 2K4 acc. to EN 60721-3-2	5 ... 95 % Class 3K3 acc. to EN 60721-3-3
Environmental class/ harmful chemical substances	Class 1C2 acc. to EN 60721-3-1	Class 2C2 acc. to EN 60721-3-2	Class 3C2 acc. to EN 60721-3-3
Organic/biological influences	Class 1B1 acc. to EN 60721-3-1	Class 2B1 acc. to EN 60721-3-2	Class 3B1 acc. to EN 60721-3-3
Degree of pollution	2 acc. to IEC/EN 61800-5-1	2 acc. to IEC/EN 61800-5-1	2 acc. to IEC/EN 61800-5-1
Installation altitude	Up to 2000 m (6562 ft) above sea level without derating >2000 m (6562 ft) above sea level, see derating data		
Mechanical stability	Storage ¹⁾	Transport ¹⁾	Operation
Vibratory load	–	Class 2M2 acc. to EN 60721-3-2	Test values acc. to EN 60068-2-6 test Fc: 10 ... 58 Hz with constant deflection 0.075 mm 58 ... 150 Hz with constant acceleration 9.81 m/s² (1 × g)
Shock load	–	Class 2M2 acc. to EN 60721-3-2	Test values according to EN 60068-2-27 test Ea: 98 m/s ² (10 × g)/20 ms
Compliance with standards			
Conformances/ proofs of suitability according to	CE (EMC Directive No. 2014/30/EU, Low Voltage Directive No. 2014/35/EU, Machinery Directive 2006/42/EC for functional safety) cURus or cULus (only for devices connected to line supply voltages 380 ... 480 V 3 AC and 500 ... 600 V 3 AC)		
Radio interference suppression	SINAMICS S120 chassis format units are not designed for connection to the public grid (first environment). Radio interference suppression is compliant with the EMC product standard for variable-speed drives EN 61800-3, "Second environment" (industrial line supplies). EMC disturbances can occur when connected to the public grid. However, if additional measures are taken (e.g. → line filter), they can also be operated in the "first environment". For further information, see section configuration notes.		

Deviations from the specified class are underlined.

¹⁾ In transport packaging.

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Line-side power components for chassis format > Line reactors

Overview



With a high line short-circuit power (i.e. low line supply cable inductance) a line reactor is required in order to

- protect the drive converter itself from excessively high harmonic currents and therefore overload
- limit the harmonics to permissible values. The harmonic currents are limited by the complete inductance comprising the line reactor and line supply cable inductance.

For additional information, please refer to the SINAMICS Low Voltage Engineering Manual.

Selection and ordering data

Line reactors for SINAMICS S120 Power Modules

Suitable for Power Module in the chassis format, <u>air-cooled</u>	Suitable for Power Module in the chassis format, <u>liquid-cooled</u>	Type rating of the Power Modules at 400 V, 50 Hz (460 V, 60 Hz)	Rated input current of the Power Module	Line reactor
6SL3310-...	6SL3315-...	kW (hp)	A	Article No.
Line voltage 380 ... 480 V 3 AC				
1TE32-1AA3	1TE32-1AA3	110 (150)	229/230	6SL3000-0CE32-3AA0
1TE32-6AA3	1TE32-6AA3	132 (200)	284/285	6SL3000-0CE32-8AA0
1TE33-1AA3	1TE33-1AA3	160 (250)	338/340	6SL3000-0CE33-3AA0
1TE33-8AA3	–	200 (300)	395	6SL3000-0CE35-1AA0
1TE35-0AA3	1TE35-0AA3	250 (400)	509/540	

Line reactors for SINAMICS S120 Basic Line Modules

Suitable for Basic Line Module chassis format, <u>air-cooled</u>	Suitable for Basic Line Module chassis format, <u>liquid-cooled</u>	Rated power of the Basic Line Module at 400 V, 50 Hz (460 V, 60 Hz) or 690 V, 50 Hz (575 V, 60 Hz)	Rated input current of the Basic Line Module	Line reactor
6SL3330-...	6SL3335-...	kW (hp)	A	Article No.
Line voltage 380 ... 480 V 3 AC				
1TE34-2AA3	–	200 (305)	365	6SL3000-0CE35-1AA0
1TE35-3AA3	–	250 (385)	460	
–	1TE37-4AA3	360 (555)	610	6SL3000-0CE36-3AA0
1TE38-2AA3	–	400 (615)	710	6SL3000-0CE37-7AA0
1TE41-2AA3	–	560 (860)	1010	6SL3000-0CE41-0AA0
–	1TE41-2AA3	600 (925)	1000	
1TE41-5AA3	–	710 (1090)	1265	6SL3000-0CE41-5AA0
–	1TE41-7AA3	830 (1280)	1420	
1TE41-8AA3	–	900 (1390)	1581	6SL3000-0CE41-6AA0
Line voltage 500 ... 690 V 3 AC				
1TG33-0AA3	–	250 (250)	260	6SL3000-0CH32-7AA0
–	1TG34-2AA3	355 (395)	340	6SL3000-0CH33-4AA0
1TG34-3AA3	–	355 (350)	375	6SL3000-0CH34-8AA0
1TG36-8AA3	–	560 (600)	575	6SL3000-0CH36-0AA0
–	1TG37-3AA3	630 (705)	600	
1TG41-1AA3	–	900 (900)	925	6SL3000-0CH41-2AA0
–	1TG41-3AA3	1100 (1230)	1070	
1TG41-4AA3	–	1100 (1250)	1180	
–	1TG41-7AA3	1370 (1530)	1350	6SL3000-0CH41-6AA0
1TG41-8AA3	–	1500 (1500)	1580	

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Selection and ordering data (continued)

Line reactors for SINAMICS S120 Smart Line Modules

Suitable for Smart Line Module in chassis format	Rated power of the Smart Line Module at 400 V, 50 Hz (460 V, 60 Hz) or 690 V, 50 Hz (575 V, 60 Hz)	Rated input current of the Smart Line Module	Line reactor
6SL3330-...	kW (hp)	A	Article No.
Line voltage 380 ... 480 V 3 AC			
6TE35-5AA3	250 (385)	463	6SL3000-0EE36-2AA0
6TE37-3AA3	355 (545)	614	
6TE41-1AA3	500 (770)	883	6SL3000-0EE38-8AA0
6TE41-3AA3	630 (970)	1093	6SL3000-0EE41-4AA0
6TE41-7AA3	800 (1230)	1430	
Line voltage 500 ... 690 V 3 AC			
6TG35-5AA3	450 (50)	463	6SL3000-0EH34-7AA0
6TG38-8AA3	710 (790)	757	6SL3000-0EH37-6AA0
6TG41-2AA3	1000 (1115)	1009	6SL3000-0EH41-4AA0
6TG41-7AA3	1400 (1465)	1430	

Technical specifications

Line voltage 380 ... 480 V 3 AC		Line reactor					
		6SL3000-0CE32-3AA0	6SL3000-0CE32-8AA0	6SL3000-0CE33-3AA0	6SL3000-0CE35-1AA0	6SL3000-0CE36-3AA0	6SL3000-0CE37-7AA0
Rated current	A	224	278	331	508	628	773
Nominal inductance L_N	μH	76	62	52	42	27	22
Power loss ¹⁾ At 50 Hz	kW	0.274	0.247	0.267	0.365	0.368	0.351
Line/load connection		1 × hole for M10 Provided for busbar connection	1 × hole for M10 Provided for busbar connection	1 × hole for M10 Provided for busbar connection	1 × hole for M12 Provided for busbar connection	1 × hole for M12 Provided for busbar connection	1 × hole for M12 Provided for busbar connection
PE connection		M6 screw	M6 screw	M6 screw	M6 screw	M6 screw	M6 screw
Degree of protection		IP00	IP00	IP00	IP00	IP00	IP00
Dimensions							
• Width	mm (in)	270 (10.6)	270 (10.6)	270 (10.6)	300 (11.8)	300 (11.8)	300 (11.8)
• Height	mm (in)	248 (9.76)	248 (9.76)	248 (9.76)	269 (10.6)	269 (10.6)	269 (10.6)
• Depth	mm (in)	200 (7.87)	200 (7.87)	200 (7.87)	212 (8.35)	212 (8.35)	212 (8.35)
Weight, approx.	kg (lb)	24.5 (54)	26 (57)	27.8 (61)	38 (84)	41.4 (91)	51.3 (113)
Suitable for Power Module in chassis format							
• Air-cooled	6SL3310-...	1TE32-1AA3	1TE32-6AA3	1TE33-1AA3	1TE33-8AA3 1TE35-0AA3	—	—
• Liquid cooled	6SL3315-...	1TE32-1AA3	1TE32-6AA3	1TE33-1AA3	1TE35-0AA3	—	—
Suitable for Basic Line Module in chassis format							
• Air-cooled	6SL3330-...	—	—	—	1TE34-2AA3 1TE35-3AA3	—	1TE38-2AA3
• Liquid-cooled	6SL3335-...	—	—	—	—	1TE37-4AA3	—

¹⁾ The specified power loss represents the maximum value at 100 % utilization. The value is lower under normal operating conditions.