

Overview

A wide range of single-axis and two-axis Motor Modules with graded current/power ratings can be supplied:

- Single Motor Modules: Single-axis variant
 - Booksize format with rated output currents of 3 A to 200 A
 - Chassis format with rated output currents of 85 A to 1405 A
- Double Motor Modules: Two-axis variant
 - Booksize format with rated output currents of 3 A to 18 A

In principle, all Single and Double Motor Modules can be operated on Basic Line Modules, Smart Line Modules or Active Line Modules for the appropriate voltage range.

Single Motor Modules in booksize format

Design



The Single Motor Modules in booksize format feature the following interfaces as standard:

- 2 DC link connections via integrated DC link busbars
- 1 electronics power supply connection via integrated 24 V DC bars
- 3 DRIVE-CLiQ sockets
- 1 motor connection, plug-in (not included in scope of supply) or screw-stud depending on rated output current
- 1 safe standstill input (enable pulses)
- 1 safe motor brake control
- 1 temperature sensor input (KTY84-130 or PTC)
- 2 PE (protective earth) connections

The status of the Motor Modules is indicated via two multi-color LEDs.

The motor cable shield is inside the connector on 50 mm (1.97 in) and 100 mm (3.94 in) width modules. A shield connection kit can be supplied for 150 mm (5.91 in), 200 mm (7.87 in) and 300 mm (11.81 in) wide modules. On these modules, the motor cable shield can be connected using a tube clip.

The signal cable shield can be connected to the Motor Module by means of a shield connection terminal, e.g. Weidmüller type KLBÜ 3-8 SC.

The scope of supply of the Motor Modules includes:

- DRIVE-CLiQ cable (length depends on module width) to connect Motor Module to adjacent module
- Jumper for connecting the 24 V DC busbar to the adjacent Motor Module
- Connector X21
- Connector X11 for the motor brake connection (for Motor Modules with a rated output current of 45 A to 200 A)

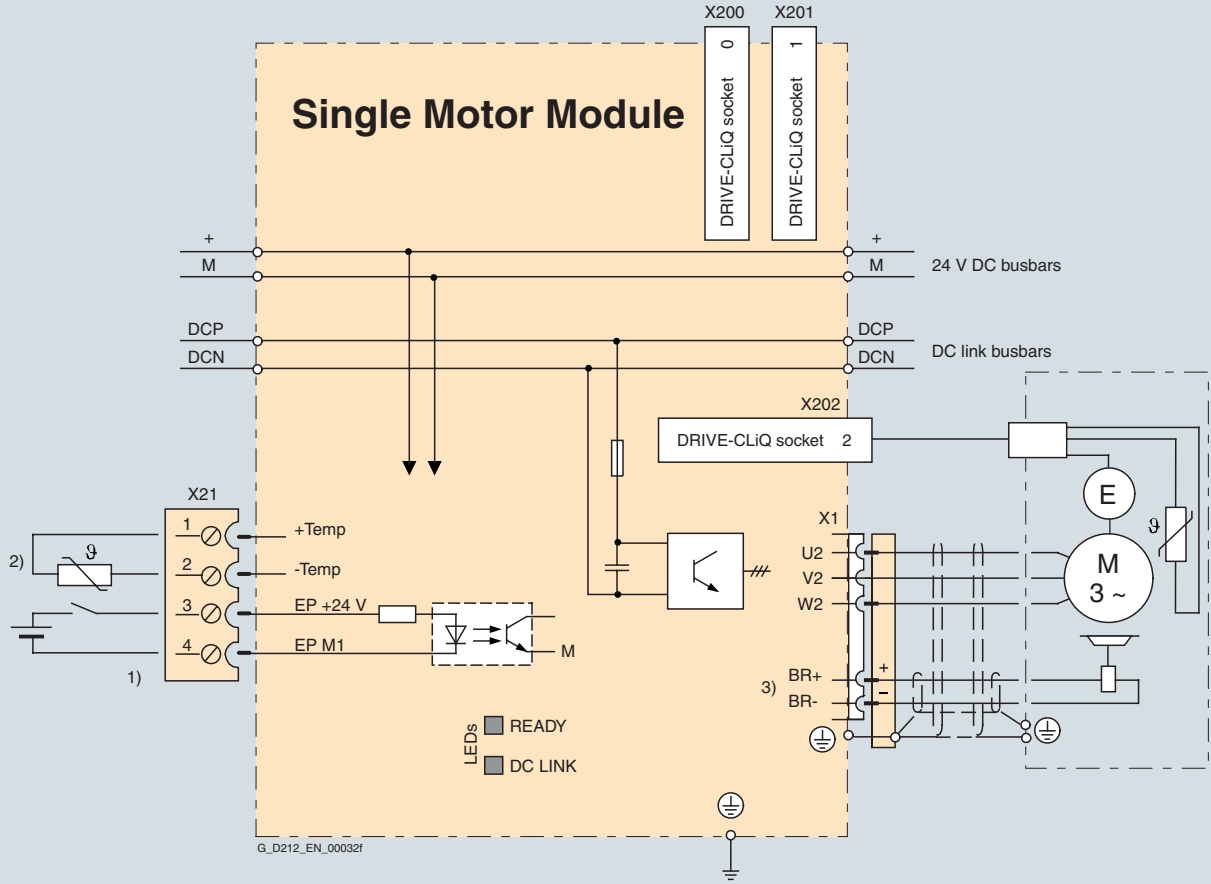
SINAMICS S120

Motor Modules

Single Motor Modules in booksize format

Integration

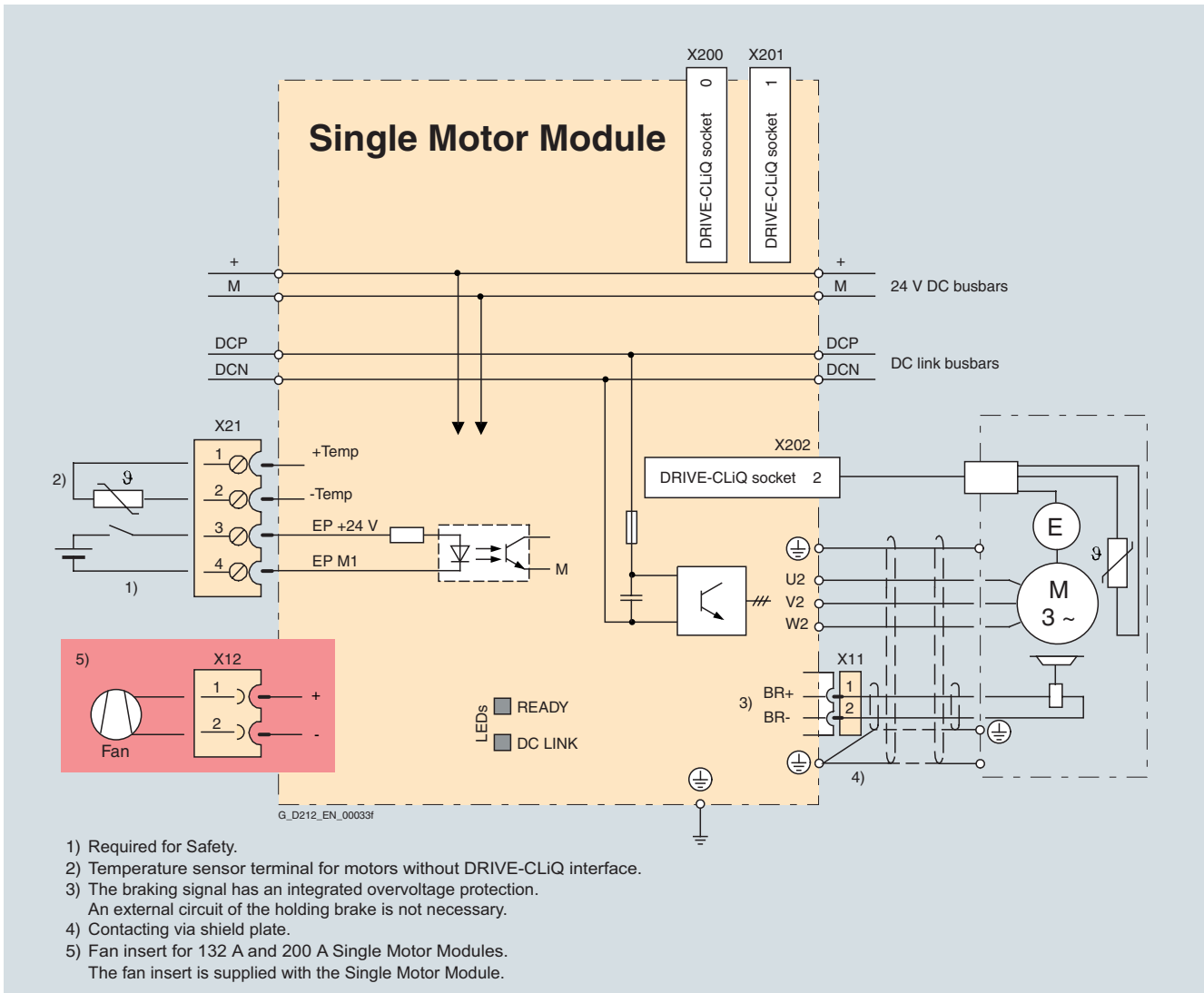
Single Motor Modules communicate with the CU320 or SIMOTION D Control Unit via DRIVE-CLiQ.



- 1) Required for Safety.
 2) Temperature sensor terminal for motors without DRIVE-CLiQ interface.
 3) The braking signal has an integrated overvoltage protection.
 An external circuit of the holding brake is not necessary.

Connection example of Single Motor Modules in booksize format 3 A to 30 A

Integration (continued)



Connection example of Single Motor Modules in booksize format 45 A to 200 A

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Motor Modules

Single Motor Modules in booksize format

Technical data

General technical data

Electrical data	
DC link voltage (up to 2000 m (6563 ft) above sea level)	510 V to 720 V DC (line voltage 380 V to 480 V 3 AC)
max. output voltage, line-to-line (fundamental-wave RMS value)	0.67 x DC link voltage
Output frequency	
• Control type Servo	0 Hz to 650 Hz ¹⁾
• Control type Vector	0 Hz to 300 Hz ¹⁾
• Control type V/f	0 Hz to 300 Hz ¹⁾
Electronics power supply	24 V DC – 15%/+ 20%
Radio interference suppression	
• Standard	No radio interference suppression
• in combination with Line Module incl. line filter and line reactor	Class A1 to EN 55011 and Category C2 to EN 61800-3
Ambient conditions	
Type of cooling	Forced air cooling through built-in fan
Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules	0 °C to + 40 °C (32 °F to + 104 °F) without derating, > 40 °C to + 55 °C (> 104 °F to + 131 °F) see derating characteristics
Site altitude	Up to 1000 m (1328 ft) above sea level without derating, > 1000 m (1328 ft) to 4000 m (13126 ft) above sea level see derating characteristics
Certificates	
Conformity	CE (low-voltage and EMC Directives)
Approvals	cULus (File No.: E192450)
Certification	Safety Integrity Level 2 (SIL 2) to IEC 61508, control category 3 to EN 954-1 for Safety Integrated – safe standstill (STO = Safe Torque Off) and safe brake control (SBC = Safe Brake Control)

¹⁾ Note correlation between max. output frequency, pulse frequency and current derating, see System Description.

Technical data (continued)

DC link voltage 510 V to 720 V DC		Single Motor Modules in booksize format					
Internal air cooling		6SL3120-1TE13-0AA0	6SL3120-1TE15-0AA0	6SL3120-1TE21-0AA1	6SL3120-1TE21-8AA1	6SL3120-1TE23-0AA1	
Internal air cooling with varnished modules		6SL3120-1TE13-0AB0	6SL3120-1TE15-0AB0	6SL3120-1TE21-0AB0	6SL3120-1TE21-8AB0	6SL3120-1TE23-0AB0	
External air cooling		6SL3121-1TE13-0AA0	6SL3121-1TE15-0AA0	6SL3121-1TE21-0AA0	6SL3121-1TE21-8AA0	6SL3121-1TE23-0AA0	
Rated output current I_{rated}	A	3	5	9	18	30	
Base load current I_H	A	2.6	4.3	7.7	15.3	25.5	
Output current for S6 duty (40%) I_{S6}	A	3.5	6	10	24	40	
Max. output current I_{max}	A	6	10	18	36	56	
Rated power for 600 V DC link voltage	kW (HP)	1.6 (1.5)	2.7 (3)	4.8 (5)	9.7 (10)	16.0 (20)	
Power based on I_H for 600 V DC link voltage	kW (HP)	1.4 (1)	2.3 (2.5)	4.1 (5)	8.2 (10)	13.7 (18)	
Rated pulse frequency	kHz	4	4	4	4	4	
DC link current $I_d^{(1)}$	A	3.6	6	11	22	36	
DC link busbar current capacity	A	100	100	100	100	100	
DC link capacitance	μF	110	110	110	220	710	
Max. current requirement at 24 V DC	A	0.85	0.85	0.85	0.85	0.9	
24 V DC busbar current capacity	A	20	20	20	20	20	
If, due to a number of Line and Motor Modules being mounted side-by-side, the current carrying capacity exceeds 20 A, an additional 24 V DC connection using a 24-V terminal adapter is required (max. cross section 6 mm ² , max. fuse protection 20 A).							
Efficiency η		0.97	0.97	0.97	0.97	0.97	
Power loss with internal air cooling in control cabinet	kW	0.035	0.055	0.080	0.165	0.290	
Power loss ²⁾ with external air cooling int./ext.	kW	0.015/0.015	0.023/0.03	0.035/0.045	0.075/0.09	0.08/0.21	
Cooling air requirement	m ³ /s (ft ³ /s)	0.008 (0.283)	0.008 (0.283)	0.008 (0.283)	0.008 (0.283)	0.016 (0.565)	
Sound pressure level	dB(A)	< 60	< 60	< 60	< 60	< 60	
Motor connection U2, V2, W2		Plug-in connector (X1), max. 30 A (not included in scope of supply, see Accessories)	Plug-in connector (X1), max. 30 A (not included in scope of supply, see Accessories)	Plug-in connector (X1), max. 30 A (not included in scope of supply, see Accessories)	Plug-in connector (X1), max. 30 A (not included in scope of supply, see Accessories)	Plug-in connector (X1), max. 30 A (not included in scope of supply, see Accessories)	
Shield connection		integrated in connector (X1)	integrated in connector (X1)	integrated in connector (X1)	integrated in connector (X1)	integrated in connector (X1)	
PE connection		On housing with M5 screw	On housing with M5 screw	On housing with M5 screw	On housing with M5 screw	On housing with M5 screw	
Motor brake connection		Integrated into the plug-in motor connector (X1), 24 V DC, 2 A	Integrated into the plug-in motor connector (X1), 24 V DC, 2 A	Integrated into the plug-in motor connector (X1), 24 V DC, 2 A	Integrated into the plug-in motor connector (X1), 24 V DC, 2 A	Integrated into the plug-in motor connector (X1), 24 V DC, 2 A	
Max. motor cable length	m (ft)	50 (164) shielded 75 (246) unshielded	50 (164) shielded 75 (246) unshielded	50 (164) shielded 75 (246) unshielded	70 (230) shielded 100 (328) unshielded	100 (328) shielded 150 (492) unshielded	
Degree of protection		IP20	IP20	IP20	IP20	IP20	
Width	mm (inch)	50 (1.97)	50 (1.97)	50 (1.97)	50 (1.97)	100 (3.94)	
Height	mm (inch)	380 (14.98)	380 (14.98)	380 (14.98)	380 (14.98)	380 (14.98)	
Depth with internal air cooling	mm (inch)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)	
Depth with external air cooling on/behind mounting surface	mm (inch)	226/66.5 (8.9/2.6)	226/66.5 (8.9/2.6)	226/66.5 (8.9/2.6)	226/66.5 (8.9/2.6)	226/66.5 (8.9/2.6)	
Approx. weight with internal air cooling	kg (lb)	5.1 (11)	5.1 (11)	5.0 (11)	5.0 (11)	6.9 (15)	
Approx. weight with external air cooling	kg (lb)	5.7 (13)	5.7 (13)	5.7 (13)	5.7 (13)	8.5 (19)	

¹⁾ Rated DC link current for dimensioning an external DC connection. For DC link current calculation for dimensioning the Line Module, see System Description.

²⁾ Power loss of Motor Module at rated output without losses of 24 V DC electronics power supply.

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Motor Modules

Single Motor Modules in booksize format

Technical data (continued)

DC link voltage 510 V to 720 V DC		Single Motor Modules in booksize format					
Internal air cooling		6SL3120-1TE24-5AA1	6SL3120-1TE26-0AA1	6SL3120-1TE28-5AA1	6SL3120-1TE31-3AA0	6SL3120-1TE32-0AA0	
Internal air cooling with varnished modules		6SL3120-1TE24-5AB0	6SL3120-1TE26-0AB0	6SL3120-1TE28-5AB0	6SL3120-1TE31-3AB0	6SL3120-1TE32-0AB0	
External air cooling		6SL3121-1TE24-5AA0	6SL3121-1TE26-0AA0	6SL3121-1TE28-5AA0	6SL3121-1TE31-3AA0	6SL3121-1TE32-0AA0	
Rated output current I_{rated}	A	45	60	85	132	200	
Base load current I_H	A	38	52	68	105	141	
Output current for S6 duty (40%) I_{S6}	A	60	80	110	150	230	
Max. output current I_{max}	A	85	113	141	210	282	
Rated pulse frequency	kHz	4	4	4	4	4	
Rated power for 600 V DC link voltage	kW (HP)	24 (30)	32 (40)	46 (60)	71 (100)	107 (150)	
Power based on I_H 600 V DC link voltage	kW (HP)	21 (25)	28 (40)	37 (50)	57 (75)	76 (100)	
DC link current $I_d^{(1)}$	A	54	72	102	158	200	
DC link busbar current capacity	A	100	100	200	200	200	
DC link capacitance	μF	1175	1410	1880	2820	3995	
Max. current requirement at 24 V DC	A	1.2	1.2	1.5	1.5	1.5	
24 V DC busbar current capacity	A	20	20	20	20	20	
		If, due to a number of Line and Motor Modules being mounted side-by-side, the current carrying capacity exceeds 20 A, an additional 24 V DC connection using a 24 V terminal adapter is required (max. cross section 6 mm ² , max. fuse protection 20 A).					
Efficiency η		0.97	0.97	0.97	0.97	0.97	
Power loss with internal air cooling in control cabinet	kW	0.43	0.59	0.75	1.25	2.05	
Power loss ²⁾ with external air cooling int./ext.	kW	0.11/0.32	0.135/0.455	0.16/0.59	0.25/1.0	0.4/1.65	
Cooling air requirement	m ³ /s (ft ³ /s)	0.031 (1.095)	0.031 (1.095)	0.044 (1.554)	0.144 (5.085)	0.144 (5.085)	
Sound pressure level	dB(A)	< 65	< 65	< 60	< 73	< 73	
Motor connection U2, V2, W2		M6 screw studs, 2.5 mm ² to 50 mm ² (X1)	M6 screw studs, 2.5 mm ² to 50 mm ² (X1)	M8 screw studs, 2.5 mm ² to 95 mm ² , 2 × 35 mm ² (X1)	M8 screw studs, 2.5 mm ² to 120 mm ² , 2 × 50 mm ² (X1)	M8 screw studs, 2.5 mm ² to 120 mm ² , 2 × 50 mm ² (X1)	
Shield connection		see Accessories	see Accessories	see Accessories	see Accessories	see Accessories	
PE connection		On housing with M6 screw	On housing with M6 screw	On housing with M6 screw	On housing with M8 screw	On housing with M8 screw	
Motor brake connection		Plug-in connector (X11), 24 V DC, 2 A	Plug-in connector (X11), 24 V DC, 2 A	Plug-in connector (X11), 24 V DC, 2 A	Plug-in connector (X11), 24 V DC, 2 A	Plug-in connector (X11), 24 V DC, 2 A	
Max. motor cable length	m (ft)	100 (328) shielded 150 (492) unshielded	100 (328) shielded 150 (492) unshielded	1100 (328) shielded 150 (492) unshielded	100 (328) shielded 150 (492) unshielded	100 (328) shielded 150 (492) unshielded	
Degree of protection		IP20	IP20	IP20	IP20	IP20	
Width	mm (inch)	150 (5.91)	150 (5.91)	200 (7.87)	300 (11.81)	300 (11.81)	
Height	mm (inch)	380 (14.96)	380 (14.96)	380 (14.96)	380, (14.96) with fan ³⁾ ; 629 (24.8)	380, (14.96) with fan ³⁾ ; 629 (24.8)	
Depth with internal air cooling	mm (inch)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)	
Depth with external air cooling on/behind mounting surface	mm (inch)	226/71 (8.9/2.8)	226/71 (8.9/2.8)	226/92 (8.9/3.6)	226/82 (8.9/3.2)	226/82 (8.9/3.2)	
Approx. weight with internal air cooling	kg (lb)	9 (20)	9 (20)	15 (33)	21 (46)	21 (46)	
Approx. weight with external air cooling	kg (lb)	13.2 (29)	13.4 (30)	17.2 (38)	27.2 (60)	30 (66)	

¹⁾ Rated DC link current for dimensioning an external DC connection. For DC link current calculation for dimensioning the Line Module, see System Description.

²⁾ Power loss of Motor Module at rated output without losses of 24 V DC electronics power supply.

³⁾ The fan is supplied with the Motor Module and must be installed before the Motor Module is commissioned.

Selection and ordering data

Rated output current A	Rated power kW (HP) ¹⁾	Single Motor Module in booksize format		
		Internal air cooling Order No.	Internal air cooling with varnished modules Order No.	External air cooling Order No.
DC link voltage 510 V to 720 V DC				
3	1.6 (1.5)	6SL3120-1TE13-0AA0	6SL3120-1TE13-0AB0	6SL3121-1TE13-0AA0
5	2.7 (3)	6SL3120-1TE15-0AA0	6SL3120-1TE15-0AB0	6SL3121-1TE15-0AA0
9	4.8 (5)	6SL3120-1TE21-0AA1	6SL3120-1TE21-0AB0	6SL3121-1TE21-0AA0
18	9.7 (10)	6SL3120-1TE21-8AA1	6SL3120-1TE21-8AB0	6SL3121-1TE21-8AA0
30	16 (20)	6SL3120-1TE23-0AA1	6SL3120-1TE23-0AB0	6SL3121-1TE23-0AA0
45	24 (30)	6SL3120-1TE24-5AA1	6SL3120-1TE24-5AB0	6SL3121-1TE24-5AA0
60	32 (40)	6SL3120-1TE26-0AA1	6SL3120-1TE26-0AB0	6SL3121-1TE26-0AA0
85	46 (60)	6SL3120-1TE28-5AA1	6SL3120-1TE28-5AB0	6SL3121-1TE28-5AA0
132	71 (100)	6SL3120-1TE31-3AA0	6SL3120-1TE31-3AB0	6SL3121-1TE31-3AA0
200	107 (150)	6SL3120-1TE32-0AA0	6SL3120-1TE32-0AB0	6SL3121-1TE32-0AA0

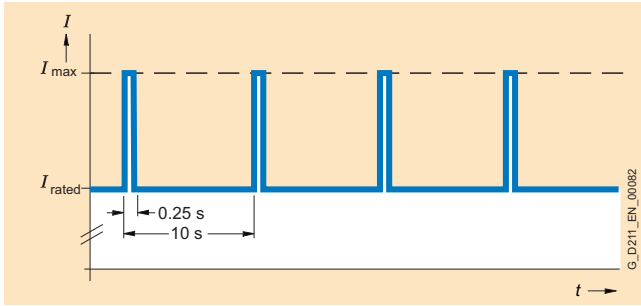
Accessories

Description	Order No.
Power connector (X1) At Motor Module end, with screw-type terminals 1.5 mm ² to 10 mm ² , for Motor Modules with a rated output current of 3 to 30 A	6SL3162-2MA00-0AA0
Shield connection kit for Line/Motor Modules in booksize format <ul style="list-style-type: none"> • 150 mm (5.91 in) wide for internal air cooling • 150 mm (5.91 in) wide for external air cooling • 200 mm (7.87 in) wide for internal air cooling • 200 mm (7.87 in) wide for external air cooling • 300 mm (11.81 in) wide 	6SL3162-1AF00-0AA1 6SL3162-1AF00-0BA0 6SL3162-1AH01-0AA0 6SL3162-1AH01-0BA0 6SL3162-1AH00-0AA0
DC link supply adapter for direct infeed of DC link voltage <ul style="list-style-type: none"> • Screw-type terminals 0.5 mm² to 10 mm² for Line Modules and Motor Modules in booksize format with a width of 50 mm (1.97 in) or 100 mm (3.84 in) • Screw-type terminals 35 mm² to 95 mm² for Line Modules and Motor Modules in booksize format with a width of 150 mm (5.91 in), 200 mm (7.87 in) and 300 mm (11.81 in) 	6SL3162-2BD00-0AA0 6SL3162-2BM00-0AA0
DC link adapters (2x) for multi-tier configuration Screw-type terminals 35 mm ² to 95 mm ² for all Line Modules/Motor Modules in booksize format	6SL3162-2BM01-0AA0
24 V terminal adapter for all Line Modules/Motor Modules in booksize format	6SL3162-2AA00-0AA0
24 V jumper for connection of the 24 V busbars (for booksize format)	6SL3162-2AA01-0AA0
Warning signs in foreign languages This set of foreign language warning signs can be placed on top of the standard German or English signs. One sign in each of the following languages is provided in each set: Chinese Simplified, Danish, Dutch, Finnish, French, Greek, Italian, Japanese, Korean, Portuguese, Spanish and Swedish.	6SL3166-3AB00-0AA0
Plug-in motor brake connector for booksize format Motor Modules with a rated output current of 45 A to 200 A Wago http://www.wago.com	Item No.: 231-102/037-000 (Wago)

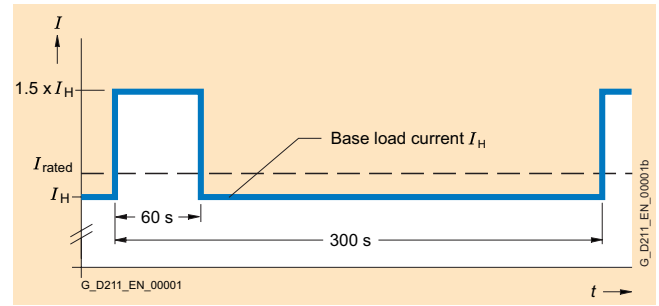
¹⁾ Nominal HP based on Asynchronous motors (induction motors).
 Match the motor nameplate current for specific sizing.

Characteristics

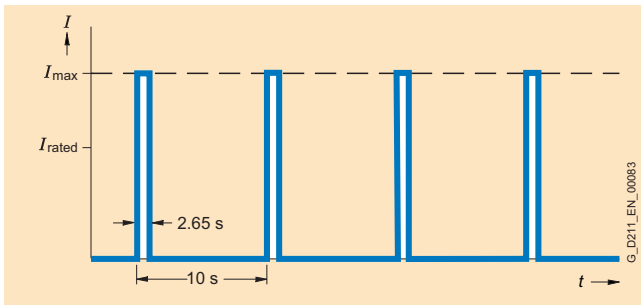
Overload capability



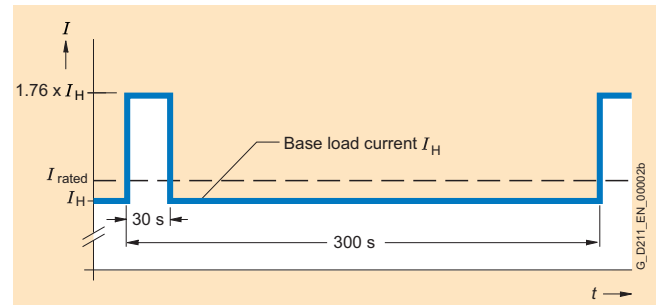
Load cycle with previous load



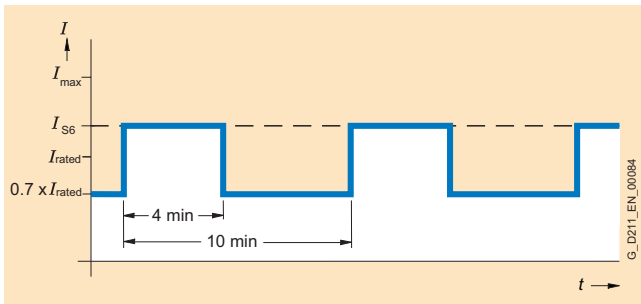
Load cycle with 60 s overload with a load cycle period of 300 s



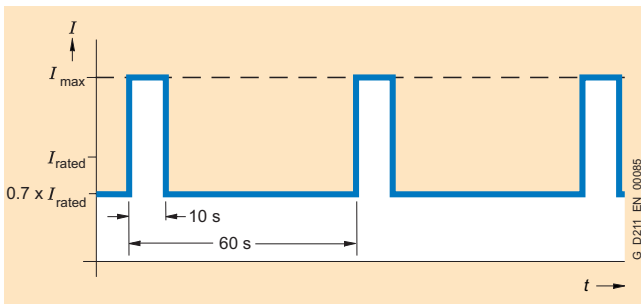
Load cycle without previous load



Load cycle with 30 s overload with a load cycle period of 300 s



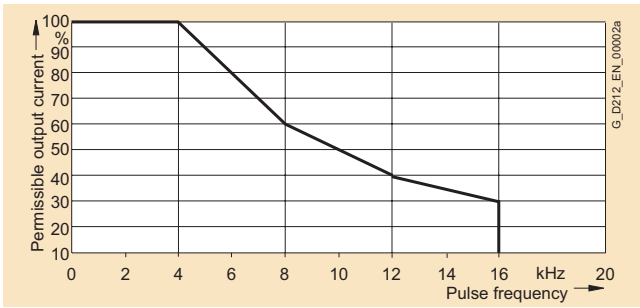
S6 load cycle with previous load with a load cycle period of 600 s



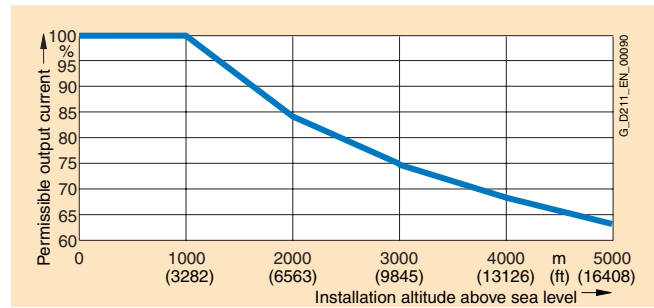
S6 load cycle with previous load with a load cycle period of 60 s

Characteristics (continued)

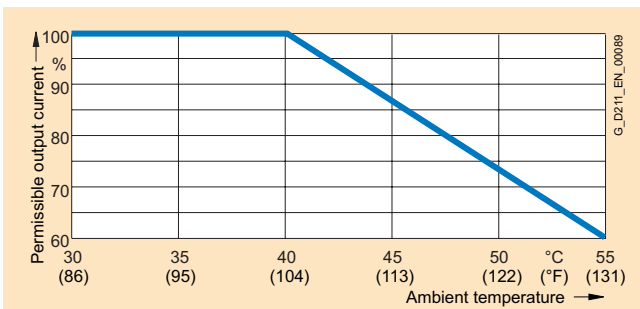
Derating characteristics



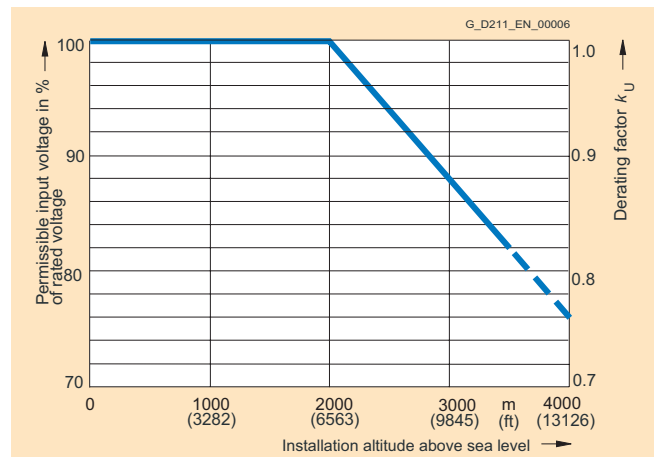
Output current dependent on pulse frequency



Output current dependent on installation altitude



Output current dependent on ambient temperature



Voltage derating dependent on installation altitude

SINAMICS S120

Motor Modules

Single Motor Modules in chassis format

Design



The Single Motor Modules in chassis format feature the following interfaces as standard:

- 1 DC link connection
- 1 electronics power supply connection
- 3 DRIVE-CLiQ sockets
- 1 motor connection
- 1 safe standstill input (enable pulses)
- 1 temperature sensor input (KTY84-130 or PTC)
- 1 PE (protective earth) connection

The status of the Motor Modules is indicated via two multi-color LEDs.

The scope of supply of the Motor Modules includes:

- Types FX and GX:
 - 0.60 m (1.97 ft) DRIVE-CLiQ cable for connection to the adjacent Motor Module
- Types HX and JX:
 - 0.35 m (1.15 ft) DRIVE-CLiQ cable for connection to the CU320 or SIMOTION D Control Unit
 - 2.10 m (6.89 ft) DRIVE-CLiQ cable for connection to the adjacent Motor Module

Selection and ordering data

Rated output current A	Rated power kW (HP) ¹⁾	Single Motor Module in chassis format Order No.
DC link voltage 510 V to 720 V DC		
210	110 (150)	6SL3320-1TE32-1AA0
260	132 (200)	6SL3320-1TE32-6AA0
310	160 (250)	6SL3320-1TE33-1AA0
380	200 (300)	6SL3320-1TE33-8AA0
490	250 (400)	6SL3320-1TE35-0AA0
605	315 (500)	6SL3320-1TE36-1AA0
745	400 (600)	6SL3320-1TE37-5AA0
840	450 (700)	6SL3320-1TE38-4AA0
985	560 (800)	6SL3320-1TE41-0AA0
1260	710 (1000)	6SL3320-1TE41-2AA0
1405	800 (1150)	6SL3320-1TE41-4AA0
DC link voltage 890 V to 1035 V DC		
85	75	6SL3320-1TH28-5AA0
100	90	6SL3320-1TH31-0AA0
120	110	6SL3320-1TH31-2AA0
150	132	6SL3320-1TH31-5AA0
175	160	6SL3320-1TH31-8AA0
215	200	6SL3320-1TH32-2AA0
260	250	6SL3320-1TH32-6AA0
330	315	6SL3320-1TH33-3AA0
410	400	6SL3320-1TH34-1AA0
465	450	6SL3320-1TH34-7AA0
575	560	6SL3320-1TH35-8AA0
735	710	6SL3320-1TH37-4AA0
810	800	6SL3320-1TH38-1AA0
910	900	6SL3320-1TH38-8AA0
1025	1000	6SL3320-1TH41-0AA0
1270	1200	6SL3320-1TH41-3AA0

Warning signs in foreign languages

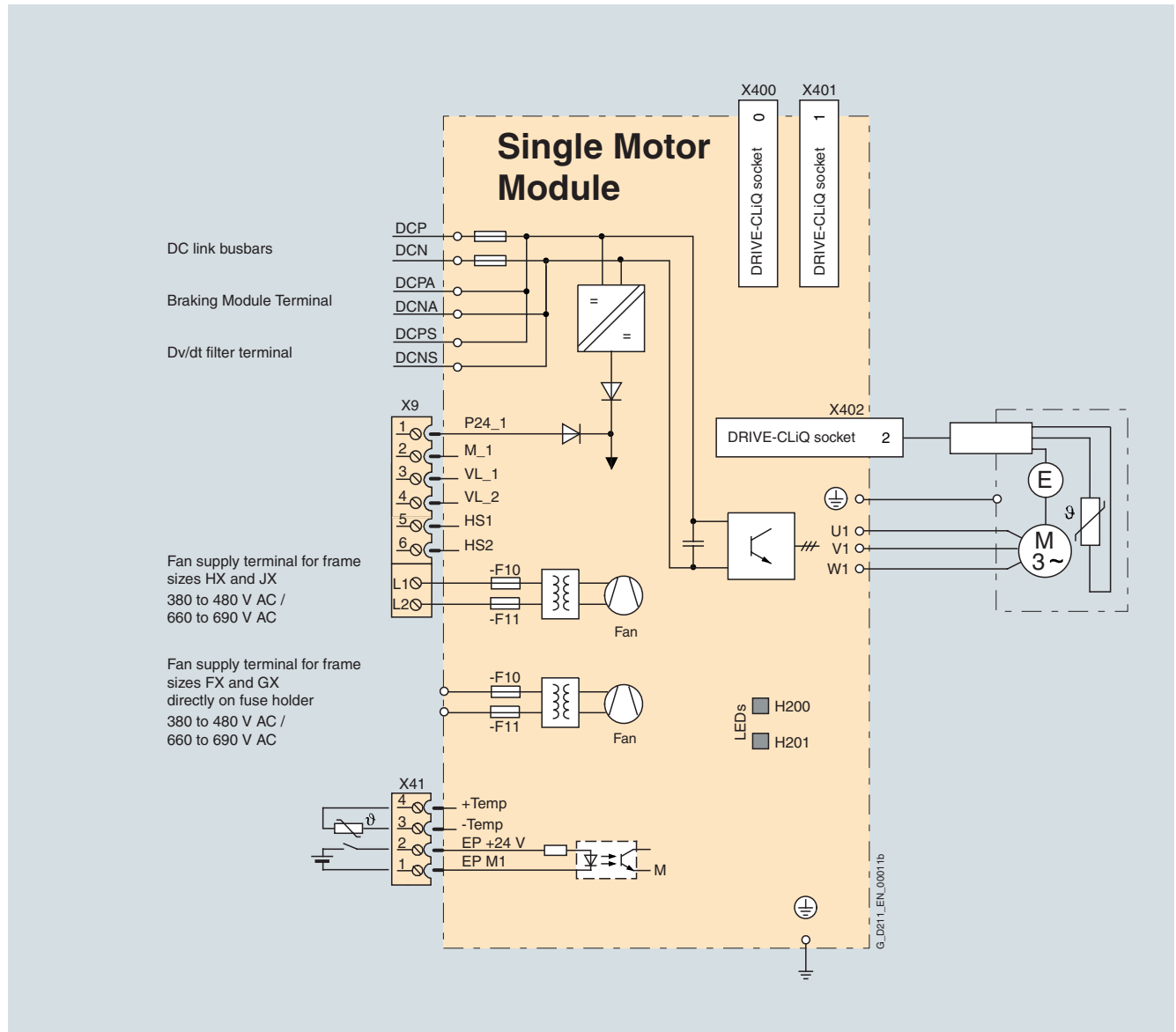
Warning signs in other languages can be placed on top of the standard warning signs in German or English.

The following signs are supplied with chassis format units: Chinese, Danish, Finnish, French, Greek, Italian, Japanese, Korean, Dutch, Polish, Portuguese, Russian, Swedish, Spanish, Czech and Turkish.

¹⁾ Nominal HP based on Asynchronous motors (induction motors). Match the motor nameplate current for specific sizing.

Integration

The Single Motor Module communicates with the CU320 or SIMOTION D Control Unit via DRIVE-CLiQ.



Connection example of Single Motor Module in chassis format

SINAMICS S120

Motor Modules

Single Motor Modules in chassis format

Technical data

General technical data

Electrical data	
DC link voltage (up to 2000 m (6563 ft) above sea level)	510 V to 720 V DC (line voltage 380 V to 480 V 3 AC) or 890 V to 1035 V DC (line voltage 660 V to 690 V 3 AC)
Max output voltage, line-to-line (fundamental-wave RMS value)	0.72 x DC link voltage
Output frequency	
• Control type Servo	0 Hz to 650 Hz ¹⁾
• Control type Vector	0 Hz to 300 Hz ¹⁾
• Control type V/f	0 Hz to 300 Hz ¹⁾
Electronics power supply	24 V DC – 15%/+ 20%
Radio interference suppression	
• Standard	No radio interference suppression
• in combination with Line Module and line reactor	Category C3 to EN 61800-3
• in combination with Line Module incl. line filter and line reactor	Class A1 to EN 55011 and Category C2 to EN 61800-3
Ambient conditions	
Type of cooling	Internal/external air cooling, power units with increased air cooling by means of built-in fan
Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules	0 °C to + 40 °C (32 °F to + 104 °F) without derating, > 40 °C to + 55 °C (> 104 °F to + 131 °F) see derating characteristics
Site altitude	Up to 2000 m (6563 ft) above sea level without derating, > 2000 m (6563 ft) to 4000 m (13126 ft) above sea level see derating characteristics
Certificates	
Conformity	CE (low-voltage and EMC Directives)
Approvals	cULus (File No.: E192450)
Certification	Safety Integrity Level 2 (SIL 2) to IEC 61508, control category 3 to EN 954-1 for Safety Integrated – safe standstill (STO = Safe Torque Off)

¹⁾ Note correlation between max. output frequency, pulse frequency and current derating, see System Description.

Technical data (continued)

DC link voltage 510 V to 720 V DC		Single Motor Modules in chassis format				
		6SL3320-1TE32-1AA0	6SL3320-1TE32-6AA0	6SL3320-1TE33-1AA0	6SL3320-1TE33-8AA0	6SL3320-1TE35-0AA0
Rated output current I_{rated}	A	210	260	310	380	490
Base load current I_L	A	205	250	302	370	477
Base load current I_H	A	178	233	277	340	438
Max. output current I_{max}	A	307	375	453	555	715
Rated power 600 V DC link voltage	kW (HP)	110 (150)	132 (200)	160 (250)	200 (300)	250 (400)
Power based on I_H 600 V DC link voltage	kW (HP)	90 (125)	110 (150)	132 (200)	160 (250)	200 (350)
Rated pulse frequency	kHz	2	2	2	2	2
DC link current $I_d^{1)}$	A	252	312	372	456	588
DC link capacitance	μ F	4200	5200	6300	7800	9600
Max. current requirement at 24 V DC	A	0.8	0.8	0.9	0.9	0.9
Max. current requirement (fan supply) at 400 V \pm 2 AC	A	0.6	1.2	1.6	1.6	1.6
Efficiency η		0.986	0.986	0.986	0.986	0.986
Power loss	kW	1.86	2.50	2.96	3.67	4.28
Cooling air requirement	m ³ /s (ft ³ /s)	0.17 (6)	0.23 (8.12)	0.36 (12.71)	0.36 (12.71)	0.36 (12.71)
Sound pressure level	dB(A)	< 67	< 69	< 69	< 69	< 69
DC link connection DCP, DCN		Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²
Motor connection U2, V2, W2		Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²
PE connection		Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²
Motor brake connection		-	-	-	-	-
Max. motor cable length (without external options)	m (ft)	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded
Degree of protection		IP20	IP20	IP20	IP20	IP20
Width	mm (inch)	326 (12.83)	326 (12.83)	326 (12.83)	326 (12.83)	326 (12.83)
Height	mm (inch)	1400 (55.12)	1400 (55.12)	1533 (60.35)	1533 (60.35)	1533 (60.35)
Depth	mm (inch)	356 (14.02)	356 (14.02)	545 (21.46)	545 (21.46)	545 (21.46)
Size		FX	FX	GX	GX	GX
Weight, approx.	kg (lb)	88 (194)	88 (194)	152 (335)	152 (335)	152 (335)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

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Motor Modules

Single Motor Modules in chassis format

Technical data (continued)

DC link voltage 510 V to 720 V DC		Single Motor Modules in chassis format		
		6SL3320-1TE36-1AA0	6SL3320-1TE37-5AA0	6SL3320-1TE38-4AA0
Rated output current I_{rated}	A	605	745	840
Base load current I_L	A	590	725	820
Base load current I_H	A	460	570	700
Max. output current I_{max}	A	885	1087	1230
Rated power 600 V DC link voltage	kW (HP)	315 (500)	400 (600)	450 (700)
Power based on I_H 600 V DC link voltage	kW (HP)	250 (350)	315 (450)	400 (500)
Rated pulse frequency	kHz	1.25	1.25	1.25
DC link current $I_d^{1)}$	A	726	894	1008
DC link capacitance	μ F	12600	15600	16800
Max. current requirement at 24 V DC	A	1.0	1.0	1.0
Max. current requirement (fan supply) at 400 V 2 AC	A	3.2	3.2	3.2
Efficiency η		0.986	0.986	0.986
Power loss	kW	5.84	6.68	7.15
Cooling air requirement	m^3/s (ft^3/s)	0.78 (27.55)	0.78 (27.55)	0.78 (27.55)
Sound pressure level	dB(A)	< 72	< 72	< 72
DC link connection DCP, DCN		Flange connection for busbar connection	Flange connection for busbar connection	Flange connection for busbar connection
Motor connection U2, V2, W2		Flange connection with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$
PE connection		On housing with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$	On housing with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$	On housing with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$
Motor brake connection		–	–	–
Max. motor cable length (without external options)	m (ft)	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded
Degree of protection		IP00	IP00	IP00
Width	mm (inch)	503 (19.8)	503 (19.8)	503 (19.8)
Height	mm (inch)	1475 (58.07)	1475 (58.07)	1475 (58.07)
Depth	mm (inch)	540 (21.26)	540 (21.26)	540 (21.26)
Size		HX	HX	HX
Weight, approx.	kg (lb)	290 (640)	290 (640)	290 (640)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

Technical data (continued)

DC link voltage 510 V to 720 V DC		Single Motor Modules in chassis format		
		6SL3320-1TE41-0AA0	6SL3320-1TE41-2AA0	6SL3320-1TE41-4AA0
Rated output current I_{rated}	A	985	1260	1405
Base load current I_L	A	960	1230	1370
Base load current I_H	A	860	1127	1257
Max. output current I_{max}	A	1440	1845	2055
Rated power 600 V DC link voltage	kW (HP)	560 (800)	710 (1000)	800 (1150)
Power based on I_H 600 V DC link voltage	kW (HP)	450 (700)	560 (900)	710 (1000)
Rated pulse frequency	kHz	1.25	1.25	1.25
DC link current $I_d^{1)}$	A	1182	1512	1686
DC link capacitance	μ F	18900	26100	28800
Max. current requirement at 24 V DC	A	1.25	1.40	1.40
Max. current requirement (fan supply) at 400 V 2 AC	A	4.7	4.7	4.7
Efficiency η		0.986	0.986	0.986
Power loss	kW	9.5	11.1	12.0
Cooling air requirement	m^3/s (ft^3/s)	1.1 (38.85)	1.1 (38.85)	1.1 (38.85)
Sound pressure level	dB(A)	< 72	< 72	< 72
DC link connection DCP, DCN		Flange connection for busbar connection	Flange connection for busbar connection	Flange connection for busbar connection
Motor connection U2, V2, W2		Flange connection with M12 screw, max. cross section $6 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section $6 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section $6 \times 240 \text{ mm}^2$
PE connection		On housing with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$	On housing with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$	On housing with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$
Motor brake connection		–	–	–
Max. motor cable length (without external options)	m (ft)	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded
Degree of protection		IP00	IP00	IP00
Width	mm (inch)	704 (27.72)	704 (27.72)	704 (27.72)
Height	mm (inch)	1475 (58.07)	1475 (58.07)	1475 (58.07)
Depth	mm (inch)	540 (21.26)	540 (21.26)	540 (21.26)
Size		JX	JX	JX
Weight, approx.	kg (lb)	450 (992)	450 (992)	450 (992)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

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Motor Modules

Single Motor Modules in chassis format

Technical data (continued)

DC link voltage 890 V to 1035 V DC		Single Motor Modules in chassis format			
		6SL3320-1TH28-5AA0	6SL3320-1TH31-0AA0	6SL3320-1TH31-2AA0	6SL3320-1TH31-5AA0
Rated output current I_{rated}	A	85	100	120	150
Base load current I_L	A	80	95	115	142
Base load current I_H	A	76	89	107	134
Max. output current I_{max}	A	120	142	172	213
Rated power	kW	75	90	110	132
Power based on I_H	kW	55	75	90	110
Rated pulse frequency	kHz	1.25	1.25	1.25	1.25
DC link current $I_d^{1)}$	A	102	120	144	180
DC link capacitance	μ F	1200	1200	1600	2800
Max. current requirement at 24 V DC	A	0.8	0.8	0.8	0.8
Max. current requirement (fan supply) at 690 V 2 AC	A	0.4	0.4	0.4	0.4
Efficiency η		0.988	0.988	0.986	0.989
Power loss	kW	1.17	1.43	1.89	1.80
Cooling air requirement	m ³ /s (ft ³ /s)	0.17 (6)	0.17 (6)	0.17 (6)	0.17 (6)
Sound pressure level	dB(A)	< 67	< 67	< 67	< 67
DC link connection DCP, DCN		Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²
Motor connection U2, V2, W2		Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²	Flange connection with M10 screw, max. cross section 2 x 185 mm ²
PE connection		Flange connection with M12 screw, max. cross section PE1/GND 2 x 185 mm ² PE2/GND 2 x 185 mm ²	Flange connection with M12 screw, max. cross section PE1/GND 2 x 185 mm ² PE2/GND 2 x 185 mm ²	Flange connection with M12 screw, max. cross section PE1/GND 2 x 185 mm ² PE2/GND 2 x 185 mm ²	Flange connection with M12 screw, max. cross section PE1/GND 2 x 185 mm ² PE2/GND 2 x 185 mm ²
Motor brake connection		–	–	–	–
Max. motor cable length (without external options)	m (ft)	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded
Degree of protection		IP20	IP20	IP20	IP20
Width	mm (inch)	326 (12.83)	326 (12.83)	326 (12.83)	326 (12.83)
Height	mm (inch)	1400 (55.12)	1400 (55.12)	1400 (55.12)	1400 (55.12)
Depth	mm (inch)	356 (14.02)	356 (14.02)	356 (14.02)	356 (14.02)
Size		FX	FX	FX	FX
Weight, approx.	kg (lb)	88 (194)	88 (194)	88 (194)	88 (194)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

Technical data (continued)

DC link voltage 890 V to 1035 V DC		Single Motor Modules in chassis format			
		6SL3320-1TH31-8AA0	6SL3320-1TH32-2AA0	6SL3320-1TH32-6AA0	6SL3320-1TH33-3AA0
Rated output current I_{rated}	A	175	215	260	330
Base load current I_L	A	170	208	250	320
Base load current I_H	A	157	192	233	280
Max. output current I_{max}	A	255	312	375	480
Rated power	kW	160	200	250	315
Power based on I_H	kW	132	160	200	250
Rated pulse frequency	kHz	1.25	1.25	1.25	1.25
DC link current $I_d^{1)}$	A	210	258	312	396
DC link capacitance	μ F	2800	2800	3900	4200
Max. current requirement at 24 V DC	A	0.9	0.9	0.9	0.9
Max. current requirement (fan supply) at 690 V 2 AC	A	0.94	0.94	0.94	0.94
Efficiency η		0.987	0.988	0.988	0.987
Power loss	kW	2.67	3.09	3.62	4.34
Cooling air requirement	m^3/s (ft ³ /s)	0.36 (12.71)	0.36 (12.71)	0.36 (12.71)	0.36 (12.71)
Sound pressure level	dB(A)	< 69	< 69	< 69	< 69
DC link connection DCP, DCN		Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$	Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$	Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$	Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$
Motor connection U2, V2, W2		Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$	Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$	Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$	Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$
PE connection		Flange connection with M12 screw, max. cross section PE1/GND $2 \times 185 \text{ mm}^2$ PE2/GND $2 \times 185 \text{ mm}^2$	Flange connection with M12 screw, max. cross section PE1/GND $2 \times 185 \text{ mm}^2$ PE2/GND $2 \times 185 \text{ mm}^2$	Flange connection with M12 screw, max. cross section PE1/GND $2 \times 185 \text{ mm}^2$ PE2/GND $2 \times 185 \text{ mm}^2$	Flange connection with M12 screw, max. cross section PE1/GND $2 \times 185 \text{ mm}^2$ PE2/GND $2 \times 185 \text{ mm}^2$
Motor brake connection		–	–	–	–
Max. motor cable length (without external options)	m (ft)	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded
Degree of protection		IP20	IP20	IP20	IP20
Width	mm (inch)	326 (12.83)	326 (12.83)	326 (12.83)	326 (12.83)
Height	mm (inch)	1533 (60.35)	1533 (60.35)	1533 (60.35)	1533 (60.35)
Depth	mm (inch)	545 (21.46)	545 (21.46)	545 (21.46)	545 (21.46)
Size		GX	GX	GX	GX
Weight, approx.	kg (lb)	152 (335)	152 (335)	152 (335)	152 (335)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

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Motor Modules

Single Motor Modules in chassis format

Technical data (continued)

DC link voltage 890 V to 1035 V DC		Single Motor Modules in chassis format			
		6SL3320-1TH34-1AA0	6SL3320-1TH34-7AA0	6SL3320-1TH35-8AA0	6SL3320-1TH37-4AA0
Rated output current I_{rated}	A	410	465	575	735
Base load current I_L	A	400	452	560	710
Base load current I_H	A	367	416	514	675
Max. output current I_{max}	A	600	678	840	1065
Rated power	kW	400	450	560	710
Power based on I_H	kW	315	400	450	630
Rated pulse frequency	kHz	1.25	1.25	1.25	1.25
DC link current $I_d^{1)}$	A	492	558	690	882
DC link capacitance	μ F	7400	7400	7400	11100
Max. current requirement at 24 V DC	A	1.0	1.0	1.0	1.25
Max. current requirement (fan supply) at 690 V 2 AC	A	1.84	1.84	2.74	2.74
Efficiency η		0.987	0.985	0.988	0.988
Power loss	kW	6.13	6.80	10.3	10.9
Cooling air requirement	m^3/s (ft ³ /s)	0.78 (27.55)	0.78 (27.55)	0.78 (27.55)	1.474 (52.05)
Sound pressure level	dB(A)	< 72	< 72	< 72	< 72
DC link connection DCP, DCN		Flange connection for busbar connection	Flange connection for busbar connection	Flange connection for busbar connection	Flange connection for busbar connection
Motor connection U2, V2, W2		Flange connection with M12 screw, max. cross section 4 x 240 mm ²	Flange connection with M12 screw, max. cross section 4 x 240 mm ²	Flange connection with M12 screw, max. cross section 4 x 240 mm ²	Flange connection with M12 screw, max. cross section 4 x 240 mm ²
PE connection		Flange connection with M12 screw, max. cross section PE1/GND 1 x 240 mm ² PE2/GND 2 x 240 mm ²	Flange connection with M12 screw, max. cross section PE1/GND 1 x 240 mm ² PE2/GND 2 x 240 mm ²	Flange connection with M12 screw, max. cross section PE1/GND 1 x 240 mm ² PE2/GND 2 x 240 mm ²	Flange connection with M12 screw, max. cross section PE1/GND 1 x 240 mm ² PE2/GND 2 x 240 mm ²
Motor brake connection		–	–	–	–
Max. motor cable length (without external options)	m (ft)	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded
Degree of protection		IP00	IP00	IP00	IP00
Width	mm (inch)	503 (19.8)	503 (19.8)	503 (19.8)	704 (27.72)
Height	mm (inch)	1475 (58.07)	1475 (58.07)	1475 (58.07)	1475 (58.07)
Depth	mm (inch)	540 (21.26)	540 (21.26)	540 (21.26)	540 (21.26)
Size		HX	HX	HX	JX
Weight, approx.	kg (lb)	290 (640)	290 (640)	290 (640)	450 (992)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

Technical data (continued)

DC link voltage 890 V to 1035 V DC		Single Motor Modules in chassis format			
		6SL3320-1TH38-1AA0	6SL3320-1TH38-8AA0	6SL3320-1TH41-0AA0	6SL3320-1TH41-3AA0
Rated output current I_{rated}	A	810	910	1025	1270
Base load current I_L	A	790	880	1000	1230
Base load current I_H	A	724	814	917	1136
Max. output current I_{max}	A	1185	1320	1500	1845
Rated power	kW	800	900	1000	1200
Power based on I_H	kW	710	800	900	1000
Rated pulse frequency	kHz	1.25	1.25	1.25	1.25
DC link current $I_d^{1)}$	A	972	1092	1230	1524
DC link capacitance	μ F	11100	14400	14400	19200
Max. current requirement at 24 V DC	A	1.25	1.4	1.4	1.4
Max. current requirement (fan supply) at 690 V 2 AC	A	2.74	2.74	2.74	2.74
Efficiency η		0.988	0.989	0.989	0.989
Power loss	kW	11.5	11.7	13.2	16.0
Cooling air requirement	m^3/s (ft^3/s)	1.474 (52.05)	1.474 (52.05)	1.474 (52.05)	1.474 (52.05)
Sound pressure level	dB(A)	< 72	< 72	< 72	< 72
DC link connection DCP, DCN		Flange connection for busbar connection	Flange connection for busbar connection	Flange connection for busbar connection	Flange connection for busbar connection
Motor connection U2, V2, W2		Flange connection with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section $6 \times 240 \text{ mm}^2$
PE connection		Flange connection with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$	Flange connection with M12 screw, max. cross section PE1/GND $1 \times 240 \text{ mm}^2$ PE2/GND $2 \times 240 \text{ mm}^2$
Motor brake connection		–	–	–	–
Max. motor cable length (without external options)	m (ft)	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded	300 (984) shielded 450 (1477) unshielded
Degree of protection		IP00	IP00	IP00	IP00
Width	mm (inch)	704 (27.72)	704 (27.72)	704 (27.72)	704 (27.72)
Height	mm (inch)	1475 (58.07)	1475 (58.07)	1475 (58.07)	1475 (58.07)
Depth	mm (inch)	540 (21.26)	540 (21.26)	540 (21.26)	540 (21.26)
Size		JX	JX	JX	JX
Weight, approx.	kg (lb)	450 (992)	450 (992)	450 (992)	450 (992)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

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Motor Modules

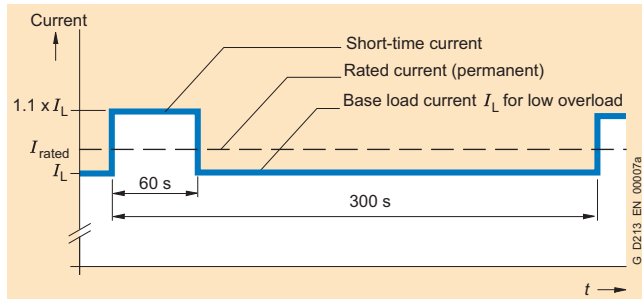
Single Motor Modules in chassis format

Characteristics

Overload capability

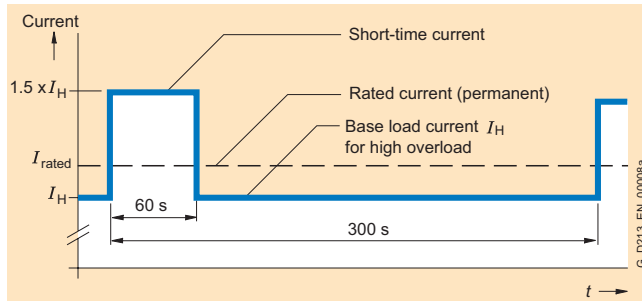
Load cycle data for Single Motor Modules in chassis format

The base load current I_L is based on a load cycle of 110% for 60 s or 150% for 10 s with a load cycle period of 300 s.



Low overload

The base load current I_H is based on a load cycle of 150% for 60 s or 160% for 10 s with a load cycle period of 300 s.



High overload

Derating factors

When the pulse frequency is increased, the derating factor of the output current must be taken into account.

This derating factor must be applied to the currents specified in the technical data.

Derating factor of the output current as a function of the pulse frequency for devices with a rated pulse frequency of 2-kHz

Single Motor Module in chassis format	Output	Output current	Derating factor	
Type		for a pulse frequency of 2 kHz	for a pulse frequency of 2.5 kHz	for a pulse frequency of 4 kHz
6SL3320- ...	kW (HP)	A		
DC link voltage 510 V to 720 V DC				
1TE32-1AA0	110 (150)	210	0.95	0.82
1TE32-6AA0	132 (200)	260	0.95	0.83
1TE33-1AA0	160 (250)	310	0.97	0.88
1TE33-8AA0	200 (300)	380	0.96	0.87
1TE33-0AA0	250 (400)	490	0.94	0.78

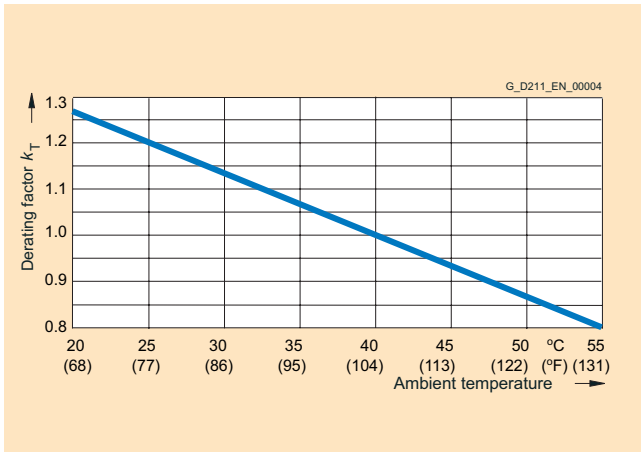
Derating factor of the output current as a function of the pulse frequency for devices with a rated pulse frequency of 1.25 kHz

Single Motor Module in chassis format	Output	Output current	Derating factor	
Type		for a pulse frequency of 1.25 kHz	for a pulse frequency of 2.5 kHz	
6SL3320- ...	kW (HP)	A		
DC link voltage 510 V to 720 V DC				
1TE36-1AA0	315 (500)	605	0.72	
1TE37-5AA0	400 (600)	745	0.72	
1TE38-4AA0	450 (700)	840	0.79	
1TE41-0AA0	560 (800)	985	0.87	
1TE41-2AA0	710 (1000)	1260	0.87	
1TE41-4AA0	800 (1150)	1405	0.95	

DC link voltage 890 V to 1035 V DC

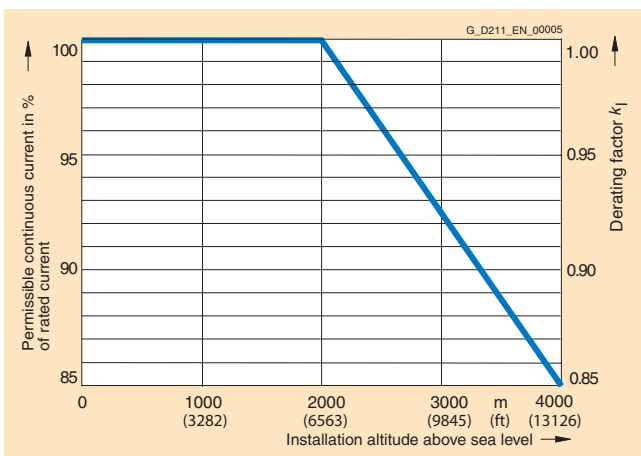
1TH28-5AA0	75	85	0.89	
1TH31-0AA0	90	100	0.88	
1TH31-2AA0	110	120	0.88	
1TH31-5AA0	132	150	0.84	
1TH31-8AA0	160	175	0.87	
1TH32-2AA0	200	215	0.87	
1TH32-6AA0	250	260	0.88	
1TH33-3AA0	315	330	0.82	
1TH34-1AA0	400	410	0.82	
1TH34-7AA0	450	465	0.87	
1TH35-8AA0	560	575	0.85	
1TH37-4AA0	710	735	0.79	
1TH38-1AA0	800	810	0.95	
1TH38-8AA0	900	910	0.87	
1TH41-0AA0	1000	1025	0.86	
1TH41-3AA0	1200	1270	0.79	

Characteristics (continued)

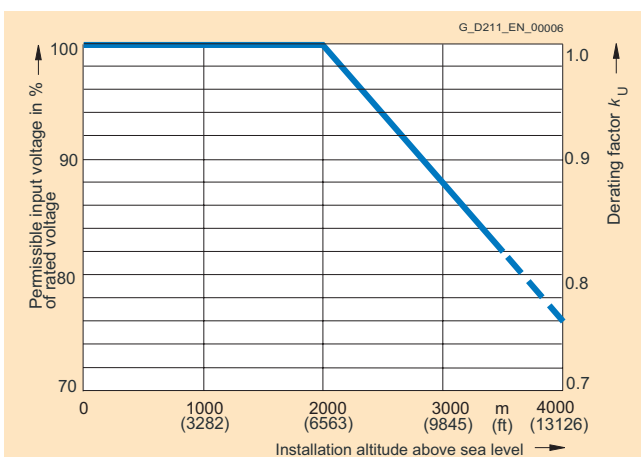


Current derating dependent on ambient temperature

Note: A derating factor $k_T > 1.0$ is to be taken into account only in conjunction with "current derating dependent on installation altitude". See also System description.



Current derating dependent on installation altitude



Voltage derating dependent on installation altitude

SINAMICS S120

Motor Modules

Double Motor Modules in booksize format

Design



Double Motor Modules feature the following interfaces as standard:

- 2 DC link connections via integrated DC link busbars
- 2 electronics power supply connections via integrated 24 V DC bars
- 4 DRIVE-CLiQ sockets
- 2 plug-in motor connections (not included in scope of supply)
- 2 safe standstill inputs (1 input per axis)
- 2 safe motor brake control
- 2 temperature sensor inputs (KTY84-130 or PTC)
- 3 PE (protective earth) connections

The status of the Motor Modules is indicated via two multi-color LEDs.

On Double Motor Modules, the motor cable shield can be connected in the connector.

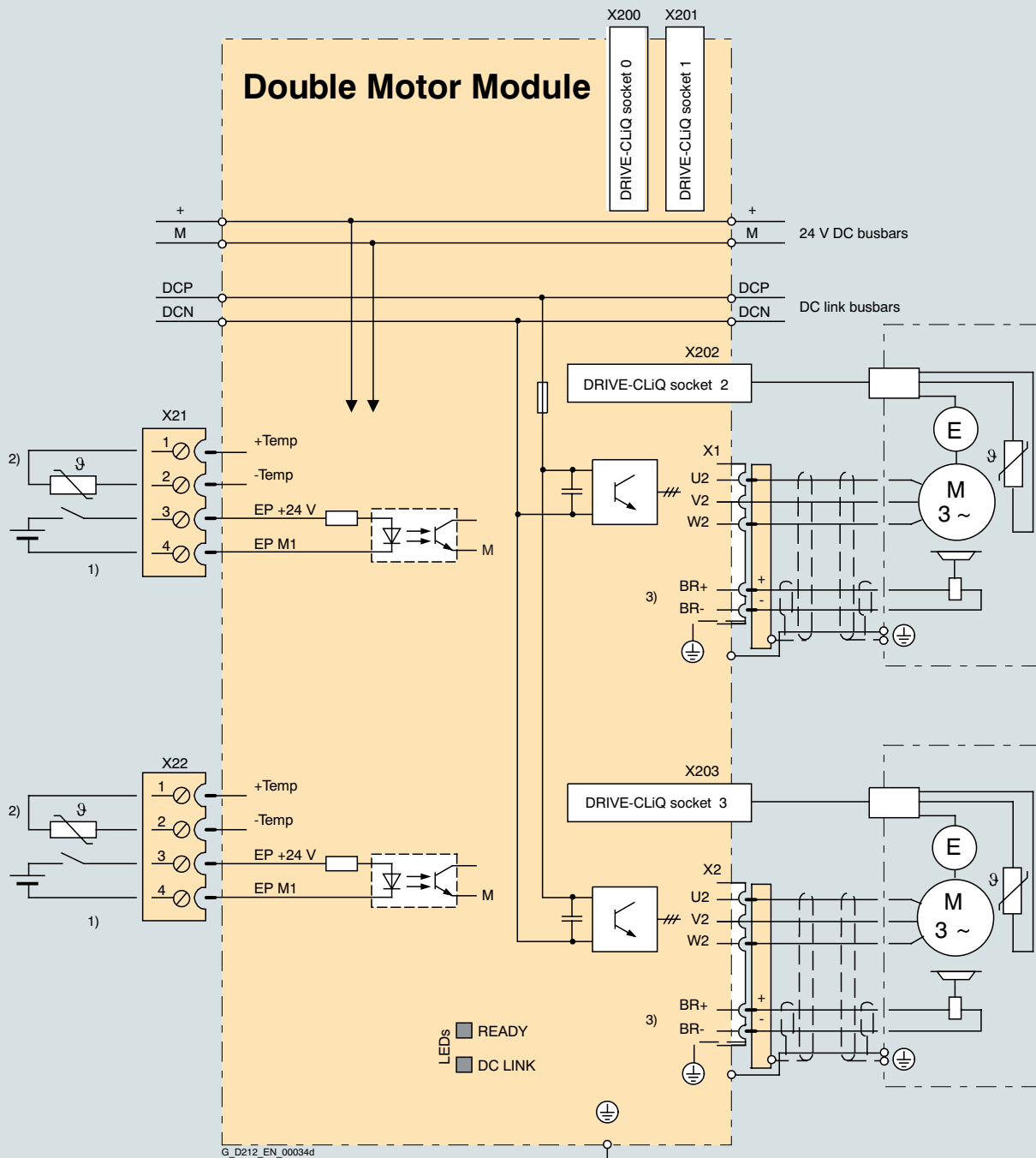
The signal cable shield can be connected to the Motor Module by means of a shield connection terminal, e.g. type KLBÜ 3-8 SC by Weidmüller.

The scope of supply of the Motor Modules includes:

- DRIVE-CLiQ cable (length depends on module width) to connect Motor Module to adjacent module
- Jumper for connecting the 24 V DC busbar to the adjacent Motor Module
- Connectors X21 and X22

Integration

The Double Motor Module communicates with the CU320 or SIMOTION D Control Unit via DRIVE-CLiQ.



- 1) Required for Safety.
- 2) Temperature sensor terminal for motors without DRIVE-CLiQ interface.
- 3) The braking signal has an integrated overvoltage protection.
An external circuit of the holding brake is not necessary.

Connection example of Double Motor Modules 2 × 3 A to 2 × 18 A

SINAMICS S120

Motor Modules

Double Motor Modules in booksize format

Technical data

General technical data

Electrical data	
DC link voltage (up to 2000 m (6563 ft) above sea level)	510 V to 720 V DC (line connection voltage 380 V to 480 V 3 AC)
Max. output voltage, line-to-line (fundamental-wave RMS value)	0.67 x DC with voltage
Output frequency	
• Control type Servo	0 Hz to 650 Hz ¹⁾
• Control type Vector	0 Hz to 300 Hz ¹⁾
• Control type V/f	0 Hz to 300 Hz ¹⁾
Electronics power supply	24 V DC – 15%/+ 20%
Radio interference suppression	
• Standard	No radio interference suppression
• in combination with Line Module incl. line filter and line reactor	Class A1 to EN 55011 and Category C2 to EN 61800-3
Ambient conditions	
Type of cooling	- Internal/external air cooling, power units with increased air cooling by means of built-in fan - Cold-plate cooling on request
Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules	0 °C to + 40 °C (32 °F to + 104 °F) without derating, > 40 °C to + 55 °C (> 104 °F to +131 °F) see derating characteristics
Site altitude	Up to 1000 m (1328 ft) above sea level without derating, > 1000 m to 4000 m (13126 ft) above sea level see derating characteristics
Certificates	
Conformity	CE (low-voltage and EMC Directives)
Approvals	cULus (File No.: E192450)
Certification	Safety Integrity Level 2 (SIL 2) to IEC 61508, control category 3 to EN 954-1 for Safety Integrated – safe standstill (STO = Safe Torque Off) and safe brake control (SBC = Safe Brake Control)

¹⁾ Note correlation between max. output frequency, pulse frequency and current derating, see System Description.

Technical data (continued)

DC link voltage 510 V to 720 V DC		Double Motor Module in booksize format			
Internal air cooling		6SL3120-2TE13-0AA0	6SL3120-2TE15-0AA0	6SL3120-2TE21-0AA0	6SL3120-2TE21-8AA0
Internal air cooling with varnished modules		6SL3120-2TE13-0AB0	6SL3120-2TE15-0AB0	6SL3120-2TE21-0AB0	6SL3120-2TE21-8AB0
External air cooling		6SL3121-2TE13-0AA0	6SL3121-2TE15-0AA0	6SL3121-2TE21-0AA0	6SL3121-2TE21-8AA0
Rated output current I_{rated}	A	2 × 3	2 × 5	2 × 9	2 × 18
Output current for S6 duty (40%) I_{S6}	A	2 × 3.5	2 × 6	2 × 10	2 × 24
Base load current I_H	A	2 × 2.6	2 × 4.3	2 × 7.7	2 × 15.3
Max. output current I_{max}	A	2 × 6	2 × 10	2 × 18	2 × 36
Rated power for 600 V DC link voltage	kW (HP)	2 × 1.6 (2 × 1.5)	2 × 2.7 (2 × 3)	2 × 4.8 (2 × 5)	2 × 9.7 (2 × 10)
Rated power based on I_H	kW (HP)	2 × 1.4 (2 × 1)	2 × 2.3 (2 × 2.5)	2 × 4.1 (2 × 5)	2 × 8.2 (2 × 10)
DC link current $I_d^{1)}$	A	7.2	12	22	43
DC link busbar current capacity	A	100	100	100	100
DC link capacitance	μF	110	220	220	710
Max. current requirement at 24 V DC	A	1.0	1.0	1.0	1.0
24 V DC busbar current capacity	A	20	20	20	20
If, due to a number of Line and Motor Modules being mounted side-by-side, the current carrying capacity exceeds 20 A, an additional 24-V-DC connection using a 24-V terminal adapter is required (max. cross section 6 mm ² , max. fuse protection 20 A).					
Efficiency η		0.97	0.97	0.97	0.97
Power loss with internal air cooling in control cabinet	kW	0.07	0.105	0.16	0.32
Power loss with external air cooling int./ext.	kW	0.025/0.035	0.045/0.06	0.065/0.095	0.08/0.24
Cooling air requirement	m ³ /s (ft ³ /s)	0.008 (0.283)	0.008 (0.283)	0.008 (0.283)	0.016 (0.565)
Sound pressure level	dB(A)	< 60	< 60	< 60	< 60
Motor connection U2, V2, W2		2 x plug-in connectors (X1, X2), max. 30 A (not included in scope of supply, see Accessories)	2 x plug-in connectors (X1, X2), max. 30 A (not included in scope of supply, see Accessories)	2 x plug-in connectors (X1, X2), max. 30 A (not included in scope of supply, see Accessories)	2 x plug-in connectors (X1, X2), max. 30 A (not included in scope of supply, see Accessories)
Shield connection		integrated in connector (X1, X2)	integrated in connector (X1, X2)	integrated in connector (X1, X2)	integrated in connector (X1, X2)
PE connection		On housing with M5 screw	On housing with M5 screw	On housing with M5 screw	On housing with M5 screw
Motor brake connection		Integrated into the plug-in motor connector (X1, X2), DC 24 V, 2 A	Integrated into the plug-in motor connector (X1, X2), DC 24 V, 2 A	Integrated into the plug-in motor connector (X1, X2), DC 24 V, 2 A	Integrated into the plug-in motor connector (X1, X2), DC 24 V, 2 A
Max. motor cable length	m (ft)	50 (164) shielded 75 (246) unshielded	50 (164) shielded 75 (246) unshielded	50 (164) shielded 75 (246) unshielded	50 (164) shielded 75 (246) unshielded
Degree of protection		IP20	IP20	IP20	IP20
Width	mm (inch)	50 (1.97)	50 (1.97)	50 (1.97)	100 (3.94)
Height	mm (inch)	380 (14.96)	380 (14.96)	380 (14.96)	380 (14.96)
Depth with internal air cooling	mm (inch)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)
Depth with external air cooling on/behind mounting surface	mm (inch)	226/66.5 (8.9/2.6)	226/66.5 (8.9/2.6)	226/66.5 (8.9/2.6)	226/66.5 (8.9/2.6)
Approx. weight with internal air cooling	kg (lb)	5.3 (12)	5.3 (12)	5.3 (12)	6.8 (15)
Approx. weight with external air cooling	kg (lb)	5.8 (13)	5.8 (13)	5.8 (13)	8.6 (19)

¹⁾ Rated DC link current for dimensioning an external DC connection.
For DC link current calculation for dimensioning the Line Module, see System Description.

SINAMICS S120

Motor Modules

Double Motor Modules in booksize format

Selection and ordering data

Rated output current	Rated power	Double Motor Module in booksize format		
		Internal air cooling	Internal air cooling with varnished modules	External air cooling
A	kW (HP) ¹⁾	Order No.	Order No.	Order No.
DC link voltage 510 V to 720 V DC				
2 x 3 A	2 x 1.6 (2 x 1.5)	6SL3120-2TE13-0AA0	6SL3120-2TE13-0AB0	6SL3121-2TE13-0AA0
2 x 5 A	2 x 2.7 (2 x 3)	6SL3120-2TE15-0AA0	6SL3120-2TE15-0AB0	6SL3121-2TE15-0AA0
2 x 9 A	2 x 4.8 (2 x 5)	6SL3120-2TE21-0AA0	6SL3120-2TE21-0AB0	6SL3121-2TE21-0AA0
2 x 18 A	2 x 9.7 (2 x 10)	6SL3120-2TE21-8AA0	6SL3120-2TE21-8AB0	6SL3121-2TE21-8AA0

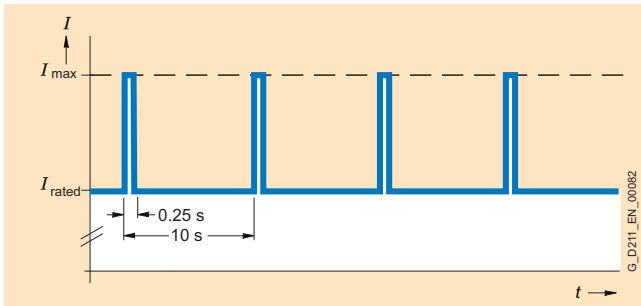
Accessories

Description	Order No.
Power connector (X1/X2) at Motor Module end, with screw-type terminals 1.5 mm ² to 10 mm ² , for Motor Modules with a rated output current of 3 to 30 A	6SL3162-2MA00-0AA0
DC link supply adapter for direct infeed of DC link voltage Screw-type terminals 0.5 mm ² to 10 mm ² for booksize format Line/Motor Modules with a width of 50 mm (1.97 in) or 100 mm (3.94 in)	6SL3162-2BD00-0AA0
DC link adapters (2x) for multi-tier configuration Screw-type terminals 35 mm ² to 95 mm ² for all Line Modules/Motor Modules in booksize format	6SL3162-2BM01-0AA0
24 V terminal adapter for all Line Modules/Motor Modules in booksize format	6SL3162-2AA00-0AA0
24 V jumper for connection of the 24 V busbars (for booksize format)	6SL3162-2AA01-0AA0
Warning signs in foreign languages This set of foreign language warning signs can be placed on top of the standard German or English signs. One sign in each of the following languages is provided in each set: Chinese, Danish, Dutch, Finnish, French, Greek, Italian, Japanese, Korean, Portuguese, Spanish and Swedish.	6SL3166-3AB00-0AA0

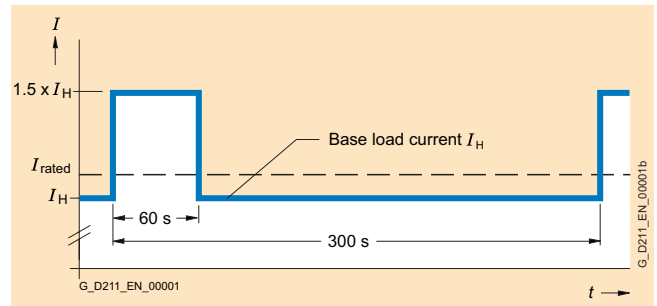
¹⁾ Nominal HP based on Asynchronous motors (induction motors).
Match the motor nameplate current for specific sizing.

Characteristics

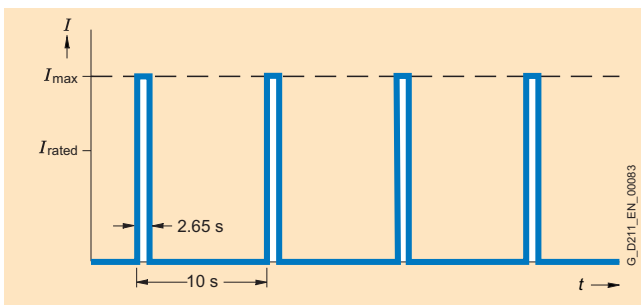
Overload capability



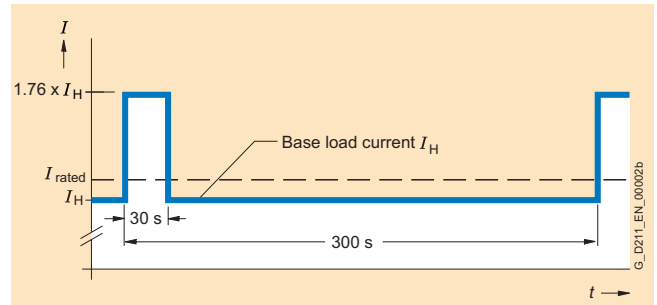
Load cycle with previous load



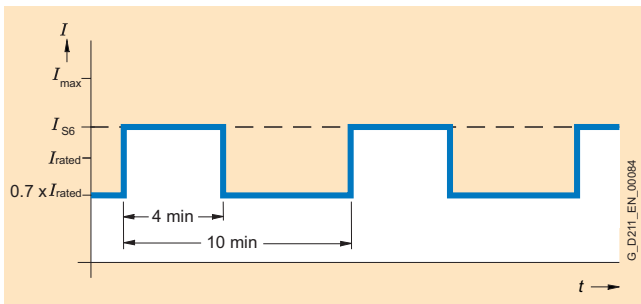
Load cycle with 60 s overload with a load cycle period of 300 s



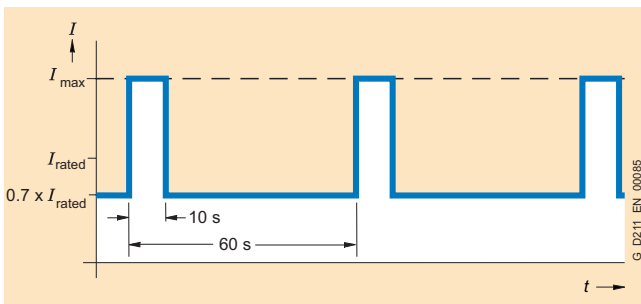
Load cycle without previous load



Load cycle with 30 s overload with a load cycle period of 300 s



S6 load cycle with previous load with a load cycle period of 600 s



S6 load cycle with previous load with a load cycle period of 60 s

SINAMICS S120

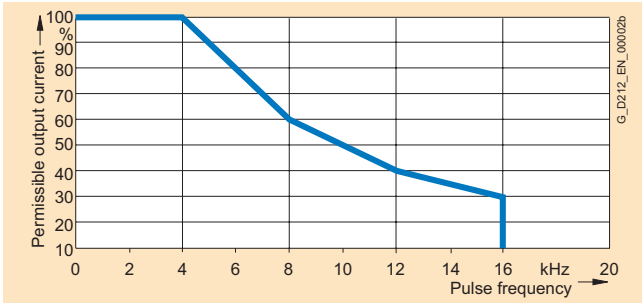
Motor Modules

Double Motor Modules in booksize format

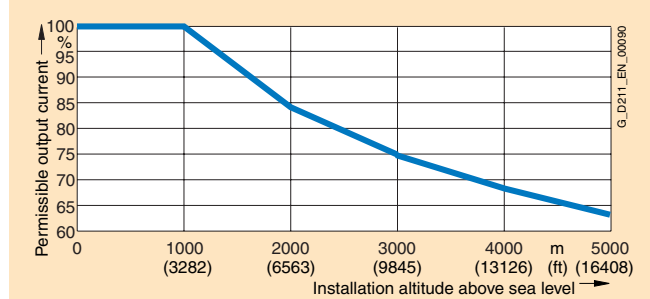
Characteristics (continued)

Derating characteristics

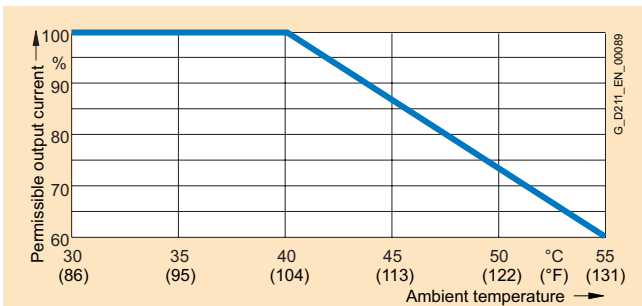
2



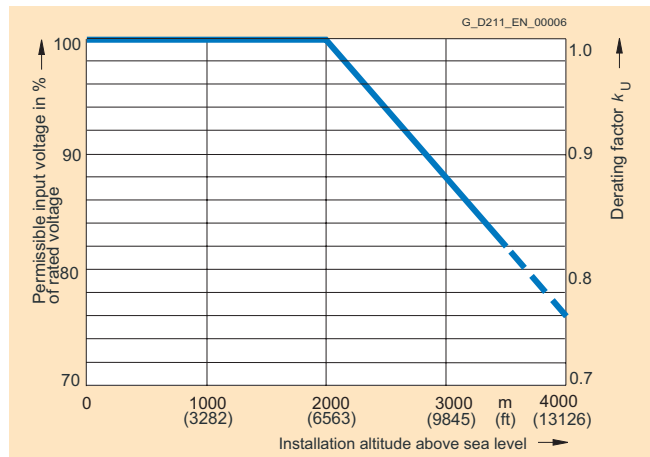
Output current dependent on pulse frequency



Output current dependent on installation altitude



Output current dependent on ambient temperature



Voltage derating dependent on installation altitude