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Design



Double Motor Module in booksize format C/D types

Double Motor Modules feature the following connections and interfaces as standard:

- 2 DC link connections via integrated DC link busbars
- 2 electronics power supply connections via integrated 24 V DC busbars
- 4 DRIVE-CLiQ sockets
- 2 motor connections (connectors X1 and X2 are not included in the scope of delivery)
- 2 safe standstill inputs (1 input per axis)
- 2 safe motor brake controls
- 2 temperature sensor inputs for KTY84-130, Pt1000 or PTC (Pt1000 can be used from firmware V4.7 HF17)
- 1 PE (protective earth) connection

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

The shield is integrated in the housing, which results in an improved shield connection.

Motor Modules in booksize format C/D types, 2 × 3 A to 2 × 18 A

Rated current	3 A	5 A	9 A	18 A	30 A
	D Types				
Single Motor Modules	3 A / 9 A 50 mm (1.97 in)	5 A / 15 A 50 mm (1.97 in)	9 A / 27 A 50 mm (1.97 in)	18 A / 54 A 50 mm (1.97 in)	30 A / 90 A 100 mm (3.94 in)
Double Motor Modules	**2 x 3 A / 2 x 9 A** 50 mm (1.97 in)	**2 x 5 A / 2 x 15 A** 50 mm (1.97 in)	**2 x 9 A / 2 x 27 A** 50 mm (1.97 in)	**2 x 18 A / 2 x 54 A** 100 mm (3.94 in)	–
Rated current / maximum current in A 50 mm (1.97 in) or 100 mm (3.94 in) widths			**C types**		
			Single Motor Modules	18 A / 36 A 50 mm (1.97 in)	30 A / 56 A 100 mm (3.94 in)
			Double Motor Module	**2 x 18 A / 2 x 36 A** 100 mm (3.94 in)	–

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Overview of available Double Motor Modules in booksize format C/D types

- C type: Optimized for continuous load with up to 200 % overload (continuous motion)
- D type: Optimized for highly dynamic, intermittent duty cycles with up to 300 % overload (discontinuous motion)

Devices in booksize format C/D types are optimized for multi-axis applications and are mounted next to one another. The connection for the common DC link is an integral feature. The device is internally air cooled.

The new Motor Modules in booksize format C/D types have been developed to be fully compatible with the booksize series regarding spare parts. The advantages of this new product include:

- The amount of space required beneath the Motor Modules has been reduced thanks to improvements in the design and a new motor plug connector
- With the new motor plug connector design, the brake conductors and the PE connection are integrated directly in the plug connector
- The motor connections on the Double Motor Module are located side by side, resulting in a significantly improved level of accessibility
- The fan can be simply replaced without having to remove the Motor Module

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:

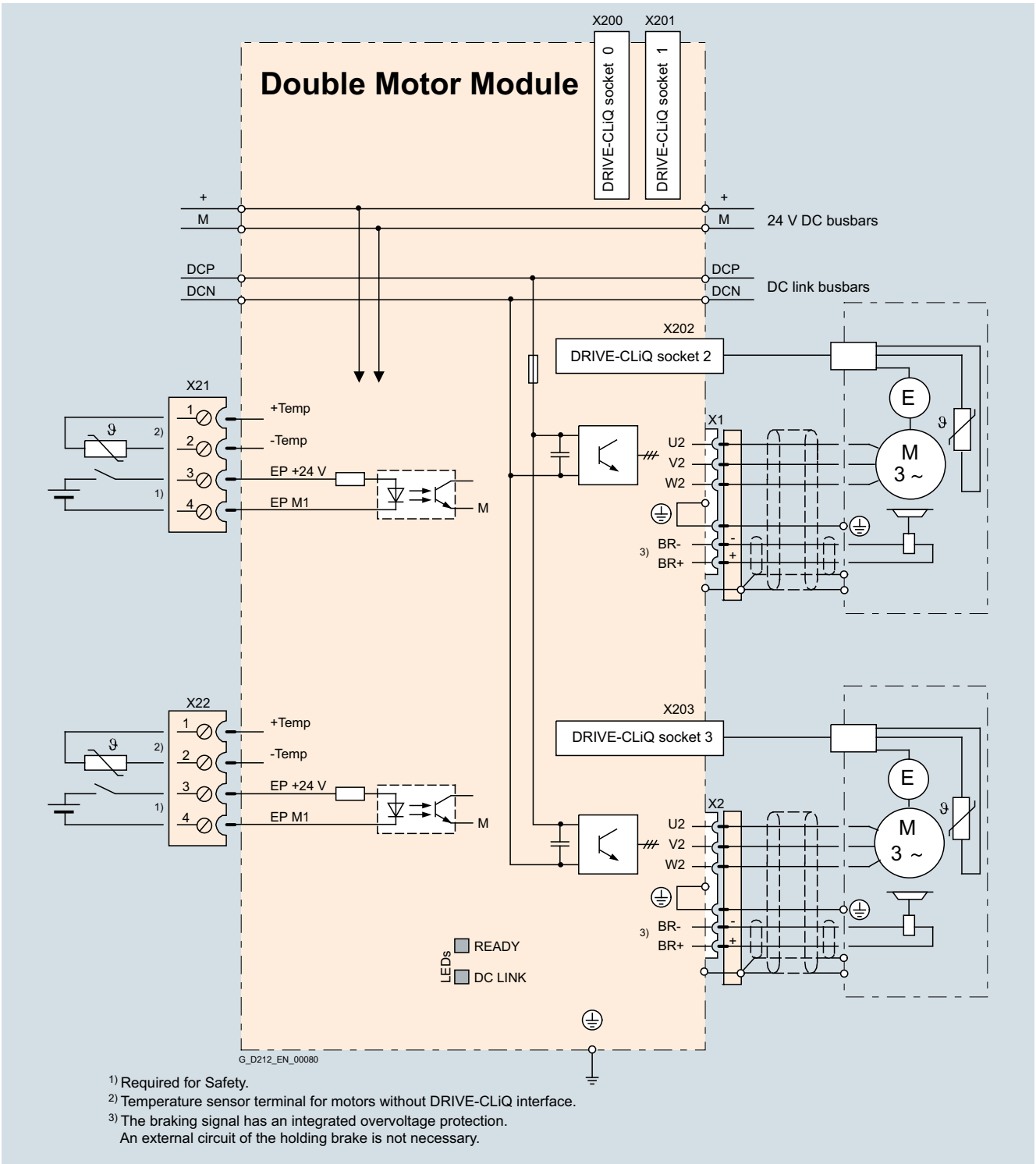
- DRIVE-CLiQ cable appropriate to the width of the Motor Module for connection to the adjacent Motor Module, length = width of Motor Module + 0.06 m (0.20 ft)
- 2 blanking plugs for sealing unused DRIVE-CLiQ sockets
- Jumper for connecting the 24 V DC busbar to the adjacent Motor Module
- Connectors X21 and X22
- Device fans supplied from the internal voltage levels for cooling the power unit
- 1 set of warning labels in 30 languages
- 1 shield connection clamp

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Integration

The Double Motor Module obtains its control information via DRIVE-CLiQ from:

- CU320-2 Control Unit
- SINUMERIK 840D sl with
  - NCU 710.3B PN
  - NCU 720.3B PN
  - NCU 730.3B PN
  - Numeric Control Extensions NX10.3/NX15.3
- SIMOTION D



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 in booksize format C/D types, 2 × 3 A to 2 × 18 A

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Double Motor Modules in booksize format

Selection and ordering data

Rated output current	Type rating [4]	Double Motor Module in booksize format	
		C type	D type
A	kW (hp)	Article No.	Article No.
DC link voltage 510 ... 720 V DC			
2 × 3	2 × 1.6 (2 × 1.5)	–	**6SL3120-2TE13-0AD0**
2 × 5	2 × 2.7 (2 × 3)	–	**6SL3120-2TE15-0AD0**
2 × 9	2 × 4.8 (2 × 5)	–	**6SL3120-2TE21-0AD0**
2 × 18	2 × 9.7 (2 × 10)	**6SL3120-2TE21-8AC0**	**6SL3120-2TE21-8AD0**

Description	Article No.
Accessories	
Power connector (X1/X2) with screw-type terminal At Motor Module end, with screw-type terminals 1.5 ... 6 mm² For Motor Modules in booksize format C/D type with rated output current of 3 ... 30 A	**6SL3162-2MA00-0AC0**
Power connector (X1/X2) with push-in connection At Motor Module end, with spring-loaded terminals 1.5 ... 6 mm² For Motor Modules in booksize format C/D type with rated output current of 3 ... 30 A	**6SL3162-2MB00-0AC0**
DC link rectifier adapter For direct infeed of DC link voltage Screw-type terminals 0.5 ... 10 mm² for Line Modules and Motor Modules in booksize format with a width of 50 mm (1.97 in) or 100 mm (3.94 in)	**6SL3162-2BD00-0AA0**
DC link adapter (2 units) For multi-tier configuration Screw-type terminals 35 ... 95 mm² For all Line Modules and Motor Modules in booksize format	**6SL3162-2BM01-0AA0**
24 V terminal adapter For all Line Modules and Motor Modules in booksize format	**6SL3162-2AA00-0AA0**
Reinforced DC link busbar set For replacement of DC link busbars for 5 modules in booksize format with a width of	
• 50 mm (1.97 in)	**6SL3162-2DB00-0AA0**
• 100 mm (3.94 in)	**6SL3162-2DD00-0AA0**

Description	Article No.
Accessories for re-ordering	
24 V jumper For connection of the 24 V busbars (for booksize format)	**6SL3162-2AA01-0AA0**
Terminal Kit (plug-in terminals, DRIVE-CLiQ jumper (length = module width + 60 mm (2.36 in)), dust protection blanking plugs) For DRIVE-CLiQ port For Motor Modules with a width of	
• 50 mm (1.97 in), C/D type	**6SL3162-8AD00-0AA0**
• 100 mm (3.94 in), C/D type	**6SL3162-8BF00-0AA0**
Warning labels in 30 languages This label set can be glued over the standard German or English labels to provide warnings in other languages. One set of labels is supplied with the devices. One sign in each of the following languages is provided in each set: BG, CN, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, JP, KR, LT, LV, MT, NL, NO, PL, PT, RO, RU, SE, SI, SK, TR	**6SL3166-3AB00-0AA0**
Dust protection blanking plugs (50 units) For DRIVE-CLiQ port	**6SL3066-4CA00-0AA0**
Replacement fan For Motor Modules with a width of	
• 50 mm (1.97 in), C/D type	**6SL3162-0AN00-0AA0**
• 100 mm (3.94 in), C/D type	**6SL3162-0AP00-0AA0**

Technical specifications

	Double Motor Module in booksize format 6SL3120-2TE...
DC link voltage (up to 2000 m (6562 ft) above sea level)	510 ... 720 V DC (line voltage 380 ... 480 V 3 AC)
Output frequency	
• Control mode Servo	0 ... 650 Hz [1) 2) 3)]
• Control mode Vector	0 ... 300 Hz [2)]
• Control mode V/f	0 ... 600 Hz [2) 3)]
Electronics power supply	24 V DC -15 %/+20 %
Type of cooling	Internal air cooling (power units with increased air cooling by built-in fan)
Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules	0 ... 40 °C (32 ... 104 °F) without derating, > 40 ... 55 °C (104 ... 131 °F), see derating characteristics
Installation altitude	Up to 1000 m (3281 ft) above sea level without derating, > 1000 ... 4000 m (3281 ... 13124 ft) above sea level, see derating characteristics
Declarations of conformity	CE (Low Voltage and EMC Directives)
Certificate of suitability	cULus
Safety Integrated	Safety Integrity Level 2 (SIL 2) according to IEC 61508, Performance Level d (PL d) and Category 3 according to EN ISO 13849-1 For further information, see section Safety Integrated.

1) At rated output current (max. output frequency 1300 Hz for 62.5 µs current control cycle, 8 kHz pulse frequency, 60 % permissible output current).

2) Note the correlation between max. output frequency, pulse frequency and current derating. For further information, see section configuration notes.

3) The output frequency is currently limited to 550 Hz. The specified values apply to systems with license for high output frequency.
For further information, see section Control Units and https://support.industry.siemens.com/cs/document/104020669

4) Nominal hp ratings based on asynchronous (induction) motors. Match the motor nameplate current for specific sizing.

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Technical specifications

DC link voltage 510 ... 720 V DC or Line voltage 380 ... 480 V 3 AC		Motor reactor (for a 4 kHz pulse frequency)					
		6SE7021-0ES87-1FE0	6SL3000-2BE21-0AA0	6SE7022-6ES87-1FE0		6SE7024-7ES87-1FE0	
Rated current	A	5	9	18		30	
Maximum current	A	10	18	36		60	
Rated inductance	µH	1243	1000	332		180	
Power loss	kW	0.08	0.09	0.11		0.19	
Connection Motor Module/Motor		Screw-type terminals 4 mm^2	Screw-type terminals 16 mm^2	Screw-type terminals 16 mm^2		Flat connector for M8 screw	
PE connection		M6 screw stud	M6 screw stud	M6 screw stud		M6 screw stud	
Cable length between motor reactor and motor, max.							
(number of reactors in series)		(1)	(1)	(1)	(2)	(1)	(2)
• Shielded	m (ft)	100 (328)	135 (443)	160 (525)	320 (1050)	190 (623)	375 (1230)
• Unshielded	m (ft)	150 (492)	200 (656)	240 (787)	480 (1575)	280 (919)	560 (1837)
Degree of protection		IP00	IP00	IP00		IP00	
Dimensions							
• Width	mm (in)	178 (7.01)	178 (7.01)	219 (8.62)		197 (7.76)	
• Height	mm (in)	153 (6.02)	159 (6.26)	180 (7.09)		220 (8.66)	
• Depth	mm (in)	88 (3.46)	111 (4.37)	119 (4.69)		104 (4.09)	
Weight, approx.	kg (lb)	5.5 (12.13)	4.8 (10.6)	7.8 (17.2)		13 (28.7)	
Certificate of suitability		cURus	cURus	cURus		cURus	
Suitable for Motor Module in booksize format	Type	6SL3120-1TE13-0AD0 6SL3120-2TE13-0AD0	6SL3120-1TE15-0AD0 6SL3120-2TE15-0AD0	6SL3120-1TE21-0AD0 6SL3120-2TE21-0AD0	6SL3120-1TE21-8AC0 6SL3120-1TE21-8AD0 6SL3120-2TE21-8AC0 6SL3120-2TE21-8AD0	6SL3120-1TE23-0AC0 6SL3120-1TE23-0AD0	
• Rated current of the Motor Module	A	3	5	9	18	30	

DC link voltage 510 ... 720 V DC or Line voltage 380 ... 480 V 3 AC		Motor reactor (for a 4 kHz pulse frequency)														
		6SE7027-2ES87-1FE0			6SL3000-2BE26-0AA0			6SE7031-5ES87-1FE0			6SE7031-8ES87-1FE0			6SE7032-6ES87-1FE0		
Rated current	A	45			60			85			132			200		
Rated inductance	µH	59			62			29			23			16		
Power loss	kW	0.2			0.1			0.22			0.29			0.29		
Connection Motor Module/Motor		Flat connector for M8 screw			Flat connector for M8 screw			Flat connector for M8 screw			Flat connector for M10 screw			Flat connector for M10 screw		
PE connection		M6 screw stud			M6 screw stud			M6 screw			M6 screw			M6 screw		
Cable length between motor reactor and motor, max.																
(number of reactors in series)		(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
• Shielded	m (ft)	200 (656)	400 (1312)	600 (1969)	200 (656)	400 (1312)	600 (1969)	200 (656)	400 (1312)	600 (1969)	200 (656)	400 (1312)	600 (1969)	200 (656)	400 (1312)	600 (1969)
• Unshielded	m (ft)	300 (984)	600 (1969)	900 (2953)	300 (984)	600 (1969)	900 (2953)	300 (984)	600 (1969)	900 (2953)	300 (984)	600 (1969)	900 (2953)	300 (984)	600 (1969)	900 (2953)
Degree of protection		IP00			IP00			IP00			IP00			IP00		
Dimensions																
• Width	mm (in)	267 (10.51)			267 (10.51)			197 (7.76)			281 (11.06)			281 (11.06)		
• Height	mm (in)	221 (8.70)			220 (8.66)			220 (8.66)			250 (9.84)			250 (9.84)		
• Depth	mm (in)	107 (4.21)			126 (4.96)			128 (5.04)			146 (5.75)			146 (5.75)		
Weight, approx.	kg (lb)	11 (24.3)			10.5 (23.2)			20.5 (45.2)			27.2 (59.9)			30.6 (67.4)		
Certificate of suitability		cURus			cURus			cURus			cURus			cURus		
Suitable for Motor Module in booksize format	Type	6SL3120-1TE24-5AA3			6SL3120-1TE26-0AA3			6SL3120-1TE28-5AA3			6SL3120-1TE31-3AA3			6SL3120-1TE32-0AA4		
• Rated current of the Motor Module	A	45			60			85			132			200		