

SINAMICS S120 Cabinet Modules

Air-cooled units

Central Braking Modules

Overview



Central Braking Modules limit the DC link voltage at a central location in the drive line-up when the motors are operating in generator mode and energy recovery to the supply system is not possible. If, in regenerative mode, the voltage of the DC busbar exceeds a limit value, an externally installed braking resistor is switched in, thus restricting the voltage from increasing further. The regenerative energy is converted into heat. The braking resistor is switched in by the Braking Unit integrated in the Cabinet Module, which is equipped with state-of-the-art MOSFET/IGBT semiconductors.

Central Braking Modules are an alternative to the optional Braking Modules (options **L61/L62** or **L64/L65**) and are particularly suitable when high braking powers are required in a drive line-up. The required braking power can also be increased by connecting units in parallel.

Line voltage	DC link voltage	Braking power P_{150}
380 ... 480 V 3 AC	510 ... 720 V DC	500 kW/1000 kW
500 ... 600 V 3 AC	675 ... 900 V DC	550 kW/1100 kW
660 ... 690 V 3 AC	890 ... 1035 V DC	630 kW/1200 kW

The built-in fan means that Central Braking Modules are also suitable for high continuous power levels.

Design

The Central Braking Module is a cabinet unit with integrated braking chopper. Using state-of-the-art MOSFET/IGBT semiconductors, the power unit controls when the braking resistor is switched in.

Central Braking Modules are designed as a 400 mm wide cabinet module. Its connection to the DC link is protected by fuses.

Central Braking Modules require braking resistors that must be externally mounted and which can be ordered separately. The cables to the resistors can be connected to lugs which are specially prepared for plant application and which are located in the connection area of the cabinet.

The power units have diagnostics LEDs for the display of faults and also a control output for the communication of faults. The Central Braking Module can be disabled externally via a control input.

The arrangement in the DC link system is subject to specific configuring rules.

For additional information, please refer to the [SINAMICS Low Voltage Engineering Manual](#).

Selection and ordering data

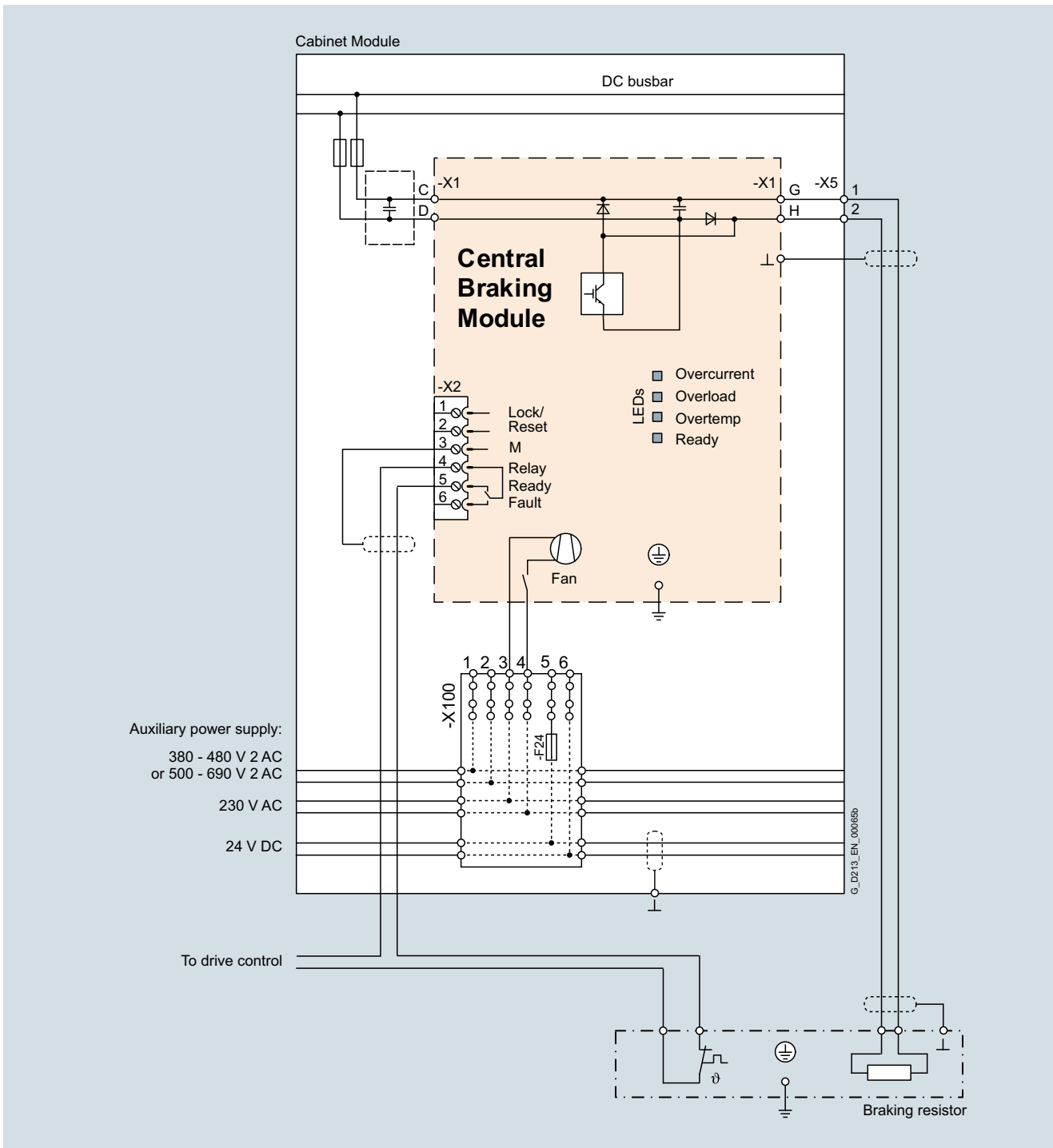
Braking powers				Central Braking Module
P_{15}	P_{150}	P_{270}	P_{DB}	Article No.
kW	kW	kW	kW	
DC link voltage 510 ... 720 V DC				
730	500	300	200	6SL3700-1AE35-0AA3
1380	1000	580	370	6SL3700-1AE41-0AA3
DC link voltage 675 ... 900 V DC				
830	550	340	220	6SL3700-1AF35-5AA3
1580	1100	650	420	6SL3700-1AF41-1AA3
DC link voltage 890 ... 1035 V DC				
920	630	380	240	6SL3700-1AH36-3AA3
1700	1200	720	460	6SL3700-1AH41-2AA3

Note:

In contrast to the optional Braking Modules (options **L61**, **L62** or **L64**, **L65**), the braking resistors for the Central Braking Modules must be ordered separately.

Braking power P_{150}	Dimensions (W × D × H)	Braking resistor in degree of protection IP21
kW	mm	Article No.
DC link voltage 510 ... 720 V DC		
500	960 × 620 × 790	6SL3000-1BE35-0AA0
1000	960 × 620 × 1430	6SL3000-1BE41-0AA0
DC link voltage 675 ... 900 V DC		
550	960 × 620 × 1110	6SL3000-1BF35-5AA0
1100	960 × 620 × 1430	6SL3000-1BF41-1AA0
DC link voltage 890 ... 1035 V DC		
630	960 × 620 × 1110	6SL3000-1BH36-3AA0
1200	960 × 620 × 1430	6SL3000-1BH41-2AA0

Integration



Connection example: Central Braking Module

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Technical specifications

	Central Braking Modules						
		6SL3700-1AE35-0AA3	6SL3700-1AE41-0AA3	6SL3700-1AF35-5AA3	6SL3700-1AF41-1AA3	6SL3700-1AH36-3AA3	6SL3700-1AH41-2AA3
Line voltage		380 ... 480 V		500 ... 600 V		660 ... 690 V	
Braking power P_{150}	kW	500	1000	550	1100	630	1200
Continuous braking power P_{DB}	kW	200	370	220	420	240	460
Braking current for P_{150}	A	650	1200	580	1100	520	1000
Current demand ¹⁾							
• 230 V 2 AC	A	0.4	0.4	0.4	0.4	0.4	0.4
Power loss, max. ²⁾ At 50 Hz 400/500/690 V	kW	0.8	1.5	0.8	1.5	0.8	1.5
DC link capacitance	μF	8160	9720	7640	8680	7640	8680
Cooling air requirement	m ³ /s	0.14	0.14	0.14	0.14	0.14	0.14
Sound pressure level L_{pA} (1 m) at 50/60 Hz	dB	55	55	55	55	55	55
Braking resistor connection		M12 screws	M12 screws	M12 screws	M12 screws	M12 screws	M12 screws
• Conductor cross-section, max. (IEC)	mm ²	2 × 240	2 × 240	2 × 240	2 × 240	2 × 240	2 × 240
PE/GND connection		PE bar	PE bar	PE bar	PE bar	PE bar	PE bar
• Busbar cross-section	mm ²	600	600	600	600	600	600
• Conductor cross-section, max. (IEC)	mm ²	240	240	240	240	240	240
Degree of protection		IP20	IP20	IP20	IP20	IP20	IP20
Dimensions							
• Width	mm	400	400	400	400	400	400
• Height ³⁾	mm	2200	2200	2200	2200	2200	2200
• Depth	mm	600	600	600	600	600	600
Weight, approx.	kg	230	230	230	230	230	230
Frame size	mm	400	400	400	400	400	400

	Braking resistors						
		6SL3000-1BE35-0AA0	6SL3000-1BE41-0AA0	6SL3000-1BF35-5AA0	6SL3000-1BF41-1AA0	6SL3000-1BH36-3AA0	6SL3000-1BH41-2AA0
Line voltage		380 ... 480 V		500 ... 600 V		660 ... 690 V	
Braking power P_{BR}	kW	500	1000	550	1100	630	1200
Continuous braking power P_{DB}	kW	23	58	34	62	42	75
Resistance value	Ω	0.95	0.49	1.35	0.69	1.8	0.95
Degree of protection		IP21	IP21	IP21	IP21	IP21	IP21
Dimensions							
• Width	mm	960	960	960	960	960	960
• Height	mm	620	620	620	620	620	620
• Depth	mm	790	1430	1110	1430	1110	1430
Weight, approx.	kg	82	170	110	180	124	196

¹⁾ Current demand of the fans.

²⁾ The specified power loss represents the maximum value at 100% utilization. The value is lower under normal operating conditions.

³⁾ The cabinet height increases by 250 mm with degree of protection IP21, and by 400 mm with degrees of protection IP23, IP43 and IP54.