

SINAMICS S110 servo drives

0.12 kW to 90 kW (0.16 hp to 125 hp)

DC link components > Braking resistors

Overview



Braking resistor for blocksize format, frame sizes FSA and FSC

The PM340 Power Modules cannot regenerate into the line supply. For regenerative operation, e.g. the braking of a rotating mass, a braking resistor must be connected to convert the resulting energy into heat.

The braking resistor is connected at terminals DCP/R1 and R2.

The braking resistors can be installed at the side next to the PM340 Power Modules. The braking resistors for the FSA and FSB frame sizes are designed as base components. If the PM340 Power Modules of the FSA or FSB frame size are operated without line reactor, the braking resistors can also be installed under the Power Modules.

The braking resistors for the Power Modules of the FSC to FSF frame sizes should be placed outside the control cabinet or the switchgear room in order to lead the resulting heat loss away from the Power Modules. The level of air conditioning required is therefore reduced.

The braking resistors are designed with a temperature switch. The temperature switch must be evaluated to prevent consequential damage if the braking resistor overheats.

Selection and ordering data

Description	Suitable for Power Module in blocksize format	Braking resistor
		Article No.
DC link voltage 240 ... 360 V DC (line voltage 200 ... 240 V 1 AC)		
180 Ω	Frame size FSA	6SE6400-4BC05-0AA0
DC link voltage 510 ... 720 V DC (line voltage 380 ... 480 V 3 AC)		
390 Ω	Frame size FSA	6SE6400-4BD11-0AA0
160 Ω	Frame size FSB	6SL3201-0BE12-0AA0
56 Ω	Frame size FSC	6SE6400-4BD16-5CA0
27 Ω	Frame size FSD	6SE6400-4BD21-2DA0
15 Ω	Frame size FSE	6SE6400-4BD22-2EA1
8.2 Ω	Frame size FSF	6SE6400-4BD24-0FA0

Technical specifications

DC link voltage 240 ... 360 V DC	Braking resistor
	6SE6400-4BC05-0AA0
Resistance	180 Ω
Rated power P_{DB} (Continuous braking power)	0.05 kW
Peak power P_{max}	1 kW
Degree of protection ¹⁾	IP20
Power connections	3 × 1.5 mm ² (shielded)
• Length	0.5 m (1.64 ft)
Thermostatic switch (NC contact)	
• Switching capacity	250 V AC/max. 2.5 A
• Conductor cross-section	0.5 ... 2.5 mm ²
Dimensions	
• Width	72 mm (2.83 in)
• Height	230 mm (9.06 in)
• Depth	43.5 mm (1.71 in)
Weight, approx.	1 kg
Approvals, according to	cURus
Suitable for Power Module in blocksize format	Frame size FSA

¹⁾ With correctly connected load connection cable.

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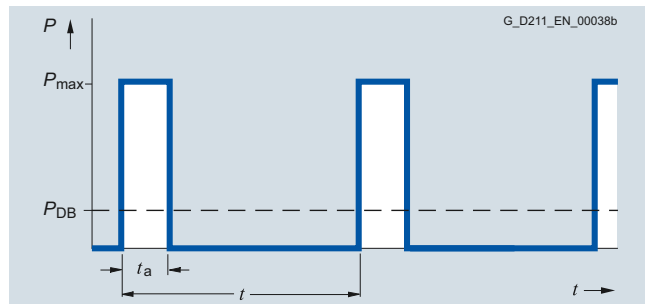
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Technical specifications

DC link voltage 510 ... 720 V DC		Braking resistor					
		6SE6400-4BD11-0AA0	6SL3201-0BE12-0AA0	6SE6400-4BD16-5CA0	6SE6400-4BD21-2DA0	6SE6400-4BD22-2EA1	6SE6400-4BD24-0FA0
Resistance	Ω	390	160	56	27	15	8.2
Rated power P_{DB} (Continuous braking power)	kW	0.1	0.2	0.65	1.2	2.2	4
Peak power P_{max}	kW	1.7	4.1	12	24	44	80
Degree of protection ¹⁾		IP20	IP20	IP20	IP20	IP20	IP20
Power connections		3 x 1.5 mm ² (shielded)	3 x 1.5 mm ² (shielded)	3 x 1.5 mm ² (shielded)	M6 screw stud	M6 screw stud	M6 screw stud
• Length	m (ft)	0.5 (1.64)	0.5 (1.64)	0.9 (2.95)	–	–	–
Thermostatic switch (NC contact)							
• Switching capacity		250 V AC/ max. 2.5 A	250 V AC/ max. 2.5 A	250 V AC/ max. 2.5 A	250 V AC/ max. 2.5 A	250 V AC/ max. 2.5 A	250 V AC/ max. 2.5 A
• Conductor cross-section	mm ²	0.5 ... 2.5	0.5 ... 2.5	0.5 ... 2.5	0.5 ... 2.5	0.5 ... 2.5	0.5 ... 2.5
Dimensions							
• Width	mm (in)	72 (2.83)	153 (6.02)	185 (7.28)	270 (10.63)	301 (11.85)	400 (15.75)
• Height	mm (in)	230 (9.06)	329 (12.95)	285 (11.22)	515 (20.28)	483 (19.02)	650 (25.59)
• Depth	mm (in)	43.5 (1.71)	43.5 (1.71)	150 (5.91)	175 (6.89)	326 (12.83)	315 (12.4)
Weight, approx.	kg (lb)	1.0 (2.21)	1.6 (3.53)	3.8 (8.38)	7.4 (16.3)	10.6 (23.4)	16.7 (36.8)
Approvals, according to		cURus	cURus	cURus	cURus	cURus	cURus
Suitable for Power Module in blocksize format	Frame size	FSA	FSB	FSC	FSD	FSE	FSF

Characteristic curves



Load diagram for braking resistors in blocksize format

$t_a = 12$ s

$t = 240$ s

¹⁾ With correctly connected load connection cable.