

SINAMICS G120C compact inverters

0.55 kW to 18.5 kW (0.75 hp to 25 hp)

DC link components Braking resistors

Overview



Braking resistor for SINAMICS G120C, frame size FSB

The excess energy of the DC link is dissipated using the braking resistor. The braking resistors are designed for use with the SINAMICS G120C. SINAMICS G120C has an integrated brake chopper and cannot feed back regenerative energy to the line supply. For regenerative operation, e.g. the braking of a rotating mass with high moment of inertia, a braking resistor must be connected to convert the resulting energy into heat.

The braking resistors are designed for mounting horizontally or vertically onto a heat-resistant sheet steel panel. The resistors should be mounted such as to ensure that the air can flow in and out and heat cannot build up. The heat dissipated by the braking resistor must not diminish the inverter cooling.

Every braking resistor is equipped with a temperature switch. The temperature switch can be evaluated to prevent consequential damage if the braking resistor overheats.

Selection and ordering data

Rated power		SINAMICS G120C		Braking resistor
kW	hp	Type 6SL3210-...	Frame size	Order No.
Line voltage 380 ... 480 V 3 AC				
0.55	0.75	1KE11-8..1	FSA	6SL3201-0BE14-3AA0
0.75	1	1KE12-3..1		
1.1	1.5	1KE13-2..1		
1.5	2	1KE14-3..1		
2.2	3	1KE15-8..1	FSA	6SL3201-0BE21-0AA0
3	4	1KE17-5..1		
4	5	1KE18-8..1		
5.5	7.5	1KE21-3..1	FSB	6SL3201-0BE21-8AA0
7.5	10	1KE21-7..1		
11	15	1KE22-6..1	FSC	6SL3201-0BE23-8AA0
15	20	1KE23-2..1		
18.5	25	1KE23-8..1		

Technical specifications

Line voltage 380 ... 480 V 3 AC		Braking resistor			
		6SL3201-0BE14-3AA0	6SL3201-0BE21-0AA0	6SL3201-0BE21-8AA0	6SL3201-0BE23-8AA0
Resistance	Ω	370	140	75	30
Rated power P_{DB}	kW	0.075	0.2	0.375	0.925
Peak power P_{max} (on-load factor 5 %)	kW	1.5	4	7.5	18.5
Power connection		Terminal block	Terminal block	Terminal block	Terminal block
• Conductor cross-section	mm ²	2.5	2.5	2.5	6
Thermostatic switch		NC contact	NC contact	NC contact	NC contact
• Contact load, max.		250 V AC/2.5 A	250 V AC/2.5 A	250 V AC/2.5 A	250 V AC/2.5 A
• Conductor cross-section	mm ²	2.5	2.5	2.5	2.5
PE connection					
• Via terminal block		Yes	Yes	Yes	Yes
• PE connection on housing		M4 screw	M4 screw	M4 screw	M4 screw
Degree of protection		IP20	IP20	IP20	IP20
Dimensions					
• Width	mm (in)	105 (4.13)	105 (4.13)	175 (6.89)	250 (9.84)
• Height	mm (in)	295 (11.61)	345 (13.58)	345 (13.58)	490 (19.29)
• Depth	mm (in)	100 (3.94)	100 (3.94)	100 (3.94)	140 (5.51)
Weight, approx.	kg (lb)	1.48 (3.26)	1.8 (3.97)	2.73 (6.02)	6.2 (13.7)
Suitable for SINAMICS G120C	Type	6SL3210-1KE11-8..1 6SL3210-1KE12-3..1 6SL3210-1KE13-2..1 6SL3210-1KE14-3..1	6SL3210-1KE15-8..1 6SL3210-1KE17-5..1 6SL3210-1KE18-8..1	6SL3210-1KE21-3..1 6SL3210-1KE21-7..1	6SL3210-1KE22-6..1 6SL3210-1KE23-2..1 6SL3210-1KE23-8..1
• Frame size		FSA	FSA	FSB	FSC

SINAMICS G120 standard inverters

0.37 kW to 250 kW (0.5 hp to 400 hp)

DC link components Braking resistors

Overview



Braking resistors for Power Modules, frame sizes FSA and FSC



Braking resistor for PM240 Power Modules, frame size FSGX

Excess energy in the DC link is dissipated in the braking resistor. The braking resistors are intended for use with PM240 Power Modules which feature an integrated braking chopper, but cannot regenerate energy to the supply system. There is an optional plug-in Braking Module for frame size FSGX. For regenerative operation, e.g. the braking of a rotating mass with high moment of inertia, a braking resistor must be connected to convert the resulting energy into heat.

The braking resistors can be installed at the side next to the PM240 Power Modules. The braking resistors for the FSA and FSB frame sizes are designed as base components. If the PM240 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, frame sizes FSC to FSGX, should be placed outside the control cabinet or outside the switchgear room so that the heat is dissipated away from the Power Modules. The level of air conditioning required is therefore reduced.

Every braking resistor has a temperature switch (UL-listed). The temperature switch can be evaluated to prevent consequential damage if the braking resistor overheats.

Selection and ordering data

Rated power		SINAMICS G120 PM240-2 Power Module Standard variant		Braking resistor
kW	hp	Type 6SL3210-...	Frame size	Order No.
380 ... 480 V 3 AC				
0.55	0.75	1PE11-8..0	FSA	6SL3201-0BE14-3AA0
0.75	1.0	1PE12-3..0		
1.1	1.5	1PE13-2..0		
1.5	2	1PE14-3..0	FSA	6SL3201-0BE21-0AA0
2.2	3	1PE16-1..0		
3.0	4	1PE18-0..0		

Rated power		SINAMICS G120 PM240-2 Power Module Push-through variant		Braking resistor
kW	hp	Type 6SL3211-...	Frame size	Order No.
380 ... 480 V 3 AC				
2.2	3	1PE16-1AL0	FSA	6SL3201-0BE21-0AA0
3.0	4	1PE18-0UL0		

Rated power		SINAMICS G120 PM240 Power Module		Braking resistor
kW	hp	Type 6SL3224-...	Frame size	Order No.
380 ... 480 V 3 AC				
0.37	0.50	0BE13-7UA0	FSA	6SE6400-4BD11-0AA0
0.55	0.75	0BE15-5UA0		
0.75	1.0	0BE17-5UA0		
1.1	1.5	0BE21-1UA0		6SL3201-0BE12-0AA0
1.5	2	0BE21-5UA0		
2.2	3	0BE22-2 . A0	FSB	
3.0	4	0BE23-0 . A0		6SE6400-4BD16-5CA0
4.0	5	0BE24-0 . A0		
7.5	10	0BE25-5 . A0	FSC	
11.0	15	0BE27-5 . A0		6SE6400-4BD21-2DA0
15.0	20	0BE31-1 . A0		
18.5	25	0BE31-5 . A0	FSD	
22	30	0BE31-8 . A0		6SE6400-4BD22-2EA1
30	40	0BE32-2 . A0		
37	50	0BE33-0 . A0	FSE	
45	60	0BE33-7 . A0		6SE6400-4BD24-0FA0
55	75	0BE34-5 . A0	FSF	
75	100	0BE35-5 . A0		
90	125	0BE37-5 . A0		6SE6400-4BD26-0FA0
110	150	0BE38-8UA0	FSF	
132	200	0BE41-1UA0		
160	250	0XE41-3UA0	FSGX ¹⁾	6SL3000-1BE31-3AA0
200	300	0XE41-6UA0	FSGX ¹⁾	6SL3000-1BE32-5AA0
250	400	0XE42-0UA0		

¹⁾ A Braking Module must be additionally ordered for connection.