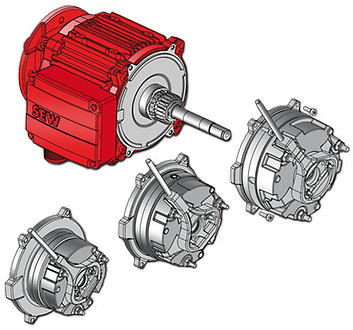
Brake control

The brake coil can be adapted to different connection voltages. It is powered via a brake control which is either placed in the terminal box of the motor or in the control cabinet.

Adapted to your application



Usually, the brake is controlled by a brake control that is installed in either the motor terminal box or the control cabinet. You can choose from a wide range of brake controls. In addition to various connection voltages, brake controls for specific application requirements are available as well:

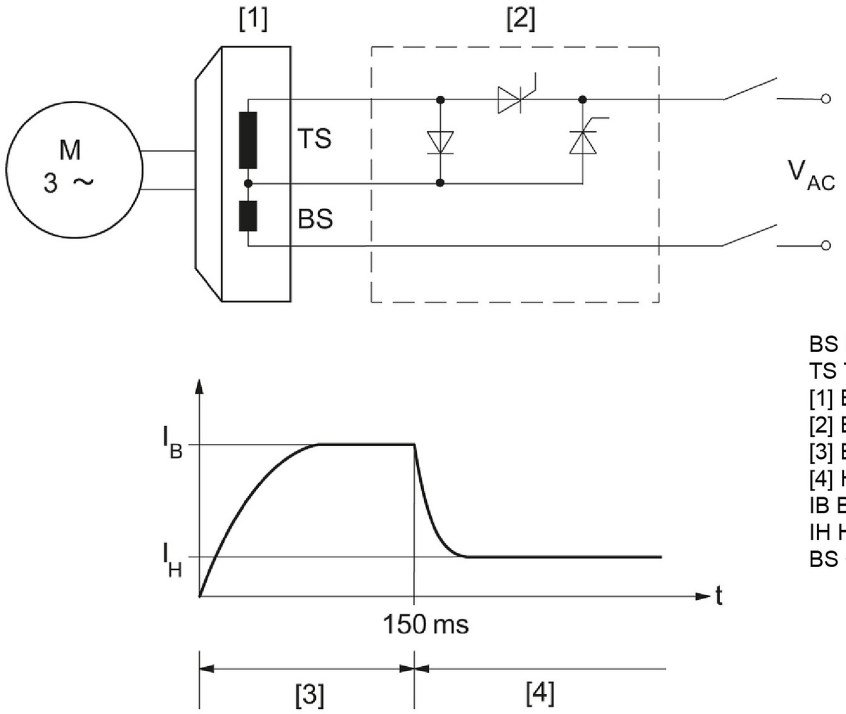
With acceleration function for high switching frequency (by using the patented twocoil system, e.g. BGE../BME../BSG..)
With rapid switch-off function for high stopping accuracy (with integrated or additional high-speed relays, e.g. BMP../BSR../BUR..)
With integrated heating function (BMH..)
With additional DC 24 V control inputs for PLC or inverter (e.g. BMK.. or BMV..)
As safety-related component for functionally safe interruption of the energy supply to the brake (BST..)

Brakes up to BE2 can also be delivered for operation at an external DC voltage source without additional brake control, if requested by the customer.

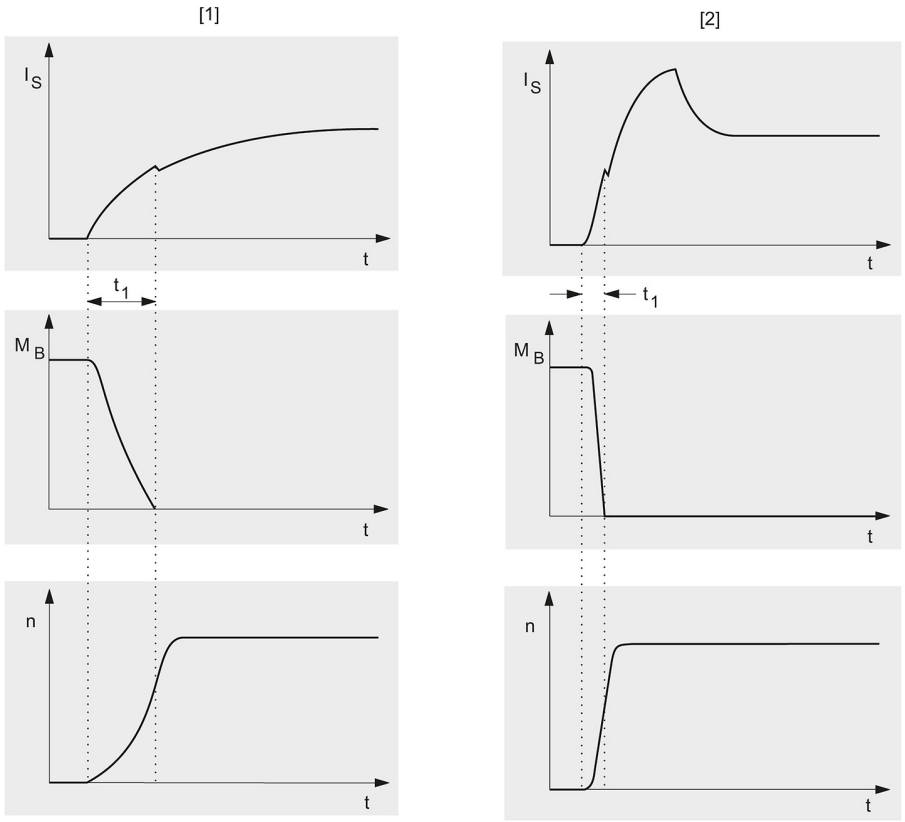
Particularly short response times at switch-on

BE.. brakes are equipped with the two-coil system patented by SEW-EURODRIVE. When using special brake control systems from SEW-EURODRIVE with acceleration function, the brake control ensures that only the accelerator coil is switched on first, followed by the holding coil (entire coil). The powerful impulse magnetization (high acceleration current) of the accelerator coil results in a very short response time, particularly in large brakes, without reaching the saturation limit. The brake lining carrier moves clear very swiftly and the motor starts up with hardly any braking losses.

Wiring diagram and diagrams



BS Beschleunigerspule
TS Teilspule
[1] Bremse
[2] Bremsenansteuerung
[3] Beschleunigung
[4] Halten
IB Beschleunigungsstrom
IH Haltestrom
BS + TS = Haltespule HS

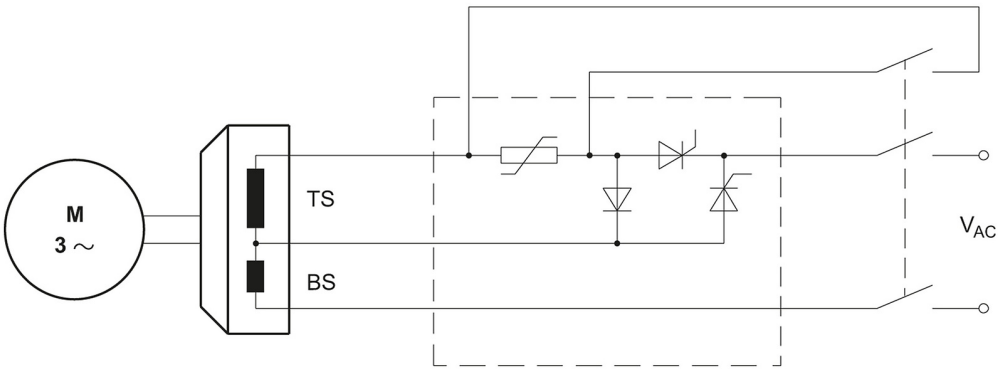


[1] Einschaltvorgang bei Betrieb mit Gleichrichter ohne Umschaltelektronik, z. B. BG..
[2] Einschaltvorgang bei Betrieb mit Gleichrichter von SEW-EURODRIVE mit Umschaltelektronik, z. B. BGE.. (Standard ab Bremse BE5)
IS Spulenstrom
MB Bremsmoment
n Drehzahl
t1 Ansprechzeit der Bremse

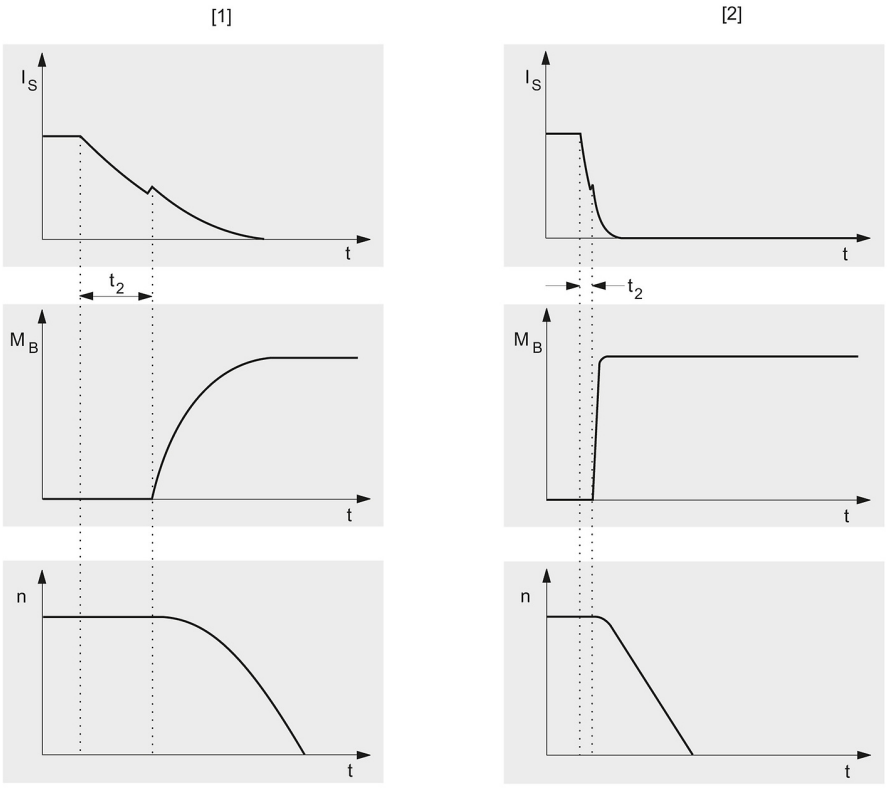
Particularly short response time at switch-off

The response time for the application of the brake also depends on how rapidly the energy stored in the brake coil is dissipated when the power supply is switched off. A free-wheeling diode is used to dissipate the energy for a “cut-off in the AC circuit”. The current decreases at an exponential rate. The current dissipates much more rapidly via a varistor when the DC and AC circuits are cut-off at the same time as the coil's DC circuit. The response time is considerably reduced. Conventionally, cut-off in the DC and AC circuits is implemented using an additional contact on the brake contactor (suitable for an inductive load). Under certain conditions, you can use the SR.E electronic current relays or UR.E voltage relays for interrupting the DC circuit, see the following section.

Wiring diagram and diagrams



BS Beschleunigerspule
TS Teilspule
BS + TS = Haltespule HS

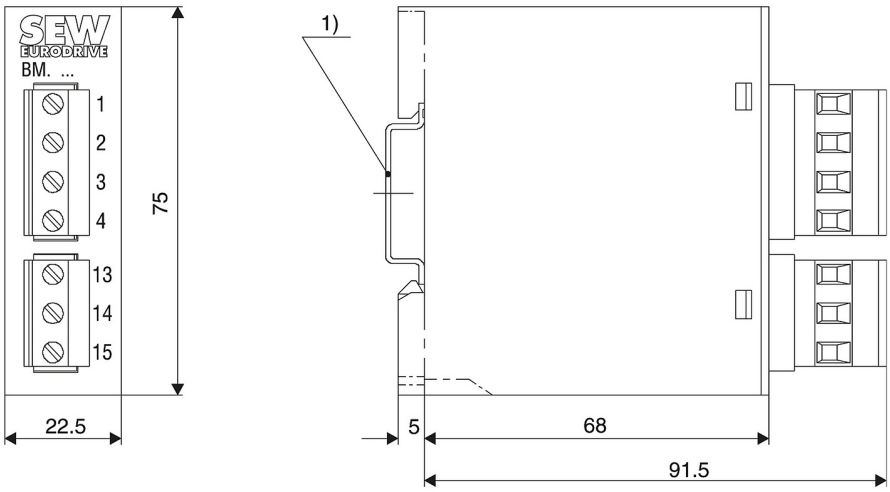


[1] Bremseneinfall bei wechselstromseitiger Abschaltung
[2] Bremseneinfall bei gleich- und wechselstromseitiger Abschaltung
IS Spulenstrom
MB Bremsmoment
n Drehzahl
t2 Bremseneinfallzeit

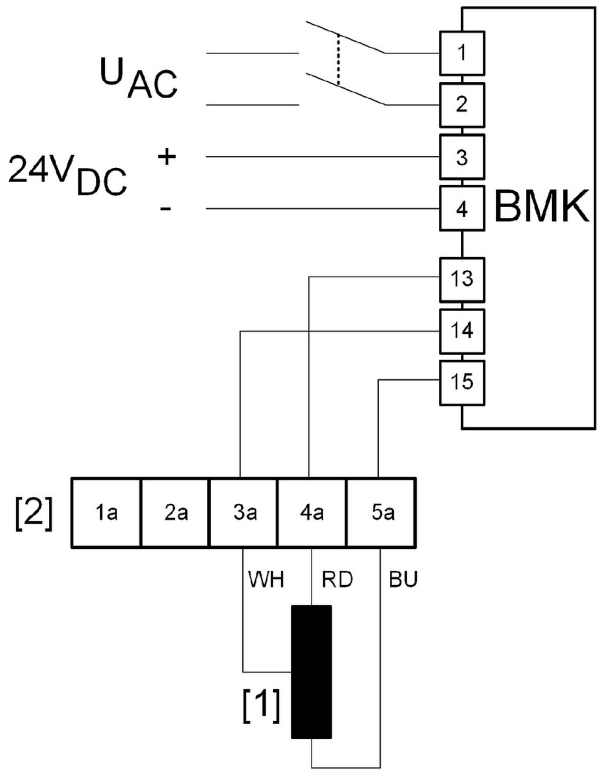
Control cabinet installation of the BM..

The housings of BMS, BME, BMP, BMV and BMK are similar. The supply voltage and auxiliary or control terminals are connected to terminals 1-4, terminals 13-15 are the three supply lines to the BE brake.

Dimension drawing and wiring diagram



[1] Tragschienenbefestigung EN 50022-35-7.5



[1] Bremsspule
[2] Klemmenleiste

Brake control systems

The following tables list the technical data for brake control systems for installation in the motor terminal box and in the control cabinet. The different housings have different colors (= colour code) to make them easier to distinguish.

... In the terminal box

Typ	Function	Voltage	Holding current I_{Hmax} A	Type	Publication number	Colour code
BG	Half-wave rectifier	AC 230 – 575 V	1.4	BG 1.4	827 881 4	Black
		AC 150 – 500 V	1.5	BG 1.5	825 384 6	Black
		AC 24 – 500 V	3.0	BG 3	825 386 2	Brown
BGE	One-way rectifier with electronic switching	AC 230 – 575 V	1.4	BGE 1.4	827 882 2	Red

Typ	Function	Voltage	Holding current I_{Hmax} A	Type	Publication number	Colour code
BSR	Half-wave rectifier + current relay for switch-off in the DC circuit	AC 150 – 500 V	1.5	BGE 1.5	825 385 4	Red
		AC 42 – 150 V	3.0	BGE 3	825 387 0	Blue
			1.0	BGE 1.5 + SR 11	825 385 4 826 761 8	Red -
		AC 150 – 500 V	1.0	BGE 1.5 + SR 15	825 385 4 826 7621 8	Red -
			1.0	BGE 1.5 + SR 19	825 385 4 826 246 2	Red -
			1.0	BGE 3 + SR11	825 387 0 826 761 8	Blue -
		AC 42 – 150 V	1.0	BGE 3 + SR15	825 387 0 826 762 6	Blue -
			1.0	BGE 3 + SR19	825 387 0 826 246 2	Blue -
BUR	Half-wave rectifier + voltage relay for switch-off in the DC circuit	AC 150 – 500 V	1.0	BGE 1.5 + UR 15	825 385 4 826 759 6	Red -
		AC 42 – 150 V	1.0	BGE 3 + UR 11	825 387 0 826 758 8	Blue -
BS	Varistor protection circuit	DC 24 V	5.0	BS24	826 763 4	Water blue
BSG	Electronic switching	DC 24 V	5.0	BSG	825 459 1	White
BMP	One-way rectifier with electronic switching, integrated voltage relay for switch-off in the DC circuit	AC 230 – 575 V	2.8	2.8	2.8	-

... in the control cabinet

Type	Function	Voltage	Holding current I_{Hmax} A	Type	Publication number	Colour code

Type	Function	Voltage	Holding current I_{Hmax} A	Type	Publication number	Colour code
BMS	One-way rectifier as BG	AC 230 – 575 V	1.4	BMS 1.4	829 830 0	Black
		AC 150 – 500 V	1.5	BMS 1.5	825 802 3	Black
		AC 42 – 150 V	3.0	BMS 3	825 803 1	Brown
BME	One-way rectifier with electronic switching as BGE	AC 230 – 575 V	1.4	BME 1.4	829 831 9	Red
		AC 150 – 500 V	1.5	BME 1.5	825 722 1	Red
		AC 42 – 150 V	3.0	BME 3	825 723 X	Blue
BMH	One-way rectifier with electronic switching and heating function	AC 230 – 575 V	1.4	BMH 1.4	829 834 3	Green
		AC 150 – 500 V	1.5	BMH 1.5	825 818 X	Green
		AC 42 – 150 V	3.0	BMH 3	825 819 8	Yellow
BMP	One-way rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit	AC 230 – 575 V	1.4	BMP 1.4	829 832 7	White
		AC 150 – 500 V	1.5	BMP 1.5	825 685 3	White
		AC 42 – 150 V	3.0	BMP 3	826 566 6	Light blue
		AC 230 – 575 V	2.8	BMP 3.1	829 507 7	-
BMK	One-way rectifier with electronic switching, 24 V DC control input and cut-off in the DC circuit	AC 230 – 575 V	1.4	BMK 1.4	829 883 5	Water blue
		AC 150 – 500 V	1.5	BMK 1.5	826 463 5	Water blue
		AC 42 – 150 V	3.0	BMK 3	826 567 4	Bright red
BMV	Brake control unit with electronic switching, DC 24 V control input and fast cut-off	DC 24 V	5.0	BMV 5	1 300 006 3	White
BST	Safety-related brake control with electronic switching and DC link supply	AC 460	0.6	BST 0.6S	08299714	-
		AC 400	0.7	BST 0.7S	13000772	-

Type	Function	Voltage	Holding current I_{Hmax} A	Type	Publication number	Colour code
		AC 230	1.2	BST 1.2S	13001337	-