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## Mini-compact brake PKB-MS



Electronically-controlled braking unit for three-phase asynchronous motors from 0.2 to 7.5 kW (with 400 V/3 AC).

### Features

- Brake for preset time and brake until standstill
- Automatic braking current control (effective value)
- Braking time and braking current can be set
- Safety times can be set
- Monitors the heat sink temperature
- Brake contactors switch load-free

### Approvals

	PKB-MS
	●
	●

Technical Details	PKB-MS
<b>Electrical data</b>	
Supply voltage	AC: 200 ... 240, 350 ... 415, 390 ... 460, 470 ... 550, 510 ... 600 V
Tolerance	90 ... 110 %
Power consumption	Max. 14 VA
Switching capability to EN 60947-4-1, 10/91	AC1: 250 V/0.1 ... 5 A/1250 VA DC1: 24 V/0.1 ... 5 A/120 W
Contact material	AgCdO
Contact fuse protection	6 A quick or 4 A slow
Fuse protection of main current circuit	25 A/680 A <sup>2</sup> s for 15 A version 50 A/700 A <sup>2</sup> s for 30 A version
<b>Features</b>	
Braking current	15 A (to 415 V AC with internal braking contactor) 30 A
Setting ranges of braking current	0.2 ... 15 A <sub>eff</sub> or 0.5 ... 30 A <sub>eff</sub>
Safety times, adjustable	t <sub>V1</sub> = 240 ms (200 ms to 5.1 s) t <sub>V2</sub> , t <sub>V3</sub> , t <sub>V4</sub> = 140 ms (100 ms to 5.1 s)
Braking time (monitoring time)	to 945 s, can also be set to infinity
Remote control connection	Potentiometer 470 kΩ for ext. braking current set value Potentiometer 470 kΩ for ext. braking time set value
Manually controlled braking process	Via start contact at terminals 6/7
Pulse duty cycle	15 A version: ≤ 1:7 with t <sub>Brake</sub> = 10 s 30 A version: ≤ 1:10 with t <sub>Brake</sub> = 10 s
<b>Environmental data</b>	
Ambient temperature	-10 ... +55 °C
Storage temperature	-40 ... +85 °C
<b>Mechanical data</b>	
Max. cross-section of the ext. conductor	2 x 1.5 mm <sup>2</sup> or 1 x 2.5 mm <sup>2</sup> Single-core or multi-core with crimp connector
Dimensions (H x W x D)	87 x 90 x 145 mm
Weight	900 g

### Description

- Control logic with microcontroller
- Braking current power semiconductor
- Integrated brake contactor in units up to 15 A/415 V AC
- Setting via keypad
- LCD display
- Remote control option for
  - Braking time
  - Braking current
  - Manually controlled braking
- Non-volatile parameter memory
- Option for evaluating motor temperature sensor (PTC resistor)
- 90 mm housing, DIN-rail mounting

### Pulse Duty Cycle

The following are the decisive factors in selecting the PKB-M

- Nominal current of motor I<sub>N</sub> (I<sub>N</sub> x 2 = Max. braking current I<sub>B</sub>) and

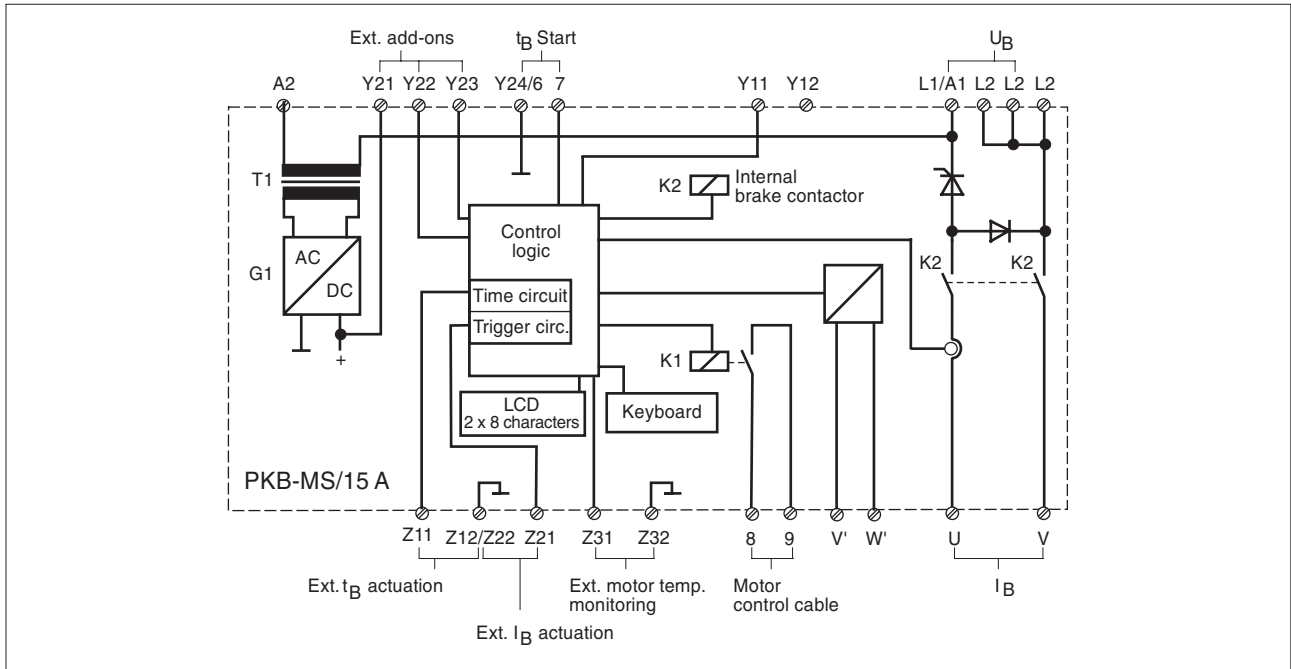
- Pulse duty cycle T<sub>V</sub>

$$T_V = \frac{t_B}{t_p} \left( T_B 25 \text{ °C} / 100 \% I_B \right)$$

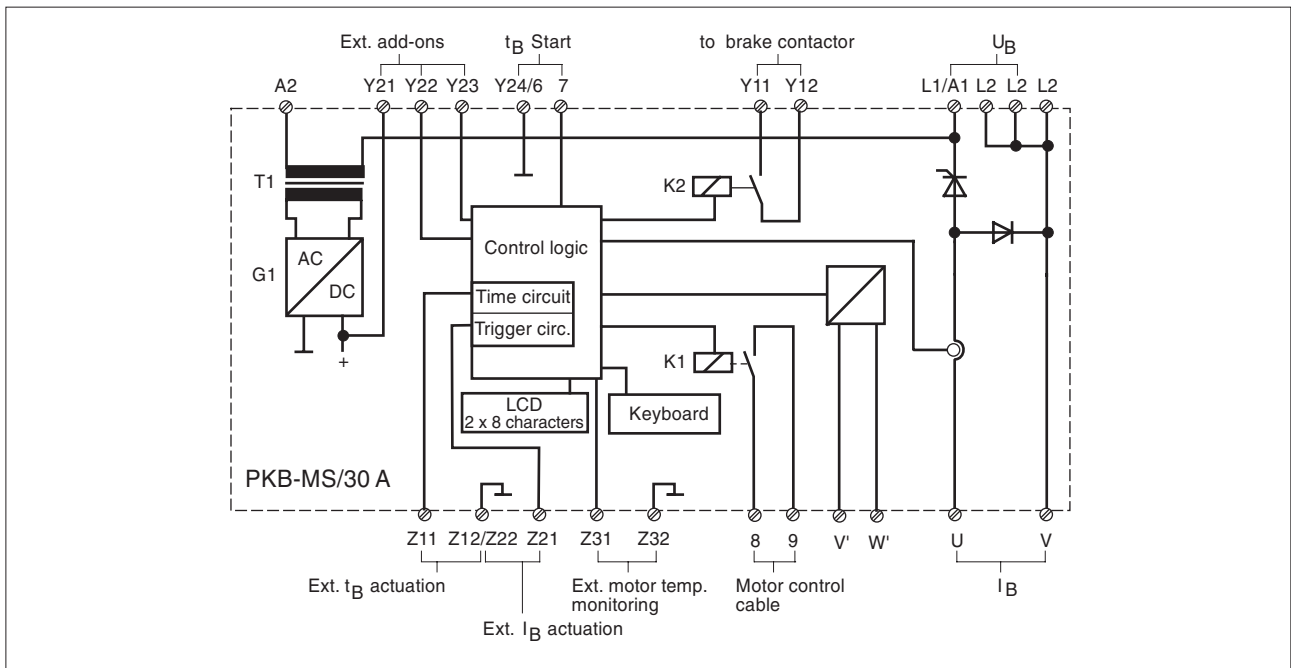
The 30 A unit can be used to brake large motors to standstill. The ratio of the nominal motor current and braking current can no longer be set at 1:2. The braking effect is therefore reduced. When setting braking time (t<sub>B</sub>), ensure that the pulse duty cycle set for the unit is not exceeded.

## Mini-compact brake PKB-MS

Internal wiring diagram, PKB-MS with internal brake contactor

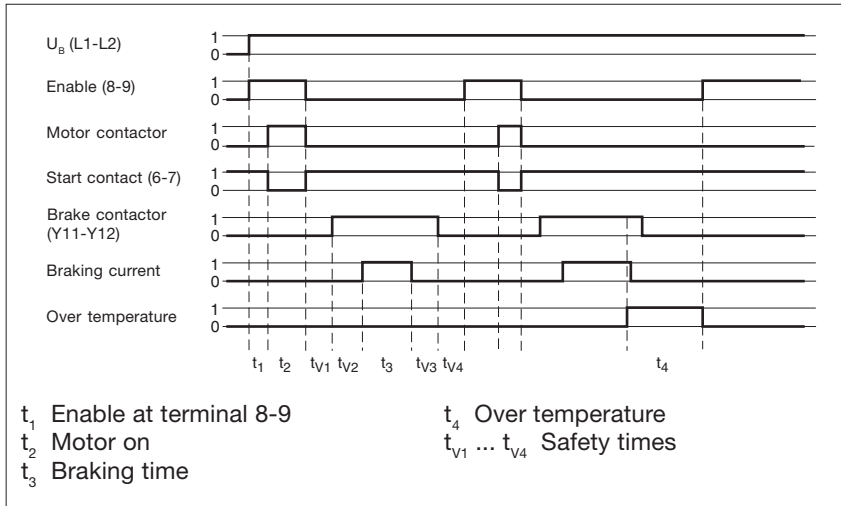


Internal wiring diagram, PKB-MS with external brake contactor

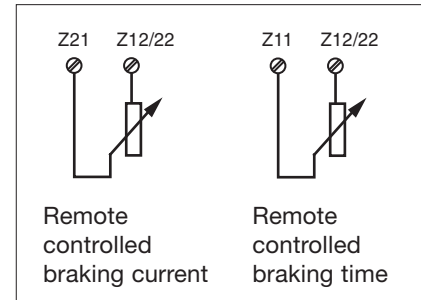


## Mini-compact brake PKB-MS

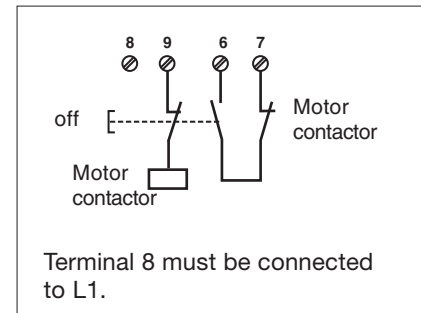
### Timing diagram for brake for preset time



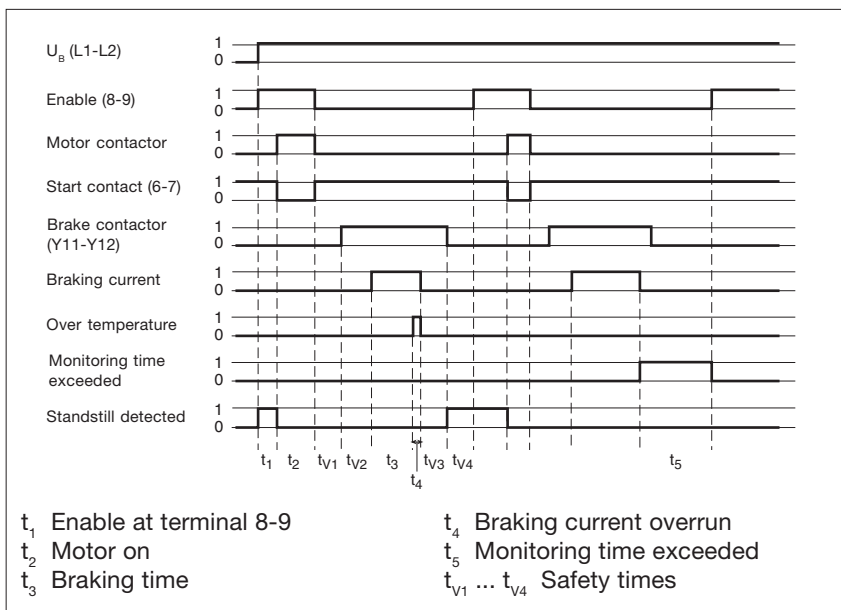
### Braking current/time, remote controlled



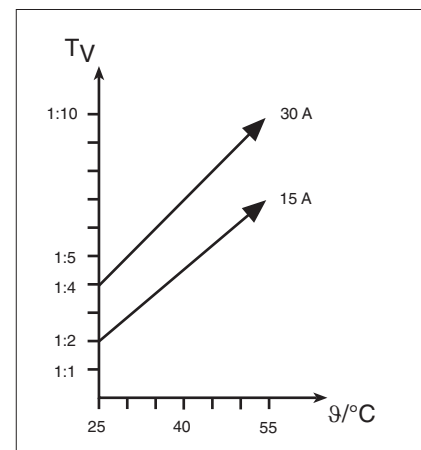
### Manually controlled braking operation



### Timing diagram for stationary-dependent braking

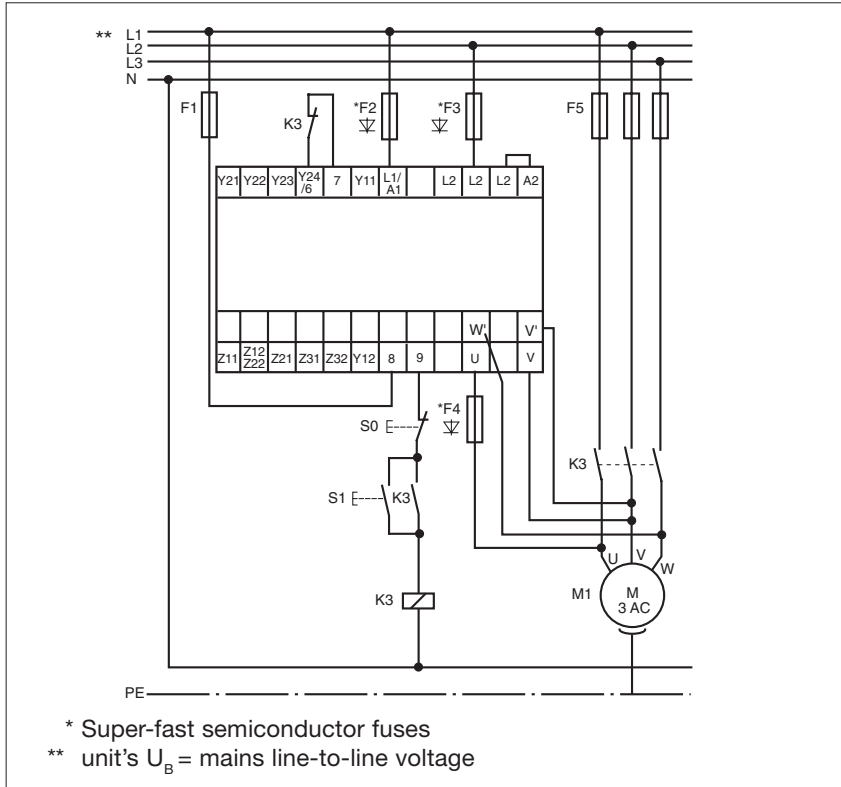


### Pulse Duty Cycle

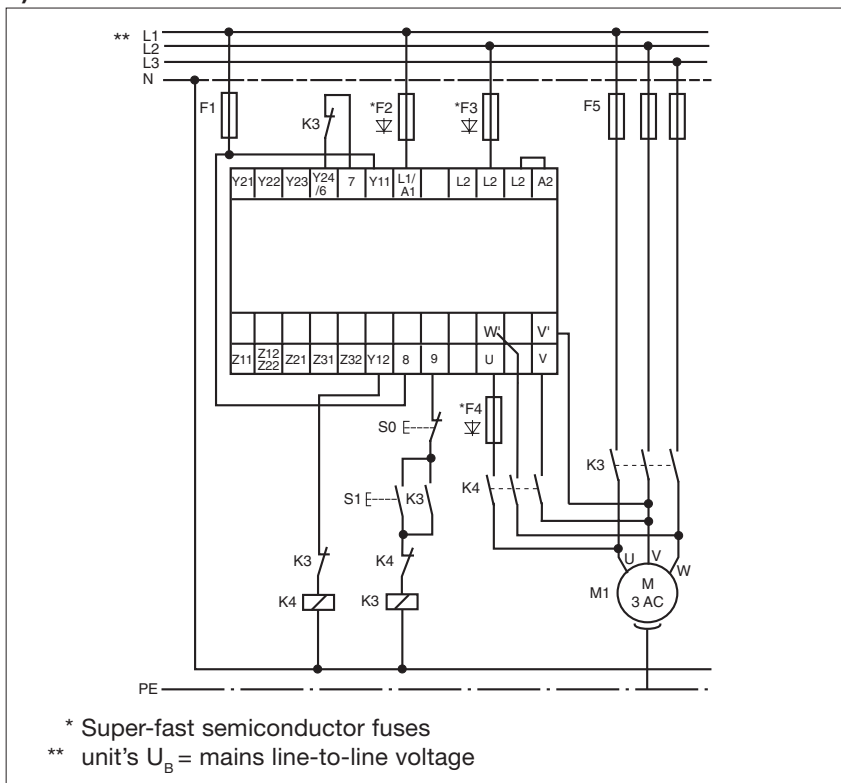


## Mini-compact brake PKB-MS

### Connection example with internal brake contactor (15 A/≤415 V AC)



### Connection example with external brake contactor (15 A/≥440 V AC, 30 A)



## Mini-compact brake PKB-MS

### General Details

Unless stated otherwise in the technical details for the specific unit.

#### Electrical data

Frequency range AC	50 ... 60 Hz
Residual ripple DC	160 %
Contact material	AgSnO <sub>2</sub>
Continuous duty	100 %

#### Environmental data

EMC	EN 50081-1, 01/92; EN 50082-2, 03/95
Vibration to EN 60068-2-6, 04/95	Frequency: 10 ... 55 Hz, Amplitude: 0.35 mm
Climatic suitability	IEC 68-2-3, 08/84
Airgap creepage	DIN VDE 0110-1, 04/97, 4 kV/3
Ambient temperature	-10 ... +55 °C
Storage temperature	-40 ... +85 °C

#### Mechanical data

Housing material	Thermoplastic Noryl SE 100
Protection types	Mounting: IP 54 Housing: IP 40 Terminals: IP 20

### Order reference

Type	I <sub>B</sub>	U <sub>B</sub>	Order no.
PKB-MS*	15 A	200 ... 240 V AC	796 830
PKB-MS*	15 A	350 ... 415 V AC	796 831
PKB-MS	15 A	390 ... 460 V AC	796 832
PKB-MS	15 A	470 ... 550 V AC	796 833
PKB-MS	15 A	510 ... 600 V AC	796 834
PKB-MS	30 A	200 ... 240 V AC	796 840
PKB-MS	30 A	350 ... 415 V AC	796 841
PKB-MS	30 A	390 ... 460 V AC	796 842
PKB-MS	30 A	470 ... 550 V AC	796 843
PKB-MS	30 A	510 ... 600 V AC	796 844

### Order references key

- U<sub>B</sub> Supply voltage
- I<sub>B</sub> Braking current
- \* Unit with internal brake contactor



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