





Manual motor starters BM3 series

Conforming to international standards and combining compactness with high breaking performance, this versatile series features leading-edge motor protection.

Molded case circuit breaker and thermal overload relay functions integrated into a highly compact unit.

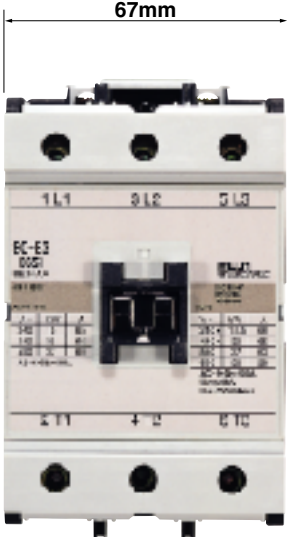
Circuit breaker functions <ul style="list-style-type: none"> • Short-circuit protection • Overcurrent protection • Line protection 			Thermal overload relay functions <ul style="list-style-type: none"> • Overload protection • Phase-loss protection • Rated current adjustment • Ambient temperature compensation 	
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	Compactness	Mounting space: MCCB + Thermal overload relay: 100% MMS: 43% (57% reduction)
	Reduction in wiring work	MCCB + Contactor + Thermal overload relay: 100% MMS + Contactor: 50% (50% reduction)
	Standards	<ul style="list-style-type: none"> • IEC 60947-1, 60947-2, 60947-4-1, UL 508, CSA C22.2 No.14
	Approved	<ul style="list-style-type: none"> • cUL (File No. E163944, E211710), TÜV (R205062B)
	Ecological design	<ul style="list-style-type: none"> • Recyclable thermoplastic resin used in plastic parts • Indication of materials used • Cadmium-free contacts


Magnetic contactors SC-M and SC-E series

A full line-up consisting of the mini-contactor SC-M series for 3 to 5HP, 480VAC use and the SC-E series for 5 to 100HP 480VAC use.

- Finger protection standard
- Lug terminal

<p style="text-align: center;">SC-M series</p> <div style="text-align: center;">  <p>45mm</p> </div> <p style="text-align: center;">SC-M01, M02</p>	<p style="text-align: center;">SC-E series</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>43mm</p> </div> <div style="text-align: center;">  <p>54mm</p> </div> </div> <p style="text-align: center;">SC-E02 to E05 SC-E1 to E2S</p>	<div style="text-align: center;">  <p>67mm</p> </div> <p style="text-align: center;">SC-E3, E4</p>
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32A Frame types and ratings

Adjustable thermal-magnetic trip type		High breaking capacity BM3RHB-□								
Number of poles		3								
Handle type		Rotary								
Rated current I _e (A)		0.16 to 32								
Rated operational voltage U _e (V)		200 to 690								
Rated frequency (Hz)		50/60								
Rated insulation voltage U _i (V)		690								
Rated impulse withstand voltage U _{imp} (kV)		6								
Utilization category IEC 60947-2 Circuit breaker		Cat. A								
Utilization category IEC 60947-4-1 Motor starter		AC-3								
Trip class IEC 60947-4-1		10								
Instantaneous trip characteristic		13 × I _e max.								
Power loss (total of 3-pole)		7W: I _n =0.16 to 25A 8.5W: I _n =32A								
Mechanical durability (operations)		100,000: I _n =0.16 to 25A 70,000: I _n =32A								
Electrical durability (operations)		100,000: I _n =0.16 to 25A 70,000: I _n =32A								
Max. operations per hour (motor start-up)		25								
Phase-loss protection		Provided								
Trip indicator		Provided								
Test trip function		Provided								
Adjustable current range		UL/CSA 3phase HP rating (HP) * ²				Instantaneous trip current (A)	UL/CSA Short circuit current rating (kA) * ³			Maximum listed branch circuit protection * ³ Fuse or MCCB (A)
Code * ¹	I _e : Min.–Max. (A)	200-208VAC	220-240VAC	440-480VAC	550-600VAC		240VAC	480VAC	600VAC	
P16	0.1–0.16	In accordance with Motor full load current				2.1	100	50	10	500
P25	0.16–0.25					3.3	100	50	10	500
P40	0.25–0.4					5.2	100	50	10	500
P63	0.4–0.63					8.2	100	50	10	500
001	0.63–1				1/2	13	100	50	10	500
1P6	1–1.6			3/4	3/4	20.8	100	50	10	500
2P5	1.6–2.5	1/2	1/2	1	1-1/2	32.5	100	50	10	500
004	2.5–4	3/4	3/4	2	3	52	100	50	10	500
6P3	4–6.3	1	1-1/2	3	5	81.9	100	50	10	500
010	6.3–10	2	3	5	7-1/2	130	100	50	10	500
013	9–13	3	3	7-1/2	10	169	100	50	10	500
016	11–16	3	5	10	10	208	100	50	10	500
020	14–20	5	5	10	15	260	100	50	10	500
025	19–25	7-1/2	7-1/2	15	20	325	100	50	10	500
032	24–32	10	10	20	30	416	100	50	10	500
Dimensions (mm) W X H X D		45 X 90 X 79								
Mass (g)		370								
Optional accessory	Auxiliary contact block	<input type="radio"/>								
	Alarm contact block	<input type="radio"/>								
	Auxiliary and alarm contact block	<input type="radio"/>								
	Short-circuit alarm contact block	<input type="radio"/>								
	Shunt trip device	<input type="radio"/>								
	Undervoltage trip device	<input type="radio"/>								
	External operating handle	<input type="radio"/>								
Standard		IEC 60947-1, 60947-2, 60947-4-1, UL 508, CSA C22.2 No.14								

Notes: *¹ Replace the □ mark in the part number by current range codes.

Available

– Not available

*² The BM3RHB is cUL listed as HP rated motor controllers.

*³ The BM3RHB is cUL listed for group Installation as per NEC430-53(C).

Manual Motor Starters

Ordering information and Characteristics

Ordering information

Specify the following:

1. Part number
2. Accessories if required

BM3 V H B - 063

Product category

Frame size

R: 32A Frame 45mm wide

V: 63A Frame 55mm wide

Rated current code (see page 9 to 12)

Operating characteristic

B: Adjustable thermal-magnetic trip

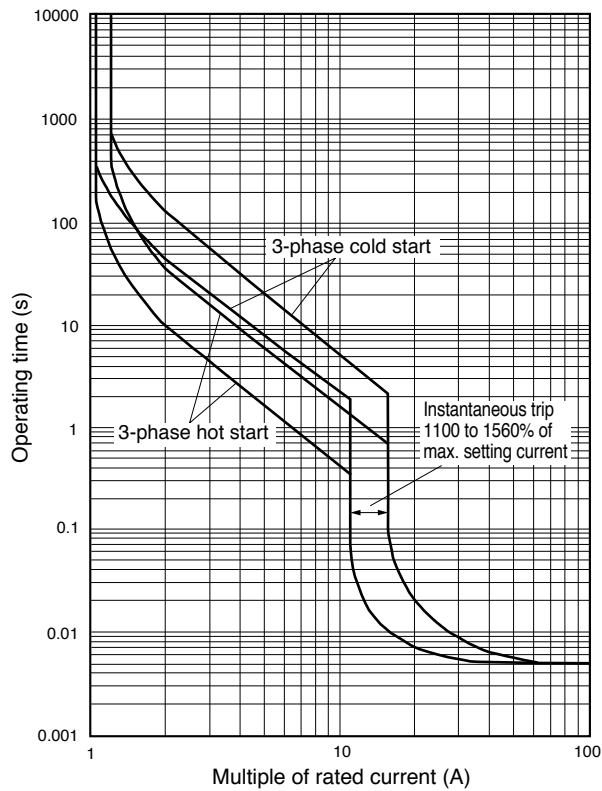
Breaking capacity

S: Standard breaking capacity

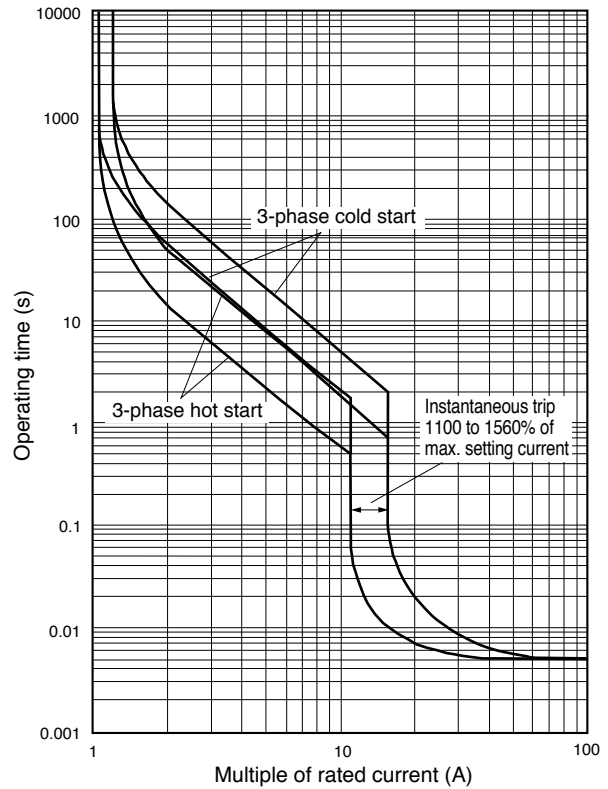
H: High breaking capacity

Characteristic curves

• BM3RSB, RHB



• BM3VSB, VHB

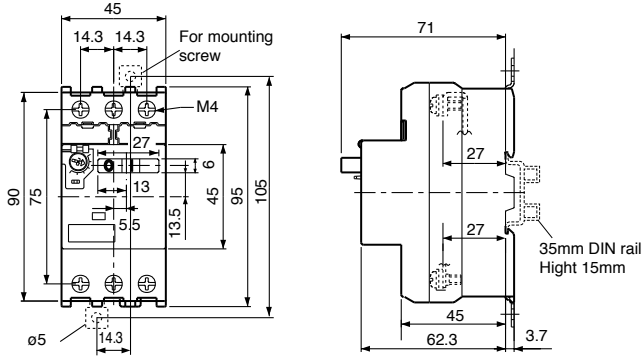


Manual Motor Starters

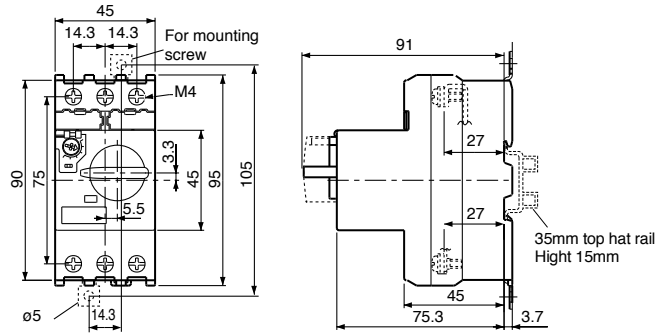
Dimensions

■ Dimensions, mm

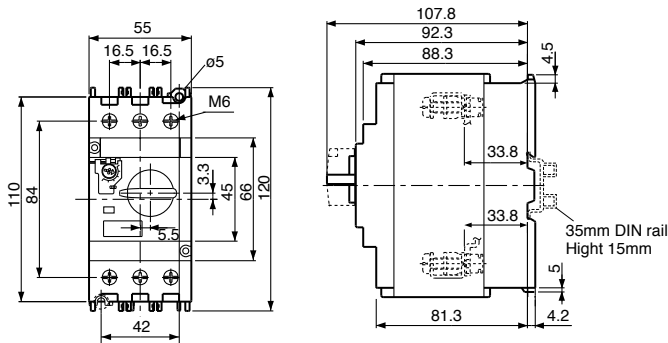
• Rocker handle types BM3RSB



• Rotary handle types BM3RHB

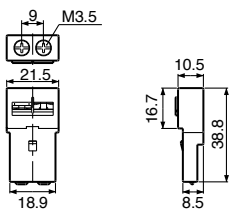


• Rotary handle types BM3VSB, BM3VHB

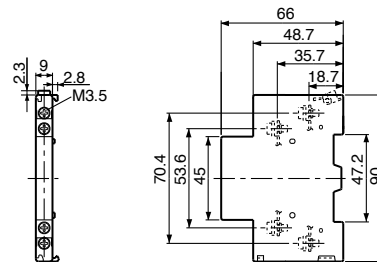


Accessories

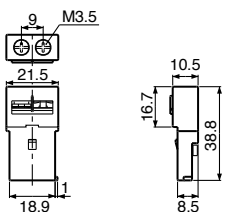
• Auxiliary contact blocks, front mounting BZ0WI



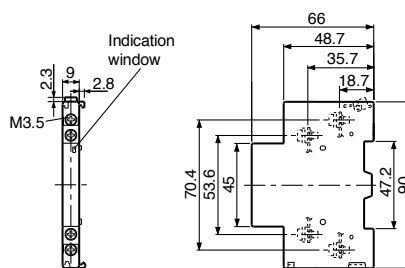
• Auxiliary contact blocks, side mounting BZ0WU



• Alarm contact blocks, front mounting BZ0KI



• Auxiliary and alarm contact blocks BZ0WКУ



Manual Motor Starters

Instructions

Standard operating conditions

Ambient temperature	Operating: -5 to +55°C Storage: -40 to +65°C	No sudden temperature changes resulting in condensation or icing.
Humidity	45 to 85%RH	
Altitude	2000m or lower	
Atmosphere	No excessive dust, smoke, corrosive gases, flammable gases, steam or salt.	
Vibration	10 to 55Hz 15m/s ²	No abnormal shock or vibration
Shock	50m/s ²	

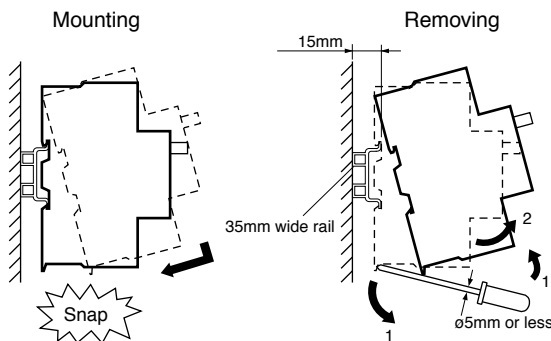
Mountings

Rail mounting

The MMS can be mounted to a 35mm DIN rail. Secure the rail with screws at mounting pitch of less than 400mm for the BM3R type and less than 300mm for the BM3V type. Applicable rail:

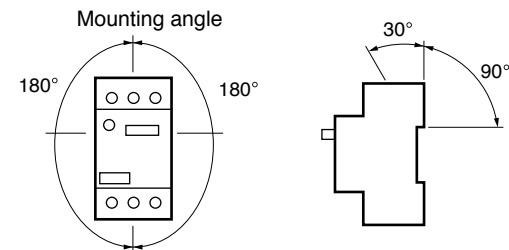
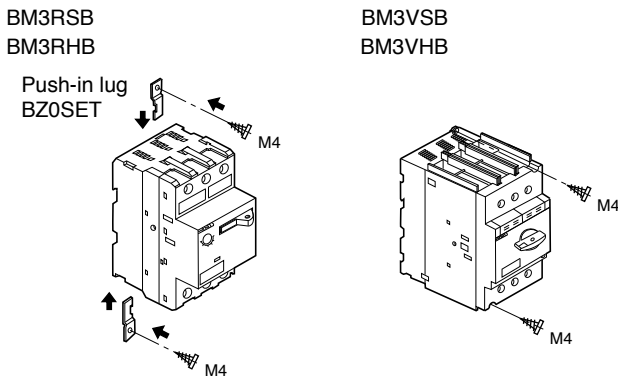
Use a 15mm-high TH35-15 (FUJI model TH35-15AL) rail conforming to EN-50022 and IEC715.

The standard rail mounting direction is horizontal. When using the MMS on a vertically mounted rail, use FUJI end clamp kits.



Screw mounting

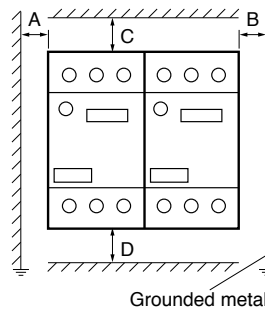
The separately sold push-in lug (BZ0SET) is required for screw mounting the BM3R frame. The BM3V frame can be screw mounted directly to the panel.



Arc space

The arc space required when mounting is shown in the table below.

Type	Rated operational voltage U _e (V)	Min. distance to grounded metal (mm)	
		A, B	C, D
BM3RS	Up to 460	15	20
	500	15	30
	Up to 690	40	40
BM3RH	Up to 500	15	30
	Up to 690	40	50
BM3V	Up to 500	15	40
	Up to 690	40	50



When frames are mounted side-by-side, operating conditions such as a high ambient temperature or using the maximum setting for continuous current may cause slight changes in operating characteristics due to temperature rises. Under such conditions, it is recommended that the frames be separated by at least 5mm.

Wirings

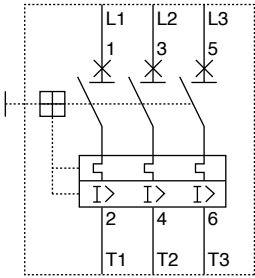
While pressing the wire with a screwdriver, tighten the screw to the specified tightening torque.

Type	BM3R	BM3V	BZ0 Accessories
Solid wire (mm)	ø1.6 to 2.6	ø1.6 to 2.6	ø1 to 1.6
Stranded wire (mm ²)	Single-wire	1 to 10	0.5 to 2.5
	2-wire	1 to 6	0.5 to 2.5
AWG	Single-wire	18 to 8	18 to 14
	2-wire	18 to 10	18 to 14
Sheath stripping length (mm)	Approx. 10	Approx. 13	Approx. 10
Terminal screw	Pan head screw (PZ2)	Pan head screw (PZ2)	Pan head screw (PZ2)
	M4	M6	M3.5
Tightening torque (N·m)	2	4	0.8

Note: There is no need for a crimp terminal or any other terminal on the end of the connection wire.

■ Wiring diagrams

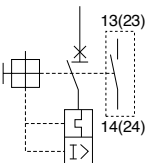
• MMS



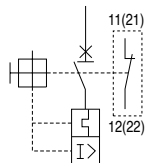
• Auxiliary contact blocks

Front mounting

BZ0WIA



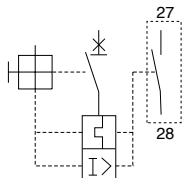
BZ0WIB



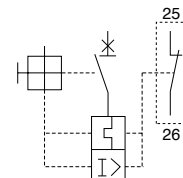
• Alarm contact blocks

Front mounting

BZ0KIA

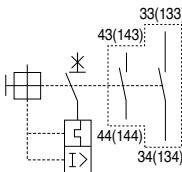


BZ0KIB

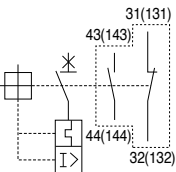


Side mounting

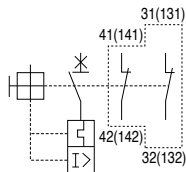
BZ0WUAAL



BZ0WUABL

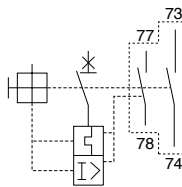


BZ0WUBBL

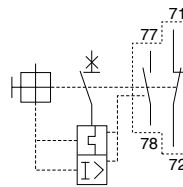


• Auxiliary and alarm contact blocks

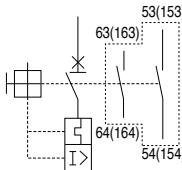
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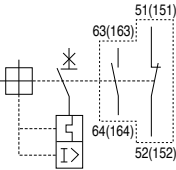
BZ0WKUBA



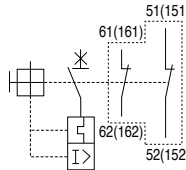
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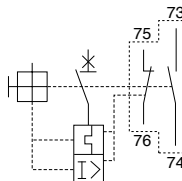
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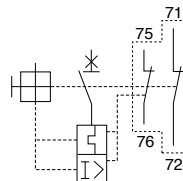
BZ0WUBBR



BZ0WKUAB

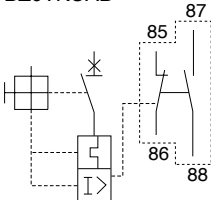


BZ0WKUBB



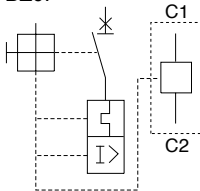
• Short-circuit alarm contact blocks

BZ0TKUAB



• Shunt trip devices

BZ0F



• Undervoltage trip devices

BZ0R

