



MOTOR PROTECTION CIRCUIT BREAKER



BCH ELECTRIC LIMITED



Motor Protection Cuircuit Breaker

Features

- Sensitive to phase failure in compliance with EN 60947-4-1, IEC 947-4-1
- Reliable protection at overloads and short circuits
- Simple and fast mounting by snap fitting on 35mm wide mounting rail in compliance with EN 50022; fixing with two screws in also possible
- It is convenient also for mounting in an installation distribution box
- Main application field : control (start-up, protection and switch-off) of A.C. electric motors with power up to 11 kW (380/400 V) or other consumers up to 25 A; it can also be used as the main switch according to EN 60204 standards
- Numerous accessories make the application field wider and enable the fulfillment of the majority of user's demands

Specifications

TYPE WITH THERMAL MAGNETIC RELEASE	SETTING RANGE (A)	MOTOR RATING IN kW at 415V	OPERATING CURRENT OF SHORT-CIRCUIT RELEASE (A)	BREAKING CAPACITY IN kA at 400V	MAX. BACK-UP FUSES (gL, aM) at 400V
MPE - 01	0, 1...0, 16		1, 9	100 KA	No back-up fuses required
MPE - 02	0, 16...0, 25	0, 06	2, 6		
MPE - 03	0, 25...0, 4	0, 12	4, 4		
MPE - 04	0, 4...0, 63	0, 18	8		
MPE - 05	0, 63...1	0, 25	11		
MPE - 06	1...1, 6	0, 37...0, 55	19		
MPE - 07	1, 6...2, 5	0, 75...1, 1	30		
MPE - 08	2, 5...4	1, 5	42		
MPE - 10	4...6, 3	2, 2...3	69	6	80A
MPE - 14	6, 3...10	4...5	110		
MPE - 16	10...16	5, 5...9	210	4	
MPE - 20	16...20	11	220	4	
MPE - 22	20...25	12, 5	330	4	

Version

MPE

Motor protection unit with thermal and magnetic short-circuit release

MPET

Motor protection unit with thermal overload release

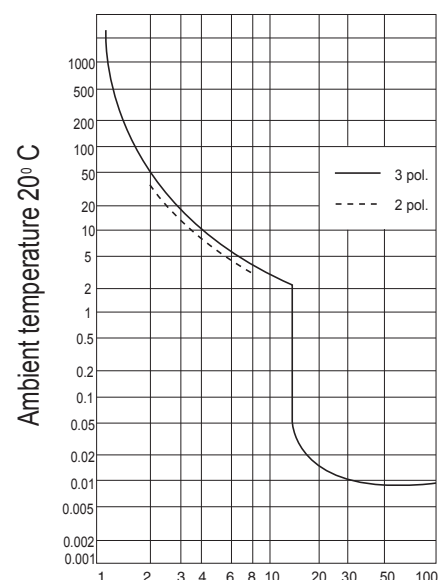
Special versions for single -phase consumers; (on request)

MPES with overload and short-circuit release

MPEST 20 with overload release



Time Current Characteristic
Mean values of operating times
for MPE



Current as a multiplier of the set current



Technical Data

GENERAL		
Standards		IEC 947
Mechanical endurance op. cy		100000
Impact resistance at impact duration of 20 ms		20g
Ambient temperature	Open	-25...+50°C
	Enclosed	25...+40°C
Temperature compensation		-20...+50°C
Weight approx.		250g
Protection degree		IP 20
MAIN CIRCUITS		
Rated insulation voltage U_i		690V
Rated impulse insulation withstand voltage U_{imp}		6kV
Thermal current $I_{th\ max} = I_e\ max$		25A
Electrical endurance at AC 3 and I_e		op. cy. 100000
Utilization category : AC 3 upto		690V
Terminal capacity (1 or 2 conductors)		0.75...4 mm ²
AUXILIARY SWITCH PS		
Rated insulation voltage U_i		500V
Thermal current I_{th}		6A
Rated operational current I_e	230 V	3, 5
at utilization category AC 15	400 V	2
	500 V	1, 5
Short circuit protection - max fuses		6 A (gL, gG)
Terminal capacity (1 or 2 conductors)		0,75...2,5 mm ²

Accessories

Auxiliary Switch

REFERENCE	CONTACTS
MPA - 0010	1NO
MPA - 0001	1NC
MPA - 0011	1NO + 1NC
MPA - 0020	2NO
MPA - 11 V	1NO + 1NC (Flush)

Enclosure (IP55)

REFERENCE	TYPE
MPA - EF ■	Flush Mounted
MPA - ES ■	Surface Mounted

Alarm Switch

REFERENCE	CONTACTS
MPA - RS01	1NC
MPA - RS10	1NO

Bus Bar

REFERENCE	CONTACTS
MPA - BB245	2 Tap-off 45mm
MPA - BB345	3 Tap-off 45mm
MPA - BB445	4 Tap-off 45mm
MPA - BB545	5 Tap-off 45mm
MPA - BB263	2 Tap-off 63mm
MPA - BB463	4 Tap-off 63mm
MPA - BBI	Incoming Block

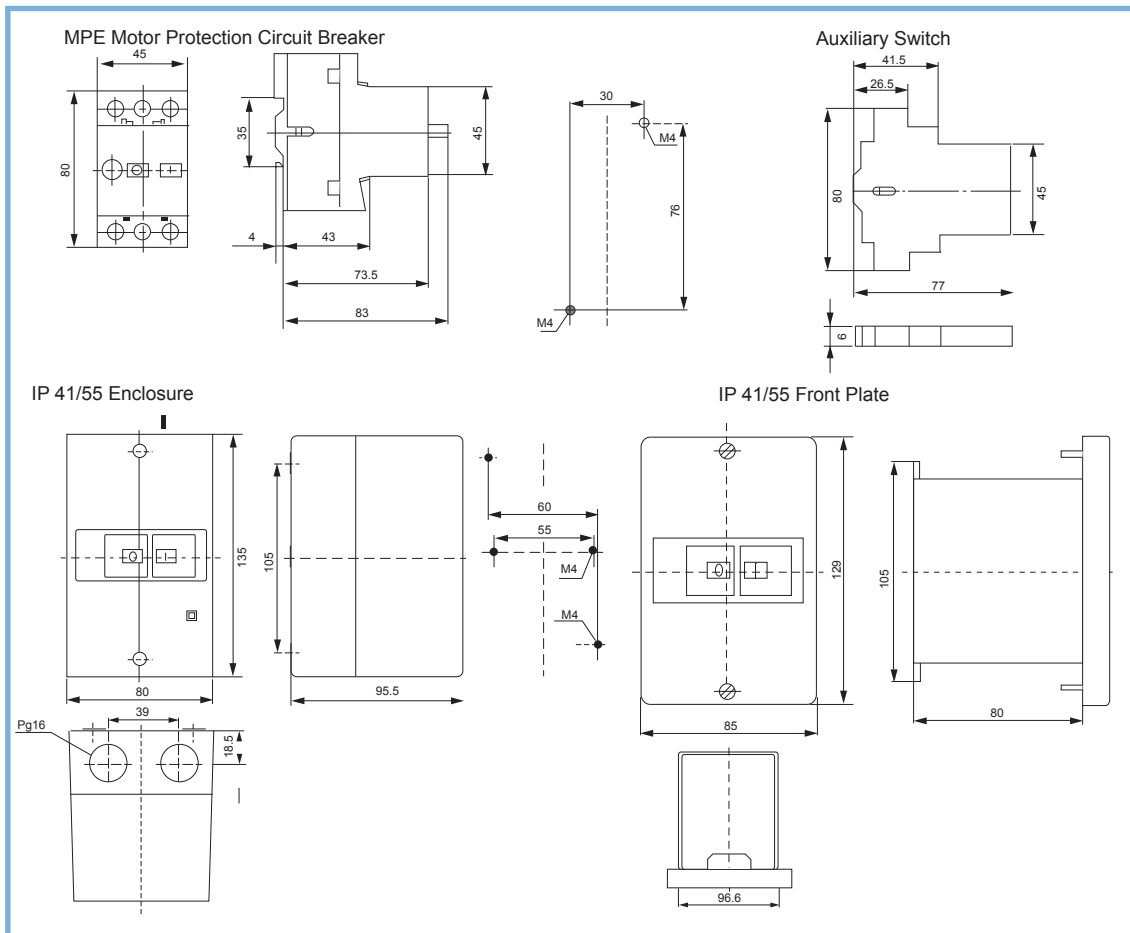
Voltage Releases

REFERENCE	TYPE
MPA - U ■	Under Voltage Release (24-600V AC)
MPA - S ■	Short Release (24-600V AC)

■ A : 110V AC, K : 230V AC, M : 415V AC, U : 24V AC, R : 42V AC



Dimensions (mm)



BCH ELECTRIC LIMITED

Visit us at : www.bchindia.com

Corporate Office : 1105, New Delhi House, 27, Barakhamba Road, New Delhi - 110 001 Tel. : 91-11-23316029/3610/6539 Fax : 91-11-23715249 E-Mail : marketing@bchindia.com

Registered Office : Block 1E, 216, Acharya Jagadish Chandra Bose Road, Kolkata - 700 017

Works : 20/4, Mathura Road, Faridabad - 121 006 (Haryana) Tel. : 0129-4063000/4061026 Fax : 0129-2304024

Sales Offices :

Ahmedabad
93, City Centre,
Near Swastik Char Rasta,
C.G.Road, Navrangpura,
Ahmedabad - 380 009
Tel. : (079) 26565719, 26565728
Mobile: 98256-07601
Fax : (079) 26561210
E-mail: ahmedabad@bchindia.com

Bangalore
B.M.H. Complex, IInd Floor,
No. 22, Kengal Hanumanthiah Road,
Bangalore - 560 027
Tel. : 080-22273478, 41144878, 41144879
Mobile : 98455-46105
Fax : 080-22236759
E-mail: bangalore@bchindia.com

Bhubaneswar
Plot No. 4708/1,
Gajapati Nagar,
Bhubaneswar - 750 005
Tel. : 0674-2301767
Mobile : 98610-81767
E-mail: bhubaneswar@bchindia.com

Chandigarh
SCO 121-22-23, Ist Floor,
Sector 34-A, Chandigarh - 160 022
Tel. : 0172-5078957
Mobile : 98554-87089
E-mail: chandigarh@bchindia.com

Chennai
LVR CENTRE, 3rd Floor
No. 7, Seshadri Road,
Alwarpet, Chennai - 600 018
Tel. : 044-24997042, 24997002
Mobile : 98402-85500
Fax : 044-24996853
E-mail: chennai@bchindia.com

Cochin
2nd Floor, 32/1495
B-1, Chakos Chambers,
By Pass Junction,
Cochin - 682 025
Tel. : 0484-6593697
Mobile : 98477-43393
E-mail: cochin@bchindia.com

Coimbatore
87, Dr. Nanjappa Road,
Coimbatore - 641 018
Tel. : 0422-2305311
Mobile : 98430-53555
Fax : 0422-2302599
E-mail: coimbatore@bchindia.com

Faridabad
110 & 117, Om Shubham Tower
Neelam Bata Road, N.I.T.
Faridabad - 121 001 (Haryana)
Mobile : 98180-10700
E-mail: faridabad@bchindia.com

Gurgaon
SF-203, Navkriti Arcade
Block-A, Sushant Lok, Phase-II
Gurgaon - 122 001 (Haryana)
Mobile : 99101-55464
E-mail: gurgaon@bchindia.com

Guwahati
2nd Floor, Maya Ville,
Borthakur Mill Road, Ulubari
Guwahati - 781 0007
Mobile : 09435407024
E-mail: guwahati@bchindia.com

Hospet
940C, Third Cross
Third Ward, Patel Nagar
Station Road,
Hospet-583201
Tel. : 09845930782
E-mail: hospet@bchindia.com

Hubli
A-5, Navaniketan Apartments
Ashok Nagar
Hubli (Karnataka)
Tel. : 0836-3090472
Mobile No. 98802-90471
Email: hubli@bchindia.com

Hyderabad
210, Prajay Corporate House,
1-10-63&64, Chikoti Garden,
Begumpet, Hyderabad - 500 016
Tel. : 040-66206263/27763325
Mobile : 98493-99240
Fax : 040-66207273
E-mail: hyderabad@bchindia.com

Indore
330-331, Indraprastha Tower,
6, MG Road, Indore - 452 001
Tel. : 0731-2510011
Mobile : 98266-66091
E-mail: indore@bchindia.com

Jaipur
25, Hathroi, Gopalbari,
Jaipur - 302 001
Tel. : 0141-5104521
Mobile : 98290-10813
Fax : 0141-2363521
E-mail: jaipur@bchindia.com

Jamshedpur
3rd Floor, Aastha Trade Centre,
'Q' Road, Bistupur,
Jamshedpur - 831001
Tel. : 0657-6573507
Mobile : 98351-82109
Fax : 0657-2420439
E-mail: jamshedpur@bchindia.com

Kolkata
East India House,
3rd Floor, 20-B, Abdul Hamid
Street, Kolkata - 700 069
Tel. : 033-22138508 / 10
Mobile : 98220-11086
Fax : 033-22138512
E-mail: kolkata@bchindia.com

Lucknow
Madan Plaza, 3rd Floor,
14, Station Road, Lucknow
Tel. : 0522-4025597/4025997/4025697
Mobile : 98220-11086
E-mail: lucknow@bchindia.com

Ludhiana
S.C.O - 18, IInd Floor,
Feroze Gandhi Market,
Ludhiana - 140 001
Tel. : 0161-5021807
Mobile : 98765-87088
Fax : 0161-2771807
E-mail: ludhiana@bchindia.com

Madurai
E 168/69, Santanam Road
TVS Nagar
Madurai-625003
Tel. : 09843133990
Email: maduri@bchindia.com

Mumbai
A-151, Mittal Tower,
Nariman Point,
Mumbai - 400 021
Tel. : 022-22822947/22826039
Mobile : 98923-00706
Fax : 022-22822858
E-mail: mumbai@bchindia.com

Nagpur
Block No. 238-B,
Opp. Dharamdas Darbar,
Nr. Choudhary Chowk, Jaripatka,
Nagpur, Maharashtra - 440 014
Mobile : 99701-80877
E-mail: nagpur@bchindia.com

New Delhi
801, Akash Deep,
26A, Barakhamba Road,
New Delhi - 110 001
Tel. : 011-23313878
Mobile : 98102-12502
Fax : 011-23739230
E-mail: delhi@bchindia.com

Pune
8, Sarosh Bhawan,
16-B/1, Dr. Ambedkar Road,
Pune - 411 001
Tel. : 020-26052590
Mobile : 98220-11086
Fax : 020-26135224
E-mail: pune@bchindia.com

Raipur
2nd Floor,
Building No- B- 234,
Indira Gandhi
Vyavasayik Parisar,
Pandri, Raipur - 492 004
Tel. : 0771-4020213
Mobile : 98266-66092
E-mail: raipur@bchindia.com

Surat
601/A, 21st Century Business Centre
Ring Road
Surat - 395 002
Mobile : 91 9825607617
E-mail: surat@bchindia.com

Trichy
Kingston Park,
Second Floor,
19/1, Puttur High Road,
Ramalinga Nagar,
Trichy - 620 003
Mobile: 99406 76502
Email : trichy@bchindia.com

Vadodara
101, Toran Complex,
Vikas Nagar
Old Padra Road
Vadodara - 390 020.
Tel. : 0265-6548444
E-mail: baroda@bchindia.com

Vishakapatnam
Venu Vaibhavam, 2nd Floor,
Flat No. 201, Palace
Layout, Pedda Waltair,
Vishakapatnam - 530 017
Mobile : 98493-99238
E-mail: vizag@bchindia.com

Western UP & Uttarakhand
8, Cooperative Industrial Estate
Patel Nagar
Dehradun : 248001
Uttarakhand
Mobile : 9760005793
E-mail: dehradun@bchindia.com

Resident Engineers Locations Tel.

Agartala	94361-28939	Kolhapur	98906-26205
Haldwani	99970-12643	Nashik	98900-12944
Kanpur	98392-34539	Salem	98433-19533
Muzaffarnagar	98970-73741	Udaipur	98292-44085
Renukoot	98399-55117	Bhopal	98266-66093
Ambala	93541-18839	Ghaziabad	98107-44937
Durgapur	97320-03364	Jabalpur	98268-03656

Kota	98290-14899
Navi Mumbai	98923-00701
Silchar	94354-04033
Vijayawada	98662-20504
Baddi	93187-78975
Gorakhpur	98392-24988
Jalandhar	98763-47188

Mangalore	98457-31944
Pondichery	98942-22033
Siliguri	98320-11433
Bhilai	98266-12907
Gwalior	98268-03658
Jodhpur	98292-18618
Rajkot	98256-04709

Tirupathi	98661-30930
Warangal	98495-51691

Since product improvement is a continuous process, the data furnished in this brochure may undergo revision without prior notice.



Motor Protection

Circuit Breaker

MPH Series



BCH ELECTRIC LIMITED

BCH MPH series of MPCB is a compact range for motor protection up to 30 kW (415V)/ 63 A in two frame sizes i.e. 45mm & 55mm. It offers Thermal overload protection and Short circuit protection in a single compact unit with features like trip-free mechanism, temperature compensation and a rotary handle with a clear switch position position indication.

- Over load protection
- Phase failure protection
- Fuse less short circuit protection up to feeder line

Add on accessories

- 1 NO + 1 NC - Front Mounted
- 2 NO - Side Mounted
- Trip Indicator
- Undervoltage / Shunt Release

Salient Features

- ON / OFF Rotary knob with manual operation enables individual motor circuit to be isolated without having to disconnect all other circuits in control panel.
- Pad locking in “OFF” position to prevent accidental turn “ON” of motor during servicing.
- Clear trip indication. The Rotary Knob comes to “TRIP” position on Short circuit & Over load faulty conditions which help to identify the tripped condition of the MPCB easily.
- Test function to verify the performance of the device & accessories.
- Universal rating & marking: A, KW & HP rating with CE markings.
- Wide range of Relay scale.
- Over load relay function confirms to TRIP class 10A
- Trip indication - visual discrimination between short circuit & over load tripping.
- Wide variety of accessories coupled with modular design helps in easy distribution of power to multiple MPCB’s.

Selection Table

Cat reference	Relay ratings (A)	Magnetic trip current (13 x I _n)	Motor KW (1-Phase)	Motor KW (3-Phase)			
			220 -240V	230V	400/415V	500V	690V
			KW	KW	KW	KW	KW
MPH32-0.16	0.1-0.16	2.1					0.06
MPH32-0.25	0.16-0.25	3.3			0.06	0.06	0.12
MPH32-0.4	0.25-0.4	5.2			0.09	0.12	0.18
MPH32-0.63	0.40-0.63	8.2		0.06	0.12	0.25	0.25
MPH32-1.0	0.63-1.0	13	0.06	0.12	0.25	0.37	0.55
MPH32-1.6	1.0-1.6	21	0.12	0.18	0.55	0.75	1.1
MPH32-2.5	1.6-2.5	33	0.18	0.37	0.75	1.1	1.5
MPH32-4.0	2.4-4.0	52	0.37	0.75	1.5	2.2	3
MPH32-6.3	4.0-6.3	82	0.55	1.1	2.2	3	4
MPH32-10	6.3-10	130	1.1	2.2	4	4	7.5
MPH32-16	10-16	208	2.2	3.7	9	12.5	15
MPH32-20	16-20	260	3.0	3.7	9	12.5	15
MPH32-25	20-25	325		5.5	12.5	15	22
MPH32-32	25-32	416		7.5	15	18.5	30
MPH63-16	11-16	Coming soon...					
MPH63-20	14-20						
MPH63-25	18-25						
MPH63-32	22-32						
MPH63-40	28-40						
MPH63-45	36-45						
MPH63-50	40-50						
MPH63-63	45-63						

Note: Mag only version is available on request.

Short Circuit Current Rating

Cat reference	Rated Current (A)	Short Circuit Breaking Capacity at 230V			Short Circuit Breaking Capacity at 400/415V			Short Circuit Breaking Capacity at 440V			Short Circuit Breaking Capacity at 500/525V			Short Circuit Breaking Capacity at 690V		
		Icu (kA)	Ics (kA)	gl/gG fuse ①	Icu (kA)	Ics (kA)	gl/gG fuse ①	Icu (kA)	Ics (kA)	gl/gG fuse ①	Icu (kA)	Ics (kA)	gl/gG fuse ①	Icu (kA)	Ics (kA)	gl/gG fuse ①
MPH32-0.16	0.16	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MPH32-0.25	0.25	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MPH32-0.4	0.4	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MPH32-0.63	0.63	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MPH32-1.0	1	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MPH32-1.6	1.6	100	100	-	100	100	-	100	100	-	100	100	-	100	100	-
MPH32-2.5	2.5	100	100	-	100	100	-	100	100	-	100	100	-	8	6	25
MPH32-4.0	4	100	100	-	100	100	-	100	100	-	100	100	-	8	6	40
MPH32-6.3	6.3	100	100	-	100	100	-	100	100	-	100	100	-	6	5	50
MPH32-10	10	100	100	-	100	100	-	50	38	63	50	38	50	6	5	50
MPH32-16	16	100	100	-	50	38	100	35	25	80	10	8	80	4	3	63
MPH32-20	20	100	100	-	50	38	125	35	25	80	10	8	80	4	3	63
MPH32-25	25	100	100	-	50	38	125	35	25	100	10	8	80	4	3	63
MPH32-32	32	100	100	-	50	38	125	35	25	100	10	8	80	4	3	63
MPH63-16	16	Coming Soon...														
MPH63-20	20															
MPH63-25	25															
MPH63-32	32															
MPH63-40	40															
MPH63-45	45															
MPH63-50	50															
MPH63-63	63															

① Fuse is used if I_{cc} is greater than I_{cu}

Technical Data

S.NO	PARAMETER	MPH32		MPH63	
		Relay ranges (A)	Rated Oper. current (A)	Relay ranges (A)	Rated Oper. current (A)
1	Relay ranges & Rated operational current	0.1 – 0.16 0.16 - 0.25 0.25 – 0.4 0.4 – 0.63 0.63 – 1.0 1- 1.6 1.6 – 2.5 2.5 – 4 4 – 6.3 6.3 – 10 10 – 16 16 – 20 20 – 25 25 – 32	0.16 0.25 0.4 0.63 1.0 1.6 2.5 4.0 6.3 10 16 20 25 32	11 – 16 14 – 20 18 – 25 22 – 32 28 – 40 36 – 45 40 – 50 45 – 63	16 20 25 32 40 45 50 63
2	Magnetic release operating current	13 In		13 In	
3	Trip class	10A		10A	
4	Operating frequency	50 – 60Hz		50-60Hz	
5	Degree of protection	IP20		IP20	
6	Certifications	CE		CE	
7	Rated Insulation voltage	690 V		690 V	
8	Rated Impulse withstand voltage	6 kV		6 kV	
9	Utilisation category (i) IEC947-2 (Circuit breaker) (ii) IEC947-4-1 (Motor starter)	CAT A AC3		CAT A AC3	
10	Rated Thermal current	0.1 - 32		11 – 63	
11	Ambient temperature compensation	Available		Available	
12	Permissible altitude w/o de rating	2000m		2000m	
13	Suitability for group motor protection	Yes		Yes	
14	Self protected type E manual combination starter	Yes		Yes	
15	Max. kAIC (max.short circuit current)	100kA at 415V		50kA at 415V	
16	Mechanical life	1,00,000		50,000	
17	Electrical life Max switching frequency per hour	1,00,000 25		50,000 25	
18	Frame size (L x B x H)	96 x 45 x 97 (in mm)		140 x 55 x 148.5 (in mm)	

19	Conductor Cross section For main circuit		
	Minimum/Maximum Conductor cross section		
	Solid strand	1-10mm2x1/18- 8AWGx1	1-25mm2x1/18- 4AWGx1
	Without/with end sleeve	1-6mm2x2/18- 10x1 AWGx2	1-16mm2x2/18-4 AWGx2
	Terminal Type	Screw Type	Screw Type

Notes: _____

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

Accessories

Type	Name	Description	Suitability	CAT No.
Front Mount 	Front auxiliary contact. One No per MPCB	1NO + 1NC	MPH32 MPH63	MPHF11
Left side mount				
	Side auxiliary contact One No per MPCB	1NO+1NC, 2NO 2NC	MPH32 & MPH63	MPHS11
	Trip indicating contact One per MPCB Can also be fitted in addition to auxiliary contact	Two sets of 1NO + 1NC are available with trip indication. One set is for short circuit and another set is for thermal tripping	MPH32 & MPH63	MPHT11
Under Voltage / Shunt Release				
	Under voltage release one number per MPCB	110 V 230 V 400 V	MPH32 & MPH63	MPH***UR
	Shunt trip one per MPCB	24 V AC/DC 110 V AC/DC 230 V AC / 220 V DC	MPH32 & MPH63	MPH***SR
	3-Phase in feed terminals	Conductor cross-section solid; 25 mm ²	MPH32 & MPH63	

*** UV release voltage

Voltage	Description
024	24V 50Hz
115	110 - 115V 50Hz
240	230 - 240V 50Hz
415	400 - 415V 50Hz

*** Shunt release voltage

Voltage	Description
024	20 - 24V, 50/60Hz
048	40 - 48V, 50/60Hz
440	365 - 440V, 50/60Hz
127	100 - 127V, 50/60Hz

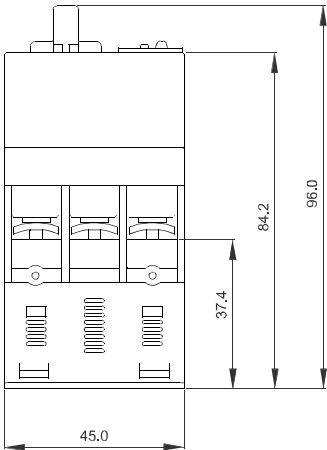
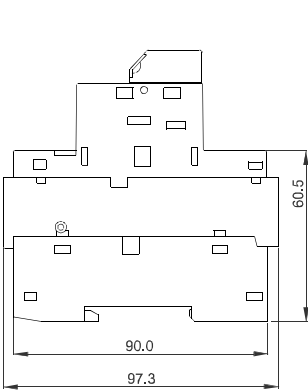
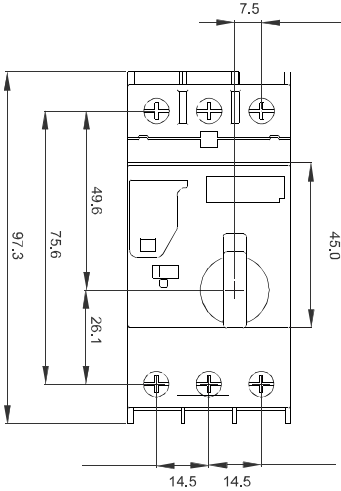
Accessories

Type	Name	Description	Suitability	CAT No.
Insulated 3-Phase bus bar system				
	Modular spacing 45mm 3-Phase Busbars Modular Spacing 55mm 3-Phase Busbars Modular spacing 63mm 3-Phase Busbars Modular spacing 75mm	for 2 MPCB w/o side accessories for 3 MPCB w/o side accessories for 4 MPCB w/o side accessories for 5 MPCB w/o side accessories for 2 MPCB w/o side accessories for 4 MPCB w/o side accessories for 2 MPCB with side accessories for 4 MPCB with side accessories for 2 MPCB with side accessories for 4 MPCB with side accessories	MPH32 & MPH63	
	Door operating Mechanism with door interlock defeat facility, padlocking facility Extension shaft 300mm	Front Operated	MPH32 & MPH63	

Dimensional Details

MPCB - MPH32 type

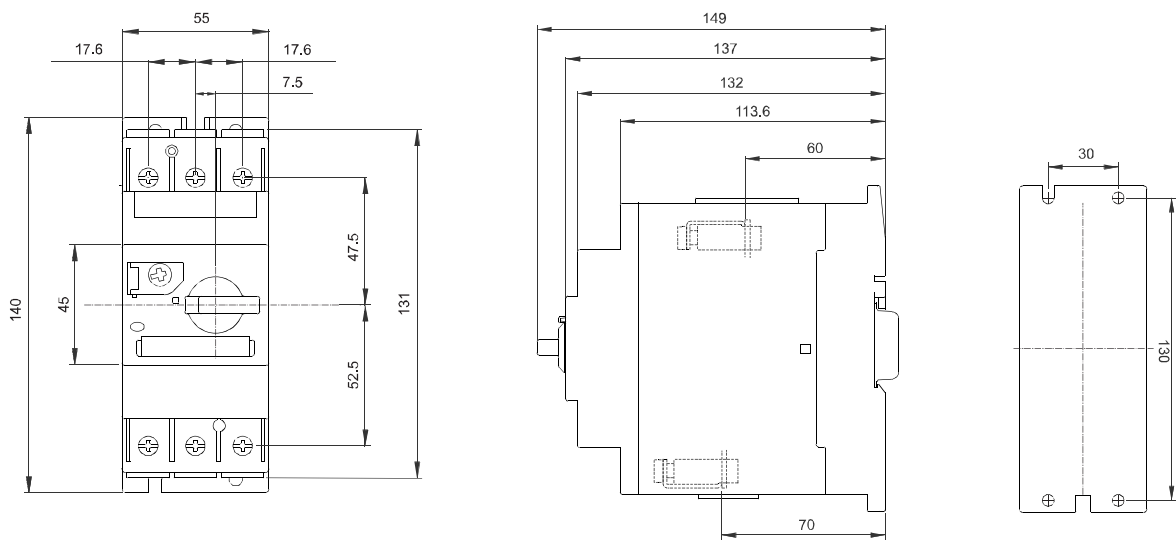
in mm



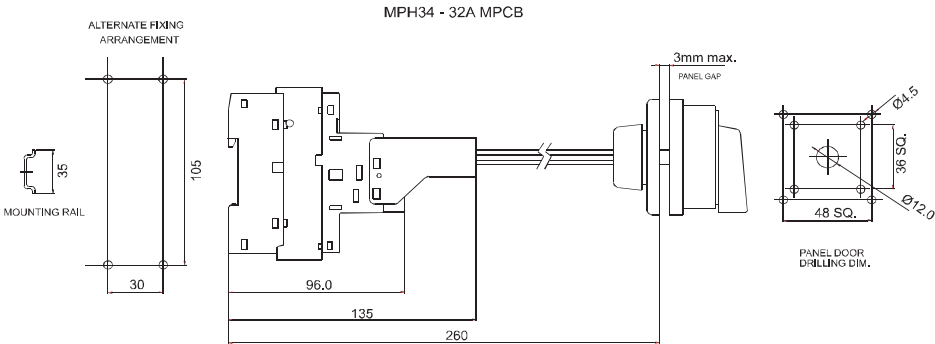
Dimensional Details

MPCB - MPH63 type

in mm



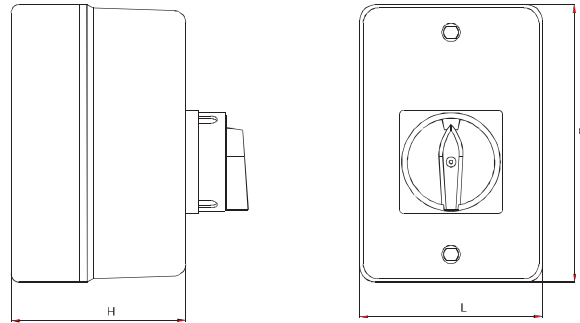
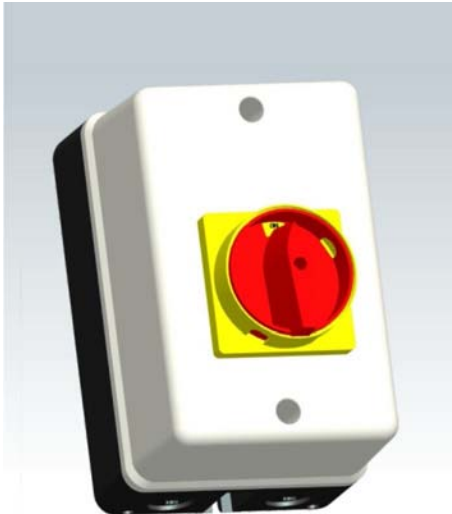
MPH34



B31SMA1

Plastic Enclosure

in mm

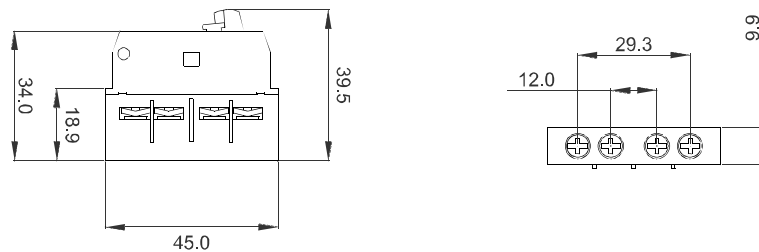


- Mounted in ABS Enclosure
- Round Padlocking Device (Max. 3 Padlocks)
to Prevent the MPCB from being Made to
ON by unauthorised persons
- Door Interlock-Cover Cannot Open in ON Condition

Model	L	B	H
B31SMA1	115	175	110
B31MA1	125	210	170

Dimension Details

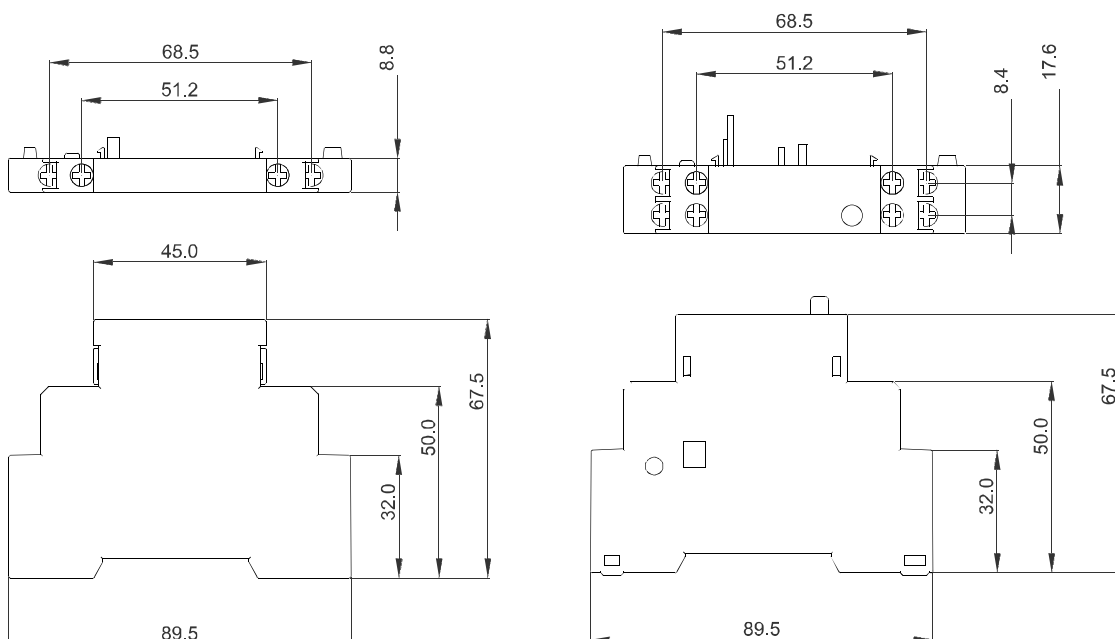
Front mount - NONC

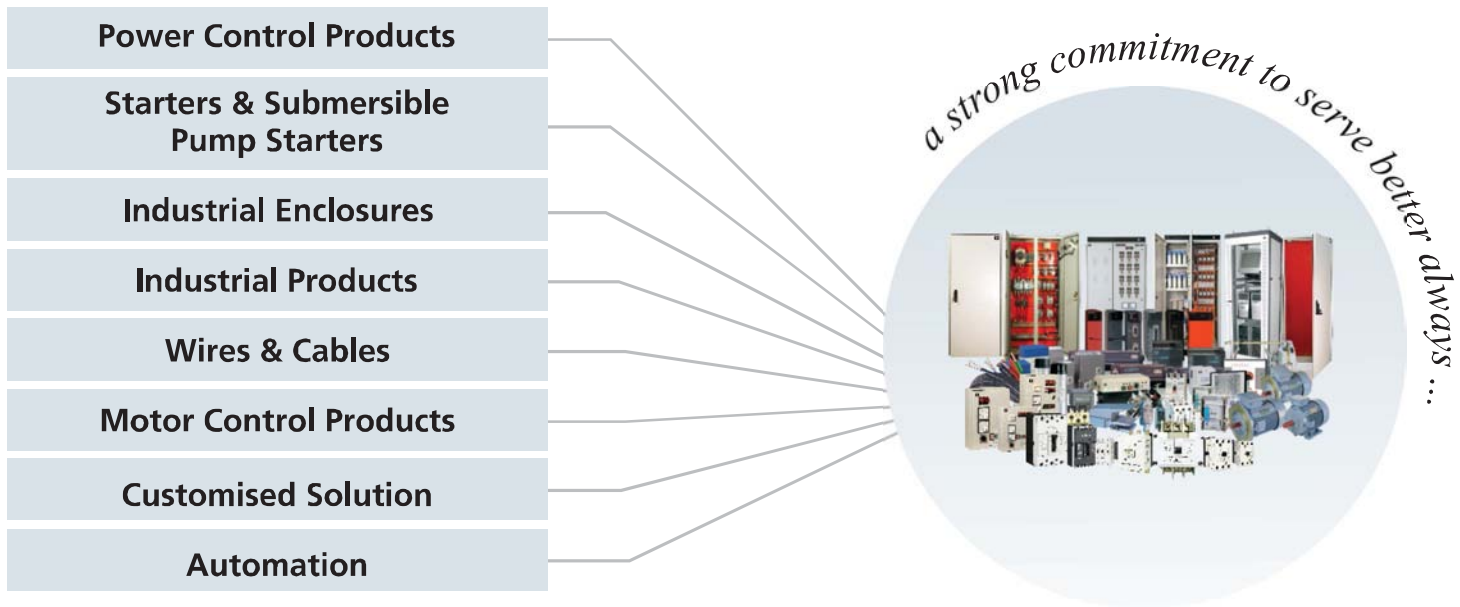


Left side mount

1NO 1NC, 2NO, 2NC

Trip indicator contact





BCH ELECTRIC LIMITED

Visit us at : www.bchindia.com

Corporate Office : 1105, New Delhi House, 27, Barakhamba Road, New Delhi-110 001 Tel. : 91-11-23316029/3610/6539/43673100 Fax : 91-11-23715247

CIN : U31103WB1965PLC026427, Customercare No. 1800-103-9262, E-mail : marketing@bchindia.com

Registered Office : Block 1E, 216, Acharya Jagadish Chandra Bose Road, Kolkata - 700 017

Works 1 : 20/4, Mathura Road, Faridabad-121 006 (Haryana) Tel. : 0129-4063000/4293000 Fax : 0129-2304016

Works 2 : 64-68, Sector-7, IIE, Pant Nagar, Rudrapur, Udham Singh Nagar - 263 153 (Uttarakhand) Tel. : 05944-250214/16 Fax : 05944-250215

Sales Offices :

Ahmedabad

93, City Centre,
Near Swastik Char Rasta,
C.G. Road, Navrangpura,
Ahmedabad- 380 009
Tel. : 079-26565719/40074482
Fax : 079-26565719
E-mail : ahmedabad@bchindia.com

Bangalore

B.M.H. Complex, 2nd Floor,
No. 22, Kengal Hanumanthiah Road,
Bangalore - 560 027
Tel. : 080-22273478/41144878/41144879
Fax : 080-22236759
E-mail : bangalore@bchindia.com

Chandigarh

SCO 121-22-23, 1st Floor,
Sector 34-A, Chandigarh - 160 022
Tel. : 0172-5078957/2666122
Fax : 0172-5049905
E-mail : chandigarh@bchindia.com

Chennai

Flat No. 3A, 3rd Floor,
Sree Apartments,
No.508, TTK Road,
Alwarpet, Chennai 600 018
Tel. : 044-24337046, 24337047
Fax : 044-24337047
E-mail : chennai@bchindia.com

Coimbatore

87, Dr. Nanjappa Road,
Coimbatore - 641 018
Tel. : 0422-2305311
Fax : 0422-2302599
E-mail : coimbatore@bchindia.com

Dehradun

8, Co-Operative Industrial Estate,
Patel Nagar, Dehradun - 248001
(Uttarakhand)
E-mail : dehradun@bchindia.com

Faridabad

20/4, Mathura Road,
Faridabad - 121 006 (Haryana)
Tel. : 0129-2304016
E-mail : faridabad@bchindia.com

Hyderabad

1-8-303/48/13/102, Arya One,
2nd Floor, P. G. Road,
Secunderabad - 500 003
Tel. : 040-66206263/27890306
Fax : 040-66207273
E-mail : hyderabad@bchindia.com

Indore

330-331, Indraprastha Tower,
3rd Floor, 6, M.G. Road,
Indore - 452 001
Tel. : 0731-2510011
Fax : 0731-2510012
E-mail : indore@bchindia.com

Jaipur

25, Hathroi, Gopalbari,
Jaipur - 302 001
Tel. : 0141-5104521
Fax : 0141-2363521
E-mail : jaipur@bchindia.com

Jamshedpur

3rd Floor, Aastha Trade Centre,
'O' Road, Bistupur,
Jamshedpur - 831 001
Tel. : 0657-2321097/2321481
E-mail : jamshedpur@bchindia.com

Kolkata

Block 1E, 216,
Acharya Jagadish Chandra Bose Road,
Kolkata - 700 017
Tel. : 033-22871728
E-mail : kolkata@bchindia.com

Lucknow

Madan Plaza, 3rd Floor,
14, Station Road,
Lucknow - 226 001
Tel. : 0522-4025597/4025997
Fax : 0522-4025697
E-mail : lucknow@bchindia.com

Ludhiana

S.C.O.- 18, 2nd Floor,
Feroze Gandhi Market,
Ludhiana - 140 001
Tel. : 0161-5021807/5022808
Fax : 0161-5021807
E-mail : ludhiana@bchindia.com

Mumbai

A-151, Mittal Tower,
Nariman Point,
Mumbai - 400 021
Tel. : 022-22822947/22850162
Fax : 022-22822858
E-mail : mumbai@bchindia.com

Nagpur

Flat No.T/12, 3rd Floor,
Bakdeo Apartment,
Behind Railway Station,
Bajaria, Nagpur (M.S.)
Pin Code - 440018
E-mail : nagpur@bchindia.com

New Delhi

801, Akash Deep Building,
26A, Barakhamba Road,
New Delhi - 110 001
Tel. : 011-23313878/66307065
Fax : 011-23739230
E-mail : delhi@bchindia.com

Pune

8, Sarosh Bhavan,
16-B/1, Dr. Ambedkar Road,
Pune - 411 001
Tel. : 020-26052590
Telefax : 020-26135224
E-mail : pune@bchindia.com

Raipur

2nd Floor, Building No. B-234,
Indira Gandhi Vyasayik Parisar,
Pandri, Raipur - 492 004
Tel. : 0771-4020213
Fax : 0771-2582680
E-mail : raipur@bchindia.com

Trichy

Kingstone Park, 2nd Floor,
19/1, Puthur High Road,
Ramalinga Nagar,
Trichy - 620 017
Tel. : 0431-4040497
E-mail : trichy@bchindia.com

Vadodara

301, Third Floor, "Florence Classic",
10, Ashapuri Co-Op. Hsg. Soc. Ltd., Opp. VUDA Housing,
Near Cow Circle, Akota, Vadodara - 390 020
Tel. : +91-265-6548444/2345068/2345069
Telefax : 0265-2345068,
E-mail : vadodara@bchindia.com

Other Branch Locations

Bhubaneswar : bhubaneswar@bchindia.com, **Cochin :** cochin@bchindia.com, **Gurgaon :** gurgaon@bchindia.com, **Guwahati :** guwahati@bchindia.com,
Hospet : hospet@bchindia.com, **Hubli :** hubli@bchindia.com, **Madurai :** madurai@bchindia.com, **Vishakapatnam :** vizag@bchindia.com, **Surat :** surat@bchindia.com

Resident Engineer Locations

Baddi	Gurgaon	Madurai	Rajahmundry
Bardhaman	Haridwar	Muzaffarnagar	Salem
Bhilai	Hubli	Nagpur	Surat
Bhubaneswar	Hospet	Nashik	Udaipur
Cochin	Jodhpur	Patna	Vapi
Dehradun	Kakinada	Puducherry	Vishakhapatnam
Durgapur	Kota	Rajkot	Warangal

Since product improvement is a continuous process, the data furnished in this brochure may undergo revision without prior notice.

Motor protection switches

MS32, MSB32, MS18, MSB18



- Versions:
 - MS32 / MS18 - with thermal and magnetic releases
 - MSB32 / MSB18 - with a thermal release only
- Manual control:
 - START, STOP, push-buttons - with a trip indication (i.e. push-buttons stay in the middle position)
- Automatic switch-off at over-current with thermal or magnetic release
- Control with under-voltage release or shunt release
- An auxiliary switch for side mounting or flush mounting used for indication of the switching state
- Indication of release with trip indicating auxiliary switch
- ON/OFF buttons position unequivocally indicates switching position of main circuit contacts
- Contact material
 - Resistant to contact welding
 - Enables low contact heating
- Isolating distance between contacts: 4.5 mm per contact place
- Connection of a rigid or flexible conductor
- Assembly to 35 mm wide mounting rail in compliance with EN 60715
- Vertical or horizontal operational position

TECHNICAL DATA

GENERAL	Standards				IEC/EN 60947-2, IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 60204, UL 508, CSA 22.2 No.14
	Approvals				UL
	Climatic class				constant damp heat acc. to IEC 60068-2-78 cyclic damp heat acc. to IEC 60068-2-30
	Degree of protection				IP20, after terminals covering IP40
	Ambient temperature		°C		-25 ... +60
	Storage temperature		°C		-25 ... +70
	Temperature range of thermal compensation for overload release		°C		-5 ... +40
	Mechanical and electrical endurance		op. c.		100,000
	Max. operating cycles		op. / h		25
	Shock resistance acc. to IEC 68-2-27		g		20
	Vibration resistance acc. to IEC 68-2-6				5 g at f = 5 ... 150 Hz
	Overvoltage category / pollution degree				III / 3
	Rated insulation voltage		U_i	V	690
	Rated impulse withstand voltage		U_{imp}	kV	6
	Weight			kg	0.279
MAIN CIRCUIT	Designation of connection terminals				1 – L1 ; 3 – L2 ; 5 – L3 ; 2 – T1 ; 4 – T2 ; 6 – T3
	Terminal capacity				
		rigid	S	mm ²	0.75 ... 10
		flexible			0.75 ... 6
	Screw				with self-lifting clamp, protected against drop out
	Screw head				PZ2
	Tightening torque			Nm	2.0



Motor protection switches

MS32, MSB32, MS18, MSB18

TECHNICAL DATA

MAIN CIRCUIT				MS32 / MS18	MSB32 / MSB18
	Max. operational voltage	U _e	V	690	400
	Setting range		A	0.1 - 0.16; 0.16 - 0.25; 0.25 - 0.4; 0.4 - 0.63; 0.63 - 1; 1 - 1.6; 1.6 - 2.5; 2.5 - 4; 4 - 6.3; 6.3 - 10; 9 - 14; 13 - 18; 17 - 23 (only MS32); 20 - 27 (only MS32); 25 - 32 (only MS32)	0.25 - 0.4; 0.4 - 0.63; 0.63 - 1; 1 - 1.6; 1.6 - 2.5; 2.5 - 4; 4 - 6.3; 6.3 - 10; 9 - 14; 13 - 18; 17 - 23 (only MSB32); 20 - 27 (only MSB32); 25 - 32 (only MSB32)
	No. of poles			3	
	Operating current of thermal overload release	I		1,05 I _r < I ≤ 1,20 I _r I _r ...current setting value	
	Sensitivity to phase failure			yes	
	Power dissipation per pole at the upper setting limit	P	W	2 - 2,5	
	Utilization category acc. to IEC/EN 60947-4-1			AC-3	
	acc. to IEC/EN 60947-2			A	
	Trip class acc. To IEC/EN 60947-4-1			10	

SWITCH SELECTION FOR MOTOR PROTECTION

Standard motor powers						Setting range
Single-phase	Three-phase					
220 V 230 V 240 V	220 V 230 V 240 V	380 V 400 V 415 V	440 V	500 V	660 V 690 V	
kW						A
					0.06	0.1 ... 0.16
		0.06	0.06	0.06 ... 0.9	0.06 ... 0.12	0.16 ... 0.25
	0.06	0.09	0.12	0.09 ... 0.12	0.18	0.25 ... 0.4
	0.09	0.12 ... 0.18	0.18	0.18	0.25	0.4 ... 0.63
0.06 ... 0.09	0.09 ... 0.12	0.18 ... 0.25	0.25 ... 0.37	0.25 ... 0.37	0.37 ... 0.55	0.63 ... 1
0.12	0.18 ... 0.25	0.37 ... 0.55	0.37 ... 0.55	0.55 ... 0.75	0.75 ... 1.1	1 ... 1.6
0.18 ... 0.25	0.37	0.75	0.75 ... 1.1	1.1	1.5	1.6 ... 2.5
0.37	0.55 ... 0.75	1.1 ... 1.5	1.5	1.5 ... 2.2	2.2 ... 3	2.5 ... 4
0.55 ... 0.75	1.1 ... 1.5	2.2	2.2 ... 3	2.2 ... 3	4	4 ... 6.3
1.1 ... 1.5	1.5 ... 2.2	3 ... 4	4	4 ... 5.5	5.5 ... 7.5	6.3 ... 10
2.2	2.2 ... 3	5.5	5.5 ... 7.5	5.5 ... 7.5	9 ... 11	9 ... 14
3	4	7.5	7.5 ... 9	9 ... 11	15	13 ... 18
	5.5	9 ... 11	11	11	15 ... 18.5	17 ... 23
	5.5 ... 7.5	11	11	15	18.5 ... 22	20 ... 27
	7.5	15	15	18.5	22	25 ... 32

Motor protection switches

MS32, MSB32, MS18, MSB18

MS32 motor protection switches, rated ultimate and service short-circuit breaking capacity I_{cu} and I_{cs} , and max. back-up fuses if short circuit current I_{cp} exceeds I_{cu} :

Type		Operating current of short-circuit release (A)	Rated ultimate short-circuit breaking capacity I_{cu} , I_{cs} (kA)								Max. back-up fuse, if $I_{cp} > I_{cu}$ (gL) (A)			
			230 V		400 V		500 V		690 V		230 V	400 V	500 V	690 V
			I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}				
MS32 – 0.16	MS18 - 0.16	2	100	100	100	100	100	100	100	100	No back-up fuse required			
MS32 – 0.25	MS18 - 0.25	3	100	100	100	100	100	100	100	100				
MS32 – 0.4	MS18 - 0.4	5	100	100	100	100	100	100	100	100				
MS32 – 0.63	MS18 - 0.63	8	100	100	100	100	100	100	100	100				
MS32 – 1	MS18 - 1	13	100	100	100	100	100	100	100	100				
MS32 – 1.6	MS18 - 1.6	22	100	100	100	100	100	100	100	100				
MS32 – 2.5	MS18 - 2.5	33	100	100	100	100	100	100	5	5			16	
MS32 – 4	MS18 - 4	55	100	100	100	100	100	100	3	3			25	
MS32 – 6.3	MS18 - 6.3	84	100	100	100	100	6	4.5	3	2			35	35
MS32 – 10	MS18 - 10	126	100	100	100	100	6	4.5	3	2			50	35
MS32 – 14	MS18 - 14	170	25	12.5	25	12.5	6	4.5	3	2	80	63	50	50
MS32 – 18	MS18 - 18	230	25	12.5	25	12.5	6	4.5	3	2	80	63	50	50
MS32 – 23		270	25	12.5	25	12.5	4	3	3	2	80	80	50	50
MS32 – 27		360	25	12.5	25	12.5	4	3	3	2	80	80	50	50
MS32 – 32		400	25	12.5	25	12.5	4	3	3	2	80	80	50	50

MSB32 / MSB18 motor protection switches and max. back-up fuses for short-circuit protection:

Type		Max. back-up fuse $U_e < 400$ V gL (A)
MSB32 – 0.4	MSB18 – 0.4	2
MSB32 – 0.63	MSB18 – 0.63	2
MSB32 – 1	MSB18 – 1	4
MSB32 – 1.6	MSB18 – 1.6	6
MSB32 – 2.5	MSB18 – 2.5	6
MSB32 – 4	MSB18 – 4	10
MSB32 – 6.3	MSB18 – 6.3	16
MSB32 – 10	MSB18 – 10	25
MSB32 – 14	MSB18 – 14	25
MSB32 – 18	MSB18 – 18	35
MSB32 – 23		35
MSB32 – 27		50
MSB32 – 32		50

Motor protection switches

MS32, MSB32, MS18, MSB18

ACCESSORIES

The MS32 or MSB32 motor protective circuit breaker with all accessories can be built in an enclosure or under a frame and a front plate



HO-41/55 - Enclosure IP41/55



FP-41/55 - Frame IP41/55



P-41/55 - Front plate IP41/55

ACCESSORIES USED FOR ALL ENCLOSURES



E - Emergency stop push-button available also with a key-lock.



HZ - Padlocking feature



M - Push-button diaphragm

The manufacturer also supplies an enclosure, a frame and a front plate with degree of protection IP55 (HO-55, FP-55, P-55) where the diaphragm is already inserted. However, it should be removed if a padlocking feature or an emergency stop bush-button is built-in.



NL - Neutral link

One N/PE neutral link is already mounted in the enclosures HO-41/55 or frames FP-41/55. A place for an additional neutral link is also provided.



SS - Signal lamp (B-white, R-red, Z-green)

Motor protection switches

MS32, MSB32, MS18, MSB18

AUXILIARY SWITCH FOR SIDE MOUNTING HS, AUXILIARY CONTACT BLOCK HSV, TRIP INDICATING CONTACT BLOCK HRS



HS - Auxiliary switch

HS 11 - with 1 make and 1 break contact
HS 10 - with 1 make contact
HS 20 - with 2 make contacts

Rated insulation voltage	U_i	V	500
Thermal current	I_{th}	A	5
Electrical rating acc. to IEC/EN 60947-5-1			
B300	AC-15	U_e	V 240
		I_e	A 1,5
R300	DC-13	U_e	V 250
		I_e	A 0,1
Terminal capacity	S	mm ²	0,75 ... 2,5
Tightening torque		Nm	1



HSV - Auxiliary contact block* HRS - Trip indicating contact block**

HSV 10 - with 1 make contact
HSV 01 - with 1 break contact
HRS 10 - with 1 make contact
HRS 01 - with 1 break contact

Rated insulation voltage	U_i	V	300
Thermal current	I_{th}	A	1
Electrical rating acc. to IEC/EN 60947-5-1			
B300	AC-15	U_e	V 240
		I_e	A 1,5
R300	DC-13	U_e	V 125
		I_e	A 0,22
Terminal capacity	S	mm ²	0,75 ... 2,5
Tightening torque		Nm	1



PP - Sealing plate

* HSV contact remains in its normal position when MS32 / MS18 is in OFF or trip position

** HRS contact changes state from its normal position when MS32 / MS18 trip due to overload, short-circuit or manual depression of the TEST lever

UNDER-VOLTAGE RELEASE UR AND SHUNT RELEASE AR



UR - Under-voltage release AR - Shunt release

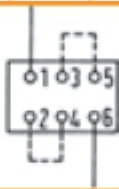
Control voltages	U_c	V	24 ... 600
Rated frequency	f	Hz	50 or 60
Terminal capacity	S	mm ²	0.75 ... 2.5
Tightening torque		Nm	1

Motor protection switches

MS32, MSB32, MS18, MSB18

CONNECTION DIAGRAM

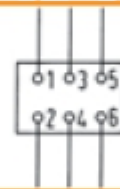
1-pole



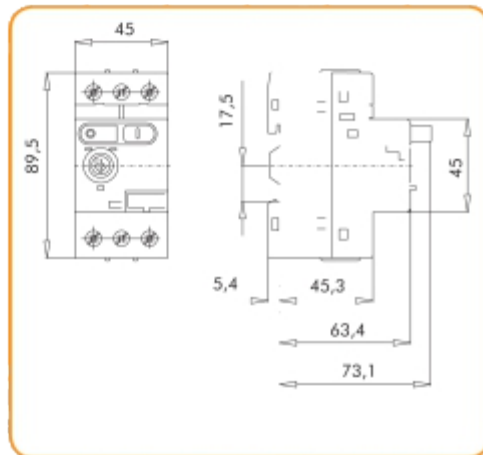
2-pole



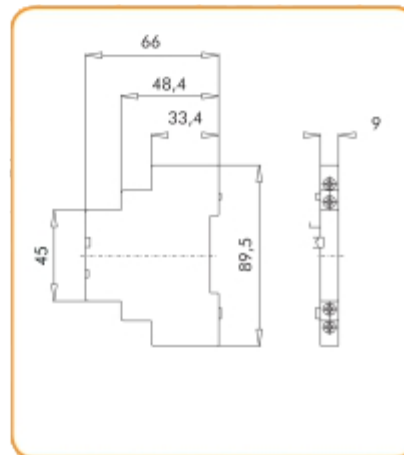
3-pole



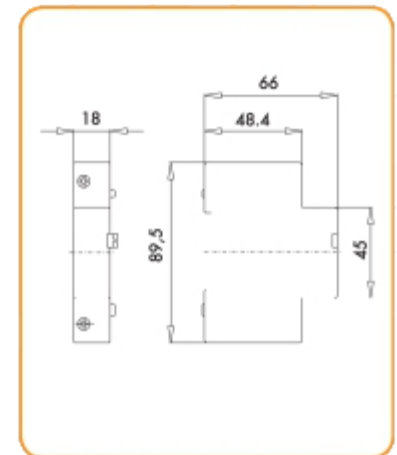
DIMENSIONS



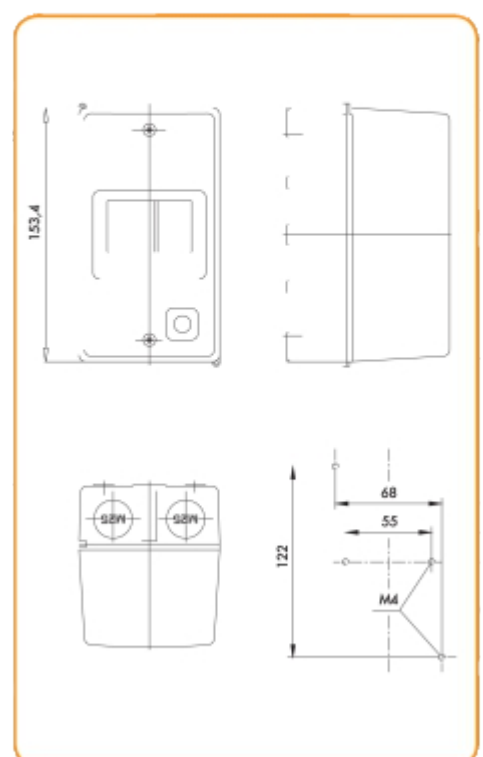
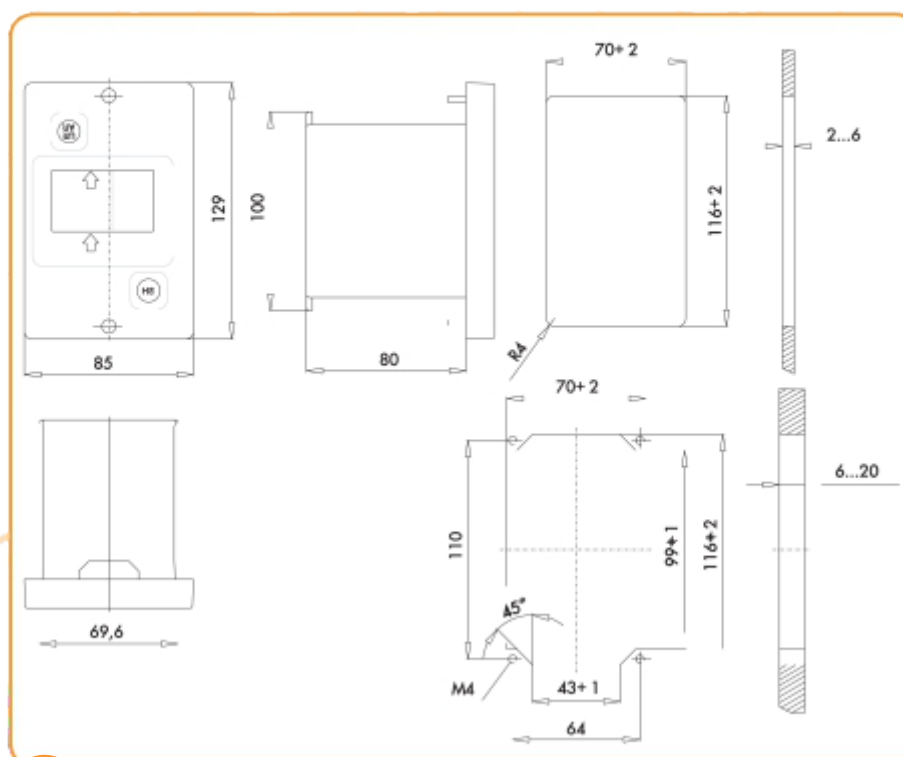
MS32 / MS18, MSB31 / MSB18
Motor protection switch



Auxiliary switch HS



Under-voltage release UR
Shunt release AR

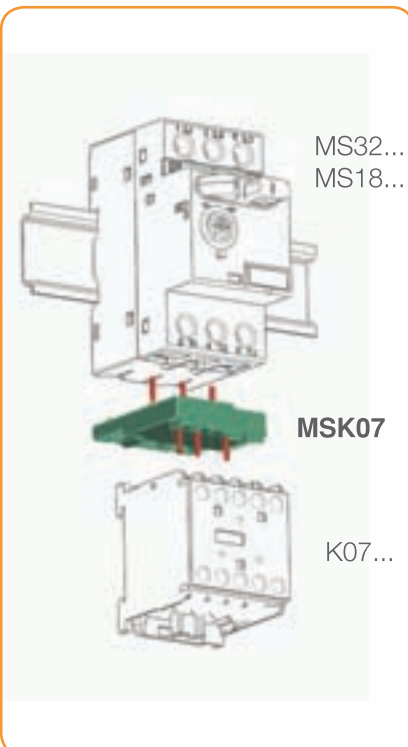


Motor protection switches

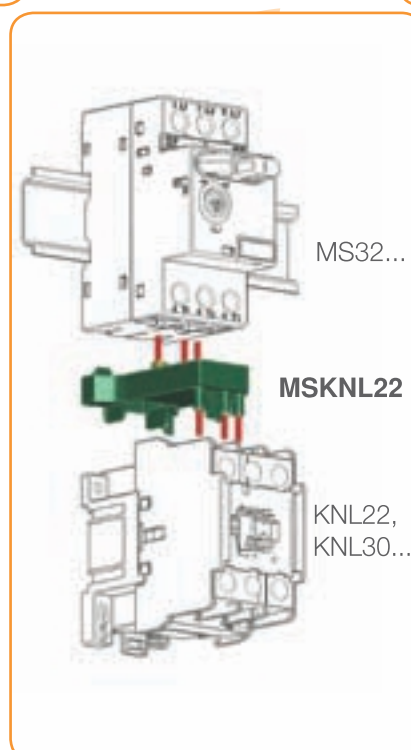
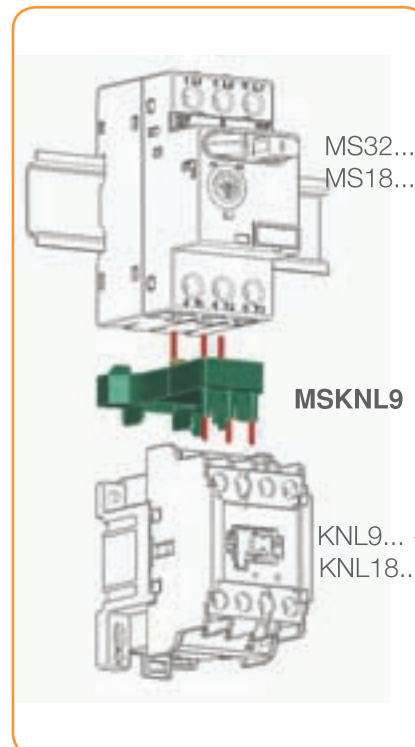
CONNECTION BLOCKS

MSK07, MSKNL9 and MSKNL22 adapters are used for connecting a motor protection switch with a contactor forming a single-unit starter for quick assembly to a 35 mm wide mounting rail (EN 60715).

Adapter for connecting MS32 / MS18 motor protection switch with K07 mini contactor



Adapter for connecting MS32 / MS18 motor protection switch with KNL9-KNL18 contactor



Adapter for connecting MS32 motor protection switch with KNL22, KNL30 contactor