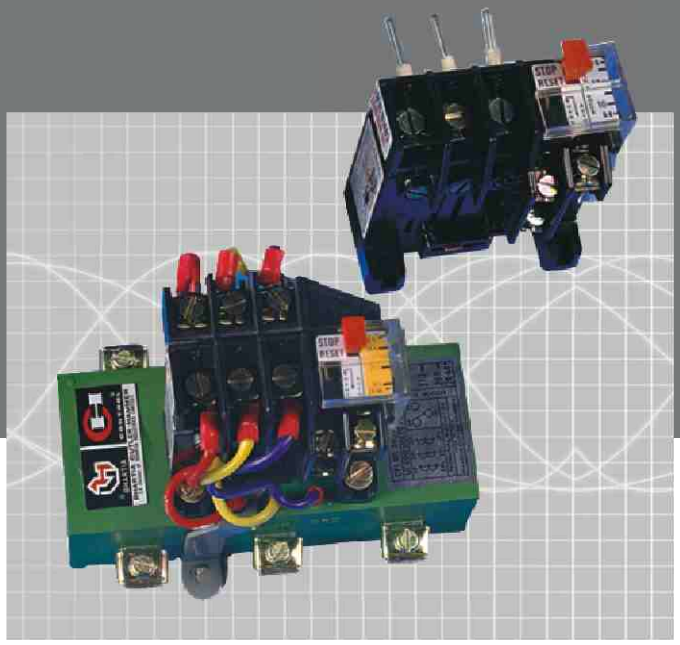


CITATION M OVERLOAD RELAY

BHARTIA

BCH ELECTRIC LIMITED

we care for you

Citation M Overload Relay

BCH Citation M, (bimetal) overload relay provides complete protection to three phase motors - against overloads, single phasing and severe unbalanced voltages—all in accordance with IEC/IS specification IS 13947-4-1. The relay is temperature compensated and offers on-site select ability of either hand or automatic resetting. It is available in thirteen direct reading and eight current transformer operated versions from 0.195 A to 30 A and 24.44 A to 600 A respectively.

Overload protection

The relay protects motors against damage resulting from overloading as per the relevant and other international standards established for the protection of motors. Adjustment of the relay to match the full load current of the motor is by a front facing lever which moves against a calibrated scale marked in full currents. The range of current setting on any relay is between 100% and 160% of its minimum rating.

Single phasing protection

The relay offers protection against single phasing, through its sensitive differential mechanism, in excess of the requirements of IEC specifications and trips even when it carries in healthy phases 0.9 times the minimum current setting, regardless of the value to which the current adjustment lever is set.

Full protection is provided on single phasing under varying operational load conditions upto 50% of the full load rating of the motor. No protection is required below this value.

Direct coupling or free standing

Incoming connectors are in the form of copper prongs that fit directly under the screw terminals of BCH Contactors Type NHD and Freedom Series. They can also be bent to a limited degree to suit the terminal position according to the type of contactor being used.

When the relay is required free standing for separate mounting, an inexpensive add-on terminal block is available, optionally.

The terminal markings of the relay conform to EN 50005 "General Rules for Terminal Marking". The overload relay is also capable of operating when rotated by 90° in plane parallel to its normal mounting plane.

Wide range temperature compensation

The relay design incorporates excellent temperature compensation between 10°C and +80°C (+55°C max. ambient). The relay may be stored at temperatures as low as -40°C without harmful effect on the bimetal elements.

On-site hand/auto reset selection

A hand/auto reset lever provides the selection on-site of either manual resetting of the trip switch by the stop/reset push or of automatic resetting of the trip switch when the relay has cooled after tripping.

Features

Wide range – The wide range 0.195 A to 600 A offers a lot of flexibility of selection to the user. The current transformers used for relays beyond 24 A are moulded in resin for long life and have saturable cores which make them suitable for long starting time.

Test facility – The relay can be manually tripped when desired to enable checking of the control circuit and wiring.

Adjustment cover – A snap-on cover is available to prevent inadvertent alteration to the setting of current adjustment or of the hand/auto lever.

Minimum power consumption – The high efficiency heater units require only 2.0 to 2.5 watts per phase, so that the maximum power required by the relay is not more than 7.5 watts.

Heater element self protection – Self protection value of heater elements is 10 times the maximum current setting of the range without a burn-out, from 20°C cold start.

Compactness – The overall dimensions of the relay are only 62.5 mm x 51.6 mm x 81 mm.

Control contact ratings

Control contacts change over NC to NO with common SPDT configuration. NO contact which closes when the relay trips can be used for alarm signal.

Insulation voltage (Ui) : 600 VAC
Thermal rating (Ith) : 10A

AC ratings (Cos ø > 0.35)

VOLTAGE (V)	MAKE (A)	BREAK (A)
120	30.0	3.0
240	15.0	1.5
480	7.5	0.75
600	6.0	0.6

DC ratings :

VOLTAGE (V)	AUTO RESET		HAND RESET	
	MAKE (A)	BREAK (A)	MAKE (A)	BREAK (A)
48	0.75	0.75	1.5	1.5
100	0.3	0.3	0.75	0.75
250	0.1	0.1	0.3	0.3

CT Relays :

VA burden : 1.7 VA at rated secondary

Class of insulation : A

Selection Chart :

Direct operated relays (For contactor mounting)

FULL LOAD CURRENT RANGE A	HBC FUSE RATING IS 9224 G II (E.E)	CATALOGUE CODE
0.195 — 0.31	2	**MC305ANA3A**
0.30 — 0.48	2	**MC305ANA3B**
0.47 — 0.75	2	**MC305ANA3C**
0.75 — 1.14	4	**MC305ANA3D**
1.07 — 1.70	6	**MC305ANA3E**
1.58 — 2.50	10	**MC305ANA3F**
2.40 — 3.80	16	**MC305ANA3G**
3.80 — 6.00	20	**MC305ANA3H**
6.00 — 9.30	25	**MC305ANA3J**
8.90 — 13.50	35	**MC305ANA3K**
13.20 — 20.00	50	**MC305ANA3L**
17.40 — 24.00	63	**MC305ANA3M**
22.0 — 30.00	63	**MC305ANA3N**

Current transformer operated relays

(individual mounting)

FULL LOAD CURRENT RANGE A	HBC FUSE RATING IS 9224 G II (E.E)	NOMINAL RATION	CATALOGUE CODE
24.44 — 39.0	100	52	**CT1MC305ANA3C**
37.6 — 60.0	160	80	**CT2MC305ANA3C**
56.4 — 90.0	200	120	**CT3MC305ANA3C**
84.6 — 135.0	250	180	**CT4MC305ANA3C**
131.6 — 210.0	400	280	**CT5MC305ANA3C**
188.0 — 300.0	600	400	**CT6MC305ANA3C**
263.2 — 420.0	800	560	**CT7MC305ANA3C**
376.0 — 600.0	1000	800	**CT8MC305ANA3C**

Terminal Block

For using Aluminium Cables in L, M & N ranges Terminal Blocks are used which have terminal capacity of 1 x 16mm^2 or 2 x 10mm^2 (Cables solid or stranded)

Accessories

Adjustment Cover	MC305PC
Terminal Block* (For Relays upto K Range)	MC305TB1
Terminal Block* (For L,M & N Ranges)	MC305TB2
Terminal Block for terminal side, (L, M & N Ranges)	MC305TB3

* Terminal blocks are meant for converting contactor mounting relays to individual mounting relays. With N relays use of terminal block MC305TB3 is essential.

Terminal Capacity

Direct Reading Relay

Power terminals

2 x 4mm^2 Cable solid or stranded

1 x 6mm^2 Cable solid or stranded

Control Terminals

2 x 2.5mm^2 Cable solid or stranded

CT Operated Relay

Power terminals:

CAT CODE	RATING	TERMINAL HOLE DIA (mm)	CABLE CONNECTION WITH LUGS ■ Cu (mm^2)	Al (mm^2)
CT1MC305ANA3C	39A	5.5	10	16
CT2MC305ANA3C	60A	6.5	16	25
CT3MC305ANA3C	90A	13.0	25	50
CT4MC305ANA3C	135A	13.0	50	95
CT5MC305ANA3C	210A	13.0	95	185
CT6MC305ANA3C	300A	13.0	185	300
CT7MC305ANA3C	420A	16.5	240	400
CT8MC305ANA3C	600A	16.5	400	625

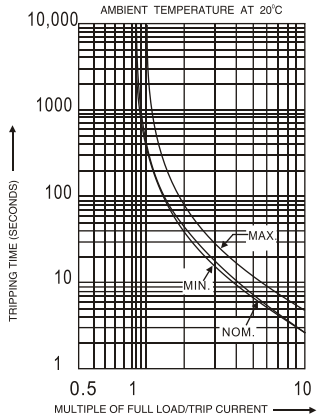
CAT CODE	RATING	TERMINAL HOLE DIA (mm)	CABLE CONNECTION WITH LUGS Cu (mm^2)	Al (mm^2)
CT7MC305ANA3C420A		16.5	2nos. 30x52	nos. 30x10
CT8MC305ANA3C600A		16.5	2nos. 40x52	nos. 40x10

■ While specifying cable sizes, Dowell's lugs type copper tubular terminal end for solderless, cirmping to copper/aluminium conductors are considered.

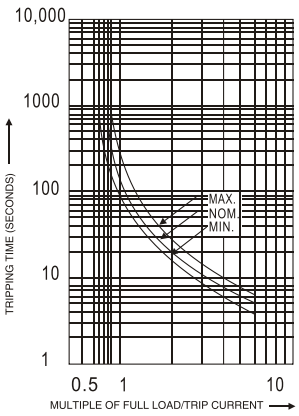
Control terminals

2 x 2.5 mm^2 Cable solid or stranded

DIRECT — OPERATED O/L RELAY
THREE PHASE TIME/CURRENT
CHARACTERISTICS FROM COLD
AMBIENT TEMPERATURE AT 20°C

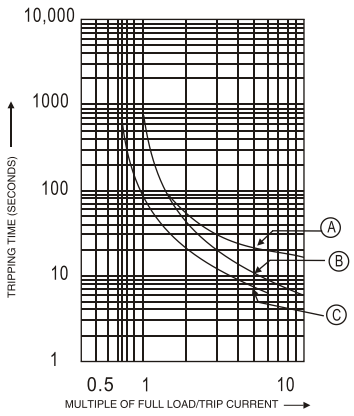


DIRECT — OPERATED O/L RELAY
'PHASE FAILURE' TRIPPING
CHARACTERISTICS FROM HOT OR COLD
(ON ANY ONE PHASE OPEN CIRCUIT)



NOTE : TRIP CURRENTS ARE RELATED TO MINIMUM F.L.C.
INDEPENDENT OF CALIBRATION SETTING

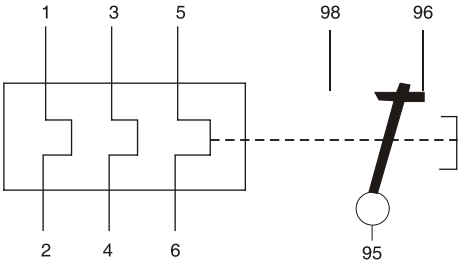
THREE PHASE TIME/CURRENT
CHARACTERISTICS FROM COLD (NOMINAL)
FOR CT OPERATED O/L RELAY.



NOTE : (A) THREE PHASE CHARACTERISTIC AT HIGHER SETTING
(B) THREE PHASE CHARACTERISTIC AT LOWER SETTING
(C) SINGLE PHASE CHARACTERISTIC (BASED ON LOWER SETTING

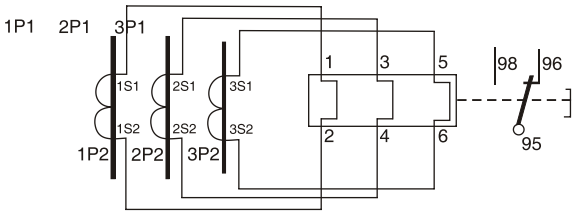
Wiring Diagram

Direct Reading Relay



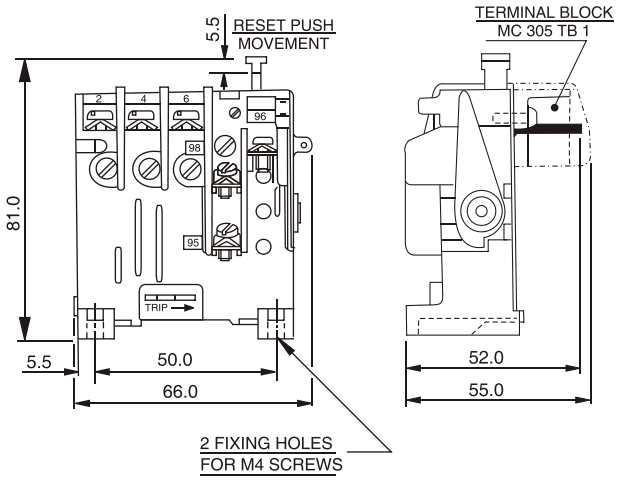
For single phase supplies connect terminal 2 to terminal 3 and bring the incoming connections to terminals 1 and 5, and the motor connections to terminals 4 and 6.

CT Operated Relay

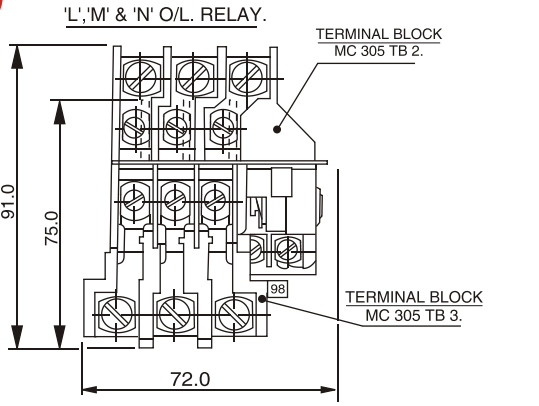


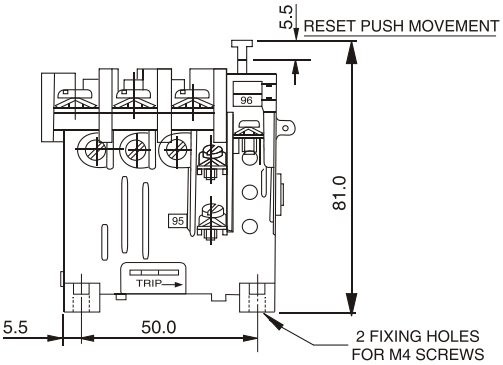
Dimensions (mm)

UPTO 'K' O/L. RELAY.



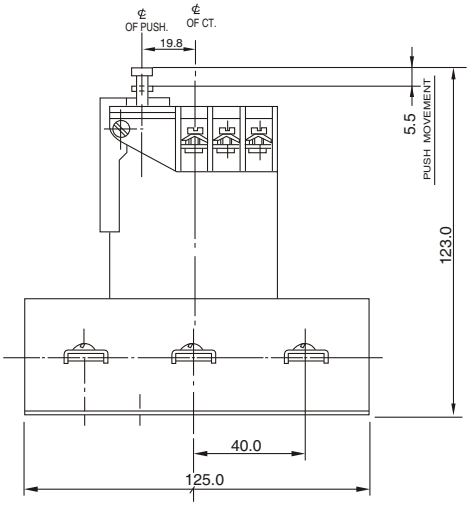
'L','M' & 'N' O/L. RELAY.

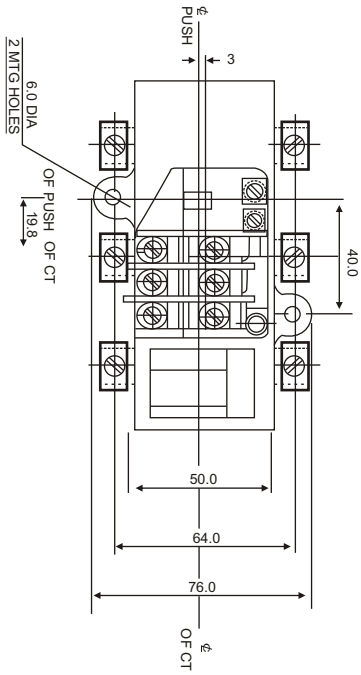




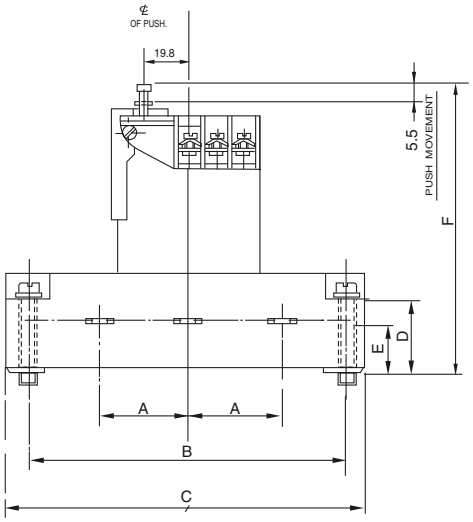
Direct Reading Relay

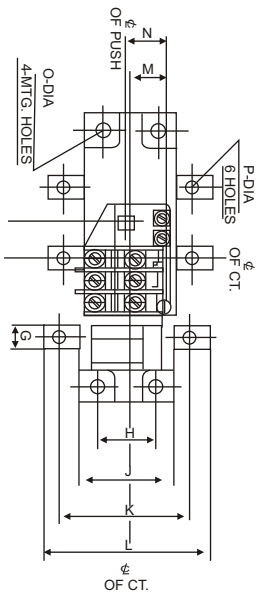
Dimensions (mm)





Citation M overload relay with CT2 to CT8





Citation M overload relay with CT2 to CT8

RELAY/TYPE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
CT2	44	138	156	35	21.5	125	12	32	50	74	90	18.0	21.0	6.5	7.0
CT3	54	162	180	43	25.5	133	22	32	50	82	106	18.0	21.0	13.0	7.0
CT4	54	162	180	43	25.5	133	22	32	50	82	106	18.0	21.0	13.0	7.0
CT5	60	182	200	63	34.5	153	32	32	50	88	16	18.0	21.0	13.0	7.0
CT6	60	182	200	63	34.5	153	32	32	50	88	16	18.0	21.0	13.0	7.0
CT7	86	252	270	63	33.0	153	34	32	50	100	140	18.0	21.0	16.5	7.0
CT8	86	252	270	63	33.0	153	34	32	50	100	140	18.0	21.0	16.5	7.0

WEIGHTS (Kg)			
Citation M overload relay		:	0.123
Terminal block		:	0.029
C T operated relay	CT1	:	1.3
	CT2	:	1.4
	CT3	:	1.6
	CT4	:	1.6
	CT5	:	2.2
	CT6	:	2.2
	CT7	:	3.1
	CT8	:	3.3