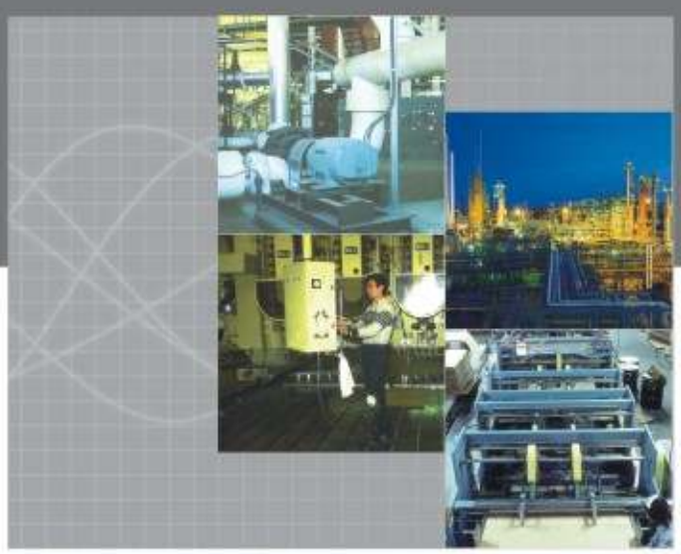


ELECTRONIC MOTOR PROTECTION RELAYS

BHARTIA

BCH ELECTRIC LIMITED

we care for you

ELECTRONIC MOTOR PROTECTION RELAYS

Electronic Multifuctional Motor Protection Relays are designed to monitor two/three phase motor currents by integral/external current transformers and processing it further through a Electronic Circuitry and delivering its control signal to the output part to interrupt power incase of abnormal conditions of motor.

SALIENT FEATURES

- Multi-functional Protections in Single Unit
- Adjustable Current Setting and Tripping time
- Low Power Consumption
- High Accuracy
- Ammeter Function through LED/Digital display
- Trip Indication through LED/Digital display
- DIN Rail/Panel Mounting
- Test Function
- Ambient Insensitive
- Selectable Definite/Inverse Time Current Characteristics
- Application over 60Amp can be implemented with external Cts

It can provide various protections for motors like Overload, Phase Loss, Locked Rotor, Phase Unbalance, Undercurrent, Phase Reversal, Ground Fault etc.

The Over Current Relays are available from 0.5 to 60 Amp., extendable up to 960 Amp. using external CTs.

Applications include Pumps, HVAC, Conveyor System, Machinery and other single or three Phase equipment.

Model: BOCR SS

- Over Current
- Phase Loss
- Locked Rotor

	Type	Range
Current Setting	05	0.5 ~ 6A
	30	3.0 ~ 30A
	60	5.0 ~ 60A
	Over 60	Ext. CT Option
Time Setting	Start D-Time	0.2 ~ 30 sec
	Trip O-Time	0.2 ~ 10 sec
Control Voltage (50/60 Hz)	220 V AC	90 ~ 260V AC
	440 V AC	320 ~ 480V AC
Output Relay	Mode	Changeover (1SPDT)
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Definite	
Trip Indication	LED	
2 Integral Current Transformers		

Model: BOCR SP1

- Over Current
- Phase Loss
- Locked Rotor

	Type	Range
Current Setting	01	0.3 ~ 2A
	10	1.0 ~ 12A
	20	5.0 ~ 25A
Time Setting	Start D-Time	10 sec (Fixed)
	Trip O-Time	1 ~ 10 sec
Control Voltage	110 V AC	85 ~ 150V AC
	220 V AC	180 ~ 260V AC
Output Relay	Mode	2 - SPST
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Inverse	
Trip Indication	LED	
2 Integral Current Transformers		

Model: BOCR DS2

- Over Current
- Phase Loss
- Locked Rotor

	Type	Range
Current Setting	05	0.5 ~ 6A
	30	3.0 ~ 30A
	60	5.0 ~ 60A
	Over 60	Ext. CT Option
Time Setting	Start D-Time	1 ~ 50 sec
	Trip O-Time	0.2 ~ 10 sec
Control Voltage (50/60 Hz)	110 V AC	85 ~ 150V AC
	220 V AC	180 ~ 260V AC
Output Relay	Mode	2 - SPST
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Definite	
Trip Indication	LED	
3 Integral Current Transformers		

Model: BOCR DS3

- Over Current
- Phase Loss
- Locked Rotor
- Phase Reversal

	Type	Range
Current Setting	05	0.5 ~ 6A
	30	3.0 ~ 30A
	60	5.0 ~ 60A
	Over 60	Ext. CT Option
Time Setting	Start D-Time	1 ~ 50 sec
	Trip O-Time	0.2 ~ 10 sec
Control Voltage (50/60 Hz)	110 V AC	85 ~ 150V AC
	220 V AC	180 ~ 260V AC
Output Relay	Mode	2 - SPST
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Definite	
Trip Indication	LED	
3 Integral Current Transformers		

Model: BOCR SSD

- Over Current
- Phase Loss
- Locked Rotor

	Type	Range
Current Setting	01	0.5 ~ 6A
	10	3.0 ~ 30A
	20	10 ~ 60A
Time Setting	Start D-Time	1 ~ 30 sec
	Trip O-Time	0.5, 1 ~ 10 sec
Control Voltage	110 V AC	94 ~ 126V AC
	220 V AC	187 ~ 253V AC
Output Relay	Mode	2 - SPST
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Definite	
Trip Indication	Digital Dispaly	
Load Selection	Single / Three Phase by DIP switch	
2 Integral Current Transformers		

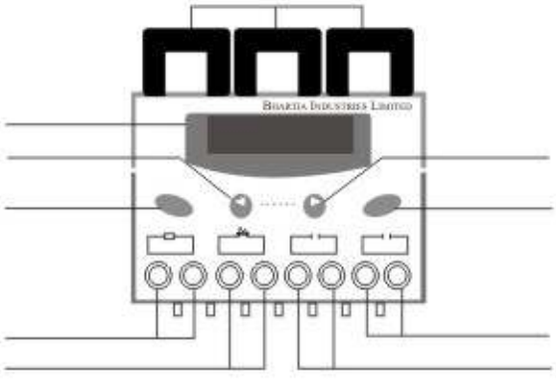
Model: BOCR 3DE

- Over Current
- Under Current
- Phase Loss
- Phase Unbalance
- Phase Reversal
- Locked Rotor

Current Range	Over Current		0.5 ~ 960A (Over 60A with External CTs)
	Under Current		0.5 ~ 59A/OFF (Over 60A with External CTs) 0.5 ~ 30 sec
	Phase Unbalance		5.0 ~ 50% (within 8 sec)
	Phase Reversal		0.1 ~ 30 sec
	Phase Loss		within 3 sec
	Locked Rotor		Lock: within 0.5 sec after D-time (in DEF set) Stall: 0.05 ~ 10 sec (in DEF set)
Alert Setting			50 ~ 100% of OC setting
Time Setting Range (O-Time)	Start Delay Time (D-Time)		1 ~ 200 sec (Definite)
	Trip Delay Time Setting Time (D-Time)	INV	1 ~ 30 sec
		DEF	0.2 ~ 30 sec
Control Voltage			110V AC±15%, 220V AC±15%, 24V AC/DC
Output Relay		OL/UL	2 - SPST, 3A/250V AC Resistive
		GR	1 - SPST, 3A/250V AC Resistive
Time Characteristics (selectable)		In/"tc"mode	Inverse
		dE/"tc"mode	Definite
Digital Ammeter			
Troubleshooting, Trip cause Memory, Display			

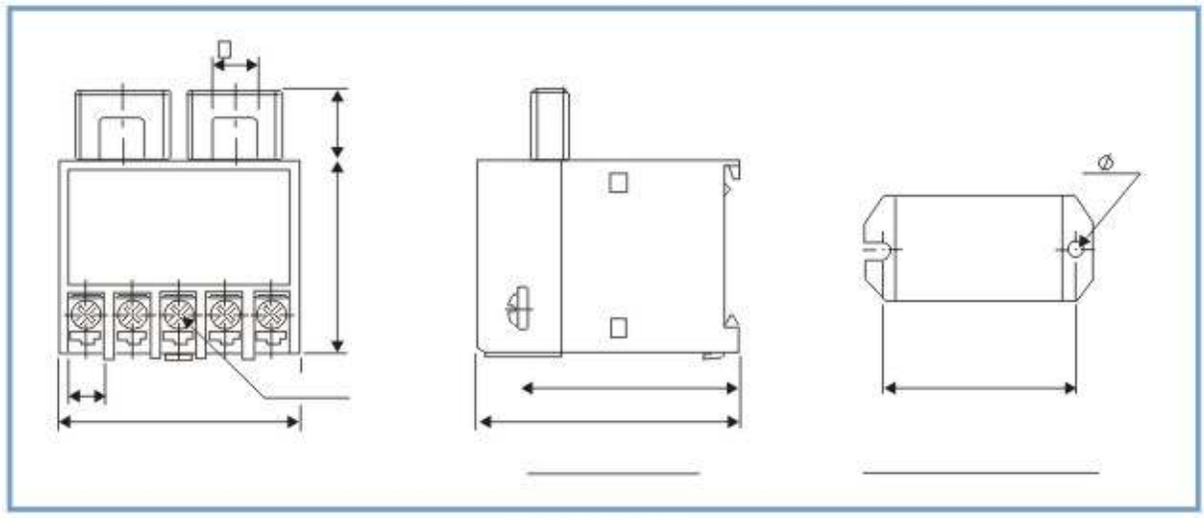
Model: BOCR 3EZ

- Over Current
- Under Current
- Phase Loss
- Phase Unbalance
- Phase Reversal
- Locked Rotor
- Ground Fault

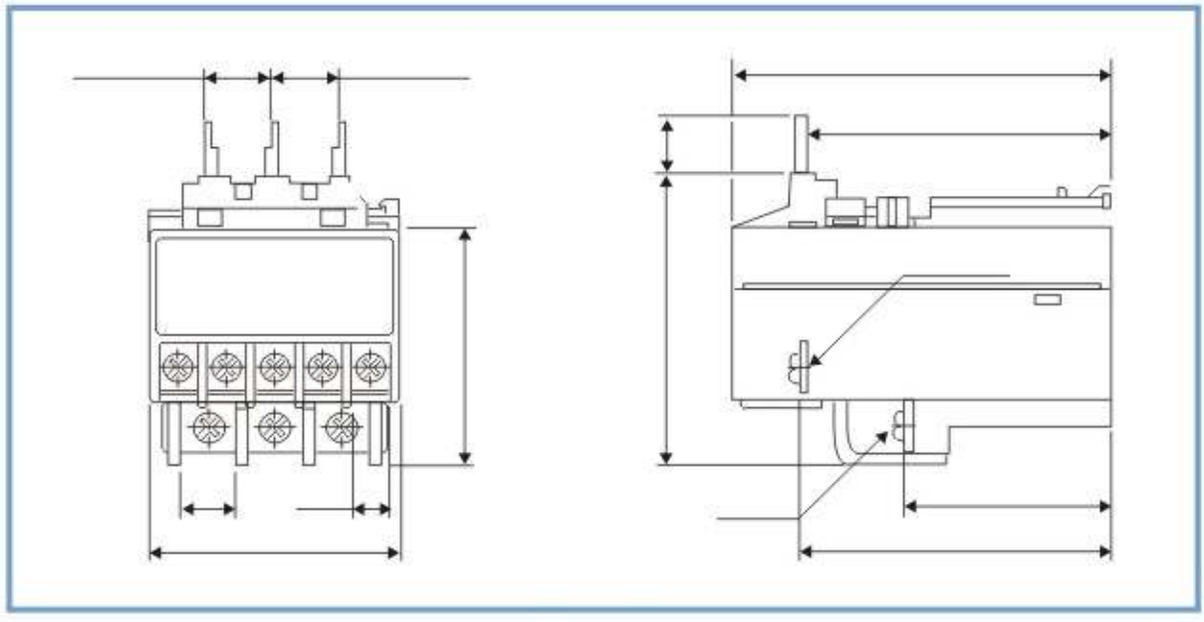


Current Range	Over Current		0.5 ~ 960A (Over 60A with External CTs)
	Under Current		0.5 ~ 59A/OFF (Over 60A with External CTs) 0.5 ~ 30 sec
	Phase Unbalance		5.0 ~ 50% (within 8 sec)
	Phase Reversal		0.1 ~ 30 sec
	Phase Loss		within 3 sec
	Locked Rotor		Lock: within 0.5 sec after D-time (in DEF set) Stall: 0.05 ~ 10 sec (in DEF set)
	Ground Fault		0.02 ~ 3A
Start Delay Time (D-Time)			1 ~ 200 sec
Time Setting Range (O-Time)	Trip Delay (O-Time)	INV	1 ~ 30 sec
		DEF	0.2 ~ 30 sec
Control Voltage			110V AC±15%, 220V AC±15%, 85 ~ 250V AC/Dc (Terminal Type) 24V AC/DC
Output Relay		OL/UL	1 - SPST, 3A/250V AC Resistive
		GR	1 - SPST, 3A/250V AC Resistive
Time Characteristics (selectable)		In/"tc"mode	Inverse
		dE/"tc"mode	Definite
Digital Ammeter			
Troubleshooting, Trip cause Memory, Display			

Dimension (mm)

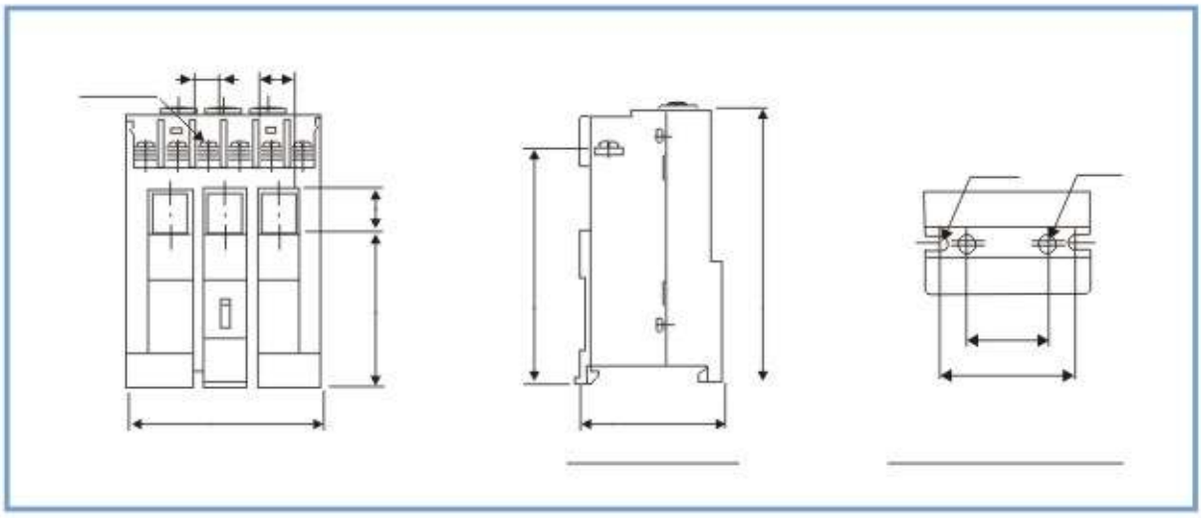


BOCR - SS

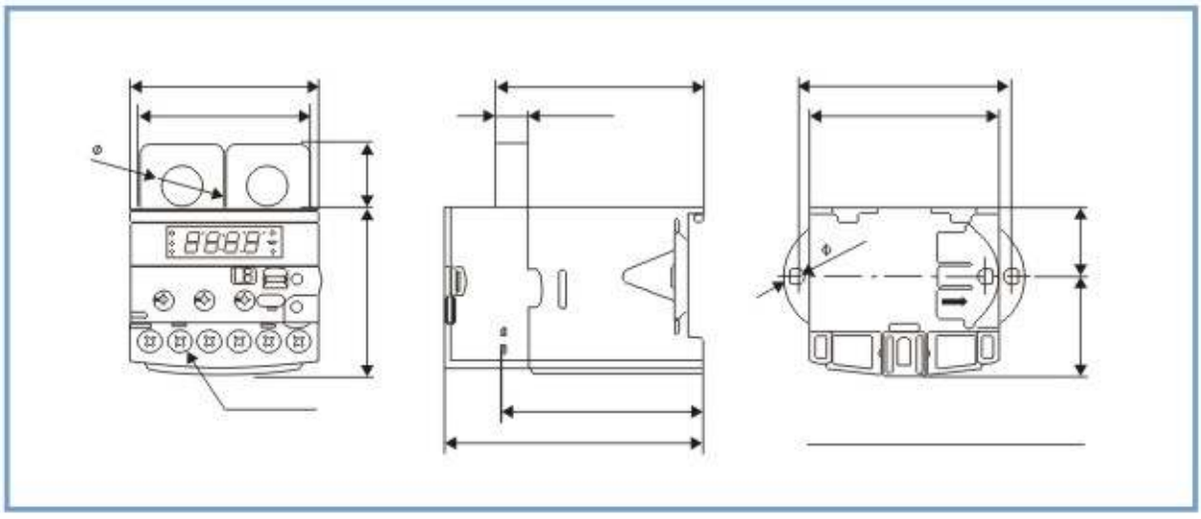


BOCR - SP1

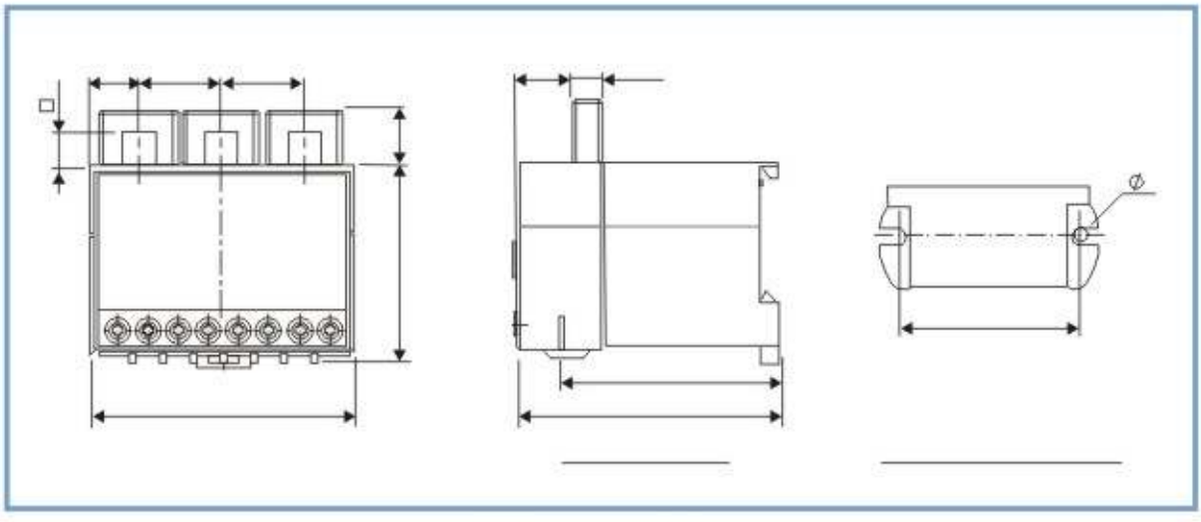
Dimension (mm)



BOCR - DS/DS1/DS2/DS3



BOCR - SS/D



BOCR - 3DE/3EZ

BOCR - CAT NOS.

Model	BIL Catalogue Nos.	Range	Control Voltage
BOCR - SS	MP21SS005* MP21SS030* MP21SS060*	0.5 - 6A 3 - 30A 5 - 60A Over 60A with External CT	220/440V AC
BOCR - SSD	MP22SSD005* MP22SSD030* MP22SSD060*	0.5 - 6A 3 - 30A 10 - 60A	110/220V AC
BOCR - SP1	MP23SP1005* MP23SP1030* MP23SP1060*	0.3 - 2A 1 - 12A 5 - 25A	110/220V AC
BOCR - DS	MP31DS005* MP31DS030* MP31DS060* MP31DS100*	0.5 - 6A 3 - 30A 5 - 60A Over 60A with External CT	220/440V AC
BOCR - DS1	MP32DS1005* MP32DS1030* MP32DS1100*	0.5 - 6A 3 - 30A Over 60A with External CT	110/220V AC
BOCR - DS2	MP33DS2005* MP33DS2030* MP33DS2060* MP33DS2100*	0.5 - 6A 3 - 30A 5 - 60A Over 60A with External CT	110/220V AC
BOCR - DS3	MP34DS3005* MP34DS3030* MP34DS3060* MP34DS3100*	0.5 - 6A 3 - 30A 5 - 60A Over 60A with External CT	110/220V AC
BOCR - 3DE	MP353DE800*	5 - 960A Over 60A with External CT	110/220V AC
BOCR - 3EZ	MP363EZ800*	5 - 960A Over 60A with External CT	110/220V AC

Control Voltage Code: 110V AC - A4; 220V AC - B4; 440V AC - C1

* To complete Cat. No. suffix voltage code

For control voltage other than above, please contact nearest branch office.