

ELECTRONIC MOTOR PROTECTION RELAYS



BCH ELECTRIC LIMITED



ELECTRONIC MOTOR PROTECTION RELAYS

Electronic Multifunctional 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
- For currents above 60A external CT should be used

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



Current Setting	Type	Range
	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)	-	24 ~ 240V AC/DC
	-	380 ~ 440V AC
Output Relay	Mode	Changeover (1SPDT)
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Definite	
Trip Indication	LED	
2 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
	100 ~ (Over 60A)	Ext. CT Option
Time Setting	Start D-Time	1.0 ~ 50 sec
	Trip O-Time	1.0 ~ 10 sec
Control Voltage	-	24 ~ 240V AC/DC
	-	380 ~ 480V AC
Output Relay	Mode	2 - SPST
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Definite	
Trip Indication	LED	
3 Integral Current Transformers		

Model: BOCR DS1

- Over Current
- Phase Loss
- Locked Rotor
- Phase reversal



	Type	Range
Current Setting	05	0.5 ~ 6A
	30	3.0 ~ 30A
	60	-
	100 ~ (Over 60A)	Ext. CT Option
Time Setting	Start D-Time	0 ~ 50 sec
	Trip O-Time	1.0 ~ 10 sec
Control Voltage	-	24 ~ 240V AC/DC
	-	380 ~ 480V AC
Output Relay	Mode	2 - SPST
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Inverse	
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	-	24 ~ 240V AC/DC
	-	380 ~ 440V AC
Output Relay	Mode	2 - SPST
	Rating	3A/250V AC Resistive
Time-Current Characteristics	Definite	
Trip Indication	Digital Display	
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

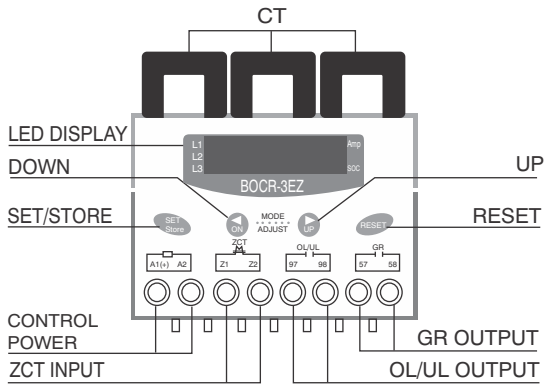


Current Range	Over Current	0.5 ~ 960A (Over 60A with External CTs)	
	Under Current	0.5 ~ 59A/OFF (Over 60A with External CTs) 0.5 ~ 30 sec	
	Phase Unbalance	5.0 ~ 50% (within 8 sec)	
	Phase Reversal	0.1 ~ 30 sec	
	Phase Loss	within 3 sec	
	Locked Rotor	Lock: within 0.5 sec after D-time (in DEF set) Stall: 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		100 - 240V AC, 415V AC, 24V 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			



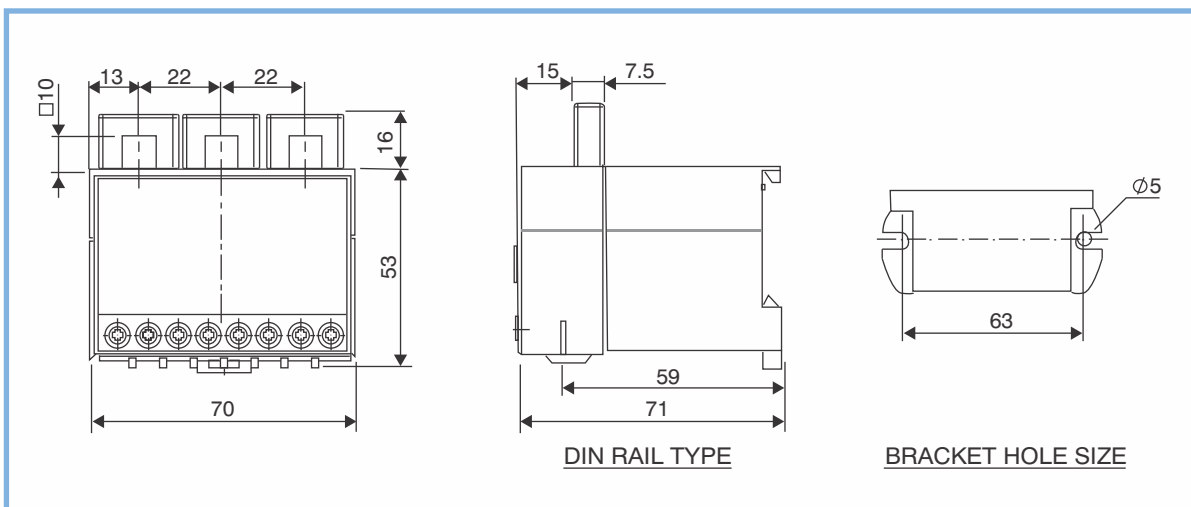
Model: BOCR 3EZ

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



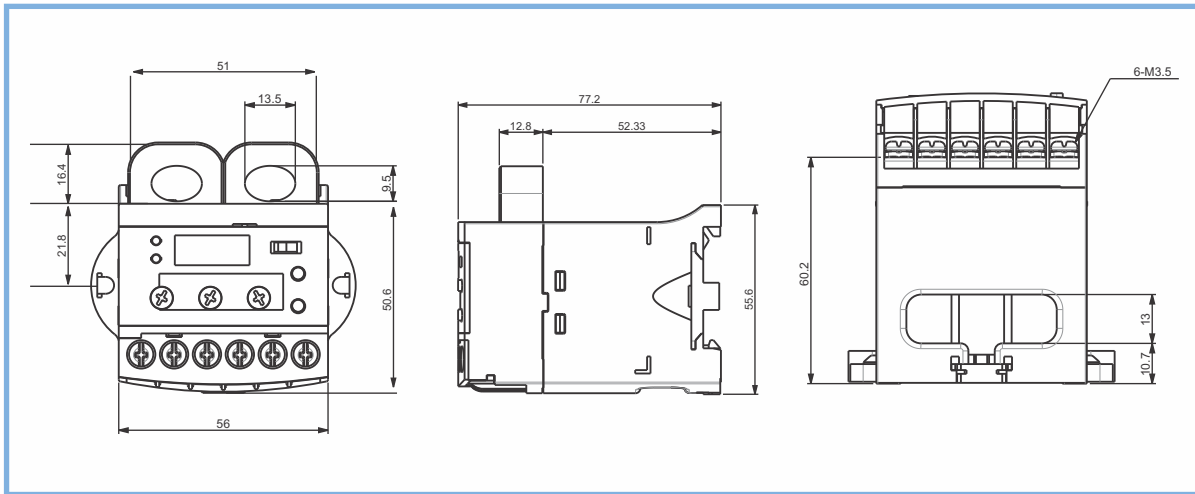
Current Range	Over Current	0.5 ~ 960A (Over 60A with External CTs)	
	Under Current	0.5 ~ 59A/OFF (Over 60A with External CTs) 0.5 ~ 30 sec	
	Phase Unbalance	5.0 ~ 50% (within 8 sec)	
	Phase Reversal	0.1 ~ 30 sec	
	Phase Loss	within 3 sec	
	Locked Rotor	Lock: within 0.5 sec after D-time (in DEF set) Stall: 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			100 - 240V AC, 24V 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)

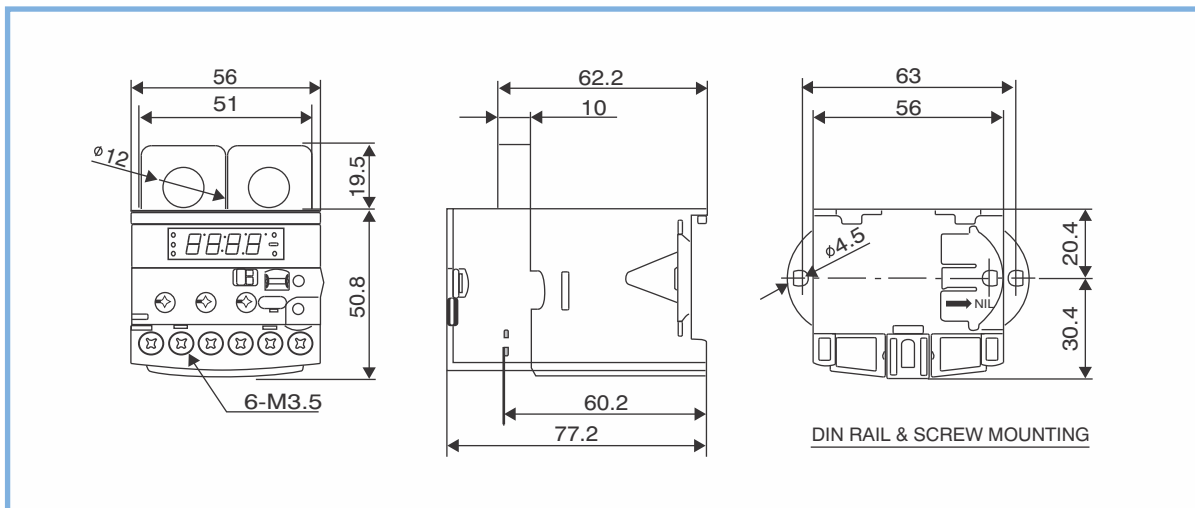


BOCR - 3DE/3EZ

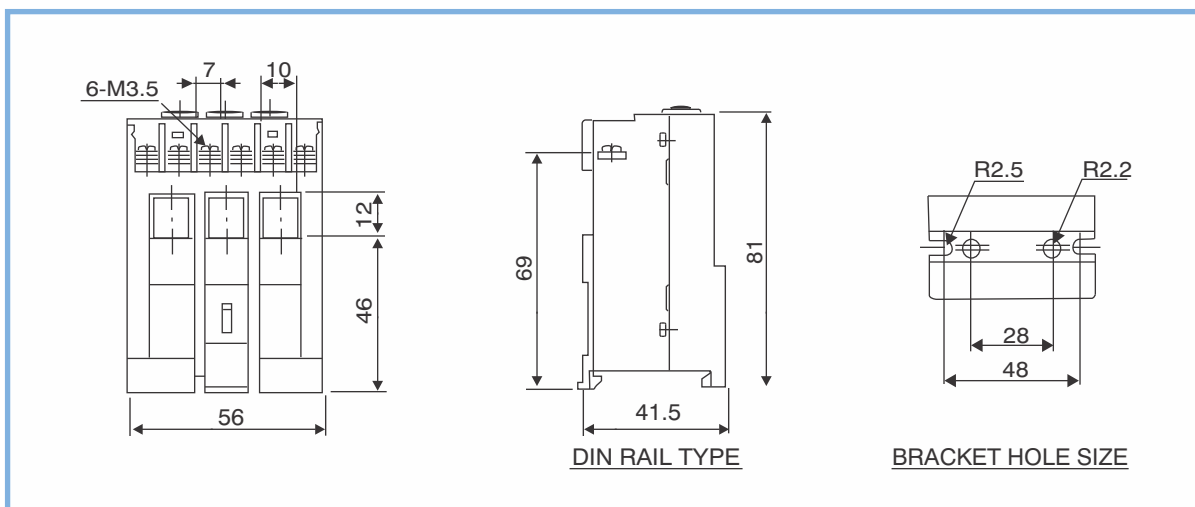
Dimension (mm)



BOCR - SS



BOCR - SS/D



BOCR - DS1/DS3

BOCR ORDERING CODES

Model	BIL Catalogue Nos.	Range	Control Voltage*	
BOCR - SS	MP21SS005* MP21SS030* MP21SS060*	0.5 - 6A 3 - 30A 5 - 60A Over 60A with External CT	S4 W1	24-240V AC/DC 380-440V AC
BOCR - SSD	MP22SSD005* MP22SSD030* MP22SSD060*	0.5 - 6A 3 - 30A 10 - 60A	S4 W1	24-240V AC/DC 380-440V AC
BOCR - DS1	MP32DS1005* MP32DS1030* MP32DS1100*	0.5 - 6A 3 - 30A Over 60A with External CT	S4 W1	24-240V AC/DC 380-440V AC
BOCR - DS3	MP34DS3005* MP34DS3030* MP34DS3060* MP34DS3100*	0.5 - 6A 3 - 30A 5 - 60A Over 60A with External CT	S4 W1	24-240V AC/DC 380-440V AC
BOCR - 3DE	MP353DE800*	5 - 960A Over 60A with External CT	Z4 U1 C1	100-240V AC 24V DC 415V AC
BOCR - 3EZ	MP363EZ800*	5 - 960A Over 60A with External CT	Z4 U1	100-240V AC 24V DC

* To complete Cat. No. suffix voltage code

Note:

- For control voltage other than above, please contact nearest branch office.
- For EOCR with built in MODBUS RS-485 communication, please contact nearest branch office

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

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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

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