EOCR-M1 Series

Features

● MCU(Microprocessor Control Unit) Based
● Convenient installation
  - PMZ : Panel Mounting Type
  - PFZ : Panel Flush Mounting Type
● Full mode function : easy to set value
● 3 Integral Current Transformers
● Multiple Protection Functions
● Wide current range protection from 0.1A to 3600A by just 1 model
● Built-in digital ammeter
● Total running time display
● Current display like L1→L2→L3→GF⋯
● Bar-Graph monitoring on impending overload trip
● Selectable time-current characteristics [Inverse / Inverse based on thermal Memory(Thermal Inverse) / Definite]
● 4~20mA current loop communcations
● Test function
● Selectable Fail-safe operation / No volt Release (FS : ON)
● Operates in wide ambient temperature range

Comparison Table of Model

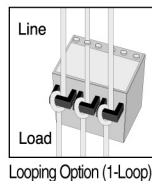| EOCR		PMZ	FMZ
Protection	Over - current	●	●
	Under - current	●	●
	Ahort - current	●	●
	Phase Loss	●	●
	Phase Unbalance	●	●
	Phase Reverse	●	●
	Locked Rotor	●	●
	Ground Fault	●	●
Current output 4~20mA		●	●

External CT Option

Higher ampere ranges can be achieved by setting CT Ratio in "CT" mode to take an extemal current transformer, and the actual motor current display can be provided

Current Setting Range (Amps)	Number of Conductors thru CT windows	Extermal CT Ratio	Setting of CT Ratio	Remark
0.5 ~ 60A	1	-	OFF	Wide Range
0.25 ~ 3.0A	2	-	2t	
0.1 ~ 1.2A	5	-	5t	
1 ~ 12A	1	10 : 5	10	
1.5 ~ 18A	1	15 : 5	15	
2.0 ~ 24A	1	20 : 5	20	
2.5 ~ 30A	1	25 : 5	25	
3.0 ~ 36A	1	30 : 5	30	
4.0 ~ 48A	1	40 : 5	40	
5 ~ 60A	1	50 : 5	50	
6 ~ 72A	1	60 : 5	60	
7.5 ~ 90A	1	75 : 5	75	
10 ~ 120A	1	100 : 5	100	
12 ~ 144A	1	120 : 5	120	
15 ~ 180A	1	150 : 5	150	
20 ~ 240A	1	200 : 5	200	
25 ~ 300A	1	250 : 5	250	
30 ~ 360A	1	300 : 5	300	
40 ~ 480A	1	400 : 5	400	
50 ~ 600A	1	500 : 5	500	
60 ~ 720A	1	600 : 5	600	
75 ~ 900A	1	750 : 5	750	
80 ~ 960A	1	800 : 5	800	
100 ~ 1200A	1	1000 : 5	1000	
120 ~ 1800A	1	1500 : 5	1500	
200 ~ 3000A	1	2000 : 5	2000	
250 ~ 3000A	1	2500 : 5	2500	
300 ~ 3600A	1	3000 : 5	3000	

Looping Option

Smaller ampere ranges than particular EOCR current range can be covered by looping the motor wire 2 or 3 times as under described.

	No of Loops	Current Ratio of Ext. CT	Current Setting Range (A)
0.5Type	0	1	0.5 - 10
Looping Option	1	2	0.25 - 6
	2	3	0.17 - 3.3
	3	4	0.12 - 2.5
	4	5	0.1 - 2

Line

Load

Looping Option (1-Loop)

Protection Feature

Function	DIP Switch		Description
Over-current	Otc	dE Definite t-c	This is provided by the relay tripping when motor operating current(in) exceeds current setting value in "oc" mode for a perid greater than the preset trip time (O-Time: time in "ot" mode)
		In Inverse t-c	This is provided by the relay tripping directly according to inverse time-current characteristic(curve-1) when motor operating current (In) exceeds current setting value in "oc" mode
		th thermal Inverse	This is provided by the relay tripping directly according to hot curve of inverse time-current characteristic (curve-1) when motor operating current(In) exceeds current setting value in "oc" mode in case of restarting motor. The setting value based on accumulated thermal memory is cleared when the control power is OFF or 20 minutes has passed after stopping a motor
Under-current	uc	Definite t-c	This is provided by the relay tripping when motor operating current(In) is lower than current setting value in "uc" mode for a period greater than the preset trip time(time in "ut" mode)
Phase Loss	PL	On	During phase loss, the motor winding current may increase by 150% or more. As the motor winding current increased, a temperature of the winding may increase and possibly damage the winding insulation. The quick trip time(3sec) prevents damage to the windings.
Phase unbalance	ub	5~50%	This is provided by the relay tripping if phse unbalance % is greater than setting % difference in terms of maximum phase current : [(MAX-MIN)/MAX] × 100[%], The setting value % is variable
Phase reversal	RP	On	In the event of phase reversal, the relay trips in 0.1sec~0.3sec
		Off	Phase reversal protection function is disabled : this allows the relay to be used for reversing appication
Ground fault	Ec	0.03~10A definite t-c	This is provided by the relay tripping accoding to zero sequence current sensed by ZCT. t-c characteristics is set automatically into definite in case exceeding setting value level of 1A
		0.03~1A inverse t-c	This is provided by the relay tripping directly according to inverse time-current characteristic(curve-3) when ground fault current exceeds current setting value in "Ec" mode
Short circuit	Ec	0.5~30A/ 3~20 times "oc"	In the event of short circuit between line, the relay trips in 0.03~0.05sec. The output of this protection shares a common output with "oc", so operator needs a care for short circuit capacity of interrupter in case this mode is able. This mode is possible to be disabled
		More than 30A/proper reduced times "oc"	In the event of short circuit between line, the relay trips in 0.03~0.05sec. but the setting "oc" is properly reduced in case setting value is greater than 30A. the maximum times "oc" is calculated by [300 / "oc" current]
Locked rotor	Lc	2~10 times "oc"	This is a protection for locked rotor in starting state. The variable setting range is 2~10 times "oc" setting value
Locked rotor / Stall	Sc	1.5~5 times "oc"	This is a protection for locked rotor while motor is working. The variable setting range is 1.5~5 times "oc" setting value