

Electronic Over Current Relay (EOCR)

EOCR 3DM2 Series



EOCR (Electronics Over Current Relay) is a Motor Protection Relay to protect your electric motor from burn out due to frequent and common problems.

Standard Features

Approval

- Micro-controller unit based, Real time processing / High precision
- Protections : Over current, Under current, Phase loss, Phase reversal, Stall, Jam, Current Imbalance, Earth fault (3MZ2/FMZ2)
- Inverse available up to 32Amps without external CTs.
- Ancillary functions : Fail safe, Pre-alarm(3DM2/FDM2), Accumulated running hour, 3 faults records & limitation of auto-restart.
- Reinforced monitoring function : Monitoring distance up to 400M, 3 phase current display, Pre-alarm (3DM2/FDM2)& Trip cause indication
- Bar graph indication of a load current to the current setting.
- Available application on single and 3 phase motor, RoHS Compliance
- For FDM2/FMZ2, normal protections are guaranteed even if PDM is disconnected.

Protections

Protection item	Condition & Setting range	Operation time
Over current (oc)	Condition : Load current (In) exceeds setting current (Is) Setting range : 0.5~60A (Def), 0.5~32A (Inv)	Definite (Def) : 0.2~30s adjust. Inverse (Inv) : 1~30 class
Under current (uc)	Condition : Load current (In) less than setting current In ≤ uc uc should be less than oc setting	oFF, 1~10s adjustable
Phase loss (PL)	Condition : max imbalance is more than 85% among 3 phase current, Enable or disable : Selectable	oFF, 0.5~5s adjustable
Reverse phase (RP)	Condition : Reversed phase sequence input on EOCR. Enable or disable : Selectable	Within 0.15s
Stall (Sc)	Condition : In ≥ Stall current setting (Sc). Active only in motor starting 0.5~30A : 2~8 times of oc setting ~40A : 2~6 times, ~60A : 2~4 times.	Right after D-time elapsed
Jam (JA)	Condition : In ≥ Jam current setting (JA). Active only in motor running 0.5~50A : 1.5~5 times of oc setting ~60A : 1.5~4 times of oc setting	0.3~5s adjustable
Imbalance (IM)	Condition : Current imbalance ≥ Setting imbalance % Setting range : 10~50% of imbalance	1~10s adjustable
Earth fault (EF)	Condition : EF current (Ie) exceeds setting current (Ies) OFF, 0.03 - 10A	0.05~5s adjustable -- 3MZ2/FMZ2 only --

Ancillary functions

Phase selection	For single phase / three phase motor selection
TCC selection	Available three time-current-characteristics (Definite, Inverse)
CT ratio	For the current setting more than 60A and less than 0.5A
Fail safe selection	Fail safe operation for OL trip output.
Pre alarm selection	Pre alarm signaling by the 07-08 output contact
Total running hour	Total accumulated running hour from the installation which cannot be modified and reset.
Running hour	Display or provide a time-out signal to the 07-08 output contact. (3DM/FDM)
Reset mode	Manual / Auto / Electrical ; Selectable
Trip cause memory	Store the latest 3 trip causes
Restart limitation	The maximum auto-restart number within 30 minutes in auto-reset mode.

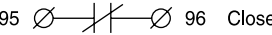
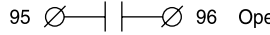
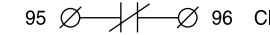
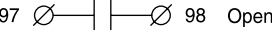
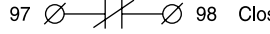
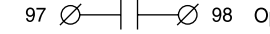
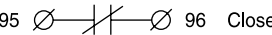
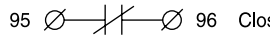

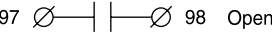


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Specifications

Model		3DM2 / FDM2	3MZ2 / FMZ2
Over current	Rated setting range (A)	Definite TCC : 0.5~60A : use external CT higher than 60A	
		Inverse TCC : 0.5~60A : use external CT higher than 32A	
Under current	Rated setting range (A)	0.5A ~ less than oc setting	
Operating time characteristics		Definite(Def) / Inverse(Inv)	
Time setting	Def	D-time	0~200s
		O-time	0.2~30s
	Inv (cLS)	1~30 classes	
	GF delay time (Edt)	0~30s (3MZ2/FMZ2)	
	GF O-time (Et)	0.05~10s (3MZ2/FMZ2)	
	Auto-reset	0.5s~20min.	
	Reset mode	Manual reset (H-r) / Electric reset (E-r) / Auto-reset (A-r)	
Control power	Voltage	100~240VAC/DC (85% ~110%, Free voltage), 24VAC/DC (±5%) .	
	Frequency	50/60Hz	
	Power consumption	Lower than 7VA	
Output	Capacity	3A/250VAC resistive.	
	Composition	1a1b : OC or GR 1a : AL	
Display	7 segment LED	3 phase amps, Cause of trip, Setting parameters indication.	
	Bar-graph	Load factor.	
Mounting	Panel mounting (3DM2/3MZ2)		Flush mounting (FDM2/FMZ2)
	Over DC500V 10M Ω		
Insulation	Between case & circuit		
	Between case & circuit		2kV, 50/60Hz, 1 Min.
	Between contacts		1kV, 50/60Hz, 1 Min.
Dielectric strength	Between circuit		2kV, 50/60Hz, 1 Min
	Electrostatic discharge (ESD) IEC61000-4-2		Level 3 : Air discharge : ±8kV, Contact discharge : ±6kV
Radiated disturbance	IEC61000-4-3		Level 3 : 10V/m, 80 ~ 1000MHz
Conducted disturbance	IEC61000-4-6		Level 3 : 10V, 0.15 ~ 80MHz
EFT/Burst	IEC61000-4-4		Level 3 : ±2kV, 1 Min.
Surge	IEC61000-4-5		Level 3 : 1.2 x 50µs, ±4kV (0°, 90°, 180°, 270°)
Emission	CISPR11		Class A (Conducted and radiated)
Environment	Temperature	Store	-40°C ~ +85°C
		Operation	-20°C ~ +60°C
	Humidity	30~85% RH (Non-condensate)	
Dimension	Window type	70W×74.5H × 83.8D	
Weight	3DM2 / 3MZ2		FDM2 / FMZ2
	Window type		350g
	Display (W/3M cable)		125g
Power consumption		Less than 7VA.	

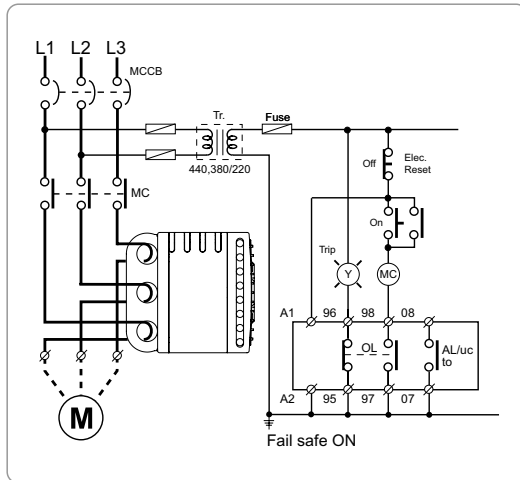
Fail Safe Operation

Fail-Safe	A1-A2 not powered	A1-A2 powered and under normal operation	A1-A2 powered and Tripped
ON	95  96 Close	95  96 Open	95  96 Close
	97  98 Open	97  98 Close	97  98 Open
OFF	95  96 Close	95  96 Close	95  96 Open
	97  98 Open	97  98 Open	97  98 Close

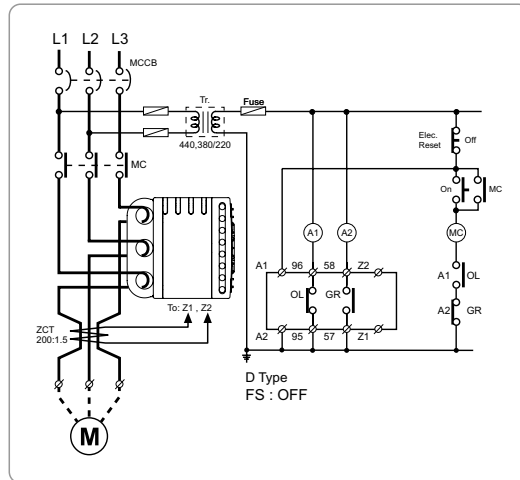
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Typical Wiring

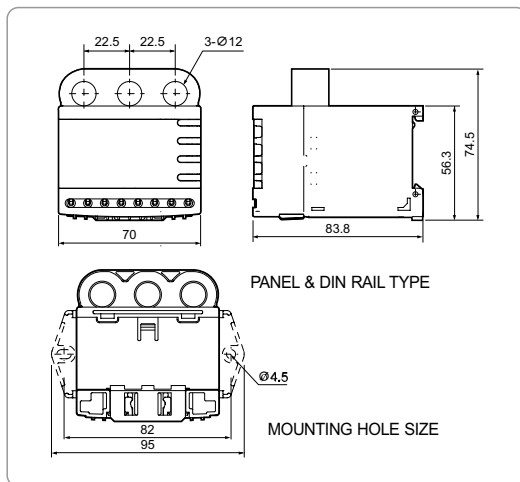


* 3DM2

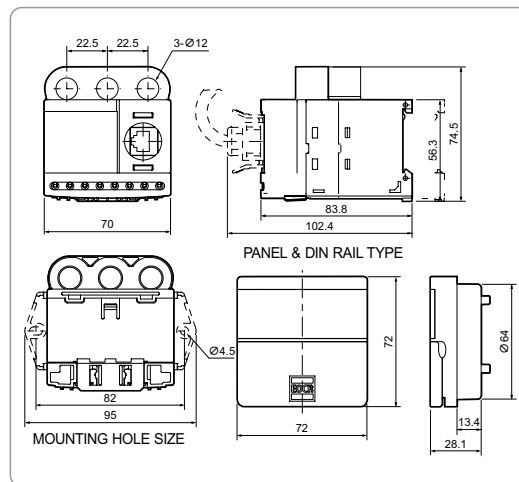


* 3M2Z

Dimension



* 3DM2 / 3M2Z



* FDM2 / FM2Z

External CT Options / Current Range

Setting range	Number of pass through the CT hole	External CT ratio	Remark
0.5~60A	1	No CT combination	
0.25~3A	2	No CT combination	
0.1~1.2A	5	No CT combination	
0.5~32A	1	No CT combination	Inverse TCC
0.5~60A	1	No CT combination	Definite TCC
10~100A	1	100 : 5	Definite or inverse
20~200A	1	200 : 5	Definite or inverse
30~300A	1	300 : 5	Definite or inverse
40~400A	1	400 : 5	Definite or inverse
50~500A	1	500 : 5	Definite or inverse
60~600A	1	600 : 5	Definite or inverse
70~700A	1	700 : 5	Definite or inverse
80~800A	1	800 : 5	Definite or inverse