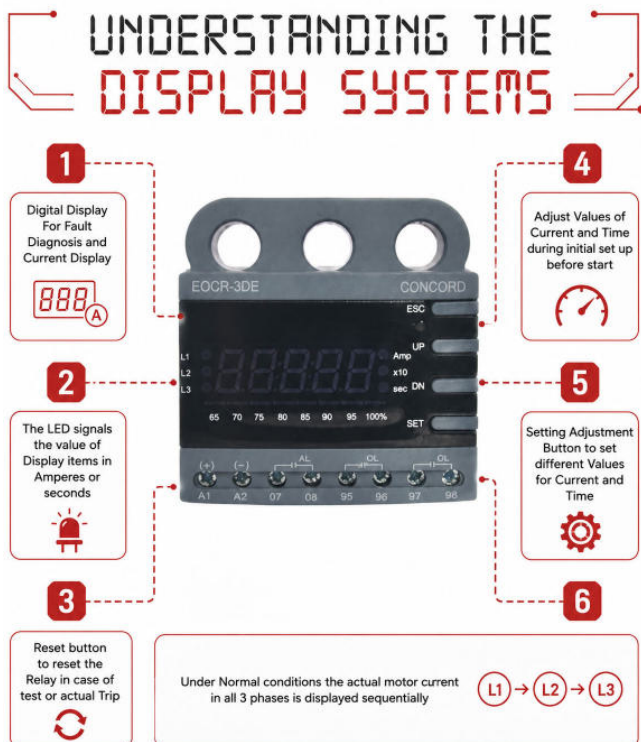


EOCR 3DE/3EZ – MCU Based Digital Motor Protection Relay

Introduction

The complete range of Digital Motor Protection relays from CONCORD are designed for use with 3 Phase motors. The inherent design features are built to make Motor protection far easier and more accurate. The digital Display works as an Ammeter displaying the actual motor current and also acts as Diagnostic Display highlighting the various causes of motor tripping to assist the user in trouble shooting and drastic reduction in downtime whenever an Electrical fault occurs in the system.



Electronic Protection Relays With Digital Display And Fault Diagnosis

These relays are built using a MCU – Microprocessor Control Unit and are suitable for use a very wide range of applications and motor sizes. The Test function button enables the user to use the same model for motor sizes ranging from 0.5A-600A. There by resulting in drastic reduction of inventories.

PROTECTION FUNCTIONS OF EOCR 3DE/3EZ

Overcurrent detected in L3



Phase Loss Trip caused by Phase L1 failure



Phase Unbalance caused by Unbalance in L3 phase



Reverse Phase detected



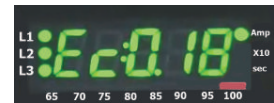
Rotor Jam trip



Locked Rotor/Stalled



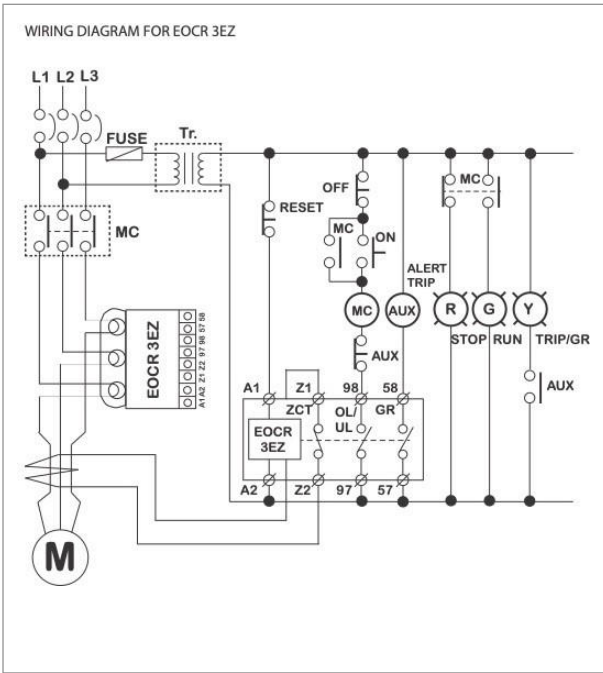
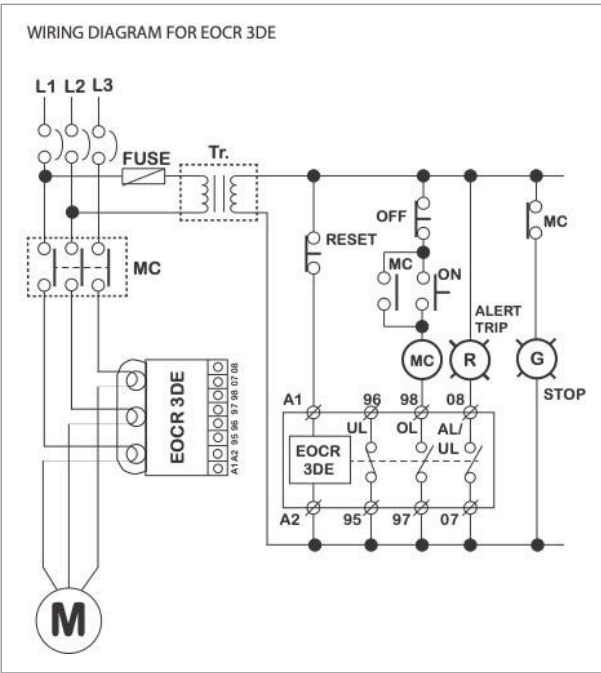
Ground Fault Trip detected



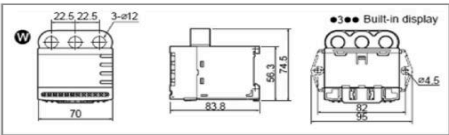
Rating Specifications

Functions and Properties		Rating Details
Overcurrent	Recommended current range (A)	Definite-time 0.5~80A. Above 80A use external CT Inverse time: 0.5A~32A. For 32A and above use external CT
Low current	Recommended current range (A)	0.5 ~ overcurrent setting or below, or OFF (in which case not applicable)
Operational time characteristics		Definite/Thermal Inverse
Time settings	Manoeuvre delay time	0~200 seconds
	Overcurrent/ definite time operation time	0.2~30 seconds
	Inverse time/ characteristic curve	1~30 Class
	Undercurrent / operation time	0.5~30 seconds
	Automatic reset time	0.5 seconds~20 minutes
Power supply control	Voltage	100~ 240VAC/DC(85%~110%, Free Voltage), 24VAC/DC
	Frequency	50/60 Hz
	Power consumption	7VA
Output contact	Capacity	3A/250VAC Resistive load
	Configuration	Overcurrent: 1a1b, warning and undercurrent
Display function	7 Segment LED	3-phase current display, trip cause indicator, settings display
	Bar graph	Load factor display, 65%~100%

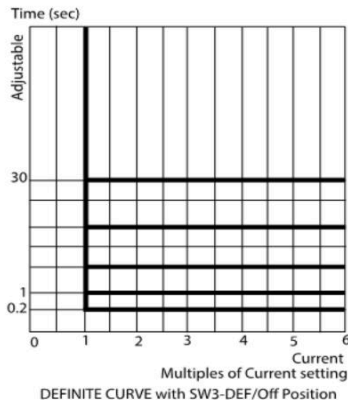
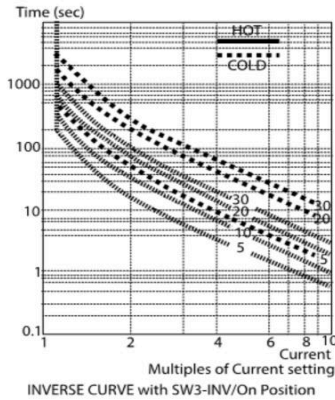
Wiring Diagram



Overall Dimensions



Time trip Characteristic Curve



Know your Relay

D-TIME (starting Delay Time)

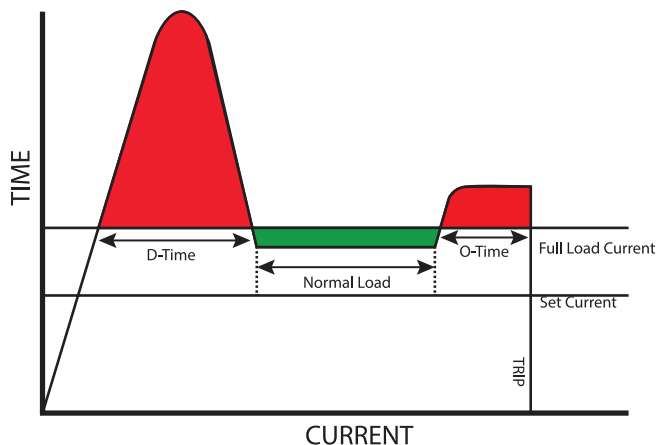
The D-Time is the time taken by the motor before it reaches its normal running current. During start the motor draws much higher levels of current and D-Time setting is to ensure that the EOCR does not cause any nuisance tripping's before this set time has elapsed.

O-TIME (Operating Time on Overload)

O-Time is the operating time in the event of Overload. When motor current exceeds the desired set current value, the EOCR detects the increase and trips the motor within the set O-Time preventing excess heating and long periods of Overload.

TEST FUNCTION

The TEST function facility on the front face of the relay is provided to check the health status of the relay without electrically energizing the relay. On pressing the TEST button the internal relay will trip after the D-Time + O-Time setting have elapsed. After using this test facility, the RESET button has to be pressed to operate the relay.



RESET FUNCTION

By pressing the RESET button or disconnecting the electrical supply will trip the relay immediately. Once the relay has tripped due to any Over Load or any fault, the relay has to be reset to start the motor again.

Looping Option

Looping option is required in case the amount of current measurement is desired to be more accurate and precise. The wire from the main line when passing through the internal EOCR CT is looped one or more times depending upon the current range of the relay to suit the application.

EXTERNAL CT OPTION

By using External CT's with Secondary rating of 5A the EOCR can be used to monitor and protect motors with normal running currents of upto 600A. This is used with an 05 Type relay with current setting range of 0.5-6A. In digital models the display current values are selectable as desired.

(A)	1x	2x	3x	4x	5x
~ 05	0.5 - 6	0.25 - 3	0.17 - 2	0.13 - 1.5	0.1 - 1.2
~ 30	2.5 - 30	1.25 - 15	0.83 - 10	0.62 - 7.5	0.5 - 6
~ 60	5 - 60	2.5 - 30	1.7 - 20	1.25 - 15	1 - 12

