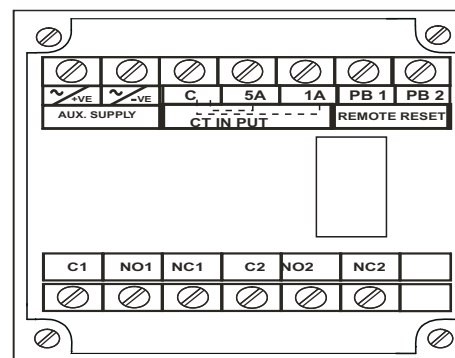


TECHNICAL DATA SHEET FOR F3 EFR1

minilec®



F3 EFR1 operates on current sensing principle and is used in electrical circuits & systems where EARTH FAULT protection is required. F3 EFR1 relay is more accurate, easy to set, compact and easy to install at panel facia .This relay offers (1CO/2CO) relay contact of 5Amps at 240VAC rating.



TERMINAL DETAILS

- ~/+VE , ~/-VE : AUX SUPPLY
- C1 - NO1 - NC1 : OUTPUT RELAY CONTACT
- C2 - NO2 - NC2 : OUTPUT RELAY CONTACT(2CO)
- C -5A : CT INPUT 5A SECONDARY
- C -1A : CT INPUT 1A SECONDARY
- PB 1, PB 2 : REMOTE RESET

INDICATION

- ON (GREEN) : POWER ON.
- EF (RED) : EARTH FAULT TRIP.

TECHNICAL SPECIFICATION OF F3 EFR1

- 1 . Auxilliary supply : 24-30VDC±10%
110/220/230/240VAC/DC ±20%
380/415/440VAC ±20%, 50Hz
- 2 . Rated current input : 5A/1A (selection via terminals)
- 3 . Frequency : 50 / 60Hz , ± 3%
- 4 .Power consumption : 3VA max.
- 5 .Output relay contact : 1CO / (2CO)
- 6 .Out put contact rating: 5A,240VAC (resistive)
- 7 . Life expectancy : 0.5x10⁶ operations at 100% rating
- 8 . EF trip setting : 10% to 100% of rated current input (variable)
- 9 . Set accuracy : For current - ±5% w.r.t.
Current input of 100% (full scale)
For trip delay - ±10% w.r.t.
Trip time delay (full scale)
- 10.Trip time delay : 0.1 sec. to 1sec or
1sec to 10sec (optional)
- 11.Reset : manual / remote reset
12. Indication : ON (green) - Power ON
EF (red) - Earth Fault Trip
- 13.Current sensor : neutral CT / CBCT / summation CT
with secondary current rating of
1A or 5A (Protection class)
- 14.operating conditions : temperature - -5°c to 60°c
humidity - upto 95% R/H.
- 15.Enclosure : F3 ENCLOSURE (ABS)
16. Dimension (mm) : overall - 96 X 96 X 80mm
cut out - 92 X 92 mm
17. Weight (approx) : 500gms.

SETTING OF EARTH FAULT RELAY

Typical Earthfault Relay Setting for electrical low voltage system of 415 V AC , 3 phase , 50 Hz, maximum demand of 150 KW at lagging power factor of 0.85 are shown below.

$$\text{Power} = \sqrt{3} \times V \times I \times \cos \phi$$

$$\text{Load Current} = \frac{150 \times 1000}{1.732 \times 415 \times 0.85}$$

$$\text{Load Current} = 245.50 \text{ Amps.}$$

Current Transformer Selected = 300/5A, 15 VA , Class 5P10

Minilec make F3 EFR 1 is Provided with

Earthfault current setting between 10% - 100%

$$\text{Hence Earthfault at 10\% setting} = 10\% \times 300A = 30 \text{ Amps}$$

$$\text{Similarly Earthfault at 30\% setting} = 30\% \times 300A = 90 \text{ Amps}$$

These are typical earthfault current calculations and settings shown as an example. Individual user can make the earthfault settings as per their requirement.

Suitable for following application:

*Generator Panels,*Synchronizing Control Panels,*AMF Panels, MCC panels

*Air Circuit Breakers (With shunt Trip Coil),*MCCB (With Shunt Trip Coil),*Motor Control Panels.

Our Other Products

Alarm Annunciator, Motor/Pump Protection Relays, EOGR,

Phase Failure Relay + UV / OV Relays, Voltage/Current/ Frequency/Reverse Power Monitoring Relays,

Earth Fault/ Leakage Relays, Pump Automation Management system & Controllers, Water Level Controller,

Electronic Timers, Power Line Transducers (V/I/KW/Multi-function/DC-DC Isolators or Barrier/Temp/Resistance/Tap position etc.),

Multi-function Meter, Twin Window/Split AC Controller, Bearing temp Monitoring relays(PT-100)