

# Combined Overcurrent & Earth Fault Relay



## PRODUCT OVERVIEW

Protection for 3 independent phase overcurrent elements and one non-directional earth-fault element with all elements connected to the current transformers of the feeders being protected. The unit has 2 sets of current inputs, for 1A and 5A rated CTs. A user friendly menu is accessed via the front panel to read measurements and change settings. Relay status and alarm or trip records are displayed on the back-lit LCD. RS232 port available on the front panel and a RS485 port on the rear terminals.

Using MODBUS RTU protocol, all stored information can be read and settings can be modified with a PC loaded with MerCs issued software. Four configurable output relays can be activated by any of the protection functions available in the relay, 1 output relay for internal fault indication and 2 configurable logic inputs for various functions.

## FEATURES

- Fascia mount
- Multifunction numerical relay
- Three-phase, three stage settings for phase overcurrent
- Two stage settings for earth faults
- IDMT and definite time
- Thermal overload protection
- Two groups of protection settings
- Trip circuit supervision
- Circuit breaker failure protection
- RS232 and RS485 MODBUS-RTU communication
- Fault, alarm and tripping records with timestamp
- Multifunction programmable outputs
- Multifunction digital inputs
- Complies with IEC 60255-26 standard

## ORDERING INFORMATION

PART NUMBER	DESCRIPTION
ME-OCEF-DF-110AD	For 50/60 Hz, auxiliary voltage 24 ~ 150 V AC / DC
See Price List for CT's to suit OCEF	

## TECHNICAL DATA

### RATINGS

#### Auxiliary Supply

Rated Voltage	: 30~120 V AC / DC
Operating Voltage	: 24~120 V AC / DC
Rated frequency	: 50 or 60 Hz
Operating frequency	: 45~65Hz
Power consumption	: 8VA max

#### Current Inputs

Rated current, $I_n$ , $I_{on}$	: 1 or 5 A by connection
Frequency	: 50 or 60 Hz nominal
Burden	: < 0.025 VA (1 A) : < 0.3 VA (5 A)
Thermal withstand	: 4 x $I_n$ continuous : 40 x $I_n$ for 2s : 100 x $I_n$ for 1s

#### Digital Inputs

Input type	: Optically isolated
Rated voltage	: 20 ~ 380 V DC : 50 ~ 270 V AC

#### Output Contacts

Trip Contact Relay R1, R2, R3, R4, IRF Relay	
Rated voltage	: 250 V AC / DC
Continuous carry	: 5 A
Expected electrical life	: 100,000 operations at rated load
Expected mechanical life	: 5 x 10 <sup>6</sup> operations

### SETTING RANGES

#### General

Line CT primary	: 1 to 10,000 A
Earth CT primary	: 1 to 10,000 A
Frequency	: 50 or 60 Hz

#### Phase Overcurrent

$I_{\theta}$	: 0.1 to 25 x $I_n$ (Recommended up to 2 x $I_n$ for IDMT delay)
$t_{\theta}$ Delay type	: IDMT or definite time
$t_{\theta}$	: 0 to 100 s
$t_{\theta}$ IDMT curve	: NI, VI, EI, LTI, NI 1.3/10
$ktI$	: 0.01 to 1.00
$I_{\theta}$	: 0.5 to 40 x $I_n$
$t_{\theta}$	: 0 to 100 s
$I_{\theta}$	: 0.5 to 40 x $I_n$
$I_{\theta}$ Sample	: Yes or No
$t_{\theta}$	: 0 to 100 s

#### Earth Fault

$I_{\theta}$	: 0.02 to 2 x $I_{on}$ (Recommended up to 0.5 x $I_{on}$ for IDMT delay)
$I_{\theta}$ Delay type	: IDMT or definite time
$t_{\theta}$	: 0 to 100 s
$I_{\theta}$ IDMT curve	: NI, VI, EI, LTI, NI 1.3/10
$ktI_{\theta}$	: 0.01 to 1.00
$I_{\theta}$	: 0.1 to 10 x $I_{on}$
$t_{\theta}$	: 0 to 100 s

#### Thermal Overload

$I_{\theta}$	: 0.1 to 3 x $I_n$
$T_{\theta}$	: 1 to 200 minutes
$k$	: 1 to 1.5
$\theta$ Trip	: 50 to 200%
$\theta$ Alarm	: 50 to 200%

### RECORDS

Fault Record	: Up to 50 records
Event Record	: Up to 250 records
Alarm Record	: Up to 30 records

### MEASUREMENT RANGES

Phase Current Secondary:	
5 A input	: 0 to 200 A
1 A input	: 0 to 40 A

Earth Current Secondary:	
5 A input	: 0 to 50 A
1 A input	: 0 to 10 A

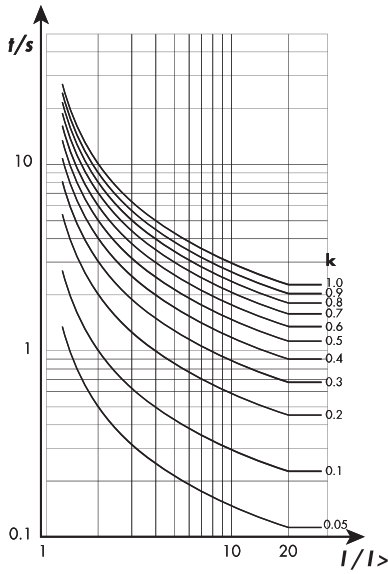
### ENVIRONMENTAL CONDITIONS

Temperature	: -5°C to 55°C
Humidity	: 56 days at 93% RH and 40°C non-condensing

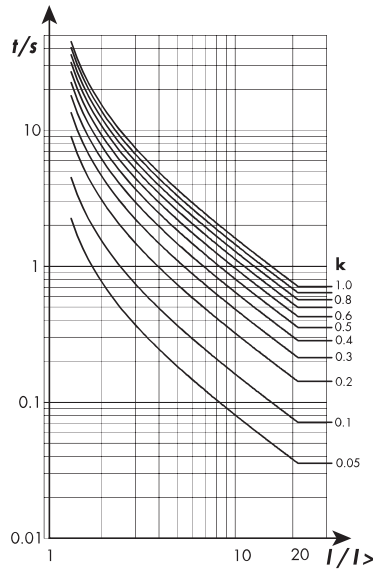
### MECHANICAL

Mounting	: Panel mounting
Dimension (mm)	: 142(w) x 165(h) x 198(d)
Enclosure protection	: IP54 at the panel
Approximate weight	: 2.9 kg

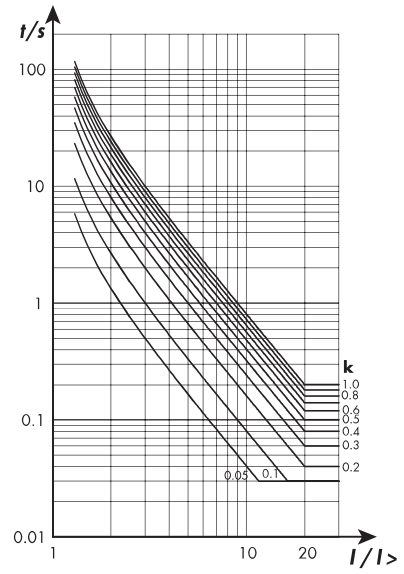
NORMAL INVERSE



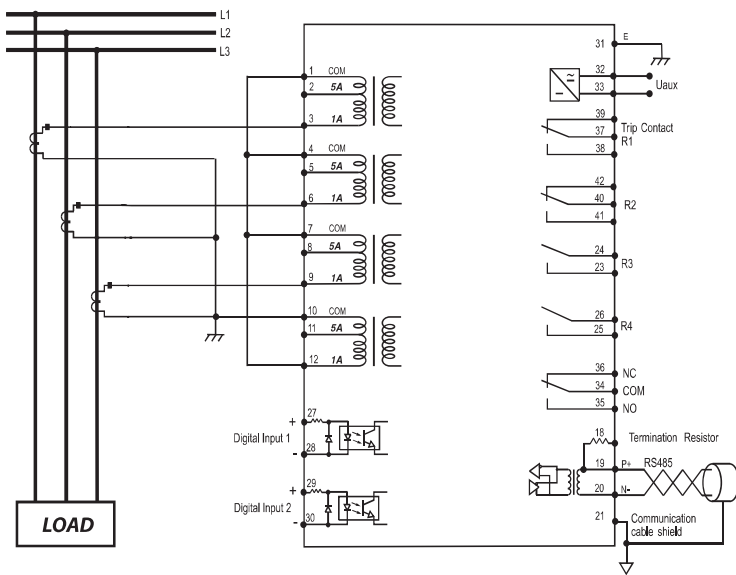
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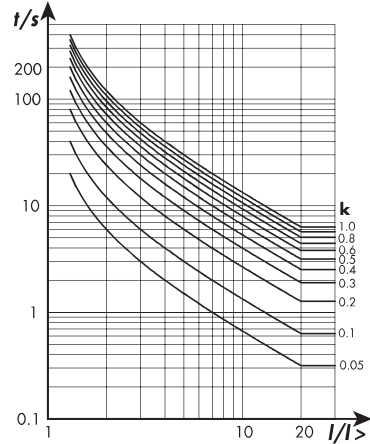
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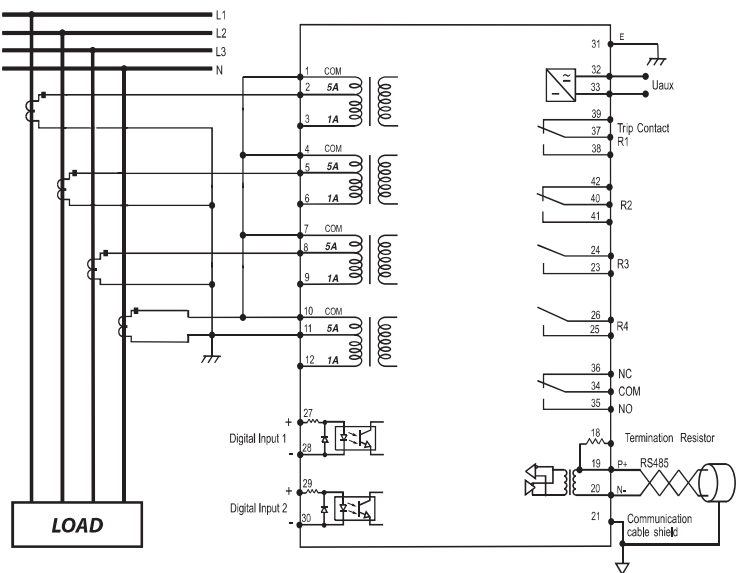
TYPICAL APPLICATIONS DIAGRAM 1



LONG TIME INVERSE



TYPICAL APPLICATIONS DIAGRAM 2



CASE DIMENSIONS

