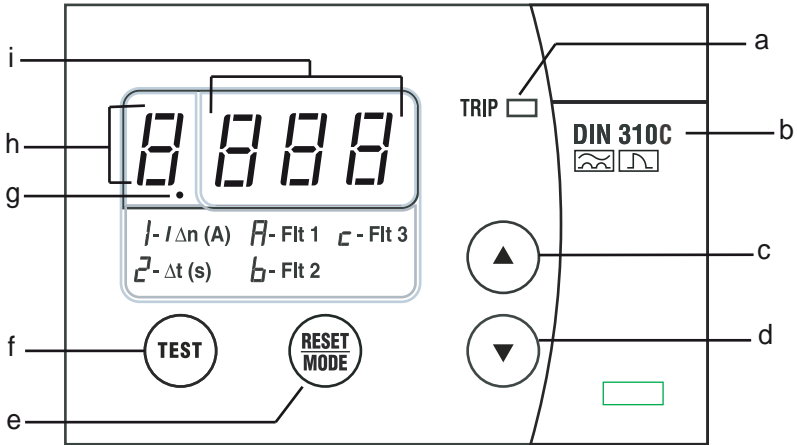


DIN310C Earth Leakage Relay User's Manual

A BRIEF OVERVIEW



- a - Trip status indicator
- b - Model
- c - Up button
- d - Down button
- e - Reset button
- f - Integral test button
- g - DP1 indicator
- h - FUNC display
- i - DATA display

Symbols

- $I_{\Delta n}$ - Sensitivity
- Δt - Time delay
- Flt 1 - Fault record #1 (Most recent)
- Flt 2 - Fault record #2
- Flt 3 - Fault record #3 (Oldest)

1. DESCRIPTION

The DIN310C series is microprocessor based earth leakage relay designed for measuring the low-level current from the live part of the installation to the earth in the absence of the insulation fault. A zero sequence current transformer (ZCT) will be included in the DIN310C bundle and is connected to the relay and function as the sensor for sensing the leakage current. All conductors of the circuit to be protected shall go through the ZCT.

Each individual DIN310C and ZCT are matched and calibrated together in the factory as a complete unit. Using other ZCT that is not included in the bundle is inhibited and will affect the tripping accuracy. This earth leakage relay series is mainly used for multipoint tankless water heater application. The sensitivity and tripping time delay is fixed at 10mA and instantaneous tripping respectively. This series also allows users to be able to differentiate between overload tripping or earth leakage tripping and has the ability to detect ZCT connection fault.

2. LIGHT INDICATORS

[Trip] LED	[FUNC] display	[DP1] indicator	[DATA] display	Status
0	0	0	0	No auxiliary supply
0	X	X	1	Normal condition, no tripping
1	0	0	B	Relay tripped
0	1	0	1	Scroll through setting
0	1	1	1	Scroll through records
1	X	X	"Ct"	ZCT connection fault
X	X	X	"tSt"	Manual trip test

Table 1: Relay status displayed

1 = ON

0 = OFF

X = Don't care

B = Normal blink

3. PUSH BUTTONS OPERATION

a. Integral Trip Test:

- Press the [TEST] button to perform an integral test on the relay ranging from the analog sensing circuitry to output contact of the relay as well as the relay indicators and display.

b. Leakage Fault Trip Reset: / Manual Test Trip Reset:

- Press the [RESET] button once.
- Reset is inhibited if fault persists.

c. ZCT Connection Fault Reset:

- Press the [RESET] button once.
- Reset is inhibited if the fault is not rectified.

d. Parameters Viewing:

- Press [▲] or [▼] button to step through the various functions.

[FUNC]	[DP1]	Symbols	Description
Blank	Off		Real-time leakage current display (Default)
1	Off	IΔn	Sensitivity (A)
2	Off	Δt	Trip time delay (seconds)
A	On	FIt 1	Fault record #1 (Most recent)
b	On	FIt 2	Fault record #2
c	On	FIt 3	Fault record #3 (Oldest)

Table 2: List of [FUNC] code displayed

4. RECORDS

- a. Record the 3 latest tripped faults current or "tSt" for manual trip test.
- b. The records are stored in non-volatile memory.
- c. To clear the entire record database:
 - Step 1: Press [▲] or [▼] button until the [FUNC] digit shows "A".
 - Step 2: Press [▲] and [▼] buttons simultaneously and hold for 3.5s until the [DATA] shows "0".

5. TECHNICAL DATA

AUXILIARY SUPPLY

DIN310C-230A..... 184~276 VAC
Rated frequency..... 50Hz
VA rating..... 3 VA typical

SETTING

Sensitivity..... 10mA
Time Delay..... Instantaneous

RECORD

Fault record..... 3 latest trip fault current or "tSt" for manual trip test
Storage..... Non-volatile memory

OUTPUT CONTACT

Contact rating..... 5A(NO) / 3A(NC) / 250V AC1
Contact arrangement..... Change over
Expected electrical life..... 10,000 at rated current
Expected mechanical life..... 5,000,000 operations

INDICATORS

Leakage trip delay time..... Red indicator
Leakage trip..... 7-segment display and red indicators
Manual test trip..... 7-segment display and red indicators
ZCT connection fault..... 7-segment display and red indicators
Trip records..... 7-segment display
Real-time leakage current..... 7-segment display

ZERO-PHASE CURRENT TRANSFORMERS

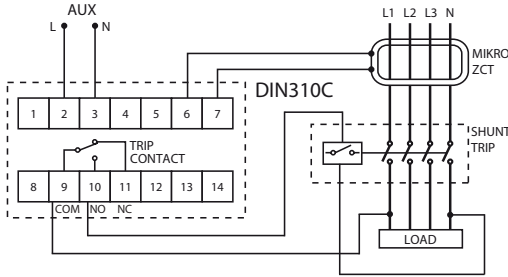
To operate with Mikro's ZCT series of current transformers

MECHANICAL

Mounting..... Standard 35mm DIN rail mounting
Approximate weight..... 0.4kg (Relay)
Approximate weight..... 0.095kg (ZCT)

6. CONNECTION DIAGRAMS

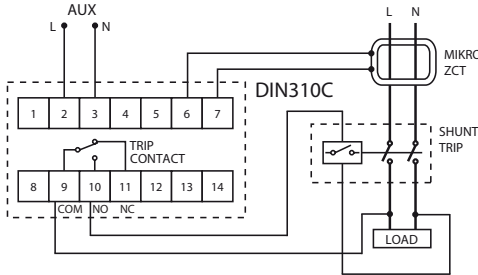
Three Phase System



PE

The EARTH wire must not pass through the ZCT

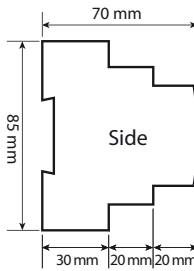
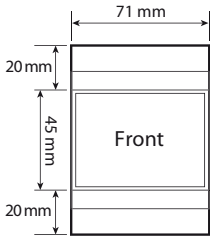
Single Phase System



PE

The EARTH wire must not pass through the ZCT

7. DIN310C CASE DIMENSION



8. ZCT DIMENSION

