sifam tinsley
PRECISION INSTRUMENTATION

Multifunction Meters

Transducers & Isolators

Temperature Controllers

Converters & Recorders

Digital Panel Meters

Current Transformers

Analogue Panel Meters

Shunts

Digital Multimeters

Clamp Meters

Insulation Testers

TRUE RMS DIGITAL PROTECTION RELAY
EARTH LEAKAGE RELAY

User Manual - Issue 1.0

SUBJECT TO CHANGE WITHOUT NOTICE
This manual superseded all previous versions – please keep for future reference

Earth Leakage Relay

Features

- True RMS Measurement
- Stores last 15 faults
- Detection of fault with display of parameter value
- Trip relay DPM
- USB configuration with PRKAB with PRKAB
- 4 digit 7 segment LED display

1. Applications

Leakage protection for:
- Control panels and switch boards
- Sensitive environment like chemical plants, Oil refiners
- Generators, utility power monitoring, Transformers, Motor
- Mining and control Engineering

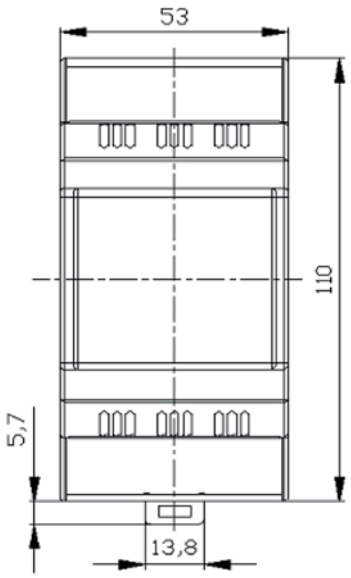
2. Product Features

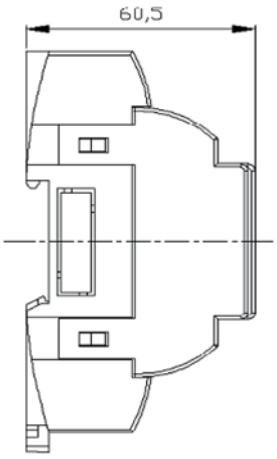
- Leakage current monitoring in 1 & 3 phase system
- User selectable power on delay, Reset delay, Trip Delay, Alarm delay
- Front side Test & Auto / Manual Reset function
- 4 Digits ultra bright LED Display
- User selectable password protection
- Trip relay cum DPM with class 2FS(full scale)
- True RMS measurement

  The instrument measures distorted waveform up to 15 Harmonic
- LED indication
  - LED indication for relay-1, relay-2 status
  - LED indication for CBCT Open fault
  - LED indication for Pre-alarm and Alarm
  - Trip indication are displayed on 4 Digit display
- Previous fault Storage
  Instrument memorizes the last 15 fault occurred.
- USB Configuration with PRKAB
  Simply configure the RISH RELAY using USB interface.
- Onsite selection of Auto scroll / Fixed Screen
  User can set the display in auto scrolling mode or fixed screen mode using front panel keys.
- Auto / Manual reset
  In auto mode instrument automatically clears itself. If the device set into manual mode, then device must be reset manually by push button.
- Adjustable set point for
  - Leakage Current
  - Alarm
- Adjustable time delay for Alarm
  - Leakage Current
  - Mining and control Engineering
  - Leakage protection for
  - Power ON
  - Reset
- Trip or Buzzer mode
  Relays can be used in Trip mode to protect the system or in Alarm mode to control the Alarm.
- User selectable Input rated current
  The input rated current of CBCT can be programmed on site as 0.03A to 30A using front panel keys.
- Compliance to International Safety standards
  Compliance to International Safety standard
  IEC 61010 - 1 - 2010
- EMC Compatibility

Compliance to International standard IEC 61326

3. Dimensions



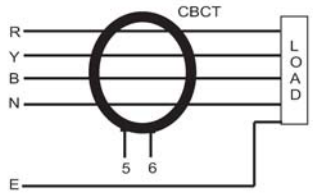


4. Technical Specifications

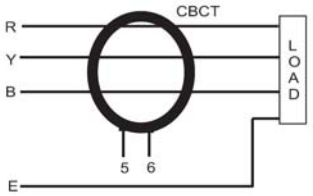
Input Current:	
Nominal Primary input current	0.03 Amp to 30 Amp
Maxcontinuous input current	110% of rated value
Auxiliary Supply:	
Auxiliary Supply Voltage	60V 300V AC-DC
Aux supply frequency	45 to 66 Hz range
Overload Withstand:	
Current	20 x for 1 second, repeated 5 times at 5 Minute
Operating Measuring Ranges:	
Current Range	10mA - 30A
Frequency	40...70Hz
VA Burden:	
Input current burden	< 0.25 VA approx. per phase
Auxiliary supply burden	< 4 VA approx for AC aux. < 4 W approx for DC aux.
Reference condition for Accuracy:	
Reference Condition	23°C +/- 2°C
Input waveform	Sinusoidal (distortion factor 0.005)
Input Frequency	50 or 60 Hz ±2%
Auxiliary supply voltage	Rated Value ±1%
Auxiliary supply frequency	Rated Value ±1%
Accuracy:	
Input Current	±5% of setting of input range
Power ON ,Trip, Reset, Alarm, time delays	±5% of Set Delay or ± 100 msec. (whichever is greater)
Frequency	±2% of input frequency
Influence of Variations:	
Temperature coefficient : (for rated value range of use (0...50°C))	0.05%/°C (50...100% of rated value)
Mechanical Attributes:	
Weight < 250g Aprrox	

5. Electrical Connection

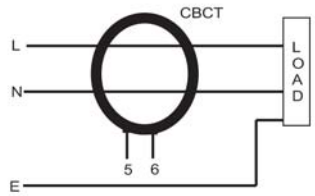
3 Phase 4 wire connection



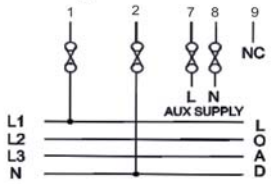
3 Phase 3 wire connection

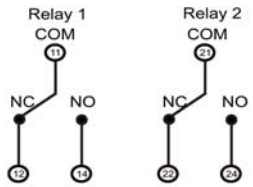


1 Phase 2 wire connection

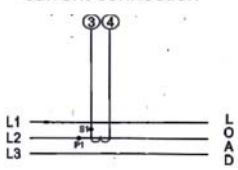


Voltage connection

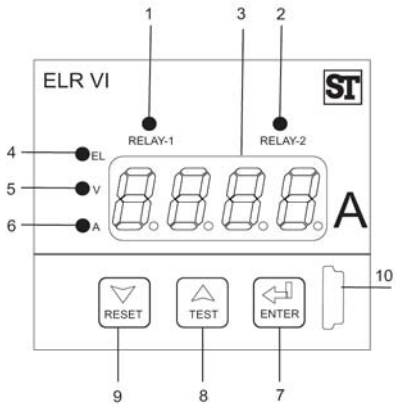




current connection



Applicable Standards:	
EMC	IEC 61326
Immunity	IEC 61000-4-3. 10V/m min – Level 3 industrial Low level
Safety use	IEC 61010-1-2010 , Permanently connected
IP for water & dust	IEC 60529
Pollution degree:	2
Installation category:	300 V CAT III / 600 V CAT II
High Voltage Test	2.2 KV AC, 50Hz for 1 minute between all Electrical circuits
Environmental:	
Operating temperature	-25 to + 55°C
Storage temperature	-30 to + 70°C
Relative humidity	0... 95% non condensing
Warm up time	Minimum 3 minute
Shock	15g in 3 planes
Vibration	10... 55 Hz, 0.15mm amplitude
Enclosure	IP20 (front face only)
Relay Contacts:	
Types of output	1CO, 2CO, 1CO+1CO
Contact Ratings (Res. Load)	8A/250VAC/30VDC
Mechanical Endurance Electrical Endurance	1x10^7 OPS NO- 3x10^4 OPS for 1CO / 1CO+1CO relay NC- 1x10^4 OPS 1x10^5 OPS for 2CO relay



6. Operating Elements

1/2 Relay-1 and Relay-2 status LED : Indicates status of relay-1 and relay-2 respectively

3 4 Digit ultra bright 7 seg LED Display.

4 Indicates status of CBCT.

5 Indicates the status of voltage input. (In case of model with two CBCTs (5) indicates status of 2nd CBCT.)

6 Indicates the status of current input (Case (6) is only applicable to model with CBCT, current and voltage input.)

7 Enter Key : Confirms changes of parameter setting. When on the measurement screen, holding for 3 sec enters in setup menu

8 Test Key : Increments setting value, move upwards in the menu or change parameter. It is also used to test operation of relay. Continuous holding of test key changes relay position and when release it resets the relay position (Only in healthy condition).

9 Reset Key : Decrements setting value, move downwards in the menu or change parameter. It is also used to reset relay when manual reset mode is selected.

10 USB configuration with PRKAB. Parameters like CT ratio, PT ratio trip settings can be configured.

7. Parameter Settings

Parameters	ELR
Rated current	0.03 Amp to 30 Amp
Nominal Frequency	50 / 60 Hz
Trip setting for earth leakage current	0.03 Amp to 30 Amp
Trip setting for Differential / Hysterisis	1 - 15%*
Trip setting for alarm	50% to 99% of set value
Programmable Delay for Earth Leakage Current	0.1 - 30 Sec
Programmable Delay for Power On	0.5 - 30 Sec
Programmable Delay for Automatic Reset	0.2 - 30 Sec
Programmable Delay for alarm	0.1 - 30 Sec
Reset option	Auto / Manual
Relay control mode	Energise / De-energise

8. Ordering Information

Model Name	Description
ELR	ELR with single CBCT input
ELR +	ELR with two CBCT inputs
ELR V	ELR with one CBCT input and one voltage input
ELR VI	ELR with CBCT, current and voltage input(one each)

Model Name	1 CO	1 CO + 1CO	2 CO
ELR	4000	4001	4002
ELR +	X	4011	X
ELR V	4020	4021	4022
ELR VI	X	4031	X
Auxiliary supply voltage		**Order code**	
60 - 300V AC DC +/- 5%		HA	
24 - 60V AC DC +/- 5%		LA	
Communication interface		**Description**	
With PRKAB		Z	
ELR PLUS		Y	

X: not applicable

Order Code Example:
ELR - 4021-Z-HA
ELR V with 1CO + 1CO,higher auxiliary supply and PRKAB

Contact

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