Introduction

The Earth Leakage Detector (ELD) is used to detect earth faults in the signalling cables and circuits. This conforms to RDSO specification no. RDSO/SPN/256/2002.

ELD Equipment

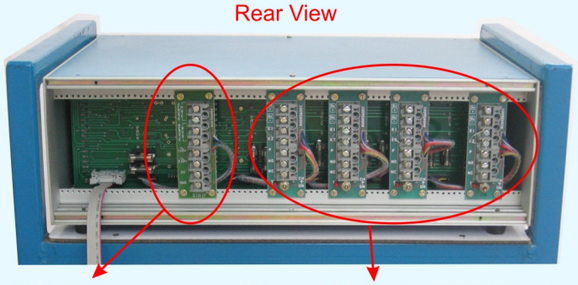
Front View



Channel Module

Main Module

Rear View



Main Strip

Channel Strips for AC/DC Bus bar

Main Module



No.	Description	Function
A	MAINS	Mains Supply connected
B	SET REFERENCE	To set reference leakage at which ELD will announce fault of the selected channel
C	CHANNEL SELECTOR SWITCH	Selects (i) Any one channel from 1 to 4 (ii) Insulation resistance Meter. (iii) Next channel from additional unit if provided.
D	MUTE BUZZER	To stop the buzzer sound.
E	TEST	To connect the cable pair under measurement
F	EARTH	To connect cable sheath or earth
G	METER	Reads bus bar to earth leakage or insulation resistance as per the position of switch.
H	PAIR ENERGISED (Green LED)	ON when cable pair is connected to circuit. (measurement not possible)
I	LOW INSULATION (Red LED)	ON when insulation resistance is lower than or equal to the set value, otherwise OFF.



Black Scale Reads leakage resistance

Red Scale Reads insulation resistance

Channel Module

Fault - Goes ON when insulation resistance drops to a set value

Normal- Normally ON, goes OFF when insulation resistance drops below a set value

SET REF- Normally OFF, goes on when SET REF pot switch on to set reference leakage

Fault totaliser (counter)- Keeps count of actual faults taken place



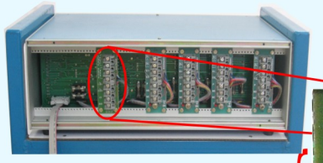
Bus bar voltage and AC/DC indication

Bus bar present- Indicates that bus bar supply is connected on the monitoring terminals

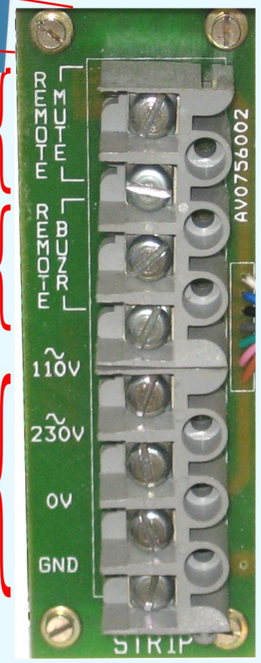
SET REF (POT)- To set reference value from 2K Ohm -1 M Ohm in conjunction with SET REF of main module

RESET- On pressing resets ELD after fault is rectify

Terminal strip details (rear side)



Main Strip

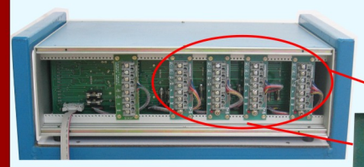


Parallel to mute switch of front panel. Simple bell type switch can be connected here to mute the buzzer from remote location.

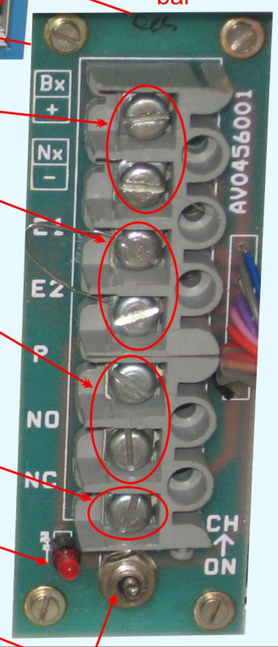
To connect the buzzer at a distance away from the installed instrument.

Tappings for connecting 0-110V or 0-230V mains AC Supply.

Terminal strip details (rear side



Channel Strip for AC/DC bus bar



Bus bar connections.

Two separate earth connections..

Digital input connection for data logger.

Not in use.

Channel ON/OFF LED indication.

Channel ON/OFF switch.

Testing of Insulation

Connect earth lead (Green) on Earth terminal

↓

Connect measuring leads (Red) to test

↓

Select insulation test on channel selector switch

↓

Connect earth leads probe (Green) to cable sheath or earth

↓

Connect measuring leads probes (Red) to outgoing cable pair on CT rack

↓

Whether Green LED start glowing? — Yes → Bus bar is energised, meter will show

↓ No

Meter will show reading (insulation resistance)

Measuring lead connections (cable pair under measurement)



Read Red Scale

Select insulation test position

Installation

Open the Rear Panel

↓

Connect Buzzer on extended buzzer

↓

Connect push switch on extended mute wires

↓

Loop together all E1 terminals (similarly E2 and P terminal)

↓

Mount the ELD in Relay room near CT rack

↓

Connect DC/AC bus bars to +/Bx and -/Nx

↓

Connect E1& E2 to separate earths

↓

Connect instrument ground to relay rack

↓

Connect P to the Data logger digital common

↓

Connect N O to each channel to the empty points at Tag block

↓

Connect AC mains supply 110V/230V

Disclaimer

It is clarified that information given in this pamphlet does not supersede any existing provision laid down in "Signal Engineering Manual", Railway Board publications and RDSO publications. This document is not statutory and instructions given in it are for the purpose of guidance only. If at any point contradiction is observed, then SEM, Railway Board and RDSO guidelines or Zonal Rly. instructions shall be followed

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GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

Earth Leakage Detector



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