SCOPE

DC Trace

DC Earth Fault Locator

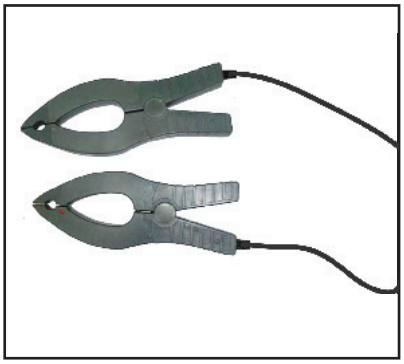
Locate even smallest DC earth faults in noisy, live DC system quickly & accurately...
... with DC Trace

The Product

DC Trace : DC Earth Fault Locator

SCOPE introduces DC Trace, the most advanced and user friendly DC Earth (Ground) Fault Locator. This portable instrument consisting of Signal Generator & Signal Receiver (DC TraceR) uses latest digital signal processing technology. Ability to detect earth faults in live DC system quickly & accurately in On-line condition greatly relieves the substation maintenance engineers from nightmare of earth leakages detection.

Capability to detect the high resistance faults upto 1MΩ, helps to detect faults at incipient stage. Use of two current sensing clamps pinpoint fault quickly by eliminating interference. It is an excellent solution for preventive maintenance & troubleshooting of ground faults.



The Measurement

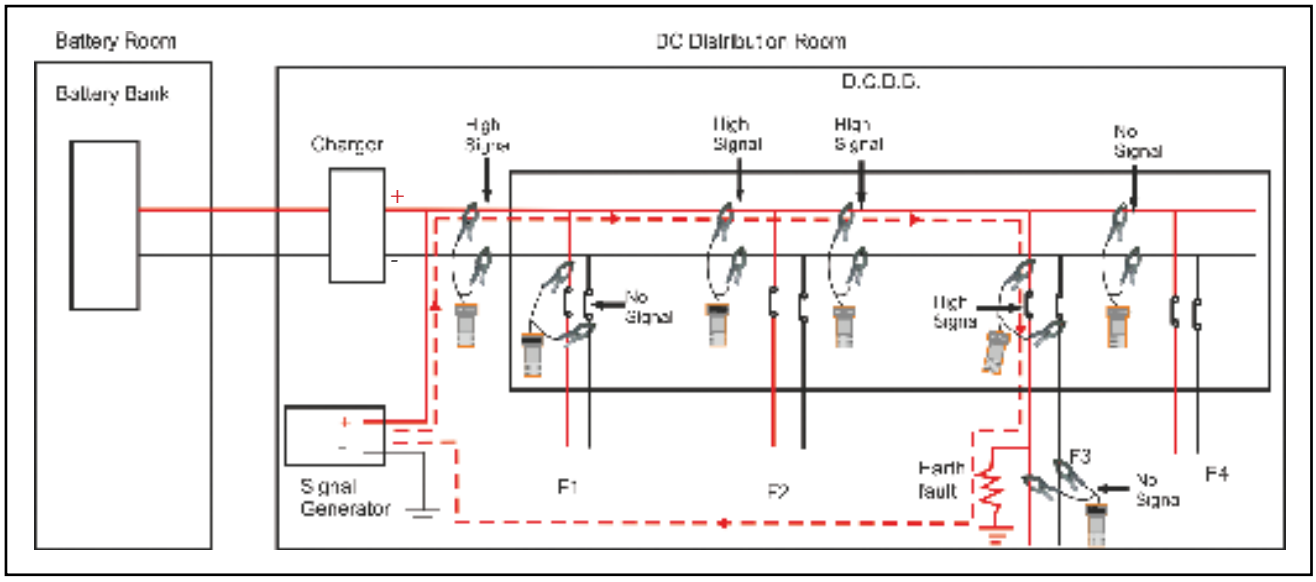
In DC System, small faults having high resistance will unbalance system voltage & after further degradation that might become a permanent fault / short circuit leading to failure of system. This can lead to excessive discharge and thus permanent damage to battery bank. The before and after cost can be very high based upon the battery bank configuration.

IEC- 60364-4-41 chapter 413-1-5-4 recommends that first fault must be eliminated from the system within minimum possible time.

Because of insulation failure of cable leading to grounding of the DC circuit, there will be flow of leakage current to ground & thus a 'Faulty Circuit' or 'DC Leakage' will occur leading to unbalanced voltage levels.

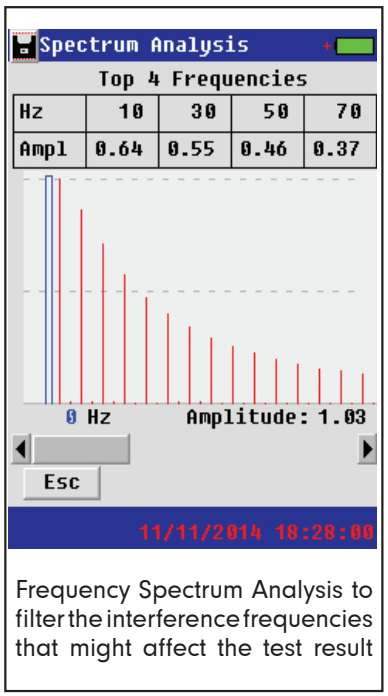
Signal Generator (Fixed) is connected across bus bar (+ Ve or -Ve) and ground, generating low frequency square wave signal. This generated signal will flow from generator to ground through fault & from ground it will return back to Signal Generator, thus path of signal is completed. During this operation, Signal Generator internally assesses fault condition & automatically injects required voltage & current.

Fault tracing & pinpointing is carried out by Signal Receiver (portable) with current sensor clamps. After connecting clamps at faulty cable, Receiver will show indication of signal strength & fault current direction. Signal strength will have big difference before & after fault point, from this it will pinpoint fault location.

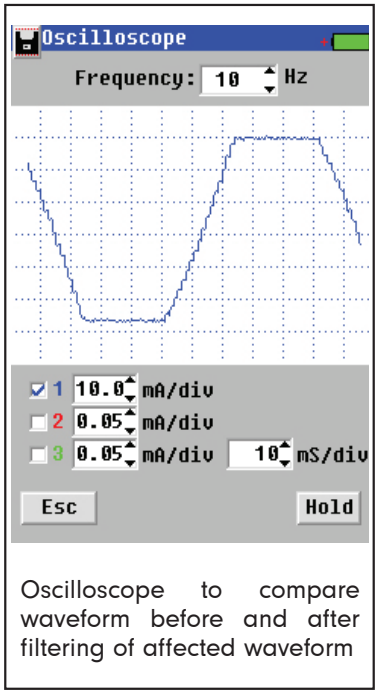


Special Features

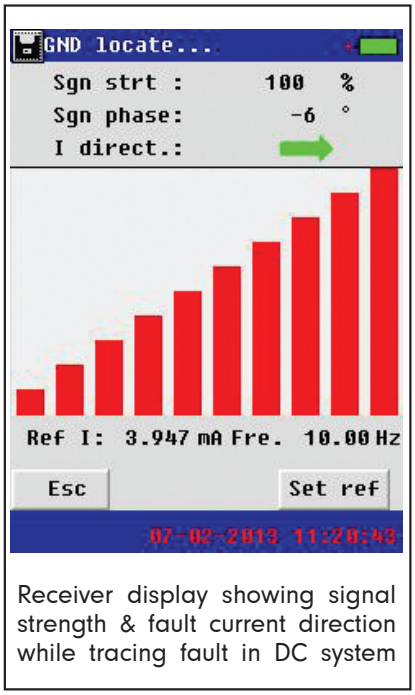
- Touchscreen operation on colour graphical LCD
- Online fault detection, no shut-down required
- Signal Generator with adjustable output voltages from 24V to 1000V, suitable for different applications
- Pinpoints high grounding resistance faults up to 1MΩ
- Digital Signal Processing Technology for detecting grounding resistance and distributed capacitance
- 10Hz output frequency on the signal receiver effectively avoids interference from the DC system
- Frequency Spectrum Analysis for detection of surrounding frequencies
- A signal Receiver with adjustable sensitivity at different locations of the circuit helps to locate the current leakage quickly
- Direction (forward/reverse) indication for leakage current helps quick tracing of the faulty grounding path
- Multiple analysis & indications for easy ground fault identification
  - Direction of current flow
  - Phase angle difference
  - Comparison of signal strength
- Detection of complex, multipoint and DC source mixing faults
- Multiple receivers can work simultaneously with single generator



Frequency Spectrum Analysis to filter the interference frequencies that might affect the test result



Oscilloscope to compare waveform before and after filtering of affected waveform



Receiver display showing signal strength & fault current direction while tracing fault in DC system

Benefits

- Online fault detection, no shutdown required.
- Detect DC source mixing faults for dual battery system.
- Fault detection at incipient stage due to high fault location sensitivity.
- Various techniques used to eliminate effect of system interference, giving accurate fault location.
- Can detect complex, multiple faults.

Very effective tool to quickly locate the grounding faults in following systems:

- Power Utility : DC distribution system in substations
- Telecommunication : Electronic / Communication equipments of different voltage ranges
- Railways : Signaling, Communication and Locomotive electronic equipments
- Others : DC System in Aviation, Metallurgy, Auto Works etc.

Specifications

Parameters		Details
Output Voltages		24 / 48 / 110 / 220 / 500 / 1000V
Output Frequency		10Hz
Current Sensitivity		≥0.5mA
Display	Generator	320 × 240 pixel, 3.5'' colour LCD
	Receiver	240 × 320 pixel, 3.5" colour TFT touch screen
Battery Life		≥4 hours
Battery Charging Input		230V / 110V AC, 50Hz / 60Hz

Parameters		Details
Working Environment		0˚C to 50˚C, <95% RH (Non-condensing)
Dimensions	Generator	275 x 255 x 130 mm
	Receiver	210 x 110 x 60 mm
	Current Clamp	Dual range CT: 56mm jaw opening, Ø 65 x 30mm, Ø 12 x 8mm
Weight	Generator	2.5kg
	Receiver	0.65kg
	Current Clamp	0.6kg

Standard Accessories

Description	Quantity
DC Trace in soft carrying case consisting of :	
Signal Generator in moulded case	1
Signal Receiver (DC TraceR)	1
One pair of dual range CT with Cable 1.5 Meter	1
Crocodile clips (Red & Black)	2 each

Description	Quantity
Battery Charger for Signal Generator & Signal Receiver	1 each
Signal Testing Cable Cable 2.5 Meter	1
USB Data Storage Device (Pen Drive), USB Data Cable	1 each
Instruction Manual, Test and Calibration Report	1 each

Ordering Code

Example: DC Trace	**1**	**F**	**F**	**F**	**F**	**N**	**F**	**F**	**F**	**R**	**I**	**N**
DC Trace		**F**	**F**	**F**	**F**		**F**	**F**	**F**			

1	**1 No DC Trace-R***	Customised	Z
n	Quantity of DC Trace-R	**None***	**N**
F	Reserved	Universal Plug	U
F	Reserved	**Indian Plug***	**I**
F	Reserved	110V ± 15%, 50/60Hz AC Input	Q
F	Reserved	**230V ± 15%, 50/60Hz AC Input***	**R**
N	**None***	Reserved	F
Z	Customised	Reserved	F
		Reserved	F

Note: * indicates standard accessory / feature

means DC Trace (Order Code: 1FFFFNFFFRIN) - DC Earth Fault Locator, 1 No DC Trace-R, 230V ± 15%, 50/60Hz AC Input, Indian Plug (Make: SCOPE)

Simple solutions for difficult measurements®

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