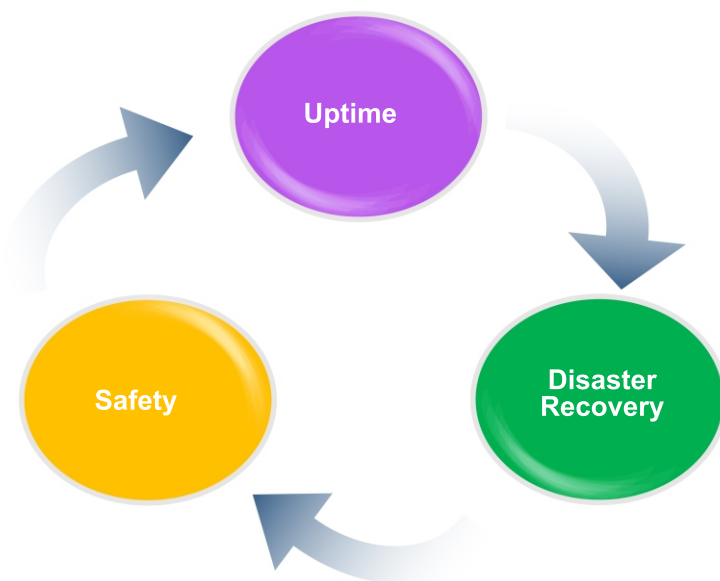


# DIGITRACE

## ON-LINE PORTABLE DC EARTH FAULT LOCATOR

TAURUS<sup>®</sup>





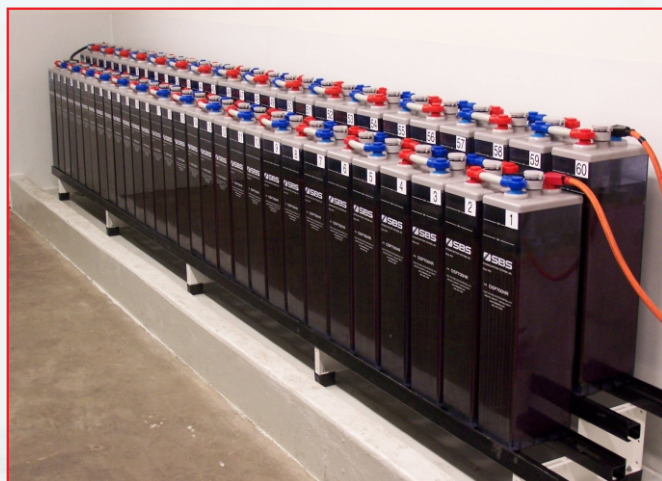
## ON-LINE DC EARTH FAULT LOCATOR



DIGITRACE DC simplifies the tracking of ground faults on floating DC systems in power station. It's an advanced sensing system which precisely identifies and pinpoints the complex earth faults on any floating DC system in ON-LINE condition. The fault resistance range is up to 400kΩs. It is capable of finding faults in a maze of noise and other mimicking fault conditions, source of which is perplexing and misleading. It is a portable system comprising of two units : Transmitter unit and Receiver unit.

### THE NECESSITY

DC floating System is an important part of any power station. Any earth faults on DC System can disturb the sensitive functioning of control, Protection circuit units. Like trip relays, breakers and annunciators etc., there by affecting the stability of the power system network. Tracing earth faults in offline condition will interrupt the functioning of critical control circuitry and it is highly recommended to have an online DC Earth Fault Locator to find out the faults ON-LINE.



IEC- 60364-4-41 recommended that DC Earth Leakage faults to be removed at first instance itself.

### TYPE OF DC EARTH FAULTS

1. **Dead Fault:** Permanent dead fault with 100 % imbalance of voltages either on Positive or Negative side.
2. **Multiple Location DC Earth Fault:** In general, most of the existing & new sub stations commonly we used to come across various earth leakage paths i.e. in Multiple feeders having Low, Medium & High resistance Faults.

Taurus DC Earth Fault Locator is ONE STOP solution to detect & Pin points the Low, Medium & High Resistance Faults.

3. **DC Mixing Fault:** This mixing Faults occurs due to poor workmanship during construction & mixing may happen due to failure of Change over switch, Trip coils & Interlocks. Source mixing of Faults creates unwanted tripping during operation of switchgear due to S1 mixing with S2.

This Problem is commonly finding in various substations. If any chance leakage occurs in S1 will be reflected in S2 due to mixing of sources.

To find out these critical Mixing faults Taurus Online DC Earth Fault Locator is having unique coded pulse Technology to identify the source of mixing at exact points.

4. **High Resistance Fault:** Capable to identify the High Resistance Faults in Live switch yards up to 765kV level.
5. **Temporary /Transient Fault :** The type of fault which will occur temporary and this will not be permanent. This situation may occur during rainy seasons. Upon occurrence of the leakage by connecting Taurus – DC Earth Fault Locator can easily identify the Earth Leakages very accurately by using Highest sensitivity Clamp on Ct's
6. **High Magnetise Noise:** DC earth fault at switch yard with high Magnetise area. Due to capacitance and Inductance affect, it is complicated to trace the DC earth fault.

Taurus Digitrace DC is designed with automatic capacitance balance to nullify the effects of capacitance in a system





## SELECTION OF DC EARTH FAULT LOCATOR

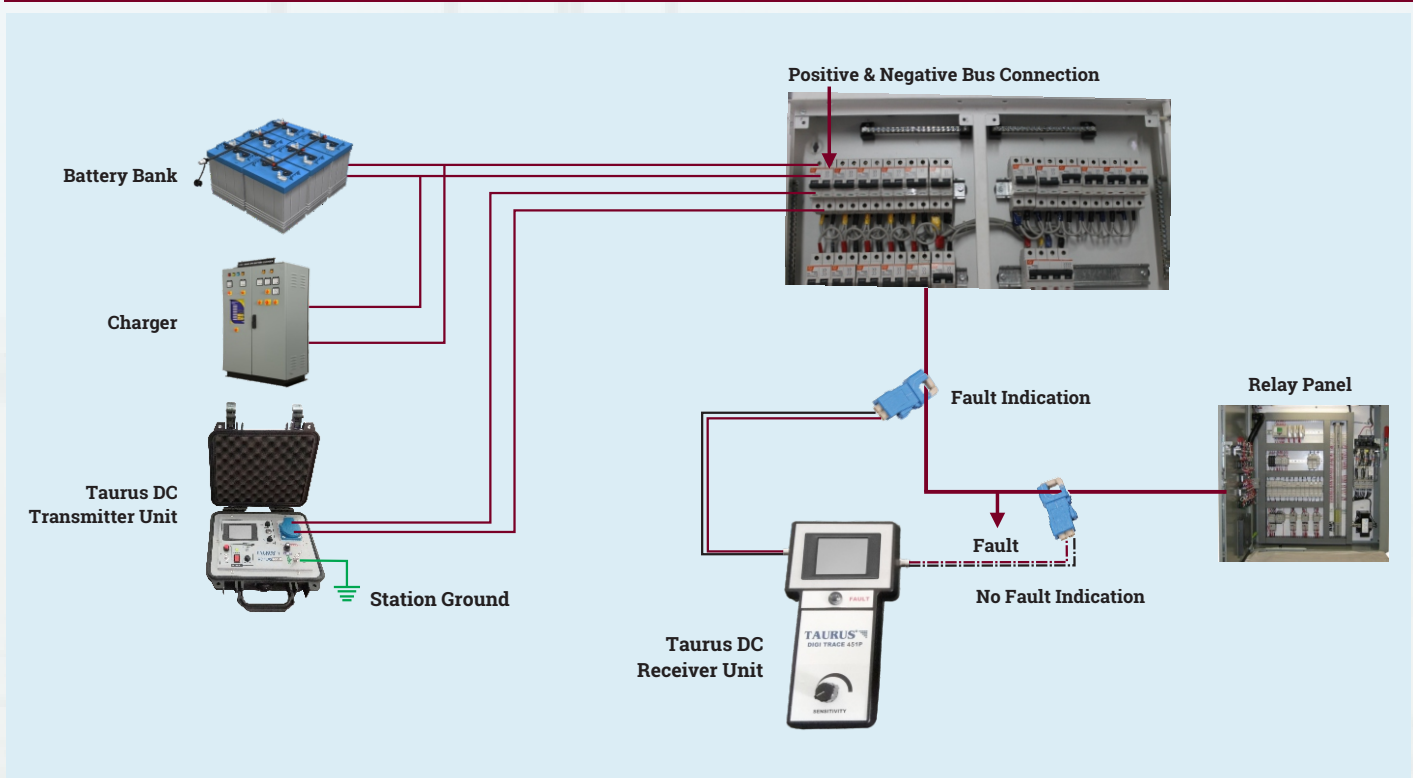
- 1. Working of the DC Earth Fault Locator System:** The transmitter system is of processor type which sends a coded pulse of low voltage, low frequency. The equipment is suitable for use on charged switchyard environment and have noise free performance. The receiver will indicate the fault by an Audio-visual beeps without pre-calibration or parameter input on any other control and single button operation to check the fault is preferred. The equipment is suitable for use on charged switchyard environment and shall have noise free performance.
- 2. Voltage Output:** The kit should inject not more than 24V AC (ripple of 10% of 240V DC System) to detect fault upto 400 Kilo Ohms
- 3. Range of Operation:** It has a range up to 400 kΩ's in a charged switch yard environment of fault detection and can function up to a distance of 1 KM (optional 3 KM).

- 4. Sensitivity:** The kit should be sensitive to pick up any small current of  $\leq 0.1 \text{ mA}$ .
- 5. Capacitive Balance:** The instrument will balance the capacitance automatically and the user need not adjust any parameters for balancing the capacitance.
- 6. Short Circuit Current:** The kit should inject not more than 2mA in order to avoid mal operation of sensitive relays of protection system.
- 7. Clamp on Sensor:** The clamp on sensor is suitable for control cables and multi core cables. The clamp on sensors can be put in any direction. The fault finding shall not be affected by changing the direction of clamp on sensor.

## WHY TAURUS DIGITRACE ?

- High sensitivity
- Automatic capacitance balancing
- Detects and pinpoints faults in ON -LINE
- Indicates and pinpoints mixing of sources
- Digital receiver to identify and pin point critical earth fault in highly induced environmental conditions
- Adjustable output voltages various DC voltage applications
- High capacity battery for long and continuous operation
- Immune to 50Hz and its harmonics
- EMC /EMI compliance
- Protected with IP 67 pelican casing
- Portable and easy to operate

## FAULT TRACING BY TAURUS ONLINE DCEFL





## TECHNICAL SPECIFICATIONS

### Transmitter

- Power Supply : 230 V +/- 10% AC, 50 Hz +/- 5% / built-in Li-Ion Heavy Duty Rechargeable Battery
- Digital Display : for system voltages
- Operating frequency : Very Low Frequency, less than 12 Hz
- Output voltage : Auto selected  $\leq 24$  V
- Can be connected to any floating system from 20 VDC to 400 VDC
- Output current :  $\leq 3$ mA

### Receiver

- Power Supply : Built-in Li-Ion Heavy Duty Rechargeable Battery
- Calibrated to operating frequency of Transmitter
- Sensitivity up to 100 kΩs, upgradeable upto 1.5 MΩs
- Immune to 50 Hz and its harmonics
- Fault tracing up to 1 km (Optional 3 kms)

### Accessories

- Transmitter Charger Adapter – 1 No.
- Two core DCDB positive and negative connecting cable - 1 set
- Transmitter Earthing cable – 1 No.
- Sensor Probe small - 15 mm dia (225 sq mm)
- Sensor Probe big - 50 mm dia (2500 sq mm)
- Two core connecting cable to connect receiver to sensor probe - 1 set
- Receiver unit charger – 1 No.
- Instruction Manual – 1 No.

### Atmospheric Condition

- Operating & Storage temperature : -5°C to +55°C
- Relative Humidity : 95% non condensing

### Certifications

- CPRI- IEC60068-2-27, IEC60068-2-6 IEC60068-2-78. Vibration, Shock, Bump, Damp heat & steady state test. ( CPRI Lab).  
IEC61000-4-2/2018 Electrostatic discharge immunity. IEC61000-4-8/2009 Power Frequency Magnetic Field immunity.  
IEC61000-4-3/2010 Performance test.
- IEC610101 - Safety

### Other Model

- DIGITRACE DC 451P



## TAURUS POWERTRONICS PVT LIMITED

**Corporate Off.:** No. 26, "Mahadimane", 12th Main, 1st Block, Rajajinagar, Bengaluru - 560 010. **INDIA, Tel :** + 91 80 23012301

**Email :** info@tauruspowertronics.com, care@tauruspowertronics.com, **Tollfree :** 1800 425 2112, **WhatsApp :** +91 73496 44344

**Sales & Service Off.:** No. 648/54, KLE College 2nd Block, Rajajinagar, Bengaluru - 560 010. **INDIA , Tel :** + 91 80 2352 2136/74

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