Features

- DC Cable Testing up to 40 kV (80kV optional)
- Burning Vmax - 40kV, Imax - 800 mA
- Surge energy up to 4000J
- Surge Voltage 4, 8, 16, 32 kV Selectable
- User-friendly, high-safety interlocks
- Auto Discharge
- High Temperature Auto OFF
- Operation Through Bluetooth Mouse / Touchscreen
- GPS mapping (Optional)
- Remote app monitoring (Optional)
- Integrated insulation testing facility up to 10kV (optional)
- Integrated VLF module (Optional)
- Precise Fault Pre-locating using
  Time-Domain Reflectometer (TDR),
  Arc-Reflection Mode (SIM/MIM),
  Impulse Current Mode (ICM/ICE),
  Voltage coupling Mode (DECAY),
  Automatic Cursor Setting at Fault point.
  IMT mode (optional)

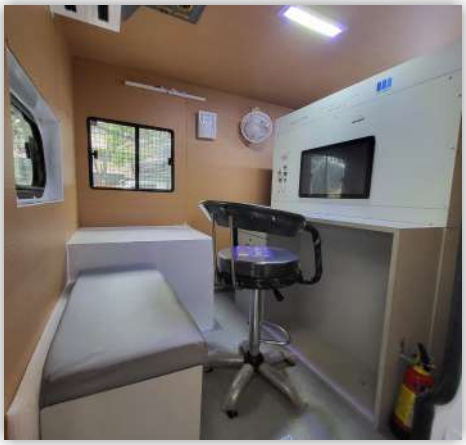
METRIX 1.0

Automated Cable Fault locating System

Metrix 1.0 is a compact, fully automated mobile test lab for fast and precise underground cable fault location across LV, MV, HV, and EHV networks. It enables efficient testing, pre-location, and pinpointing with minimal setup time.
The system features a menu-driven control interface that manages key functions like mode selection, surge testing, burn and arc reflection, range selection, voltage/current limit adjustments, surge sequence selection, auto discharge and earth monitoring. All operations can be performed via a Bluetooth mouse or touchscreen display, ensuring convenience and operator ease. Built-in automation, data logging, and intelligent system monitoring make Metrix 1.0 a reliable and user-friendly solution for modern fault management.

Application

Metrix 1.0 is an Automated Van System for underground cable fault location and testing for LV, MV, HV & EHV power cables. The key parameters are flexible to satisfy customer's specific requirements.



METRIX 1.0

Methods

Pre-Location

- After identifying the type of fault, the system pre-locates the fault using latest methods like TDR, ICM, SIM/MIM, Decay and IMT (Optional)
- All these methods are integrated within the system for accurate results

TDR/ECHO

- Sends a narrow electromagnetic pulse with a fast rise time through the cable
- Pulse reflects back from the fault point or cable end where impedance changes
- Velocity of Propagation (VOP) is set based on the cable's dielectric material
- Distance to the fault on the pre-locator is calculated automatically and displayed

SIM/MIM

- Uses a Time Domain Reflectometer with a high-speed transient recorder
- Captures number of measurements showing the fault position from a single high-voltage impulse

ICM

- Employs current transient analysis for fault pre-location
- Transient waves generated during a breakdown or flashover oscillate back to the source
- Waves are utilized through a linear current coupler
- Signals are stored and displayed on the pre-locator for analysis

Decay

- Uses voltage transient analysis for fault pre-location
- Generates voltage transients at the fault point using DC voltage
- Captures returning transients via a voltage divider coupler
- Stores and displays the signals on the pre-locator for analysis

DC Test

- Checks the dielectric strength of cable insulation and verifies its integrity
- Identifies and confirms fault conditions using test voltage up to 40 kV (80 kV optional)
- Operates with a current upto 50 mA during testing
- Breakdown voltage and trip current display

Pin-point

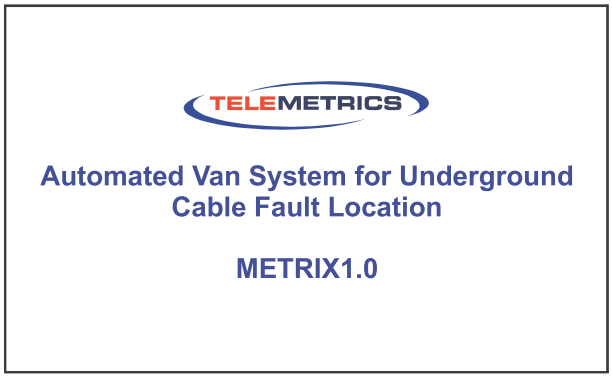
- Accurately locates the exact fault point using the acoustic method
- Uses a surge wave tester in combination with a surge wave receiver for precise pinpointing

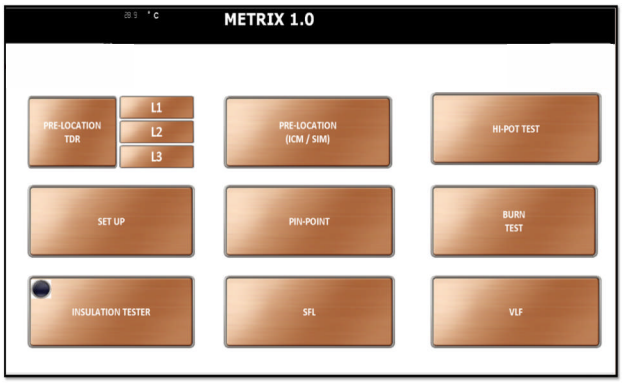
METRIX 1.0

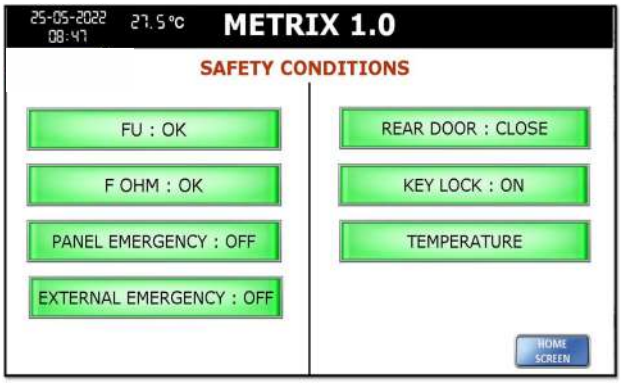
- Offers a maximum output voltage of 32 kV, selectable in 4, 8, 16, and 32 kV ranges
- Delivers 2000 joules of energy, with an optional upgrade up to 4000 joules

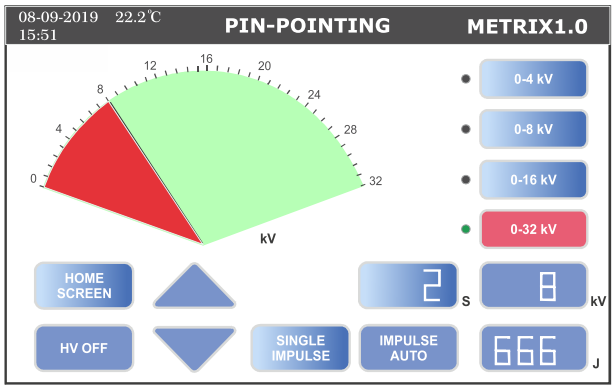
Proof/Burn Test

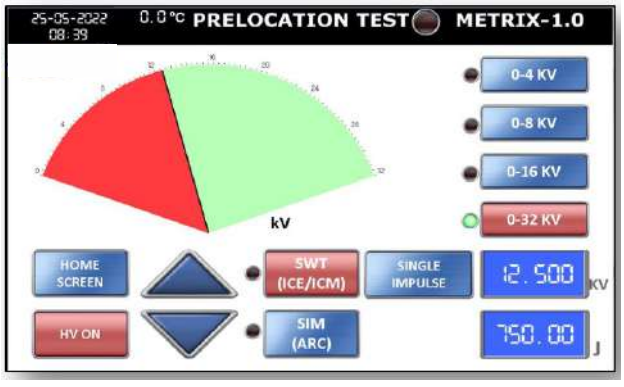
- Uses available DC high voltage of 40 kV with 200 mA output (Imax 800 mA)
- Applies maximum current briefly to stabilize unstable cable faults
- Helps make pre-location and pinpointing of intermittent faults easier and faster

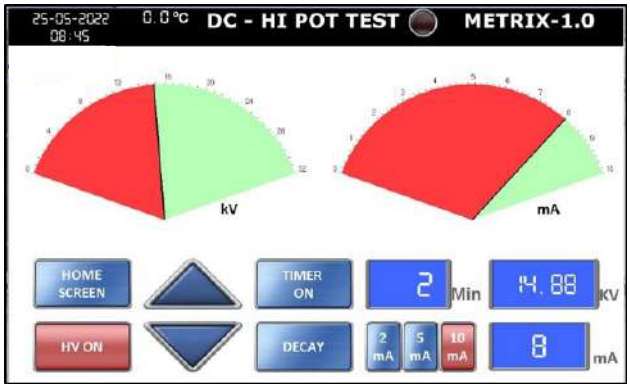












MOTWANE

Technical Details

METRIX 1.0

Functions

- Features a computerised control unit that serves as the central interface for all system operations
- Monitors system status and integrated safety functions for secure operation
- Simplifies and speeds up system control, reducing the overall fault location time
- Allows easy selection and switching between modes such as pre-location, high-voltage testing, and pin-pointing
- Enables data logging during testing for record-keeping and analysis

Safety

- Operator safety is given the highest priority in the system design
- The van features an isolated control unit, separating the operator area from the high-voltage (HV) section
- The HV section is equipped with multiple safety features:
  - Door interlocks
  - Earth monitoring system
  - Auto discharge mechanism
- Emergency OFF controls are provided on the main control panel and externally for immediate shutdown in critical situations
- The earth monitoring system trips the entire system if voltages (above permissible limits) are detected on the van chassis during testing
- Copper shielding ensures reliable and effective grounding within the high-voltage section for maximum safety

Specifications

Input Voltage	230V AC ± 10%, 50/60 Hz
Power Consumption	2.5 kVA Max

DC Test Mode

Output Voltage	0-40kV DC Variable (80kV Optional)
Tripping current range	50mA DC (Max)

Burn Mode

Output Voltage	40kV DC
Burn Current	200mA (Imax of 800mA - optional)

Sheath fault

10kV / 100 mA (can be customised)

Surge / Pin Pointing Mode

DC Voltage	4 / 8 / 16 / 32kV Ranges
Output Energy	4 / 8 / 16 / 32kV - 2000 Joules
	Higher Energy upto 4000J on request at each range. Energy at each range can be customised.
Time Set	1 to 99 Seconds (Automatic Surge Mode)

Technical Details

METRIX 1.0

Manual Single Surge

Flexible Voltage Changes During Automatic Operation

Pin-Pointing with an Acoustic Receiver

System operation and parameter programming through Bluetooth Mouse / Touch Screen with Display

Pre location

Measuring Range	160 Km (Max)
Sampling Rate	400MHz
Pulse Width	20ns - 10µs
Transmitting Pulse Voltage	65V (160V optional)
Velocity of Propagation (V)	20 - 300 m/µs
Time Domain Accuracy	±0.1% of FS
Propagation Velocity (V/2) Resolution	0.1 m/µs
Output Impedence	5 - 100 Ω
Operation Modes	TDR, ARC / MIM, ICE / ICM, DECAY, IMT (optional)
Automatic Distance Measuring	Yes
Inter Data Storage	8 GB (Not Less than 1000 Reflectogram with data)

Display Dimensions

10” or 15” or 19” or 21” IPC display (Customizable)

Associated Equipment

Cable Route Tracer - CRT 50D

Cable Identification System - CI 60S

Surge wave receiver - SLE 200Z

General Specification of METRIX 1.0

Power Supply	230V AC ± 10%, 50/60 Hz single phase.
Protection	Mains circuit breaker.
Safety Protections	Over heat protection, External Emergency off, Earth monitoring system,
	Ground shielding with copper sheet, HV area Door Interlocks.
Working Temp	0°C - 55°C
Generator (Optional)	Honda Petrol 3.0 kVA (optional 5.6 kVa)

Technical Details

METRIX 1.0

Cable Drum

HV Cable	25mtr	**Aux Earth Cable**	15mtr
Mains Cable	25mtr	**RF Cable**	25mtr
Earth Cable	25mtr		

Standard Accessories

- Insulation Tester
- Multimeter
- Hard discharge Rod
- Roado Meter
- Fire Extinguisher
- Earth Spike
- Cooling Fan
- Tools Set
- Instruction / Operating Manual
- Van Flooring - Copper Sheet, Rubber Sheet & Carpet

Note: 1) Other ratings of test / burn / surge / sheath shall be available on request. For detailed specifications, please consult factory.

2) Cable length make as per customer requirements.

3) Van model is customizable as per requirement.

4) Specifications are subjected to change without notice

5) Pictures as shown are for illustration purposes only