

EZT Series Cable Fault Location System



- Compact, lightweight, all-in-one, rugged portable cable fault locating system
- Battery and AC line operation; field-replaceable battery
- Automatic cable end identification
- Automatic ARM fault pre-location with multi-shot technology
- F-OHM safety feature ensures operator safety
- 7" HiBrite color display for outdoor visibility
- Fault pinpointing, surge current
- Automated E-Tray fault locating on both LV & MV cables
- Sheath testing and sheath fault locating, LV & MV cables

DESCRIPTION

The EZT units are a line of compact and lightweight cable fault locators. They combine simple operation with easy portability. The EZT line can be powered off a internal battery or external AC. The optional wheel kit provides easy mobility. Designed to operate on MV, LV shielded and unshielded cables. The EZT line combines a Hipot, TDR, Pre-location and pinpointing (surge testing) all in one simple to use unit. The EXT line incorporate multiple advanced features that provide both simple operations reduced fault locating time. Multi-shot Technology when performing ARM pre-location increases accuracy and greatly reduces the likelihood of a false return. The E-Tray technology automatically guides the operator through the fault finding process. Starting with Hipot the type of fault is determined, then pre-location is performed followed by pinpointing. The unit typically requires no adjustments and is operated via the unique and easy to follow E-TRAY GUI and a rotary control knob. During this 3 step process the test data will be stored and used in difficult fault locating situations to interpret the result and provide advice to the user of what to do next.

- E-Tray Quick-step mode provides simple GUI. Ideal for operators who do not use the equipment on a regular basis.
- E-Tray Expert mode. Supports maximum functionality and versatility. Ideal for expert operators.
- E-tray provides an automatic fault locating procedure. Starting with hipot testing, continuing with the pre-location and pinpointing.
- Simple E-Tray controller operation with a single rotary control knob.

- Automatic end of cable and distance to fault detection.
- Automatic optional sectionalizing.
- Automatic breakdown detection.
- Sheath Fault Testing
- LV Ground Fault Locating in Sheath mode.

FEATURES

- Rugged, lightweight, high impact and weather resistant IP53 designed enclosure.
- Operation from internal battery or from an AC source, or simultaneous charging of battery and AC operation.
- Key switch safety interlock standard (available also without).
- F-OHM feature ensures operator safety.

APPLICATIONS

Safety

Performing cable fault locating can be hazardous. Working with high voltages at high energies can be life threatening, when not performed properly. The EZT not only has safety inter-locks and requires the use to knowingly activate high voltage, but it also has an F-Ohm feature. This feature ensures there is no difference of potential between earth and return. Areas with poor grounds can lead to a difference of potential between the earth and return. This can lead to an operator being shocked! The F-Ohm feature identifies this potential and prevents the operator from being exposed to this hazard.

Insulation Testing

The built in hipot feature is Used to test the dielectric strength of the cable or sheath insulation. An insulation test helps determine the type of fault a cable may have; shorted, open, a flashing fault or excessive leakage. If the cable has a flashing fault, the EZT will automatically identify the breakdown voltage.

EZT Series

Cable Fault Location System

Prelocating

After identifying the type of fault, the EZT automatically starts a prelocating process. A TDR test will be run. The EZT will automatically identify the end of the cable and report the cables length. This can identify the location of shorted or opened cables.

Once the end of the cable is identified the EZT will automatically proceed to performing an ARC reflection test. A pulse is released into the cable. This creates a flashover at the point of failure. The TDR using a Multishot technology then automatically identifies the distance to the fault. The multishot technology allows the TDR to take hundreds of reflection measurements. The software will then automatically identify the best trace and will identify the location of the fault. This Multishot technology provides a more accurate prelocating reduces the possibility of poor trace results with difficult interpretations.

Pinpoint fault location

Once the fault has been prelocated the EZT will automatically proceed to the pinpointing function. A surge current is pulsed through the cable, which creates a "thumping" sound. This allows operators to pinpoint the location of the fault.

The optional Digi-phone can be used to locate the fault more accurately and quicker. The quicker the fault is located the less the cable is stressed. When surge currents are injected in a cable this not only creates a flashover at the point of the fault, but it will create small amounts of partial discharge across voids in the cable insulation. This overtime will degrade the cable eventually leading to more faults. The faster the pinpointing the better for the cable.

The Digi-phone uses the "Thunder & Lightning" method. It first picks up the magnetic wave caused by the surge, then it picks up the acoustic wave. Since both of these waves move at different predictable speeds, the Digi-phone can measure the time interval between them and determine the distance to the fault. This way reflected sound waves, such as those in conduits do not affect its measurements.

| APPLICATIONS | EZT3DV3 | EZT4V3 | EZT12V3 |
|--|-----------|-----------|------------|
| MV Buried cable fault locating. | | | ■ |
| LV Sheilded buried cable fault locating | Best | Good | OK |
| LV UNsheilded buried cable fault locating | Best | Good | OK |
| Street light fault locating | Best | Good | OK |
| Sectionalizing networks | Up to 3KV | Up to 4KV | Up to 12KV |
| Solar buried and tray cable fault locating | Best | Good | OK |
| Insulation testing | 3KV | 4KV | 12KV |
| Time Domain Reflectometry (TDR) | ■ | ■ | ■ |
| Conditioning Cables | 94mA | 35mA | 12mA |
| Sheath Testing | ■ | ■ | ■ |

Specifications

| | EZT3DV3 | EZT4V3 | EZT12V3 |
|--|--|--|--|
| | 1.5KV/3KV | 4KV | 12KV |
| Supply | | | |
| AC supply | AC line: 100-230 VAC ±50/60 Hz | AC line: 100-230 VAC ±50/60 Hz | AC line: 100-230 VAC ±50/60 Hz |
| Battery | Battery: Internal 24 V, NiMH Battery 5 AH | Battery: Internal 24 V, NiMH Battery 5 AH | Battery: Internal 24 V, NiMH Battery 5 AH |
| Battery charge | Approx. 30-60 min of surge/thumping | Approx. 30-60 min of surge/thumping | Approx. 30-60 min of surge/thumping |
| Battery charger | Internal, 100-240 VAC-24 VDC charger | Internal, 100-240 VAC-24 VDC charger | Internal, 100-240 VAC-24 VDC charger |
| Battery re-charge | Approx. 3 hours | Approx. 3 hours | Approx. 3 hours |
| Features | | | |
| Hipot | 3KV | 4KV | 12KV |
| Output | 0-1.5 - 47mA 0-3 kV - 94 mA DC | 0-4 - 35 mA DC | 12 mA |
| TDR | On-screen comparison of upto 256 pairs | On-screen comparison of upto 256 pairs | On-screen comparison of upto 256 pairs |
| TDR range | Up to 170,000 ft / 52km | Up to 170,000 ft / 52km | Up to 170,000 ft / 52km |
| TDR Sampling Rate | 100 Mhz | 100 Mhz | 100 Mhz |
| TDR resolution | 2.5 ft @ 250 ft / fs (0.8m @ 80 m/μs) | 2.5 ft @ 250 ft / fs (0.8m @ 80 m/μs) | 2.5 ft @ 250 ft / fs (0.8m @ 80 m/μs) |
| Automatic end of cable and distance to fault indication | ■ | ■ | ■ |
| Arc reflection | Single shot surge, multishot TDR, 0-1.5/0-3kV | Single shot surge, multishot TDR, 0-4kV | Single shot surge, multishot TDR, 0-12kV |
| Surge | 0-1.5/3.0 kV @ 500 J | 0-4 kV @ 500 J | 0-12 kV @ 500 J |
| Impulse sequence | 5-10 seconds or single shot | 5-10 seconds or single shot | 5-10 seconds or single shot |
| Sectionalization | Optional | Optional | Optional |
| Sheath testing and sheath fault locating | ■ | ■ | ■ |
| E-tray (step by step customizable fault locating) | ■ | ■ | ■ |
| Hardware | | | |
| Display | 7in (17.78 cm) HiBrite TFT Color LCD 1280x800 pixel | 7in (17.78 cm) HiBrite TFT Color LCD 1280x800 pixel | 7in (17.78 cm) HiBrite TFT Color LCD 1280x800 pixel |
| Memory | 100 traces | 100 traces | 100 traces |
| Interface | USB port | USB port | USB port |
| Terminations | T9 | T9 | T9 |
| Termination Kits | | | |
| North American hot line clamps | ■ | ■ | ■ |
| Vice grip clamps | ■ | ■ | ■ |
| Battery clamps | ■ | ■ | ■ |
| Dimensions (include top-mounted cable pouch) | 14x11x25 in. (35.5x28x64 cm) | 14x11x25 in. (35.5x28x64 cm) | 14x11x25 in. (35.5x28x64 cm) |
| Weight | 75lbs (34kg) | 71lbs (34kg) | 71lbs (34kg) |
| Safety | | | |
| Emergency OFF mushroom button | ■ | ■ | ■ |
| Key-switch interlock, Standard (available without) | ■ | ■ | ■ |
| F-Ohm interlock detection/ indication "safe connections" | ■ | ■ | ■ |
| interface for remote EMERGENCY OFF box | ■ | ■ | ■ |
| Environmental | | | |
| Operating Temperature | -20°C to +50°C (-4°F to +122°F) | -20°C to +50°C (-4°F to +122°F) | -20°C to +50°C (-4°F to +122°F) |
| Storage temperature | -25°C to +65°C (-13°F to +149°F) | -25°C to +65°C (-13°F to +149°F) | -25°C to +65°C (-13°F to +149°F) |
| IP Rating | IP53 (with top open) | IP53 (with top open) | IP53 (with top open) |
| Cables Supplied | | | |
| HV flexible shielded cable | 12 ft (4.5 m), 50 ft (15 m) optional | 12 ft (4.5 m), 50 ft (15 m) optional | 12 ft (4.5 m), 50 ft (15 m) optional |
| Safety ground cable | 12 ft (4.5 m), 50 ft (15 m) optional | 12 ft (4.5 m), 50 ft (15 m) optional | 12 ft (4.5 m), 50 ft (15 m) optional |
| AC supply lead set | 6 ft (1.8 m), (US/schuko/UK plug) | 6 ft (1.8 m), (US/schuko/UK plug) | 6 ft (1.8 m), (US/schuko/UK plug) |

EZT Series Cable Fault Location System

EZT3DV3-YYT9XWWZ

EZT4V3-YYT9XWWZ

EZT12V3-YYT9XWWZ

| ORDERING INFORMATION | | | | | | |
|--|---|----|----|----|----|---|
| Model EZT3DV3 EZT4V3 EZT12V3 | | YY | T9 | X | WW | Z |
| Select cable length | 15 foot (4.5m) Standard cable | 15 | | | | |
| | 50 foot (15m) Custom cable | 50 | | | | |
| Select software option | Sectionalization Software (HDW Patent US B 6, 683, 495,B2) | | | S | | |
| Permanently attached cart | Provides special permanently attached cart with sturdy stainless-steel frame, telescope handle and air tires. | | | WK | | |
| Delivery without safety key switch (check whether permissible under local safety regulations.) | | | | | | P |

Termination Kits

Must Pick One

| | | |
|--------------|--|---|
| Part Number | Description | |
| 1015-525-US | North America (US,CA,MX) Termination Kit |  |
| 1015-526-AOC | All Other Countries Termination Kit |  |
| 1015-525-VG | Vice Grip Termination Kit |  |

Optional Accessories

| | | |
|----------|--|---|
| 1013-514 | ELBOW ADAPTER 15KV 10MM MALE MC T9 TERM |  |
| 1013-515 | ELBOW ADAPTER 25KV 10MM MALE MC T9 TERM | |
| 1013-516 | ELBOW ADAPTER 35KV 10MM MALE MC T9 TERM | |
| 1013-517 | ELBOW ADAPTER 35KV 10MM MALE MC T9, ESNA | |
| 1013-518 | 15kV probe adapter, w/10mm male MC connector for T9 terminations | |
| 1013-519 | 25kV probe adapter, w/10mm male MC connector for T9 terminations | |
| 1013-520 | 35kV probe adapter, w/10mm male MC connector (fits Elastomold bushing), compatible with HV "T9" terminations |  |
| 1013-521 | 35kV probe adapter, w/10mm male MC connector for T9,Cooper bushing. | |

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| Optional Accessories | | |
|----------------------|--|---|
| P1G130T9 | Portable equipment safety ground cable reel 13" high X 10-1/2". 130FT |  |
| P1G50T9 | Portable equipment safety ground cable reel 13" high X 10-1/2". 50FT | |
| P1G85T9 | Portable equipment safety ground cable reel 13" high X 10-1/2". 85FT | |
| P1H130T9 | Portable high voltage cable reel with HV return, 18" high X 20". effective width with 130' of HV cable. Compatible with T9 terminations. |  |
| P1H50T9 | Portable high voltage cable reel with HV return, 18" high X 20". effective width with 50' of HV cable. Compatible with T9 terminations. | |
| P1H85T9 | Portable high voltage cable reel with HV return, 18" high X 20". effective width with 85' of HV cable. Compatible with T9 terminations. | |
| R2H130T9G130 | 2-reel cable rack for vehicle mounting. Reels for HV cable, safety ground or AC line cord. 130 FT for T9 terminations. |  |
| R2H50T9G50 | 2-reel cable rack for vehicle mounting. Reels for HV cable, safety ground or AC line cord. 50 FT for T9 terminations. | |
| R2H85T9G85 | 2-reel cable rack for vehicle mounting. Reels for HV cable, safety ground or AC line cord. 85FT for T9 terminations. | |
| R3H130T9G130A130 | 3-reel cable rack for vehicle mounting. Reels for HV cable, safety ground and AC line cord. 130 FT for T9 terminations. |  |
| R3H50T9G50A50 | 3-reel cable rack for vehicle mounting. Reels for HV cable, safety ground and AC line cord. 50 FT for T9 terminations. | |
| R3H85T9G85A85 | 3-reel cable rack for vehicle mounting. Reels for HV cable, safety ground and AC line cord. 85 FT for T9 terminations. |  |
| 1013-526 | Large Hastings clamp for large conductor sizes, with pigtail and 10mm female MC connector compatible with HV T9 terminations |  |
| 2010012 | Remote Emergency OFF box |  |
| 890024896 | Connecting Cable for Remote Emergency OFF box (Required for Remote Emergency Box) | |