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.

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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	■	■	■

Megger

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)

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EZT3DV3-YYT9XWWZ

EZT4V3-YYT9XWWZ

EZT12V3-YYT9XWWZ

ORDERING INFORMATION

Model EZT3DV3 EZT4V3 EZT12V3		YY	T9	X	WW	Z	YY = Cable Length 15 or 50 X = Sectionalization, S to include, blank to exclude. WW = Wheel kit, WK to include, blank to exclude. Z = Safety key switch, BLANK to include, P to exclude.
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)	

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