

## EZ-THUMP™ 12 kV, Model V3

### Portable Cable Fault Location System for Medium Voltage Distribution Power Cables



- **Compact, lightweight, all-in-one, rugged portable cable fault locating system**
- **Battery and AC line operation; field-replaceable battery**
- **Automatic cable end, fault location, and sectionalizing (optional in certain markets)**
- **Single-stage capacitor surge discharge: 500 J @ 12 kV**
- **0-12kV HV DC Test, Display of Insulation Resistance**
- **F-OHM safety feature to ensure safe grounding**
- **7" HiBrite color display for outdoor visibility**
- **ARM® prelocation of high resistance/ flashover faults with MULTISHOT Technology for optimum fault capture**
- **Fault pinpointing, high resistive fault**
- **Sheath testing and sheath fault locating**

#### DESCRIPTION

The EZ-THUMP 12 kV model is a compact and lightweight, battery and AC line operated, portable cable fault location system. It is designed for quick, effective, accurate and safe fault locating operations to greatly reduce system customer outage minutes.

Due to its portable and robust enclosure, it is ideally suited for all typical fault locating operations on MV cables.

The 12 kV model is typically used as part of a "satellite" fault locating concept for remote areas that may have less frequent faults, when simple operation, light weight and economics are important, or for hard to access inner-city locations.

The unit typically requires no adjustments and is operated via the unique and easy to follow E-TRAY GUI and a rotary control knob. It guides the user automatically through the entire fault locating process, starting with a Hipot Test and followed by both a Prelocation and Pinpointing step. 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.

#### FEATURES:

- TDR method to prelocate very low resistance cable faults, either phase to phase or phase to neutral, or by pair comparison
- Arc Reflection Method (ARM®) prelocation of high resistance flashover faults, featuring MULTISHOT Technology for optimum fault capture

- Single stage 500 Joule surge generator for pinpointing of high resistive faults up to 12kV
- DC testing for breakdown detection.
- Insulation resistance measurement.
- Sheath testing and sheath fault locating.

#### APPLICATIONS

##### **HV Testing (proof/insulation testing, sheath testing)**

Used to test the dielectric strength of the cable or sheath insulation and, if the test fails, to determine the breakdown voltage. For this purpose a test voltage up to 12 kV (sheath test typically limited to 5kV) is applied to the cable under test indicating the resistance value.

##### **Fault prelocation**

After identifying the type of fault as high resistance/ flashover, prelocation of any concentric neutral type MV cable can be determined using ARM. In ARM, the arc of the flashover creates a temporary "jumper" to the neutral ground. During this condition, a Multishot TDR measurement is made into what is basically a short circuit fault providing a negative reflection at the location of the fault.

Faults identified as very low resistance / non-flashover in shielded cables can be prelocated using the TDR method.

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#### Pinpoint fault location

Accurate pinpoint fault location of the typical high resistance/flashover faults is achieved using the "Thunder & Lightning" method whereby the 500 Joule surge generator (thumper) and an acoustic/electromagnetic receiver are used (Megger Digiphone 2)

#### FEATURES

- Aside from the expert mode, the quick-step mode is especially convenient where users may not operate the unit on a regular basis.
- Automatic fault locating procedure.
- Operating of unit via unique E-Tray GUI and rotary control knob.
- Automatic end of cable and distance to fault location.
- Automatic sectionalizing (for specific markets).
- Automatic breakdown detection.
- Manual Voltage control (customer configurable).
- Sheath Fault / Secondary Fault locating (customer configurable).
- Key switch safety interlock standard (available also without).
- Operation from internal battery or from an AC source, featuring simultaneous AC operation and battery charging.
- Rugged, lightweight, high impact resistant IP53 designed enclosure for wet outdoor applications.



Photo of EZT12V3 with permanently mounted cart.  
See configurator on page 3, identifier WK

#### SPECIFICATIONS

##### Testing

Output: 0 – 12 kV, 12 mA DC, display of insulation resistance

##### Prelocation

TDR: Phased to Phase, Phase to Neutral, on screen comparison of up to 256 pairs  
Range: up to 170,000ft / 52km  
Sampling Rate: 100 Mhz  
Resolution: 2.5 ft @ 250 ft/fs  
0.8 m @ 80 m/μs

Arc Reflection: 0 – 12 kV Multishot

##### Pinpoint Fault Location

Surge: 0 - 12 kV @ 500 J  
Impulse Sequence: 5 - 10 seconds or single shot

##### Display

7 in. (17.78 cm)  
HiBrite TFT Color LCD  
1280 x 800 pixel

##### Memory

100 traces

##### Interface

USB Port

##### Cables Supplied

15 ft (4.5 m) HV flexible shielded cable  
15 ft (4.5 m) safety ground cable  
6 ft (1.8 m) AC supply lead set (US/Schuko/UK plug)

##### Terminations

**T1 (typically North America):** 14 mm male MC for HV output with matching hotline clamp attachment; HV return and safety ground with hooks and matching hotline clamp attachment.

**T2 (typically North America):** same as T1, however, hotline clamp attachments for HV output and HV return are replaced by vise grip attachments.

**T3 (typically UK):** The HV output and the HV return leads are terminated with hardwired battery clamps.

**T4 (typically all other countries):** 10 mm female MC for HV output and HV return with matching battery clamp attachments, safety ground with hook and matching hotline clamp attachments.

##### Supply

Battery: Internal 24 V NiMH Battery 5 AH  
Approx. 30 - 60 mins of surge/thumping  
Approx. 3 hours recharge time

Charger: Internal, 100-240 VAC – 24 VDC charger  
AC Line: 100 – 230 VAC ±50/60 Hz

##### Safety

Emergency stop  
Key-switch safety Interlock, standard (available also without)  
F-OHM detection /indication "proper connections"

##### Environmental

Operating Temperature: -4° F to 122° F (-20° C to +50° C)  
Storage Temperature: -12° F to 160° F (-25° C to +70° C)

##### IP Rating

IP53 (with top open)

##### Weight

71 (32 kgs)

##### Dimensions (include top mounted cable pouch)

14 x 11 x 25 in. (35.5 x 28 x 64 cm)

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### Portable Cable Fault Location System for Medium Voltage Distribution Power Cables

ORDERING INFORMATION			
MODEL EZT12V3-		YY	ZZ
SELECT CABLE LENGTH	15 ft (4.5 m) Standard cable	15	
	50 ft (15 m) Custom Cable	50	
SELECT CABLE TERMINATION	14 mm male MC with hotline clamps (NAFTA)		T1
	14 mm male MC with vise grips		T2
	2 x hardwired battery clamps (typical UK, no alternative termination attachments)		T3
	2 x 10 mm female MC with battery clamps (CEE, ROW & CSA)		T4
SELECT SOFTWARE OPTION	Sectionalizing software (HDW patent US B 6, 683,459 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
<b>Optional accessories</b>			
15-kV elbow 14 mm female MC connector			865000100100000
25-kV elbow 14 mm female MC connector			865000200100000
35-kV elbow 14 mm female MC connector			865000300100000
Remote Emergency OFF Box			2010012
Connection Cable for Remote Emergency OFF Box ( <i>required, if option above is selected</i> )			890024896

\*Permanently attached cart accommodates either cable lengths of 15 ft (4.5 m) or 50 ft (15 m)

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