

# **EZ-THUMP™ Model V2 All Voltages**

## **Portable Cable Fault Location Systems**



- **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 @ 4 kV model; 500 J @ 12 kV model**
- **Dual-stage capacitor surge discharge: 500 J @ 1.5 kV & 3.0 kV @ 3 kV model**
- **Up to 94 mA current, depending on voltage**
- **F-OHM safety feature to ensure safe grounding**
- **HiBrite color display for outdoor visibility**
- **TDR LV prelocation of very low resistance faults and cable interruptions**
- **ARM® prelocation of high resistance/flashover faults**
- **Fault pinpointing, high- and low-resistive fault**
- **Sheath testing and sheath fault locating**

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### **DESCRIPTION**

All EZ-THUMP models are compact and lightweight, battery and AC line operated, portable cable fault location systems. They are designed for quick, effective, accurate and safe fault locating operations to greatly reduce system customer outage minutes.

Due to their rugged yet portable enclosure, they are ideally suited for all typical fault locating operations on MV cable as well as on LV cables.

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

The 3 kV and 4 kV units offer a convenient solution for industrial fault locating applications up to 3 or 4 kV, street light fault locating or fault locating in LV power circuits in the utility industry, featuring point-to-point cables.

The units require no adjustments and are operated via a rotary control knob.

### **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 3 kV, 4kV or 12 kV 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 LV or MV cable can be determined using ARM. For ARM the fault is stabilized by creating a temporary “bridge” to ground/earth. During this condition, a standard TDR measurement is made into what is basically a short circuit fault providing a negative reflection at the location of the fault. Multi-conductor nonshielded LV cables with the *same type of fault* can be typically processed in the same way.

Faults identified as low resistance/non flashover in either shielded or unshielded cables can be *prelocated* using the TDR method.

**Pinpoint fault location**

Accurate pinpoint fault location of high resistance/flashover faults (either in shielded or unshielded cables) is achieved using the "Thunder & Lightning" method whereby the single or dual stage 500 Joule surge generator (thumper) and an acoustic/electromagnetic receiver are used.

Pinpointing of low resistance faults in unshielded cables requires the additional item ESG NT digital ground/ earth fault locator with optional "A" frame. Accurate location of faults is achieved using the voltage gradient method. As the fault is approached, the voltage gradient potential increases while decreasing with reversed polarity after passing the fault. The change in polarity allows the fault to be located precisely.

**FEATURES**

- Aside from the expert mode, the quick-step mode is especially convenient where operators may not be called upon to use the equipment on a regular basis.
- Automatic fault locating procedure.
- Operating of unit via rotary control knob.
- Automatic end of cable and fault detection.
- Automatic sectionalizing (for specific markets).
- Automatic breakdown detection.
- Key switch interlock standard (available without).
- Operation from internal battery or from an AC source.
- Rugged, lightweight, high impact resistant IP53 designed enclosure.
- TDR method to prelocate low resistance cable faults.
- Arc Reflection Method (ARM®) prelocation of high resistance/flashover faults.
- Single or dual stage 500 Joule surge generator for pinpointing of high resistive faults @ 4kV; 12kV; 1.5kV and 3kV.
- DC testing for breakdown detection.
- Insulation resistance measurement.
- Sheath testing and sheath fault locating.

**SPECIFICATIONS****Testing**

Output: 0 – 1.5/0 - 3 kV, 94/47 mA DC  
0 – 4 kV, 35 mA DC  
0 – 12 kV, 12 mA DC

**Prelocation**

TDR: Range: 25,000 ft (7.6 km)  
Sampling Rate: 100 Mhz  
Resolution: 2.5 ft @ 250 ft/fs  
0.8 m @ 80 m/μs  
Arc Reflection: 0 – 1.5/0 - 3 kV  
0 – 4 kV  
0 – 12 kV

**Pinpoint Fault Location**

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

**Display**

5.7 in. (14.48 cm)  
Transflective TFT Color LCD  
640 x 480 pixel

**Memory**

1000 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) AV 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 Interlock, standard (available without)  
F-OHM detection /indication "proper grounding"

**Environmental**

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

**IP Rating**

IP53 (with top open)

**Weight**

71 - 75 lbs (32 - 34 kgs)

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

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

ORDERING INFORMATION					
MODEL EZT12V2- MODEL EZT4V2- MODEL EZT3DV2-		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)				
	Sheath fault testing / secondary fault locating			H	
	Manual voltage control			M	
**PERMANENTLY ATTACHED CART	Provides special permanently attached cart with telescope handle and air tires				WK
DELIVERY WITHOUT SAFETY KEY SWITCH					P
Optional accessories					
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
Digiphone Plus surge wave receiver					1003316-S
ESG NT digital earth fault locator					1004629-S

\* Software options can be combined in any way

\*\*PERMANENTLY ATTACHED CART is available with either cable lengths of 15 ft (4.5 m) or 50 ft (15 m)