

## SMART THUMP ST16-20 Portable/Vehicle Mount Cable Fault Location System



- Delivers 1500 J at 8/16 kV
- 20-kV DC high voltage proof/burn and displays insulation resistance
- E-Tray automatic test sequence to proof test, prelocate and pinpoint
- ARC reflection MV cable prelocation
- ICE MV cable prelocation
- Multi-shot technology for ARM
- Earth gradient LV fault locating and sheath fault locating
- Interprets test results for user
- 7.0 in. HiBrite color display
- IP53 rating for wet environments
- Safety / grounding check
- USB interface

### DESCRIPTION

The SMART THUMP ST16-20 Portable/Vehicle-mounted Cable Fault Locating System provides safe, efficient and extremely easy-to-use solutions for quickly identifying, prelocating and pinpointing various types of cable faults for power cables. The ST16-20 is developed to meet the requirements for typical medium-voltage distribution cable fault location markets from 11 to 35 kV system voltage.

Circuit parameters include:

- System voltage up to 35 kV (phase to phase)
- Insulation EPR, XLPE and mixed cables
- Typical conductor sizes between #2 and 1000 MCM (34 mm<sup>2</sup> to 500 mm<sup>2</sup>)
- Typical circuit lengths from a few hundred feet up to a max of 170,00 ft (52 km)

Typical end users include: operations department of power utility companies, electrical departments within municipalities, private network operators, high voltage electrical contractors, service companies, port authorities, mining, airports, military bases, petrochemical and paper companies.

The ST16-20 unit incorporates the "E-Tray" technology, a concept that has been already proven in other products (EZ-Thump, EZ-Restore Overdrive, and TDR T3090) and which has been carried forward into new Megger products. It allows that all E-Tray units, including the ST16-20, are operated in the exact same way, which reduces training time very substantially.

The E-Tray adds the unique capability to access and operate every function through an innovative and intuitive user interface, without the need to make adjustments; the software is suggesting the next logical step to the user.

### APPLICATIONS

The SMART THUMP ST16-20 represents a new generation of advanced underground cable fault locating systems that require less training than a traditional thumper-only system, while providing the big advantage of displaying the distance to fault. It is the only fault locator with built-in intelligence to interpret the results of the initial test sequence. The "turn & click" rotary button operation lets the user automatically proof test, pre-locate, and pinpoint the fault from one convenient control console. No adjustments are typically required. If the user selects, the unit automatically sets the thump voltage to minimize the stress applied to the cable. The ST16-20 features an automatic safety check to protect the user from incorrect or faulty connections (F-Ohm). The heavy-duty wheels of the unit are ideal for use in rough terrain. The IP53 rating allows operation in wet environments. The ST16-20 can also be permanently installed in a vehicle (truck mount version).

**FEATURES AND BENEFITS**

- This fully integrated system can be operated from either its *internal battery/inverter*, *external 12 VDC or 120/230 VAC*
- "Expert Mode" provides up to 20 individual TDR features to the experienced user for optimum fault locating results
- "Quick-Steps Mode" limits the available TDR features to those that are useful to the casual or inexperienced user
- Rugged, lightweight powder coated IP53 rated enclosure
- F-OHM safety feature to check for correct setup of connections
- E-TRAY operation eliminates lengthy training
- Very quick access to all components in case service is required

**SPECIFICATIONS**

**Impulse Generator (Thumper)**

**Operating modes:**

- Arc Reflection Method (ARM®)
- ICE surge pulse (customer configurable)
- Sectionalizing (North America only), optional - see configurator
- Direct surge (Thumping)
- DC-HV proof test and resistance readout (Ω)
- Burning / fault conditioning (customer configurable)
- Sheath fault test & pinpointing / LV fault locating (customer configurable)

**TDR**

- TDR mode (customer configurable)
- TDR range: up to 170,000 ft (52km)
- TDR supports phase comparison mode (>4 phase conductors instant overlay)
- TDR supports ARM prelocation with Multishot
- TDR supports ICE prelocation

**Energy Output**

- Dual stage: 1500 J @ 8 kV and 16 kV
- Proof test: 0 to 20 kV continuous
- Burn current: 0 to 60 mA max continuous output

**Key Features**

- Single-shot thump in ARM
- Multishot TDR in ARM (available August 2020)
- Built-in inductive type ARM filter
- 8 second thump cycle @ max output energy
- Automatic cable, and system discharging and grounding

**Display Features**

- HiBrite TFT color display, sunlight proof
- 7.0 in., 1280 x 800 pixel resolution

**Power Options**

- 120/230 V, 60/50 Hz ac operation (incl. isolation transformer if no internal battery)
- 12 V deep cycle marine battery with internal dc charger/inverter
- 12 V external battery terminals

**SMART Features**

- Entirely automatic test sequences includes proof test, prelocate, and pinpoint
- Automatic interpretation regarding type of fault (i.e. open, burnt in the clear, short)
- Automatic adjustment of thump voltage
- Automatic alphanumeric display of cable end and fault distance

**USB**

- Host interface 2.0 for TDR trace export and system upgrades

**Mounting and Enclosure**

- Mounted on cart with heavy-duty 15 in. air tires or permanently vehicle mounted
- Rain tight powder coated enclosure

**Digital "Analog" Meter**

- Displayed on LCD screen

**Environmental**

- Operating Temperature: -20°C to +50°C; -4°F to +122°F
- Storage Temperature: -25°C to +65°C; -13°F to +149°F

**IP Rating**

- IP53 (with top open)

**Weight**

- M8 model 147 lbs (67kg) M5 model 210 lbs (95 kg) M1 model 270 lbs (120 kg)

**Dimensions**

- M1/3 model: 27 x 49 x 24 in. (686 x 1244 x 609 mm) W x H x D
- M 4/5 model: 20 x 39 x 16 in. (508 x 990 x 406 mm) W x H x D
- M6/7 model: 20 x 34 x 16 in. (508 x 844 x 406 mm) W x H x D
- M8 model: 20 x 32 x 14 in. (508 x 794 x 356 mm) W x H x D
- M9 model: 20 x 32 x 18 in. (508 x 794 x 457 mm) W x H x D

**ST16-20 PART NUMBER CONFIGURATOR**

Examples: ST16 - M M1 50 T1 S

