

# PFL22M1500

## Portable Cable Fault Location System



- **Portable, rugged fault locating systems**
- **HV insulation testing to 20 kV**
- **Proof/burn up to 20 kV, 115 mA**
- **8/16 kV, 1500 Joules surge output**
- **Arc reflection method**
- **Arc reflection plus**
- **Differential arc reflection**
- **Impulse current (current impulse)**
- **Integrated large screen color TDR**
- **Optional onboard inverter**

### DESCRIPTION

The PFL22M1500 Power Cable Fault locator is designed to provide quick, effective, accurate and safe fault location, thereby reducing system outages and minutes lost.

The instrument comes in a rugged yet portable enclosure. Its IP64 rating makes it suitable for use in even environmentally hostile conditions.

All systems offer the facility to undertake cable testing: cable and fault diagnosis, pre-location of cable faults, fault conditioning, and pinpoint fault location using acoustic methods.

### FEATURES AND BENEFITS

- Innovative MTDR100 mounted in the lid features:
  - Single knob (jog-dial) control
  - Large easy-to-view color (XGA) display
  - Auto ranging
  - Cable library
- Multiple fault locating techniques
  - Pre-location
  - Pulse echo
  - Arc reflection
  - Arc reflection plus
  - Differential arc reflection
  - Impulse current
- Pinpoint
  - Surge/voltage impulse
- High-voltage module
  - 2-range
  - Safety interlocks
  - HV on indicator

### APPLICATIONS

#### HV Testing (proof/insulation testing)

Used to prove the integrity of and identify and confirm fault conditions in cable networks. The variable output voltage can also be used for sheath testing at 5 or 10 kV.

#### Fault Pre-location

After identifying the type of fault, pre-location of the fault position can be determined using the following methods:

- A **TDR** is used to pre-locate cable faults using pulse echo, arc reflection, impulse current (ICE). The MTDR100 features auto-ranging, auto distance to fault and operator assist functions that guide the operator through the fault locating process.
- In the **Arc reflection** mode, faults are stabilized by creating a temporary “bridge” to earth. During this condition, a standard pulse echo measurement is taken into what is basically seen as a short circuit fault.
- **Arc reflection plus** provides the operator the added advantage of being able to view and analyze up to 1024 traces (range dependent) taken during the period of the arc.
- During **Differential arc reflection** mode unwanted and confusing reflection are removed leaving a clean trace with only the fault position, point being displayed by a positive pulse. This method is especially suited in locating high-resistance faults in complex cable systems.
- **Impulse current, or ICE**, is a transient analysis method of pre-location utilizing the integrated linear coupler.

#### Fault Conditioning

Fault conditioning is used to stabilize unstable flashing or high resistance faults. The PFL22M1500 incorporates both proof/burn and arc reflection modes.

**Proof/Burn**

Following a breakdown of the cable under test, a high current is applied that stabilizes the fault condition. This allows easier and faster pre-location and pinpointing of the unstable faults.

**Pinpoint fault location**

Accurate pinpoint fault location is achieved using the acoustic method whereby the powerful 8/16 kV 1500 Joule surge generator (thumper) and an acoustic receiver (Megger MPP2000) is used.

**SPECIFICATIONS**

**Testing**

Output: 0 - 20 kV (negative with regard to earth)  
 0 - 10 kV, 115 mA constant  
 0 - 20 kV, 58 mA constant  
 Resolution: 5 mA  
 Metering: Analog metering of current and voltage

**Low-voltage Pre-location**

**MTDR100**

Range: 50 m – 55 km (164 ft - 180,446 ft)  
 Pulse width: 50, 100, 200, 500 ns, 1, 2,5,10 μs, and auto  
 Pulse Amplitude: 25 V into 50 Ω  
 Sampling Rate: 100 Mhz  
 Timbase Accuracy: 200 ppm  
 Resolution (V<sub>p</sub>=55%): 0.82 m (2.8 ft)  
 Display: 26.4 mm (10.4 in.), full XGA,  
 1024 X 768 color display  
 Cursors: Dual independent control  
 Gain: 60 dB range in 5 dB Steps  
 Input: Impedance 50 Ω  
 Inputs: 1 x TDR/ARC, 1 x current impulse  
 Ports: 1 x printer/USB memory device  
 Software: CAS1 (Cable analysis software)

**High Voltage Pre-location**

Arc Reflection: 0-8 and 0-16 kV, 1500 Joule  
 Arc Reflection Plus: 0-8 and 0-16 kV, 1500 Joule  
 1024 – 16 traces dependent on range  
 Differential Arc Reflection: 0-8 and 0-16 kV , 1500 Joule  
 Impulse Current: 0-8 and 0-16 kV, 1500 Joule

**Fault Conditioning**

Proof/burn: 0 - 20 kV 58 mA  
 0 - 10 kV 115 mA

**Pinpoint Fault Location**

Surge: 0 - 8 and 0 -16 kV, @ 1500 Joule  
 Impulse Sequence: Adjustable 5 – 30 seconds  
 Single Shot

**Cables**

HV: Detachable 15 m (25 ft) 1-phase flexible shielded cable with HV crock-clips  
 Input/Supply: Input Cable  
 Earth: 15 m (25 ft) 8 mm<sup>2</sup> flexible earth cable with vice grips

**Safety**

High visibility “status” bar  
 Emergency stop  
 Safety Interlock circuit  
 External beacon circuit

**Supply**

Universal AVSM 2-ranges: 108 - 132 V ac and 208 - 265 V ac 47 – 63 Hz  
 Inverter: 11.5 – 14 V dc (Optional)

**Environmental**

Operating Temperature: -20 ° to +50 °C (-4 ° to 122 °F)  
 Storage Temperature: -20 ° to +55 °C (-4 ° to 131 °F)  
 Elevation: 1600 m (De-rate voltages at higher altitudes)  
 Humidity: 5 to 95% RH non-condensing

**IP Rating**

IP64 (with top/back flaps closed)

**Weight**

131 kgs (290 lbs)

**Dimensions**

965 mm H x 536 mm W x 503 mm D  
 (3 ft H x 1.75 ft W x 1.65 ft D)

**ORDERING INFORMATION**

Item	Cat. No.	Item	Cat. No.
20 kV dc, 8/16 kV @ 1550 Joule surge	PFL22M1500-EN	Instruction manual	AVTMPFL22
As above but including 12 V inverter	PFL22M1500INV-EN	Software	CAS-1
<b>Included Accessories</b>			
High-Voltage shielded output cable 15 m including MC terminations with HV Clamps	1001-123	<b>Optional Accessories</b>	
Supply/Input cables (1xea USA, UK, SHUKO, International)	17032-4/5/12/13	HV Vice Grips	18944-2
Flexible ground cable, 15 m (50 ft)	19265-15	PFL20M Transit case	2001-289
Interlock shorting plug	10226-1	12 V Stand alone battery kit	1001-690
Cable bag	2001-813	Acoustic/Electromagnetic Receiver	MPP2000
		Stand alone cable reel assembly	CBL100HV
		NB: Refer to factory for full list of cable reel assemblies	

**ISO STATEMENT**

Registered to ISO 9001:2000 Cert. no. 10006.01  
**PFL22M1500\_DS\_EN\_V03**

**Megger is a registered trademark**  
**Specifications subject to change**  
**without notice**