

# PFL22M1500

## Portable Cable Fault Location System



- **Portable, rugged fault locating system**
- **HV insulation testing to 20 kV**
- **Burn up to 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



**The handle and foot-step allows for easy and comfortable transport**

### 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 electro-magnetic/acoustic method whereby the powerful 8/16 kV 1500 Joule surge generator (thumper) and a pinpointer (Megger digiPHONE+) 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:	10 ranges; 100 m – 55 km (328 ft - 34 miles) 100 m - 220 km (328 ft - 137 miles) - transient methods
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
Timebase Accuracy:	200 ppm
Resolution ( $V_p=55\%$ ):	0.82 m (2.8 ft)
Display:	264 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
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**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 (50 ft) 1-phase flexible shielded cable with HV crock-clips
Input/Supply:	Input Cable
Earth:	15 m (50 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)
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**Weight**

131 kgs (290 lbs)
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**Dimensions**

965 mm H x 536 mm W x 503 mm D (38 in. H x 21 in. W x 20 in. D)
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**ORDERING INFORMATION**

Item	Cat. No.	Item	Cat. No.
20 kV dc, 8/16 kV @ 1500 Joule surge	PFL22M1500-EN	Cable bag	2001-813
As above but including 12 V inverter	PFL22M1500INV-EN	Instruction manual	AVTMPFL22M
<b>Included Accessories</b>		Software	PCAS-1
High-Voltage shielded output cable 15 m including MC terminations with HV Clamps	1001-123	<b>Optional Accessories</b>	
No. American input power supply cable 2.3 m (7.5 ft)	17032-4	HV Vice Grips	18944-2
International unterminated input power supply cable 2 m (6.5 ft)	17032-5	12 V Stand alone battery kit	1001-690
UK input power supply cable 2.5 m (8 ft)	17032-12	digiPHONE+ pinpointer	1003316-5
SHUKO input power supply cable 2.5 m (8 ft)	17032-13	Portable cable reel, set of 2, HV and ground cable	
Flexible ground cable, 15 m (50 ft)	19265-15	50 ft (15 m)	1005-412-50
Interlock Quick Release Pin	90003-606	85 ft (25 m)	1005-412-85
		130 ft (40 m)	1005-412-130
		NB: Refer to factory for full list of cable reel assemblies	

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**ISO STATEMENT**

Registered to ISO 9001:2008 Cert. no. 110006.01  
**PFL22M1500\_DS\_EN\_V07A**  
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