

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 μ s, 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

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 mm² 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 $^{\circ}$ to +50 $^{\circ}$ C (-4 $^{\circ}$ to 122 $^{\circ}$ F)
Storage Temperature: -20 $^{\circ}$ to +55 $^{\circ}$ C (-4 $^{\circ}$ to 131 $^{\circ}$ 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 (38 in. H x 21 in. W x 20 in. D)

ORDERING INFORMATION

Item	Cat. No.
20 kV dc, 8/16 kV @ 1500 Joule surge	PFL22M1500-EN
As above but including 12 V inverter	PFL22M1500INV-EN
Included Accessories	
High-Voltage shielded output cable 15 m including MC terminations with HV Clamps	
	1001-123
No. American input power supply cable 2.3 m (7.5 ft)	17032-4
International unterminated input power supply cable 2 m (6.5 ft)	17032-5
UK input power supply cable 2.5 m (8 ft)	17032-12
SHUKO input power supply cable 2.5 m (8 ft)	17032-13
Flexible ground cable, 15 m (50 ft)	19265-15
Interlock Quick Release Pin	90003-606
Optional Accessories	
HV Vice Grips	
	18944-2
12 V Stand alone battery kit	1001-690
digiPHONE+ pinpointer	1003316-5
Portable cable reel, set of 2, HV and ground cable	
50 ft (15 m)	1005-412-50
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

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