

PFL20M1500

Power Cable Fault Locator System



- New style MTDR is mounted in the lid for easier viewing with a large, bright screen
- Inductive arc reflection filter delivers more energy where it's needed most... at the fault
- On-board inverter provides a choice of power options
- Multiple fault locating techniques
 - Arc Reflection Method
 - Time Domain Reflectometry (Pulse Echo)
 - Impulse Current
 - High Voltage Surge
 - Proof and Burn
- Highly portable, rugged, weatherproof

DESCRIPTION

The PFL20M1500 Power Fault Locator System is designed to meet power industry requirements for power cable fault location in underground residential distribution (URD) systems.

The PFL20M1500 includes a set of outstanding new features including a simple-to-operate MTDR built into the lid and an inductive arc reflection filter to deliver more energy to the fault. An on-board inverter provides the user a choice of input power options.



One of the new features of the PFL20M1500 is the lid-mounted MTDR which offers multiple test modes and simple, easy pushbutton operation.

The PFL20M1500 combines all the tools necessary to perform accurate cable fault location (including dc tester/burner, surge generator, radar coupling and TDR.) These tools enable the user to effectively perform all of the following fault location techniques:

- Time Domain Reflectometry (Pulse Echo)
- Arc Reflection Method
- Impulse Current

The PFL20M1500 delivers an energy surge of 1500 Joules at 16 kV, providing the energy necessary to break down faults present in joints and terminations. The unit includes a 20-kV proof tester and a 60mA burner for the testing and conditioning of faults. The inductive arc reflection filter assures that maximum energy is delivered to the fault.

The PFL is field-portable. A built-in inverter provides a choice of input power options. It is also ruggedly constructed and weatherproof to IP54 specifications.

APPLICATIONS

The PFL20M1500 is specifically designed to provide a fast, accurate and safe method for locating cable faults in underground residential distribution systems (URDs). Its compact size allows for flexible deployment. It can be left on a vehicle or moved closer to the transformer pad. The unit can be battery operated and the enclosure is weatherproof for use in a variety of inclement weather conditions.

The PFL20M1500 can also be used in other situations including vault locations (simple networks) and various substation locations.

FEATURES AND BENEFITS

- New style MTDR is mounted in the lid and features a large color screen that can be seen in the brightest sunlight
- Inductive arc reflection filter delivers more energy where it's needed most, allowing for quick and accurate fault pinpoint
- On-board inverter provides a choice of power options:
 - A vehicle battery
 - A user supplied batteryAllows it to be used anywhere, anytime
- Provides multiple fault locating techniques, including:
 - Arc Reflection Method
 - Time Domain Reflectometry (Pulse Echo)
 - Impulse Current
 - High Voltage Surge
 - Proof and BurnAll the tools needed to find even the toughest cable fault
- Lightweight rugged construction with large wheels, enables the user to move it easily to a site
- Weatherproof design eliminates need for cover or shelter

STANDARD SAFETY FEATURES

Safety is paramount when operating any cable fault locator. The PFL20M1500 includes multiple safety features for the user:

- Zero start voltage interlock
- High voltage ON lamp
- Automatic discharge and grounding upon instrument shut down
- Redundant ground connections
- Circuit breaker input power overload protection
- External safety interlock
- Manual grounding by mode selector ensures discharge of capacitor and cable under test
- Analog meters remain active even when power is off



The PFL20M1500 provides the user with a product that facilitates effective fault finding.



The compactness and portability of the PFL20M1500 makes it more attractive than larger, fixed installation systems. It is ruggedly constructed and rainproof to IP54.



The large wheels facilitate easy field transportation over irregular surfaces.

SPECIFICATIONS

Available Modes

Proof/Burn

dc burn or dc proof test

Mode Select Switch to Ground

Positive discharge of internal capacitor and the cable under test

Arc Reflection Filter/Surge Pulse Coupler

Internally integrated inductive filter

Metering

Kilovoltmeter: 0 to 20 kV

Milliammeter: 0 to 60 mA

Input Voltage

120 V ac, 50/60 Hz

220 V ac, 50/60 Hz

240 V ac, 50/60 Hz

12 V dc

Output Range

Impulse: 0 to 16 kV

Proof Test: 0 to 20 kV

Burn Current: 0 to 60 mA

Max. Energy Stored

1536 Joules

Storage Capacitance

12 μ F

Impulse Interval

Variable 2 to 10 s

Environment

Operating temperature range

-4 to 120° F (-20 to +50° C)

Storage temperature range

-22 to +131° F (-30 to 55° C)

Elevation

6500 ft (2000 m) max

Derate voltage at higher altitude

Humidity

5 to 95% RH noncondensing

Ingress Protection

IP54

Dimensions

34 H x 16 W x 16 D in. (364 H x 406 W x 406 mm)

Weight

180 lb (81.8 kg)

MTDR CABLE ANALYSIS SYSTEM OVERVIEW

The built-in MTDR analyzer is a powerful tool and has the capability to be used as both a TDR and as a transient analyzer.

Built into the lid, it uses the filter/coupler necessary to resolve the modes transients selected by the operator. The MTDR is able to resolve and display TDR pulses (Pulse Echo) and arc reflection traces utilizing the arc reflection filter in the PFL. In transient mode, it resolves current transients by using the built-in current coupler.

All of these prelocation modes provide a one or two thump prelocation distance to your cable fault. This minimized thumping improves your fault locating efficiency, while limiting the number of direct surges on your service-aged cable for pinpointing.

The MTDR allows the user to perform the following cable fault locating methods:

- Time Domain Reflectometry (Pulse Echo)
- Arc Reflection
- Impulse Current

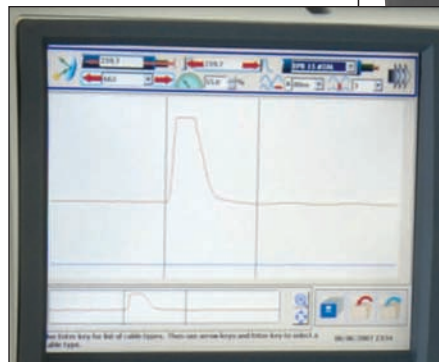
The MTDR also allows the user to save waveform data, add notes and perform waveform comparisons by superimposition. For further comparison it can also capture and display up to 3 traces/waveforms on the screen, an especially useful tool for PILC or belted cables.

The MTDR screen is large and extra bright. Information and traces can be easily seen even in glaring sunlight.

The MTDR can be retrofitted to a number of cable fault locating units which are presently being used.

The MTDR features a Windows® XP Embedded operating software program which is powerful, easy-to-use and flexible. Custom features include:

- **Auto ranging capability** — software recognizes the suspected cable termination and automatically selects the optimum range.
- **Auto fault distance recognition** — in arc reflection mode, the right cursor instantly moves to highlight the suspected fault location. At the same time the distance to the fault is also shown.
- **Multi-color traces** — for fast identification of which trace is being displayed.
- **Data input capability** — enables user to input a variety of information for each trace including cable type/member, operator ID, comments and more.
- **User configured velocity tables** — ability to input known values for various cable types and velocity data according to local standards.



Close-up of MTDR screen showing traces



New style MTDR is mounted in the lid for easier viewing with a large, bright screen.

OPTIONAL CABLE REEL ASSEMBLIES

Megger offers an optional cable reel assembly for use with the PFL System. The CBL100HV extends the test lead length with an additional 100 ft (30.5 m) of both ground cable and high voltage cable.

ORDERING INFORMATION			
Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
Portable Fault Locator WITH MTDR Cable Analysis System	PFL20M1500-X	Optional Accessories	
Portable Fault Locator WITHOUT MTDR Cable Analysis System	PFF20M1500-X	Stand-alone cable reel assembly	CBL100HV
Input Voltage Options		Electromagnetic Impulse Detector	651113
X Codes: Enter -2 for 120V ac, wheel kit		High-voltage Cable Repair Kits	
Enter -4 for 120V ac		Black jacketed BIW cable output and return connector	35946-1
Enter -6 for 240V ac, wheel kit		Black jacketed BIW output connector	35946-2
Enter -8 for 240V ac		Black jacketed BIW return connector	35946-3
Included Accessories		White jacketed Okinite cable output and return connector	36158-1
25 ft (7.6 m) High-voltage, shielded output cable with vice-grip clamp [1]	34458-1	White jacketed Okinite output connector	36158-2
7.5 ft (2.29 m) 3-wire, No. 16 AWG, power input cord with standard cap (IEC 320) [1]	17032-7	White jacketed Okinite return connector	36158-3
25 ft (7.6 m) No. 8 AWG, flexible ground cable with vice-grip grounding clamp [2]	19265		
4 ft (1.2 m) No. 8 AWG, flexible grounding cable [1]	19265-4		
Ground rod [1]	23462-1		
Interlock shorting plug [1]	10226-1		
Wheel kit with 14 in. pneumatic tires, push bar and leveling foot	36614		
Instruction manual	AVTMPFL20M1500		

NOTE: A stand alone MTDR may be ordered for retrofit to an existing cable fault locator. Please refer to the separate MTDR retrofit data sheet for ordering information.

UK

Archcliffe Road, Dover
CT17 9EN England
T +44 (0) 1 304 502101
F +44 (0) 1 304 207342
UKsales@megger.com

UNITED STATES

4271 Bronze Way
Dallas, TX 75237-1019 USA
T 1 800 723 2861 (USA only)
T +1 214 333 3201
F +1 214 331 7399
USSales@megger.com

OTHER TECHNICAL SALES OFFICES

Täby SWEDEN, Norristown USA,
Sydney AUSTRALIA, Toronto CANADA,
Trappes FRANCE, Kingdom of BAHRAIN,
Mumbai INDIA, Johannesburg SOUTH
AFRICA, and Chonburi THAILAND

ISO STATEMENT

Registered to ISO 9001:2000 Cert. no. 10006.01
PFL20M1500_DS_EN_V01
www.megger.com
Megger is a registered trademark