

PFL40A1500/2000

Portable Cable Fault Location and High Voltage Test Solution



- Compact, portable fault locating systems
- HV insulation testing to 40 kV
- Proof/burn up to 34 kV
- 8/16/34 kV, 1500 Joules surge output
 - 2000 Joules surge output optional
 - 4 kV range optional
- Arc Reflection Method
- Arc Reflection plus
- Impulse current (current impulse)
- Voltage decay (optional)
- Integrated large screen colour TDR

DESCRIPTION

The prime objective of any cable fault location system is to provide quick, effective, accurate and safe fault location, thereby reducing system outages and “customer minutes lost.”

The complete family of compact Megger cable fault locating systems are designed to meet this criterion. These new systems are seen as a valuable extension to our existing range of CFL instruments and capabilities.

The standard system is a mobile compact system that can be further customised by the customer to meet local requirements. All systems offer the facility to undertake cable testing; cable and fault diagnosis; pre-location of cable faults; fault conditioning; pinpoint location using acoustic methods.

Standard Scope of Supply

TDR — The Time Domain Reflectometer offers:

- Menu driven operation
- User definable table of standard cable types
- All Pulse echo modes
- Transient analyses methods of pre-location

PFL - Portable Fault Locator provides:

- HV insulation testing
- Fault pre-location using
 - Arc Reflection Method
 - Impulse Current
 - Voltage decay
- Fault conditioning
 - Proof/Burn
- Fault pinpoint fault location using acoustic method
- Ground Safety Interlock (optional)

HV Testing (proof testing)

Used to prove the integrity of and to identify and confirm fault conditions in cable networks, using test voltages up to 40 kV and a current of 25 mA. The variable output voltage

can also be used to test sheaths requiring 5 or 10 kV test voltages. The operator selectable over-current trip levels provide protection to the system under test in the event of the cable breaking down.

Fault Pre-location

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

- **TDR** pre-locates cable faults using pulse echo, arc reflection, impulse current (ICE) or the optional voltage decay method.
- **MTDR** features auto-ranging, auto distance to fault and operator assist functions that guide you through the fault locating process.
- In **Arc Reflection** mode, faults are stabilised by creating a temporary “bridge” to earth. During this condition, a standard pulse echo measurement is taken into what is basically a short circuit fault.
- **Arc Reflection plus**, lets you view and analyse up to 14 traces, taken during the period of the arc.
- **ICE** and **Voltage Decay** methods are both transient analysis methods of pre-location which uses either a linear coupler or voltage divider.

Fault conditioning

Fault conditioning is used to stabilise unstable, flashing or high resistance faults. The Megger Fault Locator system incorporates both Proof/Burn and Arc Reflection modes.

- **Proof/Burn** - Following the breakdown of the cable under test, a high current is applied, stabilising the fault condition. This allows quicker pre-location and pinpointing of the unstable faults.
- **Arc Reflection** - Not widely recognised as a fault condition method, the Arc Reflection method stabilises faults by creating a temporary ‘bridge’ to earth, enabling standard pulse echo techniques of prelocation to be used.

Acoustic pinpoint fault location

Accurate pinpoint fault location is achieved using the acoustic method, using the powerful surge generator (thumper), available in either 1500 or 2000 Joules configurations, and an acoustic/electromagnetic receiver (MPP1000).

Additional accuracy is achieved with the Megger **MPP1001** or **MPP1002** Acoustic and Electromagnetic pinpointer, which shows direction and distance to fault.

SPECIFICATIONS**Testing**

Output: 0 – 40 kV (negative wrt earth) 25 mA constant

Resolution: 1 mA

Trip: Adjustable current trip

Metering: Analogue and digital metering of current and voltage

Pre-location low voltage prelocation**MTDR**

Range: 60 m – 50 km

Pulse width: 40, 80, 160, 320, 640 ns 1, 2, 5, 10 μ s, and auto

Display: 8 in., full VGA, colour

Cursors: Dual independent control

Gain: Auto and selectable, x1, 2, 3, 4, 5, 10, 20, 50, 100

Input: Impedance 50 Ω

Inputs: 1 pulse echo, 1 current impulse/voltage decay

Ports: 1 serial, 2 parallel (printer/USB memory device)

High voltage prelocation

Arc Reflection: 8/16/34 kV

1500 or 2000 Joule

4 kV at 1500 Joules (optional)

ICE: 8/16/34 kV

4 kV at 1500 Joules (optional)

Voltage decay: 0 – 40 kV (optional)

Fault conditioning

Arc Reflection: 8/16/34 kV (optional 4 kV)

Proof/Burn: 0 – 40 kV

0 – 8 kV, 120 mA

0 – 16 kV, 60 mA

0 – 34 kV, 30 mA

0 – 4 kV, 240 mA (optional)

Pinpoint fault location

Surge: 0 – 8/16/34 kV

0 – 4 kV at 1500 Joules (optional)

1500/2000 Joules (dependant on model)

Impulse sequence : Adjustable 2 – 12 seconds single shot

Cables

HV: 15 m of 70 kV 1-phase EPR

Input/Supply: 15 m, 8 mm²

Earth: 15 m, 8 mm²

Earth monitor: 15 m

Environmental

Operating Temperature: -20 ° to +50 ° C (-4 ° to 122 ° F)

Storage Temperature: -20 ° to +70 ° C (-4 ° to 122 ° F)

Elevation: 1500 m (5000 ft)

Derate voltages at higher altitudes

Humidity: 50 to 95% RH non-condensing

Supply: 110 to 260 V (50/60 Hz) (Must be defined at time of ordering)

IP Rating

IP54 (with top/back flaps closed)

Weight

149 kg

Dimensions

965 mm H x 536 mm W x 503 mm D

ORDERING INFORMATION

Item	Cat. No.	Item	Cat. No.
230 V 40 kV dc, 8/16/34 kV at 1500 J surge	PFL40A1500-22	Supply cable, 7.6 m	17032-17
As above including safety earth monitor	PFL40A1500-21	Flexible earth cable, 15 m	19265-15
230 V 40 kV dc, 8/16/34 kV at 2000 J surge	PFL40A2000-22	Wheel kit and handle assembly	36306/36409
As above including safety earth monitor	PFL40A2000-21	Cable bag	18313
230 V 40 kV dc, 4/8/16/34 kV at 1500 J surge	PFL40A1500-30	Instruction manual	AVTMPFL40
As above including safety earth monitor	PFL40A1500-29	Optional Accessories	
230 V 40 kV dc, 4/8/16/34 kV at 2000 J surge	PFL40A2000-30	External battery (230 V system)	MPS230
As above including safety earth monitor	PFL40A2000-29	External battery (110 V system)	MPS110
Other input voltages and languages available	On Request	Voltage decay coupler	36569
Included Accessories		Earthing discharge stick	22070-62
PFF with integral MTDR1	PFL	Manual and motorised cable drum assembly	See separate datasheet
High-voltage shielded output cable, 15 m	36566		

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