

PFL40A 1500/2000

Portable Cable Fault Location and HV Test Solution



- **Portable, rugged fault locating systems**
- **HV insulation testing to 40 kV**
- **Proof/burn up to 40 kV, 120 mA**
- **8/16/34 kV, 2000 or 1500 Joules surge output, optional 4 kV**
- **Multiple fault locating techniques:**
 - **Arc Reflection**
 - **Arc Reflection Plus (ARP)**
 - **Differential Arc Reflection (DART)**
 - **Impulse current (Current Impulse)**
 - **Voltage Decay**
- **Integrated large screen color 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 PFL40A portable fault locating systems are designed to meet this criteria.

The standard PFL40A comes as a mobile, compact system that can be further customized to meet specific local requirements. All systems offer the facility to undertake cable testing; cable and fault diagnosis; prelocation of cable faults; fault conditioning and pinpoint fault location using acoustic methods.

APPLICATIONS

HV Testing (proof/insulation testing)

Used to prove the integrity of and to 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 (ARP) gives 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 (DART), unwanted and possibly confusing reflections are removed, leaving a clean trace with only the fault position being displayed as a negative pulse.
- Impulse Current (current impulse or ICE) is a transient analysis method of pre-location which utilizes an integrated linear coupler.
- Voltage Decay utilizes a voltage divider to analyze voltage transients following a breakdown.

Fault Conditioning

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

Proof/Burn

Following a breakdown of the cable under test, a high current is applied, stabilizing the fault condition. This allows easier and quicker prelocation and pinpointing of the unstable faults.

Pinpoint fault location

Accurate pinpoint fault location is achieved using the acoustic method, whereby the high energy (1500 or 2000 Joule) surge generator (thumper) capability and an acoustic receiver, Megger MPP, is used.

FEATURES

- Innovative MTDR100 Time Domain Reflectometer
 - Single knob (jog-dial) operation
 - Large easy-to-view XGA display
 - Auto ranging and cable library
- Multiple Fault Locating Techniques
 - LV prelocation; Pulse Echo
 - HV prelocation; Arc Reflection, Arc Reflection Plus, Differential Arc Reflection, Impulse Current, Voltage Decay

- High-Voltage module
 - HV insulation testing up to 40 kV
 - Operator defined current trips
 - Standard 3-range (4-range optional)
 - Surge output 1500 or 2000 Joule
 - Fault conditioning
 - Burn
 - Arc Reflection
 - Safety Interlocks
 - Ground Safety Module (Optional)

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 Prelocation

Arc Reflection: 0-8/16/34 kV (optional 4 kV)
 Impulse Current: 0-8/16/34 kV (optional 4 kV)

Pinpoint Fault Location

Surge: 0-8/16/34 kV (optional 4 kV) 1500 or 2000 joule
 Impulse Sequence: Adjustable 3 – 30 seconds Single Shot
 1500 or 2000 joule
 Voltage Decay : 0 - 40 kV (Optional Module)

Fault Conditioning

Proof/burn: 0 - 40 kV, 240 - 30 mA

Cables

PFL Cable Set

Environmental

Operating Temperature: -20 °C to +50 °C (-4 °F to 122 °F)
 Storage Temperature: -20 °C to +55 °C (-4 °F to 131 °F)
 Elevation: 1500 m (5000 ft)
 De-rate voltages at higher altitudes
 Humidity: 5 to 95% RH non-condensing
 Supply: 108-135 & 210-265 V AC (50/60 Hz)

IP Rating

IP54 (with top/back flaps closed)

Weight

149 kgs / 328 lbs

Dimensions

965 mm (H) x 536 mm (W) x 503 mm (D)
 40 in (H) x 21 in (W) x 20 in (D)

SPECIFICATIONS

Testing

Output: 0 - 40 kV (negative wrt earth) 25 mA constant
 Resolution: 1 mA
 Trip: Adjustable current trip
 Metering: Analogue and digital

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
 Sample Rate: 100 Mhz
 Resolution: 0.82 m (2.8 ft) (Vp=55%):
 Display: 26.4 mm (10.4 in.), full XGA,
 Cursors: Dual independent control
 Gain: 60 dB range in 5 dB Steps

ORDERING INFORMATION			
Item	Cat. No.	Item	Cat. No.
40kV dc, 3-range 0-8/16/34kV 1500J surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz) NO Safety Module	PFL40A1500-22	High-voltage output cable 15 m (50 ft)	36566
40kV dc 3-range0-8/16/34kV 1500J surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz) inc Safety Module	PFL40A1500-21	Supply Cable 7.5 m (25 ft)	17032-xx
40kV dc, 4-range 0-4/8/16/34kV 1500J surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz) NO Safety Module	PFL40A1500-30	High-voltage output cable 15 m (50 ft)	36566
40kV dc 4-range0-4/8/16/34kV 1500J surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz) inc Safety Module	PFL40A1500-29	Supply Cable 7.5 m (25 ft)	17032-xx
40kV dc, 3-range 0-8/16/34kV 2000J surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz) NO Safety Module	PFL40A2000-22	Earth/Ground Cable 15 m (50 ft)	19265-15
40kV dc 3-range0-8/16/34kV 2000j surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz) inc Safety Module	PFL40A2000-21	Interlock shorting plug	36847
40kV dc, 4-range 0-4/8/16/34kV 2000J surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz) NO Safety Module	PFL40A2000-30	Cable Bag	18313
40kV dc 4-range0-4/8/16/34kV 2000j surge (AVSM 108-132V ac and 208-265V ac 47-63 Hz)inc Safety Module	PFL40A2000-29	User Guide	AVTMPFL40-XX
Included Accessories		Optional Accessories	
Wheel Kit & Handle Assembly	36306 & 36409	Acoustic/electromagnetic Receiver	MPP2000
		HV Vice Grips (ea)	18944-2
		Voltage Decay Module	36569
		Battery Trolley (230 V)	MPS230
		Battery Trolley (110 V)	MPS110
		PFL40A Transit Case	2001-288
		Two Stand-alone cable reels, HV and GND, 100ft (30.5m) each	CBL100HV
		For information on other manual and motorized cable drum assemblies please contact your local Technical Sales Office	

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