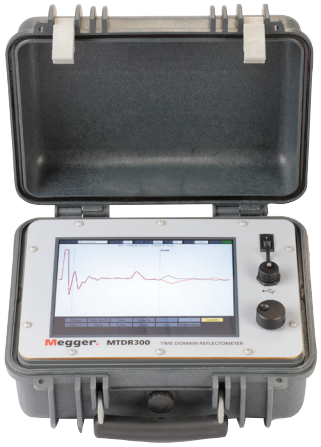
MTDR300
3-Phase Time Domain Reflectometer



- **3-phase TDR.**
- **Battery and Mains operation.**
- **Range >55km/34miles (TDR).**
- **Range >220km/137miles (Transient).**
- **Auto-Ranging "Find end of Cable".**
- **Auto-Fault Find "Cursor to Fault".**
- **Single Jog-Dial Operation via User Friendly menus.**
- **Large 10.4" (26.4mm) full XGA colour display**
- **Rugged, Robust Field Proven Case.**

DESCRIPTION

The MTDR300 is a 3-phase Time Domain Reflectometer (TDR) designed to provide quick, effective, accurate and safe prelocation of cable faults in electrical networks.

Operation of the instrument is via a single jog dial and intuitive menu system. The large colour display further enhances operator comfort and aids rapid and accurate fault prelocation.

The MTDR300 can be powered from its internal rechargeable battery or mains power. It's housed in a rugged, robust, field proven case making it suitable for use in hostile or challenging environments.

By combining the MTDR300 with an impulse generator (thumper) and arc reflection filter, several methods of high voltage fault prelocation are possible.

The CAS-1 stand-alone software package is supplied with all MTDR300's. This package allows the download (and upload) of saved traces for future analysis. It is also an ideal training package, as it contains all features of the MTDR itself.

FEATURES AND BENEFITS

- 3-phase TDR operation
  - Single Jog Dial Operation
  - Intuitive "Operator Friendly" Menu system
  - Auto-ranging "find end of cable"
  - Auto-fault find "cursor to fault"
  - TDR range up to 55km/34miles
  - Transient range up to 220km/137miles
- Multiple Fault Location Techniques
  - 3-phase Pulse Echo
  - Arc Reflection
  - Arc Reflection Plus
  - Differential Arc Reflection
  - Impulse Current (ICE)Voltage Decay
- Battery or Mains operated.
- Battery Low and Charge Indicators
- Robust, Rugged Construction

APPLICATION

After the fault type has been identified, the appropriate fault prelocation method can be determined.

Rule of Thumb

Fault Resistance <300Ω** = LV Fault Location

Fault Resistance >300Ω** = HV Fault Location

** approx.

- LV Fault prelocation

TDR also known as Pulse Echo techniques are used to prelocate low resistance faults, in cable networks. The MTDR300 offers 3-phase operation allowing the comparison of up to 3-phases at the same time. This can be especially useful to identify the faulted phase and allows phase comparison.

- HV Fault prelocation

(1, 2, 3, 4 require an impulse generator)

(5 requires a DC source)

1. Arc Reflection has become the most widely used method of recent years, with the trace being easy to interpret. In this method the fault is stabilised by creating a temporary "bridge" to earth. During this period a standard pulse echo measurement is taken, into what is effectively a short circuit fault. This trace is then compared with a previously taken low voltage trace. The point of divergence is the fault position.

2. Arc Reflection Plus (ARP). The MTDR300 offers the ability to view up to 1024 traces (range dependent) taken during one arc. This overcomes the problem of misleading traces displayed during unstable periods of the arc.3. Differential Arc Reflection (DART). In this mode unwanted and confusing "common" reflections are removed leaving a clean trace with only the fault position being displayed. This method is especially suited in complex cable networks with several joints/ splices or other equipment attached to it.
3. Differential Arc Reflection (DART). In this mode unwanted and confusing "common" reflections are removed leaving a clean trace with only the fault position being displayed. This method is especially suited in complex cable networks with several joints/ splices or other equipment attached to it.
4. Impulse Current (ICE). The Impulse Current method is a "transient" fault prelocation technique and is suitable for the location of high resistance faults. A linear coupler, or C.T. integrated into the impulse generator senses the transients emitted from a flashover (fault). These signals are displayed on the MTDR300 which effectively acts as a storage oscilloscope.
5. Voltage Decay. Similar to Impulse Current, except in this instance the flashover is created by charging up the cable with a DC source. The emitted signals are detected by a voltage divider and displayed on the MTDR300 again acting as a storage oscilloscope.

SPECIFICATIONS

Modes:
3-phase Pulse Echo; Arc Reflection; Arc Reflection Plus (ARP); Differential Arc Reflection (DART); Impulse Current (ICE); Voltage Decay

Range:
AUTO & 10-ranges
100m - 55km (328ft - 34miles) - TDR
100m - 220km (328ft - 37miles) - Transient

Output pulse width:
AUTO with Range
50ns, 100ns, 200ns, 500ns, 1µs , 2µs, 5µs,10µs

Output pulse amplitude:
25 V into 50 Ω

Sampling Rate:
100 Mhz

Timbase Accuracy:
200 ppm

Resolution:
(Vp=55%): 2.7ft (0.82 m)

Display:
10.4in (26.4 mm), full XGA, 1024 X 768 colour

Cursors:
Dual with independent control

Gain:
60 dB range in 5 dB Steps

Input:
Impedance 50 Ω
3 x TDR
1 x Arc Reflection / Transient methods

Ports:
1 x USB

Software:
CAS-1 (Cable analysis software)
Supply
Mains
100 to 240VAC, 45 to 65Hz

Battery:
14.4V NiMh Battery
Approx. 2hrs operation on full charge
Approx. 2hrs recharge time

Dimensions

12in x 7.6in x 14.2in

305mm x 194mm x 360mm

Weight

14.7lbs (6.7kgs)

Environmental

Temperature

-4°F to +122°F (-20°C TO +50°C)

Humidity

< 95% none condensing

ORDERING INFORMATION

Item (Qty)	Cat. No
MTDR300 3-phase TDR	MTDR300
Included Accessories	
Accessory Pouch	6320-244
Power Supply Cables	
1 x USA	17032-4
1 x SCHUKO	17032-13
1 x UK	17032-12
1 x International	17032-5
Coaxial cable 10ft / 3m (3ea)	19907-11
BNC (F) adaptor (3ea)	36828
Earth/Ground Cable (1ea)	2003-022
User Guide (1)	AVTMMTDR300
Cable Analysis Software	CAS-1