

## TDR900

# Hand-held Time Domain Reflectometer / Cable Length Meter



- Full autoranging for measuring the length of power, telephony, CATV and LAN cables, provides distance to an open or short.
- Extra large, high resolution backlit LCD.
- Automatic output impedance control of 25, 50, 75, 100, 125 or 150 ohms.
- User-friendly menu on screen operation.
- Cable length calibration function.
- Internal library of 39 standard cable types.
- 20 internal memory locations for custom cable types.
- Tone generator (oscillating 910 to 1100 Hz) for cable identification and tracing.
- Line voltage detection
- Safety protection up to 250 Vrms.

### DESCRIPTION

The Megger TDR900 is an advanced instrument capable of measuring cable lengths and finding distance to an open or a short using Time Domain Reflectometry. It offers exceptional features and a range capability normally associated with far more expensive instruments. The measurement range spans from 15 feet (5 m) to 10,000 feet (3 km) with a minimum resolution of 20 inches (50 cm).

The TDR900 can be used for any cable consisting of at least two insulated metallic elements, one of which may be the sheath or shield of the cable. The Meter has automatic internal matching networks to allow testing of 25 $\Omega$ , 50 $\Omega$ , 75 $\Omega$ , 100 $\Omega$ , 125 $\Omega$ , or 150 $\Omega$  cables. (These correspond to power, telephony, CATV, and LAN cables.)

The Meter can be closely matched to the cable under test using the menu selection keys. The propagation velocity value can be similarly adjusted to match the cable under test; thus ensuring an accurate distance measurement. The other user adjustable setting is changing the distance measurement units (feet or meters).

The Meter is housed in a rugged ABS enclosure which is dust and weatherproof to IP 42. The unit also comes with a soft carrying case and an alligator clip adapter. It is powered by 4 AA (NEDA 15A or NR 6) batteries,

which are stored in a compartment on the back of the Meter. The batteries are held in a carrier for quick and easy replacement.

### APPLICATIONS

#### *Telephony*

Installation and Repair technicians desire a portable test set for testing service drops and inside wiring during trouble ticket dispatches. The TDR900 connects to service drops or inside wiring and determines single or multiple cases of trouble to the customers' services. The Meter detects and displays cable issues, which do not meet the provider's facility criteria during the maintenance process. The TDR900 displays test results including: open, short, voltage detection and distance to fault in feet (meters). A tone generator is also built into the Meter for pair identification and tracing.

Construction and Maintenance technicians can benefit greatly from an easy-to-use test set capable of testing OSP cabling systems. The TDR900's exceptional measurement range accommodates testing in the subscriber network.

**Contractors/Installers**

The TDR900 fills various applications ranging from cable verification and fault location, panel mapping to cable stock control. The Meter supports either electrical contractors or telecom/datacom contractors.

Contractors can verify cable lengths on buried service drops before billing service providers.

**Electric Power**

Street Lighting: To install street lighting, short lengths of cable run from lamppost to lamppost. It is important that joints are accessible as the cable runs underground. The TDR900 is used initially to ensure there is enough cable on the drum to give a continuous run and then utilized to check the installation is correct.

**Mining**

Due to Ex 'd' (Explosion proof) regulations most countries do not allow TDRs down mines, however, as the mine deepens, shafts are dug from the surface and umbilical cables are dropped down. These carry power for the tools and telecommunication needs. Due to the distances involved, these cables especially the telecom, become stretched and are likely to fail. The TDR900 can easily be justified as a maintenance tool to check cable integrity.

**Broadcasting**

Outside broadcasting: Outside broadcast vehicles carry an enormous amount of cables depending on the situation, e.g. sporting events can use ten or more different camera locations. Due to the temporary nature of the installation, cables get damaged and a low cost, simple to read TDR can easily be justified to quickly locate failures.

Studio Broadcasting: Cameras in a studio have a trailing group of cables, which are dragged around the floor, as the cameras move. This puts a strain both on the cable and in the joints, as quality of the signal is very important.

Aerials: The signals from broadcasting companies are transmitted through aerials and large drops of cable are used due to the height of these aerials. The cables become stretched especially around the joints, giving poor service.

**Stocktaking**

A simple application is stocktaking. Any company that purchases reasonable amounts of cable or any company that produces cable needs to know how much they are buying or have on

the shelf. Traditional graphic TDRs have had limited success in this area due to cost and waveform interpretations. The TDR900 provides both simplicity and accuracy.

**FEATURES**

- CE-Certificated
- Accurate to 20 inches (50 cm) throughout the entire range
- Extra-large backlit (ICON type 7 segment) LCD
- Automatic output impedance control, auto-range, auto-zero, and auto-sensitivity allows for closely matching to a wide range of cables under test. Only V.O.P (velocity of propagation) settings required.
- Displays cable length if the cable's V.O.P (velocity of propagation) is known or displays V.O.P (velocity of propagation) if a cable's length is known.
- 20 internal memory locations store up to 20 custom cable V.O.P settings.
- Internal library of 39 standard cables allow for quick and easy measurements for industry standard cable types.
- Tone Generator (oscillating 910 to 1100 Hz; 5 V peak to peak) for cable identification and tracing.
- Line Voltage Detection: Displays "OUCH" message and stops operation if line voltage exceeds 6.5 V.
- Safety Protection (up to 250 V RMS)

**SPECIFICATIONS**

Except where otherwise stated, this specification applies at an ambient temper of 68°F (20°C).

**General****CABLE LENGTH MEASUREMENTS**

**Range:** Depends upon the V.O.P of the cables under test.

12,000 ft (3.7 km)@ V. O. P 99.9  
9,800 ft (3.0 km)@ V. O. P 80.0  
8,000 ft (2.4 km)@ V. O. P 66.0  
6,200 ft (1.9 km)@ V. O. P 50.0

**Accuracy\*:**

± 2 % of reading + 20 inch (50  
< 300 ft (100 m)  
± 2 % of reading > 300 ft (100

\* This accuracy is effective for Coaxial Cables up to 8,000 feet, Telephony Cables up to 6,000 feet, and Structured Wiring up to 3,000 ft.

**Resolution:** 20 inches (50 cm)

**V.O.P** (Velocity of Propagation): Adjustable from 1.0 % to 99.9 (in 0.1 % step)

**CABLE LENGTH CALIBRATION FUNCTION**

Allows you to measure the V.O.P, given as a percentage of the speed of light, of a known cable length.

**Required minimum length of sample cable: 30 ft (10 m)**

**NONVOLATILE MEMORY**

**Cable library:**

39 standard cable types

**Custom cable:**

20 custom cable types

**Auto-Power-Off:**

The Meter is completely turned off after 30 minutes of no activities. Press the POW E R button to turn the Meter on again. This feature can be disabled.

**Display:**

ICON type 7 segment LCD. Backlight stays on for 1 minute when activated.

**Connector type:** BNC

**Power supply:**

4 LR6 (AA) type batteries

**Battery life:** Approx. 5,000 tests

**Safety:**

Complies with IEC 61010-1

**EMC:** BS/EN 61326-1

**PRODUCT INCLUDES:**

Megger TDR900 Cable Length Meter  
Alligator Clip adapter  
User Manual  
Soft Carrying Case

**WARRANTY:**

3 years from date of purchase.

**Mechanical**

The meter is designed for use indoors or outdoors. (IP 42)

**Dimensions:**

9.25 H x 3.94 W x 1.73 D in.  
(235 H x 100 W x 44 D mm)

**Weight:**

Approx. 16 oz (450 g)

**Environmental**

**Operating temperature:**

0°F to 140°F (-18°C to 60°C)

**Storage temperature:**

-4°F to 158°F (-20°C to 70°C)

**Relative humidity:**

85% at 95°F (35°C)

**ORDERING INFORMATION**

Item

Order No.

**Hand-held Time Domain Reflectometer /  
Cable Length Meter**

**TDR900**

*Complete with*

Alligator Clip adapter  
User Manual  
Soft Carrying Case