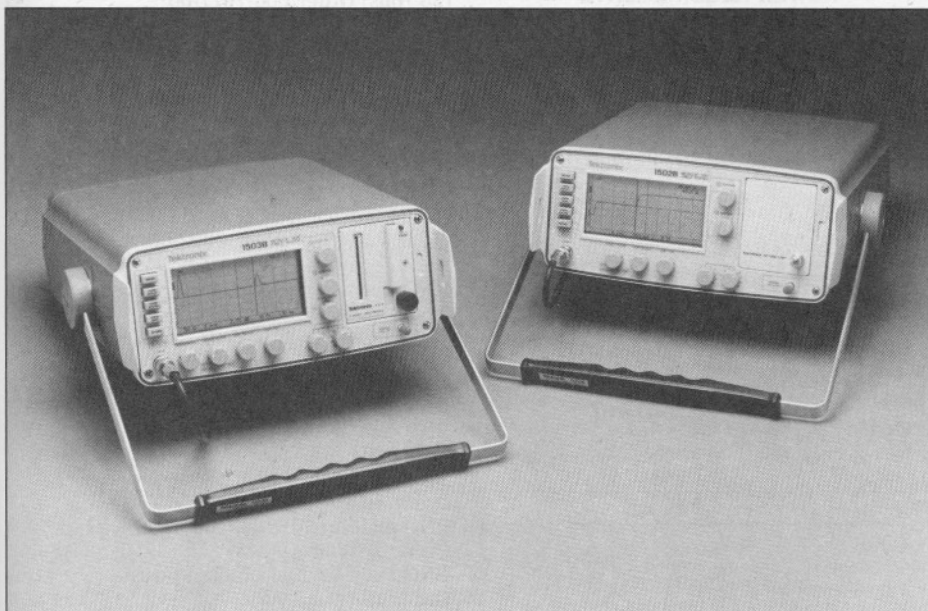


## Tektronix Metallic Cable Testers: Accurate Time Domain Reflectometry for Telephony, LAN, On-Board System, Sensor Network, and CATV Applications



### NEW 1502B/1503B

#### Metallic TDR Cable Testers

- **Portable: Battery Power (Optional), Self-Contained, Lightweight**
- **Meets Type III, Class 3, Style A Environmental Characteristic as Prescribed by MIL-T-28800**
- **Versatile: Test Any Type Paired Conductor and Coax Cable**
- **Easy to Use: Produces Results with Minimal Operator Training**

#### Time Domain Reflectometry (TDR)\*1

The portable, rugged 1502B and 1503B TDR Cable Testers are field maintenance tools that are simple to operate and will test any transmission cable under virtually any condition. These units use a technique called Time Domain Reflectometry (TDR) to identify and locate cable faults. The unit is connected to a line in the cable and sends out an electrical pulse that is reflected back to the unit by a fault in the cable. Fault type is identified by the shape of the display. The display is an LCD where distance measurements may be made using a cursor.

The 1502B tests coax and other cables in aircraft, ships, radar sites, etc. The 1503B tests long runs of coax or twisted pair cables in telephone and other communications applications.

\*1 Also known as cable radar.

Both units are small and lightweight for easy carrying and operating in tight spaces. The optional battery pack (Option) will provide at least five hours of operation.

#### 1502B

This unit is directly calibrated in reflection coefficient ( $\rho$ ) and distance. The 1502B uses a step-pulse and provides fault resolution to 0.9 inch on short cables. The 1502B performs to a maximum of 2000 feet, but with decreasing resolution as the fault distance increases. The unit is matched to 50-ohm cables, but may be used on others by adjusting the front panel vertical scale control or using optional impedance adapters.

#### 1503B

The 1503B provides high-energy,  $\frac{1}{2}$ -sine-shaped pulses for long cables. Range of the 1503B, dependent upon cable type, is up to 50,000 feet. Resolution capability provides for resolving faults as close together as one foot on short cables. Impedance levels of 50, 75, 93, and 125 ohms are selectable.

#### Metric Instruments

For distance measurements in meters, Option 05 is available for both the 1502B and 1503B. These instruments are complete

metric versions of the 1502B and 1503B (no conversion from feet to meters is involved). Both the 1502B and 1503B also offer feet to metric conversion via Menu.

The 1502B Option 05 has a distance resolution of 24 mm and measures 500 meters.

The 1503B Option 05 has a resolution of 0.3 meter and measures 10 000 meters.

#### Chart Recorder YT1

For permanent records of cable tests, the Option 04 plug-in chart recorder (thermal dot matrix) is available for both the 1502B and 1503B.

#### Menu

The 1502B and 1503B offer the operator a variety of parameters and information which can be acquired using the Menu feature. The main menu allows the user to access: Help with the instrument controls; velocity of propagation and impedances of different cable types; instrument/front panel configurations; and instrument diagnostics.

#### 636 Data Communications Analyzer

- High Speed, Up to 72 kbps, All Modes, 144 kbps Half-Duplex Monitor
- Data Compression Prevents Buffer From Filling Up with Idle Frames in HDLC

## CHARACTERISTICS 1502B METALLIC TDR CABLE TESTER

**Test Signal**—Step rise  $\square$ .

**Amplitude**—300 mV nominal into 50  $\Omega$  load.

**System Rise Time**—200 ps (1.15 in./2.92 cm).

**Output Impedance**—50 ohms  $\pm 1\%$ .

**Electrostatic Discharge Protection**—1 kV/500 pF capacitor/1 k resistance.

**DC Input Protection**— $\pm 1$  A.

**Maximum Range**—2,000 ft/500 meters.

**Distance Readout Resolution**—0.12 in./0.30 cm.

**Noise Filtering**—1 to 128 averages.

**Vertical Scale**—0.5 to 500 mV/div.

**Dist/Div**—0.1 to 200 ft/div; 0.025 to 50 m/div.

**Environmental**—Meets capabilities of a Type III, Class 3, Style A instrument as prescribed by MIL-T-28800.

## 1503B METALLIC TDR CABLE TESTER

**Test Signal**— $\frac{1}{2}$  sine.

**Amplitude**—Terminated: -2.5 V. Unterminated: -5.0 V.

**Pulsewidths**—2, 10, 100, 1000 nsec.

**Output Impedance**—50, 75, 93, 125  $\Omega$ .

**Input Protection**— $\pm 400$  V (dc + peak ac).

**Maximum Range**—50,000 ft/10 000 meters.

**Distance Readout Resolution**—1.2 in./3.0 cm.

**Noise Filtering**—1 to 128 averages.

**Vertical Scale**—0 to 63.75 dB Gain.

**Dist/Div**—1 to 5000 ft/div; 0.25 to 1000 m/div.

**Environmental**—Meets capabilities of a Type III, Class 3, Style A instrument as prescribed by MIL-T-28800.

## COMMON CHARACTERISTICS

The following characteristics are common to both the 1502B and 1503B.

### POWER REQUIREMENTS

**AC Power**—Line Voltage: 115 V ac (90 to 132 V ac) and 230 V ac (180 to 250 V ac). Line Frequency: 45 to 440 Hz.

**DC Power**—Battery Pack Operation (Option 03): At least 5 hours (15 to 25°C charge and discharge temperature), no chart recordings. At least four hours, including 20 chart recordings.

**Full Charge Time**—20 hours maximum.

### PHYSICAL CHARACTERISTICS

Dimensions	mm	in.
Width (w/handle)	315	12.4
Width (w/o handle)	300	11.8
Height	127	5.0
Depth (handle extended)	475	18.7
Depth (handle not extended)	419	16.5
Weight $\approx$	kg	lb
Net (w/front cover and accessories)	8.2	21
Net (w/o front cover or accessories)	7.3	15
Domestic Shipping (complete) $\approx$	11.1	27
Export Shipping (complete) $\approx$	16.3	42