

# 1503B METALLIC TIME DOMAIN REFLECTOMETER (MTDR)

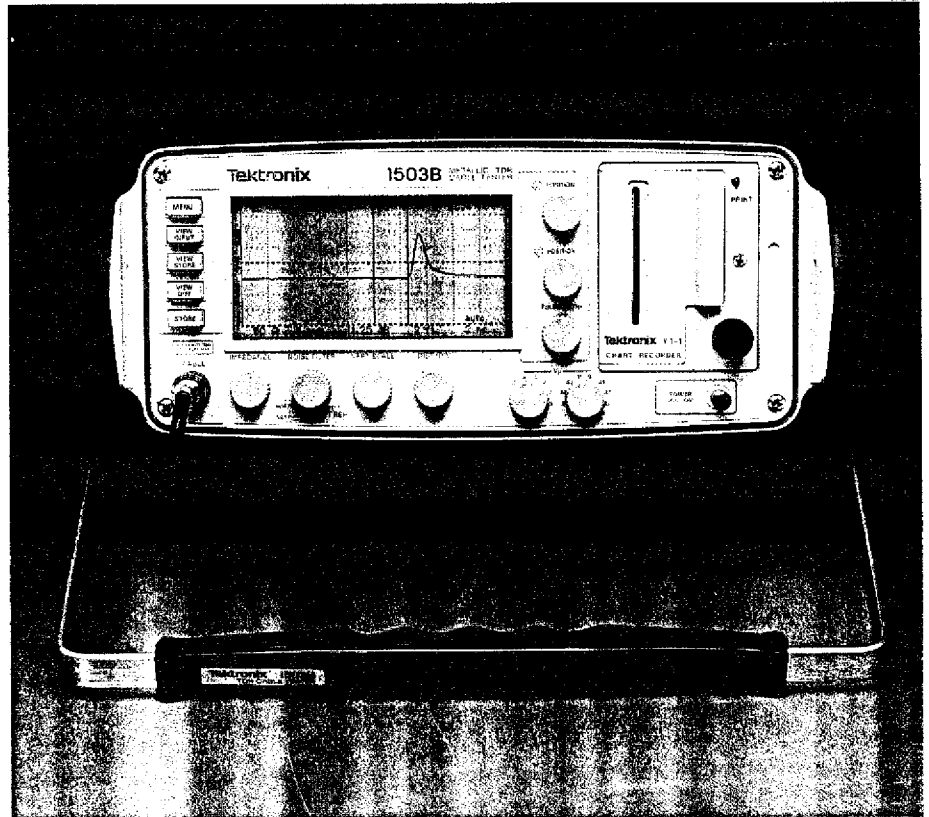
The 1503B is designed to quickly and easily locate opens, shorts, crimps and other defects in metallic cables up to 50,000 feet (15,000 meters) in length.

Through a process similar to radar, the 1503B transmits electrical pulses down the cable under test. Impedance changes in the cable reflect some of the pulse energy back to the 1503B. The reflections are displayed on a backlit, HyperTwist, high contrast nematic LCD display. The characteristics of the displayed trace allow the user to determine the nature of the cable fault.

The 1503B has 2, 10, 100, and 1000 nanosecond pulse widths. When using the 2 ns pulse width on 50 ohm cable with a Vp of .66, multiple faults as close as 10" can be detected. Cable impedances of 50, 75, 93, and 125 ohms are selectable for testing different types of cable.

The 1503B features include:

- Rugged and portable, designed for field use.
- Menu-Driven Operation for easy test set-up.
- Help Screens provide information on instrument operation and measurements.
- Information Screens provide cable impedance and Vp values.
- Distance measurements in feet or meters.
- Digital Filtering reduces displayed noise, resulting in a cleaner waveform display.
- Vertical and Horizontal Delta Modes allow easy Delta measurements.
- Waveform Storage allows comparison of the current and previously recorded waveform.
- Option 06 allows testing on an active Ethernet bus.
- Optional Printer provides hard copies of test results.
- Optional DC Operation eliminates the need for outlets and extension cords.
- Input protection to 400 volts.



## TYPICAL CABLE MEASUREMENTS

Cable Return Loss in dB  
Cable Propagation Velocity  
Distance to damage from Opens,  
Shorts, Frays, Crimps and Water  
Faulty Taps and Unterminated Lines  
in LAN and CATV Networks  
Characterizing LAN installations

## REPRESENTATIVE USERS

Telephony  
Computer/LAN  
CATV  
Power Companies  
Third Party Maintenance  
Cable Manufacturers  
Airlines

# 1503B METALLIC TDR SPECIFICATIONS

**Test Signal:**

1/2 Sine

**Amplitude:**

-2.5V Terminated  
-5.0V Unterminated

**Pulsewidths:**

2nsec, 10nsec, 100nsec, 1000nsec

**Output Impedance:**

50 ohm, 75 ohm, 93 ohm, 125 ohm

**Input Protection:**

±400 Volts (DC – peak AC)

**Maximum Range:**

50,000 ft/15,000 m

**Distance Readout Resolution:**

.04 ft/.01 m

**Noise Filtering:**

1 to 128 averages

**Vertical Scale:**

0 dB to 63.75 dB gain

**Vertical Accuracy:**

±3% of Full Scale

**Dist/Div:**

1 ft/div to 5000 ft/div  
.25 m/div to 1000 m/div

**Horizontal Accuracy:**

2% ± 1 ft/div of measured distance  
plus uncertainty in V<sub>d</sub>.

**Environmental:**

Meets capabilities of Type III, Class 3,  
Style C instruments (except EMI  
where it meets FCC: Part 15, 3, A,  
and VDE: 0871, Class B) as  
prescribed by MIL-T-28800D.

**Power:**

AC 115/230 volts/DC 12V Battery  
Pack or External Options

**For further information, contact:**

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627-7111; TWX (910) 467-8708; TLX: 151754; Cable  
TEKWSGT. Subsidiaries and distributors  
worldwide.

## ORDERING INFORMATION

1503B Metallic TDR  
Option 03 Battery Pack  
Option 04 YT1 Chart Recorder  
Option 05 Metric  
Option 06 Ethernet Testing  
Option A1 Universal Euro  
220V/16A, 50 Hz  
Option A2 UK 240v/13A, 50 Hz  
Option A3 Australian 240v/10A,  
50 Hz  
Option A4 North American  
240v/15A, 60 Hz  
Option A5 Switzerland 220v/10A,  
50 Hz

**Included Accessories**

1 Operator's Manual (070-6268-00)  
1 AC Power Cord  
1 50 Ohm BNC Terminator  
(011-0123-00)  
1 Precision 50 Ohm Cable  
(012-0482-00)  
1 BNC Connector, Female-to-Female  
(103-0028-00)  
Accessory Pouch (016-0814-00)  
1 Option Port Cover (200-3453-00)  
1 Battery Pack Port Cover  
(200-3452-00)  
1 Calculator Slide Rule (063-1419-00)  
1 Spare Fuse

**Optional Accessories**

Battery Pack (016-0813-00)  
YT1 Chart Recorder  
Chart Paper (1 roll) (006-7647-00)  
Chart Paper (25 rolls) (006-7677-00)  
Chart Paper (100 rolls)  
(006-7681-00)  
Service Manual (070-6269-00)  
Adapter, Direct Current  
(015-0327-00)  
Adapter 50/25 Ohm (017-0090-00)  
Adapter 50/75 Ohm (017-0091-00)  
Adapter 50/93 Ohm (017-0092-00)  
BNC Female-to-N Male  
(103-0045-00)  
BNC Female-to-Crimp Leads  
(013-0076-01)  
BNC Female-to-Dual Banana Plug  
(103-0090-00)  
BNC Female-to-F Male  
(103-0158-00)  
BNC Male-to-N Female  
(103-0058-00)  
BNC Male-to-UHF Female  
(103-0032-00)  
BNC Male-to-Dual Binding Post  
(103-0035-00)  
Connector, GR-to-BNC Male  
(017-0064-00)  
Connector, GR-to-BNC Female  
(017-0063-00)  
Terminator, 75 Ohm BNC  
(011-0102-00)

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