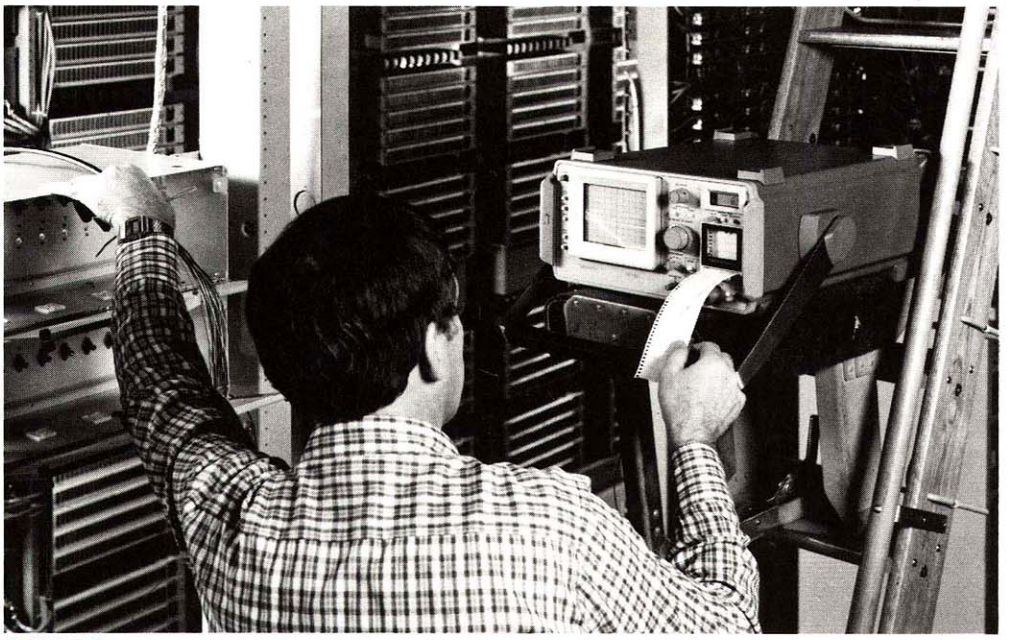
FIBER OPTIC TDR CABLE TESTERS



OF150 820 nm Fiber Optic TDR

LCD Readout Resolution to 0.1 dB/1.0 Meter

Accurate, Repeatable Measurements

Built-In Chart Recorder, Optional Recorder Output

Digital Storage Provides Easy to View Waveform and Noise Reduction

Two Selectable Pulse Widths

Portable — Operates from 12 Volt Vehicle System or Battery Pack

Unmatched Range

The OF150 is a high performance, easy to use, portable instrument that can perform repeatable, accurate distance and loss measurements on multimode optical fibers.

Typical applications include: splice measurement through a one-way cable loss of up to 21.5 dB to within ±0.1 dB; detection of fiber ends, (four percent Fresnel reflection) through a one-way cable loss of up to 42.5 dB; and measuring distance to discontinuities (such as splices, Fiber faults and ends) to 19.9 km, with one meter resolution.

Direct Readout Saves Time and Errors

The OF150 gives you direct LCD readout of results, eliminating voltage-to-power and time-to-distance computations and risk of operator errors. Direct readout assures accurate, repeatable measurements every time. A built-in chart recorder provides a permanent record of the waveform for reference and comparison.

Get an Accurate Picture of Splice Loss

Digital storage produces a consistently sharp, easy-to-view trace. Signal averaging and selectable filters help maintain waveform resolution, so that measurements are made as accurately at long distances as closer in.

Two filters provide signal averaging and incremental decreases in the RMS noise floor. Compared to Fast filter operation (fast sweep), the Medium filter (medium sweep) provides a 7.5 dB reduction and the Slow filter (slow sweep) a 15 dB reduction. By using the Fast-Medium-Slow selection, you can pick the optimum signal acquisition speed/noise reduction combination.

The OF150 also offers two selectable pulse widths. The short pulse increases resolution for close-in measurements, while the long pulse extends distance/loss measurement range.

Easy to Use

The OF150 combines high performance with ease of use. With Tektronix supplied manuals, craftspeople or technicians can learn to use this instrument in two hours or less.

Portability and Convenience

Its compact size, light weight and rugged design, plus the ability to operate easily from a 12 volt vehicle system or external battery pack, enables the OF150 to offer exceptional portability in a high performance instrument.

CHARACTERISTICS

OPTICAL TEST SIGNAL

Wavelength — 820 nm (nominal).

Displayed Pulse Width — Long Pulse: 5.5 m, ±1 m. Short Pulse: 1.5 m, ±0.3 m.

System Pulse Rate — 4.762 kHz ±5 Hz.

Optical Output Amplitude — ≥25 μW Time-average power coupled into test fiber (50 μm core, 0.20 NA) (Long Pulse mode).

Absolute Maximum Optical Output Amplitude — 200 μW time averaged power.

Displayed Pulse Risetime — <0.7 m from −20 dB point to −6 dB point.

MEASUREMENT RANGE

Decrease in RMS Noise Floor through Filtering — With Medium Filter: 0.75 div (7.5 dB). With Slow Filter: 1.5 div (15.0 dB).

Optical Input Sensitivity — ≤0.40 μW input for 30 dB above displayed RMS noise floor.

Dynamic Range — 105 dB (typical) between peak optical output pulse and RMS noise floor (Slow Filter).

Maximum Round Trip Fiber Loss for Fiber End Detection — 85 dB typical (assuming 4% Fresnel reflection).

Maximum Round Trip Fiber Loss for ±0.1 dB Scattering Signal Measurements — 43 dB typical (dependent on fiber characteristics).

CRT VERTICAL DISPLAY

Vertical Scales — 10 dB/div and 2 dB/div (10 div).

dB Scale Accuracy — ±0.5 dB over any 10 dB increment from +20 dB to +70 dB, relative to bottom of display range.

CRT HORIZONTAL DISPLAY

Distance Scales — 1 m/div to 1000 m/div.

Display Limits — −5 m to 19.9 km from front-panel connector.

Sweep Time — Fast: 0.15 s. Med: 3.15 s. Slow: 55 s.

On-screen Distance Calibration — 5.00 ns/m.

"Zero" Distance Reference Accuracy — ±0.5 m on screen.

LCD NUMERIC READOUT

Distance — Readout Range: 0 km to 19.9 km.

Distance Readout Resolution — 1 m.

Distance Cal Factor Range — 4.9 ns/m to 5.1 ns/m.

Distance Cal Factor Accuracy — Within 0.01 ns/m of panel indication at center of scale (5,000); within 0.02 ns/m of panel indication at scale end points.

Loss Measurements — Readout Range: −25 dB to +25 dB (one way fiber loss) from center reference point. Readout Resolution: 2 dB/div scale: 0.1 dB; 10 dB/div scale: 0.5 dB.

Distance Measurement Accuracy — ±0.3%*1 ±uncertainty in Fiber Cal Factor.

*1 *Instrument timing in accuracy plus distance cal factor indication error.*