

# Mini Optical Time Domain Reflectometer

## TFS3031 TekRanger™

### ★ Features

#### TFS3031 TekRanger™

- One-button Automatic Fiber Analysis
- Large, High-resolution Display
- "Real Time" Testing
- Easy-to-change Wavelengths
- 5 Meter Singlemode Dead Zone
- 8 Meter Multimode Dead Zone
- 0.02 dB Loss Threshold
- 32 dB Singlemode Dynamic Range
- 28 dB Multimode Dynamic Range
- 15 to 60 dB Selectable Reflectance Threshold
- Shock, Water, and Dust Resistant
- Echo Detection
- Compatible with FiberMaster FMTAP PC Spreadsheets
- Internal Memory for 200 Waveforms
- Software Upgradeable in the Field
- 4 Hour Battery Charge Time
- RS-232 and Parallel Ports
- 3.5 Inch Internal Floppy-disk Drive (Optional)
- Multimode/Singlemode in One Unit (Optional)



#### TFS3031 TekRanger™

Tektronix Communications Test Business Unit provides a broad range of products in cable tests, transmission tests, and RF and wireless applications.

The TFS3031 TekRanger™ mini-OTDR with IntelliTrace™ Automated Fiber Analysis System is a rugged, easy-to-use mini-optical time domain reflectometer (OTDR) built to stand the rigors of field work while providing precise measurements on singlemode or multimode optical fiber systems.

The location, reflectance and loss of every splice in a system appears quickly and clearly on the large 7-inch display screen. The TFS3031 is the only mini-OTDR that can report a splice 5 meters away while also finding splices 100 kilometers away at the push of a single button.

#### THE IntelliTrace ADVANTAGE

IntelliTrace technology automatically adjusts acquisition parameters to provide the best possible resolution, while maintaining the necessary dynamic range for accurate measurements. The various pulse widths used during the acquisition result in a much more accurate waveform.

#### EASY TO OPERATE

Operation of the TFS3031 with IntelliTrace Automated Fiber Analysis System is simple and quickly learned. One-button operation brings up easy to read traces on the display screen along with event table, indicating everything about a splice.

#### EDITING VERSATILITY

A flexible user interface provides the ability to edit tables, add markers to traces, measure reflectance and splice loss with a single cursor, and even customize your data tables. Singlemode and multimode operation in the same instrument enhances the utility and efficiency of the TekRanger mini-OTDR.

#### OPTIONAL FLOPPY DISK

Test results are stored in the TFS3031's ample internal memory or collected on the optional floppy disk. The data, uploaded to a PC, provides for further analysis with FMTAP Trace Analysis Software. The data can also be used in the full-sized Tektronix FiberMaster OTDR.

The TekRanger mini-OTDR disk drive also permits updating of the unit's software in the field, keeping it current with network changes.

#### Characteristics

##### Optical\*1 –

850 nm optical output: 850 ± 20 nm.

1300 nm optical output: 1300 ± 20 nm.

1310 nm optical output: 1310 ± 5 nm.

1550 nm optical output: 1550 ± 10 nm.

Loss threshold: 0.02 dB minimum.

Loss resolution: 0.001 dB.

##### Dynamic and Measurement Range\*1 –

	Dynamic Range	Measurement Range
850 nm (Opt. 01)	28 dB	21 dB
850/1300 nm (Opt. 03)	28/25 dB	21/18 dB
1310 nm (Opt. 04)	27 dB	21 dB
1310/1550 nm (Opt. 06)	26/24 dB	20/18 dB
1310/1550 nm (Opt. 08)	32/29 dB	26/23 dB
1550 nm (Opt. 09)	31 dB	25 dB

\*1 Typical performance @ 25°C.

**Readout Resolution** – 25 cm minimum.

#### OTDR Distance Range Settings –

Singlemode: 1 to 160 km.

Multimode: 1 to 40 km.

**Distance Resolution (IntelliTrace)** – 25 cm to 20 m.

**Measurement Time (Auto)** – Less than 3 minutes (20 dB accumulated loss).

**Field Usage** – Shock, water and dust resistant. Tested to Bellcore Mini-OTDR TR Environmental Specifications (i.e., 30-inch drop, shock, etc.).

#### ENVIRONMENTAL

(Without internal disk drive)

**Operation Temperature Range** – -15°C to +40°C.

**Storage Temperature** – -20°C to +60°C.

**Relative Humidity** – 5% to 80% ± 5% (non-condensing).

For your local Tektronix representative see the list in the back of this catalog or outside the U.S. call: 1-503-627-1933, inside the U.S. call: 1-800-426-2200.



See Tektronix on the World Wide Web:  
<http://www.tek.com>



ISO 9001

Tektronix Measurement products are manufactured in ISO registered facilities.

# Mini Optical Time Domain Reflectometer

TFS3031 TekRanger™

## PHYSICAL CHARACTERISTICS

Dimensions	cm	In.
Width	29.2	11.5
Height	11.4	4.5
Depth	4.1	9.5
Weight	kg	lb.
Net	4.2	9.2

## Dead Zone (Options 01, 03, 04, 06, 08) –

	Event Detection	Loss Measurement
Singlemode	5 m	25 m
Multimode	8 m	15 m

**Display** – High resolution 640 x 480; 7 inch, high contrast; Operator switchable backlight.

## Selectable Pulse Widths –

**Multimode:**  
850 nm: 1 m, 5 m, 10 m.  
1300 nm: 1 m, 5 m, 10 m, 20 m, 50 m, 100 m.  
**Singlemode:** 1 m, 5 m, 10 m, 20 m, 50 m, 100 m, 500 m, 1000 m, 2000 m.

**Memory Capacity** – 200 traces in internal memory (typical). 3.5 in. floppy disk drive (optional).

**Output Ports** – RS-232; Centronix parallel printer.

**Power Options** – AC (100 to 240 V, 50 to 60 Hz). 9 to 16 V DC. Internal NiCad rechargeable battery (8 hours of operation). Standard “C” Cell (adapter required).

**Safety** – UL 3111-1. Listed certified to CSA C22.2 No. 1010.1-92.

## ORDERING INFORMATION

For price information: Outside the U.S. contact your local Tektronix representative, inside the U.S. see the price list in the back of this catalog.

### TFS3031

TekRanger Base Unit.

**Includes:** Operator Manual (070-9027-00); Quick Reference Card (063-2096-00); NiCad Battery Pack (146-0095-00); Power/Charger Adapter (119-4545-00); Power Cord (161-0228-00); Soft Carrying Case (016-1215-01).

### OUTPUT PORT OPTIONS

#### Multimode Options –

**Opt. 01** – Single wavelength 850 nm.

**Opt. 03** – Dual wavelength 850/1300 nm.

#### Singlemode Options –

**Opt. 04** – Single wavelength 1310 nm.

**Opt. 06** – Dual wavelength 1310/1550 nm.

**Opt. 08** – Dual wavelength 1310/1550 nm extended range.

**Opt. 09** – Single wavelength 1550 nm extended range.

### MULTIMODE/SINGLEMODE OPTION PACKAGES

Opt. 03 and 06; Opt. 03 and 04; Opt. 01 and 04; Opt. 01 and 06; Opt. 03 and 08.

### CONNECTOR OPTIONS

Multimode Option	Singlemode Option	Connector Type	Part Number
20	30	Biconic	119-4515-00
21	31	FCPC	119-4516-00
22	32	D4PC	119-4514-00
24	34	STPC	119-4513-00
25	35	DINPC	47256 119-4546-00
26	36	DIAMOND 3.5	119-4558-00
28	38	SCPC	119-4518-00
	41	FC/APC	119-5115-00
	42	SC/APC	119-5116-00

### INTERNATIONAL POWER PLUG OPTIONS

**Opt. A1** – Universal Euro 220 V. Order 161-0066-09.

**Opt. A2** – United Kingdom 240. Order 161-0066-10.

**Opt. A3** – Australia 240 V. Order 161-0066-11.

**Opt. A5** – Switzerland 220 V. Order 161-0154-00.

**Opt. A6** – Japan 110 V. Order 161-0288-00.

See Customer Information Section for additional description.

### LANGUAGE OPTIONS

**Opt. L1** – French.

**Opt. L2** – Italian.

**Opt. L4** – Spanish.

**Opt. L5** – Japanese.

**Opt. L6** – Portuguese.

**Opt. L7** – Chinese.

### OPTIONAL ACCESSORIES

**Opt. 11** – Disk drive.

**Opt. 1S** – FMTAP software.

**Opt. 1T** – Transit case.

**Hard Travel Case** – Order 016-1210-00.

**Thermal Printer** – Order HC411.

**Thermal Printer Paper** – Order 006-7840-00.

**RS-232 PC Interface Cable** – Order 012-1379-00.

**FMTAP Trace Analysis Package** – Order FMTAP.

**Cigarette Lighter Power Adapter** – Order 198-5810-00.

**Centronix Parallel Printer Cable** – Order 012-1214-00.

**Standard “C” Cell Adapter** – \*1.

\*1 Contact your local Tektronix representative.

For your local Tektronix representative see the list in the back of this catalog or outside the U.S. call: 1-503-627-1933, inside the U.S. call: 1-800-426-2200.



See Tektronix on the World Wide Web:  
<http://www.tek.com>



Tektronix Measurement products are manufactured in ISO registered facilities.