Optical Time Domain Reflectometer

▶ NetTek® OTDR

▶ Features & Benefits

IntelliTrace™ Plus, Expert Results With the Push of One Button – Saves Training Time and Provides Better Results

Advanced Wave Shape Analysis Software Finds More Events – More Information On Your Critical Networks

Modular Platform Lets You Configure and Update Functions – Helps You Keep Up With Newer Technologies

Designed for Field Use – Reduces Maintenance Costs and Equipment Down Time

Advanced PC Report Generation Software – Combines Tests Into a Concise, Easy To Read Report To Save You Time

▶ Applications

Fiber Optic Installation/ Acceptance Testing

Optical System Fault Location

Physical Plant Documentation

The NetTek® OTDR simplifies installation and maintenance testing of fiber optic cabling. The NetTek OTDR provides a total fiber optic I&M test package, combining the NetTek platform with OTDR and power meter modules that provide outstanding performance and ease of use – all in a rugged package. The NetTek OTDR can help any user to achieve expert measurement results.

The IntelliTrace™ Plus Advantage

The NetTek OTDR modules use the Tektronix-patented IntelliTrace Plus technology. The IntelliTrace Plus function automatically optimizes test parameters so you don't have to. It gives you the best resolution on every section of the fiber while maximizing dynamic range.

The NetTek OTDR provides:

- IntelliTrace Plus multi-pulse width, single-result auto test function to significantly reduce dead zone effects on your tests. See close events, including the first connector, at the same time you see events 200 km away
- An easy-to-use interface, so even minimally trained users get good results

All these features combine to give you more information on your cables, with precise accuracy.

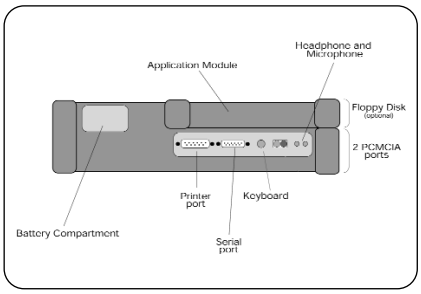
Tektronix
Enabling Innovation

Modular Flexibility and Ease of Use

The NetTek® Analyzer platform provides more flexibility for your optical test needs. The NetTek platform accepts up to four modules at once. You can mix and match modules to suit your needs.

Eight OTDR modules are available for varying applications. Current selections also include two PCMCIA-based power meters.

The NetTek OTDR is easy to use with a Windows touch-screen interface, automatic test routines and preprogrammed measurement thresholds to let even a novice user achieve expert results. All this in a rugged modular package.



▶ *The NetTek Analyzer platform contains the support and flexibility you need to manage your test and documentation needs.*

The heart of the NetTek OTDR is the NetTek Analyzer platform. The platform is a full capability hand-held PC running Windows CE. You get the power, flexibility, and ease of use of Windows in a portable, durable platform. This is an advanced field test platform with the durability and intelligence you need in a field tool.

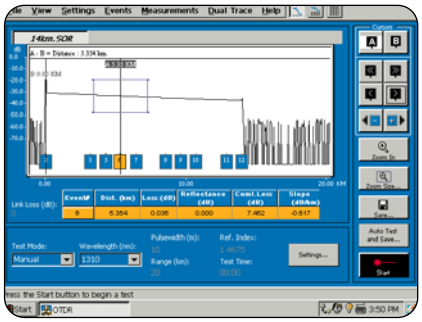
▶ *Windows CE operating system and pre-loaded, web-enabled standard applications support your current and future needs.*

Windows-based test applications are easy to use in the field with a large color screen featuring a simple to use touch-screen interface.

The NetTek Analyzer can support up to four application modules. These can be different OTDRs or other optical or wireless test modules. Check with your local Tektronix representative or on the Tektronix web site for the latest test capabilities for the NetTek Analyzer.

The platform comes configured with multiple interfaces for your operation and documentation needs, like printer, serial and keyboard ports. In addition, it supports other interfaces using the 2 PCMCIA ports. Plug-ins such as LAN, modem, GPS and extra memory let you configure the unit to your needs, including supporting web-enabled applications.

The NetTek Analyzer is a true portable field tool in a durable package that meets Telcordia GR-196-CORE drop specifications and operates in the rugged environment you work in. It is small enough to take anywhere, and on fully charged batteries it can operate up to 8 hours.

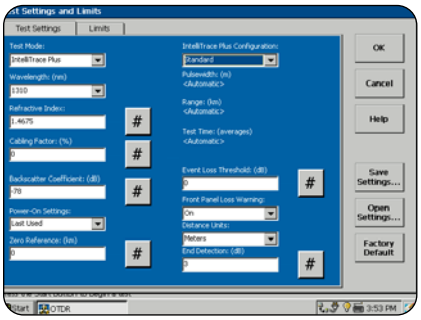


▶ *Everything you need is on screen. Windows interface and touch-screen means you truly point (with your finger) and click.*

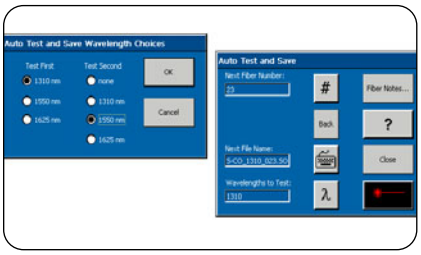
Built-in Intelligence

The NetTek® OTDR makes your job easy. Intelligence is built in so you can concentrate on your communication system rather than on your test equipment.

Application-specific modules make buying the NetTek OTDR an intelligent decision. Choose from a variety of modules ranging from low cost/full performance all the way up to ultra-long range with truly world-class performance. Singlemode, multimode, whatever you need.



▶ *The IntelliTrace™ Plus function provides a better test and lets you configure the automatic operation to your needs.*



▶ *NetTek® OTDR includes smart software and hardware features to help automate the test process, making your job easier.*

NetTek's IntelliTrace™ Plus uses a unique, patented multi-pulse width single test that lets you see all of your fiber system. See events at 10 meters at the same time you see the end of the fiber 200 km away.

On some OTDRs it may take up to four tests to see everything on your fiber. These OTDRs are limited to the resolution and range of one pulse width. This means you can look at nearby patch panels and splices, or you can look at the end of your fiber, but not at both simultaneously. Who has time for four tests on one fiber?

In addition, the NetTek OTDR uses wave-shape analysis algorithms that can perform an expert evaluation on the test, providing more insight into your measurements.

Running these tests is easy. For single tests, just push the OTDR Start Test button and the IntelliTrace Plus function figures out the rest. If you have lots of fibers to test, built-in macros help automate your testing.

By taking advantage of NetTek's built-in intelligence:

- ▶ You work more productively
- ▶ You get better results
- ▶ You need less test equipment training

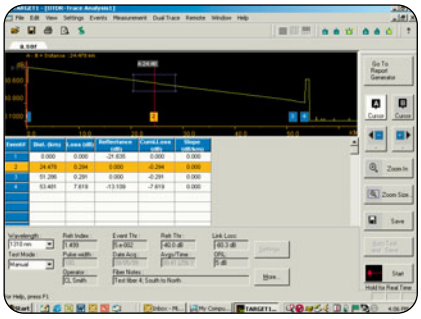
YOPM Optical Power Meters

The YOPM, a PCMCIA-based Optical Power Meter, supports all your optical power measurement needs. It measures all common telecommunication wavelengths from 850 nm to 1625 nm. Easy saving of measurement data makes this an ideal tool for documenting networks.

Other data-storing power meters just let you store and view one measurement at a time. YOPM allows you to store and view tests in a configurable table. You can enter your system patch panel configuration so measurements match the way your patch panel is laid out, and not just as a list of numbers.

- ▶ Tabular test results conform to your system patch panel layout, simplifying testing and analysis
- ▶ Compatible with NetTek Analyzer platform for more flexibility than any data-storing power meter
- ▶ PCMCIA-based meter leaves NetTek module slots free for other test functions
- ▶ NIST Traceable accuracy
- ▶ Two product offerings handle all major fiber wavelengths and power needs

TARGET1™ PC Analysis Software

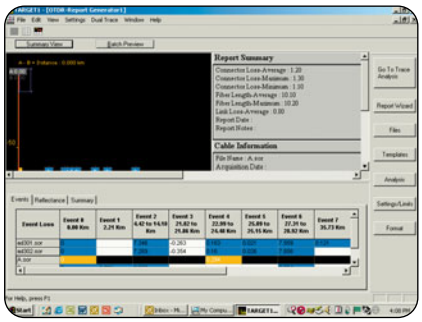


▶ *TARGET1™ Trace mode lets you analyze individual tests.*

TARGET1 Software – Trace Analysis Report Generation and Emulation Tool meets your optical test evaluation and report needs in one easy to use software tool.

- ▶ Off-line analysis of OTDR results
- ▶ Analysis of SOR compatible files
- ▶ Remote control of NetTek optical modules
- ▶ Automatic report generation
- ▶ Interactive analysis of all tests in a fiber bundle
- ▶ Output to printer, spreadsheet, html, word processor

This advanced, integrated software package can handle all stages of test evaluation from acquiring tests remotely to outputting summary reports to a web page.



▶ *TARGET1 Report mode summarizes multiple tests in an easy to read format and exports to multiple formats.*

Integrated reports linked to individual tests let you view the data for an entire fiber bundle instead of just one test at a time, making system acceptance and maintenance faster and easier than ever before. The software's Report Wizard guides you through the steps so that you can easily create and output professional reports.

▶ *TARGET1 includes Virtual CE remote control of all NetTek functions.*

▶ Characteristics

NetTek® Analyzer Platform Characteristics

Module Support –
Holds up to 4 test modules.
Field interchangeable.
Module size independent.
Additional mini-test modules supported on PCMCIA.

Display – Touch screen display optimized for finger use – does not require special scribes or other tools to operate .
Y350C: 26 cm (10.4 in.), 640x480 pixel, transmissive color LCD.

Power –
AC Power: AC: 90 to 264 VAC, 47 to 63 Hz.
DC Power: 20 to 28 VDC, 60 W maximum.
Operation time on battery: 4 hours per battery, actual operation time dependent on type and number of applications running.
One Li-Ion battery standard.
Y350 can hold two batteries (second battery optional) for total of 8 hours of operation.
Recharge time (non-operating): 3 hours.

Warranty/Calibration – 1 year warranty, regular platform calibration not required.

Interface Ports –
RS-232 serial: 9-pin, up to 115.2 kbps serial.
Parallel printer: 25 pin, supports Centronics mode.
Keyboard: PS/2 compatible, Mini-DIN connector.
Microphone jack: 3.5 mm jack for external microphone.
Headphone jack: 3.5 mm jack for external headphone.
Built-in Speaker.
PCMCIA: 2 PCMCIA type II ports.

File/Test Storage –
Internal memory (standard): 16 MB available for storage and running Windows CE applications.
Floppy disk (optional): MS-DOS compatible 3.5", 1.4 MB.
Memory card (optional): 128 MB.
Port supports standard PCMCIA memory cards.

Module	Fiber Type	Wavelengths	Dynamic Range*1	Event Dead Zone*2	Loss Dead Zone*2
YM8513	Multimode	850 nm/1300 nm ±30 nm	32/34 dB	1/2 m	3/8 m
YSS1310	Singlemode	1310 nm ±20 nm	38 dB	2 m	8 m
YSS1315	Singlemode	1310 nm/1550 nm ±20 nm	38/36 dB	2 m	8 m
YSL1315	Singlemode	1310 nm/1550 nm ±20 nm	42/40 dB	2 m	8 m
YSL1625	Singlemode	1625 nm ±20 nm	40 dB	2 m	8 m
YSL1516	Singlemode	1550 nm/1625 nm ±20 nm	40/40 dB	2 m	8 m
YSU1315	Singlemode	1310 nm/1550 nm ±20 nm	44/44 dB	2 m	8 m
YSU1625	Singlemode	1625 nm ±20 nm	44 dB	2 m	8 m

*1 Typical at 23 ºC, snr=1, 3 minutes averaging, maximum pulse width.

*2 Typical, –40 dB reflectance, shortest pulse width

Environmental –
Operating Temperature: –10 to +50 ºC.
Storage Temperature: –40 to +60 ºC.
Humidity, Operating: 5 to 95%.
Drop: to Telcordia GR-196-CORE standards.

Physical Characteristics

Dimensions	mm	in.
Height	249	9.8
Width	330	13.0
Depth	89	3.5
Weight	**kg**	**lb.**
	4.11	9.2

Not including application module.

NetTek® OTDR Module Characteristics

Module Compatibility – Operates on NetTek Analyzer, Y350C, platform.

Accuracy –
Distance Accuracy:
Zero Offset: ±0.5 m.
Timebase: $\pm 10^{-5}$.
Cursor resolution: ±0.5 m (SM) ±0.1 m (MM).
Loss accuracy (linearity): 0.02 dB/dB (SM)
0.05 dB/dB(MM).
Reflectance accuracy: ±2 dB.

Safety – Laser Safety: Class 1 per 21 CFR 1040.10 and IEC 60825-1.

Vertical Parameters –
Vertical scale: 0.1 to 10.0 dB/div.
Readout resolution: 0.001 dB.
Reflectance range: –14 to –65 dB (SM),
–35 to –62 dB (MM).

Horizontal Parameters –
Display range: 0 to 320 km.
Readout resolution: 0.05 m.
Measurement points: 32000 standard.
Length units: meters, feet, miles.

Pulse Widths –
(MM): 5 ns.
(SM): 2, 10, 20 µs.
(SM and MM): 10, 20, 50, 100, 200, 500, 1000 ns.

Waveform Scan Parameters –
Loss threshold range: 0.01 to 10 dB,
0.01 dB increments.
Reflectance threshold: –20 to –70 dB,
0.1 dB increments.
Default save file format: Telcordia SOR.

Environmental –
Temperature, Operating: –10 C to +50 ºC.
Temperature, Nonoperating: –40 C to +60 ºC.
Humidity: 5 to 95%.

Warranty/Calibration – 1 year warranty, 2 years recommended calibration period.

Physical Characteristics

Dimensions	mm	in
Height	234	9.2
Width	190	7.5
Depth	33	1.3
Weight	**kg**	**lb.**
	<1.4	<3.0

YOPM Optical Power Meter Characteristics

Wavelengths (nm) – 850 nm (YOPM100), 980, 1300, 1310, 1480, 1550, 1625.

Power Range –
YOPM100: +3 dBm to –65 dBm.
YOPM200 +25 dBm to –43 dBm.

Accuracy –
±0.25 dB at calibration conditions,
980 to 1550 nm.
Traceable to NIST.

Environmental –
Operating Temperature: –10 to +50 ºC.
Storage Temperature: –40 to +60 ºC.
Humidity, operating: to 95%.

Platform – Tektronix NetTek® platform PCMCIA port, Windows CE 2.12.

Number of Stored Tests – 1152 per wavelength (48x24 table).

Warranty – 1 year.

Physical Characteristics

Dimensions	mm	in.
Height	135	5.3
Width	61	2.4
Depth	26	1.0
Weight	**kg**	**lb.**
	0.266	0.6

TARGET1™ Software Characteristics

Operating System – Windows 95, 98, NT, Me, or 2000.

PC Hardware –
133 MHz or better processor.
10 MB free hard drive space.
CD-ROM drive (required for installation).

Input File Types – OTDR: Tektronix CFF/WFM, Telcordia SOR V1.

Export File Types – SOR, ASCII, RTF (word processor), CSV (spreadsheet), html (web page).

▶ Ordering Information

NetTek® Platform Ordering Information

Y350C

NetTek Analyzer platform, color display.

Includes: Shoulder Strap, Tilt Stand, Stylus, AC Power Supply, One Li-Ion battery, User Manual, RS-232 Cable, Soft Carry Case. Please specify power plug when ordering.

Interface Languages – Included on system CD:

- English
- Italian
- German
- Spanish
- Japanese
- Portuguese (Brazilian)
- Chinese (Simple)

Options

Opt. FD – 3.5" floppy disk drive.

International Power Plugs

A0 – North America Power.

A1 – Universal EURO Power.

A2 – United Kingdom Power.

A3 – Australia Power.

A4 – 240 V, North America Power.

A5 – Switzerland Power.

A6 – Japan Power.

A99 – No Power Cord or AC Adapter.

AC – China Power.

Service

Opt. R3 – Repair Service 3 Years.

Note: See NetTek OTDR, YOPM, TARGET1, and Accessory sections for information on test modules and additional accessories.

NetTek OTDR Module Ordering Information

OTDR Modules

YM8513 – 850/1300 nm multimode.

YSS1310 – 1310 nm Value singlemode.

YSS1315 – 1310/1550 nm Value singlemode.

YSL1315 – 1310/1550 nm Long Range singlemode.

YSL1516 – 1550/1625 nm Long Range singlemode.

YSL1625 – 1625 nm Long Range singlemode.

YSU1315 – 1310/1550 Ultra-long Range singlemode.

YSU1625 – 1625 nm Ultra-long Range singlemode.

Module Connector Options

One connector option per unit. Order additional connector adapters as accessory part number. APC (Angled connector) modules are not compatible with PC connectors. PC modules are not compatible with APC connectors.

Opt. 31 – FC/PC.

Opt. 33 – E2000/PC.

Opt. 34 – ST/PC.

Opt. 36 – Diamond 3.5.

Opt. 38 – SC/PC.

Opt. 41 – FC/APC (SM only).

Opt. 43 – E2000/APC (SM only).

Opt. 48 – SC/APC (SM only).

Service

Opt. C3 – Calibration Service 3 Years.

Opt. D1 – Calibration Data Report.

Opt. D3 – Calibration Data Report 3 Years (with Option C3).

Opt. R3 – Repair Service 3 Years.

Note: See Accessory list at end of data sheet for more OTDR, connector, platform, and other accessories.

YOPM Optical Power Meter Ordering Information

Power Meter

YOPM100 – Standard range, +3 dBm.

YOPM200 – High power range, +25 dBm.

Service

Opt. C3 – Calibration Service 3 Years.

Opt. D1 – Calibration Data Report.

Opt. D3 – Calibration Data Report 3 Years (with Option C3).

Opt. R3 – Repair Service 3 Years.

Connector Options

One connector option per unit. Order additional connector adapters as accessory part number. Connectors are compatible with both PC and APC.

Opt. 31 – FC.

Opt. 33 – E2000.

Opt. 34 – ST.

Opt. 36 – Diamond 3.5.

Opt. 38 – SC.

Software

TARGET1™

TARGET1 CD and User manual.

Site/Organizational License

Opt. OL – Multi-site organizational license.

040-1524-0x – Upgrade kit: Upgrades older version of FMTAP or TARGET1 software to current version of TARGET1. x number will change with latest version.

Additional Accessories

Shoulder Strap*1 – Order 367-0518-00.

Tilt Stand*1 – Order 348-1661-00.

Stylus*1 – Order 119-6107-00.

AC Power Supply*1,*2 – Order 119-6029-00.

Li-Ion Battery*1 – Order 146-0127-01.

Platform User Manual*1 – Order 071-0805-02.

Display Protector Sheets (5) – Order 016-1882-00.

RS-232 Cable – Order 012-1651-00.

Soft Carry Case*1 – Order 016-1775-00.

Mini-Keyboard – Order 118-9402-00.

External Charger*2 – Order 119-6030-00.

In-vehicle DC Plug – Order 119-6028-00.

Australia AC Power Cord – Order 161-0313-00.

China AC Power Cord – Order 161-0318-00.

European AC Power Cord – Order 161-0311-00.

Japanese AC Power Cord – Order 161-0315-00.

Swiss AC Power Cord – Order 161-0314-00.

United Kingdom AC Power Cord – Order 161-0312-00.

U.S. 110 V Power Cord – Order 161-0310-00.

U.S. 220 V Power Cord – Order 161-0317-00.

Strand Hook – Order 020-2422-00.

Magnetic Shelf – Order 436-0416-00.

PCMCIA Modem – Order 116-0997-00.

PCMCIA Ethernet – Order 116-0998-00.

PCMCIA Memory Card (128 M) – Order 116-0996-00.

GPS Locator – Order 116-0995-00.

PCL Printer, Parallel – Order 116-0999-00.

PCL Printer Cable – Order 012-1214-00.

Polyethylene Carrying Case (single module case) – Order 016-1888-00.

Polyethylene Carrying Case (three module case) – Order 016-1889-00.

*1 Also included as standard accessories with Y350C.

*2 Requires separate power cord.

Optical Test Accessories

Connector Cleaning Kit*3 – Order 020-2357-01.

Penlight Visual Fault Finder – Order 015-0684-00.

Bare Fiber Adapter – Order 015-0685-00.

Bare Fiber Adapter with Cleaver – Order 015-0686-00.

OTDR Module User Manual*3 – Order 020-2484-03.

YOPM User Manual*4 – Order 071-0995-00.

OTDR Connector Adapters

UCI Adapter for Y-series OTDR modules. Adapters fit both PC and APC configured units.

FC – Order 119-5115-00.

E2000 – Order 119-5164-00.

ST – Order 119-4513-00 (PC only).

Diamond 3.5 – Order 119-4558-00 (PC only).

SC – Order 119-5116-00.

YOPM Power Meter Connector Adapters

Snap-on adapter for YOPM Optical Power meters.

FC – Order 119-5146-00.

E2000 – Order 119-5165-00.

ST – Order 119-5144-00.

Diamond 3.5 – Order 119-5172-00.

SC – Order 119-5116-00.

*3 Also included as standard accessory with Y-Series OTDR modules.

*4 Also included as standard accessory with YOPM power meter.

OTDR Package Configurations

These are single order numbers for a complete package including platform and modules for specific applications.

YOTDRLAN

LAN Install/Maintenance package.

Includes: Color Platform, Floppy Disk, YM8513 Multimode OTDR, ST Connector TARGET1™ Software, VFF, YOPM100 Power Meter.

YOTDRCNI

Contract Installer package.

Includes: Color Platform, Floppy Disk, YM8513 Multimode OTDR, YSS1315 Singlemode OTDR SC and ST Connectors, 128 MB memory card, TARGET1 Software, VFF, YOPM100 Power Meter, SC & ST Power Meter Connectors.

YOTDROPR

Long-haul Operator package.

Includes: Color Platform, Floppy Disk, YSL1315 Singlemode OTDR, SC Connectors, TARGET1 Software, VFF, YOPM100 Power Meter.

YOTDRCTV

CATV Operator package.

Includes: Color Platform, Floppy Disk, YSS1315 Singlemode OTDR, SC/APC, TARGET1 Software, VFF, YOPM200 Power Meter.

Optical Time Domain Reflectometer

▶ NetTek® OTDR

Contact Tektronix:

ASEAN / Australasia / Pakistan (65) 6356 3900

Austria +43 2236 8092 262

Belgium +32 (2) 715 89 70

Brazil & South America 55 (11) 3741-8360

Canada 1 (800) 661-5625

Central Europe & Greece +43 2236 8092 301

Denmark +45 44 850 700

Finland +358 (9) 4783 400

France & North Africa +33 (0) 1 69 86 80 34

Germany +49 (221) 94 77 400

Hong Kong (852) 2585-6688

India (91) 80-2275577

Italy +39 (02) 25086 1

Japan 81 (3) 3448-3010

Mexico, Central America & Caribbean 52 (55) 56666-333

The Netherlands +31 (0) 23 569 5555

Norway +47 22 07 07 00

People's Republic of China 86 (10) 6235 1230

Poland +48 (0) 22 521 53 40

Republic of Korea 82 (2) 528-5299

Russia, CIS & The Baltics +358 (9) 4783 400

South Africa +27 11 254 8360

Spain +34 (91) 372 6055

Sweden +46 8 477 6503/4

Taiwan 886 (2) 2722-9622

United Kingdom & Eire +44 (0) 1344 392400

USA 1 (800) 426-2200

USA (Export Sales) 1 (503) 627-1916

For other areas contact Tektronix, Inc. at: 1 (503) 627-7111

Updated 20 September 2002

Our most up-to-date product information is available at:
www.tektronix.com

08/03 HB/SFI 22W-14289-4

Tektronix
Enabling Innovation