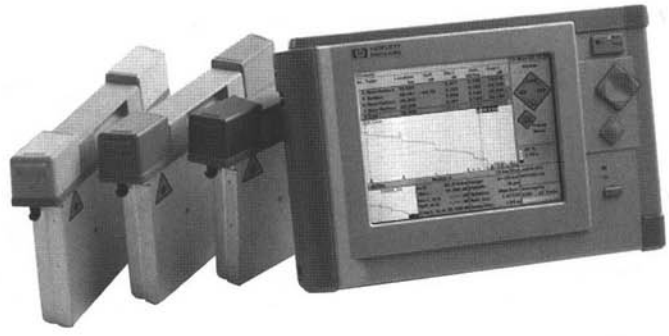
Optical Time Domain Reflectometer

HP 8147
HP E6000A

- High resolution and dynamic range in each module
- Pre-programmable procedures
- Full on-line analysis and remote operation
- Exceptionally flexible
- Fast and accurate fault characterization
- One button automatic measurement and analysis
- Small, rugged and lightweight
- Excellent resolution
- Ultra high dynamic range

HP 8147



HP E6000B and modules

HP 8147 Optical Time Domain Reflectometer

The HP 8147 is a high performance optical time domain reflectometer for installation, commissioning and bench applications. It is designed for fast and accurate measurement and analysis of a fiber link, all at the touch of a single button.

"Easy Mode" lets you pre-program complete procedures, so that with a couple of keystrokes, you get standardized measurements. That way, regardless of the operator's experience level, you get accurate and repeatable results every time.

Extended in-depth analysis including two-way measurements, delta measurements and comparison of up to four traces, is now available online. A return loss graph allows you to see the reflectance of individual events at a glance, as well as the total return loss of the link.

The HP 8147 remote ability provides the centralized operation, collection and analysis of results from remotely-stationed OTDRs. As a result, you can maximize the use of scarce test expertise throughout your network.

At only 9 kg (20 lbs), the HP 8147 can be carried easily into those awkward places.

A variety of performance classes can now be selected to ensure you have just the right performance for your application. Many standard interfaces and options are available to ensure that the OTDR can be configured to your exact needs.

Specifications

HP 8147 OTDR	Wavelength	Fiber Type	Dynamic Range (typ)	Attenuation Deadzone (typ)
HP E4311A	1310 ± 15 nm	Single-mode	30 dB	10 m
HP E4312A	1550 ± 15 nm	Single-mode	30 dB	12 m
HP E4313A	1310/1550 ± 15 nm	Single-mode	30/30 dB	10/12 m
HP E4314A	1310 ± 15 nm	Single-mode	35 dB	10 m
HP E4315A	1550 ± 15 nm	Single-mode	34 dB	12 m
HP E4316A	1310/1550 ± 15 nm	Single-mode	35/34 dB	10/12 m
HP E4317A	1310 ± 15 nm	Single-mode	40 dB	10 m
HP E4318A	1550 ± 15 nm	Single-mode	39 dB	12 m
HP E4319A	1310/1550 ± 15 nm	Single-mode	40/39 dB	10/12 m
HP E4321A	1625 ± 15 nm	Single-mode	42 dB	14 m
HP E4324A	1310/1550 ± 15 nm	Single-mode	45/43 dB	10/12 m

Key Literature

HP 8147 Optical Time Domain Reflectometer, Technical Specifications
p/n 5964-1986E
HP 8147 Optical Time Domain Reflectometer, Configuration Guide
p/n 5964-1987E

Ordering Information

	Price
At least one user-exchangeable connector interface (HP 81000xI) is required for the module.	
HP E4310A Optical time domain reflectometer mainframe	$7,480
Opt 001 DC input: 11–30 V	+$1,075
Opt 002 Thermal printer	+$1,350
Opt 003 Color screen, VGA-LCD	+$1,015
Opt 004 HP-IB interface	+$861
Opt 005 LAN interface	+$487
Opt AB2 Chinese user interface	$0
HP E4311A 1310 nm single-mode module (30 dB)	$7,000
HP E4312A 1550 nm single-mode module (30 dB)	$8,075
HP E4313A 1310/1550 nm single-mode module (30 dB)	$9,865
HP E4314A 1310 nm single-mode module (35 dB)	$9,635
HP E4315A 1550 nm single-mode module (34 dB)	$10,760
HP E4316A 1310/1550 nm single-mode module(35/34 dB)	$13,325
HP E4317A 1310 nm single-mode module (40 dB)	$15,270
HP E4318A 1550 nm single-mode module (39 dB)	$16,505
HP E4319A 1310/1550 nm single-mode module (40/39 dB)	$19,785
HP E4321A 1625 nm single-mode module (40 dB)	$19,950
HP E4324A 1310/1550 nm single-mode module (45/43 dB)	$24,150
HP E6090A ODTR Toolkit Software	$987

HP E6000B Mini-Optical Time Domain Reflectometer

The HP E6000B mini-OTDR maximizes your network uptime by locating and characterizing faults quickly and accurately. The unrivalled combination of 16,000 data points and a minimum sample spacing of 8 cm allows the powerful analysis algorithm to determine the exact location and characteristic of an event. Add to this the 20 m attenuation deadzone, and you really can measure and resolve closely-spaced events along the whole fiber link.

Its one button operation, combined with its intuitive user interface, makes it easy even for those with minimal training to quickly make advanced, reliable OTDR measurements.

Its high dynamic range of up to 45 dB not only gives you the possibility to look at long stretches of fiber, but also helps you increase the speed at which you can accurately determine a certain event.

The HP E6000B, however, goes beyond a mini-OTDR. Its fiber break locator mode looks exclusively for breaks, and these are then displayed quickly. The real-time mode gives you instant feedback on parameter changes you make, so that the optimal setup can be found quickly.

Specifications

HP E6000B Mini-OTDR	Wavelength	Fiber Type	Dynamic Range	Attenuation Deadzone
HP E6001A	1310 ± 25 nm	Single-mode	28 dB	10 m
HP E6002A	1310 ± 25 nm	Single-mode	35 dB	10 m
HP E6003A	1310/1550 ± 25 nm	Single-mode	35/34 dB	10/12 m
HP E6003B	1310/1550 ± 25 nm	Single-mode	40/38 dB	10/12 m
HP E6004A	1310/1550 ± 25 nm	Single-mode	28/28 dB	10/12 m
HP E6008B	1310/1550 ± 25 nm	Single-mode	45/43 dB	10/12 m
HP E6010A	1625 ± 20 nm	Single-mode	40 dB	14 m
HP E6012A	1550/1625 ± 25/10 nm	Single-mode	43/40 dB	12/14 m
HP E6005A	850/1300 ± 30 nm	Multimode	26/34 dB	10/10 m
HP E6009A	850/1300 ± 30 nm	Multimode	18/23 dB	10/10 m

Additional Modules

The HP E6000B mini-OTDR is not just a high performance OTDR for single-mode fiber networks. Additional modules and sub-modules enhance its capabilities, without adding any significant weight. The modules simply plug into the existing instrument, making the mini-OTDR the right tool for versatile, optical fiber test measurements.

Multimode Modules

These modules are designed to test all popular multimode fibers at both 850 nm and 1300 nm wavelengths. With an event deadzone of less than three meters, the HP E6005A multimode module offers a dynamic range of up to 34 dB.

Ultra High Performance 1625 nm Modules

The HP E6010B, HP E6012A, HP E4321A and HP E6060A OTDR modules enable testing of Optical Supervisory Channel capability of WDM links and fast and accurate fiber testing at 1625 nm. Out of band testing also allows users to perform a fiber test while transmitting data at 1310 nm or 1550 nm.

Optical Power Meter Sub-Module

This high performance, miniature and extremely light (130 g) sub-module provides a measurement range of +10 dBm to –70 dBm with 5% accuracy, 0.01 dB resolution and automatic zeroing. The power meter can be used to perform end-to-end loss testing, characterize optical passive components and test transmitter power levels.

A simple user interface and a hold data function make this power meter easy-to-use. A reference power level can be stored at each wavelength for loss measurements when the source is not available. It can even detect various modulation frequencies used to identify the wavelength being sent by the source. Now it's possible to perform end-to-end loss testing without communicating with the other end of your link.

The power meter has high return loss and low polarization-dependent loss. This ensures accurate measurements, especially for high coherent laser sources, such as in Dense Wavelength Division Multiplexing (D-WDM) and CATV applications. It is fast, providing more than three updates each second. Its non-contact ferrule enhances reliability and facilitates cleaning in the field.

Visual Fault Finder Sub-Module

This visible light source helps you to identify bends, breaks and stress points along individual fibers at the patch panel. The bright red light allows you to locate these faults within the deadzone of an OTDR, and at distances of up to 5 km. The Visual Fault Finder can be used to identify fibers within a cable and also to check the quality of your patchcords and connections. The 1 Hz modulation causes the light to flash, making it easier to identify fibers and locate faults.

Optical Fiber Test Set–Everything in Your Hands

The mini-OTDR from Hewlett-Packard provides much more than just the fastest OTDR measurements; all the HP OTDR modules also act as powerful stabilized continuous wave (CW) light sources, and with the Optical Power Meter Sub-Module in place, you're able to perform loss and power measurements. Within half a minute, you can switch from locating a break with the Visual Fault Finder to checking the multimode LAN.

All the OTDR modules use HP connector interfaces, which are easy to clean, interchangeable and provide flexibility.

At less than 2.8 kg (6.2 lbs), the HP E6000B, with its rugged design, is ideal to be carried even into those inaccessible places. Containing the most advanced smart battery technology, you never need be caught without power. The battery delivers exact information on the charge status—with an accurate on-screen "fuel gauge". A full recharge takes less than 3 hours.

There's no need to switch instruments, for multimode or single-mode measurements; with the HP mini-OTDR, you have a complete optical fiber test set in one instrument.

Key Literature

Fiber Optic Test Solutions for Network Installation and Maintenance, Color Brochure, p/n 5965-1256E

HP E6000B Mini-Optical Time Domain Reflectometr, Technical Specifications, p/n 5965-1298E

For more information, visit our web site:
http://www.hp.com/go/lightwave

Ordering Information

	Price
At least one user-exchangeable connector interface (HP 81000xI) is required for the module.	
HP E6000B Mini-OTDR Mainframe	$4,999
Opt 002 Hardcase	$682.50
Opt 003 Color Display	$840
Opt 004 Software Upgrade Kit	$209
Opt 005 20 MB Flashdisk Card	$682.50
Opt 006 B/W Display	$0
Opt 007 Mini keyboard	$14
Opt AB1 Korean user interface	$0
Opt AB0 Traditional Chinese user interface	$0
Opt AB2 Simplified Chinese user interface	$0
Opt AB8 Turkish user interface	$0
Opt AB9 Portuguese user interface	$0
Opt ABD German user interface	$0
Opt ABE Spanish user interface	$0
Opt ABF French user interface	$0
Opt ABJ Japanese user interface	$0
Opt ACB Russian-Cyrillic user interface	$0
Opt AKB Czech user interface	$0
HP E6001A 1310 nm single-mode module (30 dB)	$2,940
Opt UK6 Calibration Report	$0
HP E6002A 1310 nm single-mode module (35 dB)	$6,850
Opt UK6 Calibration Report	$0
HP E6003A 1310/1550 nm single-mode module (35/34 dB)	$7,200
Opt UK6 Calibration Report	$0
Opt 022 Angled Connector	$0
HP E6003B 1310/1550 nm single-mode module (40/38 dB)	$11,000
Opt UK6 Calibration Report	$0
Opt 022 Angled Connector	$0
HP E6004A 1310/1550 nm single-mode module (30/30 dB)	$5,800
Opt UK6 Calibration Report	$0
Opt 022 Angled Connector	$0
HP E6005A 850/1300 nm multimode module (high performance) (26/34 dB)	$9,450
Opt UK6 Calibration Report	$0
HP E6006A Optical Power Meter Sub-Module	$1,365
Opt UK6 Calibration Report	$0
HP E6007A Visual Fault Finder Sub-Module	$1,155
HP E6008B 1310/1550 nm ultra high performance single-mode module (45/43 dB)	$17,000
Opt UK6 Calibration Report	$0
Opt 022 Angled Connector	$0
HP E6009A 850/1300 nm multimode module (economy) (18/23 dB)	$7,350
Opt UK6 Calibration Report	$0
HP E6010A 1625 nm ultra high performance single- mode module (40 dB)	$17,955
HP E6012A 1550/1625 nm ultra high performance single- mode (43/40 dB)	$19,500
Opt UK6 Calibration Report	$0
Opt 022 Angled Connector	$0
HP E6090A OTDR Toolkit Software	$987
HP 81000AI/FI/GI/HI/KI/SI/VI/WI Connector Interfaces	$177

HP E597xA Handheld Fiber Optic Test Equipment
Please refer to Product Overview 5963-6656E.