E6033A OTDR
'Getting Started' Bundle

Technical Data Sheet

Specifications describe the instrument's warranted performance, measured with typical PC-type connectors. Uncertainties due to the refractive index of fiber are not considered.

The following section contains both Specifications and Characteristics:

- *Specifications* describe the instrument's warranted performances.
- *Characteristics and typical data* provide information about the non-warranted instrument performance.

ISO 9001

The Agilent Technologies E6000C Mini-OTDR is produced to the ISO 9001 international quality system standard as part of Agilent's commitment to continually increasing customer satisfaction through improved quality control.

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Module Specifications/Characteristics

Specifications: Optical Performance
Measured at 22 °C ± 3°C. Guaranteed specifications unless otherwise noted. Bold values are typical specifications.

Module	E6003A
Central Wavelength	1310±25 nm/ 1550±25 nm
Applicable Fiber	single-mode
Pulsewidth	10ns 100ns 1μs 10μs
Dynamic Range [1][dB]	19/17 24/22 30/29 35/34
Event Deadzone[2]	3m
Attenuation Deadzone[3]	10/12m

The guaranteed values above are tested specifications. Agilent OTDR modules have the pulsewidths listed in "Pulsewidth" on page 3.

Notes:
1 Measured with a standard single-mode fiber at SNR=1 noise level and with 3 minutes averaging time. Optimize mode: dynamic
2 Reflectance < -35 dB at 10 ns pulsewidth, and with span ≤4 km, optimize resolution.
3 Typical Specification at Reflectance ≤ -50 dB at 30 ns pulsewidth, and with span ≤ 4 km (typical value).

Characteristics

Distance Accuracy [A]
- Offset Error: ± 1 m
- Scale Error: ± 10^{-4}
- Sampling Error: ± 0.5 sampling spacing

Loss/Reflectance Accuracy [B]
- Backscatter Measurements: ± 0.05 dB (1dB step), typical
- Reflectance Measurements[C]: ± 2.0 dB, typical

Acoustic Noise Emission
< 40dBA, not continuous.
Data are results from type tests per ISO 7779 (EN 27779).

Notes:
A Total distance accuracy = ± (offset error + scale error*distance + sampling error).
B SNR ≥15 dB and with 1 μs, averaging time max. 3 minutes.
C -20 dB to -60 dB

Agilent E6091A OTDR Toolkit II plus Software

The Toolkit is a powerful but easy to use software that connects to the Mini-OTDR to collect, analyze, organize, and store the traces, and to produce the documentation that you need.

The Toolkit II plus can access and process (or batch-process) the data from the Mini-OTDR to perform two-way averages, to compare up to 96 traces and to analyze events such as splices and connectors, or fiber attenuation.

Minimum System Requirements
- 568 DX PC with at least 32 MB of RAM
- Windows 95/98/2000 or Windows NT 4.0 operating system
- MS Internet Explorer 4.0 or higher (for help screens)
- Shockwave player

Product Content
- Toolkit consists of software case with 2 CD-ROMs
- Toolkit II plus software
- Guided Tour software
- E6000C firmware upgrade
- Manual and programming guide
- RS 232 cable
- Languages: English, French, German, Italian, Simplified Chinese, Portuguese and Spanish. (Each language option includes full User interface, Help and Operating Guide)

Characteristics

Horizontal Parameters

- Start-km: 0 km to 400 km
- Span: 0.1 km to 400 km
- Readout resolution: 0.1 m
- Minimum sample spacing: 8 cm
- Refractive index: 1.00000 to 2.00000
- Length unit: km, ft, or miles
- Measurement points: up to 16000

Vertical Parameters

- Vertical scale: 0.1 to 10.0 dB/Div
- Read-out resolution: 0.001 dB
- Reflectance range: -14 dB to -60dB
- Backscatter coefficient: 10 to 70 dB at 1 μs

Source Mode

built-in CW dual laser source	-3 dBm
CW stability (15 min., T=const.) after 10 minute warm-up with CW on	±0.1 dB
Optical output	User-exchangeable Connector Interfaces
Source Mode Modulation	270 Hz, 1 KHz, and 2 KHz squarewave

Pulsewidth

You can select any of the following pulsewidths:

10 ns, 30 ns, 100 ns, 300 ns, 1 μs, 3 μs, and 10 μs.

Output Connector

Standard = FC/PC, SC
Angled Connector #022 for free if required

Documentation

- 3.5" floppy disk drive: for high density 720/1440 kByte floppy disks. MS-DOS format compatible. Reduced operating temperature of 5° to 45° C, with 35% to 80% humidity at 40° C.
- Memory Card: PCMCIA Type II. Up to 440MB with up ton 13000 traces (typical with 16000 data points)
- Internal memory: SRAM up to 2 MB. Up to 300 traces (typical with 4000 data points).
- Trace format: compliant to the following Bellcore/Telcordia OTDR trace formats:
  - GR196, Revision 1.0
  - GR196, Revision 1.1
  - SR-4731, Revision 2.0
- Trace information: 5 comment labels of up to 15 alphanumeric characters, and 5 comments of up to 41 alphanumeric characters are provided for each trace.
- Real-time clock and date

Scan Trace

- Type of events: reflective and non-reflective.
- Maximum number of events: 100
- Threshold for non-reflective events: 0.0 to 5.0 dB, selectable in 0.01 dB steps.
- Threshold for reflective events: -14.0 to -65.0 dB, selectable in 0.1 dB steps.
- Threshold for fiber breaks: 0.1 to 10 dB, selectable in 0.1 dB steps.
- Fiber End Threshold: 0.1 to 20 dB, selectable in 0.1 dB steps.

Display

- Color VGA-LCD: 18.3 cm (7.2")
- Display points: 640 x 480 points
- Measurement update rate: two measurements per second in refresh mode.

Interfaces

RS232C
- Maximum baud rate: 115200 bps
- Transmission time at 115200 baud for trace data: 4000 points at approx. 1 second; 16000 points at approx. 4 seconds.
- Centronics: Standard parallel port (SPP).
- Keyboard: PS2 (Min-DIN). For English Standard, PS2, or AT keyboard.

General

- Automatic setup and analysis
- Instrument settings: storage and recall of user-selectable instrument settings.
- Laser Safety Class (E6001A-E6005A and E6008B-E6012A): 21 CFR Class 1, IEC 825 Class 3A
- Recommended recalibration period: 2 years.
- Dimensions: 194 mm H, 290 mm W, 75 mm D (7.7" x 11.4" x 3.0").
- Weight: net < 2.9 kg (6.4 lbs), typical, including battery pack and OTDR module.

Built in Applications

- Automatic Multi Fiber Test
- Pass/Fail Test
- Fiber Break Locator
- Power Meter / Loss Test mode
- Visual Fault Finder mode
- Optical Return Loss
- End to End Loss
- Easy OTDR
- OTDR Training
- OTDR Assistant

Environmental

- Operating Temperature: 0°C to 50°C
- Storage Temperature: -40°C to +60°C
- Humidity: 95% R.H from 0°C to 40°C

Power

- AC: 100 -240 Vrms ± 10% 50-60 Hz
- DC: 16 - 24 V
- External Battery: NiMH typically 8 hours continuous operation (minimum 4 hours). Charging time < 3 hours, non-operating.
- Low battery indicator
- Battery charge status

Options

The Agilent Technologies E6031A Bundle is a high performance time domain reflectometer. It is available in various configurations for the best possible match to the most common applications.

Option	Language
AB0	Traditional Chinese user interface
AB1	Korean user interface
AB2	Simplified Chinese user interface
AB8	Turkish user interface
AB9	Portuguese user interface
ABD	German user interface
ABE	Spanish user interface
ABF	French user interface
ABJ	Japanese user interface
ABX	Finnish user interface
ABZ	Italian user interface
ACB	Russian (Cyrillic) user interface
AKB	Czech user interface
AKE	Romanian user interface

Accessories supplied
The following accessories are supplied with your OTDR "Getting Started" Bundle:

- Soft carrying case
- Power cord
- AC/DC adapter
- User's Guide
- OTDR Support CD
- RS 232 cable
- Mini-OTDR Reference Card
- OTDR Pocket Guide
- Cleaning Procedures Pocket Guide
- NiMH battery pack

The following accessories are supplied with your Mini-OTDR module:

- 81000FI FC/PC connector interface
- 81000KI SC connector interface

All modules come with a commercial calibration certificate.

Additional Accessories
The following accessories are also available. To order these products, please contact your Agilent Technologies representative.

Product	Description
E6080A	Spare NiMH battery pack
E6081A	Mini-Keyboard
E6082A	Hard transit case
E6083A	64 MB Compact Flash ™ disk with PCMCIA adapter
5180-0010C	Centronics cable

Connector Interfaces and Other Accessories
The Agilent E6000C Mini-OTDR is usually supplied with a straight contact output connector interface. If you want your Mini-OTDR supplied with an angled connector, please order option #022.
Option #022 is only available for single-mode modules.

Related Agilent Literature

Agilent

Part Number	Title
5963-3538F	Cleaning Procedures for Lightwave Test and Measurement Equipment pocket guide
E6000-91031	Mini-OTDR User's Guide (also available in other languages)
E6000-91017	OTDR Pocket Guide
E6020-91011	Mini-FBL User's Guide (also available in other languages)
E4310-91016	OTDRs Programming Guide

Web based training

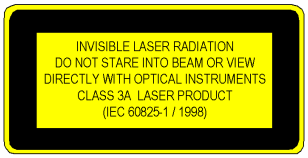
OTDR Tutorial

Safety Labels

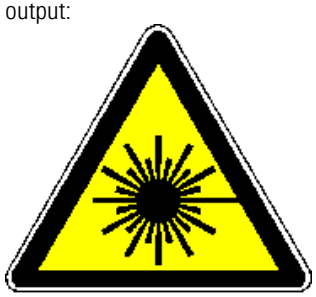
The following laser safety warning labels are fixed on the panel of the Mini-OTDR modules (that is, all modules except the E6006A and E6007A submodules):

USA

Non-USA

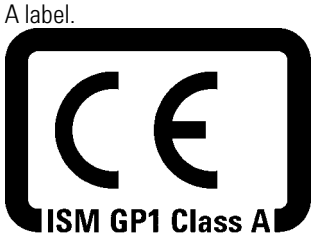


The following symbol is fixed to the panel of the Mini-OTDR modules, next to the laser output:



A sheet of laser safety warnings is included with the laser module. You must stick the labels in the local language onto the outside of the instrument, in a position where they are clearly visible to anyone using the instrument.

All modules also have a CE class A label.



The recommended position for the laser safety warning label is at the rear side of the instrument near the optical output.

You must return instruments with malfunctioning laser modules to an Agilent Technologies Service Center for repair and calibration, or have the repair and calibration performed on-site by Agilent Technologies personnel.

Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

By internet, phone, or fax, get assistance with all your test & measurement needs

Online assistance:
www.agilent.com/comms/otdr

Phone or Fax
United States:
(tel) 1 800 452 4844

Canada:
(tel) 1 877 894 4414
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Product specifications and descriptions in this document subject to change without notice.

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