JDSU

COMMUNICATIONS TEST & MEASUREMENT SOLUTIONS

T-BERD 8000 Tester

All your optical network testing needs covered in a single platform

The power of one, performing the work of many

A powerful unit

- **Flexible scalable platform**
- **Industry-leading size and weight**
- **Interchangeable modules**
- **Generates test results in seconds**
- **Fully automatic testing**
- **Combination of several tests**
- **Remotely controlled (via Ethernet, Fiber)**

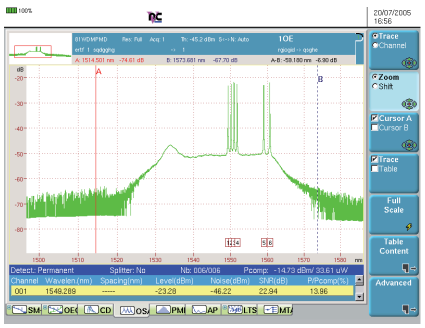
A single platform for

- **Attenuation testing**
- **Dispersion testing**
- **DWDM systems testing**
- **New fiber testing (attenuation profile)**
- **PDH/T-Carrier & SDH/SONET testing up to 10G**
- **Ethernet testing up to 10GigE**

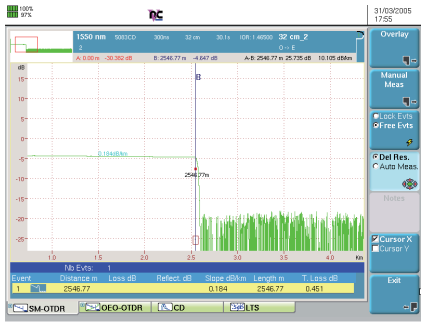
Variety of modules to meet all applications

- **More than 20 OTDR modules**
- **Multifunction loss test module**
- **PMD modules**
- **CD module**
- **DWDM analyzers**
- **High-performance OSAs**
- **Transport module**

2 Comprehensive optical network platform



Amplified DWDM system analysis



FTTx OTDR testing

Conventional fiber testing

- Ideal for field measurements
- Large variety of OTDR modules
- Length measurement
- Fiber link attenuation
- Reflection
- Splices/connector loss
- Insertion loss
- Optical return loss
- Fast and efficient testing

Fiber characterization testing

- Complete solution
- OTDR
- Chromatic dispersion (CD)
- Polarization mode dispersion (PMD)
- Attenuation profile

CWDM/DWDM testing

- Advanced testing
- Greater functionality
- Higher performance
- 1250 to 1650 nm DWDM measurements
- EDFA & DFB testing
- Channel isolation for BER analysis
- One button testing
- One single port analyzer with channel isolator
- Dual port analyzer with channel isolation
- Transport module

FTTx testing

- During plant installation and maintenance
- Insertion loss
- Event loss
- Event reflectance
- Distance to events
- Power level
- Total ORL or by section

Main Specifications

T-BERD 8000 BASE

(typical at 25 °C)

Display

	TFT color, 10'4 inches, LCD 800 × 600
	TFT color, 10'4 inches, LCD 800 × 600, High visibility
	Touchscreen TFT color, 10'4 inches, LCD 800 × 600, High visibility

Storage

Internal memory	16 MB
Hard disk (optional)	min 20 GB
Floppy disk drive (optional)	3.5 inches, MSDOS compatible
CD read/write (optional)	

Input/output interfaces

RS232C, 2 × USB, VGA, RJ45 Ethernet, RJ11 modem (optional)

Power supply, battery

Battery type	standard removable Li-Ion batteries
Operation time	up to 16 OTDR hours with two batteries and standard display, Telcordia GR-196-CORE
Internal charger	yes
Charging time	<3 hours per battery
Trickle charge	yes
DC input	19 to 25 V
Power supply, AC/DC adapter	Input 100 to 240 V, 50 to 60 Hz, 1.8 A, output 19 V DC/3.1 A

Size (w × h × d)

Mainframe only (with back plate)	320 × 265 × 55 mm/ 12.6 × 10.4 × 2.1 inches
Mainframe + receptacle + Battery pack	320 × 265 × 116 mm/ 12.6 × 10.4 × 4.5 inches

Weight

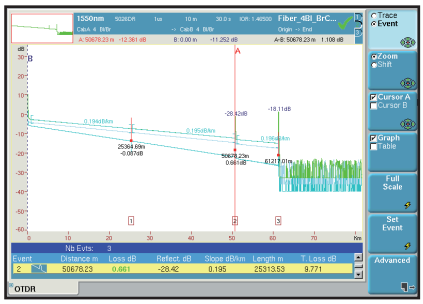
Mainframe only (with back plate)	2.9 kg/6.39 lbs
Mainframe + receptacle + Battery pack (with one battery)	5.4 kg/11.9 lbs

Environmental specifications

Temperature range

Operating on mains (no options)	–20 °C to +50 °C (–4 °F to 122 °F)
Operating, all options	0 °C to +40 °C (32 °F to 104 °F)
Storage	–20 °C to +60 °C (–4 °F to 140 °F)
Humidity	95% without condensing
EMI/ESD	CE compliant

3 High performance OTDR modules



Pass/Fail analysis

Bi-directional OTDR analysis

Wide range of modules

- Short haul to ultra long haul
- First to market 50 dB dynamic module (at 1550 nm)
- 1, 2, 3, 4 wavelengths per module (1310/1383/1490/1550/1625 nm)
- Multimode, singlemode modules
- Very short dead zones (up to 0.8 m event dead zone)
- Modules compatible with the T-BERD 6000 platform

Physical Fiber Testing

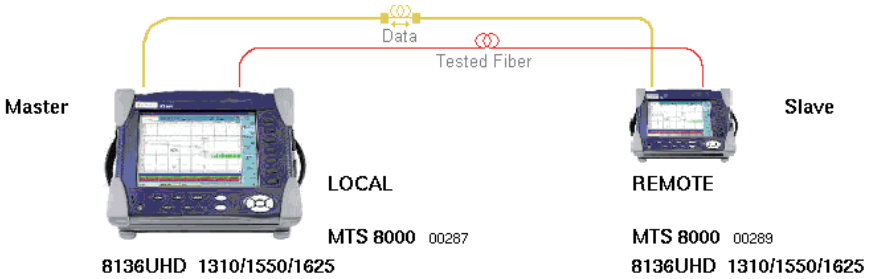
- OTDR measurements
- Optical return loss (ORL) measurement
- Insertion loss (IL) measurement
- Visual fault locator
- Alarm management with PASS/FAIL analysis

Large number of options

- Connection check with visual fault locator and videoscope
- Built in talk set with data transfer over fiber capability
- PC software solution for report generation
- Includes cable manager function

Automatic bi-directional measurement function

- Automate the acquisition process
- Check fiber continuity
- File transfer through the fiber
- True splice loss with both end analysis

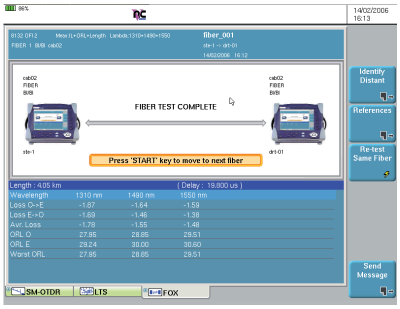


Main specifications

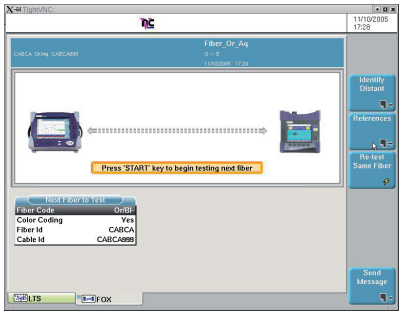
	High performance multimode MM	Short range singlemode SR	Medium range singlemode DR	Long range singlemode HD	Very long range singlemode VLR	Ultra long haul singlemode UHD
Central wavelength [1]	850/1300 nm ± 20 nm	1310/1550 nm ± 20 nm	1310/1550 nm ± 20 nm	1310/1550/1625 nm ± 20 nm ± 10 nm for 1625 nm	1310/1550/1625 nm ± 20 nm	1310/1550/1625 nm ± 20 nm ± 10 nm for 1625 nm
Laser safety class (21 CFR)	Class 1	Class 1	Class 1	Class 1	Class 1	Class 1
Pulse width	3 ns to 200 ns	10 ns to 10 µs	5 ns to 10 µs	10 ns to 20 µs	3 ns to 20 µs	10 ns to 20 µs
Distance range	Up to 80 km	Up to 260 km	Up to 260 km	Up to 380 km	Up to 380 km	Up to 380 km
RMS dynamic range [2]	25 dB/23 dB	35 dB/33 dB	37 dB/35 dB	42 dB/40 dB/40 dB	45 dB/43 dB/43 dB	46 dB/50 dB/46 dB
Event dead zone [3]	1.5 m	3 m	1 m	4 m	0.8 m	4 m
Attenuation dead zone [4]	5 m	25 m	8 m	15 m	4 m	15 m

[1] Central wavelength: Laser at 25 °C and measured at 10 µs for singlemode and 50 ns for multimode
[2] RMS dynamic range: The one way difference between the extrapolated back scattering level at the start of the fiber and the RMS noise level, after 3 minutes averaging.
[3] Event dead zone: Measured at ± 1.5 dB down from the peak of an unsaturated reflective event.
[4] Attenuation dead zone: Measured at ± 0.5 dB from the linear regression using a FC/PC type reflectance.

4 Multi-function Loss Test module



View results in one table with Pass/Fail indicator



Compatibility with the standalone OFI-2000

All in one module

- Single slot plug-in module for loss, back reflection, and fiber length measurements
- Testing at telecom wavelengths: 1310, 1550, and 1625 nm
- One button automated testing
  1- Continuity check
  2- Automated bi-directional insertion loss (IL)
  3- Automated bi-directional optical return loss (ORL)
  4- Length testing
  5- Pass/Fail analysis
  6- Complete test results storage in both test units
- Additional standalone power meter
- Laser source to measure manually IL (TwinTest compatible)
- Manual ORL measurement possible with only one instrument

Best in class for FTTx Testing

- ITU-T G.983.3 compliant
- Three-wavelength version: 1310, 1490, 1550 nm
- Supports FTTx/PON testing

Multi-platform compatible module

- High performance for all types of networks: transport, metro, access, and FTTx/PON.
- Module compatible with the T-BERD 6000 Platform
- Can make measurement and communicate with another OFI module or a standalone OFI-2000 Multi-function Loss Test Set.

Specifications

Multi-function Loss Test Module (typical at 25° C)

Weight	0.6 kg (1.1 lbs)
Dimensions (w × h × d)	213 × 124 × 32 mm (8.38 × 4.88 × 1.26 in)

Optical interfaces

Applicable fiber	SMF 9/125 µm
Interchangeable optical connectors	FC, SC, DIN, etc…

Bi-directional test set specifications (typical at 25° C)

Source function (also valid for source mode)

Laser type	Class 1 laser
Wavelength at 25° C	1310 ± 30 nm, 1490 ± 10 nm, 1550 ± 30 nm, 1625 ± 10 nm
Spectral bandwidth	5 nm maximum
Output level into 9/125 µm fiber (CW mode)	-3.5 dBm
Modulated output average level	3 dB less

Level stability

Short term 15 min (T = ± 0.3 K)	± 0.02 dB
Long term 8 hours (T = ± 0.3 K)	± 0.2 dB
Modulation frequencies	Continuous wave, 270 Hz, 330 Hz, 1 kHz, 2 kHz
TWINtest and auto-λ	All wavelengths activated one after the other

Loss test set function

Dynamic range	60 dB
Accuracy Loop back	± 0.25 dB /side-by-side ± 0.15 dB
Result resolution	0.01 dB

Optical return Loss (also valid for manual ORL)

ORL measurement display range (Limited to front end connector, APC recommended)	Up to 65 dB
Accuracy	± 0.5dB

Length function

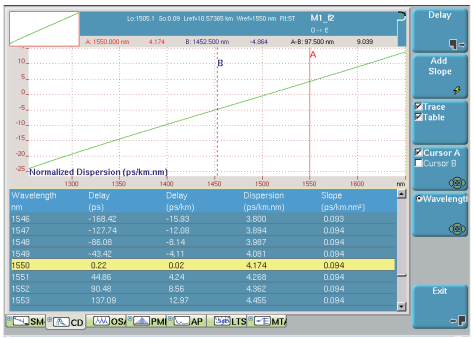
Distance accuracy	L<3 km: ± 50 m, 3 km<L<200 km : ±1.5%

Standalone power meter

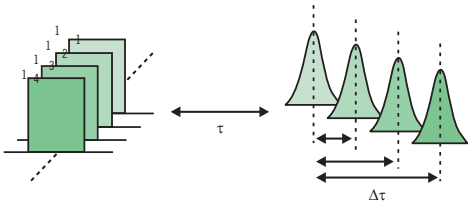
Wavelength range (adjustable per 1 nm)	800-1650 nm
Selectable wavelength	850/1300/1310/1490/1510/1550/1625 nm and one user-defined
Auto-λ detection (incl.TWINtest)	850/1310/1490/1550/1625 nm
Modulation detection	270 Hz, 330 Hz, 1 kHz, 2 kHz
Display resolution	0.01 dB

Power level	**Standard**	**High Power**
Dynamic range	+10 to –60 dBm	+26 to –55 dBm
Accuracy (1310 nm, -20 dBm)	± 0.2 dB	± 0.25 dB
Detector type	Ge	filtered InGaAs,2 mm

5 Chromatic dispersion module for metropolitan networks



Single menu for chromatic dispersion trace and table display



Pulse delay method complies with TIA/EIA FOTP-168

Approved and standardized method

- ITU-T G.650.1
- EIA/TIA FOTP-175-B
- IEC 60793-1-42
- Fast and reliable method
- Single end measurement
- Sectional analysis capability providing CD per fiber section
- 3 functions in 1 : sources, CD, OTDR
- Suitable for all single-mode fibers
- Cost effective method
- Not sensitive to shocks and vibrations (no moving parts)
- Module compatible with the T-BERD 6000 platform

High performance suitable for any metropolitan network

- Full fiber test performed in only 45 seconds
- Large band coverage (1250 nm to 1650 nm)
- Wide measurement range
- Dynamic range (up to 120 km) dedicated for any metropolitan network configuration

Specifications

Chromatic dispersion module
(typical at 25 °C)

OTDR mode

Central wavelength	1310/1480/ 1550/1625 nm
Wavelength accuracy(1)	± 5 nm
RMS dynamic range(2)	39/38/37/37 dB
Event dead zone(3)	6 m max.
Attenuation dead zone (4)	30 m

Chromatic dispersion mode

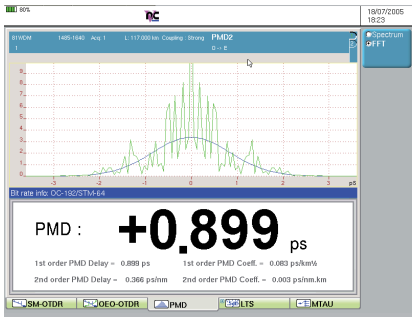
Wavelength range	1255 to 1650 nm
Dynamic range	Up to 120 km
Wavelength absolute accuracy	± 0.1 nm
Dispersion range	0.1 ps/nm*km to 100 ps/nm*km
Zero dispersion wavelength repeatability	± 0.5 nm*
Dispersion coefficient repeatability**	± 0.2 ps/nm*km
Dispersion slope repeatability	± 1%
Measurement time	From 40 s

Optical source mode

Wavelength range	typical 1310/1480/1550/ 1625 nm ± 5 nm
Spectral width	<10 pm
Power stability in 24 hours	1.5/3/3/3 dBm
Variable output power	–10 dB to calibrated power

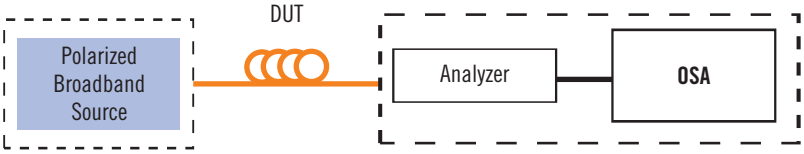
(1) DFB lasers
(2) RMS dynamic range: The one way difference between the extrapolated back scattering level at the start of the fiber and the RMS noise level, after 3 minutes averaging.
(3) Event dead zone: Measured at ± 1.5 dB down from the peak of an unsaturated reflective event.
(4) Attenuation dead zone: Measured at ± 0.5 dB from the linear regression using a FC/PC type reflectance.
* For 25 km G.655 link
** For a 75 km G.652 link, at 1550 nm.

Polarization mode dispersion module



PMD test results with Pass/Fail analysis

OBS-15: Broadband polarized light source for PMD measurement



A proven field-dedicated test method

- ITU-T G.650.2
- EIA/TIA FOTP 113
- IEC 60793-1-48
- Fast and reliable method
- Very accurate with the Fourier Transform
- Two ended test method (broadband source and receiver), no additional tools required
- Not sensitive to shocks and vibration (no moving parts)
- Best price/performance ratio on the market
- Module compatible with the T-BERD 6000 platform

High performance suitable for any fiber optic network

- High dynamic range with field handheld source : 45 dB
- Wide measurement range with minimum measurable DGD value of 0.08 ps
- Fast measurement time from 6 seconds to improve field efficiency
- Measurement through multiple EDFA's
- Field convenient instrument : light, small, long battery life...
- Statistics and long term monitoring

Maximum PMD values allowed for digital signal transmission:

Bit rate per channel	SDH	SONET	Equivalent timeslot	Max. PMD delay	Max. PMD coefficient for a 100 km fiber length
1.2 Gb/s	–––	OC-24	803 ps	80 ps	8 ps/√km
2.5 Gp/s	STM-16	OC-48	401 ps	40 ps	4 ps/√km
10 Gb/s	STM-64	OC-192	100 ps	10 ps	1 ps/√km
40 Gb/s	STM-256	OC-768	25.12 ps	2.5 ps	0.25 ps/√km

Specifications

General specifications (typical at 25°C)

Weight	0.6 kg/1.3 lb
Dimensions (w × h × d)	213 × 124 × 32 mm (8.38 × 4.88 × 1.26 in)

Optical interfaces

Applicable fiber	SMF 9/125 µm
Interchangeable optical connectors	FC, SC, DIN, etc.

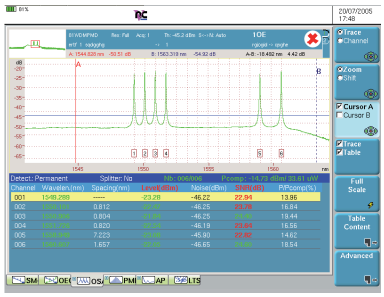
Polarization mode dispersion module

(typical at 25 °C)

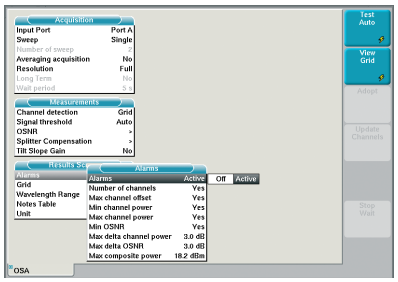
Dynamic range	45 dB
DGD measurement range[1]	0.08 to 60 ps
DGD absolute uncertainty[2], [3]	± 0.02 ps ± 2% PMD
DGD repeatability[2], [3]	± 0.025 ps
Measurement time[4]	6 seconds, independent of the PMD value

(1) Up to 150 ps in weak mode coupling
(2) Weak mode coupling, between the DGD range of 0.1 ps and 60 ps
(3) NPL standard traceable
(4) Without averaging

7 CWDM/DWDM testing modules



DWDM spectrum display with table of results



Test set-up display with Pass/Fail settings

High-performance DWDM analysis

- Rugged reliable field solution
- High wavelength accuracy without external calibration
- Fastest testing time ; 1.5 seconds full band scanning
- Built-in constant wavelength reference for online calibration
- Channel isolation for BER analysis
- Easy to use one button operation with auto-mode
- Patented dual port version
- Alarm management with pass/fail information
- Statistics and long term monitoring

Specifications

Full-band DWDM analyzers

Spectral measurement ranges

Wavelength range	1250 to 1650 nm
No. of optical channels	512
Wavelength calibration (1)	internal, on-line
Wavelength accuracy (2)	± 20 pm
Readout resolution	0.001 nm
Resolution bandwidth (FWHM) (3)	typ. 75 pm
Wavelength linearity (over 10 nm)	± 10 pm

Power measurement ranges

Dynamic range (4)	–75 to +23 dBm
Noise floor RMS (with averaging) (3)	–75 dBm
Absolute accuracy(3, 5)	±0.4 dB
Linearity (6)	± 0.05 dB
Readout resolution	0.01 dB
Scanning time (1250 to 1650 nm) (7)	<1.5 s
Optical rejection ratio (3)	
at ±25 GHz (±0.2 nm)	typ 35 dBc
at ±50 GHz (±0.4 nm)	typ 45 dBc
PDL (3)	± 0.1 dB
Flatness (3)	± 0.2 dB
Level reproducibility (8)	± 0.05 dB

Channel isolation option (OSA-161/201)

Using the channel isolation function, you can drop channels for further signal analysis with a BERT or a Q-factor meter.

Wavelength range	1250 to 1650 nm
Data rates	up to 10.7 Gb/s
Spectral filter bandwidth	typ. 220 pm
Insertion loss	typ. <10 dB
Tracking mode	auto wavelength control

Dual port option (OSA-201)

Simultaneous measurement of two fibers for monitoring or component test applications.

Optical ports (physical contact interfaces)

Input ports	
OSA-160/161	1 × SM
OSA-201	2 × SM
Output port (drop port) (OSA-161/201)	1 × SM
Interface	Universal
Optical return loss	>35 dB
Total safe power	+23 dBm

High-performance DWDM analyzers

Spectral measurement ranges

Wavelength range	1250 to 1650 nm
No. of optical channels	512
Wavelength calibration (1)	internal, online.
Wavelength accuracy (2)	typ. ± 10 pm
Readout resolution	0.001 nm
Resolution bandwidth (FWHM) (3)	typ. 60 pm
Wavelength linearity (over 10 nm)	± 10 pm

Power measurement ranges

Dynamic range (4)	–75 to +23 dBm
noise floor RMS (with averaging) (3)	–75 dBm
Absolute accuracy(3, 5)	± 0.4 dB
Linearity (6)	± 0.05 dB
Readout resolution	0.01 dB
Scanning time (1250 to 1650 nm) (7)	<1.5 s
Optical rejection ratio (3)	
at ±25 GHz (±0.2 nm)	typ. 45 dBc
at ±50 GHz (±0.4 nm)	typ. 48 dBc
PDL (3)	± 0.1 dB
Flatness (3)	± 0.2 dB
Level reproducibility (8)	± 0.05 dB

Channel drop option (OSA-301/303)

Using the channel isolation function, you can drop channels for further signal analysis with a BERT or a Q-factor meter.

Wavelength range	1250 to 1650 nm
Data rates	up to 10.7 Gb/s
Spectral filter bandwidth	typ. 175 pm
Insertion loss	typ. <10 dB
Tracking mode	auto wavelength control

Dual-port option (OSA-303)

Simultaneous measurement of two fibers for monitoring or component test applications.

Optical ports (physical contact interfaces)

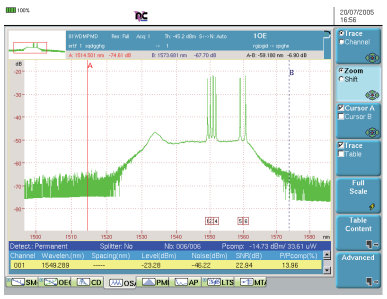
Input ports	
OSA-300/301	1 × SM
OSA-303	2 × SM
Output port (drop port) (OSA-301/303)	1 × SM
Interface	universal
Optical return loss	>35 dB
Total safe power	+23 dBm

General specifications

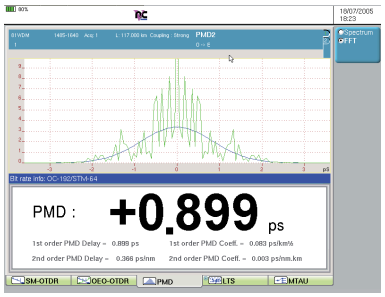
Temperature	
Operating	+5 to +50 °C/41 to 122 °F
Storage	–20 to +60 °C/–4 to 140 °F
Dimensions (w × h × d)	350 × 280 × 150 mm 13.8 × 11.0 × 5.9 in
Weight (module only)	2.5 kg/5.6 lbs

(1) Built-in, physical constant wavelength calibrator, needs no re-calibration
(2) At 1520 to 1565 nm at 23 °C
(3) 1520 to 1565 nm at 18 to 28 °C
(4) Max. power per channel +15 dBm, total power +23 dBm
(5) At –10 dBm
(6) –45 dBm to +10 dBm, at 23 °C
(7) Full span 400 nm, 4000 measurement samples, incl. WDM table analysis
(8) 1 min, stable signal, const. temperature

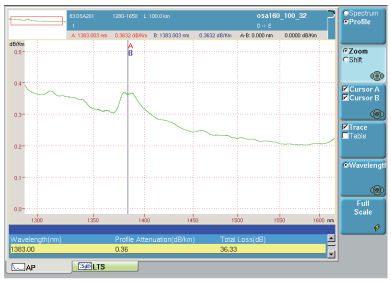
Combined WDM, PMD, AP testing module



Amplified DWDM system analysis using the E81WDMPMD module



PMD test results showing the first order and second order PMD values



An attenuation profile showing a loss vs. wavelength measurement

A unique solution combining WDM, PMD, and AP (Attenuation Profile) test functions in one plug-in module

- Full-band most compact solution for WDM testing (from 1260 to 1640 nm)
- High-performance PMD module with differential group delay (DGD) measurement in the range of 0.08 ps to 60 ps and high dynamic range of 45 dB
- Attenuation profile provides total loss and dB/km values over a 1260 nm to 1640 nm wavelength range, with a dynamic range of 45 dB
- Shock-proof and vibration-proof instrument with no moving parts (drop tested at 70 cm)
- High-performance module with maximum portability (0.6 kg)
- Module compatible with the T-BERD 6000 platform

Specifications
81WDMPMD module (typical at 25°C)

General specifications

Weight	0.6 kg (1.1 lb)
Dimensions (w × h × d)	213 × 124 × 32 mm (8.38 × 4.88 × 1.26 in)

Optical interfaces

Applicable fiber	SMF 9/125 µm
Interchangeable optical connectors	FC, SC, DIN, etc.

WDM technical specifications (typical at 25°C)

Wavelength range	1260 nm to 1640 nm
Sweep time (real time)	3 s
Accuracy(1)	±10 pm
Display resolution	1 pm
Minimum spacing between channels	10 GHz
Optical bandwidth (FWHM)(2)	30 pm

Power level

Display range	-90 dBm at +30 dBm
Display resolution	0.01 dB
Measurement range on a channel	-79 dBm at +10 dBm
Noise floor(3)	-86 dBm
Maximum admissible power (before signal cut off)	
- Total	+20 dBm
- For one channel	+10 dBm
Accuracy(4)	±0.5 dB max
Linearity(5)	±0.2 dB
Flatness(6)	±0.2 dB
Polarization Dependence Loss (PDL)	±0.15 dB
Optical return loss (ORL)	35 dB
Optical rejection ratio (ORR)(7)	40 dB at 100 GHz from the carrier 35 dB at 50 GHz from the carrier

(1) Between 1525 nm and 1620 nm from -40 dBm to +5 dBm
(2) Between 1525 nm and 1570 nm
(3) With averaging at 1550 nm
(4) At -30 dBm and 1550 nm (excluding the uncertainty due to the input connector)
(5) At 1590 nm from 0 to -40 dBm
(6) Between 1525 nm and 1620 nm (reference = 1550 nm)
(7) From the top of a carrier, between 1530 nm and 1605 nm at 0 dBm

PMD technical specifications (typical at 25°C)

Dynamic range	45 dB
DGD measurement range(1)	0.08 ps to 60 ps
DGD absolute uncertainty(2), (3)	± 0.02 ps ± 2% PMD
DGD repeatability(2), (3)	± 0.025 ps
Measurement time(4)	6 seconds, independent of the PMD value

(1) Up to 150 ps in weak mode coupling
(2) Weak mode coupling, between the DGD range of 0.1 ps and 60 ps
(3) NPL standard traceable
(4) Without averaging

AP technical specifications (typical at 25°C)

Dynamic range	45 dB
Measurement time(1)	6 seconds

(1) Without averaging

Handheld broadband source (OBS-15)

Optical interfaces

Applicable fiber	SMF 9/125 µm
Interchangeable optical connectors	FC, SC, DIN, etc.

Power supply

Battery operation	NiMH, type AA (rechargeable, exchangeable, 2 pieces)
Operating time	approx. 2.5 h
AC operation by means of SNT-92 AC/DC adapter/charger	
Nominal range of use	100 to 240 V, 50/60 Hz
Operating temperature range	0 °C to +45 °C
Weight (including batteries)	0.55 kg (1.2 lb)
Dimensions (w × h × d)	95 × 49 × 185 mm (0.37 × 0.19 × 0.73 in)

Broadband source module

Wavelength range

BBS1	1485 nm to 1640 nm
BBS2	1260 nm to 1640 nm

Optical interfaces

Applicable fiber	SMF 9/125 µm
Interchangeable optical connectors	FC, SC, DIN, etc.
Weight	0.5 kg (1.1 lb)
Dimensions (w × h × d)	213 × 124 × 32 mm (8.38 × 4.88 × 1.26 in)

9 SDH/SONET, Ethernet and 10Gig Ethernet transport testing module

Transport module

- Contained in one 5 cm module
  - PDH / T-carrier Interfaces include DS1, E1, E3, DS3, E4, STS-1 and STM-1e
  - SDH/SONET Interfaces include 155M/622M/2.5G/10G (1310 nm, 1550 nm)
  - Ethernet Interfaces include 10/100/1000 Mb/s electrical and 1 GigE Optical (850 nm, 1310 nm and 1550 nm)
  - 10GigE LAN + WAN (850 nm, 1310 nm and 1550 nm)
- Only 2.5 kg fully populated
- Fully scalable to meet your current and future needs
- Optical and electrical signal level measurements
- Up to 2.5 hours at 10 Gb/s rates with one Battery (2 batteries possible)
- SDH/SONET testing
  Muxed payload generation and analysis
  Concatenated Signals
  Automatic Protection Switching (APS)
  Overhead Byte Manipulation and Analysis
  Round Trip delay (RTD)

- Ethernet testing
  Single and Dual Port Ethernet configuration
  Testing on Layer 1, 2 and 3 (IP)
  Automated RFC2544 testing
  Loop-up /loop-down of far-end device

Specifications

Transport module

Optical interfaces

Optical connector types	FC, SC, ST or LC
Wavelength	850, 1310 or 1550 nm
Fiber mode compatibility	1310 and 1550 nm, – singlemode fiber, 850 nm – multimode fiber

Electrical interfaces

Electrical connector types	Bantam, BNC, RJ-45

Ethernet testing

Layer 2 (Ethernet) Traffic Generation	Constant, Bursty, Ramp, Flood Configurable Source and Destination Address, Frame Format, Type Field (for DIX), Frame Length (including Jumbo and Undersized), VLAN Tag, Pause Frames, payload, Utilization %
Layer 3 (IP) Traffic Generation	Configurable Source and Destination IP Address, DNS Type, DNS Server, Tx Payload, TOS/DSCP, TTL, Packet Size Length (34 – 1500 bytes), Ping, Trace route

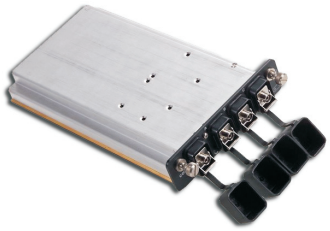
SDH/SONET

Anomaly/Errors generation and analysis	B1, B2, B3, HP-REI, MS-REI, LP-BIP, LP-REI
Defects/Alarms generation and analysis	LOS, LOF, RS-TIM, MS-AIS, MS-RDI, AU-LOP, AU-AIS, HP-UNEQ, HP-RDI, HP-TIM, HP-PLM, TU-LOP, TU-AIS, TU-LOM, LP-UNEQ, LP-RDI, LP-TIM, LP-PLM, LP-RFI

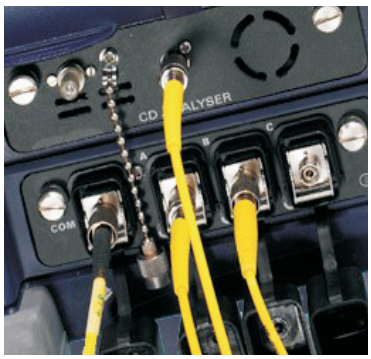
Performance standards

G.821, G.826, G.828, G.829, T1.231, T1.510, M.2100, M.2101

10 Multiple test access module



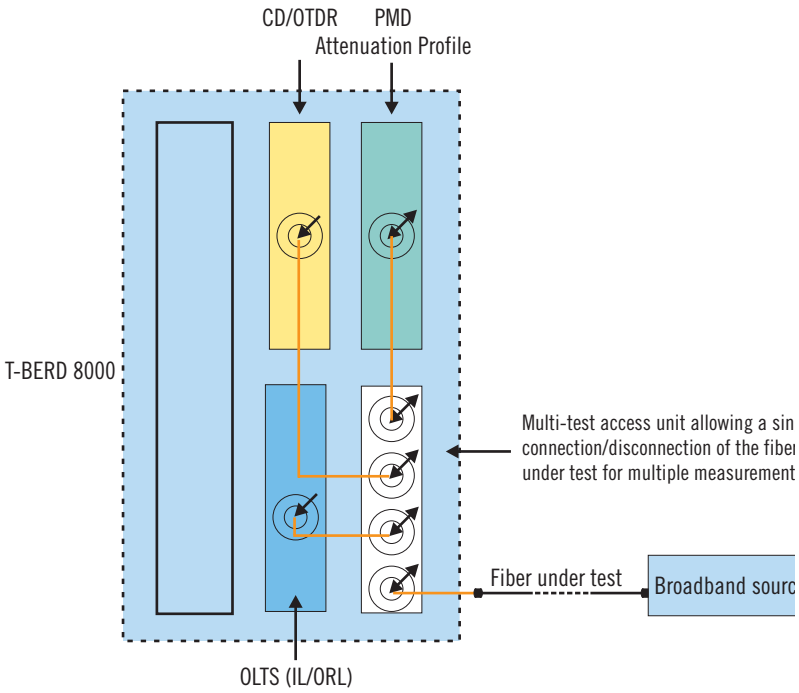
Innovative module with up to six interconnected test functions



MTAU interconnections

Multi Test Access Unit Module

- Fiber Characterization made easier, fiber commissioning (OTDR & IL)
- 25% time saving for fiber characterization
- Up to 6 interconnected test functions (OTDR, CD, PMD, IL, SA, ORL)
- Reduces fiber connect/disconnect
- Up to 3 modules connected
- Automatically switches from one module to another



How the MTAU functions

Specifications

Multi-test access unit

	E81MTAU2 (2 ports)	E81MTAU3 (3 ports)
Wavelength range	1260 to 1640 nm	1260 to 1640 nm
Insertion loss (max)	1 dB	1.5 dB
Return loss (max)	50 dB	50 dB
PDL[1] (max)	0.1 dB	0.1 dB
Repeatability[2] (max)	0.01 dB	0.01 dB

(1) Polarization dependent loss
(2) At constant temperature and polarization

11 Utility modules

Internal printer with launch cable

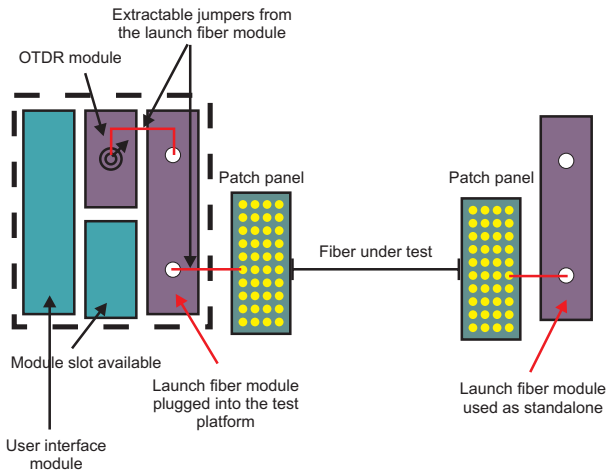
Launch fiber module

Internal Thermal Printer

- On-site documentation
- Shock proof
- High quality printing
- Optimized for trace and table of events printing
- Improves user productivity by instant delivery of trace record

Launch Fiber Module for OTDR Applications - allows full characterization of first and last connectors

- Improves testing at 1310 nm/1550 nm and 1625 nm
- Single mode fibers
- 2 or 4 km long
- Includes 2 patchcords (3 m)
- Rugged design for field application
- Can be used either inserted in the T-BERD 8000 platform (permanent availability) or as a standalone launch fiber
- Can be used in 2 positions; opened or closed
- Compatible with launch fiber management within OTDR firmware



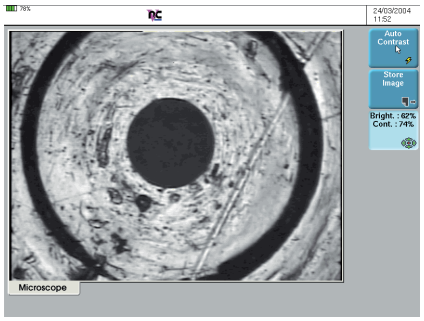
How the launch fiber module functions

Specifications

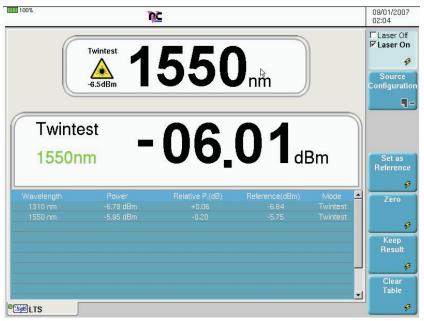
Thermal printer module	
Printer type	Thermal printer
Quality	832 dots/line
Paper width	112 mm paper width

Launch fiber module	
Fiber type	Standard singlemode fiber (G.652)
Fiber length	2 km or 4 km ± 5%
Linear attenuation at 1550 nm	0.20 dB/km
Insertion loss	<0.5 dB
Return loss	>35 dB
Weight	2.3 kg/5.1 lbs
Size (l × w × d)	310 × 255 × 60 mm 12.2 × 10 × 2.4 in

Fiber Scope, Loss Test Set, Talkset and VFL functions



Connector surface inspection



Loss test set results display

Connector Inspection Scope

- Video inspection probe for fiber optic terminations
- For inspection of patchcords and patch panels
- 250 or 400 magnification
- Uses T-BERD 8000 large screen (10.4")
- Possibility to freeze the image
- Image storage and reload
- Comparison with 3 other images on the same screen
- Compatible with standard connectors including SC, ST, FC and LC

Built-in Optical Talkset

- Suitable for any application
- Cost-effective solution
- Suitable for use in central offices (unlike cell phones)
- Data transfer capability: file exchange or remote control
- Used also for full automatic bi-directional measurements

Insertion Loss Measurements

- Power meter integrated in T-BERD 8000 mainframe
- Multi-wavelength laser source with CW or modulated signals
- Easy loss measurements of a jumper or patchcord

635 nm Visual Fault Locator

- Universal push/pull for all 2.5 mm connector types

Specifications

Optical video inspection probes

Physical characteristics

Operating temperature	0 °C to 50 °C
Storage temperature	-20 °C to 50 °C
Humidity	95% non condensing
Interface	USB
Weight	115.6 g (4.08 oz.)
Dimensions (w × h × l)	45.7 × 43.2 × 140 mm (1.8 × 1.7 × 5.5 in)

Optical characteristics

Magnification	200× or 400×
Light source	blue LED, internal to probe
Lighting technique	coaxial
Focus control	adjustable, in probe
Max. input power	+30 dBm

Adapter tips

Termination-specific probe tips available:
FC, SC, ST, LC and other types for 1.25 mm &
2.5 mm ferrules.

Storage

File format	JPEG, BMP

Optical interfaces (optional)

Power meter

Power level	+10 to –55 dBm,
Calibrated wavelengths	850, 1310, 1550 nm
Connector type	universal push/pull

Talk set

Wavelength	1550 nm ± 30 nm
Dynamic range	>45 dB
Function	With data/file transfer,
Laser safety	Class 1 laser,
Connector type	Field interchangeable

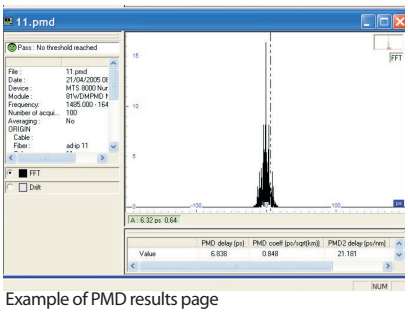
VFL

Wavelength	635 nm ± 15 nm
Output power level	<1 mW
Laser safety	Class 2 laser,
Connector type	Universal push/pull

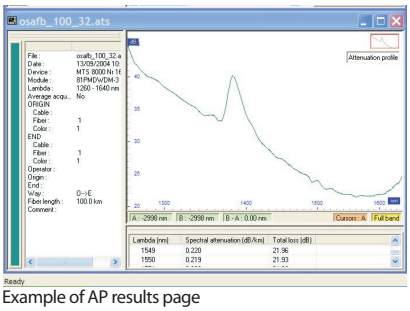
CW light source

Wavelengths (selection)	1310/1550/1625 nm
Output power level	-3.5 dBm
Spectral width	<5 nm
Stability in 15 min	± 0.02 dB
Stability in 8 hours	± 0.2 dB
Laser Safety	Class 1 laser
Connector type	Field interchangeable

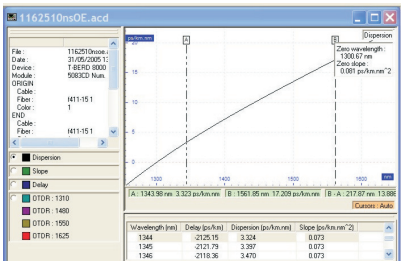
PC softwares: Post-process and document your field measurements



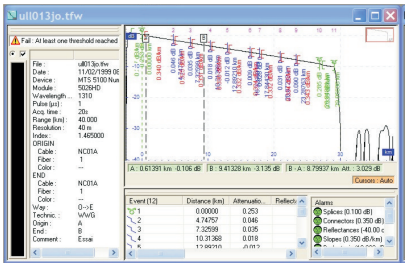
Example of PMD results page



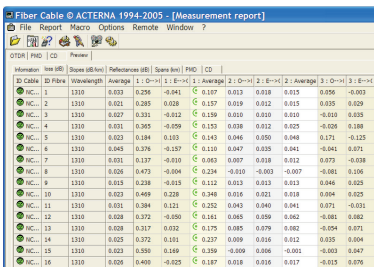
Example of AP results page



Example of CD results page



Example of OTDR results page



Example of cable report

OFS-100 Fiber Trace Results Analysis

- OTDR, CD, PMD, AP, IL/ORL and OSA results analysis
- Batch processing capability via an automation process
- Pass/Fail function
- Customized printouts
- Ideal for report generation on single fiber

OFS-200 FiberCable Acceptance Report Generation

- Direct access keys for easy process and efficiency
- Complete fiber characterization reporting capability including bi-directional OTDR, CD, PMD, AP, IL and ORL results
- Advanced OTDR functions for loop back and mid-point management
- Powerful report preview to avoid errors during processing
- Ideal for report generation on multiple fibers

Specifications

OFS-100 FiberTrace

OFS-200 FiberCable

Compatibility with all files generated by the MTS-5000, T-BERD 8000 and T-BERD 6000 platforms, OFI-2000 and ONT platform OSA data. FiberCable includes all FiberTrace functions.

PC requirements

An IBM Pentium 133 MHz PC or 100% compatible computer (Pentium II 233 MHz or above recommended)

A hard drive and a CD-ROM drive

16 MB or more of memory (64 MB recommended)

A mouse pointing device

Microsoft Windows™ version 95, 98, 2000, NT, or XP

Microsoft Excel™

Memory requirements for Microsoft Excel™

Report macro: 48 MB or more of memory (128 MB recommended)

A 800 × 600 pixels monitor (1152 × 864 or above recommended)

Ordering information

T-BERD 8000

Base instrument options

ETB8000bt	T-BERD 8000 platform with battery pack
E8100	Receptacle for two plug-in modules
E80HVCol	High visibility TFT color display
E80HVTCol	High visibility touchscreen TFT color display
E80Hdisk	Hard disk drive
E80FD	Extractable floppy disk drive
E80CDRW	Extractable R/W CD-ROM drive
E80MDM	Built-in PSTN modem
E80VFL	VFL with UPP connector
E80TS	Optical talk set
E80PM	Optical power meter with UPP connector (2.5 mm provided as standard)
E8036LTSTS	Optical loss test set with talk set 1310/1550/1625 nm

Main accessories

E80keyB	External keyboard
E80LiIon	Additional Li-Lon rechargeable battery
E80Scase1	Wrap around soft carrying case for T-BERD 8000 and 2 plug-ins receptacle configuration
E80Scase2	Soft carrying case for long configuration
E80Scase3	Soft carrying case for T-BERD 8000 and 2-slot receptacle, or transport or OSA-160/200 module
E80Hcase	Hard transit case for long configuration
C80Hcase5	Hard carrying case for T-BERD 8000 and 2-slot receptacle, or transport or OSA-160/200 module

Application software

EOFS100	Optical FiberTrace software (for post-analysis)
EOFS200	Optical FiberCable software (for cable acceptance report generation)

T-BERD 8000 modules

Multimode OTDR plug-in module

E8123MM	High resolution 850/1300 nm

Singlemode OTDR plug-in modules

E8126SR	Short range 1310/1550 nm
E8126DR	Medium range high res. 1310/1550 nm
E8126HD	Long range 1310/1550 nm
E8127HD	Long range 1625 nm
E8136HD	Long range 1310/1550/1625 nm
E8126VHD	Very long range 1310/1550 nm
E8127VHD	Very long range 1625 nm
E8129VHD	Very long range 1550/1625 nm
E8126UHD	Ultra long range 1310/1550 nm
E8136UHD	Ultra long range 1310/1550/1625 nm

Chromatic dispersion plug-in module

E5083CD	Medium range 1310/1480/1550/1625 nm OTDR/CD module
E508XLS	1310/1480/1550/1625 nm DFB source option

Polarization mode dispersion plug-in modules

E81PMD	PMD module (1480 to 1640 nm)
E81WDMPMD	PMD module (1260 to 1640 nm) combined with WDM and AP
EOBS15	Stand-alone broadband source
E81BBS1	1480-1640 nm broadband source module
E81BBS2	1260-1640 nm broadband source module

OFI plug-in module

E8126OFI1	1310/1550 nm OFI plug-in module - standard power
E8126OFI2	1310/1550 nm OFI plug-in module - high power
E8136OFI1	1310/1550/1625 nm OFI plug-in module - standard power
E8136OFI2	1310/1550/1625 nm OFI plug-in module - high power
E8132OFI1	1310/1490/1550 nm OFI plug-in module - standard power
E8132OFI2	1310/1490/1550 nm OFI plug-in module - high power

High-performance OSA modules

2281/91.01	OSA-160 Single port analyzer
2281/91.12	OSA-161 Single port analyzer with channel isolator option
2281/91.14	OSA-201 Dual port analyzer with channel isolator option
2281/91.31	OSA-300 High-performance analyzer
2281/91.32	OSA-301 High-performance analyzer with channel isolator option
2281/91.34	OSA-303 High-performance dual port analyzer with channel isolator option
E81WDM	1485-1640 nm WDM plug-in module

Transport module configurations

C83XX	SDH/SONET configuration
C84XX	Ethernet configurations
C85XX	SDH/SONET & Ethernet configurations

Utility modules

Multi-test access unit plug-in module

E81MTAU2	Up to 2 test ports
E81MTAU3	Up to 3 test ports

Launch fiber module

E82LFSM2	2 km singlemode G.652
E82LFSM4	4 km singlemode G.652

Ordering information

Thermal printer module

E82Printer	Thermal printer module

Accessories

Optical video inspection probes

EFSCOPE250	Optical inspection probe, 250× through USB
EFSCOPE400	Optical inspection probe, 400× through USB

Connectors and adapters

Optical inspection

ETIPSCAPC	SC/APC tip, bulkhead adapter
ETIPE2000	E2000 tip, bulkhead adapter
ETIPSCPC	SC/PC tip, bulkhead adapter
ETIPU125MM	Patch cord tip for 1.25 mm ferrule
ETIPU25MM	Patch cord tip for 2.5 mm ferrule
ETIPFCAPC	FC/APC tip, bulkhead adapter
ETIPSTPC	ST/PC tip, bulkhead adapter
ETIPLC	LC tip or bulkhead adapter
ETIPFCPC	FC/PC tip, bulkhead adapter
ETIPMPOAPC	MPO/APC tip, bulkhead adapter
ETIPMPO	MPO tip, bulkhead adapter

Optical connectors

Universal singlemode connectors

EUNIPCFC, EUNIPCSC, EUNIPCST, EUNIPCDIN, EUNIPCLC, EUNIAPCFC, EUNIAPCSC, EUNIAPCST, EUNIAPCDIN, EUNIAPCLC

For more information on test adapters, cables, and fiber optic couplers, please refer to the separate datasheet entitled "JDSU Fiber Optic Test Adapters and Cables".

Useful accessories

E80PWE, E80PWUK, E80PWUS: Standard AC adapter/charger

E80HPWE, E80HPWUK, E80HPWUS: Adapter/charger for transport module

E80LiIon: Additional Li-Ion rechargeable battery

E80lighter: Cigarette lighter power adapter

E80HCase: Hard Transit Case for long configuration (multiple modules)

E80HCase5: Hard carrying case – single module configuration

E80SCase2: Soft carrying case for multiple module platform

E80SCase3: Soft carrying case for single module platform

E80SCase1: Wrap around case for 8000 platform and receptacle

EFSCOPE250, EFSCOPE400: Optical video inspection probe

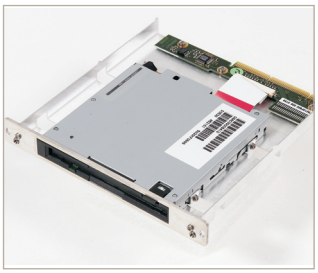
E80CFAPP: Transport module application card

E80USBMEM: USB stick 128 MB

E80keyB: USB keyboard

EOFS100, EOFS200: FiberTrace and FiberCable softwares

E80FD: Extractable floppy disk drive



E80CDRW: Extractable R/W CD ROM drive

30137429 001 0707 TB8000CONS.DS.FOP.TM.AE

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