OTU-8000 Optical Test Unit

Key Benefits

- **Reduce fiber optic (FO) fault location times from hours to minutes**
- **Reduce operational costs by eliminating erroneous dispatches**
- **Anticipate service disruptions by detecting fiber degradation before it affects service**
- **Protects the fiber investment by monitoring the long term performance of installed fibers**
- **Reduce construction cost by speeding up the test process and optimizing test staff**

Key features

- **Web browser access**
- **Advanced fault location**
- **Notification by e-mail or SMS**
- **Small size (2 RU)**
- **Dual power feeds**
- **No hard disk**
- **Low power consumption**
- **LAN-based firmware downloads**
- **Supports an additional test module for further extension**
- **Compatible with MTS family OTDR 6000, and 8000 ranges offering up to 50 dB dynamic range**

The OTU-8000 Optical Test Unit lies at the core of the JDSU optical network monitoring system (ONMSi). Combining optical time domain reflectometry (OTDR) and optical switch technology, a single OTU-8000 unit can test hundreds of fiber links within a 40,000 km^2 area. When a fiber fault occurs, in minutes the ONMSi reports the global positioning system (GPS) of the fault.

The modularity of the OTU-8000 enables it to fit all requirements for monitoring light or dark fiber optic networks. Integrating the latest technology, it can monitor long-haul as well as FTTx networks.

Installed at the CO, the OTU-8000 can test hundreds of live passive optical networks (PONs), whatever the split ratio. It can be used to speed up PON installations; to help technicians setting up new customers; or, when troubleshooting, to sectionalize the cause of the fault.

For organizations concerned with network security issues, the OTU-8000 can detect and locate fiber tapping inserting a loss of a few tenths of a decibel.

Applications

- **Perform a wide range of applications from FTTx to ultra-long-haul network network monitoring**
- **Conduct PON tests from the CO**

Overview

Reach New Levels of Reliability with the OTU-8000

The OTU-8000 is a rugged device designed to fit into the most stringent CO. With no moving parts, such as a magnetic hard disk, it ensures optimal reliability. Its small size and low power consumption allows for utilization where space and energy are high value resources.

The dual power feeds provide an alternate power input should one power source fail. Additionally, all parts are field exchangeable without disconnecting the fibers for extreme cases that require replacing part of the OTU-8000.

Easy Installation

Installing the OTU-8000 is a simple process, because the connectors are located conveniently on the front panel, and the unit is quickly mounted in either 19-, 21- (European Telecommunications Standards Institute, ETSI), or 23-inch equipment racks while occupying only two rack units (RUs) of space.

Accomplish the provisioning of the OTU-8000 easily using any Web browser, either on site or remotely via local or wide area networks (LAN/WAN). The entire configuration is saved on the OTU-8000, where it remains secure on a solid state disk.

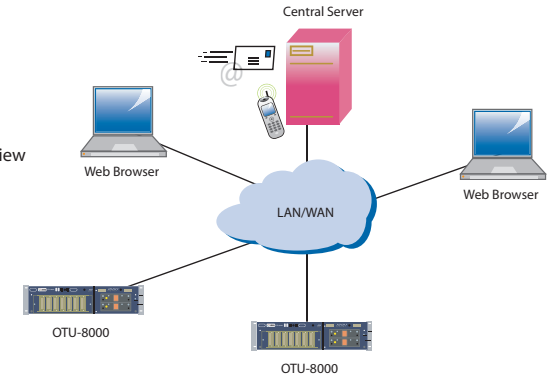

Figure 1 ONMSi Overview

Save Space and Energy

The OTU-8000 is only 2 RUs high and 300 mm deep, therefore, it uses only a limited amount of rack enclosure space yet it can monitor up to 24 fibers. Adding a 1 RU chassis with a 36-port switch, such as the OSX8000, can extend its capacity. Cascading as many as 30 OSX8000s enables the OTU-8000 to test up to 1080 fibers using a configuration that occupies only 33 RUs.

Furthermore, intelligently managing power distribution between optical switches enables low power consumption by the OTU-8000, typically 30 W, whatever is the number of optical switches connected to the OTU-8000.

Scalability

The modularity between the OTU-8000 configuration with the OTDR and optical switch enables it to adapt easily to address fiber optic network extensions or new monitoring needs, such as in-service monitoring. The extensive range of the OTDR and optical switch supported by the OTU-8000 enables numerous applications.

Future Proof

The two compatible plug-in module slots on the OTU-8000 enables functionality with a portable test set, such as the T-BERD®/MTS-8000 and -6000. This capability guarantees that newly developed modules for portable test sets can also be used with the OTU-8000 as long as they provide the required monitoring needs. These new modules could be OTDRs with extended capability (dynamic range and/or resolution) or provide capabilities for new measurements, such as polarization mode dispersion (PMD) and optical spectrum analyzer (OSA).

Advanced Fault Location

The OTU-8000 combines fast scanning with accurate fault location. Fast acquisition time is used to detect abnormal events. Once detected, the OTU-8000 switches acquisition parameters enabling high accuracy. The high-resolution trace is then processed to locate the fault. The fault location algorithum has been improved for more than 15 years of JDSU experience in remote fiber test sets (RFTS).

Ready to Test PON

Using the latest OTDR technology from JDSU, the OTU-8000 can test in-service PON from the CO. The high OTDR resolution allows for testing the fiber to the ONT/ONU and to differentiate PON legs when they are terminated by a reflector.

Specifications

Base Unit Technical

Mechanical

Height	2 RU
Width	19-, 21- (ETSI), or 23-in
Depth	260 mm (ETSI), 300 mm (19- or 23-in)

Power Supply

DC input	–36 to –60 V
Power consumption	30 W

Environmental

Operating	–10 to 50°C
Storage	–20 to 60°C
Humidity	95% without condensing
EMI/ESD	CE Compliant

Interfaces

1 RJ45 Ethernet 10/100BaseT Port

1 RJ11 if equipped with PSTN modem

GSM if equipped with GSM modem

Storage

Media	Solid state disk

OTDR[1]

The OTU-8000 can house two field-interchangeable OTDR modules. A wide range of OTDRs are available, ensuring optimum monitoring of all types of fiber optic networks from short-range to long-haul single-mode. The OTU-8000 monitors active fibers using the 1625 or 1650 nm OTDR.

Specifications (continued)

Technical

Distance Unit	km, kft, miles
Group Index Range	1.30000 to 1.70000 in 0.00001 steps
No. of Data points	Up to 512 000
Distance Measurement	Automatic or dual cursor
Display span	From 2.6 m up 380 km
Display resolution	1 cm
Cursor resolution	From 1 cm
Sampling resolution	From 4 cm
Accuracy	±1 m ±sampling resolution $\pm 1.10^{-5}$ x distance (excluding group index uncertainties)

Attenuation Measurement

Automatic, manual, 2-points, 5-points, and LSA	
Display span	1.25 to 55 dB
Display resolution	0.001 dB
Cursor resolution	From 0.001 dB
Accuracy	±0.05 dB ±0.05 dB/dB

Reflectance/ORL Measurements

Automatic or manual	
Display resolution	0.01 dB
Threshold	–11 to –99 dB in 1 dB step

Optical Switch

The OTU-8000 can house a field interchangeable optical switch module with up to 24 ports. If higher ports count is required, 24 ports can be extended to more than 1000 ports by adding chassis of 36 ports each. An OTU-8000 with no OTDR modules fitted forms the base of the Remote Optical Switch controlled by TCP/IP.

Upgrade the Remote Optical Switch base by adding an OTDR module to become a complete OTU-8000 at any time.

General

No. of Ports	2, 4, 8, 12, 16, 24, 36,n x 36 more than 1000 ports by cascading 36 ports
Insertion Loss (excluding connectors)	0.6 dB
Back-Reflection	–60 dB (Single-mode)
Repeatability	±0.01 dB
Wavelength Range	1260 - 1670 nm
Lifetime	10^7 cycles
Housing	Up to 24 ports: Included in the OTU-8000 For higher port counts: external 1 RU racks

[1]The main specifications of OTDR modules are available on the consolidated OTDR datasheet.

Ordering Information

Order Number	Description
Base Unit	
EOTU8000	OTU-8000 base unit (48 VDC-2 RU/19-in)

Main Accessories

E98RACK21	21-in rack mounting kit for OTU-8000
E98RACK23	23-in rack mounting kit for OTU-8000
E98ACDCEU	AC/DC converter with European power cable
E98ACDCUK	AC/DC converter with UK power cable
E98ACDCUS	AC/DC converter with North American power cable

OTDR Plug-in Modules

E8126VSRE	Very Short Range 1310/1550 nm OTDR
E8126MR	Medium Range 1310/1550 nm OTDR
E8136MR	Medium Range 1310/1550/1625 nm OTDR
E8117MR	Medium Range 1625 nm OTDR
E8129MR	Medium Range 1550/1625 nm OTDR
E8115MR	Medium Range 1550 nm OTDR
E8117LR	Long Range 1625 nm OTDR
E8129LR	Long Range 1550/1625 nm OTDR
E8136LR	Long Range 1310/1550/1625 nm OTDR
E8114LR	Long Range 1310 nm OTDR
E8117RLR	Long Range 1625 nm OTDR plug-in with filter
E8126LR	Long Range 1310/1550 nm OTDR
E8115LR	Long Range 1550 nm OTDR
E8118VLR38	Very Long Range 1383 nm OTDR
E8118VLR49	Very Long Range 1490 nm OTDR
E8117RVLR	Very Long Range 1625 nm OTDR with filter
E8138VLR49	Very Long Range 1310/1490/1550 nm OTDR
E8136VLR	Very Long Range 1310/1550/1625 nm OTDR
E8117VLR	Very Long Range 1625 nm OTDR
E8115VLR	Very Long Range 1550 nm OTDR
E8114VLR	Very Long Range 1310 nm OTDR
E8118RLR65	Long Range Filtered 1650 nm OTDR
E8118RUHR65	Ultra high resolution Filtered 1650 nm OTDR
E8126VLR	Very Long Range 1310/1550 nm OTDR
E8129VLR	Very Long Range 1550/1625 nm OTDR
E8117UHD	Ultra Long Range 1625 nm OTDR
E8115UHD	Ultra Long Range 1550 nm OTDR
E8126UHD	Ultra Long Range 1310/1550 nm
E8129UHD	Ultra Long Range 1550/1625 nm
E8136UHD	Ultra Long Range 1310/1550/1625 nm

Optical Switch Plug-in Modules

E980S02	2-port internal optical switch
E980S04	4-port internal optical switch
E980S08	8-port internal optical switch
E980S12	12-port internal optical switch
E980S16	16-port internal optical switch
E980S24	24-port internal optical switch

Optical Switch (External Unit)

EOSX8000	EXTERNAL OPTICAL SWITCH 1 X 36 (1RU, 19", SC/APC)
E980SXRK21	21 INCHES BRACKETS FOR OSX-8000
E980SXRK23	23 INCHES BRACKETS FOR OSX-8000

Test & Measurement Regional Sales

NORTH AMERICA
TEL: 1 866 228 3762
FAX: +1 301 353 9216

LATIN AMERICA
TEL: +1 954 688-5660
FAX: +1 954 345 4668

ASIA PACIFIC
TEL: +852 2892 0990
FAX: +852 2892 0770

EMEA
TEL: +49 7121 86 2222
FAX: +49 7121 86 1222

WEBSITE: www.jdsu.com

