OTU-8000 Optical Test Unit

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**
- • **Modem support**
- • **LAN-based firmware downloads**
- • **Supports an additional test module for further extension**
- • **Relay contacts for external alarm-reporting devices**
- • **Compatible with ONMS**
- • **Compatible with MTS family OTDR 5000, 6000, and 8000 ranges offering up to 50 dB dynamic range**

Applications

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

The OTU-8000 Optical Test Unit lies at the core of the JDSU optical network management system (ONMS). 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, ONMS reports the location relative to the nearest landmark.

Deploying OTU-8000s in the central office (CO) lets telecom operators:

- – Reduce operational costs by eliminating erroneous dispatches
- – Reduce mean time to repair (MTTR)
- – Anticipate service disruptions by detecting fiber degradation before it affects service
- – Protects the fiber investment by monitoring the long term performance of installed fibers

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.

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 ONMS Overview
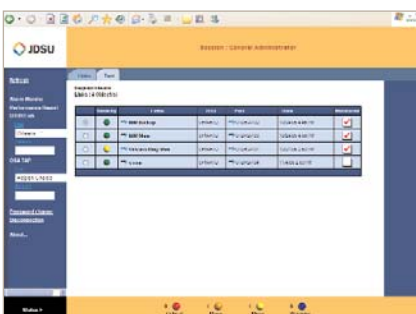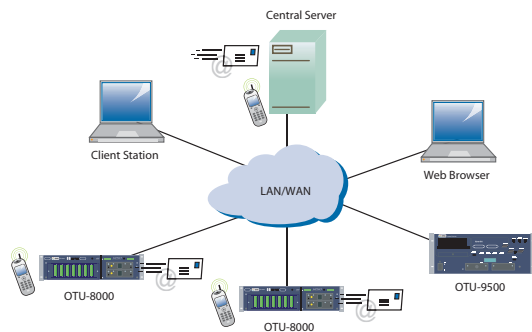
Guaranteed Alarm Transmission

Because of its internal public switched telephone network (PSTN) or Global System for Mobile Communications (GSM) modem (optional) or the relay contacts (option), the OTU-8000 can send alarms even if the LAN is unavailable. If the server does not respond either by LAN or by modem, the OTU-8000 can also send direct e-mail and Short Message Service (SMS) (with the GSM modem option) alarm notifications to users. From any Web browser, users can access the OTU-8000 to view the local alarm history and to perform additional measurements.

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Figure 2 Guaranteed Alarm Transmission
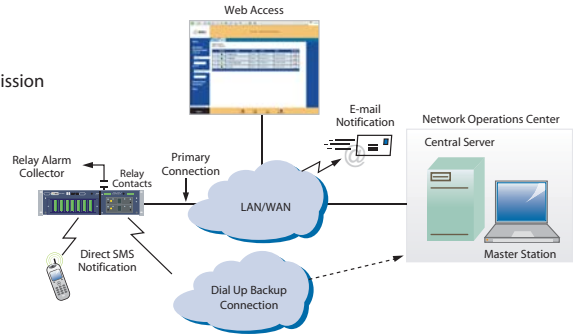
Advanced Fault Location

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 algorithm 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.

Compatibility

The OTU-8000 can extend the deployment of an OTU-9500, the former JDSU remote test unit (RTU), because the same ONMS software manages both. In addition, the OTU-8000 is compatible with the OTU-9500 OTDR and optical switch. Thus, all the new features are available simply by replacing the base unit. Use the OTDR modules available for the MTS-8000 and MTS-6000 with the OTU-8000, which ensures coverage for a wide range of applications from FTTx to ultra-long-haul network testing.

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℃
Storage	−20 to 60℃
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
Optical links (max)	512
Alarms storage	512
OTDR Trace storage	1024

Relay Contacts (Option)

3 relays correspond respectively to unit alarm, major optical alarm, and minor optical alarm

Relay is closed in normal conditions

Nominal switching capacity	1 A at 30 VDC, 0.5 A at 125 VAC

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 multimode to long-haul single-mode. The OTU-8000 monitors active fibers using the 1625 nm OTDR module, which allows for factors such as the Raman effect of the optical amplifier.

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 128 000 data points
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 $\pm$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 64 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, 48, or 64
	with 1 or 2 commons,
	more than 1000 ports with 1 common
Insertion Loss (excluding connectors)	0.6 dB up to 64 ports,
	1.2 dB for higher port counts
Back-Reflection	-60 dB (Singlemode)
Repeatability	± 0.01 dB
Wavelength Range	1310, 1550 and 1625 nm
Lifetime	10^7 cycles
Housing	Up to 24 ports: Included in the OTU-8000
	For higher port counts: external 4 RU racks

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

Ordering Information

Order Number / Description

Base Unit

EOTU8000	OTU-8000 base unit (48 VDC-2 RU/19-in)

Base Unit Options

E98GSMEU	GSM-900-1800 interface for alarm notification
E98GSMUS	GSM-850-1900 interface for alarm notification
E98RELAYS	Relay for external alarm reporting device
E98GSM	GSM interface for alarm notification
E98PSTN	PSTN interface for alarm notification

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
E980SURK23	23-in rack mounting kit for external switch
E980SURK19	19-in rack mounting kit for external switch

OTDR Plug-in Modules

E8115VSRE	Very Short Range 1550 nm OTDR
E8126VSRE	Very Short Range 1310/1550 nm OTDR

E8138MR49	Medium Range 1310/1490/1550 nm OTDR
E8114MR	Medium Range 1310 nm OTDR
E8136MR	Medium Range 1310/1550/1625 nm OTDR
E8126MR	Medium Range 1310/1550 nm OTDR
E8117MR	Medium Range 1625 nm OTDR
E8129MR	Medium Range 1550/1625 nm OTDR
M8115MR	Medium Range 1550 nm OTDR
M8117LR	Long Range 1625 nm OTDR
M8129LR	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

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)

E980SU36	36-port external optical switch—4 RU/19-in
E980SU48	48-port external optical switch—4 RU/19-in
E980SU64	64-port external optical switch—4 RU/19-in

Test & Measurement Regional Sales