

OTU-8000 Optical Test Unit



Key Features

- Wide range of applications from FTTx to ultra long haul network monitoring
- Web browser access
- Advanced fault location
- Notification by e-mail or SMS
- Small size (2U)
- 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 50db DR
- Supports OTDR and OTU 9500 Optical switch



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 km² area. When a fiber fault occurs, ONMS reports the location relative to the nearest landmark.

By deploying OTU-8000s in the central office, the telecom operator:

- Reduces operational cost by eliminating erroneous dispatches
- Reduces MTTR
- Anticipates service disruption by detecting fiber degradation before service is affected
- 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.

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 dB.

Overview

Reach new levels of reliability with the OTU-8000

The OTU-8000 is a rugged device designed to fit into the most stringent central office. It uses no moving parts such as a magnetic hard disk to ensure the best reliability. Its small size and low power consumption allows utilization where space and energy are high value resources.

The dual power feeds provide an alternate power input in the event of one power source failure. Additionally, all parts are field exchangeable without disconnecting the fibers in an extreme case where it would be necessary to replace a part of the OTU-8000.

Easy installation

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

Provisioning the OTU-8000 is accomplished easily using any Web browser, either on site or remotely via LAN/WAN. The entire configuration is saved on the OTU-8000 where it remains secure on a solid state disk.

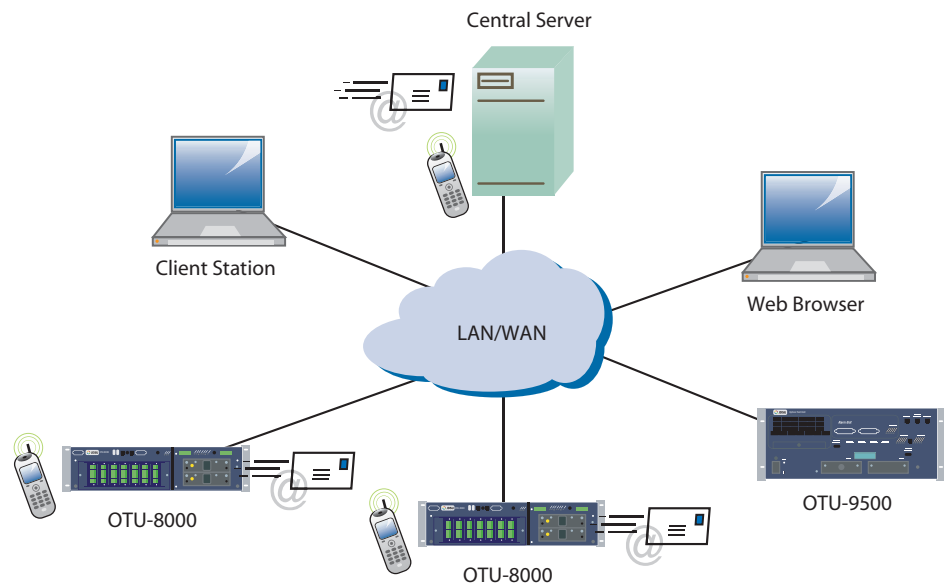
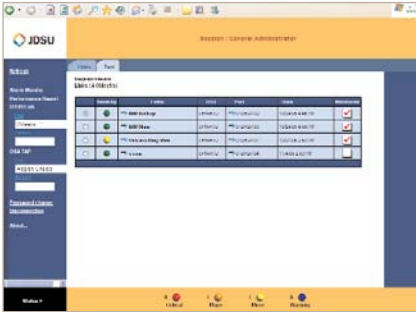


Figure 1 ONMS Overview



Guaranteed alarm transmission

Thanks to its internal PSTN or GSM modem (optional) or the relay contacts (option), the OTU-8000 can send alarms even if the LAN is not available. If the server does not respond either by LAN or by modem, the OTU-8000 can also send direct e-mail and 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 carry out additional measurements.

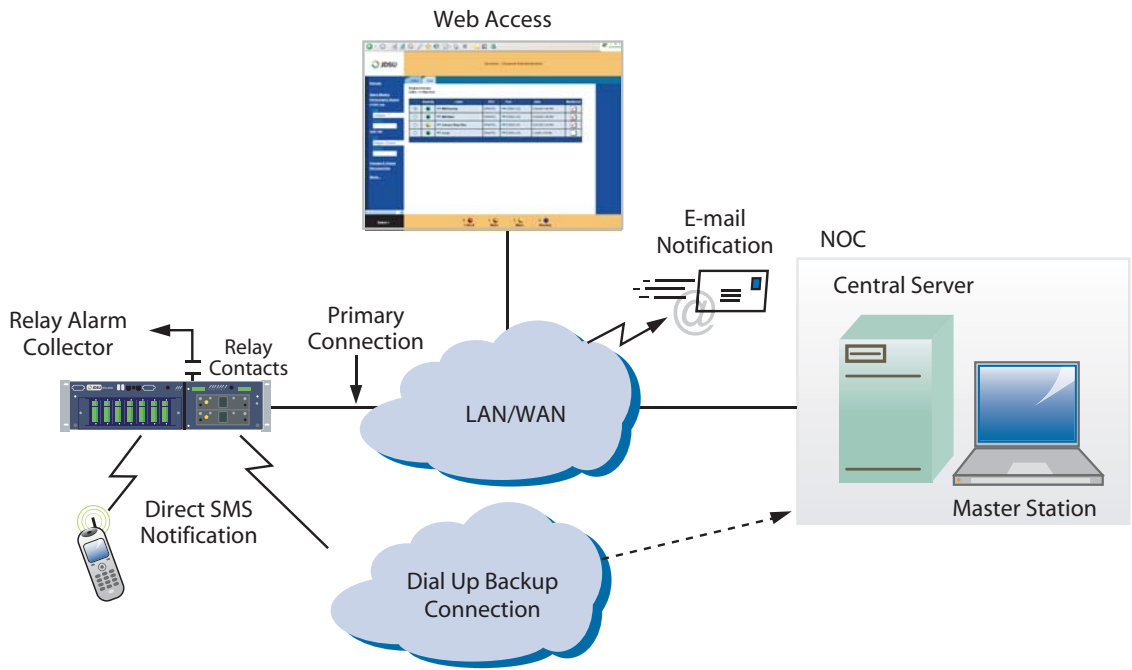
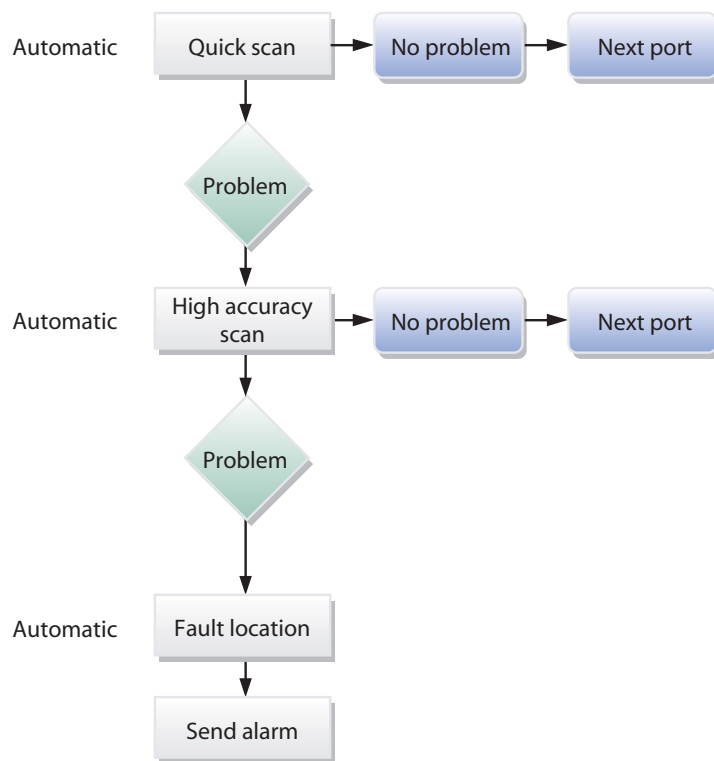


Figure 2 Guaranteed alarm transmission

Advanced fault location

The OTU-8000 combines fast scanning with accurate fault location. Fast acquisition time is used to detect abnormal events. When 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’s experience in RFTS.



Compatibility

The OTU-8000 can be used to extend a deployment of OTU-9500, JDSU’s former RTU. The same ONMS software will manage 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. The OTDR modules available for the MTS-8000 and MTS-6000 can be used with the OTU-8000. This ensures coverage for a wide range of applications from FTTx to ultra long haul network testing.

OTU-8000

Base Unit Technical Specifications

Mechanical

| | |
|--------|----------------------------------|
| Height | 2U |
| Width | 19", 21" (ETSI) or 23" |
| Depth | 260mm (ETSI), 300mm (19" or 23") |

Power Supply

| | |
|-------------------|-------------|
| DC input | -36 to -60V |
| Power consumption | 30W |

Environmental

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

Interfaces

- 1 RJ45 Ethernet 10/100 Base T 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: 1A @30VDC, 0.5A@125VAC

OTDR*

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 network from short range multimode to long haul single mode. The OTU-8000 monitors active fibers using the 1625nm OTDR module which is designed to take into account factors such as the Raman effect of the optical amplifier.

Technical Specifications

| 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 2.6m up 380 km |
| Display resolution | 1 cm |
| Cursor resolution | From 1 cm |
| Sampling resolution | From 4 cm |
| Accuracy | ±1 m ± sampling resolution ±1.10-5 x distance (excluding group index uncertainties) |

Attenuation Measurement

| | |
|---|-----------------------|
| Automatic, manual, 2-points, 5-points and LSA | |
| Display span | From 1.25 dB 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 48 or 72 ports by adding 1 chassis. An OTU-8000 with no OTDR modules fitted forms the base of the Remote Optical Switch controlled by TCP/IP.

The Remote Optical Switch base can be upgraded by adding an OTDR module to become a complete OTU-8000 at any time.

Specifications

| | |
|------------------|---|
| Number of Ports | 2, 4, 8, 12, 16, 24, 36, 48 or 72 with 1 or 2 commons |
| Insertion Loss | 0.6 dB up to 48 ports, 1.2 dB for 72 ports |
| 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 36, 48 and 72 ports: 1 external 4U rack |

*The main specifications of OTDR modules are available on the consolidated OTDR datasheet.

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