33-960 Series – Micro OTDRs

- ***Short Attenuation and Event Dead Zones –*** for accurate location and characterisation of events
- ***Autotest Function –*** provides simple one-button operation
- ***Fast Data Acquisition –*** important for troubleshooting intermittent problems
- ***Interchangeable Fibre Adapters –*** easy on-site replacement
- ***USB port –*** convenient data transfer to PC
- ***Certifying OTDR Option –*** for tier-2 certification
- ***Optional Macro Bend detection –*** accurately detects macro bends in singlemode fibre
- ***Fibre Inspection Probe ready –*** includes port for video inspection probes

33-960 Series Micro OTDRs

Designed with installers in mind, 33-960 Series Micro OTDRs offer excellent performance and ease of use in a truly handheld, lightweight and rugged package. Available as a 850/1300/1310/1550 nm (multimode and singlemode) OTDR, it is ideally suited for the installation and troubleshooting of LAN, campus and WAN fibre networks. The OTDR combines high measurement precision with the user friendliness of one-button operation resulting in accurate characterisation of connectors and splices in addition to fast and reliable fault location.

With the 33-962-5 option, these OTDRs provide clear PASS/FAIL indications. Distance, loss and ORL for each event is reported in a trace summary table making full certification of the link possible. Each OTDR is shipped in a kit containing everything you need to get started on the job, including a ruggedised carry case, PC software, rechargeable batteries and wall charger.

Maximum Flexibility

33-960 Series Micro OTDR is available in a quad configuration to meet your application requirements.

33-960 Series Micro OTDRs – Models and Applications

Target Applications:

- ***Tier-2 certification*** of premise and enterprise networks that require OTDR testing. The feature set of 33-960 Series Micro OTDRs is perfectly matched to this application.
- ***Increasing bandwidths in LAN and campus fibre cabling*** demands more in-depth testing. The 33-960 Series delivers all necessary test functions in an extremely user-friendly instrument.
- ***Troubleshooting*** of fibre links requires an accurate, easy to use OTDR. The high specification and small form factor of the 33-960 Series makes them perfect for troubleshooting installations.
- ***WAN and FTTH cabling*** requires an OTDR with a high dynamic range. Offering a dynamic range up to 32 dB, the 33-960 Series is more than capable of the job.

Key Features:

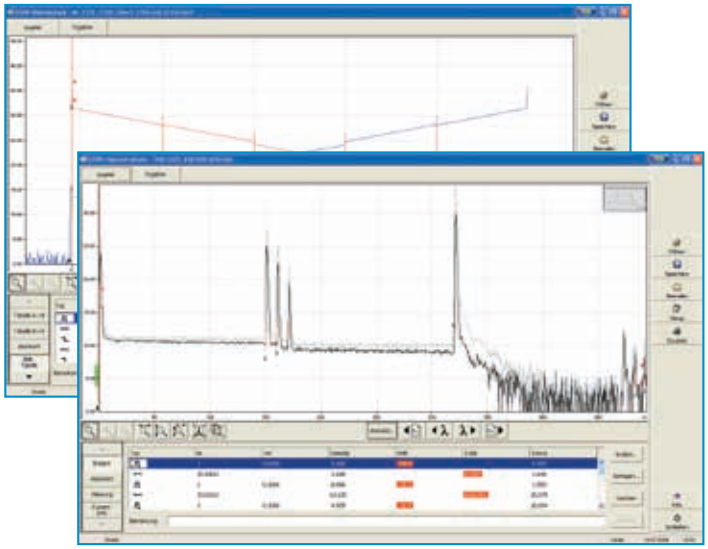
- Short attenuation and event dead zones for accurate location and characterization of events. Suitable for even the shortest fibre links.
- Two wavelength "autotest" function with automatic adjustment of test parameters
- Manual mode allows users to define all test parameters
- Real-time mode for troubleshooting. Useful when trying to identify intermittent problems.
- Clear characaterisation of events
- Fast data acquisition
- Interchangeable fibre adapters with a wide variety of available configurations
- PC Software included. Reports in Bellcore™ format
- Colour display
- USB connection to thumbdrives or PCs.
- Optional Certifying OTDR firmware
- Optional macro bend detection on singlemode fibres
- Video inspection probe ready

(For more detailed specifications see page 4)

33-960-3 Quad OTDR

The 33-960-3 Quad OTDR provides accurate measurements even on very short multimode links such as backbones. Press Autotest and the instrument automatically selects the optimum test configuration for the link being tested, thereby helping inexperienced users to obtain accurate and meaningful test results. More experienced users will find the manual and real-time modes useful when troubleshooting.

The 33-962-5 Certifying OTDR firmware option turns 33-960 Series OTDRs into full certifying instruments that provide clear PASS/FAIL indications for each link tested and also includes a Macro Bend Detector that was developed to help users pinpoint areas along the fibre, where the bend radius is too small.



Comprehensive PC Software

Multilingual PC software is included as standard in all kits. This software is used to manage OTDR traces and test data. Downloads from the OTDR can be made to a memory stick or directly through the USB interface to a PC.

An AUTO mode makes interpretation of traces straightforward. The EXPERT mode allows more experienced users to evaluate test data using up to 4 markers for attenuation in dB and dB/km, optical return loss and reflection.

With adjustable PASS/FAIL limits, the software gives a clear indication of the quality of links being tested.

The PC software allows export in Bellcore™ format, making test results compatible with world wide OTDR standards.

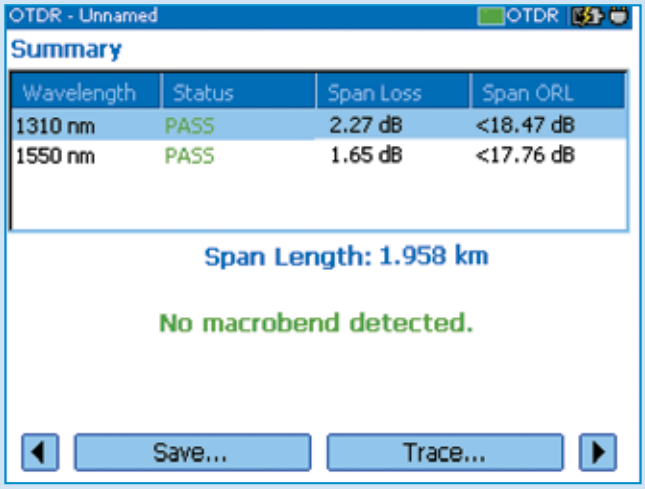
The kit also includes a viewer for bi-directional tests, allowing the user to overlay A => B / B => A plots.

Test results can also be printed or stored as PDF files.

33-962-5 Certifying OTDR and Macro Bend Detector Option

The Certifying OTDR option turns 33-960 Series OTDRs into full certifying instruments with clear PASS/FAIL indication for every link. A single summary screen delivers all key measurement values. Installations that specify "Tier-2" certification will find this option invaluable as it gives instant PASS/FAIL results for every link without having to resort to cumbersome manual evaluation of traces. It also benefits less experienced users by providing clear decision points on whether a link is good or bad.

Please note that this option cannot be installed in the field. It is a factory installed option only, so wherever possible should be ordered at the same time as the main OTDR.



The Macro Bend Detector finds areas along the fibre where minimum bending radii are undercut. Especially at splicing cassettes or patch panels, macro bends can cause excessive attenuation.

Without this option macro bends are extremely hard to detect or are often confused with splices.

33-960-2 Video Inspection Probe

Poor cleanliness is the number one reason for failures in fibre optic networks. The optional video probe helps users document and troubleshoot fibre optic installations by providing visual inspection of connectors. Unlike optical microscopes, video microscopes offer 100% eyesight protection plus the ability to store connector images on the OTDR for later download and documentation.

Magnifications of 200x and 400x deliver crystal clear images of connectors. In addition, a wide range of probe tips makes the video probe a useful diagnostic tool in many different applications.

The 33-960-2 Video Inspection Probe is compatible with all 33-960 Series OTDRs which incorporate a video probe port as standard - no upgrade is required to drive the probe.

33-960 Series Micro OTDRs – Ordering Information and Detailed Specifications

Specifications[1]

Increased Dynamic Range

Improved Dead Zones

Testing	33-960-3
Wavelength[2]	850, 1300, 1310, 1550
Dynamic range[3] [dB]	24 / 25 / 32 / 30
Attenuation dead zone[4] [m]	3.5 / 4.5 / 4 / 4.5
Pulse width [ns]	5, 10, 30, 100, 275, 1000, 2500, 10000
Event dead zone[4] [m]	0.8 worst case
Launch conditions [MM]	Class CPR 1 or 2
Linearity[2] [dB / dB]	± 0.03
Loss threshold [dB]	0.05
Loss resolution [dB]	0.01
Sampling resolution [dB]	0.08 to 5
Sampling points	Up to 64000
Typical real time refresh [Hz]	4
Distance uncertainty[5] [m]	± (0.75 + 0.0025% x distance + sampling resolution)
Distance range [km]	MM: 0.1 to 40 SM: 0.65 to 260
Stable source output power [dBm]	MM: -1.5 SM -6.5
Laser safety	21 CFR 1040.10 and IEC 60825-1:1993+A2:2001 / Class 1M
Hardware	**33-960-3**
Memory capacity	500 traces
Data connectivity	USB A and USB B
Size (HxWxD) [mm]	250 x 125 x 75
Weight	1 kg
Temperature	Operating: -18°C to 50°C , Storage: -40°C to 70°C
Batteries	2 x Li-Ion
Power supply (mains)	110 – 230 V AC
Power supply (unit)	9 - 24 V DC , 12 Watt
Operating time	8 hours (per Bellcore™ TR-NWT-001138)
Warranty	1 year

1: All specifications valid at 23 °C ± 2 °C with an FC/PC connector, unless otherwise specified. **2:** Typical. **3:** Typical dynamic range with a three-minute averaging at SNR=1. **4:** Typical dead zone for multimode reflectance below -35dB and singlemode reflectance below -45dB, using shortest pulse. **5:** Does not include uncertainty due to fibre index and sampling resolution

Ordering Information

33-960-3 Quad OTDR Kit
Quad OTDR with 850/1300/1310/1550nm
Ruggedised carrying case
PC-Software
CD with manual and Quick Reference Guide
Charger
2 Li-Ion rechargeable batteries
2 SC Adapters
33-960-3MB Quad OTDR Kit
Quad OTDR with 850/1300/1310/1550nm
33-962-5 Certifying OTDR and Macrobend firmware
Ruggedised carrying case
PC-Software
CD with manual and Quick Reference Guide
Charger
2 Li-Ion rechargeable batteries
2 SC Adapters

Optional Accessories

Item	Description
33-960-2	200x and 400x video probe w. USB port
33-962-5	Certifying OTDR and Macrobend firmware note: has to be ordered in advance or tester must be returned to IDEAL service department
VFF5	Visual Fault Locator, red light laser source, 5 km reach
1219-00-1621	Cleaning Kit
4010-00-0001	Rechargeable battery
33-960-4	Foldable USB Keyboard
33-961-1	Adapter for FC connectors
33-961-2	Adapter for SC connectors
33-961-3	Adapter for ST connectors
33-963-10	Fibre cleaning pen for SC, ST and FC adaptor
33-963-11	Fibre cleaning pen for LC and MU adaptor
For additional accessories, please contact customer service	

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