

# OV 1000

Optical Time Domain Reflectometer OTDR

EMEA, APac & China Edition

Issue 2



Corning  
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## Description

The OV 1000 is a compact modular Optical Time Domain Reflectometer (OTDR) which is designed for testing, documentation and troubleshooting in local area networks (LAN), Carrier-, CATV- and fiber-to-the-x-(FTTx) fiber optic networks.

The device can accommodate two test modules. The available module options offer different combinations of wavelengths and dynamic ranges.

Available wavelengths are 850 nm, 1,300 nm, 1,310 nm, 1,490 nm, 1,550 nm and 1,625 nm.

In addition to the test modules available in the common wavelength and dynamic range combinations, the option of integrated power meter and visual fault locator in the mainframe is another valuable addition which emphasizes the unit's universal character. The test port of the OTDR module provides the light source function. In combination with the optional fiber inspection probe (FIP), the OV 1000 works as a universal test- and measurement device for all passive optical components of a network.

The mainframe is equipped with the Windows® CE Mobile operating system. This allows a fast boot-up time within a few seconds as well as intuitive user-friendly operation.

Besides the outstanding optical measurement performance, the versatile, modern and ergonomic design of the OV 1000 gives another clear advantage.

Beside the mainframe with 6.4" touch screen and integrated 80 MB flash memory, the OV 1000 OTDR kits are supplied with the respective test module with SC UPC interface adapter(s), OTSView software for post processing on a PC, USB cable, one Li-Ion battery, power supply and power cord with EU connector as well as the deluxe transport case.

The deluxe transport case offers wheels and pull-out handle for maximum user-friendliness. It is equipped with two additional carrying handles. Its compact dimensions meet the requirements for airline carry-on luggage. The case is tight against water and dust. With its adapted padded inserts it offers protection against mechanical impacts for the OV 1000 and its accessories.

## Features

- Test and collect data up to four wavelengths by pressing only one button
- Very fast acquisition time
- Fast ready-to-measure boot-up time of 4 seconds
- Simultaneous use of touch screen, short-cut keys and tracking knob for high user convenience
- Maximum 128,000 data points for highest resolution
- Attenuation resolution of 0.001 dB
- Very short event dead zone of just 1 m and 4.5 m attenuation dead zone
- 6.4" full VGA touch screen (optional transfective display for crisp viewing in bright sun light available)
- Three test modes (auto, advanced and template) fit best to user skills and applications for maximum measurement convenience
- Possible configurations cover all typical fiber applications from long-haul and WDM to metro networks, FTTx as well as LAN
- Easy-to-use post-processing software with professional report generation function including bidirectional analysis and quick print function
- Powerful Li-Ion battery provide mains independent operation time of more than 8 hours
- Diverse storage options (in addition to 80 MB built-in flash memory two USB ports and a CompactFlash card slot)
- Internal memory sufficient typically for up to 1,500 traces
- Numerous connection ports for easy connectivity for convenient download and upgrade
- 10 / 100 Mb/s Ethernet Cat.5 RJ-45 network interface
- Rugged and waterproof housing for long life time
- Low weight of only 2.5 kg (mainframe with one module and battery)

## Common Technical Data

Display Type	Touch screen, 6.4 " full VGA color screen, optional transfective version
Units of Measure	Meters, Kilometers, Feet, Miles (selectable)
Operating Temperature	- 5 °C to + 50 °C
Storage Temperature	- 40 °C to + 70 °C
Humidity	Max 95 %, non-condensing
Altitude	No limitation
Power Supply	Battery: > 8 h typical battery running time; recharge time: less than 3 h; Mains Supply: 100 V to 240 V AC, 50 Hz to 60 Hz, auto ranging, 90 W
Weight	2.5 kg incl. battery and one module
Dimensions	322 mm x 197 mm x 109 mm
Operating System	Windows® CE Mobile
Storage	Internal 80 MB flash memory, extendable through USB ports and CompactFlash card slot
Control Interface	Touch screen, short keys, tracking knob and status LEDs
Connectivity	Two USB ports, 10 / 100 Mb/s Ethernet RJ-45 interface, CompactFlash card slot and connection port for fiber inspection probe (FIP)
Loss Resolution	0.001 dB
Distance Sampling	0.04 m to 5 m – range dependent
Nos. of Data Points	Up to 128,000 – module dependent
Distance Accuracy	± (0.75 + 0.0025 % x distance) m
Laser Safety	Meets IEC60825-1 Class 1 and CDRH Class 1 Requirements (Eye Safe) 21 CFR 1040



OV 1000 Kit with Accessories

**Technical Data of Single-Mode Modules with Two Wavelengths**

Module	SD34 / MDSD	SD37	SD135	SD40
Fiber Type	Single-mode	Single-mode	Single-mode	Single-mode
Center Wavelength	1,310 nm ± 20 nm 1,550 nm ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm	1,550 nm ± 20 nm 1,625 nm ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm
Dynamic Range (at maximal pulse width)	1,310 nm: 37 dB 1,550 nm: 35 dB	1,310 nm: 39 dB 1,550 nm: 38 dB	1,550 nm: 38 dB 1,625 nm: 36 dB	1,310 nm: 41.5 dB 1,550 nm: 40.5 dB
Dynamic Range (at pulse width of 10 µs)	1,310 nm: 35 dB 1,550 nm: 34 dB	1,310 nm: 38 dB 1,550 nm: 37 dB	1,550 nm: 37 dB 1,625 nm: 35 dB	1,310 nm: 40 dB 1,550 nm: 40 dB
Event Dead Zone	1,310 nm: 1 m 1,550 nm: 1 m	1,310 nm: 1 m 1,550 nm: 1 m	1,550 nm: 1 m 1,625 nm: 1 m	1,310 nm: 3 m 1,550 nm: 3 m
Attenuation Dead Zone	1,310 nm: 4 m 1,550 nm: 4 m	1,310 nm: 4 m 1,550 nm: 4 m	1,550 nm: 4 m 1,625 nm: 5 m	1,310 nm: 10 m 1,550 nm: 15 m
Linearity	± 0.03 dB / dB	± 0.03 dB / dB	± 0.03 dB / dB	± 0.05 dB / dB
Pulse Width	5 ns to 20 µs	5 ns to 20 µs	5 ns to 20 µs	10 ns to 20 µs
Distance Resolution/ Nos. of Data Points	4 cm / max. 128,000	4 cm / max. 128,000	4 cm / max. 128,000	8 cm / max. 52,000
Distance Range Setting	1.25 km to 260 km	1.25 km to 260 km	1.25 km to 260 km	1.25 km to 260 km

**Technical Data of Single-Mode Modules with Two Wavelengths (continued)**

Module	SD140	SD45	SD142
Fiber Type	Single-mode	Single-mode	Single-mode
Center Wavelength	1,550 nm ± 20 nm 1,625 nm ± 10 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm	1,550 nm ± 20 nm 1,625 nm ± 10 nm
Dynamic Range (at maximal pulse width)	1,550 nm: 40.5 dB 1,625 nm: 39 dB	1,310 nm: 45 dB 1,550 nm: 43 dB	1,550 nm: 43 dB 1,625 nm: 43 dB
Dynamic Range (at pulse width of 10 µs)	1,310 nm: 40 dB 1,550 nm: 38 dB	1,310 nm: 43.5 dB 1,550 nm: 41.5 dB	1,550 nm: 43.5 dB 1,625 nm: 41.5 dB
Event Dead Zone	1,550 nm: 3 m 1,625 nm: 3 m	1,310 nm: 3 m 1,550 nm: 3 m	1,550 nm: 3 m 1,625 nm: 3 m
Attenuation Dead Zone	1,550 nm: 15 m 1,625 nm: 16 m	1,310 nm: 10 m 1,550 nm: 15 m	1,550 nm: 15 m 1,625 nm: 16 m
Linearity	± 0.05 dB / dB	± 0.05 dB / dB	± 0.05 dB / dB
Pulse Width	10 ns to 20 µs	10 ns to 20 µs	10 ns to 20 µs
Distance Resolution / Nos. of Data Points	8 cm / max. 52,000	8 cm / max. 52,000	8 cm / max. 52,000
Distance Range Setting	1.25 km to 260 km	1.25 km to 260 km	1.25 km to 260 km

**Technical Data of Multimode and Single-Mode Modules with Three Wavelengths**

Module	MD26 / MDSD	ST37	ST137	ST41
Fiber Type	Multimode	Single-mode	Single-mode	Single-mode
Center Wavelength	850 nm ± 20 nm 1,300 nm ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm 1,625 nm ± 10 nm	1,310 nm ± 20 nm 1,490 nm ± 10 nm 1,550 nm ± 20nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm 1,625 nm ± 10 nm
Dynamic Range (at maximal pulse width)	850 nm: 27 dB 1,300 nm: 26 dB (50 µm and 62.5 µm)	1,310 nm: 39 dB 1,550 nm: 38 dB 1,625 nm: 36 dB	1,310 nm: 39 dB 1,490 nm: 35 dB 1,550 nm: 38 dB	1,310 nm: 42.5 dB 1,550 nm: 41.5 dB 1,625 nm: 39.5 dB
Dynamic Range (at pulse width of 10 µs)		1,310 nm: 38 dB 1,550 nm: 37 dB 1,625 nm: 35 dB	1,310 nm: 38 dB 1,490 nm: 34 dB 1,550 nm: 37 dB	1,310 nm: 41 dB 1,550 nm: 40 dB 1,625 nm: 38 dB
Event Dead Zone	850 nm: 1 m 1,300 nm: 1 m	1,310 nm: 1 m 1,550 nm: 1 m 1,625 nm: 1 m	1,310 nm: 1 m 1,490 nm: 1 m 1,550 nm: 1 m	1,310 nm: 3 m 1,550 nm: 3 m 1,625 nm: 3 m
Attenuation Dead Zone	850 nm: 3 m 1,300 nm: 4.5 m	1,310 nm: 4 m 1,550 nm: 4 m 1,625 nm: 5 m	1,310 nm: 4 m 1,490 nm: 4 m 1,550 nm: 4 m	1,310 nm: 8 m 1,550 nm: 10 m 1,625 nm: 10 m
Linearity	± 0.03 dB / dB	± 0.03 dB / dB	± 0.03 dB / dB	± 0.05 dB / dB
Pulse Width	5 ns to 1 µs	5 ns to 20 µs	5 ns to 20 µs	10 ns to 20 µs
Distance Resolution / Nos. of Data Points	4 cm / max.128,000	4 cm / max. 128,000	4 cm / max. 128,000	8 cm / max. 52,000
Distance Range Setting	0.1 km to 40 km	1.25 km to 260 km	1.25 km to 260 km	1.25 km to 260km

**Technical Data of Optional Power Meter**

Detector Type	InGaAs (high power)
Calibrated Wavelengths	850 nm, 1,300 nm, 1,490 nm, 1,550 nm, 1,625 nm and 1,650 nm
Range	+ 10 dBm to - 86 dBm
Tone Detection	270 Hz / 1 kHz / 2 kHz
Resolution	0.01 dB, 0.1 dB and 1 dB (dBm range dependent)
Uncertainty	± 5 % ± 3 pW or ± 5 % ± 0.4 nW
Data Saving	Yes

**Technical Data of Light Source Function of the Respective OTDR Module**

Wavelength	Same as OTDR module
Output Power	- 1.5 dBm (multimode), - 4.5 dBm to - 8 dBm (single-mode, module dependent)
Modes of Operation	CW, 1 kHz and 2 kHz
Spectral Width	Same as OTDR module
Safety	Same as OTDR module

**Technical Data of Optional Visual Fault Locator (VFL)**

Wavelength	650 nm ± 10 nm
Output Power	Maximal 800 µW
Modes of Operation	Continuous Wave (CW)

## Portable Test Fiber Boxes

Portable Test Fiber Boxes (PTFs) are used as launch and tail fiber with OTDR measuring in order to capture the first and last connector of the network as well. The PTF offers test fiber of various lengths installed in a

rugged, water proof plastic case with handle. The access is provided by pigtails with the respective connector. PTFs with other adapter types, lengths and fiber types are available upon request.

## Fiber Inspection Probe (FIP) Option

Tightened system and return loss budgets, in combination with high power transmission, have turned connectors and their end face quality into a crucial component. Connector inspection therefore is more important than ever.

The FIP comes with commonly used adapter types allowing either the evaluation of directly connected patch cord / pigtail ferrule end faces or indirectly through patch panel adapters to see connectors installed behind these panels.

The optional Fiber Inspection Probe (FIP) is connected through the dedicated port of the OV 1000. It allows the connector end faces to be viewed and analyzed on the OTDR screen. The images can be stored in common graphic file formats in the memory options of the OV 1000. It gives operators a safe, easy way to analyze and document connector conditions.

Compared to traditional fiber inspection microscopes, the FIP is safer to operate since there is no risk of any transmission signal in the fiber penetrating the tester's eye.

The FIP features a 1/3 " CCD that converts images of the connector end faces into digital signals to be displayed on the OTDR screen.

### Features

- Convenient image-capture button located on the probe for hand-held operation
- Interchangeable connector adapters for all popular connector types
- Ability to see connectors installed on the rear of distribution panels by using bulkhead tips

## Technical Data of Fiber Inspection Probe (FIP) Option

Magnification	200 x / 400 x digital
Interface Connection	OV 1000 connection port
Operational Temperature	0 °C to + 50 °C
Storage Temperature	- 20 °C to + 50 °C
Optical Filter	up to + 30 dBm
Compatible Operating Systems	OV 1000 dedicated
Image File Format	JPEG, BMP and PNG