

OV 1000, OTSK 400, OTS 400, LTK 400R & LTK 400

Fiber Optic Test Equipment

EMEA, APac & China Edition

Issue 3



CORNING

Description

The OV 1000 is a compact modular Optical Time Domain Reflectometer (OTDR) which is designed for testing, commissioning, 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 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 OTDR 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 256,000 data points for highest resolution
- Loss resolution of 0.001 dB
- Very short event dead zone of just 1 m and 3 m attenuation dead zone (multimode module at 850 nm¹⁾)
- 6.4 " full VGA touch screen
- 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 OSTView with professional report generation function including bidirectional analysis and quick print function
- Powerful Li-Ion battery provide mains independent operation time of 8 hours (Bellcore TR-NWT-001138)
- Diverse storage options (in addition to 80 MB built-in flash memory, two USB ports²⁾ and a CF card slot
- Internal memory sufficient for up to 1,500 typical traces
- Numerous connection ports for easy connectivity for convenient download and upgrade
- 10 / 100 Mb/s Ethernet RJ-45 network interface
- Rugged and waterproof housing for long life time
- Low weight of only 3 kg (mainframe with one module and battery)

¹⁾ typical DZ valid for reflectance below -35dB using a 5ns pulse for multimode & -45dB for single-mode module

²⁾ one main and one remote port

Common Technical Data

Display Type	Touch screen, 6.4 " full VGA color screen
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
Power Supply	Battery: 8 h of operation as per Belcore TR-NWT-001138; Standard recharge time is 3 h (recharge temperature 0 °C to + 35 °C); Mains Supply: 100 V to 240 V AC, 50 Hz to 60 Hz, auto ranging, 90 W
Weight	3 kg incl. battery and one module
Dimensions	322 mm x 197 mm x 109 mm
Operating System	Windows® CE Mobile
Storage of system	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 (one main & one remote), 10 / 100 Mb/s Ethernet RJ-45 interface, CompactFlash card slot & connector for fiber inspection probe
Loss Resolution	0.001 dB
Distance Sampling	0.04 m to 5 m – range and module dependent
Nos. of Data Points	Up to 256,000
Distance Accuracy	± (0.75 + 0.0025 % x distance + sampling resolution) m (doesn't include uncertainty due to fiber index)
Laser Safety	Meets IEC60825-1 Class 1 and CDRH Class 1 Requirements (Eye Safe) 21 CFR 1040
Recommended Calibration Interval	1 year



OV 1000 Kit with Accessories (cleaning pads not included in kit content)

Technical Data³⁾ of Single-Mode Modules with Two Wavelengths

Module	SD34	SD37	SD40	SD45
Fiber Type	Single-mode	Single-mode	Single-mode	Single-mode
Center Wavelength ⁴⁾	1,310 nm ± 20 nm 1,550 nm ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm
Dynamic Range ⁵⁾ (at maximal pulse width)	1,310 nm: 36 dB 1,550 nm: 34 dB	1,310 nm: 39 dB 1,550 nm: 37 dB	1,310 nm: 42 dB 1,550 nm: 41 dB	1,310 nm: 45 dB 1,550 nm: 45 dB
Dynamic Range ⁵⁾ (at pulse width of 10 µs)	1,310 nm: 35 dB 1,550 nm: 34 dB	1,310 nm: 38 dB 1,550 nm: 36 dB	1,310 nm: 41 dB 1,550 nm: 40 dB	1,310 nm: 44 dB 1,550 nm: 44 dB
Event Dead Zone ⁶⁾	1,310 nm: 1 m 1,550 nm: 1 m	1,310 nm: 1 m 1,550 nm: 1 m	1,310 nm: 0.8 m 1,550 nm: 0.8 m	1,310 nm: 0.8 m 1,550 nm: 0.8 m
Attenuation Dead Zone ⁶⁾	1,310 nm: 4.5 m 1,550 nm: 5 m	1,310 nm: 4.5 m 1,550 nm: 5 m	1,310 nm: 4 m 1,550 nm: 4.5 m	1,310 nm: 4 m 1,550 nm: 4.5 m
Linearity	± 0.03 dB / dB	± 0.03 dB / dB	± 0.03 dB / dB	± 0.03 dB / dB
Pulse Width	5 ns to 20 µs	5 ns to 20 µs	5 ns to 20 µs	5 ns to 20 µs
Best Distance Resolution/ Nos. of Data Points	4 cm / max. 128,000	4 cm / max. 128,000	4 cm / max. 256,000	4 cm / max. 256,000
Distance Range Setting	1.25 km to 260 km	1.25 km to 260 km	1.25 km to 400 km	1.25 km to 400 km

Technical Data³⁾ of Single-Mode Modules with Three Wavelengths

Module	ST37	ST137	ST41
Fiber Type	Single-mode	Single-mode	Single-mode
Center Wavelength ⁴⁾	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 ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm 1,625 nm ± 10 nm
Dynamic Range ⁵⁾ (at maximal pulse width)	1,310 nm: 39 dB 1,550 nm: 37 dB 1,625 nm: 36 dB	1,310 nm: 39 dB 1,490 nm: 34 dB 1,550 nm: 37 dB	1,310 nm: 42 dB 1,550 nm: 41 dB 1,625 nm: 41 dB
Dynamic Range ⁵⁾ (at pulse width of 10 µs)	1,310 nm: 38 dB 1,550 nm: 36 dB 1,625 nm: 35 dB	1,310 nm: 38 dB 1,490 nm: 33 dB 1,550 nm: 36 dB	1,310 nm: 41 dB 1,550 nm: 40 dB 1,625 nm: 40 dB
Event Dead Zone ⁶⁾	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: 0.8 m 1,550 nm: 0.8 m 1,625 nm: 0.8 m
Attenuation Dead Zone ⁶⁾	1,310 nm: 4.5 m 1,550 nm: 4 m 1,625 nm: 5 m	1,310 nm: 4.5 m 1,490 nm: 5.5 m 1,550 nm: 5 m	1,310 nm: 4 m 1,550 nm: 4.5 m 1,625 nm: 4.5 m
Linearity	± 0.03 dB / dB	± 0.03 dB / dB	± 0.03 dB / dB
Pulse Width	5 ns to 20 µs	5 ns to 20 µs	5 ns to 20 µs
Best Distance Resolution / Nos. of Data Points	4 cm / max. 128,000	4 cm / max. 128,000	4 cm / max. 256,000
Distance Range Setting	1.25 km to 260 km	1.25 km to 260 km	1.25 km to 400 km

³⁾ all specifications valid at 23 °C ± 2 °C with FC/PC connector unless otherwise specified

⁴⁾ at 23 °C, 10 µs (single-mode) and 1 µs (multimode)

⁵⁾ with three minutes averaging at SNR=1, multimode range specified for 62.5 µm, 3 dB reduction must be considered for 50 µm fiber

⁶⁾ typical if using 5 ns pulse and reflectance below - 35 dB for multimode, - 45 dB for single-mode module

Technical Data³⁾ of Multimode and combined Single-Mode & Multimode Modules

Module	MD26	MD(SD)	(MD)SD
Fiber Type	Multimode	Multimode	Single-mode
Center Wavelength ⁴⁾	850 nm ± 20 nm 1,300 nm ± 20 nm	850 nm ± 20 nm 1,300 nm ± 20 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm
Dynamic Range ⁵⁾ (at maximal pulse width)	850 nm: 27 dB 1,300 nm: 26 dB (50 µm and 62.5 µm)	850 nm: 27 dB 1,300 nm: 26 dB (50 µm and 62.5 µm)	1,310 nm: 36 dB 1,550 nm: 34 dB
Dynamic Range ⁵⁾ (at pulse width of 10 µs)			1,310 nm: 35 dB 1,550 nm: 34 dB
Event Dead Zone ⁶⁾	850 nm: 1 m 1,300 nm: 1 m	850 nm: 1 m 1,300 nm: 1 m	1,310 nm: 1 m 1,550 nm: 1 m
Attenuation Dead Zone ⁶⁾	850 nm: 3 m 1,300 nm: 4 m	850 nm: 3 m 1,300 nm: 4 m	1,310 nm: 4.5 m 1,550 nm: 5 m
Linearity	± 0.03 dB / dB	± 0.03 dB / dB	± 0.03 dB / dB
Pulse Width	5 ns to 1 µs	5 ns to 1 µs	5 ns to 20 µs
Best Distance Resolution / Nos. of Data Points	4 cm / max. 128,000	4 cm / max. 128,000	4 cm / max. 128,000
Distance Range Setting	0.1 km to 40 km	0.1 km to 40 km	1.3 km to 260 km

Technical Data⁷⁾ of Optional Power Meter

Detector Type	InGaAs
Calibrated Wavelengths Range	850 nm, 1,300 nm, 1,310 nm, 1,490 nm, 1,550 nm, 1,625 nm and 1,650 nm
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 (up to 5 dBm)
Data Saving	Yes

Technical Data⁸⁾ of Light Source Function of the Respective OTDR Module

Wavelength	Same as OTDR module
Typical Output Power	- 1.5 dBm (multimode at 1,300 nm), - 3.5 dBm to - 7 dBm (single-mode at 1,550 nm, 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
Typical Output Power	In 62.5 µm / 125 µm: 3 dBm (2 mW)
Modes of Operation	Continuous Wave (CW)

³⁾ all specifications valid at 23 °C ± 2 °C with FC/PC connector unless otherwise specified

⁴⁾ at 23 °C, 10 µs (single-mode) and 1 µs (multimode)

⁵⁾ with three minutes averaging at SNR=1, multimode range specified for 62.5 µm, 3 dB reduction must be considered for 50 µm fiber

⁶⁾ typical if using 5 ns pulse and reflectance below - 35 dB for multimode, - 45 dB for single-mode module

⁷⁾ all specifications valid at 23 °C ± 1 °C with FC/PC connector, modules in idle mode, battery operated

⁸⁾ all specifications valid at 23 °C ± 2 °C with FC/PC connector unless otherwise specified

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 mainframe. 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

Order Numbers

Description	Order number
Basic Kits	
The basic kits include OV 1000 mainframe, single-mode and / or multimode module, power supply, battery, SC UPC OTDR port adapter(s), CD with OTSView PC emulation software (English version), USB cable, user manual on CD (English version) as well as deluxe transport case. Other adapters can be purchased separately.	
Basic kit with short-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (36 / 34 dB)	1000BK-SD34-SC
Basic kit with mid-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (39 / 37 dB)	1000BK-SD37-SC
Basic kit with mid-range OTDR module, triple single-mode 1,310 nm / 1,550 nm / 1,625 nm (39 / 37 / 36 dB)	1000BK-ST37-SC
Basic kit with FTTx OTDR module, triple single-mode 1,310 nm / 1,490 nm / 1,550 nm (39 / 34 / 37 dB)	1000BK-ST137-SC
Basic kit with long-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (42 / 41 dB)	1000BK-SD40-SC
Basic kit with extended-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (45 / 45 dB)	1000BK-SD45-SC
Basic kit with multimode OTDR module, dual multimode 850 nm / 1,300 nm (27 / 26 dB)	1000BK-MD26-SC
Basic kit with quad OTDR module, dual multimode 850 nm / 1,300 nm (27 / 26 dB) and dual single-mode 1,310 nm / 1,550 nm (36 / 34 dB)	1000BK-MDSD-SC
Deluxe Kits	
The deluxe kits include OV 1000 mainframe with integrated visual fault locator (VFL) and power meter, single-mode and / or multimode module, power supply, battery, SC UPC OTDR, VFL as well as power meter port adapters, CD with OTSView PC Emulation software (English version), OTSBatch PC batch processing software (English version), USB cable, user manual on CD (English version) and deluxe transport case. Other adapters can be purchased separately.	
Deluxe kit with short-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (36 / 34 dB)	1000DK-SD34-SC
Deluxe kit with mid-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (39 / 37 dB)	1000DK-SD37-SC
Deluxe kit with mid-range OTDR module, triple single-mode 1,310 nm / 1,550 nm / 1,625 nm (39 / 37 / 36 dB)	1000DK-ST37-SC
Deluxe kit with FTTx OTDR module, triple single-mode 1,310 nm / 1,490 nm / 1,550 nm (39 / 34 / 37 dB)	1000DK-ST137-SC
Deluxe kit with long-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (42 / 41 dB)	1000DK-SD40-SC
Deluxe kit with extended-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (45 / 45 dB)	1000DK-SD45-SC
Deluxe kit with multimode OTDR module, dual multimode 850 nm / 1,300 nm (27 / 26 dB)	1000DK-MD26-SC
Deluxe kit with quad OTDR module, dual multimode 850 nm / 1,300 nm (27 / 26 dB) and dual single-mode 1,310 nm / 1,550 nm (36 / 34 dB)	1000DK-MDSD-SC

Order Numbers

Description	Order number
Mainframe	
The mainframe is equipped with 6.4 " full VGA color touch screen, 80 MB flash memory, two USB ports, one 10 / 100 Mb/s Ethernet RJ-45 port and CompactFlash card slot.	
Mainframe	1000-MAINF
Mainframe with integrated visual fault locator (VFL) and power meter	1000-MAINF-VPM
OV 1000 Modules	
All OTDR modules include SC UPC OTDR port adapter(s). Other adapters can be purchased separately.	
Short-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (36 / 34 dB)	1000-SD34-SC
Mid-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (39 / 37 dB)	1000-SD37-SC
Mid-range OTDR module, triple single-mode 1,310 nm / 1,550 nm / 1,625 nm (39 / 37 / 36 dB)	1000-ST37-SC
FTTx OTDR module, triple single-mode 1,310 nm / 1,490 nm / 1,550 nm (39 / 34 / 37 dB)	1000-ST137-SC
Long-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (42 / 41 dB)	1000-SD40-SC
Long-range OTDR module, triple single-mode 1,310 nm / 1,550 nm / 1,625 nm (42 / 41 / 41 dB)	1000-ST41-SC
Extended-range OTDR module, dual single-mode 1,310 nm / 1,550 nm (45 / 45 dB)	1000-SD45-SC
Multimode OTDR module, dual multimode 850 nm / 1,300 nm (27 / 26 dB)	1000-MD26-SC
Quad OTDR module, dual multimode 850 nm / 1,300 nm (27 / 26 dB) and dual single-mode 1,310 nm / 1,550 nm (36 / 34 dB)	1000-MDSD-SC
Accessories⁹⁾	
Universal interface OTDR port adapter, SC UPC (as already included in the kits and modules)	UI-SC
Universal interface OTDR port adapter, ST	UI-ST
Universal interface OTDR port adapter, FC UPC	UI-FC
Universal interface OTDR port adapter, E2000	UI-E2000
Power meter port adapter, SC UPC (as already included in the kits and modules)	OA-SC
Power meter port adapter, ST	OA-ST
Power meter port adapter, FC UPC	OA-FC
Power meter port adapter, E2000	OA-E2000
Power meter port adapter, LC	OA-LC
OTSBatch PC batch processing software	1000-OTSBATCH
Deluxe transport case	1000-DLXCASE
Power supply for 100 V to 240 V AC without power cord	1000-PWRSUPPLY
Spare Li-Ion Battery for OV-1000 OTDR	1000-BATT

⁹⁾ other adapters and accessories may be available upon request

Order Numbers

Description	Order number
Portable Test Fiber Boxes are used as launch and tail fiber with OTDR measuring. Other adapter types, lengths and fiber types are available upon request.	
Portable Test Fiber Box, SC to ST, SM SMF28e, Small Box, 1 x 500 m	PTF-500M-SP5861
Portable Test Fiber Box, SC to ST, SM SMF28e, Small Box, 1 x 1000 m	PTF-1KM-SP5861
Portable Test Fiber Box, SC UPC to SC UPC, SM SMF28e, Small Box, 1 x 1000 m	PTF-1KM-SP5858
Portable Test Fiber Box, SC UPC to SC UPC, SM SMF28e, Small Box, 1 x 2000 m	PTF-2KM-SP5858
Portable Test Fiber Box, SC UPC to SC UPC, SM SMF28e, Small Box, 1 x 5000 m	PTF-5KM-SP5858
Portable Test Fiber Box, FC UPC to FC UPC, SM SMF28e, Small Box, 1 x 1000 m	PTF-1KM-SP5454
Portable Test Fiber Box, FC UPC to FC UPC, SM SMF28e, Small Box, 1 x 2000 m	PTF-2KM-SP5454
Portable Test Fiber Box, FC UPC to FC UPC, SM SMF28e, Small Box, 1 x 5000 m	PTF-5KM-SP5454
Portable Test Fiber Box, SC UPC to E2000, SM SMF28e, Small Box, 1 x 1000 m	PTF-1KM-SP2058
Portable Test Fiber Box, SC UPC to E2000, SM SMF28e, Small Box, 1 x 2000 m	PTF-2KM-SP2058
Portable Test Fiber Box, SC UPC to E2000, SM SMF28e, Small Box, 1 x 5000 m	PTF-5KM-SP2058
Portable Test Fiber Box, SC to SC, MM 50 μ m, Small Box, 1 x 100 m	PTF-100M-5P3939
Portable Test Fiber Box, SC to SC, MM 50 μ m, Small Box, 1 x 500 m	PTF-500M-5P3939
Portable Test Fiber Box, SC to SC, MM 50 μ m, Small Box, 1 x 100 m	PTF-100M-5P5050
Portable Test Fiber Box, SC to SC, MM 50 μ m, Small Box, 1 x 500 m	PTF-500M-5P5050
Fiber Inspection Probe (FIP)	
Fiber inspection probe 200 x / 400 x (FIP) for connection to OV 1000, including one 1.25 mm and 2.5 mm universal tip, one SC-, FC, ST and LC-bulkhead tip and user manual (English version). The required software (English version) is already installed on OV 1000 mainframe.	1000-FIPKIT

Optical Test Set Kits - OTSK 400

The handheld Optical Test Set Kit (OTSK) family 400 offers combinations of two Optical Test Sets (OTS) 400. The Optical Test Sets combine transmitter (optical light source) and receiver (optical power meter) in one unit. These test kits are used for certification of fiber optic networks. If the optical light source (OS) and an optical power meter (OM) should be separate units the alternative Corning handheld Loss Test Kit (LTK) 400 and LTK 400R families offers the respective solution. The wide product spectrum of handheld test devices from Corning offers a large variety of options which allows the optimal solution for any application in the field. All OTS units of the OTSK kits are available separately as well.

Description

The testers of the OTSK 400 series offer fast and convenient loss measurement and can be used during installation, system qualification, troubleshooting and maintenance of fiber optic networks. Due to the combination of practical features, simple operation and the compact, rugged design, the units are perfect suited for all common testing environments. All units are equipped with an integrated visual fault locator (VFL) for fast trouble shooting.

The OTSK 400 series covers a variety of combinations of two OTS 400 Optical Test Sets. These optical test sets combine a transmitter (light source) and a receiver (power meter) in one unit. The combination of two OTS devices is ideal for bi-directional power trough measurement. Depending on the equipment of the testers, up to two wavelengths may be measured and stored at the push of one button.

The tester combinations of the OTSK 400 series include two optical test sets OTS 400 with one Lithium-Ion-battery each, two AC adapters with EU connector, a user manual, one USB cable for data transfer to a Windows® PC, OTSView software for display, analysis and print of the results with a Windows® PC as well as the respective test jumper kit. All components are packed in a solid hard-shell transport case. All Optical Test Sets of the OTSK 400 series may also be ordered separately without case and test jumper kit.

Features

- Light source versions with dual wavelength available
- All units with integrated VFL
- Power meter with 44 calibrated wavelengths available in + 10 dBm to – 70 dBm range
- Automatic wavelength switching by auto testing reduces testing time
- No warm-up time required
- Referencing (nulling) between two OTS over distance
- Stores up to 1,000 measurements which can be separated into individual cables, panels or jobs
- No additional field paperwork required
- USB cable for data transfer to a Windows® PC
- OTSView software for storage, analysis, viewing and printing of test results with a Windows® PC
- Generation and detection of 270 Hz, 1 kHz and 2 kHz tones for continuity tracing
- Selectable thresholds for pass / fail indication
- Minimum / maximum power measurement
- Rugged and ergonomic design with easy-to read backlit display of buttons and display
- Operation on AC power with AC adapter
- Mains-independent operation with exchangeable, rechargeable Lithium-Ion batteries
- Wide selection of tool-less field-interchangeable connector adapters for source and meter ports available
(standard delivery SC UPC connector adapters)

Common Technical Data of OTS 400

Operating temperature	- 10 °C to + 50 °C (14 °F to 122 °F)
Storage temperature	- 40 °C to + 70 °C (- 40 °F to 158 °F)
Humidity	0 % to 95 % non-condensing
Dimensions	19.0 cm x 10.0 cm x 6.2 cm (7.5 in x 4 in x 2.5 in)
Weight	0.48 kg (1.1 lb)
Recommended calibration interval	3 years

Technical Data¹⁰⁾ of the OTS 400 Integrated Light Source

Model	OTS-411D-V	OTS-412XD-V
Fiber type	Multimode	Single-mode
Central wavelength	850 nm ± 25 nm 1,300 nm + 50 nm / -10 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm
Spectral width ¹¹⁾	50 nm / 135 nm	= 5 nm
Output power	= - 20 dBm at 62.5 μm / 125 μm = - 20 dBm at 62.5 μm / 125 μm	= 1 dBm = 1 dBm
Power stability ¹²⁾	15 min.: ± 0.05 dB 8 hours: ± 0.1 dB	± 0.03 dB ± 0.1 dB
Automatic wavelength generation	Yes	Yes
Automatic testing mode	Yes	Yes
Tone generation	270 Hz, 1 kHz and 2 kHz	270 Hz, 1 kHz and 2 kHz
Battery life (typical in auto mode)	50 hours	50 hours



OTS 400 back view with SC connector adapters and VFL

¹⁰⁾ guaranteed, unless otherwise specified - all specifications valid at 23 °C ± 1 °C with FC/PC connector

¹¹⁾ RMS for FP lasers; and – 3 dB width for LEDs (typical)

¹²⁾ after 15 minutes warm-up period and using an APC connector on the power meter (except for multimode sources where PC connectors are used) - expressed as ± half the difference between the maximum and minimum values measured during the period stated

Technical Data¹³⁾ of the OTS 400 Integrated Power Meter

Model	OTS-411D-V OTS-412XD-V
Receiver type	Ge
Power range ¹⁴⁾	+ 10 dBm to - 70 dBm
Wavelength range	800 nm to 1,650 nm
Calibrated wavelengths	44
Power uncertainty ¹⁵⁾	± 5 % ± 0,1 nW
Resolution	± 0.01 dB (+ 10 dB to - 60 dB)
Automatic Offset Nulling ¹⁶⁾	Yes
Display units	dB / dBm / W
Tone detection	270 Hz, 1 and 2 kHz
Automatic wavelength recognition ¹⁷⁾	Yes
Automatic testing mode	Yes
Warm-up time ¹⁸⁾	None
Data storage	More than 1.000 values
Battery life (typical in auto mode)	72 hours

Technical Data of Integrated Visual Fault Locator (VFL)

Wavelength	650 nm
Output power	+ 3 dBm

¹³⁾ guaranteed, unless otherwise specified - all specifications valid at 23 °C ± 1 °C with FC/PC connector

¹⁴⁾ in CW mode, sensitivity defined as 6x RMS noise level

¹⁵⁾ for calibrated wavelengths

¹⁶⁾ for power > - 40 dBm

¹⁷⁾ at 850 nm, 1,300 nm, 1,310 nm, 1,490 nm, 1,550 nm & 1,625 nm; for power > - 50 dBm

¹⁸⁾ for a variation of = 0.06 dB at power levels = - 40 dBm

Order Numbers for Optical Test Set Kits OTSK 400

Description	Order number
The Optical Test Set Kit OTSK 400 includes two optical test sets with data storage, two AC adapters (EU connector), two Lithium-Ion batteries, two USB cables, OTS View software (English version), the respective test jumper kit (two SC test jumper cords and one SC adapter), one SC connector adapter per light source and one per power meter port, user manual (English version) as well as one hard-shell transport case.	
OTSK multimode 850 nm / 1300 nm with VFL, includes two OTS-411D-V	OTSK-411D-V-SC
OTSK single-mode 1310 nm / 1550 nm with VFL, includes two OTS-412XD-V	OTSK-412XD-V-SC

Order Numbers for Optical Test Set OTS 400

Description	Order number
The Optical Test Set OTS 400 includes one integrated light source as well as one integrated power meter with data storage, one AC adapter (EU connector), one Lithium-Ion battery, one USB cable, OTS View software (English version), one SC connector adapter on light source and one on power meter port as well as user manual (English version).	
OTS-411D-V multimode 850 nm / 1300 nm, Ge detector and VFL	OTS-411D-V- SC
OTS-412XD-V single-mode 1310 nm / 1550 nm, Ge detector and VFL	OTS-412XD-V- SC

Order Numbers for OTS 400 and OTSK 400 Accessories

Description	Order number
Universal interface adapter for light source, SC (as already included in OTSK and OTS)	UI-SC
Universal interface adapter for light source, ST	UI-ST
Universal interface adapter for light source, FC	UI-FC
Universal interface adapter for light source, E2000	UI-E2000
Power meter adapter, SC (as already included in OTSK and OTS)	OA-SC
Power meter adapter, ST	OA-ST
Power meter adapter, FC	OA-FC
Power meter adapter, E2000	OA-E2000
Power meter adapter, LC	OA-LC
Test-Jumper-Kit single-mode SMF 28e, SC UPC (two test jumper cords 2 m and one adapter, as already included in single-mode OTSK)	TJK-SMSCUPC
Test-Jumper-Kit multimode SX+, SC (two test jumper cords 2 m and one adapter, as already included in multimode OTSK)	TJK-MMSC
Test-Jumper-Kit single-mode SMF 28e, FC UPC (two test jumper cords 2 m and one adapter)	TJK-SMFCUPC
Test-Jumper-Kit multimode SX+, ST (two test jumper cords 2 m and one adapter)	TJK-MMST
Mode stripper for 50 µm and 62.5 µm multimode fiber cable with 2.9 mm in diameter	OTS-COMBOMAN
Hard-shell transport case (as already included in OTSK)	OTSK-HARDCASE
AC adapter 100 V - 240 V AC (EU connector) (as already included in OTSK and OTS)	OTSK-PWRSUPPLY
Rechargeable Li-Ion battery (3.7 V, min. 1,800 mAh) for OTS, OS-R & OM-R unit	OTS-CHARGBATT
Wrist strap	OTSK-WSTSTRAP

Loss Test Kits - LTK 400R and LTK 400

The handheld Loss Test Set Kit (LTK) 400R and LTK 400 are combinations of a separate optical light source (OS) unit and an optical power meter (OM) unit for certification of fiber optic networks. If the optical light source and power meter should be combined in one single device the alternative Corning handheld Optical Test Set Kit OTSK 400 family offers the respective solution. The wide product spectrum of handheld test devices from Corning offers a large variety of options which allows the optimal solution for any application in the field. All OS and OM units of the LTK kits are available separately as well.

LTK 400R

Description

The LTK 400R series offer fast and convenient loss measurement and can be used during installation, system qualification, troubleshooting and maintenance of fiber optic networks. Due to the combination of practical features, simple operation and rugged design, the units are perfectly suited for all common testing environments.

The LTK 400R series covers a variety of combinations of optical power meters OM 400R and optical light sources OS 400R. Depending on the equipment of the kits, up to two wavelengths may be measured and stored at the push of one button. The LTK 400R series offers a mains-independent operation with rechargeable Lithium-Ion batteries and an optical power meter with data storage. All units are equipped with an integrated visual fault locator (VFL) for fast trouble shooting.

Each combination of the LTK 400R series includes an optical power meter and an optical source with one Lithium-Ion battery each, two AC adapters with EU connector, a user manual as well as the respective test jumper kit(s). All components are packed in a solid hard-shell transport case. The power meters in the LTK 400R series offer storage capability. Therefore a USB cable for data transfer to a PC and the data transfer software for storage, display and print of the results with a Windows® PC are included as accessories. The devices of the LTK 400R series may also be ordered separately without case and test jumper kit.

Features

- Light source versions with dual and quad wavelength available
- All units with integrated VFL
- Power meter with 44 calibrated wavelengths available in + 10 dBm to – 70 dBm range
- Automatic wavelength switching by auto testing reduces testing time
- No warm-up time required
- Referencing (nulling) between two units over distance
- Stores up to 1,000 measurements which can be separated into individual cables, panels or jobs
- No additional field paperwork required
- USB cable for data transfer to a Windows® PC
- Data transfer software for storage, viewing and printing of test results with a Windows® PC
- Generation and detection of 270 Hz, 1 kHz and 2 kHz tones for continuity tracing
- Selectable thresholds for pass / fail indication
- Minimum / maximum power measurement
- Rugged and ergonomic design with easy-to read backlit display of buttons and display
- Operation on AC power with AC adapter
- Mains-independent operation with exchangeable, rechargeable Lithium-Ion batteries
- Wide selection of field-interchangeable connector adapters for source and meter ports available (standard delivery SC UPC connector adapters)

LTK 400

Description

The LTK 400 series offer fast and convenient loss measurement and can be used during installation, system qualification, troubleshooting and maintenance of fiber optic networks.

Due to the combination of features, simple operation and rugged design, the units are suited for all common testing environments.

The LTK 400 series covers a variety of combinations of optical power meter OM 400 and optical sources OS 400. The LTK 400 series enables mains-independent operation with commercially available batteries.

Each combination of the LTK 400 series includes an optical power meter and an optical source with three AA batteries each, two AC adapters with EU connector, a user manual as well as the respective test jumper kit(s). All components are packed in a solid hard-shell transport case. The devices of the LTK 400 series may also be ordered separately without case and test jumper kit.

Features

- Wide variety of light source wavelength configurations available
- Light source versions with dual and quad wavelength available
- Power meter with 10 calibrated wavelengths available in + 10 dBm to – 60 dBm range
- No warm-up time required
- Referencing (nulling) between two units over distance
- Generation and detection of 270 Hz, 1 kHz and 2 kHz tones for continuity tracing
- Rugged and ergonomic design
- Operation on AC power with AC adapter
- Mains-independent operation with three AA batteries and a lifetime of up to 120 hours (optical source) or 300 hours (optical power meter)
- Wide selection of tool-less field-interchangeable connector adapters for source and meter ports available (standard delivery SC UPC connector adapters)

Common Technical Data of Optical Light Sources and Optical Power Meters

Operating temperature	- 10 °C to + 50 °C (14 °F to 122 °F)
Storage temperature	- 40 °C to + 70 °C (- 40 °F to 158 °F)
Relative humidity	0 % to 95 % non condensing
Weight	0.48 kg (1.1 lb) (OM 400R/ OS 400R) and 0.4 kg (0.88 lb) (OM 400 / OS 400)
Dimensions	19.0 cm x 10.0 cm x 6.2 cm (7.5 in x 4 in x 2.5 in) (OM 400R / OS 400R) and 18.5 cm x 10.0 cm x 5.5 cm (7.3 in x 4 in x 2.2 in) (OM 400 / OS 400)
Recommended calibration interval	3 years

Technical Data¹⁹⁾ of Optical Power Meters OM 400R and OM 400

Model	OM-410	OM-410R
Power meter port	Ge	Ge
Power range ²⁰⁾	+ 10 to - 60 dBm	+ 10 to - 70 dBm
Wavelength range	830 nm to 1,625 nm	800 nm to 1,650 nm
Calibrated wavelengths	10	44
Power uncertainty ²¹⁾	± 5 % ± 1 nW	± 5 % ± 0,1 nW
Resolution	0.01 dB (+ 10 dB to - 50 dB)	± 0.01 dB (+ 10 dB to - 60 dB)
Automatic Offset Nulling ²²⁾	Yes	Yes
Display	dB / dBm / W	dB / dBm / W
Tone detection	270 Hz, 1 and 2 kHz	270 Hz, 1 and 2 kHz
Automatic wavelength recognition ²³⁾	Yes	Yes
Automatic testing mode	Yes	Yes
Warm-up time ²⁴⁾	None	None
Data storage	No storage	> 1000 values
Battery life (typical)	300 h (3 AA batteries)	72 h (rechargeable Li-Ion battery)



Optical Light Source OS 400

¹⁹⁾ guaranteed, unless otherwise specified - all specifications valid at 1,550 nm, 23 °C ± 1 °C with FC/PC connector

²⁰⁾ in CW mode, sensitivity defined as 6x RMS noise level

²¹⁾ for calibrated wavelengths; traceable to national standards

²²⁾ for power > - 40 dBm

²³⁾ at 850 nm, 1,300 nm, 1,310 nm, 1,490 nm, 1,550 nm & 1,625 nm; for power > - 50 dBm (OM-410)

at 850 nm, 1,300 nm, 1,310 nm, 1,490 nm, 1,550 nm & 1,650 nm; for power > - 50 dBm (OM-410R)

²⁴⁾ for > ± 0.05 dB and temperature of > 18 °C (OM-410), for a variation of = 0.06 dB at power levels = - 40 dBm (OM-410R)

Technical Data²⁵⁾ of Optical Light Sources OS 400R

Model	OS-4RMDSD-V OS-403RD-V	OS-4RMDSD-V OS-404RXD-V
Fiber type	Multimode	Single-mode
Central wavelength	850 nm ± 25 nm 1,300 nm + 50 nm / - 10 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm
Spectral width ²⁶⁾	50 nm / 135 nm	5 nm
Output power	- 20 dBm / - 20 dBm at 62.5 μm / 125 μm	1 dBm / 1 dBm
Power stability ²⁷⁾ 15 min. 8 hours	± 0.05 dB ± 0.1 dB	± 0.03 dB ± 0.1 dB
Automatic wavelength generation	Yes	Yes
Automatic testing mode	Yes	Yes
Tone generation	270 Hz, 1 and 2 kHz	270 Hz, 1 and 2 kHz
Battery life (typical in auto mode)	50 h (rechargeable battery)	50 h (rechargeable battery)

Technical Data²⁵⁾ of Optical Light Sources OS 400R (continued) and OS 400

Model	OS-4MDS OS-403D	OS-4MDS OS-404XD
Fiber type	Multimode	Single-mode
Central wavelength	850 nm ± 25 nm 1,300 nm + 50 nm / -10 nm	1,310 nm ± 20 nm 1,550 nm ± 20 nm
Spectral width ²⁶⁾	50 nm / 135 nm	5 nm
Output power	- 20 dBm / - 20 dBm at 62.5 μm / 125 μm	1 dBm / 1 dBm
Power stability ²⁷⁾ 8 hours	± 0.1 dB	± 0.1 dB
Automatic wavelength generation	Yes	Yes
Automatic testing mode	Yes	Yes
Tone generation	270 Hz, 1 and 2 kHz	270 Hz, 1 and 2 kHz
Battery life (typical in auto mode)	120 h (three AA batteries)	120 h (three AA batteries)

Technical Data of OS 400R Integrated Visual Fault Locator (VFL)

Wavelength	650 nm
Output power	+ 3 dBm

²⁵⁾ guaranteed, unless otherwise specified - all specifications valid at 23 °C ± 1 °C with FC/PC connector

²⁶⁾ RMS for FP lasers; and – 3 dB width for LEDs (typical)

²⁷⁾ after 15 minutes warm-up period and using an APC connector on the power meter (except for multimode sources where PC connectors are used) - expressed as ± half the difference between the maximum and minimum values measured during the period stated

Order Numbers of Loss Test Kits LTK 400R and LTK 400

Description	Order number
The Loss Test Kit LTK 400R includes optical light source, optical power meter with data storage, two AC adapters (EU connector), two Lithium-Ion batteries, one USB cable, data transfer software (English version), the respective test jumper kit(s) (two SC test jumper cords and one SC adapter), one SC connector adapter each on light source and power meter port, user manual (English version) as well as one hard-shell transport case.	
LTK multimode 850 nm / 1,300 nm with VFL, incl. OS-403RD-V and OM-410R	LTK-400RMD-V-SC
LTK single-mode 1,310 nm / 1,550 nm with VFL, incl. OS-404RXD-V and OM-410R	LTK-400RSD-V-SC
LTK single- and multimode 850 nm / 1,300 nm / 1,310 nm / 1,550 nm with VFL, incl. OS-4RMDSD-V and OM-410R	LTK-4RMDSD-V-SC
The Loss Test Kit LTK 400 includes optical light source, optical power meter, two AC adapters (EU connector), three AA batteries each, the respective test jumper kit(s) (two SC test jumper cords and one SC adapter), one SC connector adapter each on light source and power meter port, user manual (English version) as well as one hard-shell transport case.	
LTK multimode 850 nm / 1,300 nm, incl. OS-403D and OM-410	LTK-400MD-SC
LTK single-mode 1,310 nm / 1,550 nm, incl. OS-404XD and OM-410	LTK-400SD-SC
LTK single- and multimode 850 nm / 1,300 nm / 1,310 nm / 1,550 nm, incl. OS-4MDSD and OM-410	LTK-4MDSD-SC

Order Numbers for Accessories of LTK 400 / 400R, OS 400 / 400R and OM 400 / 400R

Description	Order number
Universal interface adapter for light source, SC (as already included in LTK and OS)	UI-SC
Universal interface adapter for light source, ST	UI-ST
Universal interface adapter for light source, FC	UI-FC
Universal interface adapter for light source, E2000	UI-E2000
Power meter adapter, SC (as already included in LTK and OM)	OA-SC
Power meter adapter, ST	OA-ST
Power meter adapter, FC	OA-FC
Power meter adapter, E2000	OA-E2000
Power meter adapter, LC	OA-LC
Test-Jumper-Kit single-mode SMF 28e, SC UPC (two test jumper cords 2 m and one adapter, as already included in single-mode LTK)	TJK-SMSCUPC
Test-Jumper-Kit multimode SX+, SC (two test jumper cords 2 m and one adapter, as already included in multimode LTK)	TJK-MMSC
Test-Jumper-Kit single-mode SMF 28e, FC UPC (two test jumper cords 2 m and one adapter)	TJK-SMFCUPC
Test-Jumper-Kit multimode SX+, ST (two test jumper cords 2 m and one adapter)	TJK-MMST
Mode stripper for 50 µm and 62.5 µm multimode fiber cable with 2.9 mm in diameter	OTS-COMBOMAN
Hard-shell transport case (as already included in LTK)	OTSK-HARDCASE
AC adapter 100 V - 240 V AC (EU connector) (as already included in LTK, OS and OM)	OTSK-PWRSUPPLY
Rechargeable Li-Ion battery (3.7 V, min. 1,800 mAh) for OTS, OS-R & OM-R unit	OTS-CHARGBATT
3x AA batteries for OS & OM unit	LTK-BATTAA
Wrist strap	OTSK-WSTSTRAP

Order Numbers for the Optical Power Meters OM 400R and OM 400

Description	Order number
The OM 400R Optical Power Meter with data storage includes one AC adapter (EU connector), one Lithium-Ion battery, one SC connector adapter on power meter port, one USB cable, data transfer software (English version) and user manual (English version).	
Power meter OM-410R, Ge detector with range + 10 dBm to - 70 dBm	OM-410R-SC
The OM 400 Optical Power Meter includes one AC adapter (EU connector), one SC connector adapter on power meter port, three AA batteries and user manual (English version).	
Power meter OM-410, Ge detector with range + 10 dBm to - 60 dBm	OM-410-SC

Order Numbers for the Optical Light Sources OS 400R and OS 400

Description	Order number
The OS 400R Optical Light Source includes one AC adapter (EU connector), one Lithium-Ion battery, one SC connector adapter on light source port(s) and user manual (English version).	
Optical source OS-403RD-V 850 nm / 1,300 nm (multimode), with VFL	OS-403RD-V-SC
Optical source OS-404RXD-V 1,310 nm / 1,550 nm (single-mode), with VFL	OS-404RXD-V-SC
Optical source OS-4RMDSD-V 850 nm / 1,300 nm / 1,310 nm / 1,550 nm (single- and multimode), with VFL	OS-4RMDSD-V-SC
The OS 400 Optical Light Source includes one AC adapter (EU connector), one SC connector adapter on light source port(s), three AA batteries and user manual (English version).	
Optical source OS-403D with 850 nm / 1,300 nm LED (multimode)	OS-403D-SC
Optical source OS-404XD with 1,310 nm / 1,550 nm Laser (single-mode)	OS-404XD-SC
Optical source OS-4MDSD with 850 nm / 1,300 nm LED and 1,310 nm / 1,550 nm Laser (single- and multimode)	OS-4MDSD-SC

OV1000, OTSK 400, OTS 400, LTK 400R & LTK 400

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