NOYES®
OFL280-10x FlexTester OTDR

Hand-held Multifunction OTDR and Loss Test Set

Features

- Patented in- or out-of-service OTDR testing from a single port
- **ServiceSafe™** live PON detection and OTDR test without service disruption
- **Wave ID** reduces insertion loss test time and eliminates setup errors
- 34/32 dB dynamic range at 1310/1550 nm
- Best-in-class 0.8/3.5 m event/attenuation dead zones
- Rugged, hand-held, lightweight (<1 kg)
- High-contrast, backlit display: Easily viewed, even in direct sunlight
- Industry-leading battery life: >12 hours continuous operation
- Instant On: Ready to test in <5 seconds

Applications

- Cost-effective point-to-point and FTTH PON testing
- Troubleshoot in-service FTTH networks, including live PON power measurements plus PON OTDR testing at 1625 nm.
- Complete multi-wavelength insertion loss tests faster and eliminate setup errors using Wave ID source and power meter.
- Generate fiber-identifying tones and stable CW signals using integrated optical source.
- Trace fibers or locate faults using the Visual Fault Locator (VFL).

The AFL/NOYES OFL280-10x FlexTester family offers an unmatched combination of optical fiber test functions, ease-of-use, portability, and value. All OFL280 FlexTester models include an integrated single-mode 1310/1550 nm OTDR with PON-optimized and standard test modes, optical power meter, 1310/1550 nm laser source, and visual fault locator.

The OFL280 FlexTester family offers four models to best suit your application needs:

- **OFL280-103:** Verify both in-service and out-of-service FTTx networks from a single port. Includes 1310/1550/1625 nm live PON OTDR with integrated PON Power Meter.
- **OFL280-102:** Most complete out-of-service FTTx PON testing at all PON wavelengths (1310/1490/1550 nm).
- **OFL280-101:** 1310/1550/1625 nm out-of-service testing.
- **OFL280-100:** Cost-effective 1310/1550 nm OTDR for out-of-service installation testing or troubleshooting both FTTx PON and point-to-point fiber optic networks.

Over 1000 OTDR test results (Telcordia SR-4731 .SOR file format) may be saved in the OFL280's internal memory. Stored OTDR and OPM results may be transferred to PC via wireless Bluetooth® or USB cable. Windows® compatible TRM 2.0® Basic Test Results Manager software is included for OTDR and OPM results viewing, analysis, and professional report generation.

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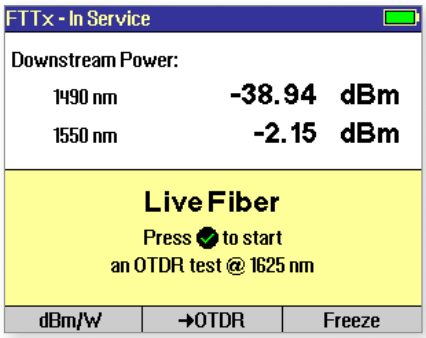

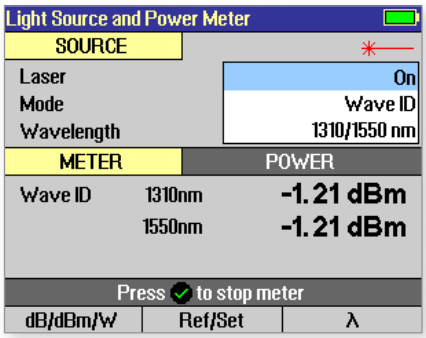

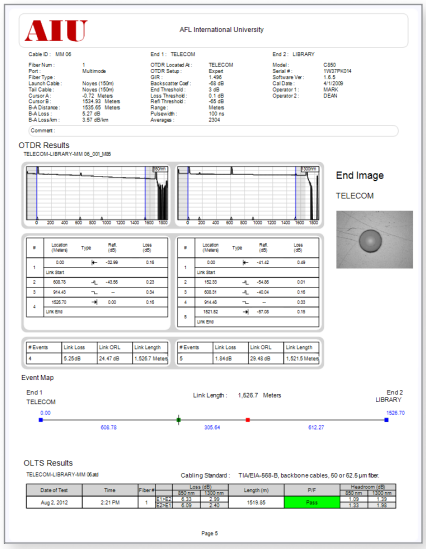

ServiceSafe™ Testing on Live PONs

In FTTx PONs, it is possible for one user to lose service while other subscribers served by the same OLT remain in service. Troubleshooting a faulty optical connection from the out-of-service subscriber's location using a 1310 or 1550 nm OTDR would disrupt service to remaining users. AFL's ServiceSafe feature alerts the OTDR user to the presence of live traffic and prevents the initiation of service-disrupting 1310/1550 nm OTDR tests. The OFL280-103 additionally measures downstream power levels at 1490 and/or 1550 nm, and allows the user to initiate an OTDR test using the non-disruptive 1625 nm OTDR wavelength. To eliminate unnecessary connector wear, 1625 nm live PON OTDR testing and PON power measurements are performed through the same optical port used for 1310/1550 OTDR testing (US patent 8,411,259).

Fast, error-free Loss Tests using Wave ID

OFL280s integrate an Optical Laser Source (OLS) and Optical Power Meter (OPM) supporting AFL's unique Wave ID capability. With Wave ID, the OPM automatically synchronizes to a single or multi-wavelength Wave ID optical signal sent by another OFL280, FLX380, or NOYES hand-held OLS. The OPM automatically determines which wavelengths are sent and measures power and loss at each wavelength. There is no need for the OPM user to coordinate wavelength settings with the OLS user at the other end, saving significant test time and eliminating setup errors.

The integrated OLS and OPM also generate and detect fiber-identifying tones to enable positive fiber identification before disconnecting fibers during maintenance.

Advanced Analysis for Greater Ease of Use

With the addition of splitter event detection, launch quality check and improved event analysis, OFL280s offer even greater ease-of-use. In addition to the OTDR trace and event table, OFL280s provide a Link Summary showing end-to-end link length, loss and ORL.

Create Professional Test Reports using TRM® 2.0

Stored OTDR and/or OPM results may be uploaded to a PC via USB or Bluetooth®. Uploaded results may be viewed and analyzed using TRM 2.0 Basic Test Results Manager software included with each OFL280 FlexTester. With TRM, a report generation wizard enables users to easily generate professional, custom acceptance test reports conforming to industry guidelines.

TRM also supports OTDR trace analysis, batch editing, event add, modify, or delete, trace compare, and advanced event analysis capabilities. Upgrade to TRM 2.0 Advanced to add bi-directional trace averaging and macrobend detection.

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OFL280 Features and Applications by Model

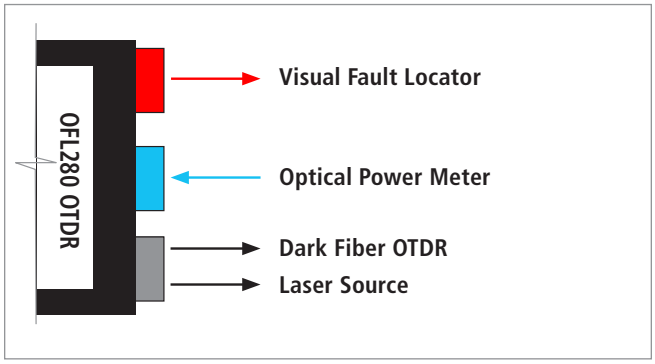
	OFL280 MODELS			
FEATURES	**-100**	**-101**	**-102**	**-103**
Compatible with all NOYES optical power meters and laser sources, including tone and Wave ID features	◆	◆	◆	◆
Compatible with NOYES optical fiber identifiers (OFI)	◆	◆	◆	◆
Integrated high-power optical power meter	◆	◆	◆	◆
Integrated visual fault locator (red laser)	◆	◆	◆	◆
1310 nm – OTDR, PON OTDR, laser source (CW, wave ID, tone)	◆	◆	◆	◆
1550 nm – OTDR, PON OTDR, laser source (CW, wave ID, tone)	◆	◆	◆	◆
1490 nm – OTDR, PON OTDR, laser source (CW, wave ID, tone)			◆	
1625 nm – OTDR, PON OTDR		◆		◆
1625 nm – FTTx live fiber OTDR with filtered detector for in-service PON testing				◆
1490/1550 nm – FTTx PON Power Meter (Detects and measures downstream PON power levels)				◆

	OFL280 MODELS			
FIBER TESTING APPLICATIONS	**-100**	**-101**	**-102**	**-103**
Point-to-point cable construction and troubleshooting. Verify end-to-end length, loss, and ORL. Verify splice and connector loss and reflectance. Locate sources of excess loss and/or reflections, including macro-bends.	◆	◆	◆	◆
FTTx PON construction. Test to or through splitters. Verify end-to-end length, loss and ORL. Verify splitter, splice and connector loss and reflectance. Locate sources of excess loss and/or reflections, including macro-bends.	◆	◆	◆ [a]	◆
FTTx customer fiber troubleshooting - dark fibers (hard faults). Locate cable cuts, open splices, and bad connections.	◆	◆	◆	◆
FTTx in-service (Live PON) troubleshooting				◆
FTTx service turn-up (commissioning). Verify PON power levels at the ONT (subscriber) location. Locate faults in the distribution or drop cables, or between splitters in PONs built using distributed splitter architecture, all without disrupting service to active PON subscribers.				◆

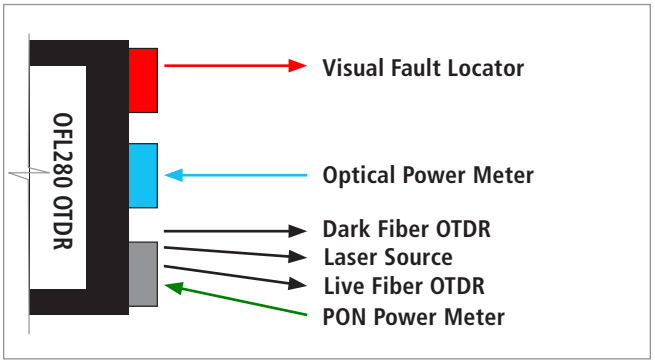
Note:

a. Adds ability to perform OTDR and loss tests at 1490 nm. However, testing at 1310 and 1550 nm is recommended and generally is all that is needed to test or fault-locate inactive (dark) FTTx PONs during construction.

OFL280-100, -101, and -102 models



OFL280-103 model



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OFL280 FlexTester PRO Test kit

OFL280 FlexTester Complete Kit

OFL280 FlexTester Soft Case Kit

OFL280 FlexTester Kit Configurations

OFL280 FlexTesters are available in the following kit configurations:

- OFL280 FlexTester Complete Kit
- OFL280 FlexTester PRO Kit
- OFL280 FlexTester Soft Carry Case Kit

All FlexTester kits include rechargeable, replaceable Li-Ion battery pack, AC charger with country-specific power cord, tool-free interchangeable connector adapters with dust caps, TRM® 2.0 Basic Test Results Manager software, USB cable, and a Quick Reference Guide in any one of the supported languages.

OFL280 FlexTester PRO Test and Inspection Kit

FlexTester PRO kits combine a user-selected OFL280 with a NOYES FOCIS PRO Fiber Optic Connector Inspection System, selected cleaning supplies, and a rugged, waterproof hard carry case with room for additional fiber rings and cleaning supplies.

FOCIS PRO includes the DFS1 Digital FiberScope, hand-held DFD1 Touchscreen Tablet, plus UPC or APC inspection adapter tips. It enables inspection of both ferrule ends of male connectors and end-face of connectors mounted inside bulkhead adapters. FOCIS PRO includes image capture, save, AFL's unique image-pairing capability, plus IEC and user-adjustable pass/fail analysis. With FOCIS PRO's dedicated Touchscreen Tablet, the OFL280 is always available for OTDR and optical loss testing.

OFL280 FlexTester Complete Installation & Maintenance Kit

Select a FlexTester Complete kit for an even more complete network installation and maintenance test solution. FlexTester Complete kits combine an OFI-200D Optical Fiber Identifier with a user-selected OFL280, 150 m single-mode fiber ring (launch cable), FOCIS PRO with UPC or APC adapter tips, two One-Click Cleaners, standard FlexTester accessories, and rugged, waterproof, hard carry case.

OFL280 FlexTester Soft Carry Case Kit

OFL280 FlexTester Soft Carry Case kits include the user-selected OFL280, standard accessories plus a One-Click Cleaner, packaged in a convenient soft carry case.

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Specifications [a]

OTDR	
Emitter Type	Laser
Safety Class	Class I FDA 21 CFR 1040.10 and 1040.11, IEC 60825-1: 2007-03
Fiber Type	Single-mode
Available Wavelengths	1310/1490/1550/1625 nm
Wavelength Tolerance	±20/±20/±20/±10 nm
Dynamic Range (SNR=1)	34/32/32/30 dB
Event Dead Zone [b]	0.8 m
Attenuation Dead Zone [c]	3.5 m
Pulse Widths	5, 10, 30, 100, 300 ns, 1, 3, 10 µs
Range Settings	250 m to 240 km
Data Points	Up to 30,000
Data Point Spacing	5.0 cm (range <1.5 km), Range/30,000 (range >1.5 km)
Group Index of Refraction (GIR)	1.4000 to 1.7000
Distance Uncertainty (m)	±(1 + 0.005 % x distance + data point spacing)
Linearity	±0.05 dB/dB
Trace File Format	.SOR per Telcordia SR-4731 Issue 2
Trace File Storage Medium	4GB internal memory (>1000 traces)
Data Transfer to PC	USB cable
PON OTDR Modes	Test to splitter or through splitter
Standard OTDR Modes	Full Auto, Expert, Real Time
LASER SOURCE	
Emitter Type	Class I FDA 21 CFR 1040.10 and 1040.11, IEC 60825-1: 2007-03
Fiber Type	Single-mode
Available Wavelengths	1310, 1490, 1550 nm
Wavelength Tolerance	±20 nm
Spectral Width (FWHM)	5 nm (maximum)
Internal Modulation	270 Hz, 330 Hz, 1 kHz, 2 kHz, CW
Wavelength ID (one, two, or three wavelengths)	Compatible with NOYES Optical Power Meters and Light Sources
Output Power Stability	0.25 dB
Output Power	-1 dBm (1310, 1550 nm) ±1.5 dB; +3 dBm (1490 nm) ±1.5 dB

PON POWER METER FOR SINGLE-MODE ONLY	
Calibrated Wavelengths	1490, 1550 nm
Detector Type	Filtered InGaAs
Isolation	> 40 dB
Measurement Range	+23 to – 50 dBm
Accuracy [d]	±0.5 dB
Resolution	0.01 dB
Measurement Units	dBm or Watts (nW, µW, mW)
OPTICAL POWER METER	
Calibrated Wavelengths	1310, 1490, 1550, 1625, 1650 nm
Detector Type	InGaAs
Measurement Range	+23 to -50 dBm
Tone Detect Range	+3 to -35 dBm
Wavelength ID Range	+3 to -35 dBm
Accuracy [e]	±0.25 dB
Resolution	0.01 dB
Measurement Units	dB, dBm or Watts (nW, µW, mW)
VISUAL FAULT LOCATOR	
Emitter Type	Visible red laser
Safety Class	Class II FDA 21 CFR 1040.10 and 1040.11, IEC 60825-1: 2007-03
Wavelength	650 ±20 nm
Output Power (nominal)	0.8 mW into single-mode fiber
Modes	CW, 2 Hz flashing
GENERAL	
Size (in boot)	20.1 x 13.0 x 5.3. cm (7.9 x 5.1 x 2.1 in)
Weight	0.8 kg (1.8 lb)
Operational Temperature	-10 °C to +50 °C, 0 to 95 % RH (non-condensing)
Storage Temperature	-20 °C to +60 °C, 0 to 95 % RH (non-condensing)
Power	Rechargeable Li-Ion or AC adapter
Battery Life	12 hours, backlight ON, continuous operation
Display	LCD, 320 x 240, 3.5 inch (89 mm), color, high-contrast transflective with backlight and AR coating

Notes:

a. All specifications valid at 25 °C unless otherwise specified.

b. Typical distance between the two points 1.5 dB down each side of a reflective spike caused by a -45 dB event using 5 ns pulse width.

c. Typical distance from the location of a -45 dB reflective event to the point where the trace falls and stays within 0.5 dB of backscatter, using a 5 ns pulse width.

d. At calibration wavelengths and power levels of approximately -5 dBm for 1550 nm and -10 dBm for 1490 nm.

e. At 1310/1550 nm wavelengths with CW power level of approximately -10 dBm.

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Ordering Information

When placing an order, select options as follows: Optical Configuration (NNN), OTDR Port Ferrule type (F) and Language of the provided Quick Reference Guide (LLL). Example: OFL280-102U-ENG indicates a three-wavelength (1310/1490/1550 nm) OFL280 with UPC OTDR port ferrule and Quick Reference Guide printed in English.

OFL280 — NNN F — LLL — KIT

Optical Configuration (NNN)

100 = 1310/1550 nm
101 = 1310/1550/1625 nm
102 = 1310/1490/1550 nm
103 = 1310/1550/1625 nm, Live Fiber filter, PON meter

OTDR Port Ferrule (F)

A = APC
U = UPC

When ordering, select power cord option

FlexTester Kit (KIT)

(Absent) = Soft Carry Case
PRO = FlexTester PRO Kit
CMP = FlexTester Complete Kit

Quick Reference Guide Language (LLL)*

ENG = English
CHS = Chinese Simplified
CHT = Chinese Traditional
DEU = German
FRA = French
ITA = Italian
JPN = Japanese
KOR = Korean
POL = Polish
POR = Portuguese
SPA = Spanish
TUR = Turkish

* All OFL280 models come preloaded with the User Interface in English and other languages.

Available Accessories

DESCRIPTION	AFL NO.
FC adapter, OTDR/OLS port	2900-50-0002MR
SC adapter, OTDR/OLS port	2900-50-0003MR
ST adapter, OTDR/OLS port	2900-50-0004MR
LC adapter, OTDR/OLS port	2900-50-0006MR
FC adapter, OPM port	2900-52-0001MR
SC adapter, OPM port	2900-52-0002MR
ST adapter, OPM port	2900-52-0003MR
LC adapter, OPM port	2900-52-0004MR
2.5 mm adapter, OPM port	2900-52-0005MR
1.25 mm adapter, OPM port	2900-52-0006MR
2.5 mm adapter, VFL port	2900-53-0001MR
1.25 mm adapter, VFL port	2900-53-0002MR
Dust cap for UCI outputs	8800-00-0072PR
Fiber Ring, SM, 150 m	FR1-SM-150-y1-y2 [a]
Soft carry case	1400-01-0045
Hard carry case	1400-01-0098PZ
Li-ion battery charger, 90-260 VAC	4050-30-005MR
Vehicle charger/supply, 15V, 5A	4050-00-0123PR
TRM 2.0 Advanced upgrade	TRM-00-0920PR

a. Specify connector types (y1,y2); 500 and 1000 m lengths also available.

Calibration Plans

AFL recommends annual calibrations on NOYES Test and Inspection products. Prepaid Cal plans offer two annual calibrations at a discounted price, a convenient calibration expiration email service, express calibration services and access to the NOYES product knowledge base. Cal Plus plans offer the same services as the Cal plans with the addition of a two year extended warranty (three years total coverage).

OFL280 OTDR	2 YR CAL PLAN	2 YR CAL PLUS PLAN
	AFL NO.	AFL NO.
OFL 280-100	CAL2-00-OFL2-100	CAL2-01-OFL2-100
OFL 280-101	CAL2-00-OFL2-101	CAL2-01-OFL2-101
OFL 280-102	CAL2-00-OFL2-102	CAL2-01-OFL2-102
OFL 280-103	CAL2-00-OFL2-103	CAL2-01-OFL2-103

NOYES International Sales and Service Contact Information

Available at www.AFLglobal.com/NOYES/Contacts