FlexScan® OTDR with SmartAuto®, FleXpress™ and LinkMap®

Features

- Fast, accurate OTDR network characterization or fault location
- FleXpress mode completes OTDR test in <5 seconds
- Integrated MPO Switch control via USB
- Test up to 1:64 PON with 20 m PON dead zone
- Easy to understand LinkMap results with pass/fail indications
- Single, dual or triple wavelength single-mode
- Integrated Source, Power Meter, VFL (visual fault locator)
- Bluetooth and WiFi communications
- Compatible with FOCIS Flex connector inspection system
- Rugged, lightweight, hand-held for field use
- Large, bright touchscreen display easily viewed indoors and out
- Internal / external data storage

Applications

- PON or point-to-point network verification or troubleshooting
- OTDR testing plus Insertion Loss and Power measurements
- Locate faults exceeding industry or user pass/fail thresholds
- Visually pinpoint location of macro-bends or breaks

Performance-packed: With SmartAuto multi-pulse acquisition, up to 37 dB dynamic range and best-in-class 20 m PON dead zone, FlexScan PON OTDRs test FTTH PONs up to 1:64 while still detecting and measuring events only meters apart.

Fast! FleXpress mode completes dual-wavelength tests in <5 seconds – 10 x faster than conventional OTDRs! For multi-fiber testing, FleXpress mode automatically controls 12-fiber MPO Switch to further reduce multi-fiber test time.

User-friendly: FlexScan OTDRs enable both novice and expert technicians to quickly, reliably and accurately detect, locate, identify and measure optical network components and faults. After applying industry-standard or user-set pass/fail criteria, the network is displayed using FlexScan's intuitive, icon-based LinkMap view. Acquired results may be stored internally or externally. FlexScan automates test setup, shortens test time and simplifies results interpretation, improving efficiency and reducing the cost of test.

Pocket-sized: At 3.5 x 6 x 1.75 in. (86 x 160 x 43 mm) and less than one pound (0.4 kg), FlexScan OTDRs truly fit in your pocket, yet still provide a large, bright indoor/outdoor touchscreen display and all-day operation.

And **Affordable:** With optional connector inspection, integrated source, power meter and VFL, FlexScan offers an all-in one solution, ensuring technicians have everything they need to locate and resolve optical network issues. Uploaded results may be viewed and reports may be generated using the included Windows-compatible TRM® 2.0 Test Results Manager software.

Available in Convenient, Cost-saving Installation and Troubleshooting Kits - Bundle FlexScan with your choice of launch cable, FOCIS Flex connector inspection probe and tips, and/or AFL's universal optical fiber identifier (OFI).

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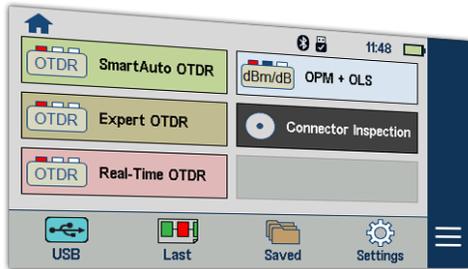
SmartAuto FleXpress Dramatically Cuts Test Time

In SmartAuto mode, a FlexScan OTDR automatically determines the characteristics of the network under test and rapidly completes multiple scans using a variety of network-optimized acquisition settings. It precisely locates and identifies network events, as well as measures loss and reflectance for each detected event. For even greater ease-of-use, FlexScan checks for live fiber and verifies the OTDR launch connection before initiating a test. Dual and triple-wavelength FlexScan OTDRs also provide automatic macro-bend detection.

FlexScan's new FleXpress mode completes dual wavelength tests in seconds, reducing test time by a factor of 10x compared to conventional OTDRs. For multi-fiber testing, FleXpress mode automatically controls AFL's MPO Switch, testing 12 fibers at the touch of a single button.
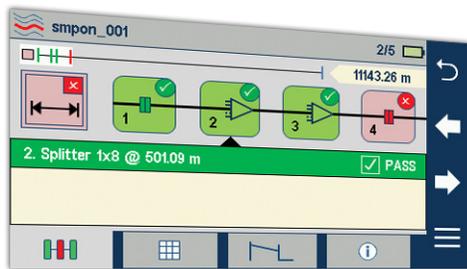
LinkMap Simplifies Network Troubleshooting

LinkMap with Pass/Fail enables even novice users to easily and accurately troubleshoot optical networks. LinkMap presents an icon-based view of the tested network clearly identifying fiber start, end, connectors, splices, PON splitters, and macro-bends.

A LinkMap Summary provides end-to-end link length, loss, loss per distance and ORL. Loss and reflectance of detected events is compared to industry-standard or user-settable pass/fail thresholds and displayed with clear pass/fail indications. Users can instantly toggle between LinkMap and Trace views.

Bluetooth and WiFi for Faster Connectivity

Pair FlexScan with AFL's FOCIS Flex connector inspection probe for fast, easy connector end-face inspection.

FOCIS Flex provides auto-focus, auto-centering, integrated IEC pass/fail analysis, and automatic Bluetooth transfer of images and pass/fail results to FlexScan for display and archiving.
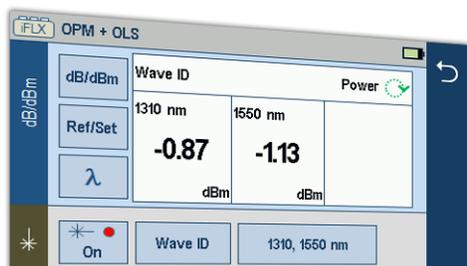
Complete Testing with a Single Tool

FlexScan integrates a Visual Fault Locator (VFL) plus an optional optical laser source (OLS) and optical power meter (OPM) supporting AFL's unique Wave ID capability. With Wave ID, the power meter automatically synchronizes to a single or multi-wavelength Wave ID optical signal sent by an AFL light source. The power meter automatically identifies received wavelengths and measures power and loss at each wavelength, saving significant test time and eliminating setup errors.

The VFL's eye-safe red laser enables users to visually pinpoint the location of macro-bends and fiber breaks often found in splice closures and fiber cabinets.

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FlexScan OTDRs are available with 1310/1550/1650, 1310/1550, and 1550 or 1650 nm only wavelengths. 1310 & 1550 nm versions are available with integrated optical light source (OLS), optical power meter (OPM), visual fault locator (VFL) and Bluetooth/WiFi.

Specifications[a]

MODEL: FS200-#	-50	-60	-100	-300	-304
OTDR					
Emitter Type	Laser				
Safety Class [b]	Class I				
Fiber Type	Single-mode				
Wavelengths (nm)	1550	1650	1310/1550	1310/1550	1310/1550/1650
Center λ Tolerance	±20 nm (CW mode)				
Dynamic Range (dB) [c]	28	37	32/30	37/36	37/36/37
Event Dead Zone [d] (m)	1.0	0.8	0.8	0.8	0.8
Atten. Dead Zone [e] (m)	6.0	3.5	3.6	3.5	3.5
PON Dead Zone [f] (m)	N/A	30	N/A	20	20
Pulse Widths	3, 5, 10, 20, 30, 50, 100, 200, 300, 500 ns; 1, 2, 3, 10, 20 μs				
Range Settings	250 m to 240 km				
Data Points	Up to 300,000 (Expert mode .SOR file)				
Data Spacing	5 cm to 16 m				
Group Index of Refraction	1.3000 to 1.7000				
Distance Uncertainty (m)	±(1 + 0.003% x distance + data point spacing)				
Linearity (dB/dB)	±0.05				
Trace File Format	Telcordia SR-4731 Issue 2				
Trace File Storage Medium	4 GB internal memory (>1000 traces); External USB memory stick				
Data Transfer to PC	USB cable or Bluetooth® or WiFi (option)				
Standard OTDR Modes	SmartAuto, Expert, Real Time				
Display Modes	LinkMap Summary, LinkMap Events, Trace				
FleXpress Fast Test	No	No	No	Yes	Yes
Real-time Refresh Rate	Up to 4 Hz				
Live Fiber Protection	No OTDR damage with input power ≤+3 dBm for wavelength(s) in range 1260 to 1675 nm				
Live Fiber Detection	Reports live fiber with input signal ≥ -35 dBm for wavelength(s) in range 1260 to 1675 nm				
Live PON Filter Isolation	>50 dB for 1260 nm ≤ wavelength ≤ 1600 nm				
Live PON OTDR Test	1650 nm using filtered detector				
VISUAL FAULT LOCATOR (VFL)					
Emitter Type	Visible red laser, 650 ±20 nm				
Safety Class [b]	Class II				

MODEL: FS200-#	-50	-60	-100	-300	-304
Output Power (nominal)	0.8 mW into single-mode fiber				
Modes	CW, 2 Hz flashing				
OPTICAL LASER SOURCE - OLS (Optional)					
Emitter Type	Laser				
Safety Class [b]	Class I				
Fiber Type	Single-mode				
Wavelengths (nm)	1550	N/A	1310/1550	1310/1550	1310/1550
Center λ Tolerance	±20 nm (CW mode)				
Spectral Width (FWHM)	5 nm (maximum)				
Internal Modulation	270 Hz, 330 Hz, 1 kHz, 2 kHz, CW, Wave ID				
Wave ID	Compatible with AFL OPM/OLS				
Output Power Stability	≤ ±0.1 dB (15 minutes); ≤ ±0.15 dB (8 hours)				
Output Power	-3 dBm ±1.5 dB				
OPTICAL POWER METER -OPM (Optional)					
Calibrated Wavelengths	1310, 1490, 1550, 1625, 1650 nm				
Detector Type	InGaAs, 1 mm diameter				
Measurement Range	+23 to -50 dBm				
Tone Detect Range	+3 to -35 dBm				
Wavelength ID Range	+3 to -35 dBm				
Accuracy [h]	±0.25 dB				
Resolution	0.01 dB				
Measurement Units	dB, dBm or Watts (nW, μW, mW)				
GENERAL					
Size (in boot)	86 x 160 x 43 mm				
Weight	0.4 kg				
Operational Temperature	-10 °C to +50 °C, 0 to 95 % RH (non-condensing)				
Storage Temperature	-40 °C to +70 °C, 0 to 95 % RH (non-condensing)				
Power	Rechargeable Li-Pol or AC adapter				
Battery Life	>12 hours, Telcordia test conditions				
Display	Color touchscreen 4.3 in LCD, 480 x 272, backlit				
USB Ports	1 host; 1 micro-USB function				
Bluetooth (optional)	Compatible with Windows PC, Android				
WiFi (optional)	IEEE 802.11 / WLAN				

Notes:

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

b. FDA 21 CFR 1040.10 and 1040.11, IEC 60825-1: 2007-03.

c. (RMS, SNR=1) - Measured using maximum range, widest pulse width and 3 minutes averaging.

d. 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.

e. 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.

f. Recovery to within 0.5 dB of backscatter after 1:16 splitter (≤ 13 dB loss) using 100 ns pulse width.

g. At calibration wavelengths and power levels of approximately -10 dBm.

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FlexScan Kit Configurations

All kits include FlexScan with AC charger, battery, carry strap, SC/2.5 mm connector adapters, TRM® 2.0, quick reference guide, USB cable and carry case. PLUS kits add a 150 m fiber ring, One-Click cleaner, plus upgrade to TRM 2.0 Advanced. PRO kits additionally include a FOCIS Flex auto-focusing connector inspection probe with IEC pass/fail analysis and two adapter tips. Complete kits expand on PRO Kits by adding a bend-insensitive fiber identifier with optional power meter (OFI-BI or OFI-BIPM). MPO Kits bundle FS200-300/304 with MPO switch, MPO launch cable plus USB cable and jumper to connect FlexScan to MPO switch.

Ordering Information

FS200-[MOD]-[KIT]-[PW]-[C]-[LNG]-[AC]-[FR]-[TIP][a] where:

[MOD]	FS200 FlexScan OTDR Configuration
50	1550 nm only Troubleshooting OTDR
60	1650 nm filtered Live PON Troubleshooting OTDR
100	1310/1550 nm Verification & Troubleshooting OTDR
300	1310/1550 Pt-to-Pt & PON Verification & Troubleshooting OTDR
304	1310/1550/1650 Pt-to-Pt & PON Verification & Troubleshooting OTDR

[KIT]	FS200 FlexScan Kit Configuration
BAS	Basic kit with soft case, TRM 2.0 Basic, USB cable
PLUS	Adds 150 m Fiber Ring, One-Click cleaner, TRM 2.0 Advanced
PRO	Adds Fiber Ring, One-Click cleaner, TRM 2.0 Advanced, FOCIS Flex
BI	BI Complete kit adds OFI-BI to PRO kit
BIPM	BIPM Complete kit adds OFI-BIPM to PRO kit
MPO	Multi-fiber kit includes FlexScan plus MPO Switch, MPO launch cable, OTDR-to-Switch patch cord, OTDR-to-Switch USB cable

[PW]	Power Meter / Wireless option
P0-W0	No Source, Power Meter, or Bluetooth/WiFi (FS200-50/60/100 only)
P0-W1	No Source or Power Meter; Includes Bluetooth/WiFi (FS200-300/304 only)
P1-W0	No Bluetooth/WiFi (-304 only); Includes Source, Power Meter
P1-W1	Includes Source, Power Meter, Bluetooth/WiFi (all models except -50)
P1-W1H	Includes Source, Power Meter, Bluetooth/WiFi, hard carry case (all models except -50)

[C]	OTDR / Source Connector Type
A	APC (recommended)
U	UPC

[LNG]	Language				
ENG	English	DNK	Danish	NOR	Norwegian
CHS	Chinese Simp.	FIN	Finnish	POL	Polish
CHT	Chinese Trad.	FRA	French	POR	Portuguese
CZE	Czech	ITA	Italian	SPA	Spanish
DEU	German	JPN	Japanese	TUR	Turkish
		KOR	Korean		

[AC]	Destination Country	AC Plugs
US	USA	2-pin, US
EU	European Union	2-pin, EU
UK	United Kingdom	2-pin, UK
CN	China, Australia	2-pin, SAA

[FR]	150 m SMF Fiber Ring	[FR]	150 m SMF Fiber Ring
Blank	N/A in Basic kits	ASC/FC	FR1-SM-150-ASC-FC
SC/SC	FR1-SM-150-SC-SC	ASC/ST	FR1-SM-150-ASC-ST
SC/FC	FR1-SM-150-SC-FC	ASC/ASC	FR1-SM-150-ASC-ASC
SC/LC	FR1-SM-150-SC-LC	ASC/AFC	FR1-SM-150-ASC-AFC
SC/ST	FR1-SM-150-SC-ST	ASC/ALC	FR1-SM-150-ASC-ALC
SC/ASC	FR1-SM-150-SC-ASC	ALC/ALC	FR1-SM-150-ALC-ALC
SC/AFC	FR1-SM-150-SC-AFC	FC/FC	FR1-SM-150-FC-FC
SC/ALC	FR1-SM-150-SC-ALC	FC/ST	FR1-SM-150-FC-ST
LC/LC	FR1-SM-150-LC-LC	FC/LC	FR1-SM-150-FC-LC
LC/ASC	FR1-SM-150-LC-ASC	FC/AFC	FR1-SM-150-FC-AFC
LC/ALC	FR1-SM-150-LC-ALC	AFC/AFC	FR1-SM-150-AFC-AFC

[TIP][a]	FOCIS Flex Tips & Cleaning (PRO only)
Blank	Option not available in Basic & PLUS kits
SC	SC-UPC bulkhead tip, 2.5 mm UPC ferrule tip, 2.5 mm cleaning
FC	FC-UPC bulkhead tip, 2.5 mm UPC ferrule tip, 2.5 mm cleaning
LC	LC-UPC bulkhead tip, 1.25 mm UPC ferrule tip, 1.25 mm cleaning
ASC	SC-APC bulkhead tip, 2.5 mm APC ferrule tip, 2.5 mm cleaning
AFC	FC-APC bulkhead tip, 2.5 mm APC ferrule tip, 2.5 mm cleaning
ALC	LC-APC bulkhead tip, 1.25 mm APC ferrule tip, 1.25 mm cleaning

Notes:

a. For additional FOCIS Flex adapter tips, see FOCIS Flex data sheet or Buyer's Guide.

b. See Buyer's Guide, or contact AFL for FlexScan accessories.

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