

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

Pocket-sized, Performance-packed, User-friendly, and Affordable



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 25 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 25 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.

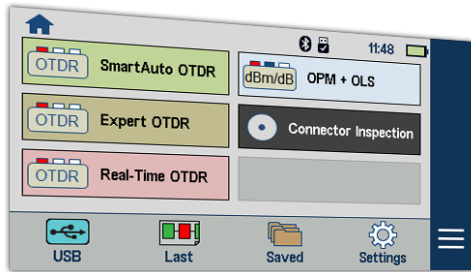
User-friendly: FlexScan OTDRs enable both novice and expert technicians to quickly, reliably and accurately detect, locate, identify and measure optical network components and faults. After applying industry-standard or user-set pass/fail criteria, the network is displayed using FlexScan’s intuitive, 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).

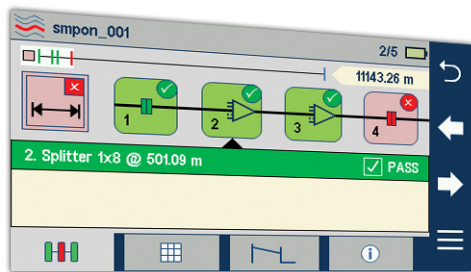
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SmartAuto FleXpress Dramatically Cuts Test Time

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.

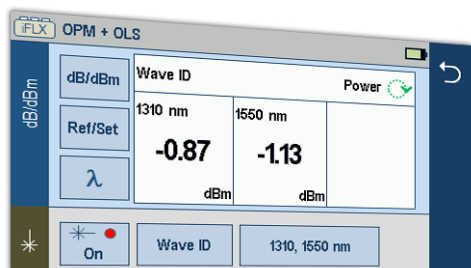
A LinkMap Summary provides end-to-end link length, loss, loss per distance and ORL. Loss and reflectance of detected events is compared to industry-standard or user-settable pass/fail thresholds and displayed with clear pass/fail indications. Users can instantly toggle between LinkMap and Trace views.



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.

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

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 | 25/25 | 25/25/30 |
| Pulse Widths | 3, 5, 10, 20, 30, 50, 100, 200, 300, 500 ns; 1, 2, 3, 10 μ s; 20 μ s (FS200-60/300/304 only) | | | | |
| 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) | $\pm(1 + 0.003\% \times \text{distance} + \text{data point spacing})$ | | | | |
| 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 $\leq +3$ 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 \leq wavelength \leq 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 | $\leq \pm 0.1$ dB (15 minutes); $\leq \pm 0.15$ 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, μ W, 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, backlight | | | | |
| USB Ports | 1 host; 1 micro-USB function | | | | |
| Bluetooth (optional) | Compatible with Windows PC, Android | | | | |
| WiFi (optional) | IEEE 802.11 / WLAN | | | | |

Notes:

- All specifications valid at 25 °C unless otherwise specified.
- FDA 21 CFR 1040.10 and 1040.11, IEC 60825-1: 2007-03.
- (RMS, SNR=1) - Measured using maximum range, widest pulse width and 3 minutes averaging.
- 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.
- 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.
- Recovery to within 0.5 dB of backscatter after 1:16 splitter (≤ 13 dB loss) using 100 ns pulse width.
- 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 | DNK | Danish | NOR | Norwegian |
|-------|---------------|-----|----------|-----|------------|
| ENG | English | FIN | Finnish | POL | Polish |
| CHS | Chinese Simp. | FRA | French | POR | Portuguese |
| CHT | Chinese Trad. | ITA | Italian | SPA | Spanish |
| CZE | Czech | JPN | Japanese | TUR | Turkish |
| DEU | German | 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 |
|--------|----------------------|
| Blank | N/A in Basic kits |
| SC/SC | FR1-SM-150-SC-SC |
| SC/FC | FR1-SM-150-SC-FC |
| SC/LC | FR1-SM-150-SC-LC |
| SC/ST | FR1-SM-150-SC-ST |
| SC/ASC | FR1-SM-150-SC-ASC |
| SC/AFC | FR1-SM-150-SC-AFC |
| SC/ALC | FR1-SM-150-SC-ALC |
| LC/LC | FR1-SM-150-LC-LC |
| LC/ASC | FR1-SM-150-LC-ASC |
| LC/ALC | FR1-SM-150-LC-ALC |
| ASC/FC | FR1-SM-150-ASC-FC |
| ASC/ST | FR1-SM-150-ASC-ST |

| [FR] | 150 m SMF Fiber Ring |
|------------|-----------------------|
| ASC/ASC | FR1-SM-150-ASC-ASC |
| ASC/AFC | FR1-SM-150-ASC-AFC |
| ASC/ALC | FR1-SM-150-ASC-ALC |
| ALC/ALC | FR1-SM-150-ALC-ALC |
| FC/FC | FR1-SM-150-FC-FC |
| FC/ST | FR1-SM-150-FC-ST |
| FC/LC | FR1-SM-150-FC-LC |
| FC/AFC | FR1-SM-150-FC-AFC |
| AFC/AFC | FR1-SM-150-AFC-AFC |
| ASC-AE2000 | FR1-SM-150-ASC-AE2000 |
| SC-E2000 | FR1-SM-150-SC-E2000 |

| [TIP] * | 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 |

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



International Sales and Service Contact Information

Available at www.AFLglobal.com/Test/Contacts