

FlexScan® FS200 Single-mode OTDR

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



Features

- FleXpress® mode completes OTDR tests in < 5 seconds
- 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
- Single port for in- and out-of-service OTDR tests
- Integrated source, power meter, VFL (visual fault locator)
- Integrated MPO Switch control via USB
- Rugged, lightweight, hand-held for field use
- Available with field-replaceable connector

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

AFL's FlexScan FS200 OTDR is an all-in-one solution for detecting, identifying, locating, and resolving single-mode optical network issues. It is designed for both novice and expert technicians working in a range of environments, from FTTH PON to point-to-point networks. It applies industry-standard or user-set pass/fail criteria and displays results using LinkMap colour-coded icons that immediately show the health of the network. The FlexScan FS200 automates test setup, shortens test time, and simplifies results interpretation improving efficiency and reducing costs.

All-in-one test capability: The FlexScan FS200 includes an integrated VFL, power meter, and light source. It can be easily paired to AFL's award-winning FOCIS family of inspection scopes, ensuring technicians have everything they need to locate and quickly resolve optical network issues.

Performance-packed: With SmartAuto multi-pulse acquisition, up to 37 dB dynamic range, and best-in-class 25 m PON dead zone, FlexScan FS200 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-fibre testing, FS200s automatically control AFL's MFS Multi-Fibre Switch (12-fibre MPO switch) to further reduce multi-fibre test time.

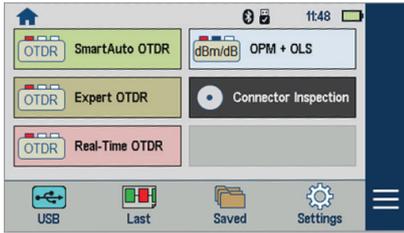
Pocket-sized: At 86 x 160 x 43 mm and less than 0.4 kg, FlexScan FS200 OTDRs truly fit in your pocket, yet still provide a large, bright indoor/outdoor touchscreen display, and all-day operation.

Multiple sharing and reporting options: Results can be stored internally, saved to a USB, or wirelessly uploaded via the free FlexScan App for real-time reporting using the included TRM® 3.0 Test Results Manager software.

Convenient cost-saving kits: Bundle the FlexScan FS200 with your choice of fibre ring, FOCIS Flex connector inspection probe and tips, and/or AFL's universal optical fibre identifier for significant cost-savings!

Field-replaceable connector: With AFL's optional field-replaceable connector, avoid expensive service repairs to replace connectors damaged due to poor cleaning practices and/or normal wear-and-tear.

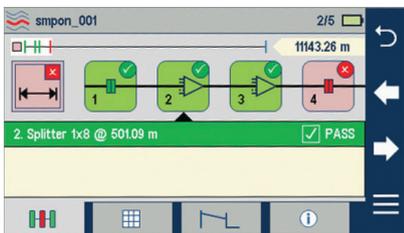
FlexScan® FS200 Single-mode OTDR



Dramatically Reduces Test Time

In SmartAuto mode, FlexScan OTDRs automatically analyse and test the network using a variety of network-optimised settings to precisely locate, characterise and identify network events with one button push. Loss and reflectance are measured for connectors, splices, splitters and macro-bends. FlexScan even checks for live fibre and verifies OTDR launch quality before initiating a test.

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-fibre testing, Flexpress mode automatically controls AFL's MPO Switch, testing 12 fibres at the touch of a single button.



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 fibre start, end, connectors, splitters, PON splitters, and macro-bends.

A LinkMap summary provides end-to-end link length, loss and ORL. Loss and reflectance are displayed with clear pass/fail indications. Users can instantly toggle between LinkMap and Trace views.



Connectivity

FlexScan OTDRs easily pair with AFL's ward-winning FOCIS® family of connector inspection probes for fast, easy single-fibre and/or multi-fibre connector end-face inspection.

FlexScan results can then be transferred wirelessly via the free FlexScan App to a smart device for real-time reporting using the included Test Results Manager (TRM 3.0) PC-based software. This real-time monitoring can help avoid mistakes in the field that will require future truck rolls.



OTDR, OLTS, and VFL Testing with a Single Tool

FlexScan optionally includes a Wave ID optical light source (OLS) and optical power meter (OPM). With Wave ID, the OPM auto-synchronises to a single or multi-wavelength Wave ID optical signal transmitted by an AFL light source. The OPM reports detected wavelengths and measures power and loss at each wavelength, saving significant test time and eliminating setup errors.

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

FlexScan® FS200 Single-mode OTDR

FlexScan OTDRs are available with 1310/1550/1625, 1310/1550/1650, 1310/1550, and 1550 or 1650 nm only wavelengths. The 1310 and 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-XXX	-50	-60	-100	-300	-303	-304
OTDR						
Emitter Type	Laser					
Safety Class ^b	Class I					
Fibre Type	Single-mode					
Wavelengths (nm)	1550	1650	1310/ 1550	1310/ 1550	1310/ 1550/ 1625	1310/ 1550/ 1650
Center λ Tolerance ^c	1310/1550/1650: ± 20 nm; 1625 +30/-5 nm					
Dynamic Range ^d (dB)	28	37	32/30	37/36	37/36/37	37/36/37
Event Dead Zone ^e (m)	1.0	0.8	0.8	0.8	0.8	0.8
Atten. Dead Zone ^f (m)	6.0	3.5	3.6	3.5	3.5	3.5
PON Dead Zone ^g (m)	N/A	30	N/A	25/25	25/25/30	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 (FS200-300/300/304 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					
Index of Refraction	1.3000 to 1.7000					
Distance Uncertainty	$\pm(1 + 0.003\% \times \text{distance} + \text{data point spacing})$ m					
Linearity (dB/dB)	± 0.05					
Trace File Format	Telcordia SR-4731 Issue 2 compatible .SOR					
Trace Storage Medium	4 GB internal memory (> 5000 traces typical); External USB memory stick					
Data Transfer to PC	USB cable or Bluetooth® (option)					
OTDR Modes	SmartAuto, Expert, Real-time					
Flexpress Fast Test	FS200-300/303/304					
Display Modes	LinkMap Summary, LinkMap Events, Trace					
Refresh Rate	Up to 4 Hz (Real-time mode)					
Live Fibre Protection	No OTDR damage with input power $\leq +15$ dBm for wavelength(s) in range 1260 to 1675 nm					
Live Fibre Detection	Reports live fibre with input signal ≥ -35 dBm for wavelength(s) in range 1260 to 1675 nm					
PON Filter Isolation	> 50 dB for 1260 nm \leq wavelength \leq 1600 nm					
Live PON OTDR Test	1625 or 1650 nm using filtered detector					

Notes:

- All specifications valid at 25 °C unless otherwise specified.
- FDA 21 CFR 1040.10 & 1040.11, IEC 60825-1: 2014.
- Using 10 ns pulse width.
- SNR=1, longest range and pulse width, 3-minute averaging.
- Maximum distance between two points 1.5 dB down each side of a reflective peak caused by an event with reflectance ≤ -45 dB using 3 or 5 ns pulse.
- Maximum distance from the start of a trace spike caused by an event with a -45 dB (or smaller) reflectance, to the point where the trace returns to and stays within ± 0.5 dB of backscatter. Test pulse width is 3 or 5 ns.
- Recovery to within 0.5 dB of backscatter after 1:16 splitter (≤ 13 dB loss) using 100 ns pulse width.
- Max. temperature while charging is +45°C.

MODEL: FS200-XXX	-50	-60	-100	-300	-303	-304
VISUAL FAULT LOCATOR (VFL)						
Emitter Type	Visible red laser, 650 ± 20 nm					
Safety Class ^b	Class II					
Output Power	0.8 mW into single-mode fibre (-1 dBm ± 0.5 dB)					
Modes	CW, 2 Hz flashing					
OPTICAL LASER SOURCE - OLS (Optional)						
Emitter Type	Laser					
Safety Class ^b	Class I					
Fibre Type	Single-mode					
Wavelengths (nm)	1550	N/A	1310/ 1550	1310/ 1550	1310/ 1550/ 1625	1310/ 1550/ 1650
Center λ Tolerance ^c	± 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					
Accuracy	± 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 ^h	-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	4.3 in colour touchscreen LCD, 480 x 272, backlit					
USB Ports	1 host; 1 micro-USB function					
Bluetooth (optional)	Compatible with Windows PC, Android					

FlexScan® FS200 Single-mode OTDR

FlexScan FS200 Kit Configurations

All kits include a FlexScan FS200 with AC charger, battery, carry strap, TRM® 3.0, USB cable, and carry case. PLUS kits add a 150 m fibre ring, One-Click® cleaner, and upgrade to TRM 3.0 Advanced. PRO kits additionally include a FOCIS Flex auto-focusing connector inspection probe with IEC pass/fail analysis and two inspection tips.

Ordering Information

PART NUMBER	OTDR/SOURCE λ (NM)	PON OTDR		OLS / OPM	BT / WIFI
		Dark	Live		
FS200-50-[Kit]-[KS0x]	1550				
FS200-50-[Kit]-PW-[KS0x]	1550			◆	◆
FS200-60-[Kit]-[KS0x]	1650	◆	◆		
FS200-60-[Kit]-PW-[KS0x]	1650	◆	◆	◆	◆
FS200-100-[Kit]-[KS0x]	1310/1550				
FS200-100-[Kit]-PW-[KS0x]	1310/1550			◆	◆
FS200-300-[Kit]-W-[KS0x]	1310/1550	◆			◆
FS200-300-[Kit]-PW-[KS0x]	1310/1550	◆		◆	◆
FS200-303-[Kit]-W-[KS0x]	1310/1550/1625	◆	◆		◆
FS200-303-[Kit]-PW-[KS0x]	1310/1550/1625	◆	◆	◆	◆
FS200-304-[Kit]-W-[KS0x]	1310/1550/1650	◆	◆		◆
FS200-304-[Kit]-PW-[KS0x]	1310/1550/1650	◆	◆	◆	◆

FlexScan FS200 Kit Configuration

[KIT]	FlexScan FS200 KIT CONFIGURATION
BAS	Includes: FS200, soft case, TRM 3.0 Basic, USB cable
PLUS	Includes: BAS kit plus 150 m SMF Fibre Ring, One-Click cleaner, upgrade to TRM 3.0 Advanced, soft case
PRO	Includes: PLUS kit plus FOCIS Flex, 2 Inspection Tips

FlexScan Port & Inspection Tip Configuration

[KS0x]	OTDR PORT	FIBRE RING END A	FIBRE RING END B	PORT INSPECTION TIP	PATCHLEAD INSPECTION TIP	CLEANING
KS01	SCA	SCA	SCA	SCA	Uni 2.5 mm Angled	2.5mm One-Click Cleaner
KS02	SCA	SCA	SC	SC	Uni 2.5 mm	2.5mm One-Click Cleaner
KS03	SCA	SCA	LC	LC	Uni 1.25 mm	1.5mm One-Click Cleaner
KS04	SCA	SCA	LCA	LCA	Uni 1.25 mm Angled	2.5mm One-Click Cleaner
KS05	SCA	SCA	ST	ST	Uni 2.5 mm	2.5mm One-Click Cleaner

Notes:

For other kit configurations contact AFL Australia / New Zealand. BAS kit only available as KS01. Fibre Ring, One-Click Cleaner and TRM 3.0 Advanced only included in PLUS and PRO Kits. Inspection tips only included in PRO kits.

Results can be transferred from FlexScan OTDR to TRM® 3.0 using USB cable, or performed wirelessly (W option) after downloading free FlexScan App. The FlexScan App is available as a free download from 'Google Play' or 'App Store'.

FlexScans equipped with Bluetooth option (W) support Bluetooth transfer of results via FlexScan App for remote reporting using TRM 3.0.

Basic kit always ships with Medium Soft Case; PLUS and PRO kits always ship with Large Soft Case.

FlexScan® FS200 Single-mode OTDR

Ordering Information

Accessories

DESCRIPTION	AFL NO.
FlexScan wrist strap	1400-05-0230PZ
FlexScan neck strap, 36"	1400-05-0231PZ
AC charger 100-240 VAC to 5 VDC	4050-00-0931PR
Soft carry case for FS200 kits with FOCIS Flex and Fibre Ring	1400-01-0111PZ
Soft carry case for FS200 kits with FOCIS Flex, Fujikura OFI and Fibre Ring	1400-01-0128PZ
Hard carry case for FS200 kits with FOCIS Flex, Fujikura OFI and Fibre Ring	1400-01-0134PZ
Vehicle charger, 12VDC to 5VDC @2A	4050-00-0033MR
Cable, USB-micro B, 5 pin, 6'	6000-00-0031MR
5V USB charging cable (1.5 m), type A to barrel (0.9 x 3.2 x 9 mm)	6000-00-0034PR
One-Clicks, fluid, wipes, etc. See www.AFLglobal.com	Cleaning Supplies

Field-Replaceable OTDR Connector (Optical Port Ferrule Saver)

Protect your OTDR ports from damage due to mating with dirty or damaged fibre rings or patch cords or normal wear-and-tear. Equip your FlexScan FS200 with a field-replaceable connector, which installs in seconds and accepts AFL's tool-free interchangeable SC, LC, FC and ST connector adapters.

Replace damaged connectors in the field: When normal wear-and-tear or poor cleaning practices damage the port saver's end-face, replace it in seconds without having to return the OTDR to a service center for an expensive and time-consuming repair.

DESCRIPTION	AFL NO.
Field-replaceable connector; APC female to APC male	2900-58-0001MR
Field-replaceable connector; APC female to UPC male	2900-58-0002MR
Field-replaceable connector; UPC female to APC male	2900-58-0003MR
Field-replaceable connector; UPC female to UPC male	2900-58-0004MR

Connector Adapters

DESCRIPTION	AFL NO.		
	OTDR/OLS PORT	OPM PORT	VFL PORT
FC	2900-50-0002MR	2900-52-0001MR	N/A
SC	2900-50-0003MR	2900-52-0002MR	N/A
ST	2900-50-0004MR	2900-52-0003MR	N/A
LC	2900-50-0006MR	2900-52-0004MR	N/A
SC/APC	2900-50-0011MR	N/A	N/A
2.5 mm Universal	N/A	2900-52-0005MR	2900-50-0007MR
1.25 mm Universal	N/A	2900-52-0006MR	2900-50-0010MR

FlexScan® FS200 Single-mode OTDR

Test Management and Reporting Software

DESCRIPTION	AFL NO.
TRM 3.0 with Basic License (OTDR Trace/OLTS Viewer, Batch Editor and Reports), USB delivery (included with all FS200 kits)	TRM3-BASIC
TRM 3.0 upgrade from Basic to Advanced License, USB delivery	TRM3-UPGRADE
TRM 3.0 upgrade from Basic to Advanced License, email delivery	TRM3-UP-EMAIL
FlexScan App (Android Google Play)	Free Download

Recommended Products



FOCIS Flex and FOCIS Lightning (Multi-Fibre) Connector Inspection

- Self-contained, tether-free, hand-held inspection solution
- Auto-focus and auto-centering for fast, easy inspection
- IEC, IPC and user-defined pass/fail analysis
- FOCIS Lightning: extremely fast multi-fibre auto-analysis for datacom and telecom inspection applications



Fujikura Optical Fibre Identifier

- Works on all fibre types including BIF
- Trigger lock, positive stop for optimum detection
- Integrated optical power meter

Qualifications

CATEGORY	REGULATION/STANDARD	QUALIFICATION
CE Marking	EU	Compliant to relevant EU Directives on health, safety, and environmental protection, and certified with CE marking
Safety/EMC/EMI	IEC	Compliant to IEC 61010-1 for safety requirements for electrical equipment
	EN	Compliant to EN 61010-1 for safety requirements for electrical equipment
	IEC	Compliant to IEC 61326-1 for EMC requirements for electrical equipment
	EN	Compliant to EN 61326-1 for EMC requirements for electrical equipment
	EN	Compliant to EN 55011 for EMC requirements for industrial, scientific and medical equipment
	Telcordia	Compliant to GR-196-CORE 4.5.1 for requirements on electromagnetic interference
	FCC	Compliant to code of federal regulations FCC 47 CFR 15 on unlicensed transmissions
	FDA	Compliant to code of federal regulations FDA 21 CFR 1040.10 and 1040.11 on laser products
RoHS	IEC	Compliant to IEC 60825-1 for safety of laser products
	EU	Compliant to EU regulations Directive 2011/65/EU (RoHS 2) and Directive 2015/863 (RoHS 3)
Test Method	TIA	Compliant to TIA-568.3-D for test and measurement requirements for premises optical fibre cabling and components
	IEC	Compliant to IEC 11801 for test and measurement requirements for optical fibre cabling for use within premises
	EN	Compliant to EN 50173 for test and measurement requirements for optical fibre cabling for use within premises
	AS/NZS	Compliant to AS/NZS 3080 for test and measurement requirements for optical fibre cabling for use within premises
	TIA	Compliant to TIA-526-7 for test procedures for installed optical fibre cable plant
	TIA	Compliant to TIA-526-14 for test procedures for installed optical fibre cable plant
	IEC	Compliant to IEC 14763-3 for systems and methods for the inspection and testing of installed optical fibre cabling
	AS/NZS	Compliant to AS/NZS 14763.3 for systems and methods for the inspection and testing of installed optical fibre cabling
	IEC	Compliant to IEC 61280-4-1 for test procedures for installed optical fibre cable plant
	IEC	Compliant to IEC 61280-4-2 for test procedures for installed optical fibre cable plant
Generic Requirement	Telcordia	Compliant to GR-196-CORE for generic requirements for OTDR-type equipment
	Telcordia	Compliant to SR-4731 Issue 2 for OTDR data format
	IEC	Compliant to IEC 61746-1 for requirements on calibration of OTDR

Contact AUSSales@AFLglobal.com to schedule a demonstration or learn how to buy.

Visit www.AFLglobal.com/Test to learn more about FlexScan FS200 OTDR.

International Sales and Service Contact Information available at www.AFLglobal.com/Test/Contacts