

FlexScan® FS300 Quad OTDR

Be ready for anything with this all-in-one solution



Features

- Multi-mode and Singlemode OTDR, including PON test
- SmartAuto® 1-button automated testing for fast results
- Pocket-sized, weighs less than 1 pound, 12-hour battery
- LinkMap® colour-coded icons for easy troubleshooting
- Integrated Source, Power Meter and VFL
- Robust reporting including Print-to-PDF

Applications

- OTDR and insertion loss test and reporting
- Fast, accurate Pt-to-Pt and PON verification and troubleshooting
- Locate faults exceeding industry or user pass/fail thresholds
- Visually pinpoint location of macrobends or breaks

AFL's FlexScan FS300 Quad OTDR is an all-in-one solution for detecting, identifying, locating and resolving singlemode and multi-mode optical network issues. It is designed for both novice and expert technicians working in a range of environments from data centers to fibre-to-the-home, as well as local and wide area networks. The FlexScan FS300 automates test setup, shortens test time and simplifies results interpretation, improving efficiency and reducing costs.

All-in-one test capability: The FlexScan FS300 includes an integrated VFL, power meter and light source. It can be easily paired to AFL's award-winning FOCIS family of inspection scopes for single-fibre and/or MPO and OptiTip® multifibre inspection, ensuring technicians have everything they need to locate and resolve optical network issues.

Performance-packed: With SmartAuto automated multi-pulse acquisition, 37 dB dynamic range and best-in-class dead zones, FlexScan Quad OTDRs test multi-mode and singlemode networks – including FTTH PONs and POLANs up to 1:64 split ratio – while still detecting and measuring events <2 meters apart.

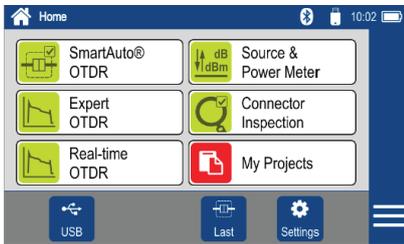
User-friendly: The FS300 enables both expert and novice technicians to quickly and accurately detect, locate, identify and measure optical network components and faults. It applies industry-standard or user-set pass/fail criteria and displays results using LinkMap colour-coded icons that immediately show the health of the network.

Pocket-sized: The FlexScan FS300's small form factor still delivers 12-hour battery operation plus a large, bright, indoor/outdoor, 5-inch, 800 x 480 pixel touchscreen display that doesn't need a stylus.

Multiple Reporting Options: Reports can be generated directly from the unit using Print-to-PDF feature or files can be transferred wirelessly or uploaded via USB to the included Windows® compatible TRM® 3.0 Test Results Manager software.

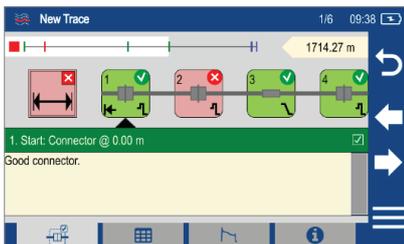


FlexScan® FS300 Quad OTDR



Dramatically Reduces Test Time

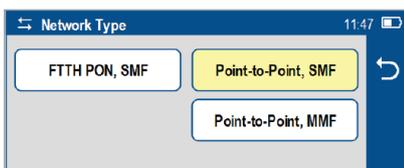
In SmartAuto mode, FlexScan OTDRs automatically analyze and test the network using a variety of network-optimised settings to precisely locate, characterise and identify network events with one button push. Loss and reflectance are measured for connectors, splices, splitters and macro-bends. FlexScan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



Simplifies Network Troubleshooting

LinkMap® colour-coded icons enable even novice users to easily and accurately troubleshoot optical networks. LinkMap clearly identifies fibre start, end, connectors, splices, PON splitters, and macro-bends.

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



Multi-mode and Singlemode plus PON Testing in One OTDR

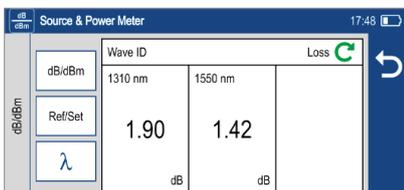
FlexScan Quad OTDRs are the ideal test tool for verifying and/or maintaining both singlemode and multi-mode networks. Unlike most Quad OTDRs, FS300 OTDRs test both point-to-point networks and FTTH PONs/Passive Optical LANs (POLANs).



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. Images and pass/fail results can be transferred to the FlexScan for display and/or archiving with OTDR results.

FlexScan results can be transferred wirelessly via the free FlexScan App to a smart device for real-time reporting using the included Windows-based TRM® 3.0 Test Results Manager software. Monitoring test results in real-time can detect mistakes while the tech is still in the field, preventing 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-synchronizes 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 Visual Fault Locator'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® FS300 Quad OTDR

Specifications ^a

OTDR	MULTI-MODE	SINGLEMODE
Emitter Type	Laser	
Safety Class ^b	Class I	
Fibre Type	Multi-mode; compatible with OM1-OM5	Singlemode; compatible with all G.65x
Wavelengths ^c	850/1300 ±20 nm	1310/1550 ±20 nm
Network Type	Point-to-point	Point-to-point & PON up to 1:64
Connector Type	User-specified APC or UPC ferrule with interchangeable UCI adapters	
Dynamic Range ^d	≥29/29 dB @ 850/1300 nm	≥37/36 dB @ 1310/1550 nm
Event Dead Zone ^e	≤0.8 m @ 850/1300 nm typical	≤0.8 m @ 1310/1550 nm typical
Attenuation Dead Zone ^f	≤3.0 m	≤3.5 m
PON Dead Zone ^g	Not applicable	≤25m
Pulse Widths	3, 5, 10, 20, 30, 50, 100, 200, 300, 500 ns; 1 µs	3, 5, 10, 20, 30, 50, 100, 200, 300, 500 ns; 1, 2, 3, 5, 10, 20 µs
Range Settings	250 m to 30 km	250 m to 240 km
Data Points	Up to 300,000	
Data Spacing	≤5 cm to ≤16 m	
Group Index of Refraction	1.3000 to 1.7000	
Distance Uncertainty	±(1 + 0.0025% x distance + data point spacing) m	
Linearity	±0.03 dB/dB	
Loss Resolution	0.001 dB	
Reflectance Range	850: -20 to -58 dB; 1300: -20 to -63 dB	1310/1550 nm: -20 to -65 dB
Reflectance Resolution	0.01 dB	
Reflectance Accuracy	±2 dB	
ORL Range	20 to 60 dB	
ORL Resolution	0.01 dB	
ORL Accuracy	±2 dB over range 30 to 55 dB; ±4 dB over range 20-30 dB and 55-60 dB	
Trace File Format	.SOR, Telcordia SR-4731 Issue 2	
OTDR Results Storage	Internal or external USB memory	
Internal Storage	Minimum 4 GB internal non-volatile memory (App SW + > 1000 traces)	
Internal Launch Fibre	≥30 m internal MM launch fibre	≥50 m internal SM launch fibre
OTDR Modes	Supports SmartAuto, Expert, Real-Time for PON & point-to-point networks	
Real-time Refresh Rate	1 to 4 Hz	
Live Fibre Protection	No OTDR damage when connected to live fibre delivering ≤ +3 dBm at wavelength(s) in range 825 to 1675 nm	
Live Fibre Detection	Reports live fibre with input signal ≥ -35 dBm for wavelength(s) in range 825 to 1675 nm	

Notes:

- All specifications valid at 25 °C unless otherwise specified.
- FDA 21 CFR 1040.10 & 1040.11, IEC 60825-1: 2014.
- Measured with laser in CW mode at 23 °C ±3 °C.
- 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 a -45 dB (or smaller) reflectance. Test pulse width is 3 or 5 ns.
- 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.

FlexScan® FS300 Quad OTDR

Specifications ^a

OPM - OPTICAL POWER METER (P1 OPTION)	
Calibrated Wavelengths	850, 1300, 1310, 1490, 1550, 1625, 1650 nm
Detector Type	InGaAs PIN, 2 mm diameter
Measurement Range	+3 to -70 dBm (+3 to -65 dBm @ 850 nm)
Tone Auto-Detect	+3 to -50 dBm @1300, 1310, 1550 nm; +3 to -40 dBm @850 nm;
Wave ID	Auto-synchronizes & measures 1, 2 or 3 wavelengths
Wave ID Range	+3 to -50 dBm @1300, 1310, 1550 nm; +3 to -40 dBm @850 nm
Accuracy	±5% @ -10 dBm
Linearity	±0.1 dB (-3 to -40 dBm); ±0.25 dB (-40 to -70 dBm)
Resolution	0.01 dB
Measurement Units	Power in dBm, nW, µW, mW; Loss in dB

OLS - OPTICAL LIGHT SOURCE (P1 OPTION)	
Wavelengths	850/1300/1310/1550 nm
Emitter Type	InGaAs PIN, 2 mm diameter
Safety Class	Class I ^b
Launch Condition	Controlled Launch at 850 nm (comparable to encircled flux on OM4 fibre)
Center λ (CW Mode)	±20 nm
Spectral Width	5 nm maximum (FWHM, CW Mode)
Internal Modulation	270 Hz, 330 Hz, 1 kHz, 2 kHz, CW, Wave ID
SM Output Stability	Short-term ^c : ±0.1 dB; Long-term ^d : ±0.05 dB
MM Output Stability	Short-term ^e : ±0.20 dB; Long-term ^f : ±0.15 dB
Output Power	1310/1550 nm: -7 dBm ±1.5 dB (CW, G.652.C/D) 1300 nm: -7 dBm ±1.5 dB (CW, 50 µm MMF) 850 nm: 0 dBm ±1.5 dB (CW, 50 µm MMF)

VFL - VISUAL FAULT LOCATOR	
Emitter Type	Laser, Class IIIa / Class 3R ^b
Wavelength	635 nm ±10 nm
Output Power	1.5 mW (~+2 dBm ±0.5 dB) into SMF-28
Modes	CW and 1 Hz flashing

Notes:

- All specifications valid at 25 °C unless otherwise specified.
- FDA 21 CFR 1040.10 and 1040.11, and IEC 60825-1:2014.
- Typical maximum deviation over 15 minute after 15 minute warm-up.
- Typical maximum deviation over 8 hours after 1 hour warm-up.
- 15 minutes after 30 minutes warm-up.
- 8 hours after 1 hour warm-up.

GENERAL	
Size (in boot)	98 x 175 x 52.5 mm
Weight	0.8 kg
Operating Temperature	-10 °C to +50 °C, 0 to 95% RH (non-condensing)
Storage Temperature	-30 °C to +70 °C, 0 to 95% RH (non-condensing, battery removed) -20 °C to +60 °C, 0 to 95% RH (non-condensing, battery installed)
Power	Rechargeable Lithium polymer battery; AC adapter
AC Adapter	100-240 VAC, 50-60 Hz input; 5VDC, 2A output
Battery Life (OTDR)	≥12 hours, Telcordia test conditions, 4 hours recharge
Display	5-inch colour LCD, 800 x 480 pixels, backlight
Shock and Vibration	GR-196-CORE, drop test, 0.75 m (30 in.), 6 planes
Dust Protection	GR-196-CORE, rubber dust caps for all ports
OTDR/OLS Ports	MM: UPC; SM: UPC or APC; includes tool-free, interchangeable SC adapters
OPM and VFL Ports	Universal, 2.5 mm adapter (SC, FC, ST); others available
USB Ports	USB host port; micro-USB function port
Bluetooth Interface	W1 option; compatible with Windows PC and Android
WiFi Interface	W1 option; compatible with IEEE 802.11 / WLAN
CE Safety	Compliant with EN61010-1
CE EMI/RFI	EN55011, EN61326-1, GR-196-CORE 4.5.1
RoHS	Compliant with RoHS directive 2011/65/EU

Accessories and Connector Adapters

DESCRIPTION	AFL NO.
FlexScan wrist strap	1400-05-0230PZ
FlexScan neck strap, 36"	1400-05-0231PZ
Soft carry case for FlexScan, Fibre Ring, FOCIS Flex, OFI	1400-01-0167PZ
Vehicle charger, 12 VDC to 5 VDC @ 2 A	4050-00-0033MR
AC adapter 100-240 VAC to 5 VDC	4050-00-0931PR
Replacement Li-Pol Battery Pack; 3.7 VDC, 6.8 AH	3900-06-0001MR
Cable, USB-micro B, 5 pin, 6'	6000-00-0031MR
5V USB charging cable type A to barrel	6000-00-0034PR
Bundle of 5V USB charging cable and 10K mAh external USB battery pack	4050-01-0001PR
One-Clicks, fluid, wipes, etc. See www.AFLglobal.com/au	Cleaning Supplies

CONNECTOR ADAPTER	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® FS300 Quad OTDR

FlexScan FS300 Quad OTDR Kit Configurations

FlexScan FS300 models are available in the kit configurations: Basic, PLUS, and PRO. All kits include FS300 with AC charger, battery, carry strap, SC/2.5 mm connector adapters, TRM® 3.0, quick reference user guide and carry case. PLUS Kits add 150 m fibre rings and One-Click cleaner. PRO kits additionally include a FOCIS Flex auto-focusing connector inspection probe with IEC pass/fail analysis and two adapter tips.

FlexScans equipped with Bluetooth option (W1) support Bluetooth transfer of results via FlexScan App for remote reporting using TRM 3.0. The FlexScan App is available as a free download from Google play store.

Ordering Information

PART NUMBER	OTDR / OLS λ (MM)	PON OTDR	OLS / OPM	WIFI	BLUETOOTH
FS300-325-[Kit]-W-[KX]	Quad: 850/1300 MM; 1310/1550 SM	•		•	•
FS300-325-[Kit]-PW-[KX]	Quad: 850/1300 MM; 1310/1550 SM	•	•	•	•

FlexScan FS300 Quad OTDR Kit Configuration

KIT	FS300 FLEXSCAN KIT CONFIGURATION
BAS	Basic kit with soft case, TRM 2.0 Basic, USB cable
PLUS	PLUS kit adds 150 m SMF & OM3 Fibre rings, One-Click cleaner, TRM 2.0 Advanced
PRO	PRO kit adds FOCIS Flex, 2 adapter tips, 150 m SMF & OM3 Fibre rings, One-Click cleaner, TRM 2.0 Advanced

FlexScan FS300 Quad OTDR Port & Inspection Tip Configuration

[KX]	OTDR PORT	FIBRE RING END A	FIBRE RING END B	PORT INSPECTION TIP	PATCHLEAD INSPECTION TIP
KS01	SM: SCA	SM: SCA	SM: SCA	SCA	Uni 2.5 mm Angled
	MM: SC	MM: SC	MM: SC		
KS02	SM: SCA	SM: SCA	SM: LC	LC	Uni 1.5 mm
	MM: SC	MM: SC	MM: LC		
KS03	SM: SCA	SM: SCA	SM: SC	SC	Uni 2.5 mm
	MM: SC	MM: SC	MM: SC		
KS04	SM: SCA	SM: SCA	SM: ST	ST	Uni 2.5 mm
	MM: SC	MM: SC	MM: ST		

Inspection Tips only included in Pro Kits. Additional tips required where hybrid fibre rings are used (sold separately).

Notes:

- Results can be transferred from FlexScan to TRM using USB cable, or performed wirelessly (W1 option) after downloading FlexScan App from Google play store.
- For additional FOCIS Flex adapter tips, see FOCIS Flex data sheet or Buyer's Guide.

FlexScan® FS300 Quad 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 FS300 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
	IEC	Compliant to IEC 60825-1 for safety of laser products
RoHS	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 FS300 OTDR.

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