

## M710 Multifunction OTDR

### Test, Troubleshoot and Report Single-mode and Multimode Fiber Networks



M710 Compact QUAD OTDR



M710 OTDR with DFS1 Digital FiberScope

#### Features

- Industry leading TruEvent® analysis
- LinkMap® for easy results interpretation
- Dynamic range up to 44 dB
- Automatic Pass/Fail analysis
- Live fiber detection
- Front Panel and First Connector Check
- Inspection capable with DFS1 Digital FiberScope
- Integrated power meter (OPM) and visual fault locator (VFL)
- Up to 13 hours battery life
- Large 6.5 inch full color touchscreen display

#### Applications

- Test and certify campus & central office networks and Distributed Antenna Systems (DAS) fiber infrastructure
- Tier 1 and Tier 2 testing and certification of SM and MM networks
- Long Haul Network
- LAN/WAN

The M710 OTDR from AFL combines ease of use (Touch and Test™) and high performance in a rugged, large display package. With single-mode dynamic ranges up to 44 dB and a MM/SM QUAD option, the M710 OTDR is ideal for testing and troubleshooting LAN/WAN, metro and long haul networks. Industry leading dead zones enhance the user's ability to locate and measure events.

The M710 models utilize AFL's industry leading TruEvent technology to provide a new level of accuracy and reliability in event analysis. LinkMap visualizes test results for easy and quick interpretation.

Touch and Test simplifies the M710 user experience, minimizes human errors and reduces training time by providing one-touch access to all OTDR test modes, OPM testing, Results Management and Job Creation menus. The M710 allows setting Pass/Fail thresholds to industry standard TIA/ISO values or user defined criteria and will automatically alert users of failing fibers. Touch and Test enables any technician to complete jobs more accurately and in less time, making it the ideal field test tool.

*\*M710 series languages supported: English, Chinese, French, German, Italian, Polish, Portuguese, Spanish. Please specify language when ordering.*

# M710 Multifunction OTDR

## Specifications<sup>a</sup>

OTDR MODEL	SINGLE-MODE OTDR OPTIONS			QUAD OTDR OPTION
	M710-40	M710-20	M710-21	M710-24
Emitter Type	Laser			
Safety Class	Class I FDA 21 CFR 1040.10 and 1040.11, IEC 60825-1: 2007-03			
Center Wavelengths	1310/1550 nm	1310/1550 nm	1310/1550/1625 nm	850/1300/1310/1550 nm
Wavelength Tolerance	±25/25 nm	±25/25 nm	±25/25/10 nm	±25/25/25/25 nm
Dynamic Range (SNR = 1) <sup>b</sup>	44/42 dB	41/39 dB	41/39/39 dB	25/24/40/38 dB <sup>c</sup>
Event Dead Zone	0.8 m <sup>d</sup>	0.8 m <sup>d</sup>	0.8 m <sup>d</sup>	0.8 m <sup>d</sup>
Attenuation Dead Zone	4 m <sup>e</sup>	4 m <sup>e</sup>	4 m <sup>e</sup>	4 m <sup>e</sup>
Pulse Widths	5, 10, 30, 100, 300 ns; 1, 3, 10, 20 μs			MM 5, 10, 30, 100, 300 ns; 1 μs SM 5, 10, 30, 100, 300 ns; 1, 3, 10, 20 μs
Range Settings	250 m to 256 km			MM 250 m to 64 km SM 250 m to 256 km
Sampling Points	Max. 64,000 points			
Minimum Data Point Spacing	0.125 m			
Group Index of Refraction (GIR)	1.4000 to 1.6000			
Distance Uncertainty (m) <sup>f</sup>	±(1 + 0.0005 % x distance + data point spacing)			
Linearity <sup>g</sup>	±0.03 dB/dB	±0.05 dB/dB	±0.05 dB/dB	±0.05 dB/dB
Loss Threshold	0.05 dB			
Loss Resolution	0.01 dB			
Reflectance Accuracy <sup>h</sup>	±2 dB			
Trace File Format	SR-4731 (GR-196-CORE Appendix A & B and SR-4731)			
Trace File Storage Media	Internal flash memory USB flash drive (2 USB host ports) Downloadable from OTDR directly to PC			
Trace File Storage Capacity	Internal 1000 fibers			
Data Transfer to PC	USB			
OTDR Modes	Full Auto, Real Time, Expert			
Tool Free Adapters	SC/ST/FC/LC			

### Notes:

- All specifications valid at 23°C ±2°C (73.4°F ±3.6°F) unless otherwise specified.
- Longest Range and Pulse Width, 3 minutes Averaging Time, Filter on, Typical.
- 62.5 μm fiber for multimode test.
- Typical distance between the two points 1.5 dB down each side of an unsaturated event with reflection <-45 dB for SM and <-40 dB for MM using a 5 ns pulse width.
- Typical distance from event location to point where trace is within 0.5 dB of backscatter caused by an unsaturated event with reflection <-45 dB for SM and <-40 dB for MM using a 5 ns pulse width.
- Does not include GIR uncertainty.
- Typical.
- For a non-saturated event.

## M710 Multifunction OTDR

### Specifications <sup>a</sup>

POWER METER	SINGLE-MODE OTDR OPTIONS			QUAD OTDR OPTIONS
	M710-40	M710-20	M710-21	M710-24
Calibrated Wavelengths	850, 980, 1300, 1310, 1490, 1550, 1625 nm (displays up to 3 simultaneously)			850, 1300, 1310, 1490, 1550, 1625 nm (displays up to 3 simultaneously)
Detector Type	Filtered InGaAs detector			InGaAs 2 mm
Measurement Range (dBm)	+26 to -50 dBm			+3 to -70 dBm
Accuracy <sup>b</sup>	±0.25			
Measurement Units	dB, dBm, mW			
Wavelength ID <sup>c</sup>	Yes			
Set Reference	Yes			
Data Storage	Yes			
Tone Detection	270 Hz, 330 Hz, 1 kHz, 2 kHz			

VISUAL FAULT LOCATOR	ALL M710 OTDR MODELS
Emitter Type	Laser
Safety Class	Class II FDA 21 CFR 1040.10 and 1040.11, IEC 60825-1: 2007-03
Wavelength	635 ±20 nm
Output Power (nominal)	0.8 mW

GENERAL	ALL M710 OTDR MODELS
Display	16.51 cm (6.5 in), color, transfective (indoor/outdoor) touch screen display
Anti-Reflective (AR) Coating	Yes
Size	190.5 x 269.2 x 69.8 mm (7.5 x 10.6 x 2.75 in)
Weight	2.36 kg ( 5.22 lb)
Operating Temperature	-10°C to+50°C, 0 to 90 % RH (non-condensing)
Storage Temperature	-20°C to+60°C, 0 to 90 % RH (non-condensing)
Power	Rechargeable Li-Ion or AC power adapter
Battery Life <sup>d, f</sup>	13 hours continuous OTDR testing
Recharge Time <sup>e, f</sup>	4 hours

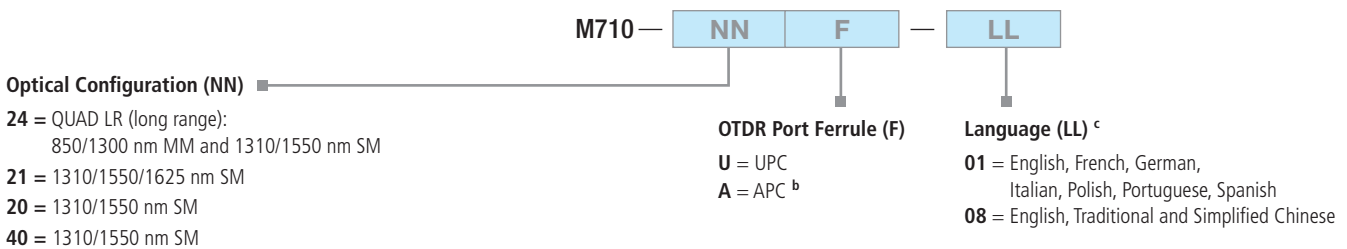
#### Notes:

- All specifications valid at 25°C unless otherwise specified.
- Accuracy measured at -10 dBm per N.I.S.T. standards.
- Automatic wavelength identification and switching when used with AFL's Wave ID Series Light Sources.
- Typical, per GR-196-CORE issue 2, depending on display brightness.
- Typical, from fully discharged to fully charged state, unit may be operating.
- External battery charger available.

## M710 Multifunction OTDR

### Ordering Information

The M710 OTDRs work with the DFS1 Digital FiberScope (the DFS1 includes a software update for the OTDR). The M710 models come with an integrated Visual Fault Locator (VFL, 650 nm), Optical Power Meter (OPM), and a large transfective touch screen display. Each model includes an OTDR, USB Flash drive, PC software for OTDR trace analysis and OPM loss reporting, AC adapter <sup>a</sup>, switchable test port adapters, and cleaning accessories in a soft carry case. When placing an order, select options as follows: Optical Configuration (NN), OTDR port ferrule (F), and Language (LL). Example: The model number M710-21U indicates M710 SM with UPC OTDR port ferrule, and English language option. Language option will be selected during ordering process.



### Accessories

Custom kits may be created by ordering an M710 OTDR model, a pre-configured accessories kit (M700 - H1) and accessories from the table below. The hard carry case has room for up to 6 Fiber Rings, test leads/jumpers, the DFS1 Digital FiberScope kit, OLS2-Dual or OLS4 optical light source, and cleaning accessories (items must be ordered separately).

DESCRIPTION	AFL NO.
<b>Pre-configured Accessories Kit</b> Includes hard case with One-Click Cleaner SC/ST/FC (2.5 mm), One-Click Cleaner LC/MU (1.25 mm), and CleanConnect 500	M700 - H1
Hard carry case, M7x0/C SERIES, W/FOAM	1400-01-0090PZ
DFS1 Digital FiberScope PC/UPC Inspection Kit	DFS1-00-04XU
DFS1 Digital FiberScope APC Inspection Kit	DFS1-00-04XA
DFS1 USB Digital Fiber Inspection Kit without Adapters	DFS1-00-04XN
OLS2-Dual laser light source with Wave ID, 1310/1550 nm	OLS2-Dual
OLS4 integrated LED and laser light source with Wave ID, 850/1300/1310/1550 nm	OLS4
Fiber Ring, standard, 1 fiber, 50/125 µm multimode, 150 m	FR1-M5-150-x1-x2 <sup>d</sup>
Fiber Ring, standard, 1 fiber, Laser Optimized, 50 µm multimode, 150 m	FR1-L5-150-x1-x2 <sup>d</sup>
Fiber Ring, standard, 1 fiber, 62.5/125 µm multimode, 150 m	FR1-M6-150-x1-x2 <sup>d</sup>
Fiber Ring, standard, 1 fiber, single-mode, 150 m	FR1-SM-150-x1-x2 <sup>d</sup>
Zippered Jumper Carry Case	1400-01-0086PZ
All types of fiber optic cleaning supplies are available. Visit <a href="http://www.AFLglobal.com/Cleaning">www.AFLglobal.com/Cleaning</a> or call factory for details.	

#### Notes:

- Specify power cord type (country) when ordering an OTDR. One power cord is included with each AC adapter at no charge.
- Available on the SM port for -20, -21, -24 models only.
- When ordering OTDR, indicate language preference for the OTDR Quick Reference Guide.
- When ordering Fiber Rings, specify connector types (x1, x2).



### International Sales and Service Contact Information

Available at [www.AFLglobal.com/Test/Contacts](http://www.AFLglobal.com/Test/Contacts)