M700/710 Multifunction OTDR

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

M710 Compact QUAD OTDR

Features

- TruEvent™ advanced event analysis
- Inspection capable with DFS1 Digital FiberScope
- Live fiber detection prevents damage to network equipment
- Up to 13-hour battery life
- Dynamic range up to 44 dB for long range testing
- Automatic Pass/Fail analysis
- Large 6.5 inch full color touchscreen display
- Integrated Optical Power Meter (OPM) and Visual Fault Locator (VFL)
- Front Panel and First Connector Check features ensures accurate measurements

Applications

- Tier 1 and Tier 2 testing and certification of SM and MM networks
- Test and certify campus & central office networks and Distributed Antenna Systems (DAS) fiber infrastructure
- Document and create standards compliant acceptance reports with TRM® 2.0, companion PC software
- Inspection of fiber end-faces using DFS1 Digital FiberScope
- Real-Time OTDR - fault location and splice verification

M700 OTDR with DFS1 Digital FiberScope

The M700/710 OTDR from AFL combines ease of use (Touch and Test™) and high performance in a rugged, large display, hand-held package. With single mode dynamic ranges up to 44 dB and two MM/SM QUAD options, the M700/710 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-xx models utilize AFL's industry leading TruEvent technology to provide a new level of accuracy and reliability in event analysis.

Touch and Test simplifies the M700/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 M700/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.

M700/M710 series languages supported: English, Chinese, French, German, Italian, Polish, Portuguese, Spanish. When order, please specify the language will be installed.

M700/710 Multifunction OTDR

Specifications [a]

OTDR MODEL	SINGLE-MODE OTDR OPTIONS			QUAD OTDR OPTIONS	
	M710-40	**M710-20**	**M710-21**	**M700-24**	**M700-25**
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	850/1300/1310/1550 nm
Wavelength Tolerance	±25/25 nm	±25/25 nm	±25/25/10 nm	±25/25/25/25 nm	±20/30/20/30 nm
Dynamic Range (SNR = 1) [k]	44/42 dB	41/39 dB	41/39/39 dB	24/24/39/37 dB [f]	22/22/26/26 [f]
Event Dead Zone	0.8 m [b]	0.8 m [b]	0.8 m [b]	0.8 m [b]	1.5 m [d]
Attenuation Dead Zone	4 m [c]	4 m [c]	4 m [c]	4.5 m [c]	9 m [e]
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	MM 10, 30, 100, 300 ns; 1 µs SM 10, 30, 100, 300 ns; 1, 3, 10 µs
Range Settings	250 m to 256 km			MM 250 m to 64 km SM 250 m to 256 km	MM 250 m to 64 km SM 250 m to 208 km
Sampling Points	Max. 64,000 points			Max. 64,000 points	Max. 16,000 points
Minimum Data Point Spacing	0.125 m			0.125 m	0.25 m
Group Index of Refraction (GIR)	1.4000 to 1.6000			1.4000 to 1.6000	
Distance Uncertainty (m) [g]	±(1 + 0.0005 % x distance + data point spacing)				±(1 + 0.005 % x distance + data point spacing)
Linearity [h]	±0.03 dB/dB	±0.05 dB/dB	±0.05 dB/dB	±0.05 dB/dB	
Loss Threshold	0.05 dB			0.05 dB	
Loss Resolution	0.01 dB			0.01 dB	
Reflectance Accuracy [j]	±2 dB			±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:
a. All specifications valid at 23°C ±2°C (73.4°F ±3.6°F) unless otherwise specified.
b. 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.
c. 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.
d. 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 10 ns pulse width.
e. 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 (unsaturated) for MM using a 10 ns pulse width.
f. 62.5 µm fiber for multimode test.
g. Does not include GIR uncertainty.
h. Typical.
j. For a non-saturated event.
k. Longest Range and Pulse Width, 3 minutes Averaging Time, Filter on, Typical.

M700/710 Multifunction OTDR

Specifications [a]

POWER METER	SINGLE-MODE OTDR OPTIONS			QUAD OTDR OPTIONS	
	M710-40	**M710-20**	**M710-21**	**M700-24**	**M700-25**
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			+6 to -70 dBm	
Accuracy [b]	±0.25				
Measurement Units	dB, dBm, mW				
Wavelength ID [c]	Yes				
Set Reference	Yes				
Data Storage	Yes				
Tone Detection	270 Hz, 330 Hz, 1 kHz, 2 kHz				

VISUAL FAULT LOCATOR	SINGLE-MODE OTDR OPTIONS			QUAD OTDR OPTIONS	
	M710-40	**M710-20**	**M710-21**	**M700-24**	**M700-25**
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	SINGLE-MODE OTDR OPTIONS			QUAD OTDR OPTIONS	
	M710-40	**M710-20**	**M710-21**	**M700-24**	**M700-25**
Display	16.51 cm (6.5 in), color, transflective (indoor/outdoor) touch screen display				
Anti-Reflective (AR) Coating	Yes	Yes	Yes	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 [d, f]	13 hours continuous OTDR testing				
Recharge Time [e, f]	4 hours				

Notes:

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

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Ordering Information

The M700/710 OTDRs work with the DFS1 Digital FiberScope (the DFS1 includes a software update for the OTDR). The M700/710 models come with an integrated Visual Fault Locator (VFL, 650 nm), Optical Power Meter (OPM), and a large transflective touch screen display. Each model includes an OTDR, USB Flash drive, PC software for OTDR trace analysis and OPM loss reporting, AC adapter [a], 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 M700-25U-01 indicates M700 QUAD with UPC OTDR port ferrule, and English language option..

| M710 — | NN | F | — | LL |
| M700 — | NN | F | — | 01 |
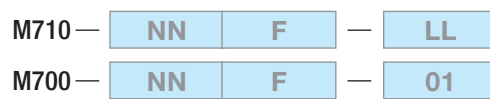
Optical Configuration (NN)

25 = QUAD: 850/1300 nm MM and 1310/1550 nm SM

24 = QUAD LR (long range):
850/1300 nm MM and 1310/1550 nm SM

21 = 1310/1550/1625 nm SM

20 = 1310/1550 nm SM

40 = 1310/1550 nm SM

OTDR Port Ferrule (F)

U = UPC

A = APC [b]

Language (LL) [c]

01 = English, French, German,
Italian, Polish, Portuguese, Spanish

08 = English, Chinese [d]

Accessories

Custom kits may be created by ordering an M700/710 OTDR model, a pre-configured accessories kit (M700 - H1) and accessories from the table below. The M700 - H1 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.
Pre-configured Accessories Kit 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
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 [e]
Fiber Ring, standard, 1 fiber, Laser Optimized, 50 µm multimode, 150 m	FR1-L5-150-x1-x2 [e]
Fiber Ring, standard, 1 fiber, 62.5/125 µm multimode, 150 m	FR1-M6-150-x1-x2 [e]
Fiber Ring, standard, 1 fiber, single-mode, 150 m	FR1-SM-150-y1-y2 [e]
Zippered Jumper Carry Case	1400-01-0086PZ
All types of fiber optic cleaning supplies are available. Visit www.AFLglobal.com/Cleaning or call factory for details.	

Notes:

a. Specify power cord type (country) when ordering an OTDR. One power cord is included with each AC adapter at no charge.
b. Available on the SM port for -20, -21, -24 models only.
c. When ordering OTDR, indicate language preference of the OTDR Quick Reference Guide.
d. The M700 OTDR User Interface is only available in English/EU language pack.
e. When ordering Fiber Rings, specify connector types (x1, x2, y1,y2).

International Sales and Service Contact Information

Available at www.AFLglobal.com/NOYES/Contacts