



## M200 Handheld OTDR

The Noyes M200 from AFL Telecommunications offers unmatched OTDR capabilities in a handheld package weighing less than 1 kg (2 lb). Multimode, Single-mode, and 'Quad' wavelength models are offered. With short dead zone and intermediate range specifications, the M200 is ideal for Tier 2 testing of premises (building and campus) networks or certification and troubleshooting of FTTX PON networks. And its bright, transfective display makes it suitable for both indoor and outdoor operation.

The M200 is based on a new hardware/software platform that supports automatic and manual setup, precision event analysis, dual-wavelength testing, rich file naming and folder setup, 6-hour battery life, internal and removable media data storage, and USB connectivity. Test ports are equipped with tool-free adapters, which can be changed in seconds. A custom-designed polycarbonate case and shock-absorbing boot make it our most rugged OTDR ever.

Results are saved as industry standard .SOR files, which can be viewed, printed, and analyzed on a PC using free-ware available to you and your customers (go to [www.aftele.com](http://www.aftele.com) to download). Unit firmware, user settings, and test results are saved in non-volatile memory. Thus the M200 may be stored with battery removed for an extended period of time and still be up and running in seconds when needed.



### New Feature

USB Host Port offers a new convenient way to transfer data from the M200 to a PC. By using a standard USB Flash Drive to transfer traces, the user no longer needs a USB Cable, ActiveSync or a Compact Flash reader. Using the Tools in the M200 File Manager, one or more folders or files can be copied to a USB Flash Drive for transfer to a PC. Thousands of files will fit on a 64 MB or larger USB Flash Drive.

### Features

- Handheld, 0.9 kg (2 lb)
- 22 dB (MM), 26 dB (SM) dynamic range
- Integrated VFL (650 nm)
- Tool-free, switchable adapters
- Transfective (indoor/outdoor) touch-screen display
- USB Host and Function Ports

### Applications

- Tier 2 testing of premises networks
- FTTX PON certification and troubleshooting
- Fast fault location
- Splice verification
- Network documentation

### Ordering Information

MODEL	DESCRIPTION	TEST PORT ADAPTERS
M200-00-0900PR	850/1300nm multimode and 1310/1550nm single-mode OTDR	(1) ST, (2) SC, and (1) FC *
M200-11-0900PR	1310/1550nm single-mode OTDR	SC and FC *
M200-12-0900PR	850/1300nm multimode OTDR	ST and SC *

\* LC test port adapters are available (order separately).

#### NOTES:

1. All models include a rugged, soft-sided carry case with shoulder strap, 110/220 VAC power adapter with country-specific power cord, and user guide.
2. M200 Standard OTDR supported languages: English, French, German, Italian, Portuguese and Spanish. For Chinese/Taiwanese, Japanese, or Korean models part numbers, please contact Noyes.



A Division of **AFL Telecommunications**



M200 OTDR with standard accessories



M200 OTDR with standard and optional accessories

## M200 Handheld OTDR in a Hard Case

The Noyes M200 OTDR is also available in a tough injection molded ABS carrying case. The rugged transit case has a full length hinge, padlock loops, secure snap latches and an O-ring seal to protect the contents from dust and water. In addition to the OTDR, the custom case has room for cleaning products, launch and receive rings, documentation and more. Order the Hard Case alone or with one of the M200 configurations. Add test accessories such as fiber rings and cleaning kits to be ready to clean and test fiber optic networks.

### M200 Hard Case Ordering Information

The M200 Hard Case option should be specified when ordering the M200 OTDR. For the M200 OTDR in a Hard Case ordering information, refer to the table below.

MODEL NUMBER	DESCRIPTION
1400-01-0075PZ	Hard Case for M200
M200-00-0903PR	850/1300nm multimode and 1310/1550nm single-mode M200 OTDR in Hard Case
M200-11-0904PR	1310/1550nm single-mode M200 OTDR in Hard Case
M200-12-0902PR	850/1300nm multimode M200 OTDR in Hard Case

**NOTE:** Fiber rings and cleaning supplies are not included with the M200 in the Hard Case option, they must be purchased separately. To order fiber rings or cleaning supplies with your M200, refer to the 'Accessories Ordering Information' table below.

### Accessories Ordering Information

MODEL NUMBER	DESCRIPTION
<b>FIBER RINGS</b>	
FR1-M5-150-x1-x2	Standard, 1 fiber, 50/125 μm multimode, 150m
FR1-L5-150-x1-x2	Standard, 1 fiber, Laser Optimized, 50 μm multimode, 150m
FR1-M6-150-x1-x2	Standard, 1 fiber, 62.5/125 μm multimode, 150m
FR1-SM-150-y1-y2	Standard, 1 fiber, single-mode, 150m
<b>CLEANING ACCESSORIES</b>	
8500-20-0900	Wet Cleaning Kit (shown) for SC/FC/ST/LC connectors. Includes: <ul style="list-style-type: none"> <li>• 8500-10-0016MZ, Cletop-SB.</li> <li>• CCTS-25-0900MZ, Connector Cleaning Tips for 2.5mm ferrule in adapters or sockets (SC, FC, ST in adapters). Blue (40 sticks per tube). Qty = 1 tube</li> <li>• CCTS-12-0900MZ, Connector Cleaning Tips for 1.25mm ferrule in adapters or sockets (LC, MU in adapters). Green (40 sticks per tube). Qty = 1 tube</li> <li>• FCC2-00-0900, optical quality Cleaning Fluid for fiber connector end faces.</li> </ul>
8500-20-0901	Dry Cleaning Kit Includes: <ul style="list-style-type: none"> <li>• 8500-10-0016MZ, Cletop -SB.</li> <li>• 8500-10-0024MZ, ACT-01 2.5mm adapter cleaning tips (Qty = 200).</li> </ul>
8500-05-0001MZ	One-Click Cleaner SC
8500-05-0002MZ	One-Click Cleaner LC/MU

**NOTE:** When ordering Fiber Rings, specify connector types (x1, x2, y1,y2)



A Division of AFL Telecommunications

# M200 Handheld OTDR

## Specifications

OTDR SPECIFICATIONS		
	MULTIMODE	SINGLE-MODE
Emitter Type	Laser	
Safety Class	Class I FDA 21 CFR 1040.10 and 1040.11, IEC EN60825-1:2007-03	
Center Wavelengths	850 / 1300 nm	1310 / 1550 nm
Wavelength Tolerance	± 20 / ± 30 nm	± 20 / ± 30 nm
Dynamic Range (SNR = 1)	22 dB	26 dB
Event Dead Zone <sup>1</sup>	1.5 m	1.5 m
Attenuation Dead Zone <sup>2</sup>	9 m	9 m
Pulse Widths <sup>3</sup>	10, 30, 100, 300 ns, 1, 3 μs	10, 30, 100, 300 ns, 1, 3, 10 μs
Range Settings	250 m to 32 km	250 m to 208 km
Data Points	Up to 16,000	Up to 16,000
Data Point Spacing	0.25 m (range ≤ 4 km) Range/16000 (range ≥ 8 km)	
Group Index of Refraction (GIR)	1.4000 to 1.6000	
Distance Uncertainty (m)	± (1 + 0.005% x distance + data point spacing)	
Trace File Format	Bellcore GR-196 Version 1.1	
Trace File Storage Medium	Internal non-volatile memory, removable Compact Flash Card (not included), and USB Flash Drive	
Trace File Storage Capacity	> 100 internal; thousands on Compact Flash or USB Flash Drive	
Trace File Transfer to PC	USB Flash Drive Type 1.1, Compact Flash or Mini USB Cable with ActiveSync	
VISUAL FAULT LOCATOR SPECIFICATIONS		
Emitter Type	Laser	
Safety Class	Class II FDA 21 CFR 1040.10 & 1040.11; IEC 825-1:1993, EN60825-1:2007-03	
Wavelength	650 nm	
Output Power (nominal)	0.8 mw	
GENERAL SPECIFICATIONS		
Size (in boot)	23 x 11 x 7 cm (8.8 x 4.3 x 2.8 inches)	
Weight	0.9 kg (2 lb)	
Operating Temperature	-10 to +50 °C	
Storage Temperature	-20 to +60 °C	
Relative Humidity	0 to 95% RH (non-condensing)	
Power	Removable Lilon or 110/220 VAC power adapter	
Battery Life <sup>4</sup>	6 hours	
Recharge Time <sup>4&amp;5</sup>	3 hours	

**NOTES:**

1. Typical distance between the two points 1.5 dB down each side of a reflective spike caused by a -40 dB (Multimode) or -45 dB (single-mode) event using 10 ns pulse width.
  2. Typical distance from event location to point where trace is within 0.5 dB of backscatter.
  3. 3 μs pulse width not available at 850 nm.
  4. New battery.
  5. Typical, from fully discharged to fully charged state, unit may be operating.
- All specifications are subject to change.  
All specifications valid at 23°C ± 2°C (73.4°F ± 3.6°F) unless otherwise specified.



A Division of AFL Telecommunications

# Splicers

## Fusion



### Type-25eU/S/M Hand-Held Fusion Splicer



#### Description:

The new Type-25e TomCats incorporate all the features, functions, and proven reliability of the Type-25 family—the industry's most popular handheld splicers for FTTx, premise, and restoration applications—but with numerous enhancements. The new TomCats feature improved optical technology utilizing your choice of an economical one camera or an industry standard dual camera splice loss estimation system. The improved optical technology, combined with a quicker splice protection sleeve heater, allows the unit to deliver a typical splice time in less than 11 seconds for SMF or MMF.

These next generation TomCats continue with Sumitomo's mission of customer focused engineering by reducing the customer's overall cost of ownership. The units feature an internal battery charger

and AC adapter to reduce equipment cost. They also utilize electrodes common with both the Type-39 and Type-66 to reduce customers' inventory cost, as well as ordering frustrations. Improved battery technology allows the technician to perform 60 splices on a single battery charge. Included in the "full-featured" distinction of the TomCat splicers are adjustable front-to-back position monitors that allow the user to observe the fiber during the splicing process.

The units are also compatible with Sumitomo's new Lynx—CustomFit™ Splice-on Connector, which makes index matching gel, hand polishing, epoxies, and splice trays obsolete. The Type-25e family features an improved fiber holder system to increase splice repeatability, while making the units effortless to learn and operate.

Fusion and Termination Products

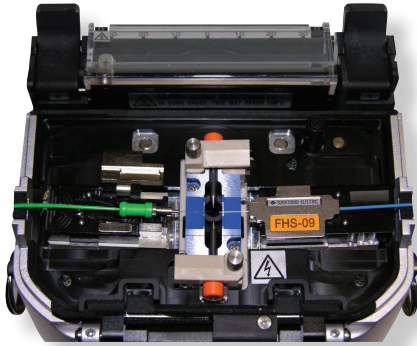
Specifications	Type-25eU	Type-25eS	Type-25eM
RoHS	Compliant (Engineered to be Environmentally Friendly)		
Alignment Method	Fixed V-Groove		
Applicable Fiber Types	SMF, MMF, DSF, NZ-DSF		
Fiber Count	1ct.	1ct.	Up to 4ct. Ribbon
Splice Loss Estimation	No	Yes	Yes
Fiber Placement	Fiber Holder System (Unified Fiber Holders for Type 25e/Type 66/Type-65)		
Cladding Diameter	125 µm		
Typical Splice Loss	Identical Fibers		
SMF/MMF	0.10/0.04dB	0.05/0.03dB	0.05/0.03dB
Typical Heaters Cycle	40 Seconds		
Typical Splice Time	11 Seconds		
Battery Operation	60 Splice & Heat Shrink Cycles per Charge		
Arc Test	Automatically Compensates for Environmental Conditions		
External Interface	12 Volt DC Output for Accessories USB Port for Quick PC Transfers		
Internal Splice Data Storage	1500		
Lynx—CustomFit™ Splice-On Connector	Compatible		
Powering Options	Internal Battery Charger Internal AC Adapter		



# Splicers Fusion

## Type 25eU/S/M Hand-Held Fusion Splicer

(cont'd)



Shown with Optional Lynx CustomFit™ Splice-on Connector.

### Customer Focused Features:

- Dual Camera Splice Loss Estimation
- Economically Priced Single Camera Unit
- 60 Splice & Heat Shrinks per Battery Charge
- Multiple Language Options Including Spanish
- User-Friendly Menu Selection System
- Unified Holders for Type-25e/Type-66
- Unified Electrodes for Type-25e/Type-66/Type-39
- Built-in Battery Charger
- AC Adapter Incorporated within Unit
- Lynx—CustomFit Splice-On Connector Compatible
- Automatic Arc Test Function
- 24-Hour Technical Support via

### Physical Characteristics

Size	120W x 145D x 160H mm (4.9W x 5.7D x 6.3H in)
Weight	1350 g (2.9 lbs)
Power Requirement (via built-in AC interface)	Input: 100 to 240V AC; 50/60Hz, 12V DC
Wind Protection	30 mph (15 m/s)

### Ordering Information

Description	Part Number
Splicer Kit with accessories, Type 25eU	TYPE-25eU-KIT-1
Splicer Kit with accessories, Type 25eU and Precision Optical Cleaver	TYPE-25eU-KIT-2
Splicer Kit with accessories, Type 25eS	TYPE-25eS-KIT-1
Splicer Kit with accessories, Type 25eS and Precision Optical Cleaver	TYPE-25eS-KIT-2
Splicer Kit with accessories, Type 25eM	TYPE-25eM-KIT-1
Splicer Kit with accessories, Type 25eM and Precision Optical Cleaver	TYPE-25eM-KIT-2

### Accessories

Description	Part Number	UOM
250µm Single Fiber Holder (T-25e & T-61 to T-66)	FHS-025	1 pr.
900µm Single Fiber Holder (T-25e & T-61 to T-66)	FHS-09	1 pr.
2 Count Ribbon Holder (T-25eM & T-61 to T-66)	FHM- 2	1 pr.
4 Count Ribbon Holder (T-25eM & T-61 to T-66)	FHM- 4	1 pr.
Spare Electrodes (T-25e, T-39 & T-66)	ER-10	1 pr.
Battery Unit	BU-HH2	1 ea.
Hand-Held Precision Single Fiber Cleaver	FC-7	1 ea.
High Precision Cleaver, Single or Ribbon, With Scrap Catcher	FC-6M-C	1 ea.
Cleaver Blade (FC-XXX)	FCP-BL	1 ea.
Thermal Jacket Remover, 1ct. to 4ct. Ribbon, Battery Operated	JR-5B	1 ea.
Fiber Protection Sleeves (Single Fiber, 60mm, 50 Sleeves)	FPS-1	1 pk.
Fiber Protection Sleeves (Single Fiber, 60mm, 10 Sleeves)	FPS-40-10P	1 pk.
Fiber Protection Sleeves (4 Fiber Ribbon, 5 Sleeves)	FPS-6-5P	1 pk.
Mini Work Platform	MPF-01	1 ea.
V-groove Brush	VGB-003-CR	1 ea.

See page F11 for complete Lynx-CustomFit™ Splice-On Connector ordering information.

### Type-25eU-KIT-1, Type-25eS-KIT-1 and Type-25eM-KIT-1 Components:

- Fusion Splicer
- Spare Electrodes
- Battery and Charging Cable
- Power Cord
- V-Groove Brush
- Operation Manual
- 250µm and 900µm Fiber Holders
- 4 Count Ribbon Holders included with 25eM
- Jacket Remover
- Hard Carrying Case

### Type-25eU-KIT-2, Type 25eS-KIT-2 and Type-25eM-KIT-2:

- Includes all components above plus a Precision Optical Cleaver and 900µm Fiber Holders