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Network Master™ Series

Network Master Pro MT1000A

10G Multirate Module	MU100010A
100G Multirate Module	MU100011A
OTDR Module	MU100020A/MU100021A/MU100022A/MU100023A
CPRI RF Module	MU100040B
High Performance GPS Disciplined Oscillator	MU100090A



Contents

The MT1000A is configured as a combination of various measurement modules.
It is designed to support a combination of selected measurement modules and options with the main unit.

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Network Master Pro MT1000A Main Frame

Network Master Pro MT1000A: Main Frame

The Network Master Pro MT1000A is a multiplatform designed for field testing that is configured using a combination of transport and optical. The Main Frame controls the test modules which can be changed freely to any custom configuration matching the users testing requirements.



Model/Order No.	Name
MT1000A	Network Master Pro
Standard Accessories	
MT1000A-006*1	High Power Supply: Installed
	Line Cord*2: 1 pc
B0745A	Softcase: 1 pc
B0728A*3	Rear Panel kit: 1 pc
G0385A*4	High Power AC Adaptor: 1 pc
G0310A	Li-ion Battery: 1 pc
Z1746A	Stylus: 1 pc
Z1747A*5	Carrying Strap: 1 pc
Z1748A*6	Handle: 1 pc
Z1817A*7	Utilities ROM: 1 pc
Options	
MT1000A-003*8	Connectivity for WLAN/Bluetooth
MT1000A-005*9	AUX I/O

- 1 Audio (3.5ø: CTIA Standard)
- 2 AUX (D-SUB 15 pin)
- 3 Clock Input
- 4 USB Mini-B
- 5 USB A
- 6 USB A
- 7 Ethernet Service Interface (For remote control)
- 8 DC Input (18 V DC)
- 9 9-inch active TFT display and touch screen
- 10 Power switch
- 11 Speaker

Module Configuration*10

1 Module	<ul style="list-style-type: none"> Transport Mainframe OTDR Mainframe CPRI RF Mainframe 	Mainframe Network Master Pro MT1000A
2 Modules	<ul style="list-style-type: none"> Transport Mainframe OTDR Mainframe Transport Mainframe GPS/Rb Mainframe Transport Mainframe CPRI RF Mainframe OTDR Mainframe CPRI RF Mainframe 	Transport Module 10G Multirate MU100010A 100G Multirate MU100011A
3 Modules	<ul style="list-style-type: none"> Transport Mainframe OTDR Mainframe GPS/Rb Mainframe Transport Mainframe OTDR Mainframe CPRI RF Mainframe 	OTDR Module 1310/1550 nm SMF MU100020A 1310/1550/850/1300 nm SMF/MMF MU100021A 1310/1550/1625 nm SMF MU100022A 1310/1550 nm, 1650 nm SMF MU100023A
		CPRI RF Module MU100040B
		High Performance GPS Disciplined Oscillator MU100090A

*1: The presence of the MT1000A-006 option can be recognized at the top right of the front panel. To retrofit to the already shipped item, please contact us.



Without MT1000A-006

With in MT1000A-006

*2: One line cord is attached to the area to shipment.

*3: Composed of B0720A, B0729A, B0730A and B0731A (see pages 15 and 23). Refer to Module Composition for the module combination.

*4: The MT1000A with MT1000A-006 can be used. Use the AC Adapter G0309A when using the MT1000A without MT1000A-006 installed.

*5: Shoulder strap for MT1000A.

*6: Hand strap for MT1000A.

*7: This DVD includes PDF files and formatting tools of each product's instruction manual (such as W3933AE, W3810AE, W3736AE, W3946AE).

*8: Available for certified countries and regions including USA, Canada, Japan and EU countries. Please visit the Anritsu web site for updated information. The Bluetooth® mark and logos are registered trademarks of Bluetooth SIG, Inc.

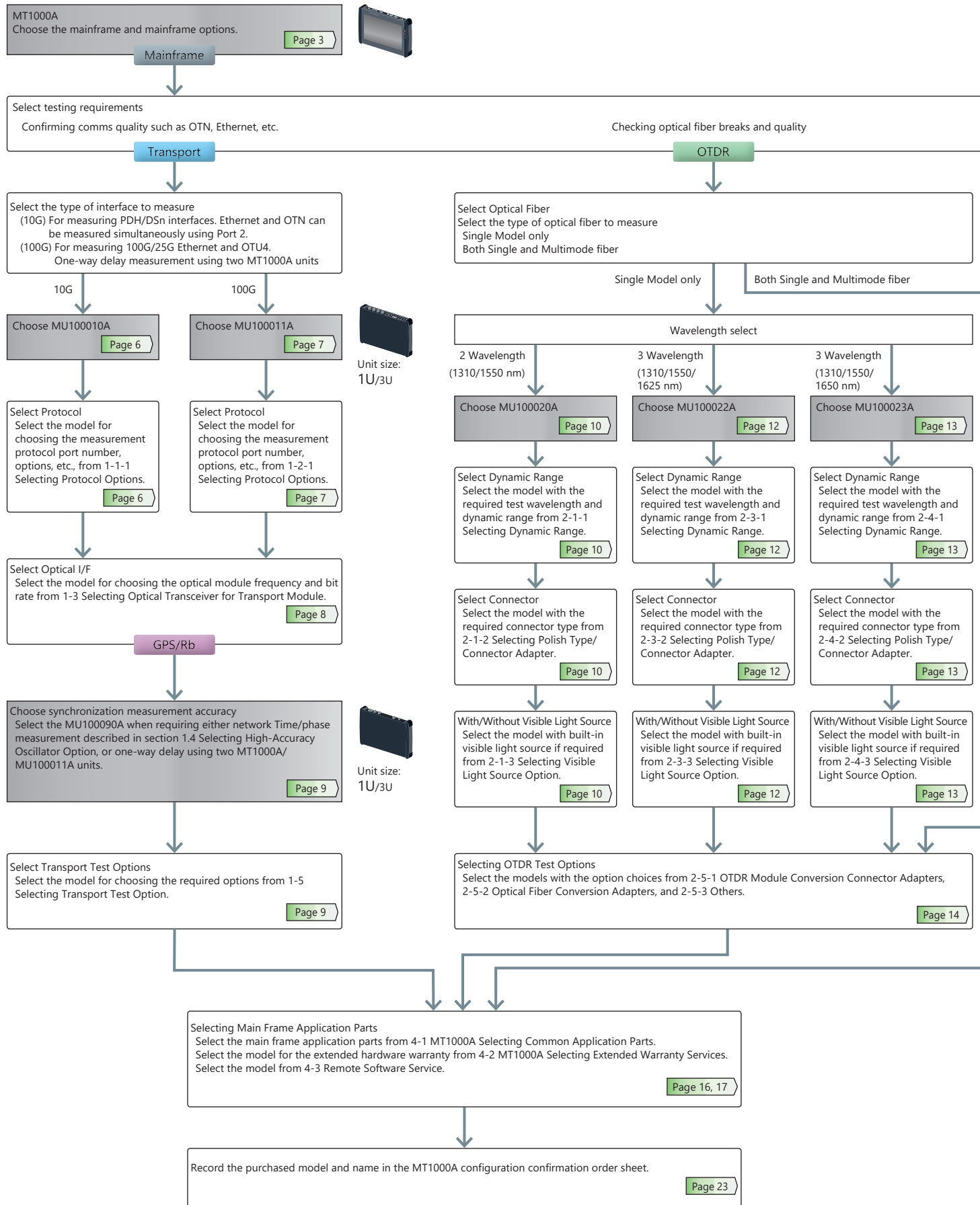
*9: MT1000A-005 is required for MU100090A. To retrofit to the already shipped item, please contact us.

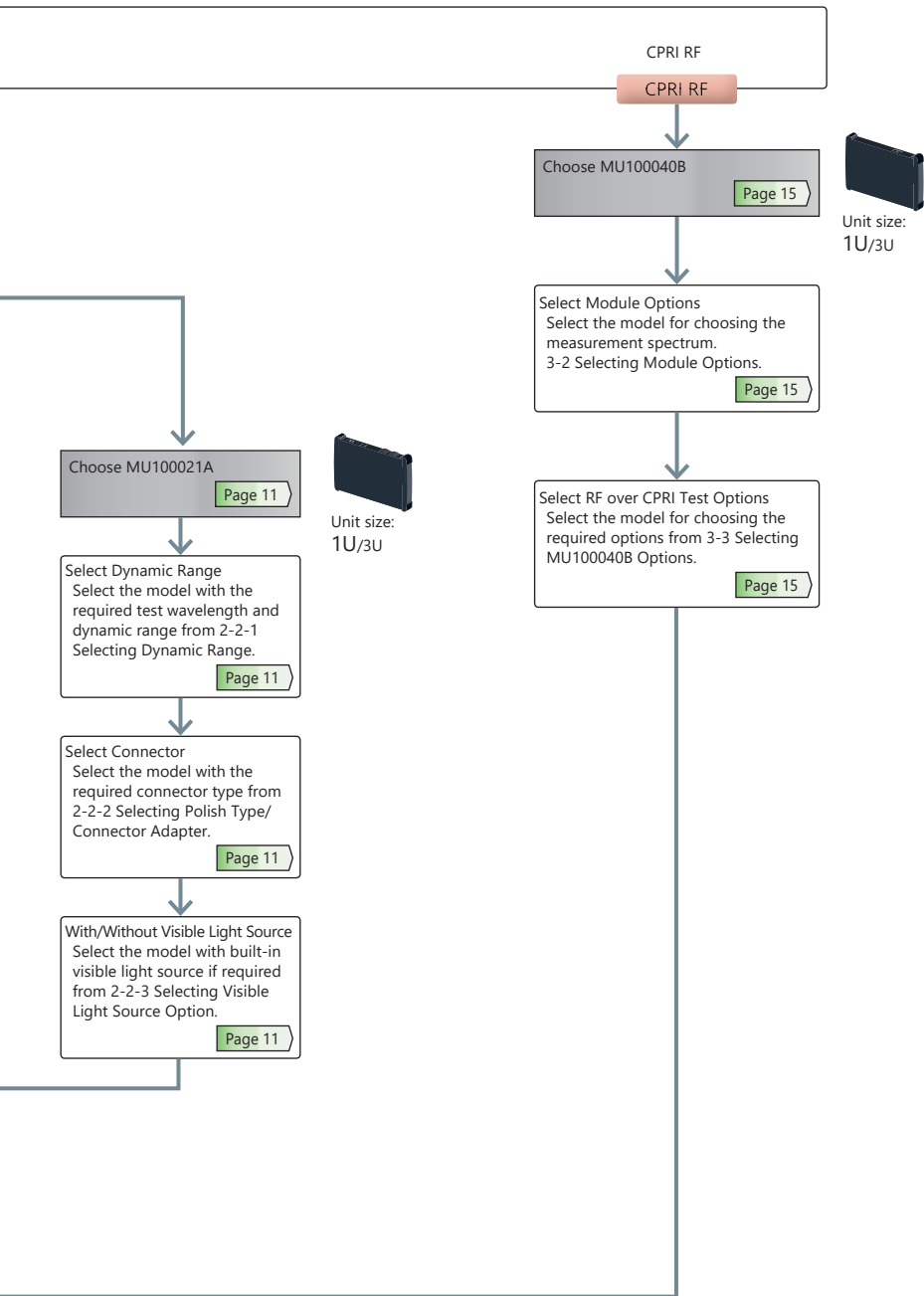
*10: Any modular combination as shown in a figure.

*11: Required if the transport module is not used rear cover.

New Purchase Flowchart

Use this flowchart to select options when purchasing a new MT1000A.





Module Combination Example

- Transport MU100011A
- Mainframe MT1000A



- Transport MU100010A
- OTDR MU100021A
- Mainframe MT1000A



- Transport MU100011A
- OTDR MU100021A
- GPS/Rb MU100090A
- Mainframe MT1000A



New Purchase

Transport Module

1-1 10G Multirate Module MU100010A



The 10G Multirate Module MU100010A supports communications network technologies with speeds ranging from 1.5 Mbps to 10 Gbps. It has the functions and performance required for network I&M tests. In addition, optional test protocols can be selected and added. This excellent expandability helps cut initial capital costs and supports introduction of new functions matching the work schedule.

1-1-1 Selecting Protocol Options

The protocol options are software options for transport technologies supporting each bit rate. At least one Channel option must be selected from the following list.

MU100010A	Bit Rate	Less than 5G	From 6G to 10G	
Transport Technology	No. of Measurement Ports*1	2 (Dual Channel)	1 (Single Channel)	2 (Dual Channel)
Ethernet				
IPv4/IPv6, Y.1564, IEEE 1588 v2, RFC 2544, BER, Multistream, OAM, SyncE, MPLS, MPLS-TP, Multistage VLAN, PBB, Ping/Traceroute, Cable Tests, In-band Control, Auto discovery, Path-through		MU100010A-001 Up to 2.7G Dual Channel	MU100010A-011 Ethernet 10G Single Channel	MU100010A-012 Ethernet 10G Dual Channel
TCP Throughput Test (RFC 6349, iPerf)		MU100010A-020 TCP Throughput		
eCPRI/RoE (IEEE1914.3)				
IPv4/IPv6, BER, VLAN, SyncE, IEEE 1588 v2, E-OAM		MU100010A-001 Up to 2.7G Dual Channel	MU100010A-011 Ethernet 10G Single Channel	MU100010A-012 Ethernet 10G Dual Channel
OTN*2, *3				
Errors/Alarms, Error Performance/Delay/APS Test, FEC Test, O.182 Test, Overhead Editing/Capture, TCM Monitoring/Generation, Tributary Scan		MU100010A-001 Up to 2.7G Dual Channel	MU100010A-051 OTN 10G Single Channel	MU100010A-052 OTN 10G Dual Channel
ODU Multiplexing Addition*4		MU100010A-061 ODU Multiplexing		
ODU Flex Addition*5		—	MU100010A-062 ODU Flex	
CPRI/OBSAI				
CPRI/OBSAI L1: Level/Bit Rate/Frequency deviation Measurement, Alarms/Errors Detection, Unframed BER CPRI/OBSAI L2: Link Status Monitoring, Alarms/Errors Detection, Framed BER Measurement, RTD Measurement, Monitoring using Passthrough		MU100010A-071 CPRI/OBSAI Up to 5G Dual Channel	MU100010A-072 CPRI/OBSAI 6G to 10G Single Channel	MU100010A-073 CPRI/OBSAI 6G to 10G Dual Channel
Fibre Channel				
Performance Test, Signal Generation/Monitoring, Latency, BER, Line Alarm/Error Monitoring		MU100010A-002 FC 1G 2G 4G Dual Channel	MU100010A-091 FC 8G 10G Single Channel	MU100010A-092 FC 8G 10G Dual Channel
SDH/SONET, PDH/DSn				
PDH/DSn Test, Tw-Way Monitoring/Mapping, Errors/Alarms, Error Performance/Delay/APS Test, Header Monitoring/Generation, Pointer Event Generation, Tributary Scan		MU100010A-001 Up to 2.7G Dual Channel	MU100010A-081 STM-64 OC-192 Single Channel	MU100010A-082 STM-64 OC-192 Dual Channel

*1: The channel is not related to the physical port position. The user can freely choose either of the two physical ports assigned to the option via software. For a dual channel setup, the two different ports of one protocol can operate simultaneously, or two different single channel options can operate simultaneously.

*2: Please see the datasheet for supported OTN mapping.

*3: When using the OTN function, the channel can be used as client signal mapped to OTN. For example, when mapping STM-64/OC-192 to OTU2, both the MU100010A-051/052 (for physical port) and the MU100010A-081/082 (for client signal) are required.

*4: When the ODU Multimapping option is installed, OTN multistage mapping measurements are supported. This one option supports both single channel and dual channel.

*5: When the ODU Flex option is installed, since transport is over OTN networks, mappings based on used ODU Flex standard can be measured. This one option supports both single channel and dual channel.

Model	Name
MU100010A	10G Multirate Module
Standard Accessories	
W3935AE	MT1000A Transport Quick Reference Guide: 1 pc
B0692A*	ESD Box (for optical modules): 1 pc

*: Up to four SFP+/SFPs can be stored.

Transport Module

1-2 100G Multirate Module MU100011A



The 100G Multirate Module MU100011A supports communications network technologies with speeds ranging from 10 Mbps to 100 Gbps. It has the functions and performance required for network I&M tests. In addition, optional test protocols can be selected and added. This excellent expandability helps cut initial capital costs and supports introduction of new functions matching the work schedule.

1-2-1 Selecting Protocol Options

The protocol options are software options for transport technologies supporting each bit rate. At least one Channel option must be selected from the following list.

MU100011A	Bit Rate	Up to 10G		Higher than 10G	
		No. of Measurement Ports*1	1 (Single Channel)	2 (Dual Channel)	1 (Single Channel)
Ethernet					
Transport Technology					
IPv4/IPv6, Y.1564, IEEE 1588 v2, RFC 2544, BER, Multistream, OAM, SyncE, MPLS, MPLS-TP, Multistage VLAN, PBB, Ping/Traceroute, Cable Tests, In-band Control, Auto discovery, Path-through	MU100011A-001 Up to 10G Single Channel	MU100011A-003 Up to 10G Dual Channel	MU100011A-017*2 Ethernet 25G Single Channel	—	
			MU100011A-013 Ethernet 40G Single Channel	—	
			MU100011A-015 Ethernet 100G Single Channel	—	
TCP Throughput Test (RFC 6349, iPerf)	MU100011A-020 TCP Throughput		—	—	
Measurement using 100GBASE-SR	—	—	MU100011A-023 RS-FEC for 100GBASE-SR4	—	
			MU100011A-015 Ethernet 100G Single Channel	—	
eCPRI/RoE (IEEE1914.3)					
IPv4/IPv6, BER, VLAN, SyncE, IEEE 1588 v2, E-OAM	MU100011A-001 Up to 10G Single Channel	MU100011A-003 Up to 10G Dual Channel	MU100011A-017*2 Ethernet 25G Single Channel	MU100011A-075*2, *3 eCPRI/RoE 25G Dual Channel	
			MU100011A-013 Ethernet 40G Single Channel	—	
			MU100011A-015 Ethernet 100G Single Channel	—	
Measurement using 100GBASE-SR	—	—	MU100011A-023 RS-FEC for 100GBASE-SR4	—	
			MU100011A-015 Ethernet 100G Single Channel	—	
OTN*4, *5					
Errors/Alarms, Error Performance/Delay/APS Test, FEC Test, O.182 Test, Overhead Editing/Capture, TCM Monitoring/Generation, Tributary Scan	MU100011A-001 Up to 10G Single Channel	MU100011A-003 Up to 10G Dual Channel	MU100011A-053 OTN 40G Single Channel	—	
			MU100011A-055 OTN 100G Single Channel	—	
ODU Multiplexing Addition*4, *6	MU100011A-063 ODU Multiplexing/Multi Stage				
ODU Flex Addition*4, *7	MU100011A-062 ODU Flex		—		
CPRI/OBSAI					
CPRI/OBSAI L1: Level/Bit Rate/Frequency deviation Measurement, Alarms/Errors Detection, Unframed BER	MU100011A-071 CPRI/OBSAI Up to 10G Single Channel	MU100011A-072 CPRI/OBSAI Up to 10G Dual Channel	MU100011A-073 CPRI 12/25G Single Channel	MU100011A-074 CPRI 12/25G Dual Channel	
CPRI/OBSAI L2: Link Status Monitoring, Alarms/Errors Detection, Framed BER Measurement, RTD Measurement, Monitoring using Passthrough					
Fibre Channel					
Performance Test, Signal Generation/Monitoring, Latency, BER, Line Alarm/Error Monitoring	MU100011A-004 Up to 10G FC Single Channel	MU100011A-005 Up to 10G FC Dual Channel	MU100011A-091 FC 16G Single Channel	—	
SDH/SONET					
PDH/DSn Test, Tw-Way Monitoring/Mapping, Errors/Alarms, Error Performance/Delay/APS Test, Header Monitoring/Generation, Pointer Event Generation, Tributary Scan	MU100011A-001 Up to 10G Single Channel	MU100011A-003 Up to 10G Dual Channel	MU100011A-083*8 STM-256/OC-768 Client Signal	—	

*1: The channel is not related to the physical port position. The user can freely choose either of the two physical ports assigned to the option via software.

For a dual channel setup, the two different ports of one protocol can operate simultaneously, or two different single channel options can operate simultaneously.

*2: FEC selectable On/Off.

*3: Option supports eCPRI/RoE protocol tests only.

*4: Please see the datasheet for supported OTN mapping.

*5: When using the OTN function, the channel can be used as client signal mapped to OTN.

For example, when mapping STM-256/OC-768 to OTU4, both the MU100011A-055 (for physical port) and the MU100011A-083 (for client signal) are required.

*6: When the ODU Multiplexing/Multistage option is installed, OTN multistage mapping measurements are supported.

This one option supports both single channel and dual channel.

*7: This mapping function is based on the ODUFlex standard for transmissions over OTN networks and supports client signals of any speed.

*8: The MU100011A has no STM-256/OC-768 PHY interface; it can be used for OTN client signals.

Model	Name
MU100011A*	100G Multirate Module
Standard Accessories	
W3935AE	MT1000A Transport Quick Reference Guide: 1 pc
B0763A**	ESD Box (for optical modules): 1 pc

*: MT1000A-006 is required for MU100011A.

** : One CFP4 plus either up to two QSFP28s or up to four SFP/SFP+ can be stored.

Transport Module

Table 1 Protocol Configuration Examples

Pattern 1: When using 2.7 Gbps max. SDH/SONET/OTN/Ethernet interface and 10 GigE single channel

Model	Name	Notes
MU100010A-001	Up to 2.7G Dual Channel	Measures (OTU1, 1 GigE, STM-16/OC-48) signals at 2 ports simultaneously at up to 2.7 Gbps max.
MU100010A-012	Ethernet 10G Dual Channel	Measures 1 port of 10 Gbps Ethernet Interface

With 1 channel running at 10 GigE on either physical port testing on the other physical port can be completed using the 2.7 Gbps channel option.

Pattern 2: When using 10 Gbps max. SDH/SONET/OTN/Ethernet interface, 100 GigE single channel and 10G bps max FC/CPRI/OBSAI single channel.

Model	Name	Notes
MU100011A-003	Up to 10G Dual Channel	Measures (Ethernet, OTN, SDH/SONET) signals at 2 ports simultaneously at up to 10 Gbps max.
MU100011A-015	Ethernet 100G Single Channel	Measures 1 port of 100 Gbps Ethernet Interface
MU100011A-004	Up to 10G FC Single Channel	Measures 1 port of up to 10 Gbps Fibre Channel Interface
MU100011A-071	CPRI/OBSAI Up to 10G Single Channel	Measures 1 port of up to 10 Gbps CPRI/OBSAI Interface

Performing a mapping test from 10 Gbps OTN physical interface to any 10 Gbps client signal. And the test a 100 Gbps Ethernet interface.

1-3 Selecting Optical Transceiver for Transport Module

Optical modules supporting the optical standards can be inserted for testing using the MU100010A/MU100011A. Select the optical module matching the test requirements.

MU100010A	MU100011A	Model/Order No.	Name	Form Factor	100 Meg Ethernet	156 Meg STM-1	614 Meg CPRI	622 Meg STM-4	768 Meg OBSAI	1GFC	1.23 Gig CPRI	1.25 Gig Ethernet	1.54 Gig OBSAI	2GFC	2.46 Gig CPRI	2.468 Gig STM-16	2.67 Gig OTU1	3.07 Gig CPRI OBSAI	4GFC	4.92 Gig CPRI	6.14 Gig CPRI OBSAI	8GFC	9.83 Gig CPRI	9.95 Gig STM-64	10.1 Gig CPRI	10.3 Gig Ethernet	10GFC	10.7 Gig OTU2	11.05 Gig OTU1e	11.09 Gig OTU2e	11.27 Gig OTU1f	11.3 Gig OTU2f	16GFC	25G Ethernet	40G Ethernet	40G OTN	100G Ethernet	100G OTN							
✓	✓	G0332A	100M FX 1310 nm MM SFP	SFP	1310 nm, MM, 2 km																																								
✓	✓	G0319A	Up to 2.7G 1310 nm 15 km SFP	SFP		1310 nm, SM, 15 km																																							
✓	✓	G0320A	Up to 2.7G 1310 nm 40 km SFP	SFP		1310 nm, SM, 40 km																																							
✓	✓	G0321A	Up to 2.7G 1550 nm 80 km SFP	SFP		1550 nm, SM, 80 km																																							
✓	✓	G0328A	1G/2G/4G FC 850 nm SFP	SFP						850 nm, MM, 0.5 km																																			
✓	✓	G0322A	1G/2G/4G FC 1310 nm SFP	SFP						1310 nm, SM, 10 km																																			
✓	✓	G0323A	1G/2G/4G FC 1550 nm SFP	SFP						1550 nm, SM, 40 km																																			
✓	✓	G0315A	10G LR/LW 1310 nm SFP+	SFP+																			1310 nm, SM, 10 km																						
✓	✓	G0316A	10G ER/EW 1550 nm 40 km SFP+	SFP+																			1550 nm, SM, 40 km																						
✓	✓	G0318A	10G ZR/ZW 1550 nm 80 km SFP+	SFP+																			1550 nm, SM, 80 km																						
✓	✓	G0329A	10G LR 1310 nm SFP+	SFP+							1310 nm, SM, 10 km																																		
✓	✓	G0356A	8G FC/10G SR 850 nm SFP+	SFP+																			850 nm, MM, 0.3 km																						
✓		G0386A	16GFC SR 850 nm SFP+	SFP+																																									
✓		G0387A	16GFC LR 1310 nm SFP+	SFP+																																									
✓		G0388A	25G SR 850 nm SFP28	SFP28																																									
✓		G0389A	25G LR 1310 nm SFP28	SFP28																																									
✓		G0359A	40G SR4 850 nm QSFP+	QSFP+																																									
✓		G0334A	40G LR4 1310 nm QSFP+	QSFP+																																									
✓		G0366A	100G SR4 850 nm QSFP28	QSFP28																																									
✓		G0364A	100G LR4 1310 nm QSFP28	QSFP28																																									
✓		G0365A	100G LR4 Dual Rate 1310 nm QSFP28	QSFP28																																									
✓		G0369A	100G LR4 Dual Rate 1310 nm CFP4	CFP4																																									

Transport Module

1-4 Choosing High-Accuracy Oscillator Option

High Performance GPS Disciplined Oscillator MU100090A



The MU100090A supplies GPS-synchronized 1 PPS, 10 MHz, and Time of Day (ToD) signals to the MT1000A as references for measuring the network and equipment time periodic error and SyncE frequency deviation using the MU100010A or MU100011A.

The measurement target signal is the time stamp in the 1 PPS or IEEE 1588 Ethernet frame. GbE, 10 GbE, and 25 GbE optical interfaces are supported.

In addition, the one-way delay at the 25G/40G/100G interface between two distant points can be measured using two MT1000A/MU100011A units and one MU100090A.

1-5 Selecting Transport Test Option

These options are used in combination with the MU100010A module. Choose options matching the customer's test requirements. Additionally today, these options cannot be used in combination with the OTDR Module MU100020A/MU100021A/MU100022A and CPRI RF Module MU100040B.

Model	Name	Notes
G0325A	GPS Receiver	It is required when measuring one-way latency at Ethernet tests. However, it is unnecessary when purchasing MU100090A.
W3933AE	MT1000A Transport Module Operation Manual	Printed manual
W3736AE	MT1000A/MT1100A Remote Scripting Operation Manual	Printed manual
Z1821A	Utilities in USB Stick	USB memory with operation manual, remote scripts instruction manual, etc.
J1583A	Optical Attenuator 10 dB LC/PC to LC/PC	
J1584A	RJ45 Cable 3 m	
J1585A	RJ48 to Crocodile Clips Cable 3 m	E1 interface cable.
J1586A	RJ48 to Crocodile Clips Cable 20 dB ATT 3 m	E1 interface cable.
J1588A	BNC Cable 2.5 m	E1, E3, E4, DS3, STM-1e, STS-3 interface cable. Impedance: 75Ω
J1589A	BNC to 1.6/5.6 Cable 2.5 m	E1, E3, E4, DS3, STM-1e, STS-3 interface cable. Impedance: 75Ω
J1591A	RJ48 to Two 3-pin Banana Plug Cable 2.5 m	E1 interface cable.
J1597A	RJ48 Balanced PDH Cable Crossed 3 m	E1 interface cable.
J1598A	Bantam Cable 3 m	DS1 interface cable.
J1710A	BNC Cable 0.2 m	BNC cable for MU100090A and main-frame external clock input connector. Impedance: 50Ω
J0127B	COAXIAL CORD, 2.0 M	BNC cable for MU100090A and main-frame external clock input connector. Impedance: 50Ω

Model/Order No.	Name
MU100090A*1	High Performance GPS Disciplined Oscillator
Standard Accessories	
J1705A	AUX Conversion Adaptor
J1706A	GPS Antenna
J1710A	BNC Cable (20 cm) × 2
Mandatory Main Frame Option	
MT1000A-005*2	AUX I/O

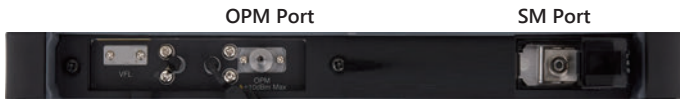
*1: Excellent Eco Product non-compliant.

*2: MT1000A-005 is required for MU100090A.

New Purchase

OTDR Module

2-1 OTDR Module 1310/1550 nm SMF MU100020A



The OTDR Module 1310/1550 nm SMF MU100020A is an OTDR module for single mode fiber use only. It supports all-in-one OTDR, FTTA, and OLTS measurements required for checking optical fiber. Select a model with the dynamic range matching the test requirements. Additionally, combined used with the visible light source options support visual confirmation of fiber breaks, etc.

Model	Name
MU100020A	OTDR Module 1310/1550 nm SMF
Standard Accessories	
J1693A	Universal Connector 2.5 mm for OPM: 1 pc
J1694A	Universal Connector 1.25 mm for OPM: 1 pc
W3811AE	Quick Reference Guide: 1 pc

2-1-1 Selecting Dynamic Range

The MU100020A is available in three models with different dynamic ranges matching the test environment. Select the One matching the test requirements.

Wavelength: Dynamic Range	Model	Name
1310/1550 nm: 39/37.5 dB	MU100020A-020	Standard Dynamic Range
1310/1550 nm: 42/41 dB	MU100020A-021	Enhanced Dynamic Range
1310/1550 nm: 46/46 dB	MU100020A-022	High-Performance Dynamic Range

2-1-2 Selecting Polish Type/Connector Adapter

The MU100020A is available in a total of five models (3 UPC and 2 APC) as listed below. Specify the required connector type at ordering. The specified connector is provided as a standard accessory. The polish type cannot be changed after purchase.

Connector Adapter	Polish Type		Model	
	UPC	APC	UPC Ultra Physical Contact	APC Angled Physical Contact
FC Connector	MU100020A-010 MU100020A-037	MU100020A-011 MU100020A-025		
DIN 47256 Connector	MU100020A-010 MU100020A-039			
SC Connector	MU100020A-010 MU100020A-040	MU100020A-011 MU100020A-026		

2-1-3 Selecting Visible Light Source Option

Breaks in the optical fiber can be detected visually using this light source. This option cannot be added after purchase.

Model	Name	Notes
MU100020A-002	Visual Fault Locator	For direct insertion of 2.5 mm (FC, SC, DIN) optical fiber with fixed diameter of 2.5 mm
J1335A	MU/LC Connector Adapter	Required conversion adapter for inserting LC (1.25 mm) optical fiber

New Purchase

OTDR Module

2-2 OTDR Module 1310/1550/850/1300 nm SMF/MMF MU100021A



The OTDR Module 1310/1550/850/1300 nm SMF/MMF MU100021A is an OTDR module for single and multimode fiber use. It supports all-in-one OTDR, FTTA, and OLTS measurements required for checking optical fiber. Select a model with the dynamic range matching the test requirements. Additionally, combined used with the visible light source options support visual confirmation of fiber breaks, etc.

Model	Name
MU100021A	OTDR Module 1310/1550/850/1300 nm SMF/MMF
Standard Accessories	
J1693A	Universal Connector 2.5 mm for OPM: 1 pc
J1694A	Universal Connector 1.25 mm for OPM: 1 pc
W3811AE	Quick Reference Guide: 1 pc

2-2-1 Selecting Dynamic Range

The MU100021A has a fixed dynamic range; select the following model.

Wavelength: Dynamic Range	Model	Name
1310/1550/850/1300 nm: 42/41/29/28 dB	MU100021A-021	Enhanced Dynamic Range

2-2-2 Selecting Polish Type/Connector Adapter

The MU100021A is available in a total of five models (3 UPC and 2 APC) as listed below. Specify the required connector type at ordering. Two specified connectors (for SMF and MMF ports) are provided as standard accessories. The polish type cannot be changed after purchase.

Connector Adapter	Polish Type	UPC*1		APC*1, *2 (SM port only, MM port is UPC)	APC Angled Physical Contact	
		UPC Ultra Physical Contact	UPC Ultra Physical Contact	UPC Ultra Physical Contact	MM Port	SM Port
	Model	MM Port	SM Port	Model	MM Port	SM Port
FC Connector	MU100021A-010 MU100021A-037			MU100021A-011 MU100021A-025		
DIN 47256 Connector	MU100021A-010 MU100021A-039					
SC Connector	MU100021A-010 MU100021A-040			MU100021A-011 MU100021A-026		

*1: Different connector adapter types cannot be specified for the SMF and MMF ports.

*2: There is no APC polish type for the MMF port. As a result, this connector adapter polish type is UPC.

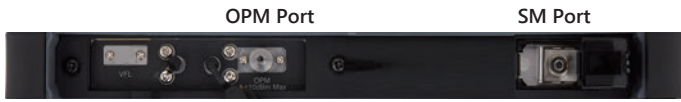
2-2-3 Selecting Visible Light Source Option

Breaks in the optical fiber can be detected by eye using this light source. This option cannot be added by retrofit after purchase.

Model	Name	Notes
MU100021A-002	Visual Fault Locator	For direct insertion of 2.5 mm (FC, SC, DIN) optical fiber with fixed diameter of 2.5 mm.
J1335A	MU/LC Connector Adapter	Required conversion adapter for inserting LC (1.25 mm) optical fiber

OTDR Module

2-3 OTDR Module 1310/1550/1625 nm SMF MU100022A



The OTDR Module 1310/1550/1625 nm SMF MU100022A is an OTDR module for single mode fiber use only. It supports all-in-one OTDR, FTTA, and OLTS measurements required for checking optical fiber. Additionally, combined used with the visible light source options support visual confirmation of fiber breaks, etc.

Model	Name
MU100022A	OTDR Module 1310/1550/1625 nm SMF
Standard Accessories	
J1693A	Universal Connector 2.5 mm for OPM: 1 pc
J1694A	Universal Connector 1.25 mm for OPM: 1 pc
W3811AE	Quick Reference Guide: 1 pc

2-3-1 Selecting Dynamic Range

The MU100022A has a fixed dynamic range; select the following model.

Wavelength: Dynamic Range	Model	Name
1310/1550/1625 nm: 46/46/44 dB	MU100022A-022	High-Performance Dynamic Range

2-3-2 Selecting Polish Type/Connector Adapter

The MU100022A is available in a total of five models (3 UPC and 2 APC) as listed below. Specify the required connector type at ordering. The specified connector is provided as a standard accessory. The polish type cannot be changed after purchase.

Connector Adapter	Polish Type		Model	
	UPC	APC	UPC Ultra Physical Contact	APC Angled Physical Contact
FC Connector	MU100022A-010 MU100022A-037	MU100022A-011 MU100022A-025		
DIN 47256 Connector	MU100022A-010 MU100022A-039			
SC Connector	MU100022A-010 MU100022A-040	MU100022A-011 MU100022A-026		

2-3-3 Selecting Visible Light Source Option

Breaks in the optical fiber can be detected visually using this light source. This option cannot be added after purchase.

Model	Name	Notes
MU100022A-002	Visual Fault Locator	For direct insertion of 2.5 mm (FC, SC, DIN) optical fiber with fixed diameter of 2.5 mm
J1335A	MU/LC Connector Adapter	Required conversion adapter for inserting LC (1.25 mm) optical fiber

New Purchase

OTDR Module

2-4 OTDR Module 1310/1550 nm, 1650 nm SMF MU100023A



The OTDR Module 1310/1550 nm, 1650 nm SMF MU100023A is an OTDR module for single mode fiber use only. It supports all-in-one OTDR, FTTA, and OLTS measurements required for checking optical fiber. Additionally, combined used with the visible light source options support visual confirmation of fiber breaks, etc.

Model	Name
MU100023A	OTDR Module 1310/1550/1650 nm SMF
Standard Accessories	
J1693A	Universal Connector 2.5 mm for OPM: 1 pc
J1694A	Universal Connector 1.25 mm for OPM: 1 pc
W3811AE	Quick Reference Guide: 1 pc

2-4-1 Selecting Dynamic Range

The MU100023A has a fixed dynamic range; select the following model.

Wavelength: Dynamic Range	Model	Name
1310/1550 nm: 42/41 dB, 1650 nm: 35 dB	MU100023A-021	Enhanced Dynamic Range

2-4-2 Selecting Polish Type/Connector Adapter

The MU100023A is available in a total of five models (3 UPC and 2 APC) as listed below. Specify the required connector type at ordering. The specified connector is provided as a standard accessory. The polish type cannot be changed after purchase.

Connector Adapter	Polish Type			
	UPC*	Model	APC*	Model
		UPC Ultra Physical Contact		APC Angled Physical Contact
FC Connector		MU100023A-010 MU100023A-037		MU100023A-011 MU100023A-025
DIN 47256 Connector		MU100023A-010 MU100023A-039		
SC Connector		MU100023A-010 MU100023A-040		MU100023A-011 MU100023A-026

*: Different types of connector adapters cannot be selected for the SM port (1310/1550 nm) and the SM port (1650 nm).

2-4-3 Selecting Visible Light Source Option

Breaks in the optical fiber can be detected visually using this light source. This option cannot be added after purchase.






Model	Name	Notes
MU100023A-002	Visual Fault Locator	For direct insertion of 2.5 mm (FC, SC, DIN) optical fiber with fixed diameter of 2.5 mm. 
J1335A	MU/LC Connector Adapter	Required conversion adapter for inserting LC (1.25 mm) optical fiber 

OTDR Module


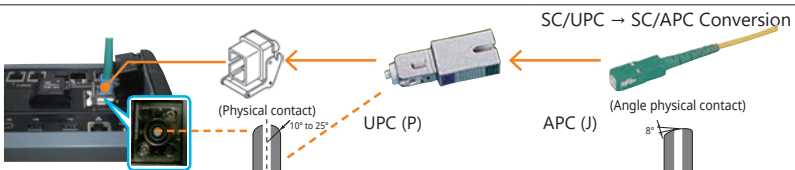

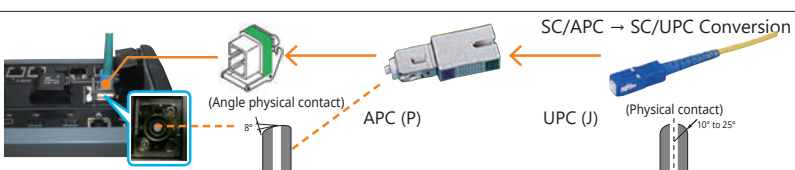

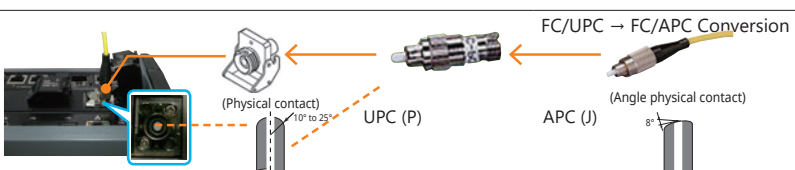

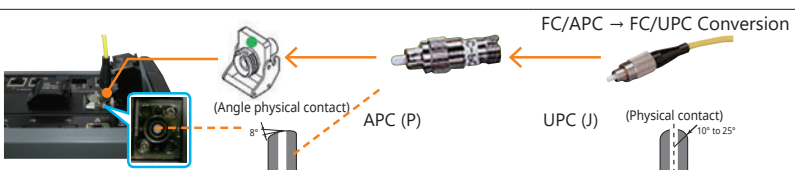

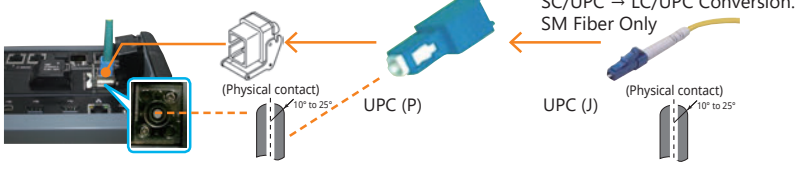

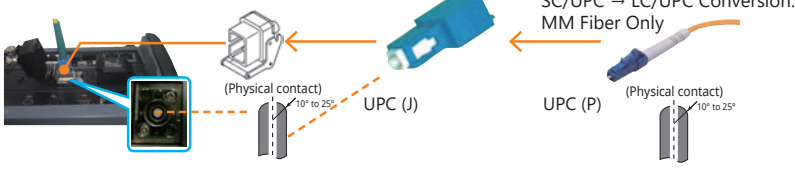
2-5 Selecting MU100020A/MU100021A/MU100022A/MU100023A Options

The OTDR Module connector is available in a total of five types (3 UPC and 2 APC). These connectors can be changed freely by the user. However, connectors with mismatched polish types cannot be used. In addition, the MU100010A/MU100011A/MU100040B cannot be used.

2-5-1 OTDR Module Conversion Connector Adapters

Model	UPC (Option 010), SM/MM Ports			APC (Option 011), SM Port	
	J0617B (FC/UPC)	J0618E (DIN/UPC)	J0619B (SC/UPC)	J0739A (FC/APC)	J1697A (SC/APC)
Name	Changeable Optical Connector (FC-PC)	Changeable Optical Connector (DIN)	Changeable Optical Connector (SC)	Changeable Optical Connector (FC-APC)	Changeable Optical Connector (SC-APC)
Form					

2-5-2 Optical Fiber Conversion Adapters

Model	Name	Notes
J1530A	SC Plug-in Converter (UPC (P)-APC (J))	  <p>SC/UPC → SC/APC Conversion</p>
J1531A	SC Plug-in Converter (APC (P)-UPC (J))	  <p>SC/APC → SC/UPC Conversion</p>
J1532A	FC Plug-in Converter (UPC (P)-APC (J))	  <p>FC/UPC → FC/APC Conversion</p>
J1533A	FC Plug-in Converter (APC (P)-UPC (J))	  <p>FC/APC → FC/UPC Conversion</p>
J1534A	LC-SC Plug-in Converter (for SM, SC (P)-LC (J))	  <p>SC/UPC → LC/UPC Conversion. SM Fiber Only</p>
J1535A	LC-SC Plug-in Converter (for MM, SC (P)-LC (J))	  <p>SC/UPC → LC/UPC Conversion. MM Fiber Only</p>

2-5-3 Others

Model	Name	Notes
NETWORKS	PC Emulation Software for Data Analysis and Reporting	Supports PC running Microsoft Windows 7 and Windows 10 to edit waveform data and create reports
W3810AE	MT1000A MU100020A Network Master Pro Operation Manual	MT1000A and MU100020A/MU100021A/MU100022A/MU100023A operation manuals

CPRI RF IQ Data Measurement Module

3-1 CPRI RF Module MU100040B



CPRI RF Module MU100040B displays the LTE spectrum of the uplink or downlink of BBU and RRH radios.

By monitoring the LTE uplink spectrum on the CPRI uplink, it is possible to monitor for interferers from ground level.

Model/Order No.	Name
MU100040B*	CPRI RF Module

*: Excellent Eco Product non-compliant

3-2 Selecting Module Options

Model	Name
MU100040B-001	CPRI LTE RF Measurements (Mandatory Option)
MU100040B-010	CPRI Base Band Unit Emulation - NOKIA/A-LU LTE RRH

3-3 Selecting MU100040B Options

Model	Name
Optical Tap	
67-12-R	80/20 Optical Tap; Single Mode/Multi Mode
67-13-R	80/20 Optical Tap; Single Mode
67-14-R	50/50 Optical Tap; Single Mode/Multi Mode
67-15-R	50/50 Optical Tap; Single Mode
Optical Modules for MU100040B	
68-5-R	SFP (Optical Module), 4.25G, 850 nm, 500 m
68-6-R	SFP+ (Optical Module), 8G FC/10G SR 850 nm
68-7-R	SFP (Optical Module), 2.7G, 1310 nm, 15 km
68-8-R	SFP+ (Optical Module), 10G LR, 1310 nm
68-9-R	SFP (Optical Module), 3.07 Gbps SFP, 1310 nm
68-10-R	SFP (Optical Module), 3.7 Gbps SFP, 850 nm
68-11-R	SFP (Optical Module), 10.5 Gbps SFP+, 1310 nm
68-12-R	SFP (Optical Module), 10.5 Gbps SFP+, 850 nm
68-16-R	SFP+ (Optical Module), 9.83G LC, 1310 nm
Case for Optical Modules	
2000-1849-R	ESD Box
Optical Fibers for MU100040B	
2100-29-R	Fiber Optic Cable, 3 m, LC/UPC, Single Mode (SM), Simplex
2100-30-R	Fiber Optic Cable, 10 m, LC-SC, Multi Mode (MM), Simplex
2100-31-R	Fiber Optic Cable, 3 m, LC/UPC, Single Mode (SM), Duplex
808-16-R	3 m, DUPLEX, MM, LC-LC
808-17-R	3 m, SIMPLEX, MM, LC-LC
Cleaners for MU100040B	
971-14-R	Ferrule Cleaner, 2.5 mm SC
971-15-R	Ferrule Cleaner, 1.25 mm LC
971-16	Fiber Ferrule Cleaner
Carrying Case	
760-286-R	Compact Transit Case with Wheels and Handle Dimensions: 556 (W) × 355 (H) × 229 (D) mm

New Purchase

Common Application Parts, Extended Warranty Services and Remote Software Service

4-1 MT1000A Selecting Common Application Parts

Various application parts make the MT1000A more convenient to use.

Softcase B0745A (Standard Accessory)

This bag with shoulder strap can hold the MT1000A with up to three installed modules.



Hard Case B0691B

This strong plastic case can hold the MT1000A with up to two installed modules. 462 (W) × 372 (H) × 207 (D) mm



Battery Charger G0324A

This is the charger for the MT1000A G0310A Li-ion battery.



GPiB-USB Converter J1667A

Converter connected to MT1000A USB interface for controlling MT1000A over GPiB using commands from external PC controller.



AC Adapter G0309A

This AC adapter is used with the MT1000A without MT1000A-006. It cannot be used with the MT1000A with MT1000A-006 installed.

Car 12 Vdc Adapter J1569B

This adapter supplies power to the MT1000A from an automobile 12-V cigarette lighter plug.

Use the accessory attachment supplied with the MT1000A main unit with MT1000A-006 installed.

Video Inspection Probe G0382A/G0306B

Scratches and dirt on the connector end face are a major cause of degraded communications quality. The MT1000A has a built-in VIP function for analyzing the condition of the optical connector end face in the utility menu. When the VIP is connected, scratches and dirt on the optical connector end face are visualized (× 400) and the OK/NG status is evaluated based on the IEC61300-3-35 standard. Anritsu supports VIP Series G0382A (USB Autofocus Type) and G0306B (USB Standard Type).

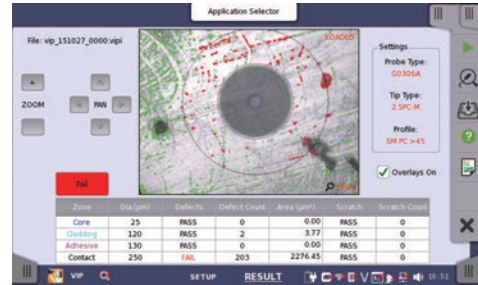


G0382A



G0306B

Different tip types are used by the G0382A and G0306B.



Optical Connector End-face Inspection/Evaluation Screen

Optical Cables

Model	Name	Notes
J1571A	Optical cable SM LC/PC to SC/PC 3 m	Single core (no paired cables)
J1575A	Optical Cable SM LC/PC to FC/PC 3 m	Single core (no paired cables)
J1579A	Optical Cable SM LC/PC to LC/PC 3 m	Single core (no paired cables)
J1581A	Optical Cable MM LC/PC to LC/PC 3 m	Single core (no paired cables)

MT1000A Module Connection Parts

Model	Name	Notes
B0720A	Rear Panel	MT1000A Rear Panel
B0728A	Rear Panel Kit	Rear Panel (B0720A) and Screw kit (B0732A) (Same as standard accessory)
B0729A	Screw 1U	1 unit screw set (Total 4 pcs)
B0730A	Screw 2U	2 units screw set (Total 4 pcs)
B0731A	Screw 3U	3 units screw set (Total 4 pcs)
B0732A	Screw Kit	1U, 2U, 3U screw (Total 12 pcs)

Common Application Parts, Extended Warranty Services and Remote Software Service

4-2 MT1000A Selecting Extended Warranty Services

The standard warranty period is 1 year. An extended warranty can be purchased for the main frame and the test interface modules as listed below.

Model	Name
MT1000A	
MT1000A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MT1000A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MT1000A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)
MU100010A	
MU100010A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100010A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100010A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)
MU100011A	
MU100011A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100011A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100011A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)
MU100090A	
MU100090A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100090A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100090A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)

Model	Name
MU100020A	
MU100020A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100020A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100020A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)
MU100021A	
MU100021A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100021A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100021A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)
MU100022A	
MU100022A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100022A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100022A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)
MU100023A	
MU100023A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100023A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100023A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)
MU100040B	
MU100040B-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100040B-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100040B-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)

4-3 Remote Software Service

The following licenses must be purchased to use the MX109020A Site Over Remote Access.

Mainframe Option License

Model/Order No.	Name
MT1000A-003*1	WLAN/Bluetooth Connect
MT1000A-011*2	Site Over Remote Access Connect

*1: Available for certified countries and regions including USA, Canada, Japan and EU countries. Please visit the Anritsu web site for updated information.

The Bluetooth® mark and logos are registered trademarks of Bluetooth SIG, Inc.

*2: Validity period is unlimited. An open TCP port may be required to allow the MT1000A to be connected from an in-company LAN to MX109020A, depending on the LAN security policy.

Subscription Option License

Model/Order No.	Name
MX109020A*3, *5, *6, *7	Site Over Remote Access Basic License
MX109020A-TL001*3, *4	Site Over Remote Access 1 Year License
MX109020A-001*5	Site Over Remote Access 8 Units
MX109020A-002*5	Site Over Remote Access Unlimited Units

*3: We recommend purchasing a 1-year license in addition to the basic license.

*4: When extending the usage period, we recommend purchasing in 1-year license periods

*5: Up to two measuring instruments can be remotely controlled simultaneously with the basic license.

This number can be increased to up to 8 units by purchasing the MX109020A-001 option, and up to 100 units by purchasing the MX109020A-002 option.

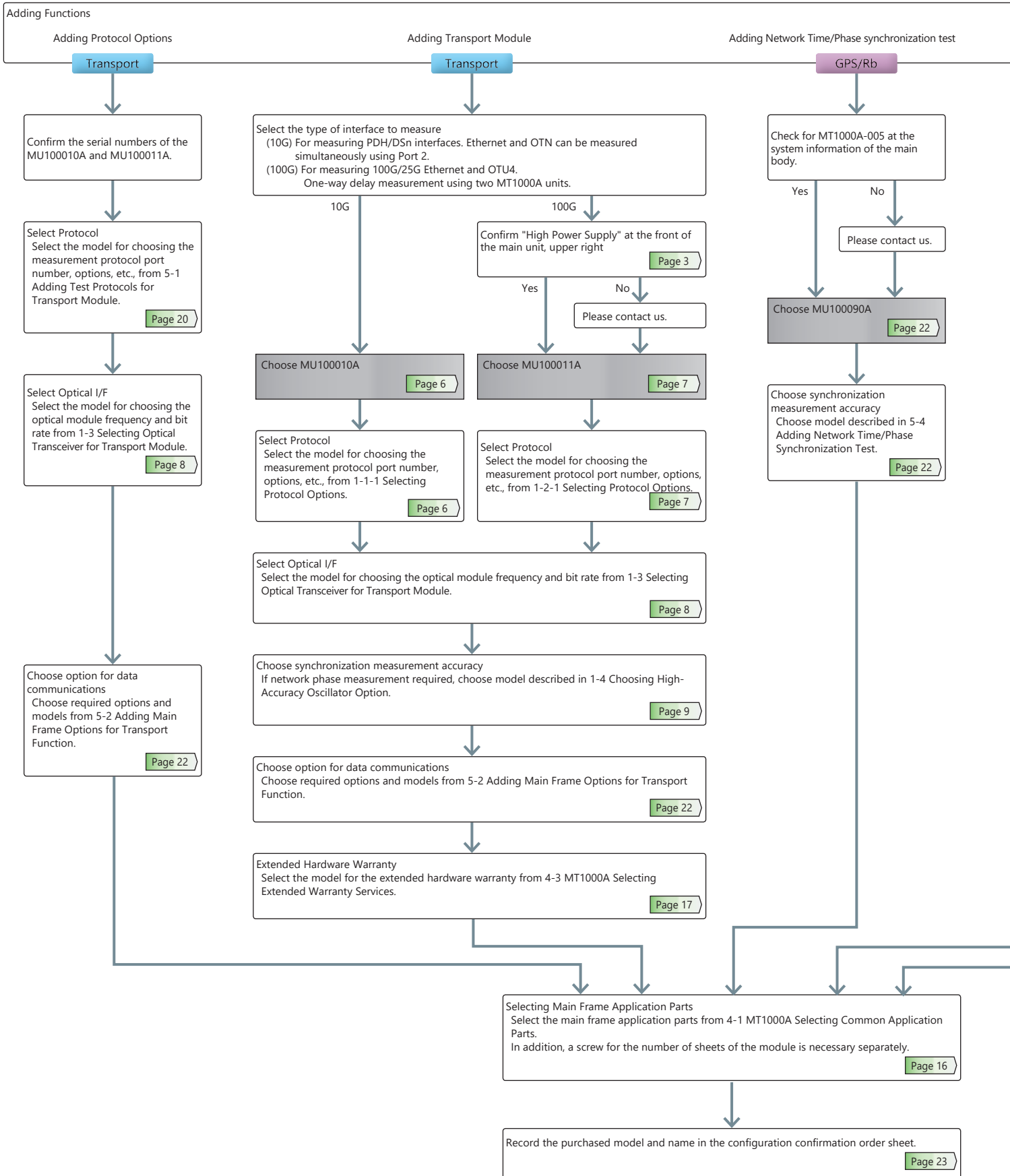
*6: You must agree to the service terms before purchasing SORA.

Refer to the service terms at the following URL: <https://www.anritsu.com/en-AU/test-measurement/support/downloads/manuals/dwl20059>

*7: This product cannot be used in some regions and countries; please read the service terms for more details.

Additional Purchases Flowchart

Use this flowchart when adding modules and options to a previously purchased MT1000A.



Adding OTDR Module

Adding CPRI RF Module

OTDR

CPRI RF

Select Optical Fiber
Select the type of optical fiber to measure
Single Mode only
Both Single Mode and Multimode

Choose MU100040B

Single Mode only Both Single Mode and Multimode

Wavelength select

2 Wavelength
(1310/1550 nm)

3 Wavelength
(1310/1550/
1625 nm)

3 Wavelength
(1310/1550/
1650 nm)

Choose MU100020A

Choose MU100022A

Choose MU100023A

Choose MU100021A

Select Module Options
Select the model for choosing the
measurement spectrum.
3-2 Selecting Module Options.

Select Dynamic Range
Select the model with the
required test wavelength and
dynamic range from 2-1-1
Selecting Dynamic Range.

Select Dynamic Range
Select the model with the
required test wavelength and
dynamic range from 2-3-1
Selecting Dynamic Range.

Select Dynamic Range
Select the model with the
required test wavelength and
dynamic range from 2-4-1
Selecting Dynamic Range.

Select Dynamic Range
Select the model with the
required test wavelength and
dynamic range from 2-2-1
Selecting Dynamic Range.

Select RF over CPRI Test Options
Select the model for choosing the
required options from 3-3 Selecting
MU100040B Options.

Select Connector
Select the model with the
required connector type from
2-1-2 Selecting Polish Type/
Connector Adapter.

Select Connector
Select the model with the
required connector type from
2-3-2 Selecting Polish Type/
Connector Adapter.

Select Connector
Select the model with the
required connector type from
2-4-2 Selecting Polish Type/
Connector Adapter.

Select Connector
Select the model with the
required connector type from
2-2-2 Selecting Polish Type/
Connector Adapter.

With/Without Visible Light Source
Select the model with built-in
visible light source if required
from 2-1-3 Selecting Visible
Light Source Option.

With/Without Visible Light Source
Select the model with built-in
visible light source if required
from 2-3-3 Selecting Visible
Light Source Option.

With/Without Visible Light Source
Select the model with built-in
visible light source if required
from 2-4-3 Selecting Visible
Light Source Option.

With/Without Visible Light Source
Select the model with built-in
visible light source if required
from 2-2-3 Selecting Visible
Light Source Option.

Selecting OTDR Test Options
Select the models with the option choices from 2-5-1 OTDR Module Conversion Connector Adapters, 2-5-2 Optical Fiber Conversion Adapters, and 2-5-3 Others.

Additional Purchases

Adding New Options to Previously Purchased MT1000A

Confirm the serial numbers of the MT1000A and MU100010A/MU100011A.

5-1 Adding Test Protocols for Transport Module

When adding protocol options later, specify one of the following media types as well as the option.

Model	Name
Z1849A	DVD-ROM for Retrofit Options
Z1850A	USB Stick for Retrofit Options

In addition, when purchasing multiple retrofit options at one time, they are all installed using the same media.

<MU100010A>

To add a new protocol option to a previously purchased MU100010A, choose the required option from the following list.

The MU100010A serial number is required to make the purchase.

Adding MU100010A Protocol Option	Bit Rate	Less than 5G	From 6G to 10G	
Transport Technology	No. of Measurement Ports*1	2 (Dual Channel)	1 (Single Channel)	2 (Dual Channel)
Ethernet				
IPv4/IPv6, Y.1564, IEEE 1588 v2, RFC 2544, BER, Multistream, OAM, SyncE, MPLS, MPLS-TP, Multistage VLAN, PBB, Ping/Traceroute, Cable Tests, In-band Control, Auto discovery, Path-through		MU100010A-301 Up to 2.7G Dual Channel Retrofit	MU100010A-311 Ethernet 10G Single Channel Retrofit	MU100010A-312 Ethernet 10G Dual Channel Retrofit
TCP Throughput Test (RFC 6349, iPerf)		MU100010A-320 TCP Throughput Retrofit		
eCPRI/RoE (IEEE1914.3)				
IPv4/IPv6, BER, VLAN, SyncE, IEEE 1588 v2, E-OAM		MU100010A-301 Up to 2.7G Dual Channel Retrofit	MU100010A-311 Ethernet 10G Single Channel Retrofit	MU100010A-312 Ethernet 10G Dual Channel Retrofit
OTN*2				
Errors/Alarms, Error Performance/Delay/APS Test, FEC Test, O.182 Test, Overhead Editing/Capture, TCM Monitoring/Generation, Tributary Scan		MU100010A-301 Up to 2.7G Dual Channel Retrofit	MU100010A-351 OTN 10G Single Channel Retrofit	MU100010A-352 OTN 10G Dual Channel Retrofit
ODU Multiplexing Addition*3		MU100010A-361 ODU Multiplexing Retrofit		
ODU Flex Addition*4		—	MU100010A-362 ODU Flex Retrofit	
CPRI/OBSAI				
CPRI/OBSAI L1: Level/Bit Rate/Frequency deviation Measurement, Alarms/Errors Detection, Unframed BER CPRI/OBSAI L2: Link Status Monitoring, Alarms/Errors Detection, Framed BER Measurement, RTD Measurement, Monitoring using Passthrough		MU100010A-371 CPRI/OBSAI Up to 5G Dual Channel Retrofit	MU100010A-372 CPRI/OBSAI 6G to 10G Single Channel Retrofit	MU100010A-373 CPRI/OBSAI 6G to 10G Dual Channel Retrofit
Fibre Channel				
Performance Test, Signal Generation/Monitoring, Latency, BER, Line Alarm/Error Monitoring		MU100010A-302 FC 1G 2G 4G Dual Channel Retrofit	MU100010A-391 FC 8G 10G Single Channel Retrofit	MU100010A-392 FC 8G 10G Dual Channel Retrofit
SDH/SONET, PDH/DSn				
PDH/DSn Test, Tw-Way Monitoring/Mapping, Errors/Alarms, Error Performance/Delay/APS Test, Header Monitoring/Generation, Pointer Event Generation, Tributary Scan		MU100010A-301 Up to 2.7G Dual Channel Retrofit	MU100010A-381 STM-64 OC-192 Single Channel Retrofit	MU100010A-382 STM-64 OC-192 Dual Channel Retrofit

*1: The channel is not related to the physical port position. The user can freely choose either of the two physical ports assigned to the option via software.

For a dual channel setup, the two different ports of one protocol can operate simultaneously, or two different single channel options can operate simultaneously.

*2: When using the OTN function, the channel can be used as client signal mapped to OTN. For example, when mapping STM-64/OC-192 to OTU2, both the MU100010A-351/352 (for physical port) and the MU100010A-381/382 (for client signal) are required.

*3: When the ODU Multimapping option is installed, OTN multistage mapping measurements are supported.

This one option supports both single channel and dual channel.

*4: When the ODU Flex option is installed, since transport is over OTN networks, mappings based on used ODU Flex standard can be measured.

This one option supports both single channel and dual channel.

Additional Purchases

Adding New Options to Previously Purchased MT1000A

<MU100011A>

To add a new protocol option to a previously purchased MU100011A, choose the required option from the following list.
The MU100011A serial number is required to make the purchase.

Adding MU100010A Protocol Option	Bit Rate No. of Measurement Ports*1	Up to 10G		Higher than 10G	
		1 (Single Channel)	2 (Dual Channel)	1 (Single Channel)	2 (Dual Channel)
Ethernet					
IPv4/IPv6, Y.1564, IEEE 1588 v2, RFC 2544, BER, Multistream, OAM, SyncE, MPLS, MPLS-TP, Multistage VLAN, PBB, Ping/Traceroute, Cable Tests, In-band Control, Auto discovery, Path-through	MU100011A-301 Up to 10G Single Channel Retrofit	MU100011A-303 Up to 10G Dual Channel Retrofit	MU100011A-317*8 Ethernet 25G Single Channel Retrofit	—	
			MU100011A-313*9 Ethernet 40G Single Channel Retrofit	—	
			MU100011A-315*9 Ethernet 100G Single Channel Retrofit	—	
TCP Throughput Test (RFC 6349, iPerf)	MU100011A-320 TCP Throughput		—		
Measurement using 100GBASE-SR	—	—	MU100011A-323*8 RS-FEC for 100GBASE-SR4 Retrofit	—	
			MU100011A-315*9 Ethernet 100G Single Channel Retrofit	—	
eCPRI/RoE (IEEE1914.3)					
IPv4/IPv6, BER, VLAN, SyncE, IEEE 1588 v2, E-OAM	MU100011A-301 Up to 10G Single Channel Retrofit	MU100011A-303 Up to 10G Dual Channel Retrofit	MU100011A-317*8 Ethernet 25G Single Channel Retrofit	MU100011A-375*7, *8 eCPRI/RoE 25G Dual Channel Retrofit	
			MU100011A-313*9 Ethernet 40G Single Channel Retrofit	—	
			MU100011A-315*9 Ethernet 100G Single Channel Retrofit	—	
Measurement using 100GBASE-SR	—	—	MU100011A-323*8 RS-FEC for 100GBASE-SR4 Retrofit	—	
			MU100011A-315*9 Ethernet 100G Single Channel Retrofit	—	
OTN*2, *3					
Errors/Alarms, Error Performance/Delay/APS Test, FEC Test, O.182 Test, Overhead Editing/Capture, TCM Monitoring/Generation, Tributary Scan	MU100011A-301 Up to 10G Single Channel Retrofit	MU100011A-303 Up to 10G Dual Channel Retrofit	MU100011A-353 OTN 40G Single Channel Retrofit	—	
			MU100011A-355 OTN 100G Single Channel Retrofit	—	
ODU Multiplexing Addition*2, *4	MU100011A-363 ODU Multiplexing/Multi Stage Retrofit				
ODU Flex Addition*2, *5	MU100011A-362 ODU Flex Retrofit		—		
CPRI/OBSAI					
CPRI/OBSAI L1: Level/Bit Rate/Frequency deviation Measurement, Alarms/Errors Detection, Unframed BER CPRI/OBSAI L2: Link Status Monitoring, Alarms/Errors Detection, Framed BER Measurement, RTD Measurement, Monitoring using Passthrough	MU100011A-371 CPRI/OBSAI Up to 10G Single Channel Retrofit	MU100011A-372 CPRI/OBSAI Up to 10G Dual Channel Retrofit	MU100011A-373 CPRI 12/25G Single Channel Retrofit	MU100011A-374 CPRI 12/25G Dual Channel Retrofit	
Fibre Channel					
Performance Test, Signal Generation/Monitoring, Latency, BER, Line Alarm/Error Monitoring	MU100011A-304 Up to 10G FC Single Channel Retrofit	MU100011A-305 Up to 10G FC Dual Channel Retrofit	MU100011A-391 FC 16G Single Channel Retrofit	—	
SDH/SONET					
PDH/DSn Test, Tw-Way Monitoring/Mapping, Errors/Alarms, Error Performance/Delay/APS Test, Header Monitoring/Generation, Pointer Event Generation, Tributary Scan	MU100011A-301 Up to 10G Single Channel Retrofit	MU100011A-303 Up to 10G Dual Channel Retrofit	MU100011A-383*6 STM-256/OC-768 Client Signal Retrofit	—	

*1: The channel is not related to the physical port position. The user can freely choose either of the two physical ports assigned to the option via software.

For a dual channel setup, the two different ports of one protocol can operate simultaneously, or two different single channel options can operate simultaneously.

*2: Please see the datasheet for supported OTN mapping.

*3: When using the OTN function, the channel can be used as client signal mapped to OTN.

For example, when mapping STM-256/OC-768 to OTU4, both the MU100011A-355 (for physical port) and the MU100011A-383 (for client signal) are required.

*4: When the ODU Multiplexing/Multistage option is installed, OTN multistage mapping measurements are supported.

This one option supports both single channel and dual channel.

*5: This mapping function is based on the ODUFlex standard for transmissions over OTN networks and supports client signals of any speed.

*6: The MU100011A has no STM-256/OC-768 PHY interface; it can be used for OTN client signals.

*7: Option supports eCPRI/RoE protocol tests only.

*8: FEC can be switched ON/OFF.

*9: FEC is always OFF.

Additional Purchases

Adding New Options to Previously Purchased MT1000A

5-2 Adding Main Frame Options for Transport Function

The MT1000A serial number is required at purchase.

Model	Name	Notes
MT1000A-303	Connectivity for WLAN/Bluetooth Retrofit	WLAN/Bluetooth options (can be used in approved countries, including N. America, Japan, EU; see Anritsu web site for latest list of countries)

When adding protocol options later, specify one of the following media types as well as the option.

Model	Name
Z1849A	DVD-ROM for Retrofit Options
Z1850A	USB Stick for Retrofit Options

5-3 Adding Transport Module

When adding the MU100010A to a previously purchased MT1000A, use the same procedure as for 10G Multirate Module MU100010A described on pages 6 thru 8, 16 and 17.

5-4 Adding Network Time/Phase Synchronization Test

Purchase the following products when adding the Network Time/Phase synchronization test and measuring using two synchronized MT1000A units.

High Performance GPS Disciplined Oscillator MU100090A



Model/Order No.	Name
MU100090A	High Performance GPS Disciplined Oscillator
Standard Accessories	
J1705A	AUX Conversion Adaptor
J1706A	GPS Antenna
J1710A	BNC Cable (20 cm) × 2
Main Frame Option	
MT1000A-005*	AUX Interface

Model/Order No.	Name
Extended Warranty Service	
MU100090A-ES210	2 Years Extended Warranty Service (standard 1 year + 1 year)
MU100090A-ES310	3 Years Extended Warranty Service (standard 1 year + 2 years)
MU100090A-ES510	5 Years Extended Warranty Service (standard 1 year + 4 years)

*: The MT1000A-005 is mandatory option for use of MU100090A. Confirm if all of MT1000As which you install the MU100090A have MT1000A-005 or not. If they does not have it please contact us.

5-5 Adding OTDR Module

When adding the OTDR Module to a previously purchased MT1000A, use the same procedure as for OTDR Module described on pages 10 thru 14, 16 and 17.

5-6 Adding CPRI RF Module

When adding the CPRI RF Module to a previously purchased MT1000A, use the same procedure as for CPRI RF Module described on pages 15, 16 and 17.

Network Master Pro MT1000A

Configuration Examples

By combining multiple modules, MT1000A can be used as a measuring instrument suitable for the field. There will introduce a configuration example tailored to the exam situation.

I&M for Core/Metro Network

Optical fiber check and 100G transport testing

Model	Name
MT1000A	Network Master Pro
MU100011A	100G Multirate Module
MU100011A-015	Ethernet 100G Single channel
MU100011A-055	OTN 100G Single Channel
G0365A	100G LR4 Dual Rate 1310 nm QSFP28
MU100022A	OTDR Module 1310/1550/1625 nm SMF
MU100022A-022	High-Performance Dynamic Range
MU100022A-010	UPC Polish
MU100022A-037	FC Connector
MU100022A-002	Visual Fault Locator

I&M for Mobile Backhaul

Evaluate SyncE and IEEE 1588 v2 (PTP), and evaluate the time synchronization accuracy of the network.

Model	Name
MT1000A	Network Master Pro
MT1000A-005	AUX I/O
MU100010A	10G Multirate Module
MU100010A-001	Up to 2.7G Dual Channel
MU100010A-012	Ethernet 10G Dual Channel
G0315A	10G LR/LW 1310 nm SFP+
MU100090A	High Performance GPS Disciplined Oscillator

I&M for Data Center

Confirm the data quality inside the station building and the communication quality with the IX.

Model	Name
MT1000A	Network Master Pro
MU100011A	100G Multirate Module
MU100011A-001	Up to 10G Dual Channel
MU100011A-017	Ethernet 25G Single Channel
MU100011A-020	TCP Throughput
MU100011A-005	Up to 10G FC Dual Channel
MU100011A-091	FC 16G Single Channel
G0329A	10G LR 1310 nm SFP+
G0356A	8G FC/10G FC SR 850 nm SFP+
G0386A	16GFC SR 850 nm SFP+
G0388A	25G SR 850 nm QSFP+
G0389A	25G LR 1310 nm QSFP+

I&M for Mobile Fronthaul

Evaluate breakage of optical fiber and transmission quality of Ethernet and CPRI/OBSAI.

Model	Name
MT1000A	Network Master Pro
MU100010A	10G Multirate Module
MU100010A-071	CPRI/OBSAI Up to 5G Dual Channel
MU100010A-073	CPRI/OBSAI 6G to 10G Dual Channel
G0319A	Up to 2.7G 1310 nm 15 km SFP
G0329A	10G LR 1310 nm SFP+
MU100021A	OTDR Module 1310/1550 nm SMF
MU100021A-021	Standard Dynamic Range
MU100021A-010	UPC Polish
MU100021A-040	SC Connector
MU100021A-002	Visual Fault Locator
J1534A	LC-SC Plug-in Converter (SC (P)-LC (J) for SM fiber)
J1535A	LC-SC Plug-in Converter (SC (P)-LC (J) for MM fiber)
MU100040B	CPRI RF Module
MU100040B-001	CPRI LTE RF Measurement
68-10-R	SFP (Optical Module), 3.7 Gbps SFP, 850 nm
68-6-R	SFP+ (Optical Module), 8G FC/10G SFP, 1310 nm

Check of Dark Fiber

It will evaluate the disconnection of the dark fiber to be used for the first time and the optical signal quality.

Model	Name
MT1000A	Network Master Pro
MU100022A	OTDR Module 1310/1550/1625 nm SMF
MU100022A-022	High-Performance Dynamic Range
MU100022A-010	UPC Polish
MU100022A-037	FC Connector
MU100022A-002	Visual Fault Locator

Order Sheet

When recording different MT1000A configurations on one order sheet, describe each MT1000A configuration on one line with the accompanying options under the relevant line.

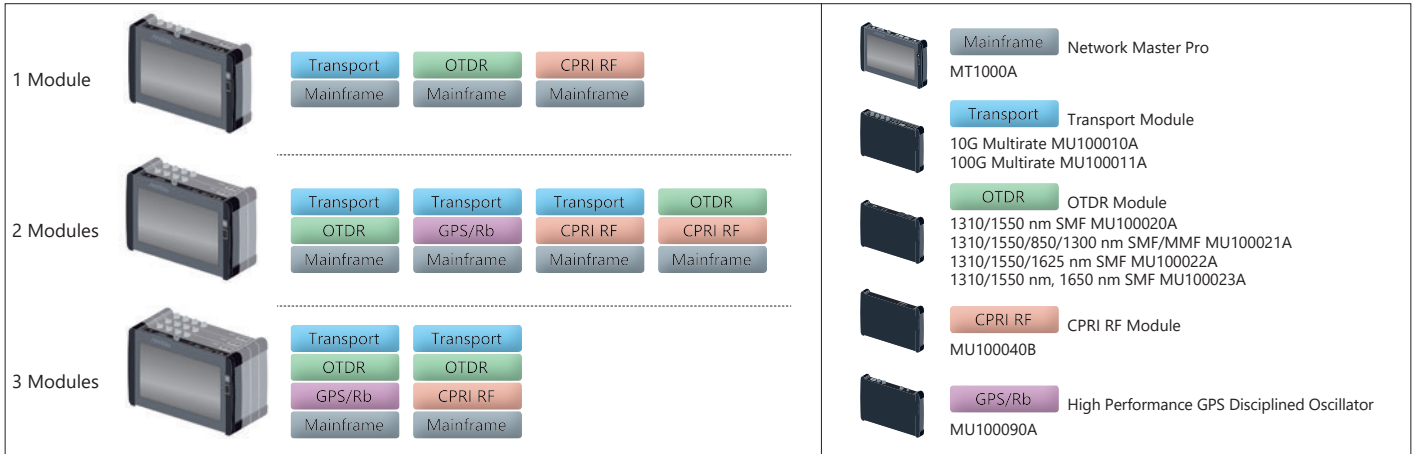
Model	Name	Quantity

Network Master Pro MT1000A

Procedure for Attaching Some Measurement Modules

MT1000A measurement modules can be removed and changed.

Module Configuration



This explains the method and precautions.

Step 1: Version up the software for MT1000A

Install the latest software in the MT1000A. This software can be obtained from the Anritsu web site.

* There are two MT1000A installers; download the installer matching the measurement module to be used.

Step 2: Remove the battery pack from Mainframe

- 1) Disconnect the AC cable.
- 2) Use screw driver or Coin and remove the battery lid from MT1000A.



- 3) Remove the battery pack.



Step 3: Replacing the connected modules

- 1) Place the instrument on its front on a plain surface. Loosen the screws (shown by the blue circle) on rear side of the connected module.



- 2) After loosening the four screws, lift up the connected module with holding both sides. If you cannot lift up, loosen the four screws again. You can see the panel as below.

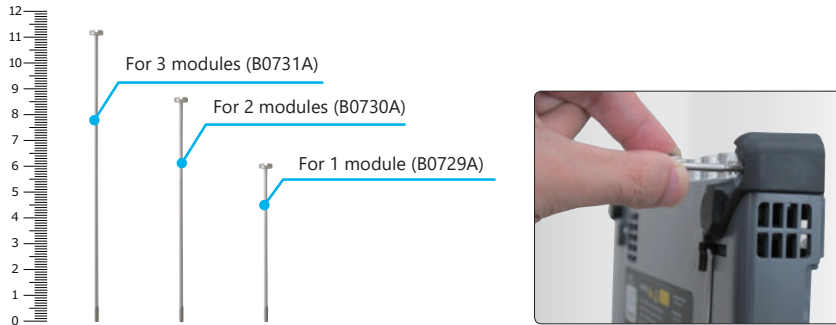


Network Master Pro MT1000A

Procedure for Attaching Some Measurement Modules

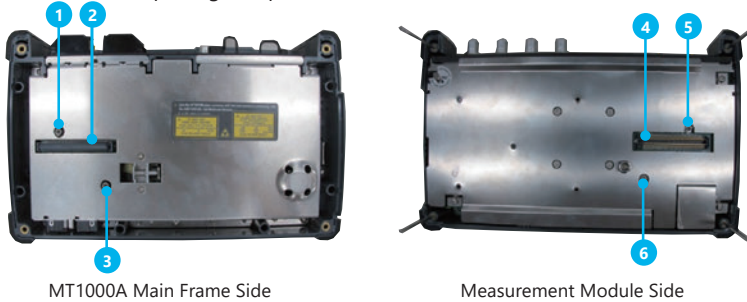
Step 4: Attaching the new module and the former module

1) Remove four screws of former module and replace to the next screws. Please arrange a screw separately.



2) Attach the former module to the new module. Please check modular turn, referring to 3 pages. Place the former module on the new modules as to connect following pairs:

Be careful not to bump the guide pins (1, 3, 5 and 6) to the connectors (2 and 4).



3) Tighten the four screws.

After the module attachment has finished, the external appearance will be as below.

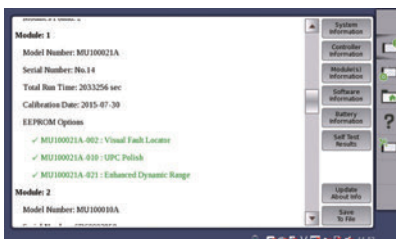


Step 5: After attaching the modules

1) After attaching the modules, connect the AC cable or install the battery packs.



2) Turn on the MT1000A. Please check whether a new module is recognized at the system information



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