

CMA50 Series

Optical Loss Test Set/Optical Power Meter

CMA5 Series

Light Source/Optical Power Meter



Supports Optical FTTH/CATV/Backbones/ LAN Installation and Maintenance

The CMA50 series (Optical Loss Test Set/Optical Power Meter) supports measurement of optical power and loss of all wavelengths used by MM and SM fiber installations. It is the ideal measurement solution for installing and maintaining optical LAN, Access, CATV, Core, and Metro networks.

The Optical Loss Test Set model supports an optional EZ Test function (added function B) for measuring end-to-end optical loss by auto-switching multiple wavelengths. Eliminating the need to switch the wavelength setting at the light source and power meter for every measurement greatly increases on-site work efficiency. Models with the ORL function (added function O) option can measure return loss.

The CMA50 series is designed for both simple measurement and easy understanding of measured results. Results are evaluated based on preset threshold values for speedy and efficient confirmation. The main unit can save up to 100,000 data items, which are easily moved to a back-office PC via Ethernet or USB port for easy and efficient data processing.



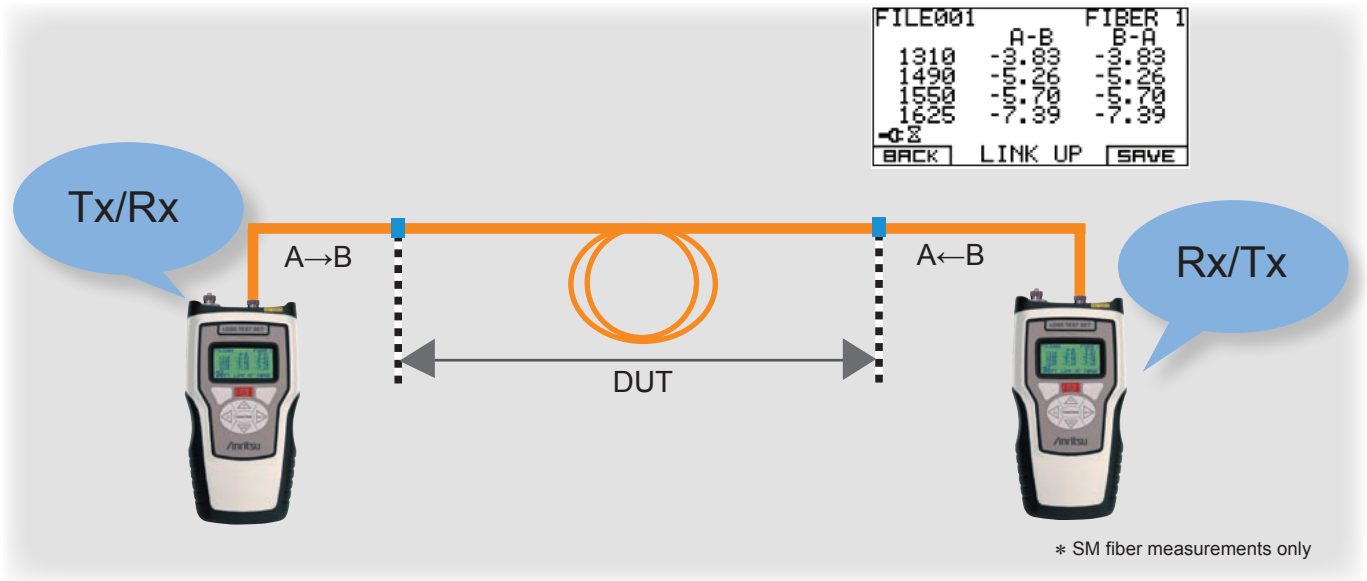
Key Functions

- All-in-one unit supports both light source and optical power meter (Optical Loss Test Set)
- All-in-one unit supports four wavelengths:
 - LED light source (850 nm/1300 nm)
 - LD light source (1310 nm/1550 nm)
- EZ test function option supports auto-switching of wavelengths and end-to-end measurements (added function B)
- Supports return loss measurements (added function O)
- 1490 nm light source for FTTH PON system installation and maintenance
- Pass/Fail function with set threshold value
- Saves up to 100,000 measurement items
- Easy access from PC to CMA50 internal memory via USB cable
- Built-in visible light source (Optical Loss Test Set model)
- Optional network test function

Improve On-site Work Efficiency

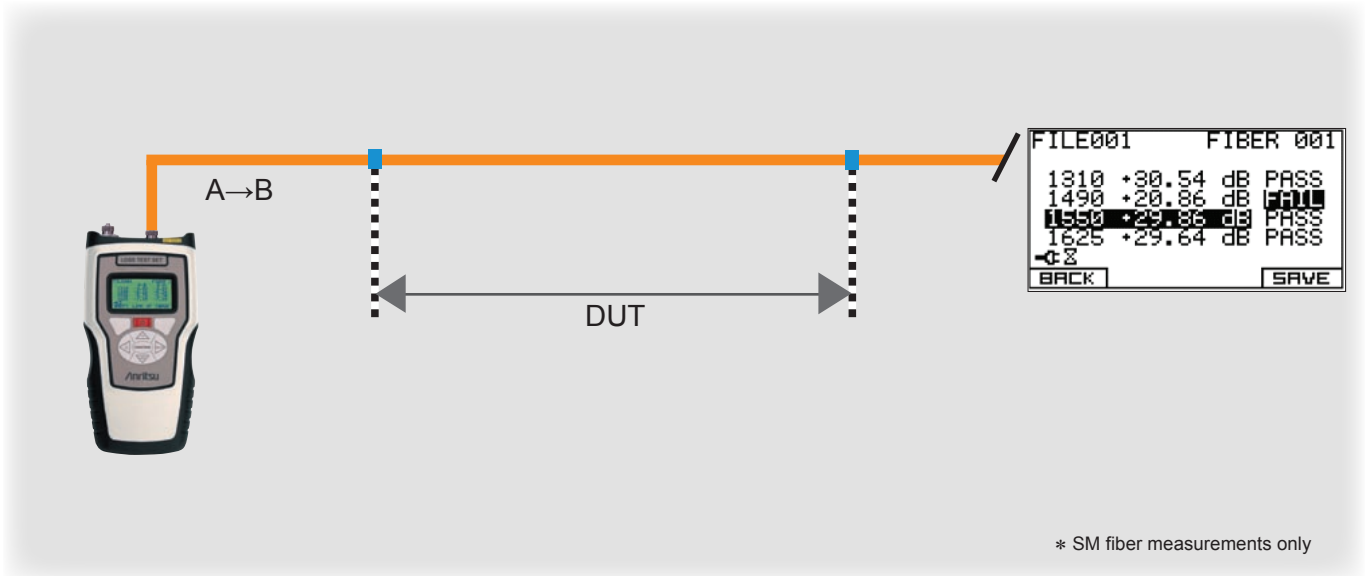
• EZ Test Function (added function B)

The Optical Loss Test Set model with optional EZ test function can measure optical loss while automatically switching wavelengths, eliminating the need for time-consuming manual wavelength switching as well as changing send and receive ports at end-to-end testing.



• ORL Function (added function O)

The Optical Loss Test Set with optional ORL (optical return loss) function and EZ test function measures return loss for multiple wavelengths simultaneously.



Specifications

Optical Loss Test Set			
	Light Source Ports (dual wavelength model)	Light Source Ports (four wavelength model)	
Model	50LTS35	50LTS3456	50LTS8335*3
Emitter Type	LD	LD	LED on MM port, LD on SM port
Wavelength*1	1310/1550 ±20 nm	1310/1490/1550/1625 ±20 nm	850 ±20 nm, 1300 +30/-20 nm (MM) 1310/1550 ±20 nm (SM)
Output Power	≥-7 dBm (ITU-T G.852 fiber)	≥-7 dBm (ITU-T G.852 fiber)	≥-7 dBm ≥-20 dBm (62.5 μm/125 μm GI fiber)
Source Line Width (FWHM)	<5 nm (1310/1490/1550/1625 nm), <50 nm (850 nm), <200 nm (1300 nm)		
Stability*2	±0.05 dB (1310 nm/1550 nm), ±0.15 dB (1490 nm/1625 nm), ±0.1 dB (850 nm/1300 nm)		
Optical Power Meter Port			
Model	Standard		CATV Model
Wavelength	850/1300/1310/1490/1550/1625 nm CWDM wavelengths (ITU-T G694.2)		850/1300/1310/1490/1550/1625 nm CWDM wavelengths (ITU-T G694.2)
Detector Type	InGaAs-PD		InGaAs-PD
Measurement Range	-75 to +10 dBm		-50 to +27 dBm
Accuracy*4, *5	±0.2 dB (±5%) (-65 to +5 dBm)		±0.2 dB (±5%) (-37 to +27 dBm)
Linearity*1	±0.1 dB (-65 to +2 dBm)		±0.1 dB (-37 to +23 dBm)
Maximum Input Power	+10 dBm		+27 dBm
General Specifications			
Laser Safety	IEC 60825-1: 2001 Class 1 21CFR 1040.10 Excluding deviations caused by conformance with Laser Notice No. 50 (May 25, 2001)		
Modulation Output	CW, 270 Hz, 1 kHz, 2 kHz		
Modulation Detection*6	270 Hz, 1 kHz, 2 kHz		
Display Resolution	0.01 (mW, μW, nW, dBr, dBm)		
Power Supply	Rechargeable battery pack, four AA batteries or 110 V (ac)/220 V (ac) adapter		
Battery Operation Time	20 h (typ.)		
Auto Shutoff	1 to 99 minutes (On/Off switchable)		
Connector Type	FC, SC, ST, DIN, LC		
Operating Temperature Range	-10° to +5°C		
Storage Temperature Range	-25° to +60°C		
Dimensions	110 (W) × 210 (H) × 41.3 (D) mm		
Mass	<910 g (inc. batteries)		
Warranty	3 years		
EMC	EN61326-1, EN55011		
LVD	EN61010-1		

*1: 23°C (typ.)

*2: After 10 minutes warm-up

*3: The 50LTS8335 unit has one port each for SM fiber and multiport mode.

*4: Calibrated with 1310 nm at -10 dBm and 23°C

*5: Accuracy differs at 1000-nm wavelength. 850 nm: ±0.35 dB

*6: Input power: ≥-50 dBm

Optical Power Meter	
Standard	
Model	50PMS
Wavelength	850/1300/1310/1490/1550/1625 nm CWDM wavelengths (ITU-T G694.2)
Measurement Range	-75 to +10 dBm
Detector Type	InGaAs-PD
Accuracy*1, *2	±0.2 dB (±5%) (-65 to +5 dBm)
Linearity*3	±0.1 dB (-65 to +2 dBm)
Maximum Input Power	+10 dBm
General Specifications	
Modulation Detection*4	270 Hz, 1 kHz, 2 kHz
Display Resolution	0.01 (mW, μW, nW, dBr, dBm)
Power Supply	Rechargeable battery pack, four AA batteries or 110 V (ac)/220 V (ac) adapter
Battery Operation Time	20 h (typ.)
Auto Shutoff	1 to 99 minutes (On/Off switchable)
Connector Type	FC, SC, ST, DIN, LC
Operating Temperature Range	-10° to +50°C
Storage Temperature Range	-25° to +60°C
Dimensions	110 (W) × 210 (H) × 41.3 (D) mm
Mass	<910 g (inc. batteries)
Warranty	3 years
EMC	EN61326-1, EN55011
LVD	EN61010-1

*1: Calibrated with 1310 nm at -10 dBm and 23°C

*2: Accuracy differs at 1000-nm wavelength. 850 nm: ±0.35 dB

*3: 23°C (typ.)

*4: Input power: ≥-50 dBm

EZ Test	
B Option	
Wavelength	Single mode only
Link Loss Range*	50 dB (200 km, 1550 nm) (typ.)
Link Loss Accuracy*	±0.25 dB
VFL	
50-OPT-V	
Laser Safety	IEC 60825-1: 2001 Class 3R 21CFR 1040.10 Excluding deviations caused by conformance with Laser Notice No. 50 (May 25, 2001)
Wavelength	650 ±20 nm
Output Power	Max. 1 mW, 0.8 mW (typ.) (ITU-T G.652 fiber)
Output Modes	CW, 2 Hz modulation
Optical Return Loss (ORL)	
O Option	
Wavelength	Single mode only
ORL Range	0 to 55 dB
ORL Accuracy	±0.75 dB (0 to 50 dB) ±1.5 dB (50 to 55 dB)
ORL Stability	±0.5 dB (20 ±0.5 dB)

*: Connector pair uncertainty: ±CW accuracy (23°C)

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

(1) Specify one main frame.

Model/Order No.	Description
	Standard accessories CMA50 Operation Manual: 1 pc NiMH Battery Pack: 1 pc AC Adapter: 1 pc USB Cable: 1 pc Software CD: 1 pc
50PMS-xx	Optical Power Meter Model 850/1300/1310/1490/1550/1625 nm (-75 to +10 dBm)
50LTS35XS-xxx 50LTS35BS-xxx	Optical Loss Test Set Model*1 [Dual Wavelength Model for SM] 1310/1550 nm + S Function 1310/1550 nm + B + S Functions
50LTS3456BS-xxx 50LTS3456BC-xxx 50LTS3456OS-xxx 50LTS3456OC-xxx	[Four Wavelength Model for SM] 1310/1490/1550/1625 nm + B + S Functions 1310/1490/1550/1625 nm + B + C Functions 1310/1490/1550/1625 nm + B + O + S Functions 1310/1490/1550/1625 nm + B + O + C Functions
50LTS8335XS-xxx 50LTS8335BS-xxx 50LTS8335OC-xxx	[Four Wavelength Model for SM/MM]*2 850/1300/1310/1550/1625 nm + S Function 850/1300/1310/1550/1625 nm + B + S Functions 850/1300/1310/1550/1625 nm + B + O + C Function
Symbols in model name indicate following functions installed X: Standard Function B: EZ Test Function*3 O: Optical Return Loss (ORL) Function*3, *4, *5 S: Optical Power Meter (Standard: -75 to +10 dBm) C: Optical Power Meter (CATV: -50 to +27 dBm)	

(2) Specify one optical connector.

Specify connector type for (1) "xx" or "xxx" from below.*6	
Optical Power Meter Model	Optical Loss Test Set Model
FC (FC Connector)	UFC (FC Connector)
SC (SC Connector)	USC (SC Connector)
ST (ST Connector)	UST (ST Connector)
LC (LC Connector)	ULC (LC Connector)
DN (DIN Connector)	UDN (DIN Connector)
	AFC (FC-APC Connector)*7
	ASC (SC-ASC Connector)*7

- *1: Optical loss test set (LTS) model has built-in visible light source.
- *2: When different connector adapters are required for light source SM and MM ports, order either adapter as an accessory.
- *3: The automatic measurement (EZ test) and ORL functions only support SM fiber. MM fiber is not supported.
- *4: Models with the ORL function option also have the automatic measurement (EZ test) function.
- *5: When selecting a model with the ORL function, always use an AFC connector for the SM light source port. When specifying a different connector from AFC at (2), a conversion patch cord is supplied as a standard accessory.
(Example: When the 50LTS3456OC-USC is specified, the FC/APC-SC/UPC conversion patch cord is supplied.)
- *6: When different connector adapters are required for light sources and optical power meters, order either adapter as an accessory.
- *7: Not supported for MM light source. When specifying the 50LTS8335, only the SM port is supported. The UPC type connector is supplied for the MM light source port.
(Example: When the 50LTS8335BS-ASC is specified, the ASC connector for SM port and USC connector for MM port are supplied.)
- *8: Standard accessory for optical loss test set (LTS), so specification not required.
- *9: Used for reference measurement at ORL measurement. Standard accessory when selecting model with ORL function.

(3) Select options and accessories from below.

Model/Order No.	Description
50-OPT-N 50-OPT-V*8	Options Network Test Visible Light Source (VFL)
CMA50-HARDCASE CMA50-POUCH-A CMA50-BATT CMA50-CHARGER CMA50-USB GN-MANDREL*9 LP-FC LP-SC LP-ST LP-LC LP-DIN UNIV-AFC UNIV-FC UNIV-FCSCST UNIV-LC UNIV-SC UNIV-ST UNIV-DN	Accessories Hard Carrying Case Carrying Pouch/Shoulder Strap NiMH Battery Pack AC Adapter USB Cable Mandrel for ORL Measurement FC Connector (PM port) SC Connector (PM port) ST Connector (PM port) LC Connector (PM port) DIN Connector (PM port) FC-APC Connector (Light source port) FC Connector (Light source port) FC, SC and ST Connector (Light source port) LC Connector (Light source port) SC-PC or SC-APC Connector (Light source port) ST Connector (Light source port) DIN Connector (Light source port)

CMA5 Series

Compact and Lightweight for Optical Fiber Installation and Maintenance

Light Source

Supports MM model (850 nm/1300 nm), SM model (1310 nm/1550 nm)

Lightweight at only 250 g

16 hours of continuous running with 9 V alkaline battery

Light source for fiber identification (270 Hz, 1 kHz, 2 kHz and CW)

Light Source*	
SM Model	1310 nm/1550 nm
MM Model	850 nm/1300 nm

*: One 9 V alkaline battery as standard. No AC adapter.

Specifications

Model/Order No.	5L83	5L35
Emitter Type	LD	
Wavelength	850/1300 ±20 nm	1310/1550 ±20 nm
Output Power*	-7 dBm (62.5 μm/125 μm MM fiber)	-7 dBm (SM fiber)
Source Line Width (FWHM)	<5 nm	
Modulation Output	CW, 270 Hz, 1 kHz, 2 kHz	
Stability (8 hours)	±0.1 dB (25°C)	
Connector Type	FC, ST, SC (User replaceable)	
Battery Operation Time	16 h (9 V alkaline battery)	
Input Power	9 V (9 V alkaline battery)	
AC Adapter (Option)	Input: 100 to 240 V, 50 to 60 Hz, Output: 7.5 V (2 A)	
Operating Temperature Range	-10° to +50°C	
Storage Temperature Range	-25° to +60°C	
Relative Humidity	0 to 95% (no condensation)	
Dimensions	75 (W) × 145 (H) × 25 (D) mm (excl. rubber cover)	
Mass	250 g	
Warranty	3 years	
Laser Safety	IEC 60825-1: 2007 Class1	
EMC	EN61326-1, EN61000-3-2	

*: Typical (25°C)

Ordering Information

Please specify the model/order number, name and quantity when ordering.

The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

Model/Order No.	Description
	Main frame
5L35-YY*	Light Source: 1310 nm/1550 nm (Dual wavelength for SM fiber)
5L83-YY*	Light Source: 850 nm/1300 nm (Four wavelength for MM fiber)
	Standard accessories
	CMA5 Operation Manual: 1 pc
	Rubber Protective Cover: 1 pc
	9 V Alkaline Battery: 1 pc
	Accessories
GN-3HH-CASE	Hard Case (for two CMA5 light sources or optical power meter)
CMA5-POUCH-A	Carrying Pouch/Shoulder Strap
CMA5-BAT	9 V Alkaline Battery
CMA5-AC	AC Adapter
CMA5-AD-LS-FC	FC Connector Adapter
CMA5-AD-LS-SC	SC Connector Adapter
CMA5-AD-LS-ST	ST Connector Adapter
CMA5-AD-LS-ALL3	Connector Adapter (FC, SC and ST)

*: Specify one connector adapter for YY.

FU=FC/PC, SU=SC/PC, TU=ST/PC, FA=FC/APC, SA=SC/APC
(FA=FC/APC and SA=SC/APC cannot be selected for 5L83-YY.)



*: Photographs about same size as actual instruments.

■ Optical Power Meter

Lightweight at only 250 g

40 hours of continuous running with 9 V alkaline battery

Measures up to +23 dBm optical power*1

*1: CATV model

Optical Power Meter*	
(Calibrated for 850, 1300, 1310, 1490, 1550, and 1625 nm)	
Standard Model	-60 to +10 dBm
CATV Model	-50 to +23 dBm

*: One 9 V alkaline battery as standard. No AC adapter.

■ Specifications

Model/Order No.	5P100	5P100C
Connector Type	FC, SC, ST (User replaceable)	
Fiber Type	MM, SM	
Detector Type	InGaAs-PD	
Calibrated Wavelength	850/1300/1310/1490/1550/1625 nm	
Measurement Range	-60 to +10 dBm (-50 to +10 dBm @ 850 nm)	-50 to +23 dBm
Accuracy*1	±0.2 dB @ 1310/1550 nm (-60 to +5 dBm) ±0.5 dB @ 850 nm (-50 to +5 dBm)	±0.2 dB @ 1310/550 nm (-40 to +23 dBm) ±0.5 dB @ 850 nm (-40 to +23 dBm)
Linearity*2	±0.2 dB @ 1310/1550 nm (-60 to +5 dBm) ±0.5 dB @ 850 nm (-50 to +5 dBm)	±0.2 dB @ 1310/1550 nm (-40 to +23 dBm) ±0.5 dB @ 850 nm (-40 to +23 dBm)
Display Resolution	0.01 dB	
Modulation Detection	2 kHz modulation	
Display	4-digit, 7-segment display LCD	
Others	Reference setting function, battery level display, automatic power OFF	
Battery Operation Time	40 hours min. (9 V alkaline battery)	
Input Power	9 V (one alkaline battery)	
AC Adapter (Option)	Input: 100 to 240 V, 50 to 60 Hz, Output: 7.5 V (2 A)	
Operating Temperature Range	-10° to +50°C	
Storage Temperature Range	-25° to +60°C	
Relative Humidity	0 to 95% (no condensation)	
Dimensions	75 (W) × 145 (H) × 25 (D) mm (excl. rubber cover)	
Mass	250 g	
Warranty	3 years	
EMC	EN61326-1, EN61000-3-2	

*1: -10 dBm, 25°C (typ.)

*2: 25°C

■ Ordering Information

Please specify the model/order number, name and quantity when ordering.

The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

Model/Order No.	Description
5P100-YY*	Main frame Optical Power Meter (Standard): -60 to +10 dBm
5P100C-YY*	Optical Power Meter (CATV): -50 to +23 dBm
	Standard accessories
	CMA5 Operation Manual: 1 pc
	Rubber Protective Cover: 1 pc
	9 V Alkaline Battery: 1 pc
	Accessories
GN-3HH-CASE	Hard Case (for two CMA5 light sources or optical power meter)
CMA5-POUCH-A	Carrying Pouch/Shoulder Strap
CMA5-BAT	9 V Alkaline Battery
CMA5-AC	AC Adapter
CMA5-AD-PM-FC	FC Connector Adapter
CMA5-AD-PM-SC	SC Connector Adapter
CMA5-AD-PM-ST	ST Connector Adapter
CMA5-AD-PM-ALL3	Connector Adapter (FC, SC and ST)

*: Specify one of FC, SC or ST connector adaptor for YY.



*: Photographs about same size as actual instruments.

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