

# CMA50 Series

Optical Loss Test Set/Optical Power Meter

# CMA5 Series

Optical Loss Tester/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.



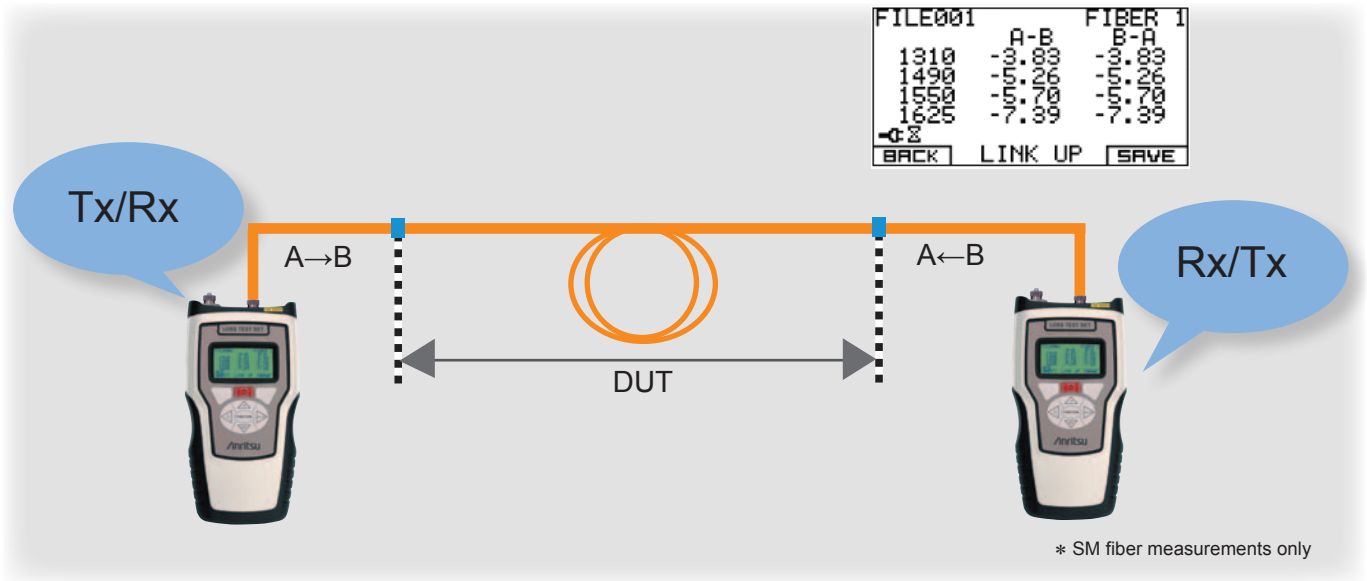
### Key Functions

- 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

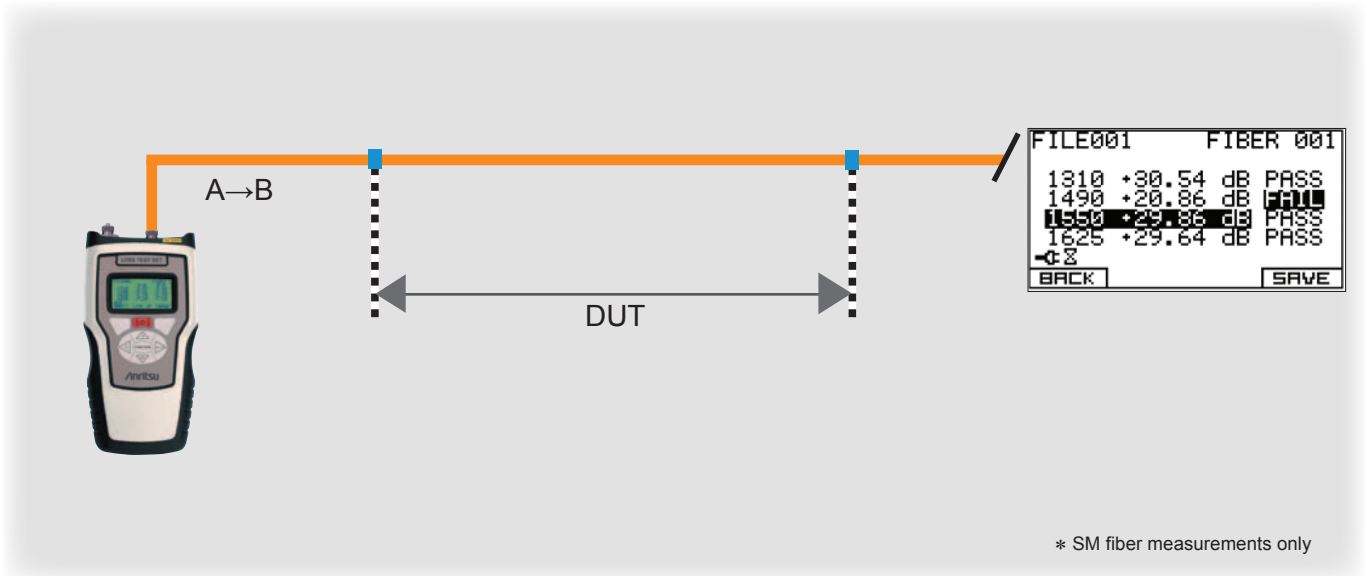
## • EZ Test Function (added function B)

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
Emitter Type	LD		LD
Wavelength*1	1310/1550 ±20 nm		1310/1490/1550/1625 ±20 nm
Output Power	≥-7 dBm (ITU-T G.852 fiber)		≥-7 dBm (ITU-T G.852 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*6	IEC 60825-1: 2007: CLASS 1 21CFR1040.10 Excludes deviations caused by conformance to Laser Notice No. 50 dated June 24, 2007		
Modulation Output	CW, 270 Hz, 1 kHz, 2 kHz		
Modulation Detection*7	270 Hz, 1 kHz, 2 kHz		
Display Resolution	0.01 (mW, μW, nW, dBm, 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		

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*4, *5	±0.2 dB (±5%) (-65 to +5 dBm)
Linearity*1	±0.1 dB (-65 to +2 dBm)
Maximum Input Power	+10 dBm
General Specifications	
Modulation Detection*7	270 Hz, 1 kHz, 2 kHz
Display Resolution	0.01 (mW, μW, nW, dBm, 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: 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

EZ Test	
B Option	
Wavelength	Single mode only
Link Loss Range*8	50 dB (200 km, 1550 nm) (typ.)
Link Loss Accuracy*8	±0.25 dB
VFL	
50-OPT-V	
Laser Safety*6	IEC 60825-1: 2007 CLASS 3R 21CFR 1040.10 Excludes deviations caused by conformance to Laser Notice No. 50 dated June 24, 2007
Wavelength	650 ±20 nm
Output Power	Max. 1 mW, 0.8 mW (typ.) (ITU-T G.652 fiber), 23°C
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)

\*6: Safety measures for laser products

This product complies with optical safety standards in 21CFR1040.10 and IEC 60825-1; the following descriptive labels are affixed to the product.



THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JUNE 24, 2007

\*7: Input power: ≥-50 dBm

\*8: 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
	<b>Standard accessories</b> CMA50 Operation Manual: 1 pc NiMH Battery Pack: 1 pc AC Adapter: 1 pc USB Cable: 1 pc Software CD: 1 pc
50PMS-xx	<b>Optical Power Meter Model</b> 850/1300/1310/1490/1550/1625 nm (–75 to +10 dBm)
50LTS35XS-xxx 50LTS35BS-xxx	<b>Optical Loss Test Set Model*1</b> [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 nm + S Function 850/1300/1310/1550 nm + B + S Functions 850/1300/1310/1550 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	<b>Options</b> Network Test Visible Light Source (VFL)
CMA50-HARDCASE CMA50-POUCH-A CMA50-BATT Z1526A 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	<b>Accessories</b> Hard Carrying Case Carrying Pouch/Shoulder Strap NiMH Battery Pack AC Adapter (CMA50) 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 Optical Loss Tester/Light Source/Optical Power Meter

## Compact Lightweight Model for Optical Fiber I&M

The CMA5 series (Optical Loss Tester/Light Source/Optical Power Meter) measures optical loss and power for optical fiber I&M.

As well as being smaller and lighter than the CMA50 series, its excellent cost performance and simple operation with the required minimum number of functions make it ideal for onsite I&M. Service engineers can choose from three models — optical loss tester, optical source, and optical power meter — to match the onsite application.

### ■ Optical Loss Tester

All-in-one light source and optical power meter supporting SM (1310 nm/1550 nm) and MM (850 nm/1300 nm) fiber

Compact and lightweight (300 g)

Measures +23 dBm max. optical power\*1

20 hours of battery (dry cell) operation\*2

Useful fiber identification modulation function (270 Hz, 1 kHz, 2 kHz and CW)

\*1: SM type (CATV model) only

\*2: With 9-V alkaline batteries using optical source and optical power meter

Optical Loss Tester*	
SM Model	1310 nm/1550 nm (Power Meter: Standard)
	1310 nm/1550 nm (Power Meter: CATV)
MM Model	850 nm/1300 nm

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



\*: Photographs about same size as actual instruments.

## Specifications

Model	5LT35	5LT35C	5LT83
<b>Light Source Port</b>			
Supported Optical Fiber	10 μm/125 μm SM fiber, PC-polished		62.5 μm/125 μm MM fiber, PC-polished
Emitter Type	LD		
Wavelength	1310 nm/1550 nm ±20 nm		850 nm/1300 nm ±20 nm
Output Power	≥-7 dBm		≥-7 dBm*1
Source Line Width (FWHM)	≤5 nm		
Modulation Output	CW, 270 Hz, 1 kHz, 2 kHz (±2%)		
Stability	±0.05 dB/15 minutes		
	±0.10 dB/8 hours (1310 nm/1550 nm), ±0.15 dB/8 hours (850 nm/1300 nm)		
Connector Type	FC/PC, SC/PC, ST/PC (user replaceable)		
<b>Optical Power Meter Port</b>			
Supported Optical Fiber	SM (10 μm/125 μm)/MM (50 μm/125 μm, 62.5 μm/125 μm)		
Detector Type	InGaAs		
Calibrated Wavelength	850, 1300, 1310, 1490, 1550, 1625 nm		
Measurement Range*2	-60 to +5 dBm	-40 to +23 dBm	-60 to +5 dBm
	-50 to +10 dBm (850 nm)		-5 to +10 dBm (850 nm)
Accuracy*2	±0.2 dB @ -10 dBm (±0.5 dB @ 850 nm)		
Linearity*2	±0.2 dB		±0.5 dB
Display Resolution	0.01 dB		
Auto-Zero Setting	Supported		
Warm-up Time	60 s		
Connector Type	FC, SC, ST (user replaceable)		
<b>General Specifications</b>			
Input Power	9 V Alkaline battery, or optional AC adapter (input: 100 V to 240 V, 50 Hz to 60 Hz, output: 7.5 V)		
Battery Operation	40 hours min. (Optical Power Meter), 20 hours min. (Optical Power Meter & Light Source)		
Auto Off Function	5 minutes		
Others	Reference setting function, Loop loss testing function		
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 (2.9 × 5.7 × 1 inch) (Excluding Rubber Protective Cover)		
Mass	300 g (0.66 lbs) or less (Excluding Rubber Protective Cover and 9 V Alkaline Battery)		
Warranty	3 years		
Laser Safety*3	IEC 60825-1: 2007 CLASS1, 21CFR 1040.10 Excludes deviations caused by conformance to Laser Notice No. 50 dated June 24, 2007		
EMC	EN61326-1, EN61000-3-2		

Specifications assured at 25°C (±3°C)

- \*1: If a 50 μm/125 μm MM fiber is connected to the optical output port, the rated output power (≥-7 dBm) can not be obtained due to differences in core diameter, NA, and fiber excitation condition. The optical output power can drop by about 2 to 10 dB from the rated output power.
- \*2: When GI fiber (62.5 μm/125 μm) is connected to optical power meter port.

- \*3: Safety measures for laser products  
This product complies with optical safety standards in 21CFR1040.10 and IEC60825-1; the following descriptive labels are affixed to the product.



THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JUNE 24, 2007

## 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
5LT35-YY*	<b>Main frame</b> Optical Loss Tester 1310 nm/1550 nm (Standard Power Meter) Optical Loss Tester 1310 nm/1550 nm (CATV Power Meter) Optical Loss Tester 850 nm/1300 nm (Standard Power Meter)
5LT35C-YY*	
5LT83-YY*	
	<b>Standard accessories</b> CMA5 Optical Loss Tester Operation Manual: 1 pc Rubber Protective Cover: 1 pc 9 V Alkaline Battery: 1 pc
GN-3HH-CASE CMA5-POUCH-A CMA5-BAT Z1525A CMA5-AD-LS-FC CMA5-AD-LS-SC CMA5-AD-LS-ST CMA5-AD-LS-ALL3 CMA5-AD-PM-FC CMA5-AD-PM-SC CMA5-AD-PM-ST CMA5-AD-PM-ALL3 J1530A J1532A J1534A J1535A	<b>Accessories</b> Hard Case (for two CMA5 series) Carrying Pouch/Shoulder Strap 9 V Alkaline Battery AC Adapter (CMA5) FC Connector Adapter (Light Source Port) SC Connector Adapter (Light Source Port) ST Connector Adapter (Light Source Port) Connector Adapter (FC, SC and ST) FC Connector Adapter (Power Meter Port) SC Connector Adapter (Power Meter Port) ST Connector Adapter (Power Meter Port) Connector Adapter (FC, SC and ST) SC Plug-in Converter (UPC(P)-APC(J)) FC Plug-in Converter (UPC(P)-APC(J)) LC-SC Plug-in Converter (for SM, SC(P)-LC(J)) LC-SC Plug-in Converter (for MM, SC(P)-LC(J)) *62.5 μm/125 μm type

\*: Specify one connector adapter at YY (FU = FC/PC, SU = SC/PC, TU = ST/PC).

The specified connector adapter is fitted at each optical source and power meter connector.

## ■ 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*1	-7 dBm*2 (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 V to 240 V, 50 Hz to 60 Hz, Output: 7.5 V	
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*3	IEC 60825-1: 2007 CLASS 1 21CFR 1040.10 Excludes deviations caused by conformance to Laser Notice No. 50 dated June 24, 2007	
EMC	EN61326-1, EN61000-3-2	

\*1: Typical (25°C)

\*2: If a 50 μm/125 μm MM fiber is connected to the optical output port, the rated output power (≥-7 dBm) can not be obtained due to differences in core diameter, NA, and fiber excitation condition. The optical output power can drop by about 2 to 10 dB from the rated output power.

\*3: Safety measures for laser products

This product complies with optical safety standards in 21CFR1040.10 and IEC 60825-1; the following descriptive labels are affixed to the product.



THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JUNE 24, 2007

## ■ 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
	<b>Main frame</b>
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)
	<b>Standard accessories</b>
	CMA5 Operation Manual: 1 pc
	Rubber Protective Cover: 1 pc
	9 V Alkaline Battery: 1 pc
	<b>Accessories</b>
GN-3HH-CASE	Hard Case (for two CMA5 series)
CMA5-POUCH-A	Carrying Pouch/Shoulder Strap
CMA5-BAT	9 V Alkaline Battery
Z1525A	AC Adapter (CMA5)
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, ±0.5 dB (850 nm)	
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 V to 240 V, 50 Hz to 60 Hz, Output: 7.5 V	
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
	<b>Main frame</b>
5P100-YY*	Optical Power Meter (Standard): -60 to +10 dBm
5P100C-YY*	Optical Power Meter (CATV): -50 to +23 dBm
	<b>Standard accessories</b>
	CMA5 Operation Manual: 1 pc
	Rubber Protective Cover: 1 pc
	9 V Alkaline Battery: 1 pc
	<b>Accessories</b>
GN-3HH-CASE	Hard Case (for two CMA5 series)
CMA5-POUCH-A	Carrying Pouch/Shoulder Strap
CMA5-BAT	9 V Alkaline Battery
Z1525A	AC Adapter (CMA5)
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 adapter for YY.



\*: Photographs about same size as actual instruments.

**Note:**

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**Note:**

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• **United States**

**Anritsu Company**

1155 East Collins Blvd., Suite 100, Richardson,  
TX 75081, U.S.A.  
Toll Free: 1-800-267-4878  
Phone: +1-972-644-1777  
Fax: +1-972-671-1877

• **Canada**

**Anritsu Electronics Ltd.**

700 Silver Seven Road, Suite 120, Kanata,  
Ontario K2V 1C3, Canada  
Phone: +1-613-591-2003  
Fax: +1-613-591-1006

• **Brazil**

**Anritsu Eletrônica Ltda.**

Praça Amadeu Amaral, 27 - 1 Andar  
01327-010 - Bela Vista - São Paulo - SP - Brazil  
Phone: +55-11-3283-2511  
Fax: +55-11-3288-6940

• **Mexico**

**Anritsu Company, S.A. de C.V.**

Av. Ejército Nacional No. 579 Piso 9, Col. Granada  
11520 México, D.F., México  
Phone: +52-55-1101-2370  
Fax: +52-55-5254-3147

• **United Kingdom**

**Anritsu EMEA Ltd.**

200 Capability Green, Luton, Bedfordshire, LU1 3LU, U.K.  
Phone: +44-1582-433200  
Fax: +44-1582-731303

• **France**

**Anritsu S.A.**

12 avenue du Québec, Bâtiment Iris 1- Silic 612,  
91140 VILLEBON SUR YVETTE, France  
Phone: +33-1-60-92-15-50  
Fax: +33-1-64-46-10-65

• **Germany**

**Anritsu GmbH**

Nemetschek Haus, Konrad-Zuse-Platz 1  
81829 München, Germany  
Phone: +49-89-442308-0  
Fax: +49-89-442308-55

• **Italy**

**Anritsu S.r.l.**

Via Elio Vittorini 129, 00144 Roma, Italy  
Phone: +39-6-509-9711  
Fax: +39-6-502-2425

• **Sweden**

**Anritsu AB**

Borgarfjordsgatan 13A, 164 40 KISTA, Sweden  
Phone: +46-8-534-707-00  
Fax: +46-8-534-707-30

• **Finland**

**Anritsu AB**

Teknobulevardi 3-5, FI-01530 VANTAA, Finland  
Phone: +358-20-741-8100  
Fax: +358-20-741-8111

• **Denmark**

**Anritsu A/S (Service Assurance)**

**Anritsu AB (Test & Measurement)**

Kay Fiskers Plads 9, 2300 Copenhagen S, Denmark  
Phone: +45-7211-2200  
Fax: +45-7211-2210

• **Russia**

**Anritsu EMEA Ltd.**

**Representation Office in Russia**

Tverskaya str. 16/2, bld. 1, 7th floor.

Russia, 125009, Moscow

Phone: +7-495-363-1694

Fax: +7-495-935-8962

• **United Arab Emirates**

**Anritsu EMEA Ltd.**

**Dubai Liaison Office**

P O Box 500413 - Dubai Internet City

Al Thuraya Building, Tower 1, Suit 701, 7th Floor

Dubai, United Arab Emirates

Phone: +971-4-3670352

Fax: +971-4-3688460

• **Singapore**

**Anritsu Pte. Ltd.**

60 Alexandra Terrace, #02-08, The Comtech (Lobby A)

Singapore 118502

Phone: +65-6282-2400

Fax: +65-6282-2533

• **India**

**Anritsu Pte. Ltd.**

**India Branch Office**

2nd & 3rd Floor, #837/1, Binnamangla 1st Stage,

Indiranagar, 100ft Road, Bangalore - 560038, India

Phone: +91-80-4058-1300

Fax: +91-80-4058-1301

• **P.R. China (Shanghai)**

**Anritsu (China) Co., Ltd.**

Room 1715, Tower A CITY CENTER of Shanghai,

No.100 Zunyi Road, Chang Ning District,

Shanghai 200051, P.R. China

Phone: +86-21-6237-0898

Fax: +86-21-6237-0899

• **P.R. China (Hong Kong)**

**Anritsu Company Ltd.**

Unit 1006-7, 10/F., Greenfield Tower, Concordia Plaza,

No. 1 Science Museum Road, Tsim Sha Tsui East,

Kowloon, Hong Kong, P.R. China

Phone: +852-2301-4980

Fax: +852-2301-3545

• **Japan**

**Anritsu Corporation**

8-5, Tamura-cho, Atsugi-shi, Kanagawa, 243-0016 Japan

Phone: +81-46-296-1221

Fax: +81-46-296-1238

• **Korea**

**Anritsu Corporation, Ltd.**

502, 5FL H-Square N B/D, 681

Sampyeong-dong, Bundang-gu, Seongnam-si,

Gyeonggi-do, 463-400 Korea

Phone: +82-31-696-7750

Fax: +82-31-696-7751

• **Australia**

**Anritsu Pty. Ltd.**

Unit 21/270 Ferntree Gully Road, Notting Hill,

Victoria 3168, Australia

Phone: +61-3-9558-8177

Fax: +61-3-9558-8255

• **Taiwan**

**Anritsu Company Inc.**

7F, No. 316, Sec. 1, NeiHu Rd., Taipei 114, Taiwan

Phone: +886-2-8751-1816

Fax: +886-2-8751-1817

Please Contact: