



MA9331A/MU931431A

Optical Sensors

For MT9810A Optical Test Set (with Option 01) and
MT9812B Multi Channel Box (with Option 01)



Accuracy of $\pm 4\%$ (at +30 dBm using MA9331A)

Wavelength Division Multiplexing (WDM) technology is evolving towards Dense Wavelength Division Multiplexing (DWDM) with greater wavelength density, and the future will see more multiplexed wavelengths with higher optical levels exceeding +30 dBm (1 W).

The MA9331A and MU931431A Optical Sensors are able to measure high-power optical signals with excellent accuracy due to their absolute-value correction at +30 dBm. They have a low polarization dependent loss (PDL) of less than 0.01 dB and direct traceability to the UK National Physical Laboratory (NPL), making them ideal for measuring the optical power of EDFAs and Raman amplifiers, as well as pumped laser light sources, etc.

The MA9331A is connected using the MU931001A Sensor Adapter and cable, and the MU931431A is a plug-in type unit.

Uses

- High-accuracy measurement of high-power optical signals — EDFAs and Raman amplifiers
- R&D and manufacturing of optical parts — Pumped laser light sources
- WDM systems — Measurement of total power after signal coupling

Applications

The MA9331A and MU931431A can be used either with the MT9810A Optical Test Set when Option 01 is installed. The MU931431A can also be used with the MT9812B Multi Channel Box when Option 01 is installed. Option 01 increases the GPIB transmission speed and all the MT9810A units can be used even when Option 01 is installed.

Note: The MT9810A and MT9812B both require installation of Option 01 to use these optical sensors. For details of the MT9810A and units, refer to the separate catalog.



MA9331A Optical Sensor, MU931001A Optical Sensor Adapter



MU931431A Optical Sensor

Specifications*1

Model	MA9331A*2	MU931431A
Sensor element	InGaAs-PD	
Input type	Fiber	
Supported fiber	9/125 to 62.5/125 μm (NA: ≤ 0.29)	
Wavelength range	940 to 1640 nm	
Optical power measurement range*3	+35 to -50 dBm	+33 to -50 dBm
Noise level	≤ -43 dBm	
Polarization dependent loss*4	≤ 0.01 dB (PC connector), ≤ 0.05 dB (APC connector)	≤ 0.05 dB (PC connector), ≤ 0.1 dB (APC connector)
Optical power measurement accuracy	$\pm 3\%$ (at +30 dBm)*5, $\pm 4\%$ (at +30 dBm)*6	$\pm 4\%$ (at +30 dBm)*5, $\pm 5\%$ (at +30 dBm)*6
Linearity*7	± 0.05 dB ± 30 nW (-40 to +35 dBm)	± 0.05 dB ± 30 nW (-40 to +33 dBm)
Environmental conditions	Operating temperature/humidity: 0° to +40°C/ $\leq 90\%$ (no condensation) Storage temperature/humidity: -40° to +71°C/ $\leq 90\%$ (no condensation)	
Dimensions and mass	60 (W) x 78 (H) x 90 (D) mm, ≤ 750 g	41 (W) x 78 (H) x 335 (D) mm, ≤ 880 g

*1 Using MT9810A-01 or MT9812B-01

*2 With MU931001A Optical Sensor Adapter

*3 1550 nm

*4 SM fiber (ITU-T G.652), 1550 nm

*5 Reference conditions: SM fiber (ITU-T G.652), 1550 nm, APC connector, +30 dBm, CW light, 23° $\pm 2^\circ\text{C}$ (RH: 60% $\pm 10\%$)

*6 Operating conditions: SM fiber (ITU-T G.652), 980 nm ± 1 nm, 1240 to 1340 nm, 1440 to 1640 nm, APC connector, +30 dBm, CW light, 23° $\pm 5^\circ\text{C}$ (2% increase when using wavelength outside above range), RH: 60% $\pm 10\%$

*7 Constant temperature within 23° $\pm 5^\circ\text{C}$ range

Ordering Information

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

Model/Order No.	Name
MT9810A	Main frame Optical Test Set
MT9810A-01	Option High power sensor option (for MA9331A and MU931431A)
MT9812B	Main frame Multi Channel Box
MT9812B-01	Option High power sensor option (for MU931431A)
MA9331A	Optical sensor Optical Sensor (requires MU931001A: sold separately)
	Optical connector options*1
MA9331A-37	FC-PC connector
MA9331A-38	ST connector
MA9331A-39	DIN connector
MA9331A-40	SC connector
MA9331A-43	HMS-10/A connector
MA9331A-32	MU connector
	Applications parts
MA9008A-37	FC-PC connector
MA9008A-38	ST connector
MA9008A-39	DIN connector
MA9008A-40	SC connector
MA9008A-43	HMS-10/A connector
MA9008A-32	MU connector

Model/Order No.	Name
MU931001A	Sensor adapter Sensor Adapter
J1073A	Standard accessories Optical sensor connection cable, 1.5 m
W1895AE	MU931001A/MA9331A operation manual
MU931431A	Optical sensor Optical Sensor
W1896AE	Standard accessories MU931431A operation manual
	Optical connector options*1
MU931431A-37	FC-PC connector
MU931431A-38	ST connector
MU931431A-39	DIN connector
MU931431A-40	SC connector
MU931431A-43	HMS-10/A connector
MU931431A-32	MU connector
	Applications parts
MA9005B-37	FC-PC connector
MA9005B-38	ST connector
MA9005B-39	DIN connector
MA9005B-40	SC connector
MA9005B-43	HMS-10/A connector
MA9005B-32	MU connector

*1: Specify one of the optical connector options as a standard accessory at ordering. Specify by appending the option number to the model. If nothing is specified, the FC-PC connector (Option 37) will be supplied as the standard connector.

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Specifications are subject to change without notice.

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