

Optical Measuring Instruments and Optical Device Test Systems

High-Performance Portable Optical Power Meter

TQ8210

- Wavelength Sensitivity Compensation Function
- -60dB High-Sensitivity Measurement (at 1.3 μm)
- Wide Dynamic Range (4-1/2 Digits)
- Smoothing Function
- Max Hold Function
- Ferrule Touch Surface Can Be Cleaned
- Analog Output



TQ8210

Optical Power Meter

TQ8210 is a general-purpose portable optical power meter. It uses either a silicon photodiode sensor (for short wavelengths) or an InGaAs or a germanium photodiode sensor (for long wavelengths). A compact sensor facilitates measurements in cramped places. It is suitable for use in R&D applications for optical telecommunications, laser printers, CD equipment and magneto-optical disks.

The TQ8210, in its compact body mounts full application of ADVANTEST's measuring technology and features a wavelength sensitivity compensation function, eliminating measurement errors which usually occurs when the range is changed or a new sensor is connected.

The TQ8210 features a two-way power supply (including a chargeable Ni-Cd battery), allowing you to use it anytime and anywhere.

■ Wavelength Sensitivity Compensation Function for High-Accuracy Absolute Power Measurement

The TQ8210 incorporates a wavelength sensitivity compensation function to enable accurate power measurement over a wide range of wavelengths. The desired wavelength setting can be made from front panel keys.

■ 4 1/2-Digit Wide Dynamic Range Measurement

For linear measurements (watt measurement), the TQ8210 displays measured values in 4 1/2-digits, allowing measurement over a wide dynamic range. The offset can be corrected automatically by means of the offset zero function.

■ -60 dBm High-Sensitivity Measurement for 1.3/1.55 μm

When use together with the Q82018A, the TQ8210 measures to -60 dBm for 1.3 and 1.55 μm wavelengths. As a result, you can measure minute optical power in the receipt section of transmission equipment with consistent high stability. More-

over, it is possible to exchange receptacles and clean ferrule touch surface.

■ MAX Hold Function for Retaining Maximum Power Value

When measuring the optical power of a CD (compact disk) or a laser printer, the measured value varies depending on the position of distance from or angle of the beam light irradiated on the sensor. However, the MAX hold function makes it possible to display the maximum power thereby obtaining constant and consistent measurement results.

■ Smoothing Function for Stable Measurement

For measurement in noise-prone environment or when measurement results are unstable, use the smoothing function to ensure stable measurements. You can set the desired number of smoothing times from 2 to 20. Because measurements are made based on a moving average, you can continue making a measurement without reducing the measurement speed.

■ LCD with Back Light Enabling the Use on Dark Locations

Because of low power consumption, LCD is widely used for battery-powered measuring instruments. In the past, LCD cannot be used for optical power meters or other measuring instruments which may be used in dark places. Presently, with the LCD with back light, TQ8210 can be used in dark places.

■ Analog Output Function

The TQ8210 is capable of analog output (output voltages 0 to 2 V) matched to the input signal. Therefore, when connected to an analog recorder, TQ8210 can be used for long-term stability testing and for other similar purposes.

Specifications

Main Unit Specifications

Resolution:

0.005 to 0.1% (with unit of W), 0.01 dB (with unit of dBm)

Display:

LCD: With back light for use in dark location
Wavelength display: 4 digits (with unit of nm)
Power display: 4 1/2 digits (with unit of mW, μ W, nm, dBm, and dBr)

Range switching:

Automatic or manual

Measurement speed:

2 times/second or faster

MAX / dBr Functions:

MAX (effective with unit of W): Holds the maximum measured value.

dBr (effective with unit of dBm): Displays the relative value with respect to the reference measured value.

Wavelength sensitivity compensation:

Automatic compensation of sensor sensitivity at set wavelengths.

Smoothing function:

Digital smoothing (moving average for 2 to 20 measurements)

Offset and zero:

Stores sensor offset for automatic compensation.

Analog output:

Analog output proportional to input signal is possible.
Output voltage : 0 to 2 V
Output impedance : 10 Ω or less
Output connector 2-pin mini-jack

General Specifications

Operating conditions: 0 to 40°C, 85%RH or less

Power supply: AC power (using an AC adaptor)

Internal Ni-Cd battery (8 hours or longer when LCD backlight is ON or 10 hours or longer when it is OFF)

Change of AC power requirement:

Specified at the time of ordering. (The Ni-Cd battery can be charged.)

Option No.	Standard	42
Supply voltage (V)	90 to 110 (A08017)	200 to 245 (A08019)

Dimensions: Approx. 80 (W) \times 180 (L) \times 35 (H) mm

Mass: 400 g maximum

Accessories:

Product name	Model	Remarks
AC adaptor	A08017	90 to 110 VAC
AC adaptor	A08019	200 to 245 VAC
Analog output cable	A01225	

Power Consumption:

Option No.	Standard	42
Power Consumption	5 VA or less	6.4 VA or less (with 230 VC adaptor)

Optical sensors (Option)

Model	TQ82014 optical sensor (for short wavelengths)	TQ82015 optical sensor (for long wavelengths)	TQ82017 thin-type optical sensor	Q82018A (for long wavelengths)
Wavelength range	0.4 to 1.1 μ m	0.8 to 1.6 μ m	0.4 to 1.1 μ m	0.8 to 1.65 μ m
Power range *2	-60 to +17 dBm (1 nW to 50 mW)	-40 to +10 dBm (100 nW to 10 mW)	-60 to +17 dBm (1 nW to 50 mW)	-60 to 0 dBm (1 nW to 1 mW)
Sensor element	Si	Ge	Si	InGaAs PIN
Light input format		Direct		FC*1
Photoreceptive area	Approx. 8 mm ϕ	Approx. 5 mm ϕ	Approx. 10 x 10 mm \square	-
Measurement range	8 ranges in 10 dB steps	5 ranges in 10 dB steps	8 ranges in 10 dB steps	6 ranges in 10 dB steps
Measurement accuracy	\pm 5% (at 850 nm, -20 dBm input)	\pm 5% (at 1300 nm, -20 dBm input)	\pm 5% (at 850 nm, -20 dBm input)	\pm 5% (at 1300 nm, -20 dBm input)
Wavelength sensitivity compensation range	0.4 to 1.1 μ m	0.8 to 1.7 μ m	0.4 to 1.1 μ m	0.75 to 1.7 μ m

*1 For other connector types, contact ADVANTEST's sales office or sales representatives.

*2 Measured with each wavelength range. The maximum level is measured when the light is received on the entire photoreceptive area of the sensor.

