A High-Performance, Portable-Type Optical Power Meter with Wavelength Sensitivity Compensation Function

- 60-dB sensitivity at 1.3 μm
- 4½-digits of dynamic range
- Max-hold function
- Analog output
Ideal for both communications and maintenance

The TQ8210 is a handheld optical power meter which can be combined with ADVANTEST silicon photodiode sensors for use at short wavelengths and an In GaAs or germanium photodiode sensor for use at long wavelengths. It is designed to handle a wide range of applications, including such diverse uses as optical communications, laser printers, CD players and optomagnetic disk R&D and maintenance. In spite of its small size, the ADVANTEST design team provided the TQ8210 with such features as built-in response compensation, thereby ensuring high accuracy even when measurement range and sensor are changed. And, powered by batteries, the TQ8210 can be taken anywhere for accurate, reliable power measurements.
Features

- A wavelength sensitivity compensation function enables absolute power to be measured with high precision.
- High-sensitivity (-60 dB) measurements at 1.3 μm (using a Q82018A sensor)
- Wide dynamic range (4-½ digits)
- A smoothing function facilitates measurement in noisy environments or unstable conditions.
- A max-hold function enables measurement of the maximum power value.
- Possible to clean ferrule touch surface.
- The liquid crystal display is backlighted for reading in dark locations.
- Easy-to-use auto-ranging.
- Analog output function.

Sample Configurations

Adaptor Table Corresponds to Connectors

<table>
<thead>
<tr>
<th>Q82014A</th>
<th>TQ82015</th>
<th>Q82018A</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC/PC</td>
<td>A08012</td>
<td>A08012</td>
</tr>
<tr>
<td>SC</td>
<td>A08095</td>
<td>A08090</td>
</tr>
<tr>
<td>ST</td>
<td>A08096</td>
<td>A08096</td>
</tr>
<tr>
<td>Biconical</td>
<td>A08025</td>
<td>A08025</td>
</tr>
<tr>
<td>D4</td>
<td>A08013</td>
<td>A08013</td>
</tr>
<tr>
<td>DIN</td>
<td>A08029</td>
<td>A08029</td>
</tr>
<tr>
<td>SMA ø 2.5</td>
<td>A08095</td>
<td>A08095</td>
</tr>
<tr>
<td>SMA ø 3.175</td>
<td>A08028</td>
<td>A08028</td>
</tr>
</tbody>
</table>

*Standard accessories
### Mainframe Specifications

**Resolution:** 0.005% to 0.1% (with unit of W) 0.01% (with unit of dBm)

**Absolute Accuracy of A/D converter:** ±0.2% (includes sensor measurement accuracy)

**Display:** LCD with back light for use in dark location

**Wavelength readout** 4 digits (nm)

**Power readout** 4½ digits (mW, uW, nW, dBm, dBr)

**Range switching:** Automatic or manual

**Measurement speed:** 2 Measurements/s or faster

**Max-Hold and dBm Functions:**

Max-hold (for wait measurement) The maximum measured value is held

**dBr (for dBm measurement)** The value relative to a reference value is indicated.

**Wavelength sensitivity compensation:** Automatic compensation of sensor sensitivity at set wavelengths.

**Smoothing function:** Digital smoothing (by moving averages, 2 to 20 averages)

**Offset and zero:** Stores sensor offset for automatic compensation.

**Analog output:** Proportional to the input signal

Output voltage: 0V to 2V Output impedance: Max 10 kΩ

Output connector: 2-pin mini-jack

### Optical Sensors Specifications (Option)

<table>
<thead>
<tr>
<th>Model</th>
<th>Q82014A optical sensor (for short wavelengths)</th>
<th>TQ82015 optical sensor (for Long wavelengths)</th>
<th>Q82017A thin-type optical sensor</th>
<th>Q82019A (for long wavelengths)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength range</td>
<td>0.4 to 1.1 µm</td>
<td>0.8 to 1.6 µm</td>
<td>0.8 to 1.4 µm</td>
<td>0.8 to 1.65 µm</td>
</tr>
<tr>
<td>Power range</td>
<td>-60 to +17 dBm (1 mW to 50 mW)</td>
<td>-40 to +10 dBm (100 mW to 10 µW)</td>
<td>-60 to +17 dBm (1 mW to 50 mW)</td>
<td>-60 to 0 dBm (1 nW to 1 mW)</td>
</tr>
<tr>
<td>Sensor element</td>
<td>Si</td>
<td>Ge</td>
<td>Si</td>
<td>InGaAs PIN</td>
</tr>
<tr>
<td>Light input format</td>
<td>Direct</td>
<td>Direct</td>
<td>Direct</td>
<td>Direct</td>
</tr>
<tr>
<td>Photoreceptive area</td>
<td>Approx. 8 mm</td>
<td>Approx. 5 mm</td>
<td>Approx. 16 x 16 mm</td>
<td>FC²</td>
</tr>
<tr>
<td>Measurement range</td>
<td>6 ranges in 10 dB steps</td>
<td>5 ranges in 10 dB steps</td>
<td>6 ranges in 10 dB steps</td>
<td>6 ranges in 10 dB steps</td>
</tr>
<tr>
<td>Measurement accuracy</td>
<td>±5% (at 850 nm, 20 dBm input)</td>
<td>±5% (at 1300 nm, 20 dBm input)</td>
<td>±5% (at 850 nm, 20 dBm input)</td>
<td>±5% (at 1300 nm, 20 dBm input)</td>
</tr>
<tr>
<td>Wavelength sensitivity compensation range</td>
<td>0.4 to 1.1 µm</td>
<td>0.8 to 1.6 µm</td>
<td>0.4 to 1.5 µm</td>
<td>0.75 to 1.7 µm</td>
</tr>
</tbody>
</table>

*1 For other connector types, contact ADVANCE’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.

### General Specifications

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

**Power:** Internal NiCd battery (more than 8 hours when LCD backlight is ON, More than 10 hours when LCD backlight is OFF.)

**Change of AC power requirement:**

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

**Supply voltage (V):** 90 to 110 (A08017) 200 to 245 (A08019)

**Power Consumption:**

<table>
<thead>
<tr>
<th>Option No.</th>
<th>Standard</th>
<th>42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage (V)</td>
<td>90 to 110 (A08017)</td>
<td>200 to 245 (A08019)</td>
</tr>
</tbody>
</table>

**Dimensions:** Approx. 80 (W) × 180 (L) × 35 (H) mm

**Mass:** 400g maximum

**Standard Accessories:** AC adapters A08017 (90 to 110V AC) or A08035 (103 to 132V AC) or A08019 (200 to 245V AC) specified at time of ordering

Analog output cable: A01225

**Accessories**

- Adapters (Optional accessories)
  - FC Adapter A08012
  - D4 Adapter A08013
  - OF2 Adapter A08014
  - Bare-fiber Adapter (FC type) A08024
  - Bare-fiber Adapter (V groove) A08020
  - Adaptor Cap A08021
  - Dummy Fiber TQ11831
  - ATT Biconical A08025
  - Diamond 2.5/3.5 A08026/27
  - Amphenol SMA A08028
  - Siemens A08029
  - Sumitomo Mini-BNC A08030
  - MBO A08031
  - HFBR-4000 A08032

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