Sensor Characteristics (Typical Values)

<table>
<thead>
<tr>
<th>Wavelength [nm]</th>
<th>405</th>
<th>650</th>
<th>780</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity [%]</td>
<td>100</td>
<td>120</td>
<td>100</td>
</tr>
<tr>
<td>Linearity [%]</td>
<td>100</td>
<td>120</td>
<td>100</td>
</tr>
<tr>
<td>Power linearity</td>
<td>100</td>
<td>120</td>
<td>100</td>
</tr>
<tr>
<td>Incident angle dependence (°)</td>
<td>-10</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>

Optical Power Meter

Perfect for use in R&D and production lines of next-generation optical discs and for evaluation of blue-violet and high-power lasers

- Wide selection of optical sensors for different uses
- Three-wavelength optical sensors covering 405/650/780nm
- Blue-violet optical sensors for 405nm laser measurement
- High-power optical sensors for high-power laser measurement
- Low-price general-purpose optical sensors
- Both thin type and cylindrical type available
- Optical power calibration wavelengths: 405/650/780nm
- 5½-digit display and 0.001dB resolution
- USB interface

E-mail: kcc@adcmt.com  URL: http://www.adcmt-e.com

ADC CORPORATION

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http://www.adcmt-e.com
The 8230 is an optical power meter optimal for building up automated systems of 100mW at the peak even with a pickup installed. The 82313B and 82314B, 82324B and 82314BW sensors are capable of measuring sensitivity by wavelength setting (in 1nm step) within the range of 390 to 1100nm.

### Specifications

<table>
<thead>
<tr>
<th>Power range</th>
<th>Model 82311B (General-purpose)</th>
<th>82312B (Blue-violet)</th>
<th>82313B (High-power)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength range</td>
<td>390 to 1100nm</td>
<td>390 to 450nm</td>
<td>390 to 1100nm</td>
</tr>
</tbody>
</table>

### Calibration Wavelength Option:

- **Standard**: OPT82311B+20 Standard specification
- **Standard**: OPT82312B+20 Standard specification
- **Standard**: OPT82313B+20 Standard specification
- **Standard**: OPT82321B+22 Standard specification
- **Standard**: OPT82322A+21 Standard specification
- **Standard**: OPT82323B+23 Standard specification
- **Standard**: OPT82324B+22 Standard specification
- **Standard**: OPT82324B+22 Standard specification
- **Standard**: OPT82324A+22 Standard specification

### Performance Characteristics

- Wavelength sensitivity correction (390 to 450nm) ±3.5%
- Wavelength sensitivity correction (400 to 1000nm) ±3.5%
- Wavelength sensitivity correction (390 to 1100nm) ±3.5%

### Sensitivity

- **Three-wavelength sensors to measure lasers with different wavelength ranges**
- **Five-wavelength sensors to measure lasers with five different wavelength ranges**

### Dimensions

- **Approx. 8.5mm x 8.5mm / Approx. 6mm dia.**

### Accessories

- **Battery drive**: AA battery × 4
- **Input power**: DC input (9V)
- **USB interface**: USB 2.0 Full-Speed compliant (connector mini B/female)
- **Power supply battery**: AA battery × 1

**Note:**
- All items are available only with calibration wavelength option(s) installed.
- Please read through the operation manual carefully before using the products.
In addition, the latest USB driver is available from our website to make establishment of automated systems at a low price without adding any external cost. It is equipped with a USB interface as standard, which allows easy production lines of Blu-ray Disc, DVD, CD and other optical pickups.

The 8230 is an optical power meter optimal for building up automated systems. The 8230 is equipped with blue-violet sensors that have realized a maximally flat wavelength sensitivity. The 8230 is equipped with auto-compensation (390 to 450nm) range and auto-compensation (400 to 1000nm) range is not performed. (Function can be turned on or turned off by pressing a key operation or remote operation.)

### Specifications

<table>
<thead>
<tr>
<th>Power range</th>
<th>Model 82314B/82314BW (Three-wavelength)</th>
<th>Model 82321B (General-purpose)</th>
<th>Model 82322B (Blue-violet)</th>
<th>Model 82323B (High-power)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display in W</td>
<td>10nW to 100mW</td>
<td>−60 to +20dBm</td>
<td>−60 to +23dBm</td>
<td>−60 to +20dBm</td>
</tr>
<tr>
<td>Display in dBm</td>
<td>-50 to +20dBm</td>
<td>−60 to +23dBm</td>
<td>−60 to +20dBm</td>
<td>−60 to +23dBm</td>
</tr>
<tr>
<td>Effective light receiving area *</td>
<td>Approx. 9.5mm × 9.5mm</td>
<td>Approx. 10mm × 10mm</td>
<td>Approx. 8.5mm dia.</td>
<td></td>
</tr>
<tr>
<td>USB interface</td>
<td>USB 2.0 Full-Speed compliant (connector)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>DC input (9V)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (width) × (height) mm</td>
<td>18×180×3.7/35.1×197×3.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass</td>
<td>300g or less (excluding AA batteries)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wavelength sensitivity correction range</td>
<td>390 to 900nm</td>
<td>390 to 450nm</td>
<td>390 to 1100nm</td>
<td>390 to 1100nm</td>
</tr>
<tr>
<td>Calibration wavelength demonstrated:</td>
<td>650nm</td>
<td>650nm</td>
<td>650nm</td>
<td>650nm</td>
</tr>
<tr>
<td>Calibration wavelength tested:</td>
<td>405nm</td>
<td>405nm</td>
<td>405nm</td>
<td>405nm</td>
</tr>
</tbody>
</table>

### Nine Types of Optical Sensors to Meet Various Applications

- **Blu-ray sensors** to measure lasers of Blu-ray Disc
  - To measure blue-violet lasers precisely, the 82314B and 82314BW blue-violet sensors have realized a maximally flat wavelength sensitivity characteristics. This never occurs in conventional sensitivity correction at each measurement and always offers high-accuracy measurements.
- **Three-wavelength sensors** to measure lasers with different wavelengths
  - The 82314B, 82314BW and 82324B sensors are capable of measuring all lasers of 405nm wavelength for Blu-ray Disc, 650nm wavelength for DVD and 980nm wavelength for CD. In the range from 405 to 980nm, the sensitivity correction is necessary because the flat wavelength sensitivity characteristics. In other wavelength ranges, the wavelength sensitivity value stored in the sensor help easy operation.

### 405nm (Blu-ray)

- **Low-priced and easy-to-use general-purpose sensors:** The 82311B and the 82312B are the lowest priced general-purpose lasers that can be used in a wide wavelength range from 390nm to 1000nm. They are equipped with blue-violet sensors that have realized a maximally flat wavelength sensitivity. The 82311B is equipped with auto-compensation (390 to 450nm) range and auto-compensation (400 to 1000nm) range is not performed. (Function can be turned on or turned off by pressing a key operation or remote operation.)

### 650nm

- **650nm OPT82314B+22 OPT82314BW+22 OPT82324B+22**

### 800nm

- **800nm OPT82311B+21 Standard specification OPT82313B+21**

### Instrument Specifications

- **Electronic display:** 3½ digits 7-segment 0.24 in (6.0 mm) height
- **Power consumption:** 100–240VAC
- **Battery voltage:** 9V (AA battery x 4)
- **Dimensions:** Approx. 99 (W) x 180 (H) x 35 (D) mm
- **Mass:** 300g or less (excluding AA batteries)

### Other functions:

- **CF calculation (sets one correction coefficient for measured values.)**
- **Lin. (W) and log (dBm) display function**
- **Max value hold function:** Holds the maximum measured value.
- **Smoothing function:** Moving average from 2 to 100 times
- **Setting wavelength display:**
  - 1nm step setting
  - 10nm step setting
- **Range switching:** 8 ranges; auto, manual and remote

### Calibration specification

- **Calibration wavelength option:**
  - Calibration wavelength demonstrated: 650nm
  - Calibration wavelength tested: 405nm
  - Calibration wavelength specified: 405nm

### Applicable standard JIS CCC UL/CSA EN

- **Applicable standard:**
  - JIS: C6223
  - CCC: 650300
  - UL/CSA: CM5
  - EN: 650300

### Option

- **Option 82314A:** B01 or later
- **Option 82314B:** D01 or later
- **Option 82314BW:** B01 or later
- **Option 82313A:** A00 or later
- **Option 82313B:** A00 or later
- **Option 82312A:** A00 or later
- **Option 82312B:** D01 or later
- **Option 82311A:** A00 or later
- **Option 82311B:** D01 or later
- **Option 82323A:** D01 or later
- **Option 82323B:** D01 or later
- **Option 82324A:** D01 or later
- **Option 82324B:** D01 or later

### Calibration wavelength

- **Calibration wavelength option:**
  - Calibration wavelength demonstrated: 650nm
  - Calibration wavelength tested: 405nm
  - Calibration wavelength specified: 405nm

### Power specification

- **Power range:** 200mW approximately at least within (3) of 1.5mm diameter

### Calibration

- **Calibration wavelength option:**
  - Calibration wavelength demonstrated: 650nm
  - Calibration wavelength tested: 405nm
  - Calibration wavelength specified: 405nm

### Wavelength sensitivity correction range

- **Wavelength sensitivity correction range:** 390 to 900nm
- **Wavelength sensitivity correction range:** 390 to 450nm
- **Wavelength sensitivity correction range:** 400 to 1000nm

### Storage environment

- **Ambient temperature:** -20ºC to +70ºC
- **Relative humidity:** 70% or less

### Accessories

- **AC adapter:** 100-240VAC
- **DC input:** 9V 100mA or less
- **Battery drive:** AA battery × 4
- **Back light:** OFF, using the alkaline battery, 8 hours

### Optical power meter software revisions and applicable optical sensors

- For the 82311B or 82321B, Option+20 is specified.
- The calibration is performed at wavelengths other than the standard wavelength specification. (Multiple wavelengths can be specified.)

### Power supply

- **DC input:** 9V
- **AC adapter:** 100-240VAC
- **Power consumption:** 100–240VAC
- **Battery drive:** AA battery × 4

### Instrument specifications

- **Electronic display:** 3½ digits 7-segment 0.24 in (6.0 mm) height
- **Power consumption:** 100–240VAC
- **Battery voltage:** 9V (AA battery x 4)
- **Dimensions:** Approx. 99 (W) x 180 (H) x 35 (D) mm
- **Mass:** 300g or less (excluding AA batteries)

### Calibration

- **Calibration wavelength option:**
  - Calibration wavelength demonstrated: 650nm
  - Calibration wavelength tested: 405nm
  - Calibration wavelength specified: 405nm

### Wavelength sensitivity correction range

- **Wavelength sensitivity correction range:** 390 to 900nm
- **Wavelength sensitivity correction range:** 390 to 450nm
- **Wavelength sensitivity correction range:** 400 to 1000nm

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- **Ambient temperature:** -20ºC to +70ºC
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- **DC input:** 9V
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- **Power consumption:** 100–240VAC
- **Battery drive:** AA battery × 4

### Instrument specifications

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Three-wavelength sensors to measure lasers with different wavelengths

The 82313B, 82321B and 82324B sensors are capable of measuring all lasers of 808nm wavelength for Blu-ray Disc, 980nm wavelength for DVD and 1064nm wavelength for CD. In the range from 808nm to 1064nm, in particular, sensitivity correction is unnecessary because of the flat wavelength sensitivity characteristics. In other wavelength ranges, the wavelength sensitivity value stored in the sensor helps to simplify operation.

Both thin types and cylindrical types

Two shapes of sensors can be selected for each purpose. Thin types of sensors are advantageous for measuring optical powers in a limited space with a pickup attached, and cylindrical types of sensors are used for measuring the output power from a laser with an optical fiber.

Specifications

All measurements are guaranteed for a period at a temperature of 23 ± 5°C and a relative humidity of 50 ± 3%.

Wavelength Sensitivity Correction Option and Calibration Wavelength Option

- The wavelength sensitivity of each sensor is measured and corrected when setting the calibration wavelength (4 nm step). The calibration wavelength is 780nm and the correction value is ±3.5% (390 to 900nm).

- Available only with calibration wavelength option(s) installed

- The full-scale value varies depending on the sensor model, wavelength setting, correction value (CF), and range setting.

- Please refer to the following:

Calibration wavelength:

- 780nm
- 808nm
- 980nm
- 1064nm

- The full-scale power value is 10% higher than the stated value for the following ranges:

- 100mW at the peak even with a pickup installed.
- 200mW with high accuracy. These sensors have high luminance sensitivity for measuring output power from the pickup. Sensors have high accuracy and are easy to use. If you are considering a high speed output, this series is recommended.

- ±3.5% (390 to 900nm)

- Relative sensitivity to the center is within the ±10% range.

- The wavelength sensitivity correction range is 390 to 1100nm.

- Using the typical value.

- The calibration wavelength of 780nm is stored in the sensors. Sensitivity correction of other wavelengths is performed at each measurement and always offers high-accuracy readings.

- Range selection function:

- Automatic selection of wavelength sensitivity by wavelength setting (4 nm step)

- Manual selection of wavelength sensitivity by selecting a specific wavelength (±3.5% correction value)

- The wavelength sensitivity correction range is 390 to 1100nm.

- The accuracy is ±3.5% (390 to 900nm).

- The full-scale accuracy of 780nm is ±3.5%.

- Two shapes of sensors can be selected for each purpose. Thin types of sensors are used for measuring the output power from a fiber with high accuracy. These sensors have high luminance sensitivity for measuring output power from the pickup. Sensors have high accuracy and are easy to use. If you are considering a high speed output, this series is recommended.

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- Relative sensitivity to the center is within the ±10% range.

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- High-power optical sensors for high-power laser measurement
- Low-price general-purpose optical sensors
- Both fact type and cylindrical type available
- Optical power calibration wavelengths: 405/650/780nm
- 5½-digit display and 0.001dB resolution
- USB interface

**Sensor Characteristics (Typical Values)**

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Wavelength Sensitivity (405nm)</th>
<th>Reflectance (405nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>82314BW/82324B</td>
<td>100</td>
<td>101</td>
</tr>
<tr>
<td>82313B/82314BW</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>82314BW/82324B</td>
<td>99</td>
<td>100</td>
</tr>
</tbody>
</table>

**Dimensional Drawing**

- Distance to the cover glass surface: 0.1mm
- Distance to the cover glass surface: 0.3mm
- Distance to the light receiving element surface: 0.5mm
- Distance to the light receiving element surface: 2.15mm

**Optical Power Meter**

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**8230**
Optical Power Meter

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Sensor Characteristics (Typical Values)

<table>
<thead>
<tr>
<th>Wavelength</th>
<th>Sensitivity (%)</th>
<th>Reflectance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>780 nm</td>
<td>82311B</td>
<td>780 nm</td>
</tr>
<tr>
<td>405 nm</td>
<td>82312B</td>
<td>405 nm</td>
</tr>
<tr>
<td>82322B</td>
<td>82313B</td>
<td>82323B</td>
</tr>
<tr>
<td>82314B</td>
<td>82314BW</td>
<td>82314BW</td>
</tr>
<tr>
<td>82314BW</td>
<td>82324B</td>
<td>82324B</td>
</tr>
<tr>
<td>82311B</td>
<td>82312B</td>
<td>82312B</td>
</tr>
<tr>
<td>Distance to Light Receiving Element: 0.8 mm</td>
<td>180°</td>
<td>180°</td>
</tr>
<tr>
<td>Distance to Light Receiving Element: 1.8 mm</td>
<td>180°</td>
<td>180°</td>
</tr>
<tr>
<td>Distance to Light Receiving Element: 0.3 mm</td>
<td>180°</td>
<td>180°</td>
</tr>
<tr>
<td>Distance to Light Receiving Element: 0.5 mm</td>
<td>180°</td>
<td>180°</td>
</tr>
<tr>
<td>Distance to Light Receiving Element: 1.4 mm</td>
<td>180°</td>
<td>180°</td>
</tr>
<tr>
<td>Diameter: 0.65 mm</td>
<td>35.1°</td>
<td>35.1°</td>
</tr>
<tr>
<td>M3 (5mm max.)</td>
<td>Fixing screw hole</td>
<td>Fixing screw hole</td>
</tr>
<tr>
<td>M3 (6mm max.)</td>
<td>Fixing screw hole</td>
<td>Fixing screw hole</td>
</tr>
<tr>
<td>M33×1.5</td>
<td>Fixing screw hole</td>
<td>Fixing screw hole</td>
</tr>
</tbody>
</table>

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