The High Sensitivity Optical Power Meters of the PM100 and PM200 Series provide a complete, portable solution, for precision optical power measurements using photodiodes (PM100) and thermal sensors (PM200). Both series employ the same console, which has a wide 70dB dynamic range for optical and a 40dB dynamic range for thermal sensors. The extensive family of compatible sensors allows a complete solution for optical measurements in a broad wavelength band and power range.

**System Includes Console & Sensor Head**

The console of the PM100 and PM200 series supports a variety of sensor heads: the optical heads (Si & Ge photodiode) cover a combined spectral range of 400 to 1800nm and a power range of 35nW to 500mW.

The thermal heads, with broadband coating for 250nm to 10.6µm, cover an optical power range of 20mW to 30W. Each sensor head is individually calibrated with calibration and identification data stored in a non-volatile memory inside the sensor connector. The console immediately recognizes the sensor and downloads the appropriate sensor and calibration information. Five standard systems are available containing a PM100 console and an appropriate sensor to meet almost every application. All sensor heads are also available separately allowing the system to grow with your needs (see page 792). The console is backward compatible with all of the S100 and S200 series optical heads allowing a quick and economical upgrade to the PM100 and PM200 series.

**Functionality**

The console’s large, high resolution LCD graphics screen displays real time power measurements in several formats: Large digits for easy reading, simulated analog needle for laser tuning, X-Y plotting for trending, and beam statistics. The different screens are arranged such that all relevant measurement and system information is visible in one view. The ergonomic keypad design allows easy access to the most widely used features such as the wavelength correction and relative measurements. The console menu system, accessed through the keypad, allows the user to tailor all of the system parameters to their specific needs.

The console is powered by a long lasting, easily changeable NiMH battery pack which can be recharged during operation by the included external wall-plug power supply.

**PM100 & PM200 Features**

- Multi Function 240 x 160 Pixel Graphics Display
- 4-Digit Power Readout
- Interchangeable Sensor Heads
- NIST Traceable Calibration
- RS232 Interface
- Analog Output Monitor Voltage
- Rechargeable Long-Life NiMH Battery
- Kick-stand for Easy Viewing Angle

**Optical Power Meter Sets with Photodiode Sensor Heads**

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>Y</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM120</td>
<td>$998.00</td>
<td>£698.60</td>
<td>€1,047.90</td>
<td>Y167,664</td>
<td>50nW to 50mW System, Console and S120B Head, 400 to 1100nm</td>
</tr>
<tr>
<td>PM121</td>
<td>$1,024.00</td>
<td>£716.80</td>
<td>€1,075.20</td>
<td>Y172,932</td>
<td>500nW to 500mW System, Console and S121B Head, 400 to 1100nm</td>
</tr>
<tr>
<td>PM122</td>
<td>$1,270.00</td>
<td>£889.00</td>
<td>€1,335.50</td>
<td>Y213,360</td>
<td>35nW to 35mW System, Console and S122B Head, 700 to 1800nm</td>
</tr>
</tbody>
</table>

**Optical Power Meter Sets with Thermal Sensor Heads**

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>Y</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM210</td>
<td>$1,398.00</td>
<td>£978.00</td>
<td>€1,467.00</td>
<td>Y234,720</td>
<td>System w/PM100 Console and S210A Thermal Sensor, 3W</td>
</tr>
<tr>
<td>PM212</td>
<td>$1,472.00</td>
<td>£1,030.00</td>
<td>€1,545.00</td>
<td>Y247,200</td>
<td>System w/PM100 Console and S212A Thermal Sensor, 10W</td>
</tr>
<tr>
<td>PM213</td>
<td>$1,562.00</td>
<td>£1,093.00</td>
<td>€1,640.00</td>
<td>Y262,400</td>
<td>System w/PM100 Console and S213A Thermal Sensor, 30W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>Y</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAL1*</td>
<td>$135.00</td>
<td>£95.00</td>
<td>€142.00</td>
<td>Y22,720</td>
<td>Calibration Service for S120B</td>
</tr>
<tr>
<td>CAL2*</td>
<td>$150.00</td>
<td>£105.00</td>
<td>€158.00</td>
<td>Y25,280</td>
<td>Calibration Service for S122B</td>
</tr>
<tr>
<td>PMBAT</td>
<td>$69.60</td>
<td>£58.67</td>
<td>€58.00</td>
<td>Y9,280</td>
<td>3.6V Replacement Battery Pack</td>
</tr>
</tbody>
</table>

*Thorlabs recommends recalibrating power meter sensors once a year. For more detail, call Thorlabs customer service and reference the CAL1 or CAL2 service. Universal, imperial and metric compatible.
PM100 and PM200 Series High Sensitivity Optical Power Meters

Display Screens for PM100 Series Console

- Large Display w/Analog Bar graph
- Analog Needle for Peak Detection
- Dual Display in dBm and mW
- Statistic Function Display
- Power versus Time Display
- Sensor Information

General Console Specifications:

- **Display**: 240 x 160 pixel LCD with Backlight
- **Display Format**: Digit, Analog Needle, Line Plot, Statistics and Menu Screens
- **PC Communication**: RS-232
- **Baud Rate**: 2400-115,200bps
- **Dimensions**: 230 x 95 x 55mm

Data Acquisition:

- **Power Range (at Peak Wavelength)**:
  - PM120 Si Sensor: 50nW – 50mW
  - PM121 Si Sensor: 500nW – 500mW
  - PM122 Ge Sensor: 35nW – 35mW
  - PM210 3W Thermal Sensor: 20mW – 3W
  - PM212 10W Thermal Sensor: 20mW – 10W
  - PM213 30W Thermal Sensor: 100mW – 30W
- **Accuracy**: ±1% (console)
- **Resolution**: 0.01% Full Scale
- **Sample Rates**: Digital 3Hz – Analog 6Hz
- **Resolution**: 12 bit (1mV)

Analog Output:

- **Voltage Range**: 0 – 4.095V
- **Resolution**: 12 bit (1mV)
- **Sample Rate**: 6 Hz
- **Power Range**: Software Adjustable
- **Connector**: SMA

Power Management:

- **Battery Pack**: NiMH, 1500mAh, 3.6V
- **Charger**: 2 hr. Battery Charger Included
- **Charger Power Supply**:
  - Input: 85 – 265 VAC, 50 – 60 Hz
  - Output: 9VDC @ 1.1A

The console has a built-in RS232 interface and comes with a complete set of drivers (LabVIEW™, LabWINDOWS™/CVI). The application software enables remote control of the unit and allows the user to view, acquire and store the measurement data on a PC.

SPECIALTY SYSTEMS

Thorlabs also offers two new PM100 based power meter systems. Our PM130 series utilizes a low profile sensor mount, and the PM140 series incorporates an integrating sphere for the sensor element.

PM130 Series
Ultra Slim Sensor
See page 790.

PM140 Series
Integrating Sphere
See page 791.

See page 792 for sensor specifications.
Key features:
- Slim Design Fits into Tight Spaces
- Large Aperture
- Two Detector Versions: Si and Ge
- Slidable ND Filter Included

Sensor Specifications:
- Wavelength Range: 400 - 1100nm; (PM130), 700 - 1800nm (PM132)
- Power Range: 5nW - 5mW
  (500mW w/ND Filter @ 980nm)
- Aperture: Ø9.5mm
- Dimensions: 150x19x10mm;
  (5.91" x 0.75" x 0.39")
- Power Resolution: 0.1nW
- Max CW PWR: 10W/cm²
  (50W/cm² w/ND Filter)
- ND Value: (1/100)
- ND to Det. Distance: 0.5mm (0.02")
- Distance to ND Filter: 0.9mm (0.035")
- Weight: 200g (with connector)
- Measurement Standard: NIST Traceable
- Measurement Uncertainty: ± 5%
- Operating Temperature: 5°C to 40°C
- Storage Temperature: -20°C to 70°C

PM130 SERIES

PM130 SYSTEM
S130A Sensor
400 - 1100nm

PM132 SYSTEM
S132A Sensor
700 - 1800nm

PM30-130 SERIES

PM30-130 SYSTEM
S130A Sensor
400 - 1100nm

PM30-132 SYSTEM
S132A Sensor
700 - 1800nm

TWO AVAILABLE SYSTEMS

The PM130 Series Power Meter uses our ultra-slim sensor package designed for free space setups where space is critical and normal sensors are too large to fit. Available with Si or Ge detectors, they cover a wavelength range of 400 to 1800nm and power range of 5nW to 5mW, and are ideal for measurements on low power CW laser beams. The built in slidable ND filter extends the power range to a maximum of 500mW.

Each PM130 series system consists of an S130 series Slim Sensor and our popular PM100 Power Meter console. See page 786 and 787 for specifications and details on the PM100.

Measuring only 0.748” x 0.393” at the photodiode location, the S130 series sensor fits where most sensors can’t. Two sets of #8-32 and M4 threaded mounting holes allow mounting into our standard post and post holders.

TWO AVAILABLE SYSTEMS

PM130 SYSTEM
S130A Sensor
400 - 1100nm

PM132 SYSTEM
S132A Sensor
700 - 1800nm

PM30-130 SERIES

PM30-130 SYSTEM
S130A Sensor
400 - 1100nm

PM30-132 SYSTEM
S132A Sensor
700 - 1800nm

TWO AVAILABLE SYSTEMS

The PM30-130 Series Power Meter also uses our new ultra-slim sensor package designed for free space setups where space is critical and normal sensors are too large to fit. Available with Si or Ge detectors, they cover a wavelength range of 400 to 1800nm and power range of 5nW to 5mW, and are ideal for measurements on low power CW laser beams. The built-in slidable ND filter extends the power range to a maximum of 500mW.

The sensitive analog needle movement of the PM30 console is ideal for tuning applications where relative power needs to be seen quickly at-a-glance. The digital read out is valuable for precise measurements once your power has been optimized.

Each PM30-130 series system consists of an S130 series Slim Sensor and our new PM30 Power Meter console. See page 788 for specifications and details on the PM30.

See the PM130 presentation above for specifications on the S130 series sensors.

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>¥</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM30</td>
<td>$ 995.00</td>
<td>£ 697.00</td>
<td>€ 1,045.00</td>
<td>¥ 167,160</td>
<td>Slim Sensor System with Si Detector, 400 - 1100nm, 5nW to 500mW</td>
</tr>
<tr>
<td>PM30-132</td>
<td>$ 1,195.00</td>
<td>£ 836.00</td>
<td>€ 1,255.00</td>
<td>¥ 200,760</td>
<td>Slim Sensor System with Ge Detector, 700 - 1800nm, 5nW to 500mW</td>
</tr>
</tbody>
</table>

(Bases and Post Assemblies Sold Separately)
PM140 Series Integrating Sphere Power Meter System

The PM140 Power Meter system incorporates our popular PM100 power meter console and our S140 Integrating Sphere Sensor to enable precise measurements widely independent of beam shape and entrance angle. The main application for these sphere coupled power meters is the measurement of highly divergent beams leaving optical fibers. The sensors are available for a wavelength range of 400 - 1700nm and for a power range of 1µW to 1W. The S140 sensor’s NIST traceable calibration data is stored in the sensor head and downloaded to the PM100 console when connecting the sensor.

The unit is supplied with an FC fiber adapter. Most industry standard fiber adapters including FC, LC, ST, SC, bare fiber, SMA are available as accessories and can easily be installed. For specifications and details on the PM100 Power Meter console, see pages 786 - 787.

Features:
- Integrating Sphere Based Power Measurements
- Fiber and Free Space Measurements
- NIST Traceable Calibration

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>¥</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM140</td>
<td>1,425.00</td>
<td>998.00</td>
<td>1,496.00</td>
<td>239,400</td>
<td>Integrating Sphere Power Meter System, 400 - 1100nm FC Adapter*</td>
</tr>
<tr>
<td>PM144</td>
<td>1,525.00</td>
<td>1,068.00</td>
<td>1,600.00</td>
<td>256,200</td>
<td>Integrating Sphere Power Meter System, 800 - 1700nm FC Adapter*</td>
</tr>
</tbody>
</table>

*Other adapters available upon request.

PM30-140 Series Integrating Sphere Power Meter System

The PM30-140 Power Meter system incorporates our new PM30 Power Meter console and our S140 Integrating Sphere Sensor to enable precise measurements widely independent of beam shape and entrance angle. The main application for these sphere coupled power meters is for optimizing the measurement of highly divergent beams leaving optical fibers. The sensitive analog needle movement of the PM30 console is ideal for tuning applications where relative power needs to be seen quickly at-a-glance. The digital read out is valuable for precise measurements once your power has been optimized.

These systems are available for a wavelength range of 400 - 1700nm and for a power range of 1µW to 1W. The S140 sensor’s NIST traceable calibration data is stored in the sensor head and downloaded to the PM100 console when connecting the sensor.

The unit is supplied with an FC fiber adapter. Most industry standard fiber adapters are available as accessories and can easily be installed. For specifications and details on the PM30 power meter console, see page 788.

Specifications:
- Wavelength Range: 400 to 1100nm; 800 to 1700nm
- Input Power Range: 1µW to 1W
- Damage Threshold: 200W/cm²
- Dimensions: 30.5mm x Ø45mm

<table>
<thead>
<tr>
<th>ITEM#</th>
<th>$</th>
<th>£</th>
<th>€</th>
<th>¥</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM30-140</td>
<td>1,250.00</td>
<td>875.00</td>
<td>1,313.00</td>
<td>210,000</td>
<td>Integrating Sphere Power Meter System, 400 - 1100nm FC Adapter*</td>
</tr>
<tr>
<td>PM30-144</td>
<td>1,350.00</td>
<td>945.00</td>
<td>1,417.00</td>
<td>226,800</td>
<td>Integrating Sphere Power Meter System, 800 - 1700nm FC Adapter*</td>
</tr>
</tbody>
</table>

*Other adapters available upon request.