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Find the *Newport 1830-C* at our website: ***Click HERE***

Picowatt Digital Optical Power Meter



The **Model 1830-C** Power Meter is a high-resolution autoranging picoammeter compatible with all of Newport's **818 Series** low-power silicon, germanium and indium gallium arsenide detectors. It is the most popular Newport model used in production testing of fiber optic components.

DC power measurements can be displayed in units of W and dBm on the instrument's 4 1/2 digit annunciated, backlit, wide-angle view LCD, providing wide dynamic range with power sensitivities down to 100 fW and full scale readings up to 2 W, with the OD-3 calibrated optical attenuator. Various detector accessories allow for free-space, as well as for fiber coupled power measurements.

Relative power measurements, in reference to a previously stored value, can also be performed with the result displayed either as a ratio or in dB.

A built-in beeper, which changes its frequency as a function of incident optical power, can be utilized to optimize optical beam alignment.

RS-232C and IEEE-488 (GPIB) interfaces are both provided as standard features, allowing the remote control of the instrument with a personal computer. Sample LabVIEW drivers are provided upon request.

Additional features include wavelength adjustment in 1 nm steps from the front panel, and an analog output that provides a voltage proportional to the detector current, to be used for recorder or control loop applications.

Key Features

- *Compact, full featured, benchtop instrument*
- *Standard configuration includes both* RS-232C *and* IEEE-488 *interfaces*
- DC *power measurements in the* 100 *fW–2 W range*
- *Additional features include large, backlit* LCD *display, autoranging and an audible tone for alignment optimization*

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Instrument Specifications

Signal Ranges	Up to 8 decades (dependent on detector type)
Display Type	4.5 digit, annunciated, backlit, wide-angle view LCD
Display Update Rate (ms)	75
Auto-Ranging Time	200 ms (typical)
GPIB Bus Transfer Time	10 ms (typical)
Analog Output	0–2V into 1 MΩ
DC Accuracy	<±0.2% (typical)
Connectors	
Calibration Module	8 pin Sub-mini DIN
Analog Output	0–2V into 1 MΩ
RS-232C	9 pin D-Sub
GPIB	24 Conductor D
Power Requirements	100–120/220–240 VAC, 50/60 Hz
Absolute Maximum Line Current Rating (W x H x D) (mA)	200
Dimension (W x H x D) [in. (mm)]	3.7 (94) x 7.5 (191) x 9.0 (229)
Weight [lb (kg)]	5 (2.3)
Enclosure (W x H x D)	Metal case, painted 7.5 (191) x 9.0 (229) in. (94 x 191 x 229 mm)
Operating Temperature	0°C to +40°C; <70% RH noncondensing
Storage Temperature	-20°C to +60°C; <90% RH noncondensing

System Specifications

The 1830-C is compatible with Newport's Ge, Si and InGaAs detectors, allowing both free-space and fiber pigtailed measurements in the 190–1800 nm range. When using one of these detectors with the 1830-C a calibration module needs to be attached to the detector, assuring the correct reading at any pre-selected wavelength.

For more details on Newport's low-power detectors and fiber optic attachments compatible with the 1830-C, please see page 141 thru 152.

Model	818-UV/CM	818-SL/CM	818-F-SL	818-ST/CM	818-IR/CM 818-F-IR	818-IG/CM	818-IS-1
Detector Material	Silicon	Silicon	Silicon	Silicon	Germanium	Indium Gallium Arsenide	InGaAs/Si
Diameter (cm)	1.13	1.13	0.3	1 x 1	0.3	0.3	
Wavelength (nm)	190–1100	400–1100	400–1100	400–1100	780–1800	800–1650	400–1650
Power Range (dBm)	-73 to +23 dBm	-80 to +33 dBm	-80 to +3 dBm	-60 to +33 dBm	-65 to +23 dBm[2]	-80 to +23 dBm	-65 to +23 dBm
Display Resolution				0.01 dB or dBm			
Display Resolution (pW)	0.1	0.1	0.1	0.1	10	0.1	0.1
Accuracy[1]	±2%	±2%	±2%	±2%	±3%	±2%	±2.5%
Applicable wavelength range (nm)	200–1100	400–1100	400–1100	400–1100	780–1700	800–1650	400–1650
Linearity				±0.5%			
NEP @ 5 Hz and 1 A/W	fW/√Hz 50	50 fW/√Hz	50 fW/√Hz	3 pW/√Hz	4 pW/√Hz	30 fW/√Hz	3 pW/√Hz[3]

1) At calibration temperature maintained to ± 0.2°C, -20 dBm level having 99% encircled energy on detector with no optical attenuator
2) -70 to +3 dBm for 818-F-IR
3) 0.01 A/W for the 818-IS-1

Call Newport's Application Sales Engineers to help you select the optical detector that best meets your application requirements.

Ordering Information

Model	Description
1830-C	Picowatt Digital Optical Power Meter
1830-C-CAL	1830-C with test data and certificate

Phone: 1-800-222-6440 • Fax: 1-949-253-1680
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