

PHOTO RESEARCH[®], Inc.

The PR[®]-810L Ultra Low-Level Pritchard[®] Photometer

Meeting the Demand

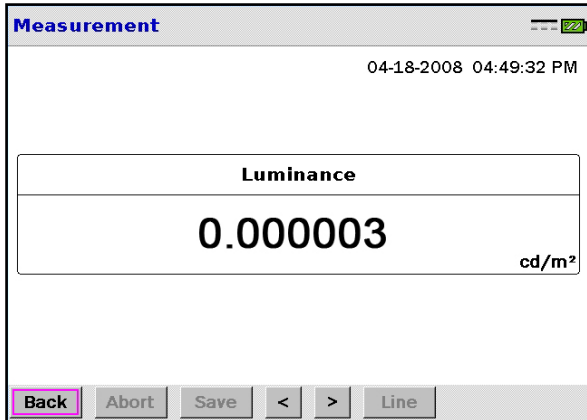
Information display performance is continuing to improve at an almost exponential rate. Of these improvements, one of the most important is luminance contrast. To achieve improved contrast ratios, display manufacturers are striving to make black blacker. In parallel with improvements in performance comes an increased level of difficulty in measuring the ever decreasing luminance levels. The PR-810L is designed to not only meet but exceed these demands.

Portability / Ease of use

The PR-810L is unlike any of our previous photomultiplier tube (PMT) based photometers - it's battery powered! The Lithium-ion battery provides more than 12 hours of continuous operation providing the ultimate in portability. It also features a full color touch screen display, and 75 mm objective focusable from 14" (355 mm) to infinity (see lens specifications on following page).



PR-810L Pritchard Photometer



Measurement Result Screen

Sensitivity

Using the largest of the 4 fully automated apertures, the PR-810L can measure 1E-6 (0.000001) footlamberts. A fully automated Neutral Density (ND) filter turret provides 3 decades of filtration (10X, 100X and 1000X attenuation) resulting in a 900,000,000:1 dynamic range in any aperture - wide enough for any contrast measurement task. The total instrument dynamic range is 518 Billion:1 !

Connectivity

For help in communicating with the outside world, the PR-810L is supplied with a USB interface and driver. The driver establishes a virtual COM port making control of the PR-810L as easy as communicating over RS232. If a traditional RS232 interface is a must, it can be supplied to complement the USB I/F. Want to go wireless? A Class 1 Bluetooth interface can be added for control of the PR-810L up to 100

meters away. For control of the PR-810L, an on-board protocol - Remote Mode Software - allows you to make measurements and get the data you need by sending and receiving simple ASCII text commands making integration into an ATE or other environment a snap.

Applications

Display luminance	Medical / dental testing
Display Contrast	Reflectance / transmittance
Automotive and Aerospace Display Testing	Human factors

Features	Benefits
Full Color Touch Screen Display	Easy-to-use menu based software
Wide Dynamic Range	Address almost any display measurement requirement
USB Interface	Connects to virtually any PC
Bluetooth ready (optional)	Wireless, remote data transfer
Long lasting rechargeable Li-Ion battery	Excellent for field use
SD Card Storage	Save thousands of measurements

PR-810L Specifications

Detector	Photomultiplier Tube (PMT)
Optics	Pritchard optical system.
Digital Resolution	16 bits
Standard Apertures	3°, 1°, 1/4°, 1/8°
Optional Apertures	2°, 1°, 0.2°, 0.1° 1°, 1/2°, 1/4°, 1/8° 1°, 1/2°, 1° x 0.33°, 1/4°
Luminance Range	0.000001 to 518,400 fL [†]
Luminance accuracy (Against NIST luminance standard)	± 2%*
Luminance repeatability	≤ 1%*
Display	3.5" Color Touch Screen Display
Measurement Time	200 ms to 10 secs.
Battery	Rechargeable Lithium-ion. (≥ 12 hours continuous operation)
Weight	3.75 lbs (1.7 kg)
Operating Temperature	34° to 95° F (1° to 35° C)

* Stated luminance accuracy and repeatability at 0.00025 fL with the 3° aperture.

Notes:

1. All specifications are subject to change without notice.

PR-810L Measurement Spot Size

Accessory	Working Distance	Aperture			
		3°	1°	1/4°	1/8°
MS-75 (355 mm to infinity)	355 mm to 305 m	15.75 mm 15.96 m	5.25 mm 5.32 m	1.315 mm 1.33 m	0.656 mm 66.5 cm
SL-0.5X	94.1 mm to 137 mm	4.5 mm to 7.62 mm	1.50 mm to 2.54 mm	0.375 mm to 0.635 mm	0.188 mm to 0.318 mm
SL-1X	46 mm to 66 mm	2.67 mm to 3.96 mm	0.89 mm to 1.32 mm	0.226 mm to 0.330 mm	0.111 mm to 0.165 mm
MS-2.5X	46 mm	1.53 mm	0.51 mm	0.128 mm	0.064 mm
MS-5X	28 mm	0.78 mm	0.26 mm	0.065 mm	0.033 mm
MS-7.5	100 mm 30.5 m	74.4 mm 15.96 m	24.8 mm 5.3 mm	12.4 mm 1.33 m	6.19 mm 66.5 cm
LA-800	Contact	13.2 mm	13.2 mm	13.2 mm	13.2 mm
FP-800	Contact	3.17 mm	3.17 mm	3.17 mm	3.17 mm

PR-810L Sensitivity Range Chart (fL) †

Access.	Aperture			
	3°	1°	1/4°	1/8°
MS-75	1.00E-6 900	9.00E-6 8100	1.44E-4 129600	5.76E-4 518400
SL-0.5X	1.00E-6 900	9.00E-6 8100	1.44E-4 129600	5.76E-4 518400
SL-1X	1.00E-6 900	9.00E-6 8100	1.44E-4 129600	5.76E-4 518400
MS-2.5X	2.50E-6 2250	2.25E-5 20250	3.60E-4 324000	1.44E-3 1296000
MS-5X	4.00E-6 3600	3.60E-5 32400	5.76E-4 518400	2.30E-3 2073600
MS-7.5	1.00E-6 900	9.00E-6 8100	1.44E-4 129600	5.76E-4 518400
LA-800	1.00E-6 900	9.00E-6 8100	1.44E-4 129600	5.76E-4 518400
FP-800	2.50E-6 2250	2.25E-5 20250	3.60E-4 324000	1.44E-3 1296000
CR-800 (footcandles)	2.00E-6 1800	1.80E-5 16200	2.88E-4 259200	1.15E-3 1036800

† Luminance values are for 10:1 signal to RMS noise against an Illuminant A based (2856K) NIST traceable luminance standard



PHOTO RESEARCH, Inc.

9731 Topanga Canyon Place
Chatsworth, CA 91311-4135 USA
Phone: 818-725-9750 Ext. 1 Fax: 818-725-9770
sales.pr@photoresearch.com
www.photoresearch.com