

PR[®]-520/524 LiteMate[®] and PR-521/525 ColorMate[®] Systems

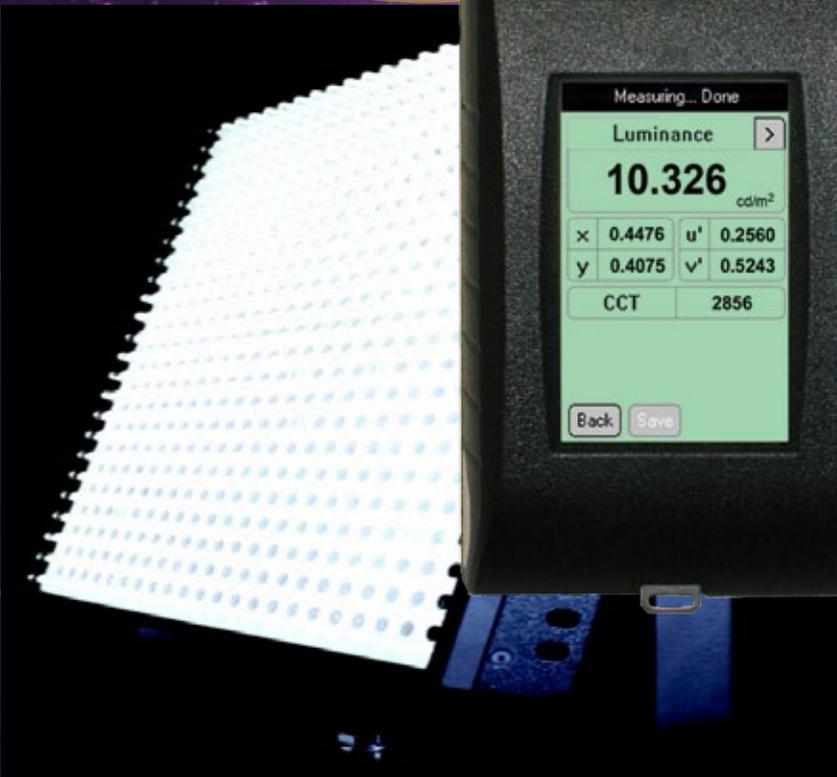


Photo Research[®], Inc
The Light Measurement People

FEATURES

The **PR-520** (PR-524 and PR-522) system combines illuminance (with PR-524 - utilizing true cosine correction) and luminance (with PR-522) measurement capabilities - unique for handheld photometers and colorimeters.

The **PR-521** (PR-525 and PR-523) system adds color (CIE 1931 xy, CIE 1976 u'v', Correlated Color Temperature and dominant wavelength) to the list of capabilities. The PR-521 lets you add up to six sets of color correction factors to maximize accuracy when measuring exotic sources.

Accurate measurements of pulsing or repetitive sources is assured with the **SYNC** feature of the PR-520 / 521. The instruments can be instructed to automatically detect the rate (20 to 400 Hz) of the sample and adjust the measurement acquisition accordingly. You can also enter the frequency value manually.

To make **Continuous Measurements**, simply press and hold the measurement button. Results are displayed instantaneously - no detector integration or dark measurements to wait for.

A special **Peak/Valley** data locking feature lets you display the largest (Peak) or smallest (Valley) value during a continuous measurement sequence.

Use the **Delta** capability to automatically calculate the photometric and color differences between two samples.

Remote Control - Instruments can be controlled from a PC using the Remote Mode command language by sending and receiving ASCII text instructions over a virtual COM port - standard equipment with the PR-520/521.



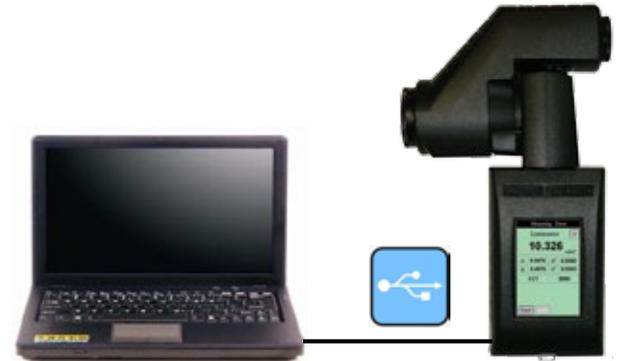
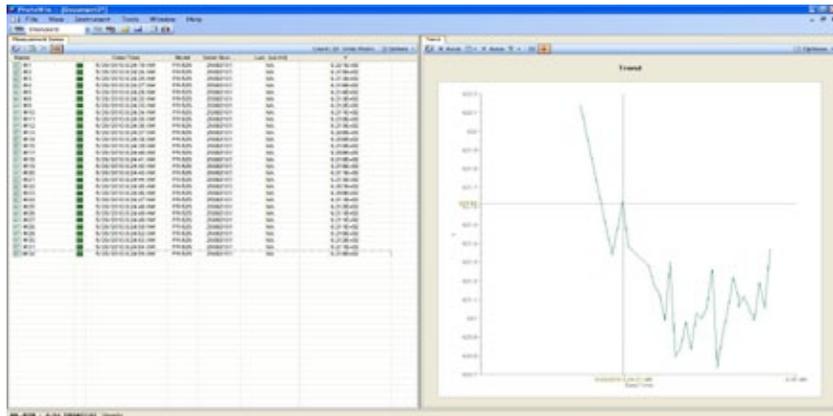
A **rechargeable Li-ion battery** means portability - up to 12 hours on a single charge.



A built-in **USB Interface** lets you connect to the outside world.



Save thousands of measurements on the **Secure Digital (SD)** card.



Trigger devices (like strobes) using the instrument insuring the most accurate results for these types of sources.

PhotoWin 2 Windows software can be used to control the PR-520 or PR-521 systems to provide a powerful and easy to use graphical user interface (GUI) for:

- Instrument set-up
- Standard (luminance / illuminance / color, Reflectance, Transmittance and Contrast Measurements)
- Save measurements
- Print Results
- Export to Excel
- Chart Intensity vs Time

APPLICATIONS



Measure the available **incident light (in lux or footcandles)** and **color temperature** of office, street or architectural lighting.

Quickly and easily measure the illuminance, chromaticity and color temperature of stage or **movie set lighting**.



Test **projector output** for a variety of parameters such as illuminance (fc, lux), CIE chromaticity (CIE xy, u'v') and correlated color temperature (CCT).

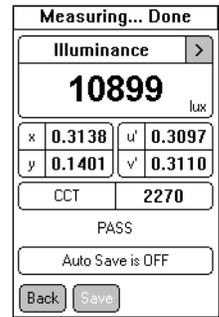
Traditional **display measurements** for luminance (cd/m^2 and footlamberts), CIE chromaticity and color temperature.



PASS / FAIL REGIONS (PR-525 OR PR-521 ONLY)

When the application calls for a fast, easy to use go / no color gauge, the PR-525 (or PR-521) features a user definable (in CIE 1931 x, y coordinates) PASS / FAIL color space that, following a measurement, instantly displays whether the sample does or does not meet the criteria.

The color space can be defined as a four sided polygon (square, rectangle or non equal sided shape) via the PASS / FAIL Setup Menu. Following a measurement, if the CIE 1931 x, y chromaticity point falls within the space defined by the four corners specified during setup, PASS is displayed on screen - if not, FAIL.



ACCESSORIES

The PR-524 / 525 can be supplied with a variety of accessories that enhance the capabilities of the instruments to include luminance (footlamberts or cd/m²) in addition to the standard illuminance (footcandles and lux) measurements.

SPOTMATE®

The **SpotMate** (model PR-522 for the PR-524, or PR-523 for the PR-525) adds Pritchard spot optics to the instrument providing precise alignment capabilities for luminance measurements. With Pritchard optics, unambiguous target alignment is guaranteed. The PR-522 is included with the PR-520 System, and the PR-523 (2° aperture only) is standard equipment with PR-521 System.



1/4-20 Tripod Mount

PR-522 / 523 SpotMate Measuring Diameters

FOCUS DISTANCE	APERTURE (2° only for PR-523)			
	2°	1°	1/2°	1/4°
356 mm	11.54 mm	5.77 mm	2.89 mm	1.44 mm
1.53 m	53.2 mm	26.6 mm	13.3 mm	6.65 mm
3.05 m	10.32 cm	53.1 mm	26.5 mm	13.3 mm

FIBER PROBE - (AVAILABLE FOR PR-524 ONLY)



When it is necessary to make luminance measurements of objects that are inaccessible to traditional line of sight testing, the 2 foot (61 cm) 4 foot (122 cm) or 10 foot (3.05 m) long Fiber Probe provides the capability. Simply place the 0.125 in. (3.185 mm) clear aperture tip flush on the target. This accessory is available for the PR-524 only.

CONTACT PROBE WITH AMBIENT LIGHT SHIELD



For making measurements in ambient conditions, the Contact Probe provides a spot diameter of 0.22" (5.6 mm) for the PR-524 or 0.5" (12.7 mm) for the PR-525. During use, it is placed in contact with the target. It features a rubber shield that blocks ambient light from the measurement result.

When using a Remote Head equipped with a Contact Probe, an optional handle can be added to make contact measurements on back illuminated samples less cumbersome. It is designed to allow the tester to easily position and maintain stability of the Contact Probe against the surface being measured. The handle can be added to existing Remote Heads on-site.

REMOTE DETECTOR HEADS

Both the PR-524 and PR-525 can be equipped with up to 9 remote detector heads for making multiple measurements simultaneously. For the PR-524, the model is the PR-514, and for the PR-525 the PR-515. The heads may be configured for illuminance or luminance measurements. For luminance measurements, one PR-522 (for PR-520) or PR-523 (for PR-521) must be ordered for each head.



Typical Remote Head Configuration

PR-520/524 AND PR-521/525 SPECIFICATIONS*

Specification	PR-520 LiteMate System	PR-521 ColorMate System																
Standard Equipment	PR-524 LiteMate with Illuminance Measuring Head, Lithium-ion battery, carrying case, AC Adapter, Secure digital (SD) card and Utilities software	PR-525 ColorMate with Illuminance Measuring Head, Lithium-ion battery, carrying case, AC Adapter, Secure digital (SD) card and Utilities software																
Display	Backlit Touch Screen LCD	Backlit Touch Screen LCD																
SYNC Range	20 to 400 Hz	20 to 400 Hz																
Measurement Modes	Illuminance (footcandles and lux) Luminance (with PR-522 - footlamberts and cd/m ²)	Illuminance (footcandles and lux) Chromaticity (CIE x, y, u', v', CCT, Dominant WL) Luminance (with PR-523 - footlamberts and cd/m ²)																
Options	PR-514 Remote Heads (up to 9)	PR-515 Remote Heads (up to 9)																
Illuminance Range	Attached Head: 0.00015 - 7,500 fc (0.0015 - 75,000 lux) @ 10:1 S/N	0.0005 - 40,000 fc (0.005 - 400,000 lux) @ 10:1 S/N																
Illuminance Accuracy	± 2% when measuring NIST traceable illuminance standard at 2856 Kelvin (Illuminant A) at 0.004 fc (0.04 lux).	± 2% against NIST traceable illuminance standard at 2856 Kelvin (Illuminant A) @ 0.0125 fc (0.125 lux)																
Illuminance Repeatability	1% at 0.004 fc (0.04 lux)	≤ 1.00% at 0.0125 fc (0.125 lux)																
Minimum Illuminance for Color Measurements	N/A	0.05 fc (0.50 lux) at 2856 Kelvin (Illuminant A)																
Measurement Storage	Secure Digital (SD) Card	Secure Digital (SD) Card																
SpotMate Specifications PR-522 (for PR-524) 1° Aperture Standard PR-523 (for PR-525) 2° Aperture only	<p>Luminance Range: 0.002 to 1,724,990 fl (0.007 to 5,909,000 cd/m²)</p> <p>Minimum Sensitivity (fl / cd/m²)</p> <table border="1"> <thead> <tr> <th colspan="4">Aperture</th> </tr> <tr> <th>2°</th> <th>1°</th> <th>1/2°</th> <th>1/4°</th> </tr> </thead> <tbody> <tr> <td>0.002</td> <td>0.008</td> <td>0.032</td> <td>0.128</td> </tr> <tr> <td>0.007</td> <td>0.027</td> <td>0.110</td> <td>0.440</td> </tr> </tbody> </table> <p>Luminance Accuracy: ± 2% - Illuminant A based Luminance Standard @ >0.023 fl (0.08 cd/m²) with 2° aperture</p> <p>Luminance Repeatability: ≤ 1% measuring Illuminant A at >0.023 fl (0.08 cd/m²) with 2° aperture</p>	Aperture				2°	1°	1/2°	1/4°	0.002	0.008	0.032	0.128	0.007	0.027	0.110	0.440	<p>Luminance Range: 0.08 to 10,420,300 fl (0.274 to 35,699,900 cd/m²)</p> <p>Luminance Accuracy: ± 2% - Illuminant A based Luminance Standard @ > 0.40 fl (1.37 cd/m²).</p> <p>Luminance Repeatability: ≤ 1% measuring Illuminant A at >0.40 fl (1.37 cd/m²)</p> <p>Color Accuracy and Repeatability: ± 0.003 in CIE 1931 x, y - Illuminant A (2856 Kelvin) @ 1.60 fl (5.48 cd/m²)</p>
Aperture																		
2°	1°	1/2°	1/4°															
0.002	0.008	0.032	0.128															
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Power	Rechargeable lithium ion battery - charges while connected to the external supply.	Rechargeable lithium ion battery - charges while connected to the external supply.																
Battery Life	Up to 12 hours on a single charge.	Up to 12 hours on a single charge.																
Interface	USB	USB																
Weight	9.0 ounces (255 grams) without battery and PR-522	9.0 ounces (255 grams) without battery and PR-523																
Dimensions	Main Body: 4.73 x 3.0 in. (17.5 x 7.62 cm) Measuring Head: 2.17 x 3 in. (5.51 x 7.62 cm)	Main Body: 4.73 x 3.0 in. (17.5 x 7.62 cm) Measuring Head: 2.17 x 3 in. (5.51 x 7.62 cm)																

* Specifications subject to change without notice.



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