WESTBORO PHOTONICS

WP640/WP690/WP6120

IMAGING COLORIMETER

KEY FEATURES

- High Sensitivity
- CIE Color-Matched Filters
- Multiple Lens Options
- USB2 Interface
- Compact and Lightweight

APPLICATIONS

- Uniformity of Flat Panel Displays
- Backlight Keyboards
- Mobile Keypads
- Avionics and Automotive Instruments and Panels
- Beam Pattern Distribution
- Solid State Lighting

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Imaging colorimeters provide 2-D luminance and chromaticity at great resolution.

CAPABLE

With 4, 9, or 12 Megapixels of resolution, the WP640, WP690 and WP6120 imaging colorimeters provide optimal measurement solutions to measure luminance and chromaticity. A wide assortment of lenses to suit almost any application are available.

Westboro Photonics' Photometrica® provides users with the most productive software environment for simple or in-depth analysis. All acquisition and analysis functions of the software can be efficiently automated using the optional scripting interface, or with the Software Development Kit (SDK).

SENSITIVE

The WP640, WP690, and WP6120 are all Peltier-cooled and stabilized to minimize measurement noise and drift. With a sensitivity below 0.001 cd/m², low light signals can be reliably analyzed.

ACCURATE

The precise matching of the CIE tristimulus filters ensures accurate luminance and chromaticity measurements. Electronic bracketing yields an optimal set of exposures which are used to measure each point in a scene, even one requiring a high dynamic range exceeding 1,000,000:1.

WP640/WP690/WP6120 IMAGING COLORIMETER

SPECIFICATIONS†		WP640	WP690	WP6120
Sensor Model, Diagonal Size, Pixel Pitch		True Sense KAI-04022, 21.4 mm, 7.4 µm	Sony ICX814, 16.0 mm, 3.69 µm	Sony ICX834, 15.8 mm, 3.1 µm
Sensor Type		16-bit, interline transfer CCD image sensor with microlens		
Sensor Megapixels		4.2	9.1	12
Pixel Array		2048 x 2048	3388 x 2712	4250 x 2838
Full Well (e-)		40 000	18 000	9 000
System Dynamic Range (single exposure, per pixel)		74 db	75 db	75 db
High Dynamic Range (multi-exposure)		> 1 000 000:1	> 1 000 000:1	> 1 000 000:1
Luminance Minimum (cd/m²)*	Limit of Detection	0.000 01	0.000 01	0.000 02
	SNR = 60	0.000 1	0.000 1	0.000 2
	SNR = 100	0.000 2	0.000 2	0.000 3
Luminance Maximum (cd/m²)**		400 000	1 000 000	1 000 000
System Accuracy***		Luminance (Y) ± 4 % CIE Chromaticity Coordinates (x,y) ± 0.003		
Short-Term Repeatability		Luminance (Y) ± 0.03 % CIE Chromaticity Coordinates (x,y) ± 0.000 05		
Standard Lenses: Field of View (H x V)	14 mm	57° x 57°	40° x 48°	35° x 51°
	24 mm	35° x 35°	23° x 29°	21° x 31°
	35 mm	24° x 24°	16° x 21°	14° x 21°
	50 mm	17° x 17°	11° x 14°	10° x 15°
	105 mm	9° x 9°	6° x 7°	5° x 8°
Minimum Measurement Time at 100 cd/m² - Native, 2x2 Binned, 4x4 Binned (s)		Luminance - 2.5, 1.4, 0.9 Color - 10.9, 6.4, 5.1	Luminance - 3.1, 1.6, 1.0 Color - 13.5, 7.3, 5.2	Luminance - 3.8, 1.8, 1.1 Color - 16.5, 8.2, 5.7
Spatial Measurement Capabilities		Luminance, Radiance, Illuminance, Irradiance, Luminous Intensity, Radiant Intensity, CIE Chromaticity Coordinates, Correlated Color Temperature (CCT), Dominant Wavelength, L*a*b*, Gamma, Gamut, Uniformity, ΔE*, User Defined		
Units		cd/m², fL, W/sr/m², lux, fc, W/m², cd, W/sr, CIE (x,y), CIE (u',v'), K (CCT), nm		
Integrated Spot Spectroradiometer		With WP-S option		
Optional Filters		Scotopic, Radiometric, Circadian		
Communication Interface		USB2		
Power		12 V, 24 W max.		
Dimensions Excluding Lens (H x W x D)		127 mm x 113 mm x 74 mm		
Weight		1.9 kg with typical lens, 1.6 kg with no lens		
Operating Temperature		5 °C to 35 °C		
Operating Humidity		10 % to 90 % (no condensation)		

† Specifications are subject to change without notice
* Using 7x7 pixel area
** Typical values for 24 mm lens using iris f/11 and ND3
*** Based on measurements of illuminant A, 20x20 pixel area

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1505 CARLING AVE. SUITE 301 OTTAWA ON CANADA K1Z 7L9 TEL: 613 729 0614 WPHOTONICS.COM