



**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

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.

WPHOTONICS.COM

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/m ²)* | Limit of Detection | 0.00002 | 0.00002 | 0.00004 |
| | SNR = 60 | 0.0002 | 0.0002 | 0.0004 |
| | SNR = 100 | 0.0003 | 0.0003 | 0.0006 |
| Luminance Maximum (cd/m ² **) | | 1.5 x 10 ⁷ | | |
| System Accuracy*** | | Luminance (Y) ± 4 % CIE Chromaticity Coordinates (x,y) ± 0.003 | | |
| Short-Term Repeatability | | Luminance (Y) ± 0.03 % CIE Chromaticity Coordinates (x,y) ± 0.00005 | | |
| 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° |
| | 100 mm | 9° x 9° | 6° x 7° | 5° x 8° |
| Minimum Measurement Time at 100 cd/m ² - 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/m ² , fL, W/sr/m ² , lux, fc, W/m ² , cd, W/sr, CIE (x,y), CIE (u',v'), K (CCT), nm | | |
| Integrated Spot Spectroradiometer | | With WP-S option | | |
| Integrated Spot Flicker Meter | | With WP-SF 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

** Using ND3, f/11

*** Based on measurements of illuminant A, 20x20 pixel area

