



Prime 95B-UV™ Scientific CMOS



UV-Optimized Back-Illuminated Scientific CMOS

Discovery depends on every photon

The Prime 95B-UV is the Scientific CMOS with extreme sensitivity using high Quantum Efficiency (QE) Backside Illumination (BSI), a first for Scientific CMOS cameras. The Prime 95B-UV's sensor is remarkably efficient at converting incident photons into measurable signal across the VIR, NIR and UV spectral ranges. Unlike microlens approaches to increasing QE, which lose effectiveness as objective magnification is increased, the Prime 95B-UV's sensor brings light into the pixel photodiode from behind, avoiding structures that reflect or absorb light. When combined with large 11µm pixels, the Prime 95B-UV can deliver over 300% more signal than other sCMOS cameras at 100X magnification.

More importantly, the Prime 95B-UV outperforms EMCCD cameras—with no excess noise that negates the benefit of using a high QE sensor, and additional limitations from EM gain calibration, stability, expense, and sensor lifetime. With a true 16-bit dynamic range, the Prime 95B-UV easily accomplishes what EMCCD can not—detect weak and bright signals within the same image with photon-noise limited performance.

The extreme sensitivity not only allows fainter signals to be detected, it provides the flexibility to increase frame rates, or turn down the excitation intensity to reduce cellular photo-damage. Yet the Prime 95B-UV maintains the same high frame rates, field-of-view and extremely low read noise that has made sCMOS so popular for live-cell imaging.

APPLICATIONS

- Super-Resolution Microscopy
- Confocal Microscopy
- Single Molecule Fluorescence
- Light Sheet Microscopy

FEATURES

BENEFITS

High Quantum Efficiency

Maximizes ability to detect weak signals, enables short exposure times for high frame rates, minimizes phototoxicity across a wide range of wavelengths

Large 11µm Pixel Size

Maximize light collection while maintaining proper spatial sampling

Extremely Low Read Noise

Maximize your ability to detect faint fluorescence

Fast Frame Rates

Capture highly dynamic events with high temporal resolution

Large Field of View

Maximize the number of cells that can be tracked and monitored per frame

Enhanced Dynamic Range

Measure both bright and dim signal levels within the same image
50,000:1 Dynamic Range (94 dB)

Multiple Expose Out Triggering

Control up to four light sources for multi-wavelength acquisitions

SMART Streaming

Faster acquisition rates with variable exposures, ideal for multi-probed live cell imaging
Compatible with Multiple Expose Out Triggering

INCLUDED

- Prime 95B Scientific CCD Camera
- PCIe Card/Cable
- Trigger Cable
- Power Supply
- Manuals and QuickStart Guide
- Performance and Gain Calibration Test Data

ADDITIONAL ACCESSORIES

- Liquid Circulator
- Liquid Cooling Tubes

SPECIFICATIONS

Sensor	GPixel GSense 144 BSI CMOS Gen IV, Grade 1 in imaging area, UV-optimized
Active Array Size	1200 x 1200 pixels (1.44 Megapixel) 1608 x 1608 pixels (2.58 Megapixel) available
Pixel Area	11 μ m x 11 μ m (121 μ m ²)
Sensor Area	13.2mm x 13.2mm (18.7mm diagonal) 17.6mm x 17.6mm (24.9mm diagonal for 1608 x 1608 array)
Peak QE%	>80%
Read Noise	1.6e- (Median), 1.8e- (RMS)
Full-Well Capacity	80,000e- (Combined Gain), 4,500e- (High Gain)
Dynamic Range	50,000:1 (Combined Gain)
Bit Depth	16-bit (Combined Gain), 12-bit (High Gain)
Readout Mode	Rolling Shutter, Effective Global Shutter
Binning	2x2 (on FPGA)

CAMERA INTERFACE

Digital Interface	PCIe, USB 3.0
Lens Interface	C-Mount
Mounting Points	2 x 1/4 20" mounting points per side to prevent rotation
Liquid Cooling	Quick Disconnect Ports

COOLING PERFORMANCE

Air Cooled	-10°C @ 30°C Ambient, 2.9e-/pixel/second
Liquid Cooled	-25°C @ 30°C Ambient, 0.7e-/pixel/second

TRIGGERING

Input Trigger Modes	Trigger-First Sequence triggered on first rising edge Edge Each frame triggered on rising edge SMART Streaming Fast iteration through multiple exposure times
Output Trigger Modes	First Row Expose signal is high while first row is acquiring data Any Row Expose signal is high while any row is acquiring data All Rows Effective Global Shutter - Expose signal is high when all rows are acquiring data
Output Trigger Signals	Expose Out (up to four signals), Read Out, Shutter Out, Trigger Ready



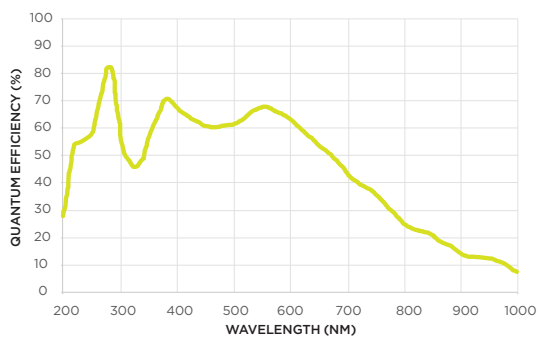
- Cameras optimized for application needs
- Flexible and customizable branding options
- Unique part number/Bill of Materials (BOM)
- Single driver platform supports a wide range of product offerings
- Strategically located global service centers
- Dedicated support from a focused OEM team

FRAME RATE

(PCIe Interface)

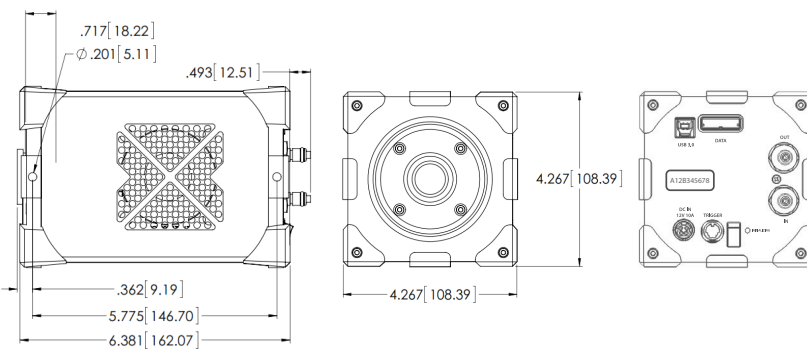
Array Size	16-bit	12-bit
1200 X 1200	41	82
1200 X 512	96	192
1200 X 256	192	384
1200 X 128	384	768

SPECTRAL RESPONSE



DIMENSIONS

Distance from C-mount to sensor



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 www.photometrics.com
 Telephone: +1 520.889.9933
 Toll Free: +1 800.874.9789

Results are typical and may vary from camera to camera.

*For more information, visit the Photometrics website at www.photometrics.com

Note: Specifications are typical and subject to change.

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