



D A T A S H E E T

V E R R A R Y S Y S T E M

VersArray:1300B
 Princeton Instruments
 1340 x 1300 imaging array
 20 x 20- μ m pixels

The VersArray:1300B is a high-performance, full-frame digital camera system that utilizes a back-illuminated device offered exclusively by Roper Scientific™. With a 1340 x 1300 imaging array, 100% fill factor, and 20 x 20-micron pixels, this system provides a very large imaging area with very high spatial resolution. Dark current is reduced through a thermoelectrically cooled option for easy maintenance or a liquid-nitrogen-cooled option for long exposures. The large field of view, exceptionally high quantum efficiency, low readout noise, and low binning noise make this camera ideal for a variety of low-light imaging applications, including macro-imaging of chemiluminescence.

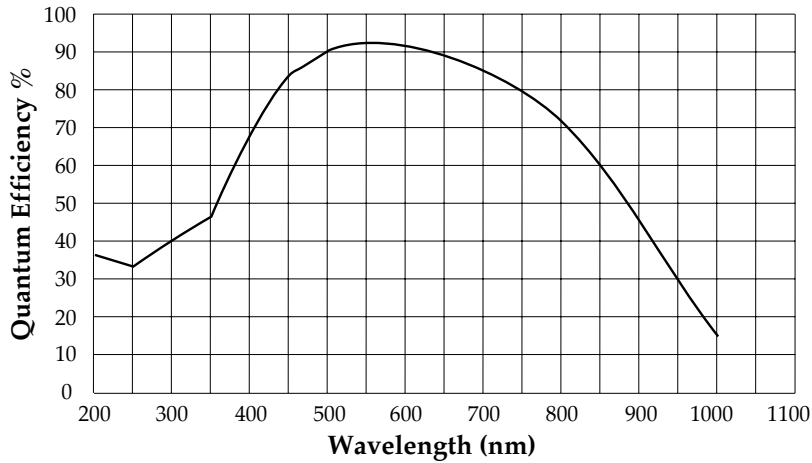
F E A T U R E S	B E N E F I T S
1340 x 1300 imaging array 20 x 20- μ m pixels	Provides highest resolution available in a large-format, back-illuminated camera
Back-illuminated CCD	Offers the highest sensitivity throughout the visible spectrum
Scientific-grade CCD	Low noise, few defects, linear response
200 ke ⁻ single-pixel full well	High signal-to-noise ratio (SNR) allows measurement of weak signal on high background
Flexible, user-selectable binning and subarray readout	Increases frame rate and SNR
High intrascenic dynamic range	Quantifies both strong and weak signals in the same image
Dual-digitizer option (100 kHz/1 MHz)	Slow speed for low noise and highest SNR High speed for rapid image acquisition
Thermoelectric or liquid nitrogen cooling	Allows you to match cooling to your application Significantly reduces dark current for long integration times
PCI interface	Industry standard Fast, reliable data transfer
WinView	Offers easy-yet-sophisticated Windows® GUI controls Automates data acquisition, analysis, and display





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S P E C I F I C A T I O N S

CCD image sensor	EEV CCD36-40; scientific grade; MPP; back-illuminated; available with Unichrome UV-enhancement coating
CCD format	1340 x 1300 imaging pixels; 20 x 20- μ m pixels; 100% fill factor; 26.8 x 26.0-mm imaging area (optically centered)
Grade	Grade 1: 1 to 4 pixels \leq 40 dark defects, 5 to 8 pixels \leq 25 dark defects, 9 to 15 pixels 2 dark defects (max), \leq 5 column defects
Linear full well (single pixel)	200,000 e ⁻
Linear full well (binned)	250,000 e ⁻ (high-sensitivity amplifier); 800,000 e ⁻ (high-capacity amplifier)
Output amplifiers	High-sensitivity or high-capacity amplifier; user selectable*
User-selectable gains	1/2x, 1x, 2x
Read noise	\leq 5 e ⁻ rms @ 100 kHz, 10 e ⁻ rms @ 1 MHz (high-sensitivity amplifier); \leq 10 e ⁻ rms @ 100 kHz, 20 e ⁻ rms @ 1 MHz (high-capacity amplifier)
Nonlinearity	<2%
Nonuniformity	\leq ±4% over entire CCD area (excluding blemish regions)
Dynamic range	16 bits
Scan rate	100 kHz; 1 MHz
Frame readout	<18 seconds for full frame @ 100 kHz; <1.8 seconds for full frame @ 1 MHz
Dark current	<0.5 e ⁻ /p/s @ -50°C; \leq 1 e ⁻ /p/hr @ -120°C
Operating temperature	-40°C with TEC (backfilled); -55°C with TEC (vacuum); -70 to -120°C with liquid nitrogen cooling
Thermostating precision	\pm 0.04°C over entire temperature range
Liquid nitrogen hold time	>25 hours

*Thermoelectric head only.

Note: Specifications are typical and subject to change.



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