

LARRY USB3648+ : Scientific-grade CCD Linear Array Detector

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3648-element Linear Array CCD Detector



Description

The LARRY USB3648+ is a CCD linear array detectors that offers cost-effective, scientific-grade performance for a wide range of spectroscopic applications. It can be mounted to most spectrographs that have the output plane 10mm outside of the spectrograph. Standard and custom mounts are available.

The LARRY series is based on proven Ocean Optics electronics and is compatible with Ocean Optics software, enabling a broad scope of features. The detectors connect to and are controlled by a PC (Windows 7, 8,) via USB 2.0, allowing for easy-to-use, plug-and-play operation. Multiple detectors can be controlled, enabling simultaneous acquisition. GPIO communication can also be used to integrate with other instruments and devices.

The linear CCDs used in the LARRY series contain built-in electronic shutters, which allow for integration times down to 1 ms without the need for external shutters.

KEY FEATURES

- 2048 and 3648 pixel linear arrays
- 14 μm and 8 μm pixel width & spacing
- pixel height 200 microns for spectroscopic applications
- Scientific grade, no fringing
- Fast, built-in electronic shutter capability
- Max. dynamic range >2000:1
- Spectral range: 200-1100 nm
- Rapid acquisition up to 500 spectra/second with 1ms integration time
- USB3648+ detector optional short pulse mode, integration times down to 10 microseconds with real time acquisition rates.
- USB 2.0 for plug-and-play PC control
- Powered via USB
- GPIO for easy integration with other instruments and devices
- External trigger and sync output via SBC (subminiature BNC) with programmable delays for synchronization to pulsed sources

APPLICATIONS

- Upgrade optical spectrometers to linear CCD array capability
- Capturing spectra of short-pulse events
- Synchronization to pulsed lasers and light sources
- Fringe analysis, beam profiling/monitoring
- Synchronous and simultaneous detection with multiple detectors
- Thorlabs cage mount interface available

CONNECTORS

- USB 2.0 for computer control and power supply

- Trigger SubMiniature BNC (SMB), TTL input for external trigger
- Sync SMB, programmable TTL output for synchronizing other devices with the detector
- Additional SMB connector for a customizable connection
- 22-pin accessory connector for detector monitoring and GPIO communication

SPECIFICATIONS	LARRY USB3648+
Number of sensitive pixels	3648
Number of masked dark pixels	13
Pixel size	8 μm (w) \times 200 μm (h)
Array length (active)	29.1 mm
Spectral range	
Integration time	3.8 ms – 10 sec 10 -1000 μs option also available ¹
Well capacity (WC)	100,000 e ⁻
16-bit ADC output	
Saturation level @ 633 nm	9.5 nJ/cm ² 1.5 \times 10 ⁻⁴ nJ per pixel
Readout noise (RN)	46 e ⁻ rms
Dark signal non-uniformity	
1-sec integration	571 e ⁻ rms
10-sec integration	1739 e ⁻ rms
Dark signal offset	
Dark noise	
1-sec integration	69 e ⁻ rms
10-sec integration	128 e ⁻ rms
Maximum dynamic range (WC / RN)	2170
Readout time	3.8 ms
Spectral rate ²	//
Normal	
High-speed acquisition	

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