LARRY USB2048+ : Scientific-grade CCD Linear Array Detector

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2048-element Linear Array CCD Detector

Description

The LARRY USB2048+ is a CCD linear array detectors which 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 USB2048+
Number of sensitive pixels	2048
Number of masked dark pixels	18
Pixel size	14 µm (w) × 200 µm (h)
Array length (active)	28.7 mm
Spectral range	200 nm – 1100 nm
Integration time	1 ms – 65 sec
Well capacity (WC)	62,500 e-
16-bit ADC output	65,535 counts
Saturation level @ 633 nm	3.8 nJ/cm2 1.1 × 10-4 nJ per pixel
Readout noise (RN)	29 e- rms
Dark signal non-uniformity	
1-sec integration	37 e- rms
10-sec integration	406 e- rms
Dark signal offset	~1000 counts
Dark noise	
1-sec integration	31 e- rms
10-sec integration	45 e- rms
Maximum dynamic range (WC / RN)	2155
Readout time	2 ms
Spectral rate2	//
Normal	Up to 30 Hz
High-speed acquisition	Up to 500 Hz

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