Aries 6504 LT Compact BSI sCMOS Camera, 0.8 e^- Read Noise, 100 fps

Model Aries 6504 LT · waveqvanta.com/products/aries-6504-lt-scmos-camera

A compact sCMOS camera for system builders who need low-noise, high-speed imaging in a small footprint.



The Aries 6504 LT puts a back-illuminated 2048 × 2048 sCMOS sensor with 6.5 µm pixels into a compact housing intended for instrument and OEM integration. It offers 83% peak QE and 0.8 e^- read noise and comes in two bandwidth versions: a 5G version on USB 3.2 Gen 1 at up to 42 fps, and a 10G version on USB 3.2 Gen 2 or CoaXPress at up to 100 fps.

Key features

- 83% peak QE at 450 nm and 0.8 e^- read noise (Dynamic mode) for detecting weak optical signals
- 5G version: USB 3.2 Gen 1 with up to 42 fps, plug-and-play for laboratory use and standalone instruments
- 10G version: USB 3.2 Gen 2 or CoaXPress (CXP-12), up to 100 fps at 4.2 MP through either interface
- Fan-free passive cooling on both versions for vibration-sensitive setups; fan cooling optional on the 10G version to reduce thermal noise at high speed
- 15 ke^- full well and 86 dB dynamic range (Dynamic mode), with 2 × 2 and 4 × 4 binning and ROI
- Hirose 12-pin trigger I/O with hardware and software triggering and timestamps

Specifications

Sensor Type	BSI sCMOS
Color / Mono	Mono
Peak QE	83% @ 450 nm
Spectral Range	300–1000 nm
Resolution	2048 × 2048
Pixel Size	6.5 µm × 6.5 µm
Effective Area	13.3 mm × 13.3 mm
Array Diagonal	18.8 mm
Full-Well Capacity	15 ke^- (Dynamic mode)
Readout Noise	0.8 e^- (Dynamic mode)
Dynamic Range	86 dB (Dynamic mode)
Frame Rate (5G)	42 fps (Dynamic mode)
Frame Rate (10G)	80 fps (Dynamic mode); 100 fps (Standard mode)
Binning	2 × 2, 4 × 4
ROI	Supported
Cooling Method	Passive (5G and 10G); fan cooling optional (10G)
Bit Depth	16 bit (5G); 12 bit, 16 bit (10G)
Data Interface	5G: USB 3.2 Gen 1; 10G: USB 3.2 Gen 2 or CXP-12 × 1
Trigger	Hardware, software; Hirose 12-pin

Trigger Output	Readout, Exposure Out, Trigger Ready, High, Low
Timestamp	Supported
Optical Interface	C-mount
Power Supply	DC 12 V / USB 3.2
Power Consumption	Below 6 W (5G); below 12 W (10G)
Dimensions	65 mm × 65 mm × 66 mm (5G, camera body only)
Weight	456 g (5G)
Operating Environment	Working 0–40 °C, 20–80% RH, 0–3000 m; storage −20 to 60 °C, 20–80% RH
Software / SDK Support	Acquisition and analysis software; C / C++ SDK; Windows 10 / 11, Ubuntu 22.04

Typical applications

- Fluorescence imaging
- Spectroscopy and spectral analysis
- Laser spot analysis
- Industrial quality inspection
- OEM instrument integration