Libra 3412C Global Shutter Color CMOS Camera, 12 MP, 96 fps, 10 GigE

Model Libra 3412C · waveqvanta.com/products/libra-3412c-cmos-camera

Air-cooled 12 MP global shutter color camera with 10 GigE output for high-throughput instrument imaging.



The Libra 3412C is a compact, air-cooled color camera built on a 12 MP global shutter CMOS sensor (GMAX 3412) with a 17.4 mm (1.1-inch) diagonal, designed for integration into imaging instruments. Its 10 GigE interface delivers full-resolution 4096 × 3072 images at up to 96 fps (8 bit), and on-camera AI color correction handles white balance automatically. A spectral response of 350–1100 nm covers bright-field color work and many fluorescence applications.

Key features

- Global shutter exposes all pixels at once for distortion-free images of moving samples and high-throughput slide scanning
- 10 GigE interface: 96 fps at 8 bit, 65 fps at 10 bit and 62 fps at 12 bit at full 4096 × 3072 resolution
- On-camera AI color correction detects lighting and color temperature, removing manual white balance; no host upgrade required
- 350–1100 nm spectral response with near-infrared sensitivity, for bright-field color and most fluorescence imaging
- 3.4 µm pixels on a 1.1-inch sensor, suited to optical systems below 40× for large-field cell and tissue imaging
- Air cooling to 10 °C at 25 °C ambient, dark current 0.5 e^-/pixel/s; readout noise down to 1.6 e^- in Sensitive mode
- Compact 60 × 60 × 100 mm housing (~489 g) for instrument integration; C / C++ / C# / Python SDK

Specifications

Sensor Type	CMOS (global shutter)
Sensor	GMAX 3412
Color / Mono	Color
Spectral Range	350–1100 nm
Resolution	4096 × 3072 (12 MP)
Pixel Size	3.4 × 3.4 µm
Effective Area	14.0 × 10.5 mm
Array Diagonal	17.4 mm (1.1")
Full-Well Capacity	12 bit: 9 ke^- (High Capacity), 4.5 ke^- (Balanced), 0.7 ke^- (Sensitive)
Readout Noise	12 bit median: 3.8 e^- (High Capacity), 2.5 e^- (Balanced), 1.6 e^- (Sensitive)
Frame Rate	96 fps (8 bit), 65 fps (10 bit), 62 fps (12 bit) @ 4096 × 3072
Shutter Type	Global
Exposure Time	1 µs – 10 s
Binning	1 × 1, 2 × 2, 4 × 4 (FPGA)
ROI	Supported
Cooling Method	Air cooling

Cooling Temperature	10 °C @ 25 °C ambient
Dark Current	0.5 e^-/pixel/s @ 10 °C
Image Correction	Defect pixel correction (DPC); AI white balance
Bit Depth	12 bit (High Depth), 10 bit (Standard), 8 bit (Speed)
Data Interface	10 GigE
Trigger	Hardware, software; Hirose 12-pin
Trigger Output	High, Low, Exposure Out, Readout, Trigger Ready
Optical Interface	C-mount
Power Supply	12 V / 8 A
Power Consumption	32 W
Dimensions	60 × 60 × 100 mm (H × W × L)
Weight	~489 g
Operating Environment	Working: 0–40 °C, 10–85% RH
Operating System	Windows, Linux
Software / SDK Support	Acquisition and analysis software; C / C++ / C# / Python SDK

Typical applications

- Pathology slide scanning
- Multi-channel fluorescence imaging
- Bright-field color microscopy
- Industrial inspection
- OEM instrument integration