Libra 3405M Global Shutter Mono CMOS Camera, 5 MP, 163 fps, 10 GigE

Model Libra 3405M · waveqvanta.com/products/libra-3405m-cmos-camera

Air-cooled 5 MP global shutter mono camera with NIR sensitivity and 10 GigE output for fluorescence instruments.



The Libra 3405M is a compact, air-cooled monochrome camera with a 5 MP global shutter CMOS sensor (GMAX 3405), designed for integration into imaging instruments. It responds from 350 to 1100 nm, with 75% QE at 540 nm and 47% at 800 nm, which suits multi-channel fluorescence and near-infrared work. The 10 GigE interface carries full-resolution 2448 × 2048 images at up to 163 fps, and cooling to 10 °C lowers thermal noise for a more uniform fluorescence background.

Key features

- Global shutter exposes all pixels at once for distortion-free images of moving samples and high-throughput slide scanning
- 350–1100 nm response with 75% QE at 540 nm and 47% at 800 nm, for multi-channel and near-infrared fluorescence
- 10 GigE interface: 163 fps at 8 or 10 bit and 100 fps at 12 bit at full 2448 × 2048 resolution
- Air cooling to 10 °C at 25 °C ambient (dark current 0.5 e^-/pixel/s) for a uniform background and stable measurement data
- Three gain modes; readout noise down to 1.4 e^- in Sensitive mode
- 3.4 µm pixels suited to optical systems below 40×, resolving fine detail in cell and tissue samples
- Compact 60 × 60 × 100 mm housing (~489 g); Micro-Manager 2.0 and C / C++ / C# / Python SDK

Specifications

Sensor Type	CMOS (global shutter)
Sensor	GMAX 3405
Color / Mono	Mono
Peak QE	75% @ 540 nm; 47% @ 800 nm
Spectral Range	350–1100 nm
Resolution	2448 × 2048 (5 MP)
Pixel Size	3.4 × 3.4 µm
Effective Area	8.3 × 7.0 mm
Array Diagonal	10.9 mm (2/3")
Full-Well Capacity	12 bit: 8.9 ke^- (High Capacity), 4.2 ke^- (Balanced), 0.48 ke^- (Sensitive)
Readout Noise	12 bit median: 3.7 e^- (High Capacity), 2.3 e^- (Balanced), 1.4 e^- (Sensitive)
Frame Rate	163 fps (8 bit), 163 fps (10 bit), 100 fps (12 bit) @ 2448 × 2048
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)
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	30 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, Micro-Manager 2.0; C / C++ / C# / Python SDK

Typical applications

- Pathology and fluorescence slide scanning
- Multi-channel fluorescence imaging
- Near-infrared imaging
- Industrial inspection
- OEM instrument integration