Libra 3405UM Global Shutter Mono CMOS Camera, 5 MP, 65 fps, USB 3.0

Model Libra 3405UM · waveqvanta.com/products/libra-3405um-cmos-camera

USB-powered 5 MP global shutter mono camera with NIR sensitivity for multi-channel fluorescence slide scanning.



The Libra 3405UM is a compact monochrome camera with a 5 MP global shutter CMOS sensor (GMAX 3405) and a plug-and-play USB 3.0 connection. Its 350–1100 nm response, with 75% QE at 540 nm and 47% at 800 nm, suits multi-channel fluorescence and near-infrared detection. Full-resolution 2448 × 2048 images are delivered at up to 65 fps (8 bit), and the camera draws its power directly from USB.

Key features

- Global shutter exposes all pixels simultaneously, avoiding motion blur and distortion during fast stage movement
- 350–1100 nm response with 75% QE at 540 nm and 47% at 800 nm for multi-channel and near-infrared fluorescence
- USB 3.0 plug-and-play connection; powered over USB at under 4 W
- Acquisition and analysis software with real-time image stitching and depth-of-field fusion
- 3.4 µm pixels suited to optical systems below 40×, resolving fine detail in cell and tissue samples
- Three gain modes; readout noise down to 1.6 e^- in Sensitive mode (12 bit)
- Compact 45 × 45 × 60 mm passively cooled housing, ~162.5 g; C-mount or customized optical interface

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: 8.7 ke^- (High Capacity), 4.3 ke^- (Balanced), 0.5 ke^- (Sensitive)
Readout Noise	12 bit median: 3.6 e^- (High Capacity), 2.3 e^- (Balanced), 1.6 e^- (Sensitive)
Frame Rate	65 fps (8 bit), 45 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	Passive cooling
Image Correction	Defect pixel correction (DPC)

Bit Depth	8 / 12 bit
Data Interface	USB 3.0
Trigger	Hardware, software; Hirose 6-pin
Trigger Output	Exposure Out, Readout, Trigger Ready
Optical Interface	C-mount / customizable
Power Supply	USB bus power
Power Consumption	< 4 W
Dimensions	45 × 45 × 60 mm (H × W × L)
Weight	~162.5 g
Operating Environment	Working: 0–40 °C, 10–85% RH; storage: -10–60 °C, 0–90% RH
Operating System	Windows, Linux
Software / SDK Support	Acquisition and analysis software; C / C++ / C# / Python SDK

Typical applications

- Tissue fluorescence slide scanning
- Multi-channel fluorescence imaging
- Near-infrared detection
- Microscopy imaging