

# Libra 3405M / 3412M

The Libra 3405M / 3412M are developed with global shutter CMOS sensors, offering both high speed and high resolution. They feature a wide spectral range of 350 nm–1100 nm, providing superior performance for multi-channel fluorescence imaging. Their compact design also facilitates seamless integration into instrument systems.



## Key Features

## Benefits

Global Shutter	High-speed, artifact-free imaging, ideal for high-throughput slide scanning.
350 nm–1100 nm wide spectrum	High sensitivity in low light and NIR, ideal for multi-channel fluorescence.
3.4 $\mu$ m Pixel Size	Optimized for < 40X optical systems, enables higher resolution for cellular and tissue imaging.
10 GigE Interface	Provides higher data throughput and more stable transmission than USB 3.0. <sup>[1]</sup>
Compact Design	Facilitates seamless integration into instrument systems.

## Typical Applications

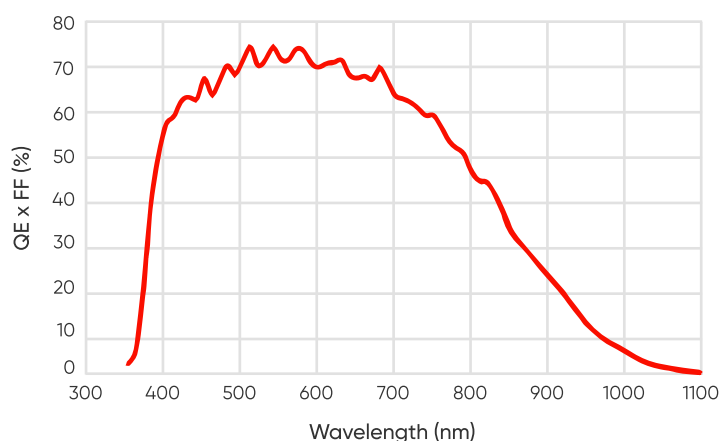
- Digital Pathology
- Microscopy Imaging
- Industrial Inspection

## Noted Examples

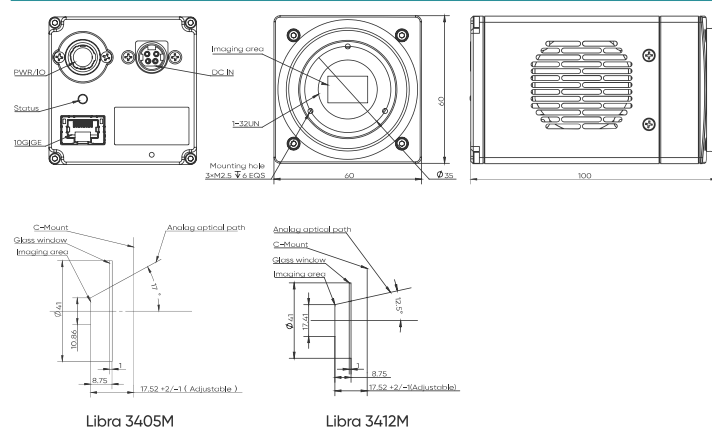
[1] The maximum full-resolution speed is 164 fps for the Libra 3405M and 98 fps for the Libra 3412M, about three times faster than the USB 3.0 version.

Libra 3412	GigE	98 fps
	USB 3.0	28 fps
Libra 3405	GigE	164 fps
	USB 3.0	65 fps

## Quantum Efficiency



## Dimensions (Unit: mm)



# Specifications

Model	Libra 3405M			Libra 3412M		
Sensor Type	CMOS					
Sensor Model	Gpixel GMAX 3405			Gpixel GMAX 3412		
Chrome	Mono					
Array Diagonal	10.9 mm (2/3")			17.4 mm (1.1")		
Effective Area	8.3 mm x 7.0 mm			14.0mm x 10.5mm		
Pixel Size	3.4 μm x 3.4 μm					
Resolution	2448 (H) x 2048 (V)			4096 (H) x 3072 (V)		
Peak QE	75%@540 nm; 47%@800 nm					
Gain Mode	HighCapacity, Balanced, Sensitive					
Full Well Capacity	12bit: High Capacity 8.9 Ke-, Balanced 4.2 Ke-, Sensitive 0.48 Ke-			12bit: High Capacity 9 Ke-, Balanced 4.5 Ke-, Sensitive 0.7 Ke-		
Frame Rate	12 bit 100 fps	10 bit 163 fps	8 bit 164 fps	12 bit 62 fps	10 bit 65 fps	8 bit 98 fps
Readout Noise	12 bit (Median): 3.7 e-@High Capacity, 2.3 e-@Balanced, 1.4 e-@Sensitive			12 bit (Median): 3.6 e-@High Capacity, 2.4 e-@Balanced, 1.6 e-@Sensitive		
Shutter Mode	Global shutter					
Exposure Time	1 μs~10 s					
Image Correction	DPC					
ROI	Support					
Binning (FPGA)	1x1 , 2x2 , 4x4					
Cooling Method	Air cooling					
Cooling Temp.	10°C@Ambient 25°C					
Dark Current	0.5 e-/p/s@10°C					
Trigger Mode	Hardware, Software					
Trigger Output	High, Low, Exposure out, Readout, Trigger Ready					
Trigger Interface	Hirose-12-Pin					
Data Interface	10 GigE					
Bit Depth	High Depth (12 bit), Standard (10 bit), Speed (8 bit)					
Optical Interface	C-Mount					
Power Supply	12 V / 8 A					
Power Cons.	30 W					
Dimensions	60 mm (H) x 60 mm (W) x 100 mm (L)					
Weight	~489 g					
Software	Mosaic 3.1, Sample Pro					
SDK	C / C++ / C# / Python					
Operating System	Windows, Linux					
Environment	Working: Temp. 0°C~40°C, HUM 10%~85%; Storage: Temp. -10°C~60°C, HUM 0%~85%					

\*Specifications in this manual are subject to changes without prior notice.



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