Libra 3405M/3412M

The Libra 3405M and 3412M are global shutter monochrome cameras developed by Tucsen for instrument integration. They utilize front-illuminated sCMOS technology, delivering a broad spectral response (350 nm to 1100 nm) and high sensitivity in the near-infrared range. With a global shutter and GigE interface, they offer higher speeds for instruments, enhancing overall system performance.

Key Features / Benefits

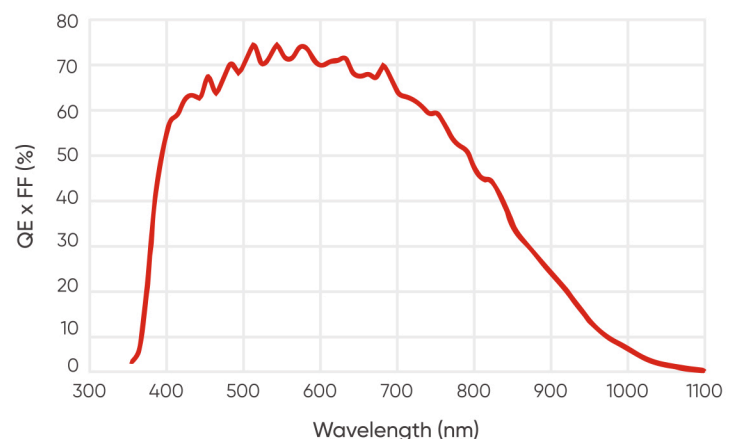| Key Features	Benefits
High-Speed & Global Shutter[1]	Ideal for high speed slide scanning.
High Resolution	3.4 µm pixel size is good for 20x - 40x objective resolution.
Enhanced NIR Sensitivity	For multichannel fluorescent imaging.
Cooling for Low Light	Provides uniform imaging background and clean fluorescence images.
10G GigE & Compact Design	Conducive to the integration of instrument systems.

Typical Applications

- Slide Scanning
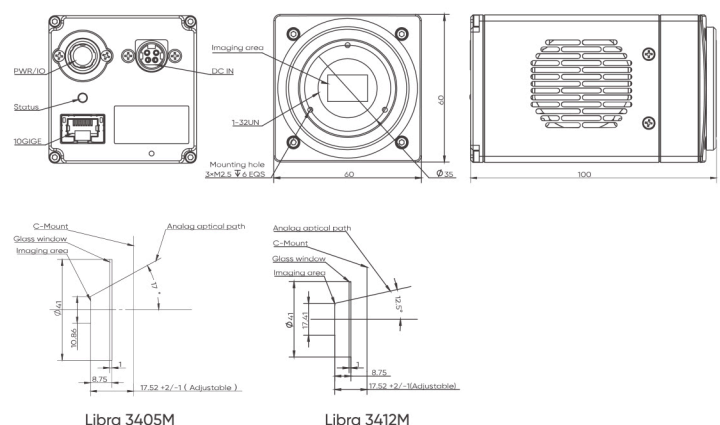- Advanced Microscopy Imaging
- Industrial Inspection

Noted Examples

[1] The global shutter is conducive to capturing fast-moving objects, while the 10G GigE provides several times the speed compared to USB 3.0.

		fps
Libra 3412	GigE	98 fps
	USB 3.0	27 fps
Libra 3405	GigE	164 fps
	USB 3.0	66 fps

Quantum Efficiency

Dimensions (Unit: mm)

Libra 3405M   Libra 3412M

	Libra 3405M	Libra 3412M
Model	Libra 3405M	Libra 3412M
Sensor Type	FSI CMOS	
Sensor Model	Gpixel GMAX 3405	Gpixel GMAX 3412
Color / Mono	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 × 3.4 µm	
Effective Resolution	2448 (H) x 2048 (V)	4096 (H) x 3072 (V)
Peak QE	75%@540 nm; 33%@850 nm	
Gain Mode	High Capacity, Balanced, Sensitive	
Full Well Wapacity	12 bit: High Capacity:8.9 ke-; Balanced:4.2 ke-; Sensitive: 0.48 ke-	12 bit: High Capacity:9 ke-; Balanced:4.5 ke-; Sensitive: 0.7 ke-
Frame Rate	12 bit@100fps;10 bit@163fps;8 bit@164fps	12 bit@64fps;10 bit@65fps;8 bit@98fps
Readout Noise	12 bit (Median): 3.7 e-@High Capacity; 2.3 e-@Balanced 1.4 e-@Sensitive	12 bit (Median): 3.8 e-@High Capacity; 2.5 e-@Balanced 1.6 e-@Sensitive
Shutter Mode	Global Shutter	
Exposure Time	1µs ~ 10s	
Image correction	DPC	
ROI	Support	
Binning (FPGA)	1x1 , 2x2 , 4x4	
Cooling Method	Air Cooling	
Cooling Temperature	Air cooling: 10℃@Room Temperature	
Dark Current	0.5e-/p/s @10℃	
Trigger Mode	Hardware, Software	
Output Trigger Signals	High, Low, ExposureOut, Readout, TriggerReady	
Trigger Interface	Hirose-12-Pin	
Data Interface	10G GigE	
Bit Depth	High Depth(12bit), Standard (10bit), Speed (8bit)	
Optical Interface	C-Mount	
Power	12 V/5A	
Power Consumption	30W	
Dimensions	60mm x 60mm x 100mm	
Camera Weight	~489g	
Camera Software	Samplepro/MosiacV3/Micromanager 2.0	
SDK	C / C++ / C# / Python	
Operating System	Windows / Linux	
Operating Environment	Working: Temp. 0~40℃, HUM 10~85% Storage: Temp. -10~60℃, HUM 0~85%	