

# Libra 3405C / 3412C

The Libra 3405C / 3412C are developed with global shutter Color 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 μm 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>       |
| AI Color Correction          | Provides accurate and true color reproduction for pathology applications. <sup>[2]</sup>        |
| Compact Design               | Facilitates seamless integration into instrument systems.                                       |

## Typical Applications

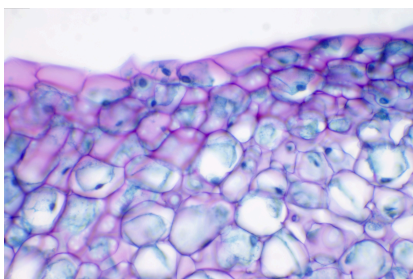
- Digital Pathology
- Microscopy Imaging
- Industrial Inspection

## Noted Examples

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

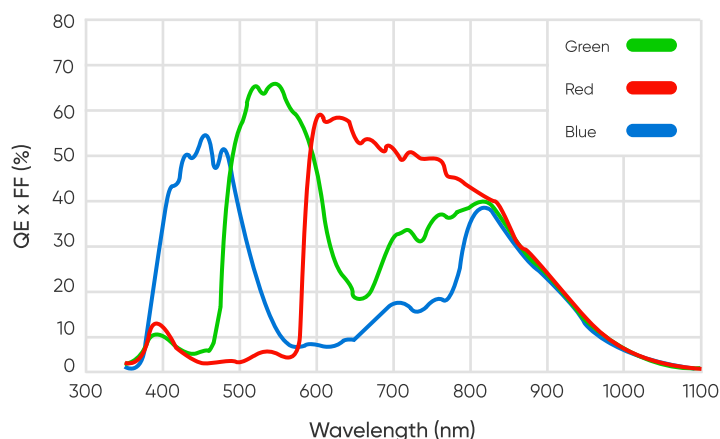
|            |         |         |
|------------|---------|---------|
| Libra 3412 | GigE    | 98 fps  |
|            | USB 3.0 | 27 fps  |
| Libra 3405 | GigE    | 164 fps |
|            | USB 3.0 | 66 fps  |

[2] AI color correction is trained for bright-field microscopy, eliminating manual white balance and accurately reproducing true-to-eye colors.

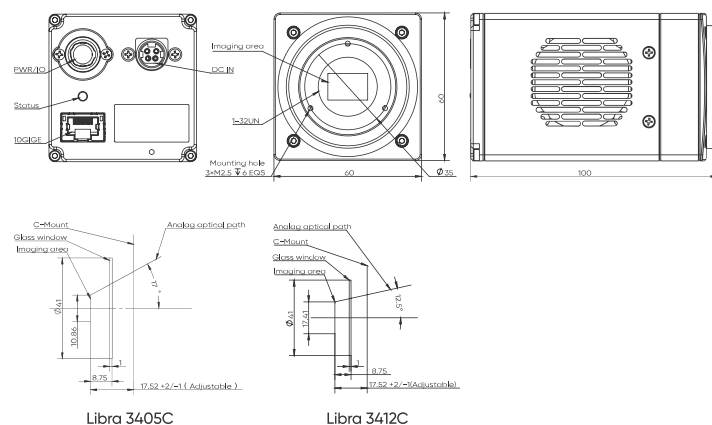


A 40x pathological photo taken by the AI Color Correction function, showing clear cellular details and distinct color gradations.

## Quantum Efficiency



### Dimensions (Unit: mm)



# Specifications

|                    |                                                                             |                   |                  |                                                                             |                  |                 |
|--------------------|-----------------------------------------------------------------------------|-------------------|------------------|-----------------------------------------------------------------------------|------------------|-----------------|
| Model              | Libra 3405C                                                                 |                   |                  | Libra 3412C                                                                 |                  |                 |
| Sensor Type        | FSI sCMOS                                                                   |                   |                  |                                                                             |                  |                 |
| Sensor Model       | Gpixel GMAX 3405                                                            |                   |                  | Gpixel GMAX 3412                                                            |                  |                 |
| Chrome             | Color                                                                       |                   |                  |                                                                             |                  |                 |
| 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            | Please refer to the quantum efficiency curve for details                    |                   |                  |                                                                             |                  |                 |
| Gain Mode          | HighCapacity, Balanced, Sensitive                                           |                   |                  |                                                                             |                  |                 |
| Full Well Capacity | 12bit: High Capacity 8.9 Ke-,<br>Balanced 4.2 Ke-, Sensitive 0.48 Ke-       |                   |                  | 12bit: High Capacity 9 Ke-,<br>Balanced 4.5 Ke-, Sensitive 0.7 Ke-          |                  |                 |
| Frame Rate         | 12 bit<br>100 fps                                                           | 10 bit<br>163 fps | 8 bit<br>164 fps | 12 bit<br>62 fps                                                            | 10 bit<br>65 fps | 8 bit<br>98 fps |
| Readout Noise      | 12 bit (Median): 3.7 e-@High Capacity,<br>2.3 e-@Balanced, 1.4 e-@Sensitive |                   |                  | 12 bit (Median): 3.8 e-@High Capacity,<br>2.5 e-@Balanced, 1.6 e-@Sensitive |                  |                 |
| Shutter Mode       | Global shutter                                                              |                   |                  |                                                                             |                  |                 |
| Exposure Time      | 1 μs~10 s                                                                   |                   |                  |                                                                             |                  |                 |
| AI White Balance   | Support                                                                     |                   |                  |                                                                             |                  |                 |
| 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 / 5 A                                                                  |                   |                  |                                                                             |                  |                 |
| Power Cons.        | 32 W                                                                        |                   |                  |                                                                             |                  |                 |
| Dimensions         | 60 mm (H) x 60 mm (W) x 100 mm (L)                                          |                   |                  |                                                                             |                  |                 |
| Weight             | ~489 g                                                                      |                   |                  |                                                                             |                  |                 |
| Software           | Sample Pro, Mosaic 3.0, Micro-Manager 2.0                                   |                   |                  |                                                                             |                  |                 |
| 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%~90% |                   |                  |                                                                             |                  |                 |

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



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