

# Dhyana 2100

The Dhyana 2100 is designed to deliver an unprecedented combination of maximum speed and resolution with an sCMOS sensor. It achieves an impressive 450 fps at a full resolution of 5120 x 4096, providing high-speed data even under low-light conditions.



## Key Features

## Benefits

|                      |                                                                                 |
|----------------------|---------------------------------------------------------------------------------|
| 450 fps@21 MP        | To allow the observation of fine details at high speed. <sup>[1]</sup>          |
| Fast Binning Mode    | Up to 975 fps@5 MP with high sensitivity and high dynamic range. <sup>[2]</sup> |
| Global Shutter       | High image quality standard with no artifacts and no distortion.                |
| Air & Liquid Cooling | Maintains low dark current, minimizes vibration, and aids thermal stability.    |

## Typical Applications

- Wafer Inspection
- FPD Inspection
- Aerial Photography
- Voltage Sensitive Imaging
- Cardiac Imaging

## Noted Examples

[1] High-Speed using global shutter provides clear images from objects moving at speed.



[2] Speed Comparison in Fast Binning Mode.

1 x 1 Binning  
(5120 x 4096)



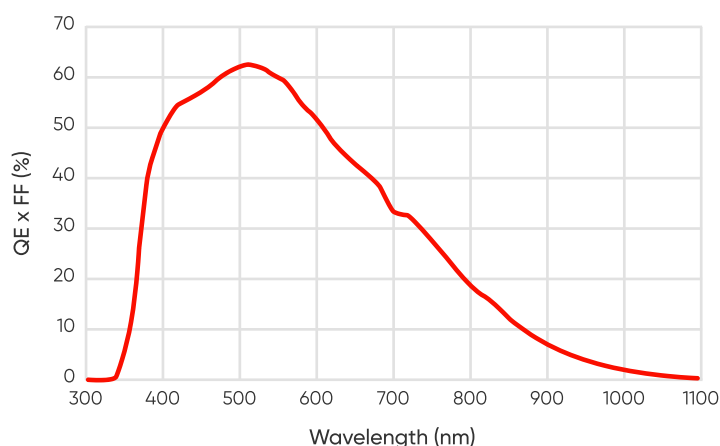
250 fps

2 x 2 Binning  
(2560 x 2048)

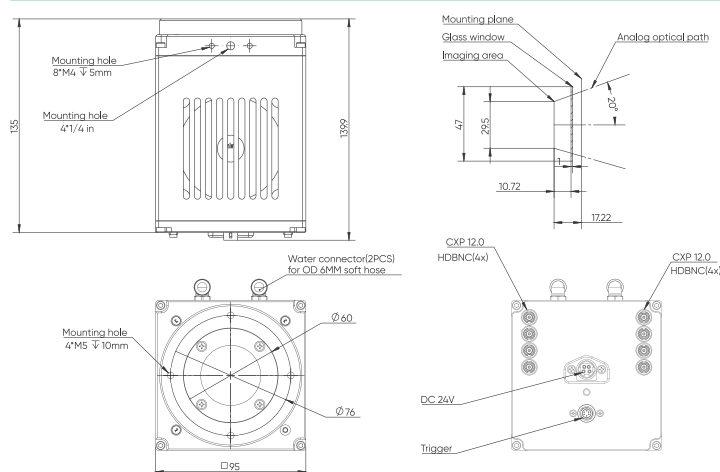


975 fps

## Quantum Efficiency



## Dimensions (Unit: mm)



# Specifications

|                    |                                                                                                                                                      |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model              | Dhyana 2100                                                                                                                                          |
| Sensor Type        | FSI CMOS                                                                                                                                             |
| Sensor Model       | Gpixel GSPRINT4521                                                                                                                                   |
| Peak QE            | 63%@520 nm                                                                                                                                           |
| Chrome             | Mono                                                                                                                                                 |
| Array Diagonal     | 29.5 mm                                                                                                                                              |
| Effective Area     | 23.04 mm x 18.43 mm                                                                                                                                  |
| Resolution         | 5120 (H) x 4096 (V)                                                                                                                                  |
| Pixel Size         | 4.5 $\mu\text{m}$ x 4.5 $\mu\text{m}$                                                                                                                |
| Full Well Capacity | Typical: 28 Ke- (12 bit Gain 0), 120 Ke- (binned)                                                                                                    |
| Dynamic Range      | Typical: 68.8 dB (12 bit Gain 2)                                                                                                                     |
| Frame Rate         | Full Mode: 450 fps@8 bit, 300 fps@10 bit, 250 fps@12 bit<br>Base Mode: 225 fps@8 bit, 150 fps@10 bit, 150 fps@12 bit<br>Fast Binning: 975 fps@12 bit |
| Readout Noise      | Typical: 3.5 e-@12 bit                                                                                                                               |
| Shutter Mode       | Global                                                                                                                                               |
| Exposure Time      | 4 $\mu\text{s}$ ~10 s                                                                                                                                |
| DSNU               | 2.0 e-@12 bit Gain3                                                                                                                                  |
| PRNU               | Typical: 0.15%@12 bit Gain 0; Typical: 0.45%@12 bit Gain 3                                                                                           |
| Cooling Method     | Air Cooling, Liquid Cooling                                                                                                                          |
| Cooling Temp.      | Air: 25°C below ambient; Liquid: 30°C below Water Temp.                                                                                              |
| Binning            | 2 x 2, 4 x 4, 8 x 8                                                                                                                                  |
| ROI                | Support                                                                                                                                              |
| Trigger Mode       | Hardware, Software                                                                                                                                   |
| Trigger Output     | Exposure Start, Readout End                                                                                                                          |
| Trigger Interface  | Hirose                                                                                                                                               |
| Data Interface     | Full Mode: CXP12 x 8; Base Mode: CXP12 x 4                                                                                                           |
| Bit Depth          | 8 bit, 10 bit, 12 bit                                                                                                                                |
| Optical Interface  | M58 / F-Mount / User Customization                                                                                                                   |
| Power Supply       | 24 V / 6.67 A                                                                                                                                        |
| Power Cons.        | $\leq 120$ W                                                                                                                                         |
| Dimensions         | 95 mm (H) x 95 mm (W) x 140 mm (L) (Without water-cooling connectors)                                                                                |
| Weight             | < 1850 g                                                                                                                                             |
| Software           | Sample Pro                                                                                                                                           |
| SDK                | C / C++                                                                                                                                              |
| Operating System   | Windows, Linux                                                                                                                                       |
| Environment        | Working: Temp. 0°C~40°C, HUM 10%~85%; Storage: Temp. 0°C~60°C, HUM 0%~90%                                                                            |

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



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+86 (591) 2805 5076 ext.818

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