

Dhyana 9KTDI

The Dhyana 9KTDI back-illuminated TDI camera combines advanced sCMOS back-thinning technology with TDI (Time Delay Integration), effectively enhancing low-light scanning performance. It is designed to provide scientific instruments and industrial vision systems with comprehensive performance in spectral response, precision, and throughput.



Key Features

180 nm–1100 nm	Wide Spectral Response, supports UV, visible, and near-infrared imaging applications.
82% Quantum Efficiency	Provides excellent low-light and weak-signal detection.
256-Stage TDI	Enhances SNR in low-light imaging, improving inspection accuracy. ^[1]
510 KHz@9K	Data throughput is nearly 46X higher than TDI-CCD technology. ^[2]
High-Reliability Cooling	Reduces dark current noise and data fluctuations, ensuring stable system operation.

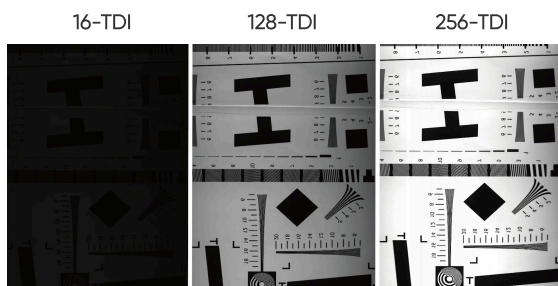
Benefits

Typical Applications

- Semiconductor / Wafer Inspection
- FPD Inspection
- Fluorescence Detection
- Spectral Analysis

Noted Examples

[1] Higher TDI stages provide improved signal-to-noise ratio (SNR).



[2] The Dhyana 9KTDI achieves data throughput nearly 46X higher than back-illuminated TDI-CCD cameras.

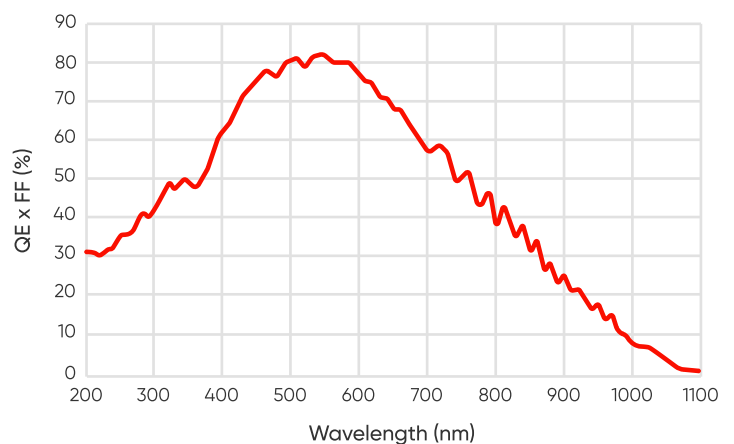
Dhyana 9KTDI
9K@510 KHz

4590 Mpixel/s

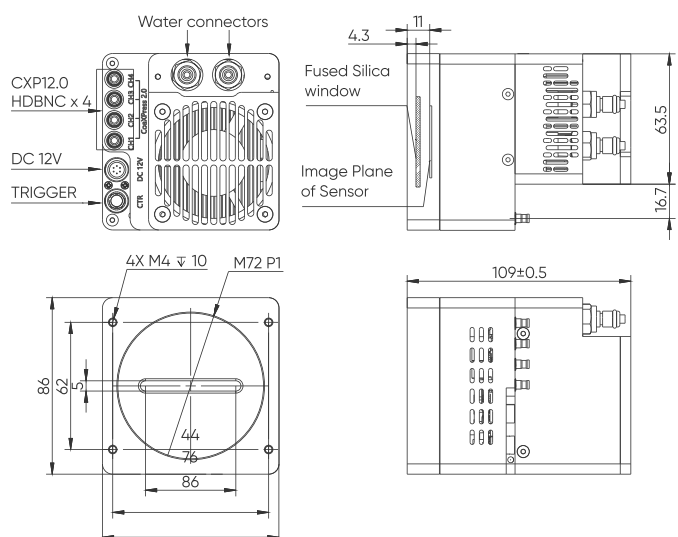
BSI TDI-CCD
2K@50 KHz

100 Mpixel/s

Quantum Efficiency



Dimensions (Unit: mm)



Specifications

Product Name	Dhyana 9KTDI
Sensor Type	BSI sCMOS TDI
Sensor Model	Gpixel GLT5009BSI
Peak QE	38%@266 nm, 51%@355 nm; 82%@550 nm, 38%@800 nm
Chrome	Mono
Array Diagonal	45.4 mm
Effective Area	45.36 mm x 1.28 mm
Resolution	9072 (H) x 256 (V)
Pixel Size	5 μm x 5 μm
Operation Mode	TDI, Area
TDI Stage	4, 8, 16, 32, 64, 96, 128, 160, 192, 224, 240, 248, 252, 256
Scan Direction	Forward, Reverse, Trigger Control
CTE	≥ 0.99993
Bit Depth	8 bit, 10 bit, 12 bit
Full-Well Capacity	Typical: 10 Ke-@10 bit, 10 Ke-@12 bit
Dynamic Range	Typical: 63 dB@10 bit, 66 dB@12 bit
Max. Line Rate	510 KHz@8 bit, 345 KHz@10 bit, 299 KHz@12 bit
Readout Noise	Typical: 6.6 e-@10 bit, 6.2 e-@12 bit
DSNU	Typical: 4 e-@10 bit, 4 e-@12 bit
PRNU	Typical: 0.3%
Cooling Method	Air Cooling, Liquid Cooling
Cooling Temp.	20°C Below Ambient (20°C); 35°C Below Water (20°C)
Binning	1 x 2 (SENSOR BIN), 2 x 2, 4 x 4, 8 x 8 (FPGA BIN)
ROI	Support
Trigger Mode	Trigger Input, Scan Direction Input
Trigger Output	Strobe out
Trigger Interface	Hirose, HR10A-7R-4S
Gain	Analog Gain: x 2~x 8, Digital Gain: x 0.5~x 10
Data Interface	CXP 12 X 4
Optical Interface	M72, User Customization
Power Supply	12 V / 8 A
Power Cons.	< 60 W
Dimensions	86 mm (H) x 86 mm (W) x 109 mm (L)
Weight	1100 g
Software	Sample Pro
SDK	C++ (Supports the GenICam standard)
Operating System	Windows, Linux
Environment	Working: Temp. 0°C~40°C, HUM 0%~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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