

# Gemini 8KTDI

The Gemini 8KTDI is a back-illuminated TDI camera optimized for biological and industrial environments. It provides 8K resolution with a quantum efficiency of 65.8% at 266 nm, and a peak of 94.2% at 460 nm. Featuring a 100G CoF interface and line rates of up to 1 MHz, it integrates effective cooling and noise suppression to ensure accurate and efficient high-throughput scanning.



## Key Features

100G CoF Interface

1 MHz@8K

180 nm-1100 nm

UV Enhancement

High-Reliability Cooling

## Benefits

High-speed single-interface bandwidth up to 100 Gbps, reliable, easy to integrate

Doubles data throughput, significantly boosts inspection efficiency <sup>[1]</sup>

Covers UV, visible, and near-infrared, peak QE up to 93.4%

QE of 65.8% at 266 nm, enhances detection of fine defects

Maintains sensor at 0°C, ±0.5°C stability, ensures long-term reliable imaging <sup>[2]</sup>

## Typical Applications

- Wafer Inspection
- Packaging Inspection
- Mask Inspection
- FPD Inspection
- High-Throughput Gene Sequencing
- Pathology Slide Scanning

## Noted Examples

[1] The Gemini 8KTDI doubles data throughput compared to the previous generation.

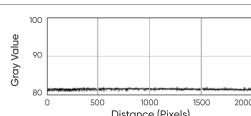
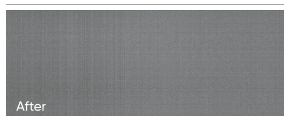
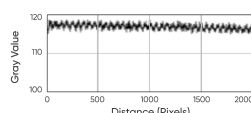
1 MHz@8K

8208 Mpixel/s

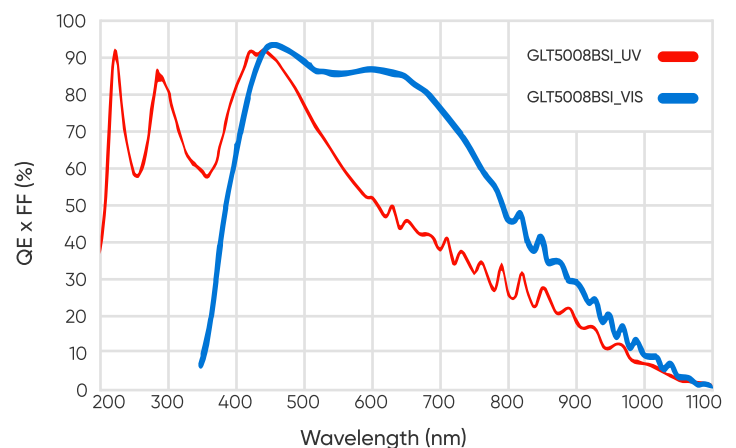
510 KHz@9K

4590 Mpixel/s

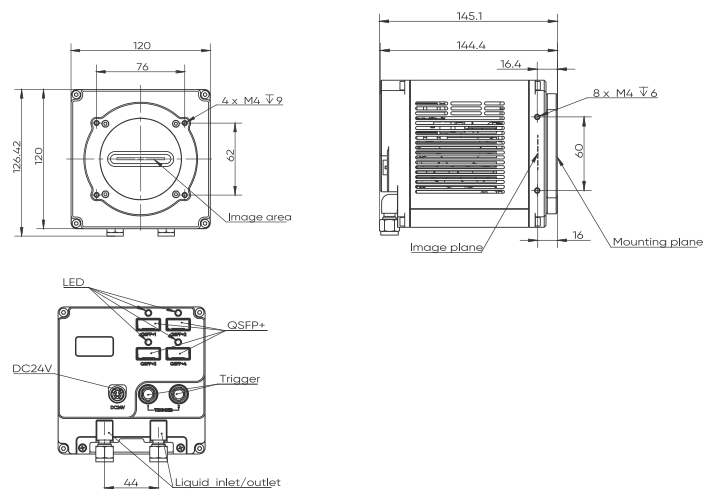
[2] The Gemini 8KTDI features stable cooling, offering excellent noise control and uniform imaging background, providing precise and reliable data for high-accuracy inspections.



## Quantum Efficiency



## Dimensions (Unit: mm)



# Specifications

Model	Gemini 8KTDI
Sensor Type	BSI sCMOS TDI
Sensor Model	Gpixel GLT5008BSI_UV / Gpixel GLT5008BSI_VIS
Peak QE	Typical: 65.8%@266 nm, 94.2%@460 nm
Spectral Range	180 nm~1100 nm
Chrome	Mono
Array Diagonal	41 mm
Resolution	P1: 8208 pixels x 256 stages; P2: 8208 pixels x 32 stages
Pixel Size	5 $\mu\text{m}$ x 5 $\mu\text{m}$
Operation Mode	TDI, Area
TDI Stage	P1: 4, 32, 64, 128, 192, 224, 252, 256; P2: 2, 4, 8, 16, 24, 28, 30, 32
Scan Direction	Forward. Reverse. Trigger Control
CTE	$\geq 0.99993$
Anti-Blooming	$\geq 50X$
Full Well Capacity	Typical: 16.8 Ke-
Dynamic Range	Typical: 62.8 dB@10 bit ADC
Max. Line Rate	1 MHz@8 / 10 bit; 500 KHz@12 bit
Readout Noise	Typical: 7.4 e-@12 bit, 12.5 e-@10 bit
Dark Current	Typical: 550 e-/p/s@10°C (Corrected)
DSNU	Typical: 5 e-@10 bit (Corrected)
PRNU	Typical: 0.045% (Corrected)
Cooling Method	Hex Cooling, Air Cooling, Liquid Cooling
Cooling Temp.	Hex: 10°C@22°C Ambient; Air: 10°C@22°C Ambient; Liquid: 0°C@22°C Water
Binning	1 x 2, 2 x 2, 4 x 4, 8 x 8
ROI	Support
Trigger Mode	Trigger Input. Scan Direction Input
Trigger Output	Strobe Out
Trigger Interface	Hirose 12
Gain	Analog Gain: x 1~x 4, Digital Gain: x 0.1~x 15.9
Data Interface	QSFP+ / QSFP28
Optical Interface	M72 x 0.75, User Customization
Power Supply	72 W / 21 V~27 V
Dimensions	120 mm (H) x 120 mm (W) x 144.5 mm (L)
Weight	< 3500 g
Software	Sample Pro
SDK	C / C++
Operating System	Windows 10 / 11 (X64), Ubuntu 20.04 / 22.04 (X64), Euler OS (ARM64)
Environment	Working: Temp. 0°C~40°C, Hum. 20%~80%; Storage: Temp. -20°C~60°C, Hum. 20%~80%; Working altitude: 0 m~2000 m

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



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