

Gemini 16KTDI

The Gemini 16KTDI Series is a high-performance TDI line scan camera for large-field, high-speed inspection. Built on a back-illuminated TDI architecture, it offers UV and visible sensor options for multispectral imaging. With 16K resolution, up to 500 kHz line rate, and TEC + air cooling, it ensures stable, high-throughput operation with reduced integration complexity.



Key Features

Benefits

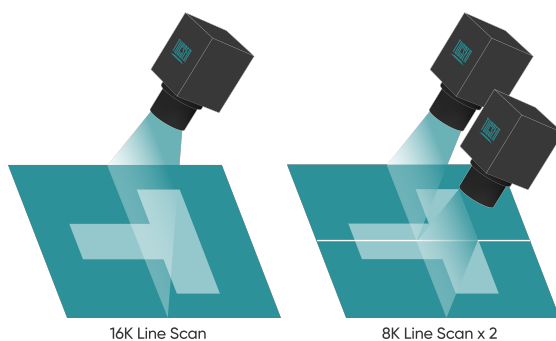
500 KHz @ 16 K	Wide coverage and high line rate for improved inspection efficiency. ^[1]
BSI TDI sCMOS Architecture	UV/visible enhanced sensors enable wide-spectrum inspection.
PRNU/DSNU Correction	Hundreds of parameters enable scenario-based calibration for accurate inspection.
TEC + HEX/TES Cooling	Compatible with industrial airflow systems, reducing integration and maintenance cost.
100G CoF Interface	Single-port bandwidth up to 100 Gbps, reducing system complexity.

Typical Applications

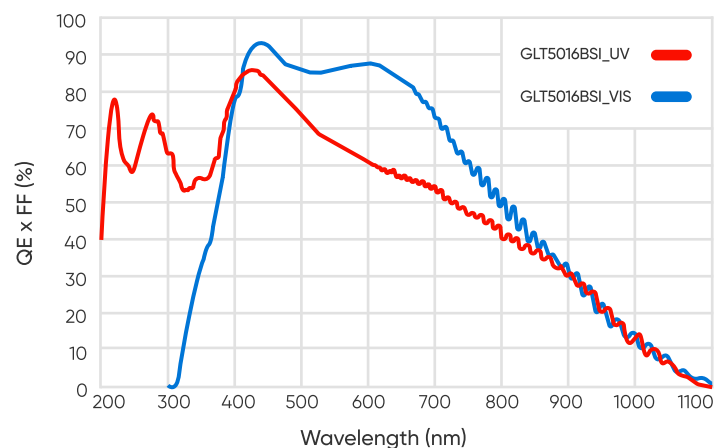
- Wafer Inspection
- Advanced Packing Inspection
- Mask Inspection
- FPD Inspection
- Lithium Battery Inspection
- Web Inspection

Noted Examples

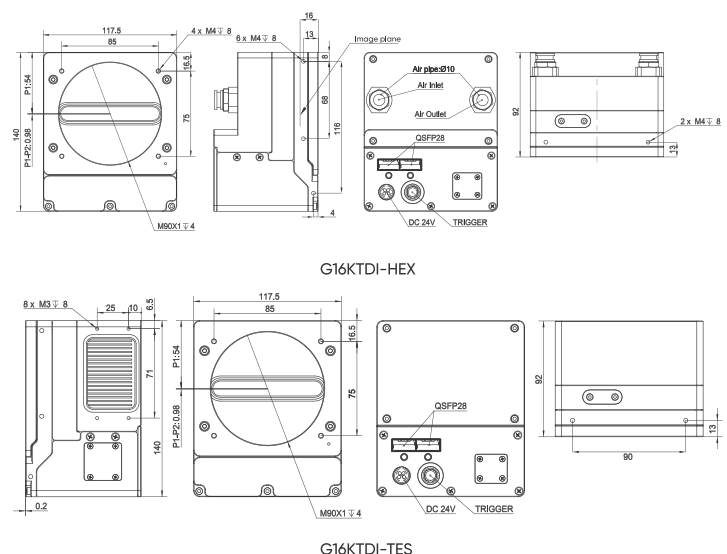
[1] Compared to 8K platforms, Gemini 16KTDI doubles single-scan coverage while maintaining a 500 KHz line rate, making it ideal for large-field high-speed industrial inspection.



Quantum Efficiency



Dimensions (Unit: mm)



Specifications

Product Name	Gemini 16KTDI		
Model	G16KTDI-TES-100G	G16KTDI-HEX-100G	G16KTDI-UV-HEX-100G
Sensor Type	BSI sCMOS TDI		
Sensor Model	GLT5016BSI VIS	GLT5016BSI VIS	GLT5016BSI UV
Peak QE	Typical: 94.2%@460 nm	Typical: 94.2%@460 nm	Typical: 70.76%@266 nm
Spectral Range	300 nm-1100 nm	300 nm-1100 nm	180 nm-1100 nm
Chrome	Mono		
Array Diagonal	82 mm		
Resolution	P1: 16416 pixels x 256 stages; P2: 16416 pixels x 32 stages		
Pixel Size	5 μ m x 5 μ 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	≥ 0.99999		
Anti-Blooming	$\geq 50X$		
Full Well Capacity	Typical: 16 Ke-		
Dynamic Range	Typical: 67 dB@12 bit		
Max. Line Rate	500 KHz@16K		
Readout Noise	Typical: 7.5 e-@12 bit		
Dark Current	Typical: 2500 e-/p/s@30°C (Corrected)		
DSNU	Typical: 1.4 e-@12 bit, 500 KHz (Corrected)		
PRNU	Typical: 0.018%@12 bit (Corrected)		
Cooling Method	TES Cooling	HEX Cooling	HEX Cooling
Cooling Temp.	33°C@22°C 120 L/Min		
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		
Gain	Analog Gain: x 1~x 4, Digital Gain: x 0~x 16		
Data Interface	QSFP28 (100G CoF)		
Optical Interface	M90 / M95, User Customization		
Power Supply	120 W / 21 V~27 V		
Dimensions	117.5 mm (H) x 140 mm (W) x 92 mm (L)		
Weight	3300 g		
Software	Sample Pro		
SDK	C / C++		
Operating System	Windows 10/11 (X64), Ubuntu 20.04/22.04 (X64)		
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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