



Genie™ Nano Cameras

Smaller, faster, stronger, cheaper.

최상의 속도와 이미지 품질을 제공하는 초소형 GigE Vision Camera

Genie Nano는 Teledyne DALSA 제품군 중 가장 저렴하고 강력한 성능을 가진 CMOS Area Scan 카메라로 GigE vision, CameraLink 두 가지의 인터페이스를 지원합니다. Genie Nano는 업계 선도적인 CMOS 센서를 장착하였으며, 더불어 독자적인 카메라 기술을 통한 혁신적인 스피드, 혹독한 환경을 대비한 강건한 바디 설계, 그리고 가격 대비 그 이상의 다양한 기능을 제공합니다.

Teledyne DALSA의 특허인 TurboDrive™ 기술은 Genie Nano가 최상의 이미지 품질을 유지함과 동시에, GigE 카메라의 한계보다 150% 또는 그 이상의 높은 프레임 속도를 가능케 합니다. 모든 Teledyne DALSA의 GigE 카메라와 마찬가지로, Genie Nano는 AIA GigE Vision 표준을 기반으로 카메라를 PC로 직접 연결할 수 있습니다.



TURBODRIVE BY TELEDYNE DALSA

GigE VISION

주요 특징

- 표준 PC의 이더넷 포트와 하드웨어 사용
- 최대 100m 케이블 길이 지원 (CAT-5e 또는 CAT-6)

품질 보증

- CE, FCC 및 RoHS

프로그램 가능성

- Partial 스캔 모드에서 더욱 빠른 프레임 속도
- 노출제어 기능을 탑재한 글로벌 셔터
- 다중 노출 가능
- 멀티 ROI 가능(최대16 ROI)
- MetaData 지원
- IEEE1588 (네트워크 간 정확한 동기화 가능) 지원
- Binning
- Look-up table

안정성

- 내구성을 고려한 강건한 바디 설계
- 3년의 보증기간
- 이미지 신뢰성 진단(Trigger to Image-Reliability) 프레임워크를 활용해 전송된 이미지에 대해 완벽한 시스템 수준의 모니터링과 제어, 진단 가능

대표 어플리케이션

- 전자 제품 제조 검사
- 산업용 계측
- ITS(지능형 교통 시스템)
- 스포츠 시뮬레이션
- 의료기기

Specifications: M1940, C1940

Supported Features	Nano-M1940	Nano-C1940	
Resolution	1936 x 1216		
Sensor	Sony IMX174 (2.3M)		
Pixel Size	5.86 μm x 5.86 μm		
Shutter type	Full frame electronic global shutter function		
Full Well charge	32ke (max)		
Firmware option (Field programmable)	Standard Design Monochrome	Standard Design Bayer	RGB-Output Design
Max. Internal Frame Rate Full resolution	83.9 fps		
Maximum Sustained Frame Rate Output (with TurboDrive v1)	83.9 fps (8-bit) 53 fps (10-bit)		N/A
Maximum Sustained Frame Rate Output (without TurboDrive)	52 fps (8-bit) 26 fps (10-bit)		13 fps (RGBA) 19.5 fps (RGB) 26 fps (Yuv422) 38.8fps (8-bit mono)
Pixel Data Formats	Mono 8-bit Mono 10-bit	Bayer 8-Bit Bayer 10-Bit	RGBA 32-bit RGB 24-bit Yuv422 16-bit Mono 8-bit
Trigger to Exposure Minimum delay (Synchronous Exposure Alignment)	2 line time (19 μs)		
Trigger to Exposure Minimum delay (Reset Exposure Alignment)	Not supported by this sensor		
Trigger to Exposure Start jitter (best case with Synchronous Exposure Alignment)	Up to 1 line time 0 to 9.5 μs		
Trigger to Exposure Start jitter (Reset Exposure Alignment)	Not supported by this sensor		
Actual Exposure Time Minimum (see “exposureTimeActual” in Sensor Control)	23.23 μs (1 line time + 13.73 us) (increment steps of 9.5 μs)		
Min. Time from End of Exposure to Start of Next Exposure (second frame)	13 lines (123.5μs)		
Horizontal Line Time:	9.5 μs		
Readout Time	(Horizontal Line Time) x (lines in frame +20) — in μs		
Auto-Brightness	Yes , with Auto-Exposure and AGC (FPGA Gain or Sensor Gain)		
Black offset control	Yes (in DN)		
Gain Control	In-sensor Gain (1.0x to 251x) In-FPGA Digital Gain (1x to 4x) in 0.007x steps		
Binning Support	Yes In-FPGA (summing and average) 2x2, 4x4	No	
Color Correction Support	No		Yes
Decimation Support	No		
Defective Pixel Replacement	No		
Image Correction	No		
Image Flip Support	Yes, In-Sensor, Vertical and Horizontal		
Multi-ROI Support	Yes, in-sensor, up to 16 ROI (mutually exclusive with binning)		
On-Board Image Memory	90MB		
Output Dynamic Range (dB)	68.3 dB (in 10-Bit Pixel Format)		
SNR (dB)	43.9 dB (in 10-Bit Pixel Format)		

Notes:

* Entire Resolution includes Over-scan pixels:

- Active resolution is 1920 x 1200. The 8 + 8 additional pixels per line and 8 + 8 additional vertical lines are available for preprocessing and/or camera mechanical alignment operations in a system.

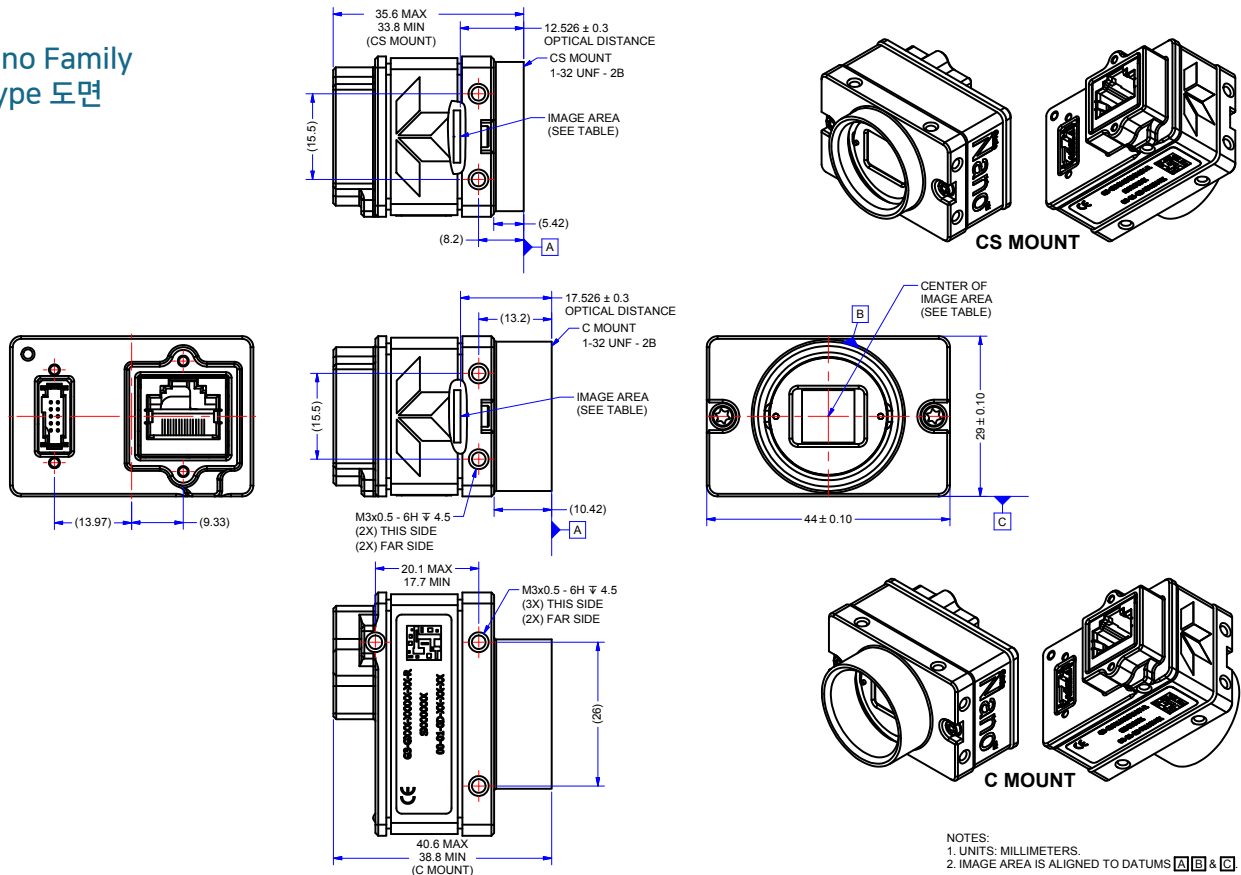
** Limited to the Genie Nano Architecture:

- ~250MB/sec Sustained into the TurboDrive Engine
- Additional note: This transfer was achieved using 1500 Byte Packet Size.

*** Actual Exposure Time:

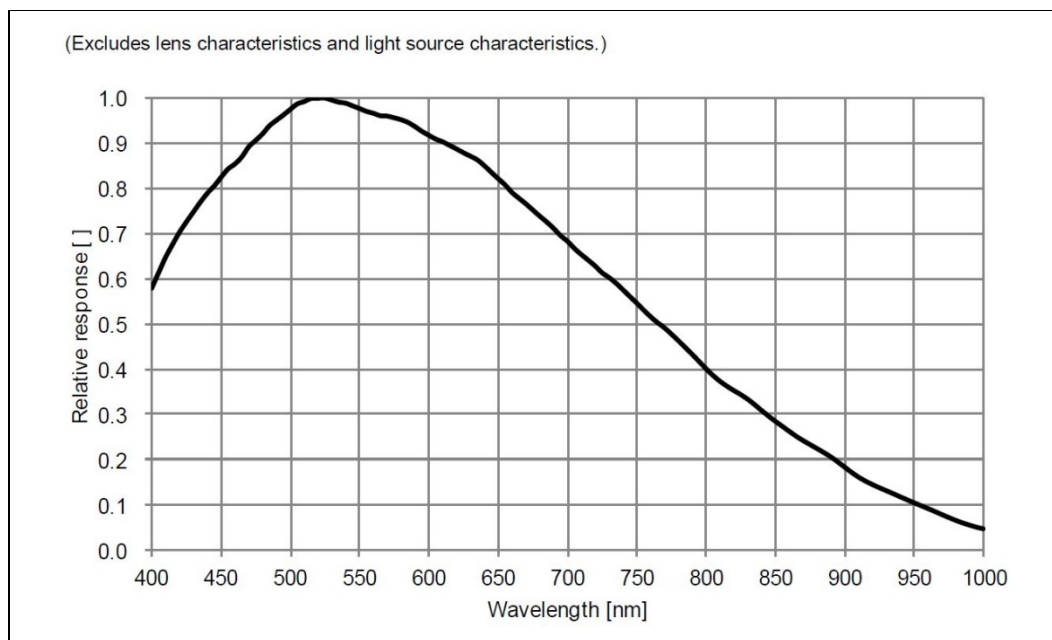
- The actual internal minimum exposure may be different than what is programmed. Use the feature "exposureTimeActual" from the [Sensor Control](#) category to read back the actual sensor exposure.

Genie Nano Family - GigE Type 도면



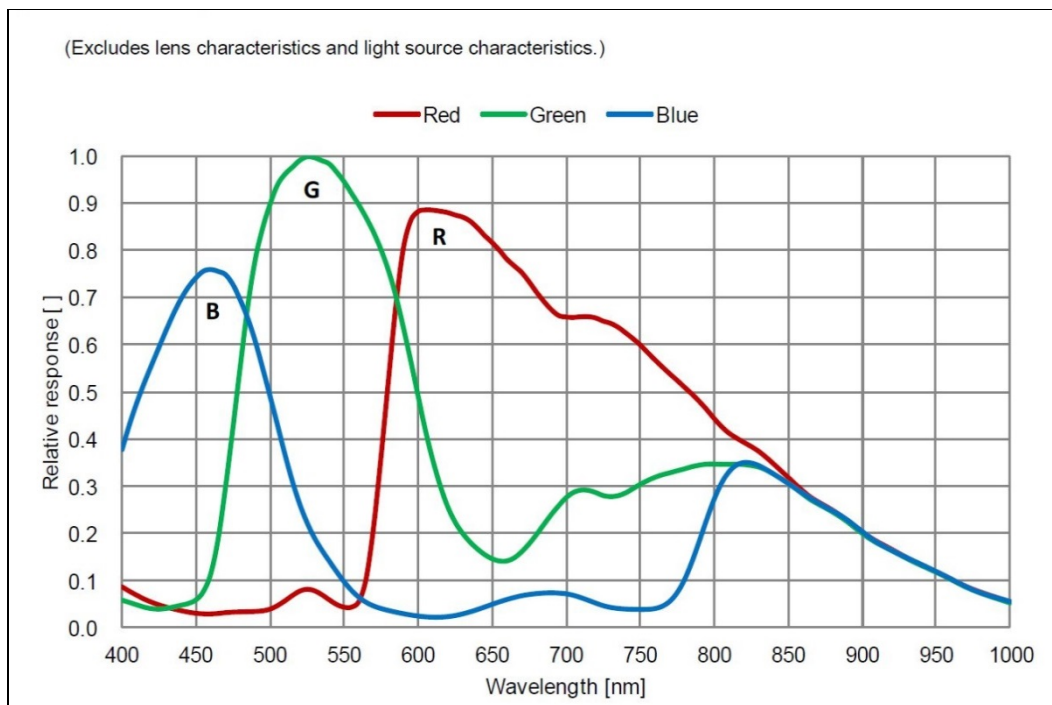
Spectral Response

Monochrome Models M194x & M192x, (Sony IMX174 & IMX249)



Measured Fill-Factor x Quantum Efficiency (FF x QE)

Color Models C194x & C192x, (Sony IMX174 & IMX249)



Measured Fill-Factor x Quantum Efficiency (FF x QE)

Genie Nano Family - GigE Type 상세 스펙

GENIE NANO		GENIE NANO XL
Data Output Transfer	Gigabit Ethernet (1000 Mbit/s) only	
Exposure Control	Automatic, programmable, or via external trigger (Note: C4900 rolling shutter supports only programmable exposure control)	
I/O Ports	2 opto-isolated inputs, 2 opto-isolated outputs, 1 input/3 outputs option available on demand	2 opto-isolated inputs, 3 opto-isolated outputs
Image Buffers (On-board memory)	90MB for VGA to 5 Mpixel models 200 MB for the 9M, 12M and 18 Mpixels models	500 MB for the 16 and 25 Mpixels models
Lens Mount	C and CS-Mount available	M42
Size (L x H x W) (C-mount option)	21.2 mm x 29 mm x 44 mm (no lens adapter or connectors) 38.9 mm x 29 mm x 44 mm (with lens adapter and connectors)	30 mm x 59 mm x 59 mm (no lens adapter or connectors) 30 mm x 59 mm x 59 mm (with lens adapter and connectors)
Mass	~46 g	~163 g
Operating Temp	-20 to +60°C (housing temperature)	
Power Supply	10 to 36V or Power Over Ethernet (POE)	
Power Dissipation (model dependent)	3.6 W to 4.6 W(12V) 4.0 W to 4.9 W (PoE)	6.5 W @ 24 Volt Aux.
Data Connector	Standard or screw mount RJ-45	
Power and I/O Connector	SAMTEC TFM-105 type	
Camera Specification	GigE Vision v1.2 compliant	
Software Platform	Teledyne DALSA Sapera LT 8.0 for Windows, Teledyne DALSA GigE-V for Linux or 3rd Party GenICam compliant SDK	



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