



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: M2050

Supported Features	Nano-M2050	
Resolution	2064 x 1544	
Sensor	Sony IMX252 (3.2M)	
Pixel Size	3.45 μm x 3.45 μm	
Shutter type	Full frame electronic global shutter function	
Firmware option (Field programmable)	High Sensitivity Design	Standard Design
Full Well charge; dependent on Firmware Design Loaded	2750e ⁻ (max)	11ke (max)
Sensitivity to Saturation	4x	1x
Max. Internal Frame Rate Full resolution	143 fps	116 fps
Maximum Sustained Frame Rate Output (with TurboDrive v1) *	82 fps (8-bit)	
Maximum Sustained Frame Rate Output (without TurboDrive)	38 fps (8-bit)	
Pixel Data Formats	Mono 8-bit	
Trigger to Exposure Minimum delay (Synchronous Exposure Alignment)	2 line time (8.8 μs)	2 line time (10.8 μs)
Trigger to Exposure Minimum delay (Reset Exposure Alignment)	0 μs	
Trigger to Exposure Start jitter (best case with Synchronous Exposure Alignment)	Max 1 line (0 to 4.4 μs)	Max 1 line (0 to 5.4 μs)
Trigger to Exposure Start jitter (Reset Exposure Alignment)	0 μs	
Actual Exposure Time Minimum (see "exposureTimeActual" in Sensor Control)	18.1 μs (1 line time + 13.73 us) (increment of 4.4 μs steps)	19.1 μs (1 line time + 13.73 us) (increment of 5.4 μs steps)
Min. Time from End of Exposure to Start of Next Exposure	10 lines–13.73 μs (30.3 μs)	10 lines–13.73 μs (40.4 μs)
Horizontal Line Time:	4.4 μs	5.4 μs
Readout Time	(H Line Time) x (lines in frame + 23) — 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	
Decimation Support	No	
Color Correction 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 in-sensor binning)	
On-Board Image Memory	90MB	
Output Dynamic Range (dB)	56.7	75.4 dB (in 8-Bit Pixel Format)
SNR (dB)	33.01	39.6 dB (in 8-Bit Pixel Format)

Specifications: C2050

Supported Features	Nano-C2050		
Resolution	2064 x 1544		
Sensor	Sony IMX252 (3.2M)		
Pixel Size	3.45 μm x 3.45 μm		
Shutter type	Full frame electronic global shutter function		
Firmware option (Field programmable)	High Sensitivity Design (Bayer)	Standard Design (Bayer)	RGB-Output Standard Design
Full Well charge; dependent on Firmware Design Loaded	2750e- (max)	11ke (max)	
Sensitivity to Saturation	4x	1x	
Max. Internal Frame Rate Full resolution	143 fps	116 fps	
Maximum Sustained Frame Rate Output (with TurboDrive v1) *	82 fps (8-bit)	82 fps (8-bit)	N/A
Maximum Sustained Frame Rate Output (without TurboDrive)	38 fps (8-bit)	38 fps (8-bit)	9.7 fps (RGBA) 14.5 fps (RGB) 19 fps (Yuv422) 38 fps (mono8)
Pixel Data Formats	Bayer 8-Bit	Bayer 8-Bit	RGBA 32-bit RGB 24-bit Yuv422 16-bit Mono 8-bit
Trigger to Exposure Minimum delay (Synchronous Exposure Alignment)	2 line time (8.8 μs)	2 line time (10.8 μs)	
Trigger to Exposure Minimum delay (Reset Exposure Alignment)	0 μs		
Trigger to Exposure Start jitter (best case with Synchronous Exposure Alignment)	Max 1 line (0 to 4.4μs)	Max 1 line (0 to 5.4μs)	
Trigger to Exposure Start jitter (Reset Exposure Alignment)	0 μs		
Actual Exposure Time Minimum (see “exposureTimeActual” in Sensor Control)	18.1μs (1 line time+13.73 us) (increment of 4.4μs steps)	19.1μs (1 line time + 13.73 us) (increment of 5.4μs steps)	
Min. Time from End of Exposure to Start of Next Exposure	10 lines–13.73μs (30.3 μs)	10 lines–13.73μs (40.4 μs)	
Horizontal Line Time:	4.4μs	5.4μs	
Readout Time	(H Line Time) x (lines in frame +23) — 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	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 in-sensor binning)	
On-Board Image Memory	90MB	
Output Dynamic Range (dB)	56.7	75.4 dB (in 8-Bit Pixel Format)
SNR (dB)	33.01	39.6 dB (in 8-Bit Pixel Format)

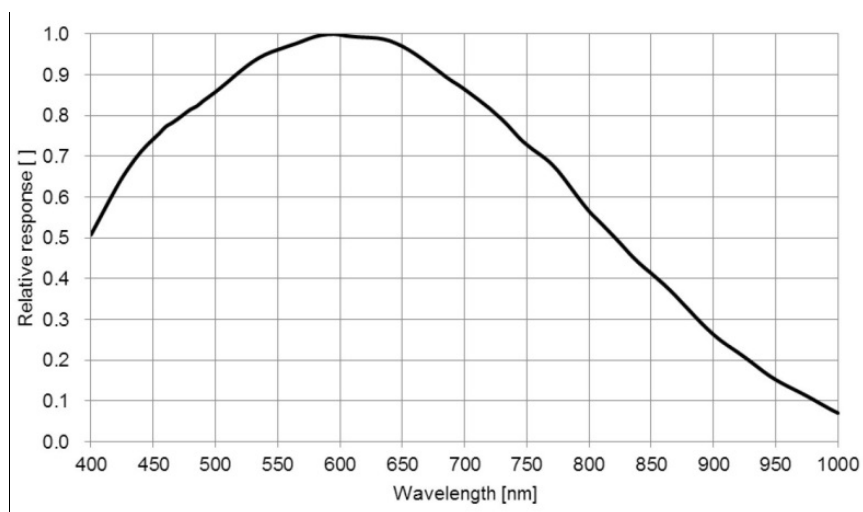
*** Limited to the Genie Nano Architecture:**

~250MB/sec Sustained into the TurboDrive Engine achieved using 1500 Byte Packet Size

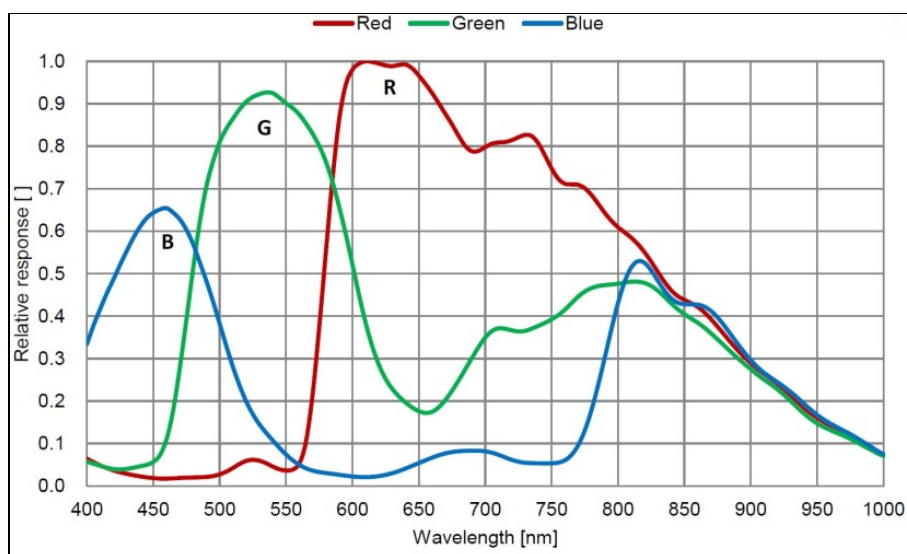
Spectral Responses

The response curves describe the sensor, excluding lens and light source characteristics.

Models M2020, M2050



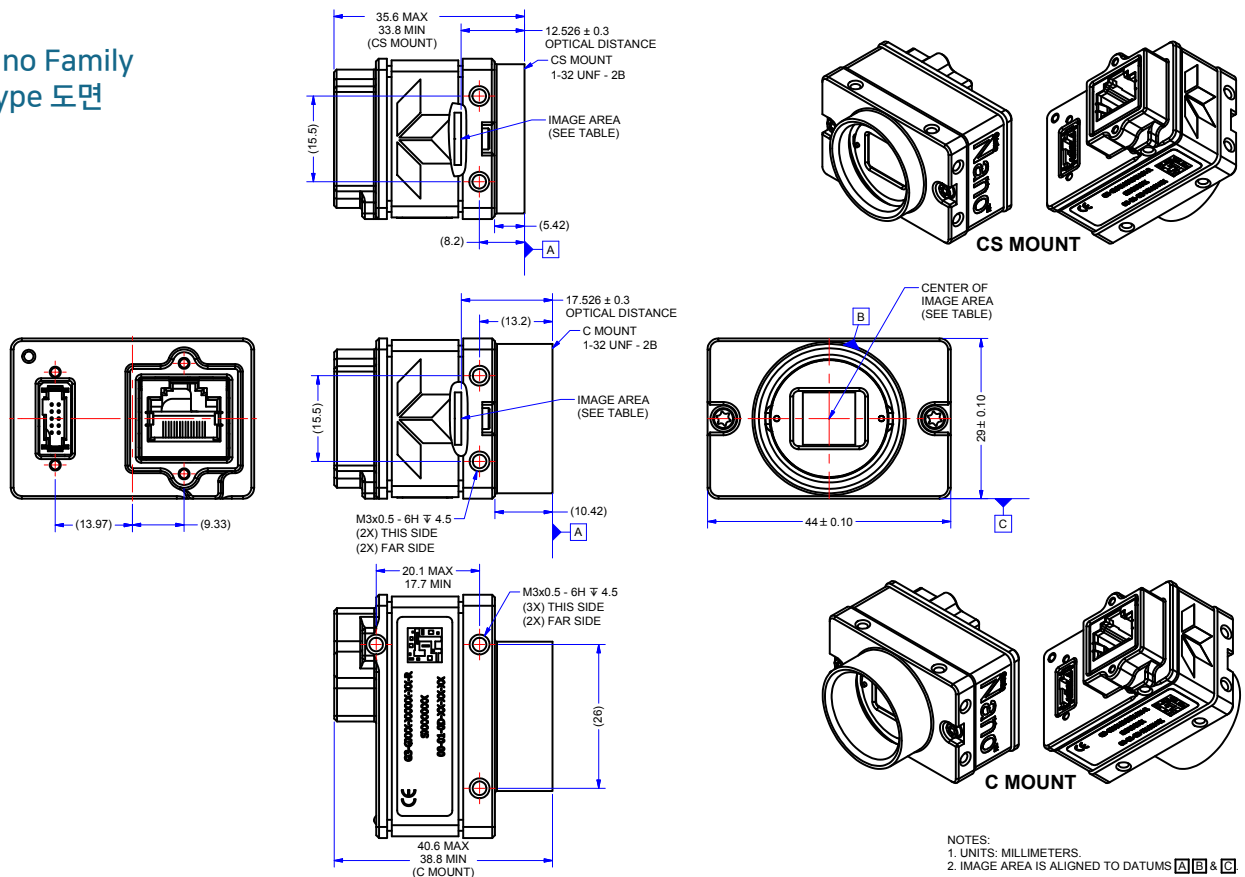
Models C2020, C2050



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 Sopera LT 8.0 for Windows, Teledyne DALSA GigE-V for Linux or 3rd Party GenICam compliant SDK	

Genie Nano Family - GigE Type 도면



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