



# Genie™ Nano Cameras

Smaller, faster, stronger, cheaper.

Compact GigE Vision cameras with unprecedented speed and uncompromised image quality.

Introducing Genie Nano, a GigE vision CMOS area scan camera that redefines **low cost** performance. Genie Nano starts with industry leading image CMOS sensors from VGA to 25 megapixel resolution and adds proprietary camera technology for **breakthrough speed**, a robust build quality for wide operating temperature, and an unmatched feature set—all at an **incredible price**. Teledyne DALSA's proprietary **TurboDrive™** technology allows Genie Nano to deliver its full image quality at faster frame rates—often 150% or higher—with no changes to your GigE network. Like all Teledyne DALSA GigE cameras, the Genie Nano is based on AIA GigE Vision Standard to directly link the camera to a PC.



**TURBODRIVE™**  
BY TELEDYNE DALSA

## Key Features

- Uses standard PC Ethernet port & hardware
- Supports cable lengths up to 100 m (CAT-5e or CAT-6)
- Simplified set-up with field proven Sopera LT software featuring CamExpert
- Engineered to accommodate industrial environment with a ruggedized screw mount RJ-45 connector

## Programmability

- Higher frame rates achievable in partial scan mode
- Global electronic shutter with exposure control
- Multi-exposure feature
- Multi-ROI feature
- Metadata support
- IEEE1588 (Precision Time Protocol) support
- Binning
- Look-up-table and More

## Reliability

- Robust all-metal body
- 3 year warranty
- Trigger to Image Reliability (T2IR) framework improves the reliability of your inspection system and protects you from data loss

## Typical Applications

- Electronics manufacturing inspection
- Industrial metrology
- Intelligent traffic systems

## Regulatory Compliance

- CE, FCC and RoHS

GENIE NANO INDIVIDUAL MODEL SPECIFICATIONS

|                                                                                                          | Active Resolution | Sensor Model       | Frame Rate (Burst Mode) | Pixel Size | Dynamic Range | Max. Image Circle     | Data Format                | Part Number (for C-mount option)                            |
|----------------------------------------------------------------------------------------------------------|-------------------|--------------------|-------------------------|------------|---------------|-----------------------|----------------------------|-------------------------------------------------------------|
|  <b>M640/M640-NIR</b>     | 640 x 480         | On-Semi Python300  | 862 fps                 | 4.8 µm     | 62.1 dB       | 1/4" Optical Format   | 8 or 10-Bit Mono           | G3-GM10-M0640<br>G3-GM12-M0640 (NIR)                        |
|  <b>C640</b>              | 640 x 480         | On-Semi Python300  | 862 fps                 | 4.8 µm     | 62.1 dB       | 1/4" Optical Format   | 8 or 10-Bit Bayer/RGB/YUV* | G3-GC10-C0640<br>G3-GC10-C0640IF (with IR cut-off filter)   |
|  <b>M800/M800-NIR</b>     | 800 x 600         | On-Semi Python500  | 566 fps                 | 4.8 µm     | 62.1 dB       | 1/3.3" Optical Format | 8 or 10-Bit Mono           | G3-GM10-M0800<br>G3-GM12-M0800 (NIR)                        |
|  <b>C800</b>              | 800 x 600         | On-Semi Python500  | 566 fps                 | 4.8 µm     | 62.1 dB       | 1/3.3" Optical Format | 8 or 10-Bit Bayer/RGB/YUV* | G3-GC10-C0800<br>G3-GC10-C0800IF (with IR cut-off filter)   |
|  <b>M1280/M1280-NIR</b>   | 1280 x 1024       | On-Semi Python1300 | 213 fps                 | 4.8 µm     | 62.1 dB       | 1/2" Optical Format   | 8 or 10-Bit Mono           | G3-GM10-M1280<br>G3-GM12-M1280 (NIR)                        |
|  <b>C1280</b>             | 1280 x 1024       | On-Semi Python1300 | 213 fps                 | 4.8 µm     | 62.1 dB       | 1/2" Optical Format   | 8 or 10-Bit Bayer/RGB/YUV* | G3-GC10-C1280<br>G3-GC10-C1280IF (with IR cut-off filter)   |
|  <b>M1920</b>             | 1920 x 1200       | Sony IMX249        | 39 fps                  | 5.86 µm    | 75.5 dB       | 1/1.2" Optical Format | 8 or 12-Bit Mono           | G3-GM11-M1920                                               |
|  <b>C1920</b>             | 1920 x 1200       | Sony IMX249        | 39 fps                  | 5.86 µm    | 75.5 dB       | 1/1.2" Optical Format | 8 or 12-Bit Bayer/RGB/YUV* | G3-GC11-C1920<br>G3-GC11-C1920IF (with IR cut-off filter)   |
|  <b>M1940</b>             | 1920 x 1200       | Sony IMX174        | 84 fps                  | 5.86 µm    | 68.3 dB       | 1/1.2" Optical Format | 8 or 10-Bit Mono           | G3-GM10-M1940                                               |
|  <b>C1940</b>             | 1920 x 1200       | Sony IMX174        | 84 fps                  | 5.86 µm    | 68.3 dB       | 1/1.2" Optical Format | 8 or 10-Bit Bayer/RGB/YUV* | G3-GC10-C1940<br>G3-GC10-C1940IF (with IR cut-off filter)   |
|  <b>M1930/M1930-NIR</b>   | 1920 x 1200       | On-Semi Python2000 | 116 fps                 | 4.8 µm     | 62.1 dB       | 2/3" Optical Format   | 8 or 10-Bit Mono           | G3-GM10-M1930<br>G3-GM12-M1930 (NIR)                        |
|  <b>C1930</b>             | 1920 x 1200       | On-Semi Python2000 | 116 fps                 | 4.8 µm     | 62.1 dB       | 2/3" Optical Format   | 8 or 10-Bit Bayer/RGB/YUV* | G3-GC10-C1930<br>G3-GC10-C1930IF (with IR cut-off filter)   |
|  <b>M2020</b>             | 2048 x 1536       | Sony IMX265        | 55 fps                  | 3.45 µm    | 76.4 dB       | 1/1.8" Optical Format | 8 or 12-Bit Mono           | G3-GM11-M2020                                               |
|  <b>C2020</b>            | 2048 x 1536       | Sony IMX265        | 55 fps                  | 3.45 µm    | 76.4 dB       | 1/1.8" Optical Format | 8 or 12-Bit Bayer/RGB/YUV* | G3-GC11-C2020<br>G3-GC11-C2020IF (with IR cut-off filter)   |
|  <b>M2050</b>           | 2048 x 1536       | Sony IMX252        | 140 fps                 | 3.45µm     | 56.4 dB       | 1/1.8" Optical Format | 8-Bit Mono                 | G3-GM10-M2050                                               |
|  <b>C2050</b>           | 2048 x 1536       | Sony IMX252        | 140 fps                 | 3.45 µm    | 56.4 dB       | 1/1.8" Optical Format | 8-Bit Bayer/RGB/YUV*       | G3-GC10-C2050<br>G3-GC10-C2050IF (with IR cut-off filter)   |
|  <b>M2420</b>           | 2448 x 2048       | Sony IMX264        | 35 fps                  | 3.45 µm    | 76.4 dB       | 2/3" Optical Format   | 8 or 12-Bit Mono           | G3-GM11-M2420                                               |
|  <b>C2420</b>           | 2448 x 2048       | Sony IMX264        | 35 fps                  | 3.45 µm    | 76.4 dB       | 2/3" Optical Format   | 8 or 12-Bit Bayer/RGB/YUV* | G3-GC11-C2420<br>G3-GC11-C2420IF (with IR cut-off filter)   |
|  <b>M2450</b>           | 2448 x 2048       | Sony IMX250        | 90 fps                  | 3.45 µm    | 56.4 dB       | 2/3" Optical Format   | 8-Bit Mono                 | G3-GM10-M2450                                               |
|  <b>C2450</b>           | 2448 x 2048       | Sony IMX250        | 90 fps                  | 3.45 µm    | 56.4 dB       | 2/3" Optical Format   | 8-Bit Bayer/RGB/YUV*       | G3-GC10-C2450<br>G3-GC10-C2450IF (with IR cut-off filter)   |
|  <b>M2590/M2590-NIR</b> | 2592 x 2048       | On-Semi Python5000 | 51 fps                  | 4.8 µm     | 62.1 dB       | 1" Optical Format     | 8 or 10-Bit Mono           | G3-GM10-M2590<br>G3-GM12-M2590 (NIR)                        |
|  <b>C2590</b>           | 2592 x 2048       | On-Semi Python5000 | 51 fps                  | 4.8 µm     | 62.1 dB       | 1" Optical Format     | 8 or 10-Bit Bayer/RGB/YUV* | G3-GC10-C2590<br>G3-GC10-C2590IF (with IR cut-off filter)   |
|  <b>M4060</b>           | 4112 x 2176       | Sony IMX255        | 56 fps                  | 3.45 µm    | 56.4 dB       | 1" Optical Format     | 8-Bit Mono                 | G3-GM10-M4060                                               |
|  <b>C4060</b>           | 4112 x 2176       | Sony IMX255        | 56 fps                  | 3.45 µm    | 56.4 dB       | 1" Optical Format     | 8-Bit Bayer/RGB/YUV*       | G3-GC10-C4060<br>G3-GC10-C4060IF (with IR cut-off filter)   |
|  <b>M4040</b>           | 4112 x 3012       | Sony IMX253        | 40 fps                  | 3.45 µm    | 56.4 dB       | 1.1" Optical Format   | 8-Bit Mono                 | G3-GM10-M4040                                               |
|  <b>C4040</b>           | 4112 x 3012       | Sony IMX253        | 40 fps                  | 3.45 µm    | 56.4 dB       | 1.1" Optical Format   | 8-Bit Bayer/RGB/YUV*       | G3-GC10-C4040<br>G3-GC10-C4040IF (with IR cut-off filter)   |
|  <b>M4030</b>           | 4112 x 2176       | Sony IMX267        | 30 fps                  | 3.45 µm    | 76.4 dB       | 1" Optical Format     | 8 or 12-Bit Mono           | G3-GM-11-M4030                                              |
|  <b>C4030</b>           | 4112 x 2176       | Sony IMX267        | 30 fps                  | 3.45 µm    | 76.4 dB       | 1" Optical Format     | 8 or 12-Bit Bayer/RGB/YUV* | G3-GC-11-C4030<br>G3-GC-11-C4030IF (with IR cut-off filter) |
|  <b>M4020</b>           | 4112 x 3012       | Sony IMX304        | 20 fps                  | 3.45 µm    | 76.4 dB       | 1.1" Optical Format   | 8 or 12-Bit Mono           | G3-GM-11-M4020                                              |
|  <b>C4020</b>           | 4112 x 3012       | Sony IMX304        | 20 fps                  | 3.45 µm    | 76.4 dB       | 1.1" Optical Format   | 8 or 12-Bit Bayer/RGB/YUV* | G3-GC-11-C4020<br>G3-GC-11-C4020IF (with IR cut-off filter) |

\*User selectable. Refer to user manual for complete configuration detail.

## GENIE NANO INDIVIDUAL MODEL SPECIFICATIONS CONT.

|                                                                                                   | Active Resolution | Sensor Model       | Frame Rate (Burst Mode) | Pixel Size | Dynamic Range | Max. Image Circle     | Data Format                    | Part Number                        |
|---------------------------------------------------------------------------------------------------|-------------------|--------------------|-------------------------|------------|---------------|-----------------------|--------------------------------|------------------------------------|
|  <b>C4900</b>    | 4912 x 3684       | On-Semi AR1820HS   | 13 fps                  | 1.25 µm    | 65.8 dB       | 1/2.3" Optical Format | User selectable Bayer/RGB/YUV* | G3-GC10-C4900 (for C-mount option) |
|  <b>XL M4090</b> | 4096 x 4096       | On-Semi Python 16K | 30 fps                  | 4.5 µm     | 55.2 dB       | APS-H Optical Format  | 8 or 10-Bit Mono               | G3-GM30-M4095                      |
|  <b>XL C4090</b> | 4096 x 4096       | On-Semi Python 16K | 15.6 fps                | 4.5 µm     | 55.2 dB       | APS-H Optical Format  | 8 or 10-Bit Bayer/RGB/YUV*     | G3-GC30-C4095                      |
|  <b>XL M5100</b> | 5120 x 5120       | On-Semi Python 25K | 20 fps                  | 4.5 µm     | 55.2 dB       | APS-H Optical Format  | 8 or 10-Bit Mono               | G3-GM30-M5105                      |
|  <b>XL C5100</b> | 5120 x 5120       | On-Semi Python 25K | 10 fps                  | 4.5 µm     | 55.2 dB       | APS-H Optical Format  | 8 or 10-Bit Bayer/RGB/YUV*     | G3-GC30-C5105                      |

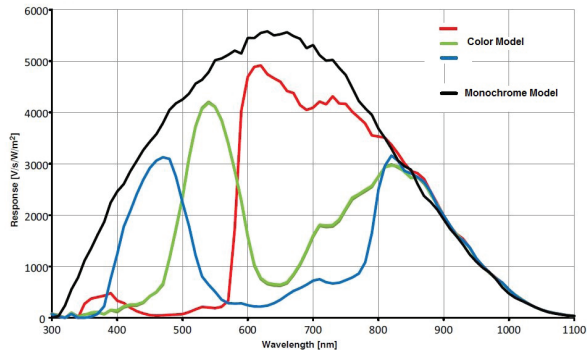
\*User selectable. Refer to user manual for complete configuration detail.

## GENIE NANO FAMILY SPECIFICATIONS (COMMON TO ALL MODELS)

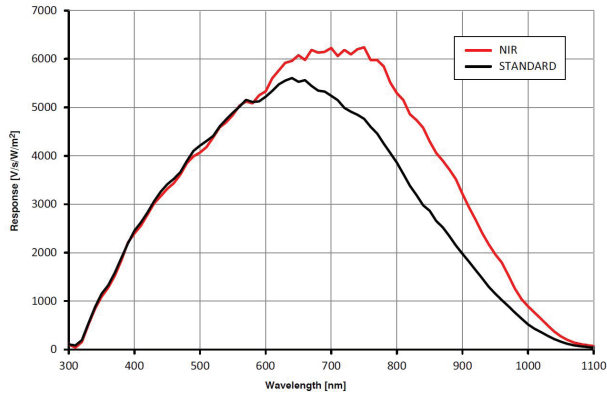
| GENIE NANO                          |                                                                                                                       | GENIE NANO XL                                                                                                                 |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Data Output Transfer                |                                                                                                                       | Gigabit Ethernet (1000 Mbit/s) only                                                                                           |
| Exposure Control                    |                                                                                                                       | Automatic, programmable, or via external trigger<br>(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<br>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)<br>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)<br>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)<br>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,<br>Teledyne DALSA GigE-V for Linux or 3rd Party GenICam compliant SDK               |

## RESPONSIVITY GRAPHS

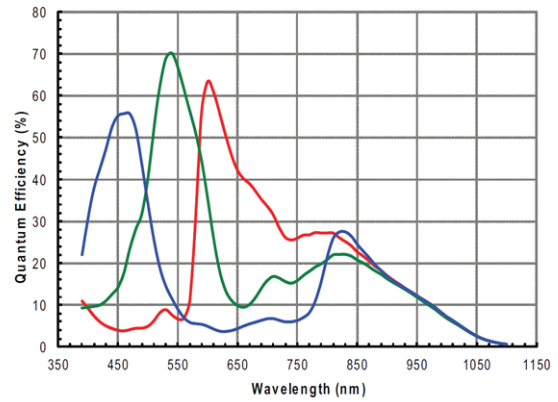
Spectral Response Curve



C640  
C800  
C1280  
C1930  
C2590  
C4090  
C5100



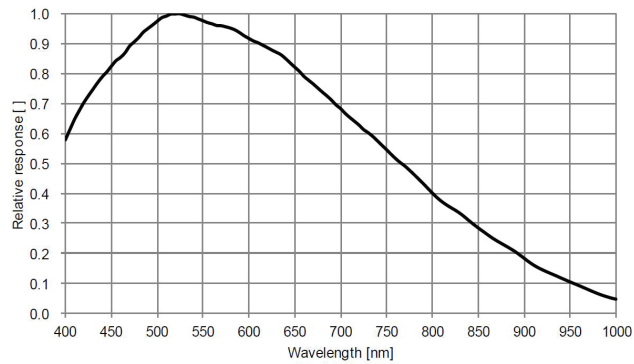
M640/NIR  
M800/NIR  
M1280/NIR  
M2590/NIR  
M1930/NIR  
M4090  
M5100



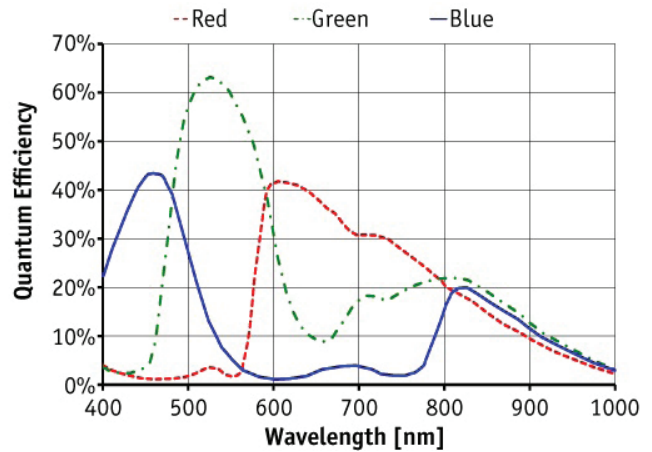
C4900

## Spectral Sensitivity Characteristics

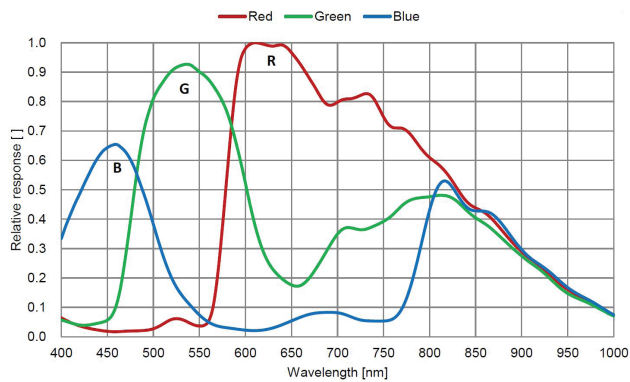
(Excludes lens characteristics and light source characteristics.)



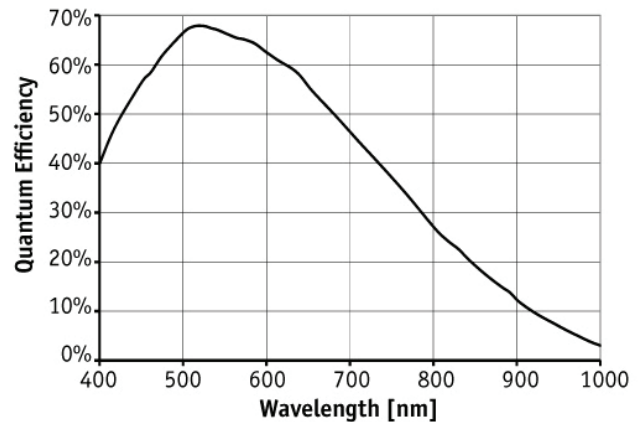
M4060  
M4040  
M4030  
M4020  
M2020  
M2050  
M2420  
M2450



C1920  
C1940

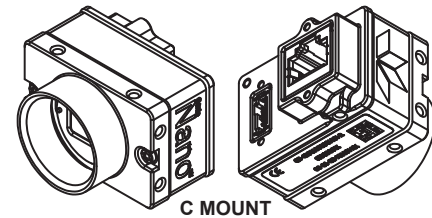
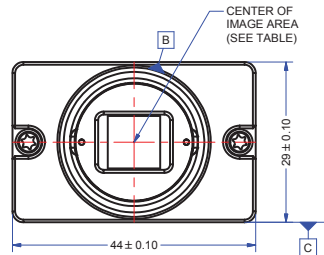
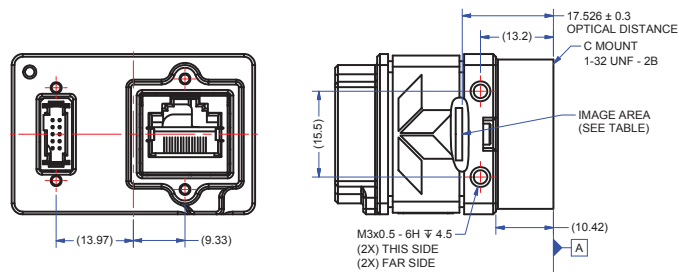
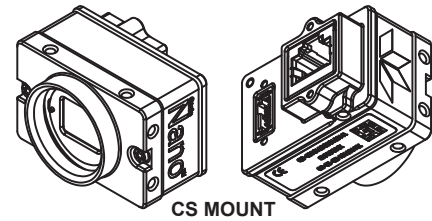
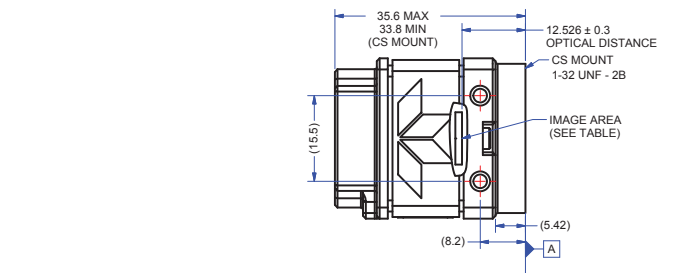


C4060  
C4040  
C4030  
C4020  
C2020  
C2050  
C2420  
C2450

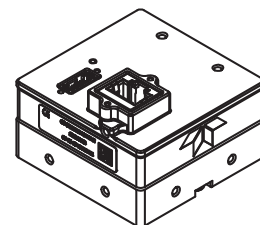
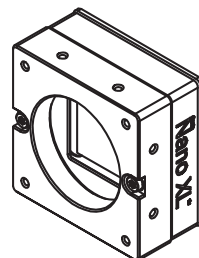
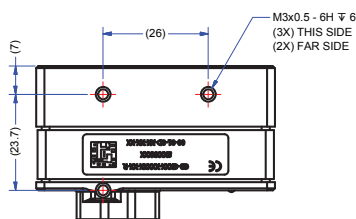
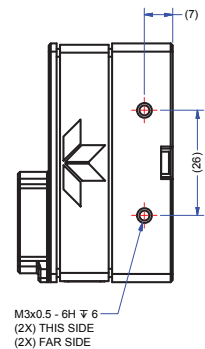
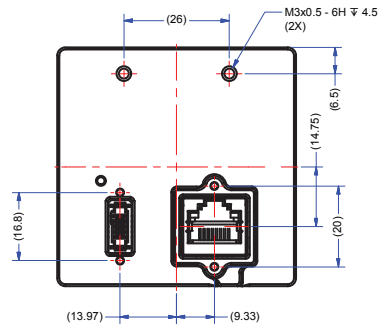
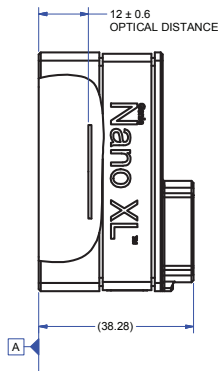
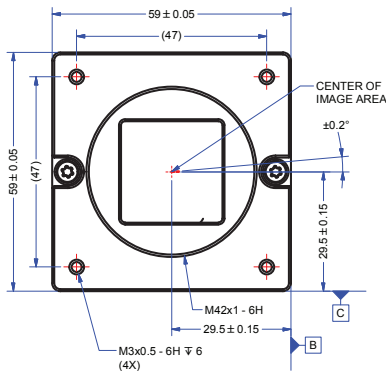


M1920  
M1940





NOTES:  
1. UNITS: MILLIMETERS.  
2. IMAGE AREA IS ALIGNED TO DATUMS A, B & C



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