# PEMBROKE INSTRUMENTS, LLC

SWIR CAMERA DATA SHEET

## WIDY SWIR 640G SE

Manufacturer: New Imaging Technologies (NIT)

Technical data reproduced from the original manufacturer datasheet.

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**For a quote or more information email**

**sales@pembrokeinstruments.com**

# Ordering Information

## Commercial Reference

| Commercial reference | Description | Ordering information |
|---|---|---|
| WiDy SWIR 640G-SE | WiDy SWIR 640 GigE | 9SEC1201IY31*C0#<br>*: E Standard version<br>*: G with POE option<br>#: product revision, B or higher |

## Included Accessories

- Power and trigger Cable (Hirose HR10 connector)
- 12V power supply
- NITVision GUI/NITLibrary SDK
- Cardboard shipping and storage box

## Optional Accessories

- Optical Filter mount
- Hardened protective case

## Custom variants (OEM)

Various options may be available depending on your camera model:

- Open frame housing
- Sensor without cover glass
- Flex configuration (sensor board split from camera electronics)
- …

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Products are only warranted by NIT to meet NIT's production data sheet specifications.

# FUNCTIONALITIES

## Camera

Main camera features (For full documentation contact ):

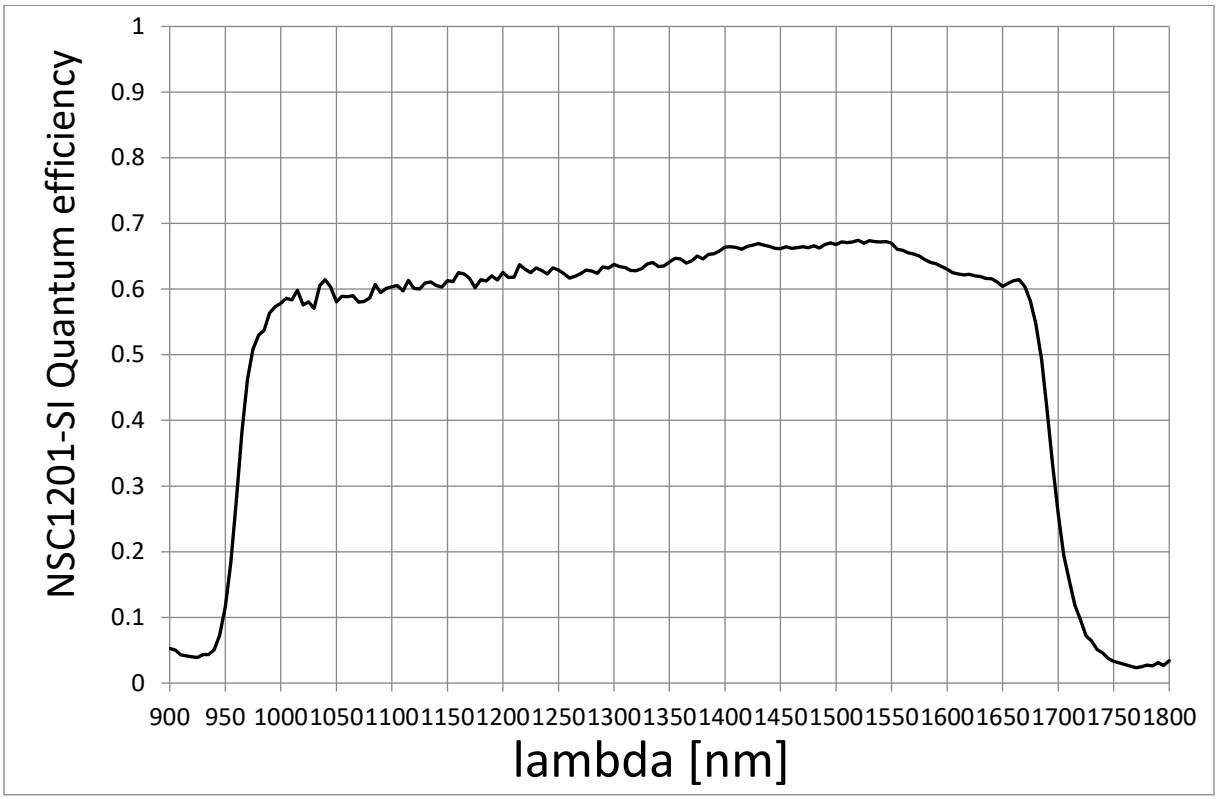
| | | |
|---|---|---|
| **Sensor characteristics** | Sensor type | InGaAs (0.9-1.7 spectral response, see QE curve) |
| | Pixel pitch | $15\mu m$ |
| | Resolution | 640x512 (VGA) |
| | Sensor diagonal | 12.3mm |
| | Sensor noise | $280e^-$ typical |
| | Dynamic range | 120dB typical |
| | Peak QE | >50% |
| **Camera features** | Frame rate | Up to 100Hz (full frame) |
| | Sensor Readout | Global shutter in ITR (Integrate Then Read) |
| | Sensor modes | 4 modes: Log, Linear Low Gain, Linear High Gain and Linear High Gain with CDS |
| | Output Type | 8 or 14bits pixel formats |
| | Exposure time | 100us to 65ms<br>Controlled by camera register or Trigger width |
| | Trigger | Internal/External (LVTTL)<br>Software Trigger |
| | Trigger delay | User-Selectable |
| | Partial reading mode | Region of Interest (ROI). User-Selectable with a step of 8 pixels<br>Maximum FPS increase with reduced ROI |
| | AET (automatic exposure time) | Continuous/Once/Off<br>Automatic exposure time adjustment<br>User-Selectable parameters: speed, target mean level, tolerance, min/max exposure time |
| | AGC (Histogram Stretching) | Automatic/Manual<br>Automatic: continuous offset and gain adjustment based on current image histogram<br>User Selectable parameters: temporal averaging, ROI<br>Manual: User-Selectable gain and offset |
| | Histogram calculation | User Selectable parameters: % pixels to ignore, ROI |
| | NUC correction | Correction 1-Point or 2-Point. 2 Point factory calibrated. (25°C sensor Temperature) |
| | Bad pixel correction | Factory calibrated Bad Pixel Map |
| | Temperature monitoring | Image Sensor board |
| | Overlay | Histogram ROI + CrossHair |
| | User Configuration | Camera configuration at bootup modifiable by user |
| | Image Flip | Horizontal/Vertical |

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| | | |
|---|---|---|
| **Environment and mechanical characteristics** | Power consumption (12V supply) | 4.7W |
| | Supply voltage range | 6 to 15V, 12V nominal (Overvoltage, reverse polarity protection)<br>PoE available on request |
| | Storage temperature | -40 to +80°C |
| | Operating temperature | -20 to +71°C |
| | Size (WxHxL, mm) | 48.6x48.6x49.2 |
| | Weight | <1750g |
| | Lens mount | CS-Mount (C-Mount adapter provided) |
| **Software** | NIT Software | NITLink GUI (Windows/Linux, x64/aarch64 platforms) |

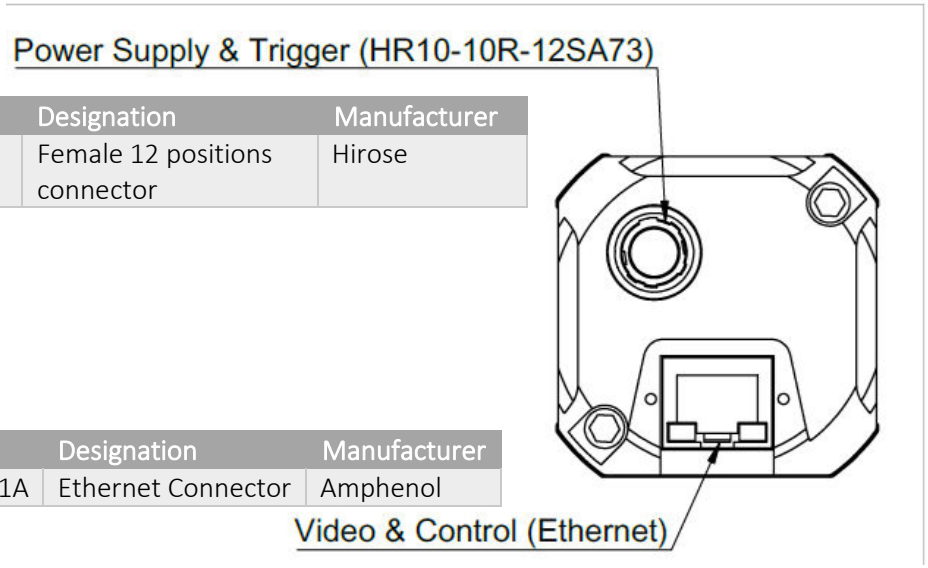
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QE Curve (typical)




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## Electrical ICD




| Reference | Designation | Manufacturer |
|---|---|---|
| HR10-10R-12SA | Female 12 positions connector | Hirose |

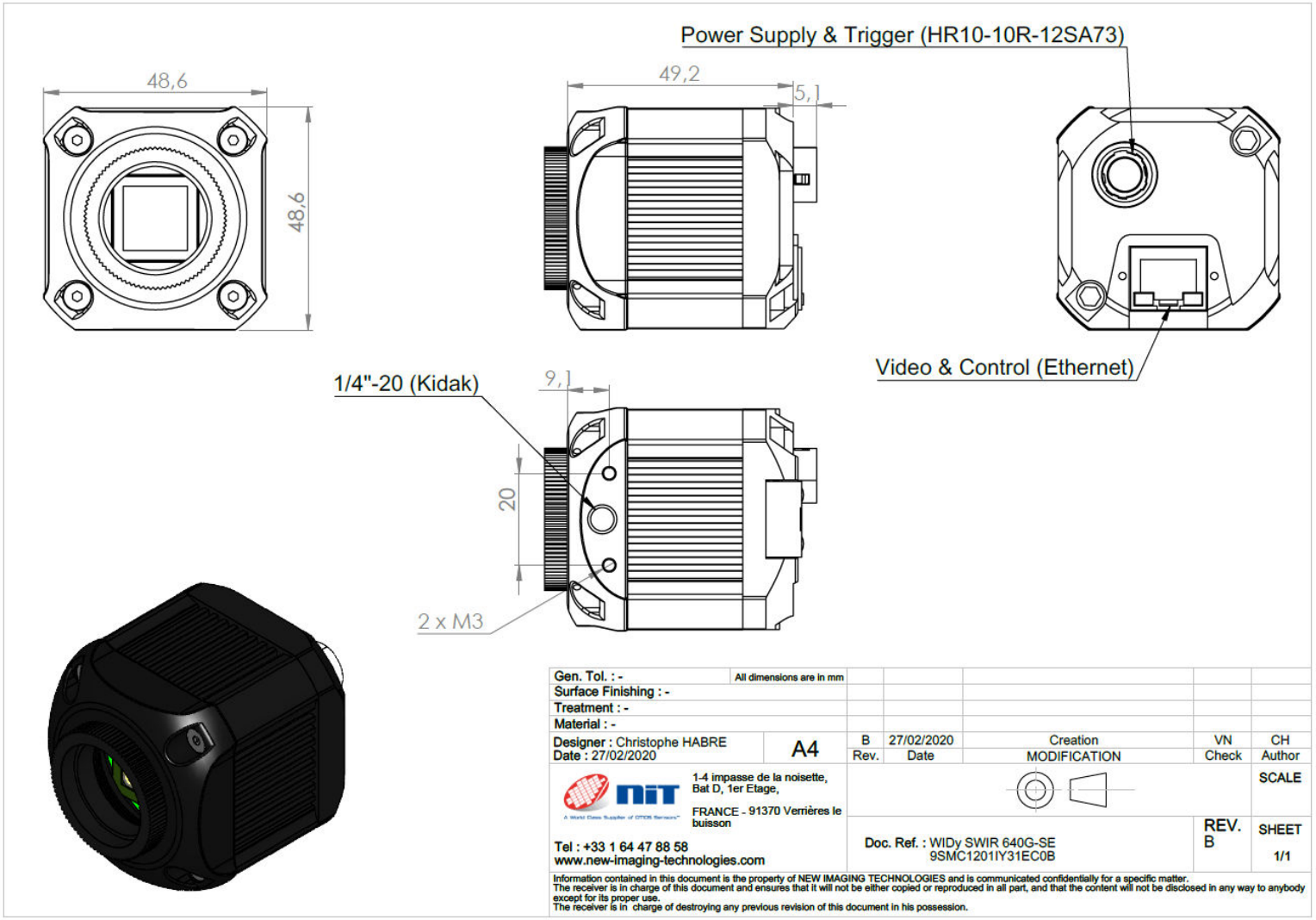
| Reference | Designation | Manufacturer |
|---|---|---|
| RJHSE338A1A | Ethernet Connector | Amphenol |

Power supply possible via the HR10 connector or the Ethernet with PoE (available on request).

| Hirose Connector Pinout | | |
|---|---|---|
| Pin | Signal Name | Cable color |
| 1 | Power (6-24V) | Red/Purple/(Orange) |
| 2 | Power GND | Blue/Brown |
| 3 | Trigger OUT2 | White |
| 4 | Trigger OUT1 | Yellow |
| 5 | NC | |
| 6 | NC | |
| 7 | Reserved | |
| 8 | Power GND | Blue/Brown |
| 9 | Power (6-24V) | Red/Purple/(Orange) |
| 10 | Trigger IN/OUT (LVTTL) | Green |
| 11 | Not connected | |
| 12 | Trigger GND | Black |

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# Mechanical ICD




| | | | | | | |
|---|---|---|---|---|---|---|
| Gen. Tol. : - All dimensions are in mm | | | | | | |
| Surface Finishing : - | | | | | | |
| Treatment : - | | | | | | |
| Material : - | | | | | | |
| Designer : Christophe HABRE<br>Date : 27/02/2020 | A4 | B<br>Rev. | 27/02/2020<br>Date | Creation<br>MODIFICATION | VN<br>Check | CH<br>Author |
| 1-4 impasse de la noisette, Bat D, 1er Etage,<br>FRANCE - 91370 Verrières le buisson<br>Tel : +33 1 64 47 88 58<br>www.new-imaging-technologies.com | | | | | | SCALE |
| | | | Doc. Ref. : WIDy SWIR 640G-SE 9SMC1201IY31EC0B | | REV. B | SHEET 1/1 |

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pembrokeinstruments.com
sales@pembrokeinstruments.com
+1-650-550-8618
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