PEMBROKE INSTRUMENTS, LLC

SWIR CAMERA DATA SHEET

WIDY SenS 640 320G STE2

Manufacturer: New Imaging Technologies (NIT)

Technical data reproduced from the original manufacturer datasheet.

For a quote or more information email

sales@pembrokeinstruments.com

Ordering Informations

Commercial Reference

Commercial reference	Description	Ordering information
WiDy SenS 640G-STE2	WiDy SenS 640 GigE (VGA)	9SEC1601AE31*C0# *: E Standard version *: G with POE option # : **product revision, D or higher**
WiDy SenS 320G-STE2	WiDy SenS 320 GigE (QVGA)	9SEC2001AE31*C0# *: E Standard version *: G with POE option #: **product revision, D or higher**

Included Accessories

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

Optional Accessories

- Optical Filter mount (640 model)
- 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, WiDy SenS 640) / 320x256 (QVGA; WiDy SenS 320)
	Sensor diagonal	12.3mm (VGA, WiDy SenS 640) 9.1mm (QVGA, WiDy SenS 320)
	Sensor noise	• High gain (CDS): <50e^- • Low gain : < 270e^- • Log: <340e^-
	Dynamic range	• High gain (CDS): 49dB typical • Low gain: 63dB typical • Log: 120dB typical
	Peak QE	>70%
Camera features	Frame rate	>260Hz (VGA), >820Hz (QVGA)
	Sensor Readout	Global shutter ITR (Integrate Then Read) and IWR (Integrate While Read).
	Sensor modes	4 modes: Log, Linear Low Gain, Linear High Gain and Linear High Gain with CDS.
	Output Type	8/10/12/14 bits pixel formats.
	Exposure time	Minimum Integration time: 10us (Linear) / 100us (Log) Controlled by camera register or Trigger width
	Trigger	Internal/External (LVTTL) Software Trigger
	Trigger delay	User-Selectable
	Partial reading mode	Region of Interest (ROI). User-Selectable with a step of 8 pixels. Maximum FPS increase with reduced ROI.
	AET (automatic exposure time)	Continuous/Once/Off Automatic exposure time adjustment. User-Selectable parameters: speed, target mean level, tolerance, min/max exposure time
	AGC (Histogram Stretching)	Automatic/Manual. Automatic: continuous offset and gain adjustment based on current image histogram. User Selectable parameters: temporal averaging, ROI 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
	File Management	Upload/Download via camera communication interface Firmware Update. Correction table (NUC and BPM) download and upload. File management software provided (Windows compatible)
	Temperature monitoring	Mainboard & Image Sensor
	Overlay	Histogram ROI + CrossHair
	User Configuration	4 User-defined presets. Selectable boot-up preset.
	Image Flip	Horizontal/Vertical

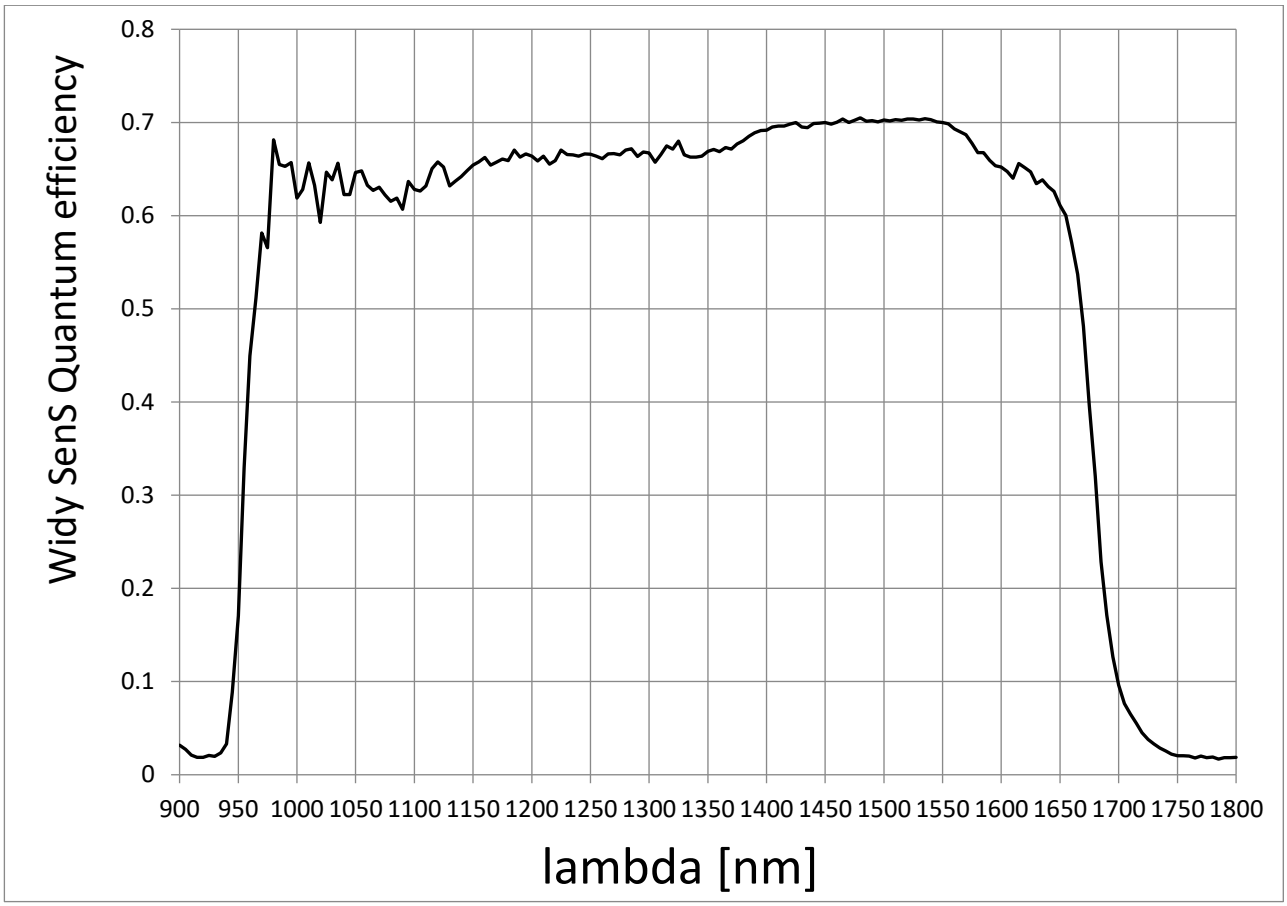
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Environment and mechanical characteristics	Power consumption (12V supply)	• Camera: <5.5W
		• Cooling: User-Selectable TEC power limit
		  ○ Off
		  ○ Low : <1Ws
		  ○ Medium : <2W
		  ○ High : <4W (Default, user defined value)

	Supply voltage range	6 to 24V (Overvoltage, reverse polarity protection). POE available on request
	Storage temperature	-40 to +80°C
	Operating temperature	-40 to +71°C
	Size (WxHxL, mm)	46x46x65.4(640) / 59.7(320) 77.3x46x65.4(640) / 59.7(320) with heatsinks
	Weight	<240g <340g with heatsinks
	Lens mount	C-Mount
Software	NIT Software	NITVision GUI (Windows/Linux, x64/aarch64 platforms) NITLibrary SDK (Windows/Linux, x64/aarch64 platform, C++/Python language)
	Third party	GigEVision/Genicam compliant softwares

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QE Curve (typical)

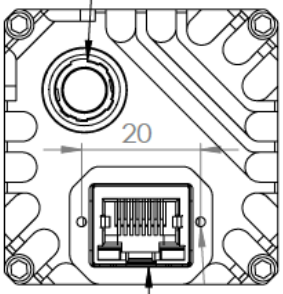


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Electrical ICD

Power Supply & Trigger (HR10-10R-12SA73)

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



Video & Control (Ethernet)

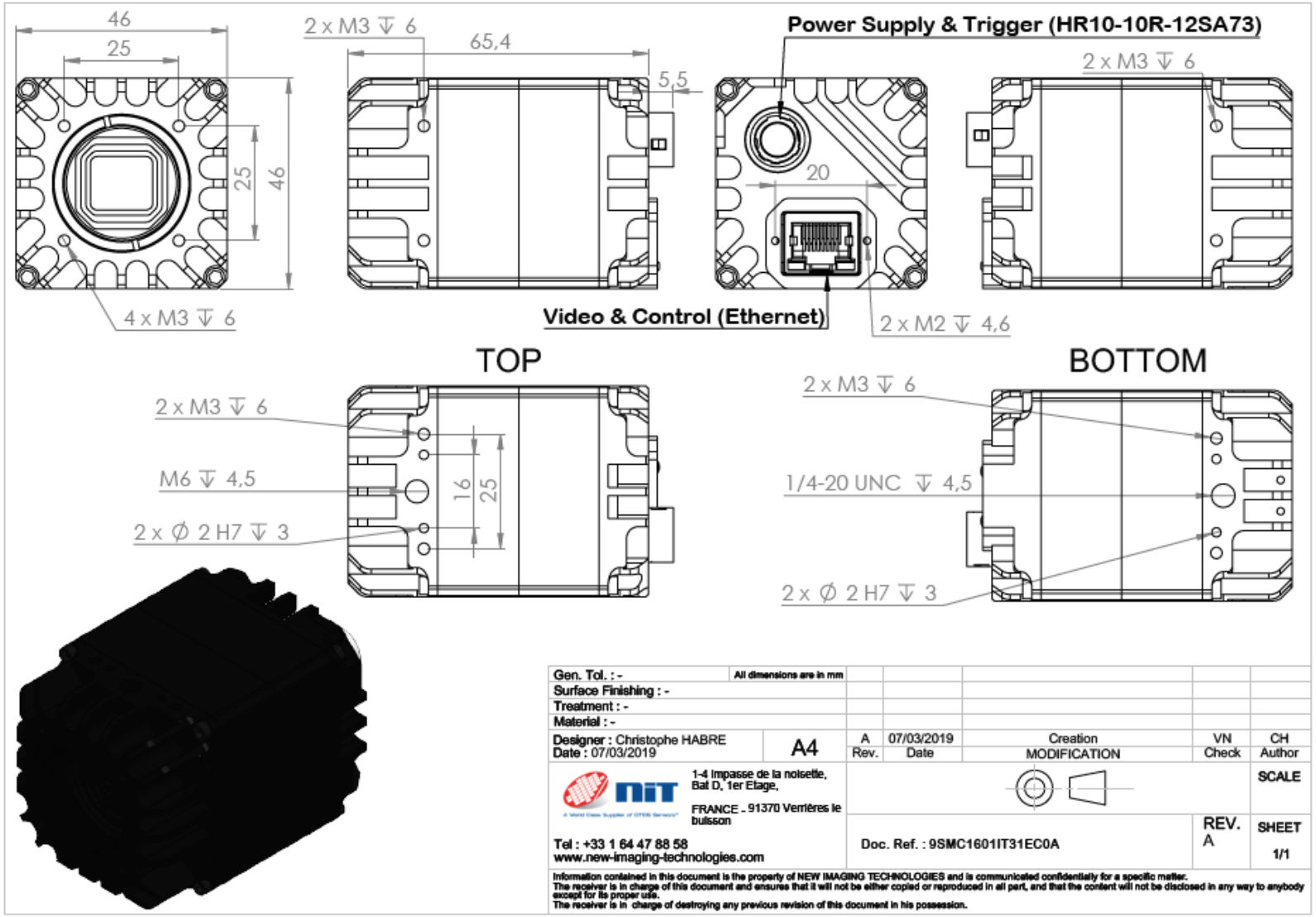
Reference	Designation	Manufacturer
RJHSE338A1A	Ethernet Connector	Amphenol

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

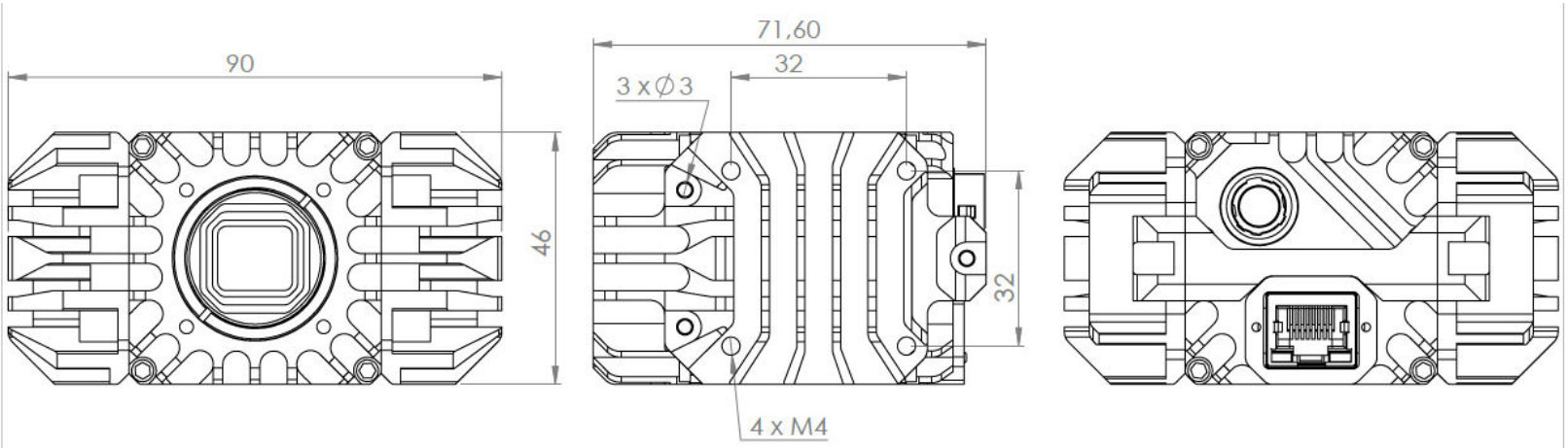
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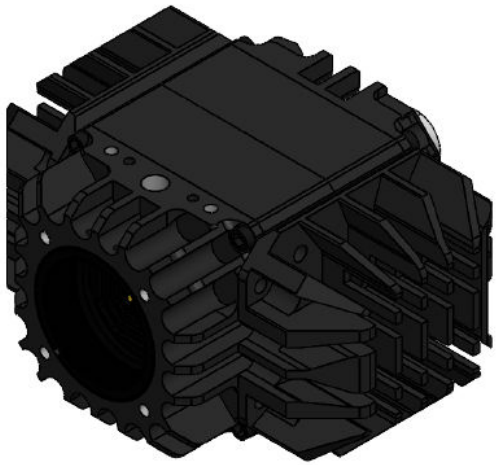
Mechanical ICD (WiDy SenS 640 G-STE2)



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Mechanical ICD - With Heatsinks (WiDy SenS 640 G-STE2)



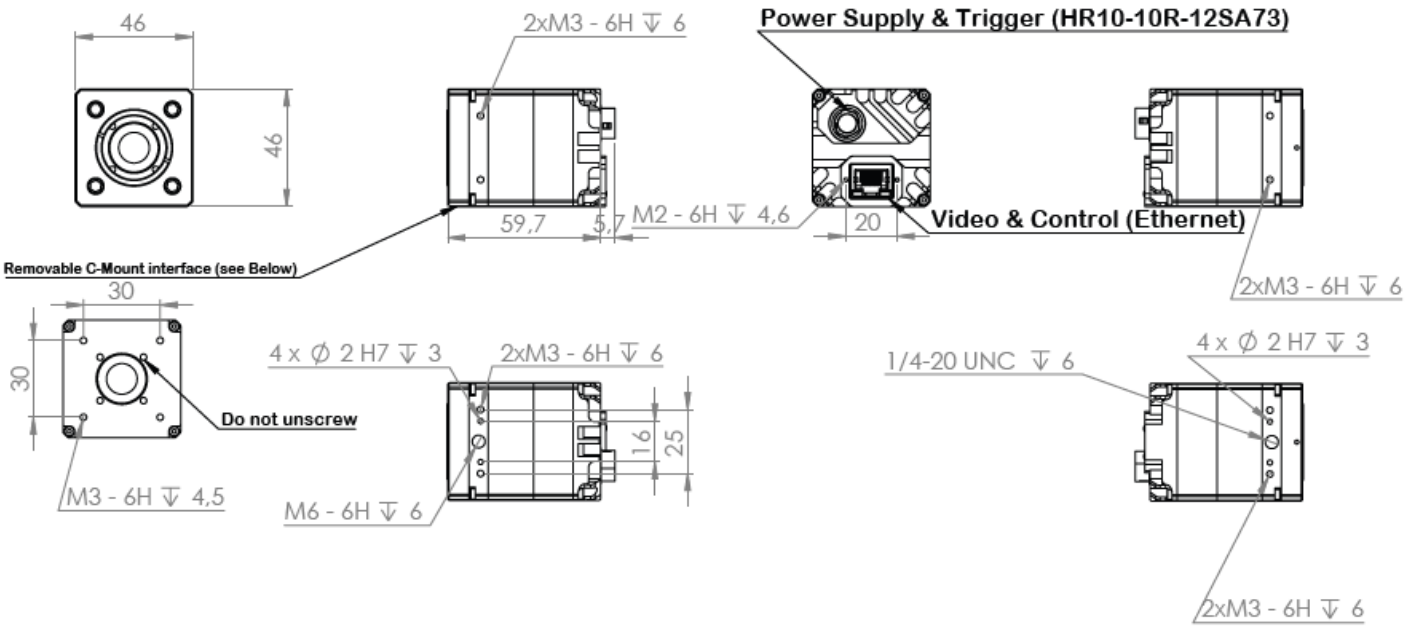


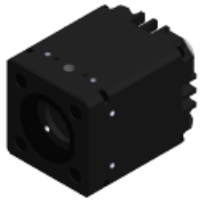
Gen. Tol. : - All dimensions are in mm						
Surface Finishing : -						
Treatment : -						
Material : -						
Designer : Christophe HABRE Date : 09/10/2019	A4	B Rev.	31/03/2015 Date	Modification des radiateurs MODIFICATION	VN Check	CH Author
1-4 impasse de la noisette, Bat D, 1er Etage, FRANCE - 91370 Verrières le buisson Tel : +33 1 64 47 88 58 www.new-imaging-technologies.com						SCALE
				Doc. Ref. : Widi SenS GIGE	REV. B	SHEET 1/1

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Mechanical ICD (WiDy SenS 320 G-STE2)



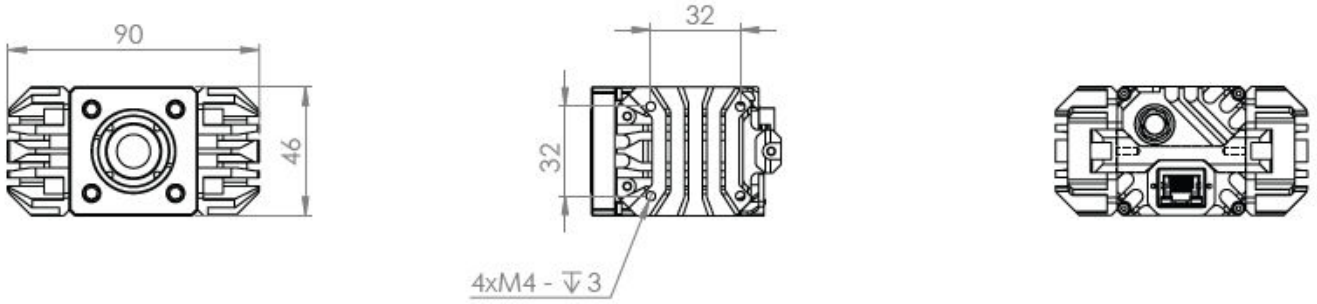


Gen. Tol. : +/- 0.100000mm All dimensions are in mm		E				
Surface Finishing:		D				
Treatment: Black Anodization		C				
Material: Aluminium 7075		B				
Designer: MSC	A4	A	05/06/2024	Creation	Check	MSC
Date: 05/06/2024		Rev.	Date	Modification	Check	Author
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Mechanical ICD - With Heatsinks (WiDy SenS 320 G-STE2)





Gen. Tol. : +/- 0.100000mm All dimensions are in mm		E				
Surface Finishing:		D				
Treatment: Black Anodization		C				
Material: Aluminium 7075		B				
Designer: MSC Date: 05/06/2024	A4	A	05/06/2024	Creation	Check	MSC
		Rev.	Date	Modification	Check	Author
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