PEMBROKE INSTRUMENTS, LLC

SWIR CAMERA DATA SHEET

WIDY SenS 640H STE

Manufacturer: New Imaging Technologies (NIT)

Technical data reproduced from the original manufacturer datasheet.

For a quote or more information email

sales@pembrokeinstruments.com

Ordering Information

Commercial Reference

Commercial reference	Description	Ordering information
WiDy SenS 640 H-STE	WiDy SenS 640 embedded HD-SDI camera	9SEC1601AE01DC3# #: **product revision, A or higher**

Included Accessories

- Power and communication Cable (Harwin connector)
- 12V power supply
- NITLink GUI
- Cardboard shipping and storage box

Optional Accessories

- Heatsinks
- 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	• 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	25Hz or 30Hz
	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	HD-SDI - SMPTE 292M : The format is 1920x1080 pixels of 10-bit depth. The SWIR image is 640x512 pixels and is centered within the 1920x1080 format with an additional offset of -1 line and -1 column, with black strips along the borders. Pixel (0,0) of VGA will be Pixel (639,283) of Full HD. Data follows ITU-R BT 709; **For full compliance, please note that SDI cable <30cm is recommended.**
	Exposure time	Integration time variable from 10us to 35ms in 25Hz Integration time variable from 10us to 28ms in 30Hz Maximum integration time in Log mode: 10ms
	AET (automatic exposure time)	On/Off Automatic exposure time adjustment User-Selectable parameters: from 0 to 100% related to the entire dynamic in 14 bits (0 to 16383)
	AGC (Histogram Stretching)	Automatic/Manual Automatic: continuous offset and gain adjustment based on current image histogram 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
	Overlay	Histogram ROI + CrossHair
	User Configuration	Camera configuration at bootup modifiable by user
	Image Flip	Horizontal/Vertical/Both

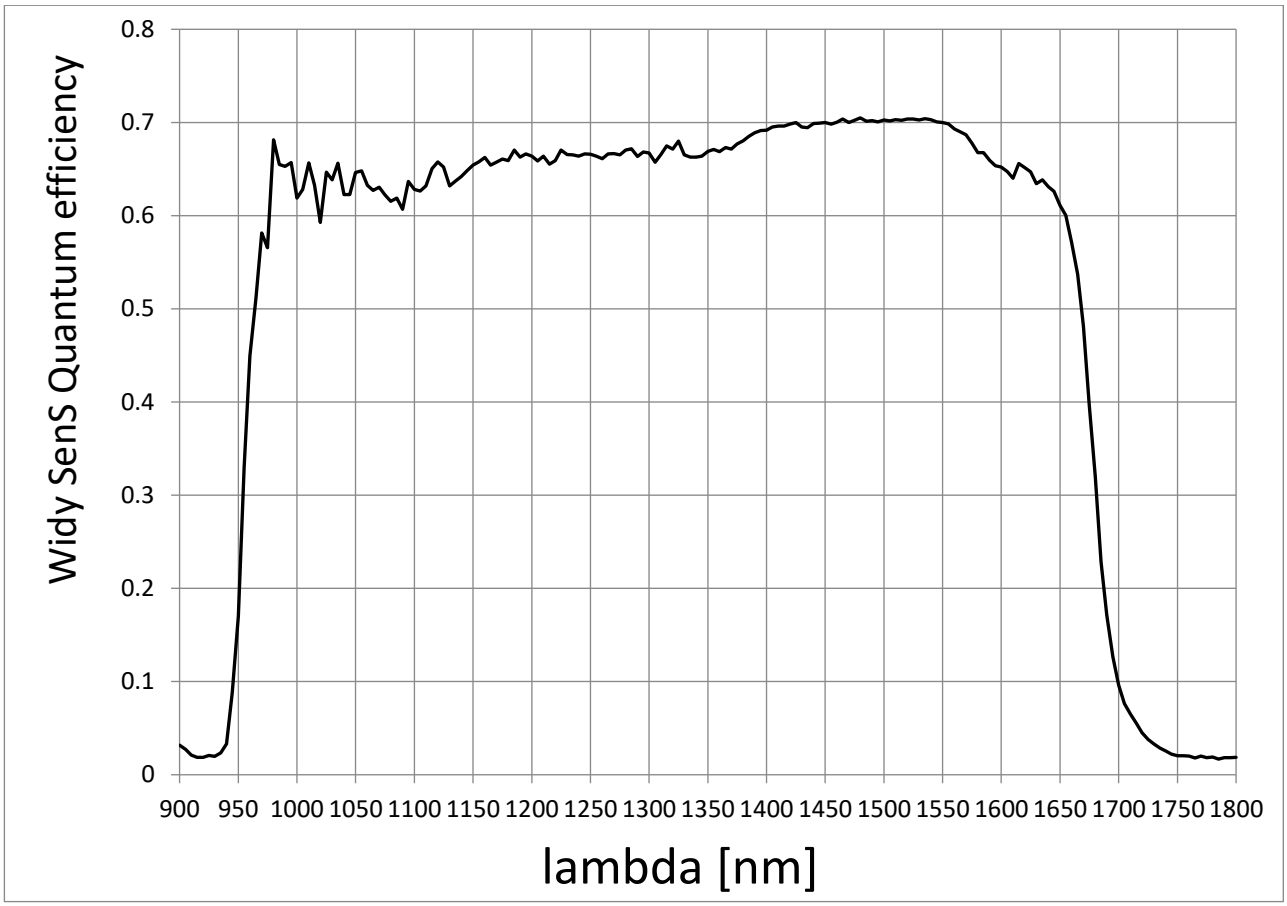
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Environment and mechanical characteristics	Power consumption (12V supply)	• Camera: <5.5W
		• Cooling: User-Selectable TEC power limit
		  ○ Off
		  ○ Low: <1Ws
		  ○ Medium: <2W
		  ○ High: <4W (Default, user defined value)

	Supply voltage range	6 to 15V, 12V nominal (Overvoltage, reverse polarity protection)
	Storage temperature	-40 to +80°C
	Operating temperature	-40 to +71°C
	Size (WxHxL, mm)	46x46x68.9 90x46x68.9 with heatsinks
	Weight	<240g <340g with heatsinks
	Lens mount	C-Mount
Software	NIT Software	NITLink GUI (Windows/Linux, x64/aarch64 platforms)

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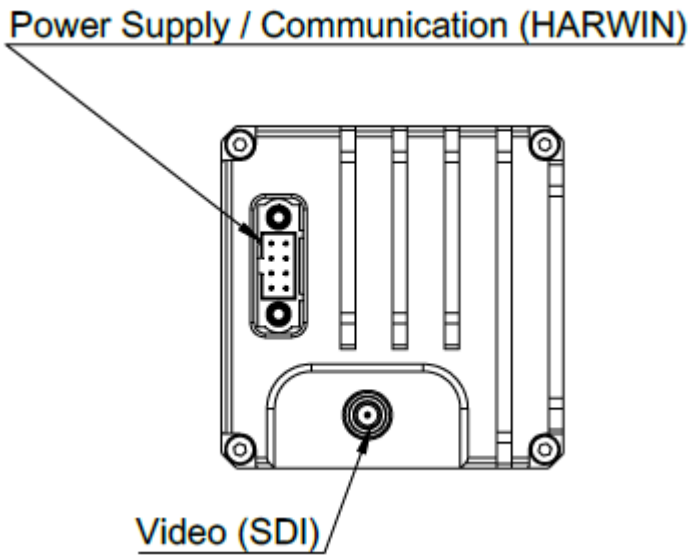
QE Curve (typical)



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Electrical ICD

Reference	Designation	Manufacturer
M80-5000842	Harwin connector	Harwin

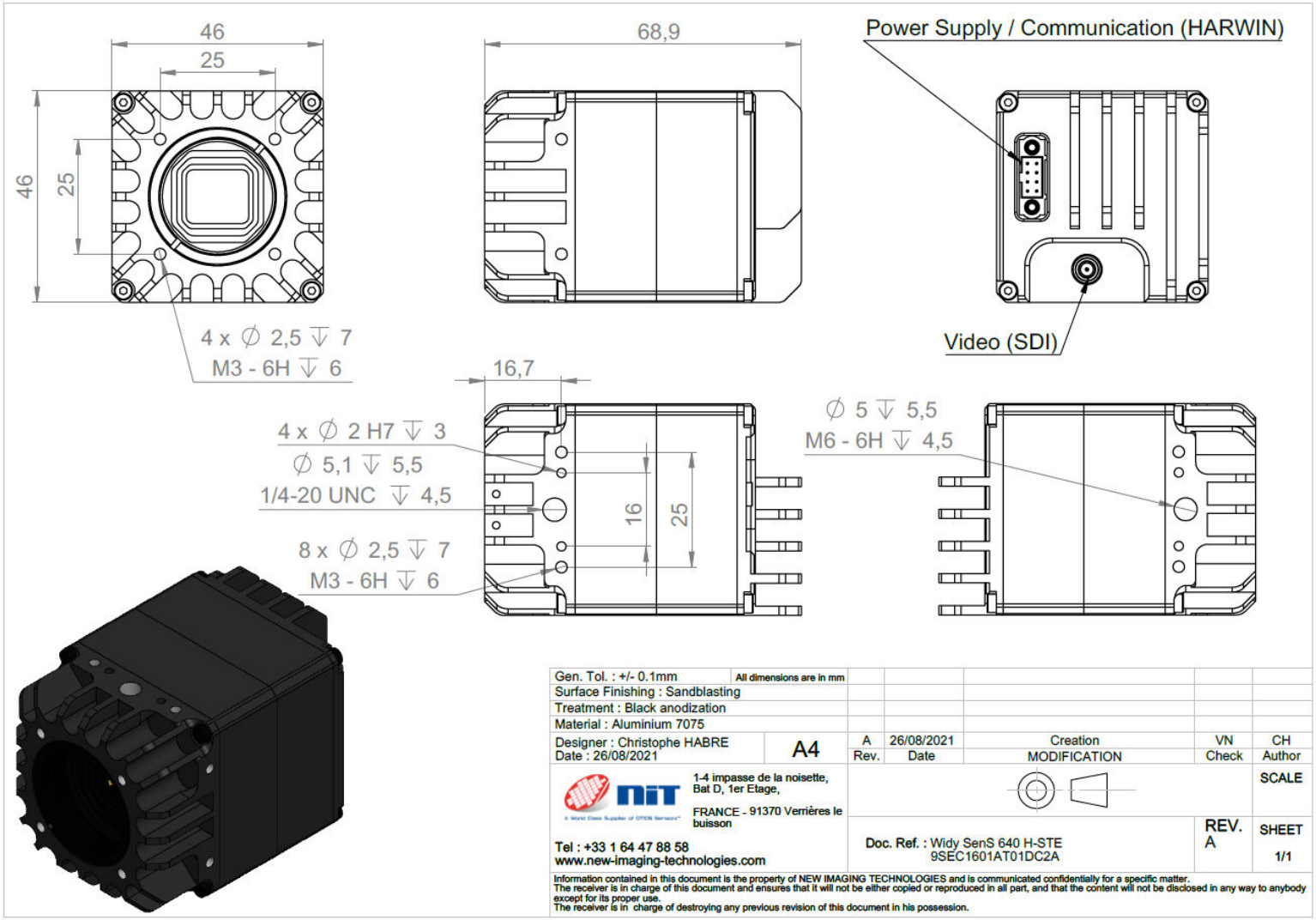


Reference	Designation	Manufacturer
MCX7-J-P-H-ST-TH1	MCX7 – 75 Ohms	SAMTEC

Harwin Connector Pinout		
Pin	Signal Name	Cable color
1	RS-232 TX	Transmission (out)
2	RS-232 RX	Reception (in)
3	Reserved	-
4	Reserved	-
5	GND	
6	- Voltage	Return Power Supply
7	+Voltage	Power Supply
8	+Voltage	Power Supply

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Mechanical ICD (WiDy SenS 640 H-STE)



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