

Imagine the invisible

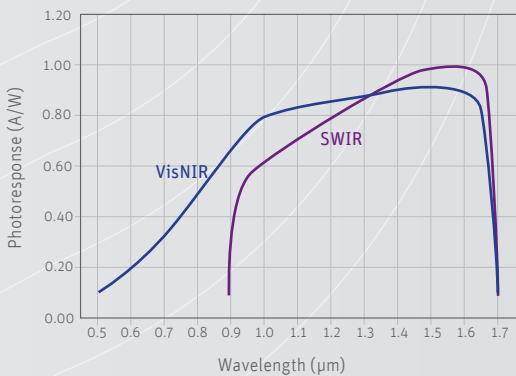
Modules & components

# XSW-640

High resolution  
TE1-stabilized SWIR OEM module



## Ready-to-integrate SWIR OEM module consuming ultra-low-power



Xenics' XSW-640 OEM module is extremely compact and versatile for easy and swift integration in your SWIR imaging configuration.

The XSW-640 OEM module detects short wave infrared radiation between 0.9 (optionally 0.4) and 1.7  $\mu\text{m}$  with a wide dynamic range and wide operating temperature.

Typical OEM applications include infrared imaging for man-portable and unmanned (airborne and land-based) vehicle payloads, night vision, border security, Search & Rescue (SAR) and more.

The Thermo Electric (TE) stabilization reduces the dark current and noise levels. Together with on-board image processing you will have best contrast and high image quality.

### Designed for use in



Person identification



Camouflage detection



Vision enhancement: looking through haze with SWIR



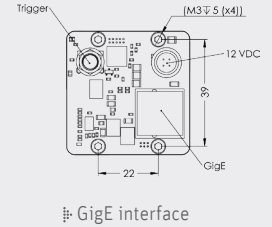
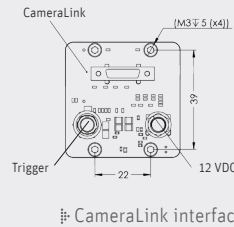
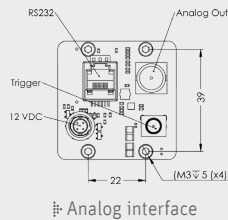
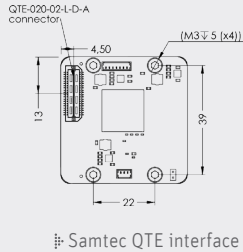
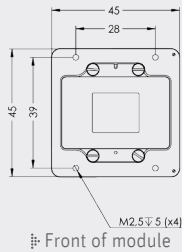
### Key features

- Made in Europe
- High resolution
- Easy connectivity
- Small 20  $\mu\text{m}$  pixel pitch

### OEM applications

- SWIR sights
- UAV / UGV
- Border security
- Laser detection
- Night vision (passive & active)
- Search & Rescue
- Driver assistance
- Electro optical payloads
- Long range identification
- Enhanced Vision Systems (EVS)

# Ready-to-integrate



## Specifications

Module specifications	XSW-640-Samtec	XSW-640-Analog	XSW-640-CL	XSW-640-GigE
<b>Lens</b>				
Focal length	Broad range of lenses optional available			
Optical interface	Fixation holes for multiple lens mount			
<b>Imaging performance</b>				
Frame rate	Max 100 Hz	25 Hz (PAL) 30 Hz (NTSC)	Max 100 Hz	
Window of Interest	Minimum size 32 x 4			
Exposure time range	1 µs - 40 ms in high gain mode			
Noise*	High gain: 120 e- Low gain: 400 e-			
Gain	High gain mode: 1.28 e-/ADU Low gain mode: 16.2 e-/ADU			
On-board image processing	Image correction (TrueNUC for high gain and low gain), auto gain, auto exposure, histogram equalization, trigger possibilities			Up to 4 NUCs, auto gain, trigger possibilities
ADC	14 bit			
<b>Interfaces</b>				
Digital output	BT.601-6/ BT.656-5	-	CameraLink or Xeneth API/ SDK	GigE Vision or Xeneth API/SDK
Analog output	-	PAL or NTSC	-	-
Module control	Serial LVCMOS 3 V (XSP)	RS232 (XSP)	CameraLink	GigE Vision
Trigger	In or out (configurable)			
<b>Power requirements</b>				
Power consumption* (without TEC)	2.5 W	3 W	2.8 W	4 W
Power supply	+/- 12 V			
<b>Physical characteristics</b>				
Shock	40 G, 11 ms halfsine profile, according to MIL-STD810G			
Vibration	5 G, (20 Hz to 1000 Hz), according to MIL-STD883J			
Operating case temperature	-40 °C to 70 °C (industrial components)			
Storage temperature	-45 °C to 85 °C (industrial components)			
Dimensions (W x H x L mm <sup>3</sup> )	45 x 45 x 51	45 x 45 x 55	45 x 45 x 55	55 x 55 x 65
Weight module (without lens)	120 g	145 g	129 g	165 g

\* Typical values

Array specifications	XSW-640
Sensor type	InGaAs Focal Plane Array (FPA) ROIC with CTIA** topology
Spectral band	0.9 to 1.7 µm Optional 0.4 to 1.7 µm (VisNIR)
# pixels	640 x 512
Pixel pitch	20 µm
Readout mode	Integrate Then Read (ITR) Integrate While Read (IWR)
Quantum efficiency	80 % @ 1.6 µm (SWIR) 85 % @ 0.9 µm (VisNIR)
ROIC noise*	High gain: 60 e-; low gain: 400 e-
Sensitivity*	High gain: 20 µV/e-; low gain: 1.6 µV/e-
Dark current*	0.8 x 10 <sup>-6</sup> e-/s
Integration capacitor	High gain: 6.7 fF; low gain: 85 fF
Array cooling	TE1-stabilized
Pixel operability	> 99 %

\* Typical values

\*\* Capacitor Transimpedance Amplifier

## Product selector guide

Part number	Frame rate	Interface	VisNIR
XEN-000295*	100 Hz	16bitDV	No
XEN-000304**		BT.656	
XEN-000343		CameraLink	
XEN-000341		GigE Vision	
XEN-000347	25 Hz	PAL	Yes
XEN-000348	30 Hz	NTSC	
XEN-000098*	100 Hz	16bitDV	
XEN-000305**		BT.656	
XEN-000344		CameraLink	
XEN-000342		GigE Vision	
XEN-000349	25 Hz	PAL	
XEN-000350	30 Hz	NTSC	
Part number	Interface	Connects with	Optional
ASY-000880*	CameraLink	XEN-000295 XEN-000098	Yes
ASY-000879**	PAL/NTSC	XEN-000304 XEN-000305	

\* and \*\* Optional test board interface