

# MANX SQ SERIES

## Line-scan SWIR Camera with Square Pixels

- Line-scan SWIR Camera with 512, 1024, 2048 resolution
- In-house developed InGaAs sensor



### WORLD'S FASTEST InGaAs LINE-SCAN CAMERA

Based on a brand new, in-house developed InGaAs linear detector, the Manx square (SQ) is a high-performance short-wave infrared (SWIR) camera providing high speed and quality line-scan imaging. At unprecedented line rates of up to 256 kHz (or 128 kHz), the Manx square (SQ) stands as the fastest line-scan InGaAs camera available in the world.

The Manx square (SQ) is able to provide up to 2048 pixel resolution. It also presents the lowest noise performance record for a 2048 pixel SWIR linear camera, combined with excellent dynamic range.

The use of CoaXPress interfacing enables fast and reliable data transfer.

The Manx square (SQ) is offered in 3 different resolutions of 512, 1024 or 2048 pixels.

Silicon wafer inspection, TFT screen inspection, food and agricultural produce sorting are some industrial applications that would benefit from this new line of ultra fast linear SWIR cameras.

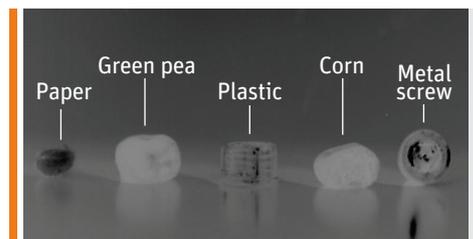
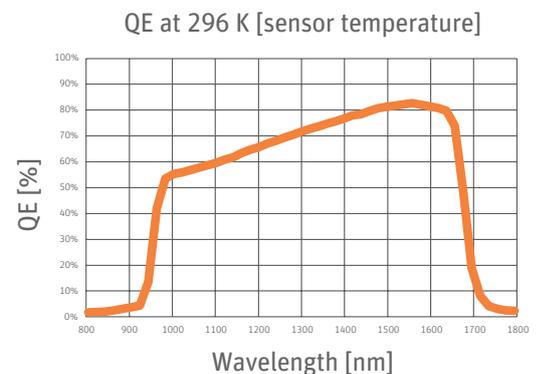
The cameras have standard on-board image correction featuring non-uniformity correction (NUC), bad pixel replacement (BPR) and gain control. For more info on other image enhancement features, contact our sales department.

### DESIGNED FOR USE IN

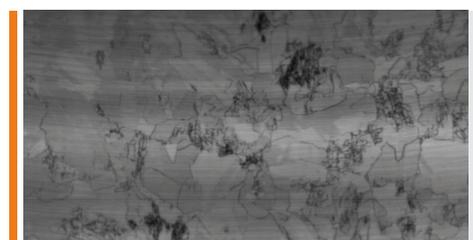
- Machine Vision
- Process Monitoring

### ADVANTAGES

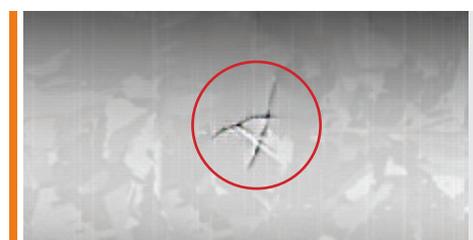
- World's fastest SWIR line-scan imaging up to 256 kHz
- High resolution
- Low noise, low dark current
- CoaXPress interfacing for reliable streaming of data
- Versatility with 4 gain modes



Food sorting



Photoluminescence (solar wafer)



Crack inspection (solar wafer)

## SPECIFICATIONS

Camera Specifications	Manx 512 SQ CXP 130/260	Manx 1024 SQ CXP 130/260	Manx 2048 SQ CXP 130/260
<b>Mechanical specifications</b>			
Approximate dimensions - excluding lens [width x height x length] [mm]	102 x 102 x 40		
Weight [gr] - excluding lens	900		
Optical interface	C-mount or M42 [M42 to F-mount adapter optional]		
Connector CXP	4 connectors - type DIN 1.0/2.3		
Connector power	Only PoCXP		
Connector trigger	Lemo [unified connector]		
<b>Environmental &amp; power specifications</b>			
Ambient operating temperature range [°C]	From -40 to +60		
Storage temperature [°C]	From -40 to +85		
Power consumption [W]	Up to 11 [without TEC]		
Power supply voltage	DC 24 V [via CoaXPress]		
Shock	40 g, 11 ms, according to MIL-STD810G		
Vibration	5 g [20 to 2000 Hz], according to MIL-STD810G		
IP rating	IP40		
Regulatory compliance	CE, RoHS		
<b>Electro-optical specifications</b>			
Sensor format [pixels]	512	1024	2048
Pixel pitch [µm]	12.5		
Pixel height [µm]	12.5		
Detector type	InGaAs photodiode array with CTIA ROIC		
Sensor temperature stabilization	TE Cooler		
Integration type	Snapshot - global shutter		
Optical fill factor	100%		
Spectral range [µm]	900 - 1700		
Quantum efficiency	~80% [typical peak value]		
Gain modes	4 different gain modes selectable: 100x [HG], 20x [MG], 5x [ML], 1x [LG]		
Full well capacities [electrons]	290k; 1.6M; 8.1M; 35M		
Read noise [electrons]	350 [HG]; 700 [MG]; 2600 [ML]; 12000 [LG]		
Dark current [electrons/second]	0.2M [at 20°C sensor temp and 100 mV reverse bias]		
Read out mode	IWR		
Pixel operability	>99.6%	>99%	>98%
Max line rate [kHz]	128 [“130” version], 256 [“260” version]		
Analog-to-Digital [ADC] [bits]	14		
Command and control	CoaXPress		
Digital output format	CoaXPress [16 bit]		
Trigger	Trigger connector: 2 trigger in & 2 trigger out - LVCMOS 3.3 V; CXP trigger: 1 trigger in		
<b>Product selector guide</b>			
Part number	XEN-000651 [130]	XEN-000652 [130]	XEN-000653 [130]
	XEN-000654 [260]	XEN-000655 [260]	XEN-000656 [260]



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