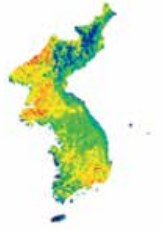




Intelligent  
Image  
Information  
System



# i3system, Inc.

True Partner for Your Success in Trust

# i3system, Inc.

True Partner for Your Success in Trust

## Company overview

**Company Name :** i3system, Inc.  
(Intelligent Image & Information System)

**CEO :** Chung Han (Ph.D)

**Establishment :** 1998

**Number of Employees :** 490 (Q1, 2024)

- 1988 : Initial Research at KAIST by founder
- 2003 : Cooled MWIR R&D
- 2006 : Uncooled LWIR R&D
- 2010 : Serial Production of Cooled MWIR IDDCA
- 2012 : Serial Production of Uncooled LWIR micro-bolometer
- 2015 : IPO in KOSDAQ (Korean stock market)
- 2015 : ISO9001:2008 / ISO9001:2015
- 2016 : New production building set up at Moonji-dong
- 2018 : Launch 12 $\mu$ m XGA / VGA / QVGA micro-bolometer detector
- 2019 : Innovation Award by Korea Ministry of Defence
- 2022 : Launch New T2SL HOT MWIR / Cooled LWIR detector
- 2023 : Developed 8 $\mu$ m SXGA micro-bolometer detector
- 2024 : T2SL Dual Band R&D to be completed



Headquarter / Factory #1



Moonji-dong / Factory #2



Jang-dong (R&D Center)

## Facilities

### Process



### Assembly



### Analysis



### Test & Evaluation



**In house manufacture facility  
and test equipments**

# Products

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T2SL MARKOS series



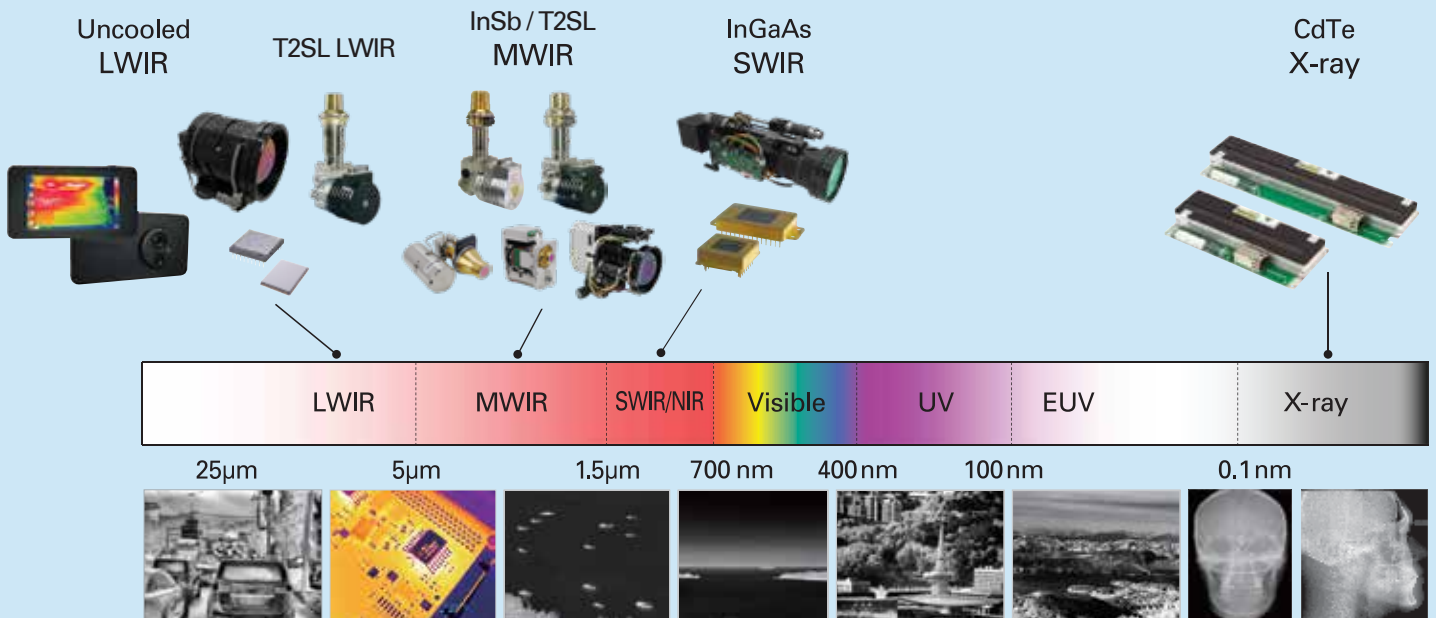
T2SL LUKAS series



InSb SXGA



InGaAs SWIR SXGA

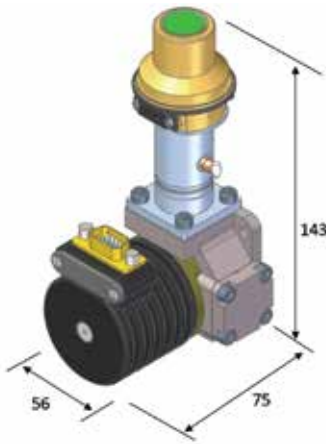




# Super MARKOS

## HOT MWIR 1280 X 1024 10 $\mu$ m

Super MARKOS is a new generation T2SL HOT MWIR detector in HD quality. This T2SL HOT detector satisfies requirement of tactical such as long-range surveillance and electro-optical targeting system. The Operating temperature (>130K) will reduce the maintenance cost.



Proxy board [Raw data]  
Output: Camera Link

### Applications



Security



Night  
Observation



Long-range  
Surveillance



Reconnaissance

### Specifications

Detector type	T2SL
Array format	1280 x 1024
Pixel pitch	10 $\mu$ m
NETD	$\leq 25\text{mK}$ @ Half-well fill
Wavelength band	MWIR (3 $\mu$ m ~ 5 $\mu$ m)
Max Frame rate	110Hz@1280x1024 Full frame
Cool-down time	$\leq 5\text{min}$
FPA operating temp.	130K

### Image from the 2D IR detector



# MARKOS

**HOT MWIR 640 x 512 15 $\mu$ m, SWaP**



MARKOS is a T2SL HOT MWIR SWaP detector specifically designed for handheld thermal imaging and drone & UAV systems, and light-weight monitoring devices. This HOT(High Operating Temperature) and SWaP(Size Weight and Power) detector is suitable for long-term use.

## Applications



Detector



Security /  
Surveillance



Night  
Observation



Drone



Hand-held  
Thermal Imager

## Specifications

Detector type	T2SL
Array format	640 x 512
Pixel pitch	15 $\mu$ m
NETD	$\leq 20\text{mK}$ @ Half-well fill (Detector)
Wavelength band	MWIR (3 $\mu$ m ~ 5 $\mu$ m)
Cool-down time	$\leq 5\text{min}$
FPA operating temp.	130K
Max Frame rate	Detector : 220Hz @ 640 x 512 full frame
	OEM Module : 60Hz @ 640 x 512 full frame
F number	F/5.5 Standard, other F# option possible



OEM Module



Camera Core



# MARKOS Camera Core

## HOT MWIR VGA Camera Core

### Description

- VGA HOT MWIR Camera Core with high performance, low SWaP, and linear cooler integration.
- The camera core includes video processing and control features designed for handheld cameras, miniature gimbals for drones & UAVs, and light-weight monitoring devices.
- Full MWIR Spectral Range, High Sensitivity, Common & Simple Electrical Interface.

### Applications



Security /  
Surveillance



Night  
Observation



Drone &  
UAV



Hand-held  
Thermal Imager



Marine  
Navigation



### Images from the 2D IR detector

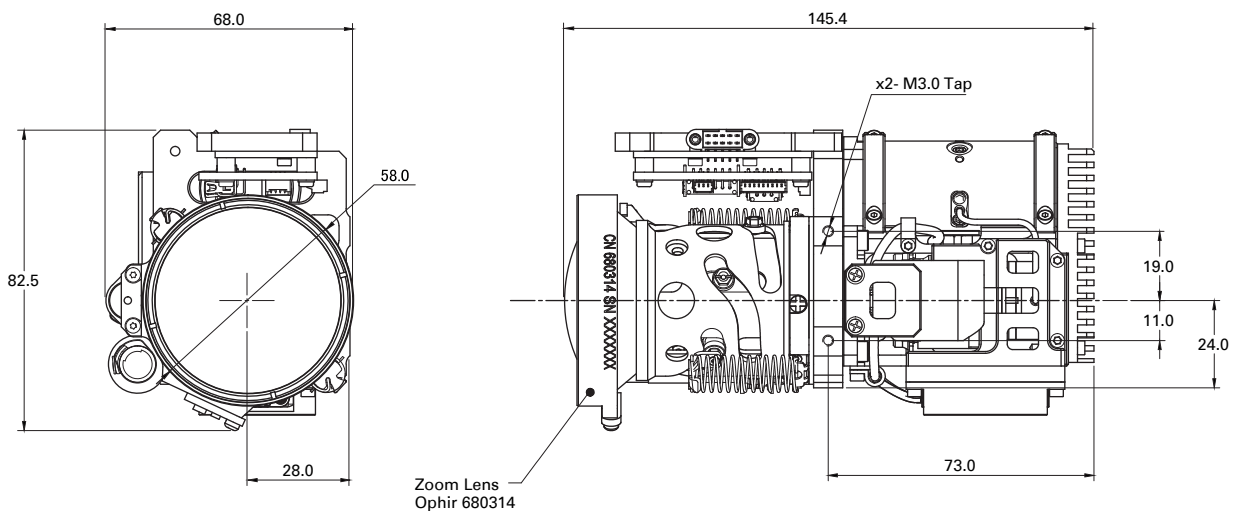


# SEE THE NEW WORLD THROUGH i3system, Inc.

## Specifications

Detector	
Type	T2SL
Array format	640 x 512, 15 $\mu$ m
Spectral range	MWIR (3 $\mu$ m~5 $\mu$ m)
F number	F/5.5 (Standard), customizable
Thermal sensitivity(NETD)	$\leq$ 25mK
Cool-down time	$\leq$ 5 min. @ room temperature
Electrical	
Frame rate	60Hz
Input Power	+5.0 VDC board, +12.0 VDC SWaP linear cooler
Power Consumption	$\leq$ 5W steady state @ 23°C (Cooler $\leq$ 3W, Electronics $\leq$ 2W)
Control	UART (RS-232)
Video output	NTSC/PAL, HDMI, Camera-link
Mechanical	
Size (W x H x L)	Without lens : 51mm x 75.6mm x 70.1mm
	With lens : 68mm x 82.5mm x 139.2mm
Weight	Detector : 250g
	Without lens : 340g
	With lens : 690g (f/5.5 20-275mm)

## Dimension



# LUKAS

LWIR 640 x 512 15 $\mu$ m



LUKAS is a T2SL LWIR VGA detector which shows an excellent performance especially for ground vehicles with its anti-blooming capability and strong penetration in foggy & dusty area. This LWIR detector ensures the visibility even in tough environmental conditions such as sun-glint and light reflex.



Proxy board [Raw data]  
Output: Camera Link

## Applications



Security /  
Surveillance



Night  
Observation

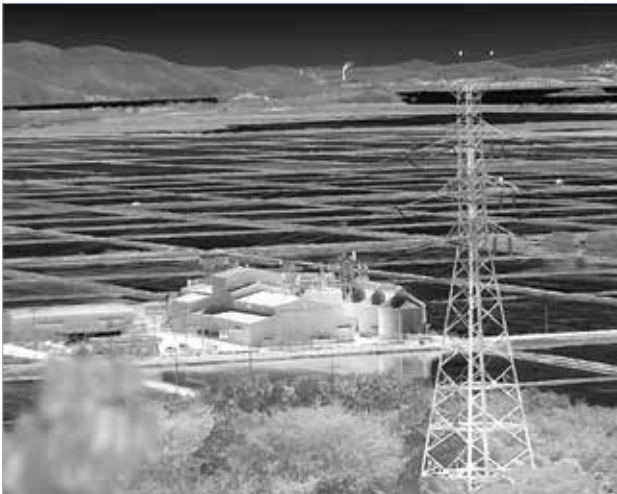


Thermal  
Sight

## Specifications

Detector type	T2SL
Array format	640 x 512
Pixel pitch	15 $\mu$ m
NETD	$\leq 25\text{mK}$ @ Half-well fill
Wavelength band	LWIR (7.7 $\mu\text{m}$ ~ 9.4 $\mu\text{m}$ )
Max Frame rate	180Hz @ 640 x 512 Full Frame
Cool-down time	$\leq 7\text{min}$

## Images from the 2D IR detector







# InSb Cooled IR Detector

MWIR 1280 x 1024 10 $\mu$ m



**DI1280-10M**



**iCP1280**

Proxy board [Raw data]  
Output: Camera Link



**iCE1280P**

OEM Module [Video data]  
Output: Camera Link

## Applications



Security



Night  
Observation



Long-range  
Surveillance

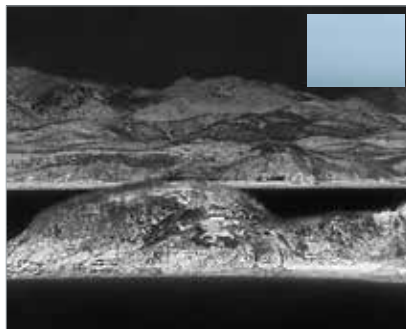


Reconnaissance

## Specifications

Detector type	InSb
Array format	1280 x 1024
Pixel pitch	10 $\mu$ m
NETD	$\leq 25\text{mK}$ @ Half-well fill
Wavelength band	MWIR (3 $\mu$ m ~ 5 $\mu$ m)
Max Frame rate	100Hz@1280x1024 Full frame
Cool-down time	$\leq 7\text{min}$

## Images from the 2D IR detector



# InSb Cooled IR Detector

MWIR 640 x 512 15 $\mu$ m



**DI640-15M**



**iCP640**

Proxy board [Raw data]  
Output: Camera Link



**iCE640**

OEM Module [Video data]  
Output: digital (BT656, Camera Link)  
analog (NTSC, PAL)

## Applications



Security



Night  
Observation



Long-range  
Surveillance



Reconnaissance

## Specifications

Detector type	InSb
Array format	640 x 512
Pixel pitch	15 $\mu$ m
NETD	$\leq 20\text{mK}$ @ Half-well fill
Wavelength band	MWIR (3 $\mu$ m ~ 5 $\mu$ m)
Max Frame rate	220Hz@640 x 512 Full frame
Cool-down time	$\leq 7\text{min}$

## Images from the 2D IR detector



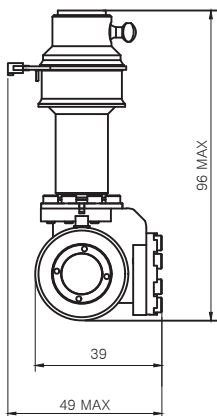
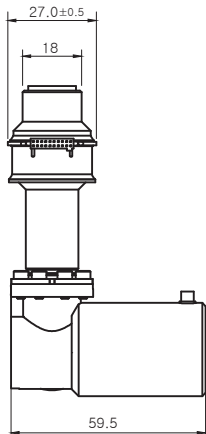


# InSb Cooled IR Detector

## MWIR 320 x 256 15 $\mu$ m



DI320-15M



### Applications



Security



Night  
Observation



Drone



Hand-held  
Thermal Imager

### Specifications

Detector type	InSb
Array format	320 x 256
Pixel pitch	15 $\mu$ m
NETD	$\leq 20\text{mK}$ @ Half-well fill
Wavelength band	MWIR (3 $\mu$ m ~ 5 $\mu$ m)
Readout mode	ITR
Cool-down time	$\leq 7\text{min}$

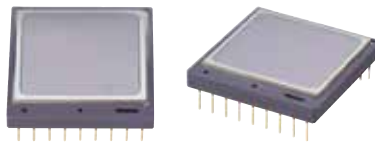
### Images from the 2D IR detector



# Uncooled Infrared Detector



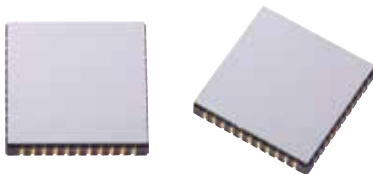
**DB1280-8C-A**  
1280 x 1024, 8 $\mu$ m



**DB1024-12C-A**  
1024 x 768, 12 $\mu$ m

**DB640-12C-A**  
640 x 480, 12 $\mu$ m

**DB640-17C-A**  
640 x 480, 17 $\mu$ m



**DB384-12C-A**  
384 x 288, 12 $\mu$ m

**DB384-17C-A**  
384 x 288, 17 $\mu$ m

## Applications



Security /  
Surveillance



Night  
Vision



Electrical  
maintenance



Plumbing



Medical /  
Health

## Specifications

Detector type	Microbolometer (uncooled)
Array format	1280 x 1024
Pixel pitch	8 $\mu$ m
NETD	$\leq 55\text{mK @ F/1 300K, 30Hz}$
Wavelength band	LWIR (8 ~ 14 $\mu$ m)
Max Frame rate	30 Hz

Detector type	Microbolometer (uncooled)		
Array format	1024 x 768	640 x 480	384 x 288
Pixel pitch	12 $\mu$ m		
NETD	$\leq 40\text{mK}$ or $\leq 55\text{mK @ F/1 300K, 30Hz}$		
Wavelength band	LWIR (8 ~ 14 $\mu$ m)		
Max Frame rate	100 Hz	60 Hz	

Detector type	Microbolometer (uncooled)	
Array format	640 x 480	384 x 288
Pixel pitch	17 $\mu$ m	
NETD	$\leq 50\text{mK @ F/1 300K, 30Hz}$	
	$\leq 35\text{mK @ F/1 300K, 30Hz (optional)}$	
Wavelength band	LWIR (8 ~ 14 $\mu$ m)	
Max Frame rate	60 Hz	



# THERMAL EXPERT™

## Uncooled Infrared Camera Core

TE-EX2  
TE-EV2  
TE-EQ2



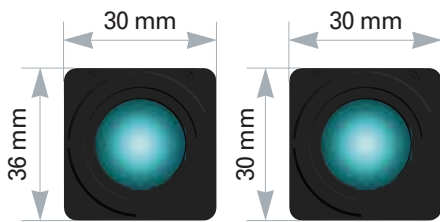
TE-EX2  
1024 x 768, 12 $\mu$ m  
15-100mm lens



TE-EV2  
640 x 480, 12 $\mu$ m

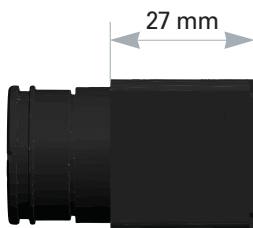


TE-EQ2  
384 x 288, 12 $\mu$ m



TE-EX2  
TE-EV2

TE-EQ2



### Applications



Security /  
Surveillance



Night  
Vision



Electrical  
maintenance



Plumbing



Medical /  
Health

### Specifications

Array format	1024 x 768	640 x 480	384 x 288
Pixel pitch	12 $\mu$ m		
NETD	$\leq 55\text{mK @ F/1, 300K}$		
Wavelength band	LWIR (8 ~ 14 $\mu$ m)		
Frame rate	$< 9\text{Hz}$ or $< 30\text{Hz}$		
Temperature Range	$-10^{\circ}\text{C} \sim 150^{\circ}\text{C}$		
Video Output	Camera Link	NTSC, PAL, LV CMOS, Camera Link, USB, BT656	

### Thermal Images



# THERMAL EXPERT™

## Uncooled Infrared Camera Core

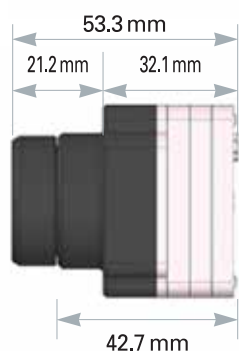
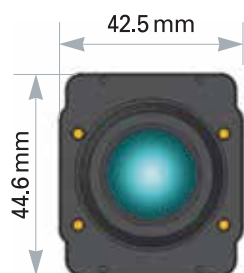
TE-EV1  
TE-EQ1



TE-EV1  
640 x 480, 17 $\mu$ m



TE-EQ1  
384 x 288, 17 $\mu$ m



### Applications



Security /  
Surveillance



Night  
Vision



Electrical  
maintenance



Plumbing



Medical /  
Health

### Specifications

Array format	640 x 480	384 x 288
Pixel pitch	17 $\mu$ m	
NETD	$\leq 50\text{mK @ F/1, 300K}$	
Wavelength band	LWIR (8 ~ 14 $\mu$ m)	
Frame rate	< 9Hz or < 30Hz	
Temperature Range	-10 $^{\circ}\text{C}$ ~ 150 $^{\circ}\text{C}$	
Video Output	NTSC, PAL, LV CMOS, Camera Link, USB, GigE, IP, BT656	

### Thermal Images





# THERMAL EXPERT™

## Uncooled Infrared Camera Core

TE-V2  
TE-Q2



TE-V2  
640 x 480, 12 $\mu$ m / 17 $\mu$ m



TE-Q2  
384 x 288, 12 $\mu$ m

### Applications



Security /  
Surveillance



Night  
Vision



Electrical  
maintenance



Plumbing



Drone

### Specifications

Array format	640 x 480	384 x 288
Pixel pitch	12 $\mu$ m, 17 $\mu$ m	12 $\mu$ m
NETD	$\leq 50$ mK or $\leq 55$ mK@F/1 300K, 30Hz	
Wavelength band	LWIR (8 ~ 14 $\mu$ m)	
Frame rate	< 9Hz or < 30Hz	< 9Hz
Weight	42g (With lens)	30g (With lens)
Temperature Range	-10 $^{\circ}$ C ~ 150 $^{\circ}$ C	
Video Output	USB	

### Product Mix



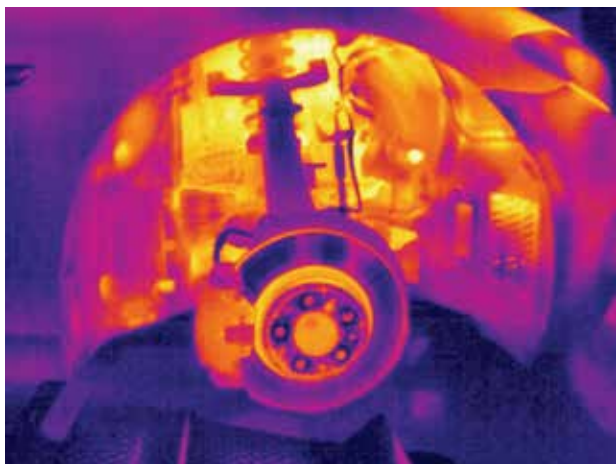
+



+



### Thermal Images



# THERMAL EXPERT™

## Portable Infrared Camera

TE-SQ1



### Features

- Color palettes (12 color maps)
- Storage images (IR, visible with snapshot and video)
- Image view with visible (50:50, Twin, Overlay, Floating)
- Temperature Measurement (Alarm, Min / Max, Point / Rectangle / Circle profile)
- Level span (Temp. range control)
- Report (Generate PDF report)
- Wi-Fi streaming, Data Sharing
- Compatible with Analysis Tool
- Digital Zoom
- SD Card, Micro HDMI Support



### Applications



Security /  
Surveillance



Night  
Vision



Electrical  
maintenance



Plumbing  
/ HVAC



Medical /  
Health



Animal Care



Leisure

### Thermal Images

TE-SQ1	
Detector type	Micro-Bolometer(Uncooled)
Array Format and Pitch	384x288, 12 $\mu$ m
Thermal Sensitivity(NETD)	$\leq 55$ mK@F/1, 300K(20 $^{\circ}$ C~30 $^{\circ}$ C)
Operability	$\geq 99.0\%$
Spectral range	8~14 $\mu$ m
Lens Specification	5.7mm, f/1.1, Manual Focus
Field of View	38 $^{\circ}$ (H)x29 $^{\circ}$ (V)~47 $^{\circ}$ (D)
Frame Rate	< 9Hz
Display	5 Inch (Touch Screen)
Temp. Range	-40~350 $^{\circ}$ C
Accuracy	0 $^{\circ}$ C~100 $^{\circ}$ C : $\pm 3^{\circ}$ C, 100 $^{\circ}$ C~350 $^{\circ}$ C : $\pm 3\%$ [Ambient temp. 15 to 35 $^{\circ}$ C, Object temp. above 0 $^{\circ}$ C]
Output	Micro HDMI
Operation Temp.	-10~50 $^{\circ}$ C
Storage	Internal 32GB, Micro SD card(External)
Dimension	157mmx87mmx25mm
Weight	375g
Battery	Li-Ion(Internal), 4200mA





# InGaAs SWIR Camera Core

1280 x 1024 10 $\mu$ m

iSE1280-10-CL

iSE1280 is SWIR camera module designed for various inspections such as food quality, material, non-destructive, forgery, etc. This short-wave product will provide an excellent visibility in the far distance of fog and dusty conditions.

## Applications



Detection /  
Surveillance



Material  
inspection



Food  
inspection



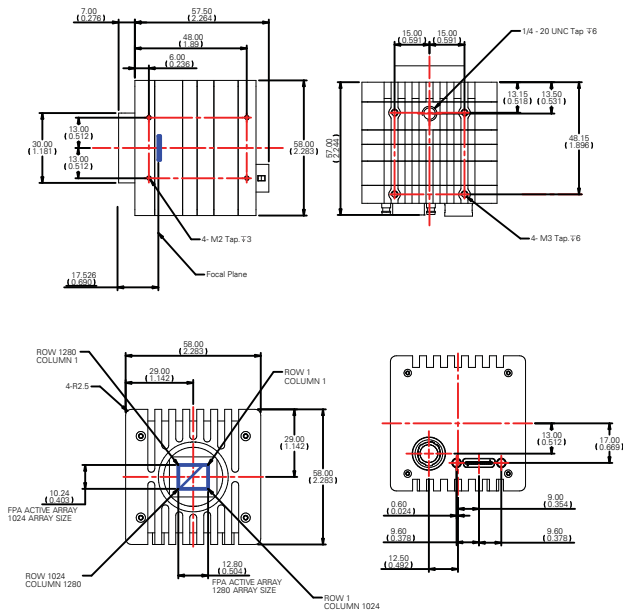
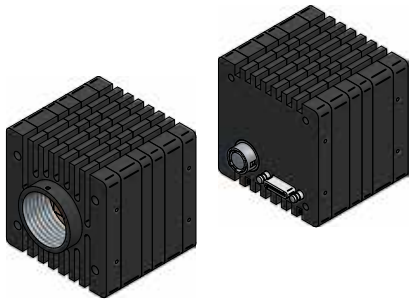
Forgery  
detection



Semiconductor  
inspection

## Specifications

Sensor Type	InGaAs
Array format	1280 x 1024
Pixel Pitch	10 $\mu$ m
Spectral Range	SWIR (0.9 ~ 1.7 $\mu$ m)
Shutter mode	Global Shutter
Readout Noise	$\leq 100e^-$
Quantum Efficiency	70% @ 1550nm
Dark current	19,000 @ 15 $^{\circ}$ C



## SWIR Image





## Catalog



Cooled  
product



Uncooled  
product

## Website



i3system



Thermal Expert



LinkedIn



YouTube



Instagram

## Social Media



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