

SWIR Cameras



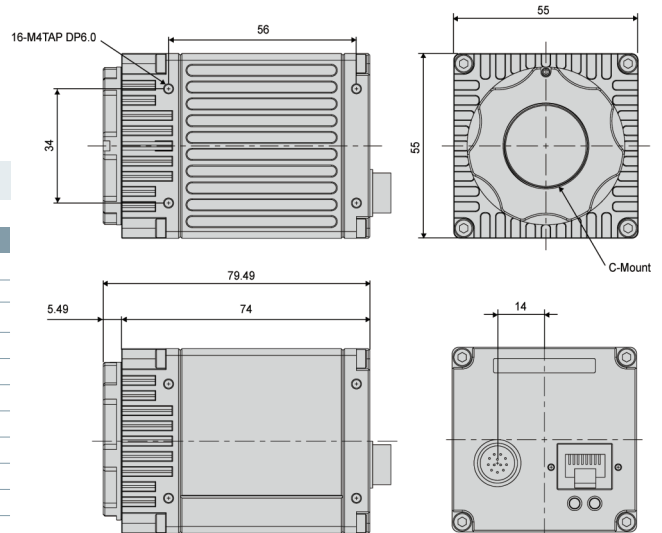
Key Features

- Sony InGaAs SWIR IMX990/992
- Supporting Sensor Cooling Auto Mode (TEC)
- Providing Heat sink for optional

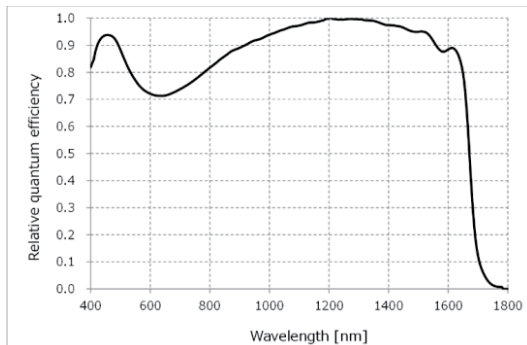
Pin map

No.	Name	IN/OUT	Description
1	GND	IN	Power GND
2	PWR	IN	10.8V ~ 26.4V Input Range
3	GP12_ISO-	IN	Trigger2 GND
4	GP12_ISO+	IN	Opto-Isolated Input, Trigger2 Input
5	GP11_ISO-	IN	Trigger1 GND
6	GP11_ISO+	IN	Opto-Isolated Input, Trigger1 Input
7	GPIO1	IN/OUT	General Purpose I/O 1
8	GND	IN	GPIO GND
9	-	-	-
10	GPIO2	IN/OUT	General Purpose I/O 2
11	PWR	IN	10.8V ~ 26.4V Input Range
12	GND	IN	Power GND

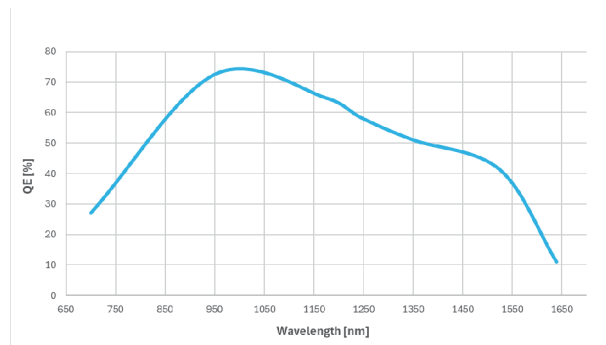
Dimension (Unit : mm)



Spectral Response



InGaAs SWIR

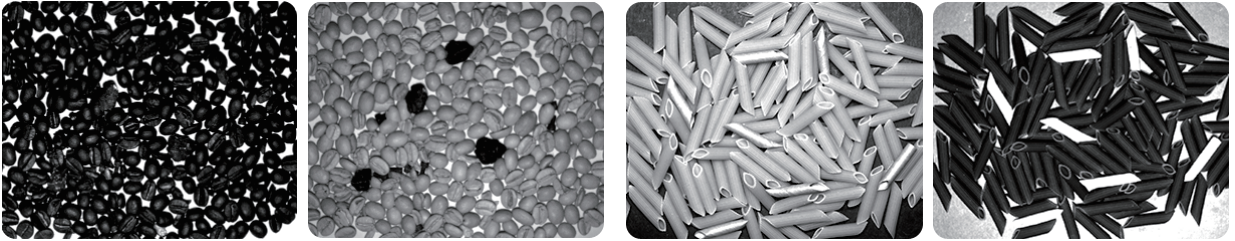


CMOS SWIR

1. 소재 식별 (Material Differentiation)

SWIR 이미징은 가시광에서는 동일해 보이는 물체도 소재 특성에 따라 구분할 수 있습니다.

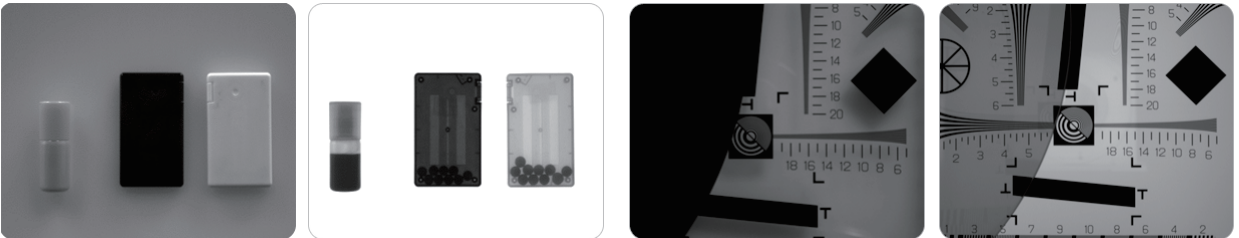
SWIR imaging distinguishes materials that appear identical in visible light by utilizing their unique SWIR absorption and reflection characteristics.



2. 소재 투과 검사 (Material Penetration Inspection)

SWIR 카메라는 실리콘, 웨이퍼, 플라스틱, 안개, 잉크 등을 투과하여 비접촉 검사가 가능합니다.

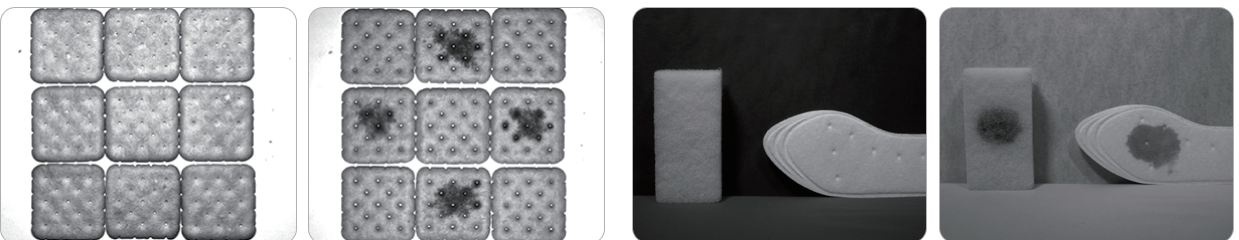
SWIR cameras enable non-contact inspection through materials such as silicone, wafers, plastics, fog, and inks.



3. 수분 검출 (Moisture Detection)

수분은 SWIR 영역에서 어둡게 나타나며, 이를 통해 정확한 수분 검출이 가능합니다.

Moisture strongly absorbs SWIR wavelengths and appears dark in SWIR images, enabling reliable detection.



Model	HG-A130SW	HC-A130SW	HX-A130SW
Sensor	Sony InGaAs SWIR IMX990		
Sensor Size	1/2"		
Optical Filter	900nm Long Pass		
Pixel size (μm)	5 x 5		
Resolution	1296 x 1032		
Frame Rate (Max.)	72fps	134fps	134fps
Scanning Method	Full / ROI / Reverse (X,Y,All) / Decimation (Horizontal + Vertical) / Binning (X,Y,All)		
Synchronization	Internal (Freerun), External, Software trigger via PC		
Trigger modes	Fixed shutter, Pulse width shutter		
Shutter	Global		
Shutter Speed	13us ~ 1sec	7us ~ 3sec	7us ~ 3sec
Gain	Analog : 0dB ~ 6dB (x1 ~ x2, ADC 8bit), 0dB ~ 18dB (x1~x8, ADC 10/12bit) Digital : 0dB ~ 18dB (x1 ~ x8)		
Black Level	Analog : 0 ~ 255 (ADC 8bit), 1023 (ADC 10bit), 4095 (ADC 12bit) Digital : 0 ~ 4095 (12bit)		
Gamma / LUT	Gamma Correction (0 ~ 3.999), Adjustable LUT (12bit to 12bit)		
Auto Gain / exposure	Off / Once / Continuous		
Interface	GigE Vision	CameraLink	CoaXPress-12 / Micro BNC
Pixel Data Format	Mono8/10/12, Mono10/12 Packed	Mono8/10/12	Mono8/10/12
Function Control	GainAuto, ExposureAuto, Acquisition Frame Rate(Adjustable), Line Debouncer, Defective Pixel Correction, Noise Reduction Filter(Only HG-A130SW), Shading Correction(FFC), Sharpness Enhancement, Contrast/Brightness Control, Sensor Cooling Auto		
Lens mount	C mount		
Power requirements	DC 12~24V or PoE	DC 12~24V	DC 12~24V or PoCXP
Consumption DC	< 3.8W (PoE : <3.9W)	< 3.8W	< 7.0W
Weight	< 330g	< 400g	< 400g
Dimension (mm)	55 x 55 x 74 (without mount)		
Temperature	0℃ ~ 40℃ (Operating) / -20℃ ~ 60℃ (with < 20 ~ 80% RH) (Storage))		
Vibration / Shock	98m/s ² (10G) / 196m/s ² (20.0G)		
Standard compliancy	CE (EN61326-1; 2006년; Class A)		
Conformity	RoHS, WEEE, UL, FCC		
Warranty	3 years		

Model	HX-A530SW
Sensor	Sony InGaAs SWIR IMX992
Sensor size	1/1.4"
Optical Filter	900nm Long Pass
Pixel size (μm)	3.45 x 3.45
Resolution	2592 x 2056
Frame Rate (Max.)	131 fps
Scanning Method	Full / ROI / Reverse (X,Y,All) / Decimation (Horizontal + Vertical) / Binning (X,Y,All)
Synchronization	Internal (Freerun), External, Software trigger via PC
Trigger modes	Fixed shutter, Pulse width shutter
Shutter	Global
Shutter speed	1us ~ 3sec
Gain	Analog : 0dB ~ 24dB (x1 ~ x16) Digital : 0dB ~ 18dB (x1 ~ x8)
Black level	Analog : 0 ~ 255 (ADC 8bit), 1023 (ADC 10bit), 4095 (ADC 12bit) Digital : 0 ~ 4095 (12bit)
Gamma / LUT	Gamma Correction (0 ~ 3.999), Adjustable LUT (12bit to 12bit)
Auto gain / exposure	Off / Once / Continuous
Interface	CoaXPress-12 / Micro BNC
Pixel Data Format	Mono8/10/12
Function control	GainAuto, ExposureAuto, Acquisition Frame Rate(Adjustable), Line Debouncer, Defective Pixel Correction, Shading Correction(FFC), Sharpness Enhancement, Contrast/Brightness Control, Sensor Cooling Auto
Lens mount	C mount
Power requirements	DC 12V ~ 24V or PoCXP
Consumption	< 9.0W
Weight	< 400g
Dimension (mm)	55 x 55 x 74 (without mount)
Temperature	0℃ ~ 40℃ (Operating) / -20℃ ~ 60℃ (Storage) (with < 20~80% RH)
Vibration / Shock	98m/s ² (10G) / 196m/s ² (20.0G)
Standard compliancy	CE (EN61326-1:2006년; Class A)
Conformity	RoHS, WEEE, UL, FCC
Warranty	3 years

Model	HG-T130SW
Sensor	CMOS SWIR
Sensor size	2/3"
Optical Filter	900nm Long Pass
Pixel size (μm)	7 x 7
Resolution	1236 x 960
Frame Rate (Max.)	50fps
Scanning Method	Full / ROI
Synchronization	Internal (Freerun), External, Software trigger via PC
Trigger modes	Fixed shutter
Shutter	Global
Shutter speed	100us ~ 200us
Gain	Digital : 0dB ~ 18dB (x1 ~ x8)
Black level	Digital : 0 ~ 4095 (12bit)
Gamma / LUT	Adjustable LUT (12bit to 12bit)
Auto gain / exposure	Off / Once / Continuous
Interface	Ethernet 1000 Base-T (GigE Vision Standard)
Pixel Data Format	Mono8/10/12
Function control	GainAuto, ExposureAuto, Acquisition Frame Rate(Adjustable), Line Debouncer, Defective Pixel Correction, Noise Reduction Filter, Non-Uniformity Correction(NUC) Sharpness Enhancement, Contrast/Brightness Control, Sensor Cooling Auto
Lens mount	C mount
Power requirements	DC 12~24V
Consumption	< 6.0W
Weight	< 400g
Dimension (mm)	55 x 55 x 85 (without mount)
Temperature	0℃ ~ 30℃ (Operating) / -20℃ ~ 45℃ (Storage) (with < 20~80% RH)
Vibration / Shock	98m/s ² (10G) / 196m/s ² (20.0G)
Standard compliancy	CE (EN61326-1:2006년; Class A)
Conformity	RoHS, WEEE, FCC
Warranty	3 years