SWIR Cameras

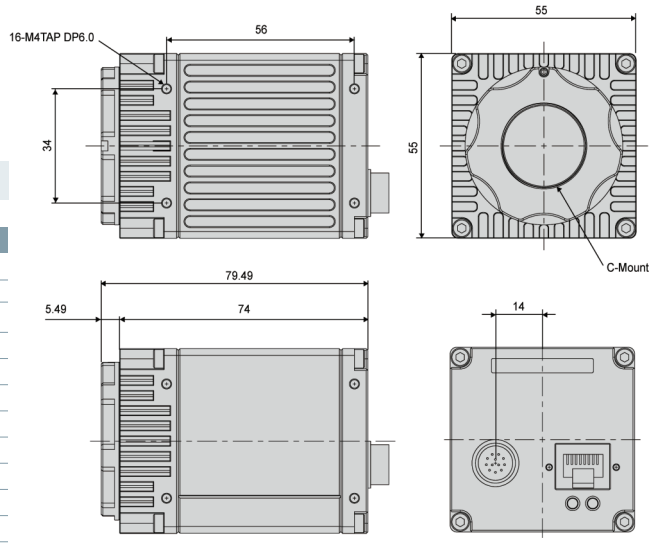




Key Features

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

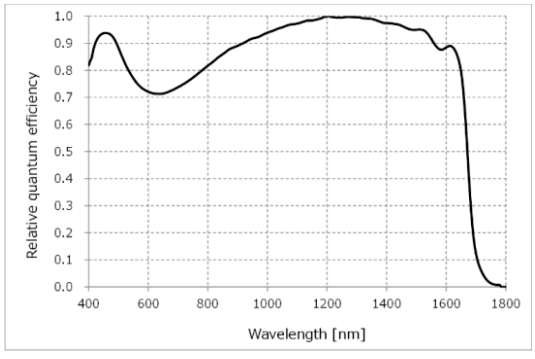
Dimension (Unit : mm)



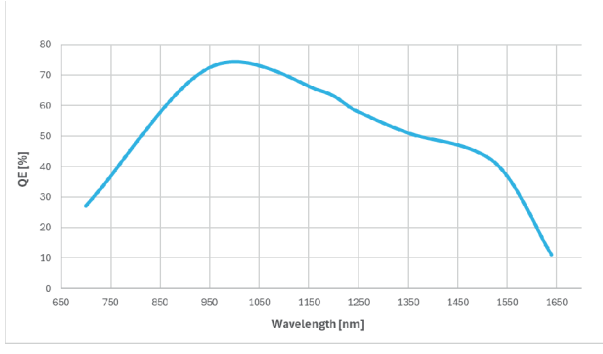
Pin map

No.	Name	IN/OUT	Description
1	GND	IN	Power GND
2	PWR	IN	10.8V ~ 26.4V Input Range
3	GPI2_ISO-	IN	Trigger2 GND
4	GPI2_ISO+	IN	Opto-Isolated Input, Trigger2 Input
5	GPI1_ISO-	IN	Trigger1 GND
6	GPI1_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

Spectral Response



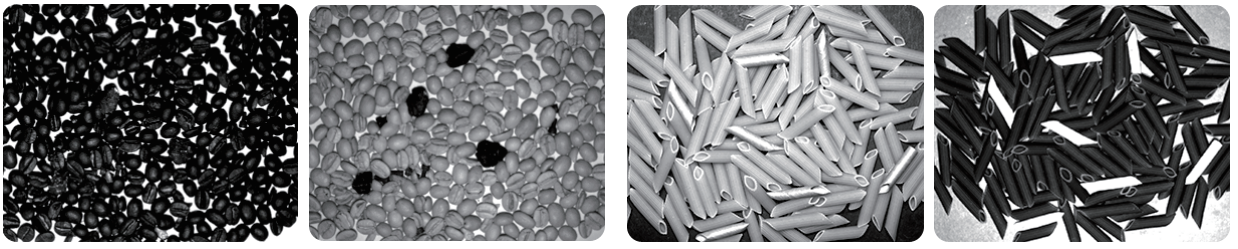
InGaAs SWIR



CMOS SWIR

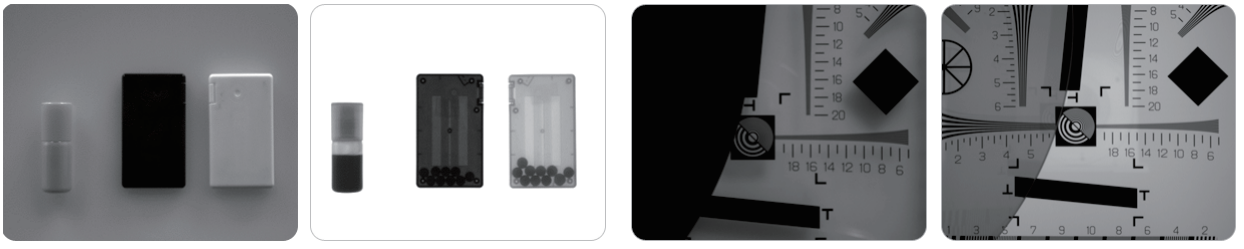
1. 소재 식별 (Material Differentiation)

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.



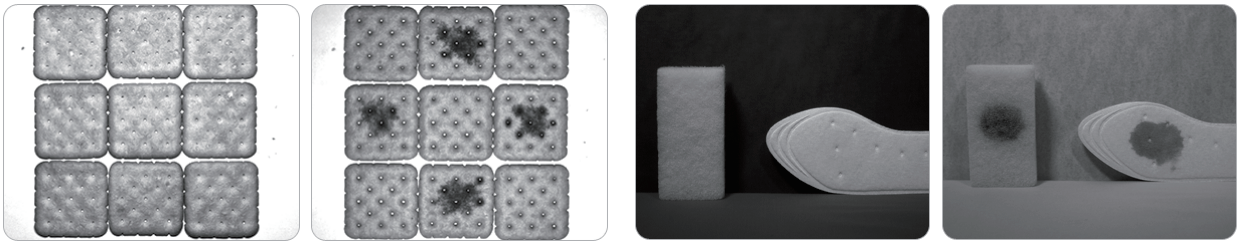
2. 소재 투과 검사 (Material Penetration Inspection)

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.



Subject to change without notice

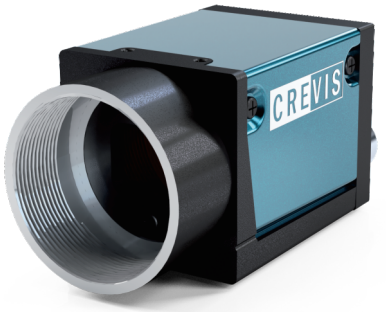
Model	HG-A130SW	HC-A130SW	HX-A130SW
Sensor	Sony InGaAs SWIR IMX990		
Sensor Size	1/2"		
Optical Filter	900nm Long Pass		
Pixel size (㎛)	5 x 5		
Resolution	1296 x 1032		
Frame Rate (Max.)	72fps	134fps	134fps
Scanning Method	Full / ROI / Reverse (X,Y,All) / Decimation (Horizontal + Vertical)	Full / ROI / 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		

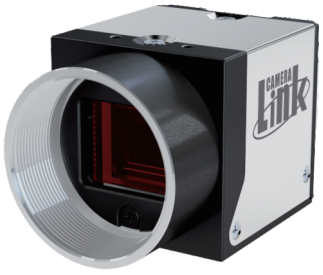
Model	HX-A530SW
Sensor	Sony InGaAs SWIR IMX992
Sensor size	1/1.4"
Optical Filter	900nm Long Pass
Pixel size (㎛)	3.45 x 3.45
Resolution	2592 x 2056
Frame Rate (Max.)	131fps
Scanning Method	Full / ROI / Reverse (X,Y,All) / Decimation (Horizontal + Vertical) / Binning (X,Y,All)
Synchronization	Internal (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/s² (10G) / 196m/s² (20.0G)
Standard compliancy	CE (EN61326-1;2006년; Class A)
Conformity	RoHS, WEEE, UL, FCC
Warranty	3 years

Subject to change without notice

Model	HG-T130SW
Sensor	CMOS SWIR
Sensor size	2/3"
Optical Filter	900nm Long Pass
Pixel size (㎛)	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

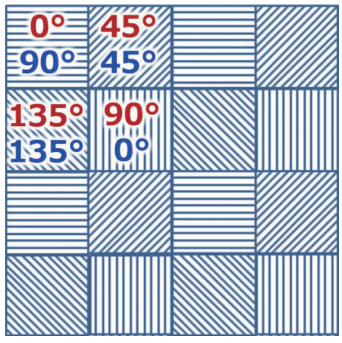
Polarization Cameras





Key Features

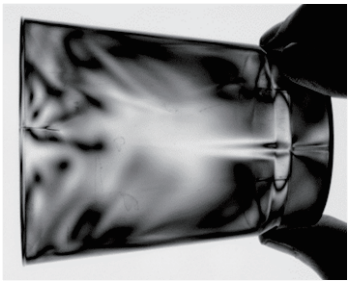
- Sony Polarized CMOS Sensor (IMX264/253MZR)
- Interface : GigE, CameraLink
- Resolution : 5MP, 12MP
- Filtering unwanted reflection or glare
- Enhancing contrast
- Stress inspection



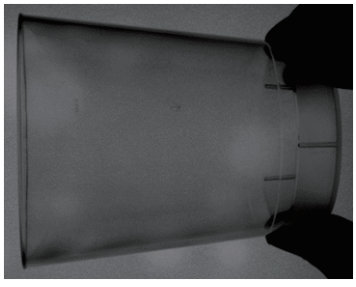
Example Images



Aop



DoIP

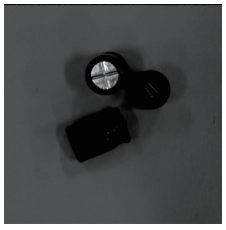
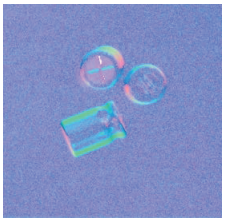


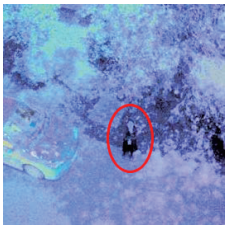
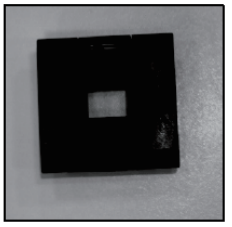
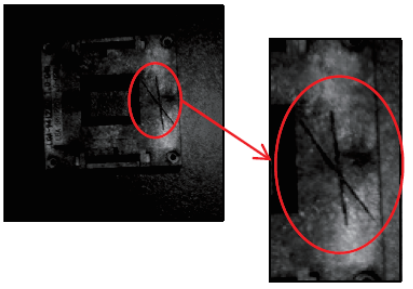
Intensity

Subject to change without notice

Applications

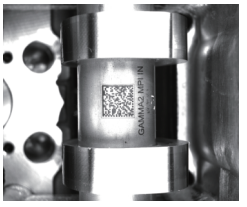
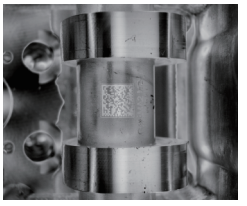
Improving Contrast

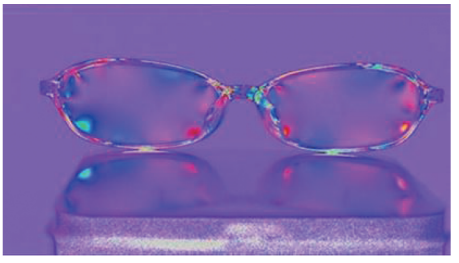




Reduce Reflection

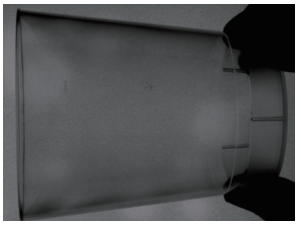
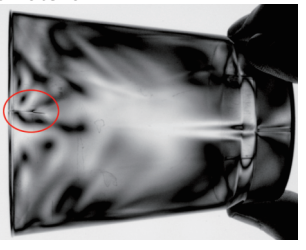


Stress Inspection

Scratch inspection of transparent material

Polarsens

Model		MG-A500P-22	MG-A121P-9
Sensor		Sony CMOS Pregius IMX264MZR	Sony CMOS Pregius IMX253MZR
Sensor size		2/3"	1.1"
Pixel size (㎛)		3.45 x 3.45	
Resolution		2464 x 2056	4112 x 3008
Frame Rate (Max.)		22fps	9fps
Color / Mono		Mono Chrome	
Scanning method		Full / ROI / Reverse (x, y, all)	
Synchronization		Internal (Freerun), External, Software trigger via PC	
Trigger modes		Fixed shutter, Pulse width shutter	
Shutter		Global	
Shutter speed		1us ~ 3sec (Exposure Offset : 별도)	
Gain		Analog : 0dB ~ 32dB (1x ~ 39.8x) Digital : 0dB ~ 24dB (1x ~ 16x)	
Black level		Analog : 0 ~ 4095 (12bit) Digital : 0 ~ 4095 (12bit)	
Gamma / LUT		Gamma Correction, 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, Mono10/12 packed	
SNR		36dB	39dB
Function control		GainAuto, ExposureAuto, Acquisition Frame Rate (Adjustable), Line Debouncer, Noise Reduction Filter	
Lens mount		C mount	
Power requirements		DC 12V ± 10% or PoE (Power over Ethernet 802.3af compliant)	
Consumption	DC	< 3.4W	< 3.6W
	PoE	< 3.85W	< 4.1W
Weight		< 60g	
Dimension (mm)		29 x 29 x 40 (without mount)	
Temperature		0℃ ~ 40℃ (Operating) / -10℃ ~ 50℃ (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	

Subject to change without notice

Polarsens

Model		MC-A500P-163	MC-A121P-67
Sensor		Sony CMOS Pregius IMX 250MZR	Sony CMOS Pregius IMX253MZR
Sensor size		2/3”	1.1”
Pixel size (㎛)		3.45 x 3.45	
Resolution		2464 x 2056 / 10Tap : 2440 x 2056	4096 x 3000 / 10Tap : 4080 x 3000
Frame Rate (Max.)		163fps	67fps
Color / Mono		Mono Chrome	
Scanning method		Full / ROI / Reverse (x, y, all)	Full / ROI / Reverse (x, y, all)
Synchronization		Internal (Freerun), External (CC1 ~ CC4), Software trigger via PC	
Trigger modes		Timed, Trigger width	
Shutter		Global	
Shutter speed		1us ~ 3sec (Exposure Offset : 별도)	
Gain		Analog : 0dB ~ 24dB (1x ~ 15.8x) Digital : 0dB ~ 18dB (1x ~ 8x)	
Black level		Analog : 0 ~ 255 (ADC 8bit) 0 ~ 1023 (ADC 10bit) 0 ~ 4095 (ADC1 2bit) Digital : 0 ~ 1023 (10bit)	
Gamma / LUT		Gamma Correction, Adjustable LUT (10bit to 10bit)	
Auto gain / exposure		Off / Once / Continuous	
Interface		Mini CameraLink™, PoCL	
Pixel data formats		Mono8/10, Bayer8/10, RGB8 Polarization, RGB8 Degree	
Data Output Format		AoP, DoIP, Intensity(S0), 0 degree, 45 degree, 90 degree, 135 degree	
SNR		44dB	
Function control		Acquisition Frame Rate (Adjustable), Noise Reduction Filter	
Lens mount		C mount	
Power requirements		DC 12V ~ 24V ± 10% or PoCL	
Consumption	DC	< 3.2W	< 3.6W
	PoCL		
Weight		< 47g	
Dimension (mm)		29 x 29 x 29 (without mount)	
Temperature		0℃ ~ 45℃ (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	
Warranty		3 years	

3CMOS Cameras



Key Features

- Sony Pregius IMX273 (x3)
- High frame rate and advanced color fidelity
- Acquisition of each pixel of RGB values
- * Accurate color values and better resolution as no interpolation process

Pin map

No.	Name	IN/OUT	Description
1	GND	IN	-
2	PWR	IN	10.8V ~ 26.4V Input Range
3	-	-	-
4	-	-	-
5	Trigger -	IN	Opto-Isolated Trigger Input-
6	Trigger +	IN	Opto-Isolated Trigger Input+(2.5V~24V)
7	GPIO_0	IN/OUT	TTL / Input : 3.3V ~ 24V / Out : 3.3V
8	GND	IN	GPIO GND
9	-	-	-
10	GPIO_1	IN/OUT	TTL / Input : 3.3V ~ 24V / Out : 3.3V
11	PWR	IN	10.8V ~ 26.4V Input Range
12	GND	IN	-

Dimension (Unit : mm)

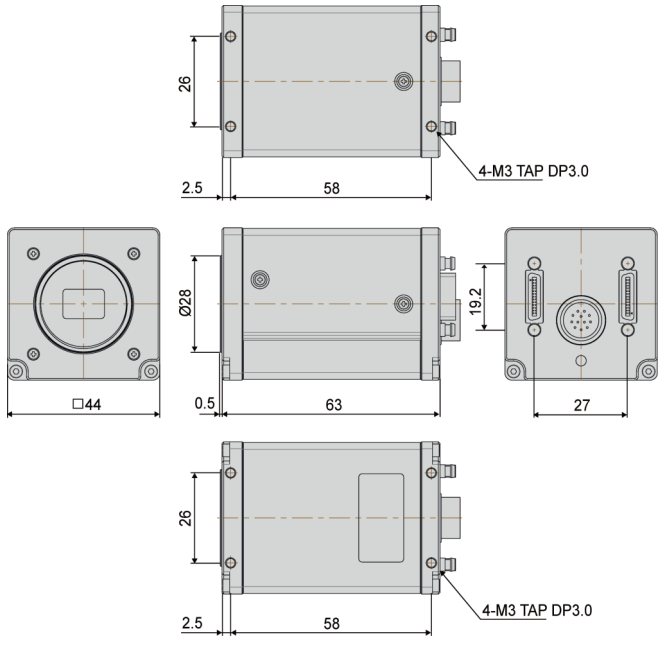
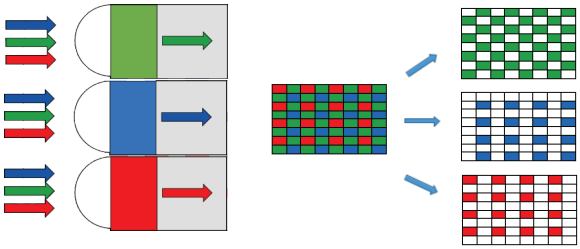
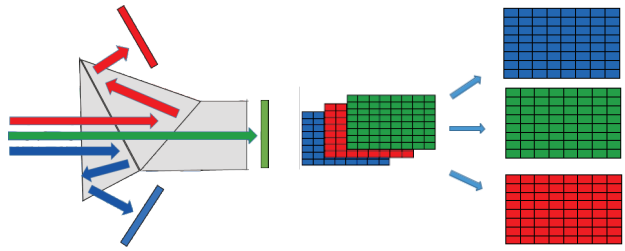


Image Acquisition Method

Single Bayer Sensor



3CMOS Sensor



Subject to change without notice

Model		TC-A160K-102
Sensor		Sony CMOS Preigus IMX273
Sensor size		1/2.9”
Pixel size (㎛)		3.45 x 3.45
Resolution		1456 x 1088
Frame Rate (Max.)		102fps
Color / Mono		Color
Scanning method		Full / ROI (Horizontal + Vertical) / Reverse (X,Y,All) / Decimation (X,Y,All) / Binning (Y,All)
Synchronization		Internal (Freerun) or External (CC1 ~ CC4 / Optocoupler In x 1 / GPIO (TTL) x 2 / Software)
Trigger modes		Fixed shutter, Pulse width shutter
Shutter		Global
Shutter speed		1us ~ 3sec (Exposure Offset : 별도)
Gain		Analog : 0dB ~ 36dB (1x ~ 63.1x)
Black level		Analog : 0 ~ 255 (ADC 8bit) 0 ~ 1023 (ADC 10bit) 0 ~ 4095 (ADC 12bit)
Gamma / LUT		Gamma Correction (0 ~ 3.999), Adjustable LUT (12bit to 12bit)
Auto white balance		Off / Once / Continuous
Auto gain / exposure		Off / Once / Continuous
Interface		Mini CameraLink™, PoCL
Pixel Data Format		RGB8/RGB10/RGB12
SNR		35dB
Function control		GainAuto, ExposureAuto, BalanceWhiteAuto, Acquisition Frame Rate (Adjustable), Line Debouncer, Defective Pixel Correction, Shading Correction (FFC), Color Transformation Control, NoiseReduction
Lens mount		C mount
Power requirements		DC 12V ~ 24V ± 10% or PoCL
Consumption	DC	< 4.5W
	PoCL	
Weight		< 163g
Dimension (mm)		44 x 44 x 63 (without mount, Connector)
Temperature		-5℃ ~ 45℃ (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
Warranty		3 years