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CAMERA LINK InGaAs NIR CAMERA
ARTCAM-990SWIR-TEC-CL
INSTRUCTION BOOKLET

1. Specifications

1.1. Specification

MODEL	ARTCAM-990SWIR-TEC
Sensor Type	1.3MP InGaAs Image Sensor
Sensor Model	SONY IMX990-AABA-C
Image sensor cooling function	Electronic cooling (≤15° C)
Actual Pixel Array	1296(H) × 1032(V)
Effective Pixel Array	1280(H) × 1024(V)
Pixel Pitch	5[μm] × 5[μm]
Image Size	6.4[mm] × 5.12[mm] (Diagonal length: 8.2[mm], 1/2")
Spectral Range	400nm~1700nm
Shutter type	Global Shutter
S/N Ratio	51dB (for reference only)
A/D Resolution	12bit
Interface	Camera Link (Base Configuration)
Output Bit Depth	12bit
Frame Rate	72fps (12bit)
Shutter Speed	20.3μsec. ~ 2sec.
Gain (Analog/Digital)	0～420 ※Default value：0 (0～42[dB] ※Default value：0[dB])
ROI Sub-sampling (1/2)	ON/OFF ※Default value：OFF ROI： Vertical only（Horizontal only available on software） Sub-sampling: 1/2
Trigger	ON/OFF ※Default value：OFF
Mirroring	ON/OFF ※Default value：OFF Vertical and Horizontal
Synchronization System	Internal Synchronization
Lens Mount	C Mount
External I/O terminal	HR10A-7R-6S(73) (HIROSE)
Power	DC12V External Input
Power Consumption	Under Approx.11W
Ambient Conditions	Operating Temperature/Humidity: 10~40° C / 10~80%（Non-condensing） Storage Temperature/Humidity: 0~60° C /10~95%（Non-condensing）
External Dimensions	71.6(W)x61.5(H)x78.0(D)mm ※Lens, Tripod mount and cables not included
Weight	About 440g

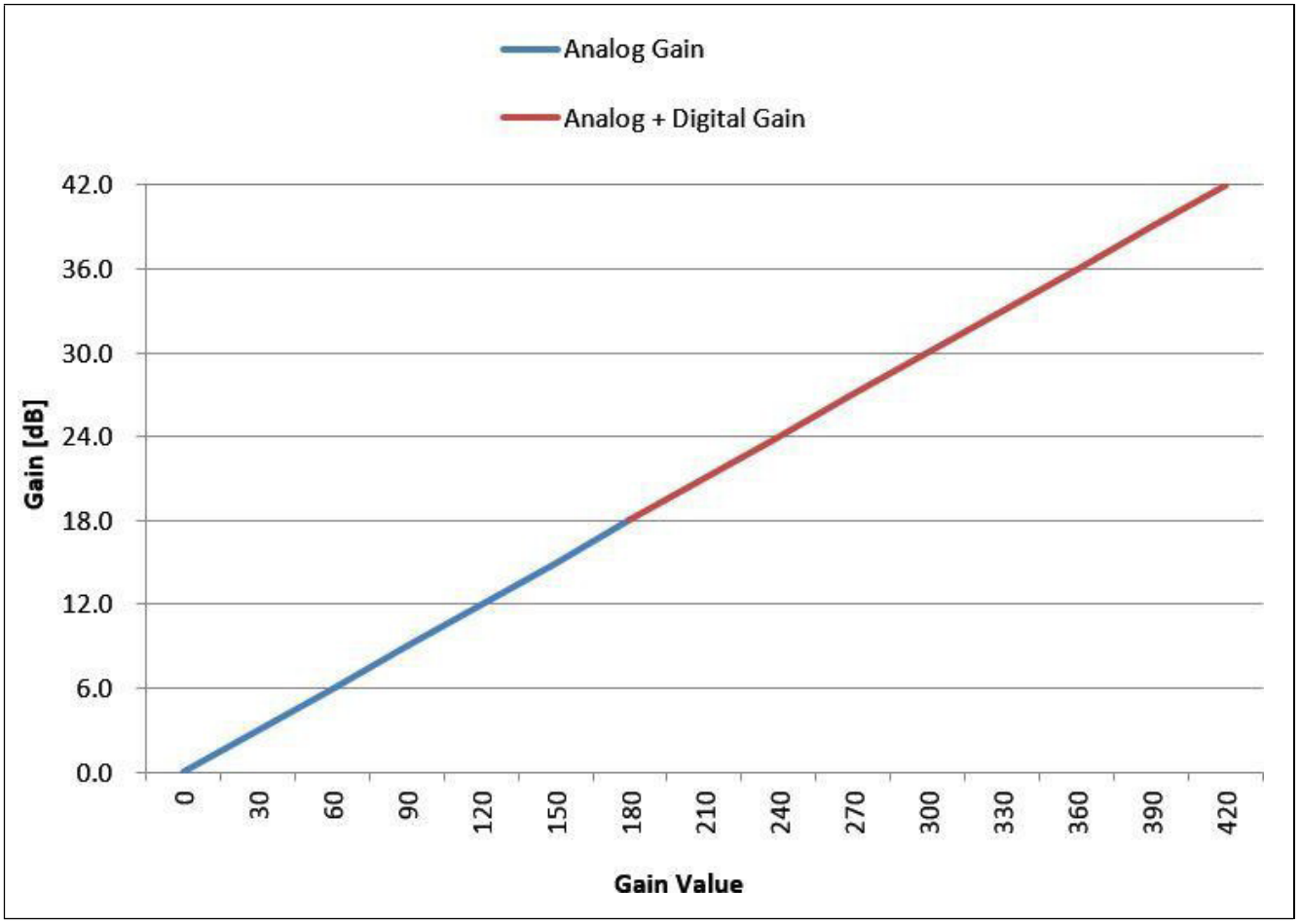
1.1.1. Analog / Digital Gain Settings

ARTCAM-990SWIR-TEC is compatible with analog and digital gain.
Setting value of gain on software can be set from 0 ~ 420, and the gain will change from 0.0dB ~ 42.0dB accordingly. Gain can be calculated by the following formula:

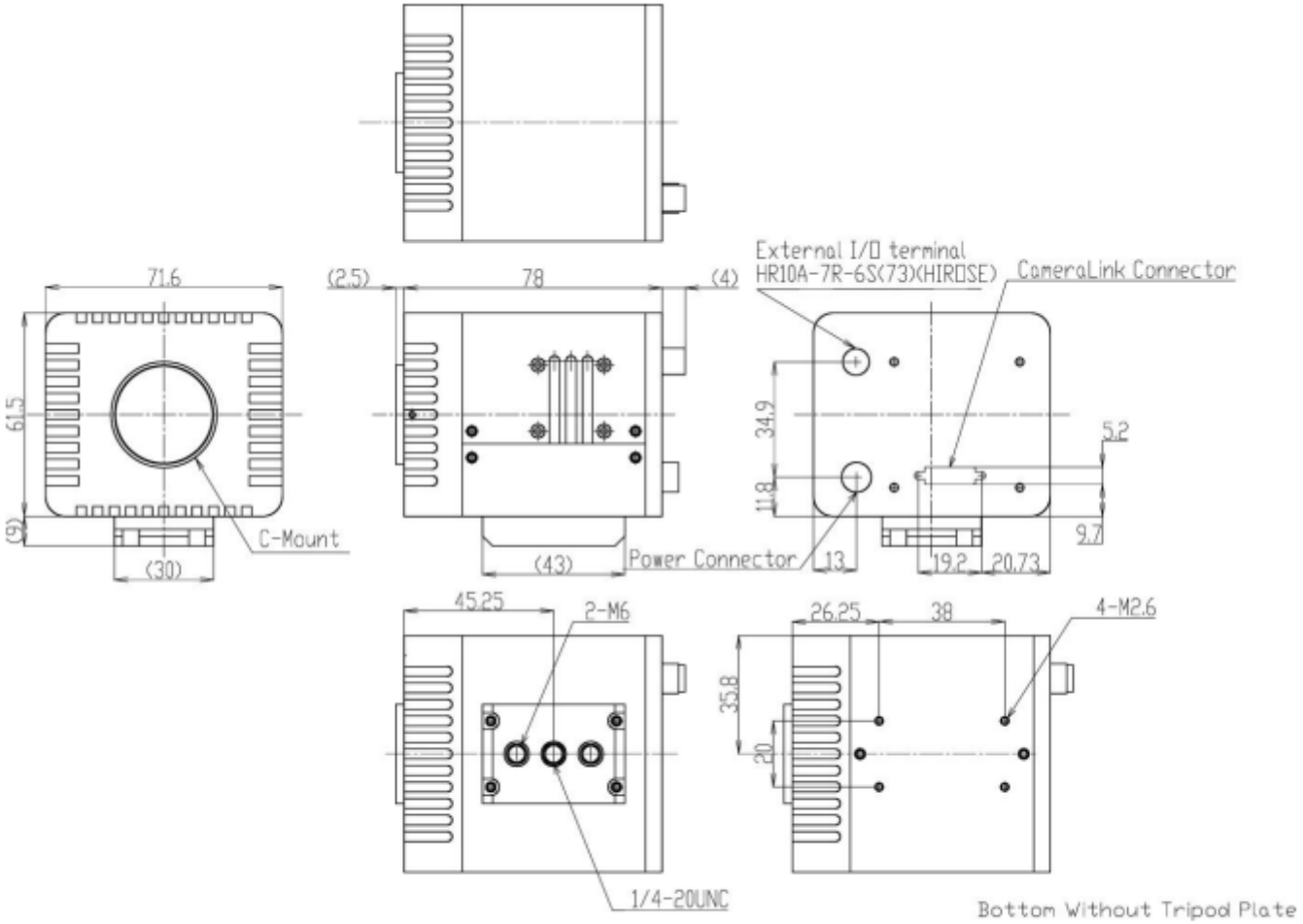
$$Gain[dB] = value / 10.0[dB]$$

Digital gain will activate when setting value of gain > 180.

The graph below shows the relationship between setting value of gain and its magnification[dB].

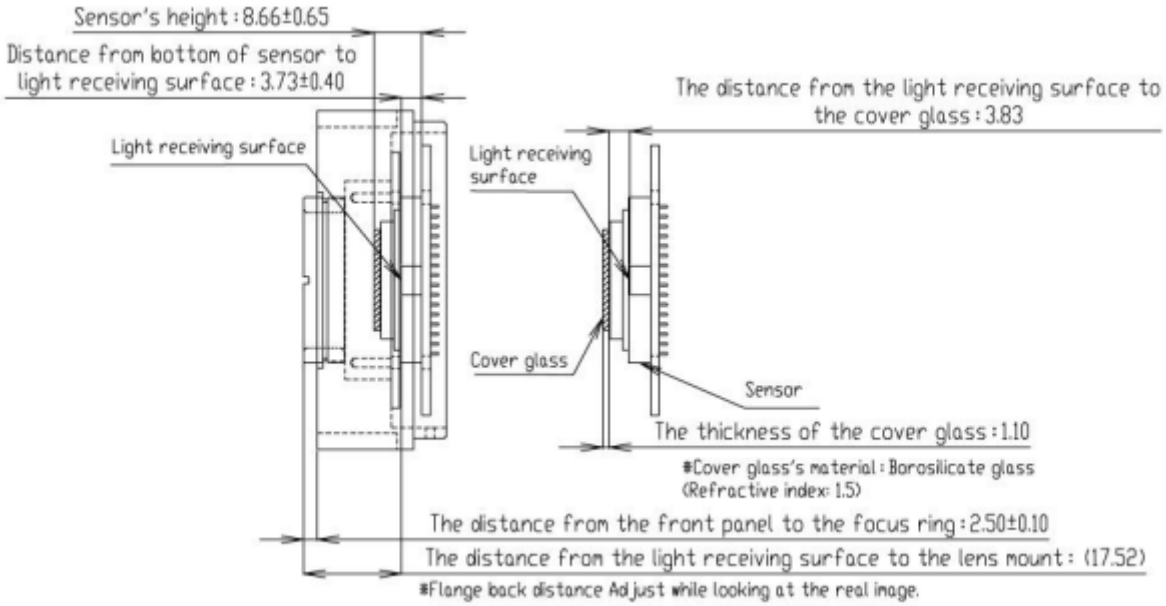


1.1.2. Dimensional Outline

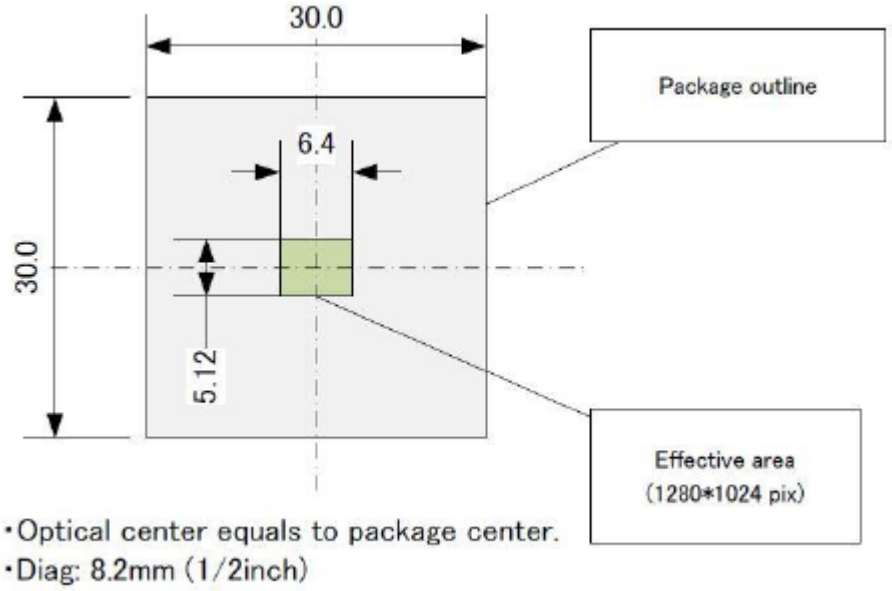


Drawing of the base without a tripod mount

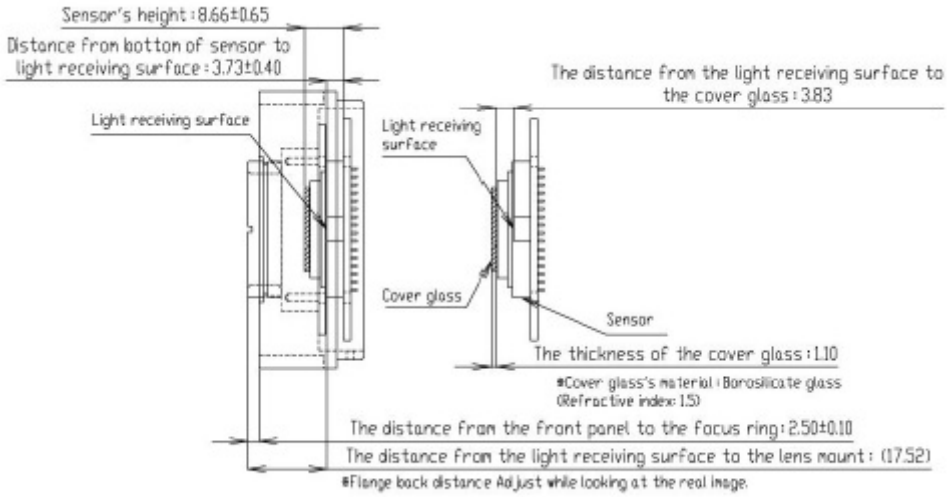
1.1.3 Sensor Package Information



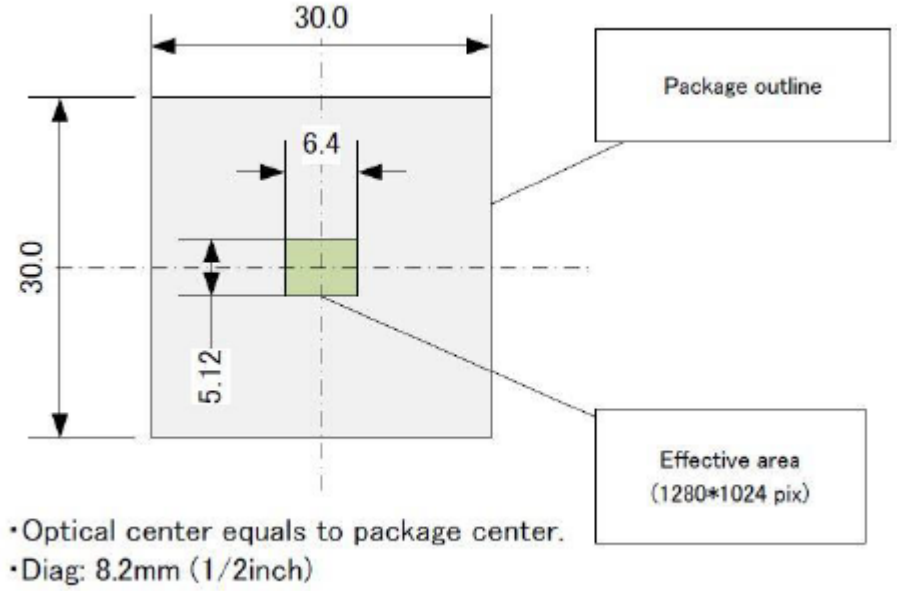
1.1.4 Sensor Position and the Light Receiving Surface



1.1.5 Sensor Package Information

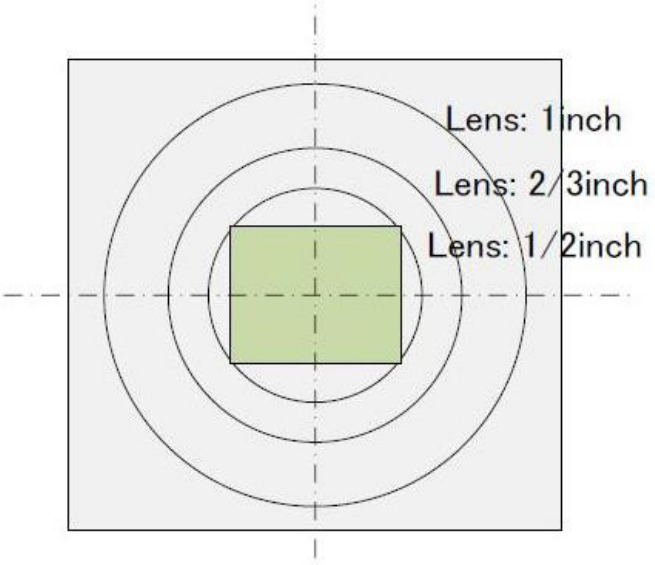


1.1.6 Sensor Position and the Light Receiving Surface



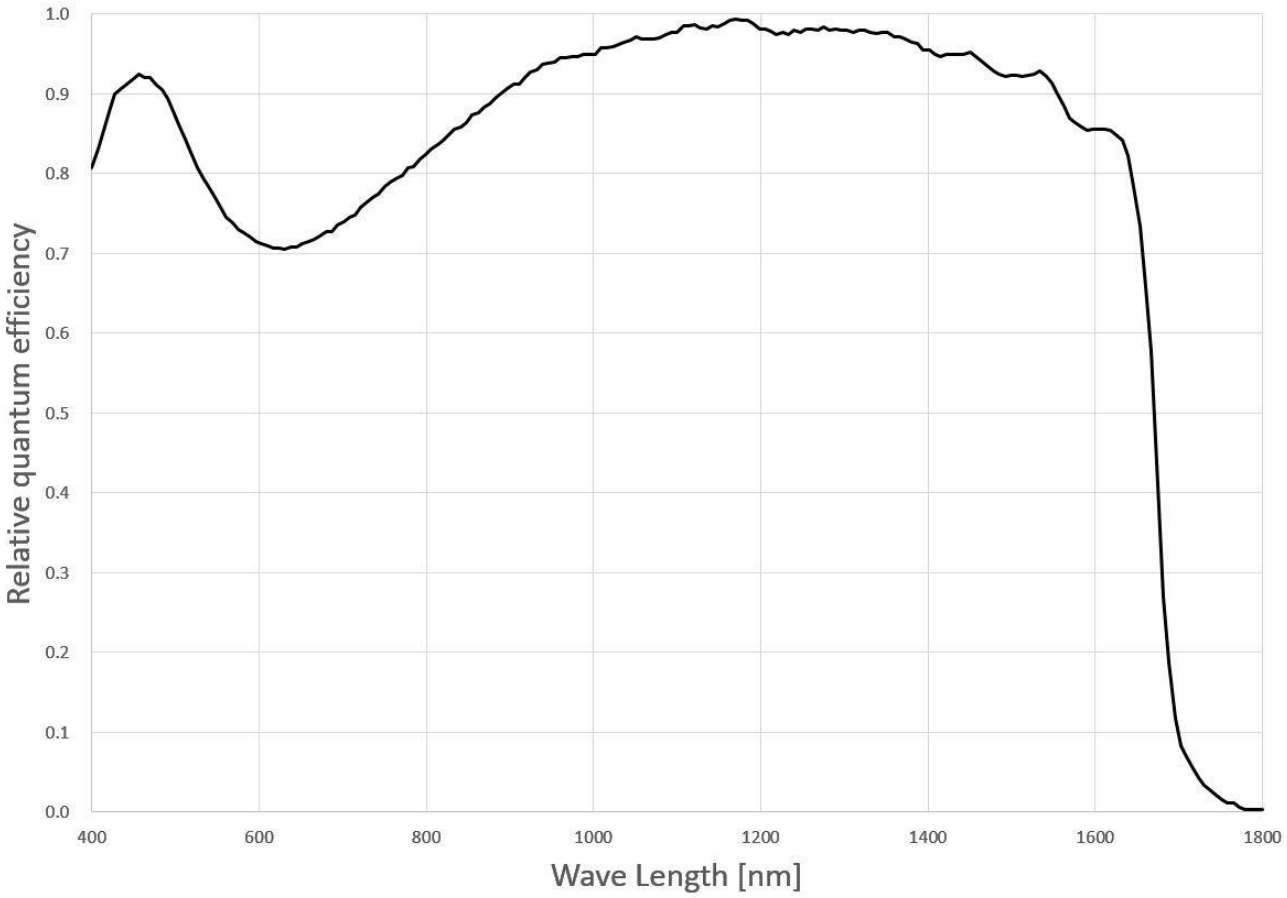
H = 5[um] * 1280 = 6400 [um]
V = 5[um] * 1024 = 5120

1.1.7 Field of Vision: Lens versus Sensor（For Reference Only）



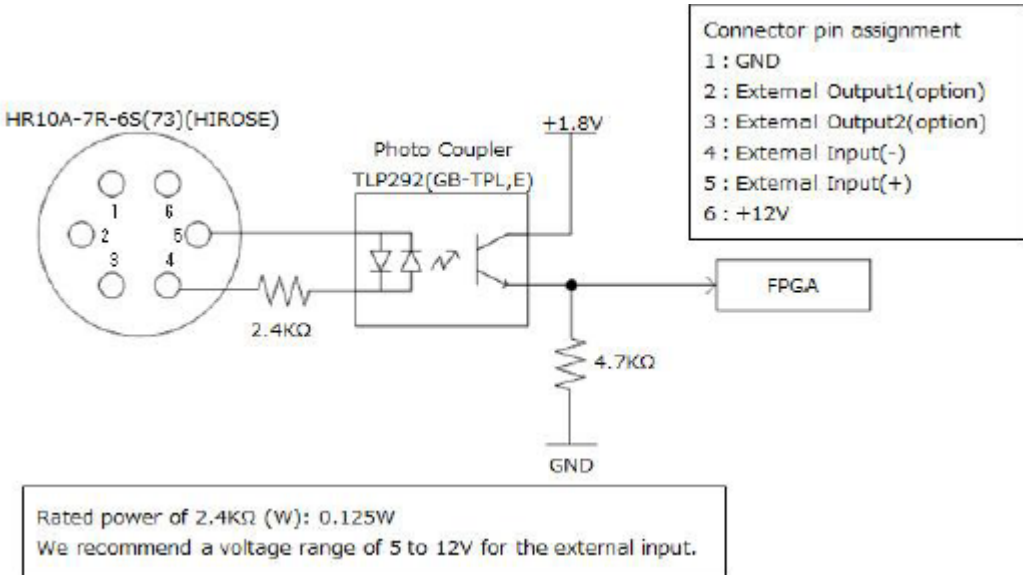
※The ratios of sensor size (diagonal) to lens size in the above illustrations are as follows:
1/2 inch = φ8mm, 2/3 inch = φ11mm, 1 inch = 15.8mm.
Please note that the actual field of view varies depending on different lens.

1.2. Spectral Sensitivity Characteristics

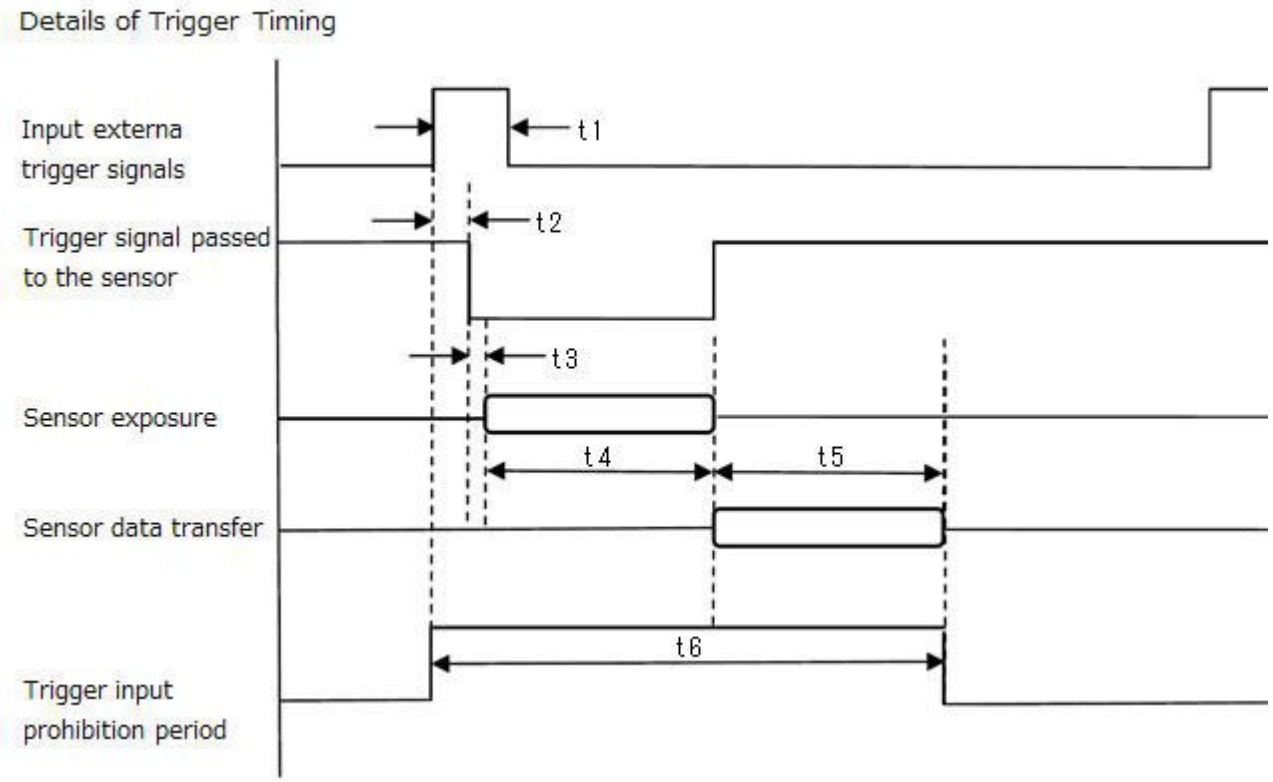


1.3. External Trigger Function (Option)

This camera has an external trigger electronic circuit, which is insulated by a photocoupler, and thus enables synchronized shooting by the input signal received from the external circuit.



1.4. Trigger Timing



	items	Required time
t1	Effective trigger input pulse	>10 μ sec.
t2	From the rise of the external trigger input to the fall of the trigger signal passed to the sensor (Delay due to the photocoupler)	<1 μ sec.
t3	From the fall of the trigger signal passed to the sensor to the start of exposure	Max 0.13 μ s
t4	Exposure time	Exposure time = The setting value of the Shutter speed*1H
t5	Time required for data transfer (from the sensor to the FPGA)	(9+Effective Vertical pixels)*1H
t6	Trigger input prohibition period	t2+t3+t4+t5

※1H = 12.96 μ sec.

※When input triggers continuously, please ensure that the trigger interval is more than t6.

2. System Requirements

- Camera Link Frame Grabber It has been confirmed to work with boards manufactured by EPIX, Teledyne DALSA, National Instruments, and Aval Data.
- All models made by EPIX have been confirmed to work, but other manufacturers have confirmed the operation of only some models.
- Please confirm with us if you are using different grabber.
- PC Please confirm the recommended requirement of the Camera Link frame grabber.