

# ICMOS Camera



## Model Number

ICMOS Camera : ICMOS-LIBS-1

## Specification

●カメラ部仕様

Image sensor		CMOS image sensor
Number of effective pixels		1920(H) × 1200(V)
Pixel size [ $\mu\text{m}$ ]		5.86(H) × 5.86(V)
Effective element size [mm]		11.25(H) × 7.03(V)
Sub-array	Number of readout pixels	
	$\{2\sim 1920(\text{H})\} \times \{2\sim 1200(\text{V})\}$ (When digital binning is off) $\{1\sim 960(\text{H})\} \times \{1\sim 600(\text{V})\}$ (When digital binning is on)	
Step size [Pixel]	Offset / Width (Horizontal / vertical)	Horizontal / vertical : 1 (When digital binning is off)
		Horizontal / vertical : 2 (When digital binning is on)
Exposure time	Internal sync mode	
	External trigger mode	Edge trigger Start trigger
		Level trigger Readout synchronization
A/D converter resolution		12bit
Interface		USB3.0

- Fastest frame rate

All pixels read out {1920(H) × 1200(V)}	64.9[frame/ sec]
Digital binning {960(H) × 600(V)}	64.9[frame/ sec]
Sub-array (When digital binning is off, At 2-line readout)	2008.9[frame/ sec]

● Image intensifier unit

- Gate Specifications

Input	level	TTL positive logic
	Impedance	50Ω
Gate mode	Setting method	Depends on gate signal input pulse width
	Gate time	100ns~DC
	Repetition frequency (Max.)	30kHz

- Image intensifier section specifications

Input	Mount		C mount
	Flange Back		17.526mm
	Face Size		Φ 18mm
Photocathode	Window material		Borosilicate Glass
	Material		GaAsP
	Effective area		12.8 × 9.6 [mm]
	Spectral response range		280~720nm
	Max. radiant sensitivity wavelength range		530~580nm
	Lumen sensitivity	Minimum value	400 μ A/lm
		Standard value	700 μ A/lm
	Radiation sensitivity ※1	Standard value	214mA/W
Quantum efficiency ※1	Standard value	50%	
Gain	Number of MCP stages		1 sheet
	Intensity	Minimum value	$1.0 \times 10^4$ [(lm/m <sup>2</sup> )/lx]
		Standard value	$2.2 \times 10^4$ [(lm/m <sup>2</sup> )/lx]
Equivalent background input ※1	Standard value	$8.0 \times 10^{-15}$ [W/cm <sup>2</sup> ]	
Central limit resolution	Minimum value	51Lp/mm	

	Standard value	64Lp/mm
Image magnification		1.0
Output	Window material	FOP
	Fluorescent material	P43
	Relay lens magnification	3 : 2

※ 1 Value at the highest sensitivity wavelength of the radiant sensitivity

## ● Pulse Delay Generator Specifications

### • General

Trigger	Trigger mode		internal	external
	Input Channel		—	1
	Input Terminal		—	BNC-R
Output	Number of channels	Trigger	1	
		Pulse	3	
	Output terminal		BNC-R	

### • Trigger Input

Signal level		TTL
Logic level		Positive logic / Negative logic (selectable)
Minimum pulse width		10ns
Impedance		1 k $\Omega$
Frequency Range	Min.	0.1Hz
	Max.	200kHz
Pressure resistance		5 V

### • Trigger Output

Signal level		4.5V ※3
Logic level		Positive logic / Negative logic (selectable)
Pulse width		100ns
Impedance		10 $\Omega$
External trigger delay time		14 ± 2[ns]

• Output pulse (A · B · C)

Signal level		4.5V ※2	
Logic level		Positive logic / Negative logic (selectable)	
Frequency Range	Min.	0.05Hz ※3	
	Max.	200kHz	
Pulse width setting ※4	Min.	5ns	
	Max.	20.45s	
	Setting resolution	10ns	
Delay time setting ※4	Min.	0ns	
	Max.	20.45s	
	Setting resolution	10ns	
Burst operation ※4 ※5	Pulse width setting	Min.	5ns
		Max.	13.63s
	Pulse interval setting	Min.	200ns
		Max.	20.45s
Pulse number setting (Max.)		1~255 time	
Initial delay time ※6	Output A · Output B		60 (Typ.) [ns]
	Output C		70 (Typ.) [ns]
Jitter	Internal trigger mode		1.0 以下[ns]
	External trigger mode		2 以下[ns] ※7
Rise/fall time ※8			5 以下[ns]

※2 At 50Ω load

※3 When using internal time base. Number of valid setting digits is 3 digits.

※4 When set to 10 μs or more, the resolution is reduced.  
The effective number of setting digits is 3 digits.

※5 Output C only

※6 Standard value of delay time for input trigger pulse.

※7 If the repetition frequency is 1 kHz or higher, 10 ns or less.

※8 10% to 90% of amplitude (at 50 Ω load).

● Operating environment conditions

Ambient operating temperature	0~40°C
Ambient storage temperature	-10~50°C
Operating and storage ambient humidity	70% or less (no condensation)

## Dimensions

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