

Converting Photomultiplier Tube Output Into Digital Signal Wide Dynamic Range Prescaler Incorporated

The C3866 is a photon counting unit which converts photomultiplier tube output to 5 V digital signal by using an amplifier/discriminator.

By connecting a pulse counter to the C3866, photon counting with high S/N ratio will be simply performed. Since the C3866 employs a high speed circuit, there is no pulse overlapping in the output range up to 10^7 cps, thus high-precision photometry with a wide dynamic range is possible. Because of the incorporated prescaler (division by 10), the C3866 is operatable with a normal counter.

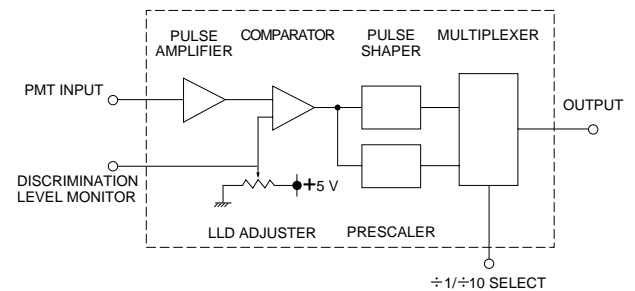


SPECIFICATIONS

GENERAL

Parameter	Description/Value	Unit	
Input Impedance	50	Ω	
Discrimination Level (Converted into input)	-0.5 to -16	mV	
Gain Requirer of PMT ③	Rise Time (in ns) of PMT	—	
Prescaler ⑤	$\div 1, \div 10$	—	
Pulse Pair Resolution	$\div 1$	25	ns
	$\div 10$	10	
Output Pulse ④	C-MOS 5V	—	
Pulse Width	$\div 1$	10	ns
	$\div 10$	Depending on count rate	
Connectors	Input	BNC	—
	Output	BNC	—
	Remote	BNC	—
	Power Supply ⑥	HIROSE SR30-10R-4S	$^{\circ}\text{C}$
Size (W×H×D)	88×170×32	mm	

Figure 1: Block Diagram



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MAXIMUM RATING(Absolute Maximum Values)

Parameter	Value	Unit	
Maximum Count Rate (Random Pulse:-10% down)	$\div 1$	4	Mcps (Typ.)
	$\div 10$	10	
Supply Voltage	+5.2V \pm 0.2V, 150 mA -5.2V \pm 0.2V, 300 mA	—	
Operating Temperature	0 to +50	$^{\circ}\text{C}$	
Storage Temperature	-40 to +70	$^{\circ}\text{C}$	

NOTE: ③: (Example) Rise Time: 10 ns
 $10 \text{ (ns)} \times 10^6 = 1 \times 10^7$
 Required Gain of PMT : 1×10^7

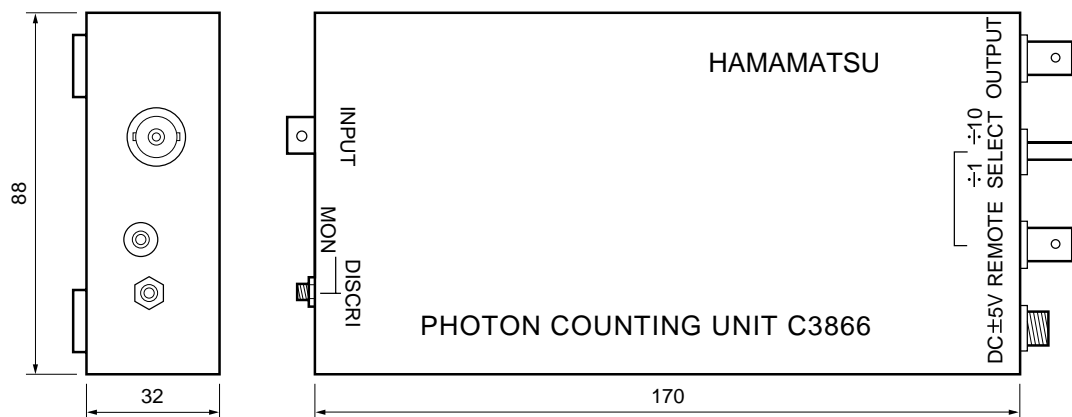
⑤: Selectable by the switch or remote control

④: The output stage is ADVANCED C-MOS (National Semiconductor 74AC153)

⑥: Amating plug with cable will be supplied with C3866(1m)

PHOTON COUNTING UNIT C3866

Figure 2: Dimensional Outline (Unit:mm)



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TPHO1009E02
SEP. 1997