



C13001-01

## Fiber coupling type, low-light-level detection

The C13001-01 is a photon counting module that can detect low-level light. It consists of a TE-cooled single pixel photon counter (SPPC), amplifier, comparator, high-voltage power supply circuit, and temperature controller. This product is a fiber coupling type module. You can simply supply external power ( $\pm 5$  V) to use this module.

### Features

- Fiber coupling type
- Built-in single pixel photon counter
- High short-wavelength sensitivity
- Low dark count

### Applications

- Low-light-level measurement
- Particle diameter measurement
- Fluorescence measurement
- Analytical instruments

### Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Supply voltage	Vs		$\pm 6$	V
Operating temperature	T <sub>opr</sub>	No dew condensation*1	-10 to +40	°C
Storage temperature	T <sub>stg</sub>	No dew condensation*1	-20 to +70	°C

\*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

### Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage*2	Positive power supply	4.75	5	5.25	V
	Negative power supply	-4.75	-5	-5.25	

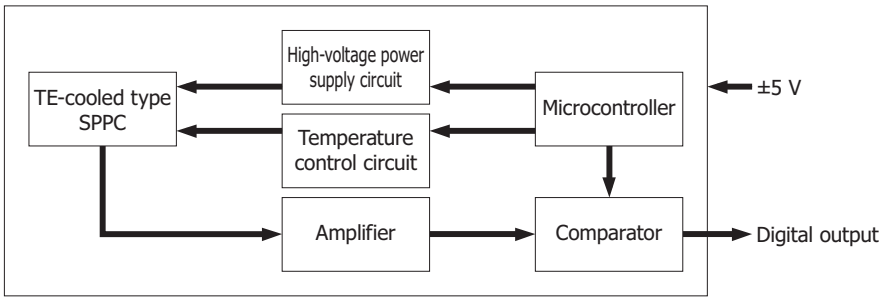
\*2: A power supply with 1 A or higher output must be used.

### Electrical and optical characteristics (T<sub>a</sub>=25 °C, $\lambda$ =450 nm, V<sub>s</sub>= $\pm 5$ V, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	$\lambda$			370 to 900		nm
Peak sensitivity wavelength	$\lambda_p$		-	450	-	nm
Fiber connector*3	-			FC type		-
Chip temperature (setting temperature)	T <sub>chip</sub>		-	-20	-	°C
Photon detection efficiency	PDE		35	45	-	%
Dark count	CD		-	7	25	cps
Afterpulse probability	-	100 ns to 500 ns	-	0.1	-	%
Comparator output	-			TTL compatible		-
Current consumption	+5 V		-	+200	+1000	mA
	-5 V		-	-20	-40	

\*3: Recommended fiber: GI 50/125 multimode fiber

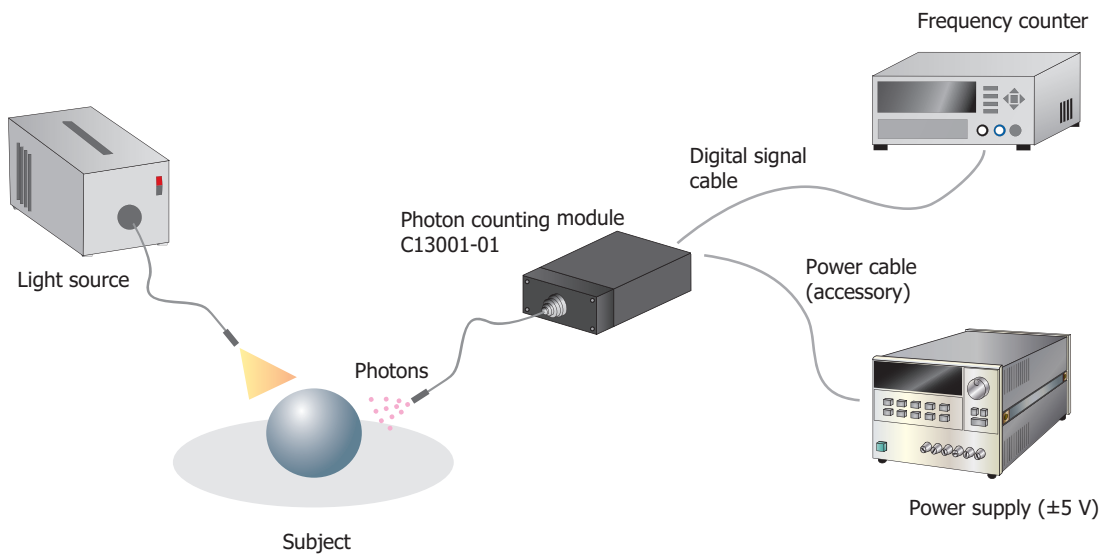
**Block diagram**



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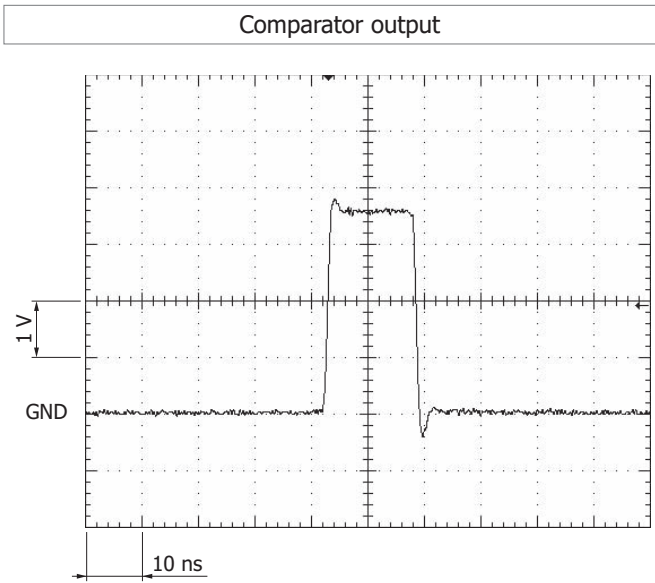
**Connection example**

Using the supplied power cable, connect the module to a power supply. You can count output pulses by connecting the module to a frequency counter.

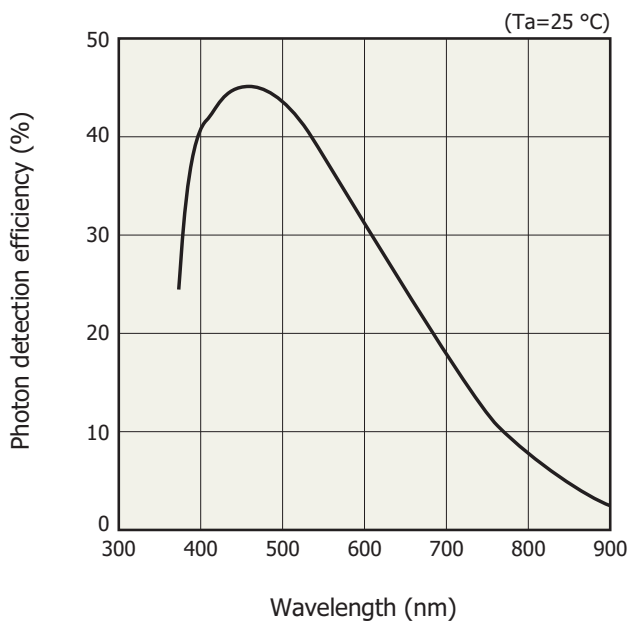


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Measurement example

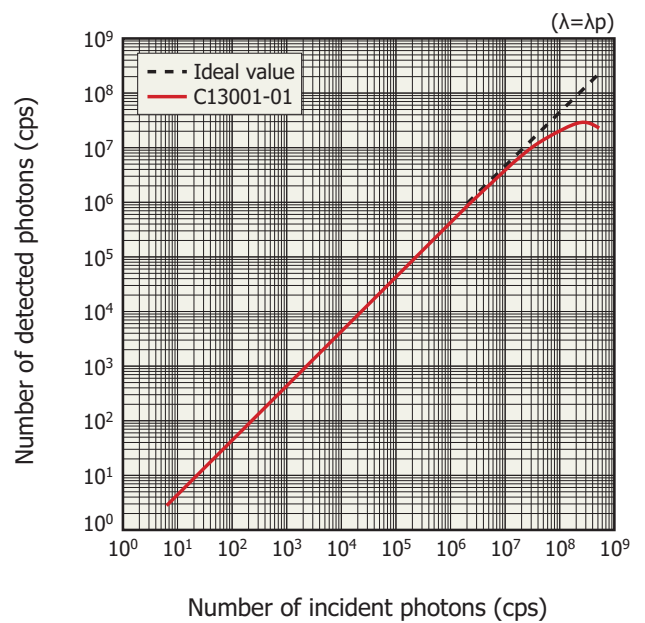


Photon detection efficiency vs. wavelength (typical example)



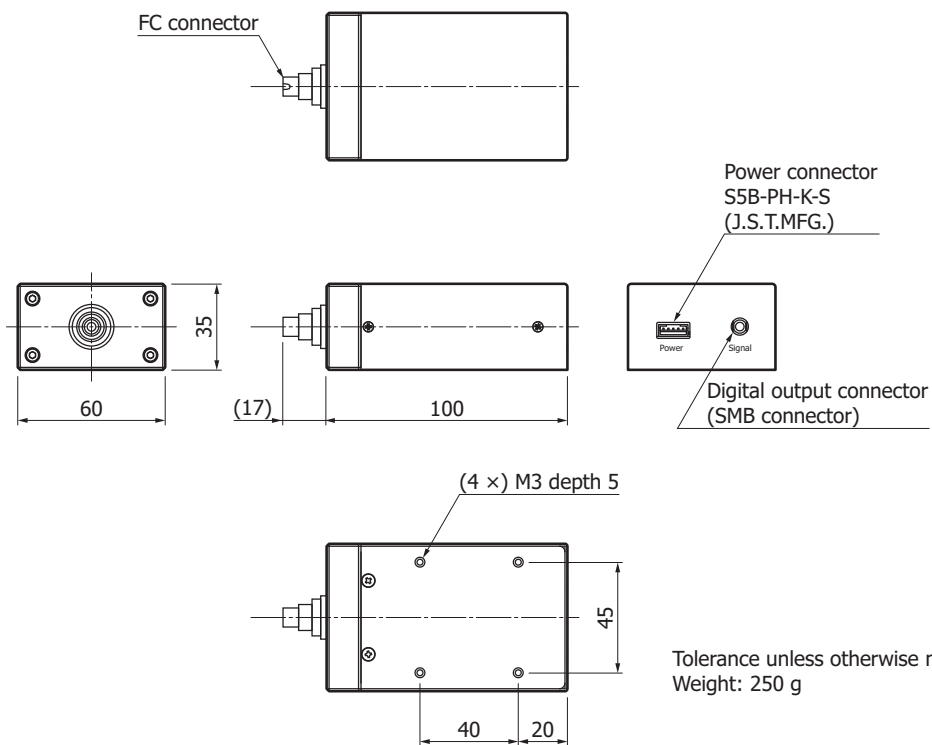
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Linearity (typical example)



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**Dimensional outline (unit: mm)**



Tolerance unless otherwise noted:  $\pm 0.5$   
Weight: 250 g

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### Accessories

- Power cable
- Instruction manual

### Options (sold separately)

#### Coaxial conversion adapter A10613 series

These are coaxial conversion adapters for converting the SMB coaxial connector for extracting MPPC module signals into a BNC coaxial connector or an SMA coaxial connector. These adapters make connection to a BNC cable or SMA cable possible.



A10613-01 (SMB-BNC)



A10613-02 (SMB-SMA)

### Precautions

- Use the product by referring to the supplied instruction manual.

### Related information

[http://www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

#### Precautions

- Disclaimer

Information described in this material is current as of May 2020.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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