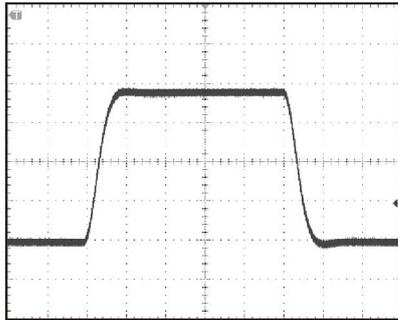




[Figure 1-1] Oscilloscope output example of analog signal (C9329-01)



Vertical axis: 1 V/div., horizontal axis: 400  $\mu$ s/div.  
 S2281-01 photodiode with BNC connector ( $C_t=3300$  pF typ.), middle range  
 Light source: infrared LED (L9337-01), pulse width: 2 ms  
 Measuring device: TEKTRONIX TDS3034B (BW 20 MHz)  
 Ambient temperature: 25  $^{\circ}$ C, overshoot: approx. 3%

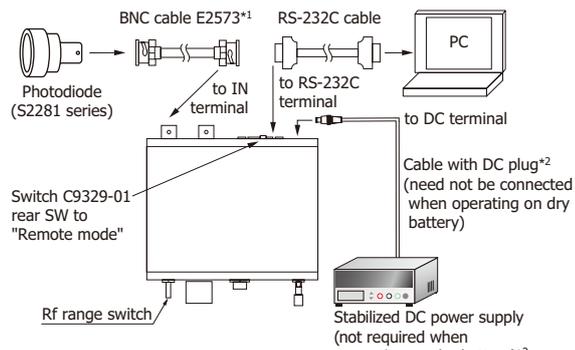
## 1 - 2 Usage (C9329-01)

The input section of the C9329-01 photosensor amplifier is a BNC connector, so use a BNC plug coaxial cable to connect it to a photodiode.

Use a dry battery or stabilized DC power supply to supply power to the photosensor amplifier.

Analog or digital operation mode is selectable for data output. In analog mode, measurements are made by connecting the output to a measuring device such as an oscilloscope using a BNC plug coaxial cable. In digital mode, digital signals (16 bits) can be obtained by serial connection (RS-232C) to a PC.

[Figure 1-2] Connection example (C9329-01, digital operation mode)



- \*1: Sold separately.  
If you are using an off-the-shelf cable, make sure that it is within 3 m in length.
- \*2: Accessories
- \*3: Please refer to the instruction manual for dry battery installation and replacement.

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## 2. Photodiode modules

Photodiode modules are high-precision photodetectors that include a Si or InGaAs photodiode together with a current-to-voltage conversion amplifier. The output is an analog voltage and can be easily checked with a voltmeter and the like.

Photodiode modules have a sensitivity range (high/low) switching function, so a highly accurate output can be obtained by selecting a sensitivity range that matches the light level to be detected.

### 2 - 1 Features

#### ▶ Internal photodiode

Si photodiode, InGaAs photodiode, two-color detector types are available.

#### ▶ Voltage output for easy handling

#### ▶ Selectable sensitivity (high/low range)

#### ▶ Compact size

#### ▶ Can be mounted on optical bench rod (M4)

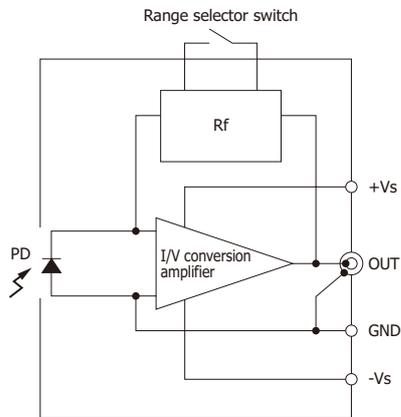
[Table 1-1] Hamamatsu photosensor amplifiers

Type no.	Feature	Photodiode	Output	Zero adjustment knob	Conversion impedance (V/A)	Cutoff frequency	Power supply
C6386-01	With optical fiber (1 m)	Internally mounted	Analog	Yes	$10^3$ $10^4$ $10^5$	10 MHz 3 MHz 1 MHz	Stabilized DC power supply ( $\pm 15$ V) or dry battery (9 V $\times$ 2)
C8366/-01	Wide bandwidth	Sold separately (high-speed Si PIN photodiode)	Analog	No	$10^3$	100 MHz	Stabilized DC power supply ( $\pm 15$ V)
C9051-01	Small board type	Sold separately (terminal capacitance: 15 nF or less)	Analog	No	$10^8$	16 Hz	Stabilized DC power supply (12 V)
C9329-01	For low-level light	Sold separately (terminal capacitance: 5 nF or less)	Analog Digital	Yes	$10^5, 10^7$ $10^9$	1600 Hz 16 Hz	Stabilized DC power supply (12 V) or dry battery (9 V)

## 2 - 2 Structure

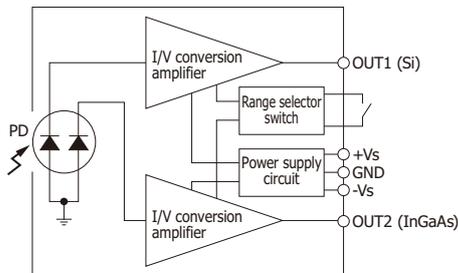
[Figure 2-1] Block diagram

(a) C10439-01/-02/-03/-07/-08/-09/-10/-11



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(b) C10439-15

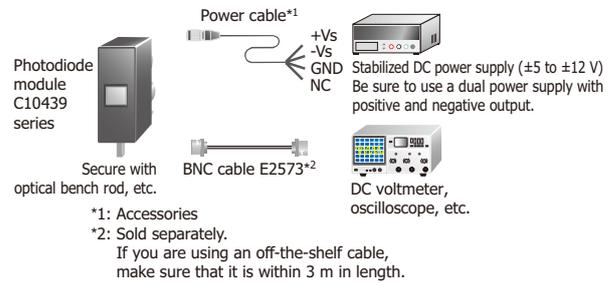


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## 2 - 3 How to use

[Figure 2-2] Connection examples (C10439 series)

· Connection to DC voltmeter or oscilloscope

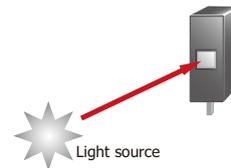


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## 2 - 4 Applications

[Figure 2-3] Photodiode module application examples

(a) Optical power monitors, laser/LED monitors, and illuminometers



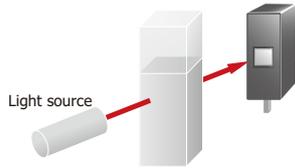
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[Table 2-1] Hamamatsu photodiode modules

Type no.	Photodiode	Photosensitive area (mm)	Output	Conversion impedance (V/A)	Cutoff frequency	Power supply
C10439-01	Si	2.4 × 2.4	Analog	High gain: 10 <sup>9</sup> Low gain: 10 <sup>7</sup>	High gain: 10 Hz Low gain: 1 kHz	Stabilized DC power supply ( $\pm 5$ to $\pm 12$ V)
C10439-02		5.8 × 5.8				
C10439-03		10 × 10				
C10439-07		2.4 × 2.4		High gain: 10 <sup>6</sup> Low gain: 10 <sup>4</sup>	High gain: 1 kHz Low gain: 100 kHz*	
C10439-08		5.8 × 5.8				
C10439-09		10 × 10				
C10439-10	InGaAs	φ1				
C10439-11		φ3				
C10439-15	Si	2.4 × 2.4		High gain: 10 <sup>6</sup> Low gain: 10 <sup>5</sup>	High gain: 10 kHz Low gain: 100 kHz*	
	InGaAs	φ1				

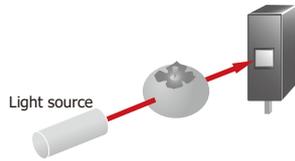
\* When output amplitude is 2 Vp-p

(b) Water pollution measurement



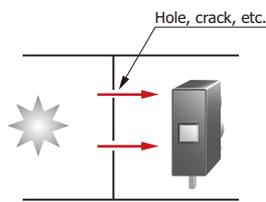
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(c) Brix meters



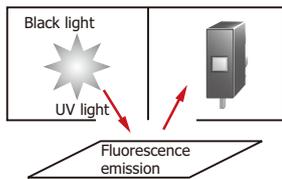
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(d) Light leakage detection



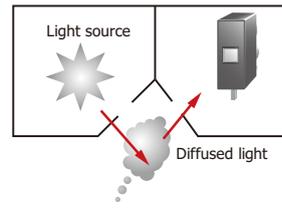
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(e) Detection of fluorescence from printed matter



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(f) Gas/smoke detection



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Information described in this material is current as of February 2025.

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Cat. No. KACC9015E03 Feb. 2025 DN