

The H9306/H9307 series photosensor modules incorporate a 13-mm (1/2") diameter side-on photomultiplier tube, a high-voltage power supply circuit and a low noise amplifier. Two types of amplifiers are available with a current-to-voltage conversion coefficient of 1 V/ μ A or 0.1 V/ μ A and a frequency bandwidth of 20 kHz or 200 kHz. Because of different characteristics of the power supply circuit, the H9306/H9307 series features low power consumption.

Five types of photomultiplier tubes are provided as standard lineups to meet various needs for spectral response range.



Product Variations

Type No.					Current-to-Voltage Conversion Factor	Frequency Bandwidth	Features
185 nm to 750 nm	185 nm to 900 nm	185 nm to 900 nm	185 nm to 830 nm	185 nm to 650 nm			
H9306-01	H9306-02	H9306-03	H9306-04	H9306-05	1 V/ μ A	DC to 20 kHz	Low power consumption
H9307-01	H9307-02	H9307-03	H9307-04	H9307-05	0.1 V/ μ A	DC to 200 kHz	

Specifications

Parameter			H9306 / H9307 Series					Unit
Suffix			-01	-02	-03	-04	-05	—
Input Voltage			±11.5 to ±15.5					V
Max. Input Voltage			±18					V
Max. Input Current			+15/-8					mA
Max. Control Voltage			+1.2 (Input Impedance: 1 MΩ)					V
Recommended Control Voltage Adjustment Range			+0.25 to +1.0					V
Effective Area			3.7 × 13.0					mm
Sensitivity Adjustment Range			1: 10 ⁴					—
Peak Sensitivity Wavelength			420	400	450	530	340	nm
Cathode	Luminous Sensitivity	Min.	80	200	350	140	20	μA/lm
		Typ.	120	300	500	200	40	
	Blue Sensitivity Index (CS 5-58)		10	—	—	—	5	—
	Red/White Ratio		—	0.3	0.4	0.15	—	—
	Radiant Sensitivity *1		90	77	105	70	48	mA/W
H9306 Series (with internal 20 kHz amp)								
Anode	Luminous Sensitivity *2	Min.	1.0 × 10 ⁸	4.0 × 10 ⁸	1.0 × 10 ⁹	3.0 × 10 ⁸	5.0 × 10 ⁷	V/lm
		Typ.	7.0 × 10 ⁸	2.0 × 10 ⁹	2.0 × 10 ⁹	7.0 × 10 ⁸	3.0 × 10 ⁸	
	Radiant Sensitivity *1 *2		520	520	420	250	360	V/nW
	Voltage Output Depending on PMT Dark Current *2 *3 *4	Typ.	1	1	2	0.1	0.5	mV
Max.		10	10	10	1	5		
Max. Output Signal Voltage			+10 (Load resistance 10 kΩ)					V
Current-to-Voltage Conversion Factor			1					V/μA
H9307 Series (with internal 200 kHz amp)								
Anode	Luminous Sensitivity *2	Min.	1.0 × 10 ⁷	4.0 × 10 ⁷	1.0 × 10 ⁸	3.0 × 10 ⁷	5.0 × 10 ⁶	V/lm
		Typ.	7.0 × 10 ⁷	2.0 × 10 ⁸	2.0 × 10 ⁸	7.0 × 10 ⁷	3.0 × 10 ⁷	
	Radiant Sensitivity *1 *2		52	52	42	25	36	V/nW
	Voltage Output Depending on PMT Dark Current *2 *3 *4	Typ.	0.1	0.1	0.2	0.01	0.05	mV
Max.		1	1	1	0.1	0.5		
Max. Output Signal Voltage			+1 (Load resistance 10 kΩ)					V
Current-to-Voltage Conversion Factor			0.1					V/μA
H9306 / H9307 Series								
Offset Voltage *2		Typ.	±3					mV
Ripple Noise *2 *5 (peak to peak)		Max.	0.8					mV
Settling Time *6			10					s
Operating Ambient Temperature			+5 to +50					°C
Storage Temperature			-20 to +50					°C
Weight			110					g

*1: Measured at the peak sensitivity wavelength *2: Control voltage = $+1.0$ V *3: After 30 minutes storage in darkness

*4: Output of anode dark current

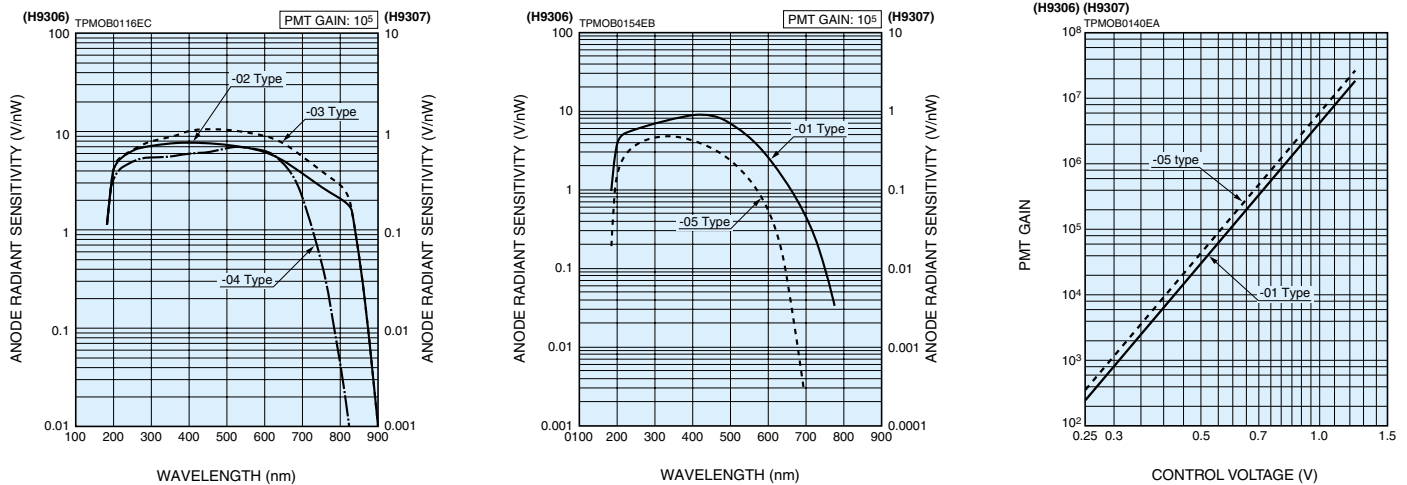
*5: Cable RG-174/U, Cable length 450 mm, Load resistance = 1 M Ω , Load capacitance = 22 pF

*6: The time required for the output to reach a stable level following a change in the control voltage from $+1.0$ V to $+0.5$ V.

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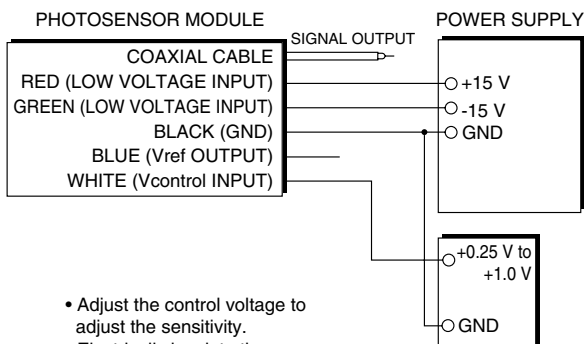
COMPACT SIDE-ON PMT PHOTOSENSOR MODULES H9306/H9307 SERIES

Characteristics (Anode radiant sensitivity, PMT gain)



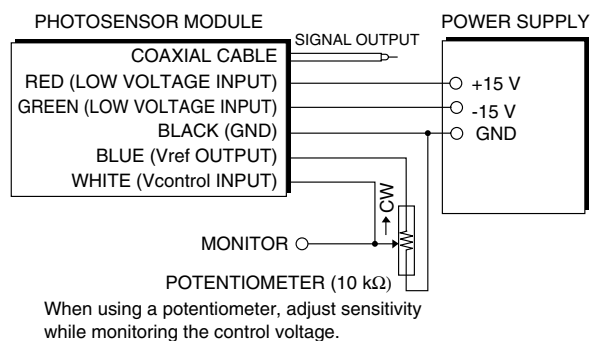
Sensitivity Adjustment Method

VOLTAGE PROGRAMMING



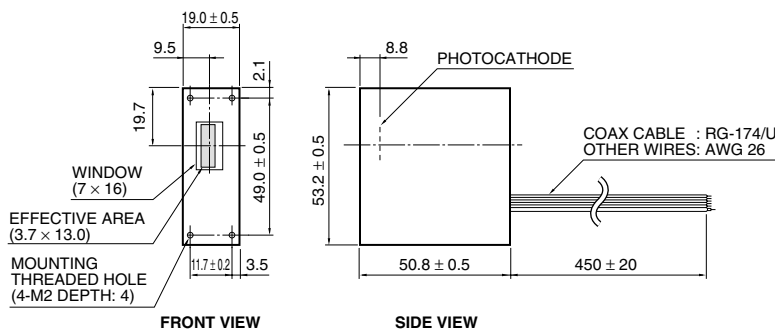
- Adjust the control voltage to adjust the sensitivity.
- Electrically insulate the reference voltage output.

RESISTANCE PROGRAMMING

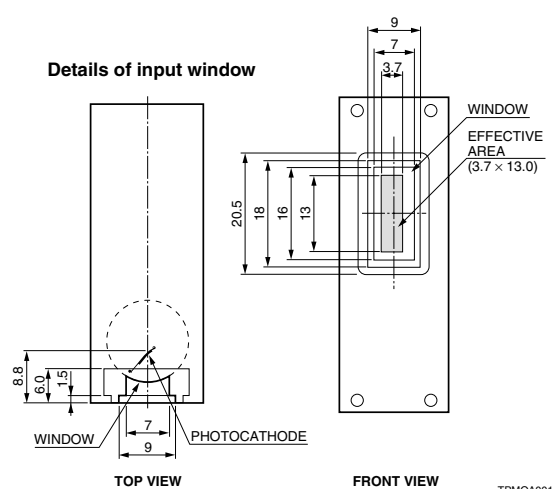


When using a potentiometer, adjust sensitivity while monitoring the control voltage.

Dimensional Outlines (Unit: mm)



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