

Side-on PMT

Photosensor Modules H11461 Series



The H11461 series photosensor modules consist of a 28-mm (1-1/8") diameter side-on photomultiplier tube and a high-voltage power supply. These side-on photomultiplier tubes have long been used for spectroscopic applications and provide high gain and high sensitivity. Six types of photomultiplier tubes are provided as standard lineups to meet various needs for spectral response range.

The H11461P-01 and H11461P-11 are selected as low dark count types ideal for photon counting and low-light-level measurement.

Product Variations

Type No.	Spectral Response	Features
H11461-01	185 nm to 710 nm	Low noise in UV to visible range
H11461-02	185 nm to 900 nm	For UV to near IR range
H11461-03	185 nm to 900 nm	High sensitivity in UV to near IR range
H11461P-01	185 nm to 710 nm	For photon counting in UV to visible range
H11461P-11	185 nm to 850 nm	For photon counting in UV to near IR range
H11461-09	160 nm to 320 nm*	For UV range, Cs-Te photocathode

This product can't be used at vacuum environment or reduced pressure environment. Please pay attention when the H11461 series is used for measuring the light below 190 nm.

Specifications

(at +25 °C)

Parameter			H11461 Series						Unit
Suffix			-01	-02	-03	P-01	P-11	-09	—
Input Voltage			+4.5 to +5.5						V
Max. Input Voltage			+6.0						V
Max. Input Current *1			3.5						mA
Max. Output Signal Current *2			100						μA
Max. Control Voltage			+1.2 (Input impedance 1 MΩ)						V
Recommended Control Voltage Adjustment Range			+0.5 to +1.1 (Input impedance 1 MΩ)						V
Effective Area			4 × 20						mm
Peak Sensitivity Wavelength			410	400	450	410	430	230	nm
Cathode	Luminous Sensitivity	Min.	80	140	475	80	140	—	μA/lm
		Typ.	100	250	525	100	200	—	
	Blue Sensitivity Index (CS 5-58)	Typ.	8	—	—	8	—	—	—
	Red/White Ratio	Typ.	—	0.3	0.4	—	0.15	—	—
	Radiant Sensitivity *3	Typ.	70	74	90	70	80	62	mA/W
Anode	Luminous Sensitivity *2	Min.	1000	400	3000	1000	300	—	A/lm
		Typ.	1200	2500	5000	1200	700	—	
	Radiant Sensitivity *2 *3	Typ.	8.4 × 10 ⁵	7.4 × 10 ⁵	8.6 × 10 ⁵	8.4 × 10 ⁵	2.8 × 10 ⁵	6.2 × 10 ⁵	A/W
	Dark Current *2 *4	Typ.	0.2	3	10	0.1	0.2	1	nA
		Max.	2	50	50	0.5	1	10	
	Dark Count *4 *5	Typ.	—	—	—	30	80	—	s ⁻¹
		Max.	—	—	—	80	200	—	
Rise Time *2			2.2						ns
Ripple Noise *2 *6 (peak to peak)		Max.	0.3						mV
Settling Time *7		Max.	10						s
Operating Ambient Temperature *8			+5 to +50						°C
Storage Temperature *8			-20 to +50						°C
Weight			225						g

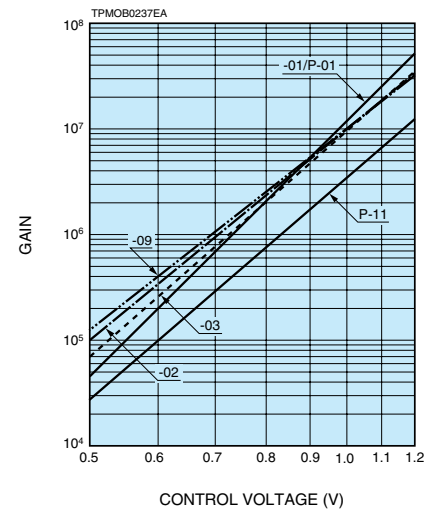
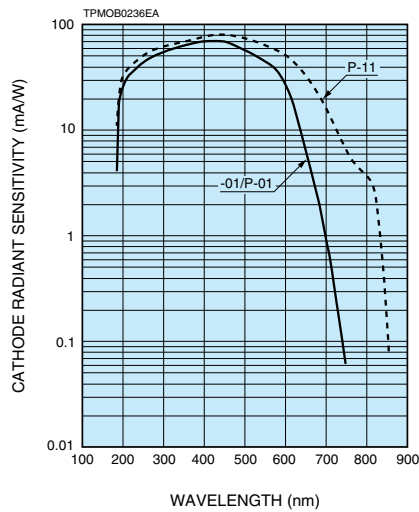
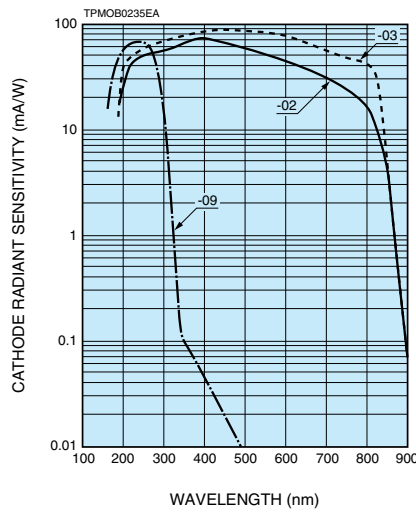
*1: At +5 V input voltage, +1.0 V control voltage, and output current equal to dark current. *2: Control voltage = +1.0 V

*3: Measured at the peak sensitivity wavelength (-09: 254 nm) *4: After 30 minutes storage in darkness *5: Control voltage: Plateau voltage

*6: Cable RG-174/U, Cable length 450 mm, load resistance = 1 MΩ, load capacitance = 22 pF

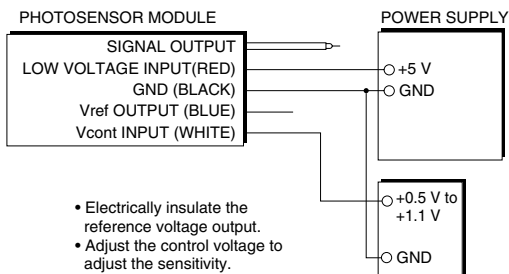
*7: The time required for the output to reach a stable level following a change in the control voltage from +1.0 V to +0.5 V. *8: No condensation

Characteristics (Cathode radiant sensitivity, Gain)

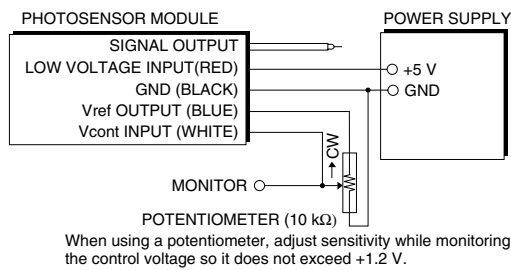


Sensitivity Adjustment Method

VOLTAGE PROGRAMMING

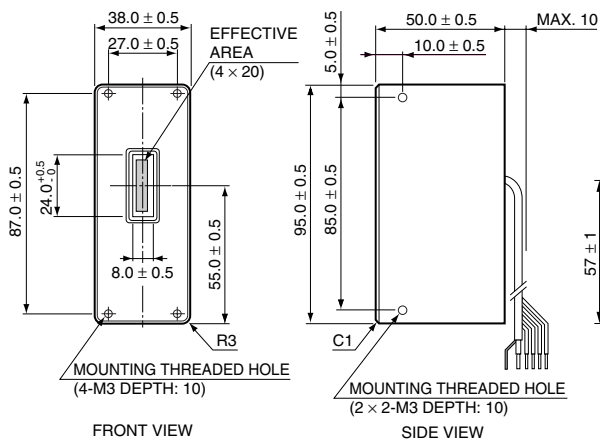


RESISTANCE PROGRAMMING



TPMOC0238EA

Dimensional Outlines (Unit: mm)



LOW VOLTAGE INPUT (+5 V) : AWG26 (RED)

GND : AWG26 (BLACK)

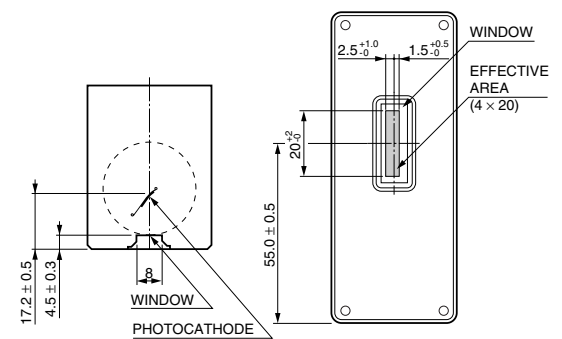
Vref OUTPUT (+1.2 V) : AWG26 (BLUE)

Vcont INPUT (+0.5 V to +1.1 V) : AWG26 (WHITE)

SIGNAL OUTPUT : RG-174/U

TPMOA0072EA

DETAILS OF INPUT WINDOW



TPMOC0123EC