

Head-on PMT

Photosensor Modules H10492 Series



The H10492 series photosensor modules incorporate a 25-mm (1") diameter head-on photomultiplier tube, a high-voltage power supply circuit and a low noise amplifier. Amplifiers are available with a current-to-voltage conversion factor of 1 V/μA or 0.1 V/μA and a frequency bandwidth of DC to 20 kHz, DC to 200 kHz or DC to 8 MHz. Photomultiplier tubes with different spectral response characteristics are provided for measurement in the visible range or visible to near IR range.

Product Variations

Type No.	Spectral Response	Current-to-Voltage Conversion Factor*	Frequency Bandwidth*	Features
H10492-001	300 nm to 650 nm	1 V/μA	DC to 20 kHz	For visible range
H10492-011	300 nm to 850 nm			For visible to near IR range
H10492-002	300 nm to 650 nm	0.1 V/μA	DC to 200 kHz	For visible range
H10492-012	300 nm to 850 nm			For visible to near IR range
H10492-003	300 nm to 650 nm		DC to 8 MHz	For visible range
H10492-013	300 nm to 850 nm			For visible to near IR range

* The amplifier specification can be changed upon request. Feel free to contact our sales office.
This product can't be used at vacuum environment or reduced pressure environment.

Specifications

(at +25 °C)

Parameter		H10492 Series		Unit
Suffix		-001 / -002 / -003	-011 / -012 / -013	—
Input Voltage		±11.5 to ±15.5		V
Max. Input Voltage		±18		V
Max. Input Current *1		+4 / -1 (-001/-011), +11 / -8 (-002/-012), +24 / -21 (-003/-013)		mA
Max. Control Voltage		+1.2 (Input Impedance 1 MΩ)		V
Recommended Control Voltage Adjustment Range *2		+0.5 to +1.1 (Input Impedance 1 MΩ)		V
Effective Area		φ22		mm
Peak Sensitivity Wavelength		420		nm
Cathode	Luminous Sensitivity	Min. 60	80	μA/lm
		Typ. 90	150	
	Blue Sensitivity Index (CS 5-58)	Typ. 10.5	—	—
	Red / White Ratio	Typ. —	0.2	—
Radiant Sensitivity *3		Typ. 85	64	mA/W
Suffix (with internal 20 kHz amp)		-001	-011	
Anode	Luminous Sensitivity *4	Min. 4.0 × 10 ⁷	2.0 × 10 ⁷	V/lm
		Typ. 1.8 × 10 ⁸	7.5 × 10 ⁷	
	Radiant Sensitivity *3 *4	Typ. 170	32	V/nW
	Voltage Output Depending on PMT Dark Current *4 *5	Typ. 3	3	mV
	Max. 20	20		
Max. Output Signal Voltage *6		+10 (Load resistance 10 kΩ)		V
Current-to-Voltage Conversion Factor		1		V/μA
Suffix (with internal 200 kHz / 8 MHz amp)		-002 / -003	-012 / -013	
Anode	Luminous Sensitivity *4	Min. 4.0 × 10 ⁶	2.0 × 10 ⁶	V/lm
		Typ. 1.8 × 10 ⁷	7.5 × 10 ⁶	
	Radiant Sensitivity *3 *4	Typ. 17	3.2	V/nW
	Voltage Output Depending on PMT Dark Current *4 *5	Typ. 0.3	0.3	mV
	Max. 2	2		
Max. Output Signal Voltage *6		-002 / -012: +10 (Load resistance 10 kΩ) -003 / -013: +10 (Load resistance 500 Ω), +5 (Load resistance 50 Ω)		V
Current-to-Voltage Conversion Factor		0.1		V/μA
H10492 series				
Output Offset Voltage		Typ. ±1		mV
Ripple Noise *4 *7 *8 (peak to peak)		Max. 0.6 (-001 / -002 / -011 / -012), 0.8 (-003 / -013)		mV
Settling Time *9		Max. 10		s
Operating Ambient Temperature *10		+5 to +50		°C
Storage Temperature *10		-20 to +50		°C
Weight		Typ. 170 (-001 / -002 / -003), 180 (-011 / -012 / -013)		g

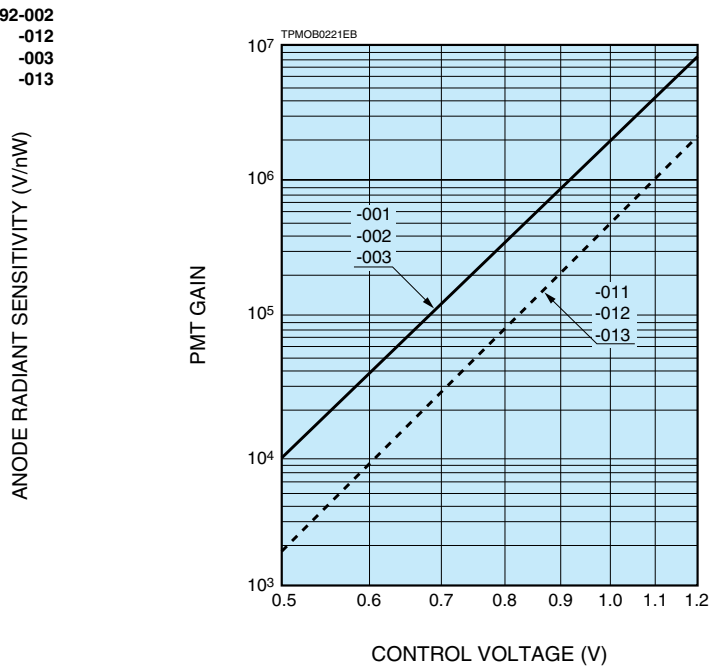
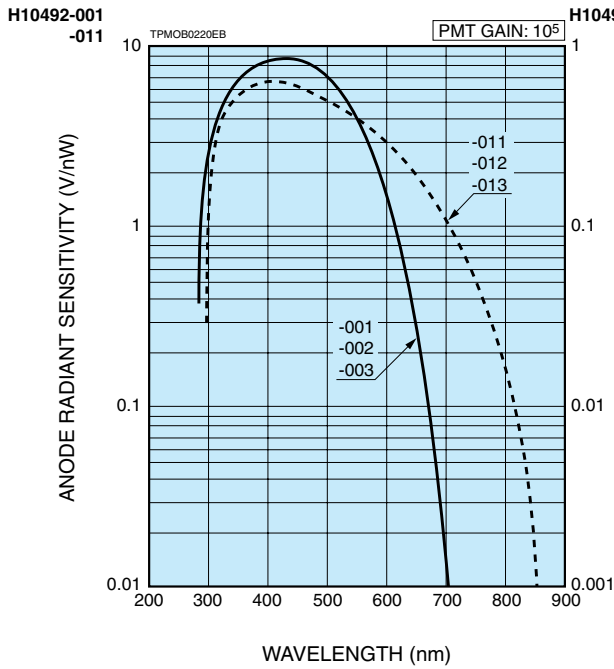
*1: At ±15 V input voltage, +1.0 V control voltage, and output current equal to dark current *2: DAC (I²C interface) can be installed in the module, please specify when ordering. *3: Measured at the peak sensitivity wavelength *4: Control voltage = +1.0 V *5: After 30 minutes storage in darkness.

The actual output value in darkness is the sum of dark current and offset voltage. *6: At ±15 V input voltage

*7: Cable RG-174/U, Cable length 450 mm, Load resistance = 1 MΩ, Load capacitance = 22 pF *8: -003, -013 Amplifier noise = 8 mV typ. (peak to peak)

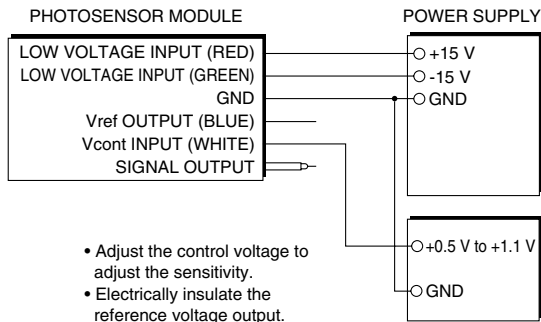
*9: The time required for the output to reach a stable level following a change in the control voltage from +1.0 V to +0.5 V. *10: No condensation.

Characteristics (Cathode radiant sensitivity, PMT gain)

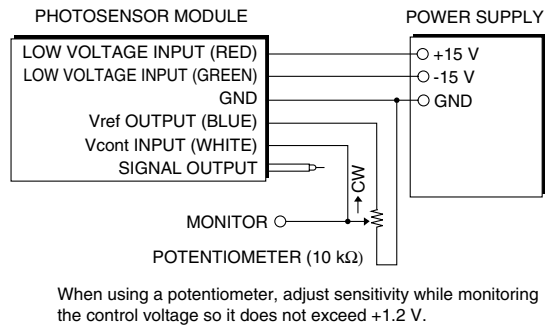


Sensitivity Adjustment Method

VOLTAGE PROGRAMMING

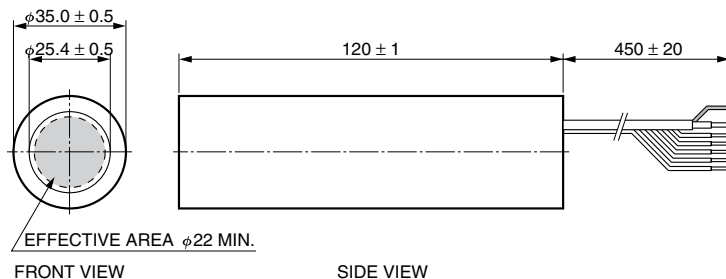


RESISTANCE PROGRAMMING



TPMOC0229EA

Dimensional Outlines (Unit: mm)



LOW VOLTAGE INPUT (+15 V) : AWG26 (RED)
 LOW VOLTAGE INPUT (-15 V) : AWG26 (GREEN)
 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

TPMOA0059EA