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.

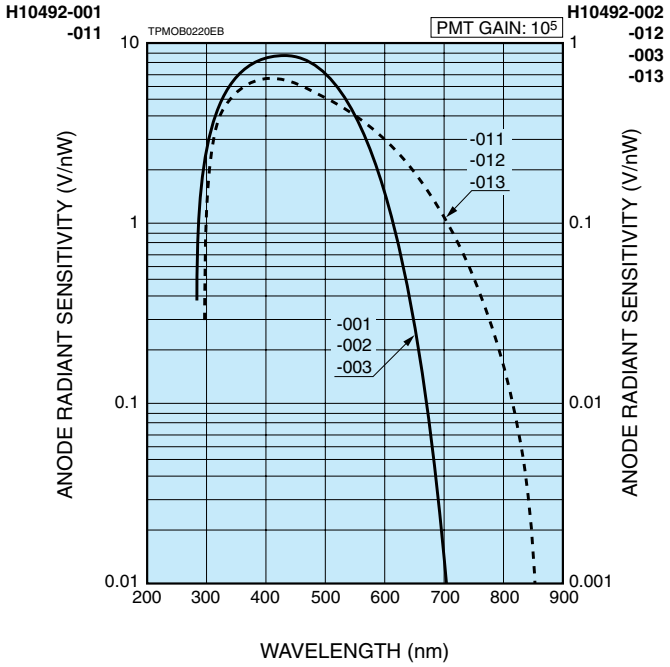
Specifications

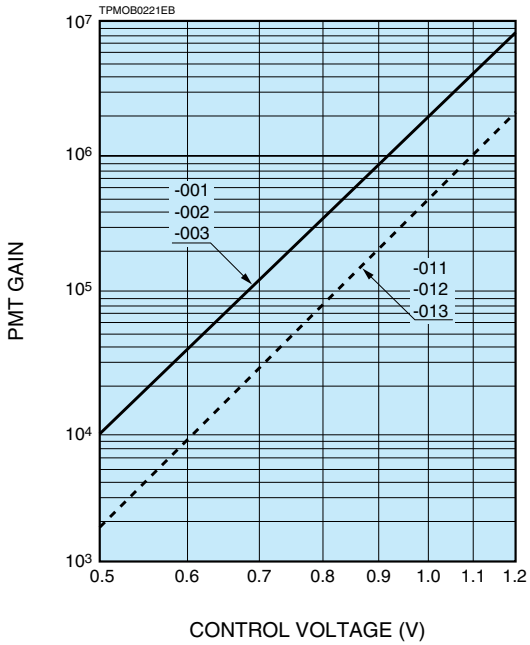
(at +25 °C)

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

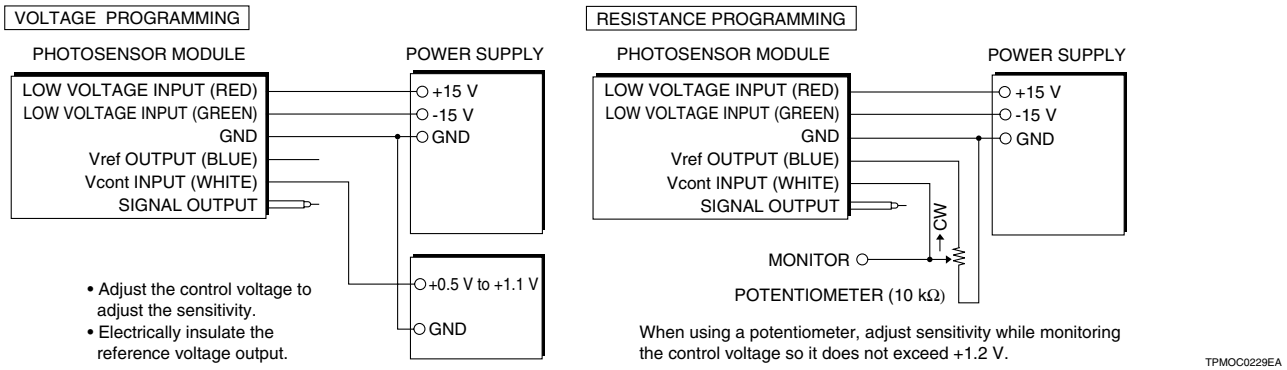
*1: At ±15 V input voltage, +1.0 V control voltage, and output current equal to dark current *2: DAC (I^2C interface) can be installed in the module, please specify when ordering. *3: Measured at the peak sensitivity wavelength *4: Control voltage = +1.0 V *5: After 30 minutes storage in darkness. The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

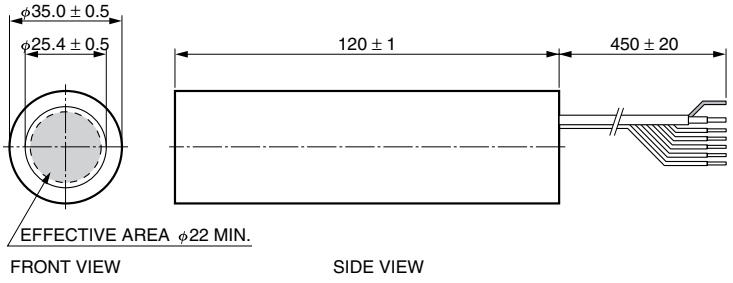




Sensitivity Adjustment Method



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

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