

### OVERVIEW

The H14990-100-02 is a photosensor module containing a high-speed response TO-8 type head-on photomultiplier tube and a high-voltage power supply circuit.

### FEATURES

- High speed response: Up to 800 MHz
- Large effective area:  $\phi 8$  mm
- Current output



### SPECIFICATIONS

(at +25 °C)

Parameter		Description / Value	Unit
Spectral response		300 to 650	nm
Photocathode		Bialkali	—
Window material		Borosilicate glass	—
Input voltage		+4.5 to +5.5	V
Max. input voltage		+5.5	V
Max. input current *1		3.2	mA
Max. average output signal current *2		100	$\mu$ A
Max. control voltage		+1.0 (Input impedance 1 M $\Omega$ )	V
Recommended control voltage adjustment range		+0.5 to +1.0 (Input impedance 1 M $\Omega$ )	V
Effective area		$\phi 8$	mm
Peak sensitivity wavelength		400	nm
Cathode	Luminous sensitivity	Min. 80 Typ. 105	$\mu$ A/lm
	Blue sensitivity index (CS 5-58)	Typ. 13.5	—
	Radiant sensitivity *3	Typ. 110	mA/W
Anode	Luminous sensitivity *2	Min. 0.4 Typ. 2.63	A/lm
	Radiant sensitivity *2 *3	Typ. $2.75 \times 10^3$	A/W
	Dark current *2 *4	Typ. 0.1	nA
		Max. 1	
Rise time *2		Typ. 370	ps
Ripple noise *2 *5 (peak to peak)		Max. 0.1	mV
Settling time *6		Max. 10	s
Operating ambient temperature *7		+5 to +50	$^{\circ}$ C
Storage temperature *7		-20 to +50	$^{\circ}$ C
Weight		48	g

\*1: At +5 V input voltage and +0.8 V control voltage in darkness

\*2: Control voltage = +0.8 V

\*3: Measured at the peak sensitivity wavelength

\*4: After 30 minutes storage in darkness

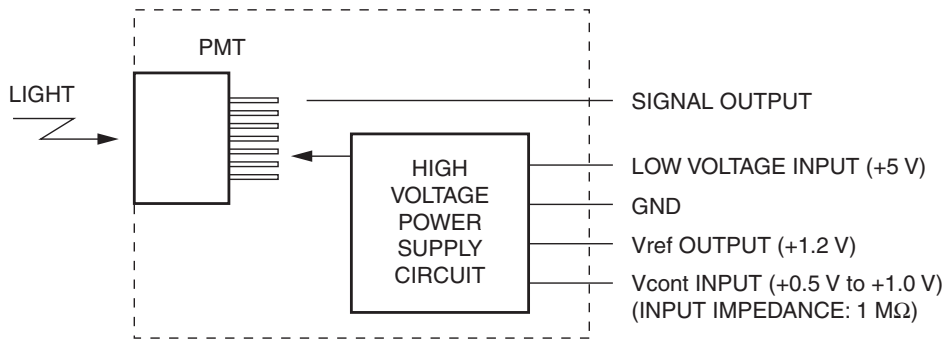
\*5: Cable RG-178B/U, Cable length 450 mm, Load resistance = 50  $\Omega$ , Load capacitance = 14 pF

\*6: The time required for the output to reach a stable level following a change in the control voltage from +0.8 V to +0.5 V

\*7: No condensation

# PHOTOSENSOR MODULE H14990-100-02

Figure 1: Schematic diagram



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Figure 2: Time response (Typ.)

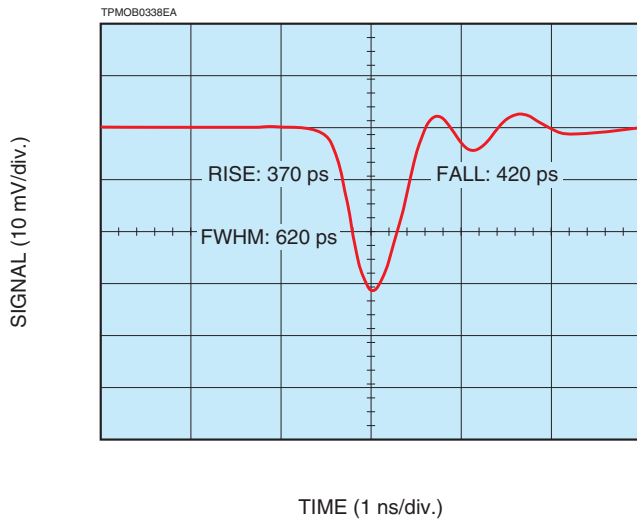


Figure 3: Eye pattern

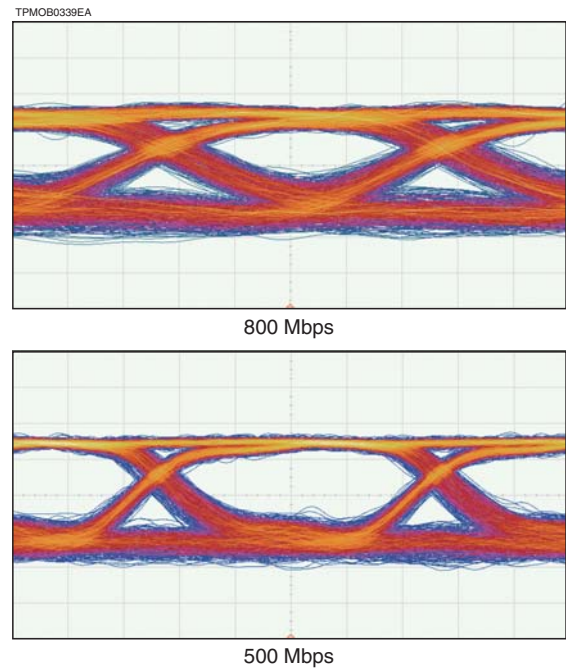
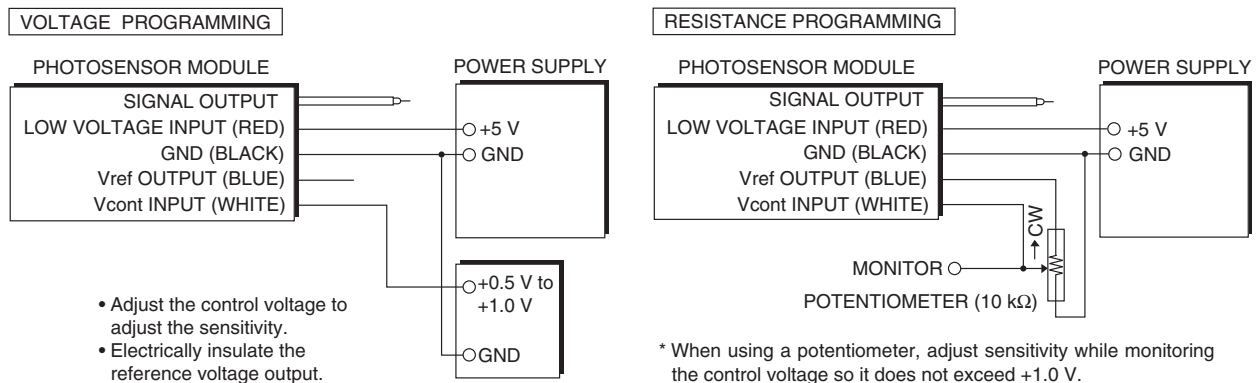


Figure 4: Sensitivity adjustment method



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Figure 5: Spectral response

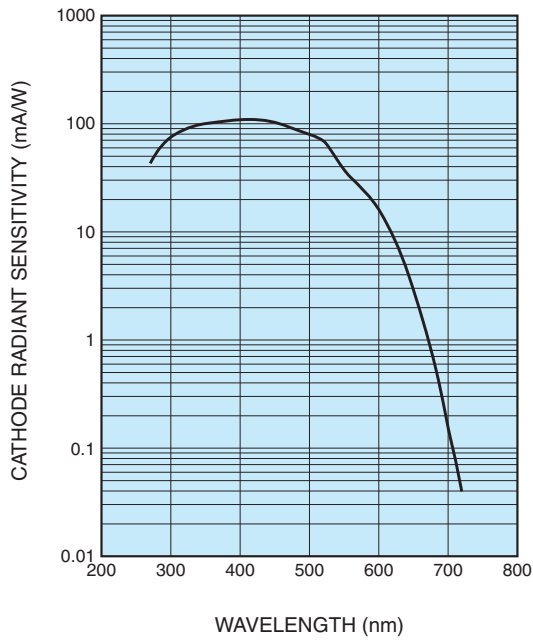


Figure 6: Gain (Typ.)

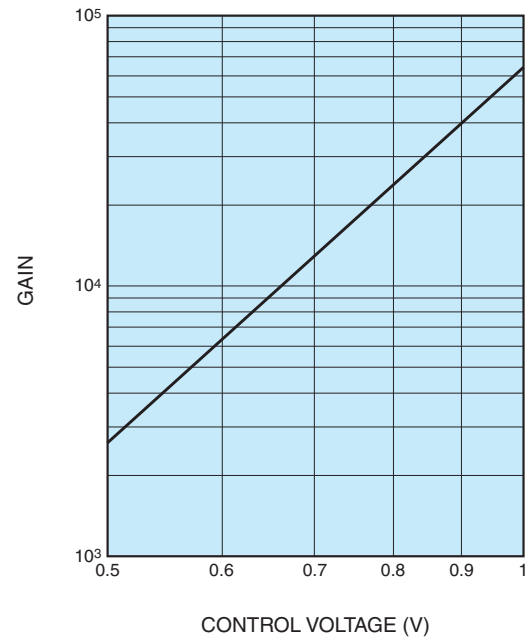
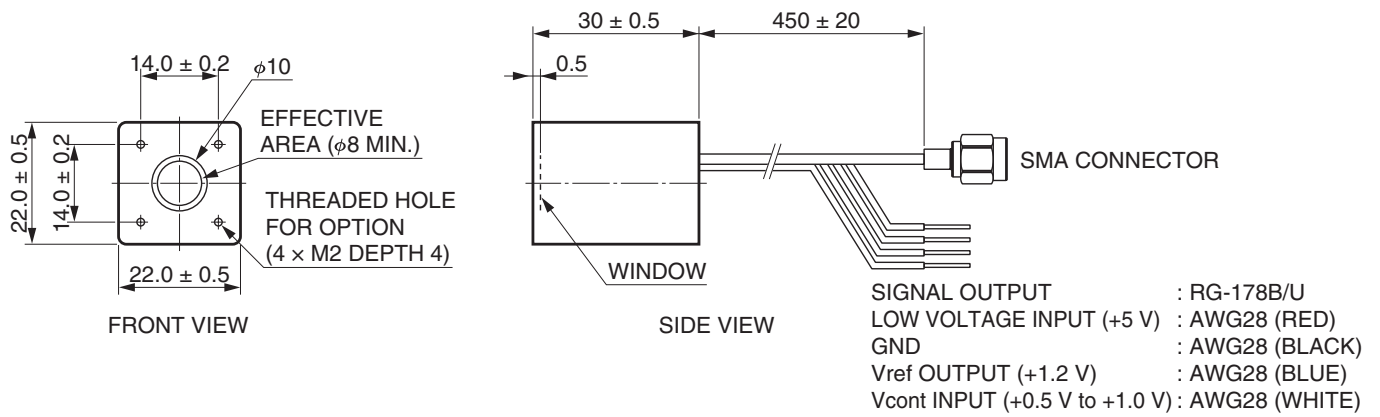


Figure 7: Dimensional outlines (Unit: mm)

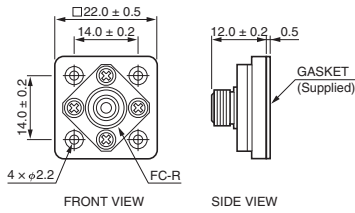


# PHOTOSENSOR MODULE H14990-100-02

## OPTION

### OPTICAL FIBER ADAPTER E5776 / E5776-51

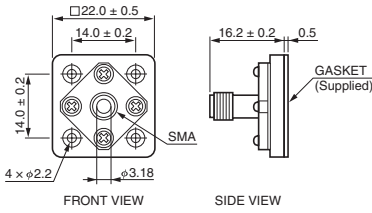
#### E5776 (FC Type)



\* Supplied with M2 screws(4 pcs) for fixing to module

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#### E5776-51 (SMA Type)

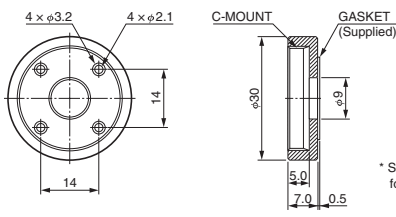


\* Supplied with M2 screws(4 pcs) for fixing to module

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### C-MOUNT ADAPTER A9865



\* Supplied with M2 screws(4 pcs) for fixing to module

TPMOA0056EB



Note: Optical blocks are available for these photosensor modules to make compact optical systems without light leakage.

## RELATED PRODUCT

### POWER SUPPLY FOR PHOTOMULTIPLIER TUBE MODULES C10709

The C10709 is the power supply for photomultiplier tube modules which has 5 V input voltage.

This unit can provide both the driving voltage and the control voltage. This feature enables users to operate the modules easily.



Parameter	Description / Value	Unit
Output voltage	±5	V
Output current	Max. 2.0 (+5 V), 0.2 (-5 V)	A
Control voltage <sup>(A)</sup> (variable voltage range)	+0.25 to +1.8	V
Input voltage	AC100 to AC240	V

**NOTE:** <sup>(A)</sup>Adjust within the recommended control voltage range for the photomultiplier tube module being used.

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