

Operable under vacuum or decompression environment

H13229 series and H14211 series are photomultiplier tube modules that comprise a metal package PMT and high voltage power supply circuit.

These make stable operation possible under vacuum or decompression environment.

These provide low power consumption and low gas release by our manufacturing method and construction.



▲ Left: H13229, Right: H14211

PRODUCT VARIATION

Type No.	Spectral response	Photocathode	Window material	Notes
H13229-110 / H13229P-110	300 nm to 700 nm	Super bialkali	Borosilicate glass	P type: for photon counting
H13229-210 / H13229P-210	300 nm to 700 nm	Ultra bialkali		
H13229-01 / H13229P-01	300 nm to 870 nm	Multialkali		
H13229-20	300 nm to 920 nm	Extended red multialkali		
H14211-110 / H14211P-110	230 nm to 700 nm	Super bialkali		
H14211-210 / H14211P-210	230 nm to 700 nm	Ultra bialkali		
H14211-01 / H14211P-01	230 nm to 870 nm	Multialkali		
H14211-20	230 nm to 920 nm	Extended red multialkali	UV glass	
H14211-04 / H14211P-04	185 nm to 870 nm	Multialkali		
H14211-113 / H14211P-113	185 nm to 700 nm	Super bialkali		

SPECIFICATIONS

● H13229 series

Parameter			H13229-110 H13229P-110	H13229-210 H13229P-210	H13229-01 H13229P-01	H13229-20	Unit	
Input voltage			+2.8 to +5.5				V	
Max. input voltage			+5.5				V	
Max. input current *1			2.7				mA	
Max. output signal current *2			100				μA	
Max. control voltage			+1.1 (Input impedance 1 MΩ)				V	
Recommended control voltage adjustment range			+0.5 to +1.1 (Input impedance 1 MΩ)				V	
Effective area			φ8				mm	
Peak sensitivity wavelength			400	400	400	630	nm	
Cathode *3	Luminous sensitivity	Min.	80	100	100	350	μA/lm	
		Typ.	105	135	200	500		
	Blue sensitivity index (Blue filter)	Typ.	13.5	15.5	—	—	—	
	Red/White ratio	Typ.	—	—	0.2	0.45	—	
	Radiant sensitivity *4	Typ.	110	130	77	78	mA/W	
Anode *3	Standard type	Luminous sensitivity *2	Min.	80	100	100	350	A/lm
			Typ.	210	270	400	1000	
		Radiant sensitivity *2*4	Typ.	2.2 × 10 ⁵	2.6 × 10 ⁵	1.5 × 10 ⁵	1.5 × 10 ⁵	A/W
			Typ.	1	1	1	10	
	Dark current *2*5	Typ.	10	10	10	100	nA	
		Max.	10	10	10	100		
	P type dark count *2*5	Typ.	50	50	600	—	s ⁻¹	
		Max.	100	100	1000	—		
Rise time *2			0.57				ns	
Ripple noise *2*6 (peak to peak)		Max.	0.5				mV	
Settling time *7		Max.	10				s	
Operating ambient temperature *8			+5 to +50				°C	
Storage temperature *8			-20 to +50				°C	
Working pressure			Atmospheric pressure to 0.001 Pa				—	
Weight			37				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 These values are of a built-in PMT. There is a glass window which has 93 % transmittance in front of the PMT.

*4 Measured at the peak sensitivity wavelength. *5 After 30 minutes storage in darkness output of dark current.

*6 Cable RG174/U, cable length 450 mm, load resistance = 1 MΩ, load capacitance = 14 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

PHOTOMULTIPLIER TUBE MODULES

H13229 SERIES / H14211 SERIES

SPECIFICATIONS

●H14211 series

This product can change a built-in PMT upon request. Please consult with us.

Parameter			H14211-110 H14211P-110	H14211-210 H14211P-210	H14211-01 H14211P-01	H14211-20	H14211-04 H14211P-04	H14211-113 H14211P-113	Unit
Input voltage			+2.8 to +5.0						V
Max. input voltage			+5.5						V
Max. input current *1			3.5						mA
Max. output signal current *2			100						μA
Max. control voltage			+1.1 (Input impedance 1 MΩ)						V
Recommended control voltage adjustment range			+0.5 to +1.1 (Input impedance 1 MΩ)						V
Effective area			φ8						mm
Peak sensitivity wavelength			400	400	400	630	400	400	nm
Cathode	Luminous sensitivity	Min.	80	100	100	350	100	80	μA/lm
		Typ.	105	135	200	500	200	105	
	Blue sensitivity index (Blue filter)	Typ.	13.5	15.5	—	—	—	13.5	—
	Red/White ratio	Typ.	—	—	0.2	0.45	0.2	—	—
	Radiant sensitivity *3	Typ.	110	130	77	78	77	110	mA/W
Anode	Standard type	Luminous sensitivity *2	Min.	80	100	100	350	100	A/lm
			Typ.	210	270	400	1000	400	
		Radiant sensitivity *2*3	Typ.	2.2×10^5	2.6×10^5	1.5×10^5	1.5×10^5	1.5×10^5	A/W
		Dark current *2*4	Typ.	1	1	1	10	1	nA
			Max.	10	10	10	100	10	
	P type dark count *2*4	Typ.	50	50	600	—	600	50	s ⁻¹
		Max.	100	100	1000	—	1000	100	
Rise time *2			0.57						ns
Ripple noise *2*5 (peak to peak)			1						mV
Settling time *6			10						s
Operating ambient temperature *7			+5 to +50						°C
Storage temperature *7			-20 to +50						°C
Working pressure			Atmospheric pressure to 0.001 Pa						—
Weight			74						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. *4 After 30 minutes storage in darkness output of dark current.

*5 Cable RG-316/U, cable length 450 mm, load resistance = 1 MΩ, 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. *7 No condensation

Figure 1: Spectral response

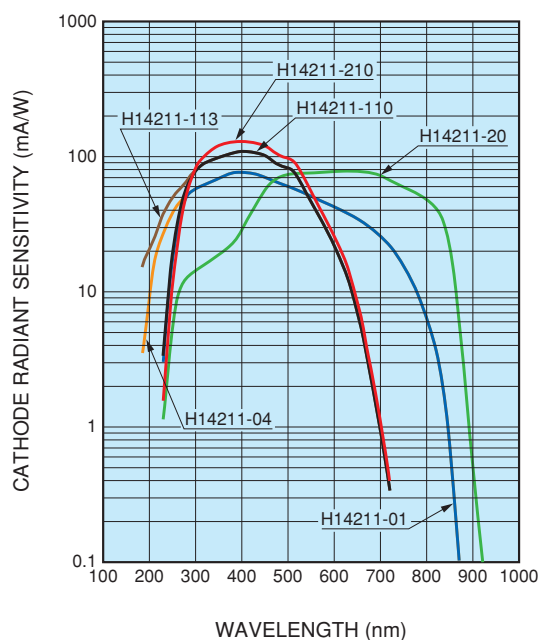
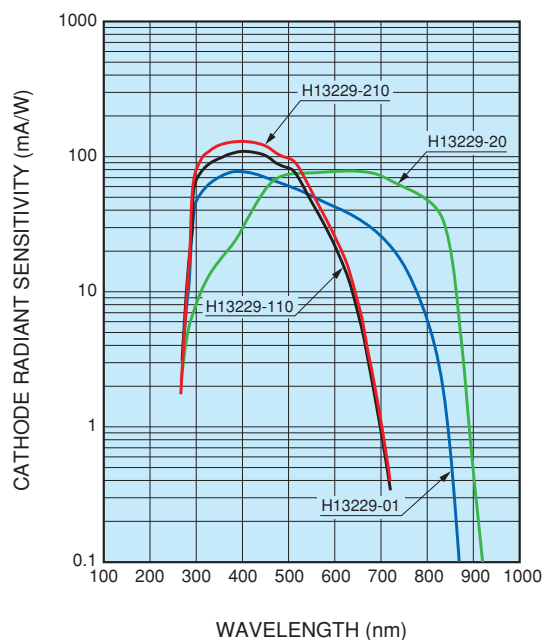


Figure 2: Gain

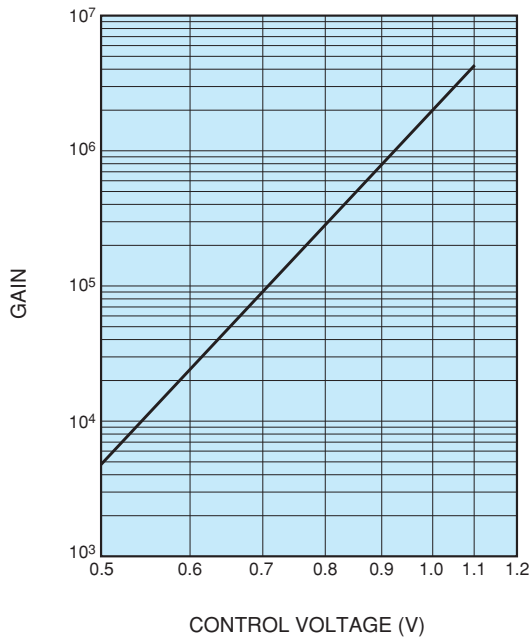


Figure 3: Sensitivity adjustment method

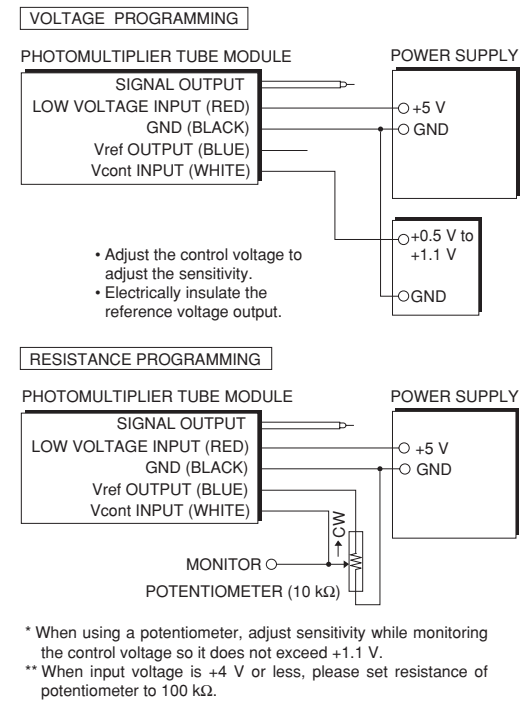


Figure 4: Typical output current v.s. input current

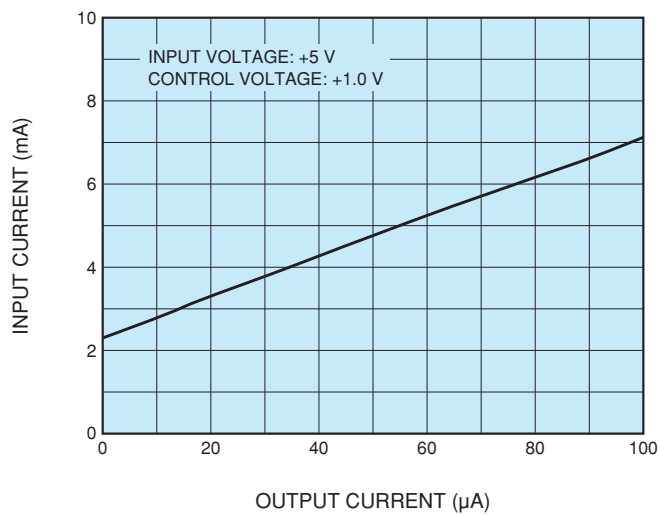
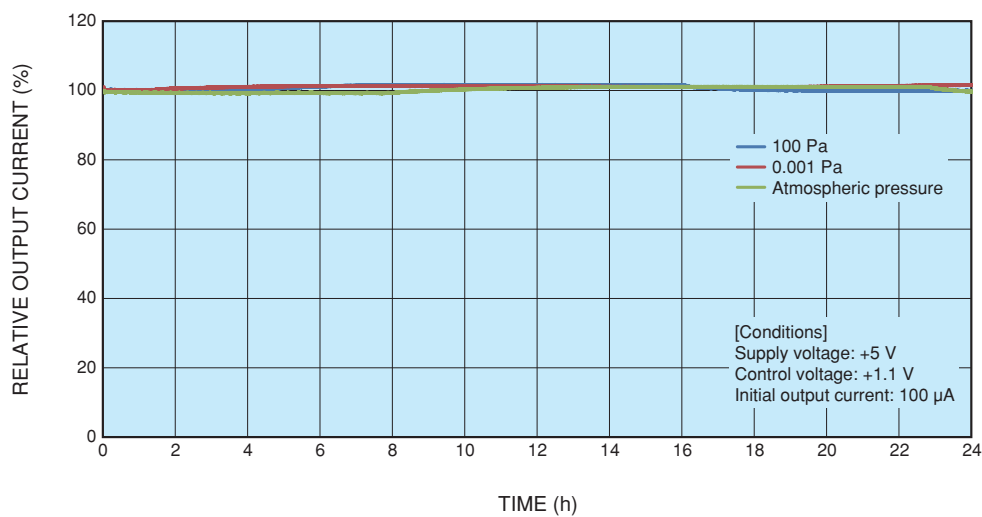


Figure 5: Output stability

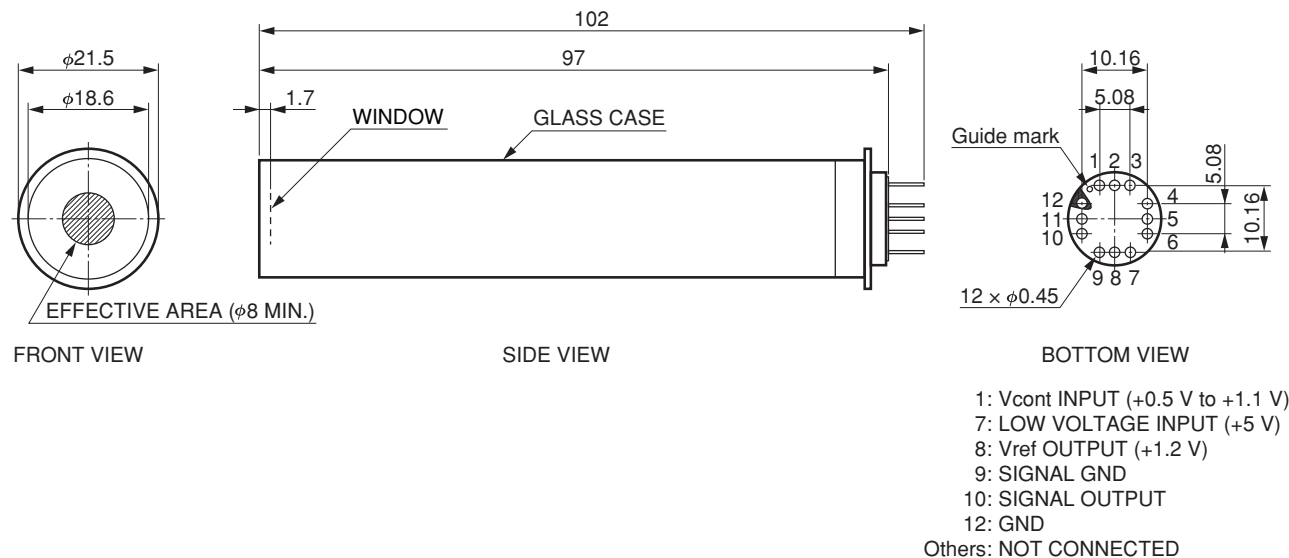


PHOTOMULTIPLIER TUBE MODULES

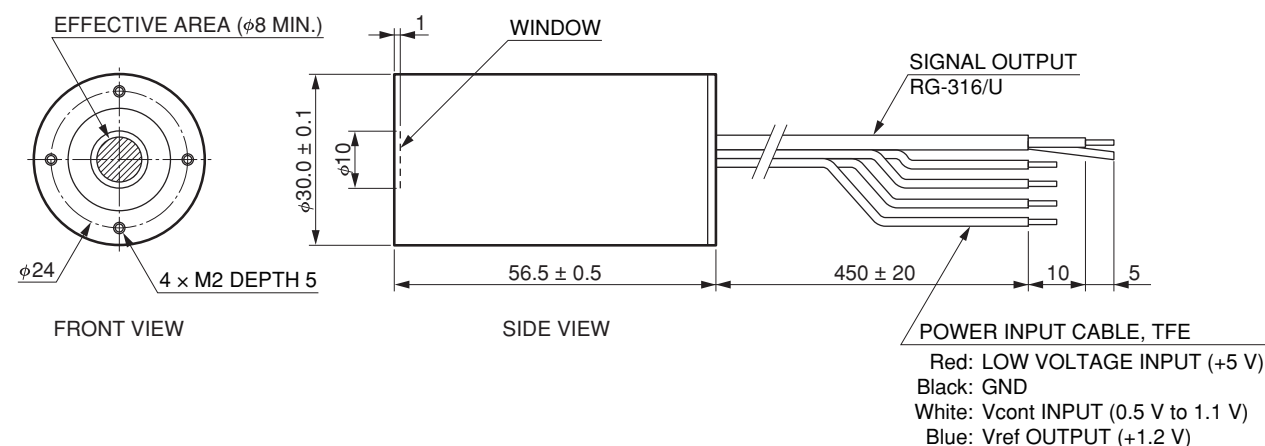
H13229 SERIES / H14211 SERIES

Figure 6: Dimensional outline (Unit: mm)

●H13229 series



●H14211 series



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