

FEATURES

- High sensitivity
- Built-in thermoelectric cooler and gate circuit
- Low noise

APPLICATIONS

- Photoluminescence measurement
- Singlet oxygen measurement
- Atmospheric LiDAR



▲(LEFT: Main Unit , RIGHT: Controller)

SPECIFICATIONS

(at +25 °C)

Parameter			H12694A-25	H12694A-45	H12694A-75	Unit
Spectral response			950 to 1200	950 to 1400	950 to 1700	nm
Peak sensitivity wavelength			1100	1300	1500	nm
Photocathode material			InP/InGaAsP		InP/InGaAs	—
Detection area for collimated light			φ 18			mm
PMT operating temperature			-60			°C
Guaranteed PMT operating voltage			-500 to -900			V
Operating ambient temperature			+5 to +40			°C
Storage temperature			-20 to +50			°C
Max. average output signal current			1			μA
Cathode ①②	Quantum efficiency	Min.	1			%
		Typ.	2			
	Radiant sensitivity	Min.	9	11	12	mA/W
		Typ.	18	21	24	
Anode ①②	Radiant sensitivity	Min.	4 × 10 ³	5 × 10 ³	6 × 10 ³	A/W
		Typ.	1.8 × 10 ⁴	2.1 × 10 ⁴	2.4 × 10 ⁴	
	Dark current ③	Typ.	0.4	4	40	nA
		Max.	1	10	100	
	Dark count ③	Typ.	2.5 × 10 ³	2.5 × 10 ⁴	2.5 × 10 ⁵	s ⁻¹
Gain ②		Min.	5 × 10 ⁵			—
		Typ.	1 × 10 ⁶			
Time response ②	Anode pulse rise time	Typ.	0.9			ns
	Anode pulse fall time	Typ.	1.7			
	Transit time spread	Typ.	0.4			
Cooling method			Thermoelectric (Forced air cooling)			—
Condenser lens	Material		BK7 AR coating			—
	Transmission wavelength		900 to 1700			nm
	F number		1.4 (f=25.7)			—
Cooling time required for operation			Approx. 20			min
Protection function			High voltage interlock for inappropriate temperature			—
Controller rating	Input voltage (AC)		90 to 264 (50 Hz / 60 Hz)			V
	Power consumption		125			VA
Weight ④⑤	Main unit		Approx. 2.28			kg
	Controller		Approx. 2.90			

NOTE: ① At peak sensitivity wavelength.
 ② At -800 V input voltage and -60 °C operating temperature.
 ③ After 30 min storage with cooling in darkness. (Anode radiant sensitivity 1.0×10^4 A/W)
 ④ Including resistor box with BNC connectors.
 ⑤ Including high voltage cable and control cable.

NIR-PMT UNITS H12694A SERIES

CHARACTERISTICS

Figure 1: Spectral response

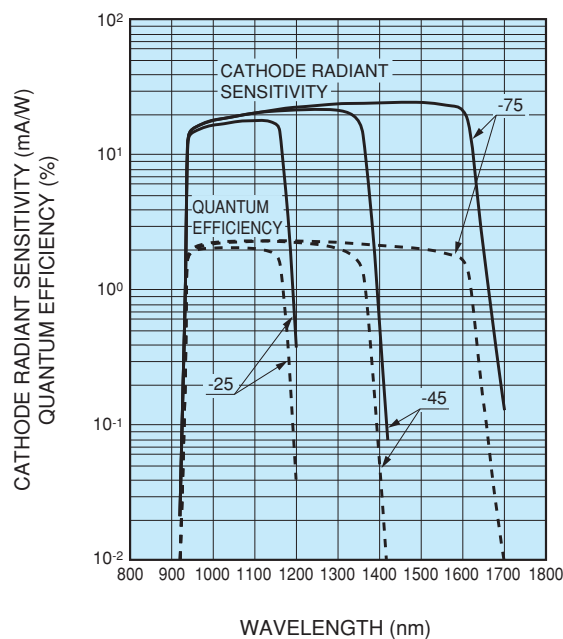


Figure 2: Typical gain

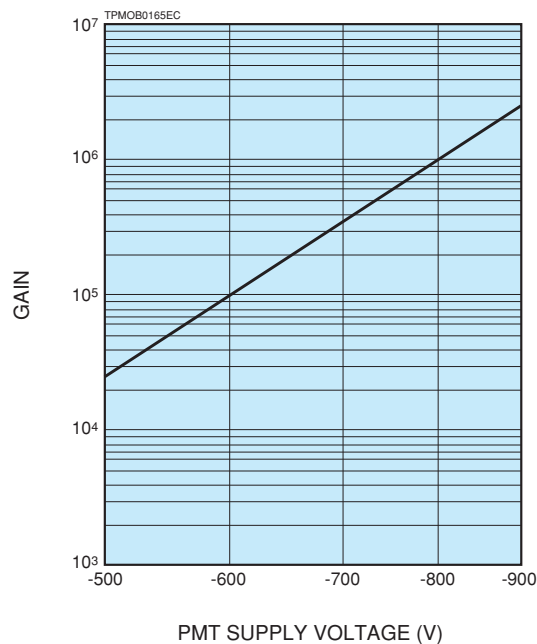


Figure 3: Waveform

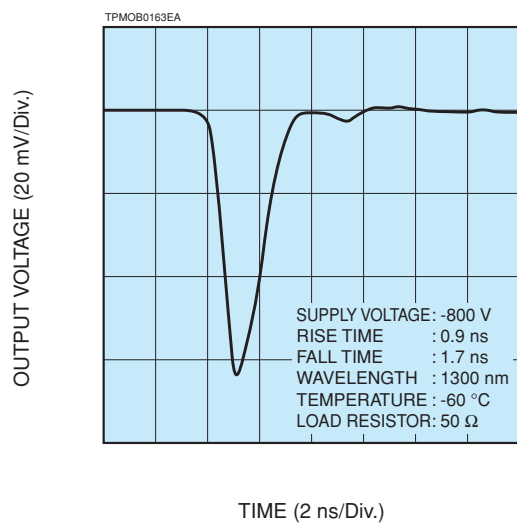
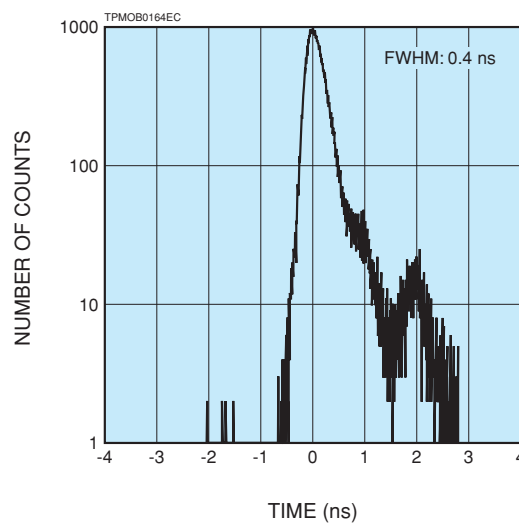


Figure 4: Transit time spread (T.T.S.)



TYPE No. GUIDE

H12694A-xx-C□

Number in □ indicates power cable specifications

- 2: For Japan / For North America
- 3: For EU
- 4: For China
- 5: For UK
- 6: For Australia

GATE CHARACTERISTICS

(at +25 °C)

Parameter		Description / Value	Unit
Gate mode		Normally OFF	—
Delay time ①		150	ns
Rise time		40	
Fall time		85	
Gate width		1 μ s to 10 ms	—
Repetition rate	Max.	10	kHz
Duty cycle	Max.	90 (ON.)	%
Gate signal input	Input impedance	500	Ω
	Low level	0 to 0.4	V
	High level	2.0 to 15	V

NOTE: ① Refer to the gate timing chart to avoid switching noise.

Figure 5: Gate timing chart

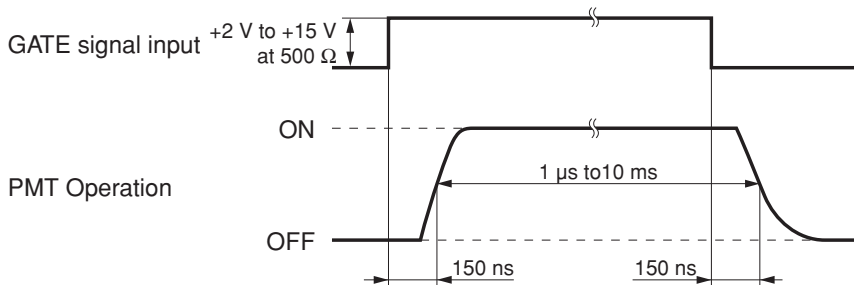


Figure 6: Input / output time width

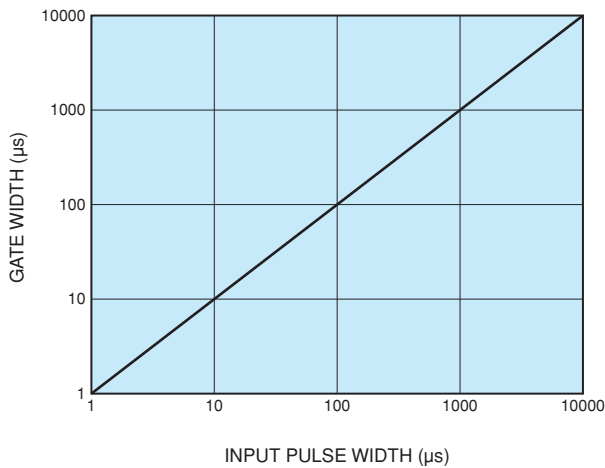
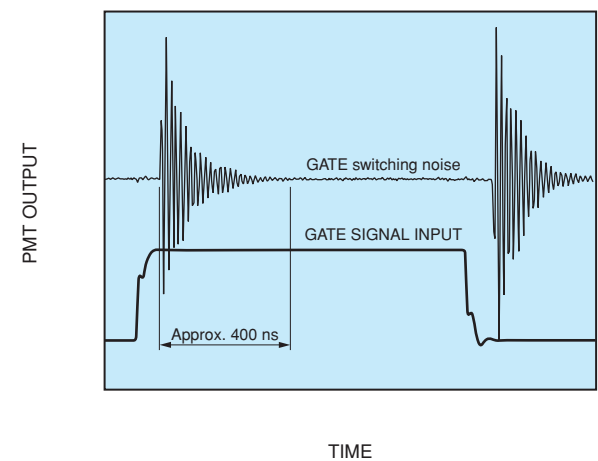


Figure 7: Gate switching noise



OPTIONS

Sold separately

Adapters to match optical fiber connectors or monochromators are available.

- **Optical fiber adapters A10463 series**

These adapters allow light from an optical fiber to efficiently enter the PMT. Specify an FC type (A10463-01) or SMA type (A10463-02) adapter when ordering.

- **Monochromator adapter A10464 series**

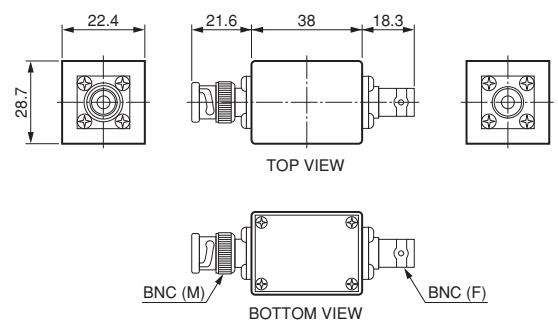
The adapter collects light from a monochromator efficiently. Please inform us of the type of the monochromator.

- **Resistor box with BNC connectors A9267 series**

A 50 Ω resistor box with BNC connectors (A9267-01) is available. Use the 100 k Ω resistor box (A9267-02, supplied with H12694A) for use with a lock-in amplifier.

*Please contact your local Hamamatsu office for any assistance.

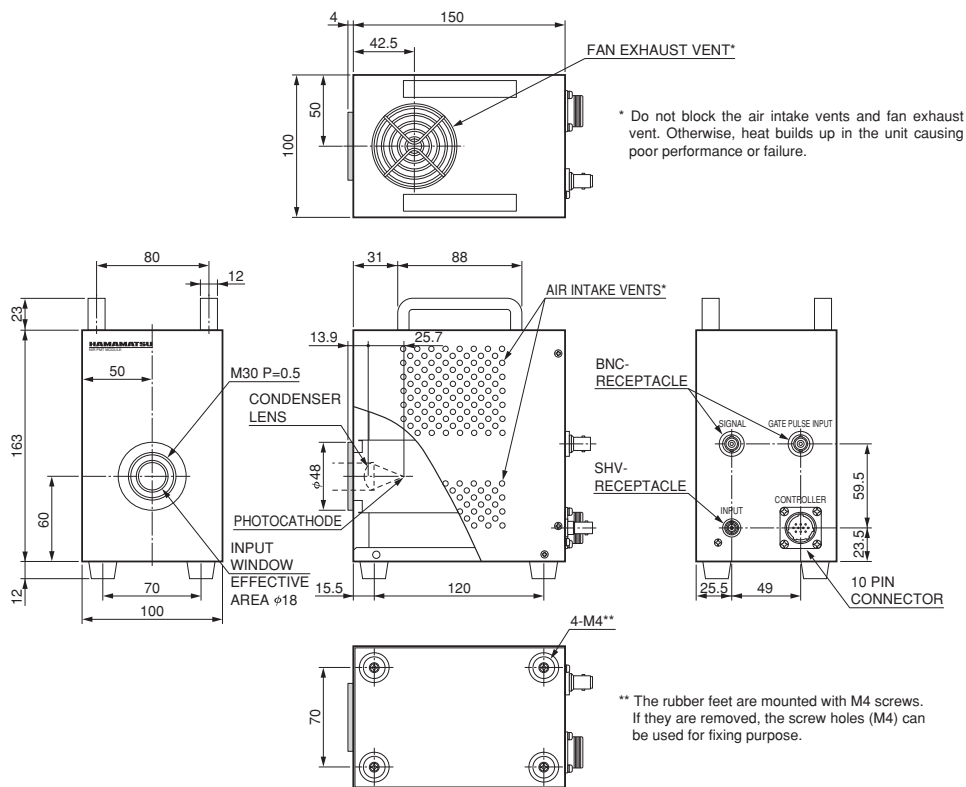
Figure 8: Dimensional outlines (Unit: mm)
A9267 series



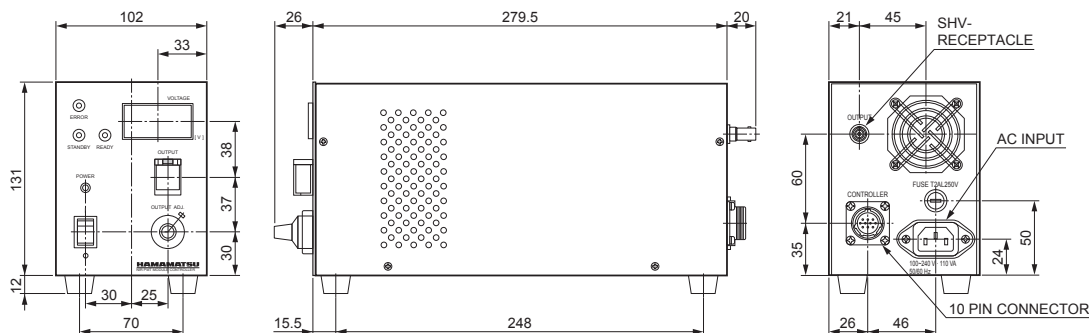
NIR-PMT UNITS H12694A SERIES

Figure 9: Dimensional outlines (Unit: mm)

●NIR-PMT main unit

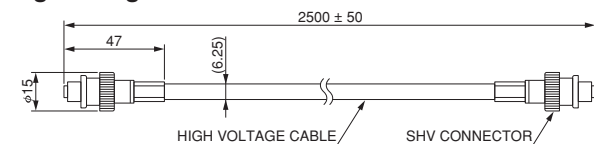


●NIR-PMT unit controller

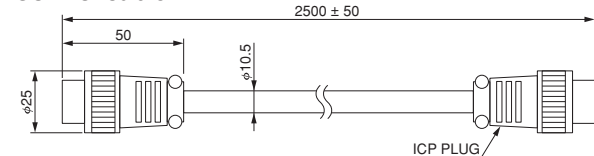


●Accessories

High voltage cable



Control cable



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