

# Photon Counting Head

**HAMAMATSU**

## H7828 Series



The H7828 series are photon counting head devices using a 19-mm (3/4") diameter head-on photomultiplier tube, high-speed photon counting circuit, and high-voltage power supply circuit. The high voltage supply for photomultiplier tube and the discrimination level are preset to optimum values, allowing photon counting measurement by just connecting a +5 V supply. Despite its compact size, the effective photosensitive area is as large as 15 mm in diameter, so the incident light can be collected very efficiently. Compared to other PMT modules, the H7828 series devices have higher resistance to vibration and shock, making them suitable for portable or mobile measurement equipment. Two types of 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	Features
H7828	300 nm to 650 nm	For visible range
H7828-01	300 nm to 850 nm	For visible to near IR range

## Specifications

Parameter			H7828	H7828-01	Unit
Input Voltage			+4.5 to +5.5		V
Max. Input Voltage			+6		V
Max. Input Current			60		mA
Effective Area			φ15		mm
Peak Sensitivity Wavelength			420	380	nm
Count Sensitivity	Typ.	300 nm	$2.1 \times 10^5$	$1.7 \times 10^5$	$s^{-1} \cdot pW^{-1}$
		400 nm	$3.6 \times 10^5$	$2.1 \times 10^5$	
		500 nm	$2.8 \times 10^5$	$1.6 \times 10^5$	
		600 nm	$5.0 \times 10^4$	$1.0 \times 10^5$	
		700 nm	—	$5.9 \times 10^4$	
Count Linearity *1			$1.5 \times 10^6$		$s^{-1}$
Dark Count *2		Typ.	200	2000	$s^{-1}$
		Max.	500	3500	
Pulse-pair Resolution			70		ns
Output Pulse Width			30		ns
Output Pulse Height *3	Min.		3.0		V
	Typ.		3.5		
Recommended Load Resistance			50		Ω
Signal Output Logic			Positive logic		—
Operating Ambient Temperature *4			+5 to +40		°C
Storage Temperature *4			-20 to +50		°C
Weight			70		g

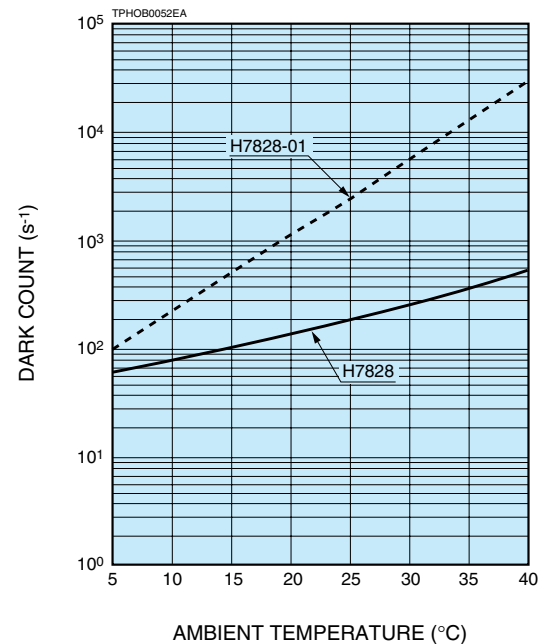
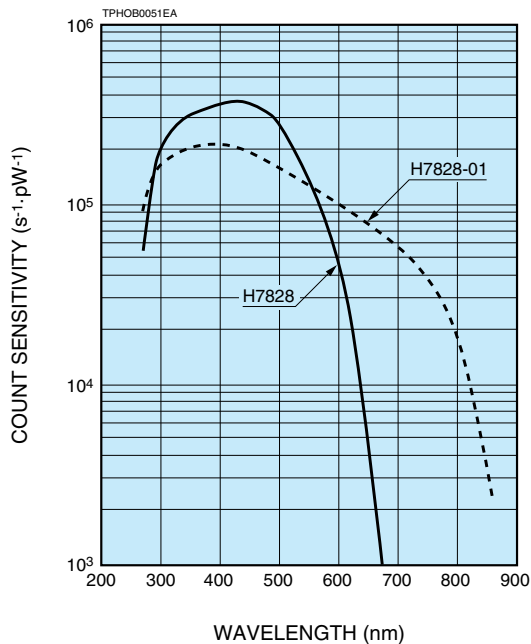
\*1: Random pulse, at 10 % count loss

\*2: After 30 minutes storage in darkness

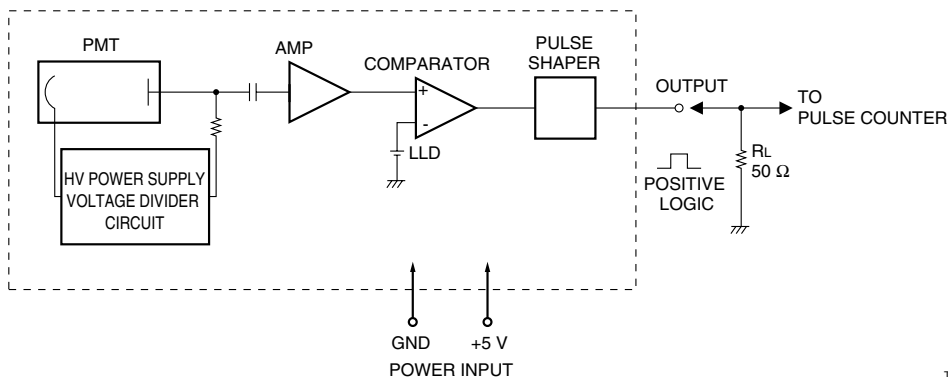
\*3: With input voltage +5 V, Load resistance 50 Ω and Coaxial cable RG-174/U (450 mm)

\*4: No condensation

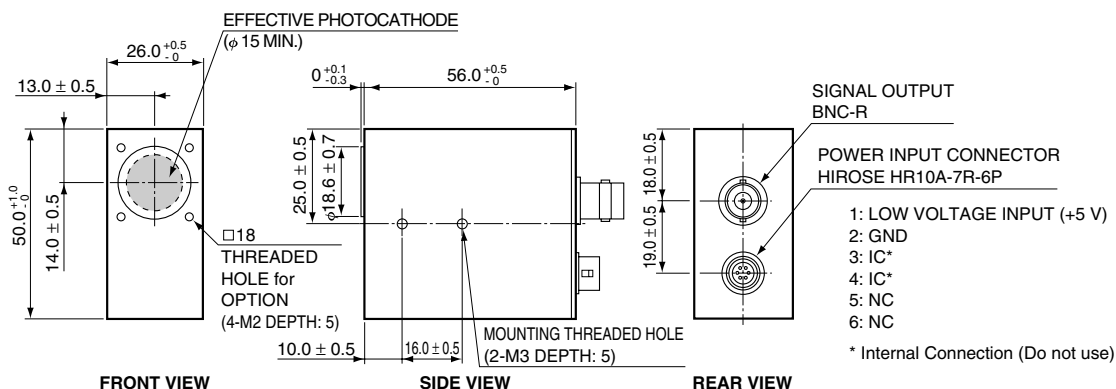
## Characteristics (Count sensitivity, Dark count)



## Block Diagram



## Dimensional Outlines (Unit: mm)



Power cable with connector (HIROSE HR10A-7P-6S) is supplied with H7828 series

