

β -ray and soft X-ray detector

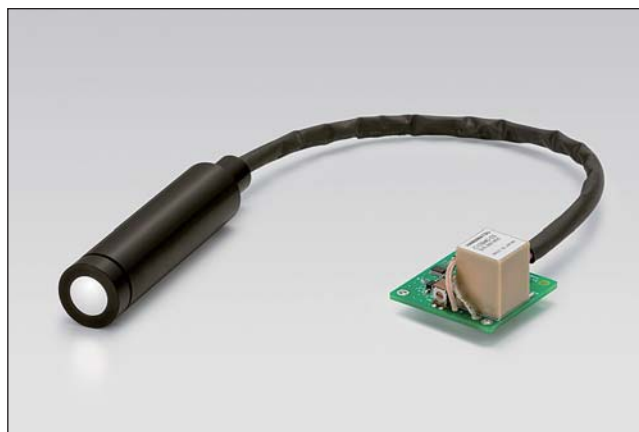
SCINTILLATION PROBE

C13953-01

OVERVIEW

The C13953-01 is a photomultiplier module that consists of a 13 mm diameter head-on photomultiplier tube coupled to a plastic scintillator, a high voltage power supply circuit, and a photon counting circuit.

The C13953-01 operates at ± 5 V input and outputs logic pulses proportional to the incident radiation dose.



FEATURES

- Including a plastic scintillator
- High sensitivity
- ± 5 V operation
- Compact and lightweight
- Logic pulse output

APPLICATIONS

- β -ray detection
- Soft X-ray detection
- Dust particle measurement (e.g. PM2.5)

SPECIFICATIONS

Parameter	Description / Value	Unit
Input voltage	± 5	V
Maximum input voltage	± 5.5	V
Input current *1	Typ. +100/-30	mA
Effective area	$\phi 12$	mm
Light-shielding film	Aluminum deposited film	—
Scintillator	Plastic scintillator (thickness: 0.5 mm)	—
Pulse-pair resolution	10	ns
Input / output division ratio	1/2, 1/4, 1/8, 1/16, 1/32 (Initial setting: 1/8)	—
Count linearity *2	1×10^7	s ⁻¹
Maximum number of output pulses (when divided by 8)	1.25×10^6	s ⁻¹
Output format	Open collector	—
Maximum output withstand voltage	+15	V
Input / output connector	MZW-1-1-2PM (MAC8)	—
Operating ambient temperature / humidity *3	0 °C to +40 °C / Below 80%	—
Storage ambient temperature / humidity *3	-15 °C to +50 °C / Below 85%	—
Weight	63	g

*1: When open collector output is not connected

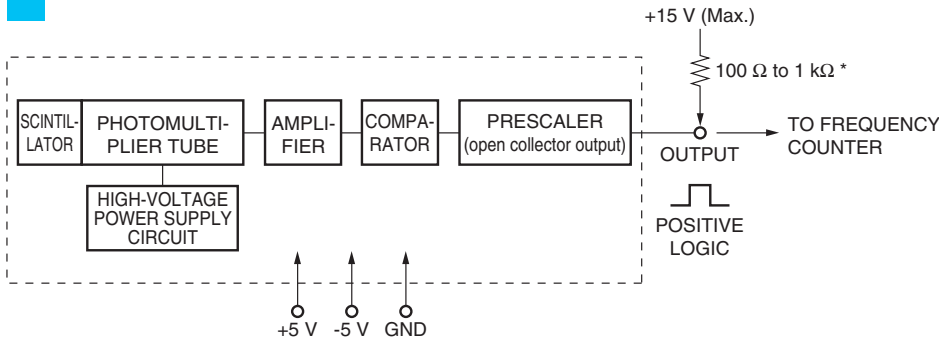
*2: Random pulse, at 10 % count loss

*3: No condensation

HAMAMATSU

PHOTON IS OUR BUSINESS

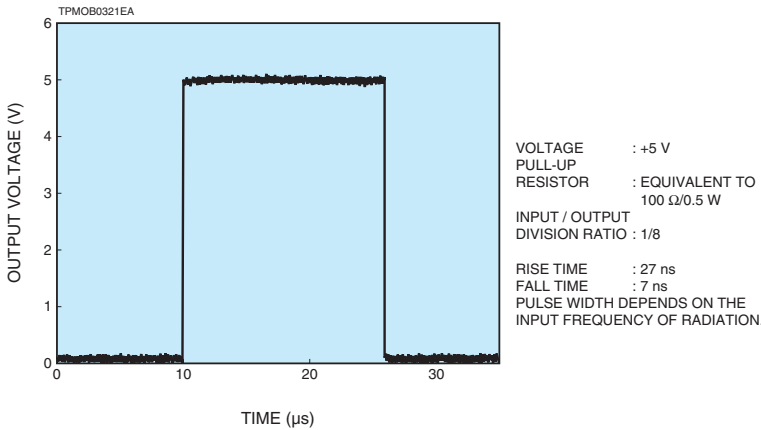
BLOCK DIAGRAM



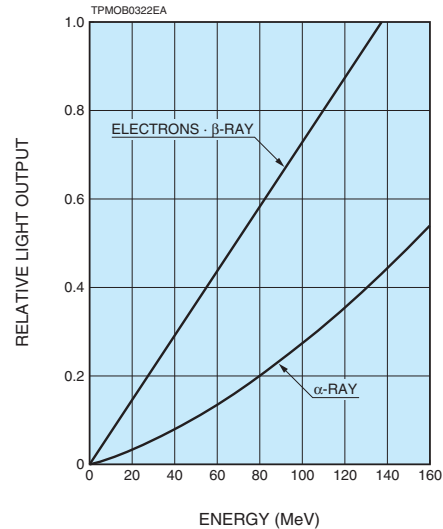
* When selecting the resistance, be aware of the resistor's allowable power consumption.

TPMOC0278EA

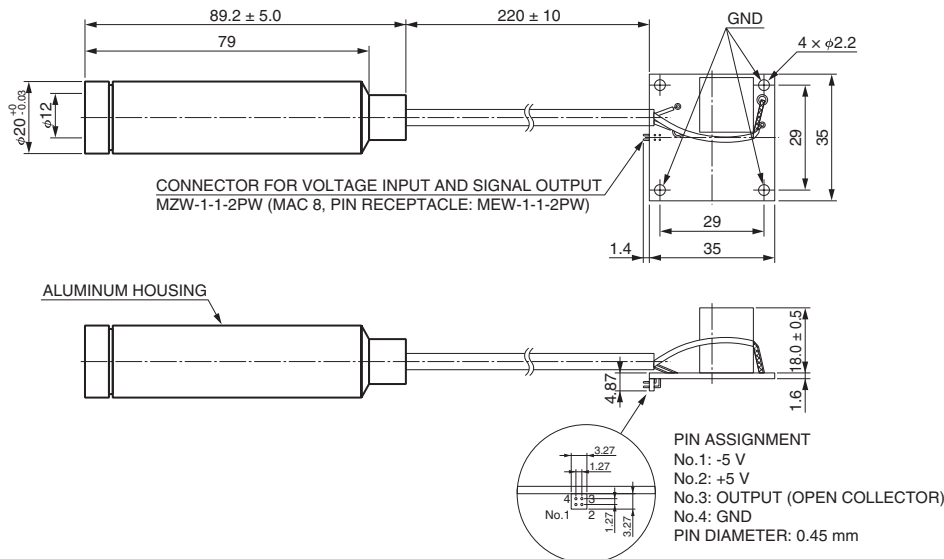
OUTPUT WAVEFORM EXAMPLE



PLASTIC SCINTILLATOR LIGHT OUTPUT



DIMENSIONAL OUTLINE (Unit: mm)



Subject to local technical requirements and regulations, availability of products included in this promotional material may vary. Please consult with our sales office.
 Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. ©2017 Hamamatsu Photonics K.K.

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Electron Tube Division

314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com

Germany: Hamamatsu Photonics Deutschland GmbH.: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01 E-mail: info@hamamatsu.se

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it

China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No.158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)03-659-0080, Fax: (886)03-659-0081 E-mail: info@tw.hpk.com.jp

TPMO1081E01
 SEPT. 2017 IP