ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Hamamatsu H9170-75* at our website: ***Click HERE***

PRELIMINARY

NIR-PMT MODULE

(Thermoelectrically cooled)

H9170-45, -75

Wavelength Range: 950 nm to 1400 nm / 950 nm to 1700 nm, TE cooled, High Speed, Suitable for Photon counting



* Rotary Vacuum Pump is not shown (included)

OVER VIEW

Hamamatsu has developed a highly sensitive semi-transparent NIR photocathode by the novel photocathode technology.
We have adopted this technology to a compact photomultiplier tube (PMT) and have developed a PMT module with the air cooled TE cooler and high voltage power supply with protection circuit. No liquid nitrogen or cooling water is necessary. The cooling unit is equipped with a condensor lens that allows large input area for easy optical coupling. Adaptors for optical fiber or monochromator are available as an option.

APPLICATIONS

- Photoluminescence
- Singlet Oxygen Measurement
- Raman Spectroscopy
- Cathodoluminescence
- Fluorescence, Fluorescence Life Time
- LIDAR

FEATURES

- High Sensitivity (Capable of Photon Counting)
- Fast Time Response
  Rise Time: 900 ps, TTS: 300 ps
- Compact
- Simple Operation by Air Cooled TE Cooler
  No Liquid Nitrogen, No Cooling Water in Necessary
- Operable in 20 min after Swiched ON
- Large Detection Area
  ϕ19 mm for Collimated Light
- HV Power Supply with Interlock Function
- Mechanical Shutter
- Optional Adaptors are Available.
  For Optical Fiber (FC type)
  For Monochromator

HAMAMATSU

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

SPECIFICATIONS

GENERAL

Parameter	H9170-45	H9170-75	Unit
Spectral Response	950 to 1400	950 to 1700	nm
Photocathode Material	InP/InGaAsP	InP/InGaAs	—
Detection Area for Collimated Light	ϕ19		mm
Effective Area of PMT	ϕ1.6		mm
PMT Operating Temperature	-60		°C
PMT Supply Voltage	-500 to -900		V
Storage Ambient Temperature	-20 to +50		°C
Operating Ambient Temperature	+7 to +30		°C

MAXIMUM RATING

Parameter	H9170-45	H9170-75	Unit
PMT Supply Voltage	-900		V
Average PMT Anode Current	1		µA

CHARACTERISTICS (at -800 V, -60 °C)

Parameter		H9170-45			H9170-75			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Cathode Sensitivity ①	Quantum Efficiency	0.48	—	—	0.29	—	—	%
	Radiant	5	—	—	3.5	—	—	mA/W
Anode sensitivity ①	Radiant	1000	—	—	700	—	—	A/W
Gain		2×10^5	1×10^6	—	2×10^5	1×10^6	—	—
Anode Dark Current ②		—	4	10	—	40	100	nA
Anode Dark Count ②		—	2×10^4	—	—	2×10^5	—	s^{-1}
Time Response	Anode Pulse Rise Time	—	0.9	—	—	0.9	—	ns
	Anode Pulse Fall Time	—	1.7	—	—	1.7	—	ns
	Transit Time Spread	—	0.3	—	—	0.3	—	ns

① At 1300 nm (H9170-45), at 1500 nm (H9170-75) ② At 30 minutes after high voltage is applied with shutter closed, and 1×10^6 gain.

MODULE, CONTROLLER

Parameter		Value / Description	Unit
Cooling Method		Thermoelectric / Air Cooled	—
Condenser Lens Material		BK7	—
Diameter of the Condenser Lens		ϕ20	mm
F Number of the Condenser Lens		1.25	—
Cooling Time to -60 °C PMT Temperature		20	min
Protection Function		High Voltage Interlock for Inappropreate Temperature	—
Input Voltage (AC)		90 to 264 (50 Hz / 60 Hz)	V
Dimensions (W × H × D) ③	Module	210 × 193 × 200	mm
	Controller	100 × 193 × 310	
Weight	Module	Approx. 8	kg
	Controller	Approx. 3	

③ Excluding projections.

ROTARY VACUUM PUMP

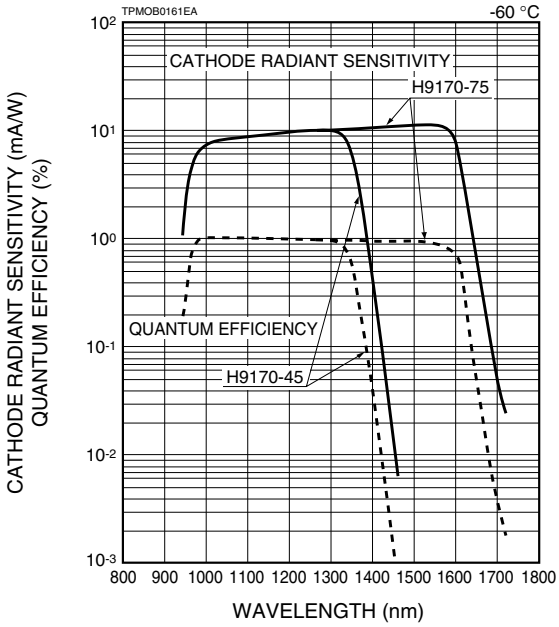
Parameter	Value / Description	Unit
Type	Oil-Sealed Rotary Vacuum Pump	—
Input Voltage (AC) ④	90 to 126 or 180 to 252 (50 Hz / 60 Hz), Single Phase	V
Pumping Speed	50 (50 Hz), 60 (60 Hz)	l/min
Dimensions (W × H × D)	150 × 251 × 427	mm
Weight	Approx. 16	kg

④ The voltage is set at the factory. If change is necessary, please consult with your local Hamamatsu office.

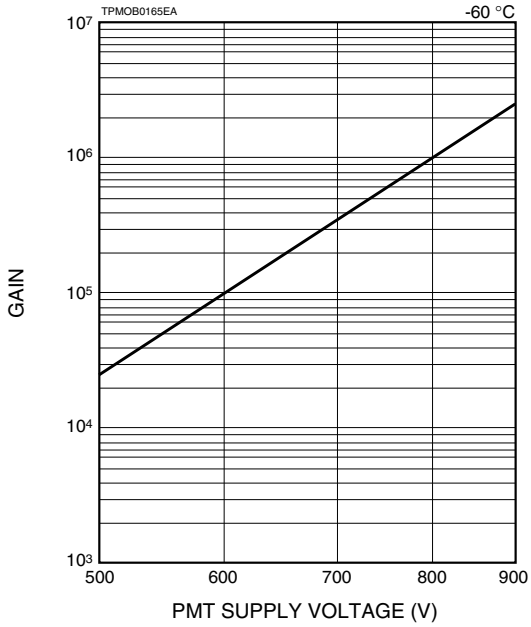
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CHARACTERISTICS

●Spectral Response

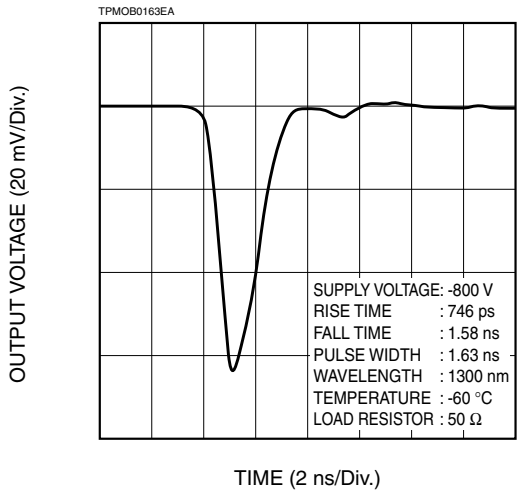


●Typical Gain

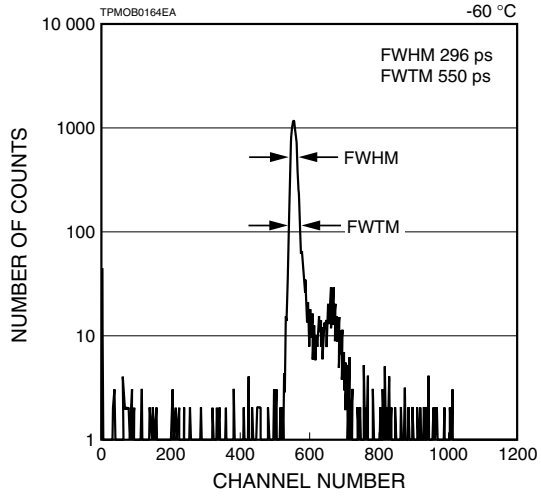


●Timing Properties

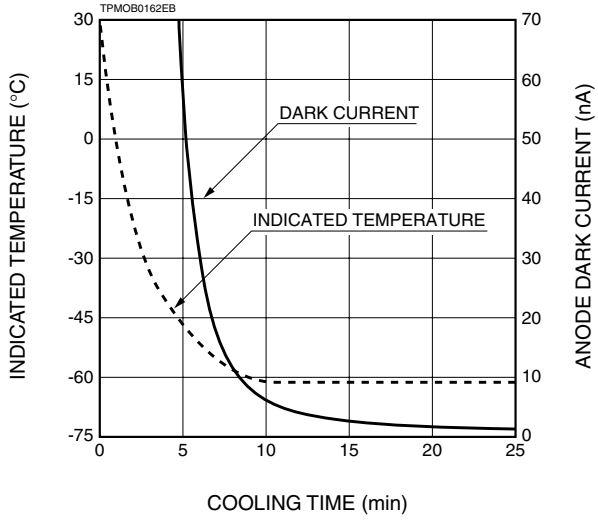
Waveform



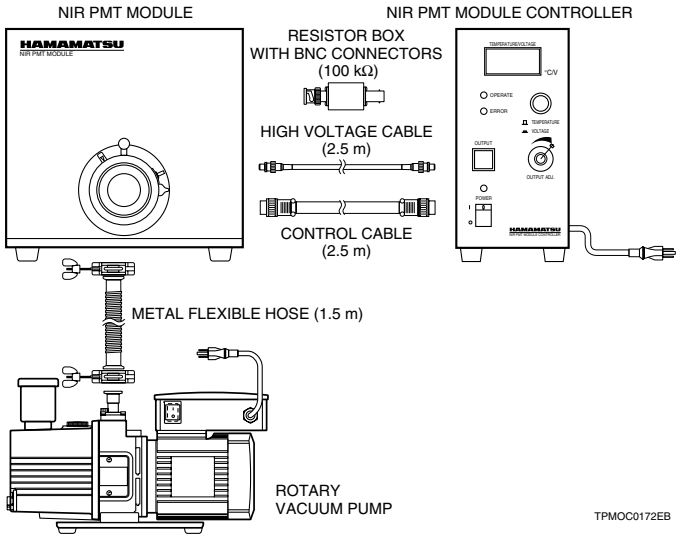
Transit Time Spread (T.T.S.)



●Temperature / Dark Current vs. Cooling Time (H9170-45)



SYSTEM CONFIGURATION
(CONNECTION DIAGRAM)

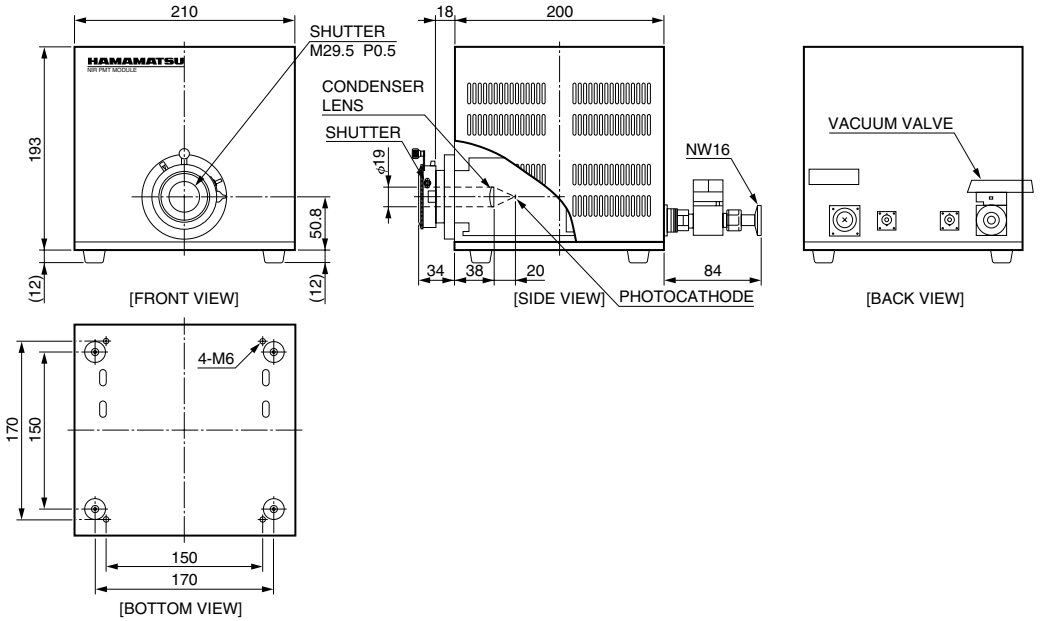


TPMOC0172EB

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

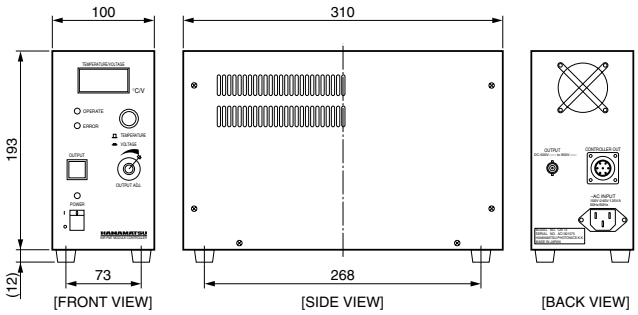
DIMENSIONAL OUTLINES (Unit: mm)

●NIR-PMT Module



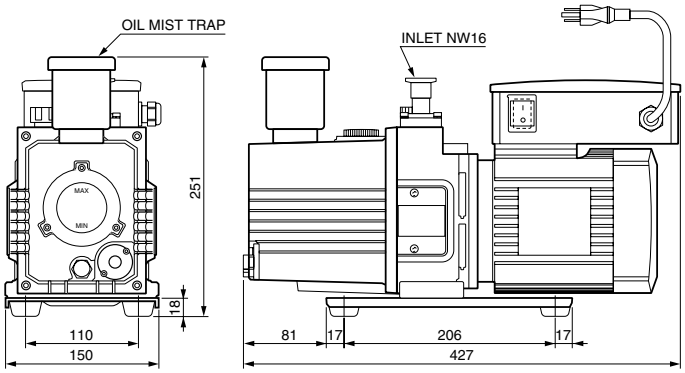
TPMOA0025EA

●NIR-PMT Module Controller



TPMOA0026EA

●Rotary Vacuum Pump



* The drawing of the AC plug shows Japanese / USA types.
European and UK types are also available.

TPMOA0027EB

OPTIONS (sold separately)

Adaptors to match optical fiber connectors or monochromators are available.

●Optical Fiber Adaptor

The adaptor efficiently collects light from the optical fiber with FC connector.

●Monochromator Adaptor

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

●Resistor Box with BNC Connectors

A 50 Ω resistor box with BNC connectors is available.

Use the 100 kΩ resistor box (supplied with H9170) for use with a lock-in amplifier.

*Please contact your local Hamamatsu office for any assistance.

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. ©2003 Hamamatsu Photonics K.K.

HAMAMATSU WEB SITE http://www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Electron Tube Center
314-5, Shimokanzo, Toyooka-village, Iwata-gun, Shizuoka-ken, 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P. O. Box 6910, Bridgewater. N.J. 08807-0910, 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)8152-2658 E-mail: info@hamamatsu.de
France: Hamamatsu Photonics France S.A.R.L.: 8, 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, United Kingdom, Telephone: 44-(0)1707-294888, Fax: 44(0)1707-325777 E-mail: info@hamamatsu.co.uk
North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171-41 SOLNA, 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/E, 20020 Arese, (Milano), Italy, Telephone: (39)02-935 81 733, Fax: (39)02-935 81 741 E-mail: info@hamamatsu.it

TPMO1026E03
MAY 2003 IP
Printed in Japan (1000)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP