ORTEC®

AMETEK®

269
Photomultiplier Base

- **For use with 14- and 12-stage PMTs that fit standard 20-pin sockets**
- **For high-pulse current, fast-timing applications, and energy measurements**
- **Excellent pulse fidelity for a wide range of signal currents**
- **Excellent for single-photon counting**



The ORTEC Model 269 Photomultiplier Base structure is a mechanical assembly and resistive voltage divider network, with appropriate capacitive-decoupling for operation of 14- and 12-stage PMTs that fit standard 20-pin sockets, including:

Hamamatsu R1250.

Philips XP2020, XP2020Q, XP2040, XP2040Q, XP2041, XP2041Q, XP2212B, XP2230B, XP2233B, XP2262B.

EMI 9813K.

Internal trimmer controls permit optimum adjustment of the voltage distributed to the focus and deflection electrodes and to the last dynode.

All of the above photomultiplier tubes are capable of producing high-current timing output pulses, and the Model 269 PMT Base structure complements the tube characteristics by maintaining the excellent pulse fidelity through a wide range of signal currents (Fig. 1).

Two outputs are furnished from the Model 269: the negative signal from the anode is intended for timing or single-photon counting, while the linear signal from the tenth dynode is for energy measurements.

Each of the last four dynodes is also available externally through contacts of the Auxiliary connector. These connections permit external voltage stabilization for the last four dynodes of the PMT.

Excellent results for both timing and energy measurements can be obtained with NaI(Tl), fast liquid scintillators, or fast plastic scintillators. The Model 269 Base is also ideal for single-photon counting applications.

All photomultiplier tube specifications are furnished by the manufacturer.

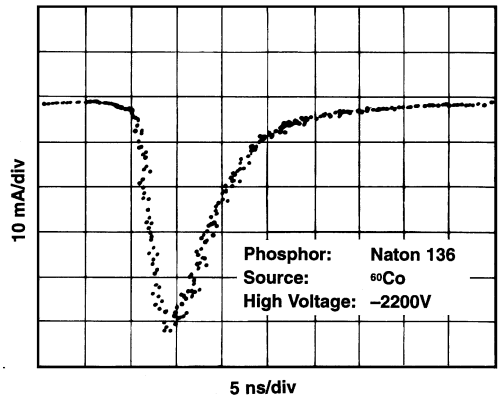


Fig. 1. Typical Anode Output Pulse.

Specifications

BASE

HIGH VOLTAGE Negative, 3 kV maximum.

BLEEDER CURRENT 2-mA maximum (last four dynodes available for voltage stabilization).

SIGNAL

ANODE Negative timing signal, 50 Ω, dc-coupled, backterminated; very good pulse quality for signal currents to 0.5 A for Philips tubes.

DYNODE Positive linear signal from the eighth or tenth dynode (pin 13); capacitive-coupled; impedance ~1 MΩ.

INTERNAL CONTROLS Voltage adjustment for focus and deflection electrodes and for the last dynode.

CONNECTORS

ANODE BNC.

DYNODE BNC.

HIGH VOLTAGE SHV AMP 51494-2.

AUXILIARY MS3112E12-10S or Bendix PT02E-12-10S.

PMT SOCKET 20-pin JEDEC B20-102.

ELECTRICAL AND MECHANICAL

WEIGHT
Net 0.63 kg (1.4 lb)
Shipping 1.37 kg (3.0 lb)

DIMENSIONS 7.62 cm (3 in.) diam x 20.32 cm (8 in.) long

Related Equipment

The anode timing signal should be furnished to an ORTEC Fast Discriminator (such as Models 583B, 584, or 935) using a 50-Ω coaxial cable (C-25-12). For single-photon counting insert a fast amplifier, such as the Model VT120, between the anode output and the discriminator input.

The linear output from pin 13 is normally processed through an ORTEC Model 113 Scintillation Preamplifier and a Shaping Amplifier (such as Models 460, 570, 572, or 575A) for energy spectroscopy.

High voltage, at the level recommended by the manufacturer of the PMT, can be furnished from an ORTEC Model 556 High-Voltage Power Supply. The C-36-12 Cable is available for this connection.

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Ordering Information

Model	Description
269	Photomultiplier Base
C-25-12	RG-58A/U 50-Ω Cable with two BNC male plugs, 12-ft length
C-36-12	RG-59A/U 75-Ω Cable with two SHV female plugs, 12-ft length

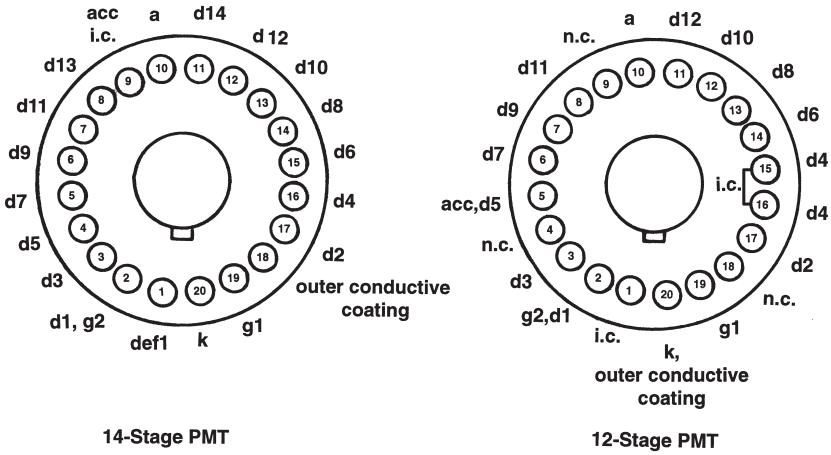


Fig. 2. The Model 269 Socket Fits the JEDEC B20-102 20-Pin PMT Bases for 14-Stage PMTs (or 12-stage PMTs that have an internal short between pins 15 and 16).

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Specifications subject to change
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