EP-AP2108 PMT Tube

Holder Type Fast Current Front End Readout Circuits

1.Overview

The EP-AP2108 is an all-in-one tube holder type fast current preamplifier, which integrates adjustable high voltage, voltage divider tube holder and fast current preamplifier, and different voltage divider tube holders are available to realize the compatibility with various types of photomultiplier tubes. The amplifier has a bandwidth of 230MHz and is widely used in the field of high-resolution spectroscopic measurements of scintillator detectors.

2.Functional indicators

- 1 ····· Integrated Adjustable High Voltage, Voltage Divider Block, Current Sensitive Amplifier, High Signal-to-Noise Ratio Applications
- 2 ····· High signal swing output. Supplied with various voltage divider brackets
- 3 ····· Extremely high PSRR power chip filtered power supply
- 4 ····· Used in conjunction with photomultiplier tubes in energy spectrum measurement applications

3.Performance parameter

Power supply	Power	PSRR low voltage output	High Voltage Output Voltage	Gain Linearity	I/V conversion ratio	Rise time
+12V	390mW	±10V	±1500V MAX	<0.02%	300mV/1μA	<15ns

4.Electromechanical interface

- Power Input ····· LEMO（3 electric core）
- HV Adjust ····· High pressure adjustment knob
- HV testing ····· High Voltage Test Port
- Dynode Output ····· Dynode signal output
- Amplified output ····· Preamplifier signal output

Figure 1 Connection method

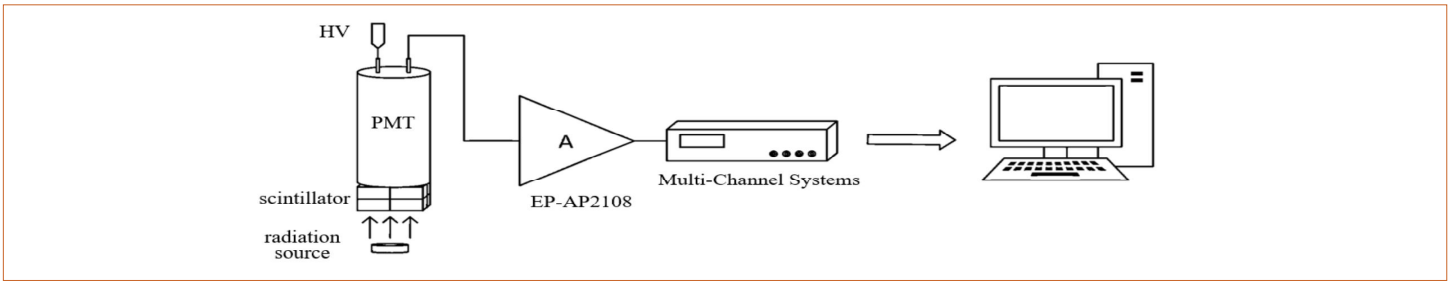
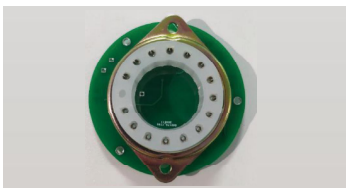
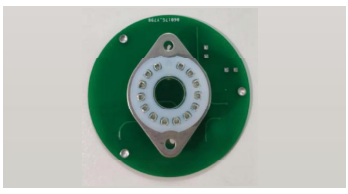


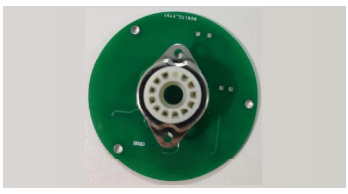
Figure 2 Physical drawing of compatible PMT



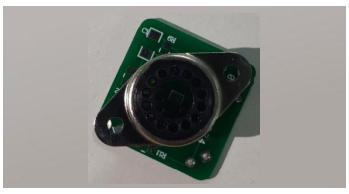
4 in. PMT (level 10)



3 in. PMT (level 11)



2 in. PMT (level 10)



1 in. PMT (level 10)

* The default is a standard 14-pin socket Class 8 PMT header, which can be replaced with various types of PMT headers (including but not limited to the following types of headers) according to the user's needs.

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5.Performance testing

Figure 3 NaI scintillator test for^{137}Cs raw pulses

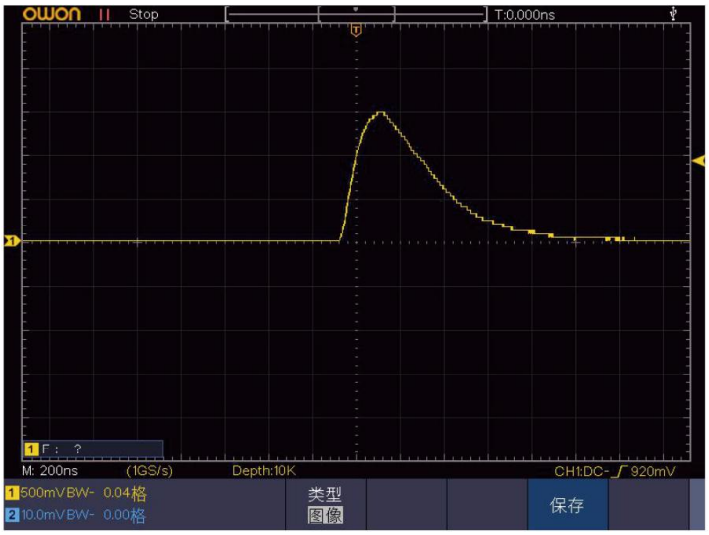
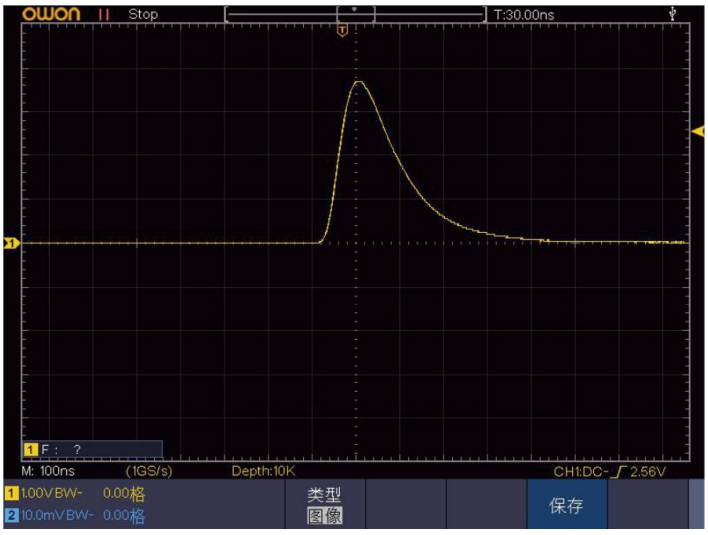
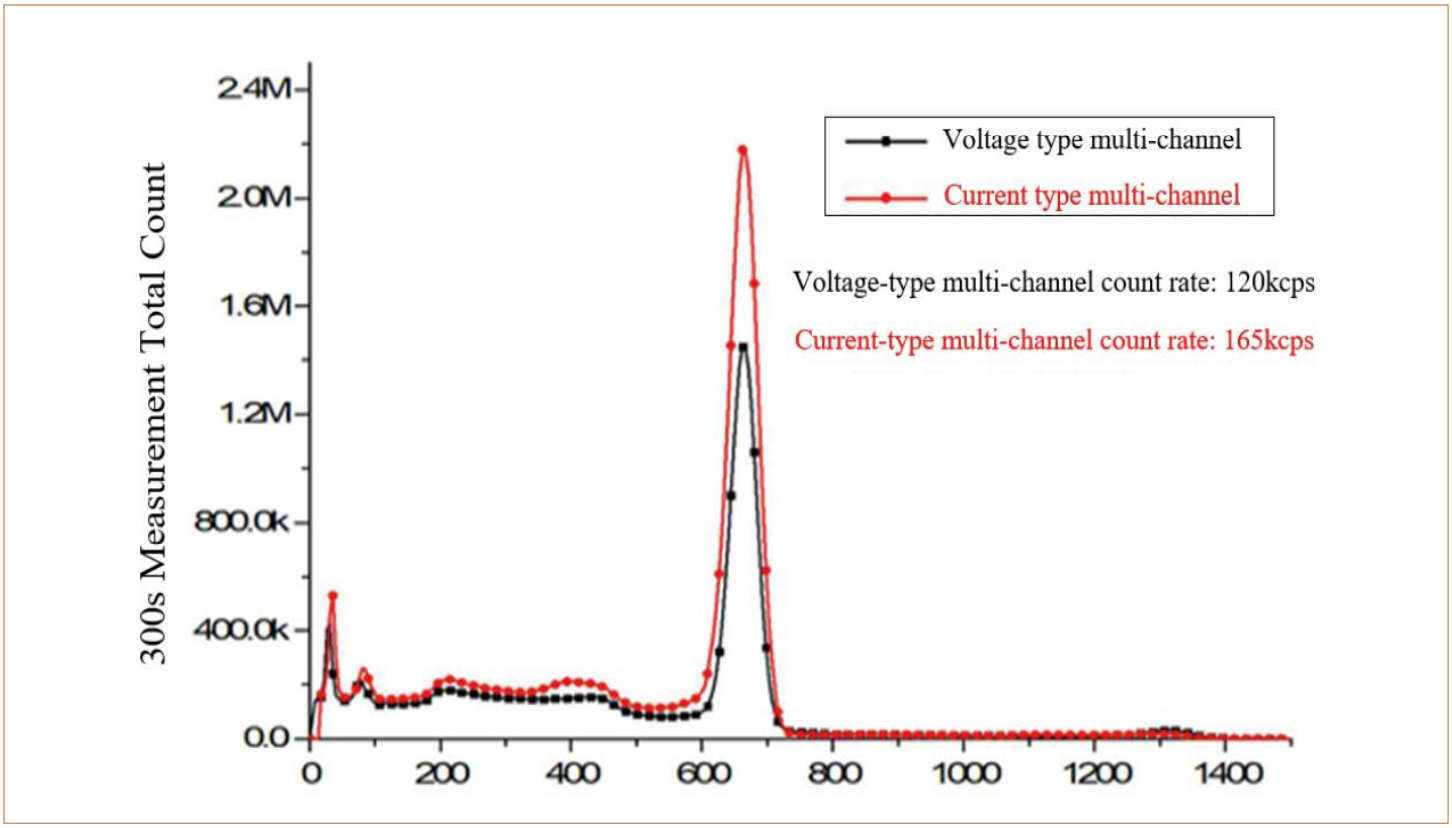


Figure 4 $LaBr_3$ scintillator test for^{137}Cs raw pulses



6.Application examples

Figure 5 Energy spectrum of NaI test



1、Using NaI crystal coupling fast photomultiplier R6231, using EP-AP2108 PMT fast current preamplifier to realize the signal amplification, and our EP-PD1102 digital multi-channel to realize the energy spectrum readout (Figure 5), the measured resolution of 662 keV gamma rays on ^{137}Cs is 7.2%@165kcps。