

1. Overview



The EP-AP2107 is PMT tube holder type charge sensitive readout circuit. It integrates adjustable high voltage, voltage divider and charge sensitive preamplifier, and can be optionally equipped with different voltage divider to realize the connection with various types of photomultiplier tubes. It is compatible with various types of photomultiplier tubes, and is widely used in scintillators.

2. Functional indicators

- ▶ 1 Integrated adjustable high voltage, active voltage divider, charge sensitive amplifier
- ▶ 2 Complete with all types of manifold holders
- ▶ 3 Extremely high PSRR power chip filtered power supply
- ▶ 4 High signal-to-noise ratio applications

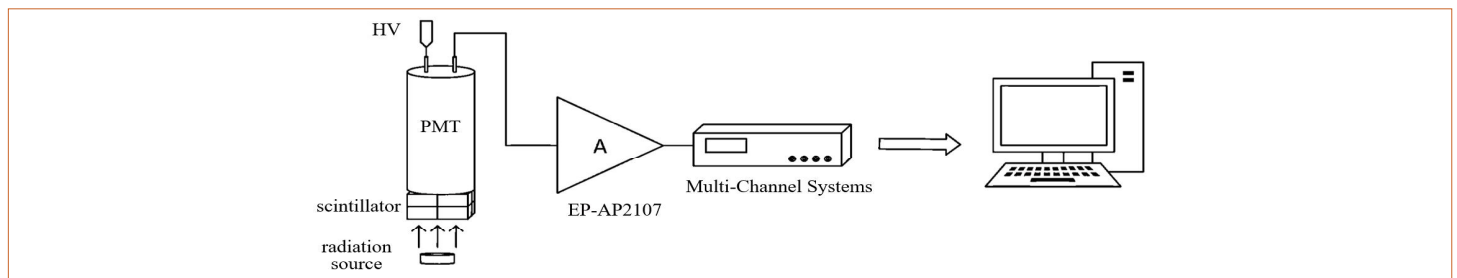
3. Performance parameter

Power supply	Output swing	Power	Analog bandwidth	High Voltage Output Voltage	Output resistance	Gain Linearity	Gain Temperature Stability	I/V conversion ratio	Operating temperature	Rising time	Storage temperature
+12V	±11.8V	470mW	145MHz	±1500V MAX	50Ω	<0.02%	±0.01%/C	150mV/1μA	0°C~+50°C	<33ns	-40°C~+125°C

4. Electromechanical interface

- ▶ Power Input BNC
- ▶ 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



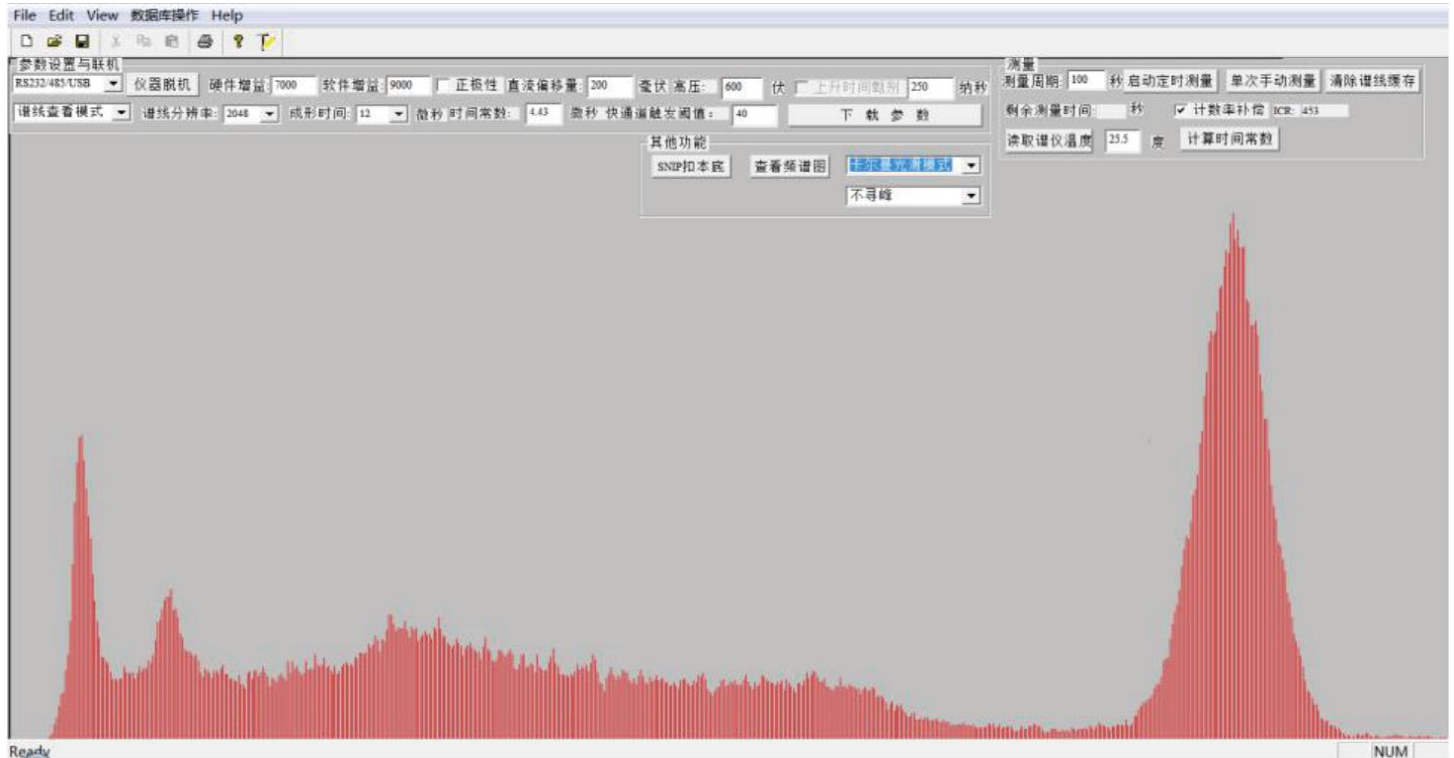
● Figure 2 Physical drawing of compatible PMT



* 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.

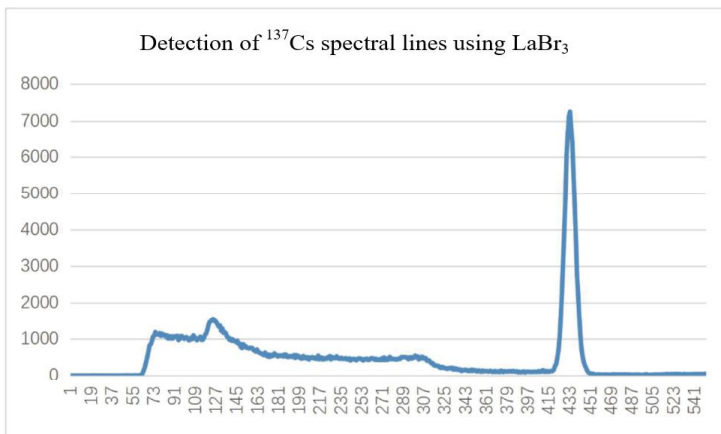
5. Application Testing

● Figure 3 Test ^{137}Cs energy spectrum



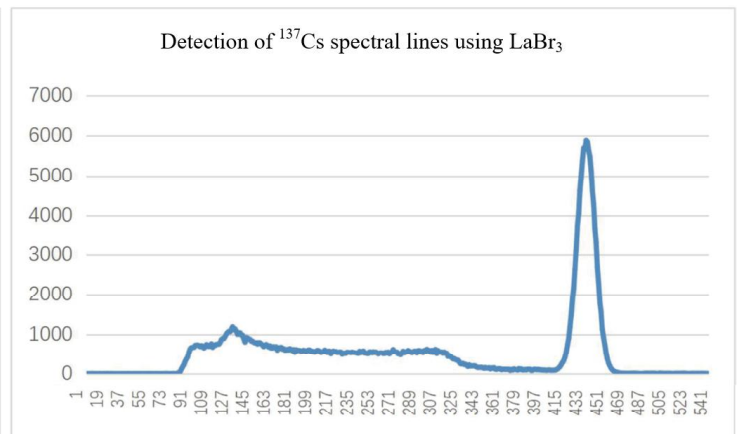
1、The EP-AP2107 general-purpose PMT charge-sensitive preamplifier was used to test a 3-inch NaI(Tl)+ PMT with a measured ^{137}Cs energy resolution of 5.7% @662keV.

● Figure 4 LaBr₃ test energy spectrum



2、Using LaBr₃ crystal-coupled fast-type photomultiplier R6231, the signal amplification was realized by using a fast-current PMT preamplifier of type EP-AP2107, and the energy spectrum readout was realized by using a EP-DP1119G digital multichannel (Figure 5), with a measured resolution of 2.4% for the 662 keV gamma ray of ^{137}Cs .

● Figure 5 CeBr₃ test energy spectrum



3、Using a CeBr₃ crystal-coupled fast-type photomultiplier R6231, a PMT fast-current preamplifier of type EP-AP2107 for signal amplification, and a digitized multi-channel of type EP-PD1102 for energy spectrum readout (Figure 6), the measured resolution for 662 keV gamma rays of ^{137}Cs is 4.2%.