

1. Overview



The EP-AP2110 is an all-in-one header type fast current front-end readout circuit with an integrated adjustable high voltage, voltage divider header and current preamplifier, which is compatible with various types of photomultiplier tubes with different divider headers. With a bandwidth of up to 1600 MHz, this amplifier can be used for high pulse throughput nuclear radiation measurements.

2. Functional indicators

- ▶ 1 Integrated adjustable high voltage, voltage divider block, current sensitive amplifier. Ultra-high speed, high pulse throughput
- ▶ 2 Complete with all types of manifold holders
- ▶ 3 Extremely high PSRR power chip filtered power supply
- ▶ 4 Used in conjunction with photomultiplier tubes in energy and time spectrum measurement applications

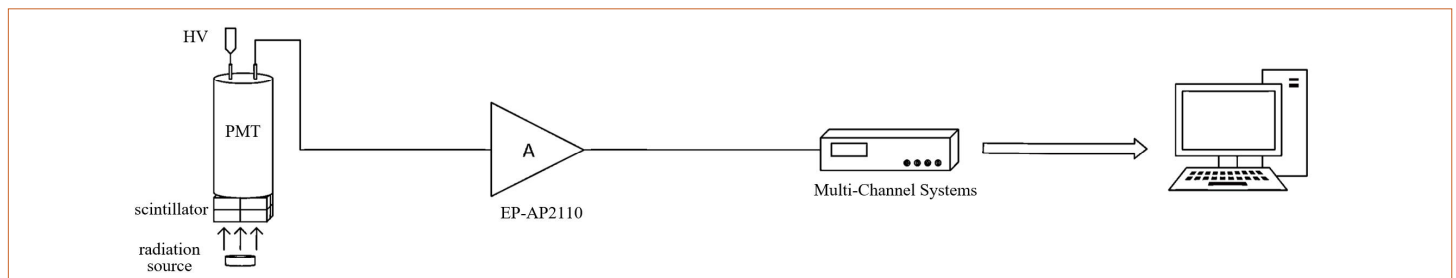
3. Performance parameter

Power supply	Power	PSRR Low voltage output	High Voltage Output Voltage	Gain Linearity	I/V Conversion ratio	Rising time	Output swing	Analog bandwidth	Output resistance	Gain Temperature Stability	Operating temperature	Storage temperature
+12V	300mW	300mW	±2000V MAX	<0.02%	200mV/1μA	<10ns	±2V	1600MHz	50Ω	<±0.01%/°C	0°C~+50°C	-65°C~+150°C

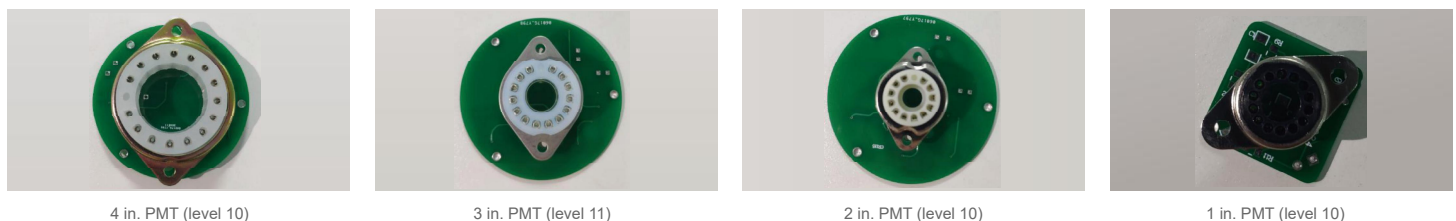
4. Electromechanical interface

- ▶ 12V Input 12V power supply input
- ▶ 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



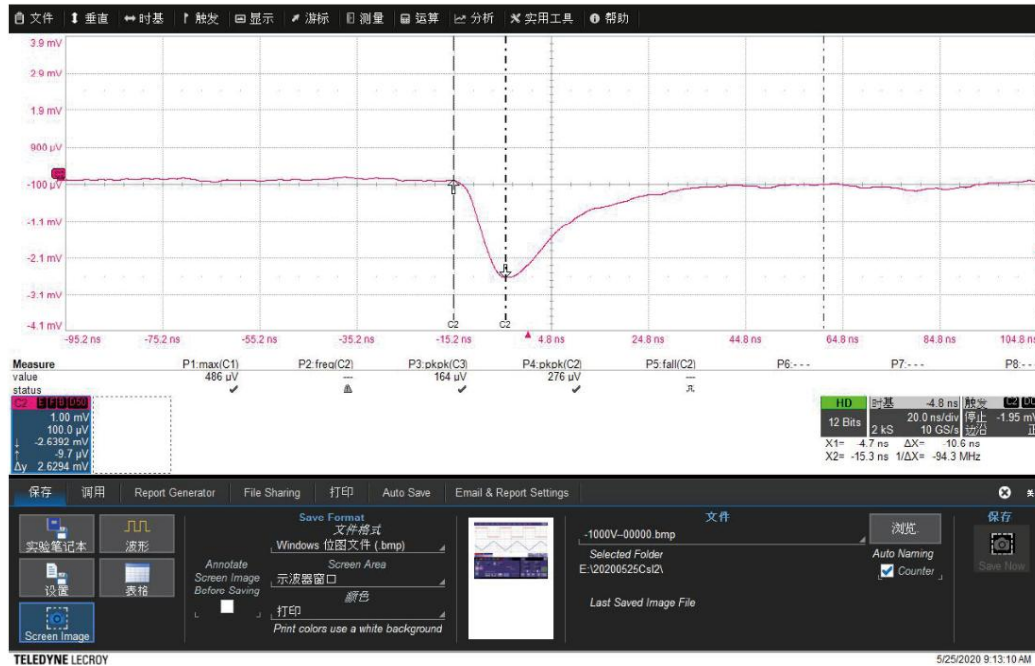
● Figure 2 Physical drawing of compatible PMT



* 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.

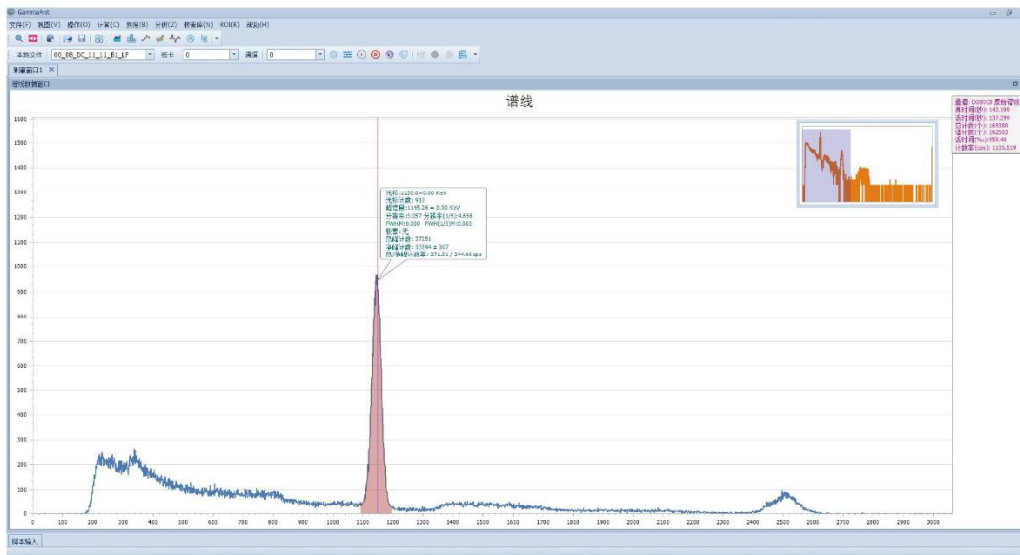
5. Performance testing

● Figure 3 Output signal diagram of a plastic scintillator connected to a current preamplifier



6. Applications

● Figure 4 Measured energy spectrum of ^{137}Cs with NaI



1. Using NaI crystal-coupled fast-type photomultiplier R6231, the signal amplification was realized by using a PMT fast-current-type preamplifier of type EP-AP2110, and the energy spectrum readout was realized by using a digitized multi-channel of type EP-PD1102, with a measured resolution of 7.3% for the 662 keV gamma rays of ^{137}Cs .