

1. Product Introduction



The EP-DMCA1008 Multi-Channel Pulse Height Analyzer is a high-performance OEM multi-channel board, supporting energy-spectrum output up to 8192 channels. Integrated on-board functions include hardware-controlled programmable gain, DC offset adjustment and input attenuation. It can be powered via USB or DC 5 V, with built-in reverse-connection protection. Besides energy-spectrum analysis, it also provides oscilloscope mode and shaped-pulse viewing mode to satisfy diverse signal acquisition and observation requirements.

This product adopts high-speed, high-precision ADC for analog-to-digital conversion. It implements pulse filtering-denoising and accurate amplitude extraction through digital trapezoidal shaping-filtering with fast-slow dual-channel architecture, digital baseline restoration, digital pulse pile-up rejection and count-rate correction. The board includes front-stage high-voltage and low-voltage power supply boards. It is applicable to scintillator-based measurement systems using NaI, LaBr₃, CeBr₃, as well as semiconductor detectors such as PIPS, gold-silicon surface-barrier detectors and CZT.

2. Functional Indicators

- ▶ 1 Supports maximum 8192-channel energy-spectrum output for high-count-rate and high-precision energy-spectrum measurement
- ▶ 2 Supports hardware programmable gain, DC offset adjustment and input attenuation; features energy-spectrum mode, oscilloscope mode and shaped-pulse viewing mode
- ▶ 3 Communication interfaces: Ethernet, USB2.0 and serial port; supports multi-device networked measurement

3. Application Scenarios

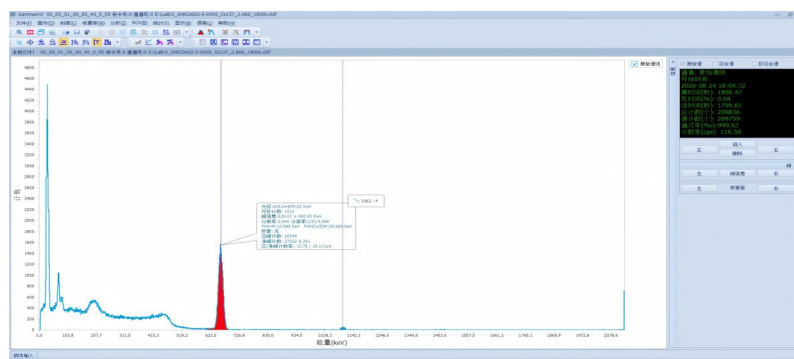
- ▶ 1 Energy-spectrum measuring equipment including portable spectrometers and gamma-ray spectrometers
- ▶ 2 Scintillator measurement systems (NaI, LaBr₃, CeBr₃) and semiconductor detection systems (PIPS, gold-silicon surface-barrier detectors, CZT)

4. Performance Parameters

- ▶ Selectable energy channel numbers 256,512,1024,2048,4096,8192
- ▶ Hardware gain $\times 1.0, \times 2.0, \times 4.0, \times 8.0$
- ▶ Software gain 4-byte
- ▶ Shaping rise time $0.1 \mu\text{s} \sim 25 \mu\text{s}$, adjustable in $0.1 \mu\text{s}$ steps
- ▶ Shaping flat-top time $0.1 \mu\text{s} \sim 5 \mu\text{s}$, adjustable in $0.1 \mu\text{s}$ steps
- ▶ Digitization sampling rate 80 MSPS
- ▶ Typical power consumption 1.6 W
- ▶ Board dimensions 80 mm $\times$ 50 mm
- ▶ Communication interfaces Ethernet, USB2.0, serial port
- ▶ Power supply USB power supply or DC 5 V power supply
- ▶ High-and low-voltage power supply board specifications low voltage $\pm 12 \text{ V}$, current $\leq 30 \text{ mA}$; high voltage 0–250 V, current $\leq 1 \text{ mA}$
- ▶ Additional features Oscilloscope mode, shaped-pulse viewing mode, multi-device networked measurement

5. Energy-Spectrum Test

- Energy-spectrum measurement was performed using a Cs-137 radioactive source. The test-software interface is shown below.



Energy-Spectrum Test Interface