# EP-PDMCA1100A

Energy Spectrum Analysis Digital Multichannel Pulse Amplitude Analyzer

## 1.Product introduction

EP-PDMCA1100A Energy Spectrum Analysis Digital Multi-Channel Pulse Amplitude Analyzer is a hybrid system with built-in digitized multi-channel pulse amplitude analysis function and energy spectrum analysis function, which is mainly used for adapting the energy spectrum readings of various scintillation detectors, such as NaI, $LaBr_3$, BGO, and so on. Waveform full sampling technology digitizes the pre-amplified signal directly, acquires the energy spectrum data through the internally integrated high-voltage control, zero adjustment, gain adjustment and temperature acquisition functions, and completes the energy spectrum analysis at the same time.
The built-in Stabilized Spectrum program maintains long-term stability of the spectrum. It uses Gaussian fitting and step function methods for net peak area calculations and returns spectral analysis results in real time for nuclide identification and activity calculations.

## 2.Functional indicators

1. 3 steps coarse gain software adjustable, 0.5~1.5 fine gain software adjustable
2. With digital pulse buildup suppression and baseline recovery function
3. High voltage digital controllable
4. Spectral resolution: 1024 to 4096 channels
5. Integral nonlinearity: <±0.02%, Differential nonlinearity: <±0.8%
6. System throughput: 200Kcps
7. Stable and reliable for long time operation, 72 hours zero drift is less than 1 channel, 72 hours gain instability is less than 0.2%
8. Baseline temperature coefficient: Less than 0.2 channels per degree Celsius
9. Gain temperature coefficient: <0.1%/℃
10. Power supply: +12V, Power consumption: <2W
11. Two sets of RS485 outputs, one set for standard Modbus RTU output, one set for upper computer debugging work, two RS485 can work at the same time, convenient for users to debug and compare
12. The communication distance is very long, enabling reliable communication over a transmission distance of 60 meters
13. The system has a fast response time, and the energy spectrum analysis results can be obtained after 7 seconds after powering on the system
14. Built-in all-digital energy spectrum stabilization program, can be specified for specific energy peaks for energy spectrum stabilization. Peak drift of less than 1 scale for 24 hours of continuous measurement
15. Energy scaling and efficiency scaling are available and key parameters can be stored offline
16. Energy spectra can be analyzed to calculate the net peak area in a specified energy region, as well as to perform nuclide recognition and provide net peak area or incremental information

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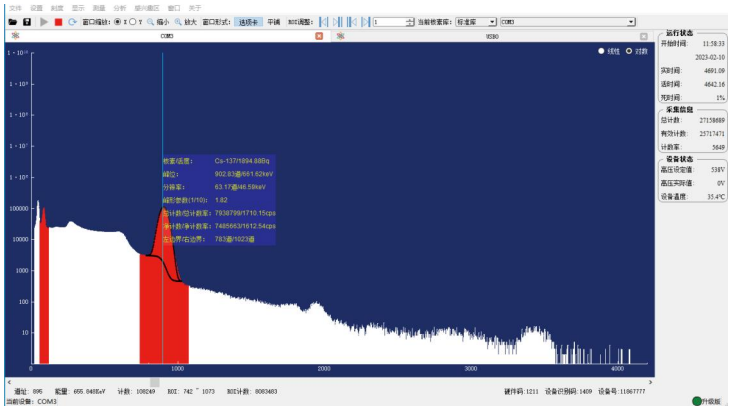

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ROI1 | 113.616577 | -- | 读 | -- | 写 | 保持寄存器(RW) | 43520 | 2 | 0 | 32 |
| 2 | ROI2 | 170.976852 | -- | 读 | -- | 写 | 保持寄存器(RW) | 43522 | 2 | 0 | 32 |
| 3 | ROI3 | 0.102002 | -- | 读 | -- | 写 | 保持寄存器(RW) | 43524 | 2 | 0 | 32 |
| 4 | TEMP | 22.375000 | -- | 读 | -- | 写 | 保持寄存器(RW) | 43526 | 2 | 0 | 32 |
| 5 | ROI4 | 0.000000 | -- | 读 | -- | 写 | 保持寄存器(RW) | 43528 | 2 | 0 | 32 |
| 6 | ROI5 | 0.000000 | -- | 读 | -- | 写 | 保持寄存器(RW) | 43530 | 2 | 0 | 32 |

| 名称 | 发送正常 | 接收正常 | 丢包率 | 发送失败 | 响应异常 | 响应超时 | 帧长异常 | 校验异常 | 丢包数曲线 |
|---|---|---|---|---|---|---|---|---|---|
| ☐ COM7 | 317 | 317 | 0.00% | 0 | 0 | 0 | 0 | 0 | ☑ 已选择 |

# 3.GammaSense energy spectral analysis software

- 1 ····· It can run under WINDOWS OS or Kirin OS
- 2 ····· The net peak area was calculated using Gaussian fitting and step function calculation methods, and the fitting results were displayed graphically in real time
- 3 ····· Simultaneously obtain the results of energy spectrum analysis in multiple channels and real-time energy spectrum analysis results of the upper computer software, which is convenient for debugging and comparison
- 4 ····· The software supports energy scaling, efficiency scaling, and selection of the energy region of interest, and these parameters can be sent to the offline memory of the multichannel pulse amplitude analysis system
- 5 ····· A stabilized energy spectrum program can be initiated, the energy range of interest can be specified, and the parameters will be sent to the multichannel pulse amplitude analyzer when enabled
- 6 ····· The actual temperature inside the probe can be read
- 7 ····· Nuclide libraries: The software includes nuclide libraries and supports user-defined nuclide libraries