

1. Product introduction



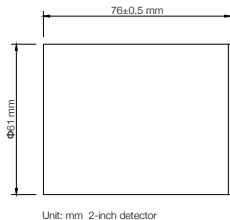
The ESMCA-CBD50H50 integrated SiPM digital spectrum analyzer is a high-performance digital spectrum analyzer featuring 8,192 energy channels and integrating a SiPM bias power supply, SiPM temperature compensation, preamplification, main amplification, and a multi-channel analyzer. When used with the GammaAnt spectrum analysis and processing software, the system enables device connection, parameter configuration, data acquisition, and spectrum analysis, as well as radionuclide identification and sample activity measurement. The ESMCA-CBD50H50 supports raw pulse viewing, shaped pulse viewing, and spectrum-line viewing modes, and supports high-speed USB and RS485 serial communication.

2. Technical parameters

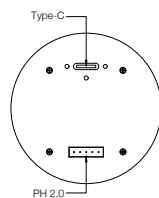
Parameters	value	Unit
Scintillator type	CeBr ₃	--
Scintillator size	Φ50×50	mm
SiPM array	SiPM array composed of 36 ONSEMI J60035 units	/
Input voltage	+5 V DC	V
Operating environment	temperature -20 to +50 °C; humidity 20–90% RH (no condensation)	/
Energy resolution	≤4.5% (662keV)	/

● Built-in SiPM temperature compensation ● Support programmable hardware gain ● Support real-time SiPM bias voltage and device temperature feedback

3. Outline Dimension Drawing



Unit: mm 2-inch detector



Connector Definition



No.	Connector Type	Definition
1	TYPE-C	USB Communication and Device Power Supply
2	5-pin PH2.0	RS485 Communication and Equipment Power Supply

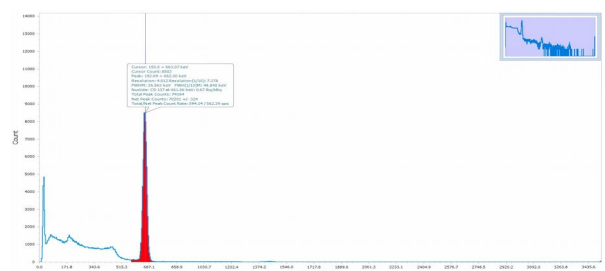
4. Performance Parameters

- ▶ Number of spectrum channels 256, 512, 1024, 2048, 4096, or 8192 channels (selectable).
- ▶ Hardware gain ×0.1, ×0.5, ×1.0, ×2.0, ×3.0.
- ▶ Software/fine gain ×0.1 to ×10.
- ▶ Shaping rise time 0.1 μs to 12 μs, adjustable in 0.1 μs steps.
- ▶ Shaping flat-top time 0.1 μs to 6 μs, adjustable in 0.1 μs steps.
- ▶ Typical power consumption 380 mW.
- ▶ Communication High-speed USB, RS485 serial port.
- ▶ Power supply USB powered; DC 5 V powered.
- ▶ Other functions supports raw pulse viewing, shaped pulse viewing, and spectrum-line viewing modes.

5. Practical operation test



● GammaAnt spectrum analysis and processing software



● Energy resolution is 4.01% @ Cs-137