



## DETECTOR

# CEBRS-1.5x1.5™

*CeBr<sub>3</sub> LED Temperature-Stabilized\* Scintillation Detector*

The CEBRS-1.5x1.5 detector is suitable for use in non-air-conditioned rooms as well as in field applications.

## FEATURES

- Patented LED temperature stabilization\*
- Resolution 4.3% (typical)
- Stable to within  $\pm 1.5\%$  (typical) over the temperature range of  $-20\text{ }^{\circ}\text{C}$  to  $50\text{ }^{\circ}\text{C}$
- Generic efficiency characterization
- Compatible with Mirion Osprey® digital tube-base MCA only
- Robust cam locking mechanism for increased reliability
- All-metal housing with a magnetic/light shield



\*US Patent 7,005,646 B1 and 7,049,598 B1



## DESCRIPTION

Model CEBRS-1.5x1.5 Cerium Bromide Scintillation Detector is a high-efficiency scintillation detector featuring a 1.5x1.5 in. CeBr<sub>3</sub> crystal in an aluminum housing, including a photomultiplier tube, an internal magnetic/light shield, a high-voltage power supply (HVPS), stabilization electronics, preamplifier, and an 8-pin Mirion proprietary connector. CeBr<sub>3</sub> detectors have a proven record of long term reliability and stability.

The CEBRS-1.5x1.5 CeBr<sub>3</sub> detector is LED temperature-stabilized\*, eliminating the peak-shift problems inherent in scintillation detectors. This makes the CEBRS-1.5x1.5 detector suitable for use in non-air-conditioned rooms as well as in field applications. The LED temperature-stabilized probe continuously monitors and adjusts the gain of the detector to ensure consistent performance throughout the entire temperature range. The consistent performance allows users to perform nuclear identification under all typical indoor and outdoor conditions while maintaining the highest confidence in the results obtained by the instrument.

# CEBRS-1.5x1.5 | $\text{CeBr}_3$ LED TEMPERATURE-STABILIZED\* SCINTILLATION DETECTOR

The detector comes with a generic mathematical efficiency characterization known from the Mirion line of high-resolution HPGe detectors. Quantitative measurements can be performed without the use of calibration sources using the Mirion ISOCS™/ LabSOCS™ mathematical efficiency calibration software.

The housing is of an all-metal construction and features a robust locking mechanism for increased reliability. The cam lock provides a positive mechanical connection to the tube base instead of relying on the electrical pin friction only.

In combination with the Osprey unit – the Mirion all-in-one HVPS, preamplifier, and digital MCA – the CEBRS-1.5x1.5 detector becomes part of a high-performance scintillation spectrometry system suited for a wide range of applications – laboratory (with Model 727 shield), radiation monitoring networks, field use, etc.

## SPECIFICATIONS

### Performance

- Resolution: 4.3% (typical) at 662 keV ( $^{137}\text{Cs}$ )
- Energy range: 30 keV to 3 MeV
- Typical operating voltage: Internal setting
- Temperature stability: Gain stability within  $\pm 1.5\%$  (typical) over the temperature range of  $-20\text{ }^\circ\text{C}$  to  $50\text{ }^\circ\text{C}$

### Physical

- Size: See outline drawing. Note that total length including Osprey digital tube base is 12.8 inches [325 mm]
- Weight: 0.72 kg (1.6 lb)

### Environmental

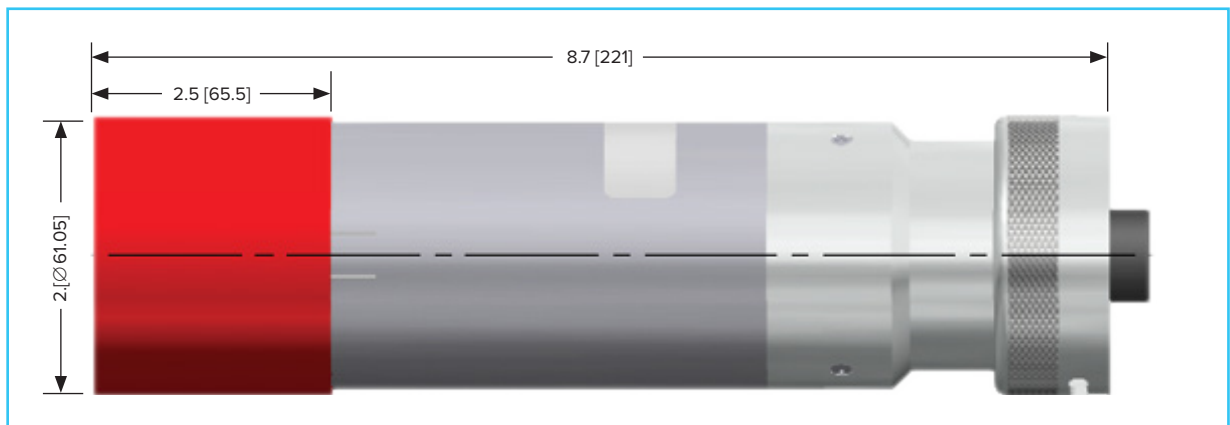
- Operating temperature:  $-20$  to  $+50\text{ }^\circ\text{C}$  ( $-4$  to  $122\text{ }^\circ\text{F}$ )
- Operating humidity: 85% non-condensing. Meets the environmental conditions specified by EN 61010, Installation Category I, Pollution Degree 2

## ORDERING INFORMATION

- CEBRS-1.5x1.5  $\text{CeBr}_3$  Temperature-Stabilized Scintillation Detector

## OPTIONS

- OSPREY-DTB: Digital tube-base MCA with 3 m (10 ft) USB cable, 3 m (10 ft) crossover Ethernet cable, 3 m (10 ft) Ethernet cable, PoE input injector (110/220), 1.2 m (4 ft) MCX-BNC cables, 3 pcs
- OSPREY-PKG: Digital Tube Base MCA, S504C Genie™ 2000 InSpector™ Basic Spectroscopy Software
- OSPREY-PKG+: Digital Tube Base MCA, S504C Genie 2000 InSpector Basic Spectroscopy Software, S501C Gamma Analysis option
- OSPREY-SDK: OS independent Software Development Kit
- OSPREY-E03L: 3 m (10 ft) Ethernet cable with a right angle plug for use with Model 727 laboratory lead shield
- MODEL 727 Laboratory Lead Shield



Dimensions in the Outline Drawing are in inches [mm] and are subject to change at the discretion of Mirion.

