

# Gamma Sensors

Scintillation gamma sensors can help improve your downhole sensing technology operation

Reuter-Stokes tailors every scintillation detector to your exact specifications. We provide a broad range of detector configurations, including virtually any crystal size, mounting and interface adaptations, as well as built-in radioactive check sources.

The assembly's high-strength sapphire window, combined with a patented optical coupler, allows for maximum light output. Using the highest quality materials and a cutting-edge design, Reuter-Stokes is committed to engineering its sensors to meet strict customer specifications.

Delivering one of the industry's highest sensitivities, our gamma sensors provide geologists and operators with the precise measurements required for accurate formation location and identification.

Our radial suspension system also contributes to greater detector sensitivity. By minimizing the radial space needed to isolate the crystal from vibration, larger crystals can be packaged inside the sensor housing. Higher sensitivity can help customers log faster or reduce the size of the detectors for more compact tools and thinner bed resolution. Thin wall titanium housings minimize gamma attenuation for better gamma radiation transmission at lower energies. These features allow customers to operate downhole confidently, even in the most severe conditions.

## Benefits

- Operating temperatures to 200°C (392°F)
- Shock survivability to 1,000 g
- Random vibration rating of 20 grms
- Fully customizable
- Rigorous and extensive testing at every stage of the design, qualification, and production processes.

## Quality by design

Our scintillation detectors are backed by the quality and expertise gained through more than 30 years of experience in the downhole logging industry. Merging the efforts of nuclear physicists and electrical, chemical, and mechanical engineers, we are committed to developing the industry's most accurate and reliable gamma sensing technology.

Incorporating rigorous and extensive testing at every stage of the design, test, and production processes, Reuter-Stokes delivers sensors that are designed to work the first time, every time.



## Reliable performance in harsh environments

Our gamma sensors are designed to work in the harshest environments. Validated by extreme temperature, vibration, and shock testing, the scintillation packages are able to obtain accurate measurement data reliably up to 200°C (392°F). Performance in high shock and vibration environments is ensured with technology such as the Flexible Dynamic Sleeve and our patented spring suspension system, protecting the scintillation crystal from the dynamic environment.

## The future of our gamma sensors

Sodium Iodide (NaI) crystals have dominated the industry once gamma-ray sensors were switched from Geiger-Mueller tubes to solid state scintillation crystals. However, these sodium iodide sensors have limitations such as light loss at elevated temperatures, mediocre spectral resolution, and slow pulse-response time. Therefore, Reuter-Stokes generated Lanthanum Halide (LaHa) and Cerium Bromide (CeBr) formulations to solve the industry's issues of needing more sensitive detectors. We believe that these sensors can provide better performance while operating accurately and reliably in the harshest environments.

## Specifications

Crystal Materials	NaI, CeBr, LaHa
Detector Sizes*	Up to 2" (50.8 mm) outside diameter Up to 12" (304.8 mm) length
Pulse Height Resolution	25°C PHR <9%, 150°C PHR <12.5%, 175°C PHR <15%
Vibration	Up to 20 g RMS, 10 to 1,000 Hz
Shock	Up to 1,000 g, 0.5 ms duration
Operating Temperature Range	-32°C to 200°C (-26°F to 392°F)
Check Sources Available	Cs-137

\*Available NaI sizes. CeBr and LaHa standard detector sizes are currently limited to 0.5" to 1" in diameter and 1" to 2.4" in length. If you have larger crystal size requests please consult a Reuter-Stokes salesperson.

## Configurations

Part Number	Sensor Diameter (A)	Sensor Length (B)	Window Diameter (C)	Thread (D)	Crystal Diameter	Crystal Length
RS-SI-0646-000	1"	4.8"	0.787"	15/16-32 UN-2A	0.841"	4.32"
RS-S3-0710-000	1"	1.453"	0.787"	15/16-32 UN-2A	0.841"	0.98"
RS-S3-0724-000	1"	2.938"	0.787"	15/16-32 UN-2A	0.841"	2.48"
RS-SI-0740-000	0.875"	4"	0.662"	13/16-32 UN-2A	0.707"	3.387"
RS-SI-0828-000	1.125"	2.875"	0.907"	1 1/16-28 UN-2A	0.948"	1.98"
RS-SI-1046-000	1.375"	4.8"	1.157"	1 5/16-28 UN-2A	1.212"	4.171"

This list is a small sample of crystal packages we manufacture.

Reuter-Stokes designs and manufactures crystal packages to customer specifications.

Crystal sizes range from 0.50" diameter x 0.50" long to 2.00" diameter x 12" long.

