

Product Datasheet

Ion-Hound

Handheld Ion Chamber

The Ion-Hound is a compact, portable, handheld ion-chamber that provides highly sensitive directional dose equivalent rate ($\dot{H}^*(0.07)$) and ambient dose equivalent rate ($\dot{H}^*(10)$) measurements from mixed radiation fields (beta, gamma, and X-ray radiation). The Ion-Hound utilises a 430 cm³ open air chamber, it is lightweight, easy-to-use and manufactured in the UK.

It provides dose rate measurement in six manually-selectable ranges with an effective range of 0.5 μ Sv/h to 500 mSv/h with optional real-time data streaming via the USB-C port. A built-in, full-colour, backlit LCD screen displays measurements and the instruments status. Ergonomically designed, with a robust housing and a handle for single-handed operation, the Ion-Hound features a familiar, industry-standard design, while adding additional connectivity and ease-of-use features.

It is an excellent like-for-like replacement for existing ion-chamber instruments, and is suitable for a range of application areas, including:

- Nuclear
- Defence
- Medical and Health Physics
- Research



Features

- **Ionisation Chamber**
With a large volume of 430 cm³ providing highly sensitive measurement, maintained at atmospheric pressure.
- **Wide Energy Range**
Photons: 10 keV to 1.33 MeV, **Beta:** 200 keV to 2.0 MeV
- **LCD Digital Display**
3.5" screen with adjustable brightness.
- **Re-calibration reminder when due**
- **User-replaceable foil windows**
Aluminised foil windows are designed with easy field maintenance in mind.
- **Downward-facing Beta Shield**
The beta shield allows users to easily swap between ambient ($\dot{H}^*(10)$) and directional ($\dot{H}^*(0.07)$) dose equivalent rate radiation measurement qualities.
- **Long Battery Life**
Powered by 6 x 1.5 V C-cell batteries, the Ion-Hound offers up to 40 hours of use.
- **Real-time Data Monitoring**
Data readout through the USB-C port enables easy calibration and remote system monitoring.
- **User Interface**
Intuitive user interface means the Ion-Hound requires minimal training for current users of ion-chamber instruments.
- **Made in the UK**
Designed, manufactured, and serviced in the UK for quick customer support.

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Specifications

Detector Details	
Type	Open Air Ionisation Chamber
Volume	430 cm ³
Mass per area	Window: 7.0 mg/cm ² Beta Shield: 680 mg/cm ²
Collecting Potential	30 V

General	
Dose Rate Ranges	0 - 5 µSv/h 0 - 50 µSv/h 0 - 500 µSv/h 0 - 5 mSv/hv 0 - 50 mSv/h 0 - 500 mSv/h
Effective Range	0.5 µSv/h - 500 mSv/h
Measurement Qualities	$\dot{H}'(10)$ and $\dot{H}'(0.07)$
Statistical Fluctuations	1 µSv/h – 10.3% 15 µSv/h – 2.1% 150 µSv/h – 1.3% 1 mSv/h – 0.4% 20 mSv/h – 0.4% (Measured using ¹³⁷ Cs)
Warm-Up Time	<2 minutes 30 seconds
Response Time	0 - 5 mSv/h – 5.4 seconds 0 - 50 mSv/h – 4.9 seconds 0 - 500 mSv/h – 0.6 seconds (Measured using ¹³⁷ Cs)

Energy Range	
Photons	$\dot{H}'(0.07)$ 10 keV - 250 keV $\dot{H}'(10)$ 59 keV - 1.33 MeV
Beta Radiation	$\dot{H}'(0.07)$ 200 keV - 2.0 MeV

Energy Dependence		
Photons $\dot{H}'(10)$	Energy (keV)	Relative Response
	59 (²⁴¹ Am)	0.84
	662 (¹³⁷ Cs)	0.99
	1330 (⁶⁰ Co)	0.98
Photons $\dot{H}'(0.07)$	Energy (keV)	Relative Response
	16	1.25
	33	0.88
	~59 (²⁴¹ Am)	0.99
	65	0.94
	83	0.91
	118	0.87
	248	0.93
Beta Radiation	Nuclide	Relative Response
	⁹⁰ Sr/ ⁹⁰ Y	1.07
	⁸⁵ Kr	0.60
	¹⁴⁷ Pm	0.94

Environmental Conditions	
Operating	0 °C to 40 °C
Storage	-25 °C to 50 °C (without batteries)
Relative Humidity	Max. 85% (tested at 35 °C)

Power Supply	
Batteries	6 x 1.5 V C Cells (LR14)
Battery Life	Approx. 40 hrs

Mechanical	
Dimensions	200 (W) x 126 (D) x 216 (H) mm
Weight	1.4 kg (3.1 lbs) (without batteries)
Display	320 x 480 3.5" LCD display
Complies with	BS EN 60846-1:2014 EN IEC 61326-1:2021 CE Marked

Specifications are subject to change without notice.
For the most up-to-date specifications, please visit www.southernscientific.co.uk

Southern Scientific Limited
Scientific House, The Henfield Business Park
Shoreham Road, Henfield, BN5 9SL, UK
E-mail: info@southernscientific.co.uk
Tel: +44 (0)1273 497600
www.southernscientific.co.uk

