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 cm^3 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 µSv/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 cm^3 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	-10 °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	1.8 kg (4 lbs) (with 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

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