

S.E. International Digital Radiation Detector **Ranger EXP**



The Ranger EXP is a high performance, durable, lightweight radiation detector for field use or in your facility. It is designed specifically for individuals operating in tough environments. The small, handheld Geiger counter offers excellent sensitivity to NORM and low levels of alpha, beta, gamma, and x-rays. The digital readout is displayed with a red count light and a beeper sounds with each count detected. Other features include an adjustable timer, selectable alert, and with the free Observer USB Software Family, you can download your collected data, and set alarms. With the Free Radiation Alert® Observer BLE app from the Google App Store, you can display the readings from your detector, label sample readings and descriptions, take timed counts, append GPS data and send your saved survey file. Alarms set on the instrument will also activate on your android device. The Free Observer USB software (Windows® only) reads in Total Counts, CPM, $\mu\text{R/hr}$, mR/hr , CPS, $\mu\text{Sv/hr}$, and has the ability to collect and log data, set alarms, set timed counts, set the calibration date and settings, and generate reports.

Applications & Uses

Surveying for NORM (Naturally Occurring Radioactive Material) contamination, Contamination surveys of packages, equipment, people, etc., Regulatory inspections, Scrap Metal Screening, Low energy radionuclide detection

Detector

RAP-RS2 Probe – External Probe Halogen-quenched, uncompensated GM tube with thin mica window, 1.4-2.0 mg/cm^2 areal density. Effective diameter of window is 45 mm (1.75 in.).



Energy Sensitivity

Detects Alpha down to 2 MeV. Detects Beta down to .16 MeV; typical detection efficiency at 1 MeV is approx. 25%. Detects Gamma down to 10 KeV through the detector window. 3340 CPM/mR/hr (137Cs). Smallest detectable level for 125I is .02 μCi at contact.

Built-in Efficiencies

Sulfur (35S), Strontium (90Sr/y), Cesium (137Cs), Phosphorus (32P), Carbon (14C), Iodine (131I), Cobalt (60Co), and Alpha

Averaging Periods

Display updates every 3 seconds. At low background levels, the update is the average for the past 30-second time period. The timed period for the average decreases as the radiation level increases.

Operating Range

mR/hr – .001 ($1\mu\text{R}$) to 100
CPM – 0 to 350,000
 $\mu\text{Sv/hr}$ – .01 to 1000
CPS – 0 to 5000
Total Counts- 1 to 9,999,000 counts

Accuracy

Reference to Cs137
Typically $\pm 15\%$ from factory, $\pm 10\%$ with NIST Source Calibration
NIST Calibration Additional

Anti-Saturation

Meter will hold at OVER RANGE in fields as high as 100 times the maximum reading.

Selectable Alert Set Range

mR/hr .001 – 100 and CPM 1 – 350,000. 70db @ 1m. Pulsating beeper sounds the alert. Adjustable alert levels are used for mR/hr / CPM, and $\mu\text{Sv/hr}$ / CPS. Alarm will sound when in Timer Mode when set alarm threshold is reached.

Display

Graphic LCD with Backlight.

Outputs

USB for use with Free Observer USB Software for PCs
Bluetooth for use with the Free Observer BLE App for Android.



Audio Indicator

Internally mounted beeper (can be switched off for silent operation)

Count Light

Red LED flashes with each radiation event

Power Requirements

USB Power or Two (2) AA alkaline batteries (included). Approx. 800 hrs @ background.

Temperature Range

-10° to $+50^{\circ}\text{C}$ (14° to 122°F)

Humidity

10% to 70% Non-Condensing.

Size

140 X 68 X 33 mm (5.5 X 2.7 X 1.3 in.)
Probe: 260 X 70 X 25 mm (10.25 X 2.75 X 1 in.)

Weight

570 g (1.25 lbs.)

Includes

RAP-RS2 External GM Probe, 3 ft BNC Cable, Carrying Case, Xtreme Boot, Lanyard, Stand, Batteries, Mini-USB Cable, Observer USB Software, Observer BLE App, Certificate of Conformance

Options

NIST Calibration, Radiation Response Kit

Limited Warranty

1 year limited warranty