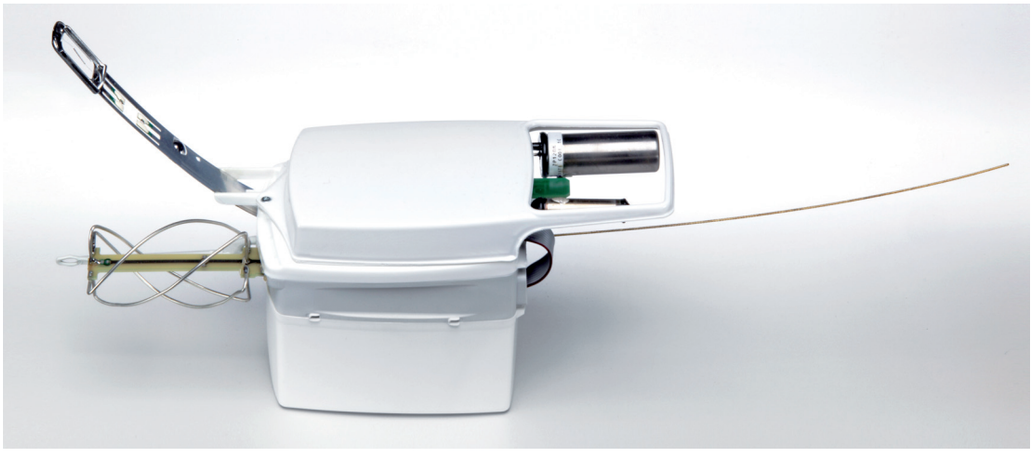
Radioactivity Sounding with the Digital Vaisala Radiosonde RS92



- **Observe the height and movement of air layers contaminated with radioactivity**
- **Forecast the potential routes and fallout zones of airborne radioactive particles**
- **Can be used remotely with Vaisala DigiCORA® Unmanned Sounding System AUTOSONDE**
- **Used with DigiCORA® sounding systems and METGRAPH® sounding software**

Radioactivity sounding with digital Vaisala Radiosonde RS92 models is done with an integrated digital interface and radioactivity sensor connected to a digital Vaisala Radiosonde RS92. This set-up measures humidity, pressure, temperature and geopotential height while measuring the vertical distribution of atmospheric y-radiation and ß- radiation. Winds are measured using GPS navigation signals.

NSS921 RADIOACTIVITY SENSOR KIT

The NSS921 radioactivity sensor kit, used with digital RS92 radiosondes, has two channels dedicated to radioactivity measurement. To avoid interruptions in radioactivity measurement during temporary breaks in telemetry, the cumulative pulse counts are also transmitted to the ground equipment along with the number of pulses in a constant time period. The average radioactivity pulse rates for each telemetry break are thereby calculated.

GEIGER-MÜLLER DETECTORS

The radioactivity sensor unit measures radioactivity with two low-temperature Geiger-Müller detectors. One detector measures y-radiation, the other measures both y-radiation and high-energy ß-radiation (> 0.25 MeV). The output of the detectors is pulsed: their count rates are read by two separate counters at fixed times. Conversion to mR/h (estimated as Cs-137 radiation) is possible.

GROUND EQUIPMENT

RS92-based radioactivity sounding is supported by Vaisala DigiCORA® sounding systems and METGRAPH® sounding software. These sounding systems offer many useful radioactivity sounding preparation and data processing features. Economical leasing and rental agreements are available. RS92-based radioactivity sounding can also be carried out with the Vaisala DigiCORA® Unmanned Sounding System AUTOSONDE.

TECHNICAL INFORMATION

NSS921 RADIOACTIVITY SENSOR KIT

Dimensions	65 x 135 x 20 mm
Weight	40 g
Power consumption and input voltage	5 ... 9 V; 30 ... 40 mA (from radiosonde battery)
Detectors	Two Geiger-Müller tubes, low-temperature versions: Philips ZP 1208 for y-radiation and Philips ZP 1328 for y-radiation and high-energy (>0.25 MeV) ß-radiation
Detector manufacturer's specified operating temperature range	+60° C to -70° C

Measurement range

	y -channel	**y and ß-channels**
- Counts per second	0 - 870	0 - 870
- Dose rate mR/h*	0.1 - 60	0.4 - 120
- Activity kBq/m^3*	2 - 1000	6 - 2000

Accuracy **	±10 %
Output	2 channels, sum of counts for each channel during sample time (see sample rate), also cumulative sum of counts (from the beginning) for each channel
Sampling rate	Sampling rate for each channel depends upon radiosonde (e.g. once per second with RS92-SGP)
Connections	PIM-connector
Storage life	3 years' minimum

* For Cs-137 radiation
** Maximum difference of count rates when the same radiation level is measured with different sensors (reproducibility)

DIGITAL VAISALA RADIOSONDE RS92

Digital Vaisala Radiosonde RS92 models are provided with an interface connector as standard.

SERVICES

Vaisala offers comprehensive training for radioactivity sounding. A number of service and maintenance agreements are available for Vaisala DigiCORA® sounding systems under the terms of the Vaisala Service Contract. Please contact your Vaisala representative.

VAISALA
Reliable.

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