SKYTECH

Gamma Radiation Probe Network

RAG-A200

Features
Input doserate range extends to 7 decades
Self-calibration
Serial interface
Fixed and mobile installation
Mlitary and civil application

Applications
γ-doserate monitoring networks
Harsh environments
Non serviceable sites

SkyTech's RAG-A200 (RV33) is a state-of-the-art γ radiation doserate monitoring system for land fixed and mobile installations. It is a typically "dual-use" product that can meet both civilian and military (typically for the Navy) applications requirements.

System configuration
A typical self-contained system may consist of any number of:

- γ-doserate probes, part# RAG-A200, see fig. 1 :
- (optional) local or remote display units, part# UVR-A100, see fig. 2;
- (optional) audible alarm (horn) slaved to the display unit, part# UA1, see fig. 3.

that can work without a central data acquisition system thanks to their built-in microprocessors.
However, a γ-doserate monitoring network can be made of any number of probes connected to a computer for data acquisition and user-defined data processing.
The probe, display, and horn are therefore separable units that can be procured independently.

Highlights
The RAG-A200 exploits a unique circuit operation (patented since 1976) that allows to cover a wide γ doserate range (7 or more decades) with a single Geiger-Müller tube, limiting the discharge without quenching gas. This grants a very long life well over 30 years under normal doserate.
In addition, RAG-A200 has a built-in calibration source exempt of shine-through (also patented) that can be commanded remotely or automatically. Calibration data are stored in equipment's built-in Non-Volatile Memory and exploited by the microprocessor for fine tuning of the raw measured data (pulse count).

Fig. 1

Fig. 2

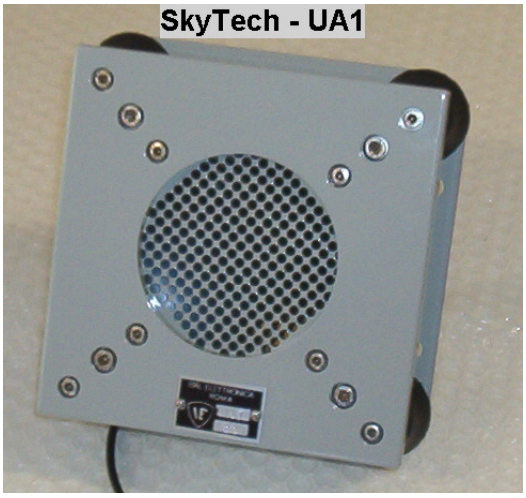

Fig. 3

The very long life and self-calibration, together with its ruggedness, make the equipment specially suitable for demanding installations where periodic maintenance and calibration are difficult or expensive, where high availability is required, and where decontamination may occur frequently.
RAG-A200 can stand, and operate under, both a standard environment (far away from nuclear threats) and high doserate environment (subject to nuclear threats or even already heavily contaminated).
Unlike competitor designs, the single GM-tube design allows to build, where required, full redundant 1+1 configurations without compromise to the low-doserate vs. high doserate range.

Measuring performance
γ-doserate measuring range: from 0.00001 cGy/h to 999 cGy/h.
Accuracy: ±10% ±0.1 mR/h.
γ-energy range: uniform sensitivity ±20% from 80 keV to 2 MeV.
γ-dose measuring range: from 0.1 cGy to 999 cGy.
Ratemeter reset interval: 5 s up to 100 mR/h, 1 s above.
Spatial uniformity: ±10% within 2π steradians along the symmetry axis of the GM-tube.

Environment
Temperature: -30 °C to +70 °C for probes, 0 °C to 50 °C for display units.
Shoch and vibration: according to Navy specs. NAV 30 A001, respectively NAV 30 A002.
Watertightness: RAG-A200 units can stand 4 meter depth while operating normally, and can stand decontamination with most NBC agents.
Watertightness: UVR-A100 units can stand 1 meter depth while operating normally, and can stand decontamination with most NBC agents.
Electro-Magnetic Compatibility: stands EMP (Electro-Magnetic Pulse) without harm to operation.

Power Supply
The systems can accept the followings power supply:

- 220 VAC 50Hz
- 115 VAC 60 Hz
- 12 VDC

Data interface
Three standard data interfaces are provided:
Serial RS232 9600 baud for point-to-point connection;
CAN Bus 2.0 for network connection;
Serial RS485 9600 baud for network connection;

Applications
Fixed and mobile (typically, shipborne) γ-doserate monitoring networks for both civilian and military use. Harsh environment, subject to nuclear threats or already heavily contaminated. Applications where manual maintenance and calibration on-site is very difficult and expensive.

Related products and activities
SkyTech can provide Custom-specific versions of the a.m. products, including for instance: miniaturised and portable, battery-powered γ-doserate monitors for civilian and military NBC; coaxial GM-counter and ionisation chamber monitors for wide doserate range (>10 decades); combined n+γ monitors for military NBC, etc.
SkyTech can undertake system integration, data collection and processing software development, special data exchange protocols, including wireless, etc.