



## MILITARY RADIAC SET

# RDS-110V™

*Gamma-ray and Beta radiation  
Detection System*



## FEATURES

- Wide dynamic range for dose rate and dose
- Pre-settable audio and visual alarms
- 600 hr battery life
- Vehicle mount for operation using vehicle or aircraft power (available option)
- Not affected by EMP
- Nuclear hardened
- Meets MIL-STD-810G for military environments
- Operable/readable by personnel in Mission Oriented Protection Posture (MOPP IV) or arctic clothing
- Outstanding linearity over a wide dynamic range
- Lowest life cycle costs due to calibration stability and semi automatic self calibration
- RS-232 interface for computer control and data downloads (available option)
- Uses “SMART” probe technology (calibration factors store inside the probe)

## KEY BENEFITS

- Rugged and reliable
- Ease of use for setup and operations; minimal user training required

## APPLICATIONS

- Personnel
- Aircraft and vehicle

## DESCRIPTION

The RDS-110V military radiac set is designed to detect and measure dose rate and accumulated dose derived from gamma-ray and beta radiation. The radiac set may be carried by an operator, or installed in a vehicular mount (optional). This simple to operate, rugged, and lightweight equipment combines unparalleled performance and reliability. It includes the Time-to-Count technique providing outstanding linearity over the entire dynamic range of the instrument – no compensation for high levels is necessary. Features such as wide dynamic ranges for dose and dose rate and pre-settable alarms make this instrument clearly the instrument of choice for the foot soldier.

The RDS-110V device also lends itself to use in military land vehicles and helicopters and easily fits within the space-constrained interiors of aircraft and fighting vehicles. Its detection probe may be mounted outside the land vehicle or helicopter for direct external radiation assessment. With the optional RDS-110V Vehicle Mount, the radiac is capable of operating on vehicular or aircraft power.

The RDS-110V unit has been developed using the same form as the legacy AN/VDR-2™ and RDS-100V™ radiac meters. It uses a similar dedicated beta gamma specific handheld probe, with embedded smart probe electronics. Older legacy probes need minor factory modifications before reusing.

The RDS-110V unit includes STORE button functionality rather than the ATTN button capability found in the legacy VDR2/RDS-100V models.

# RDS-110V | MILITARY RADIAC SET



Optional Vehicle Mount  
Horizontal (7083637)

Optional Vehicle Mount  
Vertical (D3085431)

## SPECIFICATIONS

### Features:

- Pre-settable audible and visual: Dose and dose rate alarms.
- Modes: Rate, Dose, Test.
- Setup time: For all checks and alarms less than 1 min.
- Circuit Protection: Nuclear and EMP hardened.
- EMI compatibility: Will not be affected, or cause other equipment to be affected by its use.
- Operable and readable: By persons wearing Arctic and MOPP protective clothing.

### Dimensions:

- Radiac meter: 19.2 x 10.4 x 4.8 cm (7.6 x 4.1 x 1.9 in.).
- Detector probe: 18.2 x 5.1 x 3.8 cm (7.2 x 2 x 1.5 in.).
- Radiac set in pouch: 23.2 x 17.5 x 7.9 cm (9.12 x 6.88 x 3.13 in.).

### Weight:

- Radiac with Beta/Gamma Probe: 1.73 kg (3.8 lb).
- Radiac set in pouch: 2.08 kg (4.6 lb).

### Display:

- Auto ranging LCD can be read at 2 m daylight or 3 ft, back lit for night use, updated every two seconds.
- RATE provides dose rate readout in  $\mu\text{Sv/hr}$ ,  $\text{mSv/hr}$ ,  $\text{Sv/hr}$ .
- Total (Cumulative) Dose Read Out: provides dose read out in units of  $\mu\text{Sv}$ ,  $\text{mSv}$ ,  $\text{Sv}$ ; will not be erased when read, resettable to zero as desired.
- Store function: To store up to 300 read-out values with date and time stamp (or with GPS coordinates if externally coupled).

### Power:

- Six AA batteries.
- 600 hours of continuous operation and monitoring.
- Low battery LCD indication with 10 hr of battery life remaining, a "Go/No Go" feature provides battery status.
- Can be operated on vehicle or aircraft power (12 or 24 V dc via universal connector).

### Reliability and Maintainability:

- SELFTEST during start-up of the unit, with audible button strokes for verification.
- Mean time between failure (MTBF): Greater than 2000 hr.
- Mean time to repair (MTTR): 20 min.

### Alarms:

- Has selectable Visual and Audible indicators for DOSE and RATE alarm for day or night use.
- Alarm levels are settable over entire dynamic range.

### Probe and Detectors:

- "SMART" probe Technology: Instantly recognized and functional upon hook-up, without any adjustment, programming or calibration.
- Combined two GM Tubes; low range EWGM and high range GM.
- Beta radiation: 0.01  $\mu\text{Sv/hr}$  to 50  $\text{mSv/hr}$ .
- Gamma radiation: 0.01  $\mu\text{Sv/hr}$  to 99.9  $\text{Sv/hr}$  (dose rate) and 0.01  $\mu\text{Sv}$  to 99.9  $\text{Sv}$  (total dose).
- Energy response:  $\pm 20\%$  80 keV to 3 MeV.
- Accuracy:  $\pm 10\%$  of true dose and dose rate over the entire dynamic range.
- Dose rate: Minimum detectable level 0.01  $\mu\text{Sv/hr}$ .
- Response time: Within 10% of final reading in 4 sec at 10  $\text{mSv/hr}$ ; returns to background within 4 sec. Meets ANSI N42.17A.

### Environmental Parameters:

- Operating temperature:  $-50\text{ }^{\circ}\text{C}$  to  $60\text{ }^{\circ}\text{C}$  ( $-58\text{ }^{\circ}\text{F}$  to  $140\text{ }^{\circ}\text{F}$ ).
- Storage/transport temperature:  $-60\text{ }^{\circ}\text{C}$  to  $70\text{ }^{\circ}\text{C}$  ( $-76\text{ }^{\circ}\text{F}$  to  $158\text{ }^{\circ}\text{F}$ ).
- Humidity: 0 to 100% relative humidity.
- Immersion: 3 ft or 1 m for 30 min.
- Dust: Meets MIL-STD-810G, Method 510.5, Proc. I.
- Fungus: Built from inherently fungus resistant materials. Meets MIL-STD-810G, Method 508.6.
- Salt fog: Meets MIL-STD-810G, Method 509.5.
- Vibration: Meets MIL-STD-810G, Method 514.6, Procedures I (Cat 4) and II (Cat 5).
- Functional and transit shock: Meets MIL-STD-810G, Method 516.6, Procedure I and IV.
- Ballistic shock: Meets MIL-S-901D, Grade A, Class 1, Type A.
- Altitude: 4572 m (15 000 ft).
- Explosive Atmospheres: Will not cause ignition of explosive gas mixtures. Meets MIL-STD-810G, Method 511.5.
- Nuclear survivability: Meets Nuclear Survivability criteria TOP 1-2-620 (for HEMP) and 1-2-612 for HEMP, Prompt Gamma Dose Rate, Gamma Total Dose, Neutron Fluence, Nuclear Air Blast & Nuclear Thermal Radiation.

### External Communications:

- 12-pin Hiroshi type of connector, towards earphone/serial RS-232 for PC/GPS – with breakout cable (optional).
- External alarm jack output.

### ORDERING INFORMATION

- RDS-110V - RDS-110V CARRY KIT
  - 7082644 Radiac Meter, RDS-110V
  - D47081 Beta/Gamma probe
  - 3085169-03GRN Green Carrying Case
- RDS-110VK - RDS-110V VERTICAL MOUNT VEHICLE KIT
  - 7082644 Radiac Meter, RDS-110V
  - D47081 Beta/Gamma probe
  - D3085431 Vehicle mount (vertical)
  - 3085169-03GRN Green Carrying Case
  - 7083376 –  $\gamma$ -power cable.
- RDS-110VKH - RDS-110V HORIZONTAL MOUNT VEHICLE KIT
  - 7082644 Radiac Meter, RDS-110V
  - D47081 Beta/Gamma probe
  - 7083637 – Vehicle mount (horizontal)
  - 3085169-03GRN Green Carrying Case
  - 7083376 – Y-power cable.

### OPTIONS

- D3085431 – Vehicle mount (vertical) for RDS-110V set with vehicle power converter (requires 7083376 Y-power cable).
- 7083637 – Vehicle mount (horizontal) for RDS-110V set with vehicle power converter (requires 7083376 Y-power cable).
- 7083376 – RDS110 Vehicle mount Y-power cable.

