MILITARY

RDS-100P™

Radiation Detection System

NSN: 6665-01-348-4688, P/N: RDS-100P

RDS-100P unit with Beta Gamma probe

FEATURES

- Compatible with existing AN/PDR-77™ probes
- Designed to meet requirements of Mil-STD-810
- Outstanding linearity over a wide dynamic range
- Can be operated and read while wearing fire or hazmat protective clothing
- Will not ignite explosive atmospheres – intrinsically safe
- Waterproof to 1 m (3 ft)
- Background Subtract feature
- Electronic filter to reduce fluctuations in readings
- Built-in RS-232 interface
- Lowest life cycle costs due to calibration stability and semi automatic self calibration

KEY FEATURES

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

DESCRIPTION

The RDS-100P Radiation Detection System offers comprehensive radiation management and unsurpassed reliability in a self-contained, portable system. This simple to operate, rugged, and lightweight equipment combines unequaled performance and reliability. It includes our unique Time-to-Count technique which provides outstanding linearity over the entire dynamic dose rate range of the instrument – no compensation for high levels is necessary.

The beta-gamma probe is ideal for estimating the irradiation risk while the alpha, X-ray, optional beta pancake and µR probes are dedicated to perform any contamination survey and frisking.

It can be used for weapon surveillance, nuclear accident, and incident response and assistance (NAIRA) applications. It may also be used for routine monitoring for health and safety.

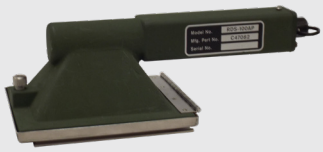
The RDS-100P unit is the single board upgrade of the AN/PDR-77 radiacmeter. It is functionally compatible with the AN/PDR-77 unit, including compatibility with all AN/PDR-77 probes. The RDS-100P system has additional features such as an RS-232 serial port for computer communication and control.

APPLICATIONS

- Personnel
- Search
- Triage
- Surveillance

Beta pancake probe

µR probe



Alpha probe

X-Ray probe

SPECIFICATIONS

RDS-100P Basic Radiacmeter

Display:

- Direct Reading Liquid Crystal Display (1/2 in. characters)
- Backlit for night operation
- Three significant digits
- Floating decimal point
- Unit and alarm status indicators
- Large digits, readable at 2 m

Power:

- Battery powered by three standard 9 V BA-3090 cells
- 100 hours operational time

Alarms:

- Pre-settable alarm for dose rate, and count rate for attached probes
- Settable to any values over dynamic range for each connectable probe
- Audible alarm: 90 dB max
- Visual alarm: Both LEDs flashing

Locator/Frisking Function:

- Indication via LEDs clearly placed above LCD screen whether the measured value goes “down” or “up”

Response Time:

- One to two seconds in unfiltered mode using update time
- Four seconds in filtered mode

Controls:

- Power ON/OFF
- Selectable Alarms - Chirp, Visual, AudVis
- Modes: Rate (dose rate or count rate), Scaler, Test

EMI Susceptibility:

- Not affected by EMI
- Will not affect other instruments

Communications:

- Built-in RS-232, data downloadable to standard remote PC

Size and Weight:

- 104 x 48 x 192 mm^3 (4.1 x 1.81 x 7.56 in.^{3}) (W x H x L)
- 1.11 kg (2.42 1b)

Read-out and Functions:

- An auto ranging LCD can be read at 3 ft, back lit for night use, updated every one or two seconds
- Provides dose rate readout in units of mR/h and count rates in CPM, µCi/m^2 or DPM/100 cm^2 (probe dependant)
- UPDATE TIME button, to select one or two seconds read-out update time
- FILTER button, to show current response time
- BKGRD SUBstract function, to allow learning and differentiation of current background level, for frisking applications
- SCALER function, to allow count mode application (typically when performing alpha measurements)
- SET selection function, to select Filtered response time

SPECIFICATIONS

RDS100-BG Beta Gamma Dose Rate Probe

Radiation Types and Range

- Beta Dose Rate: 0.01 mR/h to 5 R/hr
- Gamma Dose Rate: 0.01 mR/h to 999 R/hr
- Low range EWGM and High range GM, both using unique TTC Time-to-Count technology
- Flip-back metallic cover to select beta-gamma or gamma only response

Gamma Energy Response:

- Within: ±20%, 80 keV to 3 MeV

Accuracy:

- ±15% of true dose and dose rate over the entire dynamic range

Saturation Characteristics:

- Will never saturate or fall back

Size and Weight:

- 38 x 51 x 182 mm^3 (1.5 x 2 x 7.16 $in.^3$) (W x H x L)
- 450 g (1 lb)

RDS100-AP Alpha Probe

Radiation Types and Range

- Alpha Count Rate: 0.000 cpm to 999 Kcpm or to 999 Kdpm/100 cm^2 or to 180 µCi/cm^2
- 115 cm^2 open area: ZnS scintillator
- For alpha energies >3 MeV

Size and Weight:

- 133 x 91 x 283 mm^3 (5.24 x 3.58 x 11.14 $in.^3$) (W x H x L)
- 900 g (1.98 lb)

Operating Temperature Range:

- -32 °C to 50 °C (-25 °F to 122 °F)

RDS100-PXP X-Ray Probe

Radiation Types and Range

- X-Ray Count Rate: 0 to 999 Kcpm
- 5 in. diameter NaI scintillator probe
- For X-Ray energies >12.5 keV (Pu-239 is detectable)

Size and Weight:

- 209.6 x 152.4 x 355.6 mm^3 (8.25 x 6.00 x 14.00 $in.^3$) (Diameters x H)
- 2.95 kg (6.5 lb)

Batteries:

- Two 9 V BA-3090

RDS100-BP Beta Pancake Probe (Optional)

Radiation Types and Range

- Beta Count Rate: 0-999 Kcpm
- 15 cm^2 open area EWGM
- Efficiency in 2π
  - Ni-63 (β^{mean} 17 keV) 0.03%
  - C-14 (β^{mean} 49 keV) 0.6%
  - Tc-99 (β^{mean} 85 keV) 24%
  - Sr/Y-90 (β^{mean} 196/935 keV) 40.5%

Size and Weight:

- 70 x 88.9 x 245 mm^3 (2.76 x 3.5 x 9.65 $in.^3$) (W x H x L)
- 400 g (0.88 lb)

RDS100-GSP Gamma Sensitive µR Probe (Optional)

Radiation Types and Range

- Gamma Count Rate: 0-999 Kcpm
- 1 in. diameter x 1.5 in. long NaI(Tl) scintillator probe
- For γ-Ray energies >40 keV
- Response approximately 122 cpm/µrad/hr for Cs-137

Size and Weight:

- 38 x 38 x 251 mm^3 (1.5 x 1.5 x 9.88 $in.^3$) (W x L)
- 450 g (1 lb)

ENVIRONMENTAL

- Operating Temperature Range: -40 °C to 50 °C (-40 °F to 122 °F)
- Storage/Transport Temperature Range: -60 °C to 70 °C (-76 °F to 158 °F)
- Humidity: 0 to 95% relative humidity
- Immersion: Water-tight at 1 m (3 ft) depth for 2 hr
- Sand: Withstands sand particles in 5700 ft/min wind
- Dust: Withstands fine dust in 1750 ft/min wind
- Fungus: Built from inherently fungus resistant materials
- Vibration: Withstands vibration associated with transport
- Shock: Withstands shock of dropping during use
- Altitude: 4500 m (15 000 ft)
- Explosive Atmospheres: Will not ignite explosive gas mixture
- Nuclear Hardened and designed for nuclear survivability

QUALIFICATION TESTING

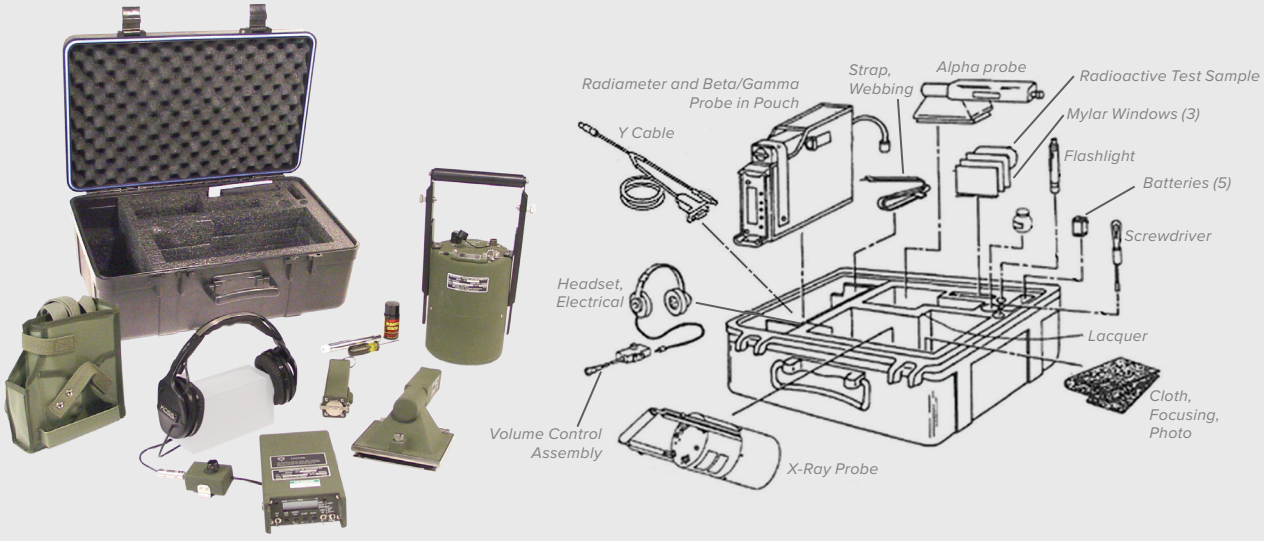
The RDS-100P system precisely duplicates the radiological performance and user experience of the military qualified AN/PDR-77 Radiac Set that was developed under contract with the US Army.

The RDS-100P system is designed to meet Mil-Std 810.

ORDERING INFORMATION

- RDS-100P BASE METER KIT, P/N: RDS-100P.
  NSN: 6665-01-348-4688, containing:
  - 7083826 BASIC RDS-100P RADIACMETER
  - D47081 BETA/GAMMA PROBE
  - D47082 ALPHA PROBE
  - RDS-100PXP X-RAY PROBE
  - D3190437 Radioactive test sample
  - D3245913 HEADSET, with add. volume control
  - 3173160-05GRN POUCH with strap
  - 7084144 CARRYING CASE
  - Accessories (Y cable, 3 spare Mylar windows, photo cloth, screwdriver, lacquer, flashlight)

- Optional RPO KIT, P/N D3259611, containing:
  - D47083 BETA PANCAKE Probe
  - D3259602 SENSITIVE GAMMA µR Probe
  - D3259610 CARRYING CASE (contains space for additional beta pancake and µR probe)



CARRYING CASE 7084144 with all system components inside the RDS-100P BASE METER KIT

ISO 9001 SYSTEM CERTIFIED
MERIDEN CT
SMYRNA GA
OAK RIDGE TN
CONCORD ON

C49674 – 01/2017

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