

Model 9DP-1* Ambient Dose Ion Chamber Survey Meter

Features

- Provides ICRU-Based Ambient Dose Measurements
- Ambient Equivalent Dose or Dose Rate Is Flat Within 30% from 60 keV to 1.3 MeV
- Special Design for Measuring Pulsed Fields
- Low Pressure Chamber is Non-Hazmat
- 2 $\mu\text{Sv/h}$ to 500 mSv/h (200 $\mu\text{R/hr}$ to 50 R/hr) Range
- Sunlight Readable Colour Display
- Auto Zeroing & Ranging
- Rechargeable Batteries
- Audio and Visual Alarms
- Rate, Integrate & Peak Hold Readouts
- Data Logging
- USB Connectivity
- Simultaneous Rate and Integrate or Peak Hold Readouts



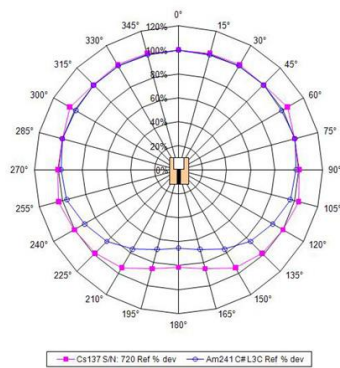
Introduction

The Model 9DP-1* is a variant of the highly sensitive Model 9DP-1 pressurized ion chamber meter that provides measurements of ambient dose. Ambient dose equivalent is defined as the dose equivalent readout that would be measured at a (human) tissue depth of 10 mm. This requires a special ion chamber that can provide a conversion of the (air kerma) exposure rate to provide the ambient dose and dose rate.

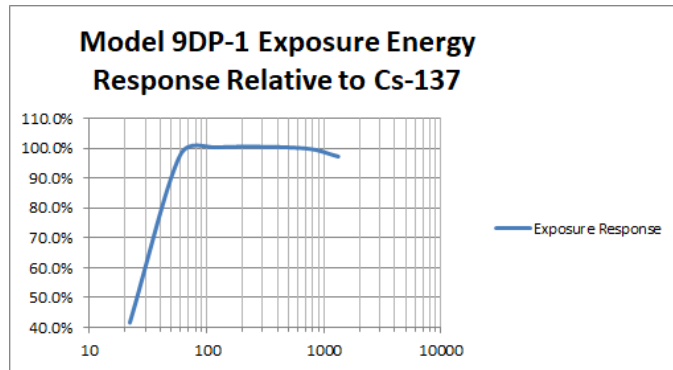
Just like the Model 9DP-1, the Model 9DP-1* can correctly integrate 50 nanosecond pulses that other systems typically miss or measure inaccurately. The instrument can also simultaneously display the exposure rate, integrated value, and highest rate seen by the instrument. The detector chamber is only pressurized to 2.5 atmospheres (22 psig), thus avoiding USA HAZMAT concerns for shipping and handling. However, this reduced pressure also reduces sensitivity, so the minimum "good" measurement point is only 2 $\mu\text{Sv/h}$ (200 $\mu\text{R/hr}$).

The 256K colour, bit-mapped display provides an optimized presentation of the data and is accompanied with icons informing the user of the active functions and instrument status. Alarms are indicated using colour changes on the display and an audio output. The instrument is powered using NiMH type rechargeable batteries that deliver up to 30 hours operation between charges. Measurements can be logged to a USB drive plugged into the instrument USB port. Data are written in CSV format for convenient retrieval by a PC spreadsheet or database program.

Ludlum also offers a Dimension Interface Package that facilitates complete setup and calibration programming under administrator-controlled password protection.



Angular Dependence



Model 9DP-1* Exposure Energy Response

Specifications

Part Number: 48-4358

RADIATION DETECTED: gamma & X-rays above 25 keV; beta above 1 MeV, correctly integrates pulsed fields with 50 nanosecond pulse widths

OPERATING RANGES:

Sv/h units: 2 – 50 μ Sv/h, 2 – 500 μ Sv/h, 0 – 5 mSv/h, 0 – 50 mSv/h, 0 – 500 mSv/h

R/h units: 0.2 – 5 mR/h, 0.2 – 50 mR/h, 0 – 500 mR/h, 0 – 5 R/h, 0 – 50 R/h

Gy/h units: 2 – 50 μ Gy/h, 2 – 500 μ Gy/h, 0 – 5 mGy/h, 0 – 50 mGy/h, 0 – 500 mGy/h

CHAMBER VOLUME: 220 cm³ (13.4 in³) volume pressurized to 2.5 atmospheres (22 psig)

ACCURACY: \pm 10%

RESPONSE TIME: ranges from 5 seconds in lowest range to under 2 seconds in highest range when measuring from 10% to 90% of final value

MEASUREMENT READOUT: simultaneous display of rate and either integrated reading, highest rate (peak hold), or pulsed mode status

INCLUDED FUNCTIONS: *integrated reading, peak reading, range lock (0-50 R/h) for reading pulsed fields*

DATA LOGGING: Data is stored to detachable USB thumb drive in CSV format for easy retrieval by PC spreadsheet/database programs. Data points include real-time clock generated date and time with rate, integrated reading, and instrument status. Logging time intervals are set by PC interface program or standard USB keyboard (*with no additional USB ports, no integrated mouse, and no trackpad*)

LCD DISPLAY: 8.9 cm (3.5 in.) diagonal, 240 H x 320 W pixels, TFT active matrix, 262,144 colors, 220 cd/m², automatic backlighting

USER CONTROLS: 4 pushbuttons on instrument face for instrument on/off, enabling functions, adjusting audio output, acknowledging alarms or resetting function value

AUTOMATIC FUNCTIONS: auto-ranging, auto-zeroing, automatic LCD backlighting

AUDIO OUTPUTS: built-in unimorph speaker, > 60 dB at 0.6 meters (2 ft.) An optional audio jack can be installed for connecting to an external headsets (headset is available as an option).

ALARMS: two levels of radiation alarms available, each is user programmable throughout entire readout range

TEMPERATURE RANGE: -20 to 40 °C (-4 to 104 °F)

POWER: eight rechargeable "AA" NiMH batteries, supplied with wall charger for direct connection to instrument

BATTERY LIFE: 12 to 30 hours between charges, depending upon use of backlighting

USB INTERFACE: single USB port, may be connected directly to a USB keyboard to facilitate password-protected parameter changes, accepts USB drive for storing logged data, optional interface kit facilitates connection to a PC for parameter editing and calibration

CONSTRUCTION: durable molded plastic with internal metal support

SIZE: 21.9 x 11.6 x 24.5 cm (8.6 x 4.6 x 9.6 in.) (H x W x L)

WEIGHT: 1.5 kg (3.3 lb), including batteries



Model 9DP-1 control panel*



Model 9DP-1 USB drive*

Also Available

- Model 9DP-1 Ion Chamber Survey Meter PN: 48-3899
- Model 9DP Ion Chamber Survey Meter PN: 48-3742
- Model 9DP* Ion Chamber Survey Meter PN: 48-3942
- Dimension Interface Package PN: 4293-763
- Check Source, 10 μCi ^{137}Cs PN: 01-5231
- Audio Jack Output PN: 4293-891
- Alkaline Battery Pack PN: 4543-028
- Carrying Case PN: 2313065