

## Model 9DP-1 Ion Chamber Survey Meter

### FEATURES

- Special Design for Measuring Pulsed Fields
- Low Pressure Chamber is Non Hazmat
- 2  $\mu\text{Sv/h}$  to 500  $\text{mSv/h}$  (200  $\mu\text{R/hr}$  to 50  $\text{R/hr}$ ) Range
- Sunlight Readable Color Display
- Auto Zeroing & Ranging
- Rechargeable Batteries
- Alarming Capability
- Rate, Integrate & Peak Hold Readouts
- Data Logging
- USB Connectivity
- Free Firmware Updates through Internet

### INTRODUCTION

The Ludlum Model 9DP-1 ion chamber meter is specially designed for radiography work where pulsed fields are being measured. This instrument correctly integrates 50 nanosecond pulses (and wider) that other systems typically miss or measure inaccurately. This instrument measures both exposure and exposure rate and can simultaneously display the exposure rate, integrated value, and highest rate seen by the instrument. The integrated value can be reset (if desired) using one of the four convenient front-panel mounted buttons. The buttons also control instrument power, function selection, setting the speaker volume and acknowledging alarms.

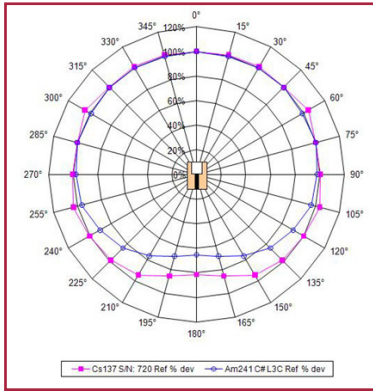
The detector chamber is only pressurized to 2.5 atmospheres (22 psig), thus avoiding all (USA) HAZMAT concerns for shipping and handling. However, this reduced pressure also reduces sensitivity, so the minimum "good" measurement point is 2  $\mu\text{Sv/h}$  (200  $\mu\text{R/hr}$ ). The stunning 256-color, 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 manifested using color changes on the display and an acknowledgeable 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 an industry standard, USB thumb drive plugged into the instrument USB port. Data are written in csv format for convenient retrieval by a PC spreadsheet or database program.

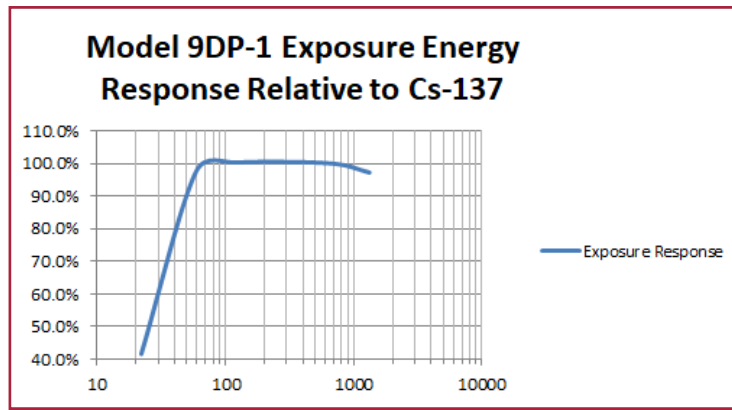
The Model 9DP-1 is part of Ludlum's new Dimension series of meters employing state-of-the-art technologies that deliver tremendous capability, user friendliness, and convenient PC connectivity. The built-in USB port facilitates password-protected access to parameter settings via direct connection to a USB keyboard (with no additional USB ports, and no integrated mouse or trackpad) thus foregoing any need to install PC application software or dealing with operating system compatibility issues. Ludlum also offers an optional Dimension PC Windows™ interface program that enables total control over the instrument and performs calibration.



Model 9DP-1 control panel



Angular Dependence



Model 9DP-1 Exposure Energy Response

**SPECIFICATIONS**

Part Number: 48-4108

**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 μSv/h, 2 – 500 μSv/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 μGy/h, 2 – 500 μGy/h, 0 – 5 mGy/h, 0 – 50 mGy/h, 0 – 500 mGy/h

**CHAMBER VOLUME:** 220 cm<sup>3</sup> (13.4 in<sup>3</sup>) volume pressurized to 2.5 atmospheres (22 psig)

**ACCURACY:** +/-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/m<sup>2</sup>, 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, auto 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 (see above) to facilitate password-protected parameter changes, accepts USB thumbdrive 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 thumb drive



**Also Available**

- |  |              |                         |              |
|--|--------------|-------------------------|--------------|
| • Model 9DP Ion Chamber Survey Meter     | PN: 48-3742  | • Audio Jack Output     | PN: 4293-891 |
| • Model 9DP*                             | PN: 48-3942  | • Alkaline Battery Pack | PN: 4543-028 |
| • Dimension Interface Package            | PN: 4293-763 | • Carrying Case         | PN: 2313065  |
| • Check Source, 10 μCi <sup>137</sup> Cs | PN: 01-5231  |                         |              |