LUDLUM MEASUREMENTS, INC.

Model 9DP*
Ambient Dose Ion Chamber

FEATURES

- Provides ICRU-Based Ambient Dose Measurements
- Ambient Equivalent Dose or Dose Rate is Flat within 20% from 40 keV – 1.3 MeV
- 0 – 50 mSv/h (0 – 5 R/hr; 0 – 50 mGy/h) Range with µR/hr Sensitivity
- Sunlight Readable Color Display
- Auto Zeroing & Ranging
- Rechargeable Batteries
- Alarming Capability
- USB Connectivity
- Data Logging
- Simultaneous Rate and Integrate or Peak Hold Readouts
- Free Firmware Updates through Internet

Introduction

The ambient dose version of the Model 9DP, designated as Model 9DP*, is a highly sensitive pressurized ion chamber meter that provides a measurement of exposure and exposure rate that is measured and displayed in accordance with, and based on, the ICRU (International Commission on Radiation Units) 30 cm tissue equivalent sphere. Simply described, the definition of ambient dose equivalent is 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, the Model 9DP* can simultaneously display the *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 stunning 256K color, bit-mapped display provides an optimized presentation of the data, and it is accompanied with icons informing the user of the active functions and instrument status. All logged data can be written in csv format to a plugged-in industry standard USB thumb drive for convenient retrieval by a PC spreadsheet or database program. Alarms are manifested using color changes on the display and an acknowledgeable audio output.

The Model 9DP* is part of Ludlum's Dimension series employing state-of-the-art technologies that deliver tremendous capability, user-friendliness, and convenient PC connectivity. Instrument users have access to "personal preference" type settings by connecting directly to a USB keyboard (with no additional USB ports, and no integrated mouse, trackpad or sound controls). Ludlum also sells a Dimension Interface Package that facilitates complete setup and calibration programming under administrator-controlled password protection.

NOTE: This instrument is considered HAZMAT and requires HAZMAT training to ship. Please see the instrument manual for details.

Ludlum Measurements, Inc. P.O. Box 810, Sweetwater, Texas 79556
Web: ludlums.com **Tel**: 800-622-0828 / 325-235-5494 **Fax**: 325-235-4672 **Email**: sales@ludlums.com

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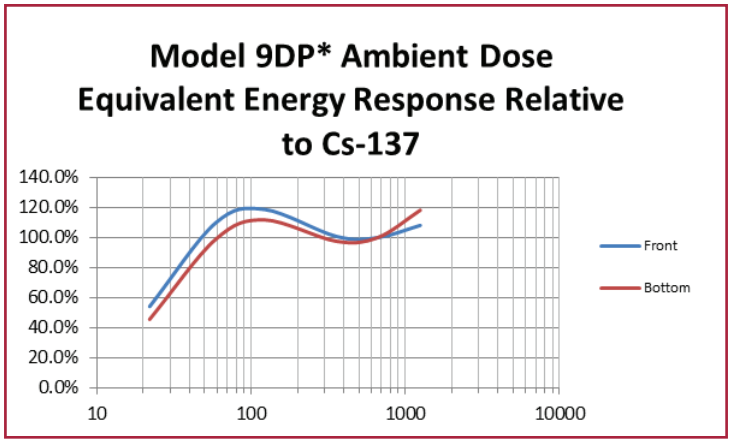

SPECIFICATIONS

Part Number: 48-3942

RADIATION DETECTED: beta above 1 MeV; gamma & X-rays above 25 keV

OPERATING RANGES:

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

R/hr units: 0–500 µR/hr, 0–5 mR/hr, 0–50 mR/hr, 0–500 mR /hr, 0–5 R/hr

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

CHAMBER VOLUME: 230 cc (14 in^3) volume pressurized to 9 atmospheres (117 psig ± 5 psig)

CHAMBER DENSITY: chamber wall density is 601.7 mg/cm^2; can wall density is 332.5 mg/cm^2. Total density of chamber + can is 934.2 mg/cm^2

ACCURACY: ±10%

RESPONSE TIME: from five seconds in lowest range to under two seconds in highest range when measuring from 10% to 90% of final value

GEOTROPISM: less than 1%

MEASUREMENT READOUTS: simultaneous display of rate and either the integrated value or highest rate (peak)

MINIMUM READOUT: 0.01 µSv/h (0.1 µR/hr, 0.01 µGy/h)

LCD DISPLAY: 8.9 cm (3.5 in.) diagonal, 240 H x 320 W pixels, TFT active matrix, more than 256k colors, 220 cd/m^2, automatic sensor-controlled backlighting

USER CONTROLS: 4 push buttons: Instrument on/off, Function (for peak rate/integrate modes), Audio on/off, and Asterisk (for alarm acknowledge/meter reset/clearing integrated dose or peak rate)

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

DATA STREAMING: Stored to detachable USB thumb drive in CSV format for easy retrieval by PC spreadsheet/database programs. Data points include date and time, rate, integrated reading, and instrument status. Logging time intervals are set by PC interface program.

AUDIO OUTPUTS: built-in unimorph speaker louder than 60 dB at 0.6 m (2 ft), optional audio jack available for connection to external (optional) headset

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

USB INTERFACE: single USB port, connects directly to a USB keyboard (with no additional USB ports, and no integrated mouse or trackpad or audio controls) to facilitate password-protected parameter changes, accepts USB thumbdrive for storing logged data, or to an optional Dimension Interface Package (# 4293-763) that facilitates PC parameter editing and calibration

ENVIRONMENTAL: TEMPERATURE RANGE: -20 to 40 °C (-4 to 104 °F); HUMIDITY: 0–95% non-condensing

WARM UP TIME: less than 1 minute when the instrument is in temperature equilibrium with the surrounding environment

DRIFT: less than 0.3 µSv/h (0.03 mR/hr; 0.3 µ Gy/h)

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

BATTERY LIFE: approximately 12 to 30 hours between charges depending primarily upon use of backlighting and USB usage

CONSTRUCTION: durable molded plastic with internal metal frame 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

OPTIONS for Model 9DP*:

Dimension Interface Package:	PN: 4293-763
Logging Software/Cable	PN: 4293-998
Audio Jack Output:	PN: 4293-891
Alkaline Battery Pack:	PN: 4543-028
Check Source, 10 µCi (^{137}Cs):	PN: 01-5231
Carrying Case:	PN: 2313065

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