



Model 451P Pressurized Ion Chamber Survey Meter

The Model 451P is a revised version of the highly successful Model 450P survey meter, featuring a pressurized ionization chamber, microprocessor technology, and an illuminated analog/digital liquid crystal display.

Specifications

Radiation detected: x-rays & gamma above 25 keV, beta above 1 MeV
Range:

Rate mode: autoranging, 0 - 500 μ R/h, 0 - 5 mR/h,
0 - 50 mR/h, 0 - 500 mR/h, 0 - 5 R/h

Integrate mode: autoranging, 0 - 500 μ R, 0 - 5 mR, 0 - 50 mR,
0 - 500 mR, 0 - 5 R,

Accuracy: within 10% of reading between 10% and 100%
of full scale indication on any range, exclusive
of energy dependence

Detector: 300 cc ionization chamber pressurized to eight
atmospheres or 125 psi

Response time (10% to 90%): 5 seconds on 0 - 500 μ R/h, 2 seconds on 0 - 5
mR/h and 1.8 seconds on all other scales

Display: liquid crystal display indicates values in 2-1/2
digits, a 6.4 cm wide analog 100-element bar
graph, units of measurement, and operating
status

Power: two 9-volt alkaline batteries, NEDA 1604,
provide 200 hours of continuous operation

Instrument can operate on one battery to permit uninterrupted
integration when batteries are changed one at a time.

Environmental

Temperature range: -20° C to +50° C

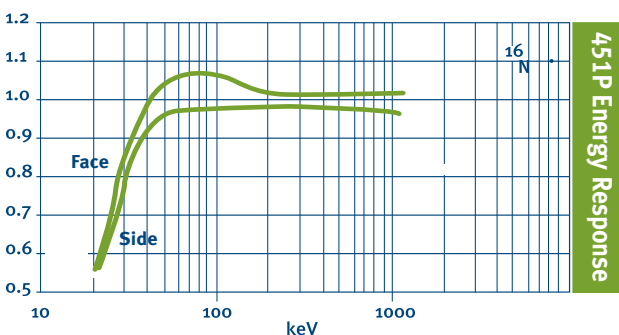
Humidity: 0 to 100%

Geotropism: negligible

Angular response: at 137 Cs and 38 keV: within 10% through 180°

Dimensions: 10 cm W x 20 cm L x 15 cm H (4 in x 8 in x 6 in)

Weight: 1.07 kg (2 lbs, 6 oz)



The ionization chamber is filled with argon to a pressure of eight atmospheres. This greatly improves the sensitivity to low levels of radiation, enhances low energy response, reduces time constant, and makes it air density independent. Its ability to read low levels of radiation is 10 times greater than similar non-pressurized ion chamber type survey meters.

The 451P is simple to operate; only ON/OFF and MODE buttons are needed because the microprocessor controls both auto-ranging and auto-zeroing.

The display is unique, the 2-1/2 digit display provides reading accuracy for shielding studies, while the 100 element analog bar graph with a faster time constant makes the instrument ideal for surveying changing radiation levels. The integrate (dose) mode registers scatter doses from the shortest radiographic exposures. Integration begins 30 seconds after the instrument has been turned on, and the 451P operates continuously even while in the rate mode. Just press the MODE button to switch to integrate and read dose that has accumulated during the survey.

An RS-232 interface, used with Excel add-in for Windows® allows for data retrieval, user parameter selection and provides virtual instrument display.

The rugged case is sealed against moisture and is available in red/yellow/red (RYR suffix). The 451P is also available in Dose Equivalent SI units (specify DE-SI suffix).

Features:

- ▶ Microprocessor based
- ▶ Sensitivity to μ R/h range
- ▶ Rugged, lightweight, simple to operate

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