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451P

Pressurized µR Ion Chamber Survey Meter

Technical Data

The 451P state-of-the-art ion chamber survey meter is a handheld battery operated unit designed for use in both rugged and normal environments. The 451P is a pressurized ion chamber for µR resolution. The 451P auto-ranges and measures radiation rate and accumulated dose from various radiation sources (beta, x-ray and gamma). The ion chamber detector allows for a fast response time to radiation from leakage, scatter beams, and pinholes. Additionally, the low-noise chamber bias supply provides for fast background-settling time.

The digital display features an analog bar graph, 2.5 digit readout, low battery indicator, freeze (peak hold) mode indicator and an automatic back-light function. User controls consist of an ON/OFF button and a MODE button. The case is constructed of lightweight, high strength materials and is sealed against moisture.

The RS-232 interface can be connected directly to a computer for use with the Excel add-in for Windows (451EXL), enhancing the functionality of the instrument. This software allows for data retrieval, user parameter selection and provides a virtual instrument display with audible and visual alarm indication.

Key features

- High µR sensitivity measurement of rate and dose simultaneously
- Records peak rate using “Freeze Mode”
- Auto-ranging and auto-zeroing
- RS-232 communications interface with optional Windows-based Excel add-in for data logging
- Ergonomic, anti-fatigue handle with replaceable grip, wrist strap and tripod mount
- Programmable flashing LCD display
- Easily-accessible battery door (operated by two 9-volt alkaline batteries) on the outside of the bottom case
- Available with dose equivalent energy response (SI units)

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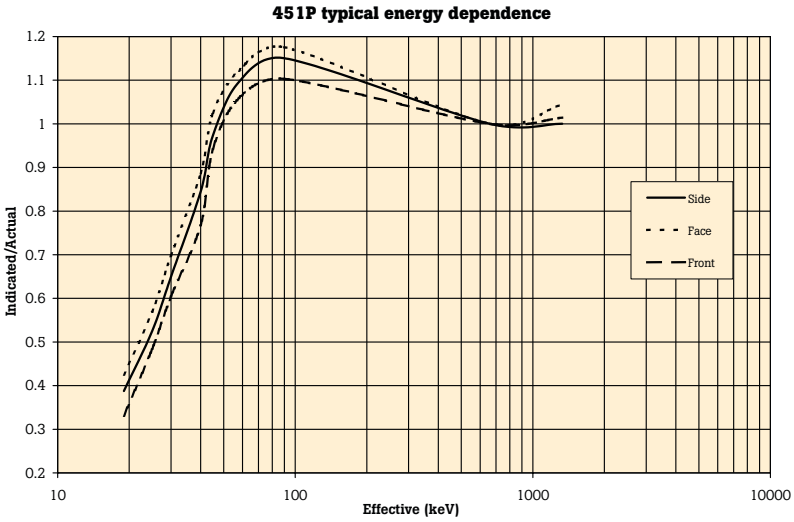
Specifications

Radiation detected	Beta	> 1 MeV
	Gamma	> 25 keV
Operating ranges, response time	0 µR/h to 500 µR/h (5 sec) 0 mR/h to 5 mR/h (2 sec) 0 mR/h to 50 mR/h (1.8 sec) 0 mR/h to 500 mR/h (1.8 sec) 0 R/h to 5 R/h (1.8 sec)	
Accuracy	Within 10 % of readings between 10 % and 100 % of full scale indication on any range, exclusive of energy response	
Detector	Chamber	230 CC Pressurized ionization chamber to 8 atmospheres or 125 psi
	Controls	ON/OFF and MODE
Automatic features	Auto-zeroing, auto-ranging, and auto-backlight	
Warm-up time	Less than one minute for initial operation when the instrument is in temperature equilibrium with the surrounding area, typical. (About four minutes for readings if less than 20 µR/h in a 10 µR/h or less background)	
Display LCD analog/ digital with backlight	Analog	100 element bar graph 6.4 cm long. Bar graph is divided into 5 major segments, each labeled with the appropriate value for the range of the instrument
	Digital	2.5 digit display is followed by a significant zero digit depending on the operating range of the instrument. The units of measurement are indicated on the display at all times. Digits are 6.4 mm (0.25 in) high. Low battery and freeze indicators are also provided on the display
Modes	Integrate mode	Operates continuously 30 seconds after the instrument has been turned on. Integration is performed even if the instrument is displaying in mR/h or R/h
	Freeze mode	Will place a tick mark on the bar graph display to hold on the peak displayed value. The unit will continue to read and display current radiation values
Environmental	Temperature range	-20 °C to 50 °C (-4 °F to 122 °F)
	Relative humidity	0 % to 100 %
	Geotropism	Negligible
Typical energy dependence	^{16}Nitrogen gamma rays are 110 % to 120 % of indicated readings as determined at the University of Lowell	
Power requirements	Two 9 V alkaline, 200 hours operation	
Dimensions (WxDxH)	10 cm x 20 cm x 15 cm (4 in x 8 in x 6 in)	
Weight	1.07 kg (2.4 lb)	



Ordering Information

Models

451P-RYR Pressurized µR Ion Chamber Survey Meter with standard chamber

451P-RYR-SS Pressurized µR Ion Chamber Survey Meter with molded grip handle and shoulder strap

Optional accessories

451EXL 451 Assistant for Excel, includes RS-232 interface cable

190HPS Single Unit Carrying Case

62-103 Check Source, ^{137}Cs, 10 µCi. Flat disc, 1-inch diameter

**Due to the pressurized ion chamber, the 451P is considered U.S. Department of Transportation (DOT) Dangerous Goods and must be shipped via IAW DOT special permit DOT-SP 13187.

About Fluke Biomedical

Fluke Biomedical is the world's leading manufacturer of quality biomedical test and simulation products. In addition, Fluke Biomedical provides the latest medical imaging and oncology quality-assurance solutions for regulatory compliance. Highly credentialed and equipped with a NVLAP Lab Code 200566-0 accredited laboratory, Fluke Biomedical also offers the best in quality and customer service for all your equipment calibration needs.

Today, biomedical personnel must meet the increasing regulatory pressures, higher quality standards, and rapid technological growth, while performing their work faster and more efficiently than ever. Fluke Biomedical provides a diverse range of software and hardware tools to meet today's challenges.

Fluke Biomedical Regulatory Commitment

As a medical test device manufacturer, we recognize and follow certain quality standards and certifications when developing our products. We are ISO 9001 and ISO 13485 medical device certified and our products are:

- CE Certified, where required
- NIST Traceable and Calibrated
- UL, CSA, ETL Certified, where required
- NRC Compliant, where required

Fluke Biomedical.
Better products. More choices. One company.

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