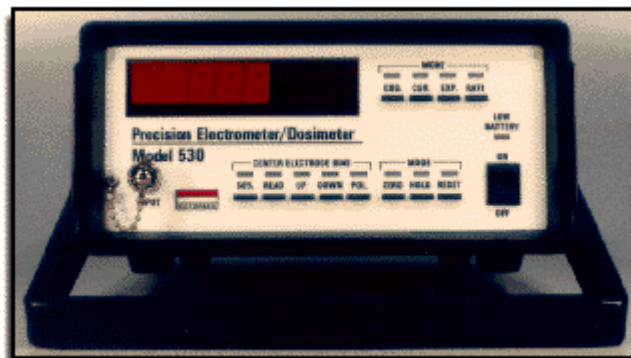




Model 530 Precision Electrometer/Dosimeter



Description

Victoreen's Model 530 Electrometer/Dosimeter is our newest high-precision, dual polarity electrometer designed to accept Victoreen and many commercially available ionization chambers. As a dosimeter, it displays exposure in Roentgens as well as dose or Kerma in Grays. The Model 530 features a 4 1/2 digit display, auto-ranging, a built-in bias supply with external supply capability, a triaxial BNC input, an analog recorder output, and a RS-232 computer interface.

- 4 1/2 Digit display
- Auto-ranging
- Eight user programmable ion chamber factors
- Built-in bias supply
- Triaxial BNC input
- Recorder output
- RS-232 computer interface
- Charge and current display
- Exposure and rate units display
- Displays Roentgens or Grays

Model 530 Precision Electrometer/Dosemeter

Specifications:

RANGE:

Charge: 100fC - 20,000nC

Current: 10fA - 200nA

Exposure: 100 μ R - 20,000R

Exposure Rate: 1 μ R/min - 2000R/min

Reproducibility: 0.5% of reading

Linearity: 0.3% of reading

Leakage Current: Less than 3×10^{-15} A

Calibration Accuracy:

Charge: 0.5% of full scale

Current: 1.5% of full scale

Input Impedance: $>10^{14}$ ohms

STABILITY:

Temperature: .01% / $^{\circ}$ C, 10 $^{\circ}$ to 40 $^{\circ}$ C

Long Term: 0.5% / year

Display: 4 1/2 Digit LED with unit annunciators.

Bias Supply: Internal: 0 to \pm 350 Volts, adjustable in 3 volt increments. External: 0 to \pm 400 Volts, via rear panel. Bias voltage may be read on display by pressing READ.

Calibration Factors: Eight user programmed factors, selectable by a rotary switch.

Power: Internal rechargeable batteries, automatically trickle charged whenever unit is plugged in. Overcharge protection. 120V or 220V charger provided.

Connectors: Input triaxial BNC connector. RS-232 DB25 rear connector configured as DCE. Banana jacks on rear panel for analog output (0-10V) and external bias input.

Dimensions: 9"W x 13" D x 5" H (22.8 cm x 33 cm x 12.7cm)

Weight: 7.34 lbs (3.33 kg)

Front Panel Controls:

MODE:

CHG: Places the unit in the charge measurement mode.

CUR. Places the unit in the current measurement mode.

EXP.: Places the unit in the exposure measurement mode. Instrument measures charge, and converts to exposure units based upon user selected chamber calibration factor. SI units are available.

RATE: Places the unit in the exposure rate mode. Instrument measures current then converts to exposure rate units based upon user selected chamber calibration factor.

ZERO: Zeros the electrometer by measuring and compensating for offset levels.

HOLD: Acts as a toggle to suspend / re-activate display update.

RESET: Resets the display to zero.

ELECTRODE BIAS:

50%: Acts as a toggle to reduce bias voltage by 50%. Switch LED illuminates to show reduction is active.

READ: Displays the measured electrode bias voltage.

UP / DOWN: Increases/decreases the electrode bias voltage in three volt increments/decrements.

POL.: Changes the polarity of the electrode bias voltage.

Rear Panel Controls:

BIAS: Selects either the internal or external chamber bias voltage.

RS-232 DIP Switch: Sets the Model 530 communication parameters.

CALIBRATION SELECT: Used to select one of eight calibration factors for use in the EXPOSURE and RATE modes.

Exposure and Rate Limits:

Charge - .0001 nC - 19999 nC

Current - 00.01 pA - 199.99 nA

Exposure (Exp.) and exposure rate ranges for chamber sensitivity ranges

Chamber Sensitivity Range (R/nC)	Exposure	Exposure Rate Range
$1.000 \times 10^{-3} - 9.999 \times 10^{-3}$	0.001 mR - *	00.01 mR / min - **
$1.000 \times 10^{-2} - 9.999 \times 10^{-2}$	00.01 mR - *	.0001 R / min - **
$1.000 \times 10^{-1} - 9.999 \times 10^{-1}$.0001 R - *	0.001 R / min - **
$1.000 \times 10^0 - 9.999 \times 10^0$	0.001 R - 19999 R	00.01 R / min - **
$1.000 \times 10^{+1} - 9.999 \times 10^{+1}$	00.01 R - 19999 R	000.1 R / min - 19999 R / min

* limited by exposure equivalent to charge limit of approximately 38000 nC

** limited by exposure rate equivalent to current limit of approximately 200 nA

Dose and dose rate ranges for chamber sensitivity ranges

Chamber Sensitivity) Range (Gy/nC)	Dose Range	Dose Rate range
$1.000 \times 10^{-5} - 9.999 \times 10^{-5}$	0.0001 mGy - *	0.0001 mGy / min **
$1.000 \times 10^{-4} - 9.999 \times 10^{-4}$	0.0001 mGy - *	0.001 mGy / min - **
$1.000 \times 10^{-3} - 9.999 \times 10^{-3}$	0.001 mGy - *	00.01 mGy / min - **
$1.000 \times 10^{-2} - 9.999 \times 10^{-2}$	00.01 mGy - *	0.0001 Gy / min - **
$1.000 \times 10^{-1} - 9.999 \times 10^{-1}$	0.0001 Gy - *	0.001 Gy / min - **

* limited by exposure equivalent to charge limit of approximately 38000 nC

** limited by exposure rate equivalent to current limit of approximately 200 nA

The following table and graphs illustrate the maximum exposure and rate versus the chamber sensitivity.

Sensitivity	Maximum Exposure (R)	Maximum Rate (R/min)
1.00×10^{-3}	38	12
1.00×10^{-2}	380	120
1.00×10^{-1}	3800	1200
1.00×10^0	19999	12000
$1.00 \times 10^{+1}$	19999	19999
$1.00 \times 10^{+2}$	19999	19999

The following table and graphs illustrate the maximum dose and rate versus the chamber sensitivity.

Sensitivity	Maximum Dose (Gy)	Maximum Rate (Gy/min)
1.00×10^{-5}	0.38	0.12
1.00×10^{-4}	3.80	1.20
1.00×10^{-3}	38	12
1.00×10^{-2}	380	120
1.00×10^{-1}	3800	1200
1.00×10^0	19999	12000

© Elimpex-Medizintechnik, Spechtgasse 32, A-2340 Moedling, Austria
phone +43-2236-410450
fax +43-2236-410459

[[Home](#) | [About Elimpex](#) | [Email](#) | [Top](#)]

