

MAX4000 PLUS ELECTROMETER



VERSATILE, ACCURATE

Reference grade instrument for use in all radiation therapy applications, such as external beam, diagnostic x-ray and mammographic x-ray, and brachytherapy including both low and high dose



● NEW LOOK, SAME ACCURATE MEASUREMENTS

The MAX 4000 Plus overall design and display has been redesigned for easier set-up and a clearer output of measurements and data.

● LOW NOISE AND STABLE REPEATABILITY

A powerful digital microprocessor provides 0.1% repeatability and exceptionally low leakage of less than 1 fA. The built-in digital filter nearly eliminates the effects of noise, resulting in stable and precise measurements.

● WIDE RANGE, SUPERIOR SENSITIVITY

0.001 pA to 500.00 nA rate range.
0.01 pC to 999,999 nC charge range.

● AUTOMATIC THRESHOLD DETECTION

Threshold detecting trigger mode automatically detects the start and stop of radiation exposure by measuring the current crossing predetermined limit thresholds allowing the flexibility required in clinical and research applications. Take sequential measurements without manual reset.

● POWERFUL DATA MANAGEMENT

Connect the MAX 4000 Plus to a PC and use the included MAX COMM™ Software for fast, comprehensive control of dose and dose rate measurements, chamber libraries, remote operations, data logging, and many other advanced features.



Features and Benefits

Powerful Measurement Capabilities

- **NEW!** Updated timed charge collections for various increments
- Three collection modes: triggered with automatic start/stop, timed from 0-600 seconds, and continuous

Compatible with Standard Imaging Software

Use included MAX COMM Software or DV1D Software to:

- Automatic acquisition of a series of timed charge collections
- Perform basic beam profiling with continuous collection of rate measurement points over user defined intervals
- Export data in a Microsoft® Excel compatible format
- With MAX COMM Software, facilitate calculation of integrated dose and dose rate in Gy, Sv, R, Gy/min, Sv/hr, R/min, or Gy²/hr

External Beam, Stereotactic QA and More

- Quick measurements of small volume ion chambers, such as those used in IMRT or SBRT.
- Ideal for ion chambers typically used for data acquisition in water phantoms
- Great for mammographic, conventional radiology, and CT scanning applications, as well as health physics measurements

Simple, Intuitive Interface

- **NEW!** Simplified LCD display produces easy-to-read data
- **NEW!** Faster warm-up time from start up to acquisition
- Simultaneous display of amp, coulomb, and collection time minimizes the need to switch screens
- User activated, automatic zeroing function

Superior Bias Settings

- **NEW!** Compatible with large volume ionization chambers
- **NEW!** Additional bias levels for accurate determination of chamber correction factors
- Extended ± 0-450 VDC for TG-51 and 1/3 ratio IAEA TRS-398 measurements

Reference Class Confidence

- Designed to meet or exceed AAPM, ADCL, IEC 60731 reference grade instrument specification requirements

LDR or HDR Brachytherapy

- Exceptional sensitivity with quick measurements of low activity isotopes
- 0.27 mCi iodine seed, measured in the HDR 1000 Plus Well Chamber, gives a typical signal of 1.458 pA
- Also measures 10 Ci and higher iridium sources

MAX 4000 PLUS SPECIFICATIONS

DISPLAY RANGE

- Rate: *Low Range* 0.001 pA – 1000.0 pA, 1 fA resolution
High Range 0.001 nA – 500.0 nA, 1 pA resolution
- Charge: *Low Range* 0.01 pC – 999,999 nC, 10 fC resolution
High Range 0.01 nC – 999,999 nC, 10 pC resolution

CHARGE COLLECTIONS

Trigger:	Automatic start, stop, reset based on user defined thresholds (Start: 0.2 – 9.9 pA; Stop: 0.1 – 9.8 pA)
Timed:	User set duration options will increase 1-10 (1sec increments) 15-120 (15sec increments); 120-600 (60sec increments)
Continuous:	Unlimited duration with manual stop
Range Switching	User selectable — High or Low
Display	Backlit LCD, 2x20 with 5/16" characters
Input	BNC two lug, triaxial connector
Bias Voltage	Nominal ± 450 volt bias
User Settings	-450 to -100, 0, 100 to 450 (Ranges in 50 Volt Increments)
Power	100-240 VAC, 0.5 A max, 50/60 Hz input to external power supply, 9 VDC, 1.7 A power supply output to electrometer input, UL/TUL listed power supply; internal, user replaceable battery: 8 hrs per charge
Zeroing	Automatic zero function, user activated
Output	Isolated RS-232; compatible with Argus QC4 or user provided software

DIMENSIONS	Height: 7.9 cm, 3.1 in	Width: 22.6 cm, 8.9 in
	Length: 24.8 cm, 9.8 in	Weight: 1.7 kg, 3.8 lbs

PERFORMANCE SPECS

RESOLUTION	High Range: 0.001 nA Low Range: 0.001 pA	IEC 60731 (Reference Class) requirement: ± 0.25%
MEASURING RANGE	High Range: 0.400 nA – 500.0 nA Low Range: 0.400 pA – 1000.0 pA	
MEASURING RANGE (CHARGE)	High Range: 0.400 nC – 999,999 nC Low Range: 0.400 pC – 999,999 nC	
REPEATABILITY	± 0.1%	IEC 60731 requirement: ± 0.5%
LONG-TERM STABILITY	± 0.5%	over one year
STABILIZATION TIME	± 0.5%	IEC 60731 requirement: ± 0.5% of value at 1 hr for measurements taken at 15 min and 6 hrs
ZERO DRIFT	High Range: < ± 0.1% Low Range: < ± 0.25%	IEC 60731 requirement: ± 0.5%
ZERO SHIFT	High Range: < ± 0.1% Low Range: < ± 0.25%	IEC 60731 requirement: ± 0.5%
NON-LINEARITY	± 0.2%	IEC 60731 requirement: ± 1.0%
RESPONSE TIME	High Range Rate: 3 s Low Range Rate: 15 s	All Ranges Charge: < 0.5 s

OPTIONS

- MAX-Comm Software
- MAX4000+ Electrometer with TNC connector (REF 90015-C)

CONFORMITY CE 93/42/EEC Reference class according to IEC 60731

Specifications subject to change without notice.



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