

WIDE RANGE ION CHAMBER

Model ~ TBM-IC-HLS

FEATURES:

- SEES X-Ray PULSE DOWN TO 0.002 μ R
- SEVEN DECADES
- 1pSv to 10 mSv
- WIDE RANGE: 0.1 mR/h to 1,000 R/hr (1 μ Sv/h to 10 Sv/h) RATE
- DIGITAL READOUT: 8 digit-rate, 8 digits integrate
- DOSE RATE & TOTAL DOSE READ OUT
- LIGHTWEIGHT 28 oz. (870 grams)
- TBM PACKAGE
- FLAT RESPONSE - FREE AIR ION CHAMBER
- SEES BELOW 2 KEV GAMMA OR X-RAY
- SEES ALPHA, BETA, GAMMA, X-RAY
 - CORRECT RANGE for ANSI N42.33 *
 - OPTIONAL: RS-232 SERIAL PORT
- IP63; CE MARK



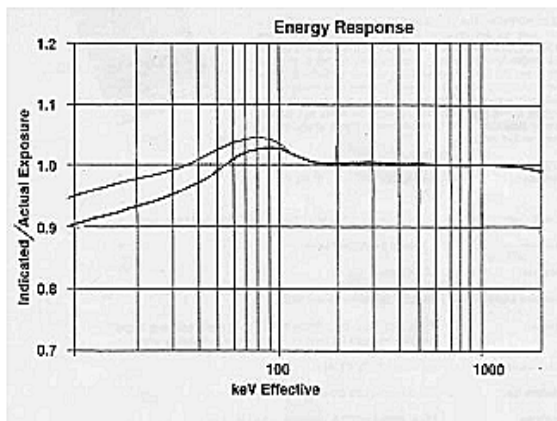
APPLICATION:

Whenever a fast, sensitive ion chamber instrument is needed, the **TBM-IC-HLS** is the latest in a series. The **TBM-IC-HLS** ion chambers are lighter. Stable, essentially drift- free electrometer technology.

DESCRIPTION:

The **TBM-IC-HLS** consists of a 3.7" dia x 6" long. (9.4 x 15.2 cm) air ion chamber coupled to a stable solid state MOSFET input electrometer with built-in A to D converter to read out in two ranges directly in mR/hr or optional μ Sv/h Dose Rate.

- Integrated Dose reads in total R or optional total Sv.
- The Ion Chamber has 180 mg/cm² graphite lined methacrylate walls giving accurate "air equivalence".
- A thin (0.5 mg/cm²) Mylar window allows high sensitivity readings for Alpha and for low energy Beta such as C¹⁴.
- X-ray sensitivity is down to 2 KeV as well as higher energy Betas and Gammas.



***Note:** TA also makes ion chambers that measure up to 10 million R/hr

See [ION CHAMBER COMPARISON CHART](#)



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SPECIFICATIONS:

Detector: Flat Response Air ion chamber 3.7" dia x 6" long. (9.4 x 15.2 cm) Nominal Internal volume 300 cc.

Wall & Cap: Methacrylate, graphite lined 180 mg/cm² walls and 540 mg/cm² cap "Air Equivalent".

Energy Window: 2.4" dia. x 0.5 mg/cm² Mylar.

Display: 6 digit LCD

Alarm Indicator: Green – Mid Range; Red – High Range

Two Position Range Change Switches:

- 0.1 mR/hr to 1,000 R/h (1 µSv/h to 10 Sv/h) in two ranges. – Dose Rate
- 100 µR/h to 1 R/h (1 µSv/h to 10 mSv/h) - Dose Rate (Intermediate Range)
- 1 R/h to 1,000 Sv/h (10 mSv/h to 10 Sv/h) - Dose Rate (High Range)
- 0.01 mR to 1,000 R (0.1 µSv to 10 Sv) – Total Dose

Energy Range: Sees Alpha, Beta, Gamma, X-Ray, C-14 Down to KeV axially with Cap Off
Radially & axially: Beta, Gamma, X-Ray to < 5KeV with Cap On
1 KeV – 10 MeV

Electrometer: Solid State MOSFET input.

Electronics: A-D converter LCD drivers.

Batteries:

- 1 set of Lithium batteries and charger
- 6 ea. (AA) - 1000hr.

Operating Temp: -4° F to 122° F (-20° C to 50° C); RH: 0-90%

Weight & Dimensions:

Dimensions: 6" x 4" x 12" (15 cm x 10 cm x 30 cm) including handle.

Weight: 28 oz. complete with battery. (870 grams)

Options:

- ✓ Readout in SI units: Sv and Sv/h.
- ✓ Thicker chamber wall to 1g/cm²
- ✓ Thin Cap same thickness as chamber side wall (180 mg/cm²).
- ✓ Closed chamber (no mylar window).
- ✓ Alarm light on mR/h- Rate Mode
- ✓ RS-232 Serial Output

*** ANSI N42.33 Portable Radiation Detection Instrumentation for Homeland Security –
Type 2 – Hazard Assessment**



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- ❖ **Technical Associates thin wall Ion Chambers provide detection axially below 1 KeV Gamma or X-Ray, and below 100 KeV Beta.**
- ❖ **Other market brands have thicker chamber walls of which can lead to 0 readings (false negative) even though significant exposure.**
- ❖ **TA's TBM-IC (Ion Chamber) instruments detect and thus protects the workforce from lower energy X-Ray exposure.**
- ❖ **Not pressurized, therefore safe for shipment**
- ❖ **Pin hole leak in chamber does not create a risk of declining reading because it is not pressurized.**

ION CHAMBERS - AIR AND SURFACE – PART I ~ UNDERWATER – PART II

ION CHAMBERS - AIR AND SURFACE – PART I						
	Model	Range	Decades	Chamber Volume	Features	Lock Out Features
1	CURIE-H3-PLO	0.1 to 10,000 mCi (10 C) 3.7 to 10 ⁶ Bq to 37 to 10 ¹⁰ Bq	5	53 cc	HIGH RANGE TRITIUM WIPE TEST COUNTER 3" Sample drawer	HIGH RANGE TRITIUM Sample Measurement Range Is Up To 10 Curies. Display Units User Settable: Femto Amps, µCi, DPM, Bq, No Counting Gas Or LSC Cocktail Required ~Does Not Generate Waste~
2	TBM-ACC-X	50 mR/s 500 mSv/s	4	450	ULTRA HIGH ENERGY BETA, GAMMA, COSMIC RAYS Sealed Plasma Chamber. Detects accelerator produced pulses and radiation.	HIGH ENERGY EVENT DETECTOR The ONLY portable accelerator plasma chamber® that will detect accelerator produced pulses and radiation. NOTE: Uses a unique plasma chamber that prevents high ion recombination to achieve a strong accurate signal. NOTE: Use in high energy accelerator - LINAC



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3	TBM-IC-AJI	0.05-10 R/h 0 µSv/h to 100,000 µSv/h (In a single range)	5.5	1,000 cc	ALPHA, BETA, GAMMA More stable below 2mR/h.	MEDICAL VERSION Enhanced sensitivity with large volume chamber. NOTE: Preferred unit by medical users. (In a single range) Removable Beta Cap
6	TBM-IC-BW (3) Models A, B, C (In a single range)	(A) 0.01 to 1,000 R/h 0.1 µSv/h to 10 Sv/h ~~~~~ (B) 0.005 mR/h-1,000 R/h 50 nSv/h to 5 Sv/h ~~~~~ (C) 1.0 µR/h to 100 R/h 10 nSv/h to 1 Sv/h	5	(A) 300 cc ~~~~~ (B) 1-liter ~~~~~ (C) 2-liter — No Beta Cap	ALPHA, BETA, GAMMA All-around Multi-purpose with Wide versatility (A) Standard 0.01R/h to 1,000 R/h. 0.1 µSv/h to 10 Sv/h	MULTIPLE-USE With the Beta cap removed TBM-ICs can measure Alphas 3.5 MeV/h, and low energy Betas of 100 KeV/h and Gammas down to 1 KeV/h. Touch Screen Display (In a single range) Removable Beta Cap (A) and (B)
5	TBM-IC-HLS	0.1mR/h to 1,000 R/h 1 µSv/h to 10 Sv/h (In a single range)	7	300 cc	ALPHA, BETA, GAMMA Toggle switch to additional second range to 1,000 R/h.	HOMELAND SECURITY VERSION NOTE: . This ultra-wide range conforms to ANSI N42.33 Homeland Security Type 2 (In a single range) Removable Beta Cap
4	TBM-IC-LR	0.1 to 1 R/h 1.0 uSv/h to 10 Sv/h (In a single range)	5	2,000 cc	ALPHA, BETA, GAMMA Sees 10 times lower, 2 liter chamber.	ULTRA-LOW RANGE SENSITIVITY. NOTE: with extra-large volume chamber – 2 liter detects background levels in 10 sec. (In a single range) Removable Beta Cap
6	TBM-IC-MARK V	0.1 to 10 R/h 0 µSv/h to 100,000 µSv/h (In a single range)	5	300 cc	ALPHA, BETA, GAMMA All-around Multi-purpose with Wide versatility from 0.1 mR/h - 10 R/h.	MULTIPLE-USE With the Beta cap removed TBM-ICs can measure Alphas and low energy Betas of 30 KeV and Gammas down to 1 KeV. NOTE: Most popular model. (In a single range) Removable Beta Cap



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7	<u>TBM-IC-MVR</u>	0.1 to 50,000 mR/h 1.0 µSv/h to 0.5 Sv/h (In a single range)	5.5	450 cc	GAMMA & HIGH BETA Rugged aluminum chamber. Up to 50R/h.	MILITARY VERSION. NOTE: Rugged for use in power plants, industry, and military. (In a single range)
	TBM-ICP	0.1 mR/hr to 50,000 mR/hr (1 µSv/h to 0.5 Sv/h)	5.5	450cc	BETA, GAMMA, X-RAY Portable Micro Ion Chamber	Rugged aluminum chamber. Up to 50R/h. NOTE: Rugged for use in power plants, industry, and military
8	TBM-IC PULSE-X	0.01 R/h to 50 R/h 0.1 µSv/h to 500 mSv/h (In a single range) <u>PULSE MODE</u> 1.0 mR/h to 50 R/h 10 µSv/h to 500 mSv/h (In a single range) (8 digits)	5	450 cc	PULSED X-RAY Sealed Plasma Chamber. Detects pulsed X-Ray response.	WORLD'S ONLY 20 NANOSECOND PULSED X-RAY DETECTOR. Wide Energy Response (In a single range) NOTE: Uses a unique plasma chamber that prevents high ion recombination to achieve a strong accurate signal. <u>Suitable for Pulse Width:</u> 20 nano-seconds to continuous emission <u>Repetition Rates:</u> Single pulse to 1000/second and above <u>Wide Energy Response:</u> 2 KeV to 10 MeV & above
9	TBM-IC-RN	10 pCi/l to 1 µCi/l 370 Bq/m ³ to 3.7 x 10 ⁷ Bq/l (In a single range)	4	600 cc.	WIDE RANGE RADON Optional: 4 cfm pump for solid wall chamber	PORTABLE WIDE RANGE RADON 10 pCi/l in 5 seconds & detects public release level in less than 10 minutes. Two non-pressurized ion chambers are included; an open screen chamber, (no pump required) and a solid wall chamber, (pump required). (In a single range) NOTE: *less than 1 minute Indication FOR VERY HIGH LEVELS.
10	TBM-IC-XRAY	1mR/h -10 R/h 0 µSv/hr to 100,000 µSv/hr (In a single range)	5	300 cc	X-RAY Includes required 10cm ² aperture sleeve. X-Ray compliance meter.	X-RAY COMPLIANCE METER (In a single range) NOTE: Complies with FDA regulation 21 CFR1020.40



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ION CHAMBERS - UNDERWATER – PART II

ULTRA HIGH RANGE ION CHAMBERS - RUGGED WATER PROOF DESIGN

	Model	Range	Decades	Chamber Volume	Features	Lock Out Features
11	CP-MU-GN	0.1KR/h to 1000.0 KR/h 100 R/h to 10 ⁶ R/h 1 Sv/h to 10,000 Sv/h	4	Ion Chamber 1 cc Proportional Chamber	GAMMA & NEUTRON System includes CP-MU electronics unit and dual probes: (1)Gamma – Ion Chamber and (1) Neutron – Proportional Chamber 60-foot low noise cable, up to 10 ⁶ R/h OPTIONAL: 100 ft cable	VERY HIGH RANGE GAMMA & NEUTRON Dual INLINE Detector Two Channel System RS-232 communications for data collection or remote computer readout. NOTE: Rugged Water proof design allows for underwater Ultra High-level monitoring in reactor and in spent fuel pool to 10 ⁶ R/h.
12	CP-MU-10K	0.1 R/h to 10,000 R/h 1R/h to 10 ⁴ R/h 1 μSv/h to 10 mSv/h Sv/h Optional: 0.1 – 20,000 R/h	5	100 cc	GAMMA System includes CP-MU electronics unit and one stainless steel chamber/probe. 60-foot low noise cable, up to 10 ⁶ R/h OPTIONAL: 100 ft cable	VERY HIGH RANGE GAMMA Works as both underwater and as a Super High Range Survey Meter. RS-232 communications for data collection or remote computer readout. NOTE: Rugged Water proof design allows for underwater Ultra High-level monitoring in reactor and in spent fuel pool to 10 ⁴ R/h.
13	CP-MU-D1	0.1-1,000 KR/h 1Sv/h to 10KSv/h	4	1 cc	GAMMA System includes CP-MU electronics unit and one stainless steel chamber/probe. 60-foot low noise cable, up to 10 ⁶ R/h OPTIONAL: 100 ft cable	VERY HIGH RANGE GAMMA RS-232 communications for data collection or remote computer readout. NOTE: Rugged Water proof design allows for underwater Ultra High-level monitoring in reactor and in spent fuel pool to 10 ⁶ R/h.



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14	CP-MU-D100	1mR/h to 10,000 R/h 1R/h to 10 ⁴ R/h 10 mSv/h to 100 Sv/h	4	100 cc	GAMMA System includes CP-MU electronics unit and one aluminum chamber/probe. 60-foot low noise cable, up to 10 ³ R/h OPTIONAL: 100 ft cable	MID RANGE GAMMA RS-232 communications for data collection or remote computer readout. NOTE: Rugged Water proof design allows for monitoring in both reactor and spent fuel pools to 10 ³ R/h.
15	CP-MU-D1000	0.1 to 1,000 R/h 1 uSv/h to 10 Sv/h	4	1,000 cc	LOW RANGE GAMMA System includes CP-MU electronics unit and one aluminum chamber/probe. 60-foot low noise cable, up to 10 ³ R/h OPTIONAL: 100 ft cable	LOW RANGE GAMMA RS-232 communications for data collection or remote computer readout. NOTE: Rugged Water proof design allows for monitoring in both reactor and spent fuel pools to 10 ³ R/h.
16	CP-MU-7-D1 & D1000	1.0 to 10 million R/h 10mSv/h to 100KSv/h	7	1 cc & 1,000 cc	GAMMA System includes CP-MU-7 electronics and dual probes: (2) Gamma – Ion Chambers (1)High Range and (1)Low Range 60-foot low noise cable, up to 10 ⁷ R/h OPTIONAL: 100 ft cable	DUAL DETECTOR SYSTEM ULTRA- HIGH AND LOW RANGES RS-232 communications for data collection or remote computer readout. NOTE: Rugged Water proof design allows for Ultra High-Level monitoring in both reactor and spent fuel pools to 10 ³ R/h Unplug one detector and plug in the other to switch ranges



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