

## UNIQUE FEATURES OF TECHNICAL ASSOCIATES PORTABLE TBM-ICs (ION CHAMBERS)

- ❖ **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.**

### FOR AIR AND SURFACE – PART I

- The variety of TBM-IC instruments provide a wide diversity of applications.
- Most of TA's TBM-ICs see very low energy including measurement of low energy x-ray fields, measurement of very low levels: 0.01 mR/h and as high as  $10^7$  R/h/
- With the plasma chamber high energy events such as 50 mR/s are also available.
- With the Beta cap removed TBM-ICs can measure Alphas and low energy Betas of 30 KeV and Gammas down to 1 KeV.
- TBM-IC meters small size is designed to fit in a briefcase.
- TBM-IC meters have **OPTIONAL** RS-232 communications for data collection or remote computer readout.

### FOR UNDERWATER WORK – PART II

- CP-MU meters have a Rugged Water proof design for underwater Ultra High-level monitoring in reactor and in spent fuel pool.
- CP-MU meters have **STANDARD** RS-232 communications for data collection or remote computer readout.



**TECHNICAL ASSOCIATES**

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## ION CHAMBERS - AIR AND SURFACE – PART I

	Model	Range	Decades	Chamber Volume	Features	Lock Out Features
1	<b>CURIE-H3-PLO</b>	0.1 – 10,000 milliCuries (10 C)  3.7 x 10 <sup>6</sup> Bq to 37 x 10 <sup>10</sup> Bq	5	53 cc	<b>HIGH RANGE TRITIUM WIPE TEST COUNTER</b>  3" Sample drawer	<b>HIGH RANGE TRITIUM</b>  Sample Measurement Range Is Up To 10 Curies. Display Units User Settable: Femto Amps, µCi, DPM, Bq, No Counting Gas Or LSC Cocktail Required <b>~Does Not Generate Waste~</b>
2	<b>TBM-ACC-X</b>	50 mR/s  500 mSv/s	4	450	<b>ULTRA HIGH ENERGY BETA, GAMMA, COSMIC RAYS</b>  <b>Sealed Plasma Chamber. Detects accelerator produced pulses and radiation.</b>	<b>HIGH ENERGY EVENT DETECTOR</b>  <b>The ONLY portable accelerator plasma chamber® that will detect accelerator produced pulses and radiation.</b>  <b>NOTE:</b> Uses a unique plasma chamber that prevents high ion recombination to achieve a strong accurate signal.  <b>NOTE:</b> Use in high energy accelerator - LINAC
3	<b><u>TBM-IC-AJI</u></b>	0.05-10 R/h  0 µSv/hr to 100,000 µSv/hr (In a single range)	5.5	1,000 cc	<b>ALPHA, BETA, GAMMA</b>  <b>More stable below 2mR/h.</b>	<b>MEDICAL VERSION</b>  <b>Enhanced sensitivity with large volume chamber.</b> <b>NOTE:</b> Preferred unit by medical users. (In a single range) Removable Beta Cap
4	<b><u>TBM-IC-LR</u></b>	0.01-1.0 R/h  1.0 uSv/h to 10 Sv/h (In a single range)	5	2,000 cc	<b>ALPHA, BETA, GAMMA</b>  Sees 10 times lower, 2 liter chamber.	<b>ULTRA-LOW RANGE SENSITIVITY.</b> <b>NOTE:</b> with extra-large volume chamber – 2 liter detects background levels in 10 sec. (In a single range) Removable Beta Cap
5	<b><u>TBM-IC-HLS</u></b>	0.1 mR/h-1,000 R/h  1 uSv/h to 10 Sv/h (In a single range)	7	300 cc	<b>ALPHA, BETA, GAMMA</b>  Toggle switch to additional second range to 1,000 R/h.	<b>HOMELAND SECURITY VERSION</b> <b>NOTE:</b> . This ultra-wide range conforms to <b>ANSI N42.33 Homeland Security Type 2</b> (In a single range) Removable Beta Cap



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6	<b><u>TBM-IC-MARK V</u></b>	0.1-10 R/h 0 µSv/hr to 100,000 µSv/hr (In a single range)	5	300 cc	<b>ALPHA, BETA, GAMMA</b>  <b>All-around Multi-purpose with Wide versatility from 0.1 mR/h - 10 R/h.</b>	<b>MULTIPLE-USE</b>  <b>With the Beta cap removed TBM-ICs can measure Alphas and low energy Betas of 30 KeV and Gammas down to 1 KeV.</b>  <b>NOTE:</b> Most popular model. (In a single range) Removable Beta Cap
7	<b><u>TBM-IC-MVR</u></b>	0.1-50,000 mR/h 1.0 µSv/h to 0.5 Sv/h (In a single range)	5.5	450 cc	<b>GAMMA &amp; HIGH BETA</b>  <b>Rugged aluminum chamber. Up to 50R/h.</b>	<b>MILITARY VERSION.</b>  <b>NOTE:</b> Rugged for use in power plants, industry, and military. (In a single range)
8	<b>TBM-IC PULSE-X</b>	0.01 R/h to 50 R/h 0.1 µSv/h to 500 mSv/h (In a single range)  <b><u>PULSE MODE</u></b> 1.0 mR/h to 50 R/h  10 µSv/h to 500 mSv/h (In a single range) (8 digits)	5	450 cc	<b>PULSED X-RAY</b>  <b>Sealed Plasma Chamber.</b> Detects pulsed X-Ray response.	<b>WORLD'S ONLY 20 NANOSECOND PULSED X-RAY DETECTOR.</b>  Wide Energy Response (In a single range)  <b>NOTE:</b> Uses a unique plasma chamber that prevents high ion recombination to achieve a strong accurate signal.  <b><u>Suitable for Pulse Width:</u></b> 20 nano-seconds to continuous emission  <b><u>Repetition Rates:</u></b> Single pulse to 1000/second and above  <b><u>Wide Energy Response:</u></b> 2 KeV to 10 MeV & above
9	<b>TBM-IC-RN</b>	10 pCi/l to 1 µCi/l 370 Bq/m <sup>3</sup> to 10 <sup>7</sup> Bq/l (In a single range)	4	600 cc.	<b>WIDE RANGE RADON</b>  <b>Optional:</b> 4 cfm pump for solid wall chamber	<b>PORTABLE WIDE RANGE RADON</b>  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)  <b>NOTE:</b> *less than 1 minute Indication FOR VERY HIGH LEVELS.
10	<b>TBM-IC-XRAY</b>	1mR/h -10 R/h 0 µSv/hr to 100,000 µSv/hr (In a single range)	5	300 cc	<b>X-RAY</b>  Includes required 10cm <sup>2</sup> aperture sleeve. X-Ray compliance meter.	<b>X-RAY COMPLIANCE METER</b> (In a single range)  <b>NOTE:</b> Complies with <b>FDA regulation 21 CFR1020.40</b>



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



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