

# GAMMA - X-RAY SURVEY METER "CUTIE PIE" GENERAL PURPOSE ION CHAMBER

Model ~ TBM-IC-MARK V

## FEATURES:

- PORTABLE ION CHAMBER
- SEES ALPHA, BETA, GAMMA, X-RAY
- DIGITAL SURVEY METER
- OMNI DIRECTIONAL RESPONSE TO LOW ENERGY X-RAYS & SCATTER
- SEES AXIALLY BELOW 5 KEV GAMMA
- HIGHLY SENSITIVE – LOW ENERGY X-RAYS <30 KEV
- WIDE RANGE: 0.1 mR/hr to 10,000 mR/hr
- BOTH DOSE RATE & TOTAL DOSE 8 DIGIT READ OUT
- SMALL LIGHTWEIGHT TBM PACKAGE; 26 oz.
- FLAT RESPONSE - FREE AIR ION CHAMBER
- NO PRESSURIZATION REQUIRED
- FAST RESPONSE
- **IP64; CE MARK**
- **OPTIONAL X-RAY COMPLIANCE SLEEVE**



## APPLICATION:

Whenever the TBM-IC, a fast, sensitive ion chamber instrument is needed, the **TBM-IC-MARK-V** is the latest in a series. Important for use in medical departments including Oncology, Treatment & Diagnostic Areas, Radiology & Imaging, PET Scanners, and Gamma Knife.

## DESCRIPTION:

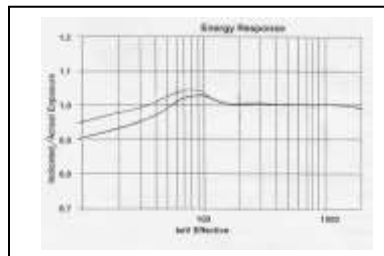
The **TBM-IC-MARK V** is a general purpose Gamma X-Ray Survey Meter known as the "Cutie Pie". It consists of a 2.5" dia x 3.5" long air ion chamber coupled to a stable solid state MOSFET input electrometer with built in A to D converter to read out directly in mR/h or mR. The **TBM-IC-MARK V** ion chambers are now smaller and lighter. Stable, essentially drift-free electrometer technology.

**Rate range** is 0.1 mR/h to 10.000 mR/h in a single range. Integrated Dose Range is 0.01mR – 100 R in a single range. 180 mg/cm<sup>2</sup> graphite lined methacrylate walls accurate "air equivalence."

Thin (0.5 mg/cm<sup>2</sup>) Mylar window allows high sensitivity readings for alpha and for low energy Beta such as C14 and X-rays in addition to higher energy Betas, Gammas.

This model does not require pressurization facilitating ease of shipment.

**Unlike other instruments the TBM-IC-Mark-V protects staff workers by detecting low energy scattered radiation which other instruments ignore.**



**TECHNICAL ASSOCIATES  
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### SPECIFICATIONS:

**Detector:** Free Air ion chamber 2.5" dia x 3.5" long. Internal volume 260 cc  
**Wall & Cap:** Methacrylate, graphite lined 180 mg/cm<sup>2</sup> walls and 540 mg/cm<sup>2</sup> Beta cap.  
**Optional:** 1g/cm<sup>2</sup> walls.  
**Window:** 2.0" dia. x 0.5 mg/cm<sup>2</sup> Mylar.  
**Readout:** LCD 8 digits.  
**Alarm Indicator Light:** **Green LED:** High Range; **Red LED:** Over-Range Indicator  
**Range: Rate:** 6 digit 0.1 mR/h to 10,000 mR/h in a single range or 0 µSv/hr to 100,000 µSv/hr  
**Integrated Total Dose:** 8 digits 0.01 mR to 100 R in a single range.  
**Controls:** 3 Way Toggle: On/Off/Battery Check; Zero Set Dial  
Zero Set Button-puts in Zero Offset while Depressed  
2 buttons on Display:  
(1 Reset for Integrate Mode 1) Toggles Dose to Dose Rate  
**Operating Temp:** -35° C to 75° C

### ELECTRONICS:

**Electrometer:** Solid State MOSFET input.  
**Electronics:** A-D converter LCD drivers.  
**Batteries:**  
15 ea. (Button) NEDA CR-1220 - shelf life 7 years.  
6 ea. (AA) NEDA 15A - 1000hr.

### DIMENSIONS & WIEGHT

**Dimensions:** 5-1/2" x 3-1/2" x 8" including handle.  
**Weight:** 26 oz. complete with batteries.

- **OPTIONS:**

- Readout in Si units: Sv and Sv/h.
- X-Ray-SLV is optional X-Ray compliance sleeve with 10cm<sup>2</sup> aperture.
- Rechargeable Batteries and Charger



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### PORTABLE ION CHAMBER COMPARISON

Model	Range	Decades	Chamber Volume	Variation From Mark V (MV)
<b>TBM-IC-MARK V</b>	0.1-10,000 mR/h	5	300 cc	300cc Utilizes essentially drift-free electrometer technology. <b>NOTE:</b> Most popular model. Fits in a brief case. Great stability
<b>TBM-IC-MV-R</b>	0.1-50,000 mR/h	5.5	450 cc	Rugged aluminum chamber. Up to 50R/h. <b>NOTE:</b> Rugged for use in power plants, industry, and military
<b>TBM-IC-AJI</b>	0.05-10,000 mR/h	5	800 cc	More stable below 2mR/h. <b>NOTE:</b> Best-in-Field for all medical users
<b>TBM-IC-LR</b>	0.01-1,000 mR/h	5	2,000 cc	Sees 10 times lower, 2 litre chamber. <b>NOTE:</b> Detects background levels in 10 sec
<b>TBM-IC-HLS</b>	0.1 mr/h-1,000 R/h	7	300 cc	Plus second range to 1,000 R/h. <b>NOTE:</b> This very wide range conforms to <b>ANSI N42.33 Homeland Security Type 2</b>
<b>TBM-IC-BW</b>	1 µR/h-10 R/h	5	300 cc	Built-in microprocessor, auto ranging, built-in data logger. <b>NOTE:</b> Down to 0.0001 mR/h
<b>TBM-IC-XRAY</b>	0.1-10,000 mR/h	5	300 cc	Includes 10cm <sup>2</sup> aperture sleeve <b>NOTE:</b> Complies with <b>FDA regulation 21 CFR1020.40</b>
<b>CP-MU-D1</b>	0.1-1,000 KR/h	4	1 cc	60 foot cable, up to 10 <sup>6</sup> R/h <b>NOTE: Water proof design</b> allows for underwater monitoring in reactor and in spent fuel pool to 1 million R/h. <b>OPTIONAL:</b> 100 ft cable
<b>CP-MU-D1000</b>	0.1-1,000 R/h	4	1,000 cc	60 foot cable, up to 10 <sup>3</sup> R/h <b>NOTE:</b> Water-proof design allows for monitoring in both reactor and spent fuel pools
<b>CP-MU-7-D1 &amp; D1000</b>	1.0-10 million R/h	7	1 & 1,000 cc	System includes one electronics and two chambers <b>NOTE:</b> Unplug one detector and plug in the other to switch ranges



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