

# NANOSECOND PULSE X-RAY PORTABLE PLASMA CHAMBER®

Model – TBM-IC-PULSE-X

## FEATURES:

- PULSED X-RAY RESPONSE
- **MEETS 10CFR 34.25 REQUIRMENTS**
- MEETS AND EXCEEDS 100 R/h  
(other ranges available)
- DIGITAL READOUT:  
6 digit-rate, 8 digit integrate  
DOSE RATE & TOTAL DOSE READ OUT
- LIGHTWEIGHT 26 oz.
- FLAT RESPONSE - SEALED AIR PLASMA CHAMBER
- SEES AXIALLY BELOW 5 KEV GAMMA OR X-RAY
- SEES HIGH ENERGY UP TO 10 MeV & ABOVE
- SEES BETA, GAMMA, X-RAY, POSITRONS
- FAST RESPONSE
- **IP64**
- **CE MARK**



TBM-IC-PULSE-X

## APPLICATION:

Whenever a fast, sensitive instrument is needed, the **TBM-IC-PULSE-X** with **TA's Plasma Chamber®** is the latest in a series. These portable plasma chambers are now smaller and lighter.

Based on stable, essentially drift-free electrometer technology.

Especially useful in **Non-Destructive Testing** or other **Industrial or Medical** applications where **pulsed x-rays** are used.

## PULSED X-RAY RESPONSE:

**TBM-IC-PULSE-X** is the **ONLY** radiology imaging portable plasma chamber that will detect nanosecond pulsed x-rays. It will accurately measure the integrated Total Dose from pulsed x-ray machines over a wide range of pulse widths and repetition rates.

**This monitor also measures low energies and short pulses that other survey meters ignore to the detriment of worker health.**

## DESCRIPTION:

The **TBM-IC-PULSE-X** consists of a 3" diameter plasma chamber coupled to a stable solid state MOSFET input electrometer with built in Analog to Digital converter to read out directly in mR/h or total mR.

Rate range is 0.01 R/h to 50 R/h in a single range.

Dose range is 0.001R - 10R in a single range. Other Ranges are also available.

- **MEETS 10CFR 34.25 - FEDERAL REQUIRMENTS FOR RADIATION SURVEY INSTRUMENTS**

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## SPECIFICATIONS:

### PULSED X-RAY RESPONSE

**Dose Rate Range:** 1 mR/h to 50 R/h in a single range (8 digits)  
**Total Dose:** 1 mR to 10 R (6 digits) in a single range  
**Pulse Width Range:** 20 nano-seconds to continuous emission  
**Repetition Rates:** Single pulse to 1000/second and above  
**Wide Energy Range:** 2 KeV to 10 MeV & above  
**High Dose Limits:** Per customer specification\*

User should inform TA of highest-expected: 10-second, total-dose exposure

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

**DETECTOR:** Sealed Air plasma chamber 3" dia. Internal volume 50 cc  
**Inside Wall:** Plastic plus graphite lining  
**Cap:** Removable protective cap  
**Window:** 2.3" dia. x 0.5 mg/cm<sup>2</sup> Kapton.

**ELECTRONICS:**  
**Readout:** LCD 8 digits with backlight  
**Count Lamp:** Green Flashing LED  
**Over-range:** Red LED Indicator  
**Audio Alarm:** User settable anywhere within TBM range  
**Electrometer:** Solid State MOSFET input.  
**Electronics:** Analog to Digital converter LCD drivers.  
**Batteries:** NEDA 15A, 6 ea. (AA)– 200 hour life.  
NEDA CR-1220 - 7 years life.

### **WEIGHT & DIMENSIONS:**

**Dimensions:** 5-1/2" x 3-1/2" x 8" including handle.  
**Weight:** 2.9 lbs. complete with batteries.

### **OPTIONS:**

Other Rate or Integrated Ranges  
Other Readout Units such as Si units: Sv and Sv/h.  
Chamber sleeves or Caps  
X-Ray-SLV is X-Ray compliance sleeve with 10cm<sup>2</sup> aperture.



**RATE MODE – GREEN LIGHT**



**PULSE MODE – RED LIGHT**

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## Model – TBM-IC-PULSE-X

### NAVY TEST RESULTS TBM-IC-PULSE-X with TBM-IC-PULSE-X Prototype

INTEGRATE MODE						
X-RAY SOURCE	PULSES/SEC	DISTANCE	FIELD TLD mR	TBM-IC-MVR - Prototype	DEVIATION	TBM-IC-Pulse-X
XR-200	198	24"	145	115.6	-20%	±5%
	198	48"	41.2		-29%	
XR-300	198	24"	228	1.89	-18%	±8%
	198	48"	2.28		-17%	
LR-FLASH	10	24"	150	123	-18%	±8%
	10	48"	22	19	-14%	
BETATRON	7.5 MeV 45 sec	4 meters	61	30.75	-50%	±12%
<b>NOTE: other brands also read low on BetaTron. Navy admits TLD might be at fault.</b>						
			<b>DOSE</b>	<b>DOSE</b>		
Cs-137			5 mR	9 mR		
Cs-137			500 mR	500 mR	GOOD	
			1,000 mR	1,060 mR	+6%	
Cs-60			500 mR	500 mR	GOOD	
Cs-60			1,000 mR	1,060 mR	GOOD	
DOSE RATE MODE						
H-100 H-60			100 mR/hr 300 mR/hr 2R/hr	130 390 2.6	+30% +30% +30%	
<b>NAVY COMMENTS / COMPLAINTS</b>						
<b>COMPLAINT</b>			<b>SOLUTION</b>			
Microphonics			Protect the window with screen when window is tapped			
<b>TA SUCCESS</b>	ITEM					
	Battery Life		OKAY			
	Weight		OKAY			

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