

NANO SECOND PULSE X-RAY PORTABLE ION 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 ION 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 ion chamber instrument is needed, the TBM-IC-PULSE-X is the latest in a series. These portable ion 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 ion 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" dia air ion 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 100 R/h in a single range.

Dose range is 0.001R - 100R in a single range. Other Ranges are also available.

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



TECHNICAL ASSOCIATES
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Divisions of  US NUCLEAR CORP

TICKER UCLE

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SPECIFICATIONS:

PULSED X-RAY RESPONSE

Total Dose: 1 mR to 100 R in a single range (8 digits)
 Dose Rate Range: 1 mR/hr to 10,000 mR/hr (6 digits) or
 10 mR/h to 100,000 mR/h
 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 ion chambers that measure up to 10 million R/hr

DETECTOR: Sealed Air ion 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/cm² Kapton.

FAQ

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 10cm² aperture.



RATE MODE – GREEN LIGHT



PULSE MODE – RED LIGHT



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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%
NOTE: other brands also read low on BetaTron. Navy admits TLD might be at fault.						
			DOSE	DOSE		
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			100 mR/hr	130	+30%	
H-60			300 mR/hr	390	+30%	
			2R/hr	2.6	+30%	
NAVY COMMENTS / COMPLAINTS						
COMPLAINT			SOLUTION			
Microphonics			Protect the window with screen when window is tapped			
TA SUCCESS	ITEM					
	Battery Life		OKAY			
	Weight		OKAY			



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