

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**



TECHNICAL ASSOCIATES
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Divisions of  US NUCLEAR CORP

TICKER UCLE

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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/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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