

4-way Personnel Monitor

Model: 7020-4

Application

Performs tritium-in-air monitoring directly around a seated operator or maintainer located in a potentially tritium active location or performing tasks which could result in tritium release. Also see Tyne's Model 7043 Portable Tritium in Air Monitor

Features

- Convenient tritium-in-air monitoring
- Easily moved
- Simultaneously monitors four locations
- Can be placed close to the source of measurement
- Measures to 1 $\mu\text{Ci}/\text{m}^3$
- Provides permanent record
- Bubbler check measurement



Description

The 4-way tritium-in-air monitoring device comprises two of Tyne's tritium monitor controllers mounted on a movable hand cart which can be pushed to an environment where an operator is performing tasks where concerns of possible tritium leaks into the atmosphere exist. Four tubes held in lab clamps are

placed strategically at locations of greatest concern. Each tube draws air from the chosen location. Flow is set using a rotameter, and is monitored for tritium by passing it through one of four ion chambers. The gas is then passed through a bubbler before being discharge back into the room. The bubbler will be analysed using liquid scintillation counting.

The ion chambers enable accurate measurement, and the bubblers provide long term monitoring of the reliability of the ion chambers. The atmosphere is pumped into the ion chambers via a vacuum pump. The ion chambers are Tyne's 1000 cc chambers noted for their accuracy and reliability. The controller can be set to alarm on high level.

Tyne's Ion chamber controllers are mounted in the mobile cart to provide a compact and manageable unit. The controllers each have two channels and can therefore simultaneously serve two ion chambers so only two controllers are required for four check sites.

Each ion chamber can be set to alarm if tritium is detected. Using the computer program which Tyne makes available with its controller, readings can be permanently recorded.

The cart is fitted with easy ride heavy duty tires to protect the equipment from shock when locating the cart which is manufactured from aluminum and stainless steel. This allows easy relocation to areas requiring tritium-in-air monitoring.

Bubblers are readily accessible and can be removed by twisting from the threaded lid for water measurement by scintillation counter.



Bubblers and controls

Specifications

Sensitivity	1 $\mu\text{Ci}/\text{m}^3$
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Range	0-10 Ci/m ³
Alarms	High tritium alarm for each ion chamber
Power Supply	110V 50/60 Hz
Ion chamber quantity and size	4 x 1000 cc
Bakeability of ion chambers	350°C
Flow rate at each location	10 cc/sec
Physical Size	Height 750mm Width 750mm Depth 600mm Weight 90kg