

# IODINE-125 & XENON-125 RATEMETER

Model - FM-9-IXE

## FEATURES:

- REAL-TIME AIRBORNE CONCENTRATION (In Any Units – User Settable)
- HIGH SENSITIVITY
- REAL TIME ALARM (User Settable)
- LINE OPERATED
- STANDARD FM-9 MODULES
- CAN DRAW AIR FROM HOOD, DUCT, ETC.
- QUICK CHANGE IODINE FILTER CARTRIDGE – PGS-3I
- QUICK CONNECT IODINE DETECTOR – PGS-3I
- QUICK CONNECT XENON DETECTOR – PGS-3X
- BUILT-IN DATA ARCHIVE & RETRIEVAL
- DATA UPDATES EVERY FEW SECONDS – OPERATOR SETTABLE
- COMPUTER INTERFACE – USB OR ETHERNET – QUICK CONNECT

## FM-9 ELECTRONICS & DISPLAY



Xe-125 Detector PGS-3X



I-125 Detector PGS-3I WITH SHIELDING

## APPLICATION:

The **FM-9- IXE ratemeter system** assures safety against airborne radioactivity contamination by means of constant check with alarm and record capability. It provides airborne concentration information for I-125 & Xe-125. A quick connect provides retransmit capability for data retrieval and hard copy via external computer and printer.

It is a complete system and may be expanded per need with modules of the **FM-9** series. The **FM-9-IXE** may be used to monitor stack effluent down to EPA levels as well as hoods, glove box or workplace air.



**TECHNICAL ASSOCIATES**  
**OVERHOFF TECHNOLOGY**

7051 Eton Ave., Canoga Park, CA 91303  
818-883-7043 (Phone) 818-883-6103 (Fax)

[tagold@nwc.net](mailto:tagold@nwc.net)

[WWW.TECH-ASSOCIATES.COM](http://WWW.TECH-ASSOCIATES.COM)

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## DESCRIPTION:

### FLOW PATH:

- Air is drawn in through an inlet hose.
- Incoming air stream passes first through a particulate pre-filter to remove Cs-137 and other confounding particulates.
- The **FM-9-IXE** uses the PGS-3I with a standard charcoal filter in TA's unique quick change, no leak holder to trap any airborne I-125 and other Radioiodine isotopes. The charcoal filter is under constant surveillance via a thin window scintillation detector.
- Air is then drawn into the Xenon measurement cavity observed by the PGS-3X detector.
- Air enters Mass Flow Meter.
- Air enters the pump.
- Air is then exhausted via another hose.

Utilizing two individual detectors provides superior I-125 sensitivity. Although the filter concentrates activity from a large volume of air, the FM-9-IXE software individually records the increase in activity every 2 seconds to provide accurate real-time I-125 concentration levels.

Simultaneous total 4 hour moving average readings gives accurate readings at the very lowest concentrations.

Better Xe-125 sensitivity is also achieved because the I-125 has been removed and does not mask the Xe-125 signal.

A real-time mass flow meter provides the built in computer with instantaneous flow rate and count rate providing greater accuracy than traditional flow rate calculations.

The unit comes with 10 filter cartridges.

## SPECIFICATIONS:

### RANGE:

**Xe-125**

$2 \times 10^{-7}$  to  $2 \times 10^{-3}$   $\mu\text{Ci/ml}$  to a  $2\sigma$  confidence level within a 4 hour period.

**I-125**

$8 \times 10^{-10}$  to  $8 \times 10^{-6}$   $\mu\text{Ci/ml}$  to a  $2\sigma$  confidence level within a 4 hour period.

### ENVIRONMENTAL OPERATING CONDITIONS:

#### Temperature:

Ambient:  $0^{\circ}$  to  $40^{\circ}$  C

Upset:  $0^{\circ}$  to  $40^{\circ}$  C

#### Temperature Effects:

$\pm 5\%$

#### Humidity:

Ambient: 20% to 85% RH Non-Condensing

Upset : 20% to 85% RH Non-Condensing

#### Pressure:

Ambient: Atmospheric

#### Background Radiation:

Reads Correctly: Cs-137  $\leq 15\text{mR/h}$

#### Accuracy:

$\pm 20\%$  or Better

#### Precision:

$\pm 10\%$  deviation from a mid-scale reading with a  $2\sigma$  confidence reading.

### ALARMS:



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**Alarm Function:** High & Fail Latching  
**Visual Alarm:** High & Fail on Instrument Panel Face  
**Audio Alarm:** High & Fail on Instrument Panel Face  
Acknowledge/Silence Switch on Instrument Panel Face  
Integral Alarm Reset Switch on Instrument Panel Face

### ELECTRICAL:

**Power:** 120 V AC, 60 Hz;  $\pm 10\%$   
**Power Cord:** 5 meters long with Quick Connect. (**OPTIONAL:** Longer Cord)  
**Power Indicator:** LED on Instrument Panel Face  
**Electrical & Frequency Variations:**  $\pm 5\%$  or Better at Minimum Detectable Levels.  
**Electrical Enclosure Class:** IP-20

### RETRANSMIT INFORMATION:

**Retransmit Output:** Linear – 0 – 5V  
**Retransmit Signal:** User Specified  
**Retransmit Connection:** Quick Connect

### ELECTRONIC MODULES INCLUDE:

#### Power Supply and MV-5.12.24.

**MAC-5:** Air Control Timer; Low Flow Alarm Flowmeter  
**MGA-5:** Single Channel Analyzer  
**MCT:** On-Board computer with color monitor  
**Display:**  $\mu\text{Ci}/\text{cm}^3$ , cpm, cps (User Settable)

### WEIGHT AND DIMENSIONS:

ITEM	WEIGHT	DIMENSION
ELECTRONICS	12 lbs (5Kg)	11"W x 11"D x 11"H (28 cm x 28 cm x 28 cm)
XENON DETECTOR – PGS-3X	1 lb (0.453 Kg)	2"W x 2"D x 9"H (5cm x 5cm x 23cm)
I-125 DETECTOR WITH SHIELD– PGS-3I	22 lbs (10 Kg)	12L x 7W x 7H (30 cm x 18 cm x 18 cm)
DETECTOR CORD		3 Meters Standard with Quick Connect ( <b>OPTIONAL</b> – Longer Cord User Specified)



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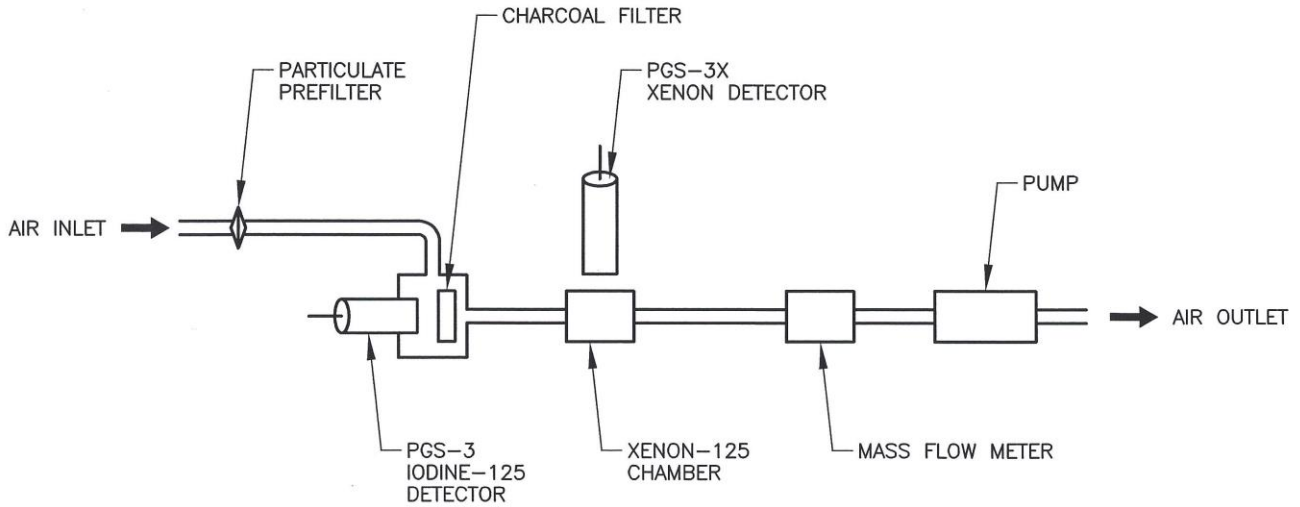
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**FM-9IXE FLOW PATH**



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