



Model 411-HMI

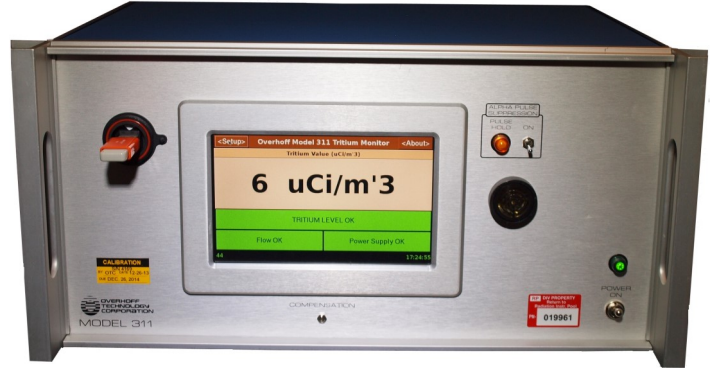
Smart Tritium in Air Monitor

Wide Range, Single Chamber

MODULAR TRITIUM IN AIR MONITOR WITH AN EXTENDED RANGE AND SINGLE ION CHAMBER (NON-GAMMA COMPENSATED)

The **Model 411-HMI** features an extended measurement range of up to 6.5 decades and a single ionization chamber. Useful for applications that don't require gamma compensation or for measuring higher concentrations of tritium, such as in process or glovebox applications.

Unique gold-plated, wire-grid ionization chambers are offered that are plate-out proof, reducing tritium/gamma contamination up to 1,000x, which is essential when measuring high levels of tritium.



A color-touch screen display interface replaces the standard digital display and discrete controls used in the traditional Model 311.

SELECT IONIZATION CHAMBER SIZE AND RANGE

The Model 411-HMI typically supports a single 50mL or 2L chamber depending on your desired measurement range and sensitivity:

Typical Measurement Ranges:

- Single 2L: $1 \mu\text{Ci}/\text{m}^3$ to $199.99 \text{ mCi}/\text{m}^3$, or 0.01 to $1,999.9 \text{ MBq}/\text{m}^3$
- Single 50mL: 0.01 to $1,999.9 \text{ Ci}/\text{m}^3$ or 0.001 to $199.99 \text{ TBq}/\text{m}^3$
 0.001 to $199.99 \text{ Ci}/\text{m}^3$ or 0.1 to $19,999 \text{ GBq}/\text{m}^3$

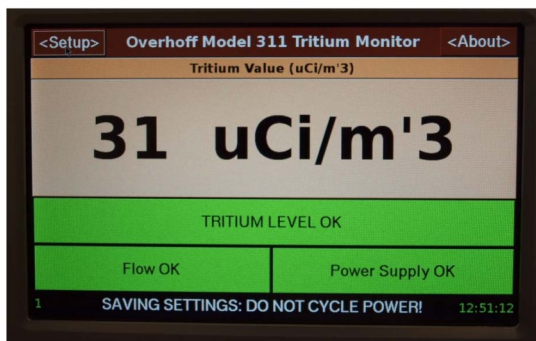
HMI TOUCH-SCREEN DISPLAY

The Model 411-HMI includes a LCD touch-screen display to handle all controls (alarm set-points), indicator, and display functions.

Alarm system includes: two adjustable tritium level alarms, audible and visual alarm indicators, low flow alarm, and system failure alarm (high voltage failure, low voltage failure, or electrometer failure), and up to 3 alarm relays (two level alarm relays and one malfunction alarm relay).

Note: Unless otherwise requested, the ionization chamber is remotely mounted (25 ft cable standard) from the 411 electronics. An external pump system can be added that consists of a pump, filter, and flowmeter assembly.

- Applications:**
- ◆ Room air
 - ◆ Non-Gamma Compensated
 - ◆ Process piping
 - ◆ Glove boxes
 - ◆ High concentrations of tritium
 - ◆ Wide Measurement Range
 - ◆ Remotely Mounted Detector
 - ◆ Modular customization of detectors, range, alarms, outputs, pump system



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TECHNICAL SPECIFICATIONS

RANGES

Available in the following ranges:

	Ci	Bq
2 Liter:	1 $\mu\text{Ci}/\text{m}^3$ to 199.99 mCi/m^3	0.01 to 1,999.9 MBq/m^3
50mL:	0.01 to 1,999.9 Ci/m^3 0.001 to 199.99 Ci/m^3	0.001 to 199.99 TBq/m^3 0.1 to 19,999 GBq/m^3

Note: Additional or wider ranges and configurations may be available.

DISPLAY

LCD touch-screen display

ACCURACY

± 10 % of reading

ALARM SYSTEM

- two independent level alarms, with adjustable set point
 - low level: activates non-latching steady visual red indicator and audible alarm
 - high level: activates latching flashing visual red indicator and pulsing audible alarm
- low flow alarm: differential pressure switch, activates steady visual red indicator
- system failure alarm (high or low voltage out of tolerance, or electrometer failure)

includes up to 3 alarm relays: two level alarm relays and one malfunction alarm relay

RESPONSE RATE

two linear electronics time constants, automatically switched

OVER RANGE INDICATOR

the LCD will flash "OVER RANGE" when the range has been exceeded

OFFSET COMPENSATION

compensation control provided to offset the effects of gamma and/or tritium buildup

DATA LOGGING

USB port for the attachment of a memory stick

DATA OUTPUT

ethernet

ENVIRONMENTAL

storage: -40°C to $+60^{\circ}\text{C}$
operating: 0°C to $+50^{\circ}\text{C}$
0 to 95 % R.H. non-condensing

ENCLOSURE

19" rack mounting, 8.75" H, 14" D
115-220VAC, 50/60 Hz

OPTIONS:

Pump, Filter, and Flowmeter Assembly (ordering code: PFA)

Externally mounted pump, filter, and flowmeter assembly.

4-20mA Output and Log Converter Board (ordering code: 4-20mA)

Remote Display Unit with digital display and audible alarm (ordering code: RDU)

Alpha Pulse Suppression (ordering code: APS)

Eliminates instrument response to unwanted radon.

Gold Plated Chamber (ordering code: GP)

Reduces effects from tritium plate out contamination, useful for high tritium concentrations

Wire-Grid Electrode (ordering code: WG)

Special wire-grid chamber reduces tritium plate out contamination by up to 1000x

Helium Leak Testing (ordering code: HLT)



Wire-Grid Chamber Design, reduces tritium contamination by up to 1000x

Released 10/26/20