



PREMIUM ANALYSE

C ionix™ - HTO

Installed Tritium Monitor

Installed HTO activity monitor for workplace monitoring, decommissioning, stack release and other applications.



FEATURES

- **Performance**
 - Self-checking
 - Continuous measurement
 - Automatic γ compensation
 - Integrated light and sound alarms
 - Response time from 90 seconds
 - Detection of tritium from 20 kBq/m^3 ($0.54 \mu\text{Ci/m}^3$)
- **Simple**
 - Ready to install
 - User-friendly interface
 - Transmission and alarms possible by dry contacts, Modbus Ethernet...
- **Easy maintenance**
 - Minimal intervention
 - Quick change components
 - Simple γ source verification of system

DESCRIPTION

The monitor C ionix is used to measure continuous activity of tritium and other β emitters in a gas for all applications of workplace monitoring, decommissioning, stack release or other applications.

The HTO version can be used to separately and continuously measure the HTO activity of gases containing other β emitters such as noble gases, as well as HTO activity in a mixed gas of HT + HTO.

Typically made for use in research facilities and PHWR, they provide a precise and reliable measurement.

Due to the SAM (Membrane Separator) no additional waste is created. Moreover, there is no need for periodical consumable replacement as the SAM is made to be durable.

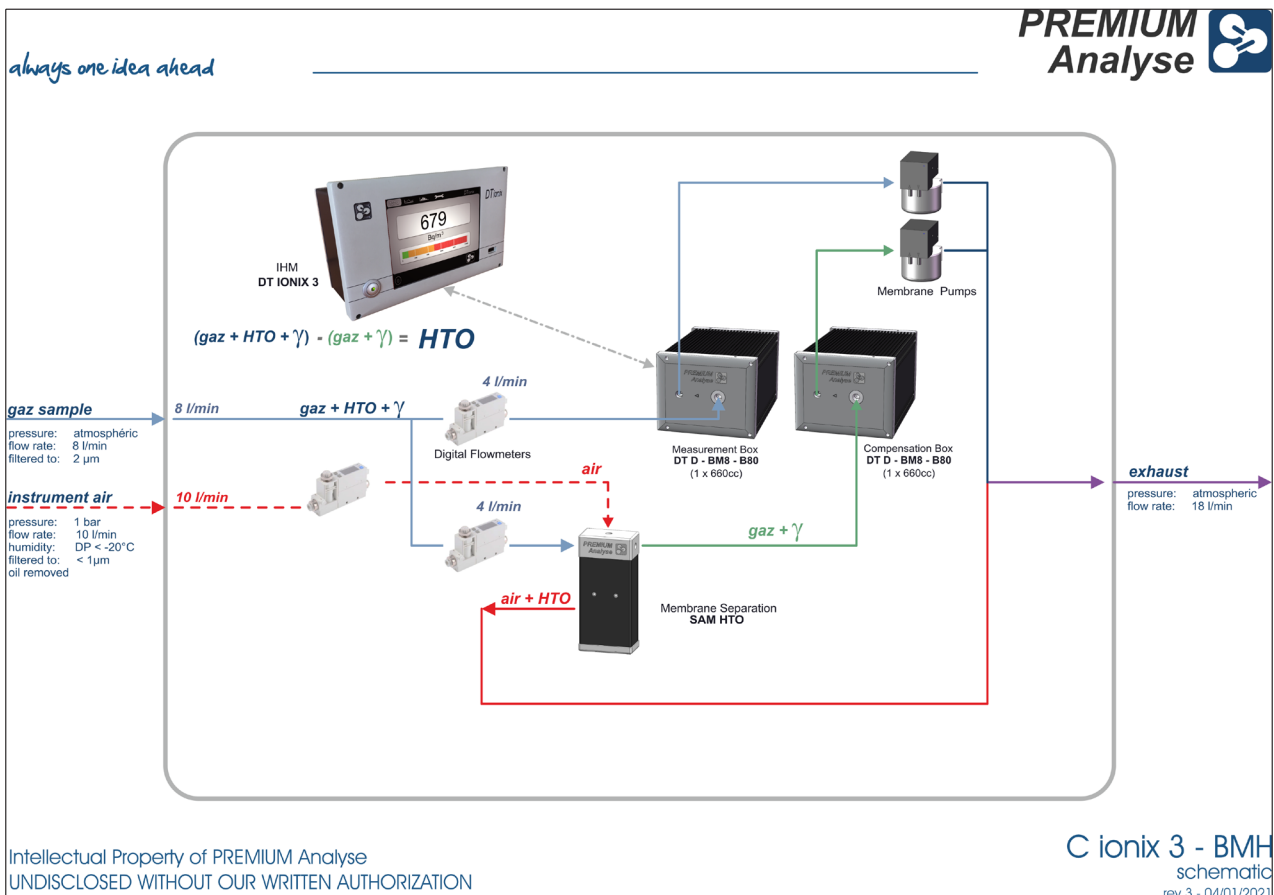
TECHNICAL CHARACTERISTICS

The C ionix - HTO monitors are available in several versions:

Measurement characteristics in laboratory conditions (for tritium)	C IONIX 3 - BLH HTO measurement with automatic gamma compensation	C IONIX 3 - BMH HTO measurement with automatic gamma compensation
Measurement range	10 kBq/m ³ to 10 TBq/m ³ 0.27 μCi/m ³ to 270 Ci/m ³	3.2 kBq/m ³ to 3.2 TBq/m ³ 86 nCi/m ³ to 86 Ci/m ³
Limit of detection (2σ) = decision threshold	60 kBq/m ³ (1.62 μCi/m ³)	20 kBq/m ³ (0.54 μCi/m ³)
Limit of detection (4σ)	120 kBq/m ³ (3.24 μCi/m ³)	40 kBq/m ³ (1.08 μCi/m ³)
Precision	5% of the reading ± 60 kBq/m ³ (± 1.62 μCi/m ³)	5% of the reading ± 20 kBq/m ³ (± 0.54 μCi/m ³)
Maximum deviation	60 kBq/m ³ / year (1.62 μCi/m ³)	20 kBq/m ³ / year (0.54 μCi/m ³)
Noise (2σ)	± 60 kBq/m ³ (± 1.62 μCi/m ³)	± 20 kBq/m ³ (± 0.54 μCi/m ³)
Response time	< 90 sec at 90% of step	
Ionization chamber(s)		
Volume	2 x 195 cc	2 x 660 cc
Nominal flow	2 L/m	8 L/m
Ionization voltage	160 VDC	

Operating conditions:

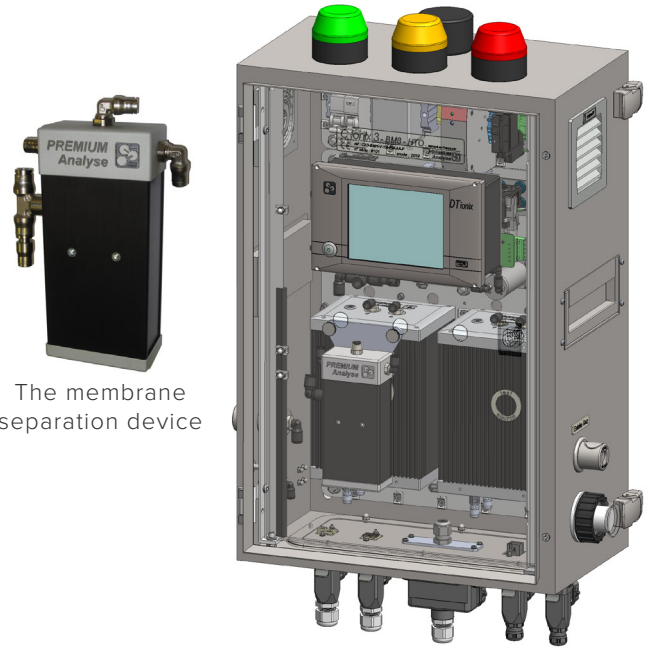
- Operating temperature: +0°C to +40°C (+32°F to +104°F)
- Influence of temperature: 0.3% /°C for a variation of the ambient temperature < 3°C / hour
- Humidity: 5 to 95% rel.
- Influence of humidity: ± 1 % of the measurement from 10 to 90% of relative humidity
- Influence of atmospheric pressure: 0.1 %/mbar, hence ± 5 % of the measurement from 930 to 1030 mbar
- Protection index: IP 54



COMMON CHARACTERISTICS

Each unit integrates a DT ionix 3 digital touch interface allowing local viewing of data through an intuitive menu:

- 4 customizable alarm thresholds
 - Digital display of volumetric activity
 - Archiving of 32 days of measurements
 - Data extraction and system update via USB stick
 - Adjustment and monitoring of the flow rate with low flow detection possible
 - Graphical plotting of measurements and alarm values from 8 minutes to 8 days
 - Choice of volumetric activity among 15 units, with 4 customizable ones (Bq/m³, RCA, LPCA, Sv/m³...)
 - Light and sound signals when pre-alarm (orange) and alarm (red) thresholds are exceeded, as well as default operation
- Overall dimensions (with lights): W 475 x h 780 x d 330 mm
 - Weight (max.): 36 kg (79 lb)
 - Power supply, max. power and electrical protection:
 - Option "2": 24 VDC , 60W, 6A fuse
 - Option "V": 85–264 VAC, 50/60 Hz, 80W differential circuit 6A curve C
 - Possible options:
 - Remote beacon connection
 - Wall mounting on quick mounting plate
 - Measurement transmission via Modbus Ethernet (x2)
 - Gas I.O via self-sealing STAUBLI or Swagelok fittings
 - Process output with dry contact outputs, 4/20mA outputs...
 - Light and sound signals for alarms and default operation



The membrane separation device

SAM - MEMBRANE SEPARATION DEVICE

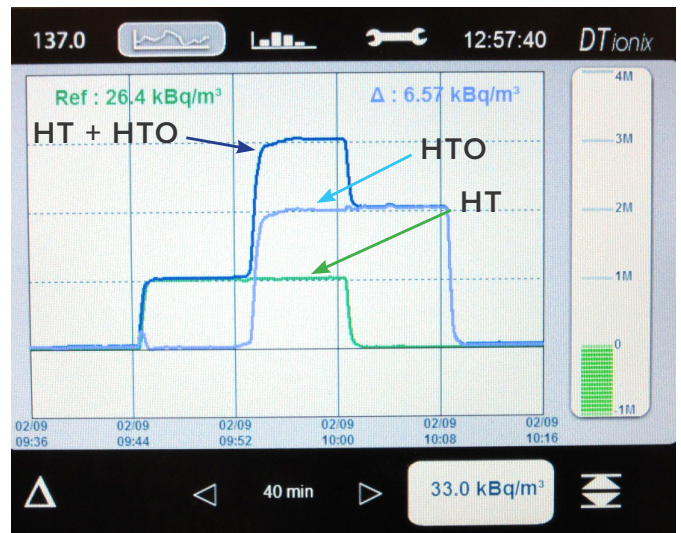
The SAM (Membrane Separator) enables the physical separation of tritium HTO from other gases.

It allows the activity measurement of tritium HTO from a mixed HT + HTO gas, as well as the activity of HTO from other noble gases.

Unlike existing products on the market, it does not require replacement nor any maintenance and does not create any contaminated waste.

Designed for continuous operation, it only requires dry instrument air to provide a precise and reliable measurement to research facilities as well as PHWR.

Integrated in the cabinet, the presence of this advanced device is transparent for the user. See the SAM HTO spec sheet for more information.



Injection of 1 MBq/m³ (27 μCi/m³) of tritium HT then 2 MBq/m³ (54 μCi/m³) of tritium HTO. The injection of HT is then stopped, and the injection of HTO is ceased thereafter.

UNIT CONFIGURATION AND PART NUMBERS

Monitor configuration & options		
Measurement monitor		C IONIX 3 - BLH - 0 - 00 - 00 - FA - F C IONIX 3 - BMH - 0 - 00 - 00 - FA - F
Power distribution	24V power supply AC power supply	C IONIX 3 - BXX - 2 - XX - XX - FA - F C IONIX 3 - BXX - V - XX - XX - FA - F
Alarms	Without light and sound Local alarms (G / R / O + sound) Remote beacon connector	C IONIX 3 - BXX - X - 0X - XX - FA - F C IONIX 3 - BXX - X - YX - XX - FA - F C IONIX 3 - BXX - X - XB - XX - FA - F
Connections	Process outputs (dry-contacts, 4-20mA, flow input) Modbus TCP-IP	C IONIX 3 - BXX - X - XX - PX - FA - F C IONIX 3 - BXX - X - XX - XM - FA - F
Wall fixing	Installed system with STAUBLI connectors Installed system with SWAGelok INCH connectors Mobile system without wall plate (with handles & clip fixing) Lock	C IONIX 3 - BXX - X - XX - XX - FA - F C IONIX 3 - BXX - X - XX - XX - IA - F C IONIX 3 - BXX - X - XX - XX - AA - F C IONIX 3 - BXX - X - XX - XX - FA - F
Version	English French	C IONIX 3 - BXX - X - XX - XX - FA - E C IONIX 3 - BXX - X - XX - XX - FA - F
Reference example	C ionix monitor full option with automatic gamma compensation	C IONIX 3 - BMH - V - YB - PM - FA - F

Accessories	
Wall plate	ACC PLM
Fixed alarm beacon	CX3 ACC BAL F
Gas exhaust with silencer	ACC ARG SIL
RAC SWA 1/4RT gas exhaust + filter	ACC ARG S4F
Gas exhaust for 8 mm hose	ACC ARG S08
Gas exhaust for 6 mm hose	ACC ARG S06
Mobile frame for 1 C ionix - BXX	CX3 ACC CHM 01
Mobile frame for 2 C ionix - BXX	CX3 ACC CHM 02
Table frame for 1 C ionix - BXX	CX3 ACC CHM TAB

Consumables	
24V pumps 5,5 Lpm (x1*)	CX3 SP PPE
IP 54 foam filter (x2*)	SP 60715 182
Cabinet fan (x1*)	SP 8414N
DT ionix axial fan (x1*)	SP 412F
DT ionix axial fan mounted on support (x1*)	SP 412F P
2µm PTFE filter (x1*)	CX3 SP FE 4

* quantity needed for annual maintenance of monitor

Spare parts	
High leak proof pump assembly	CX3 SP BTR P6000

CONTACT US

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