Contents

• A little bit about the company,
• A product overview,
• Applications.
Established 27th November 1997
Legal form S.A.S, capital 100 000 €
Address ZAC Euromoselle
9 rue de la Fontaine Chaudron
57140 NORROY LE VENEUR
FRANCE
Evolution

Gas analysis

Portable β detectors

Mobile β detectors

Electronic

Installed systems

1998 ... 2003 04 05 06 07 08 09 10 11 12 13 14 15 16 17 ...
Export Europe
Export World
Developments based on customer specifications or internal developments.

We realize:
- Studies
- Prototyping
- Manufacturing
- Qualification tests
- Calibration
- Quality Control
- Project management
- Commissioning
• ISO 9001: 2008 certification for all activities of the company since 2014.

• Internal laboratory to perform tritiated gas tests.

• Realization of EMC, seismic and climatic tests.
Qualification
6 TRAINING

6 TECHNICAL ASSISTANCE

6 MAINTENANCE
on site / in our offices

6 COMMISSIONING

6 TRITIUM GAZ LABORATORY
R & D,
Verification,
Calibration of devices with tritiated gas.

Application of standards:
NF EN 60761-1 & 5
ISO 11929:2010
Complete Range

Portables

Mobiles

Installed systems

Custom Chains

Outdoor
1 channel consists of:

- An ionization chamber (1)
- A preamplifier (2)
- A Human Machine Interface (3)
KEY FEATURES

For all products:

- Real time measurement
- Exceptionally sensitive
- Results recorded locally
- Results can be exported in real time
- Flexible implementation
- Ease of use and maintenance
- Fully supported modern products
Ionisation Chambers

**Sensitives**
- Tritium LOD: 5 kBq/m³
- Volume: 4/8 L
- Applications:
  - Exhausts Measurement,
  - Environnemental Protection

**Wide range**
- Tritium LOD: 15/50 kBq/m³
- Volume: 660/180cc
- Applications:
  - Radioprotection
  - Nuclear Power

**High activities**
- Tritium LOD: 50 kBq/m³
- Volume: 10 / 500cc
- Applications:
  - Nuclear Power
  - Process control
Same interface for all devices:

- **Interactive & Intuitive**
  Touchscreen
  Any alarm is signaled by a color change of the screen

- **Communications**
  Alarm reporting via digital outputs (DTIonix only) or remote signaling beacon Modbus Ethernet
  Outputs 4/20mA (DTIonix only)
  32 days of recording, export via USB.
Ionix - Interface

**Graphic display:**
Intuitive navigation bar.
Display of alarm thresholds.
Automatic scaling.

**Alarms:**
Adjustable thresholds.
Sound and visual report.
Test function, acknowledgment, delay.

**Units:**
Easy change.
Users can create new units.
TCR COM-Interface

Interface between 1 or 2 preamplifier and a reactor supervision

- **Safety**
  Design complying with CEI 60880
  Composed of two independent electronic processing
  Self test
  Permanent control of the proper functioning

- **Communications**
  Modbus Ethernet
  Modbus RS 485
  Pulses output
  Digital outputs for alarm
  Digital outputs for remote light and sound beacon

- **Intuitive**
  Luminous indication of the operating states of each I/O
  Parameterization and functional tests possibles remotely via a dedicated software
Applications

- Radioprotection
- Nuclear Power
- Process control
- Environmental protection
- .... and, upgrading of existing installations.
Radioprotection

Protecting workers
- Checking airborne contamination levels
- Checking surface/bulk contamination levels

Issues
- Sensitivity
- Response time
- Transportability
- Recording results
- Robustness
Tritium detection from 12.5 kBq/m³
Response time - less than 60 sec.
Light (6 kg) and rugged
Sound and light beacon in option
Internal Data storage extractable via USB
Modbus TCP/IP
Autonomy 6 hours – recharge < 2 hours
Possibility of gamma compensation or a differential reference chamber
Sample piping length up to 10m

Example of response
Volumetric activity measured
3 MBq/m³

INDEPENDENTLY TYPE TESTED with Tritium at CHTIR

Example of response

INDEPENDENTLY TYPE TESTED with Tritium at CHTIR
How much smaller
- Tritium detection from 5 kBq/m³
- Response time - less than 60 sec.
- HEPA Filtration
- Rugged aluminum casing
- Easy mobility even on uneven surfaces
- Data storage on an extractable Compact Flash.
- Sound and light beacon is proposed in option
- Up to 50 meters of sample piping

Example of response
Volumetric activity measured 10 kBq/m³
monitor that separately analyze Tritium and noble gas

- Response time - less than 60 sec
- Intuitive user interface
- Rugged aluminum casing
- Easy mobility even on uneven surfaces
- Automatic gamma compensation

Example of response
Volumetric activity measured
1.5 MBq/m³ HT and 1.5 MBq/m³ HTO
Detecting abnormal operations

- Checking airborne contamination levels

Issues

- Sensitivity
- Response time
- Reliability
- Wide range
- Connectivity
- Qualification
- Tritium detection from 15 kBq/m³
- Response time - less than 15 sec.
- Easily mounted, rugged and secure
- Easy to use
- Sound and light beacon included
- Modular
- Possibility of gamma compensation or a differential reference chamber or multiple chamber options for Noble Gas compensation
HT/HTO mix

![Graph showing HT and HTO concentrations over time.]

- **MBq/m³**
- **Time**
- **HTO + HT (Total Tritium)**
- **HT**
- **HTO**

**Dates and Times:**
- 11/3/16 11:24:00
- 11/3/16 11:31:12
- 11/3/16 11:38:24
- 11/3/16 11:45:36
- 11/3/16 11:52:48
- 11/3/16 12:00:00
HT/HTO mix
Process Control

Control of processes in facilities handling radioactive gases:

- Measuring activity levels in process
- Assisting process decisions

Issues

- Sensitivity
- Response Time
- Reliability
- Qualification
Tritium detection from 2 MBq/m³
Response time - 90 sec.
Ionization chamber 10 cc
Easy decontamination
Low maintenance
Heating system (optional)

Example of response
Volumetric activity measured
10 MBq/m³

1 kBq/m³ 1 MBq/m³ 1 GBq/m³ 1 TBq/m³ 1 PBq/m³
Tritium detection from 150 kBq/m³
Response time - less than 15 sec.
Ionization chamber 100 cc
Various airproof connection
Multidirectional feed through seals for glove box
Easy decontamination and Low maintenance

Example of response
Volumetric activity measured
1 MBq/m³
DT D – IC500

- Tritium detection from 15 kBq/m³
- Response time - less than 30 sec.
- Ionization chamber 500 cc
- Various airproof connection
- Multidirectional feed through seals for glove box
- Easy decontamination
- Low maintenance

Example of response
Volumetric activity measured
100 kBq/m³
Pressure test - 1

Activity = f(P)

Activity (dpm)

Pressure (mbar)

- $^{65}$K
- $^{133}$Xe
- $^{222}$Rn
- $^{14}$C

Tritium
Pressure test - 2
Pressure test - 3
DTD - XPR

- Tritium detection from 5 kBq/m³
- Response time - less than 60 sec.
- Ionization chamber 8 L
- Interchangeable particles filter
- Heating system gas which avoids the condensation phenomenon
- Easy decontamination and maintenance

Example of response
Volumetric activity measured
70 kBq/m³

Example of response
Volumetric activity measured
70 kBq/m³
Environmental Protection

Control of gas released to the environment:

- Stack Monitors
- Waste Monitoring
- Standalone monitors

Issues

- Sensitivity
- Temperature compensation
- Response time
- Reliability / qualification
- Weatherproofing
Tritium detection from 5 kBq/m³
Response time - less than 60 sec.
Ionization chamber 4 L or 8L
Integrated preamplifier
Plug and play
Easy decontamination and maintenance

Example of response
Volumetric activity measured
10 kBq/m³

INDEPENDENTLY TYPE TESTED with Tritium at CHTIR
- Tritium detection from 5 kBq/m³
- Response time - less than 90 sec.
- Operates outside between -25c to 50c
- Wind resistant up to 250km/h
- Resists all humidity conditions
- Automatic gamma compensation

Example of response:
Volumetric activity measured
30 kBq/m³

1 kBq/m³  1 MBq/m³  1 GBq/m³  1 TBq/m³
Upgrading existing installations

Cost effective solution to upgrade systems without changing the detector:

- Obsolete electronics
- Orphan systems

Issues

- Sensitivity
- Response time
- Reliability
- Set up/testing/assurance
For IC Model 978017-1
Tritium detection from 25 kBq/m3
Response time - less than 60 sec
Real time measurement (New feature)
All the DTIONIX 3 features not previously available.
In Summary

- We have a solution to your beta measurement in gas
- A number of cost effective standard solutions
- Full capability to adapt standard solutions for specific requirements
- Full R&D capability to develop a novel solution
- JUST ASK!
Any questions?

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Feel free to visit – just give us some warning please 😊