

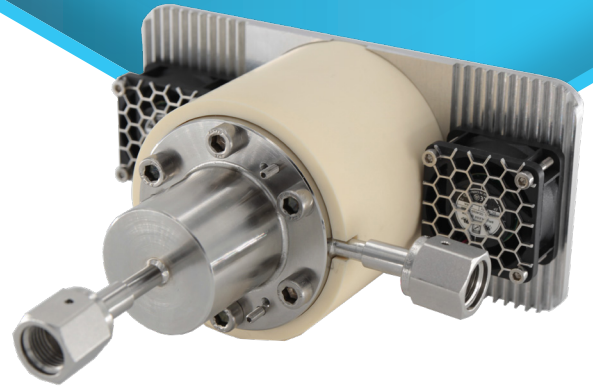


PREMIUM ANALYSE

DT D - MC10™

10 cc Tritium Detector

Ionization chamber for the measurement of high tritium activities in research applications, laboratories and process monitoring. Due to its heating resistance, the detector can easily be decontaminated.



FEATURES

- **High-performance**
 - Continuous measurement
 - Wide measurement range
 - Response time under 90 seconds
- **Simple**
 - Easy maintenance
 - Quick and easy set up
- **Reliable**
 - Decontaminable
 - Precise and stable

DESCRIPTION

The DT D - MC10 is a small size ionization chamber (10 cc) detector allowing the measurement of high tritium activity in gases from 190 kBq/m³ (5.13 µCi/m³) to 19 PBq/m³ (513 kCi/m³).

This detector has been designed for civil and military research applications and process monitoring, as well as specific projects such as ITER where measurement of high activities is needed.

Due to its heating resistance, the detector can be easily decontaminated.

*Device manufactured under exploitation licence for CEA patent - L26218
Device registered as dual-use n°1B231 regulation (CE) 428/2009 Appendix IV*

DT D - MC10 | 10 CC TRITIUM DETECTOR

GENERAL CHARACTERISTICS

- Dimensions (with dissipator) 200 x 80 x 200 mm (w x h x d)
- Weight (with dissipator and ceramic) 1 800 g
- Power supply 9-36VDC, 300mA
- Power supply connection on preamp LEMO EXG-1B-302-HLN
- CAN connection on preamp LEMO EXG-1B-304-HLN
- Gas connection SWA 1/4" VCR connector
- Radon compensation dynamic with digital filtration
- Delivered with certificate of conformity

IONIZATION CHAMBER

- Material 316L stainless steel electropolished
- Volume 9.28 cc
- Circulation chamber 48 cc
- Nominal flow rate 250 cc/min
- Response coefficient 4 734 000 (Bq/m³)/fA
- Ionization voltage 160 VDC

HEATING RESISTANCE

- Heating resistance: 220V - 400 W - 2.2 x 4.2mm
- Power supply: 220V / 50Hz on IEC baseplate C14 type with integrated mains filter, protected against short-circuits by 2 2A 5x20mm fuses
- Thermocouple connector: female panel baseplate for type J thermocouple on regulator. Delivered with additional male plug and female baseplate for extension cable
- Heating resistance connector: 3 pins Ampenol baseplate. Delivered with additional male plug and female baseplate for extension cable
- Ventilator power supply on dissipator: 24V by ACC ALIM 24V E

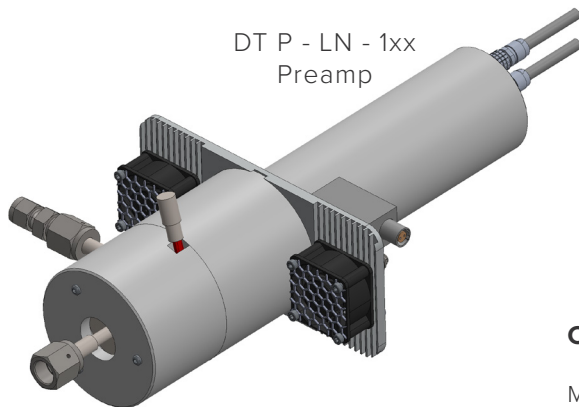
OPERATING CONDITIONS

- Temperature of use: +0°C to +40°C (+32°F to 104°F)
- Influence of temperature: 0.3% /°C for a variation of ambient temperature <3°C / hour
- Humidity: working with dry carrying gas
- Influence of atmospheric pressure: 0.1 %/mbar, hence ± 5 % of the measurement from 930 to 1030 mbar
- Temperature of decontamination: up to 500°C continuously

PERFORMANCES (For tritium)

| Preamp associated | DT P - LN - 1B8 | DT P - LN - 1A7 | DT P - LN - 196 |
|--|--|--|--|
| Measurement range | 190 kBq/m ³ to 190 TBq/m ³ 5.13 µCi/m ³ to 5.13 kCi/m ³ | 1.9 MBq/m ³ to 1.9 PBq/m ³ 51.3 µCi/m ³ to 51.3 kCi/m ³ | 19 MBq/m ³ to 19 PBq/m ³ 513 µCi/m ³ to 513 kCi/m ³ |
| Limit of detection (2σ) = decision threshold | 1 MBq/m ³ 27 µCi/m ³ | 3 MBq/m ³ 81 µCi/m ³ | 20 MBq/m ³ 540 µCi/m ³ |
| Limit of detection (4σ) | 2 MBq/m ³ 54 µCi/m ³ | 6 MBq/m ³ 162 µCi/m ³ | 40 MBq/m ³ 1.08 mCi/m ³ |
| Precision | 5% of measurement ± 1 MBq/m ³ ± 27 µCi/m ³ | 5% of measurement ± 3 MBq/m ³ ± 81 µCi/m ³ | 5% of measurement ± 20 MBq/m ³ ± 540 µCi/m ³ |
| Maximum deviation | 1 MBq/m ³ 27 µCi/m ³ | 3 MBq/m ³ 81 µCi/m ³ | 20 MBq/m ³ 540 µCi/m ³ |
| Noise (2σ) | 1 MBq/m ³ 27 µCi/m ³ | 3 MBq/m ³ 81 µCi/m ³ | 20 MBq/m ³ 540 µCi/m ³ |
| Response time | < 90 sec for 90% of step | | |

INTEGRATION OF THE MEASUREMENT CHANNEL DETECTOR



DT D - MC10

ACC BRT
Thermal regulation box



CONTACT US

Mirion Technologies (Premium Analyse)
Phone: +33 (0)3 87 51 31 75
Email: contact@premium-analyse.fr



DT IONIX 3
HMI Interface

PREMIUM Analyse 
always one idea ahead