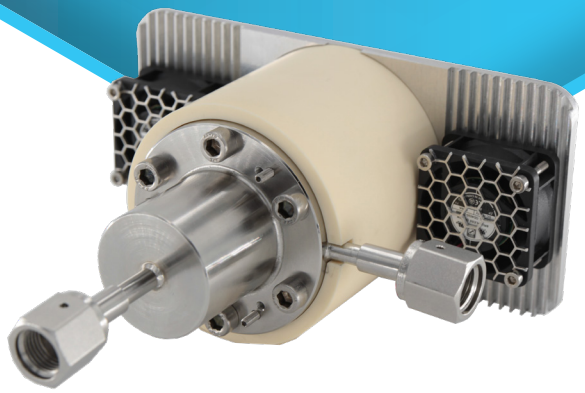
MIRION TECHNOLOGIES

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/m^3 (5.13 µCi/m^3) to 19 PBq/m^3 (513 kCi/m^3).

This detector has been designed for civil and military research applications and process monitoring, as well as specific projects such 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 resgistered 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

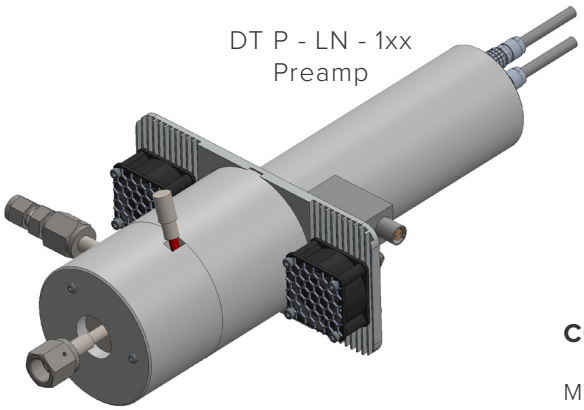
- Temperature of use: +0°C to +40°C (+32°F to 104°F)
- Influence of temperature: 0.3% /°C for a variation of ambiant temperature <3°C / hour
- Humidity: working with dry carrying gas
- Influence of atmospheric pressure: 0.1 %/mbar, hence ± 5 % of the measurement from 930 to 1030 mbar
- Temperature of 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/m³ to 190 TBq/m³ *5.13 µCi/m³ to 5.13 kCi/m³*	1.9 MBq/m³ to 1.9 PBq/m³ *51.3 µCi/m³ to 51.3 kCi/m³*	19 MBq/m³ to 19 PBq/m³ *513 µCi/m³ to 513 kCi/m³*
Limit of detection (2σ) = decision threshold	1 MBq/m³ *27 µCi/m³*	3 MBq/m³ *81 µCi/m³*	20 MBq/m³ *540 µCi/m³*
Limit of detection (4σ)	2 MBq/m³ *54 µCi/m³*	6 MBq/m³ *162 µCi/m³*	40 MBq/m³ *1.08 mCi/m³*
Precision	5% of measurement ± 1 MBq/m³ ± *27 µCi/m³*	5% of measurement ± 3 MBq/m³ ± *81 µCi/m³*	5% of measurement ± 20 MBq/m³ ± *540 µCi/m³*
Maximum deviation	1 MBq/m³ *27 µCi/m³*	3 MBq/m³ *81 µCi/m³*	20 MBq/m³ *540 µCi/m³*
Noise (2σ)	1 MBq/m³ *27 µCi/m³*	3 MBq/m³ *81 µCi/m³*	20 MBq/m³ *540 µCi/m³*
Response time	< 90 sec for 90% of step		

INTEGRATION OF THE MEASUREMENT CHANNEL DETECTOR

DT P - LN - 1xx
Preamp



DT D - MC10

ACC BRT
Thermal regulation box

DT IONIX 3
HMI Interface

CONTACT US

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SPC-70-EN-A_RMSD - 07/2021