

# CPM-310

## Continuous Particulate Monitor



The CPM-310 aerosol monitor is intended for the collection and measurement of radioactive alpha and beta aerosols on fixed filter. The monitor can be used as a part of large monitoring system as well as an autonomous monitor.

### Purpose

The CPM-310 aerosol monitor is intended for measurement of volume activity of radioactive alpha and beta aerosols collected on fixed filter. The air can be sampled from either working environments, air ventilation systems or surrounding environment.

The monitor can be used as part of a large monitoring system with a remote centralized indication, or as an autonomous monitor, which provides the data indication locally at the place of measurement.

The CPM-310 monitor output can be customized for application in most of the common radiation monitoring systems based on different interfaces and communication protocols.

### Description

The CPM-310 monitor is composed of following main components:

- Sampling and measuring head with silicon detector containing auxiliary electronics and airtight filter holder with a manual actuator
- Processing unit with pulse amplifier/shaper/stretcher, multichannel analyser and microprocessor
- Display and signalling unit with large LCD panel and indicators for fault, alert, alarm, and eventual normal operation and acoustic alarm

The measuring head is placed above the filter in order to achieve the best efficiency and employs a durable ion-implanted silicon detector. An airtight, manually actuated holder keeps the filter in the sampling position.

The silicon detector is coupled with low noise charge preamplifier, which is then connected to the monitoring processor that includes the analogue signal control electronics and a fast multi-channel analyser (1024 channels MCA).

### Main Advantages

- Compact monitoring unit with integrated display
- Easily replaceable fixed filter – ideal for post analysis
- Programmable alarm and alert levels for alpha and beta

### Standards and Certification

#### Radiation Protection Instrumentation

Designed according to the IEC 60579, IEC 60761-1/2, IEC 61578, IEC 61172 and IEC 61306.

#### Electromagnetic compatibility (EMC)

EN 55022, EN 61000-6-2, EN 61326-1



Measuring results screen

## Description

The microprocessor manages all processes and performs several analogue-digital input/output and other auxiliary functions (including temperature, delta-pressure and flow-rate acquisition, gamma dose-rate counts acquisition, alarms actuation, flow control, etc.).

Where a centralized vacuum system is not available, an external rotary vane pump powered by mains can be connected.

On-line measurements are performed continuously during user programmable sampling cycles. Alpha and beta concentrations (Bq/m<sup>3</sup>, DAC) as well as exposures (Bq/m<sup>3</sup>h, DACH) are determined by data cycle measurement evaluation. Total filter activity, Radon and Thoron concentrations are also evaluated.

Pre-set programmable alarm and alert thresholds are continuously compared with actual measured values. All information, including anomalous data, threshold overrun, and status of the system, is stored in the log file. Measurement parameters, including thresholds, measuring time and cycle, and error (sigma) can either be set manually or remotely.

Gamma background compensation is provided by means of dedicated energy compensated GM probe.

Data output can be precisely customised according user requirements as RS-232 or RS-485 and LAN.



## Specification

Alpha concentration range	1E-2 ~ 1E5 Bq/m <sup>3</sup>
Beta concentration range	1E-1 ~ 1E5 Bq/m <sup>3</sup>
Natural radionuclides	1E-1 ~ 1E3 Bq/m <sup>3</sup>
Alpha energy range	2.7 ~ 9 MeV
Beta energy range	50 keV ~ 2.5 MeV
Detector	Silicon detector 450 mm <sup>2</sup> (0.7 in <sup>2</sup> )
Filter	Ø 47 mm (1.85 in)
Standard airflow	33 ~ 66 l/min (1.17 ~ 2.33 cfm)
Mass flow uncertainty	± 4 %
Relative humidity	max. 95%, non cond.
Temperature range	-25 ~ +55 °C (-13 ~ +131 °F)
Dimensions	340 x 180 x 205 mm (9 x 15.7 x 8.8 in)
Power supply	110 ~ 240 VAC / 72 W
Weight (without pump)	12 kg (26.5 lb)

## Models and Accessories

Type	Description
K1032	CPM-310 Continuous Particulate Monitor
<b>Optional Accessories</b>	
K1384	VP-110 Vacuum Pump
<ul style="list-style-type: none"> <li>Stable support stand for the monitor, wall/floor mounted</li> <li>Mobile support stand for the monitor - wheeled cart (and the Vacuum pump)</li> <li>Possibility to supply the monitor without the local display</li> </ul>	



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