



Continuous Suspended Particulate Analyzer MP101M option CPM

PM1 PM2.5 PM10 TSP



DESCRIPTION:

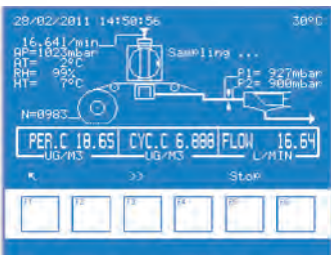
The standard Beta gauge measurement Method **ISO 10473** of the MP101M analyzer allows, when used with the patented optical technology of the CPM module, the continuous and simultaneous measurement of fine dust. The system is certified equivalent to the European Standards **EN 12341** and **US EPA** (40CFR part 53) for PM10 particles and **EN 14907** for PM2.5 continuous monitoring.

This unique combination provides **exclusive benefits**:

- **continuous and simultaneous concentration measurement of PM10, PM2.5 and PM1 ($\mu\text{g}/\text{m}^3$) using a single inlet**
- **particle counting (nb / L)**
- **classification of particle's size into 7 ranges (1 to 35 microns)**
- **real time optical measurement of the concentration of PM10, PM2.5 and PM1 ($\mu\text{g}/\text{m}^3$)**
- **precise beta attenuation monitoring of the mass concentration: low activity C14 sealed flat source with analyzer lifetime duration**

KEY FEATURES:

- True volumetric air flow control with 3 atmospheric pressure and temperature sensors
- Sampling flow-rate continuously adjusted according to the atmospheric temperature and pressure for minimizing the evaporation artifacts of volatile compounds (mandatory for PM2.5 according to EU regulations)
- Automatic calibration of the real time optical module (CPM) to the reference measurement (β gauge)
- Flow calibration possible during the measurement
- Built-in reference gauge for calibration: no need for factory recalibration
- Calibration screen for atmospheric pressure sensors
- Regulated Sampling Tube (RST) compliant with CEN PM10 and US-EPA standard: the sample will not be affected by seasonal or geographical factors and avoids evaporative losses of semi-volatile particles
- Fiberglass tape with 3 years of autonomy of continuous sampling with daily cycles (1200 cycles)
- Rugged instrument, not sensitive to vibration or humidity



Easy menu driven set up and operation via a large LCD display



USB port on front panel for easy transfer of data and software updates



Sliding drawer on the rear panel for easy access and maintenance



Suspended Particulate Analyzer **MP101M option CPM**

MP101M SPECIFICATIONS:

- Measurement ranges: user-programmable, up to 10 000 µg/m³
- Lower detectable limit: 0.5 µg/m³ (24h average)
- Cycle timing: 1/2, 1, 2, 3, 6, 12, 24 h, user-selectable (up to 96 hours)
- Sample collection period: 1/4, 1/2, 1, 2, 3 h, ..., user-selectable
- Counting time: 10 to 300 sec, user-selectable
- Beta Source: sealed Carbon 14 (1.67MBq±10%)
- Detector: high performance Geiger-Müller counter
- Sampling flow rate: 1 m³/h
- Standard filter: fiberglass tape (width 35 mm, length 30 m)
- Autonomy: up to 1,200 measurements
- Power supply: 230V/50Hz (115V/60 Hz)
- Housing: 19" rack / 6U
- Dimensions: 483 x 324 x 266 mm (L x W x H)
- Weight: 15 kg (without pump)
- Operating temperature: +10 to +40 °C
- Serial link: 1 RS 232/RS422
- Ethernet and USB ports

CPM MODULE SPECIFICATIONS:

- Technology: light scattering
- Max. number of counted particles: 200,000 / cm³
- Optical source: red visible laser diode
- Detector: photodiode
- Accuracy: ± 5% (compared to the reference method over 24h)
- Temporal resolution: 1 second
- Dimensions: 280 x 66 x 130 mm (W x D x H)

OPTIONS AND ACCESSORIES:

- **US EPA and EU-CEN** compliant sampling inlets
- **Temperature-regulated sampling tube (RST):** 1 m, 1.5m, 2 m, 2.75 m, compliant with **CEN PM10 Directive**
- Up to 2 ESTEL electronic boards (1 or 2) with: 4 independent analog inputs / outputs, 4 remote control inputs, 6 dry contacts outputs
- External pump assembly (diaphragm - 9,5 kg or rotary vane - 7 kg)
- All-weather cabinet for outdoor use, with or without air conditioning

CERTIFICATIONS / STANDARDS:

Standard compliance: **ISO 10473 : 2000**

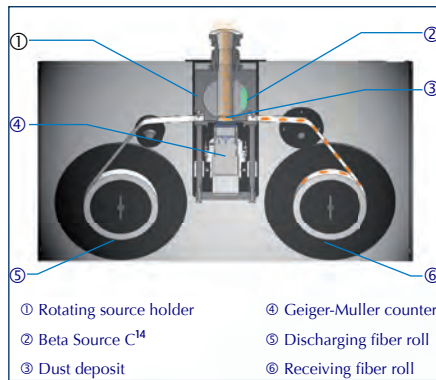
- for PM10: - **US-EPA** (EQPM-0404-151)
- **EN 12341** (I-CNR 087/2004, F-LCSQA)
- for PM2.5: - **EN 14907** (F-LCSQA)
- **US-EPA** PM2.5 Inlet (RFPS-0498-116)
- **J-MOE** PM 2.5 Type approved

MEASUREMENT PRINCIPLE:

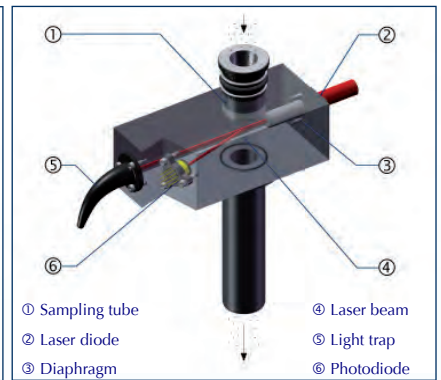
The MP101M, based on the beta attenuation principle, determines the particles concentration by measuring the amount of radiation that a sample, collected on a fiber tape, absorbs when exposed to a radioactive source. Low energy beta rays are absorbed by collision with electrons, whose number is proportional to density. Absorption is thus a function of the mass of the irradiated material, independently of its physico-chemical nature.

The CPM (Continuous Particulate Measurement) principle is based on the measurement of the light scattered at a small angle, close to forward scattering, where the signal is not sensitive to the particle's nature. The intensity of this signal is continuously analysed, in order to classify the particles into 7 size ranges (from 1 to 35 µm). Knowing the number and size of detected particles, a powerful algorithm is applied to continuously convert these data into mass concentration.

Combination of both technologies allows a precise and real-time monitoring of particles with direct measurement of PM10, PM2.5 and PM1 simultaneously.



MP101M



CPM



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