

HORIBA APDA-371

Particulate Matter - Monitor Data Sheet



Abstract

The type approved measuring instrument APDA-371 is a continuously operating analyzer for the determination of particulate matter (PM) in the ambient air.

Overview

The APDA-371 monitor measures the concentration of dust in ambient air using time proven technology of Beta Ray attenuation. The measured data are automatically stores in a built-in data storage.

Each hour, a small carbon-14 element emits a constant source of high-energy electrons (known as beta rays) through a spot of clean filter tape. These beta rays are detected and counted by a sensitive scintillation detector to determine a zero reading. The APDA-371 automatically advances this spot of tape to the sample nozzle, where a vacuum pump then pulls a measured and controlled amount of dust-loaded air through the filter tape. Hourly this dirty spot is placed back between the beta source and the detector thereby causing an attenuation of the beta ray signal which is used to determine the mass of the particulate matter on the filter tape. The strength of the attenuation is proportional to the mass of dust deposited on the filter. Knowing the volume of air the dust concentration of the ambient air can be determined.

Features

- ✓ Type Approval according EN 12341 (PM 10)
- ✓ Type Approval according EN 14907 (PM 2,5)
- ✓ 2 months automatic operation without maintenance
- ✓ Low operating costs
- ✓ Hourly check of Zero point, Span point (foil) and drift
- ✓ No annual calibration necessary
- ✓ High accuracy and reliability
- ✓ Hourly filter change reduces the loss of volatile particles
- ✓ No geographical or seasonal corrections necessary
- ✓ Sophisticated heating technology controls relative humidity in the sampling phase
- ✓ Internal memory stores digital data up to 182 days on
- ✓ Data retrieval via RS232 or LAN using a PC, modem, printer or data acquisition system

Specifications

Measurement Principal	Beta-Ray-Attenuation
Value Resolution	0,1 µg/m ³
Display Resolution	1 µg/m ³
Lowest Detection Limit (1h)	< 4,8 µg/m ³
Lowest Detection Limit (24h)	< 1,0 µg/m ³
Standard Measurement Range	0 – 1000 µg/m ³
Optional Measurement Range	0 – 100, 200, 500, 2000, 5000, 10000 µg/m ³
Measurement Cycle	1 Hour
Flow Rate	16,7 LPM (0 – 20 LPM adjustable)
Filter Tape	Glass Fiber Filter Tape, 30mm x 21m
Function Control	Automatically every Hour (Calibration Foil)
Radiation Source	C-14 (Carbon-14), 60 µCi ± 15 µCi (< 2,22 MBeq). Half-Time 5730 Jahre Free Usage without permission!!!
Detector	Photomultiplier Tube with Scintillator
Operation Temperature	0 – 50°C
Ambient Temperature	- 40° - + 50°C
Ambient Humidity	0 – 90 % relative Feuchte
Data Interface	RS-232, Analog (0-10V, 4-20mA, 0-16mA)
Power Supply	100 – 230 VAC, 50/60 Hz
Power Consumption	ca. 0,4 kW
Weight	24,5 kg without Accessories
Dimensions	Prepared for 19" Rack mount h = 31cm, w = 43cm, l = 40cm