

Ambient air monitoring

Airbourne particulate matter measurement

Continuous Particulate Monitor APDA-371

The APDA-371 automatically measures and records airborne particulate concentration levels (in milligrams or micrograms per cubic meter), using the industry-proven principle of beta ray attenuation. Thousands of this Dust Analyzer units are currently deployed worldwide, making the unit one of the most successful air monitoring platforms in the world.

The HORIBA Model APDA-371 has longstanding EN & U.S. EPA designation as a Federal Equivalent Method (FEM) for continuous PM 10 particulate monitoring. In addition, the APDA-371 is the world's first instrument to obtain U.S. EPA FEM designation for continuous PM 2.5 monitoring, when configured with the specified settings and accessories.

Functions:

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.

Data collection:

All data files are accessible via standard two-way RS-232 serial port using common terminal programs. The data is available in a variety of formats including daily reports, last record, all data, and new records since last download. Configuration files, error logs, and flow statistics are also available. Digital dataloggers may obtain data from the unit using serial port commands or by recording the automatic hourly serial output.

Error handling:

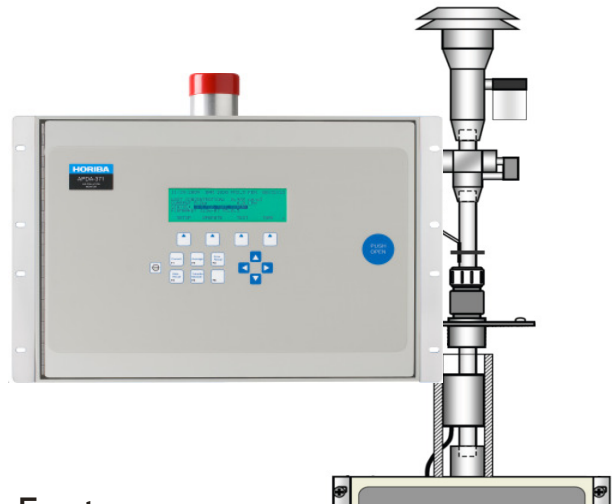
The APDA-371 performs continuous user selected Evaluation, including flow statistics and a comprehensive set of error codes (power failures, flow failures, hardware failures, tape errors, nozzle errors, span check errors, beta count errors, and more).

Maintenance:

The APDA-371 is designed to run continuously with monthly or bi-monthly scheduled maintenance only. A single roll of filter tape will last more than 60 days. The APDA-371 also contains a comprehensive self-test function which allows the unit to preemptively test itself for any mechanical failures in the tape control system.



CE marking compliant



Features:

- EN & U.S. EPA Federal Equivalent Method for PM 10 and PM 2.5 monitoring.
- Long term unattended remote operation of up to 60 days between site visits.
- Very low operating costs.
- Fast and easy field audits using common FRM audit tools.
- Bench top or equipment rack mounting in mobile or stationary shelters.
- Rugged anodized aluminum, stainless steel, and baked enamel construction.
- Highly accurate, reliable, and mechanically simple flow system.
- Hourly filter advances minimize effects on volatile compounds.
- Advanced Smart Heater technology precisely controls sample relative humidity
- Integrated datalogger allows the connection of up to six additional meteorological sensors.
- Internal memory provides up to 182 days of digital data storage.
- Data retrieval through RS-232 serial ports using direct PC connections, modems, printers, or digital data collection systems.

Standard Equipment:

- Operation manual
- Automatic span membrane
- Internal flow sensor
- Internal flow control
- Internal filter temperature, pressure, and RH sensors
- Six-channel datalogger for accessory sensors

- Serial communication cable
- Universal power cable
- Pump control cable and air tubing
- Rack mounting hardware
- Reusable packing materials
- Comet™ Data Collection Software
- Glass fibre filter tape, one roll

Required accessories:

- BX-802 EPA PM10 inlet (all units)
- BGI Inc. VSCC™ PM2.5 Cyclone (PM2.5 FEM units)
- BX-592 ambient temperature sensor (TÜV)
- BX-302 zero filter calibration kit, with leak test valve (PM2.5 FEM units)
- BX-827 or BX-830 smart inlet heater (PM2.5 FEM units)
- BX-801 inlet tube kit, with roof flange and support struts
- Piston or gast rotary vane vacuum pump

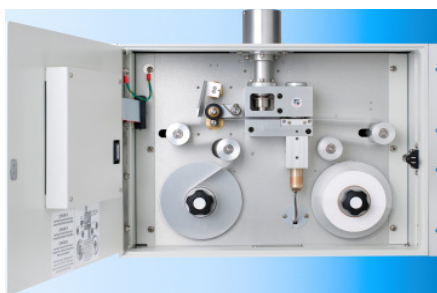
Specifications

Model	APDA-371
Application	Air Pollution Dust Analyzer
Approvals	PM10: FEM (EQPM-0798-122), PM2.5: Class III FEM, (EQPM-0308-170), CE, NRC, TÜV, California ARB, ISO 9001
Accuracy	Exceeds US-EPA Class III PM2.5 FEM standards for additive and multiplicative bias
Measurement Resolution	0.1 µg/m ³
Display Resolution	1 µg/m ³
Lower Detection Limit: (2 sigma) 1 hour	< 4.8 µg/m ³ (less than 4.0 µg/m ³ typical)
Lower Detection Limit: (2 sigma) 24 hour	< 1.0 µg/m ³
Standard Range	0 – 1.000 mg/m ³ (0 - 1000 µg/m ³)
Optional Ranges	0 – 0.100, 0.200, 0.250, 0.500, 2.000, 5.000, 10.000 mg/m ³ (special applications)
Measurement Cycle Time	1 hour
Flow Rate	16.7 liters/minute adjustable 0–20 LPM range actual or standardized flow
Filter Tape	Continuous glass fiber filter tape, 30mm x 21m roll > 60 days/roll
Beta Source	14C (carbon -14), 60 µCi ±15 µCi (< 2.22 x 10 ⁶ Beq), half-Life 5730 years
Beta Detector Type	Photomultiplier tube with organic plastic scintillator
Operating Temperature	0 to +50°C
Ambient Temperature	-30°C to +60°C
Ambient Humidity	0 - 90% RH, noncondensing
Sample Humidity Control	Active Smart heater module, 10 - 99% RH setpoint 1 x Bypass
Enclosure	Weatherproof enclosure or shelter is required
User Interface	Menu-driven interface with 8 - l i n e 40-character LCD display and dynamic keypad
Analog Output	Isolated 0–1 VDC output standard. 0–10 V, 4–20 mA, 0–16 mA switch-selectable
Serial Interface	RS - 232 two-way serial port for PC or modem communications (German Network Protocol)
Printer Output	Output-only serial port for data or diagnostic output to a PC or serial printer
Telemetry Inputs	Clock reset (voltage or contact closure), telemeter fault (contact closure)
Error Reporting	User-configurable available through serial port, display, and relay outputs
Alarm contact enclosures	Data error, tape fault, flow error, power failure, maintenance
Power consumption	Less than 0.4 kw, 3.4 A, worst case with pump and smart heater running
Power supply	100 –230 V AC, 50 / 60 Hz., Factory configured
Dimensions (H x W x D)	310 x 430 x 400 mm
Weight	24,5 kg



Please read the manual before using this product to assure safe and proper handling of the product.

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