HORIBA
Process & Environmental

Continuous Particulate Monitor with X-ray Fluorescence

PX-375

Continuous analysis of particulate mass and the element with automatic sampling.

The first step towards prevention of air polluti

In recent years there has been growing concern regarding particulate matter (PM) pollution and its affects on health.
For effective preventative measures, source appointment of PM is extremely important. Therefore, indication of PM elemental concentration is
Newly developed PX-375 enables automatic sampling, continuous online PM quantitative and qualitative analysis and rapid air pollution source

Feature 1

Continuous analysis of PM mass and the elemental concentration by a single unit directly in the field!

- Continuous analysis of $PM_{2.5}$, PM_{10} or TSP, mass and the elemental concentration. Sampling and the elemental analysis time are selectable.
- Extremely compact design – 19 inch size and easy installation enables the use of the instrument in scientific laboratories, fixed and mobile air quality monitoring stations (AQMS).
- Ideal for variety of applications: ambient air quality monitoring, indoor air quality control, stationary pollution source appointment, etc.
- Continuous analysis provides you the benefits of reducing labor cost and human errors caused by manual analysis.

Screen image (PC)

on is to identify pollutant concentration in real ti

also necessary in addition to PM mass concentration.
appointment.

Feature 2

Advanced analysis by world proven technologies.

- Adoption of world proven technologies: X-ray fluorescence & Beta-ray attenuation.
- Compatible with calibration curves evaluated by existing scientific instruments (ICP-MS etc.) for PX-375 calibration.
- Safety features: User is absolutely protected by inter lock. No need to appoint the particular working space and person in charge for the X-ray operation.

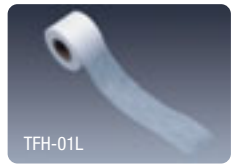
Feature 3

HORIBA's newly developed filter tape provides excellent sensitivity and precise performance

- 2 layer non-woven PTFE fabric filter construction prevents passing of PM onto the reverse side.
- Due to the extremely low-impurity concentration, the filter enables ultra low concentration analysis.
- Chemical background of the filter tape is extremely low. Therefore the filter with collected sample could be used for chemical analysis by other scientific analytical instruments. (ICP-MS etc.)

Patents

· USA Patent	No.8012231
· CHINA Patent	No.ZL200410032415.3
· JAPAN Patent	No.4590367



Lowest Detection Limit (Example) (2σ) (ng/m³) (Table 1)

Element	Analysis time (sec.)		
	100	1000	10000
Ti	26.5	8.4	2.6
Cr	4.5	1.4	0.4
Mn	5.8	1.8	0.6
Cu	5.7	1.8	0.6
Zn	3.0	1.0	0.3
Se	3.4	1.1	0.3
Ag	15.8	5.0	1.6
Cd	35.9	11.3	3.6
Sn	38.4	12.2	3.8
Hg	7.7	2.4	0.8
Pb	5.3	1.7	0.5

* LDL (σ) is half of the LDL (2σ)

Detectable Elements (Table 2)

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra		Rf	Ha	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Unt	Fl	Unp	Lv	Uus	Uno
lanthanoid			La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
actinoid			Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Detectable Elements

* ○—Standard parameters, calibrated by standard calibration materials.
* For measurement of element concentration calibration by standard calibration materials is needed.
* Please contact separately about elements, marked as non-detectable.

Related products

Air Pollution Monitor

AP-370 Series

AP-370 Series is used for continuous measurement of several pollutants in ambient air. It is also used as a trace gas monitor.

- NOx
- SOx
- CO
- THC
- O3

me.

Continuous Particulate Monitor with X-ray Fluorescence

PX-375

Feature 4

Advanced stationary pollution source appointment by analysis of particulate sample image

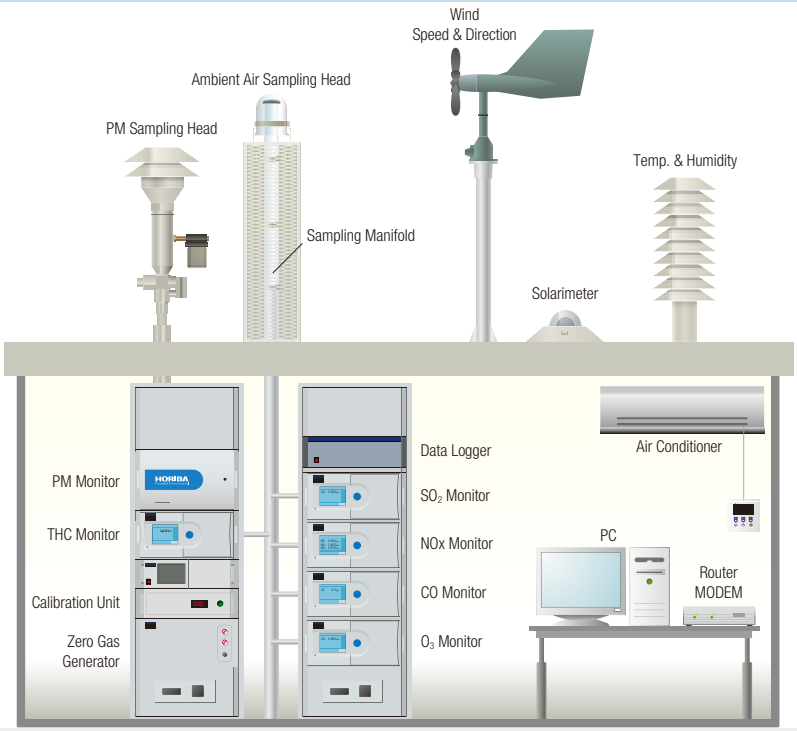
- Installed CMOS camera enables observation of collected particulate sample on the filter.
- In addition to particulate mass and elemental concentration analysis, checking the color of particulate sample is possible.
  Particulate mass concentration, elemental concentration and color – this 3-point approach enables more reliable stationary air pollution source appointment.

Feature 5

User friendly display and operation

- Easy operation and data management by PX-375 data logging PC with original software.
- Convenient trend graph enables user to check particulate mass concentration, element concentration and its correlation at a glance.
- Remote operation* using internet connection will enables user to check status and acquire data without going on site.
  *Devices needed for remote access and internet connection should be prepared by customer.
- Operating cost is reduced by omission of the vacuum pump and liquid nitrogen, usually required for X-ray fluorescence detector operation.
- Power distribution function from the main unit for necessary accessories: PC, heater, pump etc.

Air Quality Monitoring Station (AQMS)



Air Quality Monitoring Station is a facility to monitor meteorological parameters such as wind speed, wind direction, concentration of required air pollutants (SO_2, NO_X, CO, O_3, THC etc.) and particulate matter during all the year continuously. The measured data could be transferred to the local authorities and other institutions monitoring air pollution in wide region.

Mobile Air Quality Monitoring Stations are available too. Every Monitoring Station is designed and equipped according to customers requests and needs.

*PM: particulate matter

Specifications

Product name	Continuous Particulate Monitor with X-ray Fluorescence
Model	PX-375
Measured object	Particulate matter (PM_{10}, $PM_{2.5}$, TSP)
Measurement content	Particulate mass concentration and element concentration

Common

Flow rate	16.7L/min
Sampling pump	Linear drive system, externally installed
Filter tape	None-woven PTFE fabric filter
Spot tape interval	20/25/50/100mm selectable
Filter tape replacement interval	Approx. 5 months (In case of 20mm spot interval, 1 hour sampling time)
Ambient operation temperature	10˚C~30˚C
Relative humidity	0~80% RH noncondensing
Altitude	1000m or less
Power supply	AC100V~240V ±10%, 50/60Hz±1Hz
Power consumption	Approx. 400VA
External dimension	430mm(W)×560mm(D)×285mm(H) (without sampling pipe and measurement head)
Weight	Approx. 49kg
Data output	CSV file (Average PM mass and elemental concentration)
External connection	Ethernet™, USB, RS-232C* (option)

*Please consult about communication and instrument composition separately.

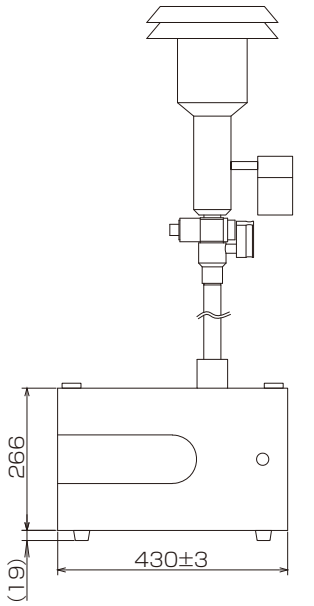
Mass analyzer unit

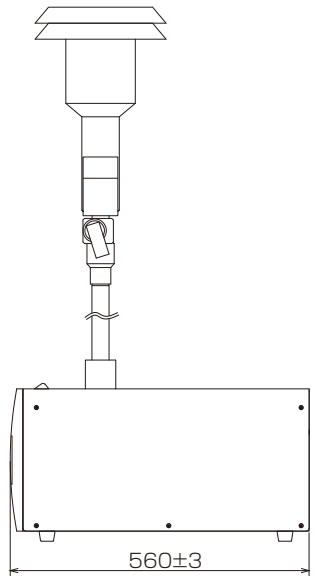
Measurement method	Beta-ray attenuation
PM_{10}	US EPA Louvered PM_{10} Inlet
$PM_{2.5}$	BGI VSCC™ Cyclone
TSP	TSP Inlet
Measurement range	0~200/500/1000μg/m^3
Repeatability	±2% (against reference foil value)
Span drift	±3% (24hours)
Lowest detection limit (2σ)	±4μg/m^3
Sampling and measurement cycle	0.5/1/2/3/4/6/8/12/24 hours

Element analyzer unit

Measurement method	Energy dispersive X-ray spectroscopy
Detectable elements	See Table 2 "Detectable Elements". Standard parameter is S, Ti, Cr, Mn, Ni, Cu, Zn, Pb, Al, Si, K, Ca, V, Fe, As.
Primary X-ray filter	Automatic switching for light metals/heavy metals
Tube voltage	Automatic switching for 15kV/50kV
Detector	SDD (Silicon Drift Detector)
Sample image	CMOS camera
Lowest detection limit (2σ)	Recommended EPA Method IO 3.3 See Table 1 "Lowest Detection Limit (Example)"
Measurement range	Up to measurement time
Analysis time	1000s (16.6 min) as standard 100 / 200 / 500 / 1000 / 2000 / 5000 / 10000s selectable
Calibration material for X-ray intensity for standard parameter	NIST SRM 2783, other materials (option)
Safety functions for X-ray	Internal lock system
	Key switch
	X-ray indication light

External Dimensions (Unit: mm)





* External dimensions do not include sampling pump, sampling pipe and measurement head.

IMS

The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System ISO9001, Environmental Management System ISO14001, and Occupational Health and Safety Management System OHSAS18001.
We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.

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

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