Real-time Dust Monitor, Model FLD-1

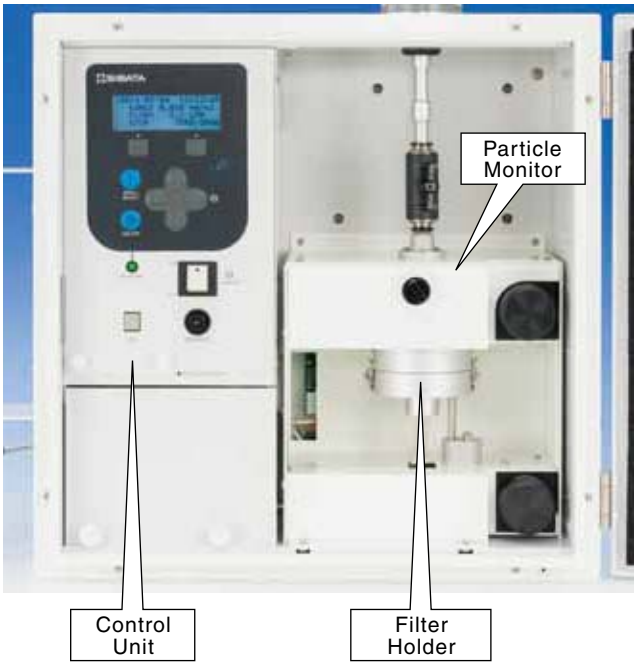
Monitoring particle at a fence line of a factory.....

Monitoring concentration of particle at a construction field.....

The FLD-1 Real-time Dust Monitor is a measuring instrument with an optical scattering method particle monitor inside the cabinet, enabling it to continuously assess particles at outdoor locations.

With this instrument, it is possible to monitor the particle concentration without changing the instrument configuration at outdoor locations. In addition, various output interfaces using multiple units of the instrument make it possible to measure the particle concentration at the fence lines of premises, or at construction sites.

Capable of Continuously Monitoring Particle Concentration



- FLD-1 is installed inside the cabinet, so as to make continuous measurement with optical scattering method particle monitor.
- Sampling pump and filter holder are equipped to make measurement of particle monitor at the same time.
- A dehumidifier is equipped, and you can avoid an influence by mist.
- Various output interfaces make it available for a particle concentration measurement at fence lines of premises, or at a construction site.
- It has various options such as weather meter (for wind direction, wind speed, ambient temperature, and humidity) and PM2.5 cyclone (for particle sizing).

Notes:
The main unit FLD-1 is dedicated for monitoring particle concentration.
The user is requested to provide a PC and wireless or other Communication system.


Appearance with Option


Installation at a Factory

Application Example 1

Particle Concentration Control at a Construction Site

- Assessing and countering particle created by demolition
- Preventing particle from scattering to residential houses and other buildings adjacent to construction sites
- Monitoring particle created by heavy machine tool
- Controlling the safety of workers when removing earth,sand, and rubble containing dioxin, asbestos, and other toxic substances, and taking countermeasures to prevent scatter into the peripheral environment

Notes:
* This product is a measuring equipment for monitoring particle concentration. The user is requested to provide a PC and wireless or other communications system.
* Deploying the necessary number of units is suggested to monitor particle at multiple locations.

■ Image in Use

Placing example

Example of Particle Concentration Measurement at a Construction Site

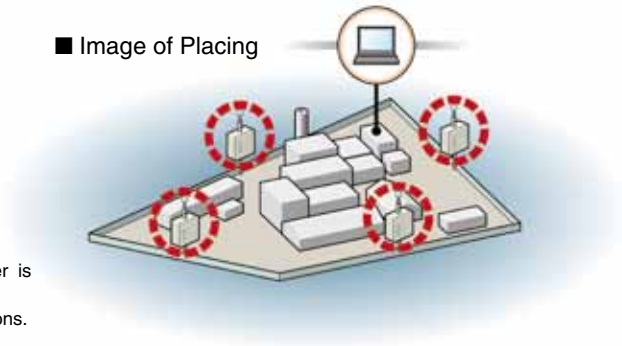
Application Example 2

Monitoring Fence Lines of Factory Site

- Monitoring dust from a source
- Measuring the efficacy of countermeasures to improve the source
- Monitoring and preventing the scatter of dust into the peripheral environment
- Managing the safety of workers by monitoring dust that contains toxic substances

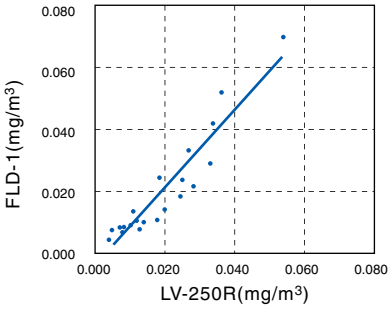
Notes:
* This product is a measuring equipment for monitoring particle concentration. The user is requested to provide a PC and wireless or other communications system.
* Deploying the necessary number of units is suggested to monitor particle at multiple locations.

■ Image of Placing

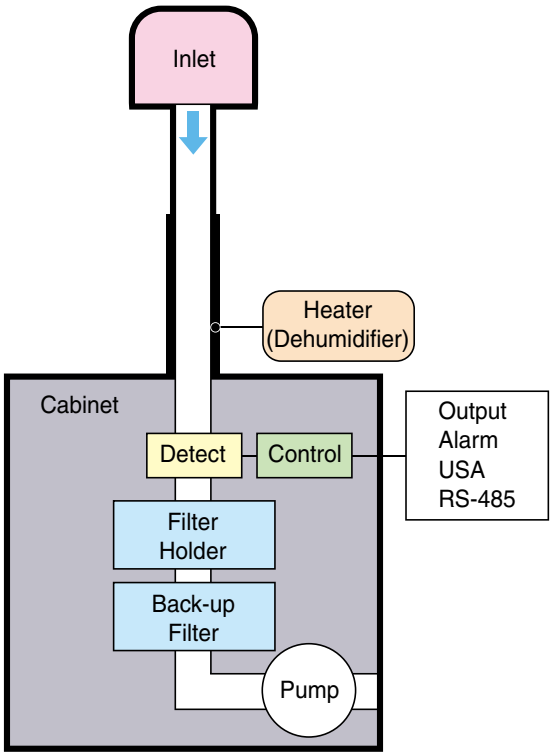


Correlation with the Filtration Method(PM2.5)

The FLD-1 demonstrated a high degree of correlation in concurrent measurements with the filtration method (LV250R), used for component analysis.
Measurement Site: Soka City, Saitama Prefecture, Japan
Measurement Period: Nov. 14, 2013 to March 19, 2014.



Real-time Dust Monitor FLD-1 Block Diagram



Sampling and Monitoring

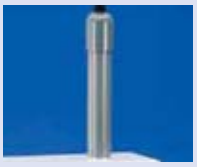
It is equipped with Filter Collecting unit (including Holders and suction pump), and it works as a particle monitoring and at the same time it makes particle sampling. Comparing the two measurement results, mass concentration conversion correlation factor is analyzed, and you may set the factor into the main flame.

Inlet

The TSP inlet is rain resistance, and it may sample air even it rains. It is so designed as to avoid foreign object such as bugs from entering into the main unit, and also allows an user to install optional PM2.5 Cyclone.

Dehumidifying Heater

Mist aerosol may make the reading of a light scattering method particle monitor higher than actual value. The incorporated heater works to decrease the influence.



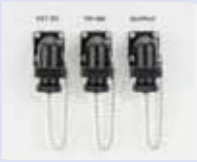
Data Logging

FLD-1 logs data such as measurement data, and imports it into PC.
It records measurement data continuously for about 166 hours.

Note: Maximum number of logging data 9999 (at average set time of 1 minute).
Maximum 100 error data such as power failer are being recorded.

Various Interface

Analogue, USB, RS-485 outputs are provided, so that you can remotely operate main unit, and or collect logged data such as measurement value, error.



Protection of Detector and Pump

Purge air system with filter is incorporated so that it protects detector unit from contamination by particle. In addition, back-up filter is equipped so that it may protect the pump. With these mechanism so as to make long time measurement time.

Main Unit [FLD-1]

Item Code: 080040-63

Note:
Support fixing hardware and Sampling filters are not included as standard accessories.

Optional Item for Measurement

Weather Meter *1
Item: Wind Direction, Wind Velocity, Ambient Temperature, Humidity,
Item Code: 080040-631

PM2.5 Cyclone *2
It is a Cyclone method sizing apparatus with PM2.5 dispersing characteristics.
Item Code: 080040-632

Optional Item for Installation

Support Fixing Hardware
It is used to fix main unit to a single pipe (Φ48.6mm).
Item Code: 080040-633

Consumable Spares

(1) **Fluororesin processed Glass Fiber Filter 'T60A20'**
Item Code: 080130-60247
One set includes 50 filters with dia. 47mm

(2) **Sampling Filter for PM2.5 mass analysis**
Item Code: 080040-7002
One set includes 50 filters with dia. 47mm

(3) **Filter Cartridge**
One set includes 2 cartridges for protecting the detector, and pump
Item Code: 080040-634

❖Specifications

Item code / Model		080040-63 / FLD-1
Measuring principle / Source		Light scattering method / Laser diode
Measuring sensitivity		1CPM=0.001mg/m^3 (for the calibration particle)
Measuring range		0.001 to 100.0mg/m^3 (for the calibration particle)
Measuring accuracy		+ or – 10% (for the calibration particle)
Concentration conversion factor		0.10 to 99.99 (to the Gravimetric method)
Suction Pump / Flow rate		Diaphragm type / 1.7 Litter per minute
Flow meter / Paper filter		Mass-flow sensor(Conversion flow rate 20°C, 1 atmosphere) / Ø 47mm
Display		LCD with back light (20 digits x 4 lines)
Sampling line		Dehumidifying heater (10W)
Output	Analogue	DC 0 to 1V, 4 to 20mA, Item: Particle concentration (instant value)
	Alarm	Open collector output (Rated DC24V, 0.04A) Select one from (1) Particle Concentration Average Value, or (2) Instantaneous Value, (3) Various Errors
	USB, RS-485	Collection of measured & alarm data, measurement start & stop are available with specific command
Measurement Logging	Log timing	Periodic: 1 to 99 minutes, (Max. 9999 points)
	Item	Particle Concentration, Suction flow rate, Ambient air pressure, Heater temperature. Options: Ambient temperature, Humidity, Wind Direction, Wind velocity
Alarm Logging	Log timing	At the time alam occurred
	Item	Power failure, BG test error, Sensitivity correction error. Pump flow rate error, Laser error, Communication error, Heating error, Cell battery alam etc.
Operating ambient temperature		0 to 40 °C
Option		Weather meter, PM2.5 cyclone, Support fixing hardware
Dimensions / Weight		400W x 200D x 860H mm (without protrusions) / Approx. 14kg
Power Supply		AC100~120V, 50/60Hz, 0.5A or AC200~240V, 50/60Hz, 0.3A

❖Special Application (on request)

Note: Wireless Telecommunication System is out of our space of work, and please consult with a system warehouse.

Case with Alarm Lump
The Lump Illuminates when FLD-1 measures set concentration level.

Case with Stand Frame
Size of the Stand depends on the installation place.

Case with Solar Panel
A Solar Panel works as a supplemental power source.

Specifications, and appearance described in this document are based on information as of 25 August, 2015. They are subject to change without notice for improvement of the product.

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