

DUST DENSITY METER MODEL DDM - *fc*



Detector of DDM-*fc* is separated from main body by fiber optic cables to keep the electronics safely away from extreme environment inside chimney/stack.



Light scattering method

Even small amount of dust can be easily detected with high sensitivity



No deviation of light axis

Detectors are located on the same side eliminating deviation of light axis



Built-in air purge

Continuous air purging facility allows long time maintenance free operation



High accuracy

Steady light cycle and synchronous signal processing ensure high accuracy



Span and auto-zero adjustment

During operation, span adjustment can be done & auto zero adjustment is through CPU at regular intervals.



Useful data outputs

Analog & digital outputs are available to save / process measured data



Minimal running cost

Expendable parts are limited to spare lamps and motors only



Use in adverse environment

Detector can withstand high temperature and high pressure

DESCRIPTION

All over the world, environment protection agencies have enhanced pollution control regulations and the minute sized particles called SPM (Suspended Particular Matter) in dust discharge from industrial chimney or stack is now being strictly regulated. Most industries use EP and bag filters to prevent discharge of SPM but to comply with the regulations, it is necessary to supervise the everyday performance of such pollution control devices to ensure that "dust density" remains below the level specified by law/regulation.

DDM-*fc* is a new type of on-line pollution monitoring system that continuously detects and indicates the dust density in exhaust gas discharged from industrial chimney or stack. It has been developed using advanced dust collection technologies that support the solution of SPM (Suspended Particular matter) problems. DDM-*fc* adopts reliable light scattering method for continuous detection with high sensitivity and without any bothersome adjustments. Remote fiber optic detector and built-in air purging facility ensure long time maintenance free operation.



APPLICATIONS

DDM-*fc* is an indispensable system for factories that have large furnaces/kilns. In case dust density is higher than preset level, it provides an immediate alarm to the operator for corrective action like replacement of filter bag thus preventing major pollution accident. Data can be saved as evidence and later analyzed for more efficient preventive measures in the future. Even it can be used near boundary of a factory for surveillance of dust escaping towards nearby residential areas. As the system is a synchronous system its sensitivity is not affected by sun light.

MEASURING PRINCIPLE

The main body has a light source, CPU and light receiving circuit. Light generated by light source is sent to transmitter of detector through optical fiber cable. Light emitted by the transmitter into the duct is reflected by the dust particles and scattered light is received by receiver of detector and sent to light receiving circuit of main body through optical fiber cable. Microprocessor processes this receiving signal and gives 4~20mA output corresponding to dust density in duct. RS-232C output is also available. Purging air from purging air control box is supplied to detector unit through specially designed peculiar air purge system to ensure that the silicon lens is always clean. Zero adjustment is automatic and span adjustment can be done using calibrator supplied along with system even while plant is running. High level alarm, Lamp failure alarm, Motor failure alarm, Purge Air failure alarm and low voltage alarm are the standard feature.





DETECTOR

Size: 260 x 125 mm
 Weight Approx.: 5kg
 Material Stainless steel (SUS303)
 Cartridge heater is equipped in order to prevent the detector's silica glass becomes cloudy with dew condensation by the moisture in purge air.
 Surface treatment: heat resistance paint
 Structure: Peculiar airpurge structure by silica glass.
 Attachment 200 x 65 mm rectangle hole is opened and Flange is welded. Detector can be fixed to flange using 6 bolts.
 The packing between flange-detector is standard high temperature sheet packing. Connection of purge air is Female screw of PT 1/4 (cheese union)



PURGING AIR CONTROL BOX

Structure Purge air exhausted from dry pump is breathed out from detector head.
 Air flow Approx. 100 l/min
 Alarm / failure output air flow stop alarm by pump failure
 Power supply AC220V±10% (50Hz), Capacity 1Kva
 Circumference temperature -10~+50 °C
 Size 530 x 504 x 322mm
 Weight Approx. 30kg
 Finish painting color Munsel 5Y7/1 G=40

CALIBRATION BOX

Size 30 x 30 x 130mm
 Structure It has the fixed amount of penetrations by small holed diaphragm and polarizing filter. Small holed diaphragm and polarizing filter are set up at the time of real operation.



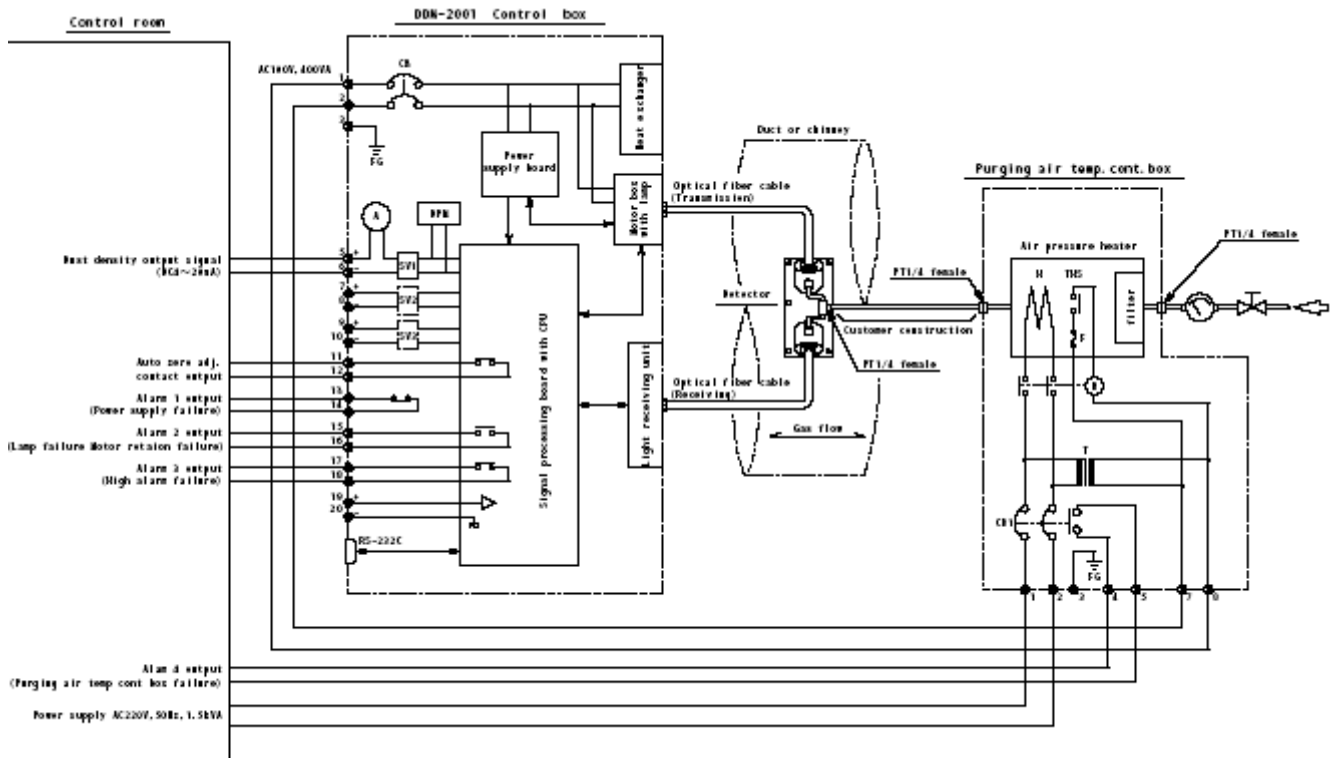
FIBER OPTIC CABLE

Diameter of bundle / Length 4 φ × 4m (standard)
 Structure With the flexible guard made from stainless steel with PVC covering. Covering heat resistance temperature 60°C
 Operating temperature (bundle part) Continuation use temperature 200°C (300°C of instants are good) However 350 °C continuation use is possible by connecting to the detector.
 Purge air cools optical fiber cables in the detector
 Bundle part materials :
 Transmitting Aluminum / stainless steel



SPECIFICATIONS: [MAIN BODY]

Structure: Wall mount outdoor installation type
 Principle: 90 degree back ward light scattering method
 Light source halogen light
 Measurement range: 0 – 500 mg/Nm³ relative density output (range is variable)
 External output: DC 4-20mA Isolated output (load resistance less than 750Ω) RS-232C I/F output (a port is prepared)
 Display: Digital panel meter of 0 - 100%
 Alarm / failure output: Power supply shutdown alarm, Failure of motor, Lamp, Internal power supply voltage, automatic zero adjustment
 Dry "a" contact output: contact capacity : AC / DC 200 V, 0.1A)
 Calibration ①Zero point adjustment: Automatic / manual change selection. The execution cycle at the time of automatic selection is 7days or 30days
 Span adjustment: Optical fiber cables are connected to calibration box. Span adjustment with manual operation.
 Integration time variable range: About 5 – 100 second
 Temperature stability: meter display ± 2% / 10 °C external output ± 2% / 10. Long time stability ±2% / 1 week
 Power supply AC220V±10% (50Hz), 4A
 Circumference temperature -10~50°C °C
 Outside size 500 x 670 x 270mm
 Weight Approx. 45kg
 Finish painting color Munsel 5Y7/1 G=40



FEW INSTALLATION PLACES



Chimney Bag Filter Exit



Blast furnace Exit



Stack Inlet



EP Exit Chimney

DUE TO CONTINUOUS PRODUCT DEVELOPMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

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