Fuji Electric

QAL1 CERTIFIED EMISSION DUST MONITOR

DATA SHEET

ZiDM5

Based on proven Inductive Electrification Technology, the ZiDM series has a detection limit of 0,01 mg/m³, while maintaining its globally recognized reliability and robustness.

Available features allow the ZiDM series to be used for a wide variety of applications such as stack, process and filter house monitoring. It can be installed into process applications like baghouse, cyclone, dryer or other dust collection systems to monitor particulate emissions as well as filter performance.

The ZiDM series is also often used for process control in applications where the dust levels need to follow designated limits.

The onboard relays of the ZiDM series can be used as a dust level Alert / Alarm signal. The mA output and the RS485 interface makes the instrument ideal for trend monitoring applications.

Very short response time is a typical characteristic of Fuji Electric dust monitors, enabling early detection of malfunctions in the dust removal process and prevention of expensive product loss to the environment.

FEATURES

- Simple one sided installation, just one small process coupling
- No alignements required, therefore no measurement accuracy issues due to poor alignment.
- Easily adaptable air-purge option
- Easy to commission
- Local display with status indication
- Not affected by vibrations
- Reliable and durable
- Low maintenace costs, no time consuming cleaning operations
- Flow velocity compensation 3 – 40 m/s
- Certified for official regulation monitoring
- No need for consumable spare parts
- Lowest certified range 0 - 7.5 mg/m³

ZiDM5 is approved for plants operating under the below regulations:

- EC Directive 2000/76 Waste incineration
- LCPD – Directive 2001/80/EC for large combustion plants
- EC Directive 2010/75 Industrial Emissions
- EC Directive 2015/2193 (Medium Combustion Plants Germany: 27th BImSchV, the 30th
- BImSchV or the 44th BImSchV
- ZiDM5 is compliant with EN 15267-1,2,3 and EN 14181, EN 13284-2:

Waste incineration	Power generation
Filtration plants	Cement
Pharmaceutical	Steel
Chemical	Wood

Inductive Electrification

ZiDM5 is designed for measuring Total Suspended Particles (TSP) in the airflow inside pipes and ducts and stacks.

When moving particles pass nearby or hit the probe, a signal is induced. Inductive Electrification Technology is based on the Triboelectric AC signal and it minimizes the influence of sensor contamination, temperature drift and velocity changes at a detection limit as low as 0.01 mg/m³.

QAL1

Conformity of ZiDM5 to EN 15267-3:2007

- Certification ranges:
  0 ... 7.5 mg/m³
  0 ... 15 mg/m³
  0 ... 100 mg/m³
- Flow rates in the range from 3- 40 m/s
- Can be networked via RS485 (Modbus RTU) interface compliant to VDI 4201

QAL2

Installation, commissioning, and calibration of ZiDM5 against gravimetric sampling

- One sided installation and no mechanical alignments or adjustment
- IP 66 protected, therefore no weather protection needed (-20 to 50 °C).
- Auto Setup function gives instant usable range settings
- Power supply can be 100- 230 VAC or 24 VDC
- Local- and remote setup possibilities via RS485

QAL3

The periodic control of the ZiDM5 during its ongoing operation

- Automatic Zero and Span check, requires no manual actions.

Maintenance

- Only cleaning of the probe to be performed
- No further adjustments necessary

AST

Annual Surveillance Test (AST)

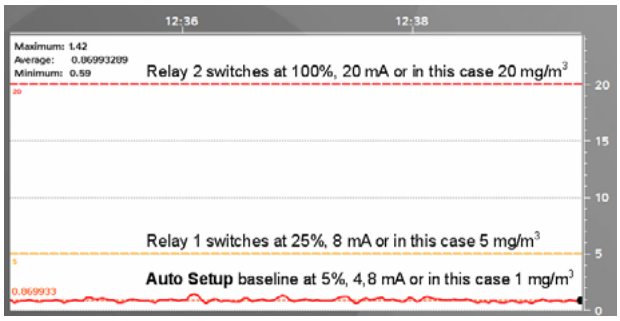
- Annual checking the variability and the validity of the calibration function

Unique Auto Setup Function

The Auto Setup function is a unique dust monitor feature which allows a simple, user friendly setup.

During the Auto Setup procedure, which is done in normal process conditions, the dust monitor will automatically adapt to the process conditions and set the measuring range and alarms accordingly.

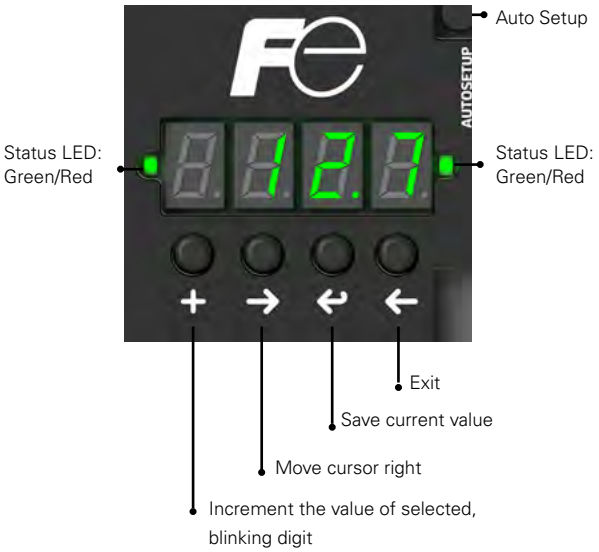
At normal conditions the instrument will show green light and the mA output is set to 5 % of range..



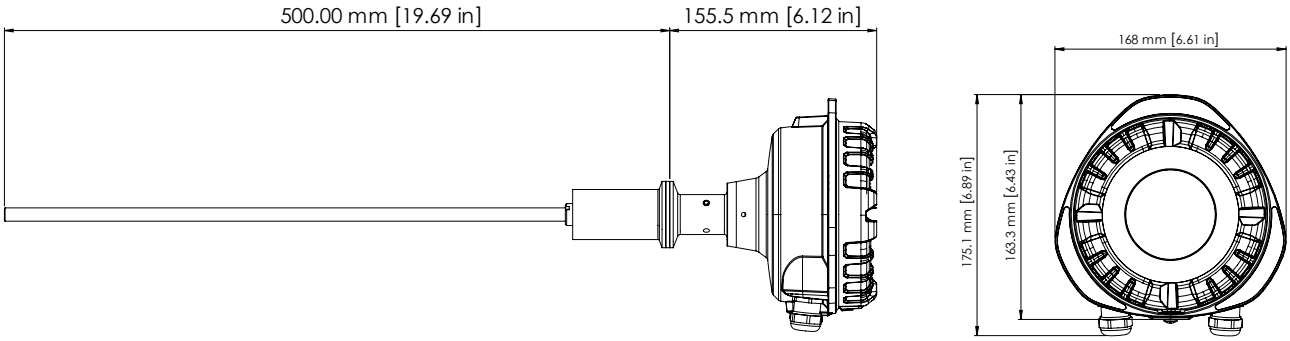
Local Display and User Interface

The S305 equipped with a local user interface for setup and adjusting the instrument. The operator can see the actual measurement values on the 4- digit display in mA, % or mg/m³.

With the 4-button interface the operator can navigate and change the most important operating parameters. Next to the display, is a button to start the Auto Setup procedure.



Drawing ZiDM5



Technical characteristics

ZiDM5 Dust Monitor Emissions QAL1 for CEMS	
Measured objects	Total Suspended Particles (TSP)
Measurement principle	Inductive Electrification
Measurement range	Detection limit 0,01 mg/m³
Certification ranges	0 ... 7.5 mg/m³, 0 ... 15 mg/m³, 0 ... 100 mg/m³
Ingress protection	IP66
Power supply requirements	24 V DC ±10 % 100 ... 240 V AC ±10 %, 50 / 60 Hz
Power consumption	Up to 10 W DC / AC
Output signals	2 × Independent SPDT dry contact relays, max. 30 V DC / 5 A or 240 V AC / 5 A, cos = 1 Isolated active 4 ... 20 mA output loop, max. loop resistance 250 Ω
Communication interface	• 2 × Serial communication RS-485 • USB • DustTool Software
Communication protocol	• Modbus RTU (with RS-485) Compliant with VDI 4201 • Proprietary network (with USB, RF and RS-485)
Enclosure	Aluminium
Wetted parts	• Probe: Stainless steel (316L) Coated probes optional • Insulation: Polyphenylene sulfide (Ryton R-4)
Poids	1.5 kg (3.3 lb)
Ambiante Temperature	-20 ... 50 °C
Ambiante Humidity	Max. 95 % relative humidity (non-condensing)
Température process	• Max. 300 °C (572 °F), optionally up to 700 °C (1292 °F) • Max. 250 °C (482 °F) with Teflon-coated probe
Pression	• Max. 600 kPa (87 psi) in temperatures up to 300 °C (572 °F) • Max. 300 kPa (43 psi) in temperatures from 300 °C (572 °F) to 700 °C (1292 °F) when high-temperature process connection is used
Vitesse d'écoulement	Min. 3 m/s (9.84 ft/s), max. tested 40 m/s (131.23 ft/s)

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