

# FSE8 Series Dust Monitoring Operation Directions

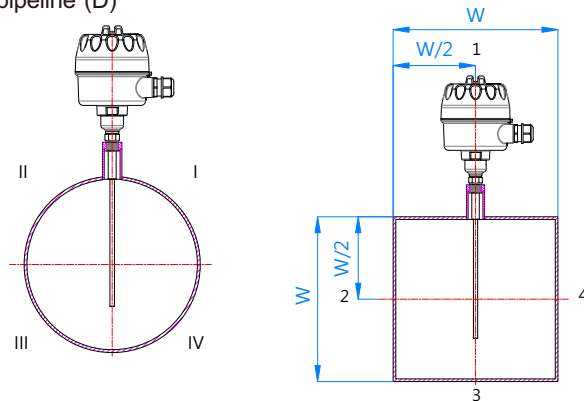
{ For detailed product description, please refer to the operation manual }

## Installation Requirements For Environmental

- If possible, please install the product in a location where the pressure inside the pipeline is below that in the surroundings. This will prevent against exposure of the gas inside the pipeline while the product is being dismantled during installation or maintenance.
- If the pressure inside the pipeline is higher than that in the surroundings, exposure of the gas inside the pipeline will be a risk while the product is being dismantled.
- With a high temperature inside the pipeline, please select a suitable type of product for use and pay attention to the risk of high temperature while the product is being installed.

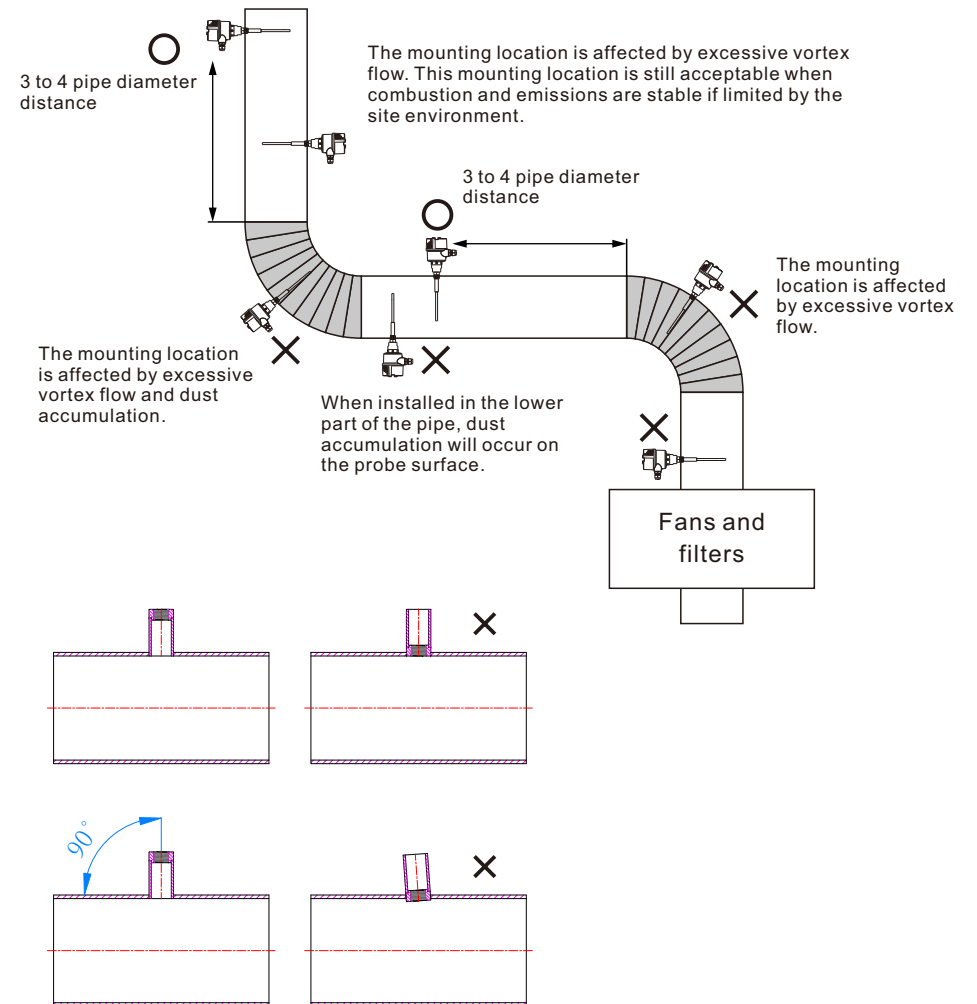
## Installation Requirements For Location

- In the case of a round pipeline, the dust monitor is installed anywhere between 9 o'clock and 3 o'clock clockwise, as is shown in Zone I and Zone II in the figure. In the case of a square pipeline, on the other hand, it is installed on both sides or in the center on the top of the pipeline (never beneath it), as is shown in 1, 2, and 4 in the figure.
- The product needs to be installed at a distance at least 3 times the pipeline diameter from the elbow (or reducer).
- The bottom of the vibrating rod and the inner wall of the pipeline needs to be greater than 30mm.
- Piping and short pipe splicing at the installation site require conductive metal pipes. The pipeline needs to be precisely grounded and free of electricity leakage.
- The length (L) of the metal vibrating rod of the dust monitor is between 1/3 and 2/3 of the diameter of the pipeline (D)



- The process splice, upon installation, needs to be vertical to the pipeline; no tilting is allowed and it is required to pay attention to the splicing orientation.
- Attention needs to be paid to the fact that no deformation or burrs are allowed and no iron chips may remain inside the splice and the pipeline when the process splice is installed onto the pipeline.

## Best Location

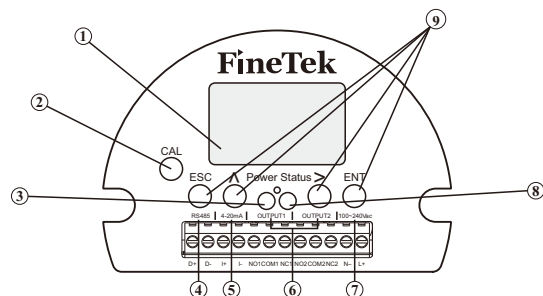


## Installation Requirements For Electrical Wiring

The diameter of the guide wire needs to be 0.32mm<sup>2</sup> or 22 AWG at the minimum and 3mm<sup>2</sup> or 12 AWG at the maximum.

The electrical wire used needs to be able to remain at 70°C over an extended period of time. Electrical wires with an isolation net can be selected. It is allowed to connect the isolation net where it is grounded inside the junction box.

## Introduction To The Motherboard



|   |                                   |   |                           |
|---|-----------------------------------|---|---------------------------|
| 1 | LCM Display                       | 6 | Function key              |
| 2 | Auto-correction key               | 7 | Status indicator          |
| 3 | Power indicator                   | 8 | Power-connecting terminal |
| 4 | RS-485 connecting terminal        | 9 | Relay connecting terminal |
| 5 | 4-20mA output connecting terminal |   |                           |

## Automatic Calibration

- During normal operations, the product will continuously monitor the dust density in airflows. During automatic calibration, the product will analyze current measurement signals and record the mean signal to be the measurement baseline.
- Automatic calibration allows setup of two alarm action points proportional to the baseline. Output 1 action point answers to Alarm-1 times and the default is baseline x 5; the post-calibration Relay 1 threshold is 25%. Output 2 action point answers to Alarm-2 times and the default is baseline x 20; the post-calibration Relay 2 threshold is 100%. When the dust density exceeds the set dust threshold, it triggers the alarm.
- Automatic calibration occurs under normal operating conditions once the product is installed and while equipment monitoring is ongoing.
  - To perform automatic calibration, press and hold the CAL key for 5 seconds.
  - During automatic calibration, the calibration status appears on the LCM and the status indicator blinks green.
  - Please put on the junction box top within 30 seconds to prevent calibration from being affected by the surroundings.
  - The status indicator turns green upon successful calibration and it can be used normally.
  - The status indicator blinks red upon unsuccessful calibration and the display will show "Calibration Failed;" it is required to press any key to restore the product. The product settings will return to the pre-calibration ones automatically.
  - Upon unsuccessful calibration, please check and confirm if it has been installed correctly or if the Alarm-2 times is too great or if the precipitation equipment in front of the pipeline is obsolete or dust collection has failed. The vibrating rod is on contact with the lining of the pipeline to result in short circuit, for example. Perform automatic calibration again once troubleshooting is done.

## Analog Output Current Status

| NO | Product Status              | Action criteria  | Output                             |                                    |
|----|-----------------------------|--|------------------------------------|------------------------------------|
|    |                             |  | Output 1                           | Output 2                           |
| 1  | Normal Operations           | Measurement results < Relay 1 threshold<br>Measurement results < Relay 2 threshold   | COM1-NO1: closed<br>COM1-NC1: open | COM1-NO1: closed<br>COM1-NC1: open |
| 2  | Alert (alarm-1)             | Measurement results ≥ Relay 1 threshold and lasting longer than the alarm delay time<br>Measurement results < Relay 2 threshold  | COM1-NO1: open<br>COM1-NC1: closed | COM2-NO2: closed<br>COM2-NC2: open |
| 3  | Alert (alarm-2)             | Measurement results ≥ Relay 1 threshold and lasting longer than the alarm delay time<br>Measurement results ≥ Relay 2 threshold and lasting longer than the alarm delay time | COM1-NO1: open<br>COM1-NC1: closed | COM2-NO2: open<br>COM2-NC2: closed |
| 4  | Automatic Calibration (CAL) | Blinking   | COM1-NO1: closed<br>COM1-NC1: open | COM2-NO2: open<br>COM2-NC2: closed |
| 5  | Abnormal                    | OFF  | COM1-NO1: open<br>COM1-NC1: closed | COM2-NO2: open<br>COM2-NC2: closed |

## Maintenance

It is advised to clean the sensor end of the vibrating rod with a damp cloth once every 3 months to clean up dust that has built up on the rod.

## Simple Troubleshooting

| Product Status                 | Possible Cause  | Solution  |
|--------------------------------|---|---|
| Nothing appears                | No power supply for the equipment                       | Check power wiring  |
|                                | The connector is not plugged                            | Please confirm if the terminal block is properly plugged  |
|                                | Power falls short of product specification requirements | Confirm that power is supplied reflective of product specifications; if wiring is too long, pressure drop needs to be taken into consideration. |
| Abnormal LED or screen display | Screen contrast is set up incorrectly                   | Please follow the operating procedure or re-set the contrast through the modbus.  |
|                                | Abnormal LCM  | Please contact the local sales representative.  |
|                                | Abnormal product  |   |
| Abnormal output                | Incorrect settings                                      | Please test output in the Diagnostics mode first. When it is normal, perform calibration again.   |
|                                | Abnormal product  | Please contact the local sales representative.  |

※If the problems not listed above or unsolvable · Please contact the local sales representative.



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