VERIS PMDP Duct Mount Particulate Matter Sensor Installation Guide

Installation Guide
Humidity
Duct Mount Particulate
Matter Sensor

Contents

PMDP Duct Mount Particulate Matter Sensor

PMDP

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⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to conform power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

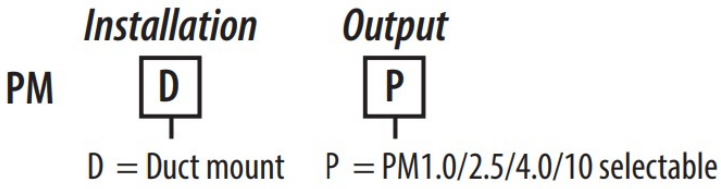
Failure to follow these instructions can result in death, serious injury or equipment damage.
This product is intended for use in HVAC and building environmental control applications.
It is not intended for direct medical monitoring of patients.
Read and understand these instructions before installing this product.
The installer is responsible for all applicable codes.
If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired. No responsibility is assumed by the manufacturer forany consequences arising out of the use of this material.

Product Overview

PMDP Particulate Matter (PM) Sensors represent a technological breakthrough in optical PM sensors. This laser-scatter type sensor detects and counts particles using light scattering principles and features innovative contamination resistance technology to perform highly accurate and reliable PM measurements. The PMDP sensor is used for duct mount applications.
Over a ten-year lifetime, these sensors provide superior precision measurement of numerous PM types and

higherresolution particle size binning, allowing for the detection of many types of environmental dust and other particles.
The PMDP detection concentration range is 0 to 1,000 µg/m³ and is intended for duct or outdoor mounting.
This versatile sensor offers selectable PM measurement options of PM1.0, PM2.5, PM4.0 and PM10.

Product Identification

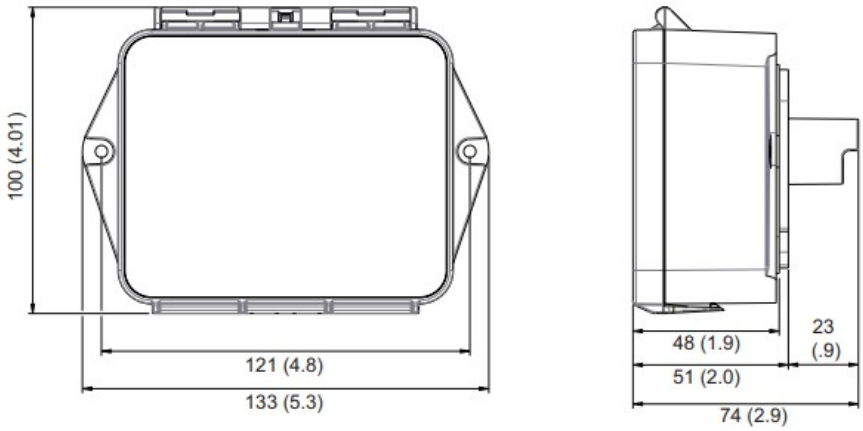


Specifications

OPERATING / STORAGE ENVIRONMENT	
Operating Temp. Range*	-10 to 60 °C (14 to 140 °F)
Operating Humidity Range*	0 to 95% RH (non-condensing)
Storage Temp. Range*	-40 to 60 °C (-40 to 140 °F)
Storage Humidity Range*	0 to 95% RH (non-condensing)
Power Supply	3-wire volt mode: 20 to 30 Vdc, 24 Vac, 50 to 60 Hz
Output	Selectable 4 to 20 mA, 0 to 5 Vdc, 0 to 10 Vdc
Power Consumption	3.7 VA
Housing Material	Polycarbonate; flammability rating UL 94 V0
Mouting Location	For indoor use only. Not suitable for wet locations.
IP Rating	IP65
Protection Class	Class III
PM SENSOR	
Sensor Type	Laser-scatter
Particulate Size	PM1.0, PM2.5, PM4.0, PM10
Resolution	± 1 µg/m³
Mass Concentration Output R ange	0 to 1000 µg/m³
Accuracy	PM1.0 and PM2.5: 0 to 100 µg/m³ +/-[5µg/m³+5% m.v.], 100 to 1000 ug/m³ +/-[10% m.v.] PM4.0 and PM10:** 0 to 100 µg/m³ +/-[25µg/m³], 100 to 1,000 µg/m³ +/-[25% m.v.] (sensor-to-senso r deviation)
WIRING TERMINALS	
Terminal Blocks	Screwless terminal block with spring actuator, 16-24 AWG
WARRANTY	
Limited Warranty	5 years
COMPLIANCE INFORMATION	
Agency Approvals	UL 916, European conformance CE: EN61000-6-2, EN61000-6-3, EN61000 Se ries – industrial immunity, EN 61326-1 FCC Part 15 Class A REACH, RoHS, RoHS 2 (China), ICES-003 (Canada), UKCA (UK)

*Sensor-to-sensor variation.
**PM4.0 and PM10 output values are calculated based on the distribution profile of all measured particles.

Dimensions mm (in.)



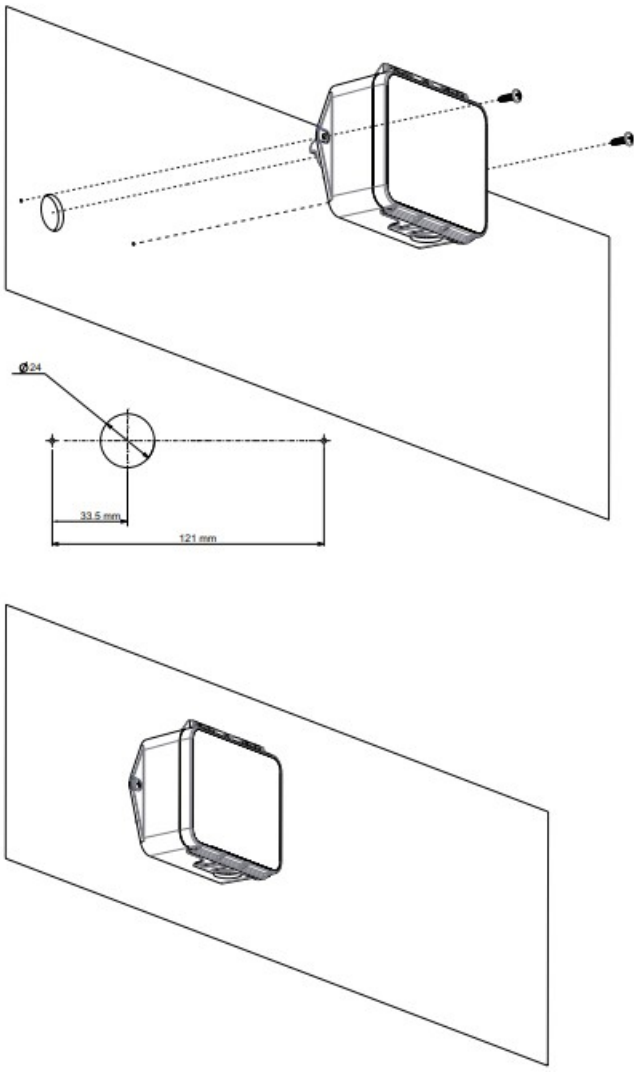
Installation

NOTICE
PRODUCT DAMAGE DUE TO ELECTRO-STATIC DISCHARGE
Circuit boards and components can be damaged by static electricity or electro-static discharge (ESD). Observe the following electro-static precautions when handling this product and cables and components connected to the product.

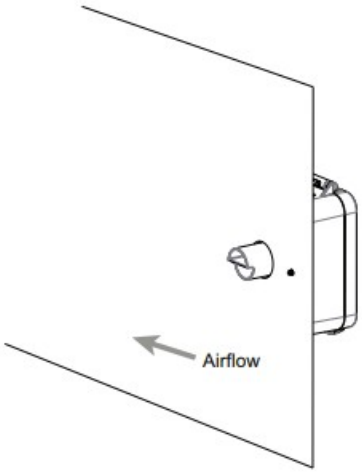
- Keep static-producing material such as plastic, upholstery, carpeting, etc. out of the immediate work area
- Store the product in ESD-protective packaging when it is not installed in the panel
- When handling the product or a conductive cable/ESD-sensitive component connected to the product, wear a conductive wrist strap connected to ground through a minimum of 1 MΩ resistance
- Do not touch exposed conductors and component leads with skin or clothing

Failure to follow these instructions can result in equipment damage.

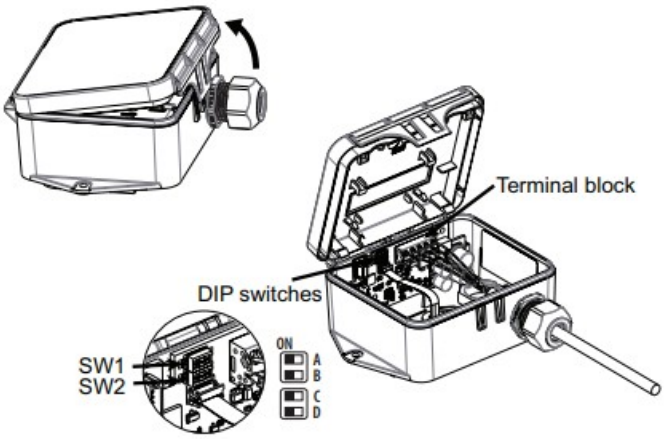
1. Prepare the duct for installation by drilling holes to accommodate the probe tube. Ensure the gasket on the back is depressed to prevent leakage between the product and the duct. Do not over-tighten the screws.



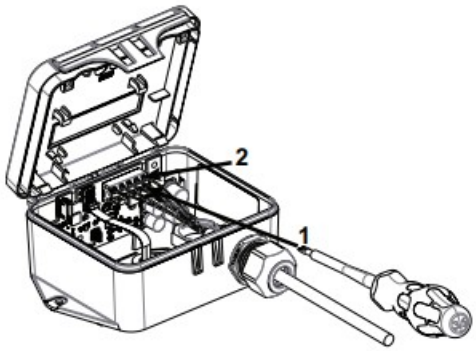
2. Ensure the probes are installed on the wall with no obstruction to airflow around the probe.



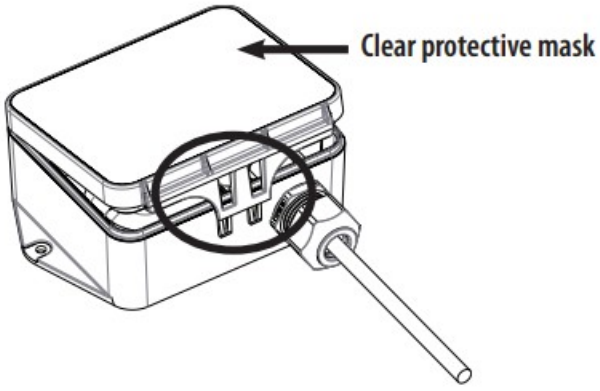
3. Release the latch on the lid to access the DIP switches and terminal block.



4. Wire the connections per the diagram in the Wiring section below. This device features spring terminals for screwless termination. Open the terminal point by inserting a screwdriver, then insert the wire above. Release the screwdriver to hold the wire in place. Details on wiring and configuration are contained in the next sections of this document.



5. Secure the latch-on cover in the closed position and remove the clear protective mask on the front label of the device.

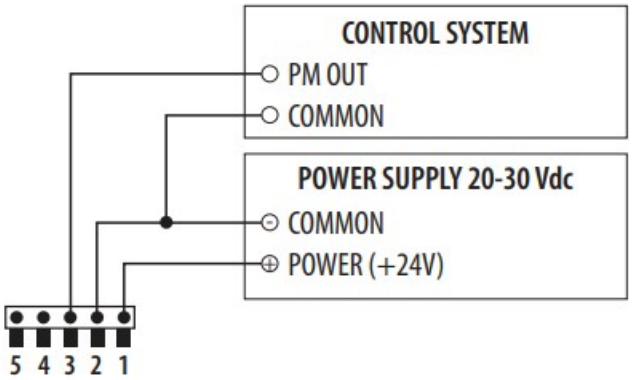


Wiring

NOTICE
INACCURATE READINGS

- Do not run wiring in the same conduit as AC power wiring. Close proximity to AC power may inuence accuracy.

Failure to follow these instructions can result in reduced accuracy.
Wiring Diagram



Configuration

Set the DIP switches.

White squares indicate switch position

Switch	Function	Description
A	Output mode	ON – 4-20mA output mode enabled OFF – Voltage output mode enabled
B	Voltage output	ON – 0-5V output range enabled OFF 0-10V output range enabled
C	PM selection	00 – PM2.5 (default), 01 – PM1.0, 10 – PM4.0, 11 – PM10
D	PM selection	

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Documents / Resources

	**VERIS PMDP Duct Mount Particulate Matter Sensor** [pdf] Installation Guide PMDP Duct Mount Particulate Matter Sensor, PMDP, Duct Mount Particulate Matter Sensor, Particulate Matter Sensor, Matter Sensor, Sensor

References

- **User Manual**