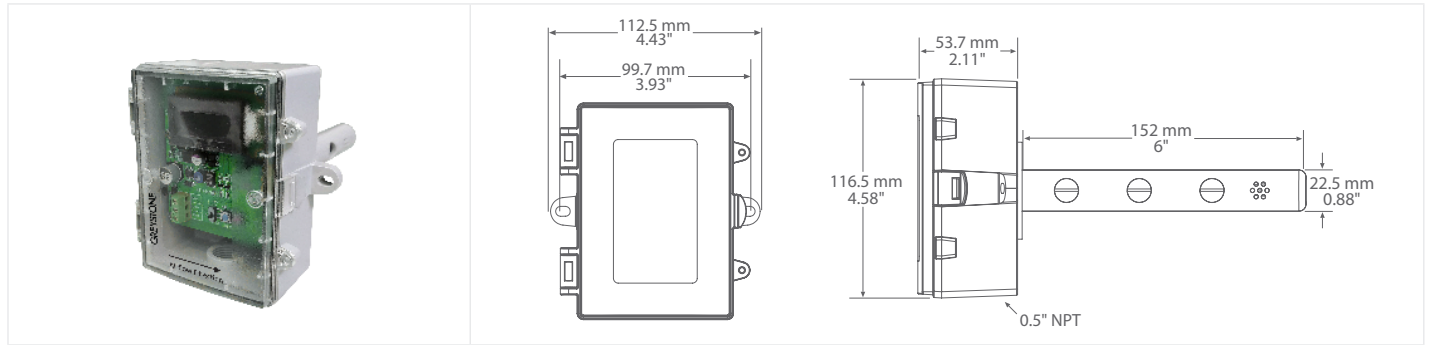




## DUCT PARTICULATE MATTER SENSOR



### PMDT SERIES

## PRODUCT DESCRIPTION

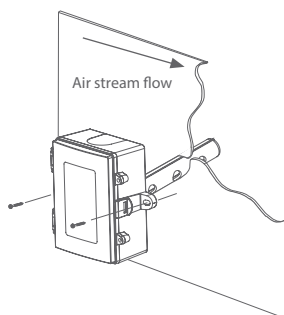
The PMDT Duct Particulate Matter Sensor uses an optical sensor based on laser scattering principles and features innovative contamination resistance technology to perform highly accurate and reliable PM measurements. The replaceable sensor measures particles of PM1.0, PM2.5, PM4.0, or PM10, with a continuous operation lifetime of more than 8 years. The sensor will provide long-term reliability and high resolution particle size binning for the detection of environmental dust and other particles. A hinged and gasketed Polycarbonate enclosure is included for ease of installation.

## TYPICAL INSTALLATION

**For complete installation and wiring details, please refer to the product installation instructions.**

The duct type sensor installs on the outside of a return air duct with the sampling tube inserted into the duct. Mount the sensor in an easily accessible location in a straight section of duct at least five feet from corners and other items that may cause disturbances in the air flow. Avoid areas with vibrations or rapid temperature changes. The duct sensor must be mounted in proper direction of air flow.

The enclosure provides mounting tabs for ease of installation.



## SPECIFICATIONS

|                                  |   |
|----------------------------------|---|
| <b>SENSOR</b>                    | Laser scatter method (field replaceable)  |
| <b>PARTICULATE SIZE</b>          | PM1.0, PM2.5, PM4.0, or PM10 (selectable)   |
| <b>MASS CONCENTRATION RANGE</b>  | 0 - 1000 ug/m <sup>3</sup>  |
| <b>RESOLUTION</b>                | 1 ug/m <sup>3</sup>   |
| <b>ACCURACY</b>                  | ±10 ug/m <sup>3</sup> (0 - 100 ug/m <sup>3</sup> ), ±10% (100 - 1000 ug/m <sup>3</sup> )  |
| <b>RESPONSE TIME</b>             | 1 second  |
| <b>SENSOR LIFETIME</b>           | >8 years  |
| <b>ANALOG MODEL</b>              | <b>Consumption:</b> 75 mA max @ 24 Vdc, 100 mA max @ 24 Vac<br><b>Output Signals:</b> 4-20 mA (sourcing) or 0-5 Vdc / 0-10 Vdc (selectable)<br><b>Output Drive Capability:</b> Current - 550Ω max<br>Voltage - 5,000Ω min<br><b>Output Scale:</b> 0 to 1000 ug/m <sup>3</sup> (menu selectable) |
| <b>BACnet® MODEL</b>             | <b>Consumption:</b> 50 mA max @ 24 Vdc, 80 mA max @ 24 Vac<br><b>Interface:</b> MS/TP, 2 wire RS-485<br><b>Baud Rate:</b> 9600, 19200, 38400, 57600, 76800 or 115200 (menu selectable)<br><b>Address Range:</b> 0 - 127 (menu selectable)   |
| <b>MODBUS MODEL</b>              | <b>Consumption:</b> 50 mA max @ 24 Vdc, 80 mA max @ 24 Vac<br><b>Interface:</b> MS/TP, 2 wire RS-485, RTU<br><b>Baud Rate:</b> 9600, 19200, 38400, 57600, 76800 or 115200 (menu selectable)<br><b>Address Range:</b> 1-255 (menu selectable)  |
| <b>TRI-COLOR LED</b>             | <b>Good:</b> Green (0 to 50 ug/m <sup>3</sup> )<br><b>Moderate:</b> Yellow (51 to 150 ug/m <sup>3</sup> )<br><b>Poor:</b> Red (151 to 1000 ug/m <sup>3</sup> )  |
| <b>PM ALARM RELAY (OPTIONAL)</b> | <b>Contact Ratings:</b> Form C (NO + NC), 2A @ 140 Vac, 2A @ 30 Vac<br><b>Setpoint + Hysteresis:</b> Programmable via menu<br><b>Relay Time Delay:</b> Programmable via manu  |
| <b>LCD SIZE</b>                  | 35mm W x 15mm H (1.4" x 0.6")   |
| <b>LCD BACKLIGHT</b>             | Enable or disable via menu  |
| <b>DISPLAY VALUE</b>             | <b>Mass Concentration:</b> 0 - 1000 ug/m <sup>3</sup><br><b>Air Quality Index:</b> 0 - 500 AQI Good/Moderate/Poor (menu selectable)   |
| <b>POWER SUPPLY</b>              | 24 Vac/dc ±20% (non-isolated half-wave rectified)   |
| <b>PROTECTION CIRCUITRY</b>      | Reverse voltage protected, over-voltage protected   |
| <b>OPERATING CONDITIONS</b>      | -10 to 60°C (14 to 140°F), 20 to 80 %RH non-condensing  |
| <b>STORAGE CONDITIONS</b>        | -40 to 70°C (-40 to 158°F)  |
| <b>ENCLOSURE</b>                 | <b>Material:</b> Polycarbonate, Grey, UL95-V0, IP65, (NEMA 4X)<br><b>Dimensions:</b> 116mm W x 100mm H x 54mm D (4.6" x 3.9" x 2.1")<br><b>Probe:</b> 22.5mm D x 152mm L (0.88" x 6")   |
| <b>WIRING</b>                    | Screw terminal block (14 to 22 AWG)   |
| <b>COUNTRY OF ORIGIN</b>         | Canada  |



## MCERTS CERTIFICATION

The PMDT series incorporates the SPS30 PM sensor for accurate and reliable PM sensing. The SPS30 particulate matter sensor has achieved MCERTS certification, which proves the performance of the PM sensor. In addition, the certification confirms that the SPS30 can be easily integrated into applications that comply with the European Air Quality Standard DIN EN 15267.

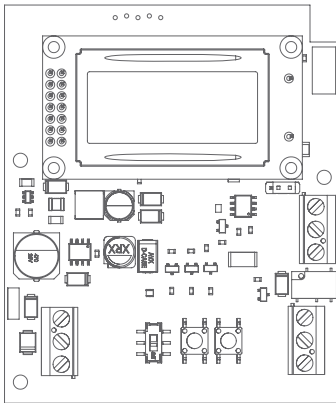
The MCERTS certification scheme was established by the UK's Environment Agency and is built around international and European standards to ensure high-quality environmental data monitoring. The SPS30 underwent laboratory and field tests and has been proven to fulfill the latest MCERTS and associated DIN EN 15267 European air quality standards. Compliance with the above-mentioned standards requires low intra-model variability ( $\leq 5 \mu\text{g}/\text{m}^3$ ), making the SPS30 the first choice for integration into applications requiring high precision. The certification is issued by the Sira Certification Service, one of the leading notified bodies in Europe. They are also accredited according to ISO/IEC 17065 UKAS and are part of the Canadian Standards Association (CSA Group).

Learn more about the MCERTS certification on the website of CSA Group or have a look at the certificate as linked below.

Website: <https://www.csagroupuk.org/services/mcerts/mcerts-product-certification/mcerts-certified-products/mcerts-certified-products-indicative-ambient-particulate-monitors/>

Certificate: [https://www.sensirion.com/fileadmin/user\\_upload/customers/sensirion/Dokumente/9.6\\_Partikulate\\_Matter/Datasheets/Sensirion\\_PM\\_Sensors\\_SPS30\\_MCERTS-Certificate\\_2020.pdf](https://www.sensirion.com/fileadmin/user_upload/customers/sensirion/Dokumente/9.6_Partikulate_Matter/Datasheets/Sensirion_PM_Sensors_SPS30_MCERTS-Certificate_2020.pdf)

## WIRING INFORMATION



| TERMINAL                                    | FUNCTION                      |
|---|-------------------------------|
| PWR   | + 24 Vdc/24 Vac (HOT)         |
| COM   | Common                        |
| OUT   | Analog Output                 |
| NO  | Relay Normally Open Contact   |
| R. COM                                      | Relay Common                  |
| NC  | Relay Normally Closed Contact |
| <b>If BACnet® or Modbus Output Selected</b> |                               |
| B(+)  | Network Output                |
| A(-)  | Network Output                |
| SHLD  | Network Output                |

## ORDERING

| PRODUCT   | PMDT                             | Duct Particulate Matter Sensor   |
|-----------|----------------------------------|--|
| ENCLOSURE | <b>B</b><br><b>F</b>             | Polycarbonate with hinged and gasketed cover<br>Same as B, with thread adapter (1/2" NPT to M16) and cable gland fitting |
| RELAY     | <b>X</b><br><b>R</b>             | None<br>Alarm Relay  |
| OUTPUT    | <b>X</b><br><b>B</b><br><b>M</b> | Analog Output Only<br>BACnet® and Analog Outputs<br>Modbus and Analog Outputs  |

NOTE: Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

| ACCESSORIES | PMFRSM | Replaceable sensor module and wire harness |
|-------------|--------|--|
|             |        |  |

## PART NUMBER

| PMDT |
|------|
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