

## QSA Series Fine Dust Sensors with Selectable Measuring Range

### Product Numbers

Model	Orderable No.	Description
QSA2700	S55720-S457	Fine Dust Sensor
QSA2700D	S55720-S458	Fine Dust Sensor with Display
AQS2700	S55720-S459	Replacement Sensing Element

### Features

- Dual 0 to 10V outputs
  - U1: PM2.5 particulate
  - U2: PM10 particulate
- Modbus RTU network capable
- 3-color LED operating status indicator (QSA2700)
- QSA2700D
  - 2.4-inch color LCD display for PM2.5 values and AQI indication.
  - Four selectable languages: English, Chinese, German, and French.

### Typical Specifications

The fine dust/particulate matter sensor shall be a wall-mounted device capable of measuring and transmitting measured concentrations of particulates falling within the PM2.5 and PM10 ranges. A separate 0 to 10V output shall be provided for each range, or sensor shall be capable of transmitting data to a network using a Modbus RTU. The measuring range shall be 0 to 500 micrograms per cubic meter. Sensors shall have a maximum unit-to-unit variability of  $\pm 15 \mu\text{g}/\text{m}^3$  and  $\pm 15\%$  of reading @ 77°F (25°C) and 50% rh.

If a display is required, the display shall be full color LCD capable of displaying PM2.5 concentration with  $1 \mu\text{g}/\text{m}^3$  resolution as well as general air quality index based on selectable Class I, Class II and Class III categories. The unit shall be equipped with a proximity sensor that allows the display to enter sleep mode if no movement is detected.

Measuring range shall have the following field selectable ranges:

- 0 to 500  $\mu\text{g}/\text{m}^3$
- 0 to 300  $\mu\text{g}/\text{m}^3$
- 0 to 100  $\mu\text{g}/\text{m}^3$
- 0 to 50  $\mu\text{g}/\text{m}^3$

For additional information on particulate matter, visit <https://www.epa.gov/pm-pollution>.

### Description

QSA Series fine dust sensors are designed to measure and transmit indoor concentrations of particulate matter within the PM2.5 and PM10 classifications.

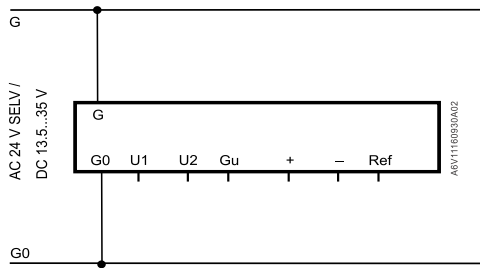


### Technical Data

Operating voltage	24 Vac $\pm 20\%$ /13.5 to 35 Vdc
Frequency	60 Hz @ 24 Vac
Measuring range	0 to 500 $\mu\text{g}/\text{m}^3$
Unit-to-unit variability	Maximum $\pm 15 \mu\text{g}/\text{m}^3$ and $\pm 15\%$ of reading @ 77°F (25°C) and 50% rh
Analog output Signal	0 to 10 Vdc, linear, 0 to 500 $\mu\text{g}/\text{m}^3$ selectable range* <ul style="list-style-type: none"> <li>• 0 to 500 <math>\mu\text{g}/\text{m}^3</math> (default)</li> <li>• 0 to 300 <math>\mu\text{g}/\text{m}^3</math></li> <li>• 0 to 100 <math>\mu\text{g}/\text{m}^3</math></li> <li>• 0 to 50 <math>\mu\text{g}/\text{m}^3</math></li> </ul>
Communication protocol	RS485 ModBus RTU
Wiring length (max)	1,970 ft (600 m)
Enclosure	NEMA 1 (IP30)
Ambient conditions	
Operation temp.	32°F to 122°F (0°C to 50°C)
Humidity	5 to 95% rh (non-condensing)
Transportation temp.	-4°F to 158°F (-20°C to 70°C)
Humidity	5 to 95% rh (non-condensing)
Color	White
Weight	5 oz. (140 g)
Display (QSA2700D)	
Screen	Color
Sleep mode	Display enters sleep mode when no movement is detected within three feet of the sensor front.
Resolution	1 $\mu\text{g}/\text{m}^3$ increments
Display	PM2.5 value (if value > 500 $\mu\text{g}/\text{m}^3$ , then display 500+ $\mu\text{g}/\text{m}^3$ ) Air Quality Index corresponding to measured PM2.5 value.
Language	English, Chinese (simplified), German, and French.

\*QSA2700D: Select through user interface  
QSA2700: Select through Modbus register 216

**Wiring Diagrams**



**Figure 1.**

**G, G0:** Operating voltage 24 Vac (SELV)/ 13.5 to 35 Vdc

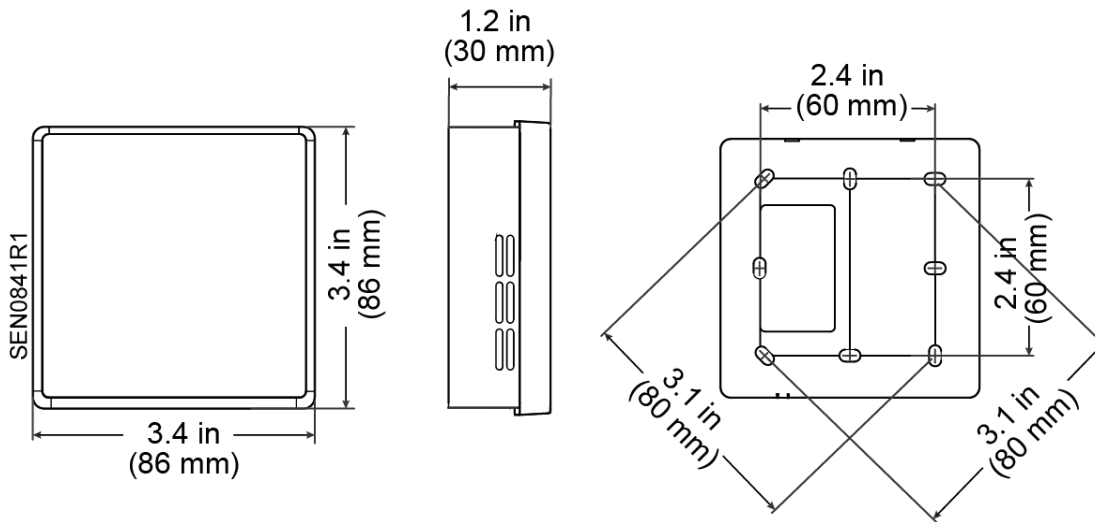
**U1:** Signal output 0 to 10 Vdc for PM2.5  
 0 to 500 µg/m3

**U2:** Signal output 0 to 10 Vdc for PM10  
 0 to 500 µg/m3

**Gu:** Signal ground for U1 and U2

**+, -, Ref:** Modbus signal

**Dimensions**



**Figure 2. QSA Series Sensors Dimensions in Inches (Millimeters).**

**NOTE:** Use ARG70 Adapter Plate (sold separately) to mount QSA directly on a 2" x 4" box.

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