QSA Series Fine Dust Sensors with Selectable Measuring Range

**Product Numbers**

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**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 ±15 μg/m³ and ±15% of reading at 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 μg/m³ 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 μg/m³
- 0 to 300 μg/m³
- 0 to 100 μg/m³
- 0 to 50 μg/m³

For additional information on particulate matter, visit [https://www.epa.gov/pm-pollution](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 ± 20%/13.5 to 35 Vdc
- Frequency: 60 Hz @ 24 Vac
- Measuring range: 0 to 500 μg/m³
- Unit-to-unit variability: Maximum ±15 μg/m³ and ±15% of reading at 77°F (25°C) and 50% rh
- Analog output Signal: 0 to 10 Vdc, linear. 0 to 500 μg/m³ selectable range*
  - 0 to 500 μg/m³ (default)
  - 0 to 300 μg/m³
  - 0 to 100 μg/m³
  - 0 to 50 μg/m³
- 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 μg/m³ increments
  - Display
    - PM2.5 value (if value > 500 μg/m³ then display 500+ μg/m³)
    - 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

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” × 4” box.