

AIR QUALITY MONITORING / DATA SHEET

SS201-01

Air Quality Sensor

Industrial particulate matter transmitter for PM2.5, PM10 and PM1.0 monitoring in environmental and industrial applications.

Overview

- SS201-01 uses laser scattering measurement and dual-frequency data acquisition to identify particle counts and calculate mass concentration.
- It supports RS485 Modbus-RTU output and traditional analog outputs including 4-20 mA, 0-10 V and 0-5 V.
- Suitable for outdoor weather stations, dust monitoring systems, libraries, archives and industrial plants requiring PM2.5 or PM10 monitoring.



Range 0-1000 ug/m3	Resolution 1 ug/m3	Outputs RS485 / Analog	Response ≤ 90 s
Key Advantages • PM2.5, PM10 and PM1.0 simultaneous output in RS485 version. • Dual-frequency data acquisition and automatic calibration; consistency up to ±10%. • Advanced laser anti-attenuation technology for long-term stability. • Supports wall-mounted enclosure and louver-box configuration.		Application Scenarios • Outdoor meteorological stations and air quality monitoring systems. • Dust monitoring and construction-site environmental supervision. • Libraries, archives and indoor storage environments. • Industrial plants, workshops and equipment-production lines.	

MEASUREMENT PRINCIPLE

Technical Principle

The sensor uses laser scattering to measure particulate concentration. Airborne particles pass through the optical path and scatter laser light; the signal is processed by dual-frequency acquisition and internal algorithms to calculate particle-number information and equivalent mass concentration for output to monitoring systems.

SYSTEM DATA

Technical Specifications

Item	Specification
Measuring range	PM2.5 / PM10 / PM1.0: 0-1000 ug/m ³
Resolution	PM2.5 / PM10 / PM1.0: 1 ug/m ³

RS485 Version

Item	Specification
Power supply	10-30 V DC
Power consumption	0.5 W
Communication interface	RS485 Modbus protocol
Baud rate	2400 / 4800 (default) / 9600; 8 data bits; no parity; 1 stop bit; default Modbus address 1
Parameter setting	Configured through the RS485 interface using the provided configuration software
Circuit operating environment	-20°C to +60°C; 0%RH to 95%RH, non-condensing
Resolution	PM2.5 / PM10 / PM1.0: 1 ug/m ³ ; temperature: 0.1°C; humidity: 0.1%RH
Particle-counting efficiency	50% @ 0.3 um; 98% @ >=0.5 um
PM2.5 accuracy	±3%FS @ 100 ug/m ³ , 25°C, 50%RH
Temperature / humidity accuracy	A accuracy: ±2%RH and ±0.4°C; B accuracy (default): ±3%RH and ±0.5°C
Measurement ranges	Temperature: -40°C to +80°C; humidity: 0%RH to 100%RH
Response and warm-up	Response speed <=90 s; warm-up time <=2 min
Installation method	Wall-mounted

Analog Output Version

Item	Specification
Power supply	10-30 V DC
Maximum power	Current output: 1.2 W; voltage output: 1.2 W
Measurement range	PM2.5: 0-1000 ug/m ³ (default); PM10: 0-1000 ug/m ³ (default)

Resolution	1 ug/m ³
Accuracy	PM2.5: ±3%FS @ 100 ug/m ³ , 25°C, 50%RH
Operating environment	-20°C to +60°C; 0%RH to 95%RH, non-condensing
Response and warm-up	Response speed ≤90 s; warm-up time ≤2 min
Output signal	4-20 mA current output; 0-5 V / 0-10 V voltage output
Load capability	Voltage output resistance ≤250 Ω ; current output ≤600 Ω

WiFi Version

Item	Specification
Power consumption	0.6 W @ 24 V DC
Power supply	10-30 V DC
Measuring range	0-1000 ug/m ³
PM2.5 accuracy	±3%FS @ 100 ug/m ³ , 25°C, 50%RH
Warm-up / response	System warm-up time: 2 min; response time ≤90 s
Resolution	1 ug/m ³
Working environment	-20°C to +60°C; 0%RH to 95%RH, non-condensing
Data timing	Upload interval: default 10 s/time, adjustable 1-65535 s; acquisition interval: 2 s/time
WiFi parameters	802.11b/g/n
Security	WEP / WPA-PSK / WPA2-PSK; encryption: WEP / TKIP / AES

MECHANICAL DATA

Dimensions & Installation

Item	Mechanical Data
Wall-mounted enclosure	110 mm × 85 mm × 44 mm
Louver-box configuration	Ø138 mm; upper shield height 78 mm; lower connection height 67 mm
Installation method	Wall-mounted enclosure or louver-box installation for indoor/outdoor monitoring

Output & Integration Options

RS485 Modbus	4-20 mA	0-5 V	0-10 V	WiFi / LoRa
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The product family supports digital and analog integration for different acquisition systems. The PMWS configuration supports air quality with air temperature and humidity, while analog options are listed for the particulate-matter output configuration.

PRODUCT SELECTION

Ordering Information

Code	Description
SS	SpeSense company code
201-01	Air quality sensor
PMWS-	Air quality + air temperature and humidity; analog output selection is not supported
N01-	RS485 Modbus protocol output
I20-	4-20 mA current output
V05-	0-5 V voltage output
V10-	0-10 V voltage output
WIFI-	WiFi output
LORAH-	LoRa output; supports LoRa relay forwarding
2	Wall-mounted enclosure
BYH	Louver-box configuration

Configuration & Support Summary



SS201-01 Air Quality Sensor

- RS485 Modbus-RTU, analog and wireless output options are available for different acquisition systems.
- PM2.5, PM10 and PM1.0 can be provided simultaneously in the RS485 version.
- Wall-mounted enclosure and louver-box installation options support indoor and outdoor monitoring deployments.
- Engineering support is available for product selection, field integration and customized configurations.

CONTACT / SUPPORT

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