

Air Particle Sensor ZN-PD-SA

CSM_ZN-PD-SA_DS_E_1_1

Continuously monitor dust fallout and particles which detract from product quality.

- Compact design ideal for continuous monitoring
- Equipped with various interfaces such as a LAN port.

Particle measurement type

Accurately measures airborne particles.

Dust measurement type

One unit for measuring dust fallout and identifying dust sources



Be sure to read "Safety Precautions" on page 4.



CE

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Ordering Information

Sensor

Appearance	Item (Measured particle diameter)	Model	Power Supply
	Air Particle Sensor Particle measurement type 0.3, 0.5, or 1.0 µm min.	ZN-PD03-SA	DC cable
		ZN-PD03C-SA *	
	Air Particle Sensor Dust measurement type 5 µm (10 µm), 20 µm (30 µm), 50 µm min. () is selectable.	ZN-PD50-SA	
		ZN-PD50C-SA *	
	Air Thermo Sensor For temperature / humidity measurement	ZN-TH11-S	—

* Please choose this form when you buy with the calibration certificate.

Contents of Certificate of Calibration Set: Calibration Certificate, Inspection Result, and Traceability Chart



Options (Order separately)

Air Particle Sensor


Shape	Item (Applicable Standards)	Rated Voltage	Model
	AC adaptor (PSE)	100 to 125 VAC	ZN9-ACP02-PSE
	AC adaptor (CCC)	100 to 240 VAC	ZN9-ACP02-CCC
	AC adaptor (KC)	100 to 240 VAC	ZN9-ACP02-KC
	AC adaptor (CE)	100 to 240 VAC	ZN9-ACP02-CE
	AC adaptor (UL)	100 to 125 VAC	ZN9-ACP02-UL

Appearance	Item		Model
	Change filter set for Particle measurement type		ZN9-PF1-S
	Change filter		ZN9-PF2-S
	Change funnel		ZN9-PG1-S
	Exhaust tube (4 m)		ZN9-PT4-S
	Exhaust tube (8 m)		ZN9-PT8-S
	Filter for cleaning		ZN9-PC1-S
	DC cable (2 m)	Straight type	ZN9-ED01-S
		Right angle type (comes with ZN-PD□□-SA)	ZN9-ED02-S

Air Thermo Sensor

Appearance	Item	Model
	Connection cable for air particle sensor (With connectors at both ends, length: 0.1 m)	ZN9-TL01-S
	Connection cable for air particle sensor (With connectors at both ends, length: 2 m)	ZN9-TL20-S
	Connection cable for external device (With a connector at one end, length: 2 m)	ZN9-TC20-S

PC Software

Appearance	Item	Model
	Wave Inspire ES	ZN-SW11-S

Note: System requirements OS: Windows XP / Windows Vista / Windows 7 (64 Bit not supported)

CPU: compatible Intel processors, 1 GHz or higher.

Memory: 1 GB or more (2 GB or more recommended)

The maximum number of connectable sensors is 95.

(When one PC is connected with a leased line network . The sampling period is set to 10 minutes.)

The number of possible sensor connections changes by a sampling period, connected number of PC or PLC, and the network load situation.

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Calibration service

Subject to calibration	Content	Model
Air Particle Sensor Particle measurement type	Calibration Certificate, Inspection Result, Traceability chart	ZN9-PD03C-S
Air Particle Sensor Dust measurement type	Calibration Certificate, Inspection Result, Traceability chart	ZN9-PD50C-S
Air Thermo Sensor	Calibration Certificate, Inspection Result, Traceability chart	ZN9-TH11C-S

Note: 1. If a Certificate of Calibration is required after you purchase the product, use the above model number to order one.

2. It is necessary to ship the product back to OMRON in Japan.

Ratings and Specifications

Air Particle Sensor

Item	Model	Particle measurement type	Dust measurement type
		ZN-PD03-SA	ZN-PD50-SA
Measurement method		90° sideways light-scattering method	
Light source		Semiconductor laser	
Measured particle diameter		0.3, 0.5, or 1.0 μm min.	5 μm (10 μm), 20 μm (30 μm), 50 μm min. *1
Particle concentration		0 to 100,000 particles/cf	0 to 50,000 particles/cf
Sample flow rate		More than 2.8 Liter/min	More than 6.0 Liter/min
Status outputs (2 outputs)		Photocoupler output (Status outputs linked with clean levels)	
System error status output			
Trigger Input		Photocoupler input	
Communications interface		Ethernet (10BASE-T, 100BASE-TX)	
Communications protocol		Socket (TCP), original protocol	
Indicators		Clean Level: 4 steps display according to clean level (adjustable) 7-segment main display (red): Measurement value (For particle count, the three type displays are selectable; particles/cf, particles/liter and particles/measurement time, With ZN-TH11-S; temperature, humidity and dew point) 7-segment sub-display (green): Threshold particle diameter, With ZN-TH11-S; t (temperature), rh (humidity), dp (dew point)	
Measure mode		Real-time mode (by second) / Cycle mode (by set cycle) / Trigger mode (by trigger)	
Power supply voltage		18 to 25 VDC AC adapter: 100 to 240 V / 50 to 60 Hz *2	
Current consumption		1A MAX	
Ambient temperature range		Operating: 0 to 35°C Storage: -15 to +50°C (with no icing or condensation)	Operating: 0 to 40°C
Ambient humidity range		Operating and storage: 35% to 85% (with no icing or condensation)	
Insulation resistance		20 MΩ min. at 500 VDC	
Withstand voltage		1,000 VAC, 50/60 Hz for 1 min	
Vibration resistance		110 to 55 Hz, 0.3 mm double amplitude, 50 min	
Materials		ABS	
Degree of protection		IP20	
Installation method		DIN track mount / Self standing	
Weight (Packed state)		Approx. 1.7 kg	
Accessories		Instruction Sheet, Air-intake tube (Tubing ID: 10 dia., Length 1 m) x1, DC cable (Right angle type), Ferrite core	Instruction Sheet, Air filter x1, Funnel x1 DC cable (Right angle type), Ferrite core

*1. () is selectable.

The maximum particle diameter that can be measured is approximately 200 μm. (When the pre-filter is attached.)

*2. AC adaptor is not bundled.

Air Thermo Sensor

Item	Model	ZN-TH11-S
Supply voltage		12 to 24 VDC ±10% Ripple (p-p): 10% max.
Current consumption		40 mA max.
Temperature	Range	-25 to +60°C
	Measurement accuracy	±0.3°C (at 25°C)
	Resolution	0.1°C
Humidity	Range	0% to 99%
	Measurement accuracy	±2.5% (at 25°C, 10% to 85%)
	Resolution	0.1%
Indicator		Alarm LED on the body
Alarm threshold		Threshold can be set for temperature, humidity or dew point.
Data update cycle		10 s
Serial communication standard		RS-422 (Compoway/F)

Note: 1. Power is supplied from the Air Particle Sensor.

2. Connection cable (Type ZN9-TL□□) is needed to connect with ZN-PD-S.

3. If the following sticker is affixed to the connection port on the top of the Air Particle Sensor, the Air Thermo Sensor cannot be connected. "ZN-RD11-S dedicated port; cannot be used to connect to a PC." The Air Thermo Sensor can be connected if the sticker states "Option unit connection port; do not use to connect to a PC." (This corresponds to products shipped starting in November 2009.)

4. Dirt or other foreign materials affixing to the sensor surface during operation may lead to deteriorations in precision. Therefore, we recommend that the sensor be calibrated once per year.

5. After ZN-TH11-S is kept in high humidity environment (more than 80%) for a long time, humidity measurement values might shift (approx +3% with 60 hrs). In that case, the ZN-TH11-S needs to be kept in room temperature and humidity for more than 1 day.

Safety Precautions

⚠ WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly.
Do not use it for such purposes.



For technical information and product FAQs, refer to the “Technical Guide” on your OMRON website.

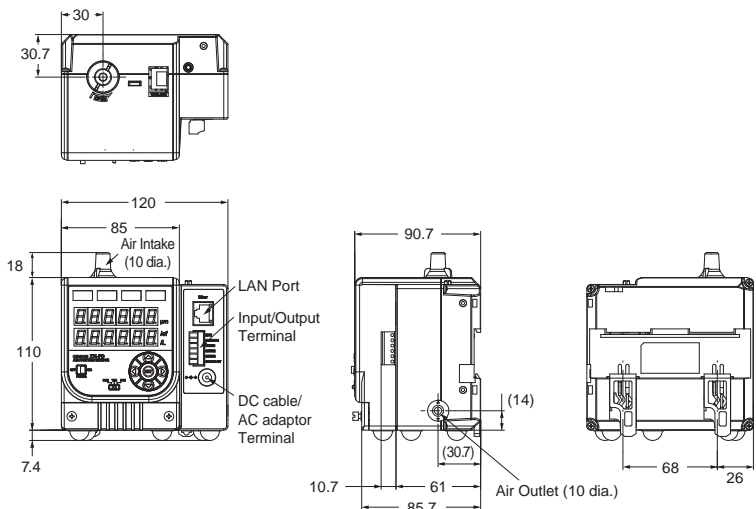
Dimensions

(Unit: mm)

Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

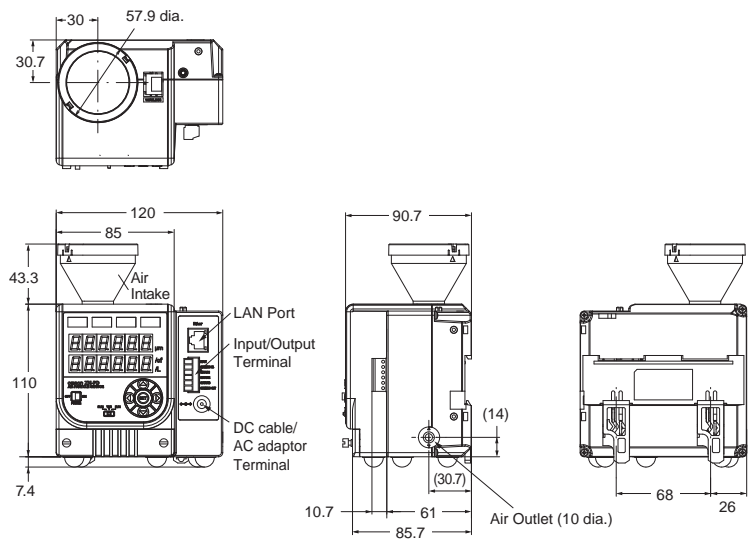
Air Particle Sensor (Particle measurement type)

ZN-PD03-SA



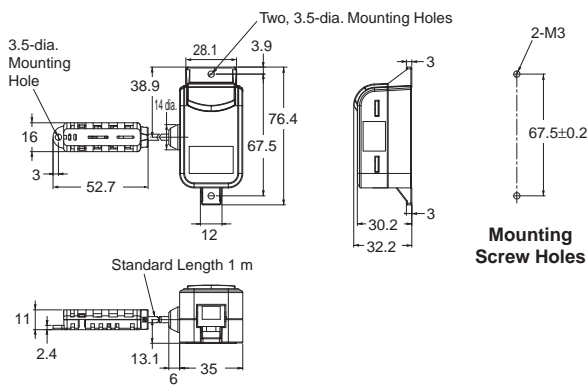
Air Particle Sensor (Dust measurement type)

ZN-PD50-SA



Air Thermo Sensor

ZN-TH11-S



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