

# Thermo-Humidity Station ZN-THX21-SA

CSM\_ZN-THX21-SA\_DS\_E\_2\_1

## Precision measurement of temperature and humidity around production lines and equipment.

- Unparalleled measurement accuracy
- Equipped with an SD card slot.
- LAN port connection makes it possible to easily construct monitor systems.
- Bundled with PC software for easy conversions of logging data to graphs.
- Using the optional environmental visualization software makes it possible to show the sensing data in real time on a waveform display and layout display.



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

Be sure to read "Safety Precautions" on page 3.

## Ordering Information

### Main unit

#### Sensor heads

Appearance	Item	Model
	Sensor head 1.5 m type	ZN-THS11-S
		ZN-THS11C-S *
	Sensor head Anchored type	ZN-THS17-S
		ZN-THS17C-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

#### Stations

Appearance	Item	Model	Power supply
	Station	ZN-THX21-SA	Battery/DC cable

### Options (Order separately)

Appearance	Item	Model
	Mounting Magnet *1	ZN9-EM01-S
	Straight type (ZN9-ED01-S comes with ZN-THX21-SA)	ZN9-ED01-S
	Right angle type	ZN9-ED02-S
	AC Adapter Power supply voltage: 100 to 240 VAC/50 to 60 Hz Operating temperature range: 0 to 40°C	ZN9-ACP01-S
	Environmental Visualization Software Wave Inspire ES *2 *3 *4	ZN-SW11-S

- \*1. When the magnet is used, the vibration resistance becomes 55 Hz or less. (Two logger installation screws are attached.)  
\*2. 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)  
\*3. The compliant version is Ver2.1.0 or later  
\*4. 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.

### Calibration service

Item	Model
Sensor head 1.5 m type	Calibration Certificate, Inspection Result Traceability chart ZN-THS11-CAL
Sensor head Anchored type	ZN-THS17-CAL

- Note:** 1. If a Certificate of Calibration is required after you purchase the sensor head, use the above model number to order one.  
2. As the sensor head and station are digitally connected, only the sensor head is subject to calibration.  
3. It is necessary to ship the product back to OMRON in Japan.

## Ratings and Specifications

### Sensor head

Item	Model	1.5 m type		Anchored type	
		ZN-THS11-S	ZN-THS11C-S	ZN-THS17-S	ZN-THS17C-S
Temperature	Measurement range	-25 to 60°C		0 to 60°C	
	Measurement precision	±0.3°C (at 25)			
	Resolution	0.1°C			
Relative humidity	Measurement range	0% to 99%		20% to 85%	
	Measurement precision	±2.5% (at 25, 10 to 85%)			
	Resolution	0.1%			
Weight (packaged)	Approx. 300 g				
Accessories 1	Instruction sheet, Mounting screw (M3 × 8) × 1		Instruction sheet, Mounting screw (M3 × 8) × 1, Caps to secure cable		
Accessories 2	—	Calibration Certificate, Inspection Result, Traceability chart		—	Calibration Certificate, Inspection Result, Traceability chart

- Note:** 1. As performance may deteriorate through the adhesion of impurities or contaminants in the environment on the sensor surface, calibration is recommended once a year.
- When ZN-THS1□□-S is exposed over a long period of time at a high humidity of 80% or higher, the humidity measurement value may be offset. In that case, expose the product at room temperature and humidity for 24 hours prior to use.
  - When ZN-THS1□□-S is transferred rapidly between the places where temperature difference is large, condensation may occur on the sensor surface. In that case, the ZN-THS1□□-S may not work properly.  
When the product becomes wet due to condensation, allow the product to dry in dry, room temperature environment before use.
  - When using the ZN-THS1□□-S under conditions with temperature of -20°C or less or with humidity of 90% or more, acceleration of sensor deterioration may occur.
  - To avoid deterioration of sensor, avoid storing the product under high temperature and high humidity for a long period of time.
  - Please don't use the product in the environment to which organic chemistry material disperses.

### Station

Item	Model	ZN-THX21-SA
Sensor that can be connected		Thermo-Humidity Sensor Head (ZN-THS□□-S)
Display		LCD 7-segment 5-digit 2-step display, auxiliary information indicator display
Measurement interval		10 s, 20 s, 30 s, 1 min, 2 min, 5 min, 10 min, 20 min, 30 min, 1 h
Calculation function		Instantaneous value, maximum value, minimum value, average value
Operating mode		Network connection mode, sleep mode *1, air particle sensor (ZN-PD□□-S□) connection mode *2
Recording mode		Continue *3, ring *4
Alarm signal output		Output to photocoupler (External power supply: 12 to 24 VDC, Load current: Max. 45 mA) Alarm hold setting is possible. *5
Communications interface		Ethernet (10BASE-T, 100BASE-TX)
Communications protocol		Socket (TCP), original protocol *6
Internal storage device		Internal memory: Approx. 8,500 data items *7
External storage device		SD card (to save measured values and to save/read set values), Recommended SD card: HMC-SD291 (manufactured by OMRON) *8
Power supply voltage		DC input: 24 VDC ±10%, AC adapter: 100 to 240 VAC/50 to 60 Hz, Battery: 2 AAA batteries *9
Battery life		Approx. 1 year (sleep mode) Approx. 2 hours (Network connection mode, air particle sensor (ZN-PD□□-SA) connection mode) Measurement interval of 10 minutes (with 2 AAA nickel metal hydride batteries, with SD card not inserted) *10
Operating temperature range		0 to 60°C
Operating humidity range		20% to 85% (no condensation)
Weight (packaged)		Approx. 500 g
Accessories		Instruction Sheet, Startup Guide, Utility disk (CD-ROM) *11, Alarm output connector *12, DC cable (straight type), Ferrite core

- \*1. Power saving mode. The indicator is always OFF in default setting. (Turns ON with button operation.) Network communications with host devices cannot be made.
- \*2. This mode makes one-to-one network connection with Air Particle Sensor (ZN-PD□□-S□) and enables logging of the particle count value and thermal data simultaneously to the SD card. Network communications with host devices cannot be made.
- \*3. Automatically writes data to the SD card when reaching the upper limit of the internal memory and keeps recording until the capacity limit of the SD card. If the SD card is not inserted when the internal memory reaches the upper limit, recording stops. (Data can be output to the SD card by pressing the button after inserting the SD card.)
- \*4. This mode always records the latest measured values for the upper limit of the internal memory. (When the measured values exceed the upper limit of the internal memory, the data items will be deleted beginning with the oldest data item.)
- \*5. An alarm is shown when exceeding the upper limit value or lower limit value that has been set in threshold setting mode.
- \*6. A connection guidebook with instructions on connecting to OMRON PLCs is available. For more details, contact your OMRON sales representative.
- \*7. Air particle sensor connection mode is excluded.
- \*8. If you use an SD card from another manufacturer, use an SDHC Class 4 or higher card. (You must confirm the operation of the SD card yourself.)
- \*9. Nickel hydride battery and alkaline battery can be used. Manganese batteries cannot be used.
- \*10. Battery life differs depending on measurement environment, sampling, operating mode, battery type or performance.
- \*11. System Requirements for Enclosed PC Software (Station Utility: Setup Tool, Logging Tool, and SD Viewer ES)  
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), Microsoft, Windows, and Windows 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
- \*12. The connector is type XW4B-02B1-H1, made by OMRON.

## 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.

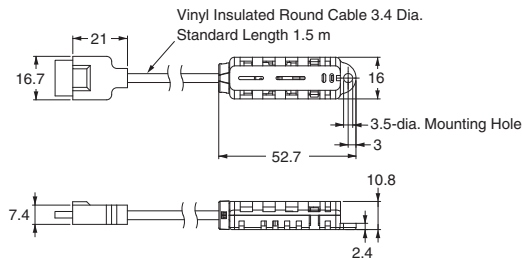
## Dimensions

(Unit: mm)

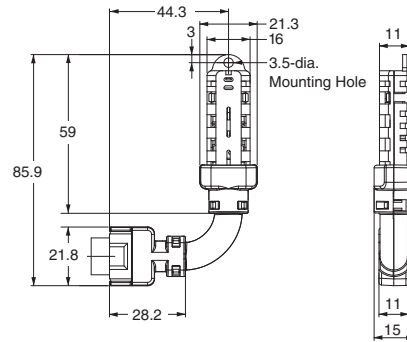
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

### Sensor head

#### ZN-THS11-S

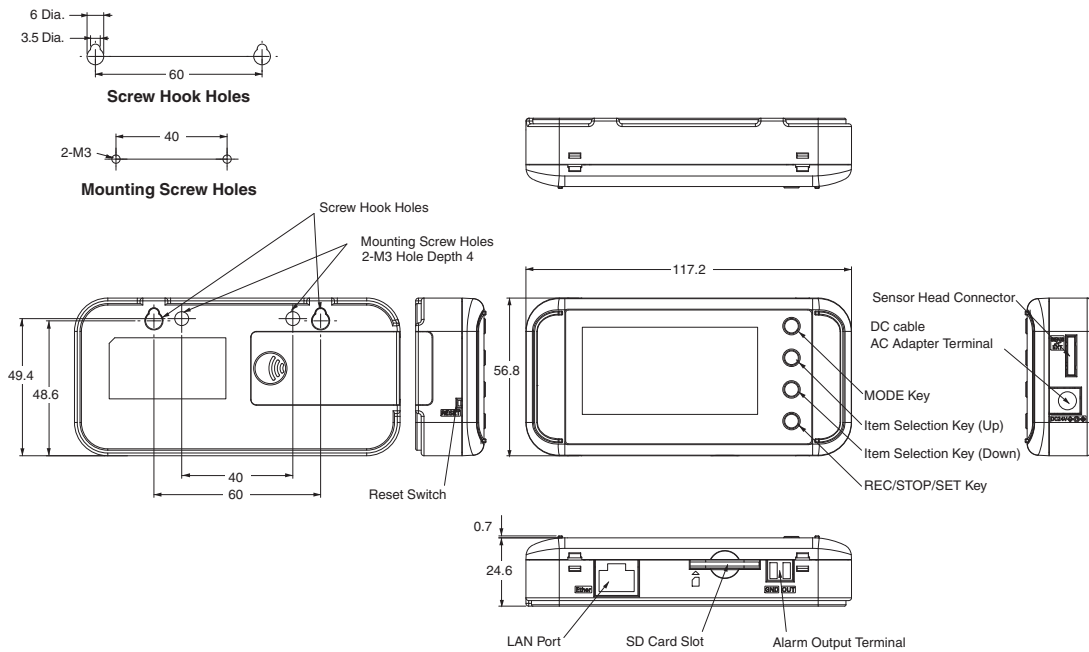


#### ZN-THS17-S



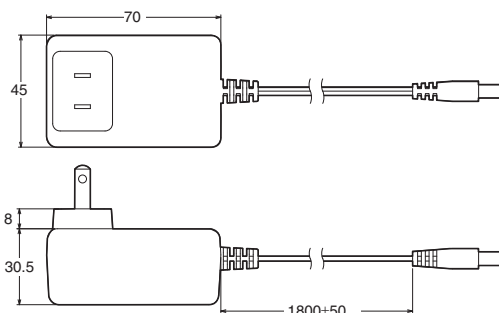
### Station

#### ZN-THX21-SA



### AC Adapter

#### ZN9-ACP01-S



## Terms and Conditions Agreement

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