

# 9 In 1 Multi-Sensor A8-9

A8-9 is a Z-Wave Plus enabled multiple environmental monitoring sensor, with 3.5 inch TFT clear display that can monitor the air quality in-time. It is built in with Temperature, Humidity, PM2.5, CO2, VOC, PIR, Illumination, Noise, Smoke sensor. Device can be added into any Z-Wave network, and is compatible with any other Z-Wave certified devices.

- **Temperature:** 0~50 C
- **Humidity:** 0%RH~99%RH
- **PM2.5:** 0~500ug/m3
- **CO2:** 0~5000ppm
- **VOC:** 0~64000ppb
- **PIR:** 0 or 1 Detection angle up to 120°
- **Illumination:** 0~40000 Lux
- **Noise:** 30dB~100dB
- **Smoke:** 0 or 1



## Specification

- **Power Supply:** DC12V, 50/60Hz
- **Self-Dissipation:** <3W
- **Work Environment:** -20~+60 C <99%RH (Non-condensation)
- **Dimension:** 110\*110\*32mm
- **Hole Pitch:** 60mm or 82mm

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- ⚠ Read the instructions before starting up the unit!
- ⚠ This product is not a toy. Keep out of reach of children and animals!
- ⚠ Do not expose the device to moisture, water or other liquids. Do not place liquids near or on the device!
- ⚠ Do not attempt to disassemble, repair or modify the device yourself!
- ⚠ This product is for indoor use only. Do not use outdoors!

**CAUTIONS!**  
Flush-mount only into a UL/ETL/CE certified plastic junction box. The minimum size should be 65\*65\*45mm, minimum Volume is 190cm3. Use Copper Conductors Only.

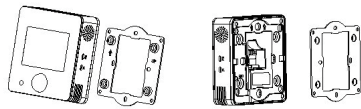
**CAUTIONS!**  
Risk of Electric Shock - More than one disconnect switch may be required to de-energize the equipment before servicing.

## Installation & Wiring

To protect yourself and others from danger and to protect the device from damage, please read the safety information before using it.

**Important!**

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## Operation

### Power On/Off

Wire the adaptor and the device is powered on. It will display all detected information by the sensors.

### Display Interface

Hold Key F1 can switch among the following 4 display interfaces:

1. Data detecting: display all sensors' data
2. Network: Z-Wave Add/Remove
3. Parameter setting: e.g. data calibration, temp. format, restore default parameters etc
4. Local time setting

### Z-Wave Operation

*Note: A Security Enabled Z-Wave Controller must be used in order to fully utilize the product.*

#### • Add & Remove Z-Wave network

- Activate Add/Remove mode in the gateway. When device is powered on, hold F1 to choose interface for Add or Remove Z-Wave network.

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- **Z-Wave Frequency:** Operating frequency range, defined by the regulatory bodies (for Z-wave in Europe: 868.0 - 868.6 MHz, 869.7 - 870.0 MHz)
- **Maximum Transmitting Power:** +3dBm
- **Housing:** Tempered glass+ PC Alloy
- **Installation:** Wall-mounted (Vertical)



#### • Declaration of Conformity



Hereby, we declare that the device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

#### • WEEE Directive Compliance



The device marked with this symbol should not be disposed of with household waste. It is the user's responsibility to deliver the used appliance to a designated recycling point.

#### • Z-Wave Compliance



The sensor is a fully compatible Z-Wave Plus device.

## Important Safety Instruction

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- A qualified electrician with the understanding of wiring diagrams and knowledge of electrical safety should complete installation following the instructions.
- Before installation, please confirm the real voltage complying with the device's specification. Cut off any power supply to secure the safety of people and device.
- During installation, protect the device from any physical damage by dropping or bumping. If happens, please contact the supplier for maintenance.
- Keep the device away from acid-base and other corrosive solids, liquids, gases, to avoid damage.
- Avoid overexertion during operation, to protect device from mechanical damage.
- Read all instructions and documentation and save for future reference.

### Location:

Device is suggested to be installed indoor, a place with around 1.5m height above the floor. It should be away from direct sunlight, any cover, or any heat source, to avoid false signal for temperature control.

### Notice!

1. Device must be wall-mounted vertically. Do not lay it flat or upside down while working.
2. Do not mounted it in a wind gap, or cover its bottom, which may affect the detected data.

**Step 1:** Remove the steel frame from the backside of the device, and then fix it onto the installation box with 2 screws.

**Step 2:** Wire the adaptor.

**Step 3:** Put the device back onto the steel frame, it will attach with the frame firmly by built-in magnets.

**Step 4:** Check the installation and power, the device is ready for work.

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- Click F2 five times until turns blue.
- Hold F2 and the device enter into learning mode, then turns blue and the device is added into Z-Wave network.
- Follow the same step to remove the device from network.

#### • Association Group

Device supports 1 association group:

AG Identifier	Max Node ID	Command Class	Trigger Situation
0x01	1	COMMAND_CLASS_SENSOR_MULTILEVEL	<p><b>Detected value will be reported according to:</b></p> <p>1, PM2.5 The value difference between current value and previous reported value &gt; the setting value of parameter number 1, set value≠0;</p> <p>2, CO2 The value difference between current value and previous reported value &gt; the setting value of parameter number 2, set value≠0;</p> <p>3, Temperature The value difference between current value and previous reported value &gt; the setting value of parameter number 3, set value≠0;</p> <p>4, Humidity The value difference between current value and previous reported value &gt; the setting value of parameter number 4, set value≠0;</p> <p>5, VOC The value difference between current value and previous reported value &gt; the setting value of parameter number 5, set value≠0;</p> <p>6, Illumination The value difference between current value and previous reported value &gt; the setting value of parameter number 6, set value≠0;</p> <p>7, Noise The value difference between current value and previous reported value &gt; the setting value of parameter number 7, set value≠0;</p> <p>8, PIR The current state is different from previous reported state, set value≠0;</p> <p>9, Smoke The current state is different from previous reported state, set value≠0;</p> <p>10, Smoke Interval Report Timer set value: 10 and set value≠0;</p> <p>11, PIR Interval Report Timer set value: 11 and set value≠0;</p> <p>12, PM2.5 Interval Report Timer set value: 12 and set value≠0;</p> <p>13, CO2 Interval Report Timer set value: 13 and set value≠0;</p> <p>14, Temperature Interval Report Timer set value: 14 and set value≠0;</p> <p>15, Humidity Interval Report Timer set value: 15 and set value≠0;</p> <p>16, VOC Interval Report Timer set value: 16 and set value≠0;</p> <p>17, Illumination Interval Report Timer set value: 17 and set value≠0;</p> <p>18, Noise Interval Report Timer set value: 18 and set value≠0;</p>

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AG Identifier	Max Node ID	Command Class	Trigger Situation
		COMMAND_CLASS_DEVICE_RESET_LOCALLY, DEVICE_RESET_LOCALLY_NOTIFICATION	Factory setting restored

**Command Class Supported By The Device:** ( Support S2 unauthenticated level)

COMMAND\_CLASS\_VERSION,  
COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC,  
COMMAND\_CLASS\_DEVICE\_RESET\_LOCALLY,  
COMMAND\_CLASS\_POWERLEVEL,  
COMMAND\_CLASS\_ASSOCIATION,  
COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO,  
COMMAND\_CLASS\_CONFIGURATION,  
COMMAND\_CLASS\_SENSOR\_MULTILEVEL,  
COMMAND\_CLASS\_FIRMWARE\_UPDATE\_MD

**Command Class Supported By The Device:** (Not support S2)

COMMAND\_CLASS\_ZWAVEPLUS\_INFO,  
COMMAND\_CLASS\_TRANSPORT\_SERVICE\_V2,  
COMMAND\_CLASS\_SECURITY\_2,  
COMMAND\_CLASS\_SUPERVISION

**Restore Factory Setting**

1. Press & hold F1 to enter Z-Wave setting interface, then press & hold F1 again to enter parameters setting interface;
2. Press & hold F2 to enter setting interface and select "default";
3. Click F2 3 times and displays "OFF"→"ON"→"OK"→"OFF", factory setting is restored.

**Data Calibration**

Number	Name	Size	Description	Default	Possible value
10	Smoke_Timer	2	=0 Turn off report >=35 Report every n*1s interval	60	0,35-32767
11	PIR_Timer	2	=0 Turn off report >=35 Report every n*1s interval	60	0,35-32767
12	PM25_Timer	2	=0 Turn off report >=35 Report every n*1s interval	120	0,35-32767
13	CO2_Timer	2	=0 Turn off report >=35 Report every n*1s interval	120	0,35-32767
14	Temp_Timer	2	=0 Turn off report >=35 Report every n*1s interval	180	0,35-32767
15	Humidity_Timer	2	=0 Turn off report >=35 Report every n*1s interval	180	0,35-32767
16	VOC_Timer	2	=0 Turn off report >=35 Report every n*1s interval	180	0,35-32767
17	Lux_Timer	2	=0 Turn off report >=35 Report every n*1s interval	300	0,35-32767
18	dB_Timer	2	=0 Turn off report >=35 Report every n*1s interval	300	0,35-32767
47	Temp_Unit	1	=0 C =1 F	0	0-1
50	T_OffSet	1	0 ~ 127:(n-100)/10=(-10~2.7) C -128 ~ -1:(1156+n)/10=(2.8~-15.5) C	100	-128-127
51	RH_OffSet	1	n-20=(-20~20)%	20	0~40
52	CO2_OffSet	2	(n-500)=(-500~500)ppm	500	0~1000
53	PM2.5_OffSet	1	0 ~ 127:n-100=(-100~27)ug/m <sup>3</sup> -128 ~ -1:156+n=(28~155)ug/m <sup>3</sup>	100	-128-127
54	Lux_OffSet	2	n-5000=(-5000~5000)lux	5000	0~10000
55	VOC_Correct	1	0 ~ 127:n-100=(-100~27)ppb -128 ~ -1:156+n=(28~155)ppb	100	-128-127
56	dB_Correct	1	(n-50)=-50~50	50	0~100
255	Write Only	1	85: Restore factory setting 170: Restore default parameters.	0	85,170

Hold F1 to choose interface for data calibration. Then hold F2 to switch among the sensors. Choose one and click F2, F1 to change the data. After finished, hold F1 can return data detecting interface.

**Local Time Setting**

Hold F1 to choose interface for local time setting. Then hold F2 to switch among "Hour-Minute-Second-Year-Month-Date". Click F2, F1 can change the data of flashing item. After finished, hold F1 can return data detecting interface.

**Main Sensor Display Setting** (Default sensor is CO2)

Enter parameter setting interface, long press F2 to select parameter number "0", name "DP1", then short press F2 to select CO2 or PM2.5, long press F1 to confirm exit.

**Parameter Table**

Number	Name	Size	Description	Default	Possible value
1	PM25_Delta_Level	1	=0 Turn off report >=1 Report when change >n * 1ug/m <sup>3</sup>	0	0-127
2	CO2_Delta_Level	1	=0 Turn off report >=1 Report when change >n * 5ppm	0	0-127
3	Temp_Delta_Level	1	=0 Turn off report >=1 Report when change >n*0.5 C	0	0-127
4	Humidity_Delta_Level	1	=0 Turn off report >=1 Report when change >n%	0	0-127
5	VOC_Delta_Level	1	=0 Turn off report >=1-127*5ppb Report change	0	0-127
6	Lux_Delta_Level	2	=0 Turn off report >=1 Report when change >n*1 Lux	0	0-32767
7	dB_Delta_Level	1	=0 Turn off report >=1 Report when change >n*1 dB	0	0-127
8	PIR_Delta_Level	1	=0 Turn off report =1 Report change	0	0-1
9	SMOKE_Delta_Level	1	=0 Turn off report =1 Report change	1	0-1

**1-Year Limited Warranty**

We warrant this product to be free from defects in material and workmanship under normal and proper use for one year from purchase date of the original purchaser. We will, at its option, either repair or replace any part of its products that prove defective by reason of improper workmanship or materials. THIS LIMITED WARRANTY DOES NOT COVER ANY DAMAGE TO THIS PRODUCT THAT RESULTS FROM IMPROPER INSTALLATION, ACCIDENT, ABUSE, MISUSE, NATURAL DISASTER, INSUFFICIENT OR EXCESSIVE ELECTRICAL SUPPLY, ABNORMAL MECHANICAL OR ENVIRONMENTAL CONDITIONS, OR ANY UNAUTHORIZED DISASSEMBLY, REPAIR OR MODIFICATION. This limited warranty shall not apply if: (i) the product was not used in accordance with any accompanying instructions, or (ii) the product was not used for its intended function. This limited warranty also does not apply to any product on which the original identification information has been altered, obliterated or removed, that has not been handled or packaged correctly, that has been sold as second-hand or that has been resold contrary to Country and other applicable export regulations.