

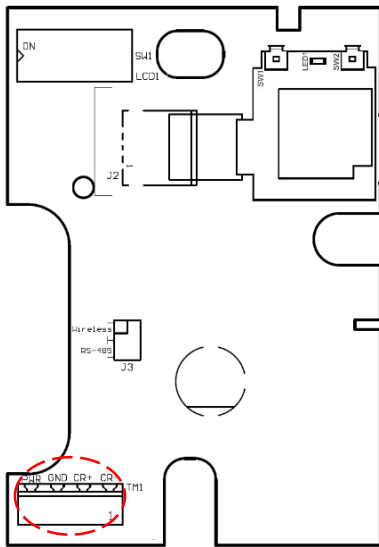
# AVC-810 Air Quality Transmitter (RS485/Wireless) Instruction Manual

Thanks for choosing our product! Please read carefully and follow this instruction before using!

## Introductions

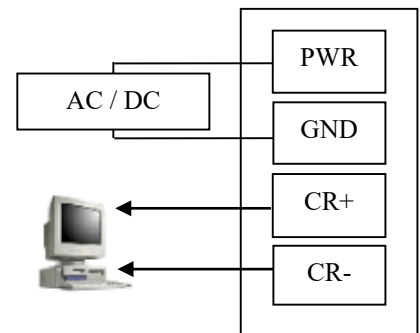
AVC-810 is designed for the detection of formaldehyde concentration in the environment and also can send signal via RS485 or LoRa wireless transmission to monitoring center to control air purifying or ventilation system, depending on measurement result. This would be an efficient solution to ensure indoor air quality. The perfect applications are home, office, indoor parking, library, hospital, shopping mall and etc.

## Wiring



1	PWR	DC 12 ~ 36V AC 24V(50/60Hz)
2	GND	System GND
3	CR+	RS-485(+)
4	CR-	RS-485(-)
5	J2	Wireless module

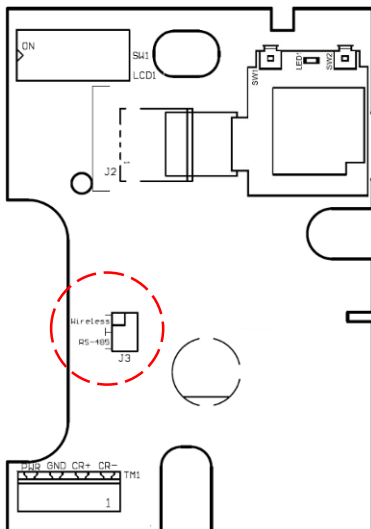
## Connection



【Figure 1】

**Notice: Please remove power from the unit before wiring, in order to avoid any damage or hazard.**

## Transmission Mode setting

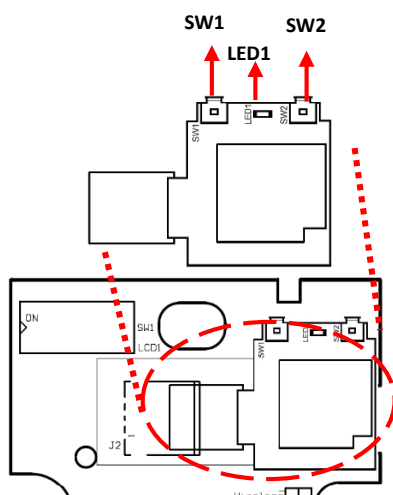


### Jumper setting:

Transmission Mode setting (Wireless/RS485)

Transmission Mode	J3
Wireless	
RS485	

## Join a wireless network (Only available for wireless version)



If the transmission mode is set as “Wireless”, please follow the steps as below to establish the connection between transmitter and receiver.

1. Please make sure the wireless receiver has been connected with PLC or with computer. (Please refer the manual of wireless receiver for the detail operation.)
2. Please press and hold the SW2 on wireless module until the LED1 (Green) is ON. And it will activate the pairing procedure and complete the connection within 60 secs.
3. When the LED1 switches off, the connection between the transmitter and receiver has been done. If the LED1 blinks every 5 secs, the connection fails. Then please press SW1 (Reset) and repeat the above-mentioned steps.

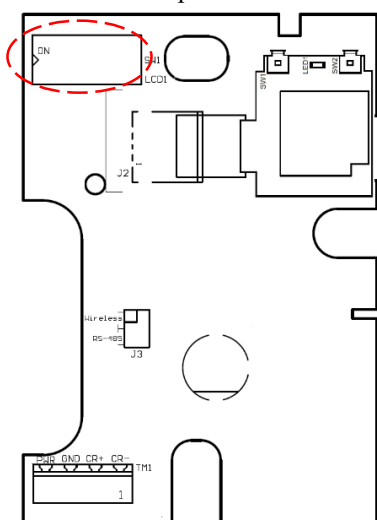
Notes: 15.19(a) (3) Regulations:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

## Device ID settings

Device ID : Setup device ID with dip switch; ON↑:1, OFF↓:0



Device ID ( ON : 1, OFF : 0 )					
1	0000 0001		127	0111 1111	
2	0000 0010		128	1000 0000	
⋮	⋮	⋮	⋮	⋮	⋮
64	0100 0000		246	1111 0110	
65	0100 0001		247	1111 0111	

## Modbus RTU Protocol

1. Baud Rate = 9600 (Default); Word Length = 8; Parity = none; Stop Bits = 1.
2. XXXX is the checksum for CRC-16(Modbus)

### Data Reading Type

	Device ID	Function	Address (High byte)	Address (Low byte)	Data Length (High byte)	Data Length (Low byte)	Checksum
HCHO	By setting	0x03	0x00	0x00	0x00	0x01	XXXX

### Responding Data Type

	Device ID	Function	Data byte	Data (High byte)	Data (Low byte)	Checksum
HCHO	By setting	0x03	0x02	0x00	0x00	XXXX

**\*\* Remark :**

The unit of Formaldehyde data obtained is ppm.

The Formaldehyde data obtained is hexadecimal. To get Formaldehyde value, convert hexadecimal 0x0000 to decimal and divided it by 100. And then we will get 0ppm, which is the Formaldehyde value.

**Calibration**

To calibrate 2ppm to 1ppm, the correction value is  $(1-2) * 100 = -100$ . And convert the calibration value into 0xFF9C (hexadecimal).

	Device ID	Function	Address (High byte)	Address (Low byte)	Data (High byte)	Data (Low byte)	Checksum
HCHO	By setting	0x06	0x00	0x01	0xFF	0x9C	XXXX

To reset to default value, set 0x0000.

	Device ID	Function	Address (High byte)	Address (Low byte)	Data (High byte)	Data (Low byte)	Checksum
HCHO	By setting	0x06	0x00	0x01	0x00	0x00	XXXX

**\*\* Remark 3 :** The calibration range of HCHO is  $\pm 300$  (3ppm).

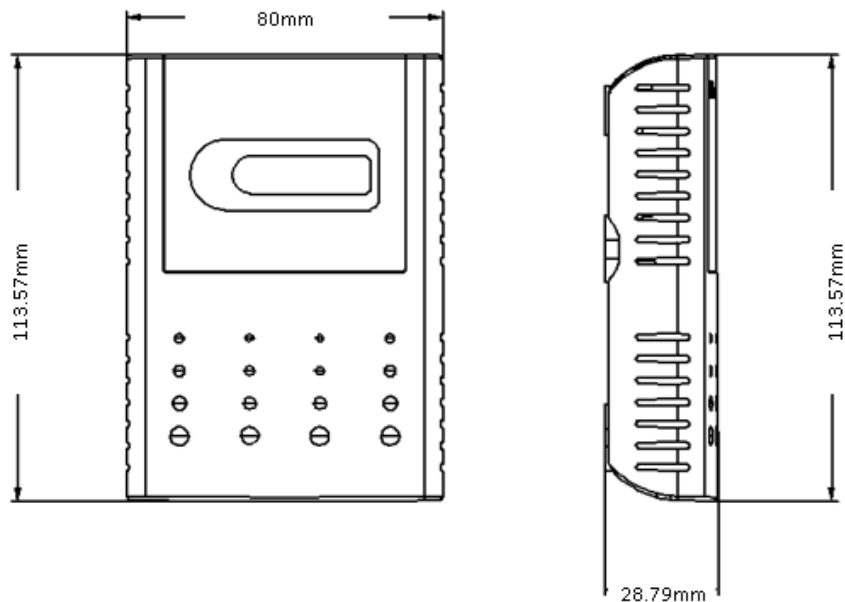
**Baud rate setting**

To change baud rate from 9600 to 19200, convert 16 into hexadecimal as "0x0010".

Baud Rate	Device ID	Function	Address (High byte)	Address (Low byte)	Data (High byte)	Data (Low byte)	Checksum
9600	By setting	0x06	0x00	0x02	0x00	0x00	XXXX
19200	By setting	0x06	0x00	0x02	0x00	0x10	XXXX
38400	By setting	0x06	0x00	0x02	0x00	0x20	XXXX
57600	By setting	0x06	0x00	0x02	0x00	0x30	XXXX
115200	By setting	0x06	0x00	0x02	0x00	0x40	XXXX

**\*\* Notice :** If the transmission mode is set as "Wireless", please set the baud rate to 9600.

**Dimensions**



## Installation

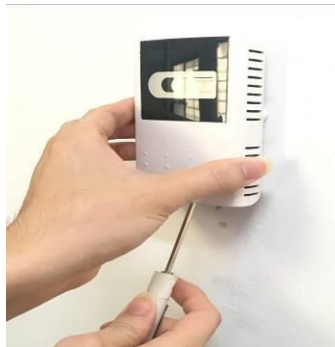
1. Please check if the transmitter, accessory pack and instruction manual are included in the package.
2. Please decide right position for installation.
3. Press tenon on top of the housing with a screw driver to remove the upper cover. (Please refer to the Figure 2 to Figure 4).
4. Fix the base with screws on the wall.
5. Please refer Figure 1 for wiring.

**Notice:** Please remove power from the unit before wiring, in order to avoid any damage or hazard.

6. Replace and fix the upper cover back to the unit.



**【Figure 2】**



**【Figure 3】**



**【Figure 4】**

## Notice for installation

1. Please install the transmitter around 1~2m above floor level for better detection.
2. Please avoid the location near fans, exhaust fan, air conditioner vent or elevator entrance.
3. Please avoid the waterish area or direct sunlight.
4. Do not install the transmitter on an unstable or shaking surface.
5. Do not install the transmitter in areas with rapid temperature changes or with extreme ambient conditions.
6. Please avoid heat source or the device exhausting gas.

## Trouble shooting

Problem	Possible cause	Recommended solution
No response after wiring power supply	<ol style="list-style-type: none"> <li>1. Insufficient power supply</li> <li>2. The power wiring is disconnected.</li> </ol>	<ol style="list-style-type: none"> <li>1. Please make sure the power supply should be more than 0.1W(RS485) · 1.2W(LoRa).</li> <li>2. Check power wiring</li> </ol>
RS485 connection fails	<ol style="list-style-type: none"> <li>1. Incorrect device ID setting or incorrect connection settings.</li> <li>2. RS485 wiring is disconnected.</li> </ol>	<ol style="list-style-type: none"> <li>1. Please verify the device ID and connection settings.</li> <li>2. Check RS485 wiring.</li> </ol>
High loss rate of packet for RS485	<ol style="list-style-type: none"> <li>1. Signal interference</li> <li>2. RS485 wiring is disconnected.</li> </ol>	<ol style="list-style-type: none"> <li>1. It is recommended to use 2 pair twisted shielded cable.</li> <li>2. Check RS485 wiring.</li> </ol>
Fail to pair with LoRa devices	<ol style="list-style-type: none"> <li>1. The antenna is not fixed.</li> <li>2. There is some interference around.</li> </ol>	<ol style="list-style-type: none"> <li>1. Please check if antenna is fixed.</li> <li>2. Please relocate the LoRa devices to avoid the interference.</li> </ol>
The loss rate of packet is high		<ol style="list-style-type: none"> <li>3. Use signal test software to choose a better location to install the LoRa devices.</li> </ol>