

AVC-910 Air Quality Transmitter (RS485/Wireless) Instruction Manual

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

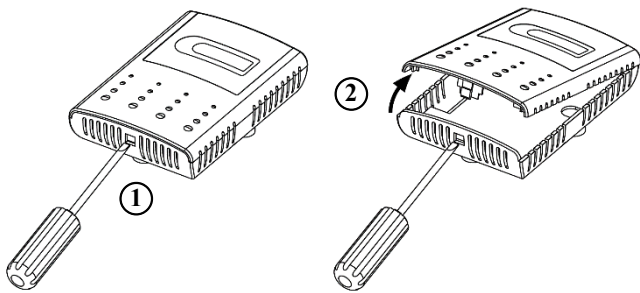
Introductions

AVC-910 is designed for the detection of total volatile organic compounds 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.

Installation

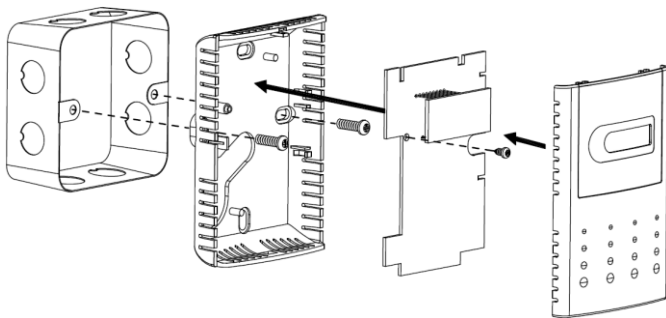
- Wall mount Type

1. Read these instructions carefully before installing and commissioning the transmitter. Failure to follow these instructions may result in product damage.
2. Please decide right position for installation, Press tenon on top of the housing with a screw driver to remove the upper cover. (refer to Figure 1)

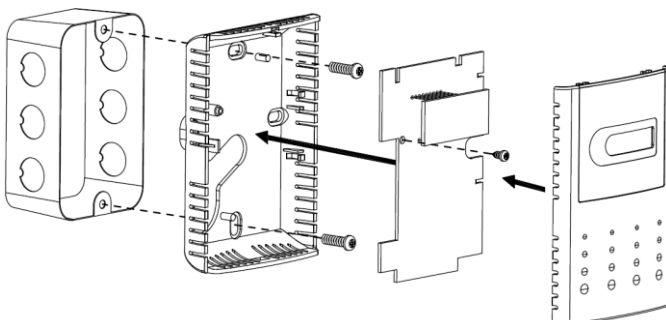


【Figure 1】

3. The base is screwed to an electrical box. (refer to Figure 2 ~ 3)



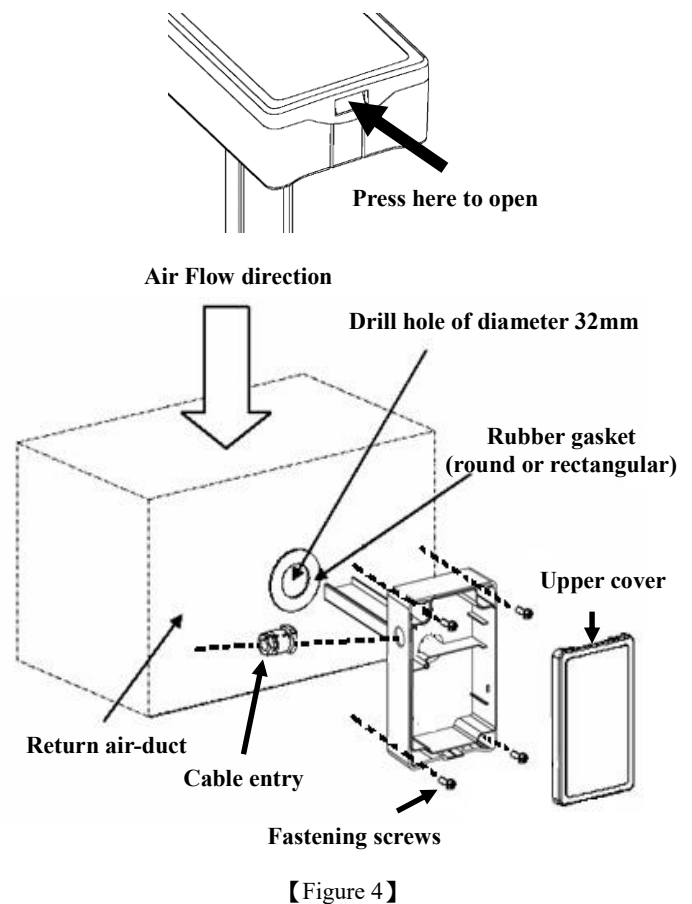
【Figure 2 EU Spec electrical box】



【Figure 3 US spec electrical box】

- Duct mount Type

1. Press tenon on the bottom of the housing to remove the upper cover. (refer to Figure 4)



【Figure 4】

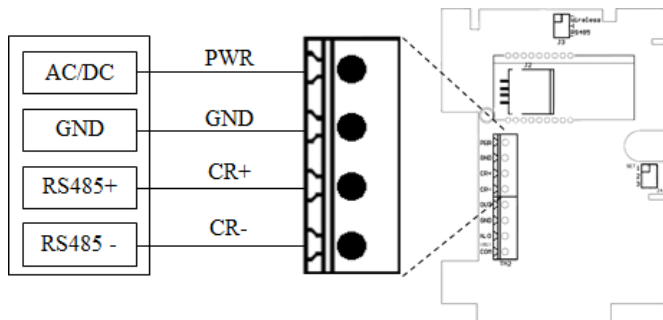
Notice for installation

1. Please install the transmitter near the ceiling and the height is around eye level.
2. Do not mount the transmitter near doors, opening windows, fans, air outlet or other known air disturbances. Install the transmitter at least 1~2 meters away from any air outlets.
3. Please avoid the waterish area
4. Do not install the transmitter on an unstable or shaking surface.
5. Please do not install the transmitter in areas with rapid temperature changes or with extreme ambient conditions.

Wiring

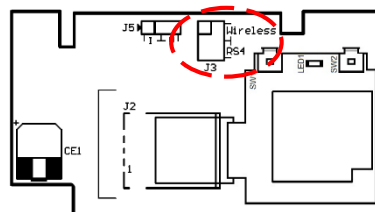
- Please refer to Figure 5 for wiring.
- Notice: Please remove power from the unit before wiring, in order to avoid any damage or hazard.**

- Use 18-22 AWG shielded wiring for all connections.
- Power supply range 24Vac(50/60Hz) or 12-36Vdc.



【Figure 5】

Transmission Mode setting

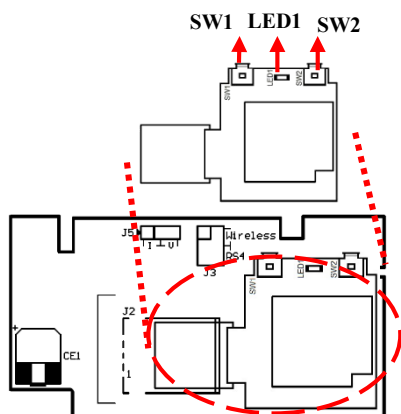


Jumper setting :

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.

- 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.)
- 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.
- 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.**

Modbus RTU settings

- Default setting: Device ID=1; Baud rate = 9600; Word Length = 8; Parity = none; Stop Bits = 1
- The checksum code is using CRC-16/MODBUS.
- The byte order is Big-Endian.

Command 0x04: Read input registers

Reading data type

Device ID	Function	Address	Address	Data Length	Data Length	Checksum	Checksum
By setting	0x04	0x00	0x00	0x00	0x02	0xXX	0xXX

Responding data type

Device ID	Function	Data byte	Address	Address	Data	Data	Checksum	Checksum
			TVOC(index)		TVOC(ppb)			
By setting	0x04	0x04	0x00	0x64	0x00	0x5F	0xXX	0xXX

Command 0x03 : Read holding registers

Reading data type

Device ID	Function	Address	Address	Data	Data	Checksum	Checksum
By setting	0x03	0x00	0x00	0x00	0x05	0xXX	0xXX

Responding data type

Device ID	Function	Data byte	Address	Address	Data	Data	Checksum	Checksum
By setting	0x03	0x0A	0xXX	0xXX	0xXX	0xXX

Command 0x06 : Write single register

TVOC(index) to calibrate 100 to 125, the correction value is $(125 - 100) = 25$. And convert it into 0x0019 (hexadecimal).

Write data type

Device ID	Function	Address	Address	Data	Data	Checksum	Checksum
By setting	0x06	0x00	0x00	0x00	0x19	0xXX	0xXX

Responding data type

Device ID	Function	Address	Address	Data	Data	Checksum	Checksum
By setting	0x06	0x00	0x00	0x00	0x19	0xXX	0xXX

Data register

Address	Address	Description	Range
0x00	0x00	TVOC manual calibration (index)	-100 ~ 100
0x00	0x01	TVOC manual calibration (ppb)	-100 ~ 100
0x00	0x02	Sampling interval	1 ~ 3600, default: 2 sec.
0x00	0x03	Baud rate and connection setting	Please refer to "Baud rat and connection setting"
0x00	0x04	Device ID	1 ~ 247; default: 1

Baud rate and connection setting

To change baud rate from 9600 to 19200, and set the connection setting as 8/E/2, the command would be "0x1011".

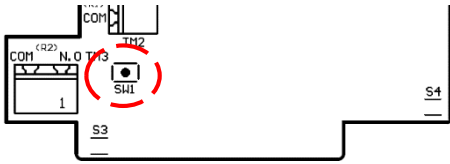
Settings	Device ID	Function	Address	Address	Data	Data	Checksum	Checksum
9600	By setting	0x06	0x00	0x03	0x00	-	0xXX	0xXX
19200	By setting	0x06	0x00	0x03	0x10	-	0xXX	0xXX
38400	By setting	0x06	0x00	0x03	0x20	-	0xXX	0xXX
57600	By setting	0x06	0x00	0x03	0x30	-	0xXX	0xXX
115200	By setting	0x06	0x00	0x03	0x40	-	0xXX	0xXX
8/N/1	By setting	0x06	0x00	0x03	-	0x00	0xXX	0xXX
8/N/2	By setting	0x06	0x00	0x03	-	0x01	0xXX	0xXX
8/E/1	By setting	0x06	0x00	0x03	-	0x10	0xXX	0xXX
8/E/2	By setting	0x06	0x00	0x03	-	0x11	0xXX	0xXX
8/O/1	By setting	0x06	0x00	0x03	-	0x20	0xXX	0xXX
8/O/2	By setting	0x06	0x00	0x03	-	0x21	0xXX	0xXX

* Notice : If the transmission mode is set as "Wireless", please set the baud rate as 9600 and the connection setting as 8/N/1.

* Remark: The connection setting format is Word length/Parity/Stop bits; Parity: N = None, E = Even, O = Odd

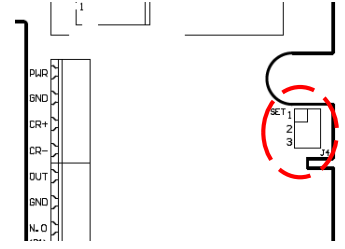
Reset to default settings

To reset all the settings to default, please press and hold SW1 for 5 sec.



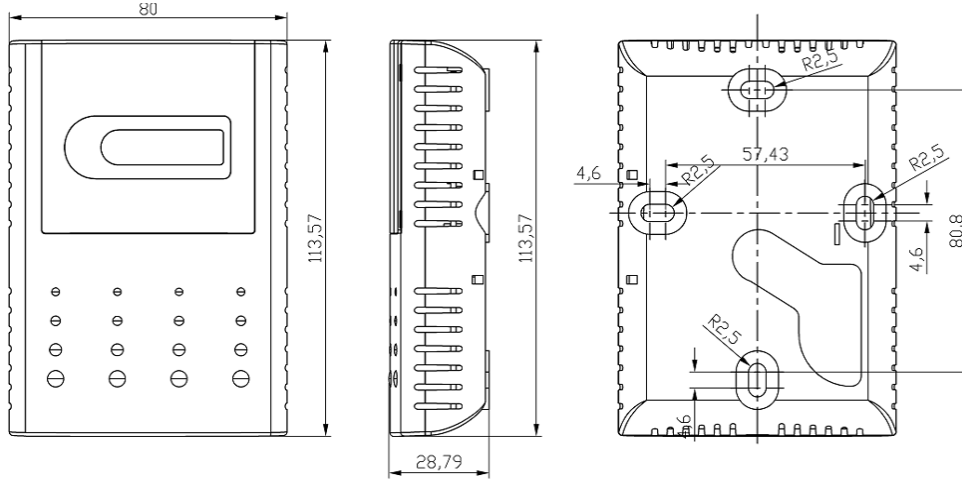
Unit output setting J4-SET2 is used to select unit.

Unit	J4-SET2
Index	1
	2
	3
PPb	1
	2
	3

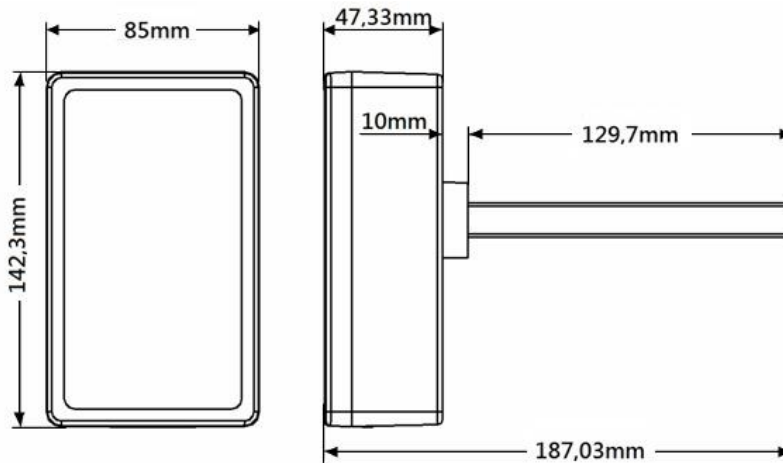


Dimensions (Unit: mm)

Wall mount Type



Duct mount Type



Trouble shooting

Problem	Possible cause	Recommended solution
No response after wiring power supply	<ol style="list-style-type: none"> 1. Insufficient power supply 2. The power wiring is disconnected. 	<ol style="list-style-type: none"> 1. Please make sure the power supply should be more than 2.5W. 2. Check power wiring
RS485 connection fails	<ol style="list-style-type: none"> 1. Incorrect device ID setting or incorrect connection settings. 2. RS485 wiring is disconnected. 	<ol style="list-style-type: none"> 1. Please verify the device ID and connection settings. 2. Check RS485 wiring.
High loss rate of packet for RS485	<ol style="list-style-type: none"> 1. Signal interference 2. RS485 wiring is disconnected. 	<ol style="list-style-type: none"> 1. It is recommended to use 2 pair twisted shielded cable. 2. Check RS485 wiring.
Fail to pair with LoRa devices	<ol style="list-style-type: none"> 1. The antenna is not fixed. 2. There is some interference around. 	<ol style="list-style-type: none"> 1. Please check if antenna is fixed. 2. Please relocate the LoRa devices to avoid the interference. 3. Use signal test software to choose a better location to install the LoRa devices.
The loss rate of packet is high		