

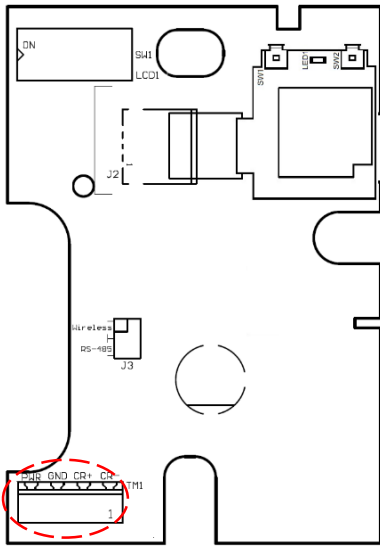
AVC-910 Air Quality Transmitter (RS485/Wireless) Instruction Manual

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

Introductions

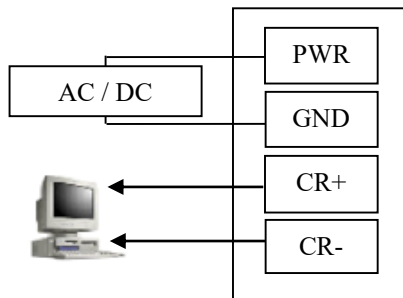
AVC-910 is designed for the detection of total volatile organic compounds concentration in the environment and also can send signal via RS485 or LoRa wireless transmission to monitoring center to control air purifying or ventilation system, depending on measurement result. This would be an efficient solution to ensure indoor air quality. The perfect applications are home, office, indoor parking, library, hospital, shopping mall and etc.

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

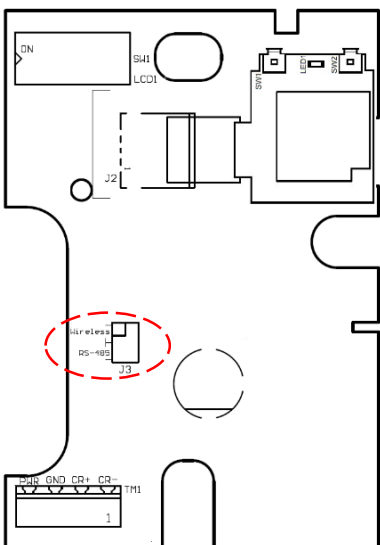
Connection



【Figure 1】

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

Transmission Mode setting

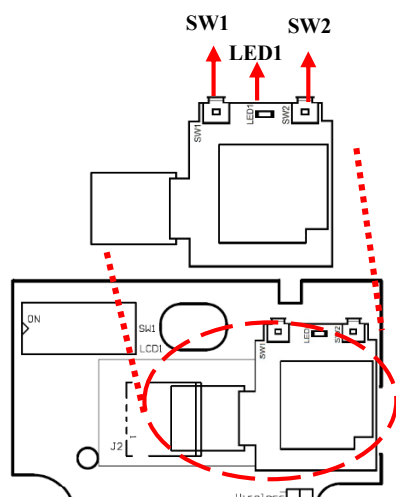


Jumper setting:

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.

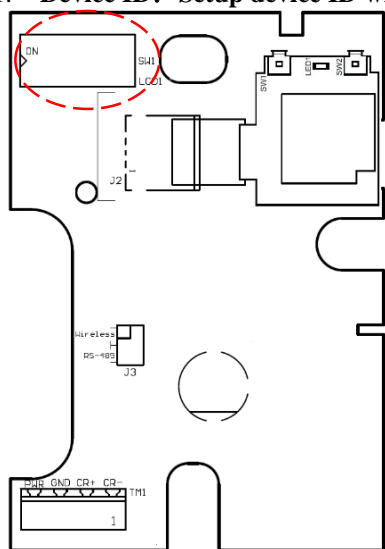
Notes: 15.19(a) (3) Regulations:

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.

Modbus RTU settings

1. **Device ID:** Setup device ID with dip switch; ON \uparrow :1, OFF \downarrow :0



Device ID (ON : 1,OFF : 0)							
1	0000 0001	ON <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	0000 0010	ON <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
64	0100 0000	ON <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65	0100 0001	ON <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Command 0x03: Read holding registers

Reading data type

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

Responding data type

Device ID	Function	Data byte	Data (High byte)	Data (Low byte)	Checksum (High byte)	Checksum (Low byte)
By setting	0x03	0x02	0x00	0x7D	0xXX	0xXX

** Remark:

1. Checksum is the error detection codes for CRC-16/MODBUS.
2. The unit of total volatile organic compounds data obtained is ppb.
3. The total volatile organic compounds data obtained is hexadecimal. Convert 0x007D to decimal, we will get 125ppb.

Command 0x06 : Write single register

TVOC to calibrate 150 to 125, the correction value is $(125 - 150) = -25$. And convert it into 0xFFE7 (hexadecimal).

Device ID	Function	Address (High byte)	Address (Low byte)	Modify value (High byte)	Modify value (Low byte)	Checksum (High byte)	Checksum (Low byte)
By setting	0x06	0x00	0x01	0xFF	0xE7	0XX	0XX

Responding data type

Device ID	Function	Address (High byte)	Address (Low byte)	Modify value (High byte)	Modify value (Low byte)	Checksum (High byte)	Checksum (Low byte)
By setting	0x06	0x00	0x01	0xFF	0xE7	0XX	0XX

**** Remark:** The calibration range of TVOC is ± 100 ppb

Baud rate and connection setting

Default setting: Baud rate = 9600; Word Length = 8; Parity = none; Stop Bits = 1

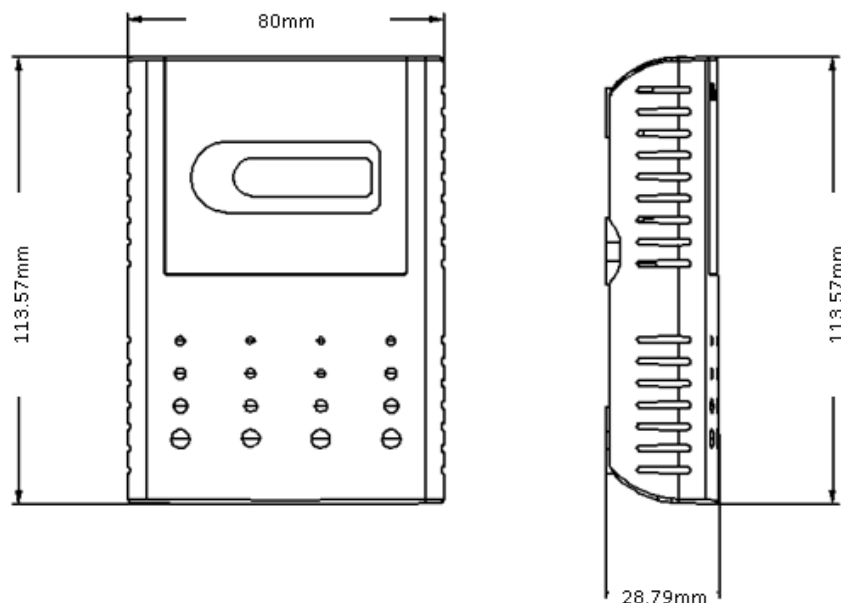
To change baud rate from 9600 to 19200, and set the connection setting as 8/E/2, the command would be “0x1011”.

Settings	Device ID	Function	Address (High byte)	Address (Low byte)	Data (High byte)	Data (Low byte)	Checksum
9600	By setting	0x06	0x00	0x02	0x00	-	XXXX
19200	By setting	0x06	0x00	0x02	0x10	-	XXXX
38400	By setting	0x06	0x00	0x02	0x20	-	XXXX
57600	By setting	0x06	0x00	0x02	0x30	-	XXXX
115200	By setting	0x06	0x00	0x02	0x40	-	XXXX
8/N/1	By setting	0x06	0x00	0x02	-	0x00	XXXX
8/N/2	By setting	0x06	0x00	0x02	-	0x01	XXXX
8/E/1	By setting	0x06	0x00	0x02	-	0x10	XXXX
8/E/2	By setting	0x06	0x00	0x02	-	0x11	XXXX
8/O/1	By setting	0x06	0x00	0x02	-	0x20	XXXX
8/O/2	By setting	0x06	0x00	0x02	-	0x21	XXXX

*** 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

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.

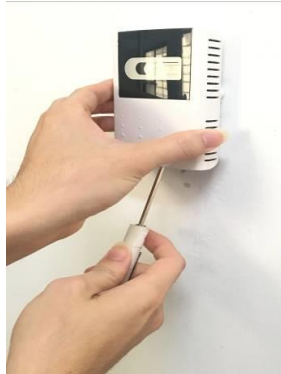
Wall mount Type

- 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).



【Figure 2】



【Figure 3】



【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 3 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.

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 1.4W. 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.
The loss rate of packet is high		<ol style="list-style-type: none"> 3. Use signal test software to choose a better location to install the LoRa devices.