

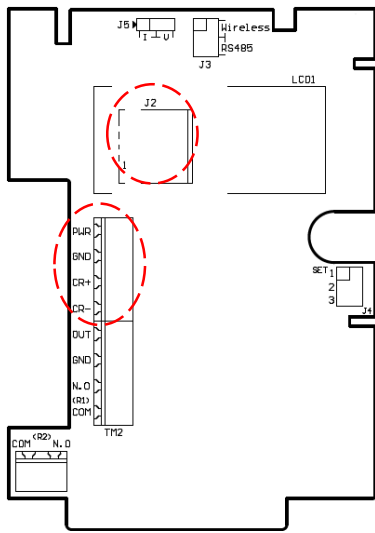
AVC-610 H2S Transmitter (RS485/Wireless) Instruction Manual

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

Introductions

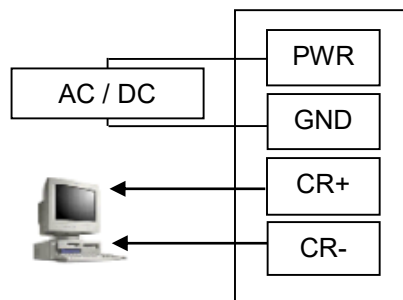
Hydrogen sulfide (H₂S) is poisonous, corrosive, and flammable, with the characteristic foul odor of rotten eggs. People usually can smell hydrogen sulfide (H₂S) at low concentrations in air ranging from 0.0005 to 0.3 ppm. AVC-610 series is design to monitor hydrogen sulfide level and send the data to monitoring center for analysis or for timely alert. Easy installation and the recommended height of installation is 30~60cm above the floor level. It is perfect for rooms or area where some devices easily generate hydrogen sulfide (H₂S) and with poor ventilation, such as wastewater treatment factory, food processing plant, indoor hot spring, chemical laboratory, basement or indoor parking.

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

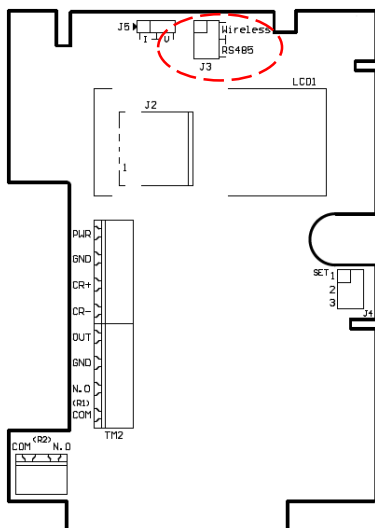
Connection



【Figure 1】

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

Transmission Mode setting

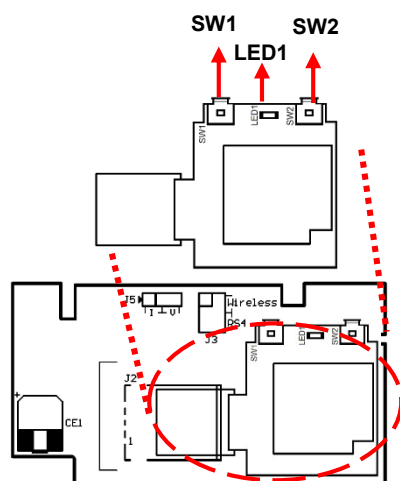


Jumper setting:

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 sec., 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. Default setting: Device ID=1; Baud rate = 9600; Word Length = 8; Parity = none; Stop Bits = 1
2. Checksum is the error detection codes for CRC-16/MODBUS.

Command 0x04: Read input 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	0x04	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	0x04	0x02	0x00	0x03	0xXX	0xXX

** Remark:

The unit of Hydrogen sulphide data obtained is ppm.

The Hydrogen sulphide data obtained is hexadecimal. To get Hydrogen sulphide value, convert hexadecimal to decimal and divided it by 10.

For example, the data obtained is 0x0003. Convert it to decimal and divide it by 10. And then we will get 0.3ppm, which is the Hydrogen sulphide value.

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	0x04	0xXX	0xXX

Responding data type

Device ID	Function	Data byte	Data (High byte)	Data (Low byte)	Data (High byte)	Data (Low byte)	Checksum (High byte)	Checksum (Low byte)
By setting	0x03	0x08	0xXX	0xXX	0xXX	0xXX

Command 0x06 : Write single register

To calibrate 2ppm to 1.5ppm, the correction value is $(1.5 - 2.0) * 10 = -5$. And convert it into 0xFFFFB (hexadecimal).

Writing 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	0x00	0xFF	0xFB	0xXX	0xXX

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	0x00	0xFF	0xFB	0xXX	0xXX

Modifying data register

Address (High byte)	Address (Low byte)	Description	Range
0x00	0x00	H2S manual calibration	-100 ~ 100 (± 10.0 ppm)
0x00	0x01	Sampling interval	1 ~ 3600, default: 2 sec.
0x00	0x02	Baud rate	Please refer to "Baud rate and connection setting"
0x00	0x03	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".

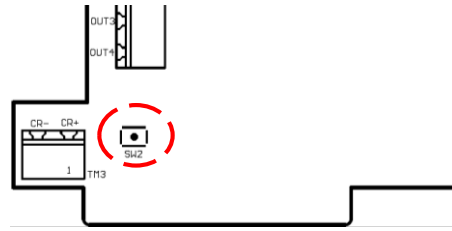
Settings	Device ID	Function	Address (High byte)	Address (Low byte)	Data (High byte)	Data (Low byte)	Checksum
9600	By setting	0x06	0x00	0x02	0x00	-	XXXX
19200	By setting	0x06	0x00	0x02	0x10	-	XXXX
38400	By setting	0x06	0x00	0x02	0x20	-	XXXX
57600	By setting	0x06	0x00	0x02	0x30	-	XXXX
115200	By setting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

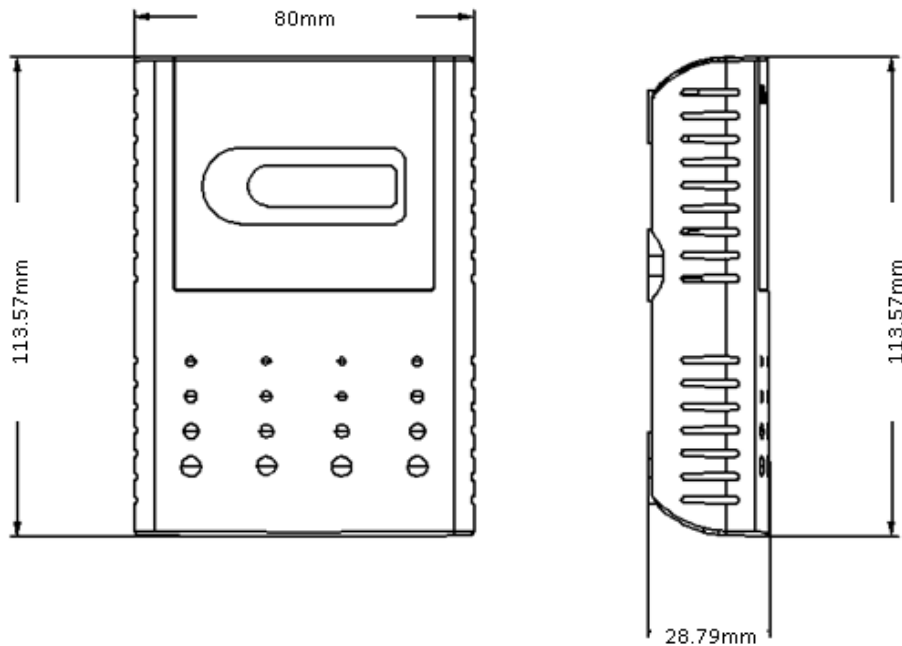
* Remark: The connection setting format is Word length/Parity/Stop bits; Parity: N = None, E = Even, O = Odd

Reset to default settings

To reset all the settings to default, please press and hold SW2 for 5 sec.



Dimensions



Installation

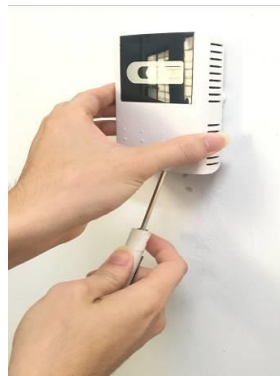
1. Please check if the transmitter, accessory pack and instruction manual are included in the package.
2. Please decide right position for installation.
3. Press tenon on bottom of the housing with a screw driver to remove the upper cover. (Please refer to the Figure 2 to Figure 4).
4. Fix the base with 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. Hydrogen sulphide is heavier than air. Please install the transmitter around 30~60cm 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"> 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 0.1W(RS485) ∙ 1.2W(LoRa). 2. Check power wiring.
The reading is lower than actual level.	<ol style="list-style-type: none"> 1. Sensing element is aging. 2. Zero point drift. 	<ol style="list-style-type: none"> 1. Please contact the manufacturer
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. 3. Reset to default settings.
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		