

**Fixed Gas Detector**

**YT-95H-XX**

**Instruction Manual**

**EA TECHNOLOGY ASSOCIATED CO.,LTD**

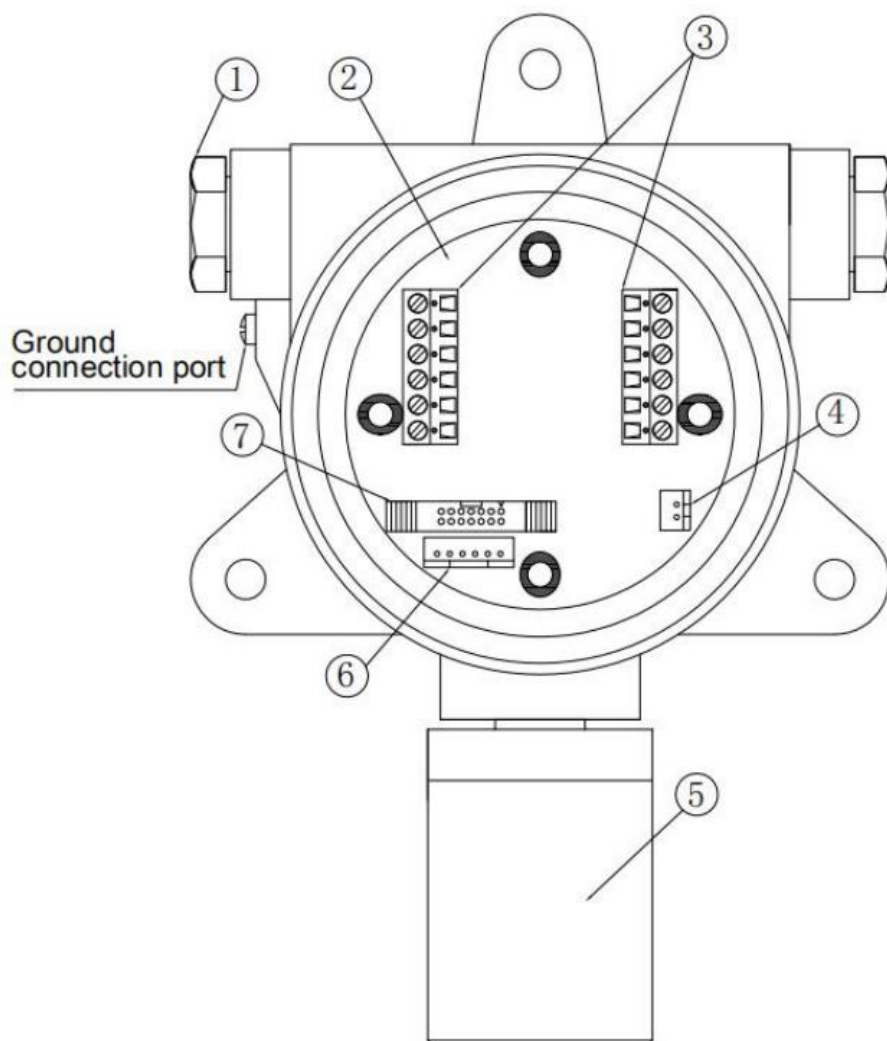
## **Notice to Reader**

Please read this instruction manual before using the detector

### **Matters need attention**

- A. Please read this instruction manual before using the detector.
- B. The detector must be used in compliance with the designated procedures of our company.
- C. The warranty period of this transmitter is 12months (starts from the date user get the detector).Users should comply with the instructions in the use of this detector. Any damages or malfunctions caused by improper operation of users are not within the scope of warranty.
- D. Repair and replacement of any parts must be operated by trained staff under authorization of our company, using original spare part. The operator is responsible for the liability if users operate the repair or replacement by themselves.
- E. There is acid solution inside the transmitter, please do not disassemble it. And pay attention not to damage the frontal membrane of the transmitter. If the skin is stained with the acid solution, the right remedy is to flushing the stained skin continuously with clean water for 10minutes.
- F. The detector must be calibrated for once each year. The explosion proof sheet parts of the transmitter need to be cleaned regularly (blow with low pressure compressed air ), otherwise the detection sensitivity will be affected the

dust and impurities clogging protection hole.



- 1.Power supply, signal line
- 2.Printed-circuit board
- 3.Terminal
- 4.Sound and light alarm port
- 5.Air chamber of sensor
- 6.Sensor port
- 7.Main board connection

## Technical performance and parameters

### 1. Key Technical Indicator

Target gas	Range	Accuracy	least count	response time
O <sub>2</sub>	0-30%Vol	<±2%(F.S)	0.01%Vol	≤15
H <sub>2</sub> S	0-1000ppm	<±2%(F.S)	1ppm	≤15
CO	0-1000ppm	<±2%(F.S)	1ppm	≤25
H <sub>2</sub>	0-20000ppm	<±2%(F.S)	1ppm	≤15
CO <sub>2</sub>	0-10000ppm	<±2%(F.S)	1ppm	≤40
C <sub>2</sub> H <sub>4</sub>	0-100ppm	<±2%(F.S)	0.01ppm	≤60
NO <sub>2</sub>	0-20.0ppm	<±2%(F.S)	0.1ppm	≤25
N <sub>2</sub>	0-100%VOL	<±2%(F.S)	0.01%VOL	≤40
TVOC	0-6000ppm	<±2%(F.S)	1ppm	≤60
NH <sub>3</sub>	0-100ppm	<±2%(F.S)	0.01ppm	≤40

AsH3	0-10.00ppm	<±2%(F.S)	0.01ppm	≤30
C3H3N	0-200.0ppm	<±2%(F.S)	0.1ppm	≤40
F2	0-10 ppm	<±2%(F.S)	0.01ppm	≤25
O <sub>3</sub>	0-5.00ppm	<±2%(F.S)	0.01ppm	≤50
CL2	0-10.00ppm	<±2%(F.S)	0.01ppm	≤60
BF3	0-10.00ppm	<±2%(F.S)	0.01ppm	≤60

Repeatability: <2%

Zero drift: < ± 2% (F•S) /6M

Operating temperature: -20~+50 °C

Environment temperature: <90%RH

Working principle of the transmitter: electrochemical for oxygen and hazardous gases, catalytic combustion for combustible gases

Lifespan of transmitter: 3years for combustible gas transmitter; 2years for hazardous gas transmitter

## 2. Other Technical Parameters

Inspection mode: diffusion

Working mode: fixed long-term continuous work

Working voltage: 12~30VDC

Working current: oxygen and hazardous gas <50mA (Max)

combustible gas <150mA (Max)

Output signal: three-wire 4~20 mA standard signal output or 485 signal output

Exterior structure: die-casting aluminum housing

Dimensions: 135 x 125 x 116mm (without mounting bracket)

167 x 145 x 126mm (with bracket)

Weight: without mounting bracket ≤ 1.2kg with bracket ≤ 1.6kg with stent

### Connection cable (6 core cable) is defined as follows:

4~20mA with RS485:

Red: positive-input of power (12 to 24V)/ 24V+

Black: ground wire of power/ 24V-

Yellow: 4~20mA output.

Orange: RS485A

Blue: RS485B

Brown: Free

Connection distance: >1000m

Protection grade: IP65



Installation type: on wall

Type of explosion-proof: flame proof

Explosion-proof grade: Ex dII CT6

Inlet port: hexagonal locknut

## Settings of Remote Control

The remote control applied to all product type produced by Yuante.

1. Press "MENU" once to enter F01, address code setting menu. Press "OK" to modify, press "+" "-" to modify address code of the detector. Press "OK" to save settings and "BACK" to cancel.

2. Press "MENU", then press "+" to enter F02, minimum value setting menu of gas alarm., Press "OK" to modify, press "+" "-" to modify the value. Press "OK" to save settings and "BACK" to cancel.

3. Continue to press "+" to enter F03, maximum value setting menu of gas alarm., Press "OK" to modify, press "+" "-" to modify the value. Press "OK" to save settings and "BACK" to cancel. Same operation with F04 (zero point calibration), F05 (range calibration), F06 (AD value).

4. Press "MENU" four times to enter a shift status, under this status:

Press "RESET" once, the data would be 255, one more it would be 0. Just press "RESET" to shift. When the data is 0, press "+" or "-" to modify alarm point, the data difference would be only 1. When the data is 255, press "+" or "-" to modify alarm point, the data difference would be 1000. "RESET" can also be used as mute button when it is alarming.

### Remote controller function

MENU	MENU button, from the measurement state into the functional state
RESET	alarm reset to eliminate alarm function
OK	confirm button
+	plus
BACK	return
-	minus

### Function introduction

Controller function introduction

F-01	Address, Range1-200
F-02	Low point alarm
F-03	High point alarm
F-04	Zero calibration
F-05	4mA offset correction
F-06	ADC check
F-07	Standard gas concentration
F-08	Calibration switch
F-09	Production date
F-10	Reserved function
F-11	Serial communication check. 0 no check, 1 odd check, 2 even check
F-12	Arrangement mode of the floating-point data

- 0: DCBA
- 1: ABCD
- 2: CDAB

Need to press OK to save after all the above parameters are modified, which can take effect immediately, power outage restart also valid.

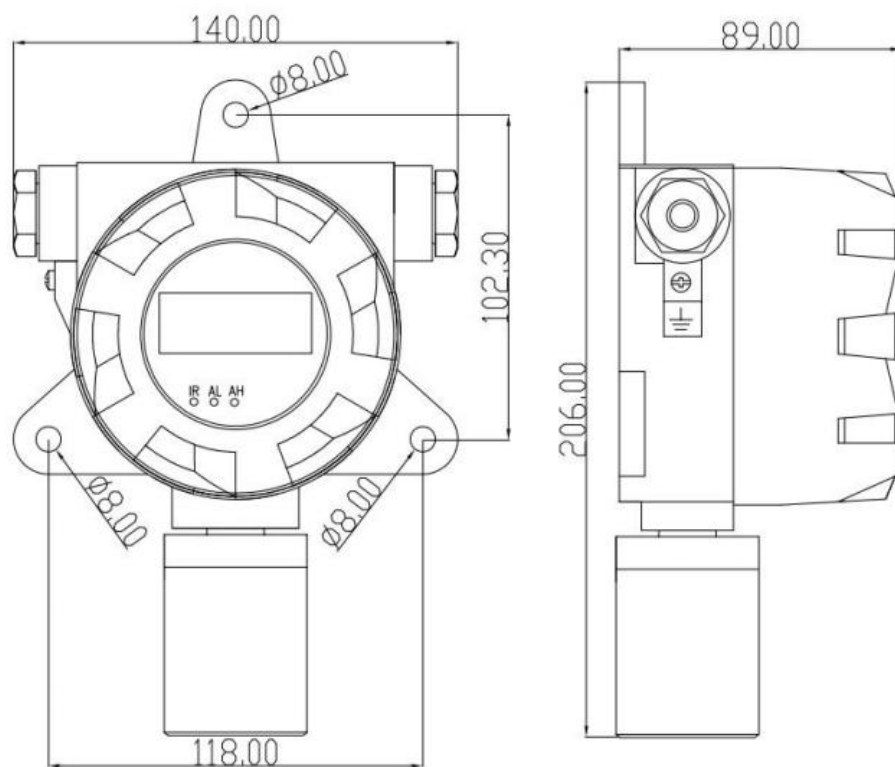
## Installation Instruction

### 1. Location Selection

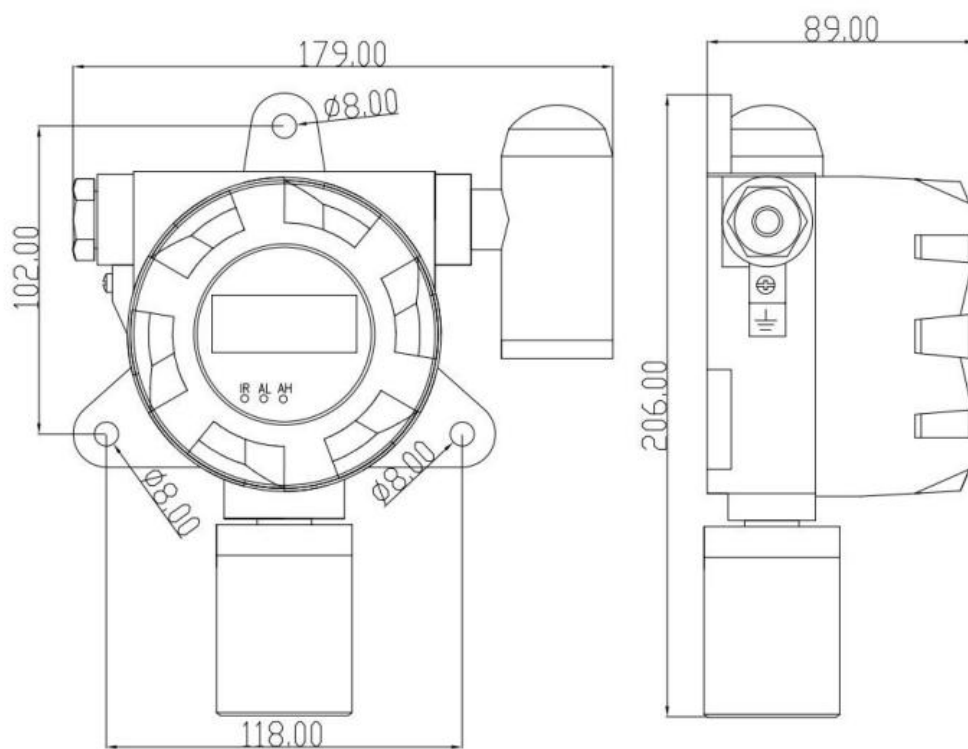
The location selection of the gas detection transmitter is essential to achieve the best detection results. In the selection of location, we need to consider the following factors: the density of gas in a leaking point, proportion of target gas, the impact of surrounding buildings, condition of production equipment, wind direction and annual meteorological conditions and even the location of windows and doors in an indoor environment.

We provide the following suggestions for your reference:

- A. Maintain a proper distance between the detector and the possible gas leaking point. It would react too fast or too frequent if the distance is not enough, which may paralyze people's mind.
- B. The detector must be located in the downwind of the possible leaking point.
- C. If installed indoor, but the source of the leak is outdoor, the detector must be installed at the air inlet.
- D. Determine the height according to proportion of target gas in air.
- E. Determine the quantity of detectors according to the condition of possible leaking point, frequency of staff attendance and time of stay as well as the economic effect.
- F. Consider to increase quantity of inspection point if the equipment is old.
- G. Protect the detector from radiation of high temperature heart source. Environments of both very high temperature and very low temperature will affect the result and lifespan of the detector.



**Appearance of the gas detector and installation hole diagram**



**Appearance of the gas detector with alarm light and its installation hole diagram**

## 2. Steps of Installation



Connect wire to correspondent terminals. Don't work with power on. The arrangement of terminals differs according to the type of transmitter. The definition of different wires:

Red: positive-input of power (12 to 24V) /24V+

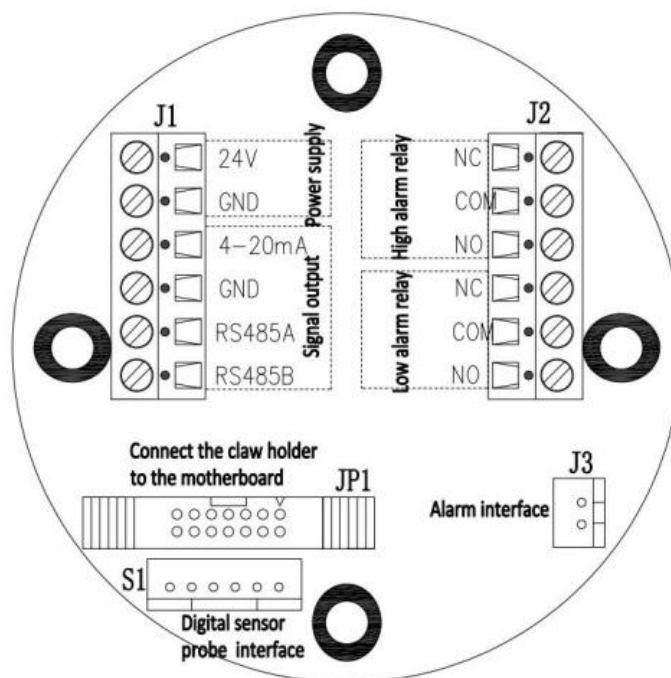
Black: ground wire of power/24V-

Yellow: 4~20mA output.

Orange: RS485A

Blue: RS485B

Brown: spare



#### Note:

NC --Switch normally closed

NO --Switch normally open

COM --Switch common

24V --Power positive

GND --Power negative

4-20mA --Analog signal

**Gas detector circuit diagram**

Fix the detector on the wall with expansion bolt, make sure the transmitter is downward, or the detector cannot work properly. Users can also separate the bracket and transmitter according to the condition on spot, fix the bracket before connection.

For the sake of safety and interference reduction, please connect the housing with reliable ground wire. For the wire between the transmitter and the main engine, the shorter, the better. And protect the wire with iron pipe.

## Method of Calibration

To guarantee the measurement accuracy of the transmitter, regular calibration and maintaining rigorous record is necessary.

Devices needed for calibration: a bottle of sample gas used for range calibration (60%F.S standard gas in normal site), relief valve, flow meter of 0~1000ml/min, transparent and smooth conduit for gas, standard gas housing, digital multimeter, stopwatch and etc.

Note: The value of transmitter WB (4mA) ,WC (20mA) ,Wz (zero potentiometer) , WA (range potentiometer, also



known as calibration potentiometer) and host alarm has been set right before it leaves the factory. User should not adjust casually. It is the value of zero potentiometer (Z) and calibration potentiometer (S) needed to be set on spot.

### 1. Zero Point Calibration

Open the detector in clean air, if there is readings after counting down.

Press the button "MENU" of the remote controller, the detector displays "F-01", press "+" or "-", change the function to "F-04", and click "OK". The detector value will be displayed as 0.

In the zero calibration of oxygen detection transmitter, we must use nitrogen of purity over 99.99%.

### 2. Range Calibration

1、 Enter into "F-07" as the same way above. The "F-07" value is the concentration of the standard gas, initialized to half of the measure range. This value can be modified through the "+" and "-" keys to make it consistent with the standard gas concentration which need to be calibrated. Press "OK" to exit.

2、 Enter into "F-08" to change 0 into 1, then back to detection interface.

3、 Connect the 200-400mL/min standard gas in detection interface, when the detector value is stable, press "OK" for 3 seconds, then the instrument will be calibrated automatically. The measured concentration value is consistent with the value set in "F-07".

4、 After calibration, left the detector in the air for a while. Shut off the power when the detector value is close to zero

Please refer to picture 3.

## Common Malfunction、 Repair and Maintenance

Symptom	Reason	Method to process
No output for transmitter	wrong connection	connect again
	potential in reference point is not correct	Adjust zero point gradually and then adjust potentiometer (4mA)
	Circuit fault	Return to Yuante for repair
Too low host reading	Value of S potentiometer setting is too small	Calibrate again
	Transmitter failure	Get a new transmitter
Too high host reading	Value of S potentiometer setting is too large	Calibrate again
	Transmitter failure	Get a new transmitter2
Instable host reading	Heat settling time is not enough	Wait for starting up
	Transmitter failure	Get a new transmitter
	Circuit fault	Return to Yuante for repair

**Product component**

Fixed Gas Detector	one
Instruction Manual	one
Qualification Certificate	one
Remote Control	one