

Point-type gas detector

Operating description

(2023-12-20-Revised)

Version of V3.04



Thank you for using our series of products. Please read this description carefully before using this product. And strictly follow the relevant operating procedures to prevent the incorrect operation and damage to the equipment.

User guidance

1. Before using this product, please carefully check whether the certificate, factory inspection report, and the warranty card are complete.
2. Within 12 months from the date of sale of this product, all users who comply with the storage, transportation and use requirements, and the quality of the product is lower than the technical indicators, can enjoy free maintenance.
3. Our company will charge for maintenance for damage caused by the violation of operation regulations and requirements, failure caused by maintenance designated by our company or product quality problems caused by irresistible factors.

4. If you have any comments and suggestions on our products and services, please contact us promptly.

Warning: It is strictly prohibited to open the cover of the detector with electricity at the work site. Before energizing the instrument, carefully check the wiring for correctness. Any operation inside the detector must be performed by specialized personnel.

Catalogue

1. OVERVIEW.....	4
2. THE KEY TECHNICAL INDEXES.....	6
3. PRODUCT STRUCTURE DIAGRAM AND DESCRIPTION OF EACH COMPONENT.....	7
4.THE WIRING DESCRIPTION.....	8
5. MENU OPERATION DESCRIPTIONS.....	10
6. COMMON FAULTS AND SOLUTIONS.....	16
7. PRECAUTIONS.....	16
8. WARRANTY AND MAINTENANCE.....	17
9.SENSOR PARAMETER SELECTION TABLE.....	18

1. Overview

The point-gas detector is a new on-line detection instrument produced by our company. This machine adopts high light digital display, high decibel sound and light alarm, and high-performance imported sensor. Detection principle: electrochemical, catalytic combustion, infrared, PID, semiconductor, etc.,and it can detect more than 500 kinds of gases.The performance of this product is stable, accurate accuracy, long life, easy to operate. Used to refinery, chemical plant,LPG station, boiler room,refueling station, spray room and other industrial sites.

The point-gas detector converts the gas concentration in the air into digital signal, which can output standard (4~20) mA current signal, or two-line and four-line RS485 (MODBUS-RTU) signal, which can be compatible with secondary instrument. PLC, DCS system, data acquisition module,with the characteristics of long transmission distance and good anti-interference performance.

1.1 The design, manufacture and verification of the product completely comply with the following national standards:

GB/T3836.1-2021 The Explosive Environment--Part 1: General Requirements for Equipment

GB/T3836.2-2021 Explosive Environment--Part 2: Equipment protected by the explosive enclosure "d"

GB15322.1-2019 Point-type combustible gas detectors--Part 1: Point-type combustible gas detectors with measurement range (0~100)% LEL

1.2 The meanings of explosion-proof signs

Ex d IIC T6 Gb---Equipment protection level

| | |----- Temperature group

| | |-----Class II explosion-proof category

| |-----Explosion-proof type

|-----Explosion-proof sign

2. The key technical indexes

Detection principle: catalytic combustion, electrochemical, infrared, PID, semiconductor

Detection gas: toxic, flammable and explosive, oxygen, TVOC, etc

Sampling method: free diffusion.

Test range: 0-1000ppm; 0-100% LEL; 0-100% VOL

Resolution: 0.01 / 0.1 / 1

Accuracy: $\leq 3\%$ FS.

debugging method: button and remote control (remote control is optional).

Response time: combustible < 30s and toxicometry < 60s.

Recovery time: combustible < 30s and toxicometry < 60s.

Environment temperature: $-20^{\circ}\text{C} \sim 55^{\circ}\text{C}$.

Relative humidity: $\leq 95\%$.

Explosion-proof mode: explosion-proof type.

Explosion-proof grade: Ex d IIC T6 Gb.

Protection level: IP66.

Power supply: DC24V $\pm$ 12V.

Output signal: (4-20) mA, RS485.

Power consumption: $\leq 3\text{W}$.

Fix screw: M20X1.5 or G1 / 2

Use cables: $\geq 1.5\text{mm}^2 \times 3$ (dividing line), $\geq 1.5\text{mm}^2 \times 4$ BUS

wiring), $\geq 2.5\text{mm}^2 \times 2$ (two-bus wiring)

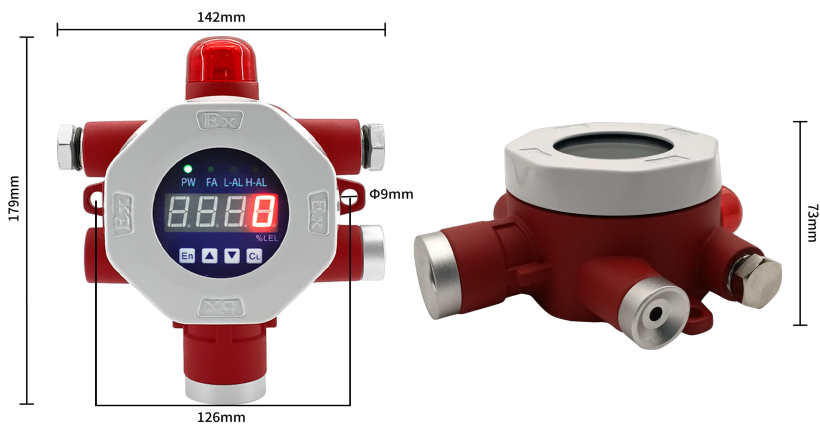
Maximum transmission distance: $\leq 1,000$ m.

Overall weight: $\leq 1000\text{g}$.

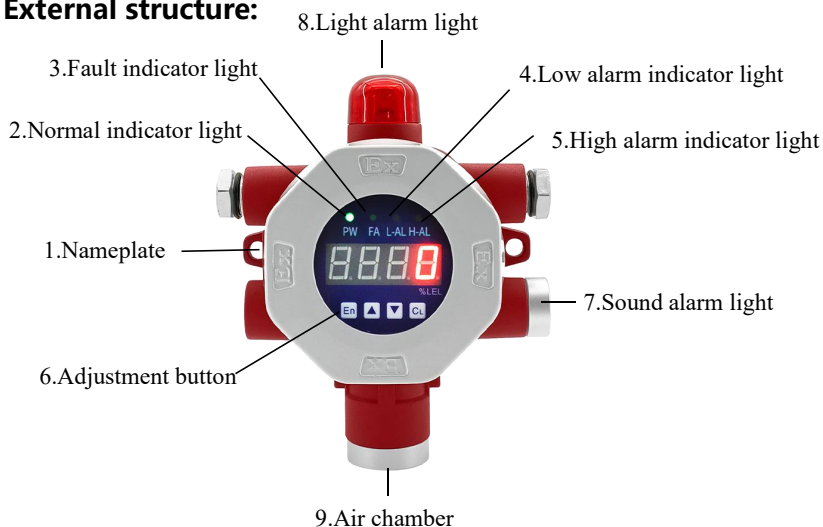
Pressure limit: 86 kPa ~ 106 kPa.

3. Product structure diagram and schematic diagram of each component

3.1 External Dimensions:

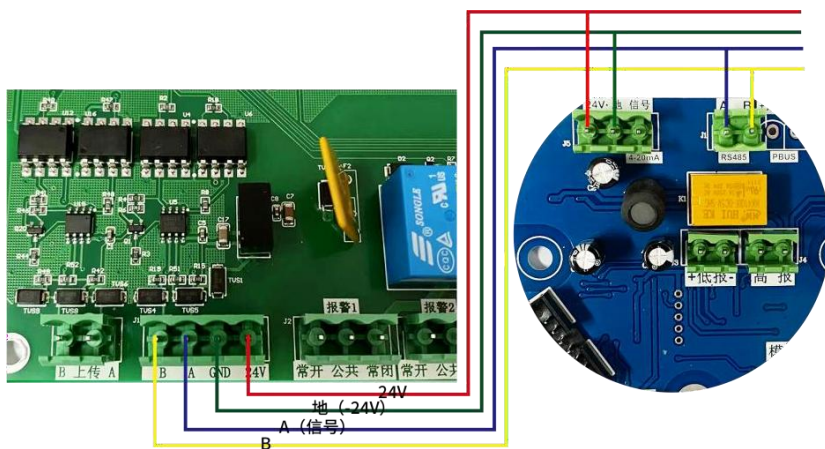


3.2 External structure:



4. Wiring descriptions

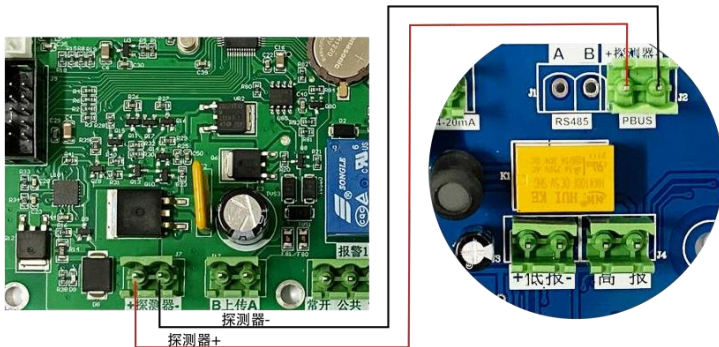
4.1 Split-linear type (4-20 mA)



Power supply: 24V to 24V, GND to GND or ground

signal: A to A, B to B

4.2 Bus type (two-wire system PowerBus)



Note: Connect the two lines as shown in the figure, without distinguishing between the positive and negative poles

5. The menu operation descriptions

5.1 Detector panel operation:



Detector operation panel

[En] Key function: enter the menu or confirm

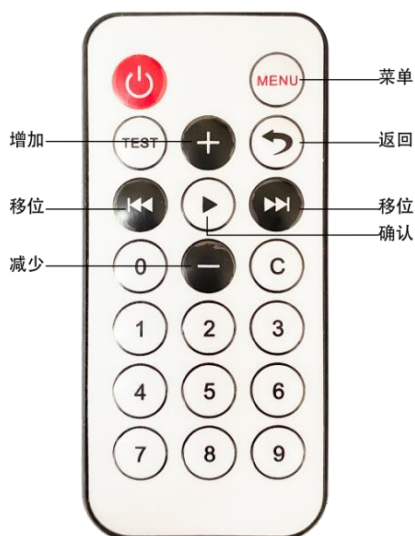
[▲] Key function: page turning or number shift

[▼] Key function: Turn pages or modify numbers

[CL] Key function: return

Press [En] key, display "0000", enter the password "1111", press [En] key again to enter the menu

5.2 Remote control operation



Remote control key function, as shown on the left picture:

Press [Menu] to display the 0000 Enter the password "1111" and enter the user menu, Press [confirm] to enter the menu

[5] Key: Zero point is the setting shortcut key

[8] Key: Address setting shortcut key

5.3 Function List (digital type)

List of user usage features					
FU-1	Level 1 alarm value	FU-2	Level 2 alarm value	FU-5	Zero point calibration

Note: The function list of the manufacturer is only for debugging by the manufacturer. Non-manufacturer personnel should not operate and the damage is not guaranteed.

List of functions used by the manufacturer					
FU-3	Precision setting	FU-4	Range setting	FU-6	Gas calibration
FU-7	work pattern	FU-8	Detector number	FU-9	Gas types
FU-A	Unit setting	FU-C	4-20 mA current calibration	FU-E	Restore factory

Note: The calibration setting requires a secondary password, please consult the manufacturer.

5.4 Function list (LCD model)

Menu

- Low-alarm Settings
- High-alarm setting
- Precision setting

Menu

- Range setting
- Zero point setting
- Calibration Settings

Menu

- Mode setting
- Address
- setting Gas

Menu

- Unit setting
- Current setting
- Factory setting

5.6 Detailed description of function list:

1. Level 1 alarm value (low-alarm setting)

Select menu "FU-1", press "confirm" or "En", display "20" (default Level 1 alarm value), press "▲" to select the bit to be adjusted, press "▼" to increase the Level 1 alarm value, press "confirm" or "En" to remember the current alarm value and return to the menu, press "Exit" or "Cl", return to the working state.

2. Level 2 alarm value (high alarm setting)

Select the menu "FU-2", press "confirm" or "En", display "50" (default level 2 alarm value), press "▲" to select the bit to be adjusted, press "▼" to increase the Level 1 alarm value, press "confirm" or "En" to remember the current alarm value and return to the menu, press "Exit" or "Cl", return to the working state.

3. Precision setting

Select menu "FU-3" and press "confirm" or "En" to display the current accuracy, press "▲" or "▼" to adjust the accuracy value. Press "confirm" or "En" to remember the current accuracy value and return to the menu, and press "Exit" or "Cl" to return to the working state.

4. Range setting

Select menu FU-4, press "Confirm " or "En" , display the current range, press "▲" to select the bit to be adjusted,and press "▼" to increase the value. Press "Confirm" or "En" to remember the current range value and return to the menu, and press "Exit" or "Cl" to return to the working state.

5. Zero point setting

In clean air, select menu "FU-5" and press "confirm" or "En" to display the current zero A / D value. After the display stabilizes, press "confirm" or "En" effect immediately.

6. Calibration setting

In clean air, select the menu "FU-6", press "confirm" or "En", enter the secondary password, display the standard gas concentration value, the user can modify the standard gas concentration value as needed, press "confirm" or "En" again, display the current A / D value, into the standard gas,after display value is stable, press "confirm" or "En", calibration is successful.

7. Working mode

Adjust the detector working mode, the factory has been adjusted,

the user does not need to modify.

8. Address setting

Select the menu "FU-8", press "confirm" or "En", to set the detector number, the same main engine, the probe number can not be repeated.

9. Gas name

Adjust the name of the detector detection gas, the factory has been adjusted, the user does not need to modify.

10. Unit setting

Adjust the unit of the detector detection gas, the factory has been adjusted, the user does not need to modify.

11. Current setting (4-20mA)

Select the menu "FU-C" to adjust the detector output current: L-04 adjusts the 4mA current and L-20 adjusts the 20mA current. This menu is only applicable to three-wire 4-20mA detectors.

12. Reset the setting

Select the menu "FU-E" to restore the factory settings. Please carefully use this feature.

6. Common faults and solutions

fault phenomenon	failure cause	solutions
The "FAUL" fault is displayed	Wrong wiring and break wiring or broken sensor	Rewire it or replace the sensor
No reaction to the detected gas	The sensor is bad	Replace the sensor
	Circuit Fault	Manufacturer maintenance
Abnormal connection to the controller	Wiring fault	Check the wiring
	Circuit fault	Manufacturer maintenance

7. Matters needing attention

1. The product shall be used in a non-corrosive gas place to prevent falling or violent vibration.
2. It is forbidden to blow the detector directly with rapid airflow, otherwise the test results will be affected.
3. Do not make the product often contact with high concentration

gas samples, otherwise the working life of the sensor will be lost.

4, For the mixed combustible gas or liquid vapor, the detection results of this machine will have a certain error.

5, The machine has been calibrated before leaving the factory, the new machine does not need a secondary calibration.

6. This product is an explosion-proof and qualified product

8. Warranty and maintenance

1. The warranty period of this product is one year, and the damage caused by artificial and abnormal use is not within the scope of the warranty.

2. If the sensor life expires, please contact our company to replace the new sensor.

3 If the users can't troubleshoot the faults, he can send the instrument back to our company for repair.

9. Sensor parameter selection table items

the key technical indexes

tracer gas	range	Alarm value	least count	response time
combustible gas (E_x)	0-100%LEL	20%LEL	1%LEL	≤ 10 seconds
oxygen (O_2)	0-30%VOL	19.5%Vol	0.1%Vol	≤ 15 seconds
carbon monoxide (CO)	0-1000ppm	50ppm	1ppm	≤ 25 seconds
carbon dioxide (CO_2)	0-5%VOL	0.2%VOL	0.01%VOL	≤ 30 seconds
formaldehyde (CH_2O)	0-50ppm	10ppm	0.1ppm	≤ 40 seconds
ozone (O_3)	0-20ppm	5ppm	0.1ppm	≤ 30 seconds
Hydrogen sulfide (H_2S)	0-100ppm	15ppm	1ppm	≤ 30 seconds
sulfur dioxide (SO_2)	0-20ppm	5ppm	0.1ppm	≤ 30 seconds
nitric oxide (NO)	0-250ppm	20ppm	1ppm	≤ 60 seconds
nitrogen dioxide (NO_2)	0-20ppm	5ppm	0.1ppm	≤ 60 seconds
nitrogen oxide (NO_x)	0-100ppm	20ppm	1ppm	≤ 60 seconds
chlorine gas(Cl_2)	0-20ppm	5ppm	0.1ppm	≤ 60 seconds
ammonia gas(NH_3)	0-100ppm	15ppm	0.1ppm	≤ 60 seconds
hydrogen (H_2)	0-1000ppm	50ppm	1ppm	≤ 60 seconds

hydrogen cyanide (HCN)	0-20ppm	2ppm	0.1ppm	≤ 60 seconds
Hydrogen chloride(HCL)	0-50ppm	5ppm	0.1ppm	≤60 seconds
Phosphine(PH ₃)	0-20ppm	2ppm	0.1ppm	≤ 60 seconds
Ethylene oxide (ETO)	0-100ppm	20ppm	1ppm	≤120 Seconds
phosgene (COCL ₂)	0-100ppm	5ppm	1ppm	≤ 60 seconds
silane (SiH ₄)	0-50ppm	10ppm	0.1ppm	≤ 60 seconds
Fluoride (F ₂)	0-20ppm	5ppm	0.1ppm	≤ 30 seconds
hydrogen fluoride (HF)	0-20ppm	5ppm	0.1ppm	≤30 seconds
bromine hydride (HBr)	0-50ppm	10ppm	0.1ppm	≤60 seconds
arsenic hydride (AsH ₃)	0-20ppm	1ppm	0.1ppm	≤ 30 seconds
Hydrazine, hydrazine (N ₂ H ₄)	0-100ppm	20ppm	1ppm	≤ 60 seconds
Tetrahydrothiophene (THT)	0-100mg/m ³	20mg/m ³	1mg/m ³	≤ 60 seconds
Bromine (BR ₂)	0-20ppm	5ppm	0.1ppm	≤ 60 seconds

ethyne (C ₂ H ₂)	0-100%LEL	20%LEL	1%LEL	≤60 seconds
ethylene (C ₂ H ₄)	0-100%LEL	20%LEL	1%LEL	≤ 60 seconds
alcohol (C ₂ H ₆ O)	0-100%LEL	20%LEL	1%LEL	≤30 seconds
carbinol (CH ₄ O)	0-100%LEL	20%LEL	1%LEL	≤30 seconds
carbon disulfide (SC ₂)	0-50ppm	10ppm	0.1ppm	≤120 Seconds
acrylonitrile (C ₃ H ₃ N)	0-50ppm	10ppm	0.1ppm	≤60 seconds
aminomethane (CH ₅ N)	0-50ppm	10ppm	0.1ppm	≤60 seconds
styrene (C ₈ H ₈)	0-100ppm	20ppm	1ppm	≤30 seconds
chlorylene (C ₂ HCL ₃)	0-50ppm	20ppm	0.1ppm	≤ 60 seconds
Celfume (CH ₃ Br)	0-100ppm	20ppm	1ppm	≤30 seconds
benzene (C ₆ H ₆)	0-100ppm	20ppm	1ppm	≤ 30 seconds
methylbenzene (C ₇ H ₈)	0-100ppm	20ppm	1ppm	≤ 30 seconds
dimethylbenzene (C ₈ H ₁₀)	0-100ppm	20ppm	1ppm	≤30 seconds
Sulfur hexafluoride (SF ₆)	0-100ppm	20ppm	1ppm	≤30 seconds
VOC/TVOC	0-1000ppm	50ppm	1ppm	≤ 30 seconds
Laughing gas (N ₂ O)	0-100ppm	20ppm	0.01ppm	≤ 30 seconds
argon (Ar)	0-100%vol	20%Vol	1vol	≤ 30 seconds

Copyright Statement:

The copyright of this manual belongs to the Company and shall not be reproduced or otherwise disseminated without permission.

Please keep this manual properly for your review.