Point type gas detector
Instructions for use

Thank you for using our products. Please read this manual carefully before using this product. Operate in strict accordance with the relevant operating procedures to prevent damage to the equipment due to incorrect operation.

User guidance

1. Before using this product, please carefully check whether the certificate of conformity, factory inspection report and warranty card are complete.
2. Within 12 months from the date of sale of this product, if the user complies with the requirements of storage, transportation and use, but the quality of the product is lower than the technical indicators, it can enjoy free maintenance.
3. Our company will charge as appropriate for the damage caused by violation of the operating procedures, the failure caused by the maintenance of the special technical service department not designated by our company or the failure caused by force majeure.
4. When the product is repaired, please take the initiative to show the warranty card.

5. If you have any comments and suggestions on our products and services, please contact us in time.

Warning: It is strictly prohibited to open the cover of the detector with electricity on the operation site. Before powering on the instrument, carefully check that the wiring is correct. Any operation inside the detector must be performed by a professional.

Catalog

一、 Overview

Point type gas detector is a new type of on-line detection instrument produced by our company. This machine adopts high-brightness digital display, high-decibel acousto-optic alarm and high-performance imported sensors. Detection principle: electrochemical, catalytic combustion, infrared, PID, semiconductor, etc., can detect more than 500 kinds of gas, stable performance, accurate precision, long service life, easy to operate. It is suitable for refinery, chemical plant, liquefied gas station, gas boiler room, gas station, paint spraying room and other industrial sites.

The point-type gas detector converts the gas concentration in the air into a digital signal, and can output a standard (4 ~ 20) mA current signal, or a two-wire or four-wire RS485 (MODBUS-RTU) signal. It is compatible with secondary instruments, PLC, DCS systems, and data acquisition modules, and has the characteristics of long transmission distance and good anti-interference performance.

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

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GB15322.1-2019 Point Type Combustible Gas Detectors Part 1: Point Type Combustible Gas Detectors with Measuring Range of (0 ~ 100)% LEL

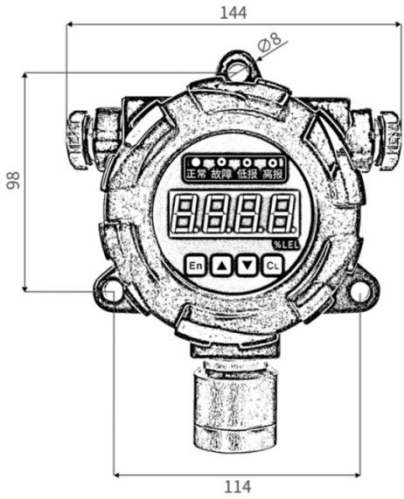
1.2 Meaning of explosion-proof sign

Detection principle: catalytic combustion, electrochemistry, infrared, PID, semiconductor
Gas to be detected: toxic, flammable and explosive, oxygen, TVOC, etc.
Sampling mode: free diffusion.
Test range: 0-1000 ppm; 0-100%LEL ; 0-100%VOL
Resolution: 0.01/0.1/1
Accuracy: ≤ 5% FS.
Debugging mode: buttons and remote controller (optional).
Response time: flammable < 30s, toxicity < 60s.
Recovery time: flammable < 30s, toxicity test < 60s.
Ambient temperature: -20 ℃ ~ 55 ℃.
Relative humidity: ≤ 95%.
Explosion-proof mode: flameproof.
Explosion-proof grade: Ex d ⅡC T6 Gb.
Protection class: IP65.
Power supply: DC24V ± 12V.
Output signal: (4 ~ 20) mA, RS485.
Power consumption: ≤ 3 W.
Mounting thread: M20X1.5 or G1/2
Used cable: ≥ 1.5mm 2 × 3 (branch), ≥ 1.5mm 2 × 4 (bus), ≥2.5mm 2 × 2 (two buses)
Maximum transmission distance: ≤ 1000 m.
Weight of complete machine: ≤ 1000 G.

Pressure limit: 86kPa ~ 106kPa.

III. Product structure diagram and schematic diagram of each component

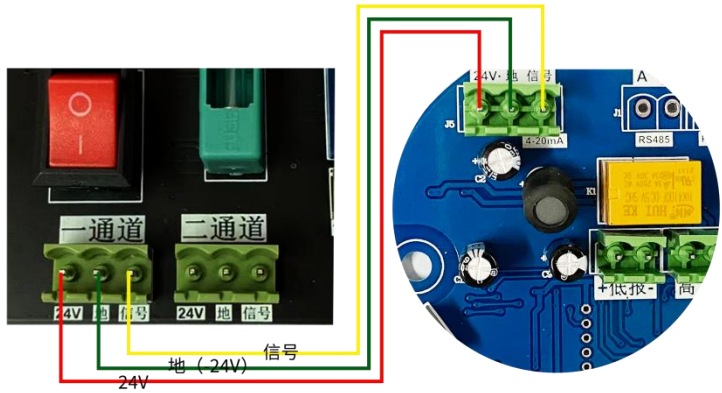
3.1 Outline dimension drawing:



3.2 Structural drawing:

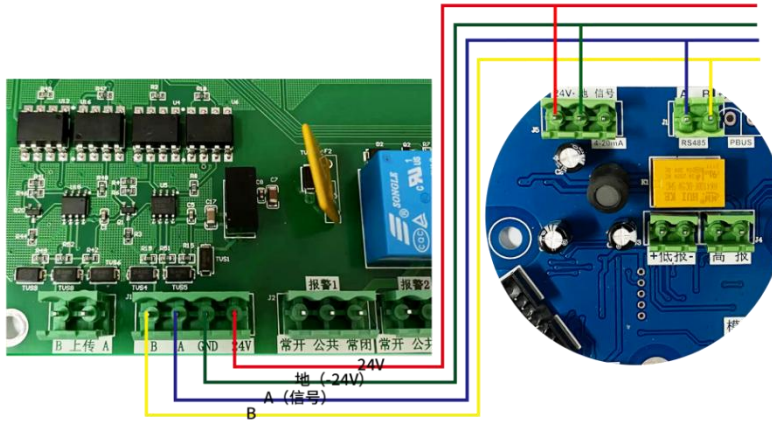
IV. Wiring Description

4.1 Split-wire type (3-wire 4-20 mA)



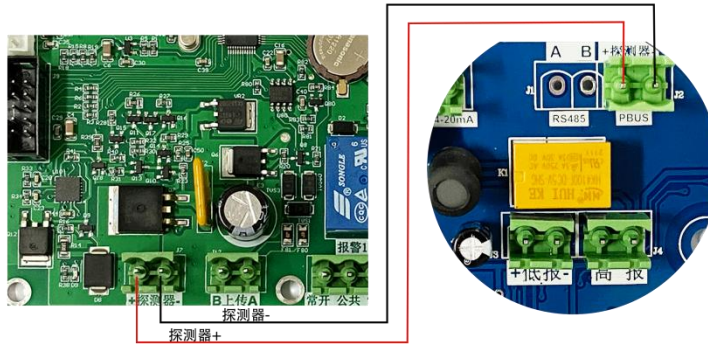
Note: The wiring terminals of the detector correspond to the wiring terminals on the host. As shown in the figure above: positive Pole to positive (24V), negative to negative (GND or ground), signal to signal (signal or I/A).

4.2 Bus type (four-wire RS485)



Power supply: 24V to 24V, GND to GND or ground signal: A to A, B to B

4.3 Bus type (two-wire PowerBus)



Note: As shown in the figure, the two lines are connected without distinguishing the positive and negative poles.

V. Menu Operation Description

5.1 Detector Panel Operation:

Detector operation panel

[En] key function: enter the menu or confirm

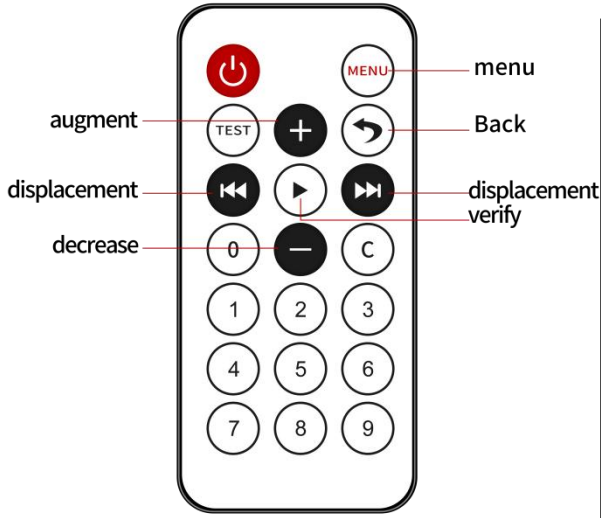
【] key function: page turning or digit shifting

【] key function: turn pages or modify numbers

【C L] key function: back

Press 【En】 Key, display "0000" "Input." Password "1111"？Press again【En】Key to enter the menu

5.2 Remote control operation



Remote control key functions, such as Left As shown in the figure:
Press 【 Menu 】 Key, display "0000" ”
Input Password "1111" Enter the user menu.
Press [Confirmation] Enter the menu
[5] Key: Zero Set up Shortcut key
[8] key: address Set up Shortcut key

5.3 Function list (digital model)

List of functions used by user					
FU-1	Level I alarm value	FU-2	Secondary alarm value	FU-5	Zero calibration

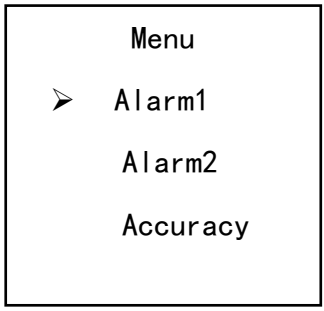
Note: The function list of the manufacturer is only for the use of the manufacturer for debugging. Non-manufacturer personnel are not allowed to operate. Damage is not guaranteed.

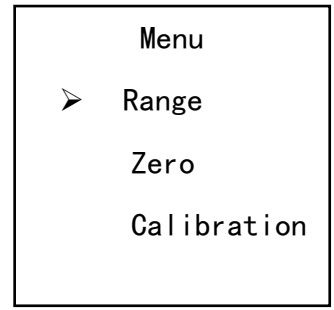
List of functions used by the manufacturer					
FU-3	Precision setting	FU-4	Range setting	FU-6	Gas calibration

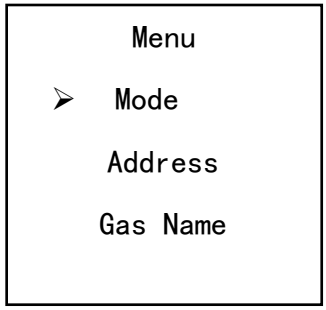
FU-7	Working mode	FU-8	Detector number	FU-9	Type of gas
FU-A	Unit setting	FU-C	4-20mA current calibration	FU-E	Factory restore

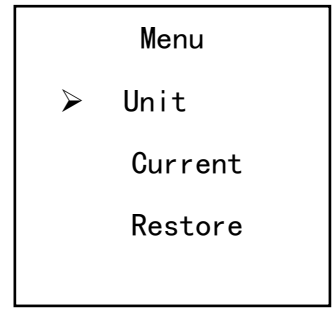
Note: The calibration setting requires a secondary password. Please consult the manufacturer.

5.4 Function list (LCD model)









5.6 Detailed description of function list:

1. Level I alarm value (low alarm setting)

Select menu "FU--1", press "OK" or "En" to display "20" (default level 1 alarm value), press "" to select the position to be adjusted, press "" to increase the level 1 alarm value, press "OK" or "En" to memorize the current alarm value and return to the menu, and press "Exit" or "Cl" to return to the working state.

2. Level II alarm value (high alarm setting)

Select menu "FU--2", press "OK" or "En" to display "50" (default secondary alarm value), press "" to select the position to be adjusted, press "" to increase the primary alarm value, press "OK" or "En" to memorize the current alarm value and return to the menu, and press "Exit" or "Cl" to return to the working state.

3. Precision setting

Select menu "FU--3" and press "OK" or "En" to display the current precision. Press "" or "" to adjust the precision value. Press "OK" or "En" to memorize the current accuracy value and return to the menu. Press "Exit" or "Cl" to return to the working state.

4. Range setting

Select menu "FU--4", press "OK" or "En" to display the current range, press "" to select the position to be adjusted,

and press "" to increase the value. Press "OK" or "En" to memorize the current range value and return to the menu, and press "Exit" or "Cl" to return to the working state.

5. Zero setting

In clean air, select menu "FU--5", press "OK" or "En" to display the current zero point A/D value. After the display is stable, press "OK" or "En" to take effect immediately.

6. Calibration settings

In clean air, select menu "FU--6", press "OK" or "En", and enter the secondary password to display the standard gas concentration value. The user can modify the standard gas concentration value as required, press "OK" or "En" again to display the current A/D value, introduce the standard gas, and press "OK" or "En" after the displayed value is stable to complete the calibration.

7. Working mode

Adjust the working mode of the detector, which has been adjusted in the factory, and the user does not need to modify it.

8. Address setting

Select menu "FU--8" and press "OK" or "En" to set the detector number. The detector number cannot be repeated for the same host.

9. Name of gas

Adjust the name of the gas detected by the detector, which has been adjusted in the factory, and the user does not need to modify it.

10. Unit Settings

Adjust the unit of gas detected by the detector, which has been adjusted by the factory, and the user does not need to modify it.

11. Current setting (4-20mA)

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

12. Reset settings

Select the menu "FU--E" to restore the factory settings. Use this feature with caution.

VI. Common Faults and Solutions

Fault symptom	Cause of failure	Handling method
FAUL fault is displayed	Wiring error, broken wire or broken sensor	Rewire or replace the sensor
No response to	The sensor is broken	Replace the sensor

test gas	Circuit failure	Repair by the manufacturer
Abnormal connection with controller	Wiring fault	Check the wiring
	Circuit failure	Repair by the manufacturer

VII. Precautions

1. This machine shall be used in a place without corrosive gas to prevent falling or violent vibration.
2. It is forbidden to blow the detector directly with fast airflow, otherwise the test results will be affected.
3. Do not expose the machine to high concentration gas sample frequently, otherwise the working life of the sensor will be lost.
4. For mixed combustible gas or liquid vapor, there will be some errors in the test results of this machine.
5. This machine has been calibrated before leaving the factory, and the new machine does not need secondary calibration.
6. This product is a qualified explosion-proof product.

VIII. Warranty and Maintenance

1. The warranty period of this product is one year, and the

damage caused by man-made and abnormal use is not within the scope of warranty.

2. If the service life of the sensor expires, please contact our company to replace the sensor with a new one. If the user can not eliminate the fault, the instrument can be sent back to our company for repair.

九、Sensor parameter selection list item

Main technical indicators

Detect gas	Range	Alarm value	Minimum reading	Response time
Combustible gas (EX)	0-100%LEL	20%LEL	1%LEL	≤ 10 seconds
Oxygen (O2)	0-30%VOL	19.5%Vol	0.1%Vol	≤ 15 seconds
Carbon monoxide (CO)	0-1000ppm	50ppm	1ppm	≤ 25 seconds
Carbon Dioxide (CO2)	0-5%VOL	0.2%VOL	0.01%VOL	≤ 30 seconds
Formaldehyde, CH2O	0-50ppm	10ppm	0.1ppm	≤ 40 seconds
Ozone (O3)	0-20ppm	5ppm	0.1ppm	≤ 30 seconds
Hydrogen Sulfide	0-100ppm	15ppm	1ppm	≤ 30

(H2S)				seconds
Sulfur dioxide (SO2)	0-20ppm	5ppm	0.1ppm	≤ 30 seconds
Nitric Oxide (NO)	0-250ppm	20ppm	1ppm	≤ 60 seconds
Nitrogen dioxide (NO2)	0-20ppm	5ppm	0.1ppm	≤ 60 seconds
Nitrogen oxides (NOX)	0-100ppm	20ppm	1ppm	≤ 60 seconds
Chlorine (CL2)	0-20ppm	5ppm	0.1ppm	≤ 60 seconds
Ammonia (NH3)	0-100ppm	15ppm	0.1ppm	≤ 60 seconds
Hydrogen (H2)	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 (PH3)	0-20ppm	2ppm	0.1ppm	≤ 60 seconds
Ethylene oxide (ETO)	0-100ppm	20ppm	1ppm	≤ 120 seconds
Phosgene (COCL2)	0-100ppm	5ppm	1ppm	≤ 60

				seconds
Silane (SiH4)	0-50ppm	10ppm	0.1ppm	≤ 60 seconds
Fluorine (F2)	0-20ppm	5ppm	0.1ppm	≤ 30 seconds
Hydrogen Fluoride (HF)	0-20ppm	5ppm	0.1ppm	≤ 30 seconds
Hydrogen bromide (HBr)	0-50ppm	10ppm	0.1ppm	≤ 60 seconds
Arsine (AsH3)	0-20ppm	1ppm	0.1ppm	≤ 30 seconds
Hydrazine (N2H4)	0-100ppm	20ppm	1ppm	≤ 60 seconds
Tetrahydrothiophene (THT)	0-100mg/m3	20mg/m3	1mg/m3	≤ 60 seconds
Bromine (BR2)	0-20ppm	5ppm	0.1ppm	≤ 60 seconds
Acetylene (C2H2)	0-100%LEL	20%LEL	1%LEL	≤ 60 seconds
Ethylene (C2H4)	0-100%LEL	20%LEL	1%LEL	≤ 60 seconds
Ethanol (C2H6O)	0-100%LEL	20%LEL	1%LEL	≤ 30 seconds
Methanol (CH4 O)	0-100%LEL	20%LEL	1%LEL	≤ 30

				seconds
Carbon disulfide (SC2)	0-50ppm	10ppm	0.1ppm	≤ 120 seconds
Acrylonitrile (C3H3N)	0-50ppm	10ppm	0.1ppm	≤ 60 seconds
Methylamine (CH5N)	0-50ppm	10ppm	0.1ppm	≤ 60 seconds
Styrene (C8H8)	0-100ppm	20ppm	1ppm	≤ 30 seconds
Trichloroethylene (C2HCL3)	0-50ppm	20ppm	0.1ppm	≤ 60 seconds
Methyl bromide (CH3Br)	0-100ppm	20ppm	1ppm	≤ 30 seconds
Benzene (C6H6)	0-100ppm	20ppm	1ppm	≤ 30 seconds
Toluene C7H8	0-100ppm	20ppm	1ppm	≤ 30 seconds
Xylene (C8H10)	0-100ppm	20ppm	1ppm	≤ 30 seconds
Sulfur hexafluoride (SF6)	0-100ppm	20ppm	1ppm	≤ 30 seconds
VOC/TVOC	0-1000ppm	50ppm	1ppm	≤ 30 seconds

Laughing gas (N20)	0-100ppm	20ppm	0.01ppm	≤ 30 seconds
Argon (Ar)	0-100%vol	20%Vol	1vol	≤ 30 seconds

Copyright notice:

Please keep this manual for easy reference.