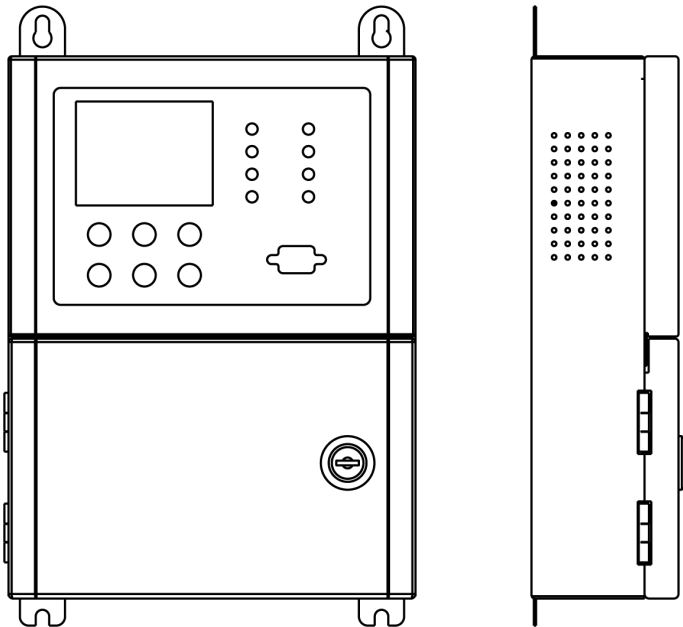


PRODUCT MANUAL

Gas alarm controller



Notice to users

Dear User:

Thank you for purchasing our gas alarm controller!

Please read this instruction manual carefully before using this product.

Please keep this instruction manual safe after reading so that you can refer to it at any time when needed.

It is our great honor to have you as our user. To help you quickly master the operation of our gas alarm controller, we have specially prepared this instruction manual for you. We have strived for comprehensiveness yet conciseness in the arrangement of this product manual. From it, you can obtain information on the operation methods, installation procedures, and troubleshooting of common faults related to this gas alarm controller. We strongly recommend that you read this manual carefully before using this product, as this will help you use it better. Our company will not be liable for any losses caused by your failure to operate the machine according to the requirements of this manual.

We have made every effort to minimize human error and ensure that the information provided in this manual is accurate and reliable. However, we cannot guarantee that there will be no errors that were not discovered or checked before printing, or that there will be oversights in the printing, binding, and distribution processes that are beyond our control. We ask for your understanding.

Sometimes, in order to improve the performance and reliability of components and the whole machine, we may make some minor adjustments to the hardware or software configuration of the product. This may result in some discrepancies between the actual situation of the machine and the manual. However, this will not substantially affect your use of the machine. This is hereby noted.

To ensure you can promptly enjoy the comprehensive after-sales service provided by our company, please register your product information.

Copyright

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Statement

This company makes no warranties of any kind, including (but not limited to) implied warranties of merchantability and fitness for a particular purpose. This company shall not be liable for any errors contained in this material (installation errors, operational errors), or for any incidental or consequential damages arising from the provision, performance, or use of this instruction manual.

This instruction manual contains proprietary information protected by copyright law. All rights reserved. No part of this instruction manual may be reproduced, photographed, copied, or translated into any other language in any form or by any means without the prior written consent of this company .

As our company will continuously improve and upgrade our products and equipment, the configuration and performance of subsequent models will be subject to change without notice.

Manufacturer's responsibility

Our company considers itself responsible for the safety, reliability, and performance of the equipment only under the following circumstances:

- ◆ Assembly, debugging, performance improvement, and maintenance are all carried out by personnel approved by our company .
- ◆ The relevant electrical equipment complies with national standards;
- ◆ Use the equipment according to the operating instructions.



Notice:

1. All operators who handle or test our company's instruments must carefully read the instruction manual before operation. Our instruments will only function properly when operated in accordance with our instruction manual.
2. The use of this company's instruments must be carried out in accordance with the procedures specified in the instruction manual. Repairs and replacement of parts must be performed using spare parts provided by this company and by trained personnel.
3. If the user disassembles, repairs, or replaces parts without following the above instructions, the operator will be responsible for the reliability of the instrument, and the company will no longer provide warranty service.
4. This instrument should be installed and used in a safe indoor environment with no explosive gases. This is not an explosion-proof device; please install it in a safe environment, and the installation process must comply with relevant national authoritative standards.
5. Before any operation, local regulations and on-site operating procedures must be followed. The use of the instrument should also comply with the laws and regulations of relevant domestic departments and the factory regarding instrument management.
6. Resistive touchscreens are more susceptible to damage from scratches , so please do not use hard objects to operate them.
7. Connect external devices strictly according to the output relay capacity to avoid damaging the controller. For external devices exceeding the capacity, please add an AC contactor.
8. The machine should be reliably grounded during use. If the power input has no ground wire, the machine should be safely grounded through the grounding terminal.
9. Always disconnect the power supply before connecting or disconnecting the instrument terminals or performing other operations.
10. The time interval between power-off and power-on of the instrument is more than 5 seconds.

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I. Overview :

The gas alarm controller can connect to 8 gas detectors, features a 2.8-inch TFT color screen display, a built-in backup rechargeable battery, a 32-bit ARM architecture processor, a real-time operating system, and rich embedded software to perform functions such as detector signal sampling, real-time data calculation, display control, large-capacity storage, system fault detection, alarm prompts, and peripheral driver services.

The gas alarm controller consists of a main control board, power supply board, TFT display screen, horn, switching power supply, and backup rechargeable battery. It also features two built-in output relays for driving and controlling devices such as fans and solenoid valves, adapting to different site conditions. The wireless version supports 4G wireless communication and data upload to a cloud platform. It also has RS485 output functionality for convenient data transmission with third parties. Designed in accordance with national standards, it boasts advantages such as fast response speed, strong anti-interference capability, high reliability, and ease of maintenance.

Main features:

1. Employing a 32-bit core processor based on the ARM architecture, a real-time operating system, and excellent algorithms, it ensures accurate and fast response.
2. The 2.8-inch TFT color screen displays real-time gas concentration values, units, alarm status, battery status information , time, etc.
3. The large-capacity data storage function allows you to view alarm records and fault records ;
4. The unit is equipped with a rechargeable backup battery, which

automatically switches to backup power when the main power fails.

5. A powerful alarm system with audible and visual alarms, and alarm modes including low alarm, high alarm, and fault alarm;
6. The 4G wireless communication function can upload data to the cloud platform to remotely monitor gas detector data and alarm status ;
7. Two sets of passive relay outputs can drive external devices such as fans and gas solenoid valves ;
8. The circuit meets national standard design requirements and is anti-static and anti-electromagnetic interference.

1.1 Safety Precautions

- Do not expose the instrument to direct sunlight.
- Do not store the instrument in environments with high temperature, humidity, or strong static electricity that exceed the operating conditions.
- Do not use any corrosive liquids to clean the parts of this machine.
- Do not install the instrument in environments with high levels of dust, salt, or metal powder.
- To ensure the safe and reliable use of this gas alarm controller, the casing should be reliably grounded. Do not disassemble it yourself.
- Users must not replace the product parts themselves, but should work with the manufacturer to resolve any malfunctions that occur during operation in order to prevent damage from occurring.
- The casing contains a 220V high-voltage power supply; please exercise caution. Any problems should be handled by a professional electrician.

II. Appearance and Structure

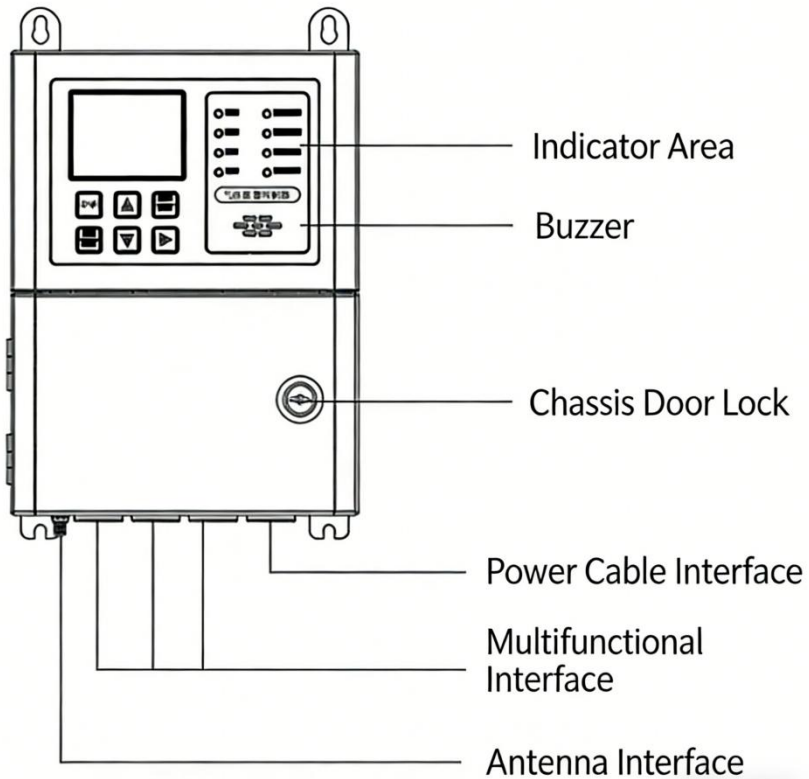


Figure 2.0 Front view of the gas alarm controller

The front of the gas alarm controller is shown in the picture above. It consists of a chassis, a 2.8-inch LCD touch screen, buttons, an LED indicator area, a buzzer, and a wiring port.

2.1 System Composition

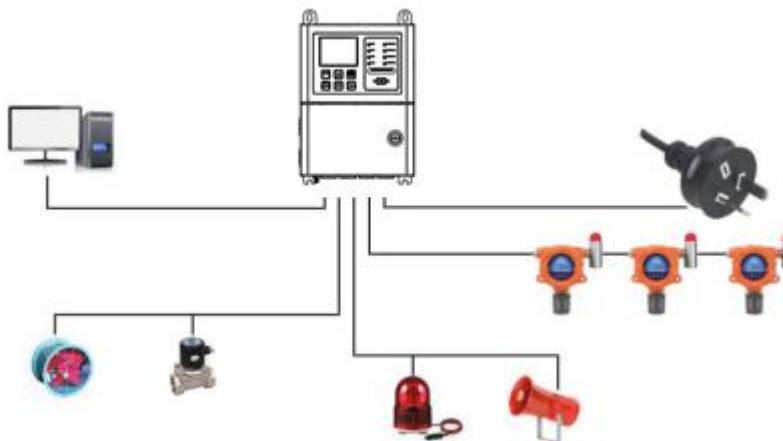


Figure 2.1 On-site installation and dimension diagram

The system is centered around an alarm controller and can connect to up to eight gas detectors and several external load devices. A schematic diagram of the system is shown above.

2.2 Controller Installation

2.2.1 Installation Precautions

1. When installing the product, please refer to relevant literature to ensure that it meets the basic requirements for gas detection in special application situations as stipulated by relevant industries.

2. The installation process must comply with relevant national authoritative standards.

3. Install and use in safe indoor areas in non-explosive gas environments.

4. Proper installation and reliable grounding are essential to improve resistance to RFI and EMI interference.

5. Ensure that the maximum distance between the controller and the detector does not exceed the specified range.

2.2.2 Equipment Dimensions

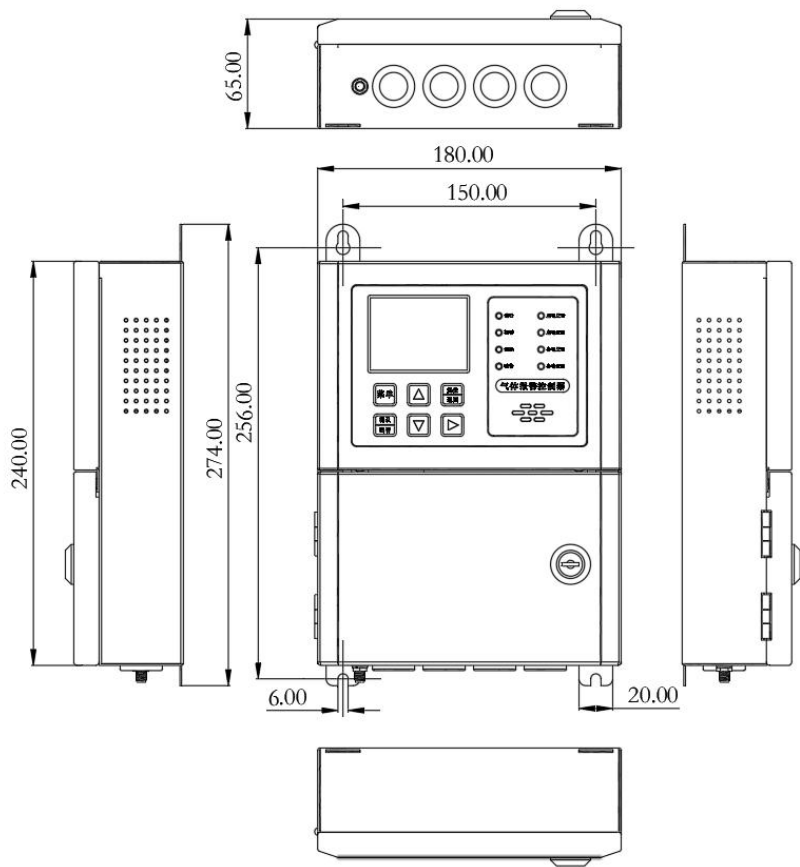


Figure 2.2 Equipment Dimensions

2.2.3 Installation Method

Installation method:

Wall-mounted.

Installation steps:

1. Choose a suitable installation location to ensure that the controller is easy to operate and the display is clearly visible after installation. Additionally, ensure that the chassis door has sufficient opening space for easy wiring, maintenance, and adjustment.
2. Determine the hole positions and drill appropriate mounting bracket screw holes.
3. Secure the machine to the wall and tighten the screws to ensure the controller is reliably installed.

2.3 Wiring Instructions

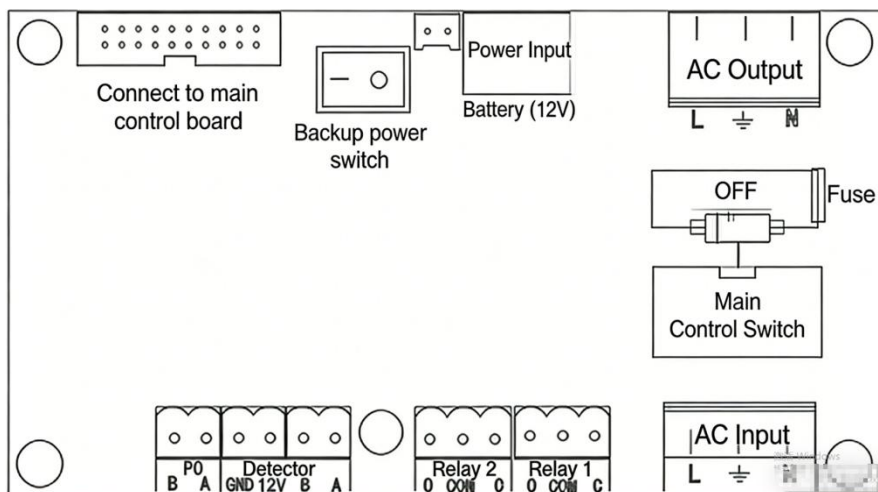


Figure 2.3 Internal wiring block diagram

Below the board, from right to left, are the following interfaces:

- 1、AC220V mains input, 3-wire system, L is the live wire, N is the neutral wire, $\perp$ and the grounding device must be connected to the mains power in a three-wire system to ensure that the device operates normally in complex working conditions and strong EMC interference environments.
- 2、There are 2 sets of passive relay outputs, where COM is the common terminal, C is the normally closed short terminal, and O is the normally open terminal. Please pay attention to the wiring!
- 3、Two RS485 interfaces: the PC interface can be connected to a computer or third-party fire-fighting equipment to transmit data via RS485, and the detector interface can be connected to a gas detector , allowing up to 8 gas detectors with RS485 functionality to be connected simultaneously .
- 4、Pressing the main power switch downwards (towards "1") turns on the main power, and pressing it upwards (towards "0") turns off the main power.
- 5、The equipment uses glass fuse tubes, which are one-time use fuses. If the equipment fails to operate after the main power switch is turned on, check whether the fuse has blown.

If the fuse blows, replace it promptly. The fuse should be 250V/3A.

At the top of the board, from right to left, are the following interfaces:

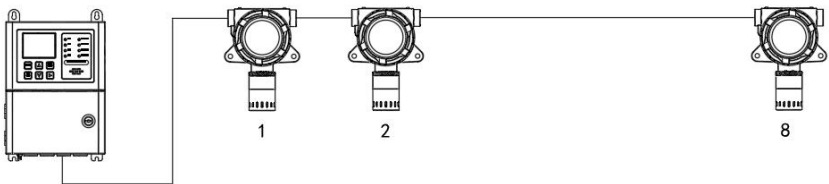
- 6、AC220V output interface, for connecting to the internal switching power supply of the device.
- 7、The DC 12V power input interface provides main power to the internal components of the device.

- 8、DC12V battery input interface provides backup power for the device.
- 9、Pressing the backup power switch to the right (facing "1") turns on the backup power, while pressing it to the left (facing "0") turns it off.

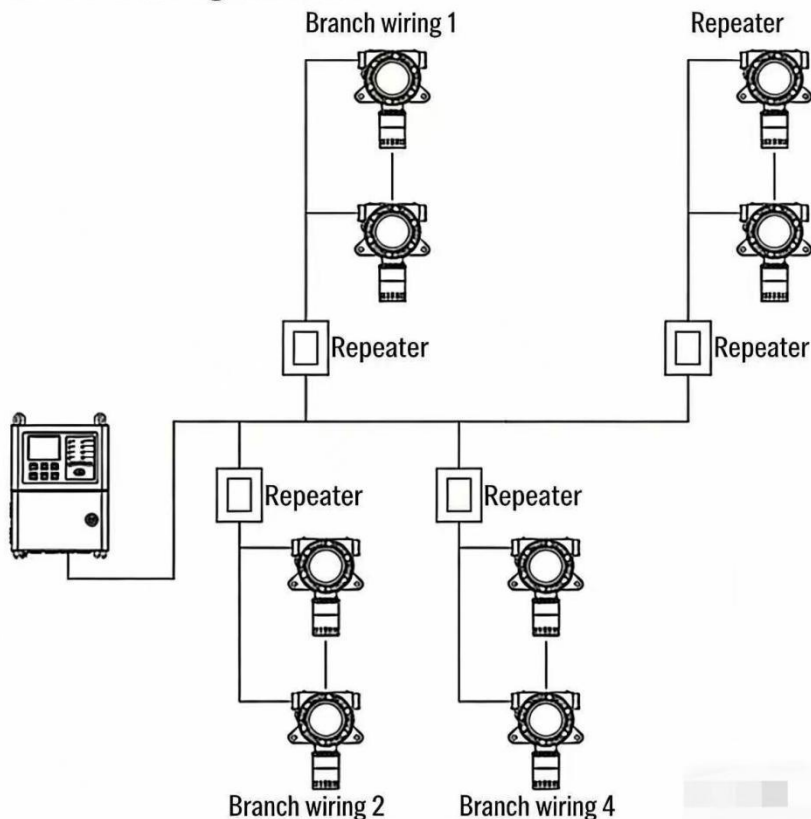
RS485 bus wiring and connection precautions:

1. Wiring structure

RS485 cabling specifications prohibit the use of star topologies (as shown in the diagram: non-standard structure). For devices connected to the bus, the branch line length should not exceed 3 meters. Star topologies are prone to signal reflection, introducing electromagnetic interference and causing communication instability. Specifications recommend daisy-chain cabling (as shown in the diagram: standard structure). When star topologies are unavoidable or daisy-chain cabling is difficult to implement due to environmental limitations, relays can be added (as shown in the diagram: reasonable structure) to meet the specification requirements.



Reasonable wiring structure:



3. Power transmission distance

The gas alarm controller can connect to a maximum of 8 detectors. However, due to limitations in the controller's power supply, the actual connection distance between detectors will be limited. Please refer to the table below:

All detectors are connected to the end of the line; transmission distance reference table is provided, with power supplied directly by the controller.

Detecting gas	Cable area mm ²	100	200	300	400	500	600	700	800
	Number of detectors n Maximum transmission distance m								
combustible gas	1.00	15	7	5	4	3	2	2	1
	1.50	23	11	7	5	4	3	3	2
	2.50	32	18	12	9	7	6	5	4
Toxic gas	1.00	20	12	8	6	5	4	3	3
	1.50	24	16	12	8	7	6	5	4
	2.50	32	24	20	16	12	10	8	6

**Notice:**

1. Wiring operations must be performed after the power is turned off.
2. In explosive hazardous locations, users must use cable entry devices that comply with national regulations. To ensure the safe use of the instrument, ensure that the instrument casing is reliably connected to the ground.
3. All wiring must comply with relevant national and industry standards and regulations. DC signal lines and AC power lines must not be in the same shielded cable.

III. Function Introduction :

After installing the machine, you can power it on for testing. Before powering it on, please check and ensure that all wiring is correct!

3.1 Power-on self-test

After powering on, the system will first enter the startup interface, which takes 5 seconds. During this process, the system will perform a self-test. The audible and visual alarm may activate during this time to indicate that it is functioning correctly, but the relays will not activate to prevent accidental operation of other electrical devices. After the self-test is complete, the system will enter normal operating mode.

3.2 Startup Page

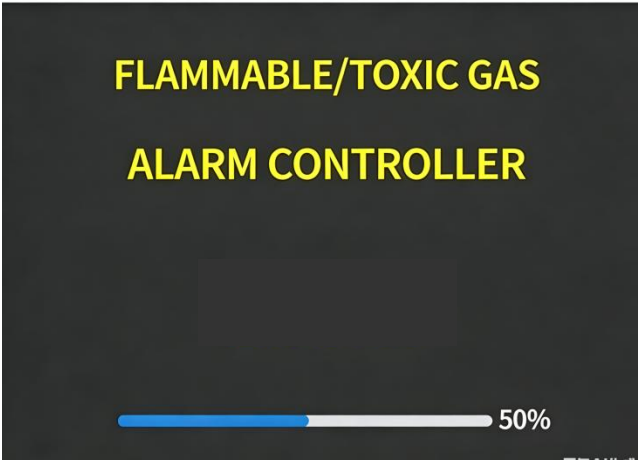


Figure 3.2 Startup Page

3.3 System Main Interface

User		CH 3 High		CH 4 Fault	10:56
CH	Gas	Conc	Unit	Status	
CH 1	Ch4	0.1	%LEL	Normal	
CH 2	Ch4	20	%LEL	Low	
CH 3	Ch4	60	%LEL	High	
CH 4	Ch4	—	%LEL	Fault	
F-ALARM: CH 3			A-Time: 26-02-06 10:55		
Alarms: 1					
					

Figure 3.3 System Main Interface

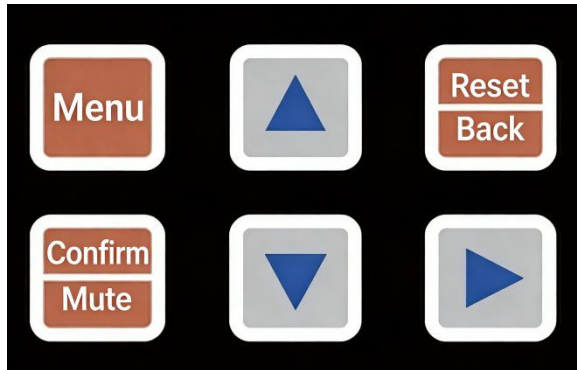
Main interface content and icon meanings:

Display content/icon	meaning
Regular users	User types are divided into regular users and administrators. Different types have different operation permissions. Press the [Confirm] button to enter the user type selection settings interface.
"Emergency Report: XX "	The system displays the channels currently experiencing alarms in real time. When multiple alarms are present, the display scrolls through the channels, switching every 5 seconds.
"Fault: XX "	The system displays the currently faulty channels in real time. When multiple channels are faulty, the display scrolls and switches every 5 seconds.
	When the controller is in alarm mode, press the [Mute] button to silence the alarm sound. The screen icon will change to [image of a new alarm sound]. After silencing, a new alarm will appear. When silencing is lifted, the icon will change back to [image of a new alarm sound].
13:25	The system time display indicates that the controller should be set to the correct time upon first use. Press the [OK] button to enter the time setting interface.
aisle	RS485 address of the detector
gas	Detector gas type
concentration	Gas concentration detected by the detector
unit	gas units of the detector
state	Detector status: Normal, High Alarm, Low Alarm, Offline
First alarm	The detector channel and time of the first alarm

Communication is normal	The device's connection status via the 4G module and the cloud platform server. 1. Normal communication indicates a successful connection to the cloud platform. 2. Communication error description and cloud platform connection failure
	Turn the page forward, and when the cursor moves to this icon, press the [OK] button. The main interface will scroll forward.
	Turn the page forward, and when the cursor moves to this icon, press the [OK] button. The main interface will scroll to the next page.
	The main power indicator icon has the following two states: 1. When the main power is connected and the voltage is normal, the icon is blue. 2. The icon will be red when the main power is not connected or the voltage is abnormal.
	The backup power indicator icon has the following four states: 1. When the backup power is set to "Off" in the system, this icon will not be displayed. 2. When backup power is connected and the voltage is normal, the icon is green. 1) When the main power supply is working, the battery will charge. When fully charged, the battery will be at full capacity. 2) When the main power supply is not working, the battery will gradually deplete as its charge decreases. 3. When the backup power voltage is abnormal, the icon will be red.

3.3.1 Button

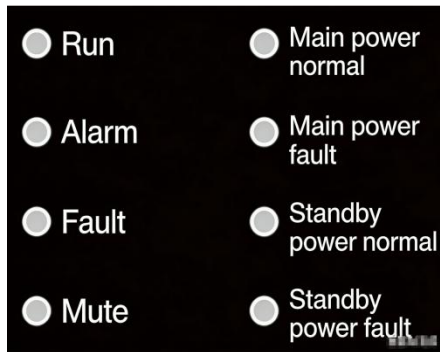
Instructions:



1. [Menu] : Press the menu button to enter the settings interface.
- 2 【 ▲ 】 : Press the up arrow key to move the cursor and set parameters.
- 3 【 ▼ 】 : Press the down arrow key to move the cursor and set parameters.
- 4 【 ► 】 : Press the right arrow key to move the cursor.
5. [Confirm/Mute]: Briefly press the button to confirm. Press and hold the button for more than 5 seconds to mute.
6. [Reset/Return]: On the main interface, briefly press the button to perform a reset operation. You will need to enter the password: 1111, before the device's fault and alarm status can be cleared.

In other interfaces, a short press of the button will return you to the previous screen.

3.3.2 Indicator Light Description:

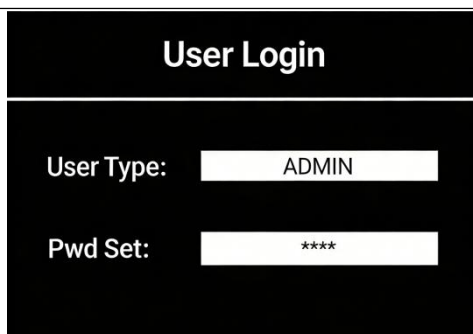


1. [Operation]: When the equipment is powered on and running normally, the operation indicator light will flash green.
2. [Alarm]: When the detector concentration exceeds the limit, the alarm indicator light will flash red.
3. [Fault]: When the controller or detector sends a fault signal, the fault indicator light will remain solid yellow.
4. [Silence]: When the equipment is in silence operation, the silence indicator light will be constantly red.
5. [Main Power Normal]: When the main power is on and working normally, the indicator light will be constantly green.
6. [Main Power Fault]: When the main power supply malfunctions, the indicator light will remain constantly yellow.
7. [Backup Power Normal]: When the backup power is on and working normally, the indicator light will be solid green.
8. [Backup Power Failure]: When the backup power is working normally, the indicator light will be constantly green.

3.3.3 User Types

The user type is displayed in the upper left corner of the main interface . Different user types correspond to different operation permissions. The default user type is a regular user each time the computer is turned on.

User type	User permissions	User password
Regular users	Mute, set time, view fault records, system logs and alarm data , communication parameters, and system self-test.	none
administrator	Mute, reset, shield, set time, fault record, system log and alarm data, channel parameter settings, relay settings	000222



The image shows a black rectangular box representing the 'User Login' interface. At the top, the text 'User Login' is centered in white. Below this, there are two rows of input fields. The first row is labeled 'User Type:' on the left and contains a white rectangular box with the text 'ADMIN' inside. The second row is labeled 'Pwd Set:' on the left and contains a white rectangular box with the text '****' inside.

Figure 3.3.2 User login interface

Click the top left corner of the main interface, select the user type, and switch between different users.

3.3.4 Time Setting

TIME SET

DATE

2023

-

03

-

06

TIME

16

:

29

:

20

Click the time icon in the upper right corner of the main interface to enter the interface where you can set the real-time time: year, month, day, hour, minute, and second.

3.4 Settings Interface

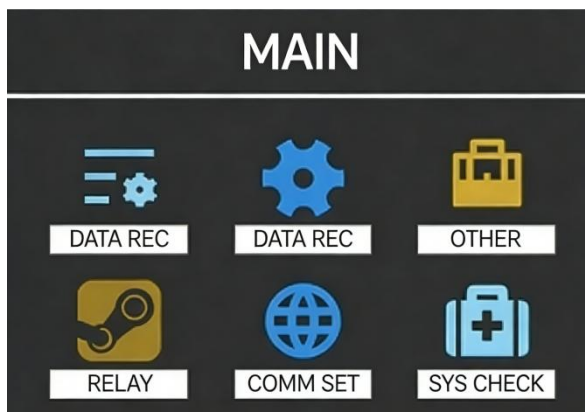


Figure 3.4 User settings interface

1. [Data Records]: Includes alarm records, fault records, and system logs.
2. [Channel Parameter Settings]: Set the parameters related to

each channel.

3. [Other Settings]: Configure system parameters and restore factory settings .

4. [Relay Settings]: Configure the parameters related to the two relays on the device.

5. [Communication Settings]: Configure the parameters for device communication with external devices and view the software version .

6. [System Self-Check]: Perform a manual self-check on the speaker, indicator lights, etc. on the equipment.

3.4.1 Channel Settings

CH SET	
ChNo.:	001
HiThresh:	050
LoThresh:	025
BlockSet:	NORMAL
AlarmMode:	AlarmMod
PROBE	PROBE
AlarmMod:	NORM MODE

Figure 3.4.2 Detector parameter interface

Administrators can access this interface and configure the following parameters:

1. [Channel Number]: Sets the address of the currently selected channel, which corresponds to the RS485 address of the detector .

2. [High-Call Threshold]: Sets the high-call threshold for the current channel. The high-call threshold is greater than the low-call threshold.

3. [Low Reporting Threshold]: Sets the low reporting threshold for the current channel. The low reporting threshold is less than the high reporting threshold.

4. [Blocking Settings]: Sets the current channel to normal or blocked. When set to normal...

The channel communicates normally with the controller. When it is set to be blocked, the controller and the channel do not transmit data.

5. **[Alarm Mode]**: Set the controller's alarm mode to either detector-based or host-based. When the detector mode is set to primary, the low and high alarm thresholds set on this interface are invalid. The controller's alarm thresholds are based on the thresholds read from the detectors. Furthermore, high and low alarm thresholds cannot be set. When the host mode is set to primary, the alarm thresholds are based on the high and low alarm thresholds on this interface. The controller will trigger an alarm when the detector concentration exceeds the threshold.

6. [Alarm Mode] : Oxygen Mode or Normal Mode

3.4.2 Relay Settings

RELAY SET		
RELAY #:	R1	
TRIG COND:	HIGH	
ACT TYPE:	LEVEL	
START DLY	0	
ZONE:	1	~ 1

Figure 3.4.4 Relay Setting Interface

Administrators can access this interface and configure the following parameters:

1. [Relay] : You can click to select relay number 1-2.
2. [Action Conditions] : The conditions that trigger the relay to operate (high alarm, low alarm, fault).
3. ****Action Type : **** Relay level output or pulse output. (Pulse width is 750ms)
4. ****Activation Delay: **** Activation delay refers to the time delay before the relay activates when the detector alarms.
- 5 [Partition] : Corresponds to the 485 address of the detector , and can be set to address 1-8 .

For example, if partition 1 is set to 1-4, then when detectors with addresses 1 to 4 trigger an alarm, relay number 1 will activate. The relay settings will take effect immediately after completion.

3.4.3 Communication Settings

COMM PARAM	
DevAddr:	1
Baud:	9600
CommPro:	FIRE GP
SwVer:	V1.0.07

Figure 3.4.6 Local Network Settings Interface

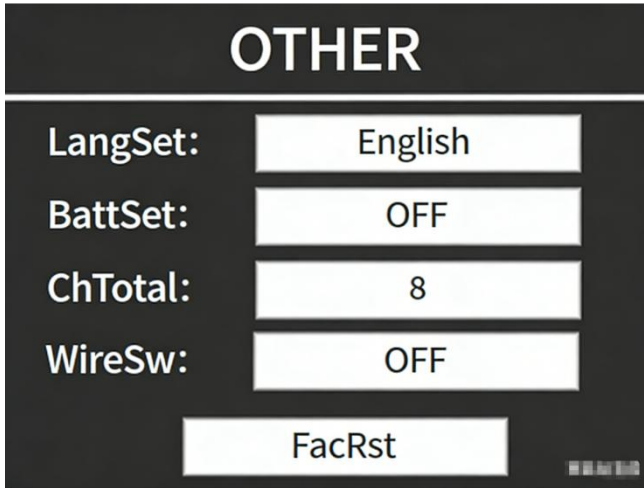
The main function of the communication parameter setting interface is to enable communication between the controller and external fire protection graphic equipment or third-party equipment. It uses RS485 transmission, so the main function is to set RS485 communication parameters.

1. [Device Address] : The controller communication address can be set from 1 to 247.
2. [Baud Rate] : You can select the communication baud rate, which is the speed. The default is 9600.
3. ****Communication Protocol : **** You can choose between fire alarm graphics or MODBUS. Fire alarm graphics are used to connect to a dedicated fire alarm control panel. MODBUS is a custom communication protocol developed by our company; if you require interoperability...

You can contact our company for technical support.

4. [Software Version Number] : The software version of the controller .

3.4.4 Other Settings



OTHER	
LangSet:	English
BattSet:	OFF
ChTotal:	8
WireSw:	OFF
FacRst	

Once you enter this interface, you can set the following parameters:

1. [Language Settings]: Currently only Chinese is supported; other languages are yet to be developed.
2. [Backup Power Settings]: Set whether a backup battery is installed inside the controller. Select "On" when the device has a backup battery and select "Off" when the device does not have a backup battery .
3. [Total number of channels] : Sets the total number of channels that the controller can connect to.
4. [Wireless Switch] : Wireless module network control button.
5. [Restore Factory Settings] : Restore factory default

settings.

3.4.5 System Self-Check

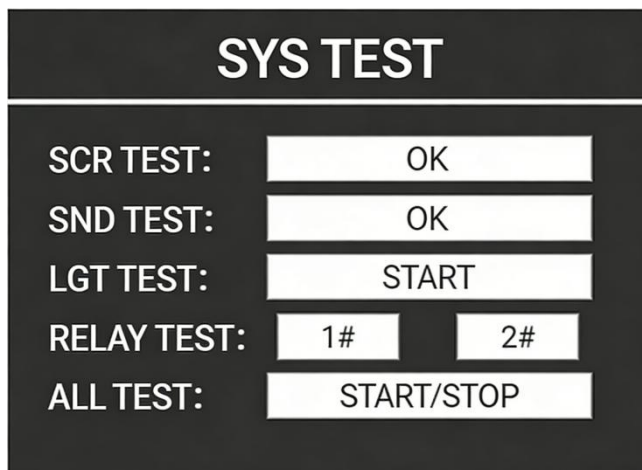


Figure 3.5 Self-test settings interface

Once you enter the interface, click on each button to perform a self-check of the corresponding function.

1. [Screen Self-Test] : Displays five colors in rotation: red, green, yellow, blue, and black.
2. [Sound Self-Check] : The speaker emits "Welcome to use".
3. [Indicator light self-test] : The alarm indicator light flashes once.
4. [Relay Self-Test] : The indicator light will flash when the relay generates three consecutive pulses (pulse width 750ms) .
5. [One-click self-test] : Performs sound, indicator light and relay self-test functions.

3.5 Data Recording

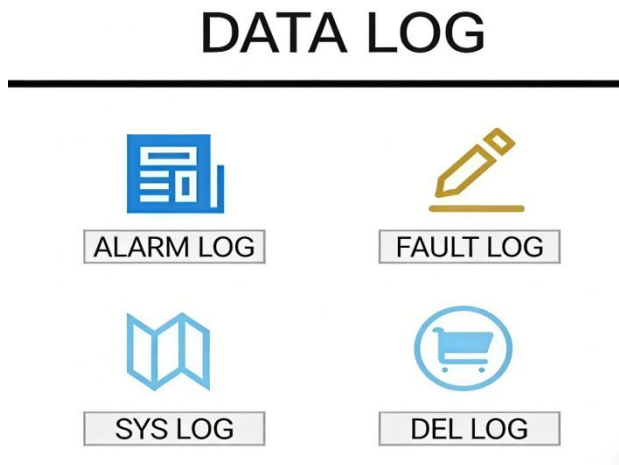


Figure 3.6 Data Recording Interface

This interface is for controller data logging. It includes alarm logs, fault logs, and...

System Log. Select the icon and press the [OK] button to enter the corresponding interface.

3.5.1 Fault Records

FAULT LOG				
NO.	ADDR	GAS	STATUS	TIME
1	CH8	CH4	Fault	06010846
TOTAL: 10 PCS			<<	>>

Figure 3.6.2 Fault Log Interface

Click on "Fault Records" to enter this page. This page records the fault time and fault status of each channel detector. The total number of current fault records is displayed in the lower left corner. Use the cursor to select the previous page << or next page >> and press the " OK " button to turn the page.

3.5.2 System Log

SYS LOG			
NO.	ADDR	EVENT	TIME
1	--	DevOn	06-02 10:18
TOTAL: 11 PCS		<<	>>

Figure 3.6.3 System Log Interface

The system log records the operation records of power-on, main power failure, main power recovery, backup power failure, backup power recovery, reset, shielding, shielding recovery, screen self-test, sound self-test, indicator light self-test, relay self-test, one-key self-test, mute, and factory reset .

The total number of logs is displayed in the lower left corner. Use the cursor to select the previous << or next page >> and press the [OK] button to turn the page.

3.5.3 Alarm Data

ALARM LOG				
23 / 06 / 01 14 : 36 QUERY				
NO.	ADDR	GAS	STATUS	TIME
1	CH 2	CH4	Low	06011436
TOTAL 20 PCS << >>				

Figure 3.6.4 Alarm record query interface

Click to enter the alarm record query interface, enter the time point you want to query, and click query. The system will sort in descending order, displaying alarm records with the most recent time point.

The total number of alarm records is displayed in the lower left corner. Use the cursor to select the previous << or next page >> and press the [Confirm] button to turn the page.

3.5.4 Delete records

Click "Delete Record," a password input box will pop up. Enter the password to delete the record and delete the history.

IV. Common Fault Maintenance

Fault phenomenon	Possible reasons	processing method
No display when powered on	There is a problem with the power supply.	Carefully check if the fuse is blown or have it repaired by a professional.
Unable to connect to detector	Incorrect wiring	Check if RS485 pins A and B are reversed. At the same time, check if the probe power supply is normal.
The detector malfunctions intermittently, and functions normally at other times.	Poor contact of wiring terminals	Ensure good contact at the terminals
The main unit has a leakage current problem.	Ungrounded	Check if the three-core power supply grounding terminal is reliably grounded.
A certain relay is not working.	Incorrect relay settings	Enter the relay settings and check if the settings are correct.
Unstable bus communication	The system is not reliably grounded.	Check that the controller power ground wire and communication cable shielding are reliably connected and grounded at one end.

V. After-sales service information

5.1 Warranty Information:

Before the products leave the factory, our company has calibrated and rigorously inspected them as required. We promise that the products comply with relevant national and industry standards and regulations.

1. Before using this product, please carefully check the accessories, product certificate of conformity and user warranty card according to the product shipment list to ensure they are complete. If any are missing, please contact the seller or manufacturer immediately.

2. All customers who purchase instruments from our company are entitled to a 12-month warranty. Users should comply with the instructions for use (including storage, transportation, and usage requirements). Damage caused by improper use by the user, harsh working environment, or force majeure is not covered under warranty. If the instrument malfunctions due to quality issues, our company will repair or replace it free of charge upon presentation of the warranty card. After one year, repairs will be available for a fee.

Users should keep the certificate of conformity and warranty card safe. The warranty period is based on the date on the certificate of conformity. Please be sure to attach the certificate of conformity and warranty card when returning the product for repair. Failure to present the product warranty card will result in charged repair fees.

After product maintenance and repair, please present this manual. The repair personnel will fill out the attached "Repair Record" and sign it. Please also sign it to confirm the repair content and provide valuable feedback. If you are a corporate user, please affix your company seal.

If you have any questions or dissatisfaction with the products and services we provide, including issues related to product technology, quality, installation and maintenance, service attitude, and pricing, please contact us promptly, and we will handle your feedback appropriately.

Appendix I Technical Specifications

Name	Describe
Product Name:	Gas alarm controller
Operating power	Input voltage 220VAC $\pm$ 20%
Display method:	2.8-inch TFT color LCD screen display;
Number of detectors:	1-8 units (RS485 signal transmission)
Detector output	Voltage: 12V $\pm$ 2V Current $\leq$ 2A
Communication method	1. Adjustable RS485 address and baud rate . 2. 4G wireless transmission
Alarm methods:	Audible and visual alarm, sound level $\geq$ 75dB@100cm;
Relay control:	Two sets of passive relays; compatible with 220VAC external devices.
Relay grouping:	The two sets of relays can be configured with arbitrary grouping, corresponding to low alarm, high alarm, and fault alarm.
Backup battery:	12V rechargeable lithium battery 5000mA /H
Operation method:	6 touch buttons
Noise reduction function:	It has a noise reduction function

Operating temperature and	Temperature -10 °C ~ +50°C; Humidity ≤95%RH, non-condensing;
Reference standards:	GB16808-2008
Protection level:	IP54;
Product dimensions:	Length x Width x Height: 274 mm x 180 mm x 65 mm

Appendix II Maintenance Record

time	Repair content	maintenance personnel	person in charge	Remark