



Gas Control Panel

User Manual



V1.4

Foreword

Welcome to use this product, if you find anything unclear, wrong in this manual, please contact our agent or after-sales service department, thank you!

Before any operation on this device, please read the manual carefully!

Dissemination of the contents of this manual without permission is prohibited.

Our company is committed to the continuous improvement of product performance, and the company reserves the right to improve any content in the manual without prior notice.

The color and configuration of the product are only for reference in the description of this manual, please refer to the actual product.

Warning

- Any operations such as installation and disassembly must be performed by professionals.
- The power must be cut off when installing or disassembling. And can only be installed and used in non-hazardous areas.
- This instrument is suitable for 3-hole power plug, please make sure that the socket has a reliable ground connection.
- Cable installation must comply with local or national electrical standards.
- Please do not plug or unplug the SD card when device is still on, or the data files will be damaged.

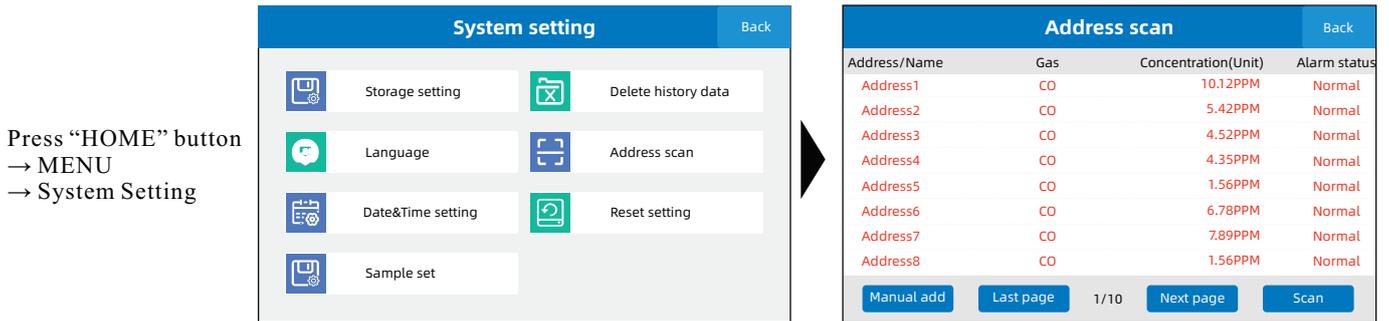
Address scan

Note: Before any settings, perform "Address scan" function to input detectors.

To avoid errors in scan results, each gas detector needs to preset a different (offset) address.

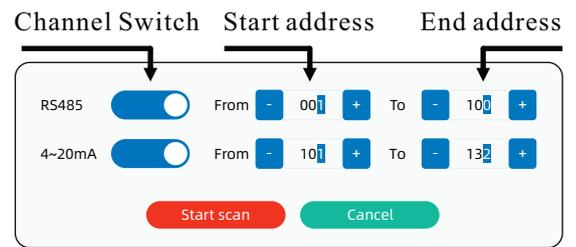
After the device is connected correctly, by setting the "Address scan" function, the control panel will record all the scanned devices into the system. After the device is registered, the device information can be displayed and set on the monitor interface.

* If the device is not scanned. Please check the line to confirm whether the cable is connected correctly or whether the power supply is normal, or whether the device address and wireless link are normal, select the RS485 protocol for devices connected to RS485 port, and then scan again or add it to the list of existing devices by using "Manual add".



Scan Operation instructions:

- 1) Click the "Scan" button.
- 2) Channel switch: It can scan devices with RS485 channel or 4~20mA channel independently, or scan both channels fully (as shown in the figure).
- 3) Scanning start and end addresses: You can manually set the scanning range, and click the "Minus" or "Add" button to adjust the scanning address range (the default is as shown below, full-channel scanning, which takes a long time).



* Address range: 1~100 is RS485 channel, address 101~132 is 4~20mA channel.

All your devices (detectors) are connected through the RS485 input port, you only need to choose to enable RS485 channel scanning; If the device is only connected with the 4~20mA acquisition board, you only need to enable the 4~20mA channel scan; If both access methods are used, both channel scans are enabled.

If you know the address number of the device and only need to set the range of the device address to scan, it can improve the scanning speed.

Manually add operating instructions:

*Used in: Known device address, no address conflict.

- 1) Click the "Manually add" button.
- 2) Single add: Add a new device to the existing device list. Enter a known device address and click the "Single add" button.
- 3) Multiple add: The existing device list joins multiple devices with consecutive addresses.

Enter a known range of device addresses (consecutive addresses) and click the "Multiple add" button.

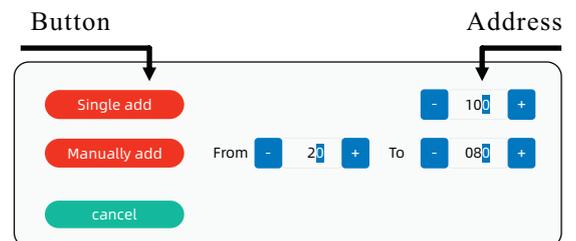
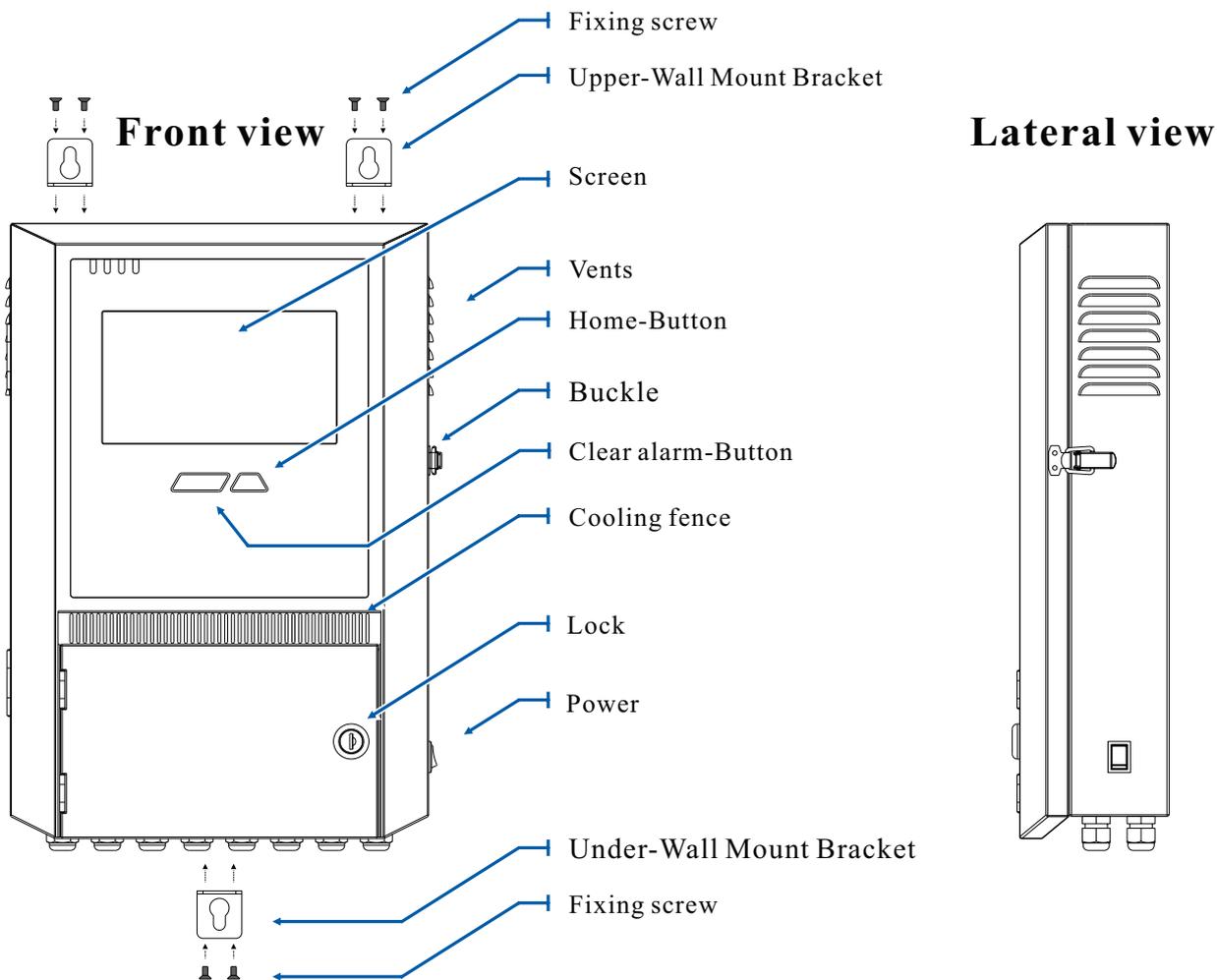


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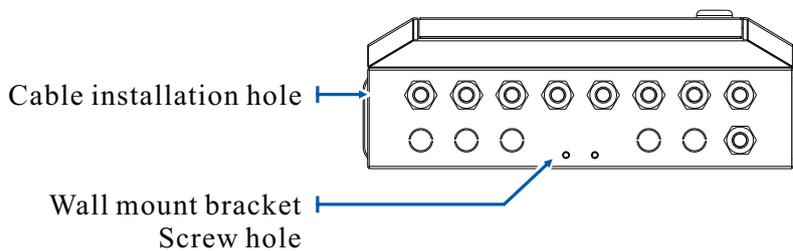
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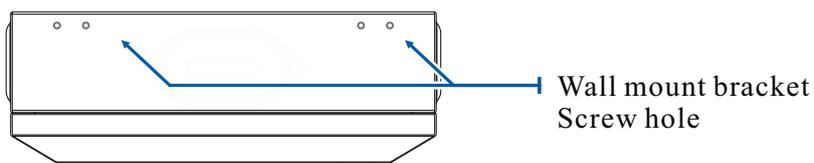
2 Product Structure



Bottom view



Top view





3 Product Installation

3.1 Installation environment

This control panel is non-explosion-proof designed, please do not install it in hazardous areas and the installation must follow local regulations. The following environments should be avoided during installation:

- High humidity ●Mechanical vibration
- Strong electromagnetic radiation ●High voltage electricity

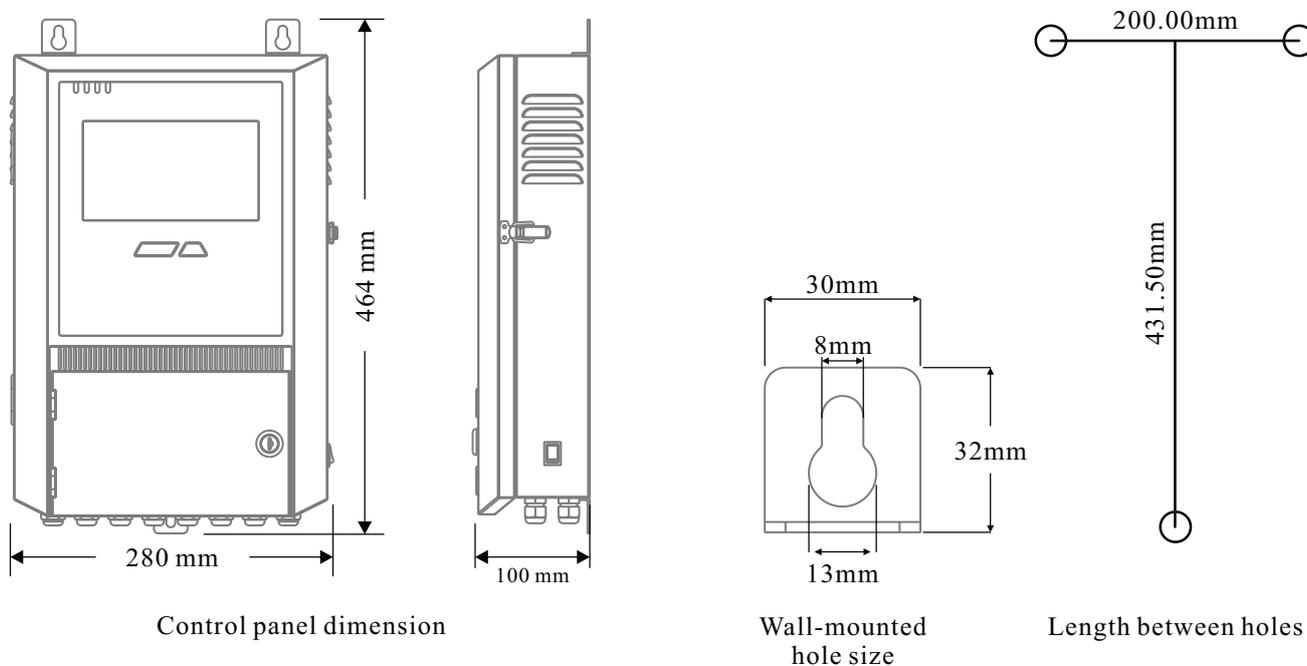
*Please follow the working environment requirements of the device.

*Connect to a power socket with a reliable ground wire to avoid personal safety accidents or instrument damage caused by leakage or static electricity.

3.2 Installation dimensions

The external dimension of the control panel is:464x280x100mm(height x width x thickness)

As shown in the figure below.



3.3 Installation type

This control panel shall be wall-mounted installed. According to the size of the above three wall-mounted holes, drill holes to install expansion screws, and use nuts to fix.



3.4 Main board

P3, Sound alarm interface

P4, Light alarm interface(Optional), Output 24V.

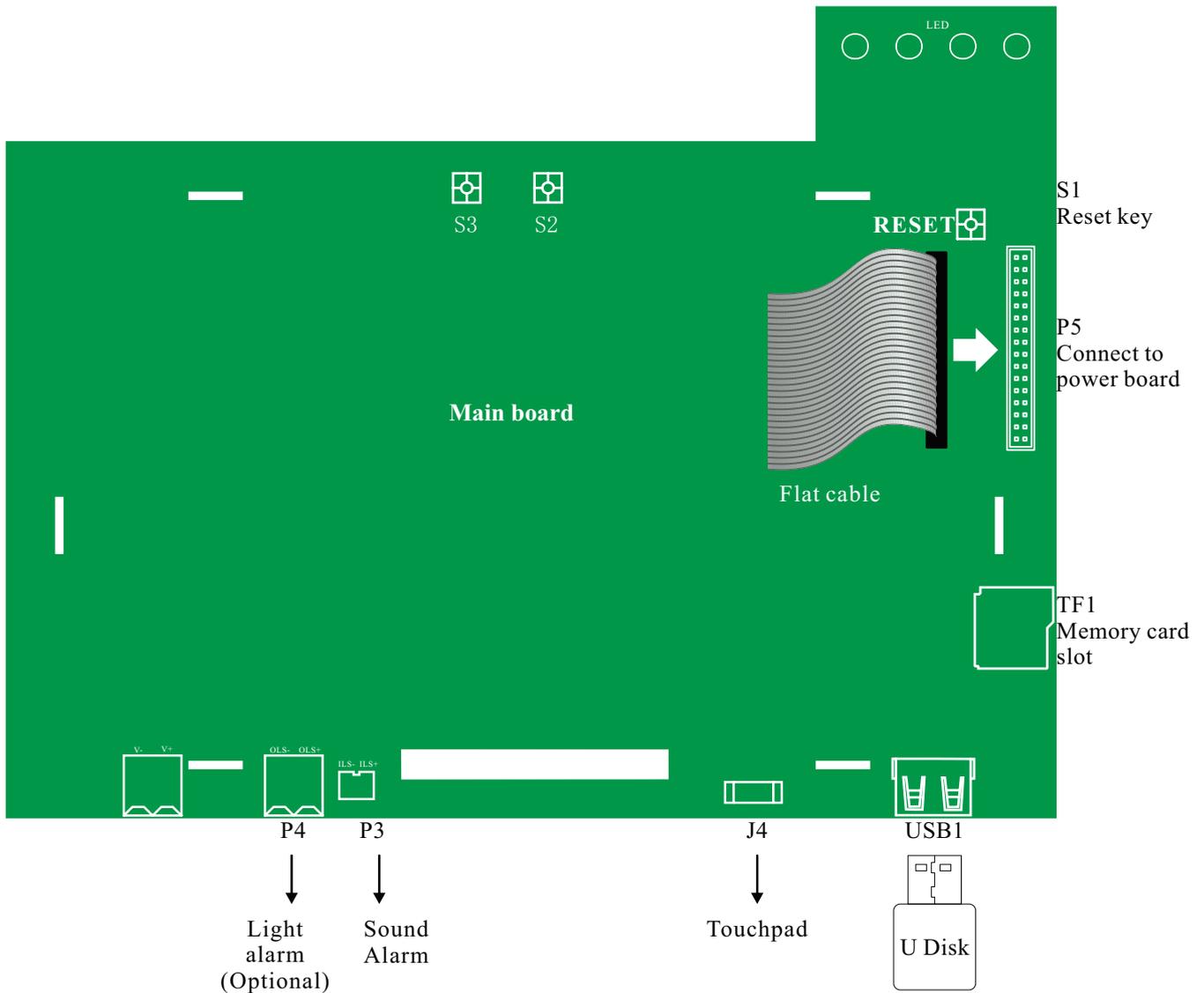
P5, Claw socket interface connect to P1 on power board.

TF1, TF memory card slot.

USB1, which can be connected to a U disk for firmware upgrade.

J4, "Clear Alarm" and "Home" touchpad interface.

S1, RESET key, when the system crashes, press this key to reboot



Warning: Unmarked interface, do not operate or connect anything.



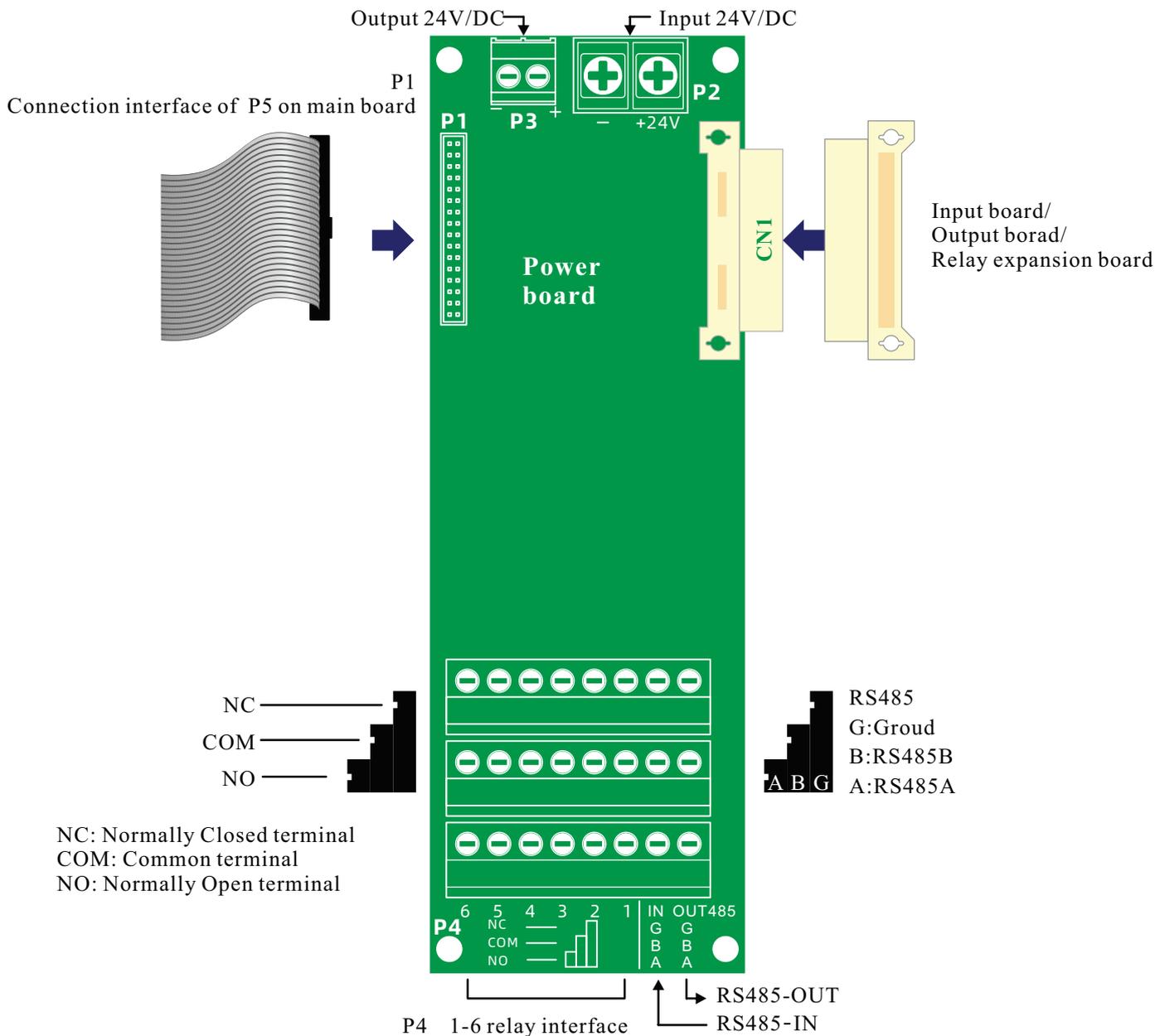
3.5 Power board

P1, The cable connection port that is connected with the P5 on main board

P2, Power supply interface input 24V DC.

P3, 24V DC output.

P4, From right to left, 1~4 channels are relay output interface (5~6 ports are optional); IN is RS485 input interface(Connect to wire from detector); OUT is the RS485 output interface, which can be connected to the PC, external DTU or other equipment; CN1 is expansion interface, can expand the output or input interface through the module. Up to 2 additional 4~20mA output boards (one board has 8 interface) with total 16 channels; or 4 additional 4~20mA input boards (one board with 8 ports) with total 32 channels





3.6 4-20mA input board(Optional)

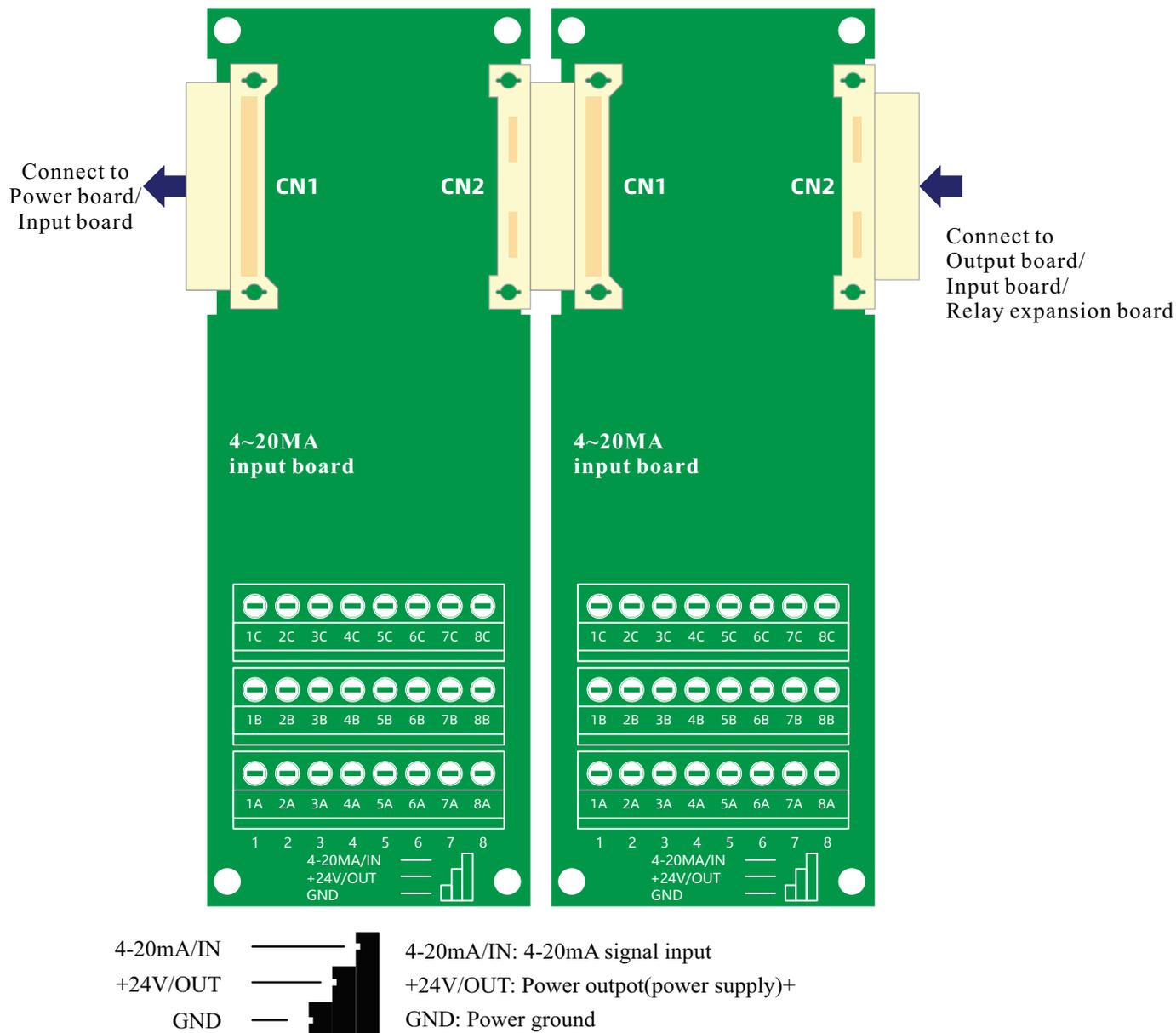
Every input board with 8 channels 4-20mA input, from left to right channel number increase.

The first channel of 4-20mA is default 101(Address scan menu can check it).

The system support upto 32 channels of 4-20mA input(1-4 input board, every board 8 channels).

The CN1 slot is connected to the CN1 expansion interface of the power board, or the output board; the CN2 socket can be connected to the input board or the output board.

* Up to 4 pieces of 4~20mA signal input boards form a 32-channel input combination interface. The value of each interface is fixed for the channel, which is not affected by the setting of the channel address (transmitter address) of the detector. Use the "Address Scan" function to scan, confirm that the cable is correctly connected and powered on, you can scan out address 101, address 102...address 132



* If the detector detects accurately, but the control panel shows that the concentration does not match, please recalibrate the 4~20mA output interface of the detector.

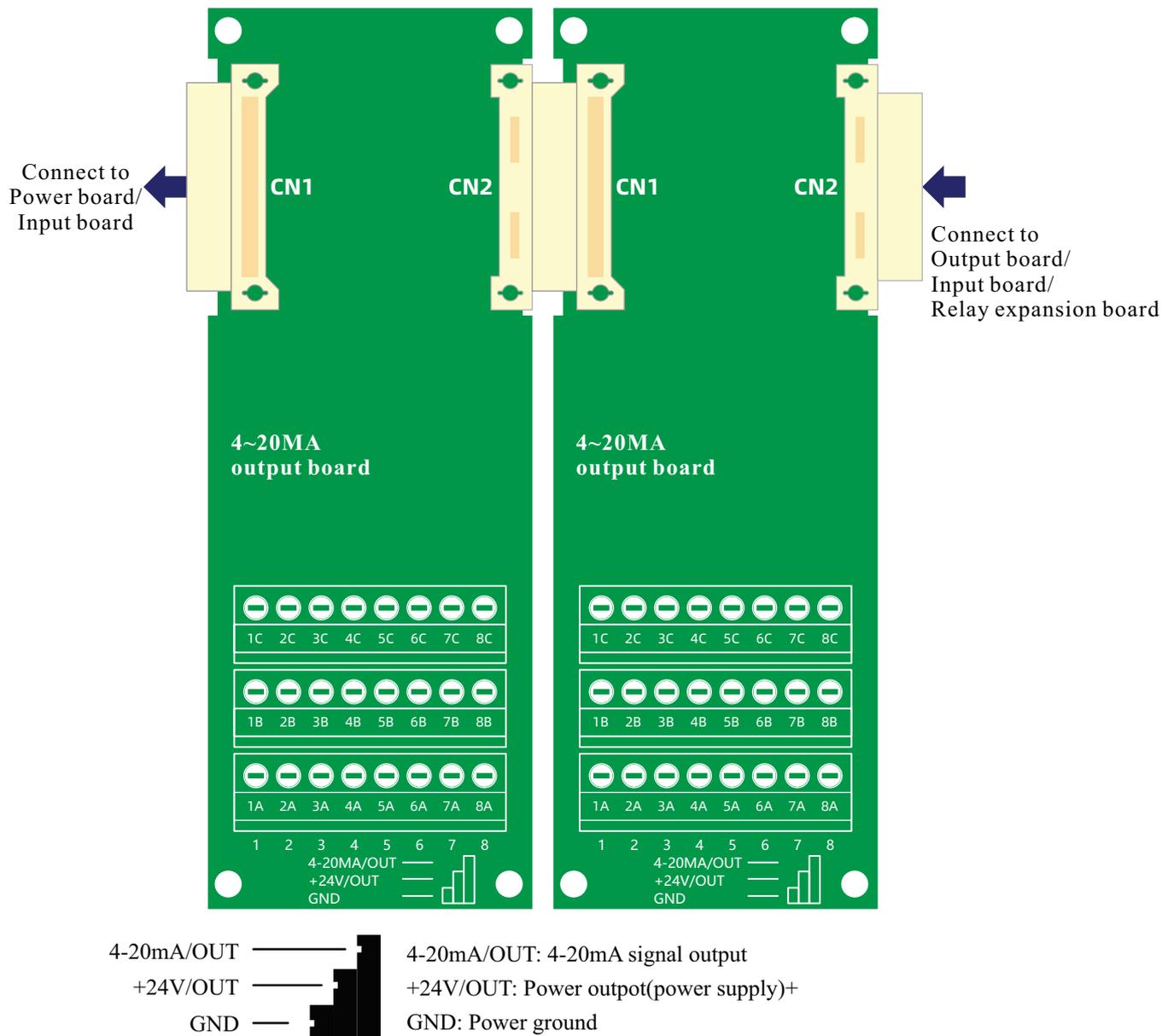


3.7 4-20mA output board(optional)

Each output board consists of 8 output interfaces.

The panel supports the combination of up to two output boards, with a total of 16 output channels.

The "4~20mA output configuration" function in the system can calibrate the 4~20mA electrical signal of the output board and customize the output associated channel.



* If the detector detects accurately, and the control panel shows a same result, but the 4~20mA output terminal of the control panel displays an unmatched concentration. Please enter the "4~20mA parameter setting" interface (page 17), check and calibrate the 4~20mA interface of the terminal.

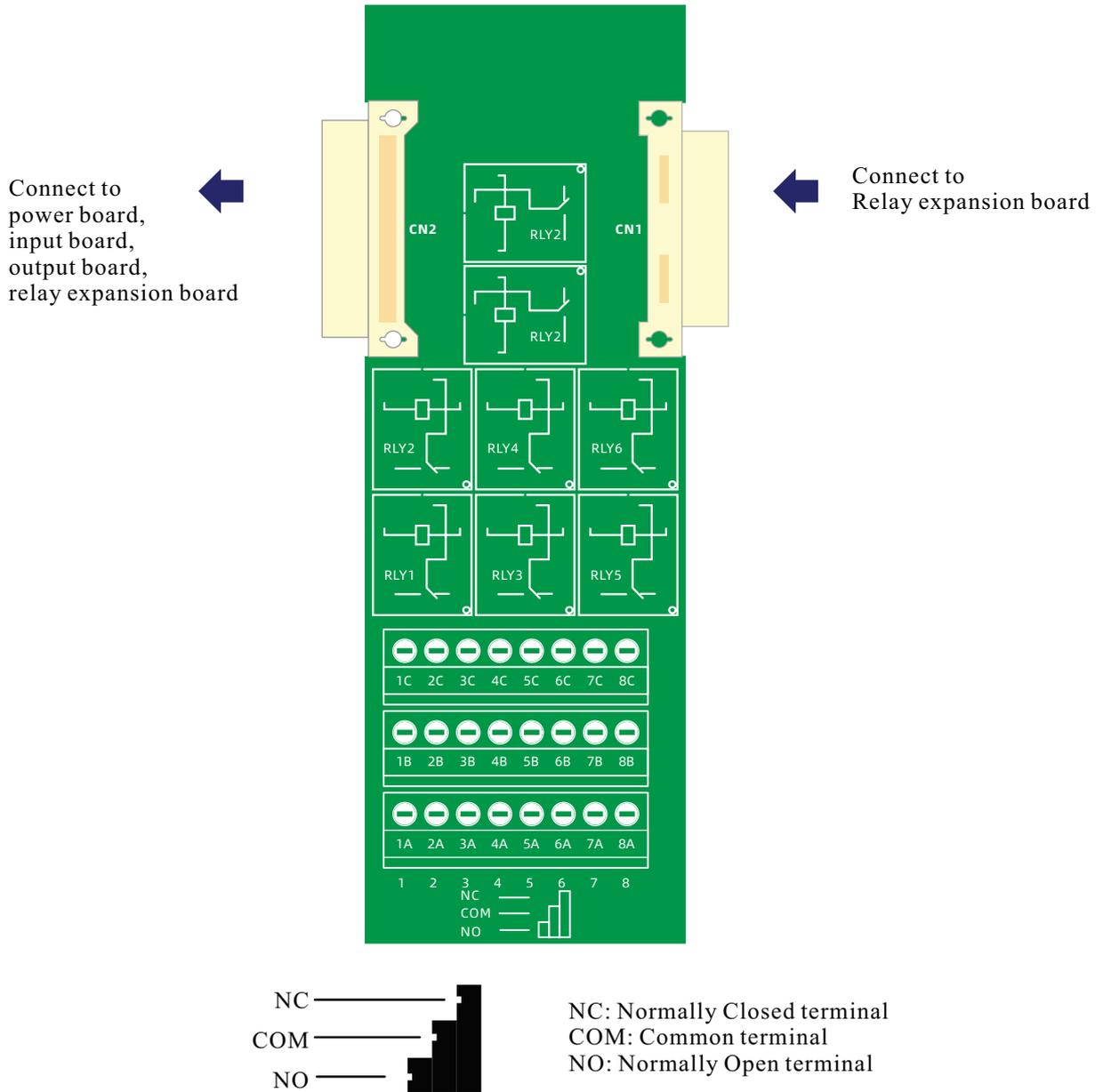


3.8 Relay expansion board (optional)

Each relay expansion board provides 8 control ports.

Support up to 4 relay expansion boards (no input board and output board) collocation, a total of up to 36 output channels (including 4 power board) can be selected.

Applications can be configured in the “Relay setting” function. Each relay port can be set up a single or continuous multiple channels for control, and the 1-4 relays on the power board can be used as the “master relay”.





6.9 Cables and loads

RS485 transmission cable:

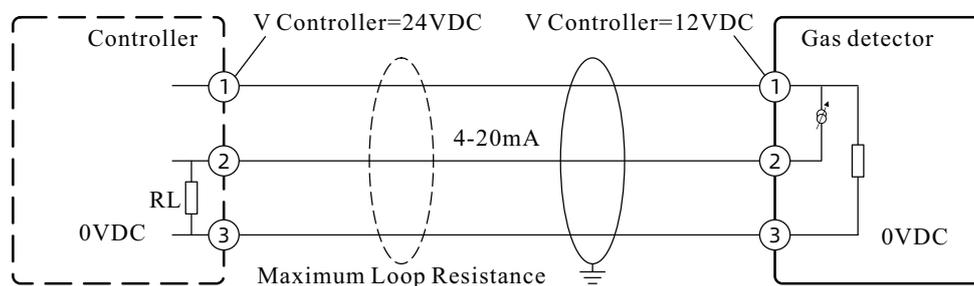
The RS485 cable is recommended to use twisted pair. When using RS485 communication to connect to the controller, in order to ensure signal stability. Under normal conditions, the RS485 signal transmission distance of our detector can reach more than 1000 meters. When the signal interference is large or the transmission distance is longer, it is recommended to add an RS485 repeater, a 120Ω/0.5W matching resistor should be connected in parallel between the A and B lines of the farthest detector.

4-20mA transmission cable:

It is recommended to use a shielded cable, the outer diameter of the cable is $\leq 8\text{mm}$, and the core diameter is above 0.75mm^2 .

When the detector is powered by the controller:

The power supply voltage of our company's controller is 24VDC, and the minimum working voltage of the detector is 12VDC. To ensure the normal operation of the detector, the circuit voltage drop must be less than or equal to 12VDC, as shown in the figure below.



When the detector is powered by the control system (one cable is connected to one pdetector, the power line and the signal line are the same length), the transmission distance refers to the following formula:

$$L = \frac{(U - 12)}{I_c} \cdot \rho \cdot S / 2$$

L: Maximum transmission distance(m)

U: controller output voltage(our controller is 24V)

I_c: working current of detector(A)

ρ: wire resistivity(copper: $1.85 \times 10^{-2} \Omega \cdot \text{mm}^2$)

S: wire cross-sectional area(mm²)

When the detector is not powered by the controller (that is, powered by an independent power supply), the 4-20mA transmission distance is determined by the load resistance, which includes the output resistance of the control system (controller, DCS or PLC) and the internal resistance of the cable. Refer to the following formula for the maximum transmission distance allowed by a single cable:

$$L = \frac{(R - R_c)}{\rho / S}$$

L: Maximum transmission distance(m)

R: Maximum load resistance (500Ω when powered by 24V, including control system input resistance and cable internal resistance)

R_c: Control system input resistance(Ω)

ρ: core resistivity (copper: $1.85 \times 10^{-2} \Omega \cdot \text{mm}^2$)

S: core cross-sectional area(mm²)

When the controller supplies power to the detector, the maximum number of detectors allowed by a single cable refers to the following formula:

$$N = \frac{I_m}{I_c} = \frac{(U - 12)}{R} / \frac{I_c}{\rho \cdot L / S}$$

N: Maximum number of detectors

I_m: the maximum current passing through the wire(A)

I_c: the average current of a single detector at the lowest starting voltage(A)

U: controller output voltage (V)(our controller is 24V)

R: internal resistance on the cable(Ω)

ρ: core resistivity (copper: $1.85 \times 10^{-2} \Omega \cdot \text{mm}^2$)

L: cable length (m)(the total length of the positive and negative lines of the power supply, if the length of a single line is 100m, the total length of the two lines is 200m)

S: core cross-sectional area(mm²)



3.10 Cable connection instruction

This control panel provides 4-20mA and RS485 2 different output mode which are different in wiring; the following wire connection example is for reference only, customer can connection cable according to the actual situation.

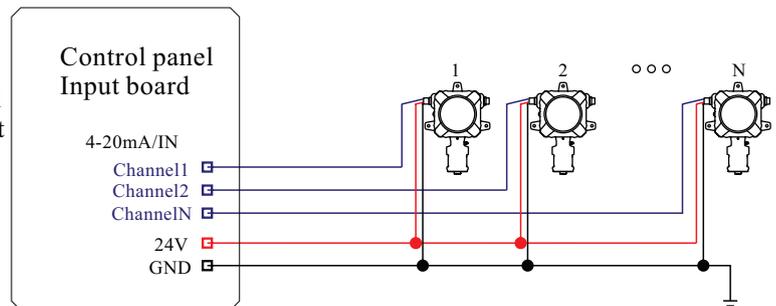
● 4-20mA current signal output connection mode. (must be grounded together)

Features: The 4-20mA current signal output connection mode only needs one cable and a common ground cable to form a communication system. The wiring is simple and the response speed is fast. But because a communication chain can only accommodate one communication node (so the cable wiring is more troublesome when the number of connected devices is large). Also 4~20mA signals are easily disturbed by the environment, and it is also necessary to perform standard signal calibration on the output and input interfaces.

1) 4-20mA input(cable access)

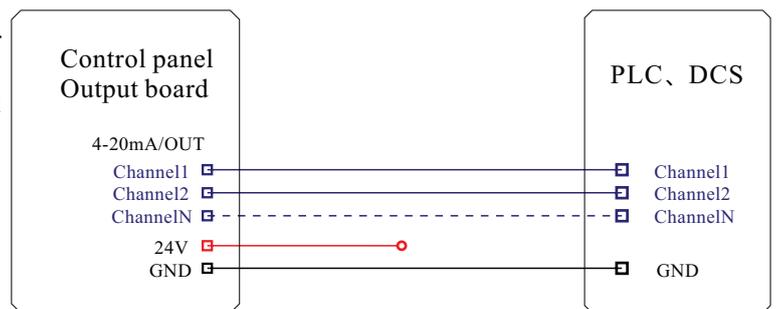
Connect the gas detector to the 4~20mA input board interface on control panel, then control panel will supply power for detectors (24V/DC).(Support up to 32 channels 4-20mA input)

Note: If the control panel needs to drive more than 8 detectors, please confirm whether the switching power supply on gas detector can meet the driving of the overall load (external devices, detectors, etc.).



2) 4-20mA output(cable out)

The control panel supports up to 16 channels of 4~20mA standard signal output interface, which can be connected to PLC,DCS system interface and PC. The output board provides 24V/DC output interface.



● RS485 digital signal (two-wire, modbus) connection mode. (can be independently grounded)

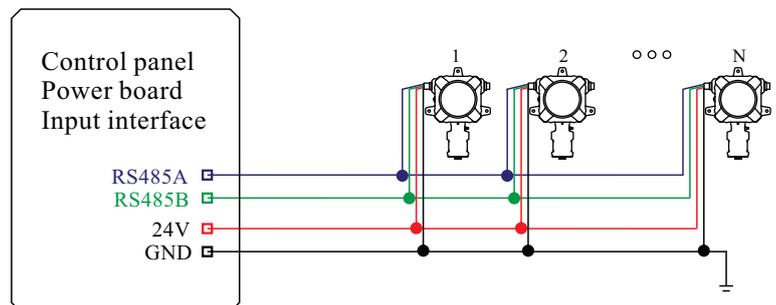
Features: The cables are connected in parallel makes wiring is simple and construction can be carried out quickly, which can reduce cost. Note: The detector connected by RS485 must set the transmission address, so that the address of each sensor channel is not repeated.

1) RS485 input

This control panel support upto 100 channels of RS485 input(One gas type is one channel).

The gas detector is powered by the control panel or independently powered (24V DC).

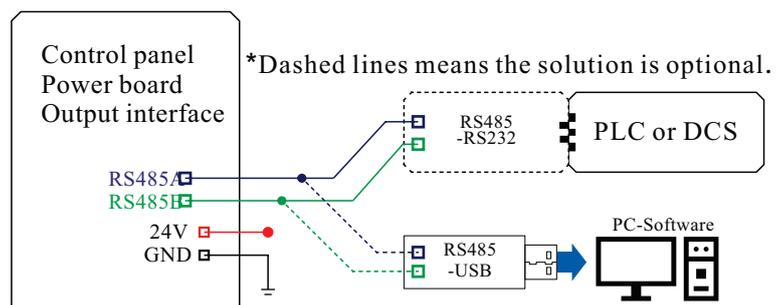
Note: When there are more than 8 detectors, it is recommended that the detectors use a segmented independent power supply.



2: RS485 output

The RS485-OUT output terminal on power board can be connected to PLC and DCS systems (some PLC and DCS systems only have RS232 interfaces, which need to be connected through RS485-RS232 converters).

Or it supports connect the RS485-OUT output terminal on power board to PC through RS485-USB converter, and use the PC software to perform remote monitoring and management.

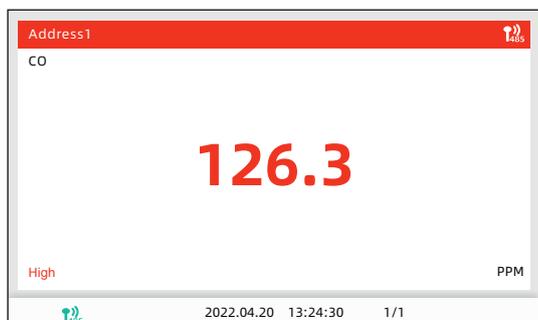




3.11 External Load Connection Example

In addition to the sound alarm that comes with the panel, an optional light alarm (connected to the P4 interface of the main board) is optional. In addition, the relay is used as a control port to support switch control of loads below AC250V/10A.

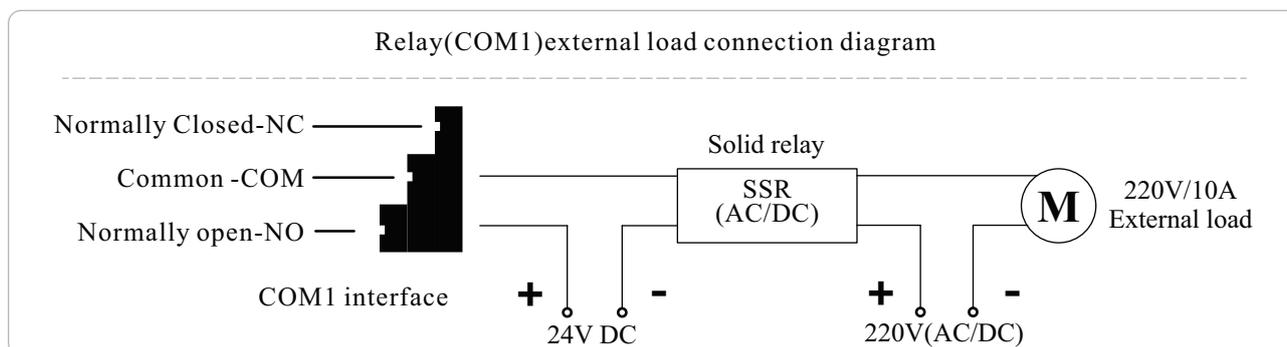
Example: At the site, the detector detects that the concentration of harmful gas reaches the low alarm value. There will be display indicate, sound alarm, also low alarm indicator on . If the light alarm is selected, light alarm will also start working. In addition, the relay normally open end closes the circuit, (as shown in the connection diagram below) to drive the fan for ventilation or drive the alarm system to remind workers.



- When alarm:
- Low/High indicators on
 - Sound alarm starts
 - Light alarm(Optional) starts
 - The closed or open circuit of the relay controls the work of the external alarm system (external load)

*As shown in the above interface, the transmitter address is 1 (address 1), and the harmful gas is carbon monoxide. In the "Relay Setting" interface, set "COM1" to associate with the "Address 1" channel.

Note: Considering the safety of electricity use and avoiding the electromagnetic interference of the high-voltage circuit, it is recommended to install a solid-state relay to indirectly control the external load.



Warning:When an alarm occurs, the personnel in the workplace where the alarm detector is located must be warned to leave as soon as possible. Otherwise, serious personal injury or personal injury may be caused.

Clear Alarm:If confirm the dangerous situation has been removed, but the alarm of control panel continues. If you want to clear the sound and light alarm, please click the “Clear Alarm” key (a red mute icon will show on display), click the key again can to restore the alarm.

*Please note that the release of the alarm state only turns off the sound and light alarm (and external light alarm controlled by relay), excluding the display alarm indicate.

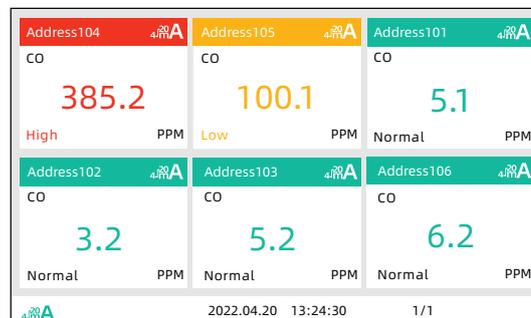
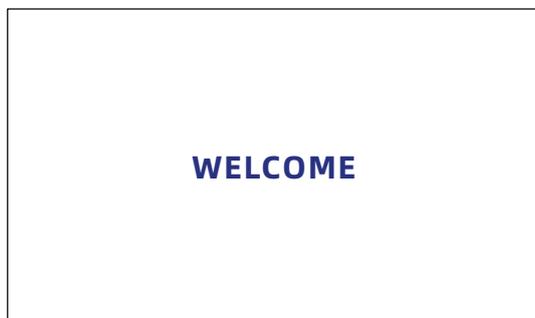




4 Operation Instruction

4.1 Power on

After power supply the control panel is powered on and showing company LOGO, then monitor interface showing.

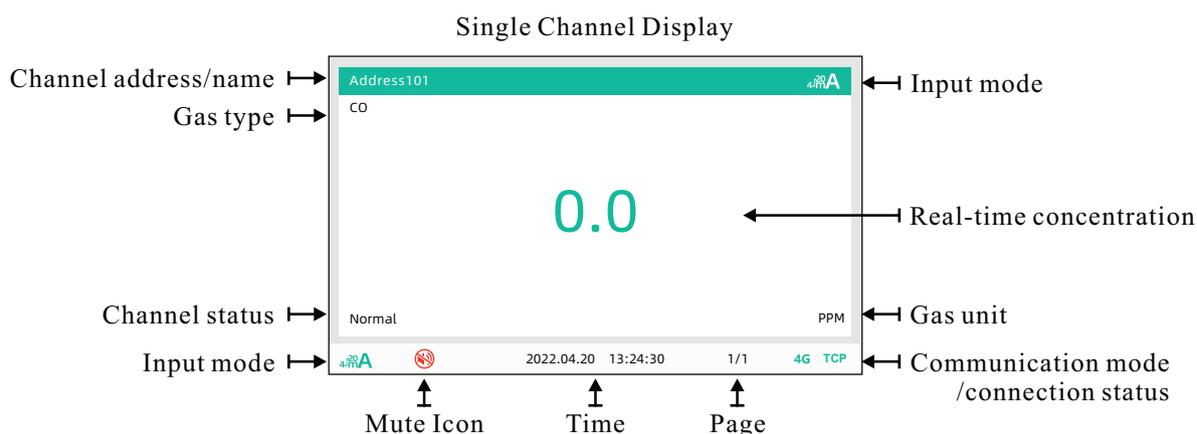


4.2 Monitor interface

There are 2 different mode at monitor interface, one is "Channel display", the other is "Parameter Setting".

4.2.1 Channel display

At monitor interface when channel number is more than 7, it will periodically turn pages to display the real-time gas concentration, or user can slide the touch screen left - right to turn pages.



Meaning of device connection icon:



4~20mA connection mode



RS485 connection mode

Meaning of network status icon: green, connected. Gray, unconnected.



Connected to WIFI network



LORA network connected



Connected to 4G network



Connected server

As shown on above screen display, it is a single channel (4-20mA) input, address 101, gas type is CO, gas concentration is 0.0PPM, channel status is Normal, system time is 13:24:30, 2022.04.20, connected to network through the 4G module.

What is the meaning of different color?

Green, the concentration is at normal state;

Orange, the concentration is in the low alarm state, the low alarm indicator light is on, and the sound (light) alarm is activated;

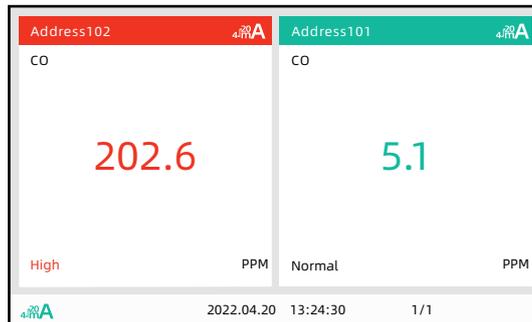
Red, the concentration is in high alarm state, the high alarm indicator light is on, and the sound (light) alarm is activated;

Gray, the channel is faulty, the fault indicator is on, and the sound (light) alarm is activated.

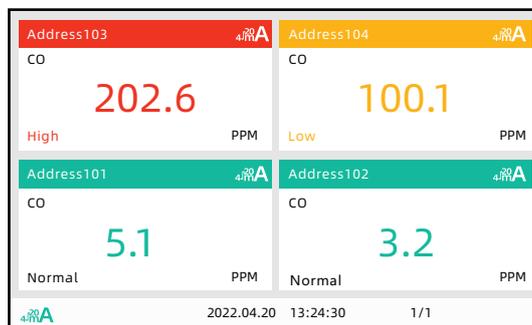


The control panel supports adaptive display. When channel number is more than 7, user can slide the touch screen left - right to turn pages.

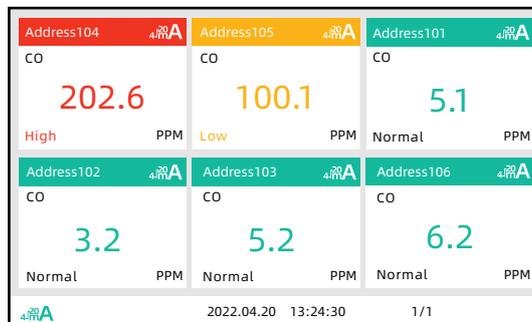
2 Channel Display



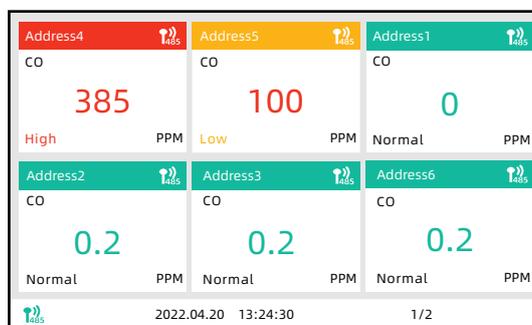
3~4 Channel Display



5~6 Channel Display



Channel display when over 7 Channel



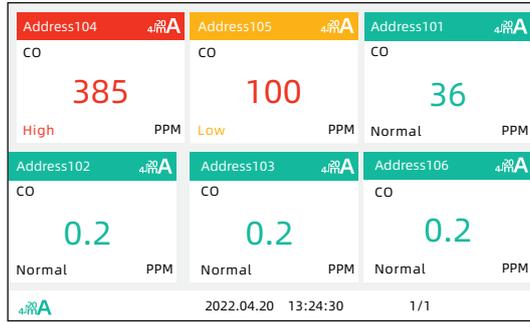
Previous page ← → Next Page





4.2.2 Parameter setting

Press and hold the gas box on the monitor interface to enter the "Parameter Setting" mode of the selected channel, as shown below.



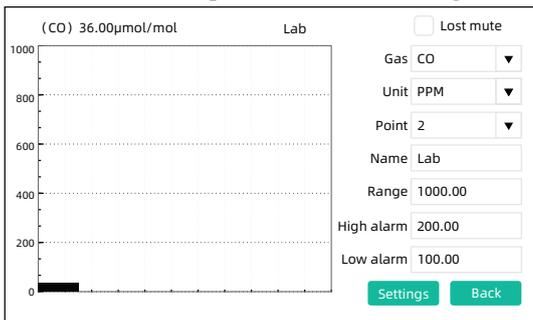
After entering the "Parameter Setting" mode, user can set the detailed parameters of the current channel. The display is different for 4~20mA (Analog signal) and RS485 (Modbus Signal) input connection.

Note: the parameter settings of 4-20mA channels won't update synchronously on detectors but settings of RS485 channels will. So under common conditions, for 4-20mA channel setting, we recommend input same information set on detector.

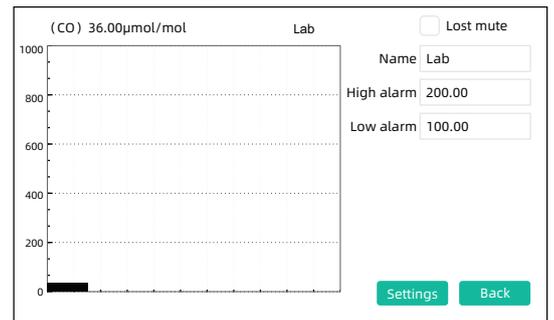
Configurable parameters are displayed on the right:

- Lost mute: The lost status alarm sound of the current channel can be turned off independently, without affecting the lost event record.
 - Gas : Gas type
 - Unit: Gas unit is switchable
 - Point: Decimal point
 - Name: Channel name
 - Range: Measure range
 - Low alarm: Low alarm value (setting range: zero point < low alarm value < high alarm value; Oxygen supports high alarm value ≤ low alarm value, the alarm logic is that O2 concentration ≥ high alarm value is high alarm, otherwise it is low alarm)
 - High alarm: High alarm value(setting range: low alarm value < high alarm value < range)
 - Settings: Click the "Settings" button to save the above settings.
 - Back: Click the "Settings" button to back to home page
- *For the "name" parameter, if it is empty, then default showing "Address + channel number ". It supports up to 5 Chinese characters or 15 English characters.

4~20mA input Parameter Setting



RS485 input Parameter Setting

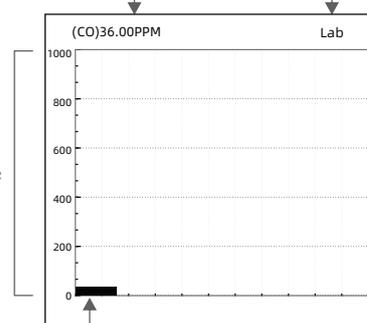


Gas type/Concentration/Gas unit

Channel Name

Measure range

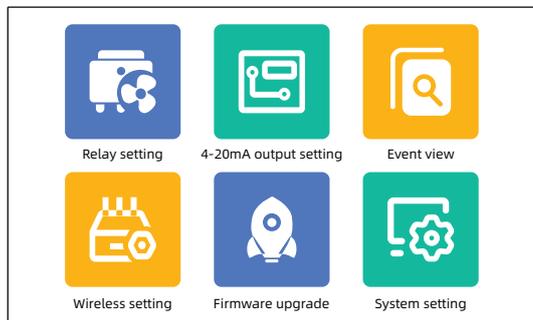
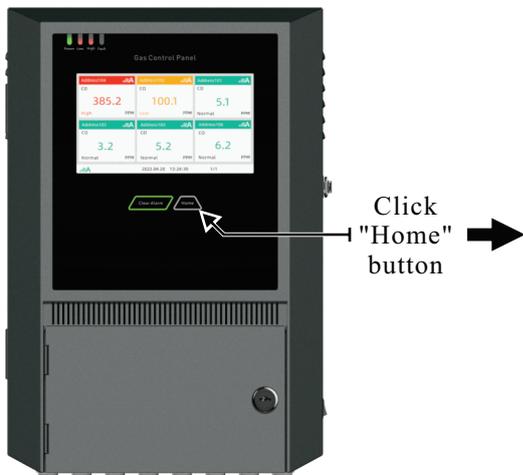
Concentration





4.3 Main Menu

Click the "Home" button to enter the "Main Menu Interface" or return to the "Monitor Interface", as shown below.



4.3.1 Relay configuration

The controller is equipped with 4 relay outputs as standard. Each port can be controlled by single channel or continuous multi-channel control (an alarm on any channel can trigger the control associated relay).

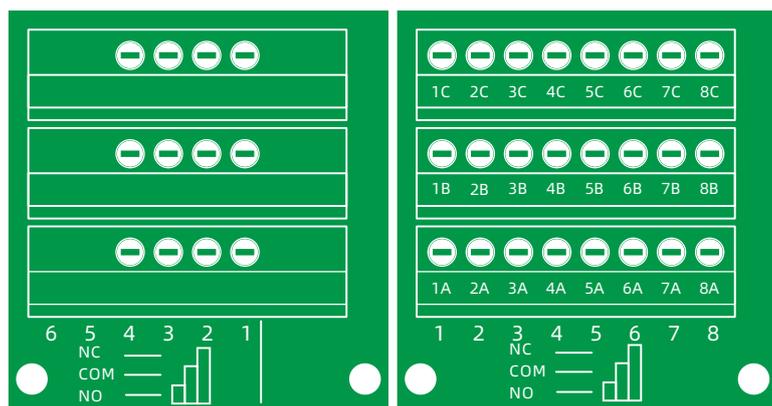
Relay port: NC, closed (closed circuit) when not triggered; NO, open circuit when not triggered; COM, common terminal.

COM1~COM4 (standard configuration): The serial number corresponds to the silk screen of the PCB board (the power board as shown in the figure below: 1 corresponds to COM1), which are 1 to 4 relays, which can be associated with the control channels. Default is no association.

COM5~COM36 (optional): The serial number increases from left to right (as shown in the figure below 1~8 silk screen of expansion board 1: when the standard power board is equipped, it corresponds to COM5~COM12 on the interface), which can be associated with the control channels respectively. Default is no association.

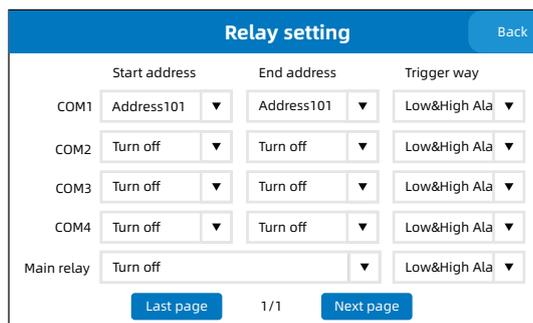
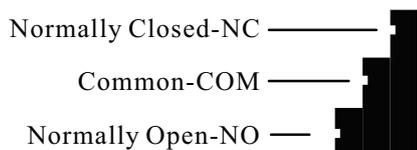
Main relay: Use any relay in the available COM interface as the overall alarm output control terminal, with control conditions for alarms in any channel.

Trigger mode: The default is "low & high alarm", which means, both low and high alarm with activate the relay; Or customer can set it as low alarm high relay pr high alarm relay separately.



Power board

Relay expansion board 1



Example 1: As shown in the figure above, COM1 interface (1 relay), select the "address 101" channel association, then the COM1 relay will be triggered and controlled by the real-time concentration of the "address 101" channel.

Example 2: Set COM1 as the main relay. Operation: In the interface, select COM1 for the general relay setting item, and it will take effect immediately.

Function: COM1 output is controlled by the alarm of any channel.

*Note, only when low and high alarm will activate relay, fault alarm won't activate relay.



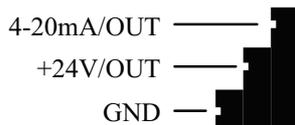
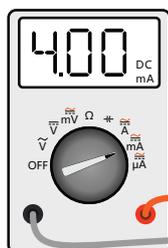
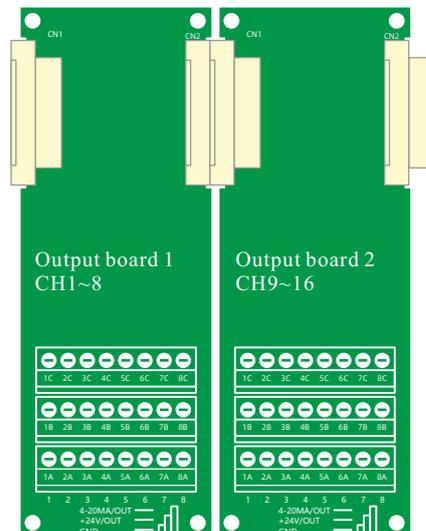
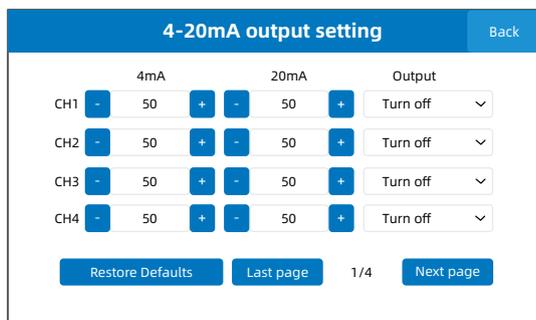
4.3.2 4-20mA output setting(Optional)

If the user does not select this function, there is no this setting interface.

Please note that the control panel has been calibrated at the factory, and generally no additional adjustment is required.

This function can fine-tune the 4mA and 20mA output current signal settings of each channel (up to 16 channels) and associate the output channel to specified input channel.

CH1~CH16 correspond to each interface on the output board, as shown in the figure on the right, CH1~CH8 on output board 1, and CH9~CH16 on output board 2



4-20mA/out: 4-20mA signal output
 +24V/OUT: Power output(power supply)
 + GND: Power ground

4~20mA signal calibration instruction:

Before operation, disconnect load cable from the terminal.

1) Connect the ammeter: confirm control panel is powered on properly, enter the "4-20mA output setting" interface, connect the red end of the ammeter to the 4-20mA/OUT signal terminal on 4-20mA output board, and connect the black end of ammeter to the GND terminal.

Warning: Do not connect the ammeter to other terminal, or the ammeter will be damaged.

4~20mA standard value configuration:

4mA configuration: Click the plus or minus button of the corresponding channel in the "4mA" column and check the value on ammeter until the ammeter is stable at 4mA.

20mA configuration: Click the plus or minus button of the corresponding channel in the "20mA" column and check the value on ammeter until the ammeter is stable at 20mA.

How to associate the output channel to specified input channel?

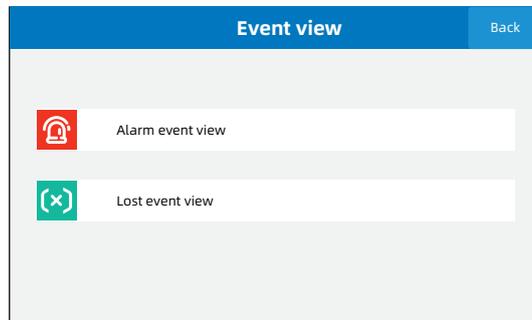
CH1~CH* on the left: Channel number on the 4~20mA output board;

Output on top right: Default turn off, then the output channel is in turn off state, user can select the specified input channel.



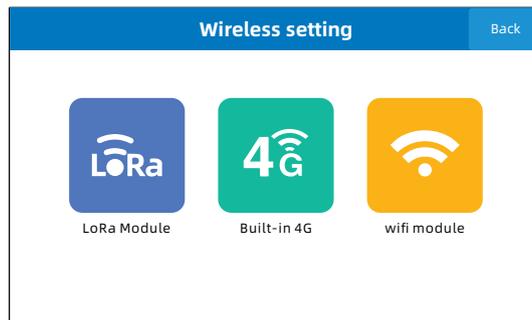
4.3.3 Event view

In the "Event view" interface, user can view the alarm events and the lost events.



4.3.4 Wireless setting(Optional)

Wireless setting is an optional function. User can choose one wireless module from LoRa Module, Built-in 4G or wifi module. Please contact the sales team for more details.





4.3.5 Firmware upgrade

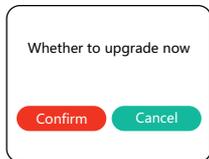
This control panel supports firmware upgrade. Enter the "Firmware Upgrade" interface to directly view the current system firmware version.

To obtain firmware files : please consult sales team.



Upgrade steps:

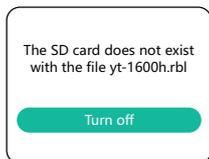
- 1) Copy the upgrade package "yt-1600h.rbl" to the root directory of the SD card (or U disk).
 - 2) Insert the SD card (or U disk) with the upgrade package into the slot of the alarm control host that is not powered on.
 - 3) Turn on the power switch on the right side of the chassis, and the alarm host is turned on.
 - 4) Boot into the monitor interface, press the "Home" button on the panel, and select "Firmware Upgrade" in the menu.
 - 5) Click the "SD card upgrade" (or "U disk upgrade") button, the following interface will pop up.
 - 6) The firmware version is different from the host version number. Click the "Upgrade" button to automatically upgrade and restart. please wait patiently.
- *The version number is subject to the actual product.
*Before the control panel shuts down, do not remove or insert the SD card.



Firmware detected



U disk not recognized
*Replug and restart the console.



Firmware not detected
*Re-copy the upgrade package and try again.



Same version
*Re-confirm the upgrade package.

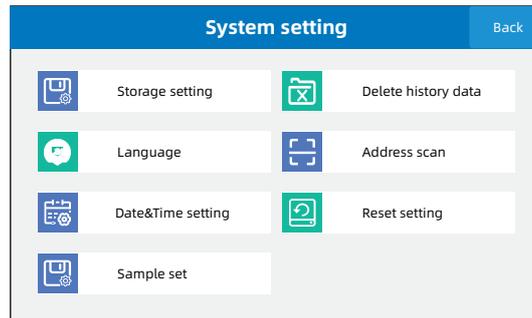
*The file system of the U disk is in FAT32 format.

Warning: During the upgrade process, it is forbidden to power off, pull out and insert SD cards, and U disks!



4.3.6 System setting

"System setting" consists of: "Storage setting", "Delete history data", "Language", "Address scan", "Date&Time setting", and "Reset setting".

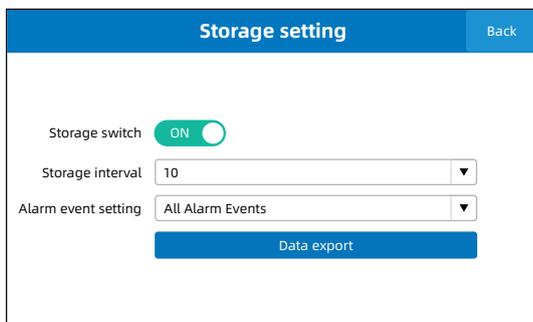


4.3.6.1 Storage setting

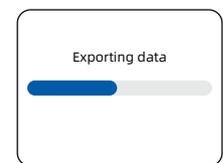
Storage switch: Enable/disable storage function

Storage interval: Set the storage interval (Unit: Second, 5~9999 optional).

Alarm event setting: Select the stored event type (Low Alarm, High Alarm, All Alarm Events).



U disk not inserted prompt



Data export is processing, the pop-up window will close automatically when finished

Data export: Please turn off the power, insert the U disk, boot into the "Storage Settings", click the "Data Export" button, and automatically export the record files to the U disk.

- Lost event records: fall_off.csv, up to 1000 records.
- Alarm event records, alarm.csv, up to 1,000 records.
- History records, history\year_month_day.csv, there will be a record file every day.

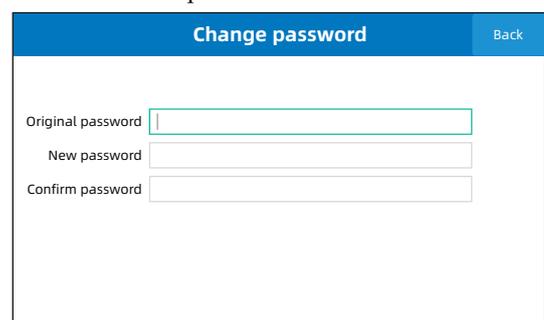
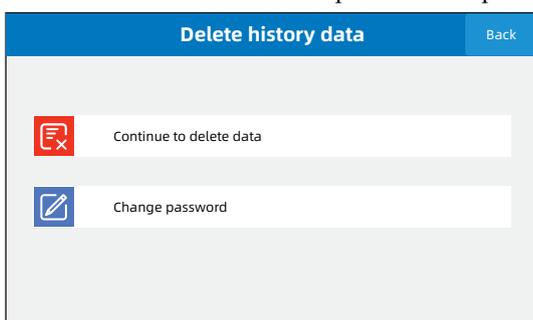
*Please make sure the storage function is enabled and there is an event record.

4.3.6.2 Delete history data

This function can clear the currently saved historical data (History records and alarm events records will be deleted, excluding lost event records).

Please note that this operation is irreversible and the deleted data cannot be recovered, please operate with caution.

This operation requires password. If you forget the password (the factory default is 123456), please go to "Change password" interface, input "101010" in Original password and new/confirm password, then password is modified. User can use the new password to perform the "Continue to delete data" operation.





4.3.6.3 Language

The system supports Chinese and English language one-key switch.



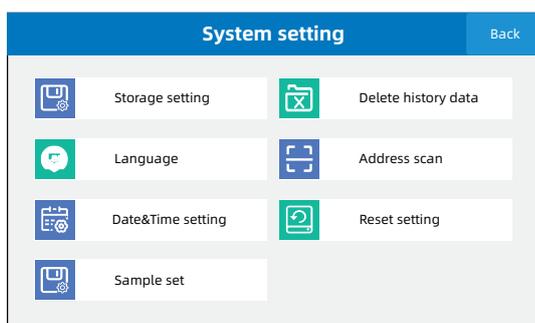
4.3.6.4 Address scan

Note: Before any settings, perform "Address scan" function to input detectors.

To avoid errors in scan results, each gas detector needs to preset a different (offset) address.

After the device is connected correctly, by setting the "Address scan" function, the control panel will record all the scanned devices into the system. After the device is registered, the device information can be displayed and set on the monitor interface.

* If the device is not scanned. Please check the line to confirm whether the cable is connected correctly or whether the power supply is normal, or whether the device address and wireless link are normal, select the RS485 protocol for devices connected to RS485 port, and then scan again or add it to the list of existing devices by using "Manual add".

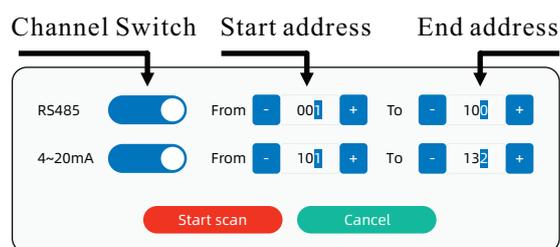


Press "HOME" button
→ MENU
→ System Setting

Address/Name	Gas	Concentration(Unit)	Alarm status
Address1	CO	10.12PPM	Normal
Address2	CO	5.42PPM	Normal
Address3	CO	4.52PPM	Normal
Address4	CO	4.35PPM	Normal
Address5	CO	1.56PPM	Normal
Address6	CO	6.78PPM	Normal
Address7	CO	7.89PPM	Normal
Address8	CO	1.56PPM	Normal

Scan Operation instructions:

- 1) Click the "Scan" button.
- 2) Channel switch: It can scan devices with RS485 channel or 4~20mA channel independently, or scan both channels fully (as shown in the figure).
- 3) Scanning start and end addresses: You can manually set the scanning range, and click the "Minus" or "Add" button to adjust the scanning address range (the default is as shown below, full-channel scanning, which takes a long time).



* Address range: 1~100 is RS485 channel, address 101~132 is 4~20mA channel.

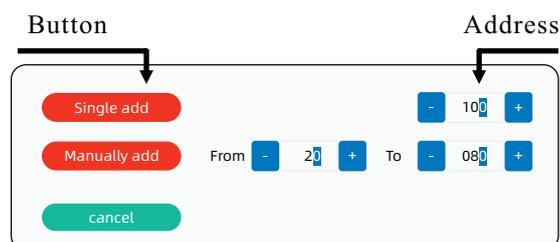
All your devices (detectors) are connected through the RS485 input port, you only need to choose to enable RS485 channel scanning; If the device is only connected with the 4~20mA acquisition board, you only need to enable the 4~20mA channel scan; If both access methods are used, both channel scans are enabled.

If you know the address number of the device and only need to set the range of the device address to scan, it can improve the scanning speed.

Manually add operating instructions:

*Used in: Known device address, no address conflict.

- 1) Click the "Manually add" button.
- 2) Single add: Add a new device to the existing device list. Enter a known device address and click the "Single add" button.
- 3) Multiple add: The existing device list joins multiple devices with consecutive addresses.



Enter a known range of device addresses (consecutive addresses) and click the "Multiple add" button.



4.3.6.5 Date&Time setting

The date&time has been calibrated before device leaves the factory. After the unplug the power supply, the system time is maintained by the button battery on main board. Please replace the button battery when it is exhausted. After replacing the battery, please go to the following interface to modify time.

4.3.6.6 Reset setting

Please proceed with caution!

This function can reset all parameters to the factory default setting.

Scan address records, channel naming, high and low alarm values, alarm records and other data will all be cleared, please operate with caution.

4.3.6.7 Sample set

The system supports custom sampling. By changing the sampling interval, it can adapt to complex communication environment such as long distance, multiple detectors or LoRa, and improve communication. Compatible with old and new MODBUS protocols.

The default sampling interval is 200ms (200 to 60000ms is optional).

* Please note: When communicating with LoRa, please set the sampling interval above 1000.

* When the old protocol is running, the channel configuration function of the detection interface cannot configure high and low alarms.



5 Alarm and Prompt



5.1 Alarm

The alarm channel is automatically topped on the monitor interface. When an alarm occurs, manual page turning is required, and automatic page turning is resumed after the alarm is cleared.

When Low alarm occurs, the red indicator light "low" is on. At the same time, the channel display color on Monitor interface change from green to orange, and the sound (light) alarm is activated.

When High alarm occurs, the red indicator light "High" is on. At the same time, the channel display color on Monitor interface change from green to red, and the sound (light) alarm is activated.

When faulty occurs, the orange indicator light "Fault" is on, and it is always on to warn. At the same time, the channel display color on Monitor interface change from green to gray, and the sound (light) alarm is activated.. When this warning occurs, please check wire connection.

Clear alarm: After the alarm occurs, user can use the "Clear Alarm" button on the panel to temporarily stop the alarm sound and light alarm, and click again to resume the alarm. When this function is activated, the following red mute icon will be displayed on the interface.



* After all channels return to normal state, the "Clear alarm" function will be automatically disabled, the mute icon will disappear.

5.2 Prompt

When the following prompts appear, please follow the prompts.

Monitor interface

When there is a blank interface, it means that there is no device has been input.

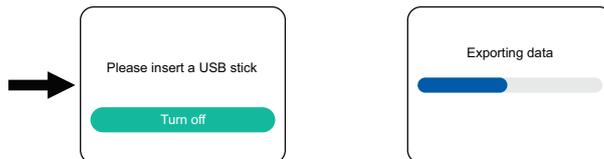
Press "Home page" button, go to menu interface →go to System settingAddress After confirming that the device is connected, click the "Scan" button. After scanning, the system will display the device information.



Storage settings interface

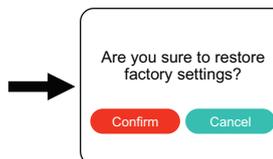
This prompt is displayed when operating data export.

If the U disk is not detected, it will prompt to insert the U disk; after the U disk is correctly identified, "Exporting data" will be displayed when the export action is performed, and the prompt window will be automatically closed after the export record is completed. During the export process, it is forbidden to pull out the U disk, otherwise the U disk will be damaged.



Reset setting interface

Showing this prompt is because this operation is irreversible: all settings and event records will be cleared! Please operate with caution.



Firmware upgrade interface

This prompt will show up when user is operating firmware upgrade.

During the upgrade process, please avoid the situation of power failure and unplug the U disk (the equipment damage caused by this is not within the scope of warranty service).





6 Common Troubleshooting

Fault	Possible reason	Troubleshooting
The connected device is not showing on display	The detector information is not input	Perform "Address scan" to input detector information
Scan failed	Wire connection is wrong	Check and reconnect the wire
Gas channel color is gray		
No sound alarm when alarm occurs (For control panel)	Sound alarm not connected	Check sound alarm wire connection and reconnect
	Sound alarm fault	Contact manufacturer
	"Clear alarm" function activated	Click "Clear alarm" button
Nothing shows in display after power on	The power switch is not turned on	Turn on power switch on the right side of control panel
	Wire connection is wrong	Check and reconnect the wire
	Main board is faulty	Contact manufacturer
4~20mA parameter setting no signal output	Current output not set correctly	reset the correct parameters
	Ammeter not working	Use a working ammeter
	Ammeter is not properly connected to GND and 4~20mA/OUT interface	Reconnect the correct interface (prohibit connecting other interface)
No response when touch the button or interface	Touch-pad cable faulty	Reconnect or contact the manufacturer to replace the cable
	System error	Reset
System time is not accurate	Button battery is exhausted	Replace the button battery



7 After-sales service

7.1 Warranty Commitment

The company promises that all the equipment that leaves the factory will be calibrated. After purchasing the company's products, users do not need to perform the calibration operation unless there are special circumstances, and the operation must be carried out under the guidance of professional technicians. All purchases through our distributors will provide you with a twelve-month warranty service from the date of purchase.

The company promises only the mainframe, excluding accessories. During the service period, if under normal use and maintenance conditions (non-human factors), the fault occurs due to the problem of the product itself, after our inspection is true, you will receive our free service for you.

7.2 Repair time commitment

The repaired device or new device will be ready for shipment within 7 working days. In case of special circumstances, if it can not be ready within 7 working days, we will call in advance to inform and negotiate a new date.

7.3 Limited Liability Warranty

Products returned to the factory for repair will continue to have the previous warranty period.

When you need warranty service, please present a valid warranty certificate, including warranty card and invoice or contract.

When the situation listed in the warranty description is not covered by the warranty, you can choose paid maintenance services.

If the repaired parts exceed the free warranty period, please pay the fixed maintenance service fee. The standard of the maintenance service fee is provided by our maintenance organization.

We have the right not to provide warranty service for product damage caused by the following circumstances:

1. Human-induced damage.
2. Damage caused by violation of operating regulations and requirements.
3. Damage caused by all natural disasters such as floods, fires, etc.
4. Damage caused by bad use environment.
5. The product is repaired, altered, modified or disassembled by unauthorized service personnel.

