

Mini Portable Gas Detector



Operating Instruction



Portable Gas Alarm Detector

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Notice to Users

Read this manual carefully before using the instrument.

1. Overview

This instrument is a compact, portable gas detector with an OLED display. It can accommodate one or two gas sensors, allowing users to select sensor combinations based on actual needs. It is powered by a high-capacity rechargeable lithium battery, equipped with a USB charging port, and features audible, visual, and vibration alarms.

This instrument is suitable for harsh industrial environments, accurately detecting various toxic, hazardous, flammable, or explosive gases diffused in the air, enabling timely protective actions.

2. Technical Performance & Parameters

2.1 Features

- Supports multiple gas detection via different sensor combinations
- Fast response, high accuracy, stable and reliable
- Compact and portable
- Dual alarm threshold settings, supports audible/visual alarm and vibration alert
- Clear OLED display
- Easy operation and maintenance
- Can be paired with data analysis software (optional)

2.2 Main Technical Specifications

Tracer gas	Range	Accuracy	Least count	Response time
Oxygen (O2)	0-30%VOL	<±5%(F.S)	0.1%VOL	≤15 seco- nds
Combustible gas (Ex)	0-100%LEL	<±5%(F.S)	1%LEL	≤15 seco- nds
Carbon monoxide (CO)	0-1000ppm	<±5%(F.S)	1ppm	≤25 seco- nds
Hydrogen sulfide (H2S)	0-100ppm	<±5%(F.S)	1ppm	≤30 seco- nds
Sulfur dioxide (SO2)	0-100ppm	<±5%(F.S)	0.1ppm	≤30 seco- nds
Nitric oxide (NO)	0-250ppm	<±5%(F.S)	1ppm	≤60 seco- nds
Nitrogen dioxide (NO2)	0-20ppm	<±5%(F.S)	0.1ppm	≤25 seco- nds

Tracer gas	Range	Accuracy	Least count	Response time
Chlorine gas (CL2)	0-20ppm	<±5%(F.S)	0.1ppm	≤30 seco- nds
Ammonia (NH3)	0-100ppm	<±5%(F.S)	1ppm	≤50 seco- nds
Hydrogen (H2)	0-1000ppm	<±5%(F.S)	lppm	≤60 seco- nds
Formaldehyde(CH2O)	0-20ppm	<±5%(F.S)	0.01ppm	≤30 seco- nds
Chlorine hydride (HCL)	0-20ppm	<±5%(F.S)	0.1ppm	≤60 seco- nds
Phosphine (PH3)	0-20-1000ppm	<±5%(F.S)	0.1/lppm	≤25 seco- nds
Ozone (O3)	0-20ppm	<±5%(F.S)	0.01ppm	≤50 seco- nds
Chlorine dioxide(CLO2)	0-20ppm	<±5%(F.S)	0.1ppm	≤60 seco- nds
Ethylene oxide (C2H4O)	0-100ppm	<±5%(F.S)	0.1ppm	≤120 sec- onds

Note: For testing other gases or specific requirements regarding the detection gas range, please contact us.

Detection method: Diffusion

Power supply: 3.7V 2000mAh Li-polymer battery

Charging: DC5V 1A adapter

Sensor principle: Electrochemical, catalytic combustion, NDIR, etc.

Display: OLED screen

Alarm indications: Audible, visual, vibration

Protection rating: IP45

Operating temperature: -10～50℃

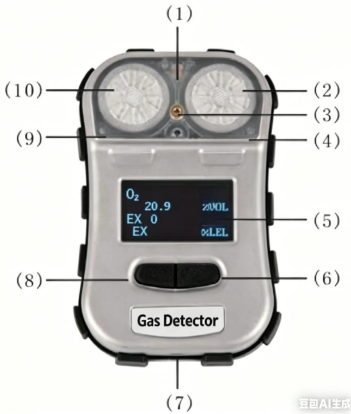
Operating humidity: 5～90% RH

Dimensions: 92mm (L) × 58mm (W) × 28.5mm (H)

Weight: 150g (net)

3. Operation Instructions

3.1 Structure Introduction



The symbol means:	
1: Alarm indicator light is red	2: Two-channel sensor
3Standard air hood fixing hole	4: Alarm indicator light blue
5:OLED display screen	6: ①/J shift button
7:USB interface	8:△/ S setting button
9: Alarm indicator light blue	10:Single- channel sensor

3.2 Enable the instrument

Long-press the ①/J key; the instrument will emit a beeping sound and a light vibration to power on and perform a self-test.

3.3 Turn off the instrument

Under normal testing conditions, hold down the ①/J key. The screen will display a shutdown prompt and a countdown. The instrument will shut down after the countdown reaches zero. If the ①/J key is not held down until the end of the countdown, the instrument will automatically return to normal testing mode.

3.4 Battery low

The battery level indicator is located in the upper right corner of the instrument screen, displaying five battery power levels. When the battery level drops to 1 grid, the indicator will flash, prompting users to recharge promptly. When the battery is completely drained, the indicator will display□Meanwhile, the screen flashes with the message "Low battery!" indicating insufficient power, and the device will automatically shut down after 30 seconds.

To ensure the instrument operates normally over the long term, operators should promptly shut down and charge the device when detecting low battery电量 to prevent battery damage. Depending on the battery level, each charging session typically requires approximately 4- 6 hours.

3.5 Functional Description of Operation Keys

▶ Button Function Table

Key	Short press the detection interface	Long press to in- spect interface	Set Interface
①/J	Single/Double Channel Display Switching	Power On/Off	Switch selection position
△/S	Go to the Settings interface	Enable/Disable real-time data storage	Operation options (Incr- ease value / Long press to multiply / Confirm / Save / Return)

▶ OLED liquid crystal display

Under normal detection conditions, the screen displays the current gas type, gas unit, real-time gas concentration value, and gas alarm status. In the single-channel gas detection interface, additional information is shown including current battery level, whether alarm notification is enabled, sound alert activation, vibration alert activation, and startup auto-calibration function activation. If the instrument has storage capabilities, the single-channel interface also displays the current time and indicates whether storage functionality is activated.

3.6 Power-on Self-Check

When powered off, press and hold the ①/J key. The instrument will perform a power-on self-test, and the display will sequentially show the following information:

- 1 、 Show the startup warm-up countdown; after the countdown ends, the parameter information interface will open.

2 、 Display the parameter configuration information of the current instrument, including gas type, gas range, high gas reporting value, low gas reporting value, and gas unit.

3 、 Enter the gas detection interface.

During the power-on self-test, the instrument's buzzer, vibrator, and alarm light will operate for 2 seconds to determine whether it is damaged.

3.7 Detection Model

The instrument employs a diffusion-based detection method and can be fixed to a belt or used handheld during normal detection procedures.

Single-channel instruments only have a single-channel display mode. Dual-channel instruments are available in both single-channel and dual-channel display modes, with the system automatically switching to dual-channel display mode upon startup.

1 、 Single-channel display mode

Press the ①/J key in dual-channel display mode to switch to single-channel display mode.

In single-channel display mode, data from Channel 1 and Channel 2 can be switched between displays using the ①/J key, automatically reverting to dual-channel display after 30 seconds of inactivity. The single-channel display screen shows real-time information including gas type, unit, concentration value, alarm status, on/off auto-calibration function, battery level, alarm alerts, vibration notifications, audible alerts, time display, and storage status for the current channel.

2 、 Dual-channel display mode

In single-channel display mode, pressing the ①/J key switches to dual-channel display mode. The dual-channel display mode shows monitoring data from both channels simultaneously with a concise interface, displaying only the gas type, unit, concentration, and status for each channel.

The instrument displays the gas status in detection mode as: normal, low alarm, or high alarm. The instrument features two instantaneous gas alarm levels: Level 1 alarm point (low-concentration alarm for explosive/toxic gases) and Level 2 alarm point (high-concentration alarm for explosive/toxic gases).

When an alarm occurs on a specific channel, the red alarm indicator and blue status light above the instrument will begin flashing. While the sound and vibration alerts remain active, the screen will display the channel's real-time alarm data and corresponding alert level.

On the normal detection interface, there are two shortcut key functions. The first is to hold down the △/S key; after the screen displays the countdown "3, 2, 1," you can enable or disable the data storage function. The second is to hold down both the △/S and ①/J keys simultaneously; after the screen displays the countdown "3, 2, 1," you can perform quick calibration of the instrument.

3.8 Setting Mode

In the setting mode, the instrument stops detecting the surrounding gas and turns off the audible, visual, and vibrational alarm signals.

3.8.1 Enter Setup Mode (factory Default Password: 0000)

In normal testing mode, pressing the Δ/S key will bring the instrument into the setup mode. First, the system will display a password verification interface; entering the correct four-digit password will proceed to the setup interface.

In the settings interface, press the ①/J key to switch between menus, and press the Δ/S key to enter the parameter settings interface of the corresponding menu. In all menu and parameter settings interfaces, long-press the ①/J key allows quick exit from the current interface and return to the detection interface.

3.8.2 Channel Parameter Settings

The channel configuration submenu options include Alarm Settings, Zero Point Calibration, Gas Calibration, Power-on Calibration, and Unit Switch.

Dual-channel instruments first enter the gas channel selection interface. After selecting the desired channel, proceed to the options section to configure channel parameters. Single-channel instruments will directly access the channel parameter configuration options.

1 、 Alarm Settings

In the channel settings menu interface, press the ①/J key to select the menu, then choose "Alarm Settings" and press the Δ/S key to enter the alarm settings where you can configure high and low alarm thresholds. Use the ①/J key to select the desired settings (high threshold or low threshold), and press the Δ/S key to modify the threshold value; long press to multiply the value. After completing the settings, press the ①/J key to select the "Save" option and press the Δ/S key to save the configuration.

2、 Zero calibration

Zero point calibration must be performed in clean air, with oxygen calibrated under a high-purity nitrogen atmosphere. In the parameter setup interface, select the "Zero Point Calibration" menu and press the Δ/S key to enter the zero calibration settings interface.

Taking the zero calibration of a carbon monoxide detector as an example, the screen displays the current concentration value. Select the current concentration value and press the Δ/S key; the value will be displayed as "0". Then press the ①/J key, move the cursor to the "Zero Calibration" option, and press the Δ/S key to successfully calibrate the zero, after which the system returns to the previous menu.

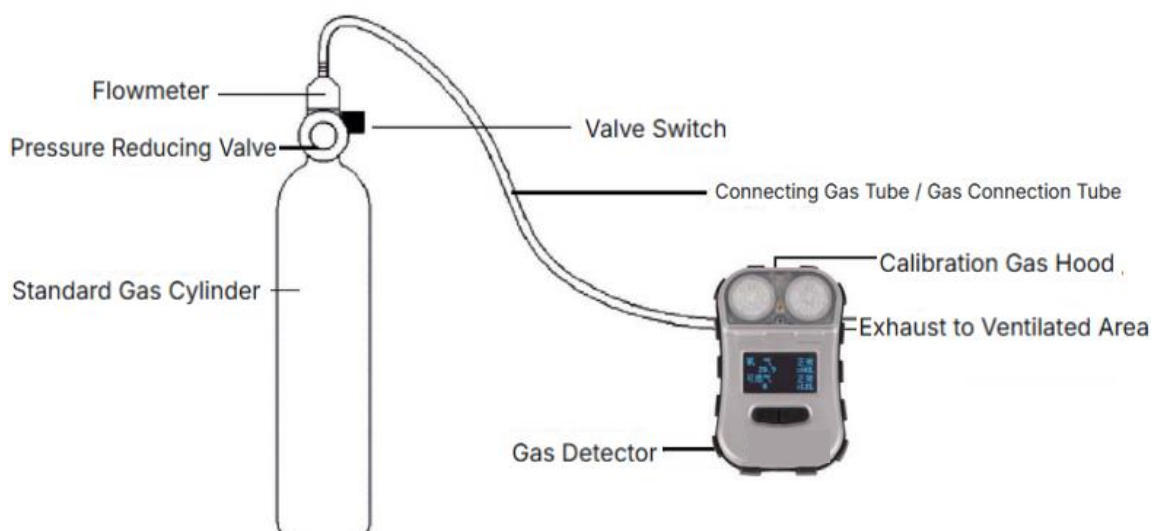
3 、 Gas Calibration

Due to normal wear and aging of sensors during operation, the instrument should undergo gas calibration at least once every 12 months.

During gas calibration, the operator requires the following calibration tools:

- Standard gas with known concentration. Select an appropriate standard gas based on the gas detection range of the instrument to be calibrated as required; generally, it is recommended to choose a standard gas with a concentration equal to half of the full range.
- Flow meter and pressure reducing valve; the recommended flow rate is 300 milliliters per minute.
- Calibration hood and gas-guiding silicone tube.

The connection between the aforementioned tools and gas detectors is illustrated in the figure below:



Note: Zero point calibration must be completed prior to gas calibration.

After completing the aforementioned preparatory work, gas calibration of the instrument can be performed. The specific operating procedure is as follows:

Taking a carbon monoxide detector as an example, first perform zero-point calibration in clean air. Then introduce a standard carbon monoxide gas mixture with a concentration of 500 ppm into the instrument. Once the carbon monoxide concentration display stabilizes on the interface, if the reading shows "512", adjust the value to "500" and save the settings. The procedure is as follows:

In the settings interface, press the ①/J key to select the "Gas Calibration" option and press the Δ /S key to enter. The screen displays the current concentration value "512". Select the current concentration value and press the Δ /S key to adjust the calibration value to "500" (long press to double the value). Then press the ①/J key to select the "Calibration" option, press the Δ /S key to perform calibration and return to the previous menu level. If you select "Back Option and press the Δ /S key, you will directly return to the previous menu level.

Note: After calibrating the gas, immediately close and tighten the valve of the standard cylinder to prevent leaks.

4 、 Power-on calibration

The automatic calibration function upon startup allows the instrument to automatically recognize the current environment as a clean atmospheric condition during startup, using this as the standard for automatic gas calibration.

In the settings interface, press the ①/J key to select the "Power-on Calibration" menu, then press △/S to enter the calibration settings. In the "Power-on Calibration" interface, use the △/S key to toggle the automatic calibration function for this channel. Select the "OK" option and press △/S to confirm saving the calibration status and return to the previous menu level. If you choose the "Back" option and press △/S key, you will directly return to the previous menu level.

Note: After enabling this function, ensure the instrument is in a standard atmospheric environment when starting up.

5 、 Unit Setting

The "Unit Conversion" menu allows you to configure conversions between values expressed in PPM and mg/m³.

In the settings interface, press the ①/J key to select the "Unit Switch" menu, and press the △/S key to enter the unit switching settings. Ensure that the molecular weight of the current gas is set to the correct value in the unit switching interface; users can modify the molecular weight to meet the required specifications. To switch to PPM or mg/m³, simply press the ①/J key to select the desired unit, then press the △/S key to confirm the selection.

Note: Before switching units, ensure that the molecular weight of the gas in the current channel is a positive value.

3.8.3 Instrument Common Parameter Settings

The instrument's general parameter settings submenu includes: "Time Settings", "Alarm Alert", "Historical Data", "Storage Interval", "Screen Standby", "Language Selection", "Password Modification", "factory reset ", "Help & Support", and "Return".

1 、 Time settings

In the "Time Settings" interface, you can configure six time fields locally for the instrument: year, month, day, hour, minute, and second.

The user should select the position by pressing the ①/J key against the local correct time, then enter the correct time value for the corresponding function using the △/S key. After calibrating the year, month, day, hour, minute, and second, press the ①/J key to select the "Save" option and the △/S key to save the modified time. The correct time will then be displayed in the status bar of the single-channel interface.

2 、 Alarm Alert

Under the "Alarm Alert" interface, you can configure the enablement of audio alarms, vibration alarms, and overall alarm functionality. The status of each function is displayed in real time on this interface. Press the ①/J key to select the desired function, and use the △/S keys to activate or deactivate it. When "Save" is selected, press the △/S key to save the settings and return to the configuration interface. Disabling alarm functionality will turn off all alarm alerts.

3 、 historical data

The menu options for data storage include "Historical Data" and "Storage Interval." Single-channel instruments can directly access the "Historical Data" option for viewing. Dual-channel instruments first enter the gas channel selection interface to choose a channel, then view the data of the selected channel.

Enter the "Historical Data" interface. The gas name of the current channel is displayed in the upper left corner, while the record sequence number and total number of records are shown in the upper right corner. Press the △/S keys to navigate through historical records; each page displays two records, each containing the recording time, gas concentration value, and alarm status. Press the ①/J key to exit the current interface and return to the previous menu level.

Connect to the computer software using a suitable USB cable to upload data and perform more detailed analysis.

4 、 Storage interval

In the "Storage Interval" interface, users can set the interval at which the instrument saves a data point when real-time data storage is enabled (measured in seconds). Press the ①/J key to select the desired interval value, then use the △/S key to adjust the time setting. After modification, press ①/J again to select the "Save" option and press △/S to save the data before returning to the settings interface.

Note: The minimum storage interval is 1 second, and the maximum storage interval is 250 seconds.

5 、 Screen standby

When entering the "Screen Standby" interface, the current standby time is displayed. Press the ①/J key to switch between options, and press the Δ /S key to save and return to the settings interface. Users can configure how long the screen automatically turns off after no operation or alarms based on their usage preferences. A setting value of 0 enables the screen to remain constantly lit.

Note: The screen will automatically light up when an operation or alarm occurs.

6 、 language selection

The "Language Selection" interface allows switching between "Chinese" and "English" to customize the instrument's display language, simplifying operation for both domestic and international users. Press the ①/J key to switch options, and press the Δ /S key to save and return to the settings interface.

7 、 Change Password

On the "Password Modification" screen, users can change the password used to access the settings interface. Enter a four-digit new password in this screen. Press the ①/J key to switch password characters, and press the Δ /S key to input the desired password value. After completing the new password, press ①/J to select the "Save" option, then press Δ /S to save the password and return to the settings interface.

8 、 Recover factory settings

On the "Restoration to Factory Settings" interface, users first enter a four-digit password for verification. After clicking "Confirm," both the instrument parameters and channel parameters will be restored to their factory settings. To switch parameters, press the ①/J key; to enter the instrument password, press the Δ /S key. After entering the password, press ①/J to select "Confirm." If the password is correct, the instrument parameters will be restored to their factory state.

9 、 Help Support

In the 'Help Support' interface, users can view the current instrument version number to facilitate communication with the manufacturer when issues arise.

10 、 Return

When setting the interface, press the ①/J key to switch between options. When the option displays as a "Return" menu option, press the Δ /S key to return the instrument to the detection interface.

4、 Daily Use and Maintenance

- 1 、 To ensure accurate and reliable detection of environmental gases by the instrument, please carefully read this operating manual before use and follow the instructions accordingly.
- 2 、 For instrument maintenance and component replacement, only original parts from our company shall be used, and the work must be performed by qualified maintenance personnel.
- 3 、 This instrument contains a battery. Do not immerse the instrument in water or fire, and strictly avoid using it in high- temperature or high-pressure environments to prevent potential hazards.
- 4 、 When the instrument voltage is too low, charge the instrument promptly. After charging is complete, remove the charger immediately to prevent damage to the instrument.
- 5 、 Sensors are precision components. Take care to prevent the instrument from falling from a height, being submerged in water, or operating for extended periods in environments with high concentrations of corrosive gases, as this may reduce sensor sensitivity or damage sensor components.

5、 Instrument Storage and Quality Assurance

- 1 、 The entire instrument is covered by a free one-year warranty. Users must adhere to these operating instructions during use. Damage or malfunction caused by the following reasons shall not be covered by the warranty:
 - Failure caused by the user's own repair, replacement of instrument parts or unauthorized modification of the instrument.
 - Instrument failure caused by immersion in water or use under conditions exceeding the applicable operating environment.
 - Instrument damage or malfunction caused by force majeure events such as earthquakes and floods.
 - Damages and failures caused by other human factors.
- 2 、 The instrument should be calibrated at least once per year. Calibration and maintenance services are provided free of charge during the warranty period; maintenance fees will apply for instruments beyond the warranty period.

6、Product Completeness Set

Gas detector	One unit
Charger	A one
Product User Manual	A book
Product Certificate of Conformity / Warranty	A piece
Card	
Packaging box	A
Data analysis software	A set
USB data transmission cable	One cable

Note: The marked accessories are only available for devices with storage capabilities.

Model: _____

Instrument number: _____ **Date of manufacture:** _____

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