

Portable gas detection alarm

OT137 portable multi-gas detector

operating instruction

Henan Otywell Electronic Technology Co., LTD

ISO9001 quality management system certification enterprise

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If the user does not install or repair parts according to the instructions in this manual, the user shall be responsible for the resulting liability.

User service guidelines

1. Before using this product, please check the accessories, product certificate and factory inspection report according to the product list. If you find that they are not complete, please contact the seller or manufacturer immediately.

2. Within 12 months from the date of sale, if the product quality is lower than the technical indicators and the user complies with the storage, transportation and use requirements, free repair will be enjoyed according to the warranty card.

3. Our company will charge for the maintenance of damage caused by violation of operation regulations and requirements, faults caused by non-designated special technical service department of our company or product quality problems caused by irresistible factors.

4. When the product is repaired, please show the warranty card of the product actively. If you cannot show the warranty card of the product, it will be charged for repair.

5. After product maintenance and repair, please show this manual. The maintenance personnel will fill in the attached "Maintenance and Repair Record" and sign it. At the same time, please sign the "Maintenance and Repair Record" of the maintenance personnel to confirm the maintenance and repair content and put forward valuable opinions. If you are a unit user, please stamp your official seal.

6. If you have any questions or dissatisfaction with the products and services provided by us, including product technology, quality, installation and maintenance, service attitude, charging standards and other issues, please contact us in time, we will properly handle your opinions.

The appearance and color of the products in the product catalogue are for reference only. The supply is subject to the actual goods. Our company reserves the right to modify the technical parameters of the related products in this catalogue without prior notice. If you have any questions, please call our service hotline.

matters need attention

Before using the detector, please read the following precautions:

★ Before using the detector, please check whether there are cracks or missing parts on the shell. If the detector is damaged or missing parts, please contact our company or dealer immediately.

★ Replacing components by yourself may damage the internal security of the detector.

★ Do not expose gas detectors to electric shock or severe continuous mechanical vibration.

★ Discarded batteries and sensors should be disposed of by qualified recyclers or hazardous waste handlers, not thrown into the trash can.

★ Do not disassemble or put the battery into fire, and avoid short circuit of positive and negative terminals of the battery, otherwise it will cause fire or explosion.

★ Do not dismantle, adjust or repair this gas detector without permission.

★ Do not splash water, chemical solvents, benzene or gasoline on the detector, and avoid the detector to inhale such substances, otherwise it may cause the detector to fail.

★ Prevent the machine from falling from a height or subjected to violent vibration.

★ In order to ensure the measurement accuracy of the detector, the detector should be calibrated regularly (at least one year).

★ Artificial frequent impact of toxic gas with high concentration on the detector should be avoided.

★ Do not continue to use the sensor when it has failed or exceeded its service life.

★ Before using this instrument, please read the instruction manual carefully and operate it in strict accordance with the instructions.

★ For any application or use failure beyond the description in this manual, please contact the dealer or manufacturer for solution.

Try not to install the instrument in the following situations:

- 1、 1. Where temperature and humidity exceed working conditions.
- 2、 2. Places with strong corrosive gases.
- 3、 3. Places with a large amount of dust, salt and metal powder.
- 4、 4. Places where water, oil and chemical liquids are easy to splash.
- 5、 5. In the case of direct vibration or impact.
- 6、 6. Situations with electromagnetic interference.

catalogue

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1. Overview

The OT137 series is an industrial-grade, highly sensitive portable multi-gas detection instrument. It is designed for use in explosion-proof environments for gas leak emergency response, as well as in underground pipelines and mines. This device effectively ensures the safety of personnel and prevents damage to production equipment. The product features a rubber-coated design for a comfortable feel. It primarily measures gas leakage concentrations and can detect various gases depending on the sensor type. The compact size, ease of operation, portability, and excellent shock resistance make it ideal for various applications. The product uses high-resolution color LCD technology, providing a clear and intuitive display.

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

GB/T 3836.1-2021 Explosion-proof Environment Part 1: General requirements for equipment

GB/T 3836.4-2021 Explosive environment Part 4: Equipment protected by intrinsically safe "i"

GB 12358-2024 General Technical Requirements for Environmental Gas Detection and Alarm Instruments in Workplaces

JJG 693-2011 Flammable gas detection alarm

JJG 915-2008 Carbon monoxide detection alarm

1.2 Product terminology

"LEL" stands for Lower Explosive Limit. It is the minimum concentration of flammable gas in air that can ignite upon contact with an open flame, known as the lower explosive limit (LEL). In English, it is referred to as Lower Explosion Limit. When the concentration of flammable gas in the air reaches its lower explosive limit, the flammable environment is considered 100% explosive, or 100% LEL.

%VOL: Percentage of gas volume.

ppm: one millionth of the volume percentage of a gas.

$\mu\text{mol/mol}$ (micromoles per mole) is the unit of amount of substance.

Conversion: $1\text{ ppm}=1\mu\text{mol/mol}$.

2. Main functional features

- ◆ Large screen color Chinese menu operation
- ◆ High resolution LCD display, curve display
- ◆ Rapid detection of gas leakage points
- ◆ Adjustable range, carbon film self-suction
- ◆ Low voltage prompt and automatic shutdown in case of low voltage
- ◆ Sensor fault detection, self-test function
- ◆ Fast preheating and quick response time
- ◆ Sound alarm signal, temperature display function
- ◆ Convenient zero adjustment, convenient and quick
- ◆ Alarm record query function

3. Main technical parameters

- Suitable gases: combustible/gas toxic/harmful/oxygen, etc
- Detection principle: catalytic combustion type, electrochemical type, infrared type, laser, semiconductor type and so on
- Detection mode: natural diffusion / external pump suction at will (external pump is optional)
- Measurement range: (0–100)% LEL (combustible gases); (0–100) $\mu\text{mol/mol}$ (toxic gases), etc. (depending on gas type)
- Accuracy class: $\pm 3\%$ FS (combustible/oxygen); $\pm 5\%$ FS (toxic)
- Low limit alarm set value: 20%LEL (flammable)

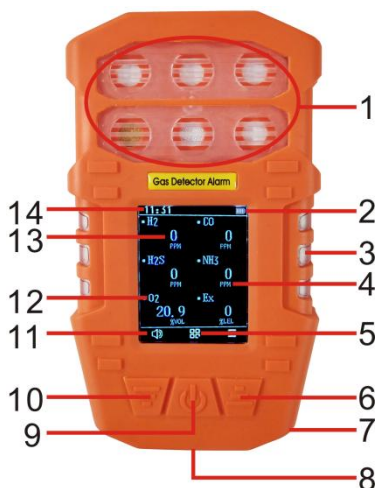
- Upper limit alarm setting: 50%LEL (flammable)
- Alarm mode: LED, sound, vibration indication alarm, fault and under voltage
- Display mode: LCD color liquid crystal display
- Response time: less than 30s
- Environmental temperature: -25°C ~ +55°C
- Relative humidity:(20~93)%
- Supply voltage: DC 3.7 V
- Battery capacity: 1800 mAh+1000 mAh lithium ion rechargeable battery
- Charging time: <5 h
- Standby time: ≥ 8 h
- Pressure limit: 86kPa~106kPa
- Product size: L 157 mm × W 88 mm × H 36 mm;
- Product weight: about 500 g
- Explosion-proof certificate number: CNEx22.1795X
- Explosion-proof mark: Ex ib IIC T4 Gb/Ex ibD 21 T130°C
- Protection level: IP66 or above
- Type approval certificate mark and number of measuring

instrument:  (CH₄、CO)
2020C201-41

4. Appearance function and indication

4.1 Overall structure diagram of OT137

1	Sensor detection window
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2	Electric quantity
3	Alarm lamp
4	Gas unit
5	Main menu
6	Up arrow
7	Buzzer
8	Charging hole
9	OK, menu key
10	Down key
11	Sound and silence cues
12	Gas name
13	Gas concentration value
14	time

4.2 OT137 pump suction appearance and description



With an external pump picture



Picture with standard air hood

Note: When using the natural diffusion method of detection, the attached calibration cover is only used for installation or closing during product calibration, and it needs to be during normal detection to avoid detection failure and possible personal safety hazards!

Introduction to external pump function

1. Key function: Long press the "OK" key of the external pump to start the external pump, and press again to stop the pump.
2. Indicators: Left indicator: battery power status indicator; right indicator: pump working status indicator.
3. Status of the indicator light: when charging, the left indicator light flashes; when charging is complete, the indicator light is on. When working normally, the pump working indicator light is on and the battery status indicator light is off; when the battery is under voltage, the battery status indicator light flashes.
4. The external pump is selected for customers.

5. Operation instructions of OT137 products

5.1 OT137 product startup instructions

In the shutdown state, press the power button for more than 3s, and the alarm is turned on. Then the system automatically performs the following self-test program: The system displays the welcome interface; the start-up sound is issued to detect the function of the buzzer; the vibration, suction pump and sound alarm indication are opened to detect whether these functions are normal;

Display the high and low reporting of the detection channel, the detection range and the self-test procedure. After the self-test procedure is completed, directly enter the normal detection state.

5.2 Shutdown instructions for OT137 products

In the on state, and the device is working in detection mode, press the power button. At this time, the buzzer will emit intermittent sound, vibration and light warning, 3s later the information disappears, release the button to turn off.

5.3 OT137 product parameter function description

The factory default password is 1111. If no setting is set, the detection interface will return after 10 seconds.

The user menu function is described as follows:

Alarm record: You can view recent alarm records, up to 1000 alarm records.

Alarm setting: You can set the low and high alarm values of the product.

Zero setting: the zero point translation of the product can be set.

Calibration instrument: the gas parameters of each channel can be checked or calibrated by standard sample gas.

System self-test: check whether the light, alarm sound and vibrator function of the product are normal.

Channel information: you can intuitively view the alarm value, range and other parameter information of the product.

Time setting: You can set the time of the product.

Password setting: You can set the user password to avoid misoperation of other factors.

Restore factory: You can directly restore to the factory period function, and the original user changed information will be automatically deleted after restoration. Please operate carefully.

Exit: This function can directly return to the detection interface, or automatically return to the detection interface after 10 seconds without other operation.

Warning: Please do not charge the product at the detection site, so as to avoid fire or explosion caused by sparks generated by plugging in the charger; please try not to charge the product when it is on, so as to avoid affecting the charging speed and battery life.

5.4 Menu operation instructions

1. Alarm record: Record alarm data

A) Enter the menu, select the first item "Alarm Record", click the power button to enter "Alarm Record" as shown in Figure 1-1

b) Click the power button to select and enter the "Clear/Exit"

function, as shown in Figure 1-2. Click the "left button" to clear the alarm record, and click the "right button" to return to the menu item



Figure 1-1

Figure 1-2

2. Alarm setting: Set the low and high alarm values of the channel

A) In the menu, select "Alarm Settings" by pressing left and right keys to enter the alarm Settings interface, as shown in Figure 2-1

b) Press the left and right keys to switch between the "Previous" and "Next" channels. Press the middle power button to confirm the selected channel. Press the middle key to adjust the selection box up or down. See Figure 2-2. Press the left and right keys to "Increase" or "Decrease" the preset high and low alarm values.

c) Adjust the selection box to the bottom, as shown in Figure 2-3. Press the left key to select "Save", and the save icon will turn blue. As shown in Figure 2-4, it indicates that the save is successful. Press the right key "Exit" to return to the menu interface. Press the middle key "Return" for channel switching.



Figure 2-1



Figure 2-2



Figure 2-3



Figure 2-4

3、Zero setting: enter zero translation.

A) Press the left and right keys to switch between the channels "Previous" or "Next". See Figure 3-1

b) Adjust the selection box to the bottom, wait for the zero point value to stabilize, and press the left key to select "Save". The save icon will turn blue as shown in Figure 3-2, indicating that the save is successful. Press the right key "Exit" to return to the menu interface. Press the middle key "Return" to switch channels.

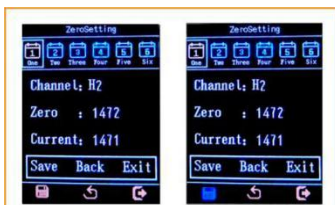


Figure 3-1

Figure 3-2

4、 Calibration instrument: Enter calibration. See Figure 4-1

A) Press the left and right keys to switch between the channels "previous" or "next". As shown in Figure 4-1. After selecting the channel, press the middle confirm key to enter zero point translation. As shown in Figure 4-2

b) Press the left key "Save" to save the zero point. (Note that when saving the zero point value, it should be in clean air)

C) Press the middle key "OK" to enter the standard gas. As shown in Figure 4-3

D) Press the left and right keys to adjust up and down and input the standard gas value.

E) Press the middle key "OK" to start the ventilation calibration (this process is less than 60s). As shown in Figure 4-4. Wait for the value to stabilize, click the middle key "OK" to enter the saved Settings.

F) After the save is successful, the save icon will turn blue. Click "Exit" on the right to return to the menu item, and click the middle key "Return" to switch channels.



Figure 4-1

Figure 4-2

Figure 4-3

Figure 4-4

5、System self-test: self-test the horn, vibration and buzzer. See Figure 5-1

- a) Press any key "Exit" to return to the menu item.



Figure 5-1



Figure 6-1



Figure 7-1

6、Channel information: Display the information of each channel, as shown in Figure 6-1

- A) Press any key "Exit" to return to the menu item. A) Press any key "Exit" to return to the menu item.

7、Time setting: Set the time, as shown in Figure 7-1

- A) Press the middle key "select" to change the year, month, day, hour, minute and second. Press the left and right keys "increase" and "reduce" to adjust the time. A) Press the middle key "select" to change the year, month, day, hour, minute and second. Press the left and right keys "increase" and "reduce" to adjust the time.

8、 Password Settings: Modify the user password.

A) First, verify the original password of the user. See Figure 8-1 A)
First, verify the original password of the user. See Figure 8-1

b) After the verification is passed, enter the password modification.
As shown in Figure 8-2. Press the left and right keys "increase" and "reduce" to adjust the value.

c) After entering and confirming the password, it will prompt whether to save. Press the left key "Yes" to save the password, and the modification is successful. Return to the menu item, press the right key not to save, and return to the menu item. c) After entering and confirming the password, it will prompt whether to save. Press the left key "Yes" to save the password, and the modification is successful. Return to the menu item, press the right key not to save, and return to the menu item.



Figure 8-1

Figure 8-2

9、 Restore factory: Restore the data to factory Settings.

- A) First verify the user password.
- b) Indicate whether to resume. See Figure 9-1
- c) Press the left key "Yes" to start the recovery. As shown in Figure 9-2. Return to the menu after the recovery is complete.



Figure 9-1

Figure 9-2

6. Precautions for use

(1) Prevent the machine from falling from a high place or subjected to violent vibration.

(2) It may not be able to work normally in the presence of high concentration gas.

(3) Please operate and use strictly according to the instruction manual, otherwise it may lead to inaccurate test results or damage to the machine.

(4) This product shall not be stored or used in an environment containing corrosive gases (such as high concentration of chlorine gas, etc.), nor shall it be used and stored under other harsh conditions (including high or low temperature, high humidity, electromagnetic field and strong sunlight).

(5) If there is dirt on the surface of the machine after long-term use, please wipe it gently with a clean soft cloth dipped in water, and do not use corrosive solvents and hard objects to wipe the surface of the machine, otherwise it may cause scratches or damage to the surface of the machine.

(6) In order to ensure the detection accuracy, the machine should be calibrated regularly, and the verification period should not exceed one year.

(7) It is recommended that the service life of infrared sensor and semiconductor sensor is 5 years, and that of catalytic combustion sensor

and electrochemical sensor is 2 years.

(8) Please remove the lithium battery and sensor of the discarded detector and send it to the designated place or return it to our company. Do not throw it into the trash can.

(9) If you have any application or use fault beyond the description in this manual, please contact us for solution.

(10) In the explosive gas environment, the battery pack cannot be disassembled or replaced, nor can the battery pack be charged. In the explosive gas environment, the peripheral plug-in equipment that has not been certified as explosion-proof cannot be used, nor can the sensor be replaced.

(11) For products with explosion-proof certificates, components or structures that affect the explosion-proof performance shall not be replaced or modified at will.

(12) In the corresponding national standards, there are clear provisions for the selection, installation or use of electrical design in explosive dangerous places. The installation or use units shall strictly abide by these provisions to ensure the explosion-proof safety of electrical equipment in explosive dangerous places.

(13) Charging must be carried out in a safe place and use the professional charger provided with the machine.

7. Common faults and their solutions

fault phenomenon	Possible cause of failure	process mode
The computer cannot be started	voltage below level	Please charge in time
	system halted	Please contact the distributor or manufacturer for repair

	fault	Please contact the distributor or manufacturer for repair
No reaction to the test gas	The circuit is faulty or the sensor life has expired	Please contact the distributor or manufacturer for repair
The display is inaccurate	The sensor is overdue	Please contact the distributor or manufacturer for repair
	Not calibrated for a long time	Please calibrate in time
The time is displayed incorrectly	The battery is completely dead	Charge and reset the time when appropriate
	Strong electromagnetic interference	Reset the time
The zero calibration function is not available	The sensor drifts too much	Calibrate or replace the sensor in time
It does not show zero in a clean air environment	Sensor drift	Perform zero calibration
The normal detection interface of the instrument shows full scale	Sensor malfunction	Contact the distributor or manufacturer to replace the sensor

8. Warranty and Maintenance

(1) The warranty period of this product is one year (except for wear and tear parts). In case of failure under normal use, free factory

maintenance and maintenance services can be enjoyed. The damage caused by man-made and natural disasters or abnormal use is not within the scope of warranty.

(2) If the sensor life expires, please contact us for a new sensor.

(3) If the user cannot troubleshoot, he/she can send the detector back to our company for maintenance. We will troubleshoot the fault as soon as possible and return it to the user.

9. Storage

The product should be stored in a ventilated room with ambient temperature of $-10^{\circ}\text{C}\sim+55^{\circ}\text{C}$ and relative humidity not greater than 85%, and the air shall not contain harmful gases or impurities that corrode the product.

10. accessories

The supporting products provide one gas detection alarm, one instruction manual, one product certificate and warranty card, one factory test report and a set of charger.

Schedule Gas parameter table

The measured gas	measuring range	resolution ratio	Underreporting	Overreporting
combustible EX	0-100%LEL	1%LEL	20	50
Oxygen O ₂	0-30%VOL	0.1%VOL	19.5	23.5
Hydrogen sulfide, H ₂ S	0-100ppm	1ppm	15	35
carbon monoxide CO	0-1000ppm	1ppm	50	150
Nitrogen dioxide, NO ₂	0-20ppm	0.1ppm	5	10
natural gas	0-100%LEL	1%LEL	20	50
methane	0-100%LEL	1%LEL	20	50
Carbon dioxide, CO ₂	0-5000ppm	1ppm	1500	2500
nitric oxide NO	0-250ppm	1ppm	50	150
nitrogen	0-100%VOL	0.1%VOL	76.5	80.5
Sulfur dioxide, SO ₂	0-20ppm	0.1/1ppm	5	10
Chlorine gas, Cl ₂	0-20ppm	0.1ppm	5	10
Ammonia NH ₃	0-100ppm	0.1/1ppm	15	35
Hydrogen H ₂	0-1000ppm	1/10ppm	50	150
Phosphine, PH ₃	0-20ppm	0.1/1ppm	5	10
chlorine hydride HCl	0-20ppm	0.1/1ppm	5	10

For more product parameters, please contact us

Otywell



Excellent quality, trustworthy

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