# Portable Multi Gas detector

# ES30P

# Instruction Manual

# Tell the user.

## Dear user:

**Thank you for purchasing our gas detector!**

**Be sure to read this instruction manual carefully before you use this product.**

**After reading, please keep this instruction manual so that you can consult it at any time if you need it.**

It is a great honor for us to having you to be our user. In order to enable you to grasp the company's gas detector use as soon as possible, we have prepared this manual for you in particular. Our product specifications are designed to be comprehensive and concise. From this you can learn about how our tester works, installation procedures, and common troubleshooting. We strongly recommend that you read this product carefully before using it, which will help you to use it better. The Company will not be liable for any loss arising from the failure to operate the tester as required in this manual.

We have done our best to avoid human error to ensure that the information provided in this manual is correct and reliable, but we can not guarantee that there will be no errors that have not been detected or checked before printing, as well as the omission of printing, binding, distribution and so on beyond our control, please understand!

Sometimes in order to improve the performance and reliability of the components and the whole machine, we may make some small adjustments to the hardware or software configuration of the product. This may cause some inconsistency between the actual situation of the machine and the manual, but this will not it is hereby explained that it will substantially affect your use of the machine.

In order to ensure that you can enjoy the all-round after-sales service provided by our company in time, please register your product information in time.

## Copyright.



## Statement.

The Company does not provide any form of warranty, including（but not limited to） an implied warranties of the marketability and suitability for specific purpose. The Company is not liable for the errors contained to this document (installation errors, operating errors) or for the occasional or indirect damage caused by the provision of this manual, actual performance and use.

The content contained in this manual is proprietary information protected by copyright law. All right provide without the company's prior written consent, any part of this manual may not be copied, photographed, copied or translated into other languages in any form or method.

As the company will continue to improve and upgrade produce equipment,
the equipment and performance of subsequent models will be changed without notice.

## Manufacturer's responsibility.

The Company considers to be responsible for the safety, reliability and performance of the equipment only under the following circumstances, namely:

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

**Notice:**

1, All the operators who operate and test the instruments shipped by our company must read the instruction manual carefully before operation. The company's instruments can only work normally when operated in accordance with the company's instructions.

2, The use of our company's instruments must be operated in accordance with the procedures established in the manual. The maintenance of the instrument and the replacement of parts must be completed by the accessories provided by the company and trained personnel.

3, If the user does not follow the above instructions to disassemble, repair or replace parts without authorization, the reliability of the meter is responsibility of the operator . At the same time, the company is no longer responsible for the warranty.

4, The instrument needs to be calibrated at least once every six months; the

explosion-proof sheet or waterproof breathable membrane of the instrument sensor should be cleaned or replaced regularly, otherwise the dust and impurities blocking the protective hole will affect the sensitivity of the detection.

5, The use of the Company's instruments should also comply with the laws and regulations of the relevant domestic departments and the factory’s instrument management.

6, Due to the characteristics of the sensor, it is required to calibrate the instrument every 3 months(standard gas can be provided by our company).

7, The sensor is a sensitive component. Therefore, if there is a large amount of oily smoke, moisture, dust and other substances in the target environment of the measurement, please do the correspondingfiltering pretreatment before connecting to the instrument for detection, otherwise the sensor may be easily damaged.

8, For instruments using electrochemical sensors, please do not expose the machine to high-concentration target gases (except oxygen) for a long time, otherwise it will easily cause the sensor to be poisoned or reduce its life.

9, When the pipeline instrument is calibrated and gas detection, the flow rate should be controlled between 200-500ml/min as far as possible, otherwise the value will be unstable or inaccurate.

# CONTENTS

# 1. Purpose and rationale

Thank you for purchasing our ES30P portable multi gas detector (hereinafter referred to as the detector). adopts a 32-bit microprocessor, TFT color LCD screen display, 3 key operation, buzzer, vibration motor, alarm lights constitute a very good human-computer interaction experience. It has the characteristics of stable and reliable system, rich display content, clear and beautiful, convenient and simple operation and fast response speed. A wide range of gases can be detected at the same time, and the gas type can be flexibly configured according to the customer needs. Small size and light weight. With stainless steel buckle, easy to carry. Supports both Chinese and English bilingual switching, graphics and text two UI operating styles. It also features a flashlight to meet your lighting needs. The original imported sensor is adopted with high sensitivity and short response time. Waterproof, dust-proof and explosion-proof can be used in a variety of complex environments.

This product is widely used in: petroleum and petrochemical, metallurgy, chemical industry, coking, municipal, bio-pharmacy, home environmental protection, school laboratory, automobile exhaust, electricity, ships, sewage treatment and other places that need to continuously detect flammable and explosive, toxic and harmful gases.

## 1.1 Safety notes.

- Too high or too low oxygen content in the atmosphere may affect the reading of the combustible gas sensor.
- Sudden changes in atmospheric pressure may affect the reading of the oxygen sensor.
- The vapor of the silicone compound can cause damage to the catalytic combustion sensor, making sure that such substances do not appear in the environment.
- During use, be careful to keep the sensor air intakes clean. Blockages in the air intakes may cause the tester to have a low reading.

- To ensure the safe and reliable use of this tester, do not disassemble it yourself.
- Do not store this tester in a high temperature, humidity, or strong static electricity environment.
- Do not use any corrosive liquids to clean the unit components.
- Users are not allowed to replace parts of the product by themselves.
- The installation, use and maintenance of the product should also comply with the product manual and national implementation standards.

## 2. The main parameters.

### Specifications:

| | |
|---|---|
| Dimensions. | 119.6*60*44mm(L*W*H) |
| Weight. | about182g |
| Shell material. | PC+TPU（anti-static） |

**Show:**

| | |
|---|---|
| How to display it. | TFT color LCD display. |
| Backlight. | LED |

**Alarm mode:**LED alarm, buzzer alarm, vibration alarm.

**Housing protection rating:**IP65.

**Other:**

| | |
|---|---|
| Operating temperature. | -20℃～+50℃ |
| Working humidity. | 10%～95% RH |
| Concentration units. | ppm、%VOL、%LEL、mg/m3 |
| Detection method. | Diffusion. |

## 2.1 The appearance of the instrument.


dimension：119.6*60*44mm(L*W*H)

## 2.2 Key part definition.

| Keys. | Defined. |
|---|---|
| ▲ | "Upper key"select the key and interface display switch. |
| ▼ | Lower key: Select and adjust. |
| M/⏻ | Menu/Power Keys Switch and OK Keys. |

# 3. Instrument operating instructions.

Machine workflow: in the shutdown state, long press the menu button to turn

on. The machine enters the preheating state interface, and the backlight lights up at the same time. After 5 seconds the system enters the self-check, during the self-check, the LED lights flash, the buzzer chirps, and the vibration motor vibrates. After the preheating is completed, it enters the measurement state**.** Environmental gases can be measured in a measurement state. The screen interface shows oxygen (O2), hydrogen sulfide (H2S), carbon monoxide (CO), and gas (EX) concentration values. Can be customized according to customer needs. Long press the menu button to turn off after you've finished using it.

The basic operation of the detector is as follows:

## 3.1 Power on.

In the shutdown state, press the M/⏻ for about 3 seconds to power on.

## 3.2 Shut down.

In the measurement mode, long press and hold M/⏻ for about 3 seconds, enter the shutdown countdown, continue to press and wait for the countdown to end, at the same time, the sound, light, vibration alarms will act, and the shutdown will be off after the timer ends. as shown in Figure 3.1.

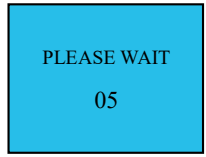



Figure 3.1 Shutdown interface.

## 3.3 Warm-up state.

After the machine is turned on, it first enters the warm-up interface and warms up the instrument. After the warm-up is complete, you can enter the measurement state, if you want to enter the measurement state in advance, press ▲ **and** ▼ at the same time to enter the measurement immediately, but

this is not recommended, as shown in Figure 3.2.

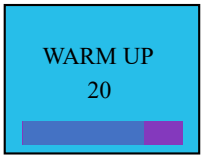
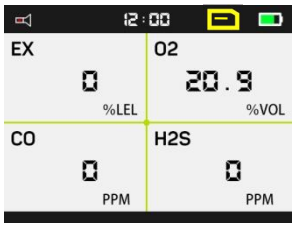


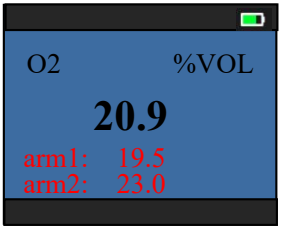

Figure 3.2 Warm up the interface.

## 3.4 Measurement Interface.

After preheating is completed, enter the measurement state, the multi-gas display interface (mode 1) as shown in Figure 3.3;
Press the button ▲ (mode 1) in the surface to enter the single gas paged display screen (mode 2)， as shown in picture 3.4, in the (mode 2) surface, press ▲ button to enter the single gas paged cured display screen (mode 3), as shown in Figure 3.5

Figure 3.3 Figure 3.4 Figure 3.5



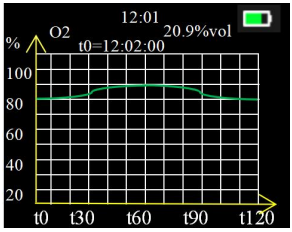




Figure3.3 Multi-gas Display Interface ； Figure3.4 Single-page Display Interface ； Figure 3.5 Single-page Curve Display Interface.

a, A time and battery level indication is displayed at the top of the screen.

b，The intermediate region shows the concentration values of four gas types and gases, showing different names and data for different gas types.

c，In the multi-channel interface, press and hold the key ▼ or 3 seconds to turn the flashlight on or off.

d，In the multi-channel interface, press and hold the key ▲ for 3 seconds,

you can turn silent mode on or off, and the mute icon is displayed in the upper left corner of the screen.

e，When you open the store, the file storage icon appears in the upper right corner.

f，When the measured gas concentration value exceeds the set alarm concentration value, a sound, light and vibration alarm signal will be generated. The alarm method is as follows:

Level 1 Alarm: Concentration Value current color alternately displays with red, orange LED flashing, audible alarm, machine vibration.

Level 2 Alarm: Concentration Value current color and red alternate display, red LED flashing quickly, fast chirping, machine vibration.

## 3.5 Menu settings interface.

In the measurement interface, press the M/⏻ key to enter the password (default 1) to enter the menu settings interface, the tester built-in graphics and text two UI interface style, customers can choose the interface style according to their own preferences, the system default is the graphic interface, as shown in Figure 3.6:

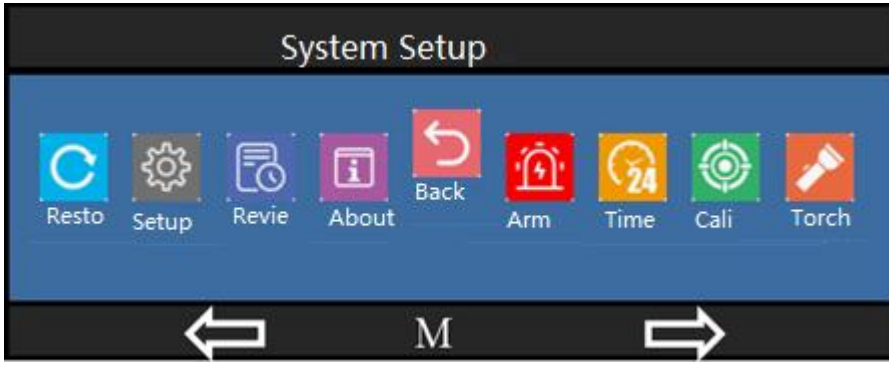



Figure 3.6 Menu settings interface.

a, alarm: alarm value setting;

b，Time: Set the system time;

c, calibration: calibration settings, can enter the calibration interface;

d, flashlight: turn the flashlight on and off;

e, settings: set the backlight, storage interval, interface style, language;

f, history: you can view the alarm history;

g, recovery: can be restored to the factory parameters set;

h, about: some information about the native, such as version number;

i, Return: Back to the measurement interface;

This instrument has set up a total of 9 settings menu, under the menu interface, ▲ press, ▼ key selection.

The appropriate settings options, and then press the menu key to enter the appropriate settings interface, select the return dish.

Single return. In the case of no keystrokes for a long time, the machine automatically returns to the measurement interface.

## 3.5.1 Alarm value setting.

Under the alarm value setting interface, the alarm value of the machine can be set, wherein the low alarm value is the first alarm value and the high alarm value is the second-level alarm value. Press up ▲ to move to move to the number of bits to set the bit, the corresponding bit sifted back, and press the key to ▼ make changes to the corresponding bit. Number bit After the change, press the key to select to OK after the ▲ pop-up confirmation box, select OK after saving exit. If you don't have to change, press OK and select Cancel. As shown in Figure 3.7 (a,b): .

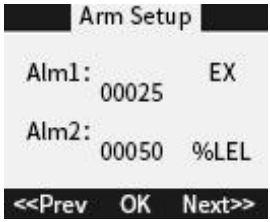




Figure 3.7 (a) Alarm Settings Figure 3.7 (b) Confirms the operation.

**Note:** The first-level alarm value can not be greater than the second-level alarm value, the alarm value can not be greater than the full scale value.

### 3.5.2 Time date settings.

Under the menu interface, press the confirmation key to enter the time settings interface after selecting the time setting, and the current date and time of the system can be set. The setting date is the date setting, left to right is the year/month/day, the setting time is time setting, from left to right is the time-minute-second.

The setting method is as follows, press the ▲ key to shift the corresponding setting bit, change the value of the key, press the confirmation key after the key to select OK to save the change of time and date and return to the ▼ previous interface. Instead of saving the changes, press the Cancel key to exit the time date settings interface, as shown in Figure 3.8: .


Figure 3.8 Time Date Interface.

### 3.5.3 Calibration setup process.

After selecting the calibration settings menu, the system first enters the password interface, enter the password 88 can enter the calibration interface. Zeros and spans can be calibrated under the calibration interface and the results of calibration can be viewed in Figure 3.9 (a,b):


Figure 3.9 (a) Password Interface

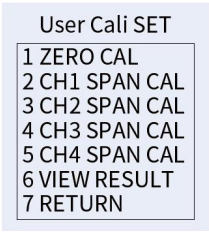



Figure 3.9 (b) Calibration interface.

Under the calibration interface menu, select 1 zero calibration to enter the zero calibration, to be displayed value stability after pressing the confirmation key and then select OK can complete the zero-point calibration, as shown in Figure 3.10.


Figure 3.10 Zero calibration.

Note: After the calibration is successful, "Cali" becomes "OK" and if it fails, it becomes "Err".

Select 2 (2,3,4,5 for the four gases) span calibration under the calibration interface, calibrate the timed input of the concentration value of the standard gas, such as 60ppm,to be stable after the value press the confirmation key and then select OK can complete the span calibration, as shown in Figure 3.11.


Figure 3.11 Span calibration.

Note: 1, if the machine is not used for a long time, zero point may drift a

bit, this can enter the zero calibration interface for zero-counting operation, the operation confirms is in the absence of target gas.

2, span calibration requires the participation of the target gas body, if the customer does not have a standard gas body, please do this.

3, if you do not carefully operate, resulting in incorrect calibration values, you can enter the factory recovery interface, restore factory settings, and then enter the zero calibration interface for zero operation.

4,In the normal measurement interface, long press and press the key for ▲ about 10 seconds, pop up a one-click school zero menu, can be in clean air, to achieve one-click school zero. One-click zero system does not save, need to operate after each power-on.

### 3.5.4 Flashlight switch.

There is a highlighted led on the top of the machine that acts as a flashlight. There are two ways to turn the flashlight on and off:

1. Long press and press in the measurement interface ▼ to turn on or off.
2. Select the 4. torch switch in the menu interface and select OK or Cancel, as shown in Figure 3.12:


Figure 3.12 Zero calibration.

## 3.5.5 ⚙ Other settings.

Select a different setting to enter the interface under the menu interface, as shown in Figure 3.13:


Figure 3.13 Other settings interface.

Backlight time: You can choose that the backlight time is normally on by default.

Storage interval: Set the data storage interval so that historical data can be exported by connecting a COMPUTER.

Interface style: You can set the interface style to a text interface or an icon interface. Once you've selected the text interface, go to Figure 3.14:

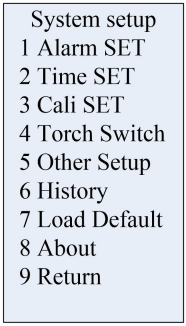



Figure 3.14 Text interface.

Language: Set the system language to Chinese or English.

## 3.5.6 History data restored.

Enter the history to view the generated alarm records. Includes alarm gas, alarm concentration, alarm time, alarm number (first alarm). After viewing, press the menu key to return to the menu interface, as shown in Figure 3.15:


Figure 3.15 Alarm record.

To delete the alarm record, press the key and on at the same time, pop up the delete confirmation dialog box, select OK, delete all alarm record values.

Note: After the deletion operation, the alarm record is not recoverable, so proceed with caution.

## 3.5.7 Restore factory settings.

After entering the factory reset interface, select "confirmation" after selecting OK can be restored to the factory settings parameters, each time restore factory settings please do a good job of confirming and then performing, because the factory settings will cover all the parameters set by the customer, including calibration parameters. If, after the factory reset, you find that the zero drift is relatively large, you can enter the calibration interface to zero-counting operation, as shown in Figure 3.16:


Figure 3.16 Factory recovery.

## 3.5.8 ⓘAbout.

After entering the interface, you can view the system software version and relevant information.

## 3.5.9 ⇦Return.

Confirm that the measurement interface can be returned.

## 3.6 Charging status.

The detector contains a high-capacity lithium battery that can be charged with a matching charger. The charging interface uses a standard USB interface, and the USB-compliant interface can be recharged, as shown in Figure 3.17:

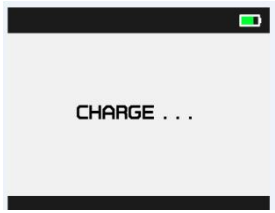



Figure 3.17 Charging interface.

# 4. Basic calibration.

The product has been calibrated according to the requirements before leaving the factory. If the user has the conditions for calibration, you can be in use according to the instructions for periodic calibration, if not in the condition, you can go to the relevant measurement department or mail the product to my company for paid calibration.

In order to ensure the measurement accuracy of the probe, the normal calibration period of the instrument is 3-6 months. If a high concentration of gas is often used in the environment, the calibration cycle can be shortened appropriately. In order to ensure the accuracy of the meter measurement, the use of the process should be regularly calibrated and recorded accordingly.

# 5. After-sales service information.

## 5.1 Warranty Description:

Before the product leaves the factory, our company has been in accordance with the requirements of the product calibration and strict inspection, we. Commitment, products in line with national and industry standards and regulations.

Customers who purchase our instruments are entitled to a 24-months warranty. Users should follow the instructions for use, due to improper user use, or a poor working environment caused by damage to the instrument, is not covered by the warranty. If due to quality problems can not work normally, our company for user maintenance or replacement free of charge. Two year later, the cost of nuclear work will be collected.

Sensors are sensitive devices and warranty conditions are subject to sensor manufacturer standards. No warranty for human damage or improper use.

The user shall keep the factory certificate in good custody, and the warranty period shall be based on the date on the certificate. Please note that a factory certificate is attached when repairing.

# Appendix I Product Specifications.

| Name. | Describe. |
|---|---|
| **Product name:** | Portable Multi Gas detector; |
| **Principle of detection:** | Electrochemical, catalytic combustion; |
| **How to display:** | TFT color LCD display; |
| **Back light:** | White LED backlight; |
| **Show ed:** | %VOL、%LEL、ppm、mg/m3； |
| **Alarm mode:** | Sound and light alarm, vibration alarm, sound 65dB@25cm; |
| **Precision:** | ≤±3%F.S； |
| **Warm-up time:** | 90 seconds; |
| **Output signal:** . | None; |
| **Body material:** | PC+TPU(Anti-static) |
| **How it works:** | Diffusion; |
| **How to do it:** | Keystrokes; |
| **Operating temperature:** | -20℃～+50℃； |
| **Working humidity:** | 95% RH, no condensation; |
| **Operating voltage:** | Built-in high-performance lithium battery, voltage: |
| **Charger:** | USB interface, USB powered DC5V, |
| **Charging time:** | 6 hours |
| **Continuous working hours:** | ≥ 10hours (25℃, no alarm, backlight off); |
| **Power:** | ≤0. 7W； |
| **Work pressure:** | 86kPa~106kPa； |
| **Weight:** | About 182g; |
| **Explosion-proof signs:** | II 1G Ex ia IIC T4 Ga ；<br>II 1D Ex ia IIIC T135℃ Da<br>Tamb= -20℃to+50℃ |
| **Level of protection:** | IP65； |

# Appendix II Repair Records.

| Date Time. | Repair content. | Repair personnel. | Head. | Note. |
|---|---|---|---|---|
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