

Portable gas detector

G60

operating instruction



Henan Otywell Electronic Technology Co., LTD

Thank you for using the series products of Henan Otywell Electronic Technology Co., LTD. When you are ready to use this product, please read the instructions carefully, and follow the relevant operation steps provided, so that you can fully enjoy the services provided by our company, and at the same time to avoid your misoperation and damage to the machine or other accidents.

Please keep this manual properly so that you can consult and get help in the future.

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Henan Otywell Electronic Technology Co., Ltd. adhering to the principle of scientific and technological progress, constantly committed to product improvement, product performance, the company reserves the right to improve any product improvement without advance notice.

If the user does not install or replace the parts according to the manual, the resulting responsibility shall be responsible for the user.

Product and product color and style, please be subject to the physical object purchased.

User Service Guidelines

1. Before using the product, please carefully check whether the attachment, product qualification certificate and user warranty card are complete according to the factory list of the product. If it is incomplete, please contact the seller or the manufacturer immediately.

2. The warranty period of this product is one year from the date of sale. If the users comply with the storage, transportation and use requirements, and the product quality is lower than the technical indicators, they can enjoy free maintenance with the warranty card.

3. For damage caused by violation of operation regulations and requirements, failure not caused by maintenance of the specially engaged technical service department designated by our company, or product quality problems caused by irresistible factors, our company will charge for maintenance.

4. When performing the product for repair, please show the product warranty card. Those who cannot show the product warranty card will be used as a charging maintenance.

5. After product maintenance and repair, please show this manual. The maintenance personnel will fill in the attached Maintenance and Maintenance Record and sign. Meanwhile, please sign the Maintenance and Maintenance Records to confirm the maintenance and maintenance contents and give valuable comments. If it is a unit user, please stamp the 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, and we will properly deal with your opinions.

Use instructions

Before using the tester, read the following notes:

- Do not use the already damaged gas detectors. Before using the tester, check the housing for cracks or missing parts. If the tester is damaged or missing parts, please contact us or distributor immediately.
- Self-replacement of the components may compromise the internal safety of the detector.
- Do not expose the gas detector to electric shock or severe continuous mechanical vibration.
- Waste batteries and sensors should be discarded by qualified recyclers or hazardous goods disposal providers, and do not throw them into the trash can at will.
- It is forbidden to disassemble or put the battery into fire, and avoid short circuit at the positive and negative poles of the battery, otherwise it will cause fire or explosion.
- It is forbidden to remove, adjust or repair the detector without permission.
- Do not splash water, chemical solvents, benzene or gasoline on the detector and avoid inhaling the detector.
- Prevent the machine from falling from high places or receiving violent vibration.
- In order to ensure the measurement accuracy of the detector, the tester is regularly calibrated (at least one year).
- The artificial impact on the detector with high concentration of toxic gas should be avoided.
- When the sensor is disabled or exceeds its service life, it is prohibited.
- Before using the instrument, please read the instructions carefully and strictly follow the instructions.
- For any application or use faults beyond the description of this specification, please contact the dealer or manufacturer for resolution.

Catalogue

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1. Summary

The G60 portable gas detector (hereinafter referred to as the detector) is a portable detection instrument that can be configured with a single gas or multiple gas sensors, which can detect different gases according to different sensor types. The product can continuously detect the gas concentration in the ambient air, which can effectively ensure that the life safety of the staff is not infringed and the production equipment is not lost. Product volume is small, easy to operate, easy to carry, good vibration resistance; using high resolution dot matrix LCD display technology, more intuitive and clear display.

The detector adopts natural diffusion detection method, the sensitive element adopts high quality gas sensor, which has excellent sensitivity and excellent repeatability; the instrument adopts embedded microcomputer control, simple operation, complete function, high reliability, and has a variety of adaptive ability. The tester shell is made of high strength engineering plastic, composite anti-skid rubber, high strength, good feel, and waterproof, dustproof and explosion-proof. Its functional and waterproof design combine collision prevention and rubber technology to meet the most demanding requirements of the harsh environment.

The detector can upload the computer query record, with audio sound and optical alarm prompt, can adapt to the concentration monitoring in a more complex environment. The product is suitable for chemical industry, pharmaceutical industry, municipal administration, water treatment, telecommunications, archaeology, laboratory, cold storage, wine making and other places.

It is adapted to explosive gas mixture sites with grade IIA, IIB, IIC, group T1 to T4, area 1 and area 2.; the dust shell is used in zones 21 and 22.

1.1 Normative references to documents

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

GB / T 3836.1- -2021 Explosive environment- -Part 1: General requirements for equipment

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

GB / T 4208- -2017 Housing protection class (IP code)

GB 12358-2024 General technical requirements for environmental gas detection and alarm instrument in workplaces

JJG 693- -2011 combustible gas detection alarm

JJG 365- -2008 Electrochemical oxygen tester verification procedures

JJG 915- -2008 Carbon monoxide detection alarm

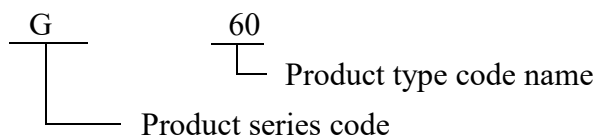
JJG 695- -2019, hydrogen sulfide gas detector

1.2 Product functions

- Displays the technical indicators and gas concentration values
- Carry light, sound, light and vibration alarm indication
- Can simultaneously detect 1~4 gases and 5 gases in real time (customized)
- With the data storage function, it can store 300,000 records
- Upload the computer function
- Simple use of products, alarm record query

1.3 Product model description

The product model means as follows:



1.4 Product Terminology

"LEL" refers to the lower explosion limit. The lowest concentration of combustible gas in the air, which is called the explosion lower limit- % LEL. In English: Lower Explosion Limited. When the concentration of combustible gas in the air reaches its lower explosion limit, we call the available gas environmental explosion risk in this place 100%, that is, 100% LEL.

% VOL: % of gas volume.

ppm: one per million of gas volume.

μ mol / mol (micromolar per mole) is the unit of substance.

Conversion: 1ppm=1 μ mol / mol.

2. Qualification

- Product model: G60
- Detection gases: combustible / toxic and harmful gases / oxygen, etc
- Measuring range: (3~100)% LEL (combustible); (0~100) μ mol / mol (toxic) (optional range)
- Accuracy level: $\pm$ 3%FS (combustible); $\pm$ 5 μ mol / mol or $\pm$ 10% (toxic) (depending on the specific gas)
- Low limit alarm setting value: 20% LEL (combustible)
- Response time: $\leq$ 30s
- Reproducibility: $\leq$ 2%
- Detection method: natural diffusion type
- Detection principle: catalytic combustion type; electrochemical formula

- Ambient temperature: -25℃ ~ + 55℃
- Relative humidity: (20~93)%
- Explosion-proof certificate number: CLEx24.1023
- Explosion-proof sign: Ex ia II C T4 Ga; Ex ib III C T130℃ Db
- Protection level: IP66 or above
- Display mode: LCD LCD display
- Alarm mode: sound, light, vibration three-level warning
- Power supply voltage: DC 3.7 V
- Battery capacity: 2000 mAh lithium-ion rechargeable battery
- Charging time: 6h
- Working time: 12 h continuous (non-alarm standby state)
- Product weight: about 165 g
- Product size: L 78 mm× W 72 mm× H 28 mm(Without crocodile clip)
- Upload interface: Magnetic suction USB interface

Please consult the customer service for the specific gas type and parameters.

3. Description of the product operation function

3.1 Overall appearance and function indication of the product



graph 3-1

order number	function declaration	order number	function declaration
1	Indicator light transparent window	5	The buzzer pronunciation hole
2	liquid crystal display	6	Sensor intake hole
3	Key button (power key)	7	alligator clip
4	Key (menu key)	8	Magnetic suction charging port

3.1.1 Description of the key press

The product has two keys:

icon	key	function
	power switch	● Power button: in the shutdown state, long press this key to start the device. ● Confirmation key: During the operation, press this key to confirm. ● Shutdown key: In the main interface, long press this key to enter the shutdown interface. ● Exit key: Except for the main interface, long press this key to exit to the main interface (detection interface).
	menu key	Order key: in the main interface, long press this key, and enter the menu interface according to the prompts. Select key: In the operation interface, short press this key to select / switch / flip / increase the value.

3.1.2 Description of the indicator light

- In the normal detection state, the indicator light is not on;
- In the fault state, the indicator light is yellow;
- In the alarm state, the indicator light is in red.

3.2 Main interface of the product

The product main interface contains the main display interface (Figure 3-2) and the curve interface of each detected gas (Figure 3-3). If the detected gas is combustible gas, carbon monoxide, hydrogen sulfide and oxygen, then press the menu key to switch 5 interfaces (the main display interface and the curve interface of the four gases).

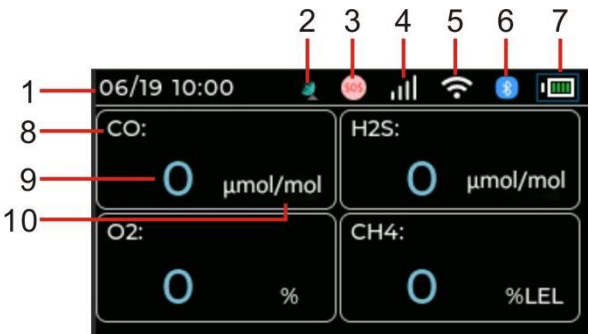


Figure 3-2 Main display interface

order number	function declaration	order number	function declaration
1	present time	6	PDA

2	GPS fixed position	7	Current surplus power
3	SOS call for help (4G Compatibility Function)	8	Check the gas name
4	4G	9	Test the gas concentration values
5	WiFi	10	Test the gas concentration units

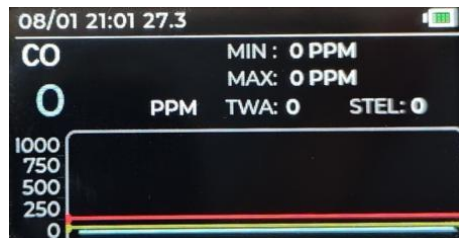


Figure 3-3, the curve interface

The curve interface of each gas includes the detection gas name, detection gas concentration, historical maximum gas concentration, minimum gas concentration, historical gas concentration, time weighted average concentration (TWA), short time contact allowable concentration (STEL) and concentration curve.

3.3 Product startup instructions

In the shutdown state, long press the power button, the device vibration, release the button, the screen lights up, the system prompt sounds, the system starts to warm up, and then enter the main display interface.

Warning: Do not charge the detector at the test site to avoid fire or explosion caused by the spark. Do not charge the charger to affect the charging speed and battery life.

3.4 Description of product shutdown

In the boot state, and the detector is in the main interface, long press the power key, the screen pop up to ask whether the shutdown interface, then short press the power key to confirm, after the system is shut down, with vibration, the screen is out, and the equipment is shut down.

3.5 Menu list and operation instructions

The user menu function description is shown in the following table.

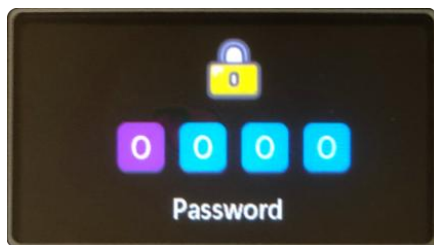
menu	function declaration
Alarm records	Check the time and status of the historical alarm (underreport, overreport)
history	View the history of each channel
Low-reporting Settings	Adjust the primary alarm point

High report setting	Adjust the size of the level 2 alarm point
Zero point setting	The calibration operation can be performed when the zero point display is inaccurate
Calibration Settings	Calibration is performed when the detected gas concentration value is inaccurate
Language setting	Set it up in either Chinese or English
Backlight setting	Adjust the brightness of the back
Password Settings	Modify the user password
Time setting	adjust the time
Bluetooth Settings	Select Sver Mode Host Mode or Bluetooth Off
WiFi set up	Select Open the WiFi, Close the WiFi, or close the WiFi Distribution Network
Upload Settings (optional)	4G upload setting (this function is optional)
device address	View the device address
Positioning Settings (optional)	Set the equipment
Restore factory	Return to the factory settings for the equipment
Upload the computer	The device can upload the data to the computer

The menu is described as follows:

3.5.1 Enter the menu

In the main interface, long press the menu key to enter the password verification interface, as shown in Figure 3-4. The default password is "1111". Press the menu button to increase the number, and press the power button to confirm the shift operation. After adjusting to the interface as shown in Figure 3-5, press the power button to enter the menu operation interface.



graph 3-4



graph 3-5

3.5.2 Alarm record

After entering the menu, press the menu button to select the menu item "alarm Record", and press the power button to enter the alarm record interface, as shown in Figure 3-6. This

interface displays the historical alarm record of all gases according to the time sequence of alarm occurrence, and the recent alarm record comes first. Specifically display the alarm serial number, the total number of alarm, the current recorded alarm time, the alarm channel (gas name), the gas concentration during the alarm, and the alarm status. Follow the screen prompts, Short press the menu key to view the next alarm record; Short press the power button to view the alarm record on the previous page to enter the blank record screen, as shown in Figure 3-7. Short press the menu button to cancel the clearance and Short press the power button to confirm the empty record; Long press the power button to exit the screen and return to the main menu interface.



graph 3-6



graph 3-7

3.5.3 Historical records

After entering the menu, press the menu button to select the menu item "History", and press the power button to enter the history record interface, as shown in Figure 3-8. This interface displays the history of each gas in the channel, the current channel in chronological order, and the most recent record is first. Specifically display its channel, total number, serial number, time, concentration, state and other information. Short press the menu button to switch to view the history records of other channels; short press the power button to query the current channel history; short press the power button to view the next alarm record; short press the previous alarm record; long press the menu button to enter the blank record interface, as shown in Figure 3-9, short press the menu button to cancel the void and short press the power button to confirm the empty record; long press the power button to exit the interface and return to the main menu interface.



graph 3-8



graph 3-9

3.5.4 Low Alarm Settings

In the menu, press the menu button briefly to select "Low Alarm Settings". After selection, press the power button to enter the low alarm settings screen (Figure 3-10). Press the menu button briefly

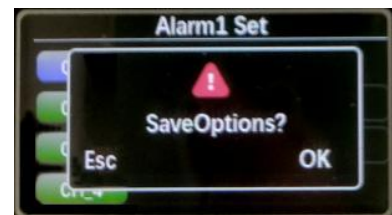
to switch channels. The purple block indicates the current selected channel, with channels 1–4 corresponding to carbon monoxide, hydrogen sulfide, oxygen, and combustible gas, respectively. After selecting a channel (e.g., channel 1), press the power button to confirm. The "+50PPM" will be highlighted (Figure 3-11), indicating that you can increase the value. Press the menu button briefly to increase the value by "1", or long press the menu button to increase by "10". To decrease the value, press the power button to move to "-50PPM" and adjust similarly. After modification, press the power button briefly, and a prompt will ask whether to save settings (Figure 3-12). Press the menu button briefly to cancel saving or the power button to confirm saving. After completing settings, long press the power button to exit to the main menu. **(Do not modify alarm parameters unless necessary!)**



graph 3-10



graph 3-11



graph 3-12

3.5.5 High Alarm Settings

In the menu, press the menu button briefly to select "High Alarm Settings". After selection, press the power button to enter the high alarm settings screen. The method for setting high alarms is the same as for low alarms and is not repeated here. After completing the settings, long press the power button to exit to the main menu. **(Do not modify alarm parameters unless necessary!)**

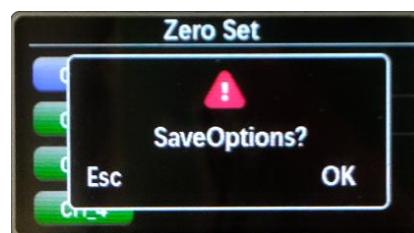
3.5.6 Zero-point setting

After entering the menu, press the menu button to select the menu item "Zero setting", and press the power button to enter the zero setting interface, as shown in Figure 3-13. Short press the menu button to switch the channel, and the right side of the channel displays the historical zero and the current real-time zero value of the channel. After the zero value is stable, short press the power button to confirm, and ask whether to save the setting interface, as shown in Figure 3-14, short press the menu button to cancel the save, and short press the power button to save the setting. After setting up, long press the power button to exit to the main menu interface.

Warning: Make sure this operation is done in clean air without affecting the accuracy of the detector!



graph 3-13



graph 3-14

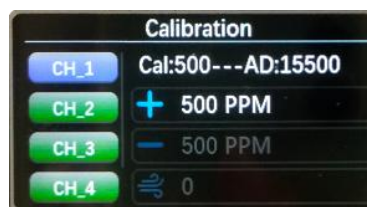
3.5.7 Calibration Settings

After entering the menu, then press the menu button to select the menu item "calibration Settings", and then press the power button to enter the calibration setting interface, as shown in Figure 3-15. Short press the single button can switch channel, select the channel (such as channel 1), short press the power button to confirm, as shown in figure 3-16, can set the size of the standard gas value (method with low setting), after setting, short press the power button to confirm, start ventilation, as shown in figure 3-17, AD value will increase, after AD value stable, short press the power button to confirm, pop up whether to save the setting interface, short press the single button to cancel save, short press the power button to save the setting. After setting up, long press the power button to exit to the main menu interface.(Note: In order to prevent misoperation, if the AD value is saved by no more than 100, the saving will be invalid, and the standard gas value will become "0". In the next calibration setting, the standard gas value will change back to the original value.)

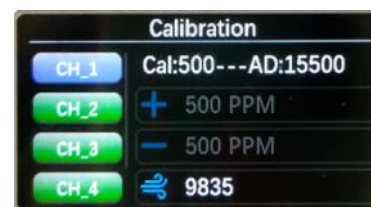
Warning: non-professionals do not move! If you have any doubt, you can call the instruction manual to consult the manufacturer.



graph 3-15



graph 3-16



graph 3-17

3.5.8 Language settings

After entering the menu, press the menu button to select the menu item "Language Settings", and press the power button to enter the language setting interface, as shown in Figure 3-18. Short press the menu button to select "Chinese Display" or "English display", select to complete, short press the power button to confirm, pop up to ask whether to save the Settings interface, short press the menu button to cancel the save, short press the power button to save the Settings. After setting up, long press the power button to exit to the main menu interface.

3.5.9 Backlit setting

After entering the menu, press the menu button to select the menu item "backlight setting", and press the power button to enter the backlight setting interface, as shown in Figure 3-19. Short press

the menu button to adjust the back brightness within the range of "5~100", short press the increase of "10", the adjustment is completed, short press the power button to confirm, pop up to ask whether to save the Settings interface, short press the menu button to cancel save, short press the power button to save the Settings. After setting up, long press the power button to exit to the main menu interface.

3.5.10 Password setting

After entering the menu, then press the menu button to select the menu item "Password Settings", and then press the power button to enter the password setting interface, as shown in Figure 3-20. Enter the new password, after input, press the power button to confirm, pop up to ask whether to save the Settings interface, press the menu button to cancel the save, and press the power button to save the Settings. After setting up, long press the power button to exit to the main menu interface.



graph 3-18



graph 3-19



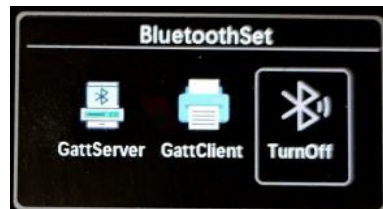
graph 3-20

3.5.11 Time Settings

After entering the menu, press the menu button to select the menu item "Time setting", and press the power button to enter the time setting interface, as shown in Figure 3-21. In this interface, you can set the "year, month, day, time and second", short press the menu button to increase the value, short press the power button to confirm and shift the operation. Note: The "Year" can only be adjusted within the range of 2020 to 2030. After the adjustment is completed, press the power button to confirm, pop up to ask whether to save the Settings interface, press the menu button to cancel the save, and press the power button to save the setting. After setting up, long press the power button to exit to the main menu interface.



graph 3-21



graph 3-22



graph 3-23

3.5.12 Bluetooth Settings

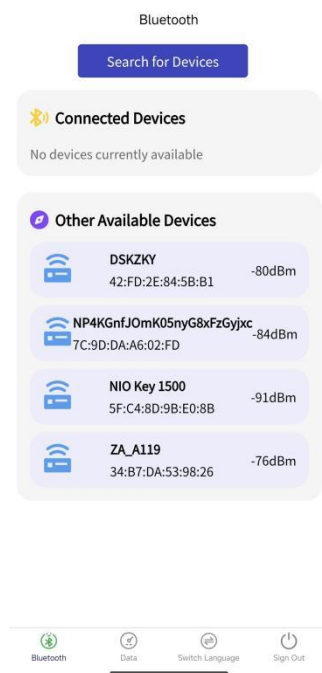
After entering the menu, press the menu button to select the menu item "Bluetooth Settings", and press the power button to enter the Bluetooth setting interface, as shown in Figure 3-22. In this interface, you can select "slave mode", "Host mode" or "Bluetooth off", and select to short press the

power button to confirm. When the product leaves the factory, turns down and then turns on, the Bluetooth is off, and it needs to be set manually when it needs to be opened.

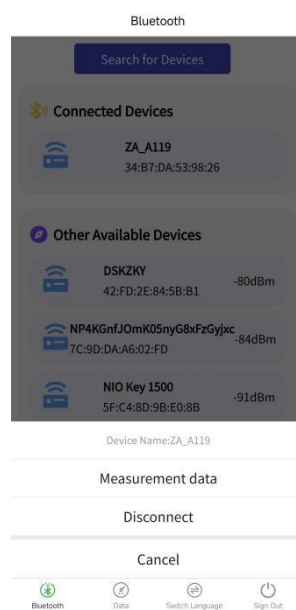
(1) Select "slave mode": select this mode, users can view the real-time detection data of the product by downloading the exclusive APP on the mobile terminal. Setup method: First, select "slave mode" in the Bluetooth setting menu of the device and short press the power button to confirm; second, open the mobile APP and the Bluetooth and location, as shown in Figure 3-24, display the available device below, select the device to be connected, and display in the "Connected Device" column. Click the device, and the menu items pop up below, as shown in Figure 3-25. Click "Measurement Data", the real-time data interface will pop up, and display the name of the device, the current power of the device, the name of the gas, gas concentration, unit, status and other information of each channel, as shown in Figure 3-26. Click on the "Real-time Data" directly, and you can also enter the real-time data interface. Click "Switch to English" to switch between Chinese and English.

(2) Select "Host mode": select this mode, the user can connect to the printer to print the data.

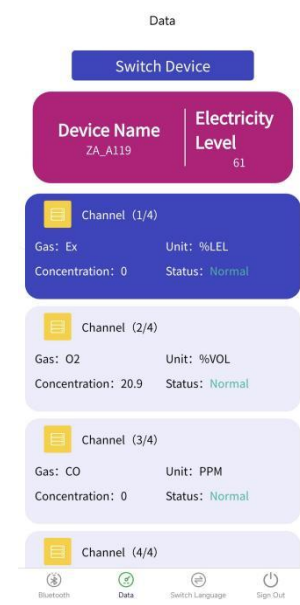
(3) Select "Turn off Bluetooth": select this mode and turn off the Bluetooth function.



graph 3-24



graph 3-25



graph 3-26

3.5.13 The WiFi Settings

After entering the menu, then press the menu button to select the menu item "WiFi Settings", and then press the power button to enter the WiFi setting interface, as shown in Figure 3-23. In this interface, you can choose WiFi Off, WiFi On, or WiFi Distribution Network. Turning on or off WiFi requires a restart of the device.

The following steps to open WiFi:

(1) Mobile phone preparation: download the exclusive APP on the mobile phone, and connect to

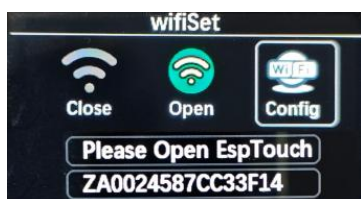
WiFi on the mobile phone.

(2) Equipment WiFi distribution network: Short press the selection key to select "WiFi distribution network", Short press the power button to determine, and the screen displays "Please Open EspTouch", as shown in Figure 3-27. Open the exclusive APP downloaded on the mobile phone, click "EspTouch", as shown in Figure 3-28, enter the "password", as shown in Figure 3-29, click "confirm", then display "EspTouch complete", as shown in Figure 3-30, the device screen displays "Smartconfig OK", as shown in Figure 3-31, representing the WiFi distribution network has been successful.

(3) Device WiFi open: press the selection key to select "WiFi On", press the power button to determine, the device screen pop up to ask whether to restart the window, press the power button to determine the restart, pop up the window to ask whether to shutdown, and press the power button to confirm the shutdown.

(4) Restart the device: Restart the device, you can see the yellow WiFi icon in the status bar above the screen of the device, indicating that it is connecting to the network. After a period of time, the WiFi icon turns white, indicating that the WiFi is connected. Enter the WiFi Settings menu and display WiFi Is Open.

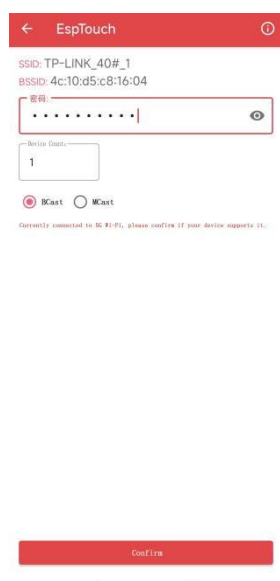
(5) Viewing Data on the Zhihuiyun Platform: The Zhihuiyun Platform allows users to view real-time detection data of this device.



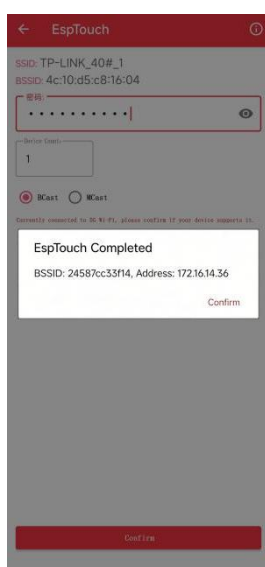
graph 3-27



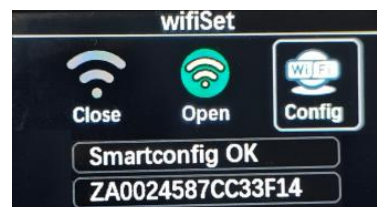
graph 3-28



graph 3-29



graph 3-30



graph 3-31

The operation instructions for the Zhihuiyun platform are as follows:

- (1) The platform can be accessed via both PC and mobile devices. This guide mainly introduces the PC operation method. Visit <https://www.zhihuiyun-iot.com> on a PC to access the login page.
- (2) First-time login requires user registration. Click "Account Registration" to go to the registration page and follow the prompts to complete the registration.
- (3) After logging in, navigate to "Smart Security" → "Portable Gas Detector", and click to enter the detector monitoring interface.
- (4) Click "Device Management" → "Add Device", then enter the required device information, including: Device Model, Device Serial Number (SN Number), Remarks, Installation Location. Click "Next", fill in the notification information, and then click "Complete".
- (5) After successfully adding the device, click "Data Monitoring" to view real-time and historical monitoring data.
- (6) Click "Alarm Management" to check alarm information, work order lists, and my work orders within a specific time period.
- (7) Click "Notification Management" to reconfigure or delete previously added notifications.
- (8) Click "Data Reports" to view statistical data and export reports.

3.5.14 Upload Settings (optional)

After entering the menu, press the menu button to select the menu item "Upload Settings", and press the power button to enter the upload Settings interface. Users can conduct some Settings for 4G upload. On this interface, you can view the 4G upload QR code and SN number, allowing you to upload detection data to the Zhihuiyun Platform.

3.5.15 Equipment address

After entering the menu, press the menu button to select the menu item "Device Address" and press the power button to view the device address.

3.5.16 Positioning Settings (optional)

After entering the menu, press the menu button to select the menu item "Location" Settings, and press the power button to set the location of the device.

3.5.17 Restore the factory

After entering the menu, press the menu button to select the menu item "restore the factory", and press the power button to pop up and ask whether to restore the factory interface. Short press the menu button to cancel the save, short press the power button to save the setting, restore the factory.

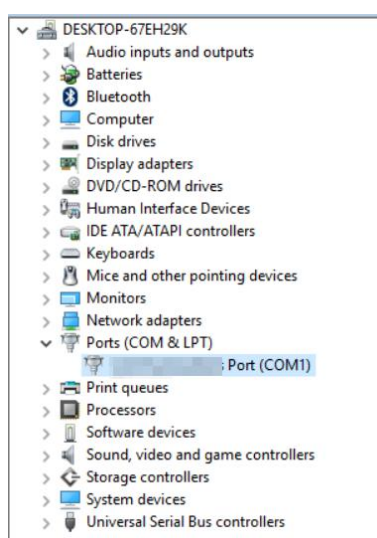
3.5.18 Upload to the computer

The device can upload the data to the computer.step:

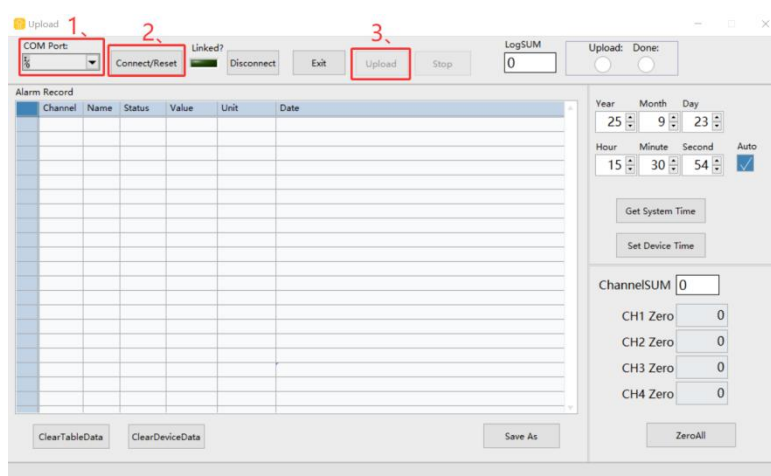
(1) Connect one end of the data cable to the device and connect the computer USB port to the other end.

(2) Install the upper computer software, after the installation, view the slogan in the device manager of the computer. Click "Computer", "Properties" and "Device Manager" to view the new COM port (COM1 in Figure 3-32).

(3) Open the upper computer software and select the COM port as COM1. Click "Connect / Reset" for the connection indicator light and turn green. Click "Upload", and the test data of the device is uploaded to the computer. As shown in Figures Figure 3-33. Click "Set Equipment Time" to directly modify the equipment time to the system time.



graph 3-32



graph 3-33

4. Matters need attention

- (1) Prevent the machine from falling from high places or suffering from violent vibration.
- (2) In the presence of a high concentration of gas, the local machine may not be used normally.
- (3) Please operate and use the machine in strict accordance with the instructions, otherwise it may cause 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 higher concentration of chlorine gas, etc.), and shall not be used or stored in other harsh environments (including too high and too low temperature, high humidity, electromagnetic field and strong sunlight).
- (5) If after long-term use, when there is dirt on the surface of the machine, please gently wipe with a clean soft cloth dipped in water, instead of using corrosive solvent and hard objects to wipe the surface of the machine, otherwise it may lead to scratch or damage.
- (6) In order to ensure the detection accuracy, the machine shall be calibration regularly, and the verification period shall not exceed one year.
- (7) It is recommended that the service life of infrared sensors and semiconductor sensors is 5 years, and the service life of catalytic combustion sensors and electrochemical sensors is 2 years.

- (8) Please remove the lithium battery and sensor of the discarded detector and send them to the designated place or return to our company. Do not throw them into the trash can.
- (9) Please contact us for any application or use failure beyond this specification.
- (10) The battery pack cannot be removed or replaced in an explosive gas environment, nor can the battery pack be charged. In the explosive gas environment can not use without explosion-proof certification of peripheral plug equipment, also can not replace the sensor.
- (11) The products that have obtained the explosion-proof certificate are not allowed to randomly replace or change the components or structures that affect the explosion-proof performance.
- (12) In the corresponding national standards, there are clear regulations on the electrical design selection, installation or use of the explosion danger places, and the installation or use units shall strictly abide by these regulations to ensure the explosion-proof safety of the electrical equipment in the explosion dangerous places.
- (13) Charging must be carried out in a safe place, and charged with a professional charger equipped with the machine.

5. Common faults and solutions

fault phenomenon	Possible cause of failure	process mode
Can't boot	voltage below level	Please charge in time
	system halted	Please contact the dealer or the manufacturer for a repair service
	fault	Please contact the dealer or the manufacturer for a repair service
No reaction to the detected gas	Circuit failure or sensor life expired	Please contact the dealer or the manufacturer for a repair service
The display is inaccurate	Sensor extended	Please contact the dealer or the manufacturer for a repair service
	Long-term uncalibrated	Please make a timely calibration
Time display error	The battery is completely exhausted	Charge in time and reset the time
	Strong electromagnetic interference	Re-set the time
The zero-point calibration function is not available	The sensor has drifted too much	Calibrate or replace the sensor promptly
Show not zero in the clean air	Sensor drift	Zero point calibration

environment		
The normal detection interface of the instrument displays the full range	Sensor failure	Please contact the dealer or the manufacturer to replace the sensor

6. Warranty and maintenance

(1) The warranty period of this product is one year (except for vulnerable parts). If the normal use situation fails, you can enjoy free factory repair and maintenance services. The damage caused by man-made and natural disasters and abnormal use does not belong to the scope of warranty.

(2) If the sensor life expires, please contact us to replace the new sensor.

(3) If the user cannot troubleshoot the fault, we can send the detector back to our company for maintenance, and we will remove the fault at the fastest speed and return it to the user.

7. Storage

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

8. Accessories

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

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