麦芽传感
MaiYaSensorTech

MY102P

Handheld Pump Suction Gas Detector

PRODUCT MANUAL

NOTICE

1. All operators who operate and test our factory instruments must read the instruction manual carefully before operation. Our instruments can only work properly when operated in accordance with our instructions.

2. The instrument must be used in accordance with the procedures specified in the manual. The instrument maintenance and component replacement must be performed by accessories provided by our company and professionally trained personnel.

3. If the user disassembles the instrument to repair or replace parts without following the above instructions, the operator will be responsible for the reliability of the instrument and the company will no longer be responsible for the warranty.

4. The explosion-proof plate or waterproof breathable membrane of the instrument sensor should be cleaned or replaced regularly, otherwise it will be blocked by dust and impurities and affect the sensitivity of the detection.

5. The use of our company's instruments must also comply with the laws and regulations of relevant domestic departments and factory instrument management.

6. The instrument needs to be calibrated at least once every six months. Due to the different characteristics and usage environments of some sensors, it is recommended to calibrate the instrument every three months (using standard gas approved by the measurement unit).

7. The sensor is a sensitive device. If there is a lot of oil smoke, water vapor, dust and other substances in the target environment, it is necessary to do corresponding pretreatment and then connect to the instrument for detection. Otherwise, it is easy to reduce the life of the sensor or even damage it.

8. Do not expose instruments using electrochemical or catalytic combustion sensors to high-concentration target gas environments (except oxygen) for a long time, otherwise it may easily cause sensor poisoning or shorten its life.

9. When calibrating a pump-suction instrument, it is recommended to control the flow rate between 600-800ml/min, otherwise the data test will be inaccurate.

10. Do not use organic solvents or corrosive liquids (such as alcohol, thinner, etc.) to clean the parts. The sensitivity of the combustible gas sensor will be reduced when it is affected by toxic gas or other inhibitors (such as silicone, sulfur, lead or halogenated hydrocarbons, etc.).

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1. BASIC PRINCIPLES AND USES

The MY102P handheld pump-suction gas detector is a newly built high-end detector, using brand new original imported sensors and 32-bit low-power processors; the circuit adopts 4-layer wiring, which has stronger weak signal processing and anti-interference capabilities; independent high-precision imported AD chip, equipped with a unique signal processing algorithm, the measurement results are more accurate and stable; 2.5-inch dot matrix display interface, the readings are intuitive and generous.

The products are widely used in: petroleum and petrochemical, metallurgy, chemical industry, coking, municipal administration, biopharmaceuticals, home environmental protection, school laboratories, automobile exhaust, electricity, ships, sewage treatment and other places where flammable, explosive, toxic and harmful gases need to be detected.

Note: TWA and STEL alarms

For toxic gases, the detector can provide time-weighted average (TWA) and fifteen-minute short-term exposure limit (STEL) measurement and alarm functions.

TWA and STEL alarms are selectable alarm modes (off by default).

The alarm conditions of TWA and STEL are shown in the figure below:

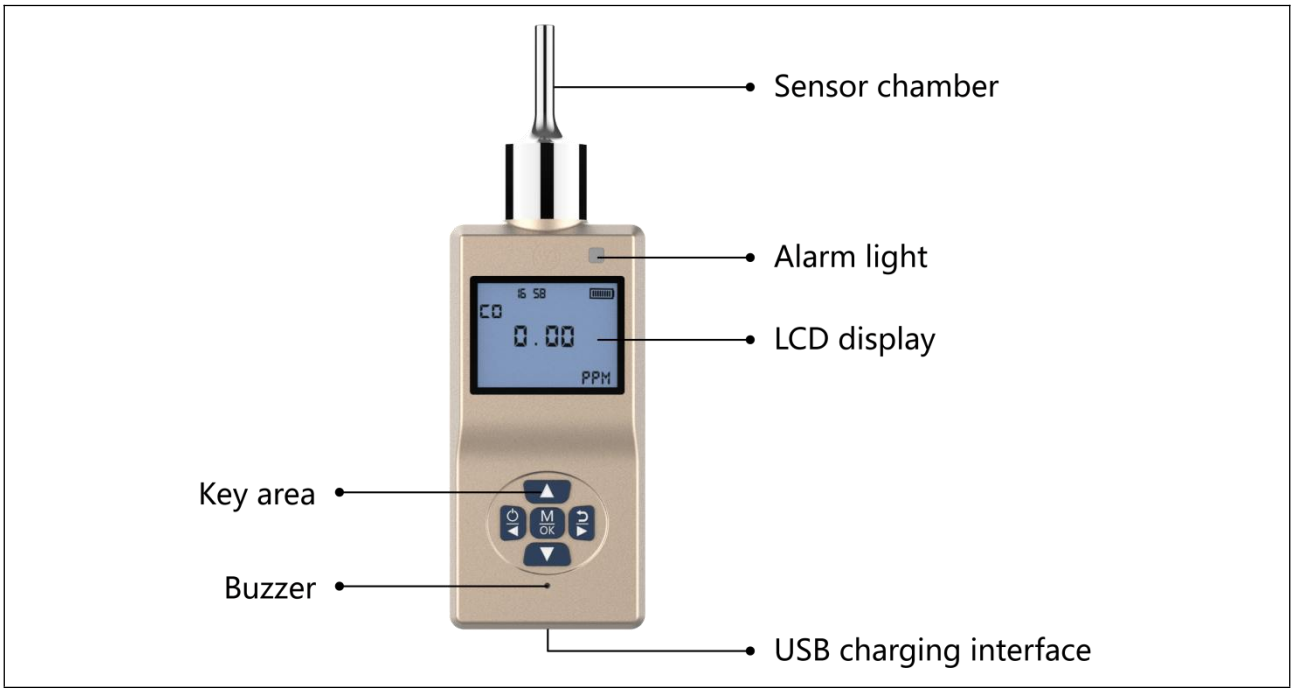
Gas Type	TWA Alarm	STEL alarm
Toxic gas	Current concentration ≥ TWA alarm point	Current concentration ≥ STEL alarm point

Safety Tips

- High or low oxygen levels in the atmosphere may affect the readings of the combustible gas sensor.
- Sudden changes in atmospheric pressure may affect the sensor readings.
- The vapor of silicone compounds can damage catalytic combustion sensors. Please ensure that such substances are not present in the operating environment.
- During use, please keep the air inlet of the sensor clean. Blockage of the air inlet may cause the detector to read low or even no response.
- To ensure the safe and reliable use of this detector, please do not disassemble it by yourself.
- Do not store the detector in an environment with high temperature, high humidity or strong static electricity.
- Do not use organic solvents or corrosive liquids (such as alcohol, thinner, etc.) to clean the detector parts.
- Users are not allowed to replace the parts of this detector by themselves, and should work with the manufacturer to solve faults that occur during operation to prevent damage.
- Please use the charger provided by our company to charge the detector. The detector should be charged for the first use. It is recommended to check the remaining power of the detector after each work.
- It is recommended to use standard gas that meets the measurement requirements to zero and perform ventilation test on the detector before each use.
- It is recommended to test before each use, by placing the detector in a gas concentration exceeding its high alarm point, to confirm that the detector can respond to the gas and sound the audible and visual alarm. If the detector reading is outside the specified range, it should be calibrated.
- It is strictly forbidden to replace the detector battery or charge the detector in explosive hazardous environments.
- It is strictly forbidden to rub the product casing in explosive hazardous environments to prevent the risk of static electricity ignition.
- The use and maintenance of the product should also comply with the product instruction manual.

2. MAIN PARAMETERS

2.1 Instrument Appearance



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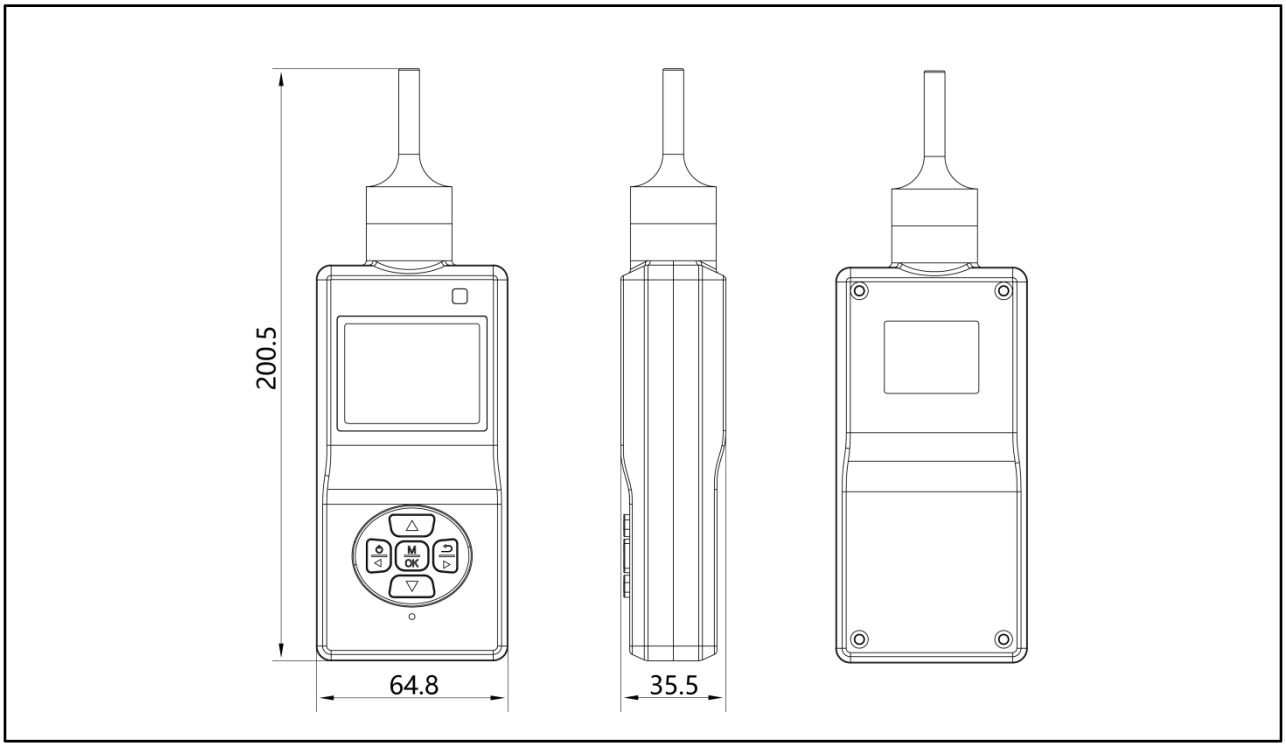
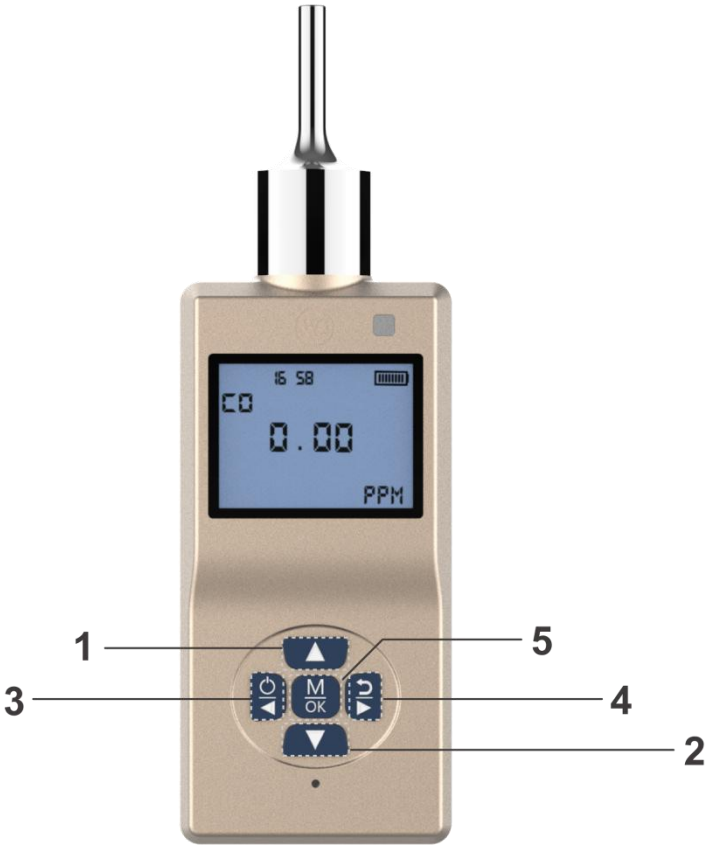


2.2 Keyboard Part Definition



1. **【Up key】**
   Upward keys

2. **【Down key】**
   Down arrow key.

3. **【Left button】**
   Power on/off and shift keys

4. **[Right button]**
   Back key/unit conversion

5. **[M/OK key]**
   Menu/Confirm settings

3. INSTRUMENT OPERATION INSTRUCTIONS

Working process: In the off state, long press the power button to turn on the machine, the machine enters the power-on interface, and then enters the gas parameter interface, showing the gas range, low alarm, and high alarm;
If the sensor configuration is loaded successfully, PASS is displayed, and if it fails, ERR-U is displayed; then the preheating state interface is entered, and the backlight is on. After the preheating is completed, it enters the measurement state. In the measurement state, the ambient gas can be measured. If you want to set certain parameters of the machine during the measurement process, you can enter the menu interface to set them.
The specific operations are as follows:

3.1 Power On

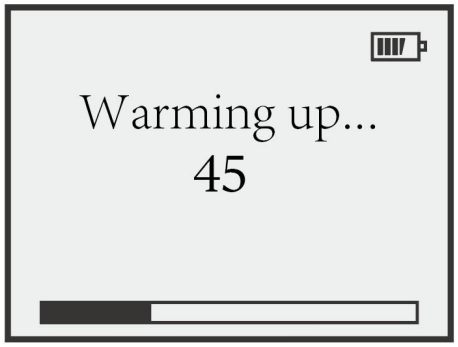
In the off state, press and hold the [ ] key for about 3 seconds to turn on the device.

3.2 Shutdown

In measurement mode, press and hold the [ ] key for about 5 seconds to turn off the device.

3.3 Preheating status

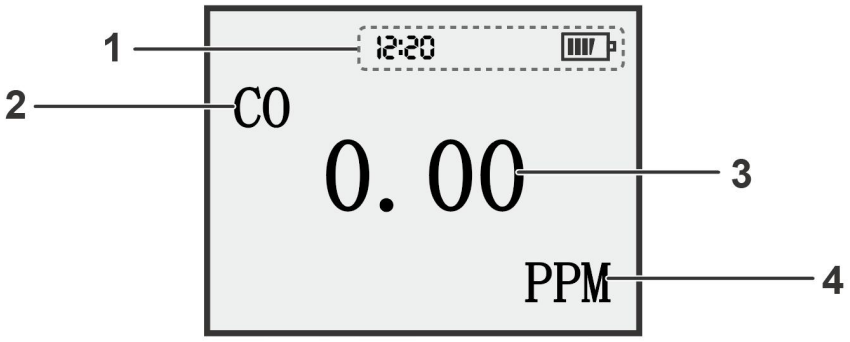
After the machine is turned on, it first enters the preheating interface and displays the preheating time (90 seconds by default, which may be different for some gases). In the preheating state, you can also press the confirmation button to skip the preheating interface (but this is not recommended). After the preheating is completed, it enters the measurement state.



Note: All sensors have a preheating process. If the preheating time is skipped, the read value may be unstable or inaccurate. The manufacturer does not recommend skipping the preheating state.

3.4 Measurement status

After preheating is completed, the measurement state is entered and the measurement interface is as follows.

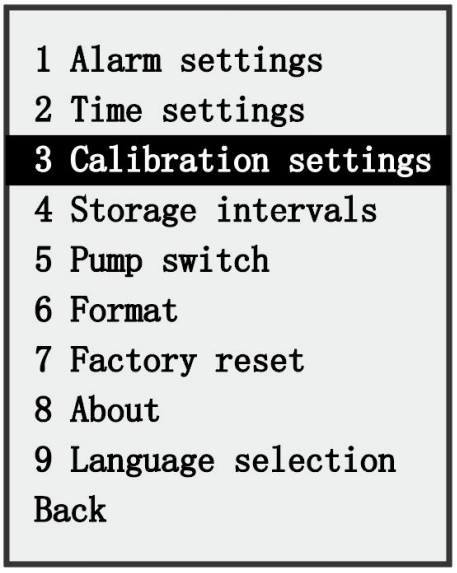


1. **Time and power**
   Display time and battery level indicator
2. **Gas Type**
   Different names are displayed for different gas types.
3. **Gas concentration value**
   The measured value. Different values are displayed depending on the measurement result.
4. **unit**
   Currently, the optional units of the machine are ppm, %VOL, %LEL, and mg/m3.

3.5 Menu setting interface

The menu interface uses the classic 9-level menu directory. In the measurement mode, press [Menu/OK] to enter the instrument menu configuration mode. The interface is as shown on the right:

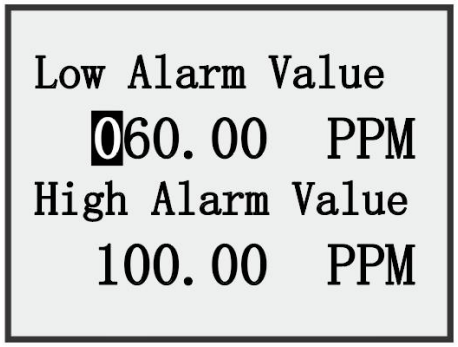
In the menu interface, press the up, down or left key to select the corresponding setting option, then press the confirm key to enter the corresponding setting interface, and press the return key to return. If there is no key operation for a long time, the machine will automatically return to the measurement interface.



1. **Alarm setting:** alarm value setting;
2. **Time setting:** time and date setting;
3. **Calibration settings:** Calibration settings, enter the password to enter the calibration interface;
4. **Storage interval:** data recording settings (currently only valid for some models);
5. **Pump switch:** Pump switch setting, which is turned on by default every time the machine is turned on;
6. **Format:** delete all data in the storage area (operate with caution);
7. **Restore to factory settings:** Restore factory settings to restore factory parameters;
8. **About:** information about this machine;
9. **Language selection:** switch between Chinese and English;

Return: Return to the measurement interface;

3.5.1 Alarm value setting



Set the alarm value of the machine. The low alarm value is the first-level alarm value, and the high alarm value is the second-level alarm value. Press the left key to move to the digit to be set, and press the up and down keys to change the corresponding digits. After the change, press the confirmation key to save and exit. If you do not need to save, press the return key to return to the previous interface.

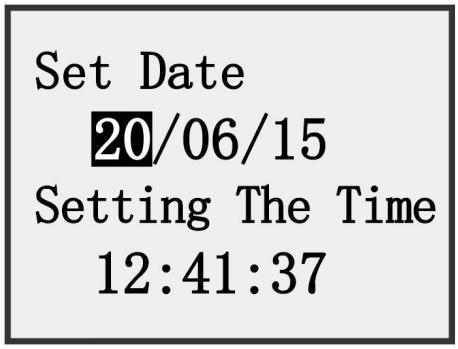
Notice:

- The first level alarm value cannot be greater than the second level alarm value, and the alarm value cannot be greater than the full scale value.
- The alarm modes are divided into oxygen mode and non-oxygen mode.

  Oxygen mode: alarm when the measured value is lower than the first alarm or higher than the second alarm;

  Non-oxygen mode: alarm occurs when the measured value is greater than the first alarm or higher than the second alarm.

3.5.2 Time and date settings



Set the date to date setting, from left to right: year/month/day;

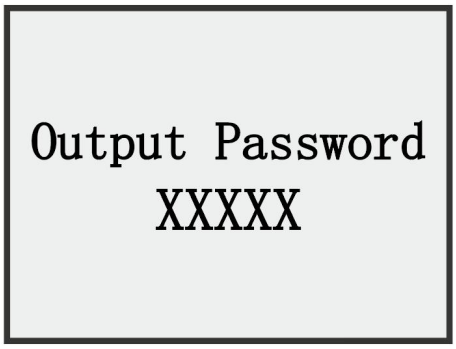
Set the time to time settings, from left to right: hours: minutes: seconds.

Here's how to set it up:

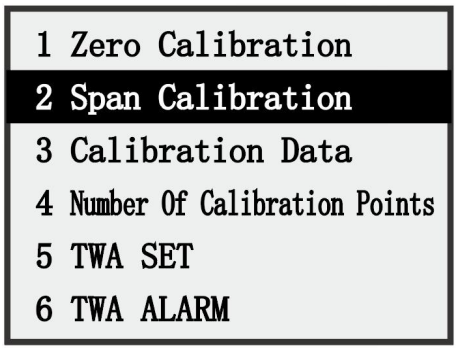
Press the left button to move to the corresponding setting digit, use the up and down keys to change the value, and after modification, press the confirm key to save the changed time and date and return to the previous interface; if you do not want to save the changes, press the return key to exit the interface.

3.5.3 Calibration Setting Process

Enter the password interface and enter the password 88 to enter the calibration interface. In this interface, you can calibrate the zero point and span and view the calibration results.



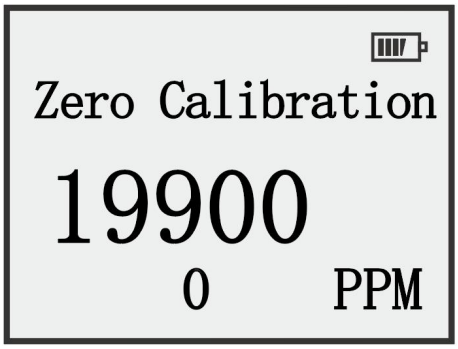
Password interface



Calibration interface menu

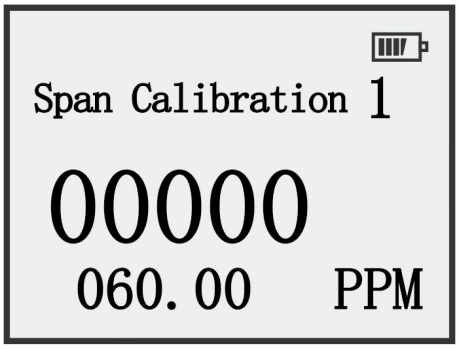
1. **Zero calibration:** Perform zero point calibration
2. **Span Calibration:** Perform span calibration
3. **Calibration Data:** For factory maintenance
4. **Number of calibration points:** Span calibration point setting
5. **TWA SET:** TWA/STEL Switches
6. **TWA ALARM:** TWA/STEL alarm value setting

In the calibration interface menu, select 1 Zero Calibration to enter zero calibration. After the displayed value stabilizes, press the Confirm key to complete the zero calibration.



Zero calibration

Select 2 Span Calibration in the calibration interface menu to enter the span calibration interface. During calibration, enter the concentration value of the standard gas, such as 60.00ppm. After the value stabilizes, press the confirm key to complete the span calibration.

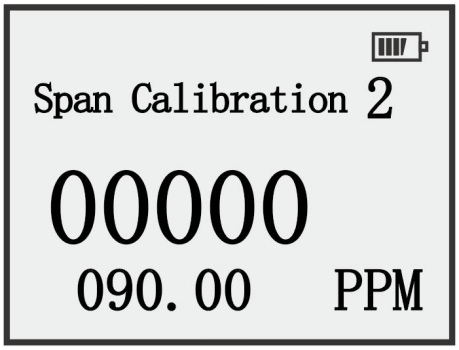


Single point span calibration

If multi-point calibration is required, you need to set the number of calibration points in 3 Calibration points, and then right-click in the 2 Span calibration interface to adjust the points to be calibrated.

Note: 2nd point > 1st point > zero point

The system defaults to single-point calibration. If the user needs multi-point calibration, more than two different concentrations of calibration gases are required.

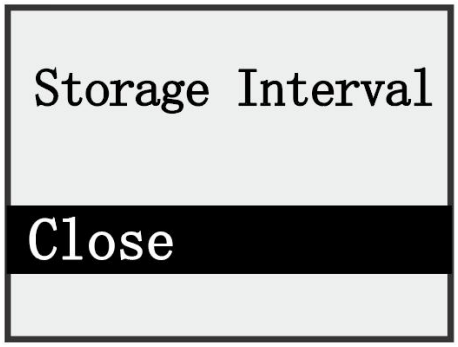


Point 2 span calibration

Notice:

1. If it is not used for a long time, the zero point may drift. You can enter the zero point calibration interface to perform a zeroing operation. This operation must be performed without target gas.
2. Span calibration requires standard gas. If the customer does not have standard gas, please do not perform this operation.
3. If you accidentally make a mistake in operation and cause the calibration value to be wrong, you can enter the factory reset interface to restore the factory settings, and then enter the zero calibration interface to perform the zeroing operation.

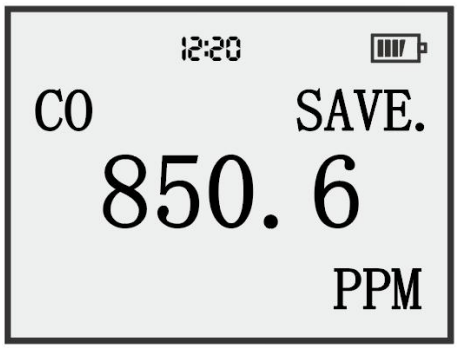
3.5.4 Storage interval setting



When the system is turned on, the storage function is turned off by default. If you want to turn on the storage function, you can select the storage time interval: 1 second, 5 seconds, 10 seconds, 30 seconds, 1 minute, 5 minutes, 10 minutes. After selecting the corresponding storage time interval, press the confirmation key to turn on the storage function. If the measurement is completed and you want to turn off the storage, just select "off" and confirm or turn off the system. At this time, a storage file in .txt format will be generated in the system and can be copied to the computer via USB.

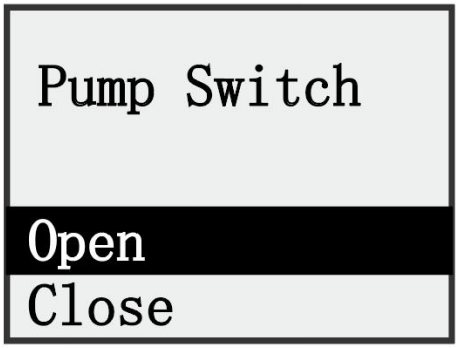
Notice:

1. The storage function is an optional function and is only valid for machines with data storage function.
2. When the storage function is turned on, the flashing word SAVE will be displayed on the measurement interface.



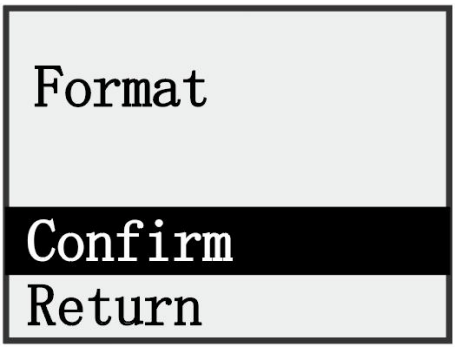
3. Copy the data to the computer first and then open the file to view it. It is strictly forbidden to directly open and view the stored data when connected to USB.
4. Back up and clean up storage area data regularly.
5. Before copying the stored data to the computer, if it is currently being stored, please turn off the storage first, then insert the USB data cable to copy, otherwise the current stored data may be lost.

3.5.5 Pump switch setting



Select On to turn the pump on, and select Off to turn the pump off. The pump is on by default when the system is powered on, and this state is not saved.

3.5.6 Formatting

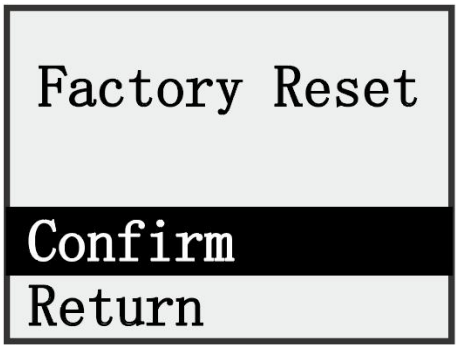


Select OK to format and erase the system memory. During the formatting process, MKFS… is displayed. If successful, MKFS OK is displayed. If failed, MKFS ERR is displayed. Select the Back key to return.

Notice:

1. This function is only available for machines with data storage function.
2. After formatting, all measurement data previously stored in the system will be deleted, so before performing this operation, it is best to copy the previous data to the computer via USB for backup to prevent loss of important data.

3.5.7 Restoring factory settings



After selecting Confirm, press the OK button to restore the factory settings. Please confirm each time you restore the factory settings, because the factory settings will overwrite all parameters set by the customer, including calibration parameters. If you find that the zero point drift is relatively large after restoring the factory settings, you can enter the calibration interface to calibrate the zero point.

3.5.8 About this machine

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

3.5.9 Return

Confirm to return to the measurement interface, or press the Back key to return to the measurement interface.

4. BASIC CALIBRATION METHOD

The product has been calibrated as required before leaving the factory. If the user has the conditions for calibration, he can calibrate it regularly according to the instructions during use; if the conditions are not met, he can go to the relevant measurement department.

To ensure the measuring accuracy of the detector, the normal calibration period of the instrument is 6-12 months. If the use environment often has high concentrations of the measured gas, oil smoke, water vapor, dust, etc., the calibration period can be shortened appropriately. To ensure the measuring accuracy of the detector, it should be calibrated regularly during use and corresponding records should be made.

5. AFTER-SALES SERVICE INFORMATION

5.1 Warranty

1.Regular products with a 1-year warranty,the date from the buyer receives the product.

2.PID lamps are excluded from warranty coverage.

3.Warranty terms for specialized products will be stated separately at the time of sale.

4.Acceptance criteria: Users must conduct acceptance inspections aligned with the products quality standards.Transportation damage or quality defects must be reported in writing to the designated sales representative within 7 working days of product receipt.

5.During the warranty period, our company is responsible for maintenance. Users must send the products back to our company's address. After inspection and confirmation, they will be guaranteed.

Damage caused by non-quality factors (e.g., misuse, unauthorized modifications, force majeure) voids warranty eligibility.

The company reserves the exclusive right to interpret these terms.

APPENDIX I PRODUCT SPECIFICATIONS

Name	MY102P
Product Name	Handheld Pump Suction Gas Detector
Detection Principle	Electrochemistry, infrared detection, PID, thermal conductivity, catalytic combustion
Display Mode	2.5-inch dot matrix LCD digital display
Display Units	%VOL, %LEL, ppm, mg/m ^{3} optional
Backlight	Bright white LED backlight
Alarm Method	Sound and light alarm, dual-color LED alarm light, sound ≥75dB@25cm
Accuracy	≤±3%FS
Warm-Up Time	The default time is 90 seconds, and may vary for different sensors.
Output Signal	USB data storage (optional)
How It Works	Pump suction/diffusion
How To Operate	Key Operation
Main Material	Aluminum alloy metal shell
Installation	Wall-mounted pipe integrated
Operating Temperature	-20℃～+50℃ (special requirements need to be customized)
Operating Humidity	10%RH～95%RH (no condensation)
Operating Voltage	Built-in high-performance imported lithium battery, nominal voltage: 3.7VDC
Battery Life	≥12 hours (electrochemical sensor at room temperature)
Power Consumption	0.5W
Work Pressure	86KPa~106KPa
Weight	About 0.46 Kg, about 0.26 Kg
Explosion Proof Signs	Ex ib IIC T4 Gb
Protection Level	IP54
Implementation Standards	GB15322.3-2019 ， GB/T 3836.1-2021， GB/T 3836.2-2021， GB/T 3836.4-2021, GB12358-2006