

Four-in-one Gas Detector Instruction for Use



HT-1805

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Preface

Respected users:

How are you! Thank you for purchasing our instrument. In order to use it in a better manner, we remind you to read the instruction for use carefully before use and keep it properly so as to look up in the future use.

Limited warranty and limited responsibility

Xintai Instruments and Apparatus Co., Ltd guarantees that the product does not have materials and workmanship defect within one year from the purchase date. But the warranty will not include the damage caused by improper operation, accidents, negligence, abuse, remodeling, pollution and abnormal condition of the operation environment. The distributor has no right to provide any guarantee with the name of Xintai Instruments and Apparatus Co., Ltd. If you need the repair service with the guarantee period, please contact the service center authorized by the company. Post the product back after the service center agrees with the failure description attached.

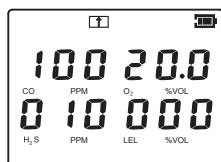
The guarantee is the only compensation you can obtain. In addition, Xintai Instruments and Apparatus Co., Ltd will not provide any express or implied guarantee such as the implicit guarantee for the suitability of special purpose. The company will not take any responsibility for any special, indirect, accidental, or subsequent damage or loss caused by any reasons or prediction. As some states or countries don't permit to impose limitation on implied warranty or incidental or consequent damage, the above responsibility limit and provisions may not be suitable for you.

The users shall make promise that they familiarize with the application field and occasion. The purchase indicates that the users are deemed to know the suitability for products.

Xintai Instruments and Apparatus Co., Ltd will not take any responsibility for any consequence caused by any suggestion and service it provides to users.

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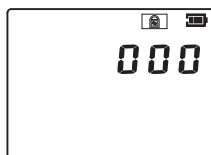
7. Calibration method description

Warning!

Don't calibrate the gas and device that are not calibrated. Once entering the calibration interface, press "ENT" key and the instrument readings will change. Keep in mind!

The instrument is calibrated properly before delivery. If it is necessary or condition permits, users may carry out recalibration by themselves. Prepare the equipment for calibration: the mixed gas bottle containing 25umol/ppm H₂S, 00umol/ppmCO, 50%LEL methane and 18%Vol O₂. The flow speed of 0.5L/minute and hood for calibration may be provided.

In the measurement interface, press **MOV** key and **ENT** key at the same time, the unlocking interface appears.



Press **UP** key to input password 300, press **ENT** key to enter cal 1 calibration interface. The screen displays signal of "Cal" and "1". Place the instrument in normal outdoor air. press **ENT** key

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again after waiting for 3 seconds. The bottom left corner of the screen displays "OK". At the moment, the calibration for oxygen content in the air and zero calibration for other three types of gas are completed. Press the **ESC** key to return to cal 1 calibration interface. Press **UP** key to switch to cal 2 calibration interface. The screen displays signals "Cal" and "2".

Place a hood for calibration on the sensor of the instrument. Use a flexible gas hose to direct the mixed gas into the hood for calibration with the speed of 0.5L/minute. Press **ENT** key to start the calibration and press **ENT** key again after the value is stable. The bottom left corner of the screen displays "OK" to complete calibration. Press **ESC** to return.

8. High concentration alarm setting

In the measurement interface, press **MOV** key and **ENT** key at the same time. The unlocking interface appears. Press **UP** key to input password 300. Press **ENT** key to enter cal 1 calibration interface. Then press **UP** key twice to enter the interface for high concentration alarm setting. The screen displays signals "Ala" and "↑". Press **ENT** key to start to set high concentration alarm value for four types of gas. Press the **MOV** key to select the figure to be changed. Press **UP** key once to increase the figure by 1 (+1) (circulation between 0-9).

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9. Low concentration alarm setting

In the measurement interface, press **MOV** key and **ENT** key at the same time. The unlocking interface appears. Press **UP** key to input password 300. Press **ENT** key to enter cal 1 calibration interface. Then press **UP** key three to enter the interface for high concentration alarm setting. The screen displays signals "Ala" and "↓". Press **ENT** key to start to set high concentration alarm value for four types of gas. Press the **MOV** key to select the figure to be changed. Press **UP** key once to increase the figure by 1 (+1) (circulation between 0-9).

10. TWA alarm setting

In the measurement interface, press **MOV** key and **ENT** key at the same time. The unlocking interface appears. Press **UP** key to input password 300. Press **ENT** key to enter cal 1 calibration interface. Then press **MOV** key once to enter TWA alarm setting interface. The screen displays signals "Ala" and "TWA". Press **ENT** key to start to set TWA alarm value of CO and H₂S. Press the **MOV** key to select the figure to be changed. Press **UP** key once to increase the figure by 1 (+1) (circulation between 0-9).

11. STEL alarm setting

In the measurement interface, press **MOV** key and **ENT** key at the same time. The unlocking interface appears. Press **UP** key to input password 300. Press **ENT** key to enter cal 1 calibration

interface. Then press **MOV** key once to enter STEL alarm setting interface. The screen displays signals "Ala" and "STEL". Press **ENT** key to start to set STEL alarm value of CO and H₂S. Press the **MOV** key to select the figure to be changed. Press **UP** key once to increase the figure by 1 (+1) (circulation between 0-9).

Daily maintenance

Charging: When the battery is low, please charge in time. The device will power off if the electric quantity is too low. It suggests charging at the power-off state in order to charge it to the full quickly.

Cleaning: at the time of cleaning the instrument, use clean cloth to wipe the instrument enclosure. Forbid using solvent or detergent. 2. It is very important to keep the sensor clean by avoiding blocking it with sundries. When the sensor is cleaned, use soft or clean dry or soft brush to wipe slightly. Avoid damage to the diffusion at the same time.

Product parameters

Sensors	Range	Resolution ratio
O ₂	0 ~ 30%	0.1%
LEL	0 ~ 100%	1%
H ₂ S	0 ~ 100PPM	1ppm
CO	0 ~ 999PPM	1ppm

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Safety instruction

- ▲ Forbid opening the cover at dangerous environment;
- ▲ Don't use the product that work normally;
- ▲ Forbid charging in inflammable and explosive dangerous environment such as in the well.
- ▲ The instrument should be suitable for environment temperature: -10~50℃;
- ▲ The sudden change of air pressure may cause temporary fluctuation of oxygen readings.
- ▲ Don't dismantle and repair the instrument at will without authorization of the company;
- ▲ Please charge in time if the battery is low so as not to affect the use.
- ▲ If the product is out of use for a long time, please store it after full charging to prevent damage to the battery caused by over discharge of the battery.
- ▲ The instrument's alarm apparatus is non locked alarm. When the gas concentration reading exceeds the set alarm, alarm will be given out. The alarm will stop if the reading returns to the normal scope.
- ▲ The instrument is low concentration gas instrument; the measured gas concentration should not be too high. If it is used to measure the coal gas, natural gas and other pure gases, the sensor will be damaged permanently.
- ▲ When the gas readings exceed the inspection scope followed by decreasing or unstable readings, this indicates that the dangerous condition that the measured gas exceeds the explosion upper limit occurs.
- ▲ For the purpose of safety, the instrument shall be operated and repaired by qualified personnel. Please read the instructions carefully before operation and repair and completely understand the content of the instruction.
- ▲ At the time of delivery, the default gas concentration alarm value may not be suitable for you. The users are asked to readjust the gas concentration alarm value according to their actual condition and requirements.
- ▲ "LEL" indicates the minimum concentration that the inflammable gas explodes with the presence of open fire in air. This is called lower explosive limit.

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Introduction to the product

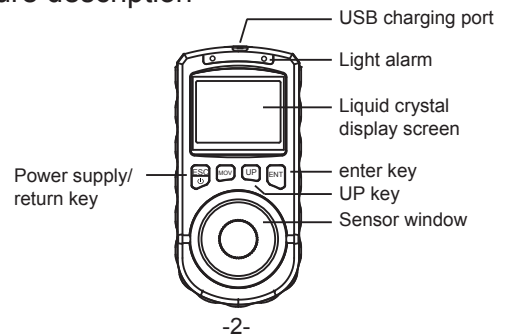
HT-1805 is a type of multiple-function gas detector and detects concentration of O₂, CO, H₂S and LEL (inflammable gas) and provides triple alarm functions of light, vibration and buzzing so that you can obtain the alarm signal effectively and timely to keep away from danger.

The instrument is applied in agriculture, petroleum chemical engineering, electric, fire fighting, natural gas, steel industry, sewage treatment and other fields.

Considerations

1. The electronic sensors and microprocessors used on the product belong to precision electronic device. The product must be kept away from water, fire, or sites with strong electromagnetic interference to prevent influence on/damage to the device.
2. Don't block; or avoid strong air or hot air blowing to the sensors.
3. Please use dry cloth to wipe the instrument case at the time of cleaning. Don't use damp cloth or corrosive detergents.
4. Don't dismantle and remodel the product without authorization.

Structure description



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Use of the product

1. Power on/off

Press the key to power on and hold down key to power off.

2. Backlight

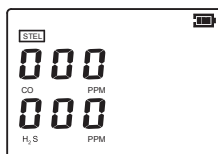
Hold down key to switch on/off back light.

3. Measurement

It enters measurement interface after switching on. The oxygen readings can be displayed at once. Due to the characteristics of electrochemical transducers, the reading of other three types of gas will be displayed in 1 minute. When the gas concentration meets any alarm setting value, the instrument will give out alarm in three types of forms including light, sound and vibration. When the measurement value returns to normal scope, the alarm will disappear automatically.

4. Check STEL value

In the measurement interface, press key or key to enter STEL value display interface. In the interface, you may check STEL value of poisonous gas CO and H₂S. The STEL value can be refreshed once every 15 minutes and will be reset after powering on every time.



STEL (short term exposure limit): with time weight of 15 minutes, calculate the average value by measuring many times in 15

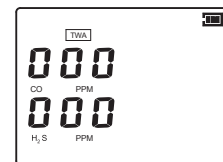
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minutes. The average value obtained is STEL value.

Set the meaning of STEL value: when workers are exposed to the concentration for short time, they will not suffer from permanent and unrecoverable tissue injury or reduced smart behavior of the body.

5. Check TWA value

In the measurement interface, press key twice to enter TWA value display interface. In the interface, you may check TWA value of poisonous gas CO and H₂S. The STEL value can be refreshed once every 8 hours and will be reset after powering on every time.



TWA (time weighted average): collect the value in a timing manner in 8 hours and then calculate the average value. The sampling interval is not larger than 15 minutes. Then add all results and calculate the average. This is TWA value within 8 hours.

Set the meaning of STEL value: within the limit, poisonous gas will not produce harmful influence on workers who are exposed to it every day.

6. Check gas peak value

In the measurement interface, press key to enter peak value display interface. The interface displays the peak value of CO, H₂S and LEL and the lowest value of O₂ after powering on this time.

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Power supply: Built-in 3.7V lithium battery
 Working temperature: -10 ~ 50 °C
 Storage temperature: 0 ~ 50 °C
 Working humidity: 15% ~ 90%RH (No condensation)
 Product weight: 200g
 Product size (length× width× height): 135mm × 65mm ×43mm
 Accessories: Adapter, USB data line, instruction for use, color box

Other declaration

The company reserves the right to update and change the content of the design specification the instructions of the product. If there is any change, no further notice will be given!

Appendix

Harm of hydrogen sulfide on human body

Concentration of hydrogen sulfide	Poisoning symptom
0.1 ~ 0.4PPM	People begin to smell the stink.
25 ~ 50PPM	Irritation to trachea and conjunctivitis
50 ~ 120PPM	Olfaction paralysis
120 ~ 280PPM	Acute poisoning within one hour
400PPM	Die within one hour
600 ~ 700PPM	Die in a short time
>1000PPM	Sudden death in an instant ("Electric shock" death)

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Influence on human body due to anoxia and rich oxygen

Oxygen concentration (%volume)	Omen (atmospheric pressure)
100%	Fatal 6 minutes (absolutely sealed environment such as hyperbaric oxygen chamber)
50%	Fatal, complete recovery after 4-5 minutes therapy (absolutely sealed environment such as hyperbaric oxygen chamber)
>23.5%	Rich oxygen
20.9%	Normal oxygen concentration
19.5%	Minimum permissible oxygen concentration
15 ~ 19%	Reduce work efficiency, lead to problems of the head, lung and circulatory system
10 ~ 12%	Polypnea, loss of judgment, purple lips.
8 ~ 10%	Loss of intelligence, faint, unconsciousness, pale face, purple lips, nausea and vomiting
6 ~ 8%	Respiratory arrest and die in 8 minutes
4 ~ 6%	Convulsion, respiratory arrest and die within 40 seconds.

Note: the data in the appendix is only for reference!

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Harm of carbon monoxide on human body

CO content in the air	Symptom and relevant provisions
0~1 PPM	Normal level
9 PPM	The maximum standard value for indoor air quality
50 PPM	The maximum average concentration for staying at sealed space for 8 hours according to provisions of OSHA.
100 PPM	The employees must leave the site according to OSHA specification.
200 PPM	Appear light headache, fatigue, nausea and dizziness within 2-3 hours.
400 PPM	Forehead headache in 1-2 hours and life risk after 3 hours.
800 PPM	Dizziness, nausea and convulsion in 45 minutes and die in 2-3 hours.
1600 PPM	Dizziness, nausea and convulsion in 20 minutes and die in 2 hours.

Data sheet of explosion limit of common inflammable gas (part)

Substances name	Molecular formula	Explosion limits in the air (%)	
		Lower limit	Upper limit
Methane	CH ₄	5	15
Ethane	C ₂ H ₆	3	15.5
Propane	C ₃ H ₈	2.1	9.5
Butane	C ₄ H ₁₀	1.9	8.5
Gasoline (liquid)	C ₄ ~C ₁₂	1.1	5.9
Kerosene (liquid)	C ₁₀ ~C ₁₆	0.6	5
City gas		4	
Liquefied petroleum gas		1	12
Turpentine (liquid)	C ₁₀ H ₁₆	0.8	

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