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Shenzhen Korno Import & Export Co.,Ltd

GT-903 Series Gas Detector

Portable Pump Suction Gas Detector

User Manual

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1. Warranty

- Please read the user manual before using the gas detector controller.
- It is forbidden to disassemble the controller, repair and replace the spare parts without authorization.
- Installation, commissioning, setting and other operations must be carried out by professionals.
- The calibration should be carried out regularly, to replace the out-service gas sensors and broken sensors in time.
- Forbidden to use the sensor for over-range detection.
- Prevent the controller from falling from high or subjected to severe vibration and impact.
- Avoid to put the detectors under high temperature, humidity, dust particle environment.
- Replacing the battery needs to use the same type of battery and be carried out in a safe place.
- The charging must be carried out in a safe place, and use the special charger (DC5V/≥1A) equipped with this machine
- Don't block the gas inlet or gas outlet during use to prevent damage to the pump.
- Before entering the dangerous area, the human body shall release static electricity first, and then carry the instruments into the site.
- If the user manual is modified, please understand.

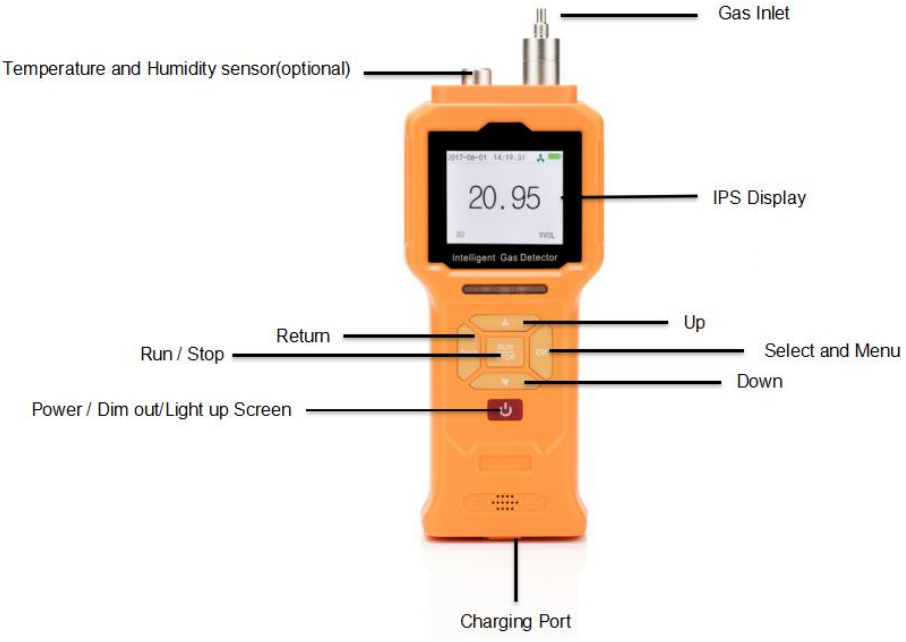
2. Product Brief Introduction

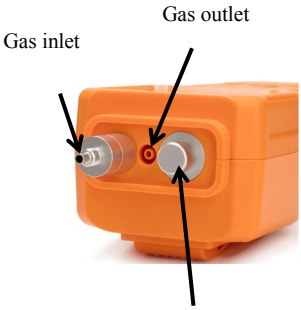
GT-903 series portable multi gas detectors are pump suction type. With import gas sensor and advanced nanometer semiconductor technology, GT-903 series multi gas detector can be single gas detector or a standard 4 in 1 gas detector with LEL&CO&O2&H2S gas sensors. It can detect the gases at the same time rapidly and precisely. User can custom setting all parameters to ensure the operations are user-friendly. The detector provides 4000mA built-in high capacity polymer rechargeable battery, technical indicators, gas concentrations and history data can be displayed in the 2.4 inches technical grade screen, User can save concentration data, export data, and detect temperature and humidity.

3. Product Features

- With the advanced nanometer semiconductor technology, ultra low power 32bit microprocessor, 24bit ADC data acquisition chip.
- 2.4 inches technical grade display with a pixel up to 320*240, display technical indicators and gas concentration value.
- Three concentration units are available; PPM, %VOL, mg/m3 (depending on the properties of the sensor).
- Simultaneously detection can be performed(1-4 kinds of gas), User can combine different sensors freely, temperature, humidity sensors and other kinds of sensors are available.
- Up to 30,800 to 123,200 groups data could be stored, user could view history data on the display and the detector allow user to export data log.
- With temperature and humidity detection, user can detect temperature and humidity value on the scene or the temperature and humidity value inside the pipe.
- Four operation modes are optional: Detection mode, Storage mode, Display mode and Pumping mode.
- With a high-power pump allows device working under a tiny negative pressure condition, the reasonable gas chamber design ensures that the sensor is not affected by the pressure.
- With overvoltage protection,overcharge protection,electrostatic prevention,magnetic-field interference prevention
- All software automatic calibration, sensor up to 6 levels target calibration, ensure the accuracy and linearity of the entire measurement, also with data recovery function.
- Chinese and English operation models are available, user-friendly.
- With temperature and humidity compensating function. dustproof design allows device applies in all sorts of harsh conditions.

4. Product Structure





Temperature and humidity sensor(optional)

Android Port| charge

32mm
180mm
85mm
71mm
Intelligent Gas Detector
2021-05-10 15:19:53
0
NMHC
PPM
Professional Exceptional Functional
Back
RUN STOP
OK
GT-903

70mm
Back clip
60mm
label
Battery cover
49mm

5. Technical Parameters

Production type:	GT-903 series Pump Suction Portable Gas Detector		
Sensor type:	NDIR, PID, Electrochemical, Catalytic,etc		
Detection range:	Please refer to sensor list at end of this manual		
Resolution:	Please refer to sensor list at end of this manual		
Temperature and humidity (optional):	Temperature:-40 ～ 120℃ Humidity:0-100%RH		
Detection mode:	Pumping,With high-power pump allow device working under tiny negative pressure condition, flow rate is 500ml/min.		
Detection accuracy:	≤±3%F.S(base on different sensor)	**Linearity error:**	≤±2%F.S
Reaction time:	≤30seconds（T90）	**Zero drift:**	≤±2%（F.S/Year）
Recovery time:	≤30 Seconds	**Repeatability:**	≤±2%F.S
Detection mode:	Real-time detection、timing-detection		
Storage mode：	Auto storage、manually storage,Up to 30,800 group data can be		
Explosion proof sign:	Ex ia IIC T4 Ga	**Material：**	ABS+PC
IP rating:	IP66	**Temperature:**	-30 ～ 60℃
Power:	4000mA polymer rechargeable battery	**Humidity:**	≤90%RH， Non-condensing
Dimension:	180*80*60 mm （L×W×H） 0.5 Kg（Net weight）	**Pressure:**	-30Kpa ～ 100Kpa
Accessories:	Case、User manual、Certification、USB charger+cable(Need the user to prepare the charging adapter)、Calibration cover		

6. Detector instructions

6.1.Button Definition

Button Name	Icon	parameter setting
Back		Cancel/Return to previous menu
Up		Move up/ Move left
Down		Move down/ Move right
OK/Menu		Enter menu(press and hold for 5 seconds)/ Confirm
Run/ stop		Pump switch/ Manually store(long press)
Power		1. On/Off(press and hold for 5 seconds) 2. Short press-Screen dim out
Mute	Alarm Mute	Under detection interface, Press " Back" , "OK" , "▲" , "▼" button, Switch Alarm and Mute(Boot default mute)

6.2. Charging mode

*When low battery, use the matching charger (5VDC/≥1A) to charge.

*The indicator light flashes blue during charging, and flashes green when charging is complete.

*Please don't wait until the battery is fully used up before charging.

6.3. Parameter modification

User can modify all parameters by "Back",Up" ,"Down" ,"Ok" buttons.

Move the cursor to modify the parameters.

6.4. Shortcut description

***Mute:** When detector is in the state of alarming user can mute the detector by pressing the "Back","Up" or "Down" or "OK" button.

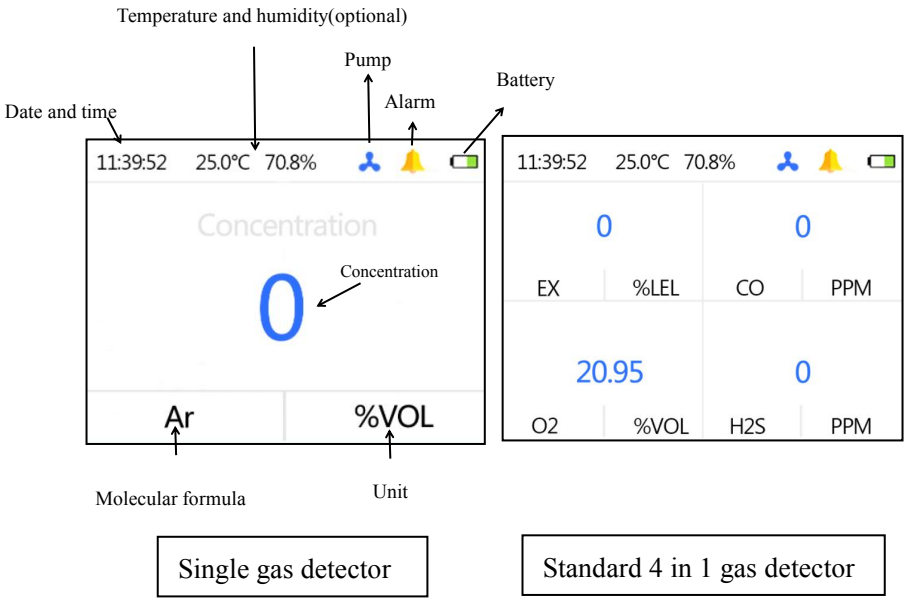
***Save manually:** When storage mode was preset as manually, user can save the gas concentration value of each channel by long press the "RUN/STOP" button in detection interface

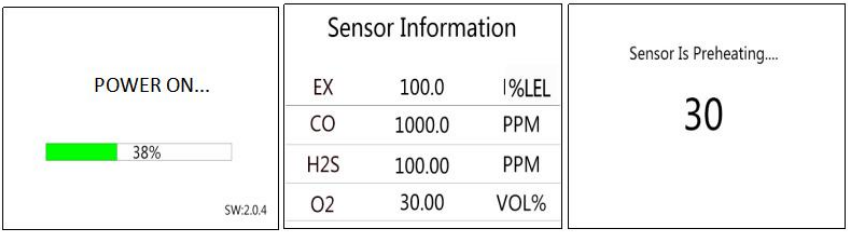
***Screen lock function:** Short press the "Power" button, can dim out the screen, press again, the screen light up. The detector will dim out if not operated after 300 seconds.

(GT-903 series gas detector could be work normally only in condition of the pump was switched on. Buttons only can be operated when screen light up.)

7. Operation instructions

7.1 Operation Interface





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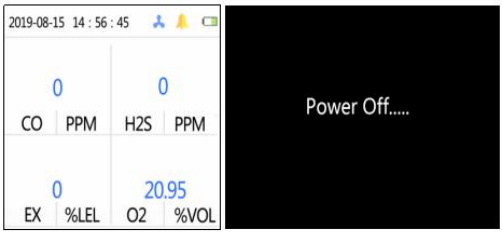

4 5

Long press the “Power” button, the screen will light up and display the sensor information. It needs about 1 minutes to warm up the gas detector. After power on, the screen will display the configured gas/ gases.

7.2 Function Menu Instruction

Long press”OK” button for 5 seconds to enter function menu as shown in figure 10. Nine sub-menus are including in function menu:Basic setting、History Log、RealTime Curve、Zero Calibration、Target Calibration、Alarm setting、Measure Mode、Storage Setting、Time Setting、Factory Setting.In main menu move the cursor to different sub-menu by press “Up” and “Down”button,press “Ok” to enter corresponding sub-menu,press “Back” to return to normal detection interface.

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7.2.1 Basic Setting

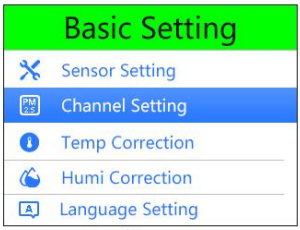
1. In Basic setting menu user can see various setting as shown in figure 11, press “Up” and “Down” button to move the cursor, press “Ok”to enter sub-menu and modify parameters.

2. In “Sensor Setting” menu user can check and modify gas detection range and unit(PPM、mg/m³、VOL% freely switch) as shown in figure 12;

3. In “Channel Setting” menu user can set to activate/shield one or various gas channels as shown in figure 13;

4. In “Temp Correction” & “Humi Correction” menu user can manually adjust the value of temperature and humidity as shown in figure 14-15;

5. In “language setting”user can change system language to all Chinese or all English as figure 16.



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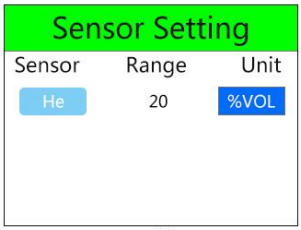

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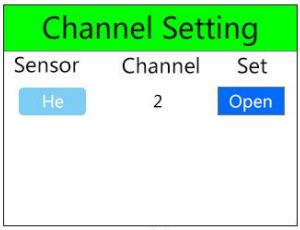

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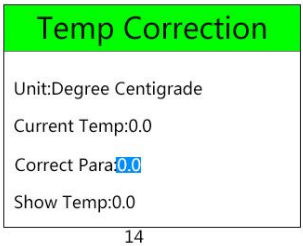

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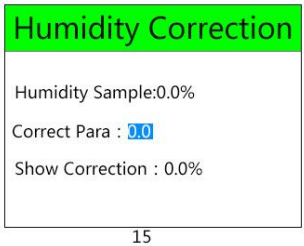

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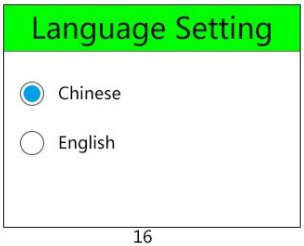

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7.2.2 History Data Log

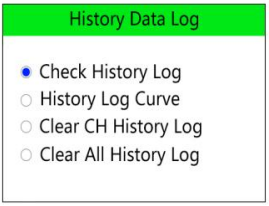
User can view previous gas concentration data or delete history data in “History Log” menu as shown in figure 17. In this sub menu has 5 options: “Check History Log”, “History Log Curve”, “Hsitory Log Export”, “Clear CH History Log”, “Clear All History Log”.

In “Check History Log” menu user can view the quantity of history log(figure 18) Move the cursor to “Check” and then press “OK” button to view the details as shown in figure 19.(NOTE:up to 30,800 groups of data can be storaged).

In “History Log Curve” menu user can view the curve of History Log as shown in figures 20-21.

User can export the data to PC. Install the corresponding Run Engine, Set the Language compatibility, and then can open the software to check the history log and export the data in Excel form.(figure 22)

Note:“Clear CH History Log” is to clear history data of specific channel,Clear All History Log” is to clear history data of all channels.



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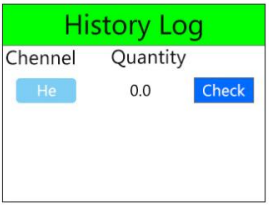

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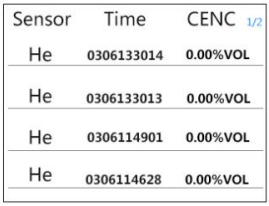

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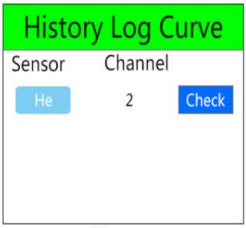

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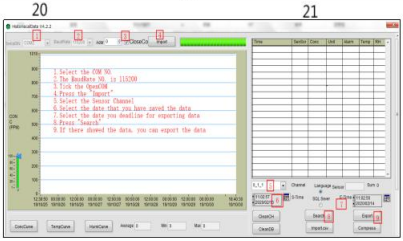

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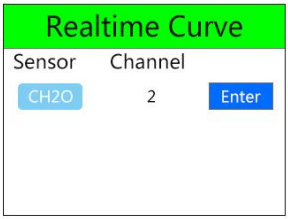
7.2.3 Real-time Curve

User can view the curve of real time data in this menu as it shown in figures 23-24.



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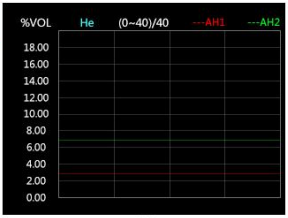

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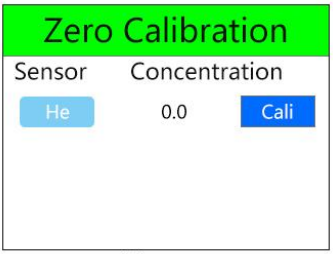
7.2.4 Zero Calibration

If zero drift of the sensor is over range, user can proceed zero calibration ,the gas concentration are defaulted set to zero after zero calibration as shown in figure 26.

Special Note: Zero calibration must be proceed in fresh air or high-purity inert gas(for example 99.999%VOL N2 etc)



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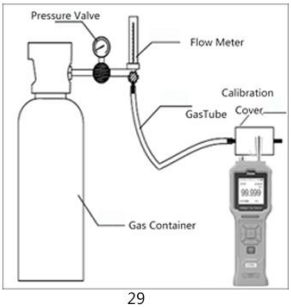

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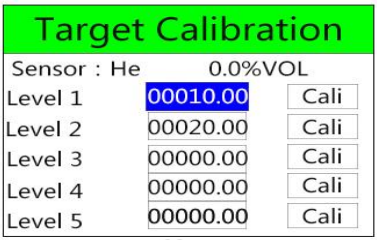
7.2.5 Target Calibration (Do Not Calibrate Unless You Are Professional)

Find a fresh-air environment. This is an environment free of toxic or combustible gases and a normal oxygen content(20.9%VOL); **Dust detector need proceed in a professional dust detection system.**

GT-903 series gas detector provide 6 levels target gas concentration calibration, as shown in figure 27-28, this calibration should be operate under conditions of certain standard concentration gas, Pressure reduction valve, Flow meter, Calibration cover and make sure all instruments are well connected, otherwise this function is forbidden.

Procedures: Connect all instruments as shown in figure 29, enter target gas calibration interface, release standard gas slowly and control gas flow within 500ml/min, observe the real-time concentration value(concentration value should be increasing), wait until real-time concentration value rise to the peak reading and stay still, user can chose a un-calibrate option to operate(√ indicate this level has been calibrated and × indicate this level still need to be calibrate); first of all input a concentration value of standard gas then calibrate. Target gas concentration value will set up to be the standard gas concentration value after calibration.

27



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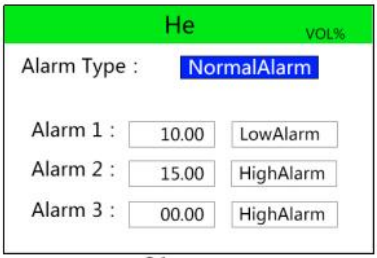
7.2.6 Alarm setting

User can set the alarm limit and alarm mode in this menu, as shown in figures30-31, there are two alarm value setting, which are high alarm and low alarm. When user set as the low alarm mode, it will trigger alarm when real-time concentration is lower than preset value, when user switch to high alarm mode, it will trigger alarm when real-time concentration is higher than preset value.

Procedures: Enter alarm settings sub-menu, Move the cursor to “alarm mode”,press “Ok” to select and press “Up” and “Down” to switch alarm mode, then press “Ok” to save your modification.

30



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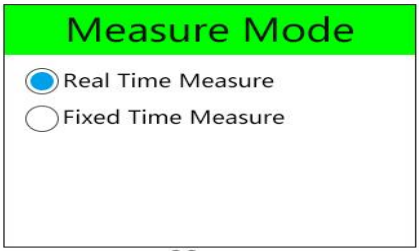
7.2.7 Measure Mode

In this menu.real-time detection and timing detection are optional as it shown in figure 32.When detector is preset as “Real Time Measure”,it provides continuous monitoring and will shows real-time concentration in the display.As it shown in figures 33,the device will detect the average concentration value of a certain time period when preset as “Fixed Time Measure”,it allows user to set timing cycle and cycle interval(interval of two timing detection),if the periodic detection mode is not activated,gas pump and detection process will automatically stops.

7.2.8 Store Setting



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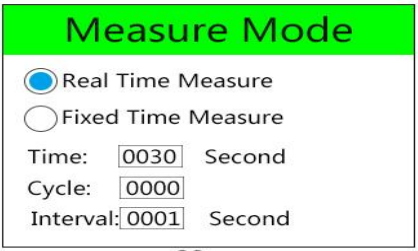

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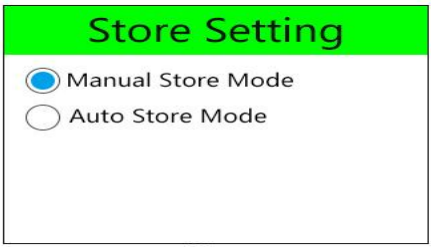
In this menu manual store mode and auto store mode are optional as it shown in figure 34.It also allows user to set storage cycle(unit:second) under auto store mode as it shown in figure 35.

7.2.9 Time Setting



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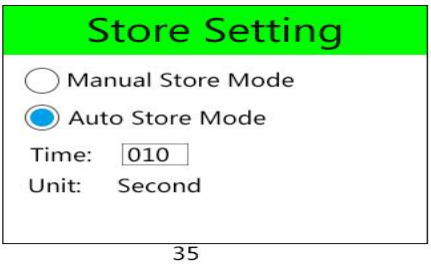

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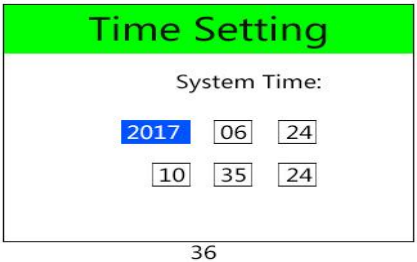
Time setting menu allow user to set date and time,this time is related to the time of the concentration values are being recorded.(figure 36)

7.2.10 Factory Setting

If user proceeded an wrong operation by accidentally or need to reset all parameters to factory setting,you can reset all parameter to factory setting(figure 37)



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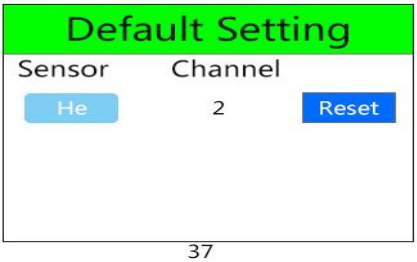

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8. Common faults and solutions

◆ **Problem:** Concentration value is not stably when detector place in air, reading is unstable

Possible reasons: Electrochemical sensor might interfered with unrelated colorless and odorless gas

Solutions: Place detector at pure gas environment to see whether the concentration value decreasing or not, if it is that the environment is clear but the concentration value remains high, you need to proceed zero calibration

◆ **Problem:** No response or weak response when detecting

Possible reasons:

1) Oxygen content value of gas is too low: <5%VOL.

2) Gas pressure is too high, the pump can't not afford it.

3) Expired sensor might cause the problem too .

Solutions: Make sure the oxygen content value of the gas is higher than 5%VOL when equip with Electrochemistry sensor, Catalytic combustion sensor or Semiconductor sensor. Detector working pressure is -30Kpa~100Kpa, User can proceed zero calibration if has standard gas. If oxygen content value, working pressure are eligible for detection but problems still remain, user should return detector to factory for maintenance.

◆ **Problem:** Concentration value is unstable when start detecting.

Possible reasons: Normally dude to gas oxygen content is too low or changing of gas concentration value.

Solutions: Increase gas oxygen content value and make sure the gas flow speed is stable.

◆ **Problem:** Weak pumping,or device make a unusual sound while pumping.

Possible reasons: Gas inlet blocked due to too many dust and vapor inhaled.

Solutions: Return to manufacturer to replace the pump, install a dust and vapor filter at the gas inlet.

◆ **Problem:** Unable to boot up instrument.

Possible reasons: Battery low or empty

Solutions: Try to start the instrument after fully charged the battery, if the problem still remain,user need to return the device to manufacturer.

◆ **Problem:** Unable to charge the instrument

Possible reasons: Adapter failure or wrong adapter(5-5.5VDC,1-2A)

Solutions: Make sure output voltage of adapter is 5V, user need to change a adapter if the output voltage is not 5V, if the problem still remain after change a adapter, user need to return the instrument to manufacturer.

9. History data export instructions

Please kindly contact with the sales for the export software and manual.

10. After-sales Service

A．WARRANTY

1.We provide 12-Month warranty for the detector and 3-Month warranty for the accessories.

2.We have free calibration once a year during the entire product's service life.（freight is not included）

3.From the date of purchase, quality problem occurred under normal use during the warranty period, you can enjoy free maintenance services. Note: required working conditions: Temperature : -30~50℃ relative humidity:0-90%RH pressure:0-200Kpa air environment: no interference gas, no dust

B．LIMITATION

（Note: Warranty will not be provided in case of the following circumstances.）

1. Man-made damage
2. Damage caused by natural disasters
3. Exceeds the warranty period
4. Unauthorized disassembly and modification
5. Purchase through non-legal distribution channels

C. SERVICE GUARANTEE

1. Maintenance within the scope of warranty does not charge maintenance fees, replacement parts costs.(freight is not included)
2. Maintenance without the scope of warranty does not charge maintenance fees, but replacement parts will be charged at a discounted price.
3. All the complaints will be responded within 24 hours.
4. Address: 2nd floor, Innovation Building, Qixing Creative Industrial Park, Baotian 1st Road, Xixiang Town,Bao'an District, Shenzhen City, Guangdong Province,China.

11. Common gas type list

O2	0-1000,5000,10000,30000PPM; 0-5,25,30,100%VOL	H2S	0-50,100,500,1000,2000,5000,10000PPM
CO	0-100,500,1000,2000PPM	EX	0-2,4%VOL; 0-100%LEL
NH3	0-50,100,500,1000,5000PPM	CO2	0-2000,5000,10000,50000PPM; 0-10,20%, 50%,100%VOL
SO2	0-1,10,20,50,100,500,1000,2000PPM	CH2O	0-10,20,50,100PPM
VOC	0-10,20,50,100,200,500,1000,2000,5000PPM	O3	0-1,2,5,10,20,50,100,500,1000,2000,5000PPM
NO	0-1,2,5,50,100,250,500,1000,2000,5000PPM	NO2	0-1,20,50,100,500,1000,2000PPM
CLO2	0-1,5,10,20,50PPM	H2	0-500,1000,5000,20000,40000PPM; 0-100%VOL
N2	0-100%VOL	CS2	0-50,100,500PPM
CH4	0-5000,10000,50000PPM; 0-20%,50%,100%VOL	C2H2	0-100,500,1000,2000PPM; 0-2%VOL; 0-100%LEL
C2H4	0-10,50,100,200,500,1000,2000PPM	C2H6	0-5000,10000,30000PPM
C3H8	0-5000,10000,20000PPM; 0-20%,50%,100%VOL	C4H10	0-5000,10000,20000PPM
HF	0-10,20,50PPM	PH3	0-5,20,50,100,500,1000,2000,4000PPM
HCN	0-30,50,100,500,1000PPM	HCL	0-10,20,50,100,200,500,1000,3000PPM
CL2	0-10,20,50,100,200,500,1000,2000,5000PPM	CH3Br	0-1,6,100%VOL; 0-200g/m3; 0-5000,10000,30000PPM
Ar	0-100%VOL	He	0-100%VOL
SF6	0-500,1000,2000PPM	ETO	0-10,20,50,100,500PPM; 0-3%VOL

深 圳 市 科 尔 诺 进 出 口 贸 易 有 限 公 司

ShenZhen Korno Import&Export Co.,Ltd

ADD: 2nd Floor,Innovation Building,Qixing Creative Industrial Park,Baotian 1st Road,Xixiang Town, Bao an District,Shenzhen City,Guangdong Province,China

TEL: +86 0755 86110165-211

VIP HOTLINE: +86 15014056865 Ms Mark

FAX: +86 0755 27225732

EMAIL: sales05@szkorno.com

Web Site: http://www.gdszken.com/

To get more information please visit our website or contact our engineer