

# GT903 Series Multifunctional Gas Detecor

## User Manual



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# Notice

## ①Button description

There are six buttons beneath the display screen: Up、Down、Return、Ok、run/stop、PowerThree operation interfaces: Detection interface、Menu、Parameter setting.The following form is description for the six buttons.

	<b>Detection interface</b>	<b>Menu</b>	<b>Parameter setting</b>
<b>Up</b>	Void	Up	Move up/ Value+
<b>Down</b>	Void	Down	Move down/ Value-
<b>Return</b>	Void	Return to previous menu	Return to previous menu
<b>Ok</b>	Enter menu(Hold for five seconds)	Confirm to enter menu	Enter>Select/Save
<b>Run/ stop</b>	Pump switch/ Timing detection switch	Void	Void
<b>Power</b>	On/Off(Hold for five seconds)	On/Off(Hold for five seconds)	On/Off(Hold for five seconds)

**CAUTION:** GT903 series multifunctional gas detector will perform normally only in condition of the pump is switch on.

## **②Gas Detector Processing Operation under Outrange Status**

Users should avoid to have sensor impacted by the gas with a pressure value greater than the maximum of the detector, which might affect the service life and precision of the detector, or even directly damage detector.

When user accidentally makes outrange operation, he should evacuate the instrument out of the detecting site and place it in the clean air for more than half of an hour. During this time, user should observe whether the density value of the instrument is keeping decreasing or not. If it can straightly go down to normal value, then it can continue to use after the zero calibration of instrument. If the instrument has evacuated from hazardous area after the outrange operation and user has placed it in clean air for hours, the density value still remains high, then it should be sent back to the manufacturer or agent for maintenance, be ready to replace the sensor.

**Special Note:** detector damage resulted from outrange operation is not within the warranty.

## **③Detector Calibration and Warranty**

We guarantee all detectors were being precisely calibrated with certain density standard gas. It's not necessary for user to re-calibrate the detector after purchase unless encounter special situation. Also the calibration need to be operate under the guidance of the professional.

All GT903 series products we provide 12-Mounths warranty for the detector and 3-Mounths warranty for the accessories. Beside , we have free calibration

once a year during the entire products service life.

#### **④Instruction of detector display dimmed out**

Power capacity protection program had been preset for all GT903 multifuncional gas detector, when no operations were made within 30 seconds the protection program will activate and the display of the detector will dim out, user can light up the display by press power button.

#### **⑤GT903 series hot key instruction**

**Mute:** When detector is in the state of alarming user can mute the detector by pressing the “Up”or “Down”button.

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

**Function menu:** When detector is in the detection menu user can enter system menu by pressing “Ok” button for 5 seconds

#### **⑥Parameter modification instruction**

User can modify all parameters by “Back”、“Up”、“Down”、“Ok”buttons.

## **1 Product Brief Introduction**

GT903 series multifunctional gas detector are portable gas and dust detector which can be configured flexibly up to four gas sensors. With import gas sensor and most advance nanometer semiconductor technology GT903 series multifunctional gas detector can detect four kinds of gas and dust concentration at the same time rapidly and precisely, we maintain a leading position in domestic level and our products are famous of high stability and repeatability. User can custom setting all parameters to ensure the operations are user-friendly. The device provides 4000mA built-in high capacity polymer rechargeable battery, technical indicators、gas concentrations and history data can be display in the 2.4 inches technical grade screen, User can save concentration data、output data、detect temperature and humidity level.

## **2 Key Feature**

- ◆ With the most advance 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 perfectly.
- ◆ Three concentration units are available; PPM,%VOL,mg/m<sup>3</sup>.
- ◆ Simultaneously detection can be perform(1-4 kinds of gas), User can combine different sensor freely, temperature、humidity sensor and other kind of sensor are available.
- ◆ Up to 30,800 group data could be storage, user could view history data on the

display and the instrument allow user output datalog.

- ◆ 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、Pumping mode.
- ◆ With high-power pump allow device working under 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 model are available,user-friendly.
- ◆ With temperature and humidity compensating function.With dust filter and dustproof design allow device applies in all sorts of harsh conditions.

### 3 Technical Parameters

<b>Production type:</b>	Single gas detector(Customize according user's need)		
<b>Detection range:</b>	Please refer to the sensor list		
<b>Resolution:</b>	Please refer to the sensor list		
<b>Temperature and humidity (optional):</b>	Temperature:-40 ~ 120°C Humidity:0-100%RH		
<b>Detection mode:</b>	Pumping,With high-power pump allow device working under tiny negative pressure condition,flow rate is adjustable.		
<b>Detection accuracy:</b>	$\leq\pm3\%$ F.S	<b>Linearity error:</b>	$\leq\pm1\%$ F.S
<b>Reaction time:</b>	$\leq20$ seconds (T90)	<b>Zero drift:</b>	$\leq\pm1\%$ (F.S/Year)
<b>Recovery time:</b>	$\leq20$ 秒	<b>Repeatability :</b>	$\leq\pm1\%$ F.S
<b>Detection mode:</b>	Real-time detection、 timing-detection		
<b>Storage mode:</b>	Auto storage、 manually storage,Up to 30,800 group data can be storage,history data can be shown at display		
<b>Explosion proof sign:</b>	ExdII CT4	<b>Material:</b>	ABS+PC
<b>IP rating:</b>	IP65	<b>Temperature :</b>	-30 ~ 60°C

<b>Power:</b>	4000mA polymer rechargeable battery	<b>Humidity:</b>	$\leq 95\%RH$ , Non-condensing
<b>Dimension:</b>	180*80*60 mm (L×W×H) 0.5 Kg (Net weight)	<b>Pressure:</b>	-30Kpa ~ 100Kpa
<b>Accessories:</b>	Dust filter、Case、User manual、Certification、USB charger+cable、Calibration cover		

## 4 Product Structure



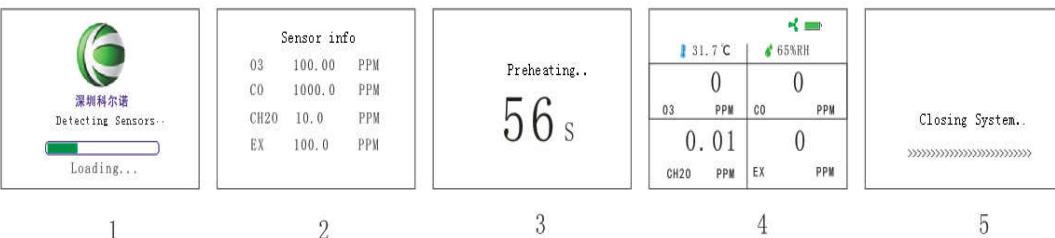
## 5 Operation Instruction

## 5.1 Power On

Long press  power button for five seconds until the “DI” sound then the display and red signal light turn on,The screen appears:Sensor checking (3 seconds),Sensor information(1 second) ,Sensor preheating and automatically start the pump(60 seconds count down)in sequence as it show in figure 1-3,detector will start after the count down and enter detection interface as it show in figure 4

## 5.2 Power Off

In normal detection mode long press  power button for five seconds until the “DI” sound ,display shows shutting down as it show in figure 5,device will be shutoff within 1 minute .



# 6 Operation Interface

## 6.1 Gas Detection Interface

Under normal-detection mode, according to the number and types of sensors in the device, there are different interfaces: single gas detection mode as shown in figure 6(O3 for example), two kinds of gas detection mode as shown in figure 7 (O3、CO for example) , three kinds of gas detection mode as shown in figure 8(O3、CO、CH2O for example), four kinds of gas detection mode as shown in figure 9(O3、CO、CH2O, Combustible gas for example)

The icons at the left top of the the display (refer to figures above) are time and temperature, at the right top of the display shows the “pump status”, “battery capacity”, “humidity”, take figure 9 for example, there are four channels , channel 1 at the left top(O3), channel 2 at the right top(CO), channel 3 at the lower left(CH2O2), channel 4 at the lower right(EX); figure indicate corresponding gas concentration in each channel, lower left “O3” is the gas’s molecular formula, lower right “PPM” is the concentration unit; when one or several gas channel reach the alarm value, there will be a alarm sign under corresponding concentration figure, as shown in figure 9 the CH2O channel is alarming.



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## 6.2 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.



### 6.2.1 Basic Setting

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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.

In "Sensor Setting" menu user can check and modify gas detection range and unit(PPM、mg/m<sup>3</sup>、VOL% freely switch) as shown in figure 12;

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

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

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

Basic Setting			
	Sensor Setting		
	Channel Setting		
	Temp Correction		
	Humi Correction		
	Language Setting		

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Sensor Setting		
Sensor	Range	Unit
He	20	%VOL

12

Channel Setting		
Sensor	Channel	Set
He	2	Open

13

Temp Correction	Humidity Correction	Language Setting
Unit:Degree Centigrade Current Temp:0.0 Correct Para:0.0 Show Temp:0.0	Humidity Sample:0.0% Correct Para : 0.0 Show Correction : 0.0%	<input checked="" type="radio"/> Chinese <input type="radio"/> English

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## 6.2.2 History 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”, “History Log Export”, “Clear CH History Log”, “Clear All History Log” .

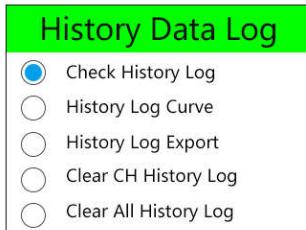
In “Check History Log” menu user can view the quantity of history log (figure 18) Move the cursor to “Check” and then press “OK” button to view the details as shown in figure 19. (NOTE: up to 30,800 groups of data can be storaged)

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

In “History Log Export” menu, user can export the data to PC.

Press “OK” button to enter this sub menu and then will see the steps about history log export.(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.



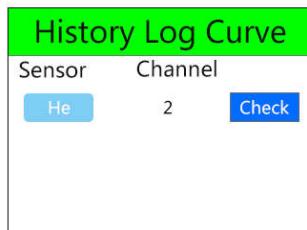
17



18

Sensor	Time	CENC	1/2
He	0306133014	0.00%	VOL
He	0306133013	0.00%	VOL
He	0306114901	0.00%	VOL
He	0306114628	0.00%	VOL

19



20



21

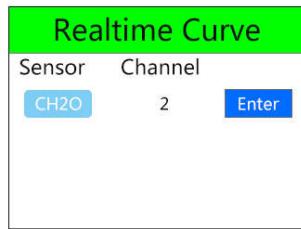
- History Log Export**
1. Connect PC With USB
  - 2.Open The PC APP
  - 3.Upload The Log To PC

22

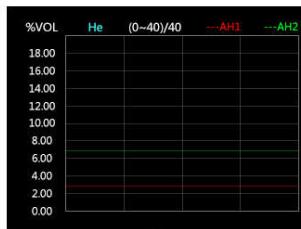
### 6.2.3 Real Time Curve

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

23-24.



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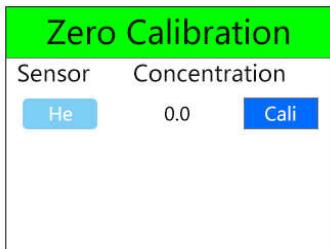


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## 6.2.4 Zero Calibration

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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## 6.2.5 Target Calibration(**Do Not Calibrate Unless You Are Professional**)

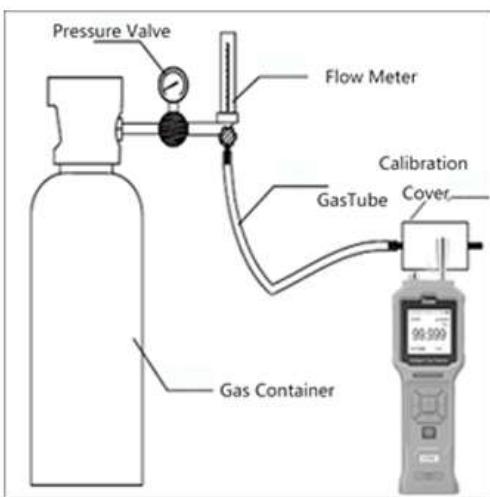
GT-903 series gas detector provide 6 levels target gas concentration calibration,as shown in figure 27-28, this calibration should be operate under conditions of certain standard concentration gas, Pressure reduction valve ,Flow meter, Calibration cover and make sure all instruments are well connected,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

Target Calibration		
Sensor	Channel	
He	2	Enter
27		

Target Calibration	
Sensor : He	0.0%VOL
Level 1	00010.00
Level 2	00020.00
Level 3	00000.00
Level 4	00000.00
Level 5	00000.00
	Cali



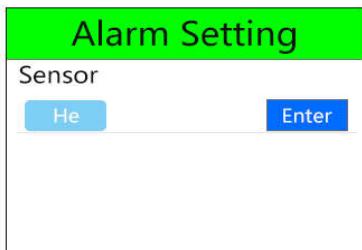
29

### 6.2.6 Alarm Settings

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.



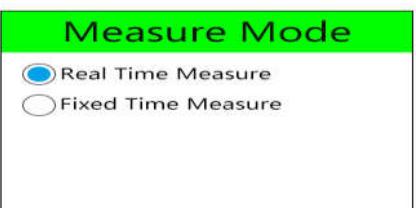
30

Sensor:He	Unit: %VOL
Alarm 1 :	0010.00
Alarm Type :	HiAlarm
Alarm 2 :	00015.00
Alarm Type :	HiAlarm

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## 6.2.7 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.



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<input checked="" type="radio"/> Real Time Measure
<input type="radio"/> Fixed Time Measure
Time: 0030 Second
Cycle: 0000
Interval: 0001 Second

33

### 6.2.7 Storage Setting

In this menu.rmaual 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.

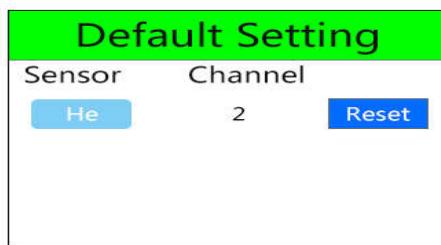
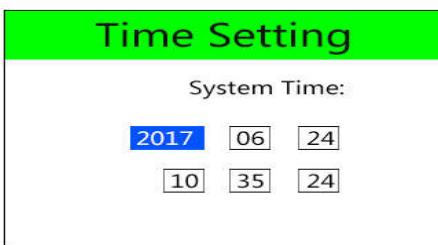


### 6.2.8 Time Setting

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)

### 6.2.9 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).



## **7 Other Notice**

- ◆ Please read User Manuel carefully before use the detector.
- ◆ It is strictly forbidden user to disassemble the detector or replacement parts.
- ◆ Installation, adjustment, calibration and parameters setting must be progress by professionals.
- ◆ Regular inspection of calibration is necessary, expired or broken sensor should be replace immediately.
- ◆ It is strictly forbidden to impact sensor with gas which is over detection value.
- ◆ User should prevent drop or impact the detector.
- ◆ It is strictly forbidden to use detector in high temperature, high humidity or high pressure environment ,if workingenvironment is high humidity, detector need to equip with vapor filter.
- ◆ Man-made damage is not within warranty.
- ◆ To reduce the risk of ignition of hazardous atmospheres, recharge, remove or replace the batteryonly in an area known to be non-hazardous.Do not mix old and new batteries or batteries from different manufacturers.
- ◆ Electrostatic discharge should be proceed before the detection in hazardous area
- ◆ GT 903 series products shall only be charged outside hazardous areas,it is strongly recommend use the original charger.

## **8 Concentration Datalog Output Instruction**

GT 903 series gas detector allow user output history datalog via the charge port,there are several steps to output datalog.

- 1) Install concentration datalog output software in host computer
- 2) Boot up the detector and wait for 60s to preheat the instrument and connect to the computer
- 3) Run the concentration datalog output software in the host computer,make sure the detector is connected to the host computer,meanwhile at the lower left interface of the software will show connection port standby(defaulted baud rate is 115200,do not change)
- 4) Enter the history data interface to output datalog,there will be menu prompts at the both software and detector interface.
- 5) User can preset detector's address in concentration datalog output software(this address need to corresponded to the parameter in “address setting”of the detector)、Channel(Corresponded to the gas channel of the detector)、start time and finish time(datalog storage period should be within the start and finish time)
- 6) Detector allows user to search concentration of certain channel of datalog storage period,datalog can be output as EXCEL format by “datalog output” function.

**NOTICE:Connection cable is the USB cable connected to the adapter**



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