

Thank you for choosing our product! Before using the product, please read this user manual carefully and keep it in a safe place for future reference.

Gas Detection Alarm Instrument User Manual



Product Compliance Standards: AQ6207-2007, MT703-2008, MT704-2008, MT563-1996, GB3836.1-2010, GB3836.2-2010, GB3836.4-2010

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Warning: The electrical parameters, specifications and models of the components and devices related to the primary safety circuit shall not be changed arbitrarily during maintenance!

The product can only be used with the product specified in the instruction manual! Never charge and disassemble the battery in a dangerous environment! Do not open the charging protective rubber plug in a dangerous environment! Do not use the battery that is not specified in the instruction manual!

1 Summary

1.1 Use and scope of application

DTS-B001(A) gas detection and alarm instrument (hereinafter referred to as the alarm instrument) adopts electronic instruments with electrochemical principle, intelligent control of embedded microcontroller and liquid crystal display. Mainly used for chlorine dioxide detection and alarm use.

1.2 Explosion-proof type and explosion-proof signs

Explosion-proof type: basic safety and explosion-proof type

Explosion-proof sign: Ex ib II B T4 Gb

1.3 Use environmental conditions

- A. temperature: 0°C~40°C
- B. Relative humidity: 98% (+ 25°C)
- C. Atmospheric pressure: 80 kPa ~ 116 kPa
- D. Wind speed: 8m / s
- E. No significant vibration and impact occasions
- F. In a dangerous place with an explosive gas mixture.

2 Working principle and structural characteristics

2.1 The working principle of the whole machine

The alarm device adopts the electrochemical principle for chlorine dioxide (ClO₂).

2.2 Gas measurement principle

The alarm apparatus converts the chlorine dioxide gas in the air into the corresponding electrical signal through corresponding sensors. After the micro controller processing, the electrical signal of amplified filter displays the corresponding chlorine dioxide in digital form; when the concentration of chlorine dioxide exceeds the set alarm point, the alarm circuit sends an alarm signal to show that the concentration exceeds the limit.

3 technical characteristics

3.1 Power supply and charging

A) Battery parameters:

①The battery pack is composed of a 1.8Ah lithium battery and the battery protection plate pouring and sealing in series;

②Battery open circuit voltage: 4.2V; Maximum output current: 2A;

B) The battery of the alarm instrument has no "memory effect" battery.

C) The alarm instrument shall have the functions of power supply voltage display, undervoltage prompt and automatic shutdown of undervoltage.

D) When the alarm device is charging, it shall have charging indication, charging completion off and indication functions.

3.2 Main technical parameters

3.2.1 measuring range

Chlorine dioxide: $(0 \sim 100) \times 10^{-6}$

3.2.2 intrinsic error

gas	measuring range	intrinsic error
chlorine dioxide	0 ~ 10	$\pm 2 \times 10^{-6}$
	> 10 ~ 50	$\pm 5\%$ of the measurements
	> 50 ~ 100	$\pm 6\%$ of the measurements

3.2.3 The alarm point

Chlorine dioxide: it shall be set arbitrarily within the measurement range

3.2.4 Alarm error

Chlorine dioxide: $\pm 1 \times 10^{-6}$

3.2.5 The alarm way

Sound alarm, 1m away from the axial distance of the sound source, the sound intensity is not less than 75dB.

3.2.6 Alarm resolution

Chlorine dioxide: 1×10^{-6}

3.2.7 response time

Chlorine dioxide: no more than 45s

3. 2. 8 Continuous working hours

Primary charge is greater than 10h

4 Size, weight

4. 1 outline dimension

115mm×45mm×28mm

4. 2 quality

About 140g

5 Use, calibrate

5. 1 Alarm charge

Warning: Charging of the alarm device must be conducted in a safe place, and it must be turned off when charging!

The battery symbol on the upper right of the alarm instrument shows the sufficient battery power. The longer the white stripe indicates that the battery power is sufficient. When the alarm battery box symbol flashes and turns red, the battery power is insufficient and needs to be charged.

Please place the alarm device in a safe place when charging;

Turn off the alarm device;

Insert the USB plug of the small end of the data charging cable into the charging seat of the alarm device, and insert the large end USB plug into the USB plug of the charger power plug;

Plug the charger power supply plug into the AC power supply, and the AC power supply requirement is AC220V 50Hz;

At this time, the alarm indicator light turns red, indicating the charging state;

When the alarm indicator is off, it has been filled, and the whole charging process takes about 5 to 6 hours.

5. 2 operation declaration

5. 2. 1 starting up

The alarm instrument adopts the menu mode of operation, in order to more convenient operation, the following text will be used

Introduce the way of the word description. When the alarm is off, press the red "right button"

to turn on.

Conduct the alarm sound, alarm light, self-test, and display the boot sign, and automatically enter the boot after 2 seconds

The alarm point interface displays the alarm point of the measured gas. As shown in the figure, the interface remains for about 3 seconds.

5. 2. 2 main interface

After the above interface is displayed, the alarm instrument automatically enters the main interface to display. The main interface: this interface is the main interface for normal detection, which can detect the concentration of gas, and has battery power, time and date display. When the gas alarm, except for the sound and light vibration prompt, the value of the alarm gas display becomes red. Long press "Right" to enter the shutdown interface; long press "Left" to enter the menu interface.

5. 2. 3 Menu interface operation

Menu selection interface, where you can select the relevant menu and enter the relevant menu interface, the arrow indicates the selected item, and change color. Press green Left Key to adjust the menu option, the arrow points to the next option; press red Right Key to enter the menu item and press Right Key to return to the main interface.

5. 2. 4 Zero adjustment operation and related interface

Gas zero adjustment selection interface, where you can select the corresponding gas zero adjustment menu and enter the corresponding gas zero adjustment interface, the arrow refers to the selected item, and change color. Press Left to adjust the menu option; press right to enter the menu item; press Right to return to the menu selection interface.

1). Zero interface: gas zero selection interface, where you can select the corresponding gas zero menu and enter the corresponding gas zero interface, the arrow refers to the selected items, and change color. Short press Left Key to adjust the gas option; long press Right to enter the selected gas zero adjustment interface; short press Right to return to the menu selection interface.

2). Original zero display: gas zero interface, where gas zero work. This interface has "chlorine dioxide zero" to prompt this interface for the zero interface, the next value is the zero value, the lower end of the interface also has the environment requirements of zero."Left key" long press to save the zero, and the prompt interface appears. Short press "right click" to return to the gas zero selection interface.

3). Save interface: zero the save interface, left key "long press" to save the zero,

prompt the zero has been adjusted. And return to the gas zero adjustment selection interface.

4). Other gas zero adjustment and operation methods are similar. The corresponding zero environment is indicated in the zero adjustment interface of the corresponding gas.

5. 2. 5 Calibration operation and associated interfaces

A. Calibration interface: Gas calibration selection, where you can select the corresponding gas calibration menu and enter the corresponding gas calibration interface. According to the arrow, the selected item changes color. Press "Left" to adjust the calibration menu options for different gases; long press "Right" to enter the selected gas calibration; short press "Right" to return to the menu selection interface. When calibrating the gas, the first zero adjustment of the gas.

B. Standard gas setting interface: this interface is the gas calibration value setting interface, where "0498" is the concentration of the standard gas used. You can change the calibration value by using the left key, long press the left key, digital selection, short press the "left key", the number changes from 0 to 9. Long press the "right button" to enter the ventilation calibration interface, short press the right button to return to the gas calibration selection interface.

C. Ventilation interface: This interface is the ventilation calibration interface. After entering this interface, the standard gas at the set concentration can be entered. There is the incoming gas concentration at the lower end of the interface, such as "498ppm". The "0" after the real-time value will change after the gas is introduced. When the display value is stable, press "left" to save the calibration value, and press "right" to return to the gas calibration selection interface.

D. Calibration storage interface: When the display value is stable, long press the "left button" to save the calibration value, and there is a prompt interface to complete the calibration. Short press "Right button" to return to the gas calibration selection interface.

Calibration note:

1. The standard gas for calibration must be the standard gas produced by the production unit recognized by the national metering department, and its concentration shall be the standard gas sample of the maximum range of the measured gas; when the oxygen calibration is not very strict, clean air (20.9% VOL) can be used as the standard gas; please do not use the gas with too low concentration for relative calibration;

2. Calibration please use the special alarm instrument calibration cover equipped by the manufacturer, the flow setting is usually 200 ml/min, air for half a minute to stabilize the gas

flow rate, the alarm cover to the front of the alarm instrument sensor, and tighten the calibration cover fixing knob.

3. It is recommended that the calibration (calibration) period of the alarm instrument is 1 month.

4. The alarm instrument must be calibrated separately for each way, and can not be calibrated with mixed gas.

5. 2. 6 Alarm point setting and operation

A. Alarm point selection interface: This interface is the selection interface for the gas alarm point setting. Here, you can select the corresponding gas alarm point setting menu and enter the corresponding gas alarm point setting interface. The arrow indicates the selected items and changes color. Left to adjust menu options; press right to enter the menu item; and press Right to return to the menu selection interface.

B. Alarm point setting interface: This interface is the alarm point setting interface, please set the alarm value suitable for using the alarm device as needed. Long press "Left button" to select digits, short press "left button", the number changes from 0 to 9. Long press the "right button" to save the set alarm point, and have the alarm point setting complete interface. Short-press "Right-click" to return to the alarm point setting selection interface.

C. Alarm point storage interface: This interface completes the prompt interface for alarm setting, and completes the alarm point setting. And return to the alarm point setting and selection interface.

5. 2. 7 Language Settings Interface

Select "Language Settings" on the menu interface, and the alarm instrument will enter the language setting interface. The default language is Chinese; press "Left" to adjust the display language and press right to return to the main menu. Note that the English interface display is temporary, and the display is still in Chinese after the restart.

5. 2. 8 Unit setting interface

Select "Unit Settings" on the menu interface, and the alarm device will enter the unit Settings interface, the default unit:

Chlorine dioxide: ppm;

Short press "Left button" to select gas, long press "Left button" to select gas display units, short press right button to return to the main menu. Note that the switching unit is temporary and the default unit after restart; it can be switched to umol.

5. 2. 9 Time setting operation and interface

Select "Time Date Setting" in the menu interface, and the alarm will enter the time setting

interface, behavior date, and behavior time. The time can be adjusted by pressing the left and right buttons. Long press the "left button" to adjust the median, select two each time, short press the "left button" to adjust the number change, the first two of the year change between 20 and 99, the last two change between 00 and 99, month change between 01 and 12, day change between 01 and 31, hour change between 00 and 23, minutes change between 00 and 59. After setting, press "right" to save the set time and date and return to the menu interface. Press the right button to return to the menu interface without saving.

5. 2. 10 Shutdown operation and the interface

This interface is the shutdown interface, press the "right button" in the normal detection interface, the alarm device displays this interface, press "left button" to select "Yes" shutdown, press "right button" to select "No" to return to the normal detection interface.

6 Precautions for use

- 6.1 Please read the instructions carefully before use;
- 6.2 The alarm instrument should be maintained and used by special personnel, and operated and adjusted in strict accordance with the instructions. It is strictly prohibited to remove the alarm instrument at will;
- 6.3 The alarm instrument should be placed in the leather case in carrying use to prevent violent collision, and pay attention to keep the alarm instrument clean;
- 6.4 The environmental research used or stored by the alarm instrument includes silicone, adhesive and other chemical substances to avoid poisoning of carrier components;
- 6.5 Battery components are explosion-proof parts, and it is strictly prohibited to change their specifications and parameters during maintenance and replacement. The accessories of the alarm instrument manufacturer should be used for maintenance and replacement by professionals;
- 6.6 The Alarm instrument should be calibrated regularly, generally once a month;
- 6.7 It is strictly prohibited to disassemble for inspection and maintenance in non-safe places. During maintenance, the model, specifications and parameters of the original circuit parts shall not be changed.
- 6.8 Undervoltage warning: when the battery voltage is lower than 3.4V, the buzzer sends out an alarm warning;
- 6.9 Shutdown protection: when the voltage is lower than 3.2V.
- 6.10 The alarm device shall be charged every three months to activate the battery pack and maintain the characteristics of the sensor and battery pack.
- 6.11 When charging the alarm device, please use the special charger equipped by the manufacturer, which must be charged in a safe place;
- 6.12 The USB port data communication must be conducted in a secure place.

7 Common faults and maintenance of the alarm instrument

hitch	cause	measure
The test is not allowed	1. The alarm instrument is not calibrated for a long time 2. Sensor aging failure	Calibrate the alarm Replace the sensor

Don't call the police	1. Incorrect setting of the alarm points 2. Circuit fault	Reset the alarm point Return to the manufacturer for repair
The tested gas is not reactive	1. Sensor failure 2. fault	Replace the sensor Return to the manufacturer for repair
Can't boot	1. The battery voltage is insufficient	charge
Don't charge	1. Charger fault 2. The alarm instrument	Replace the charger for a charge Return to the manufacturer for repair
Insufficient working time of the alarm instrument	1. The alarm instrument	Return to the manufacturer for repair
The zero point is not zero in the clean air	1. Drift occurs at the zero point	Zero adjustment operation (in clean air or pure nitrogen)
Short sound and light prompt alarm	1. Battery voltage is low	Check the battery voltage and charge it

8 Transportation and storage

8.1 The alarm instrument can use a variety of transportation modes including land and water transportation, and the transportation needs to prevent violent collision, heavy pressure, rain, to prevent mixing with corrosion products.

8.2 The alarm instrument shall be stored in a warehouse with dry, clean, air circulation, no corrosive gas, no dripping and liquid invasion, air relative humidity not greater than 90%, and temperature in (-40~60) °C.

9 packing list

name	unit	quantity
Gas detection and alarm instrument	PCS	1
instructions	PCS	1
Calibration cap	PCS	1
charger	PCS	1
USB cable	PCS	1
certificate	PCS	1

10 Warranty commitment

The warranty period of this product is 12 months, calculated from the date of shipment. During this period, the company is responsible for the free maintenance of the damage for nonpersonal reasons.

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