

DTS-A Series Wireless Gas Detector User Manual

(Version: V1.00)



Henan DUOTESI Electronic Technology Co., LTD

Thank you for using our company's product series. Before using this product, please read this manual carefully and strictly follow the relevant operating procedures to prevent damage to the equipment caused by incorrect operation.

Warranty Information

The warranty period for the testing instruments produced by our company is 12 months, starting from the date of manufacture. Users must comply with the instructions in the user manual. Any damage caused by improper use or harsh working conditions is not covered by the warranty.

Important Reminders

1. Please read the user manual carefully before using the instrument.
2. The use of this instrument must strictly follow the operating procedures specified in the manual.
3. Maintenance of the instrument and replacement of parts should be handled by our company or authorized service centers.
4. If users fail to follow the above instructions and attempt to repair or replace parts on their own, the reliability of the instrument shall be the responsibility of the operator.
5. The use of this instrument must also comply with relevant laws and regulations issued by domestic authorities and the instrument management regulations of the factory.

Warning: It is strictly prohibited to open the cover of the detector while it is powered on at the work site. Before turning on the instrument, carefully check that the wiring is correct. Any operation inside the detector must be performed by a professional.

Catalogue

I. Overview	1
1.1 The design, manufacture and verification of this product shall comply with the following national standards:	1
1.2 The meaning of explosion-proof mark	1
II. Main technical indicators	1
III. Product structure diagram and schematic diagram of each component	2
3.1 Structure diagram:	2
IV. Description of wireless communication	3
4.1 Overview of wireless detectors:	3
4.2 Power supply of wireless detector:	3
4.3 Communication distance of wireless detector Reference:	3
V. Menu operation instructions	4
VI. Common faults and solutions	5
VII. Notes	6
VIII. Warranty and Maintenance	6

I. Overview

The wireless combustible gas detector is a new wireless detection instrument produced by our company. Featuring a high-brightness LCD display and high-decibel audio-visual alarms, it employs high-performance imported sensors. Detection principles include catalytic combustion and infrared types. This product offers stable performance, precise accuracy, long service life, and user-friendly operation. It is suitable for environments without power access or where wiring installation is challenging.

The wireless detector uses LoRa communication technology, which is a long-range wireless communication solution. Compared to GPRS and 4G solutions, LoRa does not require a monthly subscription fee. Compared to Wi-Fi and Zigbee, it has a longer communication range. Therefore, LoRa is increasingly widely used in small-data long-range communication, featuring long transmission distances and excellent interference resistance.

1.1 The design, manufacture and verification of this product shall comply with the following national standards:

GB15322.1-2019 Point-type combustible gas detectors Part 1: point-type combustible gas detectors with a measurement range of (3~100)%LEL

GB/T3836.1-2021 Explosive Atmospheres Part 1: General Requirements for Equipment

GB/T3836.2-2021 Explosive environments Part 2: Equipment protected by an explosion-proof enclosure "d"

1.2 The meaning of explosion-proof mark

Ex d IIC T6 Gb-Equipment protection class

|||-----Temperature group

||-----Class II explosion protection category ||-----flameproof type

|-----Explosion-proof mark

II. Main technical indicators

Detection principle: Catalytic combustion/infrared (optional)

Test gas: combustible gas

Sampling method: free diffusion

Test range: 0-100%LEL

Detection rate: 1%LEL

Accuracy: $\leq 5\%$ FS.

Debugging method: Magnetic type.

Response time: Flammable<30s.

Recovery time: combustible<30s.

Environment temperature: -20°C~55°C.

Relative humidity: ≤95%.

Explosion-proof mode: explosion-proof type.

Explosion-proof rating: Ex d ii C T6 Gb.

Protection class: IP66.

Power supply: Lithium battery/ disposable lithium sub-battery (optional), life of five years.

Output signal: LoRa.

Power consumption: ≤3W.

Maximum transmission distance: ≤1000m.

Product size: 220×280×80 (mm)[←]

Weight: 2000g.

Installation: Magnetic/tripod (default magnetic)

III. Product structure diagram and schematic diagram of each component

3.1 Structure diagram:



IV. Description of wireless communication

4.1 Overview of wireless detectors:



The wireless detector employs the Lora wireless solution. Unlike GPRS and 4G networks, Lora eliminates monthly internet access fees while offering greater transmission range compared to Wi-Fi and Zigbee technologies. This makes Lora increasingly popular for short-data, long-distance communication applications.

4.2 Power supply of wireless detector:

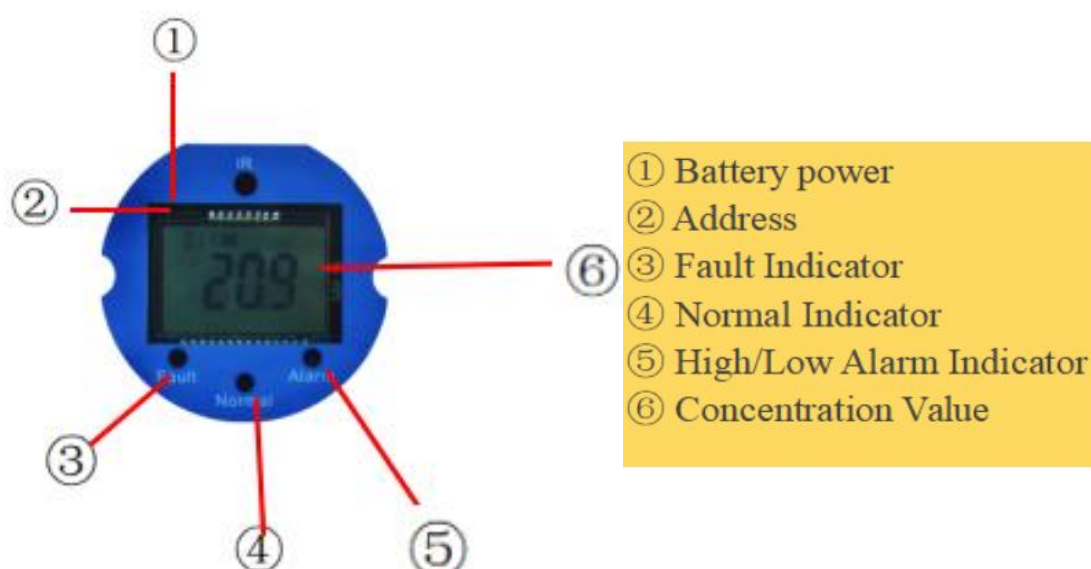
Powered by lithium battery/ disposable lithium sub-cells (optional). Click the [Power On/Off button] at the lower left corner of the screen for 4 seconds using a magnetic rod to switch on/off. After power-on, the wireless host displays detector information without additional settings. To add new detectors, simply turn on the detector and the host will automatically search for connected detectors.

4.3 Communication distance of wireless detector Reference:

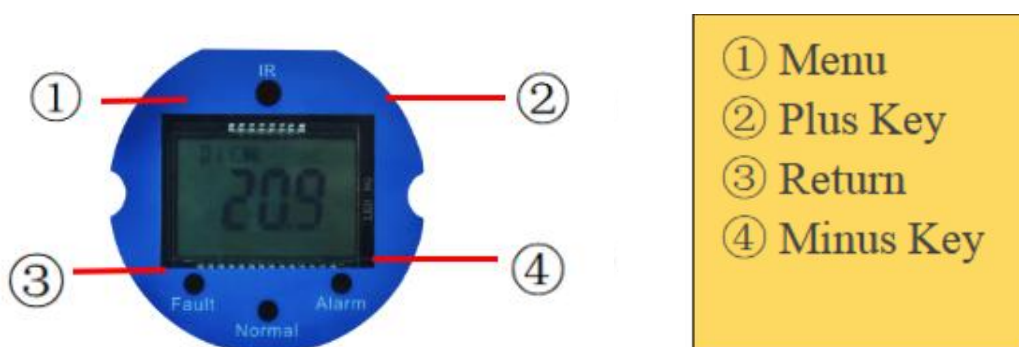
Testing environment	Measuring distance
Unobstructed communication	About 3km
Urban roads are straight	About 1.6km
Cities are shaded by buildings	About 1km
Within buildings	Seven floors are covered

V. Menu operation instructions

5.1 Schematic diagram of detector panel:



5.2 Magnetic key point diagram



5.3 Detailed description of the functional list:

1. Level 1 alarm value (low report setting)

Select the menu "U--F1", click "OK", display "20" (default level 1 alarm value), click "Add" to select the bit to be adjusted, click "Reduce" to increase the level 1 alarm value, click "OK" to remember the current alarm value and return to the main menu, click "Return" to return to the working state.

2. Secondary alarm value (high alarm setting)

Select the menu "U--F2", click "OK", display "50" (default level 1 alarm value), click "Add" to select the bit to be adjusted, click "Reduce" to increase the alarm value of level 1, click "OK" to remember the current alarm value and return to the main menu, click "Return" to return to the working state.

3. Zero calibration

In the clean air, select menu "U--F3", click "OK" to display the current concentration value, click "OK" again to display the zero point A/D value. After the display is stable, click "OK" to return to the main menu. The zero point calibration is completed and takes effect immediately.

4. Gas calibration (gas calibration)

In clean air, select the menu "U-F4" and click "Confirm" to display the standard gas concentration value. Users can adjust the concentration by clicking the "+" or "-" keys as needed. Reconfirming again will show the current A/D value. After introducing the standard gas and waiting for the readings to stabilize, click "Confirm" to return to the main menu, completing the calibration.

5. Detector number (address setting)

Select menu "U--F5", click "OK", and set the detector number by clicking "add" and "subtract" keys. The detector number of the same host is not repeated.

6. Types of gas (gas setting)

Adjust the type of gas detected by the detector. It has been adjusted at the factory, and users do not need to modify it.

7. Unit setup

Adjust the unit of gas detected by the detector, which has been adjusted at the factory, and users do not need to modify it.

VI. Common faults and solutions

Fault phenomenon	Failure cause	Process mode
Display a "----" fault	Sensor failure	Check whether the sensor is loose
No reaction to the gas being tested	The sensor is bad	Replace the sensor
	Fault	Manufacturers repair
Abnormal connection with the controller	Communication failure	Check the wiring
	Fault	Manufacturers repair

VII. Notes

1. This machine should be used in a place without corrosive gas, and prevent falling or violent vibration.
2. Do not blow the detector directly with rapid airflow, otherwise the test result will be affected.
3. Do not expose the machine to high concentration gas samples frequently, otherwise the working life of the sensor will be lost.
4. For mixed combustible gas or liquid vapor, the detection result of this machine will have a certain error.
5. This machine has been calibrated before leaving the factory, and new machines do not need to be recalibrated.
6. This product is explosion-proof qualified product

VIII. Warranty and Maintenance

1. The warranty period of this product is one year, and the damage caused by human or abnormal use is not covered by the warranty.
2. If the sensor life expires, please contact us for a new sensor.
3. If the user can not troubleshoot, the instrument can be sent back to our company for maintenance.

Copyright Statement:

This manual is copyrighted by the company and may not be reproduced or distributed in any other way without permission.

Please keep this manual safe for future reference.

Henan DUOTESI Electronic Technology Co., LTD

Address: Building 17, Enterprise Park, NO.228 West
Fourth Ring Road, Zhengzhou City, Henan Province, China