Brief Operation Manual

GTYQ-IR500S

Fixed-Type Combustible Gas Detector for Industrial and Commercial Use

深圳市诺安智能股份有限公司
SHENZHEN NUOAN TECHNOLOGY CO., LTD.

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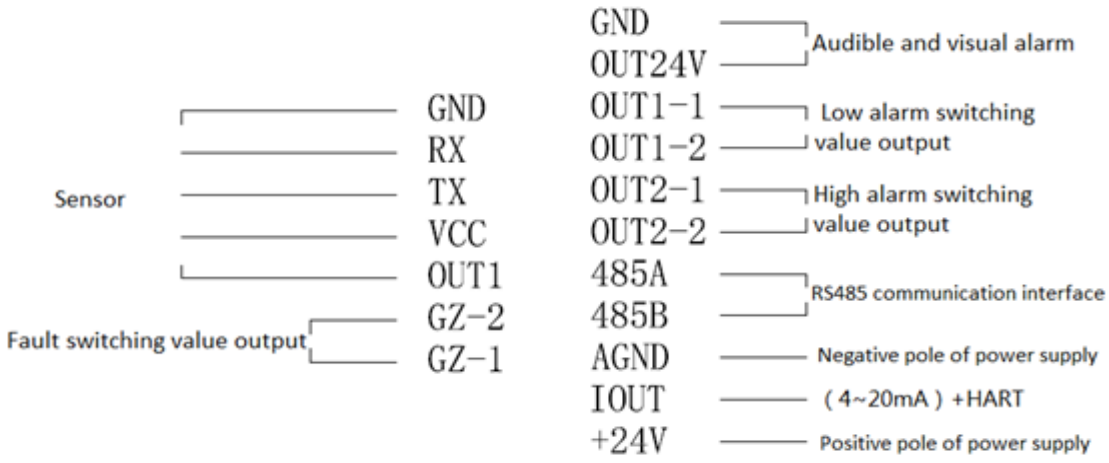
1、 Electrical Connections

Cable-to-Internal Terminal Block Connection Diagram：



Block Diagram

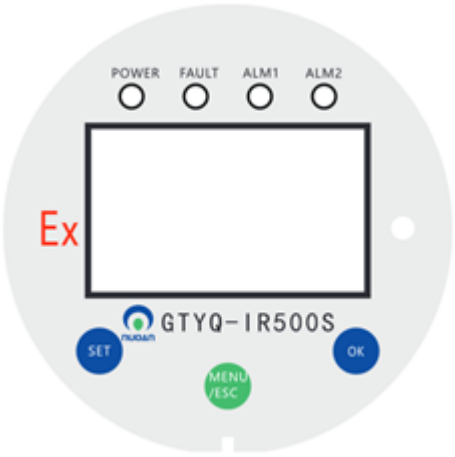
Terminal

Cable-to-terminal correspondence (as shown in the table below)：

Function	Terminal ID	Terminal Description	
Switch output	OUT2-1	Forms high alarm dry contact; terminals AH-2 and AH-1 close when activated; switch output when detector status is high alarm or over range.	
	OUT2-2		
	OUT1-1	Forms low alarm dry contact; terminals AL-2 and AL-1 close when activated; switch output when detector status is low alarm.	
	OUT1-2		
	GZ-1	Forms fault dry contact; terminals GZ-2 and GZ-1 close when activated; switch output when detector status is fault.	
	GZ-2		
Audible/visual alarm	GND	Audible/visual alarm ground	These two terminals are active switch output, providing +24V when activated; +24V output drives the audible/visual alarm when detector status is low alarm, high
	OUT24V	Audible/visual alarm power (+24V supply)	
RS485	485-A	RS485 communication line A	These two terminals are MODBUS RS485 communication A and B lines.
	485-B	RS485 communication line B	
	JP	RS485 bus termination resistor selection	
Power / 4-20mA output	GND	System power ground	
	IOUT	4～20mA output	
	+24V	System power line, connect to +24V supply	
	GND	Sensor signal ground terminal	
	RX	Sensor communication terminal	
	TX	Sensor communication terminal	
	VCC	Sensor signal power terminal	

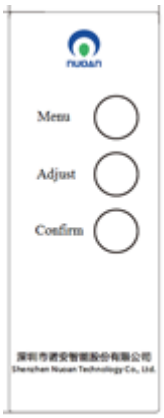
2、 Operating instructions

2.1、 Control panel and adjustment tools



Control panel

Adjustment magnetic bar



Adjustment remote control (includes CR2025 battery)

Control panel diagram and adjustment tool diagram

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2.2、 Remote Control Buttons and Functions

Menu Button: Functions vary depending on the current display screen. In menu operation mode, this corresponds to the left soft key shown at the bottom of the display.

Adjust Button: Functions vary depending on the current display screen. In menu operation mode, this corresponds to the center soft key shown at the bottom of the display.

Enter Button: Functions vary depending on the current display screen. In menu operation mode, this corresponds to the right soft key shown at the bottom of the display.

2.3、 Information Inquiry

In normal detection mode, press the ADJ button to enter the interactive display mode. Follow the on-screen prompts and press the ADJ button to cycle through and view various information items, as shown in the diagram below.

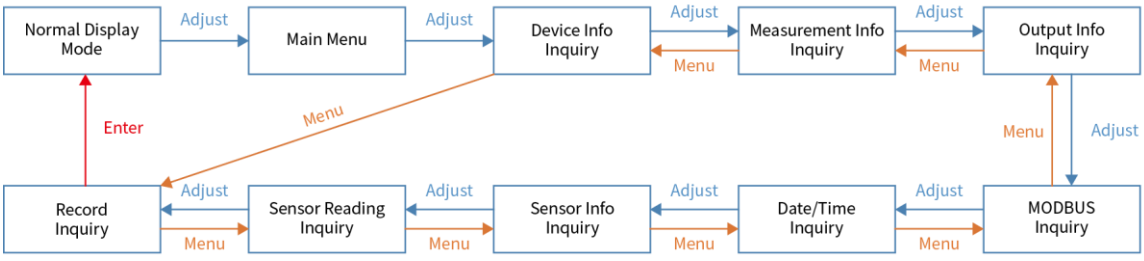
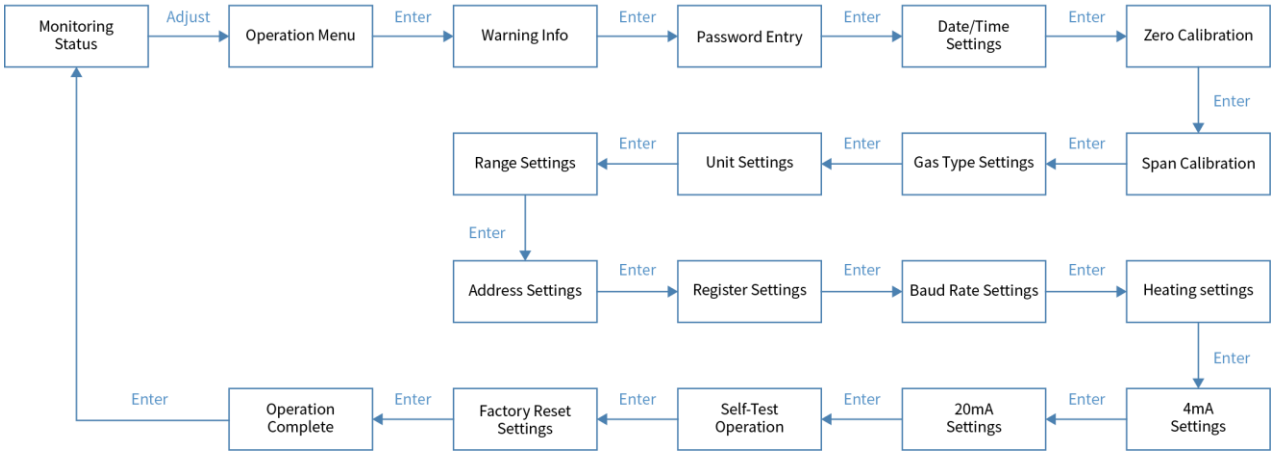


Figure 8 Information inquiry

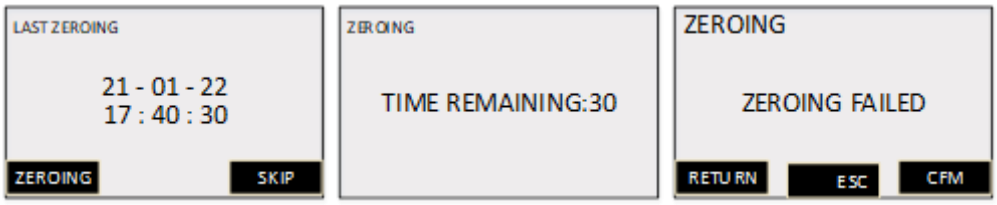
2.4、Parameter Settings

In normal detection mode, press the "Adjust" key to enter the operational display interface mode. Follow the on-screen prompts and press the "Confirm" key to access parameter settings for various operating modes, cycling through the options as shown in the diagram below (password: "0000").



Parameter Settings Diagram

2.5、Zero Calibration Settings

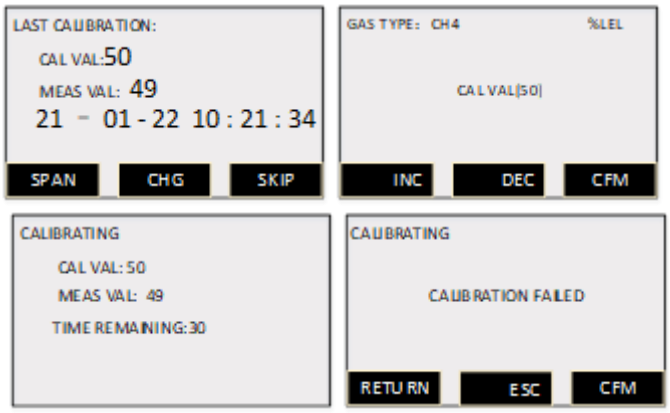


Press the operation menu key to initiate zero calibration. Upon successful zero calibration, press the confirm key to proceed to the next settings display interface. If zero calibration fails, the corresponding failure reason or error code will be displayed.

Causes of Zero Calibration Failure and Troubleshooting Methods (as shown in the table below)

No.	Failure Cause	Remedy
1	Ambient air contaminated; target gas or interfering gas present	Relocate detector to clean air environment and recalibrate zero
2	Sensor failure	Replace sensor and recalibrate zero

2.6、 Calibration Settings



On the calibration settings display interface, press the Change key to modify the current span gas concentration value, then press Calibrate to initiate calibration.

Upon successful calibration, press the Confirm key to proceed to the next settings display interface. If calibration fails, the corresponding failure reason or error code will be displayed.

Note: When performing calibration, the calibration hood supplied by our company must be used. The standard gas must not be removed and the calibration hood must not be detached until calibration is complete.

(1) Calibration Method:

On-site calibration using the calibration hood: Ensure the detector is in normal monitoring mode. Fit the "calibration hood" supplied by our company onto the sensor assembly housing and secure it in place. Then introduce gas at 50%–80% of full scale into the inlet port of the protective hood. Once the detector reading stabilizes (approximately 1 minute), proceed with calibration. Upon completion, remove the gas delivery tube and calibration hood.

(2) T90 Response Time Test Method:

Ensure the detector is in normal monitoring mode. Fit the "calibration hood" supplied by our company onto the sensor assembly housing and secure it in place. Then introduce test gas at a flow rate of 500 mL/min and a concentration of 60% of full scale into the inlet port of the sensor assembly protective hood, and maintain for 60 seconds. Record the sensor reading as the reference value. The time required for the reading to reach 90% of the reference value is the response time of the sensor.

(3) Causes of Calibration Failure and Troubleshooting Methods (as shown in Table 6 below)

No.	Failure Cause	Remedy
1	Inaccurate standard gas concentration; excessive error	Verify standard gas concentration and recalibrate
2	Sensor failure	Replace sensor and recalibrate

3、 Common Faults and Troubleshooting

No.	Fault or Error Indication	Cause	Solution
1	Power on but fails to start	Poor contact or incorrect connection of DC24V power supply	Check and properly connect DC24V power supply cable
		Detector malfunction; self-resetting fuse tripped due to overcurrent	Contact manufacturer for repair or replacement
2	LCD displays garbled characters or missing segments	LCD panel damaged	Contact manufacturer for repair or replacement
		Main chip damaged	Contact manufacturer for repair or replacement
		System freeze	Power off and restart
3	Backlight flashes continuously	Ambient light at critical threshold for backlight activation	Wait for ambient light to dim
		Internal component damaged	Contact manufacturer for repair or replacement
4	Remote control unresponsive	Incorrect operation method	Operate correctly as instructed in the user manual
		Remote control battery depleted	Replace with new battery (CR2025)
		Internal component damaged	Contact manufacturer for repair or replacement
5	No response or slow response	Sensor assembly vent blocked	Clean the flameproof disc vent holes on the sensor assembly surface
		Sensor aged or failed	Replace sensor
6	Communication fault	Incorrect wiring of sensor assembly	Check connection cable and properly connect sensor assembly
		Detector connection cable short-circuited, open-circuited, or incorrectly wired	Check connection cable and properly connect detector
		Detector circuit malfunction	Contact authorized service provider for repair or replacement
7	Light source damaged	Sensor aged or failed	Contact authorized service provider for repair or replacement
8	Insufficient optical energy		
9	Detection channel circuit fault		
10	Reference channel circuit fault		
11	Excessive temperature		
12	Insufficient temperature		

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