Portable Carbon Monoxide Detector (CO Alarm)

Operation Manual

Content

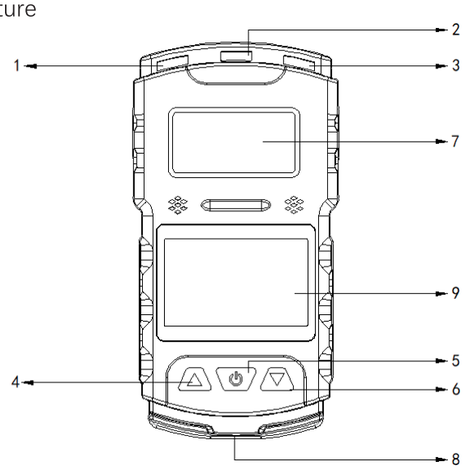
1. Overview

This portable Carbon Monoxide detector (hereinafter referred to as the detector) adopts a state-of-the-art large-scale integrated circuit technology, an international standard intelligent technology in design, and a proprietary digital-analog hybrid communication technology to design a full intelligent CO detector. The detector makes use of natural diffusion to detect Carbon Monoxide. The sensitive components consist of high-quality gas sensors that enjoy excellent sensitivity and repeatability and are easy to use and maintain. It meets the requirements of reliability for equipment in industrial site safety monitoring to great extent. It is made from high-strength engineering plastics with high strength, good hand feeling, and waterproof, dustproof, and explosion-proof.The detector is widely used in petroleum, chemical, environmental protection, metallurgy, refining, gas transmission and distribution, biochemical medicine, agriculture, and so on. 1.1 The design, manufacture and verification of this product comply with the following national standards:

GB3836.1-2010 Explosive Environments Part 1: General Requirements for Equipment
GB3836.4-2010 Explosive Environments Part 4: Equipment Protected by "i" with Intrinsically Safe
GB15322.3-2003 Portable flammable gas detectors Part 3: Portable flammable gas detectors with a measuring range of (0 to 100) % LEL
JJG693-2011 Testing procedures for flammable gas detection alarms
JJG365-2008 Testing procedures for electrochemical oxygen detection
JJG695-2003 Testing procedures for hydrogen sulfide gas detection
JJG915-2008 Testing procedures for carbon monoxide detection alarms

2. Structure and Working Principle

2.1 Table of Structure



1.2.3	Alarm Indicator Window	7	Sensor hole
4	Left Button	8	Charging Port
5	Middle Button	9	LCD Display
6	Right Button		

2.2 Detector is composed of housing, circuit board, battery, display, sensor, charger, etc.
2.3 Working principle: electrochemical and catalytic combustion

3. Technical Details

Product Model: X-1
Detection range: 0-1000PPM
CO Low Alarm: 50
CO High Alarm: 150
Resolution: 1PPM
Error display (determined by the sensor): ±10% of reading
Response time: T<30s
ndication: real-time data and system status will be displayed on the LCD screen. LED, sound, vibration indication alarm, fault, and Undervoltage
Working environment: temperature of -20 ° C ~ 50 ° C; humidity of less than 95% RH (no condensation)
Working voltage: DC3.7V (lithium battery capacity of 2000mAh)
Explosion-proof sign: Ex ib IIB T3 Gb
Charging time: 6h~8h
Standby time: more than 8 hours
The lifespan of the sensor: 2 years
Size：112*55*31(mm)
Weight：150g

4. Function and Operational Methods

4.1 Power-On Self-Test and preparation
When the detector is off, press the middle button for about 3 seconds. Hearing two “drops”, the backlight of the display of the detector will be lit up. At the moment, the detector is on, and the welcome is sprung on the screen. See Figure 1 and Figure 2

Figure 1

Figure 2

When the welcome screen is over, the screen will display the high, low, and range information. See Figure 3

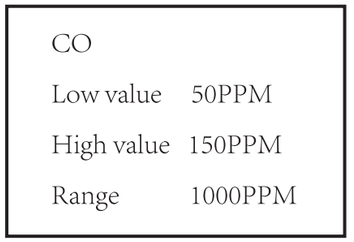


Figure 3

When the information is displayed, the system will enter the self-test status, that is, the light will flash twice; the shock check means that the vibrating piece will generate vibration and then stop; the audio check means that the bee sounder will beep twice. The status mentioned above indicates that the peripheral self-test has passed if normal. See Figure 4, Figure 5, and Figure 6.

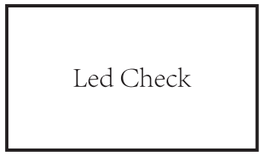


Figure 4

Figure 5

Figure 6

4.2 Normal Status of Detection and Alarm
If the detector does not detect the CO concentration above the low alarm value, the screen will normally display 0PPM. See Figure 7.

Figure 7

When the device detects a CO concentration that is higher than the low limit value, the detector will alarm. And the backlight of the screen will light up, and at the same time, the vibrating piece will also start to vibrate. The detector will stop beeping and vibrating only when the CO concentration is normal, and the backlight of the screen will turn off.

4.3 Checking System Status
When the user wants to check the current usage of the battery and date and time, press the left button in the normal detection state, the screen will display the information of the date and time and battery power and voltage. See Figure 8

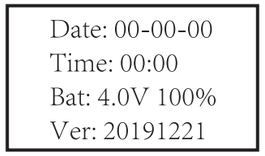


Figure 8

4.4 Shut down
When the detector is in the normal detection state, press the middle button for 3 seconds, the screen will display the shutdown information, press the left Button for Yes while the right one for No. See Figure 9

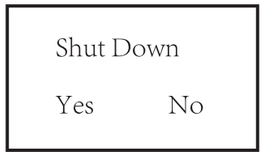


Figure 9

4.5 Charging
When the detector is in the normal detection state, the battery voltage is lower than 3.5V, it will display the message “Low battery, please charge”. At this time, you need to insert the USB charging cable to charge immediately. Otherwise, the system may not work properly due to the low voltage. See Figure 10

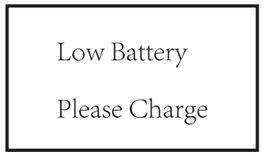


Figure 10

It can also be charged in the off state, and the charging will display “Charging...”. See Figure 11

Figure 11

When charging is over, “Charging Finished” will be displayed. See Figure 12

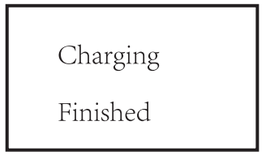
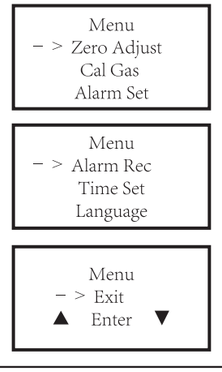
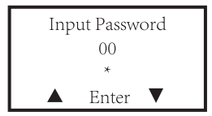
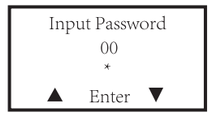
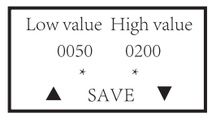
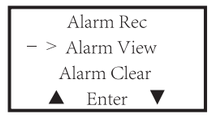
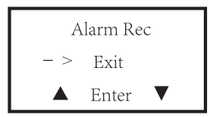
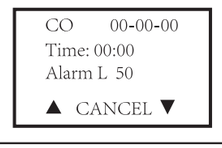
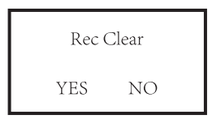
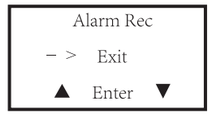
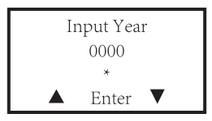
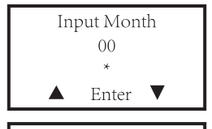
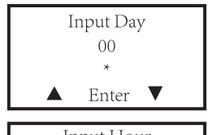
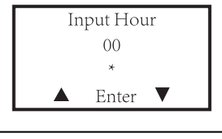


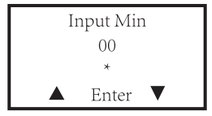
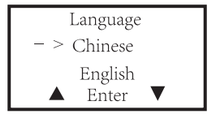
Figure 12

5. Menu guide

(1) On the menu: press the middle button to the main menu
(2) On Buttons: Press the left button in the menu to select up, cancel or press the right button to select the function. Press the middle button to confirm, save or enter the submenu.
(3) If the system doesn’t work for more than 5 seconds, the system automatically returns to the monitoring interface.

	Main Menu Method of Operation: Press the left or right button to select the menu. Press the middle button to enter the menu, and if you choose to exit, the monitoring interface will be back again.

	Zero Adjust The Zero Adjust Setting is FOR INDUSTRIAL USE ONLY.
	Gas Calibration The Gas Calibration Setting is FOR INDUSTRIAL USE ONLY.
	Alarm Set This function is used to set the alarm limit when detecting CO concentration. The low alarm refers to an audible and visual alarm when the CO concentration exceeds the low value. The high alarm refers to an audible and visual alarm when the CO concentration exceeds the high value. Method of operation: Enter the high & low value interface, press the left button to make a selection, press the right button to update. Press the middle button to save the changes.
 	Alarm Rec The "Alarm Rec" menu consists of "Alarm View", "Alarm Clear", and "Exit". Method of operation: Press the left or right button to select a submenu. When the submenu is selected, press the middle button to enter the interface.
	Alarm View To view the previous alarm records. Press the left or right button to view the records. Exit automatically without operation for 5 seconds.
	Alarm Clear To clear alarm records. Method of operation: Press the left button to select “Yes” to clear the alarm record; press the right one to select “No” to cancel the action.
	Exit To exit the Alarm Rec. Method of operation: Press the middle button to exit.
   	Time Set To set the current time. Method of operation: Enter the “Time Set” and display the year setting. Press the left button to make a selection, and press the right one to update. Press the middle button to save the changes, then enter the month setting, and so on. When you enter the minute setting, press the middle button to save all changes.

	
	Language This function is used to switch languages, including Chinese, English. Method of operation: Press the left or right button to select the desired language, and press the middle one to confirm it. If you select English, the system language will switch to it. To select Chinese in the English interface, and the system language will switch to Chinese. Press the middle button to exit.

Warning: please do not charge the Carbon Monoxide Detector at the inspection site to avoid fire or explosion. Please do not charge the device when it is turned on, so as not to affect the charging speed.

6. Precautions for use

1. Prevent the unit from falling from high places or vibrating;
2. The presence of high concentrations of gas may make the device fail to be used properly;
3. Please operate and use it in strict accordance with the instructions, otherwise, it may result in inaccurate test results or damage to the unit.
4. This product must not be stored or used in an environment with corrosive gases (such as with high-concentrations chlorine, etc.), or other harsh environments, including extremely high or low temperatures, higher humidity, electromagnetic fields, and strong sunlight and the same to the store.
5. If the surface of the device is dirty after a long period of use, wipe it gently with a wet and soft cloth, instead of corrosive solvents and hard objects. Otherwise, the surface of the device may be scratched or damaged.
6. To ensure the accuracy of the detection, the device should be calibrated regularly and the period must be within one year.
7. Any application or malfunction that is beyond the manual should be contacted by our company for resolution.
8. The battery pack cannot be removed or replaced in an explosive atmosphere, nor be charged. Peripheral plug-in devices that are not certified for explosion protection cannot be used in an explosive atmosphere. Replacing the sensor is not allowed.

7. Common Faults and Their Solutions

Fault	Possibility	Solution
Fail to Turn On	Low voltage	Charge in time
	Crash	Please contact the dealer or manufacturer for repair
	Circuit failure	Please contact the dealer or manufacturer for repair
No Reading or Response	Circuit failure	Please contact the dealer or manufacturer for repair
Inaccurate Display	Sensor overdue	Please contact your dealer or manufacturer to replace the sensor
	Calibration fails to be finished for a long time	Calibrate in time
Wrong Time Display	The battery runs out	Charge and reset time in time
	Strong electromagnetic interference	Reset time
Zero Calibration Unavailable	Excessive sensor drift	Calibrate or replace the sensor in time

8. Store

The detector shall be stored at the temperature of -10 ° C to 55 ° C and relative humidity of less than 85%, and where there are no harmful gases or impurities in the air that corrode the detector.

9. Accessories and others

The supporting detector is made up of one package, one portable Carbon Monoxide Detector, one charger, one manual, and one certificate card.

GZAIR provides full after-sales service to all customers. If you have any questions or concerns, please email us via gzairservice**@outlook.com** and we will answer you within 24 hours.