OCEANUS

OC-904

Portable Gas detector

Operating Manual

Henan Oceanus

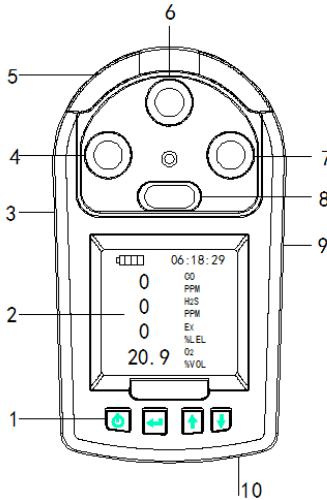# Portable Gas Detector OC-904 Instruction

(Please read through this instruction before using the device)

1. Description

OC-904 is a Portable gas detector which is applicable for one-to-four gas detection including combustible gas, oxygen and toxic gas. It is possible to combine different sensors to make up 2 in 1, 3 in 1 or 4 in 1 gas detector. The standard four in one gas detector is for combustible gas (CH_4), O_2, CO and H_2S.

With the large LCD screen, solid ABS materials body and accurate audible-visual-vibration alarm, OC-904 can detect the hazardous gas in severe operating environment and alert the operator for preventive measure in time.

2. Specifications

1	Keys	6	Sensor (CO)
2	LCD display	7	Sensor (O2)
3	Main body	8	Sensor (Ex)
4	Sensor (H2S)	9	Buzzer
5	Light alarm	10	Charge hole

Features
- Small figure, portable and firm
- Audible-visual-vibration alarm
- Large screen digital display for the measurement value and alarm status
- Self-checking for the display, battery, sensor and alarm status when start up or when necessary.
- Regulation alert with glitter or sound signal
- Outstanding audio signals alarm
- Low cost for maintain
- Support multi gas detection for combustible gas, toxic gas or oxygen.

Technical Parameter

Detecting Gas	Detecting Range	Accuracy	Resolution	Response time
Oxygen (O2)	0-30%VOL	$<\pm3\%$(F.S)	0.1%VOL	≤15s
Combustible gas (Ex)	0-100%LEL	$<\pm3\%$(F.S)	1%LEL	≤5s
Carbon Monoxide (CO)	0-1000ppm	$<\pm3\%$(F.S)	1ppm	≤25s
Hydrogen Sulfide (H_2S)	0-100ppm	$<\pm3\%$(F.S)	1ppm	≤30s
Sulfur Dioxide (SO_2)	0-100ppm	$<\pm3\%$(F.S)	0.1ppm	≤30s
Nitrous Oxide (NO)	0-250ppm	$<\pm3\%$(F.S)	1ppm	≤60s
Nitrogen Dioxide (NO_2)	0-20ppm	$<\pm3\%$(F.S)	0.1ppm	≤25s
Chlorine (Cl_2)	0-20ppm	$<\pm3\%$(F.S)	0.1ppm	≤30s
Chlorine Dioxide (ClO_2)	0-20ppm	$<\pm3\%$(F.S)	0.1ppm	≤30s
Ammonia (NH_3)	0-100ppm	$<\pm3\%$(F.S)	1ppm	≤50s
Hydrogen (H_2)	0-1000ppm	$<\pm3\%$(F.S)	1ppm	≤60s
Hydrocyanic Acid (HCN)	0-50ppm	$<\pm3\%$(F.S)	0.1ppm	≤200s
Chlorine Hydride (HCl)	0-20ppm	$<\pm3\%$(F.S)	0.1ppm	≤60s
Phosphine (PH_3)	0-20 / 1000ppm	$<\pm3\%$(F.S)	0. 1 / 1ppm	≤25s

Ozone (O_3)	0-20ppm	$<\pm3\%$(F.S)	0.01ppm	$\leq$50s

(**Remark**：Some gas types are not listed. If you have special

request for the applicable gas or detecting range, please contact us.)

Sampling Methods：Diffusion

Battery：3.7V Li-Ion rechargeable battery

Continuous Working Period：11 hours (for combustible gas);

200 hours (for oxygen or toxic gas)

Gas Sensor Type：Catalytic combustion (for combustible gas);

Electrochemical (for oxygen or toxic gas);

Gas Sensor Performance Life: 3 years (catalytic combustible sensor);

2 years (electrochemical sensor);

Data storage: with the data storage function with memory capacity of 1000 alarm records.

Display: Large-screen LCD

Alarming Method: Audible-visual-vibration alarm

Direct Readout: gas concentration value, battery energy, alarm status

Explosion-proof Grade: Ex ibd IICT3

Protection Grade: IP54

Operating Temperature: -10~ 40℃

Operating Humidity: 5~90%RH

Dimensions: 110mm*60mm*30mm

Weight: 210g (with the charger)

Warranty: 2 years

3. Operating Instruction

Power On

When power off with enough electricity, press the key "①" for about 3 seconds, the device will start up and display software version, then

begin initializing with 100-second countdown. If the electricity is empty, please don't power it on. When low power, the device may start up but will be automatically power off after the prompt.

Power Off

In working state, press the key "Ⓞ" uninterruptedly for about 2 seconds, the device will power off.

Low Voltage

When the battery electric quantity is lower than the pre-set level, the acoustic under-voltage alarm will be activated to remind the operator to charge up the battery. At the same time, the under-voltage signal 🔲 will also glitter on the screen. When the power is exhausted, the device will automatically power off.

When the under-voltage alarm occurred, please power off the device and charge up the battery. The charging period should be about 3 ~ 5 hours.
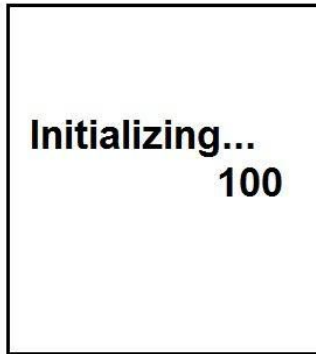
3.1 Keys Instruction

Power on/off Key	Menu Key	Up Key	Down Key
·Power on	·Enter menu	·Select the option	·Select the option
·Power off	·Confirm setting	·Add the value	·Minus the value
·Exit		·Activate backlight	·Activate backlight

3.2 Self-checking and Preheating

Press the key "Ⓞ" to power on, after displayed the software version, the device will preheat during 100-second countdown, it is the process of self-checking for energy, sensor, alarm, etc. The display during this period is as

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below,

After preheat, it will enter working mode directly.

Remark: If the self-checking is failed, the device needs to repeat the self-checking. If failed again, please contact the distributor or manufacturer.

3.3 Working Mode

The gas detector is diffusion sampling. When operating, it is able to be carried in hand or hung on waist belt. After power on, it will enter working mode to measure the gas concentration diffused into gas sensor. Usually, the targeting gas will be taken into gas sensor by the air flow. When the sensor contact the gas, it will response and display measurement value. If user needs to remotely measure the gas concentration, suction sampling is available with an external pump.

3.3.1 Gas Alarm

There is preset two-grade alarm in the gas detector, Grade-Ⅰalarm value (for combustible gas & toxic gas it is low alarm, for oxygen it is high alarm) and Grade –Ⅱ alarm value (for combustible gas & toxic gas it is high alarm, for oxygen it is low alarm). User can set and adjust the alarm value freely.

Remark: For all gas types, except oxygen, the Grade-II alarm value is higher than Grade-I alarm value.

If the gas concentration exceeds the preset alarm level, the alarm alert signal will displayed on the screen, also, related alarm grade will displayed as "Alarm1" or "Alarm2".

If the gas concentration exceeds the full range scale, except alarm, the full scale signal will also displayed and glittering.

3.3.2 Working status prompts

There is an audible-visual alarm every 5 minutes, to alert user the gas detector is in normal working mode. User can set this function to be on or off, or change the alarm mode (referring to the instruction of setting mode). The default setting of this function is off when leave factory.

3.4 Setting Mode

Auction: In setting mode, the gas detector will stop measurement working.

In working status, press "←" key to enter main setting menu, below submenu will be displayed:

1. System Setting

2. Zero Calibration

3. Records View

4. Language (Chinese or English Menu)

Press "↑" or "↓" key to select the submenu, press "←" key to enter or press "⏻" key to exit.

3.4.1 System Setting

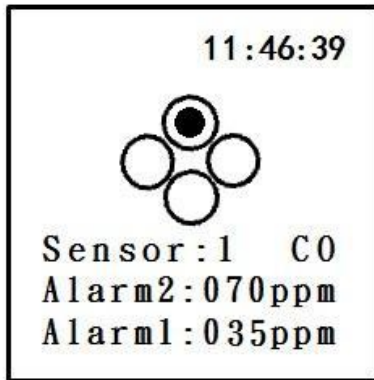In main setting menu interface, press "↑" or "↓" key to select "System

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Setting" option, and then press "⬅" key to enter. Press "⓪" key can return to main setting menu. There are below options in this sub menu,

1. Alarm Value
2. Time Setting
3. Gas Calibration
4. Alarm Setting

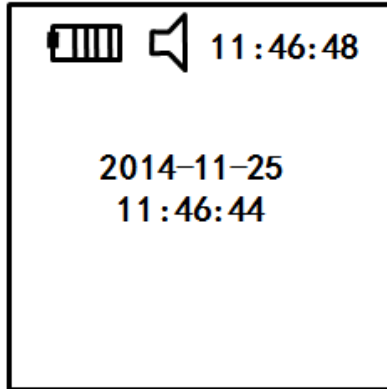Use the "↑" or "↓" key can select the option need to modify.

Alarm Value

Select this option and press "⬅" key to enter, related information of sensor channel, gas type and alarm value will be displayed as below (take standard 4 in 1 gas detector as example),

```
           11:46:39

             ●
           ○   ○
             ○

  Sensor:1   CO
  Alarm2:070ppm
  Alarm1:035ppm
```

Press "↑" or "↓" key to select the sensor channel need to modify, press "⬅" key to confirm the selection. Press "↑" or "↓" key to modify the alarm value, press "⬅" key to confirm or press "⓪" to exit.

Time Setting

Select this option and press   "⬅" key to enter, related information of date and time will be displayed as below,

Press   "↑" or   "↓" key to select the data need to modify, press "⬅" key to confirm or press   "⓪" to exit.
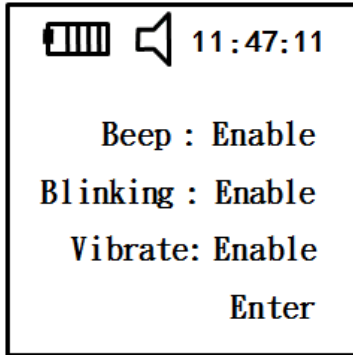
Gas Calibration

The device has been calibrated when leave the factory, so it need not calibrated when first use. After used for a period, or when there is measurement error, please calibrate it based on the below instruction. The calibration must be operated by professionals or trained users.

For instruction of calibration, please refer to 4.2 Gas Sensibility Calibration.

Alarm Setting

This submenu is to set the alarm mode, user can set the sound, light, vibration alarm to be on or off. The screen displays as below,
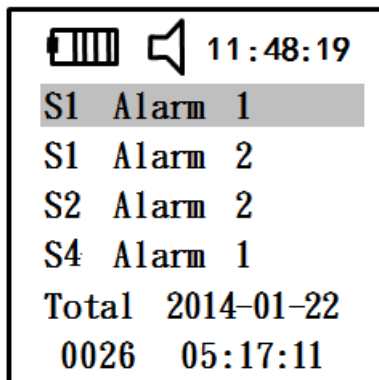
Press   "↑" or   "↓" key to select the data need to modify, select

"Enable" or "Disable", press   "⏎" key to confirm or press   "⏻" to

exit.

3.4.2 Zero Calibration

This submenu is to calibrate the zero point for the gas detector. Please refer to instruction of 4.1 Zero Calibration.

3.4.3 Records View

Select this submenu and press   "⏎" key to enter, related information of alarm records will be displayed as below,

Remark: S1, S2, S3, S4 means the sensor channel.

Alarm 1 means grade-I

alarm. Alarm 2 means

grade-II alarm.

The number of Total means total record quantity.

The date and time in right is the date and time when this alarm occurs.

User can view all alarm records with "↑" or "↓" key.

4. Calibration

4.1   Zero Calibration
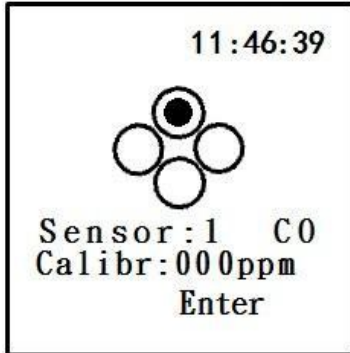
(For oxygen, it is span gas calibration with standard value of 20.9%vol in clean air.) Zero calibration must be operated in clear air environment, preferably once a day or calibrated after an alarm.

In the normal working mode, press "←" key to enter main menu.

Press "↑" or "↓" key to select the submenu "Zero Calibration" and press

"←" key to enter.

Now, the screen will display as below,

```
                    11:46:39
              ●
            ○ ○
              ○
        Sensor:1    CO
        Calibr:000ppm
              Enter
```

Press "↑" or "↓" key to select the sensor need to calibrate, then, press " ↑" or "↓" key to select "Enter" to confirm the zero calibration. The zero calibration for this sensor is finished.

Attention: If failed in zero calibration, please recalibrate in clear air. If failed again, please contact local agent or manufacturer.

4.2   Gas Sensibility Calibration

(For oxygen, it is zero calibration with the standard value of 0.0%vol.)

For all gas sensors, the gas sensibility calibration should be operated once every 6 to 12 months at least. User should calibrate a sensor with one kind of calibrating gas, the device will operate calibration automatically.
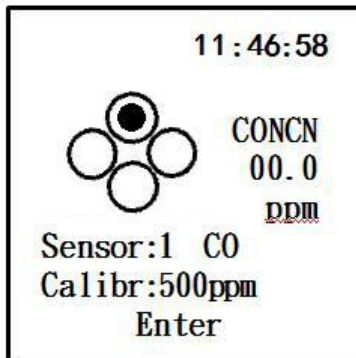
 Below calibration tools are needed for calibration,

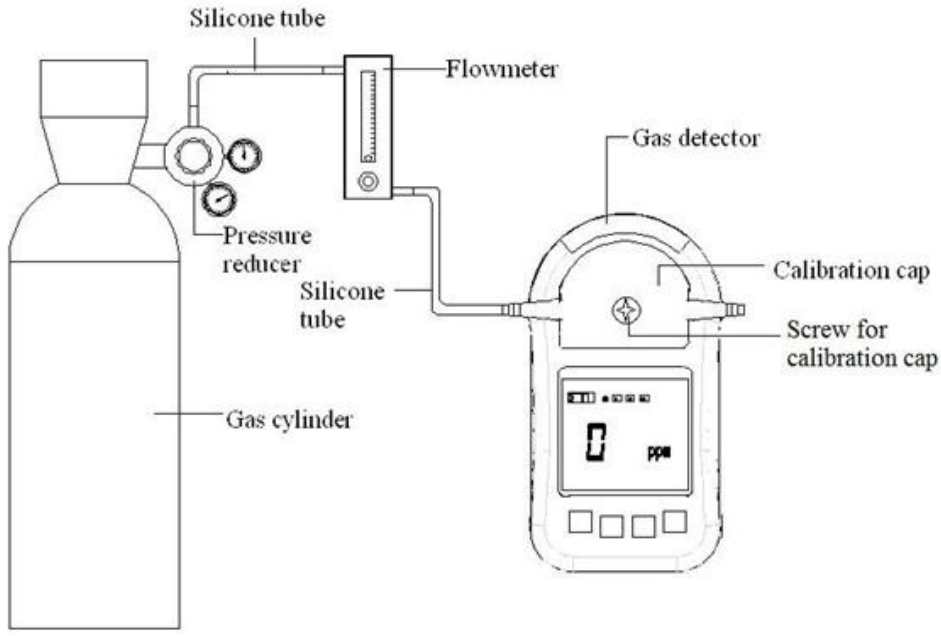 · Calibrating gas bottle with known concentration.

Gas Type	Recommended Gas Concentration
Methane	Methane of 50%LEL
Oxygen	High purity nitrogen of 99.99%
CO	CO of 500ppm
H_2S	H_2S of 50ppm
Other Gas	Renegotiable

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· Flow meter and pressure reducer, the recommended flow rate is 300ml / min.

· Silicone tubes for connection.

· Calibration cap and screw to fix the calibration cap

In normal working mode, press "⬅" key to enter the main menu. Press "↑" or "↓" key to select the submenu "Gas Calibration" and press "⬅" to enter. Now, the screen will display as below,

Select the sensor need to calibrate and connect the calibration equipment and gas detector as below,

Then, inlet the calibration gas into the gas detector and wait until the display data becomes stable. If the displayed concentration value is not the same as the

concentration of gas cylinder, please " ↑" or "↓" key to modify the value. Then, select "Enter" to confirm the calibration.

After calibrate all sensor channels according to above steps, the multi gas detector calibration is completed.

Remark: To avoid error caused by mis-operation, the calibration must be operated by professionals or trained users.

5、Ordinary Use and Maintenance

5.1   Before using the detector please read through the manual.

5.2   Only professionals or trained personnel should conduct maintenance.

5.3   Please use the device in strict accordance with this manual.

5.4   The parts must be replaced with original accessories from factory, and serviced by professionals or trained personnel.

5.5   Please charge up the battery in safe place.

5.6   Avoid heavy vibrations or dropping from high position.

5.7   If the battery is under voltage, the device may displays abnormally, together with discontinuous sound prompt. Please charge up the battery at once, it will resume soon.

5.8   Do not expose the device in the operating environment of high concentration aggressive gas for long time. In order to avoid desensitization or even damage for the sensor.

6.   Storage and Guarantee

6.1   BX615 gas detector is sold with 2 years warranty (from the day leave factory). During this period, we will be responsible for giving free maintain to the quality problems of breakdown under normal usage.

6.2   We disclaim all responsibility for the damage caused by misuse or trans normal working conditions.

6.3   Attempt to disassemble the product or replace the parts without

authorization may damage it and void your warranty. We disclaim all responsibility for the unreliability.

6.4 Please use a moisture barrier bag when store the device in a humid environment.

7. Standard Delivery

7.1	OC-904 gas detector	1pc
7.2	Operating manual	1pc
7.3	Battery charger	1pc
7.4	Calibration cap	1pc
7.5	Calibration cap screw	1pc

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