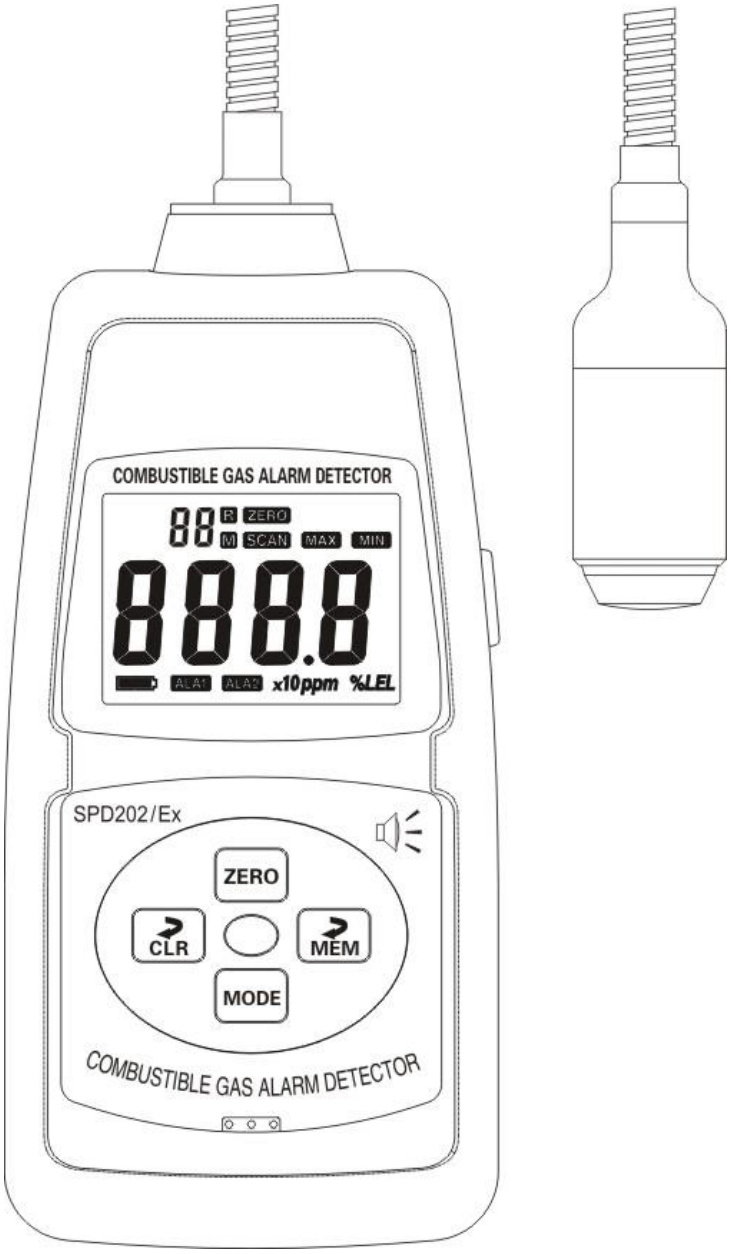
Instruction of the SPD202 Combustible Gas Detector



As this device is an intellectual precise measurement apparatus, it is very important that you read through these instructions before using this device.

1. Introduction

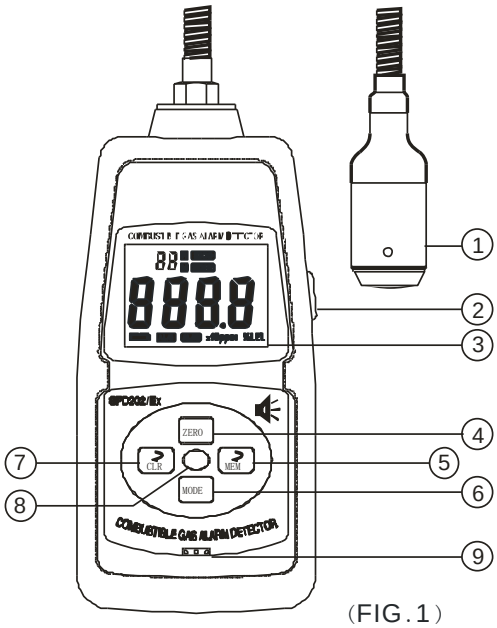
Combustible gas detector can be used in hazardous areas indoors and outdoors, where combustible gas is produced, stored, used, etc., such as chemical, petroleum, metallurgy, oil depot, LPG (Liquefied Petroleum Gas) station, pharmaceutical, gas transmission and distribution, etc. to detect the leakage and show the leaking concentration with a digital display. This device can set two-level alarming value. The detector can rise the acousto-optic alarming when the detected concentration reaches the preset value.

2. Technical indexes

1) Principle: catalytic combustion method
2) Detectable gas: combustible gas
3) Measurement range: 0~100% LEL 0~50000ppm
4) Resolution: 0.1%LEL 5ppm
5) Error: 5%
6) Response time: 1s
7) Operation temperature: -10℃～60℃
8) Operation humidity: <90%RH
9) Display: large screen digital LCD
10) Alarming: acousto-optic alarming
11) Power supply: 4×1.5V AA batteries

3. Parts and Buttons(Fig.1)

1. Probe Sensor
2. On/Off Button
3. Display Screen
4. ZERO Button
5. MEM Button
6. MODE Button
7. CLR Button
8. ppm/LEL Switch Button
9. Buzzer



(FIG.1)

4. Display Panel (Fig.2)

1. Prompt of Zero Calibration
2. Prompt of Measuring Mode
3. Prompt of Data-reading Mode
4. Prompt of Data-saved Sequence
5. Prompt of Saving Data
6. Display of Measured Value
7. Prompt of Battery Volume
8. Prompt of Preset Alarm 1
9. Prompt of Preset Alarm 2
10. Prompt of 10Xppm Unit
11. Prompt of LEL

5. Panel button Functions

MODE button: four Mode switch; Measuring Mode, Data-reading Mode, ALA1 Preset Alarm 1, ALA2 Preset Alarm 2

ZERO button: Zero Calibration

MEM button: Record current measured value and set values in preset alarm mode

CLR button: Clear all recorded value and shift digit in preset alarm mode

ON/OFF button: Turn on and turn off instrument

6. Operation

1. Starting Up and Battery Check

Press the side On/Off button after the batteries are installed properly. After start up, LCD display Fig. 3, Fig. 4, and instrument is ready to operate. To change unit from LEL to PPM, simply press elliptic switch button, LCD will display as Fig. 5.

Remark:

After turning on the instrument, check battery power volume before measuring. This meter adopts a segmental display for the battery power volume. “ ’ shows a fully charged status. Battery replacement is needed when the prompt of battery power volume turns to “ ”. (The power volume of the battery is too weak to work properly. Please promptly replace the batteries to avoid any unnecessary loss.)

2. Measuring

Under the normal measuring and setting status, the white backlight is on. The meter can display the measurement of combustible gas when the probe is approached into that environment. The alarming sound of “di di" will be created by the buzzer, and the backlight will turn green and flicker regularly if the measured value exceeds the preset value of alarm point 1 during the measuring. The alarm sound of “di di" with faster rhythm will appear, and the backlight will turn red, and flicker regularly along with the alarming sound when the measured value exceeds the preset value of alarm point 2.

Remark: when the alarming signal trigger, please take corresponding actions to prevent damage.

3. Record Measured Value

In Measuring Mode, press and hold MEM button to record current measured value. A prompt character M is displayed on the screen, and the number of data saved sequence is increased by 1. (Fig. 6)

Fig 6-5

Release the MEM button, the prompt character M will disappear, and the meter will continue to measure. Repeat this process to record the next measured value. This meter can record up to 99 set of data. When reach the maximum data recording, the prompt M will be constantly displayed. At this stage, if new measured values are needed to be recorded, all of recorded measured values before should be cleared first,. Hold CLR button until the prompt M disappear to clean save data.
Remark: If the MEM button is released before the appearance of prompt M during data recording, the measured value would not be recorded.

4. Check Saved Data

To check the measured value, press MODE button and switch to data-reading mode. A character R is prompted on the screen (Fig. 7). Press MEM button, LCD will display the first recorded data.

For each pressing of the MEM button, the 2nd, 3rd ... recorded value will be displayed till last value and cycle back to first value. If there is no saved value during measuring process, 0 is displayed both for recorded value and the number of data saved sequence when switching to data-reading mode. The MEM button is invalid in this situation.

5. Zero Calibration

During measuring mode, leave the instrument in standard air for one minute (Air do not contain combustible gas). If the meter shows reading other than zero, calibration is required. Hold the CLR button in measuring mode until zero prompt (Fig.8) and the sound of "di" sequence is heard. After 6~8 seconds, the display value change to 0, release CLR button and return to measuring mode. To save calibration, turn off meter is required and then restart for regular measuring test.

6. Set Alarm value

The instrument can set two alarm points. Press MODE button to ALA1 mode (alarm point 1), display screen shows corresponding prompt, shown as Fig.9. The most significant digit start to blink, CLR button shift the blinking digit, MEM change the value of blinking digit. Press MODE button one more time to enter ALA2 mode(alarm point 2), prompt of **ALA2** appears as shown in Fig.10.

The method of setting alarm 2 is the same as alarm 1. Press MODE button again for regular measuring mode.

Remark：The preset value for ALA1 is 20%LEL(10000ppm), ALA2 is 50%LEL(25000ppm). To save the changed alarm value, a restart is required.

7. Shut Down

After operation, hold the ON/OFF button for 3 seconds to turn off the meter.

7. Cautions

1. To ensure accurate measuring, regularly zero calibration is needed. The specified air chamber and verified standard gas should be used in calibration with the regular flow rate.
2. This meter is mainly used for measuring the low level of combustible gas (absolute concentration below 5%). The contact with combustible gas of concentration above 15% should be avoided. When incidental contact is made with high concentration combustible gas, a calibration is needed.
3. This instrument, especially the probe, should avoid vibration, sudden impact and mechanical damages.
4. This instrument should be handled gently. Avoid contact with water or other fluid, and keep it clean.
5. The batteries should be taken out and stored in the dry and non-corrosive gas environment for storage.

Appendix: Instrument Calibration

Remarks:

1) The calibration should be performed regularly, around once a year.

2) The calibration should be finished by professionals under standard calibrating conditions, and follow steps strictly.
3) The specified air chamber and verified standard gas should be flowed within safe rate during calibration.
4) The calibration should not be handle by non-professionals, otherwise may cause error which lead to inaccurate measure.
5) The meter should stay on during calibration process.
6) The press operation of buttons in this explanation means immediate release after being pressed if not instruct otherwise.

Operating process of calibration:

1. Take out batteries after the meter is turned off, hold MODE button and load batteries again. The screen will display an interface for password input(Fig.11). Release MODE button to enter password

‘86’ for calibration. Press CLR to change the value of tens digits, and press MEM to change units digit.

After the correct password is set(Fig. 12), press the On/Off button to enter calibration mode.（If password is not set correctly, after pressing On/Off button, the meter turn off automatic and calibration is not set. Turn on meter for normal operation. If wish to calibration, follow the steps.）

2. There are two points needed to be calibrated for this meter. After enter calibration mode, the 1st calibrating point is zero point(Fig. 13).

Put the probe into clean air without any combustible gas, press side On/Off button, and meter will display a changing value(Fig. 14).

Leave meter for 5 minutes and wait for the value to stabilize, press side On/Off button again to complete zero setting. The meter will enter 2nd calibrating point automatically (Fig.15).

3. The 2nd default calibrating point is 30000ppm, customer could set this 2nd point correspond gas concentration. Pres the CLR button to change the flickering digit and MEM button change the value of flickering digit. After setting the second calibration point, press On/Off button to confirm and meter display a changing value(Fig. 14). Put the probe into gas flow, which has the same concentration as preset ppm value.

After 5 minutes (do not move the meter during this process) and value display is stabled (Fig. 16), press side On/Off button again to save 2nd calibration point. It takes 3s to save the calibration and turn off meter automatic. At this point, calibration is completed.

4. After calibration, use meter to test the gas used in 2nd point calibration. If the reading is not agreed, please recalibrate the meter until meter shows the correct reading.