

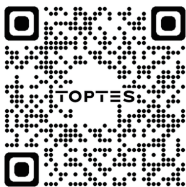
# USER MANUAL

*Please read these instructions before operating the product.*

## Guard-156

4 in 1 Gas Detector





# USER MANUAL

## GUARD-156

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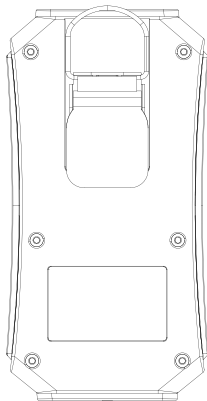
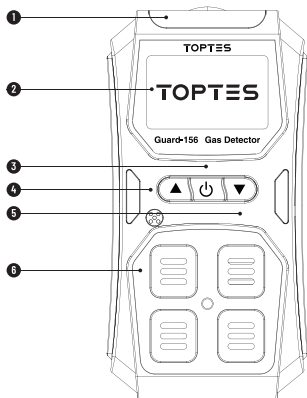
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## SPECIFICATIONS

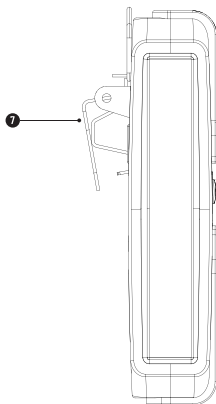
The Guard-156 portable gas detector uses advanced large-scale integrated circuit technology, international standard intelligent design technology, and proprietary digital-analog hybrid communication technology. This results in a fully intelligent gas detector. It employs a natural diffusion method to detect gases with high-quality gas sensors as the sensitive components, providing excellent sensitivity and outstanding repeatability. The device is easy to use and maintain, meeting the reliability requirements for industrial site safety monitoring. The housing is made of high-strength engineering plastic, offering durability and a good hand feel, and is waterproof, dustproof, and explosion-proof. The Guard-156 is widely used in petroleum, chemical, environmental protection, metallurgy, refining, gas distribution, biochemical, pharmaceuticals, and agriculture.

<b>Indikation Methode</b>	LCDs real-time data and system status. LEDs, sound, and vibration indicate alarms, faults, and low voltage.
<b>Operating Environment</b>	Temperature -4°F to 156°F; Humidity < 95% RH (non-condensing)
<b>Operating Voltage</b>	DC 3.7V (Lithium battery capacity 2000mAh)
<b>Explosion-Proof Mark</b>	Ex ib IIB T3 Gb
<b>Charging Time</b>	4 to 5 hours
<b>Standby Time</b>	10 to 15 hours under standard conditions
<b>Sensor Lifespan</b>	2 years
<b>Dimensions</b>	5.12" × 1.06" × 2.56" (13 × 2.7 × 6.5 cm)
<b>Weight</b>	0.21 kg (7.14 oz)
<b>Storage Environment Temperature and Humidity</b>	Temperature 14°F to 131°F; Humidity < 85% RH
<b>Accessories</b>	1x Guard-156 4 in 1 Gas Detector 1x Packaging Box 1x User Manual 1x Charging Cable 1x Standard Gas Hood



### Structure and Function Comparison Chart

- ① Indicator light
- ② Display Screen
- ③ Power Button
- ④ Left Button
- ⑤ Right Button
- ⑥ Gas Sensor
- ⑦ Clip



## Instructions for Button Operation

Button	Name	Function Definition
▲	Left Button	Upward page turning / Cursor selection leftward shift / Value option incrementation / Switch off.
▼	Right Button	Downward page turning / Cursor selection rightward shift / Value option decrementation / Switch on.
⏻	Power Button	Long press to power on in shutdown state; long press to shut down in detection interface; Short press for return function in regular interface.

## Features and Functions

The Guard-156 comprises a housing, circuit board, battery, display screen, sensors, charger, and other components. Its operating principle involves electrochemical and catalytic combustion. Below are the detection ranges and settings for common gases:

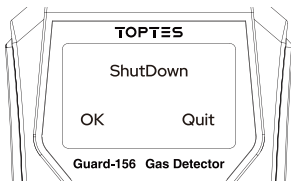
Gas Type	Measurement Range	Low Alarm Point	High Alarm Point	Resolution
LEL	(0-100) %LEL	20%LEL	50%LEL	1%LEL
O <sub>2</sub>	(0-30.0) %VOL	19.5%VOL	23.5%VOL	0.1%VOL
H <sub>2</sub> S	(0-100) PPM	10PPM	20PPM	1PPM
CO	(0-1000) PPM	50PPM	200PPM	1PPM

## Typical Gas Indication Error and Response Time:

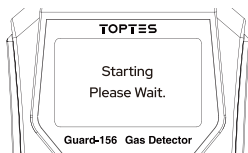
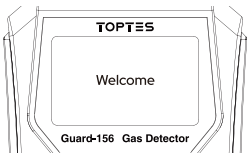
Gas Type	Indication Error	Response time
LEL	±5%FS	T <sub>90</sub> <30s
O <sub>2</sub>	±0.7%VOL	T <sub>90</sub> <20s
H <sub>2</sub> S	Absolute Error ± 2μmol/mol or Relative Error ± 10%	T <sub>90</sub> <60s
CO	Absolute Error ± 5μmol/mol or Relative Error ± 10%	T <sub>90</sub> <60s

**Power On:** Press and hold the power button for about 3 seconds. The detector will perform a power-on self-test.

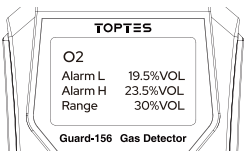
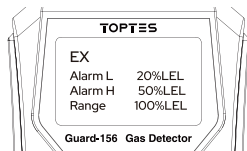
**Power Off:** When the detector is in normal detection mode, press and hold the power button for 3 seconds. The screen will display the shutdown interface. Press the left button to power off, or press the right button to cancel the shutdown.

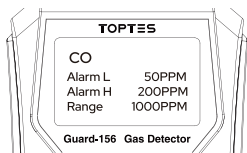
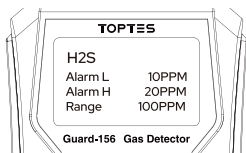


## Self-test and Preheating

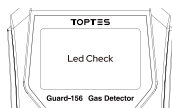


When the Guard-156 is in the shutdown state, press and hold the power button for about 3 seconds. The backlight of the detector display screen will light up, accompanied by voice prompts. At this time, the detector switches from the shutdown state to the power-on state, and the screen displays the welcome interface.





After the welcome interface, the screen will display the high and low alarm values and measurement range information for combustible gas, oxygen, hydrogen sulfide, and carbon monoxide gases sequentially.



After the information pages are displayed, the system enters the self-test state:

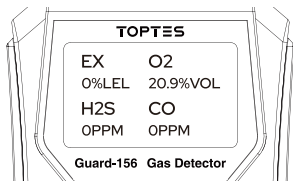
**Light self-test:** the lights will flash twice.

**Vibration self-test:** the vibration module will vibrate and then stop.

**Sound self-test:** the buzzer will beep intermittently.

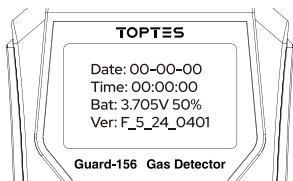
If the above states function normally, it implies the peripheral self-test has passed successfully.

## Alarm State



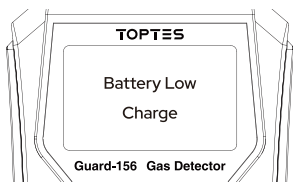
When Guard-156 detects gas concentrations higher than the alarm threshold (or for oxygen, lower than the low alarm value or higher than the high alarm value), the device emits intermittent beeping sounds. Simultaneously, the speaker broadcasts a voice alert, the LED lights up red, the screen backlight turns on, and the vibration module activates. The detector will only stop beeping and vibrating once the gas concentration returns to normal levels.

## System Status Check

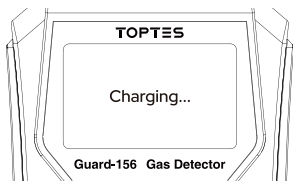


To check the current system battery status, date, and time, press the left button in the normal detection state. The screen will display the date, time, battery level, and voltage information.

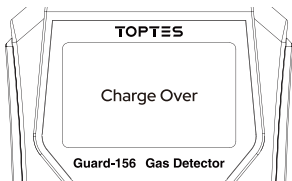
## Charging



When the detector is in normal detection mode and the battery voltage drops below 10%, a "Battery Low Charge" message will be displayed, accompanied by sound, light, and vibration alarms. At this point, you need to connect the USB charging cable to charge the device. Otherwise, low voltage may cause system malfunctions. If you continue to operate the detector, the device will shut down directly after 15 minutes, and the alarm will no longer be displayed. If no action is taken, the detector will automatically shut down. If you force the detector to restart, it will continue to issue the alarm notification.



When charging in the power-on state, the alarm lights on the top and sides of the detector will flash. You can also charge it in the power-off state; in this case, the display will show "Charging...".



When charging is complete, the display will show "Charge over".

**▲ WARNING** Do not charge the portable gas detector at the detection site to avoid fire or explosion caused by sparks from plugging or unplugging the charger. Avoid charging the portable gas detector in the power-on state as much as possible to prevent affecting the charging speed.

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## MENU OPERATION GUIDE

**Entering the Menu:** Press the power button to enter the main menu interface.

**Main Menu Structure and Operation:** Press the left button to cycle upwards through the menu items. Press the right button to cycle downwards through the menu items. Press the power button to enter the selected menu item. If you select "Exit," you will exit the main menu and return to the standard detection interface.

**Note:** If no operation is performed for about 5 seconds, the system will automatically return to the standard detection interface.

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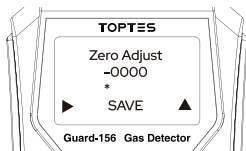
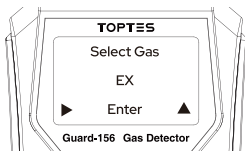
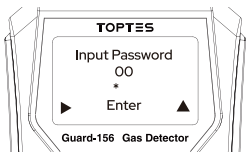
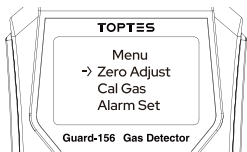
### Zero Adjust

This function allows you to add or subtract a set value from the actual detected gas concentration. It is used when calibration gas is unavailable, but the displayed value deviates from zero.

#### Operating Instructions:

First, select "Zero Adjust" in the menu and press the power button to enter. The screen will display the password input interface. Initial Password: "69". After entering the correct password, you will enter the gas selection interface. Press the left button to cycle upwards through the gas types, and press the right button to cycle downwards through the gas types. After selecting the

gas type, press the power button to enter the zero-adjustment interface. Press the left button to cycle through each digit or symbol to be adjusted. Press the right button to adjust the current digit or symbol. Press the power button to save the current value.



**For example:** If the combustible gas value constantly displays 3 and does not zero in the air, you can set it to -0004 in this setting and then save it. Return to the standard detection interface. The combustible gas display value should now be 0.

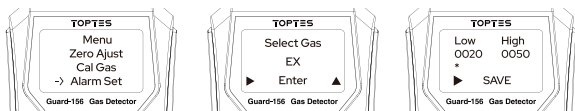
**Note:** Set the value to slightly more than the displayed value by 1 unit. If the setting is too large, it will cause a significant deviation between the displayed value and the actual gas concentration, making it inaccurate.

## Cal Gas

This function is password-protected and intended for use by professionals only to prevent users from accidentally accessing it and affecting the regular operation of the portable gas detector. Specific operation steps are omitted.

## Alarm Set

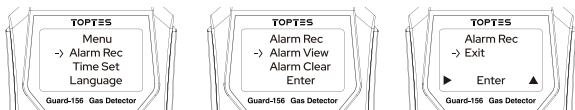
This function sets the alarm thresholds for detected gas concentrations. The low alarm is triggered when the gas concentration exceeds the low alarm value (or falls below the low alarm value for oxygen), causing the instrument to emit an audible and visual alarm. The high alarm is triggered when the gas concentration exceeds the high alarm value, causing the instrument to emit an audible and visual alarm.



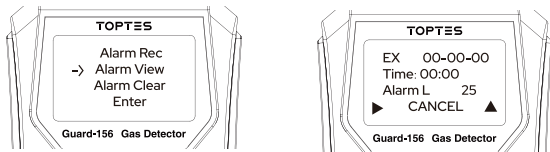
**Operating Instructions:** First, select "Alarm Set" in the menu and press the power button to enter. The screen will display the gas selection interface. Press the left button to cycle upwards through the gas types, and press the right button to cycle downwards through the gas types. After selecting the gas type, press the power button to enter the alarm setting interface. Press the left button to cycle through each digit to be adjusted. Press the right button to adjust the current digit. Press the power button to save the current value.

## Alarm Rec

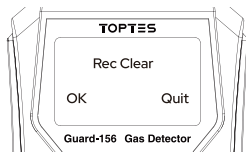
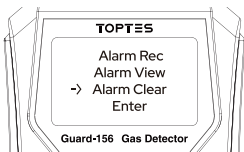
The "Alarm Rec" menu contains three submenu items: "Alarm View", "Alarm Clear", and "Exit".



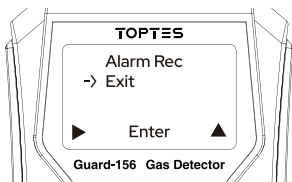
**Operating Instructions:** First, select "Alarm Rec" in the menu and press the power button to enter. The screen will display three submenu items. Press the left button to cycle upwards through the submenu items, and press the right button to cycle downwards through the submenu items. After selecting the desired submenu item, press the power button to enter it.



**Alarm View:** Press the left button to view the latest record and the right button to view the previous record. The system will automatically exit if there is no operation for 5 seconds. This function is used to view past alarm records.



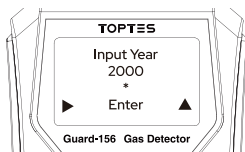
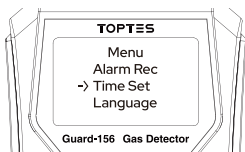
**Alarm Clear:** Press the left button to select "OK" to clear the alarm records, and press the right button to select "Quit" to cancel clearing the alarm records. This function is used to clear alarm records.



**Exit:** Press the middle button to exit. This function exits the alarm record submenu.

## Time Set

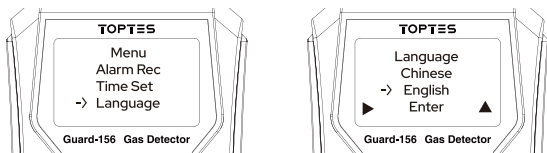
This function is used to set the detector's current time.



**Operating Instructions:** First, select "Time Set" in the menu and press the power button to enter. The screen will display the year setting interface. Press the left button to cycle through each digit of the last two digits to be adjusted, and press the right button to adjust the current digit. Press the power button to save the current input year. Then, proceed to the month input interface, and so on. When you reach the minute setting interface, press the power button to save all the previously input time information and exit the current time setting menu item.

## Language

This function switches the system language, including two language submenu options: Chinese and English.



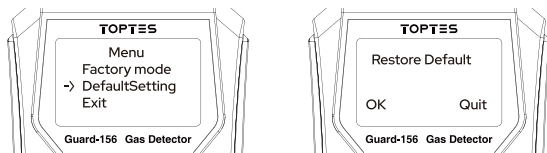
**Operating Instructions:** First, select "Language" in the menu and press the power button to enter. Then, press the left button to scroll upwards to choose the language option or press the right button to scroll downwards to select the language option. Press the power button to confirm the current selection.

## Factory mode

This function is password-protected to prevent users from accidentally accessing it and affecting the normal operation of the portable gas detector. It is intended for use by professionals only, and specific operation steps are omitted.

## Default Setting

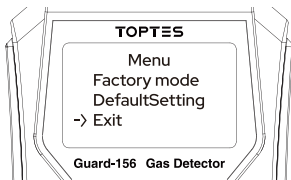
This function is used to restore the instrument to its factory default settings.



**Operating Instructions:** First, select "Default Setting" in the menu and press the power button to enter. A prompt will ask whether to restore the settings. Press the "OK" or "Quit" button to confirm whether to save.

## Exit

This function exits the operation and returns to the main interface.



**Operating Instructions:** First, select "Exit" in the menu and press the power button to return to the instrument's standard detection main interface.

## Cleaning

## MAINTENANCE

If the device's surface becomes dirty after prolonged use, clean it gently with a clean, soft cloth dampened with water. Do not use corrosive solvents or hard objects to clean the device's surface, as these may cause scratches or damage.

## Disposal / Recycle

Do not place equipment and its accessories in the trash. They must be appropriately disposed of according to local regulations. Please visit [www.epa.gov](http://www.epa.gov) for further information.

## Warning

## USER SAFETY

- Prevent the device from falling from a high place or experiencing severe vibration.
- The device may not function properly in the presence of high-concentration gases.
- Please strictly follow the instructions for operation and use to avoid inaccurate detection results or damage to the device.
- This product should not be stored or used in environments containing corrosive gases (such as high concentrations of chlorine), nor should it be used or stored in other harsh environments,

including excessively high or low temperatures, high humidity, electromagnetic fields, or strong sunlight.

- To ensure detection accuracy, the device should be calibrated regularly with a calibration interval not exceeding one year.
- The battery pack cannot be removed or replaced, nor can the battery pack be recharged in an explosive atmosphere. Peripheral plug-in devices not certified as explosion-proof cannot be used in explosive atmospheres, and sensors cannot be replaced.

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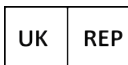
## Three-Year Warranty

## SUPPORT

TopTes offers a comprehensive 36-month after-sale service backed by lifetime technical support. For detailed information regarding warranty coverage and repair procedures, please visit our official website:

[www.toptestools.com/pages/warranty](http://www.toptestools.com/pages/warranty).

Alternatively, you can contact us directly at [support@toptestools.com](mailto:support@toptestools.com)

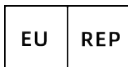


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Privilégiez la réparation ou le don de votre appareil !



**TOPTES**

support@toptestools.com

# **Guard-156**

4 in 1 Gas Detector

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