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Instrukart BH-4A

Bosean BH-4A Multi Gas Detector User Manual

Model: BH-4A | Brand: Instrukart

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1. PRODUCT OVERVIEW

The Bosean BH-4A Multi Gas Detector is a portable device designed for accurate detection of LEL (Lower Explosive Limit), Oxygen (O₂), Carbon Monoxide (CO), and Hydrogen Sulfide (H₂S) gases. It features a 2.0-inch industrial-level LCD display for clear readings and utilizes imported gas sensors with microprocessor technology for fast response, high sensitivity, and stable performance.

This detector is small in size, making it easy to carry and operate, and boasts an IP65 rating for protection against dust and water ingress, along with ATEX approval for use in potentially explosive atmospheres.

Key Features:

- Natural diffusion sampling method with high-sensitivity sensors.
- Large LCD for intuitive, clear indication of real-time gas concentrations and system status.
- Fast response time ($\leq 30s$) and high repeatability.
- Powered by a DC 3.7V Li-ion battery (1800mAh) for extended operation.
- Robust IP65 protection grade.
- Suitable for applications in underground channels and the mining industry.



Figure 1: Front view of the Bosean BH-4A Multi Gas Detector. The display shows current readings for LEL (0%LEL), O2 (20.9%VOL), CO (0PPM), and H2S (0PPM). Below the screen are three control buttons: an up arrow, a power/select button, and a down arrow. At the bottom, there are four yellow grilles for gas intake.



Figure 2: Side view of the Bosean BH-4A Multi Gas Detector. The screen displays a menu with options: "MENU", "->ZERO SET", "ZERO CAL", and "GAS CAL". This indicates the device's calibration capabilities.

2. SETUP AND INITIAL USE

2.1 Unpacking and Inspection

- Carefully remove the detector from its packaging.
- Inspect the device for any visible damage. If damage is found, do not use the device and contact customer support.
- Verify that all components listed in the "Scope of Supply" are present: 1 Unit of Bosean BH-4A Multi Gas Detector and Instruction Manual.

2.2 Charging the Battery

Before first use, fully charge the device. The detector is powered by a DC 3.7V Li-ion battery (1800mAh).

- Connect the provided charging cable to the detector's charging port.
- Connect the other end of the cable to a suitable power source.
- The charging time is approximately 6 to 8 hours for a full charge.
- Ensure the device is fully charged before critical operations to achieve the specified working time of ≥8 hours continuously (without alarming).

2.3 Powering On/Off

- To power on: Press and hold the power button (center button below the display) until the LCD screen illuminates and the device initializes.
- To power off: Press and hold the power button until the device shuts down. Follow any on-screen prompts if applicable.

3. OPERATION

3.1 Gas Detection

The BH-4A detector uses a natural diffusion sampling method to detect gases in the surrounding environment.

- Ensure the sensor grilles at the bottom of the device are unobstructed.
- Position the detector in the area where gas detection is required.
- The LCD will display real-time concentrations for LEL, O₂, CO, and H₂S.
- Allow sufficient time for the readings to stabilize, especially when moving between different environments.

3.2 Interpreting Readings

The display shows readings for each gas type:

- **LEL:** Lower Explosive Limit, measured in %LEL (0 to 100%). Indicates the concentration of flammable gas or vapor in air below which an explosive atmosphere will not be formed.
- **O₂:** Oxygen, measured in %VOL (0 to 30%). Normal atmospheric oxygen is approximately 20.9% VOL. Deviations indicate oxygen enrichment or depletion.
- **CO:** Carbon Monoxide, measured in ppm (parts per million) (0 to 1000 ppm). A highly toxic gas.
- **H₂S:** Hydrogen Sulfide, measured in ppm (0 to 100 ppm). A highly toxic and corrosive gas.

3.3 Alarm Functions

The device is equipped with a visual alarm system. When gas concentrations exceed predefined thresholds, the detector will activate its alarm to alert the user.

- Familiarize yourself with the alarm thresholds for each gas as per safety regulations relevant to your application.
- Upon alarm activation, immediately follow your organization's safety protocols for gas exposure.

4. MAINTENANCE

4.1 Cleaning

- Regularly clean the exterior of the detector with a soft, damp cloth.
- Do not use abrasive cleaners or solvents, as these can damage the casing or sensors.
- Ensure the sensor grilles are free from dust, dirt, or debris to maintain accurate readings.

4.2 Calibration

Regular calibration is crucial for maintaining the accuracy and reliability of the gas detector. The device supports zero calibration and gas calibration.

- **Zero Calibration (ZERO CAL):** Performed in a clean air environment to set the baseline (zero) reading for all sensors.
- **Gas Calibration (GAS CAL):** Performed using certified calibration gases to adjust the sensor's response to known concentrations.

- Refer to the detailed instructions in the included Instruction Manual for specific calibration procedures and recommended intervals.
- It is recommended to have the device calibrated by qualified personnel or a certified calibration service regularly.

4.3 Battery Care

- Recharge the battery when the low battery indicator appears on the display.
- Avoid completely draining the battery frequently to prolong its lifespan.
- If storing the device for an extended period, charge the battery to approximately 50% and store in a cool, dry place. Recharge every 3-6 months.

5. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your Bosean BH-4A Multi Gas Detector. For problems not listed here, please contact customer support.

Problem	Possible Cause	Solution
Device does not power on.	Battery is depleted or faulty.	Charge the battery for 6-8 hours. If still unresponsive, contact support.
Inaccurate or fluctuating readings.	Sensor grilles obstructed; device needs calibration; sensor aging.	Clean sensor grilles. Perform zero calibration in fresh air. If issue persists, perform gas calibration or contact support for sensor replacement.
Alarm not activating when expected.	Alarm thresholds incorrectly set; faulty alarm system.	Verify alarm settings in the menu. Test the alarm function if available. Contact support if the alarm system is suspected to be faulty.
Short battery life.	Battery not fully charged; battery degradation.	Ensure full charge (6-8 hours). If battery life significantly decreases after full charge, the battery may need replacement.

6. TECHNICAL SPECIFICATIONS

Parameter	Detail
Model	BH-4A
Detected Gases	LEL (Combustible Gas), O2 (Oxygen), CO (Carbon Monoxide), H2S (Hydrogen Sulfide)
Sampling Method	Natural Diffusion
Display	2.0 inch Industrial Level LCD
Accuracy	$\leq \pm 5\%$ F.S.
Measurement Range (LEL)	0 to 100% LEL
Measurement Range (CO)	0 to 1000 ppm
Measurement Range (H2S)	0 to 100 ppm

Parameter	Detail
Measurement Range (O2)	0 to 30%
Response Time	≤30s
Power Source	DC 3.7V Li-ion battery, 1800mAh
Charging Time	6 - 8 hours
Working Time	≥8 hours continuously (without alarming)
Protection Grade	IP65
Operating Environment	-20°C to 50°C
Operating Humidity	<95% RH (no dew)
Alarm Type	Visual
Dimensions	20 x 15 x 10 cm (Package Dimensions)
Item Weight	1 kg
Country of Origin	China

7. WARRANTY AND SUPPORT

7.1 Warranty Information

This product is manufactured by Instrukart. For specific warranty terms and conditions, please refer to the warranty card included with your product or contact Instrukart customer support. Extended warranty plans may be available for purchase separately.

7.2 Customer Support

For any technical assistance, troubleshooting, or inquiries regarding your Bosean BH-4A Multi Gas Detector, please contact Instrukart customer support:

- **Phone:** +91 8142350506
- **Manufacturer:** Instrukart
- For the most up-to-date contact information, please visit the official Instrukart website or refer to the product packaging.

Documents - Instrukart – BH-4A

	
FEATURES	
• Advanced MCU for Low-Power Consumption	
• LCD display	
• Self-Test Function	
• Adjustable alarms	
• Two measurement points	
• Audio, Visual LED and Vibratory Indicators	
• Three buttons Operation for Simple Use	
• Shockproof and Dustproof Case Provides Anti-Slip Handheld	
• 500pcgs alarming record data logger	
• Monitoring, Sensor setup, Alarm record	
• Available for CO, H2S, O2 and combustible gas	
• Rechargeable	
• Comply with ATEX	
SPECIFICATIONS	
Range:	O2: 0-30% by Volume LEL: 0-100% LEL CO: 0-1000 ppm H2S: 0-100 ppm
Alarm Range:	CO: 35 and 200 ppm instant H2S: 10 and 15 ppm instant O2: 18.5 by Vol. decreasing and 23.5% by Vol. increasing LEL: 20% and 50% LEL
Method:	Non-dispersive infrared (NDIR)
Sensor:	CO: H2S and O2:Electrochemical Combustible gases: Catalytic
Display:	Temperature: -20°C to +60°C Humidity: 0 to 95% RH, non-condensing Power: 3.6V 1000 mAh rechargeable lithium battery
Operating time:	Approximately 15 minutes Continuous, non-alarm conditions
Charge time:	Approximately 6 hours
Dimensions:	220mm*53mm*30mm
Weight:	85g ± 1g
Ingress Protection:	IP65
	

[pdf] Specifications Dimension Guide

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BH-4A Portable Multi-gas Detector for CO, H₂S, O₂ and LEL FEATURES Advanced

MCU for Low-Power Consumption LCD display Self-Test Function Adjustable alarms
Two Instant Alarm Points Audio, Visual LED and Vibratory Indicators Three buttons
Operation for Simple Use Strong, Durable Rubber Casing...

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