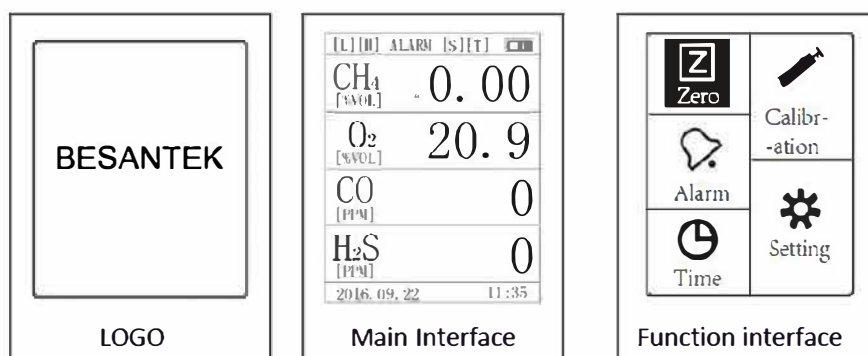


BST-MG08/09 Multi-gas Detecting Alarm

Manual Instruction

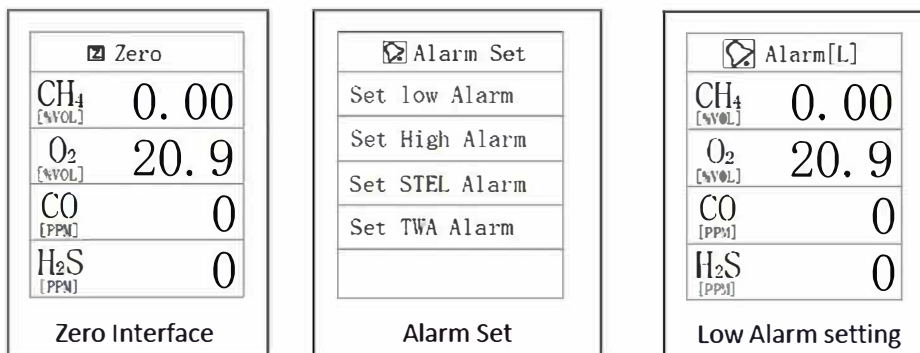
1. **Application:** This product is designed to ensure safety for users who work in dangerous places. It's used for detecting CO, O₂, H₂S, CH₄ simultaneously and alarm users by light, sound and vibration. This device is portable, anti-explosion and intrinsically safe.
2. **Features:**
 1. Measured gases: Combustible Gas(LEL/CH₄), Oxygen(O₂), Carbon Monoxide(CO), and Hydrogen Sulfide(H₂S). Contact manufacturer for other gas combinations.
 2. It will alarm users by sound, vibration, and light with different intensity if actual concentration is higher or lower than preset alarm points.
3. **Operation:**
 1. 4 buttons included. ⏻ On/Off button; OK button; ▲ Up button; ▼ Down button
 2. Long press ⏻ On/Off button to activate the device. It will show below information in turn:
 - A. Product brand
 - B. Low Alarm [L]
 - C. High Alarm [H]
 - D. STEL Alarm [S]
 - E. TWA Alarm [T]
 - F. Preset Calibration Value
 - G. Product number and next calibrate date, 30 seconds countdown
 - H. Auto Zero option



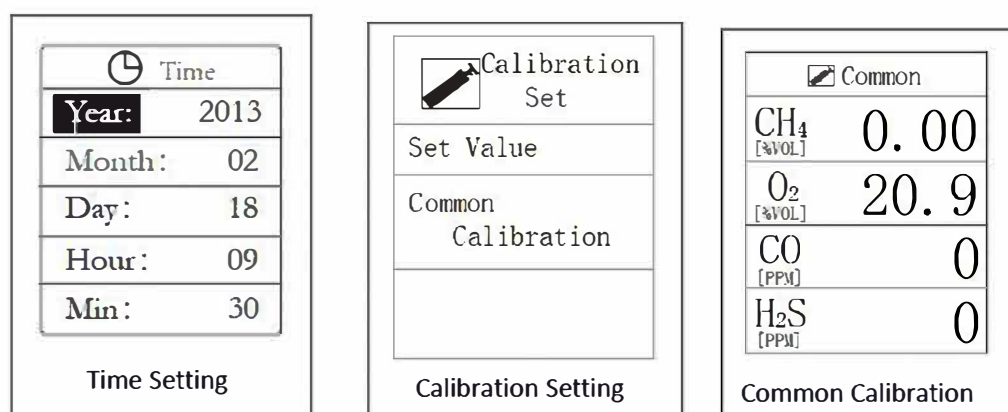
3. In auto zero option, after seeing "Adjust Zero?", long press "OK" button to zero all sensors, short press "⏻" button to exit. When the device is zeroed in unfresh air, the system will zero itself when the device is back to fresh air, no need to worry about the accuracy.
4. In main interface, it shows 4 alarm icons on top area: [L], [H], [S], [T], if there is any alarm, the corresponding icon will turn red. Short press "▲" to switch among STEL, TWA, PEAK, and MIN. No operation for 30 seconds will bring it back to main interface.
5. Long press "OK" button to enter function interface.

6. In function interface, short press “▲” or “▼” to select function, then short press “OK” button to enter corresponding function.
7. In zero interface, short press “▲” or “▼” to select gas, long press “OK” button, the background of selected gas will turn red, long press “OK” button again to complete the operation with display “set OK”. If there is no “set OK” showed, it means operation is failed. Short press “⏏” to exit.

Notice: Use 100%vol nitrogen gas to zero oxygen sensor, for other sensors, it can be done in fresh air.



8. In alarm interface, short press “▲” or “▼” to select among “Set Low Alarm”, “Set High Alarm”, “Set STEL Alarm”, and “Set TWA Alarm”. Short press “OK” button to enter each setting “Alarm[L]”, “Alarm[H]”, “STEL[S]”, “TWA[T]”, short press “▲” or “▼” to set the value, long press “OK” button to complete the operation with display “set OK”. Short press “⏏” to exit.
9. In time setting interface, short press “OK” button to select “Year”, “Month”, “Day”, “Hour”, “Min”, then press “▲” or “▼” to adjust the value. Long press “OK” button to complete this operation with display of “Set OK”. Short press “⏏” to exit.



10. In calibration setting interface, short press “▲” or “▼” to select between “Set Value” and “Common Calibration”
 - A. “Set Value”: user should input available calibration gas concentration here, short press “OK” button to select among gases and short press “▲” or “▼” to adjust gas values, long press “OK” button to complete this setting with display of “Set OK”.

Important: user should make this setting before following operations.

- B. In "Common Calibration" interface, short press "▲" or "▼" to select gas, long press "OK" button, the background of selected gas will turn red, connect calibration gas and after the value is stable, long press "OK" button to complete this operation with display of "Set OK". Short press "⏻" to exit.

Notice:

- a. Before calibration, activate this device for at least 6 minutes to allow it run stably
- b. When the device is alarming for low power, stop calibration and charge it right away
- c. Calibration gas must be standard gas used for calibration purpose
- d. Zero sensors firstly before calibration
- e. Make sure gas flow is stable before connecting calibration gas, calibration gas flow for CH4, CO, O2 is 200ml/min, 300ml/min for H2S.

f. Suggested calibration gases are as following:

CH4 1.00%vol, CO 500ppm, H2S 50ppm, oxygen can be calibrated in fresh air

- 11. In setting interface, short press "▲" or "▼" to select among "CH4", "LEL", "PPM", "MG/m³", "Allow Calibration", "√" means item is selected. Long press "OK" button to select and confirm. Short press "⏻" to exit.

Important: User can't enter calibration interface without choosing "Allow Calibration"

4. Technical Parameter:

Technical Specification	Parameter		
Measured gas	Methane(CH4), Oxygen(O2), Carbon Monoxide(CO), Hydrogen Sulfide(H2S)		
Methane (CH4)			
Measurement range	(0.00~5.00)%vol		
Measurement error	(0.00~1.00)%vol: ±0.10%CH4 (1.00~3.00)%vol: True value ± 10% (3.00-5.00)%vol: ± 0.30%CH4		
Respond time	≤20s (T90)		
Resolution	0.01%vol	Alarm point	1.00%vol (Adjustable for full range)
Oxygen (O2)			
Measurement range	(0.0~30.0)%vol		
Measurement error	(0.0~5.0)%vol: O2: ±0.5%vol (>5.0~30.0)%vol: O2:0.9%vol		
Respond time	≤35s (T90)		
Resolution	0.1%vol	Alarm point	18.0%vol(Adjustable for full range) 25.0%vol(Adjustable for full range)
Carbon Monoxide (CO)			
Measurement range	(0~1000)ppm		
Measurement error	(0~20)ppm: ± 2ppm (>20~100)ppm: ± 4ppm		

	(>100~500)ppm: True Value \pm 5% (>500~1000)ppm: True value \pm 6%		
Respond time	\leq 45s (T90)		
Resolution	1ppm	Alarm point	24%vol(Adjustable for full range)
Hydrogen Sulfide (H2S)			
Measurement range	(0~100)ppm		
Measurement error	(0~50)ppm: \pm 3ppm (>50~100)ppm: \pm 10%		
Respond time	\leq 45s (T90)		
Resolution	1ppm	Alarm point	10ppm(Adjustable for full range)
Sensor lifetime	CH4: \geq 1 year CO,H2S,O2: \geq 2 years		
Alarms	Audible--buzzer with \geq 85dB @1m audible Visible--flashing red LED, \geq 20m visible Vibration		
Charging time	4-5hours		
Continuous operating hours	\geq 13 hours		
Battery model	PL123450, 3.7V/1500mA		
Protect Grade	IP66		
Working temperature	-25°C ~ 50°C		
Size(mm)	130*70*37		
Data logging for MG08 only	Continuously data logging (100000 records with 1-10 minutes interval)		
Enclosure	PC+ABS with resistance \leq 10 ⁻⁹ Ω		
Display	Color Screen LCD		

Safety Standard:

- CE: EN 50270:2006
- MA/KA: GB3836-2010
- EX: GB3836.1-2010 & 3836.4-2010

External Sampling Pump

Manual Instruction

**Product description:**

This gas sampling pump can be used with any portable gas detectors, and detect target gas as far as 30 meters. With 4 LED indicators, user can know power left easily.

Technical parameter:


Sampling Air Flow	1600ml/min
Sampling Distance	30m
Working Temperature	-20~50℃
Working Humidity	≤90%RH
Power Source	3.7V rechargeable lithium battery
Output	5W
Input	DC5V 1A
Charging Time	8h
Weight	200g

How to turn ON and OFF this pump:

Long press power switch to activate this pump and long press power switch again to shut it off.

Gas Check User's Guide

1. Gas Detector Data Collection Setting

- 1.1. Activate gas detector by long pressing  button.
- 1.2. Long press OK button to function interface
- 1.3. Press up/down button and choose "Setting", enter it by short pressing OK button
- 1.4. Press up/down button and choose "Data Store", enter it by short pressing OK button


Use: The amount of data have been collected & stored

Total: Total amount of data can be collected & stored

Time: Configurable time interval between 1-600s for data collection

Stop: Stop data collection. Short press OK button to switch between "Stop" and "Start", long press OK button to confirm.

Start: Start data collection. Short press OK button to switch between "Stop" and "Start", long press OK button to confirm.

- 1.5. After well setted, user can find  on top of detecting interface, which means device is collecting& storing data.

Notice: when gas detector is connected with Gascheck software for real-time data collection, gas detector data collection will be out of work.

2. Gascheck Driver and Software Installation

- 2.1. Open CD-Rom Driver on your computer and put the offered CD into it
- 2.2. Read the CD and find Gas Check Driver programme, then choose right file according to your computer OS.
- 2.3. Double click "PreInstaller.exe" or "CP210xVCPInstaller.exe" and click "Install", then you'll see window prompt with "Installation Successfully".
- 2.4. To confirm this driver has been installed successfully: right click "My Computer" and choose "Device manager" and unfold "Port (COM and LPT)" you'll find "silicon Labs CP210x USB toUART Bridge".
- 2.5. Find "Gas Check Setup", install this software by double clicking this setup, follow window prompt for installation

Notice: Before connecting gas detector with Gascheck software, please install driver firstly, or gas detector can't be recognised by software.

3. Gascheck operation

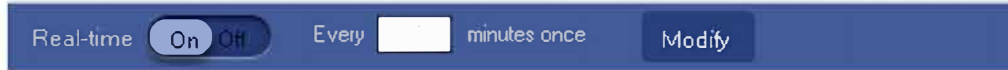
- 3.1. Double click "Gas Check" icon on your desktop, and connect with activated gas detector using USB cable.
- 3.2. Click "Connect" to connect gas detector with this software, after well connected, status will become "Connected" and model number will come out.

3.3. After connection, date and time on gas detector will synchronize automatically with computer.

“Real-time” is for collecting real-time data, these data will only store on computer, check&analyze these data on “Data show” section “Real-time data”.

“History data” is for checking data collected by gas detector or data have been stored on computer

A. Real-time data collection and checking




1. Click “Modify” to set interval time from 1-10 min, click “Save”to confirm.
2. Switch “Real-time” ON, you’ll get real-time data and they will be shown on “Show Data” chart.
3. Stop real-time data collection by switching OFF.



B. Gas detector data collection and checking

1. Click “Get data” to get data collected by device, time needed is 1-6 minutes, device will show “Loading” during this period.
2. Check&analyze these data on “Data show” section “History data”.
3. This software can get and store data from several gas detectors, when data acquisition finished for one device, click “Disconnect” and connect with another one.
4. Click “Clear data” to delete all data collected by gas detector
5. When collecting data by device, user has 2 operation methods
 - a. Set device following “Gas detector data collection setting”
 - b. Set “Device setting” on software



- 1)Set valid start and stop time, click “Modify” to set time interval from 1-10m, then click “Save” to finish.
- 2)User will find  on top of detecting interface, which means device is collecting& storing data.
- 3)Accident power ON or OFF during start and stop time will not affect data collection, after restarting, data collection will go on .

3.4. “Show data” section

Tick the colorful boxes to choose gases needed to be shown up on chart.

“Real-time data” is for real-time collected data.

“History data” is for data collected by gas detector and data have been stored on computer.

“Select device” to see available history data of a certain gas detector.

“DEL” is to delete just model number of gas detectors which have been registered on this computer, this function is for a better management of more than one gas detector you use. When you register it the second time, you’ll find all history data.

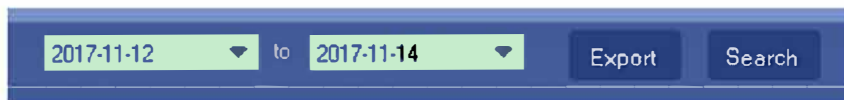
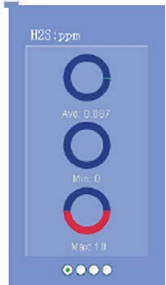
User can also check data in a certain day by setting start-stop time, start and stop time need to be in same day; if not, you’ll get min, ave, max values for each gas and each day.

Place mouse pointer on any point of collected data curve, you’ll get exact time and concentration of this data.

Press left mouse and drag from left to right to spread all detailed data points, and drag from right to left to pull back, or click cross point of x and y axes to pull back.

On right side of the chart, you’ll find 3 gas analyzing circle diagrams with “Avg” “Min” “Max”, tick circles below to see analysis for each gas.

Click “Disconnect” to disconnect this gas detector with software, status will become: Disconnected



Click “Export” to export data in excel format.