GasAlertMicro

H_2S, CO, O_2, SO_2, Combustibles

1, 2, 3, and 4 Gas Detectors

Quick Reference Guide

"INNOVATORS IN GAS DETECTION"

BW Technologies

Limited Warranty & Limitation of Liability

BW Technologies LP (BW) warrants this product to be free from defects in material and workmanship under normal use and service for a period of two years, beginning on the date of shipment to the buyer. This warranty extends only to the sale of new and unused products to the original buyer. BW's warranty obligation is limited, at BW's option, to refund of the purchase price, repair, or replacement of a defective product that is returned to a BW authorized service center within the warranty period. In no event shall BW's liability hereunder exceed the purchase price actually paid by the buyer for the Product. This warranty does not include:

a) fuses, disposable batteries or the routine replacement of parts due to the normal wear and tear of the product arising from use;
b) any product which in BW's opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation, handling or use;
c) any damage or defects attributable to repair of the product by any person other than an authorized dealer, or the installation of unapproved parts on the product; or

The obligations set forth in this warranty are conditional on:

a) proper storage, installation, calibration, use, maintenance and compliance with the product manual instructions and any other applicable recommendations of BW;
b) the buyer promptly notifying BW of any defect and, if required, promptly making the product available for correction. No goods shall be returned to BW until receipt by the buyer of shipping instructions from BW; and
c) the right of BW to require that the buyer provide proof of purchase such as the original invoice, bill of sale, or packing slip to establish that the product is within the warranty period.

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Introduction

This quick reference guide provides basic information for the GasAlertMicro. Refer to the user manual on the accompanying CD-ROM for complete operating instructions. The GasAlertMicro gas detector (“the detector”) warns of hazardous gas at levels above user-selectable alarm setpoints.

The detector is a personal safety device. It is your responsibility to respond properly to the alarm.

Note

The detector is shipped with English as the displayed language. The Portuguese, Spanish, German, and French guides have their screenshots displayed in the corresponding language.

Safety Information - Read First

Use the detector only as specified in this guide, otherwise the protection provided by the detector may be impaired.

Read the following **Cautions** before using the detector.

⚠ Cautions

⇒ ***Warning:*** **Substitution of components may impair Intrinsic Safety.**

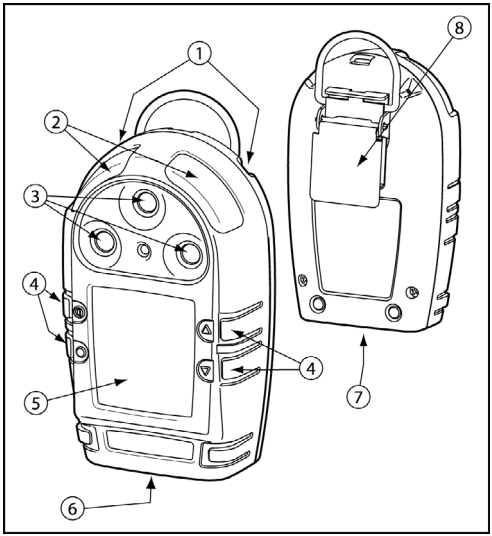
⇒ **Caution: For safety reasons, this equipment must be operated and serviced by qualified personnel only. Read and understand the user manual completely before operating or servicing.**

⇒ **Calibrate the detector before first-time use and then on a regular schedule, depending on use and sensor exposure to poisons and contaminants. BW recommends at least once every 180 days* (6 months).**

* See **Specifications**

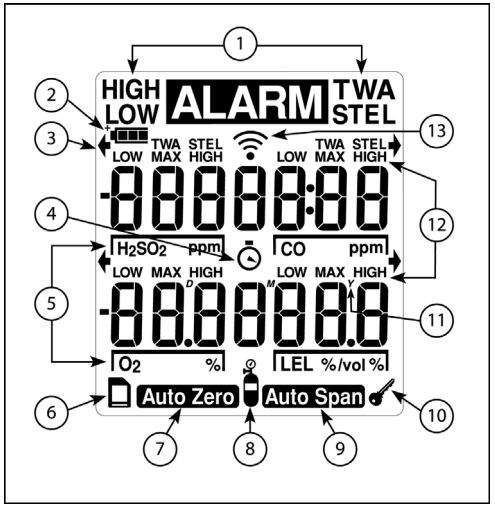
- ⇒ **BW recommends to "bump test" the sensors, before each day's use, to confirm their ability to respond to gas by exposing the detector to a gas concentration that exceeds the high alarm setpoints. Manually verify that the audible and visual alarms are activated. Calibrate if the readings are not within the specified limits.**
- ⇒ **It is recommended that the combustible sensor be checked with a known concentration of calibration gas after any known exposure to catalyst contaminants/poisons (sulfur compounds, silicon vapors, halogenated compounds, etc.).**
- ⇒ **Only the combustible gas detection portion of this instrument has been assessed for performance.**
- ⇒ **The combustible sensor is factory calibrated to 50% LEL methane. If monitoring a different combustible gas in the % LEL range, calibrate the sensor using the appropriate gas.**
- ⇒ **Caution: High off-scale readings may indicate an explosive concentration.**
- ⇒ **Electromagnetic interference may cause incorrect operation under certain circumstances.**
- ⇒ **Protect the combustible sensor from exposure to lead compounds, silicones, and chlorinated hydrocarbons. Although certain organic vapors (such as leaded gasoline and halogenated hydrocarbons) may temporarily inhibit sensor performance, in most cases, the sensor will recover after calibration.**
- ⇒ **Any rapid up-scaling reading followed by a declining or erratic reading may indicate a gas concentration beyond upper scale limit, which may be hazardous.**
- ⇒ **Do not change or charge batteries in a hazardous location. Doing so will impair the Intrinsic Safety of the unit and may lead to fire or explosion.**
- ⇒ **For use only in potentially explosive atmospheres where oxygen concentrations do not exceed 20.9% (v/v).**
- ⇒ **Extended exposure of the GasAlertMicro to certain concentrations of combustible gases and air may stress a detector element, which can seriously affect its performance. If an alarm occurs due to high concentration of combustible gases, recalibration should be performed, or if needed, the sensor replaced.**

Parts of the GasAlertMicro



Item	Description
1	Audible alarm
2	Visual alarm bars
3	Sensors
4	Pushbuttons
5	Display
6	Battery holder
7	Datalogger (optional)
8	Alligator clip

Display Elements

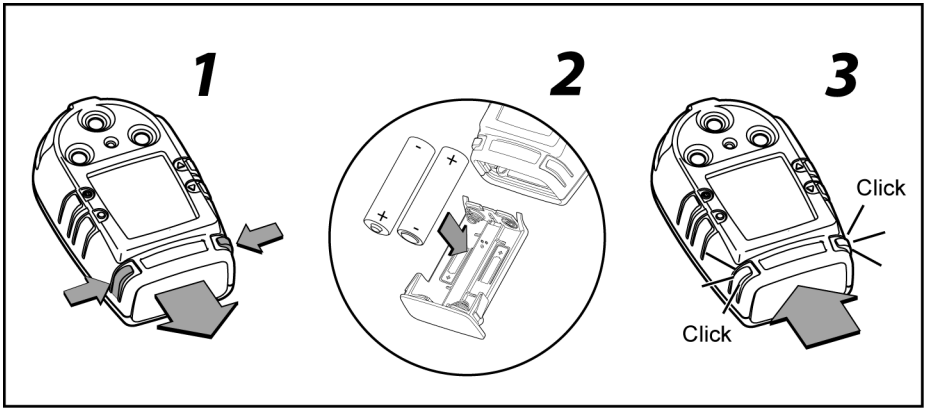


Item	Description
1	Alarm condition
2	Battery life indicator
3	Button indicator
4	Clock
5	Gas identifier bars
6	Optional datalogger card indicator
7	Automatically zero sensor
8	Gas cylinder
9	Automatically span sensor
10	Pass code lock
11	Real time calendar
12	Alarm condition
13	Future use

Pushbuttons

Pushbutton	Description
ⓘ	• To turn on the detector press ⓘ. • To turn off the detector, press ⓘ and hold for 5 seconds. • To activate or deactivate the confidence beep, press and hold ◯ then press ⓘ at startup.
▲	• To increment the displayed value press ▲. • To enter the user options menu, press ▲ and ▼ simultaneously and hold for 5 seconds. • To clear the TWA, STEL, and maximum gas exposure readings, press ◯ and ▲ simultaneously.
▼	• To decrement the displayed value press ▼. • To initiate calibration and setting alarm setpoints, press ◯ and ▼ simultaneously and hold for 5 seconds.
◯	• To view the TWA, STEL, and maximum (MAX) hold readings, press ◯. • To acknowledge latched alarms press ◯.

Installing the Batteries



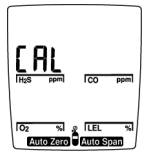
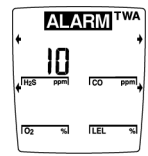
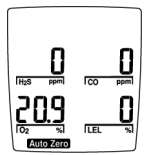
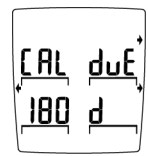
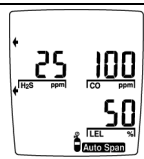
Activating the Detector

To activate the detector, press ⓘ in a normal atmosphere (20.9% oxygen).

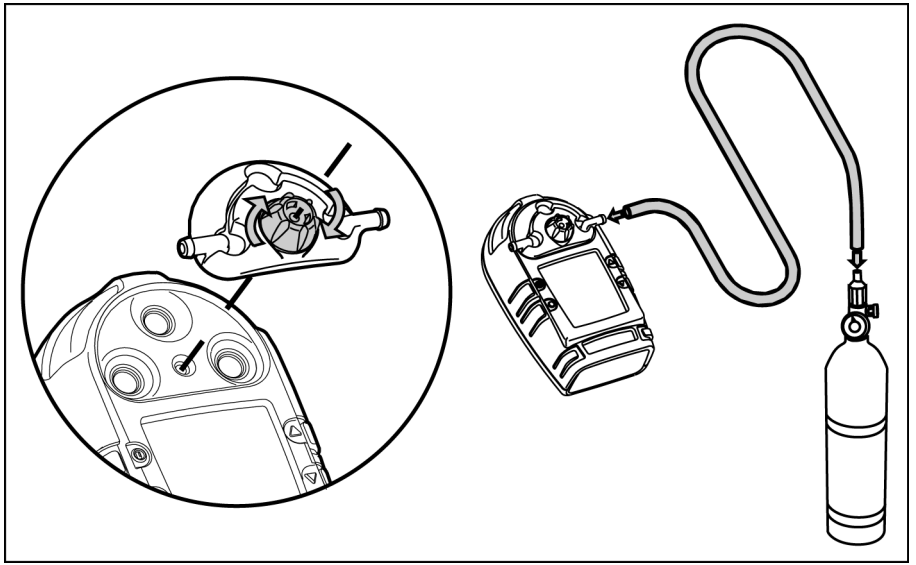
Deactivating the Detector

To turn off the detector, press ⓘ and hold for 5 seconds.

Calibration

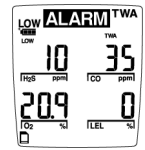
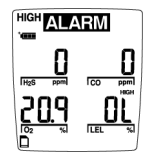
Procedure	Display	Procedure	Display
1. In a clean atmosphere, press ◯ and ▼ simultaneously and hold for 5 seconds. The detector beeps 4 times. The detector then beeps once more signifying that calibration has started.		4. Press ▼ or ▲ to change the alarm setpoint. Press ⓘ to skip to the next setpoint. Press ◯ to save. The detector beeps four times at the end of the alarm setpoint stage.	
2. The display flashes Auto Zero while the detector zeroes the H_2S, CO, and combustible sensors. The detector beeps twice at the end of the auto zero stage.		5. Press ▼ or ▲ to change the next calibration due date. Press ◯ to save. The detector beeps five times indicating that calibration is complete.	
3. When the display flashes, connect the calibration bottle and apply gas at a flow rate of 250 to 500 ml/min. The detector beeps three times at the end of the span stage. Remove the calibration gas.		_Note_ _The calibration cap should only be used during the calibration process._	

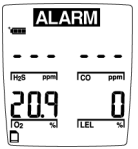
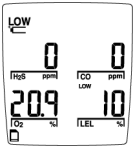
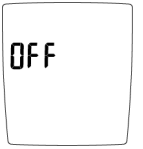
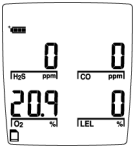
Attach the Gas Cylinder to the Detector



Alarms

The following table lists the numerous alarms of the detector.

Alarm	Display	Alarm	Display
Low Alarm • Slow tone and flash • ALARM and target gas bar flash • Vibrator alarm activates		**Multi-Gas Alarm** • Alternating low and high alarm tone and flash • ALARM and target gas bars flash • Vibrator alarm activates	
High Alarm • Fast tone and flash • ALARM and target gas bar flash • Vibrator alarm activates		**TWA Alarm** • Slow tone and flash • ALARM and target gas bar flash • Vibrator alarm activates	
STEL Alarm • Fast tone and flash • ALARM and target gas bar flash • Vibrator alarm activates		**Over Range Alarm** **(Over Level Exposure)** • Fast tone and flash • ALARM and target gas bar flash • Vibrator alarm activates	

Alarm	Display	Alarm	Display
Sensor Alarm • Slow tone and flash • ALARM and gas bar(s) flash • Vibrator alarm activates		**Automatic Shutdown Alarm** • 8 beeps and flashes • **LOW** displays periodically • Vibrator alarm temporarily activates	
Low Battery Alarm (Confidence Beep disabled) • 1 beep and 1 flash every 10 seconds • **LOW** flashes		**Normal Shutdown** • 4 beeps and flashes • Vibrator alarm temporarily activates	
Confidence Beep • 2 fast beeps every 15 seconds.		*Note* *Alarms can be set to be latching or non-latching. To confirm this setting, go to the latching alarm option in the user options menu.*	

User Options Menu

To access the user options, press ▲ and ▼ simultaneously.

To choose the desired option, press ▼ or ▲. Press ◯ to select the option. The following are the available user options:

- Finish options: exits the user options menu;
- Latching alarms: alarm persists until the user acknowledges it;
- Safe display: LCD displays **SAFE** when no gas is measured;
- Combustible sensor measuring selection: measures and displays in either 0-100% LEL or 0-5.0% vol.;
- Language selection: LCD displays in English, French, German, Spanish, or Portuguese;
- Sensor option: enable/disable a sensor;
- Pass code protection: prevents access to the user options menu and the calibration menu;
- Automatic oxygen calibration: enables oxygen calibration at startup;
- Span concentration values: change each sensor's span concentration value for calibration;
- STEL period: set the STEL calculation period between 5-15 minutes;
- Stealth mode: disables the audible and visual alarms;
- Automatic backlight: disables the automatic backlight regardless of the lighting situation;
- MicroBatt: acknowledges that the detector is using the GA MicroBatt;
- Bump due: enables a note to display upon startup if the detector has not been bumped within the last 24 hours;
- Adjust clock: adjusts the real-time clock and calendar (datalogger model only);
- Logger rate: adjust the rate between 1-127 seconds (datalogger model only).

Note

To quickly scroll through the options press and hold ▼ or ▲.

Maintenance

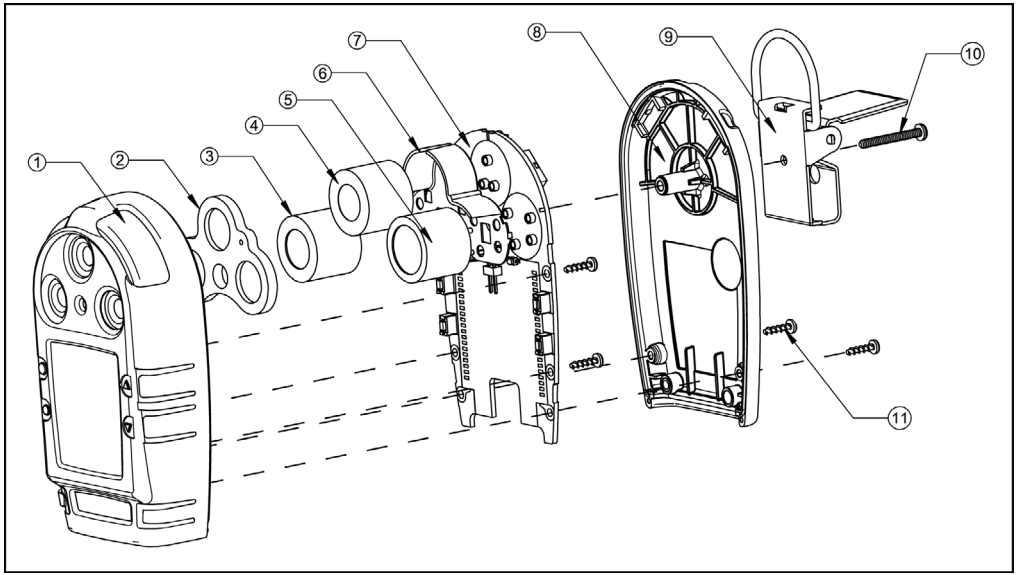
To keep the detector in good operating condition, perform the following basic maintenance as required:

- Calibrate, bump check, and inspect the detector at regular intervals.
- Keep an operations log of all maintenance, bump checks, calibrations, and alarm events.
- Clean the exterior with a soft damp cloth. Do not use solvents, soaps, or polishes.
- Do not immerse the detector in liquids.

Replacing a Sensor or Sensor Filter

For full instructions on how to replace a sensor/sensor filter, please refer to the user manual.

Item	Description
1	Front shell
2	Triple sensor filter
3	Oxygen sensor
4	LEL sensor
5	CO/H_2S sensor
6	Sensor locator
7	PCB assembly
8	Rear shell
9	Alligator clip
10	Machine screw (1)
11	Thread cutting screws (6)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Specifications

Instrument dimensions: 6 x 10 x 3.3 cm (2.4 x 4.0 x 1.3 in.)

Weight: 211 g (7.4 oz.)

Operating and storage conditions:
Temperature: -20°C to +50°C (-4ºF to +122ºF)
Humidity: 5% to 95% relative humidity (non-condensing)
Pressure: 95 to 110 kPa

Alarm setpoints: May vary by region and are user-settable

Detection range:
CO: 0-500 ppm in 1 ppm increments
H_2S, SO_2: 0-100 ppm in 1 ppm increments
O_2: 0-30% in 0.1% increments
Combustibles: field settable for:
0-100% LEL in 1% LEL increments or
0-5.0% v/v methane

Sensor type:
H_2S/CO: Twin plug-in electrochemical cell
O_2, SO_2, H_2S, CO: Single plug-in electrochemical cell
Combustibles: Plug-in catalytic bead

O_2 measuring principle: Capillary controlled concentration sensor

Alarm conditions: TWA alarm, STEL alarm, low alarm, high alarm, multi-gas alarm, sensor alarm, low battery alarm, confidence beep, automatic shutdown alarm

Audible alarm: 95 dB at 1 ft. (0.3 m) variable pulsed dual beepers

Visual alarm: Dual red light-emitting diodes (LED)

Display: Alphanumeric liquid crystal display (LCD)

Backlight: Automatically activates whenever there is insufficient light to view the display and during alarm conditions

Self-test: Initiated at activation

Calibration: Automatic zero and automatic span

Oxygen sensor: Automatic span on activation (selectable)

User field options: Confidence beep, latching low and high alarms, pass code protection, enable/display SAFE display mode, combustible sensor measurement (0-100% LEL or 0-5.0% v/v methane, sensor disable, set calibration due date, TWA and STEL, stealth mode, language selection, enable/disable automatic oxygen calibration, set span concentration values, set STEL calculation period, enable/disable automatic backlight, and distinguish use of the GA MicroBatt battery
Datalogger models only: adjust clock calendar, set sampling rate, and enable/disable bump due note

Battery operating time:
2 alkaline cells: 16-18 hours
2 rechargeable NiMH cells: 14-16 hours (Quest Platinum HGAAC1800G)

Approved batteries:

North America

Approved batteries for product (standards EN50020, UL913, C22.2 No. 157)

Alkaline:	**Temperature code**
Duracell MN1500	T3C (139.8°C)
Energizer E91	T3B (163°C)
NiMH rechargeable:	
Quest Platinum HGAAC1800G	T2 (211.4°C)
Quest HG1600AACS	T3 (199°C)
Energizer NH15 1700 mAh	T2D (205°C)
Maha Powerex 1700 mAh MH-AA170	T3 (192°C)
Maha Powerex 1800 mAh MH-AA180	T2D (201.1°C)
Yuasa Delta 1300 mAh DHA1400AA	T2D (209°C)
Yuasa Delta 1500 mAh DHA1600AAC	T2D (204.4°C)
Uniross 1300 mAh	T3 (198°C)
Uniross 1700 mAh	T3 (186.8°C)
GA MicroBatt:	
GAMIC-BAT-03	T4 (120°C)
GAMIC-BAT2-03	T4

Worst case temperature code:

Alkaline:	163°C
NiMH:	212°C
GA MicroBatt:	120°C
Ambient:	-20°C ≤ Ta ≤ +50°C

Europe

Approved batteries for product (standards EN50020)

Alkaline:	**Temperature code**
Duracell MN1500	T4 (129.8°C)
NiMH rechargeable:	
Quest HG1600AACS	T3 (189°C)
Ambient:	-20°C ≤ Ta ≤ +40°C
GA MicroBatt:	
GAMIC-BAT-03	T4 (120°C)
GAMIC-BAT2-03	T4
Ambient:	-20°C ≤ Ta ≤ +50°C

Battery charger (optional): Quest™ Q2 4-port rapid NiMH battery charger with country-specific mains adapter

First-time charge: 1-4 hours per battery

Normal charge: 1 hour per battery

Warranty: Full 2 year warranty including all sensors

Approvals: Approved by CSA to both U.S. and Canadian Standards

Approved: Class I, Division 1, Group A, B, C, and D; Class I, Zone 0, Group IIC

Standards: CAN/CSA C22.2 No. 157 and C22.2 152 ANSI/UL – 913 and ANSI/ISA –S12.13 Part 1

CE (LCIE): EEx ia IIC ATEX Ⓔx II 1 G
ATEX: LCIE 03 ATEX 6091 X
BAM 04 ATEX 0002 X

* It is recommended that BAM certified detectors be calibrated once every 90 days.

IECEx

ABS Type Approved: VA-348-169-X

O_2 measuring function: BAM/ZBA/008/04

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and ICES-003 Canadian EMI requirements. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

D5554/6 English
iERP: 118237