

The BW Technologies Monitor

BW Technologies
by Honeywell



A quarterly newsletter to keep BW's customers up-to-date on our products and our presence in the industry.

Vol. 1 Issue 2

April - July

BW Technologies' 20th Anniversary



2007 marks BW Technologies' 20th year of operations. Established in 1987 with the pioneering Rig Rat, the world's first wireless, solar-powered gas detector, BW quickly became the face of innovation in gas detection. We entered into the portable gas detector market and in 1995 BW created both the MiniMax, the first gas detector to have a 5-year battery life, and the ToxyClip, the world's first disposable detector.

The GasAlert series of portable gas detectors was introduced and redefined personal gas protection, offering cutting edge technology for a fraction of the usual price. BW's newest products are fortifying the company's reputation as a cost-

effective means of providing user-friendly gas detection.

Both BW and Honeywell share a dedication not only to delivering the newest technologies at the best prices, but more importantly, to creating the safest possible working environments. This similarity of philosophies will ensure BW and Honeywell's relationship is a success - with access to Honeywell's world-caliber research and development facilities, formidable buying and distribution power and the opportunity to learn from an extensive breadth of business experience, BW Technologies by Honeywell has the potential to change the way the world thinks about personal gas detection.

Notes from the Editor

This quarter, The Monitor's feature article centers on the hazards of carbon dioxide in food and beverage production. In an industry where carbon dioxide is prevalently used and also produced, vigilant use of gas detection is an integral part of a safety procedure.

The Monitor highlights new products and accessories, offers usage information and explores new developments at BW and within the industry. Feedback and suggestions are always welcome. Please click [here](#) or e-mail Sarah.Ursulan@honeywell.com to suggest stories and information you would like to see featured.

Check out the last page for details on our photo competition and the opportunity to win an iPod!

Sarah Ursulan

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CO₂: Breathing isn't just for wine

Carbon dioxide (CO₂) is a serious hazard in food and beverage production. Commonly used in several aspects of the industry, carbon dioxide can displace oxygen, creating a dangerous environment for workers. Used in food and beverage production, created as a by-product of fermentation or used as a refrigerant in the form of dry ice, CO₂ hazards can be prevalent.

Carbon dioxide is cost-effective and has substantially less environmental effects than HFCs, leading to CO₂ becoming a popular refrigerant. Carbon dioxide is used in various capacities in the food processing industry including:

- Beverage carbonation
- To increase the shelf life of dairy products
- Food freezing and chilling
- Mixer and blender cooling
- Extraction of chemicals like caffeine and flavors without using solvents
- Refrigeration during shipment

The danger during beer and wine-making results from the fermentation process, during which, large amounts of carbon dioxide is produced. Alcoholic fermentation is an anaerobic process during which sugar is converted to carbon dioxide and alcohol. The carbon dioxide that is produced during fermentation can displace the oxygen in and around the vat. Simply leaning over a vat can cause a person to lose consciousness. The enormous fermenting vats used in the beer and wine-making industry are classified as confined spaces and require special precautions when entering, even if they are drained. Wine storage tanks, tunnels, shafts and ducts, open-topped spaces such as pits, wells and trenches are also confined spaces in which CO₂ and other dangerous toxic gases can accumulate, reaching hazardous levels.

The Occupational Safety & Health Administration (OSHA) defines a confined

space with three conditions. The space must be large enough for a worker to enter. Another stipulation is that the area can not be designed for continuous worker occupancy. A confined space also has limited openings for entry and exit. OSHA requires that employers identify confined space hazard areas with signs and prevent entry by unauthorized people. Safety equipment must be provided and established procedure has to be followed to protect employees.

The hazardous condition

threshold for oxygen deficiency in most jurisdictions is 19.5%, as set by OSHA. Both The National Institute for Occupational Safety and Health (NIOSH) and OSHA set the TWA level for CO₂ at 5,000 ppm, and the IDLH level at 40,000 ppm.

Because O₂ constitutes only 20% of the gas in ambient air, it would take 5% CO₂ to displace 1% of O₂. For the low O₂ alarm to be triggered, 1.4% of O₂ needs to be displaced if that is due to the introduction of CO₂ it would be 5x1.4% or 7% (70,000ppm) or CO₂ before the low O₂ alarm sounds. This is 14x the TWA of CO₂ and almost double the IDLH level.

The standard confined space entry portable gas detector includes sensors to detect changes in oxygen concentration and the presence of toxic gases such as carbon dioxide. With developments in sensor technology, small non-dispersive infrared (NDIR) sensors that detect CO₂ are now used in small, hand-held portable detectors to protect all workers.

Monitoring for carbon dioxide in the food and beverage industry is an integral part of ensuring worker safety. CO₂ is an asphyxiant gas and produces physiological effects on the central nervous, respiratory and cardiovascular systems. Carbon dioxide is a primary by-product of bacterial decomposition. As with people, "aerobic" or oxygen using bacteria produce carbon dioxide as a primary metabolic by-product. In many confined spaces there is a relationship between low concentrations of oxygen and elevated concentrations of CO₂.

The bottom line is that if you wait until an oxygen deficiency alarm is activated, and the displacement is due to the presence of CO₂, you will have substantially exceeded the toxic exposure limit before leaving the affected area. Monitoring CO₂ levels in the food and beverage industry is essential for worker safety.

Distributor Training

The dates for distributor training in Calgary, Alberta are as follows:

September 17th - 19th, 2007

November 19th - 21st, 2007

Please contact your local RSM for registration information and requirements. More regional training will be posted in the next newsletter.

NEW Products

GasAlertMicro 5 IR

Released to the market in early 2007, the GasAlertMicro 5 IR portable gas detector simultaneously monitors up to five atmospheric hazards including carbon dioxide (CO₂), oxygen (O₂), combustible gas (%LEL), and a wide selection of individual electrochemical toxic sensors.



Using a non-dispersive infrared (NDIR) sensor, the ultra-compact GasAlertMicro 5 IR is competitively priced for monitoring potentially deadly CO₂ levels. Highly configurable to suit a range of applications, the GasAlertMicro 5 IR comes as a diffusion or pumped instrument with either alkaline or NiMH rechargeable hot-swappable battery packs and has optional datalogging capabilities.

The GasAlertMicro 5 IR is ideal for any application requiring confined space entry in industries such as telecom, oil and gas, municipalities, utilities, marine and shipping, refineries, petrochemical facilities,



construction, wineries, breweries, beverage manufacturing and farming applications. User-settable features include confidence beep, automatic calibration, full function self-test, and an extended selection of user-settable field options.

Please note that the GasAlertMicro 5 IR firmware is not compatible with the standard GasAlertMicro 5 or GasAlertMicro 5 PID. The GasAlertMicro 5 IR's battery pack is unique, and cannot be used with the GasAlertMicro 5 or GasAlertMicro 5 PID.



Product Success Story:

GasAlertMicroClip and GasAlertMicro 5

In February, the GasAlertMicroClip and GasAlertMicro 5 alerted several individuals in Decatur, Texas of the development of hazardous concentrations of gas. While stopping at the local gas station to pick up a paper for the Senior Operator at the wastewater treatment plant, the Lift Station Operator's GasAlertMicroClip began alarming at 35 ppm CO.

The Lift Station Operator immediately contacted the wastewater treatment plant, and after conferring with the Senior Operator, the Code Enforcement team from the plant was dispatched to the gas station. The team arrived with a GasAlertMicro 5 and recorded 36 ppm CO at the front counter. At the back of the store, near the closet housing the hot water heater, readings reached 70+ ppm CO. The pipe that vented gas had fallen off and was releasing toxic levels of CO into the store. The store owner immediately had the pipe repaired.

Levels of CO in the store would have continued to rise, threatening the property and the safety of the employees without the GasAlertMicroClip and GasAlertMicro 5. Luckily the Lift Station Operator recognized the problem and took steps to remedy the situation.

What's so great about NDIR technology?

The GasAlertMicro 5 IR, capable of monitoring CO₂ with non-dispersive infrared technology (NDIR), is now shipping. What is the appeal of NDIR technology?

Specificity

With NDIR, CO₂ can be monitored without cross-sensitivity problems because other wavelengths are filtered out.

Portability

The miniaturized NDIR sensor allows for a smaller detector.

Real-time measurement

The most widely used technique for real-time measurement of CO₂ is NDIR. Draeger tubes, or colorimetric tubes, are not capable of giving real-time results that are needed to keep workers safe.

Cost-effective

NDIR technology allows for CO₂ monitoring with a cost-effective portable gas monitor instead of a more costly CO₂ analyzer.

Brand Preference Studies

BW Technologies showed amazing advancement in brand recognition from the 4th Canadian Occupational Safety (COS) Brand Preference Study in 2002 to the 16th survey in 2007.

The following questions were posed to buyers and specifiers of personal gas detectors and products:

What brand of gas monitor comes to mind first:

	2002	2007
Drager	48%	16%
ISC	24%	27%
BW	7%	27%

If all factors are considered equal, what brand of gas monitors would be your choice?

	2002	2007
Drager	63%	16%
ISC	19%	27%
BW	5%	24%



NEW Products con't

New Sensor Creates New Possibilities

The new MICROpel™75 from City Technology has been released. All GasAlertMicroClips are now shipping with the new sensor. The MICROpel™75 allows the user to calibrate to gases other than methane (for example pentane).

Single Gas LEL GasAlertMicroClip

The GasAlertMicroClip is now available as a single-gas instrument to measure combustible gas hazards. Applications for the single-gas LEL version of the GasAlertMicroClip include industrial landfill sites, compressor buildings and coal-bed methane extraction sites. Please note the firmware shipping with the single-gas LEL version of the GasAlertMicroClip is not compatible with earlier models.

Adding Sensors

If a single-gas (or multi-gas) GasAlertMicroClip is purchased, additional sensors, up to 3, can be added at a later date.

To add an additional sensor, follow this procedure:

- 1) Buy new sensor
- 2) Insert sensor into GasAlertMicroClip
- 3) Using USB Datalink between computer and GasAlertMicroClip, enter SoftTools (BW's PC interface software for the GasAlertMicroClip) user options and turn on sensor
- 4) Calibrate GasAlertMicroClip with new sensors
- 5) Use GasAlertMicroClip



Purchasing Incentive

Through the BW Trade-In and Trade-Up program, customers can save up to 10% on a new GasAlertMicroClip detector when they trade-in their existing GasAlert LEL combustible gas detector or comparable product. Please contact your RSM for more details.

Technical Notes

Firmware Upgrade

GasAlertMicro 5 and GasAlertMicro 5 PID

Upgraded firmware (version 16C) has been released for the GasAlertMicro 5 and PID versions. This firmware is NOT compatible with the GasAlertMicro 5 IR.



A new lithium ion battery pack is being developed as the final solution to the CO sensor's cross-sensitivity to hydrogen issue during charging. The new battery pack is scheduled to be released later this year.

Is your firmware updated?

If you aren't sure you have the latest firmware updates on your detectors, please visit www.gasmonitors.com and look at the applicable detector. Contact your local Regional Sales Manager if you have any questions.



MicroDock II and GasAlertMicro 5 Module

New firmware for the base station (master module) and the GasAlertMicro 5 slave module that adds compatibility for the GasAlertMicro 5 IR detector has been shipping with units since April 24th, 2007. New gases were added into the gas inlets selection section that can be used with the GasAlertMicro 5 IR detector.

Units that do not have the new firmware need to be upgraded on both the base station and GasAlertMicro 5 module individually to work with the new GasAlertMicro 5 IR. The firmware for the master module is m2bf-02m.md2.

Distributor Website

To log in to the distributor website, please follow these steps:

- 1) Visit www.gasmonitors.com
- 2) Click the link that says "Distributor Login"
- 3) Enter your password
- 4) If you do not have a password, click the button in order to register for one.



Come and Visit Us!

BW July - September 2007
Tradeshow Schedule

Emergency Management Conference

August 21 – 22, 2007; Melbourne, Australia

Fire Rescue International 2007

August 23 – 25, 2007; Atlanta, USA

Honeywell User Group Symposium 2007

August 26 – 29, 2007; Queensland, Australia

National Voluntary Protection Programs Participants Association

August 27 – 29, 2007; Washington, USA

20th Annual Alabama Governor's Safety Conference 2007

August 27 – 29, 2007; Orange Beach, USA

Outside Plant Expo 2007

August 29 – 30, 2007; San Jose, USA

Offshore Europe 2007

September 4 – 7, 2007; Aberdeen, United Kingdom

Continuing Challenge 2007

September 4 – 7, 2007; Sacramento, USA

American Public Works Association Congress 2007

September 10 – 12, 2007; San Antonio, USA

Water Sewerage & Waste 2007

September 13, 2007; Exeter, UK

A+A 2007

September 18 – 21, 2007; Düsseldorf, Germany

Oil Sands Tradeshow and Conference

September 19 – 20, 2007; Edmonton, Canada

Canadian Industrial Emergency Conference & Expo 2007

September 19 – 20, 2007; London, Canada

Main Safety & Health Conference 2007

September 24 – 26, 2007; Augusta, USA

Maine Safety and Health Conference

September 24 – 26, 2007; Augusta, USA

Sapeurs Pompiers 2007

September 26 – 29, 2007; Clermont-Ferrand, France

Governor's Industrial Safety & Health Show 2007

September 26 – 27, 2007; Tacoma, USA

Tri-State 2007

September 27 – 29, 2007; Primm, USA

Price List Update

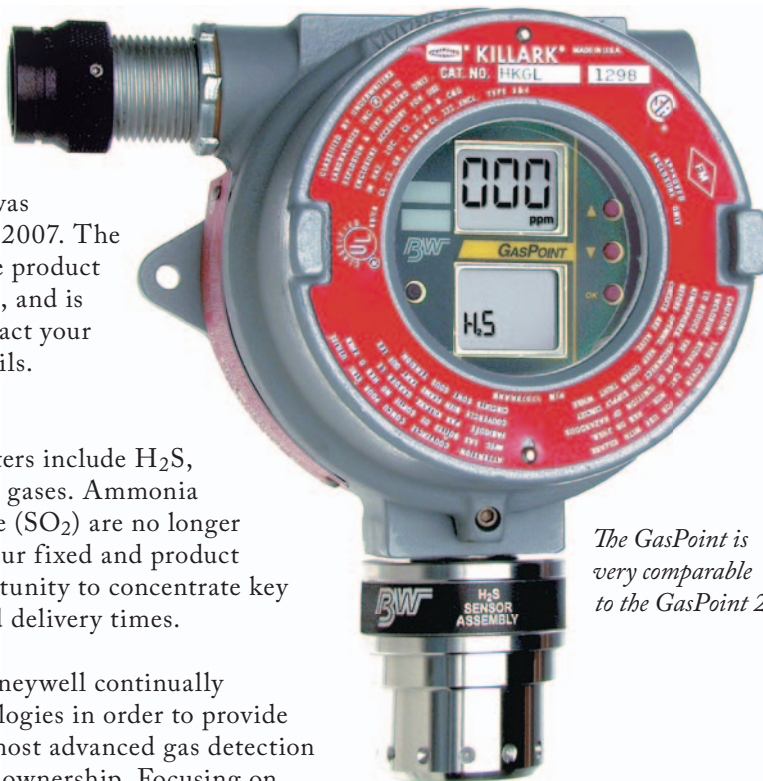
GasPoint 2

The price List has been modified to reflect to following changes. The GasPoint 2 was retired as of January 1st, 2007. The GasPoint is a comparable product with a similar feature set, and is currently available. Contact your local RSM for more details.

RRJ Series

The RRJ series transmitters include H₂S, O₂, CO and combustible gases. Ammonia (NH₃) and sulfur dioxide (SO₂) are no longer available. Streamlining our fixed and product lines allows us the opportunity to concentrate key production and improved delivery times.

BW Technologies by Honeywell continually pursues the latest technologies in order to provide our customers with the most advanced gas detection solutions at a low cost of ownership. Focusing on development allows BW Technologies to meet your gas detection needs while incorporating new technologies.



The GasPoint is very comparable to the GasPoint 2

Room to Grow

BW Technologies has expanded our current facility at our headquarters in Calgary, Alberta, Canada to 53,545 sq ft. to meet increased demand for production. The new space allows continued development of great products and focus on quality.



Attaching the Auxiliary Filter to the GasAlertMicro 5

New Auxiliary Filter

The price List will now include the new GasAlertMicro 5 Auxiliary Filter. For use with the:

- GasAlertMicro 5
- GasAlertMicro 5 PID
- GasAlertMicro 5 IR

The new Auxiliary Filter prevents particulate intake and protects the pump. The order numbers are M5-AF-K2 (kit of 5) and M5-AF-K2-100 (kit of 100).



The Auxiliary Filter



Instrument Care

Care and Maintenance: Personal Gas Detectors

Following are some recommendations for cleaning portable BW Technologies by Honeywell gas detectors:

- Clean the exterior with a soft damp cloth. Do not use solvents, citrus, alcohol or silicone based products, soaps, or polishers.
- For tough cleaning we can recommend the use of a soft cloth and Staticide mat and table top cleaner
- For dust and particulate a vacuum can be used. Do not use industrial grade instrument air which can contain oil mist.

Cleaning BW gas detectors using other products may be harmful to the detector and the sensors. There are many types of



commercial cleaning products available in the marketplace and BW does not assess all products.

BW recommends use of General Purpose Staticide for use with BW Technologies products. Designed for non-porous surfaces, General Purpose Staticide solves static control problems related to the attraction of dirt, dust and bacteria to all environmental surfaces, plastic products and product packaging.

Bump Testing with Multi-Gas Instruments

Workplace environments can be harsh and gas detectors are subjected to all kinds of conditions that can affect the operation of multi-gas instruments. Detectors can be physically damaged, sensor ports can become obstructed by liquid or particulate materials, sensors can be over exposed to gas hazards or damaged by atmospheric poisons and inhibitors.

A sensor can be damaged and the detector is not able to electronically diagnose a problem. The best practice to ensure the safe operation of your multi-gas detector between calibration intervals is to perform a functional bump test before each use.

BW recommends bump testing all sensors in multi-gas instruments prior to each day's use. Perform a functional bump test

by exposing the detector to a test gas containing a known concentration of gas capable of activating the instrument alarms while the detector is in standard operating mode.

Visually verify that the displayed gas values change in response to the target gas being applied, and that the instrument alarms are activated. Bump testing is the only way to verify proper function.

Portable gas detectors are designed to protect workers against potentially life threatening occupational environments. Verifying the proper performance of your multi-gas detector is an integral part of any gas monitoring safety program.

Bump Test with Gas and Balloon Adaptor

- 1 Activate the gas detector.
- 2 When the detector is in normal operation, attach the short end of the balloon adaptor tubing to the gas cylinder nozzle.
- 3 Attach the long end of the balloon adaptor tubing to the calibration/test cap supplied with the detector.
- 4 Attach the test cap to the detector.
- 5 Bend the tubing between the balloon and detector, and hold.
- 6 Squeeze and hold the release on the gas cylinder for 3 to 5 seconds, partially filling the balloon. Release the bend in the tubing to expose the sensor to an even flow of test gas.
- 7 Visually inspect the LCD to ensure the sensor reading(s) has exceeded the alarm threshold.
- 8 Verify the audible, visual and vibrating alarm response to target gas(es).

BW Events

LEAN Accomplishments Training Results

"Lean" is an organization and management tool started by Toyota that focuses on enhancing quality, cost, delivery and people. One of the seven Lean Principles is to continuously improve in the pursuit of excellence. At BW Technologies by Honeywell, we are continually trying to improve the production process. Reducing the time taken to produce a unit also reduces our lead times. Lean is helping us ensure our quality targets are consistently met. Our efficiency aims to serve our customers better.



Product Line	Time to Produce Unit		Time Difference
	Before Lean	After Lean	
GasAlertMicroClip	37.74 min	12 min	- 25.74 min
GasAlertMicro	31.74 min	19.25 min	- 12.49 min
GasAlertClip Extreme	10.5 min	7.67 min	- 2.83 min

Photo Contest

BW is looking for industry application photos. The winner will be awarded an 8GB **Nano iPod**. Eligible entries can either feature BW Technologies gas detectors in use or simply be photos taken in the field. Examples of qualifying photos include confined space entry, oil and gas industry, marine/shipping, fire and rescue, mining, wineries and breweries, telecommunications or wastewater treatment plants. Photos may be used in BW advertising and other promotional materials.

Photos must be submitted in either jpeg or tiff format, and must be a minimum of 4" by 6" at 300 dpi. The contest begins August 1st, 2007 and deadline for photo submission is September 30th, 2007. Please visit <https://www.gasmonitors.com/content/photocontestrules.html> for complete contest rules and details. Photos can be e-mailed to bwcomm@gasmonitors.com, sent on a CD or DVD, or a photographic print of the original photo can be mailed to:

BW Technologies by Honeywell
Attention: Communications Coordinator
2840 – 2nd Ave. SE
Calgary, AB T2A 7X9
CANADA

Photos will be judged by a panel and the prize awarded based on composition, quality and safety regulation compliance. Contestants may have an unlimited number of submissions and the winner photograph will be featured in an upcoming edition of The Monitor newsletter.



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