Why is bump testing your portable gas detector important for safety?

Whitepaper

MSA
The Safety Company

Why is bump testing your portable gas detector before each day's use a matter of safety?

Portable gas detection is an important part of a workers' safety equipment for certain environments and jobs. However, the accuracy and function of portable gas detectors can be reduced, impeded, or otherwise impacted over time, which could affect the instrument's ability to reliably warn and help protect against gas hazards. For example, environmental influences and harsh application conditions can affect the functionality of gas detectors. Those affects can be gradual over time or they can be more sudden. Also, those affects can sometimes be reversed and are sometimes permanent.

Bump testing the gas detector should alert the user of a nonfunctioning sensor

The traditional bump test consists in checking the instrument's ability to respond to a target gas within a given amount time. If the instrument does not respond or responds outside the test parameters, then something is affecting the instrument's functioning. For example, dirt or mud could block the gas inlet of an instrument. Some detectors on the market are not able to proactively warn you that gas entries are blocked. In cases such as these, a fully functioning sensor simply will not see gas. A bump test will indicate whether the sensor's function has been affected and give you the opportunity to identify the blockage, which may not be visible to the human eye.

To help users confirm that a bump test was done, the MSA ALTAIR family of gas detectors uniquely shows a Bump Test checkmark on their display for 24 hours after a successful bump test. A bump test quickly confirms whether the gas entries are free, and if your sensor is functioning.

Bump test frequency is often stipulated by national or corporate regulations

Bump testing before each days' use is generally a recommended, and sometimes required, safety practice to verify proper instrument operation. For example, the European standard EN 60079-29-2 and the International Standard IEC 60079- 29-2 stipulates a functional check for gas detectors before each day of use. The German BG RCI (Employers' Liability Insurance Association for Raw Materials and Chemical Industry) also requires a functional check before each day of use, in their code of practices T021 and T023.

Why is calibrating your gas detector important?

Calibration is the adjustment of the sensor(s) output to match the known traceable calibration gas concentration. It gives you an opportunity to provide optimum accuracy of the instrument. It can be performed if high accuracy is desired and also if a bump test fails. Calibration is important since all sensors on the market can have some amount of drift over time and are subject to potential uncontrollable effects such as over-exposures, poisoning, physical shocks, extreme environmental changes etc. These types of events could affect the sensor's effectiveness. MSA recommends calibration at least every six months; however, many countries and/or organizations have their own calibration guidelines that may require more frequent calibrations.

What other benefits come from proper calibration and bump testing of gas detectors?

1. Safety

Proper calibrations and bump tests help verify that a gas detector is working properly. If a gas detector is not properly maintained, the results may not be accurate which can impact the health and safety of workers entering a potentially hazardous space or environment.

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2. Compliance

Regular calibrations are required for compliance under certain state and federal laws or industry standards. Verifying gas detectors are working can help prevent fines associated with non-compliant detector usage.

3. Productivity

Properly calibrated and bump tested gas detectors can help reduce the risk of costly incidents or work stoppages from gas leaks or exposure. For example, early detection of a gas leak during routine maintenance could help prevent costly and time-consuming projects such as replenishing leaking gases, repairing and replacing equipment following possible explosions, or remediation and cleaning up from large leaks that could harm workers, the environment, and surrounding communities.

How to help simplify maintenance and compliance of your portable gas detector fleet?

Staying up-to-date with the latest connected gas detection solutions is one way to help simplify the maintenance – including calibrations and bump tests – and compliance of your fleet. The ALTAIR io™ 4 Connected Gas Detector is a connected device that comes with built in cellular connectivity and integration with Grid software and the ALTAIR io™ Dock. Key features include:

1. Enhanced Fleet Management and Monitoring

Grid software provides a suite of powerful fleet management and monitoring capabilities including over-the-air updates for all of your devices, lifetime cloud logs with full device history, and fleet cloud configurations to align with your organisation's SOP. Grid Fleet Manager provides proactive safety management, dashboard overviews and record-keeping.

Available in multiple languages, Grid Fleet Manager is designed for proactive safety management; gas exposure email alerts, direct data input, live filtering, test and exposure queries, collecting and printing reports. These features allow the managers to have greater control over the user's ALTAIR family of gas detectors, including the newest, fully connected ALTAIR io™ 4.

2. Automated Calibrations and Bump Tests

The ALTAIR io Dock helps further simplify calibration and bump testing procedures. When an ALTAIR io 4 device is in the Dock, the unit knows when it needs a calibration or bump test based on settings established by the user, and automatically performs the appropriate function. All compliance reporting is sent immediately to the Grid, helping to minimise the risks associated with manual record keeping or data file management.

3. Anticipated Calibration Gas Refills

MSA+ Autofill – an option with an MSA+ subscription including ALTAIR io 4 devices and Grid – can help ensure you have the right gas ready when you need it for daily bump tests and fleet calibrations. Autofill allows you to spend less time planning and managing inventory while avoiding unnecessary downtime due to expired or empty cylinders. The ALTAIR io Dock automatically sends an alert when your cal gas supply is running low. With the click of a button, replacement cylinders will arrive at the designated location within days.

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Amplify safety with automated test systems for bump testing and calibration of your gas detectors

MSA's GALAXY GX2 Automated Test System is an automated docking and calibration station provides simple, intelligent testing and calibration for non-connected portable gas detectors from the ALTAIR, ALTAIR 2X, ALTAIR PRO, ALTAIR 4XR and ALTAIR 5X range of detectors.

The easy-to-use automated test stand can offer high performance as either a stand-alone unit, or an integrated portable detector management system, allowing data access and control of the ALTAIR family gas detector fleet.

The ALTAIR io Dock enables calibration and bump testing which can help to improve compliance and safety dedicated to Altair io 4 Connected Gas Detector. What's more, the io Dock offers full connectivity without interacting with end-user IT infrastructure. Grid Live Monitoring is a cloud-based application, allowing control room operators to monitor gas readings, check the status of alarms in real-time and monitor worker locations if this feature is required. They can also interact directly with workers through push-to-device alarms and notifications, or efficiently coordinate single or mass evacuations. Live monitoring could reduce response time by up to 50%, enhancing workplace safety and potentially saving costs which are associated with delayed reactions to hazardous situations.

Both GALAXY GX2 and io Dock supports:

• Colour touch screen for ease of setup and viewing

• Extremely simple to use; testing starts automatically without touching a single button

• Simultaneous testing of up to ten instruments, optimised for use with MSA XCell® Sensors and can provide up to 50% cost of ownership reduction

• At-a-glance indicators include low calibration gas volume, expiration warnings and test stand status.

Are you ready to streamline your gas detector's compliance and maintenance? <u>Click here</u> to learn more about our solutions.

ALTAIR 2XP H$_2$S with XCell Pulse Technology Features the first stand-alone bump test, which eliminates the need for bottled gas!

• Bump test anytime, anywhere

• Based on proven science and patented sensor capabilities

MSA operates in over 40 countries worldwide. To find an MSA office near you, please visit **MSAsafety.com/offices**.