

Product Notice

Gas Detection Bump Test and Calibration Frequency

Regions Affected: **Global**

This document is intended to provide a general guideline for bump testing and calibration of Honeywell Analytics gas detection products. The following gas detector tests should only be conducted in a fresh air atmosphere containing 20.9% oxygen and free of any toxic or combustible gas vapors.

Corporate, local, regional or national regulations, policies and procedures may take precedence over these recommendations.

Bump Test

Function Check: A *qualitative* function check where a challenge gas is passed over the sensor(s) at a concentration and exposure time sufficient to activate all alarm indicators to a minimum of their lower alarm setting. The purpose of this check is not to confirm the accuracy of sensor response, just that gas can get to the sensor(s) and that all the alarms present are functional.

Accuracy Check: A *quantitative* function check using a known concentration of gas that is traceable to a recognized standard to confirm that the alarms are functional and that the sensor(s) response is within acceptable limits. Typically, a +/-10% to +/-20% of applied gas value is considered acceptable unless otherwise specified by the manufacturer, internal company policy, or a regulatory agency.

Calibration

Zero calibration: Establishes sensor(s) baseline reading, 20.9% oxygen and free of any toxic or combustible gas vapors. To maintain a stable baseline, it is essential to perform zero calibration in fresh air. In the event, fresh air cannot be confirmed, use zero grade air or N₂ to perform a detector zero calibration. Perform a zero calibration to reestablish baseline as required, and before a span calibration.

Span calibration: The *adjustment* of the sensor(s) response to match the value of a known concentration of applied gas that is traceable to a recognized standard. The calibration procedure should be done in accordance with the equipment manufacturer's instructions.

NOTE: Consult the product manual for product specific recommendations.

Recommended Frequency

Fixed gas monitors:

- *Perform an Accuracy Check on a 4 to 6-month basis based on region at a minimum
 - Consult local regional codes for proper bump test intervals
- Perform a Zero calibration and *Span calibration prior to first time use and then on an annual basis at a minimum
 - **Factory calibrated sensors may not require a Span calibration at first time use
 - Infrared (sealed construction only) and ultrasonic based products typically do not require span calibrations and should be avoided where possible

Direct Reading Portable Gas Monitors:

- Perform a Function or Accuracy check prior to each day's use at a minimum.
- Perform a Zero and Span Calibration prior to first time use. Calibration frequency can vary from every 30 to 180 days, or, calibrate following a failed bump test.

Non-direct Reading Portable Gas Monitors:

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- Perform a Function check periodically
- Perform a Zero Calibration as required; Span Calibration is typically not required over the working life of the monitor.

Flame Detection Testing

Electro-optical flame detectors:

- Perform a lamp test on a semi-annual basis. Perform a complete fire protection system function test annually.

Information/Reference Materials

- **Honeywell Analytics:**
 - <http://www.honeywellanalytics.com/>
 - <http://www.raesystems.com/customer-care/resource-center/ebooks>
 - <http://www.raesystems.com/customer-care/resource-center/tech-notes>
 - http://www.raesystems.com/sites/default/files/content/resources/pid_handbook_1002-02.pdf
- **International Safety Equipment Association (ISEA):**
 - <https://safetyequipment.org/product-groups/instruments/>
- **Occupational Safety and Health Administration (OSHA):**
 - <https://www.osha.gov/dts/shib/>
- **Factory Mutual (FM Class 3260):**
 - <http://www.fmapprovals.com/products-we-certify/understanding-the-benefits/fm-approved-flame-detection>

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**Factory calibrated sensors are calibrated to NIOSH standards and may not require span calibrations at initial use.

- Zero calibrations on fixed instruments is recommended at time of start-up to ensure the best possible operational results.
- Allow for a minimum of 15-minute warm-up period to allow for the sensor to acclimate to the environment (i.e. Altitude, humidity and temperature).