



Combustible Sensor Calibration for Q8/B8

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ACI recommends that gas sensors be bump tested and calibration checked with the calibration gas per the service agreement of the building maintenance schedule. If the service agreement doesn't determine how often they should be tested, we suggest at least once a year.

-A **"bump test" (function check)** is defined as a qualitative check in which the sensors are exposed to challenge gas for a time and at a concentration to activate all of the alarms to at least the lower alarm settings. It is important to understand what a qualitative test of this kind does not do. The test confirms that the gas is capable of reaching the sensors, that when they are exposed to gas the sensors respond, the response time (time to alarm) after gas is applied is within normal limits, and that the alarms are activated and function properly. However, a qualitative function test does not verify the accuracy of the readings or output of the sensors when exposed to gas.

-A **"calibration check"** is a quantitative test using a traceable source of known concentration test gas to verify that the response of the sensors is within the manufacturer's acceptable limits. For instance, a manufacturer might specify that readings in a properly calibrated instrument should be within $\pm 10\%$ of the value of the gas applied. If this is the pass / fail criterion, when 20 ppm H₂S is applied to the instrument, the readings must stabilize between 18 ppm and 22 ppm in order to pass the test. It should be stressed that these pass / fail criteria are manufacturer guidelines. Different manufacturers are free to publish different requirements.

-A **"full calibration"** is defined as the adjustment of an instrument's response to match a desired value compared to a known traceable concentration of test gas. Once again, the calibration procedure, including the concentration of gas applied, method used to apply gas, and method used to adjust the readings are determined by the manufacturer.

Needed:

GAS CAL KIT - (Carry Case, 0.5lpm regulator, C10 to CGA 600 Adapter and Teflon Tubing)
H107220.9VN - 20.9%V Oxygen Zero Gas
F197150LA - 50% LEL Methane Span Gas
79030-103 - Q8/B8, QTS-1710 Combustible Calibration Adapter
Magnet tool (included with Q8/B8)

The Q8/B8 combustible uses 50% LEL Methane to calibrate the sensor, no matter the target combustible gas, so the target gas must be changed to Methane in the Q8/B8 menu to calibrate the sensor, check the calibration, and then change back to the original target gas.



Below are the steps for calibration.

Using the magnet tool, enter menu using F3. Password is 4321.
Use the F1 button to D. Factory Set. F3 to enter. Password is 4005

Be careful to change only the gas type!

Use the F1 button to get to 3. Chg Gas Type. F3 to enter.
Use the F1 button to get to Methane and F3 to enter.
Press F1 to get to Exit Factory Set? F3 to enter.
Press F1 to get to 2. Zero Cal. F3 to enter and follow the prompts.
Exit Zero Cal.
Use F1 to get to 3. Span Cal. Follow the prompts using the 50% LEL methane as the span gas.

Calibration Check

Exit the Menu completely.
Apply the 50% LEL gas to the sensor and make sure the sensors read 50% LEL. If it does not, do the calibration again.
If the calibration check is reasonable, the Q8/B8 must be changed back to the original target gas.
Using the magnet tool, enter menu using F3. Password is 4321.
Use the F1 button to D. Factory Set. F3 to enter. Password is 4005

Be careful to change only the gas type!

Use the F1 button to get to 3. Chg Gas Type. F3 to enter.
Use the F1 button to change back to the target gas and F3 to enter.
Press F1 to get to Exit Factory Set? F3 to enter.
Exit the Menu completely.



