



ACI Bump Test Calibration of a Q5, B5, Q6, B6 Oxygen Instructions

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To calibrate the oxygen sensors, you would need a calibration gas that has a known concentration value, 100% nitrogen, a 0.5 LPM regulator, a calibration adapter, and tubing (see list of part numbers and links on next page). We recommend calibrating the oxygen sensor every 3 months. You will need a cylinder of 100% Nitrogen (Zero Gas) and a cylinder of 20.9% Air (Span Gas).

Note: Typical lifespan of the oxygen sensing element is between 12-18 months. Once sensor lifespan is used up, the raw oxygen sensor must be replaced. If the sensor life is used up, "CAL ERROR" will typically show up when attempting a SPAN CAL. Another indication is that the Sensor will have an Error Code: "Sensor Fail", or "Fault" with the R3 LED on.

ACI offers replacement smart sensor assemblies that are factory calibrated. The boards are easily replaced in the field by removing two screws on the previous module and the replacement board installed. All units should be

checked for proper functionality and calibration once the replacement sensor module is reinstalled and has had a chance to warm up. Oxygen Smart Sensor Replacement Part: 85930-016-000

<https://www.workaci.com/sites/default/files/category-files/Replacement%20Smart%20Sensor%20Assembly.pdf>

- 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 **“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.
- **Bump test demonstration:** <https://www.youtube.com/watch?v=quhqp1QsCBk&t=2s>
- **Calibration demonstration:** <https://www.youtube.com/watch?v=cpdclBQJIP4>

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Calibration Equipment for O₂

- **Part:** 85930-006-000 (Calibration Adapter for Q5/B5, Q6/B6)
- **Part:** CAL GAS KIT (Includes – 1ea C10 0.5lpm regulator, 1ea C10 to CGA600 adapter, Carry case, and ten feet of 1/4” tubing.)
- O₂ gas for span calibration
Part: H107220.9VN (20.9% Oxygen, 34L, Certified)
- Zero gas for zero calibration only
Part: H1066 (100% Nitrogen, 34L, Certified)
https://www.workaci.com/sites/default/files/product_cutsheet/Gas%20CAL%20Kit.pdf

Calibration Procedure

- To enter Q5/B5 menu.
- Press F3 to get to Main menu.
- Press F3 again. This will get you to Password.
- Default password is 4321.
- Press F2 to get to 2. ZERO CAL. Press F3 to enter

- The display will ask if you want to continue. Apply zero gas until the output is 0 ppm and press F3 for
- YES. The sensor will display “Accepted” will return to 2. ZERO CAL
- Remove the Zero gas.
- Press F2 once to get to 3. SPAN CAL. Press F3 to enter.
- Enter the ppm of the calibration gas and press F3.
- Display will ask if you want to continue. First, apply the calibration gas and wait until the reading stabilizes.
- Press the F3 key to confirm the Span Cal and keep the gas flowing.
- When Span Cal is completed, display will show “Accepted” and return to
- 3. SPAN CAL.
- Remove the Span gas.
- Press F1 key to get to EXIT MENU.
- Once the sensor is in operating mode, apply the Span gas to verify sensor accuracy, If CAL ERROR comes up, repeat the Zero or Span Cal. If error message continues, replace the smart sensor board.

Support

Automation Components, Inc.
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 Middleton, WI 53562
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Documents / Resources

	<p>ACI Bump Test Calibration of a Q5, B5, Q6, B6 Oxygen [pdf] Instructions Bump Test Calibration of a Q5 B5 Q6 B6 Oxygen, Bump Test, Q and B Series Oxygen Bump Test</p>
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References

-  WorkACI | Engineering a better sensor solution.