BUMP TEST/CALIBRATION OF A Q5/B5/Q6/B6 COMBUSTIBLES

Phone: 1-888-967-5224
Website: workaci.com

Testing the Q5/B5/Q6/B6 combustible sensors require the GAS CAL KIT, 85930-006-000 calibration adapter and 50% LEL of the target gas of the sensor. If the target gas is not available, Methane or Propane can be used. The chart below shows the list of gases, whether to use 20/50% LEL Propane or 50% LEL Methane, and what the sensor will display when Methane or Propane is applied.

The service agreement for sensor maintenance will dictate how often the sensors should be calibrated or the system bump tested. If none are noted, ACI recommends bump testing and calibration on a yearly basis.

-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.
Bump test demonstration: https://www.youtube.com/watch?v=quhqp1QsCBk&t=2s

-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 ±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.
Calibration example video link: https://www.youtube.com/watch?v=cpdclBQJlP4

Equipment needed for Bump Testing:
GAS CAL KIT (includes 0.5lpm regulator, C 10 to CGA 600 adapter, 10' tubing, and carry case)
85930-006-000 Q5 calibration adapter
50% LEL cylinder of target gas. If target gas is not available, use Propane (20% LEL or 50% LEL) or Methane (50% LEL) See chart.

Automation Components, Inc.
2305 Pleasant View Road | Middleton, WI 53562
Phone: 1-888-967-5224 | **Website:** workaci.com

Version: 6.0
I0000918

Equipment needed for Calibration:

GAS CAL KIT (includes 0.5lpm regulator, C 10 to CGA 600 adapter, 10' tubing, and carry case)

85930-006-000 Q5 calibration adapter

Zero Gas: 20.9% oxygen or 100% nitrogen

Span Gas: 50% LEL cylinder of target gas. If target gas is not available, use Propane (20% LEL or 50% LEL) or Methane (50% LEL) See chart.

GAS/VAPOR	Propane (C3H8) Cal Gas %LEL	Sensor Reading
n-Pentane	50%	60%
n-Hexane	50%	67%
n-Butane	50%	55%
Benzene	50%	73%
Ethanol	50%	67%
Ethane	50%	71%
Gasoline	50%	67%
Diesel	50%	84%
Xylene	50%	84%
Octane	50%	86%
Acetone	50%	86%
Isopropanol	50%	86%
JP8	50%	67%
Jet Fuel A	50%	67%
Jet Fuel B	50%	67%
Toulene	50%	75%
Propane	50%	50%
Iso-Pentane	50%	67%
Iso-Butane	50%	55%
Dioxane	50%	60%
Heptane	50%	75%
Naphtha	50%	88%
Styrene	50%	99%
Ethyl Acetate	50%	86%
VOC	20%	59%
Decane	20%	59%
Kerosene	20%	59%

GAS/VAPOR	Methane (CH4) Cal gas %LEL	Sensor Reading
Acetylene	50%	84%
Propylene	50%	72%
Methanol	50%	72%
Acetylene	50%	84%
Ethylene	50%	77%
Methane	50%	50%
Hydrogen	50%	53%

CALIBRATION PROCEDURE

Follow instructions in Operation Manual.

https://www.workaci.com/sites/default/files/category-files/I0000864.pdf

Automation Components, Inc.
2305 Pleasant View Road | Middleton, WI 53562
Phone: 1-888-967-5224 | **Website:** workaci.com