

3M™ Multi-Gas Detector 740 Series with Data Logging Software – Calibration

Calibration of the unit should be performed every 30 days or immediately if it does not pass the bump test. Factors such as age of the sensor and exposures to very high concentrations of gas may require the sensor to be calibrated more frequently.

The data logging option for the detector allows for storage and display of the calibration dates with a logging session, and makes a notation if a bump test has been carried out.

CAUTION – CSA Standard C22.2 No. 152 states that before each day’s usage sensitivity must be tested on a known concentration of the currently selected gas equivalent to 25-50% LEL of full scale concentration. Accuracy must be within 0% - 20% of the actual. Accuracy may be corrected by performing a calibration of the unit.

To calibrate the detector:

- a) Go to a non-contaminated environment to perform the calibration.
- b) Turn on the unit and allow it to warm up.
- c) Choose the appropriate certified gas by matching the sensors with the gas mixtures noted in the user instructions.
NOTE: A four-gas certified calibration mixture is available from 3M using methane as the combustible gas (**3M Part Number 933-000-023** in a 34 L cylinder). Test gas concentrations can be changed by changing the test concentration at start up (shown in the “Viewing and Changing Settings” Video). See the user instructions for more information.
- d) Press and hold the TEST button for 3 seconds while observing the LCD, release the button when indicated by the LCD.
- e) The LCD will then display the days since the sensors were last calibrated and ask if you wish to “ZERO SENSORS?” It is recommended that you do so.
- f) Press the POWER/SELECT button to accept the zero calibration.
- g) Press the PEAKS/NO button if you wish to by-pass a zero calibration, note that this will bypass the oxygen sensor calibration.
- h) The oxygen sensor is calibrated during the zeroing operation so avoid breathing into the detector during this operation as you could affect the oxygen level being detected by the OX sensor.
- i) At the conclusion of the zeroing step, the LCD will ask if you wish to “TEST SENSORS?”

- j) Press the POWER/SELECT button to initiate the sensor test.
- k) Press the PEAKS/NO button to bypass the sensor test.
- l) The LCD will display the message “WAITING FOR GAS” and will show the gas concentrations that are expected for methane (EX), carbon monoxide (CO), and hydrogen sulfide (HS) sensors.
- m) An internal timer starts that allows time to connect the certified calibration gas hose.
- n) Place the calibration hood over the sensors.
- o) Secure it tightly with the retaining screw.
- p) Attach a hose from the correct calibration gas bottle to the gas inlet of the detector.
- q) Turn on the valve and ensure the gas flow rate is between 0.2 and 0.5 liters per minute.
- r) The LCD will then change to “TESTING.”
- s) The sensor test will typically take 30 seconds. If values are outside the expected range the LCD will read “FULL TEST.” This testing will take up to 3 minutes.
- t) A full test or calibration can be invoked by leaving the gas applied on the sensors for at least 30 seconds after the conclusion of the test.
- u) If the test was successful the LCD will read “TEST PASSED” or “FULL TEST PASSED” at the end of the test.
- v) Turn the gas valve to off and disconnect the hose.
- w) If the test was successful the detector is ready for use.
- x) If the test was unsuccessful the LCD will read “SENSOR TEST FAILED.”
- y) It is recommended the test be repeated at this point.
- z) If the detector does not pass the second test, **do not use the instrument until the reason for the message has been determined and corrected.**

aa) See the troubleshooting section of the user instructions or call 3M Technical Service at 1-800-243-4630.

This completes the 3M™ Multi-Gas Detector 740 Series training. If you have any questions please call 3M Technical Service at 1-800-243-4630. Thank you again for choosing a 3M product.

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