

S4000C Calibration Info

Calibration

General Monitors recommends that the Model S4000C Intelligent Sensor be calibrated one hour after start-up, and that the calibration be checked at least every ninety (90) days, to ensure system integrity. General Monitors is not implying that the customer should expect problems with sensor life or stability, but “frequent” calibration checks merely ensure the integrity of the life protecting equipment.

The above statement is not intended to discourage the customer from checking calibration more frequently. Frequent calibration checks are recommended for environments that have problems, such as mud collecting on the sensor head, sensors accidentally being painted over, etc. General Monitors recommends that a calibration schedule be established and followed. A log book should also be kept showing calibration dates and dates of sensor replacement.

Calibration Procedure

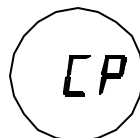
If it is suspected that gases are present, it will be necessary to purge the sensor environment with Zero Air. If Zero Air is not available, cover the sensor for about thirty seconds before applying the calibration gas. Zero Air is air that is hydrocarbon free.

Entering Calibration Mode automatically disables the alarm circuits by sending a 1.5mA output signal and disabling the Warn and Alarm relays, if present. This will also prevent activation of the remote relay contacts, when using a General Monitors Readout/Relay Display Module with the Model S4000C. To enter Calibration Mode, place the magnet over the GMI Logo on the cover of the unit and hold it there until “AC” appears on the display (about ten seconds). The display will flash the Remaining Sensor Life for a few seconds, while the unit acquires the zero reading. Ensure that the sensor is seeing clean air during this time.



Automatic Calibration Mode

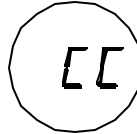
Apply the calibration gas concentration to the sensor (usually 50% LEL of the desired gas). The display will change from “AC” (Automatic Calibration) to “CP” (Calibration in Progress) indicating that the sensor is responding to the calibration gas.



Calibration in Progress Mode

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After one or two minutes, the display will change from “CP” to “CC” indicating that the calibration is complete.



Calibration Complete Mode

Remove the gas and wait for the unit to return to normal operation. The display will indicate a few percent full-scale and then drop to “0”. The unit is now calibrated and the new ZERO and SPAN values have been stored in the non-volatile memory (EEPROM).

Aborting Calibration

If calibration is to be aborted, and gas has not been applied, wait ninety seconds and reapply the magnet. The unit will return to normal operation, with the previous calibration values unchanged.

NOTE - Once gas has been applied, it is not possible to abort a calibration.

If the Model S4000C is placed in the Calibration Mode, and no gas is applied for six minutes, the unit will revert to a Fault (F2) condition. Reapplying the magnet over the GMI Logo will return the unit to operational mode, with the previous calibration values unchanged.

Adjustable Calibration Level

The Model S4000C provides the user with the ability to adjust the calibration level from 25% LEL to 90% LEL. The default value from the factory is 50% LEL. This allows the user to utilize gas already available at their installation, that is not 50% LEL of the gas being detected, or to perform cross-calibration to a similar gas. Adjusting the Calibration Level is performed in Setup Mode (see manual for further instructions).

WARNING - General Monitors recommends calibrating the Model S4000C with 50% LEL of the gas being detected. This provides the most accurate calibration, since the Model S4000C is optimized for this concentration. The accuracy of the calibration may be reduced by using a different calibration level, and this inaccuracy will increase as the calibration level varies from 50% LEL.

Remaining Sensor Life

The Model S4000C Intelligent Sensor provides an estimate of remaining sensor life, in percent remaining, to provide the user with an early warning of the need for sensor replacement. The remaining sensor life is updated each time the unit is calibrated. The current remaining sensor life estimate is displayed during the zeroing portion of a calibration sequence. It can also be read via the Modbus interface.

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NOTE - The Remaining Sensor Life provides an estimate of the amount of life remaining for the sensor. This estimate can be affected by many factors, including environmental conditions, poisons, etc. It should be used only as an estimate for preventive maintenance and logistic purposes.

Initializing the Remaining Sensor Life

The Remaining Sensor Life estimate must be initialized each time a new Hydrocarbon Sensor is installed. The initialization should be done during the first calibration of a newly installed sensor. After the sensor has been on power for a minimum of one hour, enter calibration mode as described above. While the display is flashing the remaining sensor life estimate during zeroing, apply the magnet to the GMI Logo on the cover. The flashing number will change to **"100"**, indicating the sensor has 100% of remaining sensor life. Complete the calibration per the above.

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