



GENESIS INTERNATIONAL, INC.

CALIBRATION TEST KIT FOR SHERLOCK SENSORS



SENSOR CALIBRATION KIT

All the kits include the following:

- 1 cylinder of scientific air 20.9%O₂, 79.1%N₂
- 1 cylinder of calibration gas with Air balance
- 1 flow regulator with 1 Liter/Minute flow rate
- 1 calibration chamber for the CMOS Sensor
- 3 feet of tubing
- 1 soft sided carrying case
- 1 potentiometer screwdriver
- 1 instruction manual

PLACEMENT OF CMOS SENSOR IN THE CALIBRATION CHAMBER



1. Once the sensor is secure in the chamber, mount the valve onto the Scientific Air Cylinder.

NOTE: Be sure the Alarm Delay time for each sensor is less than 5 minutes. If it is not, change it to 5 minutes for calibration. Afterwards, remember to return it to its original value.

2. A. Open the valve for 3 minutes.
B. Wait 5 minutes.
3. Take the voltage between "IN" and "GND" terminals on the SHERLOCK control for the sensor being tested.
4. Adjust the calibration potentiometer on the sensor until the voltage equals 0.65V DC or the displayed value is around 35.
5. A. Go to the CALIBRATE menu in the SHERLOCK control, push SELECT.
B. Scroll to the "CAL SNR X" function. Where X is the sensor being calibrated.
C. Push SELECT, confirm the calibration by pushing SELECT again.
D. The control should read "CAL DONE".
E. EXIT this function.
6. "ABS VALUE XXX" will appear on the display. Record this value. This is your zero reading. Use this value to calculate your new alarm setpoints.
7. Enter the new values in the SETPOINT menu. Return the Alarm Delay to its original setting.

OVERVIEW

The SHERLOCK Calibration Kit is used with SHERLOCK refrigerant gas monitors to effectively calibrate refrigerant, Oxygen Deprivation and ammonia sensors. The Calibration Kits allow SHERLOCK users to optimize performance, accuracy, and convenience. Calibration kits are to be used every six months to guarantee reliability. All gases are mixed to the highest accuracy with traceability to N.I.S.T. and are easy to transport. The SHERLOCK Calibration Kit will provide calibration for all Sherlock sensors including CFC/HCFC, HFC Oxygen Deprivation, and Ammonia.

CMOS SENSOR CALIBRATION

1. Insert the tube into the fitting at the end of the chamber, tighten the fitting until the tube is snug.
2. Remove the sensor from the wall or mounting point. Take the front cover off the sensor. Make sure the sensor is properly wired to the monitor.

NOTE: Try not to touch the sensor head.

3. Place the chamber on its side so that the tube comes out from the side.
4. Mount the sensor module in the chamber using the mounting screw, making sure the cable fits into the fitting on the side of the chamber.
5. Seal the chamber.

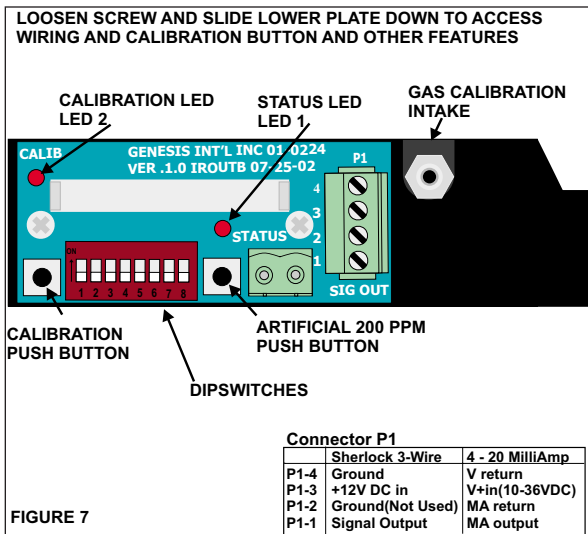
NOTE: The sensor module must be mounted so that the mounting screw is fixed to the standoff at the opposite end of the chamber from the fitting.

6. Take the free end of the tube and mount it on to the barbed end of the flow regulator.

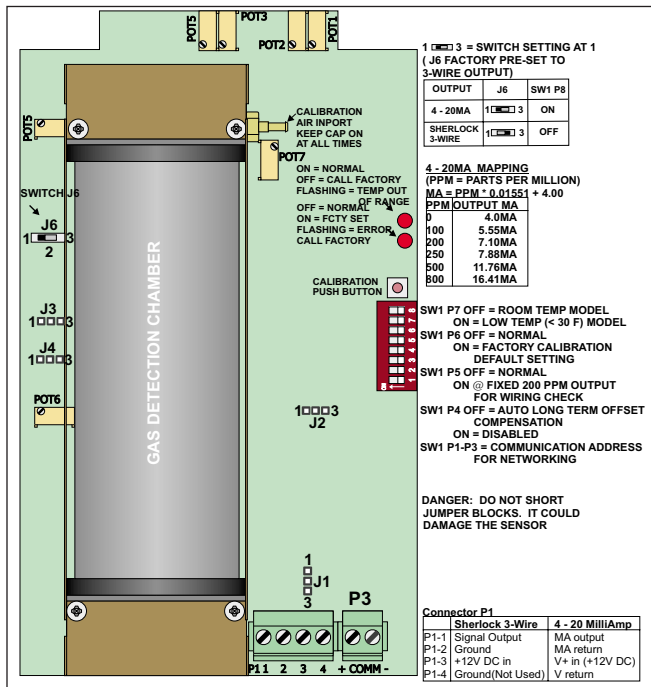
INFRARED SENSOR CALIBRATION AND TESTING

Prior to shipment, all sensors manufactured by Genesis International, Inc. are factory calibrated. The calibration method will set the base level (or Zero Level) and the gain (or Slope). As the sensor gets older or the ambient condition changes drastically, the Zero Level may drift upward or downward. The Gain (Slope) will not normally change. Adjustments of the Zero Level is necessary to ensure that the Sherlock IR Sensor is reading accurately. This should be done every 6 months. This function can be performed by conducting a Pushbutton and Zero Offset Calibration within the Sherlock or Wizard control systems.

PUSH BUTTON (Below)-- Located just to the left of the red DIP Switches.



PUSH BUTTON (Bottom Photo, Obsolete IR Sensor)-- Located just above the red DIP Switches.



Please follow the directions below before and after doing the zero calibration on the infrared sensor.

- 1) Make sure the unit is properly wired up and all dip switches are in the off position.
- 2) Allow at least two hours warm up time. The ambient temperature should be stable and within the desired operating range.
- 3) Make sure no refrigerant gas is present during of calibration.
- 4) Push down and hold down the push button (located above the DIP SW1 Top Photo) (located to the left of DIP SW1 Bottom Photo) for at least 8 seconds until the calibration LED red light above the push button is turned on. Release the push button. A Push button located on the outside bottom of the housing on some models can also be used for offset calibration (Step 4) without opening the cover. Push in for at least 8 seconds.
- 5) The LED red light will go off. If not check switch 6 and then repeat step 4. Consult factory if calibration LED light stays on or keeps flashing after calibration or during normal operation.
- 6) For Sherlock or Wizard control, do the calibration on this sensor at the Control to eliminate any internal errors. After Sherlock/Wizard control calibration, the sensor reading on the Sherlock Control should be zero. ABS or absolute reading in the control calibration menu should read around 20 to 30.

The measured gas calibration procedure may be used as a double check of sensor accuracy. However, since the procedure involves changing the air currents drastically inside the sensing chamber, please use the procedure as listed below only as a test to check if the sensor is still working. Since the gas is forced into the sensor the reading will not be as accurate as a normal reading. At the factory we allow for normal airflow that would occur in a real leak when we calibrate the sensor and set the zero level. So there will be an artificial reading between the zero gas and measured gas because of the unusual air currents involved.

- 1) Place the Plastic tubing that comes with the calibration kit over the inlet valve on the top right of the sensing tube and connect the other end to the calibration gas canister regulator.
- 2) Run the 20.9% O2 gas into the sensor for about 5 minutes and wait for the reading to settle. Press the pushbutton on the sensor right above the dipswitch for 10 seconds. This will be the artificial zero level.
- 3) Next run the measured refrigerant gas into the sensor for about 5 minutes. The difference between the artificial measured gas reading and the artificial zero level reading should be close to the measured gas concentration however the way the gas is pumped in will create errors in the accuracy of the reading.
- 4) Once the measured gas testing is complete and no gas is present and the sensor is mounted in normal conditions, do the pushbutton calibration once again to remove any artificial readings that were introduced during measured gas calibration. The measured gas procedure only needs to be done if there are questions of whether or not the sensor is working and is not necessary to calibrate the sensor. It is only a test.



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