



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

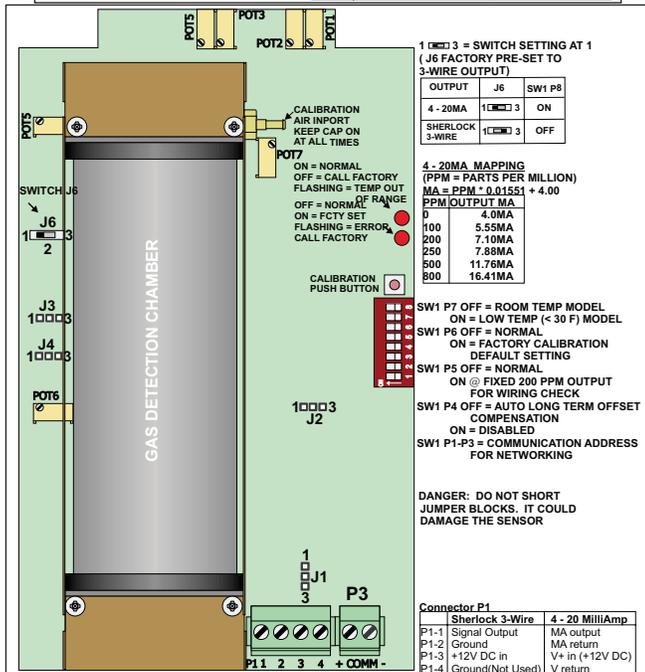
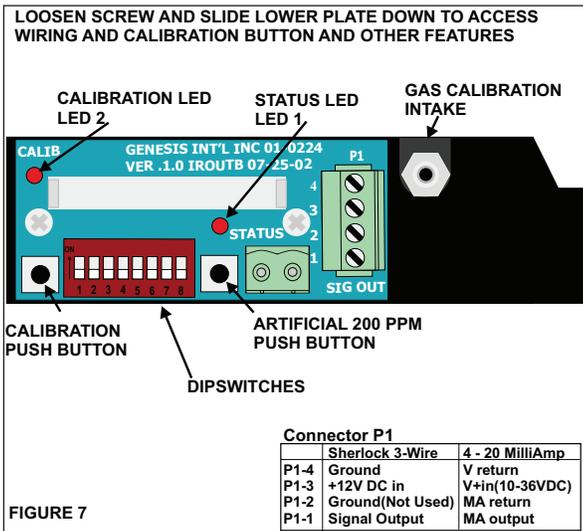
Prior to shipment, all sensors manufactured by Genesis International, Inc. are factory calibrated. The calibration method will set the base level (or Zero Level) and the gain (or Slope). As the sensor gets older or the ambient condition changes drastically, the Zero Level may drift upward or downward. 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 Push button and Zero Offset Calibration within the Sherlock or Wizard control systems.

PUSH BUTTON -- Located just to the left of the red DIP Switch.

(On obsolete models, located just above the red dip switch).

- 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) Depress and hold down the push button (located to the left of DIP SW1) for at least 8 seconds until the calibration LED red light above the push button lights. Release the push button.
- 5) The LED red light will go off. If not, make sure switch 6 is off. Consult factory if calibration LED light stays on or keeps flashing after calibration or during normal operation.
- 6) The sensor will now read from 0 to about 25 at the control. For Sherlock Control, do the Calibration on this sensor at the Control to eliminate any internal errors. After Sherlock control calibration, the sensor reading on the Sherlock should be zero. ABS or absolute reading in the control calibration menu should read the value after the push button calibration.

The measured gas calibration procedure may be used as a double check of sensor accuracy and only needs to be done if there are questions of whether or not the sensor is working. It is not necessary to use measured gas to calibrate the infrared sensor. If you choose to, you can perform the calibration procedure outlined below. It is a way of making sure no other gases are present when the push button calibration and control calibration are completed.

Since the infrared sensor does not fit in the calibration chamber, a plastic bag or other airtight container must be used. The reading on the monitor will be off from the span gas test due to dilution of the gas with the air still in the container.

Kit Setup Instructions

1. Remove the sensor from the wall or mounting point and place in a plastic bag or securley tape some plastic to the wall all the way around the sensor.
2. Insert the tube into the fitting at the end of the plastic bag and try to evacuate as much air from the bag as possible.
3. Make sure the bag is sealed. Take the free end of the tube and mount it onto the barbed end of the flow regulating valve.

Calibration Procedures

1. Filling the bag
 - a. Mount the valve onto the 20.9% Oxygen tank. Open the valve for 2 minutes.
 - b. Wait 5 minutes.
 - c. Open the valve again for 2 minutes.
 - d. Wait 5 minutes.
2. Place the controller into the Sensor Absolute Screen.
 - a. Press EXIT.
 - b. Press the DOWN arrow until the "CALIBRATION MENU" is displayed. Press SELECT.
 - c. Press the DOWN arrow until you reach the "SNR X ABS READ: YYY" screen where X is the sensor being calibrated.
3. Conduct the Zero Calibration procedure for the infrared sensor.
 - a. Do the push button calibration
 - b. Do the zero offset calibration

Testing Procedure

The test procedure follows almost the exact same procedure as the calibration procedure only using the span gas.

Note the Span gas PPM quantity and the reading at the monitor. The reading should fall within the parameters of the accuracy of the sensor, plus the span gas accuracy, plus the testing procedure inaccuracies.



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