CO_2 Accuracy Verification Procedure

Description

This procedure will enable you to verify the accuracy of a QPA… CO_2 Sensor's reading.

NOTE: This procedure is written for a calibration point of 1000 ppm (midrange). Other calibration points may be verified by substituting the appropriate CO2 gas concentration.

CO_2 Kit

A CO_2 kit can be purchased or created by assembling the following:

- Gas tank - certified, 1000 ppm (P/N 17-1000A available from Instrument Depot 800/731-7071 or others)
- Pressure gauge
- Plastic tubing – 1/4-inch ID

Required Tools

- Flat-blade screwdriver
- 8-inch × 8-inch resealable plastic bag
- QPA… CO_2 Sensor
- Digital Multi Meter (DMM)
- 24 Vac transformer
- CO_2 calibration kit with certified gas, 1000 ppm

Expected Verification Time

8 minutes

Wiring Notes

- 0 Vdc to 10 Vdc equivalent to 0 ppm to 2000 ppm
- Wiring - Terminal 1 G–L, 24 Vac
  Terminal 2 M–N, 24 Vac
  Terminal 3 M–Common, Vdc
  Terminal 4 U2–High Vdc

Procedure

1. Wire the QPA… CO_2 sensor to the appropriate terminals and allow time to complete the start-up process (see Figure 1).

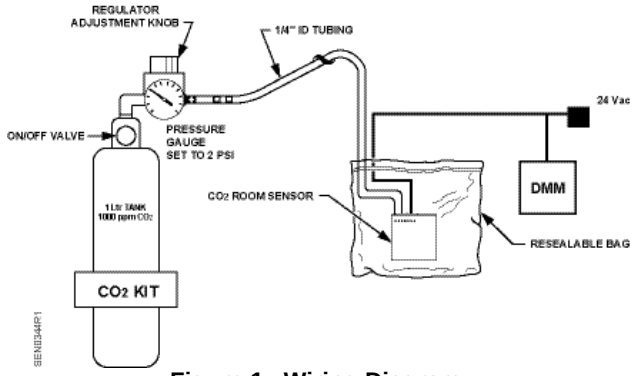


Figure 1. Wiring Diagram.

2. Connect the DMM, set for Volts DC, to output terminals No. 3 and No. 4 to verify output voltages.
3. Assemble the CO_2 calibration kit as shown in Figure 1, and set the flow rate to minimum.
4. Attach the plastic tubing from the calibration kit to the sensor so that the airflow enters the sensor.
5. Place the sensor into the sealable plastic bag, with the plastic tubing and wires extending through the opening.
6. Seal the bag leaving an opening large enough for the tubing and wires to exit.
7. Inflate the bag, and reduce the airflow to its lowest possible setting.
8. Wait until the output has stabilized by monitoring it with the DMM.
9. Multiply the voltage by 200, to convert to ppm CO_2, and document the output.
10. Deflate the bag and repeat steps 1 through 9 if testing another gas level.

The verification is now complete.

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