

## CMS-4 Carbon Monoxide Monitor-Alarm

### Quick-Reference Guide for Common Functions

**NOTE:** This quick-reference guide is a supplement to the operations manual, which should be read in full.

#### TURNING ON THE CMS-4 MONITOR-ALARM

1. Press and hold the POWER/MODE button until the monitor beeps once.

#### THE WARM-UP SEQUENCE AUTOMATICALLY RUNS

- a. All sections of the monitor's screen turn on, the backlight turns on, and the monitor beeps and vibrates.
- b. The monitor cycles through calibration status, date/time, battery voltage, target gas, and alarm setpoint screens.
- c. After the warm-up sequence is complete, the monitor beeps 2 times and the screen displays CO at the top left, the battery icon at the top right, and a ppm reading at the lower right. The monitor now is in Measuring Mode.

**NOTE:** If the monitor indicates a low battery (only the last bar in the battery icon shows) or if it sounds the dead-battery alarm, replace the battery. Refer to the operations manual for instructions.

#### TURNING OFF THE CMS-4 MONITOR-ALARM

1. Press and hold the POWER/MODE button. The monitor turns off after 4 beeps.
2. Release the POWER/MODE button after the monitor's screen goes blank.

#### SETTING THE DATE AND TIME

1. Turn OFF the monitor. (See TURNING OFF THE CMS-4 MONITOR-ALARM above.)
2. Press and hold the AIR and POWER/MODE buttons. Release the buttons after the monitor beeps 1 time. The monitor beeps again and BUMP displays in the bottom left of the screen.
3. Press the AIR button 11 times (11 beeps), and DATE displays in the bottom left of the screen.
4. Press and release the POWER/MODE button once (1 beep).
5. Press the AIR button as often as necessary to adjust the year. Press the POWER/MODE button to save the year. The month now flashes.
6. Repeat these steps with the AIR and POWER/MODE buttons to adjust the month, day, hour, and minute settings.
7. After adjusting or confirming all date/time settings, END displays in the bottom left of the screen for a few seconds, and then DATE displays.
8. Press the AIR button 3 times (3 beeps), and START displays in the bottom left of the screen.
9. Press and release the POWER/MODE button (1 beep) to begin the warm-up sequence. After the warm-up sequence ends, the monitor beeps 2 times. The monitor now is in Measuring Mode.

#### PERFORMING A FRESH-AIR ADJUSTMENT

1. Be sure the monitor is in a fresh-air environment (free of toxic gases and with normal oxygen content: 20.9%).

2. Turn ON the monitor by pressing and holding the POWER/MODE button until the monitor beeps once.
3. The warm-up sequence automatically runs for about 15 seconds.
4. After the warm-up sequence is complete, the monitor beeps twice and the screen displays CO at the top left, the battery icon at the top right, and a ppm reading at the lower right. The monitor now is in Measuring Mode.
5. Press and hold the AIR button. Air displays at the top of the screen and HOLD displays at the bottom, and then this changes to AdJ displaying at the top and RELEASE at the bottom. Release the AIR button.
6. The monitor beeps once, and the display reads as 0 ppm near the lower-right of the screen.

#### ASSEMBLING THE CALIBRATION CONNECTOR ASSEMBLY (See FIGURES 1 and 2.)

1. Required Material:
  - a. 0.5 LPM fixed-flow calibration connector with slide valve
  - b. 3/16" OD calibration tubing
  - c. Calibration cup
2. Slide one end of the 3/16" tubing onto the barbed end of the calibration connector with slide valve.
3. Slide the other end of the 3/16" tubing onto the inlet barb of the calibration cup.

**NOTE:** The calibration cup has directional flow. The flow-direction arrow shows the direction of air flow. The tubing connects to the barb on the backend of the flow arrow. The outlet barb (on the front end of the flow arrow) remains open.

#### CALIBRATING THE CMS-4 MONITOR-ALARM

1. Required Material:
  - a. 25 ppm CO test-gas cylinder.
  - b. Calibration connector assembly. (See ASSEMBLING THE CALIBRATION CONNECTOR ASSEMBLY.)
2. Perform a fresh-air adjustment. (See PERFORMING A FRESH-AIR ADJUSTMENT.)
3. Confirm that the calibration connector's slide valve is CLOSED by sliding it DOWN, toward the test-gas cylinder connection. (See FIGURE 1.)
4. Screw the calibration connector onto the test gas cylinder.
5. Turn OFF the monitor by pressing and holding the POWER/MODE button. The monitor turns off after 4 beeps. Release the POWER/MODE button after the monitor's screen goes blank.
6. Press and hold the AIR and POWER/MODE buttons. Release the buttons after the monitor beeps 1 time. The monitor beeps again and BUMP displays in the bottom left of the screen.
7. Press the AIR button once (1 beep), and GAS CAL displays at the bottom of the screen.

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2. Turn ON the monitor by pressing and holding the POWER/MODE button until the monitor beeps once.
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3. Slide the other end of the 3/16" tubing onto the inlet barb of the calibration cup.

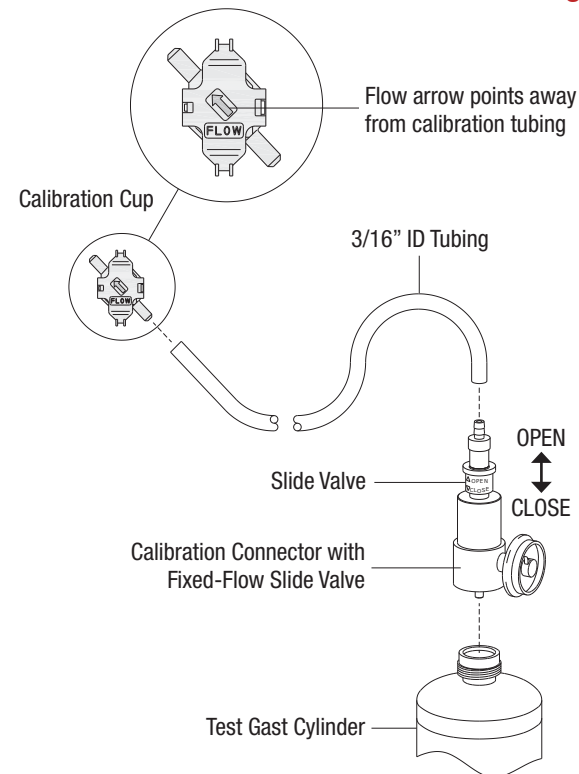
**NOTE:** The calibration cup has directional flow. The flow-direction arrow shows the direction of air flow. The tubing connects to the barb on the backend of the flow arrow. The outlet barb (on the front end of the flow arrow) remains open.

#### CALIBRATING THE CMS-4 MONITOR-ALARM

1. Required Material:
  - a. 25 ppm CO test-gas cylinder.
  - b. Calibration connector assembly. (See ASSEMBLING THE CALIBRATION CONNECTOR ASSEMBLY.)
2. Perform a fresh-air adjustment. (See PERFORMING A FRESH-AIR ADJUSTMENT.)
3. Confirm that the calibration connector's slide valve is CLOSED by sliding it DOWN, toward the test-gas cylinder connection. (See FIGURE 1.)
4. Screw the calibration connector onto the test gas cylinder.
5. Turn OFF the monitor by pressing and holding the POWER/MODE button. The monitor turns off after 4 beeps. Release the POWER/MODE button after the monitor's screen goes blank.
6. Press and hold the AIR and POWER/MODE buttons. Release the buttons after the monitor beeps 1 time. The monitor beeps again and BUMP displays in the bottom left of the screen.
7. Press the AIR button once (1 beep), and GAS CAL displays at the bottom of the screen.

8. Press the POWER/MODE button once (1 beep), and AIR displays in the bottom left of the screen.
9. Press the AIR button once (1 beep), and A-CAL displays in the bottom left of the screen. (NOTE: If E-CAL displays instead of A-CAL, the monitor is in the incorrect mode. See the operations manual.)
10. Press the POWER/MODE button once (1 beep), and the calibration value (25) displays on the right side of the screen.
11. Press the POWER/MODE button once (1 beep), and the gas reading starts to flash.
12. Snap the calibration cup to the front of the monitor over the sensor retainer. (The sensor retainer is located to the right of the screen.) The arrow embedded in the calibration cup must point up and to the left. (See FIGURE 2.)
13. Open the connector's slide valve by sliding it UP, to the OPEN position. (See FIGURE 1.)
14. Allow gas to flow for 1 minute and then press the POWER/MODE button (1 beep). The monitor begins to calibrate.
15. **If the calibration fails**, FAIL displays at the bottom of the screen. Refer to the operations manual.
16. **If the calibration was successful**, PASS briefly displays at the top of the screen.
17. Close the connector slide valve by sliding it DOWN, remove the calibration cup from the monitor, and unscrew the calibration connector from the test gas cylinder.
18. Press the Air button once (1 beep), and ESCAPE displays at the bottom of the screen.
19. Press the POWER/MODE button once (1 beep), and GAS CAL displays at the bottom of the screen.
20. Press the Air button 13 times (13 beeps), and START displays at the bottom of the screen.
21. Press the POWER/MODE button once (1 beep) to start the warm-up sequence and to return to Measuring Mode.

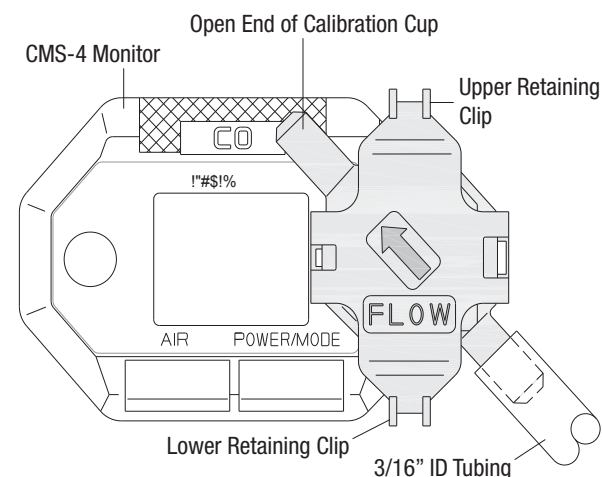
Figure 1



**PERFORMING A BUMP TEST**

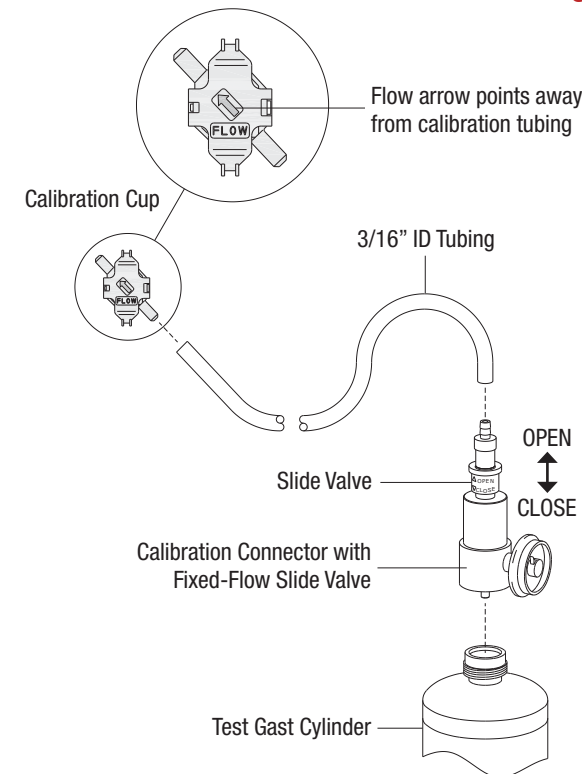
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  - b. Calibration connector assembly. (See ASSEMBLING THE CALIBRATION CONNECTOR ASSEMBLY.)
2. Confirm that the calibration connector's slide valve is CLOSED by sliding it DOWN, toward the test-gas cylinder connection. (See FIGURE 1.)
3. Screw the calibration connector onto the test gas cylinder.
4. Turn OFF the monitor by pressing and holding the POWER/MODE button. The monitor turns off after 4 beeps. Release the POWER/MODE button after the monitor's screen goes blank.
5. Press and hold the AIR and POWER/MODE buttons. Release the buttons after the monitor beeps 1 time. The monitor beeps again, and BUMP displays in the bottom left of the screen.
6. Press the POWER/MODE button once (1 beep), and the calibration value (25) displays near the lower-right corner of the screen.
7. Snap the calibration cup to the front of the monitor over the sensor retainer. (The sensor retainer is located to the right of the screen.) The arrow embedded in the calibration cup must point up and to the left. (See FIGURE 2.)
8. Open the connector's slide valve by sliding it UP, to the OPEN position. (See FIGURE 1.)
9. Press the POWER/MODE button once (1 beep). The gas reading flashes, and the monitor counts down from 30 seconds in the lower-right corner.
10. After the countdown reaches zero, the bump test is complete.
11. **If the bump test fails**, a calibration is immediately and automatically started. Continue to apply the calibration gas. AUTO CAL will appear at the bottom of the screen, and a countdown will appear in the bottom right. Refer to the operations manual for more information about a failed test.
12. **If the bump test passes**, P (passed) displays on the left of the screen. Proceed to Step 13.
13. Close the connector slide valve, remove the calibration cup from the monitor, and unscrew the calibration connector from the test gas cylinder.
14. Press the POWER/MODE button once (1 beep), and END displays in the bottom left of the screen. The monitor will then beep, and BUMP now displays in the bottom left of the screen.
15. Press the AIR button 14 times (14 beeps), and START displays in the bottom left of the screen.
16. Press the POWER/MODE button once (1 beep) to start the warm-up sequence and to return to Measuring Mode.

Figure 2



8. Press the POWER/MODE button once (1 beep), and AIR displays in the bottom left of the screen.
9. Press the AIR button once (1 beep), and A-CAL displays in the bottom left of the screen. (NOTE: If E-CAL displays instead of A-CAL, the monitor is in the incorrect mode. See the operations manual.)
10. Press the POWER/MODE button once (1 beep), and the calibration value (25) displays on the right side of the screen.
11. Press the POWER/MODE button once (1 beep), and the gas reading starts to flash.
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15. **If the calibration fails**, FAIL displays at the bottom of the screen. Refer to the operations manual.
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18. Press the Air button once (1 beep), and ESCAPE displays at the bottom of the screen.
19. Press the POWER/MODE button once (1 beep), and GAS CAL displays at the bottom of the screen.
20. Press the Air button 13 times (13 beeps), and START displays at the bottom of the screen.
21. Press the POWER/MODE button once (1 beep) to start the warm-up sequence and to return to Measuring Mode.

Figure 1



**PERFORMING A BUMP TEST**

1. Required Material:
  - a. 25 ppm CO test-gas cylinder.
  - b. Calibration connector assembly. (See ASSEMBLING THE CALIBRATION CONNECTOR ASSEMBLY.)
2. Confirm that the calibration connector's slide valve is CLOSED by sliding it DOWN, toward the test-gas cylinder connection. (See FIGURE 1.)
3. Screw the calibration connector onto the test gas cylinder.
4. Turn OFF the monitor by pressing and holding the POWER/MODE button. The monitor turns off after 4 beeps. Release the POWER/MODE button after the monitor's screen goes blank.
5. Press and hold the AIR and POWER/MODE buttons. Release the buttons after the monitor beeps 1 time. The monitor beeps again, and BUMP displays in the bottom left of the screen.
6. Press the POWER/MODE button once (1 beep), and the calibration value (25) displays near the lower-right corner of the screen.
7. Snap the calibration cup to the front of the monitor over the sensor retainer. (The sensor retainer is located to the right of the screen.) The arrow embedded in the calibration cup must point up and to the left. (See FIGURE 2.)
8. Open the connector's slide valve by sliding it UP, to the OPEN position. (See FIGURE 1.)
9. Press the POWER/MODE button once (1 beep). The gas reading flashes, and the monitor counts down from 30 seconds in the lower-right corner.
10. After the countdown reaches zero, the bump test is complete.
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12. **If the bump test passes**, P (passed) displays on the left of the screen. Proceed to Step 13.
13. Close the connector slide valve, remove the calibration cup from the monitor, and unscrew the calibration connector from the test gas cylinder.
14. Press the POWER/MODE button once (1 beep), and END displays in the bottom left of the screen. The monitor will then beep, and BUMP now displays in the bottom left of the screen.
15. Press the AIR button 14 times (14 beeps), and START displays in the bottom left of the screen.
16. Press the POWER/MODE button once (1 beep) to start the warm-up sequence and to return to Measuring Mode.

Figure 2

