

## Ethylene Sensor Zero Calibration

The instructions above are for two-point calibrations of the F-900. Solely setting zero for the ethylene sensor can be accomplished through the Settings screen. The **Settings** screen is accessed by using the **right arrow** from Monitor Mode and provides a short list of variables which may be manipulated while measurements are being made. The Set Zero procedure can be done manually or the F-900 can be programmed to perform the process automatically, as described below. In both cases, **potassium permanganate (KMnO<sub>4</sub>)** is used to scrub ethylene from the gas and set the zero.

It is not recommended to use N<sub>2</sub> gas to zero the C<sub>2</sub>H<sub>4</sub> sensors. N<sub>2</sub> gas typically has hydrocarbon impurities which could create signal for the ethylene sensor. Standard ethylene gas (0 ppm) can be used to perform the zero calibration.

**Note:** (To set zero for the PPM sensor only, navigate to Setup > Sensor > Sensor Selection > C<sub>2</sub>H<sub>4</sub> PPB > OFF before proceeding with the following steps).

If using PolarCept, it is recommended that the set zero process be completed with Chamber IN enabled. The DI water used for PolarCept can introduce additional impurities. Setting zero with Chamber IN enabled will both account for these impurities in the baseline adjustment as well as clean the DI water to optimize its performance. Refer to the Manually Set Zero: PolarCept Enabled below.

### Manually Set Zero: Standard Operating Procedure

This procedure falls under the Measurement > Settings menu option:

1. Place potassium permanganate (KMnO<sub>4</sub>) in Chamber OUT.
2. Power on the instrument and allow adequate warm-up time (3 min).
3. Press the right arrow when Measure is highlighted to begin a measurement.
4. Let the sensor stabilize and automatically begin measuring.
5. Once the measurement begins, press the right arrow until you access the “Settings” menu.
6. Scroll down to “Set Zero”.
7. Press the right arrow to highlight “C<sub>2</sub>H<sub>4</sub>”.
8. Press Enter.
9. A message appears asking “zero selected sensors?”
  - a. Press Enter to confirm.
10. A message appears asking to “Place KMnO<sub>4</sub> in CH\_Out.”
  - a. If KMnO<sub>4</sub> is in Chamber OUT, press Enter to confirm.
11. The display will switch to Monitor Mode and “correcting offset” is shown at the bottom.
  - a. The settings will automatically change to:
    - i. Chamber OUT = On
    - ii. Chamber IN = Off
    - iii. Closed Loop = On
12. The instrument will run for the amount of time set in the following menu: Setup > Calibration > C<sub>2</sub>H<sub>4</sub> > Offset Correction. It is recommended to keep this setting at 10 minutes.

13. The instrument will make a “beep” sound twice to indicate that the offset correction is complete.
  - a. The instrument will return to Monitor/Graph Mode and “correcting offset” will no longer appear on the display when the zero calibration is complete.
14. The measurement will continue with the original settings for the conditioning chambers and Closed Loop On/Off.