TechTIPs

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2020 Photoionization Detector Operational Reference Guide

INTRODUCTION

This TechTIP is a reference guide for day to day operation of the 2020 Photoionization Air Monitor. For more detailed information, please refer to the 2020 User's Manual.

The 2020 measures, displays and datalogs the total concentration of Volatile Organic Compounds (VOCs). The 2020 is a non-specific instrument, therefore it does not distinguish between individual compounds. The reading displayed represents the total concentration of all VOCs present in the sample. The 2020 displays concentration in ppm.

The 2020 operates automatically. The display updates itself once per second. The 2020 is always performing short term exposure limit (STEL), time weighted average (TWA), and PEAK calculations.

CALIBRATION

The 2020 can be calibrated for a particular compound of interest if the environment contains a single known Volatile Organic Compound. Please refer to the **Programming Calibration Memories and Response Factors** section.

If the environment monitored is complex, containing different VOCs, or contains VOCs with unknown Response Factors, a Response Factor equal to 1 should be used. This can be achieved performing the **Standard Calibration** outlined below. The default Response Factor is equal to 1.0.

Standard Calibration

- → Press the Instrument ***On/Off*** Key to turn on the 2020. The EPROM software version will be displayed.
- → Select ***Enter*** to access the menu.
- → Select ***Set***
- → Select ***Cal*** for Calibration
- → Select ***Zero*** to zero the instrument. This process will take 60-90 seconds.

Note: Zeroing can be done in ambient air if the environment is free of VOCs. Use a cylinder of ultra zero air if the ambient air has VOCs present.

- → Select ***Span***. The span gas is 100 PPM isobutylene. The process will take 1-2 minutes to equilibrate.

Calibration is now complete and the 2020 is now ready to sample.

Programming Calibration Memories and Response Factors

The 2020 has 15 Cal Memories and can be calibrated with 15 different span gases or response factors if desired.

If you will be calibrating directly from the portable cylinder, connect a flow- match regulator (Photovac Part No. MX350006) to each tank. You must use a separate regulator for each compound to prevent cross contamination.

If you are using Tedlar™ gas bags, prepare the bags of calibration gas. Use a different gas bag and a gas bag adapter for each concentration and for each type of calibration gas. You can use the same gas bag to zero all the Cal Memories, however you must refill the bag before zeroing each Cal Memory.

To program the Cal Memories:

- → Press the Instrument ***On/Off*** Key to turn on the 2020. The EPROM software version will be displayed.
- → Select ***Set***
- → Select ***Cal*** for Calibration
- → Select ***Mem***
- → Select the desired Cal Memory with the ***Next*** and ***Prev*** keys.
- → Press ***Chng*** to change the parameters of the Cal Memory. Select ***User*** or ***Lib***
- → If you selected ***User*** enter the name for the Calibration memory. Press the Enter key and the 2020 will then prompt you to enter the response factor (RRF). You will next be prompted to enter the alarm levels for each mode.
- → If you entered ***Lib*** use the ***Next*** and ***Prev*** keys to select the required library. Please note that the response factor (RRF) is preprogrammed into the library.
- → Calibrate the instrument, and when the calibration is completed, the calibration information is automatically stored in the selected Cal Memory.
- → Repeat the procedure for each Memory you need.

For further information contact your area representative or the nearest Photovac office: