

## HERMES Personal Mercury Monitor™



2B Tech has taken the next step in miniaturization of UV-based mercury monitors by developing the HERMES Personal Mercury Monitor or "PMM." It has a built in GPS so that mercury measurements may be logged continuously along with geographic location. By folding the optical path in the shape of a "U," it was possible to achieve a path length of 15 cm in the HERMES, enabling extremely sensitive measurements of mercury in the atmosphere ( $\sim 0.2 \mu\text{g}/\text{m}^3$  detection limit for Hg, linear dynamic range of 0 to  $2000 \mu\text{g}/\text{m}^3$  Hg with  $0.1 \mu\text{g}/\text{m}^3$  Hg resolution).

The HERMES is small ( $4 \times 3 \times 1.5$  inches,  $10.2 \times 7.6 \times 3.9$  cm), lightweight (0.75 lb., 340 g) and has a low power consumption (3.0 watt) relative to conventional instruments and is therefore well suited to applications such as:

- Monitoring of exposure to individuals in the workplace
- Monitoring and control of mercury in industrial settings
- Personal exposure monitoring for studies of health effects of air pollutants
- Long-term monitoring at remote locations where power is highly limited

## Specifications

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| <b>Measurement Principle</b>                       | UV Absorption at 254 nm  |
| <b>Linear Dynamic Range</b>                        | 0-2,000 $\mu\text{g}/\text{m}^3$   |
| <b>Resolution</b>                                  | 0.1 $\mu\text{g}/\text{m}^3$   |
| <b>Precision (1<math>\sigma</math>; rms noise)</b> | Greater of 0.1 $\mu\text{g}/\text{m}^3$ or 2% of reading   |
| <b>Accuracy</b>                                    | Greater of 0.1 $\mu\text{g}/\text{m}^3$ or 2% of reading   |
| <b>Limit of Detection (2<math>\sigma</math>)</b>   | 0.2 $\mu\text{g}/\text{m}^3$   |
| <b>NIST-Traceable Calibration</b>                  | Yes  |
| <b>Measurement Intervals</b>                       | Measurement mode: 10 s<br>Fast mode: 2 s   |
| <b>Flow Rate (nominal)</b>                         | ~0.8 Liter/min   |
| <b>Flow Rate Requirement</b>                       | >0.5 L/min   |
| <b>Baseline Drift</b>                              | <0.1 $\mu\text{g}/\text{m}^3/\text{day}$ ; <0.3 $\mu\text{g}/\text{m}^3/\text{year}$                               |
| <b>Sensitivity Drift</b>                           | <1%/day; <3%/year  |
| <b>Measurement Times, Frequencies</b>              | Measurement mode: 10 s, 0.1 Hz<br>Fast mode: 2 s, 0.5 Hz   |
| <b>Response Time, 100% of Step Change</b>          | For 10-s output: 20 s, 2 data points<br>For 2-s output: 4 s, 2 data points   |
| <b>Averaging Times</b>                             | 1 min, 5 min, 1 hr   |
| <b>Data Storage</b>                                | 8,192 lines (2-s fast mode ~4.6 hr; 10-s meas. mode ~1 day;<br>1-min avg ~6 days; 5-min avg ~1 mo; 1-hr avg ~1 yr) |
| <b>Mercury Units</b>                               | ppb, $\mu\text{g}/\text{m}^3$  |
| <b>Pressure Units</b>                              | torr   |
| <b>Temperature Units</b>                           | K  |
| <b>T and P Corrected</b>                           | Yes  |
| <b>Operating Temperature Range</b>                 | 0 to 50 °C   |
| <b>Operating Altitude Range</b>                    | ~0-13.5 km (150-1,013 mbar)<br>[Extension to lower pressures available as an option]                               |

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|---|---|
| <b>Power Requirement;<br/>Supplied by Battery or<br/>110/220 VAC Power Pack</b> | 7-24 V dc, nominally 250 mA at 12 V, 3.0 watt       |
| <b>External Battery</b>   | 7.4 Volt, 1.6 amp hour, Lithium Ion Battery, 5-8 hr |
| <b>Size</b>   | 4.0 × 3.0 × 1.5 inches (10.2 × 7.6 × 3.8 cm)        |
| <b>Weight</b>   | 0.75 lb. (0.34 kg)                                  |
| <b>Data Transfer Baud Rate</b>  | 19200   |
| <b>DewLine™</b>   | Yes   |
| <b>GPS</b>  | Yes   |
| <b>Sampling Probe</b>   | Available as an option                              |

## System Includes

- HERMES PMM™ Personal Mercury Monitor™
- AC Power Adapter (100-240 VAC to 12 VDC) with Country-Specific Plug
- Cigarette Lighter Adapter
- 7.4 V Lithium Ion Battery
- Battery Charger
- Serial Port Cable
- USB Cable
- Zeroing Cartridge
- USB stick with Operation Manual, 2B Data Display Software, and USB Driver
- Instrument Birth Certificate
- Calibration Data and NIST-Traceable Calibration Certificate
- One Year Warranty