

## 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

<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 0.5 $\mu\text{g}/\text{m}^3$ or 5% 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 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 Fast mode: 2 s, 0.5 Hz
<b>Response Time, 100% of Step Change</b>	For 10-s output: 20 s, 2 data points 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; 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) [Extension to lower pressures available as an option]

<b>Power Requirement; Supplied by Battery or 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
<b>Options</b>	Modifications for higher altitude; Sampling probe; Wall-mount bracket

## System Includes

- HERMES PMM™ Personal Mercury Monitor™
- AC Power Adapter (100-240 VAC to 12 VDC) with Country-Specific Plug
- 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