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 (~0.2 µg/m^3 detection limit for Hg, linear dynamic range of 0 to 2000 µg/m^3 Hg with 0.1 µg/m^3 Hg resolution).

The HERMES is small (4 × 3 × 1.5 inches, 10.2 × 7.6 × 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

Measurement Principle	UV Absorption at 254 nm
Linear Dynamic Range	0-2,000 µg/m^3
Resolution	0.1 µg/m^3
Precision (1σ; rms noise)	Greater of 0.1 µg/m^3 or 2% of reading
Accuracy	Greater of 0.5 µg/m^3 or 5% of reading
Limit of Detection (2σ)	0.2 µg/m^3
NIST-Traceable Calibration	Yes
Measurement Intervals	Measurement mode: 10 s Fast mode: 2 s
Flow Rate (nominal)	~0.8 Liter/min
Flow Rate Requirement	>0.5 L/min
Baseline Drift	<0.1 µg/m^3/day; <0.3 µg/m^3/year
Sensitivity Drift	<1%/day; <3%/year
Measurement Times, Frequencies	Measurement mode: 10 s, 0.1 Hz Fast mode: 2 s, 0.5 Hz
Response Time, 100% of Step Change	For 10-s output: 20 s, 2 data points For 2-s output: 4 s, 2 data points
Averaging Times	1 min, 5 min, 1 hr
Data Storage	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)
Mercury Units	ppb, µg/m^3
Pressure Units	torr
Temperature Units	K
T and P Corrected	Yes
Operating Temperature Range	0 to 50 °C
Operating Altitude Range	~0-13.5 km (150-1,013 mbar)
Power Requirement; Supplied by Battery or	7-24 V dc, nominally 250 mA at 12 V, 3.0 watt

110/220 VAC Power Pack	
External Battery	7.4 Volt, 1.6 amp hour, Lithium Ion Battery, 5-8 hr
Size	4.0 × 3.0 × 1.5 inches (10.2 × 7.6 × 3.8 cm)
Weight	0.75 lb. (0.34 kg)
Data Transfer Baud Rate	19200
DewLine™	Yes
GPS	Yes
Certification	CE
Options	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