

Personal Ozone Monitor™ (POM™)

EPA Federal Equivalent Method (FEM)

The World's Smallest Ozone Monitor



2B Tech has taken the next step in miniaturization of UV-based ozone monitors by developing the Personal Ozone Monitor or "POM." The basic POM unit has dimensions of 4 × 3 × 1.5 inches and weighs only 0.8 lb / 1.0 lb without / with battery (340 g / 450 g). It has a built-in GPS so that ozone 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 the same path length in the POM as in the Models 202, 205, and 106-L and thus have similar precision and accuracy (~1.5 ppb).

The POM is designated by the US EPA as a Federal Equivalent Method for ozone: [EQOA-0815-227](#). Use it in applications such as:

- Personal exposure monitoring for studies of health effects of air pollutants
- Health and safety monitoring at industrial sites using ozone
- Vertical profiling using balloons, kites, RPVs, and light aircraft where space and weight are highly limited
- Long-term monitoring at remote locations where power is highly limited
- Urban arrays of ground-based detectors

Read our paper published on the POM: [Miniature Personal Ozone Monitor Based on UV Absorbance](#), P.C. Andersen, C.J. Williford and J.W. Birks, *Analytical Chemistry* **82**, 7924-7928 (2010).

Features

- Small (palm-sized)
- Lightweight (~1 lb)
- Same measurement principle (UV absorbance) and similar precision (~1.5 ppb) as much larger instruments
- Approved as a Federal Equivalent Method ([EQOA-0815-227](#))
- Measure ozone up to 10,000 ppb (10 ppm)
- Belt clip and compact Lithium Ion battery pack in side bracket for extreme portability
- Low power requirement: 3 watt
- Adapters enable AC or 12V battery operation
- Internal data logger
- Built-in GPS logs location along with ozone measurements
- Fast 2-s or 10-s measurements
- User-selected averaging times of 1 min, 5 min, or 1 hr
- Serial or USB connections for data downloading

Specifications

Measurement Principle	UV Absorption at 254 nm
Federal Equivalent Method (FEM)	Yes, EQOA-0815-227
Linear Dynamic Range	0 ppb to 10 ppm
Resolution	0.1 ppb
Precision (1σ; rms noise)	Greater of 1.5 ppb or 2% of reading (10-s measurement mode, with default adaptive filter settings)
Limit of Detection (2σ)	3.0 ppb (10-s measurement mode, with default adaptive filter settings)
Accuracy	Greater of 1.5 ppb or 2% of reading
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	<2 ppb/day <5 ppb/year

Sensitivity Drift	<1%/day <3%/year
Measurement Time, Frequency	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 points For 2-s output: 4 s, 2 points
Averaging Times	1 min, 5 min, 1 hr
Data Storage	8,192 lines (2-s fast mode ~4.6 hrs; 10-s meas. mode ~1 day; 1-min avg ~6 days; 5-min ~1 mo; 1-hr avg ~1 yr)
Outputs	RS232, USB
Ozone Units	ppb
Pressure Units	torr
Temperature Units	K
T and P Corrected	Yes
Operating Temperature Range	0 to 50°C
Operating Altitude / Pressure Ranges	~0-13.5 km (150-1,013 mbar) [higher altitude/lower pressure range available as an option]
Power Requirement; Supplied by battery or 110/220 VAC Power Pack	7-12 V dc, nominally 250 mA at 12 V, 3.0 watt
External Battery	7.4 Volt, 1.6 amp hour, Lithium Ion Battery, 5-8 hr
Size	With GPS: 5.0 × 3.0 × 1.5 inches (12.7 × 7.6 × 3.8 cm) Without GPS: 4.0 × 3.0 × 1.5 inches (10.2 × 7.6 × 3.8 cm)
Weight	With battery: 1.0 lb (0.45 kg) Without battery: 0.8 lb (0.36 kg)
Data Transfer Baud Rate	19200
DewLine™	Yes
GPS	Yes
Options	Wall-mount bracket; modifications for higher-altitude operation; analog output

System Includes

- POM™ Personal Ozone 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
- Global Positioning System (GPS)
- USB stick with Operation Manual, 2B Display Software and USB Driver
- Instrument Birth Certificate
- Calibration Data and NIST-Traceable Calibration Certificate
- One-Year Warranty