Dual-Beam UV-Absorption Ozone Photometer

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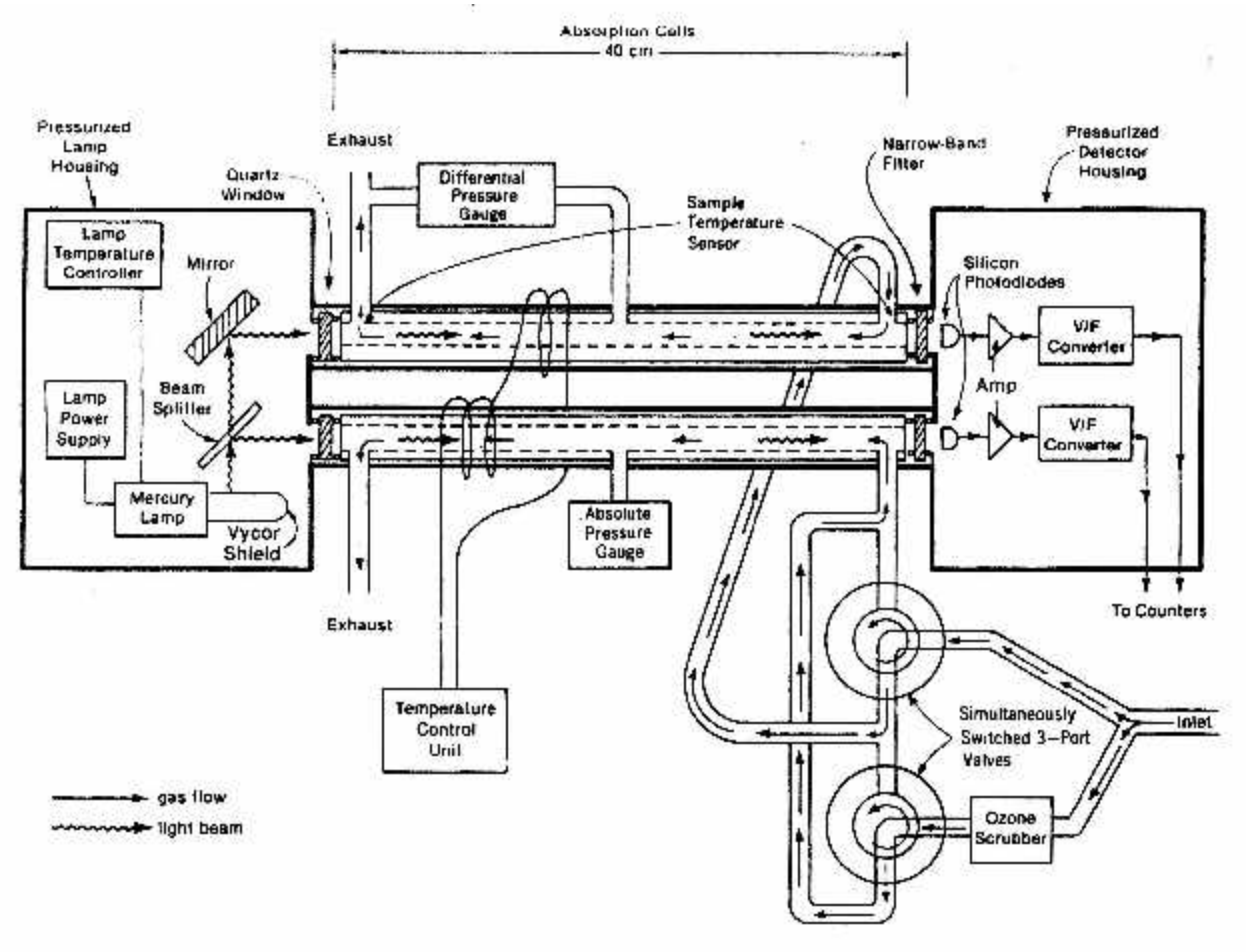
Measurement Description: The instrument consists of a mercury lamp, two sample chambers that can be periodically scrubbed of ozone, and two detectors that measure the 254-nm radiation transmitted through the chamber. The ozone absorption cross-section at this wavelength is accurately known; hence, the ozone number density can be easily calculated. Since the two absorption chambers are identical, virtually continuous measurements of ozone are made by alternating the ambient air sample and ozone scrubbed sample between the two chambers. At a one-second data collection rate, the minimum detectable concentration of ozone (one standard deviation) is 1.5 x 10^{10} molecules/cm^3 (0.6ppbv at STP).



Accuracy: 3% + precision

Precision: $1.5x10^{10}$ molecules/cm^3

Response Time: 1 second

Weight: 24 kg

Power: 250 W maximum

ER-2 Location: Q-Bay

References:

Proffitt, M. H., and R. J. McLaughlin, *Fast-response dual-beam UV absorption ozone photometer suitable for use on stratospheric balloons, Rev. Sci. Instrum., 54, 1719-1728, 1983.*