

UV Sentinel Doas Open path

a reliable and compact open path air monitor ideal for fence-line or area source monitoring by ETG

The system is capable of detecting ambient air concentrations from the lower ppb to ppm range

- √ Any moving parts
- √ Long term maintenance
- √ Portable
- √ Internet Ready
- √ Multiple simultaneous measure
- √ Optional meteo station



Features

- **Wide area measurements** – The system can monitor path lengths up to 1,000 meters
- **Easy field quality assurance** – Each system comes with a gas cell which allows for a quick and easy quality assurance method to verify system integrity
- **Continuous real-time monitoring** – Client specific sample collection intervals can range anywhere from instantaneous to hours – examples are 30 seconds, one minute, five minutes etc.
- **Multiple gas measurements** – The ETG reference library currently has **over** 50 compounds including: Benzene, Toluene, Xylenes and Sulfur Dioxide with additional compounds being added regularly
- **Reliable operation** – System can be left alone for weeks while collecting data
- **Low maintenance** – Routine maintenance only involves cleaning the mirrors. ETG also offers routine maintenance service contracts.
- **Data logging** – Each raw spectra is saved onto a computer file and can be post-processed for additional compounds and kept for future reference
- **On-site training** – ETG offers hands-on on-site training on all aspects of UV Sentinel operation

Available Compounds for Measurement

Additional chemicals

The ETG reference spectra library *currently* contains the following compounds:

- Benzene
- Carbon Disulfide
- M-Xylene
- O-Xylene
- P-Xylene
- Sulfur Dioxide
- Toluene
- Ammonia
- Ethyl Benzene
- Mercury
- Nitric Oxide
- Nitrogen Dioxide
- Formaldehyde
- Acetaldehyde
- Ozone
- Acrolene
- Hydrogen Sulfide
- 1,3 Butadiene
- Chlorine Isoprene

- Bromine
- Hydrogen cyanide
- Chlorine dioxide
- Carbon monoxide
- Carbon dioxide
- Phosgene
- Hydrogen bromide
- Hydrogen chloride
- Nitrous acid
- Nitrous oxide
- Nitrate radical
- Oxygen
- Sulfur trioxide
- Hydrocarbons
- Naphthalene
- Acethylene
- Ethene
- Ethane
- Ethanol
- Propane
- Trimethylbenzene
- Phenol
- o-,m-,p-Cresol

How it work

UV Sentinel is a “bi-static” system whereby the UV emitter is located at one end of the path, and the receiver is located at the other end of the path.

UV Sentinel utilizes advanced CCD-array detector technology. There is no requirement to cool this detector to improve performance. This eliminates the costly cooling systems required by other systems available on the market, and the no-moving-parts design improves the mean time to failure (MTTF), and overall reliability. The receiver/spectrometer is temperature controlled via solid state thermo-electric peltier cooling. This no moving parts system provides measurement stability under the ambient temperature variations experienced in the field.

The system is high reliability, maintenance free, and requires no consumables such as LN2. The output of the system is both raw spectroscopic, and also computer-aided analysis (concentration value) data.

ETG UV Sentinel meets the intended goals and objectives often required in a wide array of possible monitoring scenarios;

- low minimum detection levels for the compounds specified
- quality, traceable, legally defensible data
- advanced, automated software, thus reducing or eliminating the costs associated with post-data analysis
- low initial cost to purchase when compared to other technologies
- negligible cost-of-ownership due to low maintenance, no consumables, inexpensive replacement parts
- minimal training due to easy user-interface
- extremely lightweight and portable...can be set up and taking data in under 10 minutes

Why Open path ?

Air pollutants and toxic compounds cause a significant hazard to the public. Open-path air monitoring systems can be used to perform real-time atmospheric monitoring to discover what compounds, and in what concentrations, are in the environment.

The Environmental Protection Agency, the European Union, and other international regulatory agencies have accepted the validity of open path air monitoring for environmental monitoring. The systems are routinely used by international, federal, state, and local agencies; the petroleum, chemical and aluminum industry; and citizen groups around the world to obtain real-time concentrations of gases in the air.

Open-path monitoring systems are ideal for perimeter monitoring of large "Superfund" waste sites, environmental remediation sites and other source-specific locations. Because of their mobility, the systems can detect pollutants being emitted from the site without requiring an individual to enter the "hot zone" with all of the protective gear required and needed for operator safety.

The systems are routinely used to determine source-specific fence-line fugitive and stack pollutant emission concentrations from selected industries; identify compounds emitted from factories as they change processes, batches or shifts; study impurities issued from vehicles in traffic; perform perimeter monitoring around remediation sites; and determine ambient air quality pollutants in Community Based Environmental Protection areas.

In regards to Community based monitoring, a primary goal of the monitoring system is to consistently monitor the ambient air with detection limits at or below levels that would be considered harmful to the general public. Currently there are over three hundred compounds that can be monitored with these systems. In general, the open-path monitors are tuned to monitor a specific subset of hazardous compounds that are unique to a particular installation. Thus for a specific chemical, the primary hazards as related to the exposure limits as outline by the NIOSH standards can be identified and monitored.

UV SENTINEL MINIMUM DETECTION LIMITS (MDL'S)

Compound Name	Path Integrated Concentration	Path Averaged Concentration
	(PPM-M)	(PPB)
Ammonia	1.59	10.6 @150M
1,3 Butadiene	0.2	1.3 @150M
Benzene	0.267	1.8 @150M
Carbon Disulfide	13.31	44.3
Ethyl Benzene	0.300	1.0
Formaldehyde	3.2	10.7
Hydrogen Sulfide	0.500	3.3 @150M
Mercury	0.0059	.020
Nitrogen Oxide (NO)	4.04	13.5
Nitrogen Dioxide (NO2)	0.292	.973
Ozone	2.0	6.67
o-xylene	3.77	1.25
m-xylene	0.350	1.17
p-xylene	0.237	0.79
Sulfur Dioxide	0.32	2.1 @150M
Toluene	0.838	2.79

Dimensions: 53x40x21.5 cm
Maximum pathlength : 1000 mt with xenon source
Power requirement : 120/220 Vac 50/60 Hz – 80 W
UV source life : 2000 hours
Additional item for operation : PC or laptop Windows S.O.



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