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Ambient
Air Quality Monitoring

Fence-line Monitoring of Fugitive Emissions

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Monitoring of fugitive emissions is difficult. A large area of industrial activities generates emissions to the air. Thousands of small emission sources of different chemical compounds contribute.

The emissions sources are unknown both to its place and the emission strength. To use one single measurement point for this application will not give a correct picture of the emissions.

The OPSIS open-path technology is different and provides the user with a measurement system that will cover a large area with a single measurement system.

The OPSIS open-path technology uses a beam of light to detect the concentration of the gases. The light beam can be placed around the industrial site thus covering fugitive emissions at all wind directions.

The OPSIS open-path system uses both UV DOAS, FTIR, and TDL to detect a large number of different chemical compounds and a single analyser can detect more than one optical path.

RETURN ON INVESTMENT

The cost of maintaining an OPSIS open-path system is small compared to conventional point monitors.

Long time intervals between calibration, stable and reliable measurement results and coverage of a large area contributes to make the investment successful.

An OPSIS Fence-line system installation.

TEST AND APPROVALS

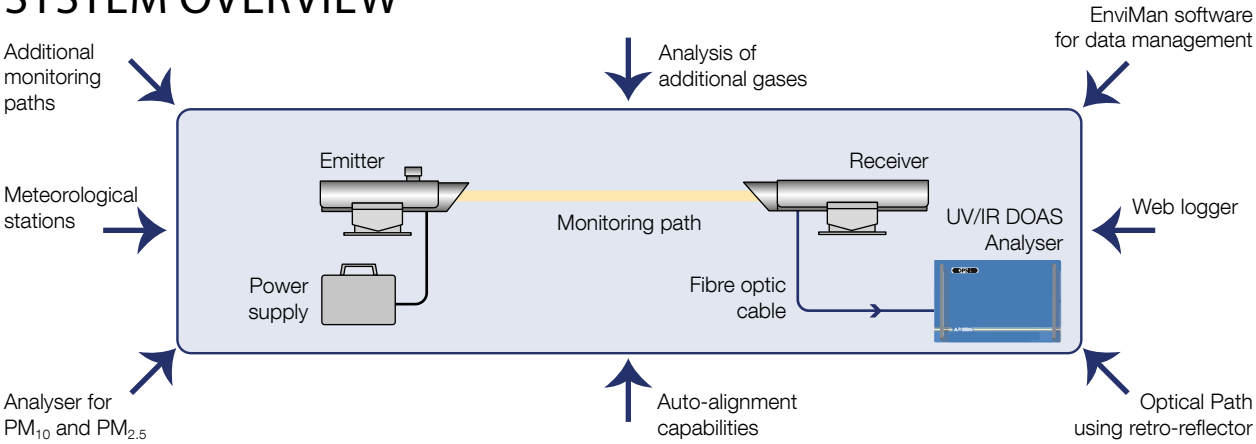
The OPSIS system has been tested and approved by a number of international, recognized institutes and authorities, for example TÜV and MCERTS.

The system meets and exceeds the requirements in U.S. EPA and EN 15267.

THE OPSIS PRODUCT PORTFOLIO

OPSIS product portfolio includes monitoring systems for gases based on open-path technology using DOAS, FTIR and TDL, measurement of PM_{10} and $PM_{2.5}$ using beta attenuation and environmental emissions inventory and modelling using OPSIS Enviman Software. Data logging systems and data presentation from OPSIS runs on the internet as well as in dedicated computers.
For further information, please visit www.opsis.se.

SYSTEM OVERVIEW



PERFORMANCE DATA

(typical data which may vary depending on application)

Compound	Max. measurement range [1] (500 m path)[2]	Min. detectable quantities (monitoring path 500 m, measurement time 1 min.)
AR500/AR520 UV/IR DOAS Series Analyser		
NO_2	0-2000 µg/m³	1 µg/m³
SO_2	0-5000 µg/m³	1 µg/m³
O_3	0-1000 µg/m³	2 µg/m³
NO[3]	0-2000 µg/m³	2 µg/m³
NH_3[3]	0-500 µg/m³	2 µg/m³
NO_3	0-500 µg/m³	0.1 µg/m³
HNO_2	0-2000 µg/m³	1 µg/m³
HF	0-2000 µg/m³	20 µg/m³
Hg	0-2000 ng/m³	20 ng/m³
H_2O	0-100 g/m³	0.2 g/m³
Styrene	0-2000 µg/m³	5 µg/m³
CS_2	0-2000 µg/m³	20 µg/m³
Cl_2[4]	0-10000 µg/m³	50 µg/m³
Formaldehyde	0-2000 µg/m³	2 µg/m³
Acetaldehyde	0-2000 µg/m³	20 µg/m³
Phenol	0-2000 µg/m³	1 µg/m³
Benzene	0-2000 µg/m³	1 µg/m³
Toluene	0-2000 µg/m³	1 µg/m³
p-, m-Xylene	0-2000 µg/m³	1 µg/m³
o-Xylene	0-2000 µg/m³	3 µg/m³
o-, m-, p-Cresol	0-2000 µg/m³	5 µg/m³
C_6H_5Cl	0-2000 µg/m³	5 µg/m³
$C_6H_4Cl_2$	0-2000 µg/m³	5 µg/m³
ClO_2	0-2000 µg/m³	1 µg/m³
Cresol	0-2000 µg/m³	5 µg/m³
$COCl_2$	0-2000 µg/m³	5 µg/m³
Ethylbenzene	0-2000 µg/m³	5 µg/m³
Acrylonitrile	0-2000 µg/m³	50 µg/m³
1,2,3-Trimethylbenzene	0-2000 µg/m³	5 µg/m³
1,2,4-Trimethylbenzene	0-2000 µg/m³	5 µg/m³
1,3,5-Trimethylbenzene	0-2000 µg/m³	5 µg/m³
CO_2	0-10000 mg/m³	1 mg/m³
CH_4	0-100 mg/m³	0.1 mg/m³
AR550 FTIR DOAS Series Analyser[3]		
Acetic acid	0-200 mg/m³	0.1 mg/m³
Acetone	0-200 mg/m³	0.05 mg/m³
Acetyl chloride	0-200 mg/m³	0.1 mg/m³
Acetylene	0-200 mg/m³	0.05 mg/m³
Allyl alcohol	0-200 mg/m³	0.1 mg/m³
Benzaldehyde	0-200 mg/m³	0.1 mg/m³
1,3-Butadiene	0-200 mg/m³	0.05 mg/m³
Butane	0-200 mg/m³	0.1 mg/m³
n-Butyl alcohol	0-200 mg/m³	0.1 mg/m³
CO	0–100 mg/m³	1000 µg/m³
CO_2	0–100 g/m³	1 mg/m³
CH_4S	0-200 mg/m³	0.3 mg/m³
Carbonyl fluoride	0-200 mg/m³	0.1 mg/m³
Cyanogen	0-200 mg/m³	0.05 mg/m³
Dimethyl amine	0-200 mg/m³	0.1 mg/m³
Dimethyl ether	0-200 mg/m³	0.1 mg/m³
Dimethyl sulfate	0-200 mg/m³	0.1 mg/m³
Ethane	0-200 mg/m³	0.05 mg/m³
Ethanol	0-200 mg/m³	0.05 mg/m³
Ethyl acetate	0-200 mg/m³	0.1 mg/m³
Ethylene	0-200 mg/m³	0.1 mg/m³
Heptane	0-200 mg/m³	0.1 mg/m³
Hexane	0-200 mg/m³	0.1 mg/m³
HBr	0-200 mg/m³	0.1 mg/m³
HCl	0–100 mg/m³	20 µg/m³
HCN	0-200 mg/m³	0.1 mg/m³
HF	0–10 mg/m³	1 µg/m³
Isobutanol	0-200 mg/m³	0.1 mg/m³
Methane	0–100 mg/m³	0.05 mg/m³
Methanol	0-2000 mg/m³	0.05 mg/m³
Methylamine	0-200 mg/m³	0.1 mg/m³
Nitrobenzene	0-200 mg/m³	0.1 mg/m³
NH_3	0–100 mg/m³	20 µg/m³
Propane	0-200 mg/m³	0.1 mg/m³
Pyridine	0-200 mg/m³	0.1 mg/m³
Silane	0-200 mg/m³	0.1 mg/m³
Vinyl acetate	0-200 mg/m³	0.1 mg/m³
LD500 Laser Diode Gas Analyser		
CO	0–100 mg/m³	100 µg/m³
CO_2	0–100 g/m³	1 mg/m³
NH_3	0–100 mg/m³	20 µg/m³
HCl	0–100 mg/m³	20 µg/m³
HF	0–10 mg/m³	1 µg/m³
Methane	0–100 mg/m³	0.05 mg/m³
H_2O	0–100% vol.	0.1% vol.

[1] Higher measurement ranges are possible depending on application and compound.
[2] Recommended monitoring path length: 300 to 800 m.
[3] Based on 200 m path. Recommended monitoring path length: 100 to 200 m.
[4] May require automatic zero function, consult OPSIS.

- Additional gaseous compounds can be measured.
- For span and zero drift, please refer to QAL1 documents.
- Linearity error (of measurement range, better than): ±1%.
- Max. length of fibre optic cable: please refer to product sheet P9 and P16.

Ambient Air Quality Monitoring by OPSIS

Early warning system

Can be installed in explosive areas

One analyser for all gases

Cost-effective, open-path technology

High availability

Representative path-integrated data

Direct monitoring of NO_2

Gas calibration only once per year

Low energy consumption

Operates with a minimum of maintenance

Approved by MCERTS, TÜV, U.S. EPA, and Chinese EPA

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2015 04

Please contact your OPSIS supplier to discuss your particular system requirements, including the compounds you wish to monitor. Separate product and other industrial application sheets are available. Specifications subject to change without notice.

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