

Internationally Approved
EN 15267 Certified



Continuous Emissions Monitoring
and Process Control

Glass Manufacturing Industries

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Process control and emissions monitoring in a glass manufacturing plant can be a challenge due to high temperature in the flue gas. To use an extractive system in this environment will demand a lot of maintenance.

The OPSIS DOAS system provides the glass industry with an accurate analyser that will operate with a minimum of maintenance. The OPSIS DOAS system is based on a non-contact method that uses an optical path to measure across the duct.

The light is transported in an optical fibre to the analyser, and one unit can operate several measurement paths.

A single OPSIS system will measure all relevant gas components such as NO_x, SO₂, CO, CO₂, H₂O, and O₂.

RETURN OF INVESTMENT

Many glass manufacturing plants will have to install monitoring systems to meet the environmental requirements.

The cost of investing in an OPSIS system is small compared to the amount of money that is spent on maintaining extractive measuring systems.

TEST AND APPROVALS

The OPSIS system has been tested and approved by a number of internationally recognized institutes and authorities. The system is approved by German TÜV and British MCERTS among others. Full details are available on request.

OP SIS PRODUCT PORTFOLIO

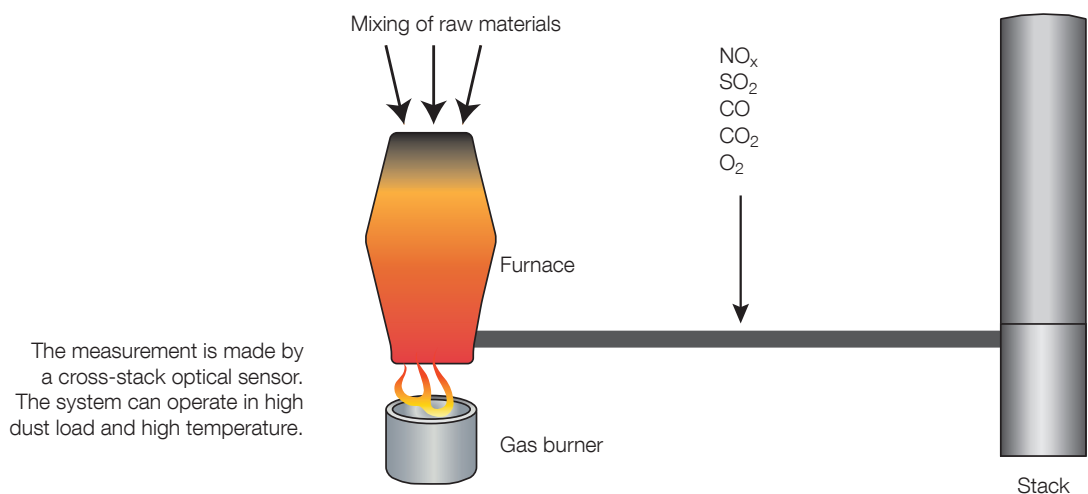
OP SIS has a full product portfolio for measurement of gases. It includes complete CEM systems designed to meet the European directives, TDL systems, O₂ analysers, and Hg analysers.

For further information, please visit www.opsis.se.

QAL 1 CERTIFICATION:

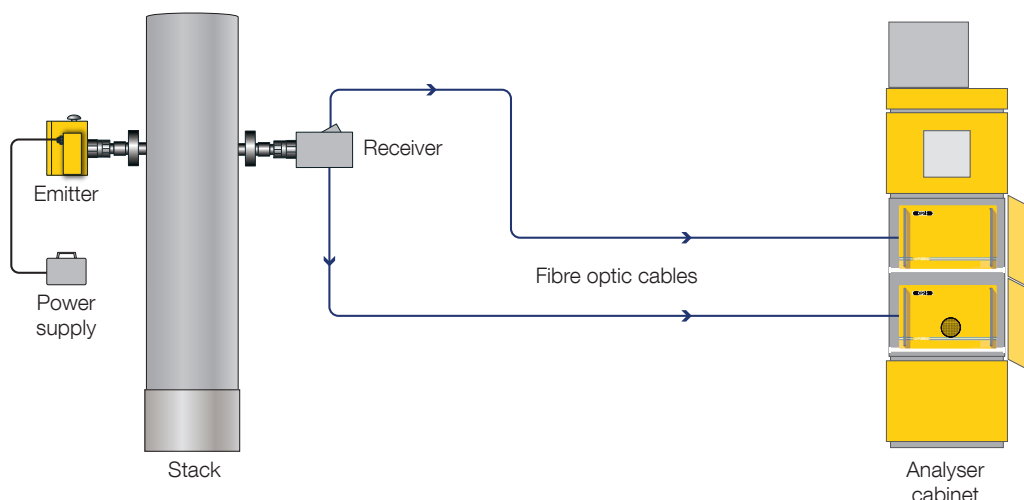
BEST PERFORMANCE

LONGEST CALIBRATION INTERVAL



SYSTEM OVERVIEW

An OPSIS system layout for emissions monitoring and process control in a glass manufacturing industry



PERFORMANCE DATA

(typical data which may vary depending on application)

Compound	Max. measurement range (1 m path) ⁽¹⁾	Lowest measurement range according to EN 15267	Min. detectable quantities (monitoring path 1 m, measurement time 30 sec.)
UV/IR DOAS Analyser Models AR600 / AR602Z / AR602Z/Hg / AR602Z/N / AR602Z/NHg / AR620			
NO ⁽²⁾	0–2000 mg/m ³	0–150 mg/m ³	0.5 mg/m ³
NO ₂	0–100% Vol.	0–20 mg/m ³	0.5 mg/m ³
SO ₂	0–100% Vol.	0–75 mg/m ³	0.5 mg/m ³
NH ₃ ⁽³⁾	0–1000 mg/m ³	0–10 mg/m ³	0.5 mg/m ³
Hg ⁰	0–1000 µg/m ³	0–45 µg/m ³	0.5 µg/m ³
THg	0–1000 µg/m ³	0–45 µg/m ³	0.5 µg/m ³
H ₂ O	0–100% Vol.	0–30% Vol.	0.1% Vol.
HCl	0–10000 mg/m ³	0–1000 mg/m ³⁽⁶⁾	10 mg/m ³⁽⁴⁾
HF	0–1000 mg/m ³	0–100 mg/m ³⁽⁶⁾	5 mg/m ³
CO ₂	0–100% Vol.	0–30% Vol.	0.5% Vol.
Benzene	0–1000 mg/m ³	0–20 mg/m ³⁽⁶⁾	0.5 mg/m ³
Formaldehyde	0–2000 mg/m ³	0–20 mg/m ³	1 mg/m ³
FTIR DOAS Analyser Models AR650 / AR650/N			
HCl	0–100% Vol.	0–15 mg/m ³	0.5 mg/m ³
CO	0–100% Vol.	0–75 mg/m ³	2 mg/m ³
H ₂ O	0–100% Vol.	0–30% Vol.	0.1% Vol.
HF	0–100% Vol.	0–1.5 mg/m ³	0.1 mg/m ³
NH ₃	0–100% Vol.	0–100 mg/m ³⁽⁶⁾	2 mg/m ³
N ₂ O	0–100% Vol.	0–500 mg/m ³	5 mg/m ³⁽⁵⁾
CH ₄	0–100% Vol.	0–20 mg/m ³	0.5 mg/m ³
CO ₂	0–100% Vol.	0–20% Vol.	0.1% Vol.
LD500 Laser Diode Gas Analyser			
HCl	0–100% Vol.	0–15 mg/m ³⁽⁶⁾	0.5 mg/m ³
CO	0–100% Vol.	0–5% Vol. ⁽⁶⁾	0.1% Vol.
H ₂ O	0–100% Vol.	0–30% Vol. ⁽⁶⁾	0.1% Vol.
HF	0–100% Vol.	0–1.5 mg/m ³⁽⁶⁾	0.1 mg/m ³
NH ₃	0–100% Vol.	0–10 mg/m ³⁽⁶⁾	0.5 mg/m ³
CO ₂	0–100% Vol.	0–30% Vol. ⁽⁶⁾	0.1% Vol.
O ₂	0–21% Vol.	0–20% Vol. ⁽⁶⁾	0.1% Vol.
CH ₄	0–100% Vol.	0–20 mg/m ³⁽⁶⁾	0.5 mg/m ³

Accuracy
Better than 2% of measured value or equal to the detection limit (whichever is greater).

Span drift
Less than 2% per year.
Please, refer to QAL1 documents.

Zero drift
Less than 2% of measurement range per year.
Please, refer to QAL1 documents.

Linearity error
Less than 1% of measurement range.

⁽¹⁾ This data refers to a light path of 1 m. For longer paths, the maximum range is proportionally smaller. Products are available to create shorter paths in very wide stacks.

⁽²⁾ Maximum SO₂ concentration: 5 g/m³ x m.

⁽³⁾ Maximum SO₂ concentration: 500 mg/m³ x m.

⁽⁴⁾ Monitoring path 5 m, measurement time 30 sec.

⁽⁵⁾ Detection limit of 1 mg/m³ is optional with hardware upgrade.

⁽⁶⁾ Lowest measurement range.

• Recommended monitoring path length: 1 to 5 m.

• After wet scrubbers or when particulate concentration averaged over 1 m is higher than 5 g/m³, the monitoring path length may have to be reduced.

• Max. length of fibre optic cable: please refer to product sheets P9 and P16.

Continuous Emissions Monitoring and Process Control by OPSIS

- Withstands high temperature in the flue gas
- Combines the benefits of UV/FTIR DOAS and TDL technology
- Best performance according to QAL1 certification
- Longest calibration interval according to QAL1 certification
- Automatic QAL 3 check as option
- No sampling required, non-contact measurement system
- Operates with a minimum of maintenance
- Low energy consumption
- Internationally approved
- Thousands of systems installed worldwide
- Serviced by highly skilled service network

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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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