

CONFIRMATION

of Product Conformity (QAL1)

Approved AMS: LasIR NH₃/H₂O for NH₃ and H₂O

Manufacturer: Unisearch Associates
96 Bradwick Drive
Concord, Ontario / L4K 1K8
Canada

Test Institute:: TÜV Rheinland Energy & Environment GmbH

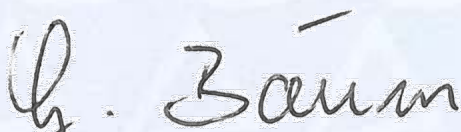
**This is to certify that the AMS has been tested
according to the standards**


**EN 15267-1 (2009), EN 15267-2 (2023), EN 15267-3 (2007)
as well as EN 14181 (2014).**

The AMS underwent independent expert testing and was accepted.
This confirmation is valid up to the publication of the certificate,
but no longer than 6 months from the date of issue
(this document contains 4 pages).

This confirmation is valid until: 15 November 2024

TÜV Rheinland Energy & Environment GmbH
Cologne, 31 May 2024


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Test institute accredited to EN ISO/IEC 17025 by DAkkS (German Accreditation Body).
This accreditation is limited to the accreditation scope defined in the enclosure to certificate D-PL-11120-02-00.

Confirmation:
31 May 2024

Test Report: EuL/21255746/A dated 1 March 2024

Expiry date: 15 November 2024

Approved application:

The tested AMS is suitable for use at plants according to Directive 2010/75/EC, chapter III (combustion plants / 13th BImSchV:2021), chapter IV (waste incineration plants / 17th BImSchV:2021), Directive 2015/2193/EC (44th BImSchV:2021), 30th BImSchV:2019, TA Luft:2021 and 27th BImSchV:2013. The measured ranges have been selected so as to ensure as broad a field of application as possible.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a three-month field test on a waste incineration plant.

The AMS is approved for an ambient temperature range of Analysatoren +5 °C to 40 °C and Measuring heads -20 °C to +50 °C.

The notification of suitability of the AMS, performance testing and the uncertainty calculation have been effected on the basis of the regulations applicable at the time of testing. As changes in legal provisions are possible, any potential user should ensure that this AMS is suitable for monitoring the emission limit values relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the intended purpose.

Note:

The legal regulations mentioned do not correspond to the current state of legislation in every case. Each user should, if necessary, in consultation with the competent authority, ensure that this AMS meets the legal requirements for the intended use. In addition, it cannot be ruled out that legal regulations governing the use of a measuring device for emission monitoring may change during the lifetime of the certificate.

Basis of the confirmation

This confirmation is based on:

- Test report EuL/21255746/A dated 1 March 2024 issued by TÜV Rheinland Energy & Environment GmbH
- The ongoing surveillance of the product and the manufacturing process
- Expert testing and approval by an independent body

Confirmation:
31 May 2024

AMS designation:

LasIR NH₃/H₂O for NH₃ and H₂O

Manufacturer:

Unisearch Associates

Field of application:

For plants requiring approval according to Directive 2010/75/EC, chapter III (combustion plants / 13th BImSchV), chapter IV (waste incineration plants / 17th BImSchV), Directive 2015/2193/EC (44th BImSchV), 30th BImSchV, TA Luft and 27th BImSchV.

Measuring ranges during performance testing:

BAnz fehlt noch

Component	Certification range	Supplementary measuring ranges	Unit
NH ₃	0 - 10*	0 - 50*	mg/m ³
H ₂ O	0 - 40*	0 - 30*	Vol.-%

*based on a measuring path length of 1.0 m

Software version:

4.96x2

Restrictions:

None

Notes:

1. The QAL3 test of NH₃ can be carried out with dry test gases from pressurised gas cylinders and an unheated test gas cell.
2. The maintenance interval is 4 weeks.
3. The measuring system has been suitability-tested with the dual-pass optical unit.
4. If the tested measuring path length of 1 m is exceeded, it must be checked on site when installing the measuring system whether the minimum requirement for cross-sensitivity according to DIN EN 15267-3 is still met.

Test Institute: TÜV Rheinland Energy & Environment GmbH, Cologne

Report No.: EuL/21255746/A dated 1 March 2024

Confirmation:
31 May 2024

Tested product

This confirmation applies to automated measurement systems conforming to the following description:

The LasIR measuring system is based on the principle of light absorption of a tunable diode laser in the near infrared range. It is designed for the in-situ measurement of NH₃/H₂O in waste gas emissions. The core of the LasIR measuring system is the laser diode, which serves as a light source in the near infrared range. These diodes emit a light beam in a narrow but adjustable wavelength spectrum. The high spectral resolution and the adjustability of the laser diodes make it possible to measure the optical absorption of a single rotation/vibration line in the spectrum of the molecule to be measured. This means that the gas under test can be clearly identified and there is a high degree of differentiation from interfering gases.

The measuring system consists of:

- LasIR control and analysis unit
- Transmitter and receiver unit with purging device
- Reflector unit with purging device
- Optical cable (between analysis unit and transmitter/receiver unit)
- Unheated sample gas cell (length 12.5 cm)
- Heated sample gas cell (length 1 m)

The LasIR measuring system consists of two main components: the LasIR control (analysis) unit and the optical heads.

The control analysis unit

The analyser unit is housed in its own casing. The laser contained in the analyser is selected and set for the spectral absorption wavelength of the gas to be monitored. It is mounted on a thermo-electric cooler, which roughly adjusts the wavelength via the temperature of the laser. The fine adjustment is made by the laser current.

The laser is coupled to an optical cable, which in turn is connected to an optical beam splitter. This beam splitter divides the light into two paths. One output (in the range 2 % to 10 %) directs the laser beam to a reference channel. Light from the output for the reference channel passes through a small reference cell, which contains a high concentration of the gas to be measured for this laser. The signal from the reference channel is used to tune the wavelength of the laser to the absorption line. The other output (in the range 90 % to 98 %) is used for the measurement channels.

The analyser also contains a laser temperature and power control circuit, a data acquisition and control board and an integrated computer for automatic data control and analysis.

Optical heads

There are a number of different configurations of transmit/receive modules available for in-situ emission monitoring. Currently, only the transmitter/receiver unit version with retroreflector (dual-pass option) has been performance-tested.

In the dual-pass version, the light beam is guided to the duct optics via an optical fiber, which is coupled to a specially designed launch/receive element with an APC connector. The laser beam is guided through the exhaust duct/chimney. When it hits the opposite side, it is deflected back onto the detector by a reflector. The output voltage of the receiver is transmitted to the LasIR analyser via a coaxial cable.