

Trace ammonia flux measurements in air



Absolutely

Ammonia Analyzer - Trace (NH_3 , H_2O)

Features and Benefits

- Capability for eddy flux measurements (5 Hz flow time response, with external pump): allows observation of transient, time varying flows
- 0.2-ppb precision in 1 second
- Accurate measurements over a wide range of concentrations
- High resolution absorption spectra viewable for diagnostics
- Reports ammonia and water vapor simultaneously
- Reports water vapor up to 60,000 ppm
- Low power: ideal for field work
- New Enhanced Performance model provides lowest drift and highest accuracy

LGR's Ammonia Analyzer - Trace provides extremely fast (5 Hz response) and sensitive measurements of ammonia (and water vapor) in ambient air with high precision (0.2 ppb in 1 second). No longer do you have to spend a lot of money or wait a long time to measure ammonia with high sensitivity – LGR's Ammonia Analyzer - Trace provides measurements at 5 Hz with sub-ppb precision. In addition, the AAT can report measurements over a very wide range of concentrations and while in flight.

LGR's new "Enhanced Performance series" incorporates proprietary internal thermal control for ultra-stable, minimal-drift measurements with unsurpassed precision and accuracy.

The AAT is available with different photodetector options to allow users to select the one most suitable for their needs. The AAT with either the LN_2 -cooled, or Stirling-cycle-cooled, detector provides the highest sensitivity and precision of any ammonia analyzer. The AAT with the TEC (Peltier)-cooled detector provides the extremely high sensitivity and precision without the need for consumables.

The AAT uses LGR's patented Off-axis ICOS technology, a fourth generation cavity enhanced absorption technique along with mid-infrared quantum cascade laser. Off-axis ICOS has many advantages over conventional cavity ringdown spectroscopy (CRDS) techniques such as being alignment insensitive, having a much shorter measurement time, and not requiring expensive and power consuming auxiliary components. Quantum cascade lasers operate in the mid-infrared to access the strongest absorption features and yield the highest detection sensitivity.

All LGR instruments include an internal computer (Linux OS) that can store data practically indefinitely on its internal hard drive (for unattended long-term operation), and that can send real-time data to a data logger through its analog, digital (RS232) and Ethernet outputs. Furthermore, the instruments may be controlled remotely via the Internet. This capability allows the user to operate the analyzer using a web browser anywhere. Furthermore, remote access allows full control of the instrument and provides the opportunity to obtain data and diagnose the instrument operation without being on site.

Ammonia Analyzer - Trace (NH₃, H₂O)

Performance Specifications

Precision (1σ; 0.1 sec / 1 sec / 10 sec):

0.7 ppb / 0.2 ppb / 0.08 ppb

Maximum Drift (Enhanced Performance model)

(15 min average, at STP, over 24 hrs):

0.2 ppb

NH₃ Measurement Range:

0.5 ppb – 10 ppm

NH₃ Operational Range (calibration required):

0 – 100 ppm

Sampling Conditions:

Sample Temperature: 0 – 50 °C

Operating Temperature: 5 – 45 °C (Standard model)

Operating Temperature: 0 – 45 °C (EP model)

Ambient Humidity: 0 – 100% RH non-condensing

Outputs:

Digital (RS232), analog (0-5 VDC), Ethernet, USB

Power Requirements:

115/230 VAC, 50/60 Hz

300 watts (EP Model, steady state)

Dimensions:

Rackmount Package (Enhanced Performance model):

14" x 45" x 17"

Weight:

58 kg (Standard models)

68 kg (Enhanced Performance model)

Ordering Information

914-0012: includes capability for 5 Hz flow response and LN₂ cooled (500 mL) detector

914-1012: includes capability for 5 Hz flow response and TEC cooled (no LN₂) detector (measurement precision decreases by 3x)

914-2012: includes capability for 5 Hz flow response and Stirling-cycle-cooled (no LN₂) detector

914-0013: includes LN₂-cooled detector

914-1013: includes TEC-cooled (no LN₂) detector

914-2013: includes Stirling-cycle-cooled (no LN₂) detector

Accessories

908-0003-9001: Multiport Inlet Unit – 16-inlet port multiplexer

908-0003-9002: Multiport Inlet Unit – 8-inlet port multiplexer

908-0008-9009: N920 Pump – flow-through time = 1.2 secs

908-0001-9011: N940 Pump – flow-through time = 0.7 secs

908-0001-9001: Dry Scroll Pump – flow-through time = 0.15 secs

904-0002: Data Logging System – multi-channel data logging system records and synchronizes serial (RS-232) outputs from multiple analyzers and other devices (e.g., GPS, anemometers)



Instrument complies with 21 CFR 1040.10 and 1040.11