NH_3 MONITOR
FOR AMMONIA IN AMBIENT AIR AND STACK

LSE monitor for the measurement of NH_3

Ammonia measurement from LSE Monitors: a new solution for air pollution monitoring!

Emission from farm animals and natural processes as well as from industrial activities leads to the formation of acid rain and to the development of aerosols. In higher concentrations the smell is a problem.

Ammonia has to be monitored in stacks from industry and from farm ventilation systems as well as in ambient air. To improve ambient air quality for human and for nature, ammonia concentrations in wide parts of the world have to be reduced. Monitoring is then required to investigate the effect of measures taken to reduce ammonia concentrations.

LSE Monitors has developed a simple and effective monitor based on a combination of a quantum cascade laser with photo acoustic technology to follow concentrations from ppm to low ppb, with a detection limit of 1—2 ppb and a time resolution of 2 minutes.

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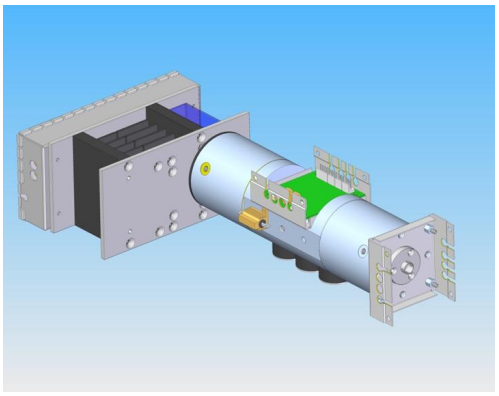
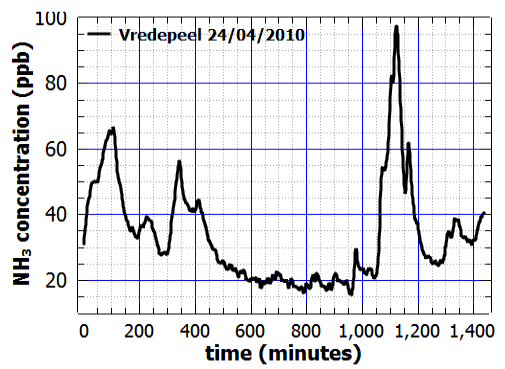
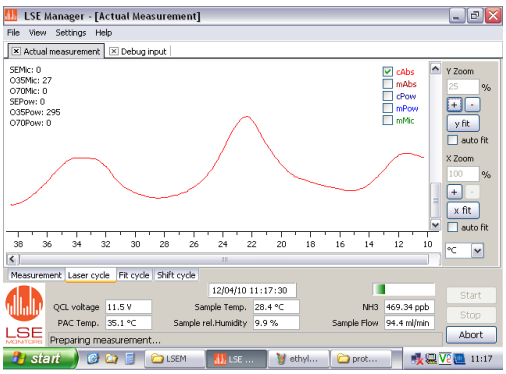


QCL PAS technique and LSE Monitors

Infrared light that can be absorbed by ammonia molecules is produced by a quantum cascade laser. The laser light is led through a resonator cell that is continuously flushed with the sample. If ammonia is present the gas pressure increases as a result of absorption of the laser light. We modulate the laser at an acoustic frequency of 1600 Hz and the resulting pressure modulation can be measured by a microphone. The amplitude is proportional to the ammonia concentration. LSE Monitors is a joint venture between Sensor Sense BV in Nijmegen and Synspec BV in Groningen, combining knowledge of laser research, electronic design and analyser production.





TECH SPECS

Specifications can be canged without notification, the latest specs can be found on the website www.lsemonitors.nl

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LASER EN PAS SPECS

AMMONIA ANALYSER	LASER WAVELENGTH SUITABLE FOR AMMONIA MODULATION FREQUENCY 1600 Hz CORRECTED FOR WATER- AND CARBON DIOXIDE INTERFERENCE

RANGE, PRECISION, CALIBRATION GAS

RANGE	RANGE UP TO 8 PPM, TUNEABLE TO 75 PPM
PRECISION	A MAXIMUM PRECISION OF 2 PPB OR 2 % OF MEASURED VALUE, WHICHEVER IS THE BIGGEST
CALIBRATION	MIN. EVERY 6 MONTHS, ADVISED EVERY 30 DAYS. AUTOCALIBRATION PROGRAMMABLE. PLEASE CONTACT US FOR ADVICE ON CALIBRATION GASES.
TIME RESOLUTION / T90	2 MIN / < 10 MIN
SAMPLE FLOW	40 ML/MIN

TECHNICAL DATA

DIMENSIONS	19òrack, 3 Standard Height Units (12 cm) depth 37,2 cm, 8 kg
POWER DEMAND	230 Vac, 200 VA (110 Vac available)
ENVIRONMENTAL CONDITIONS	AMBIENT TEMPERATURE 5 TO 30°C AMBIENT RELATIVE HUMIDITY 0% TO 90% DEW POINT OF SAMPLE GAS SHOULD BE BELOW 25 °C. (at high water concentration response time will increase)
GAS CONNECTIONS	SWAGELOCK 1/8ò