Nitrolux®-100
Pranalytica's Ammonia Sensor with 100 ppt Sensitivity

Nitrolux®-100 is Pranalytica's flagship ambient level atmospheric ammonia sensor in Pranalytica's Nitrolux® sensor family that provides a guaranteed sensitivity of 100 parts-per-trillion (ppt) for ammonia detection. The underlying measurement technology assures that normally occurring trace gas interferents do not affect the accuracy of ammonia determination. The Nitrolux®-100 has been extensively deployed in semiconductor fab clean rooms for quality assurance through the measurement of ambient ammonia at sub-ppb levels. PPB level ammonia in semiconductor clean rooms is known to degrade the quality of high performance integrated circuits.

Other members of the Nitrolux® family include the Nitrolux®-200 and Nitrolux®-1000, which provide guaranteed sensitivities of 200 and 1000 ppt respectively. These sensors have found extensive use in ambient ammonia monitoring by environmental protection agencies. High levels of ambient ammonia are harmful to human health and are thought to be precursors for PM$_{2.5}$ formation.

**Specifications**

**Nitrolux®-100**

- Number of cells: One
- Minimum detectivity: 100 parts-per-trillion (ppt)
- Measurement cycle: Continuous
- Measurement process: Direct measurement ammonia, no preconcentration or conversion required
- Measurement time: 36 seconds (optional 10 seconds)
- Analyzer operation: Autonomous (no operator attention necessary)
- Response time: 2 measurement cycles (0-90% change)
Selectivity: No interference from other ammonium containing compounds, hydrocarbons, hydrogen sulfide, sulfur dioxide, hydrogen fluoride, hydrogen chloride, water and NOx.

Linearity: ±10% of full scale

Accuracy: ±100 parts-per-trillion or ±10% of the reading (whichever is greater)

Precision: ±100 parts-per-trillion or ±10% of the reading which ever is larger (relative accuracy)

Zero drift: ±100 parts-per-trillion per week (non-cumulative)

Span drift: ±10% of full scale per month (non-cumulative)

Control processor: Pentium class microcomputer embedded in the Nitrolux

Operating system: LINUX based to assure high reliability

Data storage: Embedded in the Nitrolux

All completely solid state memory for crash-proof reliability

User data storage capacity for > 1 year (Option EDS provides over 4 years of continuous data storage capability)

Data display: Full color graphical display showing ammonia as a function of time and location (GPS option GP1) and provides the capability for programming alarms settings, etc

Data output: RS 232 serial data

0-10V & 5-20 mA analog (option OUT)

USB key

Internet connection

Wireless connectivity (option WS)

Gas handling: Internal vacuum pump with gas flow of ~1.6 lpm

Gas inlet temperature: 0 to 30 C

Special gas needs: None

Routine calibration: Not required at the quoted sensitivity; recommended calibration every six months (using the optional calibration system CAL2)

Consumables: Particulate filter replacement every 2,500 hours

Gas fittings: PFA Teflon

Operating environment: 10 to 30 C; 0-95% RH (non-condensing); requires no special cooling

Electrical: 110-230V AC, 60 Hz

Power consumption: Sensor: <300W

Display: <100W

Physical: 19"W X 24" D X 10" H (rack mount ready)

Weight: Sensor 65 lbs

Display 22 lbs