Pranalytica, Inc.
An ISO 9001 Certified Company

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)

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- Selectivity — No interference from other ammonium containing compounds, hydrocarbons, hydrogen sulfide, sulfur dioxide, hydrogen fluoride, hydrogen chloride, water and NO_X
- 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)
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- 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

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