DF-740
NanoTrace Moisture-in-Ammonia Analyzer

The Delta F NanoTrace Moisture in Ammonia Analyzer

- The DF-740 moisture-in-ammonia analyzer is the latest addition to the 700 Series moisture analyzers. Utilizing the same Tuneable Diode Laser Absorption Spectroscopy (TDLAS) as the successful DF-750 inert gas moisture analyzer, the DF 740 offers a simple to use instrument for the measurement of trace levels of moisture in ammonia.
- The DF-740 is a true process analyzer designed for long term unattended operation, and does not require back up by a skilled specialist, unlike other more expensive technologies used for this application such as FTIR (Fourier Transform Infrared) Spectroscopy.
- Exhaustive field-testing with a number of instruments has shown repeatable Lowest Detection Level (LDL) of 10ppb, excellent linearity fast response.

For more information about Delta F sensor technology, ask for the Delta F Moisture Technology Brochure.

Configuration and Installation

Delta F provides comprehensive assistance for a broad variety of application problems including measurements of semiconductor specialty gases. Depending on the model, Delta F analyzers can be configured to provide a wide choice of outputs for data collection and process control systems. Contact your Delta F representative for an Applications Data Sheet and pricing information.

Moisture System Performance

Range
0 to 10 PPM
Analog output scaleable down to 0-100 PPB

Lowest Detection Level
10 PPB

Resolution – Analytical (Sensitivity, Smallest Detectable Change)
2 PPB

Resolution – Display
10 PPT

Accuracy
Greater of ±5% of Reading or ±5 PPB

Response Time (Typical)
15 minutes to reach 90% of an upward step challenge

Upset Recovery Time
< 5 minutes from high PPB upset to within 10 PPB of previously stable reading

Sample Requirements

Sample Line Temperature: Heat Trace to 140ºF (60ºC)
Limits: 50º to 176ºF (10º to 80ºC)
For best results, maintain sample line at 60º C

Sample Flow: 0.25 lpm at 7 to 12 psig (1.93 to 3.31 BarA).

Miscellaneous

Dimensions: 19" (48.3cm) W x 10.5" (26.7 cm) H x 22.5" (57.2 cm) D

Weight: 68 lbs. (31 kg.)

Ambient Operating Temperature: 50º F to 105º F (10º C to 40º C)

THE DIFFERENCE DELTA F

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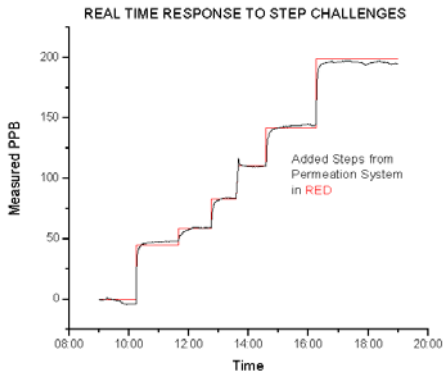
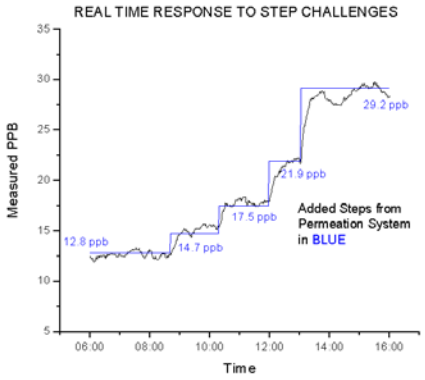
Test Data

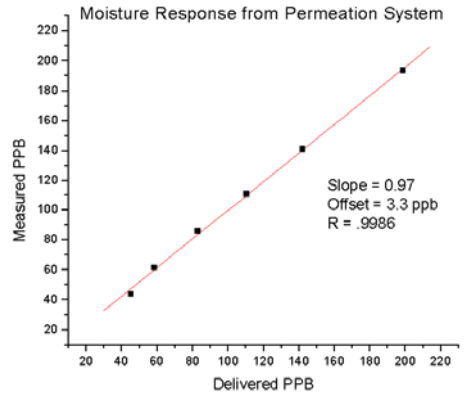
Results based on test data from Praxair Inc., Tonawanda, NY USA.

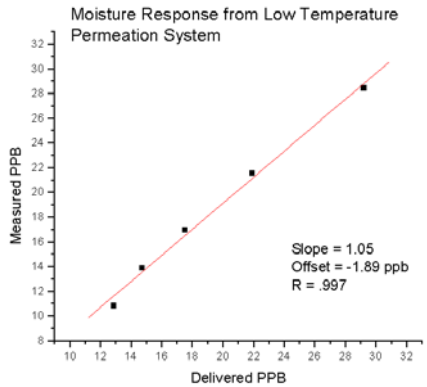
Response to step challenges



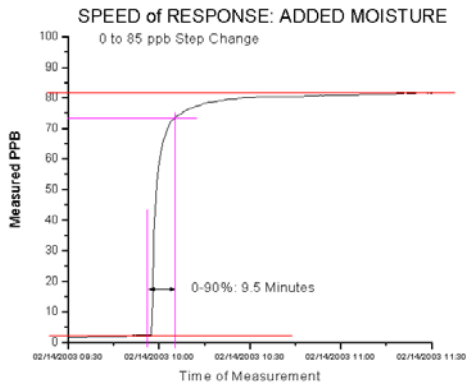


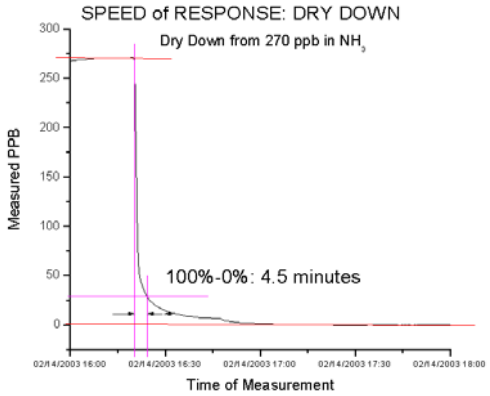
Linearity



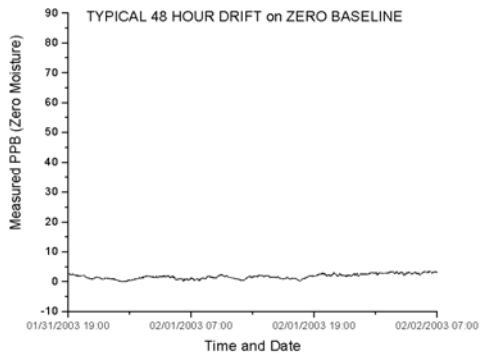


Speed of Response





Baseline Stability



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NanoTrace Moisture in Ammonia Analyzer Configuration Guide

DF-740

Standard Features & Specifications

Performance

Lowest Detection Level 10 ppb

Resolution

Analytical *(Sensitivity-smallest detectable change)* 2 ppb
Display 0.1 ppb

Accuracy (greater of) ±5% of reading
or ± 5 ppb
(Constant Conditions)

Speed of Response (typically) 15 minutes
Time to reach 90% of an upward step challenge

Upset Recovery Time < 5 minutes
Time from high ppb upset to within 10 ppb of the previously stable reading

Range 0-10 ppm

Ambient Operating Temperature 50º to 105º F (10º to 40º C)

Background Gas Compatibility **Ammonia**

Gas Sample Conditions

Sample Pressure
Operating limits: 7 to 12 psig (1.93 to 3.31 bar)

Sample Return Pressure Atmospheric Vent (optimal)
Limits:-2 to 2 psig (0.88 bar to 1.14 bar)

Flow Rate: 0.25 lpm

Sample Line Temperature

Heat Trace to 140ºF (60ºC) Limits: 50º to 176ºF (10º to 80ºC)
For best results, maintain sample line at 60º C

Gas Flow System

Construction Materials 300 Series stainless steel

Gas Connections ¼ inch VCR compatible inlet fitting
¼ inch compression outlet fitting to vacuum pump
¼ inch compression inlet/outlet fittings on vacuum pump

Construction

Enclosure: NEMA 1 in 19" Rack Mount

Dimensions: 19" (48.3cm) W x 10.5" (26.7 cm) H x 22.5" (57.2 cm) D

Weight: 68 lbs. (31 kg.)

Maintenance & Logging

Data Logging & Graphing
Analyzer can store years of continuous data, downloadable in monthly blocks

Automatic Maintenance Log
Self checking, maintains records satisfying many ISO 9000 requirements

Electrical

Back Lighted Display 7.4" VGA Monochrome (640x480)

Visual Alarm Status Indicators
4 moisture levels, temperature, moisture sensor diagnostic, loss of flow, zero verification-in-process, analyzer off-line, expanded range

Relays
(Failsafe action upon loss of power to alarm condition)
4 non-latching, independently assignable to alarms or indicators. SPDT contacts rated for 1A at 30 VDC.

Power Requirements
100-120 VAC @ 5A, 50/60 Hz (standard); 200-240 VAC @ 2.5A, 50/60 Hz (optional). Configurable at factory.

Output Signals
Analog Outputs:
Menu scaleable single output range of 0-100 ppb up to 0-10 ppm

Isolated 4-20 mADC, and choice of 0-1, 0-2, 0-5, or 0-10 VDC

Expanded Range Scales
Two user selectable secondary analog output ranges for re-scaling the output once the primary range is exceeded

Digital Output:
2-Way RS232 or RS485, configurable at factory

ORDERING INFORMATION

Base Model

740-0010 *NanoTrace Moisture Analyzer*

-V (added to model number)
230 VAC/50/60 Hz Input Power

Outputs *(pick one Serial Communication)*

740-RS232 *Two-Way Serial Communications*
740-RS485 *Two-Way Serial Communications*

(pick one VDC Output)
740-OS-1 *0-1 VDC*
740-OS-2 *0-2 VDC*
740-OS-5 *0-5 VDC*
740-OS-10 *0-10 VDC*

Cabinet

740-KYLK *Key Lock*

Specifications subject to change without notice.