

# 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.

## 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  $\pm 5\%$  of Reading or  $\pm 5$  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 140°F (60°C)

Limits: 50° to 176°F (10° to 80°C)

For best results, maintain sample line at 60° 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:* 50° F to 105° F (10° C to 40° C)



## 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.



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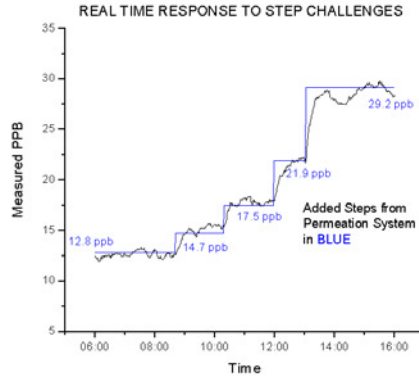
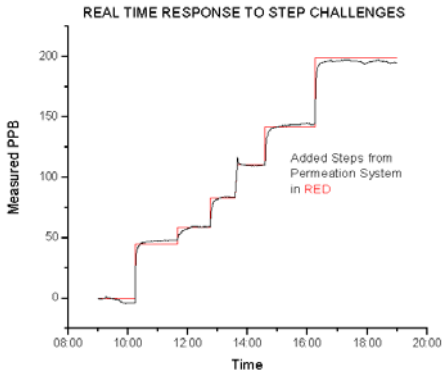
e-mail: [marketing@delta-f.com](mailto:marketing@delta-f.com)

# DF-740 NanoTrace Moisture-in-Ammonia Analyzer

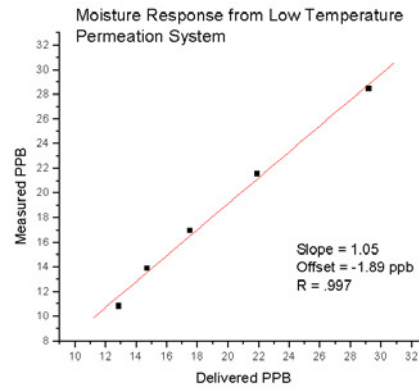
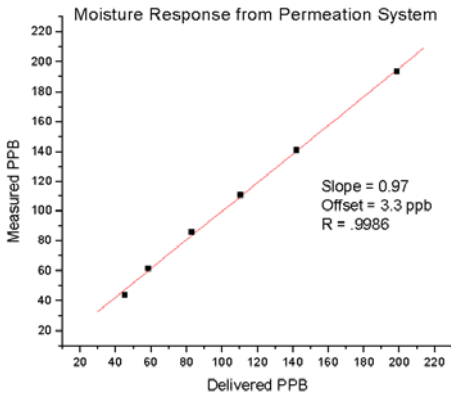
## Test Data

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

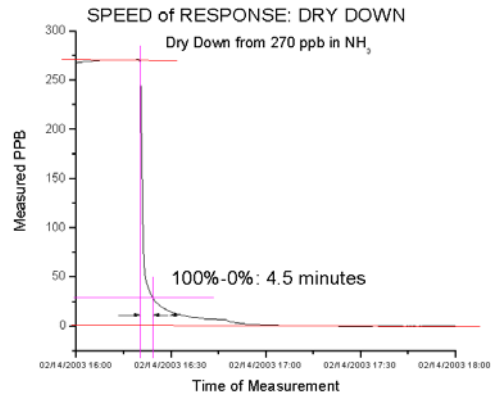
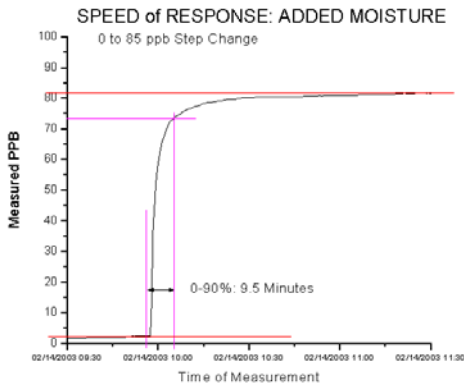
### Response to step challenges



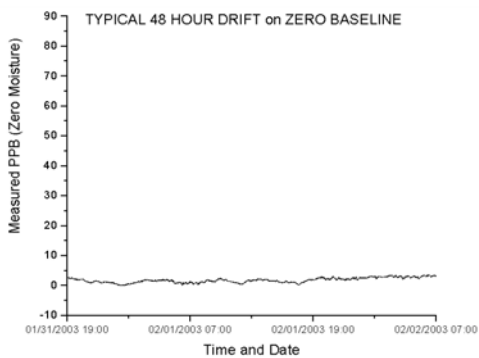
### Linearity



### Speed of Response



### Baseline Stability



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# NanoTrace Moisture in Ammonia Analyzer Configuration Guide

DF-740

## Standard Features & Specifications

### Performance

<b>Lowest Detection Level</b>	10 ppb
<b>Resolution</b>	
Analytical ( <i>Sensitivity-smallest detectable change</i> )	2 ppb
Display	0.1 ppb
<b>Accuracy (greater of)</b>	±5% of reading or ± 5 ppb (Constant Conditions)
<b>Speed of Response</b> (typically)	15 minutes
<i>Time to reach 90% of an upward step challenge</i>	
<b>Upset Recovery Time</b>	< 5 minutes
<i>Time from high ppb upset to within 10 ppb of the previously stable reading</i>	
<b>Range</b>	0-10 ppm
<b>Ambient Operating Temperature</b>	50° to 105° F (10° to 40° C)
<b>Background Gas Compatibility</b>	Ammonia

### Gas Sample Conditions

<b>Sample Pressure</b>	
<i>Operating limits:</i>	
	7 to 12 psig (1.49 to 1.83 BarA)
<b>Sample Return Pressure</b>	Atmospheric Vent (optimal)
<i>Limits:-2 to 2 psig (0.88 bar to 1.14 BarA)</i>	
<b>Flow Rate:</b>	0.25 lpm

### Sample Line Temperature

Heat Trace to 140°F (60°C) Limits: 50° to 176°F (10° to 80°C)  
For best results, maintain sample line at 60° C. Minimize pressure drops to prevent ammonia condensation. Bypass flow is recommended. Bypass flow is recommended. For further advice contact Delta F.

### Gas Flow System

<b>Construction Materials</b>	300 Series stainless steel
<b>Gas Connections</b>	¼ inch VCR compatible inlet fitting ¼ inch compression outlet fitting to vacuum pump ¼ inch compression inlet/outlet fittings on vacuum pump

### Construction

<b>Enclosure:</b>	NEMA 1 in 19" Rack Mount
<b>Dimensions:</b>	19" (48.3cm) W x 10.5" (26.7 cm) H x 22.5" (57.2 cm) D
<b>Weight:</b>	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

<b>Back Lighted Display</b>	7.4" VGA Monochrome (640x480)
<b>Visual Alarm Status Indicators</b>	4 moisture levels, temperature, moisture sensor diagnostic, loss of flow, zero verification-in-process, analyzer off-line, expanded range
<b>Relays</b>	( <i>Failsafe action upon loss of power to alarm condition</i> ) 4 non-latching, independently assignable to alarms or indicators. SPDT contacts rated for 1A at 30 VDC.
<b>Power Requirements</b>	100-120 VAC @ 5A, 50/60 Hz (standard); 200-240 VAC @ 2.5A, 50/60 Hz (optional). Configurable at factory.
<b>Output Signals</b>	
<i>Analog Outputs:</i>	
Menu scaleable single output range of 0-100 ppb up to 0-10 ppm	
Isolated 4-20 mA DC, and choice of 0-1, 0-2, 0-5, or 0-10 VDC	
Expanded Range Scales	
<i>Two user selectable secondary analog output ranges for re-scaling the output once the primary range is exceeded</i>	
<i>Digital Output:</i>	
2-Way RS232 or RS485, configurable at factory	
<b>CE Conformance:</b>	Added EMI/RFI and Conducted interference immunity

## ORDERING INFORMATION

### Base Model

<b>740-0010</b>	NanoTrace Moisture Analyzer
<b>-V</b>	(added to model number) 230 VAC/50/60 Hz Input Power

### Outputs

(pick one Serial Communication)

<b>740-RS232</b>	Two-Way Serial Communications
<b>740-RS485</b>	Two-Way Serial Communications

(pick one VDC Output)

<b>740-OS-1</b>	0-1 VDC
<b>740-OS-2</b>	0-2 VDC
<b>740-OS-5</b>	0-5 VDC
<b>740-OS-10</b>	0-10 VDC

### Cabinet

<b>740-KL</b>	Key Lock
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