

# DF SERIES

## DF-740 NanoTrace

TUNABLE DIODE LASER (TDL) TRACE MOISTURE MEASUREMENTS, SUITABLE FOR QUALITY CONTROL OF ELECTRONIC GRADE AMMONIA GAS PRODUCTION IN LED PLANTS



### DF-740 NanoTrace

The DF-740 is designed specifically to monitor trace levels of moisture in electronics-grade ammonia. Servomex's industry-leading TDL sensing technology and robust Herriot Cell enables an exceptionally broad measurement range of 10ppb-10ppm. By ensuring moisture only comes into contact with minimal optical components, the DF-740's performance is unaffected by loss in mirror reflectivity - ensuring a fast response measurement that is stable, accurate and consistent.

This device is designed for long term unattended operation, delivering considerable cost-savings. The high stability optical TDL technology requires minimal ongoing maintenance, with zero drift enabling greatly extended calibration intervals. The combination of high performance, ultra-stable measurements and affordability make the DF-740 an attractive solution for electrograde NH<sub>3</sub> quality checking applications.

### FLEXIBLE

- Trace level Tunable Diode Laser (TDL) sensing provides high stability measurements through minimal moisture contact with optical elements
- Broad detection range: 1ppb – 10ppm
- Operable via front panel or digital communication options

### EASY TO USE

- Simplified ongoing maintenance requirements with no consumables required
- High reliability; repeatable baseline measurements are not affected by a loss in mirror reflectivity
- Designed for long term unattended operation with minimal maintenance needs

### LOW COST OF OWNERSHIP

- Maintenance periods extended by the use of patented ultra-stable, TDL sensing technology
- Zero drift reduces calibration requirements

### UNRIVALLED PERFORMANCE

- Analysis immune from gas cell concentration: DF-740 operates to specification with up to 90% signal loss
- 10ppb Lower Detection Limit (LDL)
- Manufactured by Servomex - over 60 years' experience innovating gas analysis with thousands of units used in the field

### BENCHMARK COMPLIANCE

- IEC 61010-1
- Overvoltage Category II, Pollution Degree 2
- EU EMC Directive
- EU Low Voltage Directive

Learn more about the DF-740 NanoTrace  
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# PRODUCT OVERVIEW: DF-740 NanoTrace

## HIGH STABILITY TDL MEASUREMENTS

When you need a solution that can undertake quality checks of electrograde NH<sub>3</sub> during bulk gas checks for LED manufacture, you need a device that delivers high measurement accuracy, excellent stability - and is capable of being left unattended for extended periods. A robust design that removes issues associated with mirror reflectivity loss is a must and so is the need for a broad monitoring range. No matter your specific application needs, you'll want a moisture analyzer that can reduce your ongoing costs and provide operational efficiencies. We don't believe you should have to compromise.

## A NO COMPROMISE SOLUTION

The DF-740 has been designed to deliver optimum performance in the measurement of trace moisture in ammonia. This device uses leading-edge TDL sensing technology housed in a sturdy Herriot Cell, ensuring there is no loss of mirror reflectivity, thanks to minimized moisture contact with any optical components. This ensures the DF-740 gives a measurement that is highly stable, reliable and capable for being left unattended for long periods - a benefit supported by comprehensive data logging which captures and recalls calibration, system error and measurement data.

## SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

The DF-740 is also optimized to provide significant cost savings over a long product lifetime. The use of a high stability, zero drift TDL sensor extends calibration intervals and minimizes ongoing maintenance. In summary, the DF-740 is the ideal solution for your gas monitoring needs, thanks to the combination of its ultra-high performance capability, stable reliability and operational efficiency potential.

## ALTERNATIVE PRODUCTS

The DF product range features a number of options designed to meet your application needs.

### DF-730 NanoTrace



Designed to analyze moisture contamination in electronics grade HCl, the DF-730's highly sensitive performance is ideal for quality control and leak detection applications.

### DF-745 NanoTrace



Designed to measure moisture as a contaminant in UHP quality gases, the DF-750's trace/ultra-trace measurement is optimized for bulk gas control in 300m semiconductor fabs.

### DF-760E NanoTrace



The DF-760E combines TDL and Coulometric sensing to create a unique integrated ultra-trace measurement for moisture and oxygen - ideal for PCB bulk gas quality checks and leak detection.

## KEY APPLICATIONS

- Trace NH<sub>3</sub> analysis for quality control of electronics-grade bulk gases used in LED production
- Trace NH<sub>3</sub> analysis for leak detection of electronics-grade bulk gases used in LED production



# PRODUCT DATA: DF-740 NanoTrace

OPTIONS	DESCRIPTION	SPECIFICATION
Output	5 output options available	Isolated 4-20mA DC and a choice of 0-1,0-2,0-5 and 0-10V DC
Output range	Output parameters	Scalable to any range between 0-100ppb to 0-10ppm (740 LDL - 10ppb)
Alarms	5 alarms available	4 moisture levels, temperature, moisture sensor diagnostics, analyzer offline and expanded range
Serial communications	2 options for two-way serial communications	Factory configured RS232 or RS485
Vacuum pump	For high capacity sample draw	Rocking piston vacuum pump
Flow control	For consistent sample draw and reliability	0.25 standard ltr/min.
Dual scale range	2 range options	User-selectable secondary analog output ranges for rescaling the output once the primary range is exceeded
Mounting	1 option	19" rack mount NEMA 1 enclosure
<b>ACCESSORIES</b>	<b>ACCESSORIES AVAILABLE FOR SPECIFIC APPLICATIONS - CONTACT YOUR LOCAL SERVOMEX BUSINESS CENTER</b>	

MONITORING PERFORMANCE	
Gas	H <sub>2</sub> O (purity)
Technology	Tunable Laser Diode (TDL)
Range	0-10ppm – 0-100ppb
Accuracy (intrinsic error) FS	±5% of reading / ±0.5ppb (whichever is greater)
Zero drift/month	Negligible
T <sub>90</sub> in minutes	<3 at 1liter/min

SAMPLE FOR MEASUREMENTS	
Sample for measurement	Sample must be oil free, non-corrosive and non-condensing (must be free of acidic components – contact Servomex for sample preconditioning options)
Sample pressure	5 – 30psig (1.36 – 3.08 BarA)
Dew Point	5°C/9°F below minimum ambient
Particulates	Filtered to 2µm



# PRODUCT DATA: DF-740 NanoTrace

## DEVICE SPECIFICATION

### Size:

- 483mm (19") Wide x 266mm (10.5") High x 608mm (23.9") Deep

### Weight:

- 31.8kg (70lbs)

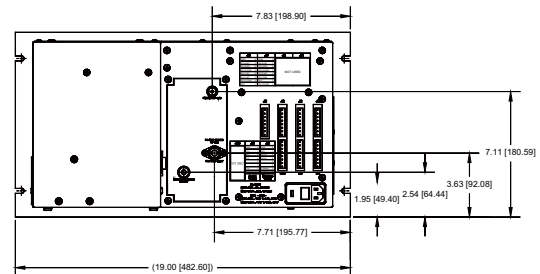
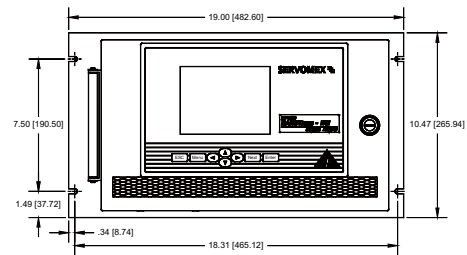
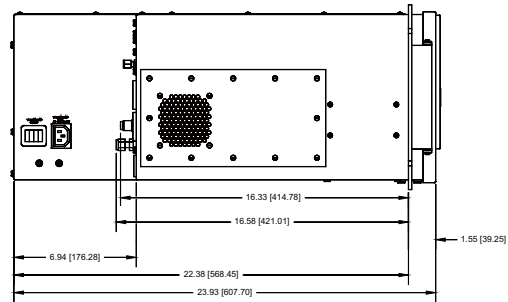
### Operating Temperature:

- 10°C - 40°C/50°F - 104°F

### Compliance:

- IEC 61010-1
- Overvoltage Category II, Pollution Degree 2
- EU EMC Directive
- EU Low Voltage Directive

## DEVICE SCHEMATIC



PBD740 Rev.0 Date: 04/15

*These analyzers are not intended for any form of use on humans and are not medical devices as described in the Medical Devices Directive 93/42EEC.*

**Please note:** This document was updated in August 2014. While every effort has been made to ensure accuracy, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards and guidelines. This document is not intended to form the basis of a contract.

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