

# DF SERIES

## DF-730 NanoTrace

TUNABLE DIODE LASER (TDL) TRACE MOISTURE MEASUREMENTS, SUITABLE FOR MONITORING ELECTRONIC GRADE HCl GAS PRODUCTION IN SEMICONDUCTOR FABs



### DF-730 NanoTrace

Designed to analyze moisture contamination in electronics grade HCl used in semiconductor fabs, the DF-730's highly sensitive performance is ideal for quality control and leak detection applications. Servomex's industry-leading TDL sensing technology and a robust Herriot Cell enables a broad measurement range of 1ppb-10ppm. By ensuring moisture only comes into contact with minimal optical components, the DF-730's performance is unaffected by loss in mirror reflectivity - ensuring a fast response measurement that is stable, accurate and consistent.

This device is also optimized to deliver attractive affordability over product life. The use of leading-edge TDL sensing technology provides zero drift, helping to extend maintenance periods and reduce calibration needs; these aspects combine to make the DF-730 an ideal solution for semiconductor fabs, with its high performance, ultra-stable monitoring capability and considerable operational cost-savings.

### FLEXIBLE

- Tunable Laser Diode (TDL) sensing provides high stability and 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 unaffected by loss in mirror reflectivity

### LOW COST OF OWNERSHIP

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

### UNRIVALLED PERFORMANCE

- Analysis immune from gas cell concentration: DF-730 operates to specification with up to 90% signal loss
- Manufactured by Servomex - over 60 years' experience with thousands of units used in the field
- 1ppb Lower Detection Limit (LDL)

### BENCHMARK COMPLIANCE

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

Learn more about the DF-730 NanoTrace  
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# PRODUCT OVERVIEW: DF-730 NanoTrace

## HIGH STABILITY COULOMETRIC TRACE AND PERCENT MEASUREMENTS

When you require quality control of electronics grade HCl gas, you need a moisture analyzer that delivers consistent, reliable measurements with sensitive performance. A flexible monitoring range is a must, as is a sensing technology that operates effectively for extended periods - even with significant signal loss. No matter what your application needs, you'll want a moisture analyzer that can reduce your ongoing costs and provide operational efficiencies. At Servomex, we don't believe you should have to compromise.

## A NO COMPROMISE SOLUTION

The DF-730 is specifically designed to meet your application needs, addressing the high quality and performance criteria demanded by semiconductor manufacturers. This device uses high stability TDL sensing and a robust Herriot Cell, helping to minimize water contact with optical components. This eliminates loss of mirror reflectivity issues and allows the DF-730 to deliver reliable baseline measurements. A broad measurement range of 1 ppb-10 ppm ensures flexible performance in the majority of process conditions. This advanced performance makes the DF-730 the ideal monitoring solution for your application needs.

## SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

Added to its considerable monitoring capability is the DF-730's ability to reduce ongoing costs. The use of patented leading-edge TDL sensing technology means there is zero drift, reduced calibration needs and minimal ongoing maintenance. Engineered into a resilient, high performance design, the DF-730 offers users an extensive operational life with low cost-of-ownership.

## ALTERNATIVE PRODUCTS

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

### DF-745 NanoTrace



Designed for trace and ultra-trace measurements where moisture is a contaminant, the DF-745 is ideal for bulk gas checks and leak detection in LED manufacturing. This analyzer uses TDL technology and is suitable for use with multiple background gases.

### DF-750 NanoTrace



When you need to measure moisture as a contaminant in UHP quality gases, the DF-750's trace and ultra-trace measurements are ideal in quality and leak detection applications. 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

- Quality control of HCl gas in semiconductor fabs



# PRODUCT DATA: DF-730 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 (LDL 1ppb)
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

## ACCESSORIES

**ACCESSORIES AVAILABLE FOR SPECIFIC APPLICATIONS  
– CONTACT YOUR LOCAL SERVOMEX BUSINESS CENTER**

## 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

TUNABLE  
DIODE LASER



FLAME IONISATION  
DETECTOR



GAS  
CHROMATOGRAPHY



PLASMA



LASER MOISTURE



COULOMETRIC



SPECTROSCOPIC



# PRODUCT DATA: DF-730 NanoTrace

## DEVICE SPECIFICATION

### Size:

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

### Weight:

- 31.8kg (70lbs)

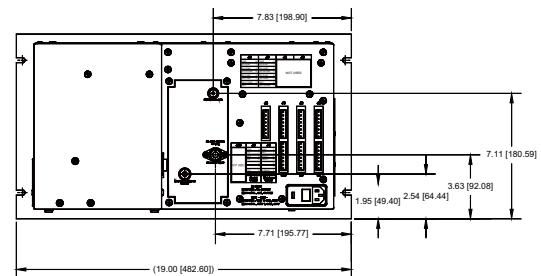
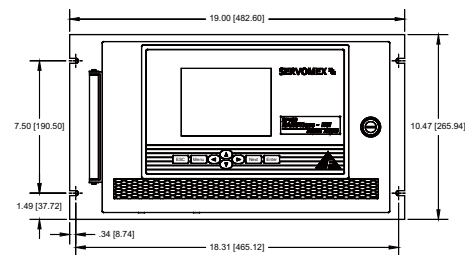
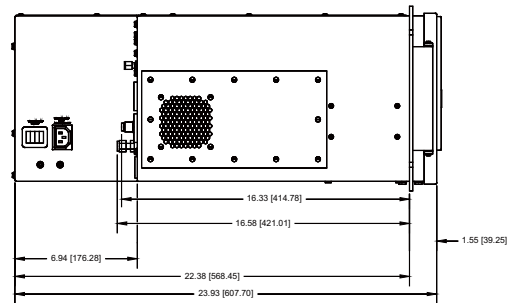
### Operating Temperature:

- 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



*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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