

# PRODUCT OVERVIEW

## SERVOPRO DF-745 NanoTrace

HIGH PURITY



GAS	MEASURES	APPLICATION
MOISTURE	TRACE PPM ULTRA TRACE PPB	QUALITY

### SENSING TECHNOLOGY

LASER MOISTURE



## TUNABLE DIODE LASER (TDL) TRACE/ULTRA-TRACE MOISTURE MEASUREMENTS FOR ULTRA HIGH PURITY ELECTRONIC GAS CHECKS

### UNRIVALLED PERFORMANCE

- Uses industry-leading, high stability Tunable Diode Laser (TDL) sensing technology
- Analysis resistant to gas cell contamination: DF-745 operates to specification with up to 90% signal loss
- 1ppb Lower Detection Limit (LDL)
- Manufactured by Servomex - over 60 years' experience innovating and pioneering gas analysis and thousands of units used in the field every year

### FLEXIBLE

- Broad detection range: 0ppb – 20ppm
- 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
- Compact with a low weight; moves easily from port to port and ideal for other mobile applications

### LOW COST OF OWNERSHIP

- Maintenance periods can be extended through the use of patented ultra-stable TDL sensing technology
- Absence of zero drift reduces calibration requirements

### BENCHMARK COMPLIANCE

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

### KEY APPLICATIONS

- Bulk gas quality control checks for ultra high purity electrograde gas production in LED plant applications
- Leak detection in LED and LCD plant applications

Learn more about the DF-745 NanoTrace  
Visit [servomex.expert/pb-745](http://servomex.expert/pb-745)



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### FLEXIBLE TDL TRACE AND ULTRA-TRACE MEASUREMENTS

Modern LCD and LED manufacturing processes require an ultra-trace quality measurement for moisture contaminants in high purity electronics grade gases. In such a demanding application, users need analysis capable of delivering high-accuracy and ultra-low detection limits in multiple background gases. No matter how specific the application requirement, you'll want a device that actively reduces ongoing costs to deliver a long and cost-effective lifetime of ownership. We don't believe you should have to compromise.

### A NO COMPROMISE SOLUTION

Utilizing advanced Servomex Tunable Diode Laser (TDL) sensing technology, housed in a robust Herriot cell, the DF-745 delivers a fast, accurate trace moisture measurement with a low detection limit of 1ppb. The measurement stability of TDL means the DF-745 exhibits negligible drift and recovers quickly from upset prone applications. Application flexibility is optimized through a compact size that keeps port to port mobility simple.

### SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

Proven sensing technology and advanced functionality delivers DF-745 users a low lifetime cost-of-ownership. Factory pre-calibration helps facilitate quick and easy installation; the use of the high stability, TDL sensor - with negligible drift potential - extends calibration intervals and minimizes ongoing maintenance needs, enabling considerable savings over a long product lifetime.

### USEFUL LINKS



P8TDSDF745 Rev. 0 Date: 08/20

*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.*

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# TECHNICAL DATA SHEET

## SERVOPRO DF-745 NanoTrace



### SPECIFICATIONS

<b>GAS MEASURED</b>	H <sub>2</sub> O (purity)
<b>TECHNOLOGY</b>	Tunable Laser Diode (TDL)
<b>PERFORMANCE</b>	
Measurement range	0-20ppm
Lower detection limit	1ppb
Intrinsic error (accuracy) FS	±3% of reading / ±1ppb (whichever is greater)
Response time (T <sub>90</sub> )	<3 minutes at 1 l/min
Zero drift/month	Negligible
Span drift/month	Negligible
Smallest recommended output range	0-10ppb
Upset recovery time	<5 minutes to return to within 10ppb of previous stable reading
<b>SIGNAL OUTPUTS/INPUTS</b>	
Analog output	5 output options available Isolated 4-20mA dc and a choice of 0-1, 0-2, 0-5 or 0-10V dc
Analog output range	Output parameters Scalable to any range between 0-2ppb to 0-20ppm (745 LDL 1ppb 740 LDL 10ppb)
Audible/visual alarms	5 alarms available 4 moisture levels, temperature, moisture sensor diagnostics, analyzer offline and expanded range
Dual scale range	2 user selectable secondary analog output ranges for rescaling the output once the primary range is exceeded
Relay contacts	Up to 4 non-latching independently assignable to alarms or indicators. SPDT contacts rated for 1A at 30V dc
Serial communications	Factory configured RS232 or RS485 two-way serial communications
Gas scale factor	Background gas compensation for gases other than N <sub>2</sub>
<b>SAMPLE CONDITIONS</b>	
Flow rates	0.5 to 4 l/min
Pressure	30 - 150psig (3.08 - 11.3 BarA)
Dew point	+5°C (+9°F) below minimum ambient
Temperature	+10°C to +80°C (+50°F to +176°F)
Particulates	Filtered to 2µm
Condition	Sample must be oil free, non-corrosive, non-condensing (must be free of acidic components - contact Servomex for sample preconditioning options).
Vent	Vent to atmosphere. Maximum vent pressure is -2psig to 2psig (0.88 to 1.14 BarA)
<b>OPERATING ENVIRONMENT</b>	
Temperature	Operating: +10°C to +40°C (+50°F to +105°F) Storage: Less than +50°C, shielded from direct sunlight
Warm up time	5 minutes
Relative humidity	0 to 95% RH non-condensing
Operating altitude range	2,000m above sea level

The performance specification has been written and verified in accordance with the international standard IEC 61207-1:1994 "Expression of performance of gas analyzers"



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PHYSICAL	
Size	483mm (19") Wide x 266mm (10.5") High x 608mm (23.9") Deep
Weight	31.8kg (70lbs)
Aspirator vacuum source	Aspirator with 1/4" compression inlet and outlet fittings
Mounting	19" rack mount NEMA 1 enclosure
UTILITIES	
Supply voltage	110V ac or 230V ac 50/60 Hz @ 2.5A
Zero gas	Optional - recommended if operating near LDL
Span gas	Not required
Aspirator gas supply	Nitrogen or air at 80psig ( $\pm 3$ psig) 15l/min with a backpressure on outlet stream of <2psig
Pneumatic pressure for isolation package option	60 to 100psig (5.1 to 7.9 BarA)

## COMPLIANCE

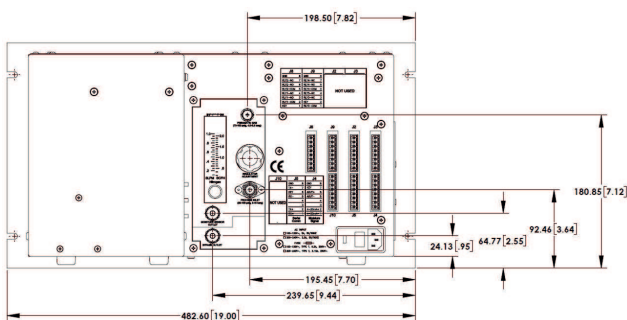
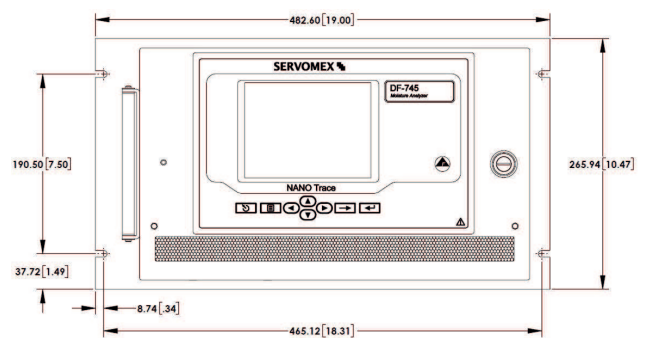
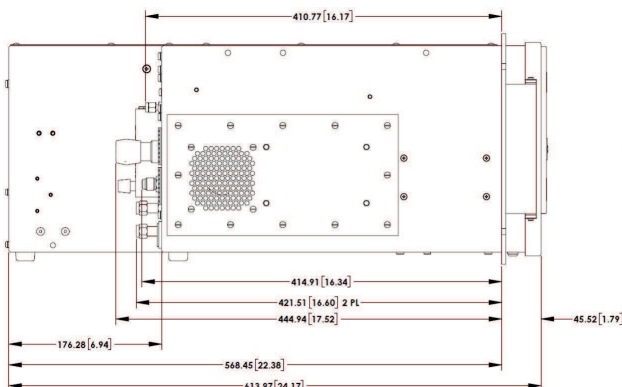
EC DIRECTIVES	This product complies with the EU EMC Directive, the EU Low Voltage Directive, Overvoltage Category II, Pollution Degree 2 and all other applicable directives.
ELECTRICAL SAFETY	Electrical safety to IEC 61010-1

## SAMPLE WETTED MATERIALS

ANALYZER FITTED WITH	Stainless steel G10 Epoxy Polypropylene Sapphire
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## DIMENSIONAL DRAWINGS

Shown with the Isolation Gas Panel connections



Dimensions shown in millimetres [inches]



## OPTIONS

DESCRIPTION	
Pump vacuum source	High capacity pump with 1/4" compression inlet and outlet fittings
Hydrogen safety system purge	Optional safety system for use with hydrogen includes sample delivery interlock and case purge valves for instrument housing, and enclosure and purge protection system for optional external vacuum pump. Hydrogen safety system can be ordered with or without the enclosure and purge protection system for the optional vacuum pump (NOTE: hydrogen safety system limits available relays from 4 to 3)
Isolation package	Includes upstream and downstream internally air actuated electropolished isolation valves to isolate cell during transport and upon loss of power. Package also includes bypass rotameter and inlet pressure regulator (rated up to 150psig), and a back flow prevention valve. DF-745's with this option require 60-100psig connection to 1/8" compression inlet fitting for valve actuation
CONFIGURATION OPTIONS	
Power input	110 VAC input power <input type="checkbox"/>
	220 VAC input power <input type="checkbox"/>
Hydrogen safety system	Not required <input type="checkbox"/>
	System with pump purge <input type="checkbox"/>
	System without pump purge <input type="checkbox"/>
Vacuum source	Aspirator (standard) <input type="checkbox"/>
	Pump <input type="checkbox"/>
Gas panel	Standard gas panel <input type="checkbox"/>
	Isolation gas panel <input type="checkbox"/>
Door - key lock	Not required <input type="checkbox"/>
	Required <input type="checkbox"/>
Communications	Not required <input type="checkbox"/>
	RS232 communication <input type="checkbox"/>
	RS485 communication <input type="checkbox"/>
Special analog output	Analyzer supplied with isolated 4-20mA and a choice of <input type="checkbox"/>
	0-1 VDC <input type="checkbox"/>
	0-2 VDC <input type="checkbox"/>
	0-5 VDC <input type="checkbox"/>
Power cord	0-10 VDC <input type="checkbox"/>
	Not required <input type="checkbox"/>
	USA <input type="checkbox"/>
	Europe <input type="checkbox"/>
	UK <input type="checkbox"/>

Please tick the box for required options



# > WE'RE READY TO HELP

WHATEVER YOUR GAS ANALYSIS REQUIREMENTS, WHEREVER YOU ARE

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