

# PRODUCT OVERVIEW

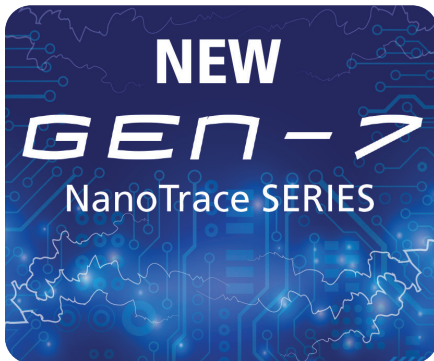
## SERVOPRO DF-745 NanoTrace

HIGH PURITY



GAS	MEASURES	APPLICATION
MOISTURE	TRACE PPM ULTRA TRACE PPB	QUALITY

### SENSING TECHNOLOGY



### KEY APPLICATIONS

- ASU bulk gas production quality control prior to final purification to UHP specifications
- Leak detection checks for UHP electronic gases used in semiconductor fabs

## TUNABLE DIODE LASER ABSORPTION SPECTROSCOPY (TDLAS) TRACE/ULTRA-TRACE MOISTURE MEASUREMENTS FOR ULTRA HIGH PURITY ELECTRONIC GASES

### UNRIVALLED PERFORMANCE

- Uses industry-leading, high stability Tunable Diode Laser (TDLAS) sensing technology
- New Solid State Hard Drive and CPU
- 1ppb Lower Detection Limit (LDL)
- Manufactured by Servomex - 70 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
- Analysis resistant to gas cell contamination: DF-745 operates to specification with up to 90% signal loss

### EASY TO USE

- Improved uptime with TDLAS first principle physics methodology
- Laser lock system guarantees location of the moisture spectra peak
- High reliability; repeatable baseline measurements are not affected by a loss in mirror reflectivity

### LOW COST OF OWNERSHIP

- Herriott Cell sensor design, the same as used in NASA's Mars rovers
- Absence of zero drift reduces calibration requirements
- Modular design allows individual component replacement in the field
- No consumables required

### BENCHMARK COMPLIANCE

- IEC 61010-1
- Pollution Degree 2
- EU EMC Directive
- EU Low Voltage Directive
- Class 1 laser product

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**SERVOMEX**  
a spectris company

# PRODUCT OVERVIEW

## SERVOPRO DF-745 NanoTrace

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### FLEXIBLE TDLAS 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 demanding the application requirement, you'll want a device that reduces preventative maintenance costs, maximizes uptime and has a long-life in the market place. We don't believe you should have to compromise.

### A NO COMPROMISE SOLUTION

Utilizing advanced Servomex Tunable Diode Laser (TDLAS) sensing technology, housed in a robust Herriott Cell, the DF-745 delivers a fast, accurate trace moisture measurement with a low detection limit of 1ppb. The measurement stability of TDLAS 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.

### FIELD REPAIRABLE AND REDUCED ONGOING COSTS

The new DF-700 Series Gen VII was designed for manufacturability and repairability. The laser cell, hard drive, CPU, PCBs, display, filter and gas panel can now all be replaced in the field. We have SOPs and service videos to guide these repairs. So, in the rare case a unit exhibits a component failure the product can stay in your facility to be repaired by a competent technician of yours or ours.

The use of patented leading-edge TDLAS technology provides long-term stability and accuracy, while the use of this first principle physics method also helps to reduce ongoing maintenance thanks to its non-depleting technology.

### USEFUL LINKS



PBTDSD745 Rev. 1 Date: 06/22

*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:** Whilst every effort has been made to ensure accuracy, no responsibility can be accepted for errors and 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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# TECHNICAL DATA SHEET

## SERVOPRO DF-745 NanoTrace



### SPECIFICATIONS

<b>GAS MEASURED</b>	H <sub>2</sub> O (purity) in N <sub>2</sub> , O <sub>2</sub> , H <sub>2</sub> , He, Ar and CO <sub>2</sub>
<b>TECHNOLOGY</b>	Tunable Diode Laser Absorption Spectroscopy (TDLAS)
<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
Upset recovery time	<5 minutes to return to within 10ppb of previous stable reading
<b>SIGNAL OUTPUTS/INPUTS</b>	
Analog output	Isolated 4-20mA dc and a choice of 0-1, 0-5 or 0-10V dc
Analog output range	Scalable to any range between 0-2ppb to 0-20ppm
Visual alarms	4 moisture levels, temperature, system error, pressure range and hydrogen safety system (if applicable)
Dual scale range	2 user selectable analog output ranges
Relay contacts	4 non-latching, independently assignable relays. SPDT contacts rated for 1A at 30V dc
Serial communications	Factory configured RS232 or RS485 two-way serial communications
<b>SAMPLE CONDITIONS</b>	
Sample flow range	0.5 to 2 l/min (most common flowrate 1l/min)
Bypass flowrate	0.3 l/min (depending on configuration)
Pressure (gauge)	30 to 150psi, 2.07 to 10.34 Bar, 207 to 1,034 KPa
Dew point	+5°C (+9°F) below minimum ambient
Temperature	+10°C to +80°C (+50°F to +176°F)
Particulates	Filtered to 2µm
Sample gas	Must be oil free, non-corrosive, non-condensing
Vent (gauge)	Vent to atmosphere. Maximum vent pressure is -2 to 2psi, -0.14 to 0.14 Bar, -13.7 to 13.7 KPa
<b>OPERATING ENVIRONMENT</b>	
Operating temperature	+10°C to +40°C (+50°F to +105°F)
Storage temperature	Less than +50°C (+122°F), shielded from direct sunlight
Relative humidity	0 to 95% RH non-condensing
Operating altitude range	0-2,000m above sea level



PHYSICAL	
Size	483mm (19") Wide x 266mm (10.5") High x 631mm (24.9") Deep (see drawing below)
Weight	33.2kg (73lbs)
Standard aspirator connection	1/4" compression inlet and outlet fittings
Mounting	19" rack mount NEMA 1 enclosure, IP10
UTILITIES	
Supply voltage	110V ac @ 5A or 230V ac 50/60 Hz @ 2.5A
Zero gas	Optional - recommended if operating near LDL
Span gas	Not required
Standard aspirator gas supply (gauge)	N <sub>2</sub> or CDA at 80psi (±3psi) 15l/min with a backpressure on outlet stream of <2psi
Pneumatic gas (gauge)	N <sub>2</sub> or CDA 60 to 100psi, 4.14 to 6.89 Bar, 413.7 to 689.5 KPa (Isolation panel option)

## COMPLIANCE

EC DIRECTIVES	This product complies with the EU EMC Directive, EU Low Voltage Directive, Pollution Degree 2. This is a class 1 laser product.
ELECTRICAL SAFETY	Electrical safety to IEC 61010-1

## OPTIONS

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 0-1 VDC <input type="checkbox"/> 0-5 VDC <input type="checkbox"/> 0-10 VDC <input type="checkbox"/>
Power cord	Not required <input type="checkbox"/> USA <input type="checkbox"/> Europe <input type="checkbox"/> UK <input type="checkbox"/>

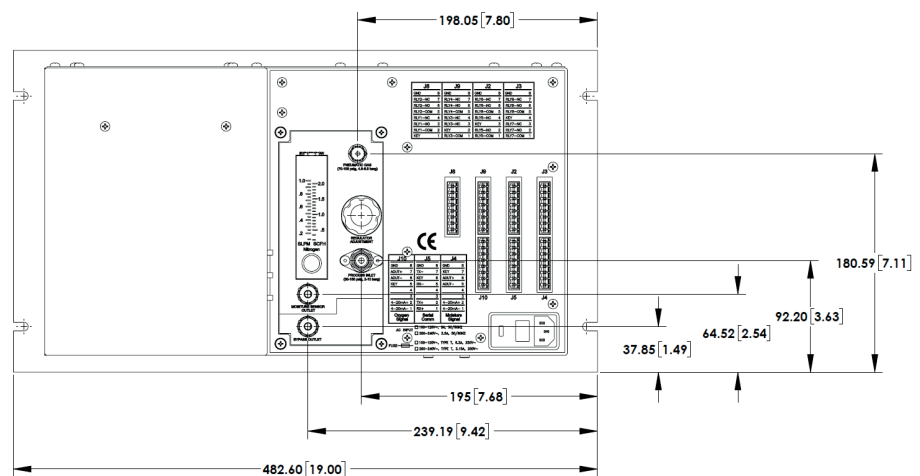
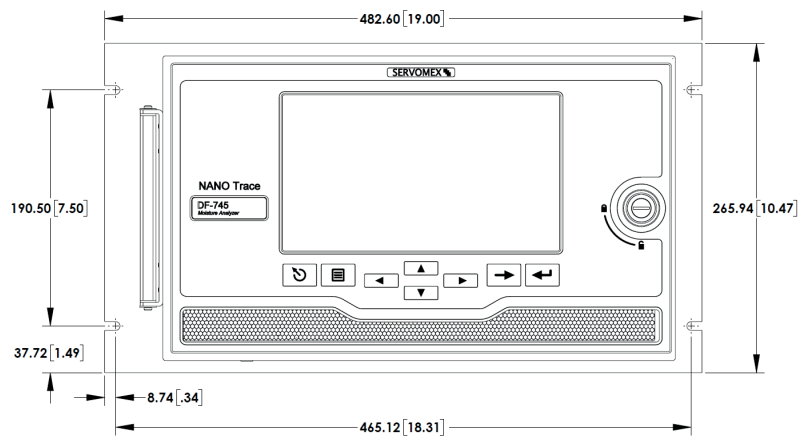
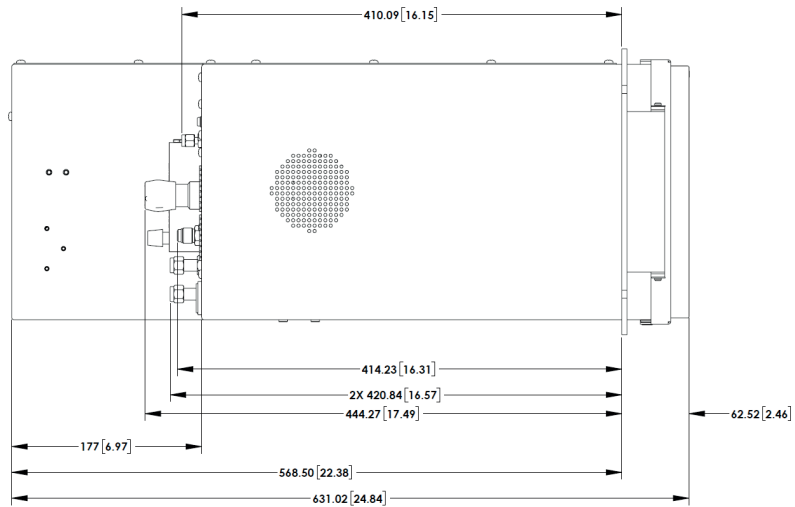
Please tick the box for required options



## DIMENSIONAL DRAWINGS

Shown with the Isolation Gas Panel connections

Dimensions shown in millimetres [inches]



# > WE'RE READY TO HELP

WHATEVER YOUR GAS ANALYSIS REQUIREMENTS, WHEREVER YOU ARE

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