

PRODUCT OVERVIEW

SERVOPRO DF-760E NanoTrace

HIGH PURITY



GAS	MEASURES	APPLICATION
MOISTURE	TRACE PPM	QUALITY
OXYGEN	ULTRA TRACE PPB	QUALITY
	ULTRA TRACE PPT	

SENSING TECHNOLOGY

LASER MOISTURE



COULOMETRIC



UNIQUE DUAL MEASUREMENT TRACE/ULTRA-TRACE MOISTURE/OXYGEN ANALYZER FOR QUALITY CONTROL OF UHP BULK GASES

UNRIVALLED PERFORMANCE

- Stable, accurate sensing delivers industry-leading trace measurements
- 100ppt LDL (H₂O) / 45ppt LDL (O₂)
- Manufactured by Servomex - over 60 years' experience pioneering gas analysis thousands of units used in the field

FLEXIBLE

- Unique industry solution for ppt monitoring of moisture and oxygen
- Operable via front panel or digital communication options
- Broad Detection Range:
0-20ppm – 0-2ppb min (H₂O)/
0-20ppm – 0-1ppb min (O₂)

EASY TO USE

- Dual analysis capability provides 'one-box' solution for H₂O / O₂ trace contaminant measurements
- A single analyzer can be used for multiple background gases:
N₂, H₂, He, Ar and O₂

LOW COST OF OWNERSHIP

- Resilient TDL and non-depleting Coulometric sensing requires minimal ongoing maintenance
- Negligible sensor drift greatly extends calibration intervals
- TDL immune from acid damage

BENCHMARK COMPLIANCE

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

KEY APPLICATIONS

- Bulk gas quality control checks for integrated circuit board fabs
- Leak detection checks

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FLEXIBLE TDL TRACE AND ULTRA-TRACE MEASUREMENTS

When you work in the manufacture of integrated circuit boards, the quality control of electronics grade UHP gas is crucial. To measure oxygen and moisture as a trace contaminant, you'll want a highly sensitive measurement that measures down to the lowest levels. Measurement reliability with a fast speed of response and uncompromised stability are a must. Regardless of your measurement requirements, you'll want a solution that delivers operational efficiencies. We don't believe you should have to compromise.

A NO COMPROMISE SOLUTION

The DF-760E is the only combination analysis solution for ultra-trace levels of moisture and oxygen, delivered through Servomex's leading-edge TDL and Coulometric E-Sensor technology. A low LDL -100ppt (H₂O) / 45ppt (O₂) - delivers the sensitivity demanded, and the ability to measure multiple gas streams in N₂, H₂, CO₂*, He, Ar and O₂ background gases with a single device provides considerable adaptability to suit your gas quality checking needs.

SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

By offering dual analysis capability in a single, compact one-box solution, the DF-760E reduces the footprint, infrastructure and maintenance costs associated with using separate analyzers for oxygen and moisture respectively. By offering consistent reliability and negligible zero drift, the DF-760E helps extend maintenance and calibration intervals, while factory pre-calibration simplifies set up and installation. This ensures the DF-760E delivers an integrated, value-added solution for the semiconductor industry.

* LDL of moisture in CO₂ is 250ppt

USEFUL LINKS



PBTDSD760 Rev. 2 Date: 01/22

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.

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TECHNICAL DATA SHEET

SERVOPRO DF-760E NanoTrace



SPECIFICATIONS

GASES MEASURED	H ₂ O (purity) & O ₂	
TECHNOLOGY	Tunable laser diode (TDL) and coulometric	
PERFORMANCE		
Gas	H ₂ O	O ₂
Background gases	N ₂ , H ₂ , He, Ar and O ₂	
Technology	Tunable laser diode (TDL)	Coulometric
Measurement range	0-20ppm - 0-2ppb minimum	0-20ppm - 0-1ppb minimum
Lower detection limit	100ppt	45ppt
Intrinsic error (accuracy) FS	±3% of reading / ±0.2ppb (whichever is greater)	±3% of reading / ±0.1ppb (whichever is greater)
Response time (T₉₀)	<3 minutes at 1 l/min	<15 seconds at 1 l/min
Zero drift/month	Negligible	
Smallest recommended output range	0-2ppb minimum	0-1ppb minimum
Upset recovery time	<5 minutes to return to within 10ppb of previous stable reading	
SIGNAL OUTPUTS/INPUTS		
Analog output	5 output options available for both O ₂ and H ₂ O Isolated 4-20mA dc and a choice of 0-1, 0-2, 0-5 or 0-10V dc (analog output freeze control during calibration)	
Analog output range	Output parameters H ₂ O scalable to any range between 0-2ppb to 0-20ppm O ₂ scalable to any range between 0-1ppb to 0-20ppm	
Audible/visual alarms	Various alarms available 4 moisture levels / 4 O ₂ levels, temperature, electrolyte condition, moisture sensor diagnostics loss of flow, zero verification or calibration in process, analyzer offline and analog output freeze during calibration	
Dual scale range	2 user selectable secondary analog output ranges for rescaling the output once the primary range is exceeded	
Relay contacts	4 non-latching, independently assignable to oxygen or oxygen calibration-in-process indicator and 4 non-latching, independently assignable to moisture alarms. SPDT contacts rated for 5A at 30V dc	
Serial communications	Factory configured RS232 or RS485 two-way serial communications	
SAMPLE CONDITIONS		
Sample flow	2 to 5 l/min (for nitrogen only) - contact Servomex for other background gases	
Bypass flow	0.25 to 2.5 l/min	
Pressure	30 - 150psig (2.06 - 10.3 BarG)	
Dew point	+5°C (+9°F) below minimum ambient	
Temperature	+10°C to +80°C (+50°F to +176°F). Recommended heated sample line to 60°C	
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	

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

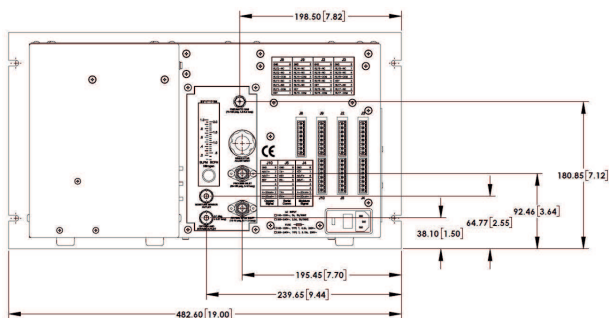
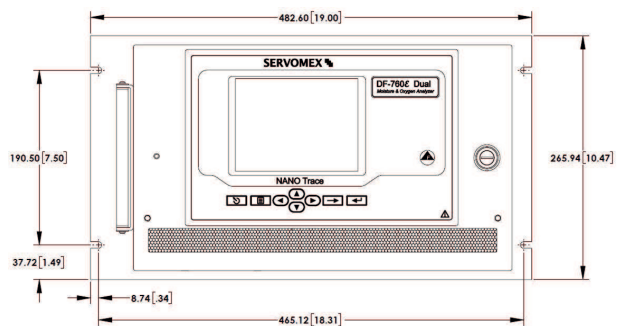
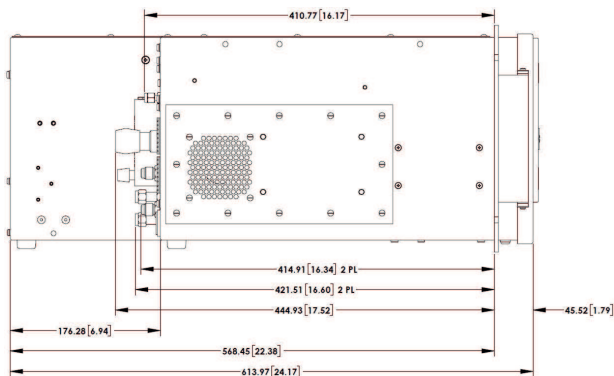


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OPERATING ENVIRONMENT	
Temperature	Operating: +10°C to +40°C (+50°F to +105°F) Storage: Less than +50°C, shielded from direct sunlight
Warm up time	5 minutes
Relative humidity	0 to 95% RH non-condensing
Operating altitude range	0-2,000m above sea level
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
Sensor storage conditions	We recommend that the analyzer be operated as intended, within 6 months of delivery
UTILITIES	
Supply voltage	110V ac at 5A or 230V ac 50/60 Hz @ 2.5A
Aspirator gas supply	Nitrogen or air at 80psig (+/- 3psig), 15 l/min with a backpressure on outlet stream of <2psig
Gas delivery system	Pneumatically actuated springless diaphragm valves, orbital butt welded assembly with zero dead volume for sensor isolation and zero verification high capacity moisture dryer provides moisture-free zero gas heated and temperature controlled sample delivery system integral pressure regulator with minimal wetted area. Includes on-board span cal system

DIMENSIONAL DRAWINGS



Dimensions shown in millimetres [inches]



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. This is a class 1 laser product.
ELECTRICAL SAFETY	Electrical safety to IEC 61010-1

SAMPLE WETTED MATERIALS

ANALYZER FITTED WITH	Stainless steel G10 Epoxy Polypropylene PCTFE
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OPTIONS

DESCRIPTION	
Pump vacuum source	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, NEMA 4 enclosure and Z purge protection system for optional external vacuum pump. Hydrogen safety system can be ordered with or without the NEMA 4 enclosure and Z purge protection system for the optional vacuum pump (NOTE: hydrogen safety system limits available relays from 4 to 3)
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"/>
Key lock	Not required <input type="checkbox"/> Required <input type="checkbox"/>
Communication	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"/> 0-2 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"/>
Electrolyte type	Gold <input type="checkbox"/>
Electrolyte shipment method	None required, has own stock <input type="checkbox"/> From factory (add line item) <input type="checkbox"/> Other SMX plnt (add line item) <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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