

# PRODUCT OVERVIEW

## SERVOPRO DF-560E NanoTrace II

ULTRA HIGH PURITY



GAS	MEASURES	APPLICATION
OXYGEN	PPM TRACE PPB ULTRA TRACE PPT	QUALITY

### SENSING TECHNOLOGY

COULOMETRIC



### KEY APPLICATIONS

- Quality control checks for electronics grade gases
- Leak detection for electronics grade gas lines

## ULTRA-TRACE COULOMETRIC OXYGEN MEASUREMENTS IN ULTRA-HIGH PURITY ELECTRONIC GRADE GAS FOR QUALITY CONTROL

### UNRIVALLED PERFORMANCE

- Industry-leading 45ppt Lower Detection Limit (LDL)
- Uses industry-leading low drift, highly stable, Coulometric E-sensor technology
- Fast speed of response to quickly alert operators of out of specification gas conditions
- Broad detection range: 0-1ppb - 0-20ppm

### FLEXIBLE

- Suitable for use H<sub>2</sub>, He, CH<sub>4</sub>, CO, N<sub>2</sub>, Ar and a host of fluorocarbons and slightly acidic HP gases†
- Sensor compensates for sample and flow rate fluctuations - ideal for upset prone applications
- Battery backup optional\*
- Use in 18 different sample gases. Standard with our gas scale factor feature‡

### BENCHMARK COMPLIANCE

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

### EASY TO USE

- On-board calibration system option gives both flexibility and portability
- Optional calibration system for compact integration onto the rear of the panel, optimizing device portability
- Operable via front panel or digital communication options
- Comprehensive automated datalogging with 4 day and 30 day graphical reading records

### LOW COST OF OWNERSHIP

- Factory calibrated sensors for simplified commissioning
- Non-depleting Coulometric sensor with five-year warranty
- Requires only an annual SPAN calibration and quarterly addition of RSA
- Expensive purifier replacements not required
- Manufactured by Servomex - over 60 years experience with thousands of units used in the field

\* Not for use with flammable samples

‡ Analyzer for use with flammable samples shall be configured with stainless steel inlet and outlet plumbing only

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### HIGH STABILITY COULOMETRIC TRACE AND PERCENT MEASUREMENTS

When you require the measurement of ultra-trace oxygen as a contaminant, either for quality control or leak detection purposes, you need a gas analyzer that delivers performance, stability and reliability. The lowest LDL is essential, as is the ability to carry out consistent, high stability measurements in upset prone applications, where sample and flow rate fluctuations can occur. Adaptable configuration options that can measure multiple background gases and flexible portability is also needed, as is comprehensive datalogging and graphical records. No matter what your application needs, you'll want an analyzer that can reduce your ongoing costs and provide operational efficiencies, and we don't believe you should have to compromise.

### A NO COMPROMISE SOLUTION

The DF-560E delivers oxygen measurement to the very lowest levels, delivering users an exceptional LDL of 45ppt. This industry-leading performance is augmented by a variety of extended operational capabilities. Automated maintenance executes automatic zero and span calibrations on a scheduled basis, or executes scheduled automatic checks and notifies users when calibration is needed. An Automatic Maintenance Log records RSA additions, sensor data, and calibration activity to ensure SPC record-keeping requirements, while Automated Data Logging builds four-day and thirty-day graphical records of analyzer readings.

### SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

The DF-560E offers an attractive cost reduction over product life, thanks to its pre-calibrated, long-life sensor that comes with a 5-year warranty. The DF-560E requires only an annual SPAN calibration thereafter, with no programmable cell replacement requirement. Automated maintenance logging is also provided and the DF-560E is available with a choice of calibration options; automatic zero and span on a scheduled basis and notifications of a need for calibration; and a manual calibration system - compactly integrated on the rear of the panel, permitting enhanced device portability.

### USEFUL LINKS



P8TD:SD1560 Rev. 1 Date: 04/21

*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-560E NanoTrace II

### SPECIFICATIONS

<b>GAS MEASURED</b>	H <sub>2</sub> , He, CH <sub>4</sub> , CO, N <sub>2</sub> , Ar and a host of fluorocarbons and slightly acidic HP gases†
<b>TECHNOLOGY</b>	Coulometric non-depleting electrochemical sensor
<b>PERFORMANCE</b>	
Measurement range	0-20ppm
Intrinsic error (accuracy) FS	±3% of reading / 3% of measurement range or ±0.1ppb
Response time (T <sub>90</sub> )	<15 seconds at 0.7 l/min
Zero drift/month	Negligible
Lower detection limit (LDL)	45ppt
Resolution	25ppt
Upset recovery time	<5 minutes to return to within 10ppb of previous stable reading depending on flow rate
<b>SIGNAL OUTPUTS/INPUTS</b>	
Analog outputs	4 analog options available; Non-isolated 4-20mA, 0-1, 0-2, 0-5 or 0-10V dc. Analog output can be configured to freeze during calibration
Digital outputs (optional)	Two-way RS-232 or RS-485
Output range	Any range between 0-1ppb to 0-100ppm
Alarms	4 measurement levels, electrolyte condition and temperature, 1 audible/visual flow alarm
Sensor protection	Auto shut down to prevent damage if 100ppm O <sub>2</sub> concentration persists for longer than 15 mins
Dual scale range	Two user selectable analog output ranges for rescaling the output once the primary range is exceeded
Gas scale factor	Background gas compensation for Ar, H <sub>2</sub> , He, CO, NH <sub>3</sub> , N <sub>2</sub> O, SF <sub>6</sub> , CHF <sub>3</sub> , CF <sub>4</sub> , C <sub>2</sub> F <sub>6</sub> , CH <sub>4</sub> , C <sub>2</sub> H <sub>4</sub> , C <sub>2</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>8</sub> , C <sub>4</sub> H <sub>10</sub> and C <sub>6</sub> H <sub>14</sub>
<b>SAMPLE CONDITIONS</b>	
Gas	Sample must be oil free, non-corrosive and non-condensing
Temperature	0°C to +50°C (+32°F to +122°F)
Particulate size	Filtered to 2µm
Maximum dew point	+5°C/+9°F below minimum ambient
Zero gas	If required use 6 9's pure N <sub>2</sub> or purchase the optional zero calibration panel
Span gas	O <sub>2</sub> concentration should be between 40-80% of full scale
Sample pressure	15 – 25psig (2.03 – 2.72 BarA)
Vent	Vent to atmosphere
Flow rates	0.24 to 0.7 l/min
<b>OPERATING ENVIRONMENT</b>	
Temperature	Operating: 0°C to +45°C/+32°F to +113°F
Relative humidity	0 to 95% RH non-condensing
Warm up time	60 min with new electrolyte, after that only the residence time for the sample to reach the sensor
Max altitude	2,000m above sea level

\* Not for use with flammable samples

† Analyzer for use with flammable samples shall be configured with stainless steel inlet and outlet plumbing only

‡ Configuration dependent

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	309mm (12.1") Wide x 226mm (8.8") High x 253mm (9.9") Deep
Weight	8.2kg (18lbs)
Mounting	Benchtop, panel mount or rack mount options
Storage temperature	0°C to +45°C (+32°F to +113°F)
Sensor storage conditions	We recommend that the analyzer be operated as intended, within 6 months of delivery
UTILITIES	
Supply voltage	110V ac or 220V ac 50/60 Hz

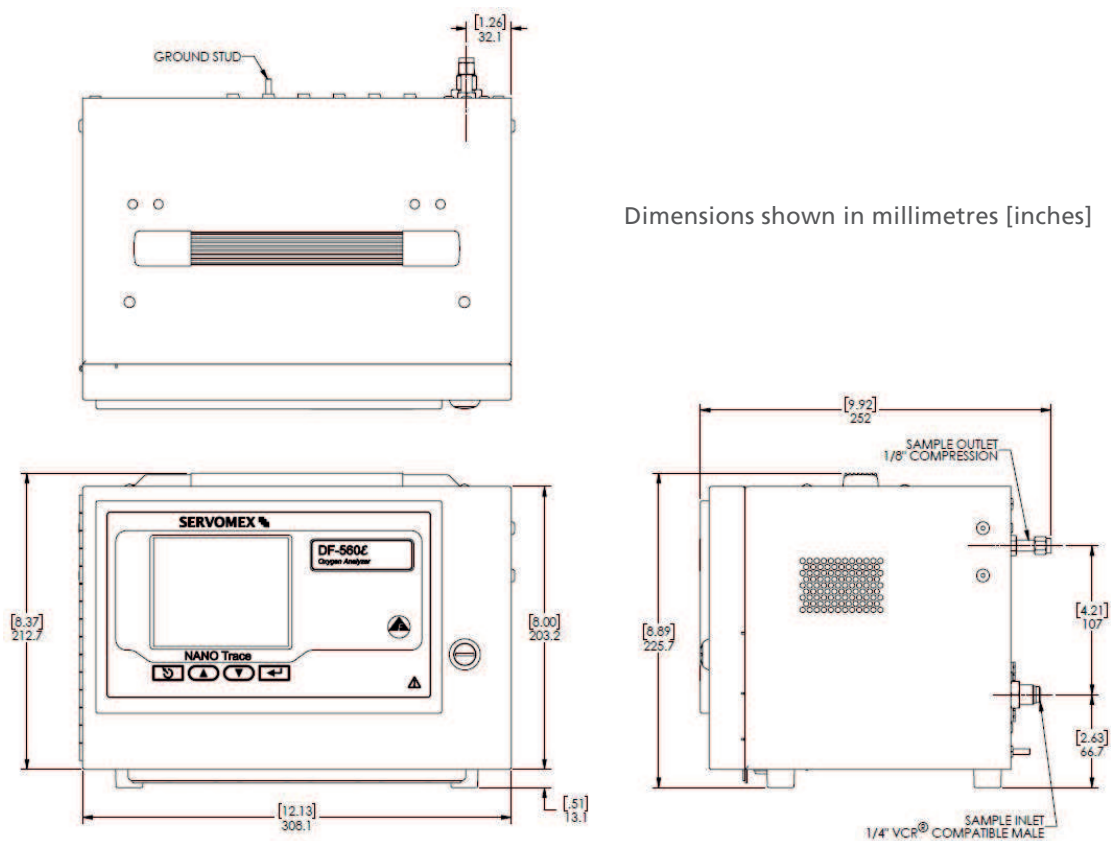
## SAMPLE WETTED MATERIALS

ANALYZER FITTED WITH	Stainless steel, G10 epoxy and polypropylene
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## 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

## DIMENSIONAL DRAWINGS



## OPTIONS

CONFIGURATION OPTIONS		
Sensor	Basic sensor	<input type="checkbox"/>
	Stab-El sensor	<input type="checkbox"/>
Power input	110 VAC input power	<input type="checkbox"/>
	220 VAC input power	<input type="checkbox"/>
Battery back up	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
Calibration system	Not required	<input type="checkbox"/>
	Automated calibration system	<input type="checkbox"/>
	Manual calibration system	<input type="checkbox"/>
Auto control of user-cal	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
High capacity purifier	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
Case purge	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
Mounting/cabinet	Panel mount	<input type="checkbox"/>
	Rack mount	<input type="checkbox"/>
	Bench top	<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"/>
Flow alarm	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
Relay contacts	Not required	<input type="checkbox"/>
	One relay contact	<input type="checkbox"/>
	Two relay contacts	<input type="checkbox"/>
	Three relay contacts	<input type="checkbox"/>
	Four relay contacts	<input type="checkbox"/>
Stainless steel outlet	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
Downstream isolation valve	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
UHP flow control valve	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
High purity pressure regulator	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
High purity regulator mounting	Not required	<input type="checkbox"/>
	Required	<input type="checkbox"/>
Isolated voltage & current O/P	Not required	<input type="checkbox"/>
	Required	<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



## OPTIONS

CONFIGURATION OPTIONS	
Stainless steel tags	Not required <input type="checkbox"/>
	Required <input type="checkbox"/>
	Tag text - 01
	Tag text - 02
Certificate of calibration	Tag text - 03
	Not required <input type="checkbox"/>
	Required <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

PBTDSDF50 Rev. 1 Date: 04/21

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