

# DF SERIES

## DF-560E NanoTrace II

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



### DF-560E NanoTrace II

Designed to measure ultra-trace oxygen to the very lowest levels, the DF-560E delivers the semiconductor industry an industry-leading 45ppt Lower Detection Limit. Flexible and adaptable, the DF-560E is able to monitor O<sub>2</sub> in multiple background gases while logging data in a variety of formats. This device negates the effects of upset prone applications, thanks to Servomex's high stability Coulometric sensing technology delivering a fast speed of response in the presence of sample and flow rate changes.

Ideal for semiconductor fabs and analytical carts, the DF-560E is optimized for ease of use and portability. Operation is made via the front panel or digital communications, while various hand carry options make it easy to transport. The DF-560E also reduces operational costs through non-depleting, factory calibrated Coulometric technology, providing cost-effective setup and configuration. The only ongoing maintenance requirement is an annual SPAN calibration, with no programmable cell replacement needed.

### FLEXIBLE

- Broad detection range: 0-1ppb - 0-20ppm
- Monitors multiple background gases with a single unit
- Sensor compensates for sample and flow rate fluctuations - ideal for upset prone applications
- Operable via front panel or digital communication options

### EASY TO USE

- Flexible portability
- Optional calibration system for compact integration onto the rear of the panel, optimizing device portability
- Simplified ongoing maintenance requirements
- Comprehensive automated datalogging with 4 day and 30 day graphical reading records

### LOW COST OF OWNERSHIP

- Factory calibrated sensors for simplified set-up
- Non-depleting Coulometric sensor with five year warranty
- Requires only an annual SPAN calibration
- Expensive purifier replacements not required

### UNRIVALLED PERFORMANCE

- Industry-leading 45ppt Lower Detection Limit (LDL)
- Uses industry-leading Coulometric E-sensor technology
- Fast speed of response
- Manufactured by Servomex - over 60 years' experience with thousands of units used in the field

### BENCHMARK COMPLIANCE

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

Learn more about the DF-560E NanoTrace II  
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# PRODUCT OVERVIEW: DF-560E NanoTrace II

## 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 water additions, sensor data, and calibration activity to ensure ISO 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.

## ALTERNATIVE PRODUCTS

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

### DF-340E



When you require an adaptable Coulometric sensing O<sub>2</sub> analyzer designed for pure and multi-gas backgrounds, choose the DF-340E. This device also features a NEMA 4 rated sensor enclosure.

### DF-550E



If you need an ultra-trace O<sub>2</sub> measurement requiring a 200ppt LDL, choose the DF-550E: an alternative analyzer offering the same high reliability and low maintenance requirements.

### DF-760E NanoTrace



When the most stringent UHP gas analysis is called for in oxygen and moisture in one compact platform we recommend the DF-760 NanoTrace Moisture Analyzer. This device combines TDL and Coulometric sensing for trace contaminant measurement of moisture and O<sub>2</sub> at ppt levels.

## KEY APPLICATIONS

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



# PRODUCT DATA: DF-560E NanoTrace II

OPTIONS	DESCRIPTION	SPECIFICATION
Output	4 analog and digital output options available	Non-isolated 0-5V DC, 0-1, 0-2, 0-5 or 0-10V DC. Analog output can be configured to freeze during calibration
Output range	Output parameters	Any range between 0-20ppb and 0-10ppm (can handle up to 100ppm for up to 15 mins. at which time the sensor shuts down to prevent damage)
Alarms	Concentration, low flow and Electrolyte	4 O <sub>2</sub> levels, electrolyte condition and temperature, 1 audible/visual flow alarm
Sample pressure regulator	For high purity measurements	3,000psig inlet capacity; 0-15psig adjustable outlet pressure; requires 5psig min. inlet pressure (1/4" VCR compatible fittings), supplied mounted or loose
Flow control valves	For high purity measurements	Ultra-high purity bellows valve for upstream isolation shut-off and flow control (1/4" VCR compatible fittings)
Stab-El sensor system	Designed for samples containing trace acid or ionic contaminants	Enables operation with trace levels of acid gases or ionic contamination. Samples containing trace samples of acid components must use Stab-El option
Dual scale range	2 range options	User-selectable secondary analog output ranges for rescaling the output once the primary range is exceeded
Flammable sample outlet	Stainless steel	Recommended for H <sub>2</sub> and other flammable gas streams
Supplementary battery input power	Permits portability	Independent of AC power
Calibration system	Automated calibration / manual calibration options	Automated: provides menu-driven automatic zero and span switching, pneumatic diaphragm valves and zero purifier in a small onboard package. Manual: provides manual quarter-turn springless diaphragm valves and zero purifier in an orbital butt-welded assembly, compactly integrated on rear of device, for optimized portability
Auto-control of user cal. components	Software for use with automated calibration	Switched V DC power for control of external, span/zero solenoids and valves

## ACCESSORIES

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

MONITORING PERFORMANCE	
Gas	O <sub>2</sub> (purity)
Technology	Coulometric
Range	0-1ppb – 0-20ppm
Accuracy (intrinsic error) FS	±3% of reading / 3% of measurement range or ± 0.1ppb
Zero drift/month	Negligible
T <sub>90</sub> in secs.	<15 at 0.7liter/min



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## SAMPLE FOR MEASUREMENTS

<b>Sample for measurement</b>	Sample must be oil free, non-corrosive, non-condensing and non-flammable
<b>Sample pressure</b>	15 – 25psig (2.03 – 2.72 BarA)
<b>Dew Point</b>	5°C/9°F below minimum ambient
<b>Particulates</b>	Filtered to 2µm

## DEVICE SPECIFICATION

### Size:

- 309mm (12.1") Wide x 203 (7.9") High x 253mm (9.9") Deep

### Weight:

- 8.2kg (18lbs)

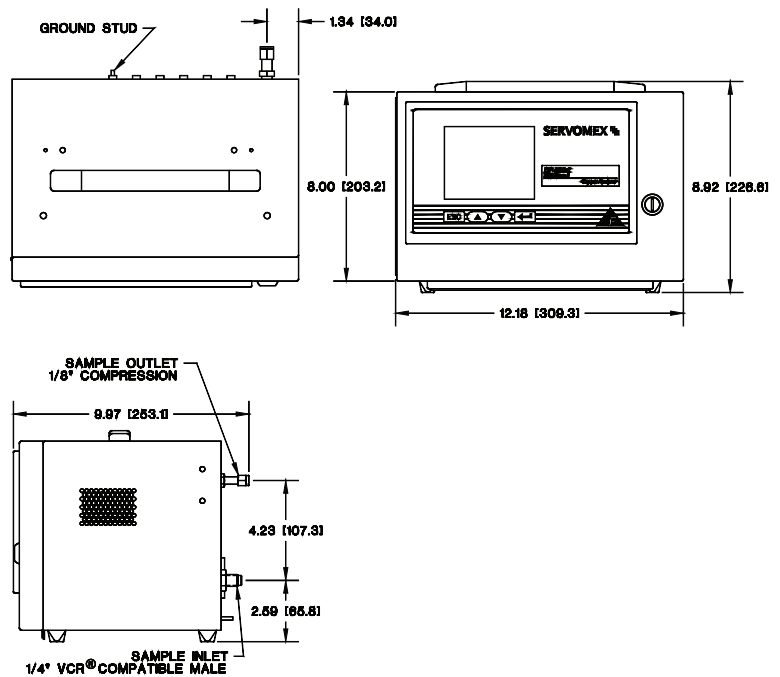
### Operating Temperature:

- 0°C - 45°C/32°F - 122°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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AMERICAS BUSINESS CENTER  
Tel: +1 281 295 5800  
Email: americas\_sales@servomex.com

ASIA PACIFIC BUSINESS CENTRE  
Tel: +86 (0)21 6489 7570  
Email: asia\_sales@servomex.com

EUROPEAN BUSINESS CENTRE  
Tel: +31 (0) 79 330 1580  
Email: europe\_sales@servomex.com

LATIN AMERICA BUSINESS CENTER  
Tel: +55 11 5188 8166  
Email: brazil\_sales@servomex.com

INDIA BUSINESS CENTRE  
Tel: +91 22 3934 2700  
Email: MEI\_sales@servomex.com

MIDDLE EAST BUSINESS CENTRE  
Tel: +971 6552 8073  
Email: MEI\_sales@servomex.com

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