
**SERVOMEX**

## DF SERIES

# DF-550E NanoTrace

**ULTRA TRACE OXYGEN ANALYZER OPTIMIZED FOR QUALITY MEASUREMENTS IN HIGH PURITY ELECTRONIC GASES**



### DF-550E NanoTrace

The DF-550E is designed to deliver ultra-trace measurements of  $O_2$  as a contaminant in ultra-high purity electronic gases. With the highly sensitive 200ppt LDL delivering superior analytical headroom, the DF-550E's fast response provides sensitive and dependable process monitoring. Suitable for use with multiple background gases, the DF-550E is unaffected by sample and flow rate changes, making it ideal for upset prone conditions. Portability is optimized via a hand carry portable option and compact calibration system which can be integrated into the rear of the unit, optimizing device portability.

In addition to its performance and flexible use, the DF-550E minimizes ongoing monitoring costs. The non-depleting nature of our Coulometric sensing technology means the only ongoing maintenance requirement is an annual SPAN calibration, with no programmable cell replacement needed.

### FLEXIBLE

- Ultra-trace Coulometric sensing is ideal for upset prone applications and compensates for sample and flow rate fluctuations
- Monitors multiple background gases with a single unit
- Low detection limit capabilities: 200ppt Lower Detection Level (LDL)
- Flexible configuration options: initiation via front panel/digital interconnect

### EASY TO USE

- Various portability options
- Simplified ongoing maintenance requirements
- Optional calibration system for compact integration onto the rear of the panel

### 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 and disruptive purifier replacements not required

### UNRIVALLED PERFORMANCE

- Uses industry-leading, high stability Coulometric ultra-trace sensing, with ultra-low drift potential
- Highly sensitive 200ppt Low Detection Level (LDL)
- Fast speed of response in the presence of changeable sample concentrations or flow rates
- Quick upset recovery avoids "running blind" when process problems occur

### BENCHMARK COMPLIANCE

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

Learn more about the DF-550E NanoTrace  
VISIT [SERVOMEX.COM](http://SERVOMEX.COM)



## PRODUCT OVERVIEW: DF-550E NanoTrace

### HIGH STABILITY COULOMETRIC TRACE AND PERCENT MEASUREMENTS

When you work in quality control of ultra-trace  $O_2$  contaminants, or carry out leak detection, you need an analyzer that can deliver both high performance, stable measurements and flexible use and configuration. You need analysis that is both stable, responsible and ultra-sensitive; it needs to deliver consistent results - untroubled by changing sample and flow rate conditions - and be able to overcome upset conditions quickly and efficiently. Flexibility is key: the ability to measure  $O_2$  in multiple background gases is essential to cover application requirements, while easy portability enables measurements across the whole of the process. Whatever your application needs, you'll want an analyzer that can reduce your ongoing costs and provide operational efficiencies. We don't believe you should have to compromise.

### A NO COMPROMISE SOLUTION

The DF-550E is designed to deliver premium performance ultra-trace oxygen measurement in a range of background gases. Compact, reliable and highly accurate, the DF-550E series uses unique, non-depleting E-sensor technology to make exceptional low trace and ultra-trace PPT  $O_2$  measurements with minimal sensor drifting, no false low readings or frequent and costly calibration requirements. The result is an analyzer that has become the de facto industry standard for the reliable measurement of oxygen in semiconductor manufacture. In addition, the NanoTrace can be configured in various ways including initiation via front panel or digital interconnect. While a number of hand carry choices and an optional manual calibration facility - rear-mounted to the device - enable flexible portability.

### SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

In addition to its durable design and high reliability monitoring performance, the DF-550E provides attractive affordability. Initial set-up costs are reduced through its long-life pre-calibrated sensor technology that also comes with a 5 year warranty. The DF-550E features low ongoing device care costs through its requirement for only annual SPAN calibrations (no need to replace the programmable cell). These combined features make this device a flexible, reliable and affordable measurement solution you can depend on.

### ALTERNATIVE PRODUCTS

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

#### DF-560E NanoTrace II



If you need an even more sensitive measurement for  $O_2$  choose the DF-560E. Offering the lowest LDL in the industry - 45ppt - this device combines performance, reliability and low lifetime 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-760E NanoTrace Moisture Analyzer. This device combines TDL and Coulometric sensing for trace contaminant measurement of moisture and  $O_2$  at ppt levels.

#### DF-340E

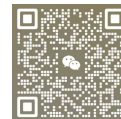


When you require an adaptable  $O_2$  analyzer designed for pure and multi-gas backgrounds, choose the DF-340E. This device delivers percent or trace level measurements and features a NEMA 4 rated sensor enclosure.

### KEY APPLICATIONS

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





## PRODUCT DATA: DF-550E NanoTrace

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	Up to 4 non-latching, independently assignable to alarms or calibration in-process, 1 audible/visual flow alarm, 1 electrolyte condition alarm
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
Flammable sample outlet	Stainless steel	Recommended for H <sub>2</sub> and other flammable gas streams
N <sub>2</sub> case purge	Interlocked purged enclosure	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	0-20ppb – 0-10ppm
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 0.7liters/min



# PRODUCT DATA: DF-550E NanoTrace

## SAMPLE FOR MEASUREMENTS

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

## DEVICE SPECIFICATION

### Size:

- 309mm (12.1") Wide x 226 (8.8") High x 253mm (9.9") Deep

### Weight:

- 8.2kg (18lbs)

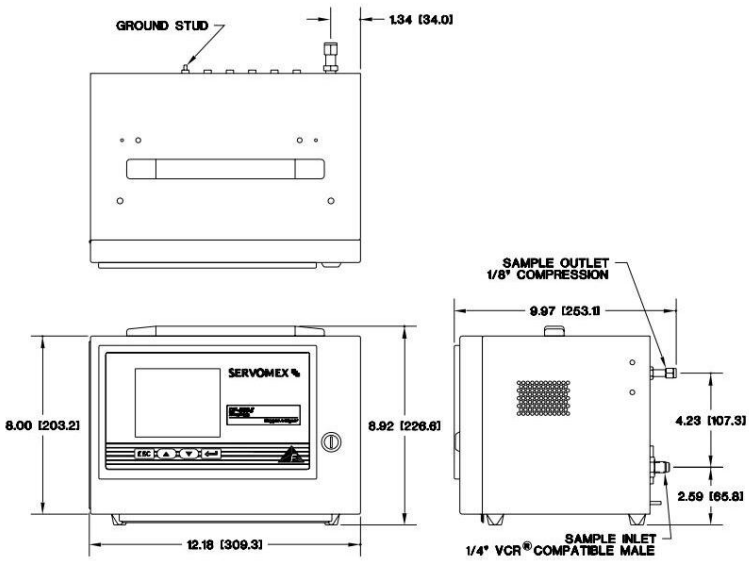
### Operating Temperature:

- 0°C - 45°C/32°F - 113°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.