

DF SERIES

DF-310E

HIGH RELIABILITY TRACE AND PERCENT OXYGEN MEASUREMENTS IN PURE AND MULTI-GAS BACKGROUNDS, IDEAL FOR INDUSTRIAL GAS PROCESS/QUALITY CONTROL



DF-310E

The DF-310E provides highly stable measurements of percent and trace O₂ in pure gas streams and multi-gas backgrounds. Optimized for industrial gas applications, the DF-310E delivers reliable sensing for upset prone applications and stable measurements in changing sample and flow rate conditions. This makes the DF-310E a flexible device capable of meeting numerous application needs including N₂ production, Ar production, H₂ production, truck loading and gas bottling.

In addition to its ultra-reliable performance and flexible mounting options, the DF-310E offers attractive cost savings over product life, thanks to its factory calibrated Coulometric sensor, which provides simplified setup and only requires subsequent annual SPAN calibrations (no need for programmable cell replacement), helping to reduce ongoing maintenance needs.

FLEXIBLE

- Coulometric sensing is ideal for upset prone applications and compensates for sample and flow rate fluctuations
- Designed for diverse industrial gases application use like N₂, Ar and H₂ production, truck loading and gas bottling

EASY TO USE

- Multiple background gas stream monitoring
- Factory calibrated for simplified set-up

LOW COST OF OWNERSHIP

- Long-life Coulometric sensor with five year warranty
- Only requires an annual SPAN calibration reducing device care costs
- Factory calibrated sensors for simplified set up

UNRIVALLED PERFORMANCE

- Uses industry-leading, high stability Coulometric trace and percent O₂ sensing with ultra-low drift potential
- Manufactured by Servomex - over 60 years' experience innovating and pioneering gas analysis and thousands of units used in the field every year
- 3ppb LDL when operating on 0-1ppm or lower range
- Fast speed of response

BENCHMARK COMPLIANCE

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

Learn more about the DF-310E
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PRODUCT OVERVIEW: DF-310E

HIGH STABILITY COULOMETRIC TRACE AND PERCENT MEASUREMENTS

When you work in the industrial gases industry, in applications like N₂, Ar or H₂ production, truck loading or gas bottling you need an ultra-reliable O₂ measurement technology that can offer high performance percent and trace measurements with a fast speed of response and recovery in upset conditions and changing sample and flow rates. Sensor configuration flexibility is also essential, so the ability to mount sensors remotely or in heated environments is essential. No matter what your application needs, you'll also 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-310E is specifically designed for industrial gases applications, and can address your needs by delivering leading-edge patented Coulometric sensing with high stability percent or trace O₂ measurements in upset-prone applications, delivering a fast speed of response when sample and flow rates fluctuate. This device is also able to deliver sensor mounting flexibility with a range of NEMA 4 rated sensor enclosures, that facilitate remote sensor mounting up to 300m from the device or in heated applications.

SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

In addition to its flexibility and high performance provision, the DF-310E also offers a considerable cost saving over product life with its pre-calibrated sensor, allowing efficient set-up and commissioning. This device's sensing technology also uses a high reliability, long-life sensor with a five year warranty that only requires subsequent annual SPAN calibrations. These aspects all combine to make the DF-310E a highly attractive analyzer that can deliver the flexible performance and affordability your business demands.

ALTERNATIVE PRODUCTS

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

DF-340E



If Class I, Div II and ATEX certifications are required, choose the DF-340E. Mounted in a waterproof, explosion proof enclosure with the option of remoting the sensor in a NEMA 4 enclosure, the DF-340E enables O₂ measurements at percent, trace and ultra-trace levels.

DF-150E



A versatile analogue O₂ analyzer designed for percent and trace levels measurements, the DF-150E uses Servomex's non-depleting E-sensor technology for accurate measurements.

DF-550E NanoTrace



When an ultra-trace contaminant O₂ measurement solution is required, we recommend DF-550E NanoTrace. This device is ideally suited to ultra-high purity electronic grade gas quality control monitoring.

KEY APPLICATIONS

- Nitrogen production
- Argon production
- Hydrogen production
- Track loading
- Gas bottling



PRODUCT DATA: DF-310E

OPTIONS	DESCRIPTION	SPECIFICATION
Output	Non-isolated 0-10V DC	Supplied as standard
Analog outputs	Various options	Isolated 4-20mA DC output or isolated 4-20mA output, which jams at 2mA when sensor is off or disconnected
Output range	Output parameters	Any range between 0-0.5ppm to 0-25% (please note: configuration dependent)
Alarms	Low flow, concentration and electrolyte	Up to 2 audible / visual concentration alarms, a choice between 1 concentration alarm and low flow alarm and an electrolyte condition alarm (for samples containing above trace levels of acidic components, contact Servomex for sample preconditioning options)
Remote sensor	Permits remote sensor mounting capability	Sensor mounting in NEMA 4 enclosures up to 300m from the control unit (enclosures can be heated)
Sample pressure regulator	316LSS pressure regulator	3,000psig inlet and 28 in Hg to 30psig output
Flow control valves	Integral upstream flow control options	Upstream flow control valve (not available 0-50ppm Hg resolution mode)
Dual scale range	2 range options	4-20mA output with ID range
Pump	Internal diaphragm pump for negative pressure sampling	Integral diaphragm pump for negative pressures up to 2psig/1.05mm Hg vacuum or vent pressures to 3psig/155mm Hg
Stab-El sensor	Designed for samples containing trace acid or ionic contaminants	Enables operation with trace levels of acid gases or ionic contamination. Samples containing acid components must use Stab-El option
Mounting	Various options for application flexibility	Panel mount, 19" rack mount, dual 19" rack mounting options
Relay contacts	Up to 4 independently assigned contacts	Rated at 5amps at 0.3 Amps at 30V DC

ACCESSORIES

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

MONITORING PERFORMANCE

Gas	O ₂ (purity)	O ₂ (purity)
Technology	Coulometric	Coulometric
Model	Standard	High resolution
Range	0-0.5ppm / 0-25%	0-0.5ppm / 0-25%
Accuracy (intrinsic error) FSD	±3% of reading / 0.5% of measurement range	±3% of reading / 0.02% of measurement range
Zero drift/month	Negligible	Negligible
T ₉₀ in secs.	<10 seconds at 0.75liters/min	<10 seconds at 0.75liters/min

TUNABLE
DIODE LASER



FLAME IONISATION
DETECTOR



GAS
CHROMATOGRAPHY



PLASMA



LASER MOISTURE



COULOMETRIC



SPECTROSCOPIC



PRODUCT DATA: DF-310E

SAMPLE FOR MEASUREMENTS

Sample for measurement	Sample must be oil free, non-corrosive, non-condensing and non-flammable
Sample pressure	0.2 – 1psig
Dew Point	5°C/9°F below minimum ambient
Particulates	Filtered to 2µm

DEVICE SPECIFICATION

Size:

- 237mm (9.3") Wide x 221 (8.7") High x 200mm (7.8") Deep

Weight:

- 4.3kg (9.5lbs)

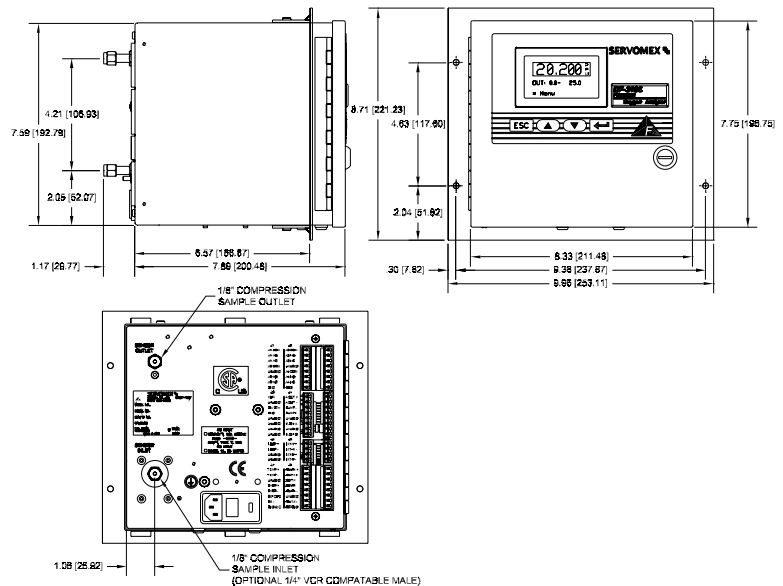
Operating Temperature:

- 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.

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