

SERVOTOUGH DF-320E

HIGH RELIABILITY TRACE AND PERCENT OXYGEN MEASUREMENTS IN PURE AND MULTI-GAS BACKGROUNDS, DESIGNED FOR DIVISION 2/ZONE 2 HAZARDOUS AREA LOCATIONS



SERVOTOUGH DF-320E

Designed for use in harsh and hazardous areas, the DF-320E is designed to provide trace and percent level O₂ measurements in Division 2 / Zone 2 hazard-rated locations. Servomex's reliable Coulometric sensing delivers highly stable measurements in changing sample and flow rate conditions, making it ideal for upset prone processes. The reliability and resilience of the DF-320E makes it the ideal analytical solution for applications including hydrogen, propene and polyethylene production, oil refining and petrochemical process monitoring.

In addition to providing the ultra-reliable performance demanded by these applications, the DF-320E offers attractive cost savings over product life, thanks to its factory calibrated Coulometric sensing technology, which simplifies setup. Ongoing maintenance is also reduced to annual SPAN calibrations, with no need for programmable cell replacement.

FLEXIBLE

- Coulometric sensing is ideal for upset prone applications
- Can be used in CSA certified Class 1, Division 2
- Designed for diverse industrial gases application use like H₂, C₃H₆ and PE production and in refining and petrochemical process monitoring

EASY TO USE

- Multiple background gas stream monitoring
- Microprocessor driven for easy configuration and maintenance
- Simplified ongoing maintenance requirements

LOW COST OF OWNERSHIP

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

UNRIVALLED PERFORMANCE

- Uses industry-leading, high stability Coulometric trace and % O₂ sensing with ultra-low drift potential
- Fast speed of response in the presence of changeable sample concentrations or flow rates
- 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

BENCHMARK COMPLIANCE

- CSA certified for installation in areas certified as Class 1, Division 2, Groups A,B,C and D
- IEC 61010-1
- Overvoltage Category II, Pollution Degree 2
- EU EMC Directive
- EU Low Voltage Directive

Learn more about the SERVOTOUGH DF-320E
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PRODUCT OVERVIEW: DF-320E

HIGH STABILITY COULOMETRIC TRACE AND PERCENT MEASUREMENTS

The harsh and hazardous conditions of many hydrocarbon processing applications require reliable and stable oxygen measurements to control the process. Engineers need a highly responsive, non-depleting trace and percent O₂ measurement that delivers a fast speed of response and recovery in upset conditions. 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-320E is specifically designed to address Division 2/Zone 2 rated application monitoring needs, through the use of leading-edge patented Coulometric sensing that delivers high stability % or trace O₂ measurements in upset-prone applications. This device can also deliver complete reliability when sample and flow rates fluctuate, with a fast speed of response.

SIMPLE MAINTENANCE AND REDUCED ONGOING COSTS

In addition to its high performance provision, the DF-320E also offers a considerable cost saving over product life through its pre-calibrated sensor technology, allowing efficient set-up and commissioning. The DF-320E uses a high reliability, long-life sensor with a 5 year warranty that only requires subsequent annual SPAN calibrations. These aspects allow the DF-320E to provide an attractive combination of performance and reduced costs.

ALTERNATIVE PRODUCTS

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

DF-310E



Optimized to meet the needs of Industrial Gas producers, the DF-310E offers trace and percent O₂ measurements in pure gas streams and multi-gas backgrounds. Ideal for applications including N₂, Ar and H₂ production, truck loading and gas bottling.

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-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

- Hydrogen production
- Polypropylene production
- Polyethylene production
- Oil refining
- Petrochemical applications



PRODUCT DATA: DF-320E

OPTIONS	DESCRIPTION	SPECIFICATION
Output	2 output options available	Non-isolated 0-5V DC / non-isolated 0-10V DC
Analog outputs	Various options	Isolated 4-20mA DC output or isolated 4-20mA output, which reads 2mA when the sensor is off
Output range	Output parameters	Any range between 0-0.5ppm to 0-25% (and any range in-between)
Alarms	Low flow, concentration and electrolyte	Up to 4 audible/visual concentration alarms, 1 audible/visual flow alarm and an electrolyte condition alarm
Sample pressure regulator	316LSS pressure regulator	3,000psig inlet and 28 in Hg to 30psig output (standard or high purity version – supplied mounted or loose)
High purity inlet	VCR welded sample inlet	Standard on 0-50ppm high resolution model
Outlet	Stainless Steel	Recommended for flammable samples
Flow control valves	Integral upstream flow control options	Not available on 0-50ppm range model or with VCR welded sample inlet
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
Voltage output	Choice of non-isolated outputs	0-1V DC, 0-2V DC, 0-5V DC non-isolated

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 at 0.75liters/min	<10 at 0.75liters/min

TUNABLE DIODE LASER



FLAME IONISATION DETECTOR



GAS CHROMATOGRAPHY



PLASMA



LASER MOISTURE



COULOMETRIC



SPECTROSCOPIC



PRODUCT DATA: DF-320E

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:

- 217mm (8.5") Wide x 200mm (7.9") High x 245mm (9.6") Deep

Weight:

- <5.7kg (12.5lbs)

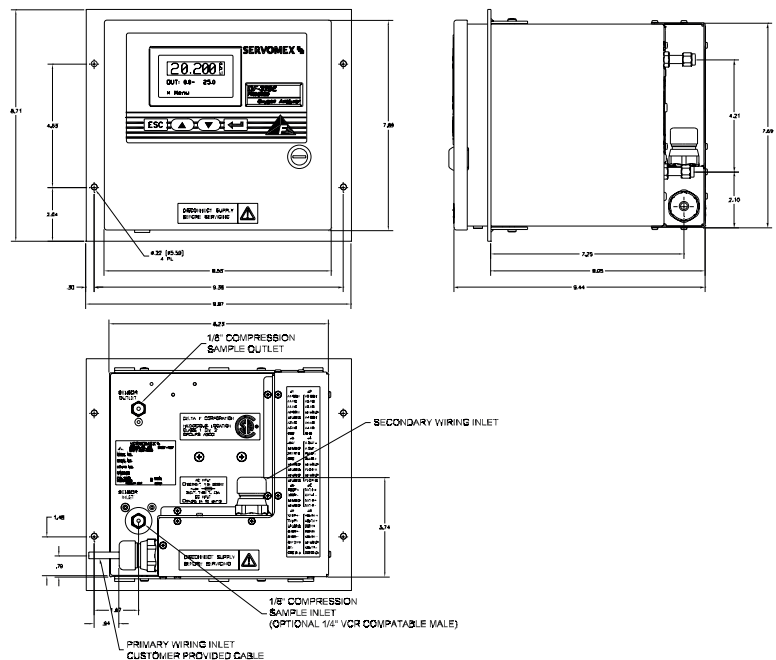
Operating Temperature:

- 0°C - 50°C/32°F - 122°F

Compliance:

- CSA certified for Class 1, Division 2, Groups A,B,C and D
- 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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