SERVOMEX

SERVOPRO
MonoExact DF310E

NEXT-GENERATION DIGITAL OXYGEN ANALYZER DESIGNED FOR INDUSTRIAL GAS APPLICATIONS, COMBINING TRACE-LEVEL MEASUREMENT WITH NEW PERFORMANCE AND OPERATIONAL BENEFITS

MonoExact DF310E

The MonoExact DF310E has been designed specifically to accurately measure oxygen in various industrial gas (IG) applications including nitrogen, argon and hydrogen production, tanker transfill, specialty gas blending, electronic gases and more. Combining Servomex's latest advances in sensor and analyzer design into an advanced new platform, the DF310E is easy to operate and integrate into a wide range of systems.

Built around the latest innovations in software and hardware - including a non-depleting Paramagnetic and updated Coulometric digital oxygen sensor - MonoExact DF310E builds on the original DF-310E to give new operational and maintenance benefits that improves user control and reduces cost of ownership.

Offering comprehensive analog and digital communication options for simple integration into a wide range of systems, MonoExact DF310E is backward-compatible with existing DF-310E installations, ensuring it complies with existing standards and customer agreements without the need for re-testing or re-qualification.

Flexible

- Back-compatible with DF-310E platform, including hardware wiring inputs and gas inlets
- Analog and digital outputs – 4-20mA, RS232, RS485 and advanced digital communications
- including Ethernet, Modbus TCP/IP and PROFIBUS
- Optional integration of external AquaXact aluminum oxide (Al_2O_3) moisture sensor probe to allow for two measurements with one analyzer

Easy to use

- Compact footprint for simple integration
- Advanced touchscreen GUI for intuitive hands-on setup and operation
- Servomex proprietary software makes reporting and parameter control simple

Low cost of ownership

- Field proven Servomex Coulometric electrochemical performance and reliability
- Non-depleting Paramagnetic sensor option
- Five year replacement warranty on electrochemical sensor
- Minimal training requirements

Unrivalled performance

- Utilizes enhanced Hummingbird sensing technology for precision process measurement
- 100, 1000 and 10000 ppm ranges available (Coulometric) / 0-25% O_2 (Paramagnetic)
- Manufactured by Servomex - over 60 years' experience innovating and pioneering gas analysis and thousands of units used in the field every year

Benchmark compliance

- Complies with Low Voltage, EMC and applicable directives
- European and US Pharmacopeia compliant (Coulometric and Paramagnetic)

Learn more about the SERVOPRO MonoExact DF310E
Visit **servomex.com/MonoExactDF310E**

SERVOMEX
ANALYZERS
HIGH-PERFORMANCE GAS ANALYSIS

A new analyzer platform, optimized for performance and ease of use

IG customers requiring accurate process control and product qualification rely on the precision measurements provided by Servomex's DF and SERVOPRO analyzers. MonoExact DF310E forms part of Servomex's next-generation industrial analyzer platform, which advances and standardizes a complete, integrated IG analysis capability through the latest innovations in software, hardware and sensor design.

By delivering the same high quality measurements and ensuring backwards compatibility with previous analyzers, customers now get the choice of PPM or % measurements through Servomex's Coulometric and Paramagnetic sensors respectively. Backwards compatibility with the DF-310E means training requirements are minimized, re-testing and re-qualification problems are avoided and products meets the high standards of global supply agreements.

Seamless integration with the AquaXact 1688 moisture sensor

Designed specifically to work in harmony with the AquaXact 1688 ultra-thin film Aluminum Oxide moisture transmitter, the MonoExact DF310E provides a high-clarity color touchscreen display, alarms, relays and advanced communications protocols.

It gives AquaXact 1688 users access to powerful, intuitive software control, and allows easy sensor tip replacement in the field. The tip can be replaced by the user and the calibration file loaded into the transmitter via the digital controller, removing the need for return-to-factory calibrations and thus lowering costs of ownership.

Ultimate control, ultimate connectivity

The MonoExact DF310E is built around Servomex's new advanced user interface, which offers immediate hands-on control via a high brightness touchscreen display. Intuitive to use, Servomex's icon driven software is optimized for a simple user journey, with the touchscreen GUI making reporting or adjusting control parameters effortless. The MonoExact DF310E touchscreen GUI is designed to display up to two measurements simultaneously; oxygen and moisture via the AquaXact external probe.

Analog and digital communications compatibility is provided through traditional 4-20mA, RS232 and RS485, while Ethernet, Modbus TCP/IP and Profibus compatibility means all common advanced digital protocols are available. This means MonoExact DF310E is as simple to integrate into brand new systems as it is to exchange with older DF-310E units – the latter made even easier by a back plate design that makes swap out simple.

ALTERNATIVE PRODUCTS

The SERVOPRO product range features a number of options designed to meet your application needs:

MonoExact DF150E

Next-generation Coulometric oxygen analyzer, designed specifically for use in various industrial applications including glove boxes, heat treating, solder reflow ovens, laboratory and industrial gas applications. Updated sensor design requires only an annual electrolyte refill.

MultiExact 5400

Delivering stable, high performance monitoring across all key industrial gases, the MultiExact's dual measurement capability benefits from a choice of four leading-edge sensing technologies, including new GFx sensing capability for CO, CO_2 and CH_4.

Chroma

Utilizing a unique, non-depleting plasma emission detector, the Chroma is a mainframe customized to your application. Offering multi-component trace measurement at ppb, ppm or % level, the Chroma can monitor H_2, O_2, N_2, Ar, CH_4, CO, CO_2 and NMHC impurities in H_2, O_2, N_2, Ar and He.

KEY APPLICATIONS

- Nitrogen production
- Argon production
- Hydrogen production
- Tanker Transfill applications
- Speciality gas blending
- Electronic gas verification

SERVOMEX TECHNOLOGIES

ZIRCONIA GAS FILTER CORRELATION CALORIMETRY THERMAL CONDUCTIVITY PARAMAGNETIC INFRARED

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 - Coulometric	Output parameters	Any range between 0-10,000ppm (please note: configuration dependent)
Output range - Paramagnetic	Output parameters	0-25%
Alarms	Low flow, concentration, span reference and electrolyte	Up to 8 sensor specific alarms: concentration (high/low), flow, temperature and span reference
Sample pressure regulator	Optional Outboard 316 stainless steel pressure regulator	3,000psig/208 BarA inlet capacity; 0-10psig/1.7BarA adjustable outlet pressure requires 5psig/1.36BarA minimum inlet pressure
Scale range	User selectable	4-20mA output with ID range
Pump	Internal or external diaphragm pump for negative pressure sampling	Negative pressures up to 2psig/1.05mm Hg vacuum or vent pressures to 3psig/155mm Hg
Mounting	Various options for application flexibility	Panel mount, 19" rack mount, dual 19" rack mounting options
Relay contacts	Up to 8 independently assigned contacts	Rated at 1.0 amp at 30 volts AC or DC
ACCESSORIES	**ACCESSORIES AVAILABLE FOR SPECIFIC APPLICATIONS – CONTACT YOUR LOCAL SERVOMEX BUSINESS CENTER**	

MONITORING PERFORMANCE

Gas	O_2 trace (ppm)	O_2 control (%)
Technology	Coulometric	Paramagnetic
Model	Standard	Standard
Range	0-100, 0-1000 or 0-10,000ppm	0-25%
Accuracy (intrinsic error) FSD	0-100ppm - ±3% of the reading or ± 50ppb 0-1000ppm - ±3% of the reading or ± 250ppb 0-10,000ppm - ±3% of the reading or ± 2.5ppm whichever is larger The High Resolution (0-100ppm) analyzer has an accuracy of ± 3% of reading or ± 10ppb whichever is larger.	±0.1% O_2
Zero drift/month	Negligible	±0.05% O_2/week
T_{90} in secs.	<20 seconds at 0.75liters/min	<10 seconds at 0.2liters/min

TUNABLE DIODE LASER   FLAME IONIZATION DETECTOR   GAS CHROMATOGRAPHY   PLASMA   LASER MOISTURE   COULOMETRIC   SPECTROSCOPIC

PRODUCT DATA:
MonoExact DF310E

SAMPLE FOR MEASUREMENTS

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

DEVICE SPECIFICATION

Size:

- 206mm (8.1") Wide x 193mm (7.6") High x 245mm (9.7") Deep
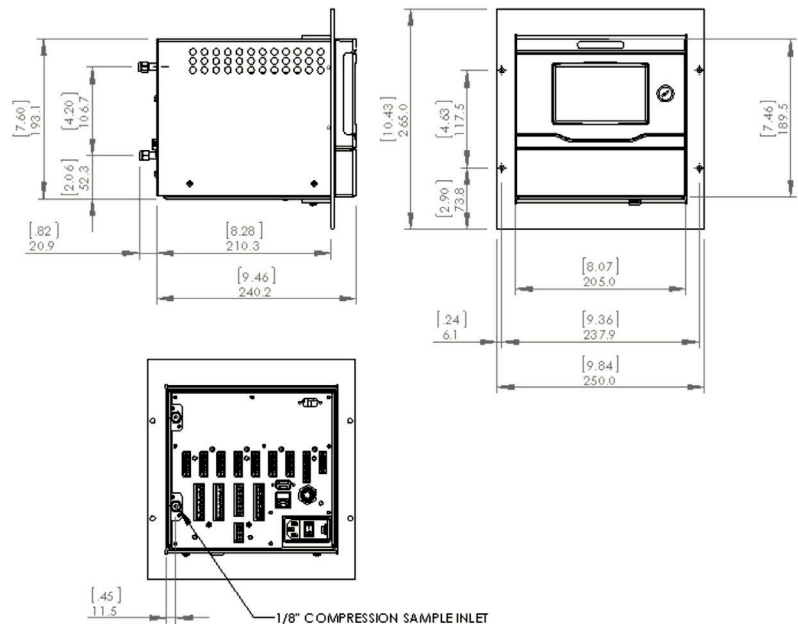
Weight:

- 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

Designed to work with AquaXact 1688

The MonoExact DF310E was developed alongside the AquaXact 1688 moisture transmitter for seamless integration, allowing the system to simultaneously record and display measurements for oxygen and moisture.

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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