SERVOTOUGH

Oxy 1810

Product overview

Safe area

Gas	Measures	Application
Oxygen	Percent	Process control Safety Quality

SENSING TECHNOLOGY

Paramagnetic

Paramagnetic digital O_2 analyzer designed for safe area use

Unrivalled performance

- Designed for safe area, oxygen analysis
- Uses industry leading patented Paramagnetic technology for stable, non-depleting measurement
- Manufactured by Servomex - over 70 years' experience innovating and pioneering gas analysis, and thousands of units used in the field every year

Flexible

- High flow rate bypass option
- Special transducer versions for solvent or hydrogen bearing samples
- Flow alarm and pressure compensation options available

Low cost of ownership

- Long calibration intervals and cell life
- Rugged and reliable electronics
- Proven longlife Servomex paramagnetic technology

Easy to use

- Configurable alarm outputs to aid integration with other systems
- Easy to set up and operate
- Clear display and intuitive menu navigation
- Internal/external use (IP66 rated)

Benchmark compliance

CE marked to meet:

- EU EMC Directive
- EU Low Voltage Directive
- EU RoHS Directive

Key applications

- Ambient air monitoring
- Waste water management
- Food storage and packing
- Clean room/glove boxes
- Inert blanketing
- Gas cylinder storage

For more information visit **servomex.com/contact**

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Product overview

Safe area

Reliable, high accuracy safe area monitoring

For applications such as ambient air monitoring, inerting or food storage and packing, you need an adaptable, high performance O_2 analytical solution you can truly rely on.

Your job demands maximized efficiency, so your gas analysis needs to be highly stable and reliable. It has to be capable of easily integrating into your existing safety infrastructure and flexible in terms of settings and options. No matter what processes you are operating, the need for affordable cost of ownership is a must. We don't believe you should have to compromise.

Non-depleting sensor performance

The Oxy 1810 utilizes Servomex's world-leading Paramagnetic O_2 sensing technology, which provides reliable, accurate and stable percentage measurements of O_2. Unlike electrochemical technologies, the non-depleting technology requires minimal calibration and never needs replacing. The result is a long life with low maintenance costs.

Affordable, Value-Added Features

The Oxy 1810 features have been specifically designed to ease everyday operation and maximize performance. Optional high flow cell, flow alarm, and pressure compensation allow a fit to existing sample systems and aid overall performance, whilst also offering preventative maintenance.

Useful links:

SERVOMEX SERVICE NETWORK

servomex.com/**service**

SERVOMEX SYSTEMS

servomex.com/**systems**

SERVOMEX EXPERT

servomex.com/**expert-guidance**

PBTDSOxy1810 Rev0 Date: 06/25

Technical data sheet

SERVOTOUGH Oxy 1810

Specifications

Gas measured	**Oxygen (O_2)**
Technology	Paramagnetic
Performance	
Measurement range	0-100% O_2†
Lower detection limit	< ±50ppm O_2
Linearity error	No measurable error
Repeatability error	<0.02% O_2
Intrinsic error (accuracy)	<±0.05% O_2 (based on ±95% confidence limits)
Response time (T_{90})	<6 seconds at 200ml/min and 1l/min
Zero drift per week	<0.05% O_2/week
Span drift per week	<0.05% O_2/week
Sample vent pressure effects	Pressure compensation not fitted: 1% change in sample vent pressure corresponds to a 1% change in reading Pressure compensation fitted: 1% change in sample vent pressure corresponds to a 0.05% change in reading
Sample flow variations	A change in flow from 50-250ml/min (12-70l/hr internal bypass option) will cause a zero change of <0.1% O_2 and a span change of <0.5% of reading
Signal outputs	As standard each unit comes fitted with:
Analog outputs	One isolated 4-20mA / 0-20mA
Analog output range	User selectable over the measurement range (minimum range 0-1% O_2)
Alarms	Two volt free single pole double throw relays (30V dc 1A)
Status signals	Four volt free single pole double throw relays (30V dc 1A): instrument fault, maintenance required, service in progress and mA range indication
Digital communications	Modbus RTU (RS485) or Ethernet (Modbus TCP)
Operating environment	
Temperature	Operating: -10°C to +55°C (+14°F to +131°F) Storage: -20°C to +60°C (-4°F to +140°F)
Relative humidity	0-95% RH, non-condensing
Warm up time	Typically <4 hours (at 20°C ambient (68°F), depending on application and environment)
Operating altitude range	-500 to 2,000m (-1640 to 6562ft)
Ingress protection	IP66
Physical	
Size	448mm (17.6”) Width x 235mm (9.2”) High x 227mm (8.9”) Deep
Weight	26kg / 57lbs
Mounting	Wall

† Flammable samples are limited by Oxidising component, refer to Sample Condition section

The performance specification has been written and verified in accordance with the international standard IEC 61207-1:1994 “Expression of performance of gas analyzers”

Flow sensor		
Accuracy	<±5% of full scale for 100% N_2**	
Minimum detectable change	1% of full scale	
Response time	<15 seconds	
Ambient temperature co-efficient span	<2% of full scale per 10°C	
Calibration interval	6-12 months (recommended)	
Sample condition	The sample gas must be clean, non-corrosive and free from oil and condensates	
Particulate size	<3µm	
Maximum sample dew point	+5°C (+9°F) below minimum ambient temperature or +50°C (+122°F) (with optional sample heater fitted)	
Flow rates*	Standard: Optional high flow internal bypass:	50 to 250ml/min (200ml/min recommended) 50 to 70l/hr (60l/hr recommended)
Sample connection	1/4" NPT female, 6mm tube or 1/4" tube	
Maximum sample vent pressure*	124kPa absolute (18psi absolute)‡	
Maximum inlet pressure*	0.2kPa (0.03psi) relative to sample vent pressure‡	
Sample gas flammability limits§	0-21% O_2 (air/air inerting)	Flammable gases permitted
	0-23.5% O_2 (standard)	Maximum 25% of flammable gas component LEL (lower explosive limit)
	0-100% O_2 (high oxygen)	Maximum 2.5% of flammable gas component LEL (lower explosive limit)

* The pressure and flow of sample gases must be externally regulated to meet the above requirements
‡ For the high flow internal bypass option, the maximum sample vent pressure and maximum sample inlet pressure are limited to: 122.8kPa (17.8psia) and 1.4kPa (0.2psi) relative to sample vent pressure respectively
** For gases with higher molecular weights than N_2, the accuracy will be < ±10% of full scale
§ It is the responsibility of the end user to calculate the worst case LEL of the sample gas mixture to ensure it meets the restrictions stated in the TDS.

Utilities	
Supply voltage	100-120 or 220-240V ac, 50/60Hz, 50 VA
Corrosive purge gas (optional)	
Recommended gas	Instrument grade air
Flow rate	40 to 60ml/min
Purge inlet connection	1/4" NPT female
Purge outlet	Through sample enclosure compartment rear breathers, no external outlet vent connection. (Consideration of purge gas, and installation and vent location should be taken to avoid risk of asphyxiation).
O_2 calibration gases	
High calibration setpoint	0.5 to 100% O_2
Low calibration setpoint	0.0% O_2 (99.5% zero grade nitrogen or better recommended)
Minimum difference	0.5% O_2

Sample wetted materials

	Standard transducer	Solvent resistant transducer*	Solvent resistant, hydrogen resilient transducer*	Internal flow alarm option (in addition)	Pressure compensation option
304 stainless steel	•	•	•		No additional materials
316 stainless steel	•	•	•		
Aluminosilicate glass				•	
Borosilicate glass	•	•	•		
Electroless nickel	•	•	•		
Platinum	•	•	•		
Platinum/iridium alloy	•	•	•		
Chemraz® 555		•	•		
PTFE		•	•		
Viton®	•				
Yttria stabilised zirconia				•	
Epo Tek® H72			•		

* Special chlorine resistant version replaces Viton with Chemraz® 584. Consult Servomex if required.

Compliance

EC directives	This product complies with the EMC Directive, RoHS Directive, and all other applicable directives.
Electrical safety	Electrical safety to IEC 61010-1

Options

Description	
Supply voltage	2 versions of supply voltage are available: 100-120 and 220-240Vac.
Measurement	3 available options: Stainless Steel pipework with Viton® seals. Stainless Steel pipework with Chemraz® and PTFE seals allowing enhanced solvent resistance. Stainless Steel pipework with Chemraz® and PTFE seals with added protection against Hydrogen†.
Sample flow	2 available options: Standard flow option of 150-250ml/min (200ml/min nominal). An internal bypass option allows inlet flows of 50 to 70 l/hr (60 l/hr or 1l/min nominal).
Sample heating (optional)	The measurement transducer in the Oxy and the full sample pipework including the sample inlet and outlet connections are heated to 60ºC (140ºF). This allows the gases up to a dew point of 50ºC (122ºF) to be sampled directly into the analyzer. As standard, only the measurement is heated.
Internal pressure compensation (optional)	The uncorrected gas measurement is directly affected by changes in atmospheric pressure and any sample vent back pressures on the sample outlet. A 1% change in pressure will directly affect the measurement by 1% of reading. This needs to be considered when looking at the measurement performance required. The fitting of the internal pressure transducer reduces the effect of pressure changes by 20x. A 1% change in pressure will result in a less than 0.05 % change in sample reading.
Flowcube internal flow sensor (optional)	The measurement of the analyzer is highly reliable and has internal diagnostics to ensure correct operation, yet in low flow conditions the measurement accuracy may be affected and this cannot be diagnosed by the instrument without a flow sensor. Our Flowcube technology offers an internal solid state flow sensor fitted directly to the outlet of the measurement transducer, ensuring that the measurement gas is flowing through the transducer at all times for maximum reliability and safety. Flowcube technology offers one high and two low flow alarms which can be configured to be inactive or to indicate a fault or maintenance required status, via the instrument relay output and the digital communications. Flow level is also reported via the digital communications or the display, so flow trending and maintenance of systems elements can be scheduled. (Note: the flow sensor is currently not suitable for gas mixtures that contain either 1. hydrogen and/or helium at concentrations over 10% of the total sample composition by volume, or 2. oxygen >21% of the total sample composition by volume). The option for internal flow sensor is inhibited if the hydrogen resilient transducer option has been selected. Please consult Servomex if this option combination is required.
Autovalidation/ calibration (optional)	An option card is available that allows the instrument to control validation or calibration gases automatically (volt free single pole double throw relays: 30V dc 1A). This option can also be used for remote calibration of the analyzer. Autovalidation using test gases allows the maximum confidence in the measurement to be gained on a regular basis without the expense of using personnel for routine validation. During autovalidation the analyzer indicates that it is off line from the process with a service in progress relay contact and if it should detect that the measurement performance is outside preset tolerances it will indicate that maintenance is required through a second relay contact.
Digital communications	This allows for the analyzer to be fully maintained and configured remotely. It also allows for a greater level of remote diagnostics to be carried out above that supplied by the standard relay contacts. Option of Modbus RTU (RS485) supplied as standard or Ethernet TCP/IP selectable using user configured analyzer configuration.
Sample inlet	Allows the connection of 1/4” NPT male fittings directly to the analyzer (default configuration). Allows the connection of 1/4” OD tube directly to the analyzer (optional). Allows the connection of 6mm OD tube directly to the analyzer (optional).
Enclosure options	IP66 Breather fitted as standard allows the pressure within the enclosure to be the same as the surrounding atmosphere. Optionally, a 1/4” NPT female inlet fitting allows inert gas to be supplied to the analyzer to prevent the build up of any corrosive gases within the sample compartment. This will extend the operational life of the analyzer in such environments.
Gland/conduit entries	As standard the analyzer is supplied with 4 gland entries: 2 x 1/2" NPT female and 2 x 3/4" NPT female (default configuration). Adapters to M20 gland entries supplied (optional). Adapters to PG13.5 gland entries supplied (optional).
Operators manual	An Operators manual contains all the information needed to install and safely set up the analyzer.
Service manual	A Service manual contains technical descriptions, fault diagnosis, parts removal, refitting and test instructions, tool and test equipment lists, and electrical drawings. It is intended for use by Servomex trained service personnel.

† Flammable samples are limited by Oxidising component, refer to Sample Condition section

Options

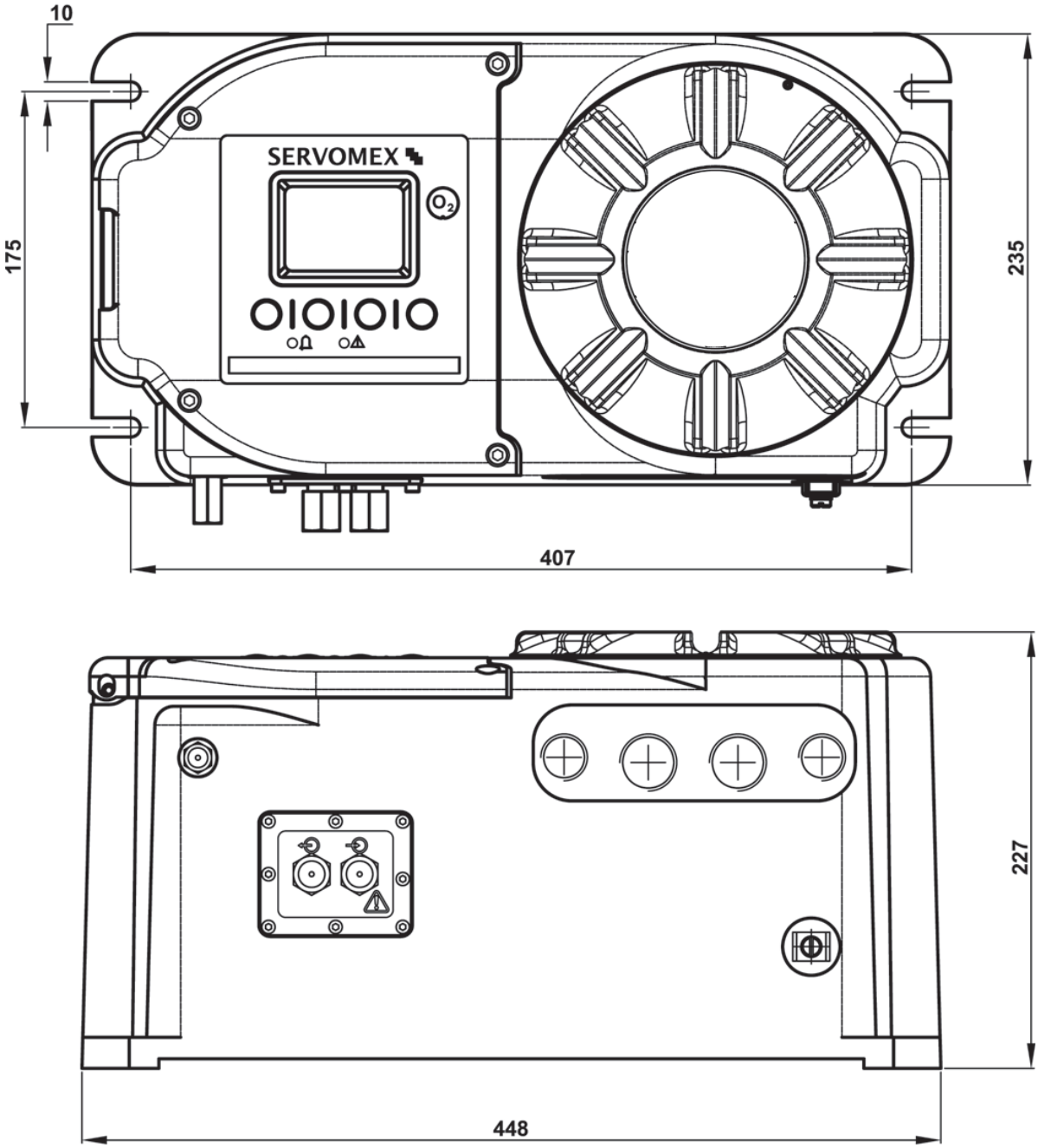
Oxy 1810		
Supply voltage	100 - 120Vac 220 - 240Vac	☐ ☐
Measurement	Standard transducer Solvent resistant transducer Hydrogen resilient transducer†	☐ ☐ ☐
Sample flow	Standard 150-250ml/min (200ml/min nominal) Bypass Option 50 to 70l/hr (60l/hr or 1l/min nominal)	☐ ☐
Heated sample bulkhead	Sample heating not required Sample heating fitted	☐ ☐
Internal pressure compensation	Pressure compensation not required Pressure compensation fitted	☐ ☐
Internal flow sensor‡	Flow sensor not required Flow sensor fitted	☐ ☐
Autovalidation / calibration	Autovalidation not required Autovalidation fitted	☐ ☐
Digital communcations	Modbus RTU (RS485) Modbus TCP (Ethernet)	☐ ☐
Sample inlet	1/4" NPT (F) 1/4" OD compression fitted 6mm OD compression	☐ ☐ ☐
Enclosure options	Breather fitted (standard) Corrosive purge fitted	■ ☐
Gland entries	NPT Metric M20 PG 13.5	☐ ☐ ☐
Operators manual	English	☐
Service manual	Not required English	☐ ☐

Please tick the box for required options

‡ 1. Not suitable for sample gas composition with hydrogen / helium >10% vol. Option is inhibited if hydrogen resilient transducer option is selected. Consult Servomex if required.
2. Not suitable for sample gas composition with Oxygen >21% vol.

† 1. Flammable samples are limited by Oxidising component, refer to Sample Condition section
2. Not suitable for sample gas composition with Oxygen >21% vol.

Dimensional drawings



Dimensions shown in millimetres

Weight: 26kg nominal

We're ready to help

Whatever your gas analysis requirements, wherever you are.

These analyzers are not intended for any form of use on humans and are not medical devices as described in the Medical Devices legislation or regulation.

Please note: Whilst every effort has been made to ensure accuracy, no responsibility can be accepted for errors and 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.

Servomex has a policy of constant product improvement and reserves the right to change specifications without notice.

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Analysis that **empowers**

SERVOMEX
a **spectris** company