A digital, next-generation multi-gas analyzer designed to provide a highly adaptable analysis solution for industrial and medical gas manufacturers

Gas	Measures	Application
Oxygen Moisture	Percent Trace ppm	Process control Quality

SENSING TECHNOLOGY

Gas Filter Correlation

Infrared

Paramagnetic

Zirconia

Aluminum Oxide*

Key applications

- Product purity on air separation plant
- Process control on air separation plant
- Monitor trace CO_2 on scrubbed air inlet to air separation process
- Validation of medical O_2, N_2, air and He Mobile labs

Unrivalled performance

- Uses industry-leading, ultra-sensitive and reliable Paramagnetic, GFx Infrared, SBDW Infrared, Zirconia and Aluminum Oxide sensing technologies
- Third generation platform building on more than 70 years of Servomex experience

Flexible

- Field upgradeable relay, alarm and communication protocols
- Measures up to four gas streams simultaneously
- Support for third-party Aluminum Oxide moisture sensor*
- Digital communications for remote access: RS232/RS485 Modbus, PROFIBUS, and Ethernet (Modbus TCP/IP)
- Up to 32 alarms and 32 relays with follow or freeze options
- Four analog outputs and four analog inputs

* Contact Servomex for details

Easy to use

- Intuitive icon-driven user interface with color touchscreen
- USB serial port for data logging and software upgrades
- Analyzer configurations can be easily transferred to other analyzers via USB thumb drive
- Download and email system files to leverage our remote service expertise

Low cost of ownership

- Uses ultra-stable, non-depleting digital sensing technologies that help extend maintenance intervals
- Auto-calibration function helps to reduce operational costs
- Plug and play sensor replacement
- Commonly integrated in to multiple stream switching systems

Benchmark compliance

- USP and European Pharmacopoeia compliant method for assay of medical oxygen and medical air
- In compliance with Low Voltage, CSA, EMC and applicable EU Directives

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

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DASTEC
30 años de soluciones para la industria

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High reliability and unrivalled performance

With a strong combination of features and benefits, the MultiExact 4100 is a highly adaptable analysis solution that meets a range of needs. It uses a wide range of Servomex's proven, reliable and accurate sensing technologies to provide up to four simultaneous gas stream measurements, meeting the challenges faced by industrial and medical gas manufacturers. With flexible analysis solutions capable of meeting specific process monitoring needs, the MultiExact 4100 delivers precise, stable results at every point of the ASU process. The versatile MultiExact 4100 can be customized to meet your exact requirements, giving you the accuracy you need, without compromise.

The next-generation solution

The MultiExact 4100 shows how modern digital gas analyzers can be, constructed with so many features. Support for third-party Aluminum Oxide moisture sensor, up to 32 relays/alarms and four analog inputs for integrating information from external sensors such as temperature, pressure or data from another gas sensor. In addition, analog and digital communications include the traditional 0-10V DC, 4-20mA, RS232 and RS485 outputs, while also providing optional advanced digital protocols, including Serial Modbus, PROFIBUS, and Ethernet (Modbus TCP/IP). In addition to its considerable monitoring capabilities, the MultiExact 4100 also provides engineer-friendly interaction through a high-brightness color touchscreen display and an intuitive, icon-driven user interface. It combines all the reliability of Servomex's familiar technology range with the flexibility, ease of use and range of intelligent digital options that the modern IG market demands.

Simple maintenance and reduced ongoing costs

The efficient, next-generation design of the MultiExact 4100 keeps maintenance requirements at a minimum. Servomex's non-depleting, low-drift technologies are easy to set up and install, especially with the new touchscreen display and easy to use interface. With ongoing costs for sensor replacement eliminated, and recalibration only needed at extended intervals – plus independent auto calibration – the cost of ownership across the product lifetime is kept extremely low. If you do require service assistance our self-diagnostic programing has you covered and the system files can be quickly emailed to our local service experts.

Useful links:

SERVOMEX **SERVICE** NETWORK

servomex.com/**service**

SERVOMEX **SYSTEMS**

servomex.com/**systems**

SERVOMEX **EXPERT**

servomex.com/**expert-guidance**

▶ **Watch our product video**

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Technical data sheet

SERVOPRO MultiExact 4100

Specifications

Gas measured	Multiple - see below					
Technology	Paramagnetic and Zirconia for O_2, SBDW IR, and Infrared (GFx) for other gases					

Performance

Gas	O_2 purity	O_2 control	O_2 trace	CO_2 (trace)	CO_2 (trace)†	N_2O (trace)†
Technology	Paramagnetic	Paramagnetic	Zirconia	Infrared (GFx)	Infrared (GFx)	Infrared (GFx)
Range	0-100%		0-210,000ppm	0-5/100ppm	0-50/500 ppm	
Accuracy (intrinsic error)	±0.01% O_2	±0.10% O_2	±0.1ppm**	1% of reading or <0.1ppm*	1% of reading or <0.5ppm*	
Zero drift/week	±0.01% O_2	±0.05% O_2	±0.25ppm	±0.2ppm	±1ppm	
T_{90} in secs	<10s@200ml/min		<10s@400ml/min‡	<20s@2000ml/min		

Performance cont

Gas	CO (trace)	CH_4 (trace)	CH_4 (%)	CO_2 (%)	CO (%)
Technology	Infrared (GFx)	Infrared (GFx)	SBDW IR	SBDW IR	SBDW IR
Range	0-50/500ppm 0-10/50ppm†	0-50/500ppm	0.5/1%	0.2/0.5/1/5/10/ 20/30/50/100%	0.2/0.5/1/2/5/10%
Accuracy (intrinsic error)	1% of reading or <0.5ppm*		<1% FS		
Zero drift/week	±1ppm		<2% FS		
T_{90} in secs	<20s@2000ml/min		<20s@200ml/min	<20s@700ml/min	

Signal outputs/inputs

Analog output	Per measurement: 1 x 4-20mA (standard), 2 x 4-20 mA per transducer optional with addition of extra option board for 2 transducers, 1 x 0-10V (optional)
Analog input	Up to 4 x 4-20mA inputs
Digital input	Up to 8 digital inputs (2 per transducer)
Relays	4 relays as standard (8 with autocal), up to 32 relays, 30V (dc or ac) /1A
Alarms	2 alarms as standard, up to 32 alarms
Digital communications	RS232/RS485 Modbus, PROFIBUS, Ethernet (Modbus TCP/IP) (all optional)

Sample gas

Temperature	5ºC to 40ºC (41ºF to 104ºF)
Dew point	5ºC / 9ºF below minimum ambient
Condition	Oil free, non-condensing and non-flammable
Particulates	2µm
Vent	Each gas outlet should be connected to a separate atmospheric vent, free from any back pressure
Sample flow range	0.2 – 2.5 l/min depending on the type of transducers installed
Connection	Sample inlet is 1/8" NPT male Sample outlet is 1/4" NPT female

*   Whichever is the greater
** For the range 0-10ppm O_2
†   Background N_2 or O_2, calibrate in chosen background gas
‡   For a change 2-10ppm O_2

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Physical

Physical	
Size	Bench top: 430.4 (17) x 133.4 (5.2) x 541.8 (21.3), mm (inches), Width x Height x Depth Rack Mount: 481.6 (19) x 132.5 (5.2) x 543.5 (21.4) mm (inches), Width x Height x Depth
Weight	Main unit: approx 14kg (30.9lb)

Operating environment	
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	0°C to 50°C (32°F to 122°F)
Ambient pressure range	101.3 kPa ± 20% (1.013 bar ± 20%)
Relative humidity	10-90% RH, non-condensing
Altitude	-500m (below sea level) to 2000m (above sea level)
Warm-up time	Warm up time is typically <20 minutes from cold start at 20°C (68°F), may be longer for the higher sensitivity measurements with heaters

Utilities	
Power	100-240V ac, 50-60 Hz (± 10% maximum fluctuation)
Max power consumption	500VA

Sample wetted materials

	Paramagnetic		Zirconia	1210 series GFx NDIR transducer	MB1520 Series SBDW NDIR
	Control	Purity			
303 stainless steel	•	•	•	•	
316 stainless steel	•	•	•	•	•
Aluminium alloy 6063					•
Viton®	•	•	•	•	•
Nitrile Rubber					•
Borosilicate glass	•	•			•
Polypropylene		•			
Platinum	•	•			
Platinum/iridium alloy	•	•			
Electroless nickel	•	•			
Stainless steel 310			•		
Polyphenylene sulphide (PPS) carbon / PTFE filler					•
Alumina			•		•
Yttria stabilised zirconia			•		
Nickel iron			•		
Sealing glass			•		
Gold			•	•	•
Calcium fluoride				•	
Nickel				•	•
Sapphire					•
Epoxy resin					•

Feature	Additional materials
Flow driven options	Polypropylene
Pressure driven options	Polysulphone, polypropylene
Flowmeters	Borosilicate glass, duralumin
Flow alarm	Glass, nylon, silicon rubber, aluminum
Internal filter	Polycarbonate, glass fibre
External filter	316 stainless steel

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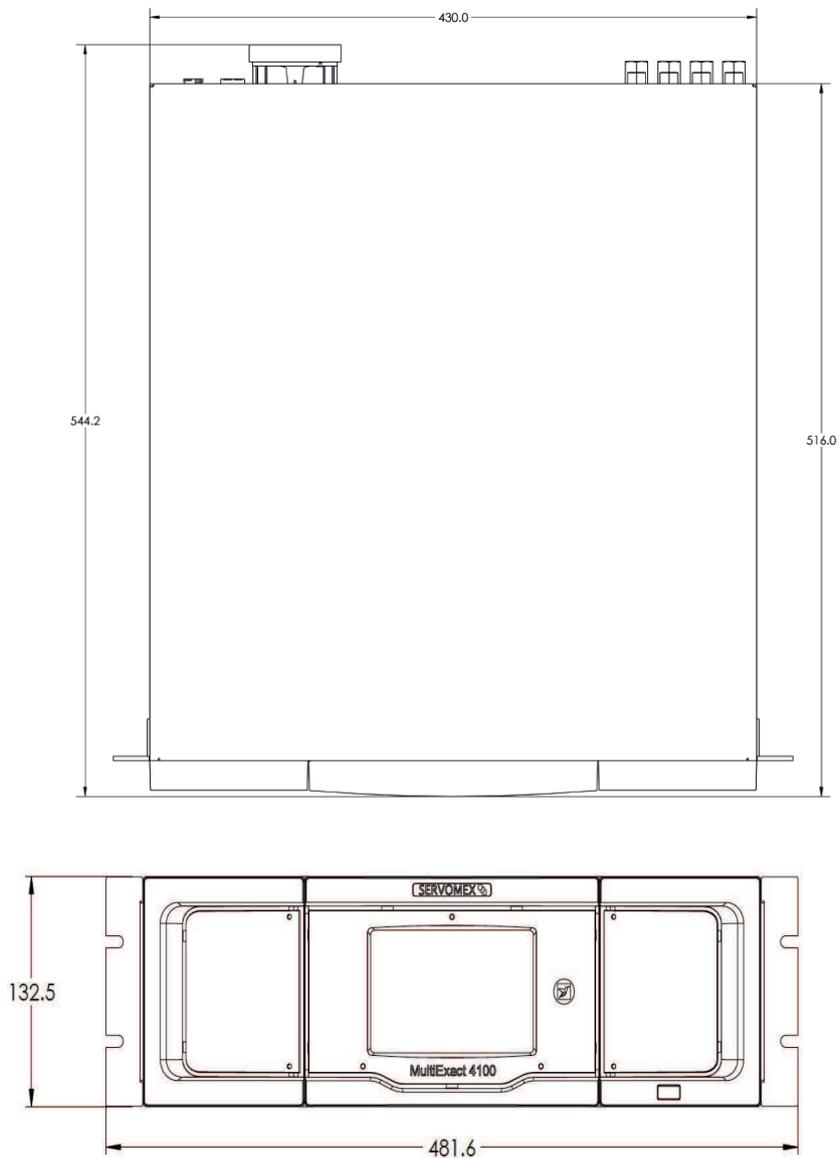
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Compliance

EC directives	This product complies with the EMC Directive, the Low Voltage Directive, and all other applicable directives
Electrical safety	Electrical safety to IEC 61010-1, CSA Electrical Certification Rated for "Overvoltage Category II" and "Pollution Degree 2"

Dimensional drawings

Dimensions shown in millimetres

Options

Analyzer

Background gas	Standard N_2 background ☐ O_2 background ☐	
Sample system	Flow driven ☐ Pressure driven ☐	

MODULE 1	MODULE 2
Measurement	**Measurement**
O_2 Purity ☐	O_2 Purity ☐
O_2 Purity 3DP ☐	O_2 Purity 3DP ☐
O_2 Control ☐	O_2 Control ☐
O_2 Trace ☐	O_2 Trace ☐
100% CO_2 ☐	100% CO_2 ☐
50% CO_2 ☐	50% CO_2 ☐
30% CO_2 ☐	30% CO_2 ☐
20% CO_2 ☐	20% CO_2 ☐
10% CO_2 ☐	10% CO_2 ☐
5% CO_2 ☐	5% CO_2 ☐
1% CO_2 ☐	1% CO_2 ☐
5,000vpm CO_2 ☐	5,000vpm CO_2 ☐
2,000vpm CO_2 ☐	2,000vpm CO_2 ☐
10% CO ☐	10% CO ☐
5% CO ☐	5% CO ☐
2% CO ☐	2% CO ☐
1% CO ☐	1% CO ☐
1% CH_4 ☐	1% CH_4 ☐
0.5% CH_4 ☐	0.5% CH_4 ☐
5,000vpm CO ☐	5,000vpm CO ☐
2,000vpm CO ☐	2,000vpm CO ☐
0-50/500vpm CO ☐	0-50/500vpm CO ☐
0-10/50vpm CO ☐	0-10/50vpm CO ☐
0-5/100vpm CO_2 ☐	0-5/100vpm CO_2 ☐
0-50/500vpm CO_2 ☐	0-50/500vpm CO_2 ☐
0-50/500vpm N_2O ☐	0-50/500vpm N_2O ☐
0-50/500vpm CH_4 ☐	0-50/500vpm CH_4 ☐
Flowmeter Not required ☐ 500ml/min (sample) ☐ 2,500ml/min (sample) ☐ 5,000ml/min (by-pass) ☐	**Flowmeter** Not required ☐ 500ml/min (sample) ☐ 2,500ml/min (sample) ☐ 5,000ml/min (by-pass) ☐
Back pressure valve, O_2 purity Not required ☐ Required ☐	**Back pressure valve, O_2 purity** Not required ☐ Required ☐
External SS filter Not required ☐ Required w/ standard filter ☐	**External SS filter** Not required ☐ Required w/ standard filter ☐
Configurable alarms Two alarms (standard) ☐ Four alarms ☐ Eight alarms ☐	**Configurable alarms** Two alarms (standard) ☐ Four alarms ☐ Eight alarms ☐
Isolated analog output Isolated 4-20mA (standard) ☐	**Isolated analog output** Isolated 4-20mA (standard) ☐
0-10 V dc output Not required ☐ 0-10 V dc ☐	**0-10 V dc output** Not required ☐ 0-10 V dc ☐
Digital input Not required ☐ 2 digital ☐	**Digital input** Not required ☐ 2 digital ☐
Isolated analog input Not required ☐ Isolated 4-20mA ☐	**Isolated analog input** Not required ☐ Isolated 4-20mA ☐
Please tick the box for required MODULE 1 options	Please tick the box for required MODULE 2 options

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Options

MODULE 3	
Measurement	O_2 Purity ☐ O_2 Purity 3DP ☐ O_2 Control ☐ O_2 Trace ☐ 100% CO_2 ☐ 50% CO_2 ☐ 30% CO_2 ☐ 20% CO_2 ☐ 10% CO_2 ☐ 5% CO_2 ☐ 1% CO_2 ☐ 5,000vpm CO_2 ☐ 2,000vpm CO_2 ☐ 10% CO ☐ 5% CO ☐ 2% CO ☐ 1% CO ☐ 1% CH_4 ☐ 0.5% CH_4 ☐ 5,000vpm CO ☐ 2,000vpm CO ☐ 0-50/500vpm CO ☐ 0-10/50vpm CO ☐ 0-5/100vpm CO_2 ☐ 0-50/500vpm CO_2 ☐ 0-50/500vpm N_2O ☐ 0-50/500vpm CH_4 ☐
Flowmeter	Not required ☐ 500ml/min (sample) ☐ 2,500ml/min (sample) ☐ 5,000ml/min (by-pass) ☐
Back pressure valve, O_2 purity	Not required ☐ Required ☐
External SS filter	Not required ☐ Required w/ standard filter ☐
Configurable alarms	Two alarms (standard) ☐ Four alarms ☐ Eight alarms ☐
Isolated analog output	Isolated 4-20mA (standard) ☐
0-10 V dc output	Not required ☐ 0-10 V dc ☐
Digital input	Not required ☐ 2 digital ☐
Isolated analog input	Not required ☐ Isolated 4-20mA ☐

Please tick the box for required MODULE 3 options

MODULE 4	
Measurement	O_2 Purity ☐ O_2 Purity 3DP ☐ O_2 Control ☐ O_2 Trace ☐ 100% CO_2 ☐ 50% CO_2 ☐ 30% CO_2 ☐ 20% CO_2 ☐ 10% CO_2 ☐ 5% CO_2 ☐ 1% CO_2 ☐ 5,000vpm CO_2 ☐ 2,000vpm CO_2 ☐ 10% CO ☐ 5% CO ☐ 2% CO ☐ 1% CO ☐ 1% CH_4 ☐ 0.5% CH_4 ☐ 5,000vpm CO ☐ 2,000vpm CO ☐ 0-50/500vpm CO ☐ 0-10/50vpm CO ☐ 0-5/100vpm CO_2 ☐ 0-50/500vpm CO_2 ☐ 0-50/500vpm N_2O ☐ 0-50/500vpm CH_4 ☐
Flowmeter	Not required ☐ 500ml/min (sample) ☐ 2,500ml/min (sample) ☐ 5,000ml/min (by-pass) ☐
Back pressure valve, O_2 purity	Not required ☐ Required ☐
External SS filter	Not required ☐ Required w/ standard filter ☐
Configurable alarms	Two alarms (standard) ☐ Four alarms ☐ Eight alarms ☐
Isolated analog output	Isolated 4-20mA (standard) ☐
0-10 V dc output	Not required ☐ 0-10 V dc ☐
Digital input	Not required ☐ 2 digital ☐
Isolated analog input	Not required ☐ Isolated 4-20mA ☐

Please tick the box for required MODULE 4 options

Options

General configuration		
Power cord	Not required USA Europe UK	☐ ☐ ☐ ☐
Flow alarm	Not required Fitted to module 1 (O_2 purity only) OR Fitted to module 2 (O_2 purity only)	☐ ☐ ☐
Serial communications	Not required RS232 communication RS485 communication w/Modbus RS232 & RS485 comm combo Profibus	☐ ☐ ☐ ☐ ☐
Modbus	Not required Required	☐ ☐
Mounting	Bench top Rack mount w/ears Rack mount w/slides	☐ ☐ ☐
Autocal	Not required Required	☐ ☐
Relay contacts	4 relay contacts (standard) 8 relay contacts w/connectors 16 relay contacts w/connectors 24 relay contacts w/connectors 32 relay contacts w/connectors	☐ ☐ ☐ ☐ ☐
Operator manual	English	☐

Please tick the box for required options

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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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