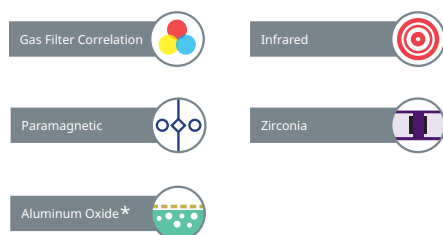




Gas	Measures	Application
Oxygen	Percent	Process control
Moisture	Trace ppm	Quality

SENSING TECHNOLOGY



Key applications

- Product purity on air separation plant
- Process control on air separation plant
- Monitor trace CO₂ on scrubbed air inlet to air separation process
- Validation of medical O₂, N₂, air and He Mobile labs

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

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

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 programming has you covered and the system files can be quickly emailed to our local service experts.

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.

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Useful links:



servomex.com/service



servomex.com/systems



servomex.com/expert-guidance





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 ₂ O (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	5°C to 40°C (41°F to 104°F)					
Dew point	5°C / 9°F 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 O₂

† Background N₂ or O₂, calibrate in chosen background gas

‡ For a change 2-10ppm O₂

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				

Compliance

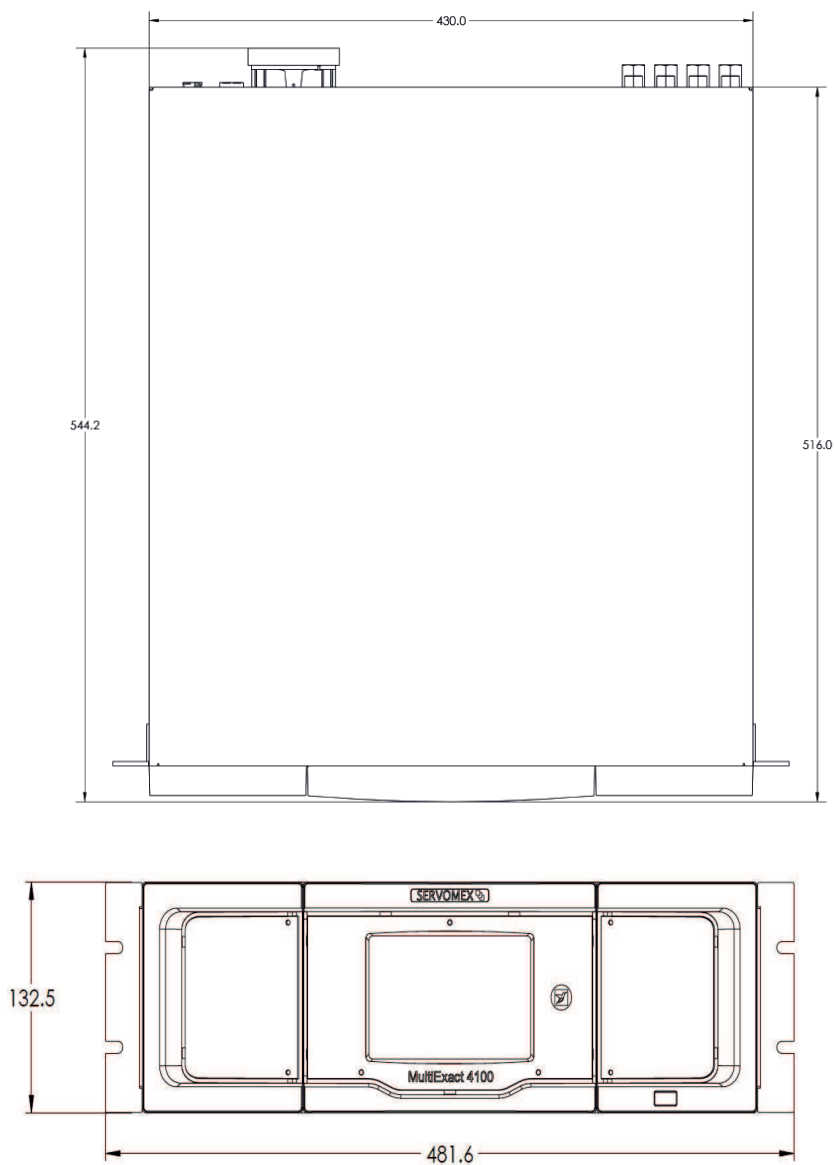
EC directives

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	
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 ₂ O ☐	
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 ☐

MODULE 2	
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 ₂ O ☐	
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 1 options

Please tick the box for required MODULE 2 options

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 ₂ O	☐
	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 ₂ O	☐
	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

We're ready to help

Whatever your gas
analysis requirements,
wherever you are.

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Analysis that **empowers**

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PBTDS ME4100 Rev.6 Date: 10/24

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