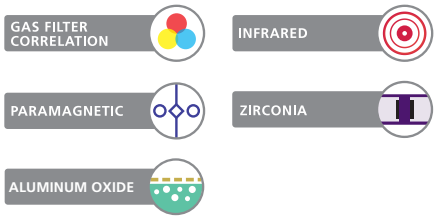
PRODUCT OVERVIEW

SERVOPRO MultiExact 4100

SAFE AREA

GAS	MEASURES	APPLICATION
MULTIPLE	PERCENT	PROCESS CONTROL
	TRACE PPM	QUALITY

SENSING TECHNOLOGY



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

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, SBSW Infrared, SBDW Infrared, Zirconia and Aluminum Oxide sensing technologies
- Third generation platform building on more than 60 years of Servomex experience
- Restless innovating will have new sensors available soon

FLEXIBLE

- Field upgradeable relay, alarm and communication protocols
- Measures up to four gas streams simultaneously
- Integrated support for the AquaXact 1688 Aluminum Oxide moisture transmitter
- 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

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

Learn more about the SERVOPRO MultiExact 4100

Visit servomex.com/pb-me4100

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PRODUCT OVERVIEW

SERVOPRO MultiExact 4100

SAFE AREA

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. Plug and Play support for the Servomex AquaXact 1688 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 INTEGRATED SOLUTIONS
servomex.com/systems

SERVOMEX EXPERT UNRIVALLED KNOWLEDGE AND VISION
servomex.com/expert-guidance

PBTDS ME4100 Rev.2 Date: 06/21

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: *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.*

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TECHNICAL DATA SHEET

SERVOPRO MultiExact 4100

SPECIFICATIONS

GAS MEASURED	N_2, Ar and O_2
TECHNOLOGY	Paramagnetic and Zirconia for O_2, SBSW IR, 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		±0.1ppm**	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)**	**CO_2 (%)**	**CO (%)**	**CO_2 (%)**	**CO (%)**
Technology	Infrared (Gfx)	Infrared (Gfx)	SBSW IR	SBSW IR	SBDW IR	SBDW IR
Range	0-50/500ppm 0-10/50ppm†	0-50/500ppm	0.25/0.5/1/2.5/5/10/25/50/100%	1/2.5/10%	0.2/0.5/1/5/10/20/30/50/100%	0.2/0.5/1/2/10%
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	2 – 15 l/min depending on the type and number 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	
Size	Bench top: 432 (17) x 141.2 (5.6) x 543.6 (21.4), mm (inches), Width x Height x Depth With expansion chassis: 432 (17) x 274.2 (10.8) x 543.6 (21.4) mm (inches) Rack Mount: 482.6 (19) x 132.5 (5.2) x 543.6 (21.4) mm (inches) With expansion chassis: 482.6 (19) x 265.5 (10.5) x 543.6 (21.4) mm (inches)
Weight	Main unit: approx 14kg (30.9lb) Expansion chassis: approx 13.7kg (30.2lb) (dependent on number and type of sensors used)

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 ± 10% (1.013 bar ± 10%)
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	1520 SERIES SBSW 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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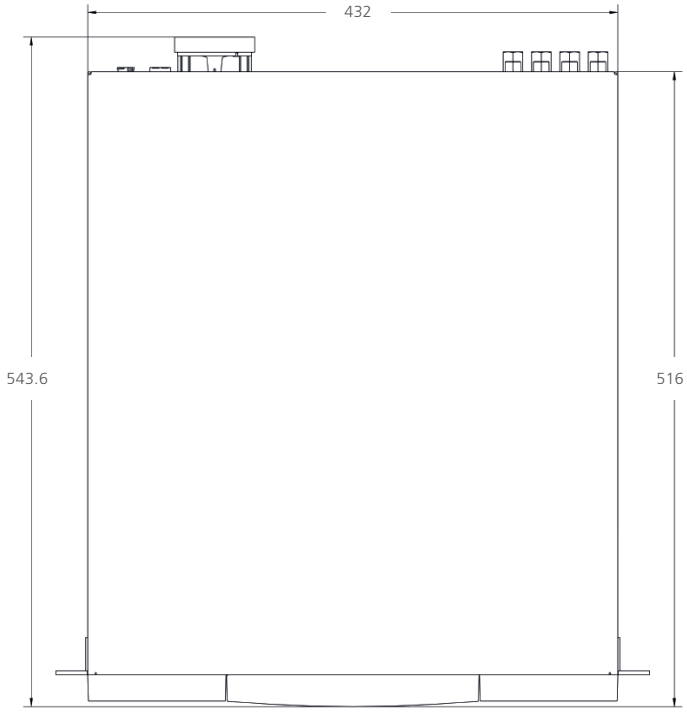
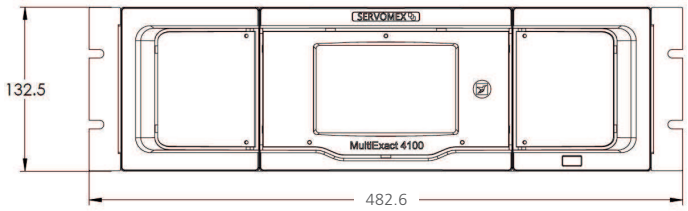
COMPLIANCE

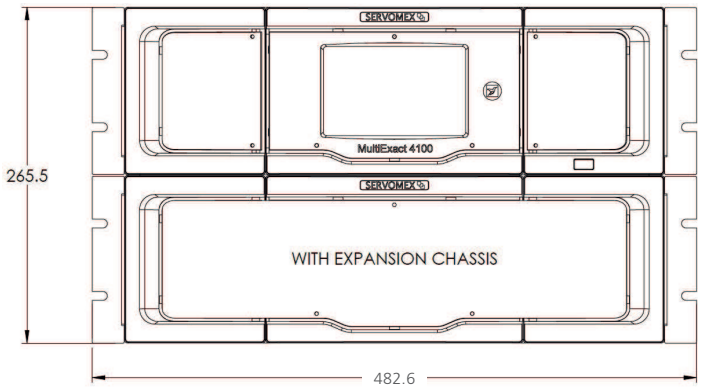
EC DIRECTIVES	This product complies with the EMC Directive, the Low Voltage Directive, and all other applicable directives.
ELECTRICAL SAFETY	Electrical safety to IEC 61010-1, CSA Electrical Certification Rated for "Overvoltage Category II" and "Pollution Degree 2"

DIMENSIONAL DRAWINGS





Standard chassis with mounting ears



Extended chassis with mounting ears

Dimensions shown in millimetres

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OPTIONS

ANALZYER		
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 2% CO 1% CO 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 1 options

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 2% CO 1% CO 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 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	☐
	2% CO	☐
	1% CO	☐
	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	☐
	2% CO	☐
	1% CO	☐
	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

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OPTIONS

AQUAXACT		
AquaXact 1688 transducer	None Required	☐ ☐
Gas	Moisture	■
Measurement range	Universal	■
Transducer type	Al_2O_3	■
Options	Not required Sample block, NPT 1/4" Swagelok Sample block, VCO fittings Sample block, VCR fittings Sample system #1 Sample system #2 Sample system #3 Sample system #4 Sample system #5	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Transducer cables	5 meter cable digital 10 meter cable digital 100 meter cable digital	☐ ☐ ☐
Adapter 3/4" AquaXact	Not required Required	☐ ☐
1688 transducer tip (extra)	Not required Required	☐ ☐
GENERAL CONFIGURATION		
Power cord	Not required USA Europe UK	☐ ☐ ☐ ☐
Flow alarm	Not required Fitted to module 1 Fitted to module 2 (coming soon)	☐ ☐ ☐
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

PBTDS ME4100 Rev.2 Date: 06/21

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