

### **PRODUCT OVERVIEW**

### **SERVOPRO MultiExact 4100**

**SAFE AREA** 



GAS	MEASURES	APPLICATION
MULTIPLE	PERCENT	PROCESS CONTROL
	TRACE PPM	QUALITY





### **KEY APPLICATIONS**

- Product purity on air separation plant
- Process control on air separation plant
- Monitor trace CO<sub>2</sub> on scrubbed air inlet to air separation process
- Validation of medical O<sub>2</sub>, N<sub>2</sub>, 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
- 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, nondepleting 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 please contact us

Visit servomex.com/contact















### **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.





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** 

TECHNOLOGY	Paramagnetic and Zirconia for O <sub>2</sub> , SBDW IR, and Infrared (Gfx) for other gases					
PERFORMANCE						
Gas	O <sub>2</sub> purity	O <sub>2</sub> control	O <sub>2</sub> trace	CO <sub>2</sub> (trace)	CO <sub>2</sub> (trace) <sup>†</sup>	N <sub>2</sub> 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 <sub>2</sub>	±0.10% O <sub>2</sub>	±0.1ppm**	1% of reading or <0.1ppm*		reading .5ppm*
Zero drift/week	<0.01% O <sub>2</sub>	<0.05% O <sub>2</sub>	±0.25ppm	±0.2ppm	±1	ppm
T <sub>90</sub> in secs	<10s@200ml/min		<10s@400ml/ min <sup>‡</sup>	<20s@2000ml/min		n
PERFORMANCE CONT						
Gas	CO (trace)	CH, (trac	e) CH	.(%)	CO <sub>2</sub> (%)	CO (%)

Infrared (Gfx)

0-50/500ppm

SIGNAL	OUTPUTS/
SIGITAL	0011010/
INPUTS	
1141 0 10	

Zero drift/week

**Analog output** 

**Accuracy (intrinsic error)** 

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)

SBDW IR

0.5/1%

<20s@200ml/min

SBDW IR

0.2/0.5/1/5/10/

20/30/50/100%

<1% FS

<2% FS

<20s@700ml/min

SBDW IR

0.2/0.5/1/2/5/10%

**Analog input** Up to 4 x 4-20mA inputs

**Digital input** Up to 8 digital inputs (2 per transducer)

Infrared (Gfx)

0-50/500ppm

0-10/50ppm<sup>†</sup>

4 relays as standard (8 with autocal), up to 32 relays, 30V (dc or ac) /1A

1% of reading or <0.5ppm\*

±1ppm

<20s@2000ml/min

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

- Whichever is the greater
- For the range 0-10ppm O  $_{\!_{2}}$  Background N  $_{\!_{2}}$  or O  $_{\!_{2}\prime}$  calibrate in chosen background gas For a change 2-10ppm O  $_{\!_{2}}$















#### **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)

torage temperature 0°C to 50°C (32°F to 122°F)

Ambient pressure range  $101.3 \text{ kPa} \pm 20\% (1.013 \text{ bar} \pm 20\%)$ 

telative 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)

ax power consumption 500VA

### SAMPLE WETTED MATERIALS

	PARAMAGNETIC			1210 SERIES GFX	MB1520 SERIES
	CONTROL	PURITY	ZIRCONIA	NDIR TRANSDUCER	SBDW NDIR
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**

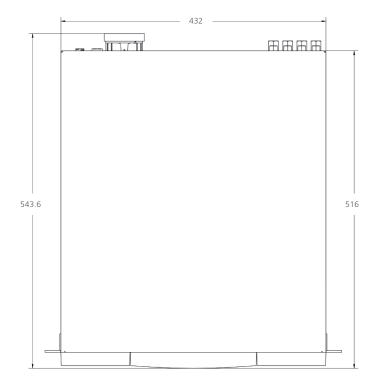
EC DIRECTIVES

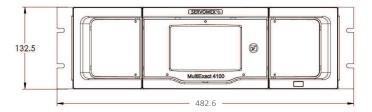
This product complies with the EMC Directive, the Low Voltage Directive, and all other applicable directives.

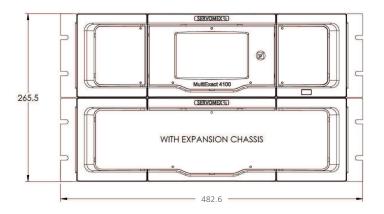
**ELECTRICAL SAFETY** 

Electrical safety to IEC 61010-1, CSA Electrical Certification Rated for "Overvoltage Category II" and "Pollution Degree 2"

### **DIMENSIONAL DRAWINGS**







Standard chassis with mounting ears

Extended chassis with mounting ears

Dimensions shown in millimetres















### **OPTIONS**

ANALYZER				
Background gas	Standard N <sub>2</sub> background O <sub>2</sub> background			
Sample system	Flow driven Pressure driven			
Iv	MODULE 1	N	MODULE 2	
Measurement	O <sub>2</sub> Purity O <sub>2</sub> Purity 3DP O <sub>2</sub> Control O <sub>2</sub> Trace 100% CO <sub>2</sub> 50% CO <sub>2</sub> 30% CO <sub>2</sub> 20% CO <sub>2</sub> 10% CO <sub>2</sub> 5% CO <sub>2</sub> 1% CO <sub>2</sub> 5,000vpm CO <sub>2</sub> 2,000vpm CO <sub>2</sub> 2,000vpm CO 2% CO 1% CO 2,000vpm CO 2,000vpm CO 2,000vpm CO 2,000vpm CO 0-50/500vpm CO	Measurement	O <sub>2</sub> Purity O <sub>2</sub> Purity 3DP O <sub>2</sub> Control O <sub>2</sub> Trace 100% CO <sub>2</sub> 50% CO <sub>2</sub> 30% CO <sub>2</sub> 20% CO <sub>2</sub> 10% CO <sub>2</sub> 5% CO <sub>2</sub> 1% CO <sub>2</sub> 5,000vpm CO <sub>2</sub> 2,000vpm CO <sub>2</sub> 2,000vpm CO 2% CO 1% CO 1,050vpm CO 2,000vpm CO 2,000vpm CO 2,000vpm CO 2,000vpm CO 2,000vpm CO 2,000vpm CO 0-50/500vpm CO	
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 <sub>2</sub> purity	Not required Required	Back pressure valve, O <sub>2</sub> 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 analog input	Not required	

Please tick the box for required MODULE 1 options

Please tick the box for required MODULE 2 options













### **OPTIONS**

N	MODULE 3		ı	MODULE 4
Measurement	O <sub>2</sub> Purity O <sub>2</sub> Purity 3DP O <sub>2</sub> Control O <sub>2</sub> Trace 100% CO <sub>2</sub> 50% CO <sub>2</sub> 30% CO <sub>2</sub> 20% CO <sub>2</sub> 10% CO <sub>2</sub> 5% CO <sub>2</sub> 1% CO <sub>2</sub> 5,000vpm CO <sub>2</sub> 2,000vpm CO <sub>2</sub> 2,000vpm CO 2% CO 1% CO 1,5% CH <sub>4</sub> 5,000vpm CO 2,000vpm CO 0-50/500vpm CO		Measurement	O <sub>2</sub> Purity O <sub>2</sub> Purity 3DP O <sub>2</sub> Control O <sub>2</sub> Trace 100% CO <sub>2</sub> 50% CO <sub>2</sub> 30% CO <sub>2</sub> 20% CO <sub>2</sub> 10% CO <sub>2</sub> 5,000vpm CO <sub>2</sub> 2,000vpm CO <sub>2</sub> 2,000vpm CO 2,000vpm CO 1% CO 1% CO 1% CO 1% CO 1% CO 1% CH <sub>4</sub> 0.5% CH <sub>4</sub> 5,000vpm CO 2,000vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-50/500vpm CO 0-50/500vpm CO
Flowmeter	Not required 500ml/min (sample) 2,500ml/min (sample) 5,000ml/min (by-pass)		Flowmeter	Not required 500ml/min (sam 2,500ml/min (sa 5,000ml/min (by
Back pressure valve, O <sub>2</sub> purity	Not required Required		Back pressure valve, O <sub>2</sub> purity	Not required Required
External SS filter	Not required Required w/ standard filter		External SS filter	Not required Required w/ sta
Configurable alarms	Two alarms (standard) Four alarms Eight alarms		Configurable alarms	Two alarms (sta Four alarms Eight alarms
Isolated analog output	Isolated 4-20mA (standard)		Isolated analog output	Isolated 4-20m
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 4-20m/

Please tick the box for required MODULE 3 options

vpm CO vpm CO 500vpm CO 0vpm CO Ovpm CO, 00vpm CO, 00vpm N<sub>2</sub>O 500vpm CH<sub>4</sub> equired l/min (sample) ml/min (sample) ml/min (by-pass) equired ired equired ired w/ standard filter larms (standard) alarms alarms ed 4-20mA (standard) equired V dc equired ital equired ed 4-20mA Please tick the box for required MODULE 4 options













### **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 (O <sub>2</sub> purity only) <b>OR</b> Fitted to module 2 (O <sub>2</sub> 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



Representantes / Distribuidores Exclusivos

Argentina

Tel: (+54 11) 5352 2500 Email: info@dastecsrl.com.ar Web: www.dastecsrl.com.ar

Uruguay www.dastecsrl.com.uy

Paraguay www.dastecsrl.com.py

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