SERVOMEX
PROCESS ANALYSERS

INCLUDING THE NEW TCD

SERVOPRO MultiExact

The SERVOPRO MultiExact is the next generation analyser family specifically designed to meet the needs of industrial gas producers and users, offering unparalleled operational performance with low maintenance burden for air separation processes.

FEATURES

- Measures up to two gas streams simultaneously
- Unparalled operation performance from enhanced sensor technologies
- Low cost of ownership
- Comprehensive digital communications

APPLICATIONS

- Air separation
- Process control
- Product validation
- Safety

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SERVOPRO MultiExact

KEY FEATURES

Measures up to two gas streams simultaneously

One or two independent gas streams can be measured simultaneously, the information is displayed and available on analogue and/or digital outputs.

Unparalled operational performance from enhanced sensor technologies

Servomex proven sensor technologies - paramagnetic, infrared gas filter correlation and zirconia have been further enhanced using digital technology, offering superior, reliable measurement.

Low cost of ownership

The high stability and reliability of Servomex sensor technologies ensures reduced calibration frequency with a lower maintenance and training burden.

Comprehensive digital communications

The MultiExact offers a broad range of digital communications - Continuous ASCII output (RS232), Modbus (RS485), Ethernet (Modbus TCP), and PROFIBUS (RS485).

NEW THERMAL CONDUCTIVITY TECHNOLOGY

The MultiExact, using the patented* **TruRef** technology, is the first process gas analyser to provide a true measurement of thermal conductivity.

ELECTRICAL SAFETY

Electrical safety to IEC 61010-1.

Approved for use in North America.

The product is rated for “Overvoltage Category II”.

The product is rated for “Pollution Degree 2”.

EC DIRECTIVE COMPLIANCE

The SERVOPRO MultiExact is in compliance with:

Low Voltage Directive

EMC Directive

And all other applicable Directives.

* US7753582, EP1837645 (pending), CN101042359 (pending)

SERVOPRO MultiExact

SPECIFICATION

Gas type	O_2 (purity)	O_2 (control)	O_2 (trace)	CO_2 (trace)	N_2O (trace)	Ar, N_2 †
PERFORMANCE						
Technology:	Paramagnetic (Pm)	Paramagnetic (Pm)	Zirconia (Zr)	Infrared (Gfx)	Infrared (Gfx)	Thermal Conductivity (TCD)
Operating range:	0-100% O_2	0-100% O_2	0-210,000ppm ◗ O_2	0-10ppm CO_2	0-20ppm N_2O	10%, 20%, 50%, 100%
Smallest recommended output range:	99.5-100% O_2 ●	0-5% O_2	0-5ppm O_2	0-5ppm CO_2	0-10ppm N_2O	0-10%, 90-100%
Intrinsic error (accuracy):	<0.01% O_2	<0.1% O_2	<0.1ppm O_2 ++	<0.1ppm CO_2	<0.2ppm	<1% of span
Repeatability:	<0.01% O_2	<0.1% O_2	<0.1ppm O_2 ++	<0.1ppm CO_2	<0.2ppm	<0.5% of span
Response time (T_{90})▼ at sample flow rate:	<10 seconds 200ml/min	<10 seconds 200ml/min	<10 seconds ◆ 400ml/min	<15 seconds 500ml/min	<15 seconds 500ml/min	<15 seconds 150ml/min
Zero drift/week:	<0.01% O_2	<0.05% O_2	<1% of reading or 250ppb*	<0.4ppm CO_2	<0.8ppm N_2O	1% span per month
Span drift/week:	<0.02% O_2	<0.1% O_2	<1% of reading or 250ppb*			
Cross sensitivity▲ (zero set on nitrogen):	No effects	No effects	The following have a typical effect of <1ppm O_2: 15ppm H_2 100ppm CH_4 or 80ppm CO	No effects	No effects	Used for binary mixtures
Flow range:	100-250ml/min	100-250ml/min	200-400ml/min	200-500ml/min	200-500ml/min	100-200ml/min

All measurements are ppm by volume.

◗ 21%-100% indicative oxygen measurement
● suppressed zero
* whichever is greater
++ in range 0-10ppm
◆ for a change of 2-10ppm O_2
▼ for flow driven sample systems or pressure driven sample systems at 8psig input
▲ data quoted for air separation applications
† Ar in O_2, N_2 or Air; N_2 in Ar

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SPECIFICATION

OUTPUTS/INPUTS	
Analogue output:	Isolated 4-20mA/0-20mA per channel
Analogue output range:	Freely selectable over measurement range
Serial output:	Continuous ASCII output on RS232
Fault alarm + Range change:	Volt-free single pole relays (30V at 1A)
OPTIONS	
Analogue output:	Isolated 0-10V per channel
Digital communications:	Modbus ASCII or Modbus RTU on RS485 PROFIBUS on RS485 Ethernet (Modbus TCP)
Alarm/status relay card:	4 volt-free single pole relays (30V at 1A) for high alarm, low alarm, service in progress, maintenance required. NAMUR compliant
Calibration relay card:	3 volt-free single pole relays (30V at 1A) for sample stream, low cal gas, high cal gas 3 volt-free switched inputs, closure to activate Autoval/autocal configures: initiate, stop, initiate “service in progress” Remote cal configures: initiate low cal, initiate high cal, initiate “service in progress”
SAMPLE GAS	
Temperature:	5˚C to 45˚C (41˚F to 113˚F)
Dewpoint:	5˚C (9˚F) below minimum ambient
Condition:	Oil free, non-corrosive, non-condensing, non-flammable
Particulates:	Filtered to 2µm
Vent:	Vent to atmosphere
Sample pressure:	35±21kPa (5±3psig)

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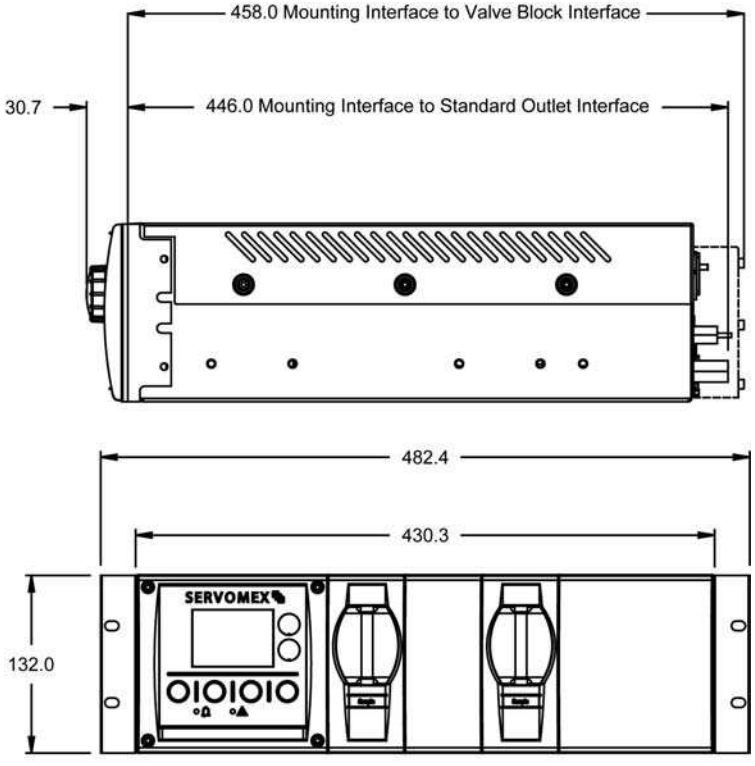
SAMPLE WETTED MATERIALS

Analyser Fitted With	O_2 Purity	O_2 Control Sensor	O_2 Trace Sensor	Gas Filter Correlation Trace Sensors	Ar/N_2 Thermal Conductivity
Stainless steel 303	✔	✔	✔		
Stainless steel 316	✔	✔	✔	✔	✔
Viton	✔	✔	✔	✔	✔
Polypropylene	✔	✔	✔		
PVDF			✔		
Borosilicate glass	✔	✔			✔
Platinum	✔	✔			✔
Platinum iridium alloy	✔	✔			✔
Electroless nickel	✔	✔			
Stainless steel 310			✔		
Alumina			✔		✔
Yttria stabilised zirconia			✔		
Nickel iron			✔		✔
Sealing glass			✔		✔
Gold			✔	✔	
Calcium fluoride				✔	
Nickel				✔	
Pressure Driven Option					
Polysulphone	✔	✔			✔
Flowmeter Option					
Borosilicate glass	✔	✔	✔		✔
Duralumin	✔		✔		✔
Internal Filter Option					
Polycarbonate	✔	✔	N/A	N/A	✔
Glass fibre	✔	✔	N/A	N/A	✔

DIMENSIONS



All dimensions shown in millimetres

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DESCRIPTION		Options
Power lead:	There are 3 options for the power lead	❑ UK ❑ Europe ❑ US
Module 1:	O_2 Purity is a premium paramagnetic based measurement with additional pressure compensation and is placed in a heated enclosure to ensure maximum performance	❑ O_2 Purity
	O_2 Control is a high quality paramagnetic based measurement	❑ O_2 Control
	O_2 Trace is a Zirconia ppm oxygen measurement	❑ O_2 Trace
	CO_2 Trace & N_2O Trace are ppm level Infrared Gas Filter Correlation measurements	❑ CO_2 Trace ❑ N_2O Trace
	Ar TCD and N_2 TCD are Thermal Conductivity measurements	❑ Ar TCD ❑ N_2 TCD
Module 2:		❑ O_2 Purity ❑ O_2 Control ❑ O_2 Trace ❑ CO_2 Trace ❑ N_2O Trace ❑ Ar TCD ❑ N_2 TCD
Sample system:	For a Flow Driven analyser the flow limit will depend on the measurement type	❑ Flow Driven
	The pressure must be limited to 35±21kPa (5±3psig) in a Pressure Driven analyser	❑ Pressure Driven
Fascia options:	Up to 4 fascia mounted options can be chosen	❑ Not required
	The Filter measure is available for the paramagnetic measurement	❑ Filter Measurement 1 ❑ Filter Measurement 2
	The Sample Flowmeter measures up to 500ml/min	❑ Sample Flowmeter Measurement 1
	The Bypass Flowmeters are for Pressure Driven circuits only. Total flow through = sample flow 1+ bypass flow 1	❑ Bypass Flowmeter Measurement 1
	The Sample Flowmeter measures up to 500ml/min	❑ Sample Flowmeter Measurement 2
	The Bypass Flowmeters are for Pressure Driven circuits only. Total flow through = sample flow 2+ bypass flow 2	❑ Bypass Flowmeter Measurement 2
Flow:	Flow Alarm: A solid state flow sensor with Flowcube technology (F3) is fitted directly to the outlet of the measurement transducer, confirming that the measurement gas is flowing through the transducer at all times for maximum reliability of the measurement. The flow sensor gives 2 stages of alarm; maintenance required and instrument fault	❑ Flow Alarm Measurement 1 ❑ Flow Alarm Measurement 2

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DESCRIPTION

Analogue outputs:	Each gas module is supplied with an advanced mA output with auto-ranging as standard	❑ Voltage Analogue Output Measurement 1
	There is an option for a voltage output in place of the mA output	❑ Voltage Analogue Output Measurement 2
Autovalidation/ Autocalibration:	An option card that allows the instrument to control calibration gases automatically to validate or calibrate the measurement. This option can also be used for remote calibration of the analyser For dual gas analysers, both gas modules must be fitted with autovalidation/autocalibration if this option is selected	❑ Autoval/cal
Alarms/status relays:	A NAMUR compliant card provides Alarms, Maintenance and Service in Progress	❑ Alarms/status relays
Digital outputs:	Digital communications allow for the analyser to be monitored and configured remotely. It allows for a greater level of remote diagnostics to be carried out above that supplied by the standard relay contacts	❑ Modbus, RS485 ❑ Ethernet, Modbus TCP ❑ PROFIBUS DP, RS485
Mounting:	Available with adjustable feet for bench mounting The SERVOPRO MultiExact is designed to fit in a standard 3U 19" rack	❑ Bench ❑ Panel Mounting ❑ Rack Mounting
Valve block:	The Valve block will switch between three gas streams, sample, low cal and high cal. It is supplied with an autovalidation/autocalibration board to allow both automatic and manual control of the valves. For dual gas analysers, both gas modules must be fitted with a valve block if this option is chosen	❑ Valve block
BPV:	The Back Pressure Valve is a valve to assist in calibrating the pressure compensation for the O_2 purity measurement	❑ Back pressure valve
User manual:		❑ English ❑ French ❑ German

SERVOPRO MultiExact

SERVICE & SUPPORT

For new installations and replacement of older Servomex and competitor products, we will work with you to develop a bespoke service and support package, ensuring full measurement availability and plant operation within your timescales and budget.

SERVOSPARES

To ensure the integrity and optimum performance of your Servomex product, we recommend fitting only factory authorised spare parts. This is particularly important for all hazardous area certified products.

SERVOSURE

Ensure your Servomex analyser is properly commissioned and delivers optimum performance with a maintenance contract, service programme and extended warranty.

SERVOTECH

Make the most of your Servomex gas analyser by attending a training course at one of our training centres in Europe, USA or Asia or on your own site.

SERVOHELP

Whether you have a simple question or complex process challenge, our local offices and global support network are here to help you.

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