SERVOMEX

SERVOPRO 4100

PROVEN FOUR-STREAM MULTIGAS ANALYZER, OPTIMIZED FOR INDUSTRIAL AND MEDICAL GAS PRODUCTION

SERVOPRO 4100

The 4100 is a high performing multigas analyzer designed to provide up to four simultaneous gas stream measurements of oxygen (control and purity), carbon dioxide, carbon monoxide, nitrous oxide, methane and trace moisture. Specifically designed to address the needs of industrial and medical gas manufacture, the 4100 can be fitted with a range of high specification sensing technologies – Paramagnetic, Zirconia, Gfx/SBSW Infrared and Ceramic Impedance dew point monitoring. These proven, stable sensors not only provide highly accurate measurements but offer operational flexibility in a range of industries and applications.

In addition to its considerable monitoring capabilities, the 4100 also provides engineer-friendly interaction through its intuitive LCD menu and low ongoing maintenance requirements; the non-depleting, high stable sensing technologies help extend maintenance intervals while intelligent functionality such as independent auto-calibration helps to deliver operational efficiencies over a long product life. Combined, these features and benefits make the 4100 a highly adaptable analysis solution that meets a range of needs.

FLEXIBLE

- Comprehensive solution for industrial and medical gas manufacture and for pharmacopeia applications
- Measures up to 4 gas streams simultaneously: O_2 (control and purity), CO_2, CO, N_2O, CH_4 and moisture
- Digital communications for remote access: RS232/RS485 Modbus

EASY TO USE

- Intuitive use LCD interface for easy device interaction and configuration
- Up to 8 isolated analog outputs and up to 12 relays with follow or freeze options
- Externally fitted ceramic impedance dew point monitoring transmitter options

LOW COST OF OWNERSHIP

- Uses ultra-stable, non-depleting sensing technologies that help extend maintenance intervals
- Auto-calibration function helps to reduce operational costs

UNRIVALLED PERFORMANCE

- Uses industry-leading, ultra-sensitive and reliable patented Paramagnetic, Gfx Infrared, SBSW Infrared, Zirconia and Ceramic Impedance sensing technologies
- Effectively compensates for temperature and pressure fluctuations
- Manufactured by Servomex - over 60 years' experience innovating and pioneering gas analysis and thousands of units used in the field every year

BENCHMARK COMPLIANCE

- FDA validated for medical oxygen and nitrogen production
- European Pharmacopoeia compliant

Learn more about the SERVOPRO 4100
VISIT SERVOMEX.COM

PRODUCT OVERVIEW: **4100**

FLEXIBLE MONITORING FOR AIR SEPARATION APPLICATIONS

If you manufacture industrial gases, medical grade O_2 and N_2, or need to meet Pharmacopeia standards, you need a high grade analyzer that delivers not only highly accurate and reliable measurements, but has the ability to measure a number of gas stream simultaneously. A solution that is flexible and easy to use. No matter what your application needs, you'll want a device that can reduce your ongoing costs and provide operational efficiencies. We don't believe you should have
to compromise.

A NO COMPROMISE SOLUTION

The 4100 is specifically designed to meet a wide range of product purity and process control applications. Using technologically advanced sensing – Paramagnetic, Gfx IR, SBSW IR, zirconia and ceramic impedance (for dew point analysis) – for O_2 (control and purity), CO_2, CO, N_2O, CH_4 and moisture, the 4100 sets the standard for accuracy and reliable performance, effectively compensating for both temperate and pressure transience. This device also delivers flexible and engineer-friendly use with its integrated LCD interface and comprehensive digital communications protocols for enhanced diagnostics and statistical reporting.

EASY AND INTUITIVE TO USE

The 4100 delivers affordable gas analysis with low cost-of-ownership, thanks to the use of high-stability, non-depleting sensing technologies. An auto-calibration function, simplifying ongoing device care, leverage operational cost efficiencies. The flexibility offered by the 4100, means it excels in adapting to diverse application needs, providing you with a robust solution tailored to your application.

ALTERNATIVE PRODUCTS

The SERVOPRO and DF-SERIES product ranges feature a number of options designed to meet your application needs.

MultiExact

The next-generation digital successor to the 4100, the MultiExact offers extended sensing capabilities with TruRef sensing technology, improved features and digital communications.

DF-300

When you want a high grade O_2 trace and ultra-trace monitoring solution, we recommend the DF-300 Series devices. E-sensor technology provides extensive background gas compatibility.

MonoExact

Designed for users who prefer single-measurement analyzers, the MonoExact utilizes TruRef sensing technology, improved features and digital communications.

KEY APPLICATIONS

- Product purity on air separation plant
- Process control on air separation plant
- Monitoring the trace CO_2 on scrubbed air inlet to air separation process
- Bottling/filling plant applications

Zirconia | Gas Filter Correlation | Calorimetry | Thermal Conductivity | Paramagnetic | Infra-Red | Tunable Diode Laser Spectroscopy | Flame Ionisation Detector

PRODUCT DATA: **4100**

OPTIONS	DESCRIPTION	SPECIFICATION
Analog inputs	2 x mA inputs	Two floating 4-20mA/0-20mA supplied as standard with data valid contacts
Analog outputs	2 x isolated 4-20mA/0-20mA	Supplied as standard. Additional outputs may be added
Analog output range	Analog output parameters	User selectable over the measurement range
Serial output	RS232/RS485 (9 pin "D" connector)	Provides analyzer measurement and status data
Alarms	3 x volt free single pole relays	(230Vac/30Vdc at 1.0A) as standard. Additional relays may be added
Digital communications	RS232/RS485 Modbus protocol	–

ACCESSORIES	ACCESSORIES AVAILABLE FOR SPECIFIC APPLICATIONS – CONTACT YOUR LOCAL SERVOMEX BUSINESS CENTER

MONITORING PERFORMANCE

Gas	O_2 (purity)	O_2 (control)	O_2 (trace)	CO_2 (trace)	N_2O (trace)	CO (trace)	CH_4 (trace)	CO_2 (%)	CH_4 (%)	CO (%)
Technology	Paramag-netic	Paramag-netic	Zirconia	Gfx IR	Gfx IR	Gfx IR	Gfx IR	SBSW IR	SBSW IR	SBSW IR
Range	0-100% max. range	0-100% max. range	0-210,000 ppm (v) max. range/ 0-5ppm (v)	0-5/0-100 ppm	0-50/ 0-500 ppm	0-50/ 0-500 ppm	0-50/ 0-500 ppm	0.25/0.5/ 1/2.5/ 5/10/ 25/50 /100 %	0.25/0.5/ 1/2.5/ 5/10/ 25/50 /100 %	1/2.5/ 10 %
Accuracy (intrinsic error)	<0.02% O_2	<0.15% O_2	<0.1ppm	1% of rdg or <0.1ppm *	1% of rdg or <0.5ppm *	1% of rdg or <0.5ppm *	1% of rdg or <0.5ppm *	<1% FS	<1% FS	<1% FS
Repeatability	<0.01% O_2	<0.1% O_2	<0.1 ppm	1% of rdg or <0.1ppm *	1% of rdg or <0.5ppm *	1% of rdg or <0.5ppm *	1% of rdg or <0.5ppm *	<1% FS	<1% FS	<1% FS
Zero drift/week	<0.01% O_2	<0.05% O_2	<1% of reading or 250ppb*	0.2ppm	1ppm	1ppm	1ppm	<2% FS	<2% FS	<2% FS
T_{90} in secs	<12 @200ml/ min	<15 @200ml/ min	<15 @400ml/ min	<20 @2000ml/ min	<20 @2000ml/ min	<20 @2000ml/ min	<20 @2000ml/ min	<20 @200ml/ min	<20 @200ml/ min	<20 @200ml/ min

**Whichever is the greater.*

PRODUCT DATA:
4100

SAMPLE FOR MEASUREMENTS

Sample for measurement	Sample must be oil free, non-corrosive, non-condensing and non-flammable
Pressure driven	5psig (35kPa) ±3psig (21kPa)
Flow driven	100-2500ml/min depending on measurement

DEVICE SPECIFICATION

Size:

- 483mm (19") Wide x 133mm (4.6") High x 478mm (18.8") or 608mm (23.9") Deep

Weight:

- <22kg (48.4lb)

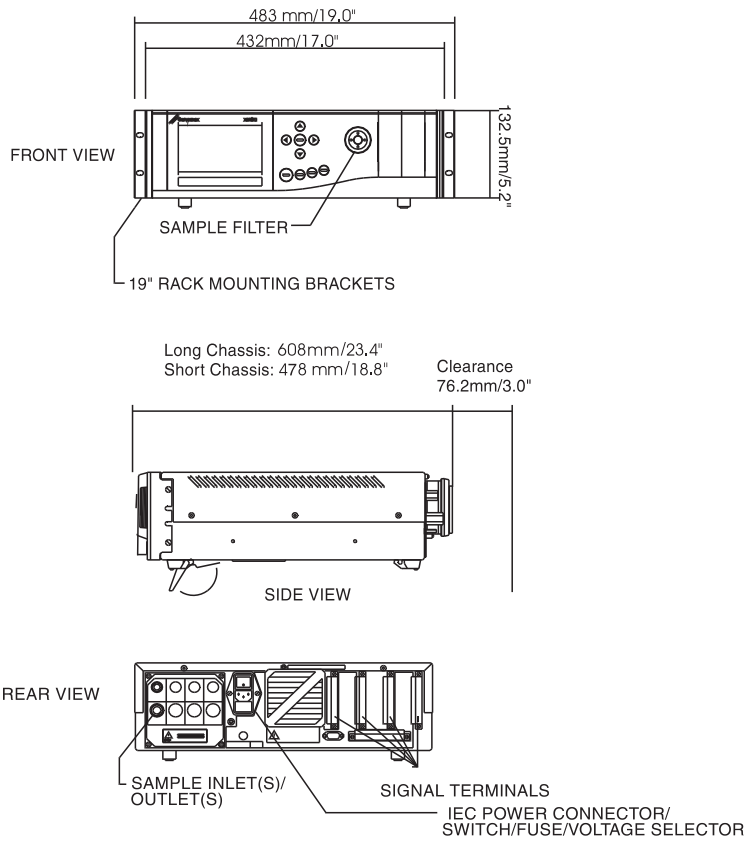
Operating temperature:

- 5°C - 40°C/41°F - 104°F

Certifications:

- EN 61010-3: Safety requirements for electrical equipment for measurement, control and laboratory use
- EN 61326-1: Electrical equipment for measurement, control and laboratory use
- EMC requirements (all induced errors are less than the intrinsic error, with the exception of:
  O_2 purity: <0.05% O_2
  O_2 trace: <2% of reading)
- Installation Category II rated in accordance with IEC664

DEVICE SCHEMATIC



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: *This document was updated in August 2014. While every effort has been made to ensure accuracy, no responsibility can be accepted for errors or 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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