The xentra 4100 is specifically designed to meet the control and product quality monitoring needs of industrial gas producers and users.

- Purpose designed for industrial gas producers and users
- Easy to set up and operate
- Low maintenance
- Extremely stable and reliable sensors
- Can measure up to four gas streams simultaneously
- External analogue input facility
- RS232 serial data output

Specification

See insert for details of all available measurements

Gases Measured:	O_2 (purity)	O_2 (control)	O_2 (trace)	CO_2 (trace)	N_2O (trace)	CH_4 (trace)
PERFORMANCE						
Technology:	Paramagnetic	Paramagnetic	Zirconia	Infrared	Infrared	Infrared
Range:	0-100% O_2	0-100% O_2	0-210,000ppm(v) O_2	0-10ppm(v)CO_2[7]	0-50ppm(v)N_2O[7]	0-50ppm(v)CH_4[7]
Intrinsic error (accuracy):	<0.02% O_2	<0.15% O_2	<0.1ppm(v) O_2[2]	0.1ppm(v)CO_2[1]	0.5ppm(v)N_2O[1]	0.5ppm(v)CH_4[1]
Linearity:	<0.05% O_2 [3]	<0.05% O_2[3]	<0.1ppm(v)O_2[4]	0.1ppm(v)CO_2[1]	0.5ppm(v)N_2O[1]	0.5ppm(v)CH_4[1]
Repeatability:	<0.01% O_2	<0.1% O_2	<0.1ppm(v)O_2[4]	0.1ppm(v)CO_2[1]	0.5ppm(v)N_2O[1]	0.5ppm(v)CH_4[1]
Response time (T_{90})[6]:	<12 sec	<15 sec	<15 sec [5]	≤20 sec	≤20 sec	≤20 sec
at sample flow rate:	200ml/min	200ml/min	400ml/min	2000ml/min	2000ml/min	2000ml/min
Zero drift/week:	0.01% O_2	0.05% O_2	<1% of reading	0.2ppm(v) CO_2	1ppm(v) N_2O	1ppm(v) CH_4
Span drift/week:	0.02% O_2	0.1% O_2	or 250ppb(v) [8]	2% of reading	2% of reading	2% of reading
				or 0.2ppm(v)CO_2[8]	or 1ppm(v)N_2O[8]	or 1ppm(v)CH_4[8]
	Basic O_2, trace CO and percent level measurements of CO_2 for gas blending applications are also available					
SIGNAL INPUTS/ OUTPUTS						
Analogue outputs:	Two isolated 4-20mA/0-20mA as standard. Additional outputs may be added					
Analogue output range:	Freely selectable over the measurement range					
Analogue inputs:	Two floating 4-20mA/0-20mA as standard with data valid contacts					
Serial output:	Single ASCII data logging and analyser status output (RS232). User configurable, 2400 to 19200 baud					
Alarms:	Three volt free single pole relays (230Vac/30Vdc at 1.0A) as standard. Additional relays may be added					
PHYSICAL						
Dimensions (W x D x H):	483mm (19") x Short Chassis depth 478mm (18.8") or Long Chassis depth 608mm (23.9") x 133mm (3U) nominal					
Weight:	Typical 22Kg (48.4lb)					

[1] or 1% of reading, whichever is greater
[2] derived figure, dependent on calibration gases
[3] inherently linear, value dependent on calibration gases
[4] in range 0-100ppm(v)
[5] for a change of 2-10ppm(v) O_2
[6] for flow driven sample systems or pressure driven sample systems at 8 psig input.
[7] Higher ranges available, consult Servomex.
[8] whichever is greater

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LEADERS IN GAS ANALYSIS

Operating Environment

Temperature:
- Operating: 5°C to 40°C/41°F to 104°F
- Storage: -20°C to 60°C/-4°F to 140°F

Atmospheric Pressure:
- 11 to 18psia/79 to 124 kPaa
- (for operation up to 2000m altitude)

Warm Up Time
- typically 1 hour from ambient (20°C/68°F)

Relative Humidity:
- 10-90% RH, non-condensing

Power Supply

85 to 132Vac, 47 to 62Hz (350VA) maximum
170 to 264Vac, 47 to 62Hz (350VA) maximum

Sample Gas

Temperature:	5ºC to 40°C/41°F to 104°F
Dew Point:	5ºC/9ºF below minimum ambient
Condition:	Oil free, non-corrosive, non-condensing, non-flammable
Particulates:	Filtered to 2µm
Vent:	Vent to atmosphere

Flow driven option controlled by customer at flow rates:
- Paramagnetic Purity and Control and percent Infrared Sensors
  - Sample Flow Rate: 100 - 250 ml/min
- Paramagnetic Basic Sensor
  - Sample Flow Rate: 10 - 100 ml/min
- Gfx Infrared Sensors
  - Sample Flow Rate: 500 - 2500ml/min
- Zirconia Sensors
  - Sample Flow Rate: 200 - 550ml/min

Pressure driven option
- Sample Pressure: nominal 5psig (±3 psig), 35kPag (±21kPag)

Sample inlet connections

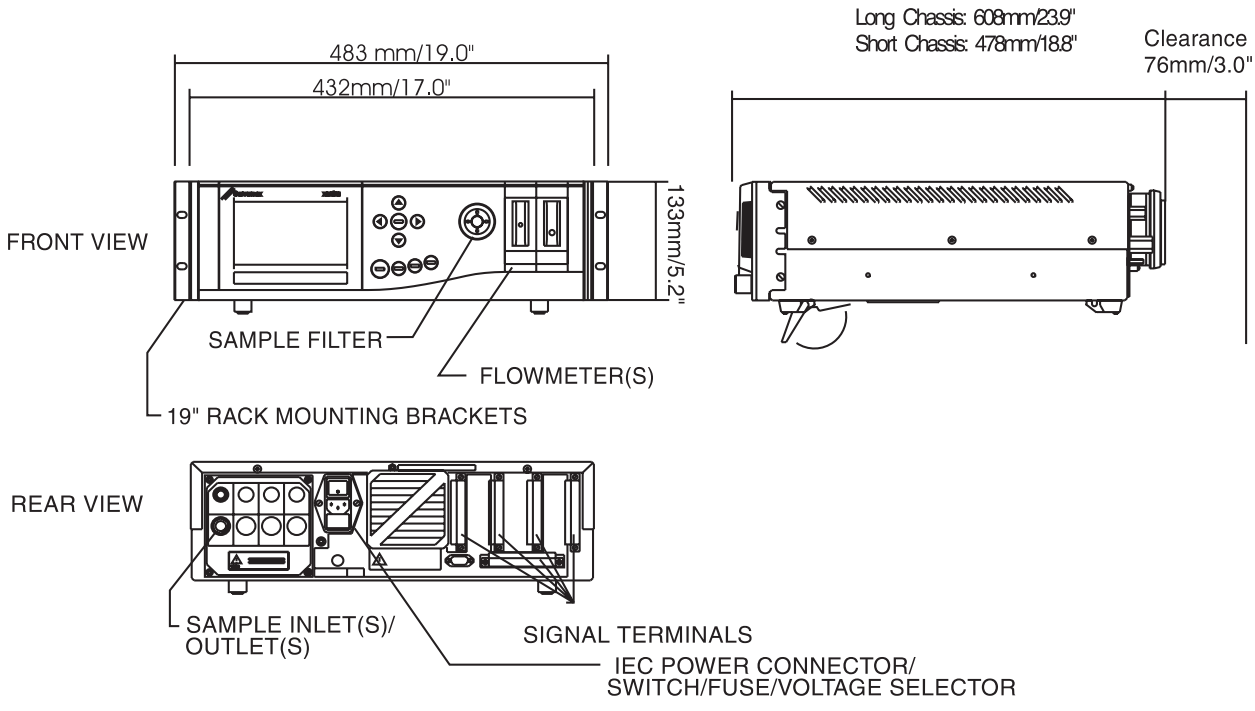
Zirconia and Gfx Infrared Sensors:	1/8” OD male
Paramagnetic and percent Infrared Sensors:	1/8” NPT female
Calibration gas ports for autocal options:	1/8” NPT female

Sample outlet connections: 1/4” NPT female for all sensor types.
Note: Pressure driven option uses internal restrictors to provide proper flow to the sensor. Additional flow is bypassed around the sensor.

Sample Wetted Materials*

Sample Wetted Materials	Analyser fitted with O_2 Purity/Control Sensors	O_2 Trace Sensor	CO_2, N_2O, CH_4 Trace Sensors
Stainless Steel 303	✔	✔	✔
Stainless Steel 316	✔	✔	✔
Viton	✔	✔	✔
Polypropylene	✔	✔	✔
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	✔	✔	✔
Autocal Option			
Aluminium	✔	N/A	N/A
PVDF	✔	N/A	N/A
Internal Filter Option			
Polycarbonate	✔	N/A	N/A
Glass Fibre	✔	N/A	N/A
External Filter Option			
Stainless Steel 316	✔	✔	✔

* For measurements not shown above consult Servomex.



You

Please fill in your details and a brief description of the application for which an analyser is required.

Provide as much information as possible. If there are additional details which you feel may be of use, please include them with your enquiry.

Measurements

The xentra 4100 can be fitted with up to four gas sensor modules. For details of the measurement technologies used by Servomex, please refer to The Principles of Gas Analysis. Your choice of sensor will affect sample wetted materials and chassis size.

Paramagnetic (Pm) Oxygen Purity Sensor

Includes pressure compensation and temperature control, choose this sensor for oxygen purity applications.

Zirconia (Zr) Trace Oxygen Sensor

Choose this sensor for oxygen trace measurement. Note: for gas blending and bottle filling applications, consult Servomex.

Paramagnetic (Pm) Control Sensor

Choose this sensor for general percent level oxygen monitoring (not for purity).

Infrared Gas Filter Correlation (Gfx) Carbon Dioxide Sensor

Choose this sensor to measure trace level carbon dioxide in clean gases. Standard range: 0-10/100ppm(v). Occupies two sensor locations.

Infrared Gas Filter Correlation (Gfx) Carbon Monoxide Sensor

Choose this sensor to measure trace level CO in carbon dioxide and similar applications. Standard range: 0-50/500ppm(v). Occupies two sensor locations.

Infrared Gas Filter Correlation (Gfx) Nitrous Oxide Sensor

Choose this sensor to measure trace level nitrous oxide in air or similar applications. Standard range: 0-50/500ppm(v). Occupies two sensor locations.

Infrared Gas Filter Correlation (Gfx) Methane Sensor

Choose this sensor to measure trace level methane in oxygen or similar applications. Standard range: 0-50/500ppm(v). Occupies two sensor locations.

Other measurements

Higher ppm(v) and percent level carbon dioxide and low percent level carbon monoxide measurements are also available. See the 4x00 Transducer specification sheet for details.

Note (for all transducers):

The user must also choose either pressure or flow driven sample options. See Sample Gas specification.

The analyser is fitted as standard with the following features:

Relay Outputs

Three volt free single pole relays rated at 230Vac /30Vdc at 1.0 A.

Serial Output

Single ASCII data logging output (RS232). User configurable, 2400 to 19200 baud.

Analogue Output

Two isolated 4-20mA/0-20mA outputs with full zero and span adjustment. Two ranges can be assigned to each output, the second range activated by external contact closure. Maximum impedance for each mA output is 1kΩ.

Analogue Inputs

Two floating 4-20mA/0-20mA linear inputs from user set zero and span. Digital input per channel indicating data validity.

Flowmeters

An optional 500ml/min sample flowmeter can be used with any sensor type except Gfx Infrared.

An 2500ml/min sample flowmeter is available for use with a Gfx Infrared sensor if required.

A 5000ml/min flowmeter can be used in the bypass stream for any pressure driven sensor.

Sample Filters

An internal sample filter is available for use with one paramagnetic sensor only, to offer protection from fine particulates. It is not suitable for trace level measurements.

Optional external sample filters (miniature 316SS type with replacable elements) are available. They are strongly recommended to protect zirconia sensors if the sample

gas particulates specification cannot otherwise be met. User fitted to the sample inlet connectors, they provide a 1/8" OD female connection for the sample.

Autocalibration

External autocalibration is standard. It requires the use of relay outputs or the serial output and user supplied external valves. The extra relays option provides 2 additional relay contacts rated

230Vac/30Vdc at 1.0A to drive external solenoid valves (not supplied).
Internal autocalibration valves are available for a single paramagnetic transducer (fitted to stream 1). A manifold allows a

low calibration gas (e.g. high quality nitrogen) and a high calibration gas (e.g. pure oxygen) to be plumbed directly to the xentra 4100. Not for use with toxic samples.

Extra Outputs

Two isolated 4-20mA/0-20mA outputs and three alarm relays are fitted as standard.

A maximum of nine additional relays and six additional mA outputs can be fitted to an analyser.

Mounting

The xentra 4100 is available in three mounting configurations:

Benchtop:

For mounting free standing on a bench or other suitable surface.

19" rack ears only:

For mounting in a rack or panel with easy access to the rear (no slides are supplied). Additional rear support will be required.

19" rack ears & slides:

For mounting in a rack with access only from the front. Available in 600mm or 900mm versions, the 900mm version is required if a long chassis is used.

Power Lead/Cord & Voltage

The xentra 4100 can accept different power supply voltages and is supplied with a choice of power lead. Choose from the following:

UK Lead, 170-264Vac
USA Lead, 85-132Vac

EUR Lead, 170-264Vac
EUR Lead, 85-132Vac

Installation and QuickStart™ Manuals

The xentra 4100 is supplied with installation and QuickStart™ manuals.

Service Manual

A service manual is available containing technical descriptions, fault diagnosis

information, parts removal, refitting and test instructions, tool and test equipment lists

and electrical drawings. It is intended for use by Servomex trained service personnel.

Enquiry & Ordering Information

Name: | Telephone: | Fax:
Company: | email:
Address: | Project/ Application:

Measurement(s)

Module 1 - choose one measurement.

Will this measurement be — Pressure Driven ❑ or Flow Driven ❑?

O_2	purity ❑		trace ❑		basic ❑		control ❑	
CO_2 %	100 ❑	50 ❑	25 ❑	10 ❑	5 ❑	2.5 ❑	1 ❑	
CO							10% ❑	
CO_2 vpm		5000 ❑		2500 ❑			10/100 ❑	
CO				2.5% ❑			50/500vpm ❑	
N_2O							50/500vpm ❑	
CH_4							50/500vpm ❑	

Module 2 - choose one measurement if required and available.

Will this measurement be — Pressure Driven ❑ or Flow Driven ❑?

O_2	purity ❑		trace ❑		basic ❑		control ❑	
CO_2 %	100 ❑	50 ❑	25 ❑	10 ❑	5 ❑	2.5 ❑	1 ❑	
CO							10% ❑	

} These transducers take up two bays in the analyser. If you choose them module 2 will be unavailable

None ❑

If only modules 1 and/or 2 above are used, please choose a long or short chassis.
If you choose a measurement from modules 3 or 4 below, a long chassis will be supplied. long ❑ short ❑

Module 3 - choose one measurement if required.

Will this measurement be — Pressure Driven ❑ or Flow Driven ❑?

O_2	purity ❑		trace ❑		basic ❑		control ❑	
CO_2 %	100 ❑	50 ❑	25 ❑	10 ❑	5 ❑	2.5 ❑	1 ❑	
CO							10% ❑	
CO_2 vpm		5000 ❑		2500 ❑			10/100 ❑	
CO				2.5% ❑			50/500vpm ❑	
N_2O							50/500vpm ❑	
CH_4							50/500vpm ❑	
							None ❑	

Module 4 - choose one measurement if required and available.

Will this measurement be — Pressure Driven ❑ or Flow Driven ❑?

O_2	purity ❑		trace ❑		basic ❑		control ❑	
CO_2 %	100 ❑	50 ❑	25 ❑	10 ❑	5 ❑	2.5 ❑	1 ❑	
CO							10% ❑	

} These transducers take up two bays in the analyser. If you choose them module 4 will be unavailable

None ❑

Flowmeters 9

Left - choose one flowmeter.

Fitted to module number	1	2	3	4
500ml/min sample flowmeter	❑(A)	❑(D)	❑(F)	❑(J)
2500ml/min sample flowmeter	❑(B)	N/A	❑(G)	N/A
5000ml/min bypass	❑(C)	❑(E)	❑(H)	❑(K)
None				❑(X)

Flowmeters 10

Right - choose one flowmeter.

Fitted to module number	1	2	3	4
500ml/min sample flowmeter	❑(A)	❑(D)	❑(F)	❑(J)
2500ml/min sample flowmeter	❑(B)	N/A	❑(G)	N/A
5000ml/min bypass	❑(C)	❑(E)	❑(H)	❑(K)
None				❑(X)

Internal Sample Filter 11

paramagnetic or % infrared in module:	1	2	3	4
Internal Sample Filter Fitted	❑(1)	❑(2)	❑(3)	❑(4)
None				❑(X)

External Sample Filters 12

	Quantity			
External Sample Filter supplied	❑(1)	❑(2)	❑(3)	❑(4)
None				❑(X)

Autocalibration 13

Internal valves fitted (paramagnetic in module only):	❑(1)
2 extra relay contacts fitted (to drive external valves):	❑(2)
No extra hardware required:	❑(X)

Extra Outputs 14

3 extra relays and 2 extra mA outputs	❑(1)
6 extra relays and 4 extra mA outputs	❑(2)
9 extra relays and 6 extra mA outputs	❑(3)
None	❑(0)

Mounting 15

Bench	❑(1)
19" rack ears only	❑(2)
19" rack ears and slides for 600mm rack	❑(3)
19" rack ears and slides for 900mm rack	❑(4)

Power Lead/Cord and Voltage 16

UK, 170 - 264 Vac:	❑(1)
USA, 85 - 132 Vac:	❑(2)
EUR, 170 - 264 Vac:	❑(3)
EUR, 85 - 132 Vac:	❑(4)

Installation and Quickstart Manuals 17

English:	❑(1)
French:	❑(2)
German	❑(3)

Service Manual 18

English:	❑(0)
None	❑(1)

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EC Directive Compliance

The xentra 4100 complies with the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC (as amended by Directive 92/31/EEC), both as amended by Directive 93/68/EEC.

It conforms to the following harmonised European standards for product safety and electromagnetic compatibility:

EN 61010-1: 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).

This product is rated for "Installation Category II" in accordance with IEC 664.

This product is rated for "Pollution Degree 2" in accordance with IEC 664.

Performance Specification Continued

Gases Measured:	O_2 (purity)	O_2 (control)	O_2 (trace)	CO_2 (trace)	N_2O (trace)	CH_4 (trace)
Technology:	Paramagnetic (Pm) transducer	Paramagnetic (Pm) transducer	Zirconia (Zr) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer
Minimum recommended output range:	0-0.5% O_2	0-5% O_2	0-5ppm(v) O_2	0-10ppm(v) CO_2	0-10ppm(v) N_2O	0-10ppm(v) CH_4
Output fluctuation (peak to peak noise)	<0.01%O_2[3]	<0.05%O_2	<0.5% of reading or 10ppb(v) O_2 [1 2]	1% of reading or 0.1ppm(v)[1]	1% of reading or 0.5ppm(v)[1]	1% of reading or 0.5ppm(v)[1]
Cross sensitivity[4]: (zero set on nitrogen)	No effects	No effects	The following have an effect of <1ppm(v) O_2: 5ppm(v) H_2, 5ppm(v) CH_4 or 5ppm(v) CO	No effects	The following have an effect of <0.5ppm(v) N_2O: 2% H_2O, 500ppm(v) CO_2, 10ppm(v) CO	The following have an effect of <0.5ppm(v) CH_4: 0.25% H_2O, 1% CO_2, 0.2% CO
Ambient pressure coefficient: (per 1% change in vent pressure)	<0.003% of reading	1% of reading	No effect.	0.4% of reading	0.5% of reading	1% of reading
Ambient temperature coefficient: (per 10°C/18°F)	0.2% of reading or 0.02% O_2[1]	1% of reading or 0.1% O_2[1]	1% of reading or 10ppb(v) O_2[1]	3% of reading or 0.25ppm(v) CO_2[1]	3% of reading or 1ppm(v) N_2O	3% of reading or 1.5ppm(v) CH_4[1]
Sample pressure effect (for 2-8psig)	<0.1% O_2	<2% of reading or 0.1% O_2[1]	<0.15% of reading or 0.1ppm(v) O_2[1]	<0.25ppm(v) CO_2	<1ppm(v) N_2O	<1.5% of reading or 0.5ppm(v) CH_4[1]
Sample flow effect	<0.1% O_2	<2% of reading or 0.1% O_2[1]	<0.15ppm(v) or <2% of reading[1]	<1% of reading or <0.25ppm(v) CO_2[1]	<1% of reading or <0.5ppm(v) N_2O[1]	<1.5% of reading or <0.5ppm(v) CH_4[1]
For flow rate:	100-250ml/min	100-250ml/min	200-500ml/min	1.5 to 2.5l/min	1.5 to 2.5l/min	1.5 to 2.5l/min

[1] whichever is the greater [2] in range 0 - 100ppm(v) [3] in range 99 - 100%

[4] Data quoted for air separation applications, for other applications, refer to Servomex

The performance specification has been written, and verified, in accordance with the international standard IEC 1207-1:1994 "Expression of performance of gas analysers".

Servomex companies, agents and representatives are located throughout the world. Your nearest contact is:

Visit www.servomex.com for technical data sheets, application and technology information for all Servomex analysers.

Servomex has a policy of constant product improvement and therefore reserves the right to change specifications without notice.

Certificate No._____Q5166
BS EN ISO 9001

Servomex
LEADERS IN GAS ANALYSIS

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TDS 4100 09/99E

Transducers available for the xentra 4900 Continuous Emissions Analyser.

Performance Specification

Gas Measured:	O_2 (control)	O_2 (basic)	CO (trace) std sensitivity	CO (trace) high sensitivity	NO (trace)	SO_2 (trace)	N_2O (trace)	CH_4 (trace)	CO_2 (percent)	CO (percent)
PERFORMANCE										
Technology:	Paramagnetic (Pm) transducer	Paramagnetic (Pm) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared transducer	Infrared transducer
Range:	0-25% O_2	0-25% O_2	0-200/3000ppm(v) CO[4]	0-50/500ppm(v) CO[4]	0-100/1000ppm(v) NO[4]	0-200/2500ppm(v) SO_2[4]	0-50/500ppm(v) N_2O[4]	0-50/500ppm(v) CH_4[4]	0 - 0.25, 0.5, 1.0, 2.5, 5, 10, 25, 50 or 100% CO_2	0 - 2.5 or 10% CO
Intrinsic error (accuracy):	<0.05% O_2	<0.15%O_2	<1% of reading or 2ppm(v) CO[1]	<1% of reading or 0.5ppm(v) CO[1]	<1% of reading or 2ppm(v) NO[1]	<1% of reading or 5ppm(v) SO_2[1]	<1% of reading or 0.5ppm(v) N_2O[1]	<1% of reading or 0.5ppm(v) CH_4[1]	1% of selected range	1% of selected range
Linearity:	<0.05% O_2[3]	<0.1% O_2[3]	<1% of reading or 2ppm(v) CO[1]	<1% of reading or 0.5ppm(v) CO[1]	<1% of reading or 2ppm(v) NO[1]	<1% of reading or 5ppm(v) SO_2[1]	<1% of reading or 0.5ppm(v) N_2O[1]	<1% of reading or 0.5ppm(v) CH_4[1]	1% of selected range	1% of selected range
Repeatability:	<0.05% of reading or 0.01% O_2[1]	<0.1% O_2	<1% of reading or 2ppm(v) CO[1]	<1% of reading or 0.5ppm(v) CO[1]	<1% of reading or 2ppm(v) NO[1]	<1% of reading or 5ppm(v) SO_2[1]	<1% of reading or 0.5ppm(v) N_2O[1]	<1% of reading or 0.5ppm(v) CH_4[1]	1% of selected range	1% of selected range
Response time (T_{90}) at maximum sample flow rate.	<15 seconds	<15 seconds	<30 seconds	<30 seconds	<30 seconds	<30 seconds	<30 seconds	<30 seconds	<30 seconds	<30 seconds
Zero drift/week: **Span drift:**	0.05% O_2 0.05% O_2 /week	0.1% O_2 0.1% O_2 /week	4ppm(v) CO 2% of reading or 4ppm(v) CO[1] /week	1ppm(v) CO 2% of reading or 1ppm(v) CO[1] /week	2ppm(v) 2% of reading or 1ppm(v) NO[1] /week	10ppm(v) SO_2 2% of reading or 10ppm(v) SO_2[1] /week	1ppm(v) N_2O 2% of reading or 1ppm(v) N_2O[1] /week	1ppm(v) CH_4 2% of reading or 1ppm(v) CH_4[1] /week	2% of selected range 1% of reading/day	2% of selected range 1% of reading/day
Recommended minimum output range:	0-5% O_2	0-5% O_2	0-200ppm(v) CO	0-10ppm(v) CO	0 - 100ppm(v) NO	0 - 200ppm(v) SO_2	0-10ppm(v) N_2O	0-10ppm(v) CH_4	80% of selected range	80% of selected range
Output fluctuation (peak to peak noise)	<0.01%O_2	<0.1%O_2	1% of reading or 2ppm(v)[1] CO	1% of reading or 0.5ppm(v)[1]	1% of reading or 2ppm(v) NO[1]	1% of reading or 5ppm(v) SO_2[1]	1% of reading or 0.5ppm(v) N_2O[1]	1% of reading or 0.5ppm(v) CH_4[1]	1% of reading or 0.5% of selected range[1]	1% of reading or 0.5% of selected range[1]
Cross sensitivity[2, 5]: (zero set on nitrogen)	20% CO_2 will have an effect of 0.06% O_2	20% CO_2 will have an effect of 0.06% O_2	20% CO_2 will have an effect of <2ppm(v) CO 2% H_2O will have an effect of 0.5ppm(v) CO	20% CO_2 will have an effect of <1ppm(v) CO 2% H_2O will have an effect of 0.5ppm(v) CO	20% CO_2 will have an effect of 2ppm(v) NO 0.5% H_2O will have an effect of -2ppm(v) NO	20% CO_2 will have an effect of 5ppm(v) SO_2 0.5% H_2O will have an effect of -15ppm(v) SO_2	20% CO_2 will have an effect of 3ppm(v) N_2O 2% H_2O will have an effect of 0.5ppm(v) N_2O	10% CO_2 will have an effect of 1.2ppm(v) CH_4 2% H_2O will have an effect of 2.6ppm(v) CH_4	No effects	No effects
Ambient pressure coefficient: (per 1% change in vent pressure)	1% of reading	1% of reading	0.25% of reading	0.25% of reading	0.3% of reading	0.75% of reading	0.5% of reading	1% of reading	<2% of reading	<2% of reading
Ambient temperature coefficient: (per 10°C/18°F)	1% of reading or 0.1% O_2[1]	2% of reading or 0.5% O_2[1]	3% of reading or 4 ppm(v) CO[1]	3% of reading or 1ppm(v) CO[1]	3% of reading or 3ppm(v) NO[1]	3% of reading or 15ppm(v) SO_2[1]	3% of reading or 1ppm(v) N_2O[1]	3% of reading or 1.5ppm(v) CH_4[1]	2% of reading or 1% of selected range[1]	2% of reading or 1% of selected range[1]
Sample flow effect: for analyser flow rate 500 - 1500ml/min	<2% of reading or 0.1% O_2[1]	<2% of reading or 0.2% O_2[1]	<1% of reading or 2 ppm(v) CO[1]	<1% of reading or 0.5ppm(v) CO[1]	<1% of reading or 2ppm(v) NO[1]	<1% of reading or <5ppm(v) SO_2[1]	<1% of reading or <0.5ppm(v) N_2O[1]	<1.5% of reading or <0.5ppm(v) CH_4[1]	<3% of reading or 1.5% of selected range[1]	<3% of reading or 1.5% of selected range[1]

[1] whichever is greater

[2] Normal sign shown. Effects can be positive or negative (same magnitude)

[3] inherently linear, value dependent on calibration gases

[4] Higher ranges available, consult Servomex.

[5] Data quoted for flue gas applications. For other applications refer to Servomex.

The performance specification has been written, and verified, in accordance with the international standard IEC 1207-1:1994 "Expression of performance of gas analysers".

Servomex
LEADERS IN GAS ANALYSIS

Transducers available for the xentra 4100 and 4200 Series Industrial Gases Analysers.

Performance Specification

Gas Measured:	O_2 (purity)[8]	O_2 (control)	O_2 (basic)[8]	O_2 (trace)[8]	CO (trace)	CO_2 (trace)	N_2O (trace)	CH_4 (trace)	CH_4 (percent)[9]	CO_2 (percent)	CO (percent)
PERFORMANCE											
Technology:	Paramagnetic (Pm) transducer	Paramagnetic (Pm) transducer	Paramagnetic (Pm) transducer	Zirconia (Zr) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared (Gfx) transducer	Infrared transducer	Infrared transducer	Infrared transducer
Range:	0-100% O_2	0-100% O_2	0-25% O_2	0-210,000ppm(v) O_2	0-50ppm(v) CO[7]	0-10ppm(v) CO_2[7]	0-50ppm(v) N_2O[7]	0-50ppm(v) CH_4[7]	0 - 5, 25, 50 or 100% CH_4	0 - 0.25, 0.5, 1.0, 2.5, 5, 10, 25, 50 or 100%CO_2	0 - 2.5, 10, 25[9] or 50[9]% CO
Intrinsic error (accuracy):	<0.02% O_2	<0.15% O_2	<0.15% O_2	<0.1ppm(v) O_2[2]	<1% of reading or 0.5ppm(v) CO[1]	<1% of reading or 0.1ppm(v) CO_2[1]	<1% of reading or 0.5ppm(v) N_2O[1]	<1% of reading or 0.5ppm(v) CH_4[1]	1% of selected range	1% of selected range	1% of selected range
Linearity:	<0.05% O_2 [3]	<0.05% O_2[3]	<0.1% O_2[3]	<0.1ppm(v)O_2[4]	<1% of reading or 0.5ppm(v) CO[1]	<1% of reading or 0.1ppm(v) CO_2[1]	<1% of reading or 0.5ppm(v) N_2O[1]	<1% of reading or 0.5ppm(v) CH_4[1]	1% of selected range	1% of selected range	1% of selected range
Repeatability:	<0.01% O_2	<0.1% O_2	<0.1% O_2	<0.1ppm(v)O_2[4]	<1% of reading or 0.5ppm(v) CO[1]	<1% of reading or 0.1ppm(v) CO_2[1]	<1% of reading or 0.5ppm(v) N_2O[1]	<1% of reading or 0.5ppm(v) CH_4[1]	1% of selected range	1% of selected range	1% of selected range
Response time (T_{90})[6]: at sample flow rate:	<12 seconds 200ml/min	<15 seconds 200ml/min	<15 seconds 100ml/min	<15 seconds [5] 400ml/min	<20 seconds 2000ml/min	<20 seconds 2000ml/min	<20 seconds 2000ml/min	<20 seconds 2000ml/min	<20 seconds 200ml/min	<20 seconds 200ml/min	<20 seconds 200ml/min
Zero drift/week: Span drift:	0.01% O_2 0.02% O_2 /week	0.05% O_2 0.1% O_2 /week	0.1% O_2 0.1% O_2 /week	<1% of reading or 250ppb(v) [1] /week	1ppm(v) CO 2% of reading or 1ppm(v) CO[1] /week	0.2ppm(v) CO_2 2% of reading or 0.2ppm(v) CO_2[1] /week	1ppm(v) N_2O 2% of reading or 1ppm(v) N_2O[1] /week	1ppm(v) CH_4 2% of reading or 1ppm(v) CH_4[1] /week	2% of selected range 1% of reading/day	2% of selected range 1% of reading/day	2% of selected range 1% of reading/day
Recommended minimum output range:	0-0.5% O_2	0-5% O_2	0-5% O_2	0-5ppm(v) O_2	0-10ppm(v) CO	0-10ppm(v) CO_2	0-10ppm(v) N_2O	0-10ppm(v) CH_4	80% of selected range	80% of selected range	80% of selected range
Output fluctuation (peak to peak noise)	<0.01%O_2 in range 99 - 100%	<0.05%O_2	<0.1%O_2	<0.5% of reading or 10ppb(v) O_2 [1] in range 0 - 100ppm(v)	1% of reading or 0.5ppm(v) CO[1]	1% of reading or 0.1ppm(v) CO_2[1]	1% of reading or 0.5ppm(v) N_2O[1]	1% of reading or 0.5ppm(v) CH_4[1]	1% of reading or 0.5% of selected range[1]	1% of reading or 0.5% of selected range[1]	1% of reading or 0.5% of selected range[1]
Cross sensitivity[10]: (zero set on nitrogen)	No effects	No effects	No effects	The following have an effect of <1ppm(v) O_2: 5ppm(v) H_2, 5ppm(v) CH_4 or 5ppm(v) CO	2% H_2O will have an effect of 0.5ppm(v) CO 100% CO_2 will have an effect of <2ppm(v) CO	No effects	The following have an effect of <0.5ppm(v) N_2O: 2% H_2O, 500ppm(v) CO_2, 10ppm(v) CO	The following have an effect of <0.5ppm(v) CH_4: 0.25% H_2O, 1% CO_2, 0.2% CO	No effects	No effects	No effects
Ambient pressure coefficient: (per 1% change in vent pressure)	<0.003%of reading	1% of reading	1% of reading	No effect	0.25% of reading	0.4% of reading	0.5% of reading	1% of reading	<2% of reading	<2% of reading	<2% of reading
Ambient temperature coefficient: (per 10°C/18°F)	0.2% of reading or 0.02% O_2[1]	1% of reading or 0.1% O_2[1]	2% of reading or 0.5% O_2[1]	1% of reading or 10ppb(v) O_2[1]	3% of reading or 1ppm(v) CO[1]	3% of reading or 0.25ppm(v) CO_2[1]	3% of reading or 1ppm(v) N_2O[1]	3% of reading or 1.5ppm(v) CH_4[1]	2% of reading or 1% of selected range[1]	2% of reading or 1% of selected range[1]	2% reading or 1% of selected range[1]
Sample pressure effect (for 2-8psig)	<0.1% O_2	<2% of reading or 0.1% O_2[1]	<2% of reading or 0.2% O_2[1]	<0.15% of reading or 0.1ppm(v) O_2[1]	<0.5 ppm(v) CO	<0.25ppm(v) CO_2	<1ppm(v) N_2O	<1.5% of reading or 0.5ppm(v) CH_4[1]	<3% of reading or 1.5% of selected range[1]	<3% of reading or 1.5% of selected range[1]	<3% of reading or 1.5% of selected range[1]
Sample flow effect	<0.1% O_2	<2% of reading or 0.1% O_2[1]	<2% of reading or 0.2% O_2[1]	<0.15ppm(v) or <2% of reading[1]	<1% of reading or <0.25ppm(v) CO[1]	<1% of reading or <0.25ppm(v) CO_2[1]	<1% of reading or <0.5ppm(v) N_2O[1]	<1.5% of reading or <0.5ppm(v) CH_4[1]	<3% of reading or 1.5% of selected range[1]	<3% of reading or 1.5% of selected range[1]	<3% of reading or 1.5% of selected range[1]
For flow rate:	100-250ml/min	100-250ml/min	10-100ml/min	200 to 500ml/min	1.5 to 2.5l/min	1.5 to 2.5l/min	1.5 to 2.5l/min	1.5 to 2.5l/min	100-250ml/min	100-250ml/min	100-250ml/min

[1] whichever is greater

[2] derived figure, dependent on calibration gases

[3] inherently linear, value dependent on calibration gases

[4] in range 0-100ppm(v)

[5] for a change of 2-10ppm(v) O_2

[6] for flow driven sample systems or pressure driven sample systems at 8 psig input.

[7] Higher ranges available, consult Servomex.

[8] Not available on xentra 4200 series

[9] Not available on xentra 4100

[10] Data quoted for air separation applications. For other applications, refer to the relevant Technical Data Sheet or Servomex The performance specification has been written, and verified, in accordance with the international standard IEC 1207-1:1994 "Expression of performance of gas analysers".

Servomex
LEADERS IN GAS ANALYSIS