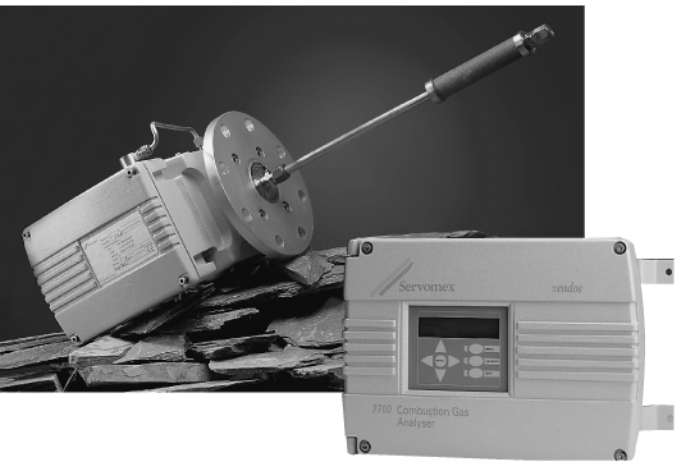
The Servomex 2700 analyser continuously measures the levels of Oxygen and/or Combustibles (COe) in flue gases to allow improved combustion efficiency and early warning of combustibles (COe) breakthrough

If you have a requirement for Continuous Emissions Monitoring Systems (CEMS) please contact Servomex and we will be pleased to provide you with information on our range of analysers and sample conditioning systems.



Typical applications:

- Power Generation Boilers
- Process Heaters
- Thermal Crackers
- Incinerators

Please contact Servomex for further information on applications in Metals and Cement production industries.

Specification

Gases Measured:	Oxygen (O_2	Combustibles (COe- Carbon Monoxide Equivalent)	
		Gas and Light Oil [1]	Gas, Oil and Coal [1]
PERFORMANCE			
Display Range:	0.01% to 25.00%	0ppm to 10,000ppm	0ppm to 10,000ppm
Output Range:	0-1% min. to 0-25% max O_2 in 1% steps	0-500ppm(v) min. to 0-2,000ppm(v)	0-500ppm(v) min. to 0-6,000ppm(v) with an over range to 0-15,000ppm(v)
Accuracy:	±1% of reading or ±0.1% O_2*	±25ppm(v) or ±5% of reading	±75ppm(v) or ±5% of reading
Response Time (T_{90})	10 seconds. sensor head only	20 seconds sensor head only	20 seconds sensor head only
*whichever is greater			
SIGNAL INPUTS/OUTPUTS			
Analogue Output:	One configurable isolated 0/4-20mA per measurement (1kW. max).		
Alarms & Relays:	Four SPCO relays (250VAC/3A or 28VDC/1A max), configurable for Concentration Alarms, Faults, In Calibration, In Blowback, and solenoid valves for blowback and autocalibration.		
Digital Inputs	Two non-isolated digital inputs provided to initiate autocalibration and perform blowback		
PHYSICAL			
Dimensions (typical)			
Control Unit:(W x D x H)	391 x 167 x 260mm (15.4" x 6.6" x 10.3")		
Sensor Head:	301 x 330 x 256mm (11.9" x 13.0" x 10.1")		
Weight:	Control Unit : <11kg (<24.3lbs) Sensor Head: <17kg (<37.5lbs) - Dual transducer		
Hazardous Area Classification:	Europe: ATEX Group II, Category 3 Gases & Dusts. US & Canada: Class I & II, Div 2 & Class III, Div 1 & 2 (Control Unit only) General Purpose (Sensor Head) Contact Servomex for 'Z' purge option (USA)		
Ingress Protection:	IP66 / NEMA 4X		
Mounting:	Control Unit: Wall, 19" rack and panel mounting Sensor Head: Choice of mounting flanges and adaptors. Full range of sample probes available.		

[1] Consult Servomex for high sulphur and other applications

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Ambient Conditions

Temperature

Operating

Sensor Head: -20°C to +70°C (-4°F to +158°F)

Control Unit: -10°C to + 55°C (+14°F to +131°F)

Storage:

Sensor Head: -30°C to +80°C (-22°F to +176°F)

Control Unit: -20°C to +55°C (-4°F to +131°F)

Altitude: Up to 2000m

Power Supply

100 - 120 Vac, 50/60 Hz

220 - 240 Vac, 50/60 Hz

Control Unit: 250VA

Sensor Head: 600VA

Note: Control Unit & Sensor Head are powered separately. Control unit power supply is fixed at time of order, but is field configurable. The sensor head supply is factory set.

Sensor Head Compressed Air Requirements

Aspirator Air:

Pressure: 3.5psig typical (3 to 5 psig - 0.2 to 0.3barg)

Flow: <1.5 litres/min typical

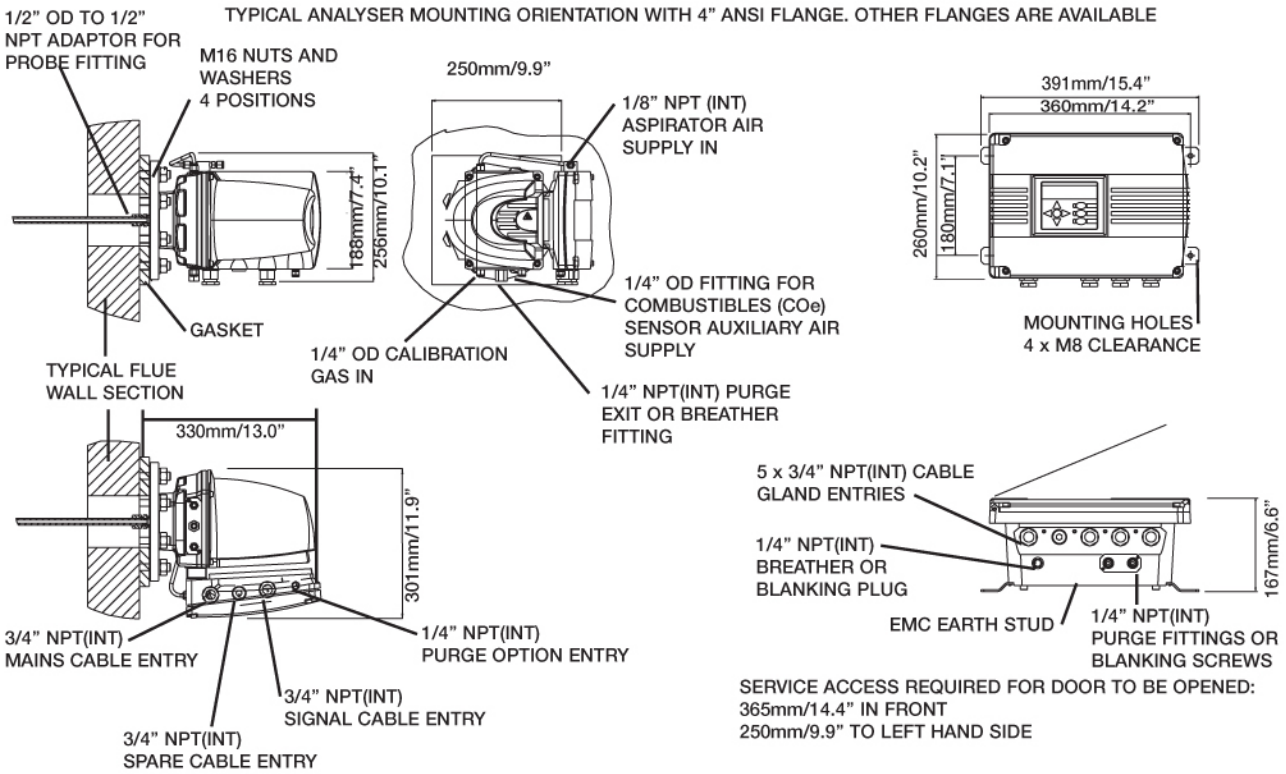
Auxiliary Air:

Flow: 100 ml/min ±1%

Variations in auxiliary air flow outside the tolerances stated above can affect the COe readings. All Servomex Utilities Units have been fully optimised to provide the stable auxiliary air flow required.

Sample Wetted Materials

Item	Materials
Sensor Head	stainless steel (303 and 316), gasket sealing material (Klinger grade SLS 150)
Oxygen Sensor	stainless steel (310 and 316), zirconia, platinum, alumina, Ni/Fe/Cr alloy, high temperature sealing glasses.
Combustibles Sensor	stainless steel (316), platinum, platinum/iridium, zirconia, alumina, corrosion resistant glass
Unfiltered sample probe (<700°C)	stainless steel (316)
Filtered sample probe (<700°C)	stainless steel (316), stainless steel (310), silicon carbide
Unfiltered sample probe (700°C - 1000°C)	Haynes alloy 556, stainless steel (316)
Filtered sample probe (700°C - 1000°C)	stainless steel (310), Haynes alloy 556, stainless steel (316), silicon carbide
High Temperature sample probe (<1750°C)	high temperature ceramic, stainless steel (316)



Hazardous Location Approvals

Control Unit:

Approved as EEx nC IIC T5 (-20°C < Ta < +55°C) for ATEX Group II, Category 3 Gas and Dust Hazardous Atmospheres T75°C (BASEEFA No. BAS02ATEX3205)

Approved as non-incendive for:
Class I, Div. 2, Groups A,B,C & D,
Class II, Div. 2, Groups F & G,
Class III, Div. 1 & 2
Enclosure Type 4X
T5. Ambient Temperature 55°C max.
(Factory Mutual - FMRC)

Suitable for use in:
Class I, Div. 2, Groups A,B,C & D,
Class II, Div. 2, Groups E, F & G,
Class III, Div. 1 & 2
T5. Ambient Temperature 55°C max.
Enclosure Type 4X
(Canadian Standards Association - CSA)

EC Directive Compliance

The 2700 analyser complies with ATEX Directive 94/9/EC, the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC (as amended by Directive 92/31/EEC), all as amended by Directive 93/68/ECC.

It conforms to the following harmonised European standards for electrical safety and electromagnetic compatability:

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

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.

Safety USA/Canada

Complies with FM approval class number 3810
CAN/CSA - C22.2 No. 1010.1-92

Cross Sensitivity Specification

Effect of other common combustible flue gases per 1000 ppm(v)	**COe reading ppm(v)**
SO_2	**< 60**
CH_4	**< 5**
Other combustibles, eg. H_2, C_2H_6, C_3H_8	**Response depends on species, consult Servomex**

System Response Times T_{90} (Typical)

Measurement:	**O_2 only**	**Combustibles (COe) only**
<700°C, 1m long, stainless steel sample probe with sample filter:	**<17s**	**<27s**
<1000°C, 1m long, H556 alloy sample probe with sample filter:	**<17s**	**<27s**
<1750°C, 1m long, Ceramic sample probe with sample filter:	**<20s**	**<30s**

Utilities Unit Specification

Temperature
- Operating: -10°C to +50°C (+14°F to +122°F)
- Storage: -20°C to +55°C (- 4°F to +131°F)

Compressed Air & Blowback Air requirements:
- Pressure: 1 to 5 barg (15 to 72.5psig)
- Flow: 4.5 to 10 litres/min
- Instrument grade compressed air*, free of oil, water & dirt

Calibration Gas requirements:
- Pressure: 1 barg (15 psig)
- Flow: 600ml/min typical

Utilities Unit/s

02730-701 (Oxygen only)
- 93mmW x 99mmD x 165mmH (3.7" x 3.9" x 6.5")
- <400gms (<1.0lbs)

02730-702 (COe only and Dual), 731 (Oxygen only and manual calibration) and 732 (COe only, Dual and manual calibration)
- 390mmW x 174mmD x 265mmH (15.5" x 6.8" x 10.4")
- <4.5Kgs (<10lbs)

Automatic Calibration and Utilities Units **

02730-711, 712, 713, 721, 722 & 723
- 400mmW x 220mmD x 500mmH (16" x 9" x 20")
- <16Kgs (<35lbs)

Ingress Protection: IP65/NEMA 12 (Auto cal. units only)

Power Supply: 100 - 120 Vac, 50/60Hz <20VA

(Field Configurable) 220 - 240 Vac, 50/60Hz <20VA

The Nickel plated brass bulkhead connections are suitable for ¼" NPT and BSP male fittings & tubing. Internal components are brass, plastic fittings and tubing.

* or Nitrogen, if analyser equipped for Nitrogen aspiration.

** The six autocalibration versions of the utility units comply with the "CE Marking Directive" 93/68/EEC.

Interconnecting Cable Requirements

	Cross Section	Max.
Oxygen only		
3 twisted pairs with overall screen *	1.0mm^2	100m
	1.5mm^2	150m
	2.5mm^2	300m
Combustibles only		
6 twisted pairs with individual and overall screens *		100m
Oxygen and Combustibles		
9 twisted pairs with individual and overall screens *		100m

* Maximum loop resistance of 4 Ohms is allowed for the heater connections and use cables with a minimum of 1.0mm^2 cross section.

NOTE Add 1 extra twisted pair to the above cable requirements if the optional sensor head temperature readout is required to be displayed by the control unit.

Calibration Gas Requirements

Calibration Gas Composition	Oxygen Sensor (Zr)	Combustibles Sensor (Tfx)
Air (20.95%(v) O_2 in Nitrogen)*	Span (High)	Zero

*Air must be free from combustible gases (eg CO, H_2, Hydrocarbons, etc)

0.3%(v) O_2 in Nitrogen **	Zero (Low)	N/A

** gas composition can be between 0.25% and 2.5% O_2 in Nitrogen

500ppm(v) Carbon Monoxide in Air ***	N/A	Span

*** gas composition can be between 500ppm(v) and 1000ppm(v) in Air

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._____Q05166
BS EN ISO 9001

Servomex

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