

SERVOMEX 5100 I.S.

PORTABLE GAS ANALYSER

A robust, intrinsically safe instrument for use in areas at risk from explosive atmospheres

SPECIALIST SOLUTIONS

- Intrinsically safe and Zone 1 hazardous area approved, no purge required
- Non-consumable, reliable and highly accurate sensors for % level O₂ and CO₂
- Rugged, robust IP54 construction
- Suitable for use with flammable and toxic samples
- Advanced Li-ion rechargeable batteries as standard
- Optional sampling accessories

Application Examples:

Catalytic Regeneration, Decoke Cycle,
Combustion Optimisation,
Process Monitoring



SPECIFICATION

GASES MEASURED	O ₂ (standard)	O ₂ (high accuracy)	Infrared : CO ₂
TECHNOLOGY:	Magnetodynamic Paramagnetic Sensor		Infrared Sensors
PERFORMANCE:			
Range(s):	0-100% O ₂ *	0-100% O ₂ *	0 - 10% 0 - 25%
Accuracy (intrinsic error):	±0.1% O ₂	±0.05% O ₂	±2% of FSR
Repeatability:	±0.1% O ₂	±0.01% O ₂	±1% FSR
Linearity:	±0.1% O ₂	±0.01% O ₂	±1% FSR
Decimal places:	1	2	2
Response time(T ₉₀):	<15 seconds	<15 seconds	<15 seconds
Zero drift per week:	±0.4% O ₂	±0.2% O ₂	±4% FSR
Pressure effect:	Directly proportional to ambient barometric pressure		<0.2% reading / mBar change
PHYSICAL:			
Dimensions (W x D x H):	160mm x 140mm x 185mm (6.3" x 5.5" x 7.3") without protective case 175mm x 160mm x 195mm (6.9" x 6.3" x 7.7") with protective case		
Weight:	1.8 Kg to 2.3 Kg (4.0lbs to 5.1lbs)		
Ingress protection:	IP54		
Operating temperature:	-10°C to +50°C (+14°F to +122°F)		
Storage temperature:	-20°C to +60°C (-4°F to +140°F)		
Alarms:	Two user configurable concentration alarms indicated by an LED, icon display and audible sounder Instrument fault alarm indicated by an LED, icon display and audible sounder		
Power supply:	The instrument must be charged in a safe area using the 100-240V charger supplied Note: The unit is not designed to run from mains power Up to 200 measurement points can be stored in the analyser memory for later viewing		
Notepad:			
Effect of tilt (per 15°):	± 0.15% O ₂	± 0.15% O ₂	± 1% FSR
Typical battery life:	10 hours at 20°C		
Display:	White backlit LCD		

* Note: Samples in excess of 21% should not be measured in a hazardous area, for further information please contact your local Servomex office



Hazardous Area Approvals

ATEX  II 1G, Ex ia IIC T4 (-10°C < Ta < +50°C)

IECEx Ex ia IIC T4 (-10°C < Ta < +50°C)

EC Directive Compliance

CE marked and in compliance with the ATEX, EMC and

is in the scope of the WEEE Directives

UL, TÜV, FCC and PSE approved 100-240V AC charging unit

Measurement Ranges

Carbon dioxide, CO₂

10% or 25%

Oxygen, O₂

0-100% standard or high accuracy

Sample

Clean, dry at ambient temperature and free from particulates <0.6µm

(conditioning accessories are available to prepare sample where required)

Sample inlet connection:

5mm OD stub with QuickConnect barb fitting for 5mm (1/4") ID tube

Sample outlet connection:

5mm OD stub (sample and bypass)

Optional connector:

Quickconnect fitting to an 1/8" NPT threaded fitting

Inlet pressure:

minimum 11.6psia

maximum 16.0psia

pumped, typically ±0.5psig at 700ml/min nominal

Options and Accessories

- ☐ Additional barb fittings for simple zero and span gas connections
- ☐ Sampling probes
- ☐ 2 years spares (includes replacement filters and 'O' rings)
- ☐ Black canvas carrying case with shoulder strap



Certificate No. Q05166
BS EN ISO 9001



Certificate No. EMS82701
BS EN ISO 14001



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PORTABLE GAS ANALYSER PERFORMANCE SPECIFICATION

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TECHNOLOGY:	Magnetodynamic Paramagnetic Sensor		Infrared Sensors
PERFORMANCE:			
Range(s):	0-100% O ₂ **	0-100% O ₂ **	0 - 10% 0 - 25%
Accuracy (intrinsic error):	±0.1% O ₂	±0.05% O ₂	±2% of FSR
Repeatability:	±0.1% O ₂	±0.01% O ₂	±1% FSR
Linearity:	±0.1% O ₂	±0.01% O ₂	±1% FSR
Decimal places:	1	2	2
Response time(T ₉₀):	<15 seconds	<15 seconds	<15 seconds
Zero drift per week:	±0.4% O ₂	±0.2% O ₂	±4% FSR
Temperature coefficient			
Zero:	±0.2 O ₂ per 10°C (18°F)	±0.2 O ₂ per 10°C (18°F)	±1% FSR*
Span:	±0.3 O ₂ per 10°C (18°F)	±0.3 O ₂ per 10°C (18°F)	±5% FSR*
Pressure effect:	Directly proportional to ambient barometric pressure <0.2% reading / mBar change		
PHYSICAL:			
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Notepad:	Up to 200 measurement points can be stored in the analyser memory for later viewing		
Effect of tilt (per 15°):	± 0.15% O ₂	± 0.15% O ₂	± 1% FSR
Typical battery life:	10 hours at 20°C		
Display:	White backlit LCD		
Operating altitude range:	-500 to 2000 meters		

* in the range 5 to 45°C (41 to 113 °F)

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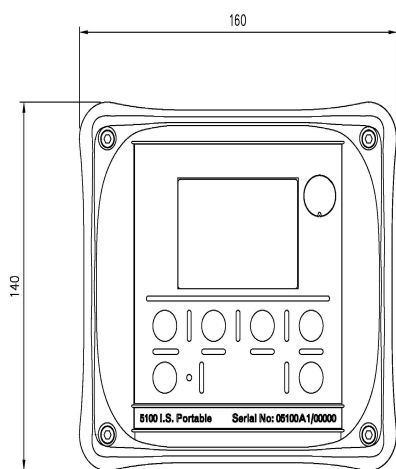
5100 i.s. BATTERY RUNNING TIMES (HOURS)

	Li - Ion (O ₂)	Li - Ion (IR)
50 °C	16.5	10.5
20 °C	14.8	9.7
-5 °C	10.5	7.4
-10 °C	9.7	7

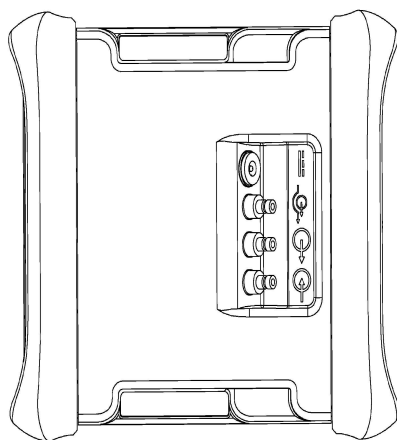
Pump duty cycle = 5 mins ON / 5 mins OFF

OXYGEN ENRICHED SAMPLES AND PRESSURE INFORMATION FOR HAZARDOUS AREAS

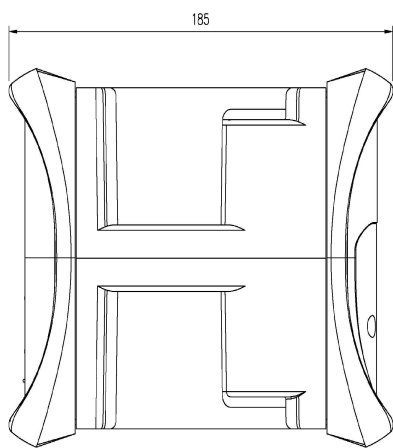
Outside Atmosphere	Sample Gas			
	Type	Oxygen	Inlet Pressure	Permitted
Flammable <21% O ₂ 11.6 - 16.0 psia (80 - 110 kPa)	Non-Flammable	≤21% O ₂	≤16 psia (≤110 kPa abs)	YES
	Non-Flammable	>21% O ₂		NO
	Flammable	≤21% O ₂	≤16 psia (≤110 kPa abs)	YES
	Flammable	>21% O ₂	≤16 psia (≤110 kPa abs)	NO
	Flammable	≤21% O ₂	>16 psia (>110 kPa abs)	NO
	Flammable	>21% O ₂	>16 psia (>110 kPa abs)	NO



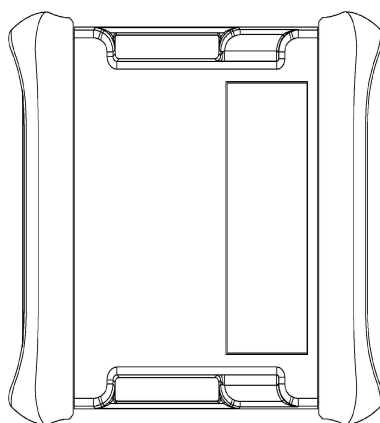
FRONT



TOP



SIDE



BOTTOM

DIMENSIONS SHOWN IN MILLIMETRES

HAZARDOUS AREA APPROVALS

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EC DIRECTIVE COMPLIANCE

CE marked and in compliance with the ATEX, EMC and is in the scope of the WEEE Directives

UL, TÜV, FCC and PSE approved 100-240V AC charging unit

PERFORMANCE SPECIFICATION

Written and verified in accordance with:

BS EN 61207-1 1994

BS EN 61207-3 2002

MEASUREMENT RANGES

Carbon dioxide, CO₂ 10% or 25%

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SAMPLE

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maximum 16.0psia

pumped, typically ± 0.5psig at 700ml/min nominal

OPTIONS AND ACCESSORIES

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MATERIALS IN CONTACT WITH SAMPLE AND CALIBRATION GASES

	Common Gas Path	Standard and High Accuracy Oxygen Sensor	Infrared Sensor	Optional Gas Probe
302 Stainless steel	✓			
316 Stainless steel		✓	✓	✓
Borosilicate glass	✓	✓		✓
Epoxy adhesive (EPO-TEK H72)			✓	
Electroless nickel		✓		
Gold			✓	
Kynar ® (PVDF: polyvinylidene disulphide)	✓			
Nickel	✓		✓	✓
Nylon				✓
PPS (polyphenylene sulphide) with carbon fibre filler	✓			
PPS (polyphenylene sulphide)	✓			
Platinum		✓		
Platinum/iridium alloy		✓		
Polysulphone	✓			
Polyurethane				✓
PVC (polyvinylchloride)				✓
Sapphire			✓	
Viton ®	✓	✓	✓	✓