

The 1100A and 1100H offer the highest performance, stability, repeatability and reliability in a hazardous area approved package specifically designed for process measurement.



- Unrivalled accuracy, reliability, stability and repeatability.
- Certified for hazardous areas and flammable sample gases
- Separable transducer unit for positioning close to the process
- High temperature (110°C) variant for high dewpoint sample gases.
- Servomex oxygen specific paramagnetic cell
- Sample vent to process options for environmental compliance

Specification		
Analysers	1100A Standard Temperature Transducer (+60°C)	1100H High Temperature Transducer (+110°C)
Gas Measured:	O ₂	O ₂
PERFORMANCE		
Technology	Paramagnetic Transducer	Paramagnetic Transducer
Range:	0 - 100% O ₂	0 - 100% O ₂
Intrinsic Error (accuracy):	<0.02% O ₂	<0.04% O ₂
Linearity:	<0.01% O ₂	<0.02% O ₂
Repeatability:	0.02% O ₂	0.03% O ₂
Response Time (T ₉₀)†:	<4 seconds	<5 seconds
Zero drift/ week:	<0.02% O ₂	<0.04% O ₂
Span drift/ week:	<0.05% O ₂	<0.10% O ₂
SIGNAL OUTPUTS		
Analogue Output:	Isolated 0/4-20mA and reverse output. Maximum impedance 600Ω. Ranges selectable from 0 - 1(1100A only), 2, 2.5, 4, 5, 10, 20, 25, 40, 50 and 100% O ₂ Resolution 0.01% O ₂ or 0.03% of span*	
Alarms:	Four oxygen level alarms, range change, analyser fault and autocal fail. Optional relays (4 off) rated 240V, 0.5A (max 20VA)	
Digital Output (Optional):	Single ASCII data logging output (RS232C) or current loop.	
PHYSICAL		
Dimensions: (W x D x H)	Close coupled: 542 mm x 305 mm x 300 mm Separated: Control/Interface unit 264 mm x 305 mm x 300 mm. Transducer unit: 555 mm x 305 mm x 300 mm	
Weight:	Control unit/Interface unit: 20kg (44lbs). Transducer unit: 16kg (35lbs)	
Hazardous Area:	European: Zone 1/Zone 2/Safe Area US: Class I, Div 1 & 2, Canada: Div 1 & 2	
Ingress Protection:	IP 54, NEMA 4	
Mounting:	Surface mounting. For separated control unit/transducer unit analysers, control unit can be mounted surface, flush panel, or 19" rack	

* whichever is the greater

† at cell flow rate of 250ml/min (excluding sampling system)



Ambient Conditions

Temperature:

Operating: -10°C to 50°C/14°F to 122°F*

Storage: -20°C to 65°C/-4°F to 149°F

Atmospheric Pressure:

83 to 124 kPaa/12 to 18psia

Warm Up Time

4 hours at an ambient

temperature of 20°C(68°F)

Relative Humidity:

5-95% non-condensing

* Below 0°C (32°F) water in the wet gas sample system bubbler (if fitted) should be replaced with ethylene glycol

Sample Wetted Materials

Material	Analyser	Analyser & Dry Gas sample system	Analyser & Wet Gas Sample System
Borosilicate Glass	✓	✓	
Duralumin		✓	
Electroless Nickel	✓	✓	
Glass			✓
Glass Fibre/epoxy filter		✓	✓
Platinum	✓	✓	✓
platinum/Iridium alloy	✓	✓	✓
Polypropylene		✓	✓
PTFE		✓	✓
Stainless Steel (316)	✓	✓	✓
Viton	✓ ³	✓ ¹	✓ ²

¹ May be replaced with: Butyl, EPDM (ethylene propylene rubber), Nitrile rubber or Kalrez

² May be replaced with: EPDM (ethylene propylene rubber), or Teflon/Kalrez

³ Replaced with Chemraz in solvent resistant measuring cell

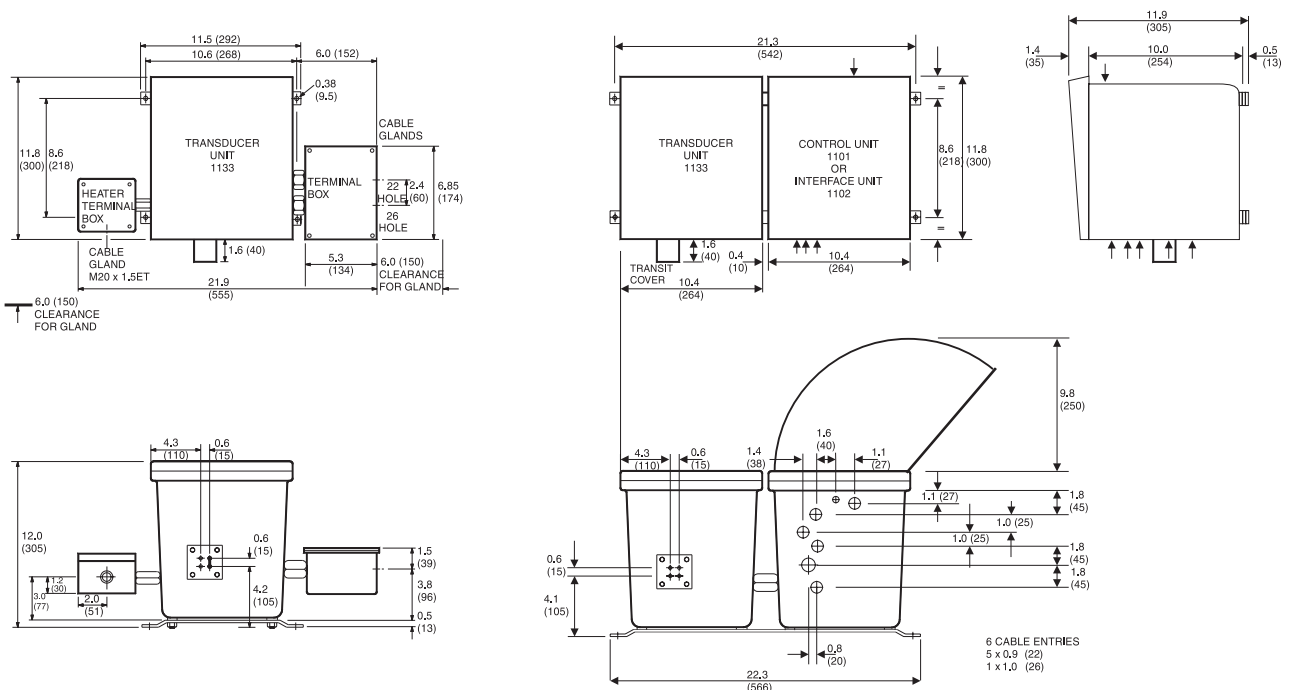
Power Supply

100, 110, 117, 220, 240 Vac 48 - 62Hz 200VA

Sample Gas Conditions

	Analyser only	Dry gas sample system	Wet gas sample system
Inlet Pressure:	max: 0.3kPa (0.04psig), relative to vent pressure 28kPag (4psig) ¹	5 to 140kPa (0.7 to 20psig)	2 to 140kPa (0.3 to 20psig)
Sample Pressure:			
Cell Flow Rate:	250ml (air)/minute maximum	10 to 250ml/min 1 to 10 l/min	Factory set at 200ml/min 400 to 1000ml/min saturated samples
Bypass Flow Rate:	-		
Dew Point:	1100A: 5°C (9°F) below lowest ambient temp. 1100H: 105°C (221°F) maximum	10°C(18°F) below lowest ambient temp.	
Temperature	1100A: -10°C to +50°C (+14°F to +122°F) 1100H: -10°C to +105°C (+14°F to +221°F)	-10°C to +50°C (+14°F to +122°F)	<45°C (113°F) ²
Particulates:	maximum 3 µm	³	³
Inlet connection:	1/8" OD tube	Rp 1/8 (1/8" BSPP)	1/4" OD tube
Outlet connection:	1/8" OD tube	Rp 1/4 (1/4" BSPP)	Rp 1/4 (1/4" BSPP)
Condition:	Clean and dry	Dry	

1 consult Servomex for operation up to 140kPag (20psig)
2 Below 0°C (32°F) water in the wet gas sample system bubbler should be replaced with ethylene glycol
3 Integral filter provides 90% retention of 0.6µm Particulates



Hazardous Area Approval

The 1100A and 1100H have been approved for use in hazardous areas and with flammable sample gases as follows:

BASEEFA/CENELEC

Transducer Unit (1100A UK2 - Zone 2)

Certified Ex N ia IIC T5 and for H2/O2 mixtures to BS5501 pt7, and BS 4683 pt 3.

Transducer Unit (1100A EUR - Zone 1)

Certified Ex d ia IIC T3 and for H2/O2 mixtures to BS 5501 pts 5 and 7.

Certified EEx d ia IIC T3 to EN 50014, EN 50018 and EN 50020.

Transducer Unit (1100H EUR - Zone 1)

BASEEFA/CENELEC certified EEx ia d IIC T3 for installation in a zone1 area and may be used with flammable samples and for O2 enriched sample gases (to UK standards)

Control and Interface unit (1100 A/H Zone 2/Safe Area)

Certified Ex N(a) IIC T5* to BS5501 pt 7 and BS4683 pt 3.

Certified (EEx ia) to EN 50014 and EN 50020.

* T4 when the mains supply filter required for CE marked analysers is fitted.

FACTORY MUTUAL (USA)

Transducer unit (1100A FM2 - Div 2)

Approved to FM 3611 as non-incendive for Class I and II, Division 2 Groups B, C, D and G T3 hazardous locations

Transducer unit (1100A/H FM1 - Div 1)

Approved to FM 3610, 3611 and 3615 for installation in Class I, Division I, Groups B, C, and D T3 hazardous locations and for oxygen enriched sample gases

Control and Interface unit (1100 A/H FM2 - Div 2)

Approved to FM 3610 and 3611 as non-incendive for class I and II, Division 2 Groups B, C, D and G hazardous area locations.

Control and Interface unit (1100 A/H FM1- Div 1)

The control and/or interface unit can be fitted with an FM approved type "Y" safety purge which allows its use in a Class I, Division 1, Group B,C or D area. Not suited to close coupled architecture.

CANADIAN STANDARD ASSOCIATION (CSA)

Approved to C22.2 No. 0, 30, 142, 157 and 213 for installation in Division 1 (1100A CSA Transducer unit) or Division 2 (1100A CSA Control unit/Interface unit), Class I, Groups B, C and D hazardous locations.

OTHER CERTIFICATIONS

Switzerland

The CENELEC certification of analyser configurations to codes 04 and 06 has been accepted by the Eidgenossiches Starkstrominspektorat for installation in Switzerland.

Japan

Analyser configurations to codes 04 and 06 have been approved by the Japanese Ministry of Labour for the Transducer unit to be installed in Division 1 locations.

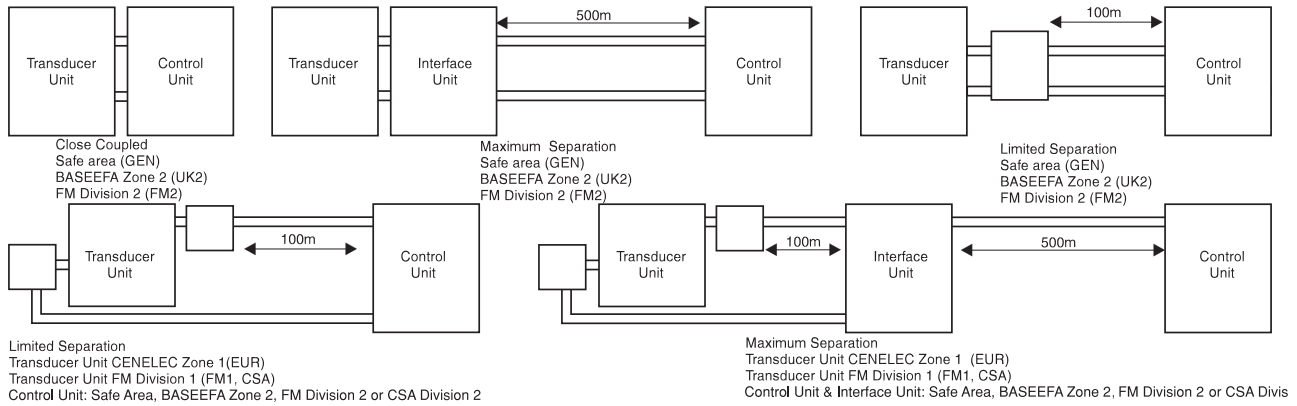
EC Directive Compliance

The analysers comply 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.

Specification continued		
Analyser	1100A	1100H
Gas Measured:	O ₂	O ₂
Output Noise:	<0.01% O ₂ digitization step	<0.02% O ₂
Effect of ambient Temperature changes:	A change of 10°C (18°F) in the range -10 to +50°C (14 to 122°F) will cause the zero to change by ±0.01% O ₂ (max) and the span to change by ±0.1% of reading (0.2% with Zone 1/Division 1 transducer unit).	A change of 10°C (18°F) in the range -10 to +50°C (14 to 122°F) will cause the zero to change by ±0.02% O ₂ (max) and the span to change by ±0.1% of reading.
Effect of change in cell flow rate:	A change in flow rate from 0-250ml/min will cause the reading to change by 0.1% O ₂ (maximum)	A change in flow rate from 0-250ml/min will cause the reading to change by 0.1% O ₂ (maximum)
Effect of barometric pressure or sample vent pressure:	The analysers measure the partial pressure of O ₂ in the sample gas, therefore the reading (at constant pressure or O ₂ content) is proportional to the ratio of cell pressure at the time of the analysis to that at the time of calibration unless the pressure compensation option is fitted and calibrated. Pressure compensation reduces the effect due to vent pressure changes by a factor of better than 200 or ±0.02% O ₂ whichever is the greater.	
Effect of supply voltage variation:	A change of ±10% in the supply voltage will cause the output to change by less than 0.02% O ₂ or 0.2% of reading whichever is the greater.	A change of ±10% in the supply voltage will cause the output to change by less than 0.02% O ₂ or 0.2% of reading whichever is the greater.
Effect of supply interruptions:	A single cycle interruption in electrical supply will have no effect on the analyser.	A single cycle interruption in electrical supply will have no effect on the analyser.
Attitude Sensitivity:	Less than 0.01% O ₂ per degree of tilt from attitude at time of calibration	Less than 0.01% O ₂ per degree of tilt from attitude at time of calibration
Zero suppression:	The Zero may be suppressed in 0.01% steps to a maximum of 99.99% suppression	The Zero may be suppressed in 0.01% steps to a maximum of 99.99% suppression

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

Analyser Architectures



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



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