combustion

efficiency

monitoring

General Purpose Applications

LAND
instruments international

Combustion & Environmental Monitoring

Flue Gas Oxygen

Genesis is a range of flue gas analyzers for measuring Oxygen within boilers and furnaces. The wide range of products available have the measurement capability, performance and quality to meet most industrial applications.

Features & Benefits

- **Simple installation and operation** - *4-key user interface controls all functions*
- **Outstanding sensor reliability** - *Robust design with large surface area and rigid bonding*
- **High product confidence** - *24 month complete probe warranty*
- **Proven performance** - *TÜV approved*
- **Service and maintenance carried out on-site** - *All parts are field replaceable*
- **Straightforward integration in plant control system** - *Modbus communications capability*
- **Measurement systems for most applications**

Simple User Interface

Simple push-button operation combined with a clear LED display enable complete electronic control of the probe functions. Full setup and diagnostic information is also accessible through the user interface.

Serial Communications

Genesis probes can communicate using the RS485 modbus protocol, for straightforward integration into the plant DCS. There are also both 4-20 mA analog and relay outputs.

n Analyzers

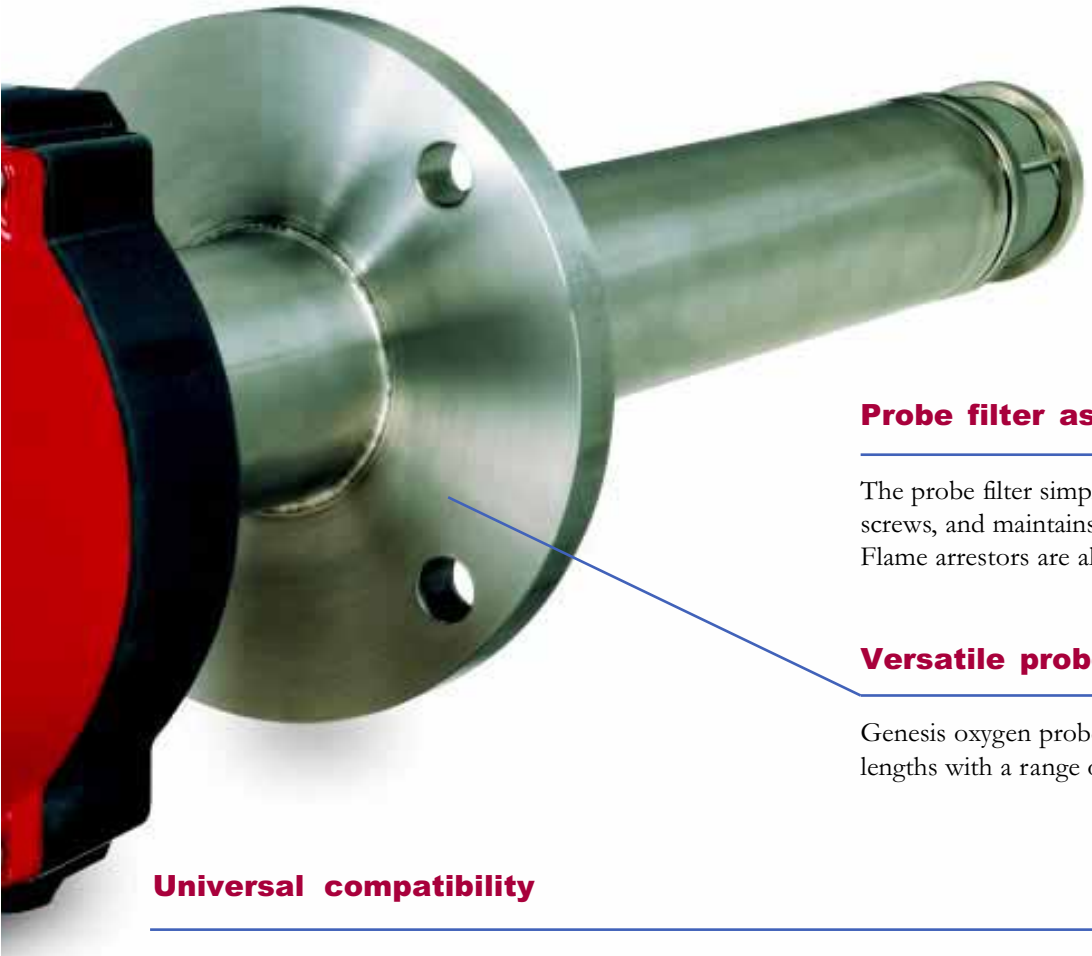
the world's first fully-integrated stand-alone, flue gas oxygen analysis system

Unique Flexibility

Genesis uniquely mounts the user interface onto the probe itself. This enables complete local control at the measurement location and reduces installation costs. Alternatively, the user interface can be detached and located for remote operation.

Rugged Sensor design

The sensor is manufactured to the highest possible standards - allowing a minimum 2 year warranty. The sensor design gives a large surface area and an excellent bond between the zirconia and stainless steel holder.



Probe filter assembly

The probe filter simply fits in place with 4 retaining screws, and maintains the integrity of the probe. Flame arrestors are also available.

Versatile probe and mounting

Genesis oxygen probes are available in various lengths with a range of mounting flange options.

Universal compatibility

The universal control unit is fully compatible with all genesis oxygen probes. It provides remote control, operation and displays readings for the measurement probe. In addition, the universal control unit is fully compatible with existing zirconia sensor oxygen probes from most manufacturers.

Product Range

General Purpose	Flue Gas Temperature	Reading Display	Probe Type	Control Unit Type
Low Temperature	0 - 600 °C/ 32 - 1112 °F	Integrated	**Genesis g1200**	Integral with probe
Low Temperature	0 - 600 °C/ 32 - 1112 °F	Remote	**Genesis g1210**	**Genesis g1220**
High Temperature	600 - 1400 °C/ 1112 - 2552 °F	Remote	**Genesis g1230**	**Genesis g1220**

g1200 Stand-alone, Low Temperature Fully-integrated Probe

The g1200 is the world's first fully-integrated oxygen analysis probe. The g1200 combines the measurement probe with the control unit into a single, fully integrated system. For applications where probe access is straightforward, the g1200 is the ideal choice as it reduces both installation time and costs.

g1210 Low Temperature Probe

The g1210 measurement probe is capable of direct, in-situ measurement in all combustion processes up to 600 °C/1112 °F. Display of measurement readings and probe diagnostics is made remotely from the Universal Control Unit (g1220). The g1210 is ideally suited where normal access to the probe is restricted or environmentally hostile.

g1230 High Temperature Probe

The g1230 measurement probe is capable of in-situ oxygen measurement in higher temperature combustion processes (such as furnaces and process heaters) up to 1400 °C/2552 °F. The probes come in varying lengths, with a choice of protection sheaths for specific temperature ranges. Display of measurement readings is made remotely using the Universal Control Unit (g1220).

g1220 Universal Control Unit

The universal control unit has identical functionality to the control module of the g1200, but is mounted in the plant control room or other accessible location for easy access.

- Control, display and diagnostics information
- Simple user interface with LED display
- User programmable for maximum flexibility
- Automatic fault detection
- Modbus communications
- Small and compact
- IP65/NEMA 4 protection

LAND
instruments international

Applications

Combustion Efficiency
Combustion Control
Excess Air Measurement
Pollution Control

Industries

Bio-fuel Boilers
Package Boilers
Power Generation
CCGT
Petrochemicals
Process Industries
Pharmaceuticals
Incineration
Furnaces

Specifications

g1200 and g1210 Low Temperature Probes

Measuring Range:	0 to 5, 0 to 25 % Vol O_2 selectable
Accuracy:	±1 % of full scale
Repeatability:	±0.5 % of full scale on analog outputs
Response Time:	90 % of full scale within 5 seconds
Measuring Method:	Zirconia oxide sensor
Flue Gas Temp Range:	0 to 600 °C/32 to 1112 °F
Probe Lengths Options:	0.4/1.0/1.5/2.0 m/1.3/3.3/4.9/6.6 ft
Weight: (g1200)	8.8 to 15.1 kg/19.4 to 33.3 lb
Weight: (g1210)	6.8 to 13.1 kg/15 to 28.9 lb

g1230 High Temperature Probe

Measuring Range:	0 to 5, 0 to 25 % Vol. O_2 selectable
Accuracy:	±1 % of full scale
Repeatability:	±0.5 % of full scale on analog outputs
Response Time:	90 % of full scale within 5 seconds
Measuring Method:	Zirconia oxide sensor
Flue Gas Temp. Range:	Type R - 600 to 1400 °C* / 1112 to 2552 °F* Type K - 600 to 900 °C /1112 to 1652 °F
Probe Lengths Options:	0.6 or 1.0 m/ 24 or 40 inch
Weight:	2.5 kg (600 mm probe) - 5.51 lb (23.6 " probe) 2.8 kg (1000 mm probe) - 6.2 lb (39.4 " probe)

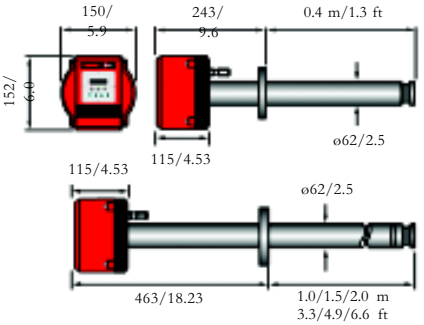
**Reduced probe life may result if operated above 1250 °C / 2282 °F*

g1200 Probe Control Unit/g1220 Universal Control Unit

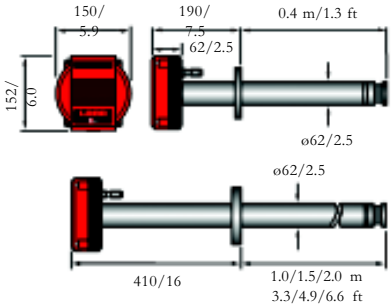
Display Type:	Single-line 4 digit LED
Parameters:	O_2 concentration; Calibration Gas Concentration; Cell Temperature; Fault Messages; Cell/Thermocouple Information
Analog Outputs:	Single channel isolated 0 to 10; 0 to 20; 2 to 20; 4 to 20mA menu selectable
Ranges:	Selectable range 0 to 5; 0 to 25% v/v O_2
Serial Output:	RS485 Modbus protocol (2-wire, half-duplex)
Alarm Relays:	Single pole changeover 2 A at 30 V a.c./d.c.
Alarms:	High/Low customer selectable; System Fault; Maintenance/Cal. in Progress
Fault Indication:	LED indication and error codes
Calibration:	Option to track or hold
Calibration Types:	Manual; *Automatic; *Remote Trig.
Power Supply:	85 to 264 V a.c.; 48 to 62 Hz
Power Rating:	250 W
**Requires optional Automatic Calibration Gas Control Unit*	
Compatibility:	All Genesis type probes Other zirconia type oxygen probes
Max. Distance to Probe:	300 m/ 985 ft
EMC:	Conforms to EN 50 081, EN 50 082
Safety:	Conforms to EN61010-1
Dimensions:	130(l) x152(w) x153(h) mm/ 5.12(l) x6(w) x6.02(h) in
Weight: (g1220)	2.7 kg/5.95 lb

Continuous product development may make it necessary to change these details without notice

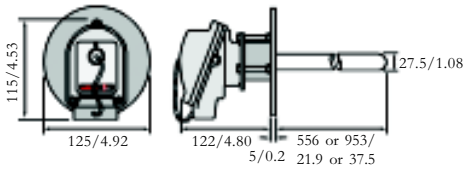
g1200 Probe



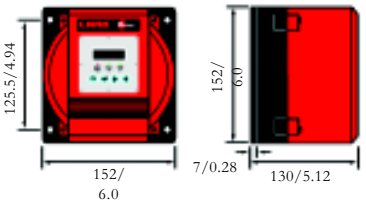
g1210 Probe



g1230 Probe



g1220 Control Unit



All dimensions are given in mm/ inches except where stated

Further Information

U.K.
Land Instruments International
Dronfield, Derbyshire
S18 1DJ
Telephone: +44 (0) 1246 417691
Facsimile: +44 (0) 1246 290274
E-Mail: combustion.info@landinst.com

U.S.A.
Land Instruments International
10 Friends Lane
Newtown, PA 18940-1804
Telephone: +1 215 504 8000
Toll Free: (in USA) 800 523 8989
Facsimile: +1 215 504 0879
E-Mail: combsales@landinstruments.net
Web: www.landinstruments.net

Italy
Land Instruments Srl
Via dell'Industria, 2
20037 Paderno Dugnano, Milano
Telephone: +39 02 91 08 0020
Facsimile: +39 02 99 04 0418
E-Mail: info@landinst.it
Web: www.landinst.it

France
Land Instruments International
7 Parc des Fontenelles
78870 Bailly
Telephone: +33 (0)1 30 80 89 20
Facsimile: +33 (0)1 30 80 89 21
E-Mail: combustion@landinst.fr

Poland
Land Instruments International
ul. Michałowskiego 5/2
31-126 Kraków
Telephone: +48(0) 12 632 82 62
Facsimile: +48(0) 12 632 24 74
E-Mail: land@land.com.pl
Web: www.land.com.pl

Mexico
Land Instruments International
Av. Horacio 1132 Planta Baja "B"
Col. Polanco, D.F. 11550
Telephone: +52 (0) 55 5281 1165
Facsimile: +52 (0) 55 5281 5364
E-Mail: ventas@landinstruments.net

Accessories

g1270 Automatic Calibration Unit

To help with compliance, as well as reducing maintenance and increasing accuracy, this unit automatically controls the calibration gas (both zero and span) to the Genesis probe at programmed intervals. The g1270 functions are controlled (as with the probe) by the control unit.

Specifications

Genesis g1270 Automatic Calibration Unit

Dimensions:	300x200x155 mm/11.8x7.9x6.1 in (HxWxD)
Weight:	6 kg/13.2 lb
Operating Temp:	0 to 50 °C/32 to 122 °F
Enclosure Rating:	IP65/NEMA4
Power Supply:	110 V or 240 V a.c. 50-60 Hz 10 VA
Supply Tolerance:	-10 % +20 %
Gas Inlet Pressure:	1.7 to 2.0 bar/25-30 psi
Gas Outlet Flow:	3.0 litres/min. for g1200 & g1210 0.8 to 1.0 litres/min. for g1230
Pressure Switch:	1 bar/15 psi trip pressure
Slave Relays:	2- galvanically isolated changeover contacts

Continuous product development may make it necessary to change these details without notice

Reference Air Supply Units

To achieve the best measurement performance it is essential that reference air with 20.9 % Oxygen is present at the measurement cell. Land have two options for providing reference air: an air regulator system or an electric air pump.

Hazardous Area Applications

The Genesis range of hazardous area measurement systems are designed for flue gas temperatures ranging between 20 °C and 1250 °C/68 °F and 2282 °F. Genesis systems capably meet the unique measurement conditions demanded by explosive environments.

For complete details request the dedicated information 'genesis hazardous area flue gas oxygen analysis systems' (ref. PDS 193)

LAND instruments international

www.landinst.com/comb/

Land Instruments International has a comprehensive range of Combustion and Environmental Monitoring Instrumentation.

Approval applies to products designed and manufactured in the UK

Approval applies in the USA