



# PGA3000

## Portable Gas Analyser



### Contact Us:

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## Product Description

The PGA3000 is a lightweight portable gas analyser designed specifically for industrial applications. Each monitor can have a variety of different gases with up to a total of nine gases. Internally, is the ability to compute a number of calculations, these comprising.



- Combustion
  - Combustion efficiency
  - Loss
  - Excess air
  - CO<sub>2</sub>
- Environmental
  - ppm conversion -mg/m<sup>3</sup>, lb/mBTU
  - Oxygen normalization
  - Total NO<sub>x</sub>
  - Wet or dry basis

Apart from being designed for harsh environmental climates, there are particulate, chemical filters and water catchpot mounted on the side of the instrument for visual monitoring, replacement and emptying.

The simple use of a flow probe provides additional measurement capability and output via the printer or serial port. Parameters that can be reported comprise:

- Flue gas velocity
- Flow rate
- Mass emissions rate



## Features

- Lightweight - 6kg (13lbs)
- Up to nine gas measurements
- Comprehensive combustion calculations
- Corrosive resistant enclosure
- Flow and smoke measurement options
- CO<sub>2</sub> direct measurement to give quantitative information on greenhouse gas emissions
- Auto purge of sensors on system shutdown
- CO over range protection
- Up to 1000 sets of data can be recorded
- Run time diagnostics check sensor life, calibration status and battery life
- Semi-continuous operation (hourly, daily, weekly)
- Multiple probe length options
- RS232 output
- User defined options

# Technical Specification

Measurements	Range	Accuracy (of reading)	Resolution
Oxygen, O <sub>2</sub> ,	0 to 24.0% Vol	±1%	±0.1% Vol.
Carbon Monoxide, CO (low)	0 to 2,000 ppm*	±4%	±1ppm
Carbon Monoxide CO (low), H <sub>2</sub> compensated	0 to 2,000 ppm	±4%	±1ppm
Carbon Monoxide, CO (high)	0 to 40,000 ppm*	±4%	±10ppm
Sulphur Dioxide, SO <sub>2</sub>	0 to 2,000 ppm*	±4%	±1ppm
Nitric Oxide, NO	0 to 1,000 ppm*	±4%	±1ppm
Nitrogen Dioxide, NO <sub>2</sub>	0 to 100 ppm	±4%	±1ppm
Hydrogen sulphide, H <sub>2</sub> S	0 to 200 ppm	±4%	±1ppm
Carbon Dioxide, CO <sub>2</sub> **	0 to 25.0% Vol	±4%	±0.1% Vol.
Hydrocarbons, C <sub>x</sub> H <sub>y</sub>	0 to 5.0% Vol	Application dependent	
Flue gas temperature	Measured		
Efficiency	Calculated		
Excess air	Calculated		
Loss	Calculated		
Flow measurement (velocity)	1 to 50m/s		
Ambient temperatures	-5 to 45°C		
Draught ***	±51 cm / 20" Water gauge		

Note:

\*Special ranges are available

\*\*CO<sub>2</sub> Calculated where no sensor fitted

\*\*\*± 10" Water Gauge where instrument is specified with flow measurement

## Standard Accessories

Display	Full function alphanumeric/graphic LCD with backlight. 40 x 8 Liquid crystal matrix
Keyboard	Tactile membrane (integral with display) function key and cursors
Indicators	LED type for ON (power), stand-by, service, charge, low battery, fault
Power supply	95-265V AC ±10%, 50-60Hz, 30 watts rechargeable battery 2 x 6V 4 Amp. hours. Typical 8 hr. operation dependant on features fitted.
Ambient temperature	-5 to 50°C (+23°F to 122°F)
Case	Medium density blended polyethylene
Dimensions	453 x 120 x 245mm (17.8" x 4.7" x 9.6")
Weight	6kg/13lb
Max. probe temperature	600°C/1112°F continuous, 1000°C/1832°F intermittent

Integral water catchpot and chemical, particulate filters

Rechargeable lead acid battery (internal)

Mains lead probe handle, hose and probe pipe (lengths listed under probe options).

## Technical Specification (Continued)

### Options

Min of 3 to max 9 gases in total, from a selection of 9 gases

Probe length options  
(0.1, 1.5, 3m/3.3, 5, 10ft)

Alternative probes available  
Draught measurement

Flow measurement, probe length options  
(0.7, 1.2, 2.2, 3.0m/2.3, 3.9, 7.2, 9.8ft)

Smoke measurement, probe length options  
(0.3, 0.75, 1.0m/1, 2.4, 3.2ft)

Thermal printer

RS232 or RS422 serial interface

Capture (computer) program

Analogue output  
(12 current loops, independently configurable)

Semi-continuous monitoring with sleep and wake facility

Language display option

Data logging



## Applications

Measures up to nine gases comprising O<sub>2</sub>, NO<sub>2</sub>, hydrocarbons, CO<sub>2</sub>, NO, H<sub>2</sub>S, CO (low), SO<sub>2</sub>, CO (High). Specific applications also comprise, but are not limited to:

### Boilers

- Utilities/power boilers
- Large industrial boilers
- Small industrial boilers
- Home heating
- CO boilers

### Heaters

- Furnaces
- Dryers

### Kilns

- Cement kilns
- Lime kilns
- Rock kilns
- Gypsum kilns

### Engines

- Turbines
- Pumping stations



Print



# **GOYEN**

## CPA1000

### Continuous Particulate Analyser Opacity & Dust Compliance Monitor



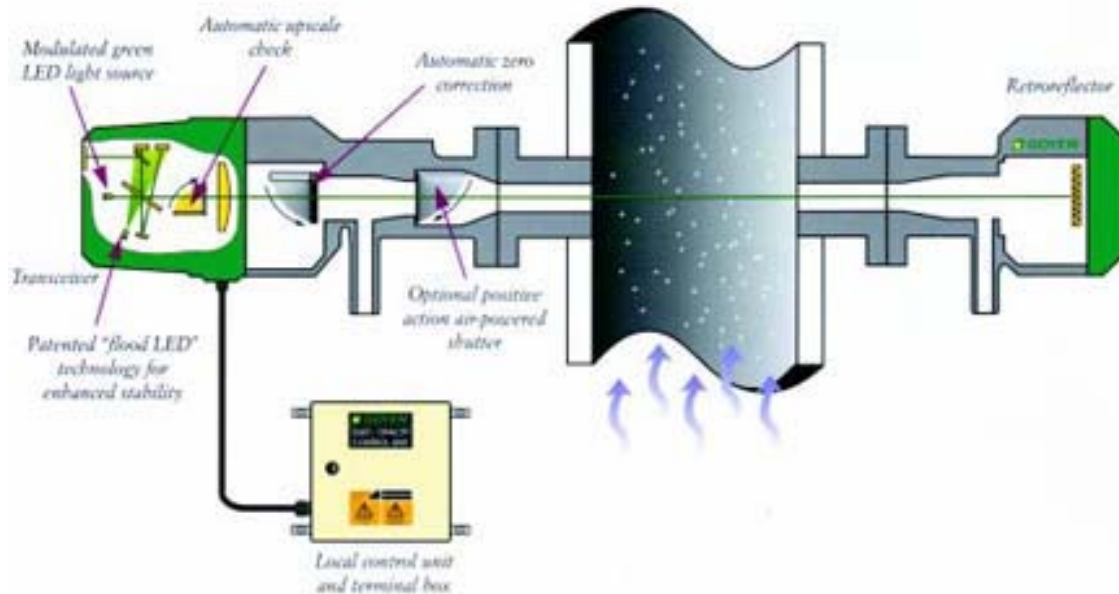
Meets or exceeds latest standards EPA - ESI, ASTM D6216-98 and method 203

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## Product Description

The CPA1000 is a continuous opacity and dust monitor. Using patented "Flood LED" technology, the CPA1000 achieves the highest levels of stability and accuracy with no moving parts in the optical measurement, providing exceptional reliability.



A local control unit next to the instrument allows for convenient operation and configuration of the instrument, without the need for an assistant in the control room. The simple, clear display and controls ensure operation is kept to its simplest form.

The CPA1000 is fitted with a fully automatic zero checking and drift compensation system. Analogue and digital outputs of window contamination and OPLR are continuously available. An automatic span check mechanism confirms the instruments calibration on a regular basis.

Periodic calibration is conducted using the built-in audit mechanism, accepts standard optical filters and zero alignment can be confirmed without removing the instrument from the stack.



## Technical Specification

### Measuring System

Operating principle:	Cross-stack double pall transmissometer
Light source:	High density LED
Accuracy:	±2% opacity
Repeatability:	±0.5% opacity
Drift:	<1% of opacity per month
Angle of projection:	<2°
Angle of view:	<2°
Response time:	1 second to 90% of final value
Range:	Opacity 0-10% up to 100% Optical density 0-0.1 to 0-3.0 Dust density 0-100 up to 9999mg/m <sup>3</sup>
Path length	0.7m to 10m standard (option 20m)
Calibration check	Automatic zero and upscale calibration check, built in calibration audit fixture

### Environmental

Temperature operating:	-20°C to 55°C (-40°C with optional heater)
Enclosure:	Cast aluminium enclosure, sealed to IP65/NEMA4
Max. flue gas Temperature:	600°C (higher temperatures available)
Electromagnetic compliance (EMC):	EN61010, EN50 081 and EN50 082

### Installation (excluding purge blowers)

Power supply	90-260 AC 50/60Hz 50W
Power rating	10W

### Dimensions - (LxWxH)

Transceiver:	514 x 220 x 220mm
Retro-reflector:	300 x 220 x 220mm

### Weight:

Transceiver:	14kg
Retro-reflector:	8kg

### Local control unit

Display:	2 x 16 character reflective LCD for measurement data output
Keypad:	6 keys for data input
Analogue outputs:	One 4-20mA current loop, fully isolated, Independently configurable as: opacity, dust, optical, density or calibration drift Optional second 4-20mA output
Digital outputs:	System OK, span-cal, zero Cal, alarm 1, alarm 2 and maintenance
Averaging:	Selectable from 1 to 59 minutes
Calibration:	Automatic zero and upscale check selectable period 1 to 24 hours in 1 hour steps. Remote trigger input.
Zero correction:	Automatic correction for zero drift

## Technical Specification (Continued)

Relays:	Alarm 1, alarm, system OK, maintenance, zero cal, span cal	<b>Control room unit (optional)</b>	
Relay rating:	1A at 24V DC, 0.5A at 125V AC	Display:	2 numeric LCD displays configurable for Opacity, dust or optical density, 6 LED's for instrument status
Indicators:	1 LED per relay	Control:	Calibration cycle start
Ambient temperatures:	-20°C to 55°C	Mounting:	Half or full width 19" rack mount
Dimensions (LxDxH)	170 x 250 x 250mm	Power supply:	85-264V AC 48-62Hz universal input, 15W
Weight:	4kg	Dimensions: (LxDxH)	295 x 270 x 135.5
		Weight:	1kg

## Applications

- Power generation
- Waste incinerators
- Pulp and paper
- Mining and quarrying
- Metal and mineral processing
- Chemical
- Foundries
- Oil and gas refineries





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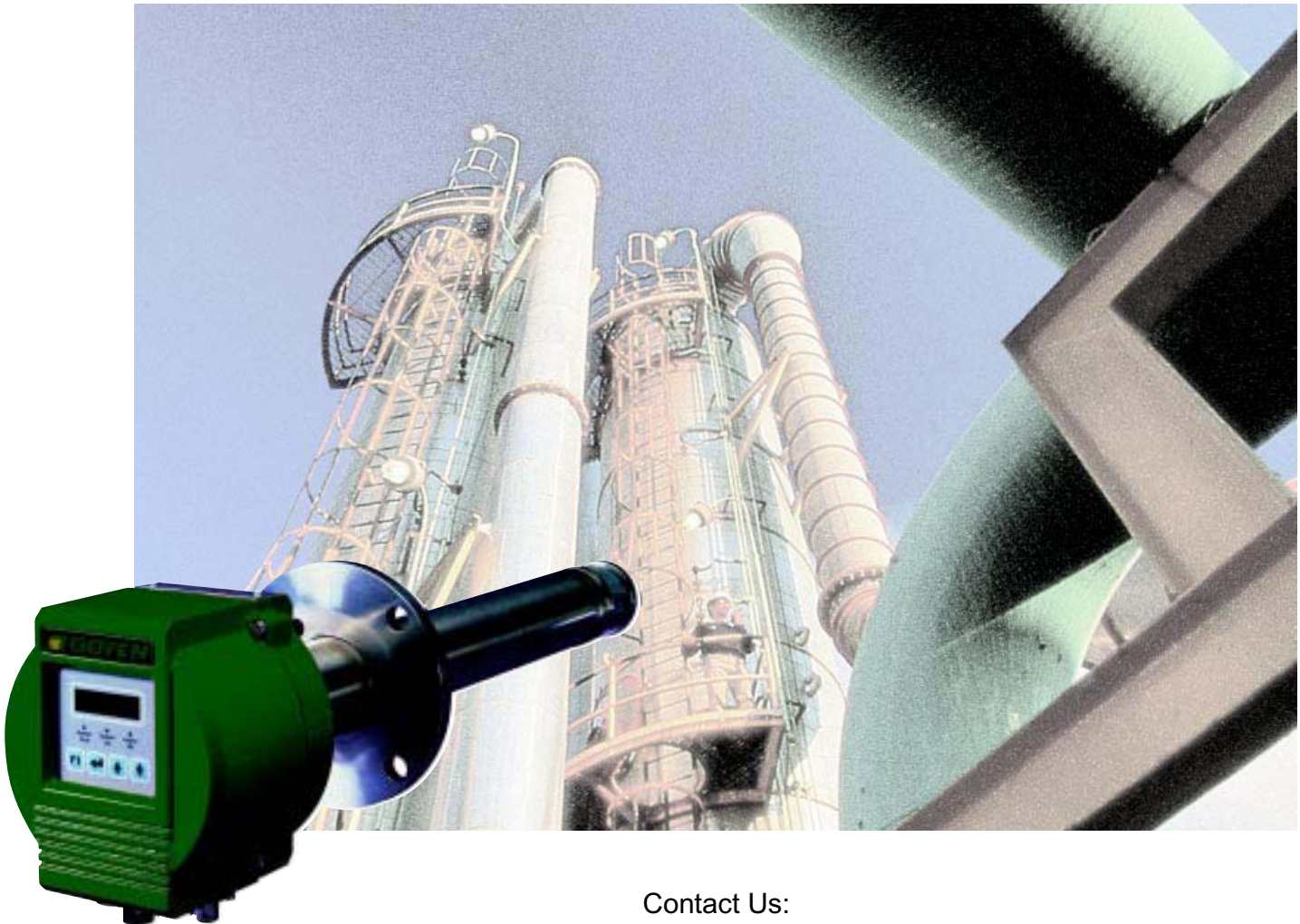


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# COA2000

## Flue Gas Oxygen Analyser Systems



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INNOVATIVE ENVIRONMENTAL SOLUTIONS

# COA 2000 Stand Alone System

The COA2000 is a fully-integrated oxygen analysis system. The COA2000 combines the measurement probe with the electronics, display and controls into a single unit.

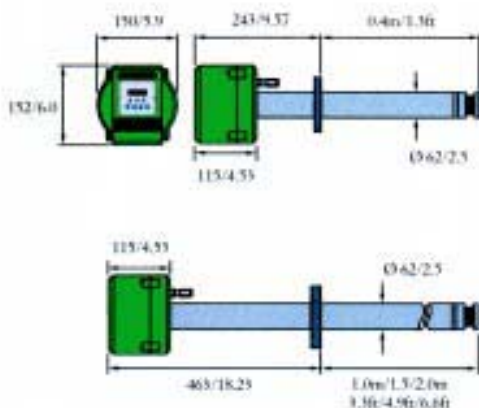
**Features:**

- Probe mounted display interface for local control
- Full control, calibration and diagnostics information
- Simple, push-button user interface with LED display
- Automatic fault detection plus modbus communications

## Technical Specification

**COA2000 Probe**

Measuring range:	0-25% vol. O <sub>2</sub>
Accuracy:	±1% of full scale
Repeatability:	±0.5% of full scale on analogue outputs
Response time:	90% of full scale within 5 secs.
Measuring method:	Zirconia oxide sensor
Flue gas temp:	0 to 600°C
Insertion length:	0.4 to 2.0m
Flue gas pressure:	Suitable for all normal positive or negative flue pressures ±20"wg
Probe material:	Stainless steel
Probe housing:	IP65/NEMA4
Lengths:	0.4/1.0/1.5/2.0m
Weight:	8.8 to 15.1 kg



COA2000 Integrated Oxygen Analysis System

**COA2000 Control and Display**

Display type:	Single-line 4 digit LED
Parameters:	O <sub>2</sub> concentration, calibration gas cell temperature, fault messages cell/thermocouple information

**Outputs**

Analogue O/P:	Single channel isolated 0 to 10; 0 to 20; 2 to 20; 4 to 20mA menu selectable
Ranges:	Selectable range 0 to 5; 0-25% v/v O <sub>2</sub>
Damping:	1 to 100s selectable
Serial output:	RS485 Modbus protocol
Alarm relays:	Single pole changeover 2A @ 30V AC/DC
Alarm:	High/low customer selectable system fault, maintenance/cal. in progress
Fault indication:	LED indication and error codes
Enclosure rating:	IP65/NEMA4
Power supply:	85-264V AC (auto selects) 50-620Hz
Power rating:	250W
Dimensions:	See diagram

**Calibration**

Types:	Manual; *automatic; remote trig.
Mode:	Option to track or hold
Operating temp:	-20°C to +70°C

\*Requires optional Automatic Calibration Gas Control Unit

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

# COA2010 & COA2020 Remote Display System

The Universal Control Unit has identical functionality to the control module of the COA2000

**Features:**

- Free mounting for remote control
- 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/NEMA4 protection



The Remote Display System comprises: Standard Measurement Probe and Universal Control Unit

**Power supply:** 82-132, 170-264V AC (auto selects) 50-60Hz

\*Requires optional Automatic Calibration Gas Control Unit

## Technical Specification

### Control/Display COA2000/2020

**Display type:** Single-line 4 digit LED  
**Parameters:** O<sub>2</sub> concentration, calibration gas cell temperature, fault messages cell/thermocouple information

**Outputs**

**Analogue output:** 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<sub>2</sub>  
**Damping:** 1 to 100s selectable  
**Serial output:** RS485 Modbus protocol  
**Alarm relays:** Single pole changeover 2A @ 30V AC/DC  
**Alarms:** System fault, maintenance/cal. in progress  
**Fault indication:** LED indication and error codes

**Calibration**

**Types:** Manual; \*automatic; remote trig.  
**Mode:** Option to track or hold  
**Operating temp:** -20°C to +70°C  
**Enclosure rating:** IP65/NEMA4

### COA2020 Universal Control Unit

**Probe connections:** Probe heater control, Sensor connection, Cold Junction, Sensor/Heater Thermocouple  
**Other connections:** Cal Trigger  
**Max. distance to probe:** 300m  
**Dimensions (LxWxD):** 130 x 152 x 153 mm  
**Weight:** 2.75kg

### COA2010 Oxygen Probe

**Measuring range:** 0-25% vol. O<sub>2</sub>  
**Accuracy:** ±1% of full scale  
**Repeatability:** ±0.5% of full scale on analogue outputs  
**Response time:** 90% of full scale within 5 seconds  
**Measuring method:** Zirconia oxide sensor  
**Flue gas temp:** 0 to 600°C  
**Insertion length:** 0.4 to 2.0m  
**Flue gas pressure:** Suitable for all normal positive or negative flue pressures ±20" wg  
**Probe material:** Stainless steel  
**Probe housing:** IP65/NEMA4  
**Lengths:** 0.4/1.0/1.5/2.0m  
**Weight:** 8.8 to 15.1 kg

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