

# CODEL

A Forbes Marshall Company

## EnergyTech 203 - CO and O2 Sensor

Minimal maintenance requirements - cost-effective ownership

Rapid, accurate results - for safe operation of coal handling systems

Analogue & digital- communication to DCS and SCADA systems



- ✓ Coal Mills
- ✓ Combustion Control
- ✓ Grinding Plants
- ✓ Coal Conveyers
- ✓ Silos

ISO 9001:2015  
Quality Certification

ISO 14001:2015  
Environmental Certification

Monitoring Solutions



www.codel.co.uk

## Key Features

- Compact powerful diaphragm pump for constant reliable sampling
- Automated self cleaning filter design
- Automated blockage check
- Temperature controlled Measurement Cell for maximum accuracy
- Automated back-flushing of probe filter
- Automated sample flow rate check
- Automated blockage check

The analyser is designed for applications such as

- Power Plant: biomass / gas / oil / coal
- Boiler Room
- Incinerator
- Metalworking Industry
- Paper Factory



Rugged & robust design developed for easy installation and maintenance

Rapid & accurate results

The EnergyTech 203 O<sub>2</sub> and CO analyser is the ideal equipment for fine tuning the air / combustible proportions in a way to improve process efficiency without compromising safety.

Combustion efficiency is determined by low-level oxygen excess in the flue gas and is limited by the production of hazardous combustible gas (mainly CO) at low oxygen concentrations. It is thus crucial to control the O<sub>2</sub> excess concentration as well the amount of combustible gas in the flue gas to optimise combustion.

Thanks to the CODEL infrared and zirconia technology, the analyser provides both oxygen concentration and an accurate measurement of CO in the flue gas.

The CODEL system samples the gas from the critical area through a steel sintered filter mounted in the wall of the chamber.

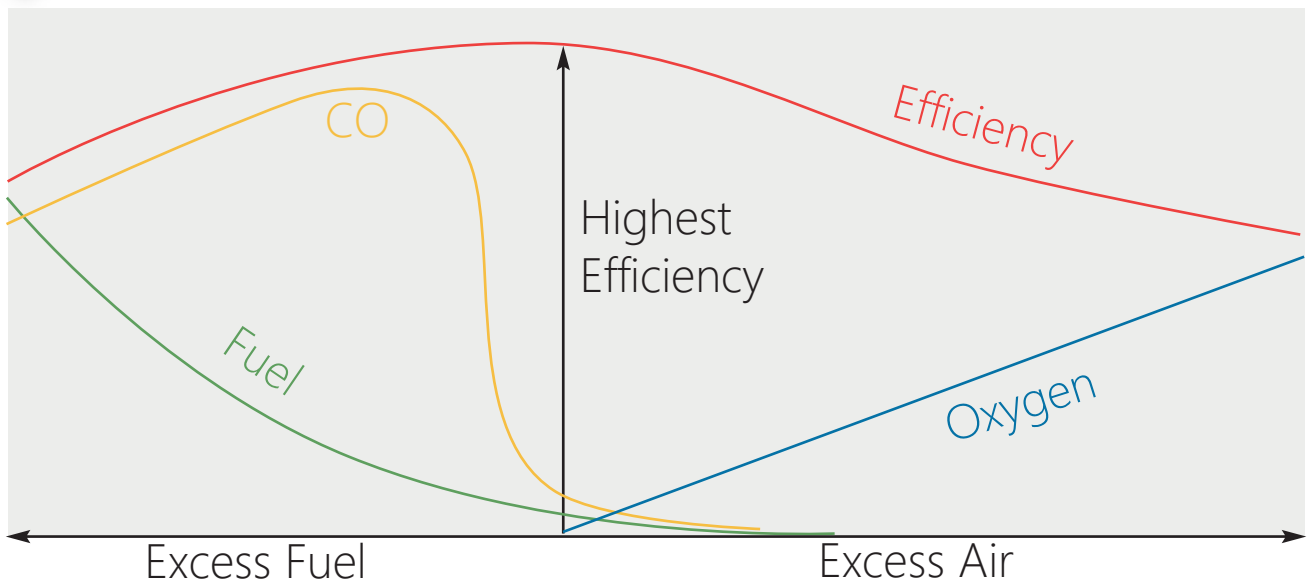
The filter is back flushed with compressed air at regular intervals to ensure an uninterrupted flow of sample gas and to minimise maintenance.

The sampled gas requires no further pre-conditioning and is carried via a sample line and pump to the measurement chamber which is equipped with a compact gas analyser. The measurement chamber is temperature controlled to avoid a build-up of corrosive condensation.

The analyser can re-calibrate automatically to minimise drift and ensure on-going high performance. The system also includes the facility to be checked manually against bottled audit gases.

Coal Silos · Coal Mills · Coal Bunkers · Grinding Plants · Coal Bag Houses · Coal Conveyers · Combustion Control

Process Efficiency Graph



Proven & robust sample port design with minimal maintenance required



# Technical Specification

## Sensor Unit

Operating Principle	Infrared Absorption (CO) / Zirconium (O2)
Span	*Fully selectable in the range 0-1000ppm (CO) / 0 - 25% (O2)
Response Time	30 Secs to T90 (CO) / < 15 Secs (O2)
Gas Species	Carbon Monoxide (CO) and Oxygen (O2)
Accuracy	± 10ppm or ± - 2% of span, whichever is greatest (CO) / 0.5% (O2)
Output resolution	5ppm (CO) / 0.01% (O2)
Zero and Span drift	± 10ppm or 2% of span
Linearity	± 10ppm or ± -2% of span whichever is greater
Repeatability	± 10ppm or ± -2% of span whichever is greater (CO) / 0.5% (O2)
Ambient Temperature	-20°C to +55°C
Construction	RAL7035 Structure powder coated mild steel sealed to IP66
Dimensions (mm)	H800 x W800 x D300
Sample Probe	Range of probes to suit application

## Compliances

EMC	89/336/EEC directive compliant
Low Voltage	73/23/EEC directive compliant)

## Customer Interface

Analogue Outputs	2 x 4-20mA current outputs as standard, isolated, 500Ω load max, fully configurable from keypad (additional outputs available, see optional items below)
Contact Outputs	1 x volt-free SPCO contact, 50V, 1A max, for data valid signal)
Diagnostic Data	RS485 port for MODBUS / Codel diagnostic use
Display	32 Character alpha-numeric back-lit LCD)
Keypad	4-key soft-touch entry

## Services

Power	110 - 240V AC @ Min 500W
Compressed Air	5-7 bar oil free clean compressed air – dry to -20°C Only required during filter back flush

\*Ranges up to 0-10,000ppm for CO available on request

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