

**continuous emissions  
monitoring  
systems**



**LAND**  
instruments international

**Combustion & Environmental Monitoring**

# CEM Systems

## Leaders in continuous flue gas emissions monitoring systems



Land Instruments International has been closely associated with flue gas emissions monitoring systems for over 50 years. The success of projects ranging from individual instruments through to fully integrated, turnkey systems has provided Land with very wide experience in this area. The combination of a broad product range and systems engineering excellence, enables all customers to have their individual specifications met by proven reliable solutions.

### Systems Engineering

Land Instruments International has unrivalled experience in providing total solution systems to meet exact customer requirements. Long-standing and successful partnerships have been established with both contractors and end-users worldwide. All applications are considered on an individual basis, with each solution engineered to meet the specific requirements of the project.

### Project Management

Land's systems engineering team has provided systems to meet the most exacting application requirements. Planning is the fundamental step in providing an engineered solution. This exercise will include:

- System Design*
- Design Approval*
- Manufacture*
- Testing*
- Factory Acceptance*
- Documentation*
- Packing & Shipping*

The structured plan will involve:

- Local Safety Considerations*
- Installation*
- Commissioning*
- System Operation*
- Measurement and Calibration*
- Maintenance*
- Service Requirements*
- Certification*
- Spare Parts and Consumables*
- Training*



### Quality Management

Land Combustion's ISO 9001 Quality Management System ensures that strict policies on design, manufacture and testing are met, and all performance and accuracy levels are adhered to. Customer specified and local legislative performance tests can be undertaken to confirm full compliance.

NO  
NO<sub>2</sub>  
NO<sub>x</sub>  
SO<sub>2</sub>  
CO<sub>2</sub>  
CO<sub>2</sub>  
O<sub>2</sub>  
Dust

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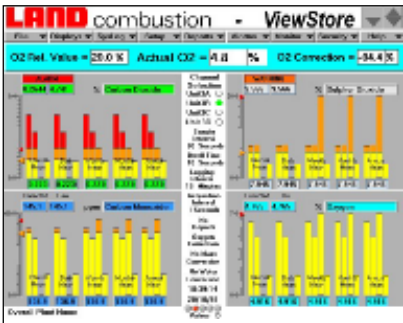
# Applications

Coal Fired Power Plants  
 Oil Fired Utilities  
 Combined Cycle Gas  
 Turbines  
 Combined Heat and Power  
 Waste Incineration  
 Boiler Systems  
 Low NOx burner systems  
 Petrochemicals  
 Steel  
 Glass  
 Hospitals

## Special Systems Capability

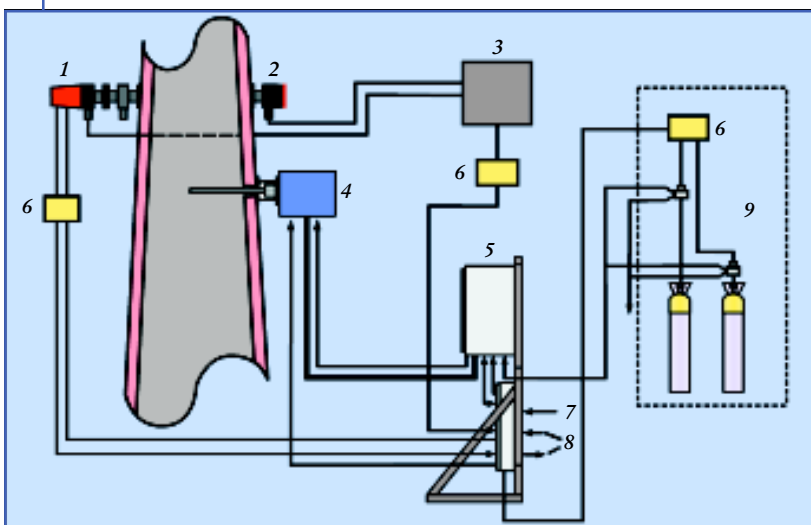
Land has successfully designed and engineered Continuous Emissions Monitoring Systems for a wide range of applications. Typical application requirements can include:

- Tailored sample systems*
- Heated probes*
- Heated sample lines*
- Multiple probes with sample switching units*
- Custom mounting arrangements*
- Explosion-proof housings*
- Dedicated data acquisition systems*
- SCADA linked systems*
- Turnkey software systems*
- Customer-specific terminations and relays*
- Special system outputs*



## FGA Solutions

The FGA Continuous Emissions Monitors are ideal for incorporation into custom-built systems. The inherent modular design, enables great flexibility in tailoring to exact specifications. FGA Systems have been successfully installed in a wide range of applications all around the world.



## Key to Schematic

1. Dust Transceiver
2. Dust Retroreflector
3. Purge Air Blower
4. Heated Probe Filter Unit
5. Emissions Analyzer
6. Local Control Unit
7. Power Input
8. DCDAS Signals
9. Gas Calibration Unit

*Example: A continuous emissions monitoring system illustrating system interconnections*

## Further Information

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## Technology Capability

NO  
NO<sub>2</sub>  
NO<sub>x</sub>  
SO<sub>2</sub>  
CO  
CO<sub>2</sub>  
O<sub>2</sub>  
Dust

- ADST measurement technology utilising sample probe and analyser.  
Range 0 - 20, 0 - 5000ppm
- ADST measurement technology utilising sample probe and analyser  
Range 0 - 20, 0 - 2000ppm or equivalent mg/Nm<sup>3</sup>
- Total NO<sub>x</sub> by measurement or calculation
- ADST measurement technology utilising sample probe and analyser  
Range 0 - 20, 0 - 500ppm or equivalent mg/Nm<sup>3</sup>
- Cross-stack infrared absorption analyser  
Range 0 - 1000 ppm (other ranges available)
- ADST measurement technology utilising sample probe and analyser  
Range 0 - 20, 0 - 4000ppm or equivalent mg/Nm<sup>3</sup>
- Extractive infrared absorption analyser  
Range 0 - 30% maximum
- Zirconia analyser, continuous non-sampling analysis  
Range 0 - 25% vol.
- ADST measurement technology utilising sample probe and analyser  
Range 0 - 10%, 0 - 25%
- Double-pass, cross-stack transmissometer, high accuracy unit with full automatic calibration.  
Ranges: Opacity 0 - 10% to 100%  
Optical Density 0 - 0.1 to 3.0  
Dust Density 0-100 to 9999mg/m<sup>3</sup>
- Double-pass, cross-stack transmissometer, high stability unit with manual calibration.  
Ranges: Opacity 0-10% to 100%  
Dust Density 0 - 10 to 999 mg/m<sup>3</sup>

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[www.landinst.com/comb/](http://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*

