

# Continuous Emission Monitoring Systems (CEMS)

Innovative product solutions keeping you compliant and operational for over 50 years



Our goal is to make cost-effective CEM products and solutions delivering highly accurate and repeatable measurements that just work, all the time – so you can focus on your business.

## Measurement made easy

— Continuous Emission Monitoring Systems (CEMS), innovative product solutions

## Introduction

This publication provides an overview of the following Continuous Emission Monitoring (CEM) solutions offered

by ABB Inc.:

- LGR cavity enhanced absorption analyzer
- ACF5000 multi-component FTIR CEMS
- AO2000 series continuous gas analyzers
- EL3000 series continuous gas analyzers
- AZ20 Zirconia O<sub>2</sub> probe
- FPD580 Stack DP flow measurement

## For more information

Publications for the associated sensors are available for free download from:

[www.abb.com/measurement](http://www.abb.com/measurement)

or by scanning this code:



EPA: MATS for Power



EPA: Portland Cement



LGR



ACF5000



AO2000



EL3000



AZ20



FPD580



Regulations recently promulgated by the US EPA require qualifying Power and Portland Cement plants to monitor Hydrogen Chloride (HCl) along with other toxic air pollutants:

- MATS for Power Plants is a new rule aiming to reduce mercury & other toxins at all coal- and oil-fired units with a capacity of 25 megawatts or greater.
- NESHAP for Portland Cement Plants sets new emission limits for Hg, THC, PM and HCl from new and existing cement kilns.

Whether you plan to retrofit HCl measurement to your existing system or install a new multi-component CEMS, ABB offers very compelling solutions.

## LGR cavity enhanced absorption

The acquisition of Los Gatos Research (LGR) in 2013 added a new line of high-performance and innovative laser-based analyzers to ABB's product offering;

- trace level measurement (0.2 ppb detection limit)
- compatible with dilution-extractive systems
- ideal for HCl measurement on exhaust stacks
- combination with NH<sub>3</sub> also possible in one unit
- very robust – exact alignment, gas pressure, gas temperature are not critical
- mirrors may be cleaned anywhere by anyone
  - portable and 19 inch rack mount packaging options

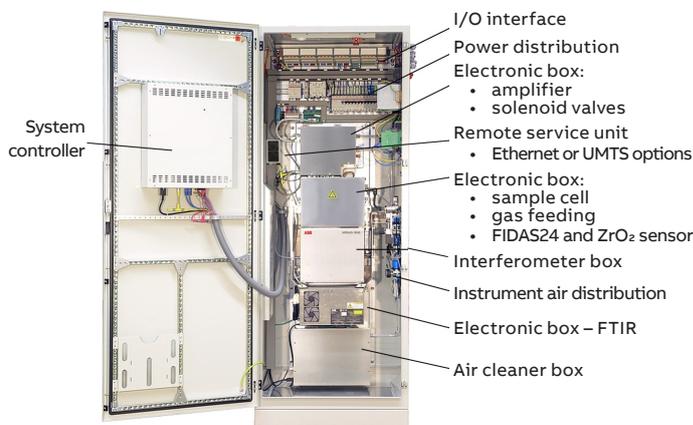


LGR cavity enhanced absorption analyzer

## ACF5000 multi-component FTIR

ABB were the pioneers of FTIR based CEMS introducing the first system to the market in 1993 and now with over 1500 installations worldwide:

- pre-engineered system based on >20 yrs experience
- close-coupled design ensures no cold spots
- no heated pump; injector with no moving parts
- automatic emergency purge to protect system
- high resolution spectrometer (1 cm<sup>-1</sup>) and TE-cooled
- DTGS detector offer improved sensitivity
- long-life laser (20 yrs) and IR source (>5 yrs)
- full remote system control via cellular network



ACF5000 multi-component FTIR CEMS

## EL3000 continuous gas analyzers

The EasyLine series is both a powerful and affordable line of instruments based on the same proven and reliable measuring technology used in all ABB continuous gas analyzers.

- powerful and affordable line of instruments
- easy operation, configuration and maintenance
- combine 2 analyzers inside one housing
- measure up to 5 components in one unit
- internal sample pump and flow sensor option
- automatic calibration without test gas cylinders



EasyLine continuous gas analyzers

ABB is the world’s leading manufacturer in the field of continuous gas analyzers – formerly known as Hartmann & Braun. ABB offers two series of source level extractive gas analyzers utilizing a range of measuring principles (e.g. NDIR, NDUV, Paramagnetic, FID). ABB also offers TDL absorption spectroscopy analyzers that measure in situ, directly at the stack or process line.

Analyzers will be delivered with an unrivaled range of innovative measurement technology, easy operation, simplified calibration and outstanding possibilities for integration in digital networks.

### AO2000 continuous gas analyzers

The Advance Optima series combine advanced technologies with market leading measuring technology which is based on over 75 years of experience in continuous gas analysis.

- integrated system concept – modular analyzers and sample conditioning connected on network
- high level of performance, highly configurable
- 4 analyzers connected to one central unit
- measure up to 6 components in one system
- internal PLC functionality



Advance Optima continuous gas analyzers

### AZ20 Zirconia O<sub>2</sub> probe

- Ultra low-drift sensor <0.2% of O<sub>2</sub> range/month
- Unique integrated auto-calibration feature
- Fully site-serviceable without special tools
- High temperature variant up to 2500 °F



AZ20 Zirconia O<sub>2</sub> probe

### StackFlowMaster DP flow measurement

- Continuous volume/mass flow and velocity
- Compensated for pressure and temperature
- Optional meter purging and auto. zero/span
- Suitable for 3.3 to 26.5 ft stack diameters and gas temperatures up to 2192 °F



StackFlowMaster DP flow measurement



NDIR



NDUV



Paramagnetic



FID



TDL



Cooler/Pump

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