

---

ABB MEASUREMENT & ANALYTICS

# **Continuous Emission Monitoring (CEM)**

Easy, cost-effective, compliant



# ABB's gas analyzer solutions

## Experts in emission monitoring

**In selecting ABB you are choosing a partner who offers the best measurement solution for your needs, enabling maximum return on your investment. When investing in ABB's measurement products and solutions you are receiving the best technology, reliability and service in the business.**

**Contact ABB for all your measurement needs – flow, pressure, temperature, level, flatness, tension, thickness, as well as a full-line of gas and liquid analyzers and valve automation solutions. All supported by first-class service world-wide.**

**Learn more at [www.abb.com/measurement](http://www.abb.com/measurement)**

Global warming, acid rain, air, water and soil contamination are all environmental issues that must be managed. Governmental and environmental pressure to monitor and reduce pollutants introduced into the environment will continue to increase.

ABB's emissions monitoring solutions have helped a wide variety of industries for over 50 years. Our Continuous Emission Monitoring Systems (CEMS) are designed to help customers maximize profit while operating in a sustainable way through technology and expertise.

ABB CEM solutions provide compliance with international, national and local environmental directives for measuring and reporting.

Did you know? ABB's analyzers are used in space to monitor greenhouse gas emissions from satellites.



# The right solution

## For every industry and application

ABB is dedicated to help our customers provide cleaner and more efficient fuels, cleaner and safer drinking water, cleaner and less harmful emissions and cleaner and less costly combustion processes. As a supplier of analyzers to the space program, we are proven and trusted in the most demanding applications.

Our full-line of in-situ and extractive gas analysis modules and systems are trusted by the following industries for CEM applications:

- Power generation
- Waste incineration
- Oil and gas
- Chemicals and petrochemicals
- Pulp and paper
- Metals and minerals
- Landfills and biogas
- Marine
- Cement production

### Why are they used?

#### Compliance to environmental regulations

- Avoid regulatory penalties
- Support process control
- Optimize combustion to reduce fuel and lower emissions
- Increase plant efficiency for extended lifetime of equipment
- Decrease operating and maintenance costs of the plant
- Improve productivity

#### Safety measurement

- Filter monitoring
- Leakage monitoring
- Explosion protection

### Where are they used?

- Stack emission monitoring
- FGD (flue gas desulfurization)
- HCl scrubber control
- DeNO<sub>x</sub> (SCR and SNCR)
- Dust filter monitoring, either electrostatic precipitator (ESP) or fabric filter
- Boiler control
- Turbo generator
- Coal mill and coal bin

### Our offering

- Continuous gas analyzers and sampling handling equipment
- Pre-engineered continuous gas analyzer cabinets
- Turn-key systems tailored to your needs, including third party products
- Solutions to reduce total cost of ownership (TCO)
- Upgrade packages to improve your equipments' performance during the lifecycle
- Commissioning support
- Maintenance contracts
- A worldwide and reliable partner providing comprehensive support

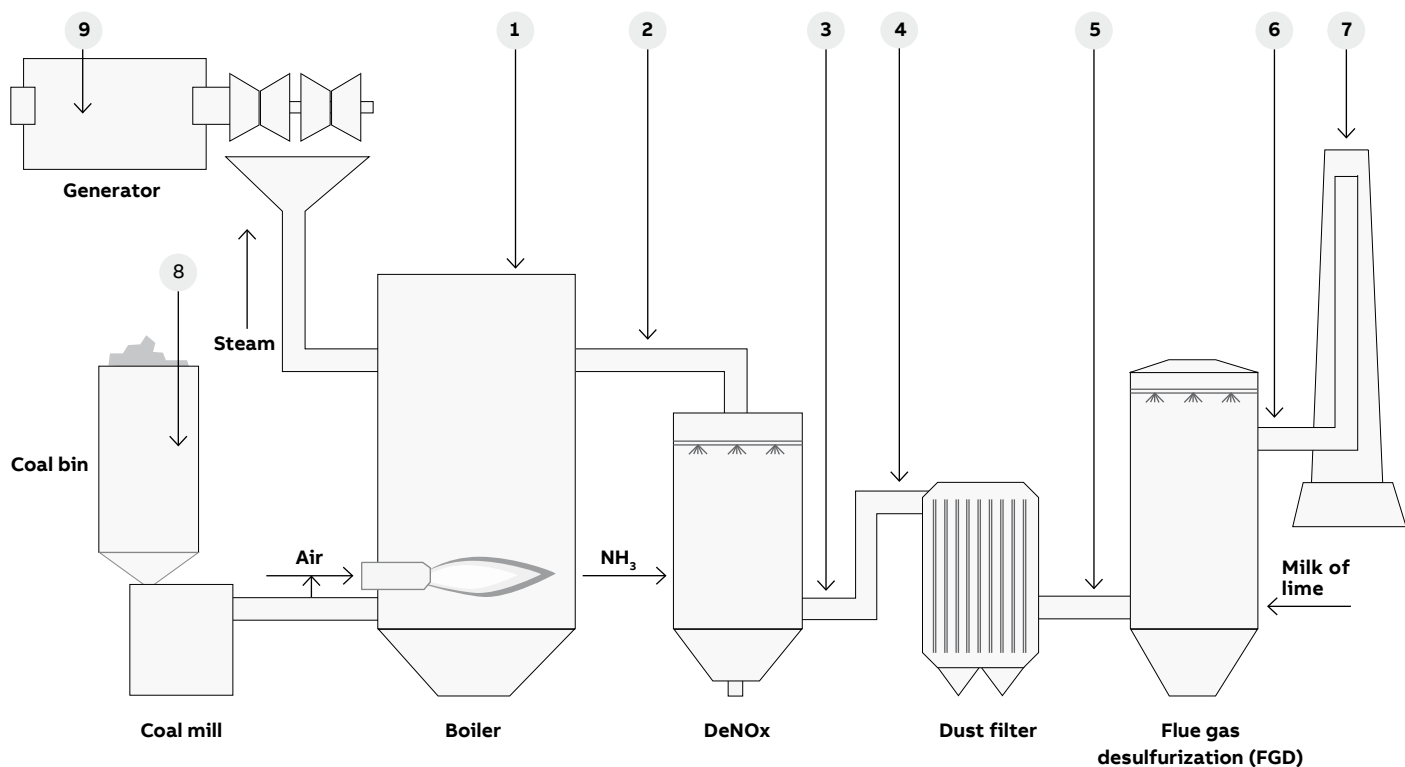
Did you know? ABB is the market leader for emission monitoring with 50,000 analyzers installed worldwide.





# Example 1 – Thermal power plant

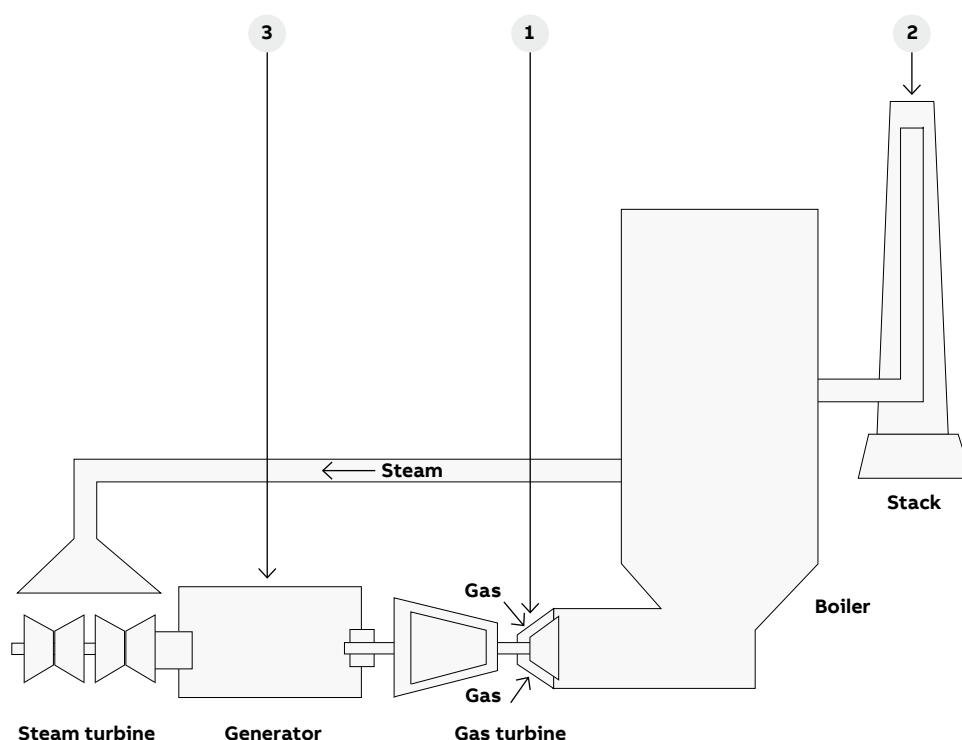
## Measuring points and solutions



Measuring point	Application	Measuring task	Measuring components	Solution	Analyzers
1	Boiler control	<ul style="list-style-type: none"> <li>– Optimization of combustion</li> <li>– Lower fuel consumption</li> </ul>	CO, O <sub>2</sub>	ACX, LS25, LS4000, AZ20	Uras26, Magnos206
2	DeNOx upstream	<ul style="list-style-type: none"> <li>– Monitor NOx to control treatment process</li> </ul>	NO, NO <sub>2</sub> , NOx, O <sub>2</sub>	ACX	Uras26, Limas11 UV, Magnos206
3	DeNOx downstream	<ul style="list-style-type: none"> <li>– Effectiveness of DeNOx</li> <li>– NH<sub>3</sub> slip control</li> </ul>	NO, NO <sub>2</sub> , NOx, NH <sub>3</sub> , O <sub>2</sub>	ACX, ACX + LS25	Limas11 UV, Uras26, Magnos206
4	Dust filter monitoring	<ul style="list-style-type: none"> <li>– Safety measurement</li> <li>– Explosion protection</li> </ul>	CO, CO <sub>2</sub> , O <sub>2</sub>	ACX, LS25	Uras26, Magnos206
5	FGD upstream	<ul style="list-style-type: none"> <li>– Control of FGD process</li> <li>– E.g. milk of lime dosing</li> </ul>	SO <sub>2</sub>	ACX	Uras26
6	FGD downstream	<ul style="list-style-type: none"> <li>– Effectiveness of FGD</li> </ul>	SO <sub>2</sub> , O <sub>2</sub>	ACX	Uras26, Limas11, Magnos206
7	Stack	<ul style="list-style-type: none"> <li>– Emission monitoring</li> </ul>	CO, NOx, SO <sub>2</sub> , O <sub>2</sub> ,... HCl, NH <sub>3</sub> , HF, flow	ACX, LS25 ACF, FPD580	Uras26, Limas11 UV, Magnos206, StackFlowMaster
8	Coal bin monitoring Coal mill monitoring	<ul style="list-style-type: none"> <li>– Safety measurement</li> <li>– Detection of smoldering fire</li> </ul>	CO	ACX, LS25	Uras26
9	Turbo generator monitoring	<ul style="list-style-type: none"> <li>– Safety measurements</li> <li>– Leakage monitoring</li> <li>– Inertization and filling</li> </ul>	H <sub>2</sub> in air, CO <sub>2</sub> in air, H <sub>2</sub> in CO <sub>2</sub>		Caldos (Ex or GP)

# Example 2 – Combined cycle gas turbine power plant

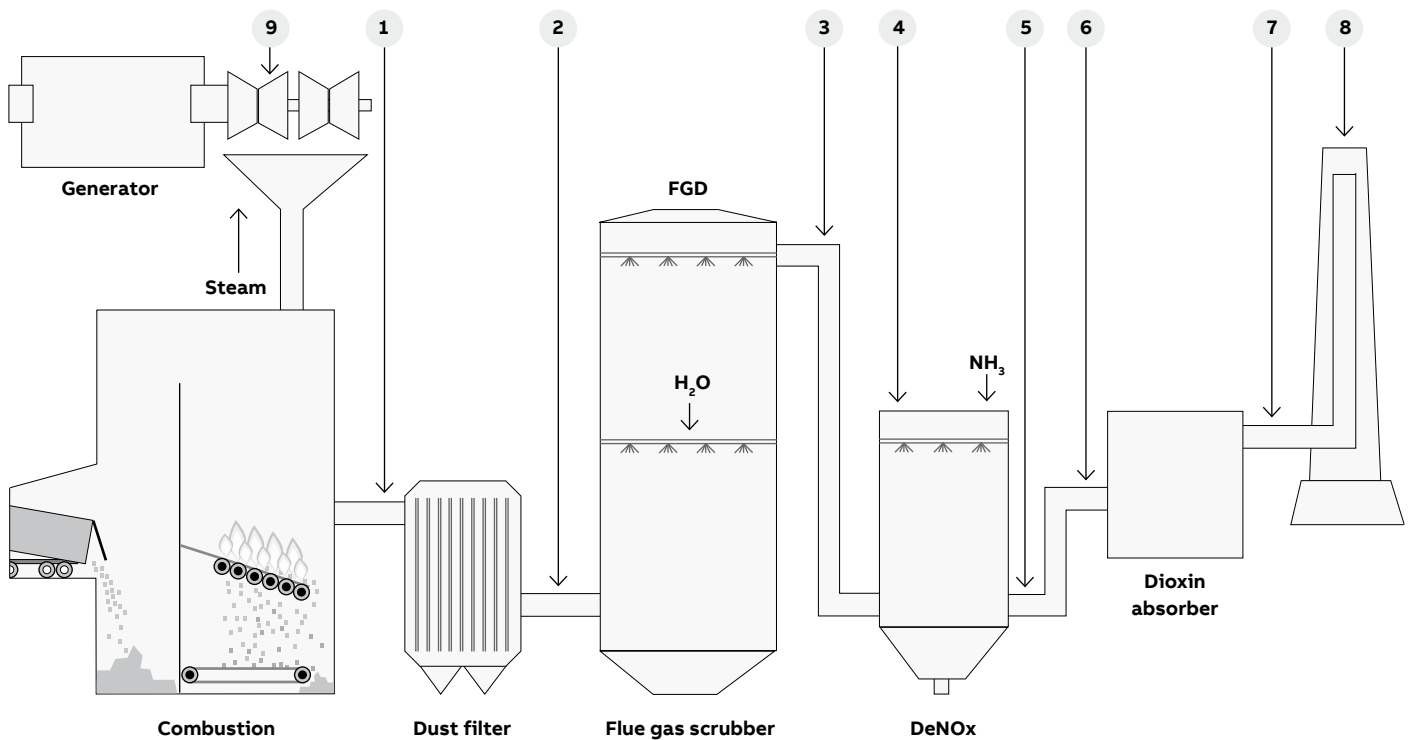
## Measuring points and solutions



Measuring point	Application	Measuring task	Measuring components	Solution	Analyzers
1	Gas Turbine	Fuel mix monitoring Process control	CH <sub>4</sub> , C <sub>2</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>8</sub> , CO <sub>2</sub> , H <sub>2</sub> , O <sub>2</sub>		Uras26 Magnos206 Caldos25/27
	Boiler control	Optimization of combustion Lower fuel consumption	CO, O <sub>2</sub>	ACX, LS25, LS4000, AZ20	Uras26 Magnos206
2	Stack	Emission monitoring	NH <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , O <sub>2</sub> , HF, HCl, CO, NO <sub>x</sub> ,	ACF-NT, ACX, LS25	Uras26 Limas11 UV Magnos206
3	Turbo generator monitoring	Safety measurements Leakage monitoring Inertization and filling	H <sub>2</sub> in air, CO <sub>2</sub> in air, H <sub>2</sub> in CO <sub>2</sub>		Caldos (Ex or GP)

# Example 3 – Incinerator

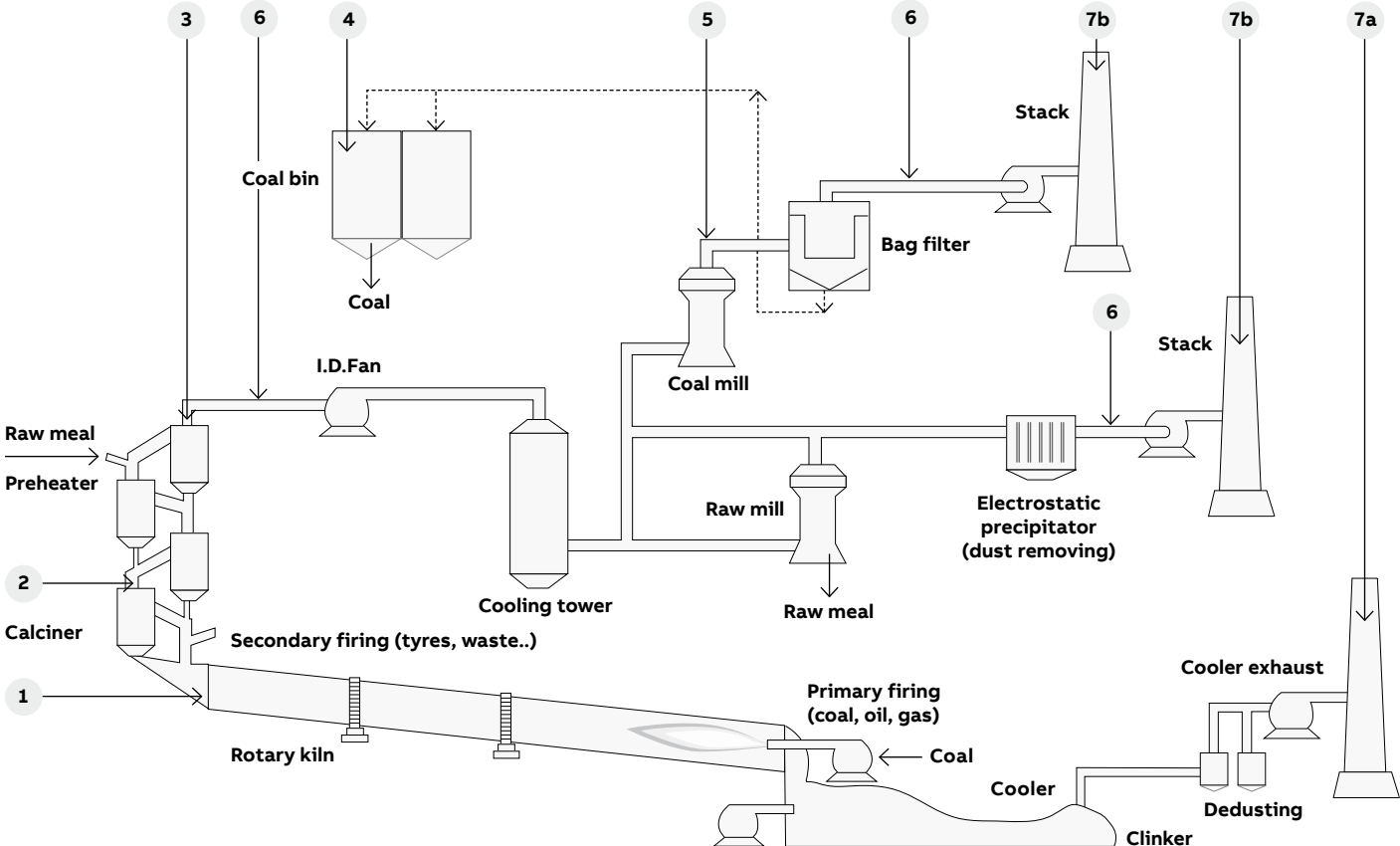
## Measuring points and solutions



Measuring point	Application	Measuring task	Measuring components	Solution	Analyzers
1	Boiler and dust filter control	<ul style="list-style-type: none"> <li>– Optimization of combustion</li> <li>– Dust filter explosion protection</li> <li>– Catalyzer protection</li> </ul>	CO, O <sub>2</sub>	ACX, LS25, LS4000, AZ20	Uras26, Magnos206
2	Flue gas scrubber upstream	<ul style="list-style-type: none"> <li>– Process control</li> <li>– E.g. milk of lime dosing</li> </ul>	SO <sub>2</sub> , HCl, H <sub>2</sub> O	ACX + LS25	Limas11
3	Flue gas scrubber downstream	<ul style="list-style-type: none"> <li>– Efficiency of flue gas scrubber</li> </ul>	SO <sub>2</sub> , HCl, H <sub>2</sub> O	ACX + LS25	Uras26, Limas11
4	DeNOx upstream	<ul style="list-style-type: none"> <li>– Monitor NOx to control treatment process</li> </ul>	NO, NO <sub>2</sub> , NOx, O <sub>2</sub>	ACX	Uras26, Magnos206
5	DeNOx downstream	<ul style="list-style-type: none"> <li>– Efficiency of SCR/SNCR</li> </ul>	NO, NO <sub>2</sub> , NH <sub>3</sub> , O <sub>2</sub>	ACX + LS25	Uras26, Magnos206
6	Dioxin absorber upstream	<ul style="list-style-type: none"> <li>– CO for absorber efficiency</li> </ul>	CO	ACX	Uras26
7	Dioxin absorber downstream	<ul style="list-style-type: none"> <li>– Delta CO for absorber efficiency</li> </ul>	CO	ACX	Uras26
8	Stack	<ul style="list-style-type: none"> <li>– Emission monitoring</li> </ul>	CO, NOx, N <sub>2</sub> O, SO <sub>2</sub> , O <sub>2</sub> , NH <sub>3</sub> , HCl, HF, VOC	ACF	Uras26, Magnos206, Fidas24
9	Turbo generator monitoring	<ul style="list-style-type: none"> <li>– Safety measurements</li> <li>– Leakage monitoring</li> <li>– Inertization and filling</li> </ul>	H <sub>2</sub> in air, CO <sub>2</sub> in air, H <sub>2</sub> in CO <sub>2</sub>		Caldos (Ex or GP)

## Example 4 – Cement production

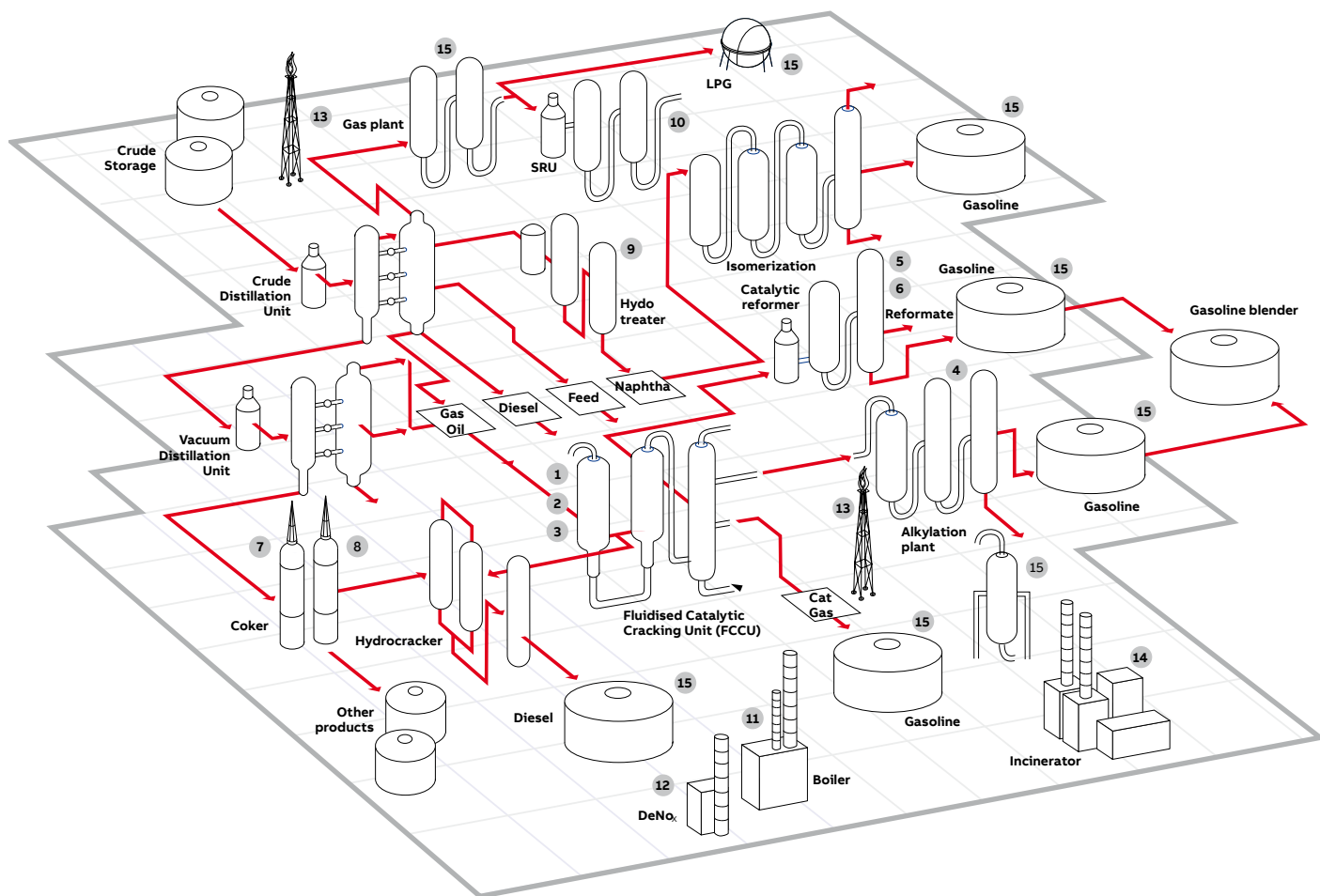
### Measuring points and solutions



Measuring point	Application	Measuring task	Measuring components	Solution	Analyzers
1	Kiln gas outlet	<ul style="list-style-type: none"> <li>– Optimization of primary firing</li> <li>– Lower fuel consumption</li> <li>– Maintain clinker quality</li> </ul>	CO, O <sub>2</sub> , NO, CO <sub>2</sub> , CH <sub>4</sub> , SO <sub>2</sub>	ACX + SCK	Uras26, Limas11, Magnos27
2	Calcliner	<ul style="list-style-type: none"> <li>– Optimization of secondary firing</li> <li>– Lower fuel consumption</li> </ul>	CO, O <sub>2</sub>	ACX, ACX + SCK	Uras26, Magnos27
3	Preheater	<ul style="list-style-type: none"> <li>– Safety measurement</li> <li>– Prevention of explosion in ESP</li> <li>– Control of false air in preheater</li> </ul>	CO, O <sub>2</sub>	ACX, LS25	Uras26, Magnos27
4	Coal bin	<ul style="list-style-type: none"> <li>– Safety measurement</li> <li>– Prevention of smoldering (Monitor of air entrance)</li> </ul>	CO, (O <sub>2</sub> )	ACX, LS25	Uras26, (Magnos27)
5	Coal mill	<ul style="list-style-type: none"> <li>– Safety measurement</li> <li>– Prevention of smoldering</li> <li>– Monitor of air entrance</li> </ul>	CO, O <sub>2</sub>	ACX	Uras26, Magnos27
6	DeNOx	– NH <sub>3</sub> measurement	NH <sub>3</sub>	LS25	
7a	Stack	– Emission monitoring	CO, O <sub>2</sub>	ACX	Uras26, Magnos206
7b	Stack	– Emission monitoring	CO, NOx, SO <sub>2</sub> , O <sub>2</sub> , CO <sub>2</sub> , HCl, VOC, HF	ACF, ACX + LS25	

# Example 5 – Refinery

## Measuring points





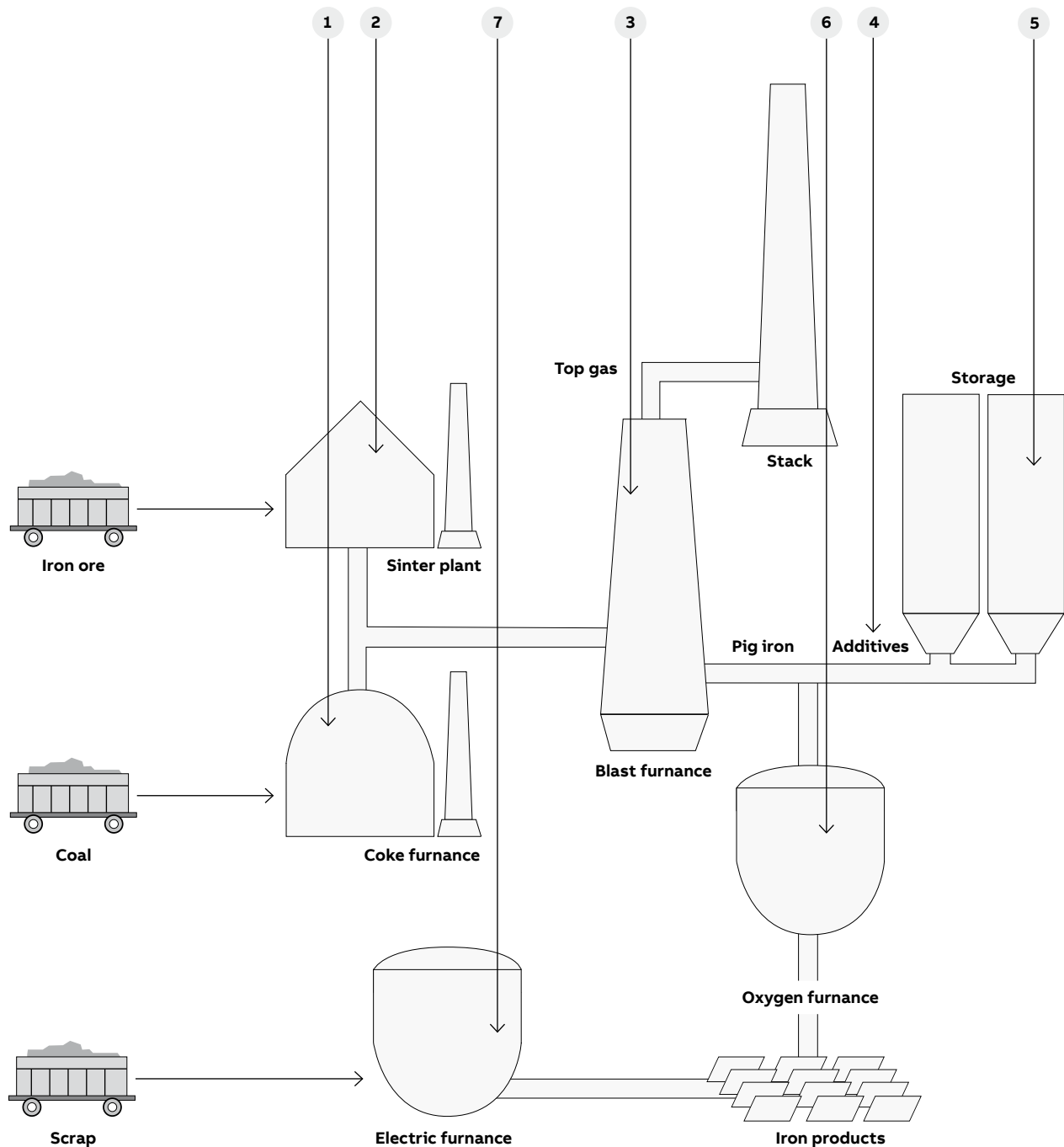
# Example 5 – Refinery

## Measuring points and solutions

Measuring point	Unit – application	Measuring task	Measuring components	Solution	Analyzers
1	<b>Catalytic cracker</b> – Gas abatement after regenerator	– Emission monitoring – Flue gas effectiveness	NO, NO <sub>2</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub>	ACX	Uras26
2	<b>Catalytic cracker</b> – Regenerator flue gas	– Combustion optimization	CO, CO <sub>2</sub>	ACX	Uras26
3	<b>Catalytic cracker</b> – Off-gas	– Catalyst efficiency to minimize waste and improve fuels yield	CO, CO <sub>2</sub> , O <sub>2</sub>	ACX	Uras26, Magnos206
4	<b>Alkylation unit</b> – Stack	– Emission monitoring	NO, NO <sub>2</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub> , HF	ACF, ACX + LS25	Uras26, Limas11
5	<b>Catalytic reformer</b> – Wet scrubber	– Scrubber effectiveness	CO <sub>2</sub>	ACX	Uras26
6	<b>Catalytic reformer</b> – Furnace	– Combustion optimization	CO <sub>2</sub> , O <sub>2</sub>	ACX, LS25, LS4000	Uras26, Magnos206
7	<b>Coking unit</b> – Coke calciner	– Green coke calcinations	NO, NO <sub>2</sub> , N <sub>2</sub> O, SO <sub>2</sub> , CO	ACX	Uras26, Limas11
8	<b>Coking unit</b> – Flue gas coker	– Combustion optimization	CO, O <sub>2</sub>	ACX, LS25, LS4000	Uras26, Limas11, Magnos206
9	<b>Hydrotreater</b> – Flue gas	– Combustion optimization	CO, O <sub>2</sub>	ACX, LS25, LS4000	Uras26, Magnos206
10	<b>Sulfur recovery unit</b> – Stack	– Emission monitoring	SO <sub>2</sub> , O <sub>2</sub>	ACX	Limas11, Magnos206
11	<b>Boilers</b> Process furnaces Gas turbines	– Combustion optimization	NO, NO <sub>2</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub>	ACX	Uras26, Limas11
12	<b>DeNOx</b> with SCR/SNCR	– Optimize denitrification	NO, NO <sub>2</sub> , NH <sub>3</sub> , N <sub>2</sub> O	ACX + LS25	Limas11, Uras26
13	<b>Flares</b>	– Safety monitoring	O <sub>2</sub>	LS4000	
14	<b>Incinerators</b>	– Emission monitoring	NO, NO <sub>2</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub> , N <sub>2</sub> O	ACX	Uras26, Limas11
15	Gas separators Storage facilities Oil/water separators Fugitive emissions points Vents	– Safety – Explosions prevention	O <sub>2</sub> , VOCs	ACX	Magnos206, MultiFID

# Example 6 – Iron & Steel

## Measuring points



# Example 6 – Iron & Steel

## Measuring points and solutions

Measuring point	Unit	Measuring task	Measuring components	Solution	Analyzers
1	Coke furnace	Process optimization	CO, CO <sub>2</sub> , O <sub>2</sub>	ACX	Uras26 Magnos206
		Safety monitoring	O <sub>2</sub>	LS4000	
2	Sinter plant	Kiln optimization	CO, CO <sub>2</sub> , O <sub>2</sub>	LS25, LS4000	Uras26 Magnos206
		Oxygen leakage	O <sub>2</sub>	LS25, LS4000	
3	Blast furnace	Transverse probe (above burden/under burden) blast furnace optimization	CO, CO <sub>2</sub> , H <sub>2</sub> , (O <sub>2</sub> )		Uras26 Caldos27 (Magnos206)
		Riser tube measurement Oven symmetry	CO, CO <sub>2</sub> , H <sub>2</sub>		Uras26 Caldos27
		Top gas measurement – Gas very dirty	CO, CO <sub>2</sub> , H <sub>2</sub>		Uras26 Caldos27
		Top gas measurement – Gas semi clean	CO, CO <sub>2</sub> , H <sub>2</sub> , H <sub>2</sub> O	LS25	Uras26 Caldos27
		Cowper waste gas Burner optimization	CO, O <sub>2</sub>	LS4000, LS25	Uras26 Magnos206
		Cold blast – Process optimization	O <sub>2</sub>	LS4000	
4	Additives	AOD converter off-gas Process control	CO		Uras26
5	Storage Hot Metal Desulphurization (HMDS)	Calcium carbide silo – Safety monitoring	C <sub>2</sub> H <sub>2</sub> , O <sub>2</sub>		Uras26 Magnos206
		Magnesium silo – Safety monitoring	O <sub>2</sub>		Magnos206
6	(Basic) oxygen furnace	Converter off-gas Process control & safety monitoring	CO, CO <sub>2</sub> , H <sub>2</sub> , O <sub>2</sub>		Uras26 Caldos27 Magnos206
		Process control & safety monitoring > T <sub>90</sub> , lower temperature	CO, CO <sub>2</sub> , H <sub>2</sub> , O <sub>2</sub>		Uras26 Caldos27 Magnos206
		ESP <sup>1</sup> , flare or consumer – safety monitoring	CO, O <sub>2</sub>	ACX fast, LS25, LS4000	Uras26 Magnos206
		Leakage detection	H <sub>2</sub> O	LS25	
7	Electric (arc) furnace	EAF off-gas monitoring Process & safety monitoring	CO, CO <sub>2</sub> , O <sub>2</sub>	LS4000, LS25	Uras26 Magnos206
Others 1-7	Stack/off-gas	Emission monitoring	CO, NO <sub>x</sub> , SO <sub>2</sub> , O <sub>2</sub> , NH <sub>3</sub> , HF, HCl	ACF, ACX LS25	Uras26 Magnos206
	Hot strip mill – slab reheating Steel rolling – pickling line	Monitoring	SO <sub>2</sub> , NO <sub>x</sub> , O <sub>2</sub> , NH <sub>3</sub> HCl	ACF LS25	Uras26 Magnos206

1 Electrostatic precipitator

# The ACX gas analyzer system

## A complete cold extractive CEM solution

ACX is a pre-engineered system solution for continuous gas analysis, including everything from probe, sample lines and sample conditioning to reliable and certified analyzers of the Advance Optima series. The system can be operated from a keypad and display in the front door without opening the shelter.

The system is available with various options to be tailored to your measuring tasks; it is especially designed for easy service and maintenance.

ACX is suitable for non water-soluble components – typically NO, NO<sub>2</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, SO<sub>2</sub>, CH<sub>4</sub>, O<sub>2</sub>, VOC.



### ACX benefits

#### Reliability

- Compliant according European, US and international standards
- Wide range of proven analyzers combined with worldwide support for engineering and certified service

#### Profitability

- Saving time and money with automatic calibration through built-in calibration cell without gas bottles
- Cost reduction for routine maintenance through self-diagnostic and remote control

#### Flexibility

- Wide range of options to serve all relevant gas analysis applications
- Easy integration in customer network through a broad variety of process interfaces and connectivity options

### ACX offers

- Up to six measuring components, up to four analyzers and the appropriate gas sampling and sample conditioning
- Compact and innovative standardized design: available in sheet steel or glass fiber cabinet, or mounting plate with separate control unit and electrical distribution
- Convenient and easy external operation
- Process industry interfaces: Modbus, PROFIBUS or Ethernet for networking with PC, connection to PLC and process control system or integration in Windows application
- Self-diagnostic functions for easy service and maintenance: integrated and comprehensive self-control functions, worldwide access for remote service
- Free licensed Analyze IT Explorer software for asset management and worldwide access for remote maintenance via Ethernet
- Certified analyzers with proven measuring technology: infrared/UV photometer, paramagnetic oxygen analyzer, electrochemical oxygen sensor, FID analyzer

Did you know? The ACX system can also integrate other suppliers signals (e.g. dust, P, T, V, mercury etc.) to transmit via serial line to DCS or DAHS.

# ACF – Certified FTIR solution

## A complete hot extractive CEM solution

ACF is a fully certified analyzer system to accurately monitor the composition of exhaust gases.

- A completely pre-engineered CEM system for easy operation
- With lowest maintenance interval in the market
- Worldwide certified support

### ACF offers

- Measurement of 15 gas components
- Hot/wet extractive measurement
- Powerful FTIR technology
- Proven FID and  $\text{ZrO}_2$  sensors to measure the unburned hydrocarbons and the oxygen content
- Completely pre-engineered system with a compact and modular design
- Communication, control and maintenance via fieldbus and Ethernet/TCP or modem

### International certifications

- TÜV certification according to the German and European requirements, EU Directives 2000/76/EC, 2001/80/EC and EN 14181
- MCERTS certified in Great Britain
- Compliant to US and Canadian EPA requirements

ACF is suitable for all components, including water soluble – typically  $\text{NO}$ ,  $\text{NO}_2$ ,  $\text{N}_2\text{O}$ ,  $\text{NH}_3$ ,  $\text{SO}_2$ ,  $\text{HCl}$ ,  $\text{CO}$ ,  $\text{CO}_2$ ,  $\text{CH}_4$ ,  $\text{H}_2\text{O}$ ,  $\text{HF}$ ,  $\text{O}_2$ , VOC.

### ACF benefits

#### Reliability

- More than 20 years experience with FTIR spectrometers in gas analysis and more than 1300 installations worldwide
- Fully compliant to European and international legislations
- Worldwide support through certified service engineers

#### Profitability

- System availability of 99 %
- Best maintenance interval in the market
- Maintenance-free sample transportation through aspirator pump
- Cost reduction for routine maintenance through remote control and diagnosis

#### Flexibility

- Ready for operation – only electrical power supply and instrument air are needed
- Easy adding of further measuring components – no additional hardware
- Extra gas port to connect other analyzers – no need for a separate probe





# LS25, LS4000

## Tunable diode laser analyzer



Solution suitable for measurement directly in the process.

Typically  $O_2$ ,  $NH_3$  (+ $H_2O$ ),  $HCl$  (+ $H_2O$ ),  $H_2O$ ,  $CO$ ,  $CO_2$ , etc.

LS25 and LS4000 are in situ cross-duct analyzer for measuring gas component concentrations. Both apply the highly selective, optical measuring principle of tunable diode laser (TDL) absorption spectroscopy.

For measurement purposes a single absorption line is selected from the gas to be measured in the near infrared spectral range, at which no cross-sensitivity from other gases occurs. The absorption line is scanned and the receiver located opposite detects the absorption caused by the sample gas and calculates the gas concentration from this. The transmission rate is displayed as a signal for predictive maintenance.

### LS25

As an integrated part of the Advance Optima series the LS25 can be combined with further analyzer modules and completely operated remotely in Ethernet networks. The LS25 holds ATEX and CSA certificates for hazardous locations as well as European emission certificates for  $NH_3$  and  $H_2O$  according to EN14181/EN15267.

### LS4000

The LS4000 is a stand-alone system and is approved for use in hazardous areas according to international standards. The device consists of a transmitter unit with a laser light source and a receiver unit with a photodetector. The two units are mounted opposite each other on the process pipe or stack and are connected by a junction box.

### Typical applications

- Process control and safety monitoring
- Combustion control
- Control of flue gas abatement equipment e.g. ammonia slip measurements
- Emission monitoring

### Typical industries served

- Chemical and petrochemical industry
- Power industry
- Iron and steel industry

LS4000



# AZ20

## Optimizing combustion efficiency



Efficient combustion of a fuel in any industrial process is essential in cutting operating costs while reducing pollution to enable compliance with environmental legislation.

### **The challenge of finding the right air/fuel mix**

The ratio of air to fuel is a critical factor in efficient combustion. Where there is just sufficient oxygen to ensure complete combustion, this ratio is known as the stoichiometric mixture, and  $\lambda$  equals one. This is a theoretical value which cannot normally be achieved in industrial combustion processes. Values for  $\lambda$  of around 1.1 and above are more usual.

Controlling the air supplied to the combustion process is a fine balancing act. Insufficient air will mean incomplete combustion of fuel, resulting in fouling of heat transfer surfaces and emissions of soot, smoke and carbon monoxide. If air levels are too high, heat efficiency is reduced as the extra air carries more heat away in the flue gas, reducing overall boiler efficiency.

### **The solution is to measure your flue gas oxygen**

The level of oxygen present in the combustion waste gas is a key indicator of the amount of excess air supplied to the process. Oxygen measurement is therefore critical when optimizing combustion control for maximum efficiency.

ABB offers a range of combustion gas analyzers to accurately measure the oxygen concentration in a wide range of combustion processes. The analyzers can be used in conjunction with ABB's Sensyflow thermal mass flowmeters to regulate the amount of air supplied to the burner.

**AZ20 combustion gas oxygen analyzer**



# Advance Optima and EasyLine

## Proven and reliable analyzers

The modular gas analyzers Advance Optima combine advanced technologies with more than 75 years of experience in process and environmental gas analysis. They are the innovative solution for the demands of today and the challenges of tomorrow. The Advance Optima series can be used in almost every form of production and has proven itself in the toughest processing environments.

### Advance Optima key features

- Full compliance with international environmental directives
- Automatic calibration and proven calibration cuvettes to save time and money for maintenance
- Top performance with unrivalled economy
- Up to four fully combinable analyzer modules
- Up to six measuring components
- Ex versions available
- In-built PLC functionality with function block programming
- Multi-analyzer systems
- Simple, user-friendly operation
- Unlimited communication – information anywhere
- Analog I/O, digital I/O
- Remote control available
- Analyze IT Explorer: comprehensive asset management software including QAL3 functionality

EasyLine is both a powerful and affordable series of instruments for the monitoring of gas concentrations in numerous applications. EasyLine is based on the proven and reliable analyzer technology of ABB for extractive continuous gas analysis.

### EasyLine key features

- Full compliance with international environmental directives
- Internal quality control and fully automatic QAL3 reporting
- Automatic calibration and proven calibration cuvettes to save time and money for maintenance
- The efficient alternative
- Combine two analyzers in one enclosure for an excellent price-performance ratio
- Up to five measuring components in one unit
- Ex versions available
- Easy connection for data acquisition
- Analog outputs, digital I/O, Modbus, PROFIBUS
- Easy to operate, Asian languages available
- Internal quality control and reporting





# FPD580

## CEM solution for emissions flow monitoring



StackFlowMaster is an ideal complement to CEM packages, meeting regulatory requirements and offering a total CEM solution from ABB

### **The challenge of quantifying the pollutants emitted**

The release of stack emissions in many parts of the world is subject to legislation on the metering of the concentration and quantity of pollutants discharged to the environment. The legislation covers the performance standards that analyzer and flow monitoring systems must meet and specifies the testing and approval regimes required to ensure these standards are met, both at the time of purchase/installation and also during the operating life.

The flow metering gas can be complicated by the presence of one or more of the following factors that will affect the choice of meter technology that can be used, its materials of construction and method of installation:

- High temperatures
- Large diameter stacks
- Significant particulate loading

### **The solution is a robust flow metering system**

StackFlowMaster is an averaging pitot tube flowmeter which incorporates a multivariable transmitter for compensated gas flows. Available with flanged or threaded stack connections, StackFlowMaster measures the flow in stacks both small

and large, with alternative materials available for high temperatures. An end-supported design and/or a probe with a greater diameter is available for large diameter stacks.

A choice of materials is available to handle both the corrosive properties of the gas and its temperature. Where particulates in the gas could cause blockages, an optional automatic air purging system is available. To simplifying compliance with legislative requirements for meter verification, an automatic zero and span calibration facility is available, enabling verification to be carried out without the need for either external test equipment or partial dismantling of the meter.



# ABB Service portfolio

## Putting your mind at ease

The ABB service offers a comprehensive portfolio to keep your analyzer systems running. As a customer of ABB service you can select one or more solutions and create your own service bundle which keeps your system on maximum up-time. Contact us to discuss your tailor-made service solution.

### **A service portfolio for analyzer systems can consist of:**

- Calibration service
- Preventive maintenance service
- Responsiveness (corrective maintenance) service
- Hot spare parts service
- Replacing FID analyzer service
- Telephone assistance service
- Remote support service
- Training service
- Repair shop service
- QA laboratory service

### **Calibration service**

The analyzer system should be calibrated at least once a year, depending on the local legislation, to maintain the certification and this should be performed by a qualified and certified engineer. This saves costs for staff training and for dedicated tools, leaving you to fully concentrate on your process.

### **Preventive maintenance service**

Although the analyzer systems are built following the latest specifications, in order to avoid an unexpected and undesired breakdown, a preventive maintenance is recommended as a minimum every 6 months. The maintenance work shall be performed by a certified engineer on site.

### **Responsiveness (corrective maintenance) service**

ABB Service undertakes to intervene, upon a written request from the customer, in accordance to your needs. These corrective maintenance visits will be invoiced at ABB service rates. This enables you to have a more flexible maintenance schedule, especially before and after production hold-up.

### **Hot spare parts service**

This option includes the availability of all spares and consumables, in our stock. Spares used during service activities will be invoiced as per price list.

### **Telephone assistance service**

ABB offers service contracts which provide you with direct access to our call center and service engineers. If required, this service can be available 24 hours a day. You will receive a quick feedback, even on weekends and public holidays, to solve any failure immediately, which could compromise your 24/7 production.

### **Remote support service**

From our service center we can connect directly to your analyzer system for diagnostic, zero gas calibration, check drift calibration and upgrading the software. The analyzer system or parts thereof do not need to be removed from the site. Software and hardware related issues can easily be recognized and the necessary measures can be directly initiated.

### **Training service**

ABB provides basic and advanced training courses on each aspect of the analyzer systems, such as maintenance, functional and theoretical aspects. Courses can be held directly at customer site or attended at an ABB training center. This allows you to keep your staff up-to-date and reduces the errors of misuse.

### **Repair shop service**

A certified repair shop will be at customer disposal for any invasive intervention which cannot be handled in the field. This service includes a replacement unit which keeps your system working and reduces down time costs.

### **QA laboratory service**

In order to comply with a full service contract, ABB provides QA lab activities following the National Environmental Legislation.



# The Added Value

## What you can expect from a market leader

As one of the world's leading suppliers of analyzer technology, we offer our customers additional benefits and services other manufacturers can not provide. With the added values ABB Analytical helps to improve performance and reliability at work.

### **Best choice of analyzers tailored to your needs**

We offer the broadest selection of measuring principles under one roof. All types of analyzers share a common operation to reduce the need for training and spare parts.

### **Certified sales and service partners wherever you are**

Our "Manufacturer Certified Service" program involves more than 300 service specialists with many years of experience and comprehensive know-how working for our clients on-site worldwide. Our engineers are your professional partners dedicated to finding the best solutions for your measuring tasks. They regularly undergo manufacturer training and certification.

### **Long-term security in your investment**

Our comprehensive and transparent life cycle plan for each of our products covers the service of spare parts and service support for their entire lifetime. Our products are extendable with upgrade programs keeping them technologically up-to-date at all times.

### **Most powerful software solutions**

Full remote control and maintenance access to the system inside a protected network and quality monitoring (QAL3) are available for ABB analyzers. Integrated controllers with PLC functionality provide monitoring while controlling the measurement from sample taking right up to analysis.

### **Unique time and cost saving calibration concepts**

ABB has 30 years of unrivalled experience in producing gas-filled calibration cells, allowing internal calibration without test gas cylinders for photometers. Single-point calibration with ambient air as the standard gas is also possible.

### **Unrivalled options for connectivity**

ABB gas analyzers and systems excel in Ethernet network abilities and Modbus or PROFIBUS interfaces. This enables the analyzer data to be easily read, archived and visualized on a PC, PLC or process control system.

### **Assured quality through independent certification**

ABB provides all major international certificates for CEMS, hazardous area installations, metrological approvals, electrical safety and quality and environmental management.



---

To find your local ABB contact visit:  
**[www.abb.com/contacts](http://www.abb.com/contacts)**

For more product information visit:  
**[www.abb.com/measurement](http://www.abb.com/measurement)**

