Analyzer system ACX
For the extractive continuous
gas analysis
ACX is a complete system for extractive continuous gas analysis. The system can be fully operated from the outside. Inside, the well established reliable analyzers of the Advance Optima series work with the proven components for sample conditioning. The ACX system is particularly easy to maintain as a result of the standardized design.

Analyzer system ACX – your benefits

**ACX – the complete system**
- Continuous evaluation of the concentration of a maximum of six sample components, for example CO, NO, SO₂, CO₂, O₂ and VOC
- Up to four analyzers depending on the measuring task
- Appropriate gas sampling and sample conditioning

**Always the right analyzer with proven and reliable measuring technology**
- Infrared/UV photometer
- Paramagnetic oxygen analyzer
- Electrochemical oxygen sensor
- FID analyzer
- Automatic calibration without test gas cylinders through built-in gas filled calibration cells for most applications

**Convenient external operation**
- Operation, configuration and calibration via the operator panel in the door
- Easily readable display with graphics capability
- Intuitive operation in several languages
- Complete remote control via an existing network

**Compact and innovative standardized design**
ACX is available in sheet steel or glass-fiber cabinet, or on mounting plate with separate control unit and electrical distribution.

**Self-diagnosis for easy service and maintenance**
- Integrated extensive diagnosis functions for continuous self-control from probe to analysis
- Worldwide access for remote service possible
- Analyze IT Explorer visualization software for continuous monitoring and maintenance via Ethernet available

**Interfaces**
- Modbus, Profibus or Ethernet/OPC for networking with PC, connection to PLC and process control system or for integration in Windows applications
- Gas ports and digital interfaces are accessible from the outside
ACX – tailor-made analyzer systems

The system is available in various variants with the respective sample conditioning tailored to your measuring tasks.

- Emission monitoring
- Process gas measurements
- Cement applications
ACX analyzer system for emission monitoring

For maximum operational availability in emission measurement
The ACX analyzer systems are used for the continuous and quantitative measurement of gas emissions in various industrial sectors. The ACX measuring technology complies with the EU directives for LCPD and WIP, the US EPA regulations, the requirements for UNFCCC CDM projects as well as with many other local environmental directives.

Typical areas of application
- Process gas monitoring in power stations
- Cement kilns and lime production
- Production of steel and aluminium
- Incineration plants
- Brick, tile and glass production
- Greenhouse gas monitoring, CDM projects
- Incinerators for biomedical waste and sludges

Measuring components and typical ranges
<table>
<thead>
<tr>
<th>Component</th>
<th>Typical Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>0...125/625 mg/m³</td>
</tr>
<tr>
<td>NO</td>
<td>0...33.5/1000 mg/m³</td>
</tr>
<tr>
<td>SO₂</td>
<td>0...75/2250 mg/m³</td>
</tr>
<tr>
<td>NOx</td>
<td>0...300/1500 mg/m³</td>
</tr>
<tr>
<td>N₂O</td>
<td>0...100/500 mg/m³</td>
</tr>
<tr>
<td>NO₂</td>
<td>0...250/1000 mg/m³</td>
</tr>
<tr>
<td>O₂</td>
<td>0...10/25 Vol.-%</td>
</tr>
</tbody>
</table>

Reliable analyzer technology
All the analyzers used are exclusively from the proven Advance Optima series.
- Uras26 photometer with NO₂/NO converter
- Limas11UV photometer, for direct NOx measurement as an alternative to the CLD technology with minimum maintenance effort
- Magnos206 paramagnetic oxygen analyzer or electrochemical O₂ sensor

Complete system with customized gas sampling, feed and conditioning
- With sampling probe, filter unit and heated sample gas line
- Sample gas feed-in unit and sample gas cooler
- Optional test gas infeed in conformity with EPA

Support of the maintenance personnel
Inclusive software solutions for active support of the maintenance personnel:
- Analyze IT Explorer: for visualization, monitoring and remote control in Ethernet networks
- QAL3 software: for the fully automatic quality monitoring according to EN 14181

International certification
The analyzer system is equipped with analyzers and components for sample conditioning which have been performance-tested for use in incinerators. The instrumentation has already been tested to the new European Standard EN 15267. The system meets the requirements for AMS (Automated Measuring System) as defined in the standards of EN 14181/EN 14956 for QAL1, QAL2 and QAL3. CSA certificates (US/Canada) are available.
ACX analyzer system for cement applications

Complete solutions for gas analysis in cement plants
The ACX gas analyzer system ensures effective monitoring of the primary and secondary combustion, validates the clinker quality, minimizes the fuel costs through optimized combustion control and supports a safe operation.

Measurement at the wet kiln gas outlet (T < 300 °C)
A combination of combustion control and safety measurement.

Measuring components and typical ranges
- CO: 0…0.5/3 Vol.-%  
- NO: 0…2000/5000 ppm  
- CO₂: 0…40 Vol.-%  
- SO₂ (Uras): 0…500 ppm  
- O₂: 0…10/25 Vol.-%  
- SO₂ (Limas): 0…5000/10000/20000/40000 ppm

Safety measurement on the electrostatic filter preheater
CO measurement in less than 10 seconds through short T₉₀ time of the complete system.

Measuring components and typical ranges
- CO: 0…0.5/3 Vol.-%  
- NO: 0…2000/5000 ppm  
- SO₂: 0…500 ppm  
- O₂: 0…10/25 Vol.-%

Complete system with customized gas sampling, feed and conditioning
- By means of a special sampling technique and heated or unheated sample gas line
- Sample gas feed-in unit and sample gas cooler
- Automatic probe back-purging with compressed air

Measurement at rotary kiln and calciner outlet
For combustion optimization and fuel minimization in the production of clinker. Different sampling techniques are used for temperatures depending on the application:
- < 900 °C with standard probe  
- > 900 °C with SCK, the complete gas sampling system with pneumatic probe retraction

Measuring components and typical ranges
- CO: 0…0.5/3 Vol.-%  
- CO₂: 0…40 Vol.-%  
- NO: 0…2000/5000 ppm  
- NOₓ: 0…2000/5000 ppm  
- CH₄: 0…1000/5000 ppm  
- SO₂: 0…5000/10000/20000/40000 ppm  
- O₂: 0…10/25 Vol.-%

Monitoring of the coal bunker/mill
For the early detection of smouldering fire.

Measuring components and typical ranges
- CO: 0…5000/10000 ppm  
- O₂: 0…10/25 Vol.-%
ACX analyzer system for process gas measurement

High efficiency and reliability for gas analysis in the process industry
Industrial processes can be controlled and optimized by means of the continuous measurement of the process gases. The spectrum of these applications can be extremely wide and highly complex in the various industrial sectors. A great variety of sample gas compositions and difficult marginal conditions such as high or changing pressures and temperatures make exacting demands on the measuring technology. The ACX can be optimally engineered for these measuring tasks in close collaboration with our customers.

Typical areas of application
- Industrial gas production
- Chemical plants, e.g. nitric acid plants
- Iron and steel production
- Steam generators
- Blast furnace gas analysis
- Power stations (e.g. coal bunker, coal mill, DeNOx, crude gas upstream of flue gas desulfurizing plant and air preheater)
- Paper production
- Sugar production

Measuring components
- CO, CO₂
- NO, NOx, NO₂, N₂O
- SO₂
- CH₄
- VOC
- O₂

Reliable analyzer technology
All the analyzers used are from the proven Advance Optima series, freely to combine and to configure according to the measuring task.
- Uras26 photometer with NO₂/NO converter
- MultiFID14 flame ionization detector
- Limas11 UV photometer, also with quartz cell
- Magnos206 paramagnetic oxygen analyzer or electrochemical O₂ sensor

Complete system with customized gas sampling, feed and conditioning
- Sampling probes with a heated filter for a high dust retention factor of > 99% with a particle fineness of 0.3 µm
- Probe tubes up to 1300 °C and lengths up to 4500 mm depending on the material
- Heated sample gas pipes up to 200 °C or unheated lines
- High-performance sample gas cooler with compressor unit for constant dew points
- Sample gas feed-in unit with high pump output for rapid measurements with bypassing and flow monitoring
- High-temperature converter with various reaction catalysts
- Absorption filter for the removal of interference components
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.
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