Analyzer System ACX

For the extractive continuous gas analysis

Flexible – Economic – High-performance

ACX is a complete system for extractive continuous gas analysis. The system can be operated completely from the outside. Inside, the reliable and time-tested analyzers of the Advance Optima series work with the components for sample conditioning.

The system is available in various variants with the respective sample conditioning tailored to your measuring tasks - emission monitoring, process gas measurements or cement applications.

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, e.g. CO, NO, SO_2, CO_2, O_2 and VOC
- Up to four analyzers depending on the measuring task
- Appropriate gas sampling and sample conditioning

Proven and reliable measuring technology Advance Optima

- Infrared/UV photometer
- Paramagnetic oxygen analyzer
- Electrochemical oxygen sensor
- FID analyzer
- Automatic calibration without test gas cylinders 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

- Sheet steel or glass-fiber cabinet or mounting plate

Easy to service and maintain

- Gas ports and digital interfaces are accessible from the outside
- Extensive autodiagnosis functions
- Worldwide remote service access possible
- Analyze IT Explorer visualization software for continuous monitoring and maintenance via Ethernet

Interfaces

- Modbus, Profibus or Ethernet/OPC for networking with PC, connection to PLC and process control system or for integration in Windows applications

Designed for your measuring tasks

- Emission monitoring
- Process gas measurements
- Cement applications

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 2001/80/EC and 2000/76/EC, as well as the 13th, 17th, 27th/30th BImSchV (Federal Regulation on Immissions) and TA-Luft (the Federal Regulations on Air Purity) in Germany.

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

CO	0…125/625 mg/m³
NO	0…33.5/1000 mg/m³
SO_2	0…75/2250 mg/m³
NOx	0…300/1500 mg/m³
N_2O	0…100/500 mg/m³
NO_2	0…250/1000 mg/m³
O_2	0…10/25 Vol.-%

Reliable analyzer technology

All the analyzers used are exclusively from the proven Advance Optima series.

- Uras26 photometer with NO_2, 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 O_2 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

Software solutions for active support of the maintenance personnel

- **Analyze IT Explorer**
  For visualization, monitoring and remote control
- **QAL3 software**
  For the fully automatic generation of QAL3 data, monitoring in accordance with EN14181

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 prEN15267-3. The system meets the requirements for AMS (Automated Measuring System) as defined in the standards of EN14181/ EN14956 for QAL1, QAL2 and QAL3.

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.

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

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.

Measuring components

CO, CO_2
NO, NOx, NO_2, N_2O
SO_2
CH_4
VOC
O_2

Reliable analyzer technology

All the analyzers used are from the proven Advance Optima series.

- Uras26 photometer with NO_2, NO converter
- MultiFID14 flame ionization detector
- Limas11 UV photometer, also with quartz cell
- Magnos206 paramagnetic oxygen analyzer or electrochemical O_2 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

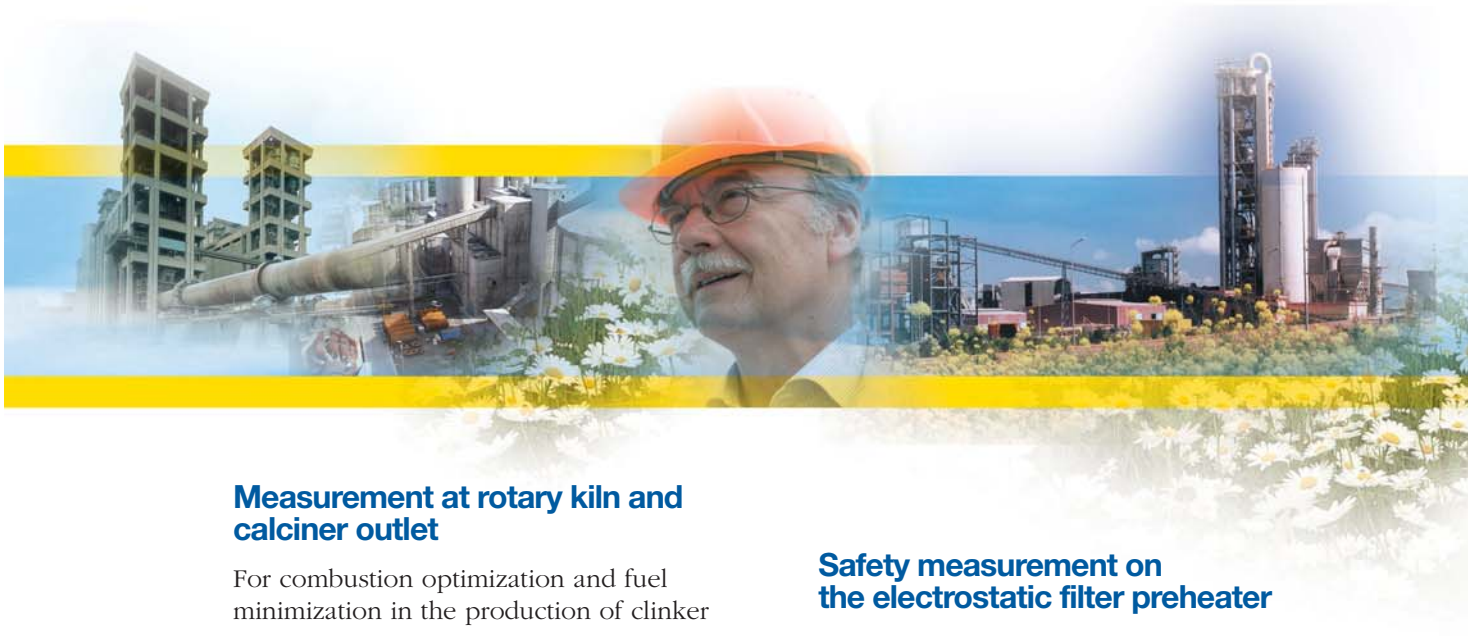
Analyzer System for Cement Applications

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.

Typical areas of application

- Measurement at the rotary kiln/calciner outlet* and wet kiln gas outlet
- Safety measurement at the electrostatic filter preheater
- Monitoring of the coal bunker and the coal mill



Measurement at rotary kiln and calciner outlet

For combustion optimization and fuel minimization in the production of clinker

Measuring components and typical ranges

CO	0…0.5/3 Vol.-%
CO_2	0…40 Vol.-%
NO	0…2000/5000 ppm
NOx	0…2000/5000 ppm
CH_4	0…1000/5000 ppm
SO_2	0…5000/10000/20000/40000 ppm
O_2	0…10/25 Vol.-%

Different sampling techniques are used for temperatures > 900 °C* or < 900 °C depending on the application.

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
CO_2	0…40 Vol.-%
SO_2 (Uras)	0…500 ppm
O_2	0…10/25 Vol.-%
SO_2 (Limas)	0…5000/10000/20000/40000 ppm

Safety measurement on the electrostatic filter preheater

Short T_{90} time of the complete system
CO measurement in less than 10 seconds

Measuring components and typical ranges

CO	0…0.5/3 Vol.-%
NO	0…2000/5000 ppm
SO_2	0…500 ppm
O_2	0…10/25 Vol.-%

Monitoring of the coal bunker and coal mill

For the early detection of smouldering fire

Measuring components and typical ranges

CO	0…5000/10000 ppm
O_2	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

* in preparation

Analyzer technology is our strength

ABB is one of the leading international companies in the field of analyzer technology. Thanks to decades of experience, we can develop innovative instruments and systems to meet your company's individual requirements.

And with a distribution network covering over 40 countries, ABB's know-how is available to you – worldwide.

Naturally, after any purchase after-sales services are just as important to you, as they are to us. That's why we offer you a broad spectrum of specialized services, such as: continuous maintenance, analyzer system modifications and troubleshooting etc. We'll be pleased to put together an individual service package for you.

ABB is your partner: From consulting to project planning, from system installation to after-sales service.

Tradition and innovation

More than 75 years of experience in the development and production of analyzers as well as regular contacts with our customers are the basis for our innovative solutions, which have always been the market leader. Under the brand name "Hartmann & Braun", our products for the continuous measurement of processing gases have gained an outstanding international reputation and represent the leading edge of technology. Since then, analyzers with the names Uras, Limas and Magnos have enjoyed worldwide acclaim and stand for the highest efficiency. Today, more than 35,000 of these analyzers have been installed throughout the world – in almost every industry.

2007	**ACX,** complete systems
2005	**EasyLine EL3000**
2003	**AO2000 series, the integrated analyzer system**
2002	**ACF-NT,** with FTIR technology **EL6010** analyzers for hazardous areas
2001	**EasyLine** analyzers, high-quality measuring technology for simple applications
1999	**Limas11,** unique UV/IR photometer
1998	**ABB acquires Hartmann & Braun**
1996	**Advance Optima,** the first modular analyzer system
1988	**Uras10,** with calibration cells which replaced test gas cylinders
1986	**Magnos 6/7, Caldos 5/7,** digital microprocessors replace analog electronics
1980	**Radas*** UV analyzer, new measurement methods for gas analyzers
1970	**Fidas**** flame ionization detector
1950	**Uras, Magnos and Limas** capture the market
1938	CO-, CO_2 analyzer
1929	**First CO_2-analyzer for combustion,** basis for the subsequent Caldos
1901	Foundation of Hartmann & Braun AG

* today Limas11UV ** today MultiFID14

ABB continuously optimizes its products, therefore the technical data in this document is subject to change.

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