

ABB MEASUREMENT & ANALYTICS

Continuous gas analyzers EL3060

The specialists for hazardous areas



The specialists for hazardous areas

ABB Analytics possesses decades of experience in the area of explosion protection. The EL3060 series unifies this competence with the approved measuring technique. The completely flameproof enclosure of the EL3060 is in accordance with all the requirements of Equipment Protection Level (EPL) Gb and can be used, due to its high safety standards, in plants with potentially explosive gas atmospheres in Zone 1 and Zone 2.

Compact and combinable

—
01 EL3060 series
gas analyzers

Continuous gas analyzers EL3060 – the advantages to you

Compactly built

The EL3060 series is built convincingly compact. One device is made up of the flameproof enclosed control unit and one or two analyzers from the successful product line Advance Optima.

- Paramagnetic oxygen analyzer or thermal conductivity analyzer – integrated into the housing of the control unit
- Infrared photometer – built into a separate flameproof enclosure which is connected to the control unit for data transfer and power supply

Easy to combine

The oxygen or the thermal conductivity analyzer can be combined with the infrared photometer. This means that complex measuring requirements with up to five measuring components in one device can be fulfilled.

Easy to install

The control unit is provided with a terminal box with increased safety. Without compromising the hazardous area protection customers can safely and easily connect signal cables for analog output and status signals.

Easy to operate

- Operation directly through an explosionproof glass pane
- Touch-sensitive keys
- Multi-lingual, menu-driven operating interface
- Menu structure according to the EasyLine series
- Safe and reliable operation at any time, without having to open the housing

Easy communication

- Four analog outputs
- Up to 16 digital inputs and outputs
- Modbus interface
- PROFIBUS interface

This enables the analyzer data to be easily read, archived and visualised on a PC, PLC or process control system.

International certifications

- ATEX Zone 1
- IECEx Zone 1
- KC Zone 1
- NEPSI Zone 1
- TIIS Zone 1
- EAC Zone 1



Photometer analyzer and Paramagnetic oxygen analyzer

01 Application in flue gas measurement

Uras26

The Uras26 is an NDIR photometer suitable for continuous measurement of gases in industrial process applications. The Uras26 can measure up to four infrared active gases in one analyzer module. The analyzer detectors are filled with gas that corresponds to the desired measuring component. This enables the detectors to provide optimum sensitivity and high selectivity over other gases present in the sample gas mixture, thereby achieving low detection limits.

Typical applications

- Production, storage, processing and transport of flammable and non-flammable gases in hazardous areas
- Chemical, petrochemical and pharmaceutical industries
- Synthetic gas and fertilizer production
- Electrostatic filter monitoring

Sample components – smallest measuring ranges

CO → 0 to 10 ppm NO → 0 to 75 ppm
CO₂ → 0 to 5 ppm SO₂ → 0 to 25 ppm

- Other approved components and measuring ranges are described in the data sheet
- Two measuring ranges per measuring component

Calibration

- Automatic calibration
- Zero- and end-point calibration with gas-filled calibration cells or test gas mixture
- Calibration cells with proven stability over many years dispense with the need for expensive test gas cylinders and reliably adjust the sensitivity

Measurement principle

Non-dispersive infrared absorption in the wavelength range $\lambda = 2.5$ to $8 \mu\text{m}$.

Magnos28

The Magnos28 represents the future of paramagnetic oxygen measurement, leveraging ABB's pioneering technology leadership and over 75 years of innovation in the field of continuous gas analysis.

This exciting product completely rethinks paramagnetic oxygen analysis, replacing the glass dumbbell with a revolutionary new silicon sensor, the microwing, and automating historically manual manufacturing processes leading to levels of quality and reproducibility beyond anything that is currently available on the market.

The ability to set individual measuring ranges allows the analyzer to be easily tailored to specific measurement requirements. An outstanding characteristic of this analyzer is its long term stability. In most applications, calibration of the zero-point with ambient air or nitrogen is only required once a month. It is also suitable for measuring rapid changes in the concentration of the sample gas.

Typical applications

- Production, storage, processing and transport of flammable and non-flammable gases in hazardous areas
- Chemical, petrochemical and pharmaceutical industries
- Biogas, gases from waste disposal sites or sewage treatment plants
- Safety measurement

Sample component – smallest measuring ranges

- O₂ in industrial process gas
- Smallest measuring range: 0 to 0,5 Vol% O₂
- Two measuring ranges per measuring component, freely adjustable

Calibration

- Automatic calibration
- Zero- and end-point calibration with nitrogen and air or test gas mixtures
- Single-point calibration with ambient air

Measurement principle

Paramagnetic (magnetomechanical) oxygen analyzer



Thermal conductivity analyzers

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02 Application in
gas industry

Caldos25

The Caldos25 is designed for highly corrosive applications. The measuring cell with its glass-coated resistor is especially resistant to corrosive gases. With Caldos25 pressure correction is not required. The measurement signal is completely independent of the sample gas pressure – whether negative or positive.

Typical applications

- Production, storage, processing and transport of flammable and non-flammable gases in hazardous areas
- Chemical, petrochemical and pharmaceutical industries
- Hydrogen, ammonia and fertilizer production
- Synthetic gas production

Sample components – smallest measuring ranges (examples)

H₂ in N₂ or air → 0 to 0.5 Vol%

SO₂ in N₂ or air → 0 to 1.5 Vol%

- One measuring range per measuring component
- Up to three measuring components

Calibration

- Automatic calibration
- Zero-point calibration with sample component-free process gas or substitute gas
- End-point calibration with process gas having a known sample gas concentration or with substitute gas

Measurement principle

The analyzer module's measuring principle is based on the differences in thermal conductivity between gases. Individual gas components are quantitatively analyzed in a binary or quasi-binary mixture based on their thermal conductivity.

Caldos27

Small measuring ranges and fast measurements are characteristic for the Caldos27 thanks to its silicon sensor. The smallest volumes and the direct coupling to the gas feed path result in extremely short T₉₀ times. The measuring ranges can be freely selected. The extremely high long-time stability of the sensor enables single-point calibration with only one gas.

Typical applications

- Production, storage, processing and transport of flammable and non-flammable gases in hazardous areas
- Chemical, petrochemical and pharmaceutical industries
- Turbogenerator monitoring
- Monitoring of explosive limits

Sample components – smallest measuring ranges

H₂ in air → 0 to 1 Vol%

H₂ in N₂ → 0 to 1 Vol%

He in air → 0 to 2 Vol%

CH₄ in H₂ → 0 to 3 Vol%

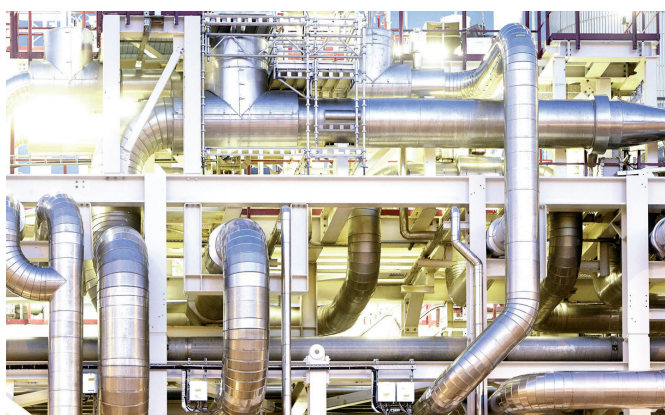
- For other components and measuring ranges please refer to the data sheet
- Two measuring ranges per measuring component, freely adjustable
- Up to four measuring components

Calibration

- Automatic calibration
- Zero-point calibration with sample component-free process gas or with substitute gas
- End-point calibration with a known sample gas concentration or with substitute gas
- Simplified calibration with standard gas avoids the need for separate zero and end-point calibration

Measurement principle

Difference in thermal conductivity of various gases using micromechanical silicon sensor with especially short T₉₀ time (≤ 2 s)



Dynamic QR Code

— 01 EL3060 display with Dynamic QR Code

— 02 Application in chemical industry

— 03 Application in technical process plants

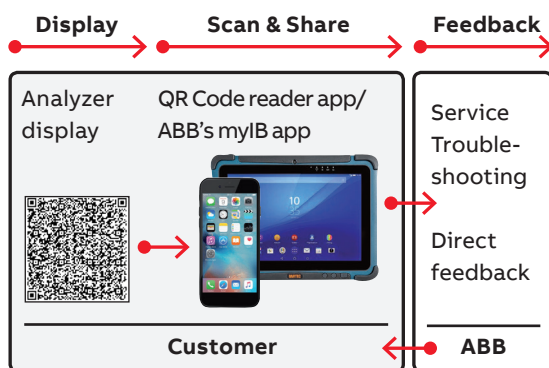
Dynamic QR Code

ABB's Dynamic QR Code is a unique feature to display dynamically generated QR codes on the analyzer display for easy communication.

In addition to static information for system identification, it contains also dynamic information on system configuration and analyzer health status. In combination with mobile devices, the Dynamic QR Code represents an innovative way of customer's communication which allows, for instance, improved case-specific support by ABB resulting in an increased availability of analyzer assets. It is compatible with standard QR code reader applications as well as ABB's application 'my Installed Base (myIB)'.

Generally applicable for all installations across all industries, especially interesting for

- Measurements with high availability requirements (for example CEMS)
- Remote installations
- Installations with constraint remote access due to information security guidelines



— 01

— 02



— 03



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 cannot provide. With the added values ABB Analytics helps to improve performance and reliability at work.

04 Continuous gas analyzers portfolio

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.



ABB Limited**Measurement & Analytics**

Howard Road, St. Neots

Cambridgeshire, PE19 8EU, UK

Tel: +44 870 600 6122

Fax: +44 1480 213 339

Email: enquiries.mp.uk@gb.abb.com

ABB Inc.**Measurement & Analytics**

125 E. County Line Road

Warminster, PA 18974, USA

Tel: +1 215 674 6000

Fax: +1 215 674 7183

ABB Automation GmbH**Measurement & Analytics**

Stierstaedter Str. 5

60488 Frankfurt am Main, Germany

Tel: +49 69 7930 4666

Email: cga@de.abb.com

abb.com/analytical