EasyLine
Continuous gas analyzers
So smart, they’re simple
EasyLine

EasyLine is both a powerful and affordable line 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 is available in two versions, which are optimized for the various installation requirements of the respective location.

Typical applications
- Emission measurement compliant to the European Directive 2001/80/EC for large combustion plants, integrated QAL3 reporting according to EN 14181, Emission measurement compliant to USA EPA specifications
- Direct NO and NO₂ measurement in DeNOx installations
- Combustion processes
- Blast furnace and converter gas analysis
- O₂ trace and purity measurement
- Industrial gas filling
- Biofermenters
- Turbogenerator monitoring
- Ambient air monitoring
- Landfill gas monitoring
- Silo monitoring
- Warehouse monitoring

The advantages to you
Proven and reliable measurement technology
- Infrared photometer
- Ultraviolet photometer
- Magnetomechanical oxygen analyzer
- Thermomagnetical oxygen analyzer
- Electrochemical oxygen sensor
- Thermal conductivity analyzer
- Trace oxygen analyzer
- Flame ionization detector analyzer

The efficient alternative
- EasyLine offers an excellent price-performance ratio
- Extensive self-diagnosis functions with output of error messages
- Optionally with integrated gas feed
- Automatic calibration without test gas cylinders for most applications
- Measurement of flammable and non-flammable gases without purging
- Available in a 19 in. slide-in housing or in a wall-mount housing

Convenient operation and configuration
- Simple intuitive operation, menu-driven via five buttons
- Information presentation in several languages
- Individual configuration of the inputs/outputs

Interface to external controllers
- Ethernet interface with Modbus TCP/IP. Also used for configuration, software update and QAL3 data transfer
- Modbus or PROFIBUS protocol for networking with a PC, PLC or process control system
- Modbus DDE driver for integration into a Windows environment for simple reading, archiving and visualization of data

Internal quality control and reporting (QAL3 function)
- Integrated QAL3 reporting according to EN 14181
- Data storage for one year minimum
- Standard web browser access and Ethernet interface
Proven and reliable measurement
The efficient alternative

Tailored combinations for your measuring tasks
The combination of different analyzers provides optimum flexibility for your application.

<table>
<thead>
<tr>
<th>Analyzers combination</th>
<th>Typical applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR photometer and electrochemical oxygen sensor</td>
<td>Emission monitoring with combined</td>
</tr>
<tr>
<td>IR photometer and magnetomechanical oxygen analyzer</td>
<td>CO, CO₂ and O₂ measurement</td>
</tr>
<tr>
<td>IR photometer and thermomagnetic oxygen analyzer</td>
<td>Process measurement in cement plants</td>
</tr>
<tr>
<td>IR photometer and 2 electrochemical oxygen sensors</td>
<td>CO, CO₂, NO and O₂ measurement</td>
</tr>
<tr>
<td>IR photometer and thermal conductivity analyzer</td>
<td>Blast furnace gas analysis with combined H₂ and</td>
</tr>
<tr>
<td></td>
<td>CO, CO₂ measurement for cross-sensitivity correction</td>
</tr>
<tr>
<td>UV photometer and magnetomechanical oxygen analyzer</td>
<td>Emission monitoring with combined</td>
</tr>
<tr>
<td>UV photometer and electrochemical oxygen sensor</td>
<td>NO, NO₂, SO₂ and O₂ measurement</td>
</tr>
</tbody>
</table>

Automatic calibration without test gas cylinders
Automatic calibration and the use of the superior calibration cell technology in the photometer dispenses with the need for expensive test gas cylinders in most applications. No recalibration of the end-point with external test gas is required. Zero-point calibration is performed with ambient air.

19 in. housing with 3 height units
- Ideal for mounting in a rack
- Optionally with an integrated pump for the gas feed-in, a solenoid valve for the connection of test gas (air), a sample gas filter and a flow sensor

Wall-mounted housing (IP65), compact and purgeable
- Space-saving assembly in analyzer compartments
- Easy to maintain installation on mounting panels
- Usable for installation in zone 2 for the measurement of non-flammable gases

Measurement of flammable gases without purging
The 19 in. versions of the EasyLine analyzers are particularly suitable for measuring flammable gases in non-explosive environments. For this application, the gas feed paths are made of stainless steel piping or sample gas is passed directly to the analyzer via the gas connections. The gas exchange between EasyLine and the environment ensure that an LEL is not reached inside the enclosure.
- No purging with inert gas necessary
- No expenditure for inert gas provision and monitoring of purging
- German TÜV certificate

The advantages to you
- Effective and compact solution
- Simplifies the engineering as well as the installation of hoses or pipes in the systems
- Reduced total costs of ownership
**Photometer analyzers**

**Uras26**
The Uras26 is an NDIR photometer suitable for continuous measurement of gases in emission monitoring and many other 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**
- Combustion control
- Biofermenters

**Sample components – smallest measuring ranges**
- CO → 0 to 100 ppm
- CO₂ → 0 to 100 ppm
- NO → 0 to 150 ppm
- NO₂ → 0 to 100 ppm
- SO₂ → 0 to 100 ppm
- N₂O → 0 to 100 ppm
- CH₄ → 0 to 100 ppm

- With stainless steel piping for flammable gas mixtures
- Two measuring ranges for each 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 $\mu$m.

**Limas23**
The Limas23 is an NDUV(RAS) photometer for multi-component measurement that operates within the UV spectrum range. The Limas23 can be combined with the paramagnetic O₂ analyzer Magnos28 or an electrochemical O₂ sensor. The Limas23 continuously measures the components NOx as NO and NO₂ without the use of a converter, as well as the third component SO₂ with detection limits of < 0.5 ppm and maximum stability of measured values.

**Typical applications**
- Emission monitoring to the European Directive 2001/80/EC
- Emission monitoring; Limas23 combined with Magnos28 in one device, measures all relevant pollutant and sample components like NO, NO₂, SO₂ and O₂
- Direct NO and NO₂ measurement in DeNOx installations
- Exhaust air and purity measurement in chemical applications

**Sample components – smallest measuring ranges**
- NO → 0 to 50 ppm
- NO₂ → 0 to 50 ppm
- SO₂ → 0 to 100 ppm
- O₂ → 0 to 100 ppm

- Quartz cells for applications with corrosive gases
- Two measuring ranges for each 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**
- Ultraviolet resonance absorption spectroscopy (UV-RAS) for NO
- Non-dispersive ultraviolet absorption (NDUV) for SO₂ and NO₂ in the wavelength range $\lambda = 200$ to 600 nm.
**Paramagnetic oxygen analyzers**

**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 including suppressed 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**
- Oxygen purity measurement
- Air separation plants
- Biogas monitoring
- Process gas monitoring
- Emission monitoring

**Sample component – measuring ranges**
O₂ in industrial process gas
- Smallest measuring range: 0 to 2 Vol% O₂
- Largest measuring range: 0 to 100 Vol% O₂
- Measuring range suppression max. 1:50, for example 98 to 100 Vol% O₂
- Two measuring ranges

**Calibration**
- Zero- and end-point calibration with nitrogen and air or test gas mixtures is only required once a month
- Single-point calibration with ambient air
- Automatic calibration

**Measurement principle**
Paramagnetic (magnetomechanical) oxygen analyzer

---

**Magnos27**
The Magnos27 is based on the thermomagnetical measuring principle. The robust measuring cell means that the Magnos27 is especially resistant to vibrations and shocks.

**Typical applications**
- Flue gas analysis
- Metal roasting plant off-gas analysis
- Cement flue gas analysis

**Sample components – measuring ranges**
O₂ in flue gas or nitrogen
- Smallest measuring range: 0 to 10 Vol% O₂
- Largest measuring range: 0 to 100 Vol% O₂

**Calibration**
- Zero-point calibration with oxygen-free process gas or substitute gas
- End-point calibration with process gas having a known oxygen concentration or with substitute gas
- Automatic calibration with oxygen-free process gas or substitute gas

**Measurement principle**
Paramagnetic (thermomagnetic) oxygen analyzer
Thermal conductivity and flame ionization analyzers

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 T<sub>90</sub> 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**
- Hydrogen purity measurement
- Turbo generator monitoring
- Inert gas monitoring
- Monitoring of explosive limits

**Sample components – smallest measuring ranges**
- More than 30 binary gas mixtures are configurable, for example: H<sub>2</sub> in N<sub>2</sub> 0 to 1 Vol% or 97 to 100 Vol%.
- The active measuring component can be selected out of four gas mixtures
- Two measuring ranges for each component

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

**Measurement principle**
Difference in thermal conductivity of various gases using micromechanical silicon sensor with especially short T<sub>90</sub> time (≤ 2 s)

Fidas24
The Fidas24 is a single component FID, optimized for the continuous monitoring of volatile organic carbons (VOCs) or alternatively called hydrocarbons (HC) in industrial gases. It can be employed in a vast number of applications, measuring hydrocarbons from low ppm levels as in emission applications through to 1 Vol% measurements, which is for use in process applications.

**Typical applications**
- Process (THCs in steam, solvent recovery)
- Quality (HPI processing industry, industrial gases)
- Safety (HPI processing industry)
- Power plants, waste incinerators monitoring
- Chemical process plant monitoring
- Solvent recovery systems monitoring
- Waste water monitoring
- Development of combustion engines for the automotive, marine and stationary operation
- Emissions monitoring according to EU guidelines (2001/80/EC), QAL3

**Sample components – measuring ranges**
Hydrocarbons: Total C, CH<sub>4</sub>, C<sub>3</sub>H<sub>8</sub>
- Smallest measuring range: 0 to 5 mgC/m<sup>3</sup> (total C) or 10 ppm CH<sub>4</sub>
- Largest measuring range: 1 Vol% (CH<sub>4</sub>)

**Calibration**
- Zero-point calibration with Nitrogen, synthetic-air or catalytically purified air
- End-point calibration with a known sample gas concentration or with a substitute gas in nitrogen or air
- Automatic calibration

**Measurement principle**
Flame ionization
Trace oxygen analyzers and Dynamic QR Code

ZO23
The trace oxygen analyzer ZO23 measures the gas concentration with a zirconium dioxide measuring cell. The measuring element consists of ceramics with a platinized surface, conducting oxygen ions at temperatures typically above 600 °C (1112 °F). The measuring cell is catalytically inactive. The measuring method is especially advantageous to small measuring ranges of down to 1 ppm. This makes the analyzer particularly suitable for measuring oxygen in pure gases.

Typical applications
• Purity measurement
• Air separation plants
• Quality control in tank farms

Sample component – measuring ranges
O₂ in nitrogen or argon
• Smallest measuring range: 0 to 1 ppm
• Two measuring ranges free adjustable to 250,000 ppm
• Factory setting: 0 to 1/10 ppm

Calibration
Manual or automatic calibration

Measurement principle
Measurement of oxygen with catalytically inactive ZrO₂ cell

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)’.}

Display | Scan & Share | Feedback
--- | --- | ---
Analyzer display | QR Code reader app/ ABB’s myIB app | Service
Trouble-shooting

Customer

ABB

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