



# Gas Detection Systems



**Bieler+Lang**





## The Invisible Danger

Safety devices and protective measures against hazardous gases and vapours are becoming more and more important. Increasing appreciation of the problem combined with more accurate knowledge and investigation of the dangers which arise from these substances are the driving forces behind the development of gas measuring and detection systems. For objective assessment of the dangers, two factors are particularly important:

- explosion potential of the gas/vapour-air mixture
- danger to health (toxicity) posed by the gases and vapours

## Gas Warning Systems

The task of gas detection systems is the continuous monitoring and timely warning of the presence of potentially-explosive or toxic gases and vapours. Such a system comprises a sensor, a controller with control outputs, and appropriate connected equipment, such as valves, ventilators, and warning lights. Stand-alone measuring sensors are able to trigger connected measures without controllers.

## Sensors

A sensor reacts to the presence of a particular gas or types of gas. It is chosen according to the particular application and adjusted appropriately. Sensors with different measurement principles like pellistor gas sensors (catalytic combustion), semiconductor sensors, infrared gas sensors and sensors with electrochemical cells are available.

## Controllers

The controllers supplies its sensors with their operating voltages and compares the signals it receives from a sensor with the different alarm thresholds. When the concentration rises above the alarm threshold, this is indicated optically by the relevant LED, and the assigned relay contact is switched. Thus optic and acoustic alarm equipment, security valves and ventilation can be activated. Even notification via mobile communication is possible.



ATEX

## Sensors Overview

	explosion protection Safety Integrity Level (SIL)	combustible gases and vapours	toxic gases	oxygen	catalytic combustion	infrared	semiconductor	electrochemical	stand-alone capable* GMC 8022 / 8022E GMC 8364, GMC 8420
ExDetector HC 100	II2G SIL1	•			•				•
ExDetector HC 100 K + T	II2G SIL1	•			•				•
ExDetector HC 200	II3G	•			•			•	•
Gasmonitor HC 150	II3G SIL1	•			•				•
Gasmonitor HC 150 K	II3G SIL1	•			•				•
ExDetector IR HC	II2G	•				•			•
ExDetector SC 220	II3G	•					•		•
Exmonitor	II2G		•	•				•	•
Gasmonitor			•	•				•	•
ExDetector IR CO2	II2G			CO2		•			•

\* integrated outputs for pre- and main alarm





Ex-zone 2



### ExDetector SC 220

- Electrical safety of the SC 220 (Ex-zone 2):  
II 3 (2) G  
Ex nA de [ib] IIC T4  
PTB 07 ATEX 1002
- **Measuring principle: semiconductor gas sensor**
- Measurement range 0 - 50 % LEL (lower explosion limit)
- **Stand-alone (integrated outputs for pre- and main alarm)**
- Linear measurement signal 4 - 20 mA
- One-man calibration – directly at the sensor (optional calibration unit)

## Sensors for Toxic Gases and Oxygen



Ex-zone 1



### Exmonitor

- Electrical safety of the Exmonitor (Ex-zone 1):  
II 2G  
Ex ia IIC T4 Gb  
BVS 03 ATEX E 384
- **Measuring principle: electrochemical measurement cell**
- Concentration display
- Measurement range depending on the gas
- Linear measurement signal 4 - 20 mA
- One-man calibration – directly at the sensor
- 2-wire technology



### Gasmonitor

- **Measuring principle: electrochemical measurement cell**
- Measurement range depending on the gas
- Linear measurement signal 4 - 20 mA
- One-man calibration – directly at the sensor
- 2-wire technology



Ex-zone 1



### ExDetector IR CO2

- Electrical safety of the IR CO2 (Ex-zone 1):  
Housing/Electronics                      Sensor  
II 2G    II 2G  
Ex de [ib] IIC T6                              Ex ed IIC T6  
PTB 00 ATEX 1075                              PTB 00 ATEX 1076U
- **Measuring principle: infrared gas sensor**
- Measurement range 0 - 2 Vol. %
- Linear measurement signal 4 - 20 mA
- One-man calibration – directly at the sensor (optional calibration unit)



## Controllers



### GMC 8022

(Wall-mounting or for standard distribution panel)



### GMC 8022 E

(19" rack 12 HP / 3 HU)

- Up to 2 Sensors with 4 - 20 mA interface (Gasmonitor, Exmonitor, ExDetector)
- 2 alarm thresholds
- Concentration display
- Measurement function for combustible gases BVS 03 ATEX G 007 X
- **Safety Integrity Level SIL1**
- EU Type Examination Certificate to Directive 94/9/EC



### GMC 8420

- Up to 4 Sensors with 4 - 20 mA interface (Gasmonitor, Exmonitor, ExDetector)
- 2 alarm thresholds + horn output
- Concentration display
- internal buzzer 85 dBA
- Wall-mounting
- Extension RK 8420



### GMC 8364

- Up to 64 Sensors with 4 - 20 mA interface (Gasmonitor, Exmonitor, ExDetector)
- 3 alarm thresholds
- 4 alarm groups
- Alarm triggered either by adjustable time-average value or momentary value
- Plain-text, back-lit, alpha-numeric display ensures simple operation
- Installation-type housing for installation in a control cabinet

## Accessories for Gas Detection Systems



We also offer additional accessories:

- Calibrationbox-i – optional calibration unit
- maintenance set
- test gas
- optical and acoustic equipment
- security valves
- etc.





**Bieler + Lang GmbH  
Gas Detection Systems**

**POB 1129, D - 77842 Achern  
Von-Drais-Str. 31, D - 77855 Achern  
Germany**

**telephone +49 (0)7841 69 37 - 0  
fax +49 (0)7841 69 37 - 99**

**e-mail: [info@bieler-lang.de](mailto:info@bieler-lang.de)  
[www.bieler-lang.de](http://www.bieler-lang.de)**



**Bieler+Lang**



# Diensten van EURO-INDEX

EURO-INDEX is fabrikant, importeur en distributeur van diverse A-merken op het gebied van test- en meetinstrumenten. Daarnaast leveren wij een groot aantal diensten om het gebruik van deze instrumenten in uw bedrijfsvoering te optimaliseren. Dit omvat uiteraard onderhoud, reparatie en kalibratie van de instrumenten, maar ook kennisdeling via de EURO-INDEX Academy en verhuur van instrumenten.

## Geautoriseerd Service Centrum

EURO-INDEX b.v. is van alle vertegenwoordigde merken een Geautoriseerd Service Centrum. Dit betekent dat uw instrumenten worden behandeld door technici die zijn opgeleid door de fabrikant en beschikken over de juiste gereedschappen en software. Er worden uitsluitend originele onderdelen toegepast en de garantie van uw instrument, evenals de certificering (ATEX, EN50379, etc.) blijven intact.

## Kalibratielaboratorium

Ons moderne service- en kalibratielaboratorium beschikt over een RvA accreditatie naar NEN-EN-ISO/IEC 17025. Deze accreditatie geldt voor grootheden, zoals gespecificeerd in de scope bij accreditatienummer K105.



Kijk voor een overzicht van al onze diensten op [euro-index.nl/diensten](http://euro-index.nl/diensten)



## Mobiele Service

Naast de vaste kalibratielaboratoria in Capelle aan den IJssel en Zaventem beschikken wij ook over laboratoria op wielen met de naam "Mobiele Service". Dit biedt vertrouwde service en kwaliteit, bij u voor de deur!

## KWS®

KWS® is een uniek servicesysteem voor uw meetinstrumenten met periodiek onderhoud en kalibratie tegen vaste, lage kosten. Uw kalibratiecertificaten zijn digitaal beschikbaar via Mijn KWS (gratis webportaal en app).

## Verhuur van meetinstrumenten

- Uitgebreid assortiment
- Nauwkeurigheid aantoonbaar door actueel kalibratiecertificaat
- Deskundig advies
- Complete levering inclusief accessoires

## EURO-INDEX Academy

- Trainingen (individueel en klassikaal)
- Cursussen en workshops
- Demonstratie- en instructievideo's
- Whitepapers



Servicebalie



Onderhoud, reparatie en kalibratie



Cursussen en workshops



Mobiele Service

Wijzigingen voorbehouden EURO-INDEX® NL 24005



NEDERLAND  
Rivium 2e straat 12  
2909 LG Capelle a/d IJssel  
T: 010 - 2 888 000  
F: 010 - 2 888 010  
[verkoop@euro-index.nl](mailto:verkoop@euro-index.nl)  
[www.euro-index.nl](http://www.euro-index.nl)



BELGIË  
Leuvensesteenweg 607  
1930 Zaventem  
T: +32 - (0)2 - 757 92 44  
F: +32 - (0)2 - 757 92 64  
[info@euro-index.be](mailto:info@euro-index.be)  
[www.euro-index.be](http://www.euro-index.be)