Bieler+Lang

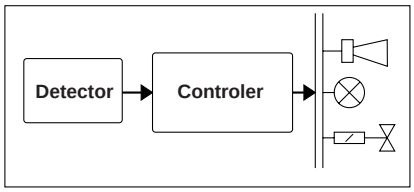
ExDetector IRCO2

ExDetector IRHC

Data Sheet

Gas Detection and Warning Systems

Installation / Set-up



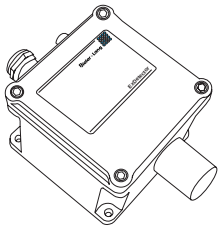
In combination with a controller system, gas detectors in the ExDetector IR range haven the following functions:

- Measurement and display of the current concentration of gases and vapours
- Monitoring and warning of the presence of these gases
- Initiating protective measures:
  - Technical: countering a further increase in concentration (fans, switching off....)
  - Organisational: visual and acoustic messages and warnings.

A gas warning system consists of the following components:

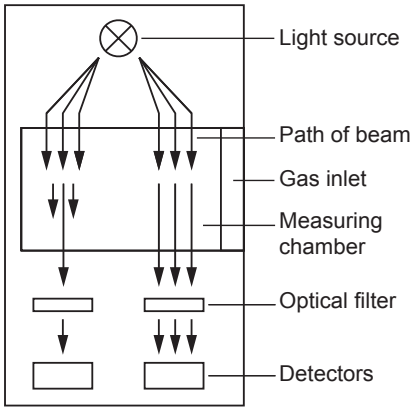
- Sensor
- Controller system
- Controllable devices such as fans, warning signs, and solenoid valves

Product Features



- Exdetector IRCO2: detection of carbon dioxide CO_2
  Measurement range: 2.0 vol %
- Exdetector IRHC: Monitoring gases and vapours capable of forming an explosive mixture
  Measurement range: 0 ... 100 % LEL
- NDIR (non-dispersive infrared)
- Linear measurement signal 4 ... 20 mA
- One-man calibration (using optional calibrator)
- Certified for use in Ex-zones 1 and 2
- Three-conductor technology
  - 24 VDC
  - 4 ... 20 mA
  - Neutral

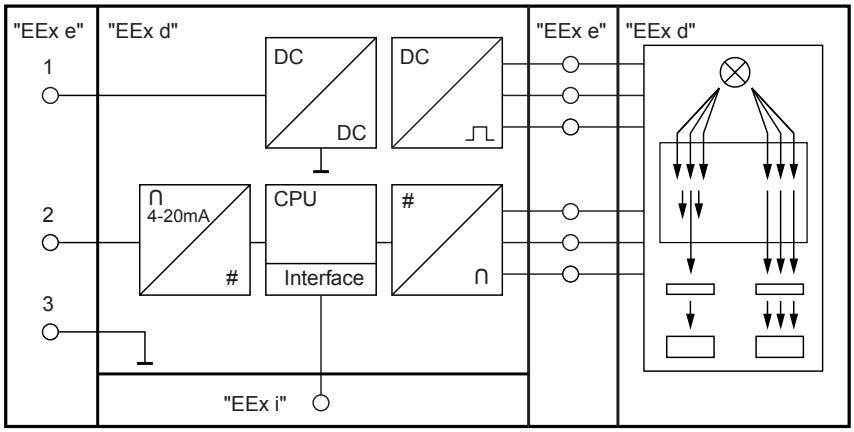
How It Works



The NDIR sensor element consists of a light source, optical band filters, and detectors. The light source emits a pulsing, wide-band spectrum. The light beams pass through the measuring chamber, and the substance being monitored enters it by diffusion.
Certain gases have the property of absorbing some radiation intensity in particular wave-length regions. At the end of the optical path, there are two detectors. Before radiation reaches them, it must pass through two optical band filters. Their transmission range is chosen to suit the detection task. The transmission range of the reference filter is limited to a wave-length range that is not absorbed by the gas to be detected. The filter of the detector only allows passage of the spectrum that can be absorbed by the gas. From the difference recorded between the detector and its compensation detector, the concentration of the gas is determined using linearisation algorithms. In addition, a temperature measurement compensates for ambient temperature effects.

The detector electronics are supplied with 24VDC. They supply a linear, 4 ... 20 mA signal, proportional to the quantity being measured, for further evaluation. Using the optional calibrator, which is also explosion-protected, operating parameters can be programmed and the detector element adjusted. Thus, operation and maintenance can also be carried out in hazard zones.

Block Diagram



Technical Data General

	ExDetector IRCO2 31	ExDetector IRHC 32 ExDetector IRHC 33 ExDetector IRHC 34
Field of application	Ex-zones 1 and 2	
Equipment category	II 2G	
Installation	Wall-mounting	
Detection gases	Carbon dioxide CO2	Combustible gases / vapours (see list "Technical Data, Substances)
Measurement range:	0 ... 2.0 vol %	0 ... 100% LEL
Measurement principle:	NDIR (non-dispersive infrared)	
Response time (T90)	Depending on detection gas < 50 sec	
Max. flow speed	6 m/sec	
Temperature range	-20 °C ... +55°C	
Air pressure range	900 ... 1100 hPa	
Humidity range	30 ... 90 % RH	

Technical Data Substances

Detectable substances:

ExDetector IRHC 32:
propane, n-pentane, n-hexane, nonane, methanol, ethanol, butanol, butyl acetate, methyl methacrylate, dioxane, methyl ethyl ketone (MEK)

ExDetector IRHC 33:
methane, benzene, toluene, xylene

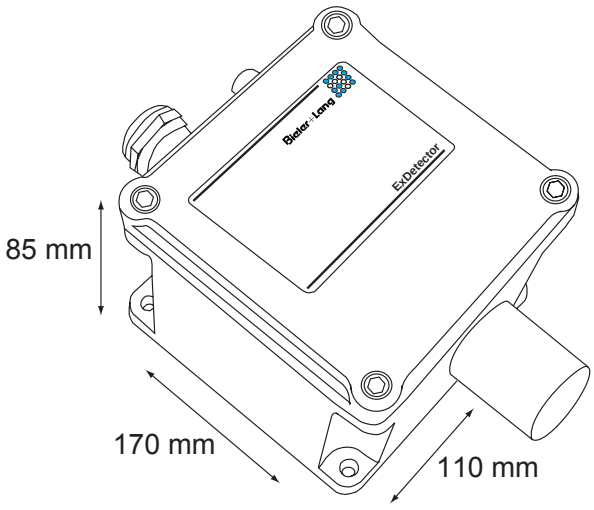
ExDetector IRHC 34:
acetylene (ethyne)

Technical Data Installation

	ExDetector IRCO2 / IRHC	
Field interface	4 ... 20 mA	
Supply voltage (detector terminals)	18 ... 32 VDC SELV / PELV max 5.5 W Fuse 100 mAT	
Calibration interface	Ex-classification: Ex ib IIC; only for connection to a certified intrinsically-safe circuit: Ui = 13.8 V / Pi = 432 mW / Li = 0 / Ci = 0	
Safety-related maximum voltage	Um = 250 V	
Max. cable length	1000m depending on cable type	
Connection cable	3 active conductors, screened, preferably H05VVC4V5-K	
Suitable controller	Gasmesscomputer 8022, GMC 8022E, GMC 8364	
Explosion-protection Certificate	Housing/electronics: II 2G Ex de [ib] IIC T6 PTB 00 ATEX 1075 -20°C < TA < +55°C	Sensor head: II 2G Ex ed IIC T6 for -20°C < TA < 55°C PTB 00 ATEX 1076U
Functional assessment	Applied for	

Mechanical Data

	ExDetector IRCO2 / IRHC
Degree of protection (housing)	IP54
Housing material	Sensor: stainless steel Housing: aluminium
Weight	ca. 1300 g
Cable gland	Cable diameter 8 ... 13 mm
Connection terminals	3 terminals 0.5 ... 1.5 mm^2



Assessments

- Explosion-protection Certificates
  - Housing/electronics (ExDetector IRCO2 / IRHC):
    II 2G
    Ex de [ib] IIC T6
    PTB 00 ATEX 1075
  - Sensor:
    II 2G / Ex ed IIC
    T4 für -20°C < TA < +80°C
    T6 für -20°C < TA < +55°C
    PTB 00 ATEX 1076U
- Functional assessment: applied for

Safety

For its intended use in Ex-zones 1 and 2, the ExDetector, which complies with the following standards, ensures the highest levels of safety and reliability:

- EN 50270 (product standard)
  Electromagnetic compatibility of electrical equipment for the detection and measurement of combustible gases, toxic gases, oxygen and breath alcohol.

Accessories

- Test-gas set
- Calibration gases
- Calibrator Calibrationbox-i

Service

Everything from a single supplier - from system design to installation of your new gas warning system. The comprehensive coverage of our sales and service network ensures this. Ask us about regional representatives in your area. And after purchase, our service technicians are available to help and advise.

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Technical status: 01/2011
We reserve the right to make technical changes!

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.

Meer info

Kijk voor een overzicht van al onze diensten op euro-index.nl/diensten

Mobiele Service

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

Meer info

KWS®

KWS® is een uniek servicesysteem voor uw meetinstrumenten met periodiek onderhoud en kalibratie tegen vaste, lage kosten. Via een gratis webportal (mijnkws.nl) heeft u altijd en overal beschikking over uw kalibratiecertificaten.

Meer info

Verhuur van meetinstrumenten

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

Meer info

EURO-INDEX Academy

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

Meer info

Servicebalie

Onderhoud, reparatie en kalibratie

Cursussen en workshops

Mobiele Service

Wijzigingen voorbehouden EURO-INDEX® NL 21004

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MANAGEMENTSYSTEEM CERTIFICATIE DNV·GL ISO 9001
KALIBRATIE RvA K 105 Geaccrediteerde scope zie www.rva.nl
WIJ LEDEN VAKMENSEN OP Erkend leerbedrijf