



# Electro Optical Components, Inc.

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**smartGAS**  
MIKROSENSORIK

blue performance®

## smartMODUL BASIC<sup>EVO</sup>

Infrared gas sensor CO<sub>2</sub> // Carbone Dioxide // 20 Vol.-%  
smartGAS item Number: B3-212207-03000



- Pre calibrated
- Gas entry by diffusion
- 3.3 - 6 V DC supply voltage
- Modbus ASCII or RTU
- Status indication by LED

Non Dispersive Infrared (NDIR) gas sensor for ambient air monitoring using dual wavelength technology. Although designed especially for refrigeration leak detection in small concentration ranges (ppm range) for wall mount detectors and room air monitoring devices the BASIC<sup>EVO</sup> can also be applied in food storage facilities, air conditioning systems and various areas of scientific research.

The BASIC<sup>EVO</sup> CO<sub>2</sub> sensor can easily be integrated into OEM systems, where long term stability, repeatability and reliable performance are required. It can be utilised as a Freon detector in industrial refrigeration facilities but can also be used for ambient air monitoring in the field of air conditioning devices. Other scopes of applications comprise continuous gas monitoring in controlled environment chambers and food storage rooms as well as usage for various areas of scientific research. Special build-in solutions to provide IP54 protection and easy field gas-calibration are available.

Modbus ASCII or RTU data communication offer a variety of options to connect the BASIC<sup>EVO</sup> gas sensor to a controller.

**APPLICATION EXAMPLE**  
HOTEL AIR CONDITIONING  
FOOD STORAGE ROOMS  
INDUSTRIAL REFRIGERATION  
FOOD TRANSPORT  
RESEARCH

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General features	
Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	0 .. 20 Vol.-% Full Scale (FS)
Gas supply:	by diffusion (atmospheric pressure)
Dimensions:	62 mm x 37 mm x 30 mm (L x W x H)
Warm-up time:	< 2 minutes (start up time) < 11 minutes (fade in finished) < 30 minutes (full specification)
Measuring response*	
Response time (t <sub>90</sub> ):	appr. 60 s
Digital resolution (@ zero):	0.01 %
Detection limit (3 σ):	≤ 0.05 %
Repeatability:	≤ ± 0.05 %
Linearity error (straight line deviation):	≤ ± 0.1 %
Long term stability (span):	≤ ± 0.2 % over 12 month period
Long term stability (zero):	≤ 0.15 % over 12 month period
Influence of T and P*	
Temp. dependence (zero):	≤ ± 0.02 % per °C
Temp. dependence (span):	≤ ± 0.04 % per °C
Pressure dependence:	± 0.156 % of measurement value / hPa
Electrical inputs and outputs	
Supply voltage:	3.3 V .. 6.0 V DC
Supply current (peak):	< 400 mA @ 3.3 V, < 240 mA @ 5.0 V
Inrush current:	< 450 mA
Average power consumption:	< 800 mW
Digital output signal:	Modbus ASCII / RTU via UART, autobaud, autoframe
Calibration:	zero and span by SW
Climatic conditions	
Operating temperature:	-20 .. + 40 °C
Storage temperature:	-20 .. + 60 °C
Air pressure:	800 .. 1150 hPa
Ambient humidity:	0 .. 95 % relative humidity (not condensing)
* Typical values related to 1013 hPa and 25 °C for dry (not condensing) and clean sample gas. Stated values exclude calibration gas tolerance.	

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