smartGAS
MIKROSENSORIK

blue performance

FLOW^{EVO} for Biogas application

Infrared gas sensor CO_2 // Carbon dioxide // 100 Vol.-%
smartGAS item number: F3-214108-05000

- **Pre calibrated**
- **Compact design**
- **3/5 mm gas line connectors**
- **3.3 – 6.0 V DC supply voltage**
- **Modbus ASCII or RTU**
- **Status indication by LED**
- **Low drift**

Non Dispersive Infrared (NDIR) gas sensor for process control and gas analysing using dual wavelength technology. Designed for process control, lab analysing and environmental monitoring in a wide range of gas measurement systems.

The FLOW^{EVO} CO_2 sensor can easily be integrated into OEM systems, where long term stability, repeatability and reliable performance are required. Based on robust and precise NDIR technology our CO_2 sensors offer enduring solutions in the area of controlled combustion and process control. Furthermore, they can be used in environmental analysis and various other fields of scientific research where low signal drift and high selectivity are crucial for exact measurements and subsequent processing.

Modbus ASCII or RTU data communication offer a variety of options to connect the FLOW^{EVO} sensor to a controller.

APPLICATION EXAMPLE
GAS ANALYSING
PROCESS CONTROL
BIOGAS APPLICATION
RESEARCH

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General features	
Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	0..100 Vol.-% Full Scale (FS)
Gas supply:	by flow (nearly atmospheric pressure)
Flow rate:	0.1 .. 1.0 l / min
Dimensions:	76 mm x 30 mm x 37 mm (L x W x H)
Warm-up time:	< 2 minutes (start up time)
	< 30 minutes (full specification)
Measuring response	related to Pa = 1013 hPa, Ta = 25 °C, flow = 0.7 l / min
Response time (t_{90}):	Appr. 12 s @ 0.7 l / min
Digital resolution (@ zero):	0.01 Vol.-%
Detection limit (3 σ):	≤ 0.2 Vol.-%
Repeatability:	≤ ± 0.6 Vol.-%
Linearity error (straight line deviation):	≤ ± 0.9 Vol.-%
Long term stability (span):	≤ ± 2.0 Vol.-% over 1000 h period
Long term stability (zero):	≤ ± 1.0 Vol.-% over 1000 h period
Influence of T, P, flow rate, other	related to Pa = 1013 hPa, Ta = 25 °C, flow = 0.7 l / min
Temp. dependence (zero):	≤ ± 0.1 Vol.-% per °C
Temp. dependence (span):	≤ ± 0.2 Vol.-% per °C
Pressure dependence:	+ 0.156 % of measurement value / hPa
Flow rate dependence:	≤ ± 0.01 Vol.-% per 0.1 l / min
Cross sensitivity (zero) other gases:	consult factory
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:	< 600 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:	0 .. + 50 °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, Ta=22 °C, flow = 0.7 l / min for dry (not condensing) and clean sample gas. Stated values exclude calibration gas tolerance.

For more information, please visit www.smartgas.eu or contact us at sales@smartgas.eu
Please consult smartGAS sales for parts specified with other temperature and measurement ranges.
At first initiation and depending on application and ambient conditions recalibration is recommended. Recurring cycles of recalibration are recommended.

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