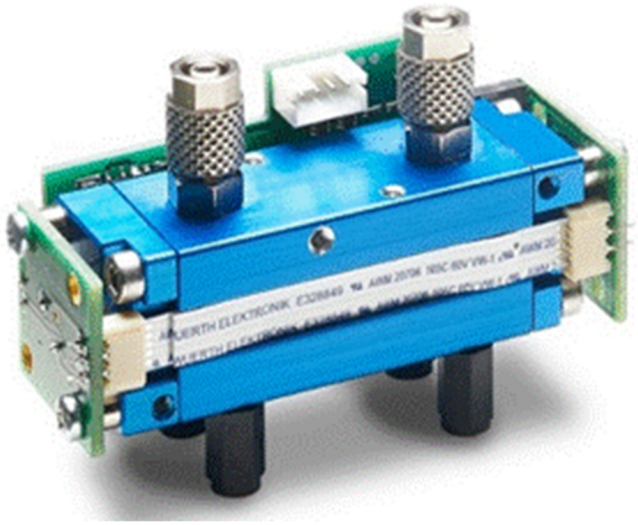
smartGAS.

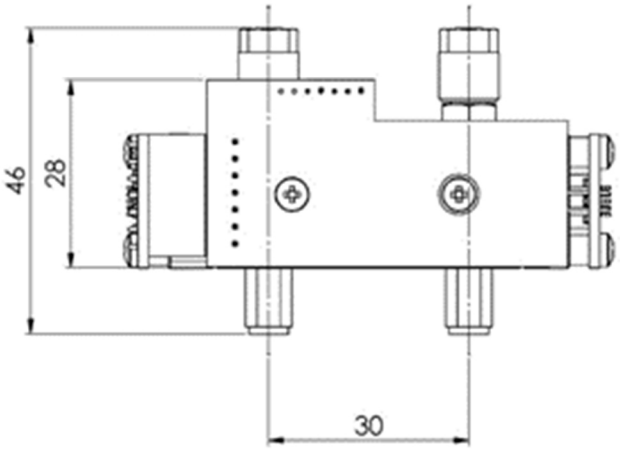
MADE IN GERMANY

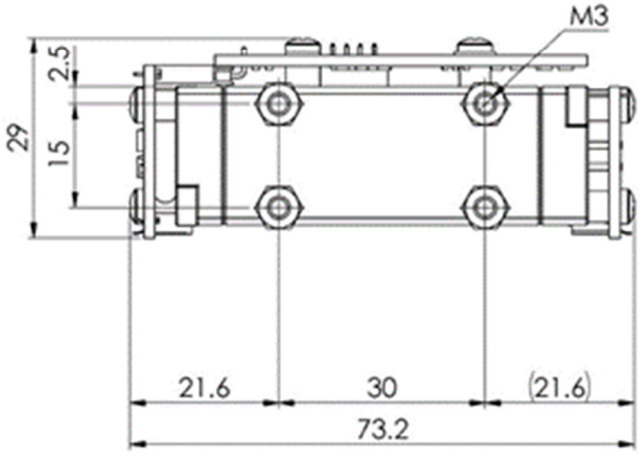
FLOW^{EVO} for Biogas application

Infrared gas Sensor
Carbon dioxide CO_2
50 Vol.-%
smartGAS item number: F3-214507-05000



- **Pre calibrated**
- **Compact Design**
- **3/5 mm gas line connector**
- **3.3–6 V DC supply voltage**
- **Modbus ASCII or RTU**
- **Status indicated by LED**
- **Low drift**





Application examples
Gas analysis
Biogas application
Process control

Available equipment
Gas cooler
Particle filter
Gas pump
Calibration Software
Mounting equipment

Available design in support
Mechanical Installation
Data communication
Gas pre-treatment

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DS_F3_214507-05000_50Vol.-%
Edition 06_05/2021

FLOW^{EVO} I Carbon dioxide CO_2 I F3-214507-05000 I Biogas application

Measurement principle:	Non-Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	0 ... 50 Vol.-% Full Scale (FS)
Gas supply:	by flow (nearly atmospheric pressure)
Flow rate:	0.1 ... 1.0 l / min
Mounting dimensions:	76 mm x 30 mm x 50 mm (L x W x H)
Warm-up time:	< 2 minutes (start-up time) < 30 minutes (full specification)

Measuring response*

Digital resolution:	0.01 Vol.-%	
Response time @ 0.7 l / min**:	*Standard*:	*Fast:*
t_{90} (10 to 90 % FS):	≤ 9.9 s	≤ 0.7 s
t_{on} (0 to 90 % FS):	≤ 16.5 s	≤ 1.8 s
Detection limit (3 σ):	≤ 0.2 Vol.-%	≤ 0.36 Vol.-%
Repeatability:	≤ ± 0.4 Vol.-%	
Linearity error (straight line deviation):	≤ ± 0.6 Vol.-%	
Long term stability (zero):	≤ ± 0.5 Vol.-% over 1000 h period	
Long term stability (span):	≤ ± 1.0 Vol.-% over 1000 h period	

Influence of T, P, flow rate, other*

Temp. dependence (zero):	≤ ± 0.1 Vol.-% per °C
Temp. dependence (span):	≤ ± 0.2 Vol.-% per °C
Pressure dependence:	+ 0.156 % of actual reading / hPa
Flow rate dependence:	≤ ± 0.1 Vol.-% per 0.1 l / min
Cross sensitivity (zero) other gases:	consult factory
Gas dew point requirement:	< + 5°C dew point (stable), particle free and clean sample gas

Electrical parameters

Supply voltage	3.3 V ... 6.0 VDC
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.

** Adjustable only via smartGAS Calibration-Tool SW.

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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.