smartGAS.

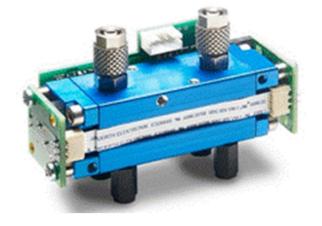


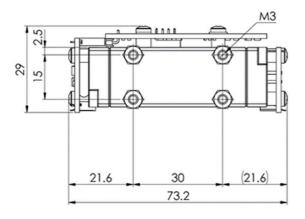
FLOW^{EVO} for Biogas application

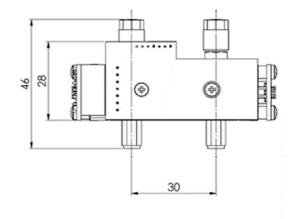
Infrared gas Sensor Methane CH₄ 50 Vol.-% smartGAS item number: F3-043507-05000



- 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

smartGAS.

FLOW^{EVO} I Methane CH₄ I F3-043507-05000 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 I / min**: | Standard: Fast: |
| t ₉₀ (10 to 90 % FS): | $\le 9.9 \text{ s} \le 0.7 \text{ s}$ |
| t _{on} (0 to 90 % FS): | ≤ 16.5 s ≤ 1.8 s |
| Detection limit (3 σ): | ≤ 0.2 Vol% ≤ 0.38 Vol% |
| Repeatability: | ≤ ± 0.4 Vol% |
| Linearity error (straight line deviation): | ≤ ± 0.6 Vol% |
| Long term stability (zero): | \leq ± 0.6 Vol% over 1000 h period |
| Long term stability (span): | \leq ± 1.8 Vol% over 1000 h period |
| | |
| Influence of T, P, flow rate, other* | |
| Temp. dependence (zero): | ≤ ± 0.1 Vol% per °C |
| Temp. dependence (zero): Temp. dependence (span): | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C |
| Temp. dependence (zero): | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 / min |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 / min consult factory |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 / min consult factory |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 l / min consult factory < + 5°C dew point (stable), particle free and clean sample gate |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage | $\leq \pm 0.1 \text{ Vol\% per °C}$ $\leq \pm 0.2 \text{ Vol\% per °C}$ $\pm 0.100 \% \text{ of actual reading / hPa}$ $\leq \pm 0.1 \text{ Vol\% per } 0.1 \text{ I / min}$ consult factory $< \pm 5^{\circ}C dew point (stable), particle free and clean sample gathered and the sample ga$ |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage Supply current (peak): | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 l / min consult factory < + 5°C dew point (stable), particle free and clean sample ga 3.3 V 6.0 VDC < 400 mA @ 3.3 V, < 240 mA @ 5.0 V |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage Supply current (peak): Inrush current: | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 I / min consult factory < + 5°C dew point (stable), particle free and clean sample ga 3.3 V 6.0 VDC < 400 mA @ 3.3 V, < 240 mA @ 5.0 V < 600 mA |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage Supply voltage Supply current (peak): Inrush current: Average power consumption: | $\leq \pm 0.1 \text{ Vol\% per °C}$ $\leq \pm 0.2 \text{ Vol\% per °C}$ $\pm 0.100 \% \text{ of actual reading / hPa}$ $\leq \pm 0.1 \text{ Vol\% per 0.1 / min}$ consult factory $< \pm 5^{\circ}C \text{ dew point (stable), particle free and clean sample gathers 3.3 V 6.0 VDC$ $\leq 400 \text{ mA} @ 3.3 V, < 240 \text{ mA } @ 5.0 V$ $\leq 600 \text{ mA}$ $\leq 800 \text{ mW}$ |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage Supply voltage Supply current (peak): Inrush current: Average power consumption: Digital output signal: | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 l / min consult factory < + 5°C dew point (stable), particle free and clean sample ga 3.3 V 6.0 VDC < 400 mA @ 3.3 V, < 240 mA @ 5.0 V < 600 mA < 800 mW Modbus ASCII / RTU via UART, autobaud, autoframe |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage Supply voltage Supply current (peak): Inrush current: Average power consumption: Digital output signal: Calibration: | $\leq \pm 0.1 \text{ Vol\% per °C}$ $\leq \pm 0.2 \text{ Vol\% per °C}$ $\pm 0.100 \% \text{ of actual reading / hPa}$ $\leq \pm 0.1 \text{ Vol\% per 0.1 l / min}$ consult factory $< \pm 5^{\circ}C \text{ dew point (stable), particle free and clean sample ga}$ 3.3 V 6.0 VDC $< 400 \text{ mA} @ 3.3 \text{ V}, < 240 \text{ mA} @ 5.0 \text{ V}$ $< 600 \text{ mA}$ $< 800 \text{ mW}$ Modbus ASCII / RTU via UART, autobaud, autoframe zero and span by SW $0 \dots \pm 50 ^{\circ}C$ |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage Supply voltage Supply current (peak): Inrush current: Average power consumption: Digital output signal: Calibration: Climatic conditions | ≤ ± 0.1 Vol% per °C ≤ ± 0.2 Vol% per °C + 0.100 % of actual reading / hPa ≤ ± 0.1 Vol% per 0.1 l / min consult factory < + 5°C dew point (stable), particle free and clean sample ga 3.3 V 6.0 VDC < 400 mA @ 3.3 V, < 240 mA @ 5.0 V < 600 mA < 800 mW Modbus ASCII / RTU via UART, autobaud, autoframe zero and span by SW |
| Temp. dependence (zero): Temp. dependence (span): Pressure dependence: Flow rate dependence: Cross sensitivity (zero) other gases: Gas dew point requirement: Electrical parameters Supply voltage Supply voltage Supply current (peak): Inrush current: Average power consumption: Digital output signal: Calibration: Climatic conditions Operating temperature: | $\leq \pm 0.1 \text{ Vol\% per °C}$ $\leq \pm 0.2 \text{ Vol\% per °C}$ $\pm 0.100 \% \text{ of actual reading / hPa}$ $\leq \pm 0.1 \text{ Vol\% per 0.1 l / min}$ consult factory $< \pm 5^{\circ}C \text{ dew point (stable), particle free and clean sample ga}$ 3.3 V 6.0 VDC $< 400 \text{ mA} @ 3.3 \text{ V}, < 240 \text{ mA} @ 5.0 \text{ V}$ $< 600 \text{ mA}$ $< 800 \text{ mW}$ Modbus ASCII / RTU via UART, autobaud, autoframe zero and span by SW $0 \dots \pm 50 ^{\circ}C$ |

* 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.