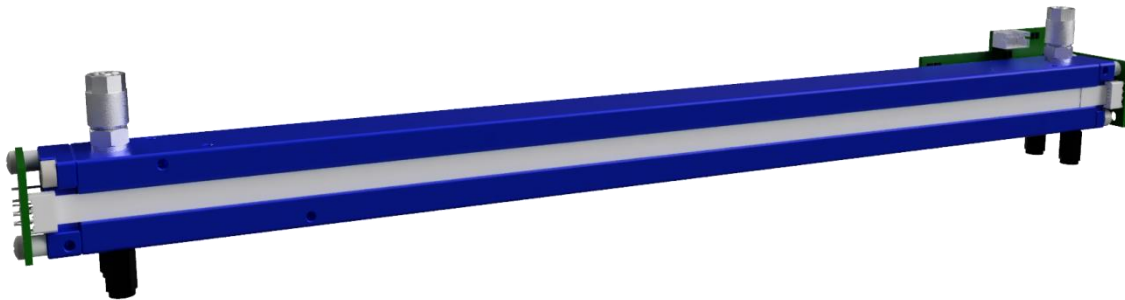


## Product features:

- "Ready to use" NDIR sensors
- Compact Design
- Low maintenance
- Low detection limits
- Selective against influencing gases
- Flexible interfaces
- Temperature and drift compensated
- Compact construction

## Product Features FLOW<sup>EVO</sup> Plus only

- Active Noise reduction Filter
- Low noise at lowest T90 time
- Low LDL
- High data frequency
- Wide Range Power Input
- High end active thermal heat Controller
- Cuvette Pressure Compensation



The **Flow<sup>EVO</sup>** sensors have a large spectrum of measurable gases and are especially convincing where it is important to have the highest precision and reliability. Different versions can be very easily combined, also facilitating complex measuring tasks. All **smartGAS** sensors are designated by low detection limits, very small drift, a large temperature range and a fast response time and markedly low operating and maintenance costs. Our NDIR sensors in the **Flow<sup>EVO</sup>** series combine measuring precision with compact design and simple handling.

### Optional Accessories

- Case and thermal isolation
- Heater and heat controller
- USB Adapter
- CONNECT Interface
- Calibration/Data Logger software
- Calibration and test gases
- Gas Cooler, Filter, Pre-treatment
- Analog Interfaces (EVO<sup>Plus</sup>)

### Support

- Design-In support
- Customization:
  - Software
  - Protocols
  - Measuring ranges
  - Background gas optimizing
  - Interfaces

## FLOW<sup>EVO</sup> / FLOW<sup>EVO</sup> Plus | Methane CH<sub>4</sub> | F3-042205/ P3-042205.xxx

### General features

Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength	
Measurement range:	0 ... 2000 ppm Full Scale [FS]	
Gas supply:	by flow (nearly atmospheric pressure)	
Mounting dimensions:	<b>FLOW<sup>EVO</sup> F3-042205</b> 336 mm x 30 mm x 50 mm (L x W x H)	<b>FLOW<sup>EVO</sup> Plus P3-042205.xxx</b> 336 mm x 30 mm x 55 mm (L x W x H)
Flow Rate:	0.1 ... 1.0 l/min	
Gas Cuvette Length/Material	300 mm / Alloy	
Cuvette Volume	≈ 15,08 cm <sup>3</sup>	
Gas Connections	5/3mm Rubber Tube Fitting (default)	
Warm-up time:	< 2 minutes (start-up time)   < 30 minutes (full specification)	

### Measuring response\*

Digital resolution:	0.1 ppm	
	<b>FLOW<sup>EVO</sup> F3-042205</b>	<b>FLOW<sup>EVO</sup> Plus P3-042205.xxx</b>
Response time (t <sub>90</sub> )	Standard	< 18 s (Standard Mode default)
0 .. 90%[FS]@0.7 l/min:	Fast Mode	< 1.8 s (Fast Mode)**
Detection limit (3 σ):	Standard	≤ 1 % [FS]
	Fast Mode	≤ 2,5 % [FS]
Repeatability:	≤ ±1 % [FS]	
Linearity error (straight line deviation):	≤ ±1 % [FS]	
Long term stability (zero):	≤ ± 2 % [FS] over 1000 h period	
Long term stability (span):	≤ ± 5 % [FS] over 1000 h period	

### Influence of T,P,flow rate,other\*

	<b>FLOW<sup>EVO</sup> F3-042205</b>	<b>FLOW<sup>EVO</sup> Plus P3-042205.xxx</b>
Temp. dependence (zero):	≤ ± 0.3 % [FS] per °C	Option: Constant heated 45 °C ±0.1 °C
Temp. dependence (span):	≤ ± 0.6 % [FS] per °C	Option: Constant heated 45 °C ±0.1 °C
Pressure dependence:	+ 0.100 % of actual reading / hPa	Option: Pressure Compensated
Flow rate dependence:	≤ ± 6 ppm per 0.1 l / min	
Cross sensitivity (zero) other gases:	≤ + 250 ppm @ 10 Vol.-% CO <sub>2</sub> in dry air. Other: Please consult manufacturer	
Gas dew point requirement:	< + 5°C dew point (stable), particle free and clean sample gas	

### Electrical parameters

	<b>FLOW<sup>EVO</sup> F3-042205</b>	<b>FLOW<sup>EVO</sup> Plus P3-042205.xxx</b>
Supply voltage:	3.3V .. 6.0 VDC	10 .. 26 VDC recommend 24VDC
Supply current (peak):	< 400mA @ 3.3V, < 240mA @ 5.0V	< 21 W (while heater on)
Inrush current:	< 600mA	< 800mA
Average power consumption:	< 800mW	< 800 mW (at stabilized temperature)
Digital output signal:	Modbus ASCII / RTU 1 Wire TTL autobaud, autoframe	
Max read out data rate	2.5 Hz	10 Hz
Calibration:	zero and span by software	

### Climatic conditions

Operating temperature:	Operating : 0 .. + 50 °C   Storage : -20 .. + 60 °C
Air pressure:	800 .. 1150 hPa
Ambient humidity:	0 .. 95 % relative humidity (not condensing)

### Options FLOW<sup>EVO</sup> Plus P3-042205.xxx

P3-042205-1x1	Heater (PID)	Temp. : 45 °C (Default)
P3-042205-1x3	Heater (PID) and Pressure Sensor	Temp. : 45 °C (Default) and cuvette pressure compensation
P3-042205-11x	Analog Interface1	4-20mA Isolated (3kV/rms), max load 650Ω
P3-042205-12x	Analog Interface2a	0-20mA max load 600Ω   0-2/5/10 VDC min resistance load 2kΩ
P3-042205-13x	Analog Interface2b	4-20mA max load 600Ω   0.4-2/1-5/2-10 VDC min resistance load 2kΩ

\* Typical values related to 1013 hPa, T<sub>a</sub> = 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 Software.

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