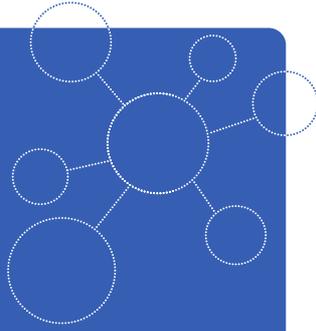


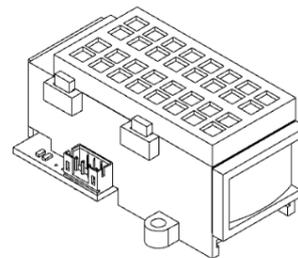
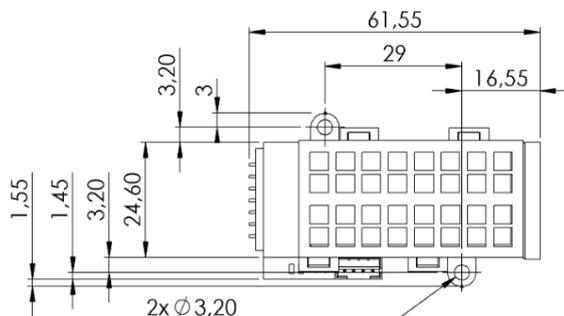
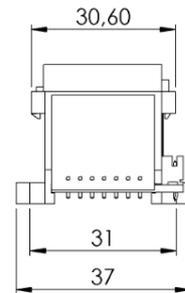
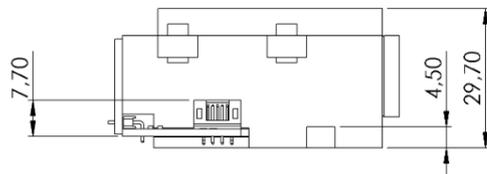
MADE IN GERMANY



## BASIC<sup>EVO</sup>

Infrared gas Sensor  
Broadband (R134a)  
1000 ppm  
smartGAS item number: B3-712105-03800

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



### Application examples

Hotel air conditioning  
Food storage rooms  
Industrial refrigeration  
Supermarkets  
Research

### Available equipment

Connect Interface  
Wall mount enclosure  
Calibration software  
Mounting equipment

### Available design in support

Mechanical installation  
Data communication  
also, as complete Transmitter

## General features

Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	0 ... 2000 ppm Full Scale (FS)
Gas supply:	by diffusion (atmospheric pressure)
Flow rate:	62 mm x 37 mm x 30 mm (L x W x H)
Mounting dimensions:	< 2 minutes (start up time)
Warm-up time:	< 11 minutes (fade in finished) < 30 minutes (full specification)

## Measuring response\*

Response time ( $t_{90}$ ):	appr. 60 s
Digital resolution:	1 ppm
Detection limit ( $3\sigma$ ):	$\leq 10$ ppm
Repeatability:	$\leq \pm 20$ ppm
Linearity error (straight line deviation):	$\leq \pm 30$ ppm
Long term stability (zero):	$\leq \pm 50$ ppm over 12 month period
Long term stability (span):	$\leq \pm 60$ ppm over 12 month period

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

Temp. dependence (zero):	$\leq \pm 3$ ppm per °C
Temp. dependence (span):	$\leq \pm 6$ ppm per °C
Pressure dependence:	+ 0.100 % of actual reading / hPa

## 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:	< 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,  $T_a = 22$  °C, flow = 0.7 l / min for dry (not condensing) and clean sample gas.  
Stated values exclude calibration gas tolerance.

Broadband features cross-sensitivity		
Gas :	Scaling factor at FS (other than R134a):	Scaling error (3 σ) at FS (other than R134a):
R11	-	-
R123	1,077	≤ ± 30 ppm
R1233zd	0,874	≤ ± 10 ppm
R1234yf	0,666	≤ ± 40 ppm
R1234ze	0,657	≤ ± 50 ppm
R125	0,659	≤ ± 40 ppm
R22	1,432	≤ ± 20 ppm
R23	1,042	≤ ± 120 ppm
R32	1,641	≤ ± 40 ppm
R404a	0,751	≤ ± 70 ppm
R407a	0,914	≤ ± 70 ppm
R407c	1,009	≤ ± 20 ppm
R407f	0,992	≤ ± 20 ppm
R410a	1,082	≤ ± 80 ppm
R448a	0,902	≤ ± 30 ppm
R449a	0,899	≤ ± 30 ppm
R452a	0,652	≤ ± 70 ppm
R455a	2,676	≤ ± 55 ppm
R507	1,000	≤ ± 20 ppm
R513a	0,745	≤ ± 20 ppm

### Use of scaling factors:

$$\text{Actual gas conc. (target gas)} = \text{Scaling factor} \times \text{Conc. reading}$$

<b>Actual gas conc. (target gas):</b>	<b>Real gas concentration of the target gas</b>
<b>Scaling factor:</b>	<b>Multiplication factor to correct the sensor readings</b>
<b>Concentration reading (R134a):</b>	<b>Actual sensor output reading</b>

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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.