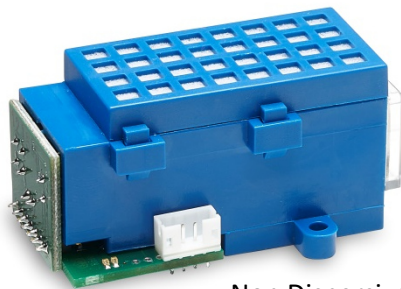


## smartMODUL BASIC<sup>EVO</sup>

Broadband Infrared gas sensor for refrigerants – calibrated to R134a // TETRAFLUOROETHANE // 2000 ppm  
smartGAS item number: B3-712205-03800



- Pre calibrated to R134a  
Also applicable for:  
R125, R404a, R407a, R410a
- Gas entry by diffusion
- 3.3 - 6 V DC supply voltage
- Modbus ASCII or RTU
- Status indication by LED

Non Dispersive Infrared (NDIR) broadband gas sensor for ambient air monitoring using dual wavelength technology. Although designed especially for refrigeration leak detection in small concentration ranges (2000 ppm range) for wall mount detectors and room air monitoring devices the BASIC<sup>EVO</sup> can also be applied in food storage facilities, air conditioning systems and various areas of scientific research.

The BASIC<sup>EVO</sup> refrigerant broadband sensor is calibrated to R134a as reference and can easily be integrated into OEM systems, where long term stability, repeatability and reliable performance are required. It can be utilised as a refrigerants detector for up to 5 gases (R134a, R125, R404a, R407a, R410a) in industrial refrigeration facilities but can also be used for ambient air monitoring in the field of air conditioning devices. Other scopes of applications comprise continuous gas monitoring in controlled environment chambers and food storage rooms as well as usage for various areas of scientific research. Special build-in solutions to provide IP54 protection and easy field gas-calibration are available.

**APPLICATION EXAMPLE**  
HOTEL AIR CONDITIONING  
FOOD STORAGE ROOMS  
INDUSTRIAL REFRIGERATION  
FOOD TRANSPORT

Modbus ASCII or RTU data communication offers a variety of options to connect the BASIC<sup>EVO</sup> gas sensor to a controller.

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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)
Dimensions:	62 mm x 37 mm x 30 mm (L x W x H)
Warm-up time:	< 2 minutes (start up time) < 11 minutes (fade in finished) < 30 minutes (full specification)
Measuring response at R134a reference gas	
Response time ( $t_{90}$ ):	appr. 60 s
Digital resolution (@ zero):	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 (span):	$\leq \pm 40$ ppm over 12 month period
Long term stability (zero):	$\leq \pm 30$ ppm over 12 month period
Influence of T and P*	
Temp. dependence (zero):	$\leq \pm 3$ ppm per °C
Temp. dependence (span):	$\leq \pm 6$ ppm per °C
Pressure dependence:	$\pm 0.100$ % of measurement value / hPa
Electrical inputs and outputs	
Supply voltage:	3.3 V .. 6.0 V DC
Supply current (peak):	< 400 mA @ 3.3V, < 240mA @ 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:	-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 and 22 °C for dry (not condensing) and clean sample gas. Stated values exclude calibration gas tolerance.	

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Broadband features cross-sensitivity				
Gas:	R125	R404a	R407a	R410a
Scaling factor (other than R134a):	0,644	0,772	0,85	1,014
Scaling error at FS (other than R134a):	≤ ± 60 ppm	≤ ± 80 ppm	≤ ± 50 ppm	≤ ± 60 ppm

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For more information, please visit [www.smartGAS.eu](http://www.smartGAS.eu) or contact us at [sales@smartgas.eu](mailto: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.**