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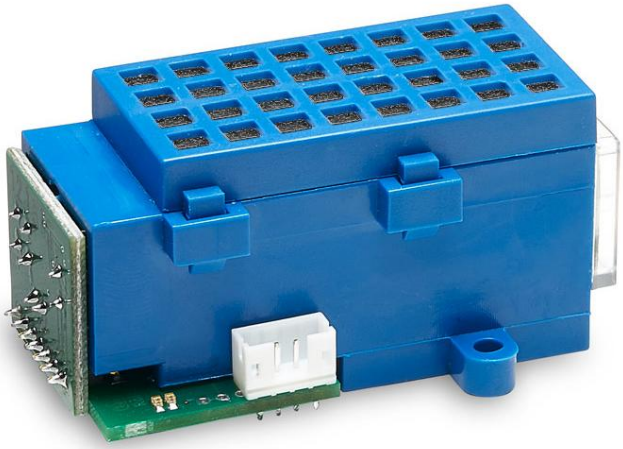
MADE IN GERMANY

BASIC^{EVO} PRO Broadband

Infrared gas Sensor
Broadband Freon(R134a) 2000(1000)ppm
smartGAS item number: B3-712205-108xx

Product features:

- Non Dispersive Infra-Red (NDIR)
- Dual beam / Reference channel
- Measure 20 gases with one sensor
- Internal calibration curve for each Freon
- Dual range 2000 ppm and 1000 ppm select-able
- Maximal flexibility in installation
- Easy target gas selection



The **BASIC^{EVO}** NDIR gas sensor is used for **ambient air monitoring** using **dual wavelength technology.** It is designed for leak detection in small concentration ranges (ppm range) for wall mount detectors and room air monitoring devices. **BASIC^{EVO}** diffusion sensors advantages are a **long lifetime, low detection limits, very slight drift, a large temperature range, a fast response time and low maintenance costs.** The BASIC^{EVO} series is therefore the optimal solution for all applications in which an ambient air sensor should be **reliable** and at the same time **simple in its handling.**

Options

- Modulbox
- Ready to use transmitter version
- Connect Interface
- Calibration software
- Data Logger software
- Calibration and test gases
- USB adapter

Support

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

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BASIC^{EVO}PRO | Broadband Freon | B3-712205-108xx

General features — Release 6 Oct 2026

Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	0 … 2000 ppm (1000 ppm adjustable)
Gas supply:	by diffusion (atmospheric pressure)
Mounting dimensions:	62 mm x 37 mm x 30 mm (L x W x H) Other Dimensions : see Technical Drawing
Warm-up time (start up time):	< 2 minutes
Warm-up time (fade in finished):	< 11 minutes
Warm-up time (full specification):	< 30 minutes

Measuring response*

Response time (t90)**:	< 30 s
Digital resolution:	1 ppm
Detection limit (3 σ):	≤ 1 % [FS]
Repeatability:	≤ ± 2 % [FS]
Linearity error (straight line deviation):	≤ ±2 % [FS] @R134a | other see table on page 3
Long term stability (zero):	≤ ± 6% [FS] over 12 month period
Long term stability (span):	≤ ± 5% [FS] over 12 month period

Influence of T, P, flow rate, other*

Temp. dependence (zero):	≤ ± 0.3 % [FS] per °C
Temp. dependence (span):	≤ ± 0.6 % [FS] per °C
Pressure dependence:	+ 0.1 % [FS] of actual reading / hPa

Electrical parameters

Supply voltage:	3.3V .. 6.0V DC
Supply current (peak):	< 400mA @ 3.3V, < 240mA @ 5.0V
Inrush current:	< 600mA
Average power consumption:	< 800mW
Digital output signal:	Modbus ASCII / RTU via UART, autobaud, autoframe
Calibration:	zero and span by software

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

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Broadband Freon Table : Article code B3-712205-10801

Freon type	Freon Index	GWP AR5[(2)]	Linearity error (3 σ) With R134a span calibration	Linearity error (3 σ) With target gas calibration
R134a	Reference	1300	≤ ± 2 % [FS]	
R22	0	1760	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R23	1	12400	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R32	2	677	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R123	3	79	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R125	4	3170	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R404a	5	3940	≤ ± 12 % [FS]	≤ ± 3 % [FS]
R407a	6	1920	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R407c	7	1620	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R407f	8	1674	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R449a	9	1282	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R410a	10	1920	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R452a	11	1945	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R454b	12	467	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R455a	13	146	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R507	14	3990	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R513a	15	573	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R515b	16	299	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R1233zd	17	3.88[(5)]	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R1234yf	18	1.81[(5)]	≤ ± 15 % [FS]	≤ ± 3 % [FS]
R1234ze	19	1.37[(5)]	≤ ± 10 % [FS]	≤ ± 3 % [FS]

Note[(2)] Data Source IPCC Intergovernmental Panel on Climate Change Status Report AR5 2013/2014
Note[(3)] Not included in IPCC AR5
Note[(4)] Data Source IPCC AR4 100-year GWP
Note[(5)] Data Source IPCC AR6 100-year GWP

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Broadband Freon Table : Article code B3-712205-10802

Freon type	Freon Index	GWP AR5[(2)]	Linearity error (3 σ) With R134a span calibration	Linearity error (3 σ) With target gas calibration
R134a	Reference	1300	≤ ± 2 % [FS]	
R152a	0	138	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R218	1	8900	≤ ± 20 % [FS]	≤ ± 4 % [FS]
R245fa	2	856	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R422d	3	2470	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R472a	4	329	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R472b	5	484	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R508b	6	11700	≤ ± 15 % [FS]	≤ ± 3 % [FS]
R512a	7	567[(3)]	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R514a	8	2	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R444a	9	89	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R457a	10	193	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R457c	11	279	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R459a	12	461	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R465a	13	143	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R408a	14	2430	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R454b	15	466[(6)]	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R454c	16	166[(5)]	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R448a	17	1273	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R450a	18	604[(6)]	≤ ± 10 % [FS]	≤ ± 3 % [FS]
R454a	19	237	≤ ± 10 % [FS]	≤ ± 3 % [FS]

Note[(2)] Data Source IPCC Intergovernmental Panel on Climate Change Status Report AR5 2013/2014
Note[(3)] Not included in IPCC AR5
Note[(4)] Data Source IPCC AR4 100-year GWP
Note[(5)] Data Source IPCC AR6 100-year GWP
Note[(6)] Data Source IPCC AR4 (Regulatory)

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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.

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