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

The BASIC\textsuperscript{EVO} R22 sensor can easily be integrated into OEM systems, where long term stability, repeatability and reliable performance are required. It can be utilised as a refrigerant detector 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.

Modbus ASCII or RTU data communication offer a variety of options to connect the BASIC\textsuperscript{EVO} gas sensor to a controller.
smartMODUL BASIC
Infrared gas sensor R22 // CHLORODIFLUOROMETHANE // 2000 ppm
smartGAS item number: B3-702205-03000

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*

Response time (t_{90}): appr. 60 s
Digital resolution (@ zero): 1 ppm
Detection limit (3 \( \sigma \)): \( \leq 10 \) ppm
Repeatability: \( \leq 20 \) ppm
Linearity error (straight line deviation): \( \leq 30 \) ppm
Long term stability (span): \( \leq 40 \) ppm over 12 month period
Long term stability (zero): \( \leq 30 \) ppm over 12 month period

Influence of T and P*

Temp. dependence (zero): \( \leq 3 \) ppm per °C
Temp. dependence (span): \( \leq 6 \) ppm per °C
Pressure dependence: \( \leq 0.100 \) % of measurement value / hPa

Electrical inputs and outputs

Supply voltage: 3.3 V .. 6.0 V DC
Supply current (peak): \(< 400 \) mA @ 3.3 V, \(< 240 \) mA @ 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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All specifications – technical included – are subject to change without notice. Depending on the application, the target gas and the measurement range the technical data may differ. No liability is accepted for any consequential losses, injury or damage resulting from the use of this document or from any omissions or errors herein. The data is given for guidance only. It does not constitute a specification or an offer for sale.

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.