smartGAS MIKROSENSORIK

INNOVATIVE GAS SENSORS

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Infrared gas sensor for diffusion with analogue and digital interfaces

Infrared gas sensor using dual beam technology, with measurement and reference channel, for monitoring room air and process control applications. Integrated µ-controller-evaluation electronics for drift and temperature compensation, and standardized analogue and digital interfaces.

- Infrared measuring principle (NDIR)
- Dual beam technology
- Analogue interfaces (e.g. 4 – 20 mA)
- Modbus ASCII via RS485
- Input voltage 12 – 28 Volt DC
- Zero and span calibration by jumper
- Gas entry by diffusion
- High selectivity
- Pre calibrated

Gases *	Measurement range		Model type
acetylene C_2H_2	0-2.3 Vol.-%	(0-100 % LEL)	C1-010236-00000
n-butane C_4H_{10}	0-1.4 Vol.-%	(0-100 % LEL)	C1-020146-00000
ethylene C_2H_4	0-2.4 Vol.-%	(0-100 % LEL)	C1-030246-00000
	0-2000 ppm		C1-030205-00000
carbon dioxide CO_2	0-5000 ppm	(0-100 % TLV)	C1-212505-00000
	0-5 Vol.-%		C1-212506-00000
	0-20 Vol.-%		C1-212207-00000
carbon monoxide CO	0-2 Vol.-%		C1-221206-00000
methane CH_4	0-4.4 Vol.-%	(0-100 % LEL)	C1-040446-00000
propane C_3H_8	0-1.7 Vol.-%	(0-100 % LEL)	C1-050176-00000

*** More gases and measuring ranges on request**

Sensors similar to the illustration

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General features	
Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength
Measurement range:	dependent on model – see list [1]
Gas supply:	by diffusion (atmospheric pressure)
Dimensions:	72 mm x 55 mm x 34 mm (L x W x H)
Warm-up time:	< 2 minutes (start up time) < 30 minutes (full specification)
Measuring response [2]	
Response time (t_{90}):	Appr. 30 s
Digital resolution (@ zero):	1 ppm / 0.1 % LEL / 0.01 Vol.-% [1]
Detection Limit (3 σ):	≤ 1 % FS[3] (typically)
Repeatability:	≤ ± 1 % FS[3]
Linearity error [4]:	≤ ± 2 % FS[3]
Long term stability (span) [6]:	≤ ± 2 % FS[3] over 12 month period
Long term stability (zero) [6]:	≤ ± 2 % FS[3] over 12 month period
Influencing variable [5]	
Temp. dependence (zero):	≤ ± 0.1 % FS[3] per °C
Temp. dependence (span):	≤ ± 0.2 % FS[3] per °C
Pressure dependence (zero):	-
Pressure dependence (span):	0.1 % to 0.2 % value per hPa [1]
Electrical inputs and outputs	
Supply voltage:	12 to 28 V DC ± 5 %
Supply current:	70 mA average, max. 140 mA
Power consumption:	< 1 Watt
Analogue output signal:	0 - 20 mA linear 4 - 20 mA linear 0 - 1 V linear (with 50 Ω) 0 - 2 V linear (with 100 Ω)
Maximum load:	125 Ω
Digital output signal:	Modbus ASCII via RS485
Calibration:	zero and span by jumper or SW
Climatic conditions	
Operating temperature:	-10 °C to 40 °C
Storage temperature:	-20 °C to 60 °C
Air pressure:	800 to 1200 hPa
Humidity:	0 % to 95 % rel. humidity (not condensing)

[1] Dependent on the gas and the measurement range
[2] Relating to atmospheric pressure 1013 hPa absolute and 25°C ambient temperature
[3] FS = Full scale
[4] Stated linearity error excludes calibration gas tolerance of ± 2 %
[5] Relating to calibration conditions (see calibration sheet)
[6] For dry and clean test gas at 25°C and 1013hPa absolute - depending on the operating and ambient conditions values may differ
Please consult smartGAS Marketing 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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