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

Gases *	Measurement range		Model type
acetylene C_2H_2	0-2.3 Vol.-%	(0-100 % LEL)	C1-010236-00000
ammonia NH_3	0-3.5 Vol.-%		C1-200356-00000
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
sulphur hexafluoride SF_6	0-1000 ppm	(0-100 % TLV)	C1-600105-00000
dichlorotrifluoroethane R123	0-2000 ppm		C1-730205-00000
pentafluoroethane R125	0-2000 ppm		C1-720205-00000
tetrafluoroethane R134a	0-2000 ppm		C1-710205-00000
refrigerant R404a	0-2000 ppm		C1-740205-00000
chlorodifluoromethane R22	0-2000 ppm		C1-700205-00000

*** 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
Gas supply:	by diffusion
Dimensions:	72 mm x 55 mm x 34 mm (L x W x H)
Technical features @ 25°C, 1013 mbar	
Response time (t90):	Appr. 30 s
Resolution:	1 ppm to 0.01 Vol.% FS [1]
Accuracy:	≤ ±2 % FS [1]
Long term stability (zero):	≤ ±2 % FS [1] over 12 month period
Long term stability (span):	≤ ±2 % FS [1] over 12 month period
Repeatability:	≤ ±2 % FS [1]
Linearity error:	≤ ±1 % FS [1]
Lower detection limit:	≤ 1 % FS [1] (typically)
Operating temperature:	-10 °C to 40 °C
Storage temperature:	-20 °C to 60 °C
Humidity:	0 % to 95 % rel. humidity (not condensing)
Temp. dependence (zero):	≤ ±0.01 % FS [1] per °C
Temp. dependence (span):	≤ ±0.2 % FS [1] per °C
Air pressure:	950 to 1050 mbar
Pressure dependence (zero):	-
Pressure dependence (span):	0.1 % to 0.2 % per mbar [2]
Warm-up time:	< 2 minutes (start up time)
	< 30 minutes (full specification)
Calibration:	zero by jumper / SW and span by jumper
Communication	
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
Electrical data	
Supply voltage:	12 - 28 V DC ± 5 %
Supply current:	70 mA average, max. 140 mA
Power consumption:	< 1 Watt

[1] FS = Full scale | [2] Dependent on the gas and the measurement range
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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