smartGAS MIKROSENSORIK

smart*MODUL for insulating systems* // Technical Data

Infrared gas sensor for SF6 applications

- Infrared measuring principle (NDIR)
- Dual beam technology
- Modbus ASCII via UART
- Pre calibrated
- High selectivity

Infrared gas sensor using dual beam technology with measurement and reference channel for monitoring room air in gas insulated switch gear and leak detection in SF6 enclosed systems. Integrated evaluation electronics for drift and temperature compensation.

Gas supply by diffusion

Gas *		Measurement range		Model type
SF_6	sulphur hexafluoride	0-1000 ppm	(0-100 % TLV)	B1-600105-00000

Gas supply by flow

Gas *		Measurement range		Model type
SF_6	sulphur hexafluoride	0-50 ppm		F1-600503-00000
		0-1000 ppm	(0-100 % TLV)	F1-600105-00000

SF_6	sulphur hexafluoride	0 – 100 %	F1-600108-00000

* More gases and measuring ranges on request

Sensors similar to the illustration

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Infrared gas sensor for SF6 applications

General features	Diffusion B1-600105-...	Flow F1-600503-...	Flow F1-600105-...	Flow F1-600108-...
Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength			
Measurement range:	0 - 1000 ppm	0 - 50 ppm	0 - 1000 ppm	0 -100 Vol.-%
Gas supply:	by diffusion (atmospheric pressure)	by flow	by flow	by flow
Gas line connectors:	-	3 mm internal, 5mm outer diameter		
Flow rate:	-	0.2 to 0.8 l/min (constant)		
Dimensions (L x W x H):	62 mm x 37 mm x 30 mm	131 mm x 28 mm x 42 mm	106 mm x 28 mm x 42 mm	62 mm x 28 mm x 42 mm
Warm-up time:	< 2 minutes (start up time) < 30 minutes (full spec.)	< 2 minutes (start up time) < 30 minutes (full spec.)		
Measuring response [2]				
Response time (t_{90}):	Appr. 30 s	Appr. 15 s (@ 0.5 l/min) [1]		
Digital resolution (@ zero):	1 ppm	0.1 ppm	1 ppm	0.1 Vol.-%
Detection Limit (3 σ):	≤ 10 ppm	≤ 1 ppm	≤ 10 ppm	≤ 0.2 Vol.-%
Repeatability:	≤ ± 10 ppm	≤ ± 0.5 ppm	≤ ± 10 ppm	≤ ± 0.5 Vol.-%
Linearity error [4]:	≤ ± 20 ppm	≤ ± 1 ppm	≤ ± 10 ppm	≤ ± 1 Vol.-%
Long term stability (zero) [5]:	≤ ± 20 ppm (12 month period)	≤ ± 0.5 ppm per month	≤ ± 20 ppm (12 month period)	≤ ± 1 Vol.-% (12 month period)
Long term stability (span) [5]:	≤ ± 20 ppm (12 month period)	≤ ± 0.5 ppm per month	≤ ± 20 ppm (12 month period)	≤ ± 1 Vol.-% (12 month period)
Influencing variable [6]				
Temp. dependence (zero):	≤ ± 1 ppm per °C	≤ ± 0.05 ppm per °C	≤ ± 1 ppm per °C	≤ ± 0.05 Vol.-% per °C
Temp. dependence (span):	≤ ± 2 ppm per °C	≤ ± 0.1 ppm per °C	≤ ± 2 ppm per °C	≤ ± 0.1 Vol.-% per °C
Pressure dependence (zero):	-	-	-	-
Pressure dependence (span):	≤ ± 0.15 % value per hPa	≤ ± 0.15 % value per hPa	≤ ± 0.15 % value per hPa	≤ ± 0.15 % value per hPa
Electrical inputs and outputs				
Supply voltage:	6 V DC ± 5 %			
Supply current:	70 mA average, max. 140 mA			
Power consumption:	< 1 Watt			
Digital output signal:	Modbus ASCII via UART			
Calibration:	zero and span by 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 % relative humidity (not condensing)			

Also available with additional pcb as CONNECT (C1- ...) or PREMIUM (P1-...) sensor with a wider supply voltage range of 12 - 28V DC, analog signal output 0 (4) - 20 mA and digital output RS 485.

[1] Dependent on the gas and the measurement range.
[2] Relating to atmospheric pressure 1013 hPa absolute and 25 °C ambient temperature (type Diffusion) or sample gas pressure 1013 hPa absolute, 0.5 l/min gas flow and 25°C ambient and gs temperature (type Flow)
[3] FS = Full scale
[4] Stated linearity error excludes calibration gas tolerance of ± 2 %
[5] For dry and clean test gas at 25°C and 1013hPa absolute - depending on the operating and ambient conditions values may differ
[6] Relating to calibration conditions (see final check)
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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For more information, please visit www.smartGAS.eu or contact us at sales@smartgas.eu

05 | 06.2011

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