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Infrared gas sensor for SF6 applications

HIGH VOLTAGE

- Infrared measuring principle (NDIR)
- Dual beam technology
- Modbus ASCII via UART
- Temperature compensation
- 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
	sulphur hexafluoride SF_6	0-1000 ppm	(0-100 % TLV)	B1-600105-00000

Gas supply by perfusion	Gas *	Measurement range		Model type
	sulphur hexafluoride SF_6	0-50 ppm		F1-600103-00000
		0-1000 ppm	(0-100 % TLV)	F1-600105-00000
		(0) 90 % – 100 %**		F1-600108-00000

* More gases and measuring ranges on request   **** Device under test**   Sensors similar to the illustration

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Infrared gas sensor for SF6 applications

General features	Diffusion 0 – 1000ppm	Perfusion 0 – 50 ppm	Perfusion 0 – 1000ppm
Measurement principle:	Non Dispersive Infra-Red (NDIR), dual wavelength		
Measurement range:	dependent on model – see list		
Gas supply:	by diffusion	by perfusion	by perfusion
Dimensions:	62 x 37 x 30 mm (L x W x H)	106 x 28 x 42 mm (L x W x H)	
Gas line connectors:	-	3 mm internal, 5mm outer diameter	
Technical features	@ 25°C, 1013 mbar	@ 25°C, 1013 mbar, 0.5 l/min constant gas flow	
Response time (t90):	Appr. 30 s	Appr. 15 s (at 0.5 l/min)	Appr. 15 s (at 0.5 l/min)
Resolution:	1 ppm	0.1 ppm	1 ppm
Accuracy:	≤ ±2 % FS [1]	≤ ±2 % FS [1]	≤ ±2 % FS [1]
Long term stability (zero):	≤ ±2 % FS [1] (12 month period)	≤ ±2 % FS [1] (12 month period)	≤ ±2 % FS [1] (12 month period)
Long term stability (span):	≤ ±2 % FS [1] (12 month period)	≤ ±2 % FS [1] (12 month period)	≤ ±2 % FS [1] (12 month period)
Repeatability:	≤ ±2 % FS [1]	≤ ±2 % FS [1]	≤ ±2 % FS [1]
Linearity error:	≤ ±1 % FS [1]	≤ ±1 % FS [1]	≤ ±1 % FS [1]
Lower detection limit:	< 10 ppm	≤ 2 ppm	≤ 10 ppm
Operating temperature:	-10 °C to 40 °C	-10 °C to 40 °C	-10 °C to 40 °C
Storage temperature:	-20 °C to 60 °C	-20 °C to 60 °C	-20 °C to 60 °C
Humidity:	0 % to 95 % rel. humidity [3]	0 % to 95 % rel. humidity [3]	0 % to 95 % rel. humidity [3]
Temp. dependence (zero):	≤ ±0.05 % FS [1] per °C	≤ ±0.05 % FS [1] per °C	≤ ±0.05 % FS [1] per °C
Temp. dependence (span):	≤ ±0.2 % FS [1] per °C	≤ ±0.2 % FS [1] per °C	≤ ±0.2 % FS [1] per °C
Air pressure:	950 to 1050 mbar	950 to 1050 mbar	950 to 1050 mbar
Pressure dependence (zero):	-	-	-
Pressure dependence (span):	≤ 0.15 % per mbar	≤ 0.15 % per mbar	≤ 0.15 % per mbar
Warm-up time:	< 2 minutes (start up time)	< 2 minutes (start up time)	< 2 minutes (start up time)
	< 30 minutes (full spec.)	< 30 minutes (full spec.)	< 30 minutes (full spec.)
Flow rate:	-	0.2 - 1.5 l/min	0.2 - 1.5 l/min
Communication			
Digital output signal:	Modbus ASCII via UART		
Electrical data			
Supply voltage:	6 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 | [3] not condensing
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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