

Data Sheet

Danfoss Gas Sensor DGS Modbus



Introduction

DGS sensors can be used in stand-alone or integrated systems, where continuous real-time, automatic monitoring with Danfoss ADAP-KOOL® Refrigeration Control & Monitoring System and/or Building Management Systems is applied.

DGS supports our Customers in complying to environmental F-Gas Regulations and Health & Safety requirements, on new or existing systems in:

- Supermarkets
- Process refrigeration plants
- Refrigerated storage and warehousing
- Special application areas/zones

Typical Refrigerant gas applications include:

- Halocarbons: HFC's, HCFC's, CFCs.
- Carbon Dioxide (CO₂/R744)
- Hydrocarbons (e.g. R290)
- Other special application gases to customer request

Sensing technology varies to make the best detection for a given gas, in terms of performance and cost. DGS IR is based on Infra-Red sensor technology, DGS SC is based on Semi-Conductor and DGS-PE is based on Pellistor.

Technical Data

Power Supply	24 V DC \pm 20 % ; reverse polarity protected 24 V AC - 10 % / + 15 %		
Power Consumption (24V DC)	Max. 250 mA (5 VA)		
Digital input - Alarm acknowledge and test alarm - Alarm relay /fault relay	Potential-free contact 40 V AC/DC, 0.5 A, change-over contact (SPDT) Critical relay: Normally Closed (SIL II compliant), Warning relay: Normally Open		
Analog output signal	Proportional, overload and short-circuit proof, load \leq 500 Ohm Measuring range: 0-10 V / 2-10V /0-20mA / 4-20mA		
Modbus Physical	5 V DC, 250 mA max. overload, short-circuit and reverse-polarity protected		
Enclosure rate	IP 65		
Humidity range	15 - 90 % RH not-condensing		
Burning behaviour	UL 94 V2		
Housing colour	Black		
Dimensions (W x H x D in mm)	94 x 130 x 57		
Installation	Wall mounting		
Cable entry	2 x M12 / 3 x M20		
Wire connection: Power supply, Modbus Analog output, Digital input Sensor head	Screw-type terminals 0.25 to 2.5 mm ² Screw-type terminals 0.25 to 1.3 mm ² 3-pin plug connector		
Sensor information	DGS-IR (CO ₂)	DGS-SC (HFC)	DGS-PE (Propane)
Temperature range	-35 to +40°C	-30 to +50°C	-30 to +50°C
Response time T90	<120s	<40s	<10s
Recovery time, T0	90s	180s	120s
Maximum calibration interval	60 months	12 months	6 months
Measuring range	0-20,000ppm	20-2,000ppm	0-5,000ppm
Default alarm threshold	5,000ppm	500ppm	800ppm
Compliance	IEC61010-1 ANSI/UL CAN/CSA-C22.2 No61010-1 RoHS WEEE		
B&L - Buzzer and Light (option by product selection)			
Ligt (LED)	Red / yellow /green (alarm - fault - operation - service)		
Buzzer	>85 dB (A) (0.1 distance) 2300 Hz		

Ordering

DGS Sensors		
Product Description	Code no.	
DGS-SC HFC gr. 1*	080Z2803	
DGS-SC HFC gr. 2*	080Z2804	
DGS-SC HFC gr. 3*	080Z2805	
DGS-PE Propane	080Z2806	
DGS-IR-CO2	080Z2800	
DGS-IR-CO2 5 m	080Z2801	
DGS-IR 2 * CO2 - 5 m	080Z2802	
DGS-SC HFC gr.1* + B&L	080Z2809	
DGS-SC HFC gr.2* + B&L	080Z2810	
DGS-SC HFC gr.3* + B&L	080Z2811	
DGS-PE Propane + B&L	080Z2812	
DGS-IR CO2 + B&L	080Z2807	
DGS-IR-CO2 5 m + B&L	080Z2808	

*HFC gr.1: R123ze, R1234yf, R513a

HFC gr.2: R407F, R407A, R449A, R134A, R422D

HFC gr.3: R448A, R404A, R507, R410A, R407C

Spares and accessories			
Product Description		Code no.	
Spare sensor HFC gr.1*	Spare	080Z2815	
Spare sensor HFC gr.2*	Spare	080Z2816	
Spare sensor HFC gr.3*	Spare	080Z2817	
Spare sensor Propane	Spare	080Z2818	
Spare sensor CO2	Spare	080Z2813	
Spare sensor CO2 - 5 m	Spare	080Z2814	
Hand Held Service Tool	Accessory	080Z2820	
Strobe & Horn	Accessory	080Z2819	
Splash guard	Accessory	148H6226	
Duct set	Accessory	148H6236	
Calibraton adaptor for SC2	Accessory	148H6232	
Remote kit	Accessory	148H6238	
Power Supply AK-PS075	Accessory	080Z0053	

Note: DGS is also available for alternative refrigerant gases on request. Please contact your local Danfoss Sales Office for details

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