Data Sheet

Gas detecting sensor
Type **DGS**

Refrigerant gas detection for safeguarding commercial buildings.

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 with 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: HFCs, HCFCs, CFCs
• carbon dioxide (CO_2/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.

Product specification

Technical Data

Table 1: Technical data

Power supply	24 V DC ± 20 % ; reverse polarity protected 24 V AC - 10 % / + 15 %
Power Consumption (24 V DC)	Max. 250 mA (5 VA)
Digital input	Alarm acknowledge and test alarm: Potential-free contact Alarm relay /fault relay: 40 V AC/DC, 0.5 A, change-over contact (SPDT) Critical relay: normally closed (SIL II compliant), warning relay: normally open
Analogue output signal	Proportional, overload and short-circuit proof, load ≤ 500 Ohm Measuring range: 0 – 10 V / 2 – 10 V / 0 – 20 mA / 4 – 20 mA
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: Screw-type terminals 0.25 – 2.5 mm^2 Analogue output, Digital input: Screw-type terminals 0.25 – 1.3 mm^2 Sensor head: 3-pin plug connector

Sensor information	DGS-IR (CO_2)	DGS-SC (HFC)	DGS-PE (Propane)
Temperature range	-35 – 50 °C	-35 – 60 °C	-30 – 60 °C
Response time T90	<120 sec.	<40 sec.	<10 sec.
Recovery time, T0	90 sec.	180 sec.	120 sec.
Maximum calibration interval	60 months	12 months	6 months
Measuring range	0 – 20000 ppm	0 – 2000 ppm	0 – 5000 ppm
Default alarm threshold	5000 ppm	500 ppm	800 ppm
Compliance	$C\epsilon$ EN61010-1 ⟨ETL⟩ No61010-1 Intertek		
B&L - Buzzer and Light (option by product selection)	Light (LED): Red / yellow /green (alarm - fault - operation - service) Buzzer: >85 dB (A) (0.1 distance) 2300 Hz		

Ordering

Table 2: Ordering

DGS Sensors			Spares and Accessories		
Product Description	**Code no.**		**Product Description**		**Code no.**
DGS-SC HFC grp 1[1]	080Z2803		Spare sensor HFC grp 1[1]	Spare	080Z2815
DGS-SC HFC grp 2[1]	080Z2804		Spare sensor HFC grp 2[1]	Spare	080Z2816
DGS-SC HFC grp 3[1]	080Z2805		Spare sensor HFC grp 3[1]	Spare	080Z2817
DGS-PE propane	080Z2806		Spare sensor propane	Spare	080Z2818
DGS-IR CO_2	080Z2800		Spare sensor CO_2	Spare	080Z2813
DGS-IR CO_2 5 m	080Z2801		Spare sensor CO_2 - 5 m	Spare	080Z2814
DGS-IR 2[1] CO_2 - 5 m	080Z2802		Hand-held Service Tool	Accessory	080Z2820
DGS-SC HFC grp 1[1] + B&L	080Z2809		Strobe & Horn	Accessory	080Z2819
DGS-SC HFC grp 2[1] + B&L	080Z2810		Splash guard	Accessory	148H6226
DGS-SC HFC grp 3[1] + B&L	080Z2811		Duct set	Accessory	148H6236
DGS-PE propane + B&L	080Z2812		Calibration adaptor	Accessory	148H6232
DGS-IR CO_2 + B&L	080Z2807		Remote kit	Accessory	148H6238
DGS-IR CO_2 5 m + B&L	080Z2808		Power Supply AK-PS075	Accessory	080Z0053

[1] HFC grp 1: R1234ze, R454C, **R1234yf**, R452A, R454A, R455A, R454B, R513A
HFC grp 2: R407F, R416A, R417A, R407A, R422A, R427A, R449A, R437A, **R134A**, R438A, R422D
HFC grp 3: R448A, R125, R404A, R32, R507A, R434A, R410A, R452B, **R407C**, R143B

Bold = calibration gas

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

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 3: Certificates, declarations, and approvals

File name	Document type	Document topic	Approval authority
Intertek 4000518	Electrical - Safety Certificate	-	Intertek
RU Д-DK.АЖ22.В.09229_18	Electrical - Safety Certificate	LVE	EAC
080R1223.AB	EU Declaration	EMCD/LVD	Danfoss

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