

Data sheet

# Gas detecting sensor

Types GDA, GDC, GDHC, GDHF, GDH



Danfoss gas detecting sensor program, type GD is a range of products designed to meet all industrial refrigeration and air conditioning applications.

GD detects a wide range of commonly used refrigerants including Ammonia, Carbon Dioxide, Halocarbons and Hydrocarbons.

GD sensors incorporate an interchangeable precalibrated sensor board, which makes it very easy to replace the sensor when service or calibration is required.

The GD products feature reliable, real time continuous monitoring. No blocked filters, tubes or technical / maintenance problems experienced by air sampling/aspirated systems.

## Features

- GD is specifically developed for refrigeration applications.
  - Interchangeable precalibrated sensor board means reduced costs of recalibration and maintenance.
  - Optional models: LCD display, IP 65 models, EExd (Explosion Protected), EExd Low temperature, Models with remote sensor, Models with remote EExd sensor, Models with remote display, Models for Low temperature down to  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ).
  - Can operate as stand alone product.
  - Linear analog outputs, current (mA) / volt (V) proportional to the gas concentration.
  - Two digital outputs. Low Level and High Level Alarm.
  - Optional NO or NC and different delay setting for both Low and High Alarm Level.
  - Manual or Auto reset optional.
  - Low and High Alarm levels and delays setting, can be changed by the user.
  - GD can be connected directly to a Danfoss m2, Micromon or AK-SM 350 monitoring unit.
  - Available with a range of different sensor technologies to monitor industrial refrigeration gases:
    - Electro-Chemical (EC)
    - Semi-Conductor (SC)
    - Catalytic (CT)
    - Infra-Red (IR)
  - Calibration Certificates available.
  - Classification: DNV, CRN, BV, EAC etc.
- To get an updated list of certification on the products please contact your local Danfoss Sales Company.

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**Data sheet | Gas detecting sensor, types GDA, GDC, GDHC, GDHF, GDH**
**Technical data**

Refrigerants - [ppm] range:

Ammonia (R 717)

Type GDA:

- 0-100 ppm
- 0-300 ppm
- 0-1,000 ppm
- 0-10,000 ppm
- 0-30,000 ppm

Carbon Dioxide (R 744)

Type GDC

- 0-10,000 ppm
- 0-20000 ppm
- 0-40000 ppm

Halo-Carbon - HCFC (R 22, R 123)

Type GDHC

- 0-1,000 ppm

HFC (R 404A, R 507)

Type GDHF

- 0-1,000 ppm

HFC (R134A)

Type GDHF-R3

- 0-1,000 ppm

Hydro-carbon (R 290, R 600, R 600A, R 1270)

Type GDH

- 0-5,000 ppm

**Reference temperature conditions for factory calibration:**

Ambient temperature

For increased accuracy the unit must be calibrated at the temperature of operation.

Response times may vary based on temperature of operation, enclosure, and environmental conditions

Alarm thresholds should be set accordingly based on the environment of operation and the application in which they are being used

**Technical data**

(Continued)

Models \ Sensor	Standard Basic	Standard Basic with LCD display	IP 65 with stainless steel sensor head	IP 65 enclosure	EExd model	EExd model Low Temperature	IP 66 enclosure 5 m remote IP 65 sensor	IP 66 enclosure 5 m remote IP 65 EExd sensor	Remote LCD display IP 41 5 m cable <sup>3)</sup>
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**Temperature range**

EC <sup>1)</sup>	-20°C/+40°C (-4°F/104°F)	0°C/+40°C (32°F/104°F)	-20°C/+40°C (-4°F/104°F)	-20°C/+40°C (-4°F/104°F)	-40°C/+40°C (-40°F/104°F)	-20°C/+40°C (-4°F/104°F)	-40°C/+40°C (-40°F/104°F)	-20°C/+40°C (-4°F/104°F)	-20°C/+40°C (-4°F/104°F)	0°C/+40°C (32°F/104°F)
SC, CT	-20°C/+50°C (-4°F/122°F)	0°C/+50°C (32°F/122°F)	-20°C/+50°C (-4°F/122°F)	-40°C/+50°C (-40°F/122°F)	-20°C/+50°C (-4°F/122°F)	-40°C/+50°C (-40°F/122°F)	-20°C/+50°C (-4°F/122°F)	-20°C/+50°C (-4°F/122°F)	-20°C/+50°C (-4°F/122°F)	0°C/+50°C (32°F/122°F)
IR	0°C/+50°C (32°F/122°F)	0°C/+50°C (32°F/122°F)	-20°C/+50°C (-4°F/122°F)	-40°C/+50°C (-40°F/122°F)	-20°C/+50°C (-4°F/122°F)	not available	not available	not available	not available	0°C/+50°C (32°F/122°F)

**Weight (excluding packing)**

EC	912 g (2.01 lb)	947 g (2.09 lb)	903 g (1.99 lb)	562 g (1.24 lb)	4408 g (9.72 lb)	4408 g (9.72 lb)	1199 g (2.64 lb)	1199 g (2.64 lb)	421 g (0.93 lb)
SC, CT					3600 g (7.94 lb)	not available	not available	not available	
IR					not available	not available	not available	not available	

**Electrical data**

EC	12-24 V d.c., 0.23A				12-24 V d.c., 0.23A	12-24 V d.c., 0.23A	12-24 V d.c., 0.23A		Supplied from connector on GD motherboard
SC, CT	12-24 V a.c. 4 W				12-24 V a.c. 4 W	12-24 V a.c. 4 W	12-24 V a.c. 4 W		
IR	12-24 V d.c. 0.3 A				12-24 V d.c. 0.24 A	not available	not available	not available	

**Enclosure**

EC	IP 30 (~NEMA 1)	IP 30 (~NEMA 1)	IP 65 (~NEMA 4)	IP 65 (~NEMA 4)	IP 65 (~NEMA 4)	IP 65 (~NEMA 4)	<sup>2)</sup> IP 66 (~NEMA 4x)	<sup>2)</sup> IP 66 (~NEMA 4x)	IP 41 (~NEMA 1)
SC, CT						not available	not available	not available	
IR						not available	not available	not available	

<sup>1)</sup> Two models.

<sup>2)</sup> Remote sensor: IP 65.

<sup>3)</sup> For all models except EExd and EExd Low Temp.

**Sensor head**

Models \ Sensor	Standard Basic	Standard Basic with LCD display	IP 65 for High RH and Fast response	IP 65 enclosure	EExd model	EExd model Low Temperature	IP 66 enclosure 5 m remote IP 65 sensor	IP 66 enclosure 5 m remote IP 65 EExd sensor
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**Thread on external sensor**

EC	-	-	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm
SC			M 42 x 1.5 mm		1" 5/16 x 20 UNF	1" 5/16 x 20 UNF	M 42 x 1.5 mm	1" 5/16 x 20 UNF
CT			M 35 x 1.5 mm		1" 5/16 x 20 UNF	M 35 x 1.5 mm	M 35 x 1.5 mm	M 35 x 1.5 mm
IR			M 42 X 1.5mm		M 42 X 1.5mm	not available	not available	not available

**Material for external sensor**

EC	-	-	Stainless Steel	Plastic	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
SC, CT			Stainless Steel		Stainless Steel	Stainless Steel	Stainless Steel	
IR			Stainless Steel		Stainless Steel	not available	not available	not available

## Data sheet | Gas detecting sensor, types GDA, GDC, GDHC, GDHF, GDH

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**Cable connection**

1 gland for 6-13 mm cable (0.2"-0.5")  
1 Ø 20 mm (0.8") hole with blanking plug.  
1 extra gland can be fitted (only Standard, LCD display, IP 65 and EExd).

**Approvals**

**CE:**  
EN55011: 1998,  
EN61326: 1996  
Following the provisions of 89/336/EEC, EMC Directives and, Cenelec  
EN61010-2 : 2001  
Following the provisions of 73/23/EEC, Low Voltage directive (LVD)

**ATEX for EExd model:**  
Directive 94/9/EC Group 2, Category2, G and D, Zones 1 and 2.

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**Electrical connection**

All terminals will accept 0.5-1.5 mm<sup>2</sup> (20-15 AWG)

**Analog output**  
4-20 mA      Max. 400Ω  
0-10 V      Min. 10 kΩ  
0-5 V      Min. 10 kΩ

**RS 485 Communication**  
To Danfoss Monitoring System:  
Danfoss m2  
Danfoss Micromon  
Danfoss AK SM 350

**Digital output – volt free contacts**  
Load: 1 A, 24 V a.c/d.c

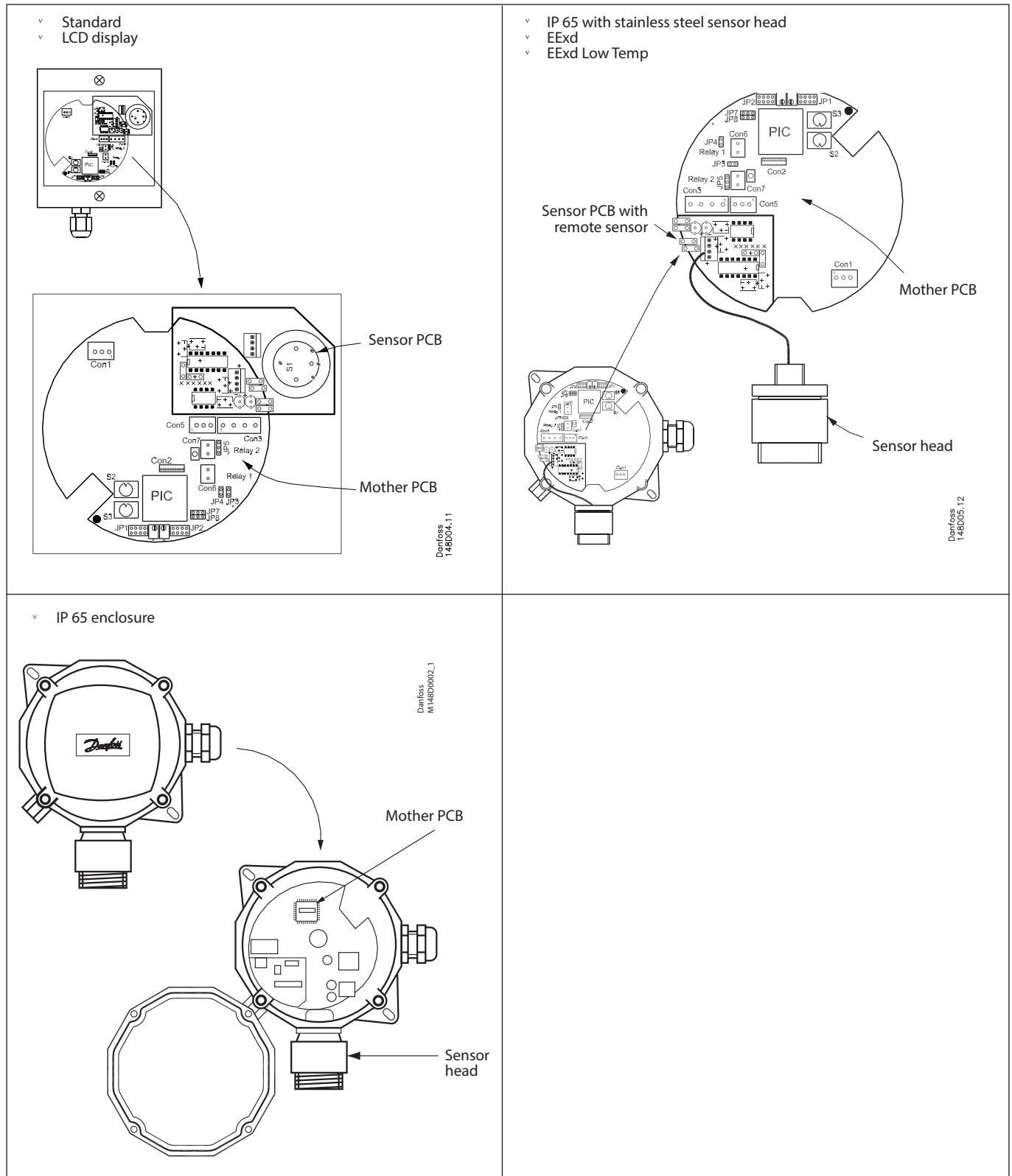
**Design**

The GD product range is designed in a very flexible way with a mother PCB (Print Circuit Board) and an interchangeable precalibrated sensor PCB.

**The mother PCB is the same for all GD models independent of the refrigerant or sensor technology.** On the mother PCB individual settings (Alarm levels, delays e.t.c) can be set to meet local legislation or application requirements.

The sensor PCB is always precalibrated and dedicated to the actual refrigerant and ppm range. Danfoss has in advance selected the most appropriate sensor making it easy to obtain safe detection and avoid false alarms from other gases present.

**Because of the interchangeable precalibrated sensor PCB, it is very easy to replace the sensor when service or a calibration procedure is required** (see the below drawings).



**Sensor technology**

Danfoss has, depending on actual ppm range and refrigerant, selected the most appropriate sensor for the target refrigerant gas. When the refrigerant and actual ppm range has been decided, the Danfoss

GD product range makes it easy to pick out the right product.

Below is a brief introduction to the GD sensor types. For further information - please contact Danfoss.

*Electrochemical Sensors - EC*

EC sensors are used mainly for toxic gases and are suitable for ammonia but not for the other refrigerants. They are very accurate and tend to be used principally for toxic gases which cannot be otherwise detected or where high levels of accuracy are needed.

*Semi-conductor – SC*

SC sensors can be used for a wide range of gases including combustible, toxic and refrigerant gases. The SC sensors are low-cost, long life, sensitive, stable, resistant to poisoning and can be used to detect a large range of gases including all the CFC, HCFC, HFC refrigerants, ammonia and hydrocarbons. However, they are not selective and are not suited to detecting a single gas in a mixture or for use where high concentrations of interfering gases are likely to be present.

*Catalytic - CT*

CT sensors have been mainly used for combustible gases including ammonia. CT are relatively low-cost, well established and understood and they have a good life span, up to 5 years. They can be subject to poisoning in certain applications but not generally in refrigeration and are more effective at gas levels of above 2,000 ppm.

*Infrared - IR*

IR sensors are very specific and is very precise for detection of CO<sub>2</sub>.

**Calibration / test methods**

The calibration procedure consist of:

- Annual checks by qualified bump test
- Calibration by replacement of the sensor PCB with a Danfoss pre-calibrated certified sensor PCB



**Annual Test**

To comply with the requirements of EN378 and the F GAS regulation sensors must be tested annually. However local regulations may specify the nature and frequency of this test. If not the Danfoss recommended bump test procedure should be followed. Contact Danfoss for details.

For increased accuracy the unit must be calibrated at the temperature of operation.

After exposure to a substantial gas leak, sensor should be checked and replaced if necessary. Check local regulations on calibration or testing requirements.

*Method I  
Calibration / test by means of  
replacing Sensor PCB*

This method requires that Danfoss offers factory calibrated PCB sensor boards with calibration certificate and traceability codes. Additionally an electrically simulation is required to verify the output signals and alarm settings.

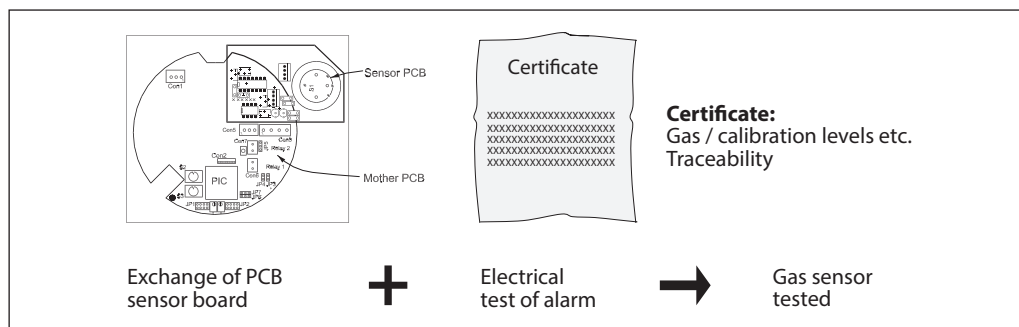
The PCB sensor board, which is the essential measuring element of the gas detector, is produced, calibrated, tested and certified by Danfoss.

After the main PCB of the gas detector has been tested with the GD tester, the new calibrated Sensor PCB can be installed.

Danfoss recommends that the calibration / test procedure is done by means of replacing the Sensor PCB, because:

- No need to purchase calibration gases in several different concentrations
- Simpler and quicker than gas calibration
- Danfoss guarantees the correct calibration and functioning of the new sensor PCB, which is supplied with a calibration certificate.
- No problems with sensor deterioration or end-of-life
- Price competitive, compared to the gas calibration carried out on site.

*Test and calibration of GD Main Board by the use of GD tester*



**Bump test**

A Bump Test consists of exposing the sensor to a gas. The objective is to establish if the sensor is reacting to the gas and all the sensor outputs are working correctly. A qualified bump test is a test carried out using ampoules or similar of known concentration.

*Bump test of gas sensors (this test is a function test - it is not a calibration)*

Method	Refrigerant	SC Semi-conductor	EC Electro-chemical	CT Catalytic	IR Infrared
Ampoules	Ammonia	✓	✓		
Lighter gas	HCFC, HCF	✓			
Lighter gas	HC - Hydro Carbon	✓		✓	
Ampoules or (Breath on sensor)	CO <sub>2</sub>				✓
Ammonia water	Ammonia			✓	



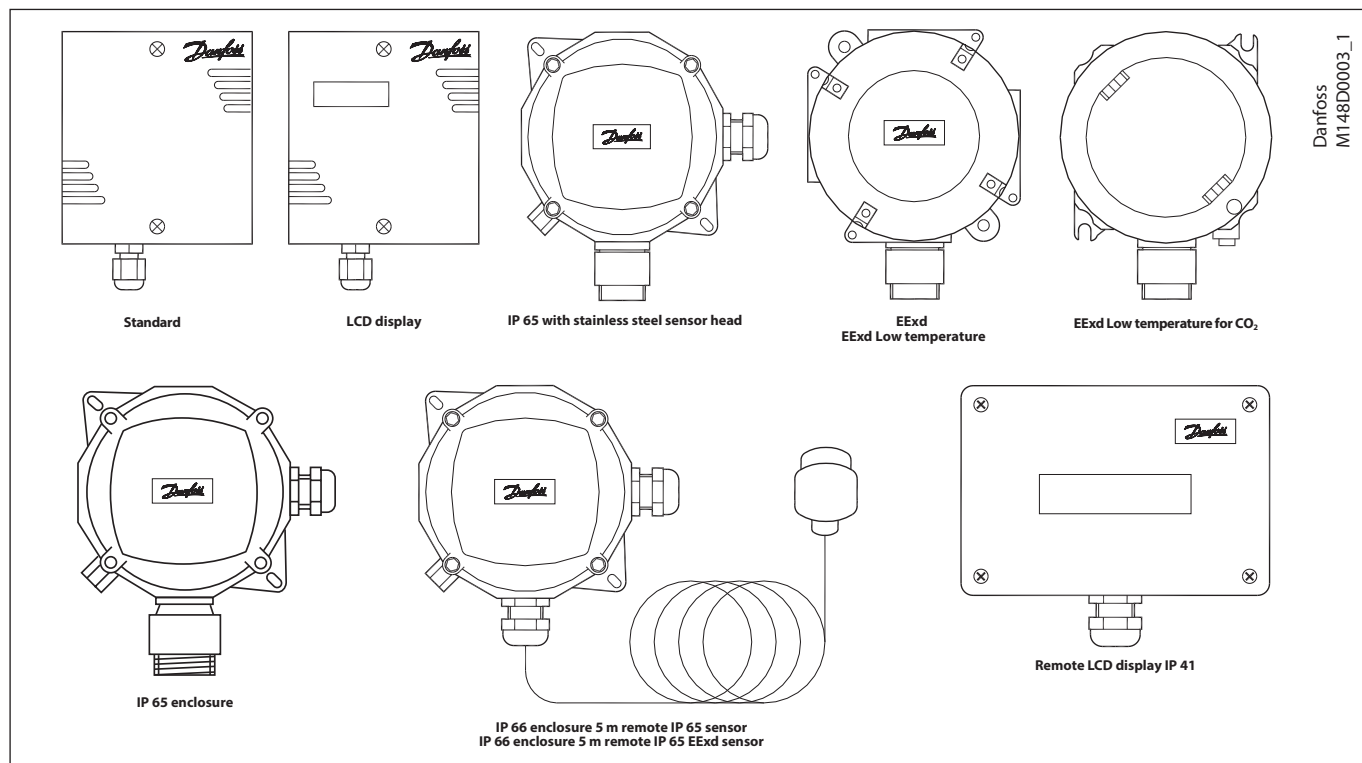
**Technician use only!**

This unit must be installed by a suitably qualified technician who will install this unit in accordance with these instructions and the standards set down in their particular industry/country.

Suitably qualified operators of the unit should be aware of the regulations and standards set down by their industry/country for the operation of this unit. These notes are only intended as a guide and the manufacturer bears no responsibility for the installation or operation of this unit.

Failure to install and operate the unit in accordance with these instructions and with industry guidelines may cause serious injury including death and the manufacturer will not be held responsible in this regard.

**Product range**



- **Standard**  
Basic standard model for machine/engine rooms and cold rooms
- **Standard with LCD display**  
Basic standard model for machine/engine rooms with the actual reading of present ppm level in the room and Alarm messages.
- **IP 65**  
Two models with IP 65 available:
  - IP 65 with stainless steel sensor head. Temperature down to -20°C(-4°F)
  - IP 65 enclosure. Temperature down to -40°C(-40°F)
- **EExd**  
Like Standard but applicable in explosive areas Zone 1 and 2 and higher IP(NEMA).  
The sensor is mounted in an external Stainless Steel head.
- **Remote LCD (accessory)**  
Remote LCD display with 5 m cable
- **Remote sensor**  
Models with 5 m cable. Can be used in connection with safety valves/vent pipe applications. Also available with remote EExd sensor

**Functions - all models**

All GD models shown above have the same basic functions. All settings are done by means of jumper settings on the mother PCB. See the section "Mother PCB" for more details. For detailed information on how to adjust Alarm setting - please see the instruction PI.S00.A.

**Alarm**

All GD models can detect 2 alarm levels and give alarm via 2 volt free contacts. When an alarm has been detected a yellow LED (Low Level Alarm) or a red LED (High Level Alarm) will go ON. All GD sensors have been preset by the factory, to realistic Low/High values related to the actual ppm range of the GD model. The actual Low and High Alarm ppm values can be read on the external GD label.

The 2 volt free contacts can be set individually to either Normally Open (NO) or Normally Closed (NC). All GD models are factory set to NO



**NO/NC can not be used as fail safe during power failure.**

Both Low and High Level Alarm can be delayed individually before the 2 volt free contacts are activated. This is useful when cross interference from other gasses may occur. The delayed response time can be set to 0, 1, 5 or 10 minutes.

All GD models are factory set to 0 minutes. When the GD sensors have detected a Low or High Level Alarm an option for having these alarms with Manual reset or Auto Reset is possible. With the option Manual reset selected, a push button on the mother PCB must be activated to release the Low or High Level Alarm.

With the option Auto reset selected, the release of the Low or High Level Alarm is done automatically. All GD models are factory set to Auto Reset.

The factory preset values can be adjusted, with a voltmeter measuring a 0-5 V d.c output. 0 V corresponds to the min. ppm range (e.g. 0 ppm) 5 V corresponds to the max. ppm range (e.g. 1000)

*Example:*  
If a setting of 350 ppm is required the voltage shall be set to 1.75 V (35 % of 5 V)

**Analog Output**

All GD will continuously generate a linear analog output, proportional to the gas concentration. The signal is available as 4-20 mA, 0-10 V and 0-5 V. All are available at the same time (see next page).

**LCD display**

The model with the LCD display will continuously display the actual present ppm level in the room and the Alarm messages.

*Upper Line:*  
Actual present ppm level (e.g. "580 ppm").

*Lower Line:*  
Alarm status.  
4 text messages are possible - only one at a time:

"No Alarm"	Neither Low Level Alarm nor High Level Alarm active.
"Lo Alarm on"	Low Level Alarm active.
"Lo,Hi Alarm on"	Both Low Level Alarm and High Level Alarm active.
"Hi Alarm on"	High Level Alarm active.

**Normalization Period**

Once the GD is powered up it takes some time to normalize. When GD is powered up it will give a higher analog output (4-20 mA/0-10 V/0-5 V <sup>1)</sup>) in the beginning and after some time it goes back to the actual concentration (in clean air and no leaks, the analog output will go back to: ~ 0 V/4 mA / (~ 0 ppm)) <sup>2)</sup>

Times below are only intended as a guide. They may vary due to temperature, humidity, cleanliness of the air, storage time <sup>3)</sup> etc.

**Model**

EC Sensors are 2 min (all models)  
SC Sensors are 60 minutes (all models)  
CT Sensors are 60 minutes (all models)  
IR Sensors are 2 minutes (all models)

<sup>1)</sup>  
Always use the voltage 0-10 V to check the output for normalization check

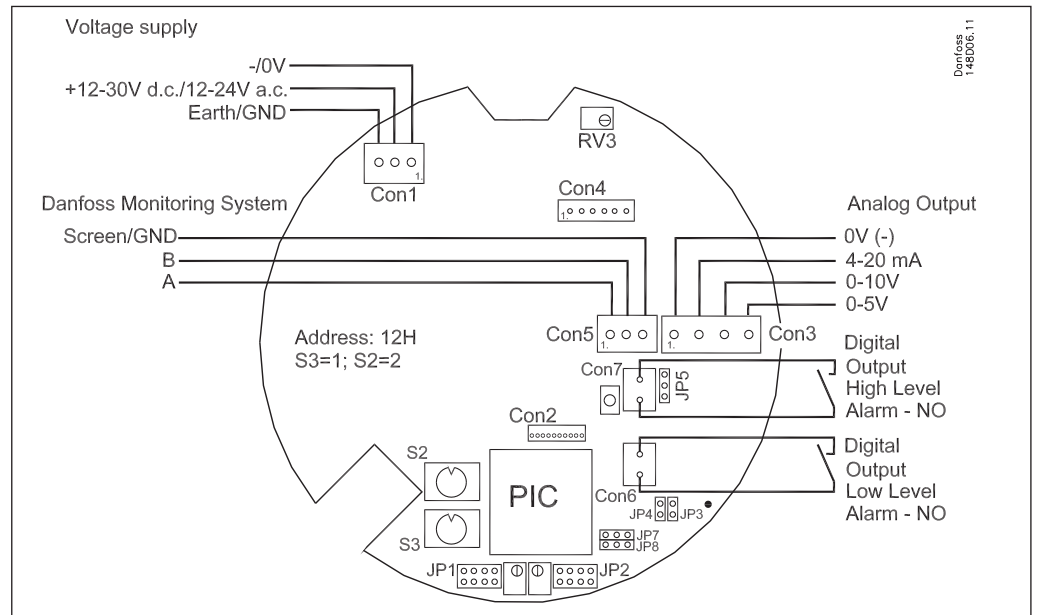
<sup>2)</sup>  
GDC IR goes back to about 400 ppm as this is the normal level in air. (~4.6 mA/~0.4 V/ 0.2 V)

<sup>3)</sup>  
If the GD has been in long-term storage or has been turned off for a long period, normalisation would be much slower. However within 1-2 hours the GD should have dropped below the low alarm level and be operational. The progress can be monitored exactly on the 0-10V output. When the output settles around zero (400 ppm in the case of IR CO<sub>2</sub> sensors) the GD is normalised. In exceptional circumstances particularly with SC and CT sensors the process can take up to 30 hours.

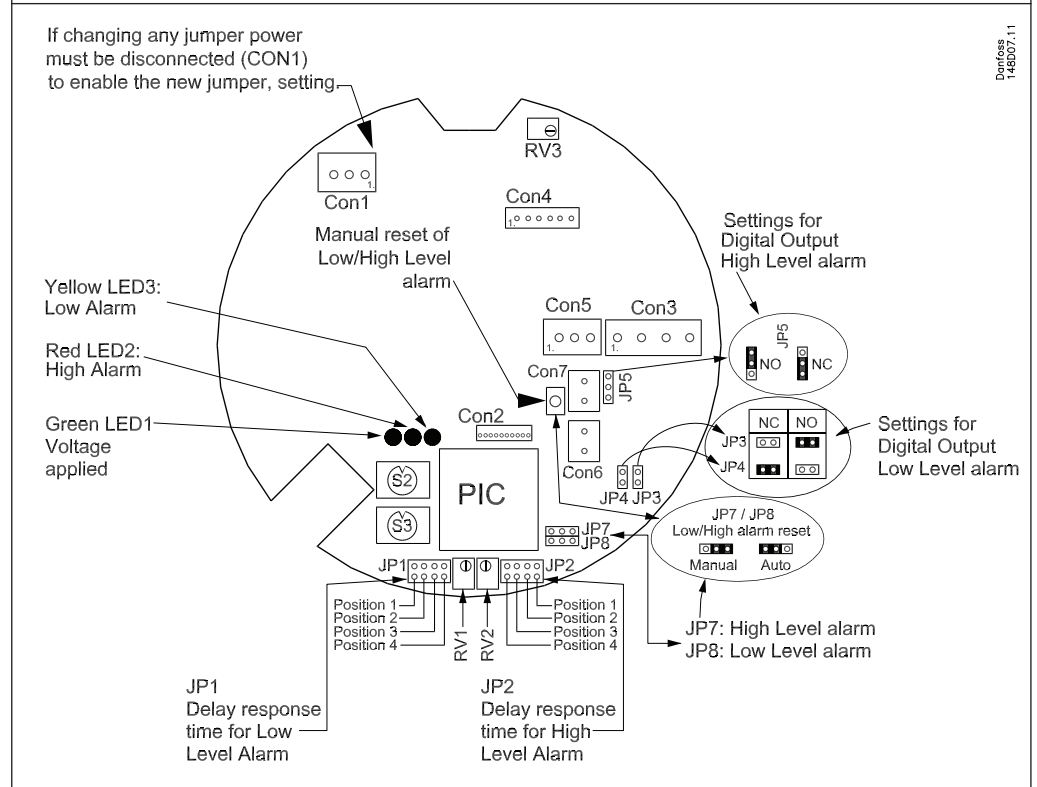
For SC Sensors, it must be calibrated at temperature of operation.



Mother PCB

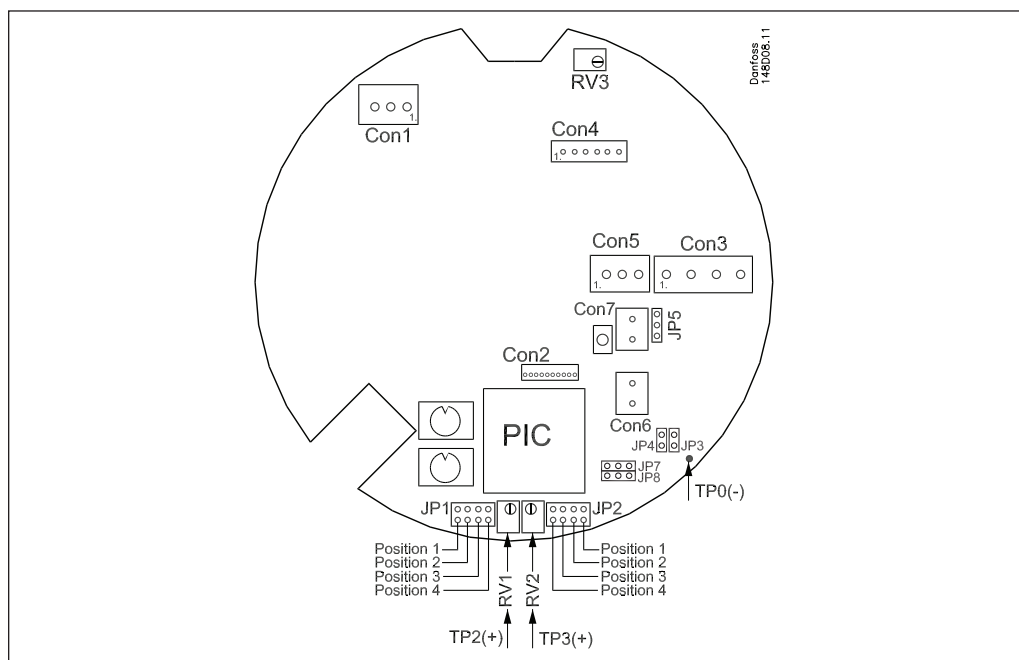


Danfoss  
14806.11



Danfoss  
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**Mother PCB**  
(Continued)



**GD connected to Danfoss monitoring**

Danfoss offers the possibility of connecting every GD, independent of model, via the built-in RS 485 Bus communication, directly to the Danfoss monitoring unit.

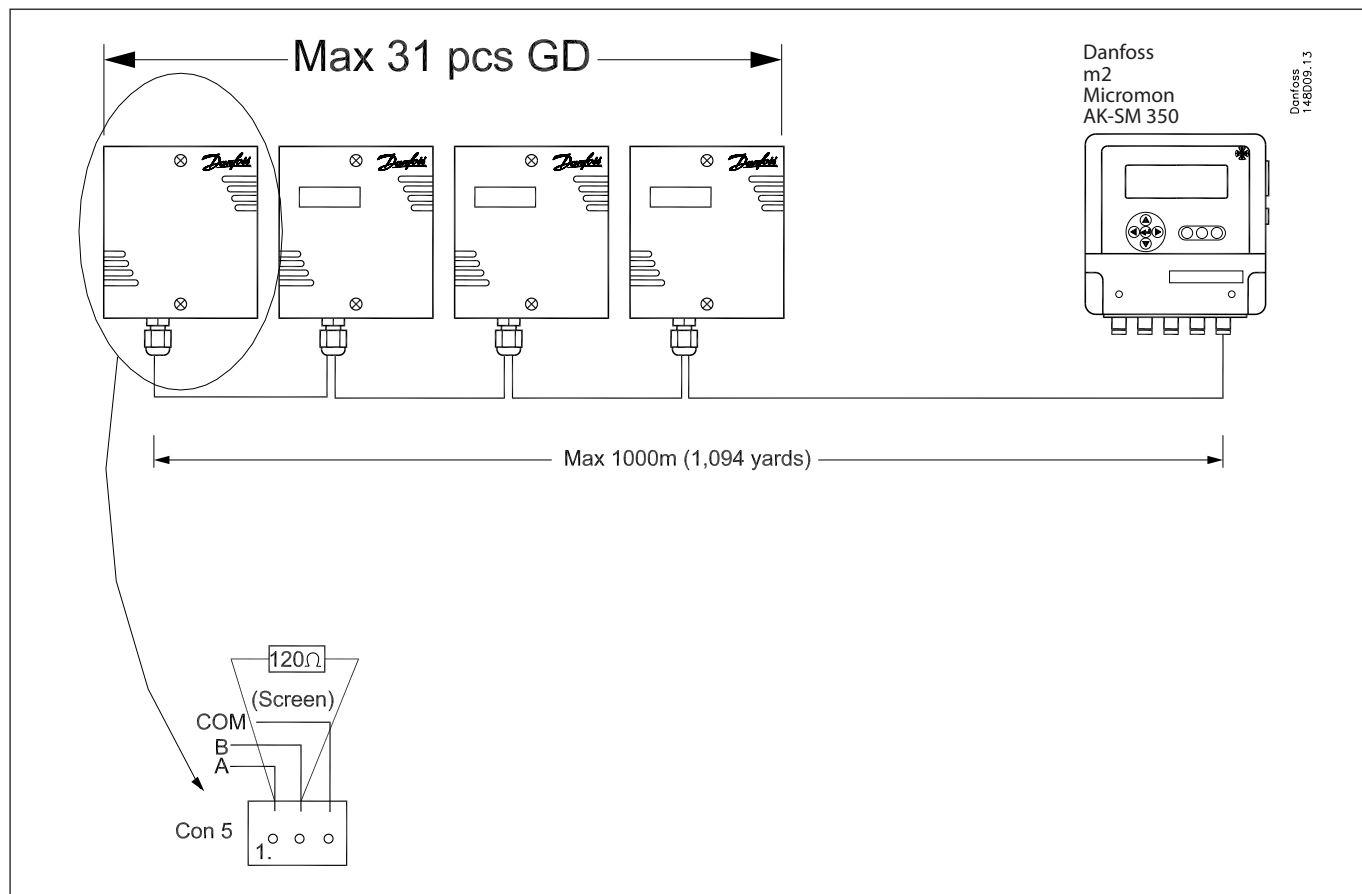
Up to 31 GD sensors can be connected via a two-core screened communication cable (see the below drawing).

Every GD sensor needs a unique address number which must be selected. The address of GD is set by S2 and S3. By setting S2 and S3 between 0 and F, the GD will be

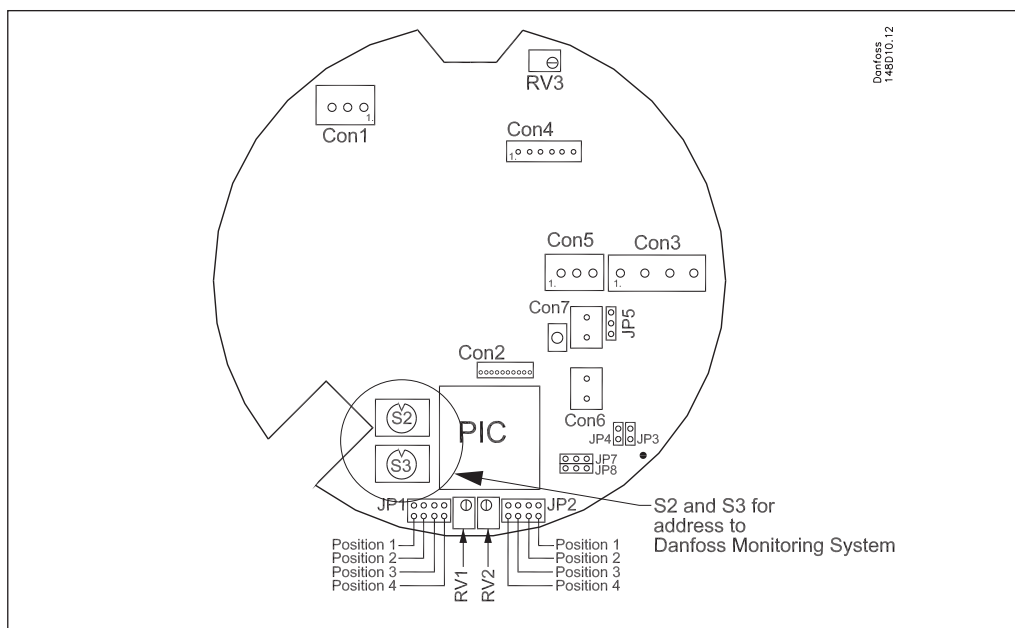
assigned an address. See next page.

A conversion chart between channel number of the Danfoss monitoring system and the hexadecimal address of the GD is attached. Power must be removed when setting the addresses on the GD sensor. If more than 31 units are needed, a GD Repeater (amplifier) must be installed (see Accessories).

Contact Danfoss for further information.



**GD connected to Danfoss monitoring**  
(Continued)



Channel on Danfoss Monitoring System	S3	S2	Channel on Danfoss Monitoring System	S3	S2	Channel on Danfoss Monitoring System	S3	S2
1	0	1	34	2	2	67	4	3
2	0	2	35	2	3	68	4	4
3	0	3	36	2	4	69	4	5
4	0	4	37	2	5	70	4	6
5	0	5	38	2	6	71	4	7
6	0	6	39	2	7	72	4	8
7	0	7	40	2	8	73	4	9
8	0	8	41	2	9	74	4	A
9	0	9	42	2	A	75	4	B
10	0	A	43	2	B	76	4	C
11	0	B	44	2	C	77	4	D
12	0	C	45	2	D	78	4	E
13	0	D	46	2	E	79	4	F
14	0	E	47	2	F	80	5	0
15	0	F	48	3	0	81	5	1
16	1	0	49	3	1	82	5	2
17	1	1	50	3	2	83	5	3
18	1	2	51	3	3	84	5	4
19	1	3	52	3	4	85	5	5
20	1	4	53	3	5	86	5	6
21	1	5	54	3	6	87	5	7
22	1	6	55	3	7	88	5	8
23	1	7	56	3	8	89	5	9
24	1	8	57	3	9	90	5	A
25	1	9	58	3	A	91	5	B
26	1	A	59	3	B	92	5	C
27	1	B	60	3	C	93	5	D
28	1	C	61	3	D	94	5	E
29	1	D	62	3	E	95	5	F
30	1	E	63	3	F	96	6	0
31	1	F	64	4	0	97	6	1
32	2	0	65	4	1	98	6	2
33	2	1	66	4	2	99	6	3

**Reference material**

**Danfoss m2 literature:**

Technical Leaflet RB8BA  
Manual RS8AN  
Instruction RI8BM

**Danfoss AK-SM 350 literature:**

Manual RS8EF  
Instruction RI8LC

**Micromon:**

Technical leaflet RC8AU  
Instruction RI8HV (Micromon Expanable)  
Instruction RI8GA (Micromon)

**Danfoss GD application guide:**

PA.000.B

Ordering

Standard GD models														
All models														
Type of gas	Danfoss Type	Range (ppm)	Alarm limits Low/High (ppm)	Resp. Delay [s] <sup>1)</sup>	Sensor type	Standard Basic	Standard Basic with LCD display	IP 65 with stainless steel sensor head	IP 65 ① -20°C/+40°C (-4°F/104°F) ② -40°C/+50°C (-40°F/122°F) ③ -40°C/+40°C (-40°F/104°F)	EEkxd model	EEkxd model Low Temperature	IP 66 enclosure 5 m remote IP 65 sensor	IP 66 enclosure 5 m remote IP 65 EExd sensor	
	Complete	Sensor PCB	Complete	Sensor PCB	Complete	Sensor PCB	Complete	Sensor PCB	Complete	Sensor PCB	Complete	Sensor PCB	Complete	Sensor PCB
<b>Ammonia NH3</b>														
GDA EC 100	148H5000	148H5200	148H5001	148H5200	148H5002	148H5200	148H5002	148H5208	148H5009	148H5222	148H5006	148H5268	148H5007	148H5273
	148H5060	148H5215	1	-	1	-	-	-	-	-	1	-	1	
	148H5010	148H5201	148H5011	148H5201	148H5012	148H5209	148H5019	148H5226	148H5015	148H5225	148H5016	148H5269	148H5017	148H5275
R 717	148H5050	148H5201	148H5051	148H5201	148H5052	148H5201	148H5052	148H5209	148H5055	148H5225	148H5053	148H5261	148H5054	148H5265
	148H5040	148H5249	1	-	148H5042	148H5254	148H5049	148H5227	1	-	1	-	1	
	148H5020	148H5202	148H5021	148H5202	148H5022	148H5210	148H5025	148H5228	148H5023	148H5241	148H5026	148H5241	148H5027	148H5261
GDA CT 30000	148H5030	148H5203	148H5031	148H5203	148H5032	148H5203	148H5032	148H5039	148H5033	148H5211	-	1	-	
<b>Carbon Dioxide - CO2</b>														
R 744	148H5070	148H5204	148H5071	148H5204	-	-	-	148H5072	148H5218	148H5073	148H5250	-	1	
	1	148H5244	1	148H5244	-	-	-	148H5082	148H5219	1	-	-	1	
	1	148H5245	1	148H5245	-	-	-	148H5092	148H5220	1	-	-	1	
<b>Halo-Carbon</b>														
HFCC R 22, R 123	148H5100	148H5205	148H5101	148H5205	148H5102	148H5212	148H5109	148H5223	1	148H5242	1	-	148H5262	
	148H5110	148H5206	148H5111	148H5206	148H5112	148H5213	148H5119	148H5217	148H5113	148H5243	1	-	148H5263	
	148H5120	148H5246	148H5121	148H5246	-	148H5247	148H5129	148H5242	1	-	1	-	148H5264	
<b>Hydro-Carbon</b>														
R 290, R 600, R 600A, R 1270	148H5190	148H5267	148H5191	148H5267	-	-	-	-	-	-	-	-	-	

1) Contact Danfoss

**Data sheet | Gas detecting sensor, types GDA, GDC, GDHC, GDHF, GDH**
**Ordering - GD sensor PCB**

Description	Code No.
GDA EC 100 sensor PCB	148H5200
GDA EC 1000 sensor PCB	148H5201
GDA SC 10000 sensor PCB	148H5202
GDA CT 30000 sensor PCB	148H5203
GDC IR 10000 sensor PCB for Standard Basic and Standard Basic with LCD display	148H5204
GDHC SC 1000 sensor PCB	148H5205
GDHF SC 1000 sensor PCB	148H5206
GDH CT 5000 sensor PCB	148H5207
GDA EC 100 sensor PCB Ext for IP 65/EEExd enclosure	148H5208
GDA EC 1000 sensor PCB Ext for IP 65/EEExd enclosure	148H5209
GDA SC 10000 sensor PCB Ext for IP 65 enclosure	148H5210
GDA CT 30000 sensor PCB Ext for IP 65/EEExd enclosure	148H5211
GDHC SC 1000 sensor PCB Ext for IP 65 enclosure	148H5212
GDHF SC 1000 sensor PCB Ext for IP 65 enclosure	148H5213
GDH CT 5000 sensor PCB Ext for EEExd enclosure	148H5214
GDA EC 300 sensor PCB Ext for IP 65/EEExd enclosure	148H5240
GDA EC 300 sensor PCB	148H5215
GDA SC 10000 sensor PCB Ext for EEExd enclosure/EEExd Low Temp. enclosure	148H5241
GDHC SC 1000 sensor PCB Ext for EEExd enclosure	148H5242
GDHF SC 1000 sensor PCB Ext for EEExd enclosure	148H5243
GDC IR 20000 sensor PCB for Standard Basic and Standard Basic with LCD display	148H5244
GDC IR 40000 sensor PCB for Standard Basic and Standard Basic with LCD display	148H5245
GDHF-R3 SC 1000 sensor PCB	148H5246
GDHF-R3 SC 1000 sensor PCB Ext for IP 65 enclosure	148H5247
GDE EC 500 sensor PCB Ext for IP 65	148H5248
GDA SC 1000 sensor PCB	148H5249
GDC IR 10000 sensor PCB Ext for EEExd enclosure	148H5250
GDA SC 1000 sensor PCB Ext for IP 65 enclosure	148H5254
GDH SC 5000 sensor PCB Ext for EEExd enclosure	148H5260
GDA SC 10000 sensor PCB with 5 m remote IP 65 sensor. For IP 66 enclosure	148H5261
GDHC SC 1000 sensor PCB with 5 m remote IP 65 sensor. For IP 66 enclosure	148H5262
GDHF SC 1000 sensor PCB with 5 m remote IP 65 sensor. For IP 66 enclosure	148H5263
GDHF-R3 SC 1000 sensor PCB with 5 m remote IP 65 sensor. For IP 66 enclosure	148H5264
GDA SC 10000 sensor PCB with 5 m remote IP 65 EEExd sensor. For IP 66 enclosure	148H5265
GDH SC 5000 sensor PCB	148H5267
GDA EC 100 sensor PCB Ext for EEExd Low Temp. enclosure	148H5268
GDA EC 1000 sensor PCB Ext for EEExd Low Temp. enclosure	148H5269
GDA EC 100 sensor PCB with 5 m remote IP 65 sensor. For IP 66 enclosure	148H5273
GDA EC 1000 sensor PCB with 5 m remote IP 65 sensor. For IP 66 enclosure	148H5275

**Ordering - GD upgrade kits**

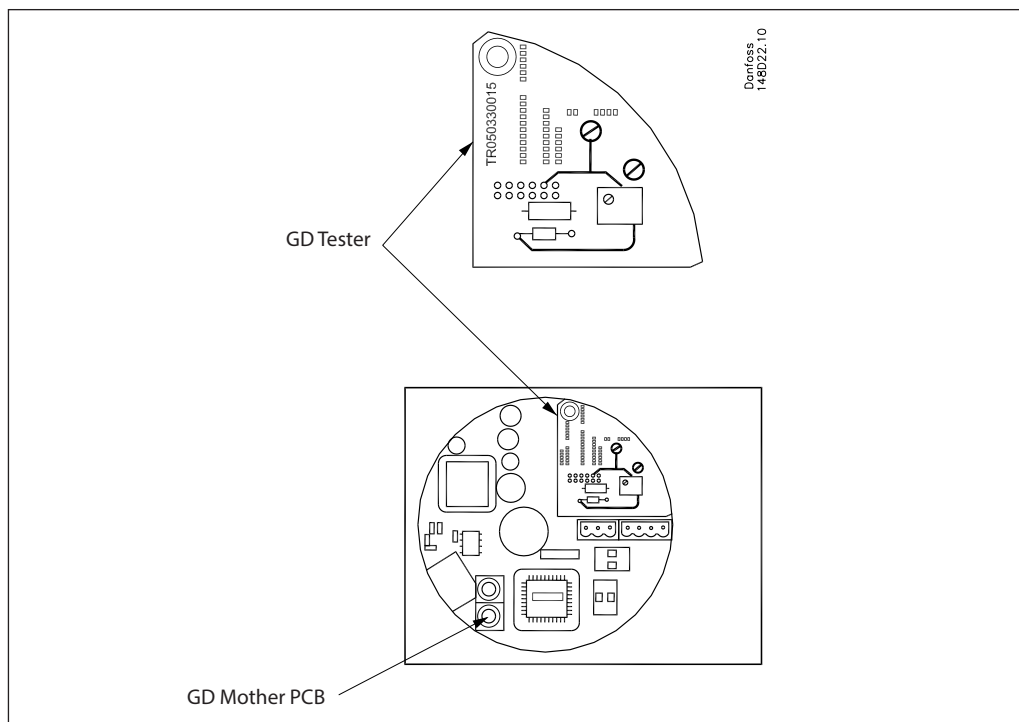
Description	Code No.
GDA EC 100 LT IP56 sensor upgrade kit	148H5221
GDA EC 100 HT IP56 sensor upgrade kit	148H5222
GDA EC 1000 LT IP56 sensor upgrade kit	148H5225
GDA EC 1000 HT IP56 sensor upgrade kit	148H5226
GDA SC 10000 IP56 sensor upgrade kit	148H5228
GDA CT 30000 IP56 sensor upgrade kit	148H5229
GDA SC 1000 IP56 sensor upgrade kit	148H5227
GDA EC 300 LT IP56 sensor upgrade kit	148H5224
GDC IR 10000 IP56 sensor upgrade kit	148H5218
GDC IR 20000 IP56 sensor upgrade kit	148H5219
GDC IR 40000 IP56 sensor upgrade kit	148H5220
GDHC SC 1000 IP56 sensor upgrade kit	148H5223
GDHF SC 1000 IP56 sensor upgrade kit	148H5217
GDHF-R3 SC 1000 IP 56 sensor upgrade kit	148H5242

**Data sheet | Gas detecting sensor, types GDA, GDC, GDHC, GDHF, GDH**

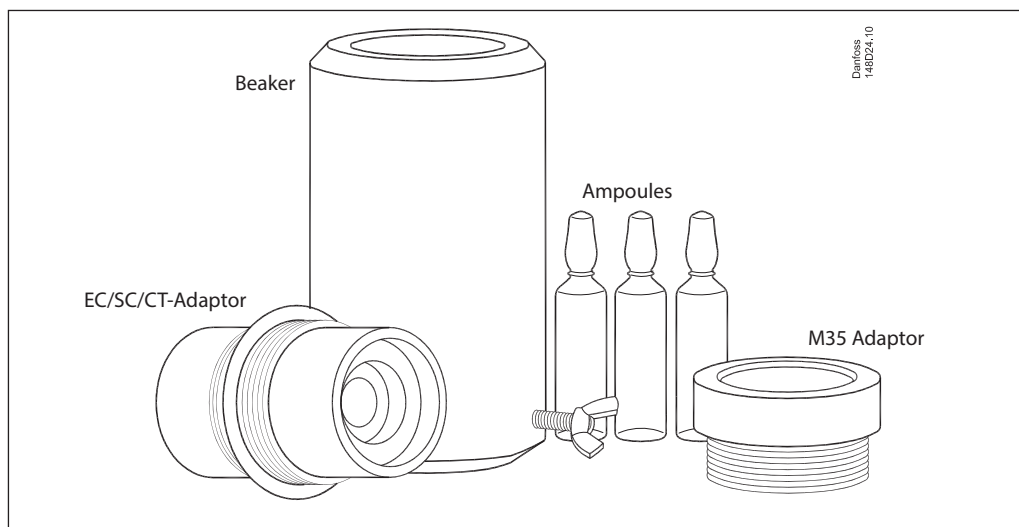
**Ordering - Accessories**

Description	Code No.
<b>GD Test Kit</b> - GD Tester all models. To test mother PCB at Sensor PCB replacement - Beaker M42 - EC/SC/CT-Adapter. Fit Beaker M42 - M35 Adapter. Fit Beaker M42	<b>148H5230</b>
GD Repeater all models. Between GD and Danfoss Monitoring System	<b>148H5231</b>
GD mother PCB all models	<b>148H5232</b>
GD Tester for mother PCB, all models	<b>148H5239</b>
I-PACK(10) GD Ampoules 100 ppm ammonia	<b>148H5234</b>
I-PACK(10) GD Ampoules 1000 ppm ammonia	<b>148H5235</b>
I-PACK(10) GD Ampoules 2000 ppm CO <sub>2</sub>	<b>148H5236</b>
Remote LCD display IP 41	<b>148H5238</b>

*GD Tester and GD Mother PCB*



*Bump test equipment*



Dimensions

<p>Standard</p>	<p>LCD display</p>
<p>IP 65 with stainless steel sensor head</p>	<p>EExd EExd Low Temperature</p>
<p>IP 65 Enclosure</p>	

Dimensions (Continued)

<p>IP 66 enclosure 5 m remote IP 65 sensor IP 66 enclosure 5 m remote IP 65 EExd sensor</p>	<p>Remote LCD display IP 41</p>
<p>EExd for CO<sub>2</sub></p>	