Conex® DIA-G, DIS-G

Gas warning systems
50/60 Hz

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GRUNDFOS ALLDOS

Contents

Product features

Conex® DIA-G gas warning systems

The Conex® DIA-G (**D**osing **I**nstrumentation **A**dvanced - **G**as) safety system monitors gas dosing installations and gas storage rooms.

Features

- Capable of monitoring two different gas storage rooms or two different gases at the same time.
- Simultaneous display of both measured values.
- Optimum safety, thanks to permanent sensor monitoring, alarm relay and optional backup operation (uninterrupted power supply) by connection of an external buffer battery.
- Very short response time in case of a sudden change of the gas concentration.
- Long and maintenance-free sensor service life.
- Sensor recognition and auto-calibration as well as monitoring of sensor life.
- Separate sensor interface for Conex® DIA-G for one potentiostatic sensor. The sensor is plugged directly into the Interface. When using the separate sensor interface, the Conex® DIA-G can be installed in a control room at a distance of up to 500 m from the sensor interface. For simultaneous measurement of two values, please order two sensor interface units.
- Internal CAN-bus for the connection of potentiostatic sensors.
- With optional audible and visual alarm device.
- Wide-range power supply unit, 110-240 V –10 %/ +10% (50/60 Hz) or 24 V DC.
- Display languages: German, English, French, Spanish, Polish and Russian.

Monitoring parameters

- chlorine
- chlorine dioxide
- ozone
- ammonia
- hydrochloric acid.

TM04 1845. 1108

Fig. 1 Conex® DIA-G gas warning system with sensor interfaces and potentiostatic sensors

Conex® DIS-G gas warning systems

The safety system Conex® DIS-G monitors gas dosing systems and storage rooms.

Features

- Measurement of two gases at the same time, if required
- Simultaneous display of both measured values
- Optimum safety owing to the automatic sensor test function
- Audible and visible signals
- Very short response time in case of a sudden change of the gas concentration
- Long, maintenance-free sensor service life
- Display languages: German, English and French.

Monitoring parameters

- chlorine
- chlorine dioxide
- ozone.

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Fig. 2 Conex® DIS-G gas warning system with amperometric sensors

Identification

Type key, gas warning controllers

Example: DIA-G, 1-D/A/HC 2-D/A/HC, W-J

Example:		DIA-G	1-D/A/HC	2-D/A/HC	W	-J
Conex® gas warning system						
DIS-G	Dosing Instrumentation Standard with gas detection					
DIA-G	Dosing Instrumentation Advanced with gas detection					
Sensor 1						
D	Chlorine gas/chlorine dioxide gas/ozone gas					
A	Ammonia gas					
HC	Hydrochloric acid gas					
Sensor 2						
D	Chlorine gas/chlorine dioxide gas/ozone gas					
A	Ammonia gas					
HC	Hydrochloric acid gas					
Mounting						
W	Wall-mounted					
P	Panel-mounted (not available at the moment)					
Voltage						
G	1 x 230/240 V, 50/60 Hz					
H	1 x 115/120 V, 50/60 Hz					
J	110-240 V, 50/60 Hz, 24 V DC					

Type key, gas warning systems, prepacked

(with sensors and sensor equipment)

Example: DIA-G-P, CLP-OP-B, W-J

Example:		DIA-G	-P,	CLP-	OP-	B,	W	-J
Conex® gas warning system								
DIS-G	Dosing Instrumentation Standard with gas detection							
DIA-G	Dosing Instrumentation Advanced with gas detection							
P	Prepacked							
Sensor 1								
CCA	Chlorine gas/chlorine dioxide gas, amperometric							
OA	Ozone gas, amperometric							
CLP	Chlorine gas, potentiostatic							
CDP	Chlorine dioxide gas, potentiostatic							
OP	Ozone gas, potentiostatic							
AP	Ammonia gas, potentiostatic							
HCP	Hydrochloric acid gas, potentiostatic							
Sensor 2								
CCA	Chlorine gas/chlorine dioxide gas, amperometric							
OA	Ozone gas, amperometric							
CLP	Chlorine gas, potentiostatic							
CDP	Chlorine dioxide gas, potentiostatic							
OP	Ozone gas, potentiostatic							
AP	Ammonia gas, potentiostatic							
HCP	Hydrochloric acid gas, potentiostatic							
Option								
B	Battery backup							
X	No battery backup							
Mounting								
W	Wall-mounted							
P	Panel-mounted (not available at the moment)							
Voltage								
G	1 x 230/240 V, 50/60 Hz							
H	1 x 115/120 V, 50/60Hz							
J	110-240 V, 50/60 Hz, 24 V DC							

Conex® DIA-G gas warning systems

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Fig. 3 Conex® DIA-G

Technical data

Electronics	16-bit microprocessor technology
Display	backlit plain-text display
Display languages	German, English, French, Spanish, Russian and Polish
Indication mode	in ppm for measured values of both sensors
Relay outputs	Five potential-free relay outputs per software, switchable to NO (normally open) or NC (normally closed) (fail-safe); max. 250 V/6 A, max. 550 VA • two relays for the limit values of each of the two sensors • one alarm relay; free assignment to the limit values or to sensor test (see below).
Signal inputs	• two measured value inputs (for amperometric sensors 1 and 2) • internal CAN bus, including connections for two Interfaces, each for the operation of one potentiostatic sensor.
Signal outputs	• two potential-free current outputs (0)4-20 mA, max. load of 500 Ohm, with wire breakage monitoring; free assignment to the measuring range of the sensors.
Safety functions	• permanent sensor monitoring or automatic sensor test, interval between tests adjustable from every 0.5 to 30 days • wire breakage monitoring of all current outputs • optional backup battery with backup indication on the display, allowing Conex® DIA-G to work for at least one hour after mains failure • automatic adjustment of data specific to the sensor (for example calibration data) • display of the sensor exchange intervals with a plain-text message.
Permissible temperature	Conex® DIA-G and sensor interface (without sensor): operation: 0 to +50 °C storage: 0 to +65 °C
Permissible relative air humidity	max. 90 %
Power supply	110 - 240 V –10 %/+10 % (50/60 Hz) or 24 V DC
Power consumption	approx. 20 VA
Material (enclosure)	ABS, resistant to chemicals
Enclosure class	IP 65 for Conex® DIA-G wall enclosure and sensor interface
Weight	approx. 1.5 kg

Dimensions

(All dimensions in mm)

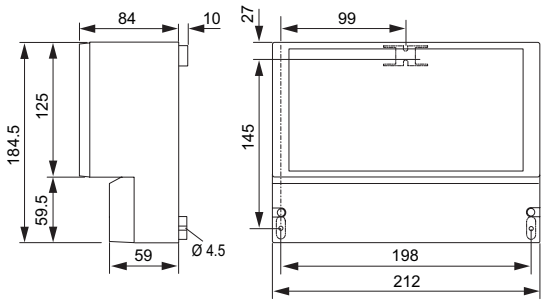

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Fig. 4 Conex® DIA-G gas warning controller

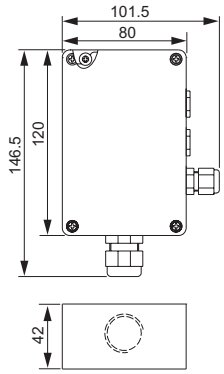

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Fig. 5 Sensor interface

Conex® DIS-G gas warning systems

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Fig. 6 Conex® DIS-G gas warning system

Technical data

Electronics	I2C bus technology
Accuracy	± 1 %
Display	LCD, 2 lines, 2 x 16 characters
Indication mode	in ppm for measured values of both sensors
Relay outputs	four potential-free relay outputs NO (normally open) for the limit values of both sensors; max. 250 V/6 A, max. 550 VA
Signal inputs	two measured value inputs (sensors 1 and 2)
Signal outputs	two analog outputs, (0)4-20 mA, max. load of 400 Ohm, assigned to the 0-5 ppm range
Sensor test	interval between automatiac sensor tests adjustable from every 0.5 to 14 days
Permissible temperatures	Operation:0 to +50 °C Storage:–20 to +65 °C
Permissible relative air humidity	max. 90 % (non-condensing)
Power supply	230/240 V –10 %/+10 % (50/60 Hz) or 115/120 V –10 %/+10 % (50/60 Hz)
Power consumption	approx. 5 VA
Protection class	IP 65 for wall-mounting enclosure
Weight	approx. 0.8 kg

Dimensions

(All dimensions in mm)

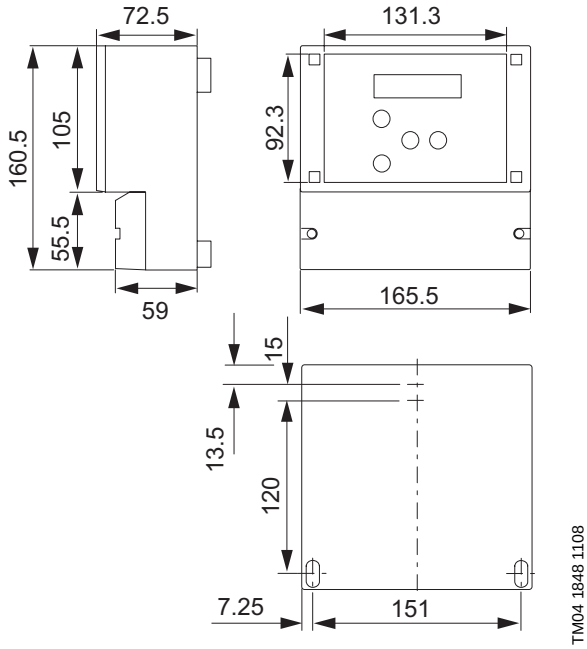

Fig. 7 Conex® DIS-G controller

Amperometric gas sensors for Cl_2, ClO_2 and O_3

- rugged, low-budget gas sensors for measuring chlorine, chlorine dioxide or ozone in dry rooms
- complete with wall support.

TM04 2226 2108

Fig. 8 Amperometric sensor

Dimensions

(All dimensions in mm)

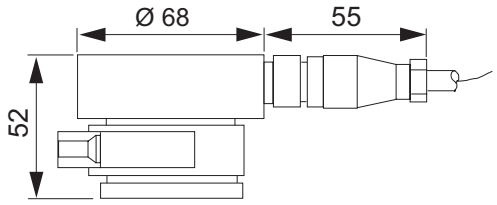

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Fig. 9 Amperometric gas sensors

Technical data

Measured parameter	Cl_2 and ClO_2	O_3
Measuring range [ppm]	0.00 - 5.00	0.00 - 5.00
Accuracy	± 10 %	± 10 %
Response time, t_{90} (at 20 °C) [s]	2	2
Recovery time [minutes]	10 -15	10 -15
Guaranteed service life [months]	9	9
Expected service life [months]	12	12
Permissible operating temperature [°C]	5 to 45	5 to 45
Permissible storage temperature [°C]	5 to 30	5 to 30
Permissible relative air humidity	max. 90 % at 40 °C (non-condensing)	max. 90 % at 40 °C (non-condensing)
Installation	Wall-mounting	Wall-mounting
Max. distance between sensor and measuring amplifier [metres]	100	100
Weight, approx. [g]	250	250

Potentiostatic gas sensors for Cl_2, ClO_2, O_3, NH_3 and HCl

Features

- intelligent, membrane-covered gas sensors with integrated RAM for challenging measuring tasks. Sensor type, production number, manufacturing date and slope are stored in the memory.
- measure chlorine, chlorine dioxide, ozone, ammonia and hydrochloric acid in the air of storage rooms
- sensor recognition and auto-calibration as well as monitoring of sensor life.
- one sensor plugged directly into each sensor interface.

TM04 2228 2108

Fig. 10 Potentiostatic sensor

TM04 2227 2108

Fig. 11 Sensor interface

Dimensions

(All dimensions in mm)

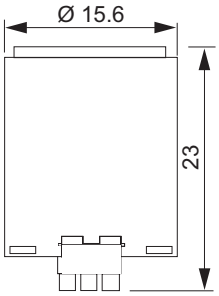

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Fig. 12 Potentiostatic sensor

Technical data

Measures parameter	Cl_2	ClO_2	O_3	NH_3	HCl
Measuring range [ppm]	0.00 - 20.00	0.00 - 1.00	0.00 - 1.00	0 - 100	0.0 - 30.0
Accuracy (at 20 °C) [ppm]	< 0.05	< 0.03	< 0.02	< 1	< 0.7
Precision (in % of full scale)	< 5 %	< 10 %	< 10 %	< 10 %	< 5 %
Sensitivity drift [%]	< 10 % per 6 months	< 10 % per 6 months	< 10 % per 6 months	< 10 % per 6 months	< 3 % per month
Response time, t90 (at 20 °C) [s]	< 30	< 120	< 60	< 60	< 70
Recovery time [minutes]	1	1	1	1	1
Expected life [months]	> 24	> 24	> 18	> 24	> 24
Permissible operating temperature	–20 to +40 °C				
Optimum storage temperature	+4 to +10 °C				
Max. storage time	3 months				
Weight	150 g				
Max. distance to Conex® DIA-G	500 m bus line length				
Permissible relative air humidity	max. 90 % at 40 °C (non-condensing)				

Examples of Conex® DIA-G gas warning systems

Conex® DIA-G with two sensor interface units, each with one potentiostatic sensor

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Conex® DIA-G with two amperometric sensors

TM04 1817 1108

Conex® DIA-G gas warning systems

Controller	Prepacked (with sensors)	Sensor 1							Sensor 2							Wall-mounted	Battery backup	Voltage			Type designation	Product number
		Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic	Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic			110-240 V, 50/60 Hz, 24 V	230 V, 50/60 Hz	115 V, 50/60 Hz		
DIA-G	●															●		●			DIA-G. 1-D/A/HC 2-D/A/HC. W-J	96732266 (308-2000-10012)
	●	●														●		●			DIA-G-P. CCA-X-X. W-J	95700081 (308-2000-10003)
	●	●							●							●		●			DIA-G-P. CCA-CCA-X. W-J	96735209 (308-2000-10009)
	●	●														●	●	●			DIA-G-P. CCA-X-B. W-J	95700964 (308-2000-10019)
	●	●							●							●	●	●			DIA-G-P. CCA-CCA-B. W-J	95700965 (308-2000-10020)
	●		●													●		●			DIA-G-P. OA-X-X. W-J	95700966 (308-2000-10010)
	●		●							●						●		●			DIA-G-P. OA-OA-X. W-J	95700967 (308-2000-10021)
	●		●							●						●	●	●			DIA-G-P. OA-OA-B. W-J	95700968 (308-2000-10022)
	●			●												●		●			DIA-G-P. CLP-X-X. W-J	95700080 (308-2000-10007)
	●			●							●					●		●			DIA-G-P. CLP-CLP-X. W-J	95700483 (308-2000-10004)
	●			●							●					●	●	●			DIA-G-P. CLP-CLP-B. W-J	95700969 (308-2000-10023)
	●			●								●				●		●			DIA-G-P. CLP-CDP-X. W-J	95700970 (308-2000-10024)
	●			●								●				●	●	●			DIA-G-P. CLP-CDP-B. W-J	95700971 (308-2000-10025)
	●			●										●		●		●			DIA-G-P. CLP-AP-X. W-J	95700972 (308-2000-10006)
	●			●										●		●	●	●			DIA-G-P. CLP-AP-B. W-J	95700973 (308-2000-10026)
	●				●											●		●			DIA-G-P. CDP-X-X. W-J	95700854 (308-2000-10016)
	●				●											●	●	●			DIA-G-P. CDP-X-B. W-J	95700976 (308-2000-10029)
	●				●							●				●		●			DIA-G-P. CDP-CDP-X. W-J	95700977 (308-2000-10008)
	●				●							●				●	●	●			DIA-G-P. CDP-CDP-B. W-J	95700978 (308-2000-10030)
	●				●										●	●		●			DIA-G-P. CDP-HCP-X. W-J	95700979 (308-2000-10013)
	●				●										●	●	●	●			DIA-G-P. CDP-HCP-B. W-J	95700980 (308-2000-10031)
	●					●										●		●			DIA-G-P. OP-X-X. W-J	95700981 (308-2000-10015)
	●					●							●			●		●			DIA-G-P. OP-OP-X. W-J	95700982 (308-2000-10014)
	●					●							●			●	●	●			DIA-G-P. OP-OP-B. W-J	95700983 (308-2000-10032)
	●						●									●		●			DIA-G-P. AP-X-X. W-J	96697849 (308-2000-10001)

Product selection

Controller	Prepacked (with sensors)	Sensor 1							Sensor 2							Wall-mounted	Battery backup	Voltage			Type designation	Product number
		Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic	Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic			110-240 V, 50/60 Hz, 24 V	230 V, 50/60 Hz	115 V, 50/60 Hz		
DIA-G	●						●									●	●	●			DIA-G-P. AP-X-B. W-J	95700974 (308-2000-10027)
	●						●							●		●		●			DIA-G-P. AP-AP-X. W-J	96725667 (308-2000-10002)
	●						●							●		●	●	●			DIA-G-P. AP-AP-B. W-J	95700975 (308-2000-10028)
	●							●								●		●			DIA-G-P. HCP-X-X. W-J	95700984 (308-2000-10011)
	●							●								●	●	●			DIA-G-P. HCP-X-B. W-J	95700985 (308-2000-10033)
	●							●							●	●		●			DIA-G-P. HCP-HCP-X. W-J	95700986 (308-2000-10017)
	●							●							●	●	●	●			DIA-G-P. HCP-HCP-B. W-J	95700987 (308-2000-10034)

Product selection

Conex® DIS-G gas warning controllers and systems

Controller	Prepacked (with sensors)	Sensor 1							Sensor 2							Wall-mounted	Battery backup	Voltage			Type designation	Product number
		Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic	Chlorine gas/chlorine dioxide, amperometric	Ozone gas, amperometric	Chlorine, potentiostatic	Chlorine dioxide, potentiostatic	Ozone, potentiostatic	Ammonia, potentiostatic	Hydrochloric acid, potentiostatic			110-240 V, 50/60 Hz, 24 V	230 V, 50/60 Hz	115 V, 50/60 Hz		
DIS-G																●			●		DIS-G. 1-D 2-D. W-G	96736238 (307-2000-10004)
																●				●	DIS-G. 1-D 2-D. W-H	95701378 (307-2001-10000)
	●															●			●		DIS-G-P. CCA-X-X. W-G	96703835 (307-2000-10000)
	●															●				●	DIS-G-P. CCA-X-X. W-H	95701170 (307-2001-10001)
	●								●							●			●		DIS-G-P. CCA-CCA-X. W-G	96734178 (307-2000-10001)
	●								●							●				●	DIS-G-P. CCA-CCA-X. W-H	95706182 (307-2001-10002)
	●															●			●		DIS-G-P. OA-X-X. W-G	95700018 (307-2000-10003)
	●															●				●	DIS-G-P. OA-X-X. W-H	95706183 (307-2001-10003)
	●									●						●			●		DIS-G-P. OA-OA-X. W-G	95701231 (307-2000-10006)
	●									●						●				●	DIS-G-P. OA-OA-X. W-H	95706184 (307-2001-10004)

Amperometric gas sensors for Cl_2, ClO_2 and O_3

Description	Product number
Amperometric sensor for Cl_2 and ClO_2, complete with wall support	91835237 (314-011)
Amperometric sensor for O_3, complete with wall support	96687714 (314-013)
Spare sensor disc for Cl_2 and ClO_2	91835823 (553-1011)
Spare sensor disc for O_3	96688728 (553-1000)

Potentiostatic gas sensors for Cl_2, ClO_2, O_3, NH_3 and HCl

	Product number
Cl_2 gas sensor without sensor interface	9673268 (314-021)
Cl_2 gas sensor with sensor interface	95700843 (314-021-10001)
ClO_2 gas sensor without sensor interface	95700837 (314-041)
ClO_2 gas sensor with sensor interface	95700844 (314-041-10002)
O_3 gas sensor without sensor interface	95700838 (314-071)
O_3 gas sensor with sensor interface	95700845 (314-071-10000)
NH_3 gas sensor without sensor interface	95700839 (314-031)
NH_3 gas sensor with sensor interface	95700846 (314-031-10001)
HCl gas sensor without sensor interface	95700840 (314-061)
HCl gas sensor with sensor interface	95700842 (314-061-10000)

Cable for amperometric sensors

Description		Product number
2-wire cable with screening	10 metres	96725670 (321-130/10)
	20 metres	96725672 (321-130/20)
	50 metres	96725673 (321-130/50)

Battery backup, horn and flashlight

Description		Product number
Battery backup	Integrated battery charging unit with I/U charging characteristic, battery management with microcontroller, temperature regulation of charging voltage by sensor module, input voltage of the battery controller 115/230 V (50/60 Hz), input current, 0.84 A/115 V to 0.42 A/230 V max. switch-on current, 2A/2 ms, maintenance-free lead-acid battery, 24 V/7Ah buffer time for operation with two sensor interfaces > 1h	96725709 (336-308)
Horn in grey ABS enclosure, IP 55	230 V (50/60 Hz), nominal current, 100 mA	96696421 (515-1003)
	115 V (50/60 Hz), nominal current, 200 mA	96726994 (515-1004)
Red flashlight in grey ABS enclosure, IP 54, for outdoor and indoor installation	230 V (50/60 Hz), nominal current, 50 mA	96694063 (515-1005)
	115 V (50/60 Hz), nominal current, 60 mA	96726995 (515-1006)

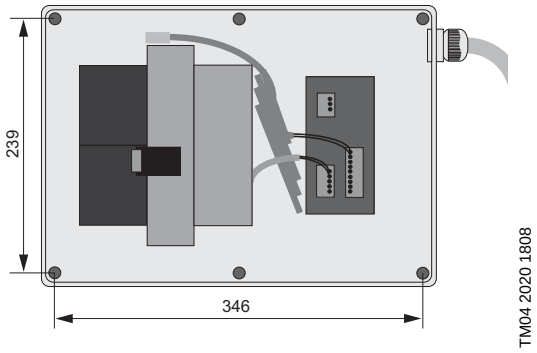


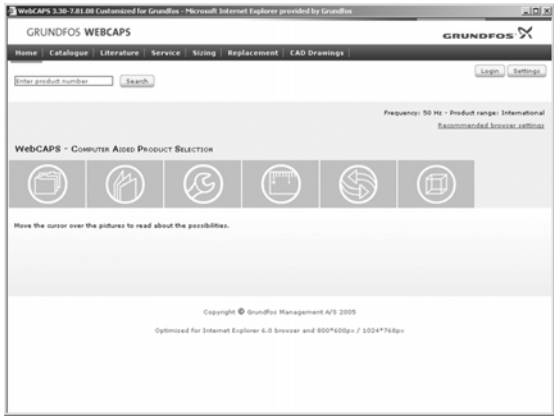
Fig. 13 Battery backup

Sensor interface

Description		Product number
Sensor interface for the connection of one potentiostatic sensor to the DIA-G	The sensor is plugged directly into the Interface. When using the separate sensor interface, the Conex® DIA-G can be installed in a control room at a distance of up to 500 m from the sensor interface. For simultaneous measurement of two values, please order two sensor interface units.	96725668 (308-2050)

Further product documentation

WebCAPS

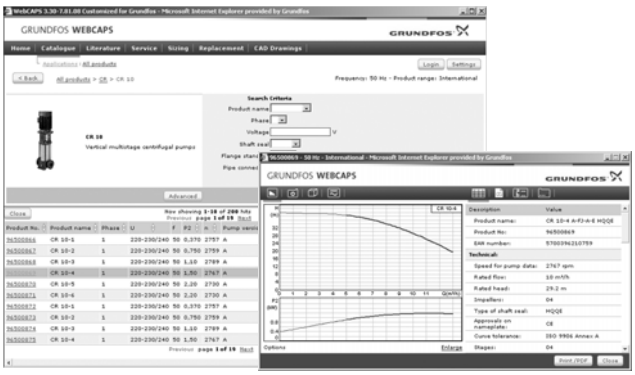


WebCAPS is a **Web**-based **C**omputer **A**ided **P**roduct **S**election program available on www.grundfos.com.

WebCAPS contains detailed information on more than 185,000 Grundfos products in more than 22 languages.

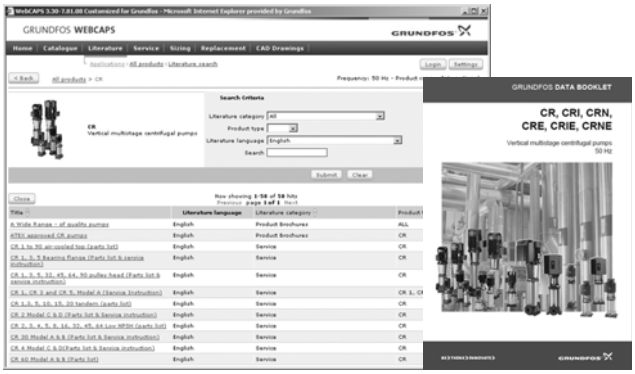
In WebCAPS, all information is divided into 6 sections:

- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



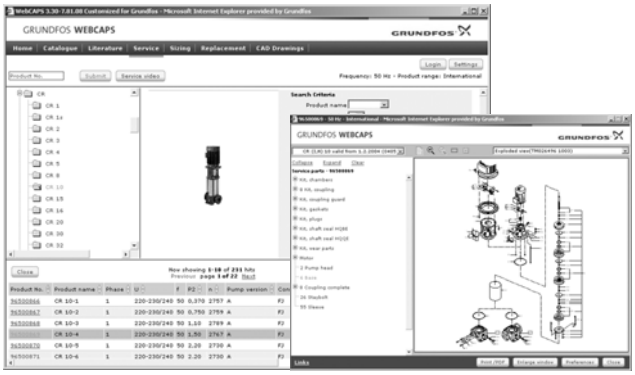
Catalogue

This section is based on fields of application and pump types, and contains
- technical data
- curves (QH, Eta, P1, P2, etc) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

In this section you can access all the latest documents of a given pump, such as
- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures, etc.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.
Furthermore, this section contains service videos showing you how to replace service parts.

Further product documentation

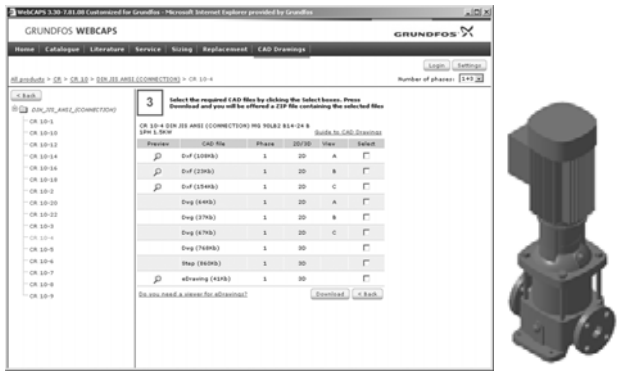
Sizing

This section is based on different fields of application and installation examples, and gives easy step-by-step instructions in how to
- select the most suitable and efficient pump for your installation
- carry out advanced calculations based on energy consumption, payback periods, load profiles, life cycle costs, etc.
- analyse your selected pump via the built-in life cycle cost tool
- determine the flow velocity in wastewater applications, etc.

Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.
The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

2-dimensional drawings:
- .dxf, wireframe drawings
- .dwg, wireframe drawings.

3-dimensional drawings:
- .dwg, wireframe drawings (without surfaces)
- .stp, solid drawings (with surfaces)
- .eprt, E-drawings.

WinCAPS

Fig. 14 WinCAPS CD-ROM

WinCAPS is a **Win**dows-based **C**omputer **A**ided **P**roduct **S**election program containing detailed information on more than 185.000 Grundfos products in more than 20 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no Internet connection is available.

WinCAPS is available on CD-ROM and updated once a year.

BE > THINK > INNOVATE >

Being responsible is our foundation
Thinking ahead makes it possible
Innovation is the essence

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Subject to alterations.

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