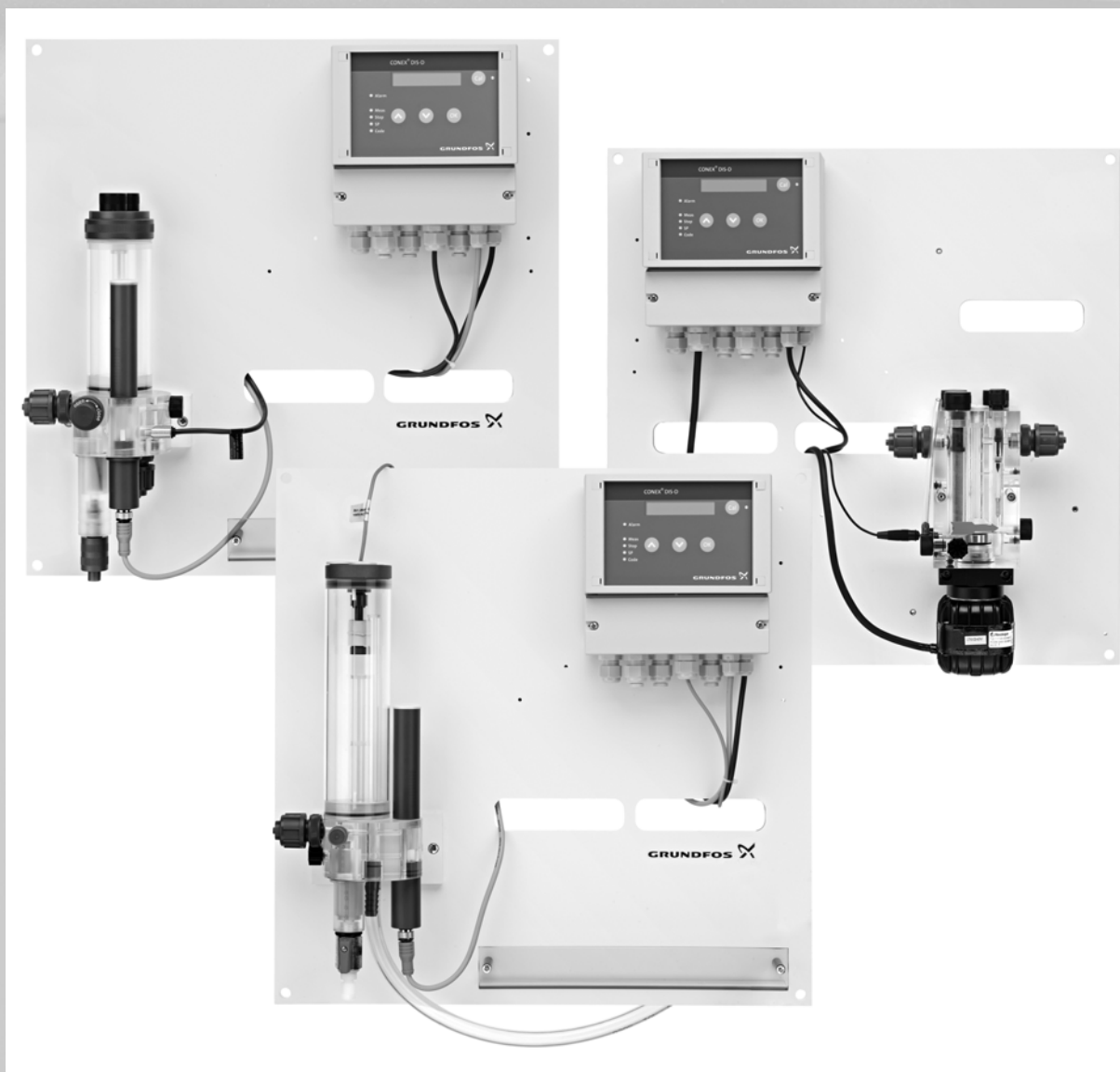


Conex[®] DIS-PR, DIS-D

Measuring amplifiers and controllers, preassembled systems

One parameter (Cl₂, ClO₂, O₃, pH, ORP)



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1. Product introduction

Conex DIS measuring amplifiers and controllers

Conex DIS (Dosing Instrumentation Standard) are simple, cost-efficient units for amplifying and control. Fitted with a powerful 16-bit microprocessor system and offering a choice of settings, the DIS models ensure high water quality while reducing the volumes of the chemicals dosed. Simplicity and efficiency combined.

Conex DIS-PR

Measuring amplifier and controller for pH or redox potential (ORP)

Conex DIS-PR is designed for pH or redox potential (ORP) measurement and control. The compact and cost-efficient unit is intended for users who are familiar with measuring and control processes and prefer to use numerical programming to manage them. Conex DIS-PR has integrated temperature compensation for the pH value (manual or automatic with Pt100) for increased reliability.

Parameters

- pH
- Redox potential (ORP)



TM04 1822 1108

Fig. 1 Conex DIS-PR

Conex DIS-D

Measuring amplifier and controller for disinfection

Conex DIS-D is designed to control disinfection processes that use chlorine, chlorine dioxide or ozone. To ensure reliable operation, Conex DIS-D can be supplied with a separate sample water sensor that will immediately detect any shortage of sample water and give an alarm.

Parameters

- Chlorine
- Chlorine dioxide
- Ozone



TM04 1819 1108

Fig. 2 Conex DIS-D

In the following chapters, the Conex DIS-PR and DIS-D measuring amplifiers and controllers are simply referred to as "controllers".

Conex DIS preassembled systems

Our preassembled systems take our tried-and-tested electrodes and Conex controllers, combine them to suit specific applications and mount them on a plate ready for quick installation.

Each combination is available with a choice of measuring cells and cleaning methods.

Conex DIS preassembled systems can be fitted with one of these controller types:

- Conex DIS-PR
- Conex DIS-D

Conex DIS-PR-A preassembled system for pH or redox potential (ORP)

Features

- With sensors for pH or ORP measurement
- Mounted on a base plate and wired, ready for connection
- With prepared cable sets
- With temperature compensation
- Incorporates temperature sensor, with 1-metre cable (optional)
- Incorporates pH single-rod measuring chain, with 1-metre cable and ceramic or PTFE diaphragm, or ORP single-rod probe, with 1-metre cable and ceramic or PTFE diaphragm

Conex DIS-D-A preassembled system for chlorine, chlorine dioxide, ozone

The system is equipped with one of the following measuring cells:

- AQC-D11, pressure-proof, with electric cleaning motor
- AQC-D12, pressure-proof, with hydromechanical cleaning
- AQC-D13, pressureless, with hydromechanical cleaning

Features

- Mounted on a base plate and wired, ready for connection
- With prepared cable sets
- With electrode for chlorine, chlorine dioxide and ozone
- With a measuring range of 0-20 mg/l for chlorine, chlorine dioxide or ozone
- With optional water sensor (1 metre of prepared cable)

Note: For details on AQC-D11, AQC-D12, AQC-D13 and other measuring cells, please see the separate data booklet "Measurement and control accessories".



Fig. 3 Conex DIS-D-A with AQC-D11

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Fig. 4 Conex DIS-D-A with AQC-D12

TM04 8719 0813



Fig. 5 Conex DIS-D-A with AQC-D13

TM04 8720 0813

2. Identification

Type key, Conex DIS controllers

Example: DIS-D 1-D W-G

Example:		DIS-D	1-D	-W	-G
Measuring amplifier and controller					
DIS-PR	Dosing Instrumentation Standard Measurement of pH or redox potential (ORP)				
DIS-D	Dosing Instrumentation Standard Measurement of chlorine, chlorine dioxide or ozone				
Input parameter 1					
P	pH				
R	Redox potential (ORP)				
D	Chlorine, chlorine dioxide or ozone				
Mounting					
W	Wall-mounting				
Voltage					
G	230/240 V, 50/60 Hz				
H	115/120 V, 50/60 Hz				
I	24 V DC				

Type key, Conex DIS preassembled systems

Example: DIS-D-A D11-X-PT-QS-T W-G

Example:		DIS-D	-A	D11	-X	-PT	-QS	-T	W	-G
Measuring amplifier and controller										
DIS-PR	Dosing Instrumentation Standard Measurement of pH or redox potential (ORP)									
DIS-D	Dosing Instrumentation Standard Measurement of chlorine, chlorine dioxide or ozone									
Assembly										
A	Preassembled									
Cell type										
D11	Pressure-proof, with cleaning motor									
D12	Pressure-proof, with hydromechanical cleaning									
D13	Pressureless, with hydromechanical cleaning									
P/R	pH or redox potential (ORP)									
Pressure retention valve										
P	With pressure retention valve									
X	Without pressure retention valve									
Electrodes for disinfection parameters (only Conex DIS-D)										
AU	Gold (for cell types D11, D12, D13)									
PT	Platinum (for cell types D11, D12, D13)									
X	Without electrode									
Electrodes for pH or redox potential (only Conex DIS-PR)										
PCB	pH, ceramic diaphragm, with buffer solution									
PTB	pH, PTFE diaphragm, with buffer solution									
PKB	pH, KCl filling, with buffer solution									
PGB	pH, gel filling with buffer solution									
PCX	pH, ceramic diaphragm, without buffer solution									
PTX	pH, PTFE diaphragm, without buffer solution									
PKX	pH, KCl filling, without buffer solution									
PGX	pH, gel filling, without buffer solution									
RCB	Redox potential (ORP), ceramic diaphragm, with buffer solution									
RTB	Redox potential (ORP), PTFE diaphragm, with buffer solution									
RCX	Redox potential (ORP), ceramic diaphragm, without buffer solution									
RTX	Redox potential (ORP), PTFE diaphragm, without buffer solution									
X	Without electrode									
Water sensor										
QS	With water sensor									
X	Without water sensor									
Temperature sensor										
T	With Pt100 temperature sensor									
X	Without temperature sensor									
Mounting										
W	Wall-mounting									
P	Panel-mounting									
Voltage										
G	230/240 V, 50/60 Hz									
H	115/120 V, 50/60 Hz									
I	24 V DC									

3. Functions

Conex DIS controllers

	Conex DIS-PR	Conex DIS-D
Input parameter 1		
pH	•	
Redox potential (ORP)	•	
Chlorine		•
Chlorine dioxide		•
Ozone		•
Mounting options		
Wall-mounting	•	•
Panel-mounting		
Voltage		
230/240 V, 50/60 Hz	•	•
115/120 V, 50/60 Hz	•	•
24 V DC	•	•

Conex DIS preassembled systems

	Conex DIS-PR-A	Conex DIS-D-A
Cell type		
Pressure-proof, with cleaning motor		•
Pressure-proof, with hydromechanical cleaning		•
Pressureless, with hydromechanical cleaning		•
pH or redox potential (ORP) only	•	
Electrodes		
Gold (disinfection parameters)		•
Platinum (disinfection parameters)		•
pH	•	
Redox potential (ORP)	•	
Variant		
Water sensor		•
Temperature sensor		
Pt100	•	
Voltage		
230/240 V, 50/60 Hz	•	•
115/120 V, 50/60 Hz	•	•
24 V DC	•	•

4. Technical data

General data

Electronics	Powerful 16-bit microprocessor
Display	One-line display
Indication mode	Measured value as a physical variable
Controllers	PI
Relay output	250 V max. load 6 A • Limit monitor, pulse-pause controller or pulse-frequency controller • Alarm relay (change-over contact)
Current output	One analog output (0-20 mA or 4-20 mA), max. load: 500 Ohm: • continuous controller or • measured value
Temperature compensation	Manually or automatically by Pt100 temperature sensor, measuring range 0 to 100 °C (Conex DIS-PR only)
Enclosure class	Wall-mounting: IP 65
Permissible temperature	Operation: 0 to +45 °C Storage: -20 to +65 °C
Permissible relative air humidity	Max. 90 % (non-condensing)
Mains voltage	230-240 V -10 %/+10 %, (50/60 Hz) or 115-120 V -10 %/+10 %, (50/60 Hz) or 24 V DC
Power consumption	Approx. 10 VA
Weight	Approx. 1 kg

Measuring parameters

	Possible measuring ranges*	Conex DIS-PR	Conex DIS-D
Chlorine	0.00 - 2.00 mg/l		•
chlorine dioxide	0.00 - 20.0 mg/l**		•
ozone			•
pH	pH 0.00 - 14.00 pH 2.00 - 12.00 pH 5.00 - 9.00	•	
Redox potential (ORP)	0 - 1000 mV 0 - 1500 mV	•	

* For preassembled systems, the lower limit of the measuring range can be different, depending on the type of measuring cell.

** For ozone, the measuring range is limited to max. 5.00 mg/l.

Control functions

Setpoint	Adjustable within the measuring range, with the resolution of the measured value
Alarm setpoints	Adjustable within the measuring range
Hysteresis	0 to 50 % of the measuring range limit value
Control response	Pulse-pause or pulse-frequency control (P, PI), limit monitor
Proportional band, X_p (pulse-pause controller, pulse-frequency controller, continuous controller)	Adjustable from 0.0 to 3000 % resolution 0.1 % for range 0.1 to 100.0 % resolution 1 % for range 101 to 3000 %
Reset time, T_N (pulse-pause controller, pulse-frequency controller, continuous controller)	Adjustable from 0 to 3000 s, resolution 1 s
Control direction	Adjustable: Upward or downward control
Pulse and pause time (pulse-pause controller)	Adjustable from 1 to 100 s, resolution 1
On-time, T_{min} (pulse-pause controller)	Initial pulse adjustable between 0.1 and 10.0 s, resolution 0.1 s
Max. frequency (pulse-frequency controller)	Adjustable from 1 to 220 pulses/minute, one pulse width = 50 ms
Continuous controller	0-20 mA or 4-20 mA

Dimensions

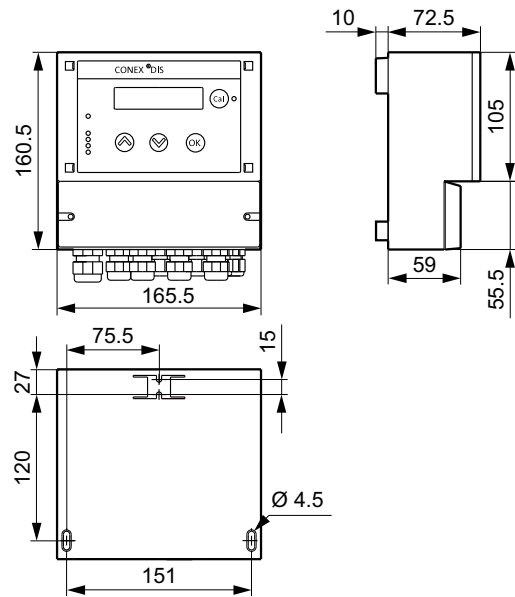


Fig. 6 Conex DIS-PR and Conex DIS-D controllers

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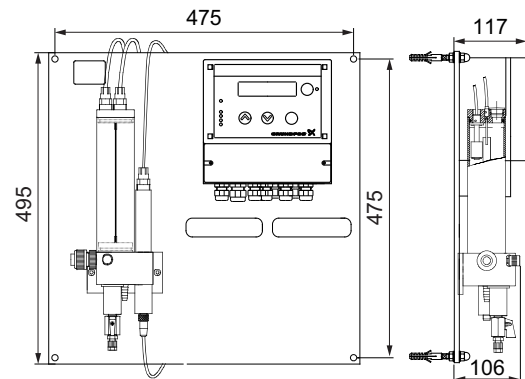


Fig. 7 Conex DIS-D preassembled system for chlorine, chlorine dioxide or ozone

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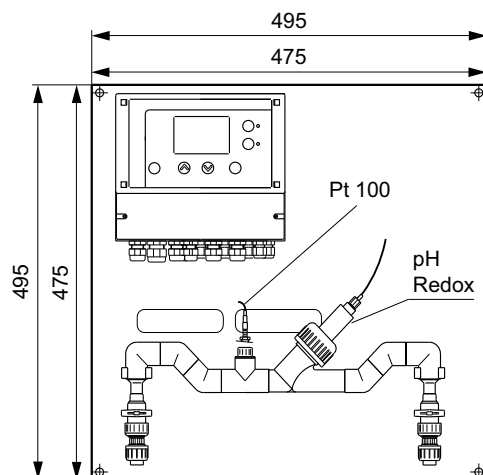


Fig. 8 Conex DIS-PR preassembled system for pH or redox potential (ORP)

TM03 4045 1406

5. Product selection

Conex DIS controllers

Controller	Voltage			Wall-mounting	Enclosure material	Enclosure class	Parameter			Type designation	Product number
	24 V DC	115/120 V	230/240 V				Chlorine, chlorine dioxide or ozone	pH	ORP		
Conex					Polystyrene	IP65					
DIS-PR	•			•	•	•	•	•	•	DIS-PR, 1P/R, W-I	96609124
		•		•	•	•				DIS-PR, 1P/R, W-H	96609123
			•	•	•	•				DIS-PR, 1P/R, W-G	96609122
DIS-D	•			•	•	•	•			DIS-D, 1-D, W-I	96622394
		•		•	•	•	•			DIS-D, 1-D, W-H	96622393
			•	•	•	•	•			DIS-D, 1-D, W-G	96622392

Conex DIS preassembled systems

Disinfection parameters, standard range

Conex DIS-D-A preassembled systems for disinfection parameters: free chlorine, chlorine dioxide and ozone.

- In general, preassembled systems with DIS-D-A controllers come without temperature sensor.

- Versions with cell type AQC-D11 and D12 have an integrated pressure retention valve.

230/240 V

Cell type			Water sensor	Type designation*	Product number	
D11, pressure-proof, cleaning motor	D12, pressure-proof, hydromechanical cleaning	D13, pressureless, hydromechanical cleaning			Electrode code AU (Gold)	Electrode code PT (Platinum)
•			•	DIS-D-A, D11-P-AU-QS-X, W-G	95738025	95738026
•				DIS-D-A, D11-P-AU-X-X, W-G	95738027	95738028
	•		•	DIS-D-A, D12-P-AU-QS-X, W-G	95738029	95738030
		•	•	DIS-D-A, D13-X-AU-QS-X, W-G	95738032	95738031
		•		DIS-D-A, D13-X-AU-X-X, W-G	95738033	95738034

* Also available with platinum electrode PT.

115/120 V

Cell type			Water sensor	Type designation*	Product number	
D11, pressure-proof, cleaning motor	D12, pressure-proof, hydromechanical cleaning	D13, pressureless, hydromechanical cleaning			Electrode code AU (Gold)	Electrode code PT (Platinum)
•			•	DIS-D-A, D11-P-AU-QS-X, W-H	95738041	95738042
•				DIS-D-A, D11-P-AU-X-X, W-H	95738043	95738044
	•		•	DIS-D-A, D12-P-AU-QS-X, W-H	95738039	95738040
		•	•	DIS-D-A, D13-X-AU-QS-X, W-H	95738037	95738038
		•		DIS-D-A, D13-X-AU-X-X, W-H	95738035	95738036

* Also available with platinum electrode PT.

pH or redox potential, standard range

Conex DIS-PR preassembled systems for measurement of pH or ORP.

230/240 V

Electrode type		Temperature sensor	Type designation	Product number
pH, ceramic diaphragm	ORP, ceramic diaphragm			
•		•	DIS-PR-A, P/R-PCB-X-T, W-G	96622810
•			DIS-PR-A, P/R-PCB-X-X, W-G	96622814
	•	•	DIS-PR-A, P/R-RCB-X-T, W-G	96622820
	•		DIS-PR-A, P/R-RCB-X-X, W-G	96622823

115/120 V

Electrode type		Temperature sensor	Type designation	Product number
pH, ceramic diaphragm	ORP, ceramic diaphragm			
•		•	DIS-PR-A, P/R-PCB-X-T, W-H	96622811
•			DIS-PR-A, P/R-PCB-X-X, W-H	96622815
	•	•	DIS-PR-A, P/R-RCB-X-T, W-H	96622821
	•		DIS-PR-A, P/R-RCB-X-X, W-H	96622824

Non-standard range

Cell type	Pressure retention valve	Electrode		Water sensor	Temperature sensor	Mounting	Voltage
		Disinfection	pH or ORP				
D11: Pressure-proof, with cleaning motor D12: Pressure-proof, hydromechanical cleaning D13: Pressureless, hydromechanical cleaning P/R: pH or ORP	P: With pressure retention valve X: Without pressure retention valve	AU: Gold (for D11, D12, D13) PT: Platinum (for D11, D12, D13) X: Without electrode	PCB: pH, ceramic diaphragm, with buffer solution PTB: pH, PTFE diaphragm, with buffer solution PKB: pH, KCl filling, with buffer solution PGB: pH, gel filling, with buffer solution PCX: pH, ceramic diaphragm, without buffer solution PTX: pH, PTFE diaphragm, without buffer solution PKX: KCl filling, without buffer solution PGX: pH, gel filling, without buffer solution RCB: ORP, ceramic diaphragm, with buffer solution RTB: ORP, PTFE diaphragm, with buffer solution RCX: ORP, ceramic diaphragm, without buffer solution RTX: ORP, PTFE diaphragm, without buffer solution X: Without electrode	QS: With water sensor X: Without water sensor	T: With Pt100 temperature sensor X: Without temperature sensor	W: Wall-mounting P: Panel-mounting	G: 230/240 V, 50/60 Hz H: 115/120 V, 50/60 Hz I: 24 V DC

DIS-PR controller

Cell type	Pressure retention valve	Electrode		Water sensor	Temperature sensor	Mounting	Voltage
		Disinfection	pH or ORP				
P/R	X	X	PCB PTB PKB PGB PCX PTX PKX PGX RCB RTB RCX RTX	X	T X	W P	G H I

DIS-D controller

Cell type	Pressure retention valve	Electrode		Water sensor	Temperature sensor	Mounting	Voltage
		Disinfection	pH or ORP				
D11 D12 D13	P	AU PT	X	QS X	X	W P	G H I

6. Accessories

Cables

Description	Length [m]	Conex DIS-		Product number
		D	PR	
Special cable (coaxial), single screening, N screw plug for pH, redox potential (ORP) or reference electrode	1	•	•	96609182
	3	•	•	96609183
	10		•	96701441
	25		•	95703576

Note: If the length of the cable between controller and electrode exceeds 3 metres, an impedance converter is necessary.

Buffer solutions

pH and redox potential (ORP)

Description	pH	ORP	Product number
Buffer solutions for calibrating the pH single-rod measuring chain • 1 set per 100 ml for pH 4.01, 7.00 or 9.18	•		96609165
Buffer solutions for checking the redox potential (ORP) single-rod measuring chains or electrodes • 100 ml (+220 mV)		•	96609166

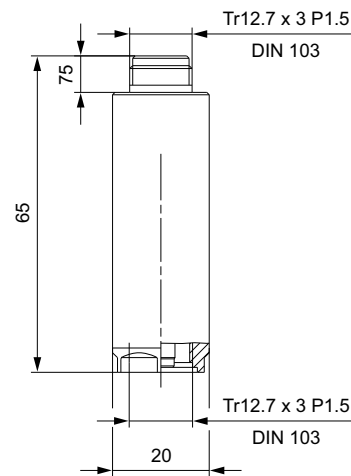
Impedance converter

pH and redox potential (ORP)

- An impedance converter is necessary, if the length of the cable between controller and electrode exceeds 3 metres.
- Connection: N cap.
- The plug connector suits the Grundfos electrode caps with cable socket N and most of the usual electrode caps.
- Installed between the electrode and the cable.
- Internal power supply by a lithium battery (can be replaced), CR-1/3N-P (or equivalent). Service life: at least 5 years (at 25 °C). The service life can be affected by external factors, such as fluctuating temperatures during operation and storage.

Description	pH	ORP	Product number
Impedance converter for pH/redox potential (ORP) measurement. • Permissible ambient temperature: -10 to +60 °C • Permissible storage temperature: -10 to +60 °C	•	•	95704730

Dimensions



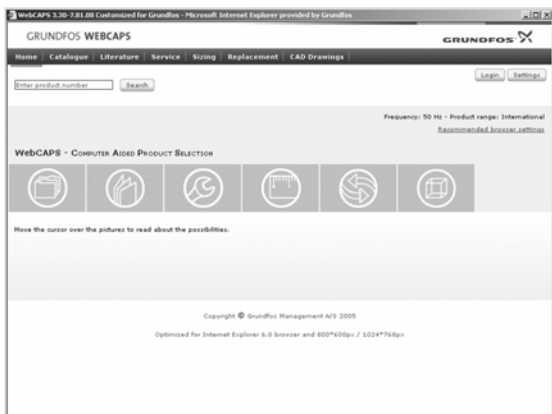
TM04 1839 1108

Fig. 9 Impedance converter

For more accessories, please see the separate data booklet "Measurement and control accessories".

7. Further product information

WebCAPS



WebCAPS is a **Web-based Computer Aided Product Selection** program available on www.grundfos.com.

WebCAPS contains detailed information on more than 220,000 Grundfos products in more than 30 languages.

Information in WebCAPS is divided into six sections:

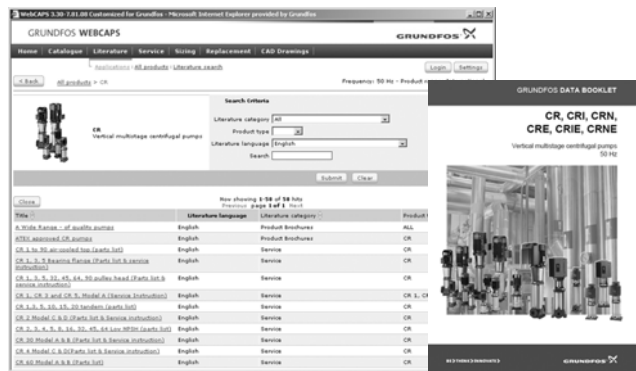
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

Based on fields of application and pump types, this section contains the following:

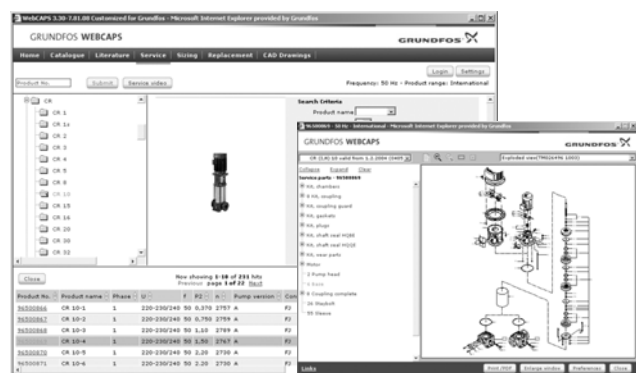
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

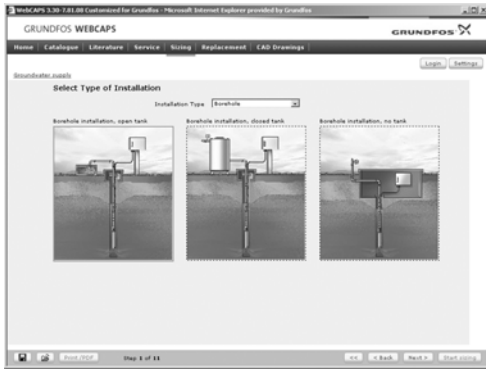
This section contains all the latest documents of a given pump, such as

- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



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, the section contains service videos showing you how to replace service parts.



Sizing

This section is based on different fields of application and installation examples and gives easy step-by-step instructions in how to size a product:

- 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.

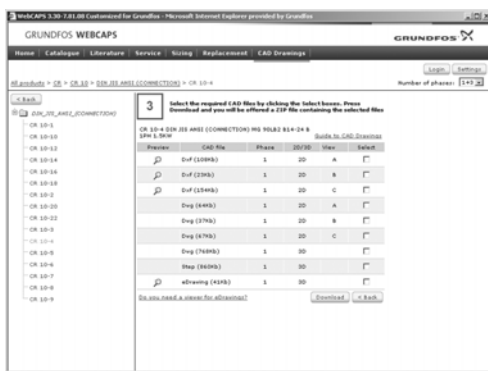


Replacement

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. 10 WinCAPS DVD

WinCAPS is a **Windows-based Computer Aided Product Selection** program containing detailed information on more than 220,000 Grundfos products in more than 30 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 DVD and updated once a year.

GO CAPS

Mobile solution for professionals on the GO!



CAPS functionality on the mobile workplace.



Subject to alterations.

be think innovate

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