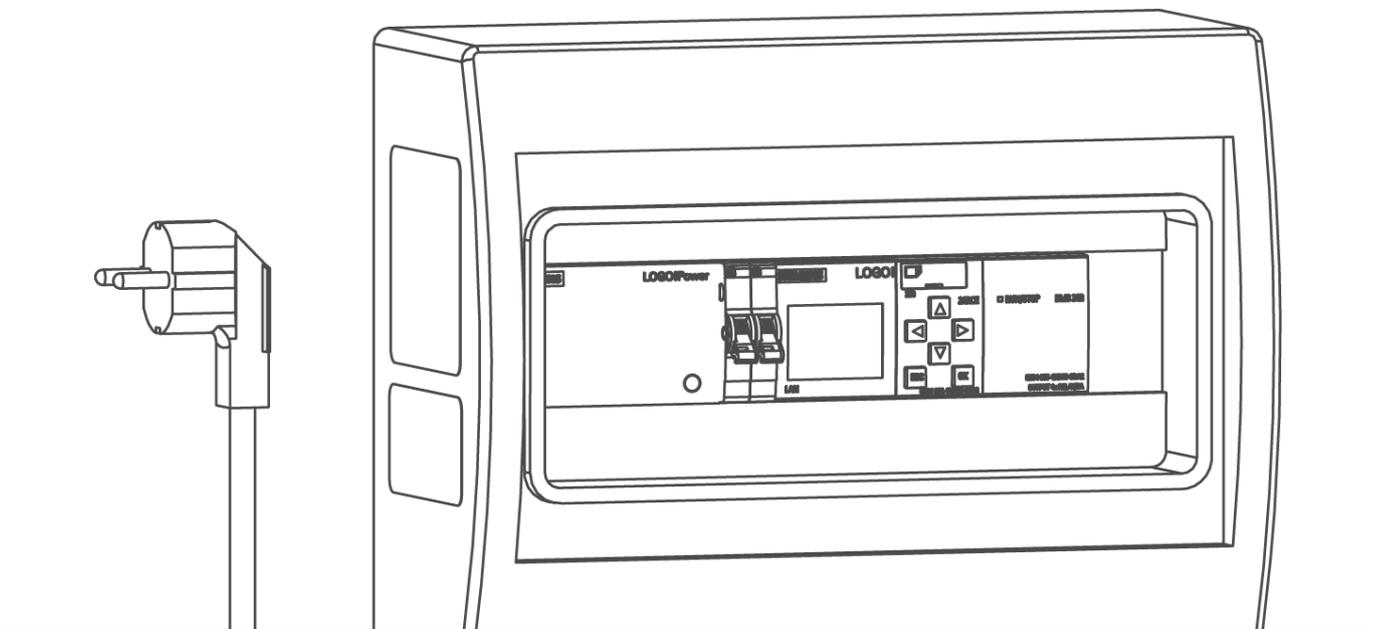


We understand water.



Reverse osmosis | Switch cabinet for controlling
2 membrane equipped systems

Operation manual

grünbeck

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We reserve the right to modifications.

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Translation of the original operation manual

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1 About this manual

1.1 Other applicable documents

The following documents are also applicable for the control cabinet for controlling 2 membrane equipped systems:

- Electrical circuit diagram
order no. TDe-DS001en
- The specific instructions used (e.g. GENO-OSMO-X, order number:
BA-750 927-inter) also apply

1.2 Target group

This manual is intended for specialist installers and owners/users.

1.3 Storage of the documents

This manual and all other applicable documents must be kept so as to be available if required.

1.4 Symbols used



This symbol identifies information and instructions that you must comply with for your personal safety as well as to avoid damage to property.



This symbol identifies instructions that you must comply with in order to avoid damage to property.



This symbol identifies important information about the product or its handling.



This symbol identifies work that may only be carried out by a specialist installer. In Germany, the installation company must be registered in an installation directory of a water supply company acc. to §12(2) AVB Wasser V (German Ordinance on General Conditions for the Supply of Water).



Tasks with this symbol are only allowed to be performed by Grünbeck's technical service/authorised service company or by specialist installers trained by Grünbeck.



This symbol identifies work that may only be carried out by electronically trained personnel according to the VDE guidelines or according to the guidelines of similar local institutions.

1.5 Typographical conventions

The following typographical conventions are used in this manual:

1.5.1 Instructions

Single-step instructions or instructions in which the sequence is unimportant are indicated as follows:

▶ Action

Multi-step instructions where the sequence of the actions must be observed are indicated as follows:

1. First step
 - a First step of the first action
 - b Second step of the first action
2. Third step

Results of an instruction are indicated as follows:

» Result

1.5.2 Lists

Bullet symbols used:

- First list point (level 1)
 - First bullet point (level 2)
 - Second bullet point (level 2)
- Second list point (level 1)

1.6 Validity of the manual

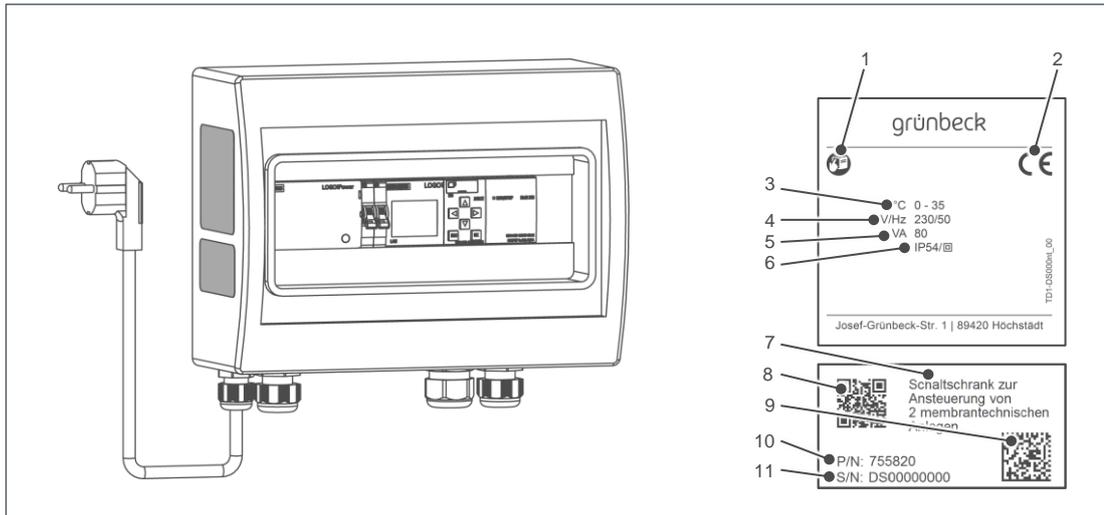
This manual applies to the following products:

- Reverse osmosis switch cabinet for controlling 2 membrane equipped systems

1.7 Type plate

The type plate is located on the left side of the housing.

Please specify the data shown on the type plate in order to speed up the processing of your enquiries or orders. Therefore, add the serial number below in order to have the necessary data available at all times.



Item	Designation	Item	Designation
1	Observe operation manual	2	CE mark
3	Ambient temperature	4	Power supply
5	Power input	6	Index of protection
7	Product designation	8	QR code
9	Data matrix code	10	Order no.
11	Serial no.		

- Product designation: Switch cabinet for controlling 2 membrane equipped systems
- Order no.: 755 820
- Serial no.: _____

2 For your safety



WARNING: Contamination of drinking water due to improper handling.

- Risk of infectious diseases.
- ▶ Have the installation, commissioning and annual maintenance carried out exclusively by specialist installers.

2.1 Safety measures

- Carefully read this manual before operating your product.
- Install the product in a frost-free room. Otherwise, the system may suffer irreparable damage. The consequence can be a water damage.
- Only use genuine spare parts for maintenance or repair. If unsuitable spare parts are used, the warranty for your product will be void.
- Do not use products which have a damaged power supply cable. This can lead to injuries due to electric shock. Have damaged power supply cables replaced without delay.
- Comply with the hygiene instructions in chapter 7. Failure to comply can result in microbiological contamination of your drinking water installation.
- Only have persons working on your system that have read and understood the present manual and that are qualified to do such work due to their vocational training.
- Only operate the product if all components are installed properly.
- Safety device must never be removed, bridged or otherwise tampered with.

2.2 Technical safety instructions

This manual contains information and instructions that you must comply with for your own personal safety as well as to avoid damage to property. The information and instructions are highlighted by a warning triangle and have the following structure:



CAUTION: Type and source of danger.

- Possible consequences
- ▶ Preventive measures

The following signal words were defined subject to the degree of danger and can be used in the present document:

- **DANGER** means that serious or fatal injuries will occur if the corresponding precautionary measures are not taken.
- **WARNING** means that serious or fatal injuries may occur if the corresponding precautionary measures are not taken.
- **CAUTION** means that minor injuries may occur if the corresponding precautionary measures are not taken.
- **NOTE** (without a warning triangle) means that damage to property can occur if the corresponding safety measures are not taken.

2.3 Regulations

Comply with the following regulations and directives, amongst others, during installation and start-up:

- Statutory regulations on environmental protection
- Provisions of the employers' liability insurance associations
- DIN EN 806 Specifications for installations inside buildings conveying water for human consumption
- VDI 6023 Part 6

2.4 Responsibilities of the specialist installer and/or the specialist company

Comply with the following specifications to ensure correct and safe function of the product:

- Only perform activities described in this manual.
- Perform all activities in accordance with all applicable standards and regulations.
- Brief the owner/user on the function and operation of the product.
- Advise the owner/user of the maintenance of the product.
- Inform the owner/user about possible dangers that can arise during the operation of the product.

2.5 Responsibilities of the owner-user

Comply with the following specifications to ensure correct and safe function of the product:

- Only entrust qualified experts such as specialist installers or specialist companies with installation, start-up and maintenance.
- Have the product explained by the specialist installer.
- Only perform activities described in this manual.
- Do not carry out any activities that are explicitly indicated for a specialist installer.
- Only use this product in accordance with its designated application.
- Make sure that the required inspection and maintenance work is carried out.
- Keep this manual.

2.6 Safety information for the specific system



WARNING: Do not touch electrical components with wet hands.

- Risk of electric shock.
 - ▶ Pull the mains plug prior to working on electrical system components!
-

3 Product description

The control cabinet for controlling 2 membrane equipped systems is designed for 2 systems connected in parallel. The electrical signal exchange required for START/STOP of the membrane equipped systems takes place via this control cabinet.

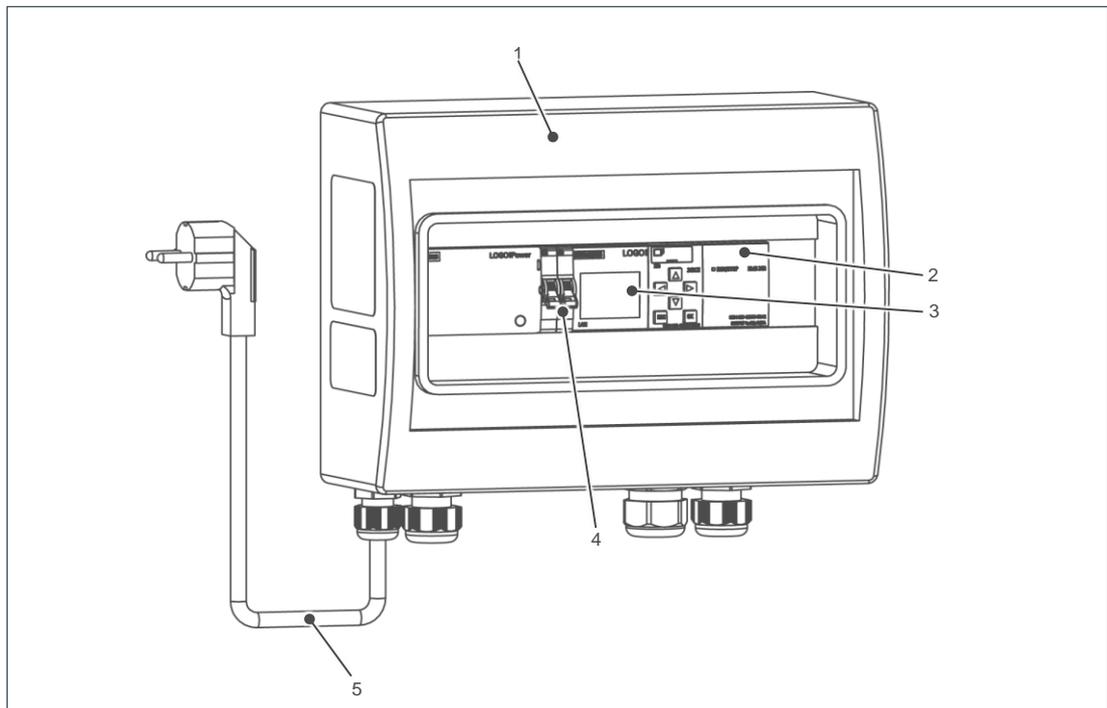
3.1 Intended use

Application examples for the connection of two membrane equipped systems:

- GENO®-OSMO-MSR
- GENO®-OSMO-X
- GENO®-OSMO-X with permeate stage
- GENO®-OSMO-X AVRO
- GENO®-NANO-X
- GENO®-OSMO-HL
- GENO®-OSMO-HLX
- GENO®-OSMO-RKF
- GENO®-EDI
- GENO®-EDI-kompakt
- GENO®-EDI-X
- GENO®-OSMO-AVRO125
- GENO®-OSMO-RO-125K
- GENO®-Ultrafil

Other constellations on request.

3.2 Product components



Item	Designation	Item	Designation
1	Control cabinet housing made of plastic for wall mounting	2	Programmable Siemens LOGO controller with display
3	Visual indicator of operating and fault signals; colour switching between "Operation" (white), "Warning" (yellow) and "Fault" (red)	4	Selector switch for operating mode
5	Power supply cable with plug, length 2 m		

3.3 Functional description

The level control and residual hardness monitoring device contacts are doubled in the control cabinet. Depending on the position, the operating mode switch enables parallel or individual operation of the membrane equipped systems.

3.3.1 Parallel operation

Set switch 4S1 (1 = parallel operation, 0 = off, 2 = individual operation) to 1 = parallel operation.

In parallel operation, 3 switching points are required:

After the level falls below the requirement level (tank min.), both membrane equipped systems are started.

When the full level is reached (tank full), both membrane equipped systems stop.

If the level falls below the lowest level (tank dry-run protection), a visual and voltage-free warning signal is issued for further processing → dry-run protection for pressure booster system.

The pressure booster system is released again with a time delay (adjustable) as soon as the water level exceeds this level.

If a residual hardness monitoring device is connected, both membrane equipped systems are STOPPED in the event of a residual hardness fault. After fault rectification and fault acknowledgement on the residual hardness monitoring device or on the membrane equipped systems, operation is resumed (set switch 4S2 (1 = base load changeover function, 0 = time change function) to 0 or 1).

3.3.2 Individual operation

Set switch 4S1 (1 = parallel operation, 0 = off, 2 = individual operation) to 2 = individual operation.

In individual operation, 3 switching points are required:

After the level falls below the requirement level (tank min.), one membrane equipped system is started.

When the full level is reached (tank full), the membrane equipped system stops.

The membrane equipped systems alternate after each requirement (base load changeover, adjustable via 4S2). Alternatively, it is possible to set the load change of the membrane equipped systems using an adjustable time interval. In both cases, the system automatically switches over to the second system in the event of a fault in the membrane equipped system in operation. The fault is indicated and made available by a voltage-free collective fault signal.

If the level falls below the lowest level (tank dry-run protection), a visual and voltage-free warning signal is issued for further processing → dry-run protection for pressure booster system.

The pressure booster system is released again with a time delay (adjustable) as soon as the water level exceeds the level (tank dry-run protection).

If a residual hardness monitoring device is connected, both membrane equipped systems are STOPPED in the event of a residual hardness fault. Operation is resumed after fault rectification and fault acknowledgement on the residual hardness monitoring device or on the membrane equipped systems.

3.3.3 Individual operation with peak load function

Set switch 4S1 (1 = parallel operation, 0 = off, 2 = individual operation) to 2 = individual operation, set switch 4S2 (1 = base load changeover function, 0 = time change function) to 0 or 1.

In individual operation with peak load function, 4 switching points are required:

After the level falls below the requirement level (tank min.), one membrane equipped system is started.

If the water level continues to drop, the second membrane equipped system starts operation after the level has fallen below the additional level (tank empty).

When the water level exceeds the additional level (tank empty) again, the membrane equipped system last connected to it stops with a time delay (adjustable).

When the full level is reached (tank full), the first membrane equipped system stops.

At the next request (tank min.) the membrane equipped systems are automatically changed over. If one membrane equipped system fails due to a fault, operation is maintained by the other system. The fault is indicated and made available by a voltage-free collective fault signal.

If the level falls below the lowest level (tank dry-run protection), a visual and potential-free warning message is issued for further processing → dry-run protection for pressure booster system.

The pressure booster system is released again with a time delay (adjustable) when the water level exceeds the level (tank dry-run protection).

If a residual hardness monitoring device is connected, both membrane equipped systems are STOPPED in the event of a residual hardness fault. Operation is resumed after fault rectification and fault acknowledgement on the residual hardness monitoring device or on the membrane equipped systems.

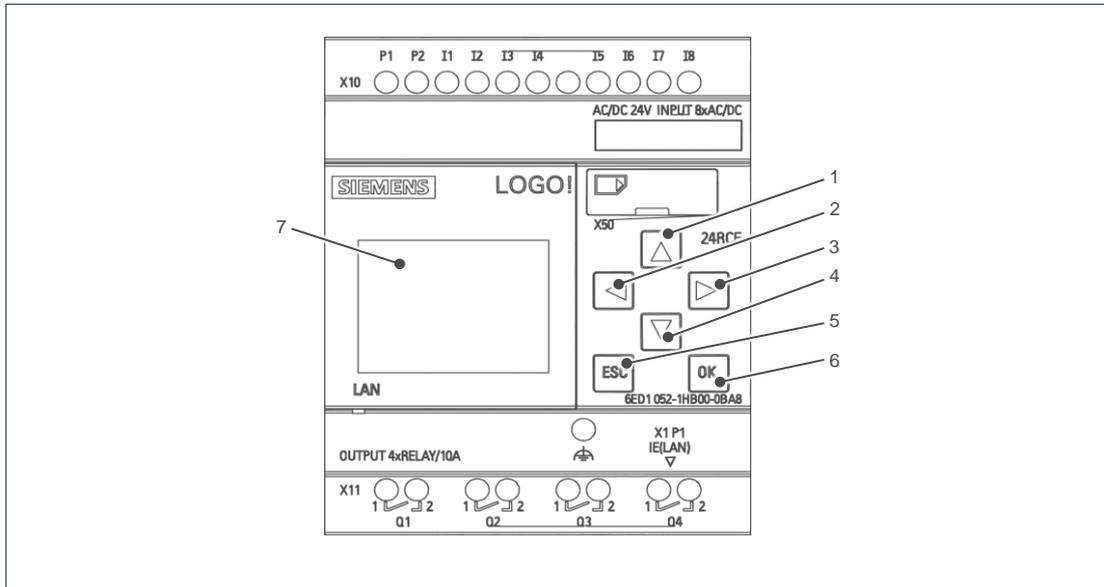
3.3.4 Signal outputs

Empty signal voltage-free on terminal (as dry-run protection for a pressure booster system).

Collective fault signal voltage-free on terminal for forwarding to customer.

4 Control unit

4.1 Overview

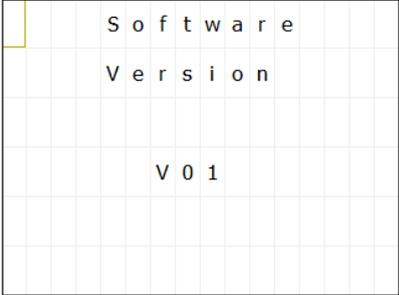
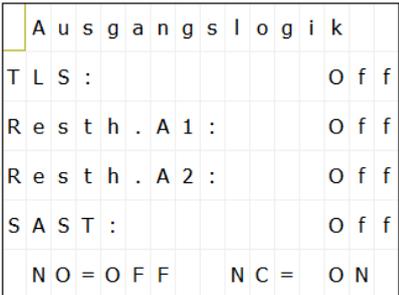


Item	Designation	Item	Designation
1	▲ Up arrow button	2	▼ Left arrow button
3	◀ Right arrow button	4	▶ Down arrow button
5	ESC button	6	OK button
7	Display		

4.2 Display

Step	Description
ESC button	Call up menu level
▼ or ▲	Navigating in the menu level
◀ or ▶	Navigating in the menu level
OK button	Confirm the entry
ESC button	Back to the menu level

4.3 Menu structure

Display	Explanation
<p>Software version</p> 	<p>Shows the software version installed on the LOGO controller.</p>
<p>Operating status</p> 	<p>Shows the operating status of the systems as well as the function.</p> <p>Operating status: Standby/operation</p> <p>Function GLW = base load changeover/ZW = time-controlled changeover</p> <p><i>Anlage 1 = system 1</i></p> <p><i>Anlage 2 = system 2</i></p> <p><i>Funktion = function</i></p>
<p>Output logic</p> 	<p>Parameter setting of the switching outputs. Factory setting of the outputs, refer to picture on the left.</p> <p>OFF = NO = Normally open.</p> <p>ON = NC = Normally closed.</p> <p>Use the  or  buttons to navigate to the desired output.</p> <p>Press and hold the  button for 2 seconds (window is highlighted in black).</p> <p>Press the  button (black window flashes).</p> <p>TLS = dry-run protection</p> <p>SAST = collective fault</p> <p><i>Ausgangslogik = Output logic</i></p> <p><i>Resth A1 = Residual hardness A1</i></p> <p><i>Resth A2 = Residual hardness A2</i></p>

Display	Explanation
Times	Parameter setting of the times.
	<p>Factory setting, refer to picture on the left.</p> <p>s = seconds h = hours</p> <p>Press and hold the ESC button for 3 seconds (window is highlighted in black).</p> <p>Use the ▼ or ▲ buttons to navigate to the desired time.</p> <p>Press the OK button (black window flashes).</p> <p>Use the ▼ or ▲ buttons to navigate to the desired time.</p> <p>Set the time with the ▼ or ▲ buttons.</p> <p>Press the OK button to confirm.</p> <p>Press the ESC button to return to the menu level.</p>
<p><i>Verzögerung TLS = Delay dry run protection</i></p> <p><i>Umschaltzeit = Switch-over-time</i></p>	

5 Installation

5.1 Requirements in relation to the installation site

Observe local installation directives, general guidelines and technical specifications. A shock-proof socket is required for electrical installation.

The following components must be present:

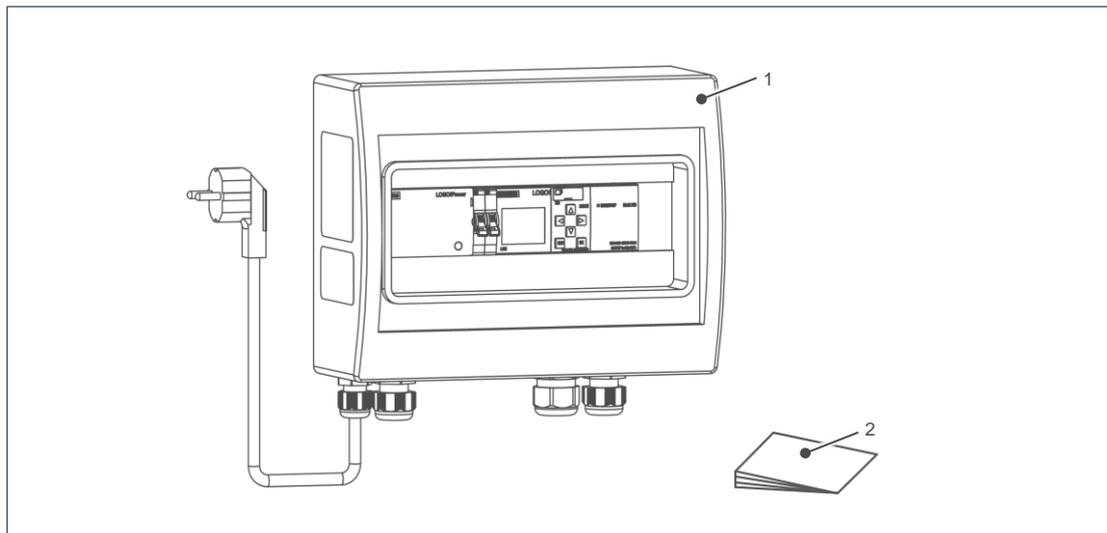
- A common water supply line with division into 2 membrane equipped systems
- A downstream collection tank with a level control
- Level control with 3 or 4 voltage-free switching contacts
- Residual hardness measurement with voltage-free fault signal (option)



Note: The system will not function without continuous power supply.

- No soft water will be available if the system is operated without power.
- ▶ Do not interconnect the socket with a light switch, heating emergency switch or the like.

5.2 Checking the scope of supply



Item	Designation	Item	Designation
1	Switch box with fastening material	2	Operation manual

- ▶ Check the scope of supply for completeness and possible damage.

5.3 Installing the product



The installation work is only allowed to be performed by Grünbeck's technical service/authorised service company or by specialist installers trained by Grünbeck.

- ▶ Install the product according to the informations in the electrical diagramsupplied with the device

6 Start-up

6.1 How to start up the product



The start-up may only be carried out by Grünbeck's technical service/authorised service company or by specialist installers trained by Grünbeck.

- ▶ Adjust the switching points of the inputs and outputs to the customer's requirements (refer to chapter 4).

6.2 Handing over the product to the owner/user

1. Proceed as follows during the handover of the product:
2. Inform the owner/user about the function of the control cabinet for controlling 2 membrane equipped systems.
3. Hand over all documents to the owner/user for keeping.
4. Use the manual to brief the owner/user, and answer any questions.
5. Inform the owner/user about the need for inspections and maintenance.

7 Cleaning

1. Only clean the outside of the product.
2. Do not use any strong or abrasive cleaning agents, because they can damage the surface.
3. Wipe the housing with a damp cloth.

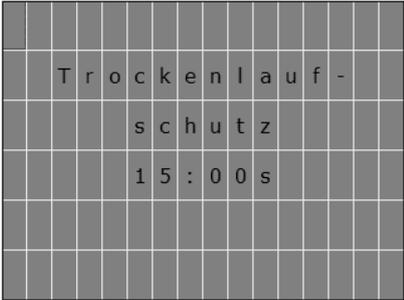
8 Malfunction

The control cabinet for controlling 2 membrane equipped systems indicates malfunctions on the display. If malfunctions do occur that cannot be remedied by the instructions given below, contact Grünbeck's technical service/authorised service company.

- ▶ Keep your equipment data (refer to chapter 1.7) ready.

8.1 Display messages

8.1.1 Warning messages

Display	Explanation	Remedy
Dry-run protection 	Tank empty. Dry-run protection active.	The indicated time starts to count down as soon as the filling level is exceeded again. Release takes place automatically after the time has elapsed.

8.1.2 Error messages



Troubleshooting information can be found in the "Malfunctions" chapter of the enclosed specific operation manual.

Display	Explanation	Remedy
<p>Malfunction of the systems</p>	<p>Indicates which system is malfunctioning</p>	<p>After the fault has been rectified in the system, this display disappears automatically, no acknowledgement required.</p>
<p>Fault residual hardness measurement</p>	<p>Indicates the malfunction of the residual hardness monitoring device.</p>	<p>After the fault has been rectified on the residual hardness monitoring device, this display disappears automatically, no acknowledgement required.</p>

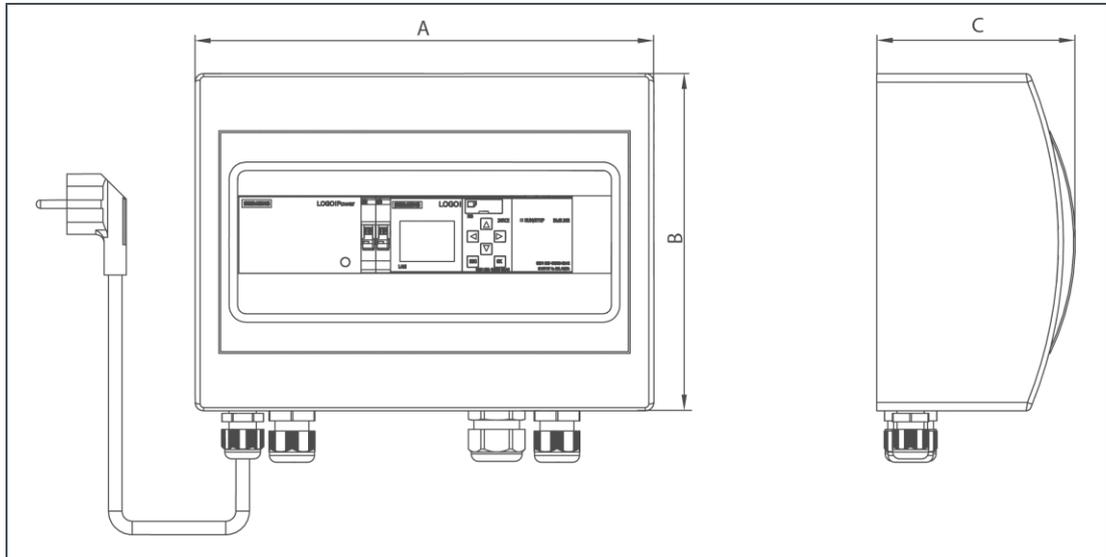
9 Disposal

1. Do not dispose of the packaging, the product and/or the accessories with the domestic waste.
2. Comply with the applicable national regulations for disposal.
3. Make sure that the packaging, the product and the accessories are disposed of properly.

10 Technical data



Only digital signals (voltage-free contacts) can be used for interface processing.
Analog signals (4 – 20 mA or 0 – 10 V) are incompatible for this.



Dimensions and weights

A	Housing width	[mm]	270
B	Housing height	[mm]	200
C	Housing depth	[mm]	110
	Operating weight (incl. transformer, adapter)	[kg]	2
	Shipping weight, approx.	[kg]	2.5

Connection data

Power supply	[V]/[Hz]	230/50
Max. electrical power input	[VA]	80
Protection/protection class		IP 54/⊕

Performance data

Max. output of voltage-free outputs	[V~/A]	230/0.5
Output voltage-free alarm value contact	[V~/A]	230/1

General data

Ambient temperature	[°C]	0 – 35
Relative humidity	[%]	70 (non-condensing)
Order no.		755 820

EU Declaration of Conformity

In accordance with the EU Low-Voltage Directive 2014/35/EU, Appendix IV



This is to certify that the system designated below meets the safety and health requirements of the applicable European guidelines in terms of its design, construction and execution.

This certificate will become invalid if the system is modified in a way not approved by us.

Switch cabinet for controlling 2 membrane equipped systems

Serial no.: refer to type plate

The aforementioned system also complies with the following directives and provisions:

- EMC (2014/30/EU)

The following harmonised standards have been applied:

- DIN EN 61000-6-2:2006-03
- DIN EN 61000-6-3:2011-09
- DIN EN 61010-1:2011-07

The following national standards and regulations have been applied:

— —

Responsible for documentation:

Roland Rehberger

Manufacturer

Grünbeck Wasseraufbereitung GmbH
Josef-Grünbeck-Str. 1
89420 Hoechstädt/Germany

Hoechstädt; Germany, 17.05.2017

A handwritten signature in black ink, appearing to read 'P. Höß', with a stylized flourish at the end.

Peter Höß
Head of System Development

Notes

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