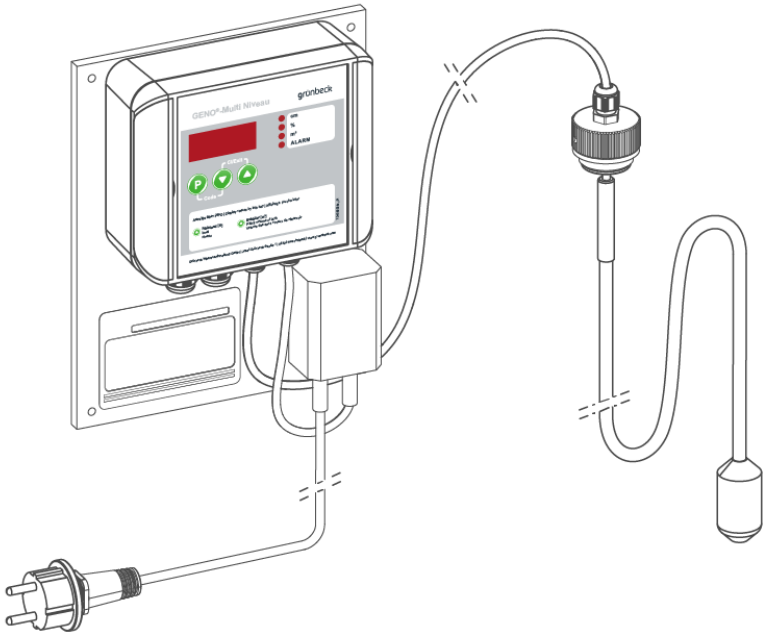
We understand water.



Filling level indicator | GENO-Multi Niveau

Operation manual

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Monday to Thursday
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Table of contents

1 Introduction

This manual is intended for owners/operators/operating companies, users as well as qualified specialists and ensures the safe and efficient handling of the product. The manual is an integral part of the product.

- Carefully read this manual and the included manuals on the components before you operate your product.
- Obey all safety and handling instructions.
- Keep this manual and all other applicable documents, so that they are available when needed.

Illustrations in this manual are for basic understanding and can differ from the actual design.

1.1 Validity of the manual

This manual applies to the product below:

- Filling level indicator GENO-Multi Niveau with level probe

1.2 Other applicable documents

- Manuals for components from other manufacturers

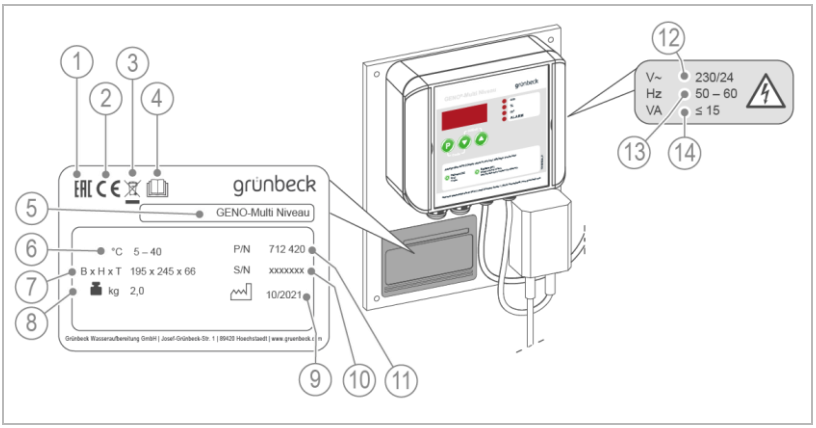
1.3 Product identification

You can identify your product based on the product designation and the order no. indicated on the type plate.

► Check whether the products indicated in chapter 1.1 correspond to your product.

The type plate of the filling level indicator GENO-Multi Niveau is located on the fastening plate.

The label with the technical data is on the right side of the housing.

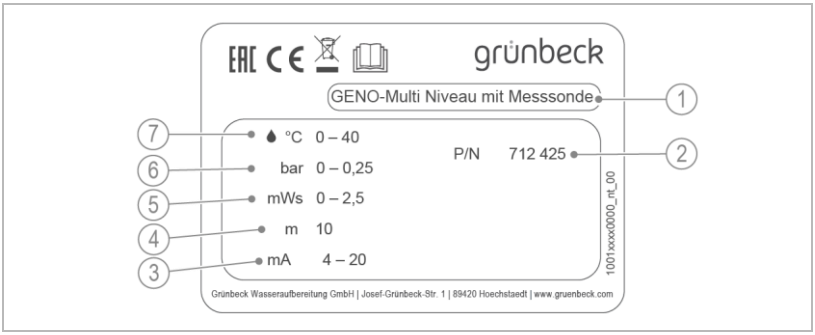


	Designation
1	EAC test mark
2	CE mark
3	Disposal information
4	Obey the operation manual
5	Product designation
6	Ambient temperature
7	Dimensions

	Designation
8	Operating weight
9	Date of manufacture
10	Serial no.
11	Order no.
12	Power supply
13	Rated frequency
14	Power input

The type plate for the complete filling level indicator GENO-Multi Niveau with level probe is enclosed in the cardboard box.

► Stick this type plate on the basic pure water tank close to the level probe.



	Designation
1	Product designation
2	Order no.
3	Signal output
4	Cable length of level probe

	Designation
5	Measuring range in mWC
6	Measuring range in bar
7	Water temperature

1.4 Symbols used

Symbol	Meaning
	Danger and risk
	Important information or requirement
	Useful information or tip
	Written documentation required

Symbol	Meaning
	Reference to further documents
	Work that must be carried out by qualified specialists only
	Work that must be carried out by qualified electricians only
	Work that must be carried out by technical service personnel only

1.5 Depiction of warnings

This manual contains information and instructions that you must obey for your personal safety. The information and instructions are highlighted by a warning symbol and are structured as shown below:

SIGNAL WORD Type and source of hazard

- Possible consequences

► Preventive measures

The signal words below are defined subject to the degree of danger and might be used in the present document:

Warning symbol and signal word		Consequences if the information/ instructions are ignored	
	**DANGER**	Personal injury	Death or serious injuries
	**WARNING**		Possible death or serious injuries
	**CAUTION**		Possible moderate or minor injuries
	NOTE	Damage to property	Possible damage to components, the product and/or its functions, or an object in its vicinity

1.6 Demands on personnel

During the individual life cycle phases of the product, different people carry out work on the product. This work requires different qualifications.

1.6.1 Qualification of personnel

Personnel	Requirements
User	• No special expertise required • Knowledge of the tasks assigned • Knowledge of possible dangers in case of incorrect behaviour • Knowledge of the required protective equipment and protective measures • Knowledge of residual risks
Owner/operator/ operating company	• Product-specific expertise • Knowledge of statutory regulations on work safety and accident prevention
Qualified specialist • Electrical engineering • Sanitary engineering (HVAC and plumbing) • Transport	• Professional training • Knowledge of relevant standards and regulations • Knowledge of detection and prevention of potential hazards • Knowledge of statutory regulations on accident prevention
Technical service (Grünbeck's technical service/ authorised service company)	• Extended product-specific expertise • Trained by Grünbeck

1.6.2 Authorisations of personnel

The table below describes which tasks may be carried out by whom.

	User	Owner/ operator/ operating company	Qualified specialist	Technical service
Transport and storage		X	X	X
Installation and mounting			X	X
Start-up/commissioning			X	X
Operation and handling	X	X	X	X
Cleaning	X	X	X	X
Inspection	X	X	X	X
Maintenance semi-annually		X	X	X
annually			X	X
Troubleshooting		X	X	X
Repair			X	X
Decommissioning and restart/recommissioning			X	X
Dismantling and disposal			X	X

1.6.3 Personal protective equipment

► As an owner/operator/operating company, make sure that the required personal protective equipment is available.

The components below fall under the heading of personal protective equipment (PPE):

Protective gloves

2 Safety

2.1 Safety measures

- Only operate your product if all components are installed properly.
- Obey the local regulations on drinking water protection, accident prevention and occupational safety.
- Do not make any changes, alterations, extensions or program changes on your product.
- Only use genuine spare parts for maintenance or repair.
- Keep the premises locked against unauthorised access to protect imperilled or untrained persons from residual risks.
- Comply with the maintenance intervals (refer to chapter 8.2). Failure to comply can result in the microbiological contamination of your drinking water system.

2.1.1 Mechanical hazards

- You must never remove, bridge, or otherwise tamper with safety equipment.
- Make sure that the product is securely fastened on the wall or on the tank and that this is guaranteed at all times.

2.1.2 Electrical hazards

- There is an immediate danger of fatal injury from electric shock when touching live parts. Damage to the insulation or individual components can be lethal.
- Only have qualified electricians carry out electrical work on the product.
- In case of damage to live components, switch off the voltage supply immediately and arrange for repair.
- Switch off the supply voltage before working on electrical system parts. Discharge residual voltage.
- Never bridge electrical fuses. Do not disable fuses. Use the correct current ratings when replacing fuses.
- Keep moisture away from live parts. Moisture can cause short-circuits.

2.1.3 Groups of persons requiring protection

- This product is not designed to be used by persons (including children) with reduced capabilities, lack of experience or lack of knowledge.

2.2 Product-specific safety instructions

WARNING Lethal voltage

- Severe burns, cardiovascular failure, fatal electric shock
- ► Only have qualified electricians carry out electrical work on the product.
- ► Only open the housing of the device when the device is de-energised.

Labels on the product

Risk of electric shock

The affixed information and pictograms must be clearly legible.
They must not be removed, soiled or painted over.

- ► Obey all warnings and safety instructions.
- ► Immediately replace illegible or damaged symbols and pictograms.

2.3 Conduct in emergencies

2.3.1 In case of water leaks

1. Disconnect the system from the power supply – unplug the mains plug.
2. Locate the leak.
3. Eliminate the cause of the water leak.

3 Product description

3.1 Intended use

- The filling level indicator GENO-Multi Niveau is used in the industrial and commercial sector to indicate the filling level of permeate/pure water tanks.
- The filling level indicator GENO-Multi Niveau is used in the swimming pool sector to indicate the filling level of raw water tanks.

3.1.1 Application limits

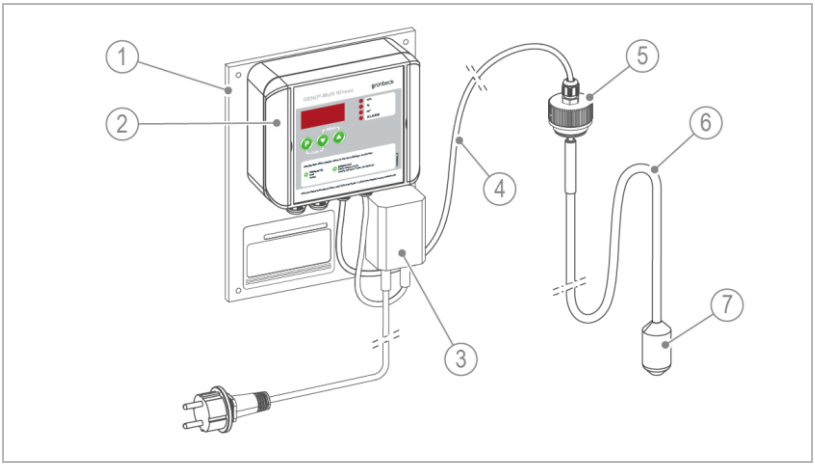
When using a tank from another manufacturer, make sure that the tank can be filled smoothly and steadily, so that the filling level does not fluctuate too much due to wave action.

- When using a suitable level probe or a suitable pressure transducer, a filling height in the range of 100 – 1000 cm can be indicated as well.
- Only tanks with linearly increasing filling volume can be evaluated.
- Cylindrical tanks lying in a horizontal position as well as spherical or conical tanks cannot be evaluated.

3.1.2 Foreseeable misuse

- Use in sea or salt water pools

3.2 Product components



	Designation	Function
1	Fastening plate	• To fasten the GENO-Multi Niveau · With reclosable fasteners on the back for installation on the tank · With 4 bores for wall mounting
2	Filling level indicator	• Control unit to display the filling level, the filling height and the filling volume of the tank • Parameter programming
3	Transformer	• Power supply unit for converting the mains voltage 230 V AC to 24 V AC • Mains line of 2 m in length with Schuko plug
4	Cable of level probe	• Connection to GENO-Multi Niveau
5	Tank feed-through	• For fastening the level probe on the tank
6	Protective hose	• Feed-through into the tank · The length depends on the design of the measuring probe
7	Level probe	• Measurement of water pressure

3.3 Functional description

The filling level indicator GENO-Multi Niveau is designed to measure and display the filling level in permeate/pure water or raw water tanks.

Membrane systems, pressure booster systems or pool water systems and make-up water feed systems can be controlled via programmable switching contacts.

Pressure measurement

By means of a level probe at the bottom of the tank, the pressure generated by the water column is registered and emitted as a 4 – 20 mA signal.

The filling level indicator GENO-Multi Niveau converts the pressure signal into a filling height (cm), a filling level (%) or a filling volume (m^3).

4 Transport and storage

4.1 Transport

- ► Transport the product in its original packaging only.
- ► Protect the product from frost or high temperature during transport.
- ► Upon receipt, check the product for completeness and transport damage.

4.2 Storage

- ► Protect the product from the impacts below when storing it:
  - Dampness, moisture
  - Environmental impacts such as wind, rain, snow, etc.
  - Frost, direct sunlight, severe heat exposure
  - Chemicals, dyes, solvents and their vapours

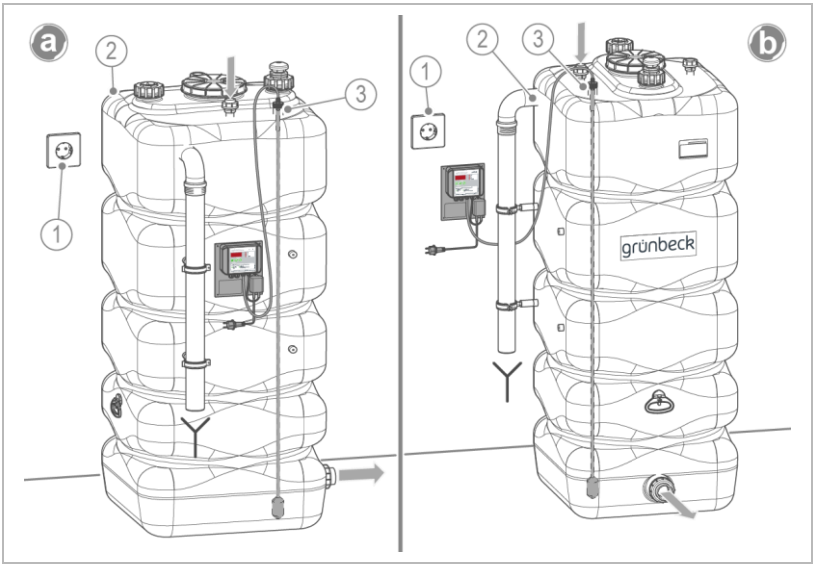
5 Installation

The installation of the product must be carried out by a qualified specialist only.

WARNING Actuation of an on-site solenoid valve

- The coil of the solenoid valve can become hot
- Burns at temperatures of > 50 °C
- ► Check whether protection against direct contact with the solenoid valve is required on site.

Installation examples



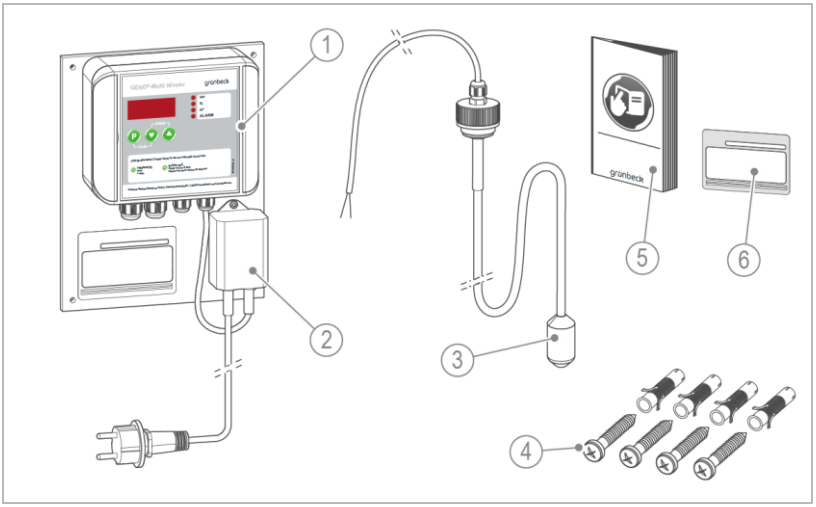
	Designation
8	Schuko socket
9	Tank, e.g. GT 1000
10	Connection for level probe

	Designation
a	Installation on the tank
b	Wall mounting

5.1 Requirements for the installation site

- The installation site must be frost-proof and ensure the product's protection from direct sunlight, chemicals, dyes, solvents and their vapours, etc.
- The installation site must be adequately illuminated and ventilated.
- The installation site must be easily accessible for maintenance purposes.
- In case of wall mounting, the distance between the filling level indicator and the level probe must not exceed max. 2.5 m due to the allowable length of the cable.
- For the electrical connection, a Schuko socket (230 V/50 Hz) is required within a range of approx. 1.6 m of the product.

5.2 Checking the scope of supply



	Designation
1	Filling level indicator GENO-Multi Niveau (mounted on fastening plate)
2	Transformer with Schuko plug (mounted on fastening plate)
3	Level probe with 10 m cable incl. tank feed-through (1" male thread)

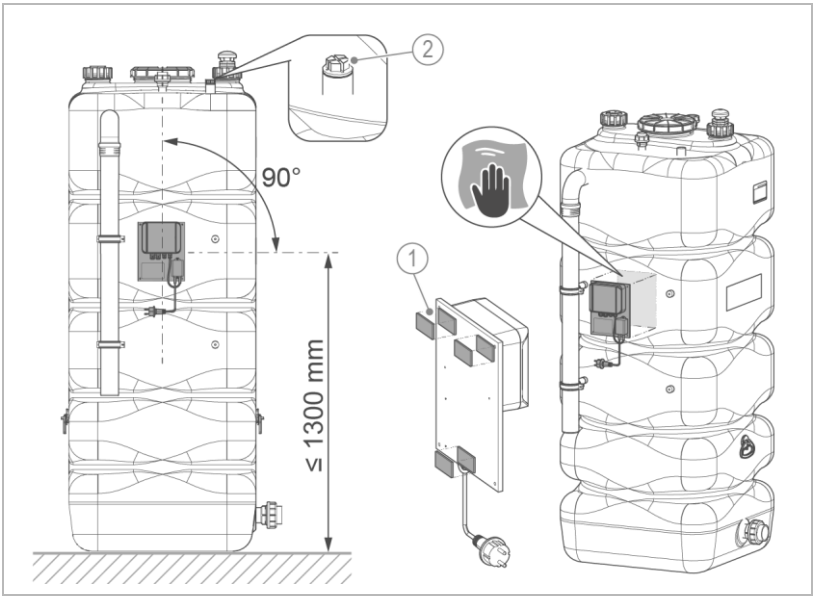
	Designation
4	Fastening material: 3x Reclosable fastener on the fastening plate (for installation on the tank) or 4x screws with dowels (for wall mounting)
5	Operation manual
6	Type plate for tanks with level probe (for order no. 712 425 and 712 465 only)

► Check the scope of supply for completeness and damage.

5.3 Water installation

5.3.1 Installing the filling level indicator on the tank

At the factory, reclosable fasteners (3 pcs) are affixed to the back of the fastening plate.



	Designation		Designation
1	3x Reclosable fasteners, self-adhesive	2	Threaded plug for level probe

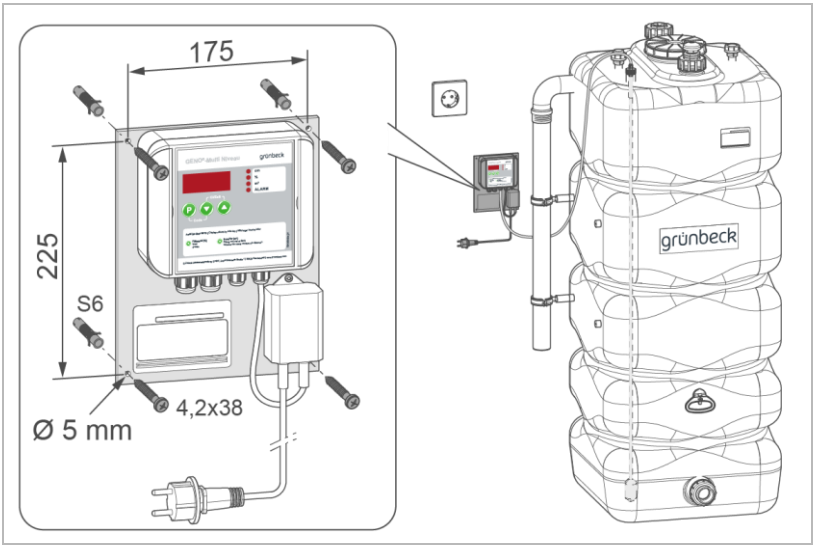
4. Select a suitable and easily accessible location on the tank.
   - **a** Make sure that this area is even and ensures adhesive bonding of the reclosable fasteners.
   - **b** Clean the area where the self-adhesive reclosable fasteners are to be affixed.

c Dry the area where the reclosable fasteners are to be affixed.

5. Remove the protective foils from the reclosable fasteners.
6. Align the fastening plate vertically.
7. Firmly press the fastening plate with the reclosable fasteners into place.
8. Check that the fastening plate is firmly attached.

5.3.2 Installing the filling level indicator on the wall

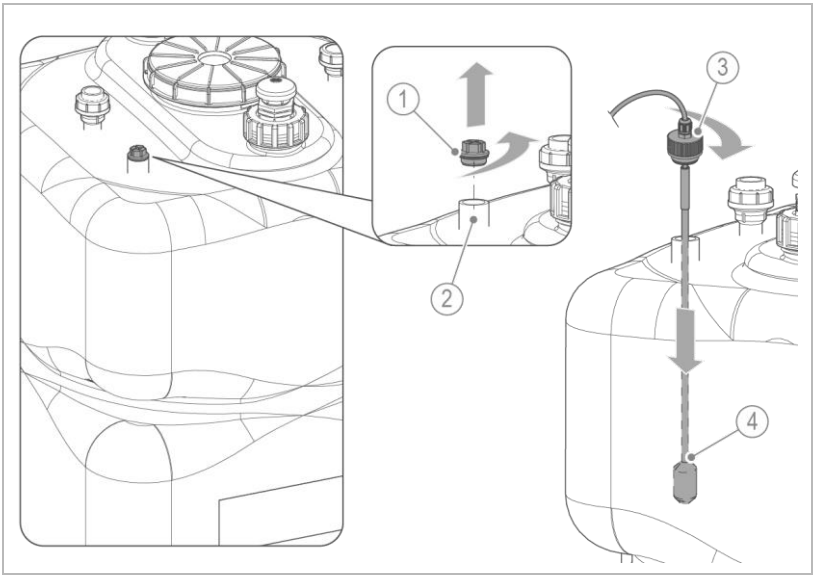
Prior to installing the device on the wall, check whether the distance of max. 2.5 m between the filling level indicator and the level probe can be maintained.



1. Select a suitable and easily accessible location on the wall.
2. Align the fastening plate vertically.

3. Install the fastening plate on the wall using the screws and dowels provided with the device.
4. Check the installation for a firm hold.

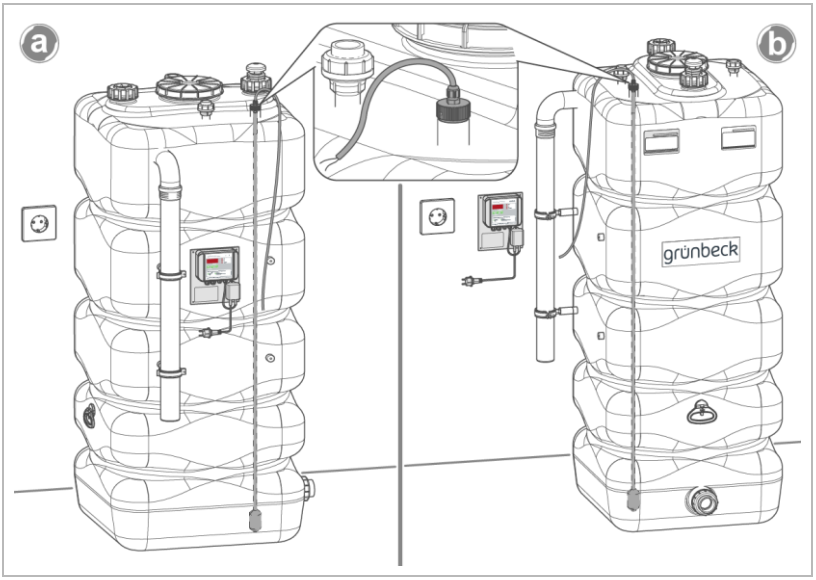
5.3.3 Inserting the level probe into the tank



	Designation
1	Threaded plug 1" (red)
2	Tank feed-through
3	Screw cap with seal and cable bushing

	Designation
4	Level probe with protective hose

1. Remove the red threaded plug.
2. Insert the pre-assembled level probe into the tank until the probe rests on the tank bottom.
3. Close the tank feed-through by means of the closing caps.



Designation		Designation	
a	Installation on the tank	b	Wall mounting

» The level probe is installed in the tank.

► Stick the type plate for the GENO-Multi Niveau with level probe onto the tank close to the screw cap of the level probe.

5.4 Electrical installation

The electrical installation must be carried out by a qualified electrician only.

WARNING Lethal voltage

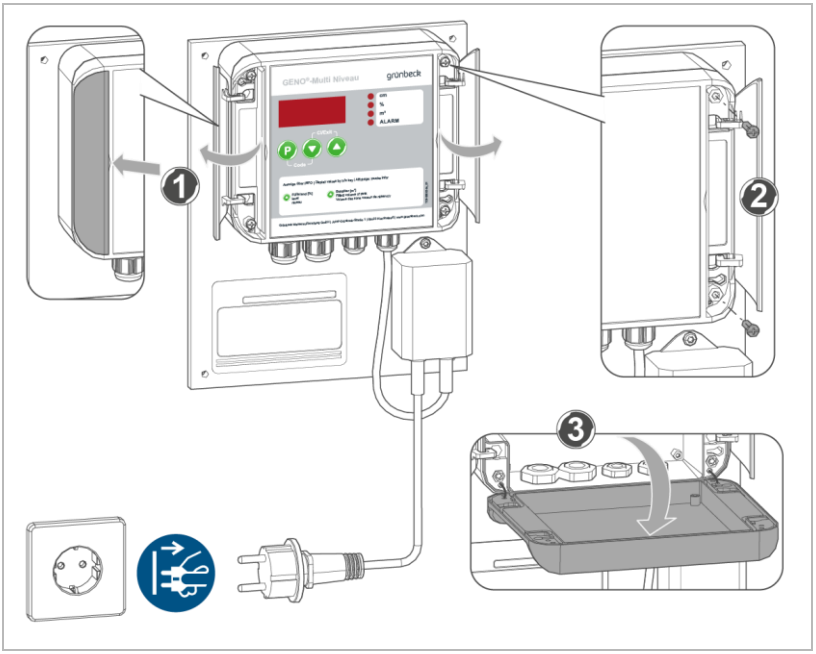
- Severe burns, cardiovascular failure, fatal electric shock
- Due to voltage-free contacts on site, external voltage can be present on the terminals even if the mains plug is unplugged

► Only open the housing of the device when the device is de-energised.

► Prior to any work on the connection terminals, check that the voltage-free contacts are de-energised.

The socket outlet for the mains cable of the transformer must be easily accessible. Unplugging the mains plug must be possible at all times.

► Prior to opening the housing, make sure that the transformer is not plugged into the socket.

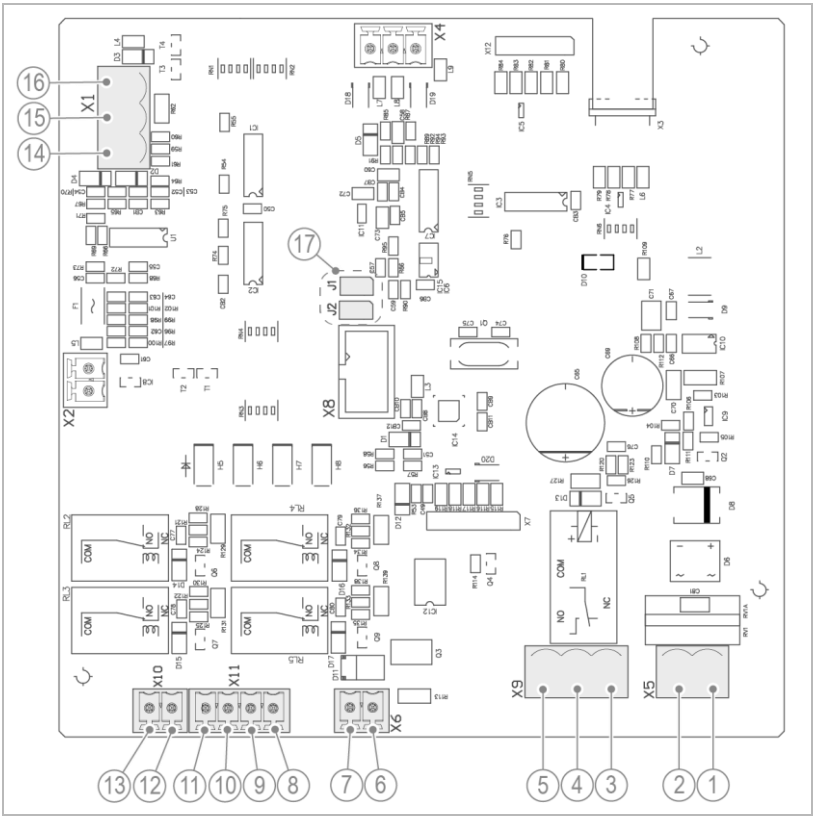


1. Flip open the right and left covers.
2. Unscrew the 4 screws of the housing cover.
3. Flip down the housing cover.

» The connection terminals on the circuit board are accessible.

5.4.1 Terminal diagram

► Using a slotted screw driver (blade max. 3 mm), connect the level probe (item X1) and the programmable contacts to the terminal openings.



Item	Term.	Function / Colour	Remarks
X5	1	L / black (BK)	Power supply 24 V / 50 Hz
	2	N / blue (BU)	
X9	3	Normally closed contact NCC	Alarm contact, contact rating 230 V~ / 1 A
	4	Normally open contact NOC	
	5	Common	
X6	6	Solenoid valve MV	Solenoid valve Make-up water feed 24 V~ / max. 14 VA (normally closed)
	7	Solenoid valve MV	
X11	8	Level d	Programmable contacts
	9	Common d	
	10	Level c	Programmable contacts a – c are galvanically isolated from d
	11	Level b	
X10	12	Level a	
	13	Common a – c	

Item	Term.	Function / Colour	Remarks
X1	14	+ 12 V / white (WH)	Level probe, the protective conductor (voltage supply) and the housing connection of the probe are jointly connected to terminal 16
	15	4–20 mA / brown (BN)	
	16	PE / yellow-green, green (YE-GN, GN)	
J1/J2	17	Both jumpers must be plugged in	

5.4.2 Connection terminals of superordinate control units

Reverse osmosis systems

GENO-Multi Niveau	GENO-OSMO-X	MSR-tronic	RO 125 / AVRO 125[1)]	HL 300/ GENO-OSMO-HLX[1)]
Common a – c	68	X1 / 115	X7 / 27	X1 / 21
Level a	69	3K1 / 39	X7 / 24	X1 / 24
Level b	70	3K1 / 40	X7 / 25	X1 / 25
Level c	71	3K1 / 41	X7 / 26	X1 / 26
	–	optional	–	–
Level d	72	3K1 / 52	–	–
Common d	68	X1 / 115	–	–
Alarm contact COM	–	–	–	–
Alarm contact NOC	–	–	–	–
Alarm contact NCC	–	–	–	–

[1)] In case of control units RO-matic and GENO-matic, levels a must be reprogrammed to normally open contact (NOC) in the programming levels of the input logic.

Filter systems

GENO-Multi Niveau	GENO-Ultrafil 450/900[1)]	BW-tronic	BWH-W
Common a – c	X1 / 22	56	–
Level a	X1 / 25	57	–
Level b	X1 / 26	55	–
Level c	–	54	–
	–		
Level d	–	52	–
Common d		53	–
Alarm contact COM	–	–	18
Alarm contact NOC	–	–	–
Alarm contact NCC	–	–	17

[1)] In case of control units RO-matic and GENO-matic, levels a must be reprogrammed to normally open contact (NOC) in the programming levels of the input logic.

Pressure booster system

GENO-Multi Niveau	GENO-FU	Time/Load switchover Switch cabinet (730 375)	GENO-FU / GENO-HR
Common a – c	–	–	–
Level a	–	–	–
Level b	–	–	–
Level c	–	–	–
	–	–	–
Level d	–	–	15
Common d	–	–	16
Alarm contact COM	Low 1	12	–
Alarm contact NOC	Low 2	13	–
Alarm contact NCC	–	–	–

For the subordinate control unit (MSR-tronic., BW-tronic) to detect a power failure on the GENO-Multi Niveau, set the programmable contacts used of levels a – b alternately as normally closed/normally open contacts (refer to chapter -31681.0.0).

In the event of a power failure on the GENO-Multi Niveau, the subordinate control unit detects an inadmissible level position and outputs a corresponding fault.

Example 1	Example 2	Example 3
a = Normally open contact NOC	a = Normally open contact NOC	a = Normally open contact NOC
b = Normally closed contact NCC	b = Normally closed contact NCC	b = Normally closed contact NCC
c = Normally open contact NOC	c = Normally open contact NOC	
d = Normally closed contact NCC		

Function of switching points

Obey the operation manuals of the respective system.

Reverse osmosis and Ultrafiltration	
a	System stops production
b	System starts production

Reverse osmosis	
c	Bypass valve Y3 opens until level a is reached
d	Dry-run protection of pressure booster

- In case of reverse osmosis systems, level d instead of c can be used for dry-run protection.

Pool water filter system (except BWH-W)	
a	In automatic operation Filtration also starts outside programmed filter run times
b	Function a stops Make-up solenoid valve closes
c	Make-up solenoid valve opens Dry-run protection of filter pump is cancelled
d	Filter pump runs dry

Pool water filter system BWH-W	
a – d	No function
Terminal 4/5	Alarm contact / Dry-run of filter pump

Level d is galvanically isolated from levels a – c and is then switched to a power unit (order no. 212 254 or 972 20 550) or to the frequency converter of the GENO-FU pressure booster systems.

Special case

For systems that only have one input for the command Production ON/OFF.

► Make the programming below (refer to chapter 7.2).

Index	Explanation
6	Switch-off point when the tank is full
A	Hysteresis for switch-off point = switch-on point

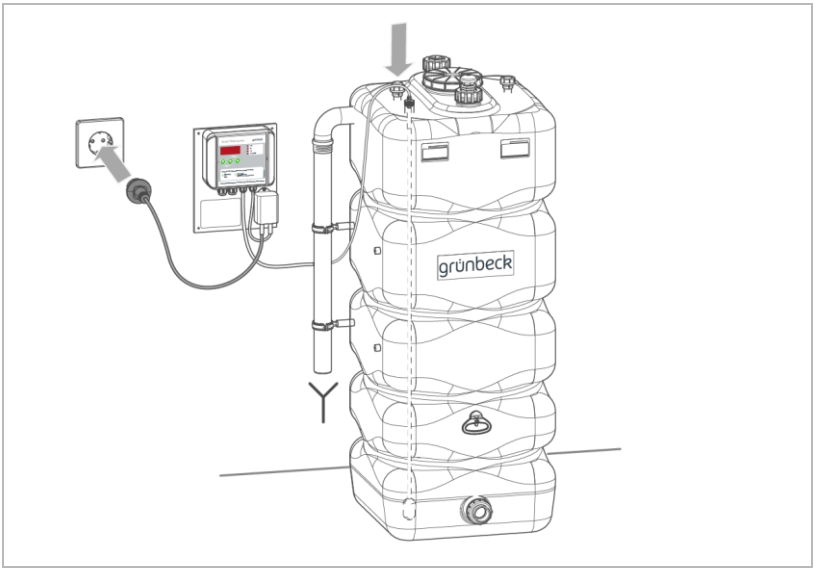
Example with factory settings	
6	80 % = System switches off at a filling level of 80 %
6 – Hysteresis (A)	80 % – 5 % = 75 % = System switches on at a filling level < 75 %

6 Start-up/commissioning

The initial start-up/commissioning of the product must be carried out by technical service personnel only.

6.1 Checking the product

In case of the basic pure water tanks GT 1000, the filling level indicator is factory-set.



1. Completely fill the tank with water.
2. Plug the mains plug into the socket.
3. Check the device for function.

» The display indicates the measured filling height in cm.

6.2 Setting the control unit

In case other tanks (except GT 1000) are used, the parameters Filling level, Filling height and Filling volume must be adapted.

The filling volume is defined as the amount of water between the bottom and the upper edge of the overflow in the tank.

The switching points and the hysteresis of the programmable contacts as well as the switching point of the alarm contact (= switching point of the solenoid valve) must be adapted to the on-site requirements (refer to chapter 7.2).

- ► Only correct the measuring range if a different level probe other than the standard level probe with 0.25 bar (2.5 mWC) is used.

6.3 Handing over the product to the owner/operator/operating company

- ► Explain to the owner/operator/operating company how the product works.
- ► Use the manual to brief the owner/operator/operating company and answer any questions.
- ► Inform the owner/operator/operating company about the need for inspections and maintenance.
- ► Hand over all documents to the owner/operator/operating company for keeping.

7 Operation

The device must be permanently connected to the power supply.

The control unit monitors the filling level of the tank and outputs messages (refer to chapter 9).

If the value falls below the set lower alarm value, the device warns visually by means of an Alarm LED. The solenoid valve is activated and the voltage-free alarm contact opens.

WARNING Hot solenoid valve coil

- Burns on solenoid valve used by client on site

► Avoid directly touching the solenoid valve coil.

After exceeding the upper alarm value, the solenoid valve and the voltage-free limit contact close again.

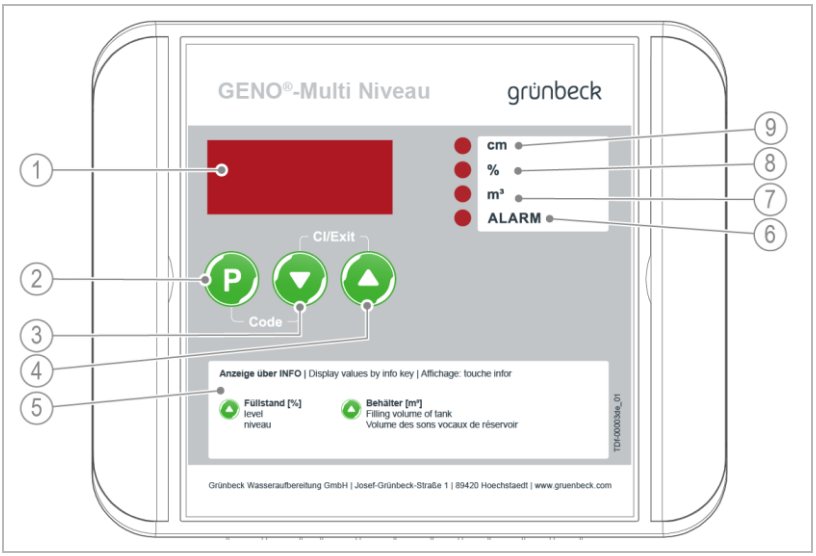
If the measuring signal of the pressure transducer falls below 3 mA, E.EE is indicated in the display – the Alarm LED lights up, the solenoid valve closes (is de-energised) the voltage-free contact opens.

7.1 Operation of the control unit

Upon connection of the transformer to the power supply, all digits and LEDs are switched on briefly. The device then switches to standard mode:

- In the basic display, the measured filling height is shown in cm.
- The programmable contacts are closed depending on the filling level.

7.1.1 Control panel



	Designation		Meaning/Function
1	Display		• Info level · Basic display: Filling height in cm · To read off the current values
2	Operating key		• In the basic display: · Acknowledging malfunctions (Alarm LED is illuminated) · Programming parameters (press and hold key for > 1 sec) • In the programming level: · Opening parameters for editing (display value is flashing) · Saving parameters (display value stops flashing)
3	Operating key		• In the basic display: · Switching off the system (press and hold key for > 5 sec) • In the programming level: · Returning to the previous parameter · Decreasing the numerical value of a parameter (display value is flashing)

	Designation		Meaning/Function
4	Operating key 		• In the basic display: · Switching on the system (press and hold key for > 5 sec) • In the Info level: · Displaying the parameters • In the programming level: · Switching to the next parameter · Increasing the numerical value of a parameter (display value is flashing)
5	Brief description		• Display via INFO · Basic display: Filling height in cm (LED is illuminated) · With 1x  Filling level (LED % lights up) · With 2x  Filling volume (LED m³ lights up) · With 3x  Filling height (LED cm lights up)
6	LED	ALARM	• The malfunction can only be acknowledged if the cause has been eliminated. • The filling level alarm automatically acknowledges itself when the set value is overfilled.
7	LED	m³	• Basic display: Filling volume in m³
8	LED	%	• Basic display: Filling level in %
9	LED	cm	• Basic display: Filling height in cm

Designation	Meaning/Function
Key combination	
	• Access to the programming level · (Code request C 000)
	• In the programming level: · Closing open parameter without saving (previous display value is retained) • Returning to the basic display

7.2 Programming the parameters

Parameter settings are required for different versions of the tanks.

- Index 2 = Filling height C in cm
  (water level from the bottom to the lower edge of the overflow)
- Index 3 = Filling volume C in m³
  (water volume between bottom and lower edge of the overflow)

In case of a series connection with additional tanks, the setting value Index 3 (filling volume) of the basic tank must be multiplied with the number of all tanks (basic + additional tanks).

Sample calculation:

- In case 4 tanks of type GT 1000 are connected in series:
  Filling volume (Index 3) 0.84 m³ x 4 = 3.36 m³

► Reprogram the parameters, if necessary.

1. Press and hold the P key for > 1 sec.

» The parameters for reprogramming open.

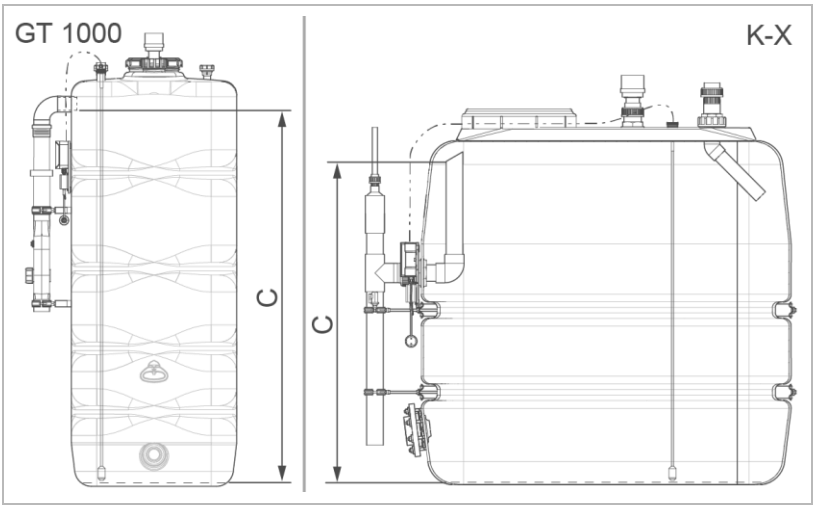
2. Select the parameter using ▼ or ▲.
3. Confirm with P.

» Parameter value is flashing

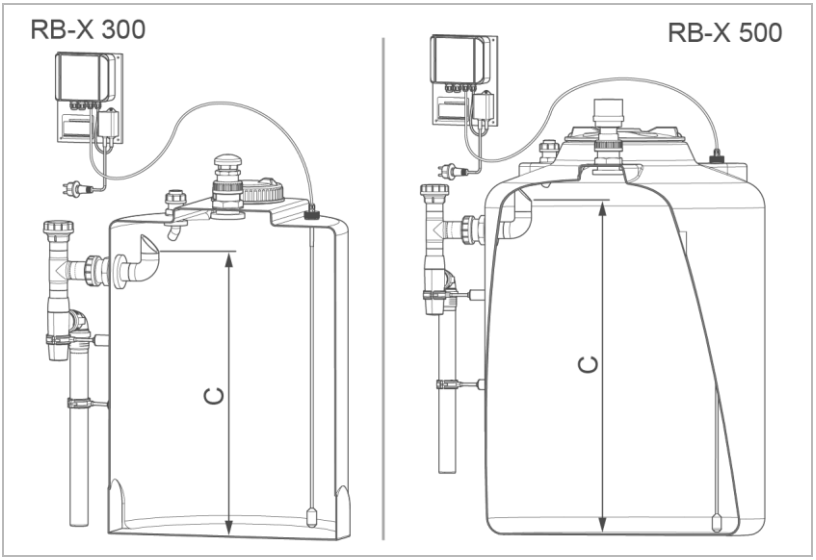
4. Set the desired value.
5. Save the value using P.

By simultaneously pressing ▼ and ▲, you close the setting without saving and return to the basic setting.

7.2.1 Basic pure water tank



Tank	Index 2	Index 3
	Filling height **C** in cm	Filling volume **C** in m³
GT 1000	164	0.84
K-X 1100	120	1.13
K-X 1500	140	1.47
K-X 2000	150	2.00
K-X 2500	140	2.40
K-X 3000	140	3.00
K-X 4000	170	4.00

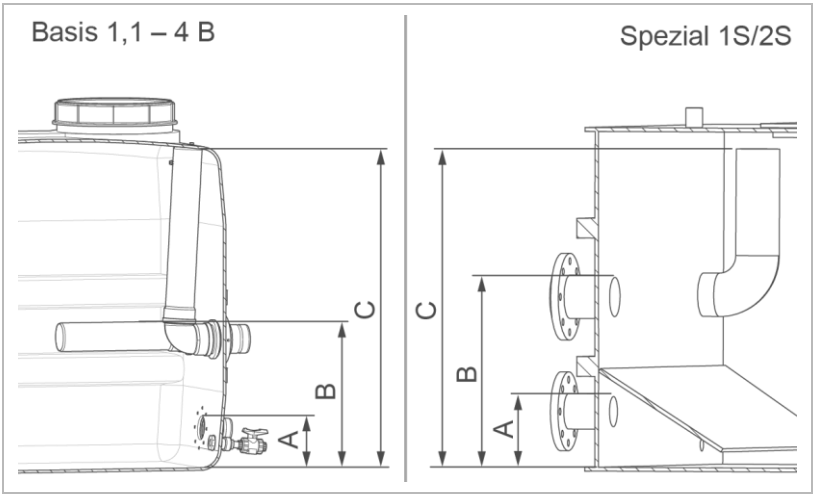


Tank	Index 2	Index 3
	Filling height **C** in cm	Filling volume **C** in m³
RB-X 300	78	0.27
RB-X 500	100	0.5

7.2.2 Raw water tank (pool water)

Below please find an overview of the filling heights and filling volumes of the various raw water tank.

These serve as orientation values for the necessary parameter programming of the various contacts (Index 4 to d).



Tank	A		B		C	
Filling	Height ~ cm	Volume ~ m³	Height ~ cm	Volume ~ m³	Height ~ cm	Volume ~ m³
Basic 1.1 B	17	0.14	54	0.49	122	1.05
Basic 2 B	17	0.21	49	0.66	145	1.95
Basic 3 B	17	0.31	49	1.00	141	2.90
Basic 4 B	17	0.38	121	2.78	173	3.95
Special 1 S	18	0.27	48	0.73	80	1.21
Special 2 S	18	0.44	48	1.18	80	1.97

Calculating the setting values of the parameters in % (Index 4 to d)

- Target filling height x 100 / Filling height C = Setting in %

Example for **Basic 1.1 B** (target filling height A)

- 17 cm x 100 % / 122 cm = 14 %

7.2.3 Parameters

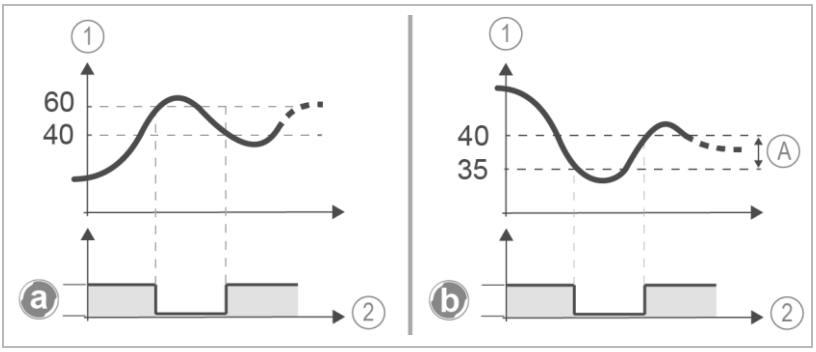
Settings in the programming level must be done by Grünbeck's technical service or by a qualified specialist trained by Grünbeck only.

In the tables below, the factory settings are greyed out. The factory settings are preset for basic pure water tank GT 1000.

Index	Parameters		Setting range	Remarks
1	Measuring range of probe	bar	0.10...0.25...9.99	Change only if a probe other than 2.5 mWC is used
2	Filling height	cm	1...164...999	Dimension C
3	Filling volume	m³	0.01...0.84...9.99	
4	Filling level Alarm contact OFF	%	0...10...99	Switch-on/switch-off point of alarm contact
5	Filling level Alarm contact ON	%	0...20...99	
6	Filling level of level a	%	1...80...99	Programmable contact opens at a filling level of 80 %
7	Filling level of level b	%	1...60...99	Programmable contact opens at a filling level of 60 %
8	Filling level of level c	%	1...40...99	Programmable contact opens at a filling level of 40 %
9	Filling level of level d	%	1...20...99	Programmable contact opens at a filling level of 20 %
A	Hysteresis of level a – c	%	1...5...99	Example (acc. to factory setting): Contact a closes when the filling level falls below 75 % Contact b closes when the filling level falls below 55% Contact c closes when the filling level falls below 35 %

Index	Parameters		Setting range	Remarks
b	Hysteresis of level d	%	1...5...99	Contact d closes when the filling level falls below 15 %
c	Solenoid valve OPEN	%	1...40...99	Make-up feed of tank via solenoid valve
d	Solenoid valve CLOSED	%	1...60...99	

Examples for display and switching behaviour



	Designation
a	Alarm contact 4 = 40 (ON) – enabled 5 = 60 (OFF) – disabled

	Designation
b	Programmable contact level c 8 = 40 (OFF) – disabled A = 8 (ON) – enabled
A	Hysteresis of level

	Designation
1	Filling level in %
2	Time

► Program the switching points of the programmable contacts and of the alarm contact in a way that no flutter switching occurs.

Programming of switching contacts a – d and configuration of Alarm LED

For each programmable switching contact of level a – d, the assignment normally open/normally closed can be made.

Normally, the Alarm LED lights up when the value of the parameter programming is undershot (Index 4).

Index	Parameters	Setting range	Remarks
1	Programmable contacts Filling level of level a	0/1	0 = Normally closed contact 1 = Normally open contact
2	Filling level of level b	0/1	0 = Normally closed contact 1 = Normally open contact
3	Filling level of level c	0/1	0 = Normally closed contact 1 = Normally open contact
4	Filling level of level d	0/1	0 = Normally closed contact 1 = Normally open contact
5	Function of Alarm LED	0/1	0 = Normally closed contact (LED lights up) 1 = Normally open contact (LED does not light up if alarm contact is OFF)

All contacts are factory-set as normally closed contacts.

► Reprogram the contacts in Code level `113`, if necessary.

1. Simultaneously press and hold keys P and ▼ for > 1 sec.

» The display changes to code request C 000.

2. Set Code `C 113` using ▼ or ▲.
3. Confirm with P.
4. Select the desired parameter.
5. Set the desired value.

6. Save the value using P.

By simultaneously pressing ▼ and ▲, you close the setting without saving.

7. Return to the basic display – simultaneously press ▼ and ▲.

7.2.4 Displaying the software version

The software version of the GENO-multi Niveau can be displayed via code level `999`.

1. Simultaneously press and hold keys P and ▼ for > 1 sec.

» The display changes to code request C 000.

2. Press the ▼ key 1x.

» Code `C 999` is shown.

3. Confirm with P.

» The software version is displayed, e.g. “u1.16”.

4. Simultaneously press ▼ and ▲.

» The basic display Filling height is shown.

8 Maintenance and repair

Maintenance and repair includes cleaning, inspection and maintenance of the product.

The responsibility for inspection and maintenance is subject to local and national requirements. The owner/operator/operating company is responsible for compliance with the prescribed maintenance and repair work.

By concluding a maintenance contract you make sure that all maintenance work will be carried out on time.

► Only use genuine spare and wearing parts from Grünbeck.

8.1 Cleaning

Only have the cleaning work carried out by persons who have been instructed in the risks and dangers that can arise from the product.

NOTE

Do not clean the product with cleaning agents containing alcohol/solvents

- These substances damage the plastic components

► Use a mild/pH-neutral soap solution.

► Only clean the outside of the product.

► Do not use any strong or abrasive cleaning agents.

► Wipe the surfaces with a damp cloth.

► Dry the surfaces with a cloth.

8.2 Intervals

By way of regular inspections and maintenance, malfunctions can be detected in time and product failures might be prevented.

► As owner/operator/operating company determine which components must be inspected and maintained at which intervals (load-dependent). These intervals are subject to the actual conditions such as: water condition, degree of impurities, environmental impacts, consumption, etc.

The interval table below shows the minimum intervals for the activities to be carried out.

Task	Interval	Activities
Inspection	2 months	• Visually check for function and leaks
Maintenance	semi-annually	• Condition and leak check • Check for function
	annually	• Check transformer, mains cable and mains plug • Check level probe, cable and screw connection on the tank • Check the programmed alarm contacts for function
Repair	5 years	• Recommendation: Replace wearing parts

8.3 Inspection

You as owner/operator/operating company can do the regular inspections yourself.

► Carry out an inspection at least every 2 months.

1. Check whether a malfunction is shown in the display.
2. Visually check the connection point of the level probe for leaks.
3. Check the display value of the filling level, if possible:
   - **a** Fill the volume in the tank up to level a with known flow (make-up feed).
   - **b** Compare the make-up volume with the previous filling level.

Minor deviations are normal and cannot be prevented technically.

► In the event of major deviations from the standard, contact the technical service.

8.4 Maintenance

Regular work is required in order to ensure the proper functioning of the product in the long term. DIN EN 806-5 recommends regular maintenance to ensure trouble-free and hygienic operation of the product.

WARNING Lethal voltage

- Severe burns, cardiovascular failure, fatal electric shock
- Due to voltage-free contacts on site, external voltage can be present on the terminals even if the mains plug is unplugged.

► Only open the housing of the device when the device is de-energised.

► Prior to any work on the connection terminals, check that the voltage-free contacts are de-energised.

8.4.1 Semi-annual maintenance

Proceed as follows to carry out semi-annual maintenance:

1. Visually check the entire system for its condition and for leaks.
2. Visually check the control unit, the transformer as well as the cabling for damage.

8.4.2 Annual maintenance

Annual maintenance work requires expert knowledge. This kind of maintenance work must be carried out by technical service personnel only.

In addition to the semi-annual maintenance, the following work must be carried out as well:

1. Check the level probe, the cable and the screw connection on the tank for damage and leaks.
2. Check the programmed alarm contacts for function.

8.5 Spare parts

For an overview of the spare parts, refer to our spare parts catalogue at www.gruenbeck.com. You can order the spare parts from your local Grünbeck representative.

8.6 Wearing parts

Wearing parts must be replaced by qualified specialists only.

Wearing parts are listed below:

- Seals

9 Troubleshooting

9.1 Messages

1. Eliminate the fault (refer to fault table below).
2. Acknowledge the fault with P.
3. Watch the display.
4. If the fault reoccurs, compare the display message with the fault table below.

Display	Explanation	Remedy
E.EE	Measuring signal of pressure transducer < 3 mA undershot	► Check the level probe
	Line between level probe and filling level indicator interrupted	► Check the connection terminals in the control unit
	Level probe defective	► Contact technical service
No display of numerical values or Unit LED	Transformer is unplugged	► Establish power supply
	Circuit board of control unit defective	► Contact technical service

Display	Explanation	Remedy
Display values are incorrect	Parameters measuring range, filling level or filling volume programmed incorrectly	► Correct the parameter settings
00.0 or 00.1	Wiring between level probe and filling level indicator faulty	► Check and correct wiring ► Unplug mains plug and plug it back in again

9.2 Other observations

Observation	Explanation	Remedy
Operating keys do not work	Circuit board of control unit defective	► Contact technical service
Alarm LED lights up	Minimum filling level undershot	► Refill tank until the set max. value is reached • The Alarm LED turns off
Failures of control unit	Transformer with mains plug defective Circuit board of control unit defective	► Contact technical service

If a malfunction cannot be eliminated, the technical service personnel can take further measures.

► Contact technical service (refer to inner cover sheet for contact data).

10 Decommissioning

10.1 Temporary standstill

► Disconnect the product from mains – unplug the mains plug.

- If a longer shutdown of the system is planned, the system must be decommissioned.

10.2 Decommissioning

► Disconnect the product from mains – unplug the mains plug.

► Remove the level probe from the tank.

► Keep the electric connections on the GENO-Multi Niveau connected.

► Record the time of decommissioning in the operation log (refer to chapter13).

10.3 Restart/recommissioning

► Put the product into operation (refer to chapter 6.1).

► Check the parameter settings (refer to chapter 7.2).

11 Dismantling and disposal

► Have this work carried out by qualified specialists only.

11.1 Dismantling

1. Disconnect the product from mains – unplug the mains plug.
2. Remove the level probe from the tank.
3. Disconnect the electric connections on the GENO-Multi Niveau
4. Remove the GENO-Multi Niveau completely with the fastening plate.

11.2 Disposal

► Obey the applicable national regulations.

Packaging

► Dispose of the packaging in an environmentally sound manner.

NOTE

Danger to the environment due to incorrect disposal

- Packaging materials are valuable raw materials that can be reused in many cases.
- Incorrect disposal can cause hazards to the environment.

► Dispose of packaging materials in an environmentally sound manner.

► Obey the local disposal regulations.

► If necessary, commission a specialist company with the disposal.

Product

If this symbol (crossed-out wheelie bin) is on the product, this product or its electrical and electronic components must not be disposed of as household waste.

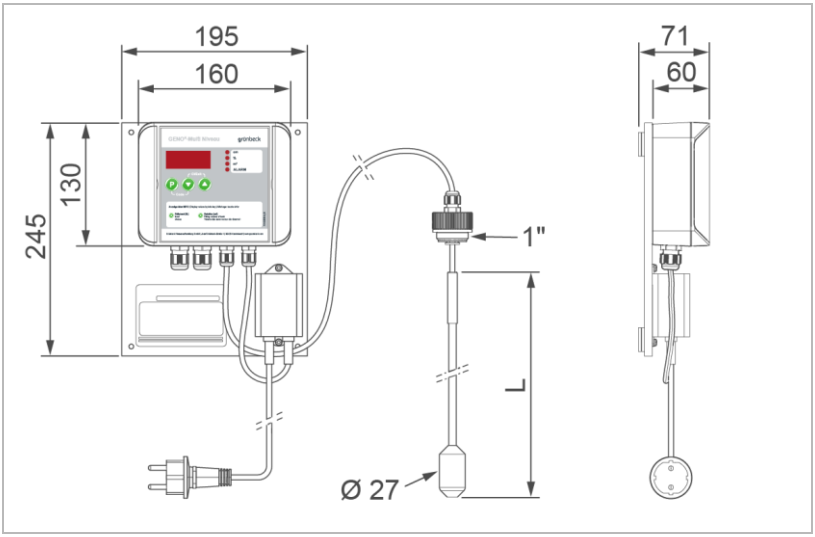
► Find out about the local regulations on the separate collection of electrical and electronic products.

► Make use of the collection points available to you for the disposal of your product.

► If your product contains batteries or rechargeable batteries, dispose of them separately from your product.

For more information on take-back and disposal, go to www.gruenbeck.com.

12 Technical specifications



Dimensions and weights		2.5 mWC	4.0 mWC
Overall dimensions (l x w x d)	mm	245 x 195 x 71	
L Length of protective hose of level probe	mm	2500 (Ø 8)	4000 (Ø 8)
Cable length of level probe	m	10	
Operating weight (incl. transformer, adapter)	kg	2.0	2.0
Shipping weight	kg	2.3	2.4

Connection data		2.5 mWC	4.0 mWC
Mains supply	V~	230	
Voltage supply via transformer	V~	24 (SELV)	
Rated frequency	Hz	50 – 60	
Power input	VA	≤ 25	
Protection		IP54	
Protection class		I or III	

Performance data		2.5 mWC	4.0 mWC
Accuracy of display value	%	2	
Measuring range	bar	0 – 0.25	0 – 0.4
Measuring range	mWC	≤ 2.5	≤ 4.0
Filling height	cm	250	400
Power of programmable contacts a – d		24 V= /1 A	
Connection of solenoid valve		24 V~ /14 VA	
Power of voltage-free alarm contact		230 V~ /1 A	
Signal output	mA	4 – 20	

Application limits		2.5 mWC	4.0 mWC
Water temperature	°C	0 – 40	
Ambient temperature	°C	5 – 40	
Humidity (non-condensing)	%	≤ 70	
pH value	pH	6.5 – 7.5	
Free chlorine	mg/l	< 1.4 (short-term < 20.0)	
Bromine	mg/l	< 6.0	
Chloride content	mg/l	< 500	

Order no.	**712 425**	**712 465**

13 Operation log

- ► Document the initial start-up/commissioning and all maintenance activities.
- ► Copy the maintenance report.

Filling level indicator GENO-Multi Niveau _____

Serial no.: _____

13.1 Start-up/commissioning log

Customer	
Name	
Address	

Installation/Accessories			
Tank Type and size:			
Mounting type	☐ on the wall	☐ on the tank	
Level probe	Measuring range		mWC

Operating values		
Parameter settings	Filling height	cm
	Filling volume	m³
Programmable contacts	Filling level alarm ON	%
	Filling level alarm OFF	%
	Filling level of level a	%
	Filling level of level b	%
	Filling level of level c	%
	Filling level of level d	%
	Hysteresis of level a – c	%
	Hysteresis of level d	%
	Solenoid valve OPEN	%
	Solenoid valve CLOSED	%

Remarks

Start-up/commissioning	
Company	
Service technician	
Work time certificate (no.)	
Date/signature	

Maintenance no.____

Work performed	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	

Maintenance no.____

Work performed	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	

Maintenance no.____

Work performed	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	
☐ Maintenance ☐ Repair	Company Name Date/signature
Remarks	

EU Declaration of Conformity

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

CE

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

This certificate becomes void if the system is modified in any way not approved by us.

Filling level indicator GENO-Multi Niveau

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

Applied national standards and technical specifications, in particular: –

Responsible for documentation: Markus Pöpperl

Manufacturer: Grünbeck Wasseraufbereitung GmbH
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89420 Hoechstaedt/Germany

Hoechstaedt, 05.08.2016

i.V. Markus Pöpperl
Head of Technical Product Design

Publisher's information

Technical documentation

Should you have any questions or suggestions regarding this operation manual, please contact Grünbeck Wasseraufbereitung GmbH's Department for Technical Documentation directly.

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