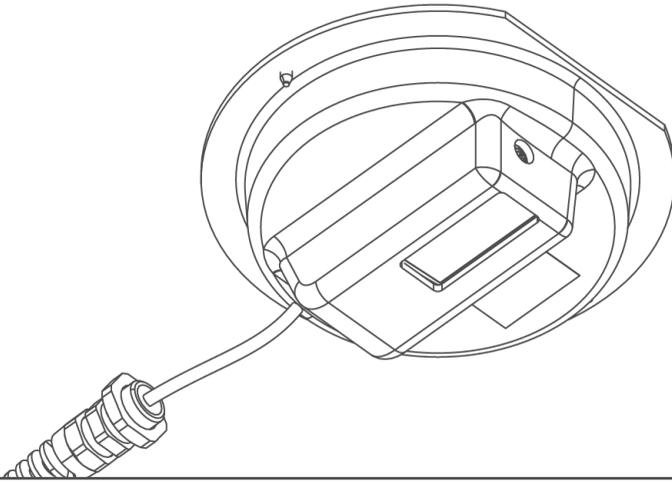


We understand water.



Accessories | Pre-alarm salt supply

Operation manual

grünbeck

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Availability
Monday to Thursday
7:00 am - 6:00 pm

Friday
7:00 am - 4:00 pm

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Original operation manual

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1 About this manual

1.1 Validity of the manual

This manual applies to the following products:

- Pre-alarm salt supply
(Order no. 185 335)
- Pre-alarm salt supply with voltage-free contact
(Order no. 185 334)

1.2 Other applicable documents

The following documents shall be deemed as applicable documents for the product:

- For Grünbeck's technical service/authorised service company:
 - Operation manual of water softener Delta-p/Delta-p-l
(Order no.: TD3-BM001)
 - Technical service manual of water softener Delta-p/Delta-p-l
(Order no.: 185 951)
 - Technical service manual of GENO-mat duo WE-X
(Order no.: 184 049)

1.3 Target group

This manual is intended for qualified specialists and owners/users.

1.4 Storage of documents

Keep this manual and all other applicable documents, so that they are available when needed.

1.5 Symbols used



This symbol identifies instructions that you must comply with for your personal safety.



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 qualified specialists. 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).



This symbol identifies work that may only be performed by Grünbeck's technical service/authorised service company or by a qualified specialist trained by Grünbeck.



This symbol identifies work that may only be carried out by qualified electrical specialists according to the VDE guidelines or according to the guidelines of similar local institutions.

1.6 Typographical conventions

The following typographical conventions are used in this manual:

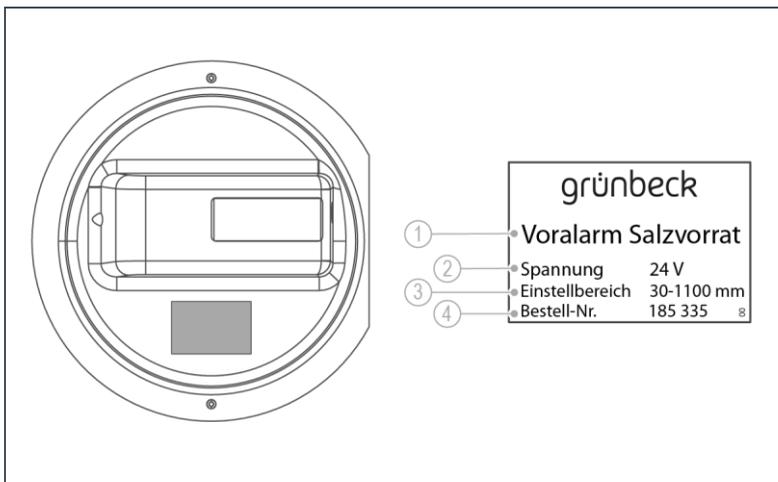
Designation	Header text
Instruction Single-step instruction or chronological sequence of actions does not matter	▶ Action
Instruction Multi-step instruction and chronological sequence of actions is important	1. First action a first step b second step 2. Second action
Result following an instruction	» Result
Lists	● Listed item • Listed sub-item
Menu paths	Status level>Menu level>Submenu
Display texts	Display text
Operating elements	Button/key

1.7 Type plate

The type plate is located on the housing of the light sensor.

Please specify the data shown on the type plate in order to speed up the processing of your inquiries or orders.

- ▶ Enter the necessary information in the table below to have it readily available whenever necessary.



Item	Designation	Item	Designation
1	Product designation	2	Power supply
3	Setting range	4	Order no.

- Product designation: Pre-alarm salt supply
- Order no.: 185__

2 Safety



WARNING: Contamination of drinking water due to improper handling.

- Risk of infectious diseases.
 - ▶ Have the installation, start-up and annual maintenance carried out by a qualified specialist only.
-

2.1 Safety measures

- Carefully read this manual before operating your product.
- Only operate the product if all components are installed properly.
- Only have persons working on your product that have read and understood the present manual and that are qualified to do such work due to their vocational training.
- Keep your product permanently connected to the power and water supply.
- Safety equipment must never be removed, bridged, or otherwise tampered with.
- Do not operate any products which have a damaged mains cable. This can lead to injuries due to electric shock.
- Have damaged mains cables replaced without delay.
- Mains cables may only be replaced by the manufacturer or authorised personnel.
- Observe the maintenance intervals (refer to chapter 7.2).

2.2 Technical safety instructions

This manual contains instructions that you must comply with for your own personal safety as well as to avoid damage to property. The 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 may be used in the present document:

- **DANGER** means that death or serious injury will result.
- **WARNING** means that death or serious injury may result.
- **CAUTION** means that minor bodily injuries may occur.
- **NOTE** (without warning triangle) means that damage to property may occur.

2.3 Regulations

When installing and starting up the product, amongst others, comply with the following regulations and guidelines:

- Statutory regulations on environmental protection
- Provisions of the employers' liability insurance companies

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

Comply with the following instructions to ensure the proper and safe functioning 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 instructions to ensure the proper and safe functioning of the product:

- Arrange for a qualified specialist to carry out installation, start-up and maintenance.
- Have the product explained to you by a qualified specialist.
- Only perform activities described in this manual.
- Do not carry out any activities that are explicitly designated for a qualified specialist.
- Only use this product as intended.
- Make sure that the required inspection and maintenance work is carried out.
- Keep this manual.

2.6 Transport and storage

Transport

- ▶ Transport the product in its original packaging.

Storage

- ▶ Protect the product from the following impacts when storing it:
 - Damp, moisture, environmental impacts such as wind, rain, snow, etc.
 - Frost, direct sunlight, severe heat exposure
 - Chemicals, dyes, solvents and their vapours

3 Product description

The pre-alarm salt supply (185 335) is designed to monitor the salt supply in the brine tank by means of an infrared light sensor. The controller of the water softener outputs a message at an early stage, so that there is enough time to refill the brine tank.

The pre-alarm salt supply with voltage-free contact (185 334) is an independent option to monitor the salt supply in systems with brine tanks. The voltage-free contact outputs a pre-alarm to the central control system for a refill of the salt supply.

3.1 Intended use

The product (185 335) can be used for the following water softeners:

3.1.1 Delta-p/Delta-p-l

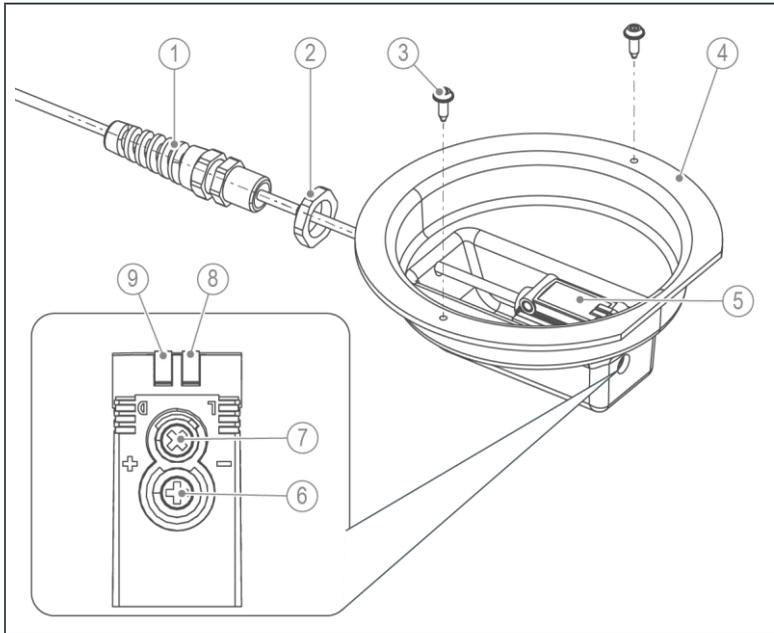
Type	From serial no.	Order no.
Water softener Delta-p 1"	10412	185 100
Water softener Delta-p 1¼"	30343	185 110
Water softener Delta-p 1½"	40117	185 120
Water softener Delta-p 2"	45071	185 130
Water softener Delta-p 1"-l	20185	185 200
Water softener Delta-p 1¼"-l	35142	185 210
Water softener Delta-p 1¼"-l	42575	185 220
Water softener Delta-p 2"-l	47591	185 230

3.1.2 GENO-mat duo WE-X

Type	Order no.
GENO-mat duo WE-X 50	186 200
GENO-mat duo WE-X 130	186 210
GENO-mat duo WE-X 230	186 220
GENO-mat duo WE-X 330	186 230
GENO-mat duo WE-X 530	186 240
GENO-mat duo WE-X 65	186 100
GENO-mat duo WE-X 150	186 110
GENO-mat duo WE-X 300	186 120
GENO-mat duo WE-X 450	186 130
GENO-mat duo WE-X 750	186 140

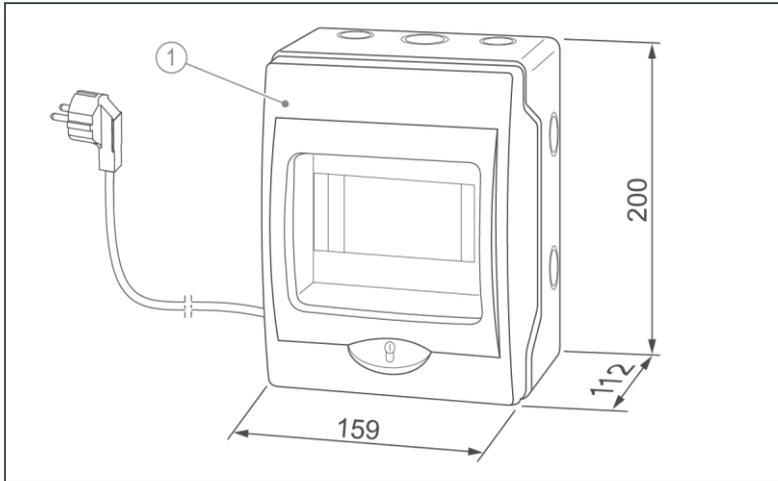
3.2 Product components

185 335



Item	Designation	Item	Designation
1	Cable bushing	2	Lock nut
3	Pan head flange screw	4	Housing of light sensor
5	Infrared light sensor	6	Setting of the switching distance
7	Light-dark switch	8	Yellow LED
9	Green LED		

185 334 (in addition to 185 335)



Item	Designation
1	Switch box for voltage-free contact (230 V, AC)

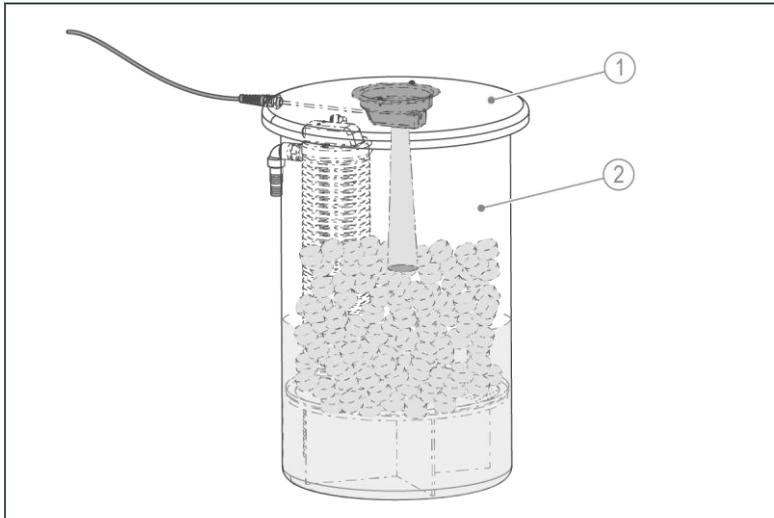
3.3 Functional description

The pre-alarm salt supply is an infrared light sensor that detects objects at a distance of 30 - 1100 mm. To allow the "viewing direction" of the light sensor to be detected, it outputs a visible red spot of light.

Using potentiometer 1, it is possible to set the switching distance (= height of the salt filling in the brine tank) and thus the time when the **Er A** message (= Refill salt) is triggered.

In case of the pre-alarm salt supply (185 334), a voltage-free contact is switched in the switch box and a red LED is visibly displayed when the salt level falls below the alarm level.

4 Installation



Item	Designation	Item	Designation
1	Brine tank lid	2	Brine tank

4.1 Requirements for the installation site

Observe local installation directives, general guidelines and technical specifications.

- The ambient temperature must not fall below +5 °C and not exceed +30 °C.

In case of 185 334 pre-alarm salt supply with voltage-free contact:

- A shock-proof socket is required within a distance of approx. 1.2 m of the system. The socket outlet requires permanent power supply and must not be coupled with light switches, emergency heating switch or the like.

4.2 Checking the scope of supply

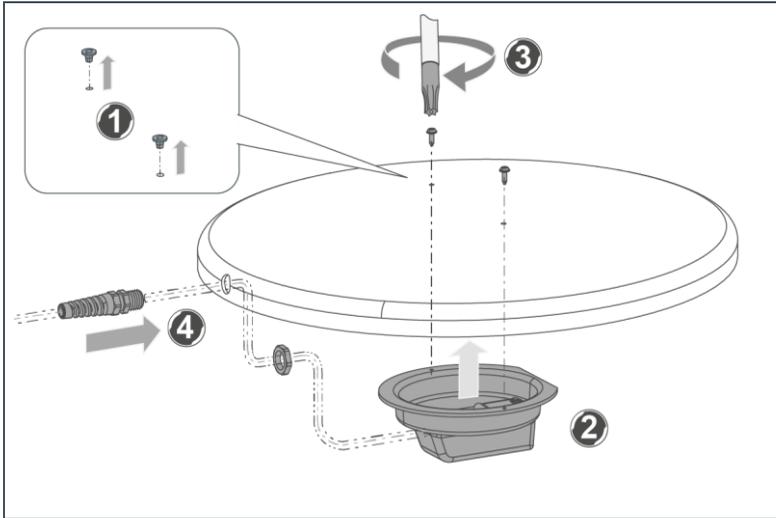
In case of 185 335 pre-alarm salt supply:

- Infrared light sensor with 5 m connection cable
- Cable tie
- Cable bushing with lock nut
- Pan head flange screws (2 pcs)
- Wire end ferrules (3 pcs)
- Operation manual

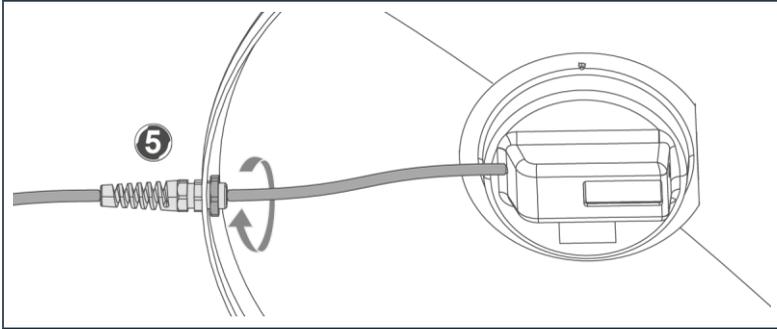
In case of 185 334 pre-alarm salt supply with voltage-free contact:

- Pre-alarm salt supply 185 335
- Switch box with Schuko plug
- ▶ Check the scope of supply for completeness and damage.

4.3 Installing the product



1. Remove the closing plug from the brine tank lid.
2. Position the housing of the light sensor from below into the brine tank lid.
3. Screw the housing to the brine tank lid from the top using pan head flange screws
4. Thread the cable (with previously positioned lock nut) through the hole in the brine tank lid.



5. Secure the cable bushing from the inside with the lock nut.
 - » The pre-alarm salt supply is fastened to the brine tank lid.

4.3.1 Electrical connection



The 5 m cable of the light sensor can be shortened to the length required on site.

- ▶ Press the wire end ferrules included in the scope of supply onto the litz wires.
-
- ▶ Connect the contacts of the pre-alarm salt supply to the controller of the respective water softener.

Water softener Delta-p/Delta-p-I

Terminal	Signal	Wire colour
18	+24 V	brown
19	Switching signal – switching capacity max. 100 mA / PNP transistor	black
16	Ground	blue



Contacts may have already been connected to terminals 11, 15, 16 (ground of water meter pulse cable).

Use the terminal where no or only one contact is connected –
Observe proper contact.

Water softener GENO-mat duo WE-X

Terminal	Signal	Remarks
17	+24 V	brown
18		black
19	Ground (GND)	blue

4.3.2 Electrical installation of switch box (185 334)

- ▶ Fasten the switch box solidly to a wall or a system rack.
- ▶ Connect the contacts (refer to electric circuit diagram TDe-BM000-en).

5 Start-up



NOTE: Exposing the salt tank lid with mounted infrared light sensor to mechanical shocks.

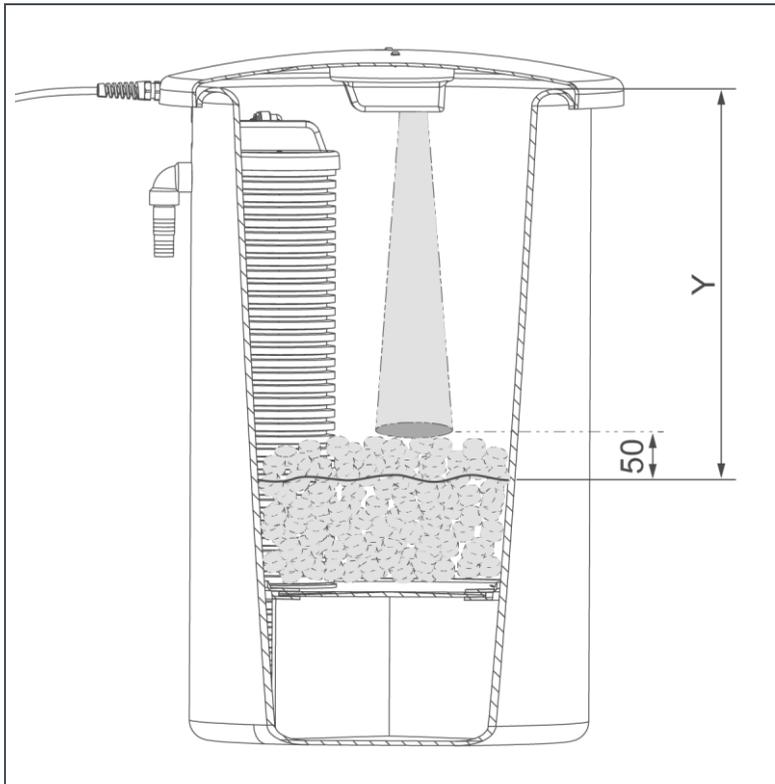
- Risk of damage to the infrared light sensor.
 - ▶ Put the brine tank lid carefully on the brine tank when closing it.
 - ▶ Carefully place the brine tank lid on the floor when opening it.
-

The brine tank lid with installed infrared light sensor rests on the brine tank, facing the salt filling.

If the level of the salt filling is low, the controller of the water softener outputs an **Er A** message or switches a voltage-free contact in the switch box (in case of 185 334).

- ▶ Determine the minimum salt level and set the switching distance.

5.1 Determining the minimum salt level



- To determine the minimum salt level, proceed as follows:

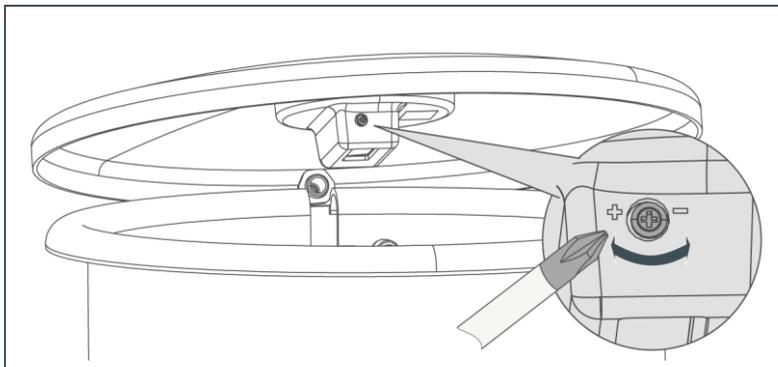
Y = Dimension between the top edge of brine tank and water level after "Filling brine tank".

X = Dimension to be set in the pre-alarm (**$X = Y - 50 \text{ mm}$**).

5.2 Setting the switching distance



Smaller distances lead to an earlier message.



1. Point the light beam at a reflective object (such as the outer wall of the brine tank) so the beam is at right angles to the surface. Start with a very small distance, so that the yellow LED is illuminated.
2. Increase the distance to the object up to the required switching distance - turn the adjusting screw with a screwdriver.
3. Set the potentiometer in a way that the yellow LED is no longer illuminated.
 - » If you decrease the distance to the object, the yellow LED is illuminated again.

5.2.1 LED

LED	Designation
green	is illuminated when the voltage supply (24 V) is connected.
yellow	is illuminated when there is an object within the set switching distance.
	is not illuminated when the minimum salt level is undershot.

5.3 Activation of the „pre-alarm salt supply“ in the GENO-IONO-matic₃ controller



In case of the pre-alarm salt supply with voltage-free contact (185 334), there is no need to program the control unit of the water softener.



Comply with the operation manual of the water softener Delta-p/Delta-p-I (order no. TD3-BM001-en)

1. Program parameter L in index **3** on installer level **113**.
 - » L = Infrared light sensor detects the filling level in the brine tank.

If no object is detected within the adjustable switching distance for more than 5 minutes (the yellow LED is off), the warning **Er A** + symbol **Ⓢ** „pre-alarm salt supply“ does appear.
 - » When the message is acknowledged at the controller, the light sensor resumes the monitoring process.

5.4 Activation of the GENO-mat duo WE-X



Comply with the operation manual of the water softener GENO-mat duo WE-X (Order no. 184046).

1. On installer level 113 in parameter Delay Low Salt program parameter L in index 3
 - » L = Infrared light sensor detects the filling level in the brine tank.

As soon as the switching distance between light sensor and salt filling is exceeded for > 5 minutes, the Low-salt message is output.
 - » When the message is acknowledged at the controller, the light sensor resumes the monitoring process.

5.5 Handing over the product to the owner/user

- ▶ Explain to the owner/user how the pre-alarm salt supply works.
- ▶ Use the manual to brief the owner/user and answer any questions.
- ▶ Inform the owner/user about the need for inspections and maintenance.
- ▶ Hand over all documents to the owner/user for keeping.

6 Operation



The light beam of the infrared light sensor should not point at solid parts in the brine tank which are within the set switching distance.

6.1 General procedure

1. Carefully remove the brine tank lid from the brine tank.
2. Place the brine tank lid on the floor - make sure that the cable and the infrared light sensor will not be damaged.
3. Refill salt tablets (refer to chapter 6.2).
4. Put the brine tank lid on the brine tank.

6.2 Refilling salt

Case 1:

The level of the salt filling is already low, the **Er A** message is pending in the GENO-IONO-matic₃ controller or the voltage-free contact switches (in case of 185 334).

1. Refill salt tablets until the switching distance is undershot again (the yellow LED is illuminated).
2. Acknowledge the message at the GENO-IONO-matic₃ controller.
 - » In case of 185 334 the contact in the switch box drops out.

Case 2:

The salt filling is still sufficiently high, so that the switching distance has not yet been undershot, the **Er A** message has not yet been triggered.

- » The **Er A** message will be output with a 5-minute delay.
- Refill salt tablets within these 5 minutes.

7 Cleaning, inspection, maintenance



WARNING: Danger of contaminated drinking water if the work is not carried out properly.

- Risk of infectious diseases.
 - ▶ Pay attention to hygiene when working on the product.
-

7.1 Cleaning



NOTE: Do not clean the product cleaning agents containing alcohol or solvents.

- These substances will damage components.
 - ▶ Use a mild/pH-neutral soap solution.
-
- ▶ Wipe the optical interface of the infrared light sensor with a dry cloth.

In case of salt incrustations:

1. Remove the salt incrustations with a cloth (soaked in warm water).
2. Wipe the optical interface dry.

7.2 Intervals

Complying with the inspection and maintenance intervals is essential for a trouble-free and hygienic operation.

Task	Interval	Execution
Inspection	2 months	Visually check for function
	6 months	Check the cable/cable bushing for damage, visually check for salt incrustations
Maintenance	annually	Clean the optical interface and readjust the switching distance, if necessary

7.3 Inspection

- ▶ Visually check the function of the pre-alarm salt supply by reading the LED display.

7.4 Maintenance

7.4.1 Semi-annual maintenance

3. Visually check the cable and the cable bushing for damage (tears, ruptures, bends).
4. Check the optical interface for salt incrustations.

7.4.2 Annual maintenance

In addition to the semi-annual maintenance, the following work needs to be done:

1. Clean the optical interface.
2. Check the switching distance set – readjust the switching distance, if necessary.

8 Troubleshooting



Observe the “Troubleshooting” section in the operation manual of the respective water softener.

Malfunction	Explanation	Remedy
Er A with symbol 	Indication in the GENO-IONO-matic ₃ controller	Check the minimum amount of salt in the brine tank and refill salt tablets.
Er A with symbol "S" in the brine tank	Indication in the GENO-IONO-matic WE-X controller	Contact Grünbeck's technical service/ authorised service company if the indication appears despite the quantity of salt being at or above the minimum.

9 Dismantling and disposal

9.1 Dismantling



The work described herein represents an intervention into your drinking water system.

Have this work performed by qualified specialists only.

1. De-energise the water softener.
2. Disconnect the product from mains.
3. Disconnect the wiring from the control unit.
4. Unscrew the housing with the infrared light sensor from the brine tank lid.
5. Remove the cable with the cable bushing.
6. Insert the blind plugs into the bores of the brine tank lid.

9.2 Disposal

- ▶ Comply with the applicable national regulations.

9.2.1 Packaging

- ▶ Dispose of the packaging in an environmentally sound manner.

9.2.2 Product



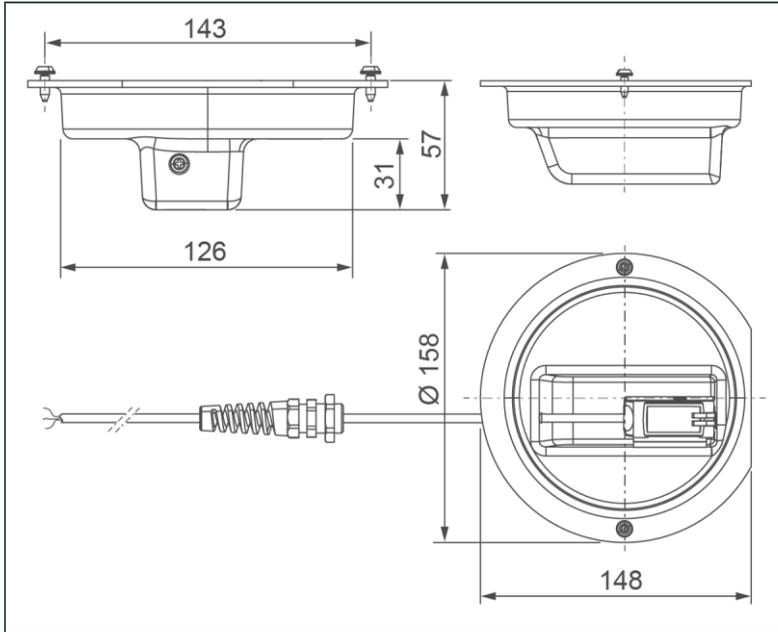
If this symbol (crossed-out wheelee bin) is on the product, this product or its electrical and electronic components must not be disposed of as household waste.

- ▶ 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

10 Technical specifications



Dimensions and weights		185 335
Width x height x depth	mm	158 x 57 x 148
Operating weight, approx.	Kg	1.9
Shipping weight, approx.	Kg	2.2
Connection data		
Power supply	V	24 DC
Connection line (four-core)	m	~ 5.0
Protection/protection class		IP 67 /
Performance data		
Light sensor		PinPoint LED
Setting range	mm	30 – 1100
General data		
Ambient temperature	°C	5 - 30
Order no.		185 335

EU Declaration of Conformity

In accordance with EMC Directive 2014/30/EU



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.

If the system is modified in a way not approved by us, this certificate is void.

Product line: Pre-alarm salt supply (185 335)

Serial no.: Refer to type plate

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

- Directive on the Restriction of Hazardous Substances RoHS (2011/65/EU) German Ordinance on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Furthermore, we confirm compliance with the essential requirements of:

The following harmonised standards have been applied:

EN 60947-5-2:2007 + A1:2012

Responsible for documentation:

Dipl.-Ing. (FH) Markus Poepperl

Manufacturer:

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

Hoehstaedt/Germany, 13/02/2020

A handwritten signature in blue ink, appearing to be 'Markus Poepperl', is written over a horizontal line.

By power of attorney Dipl.-Ing. (FH) Markus Poepperl

Head of Technical Product Design

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