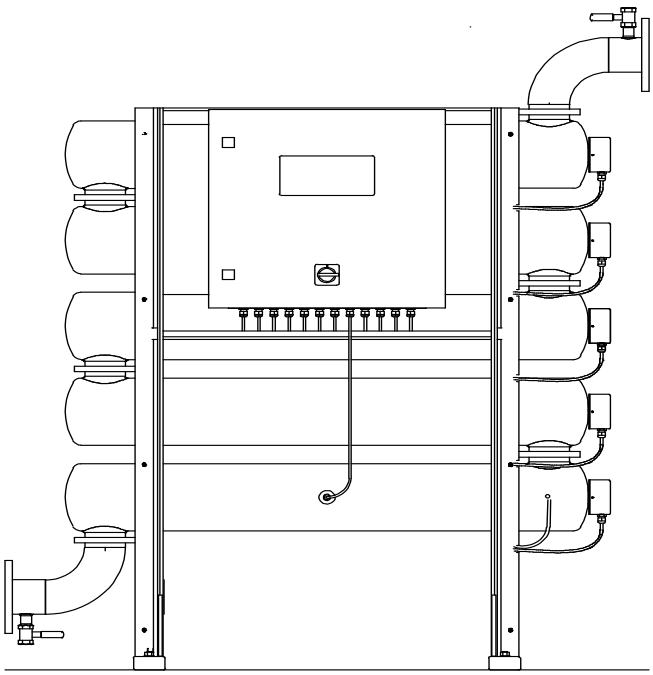
grünbeck

Operation Manual
Disinfection System
GENO-UV-M2/200 S
GENO-UV-M3/200 S
GENO-UV-M4/200 S
GENO-UV-M5/200 S



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Contents

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- We reserve the right to modifications, especially with regard to technical progress -

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EU Declaration of conformity

CE

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.

Manufacturer:	Grünbeck Wasseraufbereitung GmbH Josef-Grünbeck-Str. 1 89420 Hoechstaedt/Germany
Responsible for documentation:	Markus Pöpperl
System designation:	Disinfection system
System type:	GENO-UV-M (2-5) 200 S
Serial number:	see type designation plate
Applicable guidelines:	EMC (2014/30/EU) Low Voltage (2014/35/EU)
Applied harmonized standards, in particular:	DIN EN 61000-6-2:2006-03 DIN EN 61000-6-3:2011-09
Applied national standards and technical specifications, in particular:	DIN 19636-100:2008-02, DIN EN 14743:2007-09
Place/Date/ Manufacturer's signature:	Hoechstaedt, 10.01.2019 i. V.
	Markus Pöpperl Dipl.-Ing. (FH)
Function of signatory:	Head of Technical Product Design

A General

1 | Preface

Thank you for opting for a Grünbeck product. Backed by decades of experience in the area of water treatment, we provide solutions for all kind of processes.

Drinking water is classified as food and requires particular care. Therefore, always ensure the required hygiene in operating and maintaining systems for drinking water treatment. This also applies to the treatment of water for industrial use if repercussions for the drinking water cannot completely be excluded.

All Grünbeck systems and devices are made of high-quality materials. This ensures reliable operation over many years, provided you treat the systems with the required care. This operation manual assists you with important information. Therefore, carefully read the operation manual before installing, operating or maintaining your system.

Customer satisfaction is our prime objective and providing customers with qualified advice is crucial. If you have any questions concerning this system, possible extensions or general water and waste water treatment, our technical service staff, as well as the experts at our headquarters in Hoechstaedt, is available to help you.

Advice and assistance

For advice and assistance please contact your local representative (see www.gruenbeck.com) or get in touch with our service centre which can be reached during office hours:

Tel.: +49 9074 41-333

We can connect you with the appropriate expert more quickly if you provide the required system data. In order to have access to this data at all times, please fill in the data given on the (see type plate in chapter C-1)

2 | How to use this operation manual

This operation manual is intended for the operators of our systems. It is divided into several chapters (a letter is assigned to each of them) which are listed in the “Table of contents” on page 2 in alphabetical order. In order to find the specific information you are looking for, check for the corresponding chapter on page 2.

The headers and page numbers with chapter information make it easier to find your way around in the manual.

3 | General safety information

3.1 Symbols and notes

Important notes in this operation manual are characterised by symbols. Please pay particular attention to these notes in order to ensure a danger-free, safe and productive system operation.

Danger! Failure to adhere to these notes will cause serious or life-threatening injury, extreme damage to property or inadmissible contamination of drinking water.

Warning! Failure to adhere to these notes may cause injury, damage to property or contamination of the drinking water.

Attention! Failure to adhere to these notes may result in damage to the system or other objects.

Note: This symbol characterises notes and tips to make your work easier.

Tasks with this symbol may only be performed by Grünbeck's technical service or by persons expressly authorised by Grünbeck.

Tasks with this symbol may only be performed by qualified electrical experts according to the VDE guidelines or according to the guidelines of a similar local institution.

Tasks with this symbol may only be performed by the local water works or an approved installation company.

3.2 Operating personnel

Only persons who have read and understood this operation manual are permitted to work with the system. The safety guidelines are to be strictly adhered to.

3.3 Designated application

The system may only be used for the purpose outlined in the product description (chapter C). The guidelines in this operation manual as well as the applicable local guidelines concerning the drinking water protection, accident prevention and occupational safety must be adhered to.

In addition, appropriate application also implies that the system may only be operated when it is in proper working order. Any malfunctions must be repaired at once.

3.4 Protection from water damage

Warning! In order to properly protect the installation site from water damage:

a) a sufficient floor drain system must be available or
b) a water stop device (see chapter C Accessories) must be installed.

Warning! Floor drains that are discharged to a lifting system do not work in case of a power failure.

3.5 Indication of specific dangers

Danger due to electricity! → Do not touch electrical parts with wet hands! Disconnect the system from mains before starting work on electrical parts of the system. Have qualified experts replace damaged cables immediately.

Danger due to mechanical energy! System parts may be subject to overpressure. Danger of injury and damage to property due to escaping water and unexpected movement of system parts. → Check pressure pipes regularly. Depressurise the system before starting repair or maintenance work on the system.

Hazardous to health due to contaminated drinking water! → The system may only be installed by a qualified company. The operation manual must be strictly adhered to! Ensure that there is sufficient flow. The pertinent guidelines must be followed for starting-up after long periods of standstill. Inspections and maintenance must be performed at the intervals specified!

Note: By concluding a maintenance contract, you ensure that all of the required tasks are performed on time. You may perform the interim inspections yourself.

4 | Shipping and storage

Attention! The system may be damaged by frost or high temperatures. In order to avoid damage of this kind:

Protect from frost during transportation and storage! Do not install or store system next to objects which radiate a lot of heat.

5 | Disposal

Comply with the applicable national regulations.

5.1 Packaging

Dispose of the packaging in an environmentally friendly manner.

5.2 Product

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

Dispose of the electrical and electronic products or components in an environmentally friendly manner.

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

B Basic information

1 | Laws, regulations, standards

In the interest of good health, rules cannot be ignored when it comes to the processing of drinking water. This instruction manual takes the applicable German guidelines into account and provides all of the information you need to safely operate your water treatment system.

Among other things, the regulations stipulate that

- only approved companies are permitted to make major modifications to water treatment facilities,
- and that tests, inspections and maintenance are to be performed on installed systems at regular intervals.

Especially then when the water treated by means of this system is made available for third parties it must be observed that the Drinking Water Ordinance is kept.

According to § 11 of the Drinking Water Ordinance the UV disinfection systems are only to be applied if these are inspected corresponding to DVGW worksheet W 294-2. Grünbeck's UV disinfection systems GENO-UV 60-200 S comply with this requirement have to be installed and operated according to DVGW worksheet 294-1 for the purpose of proper operation.

2 | Disinfecting effect of UV light

UV light (ultraviolet light) is light of wave lengths between 100 and 380 nm which are imperceptible (invisible) to the naked eye.

For the UV disinfection, the wave length of 254 nm is of major importance. This wave length is emitted by mercury-arc lamps whose built-up is similar to that of common fluorescent lamps.

The disinfecting properties of the UV light are due to the fact that light of a wave length of 254 nm is absorbed by the nucleic acids in the genetic material of micro-organisms. The absorption of the high-energy radiation results in the modification of the genetic material (DNA resp. RNA) and leads to an incapability to reproduce.

The room irradiation (light dose) required to inactivate the micro-organisms depends on the species and population. For fungi, spores and algae a much higher room irradiation is required compared to bacteria and viruses.

The DVGW's Technical Regulation W 294 stipulates a minimum room irradiation of 400 J/m² by which a reduction rate of 99,99% for viruses and bacteria is achieved.

3 | Room irradiation

The extent of the irradiation in the room depends on the intensity and the duration of the irradiation. The irradiation intensity on the other hand depends on the spectral weakening coefficient of the water at 254 nm (SWC_{254}). With regard to the UV disinfection the organic substances (e. g. humic acids) and the inorganic salts (e. g. iron or manganese ions) contained in the water are of major importance as these absorb the UV light at 254 nm and thus reduce the transmission. As the wave length of 254 nm is invisible to the naked eye, the SWC_{254} can only be determined by a UV-VIS spectrometer.

The intensity of irradiation furthermore depends on the age of the UV lamps. The performance of the UV lamps is reduced with the increasing service life. In order to furthermore guarantee the required room irradiation the lamp must be replaced at the end of its service life.

The period of irradiation results from the flow and the volume of the UV disinfection system. For the safe operation of UV systems the limitation of the flow is necessary what is also required by the DVGW worksheet W 294.

Subject to being operated properly, the GENO-UV disinfection systems provide the effective minimum room irradiation of 400 J/m² required by the DVGW.

C Product description

1 | Type plate

The type plate is located in the bottom right-hand corner of the control cabinet of the GENO-UV disinfection systems. Please specify the data shown on the type plate of your GENO-UV disinfection system in order to speed up the processing of enquiries or orders. Please copy the indicated information to the table below in order to have it readily available whenever necessary.

Disinfection system GENO-UV-M- /200 S

Serial number:

Order no.:

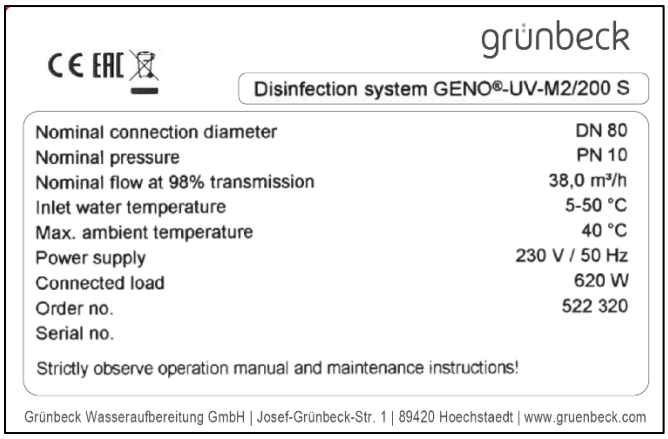


Fig. C-1 Type plate for the disinfection system GENO-UV-M2/200S

2 | Technical specifications

The GENO-UV disinfection system is used for the continuous disinfection of water. It is equipped with a selective GENO-UV disinfection system sensor.

All the GENO-UV disinfection system data is listed in Table C-1. The data refers to the standard versions of the GENO-UV disinfection systems. Possible deviations in case of special versions are listed separately, if applicable.

Warning! If the GENO-UV disinfection system fails or is switched off, there is a risk of the drinking water and downstream piping becoming contaminated.

Table C-1: Technical specifications			**GENO-UV disinfection systems**			
			M2/200 S	**M3/200 S**	**M4/200 S**	**M5/200 S**
Connection data						
Nominal connection diameter			DN 80		DN 100	
Min. drain connection			DN 50			
Power supply		V/Hz	230/50			
Connected load		W	620	735	850	965
Protection/Protection class			IP 54/I			
Performance data						
Nominal pressure			PN 10			
Max. flow*		m³/h	38.0	61.9	89.2	120.0
Pressure loss at max. flow		bar	< 0.2			
Dimensions and weights						
A Total height		mm	1700	1700	1844	2003
B Inlet connection height		mm	226	226	226	226
C Outlet connection height		mm	1091	1347	1598	1854
D Distance between flange and middle of connection		mm	241	241	277	277
E Connection width**		mm	–	1477	–	1549
Distance pressure pipe inlet and outlet		mm	995	995	995	995
Distance drill holes M16 width		mm	800	800	800	800
Distance drill holes M16 depth		mm	440	440	440	440
Space req. on right of sys. for lamp replacement		mm	1300	1300	1300	1300
Min. space req. in front of system		mm	600	600	600	600
Empty weight		kg	115	130	145	160
Volume		l	80	120	160	200
Ambient data						
Inlet water temperature		°C	5-50			
Max. ambient temperature		°C	40			
Max. relative humidity		%	70			
Assemblies						
Pressure pipe	Number		2	3	4	5
	Material		W 1.4404			
Quartz protective pipe	Number		2	3	4	5
	Length / ∅		1200 / 28			
UV lamp	Number		2	3	4	5
	Capacity	W	200			
	Max. useful life	h	18,000			
UV sensor			Selectivity > 90% at 254 nm			
Measuring window tube			as per W 294			
2 ball valves	Nominal diameter		R ¾"			
	Material		W 1.4301			
Control cabinet	H x W x D	mm	760 x 600 x 210			
	Material		Powder-coated steel			
GENO-UV-tronic$_{2\ control}$						
Displays			Graphic display 128 x 64 pixels, back-lit, Maintenance and fault display			
Inputs			Remote control, UV sensor, lamp monitoring, temperature sensor			
Outputs			External fault and maintenance message, safety device, flush valve			
* The maximum flow depends on the quality of the water and the age of the UV lamps. The values stated above apply for a min. room irradiation of 400 J/m² with water transmission of 98% (1 cm) at the end of the lamps' useful life. ** with standard design						
ÜA registration number Office of Vienna Provincial Government – City of Vienna			R-15.2.3-21-17496			
Order no.			**522 320**	**522 325**	**522 330**	**522 335**

3 | Designated application

The GENO-UV disinfection systems are designed to reduce the number of germs in cold water. They are located downstream of water treatment units. The inactivation and killing of other micro-organisms, in particular spores and algae, depends on the size of the relevant populations. In the case of algae, around 100 times more energy is required in order to kill these off compared with bacteria.

The GENO-UV disinfection system is adapted to the expected water needs and quality upon installation. The maximum flow must not be exceeded under any circumstances. The GENO-UV disinfection system can be expanded in the case of increased water demands or a decrease in water quality.

The GENO-UV disinfection system may only be operated if all components are installed properly. Safety devices must never be removed, bridged or otherwise tampered with.

Designated application of the system also implies that the information contained in these operating instructions and all safety guidelines applying at the installation site be observed. Furthermore, the maintenance and inspection intervals have to be observed.

The disinfection system GENO-UV-M is exclusively designed for use in the industrial and commercial field.

4 | Application limits

The application limit is set by the maximum flow. The maximum flow is based on the transmission of the water (translucency) (see table C-2).

The following maximum flows apply for a minimum room irradiation of 400 J/m² as a function of water transmission at 253.7 nm and various measuring cuvette diameters. The calculations were based on the maximum useful life of the UV lamps.

Table C-2: Application limits		**GENO-UV-M (2-5) 200 S**				
Transmission with 10 mm cuvette		0.98	0.94	0.90	0.85	0.80
Transmission with 50 mm cuvette		0.90	0.73	0.59	0.44	0.33
SAC value	m-1	0.88	2.69	4.60	7.06	9.7
GENO-UV-M2/200 S	m³/h	38.0	28.0	20.7	14.2	9.8
GENO-UV-M3/200 S	m³/h	61.9	47.8	37.0	27.2	20.3
GENO-UV-M4/200 S	m³/h	89.2	71.3	57.3	44.2	34.6
GENO-UV-M5/200 S	m³/h	120.0	98.6	81.6	65.1	52.6

Note: Transmission with a wavelength of 253.7 can only be determined with a laboratory measuring instrument.

5 | Scope of supply

5.1 Basic configuration

- 1 system rack made of stainless steel
- 2 - 5 stainless steel pressure pipes depending on the system.
- 2 - 5 quartz protective pipes depending on the system.
- 2 - 5 UV lamps depending on the system.

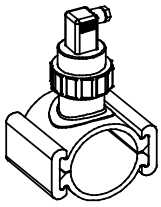
Note: A special warranty restriction of max. 5000 operating hours or 12 months after installation applies for UV lamps

- Control cabinet with GENO-UV-tronic$_2$ control unit.
- 1 measuring window tube (DVGW W 294 compliant).
- 1 GENO-UV disinfection system sensor.
- 1 temperature sensor.
- 1 operating instructions.
- 1 auxiliary tool for installation of the quartz protective pipes.

5.2 Optional accessories

Note: It is possible to retrofit optional components to existing GENO-UV disinfection systems. Please contact your local Grünbeck representative or Grünbeck's headquarters in Hoechstaedt for details.

- Safety device (stops the water supply in the event of a fault or power failure to prevent non-disinfected water from entering the subsequent piping system). Can be adapted to the local conditions on request.



	Order no.
• Flow sensor for GENO-UV-M(2-3)/200 S for PVC piping DN 80.	522 235
• Flow sensor for GENO-UV-M(4-5)/200 S for PVC piping DN 100.	522 245
• Flush valve for GENO-UV-M/200 S temperature regulation.	522 800
• Flush set for industrial UV disinfection systems.	520 025
• Spare UV lamp.	523 132
• Spare quartz protective pipe.	522 628

5.3 Consumables

You should only use original consumables in order to ensure the reliable operation of the GENO-UV disinfection system.

	Order no.
• Cleaning agent GENO-Clean CP (10 x 1 l bottle).	170 022

5.4 Wearing parts

The following points are subject to a certain degree of wear and tear:

- Spare filter mats for the control cabinet ventilator (not shown).
- Sealing ring for UV lamp.

Note: Although these are wearing parts, we grant a limited warranty period of 6 months.

- Sealing ring for GENO UV-200 S lamp.

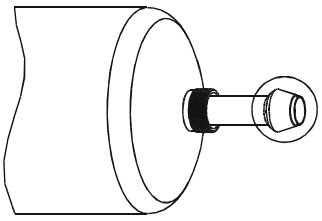


Fig. C-2: Quartz protective pipe GENO UV-200 S

D Installation

1 | General installation instructions

The installation site must offer adequate space. The required connections must be provided prior to the installation.
For dimensions and connection data, please refer to table D-1.

Table D-1: Technical specifications		**GENO-UV disinfection systems**			
		M2/200 S	**M3/200 S**	**M4/200 S**	**M5/200 S**
Connection data					
Nominal connection diameter		DN 80		DN 100	
Min. drain connection		DN 50			
Power supply	V/Hz	230/50			
Connected load	W	620	735	850	965
Protection type/Protection class		IP 54/⏚			
Performance data					
Nominal pressure		PN 10			
Max. flow*	m³/h	38.0	61.9	89.2	120.0
Pressure loss at max. flow	bar	< 0.2			
Dimensions and weights					
A Total height	mm	1700	1700	1844	2003
B Inlet connection height	mm	226	226	226	226
C Outlet connection height	mm	1091	1347	1598	1854
D Distance between flange and middle of connection	mm	241	241	277	277
E Connection width**	mm	–	1477	–	1549
Distance pressure pipe inlet and outlet	mm	995	995	995	995
Distance drill holes M16 width	mm	800	800	800	800
Distance drill holes M16 depth	mm	440	440	440	440
Space req. on right of sys. for lamp replacement	mm	1300	1300	1300	1300
Min. space required in front of system	mm	600	600	600	600
Empty weight	kg	115	130	145	160
Volume	l	80	120	160	200
** System with standard design					

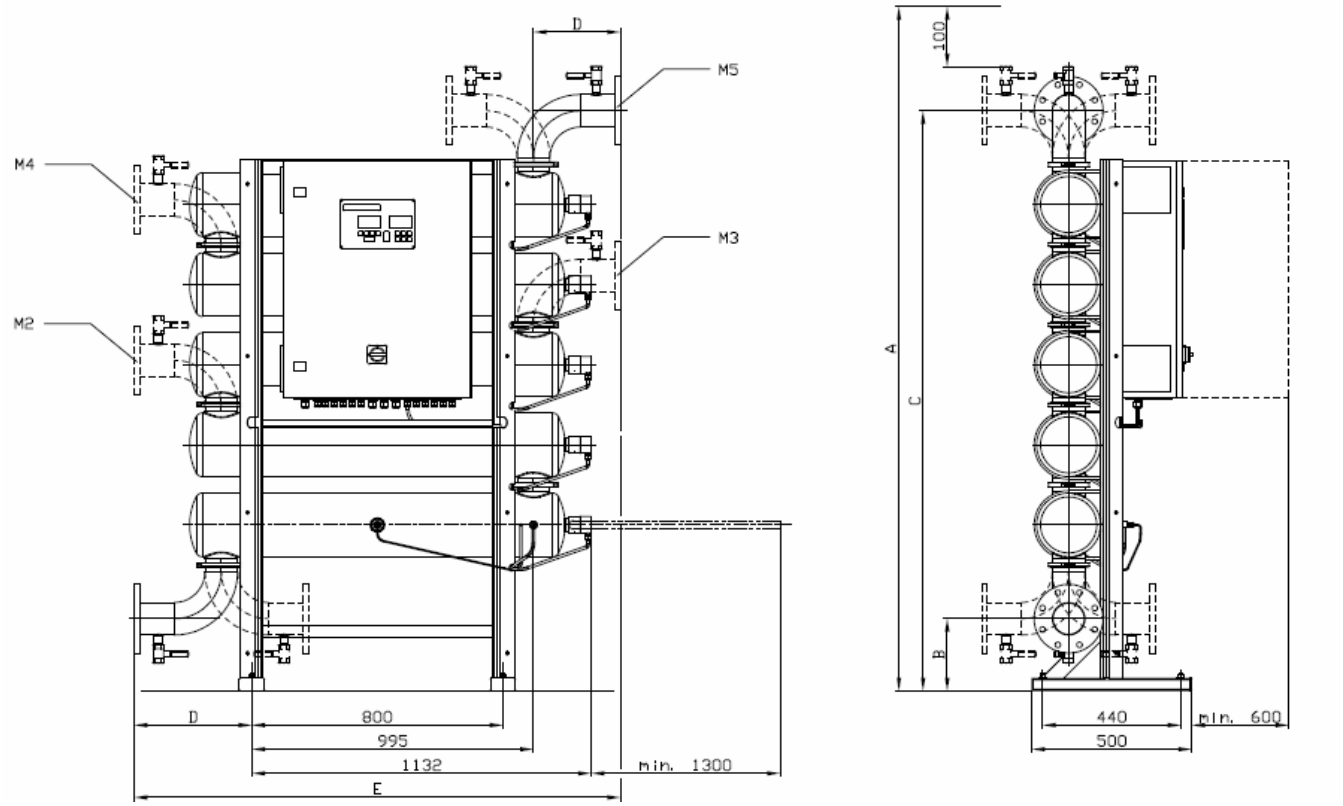


Fig. D-1 Dimension drawing

Note: The inlet and outlet flange can be turned through 360° for easier connection. This changes the dimension marked with a star (*).

Note: Observe the operating instructions that have been supplied with the optional accessories (see chapter C, 5.2) for your system (if applicable).

1.1 Water installation

When installing a GENO-UV disinfection system, certain binding rules must be observed. Additional recommendations are given in order to facilitate the handling of the systems. The installation information described below is also illustrated in fig. D-2.

Binding rules

The installation of a GENO-UV disinfection system represents a major interference with the drinking water system. Therefore, only authorised experts may install such devices.

- Observe the local installation guidelines and the general regulations.
- Install a drinking water filter upstream (e.g., GENO- FM).
- 0.5 m upstream and downstream of the GENO-UV disinfection system, the water pipe must be made of UV-resistant material (stainless steel, galvanised steel or copper). Plastic pipes are not suitable.

Provide a drain connection (at least DN 50) at the installation site to discharge the water in case of system cleaning or maintenance
- The installation room must have a sufficiently sized floor drain. If this is not the case, an appropriate water stop device must be installed which can reliably prevent water damage.
- A shut-off device is to be fitted up- and downstream of the GENO-UV disinfection system.
- A safety device which is available as an accessory (see chapter C 5.2) is to be installed in the piping network downstream of the system.
- In case the water supply must not be interrupted, a removable (or closeable/drainable) bypass has to be provided.
- The GENO-UV disinfection system must always be installed downstream of a water tank, if present.

Warning! Floor drains that a discharged to a lifting system do not work in case of a power failure.

1.2 Electrical installation

A shock-proof plug is adequate for the electrical connection. However, it must comply with the specifications given in table D-1, may not be further away from the GENO-UV disinfection system than 1.50 m and must carry constant voltage.

2 | Preliminary work

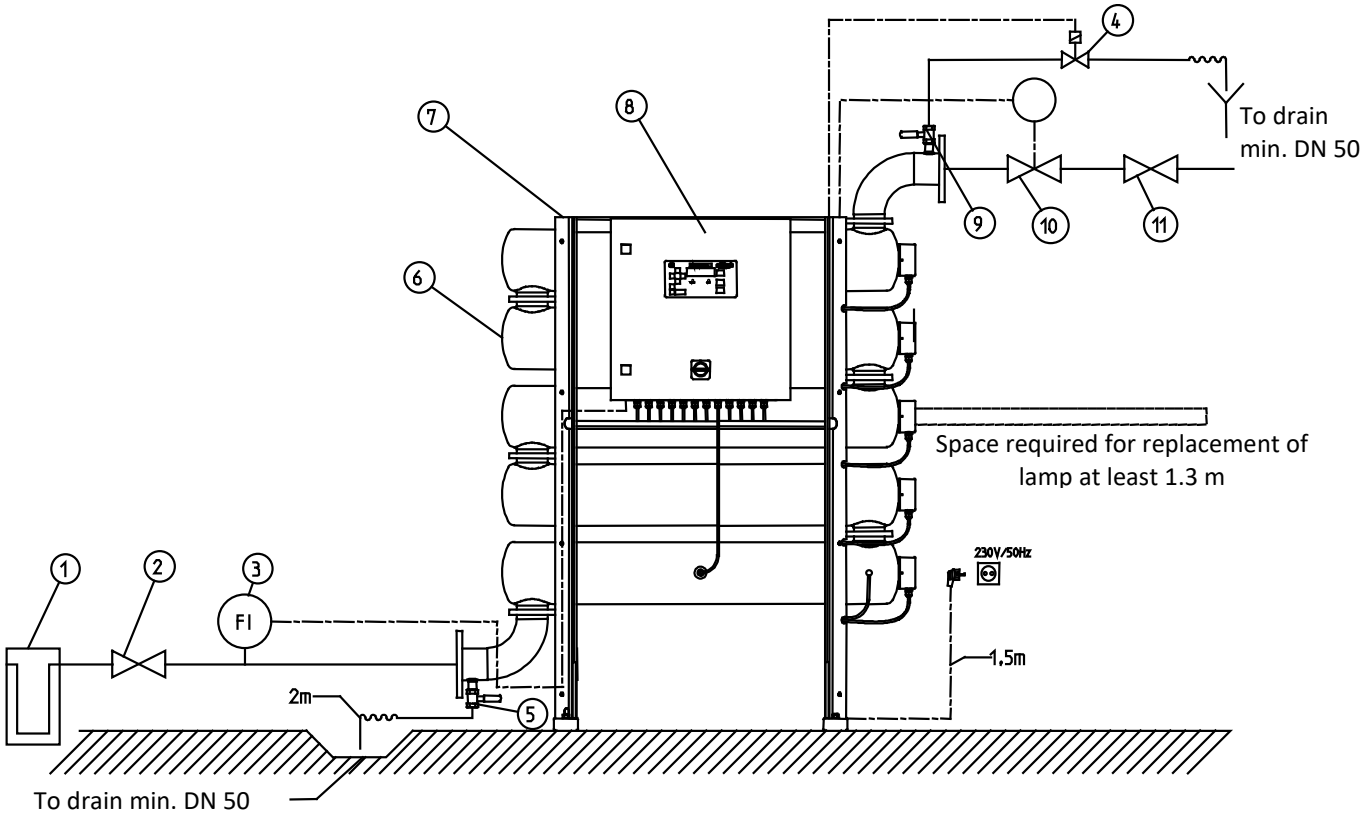
1. Unpack all system components.
2. Check for completeness and perfect condition.
3. Place the system at the appropriate location.
4. Screw the system to the floor (4 drill holes M16 in the base of the rack).

3 | How to connect the system

3.1 Water connection

Make the water connection according to the installation drawing (fig. D-2) while observing the guidelines and recommendations given in section 1.

Attention! The system is only tight after proper installation of the quartz protective pipes. Do not perform leak test upon commissioning until after they have been installed.



① Drinking water filter (accessory)
② Shut-off device upstream of UV system (to be provided by others on site)
③ Flow sensor for GENO-UV-M(2-5)/200 S (accessory)
④ Flush valve for temperature regulation (accessory)
⑤ Sampling tap / flush connection R ¾"
⑥ UV pressure pipe
⑦ Rack
⑧ Control cabinet with GENO-UV-tronic control unit
⑨ Sampling tap / flush connection R ¾"
⑩ Safety device: Drive to suit local conditions (accessory)
⑪ Shut-off device downstream of UV system (to be provided by others on site

Fig. D-2: Installation view

3.2 Electrical connection

The work described here may only be performed by trained electricians.

Attention! Only open the control cabinet when the main switch is turned off.

Note: The UV system reactor housing must be connected to the building potential equalisation via a PE cable with a cross-section of 6 mm² - 16 mm².

The GENO-UV disinfection system is completely pre-wired. Only the accessories supplied and message outputs, where relevant, have to be connected to terminal block X1 (also seen the circuit plan in the appendix).

- Safety device terminal 4 – 6.
- Flush valve for temperature regulation terminal 7 – 9.
- Horn terminal 10 – 12
- Maintenance message output terminal FM 13 – 15
- Fault message output terminal 16 – 18
- Remote control terminal 19 – 20.
- Flow sensor terminal 21 – 23.

Danger due to electrical energy! The main switch is still supplied with line voltage. Do not connect system to mains before you have finished this work.

E Start-up

The work described here should/can only be performed by Grünbeck's technical customer service or specially trained staff.

1 | How to install the quartz protective pipes (see fig. E-1 top)

Attention! When installing the quartz protective pipe take care that the pipe (pos. 2) is inserted into the centre hole of the quartz protective sleeve (inside the stainless steel vessel).

To facilitate this process, the auxiliary tool for installation of the quartz protective pipe should be used.

1. Pull off the cap (pos. 7) from the screw connection (pos. 4).

Note: With GENO-UV-200 S pos. 7 is a small brass screw connection which is screwed out of the brass screw connection (pos. 4).

2. Unscrew the screw connection (pos. 4) and remove the binding ring (pos. 3) made of stainless steel.
3. Push on the Viton seal (pos. 5) as per the detailed drawing on the quartz protective tube (pos. 2).
4. Apply the sealing paste supplied to the seal according to the detailed drawing.
5. Insert the quartz protective pipe (pos. 2) into the pressure pipe (pos. 1). When doing this, it must be ensured that the quartz protective pipe is inserted into the guide in the pressure pipe.
6. Plug on the binding ring (pos. 3) made of stainless steel.
7. Tighten the screw connection (pos. 4) hand-tight.

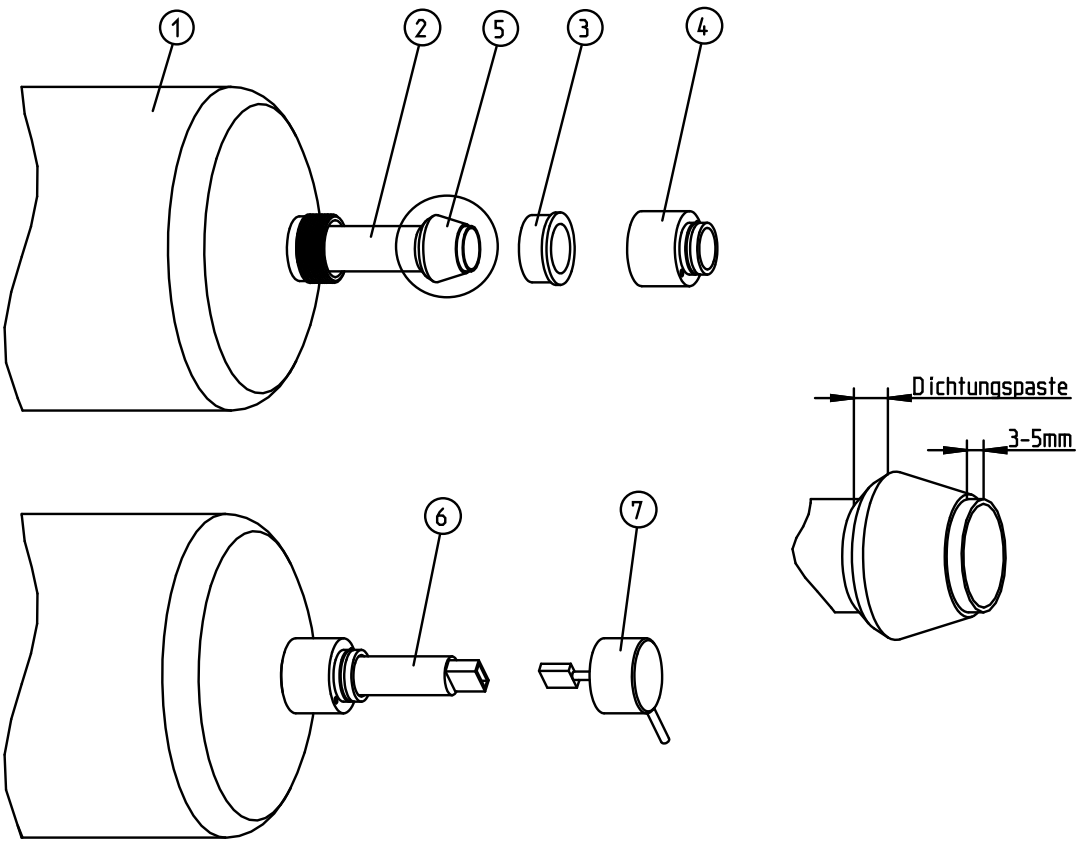


Fig. E-1 Installation drawing

2 | How to install UV lamps (see fig. E-1 bottom)

Attention! When installing the lamps, it must be ensured that the glass on the lamps is not touched with bare hands as this will compromise the lamps' performance.

1. Insert the UV lamp (pos. 6) into the quartz protective pipe (pos. 2) up to approx. 60 mm.
2. Connect the UV lamp (pos. 6) to the plug in the cap (pos. 7).
3. Completely insert the UV lamp (pos. 6).
4. Attach / screw on the cap (pos. 7) again.

Warning! Never look directly into the UV lamp or the measuring window tube when the UV system is switched on. The proper functioning of the UV lamp may only be checked while wearing suitable protective glasses.

3 How to set the control unit

The functioning of the GENO-UV-M (2-5) 115 S disinfection system depends on various operating parameters. These operating parameters depend, in turn, on the system type, water quality and system equipment.

Note: All the operating and maintenance parameters must be entered on starting up the system.

Note: For detailed information on handling the GENO-UV-tronic$_2$ control unit refer to chapter F.

Warning! To guarantee successful operation of the GENO-UV disinfection system, immediately prior to starting up the GENO-UV disinfection system, the downstream piping system must be disinfected as per the DVGW worksheet W 291 (technical rules for the disinfection of water supply systems).

4 | How to start up the system

1. Open the shut-off device at the raw water inlet.
2. Switch on the main switch.
3. Switch the system on at the button I of the GENO-UV-tronic$_2$ control unit.
4. Open upper ball valve for ventilation if no air is to enter the piping system.
5. When the air is out of the system close the ball valve.
6. Open the shut-off device downstream of the GENO-UV disinfection system.
7. Complete the cover sheet and check list / column 1 of the operation log.

F Operation

1 | Introduction

Type IV chlorominators and industrial UV systems AS are controlled and monitored via the GENO-UV-tronic$_2$ control unit.

Warning! Incorrect operation and settings may lead to hazardous operating conditions which cause injury, illness or damage to property.

Only use the settings described in this chapter!

All other work on the control unit, in particular modifications to the parameters, may only be performed by Grünbeck's customer service/authorised service company.

2 | How to operate the control unit

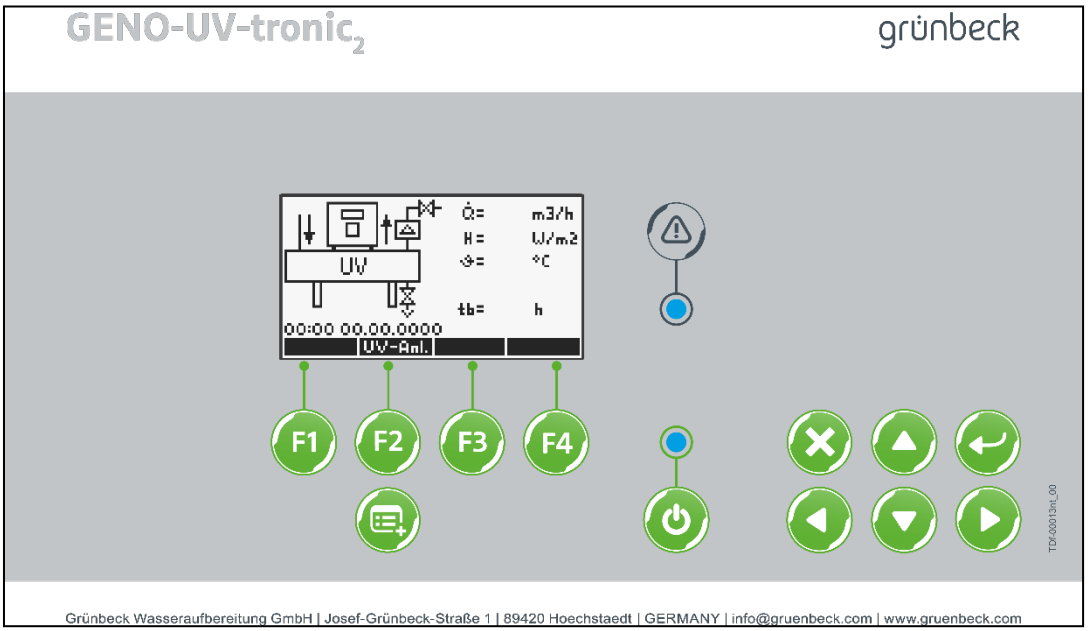


Fig. F-2: GENO-UV-tronic$_2$ controls and displays, example of a UV

F1 To the "Yes" menus

F2 Access to the menu of the set system or to the "No" menus.

F3 Not assigned.

F4 To the "Exit" menus

Access to the system menu

Switch the system on/off
(green pilot LED lights up when on and flashes during the switch-on procedure and in emergency operation)

Confirm faults
Exit the input fields without confirming the entry / code

Confirm entries / code

Move the cursor to the left / right

Edit the values entered or move the cursor up and down

The red pilot LED lights up when the control unit detects a fault

2.1 Basic information

In the system menu (MENU button) and in the disinfection system menu (F2 button) there are two masks for displaying / entering values.

- In the "Display" mask, the parameters can be viewed but not changed.
- In the "Entry" mask all the parameters of the respective menu level can be edited if the relevant code is entered.

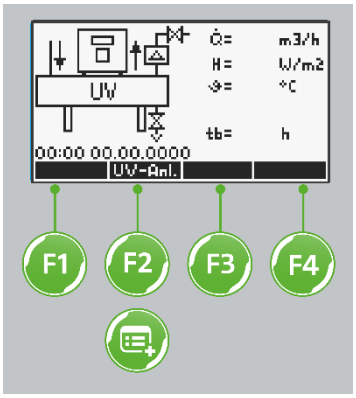


Fig. F-3 Menu access

Enter code:
Move the cursor to the desired point using the buttons ◄ and ►and set the desired value using the buttons ▲ and ▼. Confirm the entry with the Enter button.

Fig. F-3a Code entry

The various menus are secured via code prompts. Parameters which cannot be changed with these codes can only be programmed by Grünbeck's technical customer service/authorised service company.

Code 95	normal operation
Code 156	emergency operation

Display:

- PC or UV appears (photochemical lamps, UV lamps): Systems parts are active.

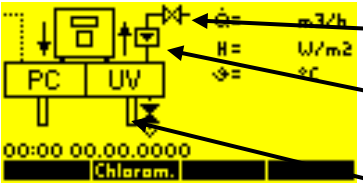


Fig. F-4 Display, example of a chlorominator

- Optional safety valve is available and closed.
- (Optional) water meter is available.
- Optional flush valve is available and open (marked black).

3 | System menu

This menu comprises the settings which relate to the entire system, e.g., the presence of optional accessories as well as detailed forwarding of fault messages and a fault message modem. The system menu is called up by pressing the "Menu" button in the system's basic display.
In the next image you can choose between the function display (F1 button) and the entry function (F2 button).
The F4 button takes you back to the previous display image. If the entry mode was selected with the F2 button, then the code for the desired level must be entered and this entry must be confirmed by pressing the Enter button. The system menu is structured as below:

```
>  Language
   System
   Type
   Options
   Fault memory
   Diagnosis
   Set time
   Emergency operation
   Customer service tele-
phone number
```

The selection is made using the arrow buttons ▲ and ▼.
The Enter button takes you to the selected sub-menu.
The F4 button (Exit) takes you to the previous image.

3.1 Language

Setting the menu language

Setting options

Lan-	German
guage	English
	French
	Italian
	Spanish
	Danish

3.2 System

Setting the UV devices and

Setting options

System	UV device Chlorominator

3.3 UV device

Setting the UV devices and chlorominators

Setting options

UV device	2/200 AS, 3/200 AS, 3/300 AS, 4/300 AS, 5/300 AS
Chlorominator	III 5/E,III 10/E, III 15/E, III 20/E, III 25/E, III 30/E, III 40/E, III 50/E, III 60/E

3.4 Options

In this menu, the system's optionally available equipment features are set. The following can be selected:

3.4.1 Messages to GENO-UV-tronic2

For the detailed forwarding of faults which occur to an external point (e.g., ZLT) It can be specified whether the optionally available additional module is available and whether the fail safe relay should open or close in the event of a fault.

Order no.
93815029

Setting options

(no = normally open / nc = normally closed)

Available	**YES / NO**
1-Maintenance↑ (maintenance interval exceeded)	NO / NC
2-Temperature ↑ (maximum temperature exceeded)	NO / NC
	NO / NC
3-Irradiance↓ (irradiance undercut)	NO / NC
4-Flow↑ (maximum flow exceeded)	NO / NC
6-UV lamp (UV lamp failure)	

3.4.2 Analogue output to GENO-UV-tronic2

Output of measured values: In the individual parameter settings both the nature and the value range of the signal can be entered (e.g., 0-20 mA correspond to 0-8 m³/h

Order no.
93815032

Setting options

Available	**YES / NO**
1-Flow	
Type	0-20 mA / 4-20 mA / 0-5 V / 0-10 V
Minimum	XXX m³/h
Maximum	XXX m³/h
2-Irradiance	
Type	0-20 mA / 4-20 mA / 0-5 V / 0-10 V
Minimum	XX.X W/m²
Maximum	XX.X W/m²
3-Temperature	
Type	0-20 mA / 4-20 mA / 0-5 V / 0-10 V
Minimum	XX °C
Maximum	XX °C

3.5 Fault memory

The fault memory stores the last 16 fault messages whereby the last message always appears at the top (position 1) In addition to the position number and the message text, each line also includes the date and time at which the message was created. The contents of the fault memory can be deleted by pressing the "F1" button when the service password is entered. The most recent fault message automatically overwrites the oldest one.

3.6 Diagnosis

The diagnosis menu serves to support and facilitate troubleshooting. To this end, it allows the current operating states of the digital inputs and outputs as well as the analogue inputs and outputs to be queried. For diagnosis purposes the digital and analogue outputs can be temporarily switched/edited here.

3.6.1 Digital inputs

The operating states of the digital inputs can only be displayed and not changed.

Query and setting options

1-Water meter	ON / OFF
2-Remote control	ON / OFF
3-Monitoring EVG 1	ON / OFF
4-Monitoring EVG 2	ON / OFF
5-Monitoring EVG 3	ON / OFF
6-Monitoring EVG 4	ON / OFF
7-Monitoring EVG 5	ON / OFF
8-Monitoring EVG 6	ON / OFF
10-Thermostat	ON / OFF

3.6.2 Digital outputs

The operating states of the digital outputs can only be displayed and not changed.

Query and setting options

1-Safety valve	ON / OFF
2-Flush valve	ON / OFF
3-Horn	ON / OFF
5-Control of electronic ballast (EVG)	ON / OFF
6-Control of photochemical lamps	ON / OFF
7-Maintenance ↑↑	ON / OFF
8-Collective fault message	ON / OFF

Optional messages to GENO-UV-tronic$_2$

1-Maintenance ↑	ON / OFF
2-Temperature ↑	ON / OFF
3-Irradiance ↓	ON / OFF
4-Flow ↑	ON / OFF
6-UV lamp	ON / OFF

Note: If a digital output is switched manually, the system is turned off. After checking the digital outputs it may be necessary to turn the system on again.

3.6.3 Analogue inputs

The operating states of the analogue inputs can only be displayed and not changed.

Query options

3-Irradiance	V
4-Temperature	°C
5-Water meter	Hz

3.6.4 Analogue outputs (analogue output to GENO-UV-tronic$_2$)

The operating states of the analogue outputs can be both displayed and edited. The value displayed (mA or V) depends on the setting in point 3.4.2.

Query and setting options

1-Flow	XX mA / XX V
2-Irradiance	XX mA / XX V
3-Temperature	XX mA / XX V

3.6.5 Software version

Display of the software version programmed in the control unit.

3.7 Setting the time

The control unit features a real-time clock which, as a rule, does not have to be reset. If, however, this should be necessary, it can be done here.

Note: The clock does not automatically change over to summer/winter time.

3.8 Emergency operation (code 156)

In emergency operation, all the fault messages are suppressed and the system is operated without monitoring. Any faults which occur are ignored- If present, the safety valve opens.

Warning! Since all the faults are suppressed in emergency operation, there is a risk of dangerous operating states occurring (e.g., insufficient disinfection of the water). Emergency operation must therefore only be used in emergencies and for short periods of time.

3.9 Grünbeck technical customer service telephone number

Allows the telephone number of the body responsible for technical customer service to be entered. Grünbeck's service hotline is entered here as standard.

4 | Disinfection system menu

This menu includes the disinfection system-specific settings for the selected system type. The menu is called up using the F2 button. The disinfection system menu is structured as follows:

```
> Configuration
  Delays
  Service data
  Operating values
  Basic setting
```

The selection is made using the buttons ▲ und ▼ . The Enter button takes you to the selected sub-menu.
The F4 button (Exit) takes you to the previous image.

4.1 Configuration

In the "Configuration" menu, the disinfection system components (e.g., water meters, temperature sensors, flush and safety valves) of the disinfection system selected in the system menu are configured.

4.1.1 Temperature sensor

The temperature sensor serves to protect the system from overheating and can be activated here. The maximum permissible system water temperature at which all heat sources (UV lamps, photochemical lamps) are to be switched off in order to prevent a further heat increase is also programmed here. If the re-start temperature is undercut, the system automatically switches on again.

Setting options

Available	**YES / NO**
Maximum temperature	XX °C
Re-start temperature	XX °C

Note: The re-start temperature must be programmed to be at least 5°C below the maximum temperature.

Note: When the maximum temperature is exceeded, if connected, the safety valve will close depending on the settings in point 4.1.5.

4.1.2 Flush valve

If there is an optional flush valve on the system, this can be activated here. When the rinsing temperature (rinsing on) has been reached, water is let out of the system into the drain via the flush valve in order to cool the system down. The flush valve stays open until the programmed temperature at which it is to close again (rinsing off) is undercut.

Setting options

Available	**YES / NO**
Rinsing on	XX °C
Rinsing off	XX °C

Note: The flush valve remains open when the maximum programmed temperature in point 4.1.1. is exceeded in order to cool the system down by rinsing out the water.

4.1.3 Water meter

If there is a water meter on the system (optional with UV systems), this can be activated here and the water meter impulses and maximum permissible flow can be programmed.

Setting options

Available	**YES / NO**
Litre/impulse	XXX.XXX l/Imp
Maximum value	XXX m³/h

Note: When the maximum flow is exceeded, if connected, the safety valve will close depending on the settings in point 4.1.5.

4.1.4 UV sensor

If there is a UV sensor on the system, this can be activated here, the minimum irradiance value can be programmed and the displayed value can be calibrated to ± 20% of the display.

Setting options

Available	**YES / NO**
Minimum value	XX.X W/m²
Calibration	
Setting	± XX %
Calibrated displayed value	XX.X W/m²

Note: When the minimum irradiance value is undercut, if connected, the safety valve will close depending on the settings in point 4.1.5.

Note: No UV sensors are installed in the Chlorominators. This function is thus not shown in the Chlorominator menu.

4.1.5 Safety valve

It can be programmed here whether an optional safety valve is available and when safety actuation of the valve is to be performed. In addition, acknowledgement of the safety valve can be adapted to the alarm message.

Setting options

Available	**YES / NO**
Protection actuation time	XX:XX
Temperature ↑↑	OFF / MAN ACK / AUT ACK
Flow ↑↑	OFF / MAN ACK / AUT ACK
Irradiance ↓↓	OFF / MAN ACK / AUT ACK
UV lamp is defective	OFF / MAN ACK / AUT ACK

Available
Safety valve available or not.

Protection actuation time
Time at which protection actuation of the safety valve is to be performed (valve closes and closes 3 x in succession). If the safety valve is closed due to one of the following alarms, protection actuation is omitted.

Temperature ↑↑
Maximum temperature from 4.1.1 is exceeded.

Flow ↑↑
Maximum value from 4.1.3 is exceeded.

Irradiance ↓↓
Minimum value from 4.1.4 is undercut.

Note: Irradiance not active with↓↓ Chlorominators.

UV lamp is defective
One or more UV lamps or one or more electronic ballasts are defective. The lamps affected do not light up.

OFF (safety valve switched off)
The safety valve of the alarm affected is switched off and does not react to the alarm message.

MAN ACK (manual acknowledgement)
When the alarm affected is triggered, the safety valve closes and does not open again until the fault has been acknowledged by pressing the "CL" button on the control unit.

AUT ACK (automatic acknowledgement)
If an alarm was triggered and the safety valve has closed, it will open again automatically if the reason for the alarm no longer exists for a period of at least 30 seconds continuously.

Note: Flow ↑↑ is different with AUT ACK. The valve opens again after 2 minutes and it is checked whether flow ↑↑ still applies. If this is still the case, the valve closes and the cycle starts again. After a maximum of 5 attempts, the valve remains closed as with MAN ACK.

4.1.6 Remote control

If a floating contact for enabling external operation is connected to the system, this input signal must be activated to enable the remote control function.

Setting options

Input closed	YES / NO

Note: When the remote control input is activated, the system can no longer be switched on and off using the I button.
The input may have to be deactivated for maintenance work.

4.2 Delays

In order to take account of the changing water values (e.g. brief excessively high flows and temperatures), the alarms can be individually delayed from 0-15 minutes (horn 0-30 minutes).

Setting options

Temperature ↑↑	XX min
Flow ↑↑	XX min
Irradiance ↓↓	XX min
Horn	XX min

4.2.1 Temperature ↑↑

If the maximum temperature in 4.1.1 is exceeded for less than the time set, the alarm is only shown on the control unit. Fault alarm contacts and the safety valve are not triggered.

4.2.2 Flow ↑↑

If the maximum value in 4.1.3 is exceeded for less than the time set, the alarm is only shown on the control unit. Fault alarm contacts and the safety valve are not triggered.

4.2.3 Irradiance ↓↓

If the minimum value in 4.1.4 is undercut for less than the time set, the alarm is only shown on the control unit. Fault alarm contacts and the safety valve are not triggered.

Note: Irradiance not active with ↓↓ Chlorominators.

4.2.4 Horn

The horn function can be delayed by up to 30 minutes in order to avoid unnecessary activation of the horn, particularly with automatically acknowledging faults.

Note: If there is a safety valve which is programmed to close with flow ↑↑, the horn signal is activated with a delay of 0 minutes!
Reason:
The closing magnetic valve stops the flow and thus cancels the switch-on condition for the horn.

4.3 Service data

The maintenance intervals can be programmed in the service data. In addition, maintenance, rinsing and lamp replacement can be recorded here.

Setting options
Intervals:

Maintenance	XXXXX h
UV replacement	XXXXX h
Photochemical replacement	XXXXX h
Times:	
Last maintenance	XXXXX h
Copy date	YES / NO
Last time of rinsing by the technical customer service	XXXXX h
Copy date	YES / NO
Last time of rinsing by the customer	XXXXX h
Copy date	YES / NO
UV lamp replacement	XXXXX h
Copy date	YES / NO
Photochemical lamp replacement	XXXXX h
Copy date	YES / NO

4.3.1 Intervals

The most important maintenance intervals for the system components are set under intervals.

Maintenance
System maintenance interval.

UV replacement
Maximum life of the UV lamps.

Photochemical replacement
Maximum life of the photochemical lamps.

Note: Photochemical lamps are only used in chlorominators.

4.3.2 Times

Serves to display and log maintenance work, rinsing and the replacement of lamps. Using the "Copy date" function, the date shown on the time display is copied.

Last maintenance
Display of the date of the last maintenance work.

Last time of rinsing by the technical customer service
Display of when the system was last rinsed by Grünbeck's technical customer service/authorised service company.

Last time of rinsing by the customer
Display of when the system was last rinsed by the customer.

UV lamp replacement
Display of when the UV lamps were last replaced.

Photochemical lamp replacement
Display of when the photochemical lamps were last replaced.

Note: Photochemical lamps are only used in chlorominators.

4.4 Operating values

Serves to record the lifetime of the UV lamps and the number of times the system is switched on and cannot be changed.

Query options

UV lamps	XXXXX h
Switch-on procedures	XXXXX

4.4.1 UV lamps

Number of hours the UV lamps have been operated since the last time they were replaced.

4.4.2 Switch-on procedures

Number of switch-on procedures since the last time the lamps were replaced.

4.5 Basic settings

The system's default setting can be reset in the basic settings. A previously saved system configuration can also be restored.

Setting options

Save parameters: Save the current parameters in order to restore at a later date?	YES / NO
Load parameters: Restore previously saved parameters?	YES / NO
Default parameters: Restore the default values of the selected operating mode?	YES / NO

4.5.1 Save parameters

Following successful configuration of the system, these can be saved here. To this end, all the settings made in the disinfection system menu (configuration, safety valve, delays ...) are permanently buffered in the control unit and can be reloaded at any time.

4.5.2 Loading parameters

If, for example, settings have been changed when troubleshooting, with this function the configuration saved in 4.5.1 can be reloaded.

4.5.3 Default parameters

In the event of inexplicable errors, the control unit can be completely reset with this function.

Note: By resetting the control unit with this function, the configuration saved in 4.5.1 is not lost and can be reloaded using the function described in 4.5.2.

5 | Standard settings

The system configurations set in the system menu can be reset to the default values using the function described in 4.5.3. These are:

Table F-1: Standard settings			
		UV system	**Chlorominator**
Temperature sensor			
Available	y / n	y	y
Maximum temperature	°C	40	50
Re-start temperature	°C	38	47
Flush valve			
Available	y / n	n	n
Rinsing on	°C	38	45
Rinsing off	°C	36	42
Water meter			
Available	y / n	n	n
Litre/impulse	l/Imp	0.213	0.098
Maximum value	m³/h	29	6
UV sensor			
Available	y / n	n	-
Minimum value	W/m²	11.8	-
Calibration	%	± 20	-
Setting	%	0	-
Safety valve			
Available	y / n	n	n
Protection actuation time		02:00	02:00
Close at temperature ↑↑		y	y
Flow ↑↑		y	y
Irradiance ↓↓		y	-
UV lamp is defective		y	y
Remote control			
Input connected	y / n	n	n
Delays			
Temperature ↑↑	min	2	2
Flow ↑↑	min	2	2
Irradiance ↓↓	min	2	2
Horn	min	2	2
Service data			
Intervals			
Maintenance	h	8,760	8,760
UV replacement	h	18,000	18,000
Photochemical replacement	h	-	4,500
Timing			
Last maintenance		00.00.0000	00.00.0000
Last rinse by customer service		00.00.0000	00.00.0000
Last rinse by customer		00.00.0000	00.00.0000
UV lamp replacement		00.00.0000	00.00.0000
Photochemical lamp replacement		00.00.0000	00.00.0000
Operating values			
UV lamps	h	0	0
Switch-on procedures		0	0

G Troubleshooting

Even carefully designed and manufactured technical systems that are operated properly, may experience malfunctions. Table G-1 provides an overview of possible faults that may occur during operation of the GENO-UV disinfection system and indicates the causes and their elimination.

Note: You will find more information on the fault messages and their implications in chapter F-2.5.

The GENO-UV disinfection systems are equipped with fault detection and reporting system. They are shown in the display of the GENO-UV-tronic$_2$ control unit and by the flashing red LED. A collective fault message is output via the floating contact (see circuit diagram in the appendix).

Note: Grünbeck's technical customer service/authorised service company must always be notified in the event of malfunctions that cannot be eliminated with the information given in table G-1! When contacting the technical customer service/authorised service company, please indicate the system designation, serial number and the fault message displayed where relevant.

Table G-1: Troubleshooting

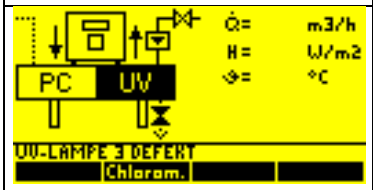
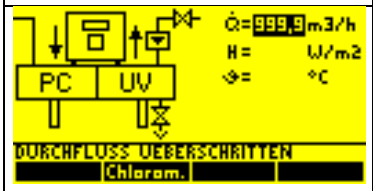
This is what you observe	This is the cause	This is what to do
Fault message on the display		
Initiate maintenance	Maintenance interval or	Perform maintenance or replace the relevant lamp and confirm in UV-tronic$_2$: Disinfection system menu / service data / times
Initiate UV replacement	Lifetime of the UV lamp or	
Initiate PC replacement	Lifetime of the photochemical lamp expired	
	UV lamp is defective, UV system part is shown inverted.	• Replace defective UV lamp and acknowledge fault. • Notify Grünbeck's technical customer service/authorised service company.
	The permissible system flow is exceeded, the flow display is shown inverted.	Limit the flow via the system to guarantee the effectiveness of disinfection or extend the system.

Table G-1 (continued)

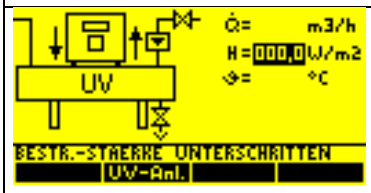
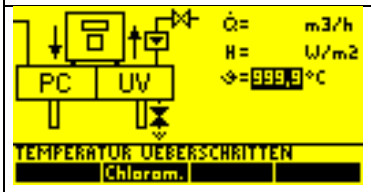
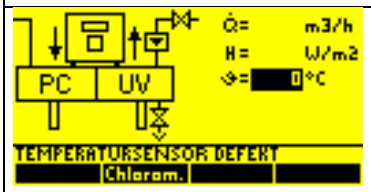
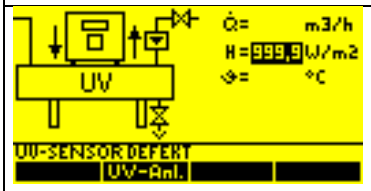
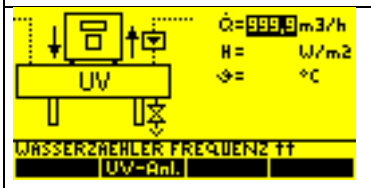
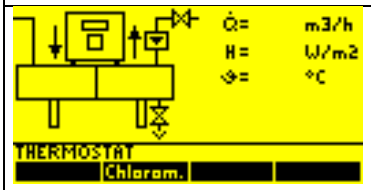
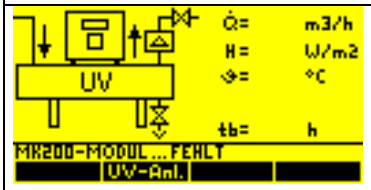
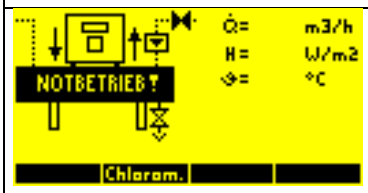
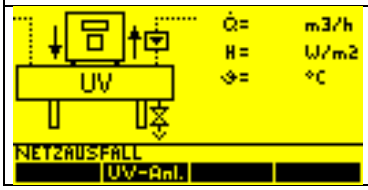
This is what you observe	This is the cause	This is what to do
	• Irradiance too low, the irradiance display is shown inverted.	• Rinse the system. • Clean/replace the window measuring tube. • Replace the irradiance sensor.
	Temperature high, the temperature displays is shown inverted. Optional flush valve is open. • No flow. • Circulation is defective.	Check setting in the disinfection system menu (F2 button) / configuration / temperature sensor / maximum value. If necessary install a flush valve for temperature regulation (order. no. 522 800).
	The temperature signal no longer provides a valid signal, the temperature display is shown inverted.	Check sensor connection line (line breakage?).
	UV sensor signal > 10 V(DC), irradiance display is shown inverted.	Check sensor connection line (short circuit?).
	Impulse frequency of the water meter is too high, flow display is shown inverted.	Unsuitable flow signal or initiator which moves excessively is connected >> use another water meter.
	Thermostat in the control cabinet has been activated. The system switches itself back on automatically once it has cooled down.	Ensure that the ambient temperature is kept low.
	The connection between the controller and MK200 basic module is interrupted or optional module 8RA or fault message modem is configured but the connection is interrupted.	Check and repair the connection or deactivate the optional module.

Table G-1 (continued)		
This is what you observe	**This is the cause**	**This is what to do**
	Display in emergency operation	See chapter F 3.8
	• Main switch was switched off. • Power supply was interrupted (supply line, automatic cutout).	Press CL button.

Danger! Danger due to electrical energy! Do not touch or replace the UV lamps unless the main switch has been switched off.

Warning! Never look directly into the UV lamp or the measuring window tube if the UV system is switched on. The proper functioning of the UV lamp may only be checked while wearing suitable protective glasses.

Table G-1 (continued)
Checking the UV lamps (see fig. E-1)
1. Switch off the main switch 2. Remove the caps (pos. 7) and pull out the UV lamps (pos. 6) approx. 50 mm. 3. Switch on the main switch and start the system (I button GENO-UV-tronic$_2$). 4. Wait to try a second time. 5. Switch off the main switch. 6. Replace defective UV lamp with a spare UV lamp (refer to C-5.2 accessories). 7. Switch on the main switch and try to start up again. 8. If the UV lamp does not start, notify the Grünbeck technical customer service/authorised service company. Wait two minutes after successful start-up. Switch off the main switch, completely insert the UV lamps (pos. 6) and re-secure the caps (pos. 7). 9. Switch on the main switch and start the system.

H Maintenance and care

1 | Basic information

In order to guarantee the reliable functioning of the UV disinfection systems over a long period of time, some maintenance has to be performed at regular intervals.

The work sheets W 293 and W 294 prescribe:

- Regular cleaning and rinsing of the GENO-UV disinfection system.
- Replacement of the UV lamps when they have reached the max. service life indicated.
- Checking of the UV system sensor after max. 15 months.

Note: A maintenance contract ensures that all the required maintenance work will be performed in due time.

The operation log is included with the system's operating instructions (see pocket at the end of the folder).

2 | Maintenance

In accordance with the DVGW work sheet W 293 maintenance work on GENO-UV disinfection systems may only be carried out by Grünbeck's technical customer service/authorised service company or specially trained staff. Only UV lamps approved by the manufacturer may be used in the system.

An operation log is to be kept for the GENO-UV disinfection system. In this operation log, the customer service technician records all maintenance and repair work performed. In case of malfunctions, this log helps to identify possible sources of error. In addition the log documents the proper system maintenance.

Note: Make sure that all maintenance work is documented in the operation log or saved in the GENO-UV-tronic2 control unit.

The GENO-UV disinfection systems feature a maintenance report system.

450 hours before the next maintenance date, the message "Arrange maintenance" is displayed on the GENO-UV-tronic$_2$ control unit and the red LED flashes. A maintenance message is output via the floating contact (see circuit diagram in the appendix).

On expiry of the maintenance interval, the message "Maintenance necessary" is displayed and the red LED flashes. A maintenance message is output via the floating contact (see circuit diagram in the appendix).

In order to ensure proper operation of the system, maintenance is now urgently necessary! The maintenance message can only be reset upon completion of the maintenance work.

Summary: Maintenance work

- Check the UV system sensor.
- Replace the UV lamp.
- Check lamp plug and replace, if necessary
- Clean / replace the air filter.
- Clean the quartz protective pipes and measuring window tube.
- Check seals and replace, if necessary
- Rinse the GENO-UV disinfection system.
- Check the programming of the control unit.
- Check the functioning of the safety device if installed
- Check functioning of the flow sensor if installed.
- Check functioning of the flush valve for temperature regulation if installed
- Enter the date of maintenance, rinsing (cleaning) and replacement of the UV lamps in the maintenance parameters in the control unit.
- Record all data and work performed, including repair work, in the operation log.
- Reset the operating hours.
- Hand over the system and the filled out operation log to the operator.

Note: By performing the required service and maintenance work at regular intervals, you can ensure the proper functioning of your UV system. Based on the DVGW work sheet W294 part 1, we recommend maintaining the system after 18,000 hours or, alternatively, after the message "Arrange maintenance" appears in the control unit display. When the message "Maintenance necessary" appears, maintenance measures are to be initiated immediately. To this end, arrange a maintenance appointment with Grünbeck's technical customer service/authorised service company (see www.gruenbeck.com).

3 | Information regarding the operation log

The operation log is located in the pocket at the back of this folder. When starting up the system, make sure to record all data on the cover sheet of the operation log and fill in the first column of the check list.

The customer service technician will fill in a column of the check list whenever maintenance is performed. This document provides evidence of proper maintenance.

4 | Spare parts

You may order spare parts and consumables from your local Grünbeck representative (see www.gruenbeck.com).

5 | Operation log

GENO-UV disinfection system… **M2 200 S** ☐ **M3 200 S** ☐ **M4 200 S** ☐ **M5 200 S** ☐

Serial no.:

Customer

Name: .....

Address:.....

.....

.....

Start-up

Installer: .....

Customer service technician:.....

Company:.....

Work time certificate: .....

Signature:.....

Drain connection DIN EN 1717	☐	yes	☐	no
Floor drain available	☐	yes	☐	no
Line upstream of the GENO-UV disinfection system.	☐	Zinc-plated		
	☐	Copper		
	☐	Plastic		
	☐	Stainless steel		
	☐	Miscellaneous	_____	

Notes:

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Maintenance work on GENO-UV disinfection systems Check list			
Please enter measured values. Confirm checks with OK or enter repair work performed.			
Maintenance performed (date)	Start-up		
Values			
Transmission at 254 nm τ_{50} in %			
Max. flow [m³/h]			
Min. irradiance in W/m². (setting on electronics)			
Inspections and checks on control unit and sensor			
Irradiance in W/m² measured with the system sensor	X		
Irradiance in W/m² measured with the reference sensor	X		
Operating hours			
Operating parameters of the electronics checked (GENO-UV-tronic$_2$ only)			
Enter the maintenance parameters in the electronics (GENO-UV-tronic$_2$ only)			
Operating hours reset (GENO-UV-tronic$_2$ only)			
Air filter cleaned / replaced (M systems only)	X		
Work on UV lamp			
UV lamp(s) replaced	X		
Lamp plug checked	X		
Viton seal checked	X		
Cleaning work			
UV system rinsed	X		
Quartz protective tubes cleaned	X		
Measuring window tube cleaned	X		
Work on accessories (enter for IBN assembled accessories)			
Flow sensor checked			
Safety device checked			
Flush valve for temperature regulation checked			

Maintenance work on GENO-UV disinfection systems Check list			
Please enter measured values. Confirm checks with OK or enter repair work performed.			
Maintenance performed (date)	Start-up		
Values			
Transmission at 254 nm τ_{50} in %			
Max. flow [m³/h]			
Min. irradiance in W/m². (setting on electronics)			
Inspections and checks on control unit and sensor			
Irradiance in W/m² measured with the system sensor	X		
Irradiance in W/m² measured with the reference sensor	X		
Operating hours			
Operating parameters of the electronics checked (GENO-UV-tronic$_2$ only)			
Enter the maintenance parameters in the electronics (GENO-UV-tronic$_2$ only)			
Operating hours reset (GENO-UV-tronic$_2$ only)			
Air filter cleaned / replaced (M systems only)	X		
Work on UV lamp			
UV lamp(s) replaced	X		
Lamp plug checked	X		
Viton seal checked	X		
Cleaning work			
UV system rinsed	X		
Quartz protective tubes cleaned	X		
Measuring window tube cleaned	X		
Work on accessories (enter for IBN assembled accessories)			
Flow sensor checked			
Safety device checked			
Flush valve for temperature regulation checked			

Maintenance work on GENO-UV disinfection systems Check list			
Please enter measured values. Confirm checks with OK or enter repair work performed.			
Maintenance performed (date)	Start-up		
Values			
Transmission at 254 nm τ_{50} in %			
Max. flow [m³/h]			
Min. irradiance in W/m². (setting on electronics)			
Inspections and checks on control unit and sensor			
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Irradiance in W/m² measured with the reference sensor	X		
Operating hours			
Operating parameters of the electronics checked (GENO-UV-tronic$_2$ only)			
Enter the maintenance parameters in the electronics (GENO-UV-tronic$_2$ only)			
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UV lamp(s) replaced	X		
Lamp plug checked	X		
Viton seal checked	X		
Cleaning work			
UV system rinsed	X		
Quartz protective tubes cleaned	X		
Measuring window tube cleaned	X		
Work on accessories (enter for IBN assembled accessories)			
Flow sensor checked			
Safety device checked			
Flush valve for temperature regulation checked			

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Measuring window tube cleaned	X		
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Maintenance work on GENO-UV disinfection systems Check list			
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Measuring window tube cleaned	X		
Work on accessories (enter for IBN assembled accessories)			
Flow sensor checked			
Safety device checked			
Flush valve for temperature regulation checked			