

Manual – UV System

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1. FOREWORD

Dear Customer,

Thank you for choosing our product **BAUER UV system**.

With this product, you have a physically active device for conditioning and treating water and water-based fluids. It has been developed and manufactured according to the strictest criteria of electrical and manufacturing engineering. Our development and production standards guarantee that you are using a device that meets high standards and quality levels.

The product helps to operate your system efficiently, safely, and reliably, extending its service life while protecting the environment by eliminating or significantly reducing the use of chemical products. The BAUER UV System is energy-efficient and requires little maintenance and servicing.

If you have any questions about the product and service, please contact your specialist dealer or our service department directly.

Best regards

Bauer WT Systems GmbH

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1.1. Models

The BAUER UV Systems product range is available in various designs. The appropriate design is tailored to your requirements depending on your specifications.

1.2. Important symbols in this manual

Important information is marked with the symbols listed below. Please observe the symbols and read the manual carefully. Failure to observe the instructions provided could result in injury electric shock, burns, fire or damage to the device.



Please read!

Please read the manual carefully before installation and commissioning. This is for your safety and prevents damage to the device. Please follow the instructions in the order specified. Please keep this manual with the device.



Danger!

Failure to comply may result in serious injury, such as electric shock or death.



Caution!

Failure to comply may result in damage to or destruction of the device.

Important notes and information for the user.



This device is not intended for use by persons (including children) with limited physical, sensory, or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction concerning use of the device by a person responsible for their safety.

General safety instructions

This device is a technical work tool and is intended for use in closed rooms or containers.

Incorrect use of the device or damage to the housing can result in the escape of dangerous UV-C radiation.

Protect your eyes and skin from UV light. UV-C radiation causes severe sunburn and painful conjunctivitis of the eyes in a very short time.

Devices with obvious damage must not be operated – please contact the seller! The UV lamp must not be operated outside the reactor.



Prolonged interruption of the water flow may cause the reactor surface to heat up. Read these installation and operating instructions before opening the device.



Caution: Areas that can only be opened with tools are maintenance areas. Unauthorized opening may result in danger to the user!

1.3. Warranty conditions

Please contact the company from which you purchased the product for possible warranty claims. Please keep your "warranty certificate" and the invoice. In the event of a possible warranty claim, please present both.

1.4. Environment – Material and packaging material

Material overview: Reactor made of stainless steel 1.4571; control box made of ABS plastic

The product is carefully packaged to protect it from damage and possible transport damage. Please dispose of the packaging properly in accordance with your local waste disposal system. The packaging consists of materials such as:



Corrugated cardboard



LDPE plastic film

1.5. Disposal of old devices

The product has a very long service life. If it is no longer needed before or after this period, please dispose of it in accordance with local disposal regulations.



The product must not be treated as household waste. Please dispose of it after use in accordance with your local waste disposal system. For more detailed information on recycling, please contact your local authority, waste disposal company, or the company from which you purchased the product. By disposing of the product correctly, you will help prevent negative consequences for the environment and human health.

2. GENERAL DESCRIPTION

2.1. Purpose of the device

The BAUER UV system is used for chemical-free, physical (light) conditioning and treatment of water and water-based fluids in the areas of drinking water, industrial water, heating water, and cooling water.



The device is not intended for use for other purposes, is not permitted for such use, and may be dangerous. The manufacturer cannot be held liable for damage resulting from the improper use of the device or caused by incorrect use.

2.2. Components

The BAUER UV System product range is available in various designs. The appropriate design will be tailored to your needs according to your requirements. Please check the delivery note and, if necessary, the enclosed packing slip.

Scope of delivery:



Switch box / power supply for 110-240 V AC 50/60 Hz or 230 V AC supply voltage for the UV lamp

Stainless steel **reactor** with mounted immersion tube system, connections: depending on model

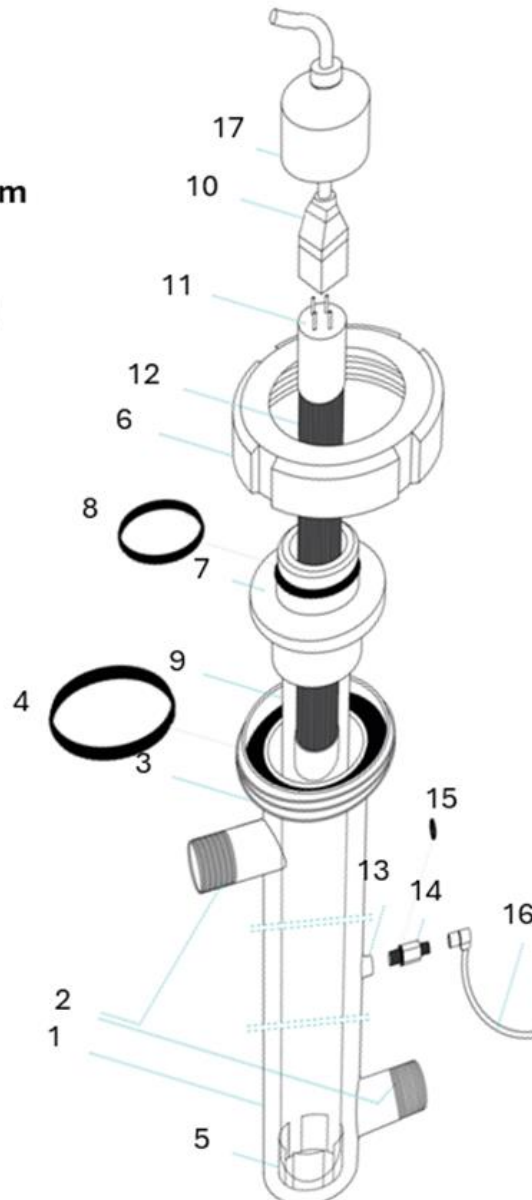
UV lamp, also known as a radiator, UV lamp with variable power consumption depending on model



Connection: Protective contact plug (PE conductor is not connected); VDE 0100 Part 410, 412.2.2.4
Protection class I

3. TECHNICAL DATA—List of components

- 1 UV-reactor
- 2 threaded connections
- 3 threaded connection
- 4 reactor sealing ring
- 5 spring/bracket for tube system
- 6 groove nut
- 7 immersion tube head
- 8 sealing ring for dip tube head
- 9 immersion tube system
- 10 lamp cable
- 11 4-PIN lamp plug
- 12 UV lamp
- 13 sleeve for UV sensor
- 14 UV sensor
- 15 sealing ring sensor
- 16 sensor cable
- 17 PE protective cap



4. INSTALLATION

The BAUER UV system is used in both building and industrial technology. It can be installed at various points in the system, depending on the application. To determine the best technical and technological positioning, please contact your local specialist advisor before installation to determine the best possible and most suitable position for installing the UV system, either after an on-site inspection of your system or after a general consultation.

4.1. Please note:



The device may only be installed indoors. Environmental influences at the place of operation must not exceed the properties of the **IP protection class** of the device.



The product **must not** be used in areas with potentially explosive substances.



The control unit is used in conjunction with the reactor. First install the reactor in the designated location, then install the lamp and connect it to the control unit. Check that all parts are properly connected, then plug the **power cord** into the outlet.

4.2. Installation rules

- Work on the piping, electrical system, and electronics may only be carried out by persons with the appropriate qualifications.
- Always use suitable tools and materials for wall mounting the control unit and the reactor.
- During installation, always ensure that there is an electrical ground connection (must not be interrupted).
- The control unit and reactor must not be installed under water-carrying pipes.
- When installing the signal cable on the control unit and the reactor, the union nuts must be tightened sufficiently to prevent them from loosening by hand.
- The reactor can be installed either vertically or horizontally. For vertical installation, the probe connector must be located at the top of the reactor (to avoid contact with condensation).
- The reactor should be installed so that the water flows through the reactor from bottom to top. Please note the direction of flow in your system.

4.3. Installation steps

4.3.1. General installation

- Drinking and service water – The reactor is installed after the domestic water connection and after the water meter.
- Cooling and heating circuit – If possible, the reactor should be installed in the flow pipe in the full flow or, if necessary, on the flow tank in the bypass. **If you have any questions about the installation, operation, or servicing of the product, please consult your local specialist advisor or installer, or contact Bauer WT Systems GmbH.**

4.3.2. Installation of the control unit

Secure the control unit firmly and vibration-free using suitable fastening materials depending on the wall construction. Please ensure that the control unit is always at a sufficient distance from the wall to ensure air circulation and heat dissipation. Connect the control unit and the reactor(s) securely, making sure that the plug is properly inserted.

Installation instructions / General information

The BAUER UV system is always the last unit in a treatment chain, as the distance to the extraction point should be as short as possible (when using a pipejet, this is the last point). Water filters provide ideal conditions for bacteria to colonize. The freshly disinfected water would therefore become contaminated again if it continues to flow through the drinking water circuit after passing through the UV system. Pressure vessels should always be installed upstream of the UV-C systems.

Every UV-C lamp [12] has a natural decline in UV-C output. The manufacturer of the UV-C lamp guarantees 60% of the UV-C output after approx. 10,000 operating hours (or 8,000 operating hours for the H series). **The calculation of the systems always refers to this 60% of the output at a transmission of 90% T1cm.**

After more than 10,000 (or 8,000) operating hours, the lamp continues to function (glow), but the UV-C output (germination output) becomes increasingly lower.

Ensure that the reactor does not contain any water during the frost period or that it is always operated at a temperature above 0°C.

Installation work must be carried out in accordance with the applicable regulations and by trained specialist personnel. The contents of these instructions must be made available to the specialist personnel carrying out the installation.

I. Step: Preparation

Determine the installation location and position. Ensure that there is sufficient space to replace the UV lamp [12] or the immersion tube system [9]. If possible, choose an installation location where the reactor [1] does not need to be disconnected from the pipe/tube network for such a replacement.

Vertical and horizontal installation positions are possible. If possible, choose a vertical installation position with the threaded connection [3] and the groove nut [6] facing upwards. For horizontal installation, the medium outlet must face upwards.

Please note that, if possible, the flow direction should be from below (good ventilation and better turbulence behaviour of the water) in order to ensure the best possible disinfection performance. Although a flow from above is also possible and does not impair the disinfection effect, it is disadvantageous for physical reasons of hydrodynamics and therefore not recommended.

II. Step: Installation of reactor and switch box

When integrating the reactor into the pipe system, please ensure that the threaded connections are sufficiently sealed. Please note that the threaded connections [2] have a slightly conical shape to facilitate sealing.

The switch box must be mounted on a flat surface (e.g., wall or panel). Please use the wall brackets from the mounting kit to install the switch box. You do not need to open the switch box to do this.

If installing without the mounting kit, the pre-drilled holes in the corners outside the sealing area of the cover are intended for mounting and should be used accordingly. To do this, open the cover of the switch box. Damage to the system without the mounting kit will void the manufacturer's warranty.

III. COMMISSIONING

- Before commissioning the UV system and flooding the reactor, please check that the immersion tube system [9] is correctly positioned and properly and sufficiently secured using the groove nut [6] (tighten by hand).
- Before switching on the UV system, check that the UV lamp [12] is correctly connected to the 4-pin plug [11] of the lamp cable [10] and is in the correct position in the reactor.
- **Only switch on the system:**
 - once **the reactor** has been completely **flooded** – please **wait at least 6 minutes** – and the reactor is completely filled with medium so that the system components can reach the temperature of the medium.
 - Then allow **the medium to flow through the reactor** for at least **2 minutes** to ensure that all parts are tight when the medium is flowing and that the reactor/sensor has adjusted to the actual temperature of the medium.
 - Only switch on the UV system control after at least 6 minutes (flooding) and 2 minutes (flow) have elapsed

4.3.3 SWITCHING ON THE UV SYSTEM

CAUTION: Only switch on the UV lamp once it is in the reactor vessel and correctly positioned!

- The cables must be laid without kinks. The bending radii of the cables must be observed (do not kink!).
- The connection must be made in accordance with the polarity indicated on the cables.
- Plug the power supply unit into the grounded outlet.
- Switch on the device and visually check whether the UV lamp is lit = violet-blue light shimmers in the PE protective cap [17] on the lamp cable and/or whether the lamp indicator light and the general system indicator light are lit and confirm the operation of the UV system with a green light signal in each case.

4.4 MONITORING - SERVICE LIFE MONITORING (OPERATING HOURS) – Time Counter (TC)

This section is only relevant for systems with the additional TC function – time counter/operating hours counter.

TC monitoring is performed via an **operating hours counter** and is used to monitor the service life of UV lamps. After the operating voltage is applied (the control system is switched on), the counter begins to record the operating time. Each time the control system is switched on, the TC monitoring performs the "startup" procedure. During this process, the LED lamps light up red, yellow, and green in succession for one second. This serves to check the function of the LED lamps. By specifically interrupting this "startup" procedure, the counter can be **reset** (counts the operating hours from the so-called zero position again).

By specifically interrupting the "startup" procedure, the system must be adjusted (see readjustment) to the preset and stored operating hours value!

The monitoring unit has been designed with a traffic light display. Operating hour thresholds are stored in the device's non-volatile memory:

- If the current operating hours are less than 95% of the guaranteed service life of the UV lamp, the **green** LED lights up.
- If the current operating hours exceed 95% of the guaranteed service life of the UV lamp, the **yellow** LED lights up as a **pre-alarm**. Operators should check whether they have a replacement lamp available so that they can replace the worn UV lamp in a timely manner.
- If the guaranteed service life of the UV lamp is exceeded, the **red** LED lights up as a so-called **main alarm**. The UV lamp must be replaced at this point at the latest, as the specified minimum radiation is no longer sufficient.

Procedure for recalibrating the monitoring system after replacing the UV lamp:

1. Confirm and hold the "Reset" button (approx. 2 seconds)
2. Release the "Reset" button.
3. The red LED lights up once, and shortly afterwards the yellow LED lights up. While the yellow LED is lit, press the "Reset" button again and hold it down for approx. two seconds.
4. Then release the "Reset" button.
5. The red LED lights up once again – and shortly afterwards the yellow LED lights up – while the yellow LED is lit, press the "Reset" button again and hold it down for approx. two seconds.
6. Then release the "Reset" button.
7. The programmed "startup" procedure of the control system will now run automatically.
8. The system is now recalibrated after the "Reset."
The operating hours counter starts counting the working hours again.
The green LED lights up during operation until the preset operating hour limit for switching to the yellow LED is reached.

It is also recommended that the immersion tube (quartz glass) be removed and thoroughly cleaned with the service kit each time the lamp is replaced. See info service kit and cleaning procedure.

4.5 MONITORING - UV LIGHT INTENSITY MONITORING - POWER DETECTION (PD)

This section is only relevant for systems with the additional PD function – power detection/monitoring of light intensity using a sensor.

The light intensity output is monitored by a sensor. After the operating voltage is applied, the system begins measuring the light intensity. The "startup" procedure is performed each time the system is switched on. During this procedure, the LED lamps light up one after the other for one second in red, yellow, and green. This serves to check the function of the LED lamps.

By specifically interrupting the procedure, the system must be recalibrated (see recalibration) to the factory-set measurement value!

The monitoring unit has been designed with a traffic light-style display. Predefined intensity thresholds are stored in the device's non-volatile memory:

- If the UV intensity (light intensity) is more than 70% of the initial value, the **green** LED lights up.
- If the UV intensity (light intensity) falls below 70% of the initial value, the **yellow** LED lights up as **a pre-alarm**.
Operators should check whether they have a replacement lamp available so that they can replace the worn UV lamp promptly.
- If the UV intensity falls below 50% of the initial value, the **red** LED is activated as **a main alarm**.
To ensure sterilization, the UV lamp must be replaced at the latest when the red LED lights up.

The system must always be **recalibrated** during initial **commissioning** and after each lamp replacement:

The system is switched on via the main switch. After approx. 6 minutes of lamp operating time, the sensor system is automatically recalibrated. Before the "reset," a sufficient water flow through the reactor must be ensured for at least 2 minutes. This ensures that the UV system is flooded with the medium as intended for operation and that the temperature of the medium and the system components are approximately the same.

Procedure for recalibrating the monitoring system after changing the UV lamp:

1. Press and hold the reset button (approx. 2 seconds).
2. Release the "Reset" button.
3. The red LED lights up once – and shortly afterwards the yellow LED lights up – while the yellow LED is lit, press the "Reset" button again and hold it down for approx. two seconds.
4. Then release the "Reset" button.
5. The red LED lights up once – and shortly afterwards the yellow LED lights up – while the yellow LED is lit, press the "Reset" button again and hold it down for approx. two seconds.
6. Then release the "Reset" button.
7. The programmed "startup" procedure of the control system will now run automatically.
8. The system is now recalibrated after the "Reset."
The sensor monitors the light intensity within the preset values.
The green LED lights up during operation until the light intensity measured by the sensor falls below the first critical value preset on the circuit board and switches to the yellow LED.

It is also recommended that the immersion tube (quartz glass) be removed and thoroughly cleaned with the service kit each time the lamp is replaced. See Info Service Kit and Cleaning Procedure.

4.6 MAINTENANCE OR REPLACEMENT OF THE QUARTZ PROTECTIVE TUBE

The removal, replacement, and cleaning of the immersion tube of the UV system should be carried out by trained personnel after carefully reading the operating instructions.

At least once a year, preferably when changing the UV lamp, the quartz protective tube should be thoroughly cleaned using the service kit. Please note that any possible deposits, e.g., from hard water, chemicals such as anti-corrosion agents, or many other possible deposits, must be thoroughly and completely removed from the quartz glass/immersion tube. Only a clean immersion tube allows the light from the UV lamp to have an optimal effect and work effectively.

Procedure:

- Disconnect the UV system from the power supply. First switch off the main switch, then pull the power plug out of the grounded socket for safety reasons.
- Empty the reactor by draining the medium.

Remove the UV lamp [12]:

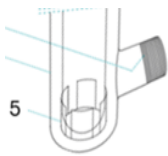
- Use a screwdriver to loosen the locking screw on the PE protective cap [17].
- Loosen the cable gland.
- Pull back the PE protective cap.
- Pull out the UV lamp with the cable. Caution: the lamp may be warm to hot!

Remove the quartz protective tube [9]: Caution, be sure to wear protective gloves, see Service KIT!

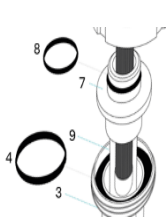
Remove all contaminants from the inside and outside of the quartz protective tube.

- Loosen the groove nut
- Carefully pull the quartz protective tube out of the reactor without tilting it.
- Treat the entire surface of the quartz protective tube with cleaner.
Apply cleaner to the clean cloth supplied (see Service KIT), allow it to act on the surface of the quartz protection tube, and then carefully wipe off all deposits. Repeat the process until the entire surface of the immersion tube is very clean.
- When cleaning with the Service KIT, a slight white-grey haze will appear on the surface of the immersion tube.
Be sure to rinse it thoroughly with lukewarm water until this film is completely removed.

Installing the quartz protection tube [9]:



Caution: When reassembling, ensure that the quartz protection tube is correctly positioned at the front end in the side spring [5], which is located on the inner base of the reactor housing. Please do not use too much force—only as much as necessary until you feel it "click" into place. Otherwise, there is a risk that the tabs of the spring will be crushed, making it impossible to position the quartz protection tube correctly or even causing it to break or shatter during subsequent operation. Incorrect positioning of the quartz tube can also impair the operation of the sensor, preventing the monitoring system from functioning properly.



Then secure the quartz protection tube insert with the groove nut.

Always ensure that all **seals** fit perfectly and are positioned as intended. The seals must not show any damage, such as cracks or pressure marks on the surfaces.

If the seals do not correspond 100% to the required structure, they must be classified as defective and no longer usable. Please be sure to use new seals. Otherwise, there is a risk of the system leaking. **Recommendation:** the seals should be replaced after a maximum of three years of use of the UV system. If the immersion pipes are cleaned more frequently, we recommend shortening the replacement intervals.

4.7 MAINTENANCE - REPLACEMENT OF THE UV LAMP

The removal and replacement of the UV lamp should be carried out by trained personnel after carefully reading the instructions for use.

As a rule, the UV lamp should be replaced after approx. 8000/10,000 operating hours (max. operating time). For systems with Monitoring TC or Monitoring PD, this may be sooner, depending on the display – see red LED.

Please note that with both monitoring systems, the "reset" procedure must always be carried out for recalibration. This is the only way to ensure that the monitoring of the UV systems takes over the monitoring of the conditions, TC operating hours monitoring, or PD light intensity monitoring.

Procedure:

Switch off the UV system via the main switch and disconnect it from the power supply, pull the mains plug out of the safety socket.

Remove the UV lamp [12]:

- Use a screwdriver to loosen the locking screw on the PE protective cap [17].
- Loosen the cable gland and carefully pull back the PE protective cap.
- Very carefully pull out the UV lamp with the cable
- Carefully remove the UV lamp from the 4-pin connector (caution: the UV lamp may be hot!).
Only touch the UV lamp directly at the base (risk of glass breakage!)

Clean the new UV lamp: please always wear very clean gloves when doing this, see Service KIT.

- Thoroughly wipe off any fingerprints on the lamp tube with a cloth soaked in alcohol.
- If necessary, remove any deposits on the inside of the quartz tube with the Service KIT.
- Both parts – the UV lamp and the immersion tube – must be completely clean.

Reinstalling the UV lamp [12]: always wear very clean gloves when doing this work, see Service KIT.

- Carefully insert the UV lamp into the socket of the ballast's lamp-side connection cable with a 4-pin connector, without applying excessive pressure.
- UV lamp – please exercise extreme caution – insert through the slotted nut [6] and the immersion tube head [7] into the quartz protective tube until it reaches the bottom
- Push the transparent PE protective cap up to the seal of the immersion tube head
- Secure the lamp cable with a cable gland and provide strain relief
- Push the transparent PE protective cap onto the seal of the immersion tube head until it stops
- Use a screwdriver to tighten the locking screw on the PE protective cap [17].
- **Start up the system again step by step, depending on the model**

Note: Regardless of the age of the lamp, the UV lamp holder will turn straw yellow to slightly brownish under the influence of UV light. This does not impair the function of the UV system.

5. ERRORS AND POSSIBLE CAUSES

If the sterilization performance and operation of the system are insufficient, check the following:

1. Contamination of the quartz tube
Remedy: Clean the immersion tube/quartz tube with the cleaner from the service kit
2. Overheating of the system when the water flow is interrupted
Remedy: Check the water flow
Recommendation: If the system is not in use for a very long period, it should be switched off
3. Lamp aging/maximum operating hours of the lamp exceeded, or lamp replacement indicated
Remedy: Replace the lamp
4. In the event of defects in the power cord, lamp cable, or sensor cable, contact the seller or a qualified electrician to repair the damage to the cables in accordance with regulations.

6. MAINTENANCE AND CARE

The device has been designed for low-maintenance operation. Simply check at regular intervals that the reactor and pipe connections are secure and free of leaks, and that there are no other leaks.

If you have any questions or encounter a malfunction that you cannot remedy yourself, please contact the company from which you purchased the product.

7. LIABILITY AND WARRANTY

We are only liable for warranty claims within the scope of the national statutory warranty obligation.

The general terms and conditions apply. We expressly point out that the warranty does not apply to damage caused by operating errors due to non-compliance or insufficient compliance with this user information, operation with spare parts such as lamps and ballasts that are not original parts, installation or attachment of unsuitable accessories, incorrect operation and/or incorrect installation, removal, manipulation, failure to use protective devices, improper maintenance, wear and tear, and failure to replace wear parts.

8. EC DECLARATION OF CONFORMITY



EC Declaration of Conformity

We hereby declare that the BAUER UV System product range, in its design and construction as well as in the version marketed by us, complies with the basic safety and health requirements of the applicable EUG directives. This declaration loses its validity in the event of any modification to the system that has not been agreed with us.

Applicable directives:

EC Low Voltage Directive	2014/35/EU
EMC Directive	2014/30/EU
RoHS	2011/65/EU

Applied harmonized standards:

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

Applied national standards and technical specifications:

DIN 19636-100:2008-02
DIN EN 14743:2007-09
DIN 31000/VDE 1000:2011-05

We hereby declare that the BAUER UV Systems product range complies with the legal requirements of Regulation (EC) No. 1935/2004 of the European Parliament dated October 27, 2004.

Forchheim, February 11, 2026

Mikko Timonen
managing director