Werner Dosiertechnik

EN

Operating and Installation Instructions

Measuring- and control unit CPR Touch XL with measuring cell block

for pH values, free chlorine, redox voltage and temperature



Suitable for the operating instructions for dosing devices:

- **GRANUDOS Flex-CPR Touch XL, No.: BA SW 022**
- **GRANUDOS Vario-CPR Touch XL, No.: BA SW 003**
- **Wall-mounted-device CPR Touch XL-2S, No.: BA SW 004**

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Imprint:

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These operating instructions are an English translation of the original German version by the company WDT.

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1 About these instructions / general

1.1 Scope of applicability

This manual describes the function, installation, commissioning and operation of the device. The Operating Instructions must be read carefully before use and kept on the device for direct use!

These Operating Instructions are valid in conjunction with the Operating Instructions for the dosing devices:

a) **GRANUDOS Flex-CPR Touch XL, → No.: OI SW 022,**
b) **GRANUDOS Vario-CPR Touch XL, → No.: OI SW 003,**
c) **Wall-mounted-device CPR Touch XL-2S, → No.: OI SW 004.**

1.2 Target group

Only our authorised partners and people who have been trained in the device functions are permitted to work on the system, provided that they have read and understood these Operating Instructions.
Electrical connection work may only be carried out by appropriately trained specialists!

1.3 Symbols used

This document uses the following types of safety notices as well as general notices:



DANGER!
"DANGER" denotes a safety notice which, if disregarded, may lead to **serious** or **life-threatening injuries,** or **death**!



CAUTION!
"CAUTION" denotes a safety notice which, if disregarded, may lead to **injury, damage to health** or **material damage!**



ATTENTION!
"ATTENTION" denotes a safety notice which, if disregarded, may lead to **material damage**!



CORROSIVE!
"Corrosive" denotes a safety notice which, if disregarded when handling chemicals, may lead to **injuries** or **material damage**.



ESD SENSITIVE!
"ESD SENSITIVE" denotes electronic components that may be damaged by electrostatic discharges. The generally accepted safety precautions for ESD-sensitive devices must be observed when handling the devices!



NOTICE!
A notice denotes information which, if disregarded, may lead to **malfunctions.**



TIP!
A "Tip" denotes information that may result in **improvements in the operating process**.



USE FACE PROTECTION
Wear approved face protection to prevent facial injuries due to contact with hot or chemical mate-rials.



USE HAND PROTECTION
Wear approved hand protection to prevent hand injuries due to contact with hot or chemical materials (according to DIN EN 374: Protective gloves against dangerous chemicals and micro-organisms).



USE PROTECTIVE APRON
Wear an approved protective apron to prevent injuries to the front of your body due to contact with hot or chemical materials.



USE FOOT PROTECTION
Wear approved foot protection to prevent foot injuries due to contact with hot or chemical materials or falling objects.

1.4 Warranty

All WDT devices and systems are manufactured using modern production methods and are subject to comprehensive quality control. However, should there be a reason for complaint, any compensation claims shall be directed to the company WDT in accordance with the general terms and conditions of warranty (see below).

General terms and conditions of warranty

The company WDT assumes a 2-year warranty, starting with the commissioning, up to 27 months after delivery; subject to correct installation and commissioning with a completed and signed commissioning protocol.

Exempt from this are wear parts such as gaskets, hoses, diaphragms, dosing screws, electrodes, roller carriers and other parts that are subject to mechanical or chemical wear and tear. For these we assume a warranty of 1/2 year.

Our merchandise management programme requires an invoice for each delivery (including warranty services). When returning a defective component, upon review you will receive a corresponding credit, if applicable. We request a return within 14 days.

The costs for subsequent damage and for the processing of warranty claims are excluded.

There are no warranty claims for damage caused by frost, water and electrical overvoltage or by improper handling.



TIP!

In order to protect the warranty claims, please mail the completed commissioning protocol, along with the defective component, to the company WDT. Without the commissioning protocol, we reserve the right to assert warranty claims.



CAUTION!

It is not permitted to make any modifications to the device. Non-compliance with this specification will void the warranty obligation and product liability!

1.5 Further information

Further information about special topics, e.g., design of the dosing performance or description of the operating parameters, is available from your specialist dealer.

1.6 Information regarding support queries

The **CPR Touch XL** series constitutes a complex electronic device. It is subject to continued further development of both its firmware and hardware. We always strive to preserve the compatibility of the components used, but we are unable to guarantee this over a period of several years!

For spare part orders, we therefore always require the following data. You can find these on the identification plate.

- device designation
- device serial number
- year of manufacture

For technical support requests, we require the device data. You can find these in the menu item **Menu → Service → Info.**

- firmware version
- hardware version

In the event of problems with the measuring values, we require all current measuring values. Thus, you can help us in evaluating the fault more quickly.

2 Safety

2.1 Intended use

The **CPR Touch XL** measuring and control unit may only be used for the purpose listed in the product description in *Chapter 3.2, Product description!* The locally applicable regulations concerning accident prevention, occupational safety and drinking water protection must also be observed!

2.2 Safety notices

Carefully read and comply with the operating instructions prior to installation, maintenance and use of the device!
Work on the device and changes in the settings may only be carried out by properly instructed persons!

IT safety
The **CPR Touch XL** controller series allows remote access to data and control parameters by means of network-compatible devices. The operator is responsible for ensuring that only authorised persons can access the device. The operator, or their authorised representative, is further responsible for the safety of all Internet or WLAN connections.

2.2.1 Handling of chemicals, risks to humans and the environment

When handling chemicals, the use and hazard information for these must be observed.

In the event of an emergency, you can contact the emergency poison centre!

Germany: Munich Emergency Poison Centre (or any other Poison Centre)

Phone: +49 89 19240

Excerpt from the Accident Prevention Regulations

Installation rooms for chlorination systems and storage rooms
Section 3a. (1) Chlorination systems must be installed in lockable rooms and the chemicals intended for the chlorination must be stored in lockable rooms.
Re Section 3a Para. 1:
This requirement ensures that chlorination systems and chemicals shall be protected against weather effects and unauthorised access.
(2) Rooms in accordance with Para. 1 must not be intended for the permanent presence of persons.

Re Section 3a Para. 2:
..... A "permanent" presence is given when persons are present in the room for more than 2 hours per day. Repair and maintenance work on the chlorination system are exempt from this.



CORROSIVE!

The control unit CPR Touch XL is used to control devices that dose caustic chemicals. For this reason, it is essential that you observe the safety information relating to the chemicals!

2.2.2 Protective measures and rules of conduct



ESD SENSITIVE!

The electronic components in the device control units are sensitive to electrostatic discharge. For this reason, the generally accepted safety precautions for ESD-sensitive devices must be observed when handling the devices, including:

- **Disconnect the device from the voltage supply**
- **Discharge of personal static charge**
- **Dissipative clothing**

2.2.3 Activating remote access



ATTENTION!

The device can also be operated via a browser-capable end device (e.g., smartphone, PC, tablet). Please observe the following safety notices relating to remote access!

Terms:

- Remote access = external use = operation of the device via a network (e.g., Internet, LAN, W-LAN)
- System owner = end user, end customer, operator, (also a legal entity)
- Service partner = dealer, distributor
- User = anyone who has the possibility of remote access, e.g., service partners, IT service providers, system owners, manufacturers
- Manufacturer = manufacturer of the device

As the manufacturer of the device, we would like to point out that by activating remote access, you expose yourself to known online dangers (hacking, phishing, viruses, Trojans, etc.). We hereby provide you with important safety notices and rules of conduct when using remote access.
Please ensure that you have read and implemented the following notices before activating remote access!

1. Personal responsibility
   As the person who activates remote access, you remain responsible for assessing whether the prerequisites for remote access are fulfilled and for ensuring trouble-free operation of the system. You are the system's service partner or owner and will have to bear the consequences of potential misuse by third parties.

2. User authorisation
   The system owner must ensure that only persons who are knowledgeable and familiar with the application have access to remote access.
   A prerequisite for the activation of remote access and the associated external use should be an explicit, personal authorisation in writing by the system owner. This authorisation should be person-specific and non-transferable. In the event of a change of personnel, a new person must be authorised.

3. Organisational measures for availability, integrity and confidentiality
   The person who activates remote access should hold all users of remote access to strict confidentiality. All information regarding technical configurations and organisational information that becomes known via remote access is to be used exclusively for its use.
   Each user shall ensure that their actions do not compromise the system's availability, integrity or confidentiality.
   As the system owner, oblige every user to inform you immediately if they discover facts or irregularities that can be traced back to unlawful remote access.

4. Technical measures to protect against access
   You as the system owner must secure the system against access by unauthorised persons and immediately lock the system if misuse becomes known or if remote access shall no longer occur.
   Passwords must be kept confidential and meet complexity requirements. These requirements can be found in the operating and installation instructions for the device.
   We would like to point out that when activating remote access, you must comply with the security requirements according to the current state of technology. This applies in particular to confidentiality, network separation, security of data traffic (e.g., encrypted) and system security (anti-virus software, firewall, patch status, VPN).

5. Third-party hardware and software
   The manufacturer does not assume any responsibility for faults or malfunctions of the device caused by external hardware and software.

6. No liability for disruptions to the system due to third-party access by external users
   The manufacturer is not responsible for malfunctions and problems caused by remote access. Nonetheless, safety-relevant malfunctions must always be reported to the manufacturer.
   In particular, this applies to:
   Loss of data, loss of password, detection of malware on the computer, detection of suspicious activities and, above all, settings in the system that can put humans at risk.
   The manufacturer only provides remote access without any security components and assumes no responsibility for any loss, damage or costs incurred directly or indirectly as a result of the use or unavailability of remote access. In the event of violations of legal provisions, the system owner is solely responsible for all direct and indirect losses, damage and costs.

7. Availability
   The manufacturer assumes no liability for the availability of remote access.

3 Product description – scope of delivery

3.1 Scope of delivery / accessories

The measuring and control unit **CPR-Touch XL** is delivered with the following standard accessories.

- Buffer solutions pH7, pH4, redox test solution
- Electrode cleaner, distilled water
- Cleaning beads, electrolyte solution, replacement gaskets
- 2 pcs ½" – 6 x 1 ball valve, (only for type **2S**)
- 7 m each of PE and PTFE measuring water pipe 6 x 1 mm, (only for type **2S**)

In addition, customer-specific or order-related modifications are possible.

3.2 Product description

The **CPR-Touch XL** controller series is intended exclusively for measuring and control tasks for the water treatment in swimming pools. It is used for the following 3 dosing devices:

- GRANUDOS **Flex-CPR Touch XL**
- GRANUDOS **Vario-CPR Touch XL**
- Wall-mounted-device **CPR Touch XL-2S**

The control unit has the following main functions:

- Control of the pH value by means of a peristaltic pump directly from the supply canister
- Regulation of the disinfection dosing, with dosing screw (type GRANUDOS) or peristaltic pump (type **2S**)
- Locking of the flocculant dosing
- Activation of the flocculant dosing (GRANUDOS Flex optional with peristaltic pump)
- Filter disinfection during backwashing with activation of a switchover valve
- ECO operation for lowering the setpoint for free chlorine during extended pause times, e.g., night, weekend, rest day
- Filling a buffer tank with chlorine solution for disinfecting additional small basins using dosing pumps (optional)
- Fault indication potential-free
- PC connection, remote display and access to the values and parameters via LAN
- Interface for a remote display

3.2.1 Device overview

The control unit **CPR-Touch XL** is delivered as a ready-assembled unit. All parts are mounted on a plastic plate or on the respective dosing device. This ensures that the device is safely installed. Potential execution errors by the assembling personnel are thereby avoided, as far as possible.
For transportation purposes, both electrodes along with the glass shaft have been removed from the measuring cell and delivered in a packaging box. The roller carriers for the peristaltic pumps have been removed from the motor shaft in order to avoid deformation of the dosing hoses when they are stored for extended periods of time.

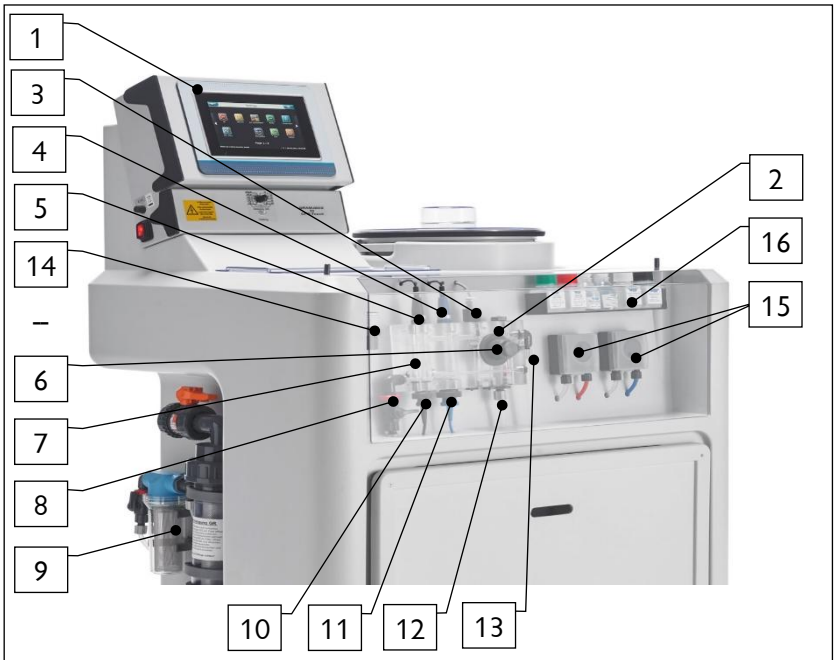


Figure 1, GRANUDOS Flex-CPR Touch XL

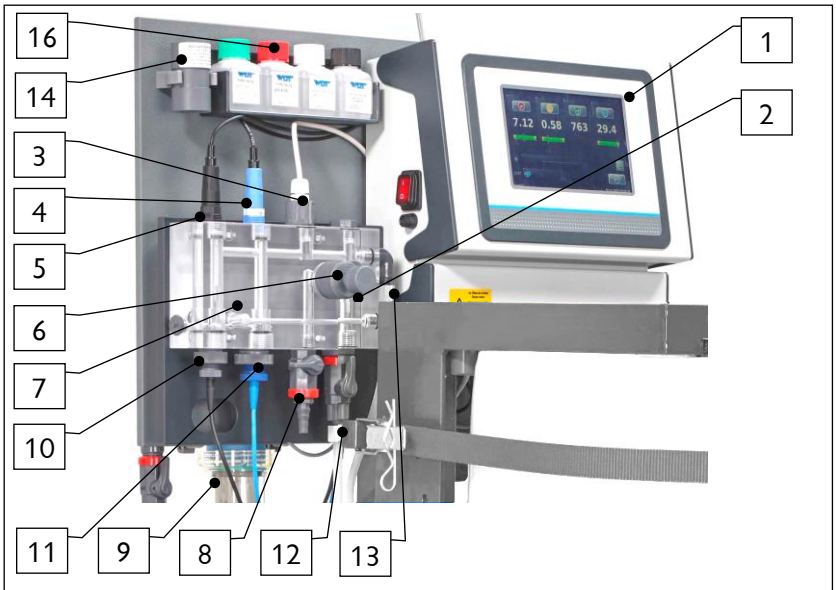


Figure 2, GRANUDOS Vario-CPR Touch XL

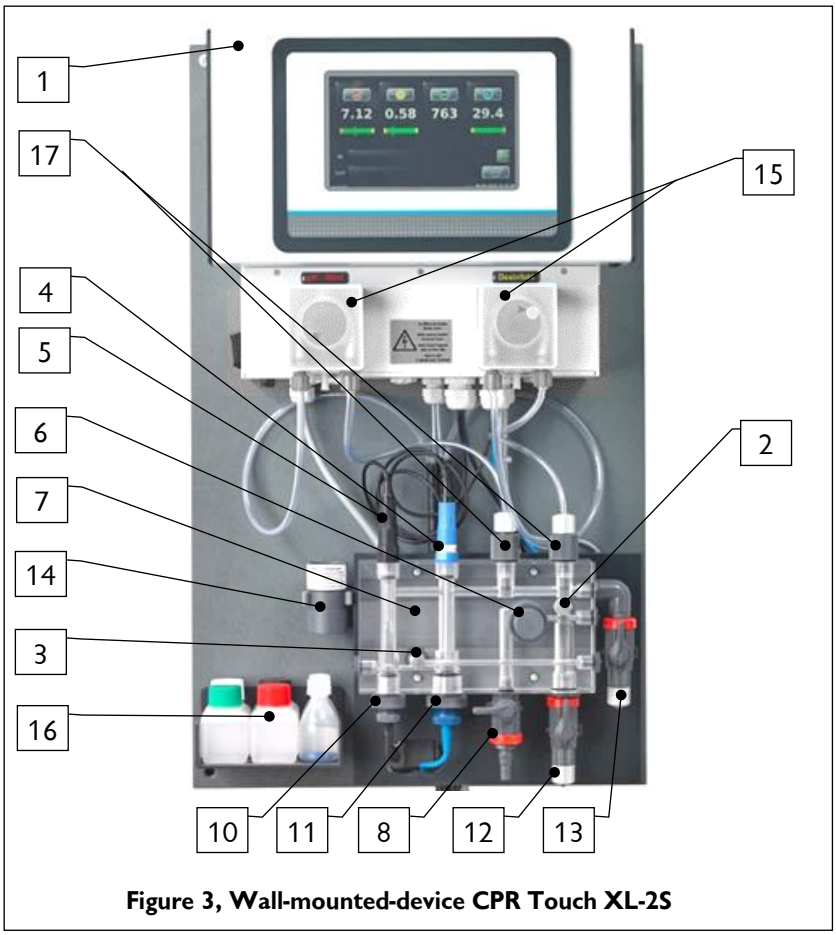


Figure 3, Wall-mounted-device CPR Touch XL-2S

1. **CPR Touch XL** control unit
2. Flow monitoring
3. Temperature sensor
4. Combination reference-return electrode (blue)
5. pH electrode (black)
6. Flow control valve
7. PMMA measuring cell block
8. Sampling tap
9. Prefilter (for **Type 2S** optional for wall mounting)
10. Redox electrode
11. Chlorine electrode
12. Measuring water inlet
13. Measuring water return flow
14. Redox test cylinder
15. 2 dosing pumps Sa (for GRANUDOS **Vario** not shown in the figure)
16. Buffer solution and electrode cleaner
17. Dosing valves (only with **Type 2S**)
18. Suction set (not shown in image)

3.2.2 CPR Touch XL control unit (standard)

The micro-processor-supported control unit is contained in a dust-proof housing. The start view ("auto mode") displays the current measuring values, the operating status and the active in- and outputs (IN – OUT). The inputs and outputs can be operation messages or fault indications.

3.2.3 The measuring cell block

The compact acrylic glass measuring cell block (7) is used to hold the electrodes, dosing valves, cleaning beads and the sampling tap. The flow is regulated and the measuring water is returned to the water cycle. Optionally, the sample water can also be led into the drain.

3.3 Identification of the device / identification plate

For spare part orders and troubleshooting, the device serial number and the firmware version must be known. The device serial number is located on the identification plate on the right side of the control housing. The firmware versions can be called up via the menu item **Menu → Service → Info**.

3.4 Technical data

	Wall-mounted-device **CPR Touch XL-2S**	GRANUDOS **Flex-** **CPR Touch XL**	GRANUDOS **Vario-** **CPR Touch XL**
Connection data			
Voltage	100 ... 240 VAC/50-60 Hz	240VAC/50-60 Hz	
Performance	10 W, I max. 2 A	600 W, I max. 3.15 A	
Protection class	Housing IP54		
Interface connection	LAN RJ45 for Modbus TCP, USB for data export		
Measuring water supply	See operating instructions for the dosing unit or observe locally applicable regulations		
Operating data:			
Measuring range	pH value: 2.00 to 12.00 free chlorine: 0.01 to 2 mg/l or 0 to 8.00 mg/l, respectively Redox: 0 to 1000 mV Temperature: -30.0 to 170.0°C		
Medium temperature Ambient temperature Humidity technical room	0°C to 40°C 5°C to 35°C max. 80% non-condensing		
Concentration hypochlorous acid	—	GRANUDOS-Flex 0,5kg: max. 0,06% - (12 UpM) GRANUDOS-Flex 2kg: max. 0,15% - (35 UpM)	GRANUDOS-VARIO 2kg: max. 0,2% - (12 UpM) GRANUDOS-VARIO 4kg: max. 0,35% - (35 UpM)
Room ventilation (in and out)	According to DIN 19643		
Material	Housing: PS Measuring water line: PE Dosing lines: PTFE	Housing: PS Measuring water line: PE	Housing: PS Measuring water line: PE

3.5 Transport / storage

Please check the devices immediately upon receipt for potential transport damage.



ATTENTION!

The systems and devices can be damaged by frost or high temperatures. Avoid exposure to frost during transport and storage! Do not store systems and devices next to objects with strong heat emission or in direct sunlight. The device may only be transported and stored in its original packaging. Please ensure careful handling.

Storage of chemicals



NOTICE!

Please comply with the chemicals manufacturer's safety data sheets!

- In addition, please observe the provision regarding the storage of chemicals TRGS 510.
- Use appropriate collecting basins!

4 Installation

4.1 Select the installation site

See Operating Instructions Part 1 Dosing technology, regarding the respective dosing device.

4.2 Installation instructions / installation suggestion

See Operating Instructions Part 1 Dosing technology, regarding the respective dosing device.

4.3 Mechanical installation

See Operating Instructions Part 1 Dosing technology, regarding the respective dosing device.

4.4 Hydraulic installation

See Operating Instructions Part 1 Dosing technology, regarding the respective dosing device.

4.5 Electrical installation

See Operating Instructions Part 1 Dosing technology, regarding the respective dosing device.

5 Commissioning

5.1 Commissioning - comments

The work described here may only be carried out by trained specialist personnel from a specialist company. Prior to commissioning, the installed devices must be checked for proper installation and leaks.
The device is delivered with defined factory settings. You can find the setting values in the operation data sheet in *Chapter 9.4*.

Hinweis

NOTICE!

Please ensure that all hose screw connections of the measuring water pipes are firmly tightened. Check all pipe unions at the device and at the two measuring water ball valves ½" – 6 x 1. Plastic pipe unions may only be fastened hand-tight!

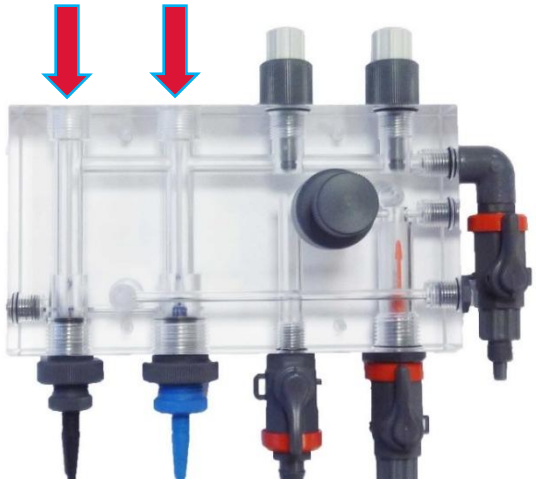
5.2 Commissioning works

Carry out the commissioning works in the sequence indicated.

5.2.1 Insert the cleaning beads

The included blue glass beads are used for cleaning the two metal electrodes screwed in from below (pos. 10 and 11). This concerns the chlorine and redox electrodes. Fill the measuring cell from above with a sufficient number of glass beads to ensure that at least the metal surface is covered, approx. 20 to 30 beads.

Insert the cleaning beads



Covering the metal surface

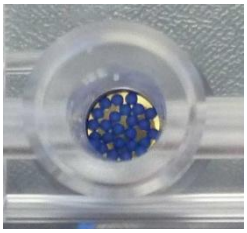


Figure 4, Measuring cell block and cleaning beads

Hinweis

NOTICE!

In special cases, a sieve is installed in the infeed opening. In this case, the electrodes must be removed and the cleaning beads filled in from below. Subsequently reinstall the electrodes.

5.2.2 Insert pH and combination electrodes with glass shafts

Remove the two electrodes with glass shafts from the packing box and pull off the protective cap. The union nut of the electrode cables can be removed from the electrodes by twisting to the left. The electrodes are screwed into the measuring cell from above at position 4 (blue) and position 5 (black). Subsequently, the electrode plug must be placed back onto the respective electrode (blue plug – blue electrode etc.) and the union nut must be tightened.

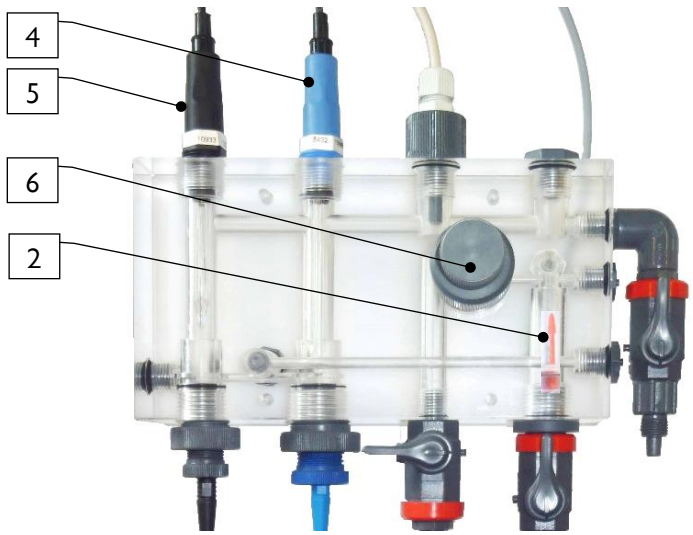


Figure 5, Measuring cell block and with installed electrodes

5.2.3 Set the measuring cell flow rate

Once all electrodes have been screwed hand-tight into the measuring cell and the measuring water lines have been connected, the measuring water intake can be opened. The flow volume can be adjusted at the flow control valve (pos. 6). The flow meter float (pos. 2) must be pushed toward the top in order to release the dosing. The cleaning beads must rotate extensively on the metal surfaces. If the cleaning beads become suspended, the flow is too high and the cleaning effect is not guaranteed.

5.2.4 The control parameters

The device is loaded with factory-defined control parameters. Please adjust the control parameters for your pool according to the required dosing performance and the desired setpoints.
The mechanical commissioning is now completed. Continue with *Chapter 6, Operation and service* of the device in order to adjust the control parameters to your swimming pool and to optimise them.



NOTICE!

Following a temperature adjustment and inflow time of approx. one hour, the electrodes must be calibrated.

6 Operation / service of the control unit

6.1 The CPR Touch XL control unit

Once the points in Chapter 5.2 have been completed, the settings for pool-specific operation can be adjusted at the **CPR Touch XL** dosing system.
The **CPR-Touch XL** control unit is equipped with a touch-sensitive display. By touching a symbol or a numeric value, this function will be activated for parametrisation. The adjustment menus come with additional text-based instructions. A 7" touch screen allows the clear and easy operation of the microprocessor-supported control of the **CPR Touch XL**.

6.1.1 Operation display - Display auto mode

The operating states and faults are displayed directly on the start screen: see *Figure 6, auto mode, page 20.*
In the auto mode, the current measuring values, the operating status and the active in- and outputs (IN – OUT) are displayed. The inputs and outputs can be operation messages or fault indications.

Operating notes:
The operating status is displayed in the status line. The following operating states are available:

- Dosing delay
- Automatic
- Manual dosing
- Filter disinfection / shock chlorination
- Menu
- Adjustment = calibration
- Output test
- Input test

The device is operated by means of a touch screen. Desired parameter changes, calibrations, and tests can be done simply by lightly touching the corresponding symbol or the numeric value.

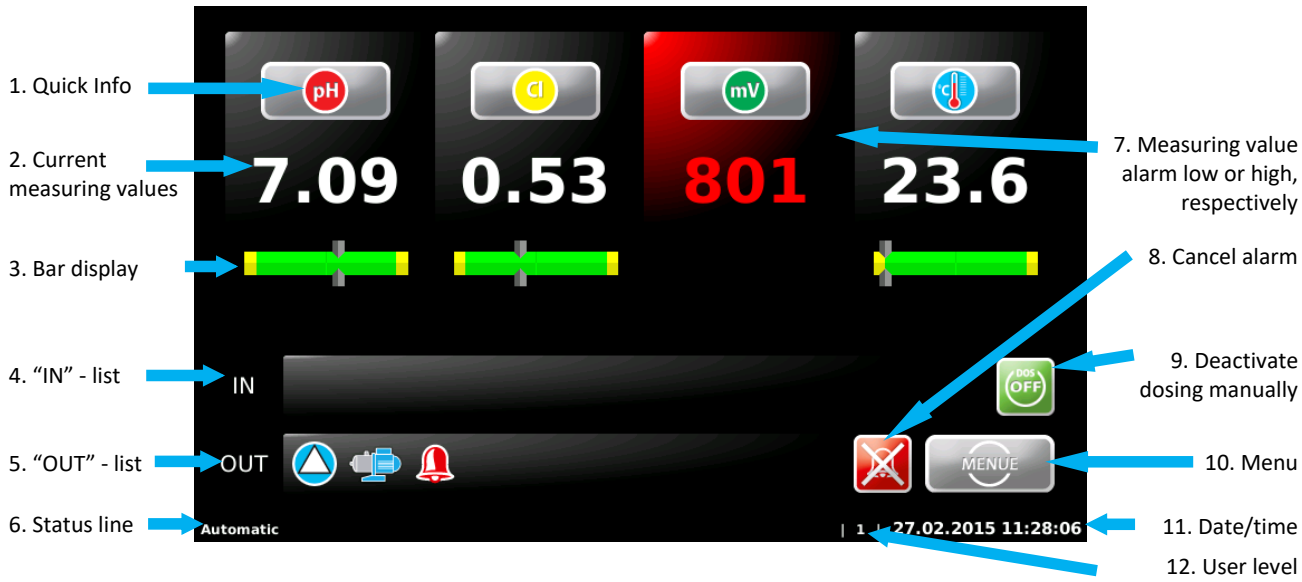


Figure 6, auto mode

The "IN" - list shows input signals = activated inputs.
The "OUT" - list shows activated outputs

Symbols used:

The symbols depend on the firmware used, that means of the device type.

"IN" - list (general)



Red = pH level (container for pH control empty)
Yellow = disinfection level (container for disinfectant empty)
Blue = flocculation level (container for flocculant empty)



Hose rupture – a chemical leak has occurred at one of the installed peristaltic pumps (Type **2S**)



The measuring cell flow is too low



Filter disinfection active



The request for ECO operation from the central control cabinet is pending.



The controller is deactivated using the central control cabinet.
There is no dosing, no heating of the basin water, no alarm message given.



The dosing is switched off by an external monitoring switch, e.g., flow in the clean water line.



A dynamic dosing time of a chemical has been exceeded. The respective output is blocked. To save space, no differentiation is made between the individual channels!

“OUT” - list (general)



Red = pH control output active
Yellow = disinfection output active
Blue = flocculation output active



Temperature output active.



The ECO operation is active. Feedback occurs to the central control cabinet regarding the ECO operation



The alarm relay is active.



NOTICE!

The firmware is available in different device variants. Depending on the scope of functions, a larger or smaller number of icons is displayed in the individual menu items.

The following symbols are only active in the GRANUDOS device variant.

“IN” - list (only for GRANUDOS)



The pressure at the GRANUDOS booster pump is too low. The booster pump and dosing are stopped.



The level in the GRANUDOS flushing tub is too low. The booster pump and dosing are stopped.



The level in the GRANUDOS flushing tub is too high. Dosing is stopped



The flow in the GRANUDOS is too low. Dosing is stopped.



A fuse is broken. The fuse-number and the description are in the event log.

“OUT” - list (only for GRANUDOS)



The booster pump is active



The knocker is active. This symbol is only displayed very briefly

The following symbols are only active for the OPTION buffer filling = buffer tank active.

"IN" - list (optional, design with buffer tank)



Buffer tank filling is starting



Buffer tank filling is ending



The buffer tank level has dropped too low.



The buffer tank level is too high.



The optical sensor at the cyclone did not recognise any chlorine during the buffer filling. Filling has been deactivated.



The buffer filling was cancelled by the CPR controller. Filling occurred too slowly.

"OUT" - list (optional, design with buffer tank)


Buffer tank filling is active.

The function buttons on the start screen



Manually cancel the dosing delay, dosing starts



Manually deactivate the dosing for service tasks


Deactivate alarm relay



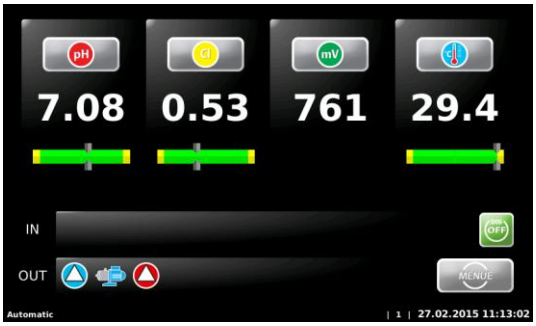
Call up the main menu

Operation display:

Depending on the operating state, the display shows different views. The following illustrates and describes the main display views.

The display views are meant for orientation in the menu and are only shown in German in the Operating Instructions.

6.1.2 Automatic operation

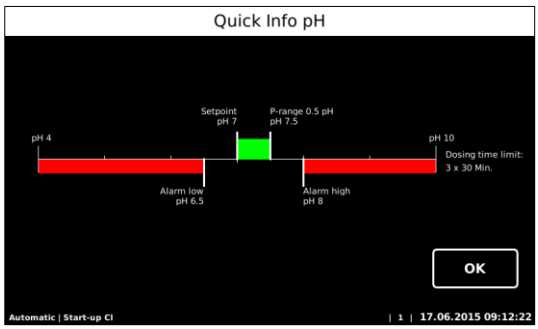


The device is in "automatic" operating status. The auxiliary hygiene parameters and the temperature are regulated based on set parameters.

There is no fault.

The **"OUT" - list** shows the currently active outputs and/or actuators as an example.

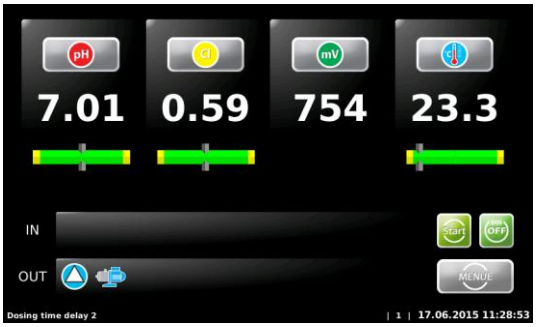
6.1.3 Quick Info





In automatic operation, the set control parameters can be viewed quickly and without a password prompt via the "Quick Info" function by touching the corresponding symbol.
Quick Info is only used for querying the control parameters; no changes can be made.

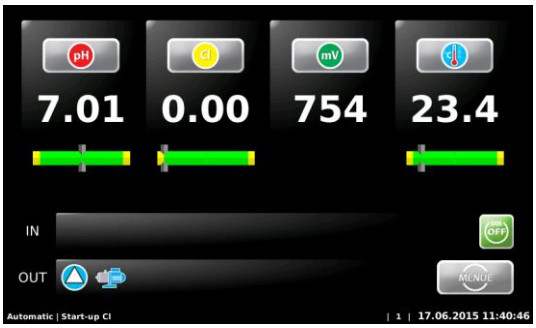
6.1.4 Start - Dosing delay



If the device is restarted, the dosing delay is running; during this time, no dosing output is activated.
Software alarms are suppressed during this time.
The dosing delay must be set high enough to ensure that after the start of the filter system actual basin water flows through the measuring cell.

The dosing delay can be cancelled with  and the device is set to automatic operation.

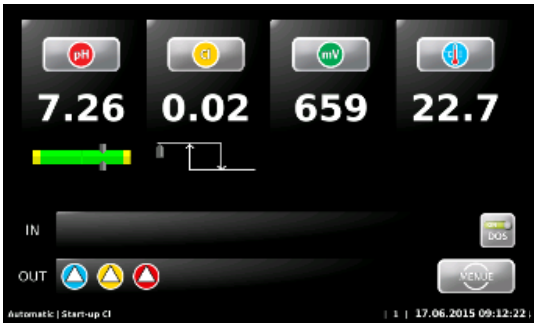
6.1.5 Automatic – Startup



If one of the two measuring values pH or Cl falls outside the control range, the "Startup" start routine is activated.
During the start routine, the dynamic dosing time monitoring is active. If the measuring value does not reach the control range within the selected time, e.g., due to a malfunction or too low dosing performance, the dosing stops with an alarm.

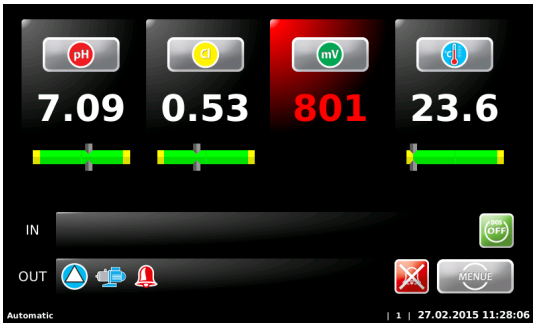
The dosing time monitoring alarm is signalled by . This fault can only be reset through a device restart or a manual acknowledgement. 

6.1.6 Control types



This figure shows two different control types.
The output for the pH value control is operated with the Proportional control type.
The output for the disinfection is operated with the 2-point control type.

6.1.7 Alarm



If an alarm or a fault occurs, this will be indicated by the symbol in the "OUT" - list. The alarm relay is activated.
A differentiation is made between alarms (software alarms, e.g., alarm high, alarm low) and faults (switch inputs).
In the event of measuring value alarms, the respective measuring value is additionally illustrated in red.
In the event of faults, the corresponding symbol appears in the **"IN" - list**.
Alarms or faults must be pending for approx. 6 seconds before an alarm is triggered.

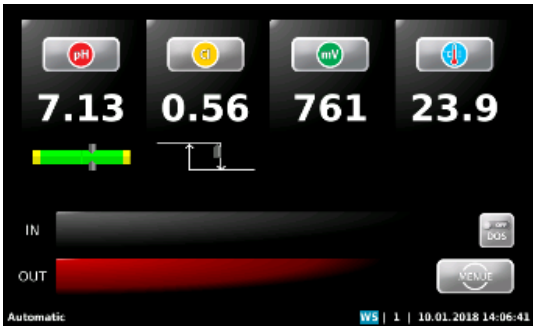
With the button, the alarm can be deactivated without remedying the fault. If a subsequent fault occurs, the alarm relay will be reactivated.

Tipp

TIP!

An alarm will be automatically deleted when its cause has been remedied. This is the case, e.g., if the empty chemical container was replaced or if measuring water resumes its flow through the measuring cell.
However, the "Switch-off time monitoring" alarm must be acknowledged manually!

6.1.8 Dosing off

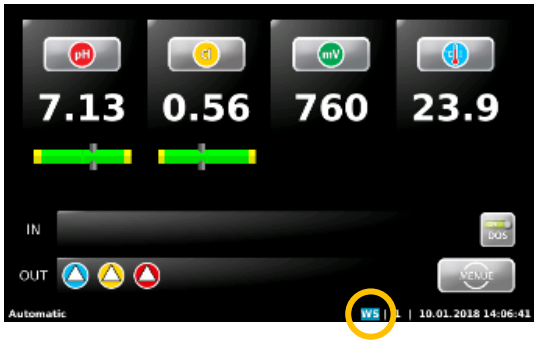


The DOS icon can be used to switch off the dosing. For signalling purposes, the "OUT" - list is coloured red and the text Dosing Off is displayed in the status line.

This function is intended for a temporary manual dosing interruption.

Notice:
Depending on the model of the device, switching off the dosing system may also switch off the flocculant pump!

6.1.9 Network status



The network status is displayed in the status line to the left of the date.

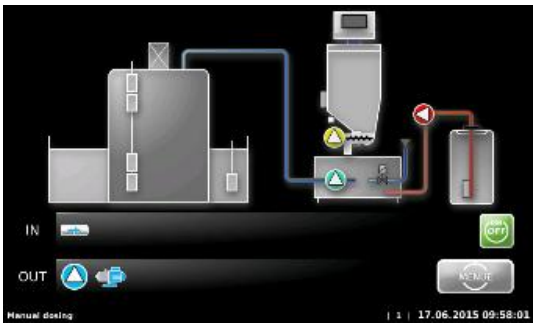
WS = Network access via browser possible
MB = Network access via Modbus TCP IP possible
If WS or MB is shown on a **blue background**, the network access is in standby.
If WS or MB is shown on a **green background**, there is currently access to the controller.

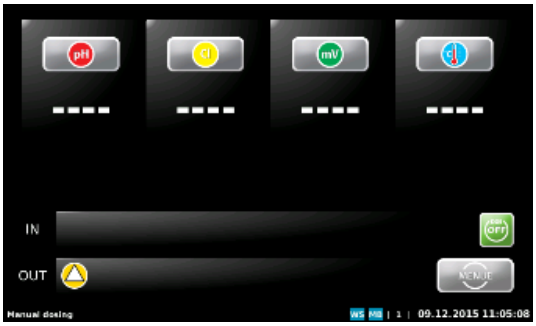
6.1.10 Automatic – Redox control



In the event of an irreparable defect in the measuring of the free chlorine, e.g., a broken electrode, the disinfection dosing for temporary operation may be done via the redox control function.
If this operation mode is selected, the display in the start screen changes.
The measuring value for free chlorine is faded out.
When switching to redox control, the dosing and control parameters must be reset!

6.1.11 Manual dosing





In the event of defect in the general measuring technology that cannot be remedied in the short term, both the disinfection dosing and the dosing of the pH control for temporary operation may be done via the "Manual operation" function.
If this operation mode is selected (see *Chapter 6.2.1.3)*, the display in the start screen changes.
When switching to manual dosing, the dosing performance for chlorine and pH correction must be reset!

For type GRANUDOS: Instead of the measuring values, a flow chart of a GRANUDOS dosing device with a buffer tank is displayed.

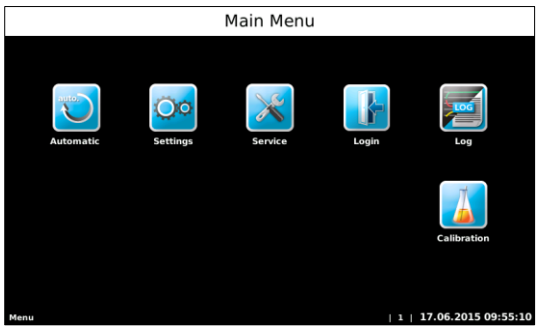
For type 2S: The measuring values are faded out.

6.2 The main menu



NOTICE!

After a password has been assigned, the controller is blocked against unauthorised access. The setting buttons will appear in grey. Desired changes can only be made after the password has been entered. After a password has been assigned, please enter it in the operation data sheet.





Automatic
Navigates to the start screen and automatic operation



Settings
For adjusting the control parameters and system settings



Service
Input and output test, info



Login
For password assignment; no password is assigned in the delivery state.



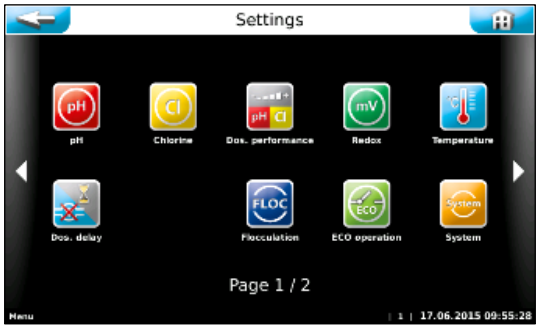
Log
For query of events and data logging

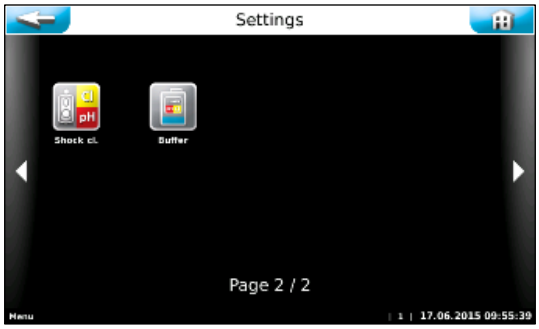


Calibration
Calibration of the pH and redox electrode, DPD1 calibration

6.2.1 Main menu → Settings (overview)

The settings menu is used to implement the desired settings for the dosing device. Using the white arrow keys on the side, you can navigate to the next screen menu.





pH
Set pH control parameter

Chlorine disinfection
Set disinfection control parameter

Dosing performance
Adjust the dosing performance to the basin size

mV – Redox alarm / control
Set redox voltage control parameter

Temperature
Set basin temperature control parameters

Dosing delay
Set the dosing delay

Flocculation
Dosing flocculant on/off

ECO operation
Set parameter for ECO operation

System
Set date/ time, password, display, network and language

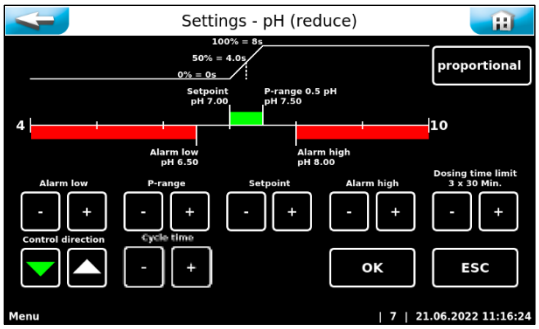
Shock chlorination
Set dosing performance for the “Shock chlorination” function

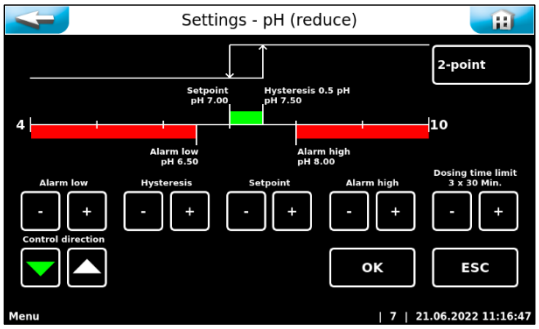
Buffer (only for GRANUDOS)
Set dosing performance for the “Buffer filling” function

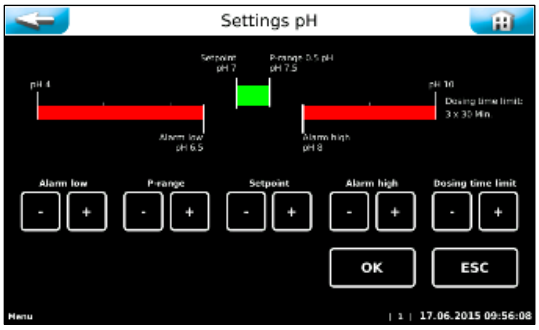
6.2.1.1 Main menu → Settings → pH

Hinweis

NOTICE!
As of DSP firmware version ≥ V2.0, different user interfaces are available. The top two figures show the DSP firmware version 2S or external dosing pumps, respectively.
The figure below shows the firmware version GRANUDOS.







Control type: (top right)
Proportional → e.g., peristaltic pumps
2-point (on-off) → e.g., solenoid valves, electrolysis (longer control times)

Alarm low → lower alarm value

P-range → The dosing works proportionally, i.e., the higher the difference between setpoint and actual value, the longer the dosing time (max. 8 seconds).
The smaller the selected control range, the faster the measuring value will react, which can easily lead to overdosing.
With the 2-point control type, the P-range becomes hysteresis

Setpoint → the device attempts to reach this value

Alarm high → upper alarm value

Dosing time limit → if the control range is not reached within three times of the set time, the dosing is blocked.
Important: This fault must be acknowledged manually!

Control direction → pH reduce or pH increase

Cycle → setting cycle time in seconds

Main menu → Settings → pH → Control type – Proportional
Depending on the deviation between the setpoint and the actual value, the dosing output is activated temporarily (1 to 100 seconds). The larger the difference, the longer the output is activated.
The Proportional control type is selected for dosing devices that are suitable for a short control time of up to a minimum of one second. These include, e.g., peristaltic pumps

Cycle time
The cycle time (1 to 100 seconds) determines the time after which the dosing output is activated again.
A cycle time that is too short leads to an unnecessarily large number of switching operations.

Main menu → Settings → pH → Control type – 2-point
2-point (on – off)
The corresponding dosing output remains active until the setpoint is reached (theoretically up to several hours). Afterwards, the output remains deactivated until the setpoint is undershot again by the P-range (hysteresis).
The 2-point control type (on-off) is selected for dosing devices that require longer control times. These include, e.g., electrolysis systems, solenoid valves, and similar devices

Tipp

TIP!

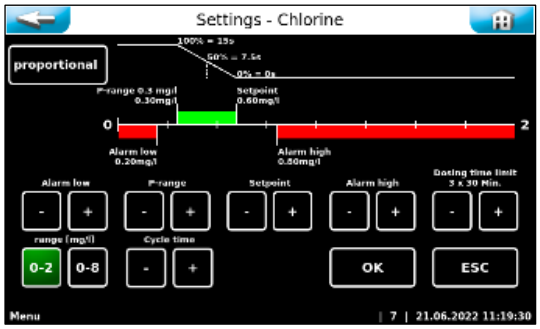
pH priority dosing! To protect against overdosing with disinfectants that contain chlorine, the dosing is only released once the pH value has entered the control range. Adequately set control range and dosing performance!

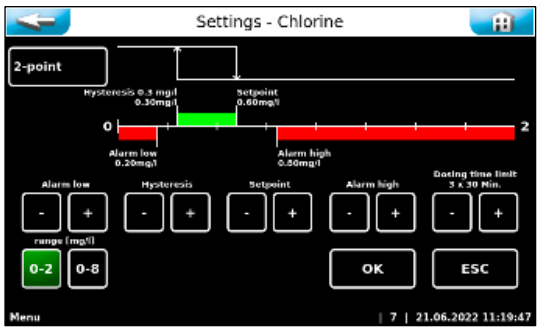
6.2.1.2 Main menu → Settings → Chlorine disinfection

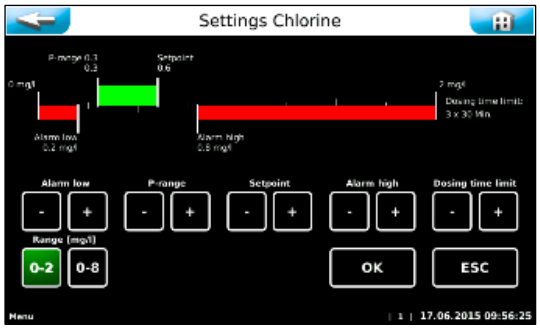
Hinweis

NOTICE!

As of DSP firmware version ≥ V2.0, different user interfaces are available.
The top two figures show the DSP firmware version 2S or external dosing pumps, respectively.
The figure below shows the firmware version GRANUDOS.







Control type: (top left)
Proportional → e.g., peristaltic pumps
2-point (on-off) → e.g., solenoid valves, electrolysis (longer control times)

Alarm low → lower alarm value

P-range → The dosing works proportionally, i.e., the higher the difference between setpoint and actual value, the longer the dosing time (max. 15 seconds).
The smaller the selected control range, the faster the measuring value will react, which can easily lead to overdosing.
With the 2-point control type, the P-range becomes hysteresis

Setpoint → the device attempts to reach this value

Alarm high → upper alarm value

Dosing time limit → if the control range is not reached within three times, the set time, the dosing is blocked.
Important: This fault must be acknowledged manually!

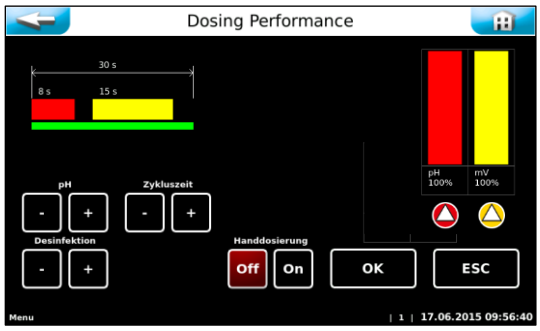
Range → selectable between 0 - 2 mg/l or 0 - 8 mg/l

Cycle → setting cycle time in seconds

6.2.1.3 Main menu → Settings → Dosing performance/Manual dosing

The Dosing performance menu is used to adjust the dosing performance to the consumption of chemicals in the pool. The required dosing performance depends on several factors, e.g., the basin volume, location, type of use and of course the frequency of use by bathers.
While the **GRANUDOS device series always requires a mandatory interlocking** of the two outlets, the **CPR Touch XL 0-2S device series (wall-mounted-device) offers the option of deactivating the interlocking**.
Deactivation of the interlock can be selected if external low-power dosing pumps are controlled. If the **mutual interlock is deactivated, dosing into the measuring cell (flow-through fitting) is no longer allowed**. In this case, the two dosing points **must be placed in the clean water line!**

Figure GRANUDOS-Device:



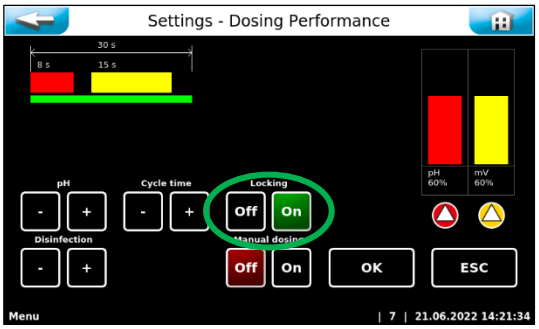
pH: → pH-correction dosing time in seconds
Disinfection: → Chlorine dosing time in seconds
Cycle time: → Length of the overall cycle in seconds
Manual dosing: → Switch between automatic and manual dosing

The table shows the possible combinations of dosing motor with dosing screw and the resulting dosing performances of chlorine granulate.

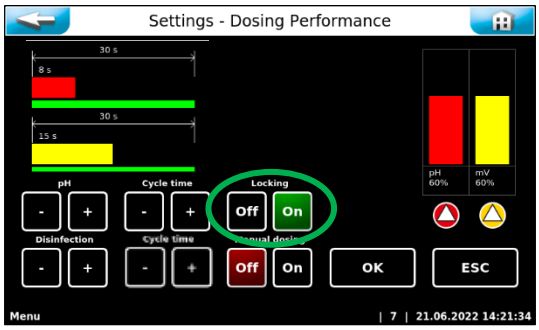
Dosing motor	Dosing screw	Dosing performance max. (test)	Dosing performance with mutual interlocking
12 rpm	19 mm	1200 g/h	600 g/h
35 rpm	19 mm	3200 g/h	1600 g/h
60 rpm	19 mm	4400 g/h	2200 g/h
12 rpm	26 mm	2000 g/h	1000 g/h
35 rpm	26 mm	6600 g/h	3300 g/h
60 rpm	26 mm	9500 g/h	4750 g/h

Select the settings of the dosing performance in such a way that the chlorine dosing performance (e.g., DIN indoor swimming pool 2 g/m³ or outdoor swimming pool 10 g/m³ pure chlorine) to be provided in accordance with the valid national standard is adhered to. Please determine the dosing performance using the common calculation method: tank content / circulation time (volume flow) x 2 or 10 g/m³, taking into account the concentration of approx. 65% for granulate.

Figure CPR Touch XL-2S -1S -0S (wall-mounted devices)



Integrated dosing pumps (WDT standard)
pH: → pH correction dosing time in seconds
Cycle time: → Length of the overall cycle in seconds
Locking: → for activation / deactivation
Disinfection: → Chlorine dosing time in seconds
Manual dosing: → Switch between automatic and manual dosing



External low-performance dosing pumps (option)
pH: → pH correction dosing time in seconds
Cycle time: → Cycle time for pH correction in seconds
Locking: → for activation / deactivation
Disinfection: → Chlorine dosing time in seconds
Cycle time: → Cycle time for disinfection in seconds

Manual dosing: → Switch between automatic and manual dosing

Rotation speed Sa	Hose kit	Dosing performance (standard) mutual interlocking	Dosing performance **without mutual interlocking**
80 rpm	0.8 x 1.6	300 ml/h disinfection 150 ml/h pH correction	See identification plate on external dosing pump
80 rpm	1.6 x 1.6	1000 ml/h disinfection 500 ml/h pH correction	
80 rpm	3.2 x 1.6	2500 ml/h disinfection 1250 ml/h pH correction	

Select the settings of the dosing performance in such a way that the chlorine dosing performance (e.g., DIN indoor swimming pool 2 g/m³ or outdoor swimming pool 10 g/m³ pure chlorine) to be provided in accordance with the valid national standard is adhered to. Please determine the dosing performance using the common calculation method: tank content / circulation time (volume flow) x 2 or 10 g/m³, taking into account the concentration of approx. 10% for liquid chlorine.



CAUTION!

If the mutual interlocking disinfection – pH correction is deactivated, the two dosing points must be placed externally. Due to the low flow volume, chlorine gas may be generated in the dosing line.



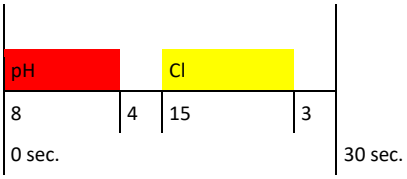
ATTENTION!

The use of sulphuric acid is generally possible up to a concentration of 50%. For higher concentrations or when using other acids (e.g., hydrochloric acid, dissolved sodium bisulphate, etc.), attention must be paid to the changed dosing performance and/or increased corrosiveness! We recommend consultation with your service partner.

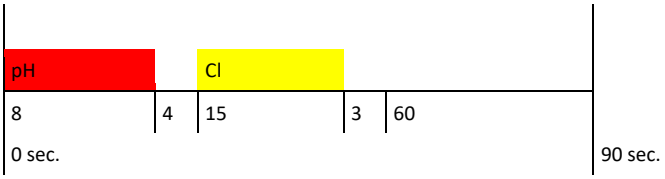
Explanation regarding the cycle time

The shortest cycle time is 30 seconds, i.e., every 30 seconds the dosing is proportionally activated for a varying length of time, depending on the deviation from the setpoint.
It can be set for a dosing time between 1 and 8 seconds for the pH dosing, followed by a pause of 4 seconds. This is followed by a dosing time between 1 and 15 seconds for the chlorine dosing, followed by a pause of 3 seconds.
An extension of the cycle time extends the second pause time, thus reducing the maximum available dosing performance. This is displayed in %.

Example 1: 30 seconds



Example 2: 90 seconds



Manual dosing Off - On

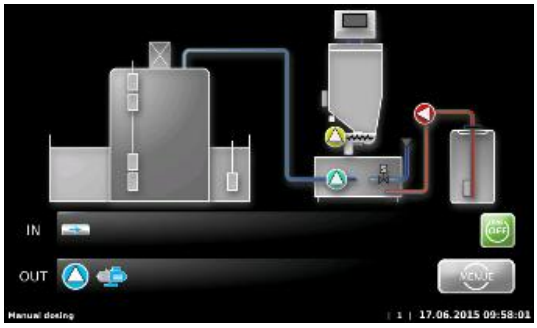
It is possible to change over to continuous manual dosing. This may be required in the event of a fault with the measurement technology, e.g., electrode failure that cannot be rectified. For a limited period of time, both the disinfection dosing and the dosing of the pH control may be performed via the **"Manual operation"** function.



ATTENTION!

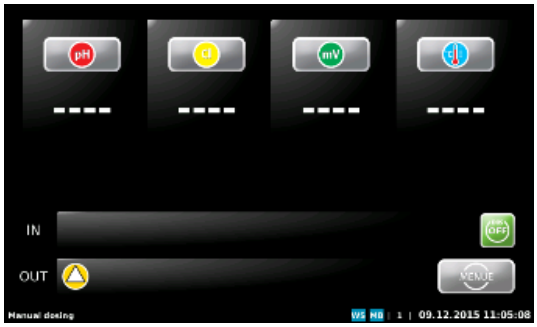
In the Manual dosing operation mode, it is essential to adjust the dosing performance to the actual consumption. Failure to do so may result in severe over- or under-dosing.

Consumption changes in different operating phases, e.g., at night / rest day / sunshine



After activation of manual dosing, the display in the start screen changes.

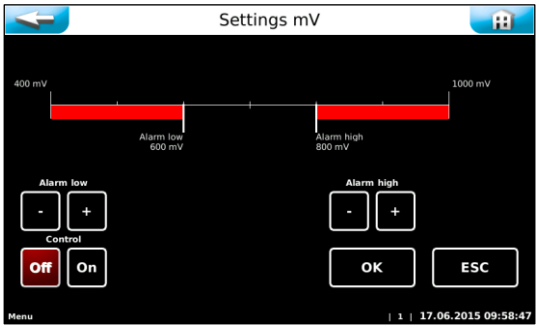
For GRANUDOS: Instead of the measuring values, a flow chart of a dosing device with a buffer tank is displayed.



For type 2S (wall-mounted-devices): The measuring values are faded out.

If this operation mode is selected (see *Chapter 6.2.1.3)*, the display in the start screen changes.

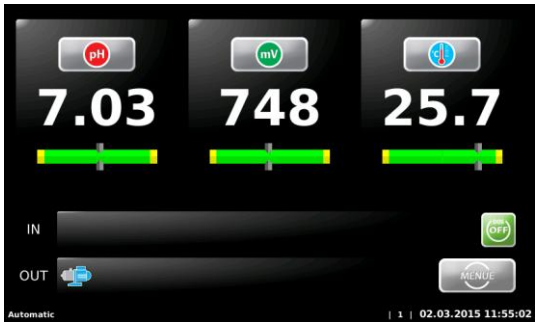
6.2.1.4 Main menu → Settings → mV Redox - Alarm values



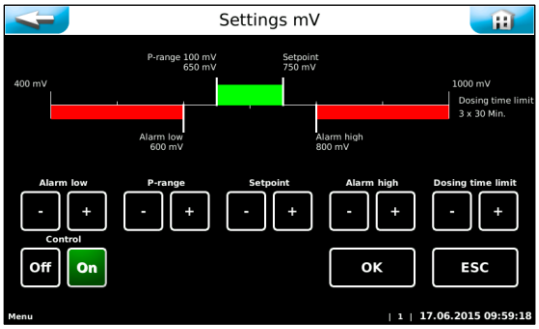
Alarm low: → Lower alarm value
Alarm high: → Upper alarm value

Control Off - On: → Select disinfection dosing via redox control

6.2.1.5 Main menu → Settings → mV Redox control



In the event of a defect in the measuring of the free chlorine that cannot be rectified at short notice, the disinfection dosing may be done via the redox control function.
If this operation mode is selected, the display in the automatic operation changes.
The measuring value for free chlorine is faded out.



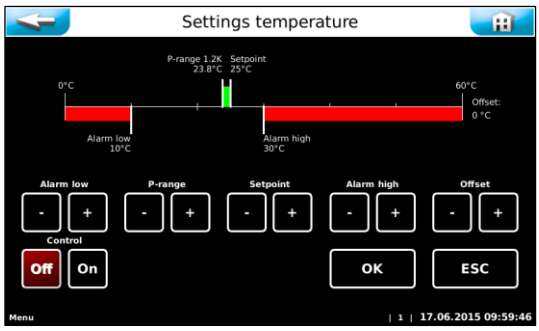
Alarm low: → Lower alarm value
P-range: → The dosing works proportionally, i.e., the higher the difference between setpoint and actual value, the longer the dosing time (max. 15 seconds).
The smaller the selected control range, the faster the measuring value will react, which can easily lead to overdosing.
Setpoint: → the device attempts to reach this value
Alarm high: → Upper alarm value
Dosing time limit: → if the control range is not reached within three times the set time, the dosing is blocked.
Control Off – On: → Control activate - deactivate



ATTENTION!

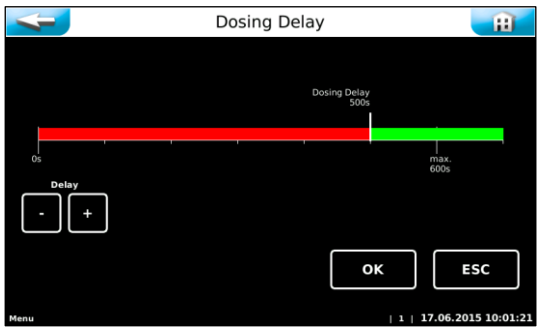
When switching to redox control, the dosing and control parameters must be reset! Failure to do so may result in severe over- or under-dosing.

6.2.1.6 Main menu → Settings → Temperature



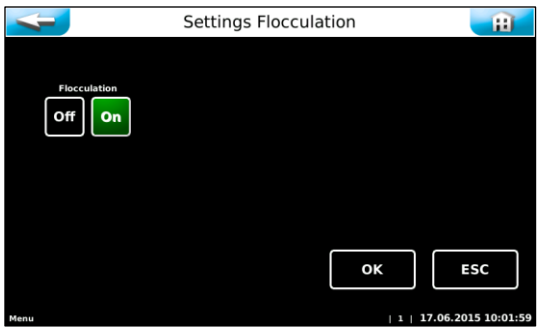
Alarm low: → Lower alarm value
P-range: → if the temperature falls below the control range (hysteresis), the "Temperature" output will be activated.
Example: → Setpoint 25°C – 2.0°C → at actual value ≤ 23°C = output active
Setpoint: → the device attempts to reach this value
Alarm high: → Upper alarm value
Offset: → for calibration of the temperature measurement
Control Off - On: → Operation mode Temperature display or Control

6.2.1.7 Main menu → Settings → Dosing delay



If the device is restarted, the dosing delay is running. During this time, no dosing occurs to prevent the use of stale water for measuring and dosing. Software alarms are suppressed during this time. The dosing delay must be set high enough to ensure that after the start of the filter system actual fresh basin water flows through the measuring cell.

6.2.1.8 Main menu → Settings → Flocculation (option for Type Flex and Type Vario)



This menu enables the activation or deactivation of the flocculant pump.



The dosing capacity of the flocculant pump is adjusted by using the rotary potentiometer knob on the control unit.
Depending on the hose diameter, different dosing capacities are possible, see table.

Table of dosing capacity flocculant pump in ml/h

Hose Diameter	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10
0,8mm	5	10	15	20	25	30	35	40	45	50
1,6mm	15	35	60	80	100	120	140	160	180	200

6.2.1.9 Main menu → Settings → ECO operation (DIN contact)

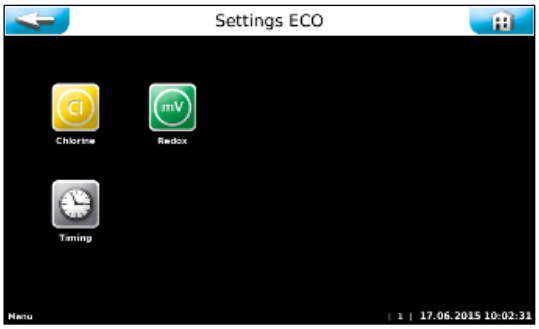
The ECO function is used for operation with optimised energy cost and consumption. If the auxiliary hygiene parameters defined in the standard meet the corresponding specifications, the swimming pool water circulation can be reduced. This operation mode is intended for night-time operation or during light usage (few bathers).

There are two operation modes: the Master and the Slave operation.

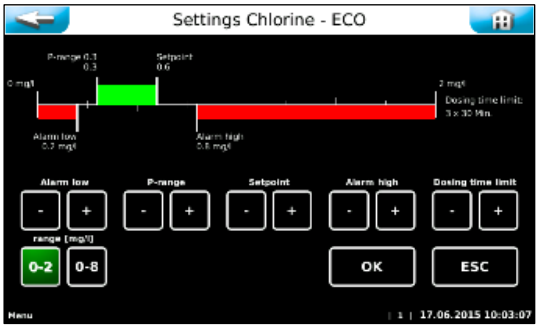
Operation mode: Master
In the Master operation mode, the controller switches to ECO operation in accordance with the time blocks selected in the Times menu.

Operation mode: Slave
In the Slave operation mode, a signal from the central swimming pool control initiates the ECO operation.

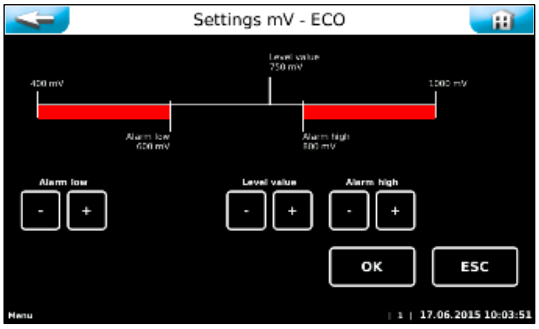
The ECO output (DIN contact) is used for feedback to the central swimming pool control. It may be used for reducing the circulation performance. The notification only occurs if the threshold of the redox voltage has been exceeded.



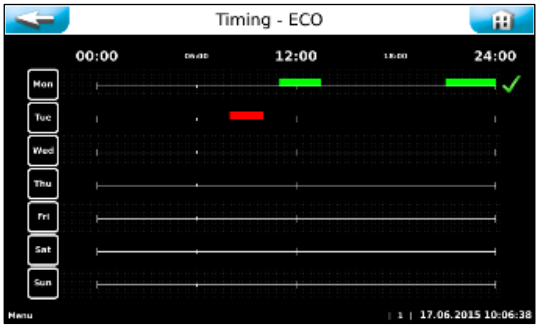
Chlorine: → Second parameter set for the reduced setpoint
Redox: → Threshold for the ECO release contact in Slave operation mode.
Times: → Implemented week timer to specify the ECO operation times.



A second parameter set is available for the optimisation of the chemical consumption.

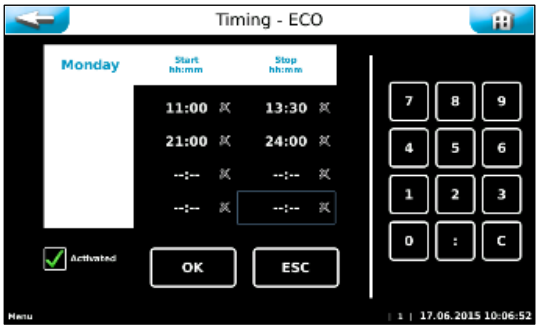


Since the ECO operation should only be initiated when the water quality complies with the regulations, a threshold is assigned for the redox voltage.
The controller can only switch to ECO operation if the redox voltage ≥ the threshold.
If the redox voltage drops below the threshold during ECO operation, the ECO operation is terminated.



The figure graphically displays the set switching times for the ECO operation.
The green bars show the set time blocks. In addition, the green check mark indicates that the switching times have been activated for this day.

Although the red bar indicates a set time block, the day is deactivated.



There are four time blocks available for each day. Times can be selected between 00:00 and 24:00. The colon must be entered as well!
Times that cover more than one day must be entered as two blocks for both days.
Example:
A desired night-time operation between Mon 21:00 and Tue 06:00
Required settings: Mon 21:00 to 24:00 and Tue 00:00 to 06:00

6.2.1.10 Main menu → Settings → System



Date/Time
Set date and time

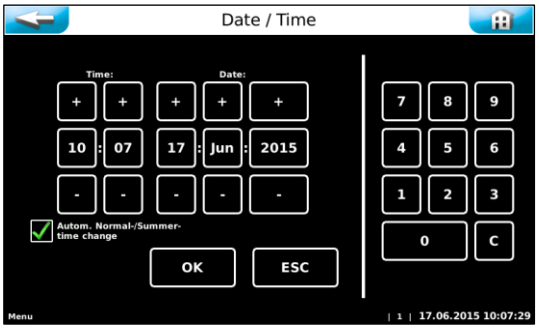
Password
Assign a password

Display brightness
Adjust the display brightness to the ambient conditions

Network
Set network parameters

Language
Select the user language

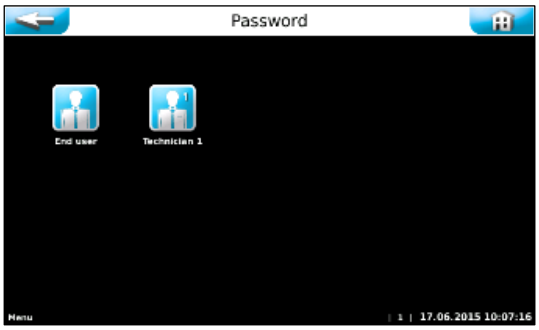
a) Main menu → Settings → System → Date/ time

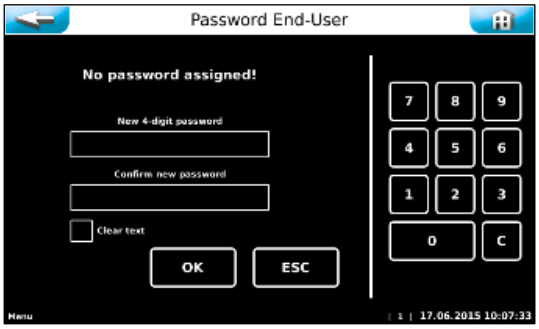


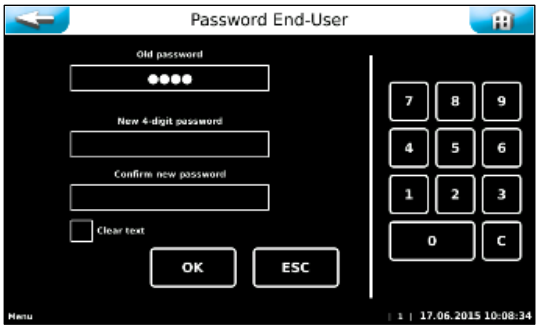
Adjust date and time.

You can activate automatic switching from winter to summer time.
Set date/time

b) Main menu → Settings → System → Password







End user

No end user password is assigned ex works. We recommend the assignation of an end user password to protect the system against unauthorised access. Enter the password in the operation data sheet.

Technician 1

The Technician 1 password consists of five digits and has a factory default setting of 01234. This password is intended for the service partner. We recommend that you change this password as well and enter it in the operation data sheet.

The individual end user password must contain four digits between 0000 and 9999. In the second line, the password must be re-entered.

If you place a green check mark next to Clear text, the entered numbers are shown instead of white dots.

To change an active end user password, it must be entered in the uppermost line. The new password must be entered in the two following lines.

If you want to delete the end user password, you only have to enter the active password in the uppermost line. The other two lines remain empty.

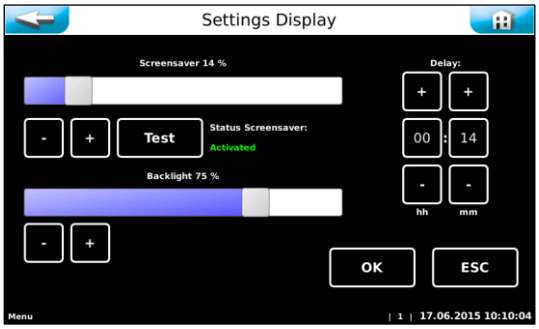
When a wrong password is entered, a fault indication is displayed.



NOTICE!

Please store the individually chosen passwords safely in the operation data sheet. Lost passwords can only be reset by the factory customer service!

c) Main menu → Settings → System → Display



After the set delay time, the screensaver dims the background lighting to the selected brightness.

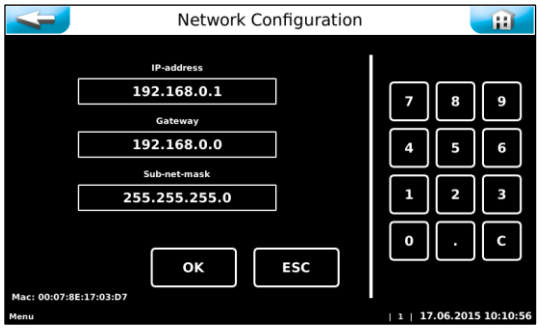
The Backlight setting permanently reduces the background lighting in the operation mode.



NOTICE!

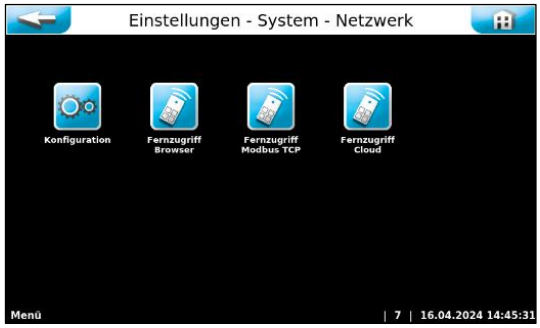
Please reduce the background lighting to the minimal brightness required by you. This increases the lifespan of the background lighting.

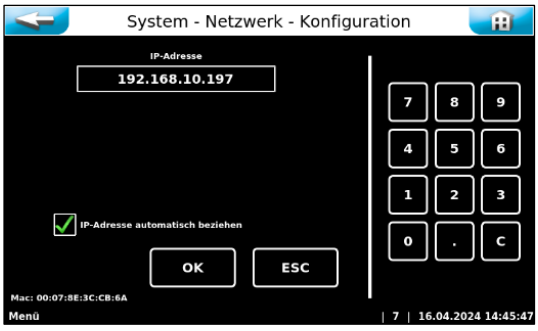
d) Main menu → Settings → System → Network

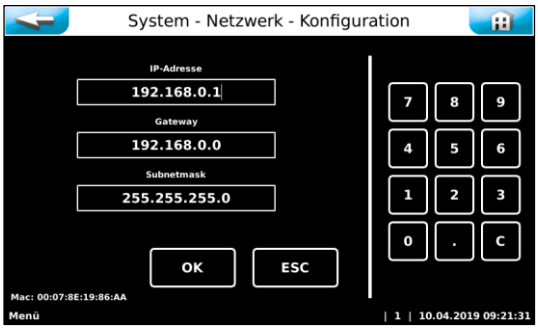


For GRANUDOS: The touch panel has a LAN interface with an RJ45 socket (bottom of display). Via this interface, the current measuring values and status messages can be transmitted to an external remote display. The terminal device can be a PC monitor, a tablet PC, or a smartphone, e.g.

Further information about this topic is available upon request.







For Type 2S (wall-mounted device):
The controller offers various communication methods.

The simplest form of communication is local access via a web browser. For this purpose, the controller has a web front-end that acts as a remote display. This function is always accessible; however, no parameter changes can be made via the browser.

To use any of the three communication options that allow parameter changes, you must log in as Technician 1!

In addition to simple remote display, the 'Remote Access Browser' communication method allows control parameters to be changed via the browser.

The 'Remote Access Modbus TCP' communication method offers further options for enabling the controller to communicate with a higher-level control system, such as the PLC for the swimming pool water treatment system, or a smart home system.

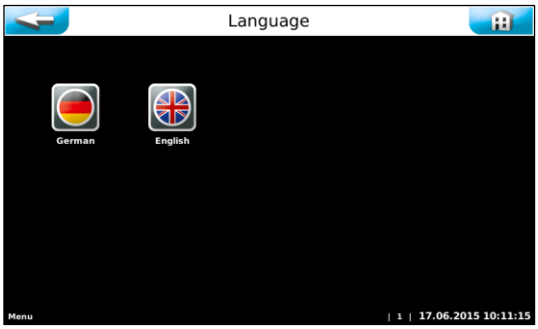
The 'Remote Access Cloud' communication method offers the possibility of worldwide access via the internet through the WDT Cloud.

All communication takes place via the LAN interface integrated into the display.
The LAN interface is used to connect to the home network or to a higher-level control system.

The controller supports multiple communication methods, meaning that all communication types can be used simultaneously.

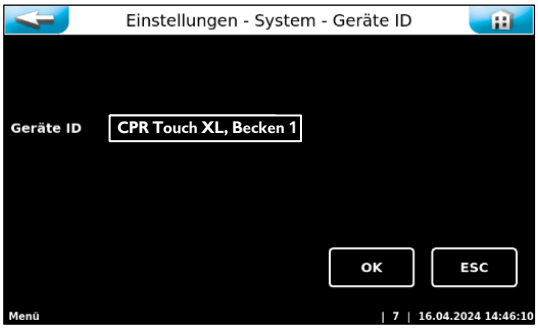
TIP!
Further information can be found in the separate manuals for the Modbus TCP and Cloud functions.

e) Main menu → Settings → System → Language



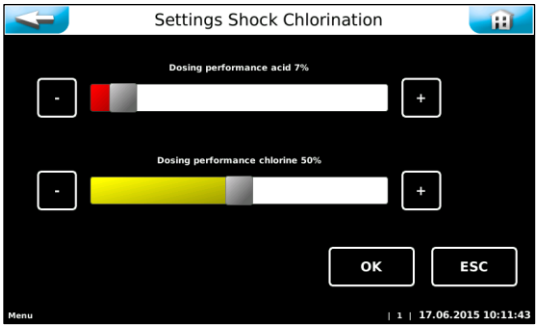
Select your desired operator language.

f) Main menu → Settings → System → Device ID



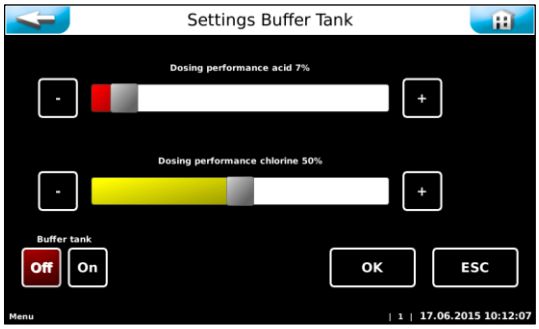
If several controllers are installed on site and these are connected to the network, it is advisable to assign different names (device IDs) to the devices.
This is the only way to distinguish between the controllers in the visualisation.

6.2.1.11 Main menu → Settings → Shock chlorination



With this menu, you can adjust the dosing performance during a shock chlorination. Please select a dosing performance that ensures the availability of the desired concentration during the shock chlorination.
For control purposes, the concentration must be determined repeatedly during the shock chlorination by means of photometry!

6.2.1.12 Main menu → Settings → Buffer tank (for GRANUDOS, optional)



With this menu, you can adjust the dosing performance during a buffer tank filling.
The chlorine solution in the buffer tank must be kept pH neutral at pH 6.8-7.2.
For monitoring purposes, the pH value of the chlorine solution must be determined repeatedly by means of a pH electrode after the buffer tank has been filled!

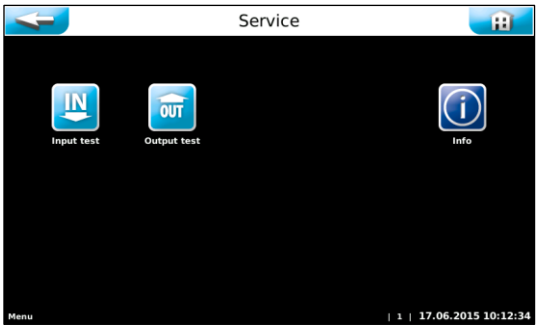
Off-On: → Permanently activate or deactivate the Buffer-tank filling function. The filling is regulated automatically via the level control in the buffer tank.

Hinweis

NOTICE!

At a lower pH value, the chlorine solution tends to outgas, which causes unpleasant chlorine odours.
At a higher pH value, the buffer tank tends to calcify, which would result in unnecessary maintenance work.

6.2.2 Main Menu → Service

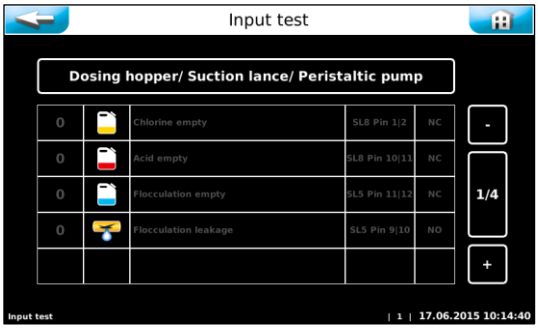


Input test
A test programme for switch inputs

Output test
A test programme for actuators, pumps, dosing motor and relay outputs.

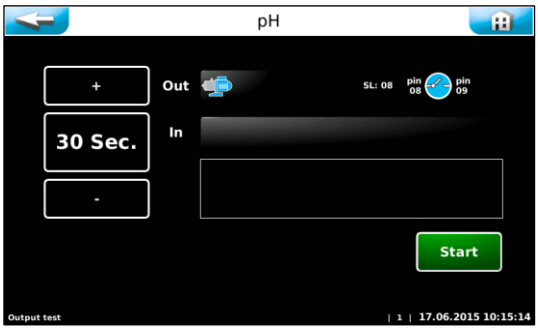
Info
For querying the software version used.

6.2.2.1 Main menu → Service → Input test



The input test is used to check the connected inputs (switches). The changing activation of the switches is indicated by 0 (open) or 1 (closed).
The fourth column displays the pin header (SLx) and the connectors (Pinx/x) to which the switch is connected.
The fifth column shows the function of the switches NO or NC, respectively.
NO (normally open) denotes: open in the operating state and closed in the event of a fault.
NC (normally closed) denotes: closed in the operating state and open in the event of a fault.
Use the + and - buttons to scroll through the pages.

6.2.2.2 Main menu → Service → Output test



The output test is used to check the connected outputs (pumps, dosing motors and relays). The selected output is activated for 30 seconds. The control can be deactivated at any time using the Stop button.

For safety reasons (generation of chlorine gas), the output test for the chemical-dosing outputs is only released if no safety-relevant condition exists, e.g., no measuring water flow, level min, level max.

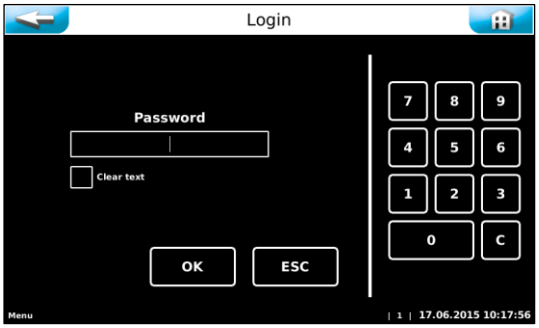
6.2.2.3 Main Menu → Service → Info



Info allows you to query the currently used software versions.

A differentiation is made between
DSP version: The firmware version
I/O version: The version of the co-processor on the I/O board
HTTP version: Web front-end version (user interface software version).

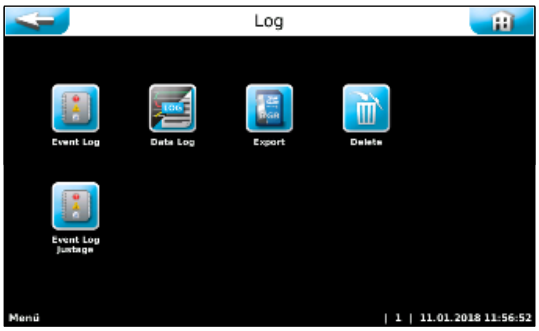
6.2.3 Main Menu Login



A personal password assigned under Settings → System → Password protects the controller against unauthorised access. Without password, no further settings, calibrations, output tests, etc., are possible. You can still browse the menu and view the data logging.

For future changes and adjustments, you must sign in with your personal password under Login. If you switch to the start screen, the password must be re-entered.

6.2.4 Main menu → Log (event and data logging)



Event Log
Displays a chronological list of the events that have occurred

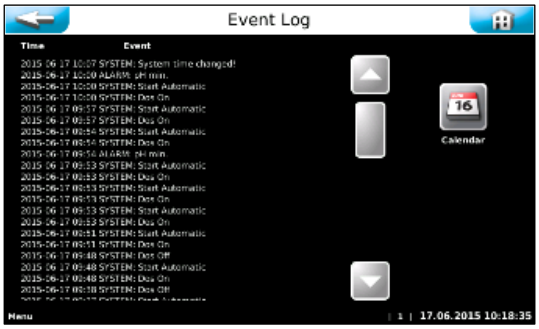
Data Log
Traces the measuring values in the form of a table or graph

Data export
Is used to export the collected data to a USB stick

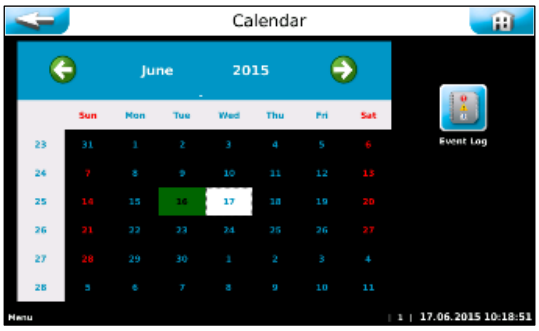
Delete
Is used to delete the stored data

Event Log Adjustment
Displays a chronological list of the calibrations that were made

6.2.4.1 Main menu → Log → Event Log

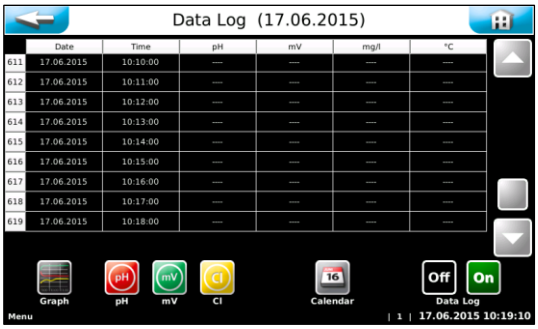


When calling up the menu, a list of events that occurred on this day will be displayed.
You can use the Calendar ICON to view events from previous days.



The current day is shown on a white background. Days on which the controller was activated are shown on a green background. If you select another day by lightly touching it, that day will be shown on a white background. You can use the Event Log ICON to view the events of the selected day.

6.2.4.2 Main menu → Log → Data Log



If Data Log is activated, the measuring values are recorded every minute. The measuring values can be traced in the form of a table or graph.
Use the arrow keys to scroll up or down through the pages.

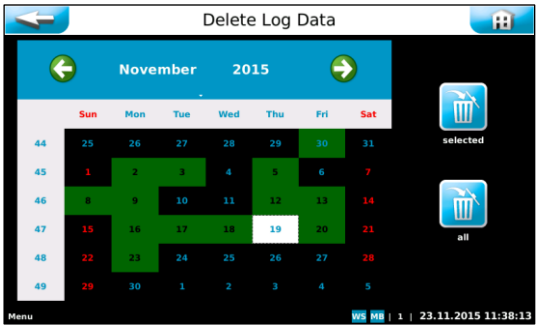
6.2.4.3 Main menu → Log → Data export



You can use the Export menu item to load the stored log data onto an **empty** USB stick. If the USB stick is not empty, formatting is suggested and will be carried out after you confirm with OK.

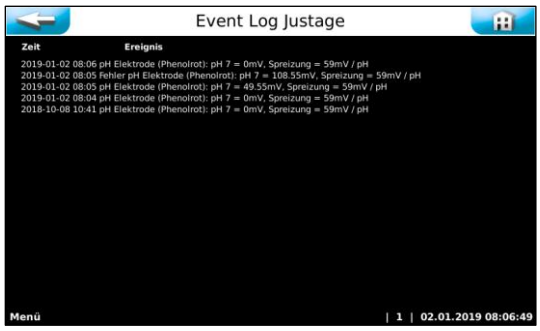
The daily event files and Data Log files can then be found on the USB stick.

6.2.4.4 Main menu → Log → Delete



The current day is shown on a white background. Days on which the log files were stored are shown on a green background. If you select the desired day by lightly touching it, that day will be shown on a white background. You can use the selected ICON to delete the Event Log and Data Log events for the selected day.
You can use the all ICON to delete all Event Log and Data Log events at once.

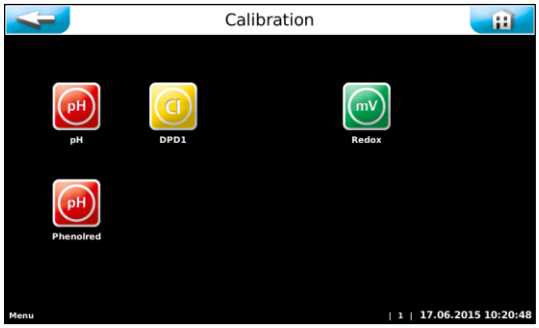
6.2.4.5 Main menu → Log → Event Log Justage



Adjustments that have been carried out are listed in the Event Log Justage.
The maximum number of log data is 50 entries.

Incorrect adjustments are also saved.

6.2.5 Main menu → Calibration



pH
Two-point calibration of the pH electrode with buffer solutions

Phenol red
One-point calibration of the pH measurement with a tablet

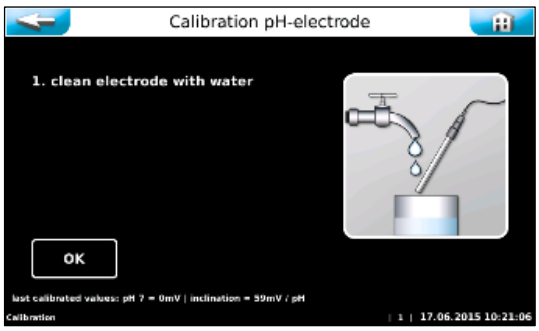
DPD1
Calibration of the measuring technology for the free chlorine

mV - Redox
Calibration of the redox measurement

The calibrations are graphically guided and are accompanied by a help text. Use the OK button to acknowledge the completed steps.

6.2.5.1 Main menu → Calibration → pH electrode

Carry out the calibration according to the instructions.



At the end of the pH calibration, the measuring results of the offset voltage and the conductance voltage are displayed and an electrode evaluation is carried out. In case of minor deviations, the calibration is adopted immediately. In case of "medium" deviations, a cleaning notice is displayed. In case of major deviations, the exchange of the pH electrode is suggested. If the exchange of the electrode does not remedy the problem, the fault may be with the electrode cable or the measuring amplifier.



pH7 = buffer solution for determining the offset voltage.
The optimal offset voltage is at 0 mV up to +/-30 mV.

pH4 = second buffer solution for determining conductance voltage.

Inclination mV/pH = conductance voltage
The optimal conductance voltage at 25°C is approx. 59 mV/pH.
Example: (pH7 – pH4 = 3pH x 59 mV = 177 mV)



NOTICE!
Notice regarding evaluation of the electrodes

Cleaning notice
At an offset voltage > +/- 41 mV, the voltage value is shown in yellow and the calibration ends with a cleaning notice.
At a calibration voltage < 52 mV or > 63 mV/pH, the voltage value is shown in yellow and the calibration ends with a cleaning notice.

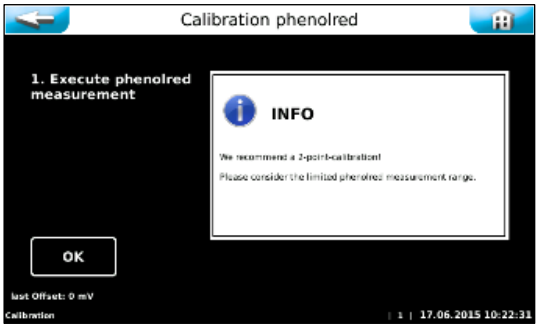
Error notice
At an offset voltage > +/- 61 mV, the voltage value is shown in red and the calibration is rejected with an error notice!
At a calibration voltage < 50 mV or > 65 mV/pH, the voltage value is shown in red and the calibration is rejected with an error notice!
If the calibration is rejected with an error notice, the device continues the control using the values from the most recent successful calibration.
It is necessary to investigate the cause of the failed calibration!

Notice regarding the phenol red calibration
A two point calibration of the pH electrode dismisses the last phenol red calibration.

The buffer solutions are subject to an ageing process and may therefore return false values. Only use fresh buffer solutions!

6.2.5.2 Main menu → Calibration → Phenol red

Carry out the calibration according to the instructions.

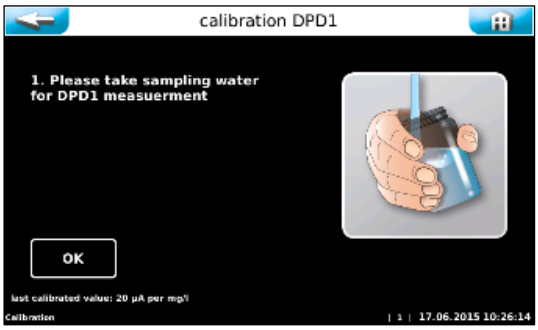




Please observe the displayed notices and follow the menu navigation.

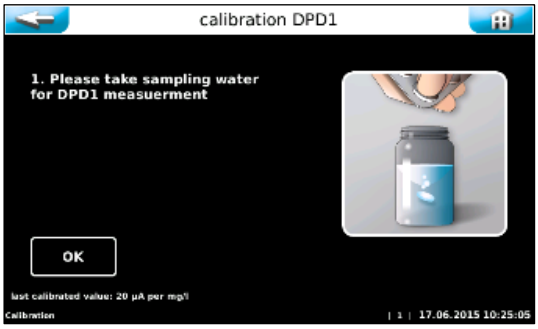
The set deviation is displayed as offset at the end of the menu. In case of minor deviations, the calibration is adopted immediately.
In case of deviations larger than +/- 41 mV, a cleaning notice is displayed.
In case of deviations larger than +/- 61 mV, the exchange of the *pH electrode* is suggested. If the calibration is rejected with an error notice, the device continues the control using the values from the most recent successful calibration. If the exchange of the electrode does not remedy the problem, the fault may be with the electrode cable or the measuring amplifier.

6.2.5.3 Main menu → Calibration → DPD1 free chlorine

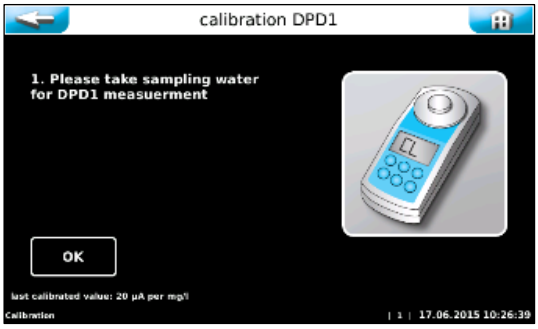


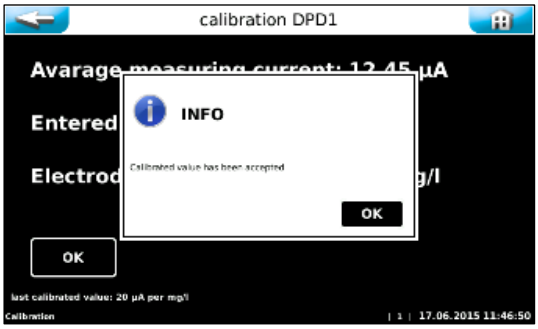
During the first step of the DPD1 calibration, three illustrations are displayed in sequence. They show an example of the procedure for a DPD1 measurement by means of a photometer and tablet measuring.

The exact procedure is explained in the operating instructions of your measuring device!



Since the measurement of free chlorine is subject to a certain inaccuracy (approx. +/- 0.05 to +/- 0.1 mg/l), calibration at low chlorine concentrations < 0.2 is very unreliable. Thus, if the free chlorine shows a very low concentration during the calibration, the calibration must be repeated shortly once there is more chlorine in the water.

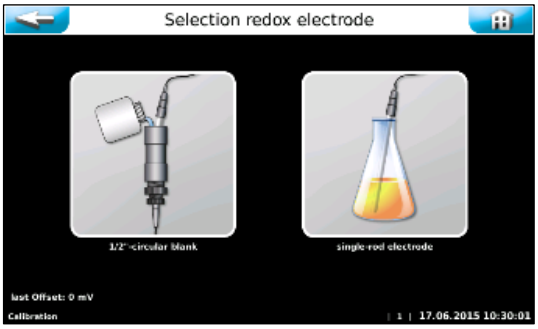




At the end of the menu, the chlorine measuring current, the DPD1 value entered by you and the resulting electrode signal are displayed.

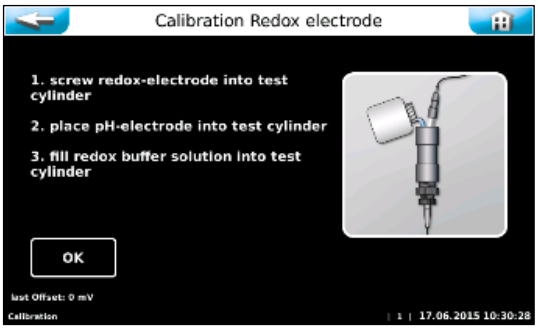
Depending on the water quality, an electrode signal between 10 and 30 µA/mg/l will be shown. If the electrode signal is too weak, the calibration will be rejected with an error message.

6.2.5.4 Main menu → Calibration → mV Redox



There are two basically different types of redox electrodes. There is the normal redox combination electrode (electrode with a glass shaft) and the ½" Redox electrode preferred by WDT.
Select the type of electrode used.

The calibrations are explained graphically and with a help text.



The Calibration → redox electrode menu enables the calibration of the redox measurement. The redox test solution supplied by WDT supplies a voltage of 468 mV at 25°C, see bottle label.
Since the voltage can be chosen freely, the fine-tuning may also be done with other redox test solutions, e.g., 220 mV or 640 mV.
When making a comparison, please note the temperature dependence of the test solution! See label.



At the end of the menu, the set deviation is shown as Offset. In case of minor deviations, the calibration is adopted immediately.
In case of deviations larger than +/- 41 mV, a cleaning notice is displayed.
In case of deviations larger than +/- 61 mV, the exchange of the *pH electrode* is suggested. If the exchange of the electrode does not remedy the problem, the fault may be with the electrode cable or the measuring amplifier.



NOTICE!

After calibrating the redox electrode, it will not provide a reliable measurement signal for a short time. A regeneration time of up to two hours is required before a stable redox potential is achieved again!

6.3 Network Connection – Communication - Visualization





The "CPR Touch XL" device series offers the following communication and visualisation options:

- Remote display vs. remote access via a browser
- Remote display and remote access via the cloud
- Remote display and remote access via Modbus TCP/IP

Since their market launch, the devices have featured a web interface. Communication via Modbus TCP-IP and the cloud was implemented over the course of the following years. Access is via an Ethernet (LAN) interface on the display.
The simplest form of communication via a web browser is available on all devices. If a CPR Touch XL is integrated into an existing home network, authorised network devices can access it. All that is required is for a standard web browser to be installed on the end devices, such as a PC, laptop, tablet or smartphone. The browser displays a replica of the device's screen. This allows the measured values, settings (control parameters), log data, as well as operating states, alarms and faults to be viewed remotely.

Data is transmitted from the device via a wired connection. This requires a network cable with an RJ45 plug. Outside the device, further transmission can be carried out either via a wired connection to the router or wirelessly, e.g. via a wireless access point using Wi-Fi.

Depending on the firmware version, various communication options are available. These range from simple remote display without the ability to change parameters, right through to communication with your smart home system.

The web browser used must comply with the HTML5 standard as a minimum. Due to the wide variety of available web browsers and their versions, compatibility cannot be guaranteed for every browser!
If the page does not display correctly in your browser, please try using a different browser.



NOTICE!

Devices from firmware version V6.1.x onwards are DHCP-compatible and can therefore be registered on the network via Plug and Play. Furthermore, communication with the WDT Cloud is possible from this version onwards.

Devices up to firmware version V6.0.x are not DHCP-compatible and therefore cannot be registered on the network via Plug and Play. Consequently, a certain level of specialist knowledge in the field of IT networks is required.
Please contact your network administrator, who is familiar with your home network, if necessary.

Access via the internet is also possible from outside your home network. However, a DynDNS service must be set up for this.
Please contact your network administrator, who is familiar with your home network, if necessary.

For security reasons, we recommend setting up a secure VPN connection (virtual private network) for internet access.

We, company WDT, cannot accept any liability for the security of data transmission. The assessment of the need for, and where applicable, the implementation of security measures – such as a VPN connection, password allocation and updating of the relevant systems – is the sole responsibility of the user or the persons authorised by them for this purpose!

6.3.1 Installing the network

6.3.1.1 Insert the network cable into the control box

The control enclosure features a pre-punched opening (push-out) in the lower connection compartment for a 25 mm screw fitting with a lock nut. A standard RJ45 plug can be inserted directly into the enclosure via a 25 mm screw fitting. Instead of the standard rubber seal, a 2 x 6 mm multi-seal insert is used for sealing. The second opening of the multi-seal insert is sealed with a 6 mm plug.
Alternatively, a network cable without a plug can be inserted via a smaller screw-type connector, and the plug crimped onto the cable inside the unit.

Field-terminated RJ45 plugs are not suitable due to their size.
For instructions on how to open the housing and insert cables, see section 7, ‘Electrical connection’.

6.3.1.2 Locate the LAN interface

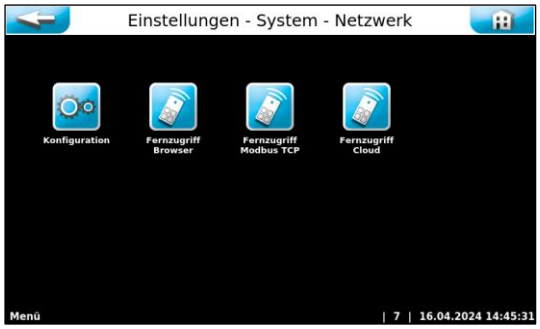
All CPR Touch XL devices have a LAN interface, which is located on the lower bottom side of the display.



Illustrative diagram of the interfaces

6.3.2 Netzwerkzugriff am Gerät einrichten

6.3.2.1 Hauptmenü → Einstellungen → System → Netzwerk

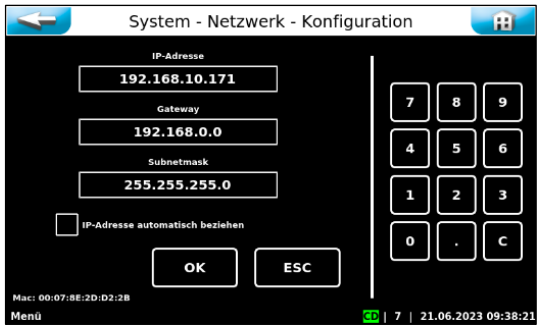


Configuration
The network parameters DHCP, IP address, gateway and subnet mask

Remote access via browser
The network parameters 'Username' and 'Password' for remote access via a browser

Remote access via Modbus TCP
The network parameters 'Port' and 'IP address' for remote access via Modbus TCP intelligent pool control, smart home

Remote access via the cloud
Connection string and activation for remote access via the WDT Cloud



From firmware version V6.1.x onwards, these devices are DHCP-compatible, i.e. they automatically obtain a free IP address.

If the DHCP function is not required, the relevant numeric fields for the IP address, gateway and subnet mask must be determined based on the network topology and assigned manually.

6.3.2.2 IP-address

If transmission is to take place via a static IP address, the automatic acquisition of an IP address must be deactivated. In this case, an IP address assigned by the network administrator must be entered manually.

Devices up to firmware version V6.0.x are not DHCP-capable (no automatic acquisition of an IP address).

If several devices are installed on a network, each device must be assigned its own IP address.

6.3.2.3 Gateway

The gateway enables different computer networks with different network protocols to be connected.

Do not enter a leading 0 for the gateway; for example, 192.168.10.1 is correct, whilst 192.168.010.1 would be incorrect!

6.3.2.4 Subnet mask

The subnet mask for all devices on the network should be the same.



NOTICE!

The icons for the 'Remote Access Browser', 'Modbus TCP/IP' and 'Cloud' menus are only displayed if you log in using the 'Technician 1' password!

6.3.3 Netzwerkzugriff via Browser

6.3.3.1 Browser öffnen



Open a suitable browser and enter the IP address previously assigned to the controller (e.g. 192.168.10.118) in the address bar



If the connection is successful, the web interface implemented in the device will appear in the browser

6.3.3.2 The measurement data

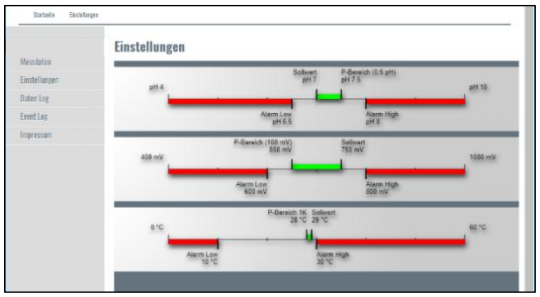


The device is in Automatic mode (see status bar).

There are no faults or alarms.

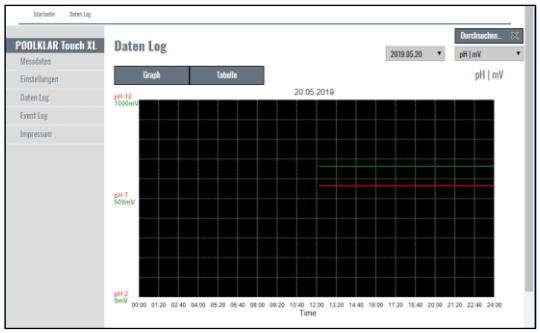
Please refer to the device's operating instructions for the meaning of the symbols.

6.3.3.3 The Settings



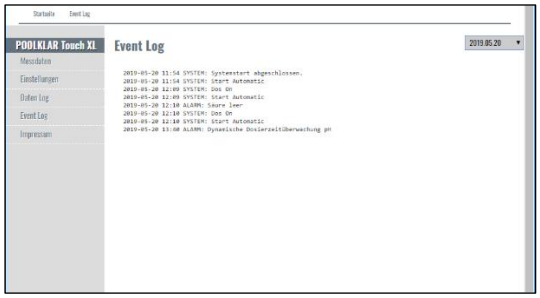
The control parameters are displayed under 'Settings'

6.3.3.4 The Data Log



The logged measurement values are displayed in tabular or graphical form at ‘Data Log’

6.3.3.5 The Event Log



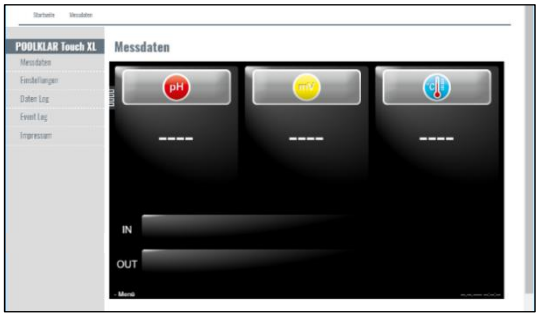
The logged events are displayed under ‘Event Log’

6.3.3.6 The Imprint



The logged events are displayed at ‘Event Log’.

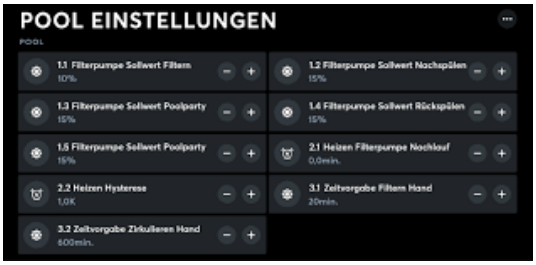
6.3.3.7 No measured values in the ‘Menu’ status



If the remote display shows ‘- - - -’ instead of numerical values, the control unit is currently in the menu. This means that someone has selected the main menu on the device to change parameters, carry out adjustments or for other reasons

6.3.4 Network access via Modbus TCP/IP

6.3.4.1 Communication with a smart pool control system or smart home system



For detailed information on the Modbus TCP-IP function, please contact your specialist dealer. Separate instructions are available for this communication option.

6.3.5 Network access via the cloud

6.3.5.1 The WDT Cloud



For detailed information on the Cloud function, please contact your specialist dealer. Separate instructions are available for this communication option

7 Maintenance, care, faults

7.1 Device maintenance

We recommend that you assign a specialist firm to carry out regular maintenance. All required maintenance and repair tasks may only be carried out by properly qualified personnel from a specialist company. Required spare parts are available from your specialist dealer.
Please observe the safety notices when handling chemicals and wear appropriate protective clothing.



TIP!

During all repair and maintenance work, the valves must be closed and the pipes depressurised to prevent injury.
In order to carry out any maintenance work, use the maintenance protocol for the associated dosing technology.

7.1.1 Check and clean the prefilter

The Prefilter prevents the contamination of the measuring cell; therefore, it must be kept clean. Especially in the spring and fall, a higher level of contamination through flying seeds and falling leaves can occur in outdoor pools.



Figure 7, Prefilter

When working on lines that carry water, close the inlet and outlet valves! Collect any water that runs out. Unscrew the filter hood from the bracket. Remove the filter insert from the filter hood and wash the filter insert under running water. Reinstall in the reverse order.



NOTICE!

A contaminated Prefilter may lead to a chlorine depletion, resulting in faulty measuring values.

7.1.2 DPD1 Measuring – free chlorine calibration

According to the nationally applicable provisions (such as DIN, ÖNORM, Sia, ...), a manual measurement of the free chlorine must be conducted at regular intervals using the DPD1 method and the result must be documented in the operating log. For this measurement, various photometric measuring procedures are available. If a major deviation is detected between the display and the determined free chlorine measurement, a calibration of the chlorine measurement must be carried out.

7.1.3 pH measurement – calibrate pH electrode

The pH electrode is a wear part. It is subject to a certain degree of ageing, which is due to a variety of factors. In the area of swimming pool water treatment, a life span of 6 months to 2 years may be expected.
The contamination of the electrode's diaphragm may be one reason for measuring value deviations. This contamination can potentially be cleaned using the electrode cleaner (diaphragm cleaner) supplied with the delivery. For this purpose, the glass shaft of the pH electrode is submerged in the electrode cleaner for a few minutes.



ATTENTION!

During all work on the pH electrode, it must be ensured that neither the electrode's screw plug head nor the plug of the electrode cable are exposed to humidity! Even the smallest amount of humidity in the electrode head may lead to a distortion of the measuring value or even to a premature failure of the electrode!
All contacts in the electrode's plug head and on the electrode plug must display a shiny golden colour and may not show any signs of corrosion



NOTICE!

After each cleaning or exchange of the electrode, a calibration must be carried out! Do not touch the glass top (sensor part) and the diaphragm with your fingers.

7.1.4 Combination reference-return electrode

For the combination reference-return electrode (PG13,5 blue), a service life of one to two years may be expected, as well. The same safety measures as for the pH electrode apply.

7.1.5 Chlorine electrode - exchange the gasket set

As part of the annual maintenance, the flat gasket in the chlorine electrode ¾" and the corresponding O ring in the measuring cell must be exchanged. When inserting the electrode, ensure that no cleaning beads are present in the thread.

7.1.6 Redox electrode - exchange the gasket set

As part of the annual maintenance, the flat gasket in the redox electrode ½" and the corresponding O ring in the measuring cell must be exchanged. When inserting the electrode, ensure that no cleaning beads are present in the thread.

7.1.7 Flow regulator - exchange the maintenance kit

The diaphragm in the flow control valve is subject to ageing and can become brittle, which negatively affects the quality of the flow control. This diaphragm must be renewed after several years of operation. A maintenance kit with the required components is available.

7.1.8 Open and close the housing



DANGER!

Risk of death due to high voltage. All electrical work on the device must only be carried out by trained electricians in accordance with the applicable safety regulations!
Fuses inside the control housing must only be replaced by instructed, competent personnel.

For type **2S**

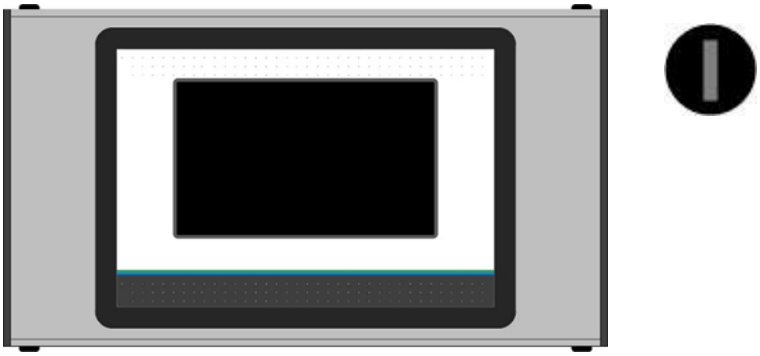


Figure 8, Control housing, type 2S

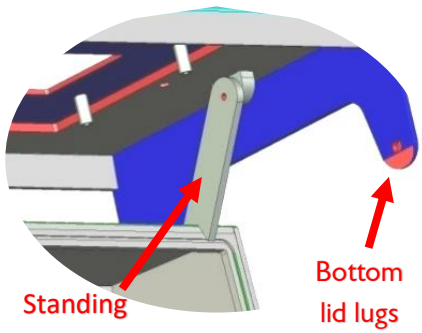
The display lid can be rotated to the right for installation and maintenance work. The locking axle must be removed for rotating. The locking axle is identified by the plastic slotted screws on both sides. The other side is equipped with two expanding rivets as pivot bearings.



TIP!

It is not necessary to completely remove the display lid for maintenance tasks! Only the locking axle must be removed. Afterwards, the display can be rotated to the side.

For type **GRANUDOS Flex and GRANUDOS Vario-CPR**



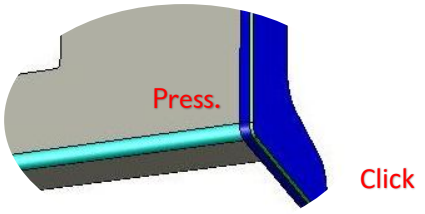


Figure 9, Control housing Type Flex + Vario

The housing is equipped with an *easy lock-in closure*. In order to open the display lid or the small connection space cover, the lateral lid lugs must be gently lifted outwards from the main housing. The display lid can then be pulled forward. The upper lid lugs run in guide grooves up to the front lock-in position.
Afterwards, the display lid is raised. The display lid can be supported on the main housing using a standing bracket so that it remains raised for work on the terminals.
In order to close the housing, the standing bracket must be unlocked with a backward motion and the lid closed by moving it downward. The upper lid lugs must now be unlocked and the lid pushed backward onto the main housing. In order to ensure that it has been completely resealed, press gently on the four corners of the housing.

The housing lid will close with a soft, audible click.
Please ensure that all of the lid lugs have been securely bolted using the safety bolts each time.

7.2 Fault removal Table separates by device



TIP!

All faults and messages are displayed on the touch screen in the "IN" - list. In addition, they may be queried in the Event Log.
It is also possible that switches or sensors are faulty and thus do not transmit any electrical signals.
An error will only be displayed once it has occurred uninterrupted for at least 6 seconds.

Fault display	Cause / effect	Actions
1. Disinfectant empty ALARM: Disinfectant container empty	This notification serves for information purposes only, no action ensues. The disinfection dosing and booster pump keep running.	1. Refill disinfectant, or change container 2. If the disinfectant is not empty, recalibrate the empty switch or 3. Renew the empty switch.
2. pH correction (acid) empty ALARM: pH container empty	The pH dosing stops; the booster pump keeps running.	1. Replace the empty pH container with a full one 2. If the pH container is not empty, the empty switch is faulty. 3. If the suction lance is new, check the float's switching direction
3. Flocculation empty ALARM: Flocculant container empty	The flocculant dosing stops; the booster pump keeps running.	1. Replace the empty flocculant container with a full one 2. If the flocculant container is not empty, the empty switch is defective. 3. If the suction lance is new, check the float's functional direction
4. Flow measuring cell ALARM:	The flow through the measuring cell is too low. Dosing is stopped.	Increase the flow at the flow control valve (pos. 6).
5. Clean water flow too low, ALARM:	External flow sensor reports flow too low. The dosing and booster pump are stopped.	Check swimming pool circulation; if this is OK, then check the flow sensor.
6. External Off NOTIFICATION:	The control unit is deactivated by the central control technology. The dosing device stops.	No action, since it has been deactivated externally.
7. ECO operation NOTIFICATION:	The "ECO operation" request from the central control unit is pending.	No action
8. Shock chlorination active NOTIFICATION:	Shock chlorination / filter disinfection is active.	No action
9. Dosing timeout ALARM:	A dynamic dosing time has been exceeded. The respective output is blocked. To save space, no differentiation is made between the individual channels!	Check dosing screw and dosing pumps for defects and blockages. Eliminate fault or blockage. (See also Chapter 7 for the respective dosing unit). Check to see if dosing performance setting is too low. Check the settings of the control parameters.
10. Flocculation leakage ALARM:	The hose rupture sensor on the flocculation dosing pump has triggered. The flocculant dosing is stopped.	Check the pump's dosing hose and renew, if necessary; if it is OK, check the dosing valve for blockage.

Only with wall-mounted devices		
11. pH leakage ALARM:	The hose rupture sensor on the pH dosing pump has triggered. The pH dosing is stopped.	Check the pump's dosing hose and renew, if necessary; if it is OK, check the dosing valve for blockage.
12. Disinfectant leakage ALARM: (only for type 2S)	The hose rupture sensor on the disinfection dosing pump has triggered. The disinfection dosing is stopped.	Check the pump's dosing hose and renew, if necessary; if it is OK, check the dosing valve for blockage.
Only with GRANUDOS		
13. Pressure minimum ALARM: The flow pressure at the booster pump is too low	Dosing is stopped. The booster pump has been deactivated.	1. Supply pressure too low 2. Booster pump faulty 3. Pressure switch faulty 4. Set a lower response pressure at the pressure switch 5. Dirt filter is dirty 6. Inlet blocked
14. Flushing tub level minimum ALARM: The water level in the flushing tub is low; more water is suctioned off than runs into the flushing tub through the floating valve.	Dosing is stopped. The booster pump has been deactivated.	1. Floating valve function: a) The water inlet should gently follow the float's movement. If OK, calibrate the water level. See OI Dosing unit, chapter Commissioning b) If this is not the case, insert a new diaphragm in the floating valve. 2. Insert a pinhole aperture with a smaller drill hole 3. Dirt filter (Pos. 9) is dirty → clean
15. Flushing tub level maximum ALARM: The water level in the flushing tub is too high, less water is siphoned off than is flowing into the flushing tub through the floating valve.	Dosing is stopped. The booster pump keeps running.	1. If the injector's suction capacity is OK: a) Floating valve function: The water inlet should gently follow the float's movement. If OK, calibrate the water level. See OI Dosing unit, chapter Commissioning b) If this is not the case, insert a new diaphragm in the floating valve. 2. If the suction capacity is not sufficient, see under fault display "**Suction pipe flow minimum ALARM**"
16. Suction pipe flow minimum ALARM: (only with GR) The water flow in the suction pipe is too low. The switch body of the flow switch does not rise; the switch LED lights up.	Dosing is stopped. The booster pump keeps running.	1. Check booster pump functioning. 2. Dirtfilter is dirty → clean 3. Blocked suction opening in the flushing tub 4. There may be particles in the nozzle or in the suction pipe, due to particles entering during installation or from the chlorine 5. Insert a pinhole aperture with a larger drill hole or remove it entirely 6. Blocked non-return valve at the buffer tank 7. Diffuser worn out, if D > 6.5mm, replace diffuser
17. Chlorine dosing monitor in cyclone ALARM: (Only with GR) The optical sensor on the dissolving cyclone is activated.	The sensor on the cyclone indicates that during the 2nd dosing interval, there is insufficient chlorine in the cyclone.	1. Fault during dosing: a) Clotting in chlorine granulate b) Dosing screw blocked due to poor chlorine quality (too fine, moist) 2. The dosing motor is defective. 3. Calibrate the optical sensor.
18. Chlorine dosing motor fuse ALARM:	The disinfection dosing stops. The booster pump keeps running.	Check chlorine motor for blockages, remove blockage, if necessary, and renew the fuse.

Only with Buffer tank option		
19. Buffer tank filling start NOTIFICATION:	The filling starts.	The dosing device starts to produce chlorine solution.
20. Buffer tank filling stop NOTIFICATION:	Filling stops.	The flushing cycle starts; the dosing device then stops producing chlorine solution.
21. Buffer tank minimum level ALARM:	The lower control switch for starting the filling did not trigger. Filling has been deactivated.	Check switch function: If the tank is empty, the switch contact must be closed (measure at the terminal). If open: Switch or terminal contact faulty
22. Buffer tank level maximum ALARM: **or** **Collecting tub alarm**	During the filling process, the upper level switch "Stop" for stopping the filling did not trigger. The level switch in the collecting tub reports liquid in collecting tub. The container is overflowing or leaking.	1. Check the "Stop buffer tank filling level" switch: If the tank is full, the switch contact of the "Stop buffer tank filling level" switch must be closed (measure at the terminal). If it is open when the buffer tank is full, the switch or terminal contact is faulty. 2. "Stop buffer tank filling level" switch working: →Check switchover valves for functioning 1. Buffer tank is overflowing or leaking a) "Stop buffer tank filling level" **and** Level maximum alarm level switches at buffer tank defective. → Renew level switches b) Leaking non-return valve at a dosing pump → renew non-return valve c) Buffer tank leakage → renew buffer tank 2. Control valve to the buffer tank not closing
23. Buffer tank filling time-out ALARM:	The buffer filling was cancelled by the system. Filling occurred too slowly. The start contact must be reopened 3 minutes after filling has started!	1. Check switchover valves 2. Check "Start buffer tank" sensor: Its contact must be reopened 3 minutes after filling has started!

Malfunction without indication on the display:

1. The display is dark and the device is turned off:

a) No supply voltage: → Restore the supply voltage
b) The main fuse at the lower left of the housing has blown: → Renew fuse
c) The fuse F1 at the power pack has blown: → Renew fuse
d) The power pack is defective: → Renew power pack

2. The flushing tub overflows when shutting down the GRANUDOS:
In this case, one of the following elements must be checked:

a) Floating valve: → Renew diaphragm
b) Switch body in the suction pipe: → Foreign object in the suction pipe
c) Pressure retention valve in the measuring water line from the booster pump is leaking or adjusted incorrectly: → Renew diaphragm and adjust pressure retention valve

8 Decommissioning – Storage – Disposal

8.1 General

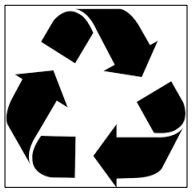
In the event of decommissioning or risk of frost, the devices must be emptied completely and protected against frost!

8.2 Decommissioning

If the device is decommissioned for an extended period of time (more than approx. 14 days), the following tasks must be conducted.
Depending on the device version, different measures are required for decommissioning. The following tasks relate exclusively to the measuring and control technology.
For required work on the dosing devices, please consult the corresponding device manuals.

- The diaphragm of the combination electrode (electrode with glass shaft) must never dry out. The longest service life for electrodes can be reached if the glass shaft is stored in an electrolyte solution during down times. For this, fill the protective cap about halfway with electrolyte solution and push it on the glass shaft of the pH electrode or the combination reference-return electrode, respectively.
- The combination electrodes are frost-resistant to approx. -15°C; if the temperature falls below this value, the electrodes must be stored in a frost-safe environment.
- If condensation moisture can be expected at the installation site, the device must be supplied with continuous voltage in order to protect the electronics. Alternatively, the device may be dismounted and stored in a dry location.
- If frost is expected at the installation site, all water-conveying parts, such as measuring water pipes and measuring cell, must be emptied completely.

8.3 Disposal of used parts and operating materials



Thoroughly clean any removed, contaminated parts and dispose of or recycle them in accordance with the regulations applicable at the operating location. Pay attention to the relevant instructions on the packaging for the operating materials. In case of doubt, information may be obtained from the authorities responsible for disposal at your location. If this is not possible, dispose of the components/materials as hazardous waste.

9 Documents

9.1 Declaration of conformity

See operating instructions Part 1 regarding the respective dosing device.

9.2 Wiring diagrams



DANGER!

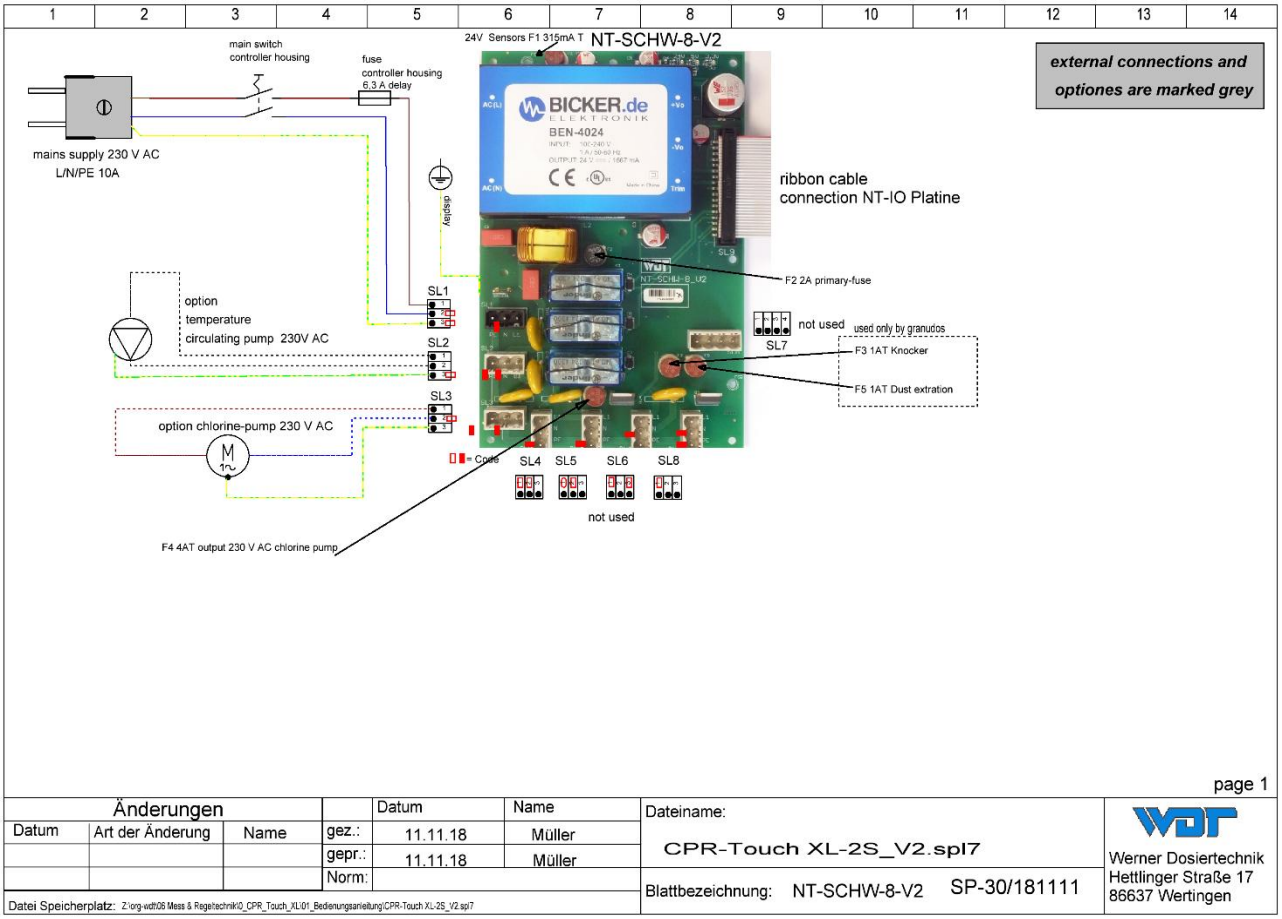
Risk of death due to high voltage. All electrical work on the device must only be carried out by trained specialists in accordance with the applicable safety regulations! Internal fuses may only be renewed once the voltage has been disconnected and secured against being reactivated!

9.2.1 Wiring diagram power pack for device **2S** (wall-mounted-device)



DANGER!

Risk of death due to high voltage. All electrical work on the device must only be carried out by trained specialists in accordance with the applicable safety regulations! Internal fuses may only be renewed once the voltage has been disconnected and secured against being reactivated!



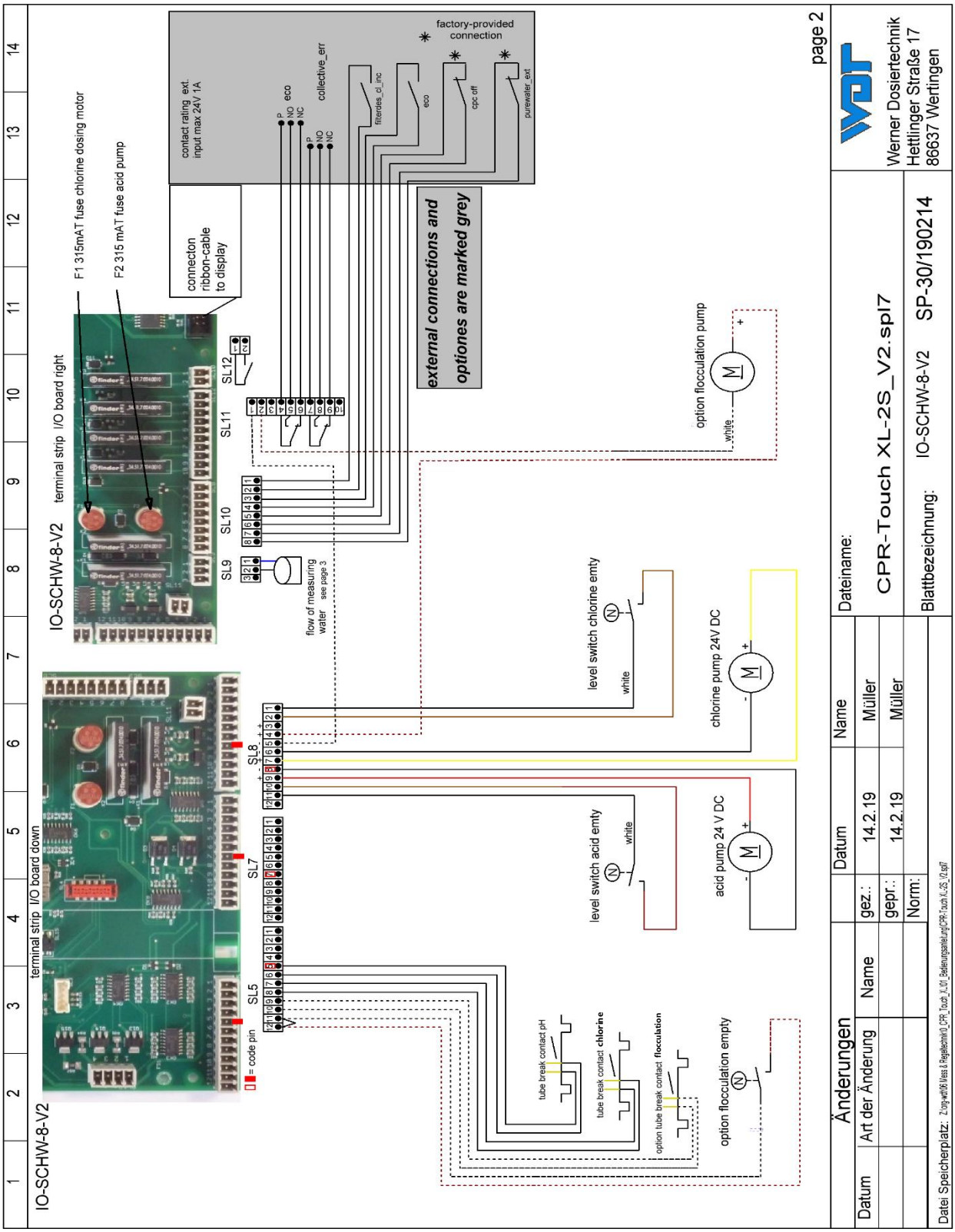
Fuse in the control housing (accessible from the outside)

Fuses	Current	Fuse type	Function
	6,3 A	5 x 20 mm	Primary fuse mains lead

Fuses on the power pack

Fuses	Current	Fuse-type	Function
F1	315 mA	Micro-fuse	24 VDC sensors
F2	2 A	Micro-fuse	Primary fuse power pack
F3	1 A	Micro-fuse	with the CPR Touch XL 2S without function
F4	4 A	Micro-fuse	230 VDC output relays K2 and K3
F5	1 A	Micro-fuse	with the CPR Touch XL 2S without function

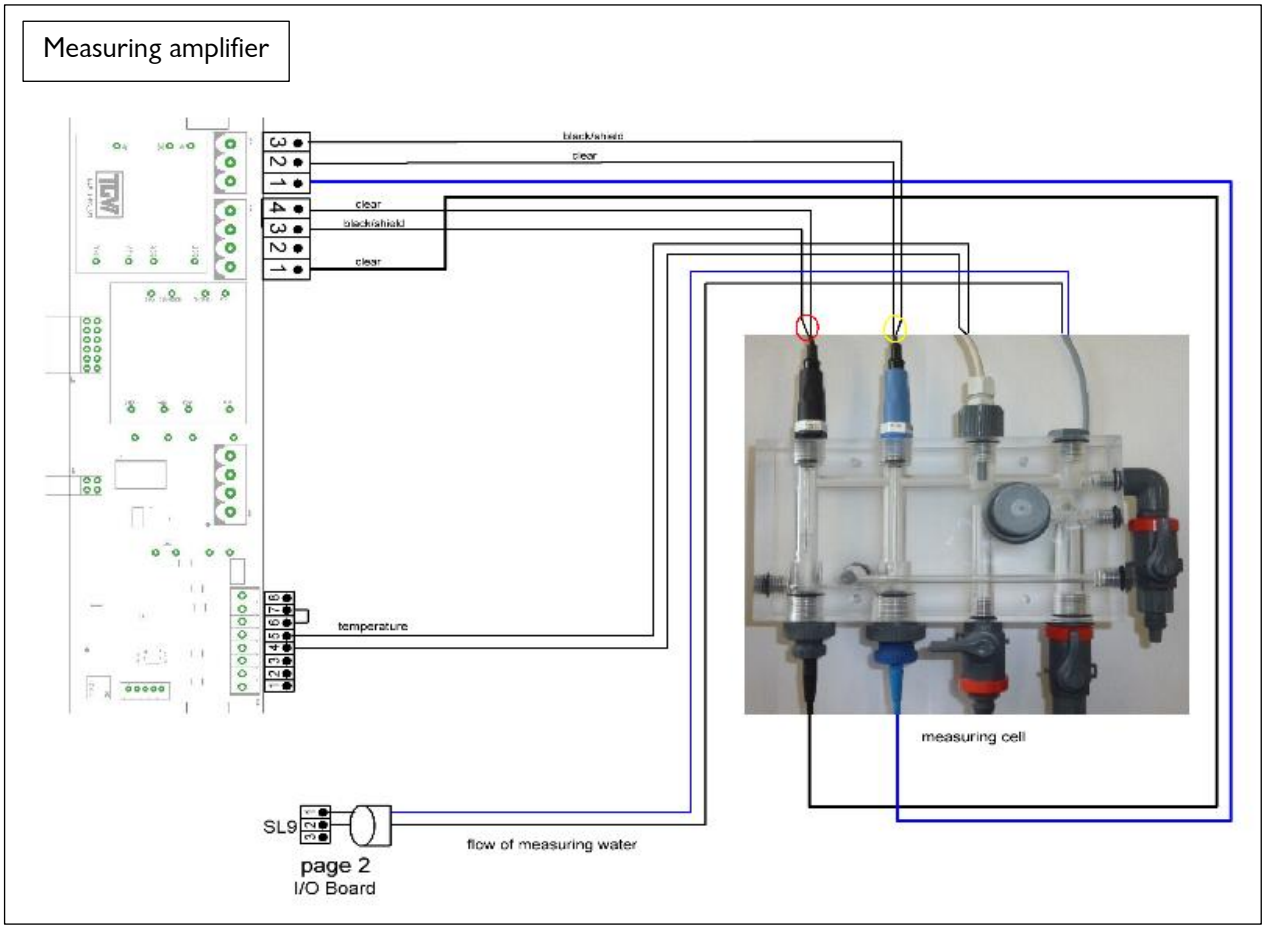
9.2.2 Wiring diagram I/O Board for device **2S** (wall-mounted-device)



The figure shows the connected sensors or consumers, respectively, of the device version **2S** (with two peristaltic pumps).

Fuses	Current	Fuse type	Function
F1	315 mA slow	Micro-fuse	Output disinfection 24 V, SL08
F2	315mA slow	Micro-fuse	Output pH correction 24V, SL08

9.2.3 The measuring amplifier



The measuring amplifier is constructed of several circuit boards.

MV_CPRT_PR_Cl

The basic circuit board MV_CPRT_V1.1 contains the measurement converter for temperature and pressure measurements. It is also used to accommodate the two measurement converters MV_pR and MV_Cl.

1 = free

4 + 5 = Temperature sensor 1Pt1000

MV_pR_V1

The circuit board MV_pR_V1 contains the measurement converter for pH and redox measurements.

1 = Redox electrode → (black cable to redox electrode) → Platinum round blank

2 = Mass → (shielding of the coaxial cable mV - OPTIONAL)

3 = Mass → (shielding of the coaxial cable pH)

4 = pH electrode → (internal conductor of the coaxial cable)

MV_Cl_V1

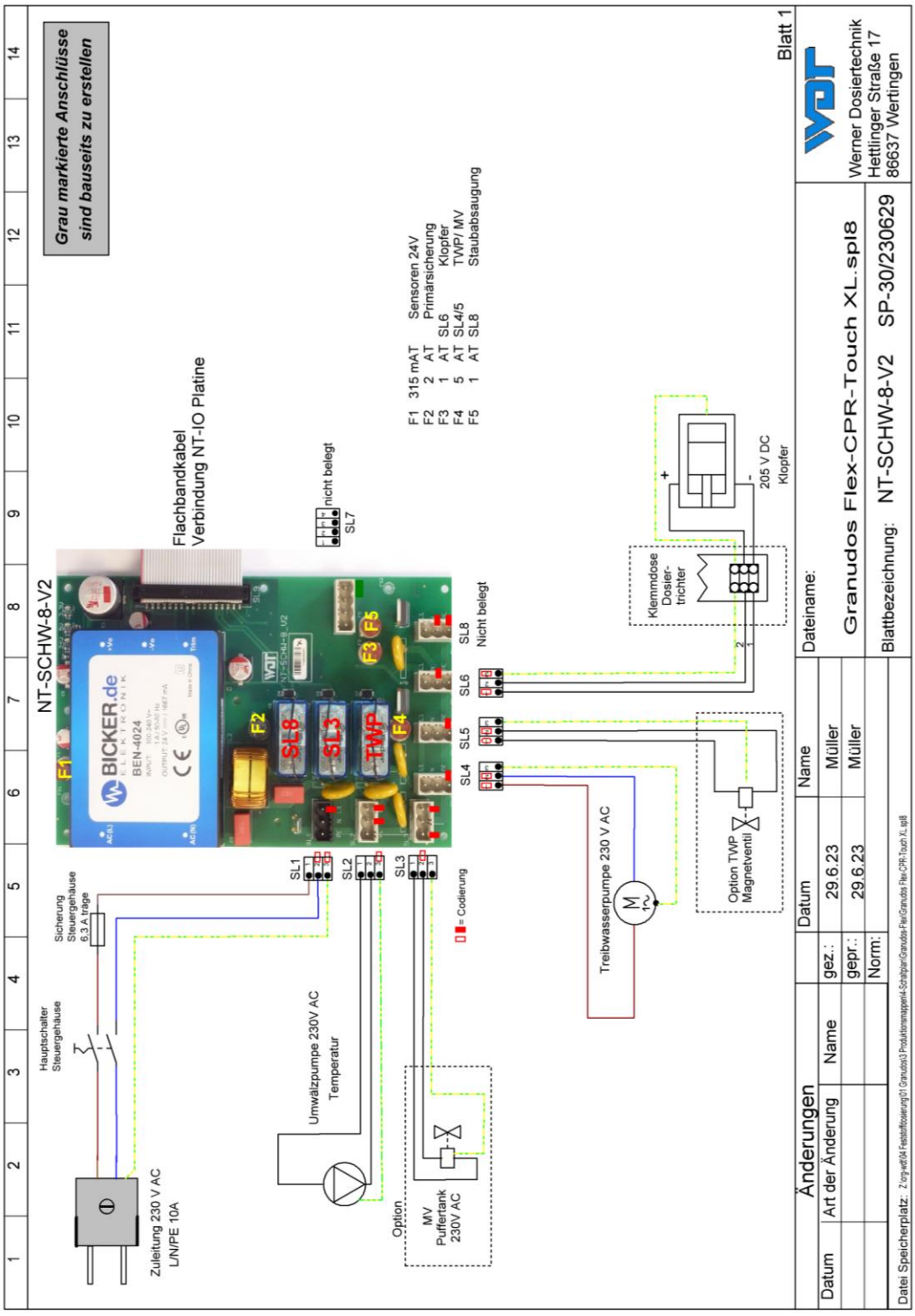
The circuit board MV_Cl_V1 contains the measurement converter for the free chlorine measurements.

1 = Measuring electrode chlorine → (blue cable to the gold electrode) → Gold round blank

2 = Counter electrode → (internal conductor of the coaxial cable) → Metal sensor of the combination electrode

3 = Reference electrode → (shielding of the coaxial cable) → Reference system of the combination electrode (Redox electrode)

9.2.4 Wiring diagram power pack with connection to the IO circuit board for GRANUDOS **Flex-CPR Touch XL**



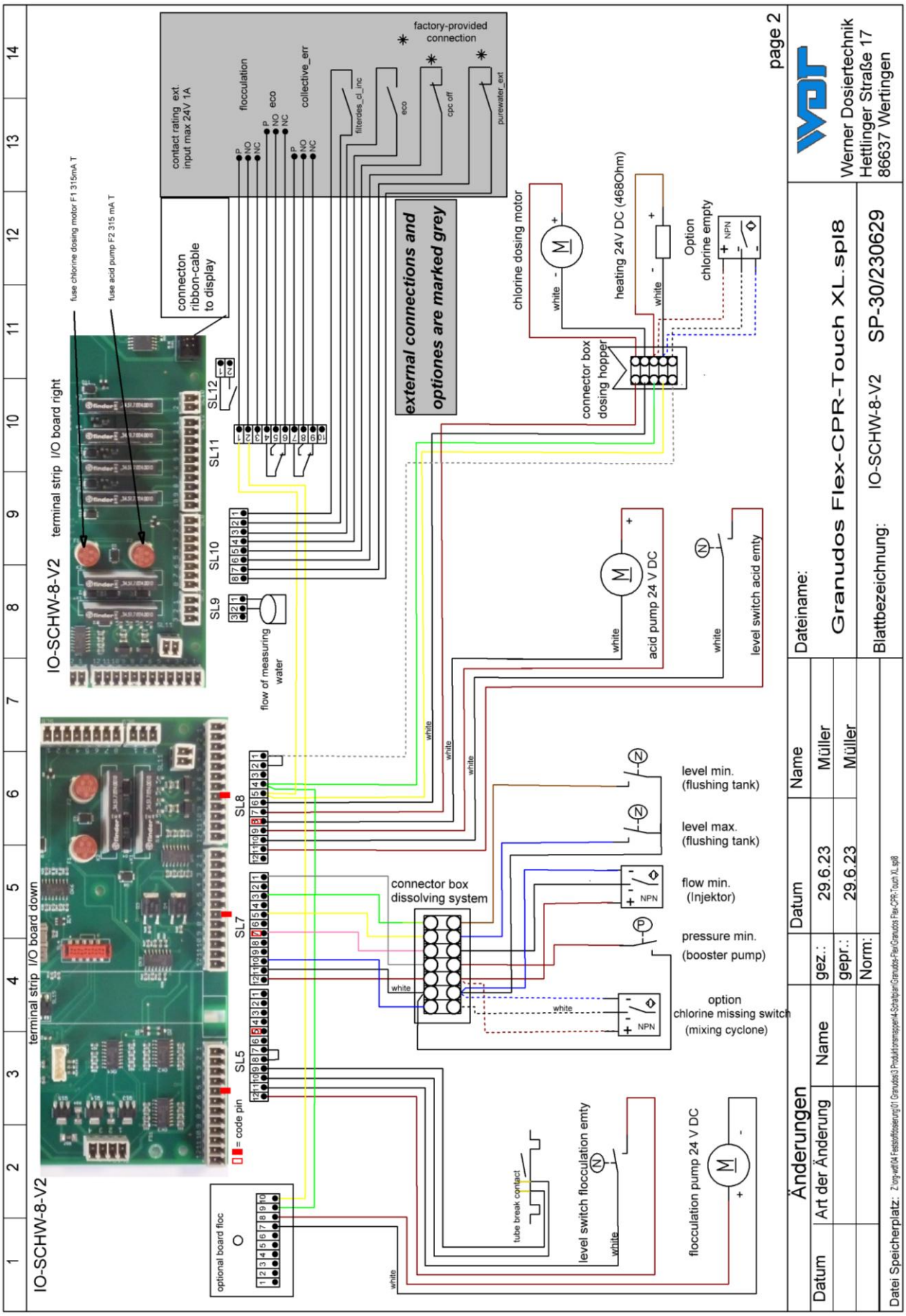
Fuse in the control housing (accessible from outside)

Fuses	Current strength	Fuse type	Function
	6,3 A	5 x 20 mm	Primary fuse of the mains supply line

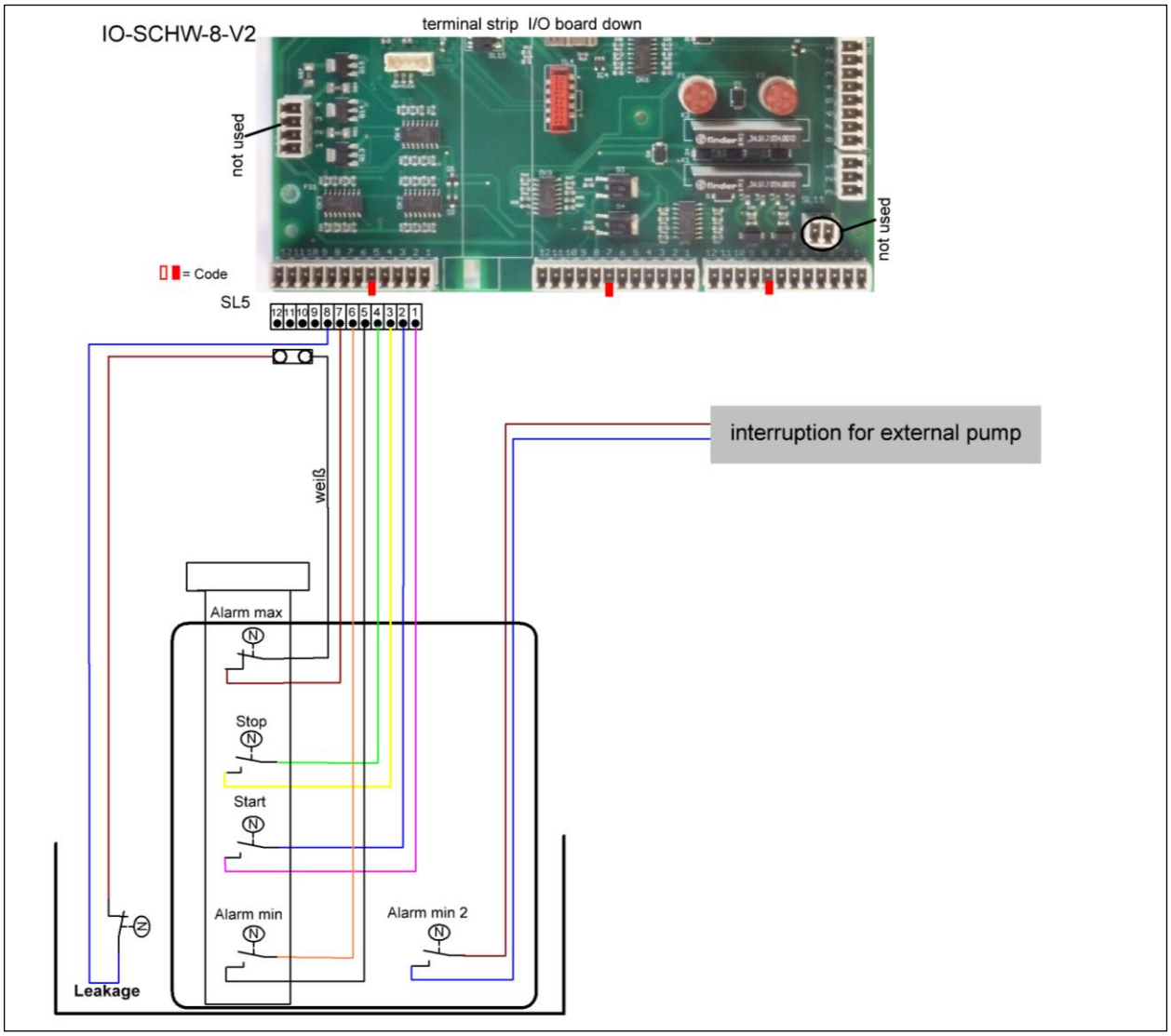
Fuses on the power pack

Fuses	Current strength	Fuse type	Function
F1	315 mA	Micro-Fuse	24 VDC Sensors
F2	2 A	Micro-Fuse	Primary Fuse power pack
F3	1 A	Micro-Fuse	Knocker
F4	5 A	Micro-Fuse	Booster pump solenoid valve
F5	1 A	Micro-Fuse	Dust extraction

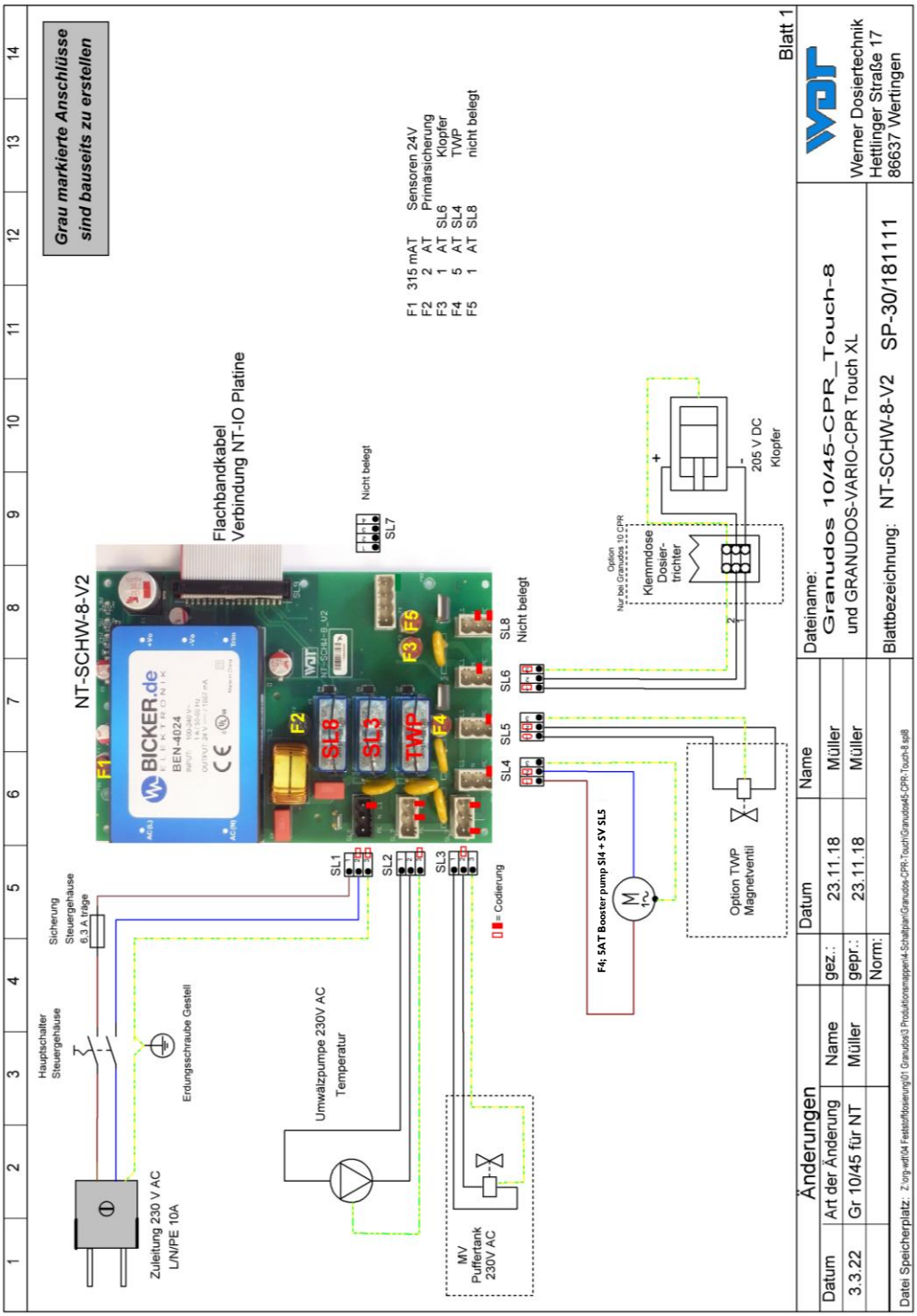
9.2.5 Wiring diagram I/O circuit board SCHWIMM 8 for device GRANUDOS **Flex-CPR Touch XL**



9.2.6 Wiring diagram Buffer tank SCHWIMM 8 for GRANUDOS **Flex-CPR Touch XL**



9.2.7 Wiring diagram power pack with connection to I/O circuit board for GRANUDOS **Vario-CPR Touch XL**



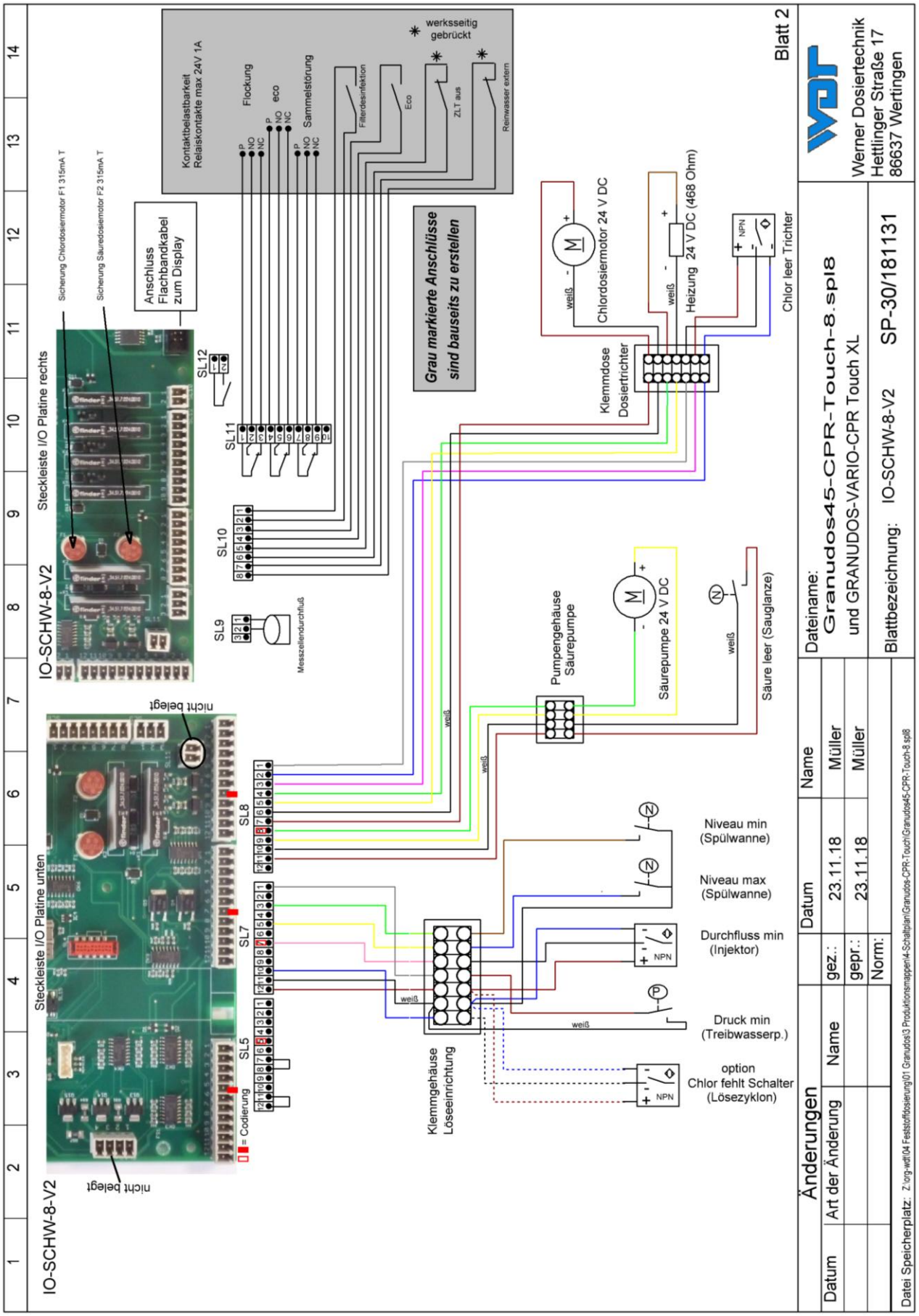
Fuse in the control housing (accessible from the outside)

Fuses	Current strength	Fuse type	Function
	6,3 A	5 x 20 mm	Primary fuse mains supply line

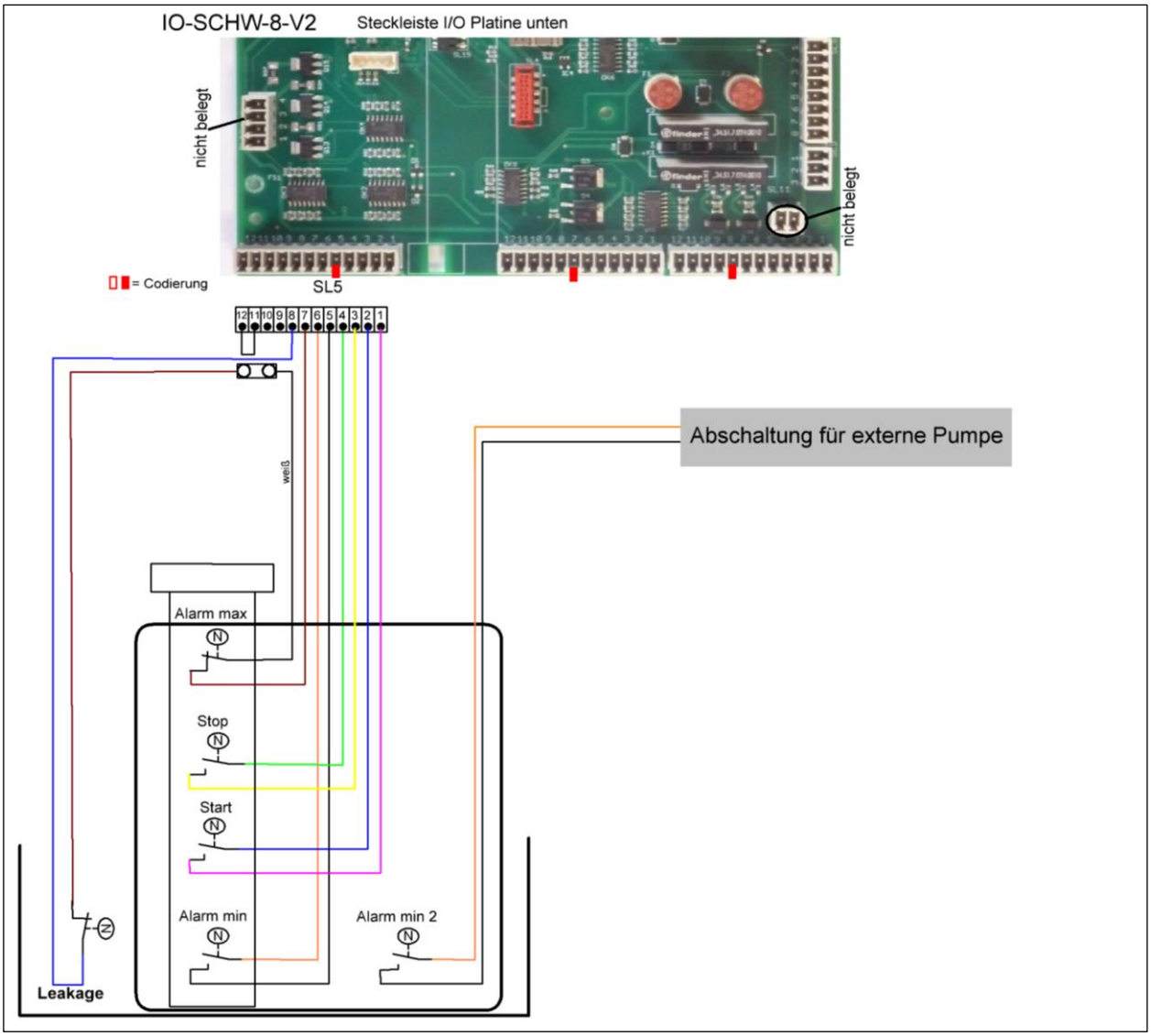
Fuses on the power pack

Fuses	Current strength	Fuse-type	Function
F1	315 mA	Micro-fuse	24 VDC sensors
F2	2 A	Micro-fuse	Primary fuse power pack
F3	1 A	Micro-fuse	Knocker
F4	5 A	Micro-fuse	Booster pump, Solenoid Valve
F5	1 A	Micro-fuse	Dust extraction

9.2.8 Wiring diagram I/O circuit board SCHWIMM 8 for device GRANUDOS **Vario-CPR Touch XL**



9.2.9 Wiring diagram buffer tank, SCHWIMM 8 for the device GRANUDOS **Vario-CPR Touch XL**



9.3 Commissioning protocol

The commissioning protocol can be found in the operating instructions for the dosing unit or the relevant dosing device, in Chapter 9.3:

- **for GRANUDOS Flex-CPR Touch, No.: BA SW 022**
- **for GRANUDOS VARIO-CPR Touch, No.: BA SW 003**
- **Wall-mounted unit CPR Touch XL-2S, No.: BA SW 004**

9.4 Operation data sheet



During a *"firmware update"*, all parameters are reset to the factory setting. After an "update", all parameters must therefore be checked and readjusted to the pool. We therefore recommend that you enter the optimised, pool-specific parameters in this list.
In addition, the electrodes must be calibrated after a *"firmware update"!*

Settings menu	Factory setting	Setting ranges	Step	during commissioning	Optimised during operation
1 Parameter pH				Date:	Date:
- Alarm low	6.5	4.0 – 8.0	0.05		
- P-range	0.50	0.10 – 1.00	0.05		
- Setpoint	7.0 pH	6.0 – 8.0	0.05		
- Alarm high	8.0	6.0 – 9.9	0.05		
- Dosing time limit	30 minutes	off – 60 min	2		
Control direction	reduce	reduce - increase			
2 Parameter chlorine					
- Alarm low	0.2	off – 2.00	0.05		
- P-range	0.3	0.05 – 2.00	0.05		
- Setpoint	0.6 mg/l	0.1 – 2.0/8.0	0.05		
- Alarm high	0.8	0.1 – 2.0/8.0/off	0.05		
- Dosing time limit	30 minutes	off – 60 min	2		
Range	0-2	0-2 or 0-8			
3 Dosing performance					
- pH	100% = 8 sec.	1.04 – 100%			
- Disinfection	100% = 15 sec.	0.55 – 100%			
- Cycle time	30 Sec.	30 – 360 sec.	30		
Manual dosing	Off	Off – On			
4 Parameter mV - Redox					
- Alarm low	600 mV	400 – 900 mV	10		
- Alarm high	800 mV	500 – 990 mV	10		
Control	Off	Off - On			
5 Parameter mV - Redox	**Redox control emergency operation**				
- Alarm low	600 mV	400 – 900 mV	10		
- P-range	100 mV	10 – 100	10		
- Setpoint	750 mV	500 – 900 mV	5		
- Alarm high	800 mV	500 – 990 mV	10		
- Dosing time limit	30 minutes	off – 60 min	2		
Control	Off	Off - On			
6 Parameter temperature °C					
- Alarm low	10°C	5 – 50°C	0.1		
- P-range	1 K	1 – 10 K	0.1		
- Setpoint	25 °C	15 – 40 °C	0.1		
- Alarm high	30 °C	15 – 55 °C	0.1		
- Offset	0 °C	-5°C ... +5 °C	0.1		
Control	Off	Off - On			
7 Dosing delay					
- Dosing delay	600 seconds	10 - 600 seconds	10		
8 Flocculation					
Off – On	On	Off - On			
9 ECO operation					
Parameter chlorine ECO					
- Setpoint	0.6 mg/l	0.10 – 2.00 or 0.10 - 8.00	0.05		
- P-range	0.3	0.05 – 2.00	0.05		
- Alarm low	0.2	off – 2.00	0.05		
- Alarm high	0.8	0.10 – 2.00/8.00/off	0.05		
- Dosing time limit	30 minutes	off – 60 min	2		
Range	0-2	0-2 or 0-8			

10 Parameter mV – Redox ECO					
- Alarm low	600 mV	400 – 900 mV	10		
- Level value	750 mV	500 – 900 mV	5		
- Alarm high	800 mV	500 – 990 mV	10		
11 Parameter times ECO					
Monday	–:– –:–	00:00 -> 24:00			
Monday	–:– –:–	00:00 -> 24:00			
Monday	–:– –:–	00:00 -> 24:00			
Monday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
12 System → Password					
End user	—	0000 – 9999	1		
Technician 1	01234	00000 – 99999	1		
13 System → Display					
Screensaver	20%	12 ... 100%	2		
Delay	00:05	00:00 – 23:59			
Backlight	75%	24 ... 100%	2		
14 System → Network					
Configuration					
IP address	192.168.0.1				
Gateway	192.168.0.0				
Subnetmask	255.255.255.0				
15 Remote access browser	**Only visible after login as Technician 1!**				
Port	12345				
User 1					
activate/deactivate					
16 Remote access Modbus TCP	**Only visible after login as Technician 1!**				
Port	502				
IP address	0.0.0.0				
activate/deactivate					
17 Device ID	CPR Touch...				
Shock chlorination					
pH dosing performance	7%	0 – 100 %	1		
Chlorine dosing performance	50 %	50 – 100 %	1		
18 Buffer tank					
pH dosing performance	7%	0 – 100 %	1		
Chlorine dosing performance	50 %	50 – 100 %	1		
Activate buffer tank	Off	Off – On			

Operation data sheet, –master copy–

Please copy the blank operation data sheet before filling it out!

Settings menu	Factory setting	Setting ranges	Step	during commissioning	Optimised during operation
1 Parameter pH				Date:	Date:
- Alarm low	6.5	4.0 – 8.0	0.05		
- P-range	0.50	0.10 – 1.00	0.05		
- Setpoint	7.0 pH	6.0 – 8.0	0.05		
- Alarm high	8.0	6.0 – 9.9	0.05		
- Dosing time limit	30 minutes	off – 60 min	2		
Control direction	reduce	reduce - increase			
2 Parameter chlorine					
- Alarm low	0.2	off – 2.00	0.05		
- P-range	0.3	0.05 – 2.00	0.05		
- Setpoint	0.6 mg/l	0.1 – 2.0/8.0	0.05		
- Alarm high	0.8	0.1 – 2.0/8.0/off	0.05		
- Dosing time limit	30 minutes	off – 60 min	2		
Range	0-2	0-2 or 0-8			
3 Dosing performance					
- pH	100% = 8 sec.	1.04 – 100%			
- Disinfection	100% = 15 sec.	0.55 – 100%			
- Cycle time	30 Sec.	30 – 360 sec.	30		
Manual dosing	Off	Off – On			
4 Parameter mV - Redox					
- Alarm low	600 mV	400 – 900 mV	10		
- Alarm high	800 mV	500 – 990 mV	10		
Control	Off	Off - On			
5 Parameter mV - Redox	**Redox control emergency operation**				
- Alarm low	600 mV	400 – 900 mV	10		
- P-range	100 mV	10 – 100	10		
- Setpoint	750 mV	500 – 900 mV	5		
- Alarm high	800 mV	500 – 990 mV	10		
- Dosing time limit	30 minutes	off – 60 min	2		
Control	Off	Off - On			
6 Parameter temperature °C					
- Alarm low	10°C	5 – 50°C	0.1		
- P-range	1 K	1 – 10 K	0.1		
- Setpoint	25 °C	15 – 40 °C	0.1		
- Alarm high	30 °C	15 – 55 °C	0.1		
- Offset	0 °C	-5°C ... +5 °C	0.1		
Control	Off	Off - On			
7 Dosing delay					
- Dosing delay	600 seconds	10 - 600 seconds	10		
8 Flocculation					
Off – On	On	Off - On			
9 ECO operation					
Parameter chlorine ECO					
- Setpoint	0.6 mg/l	0.10 – 2.00 or 0.10 - 8.00	0.05		
- P-range	0.3	0.05 – 2.00	0.05		
- Alarm low	0.2	off – 2.00	0.05		
- Alarm high	0.8	0.10 – 2.00/8.00/off	0.05		
- Dosing time limit	30 minutes	off – 60 min	2		
Range	0-2	0-2 or 0-8			
10 Parameter mV – Redox ECO					
- Alarm low	600 mV	400 – 900 mV	10		
- Level value	750 mV	500 – 900 mV	5		
- Alarm high	800 mV	500 – 990 mV	10		

11 Parameter times ECO					
Monday	–:– –:–	00:00 -> 24:00			
Monday	–:– –:–	00:00 -> 24:00			
Monday	–:– –:–	00:00 -> 24:00			
Monday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Tuesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Wednesday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Thursday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Friday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Saturday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
Sunday	–:– –:–	00:00 -> 24:00			
12 System → Password					
End user	—	0000 – 9999	1		
Technician 1	01234	00000 – 99999	1		
13 System → Display					
Screensaver	20%	12 ... 100%	2		
Delay	00:05	00:00 – 23:59			
Backlight	75%	24 ... 100%	2		
14 System → Network					
Configuration					
IP address	192.168.0.1				
Gateway	192.168.0.0				
Subnetmask	255.255.255.0				
15 Remote access browser	**Only visible after login as Technician 1!**				
Port	12345				
User 1					
activate/deactivate					
16 Remote access Modbus TCP	**Only visible after login as Technician 1!**				
Port	502				
IP address	0.0.0.0				
activate/deactivate					
17 Device ID	CPR Touch...				
Shock chlorination					
pH dosing performance	7%	0 – 100 %	1		
Chlorine dosing performance	50 %	50 – 100 %	1		
18 Buffer tank					
pH dosing performance	7%	0 – 100 %	1		
Chlorine dosing performance	50 %	50 – 100 %	1		
Activate buffer tank	Off	Off – On			

9.5 Maintenance protocol

The maintenance protocol can be found in the operating instructions for the dosing unit or the relevant dosing device, in Chapter 9.5:

- **for GRANUDOS Flex-CPR Touch, No.: BA SW 022**
- **for GRANUDOS VARIO-CPR Touch, No.: BA SW 003**
- **Wall-mounted unit CPR Touch XL-2S, No.: BA SW 004**

9.6 Spare parts list, wear parts list, consumables

The spare parts and wear parts listed in the following are available from your specialist dealer. Please always include the exact product designation and the device serial number with your orders. The device serial number can be found on the control housing. Wear parts are excluded from the 2-year warranty. For these we assume a warranty of 1/2 year.

Spare parts

Device part		**Designation**	**Item no.**
Electrodes		pH electrode cable with screw plug head (black) **2S**	12006
		pH electrode cable GRANUDOS	30326
		Reference-return electrode cable with screw plug head (blue) **2S**	12317
		Reference-return electrode cable with screw plug head (blue) GR	30327
		Chlorine electrode ¾“ complete	11980
		Chlorine electrode insert gold 19 mm	17957
		Redox electrode ½“ complete	11984
		Redox electrode insert platinum 14 mm	11986
Flow-through fitting		Measuring cell CPR-Touch	24271-1
		Maintenance kit flow regulator for wall mounted device	24716
		Maintenance kit flow regulator for GRANUDOS	27053
		Ball valve PVC ¼” – 6 x 1 mm	12023
		Ball valve PVC ¼“ – sample water withdrawal	11017
		Flow Switch in Combination cell from Q3/ 2019	10489
		Switch body d11 CPRT	24757
		Temperature sensor	24681
Control unit		Power pack **CPR Touch XL**	Version dependent
		I/O-Board **CPR Touch XL**	Version dependent
		Measuring amplifier	Version dependent
		Operating unit Touch 7“	Version dependent

Wear parts

Device part		**Designation**	**Item no.**
Electrodes		pH electrode PG13,5 60 mm (black plug head)	10933
		Combination reference-return electrode PG13,5 (blue plug head)	18432
		Gasket set for chlorine electrode ¾“	11982
		Gasket set for redox electrode ½“	11985
		Cleaning beads 5 ml	11964

Consumables

Please comply with the chemicals manufacturer’s safety data sheets!

Device part		**Designation**	**Item no.**
Electrodes		Electrolyte solution 5 ml for overwintering	15945
		Buffer solution ph4 50 ml	10383
		Buffer solution ph7 50 ml	10384
		Redox test solution +468 mV 50 ml	10385
		Electrode cleaner - diaphragm cleaner 50 ml	11962
		Electrode flushing liquid 500 ml	11963

10 Appendices

Personal notes

You can use the following lines for personal notes, e.g., regarding conducted service tasks or special versions, extensions or device modifications.