Aqua-Center Silentio CONNECT

Fully-automated process water control centre with Category 5 system separation as per EN 1717

Installations- and start-up instructions

Valid from Version: 0.7

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Contents

1. Safety advice

1.1. Reference to other instructions

To ensure safe and trouble-free operation of the system, instructions for external appliances must be taken into consideration should also be taken into account along with this manual.

1.2. Safety advice in these instructions

Instructions labelled with this symbol provide advice on technical information and tips for usage which should avoid any damage to the system. This symbol does not denote safety advice.

Instructions labelled with this symbol indicate that minor bodily injury or minor material damage can occur if the precautionary measures are not heeded.

Instructions labelled with this symbol indicate that death, severe bodily injury or considerable material damage can occur if the precautionary measures are not heeded.

1.3. General safety advice

This manual contains basic instructions which should be taken into account during operation. The valid data, operating conditions and usage conditions specified in the technical datasheet and manual must be taken into account when using the *CONNECT control unit.*

The relevant manual should be used after updating software.

- Never exceed the permitted limits of use stated in the documentation with regards pressure, temperature, etc.
- Follow all the safety advice and handling instructions in this manual.
- Instructions displayed directly on the *CONNECT* system must be heeded and must be kept in a completely legible condition. This applies to:
    - Safety advice
    - Labels regarding connections
    - Type plate.
- Before assembly and start-up, the manual must be read by the user and the responsible specialist/operator. The manual must always be available in the place of use.
- Installation and maintenance work must only be carried out by an authorised professional with suitable tools.
- The technical condition of the *CONNECT* must be checked at regular intervals by the operator.
- Local safety and accident regulations must be complied with when operating the *CONNECT*.
- The general rules of technology must be complied with operational planning and operation of the CONNECT appliance.
- No changes to the *CONNECT* are permitted. Any changes will lead to any warranty claims being void.
- A defined or controlled restart of the process must be guaranteed after any interruption to the electricity or fluid supplies.
- The operator is responsible for complying with the local conditions that are not detailed in this manual.

1.4. Further safety conditions

As well as the safety advice listed in this manual and the intended use, the following safety conditions apply:

- Accident prevention regulations, safety and operating conditions
- Safety conditions when dealing with hazardous substances
- Valid standards and legislation especially the following technical standards: EN 12056, EN 1717, EN 806.
- National standards and laws have precedence over others mentioned!

1.5. Consequences and risks of non-compliance with the manual

- Non-compliance with this manual will lead to the loss of any warranty and damage claims.
- Non-compliance can result in the following risks:
    - Danger to persons due to electrical, thermal, mechanical and chemical impacts
    - Failure of important functions of the product
    - Failure of instructed methods for maintenance and repairs
    - Danger to the environment due to the leakage of hazardous substances

1.6. Duty of care of the operator

The *CONNECT* has been designed and constructed whilst taking into account a risk assessment and after careful selection of the harmonised standards to be complied with and other technical specifications. This means it conforms to the state of technical knowledge and guarantees a maximum level of safety. But this safety can only be achieved in operational practice if all the measures needed for this are met. It is the operator's duty of care to plan these measures and check their execution. In particular, the operator must ensure that

- the *CONNECT* is only used as intended.
- the *CONNECT* is only operated in a flawless, functional state.
- the manual is always in a legible condition and available in its entirety at the *CONNECT*'s place of use.
- only sufficiently qualified and authorised personnel assemble the *CONNECT*, commission it, repair it and maintain it.
- these personnel are regularly instructed in all the relevant issues of occupational safety and environmental protection, as well as ensuring that they have read and understood the manual and, specifically, the safety advice contained therein.
- none of the safety and warning signs attached to the *CONNECT* are removed and that all remain in a legible state.
- any additional risks which arise due to the specific working conditions at the place of use of the *CONNECT* are recognised as part of a risk assessment (in the sense of the German Occupational Safety and Health Act § 5 or the equivalent legislation in the country of use).
- all additional instructions and safety advice arising from the risk assessment are compiled in a user guide (in the sense of German Work Equipment Usage Ordinance § 6).
- the duct routing is assessed sufficiently.

1.7. Safety advice for maintenance, inspection and assembly

- The *CONNECT* may only be altered or modified with the consent of the manufacturer.
- Only use original parts or those authorised by the manufacturer. Using other parts can void your warranty for any consequences resulting there from.
- Only work on the machine when it is turned off.
- The system aggregate must be at the ambient temperature.
- Reattach or restart any safety and protection equipment immediately after work has been completed.
- Before restarting the equipment, ensure the listed points for start-up have been taken into account.
- Keep any unauthorised persons (e.g. children) away from the *CONNECT* system.

1.8. Duty to register process water systems

Please clearify if process water systems must be registered with the relevant authorities (regional water authority, building authorities, local health authorities) when being started up or decommissioned.

1.9. Requirements of operating personnel

The *CONNECT* must only be assembled, commissioned, repaired and decommissioned by persons who have been trained, instructed and authorised for this purpose. If necessary, training can be provided the manufacturer/supplier at the request of the

operator. Training sessions for the *CONNECT* must only be carried out under the supervision of technical professionals. The relevant authorisations of personnel must be clearly specified by the operator in the form of a user guide. In addition, special qualifications are required for the following activities:

- Work on the electrical equipment must only be carried out by trained electricians.
- Assembly, maintenance and repair work must only be carried out by qualified professionals.

The basic regulations for occupational safety and accident prevention must be heeded.

2. General information

The manual is part of the specified series and its models. The manual describes the proper and safe use of the equipment in all operating phases. The type plate states the series and size, the most important operational data and the serial number. To maintain any warranty claims in the case of damage, the authorised dealer must be notified immediately with information of the installation site and serial number of the machine.

2.1. Warranty and liability

The general delivery conditions and terms of sale of GRAF shall apply. Any warranty and liability claims for personal or material damage are void if they can be attributed to one or more of the following causes.

- Improper use of the *CONNECT*
- Improper assembly, commissioning, operation and maintenance of the *CONNECT*
- Non-compliance with the instructions in the manual regarding transportation, storage, assembly, commissioning, operation, maintenance and repair of the *CONNECT*
- Unauthorised structural modifications to the *CONNECT*
- Improperly executed repairs
- Disasters caused by third party exposure and force majeure.

2.2. Legal warranty (extract)

Statutory warranty applies in accordance with § 437 BGB (German Civil Code).

Within the warranty period, GRAF shall rectify free-of-charge any functional disturbances which can be attributed to production or material defects. This includes all faults that occur despite verifiably proper installation, proper operation and compliance with all operational and installation manual.

3. Description

The *Aqua-Center SilentioCONNECT* is a fully-automated process water control centre with double booster pump station, which guarantees the constant supply of process water form e.g. rainwater cisterns using a supply pump and an integrated process water storage tank. For this reason, the *Aqua-Center Silentio CONNECT* takes care of the separation of the mains water from category 5 liquids (waters of unknown origin) as per EN 1717 Type AA in the process water storage tank.

3.1. Functional description

As a fully-automated rainwater control centre, the *Aqua-Center Silentio CONNECT* is equipped as standard for floor installation in a lockable sheet steel casing, including a double booster pump station, process water storage tank and with the supply pump required for the external rainwater cistern.

The intelligent *CONNECT* control unit with its large touchscreen colour display undertakes the control and monitoring of all system processes. Features of the *CONNECT* control unit are the automatic control of the booster station with alternating start-up, freely definable switchpoints of the booster station, demand-based activation of the process water supply pump, automatic mains water back-up as per EN 1717 using an electrically controlled ball valve in the integrated process water storage tank in the case of a lack of process water, automatic stagnation protection of the mains water pipe (flushing of the mains water pipe after a defined time interval), monitoring of the ball valve position with self-closing feature in case of operational failures (network failure), manual switching to pure mains water operation, continual monitoring of the filling levels in the process water storage tank and optionally in a rainwater cistern, consisting moisture monitoring of the plant room using a water detector, visualisation of the operating statuses in real-time on the touchscreen display of the control unit, real-time remote inquiry possible at any time via smartphone, tablet or PC through simple and secure connection of *CONNECT* to the domestic LAN or WLAN network, secure data communication via *CONNECT* server, remote display of operating statuses, maintenance information and error messages.

A membrane pressure expansion vessel with 8 litres is integrated, to protect the booster station in the case of small loss quantities.

In the *Aqua-Center Silentio CONNECT*, an immersion motor pump works as a rainwater supply pump and is fitted vertically in an on-site rainwater cistern on a fixable stainless steel basic panel. It has a jacket-cooled cage motor for constant operation, with an integrated thermal protection switch, including 10 metre H07 RN-F connection cable and mains plug.

Depending on the type of installation and distance to the process water storage tank, the type of rainwater supply pump must be adapted to the local conditions.

To reduce the switching frequency of the booster station, the installation of a membrane pressure expansion vessel of at least 50 litres in volume is recommended in the process water pressure line. The membrane pressure expansion vessel must be suitable for operation with process water. The preliminary pressure in the membrane pressure expansion vessel must be 0.3 to 0.5 bar below the start-up pressure of the pump.

3.2. Technical specifications

Table 1: Technical details about the *Aqua-Center Silentio CONNECT*

Aqua-Center Silentio CONNECT	6-40	8-40	8-50	14-40
max. flow rate per pump (m^3/h)	3,3	4,8	4,8	7,2
max flow rate double pump (m^3/h)	6	9	9	14*
max. delivery height (m)	46	42	58	47
mains water back-up in quantity (m^3/h)**	8	8	8	8
power consumption (A)	11,5	13	16	16
power load (kW)	2,6	2,9	3,6	3,6
supply voltage	230 V / 50 Hz			
connection mains water line	1“ male thread			
connection of process water pressure line	1 ½“ male thread			
connection rainwater supply line	1 ¼“ male thread			
emergency overflow connection	DN 100			
process water storage volume (litre)	70			
height via adjustable feet (mm)	1.540 bis 1.560			
witdh (mm)	600			
depth incl. door (mm)	630			
weight(kg)	135	133	141	141

* In mains water operation the a max. flow rate of 8 m^3/h is possible.
**with 4 bar preliminary pressure of the mains water line at the connection of the *Aqua-Center Silentio* CONNECT

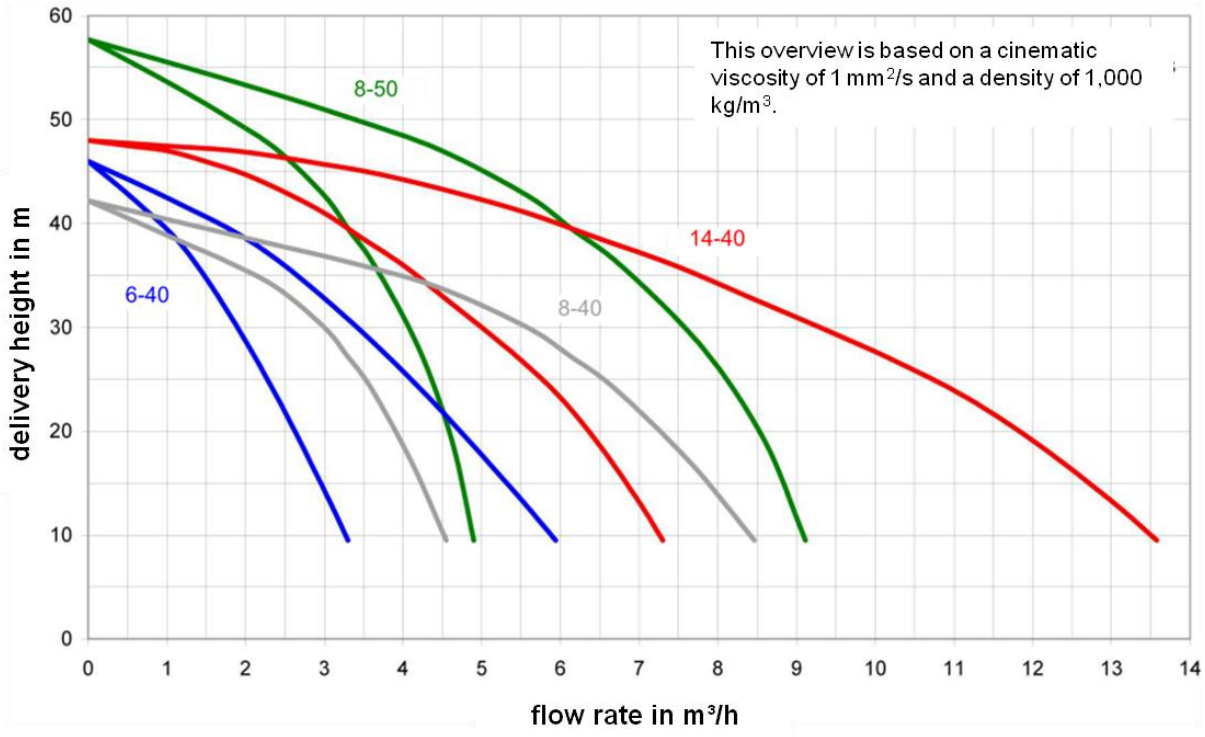

Figure 1: Pump characteristics of the *Aqua-Center Silentio CONNECT*

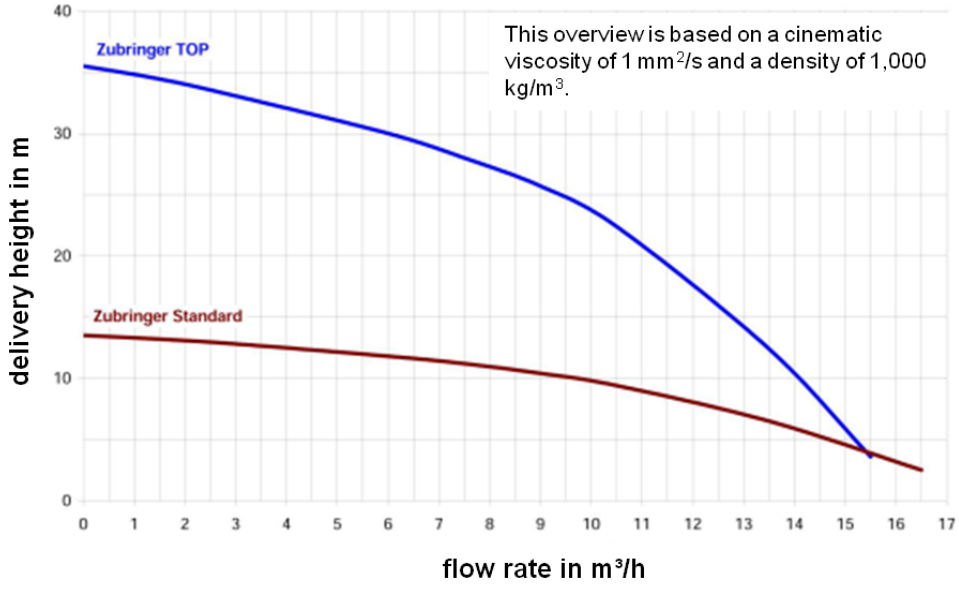

Figure 2: Pump characteristics of the rainwater supply pump

3.3. Scope of delivery

The ready-to-connect *Aqua-Center Silentio CONNECT*, consisting of:

- *Aqua-Center Silentio CONNECT station*
- Rainwater supply pump as immersion motor pump
- Set floating extraction line
- Installation and start-up instructions

3.4. Structure

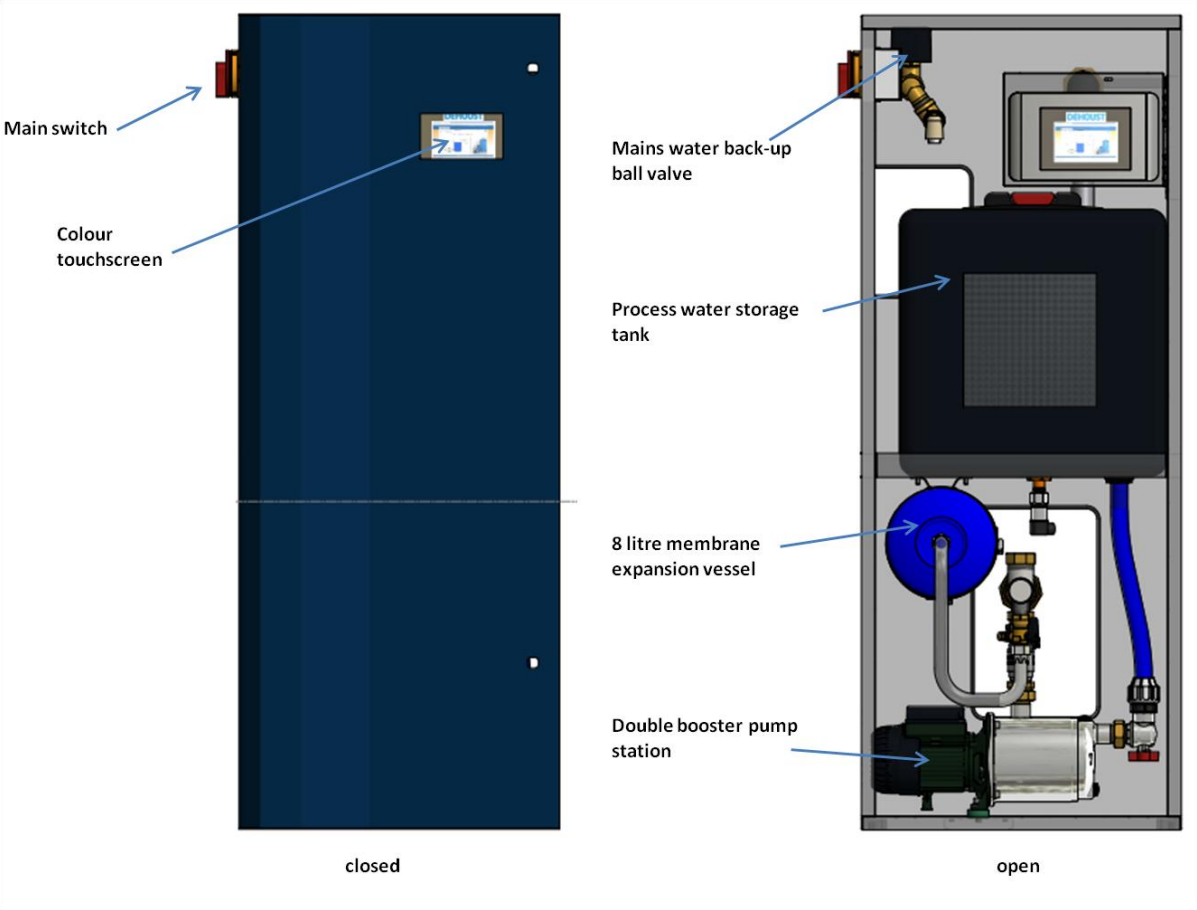

Figure 3: Structure of the *Aqua-Center Silentio CONNECT*: front

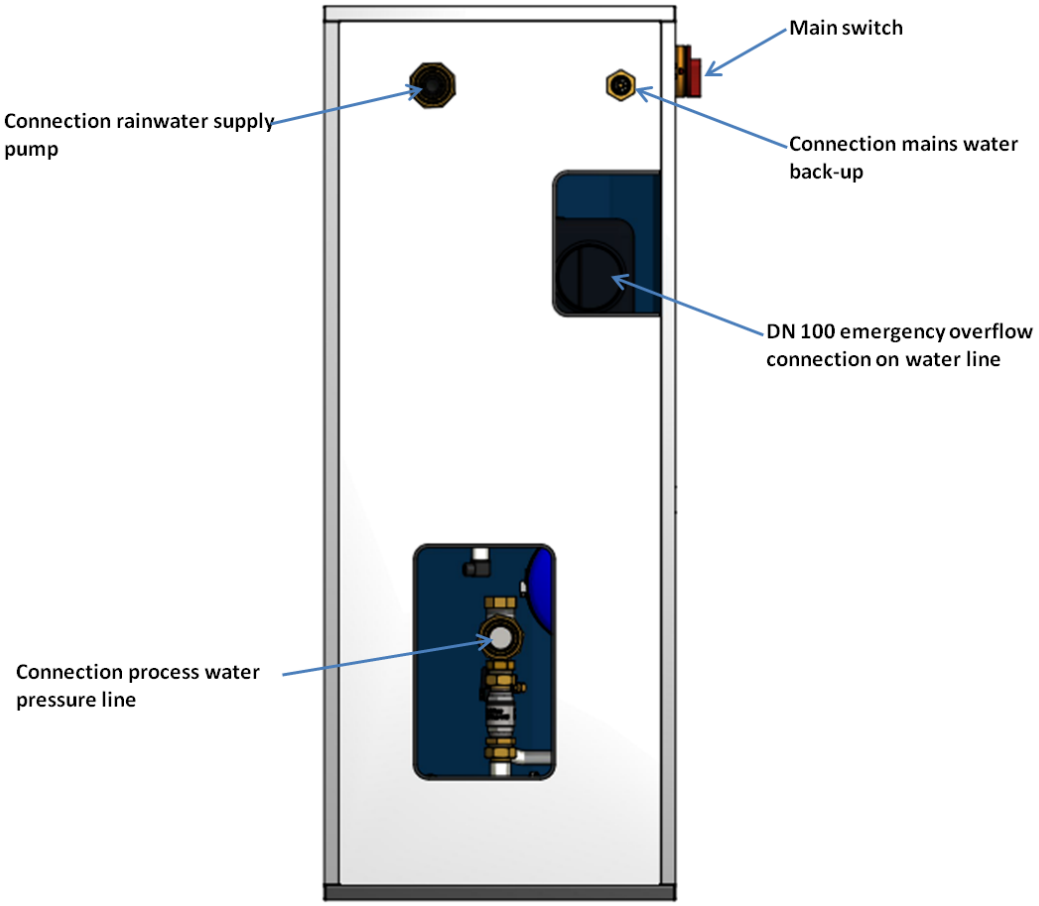

Figure 4: Structure of the *Aqua-Center Silentio CONNECT* rear

3.5. Intended use

The *Aqua-Center Silentio CONNECT* must only be operated in those fields of use described in this manual. Risks for people, surrounding systems and the environment may arise if the *Aqua-Center Silentio CONNECT* is used improperly.

- Only operate the *Aqua-Center Silentio CONNECT* in a technically flawless state.
- Do not operate the *Aqua-Center Silentio CONNECT* in a partially assembled state.
- The *Aqua-Center Silentio CONNECT* must only carry the medium described in the documentation of the design in question.
- Never operate the *Aqua-Center Silentio CONNECT* without the carried medium.
- Heed the information concerning minimum flow rates (see chapter 3.2) (avoidance of overheating damage, storage damage, ...).
- Heed the information concerning maximum flow rates (see chapter 3.2) (avoidance of overheating, damage to mechanical seals, damage to cavitation, storage damage, ...).
- Do not restrict the mains water back-up of the *Aqua-Center Silentio CONNECT* on the input side (avoidance of cavitation damage).
- Agree alternative modes of operations, if not stated in the documentation, with the manufacturer.

3.6. Improper use

The *Aqua-Center Silentio CONNECT* is not intended for outdoor use. Influences of temperature, light and moisture can lead to functional disturbances and damage to the equipment.

- Do not use the *Aqua-Center Silentio CONNECT* outside.

- Only use the *Aqua-Center Silentio CONNECT* as intended.
- Do not use the system to carry dirty water or water contaminated with wastewater.
- Do not fill the media connections of the system with aggressive or flammable media.
- The temperature of the conveyed medium must not be higher than 35° Celsius.
- Do not put the casing under mechanical strain (e.g. by stacking objects on them or using them as steps).
- Do not make any external changes to the equipment casing. Casing components and screws must not be painted!
- Do not disassemble the *Aqua-Center Silentio CONNECT* beyond the level required for installation and maintenance.

4. Transport

The product must not be connected to the electric supply line during transportation. During transportation, you must ensure that the appliance is not knocked or dropped. The product must be stored in a dry, cold room protected from both sunlight and frost.

When delivering goods, check every packing unit for damage. In case of transport damage, determine the exact damage, document it and report it immediately in writing to GRAF.

5. Assembly

5.1. Installation room

The *Aqua-Center Silentio CONNECT* must be installed at ground level and horizontally in a frost-free, dry and well-ventilated room. The load bearing capacity of the floor must be at least the total weight of the *Aqua-Center Silentio CONNECT* in its filled operating state (see chapter 3.2). The room temperature should be in the temperature range of 4°Celsius to max. 25° Celsius in order to minimise hygienic risks in the process water storage tank.

The distance between the *Aqua-Center Silentio CONNECT* and the adjoining walls should be:

- at least 40 cm at the sides.
- at least 40 cm at the back.

The *Aqua-Center Silentio* -CONNECT must be positioned higher than the maximum water level of the external rainwater cistern (rainwater cistern).

Do not operate the *Aqua-Center Silentio CONNECT* near living rooms or bedrooms due to the noise caused by back-up units and pumps.

Pay attention to the space requirements for operation and repairs.

A suitable sound insulation panel can be used to create the sound decoupler between the storage tank of the *Aqua-Center Silentio CONNECT* and the building.

The installation room must have a suitable floor drain/sump to securely drain away the overflowing water in case of backflooding over the emergency overflow vent of the process water storage tank.

If it is not possible to install the *Aqua-Center Silentio CONNECT* above the maximum water level of the external rainwater tank cistern, please contact GRAF.

5.2. Connections with water lines

All connections of the *Aqua-Center Silentio CONNECT* are equipped with 3-part screw fittings, which make subsequent maintenance / repairs easier.

We recommend connecting flexible water pipes to the *Aqua-Center Silentio CONNECT* and a suitable stopcock. This will mean that:

- vibrations and noise transmissions are avoided.
- assembly inaccuracies are balanced out.
- the pipes can be shut off at any time.
- functional disturbances can be rectified with little effort.
- repairs and maintenance work are possible at any time.
- the water flow can be cut off in cases of extended absence.

5.2.1. Mains water back-up

Connect and seal the mains water line with the mains water connection (see Figure 5) to the rear side of the *Aqua-Center Silentio* CONNECT.

Connect the line in a de-energised state. No forces must be applied to the connection sockets and system. Install a pressure reduced in front of the system if necessary so it is guaranteed that no more than 5 bar of primary pressure is fed in from the mains water network. We recommend installing a shut-off valve, a detachable screw and an external fine water filter.

The back-up volumes of the mains water back-up must be within the range of the stated flow pressure (see chapter 3.2) in order to guarantee long-term security of supply of the immersion pressure pump with sufficient water.

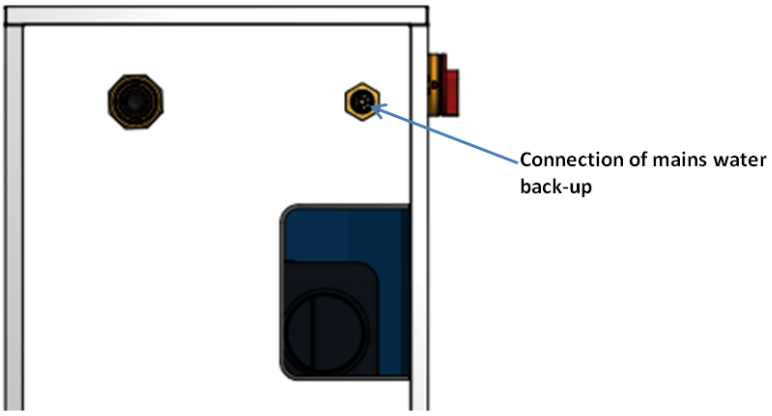

Figure 5: The mains water back-up is connected on the rear side

5.2.2. Process water pressure line

Connect and seal the process water pressure line with the rear 3-part brass threaded connection (see chapter 3.2) of the *Aqua-Center Silentio CONNECT*.

Connect the pressure line in a de-energised state. No forces must be applied to the brass threaded connection of the system.

We recommend installing a shut-off valve and a detachable screw.

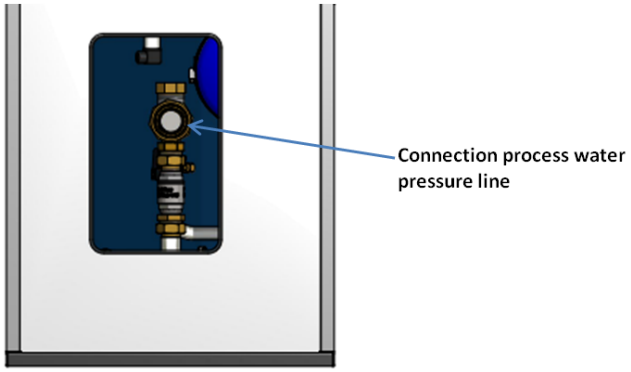

Figure 6: Connection of the process water pressure line on the rear side

5.3. Rainwater supply pump

5.3.1. General information about installation

The rainwater-supply pump is licensed for operation

- To carry process water (rainwater, well water).
- For installation into an on-site rainwater storage tank (e.g. cisterns, underground tank).
- Up to a maximum immersion depth of 10 metres.
- In the surrounding area to living, business and commercial areas and small businesses.

5.3.2. Hydraulic connection

Screw the 1 ¼" external thread of the enclosed floating sampling line tightly and firmly into the suction inlet of the supply pump.

Position the supply pump firmly on the ground of the floor of the rainwater storage tank.

Connect the pressure outlet of the rainwater supply pump tightly, firmly and in a de-energised state to the on-site rainwater supply line, which is connected to the *Aqua-Center Silentio CONNECT*.

Connect the on-site rainwater supply pipe tightly, firmly and in a de-energised state to the correspondingly labelled 3-part brass connection (see chapter 3.2) on the rear of the *Aqua-Center Silentio CONNECT*.

The floating extraction must be freely moveable in the external rainwater storage tank and must not hit any obstacles.

When dimensioning the rainwater supply pipe, ensure a suitable pipe cross-section which at least corresponds to the technical specifications (see chapter 3.2).

When installing the rainwater supply pipe, dirt can get into the pipeline. If this cannot be ruled out, the rainwater supply line must be flushed out before connecting to the process water storage tank.

Please note that the rainwater supply pump is not attached to the supply pipe with its own weight.

Please ensure that the floating switch of the rainwater supply pump can move freely.

To guarantee smooth operation of the *Aqua-Center Silentio CONNECT*, only the supplied original rainwater supply pump should be used.

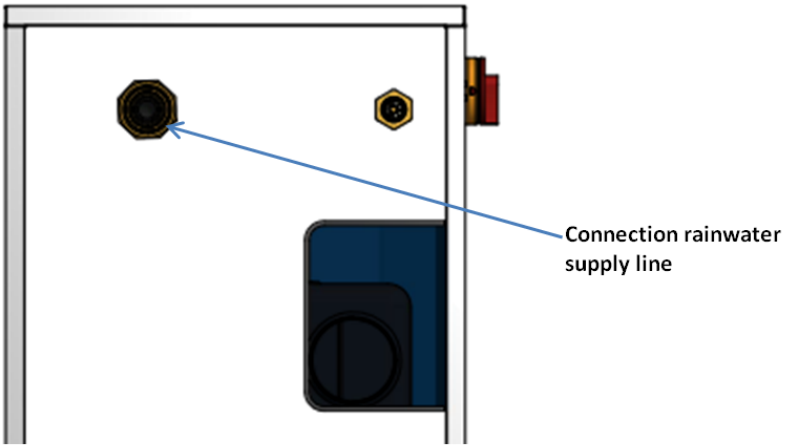

Figure 7: the rainwater supply pump is connected onto rear side

5.3.3. Electrical connection

Install the network line of the rainwater supply pump up to the *CONNECT* control unit, extend if necessary.

Then loosen the Allen screw of the *CONNECT* control unit (see Figure 8) and open *CONNECT* control unit outwards.

Insert the network line from behind through the opening in the casing of the emergency overflow into the *Aqua-Center Silentio CONNECT* and loosen the labelled Quickon plug of the rainwater supply pump from the *CONNECT* control unit (see Figure 10).

Connect the network line to the Quickon plug (see Figure 9).

Connect the Quickon plug to the correspondingly labelled connector of the *CONNECT* control unit (see Figure 10).

Connection of the network line to the Quickon plug as follows:

- Stripping of the network line by approx. 60 mm.
- To create a lagging PE connection, the PE conductor should be looped around the live conductor. If the network line is pulled forcibly, the PE conductor is therefore the last thing to be pulled from the clamp.
- Introduce the network line into the Quickon nut and fix the conductors into the conductor receptacle of the plug body.

- Set up the network line of the supply pump on the Quickon contacts as follows:
    - 1 = L1 (brown conductor);
    - 3 = N (blue conductor);
    - PE = protective conductor (yellow/green)
- Cut the projecting wires flush with wire cutting pliers.
- Screw the Quickon nut to the lower part.
- Connect the Quickon plug to the *CONNECT* control unit

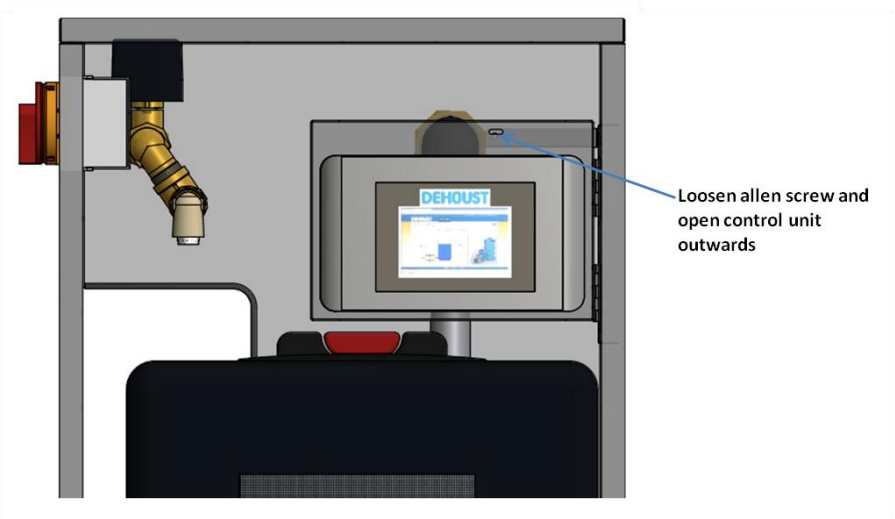

Figure 8: loosen Allen screw and open control unit outwards

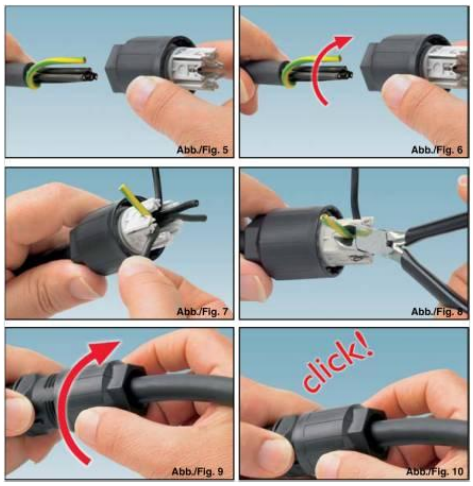

Figure 9: Connect the network line of the rainwater supply pump to the Quickon plug

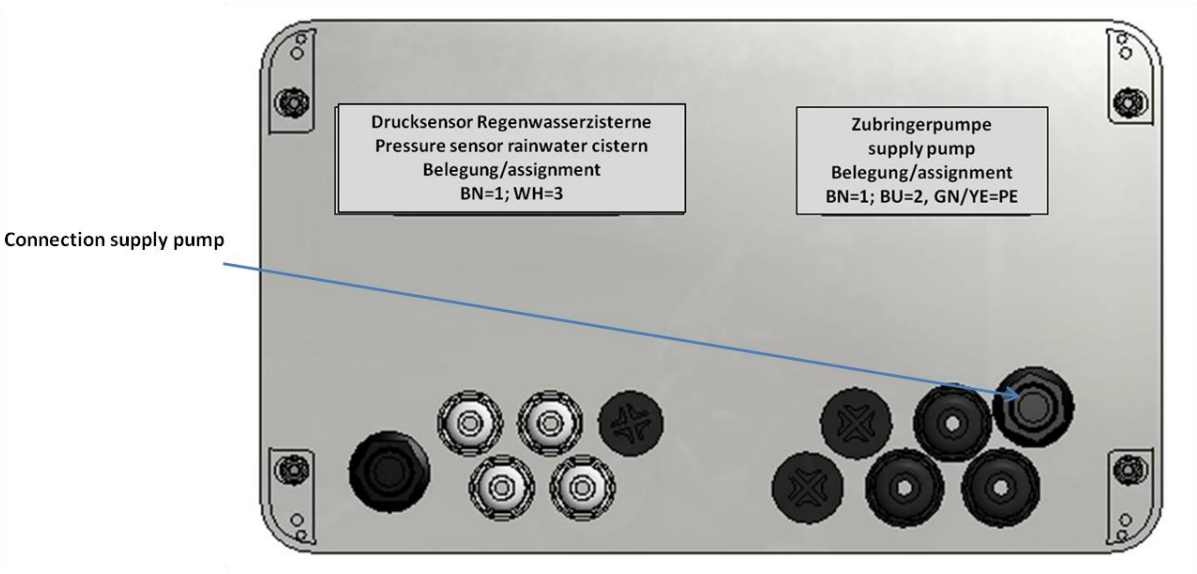

Figure 10: Connection of the rainwater supply pump at *CONNECT* control

Network lines must not be installed without protection in the earth. Please use suitable empty PE pipes, for example, for this.

The network line must not be laid over sharp edges. To avoid damage, the network line must be attached to the pressure line within the process water storage tank at regular intervals with cable ties.

Please note that the rainwater supply pump is not attached to the network line with its own weight.

5.4. Emergency overflow connection

Connect the emergency overflow connection (see chapter 3.2) of the *Aqua-Center Silentio CONNECT* with the sewage drain or a suitable pump system (see Figure 11).

This overflow then comes into effect if the ball valve of the mains water back-up exhibits a functional disturbance and the water rises as a result above the maximum level in the process water storage tank.

To avoid unpleasant odours from the sewage drain, a siphon is fitted as standard to the process water storage tank.

The drain connection or pump system must be able to securely drain the maximum mains water back-up volume (see chapter 3.2).

Make sure the overflow line to the sewer/pumping system has the same nominal width as the emergency overflow connection (no cross-section constriction!).

The installation room is at risk of flooding if the overflow connection is not attached to the drain.

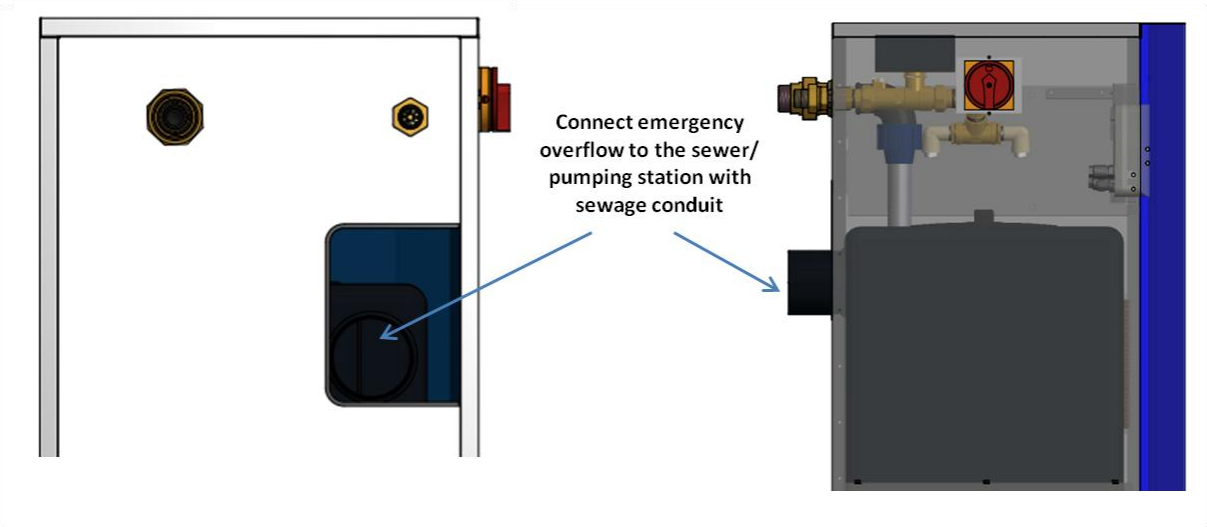

Figure 11: Connection of the emergency overflow connection

5.5. Emergency overflow vent Typ AA

If a backflow occurs due to a drain blockage/defect of the pumping station, reaching into the process water storage tank of the *Aqua-Center Silentio CONNECT*, the water is drained through the tank's emergency overflow vent (see Figure 12) into the installation room. This free overflow is required to protect the mains water line in accordance with EN 1717.

The installation room must have a suitable floor drain/sump to securely drain away the overflowing water in case of backflooding over the tank emergency overflow vent of the process water storage tank.

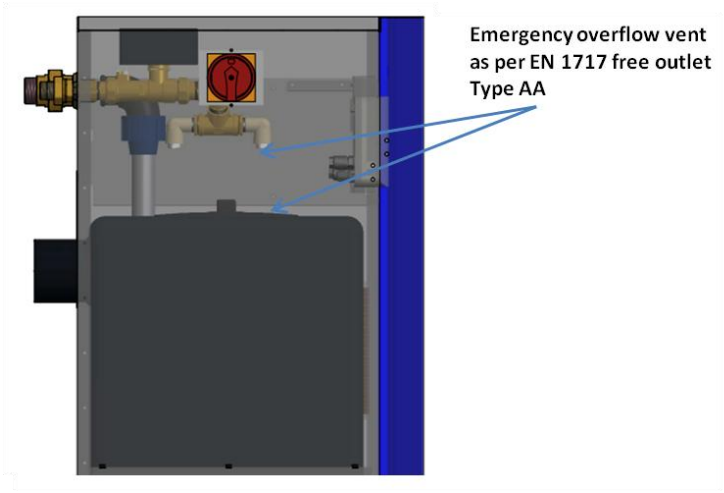

Figure 12: Integrated emergency overflow vent as per EN 1717

5.6. Electrical connection of the components

Electrical work should only be carried out by qualified personnel (see chapter 1.6).

All electrical connections of the *Aqua-Center Silentio CONNECT* are prepared and wired in the factory.

Check the information regarding network voltage (see chapter 3.2) on the type plate with the available network voltage.

The electrical connection of the network line of the *Aqua-Center Silentio CONNECT* is carried out according to the above specifications and is connected firmly with the supply network.

The fuse protection must be carried out using the technical data as per the information on the type plate.

The system is activated as soon as the mains switch is turned on (see Figure 13).

The electrical system must conform to the general requirements for installation IEC 364 / VDE 0100.

Wider reaching national standards and laws have precedence and should be observed first!

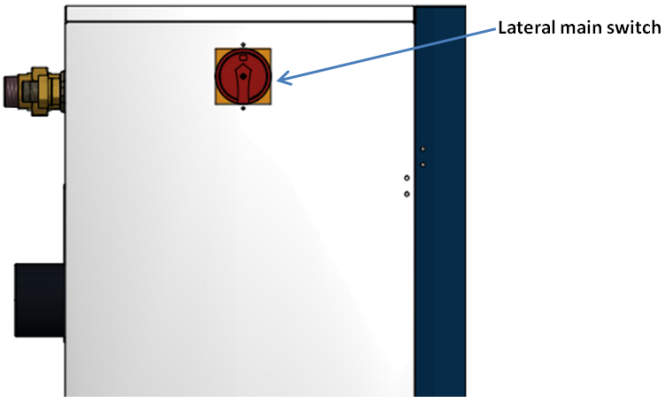

Figure 13: Mains switch of the *Aqua-Center Silentio CONNECT*

5.7. Alarm contact (potential-free output)

It is possible for a general error message to be sent to a central building control unit by connecting to the potential-free outlet (max. 230 V / 1 A 0.35 – 0.75 mm²) of the *CONNECT* control unit. The alarm output of the *CONNECT* control unit has a break contact (break-proof). The alarm remains open (active) until it has been manually deactivated in the *CONNECT* control unit.

Connect the alarm output with the correspondingly labelled cable plug on the *CONNECT* control unit (see Figure 14).

Connect the cable line into the plug as shown per Figure 15.

Pin assignment: Pin 1 + Pin 2

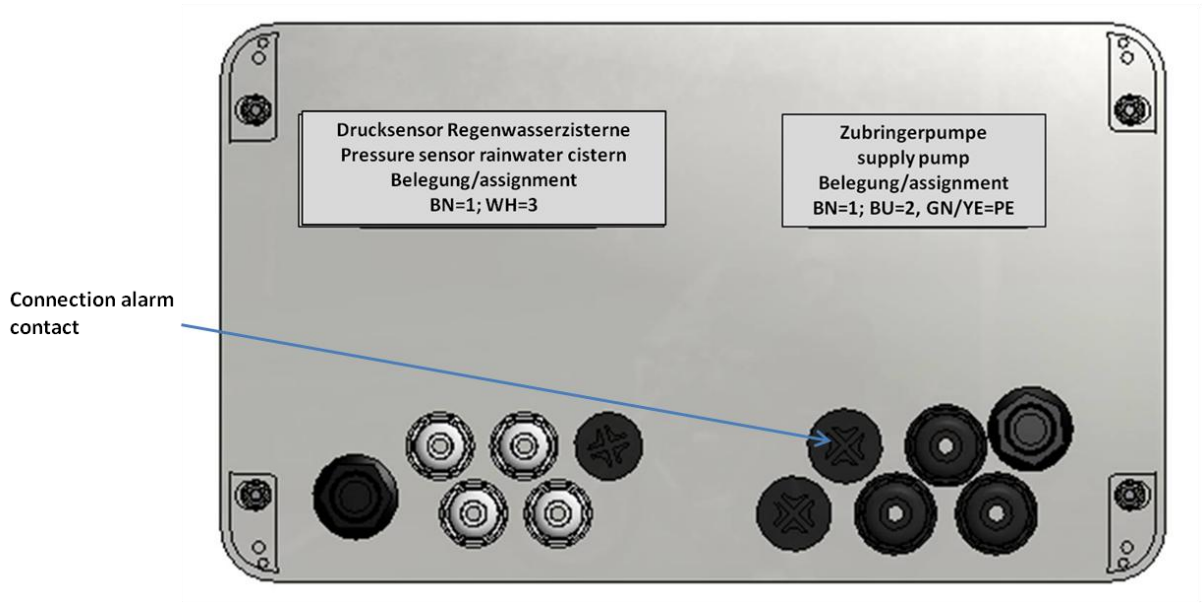

Figure 14: Connection of the alarm contact to the *CONNECT* control unit

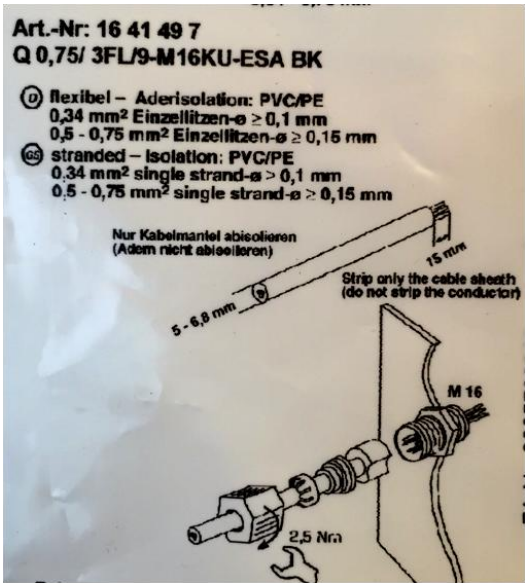

Figure 15: Connection of the cable line to the plug contact

6. Operation of the *CONNECT* control unit

The *CONNECT* control unit is equipped with a colour touchscreen display and reacts to the functional graphics being pressed. To switch on / switch off the *CONNECT* control unit, the main switch of the *CONNECT* system is pressed.

6.1. User interfaces

The user interface of the *CONNECT* control unit is activated by touching the touchscreen display. The control interface is protected by a PIN. The main menu appears after the PIN has been entered (see Figure 16).

The unit is delivered without a PIN. The main menu is reached by pressing the *Enter* key.

Inputs, changes and operation of buttons are activated and carried out by directly pressing the relevant graphic.

The user interface consists of two segments. In the left segment, the *CONNECT* system is shown graphically with the aggregates and current system parameters. The main menu is found in the right segment, in which the settings and configurations can be changed.

Components shown in black are currently inactive.

Components shown in green are currently active.

Components shown in grey are temporarily deactivated.

Components shown in red have a fault or are disabled.

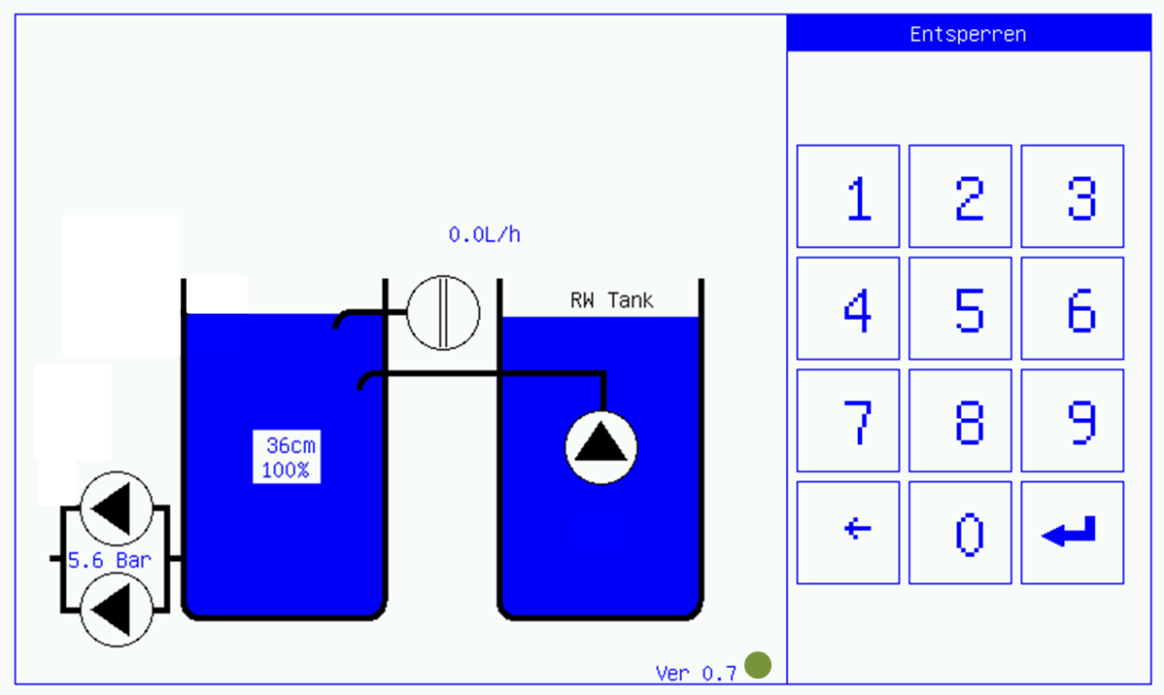

Figure 16: Entering of the PIN to activate the locked screen

6.2. User interface for *Aqua-Center Silentio*

The user interface for the operation and monitoring of a *Aqua-Center Silentio* must fulfil the following component settings, which will be explained in more detail later in this operating manual:

Rainwater tank present: yes (see Chapter 0)

Mains water back-up 1 available: yes (see Chapter 0)

Booster pump available: yes (see Chapter 6.4.3)

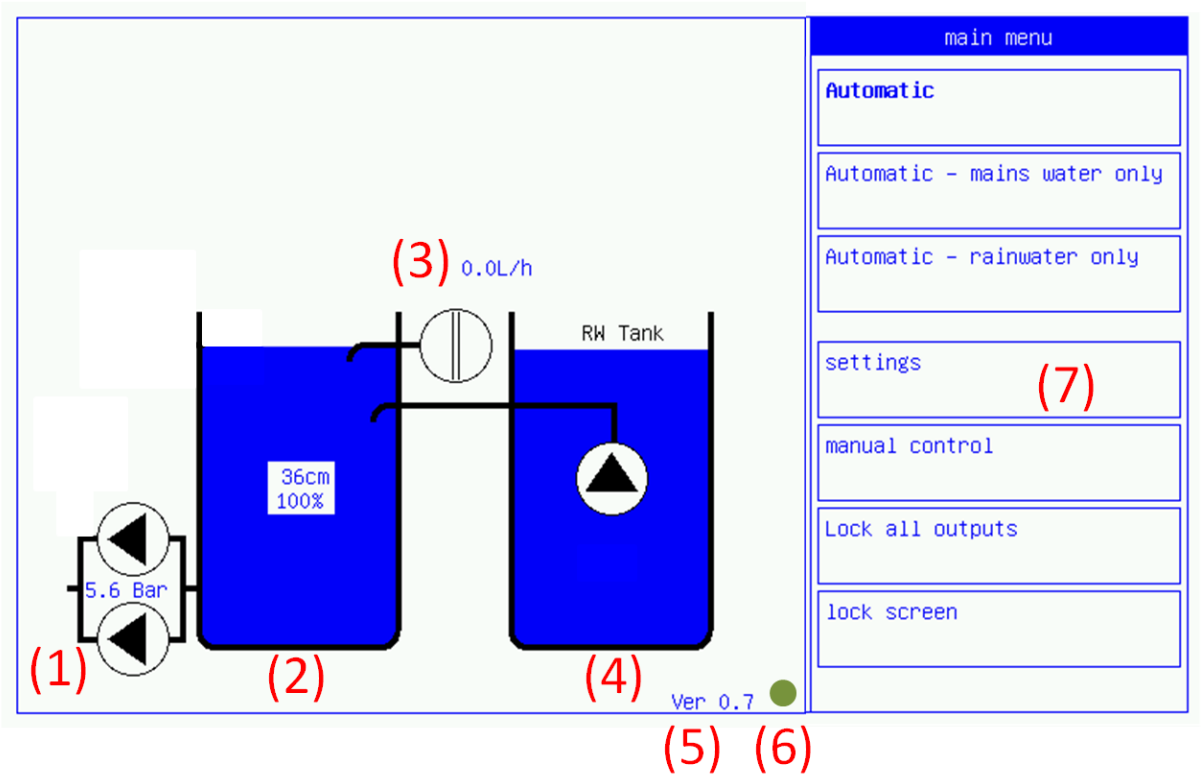

Figure 17: User interface for *Aqua-Center Silentio*

(1) Double pump station with current pipeline pressure
(2) Process water storage tank with current filling level display
(3) Ball valve of mains water back-up with current flow rate volume
(4) External rainwater storage tank (e.g. rainwater cistern) with rainwater supply pump
(5) Current software version of the *CONNECT* control unit
(6) Status of current internet connection
(7) Main menu with various operating modes and sub menus

6.3. Select operating mode

There are three operating modes, which can be selected, depending on the choice of use and availability.

Automatic	The system regulates and controls all processes automatically according to the settings.
Automatic – only mains water	The device only feeds mains water into the system. The rainwater supply pump in an external rainwater cistern is deactivated in this mode.
Automatic – only rainwater	The device only feeds rainwater from the external rainwater cistern into the system. The mains water back-up is deactivated in this mode. The automatic mains water stagnation protection and the optional AutoDrain remain active. ⚠ The unit switches off automatically as soon as the external rainwater cistern is empty and the rainwater supply pump ceases to extract water. Under these circumstances, the supply of process water is not guarenteed.

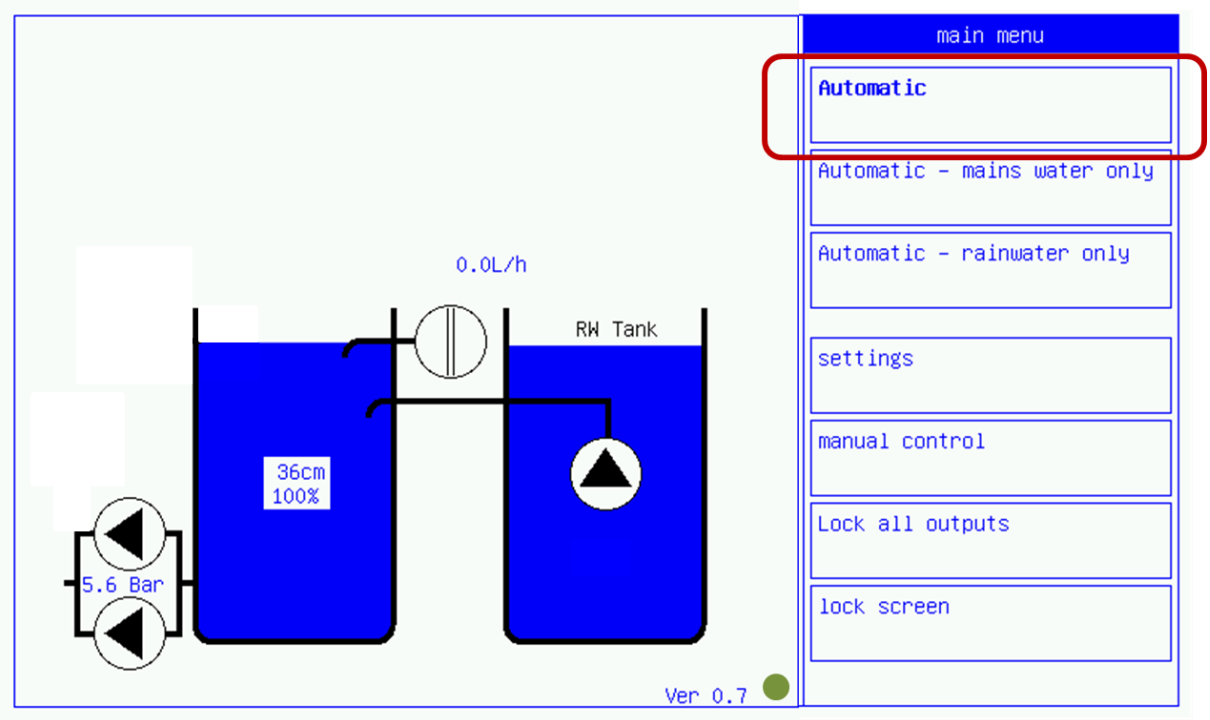

Figure 18: Automatic operating mode is activated.

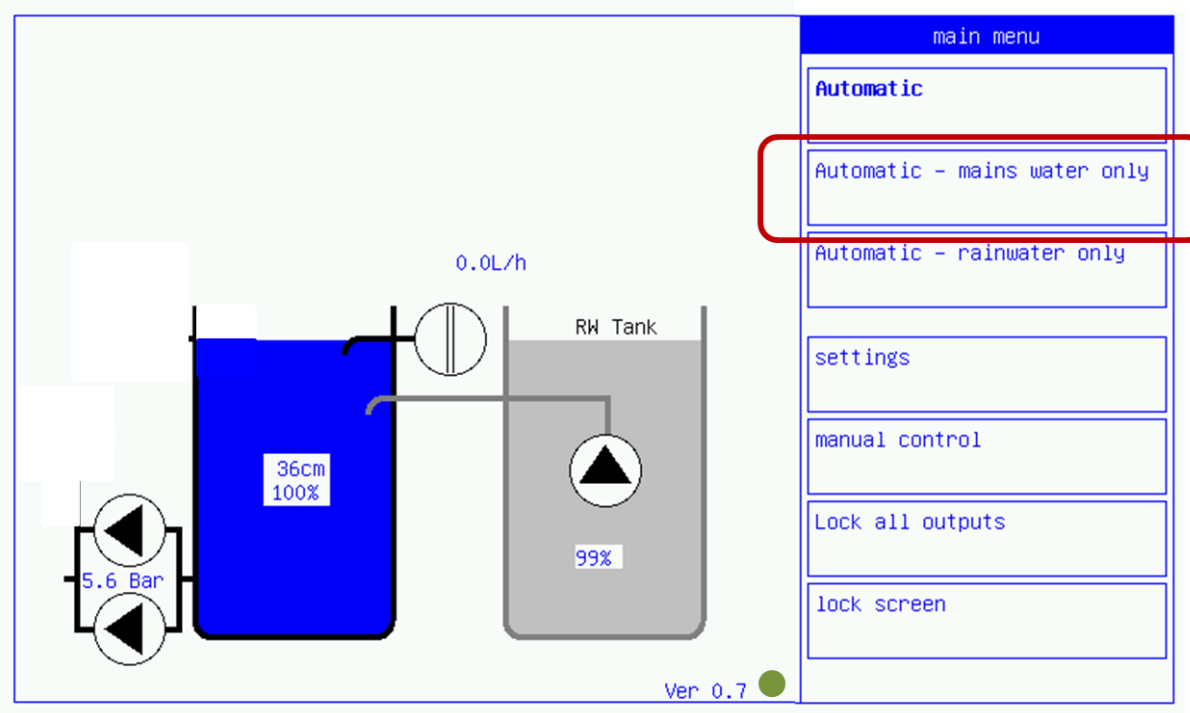

Figure 19: Operating mode for mains water only operation is activated

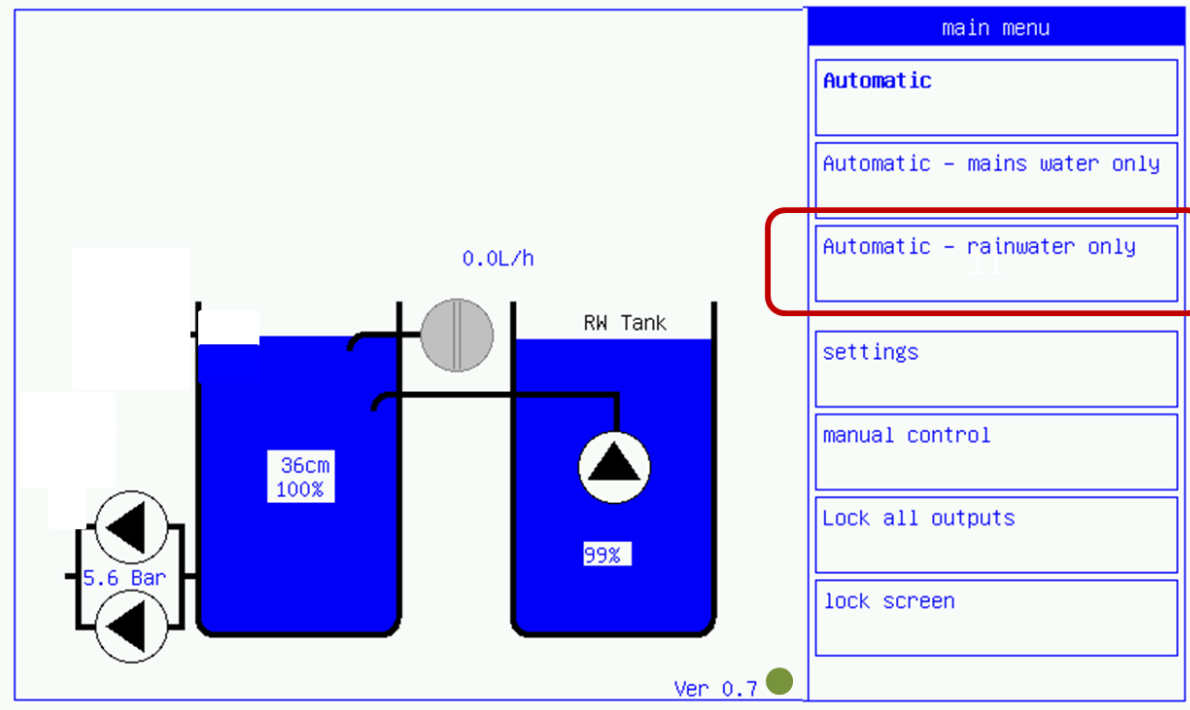

Figure 20: Operating mode for rainwater only operation is activated

6.4. Settings of the system-specific parameters

The menu of the system-specific parameters is opened by pressing the [Settings] button, (see Figure 21). By confirming the [Back] button, the [Settings] menu is closed and the [Main menu] called up.

The system-specific settings will be explained in more detail below.

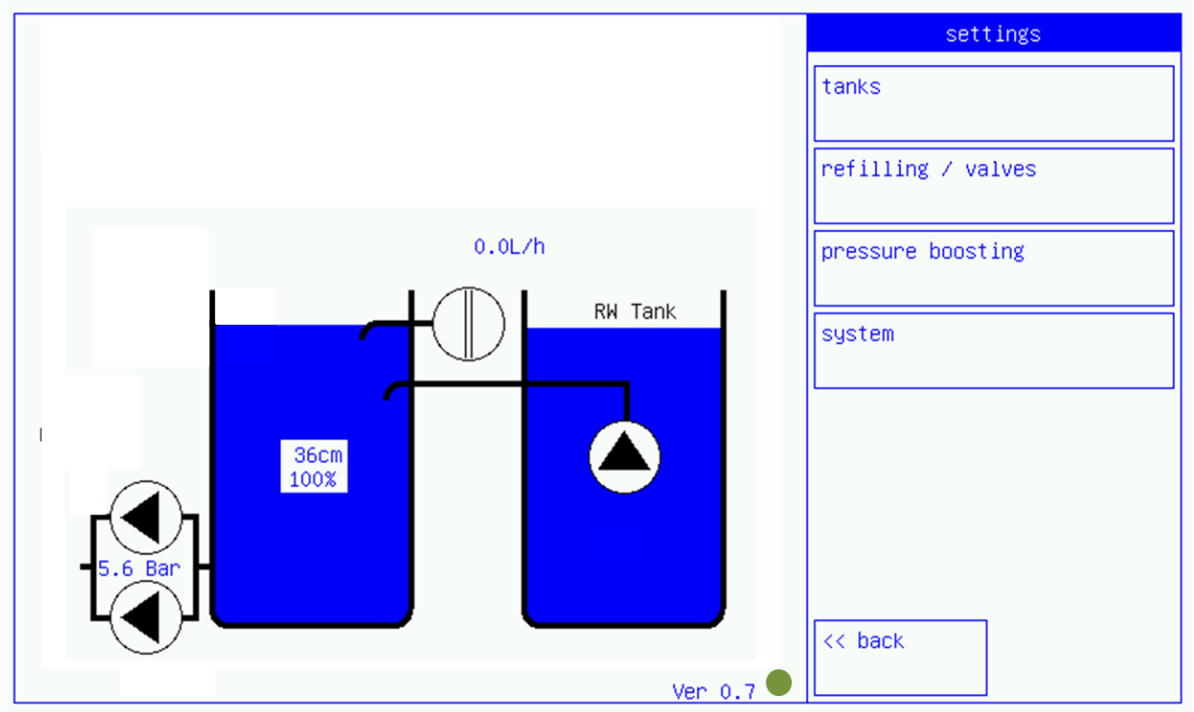

Figure 21: Overview menu of the settings, page 1

6.4.1. Tank settings

Any tank, in which mains water back-up occurs and to which the booster station is connected is referred to as a process water storage tank (see Figure 22).

Height level sensor	Defines the installation height of the filling level sensor, measured from the bottom of the tank, in centimetres, on the process water storage tank.
Lower edge overflow	Defines the height of the emergency overflow pipe on the process water storage tank, measured in centimetres, measured from the bottom of the tank up to the lower edge of the emergency overflow pipe.
Dry run protection	Defines the height, in centimetres, at which the dry run protection of the booster pumps is activated. The distance is measured between the bottom of the tank and the desired height of the dry run protection.
✓	Acceptance of modified values
X	Rejection of modified values

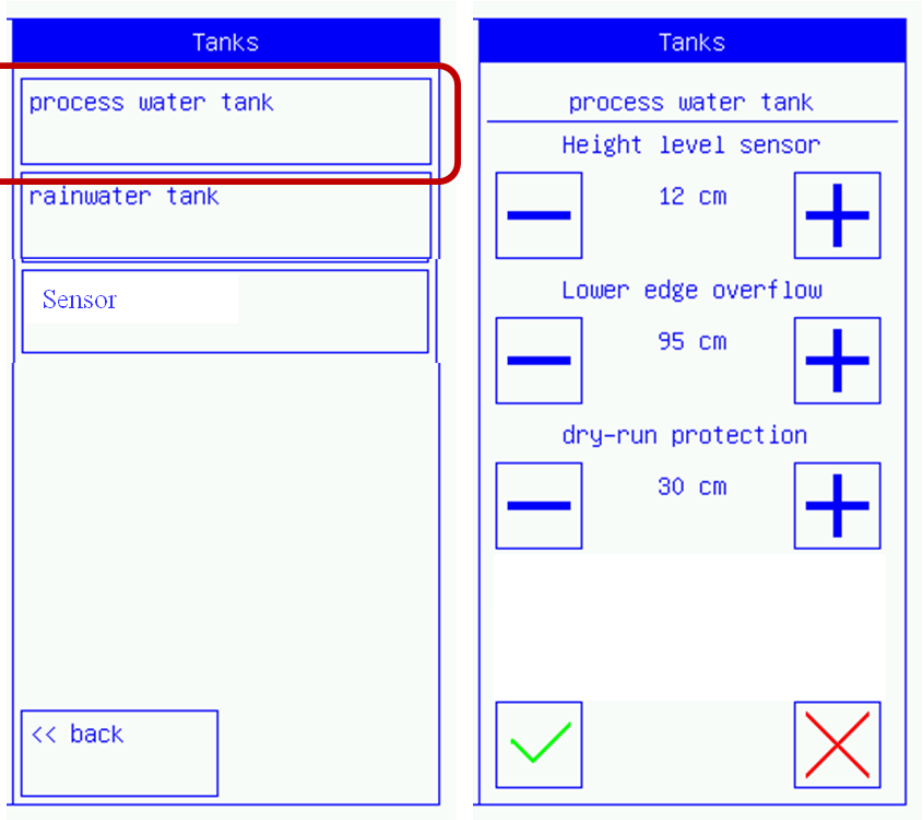

Figure 22: Settings for the process water storage tank

The tank in which the rainwater supply pump is installed and from which the rainwater is fed into the *Aqua-Center Silentio CONNECT* (see Figure 23) is referred to as the rainwater tank (external operating water tank/cistern).

available Yes / No	Defines the operating mode, whether or not an external rainwater tank/cistern and therefore an operating rainwater supply pump is present and wheter it should be activated for back-up purposes or not.
Sensor available yes/no	Defines the operating mode whether a filling level sensor is present in the external process water storage tank (for example, rainwater tank) and is to be activated for monitoring purposes or not. Available as optional accessories. See chapter 10.3.
Min. level	Defines the height, in centimetres, at which the dry run protection of the rainwater supply pump is activated. The distance is measured between the bottom of the rainwater cistern and the desired height of the dry run protection.
Lower Edge Overflow	Defines the height of the overflow spout in the external rainwater cistern, expressed in centimetres, measured from cistern bottom to bottom edge of overflow connection.
✓	*Acceptance of modified values*
X	*Rejection of modified values*

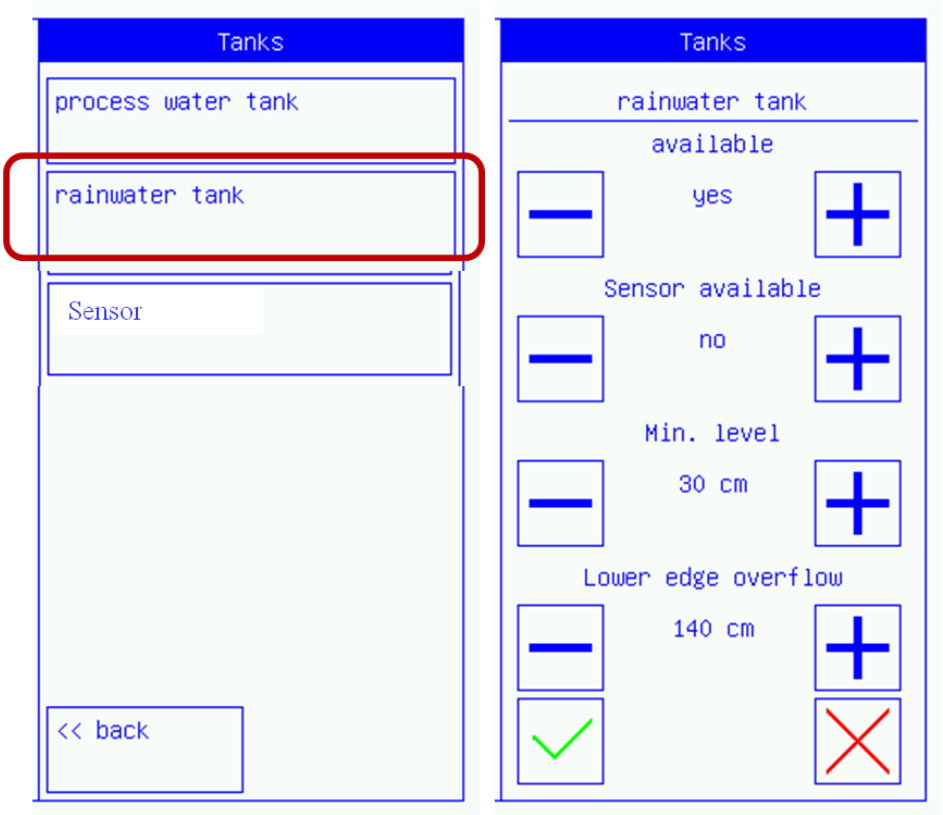

Figure 23: Settings for the external rainwater cistern

Two different pressure sensors can be used in operation depending on maximal water depth of the process water storage tank.

Type pressure sensor 250 mbar / 600 mbar	The pressure sensor 250 mbar can be used for maximum water depth of 2 meters in the process water storage tank. The pressure sensor 600 mbar can be used for maximum water depth of 5 meters in the process water storage tank.

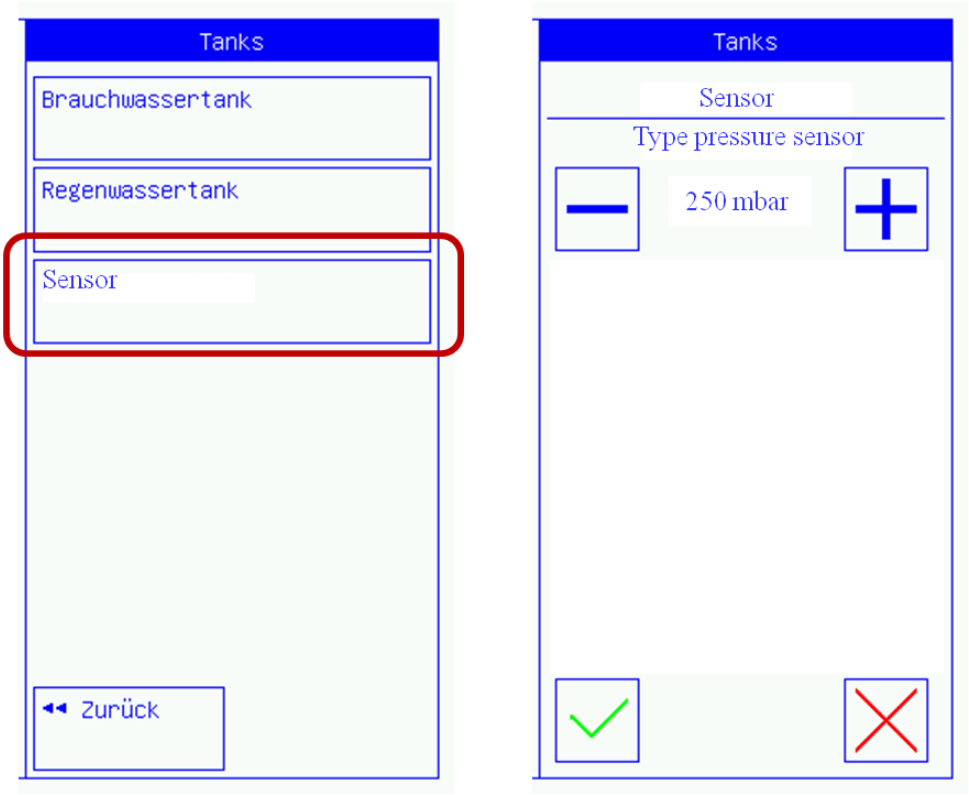

Figure 24: Selection of correct pressure sensor

6.4.2. Back-up / Valves

Mains water back-up 1 supplies the *CONNECT*-plant with mains water in order to ensure the security of supply.

available yes/no	Defines the operating mode, whether or not a mains water back-up is present in the process water storage tank and whether or not it should be activated for monitoring purposes.
Address	Defines the association between *CONNECT* control and the ball valve of the mains water back-up. The bus address can be found on the type plate of the ball valve. Setting values for ball valve: 1-9 Setting value for solenoid valve: Relay
Open at	Defines filling level, in centimetres, in the operating water tank, measured from tank bottom at which the mains water back-up is activated.
Close at	Defines filling level, in centimetres, in the operating water tank, measured from tank bottom at which the mains water back-up is de-activated
✓	Acceptance of modified values
X	Rejection of modified values

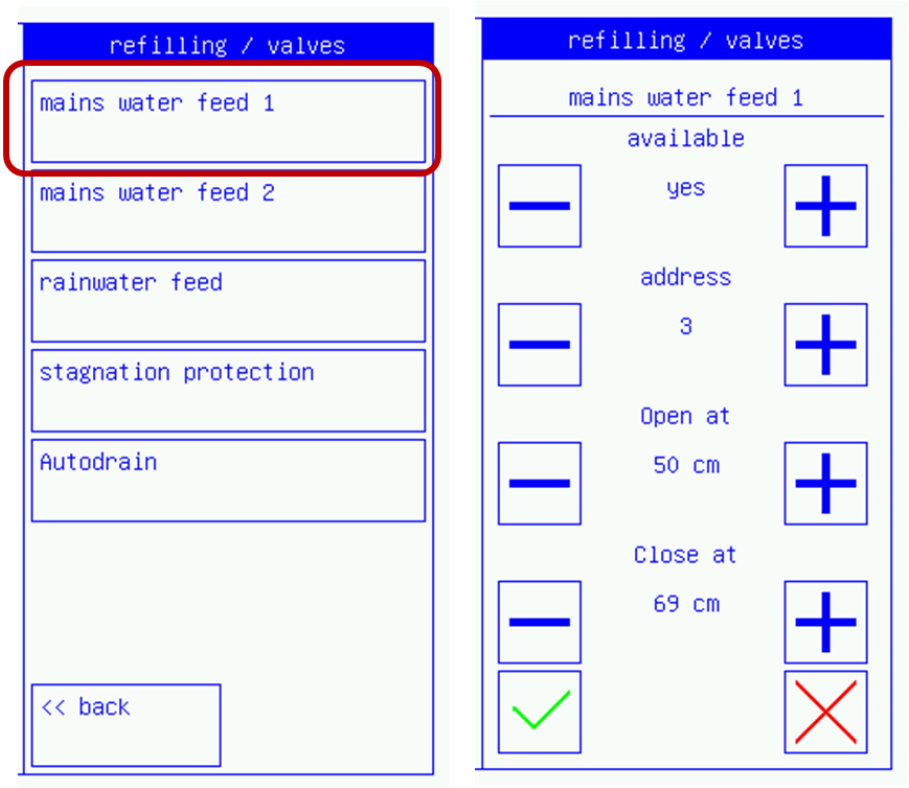

Figure 25: Settings for the mains water back-up 1

Mains water back-up 2 is not available for the *Aqua-Center Silentio CONNECT*.

The rainwater back-up system supplies the system with rainwater from an external rainwater cistern to ensure the security of supply.

Open at	Defines filling level, in centimetres, in the process water tank, measured from tank bottom at which the rainwater back-up is activated.
Close at	Defines filling level, in centimetres, in the process water tank, measured from tank bottom at which the rainwater back-up is de-activated.
✓	Acceptance of modified values
X	Rejection of modified values

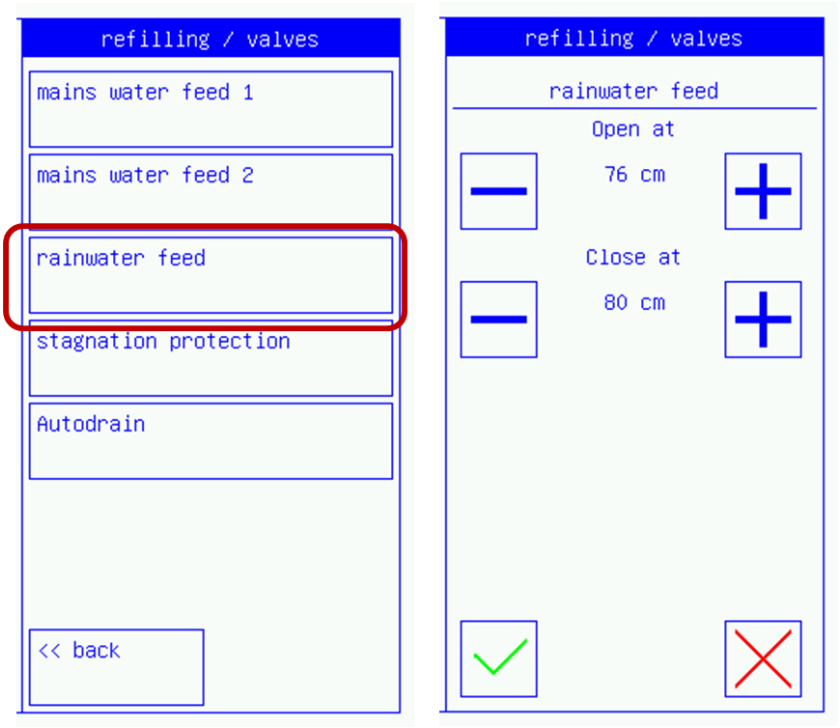

Figure 26: Settings for rainwater back-up

The stagnation protection prevents the build up of germs caused by the presence of still water in a branch pipe by regularly flushing the mains water pipe.

Stagnation time	Defines the time interval in days, for which the mains water back-up becomes activated and the mains water line is thus flushed to protect against stagnation. The process water storage tank overflows the emergency overflow connection during this procedure. ⚠ The installation room is at risk of flooding if the emergency overflow connection is not attached to the sewer connection.
Line flushing duration	Defines the time interval in minutes, for which the mains water back-up remains activated before this is deactivated again.
✓	Acceptance of modified values
X	Rejection of modified values

If the optional AutoDrain accessory has been installed and activated (see chapter 10.1), the AutoDrain is executed in parallel with the stagnation protection. This prevents the overflow of the process water storage tank via the emergency overflow connection.

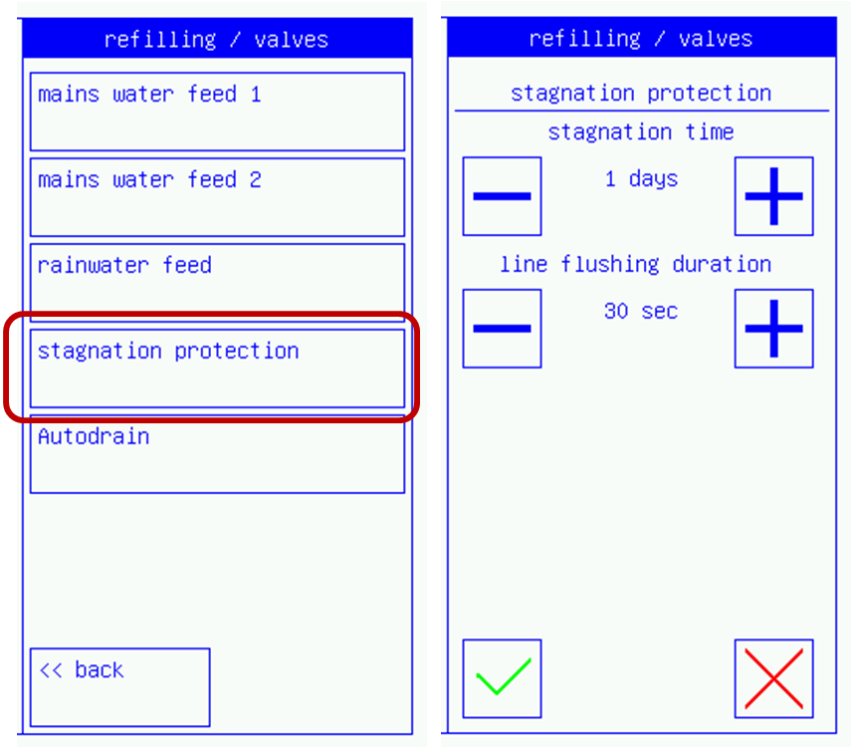

Figure 27: Settings for the stagnation protection

The AutoDrain function ensures regular water exchange in the process water storage tank in the event of prolonged downtimes. A more detailed description of the assembly and operation is given in chapter 10.1.

6.4.3. Pressure boosting

The booster station must be defined and activated for the operation of the system

Available Yes/No	Defines the operating mode, whether or not a pressure increase device is present on the system.
Pump type Static/regulated	Defines the operation of the pressure pumps used: A) Static operation B) Frequency-controlled operation; The performance of the respective pump is shown in percent next to the icon of the pressure pump.
Pump 1 active/deactivated	Defines the operating state for pressure pump 1, whether this is activated for operation or not.
Pump 2 active/deactivated	Defines the operating state for pressure pump 2, whether this is activated for operation or not.
✓	Acceptance of modified values
X	Rejection of modified values

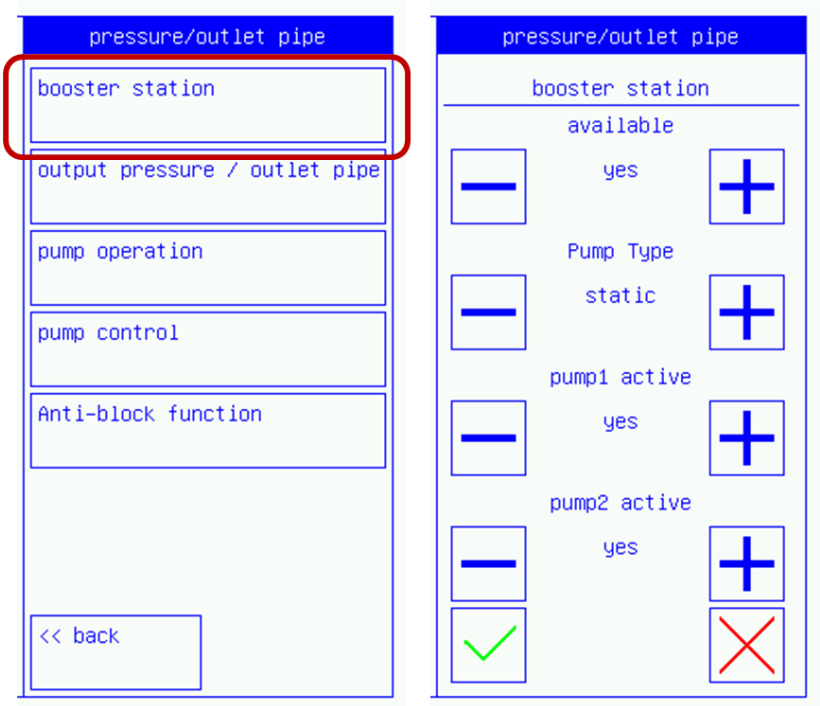

Figure 28: Settings for the booster station

The cut-in and target pressure of the booster station is defined below.

Cut-in pressure	Defines the cut-in pressure in bar, at which the first pump of the booster station is activated. The second pump of the booster station is switched on as soon as the current output pressure drops 0.8 bar below the cut-in pressure.
Target pressure	Defines the target pressure in bar, at which the follow-up time of the booster station is activated and the booster station is then deactivated.
Flowmeter available Yes/No	This function is not activated in the current firmware.
✓	Acceptance of modified values
X	Rejection of modified values

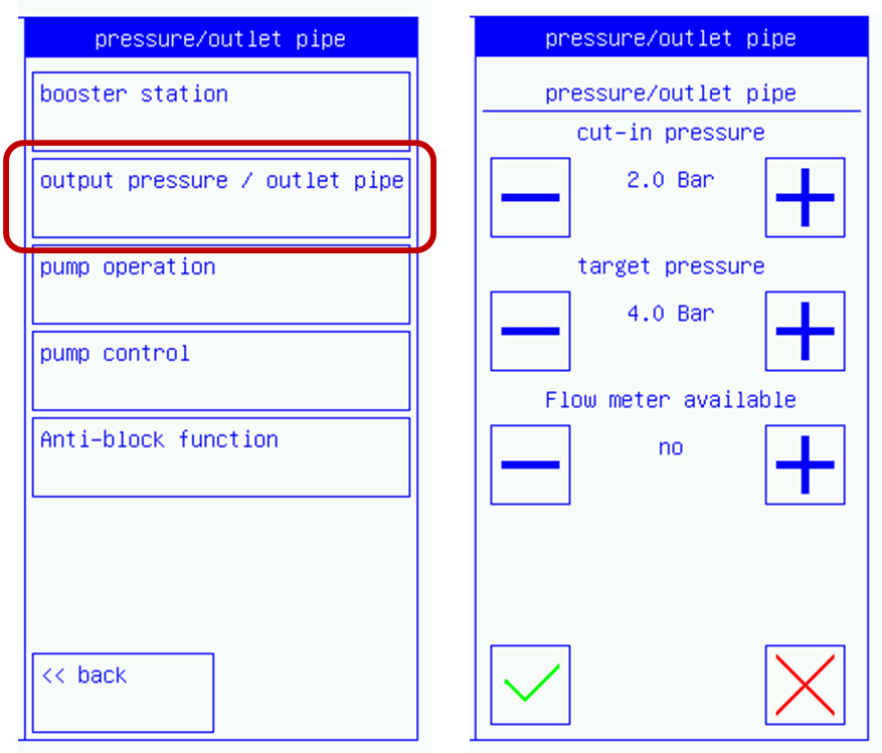

Figure 29: Settings for the cut-in and target pressure of the booster station

Follow-up times for the booster station are defined to prevent short term synchronisation of the pumps.

Circuit time/delay	A) Defines the delay interval in seconds, at which the booster station becomes activated when registering the defined cut-in pressure. B) Defines the delay interval in seconds, at which the second pump of the booster station becomes activated when registering the defined cut-in pressure. C) Defines the delay interval in seconds, at which the booster station becomes deactivated when registering the defined target pressure (follow-up time).
Limit emergency operation	Defines the filling level in the process water storage tank, at which the second pump is deactivated so the dry-run protection is not activated.
Emergency operation for	Defines the time interval during which the second pump remains de-activated (synchronisation protection), so that the process water storage tank is able to fill up again. ⚠ Emergency operation is a definite indication that the mains water back-up is unable to provide the required back-up volume for full security of supply. See Chapter 9.
✓	Acceptance of modified values
X	Rejection of modified values

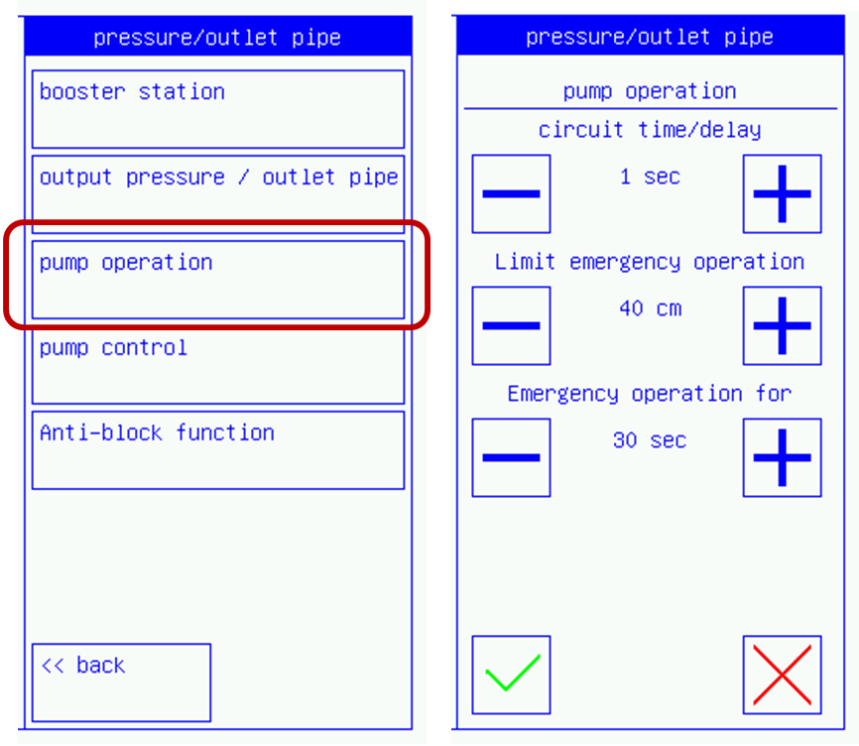

Figure 30: Settings for the switching times of the booster station

Basic settings for frequency-controlled pumps are described below.

turn-on voltage	Defines the starting value at which the first pressure pump is turned on. Where: 0 Volt = 0 Hertz = 0% flow rate 10 volts = 50 Hertz = 100% flow rate
Adjustment (rough)	Defines the rising and falling power adjustment of the frequency control until reaching the set target pressure / cut-off pressure.
Adjustment (accurate)	Defines the frequency regulation after the target pressure has been achieved. The lower this value is set, the finer the frequency control of the target pressure / cut-off pressure.
Control interval	Defines the time interval during which the frequency control performs the power adjustment. This is done in both control modes rough / fine until reaching the target pressure / cut-off pressure.
✓	Acceptance of modified values
X	Rejection of modified values

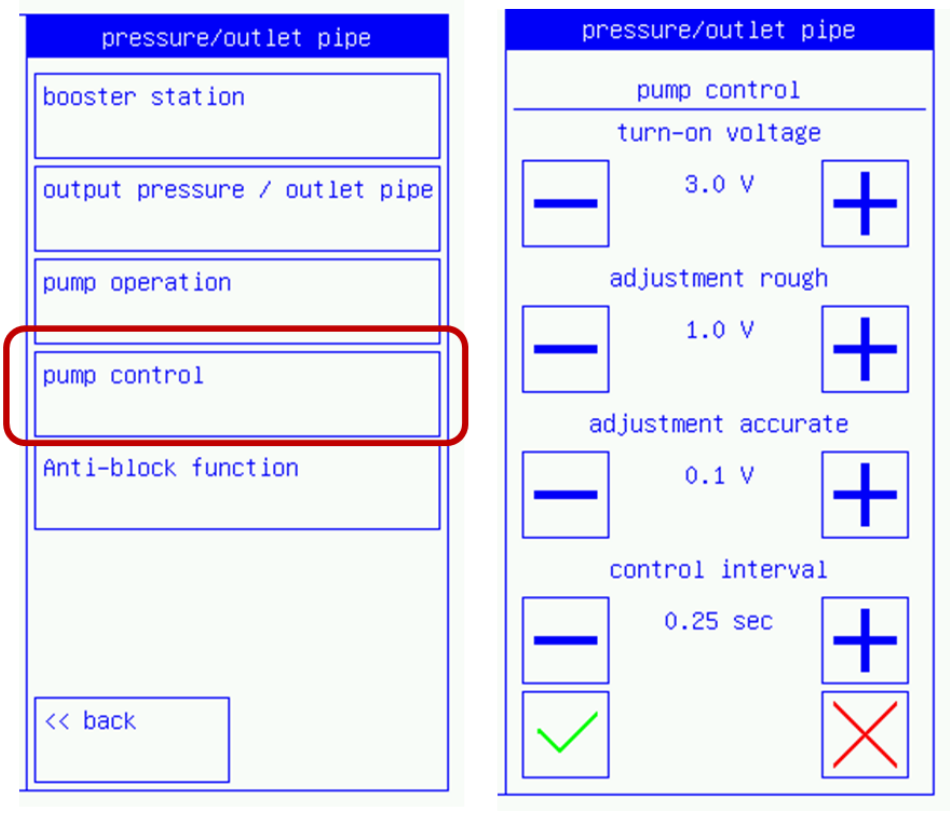

Figure 31: Settings for pump control of the booster station

In order to prevent a blockage of the pressure stages during longer downtimes, the booster station is activated for short periods at defined intervals.

Anti-block function active yes/no	Defines whether automatic anti-block function should be activated or deactivated.
Switch on after X days	Defines the time interval during which the booster station was in standby mode and the anti-block function should be started.
for X seconds	Defines the time interval for how long the booster station should be activated in the anti-blocking function.
✓	Acceptance of modified values
X	Rejection of modified values

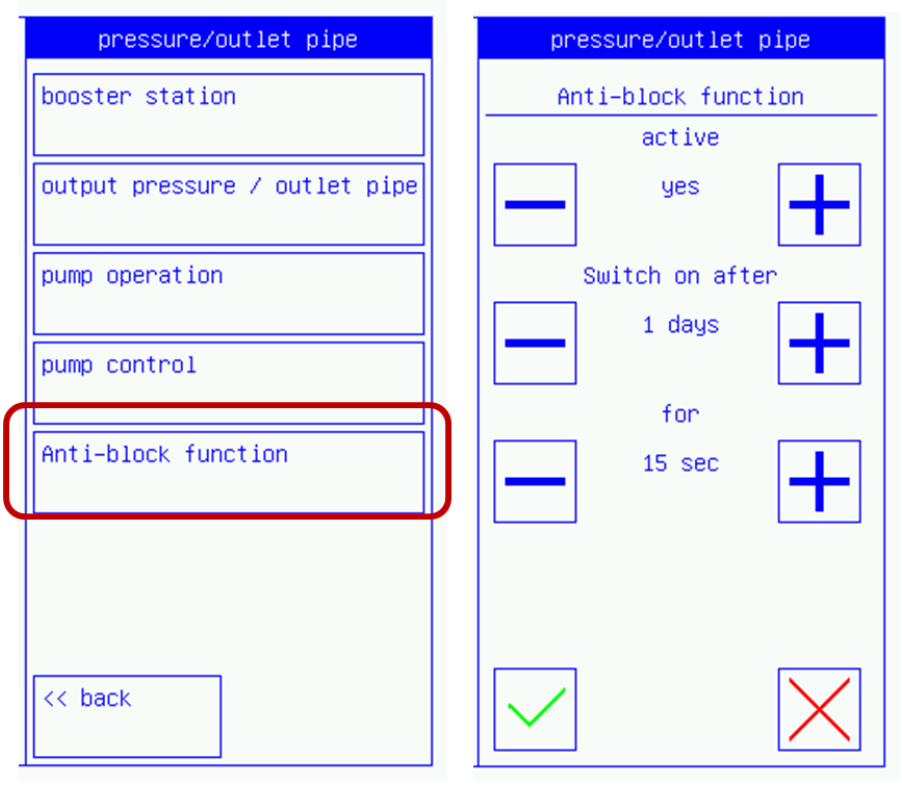

Figure 32: Settings for anti-blocking function of the booster station

6.4.4. System

To connect the *CONNECT* control unit with a durable internet connection via WLAN, the Wifi status must first be set to “local”.

To do this, the [WiFi local] button is pressed, so that “WiFi local” is activated. The *CONNECT* control unit works as its own internet hotspot in this status.

Using your own smartphone or tablet, connect to “GrafConnect” as the WLAN network. In this case, the smartphone / tablet may display an error message due to a lack of an internet connection (limited connectivity). This error message can be ignored.

Open the internet browser and enter the following IP address into the address line: 192.168.1.1.

Now select the in-house WLAN network and enter and confirm the requested network key. The *CONNECT* control unit then connects automatically with the in-house WLAN network when the key is entered successfully and closes the connection to the smartphone/tablet.

Change the WiFi status to “WiFi online”. The *CONNECT* control unit is now connected with the WLAN network.

The correct WLAN internet connection is shown by a small green dot (see Figure 33).

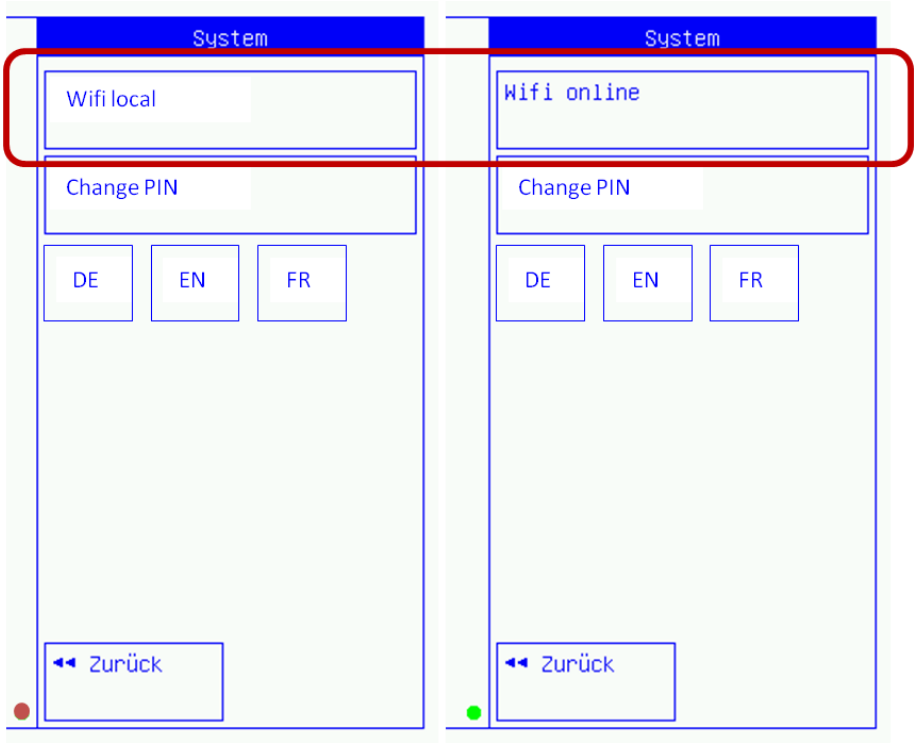

Figure 33: Set up a connection with the internet

To set or change the PIN, the locked screen is first unlocked with the old PIN or the enter key, and the [Change PIN] menu item is displayed. The new PIN is then entered using the number field and confirmed with the Enter key.

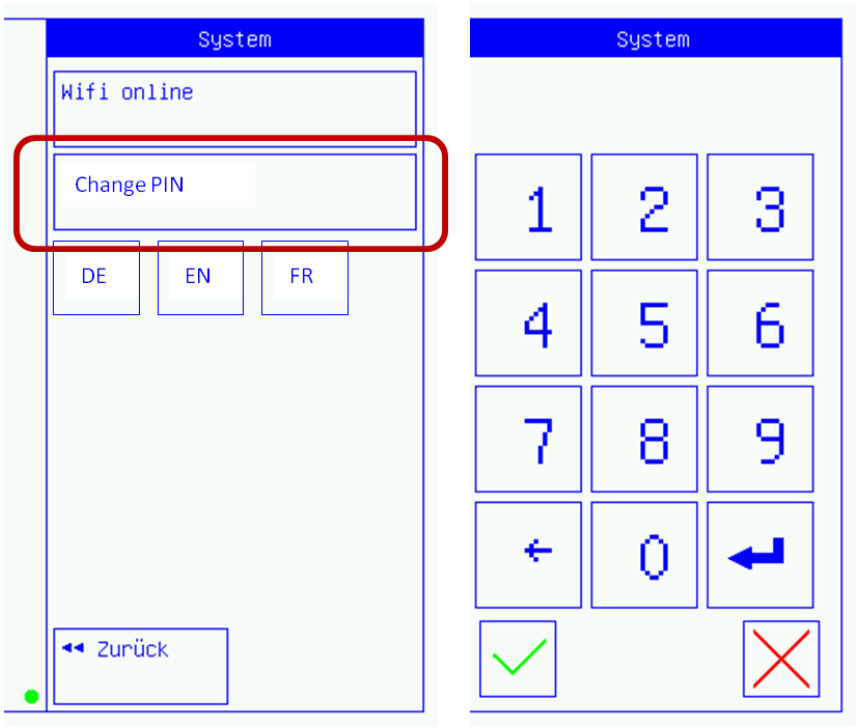

Figure 34: PIN is defined for the protection of the user interface

To select another language, the desired language is selected by pressing the corresponding button. The menu changes immediately into the new language.

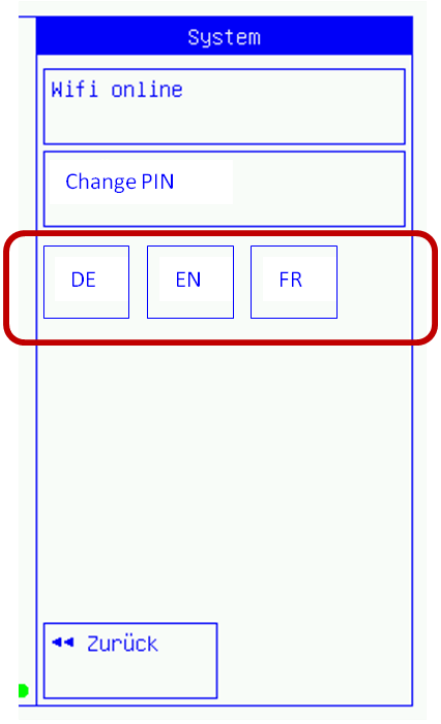

Figure 35: Select desired language for menu

6.5. Manual control

By pressing the [Manual control] button, the menu of the manual control of components is opened (see Figure 36).

By pressing the relevant button of a component once, this is activated and highlighted in green in the graphic. The activated component is deactivated again by pressing the corresponding button again.

The [Manual control] is closed and the [Main menu] is opened by pressing the [return] button

If no button is pressed within one minute after opening [Manual control], the *CONNECT* control will automatically switch back to automatic mode and end the [Manual control].

Pump 1	Activates the first pump of the booster station.  There is the risk of the process water storage tank being pumped until it is empty and the pump therefore running dry and hot.
Pump 2	Activates the second pump of the booster station.  There is the risk of the process water storage tank being pumped until it is empty and the pump therefore running dry and hot.
Water-feed 1	Activates the electrical ball valve of the first mains water back-up.  There is the risk of the process water storage tank overflowing.
Supply pump	Activates the rainwater supply pump.  There is the risk of the external rainwater cistern being pumped until it is empty and the process water storage tank overflowing and the rainwater supply pump therefore running dry and hot.
Water feed 2	Activates the electric ball valve of the second drinking water back-up.  There is a risk that the process water storage tank will overflow**.**
Drain	Activates the solenoid valve of the AutoDrain function.  There is the risk that the process water storage tank is pumped empty and the pump runs dry and thus hot.

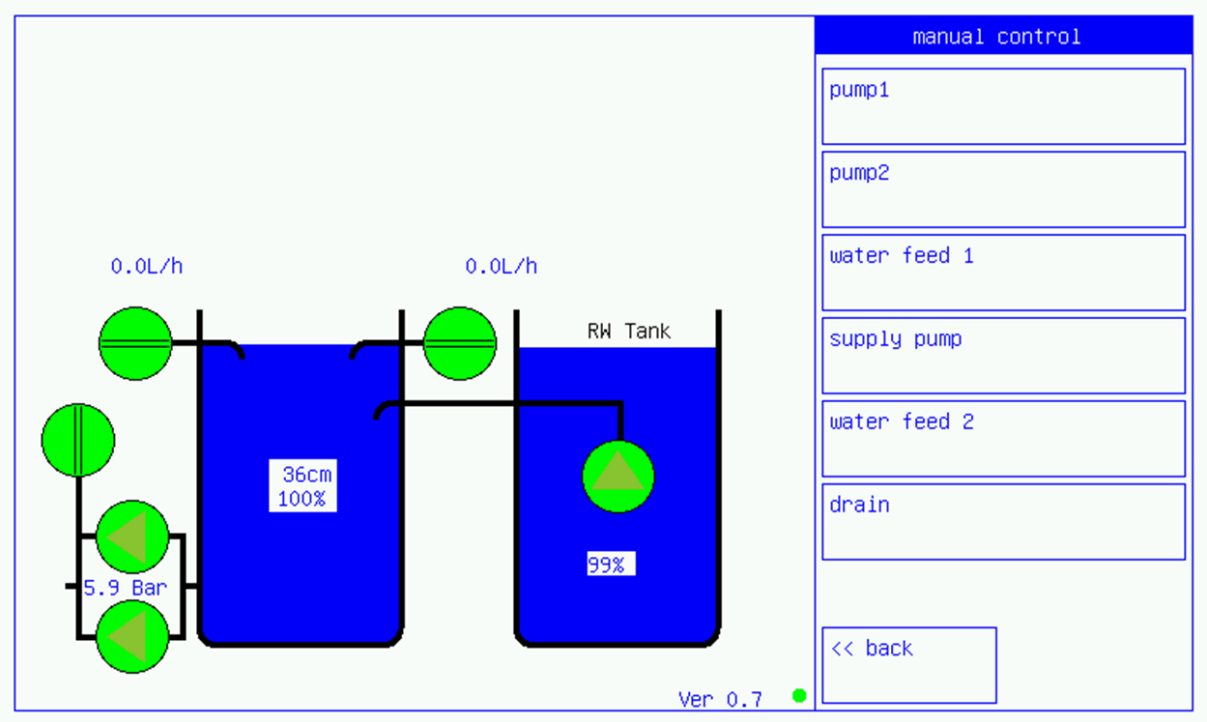

Figure 36: Manual control of the components

6.6. Lock all outputs

By tapping on the button [Lock all outputs], the colour of the button changes from blue to red.

In this mode, the following components are disabled / deactivated and are no longer available for automatic activation:

- Pumps of the booster station,

- Electrical ball valve to the mains water back-up,

- rainwater supply pump.

By tapping the button [Lock all outputs] a second time, the components are released for automatic activation. The button changes from red to blue.

6.7. Lock screen

The user interface is disabled by tapping on the button *[Lock screen]*.

By tapping on the Touchscreen display again, the user will be asked to enter the PIN (see Chapter 6.1).

7. Start up

Only allow qualified personnel to commission the system (see Chapter 1.6).

Please heed the switchpoints of the booster station, back-up limits for mains water and rainwater (from external rainwater cistern) in accordance with Chapter 6.

Before putting into operation, you must ensure the following points:

- The *Aqua-Center Silentio CONNECT* is electrically connected as per regulations.
- The relevant country-specific regulations have been complied with and fulfilled.
- Emergency overflow connection of the process water storage tank is connected to the sewage system.
- Mains water back-up is connected to the mains water network.
- Process water pressure connection is connected to the process water pressure line.
- Stopcocks for mains water, suction and process water pressure line closed.
- Rainwater supply pump connected hydraulically and electrically.
- External process water storage tank (e.g. rainwater cistern) filled at least 1/3 with water.

The following steps must be carried out in this sequence to put the system into operation:

I. Activation of the system using the main switch.

II. Input of switch points for cut-in pressure and cut-off pressure of the pressure pumps.

The installation of a membrane pressure expansion vessel with a volume of at least 50 litres is recommended to reduce the switching frequency. The membrane pressure expansion vessel must be suitable for operation with process water. The primary pressure in the membrane pressure expansion vessel must be 0.3 to 0.5 bar below the switching pressure of the pump.

The primary pressure of the integrated 8-litre membrane expansion vessel must be 0.3 to 0.5 bar below the switch-on pressure of the pump.

The inputted cut-off pressure must be at least 0.3 bar beneath the maximum feed pressure of the installed pressure pump.

III. Open the stopcock of the mains water back-up. The system automatically feeds mains water into the process water storage tank.

As well as the mains water back-up, the rainwater supply pump is also activated as per the defined back-up limits. Please ensure that all stopcocks of the rainwater supply line are opened.

The back-up limits (see chapter 0) must be adapted to the local conditions in such a way that the system does not run over the emergency overflow connection (see chapter 5.4) nor the dry-running protection (see chapter 0).

IV. After finishing the back-up process, open the stopcock to the suction line between the process water storage tank and the pressure pump.

V. Bleed both pressure pumps by opening the black filling lid until water is discharged (see Figure 37).

VI. Open at least one process water consumer (e.g. WC, tap).

VII. Open stopcock to the process water pressure line. Both pressure pumps start up as per the switch points.

VIII. Close the process water consumers as soon as air bubbles can no longer be seen in the discharging water.

IX. The pressure pumps switches off after reaching the target pressure and defined circuit time.

X. System is now ready-to-operate.

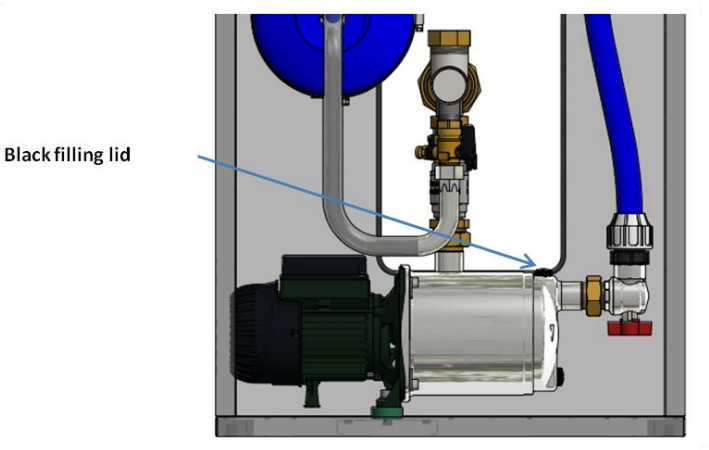

Figure 37: Bleeding the pressure pump

8. Inspections

The *Aqua-Center Silentio CONNECT* contains components, for which inspections are required.

- Inspections should be carried out by the operator of the system.
- Repairs should only be carried out by qualified specialists (see chapter 1.9).

If an inspection identifies faults/damage on the *Aqua-Center Silentio CONNECT*, then you should contact your contractual partner / dealer.

It is in the operator's best interest to take note of the stated intervals for inspection measures and the described work steps!

8.1. Process water storage tank *Aqua-Center Silentio*

Check the process water storage tank for impermeability, cleanliness, damage and sedimentary deposits.

Remove external dirt with a damp cloth and conventional detergent.

Interval: annually

When cleaning, do not allow fluid to enter the electrical components.

8.2. Check water connections

Check the mains water and process water connections for damage, impermeability and porous or worn patches. If necessary, replace and reseal hoses/lines.

Interval: six-monthly

8.3. Electrical ball valve for mains water back-up

Check the electrical ball valve for impermeability and function. Temporarily deactivate the process water supply pump to do this. Open the process water consumer and wait until the filling level in the *Aqua-Center Silentio CONNECT* has fallen so that the ball valve is open.

Reclose the process water consumer and wait until the ball valve recloses. Reactivate the process water supply pump.

Interval: six-monthly

8.4. Battery replacement for ball valve of mains water back-up

We recommend changing the batteries in the battery compartment of the electrical ball valve for the mains water back-up every 2 years. To do this, open the relevant battery compartment and replace the 4 Mignon AA batteries.

Interval: Every 2 years

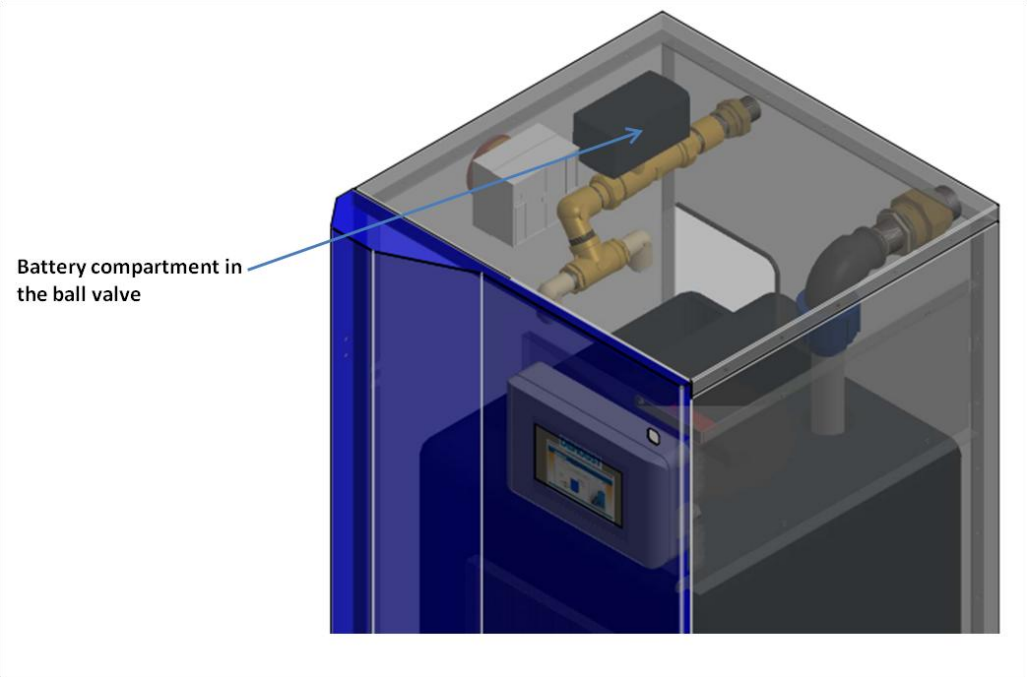

Figure 38: Replacing the batteries in the ball valve

8.5. Function of rainwater supply pump

Check the pressure build-up, impermeability, pump and circulation noises and function. To do this, open the process water consumer, thus activating the rainwater supply pump.

Interval: six-monthly

8.6. Double booster pump station

Check the pressure build-up, impermeability, pump and circulation noises and function. To do this, open the process water consumer, thus activating the pressure pumps.

Interval: six-monthly

8.7. Integrated membrane expansion vessel (MEV)

External inspection for vessel damage (e.g. corrosion).

Check membrane by short activation of the nitrogen valve. If water is released, please contact the sales partner.

Check pressure settings: to do this, shut off the MEV on the water side using the stopcock. Then empty the MEV via the fitting.

Determine primary pressure at at least min. supply pressure of the system as follows: Primary pressure = min. supply pressure of the system – 0.5 bar.

If the pressure is too high at the gas filling valve, release gas, if pressure is too low, fill up with inert gas (e.g. using the nitrogen bottle). Fill in the newly set primary pressure on the type plate.

Interval: six-monthly

8.8. Dry-run protection of booster stations

Shut off the mains water back-up and open the process water consumer until the process water storage tank has been pumped empty. The integrated dry-run protection automatically switches off the booster stations. Then re-open the mains water back-up and close the process water consumer.

Interval: six-monthly

9. Errors/Troubleshooting

All error messages are displayed with red highlighting on the touchscreen display of the CONNECT control unit (see Figure 39).

Error messages that need acknowledging are acknowledged by pressing the function button (X) on the touchscreen display once. Error messages, which do not need acknowledging, are automatically acknowledged after troubleshooting.

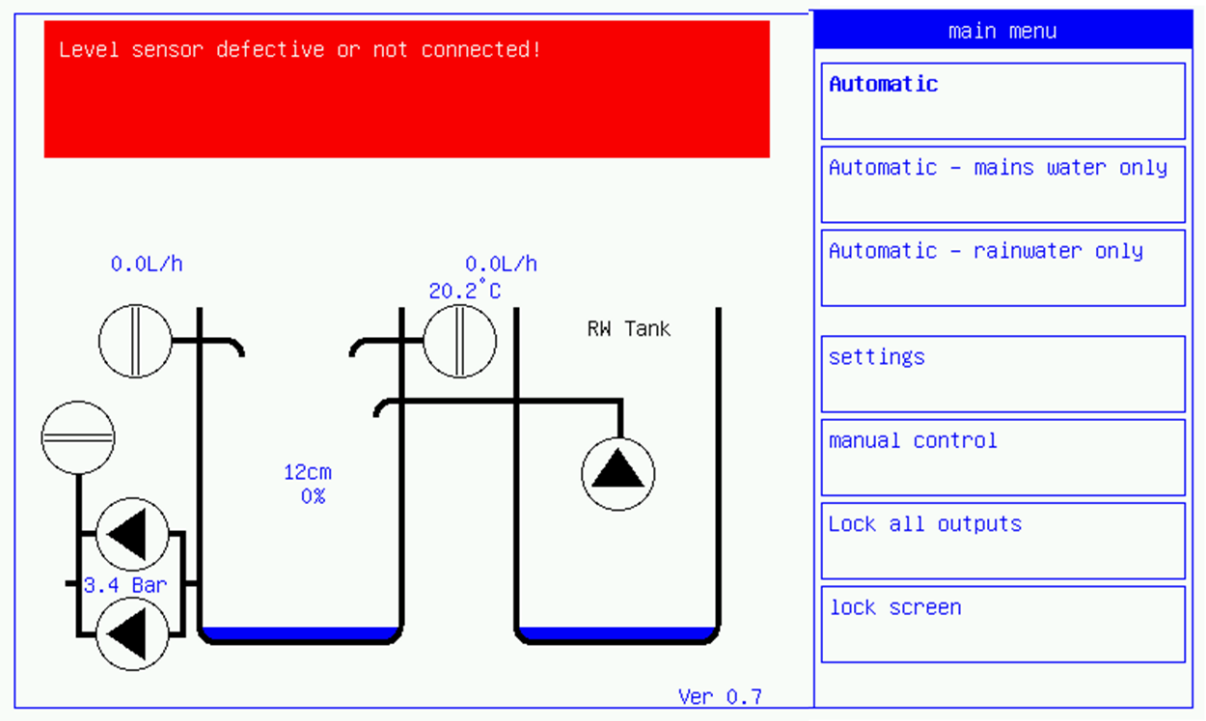

Figure 39: Display of error messages on the user interface

If the cause of the error has not already been rectified, the error message either cannot be acknowledged or the error message will promptly re-appear on the touchscreen display.

Tabelle 2: Faults and problems during operation

Error code	Short description	Measure/possible causes	Carried out by
Error in the operating water tank			
Filling level sensor defective or not connected	The filling level sensor on the process water storage tank is either defective or not correctly connected. The mains water back-up and booster station have been disabled.	Inspection of the filling level sensor (wire breakage, short circuit, correct connection)	Service
Overflow protection activated. Back-up blocked.	The filing level in the process water storage tank is > 120%. The mains water back-up(s) and supply pump have been blocked. Fault must be acknowledged after troubleshooting.	Check the electrical ball valve of the drinking water back-up. Check of the control relay of the supply pump Check the calibration of the level of the operating water reservoir.	Operator / Service
Dry-run protection activated. Process water storage tank is empty.	The filling level in the process water storage tank is lower than the defined min. level. The booster station has been diasbled.	Inspection of the process water storage tank for leakages.. Inspection of the combination of max. feed volumes of the booster station and max. mains water back-up volume	Operator / Service
Water sensor has reacted. Emergency stop is active.“	Ground water sensor has detected water.	Inspection of the process water storage tank for leakages. Inspection of the emergency overflow connection on the process water storage tank.	Operator
Electrical ball valve of the mains water back-up			
No reaction from back-up valve. Check connections!	The electrical control head on the ball valve of the mains water back-up is not in contact with the CONNECT control unit.	Inspection of the electrical ball valve of the mains water back-up.	Service

Booster station			
Mains water sensor defective or not connected	The pressure sensor in the process water pressure line is either defective or not connected properly. The booster station has been disabled.	Inspection of the pressure sensor (wire breakage, short circuit, correct connection)	Service
No pressure increase after switching on pump. Pumps have been disabled. Check the pumps and pressure sensor	The line pressure in the process water pressure line does not rise although the pressure pumps are working. The booster station was disabled.	Check the functionality of the pressure sensors, the mains water back-up and the pressure pumps.	Service
external rainwater cistern			
No change in the filling level in the rainwater cistern. Rainwater supply pump is disabled. Check pump in rainwater tank.	Despite activated rainwater supply pump, the filling level in the process water storage tank does not rise.	Inspection whether external rainwater cistern is sufficiently filled with water and supply pump is not in the dry-run protection. Check rainwater supply pump is working.	Operator Service
Filling sensor for rainwater cistern not functioning.	The level sensor in the external rainwater cistern is either defective or not connected properly.	Inspection of the pressure sensor (wire breakage, short circuit, correct connection)	Service

10. Optional accessories

10.1. AutoDrain Function

When ordered directly with a *Aqua-Center Silentio CONNECT*, AutoDrain is factory-fitted onto the *Aqua-Center Silentio CONNECT*.

The AutoDrain function ensures a constant water exchange in the process water storage tank, so that even longer periods of non-activity that the stagnation and contamination risk is minimised. AutoDrain is operated parallel with the stored settings of the stagnation protection (see Chapter 0)

The automatic opening of a ball valve releases water into the drain until a pre-set filling level has been reached. The process water tank is then filled up to the pre-set filling level of the mains water back-up. If the pipe flushing time of stagnation is not over, then the process is repeated with the AutoDrain function.

Connect and seal the AutoDrain connection with the rear 3-piece brass threaded connection of the *Aqua-Center Silentio CONNECT* (see Figure 40). Connect the AutoDrain pipe with the sewer duct or a sufficient lifting pump station. The threaded connection is size DN 25 (1“).

Connect the pressure line in a de-energised state. No forces may be applied to the brass threaded connection of the system.

The on-site installation of a shut-off valve on and a detachable screw connection are recommended.

The duct connection or the lifting pump station must be capable of reliably discharging the maximum operating water quantity of the booster station (see section 3.2).

There is a risk of flooding the installation room if the AutoDrain is not connected to the duct connection or lifting pump station.

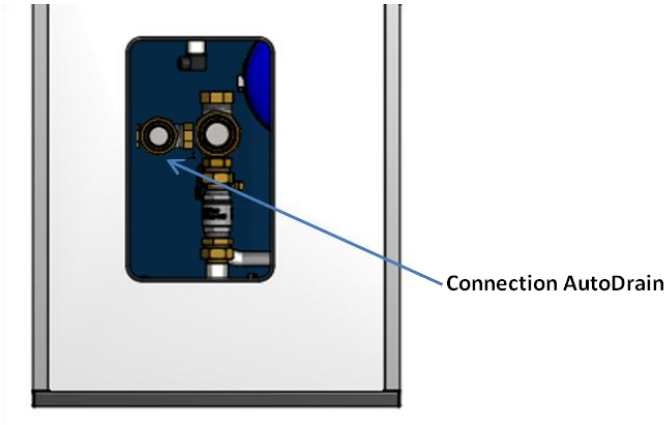

Figure 40: AutoDrain connection

The following settings should be made in the *CONNECT* control unit to activate and parameterise the AutoDrain.

Available Yes/No	Defines the operating mode, whether or not an AutoDrain function is available. When activated, a corresponding icon is displayed in the user interface.

Address	Defines the association between *CONNECT* control and the ball valve of the AutoDrain function. The bus address can be found on the type plate of the ball valve. Setting values for ball valve: 1-9 Setting value for solenoid valve: Relay
Empty the tank up to	Defines the filling level in the process water storage tank up until which the AutoDrain function remains activated.
✓	Acceptance of modified values
X	Rejection of modified values

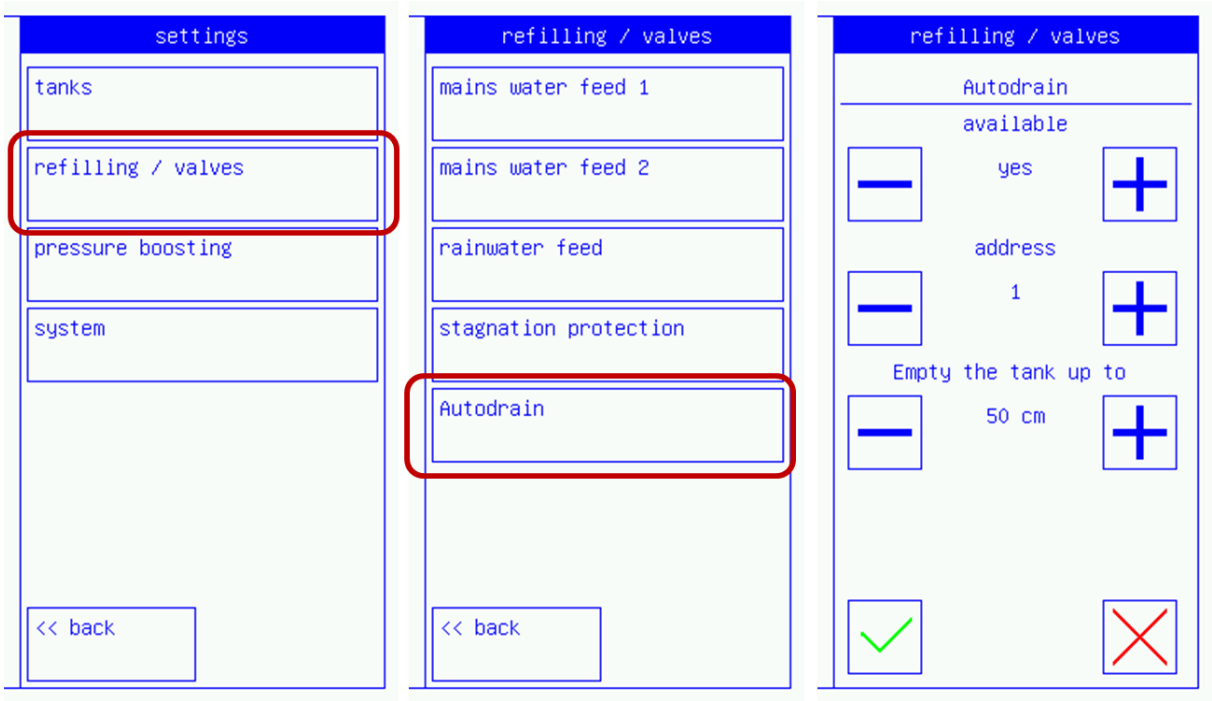

Figure 41: Settings for the AutoDrain-function

10.2. B Rainwater stop

The Rainwater stop prevents the process water storage tank from overflowing if the *Aqua-Center Silentio CONNECT* is installed lower than the maximum water level of the external rainwater cistern.

The solenoid valve of the Rainwater stop is activated / opened in parallel during operation of the rainwater supply pump. When the rainwater supply pump is switched off, the solenoid valve of the Rainwater stop is deactivated / closed.

10.2.1. Hydraulic connection

When ordered directly, the solenoid is already factory-fitted with a *Aqua-Center Silentio CONNECT* on the rainwater supply connection.

Connect and seal the rainwater supply pipe with the rear 3-piece brass threaded connection of the Rainwater stop (see Figure 42). The threaded connection is size DN 25 (1“).

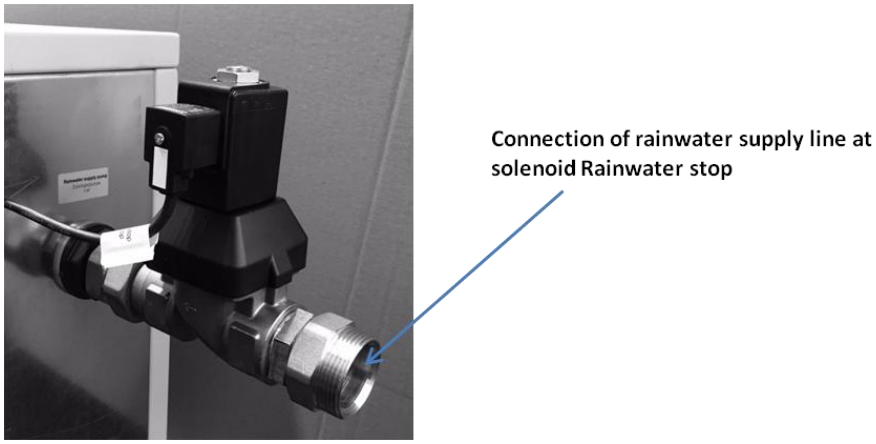

Figure 42: hydraulic connection of the Rainwater stop

Connect the rainwater supply pipe in a de-energised state. No forces may be applied to the brass threaded connection of the system.

Onsite installation of a shut-off valve as well as a detachable threaded connection are recommended..

10.2.2. Electrical connection

The H-distributor to the electrical connection of the rainwater supply pump is factory-fitted when ordered directly with a *Aqua-Center Silentio CONNECT*.

Route the mains supply of the rainwater supply pump up to the *Aqua-Center Silentio CONNECT*, if necessary extend it.

Disconnect the mains cable of the rainwater supply pump shortly after the Schuko plug.

The allen screw of the *CONNECT* control unit is then loosened (see Figure 43) and the CONNECT control unit is popped out.

The mains cable is inserted from the rear into the *Aqua-Center Silentio CONNECT* through the housing opening of the emergency overflow connector.

Connect the mains cable of the rainwater supply pump to the free port of the H-distributor (see Figure 44).

Connection of the network cable to the H-distributor plug is made as follows (see Figure 45):

- Stripping of the network pipe by approx. 60 mm.
- To create a lagging PE connection, the PE conductor should be looped around the live cable. If the line is pulled forcibly, the PE cable is therefore the last thing to be pulled from the clamp.
- Introduce the network line into the Quickon nut and fix the wires into the cable receptacle of the plug body.
- Set up the network line of the supply pump on the Quickon contacts as follows:
    - 1 = L1 (brown wire);
    - 3 = N (blue wire);
    - PE = protective (yellow/green wire)
- Cut the projecting wires flush with wire cutting pliers.
- Screw the Quickon nut to the H-distributor.
- Attach the mains cable with the help of cable ties to ensure trouble-free operation of the system.

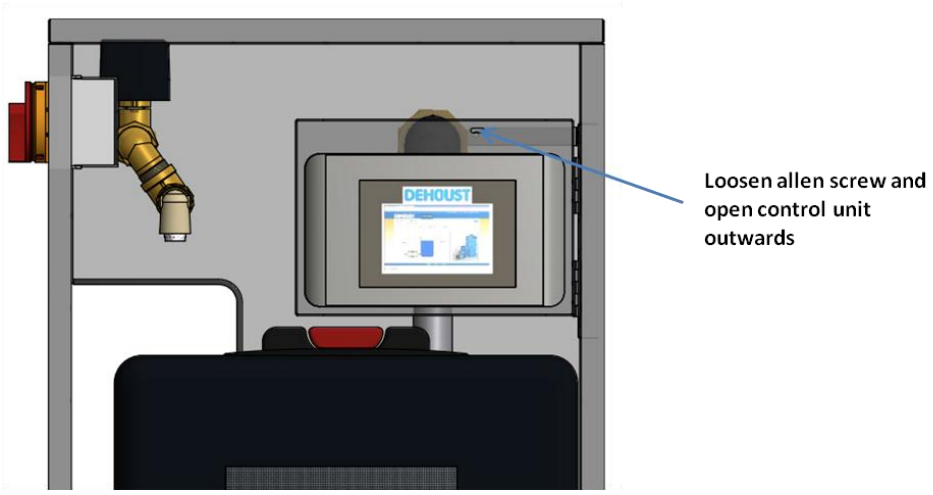

Figure 43: Connection of the rainwater stop, opening of the *CONNECT* control unit

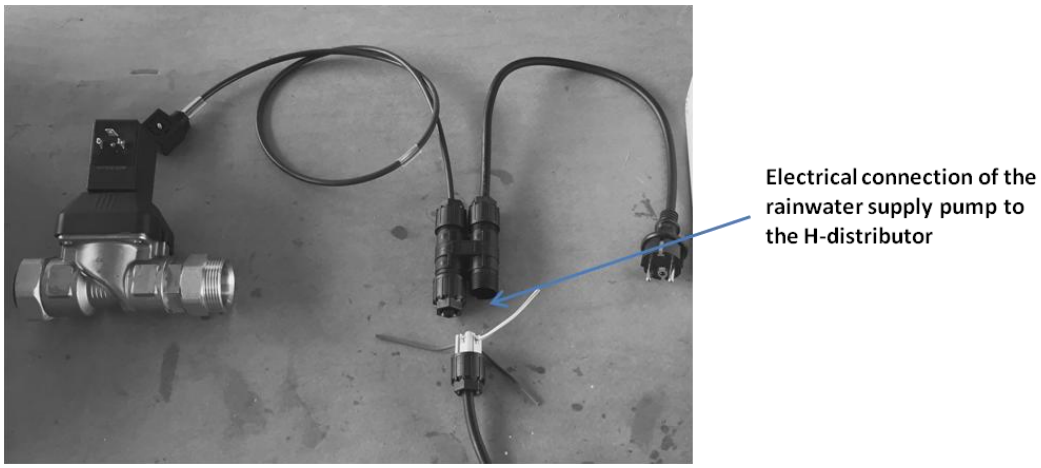

Figure 44:Electrical connection of the rainwater supply pump to the H-distributor

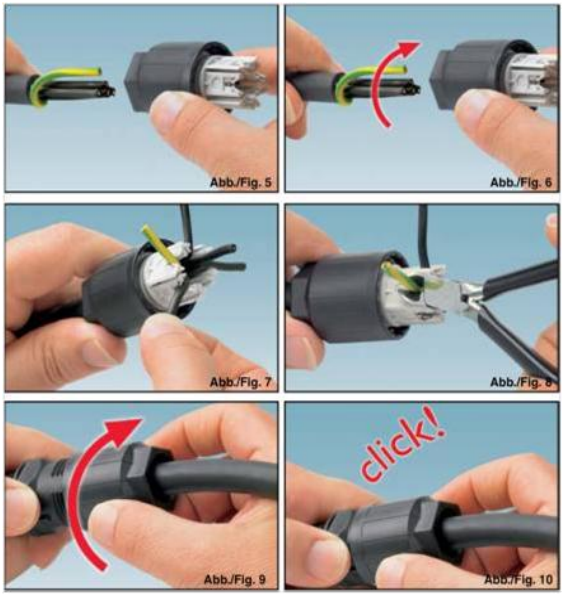

Figure 45: Electrical connection of the mains cable with the Quickon nut of the H-distributor

10.3. Filling level display for external rainwater cistern

An immersion pressure sensor is installed and activated in the Connect control unit to monitor and visualise an external process water storage tank (e.g. rainwater tank). The immersion pressure sensor is suitable for water depths of 1 to 6 metres and has a 25 metre long connection cable.

The accessory consists of the following components:

- 1x stainless steel sensor with 25m connection cable (hose with integrated connection cable)
- 1x stainless steel tube with hose spout
- 1x snap ring
- 1x hose clamp

The special cable must not be laid in the ground without protection! For installation in the ground, it is recommended to use a suitable DN 100 wastewater pipe in which the special cable is installed between the external rainwater cistern and *Aqua-Center Silentio CONNECT*.

Do not allow water to enter the hose of the connection cable! This will result in irreparable damage to the stainless steel sensor. The use of adhesive tape is recommended to seal the end of the connection cable during installation.

Place the stainless steel sensor head horizontally in the external rainwater cistern on the floor. The connection cable is pulled through the protective pipe completely to the *Aqua-Center Silentio CONNECT*, so that the connection cable in the external rainwater cistern can reach the ground.

It is advisable to use a suitable sealing kit at the end of the protective tube for the introduction of the supply lines into the building. The stainless steel pipe with the hose nozzle is fitted to the connection cable as described below (see Figure 46).

The hose of the connection cable is stripped so that at least 10 centimetres of the hose protrudes from the protective tube. The hose clamp is then attached to the hose.

The stainless steel pipe is slipped onto the hose, so that the hose nozzle points towards the hose. The snap ring is placed on the stainless steel pipe when the hose nozzle has been slipped flush onto the hose. The hose clamp is pushed onto the hose nozzle and crimped with suitable pliers.

The connection cable is pushed through the corresponding opening on the seal set using a suitable lubricant. The stainless steel tube is inserted into the seal set as far as it will go.

The connection cable is routed to the *Aqua-Center Silentio CONNECT* and can be shortened accordingly.

Figure 46: Installation of the connection cable with the stainless steel pipe

After that, the allen screw of the *CONNECT* control unit is loosened (see Figure 47) and the *CONNECT* control unit is opened.

The connection cable is inserted into the *Aqua-Center Silentio CONNECT* from the rear through the opening in the housing of the emergency overflow pipe.

Connect the connection cable to the correspondingly marked cable plug on the *CONNECT* control unit (see Figure 48). Connect the cable in the connector as shown in Figure 49.

Pin assignment: Pin 1 + Pin 2

To enable the filling level display to function, activation must take place in the *CONNECT* control unit as shown in Figure 50.

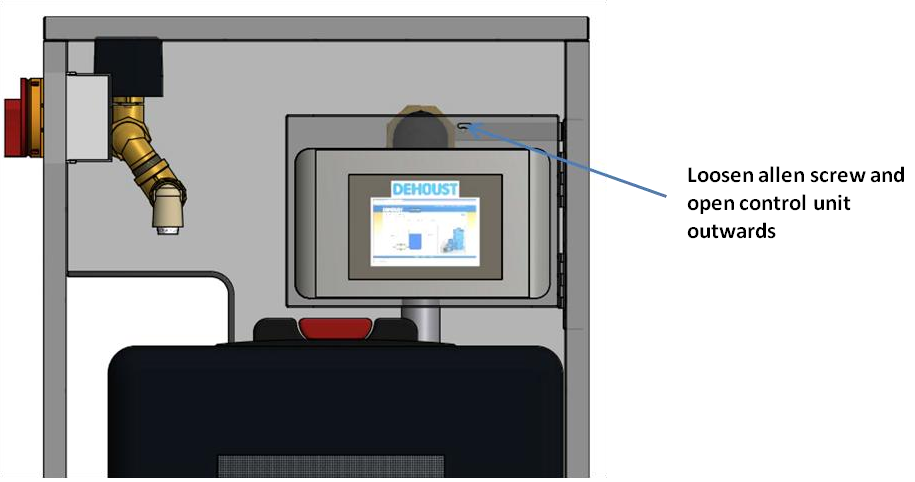

Figure 47: Connection of the connection cable, opening of the *CONNECT* control unit

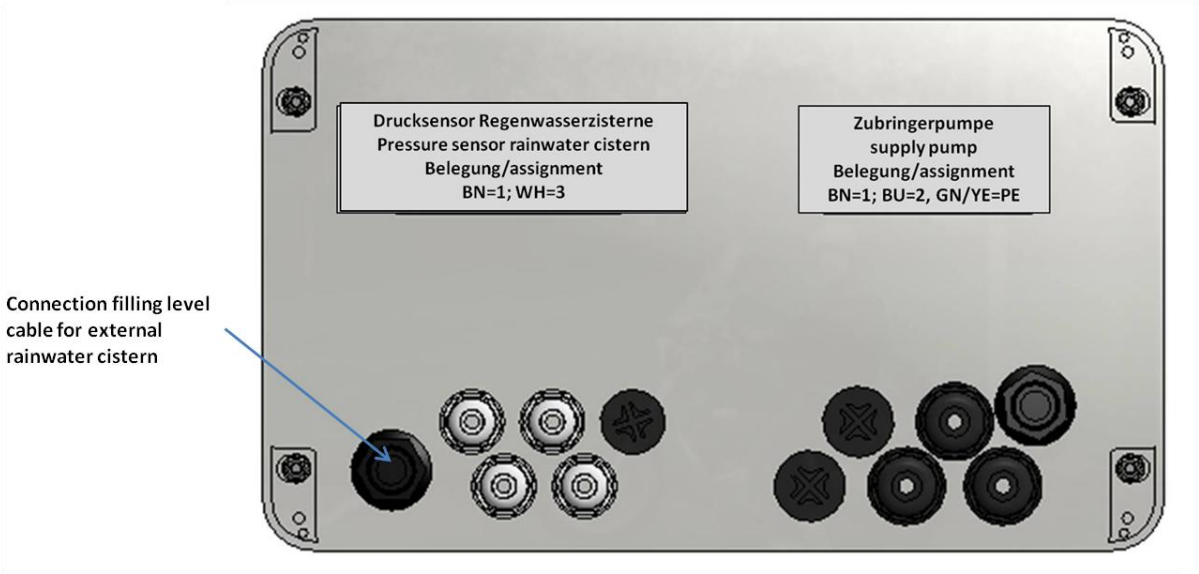

Figure 48: electrical connection of the filling level cable onto the *CONNECT* control unit

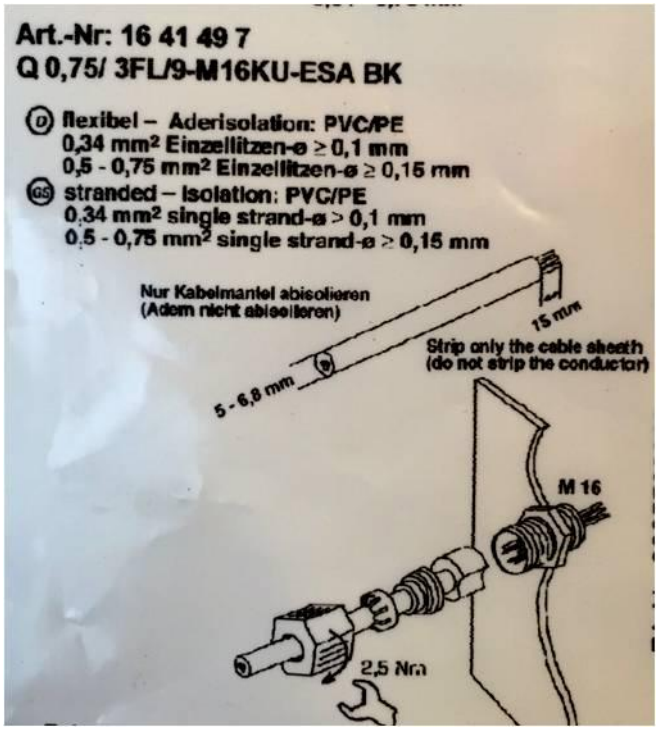

Figure 49: Connection of the filling level cable to the plug contact

Figure 50: Activation of the sensor for the visualisation of the filling level