

FOR INTERNAL USE ONLY!

SERVICE MANUAL

Condair HumiLife - The flexible room solution
Condair MN

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Table of Contents

1	Introduction	5
2	For your safety	6
3	Commissioning	8
3.1	Installation of humidifier units (flush-mounting)	8
3.2	Assembly and connection of the drain module (only with peripheral drainage)	14
3.3	Install water filter(s) and connect water hoses	17
3.4	Connection of the spray loop hoses to the central unit	19
3.5	Perform pressure test on the water system	19
3.6	Connecting the CAN bus cables to the central unit	20
3.7	Connection of the optional RO-HB reverse osmosis unit	24
3.8	Flush the water feed line and connect to the central unit	26
3.9	Connect the control cable(s) of the booster module in the central unit(s)	27
3.10	Connect the reverse osmosis system Condair RO-HB to the power supply	29
3.11	Connect the LAN cable to the central unit	29
3.12	Connect the central unit to the mains with the mains plug	29
3.13	Commissioning and transfer	29
3.13.1	Update of the control software before commissioning	29
3.13.2	Commission the system with the MN service application	29
3.13.3	Connect the gateway	35
3.13.4	User app	39
3.13.5	Transfer of the system	39
4	Service and replacement of components	40
4.1	Notes on servicing the Condair MN / service intervals	40
4.1.1	Taking water samples	41
4.1.2	Replacing UV lamp and check/clean quartz glass	43
4.1.3	Replacing the filter cartridge of the microfilter	46
4.1.4	Replace water filter(s)	47
4.1.5	Disinfect water system	48
4.1.5.1	Depressurize the water system	48
4.1.5.2	Disinfect the water system of the Condair MN	51
4.1.5.3	Disinfect the Condair RO-HB reverse osmosis system	61
4.1.5.4	Put the system into operation	71
4.1.6	Check the air pressure of the flow tank of the Condair RO-HB reverse osmosis system	71
4.2	Reset the maintenance counter	72
4.3	Replacement of components	73
4.3.1	Preparing the system for component replacement	73
4.3.2	Resetting the system to normal operating mode after replacing components	73
4.3.3	Replacing the water sensor modules	74
4.3.4	Replacing the drain modules	75
4.3.5	Replacing the valve block	76
4.3.6	Replacing the inlet valve	77
4.3.7	Replacing the control box	78

4.3.8	Replacing the humidifier unit	81
4.3.9	Replacing the humidifier unit's humidity sensor	82
4.4	Updating the control software	83
5	Malfunctions	85
5.1	Fault messages	85
5.2	Water system	86
5.3	Hydraulic	87
5.4	Water quality	87
5.5	Electronics	89
5.6	Re-commissioning process of the Condair MN after error message "Last flush XX too long ago" (last flush more than 48 hours ago)	92
5.6.1	Fault messages "Last flush XX too long ago"	92
5.6.2	Possible causes of the fault messages "Last flush XX too long ago"	93
5.6.3	States and measures	93
6	Appendix	94
6.1	Flushing section determination	94
6.2	Tools, kits, software and materials needed for commissioning and service	95

1 Introduction

This service manual is intended for trained Condair service technician who has a good knowledge of the Condair MN, who knows the installation manual and the operation manual, and who is familiar the hazards associated with handling the device.

If the Condair MN system is operated with the optional reverse osmosis system Condair RO-HB, the english version of the installation and operation manual of the reverse osmosis system Condair RO-HB can be downloaded using the following QR code:



Symbols



CAUTION!

The signal word "CAUTION", appearing in combination with the hazard symbol in a circle, indicates information given in this service manual which, if ignored, could lead to **damage and/or the malfunctioning of the device or other material assets**.



WARNING!

The signal word "WARNING", appearing in combination with the general hazard symbol, indicates safety and hazard information given in this service manual which, if ignored, could **lead to personal injury**.



DANGER!

The signal word "DANGER", appearing in combination with the general hazard symbol, indicates safety and hazard information in this service manual, which, if ignored, could result in **serious personal injury, including death**.

2 For your safety

General

The service technicians assigned to working on the Condair MN must have read and understood this service manual as well as the installation instructions and the operating instructions of the Condair MN before starting work on the unit.

An understanding of the contents of the service manual as well as the installation and operating instructions is a basic prerequisite for protecting personnel from danger, avoiding improper operation and thus for the safe and proper operation of the Condair MN.

Personnel qualifications

All work described in this Service Manual must be performed only by trained Condair service technicians.

It is assumed that the service technicians are familiar with and will abide by the regulations on occupational health and safety and accident prevention.

Hazards that may arise from the Condair MN:



DANGER!

Risk of electrocution

The Condair MN's central unit runs on mains power. If the central unit is open, live parts may be touched. Touching live parts may cause severe injury or death.

For this reason: Before starting work on the central unit, disconnect it from the mains power supply (remove plug from socket).



Warning!

System contamination hazard

If the Condair MN is switched off, there is a risk of the water supply line and the internal water system becoming contaminated, as the water system is then not being flushed regularly.

For this reason: The Condair MN must not be switched off after being commissioned. This will ensure that the water system is purged at regular intervals, and any contamination is counteracted.



Warning!
UV-C radiation

A UV lamp is built into the Condair MN's central unit. In principle this should pose no risks, as it is installed in a radiation-proof housing. If the UV lamp is operated outside of this housing, harmful UV-C radiation may be released. This may cause damage to the eyes and skin.

For this reason: the UV lamp must never be operated outside of the protective housing. The central unit must be switched off and disconnected from the mains power supply (remove the plug from the socket) before the central unit is opened.



Warning!

Waste from damaged UV lamps may lead to injury and cause damage to human health and harm to the environment.

For this reason: the waste from damaged UV lamps must be disposed of in accordance with local provisions on hazardous substances and the site of the damage must be cleaned properly.



CAUTION!

Leaky or defective water pipes/connections may lead to water damage.

For this reason: After replacing components, make sure the system is tight.

3 Commissioning

3.1 Installation of humidifier units (flush-mounting)

The installation of humidifier units described below assumes that the preliminary installation work has been completed, that the appropriate holes have been drilled at the ceiling or wall junction points of the humidifier units, and that the hoses and CAN bus cables have been retracted.

The humidifier units are to be mounted as follows.

1a. Mount the installation ring (for flush mounting without catch springs only):

- Using two screws, mount the installation ring at the intended position in such a way that it is concentric with the hole on the ceiling or wall. Make sure to use screws that are suitable for mounting on the respective surface.

Important: If mounting on the ceiling, the installation ring must be mounted in such a way that the recess for the Humstick in the installation ring points towards the middle of the room. If mounting on a wall, the installation ring must be mounted in such a way that the designation "UP" in the mounting ring points upwards!

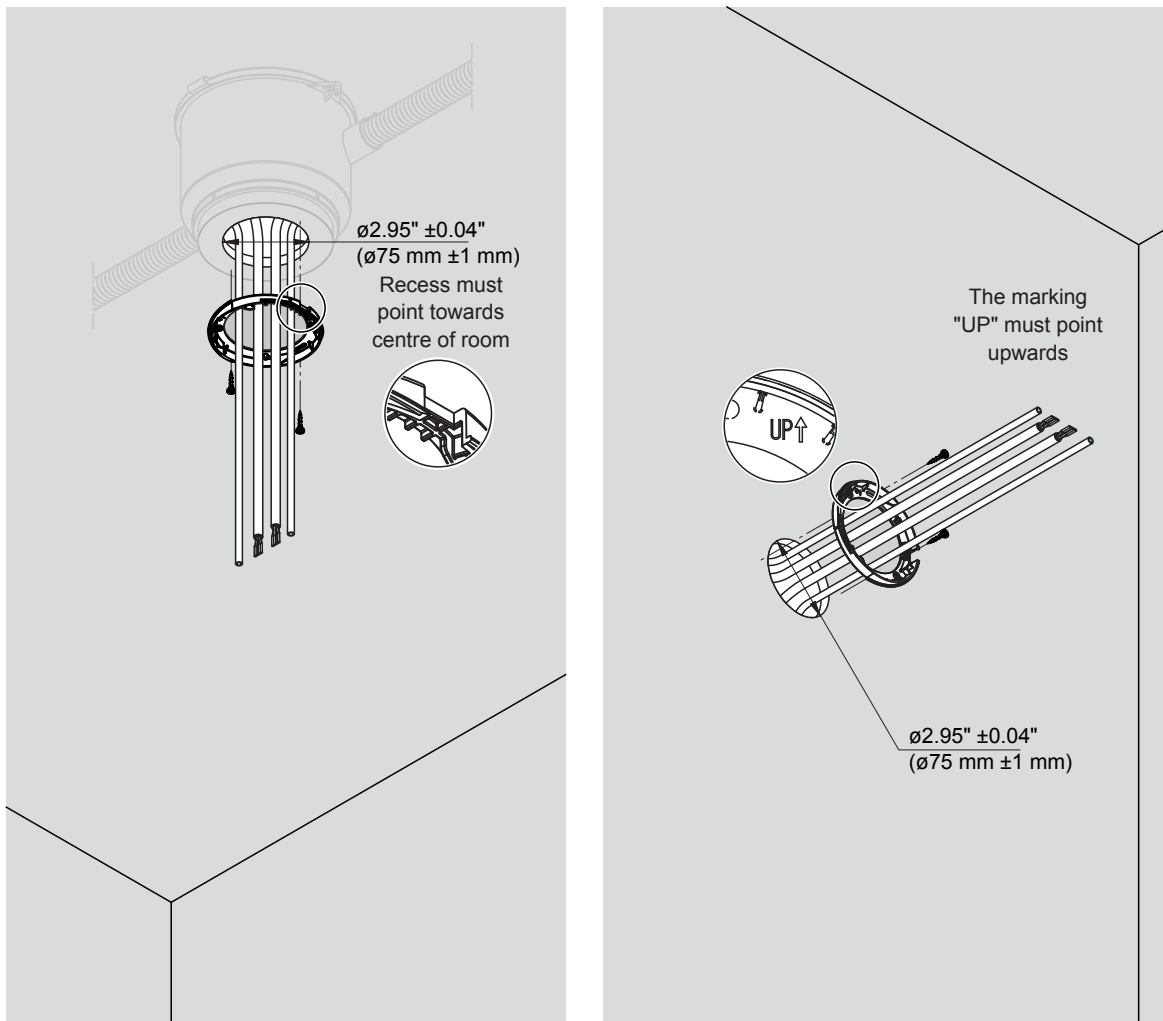


Fig. 1: Mount the installation ring.

1b. Fix the installation ring and catch springs to the humidifier unit (for flush mounting with catch springs only):

- Fix the installation ring to the humidifier unit with two screws.
Important: Mount the installation ring so that the recess for the Humstick in the installation ring is on the connection side of the Humstick of the humidifier unit!
- Insert the catch springs on both sides of the humidifier unit as far as they will go into the holes provided.

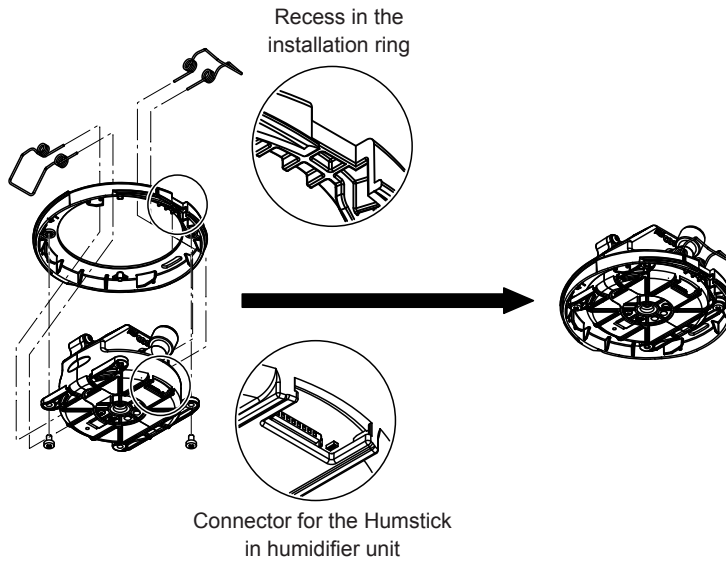


Fig. 2: Fixing the installation ring and catch springs to the humidifier unit

1c. **Mount the mounting plate (only for surface mounting):**

- Using four screws, mount the mounting plate to the ceiling or wall in the intended position. Make sure to use screws that are suitable for mounting on the respective surface.
Important: If mounting on the ceiling, mount the mounting plate with the "Humstick" side facing the centre of the room. If mounting on a wall, the mounting plate must be mounted so that the flattened side of the mounting plate points upwards!

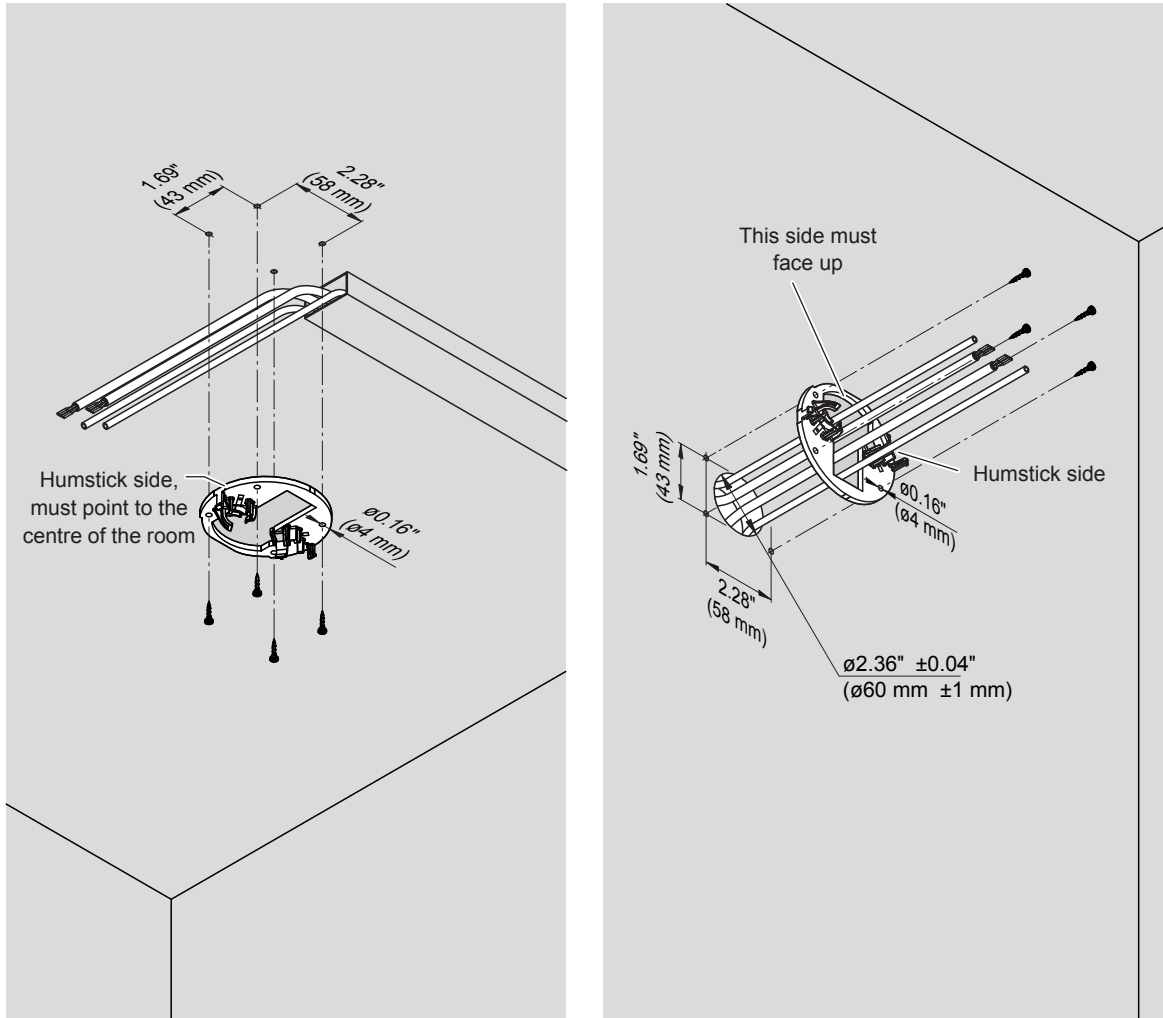


Fig. 3: Mount the installation ring.

2. Cut the CAN bus cables and hoses to the required length of 11.81" (300 mm).

- Prepare the CAN bus cables for connection to the socket according to [Fig. 4](#).

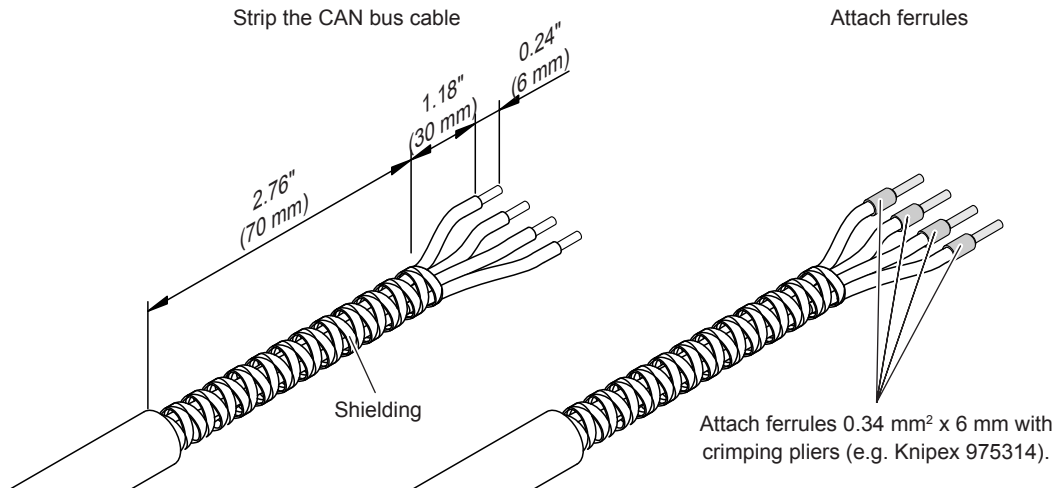


Fig. 4: Prepare cable

- Connect the **black** connector plugs supplied to the CAN bus cables according to the connector assignment below.

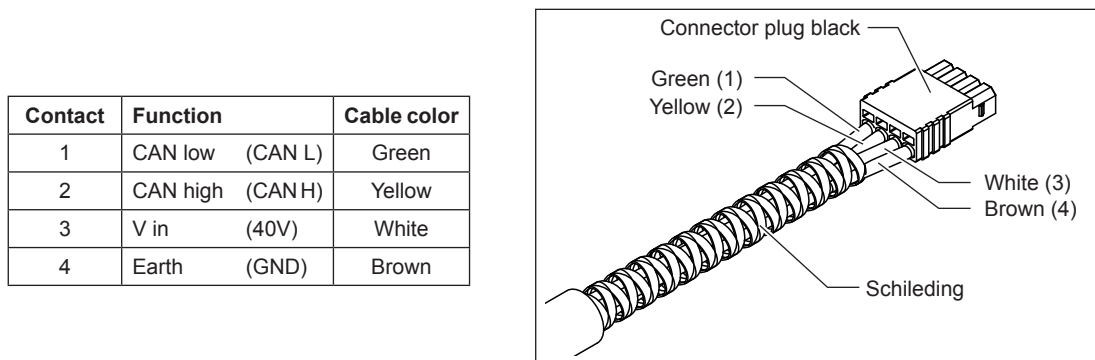


Fig. 5: Connect CAN bus cable

- Connect $\varnothing 0.24"$ ($\varnothing 6$ mm) hoses and CAN bus cable to the humidifier unit.

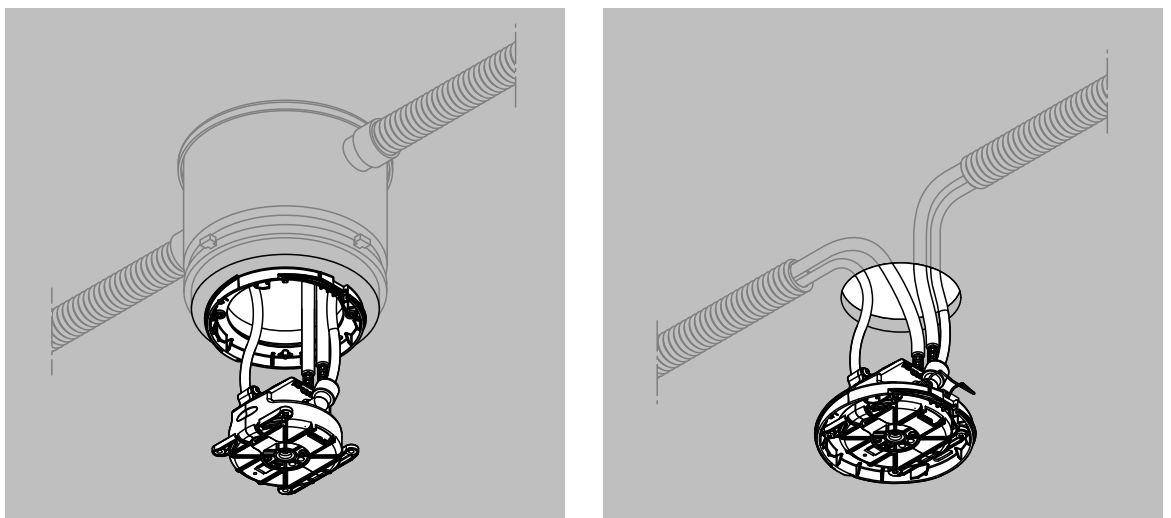


Fig. 6: Connect CAN bus cables and hoses to the humidifier unit

- Push the hoses into the hose couplings as far as they will go.
Note: Correctly installed hoses can no longer be pulled out without pressing in the clamping ring.
- Fix the self-adhesive cable tie socket (service accessory) to the side of the humidifier unit with the cable connections as shown in [Fig. 7](#). Plug in the two cables and secure them to the cable tie socket with a cable tie.
Important: Tighten the cable tie so that the shieldings of the two cables are electrically connected (check with a continuity tester).

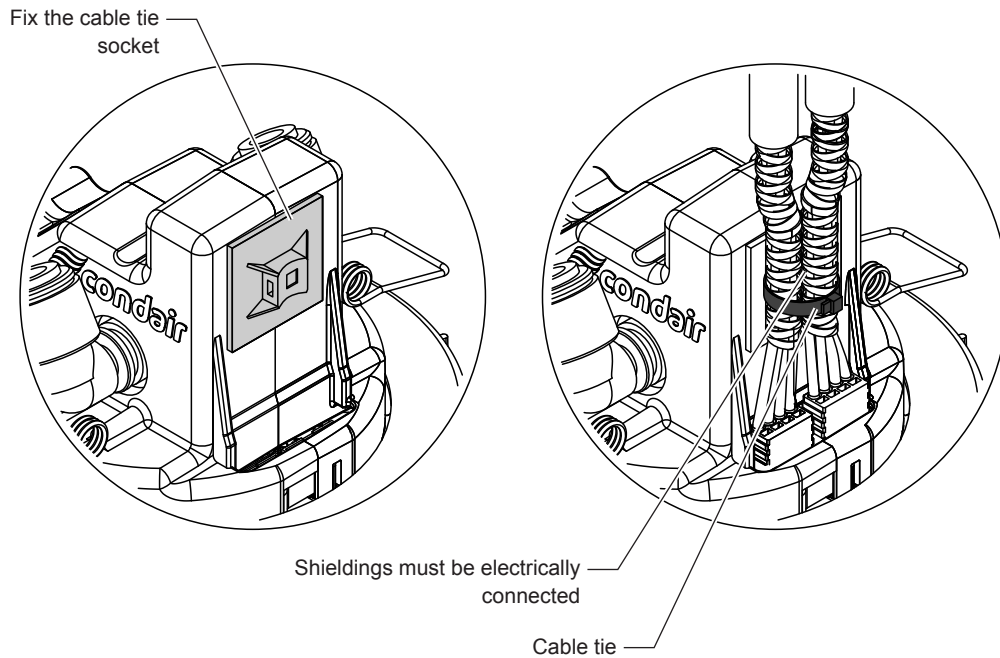


Fig. 7: Connect the CAN bus cable to the humidifier unit

6. Insert the Humstick (supplied separately) into the humidifier units.

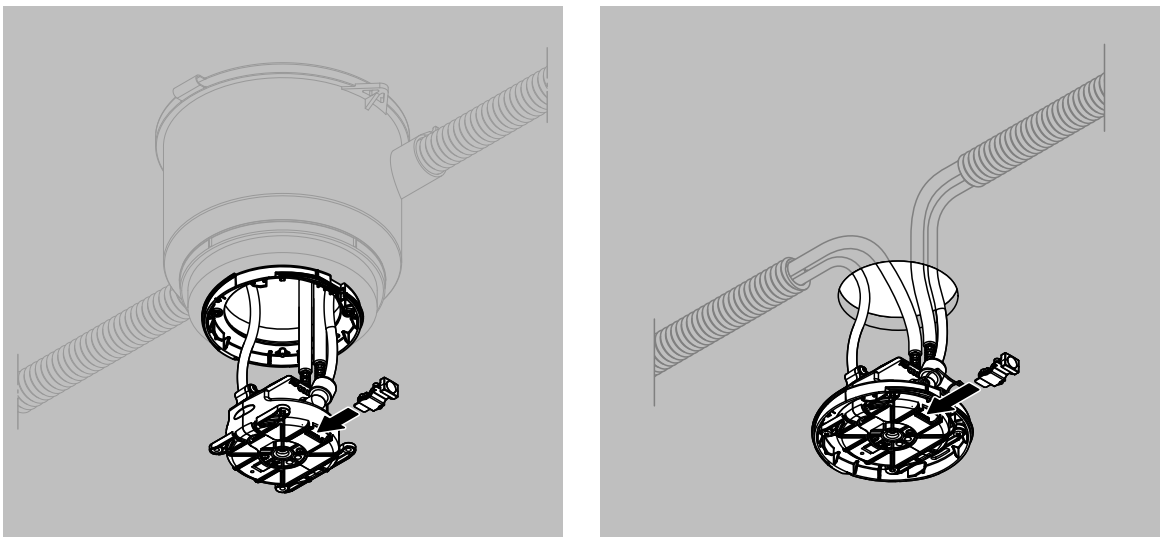


Fig. 8: Insert Humstick

7. Configure spray zones

Each spray loop of the Condair MN can be divided into different spray zones at the bottom of the humidifier unit via the ASI (Area Start Indicator) switch. The spray zones are always configured in a clockwise direction. This ensures that, in the event of any subsequent troubleshooting, the sequence of the humidifier units is clear.

Set the ASI switch to the "ON" position for the first humidifier unit in a zone and "OFF" for each additional humidifier unit in the same zone (see also [Fig. 9](#)).

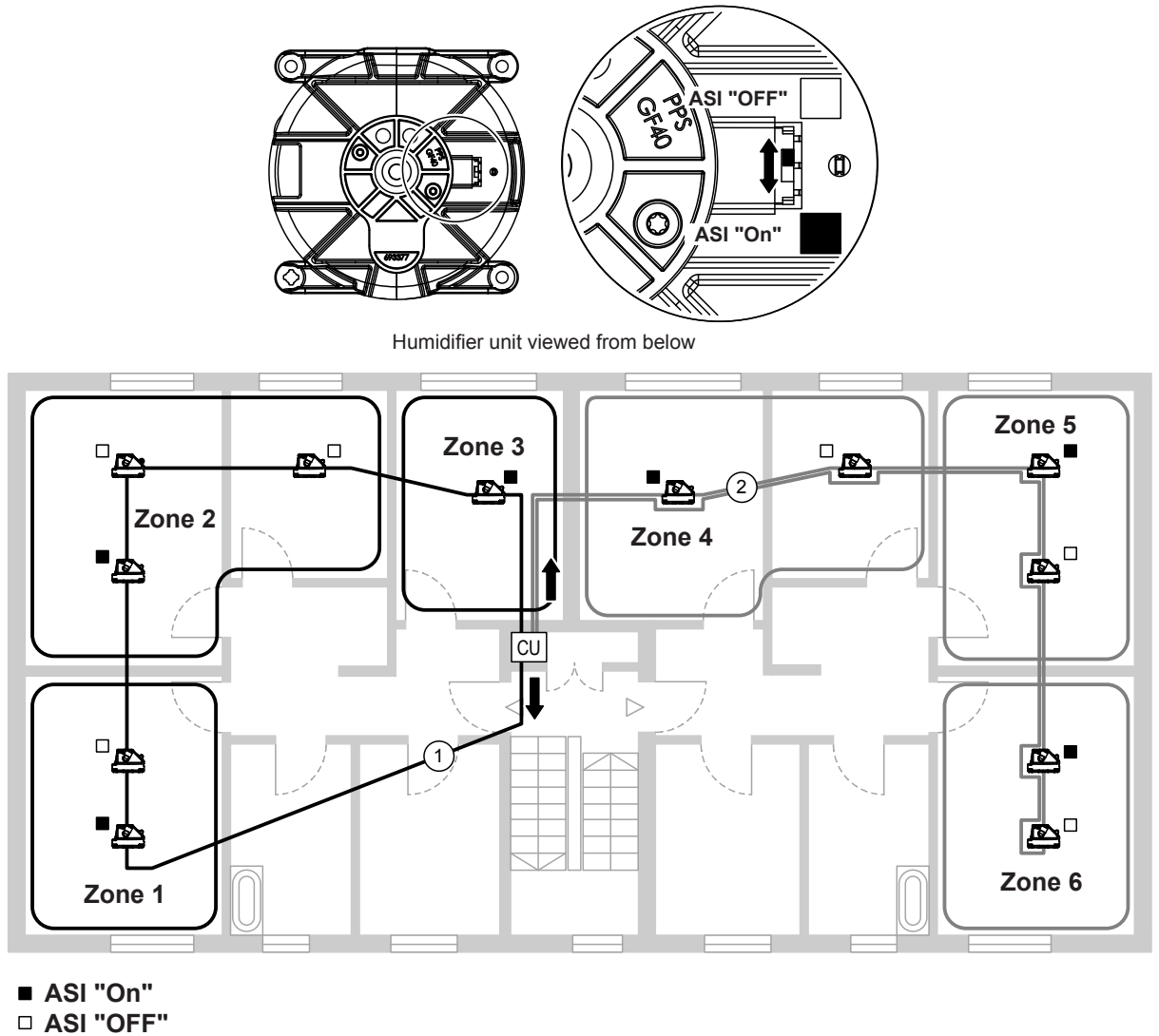


Fig. 9: Zone configuration

3.2 Assembly and connection of the drain module (only with peripheral drainage)

Ex factory the mounting plate(s) and the drain module(s) are installed and connected in the central unit. For the peripheral mounting of the drain module(s), the mounting plate(s) and the drain module(s) must be removed from the central unit.

1. Make sure that the power cable of the central unit is unplugged.
2. Remove the front panel of the central unit.
3. Disconnect the hoses to the drain module (s) from the connection (s) in the housing base and the T-connector(s). Then remove the emptying module (s) "A" together with the hoses and elbow connectors "B".
4. Disconnect hoses and elbow connectors "B" from the drain module(s) "A".
5. Loosen screw(s) and remove the mounting plate(s) "C".
6. Close the open connection(s) on the T-connector(s) with blind plug(s) "D".
7. Only for central unit with two spray loops: create hose connections "E".
8. If no further work needs to be carried out on the central unit, attach and lock the front cover of the central unit.

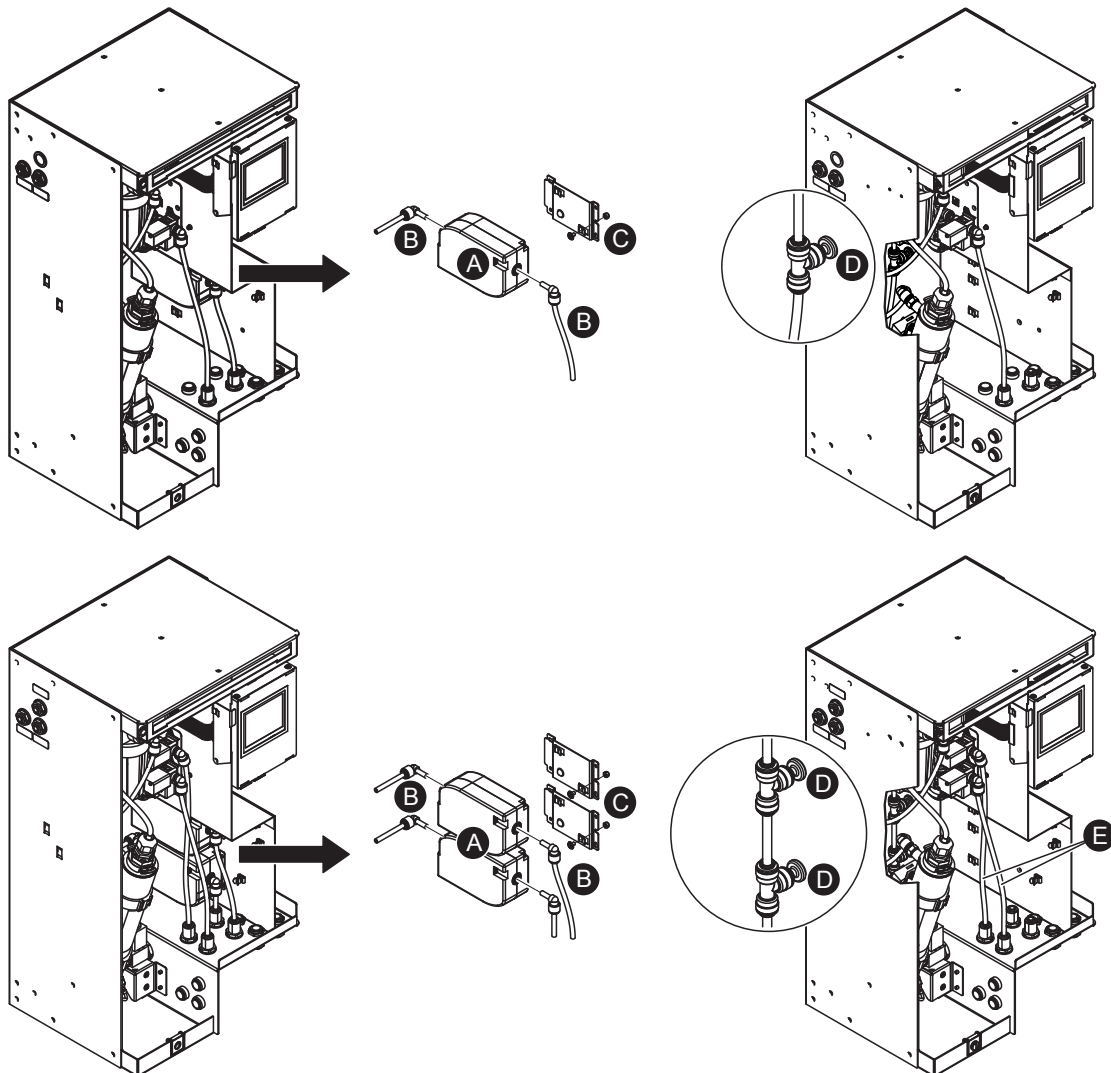


Fig. 10: Removal of the drain modules

Installation of the peripheral drain module

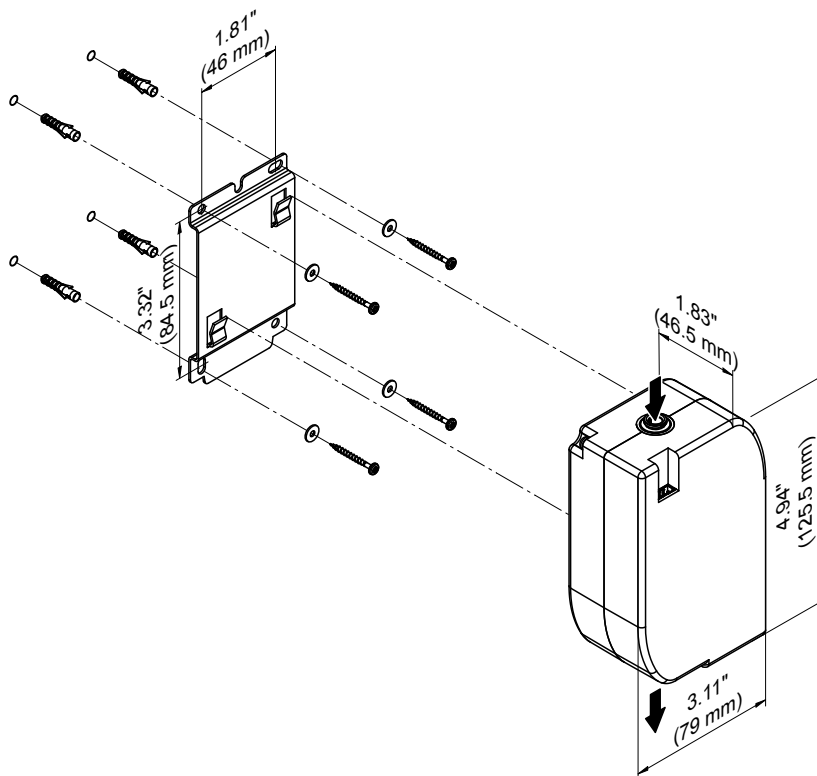


Fig. 11: Installation of the peripheral drain module

1. Mark the four attachment points of the mounting plate at the desired location using a level.
2. Secure the mounting plate to the appropriate place with suitable mounting hardware (not supplied). Before tightening the screws, align the mounting plate horizontally using a level.
3. Hook the drain module into the tabs of the mounting plate and press down until it stops.

Important: Record the height difference in metres between the peripheral drain module(s) and the central unit and convert to "centibar". This value must be entered when commissioning the system in the MN service application (see [Section 3.13.1](#)).

Example:

- The drain module for spray loop 1 is **16.40 ft (5 m) above** the central unit
- The drain module for spray loop 2 is **9.84 ft (3 m) below** the central unit

This results in the following input values in centibar:

- Input value for water pressure difference for spray loop 1: **50**
- Input value for water pressure difference for spray loop 2: **-30**

Connect peripheral drain module

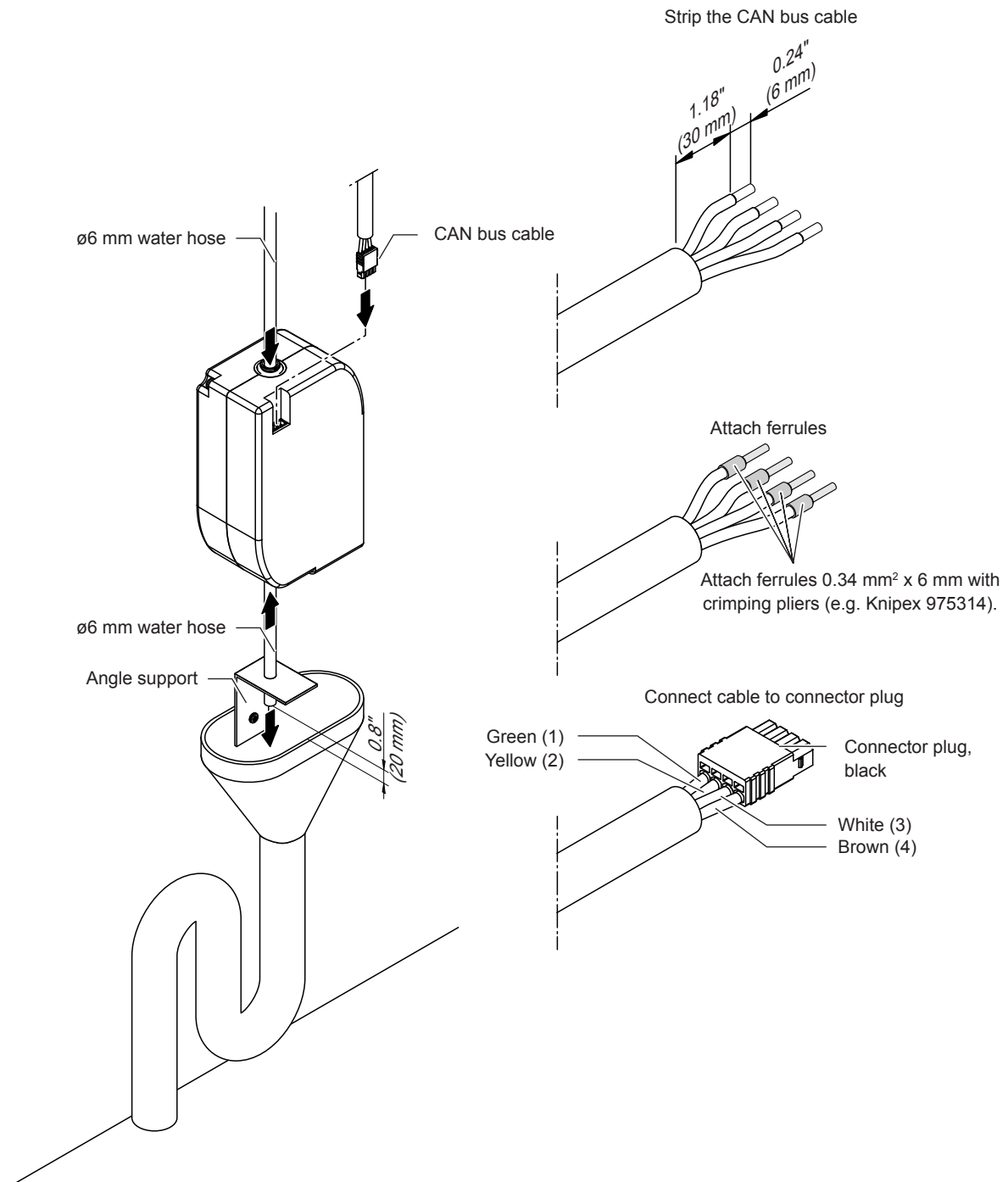


Fig. 12: Connect peripheral drain module

1. Connect hoses according to [Fig. 12](#) appropriately.
 - Important: **Push water hoses all the way into the hose couplings. Correctly mounted hoses cannot be pulled out without depressing the clamping ring.**
 - Important: **The flushing process takes place under pressure. You must therefore attach the outlet pipe so that it cannot shift during operation (e.g. with angle support and drill).**
 - The end of the outlet pipe must stop 0.79" (2 cm) above the discharge funnel and may not touch it under any circumstances.
2. Prepare the CAN bus cable, attach the plug to the CAN bus cable (see [Fig. 12](#)) and connect the CAN bus cable to the drain module.

3.3 Install water filter(s) and connect water hoses

Install water filter cartridge

The water filter(s) are supplied in a separate package and must be installed and connected in the filter housing on site. Proceed as follows:

1. Remove the front cover of the housing.
2. Slide the filter adapter upwards until it stops.
3. Remove the cap at the top of the water filter.
4. Place the water filter under the filter adapter so that the label faces forward and the notch in the water filter is under the left groove on the filter adapter.
5. Slide the filter adapter downwards while rotating the water filter anti-clockwise.
6. Turn the water filter anti-clockwise until it stops.
7. Repeat steps 1 through 6 for the second water filter (if present).

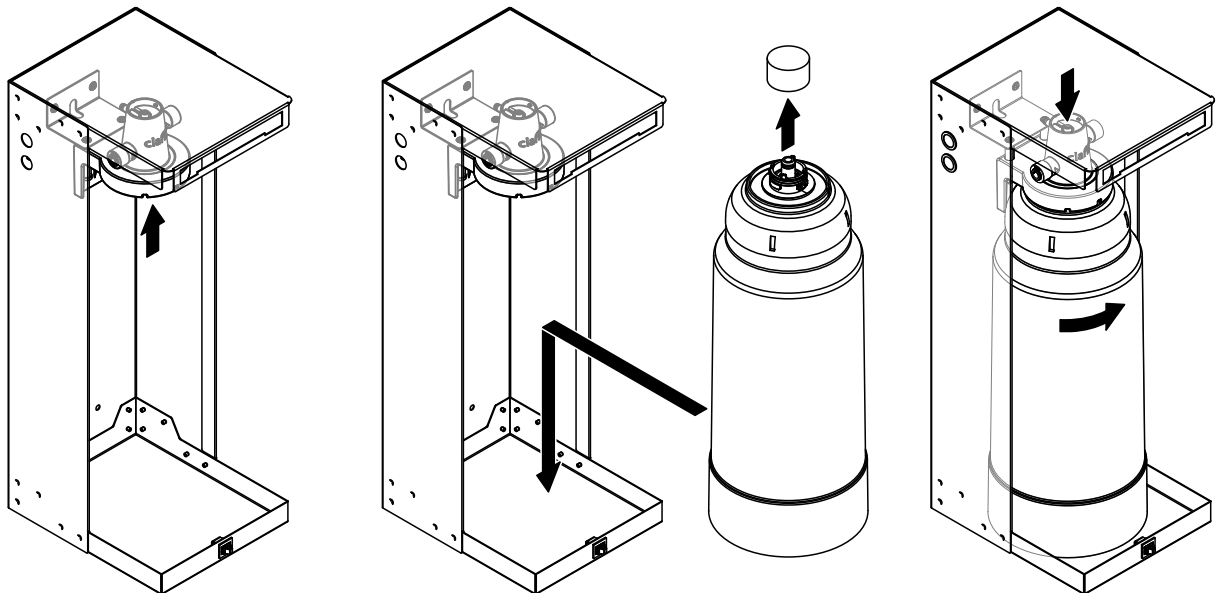


Fig. 13: Installation of the water filter

8. Connect the water hoses between the filter adapter and the central unit according to [Fig. 14](#) or [Fig. 15](#).

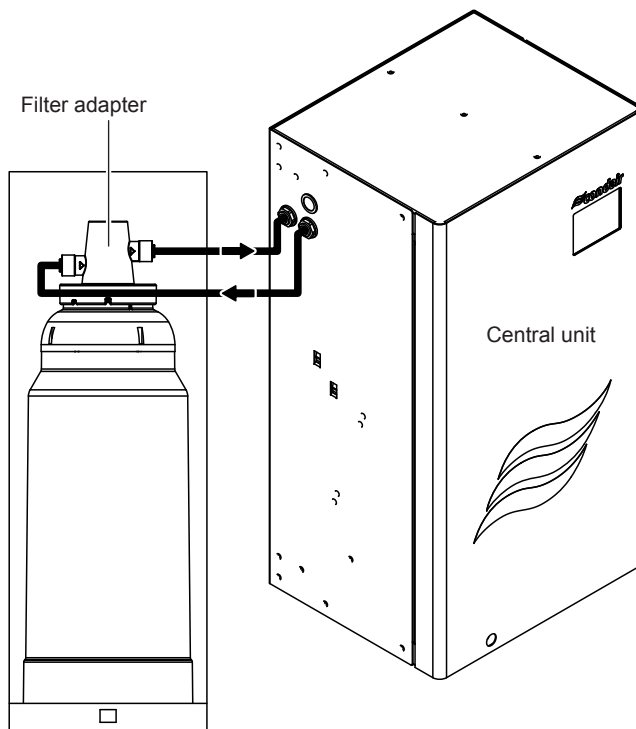


Fig. 14: Connection diagram with one water filter

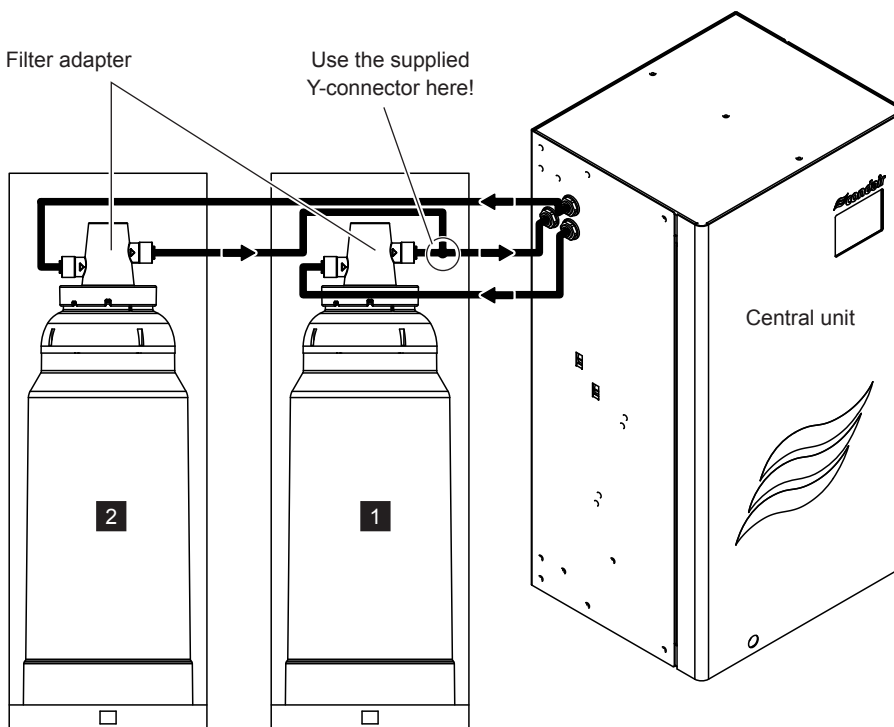


Fig. 15: Connection diagram with two water filters

10. Only when there are two water filters: Label filter housing inside with "1" and "2".
11. Replace the front cover(s) of the housing(s).

3.4 Connection of the spray loop hoses to the central unit

1. Connect the spray loop hoses from spray loop 1 and, if present, spray loop 2 to the central unit according to [Fig. 16](#).

Important: If the spray loop hoses are not marked or are marked insufficiently, label them according to [Fig. 16](#).

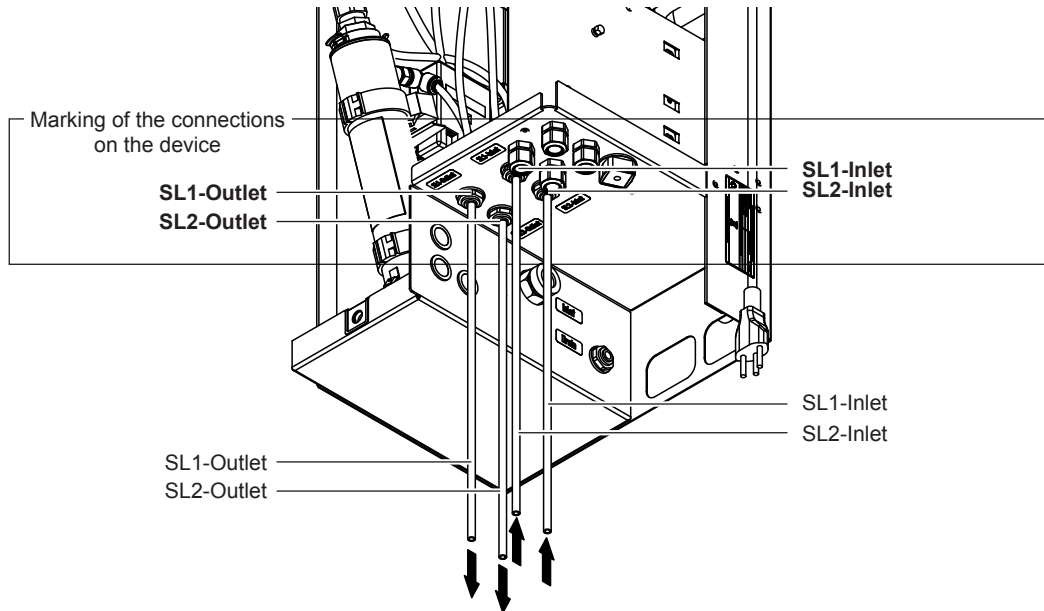


Fig. 16: Connection of the spray loop hoses

3.5 Perform pressure test on the water system

1. Remove inlet pipe (spray loop 1 or 2) from the central unit.
2. Connect the inlet pipe to the hand air pump of the service kit.
3. Set spray loop with the hand air pump under a pressure of 29.01 - 72.52 psi (3 - 5 bar).



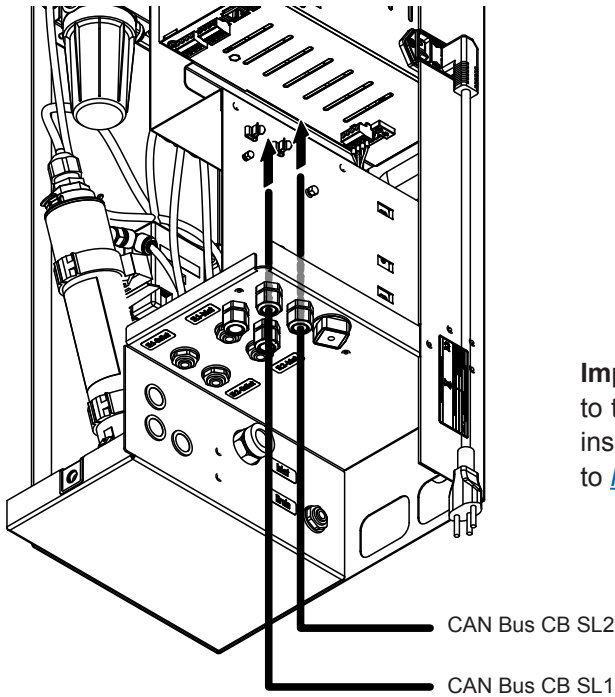
CAUTION!

The maximum pressure for the pressure test must under no circumstances exceed 6 bar. Otherwise, system components may be damaged.

4. If the pressure remains constant for 30 s, the system is **tight**
If the pressure drops within 30 s, or if no pressure can be built up at all, the water system is not **tight**
If this should occur, find and correct the leakage and repeat the pressure test.
5. Repeat the pressure test for the second spray loop, if present.
6. Reconnect the inlet hoses to the central unit (see [Fig. 16](#)).

3.6 Connecting the CAN bus cables to the central unit

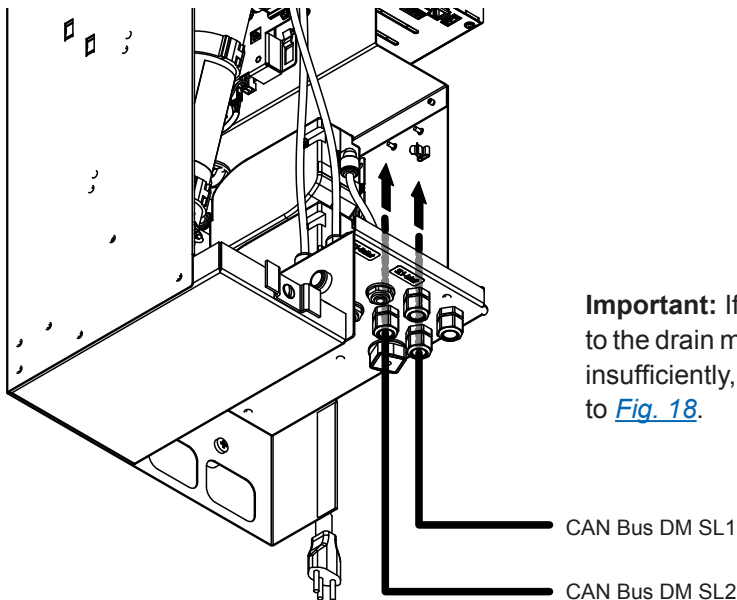
1. Route the CAN bus cable to the central unit.
 - Guide the CAN bus cable to be connected to the Control Box (CB) through the respective cable glands into the central unit according to [Fig. 17](#).



Important: If the CAN bus cable to be connected to the Control Box are not marked or are marked insufficiently, label the CAN bus cables according to [Fig. 17](#).

Fig. 17: Insert CAN bus cables to be connected to the Control Box into the central unit

- Guide the CAN bus cable to be connected to the drain modules (DM) through the respective cable glands into the central unit according to [Fig. 18](#).



Important: If the CAN bus cable to be connected to the drain modules are not marked or are marked insufficiently, label the CAN bus cables according to [Fig. 18](#).

Fig. 18: Insert CAN bus cables to be connected to the drain modules into the central unit

2. **Connect the plug to the CAN bus cable(s).**

- Prepare the CAN bus cable(s) to be connected to the Control Box according to [Fig. 19](#).

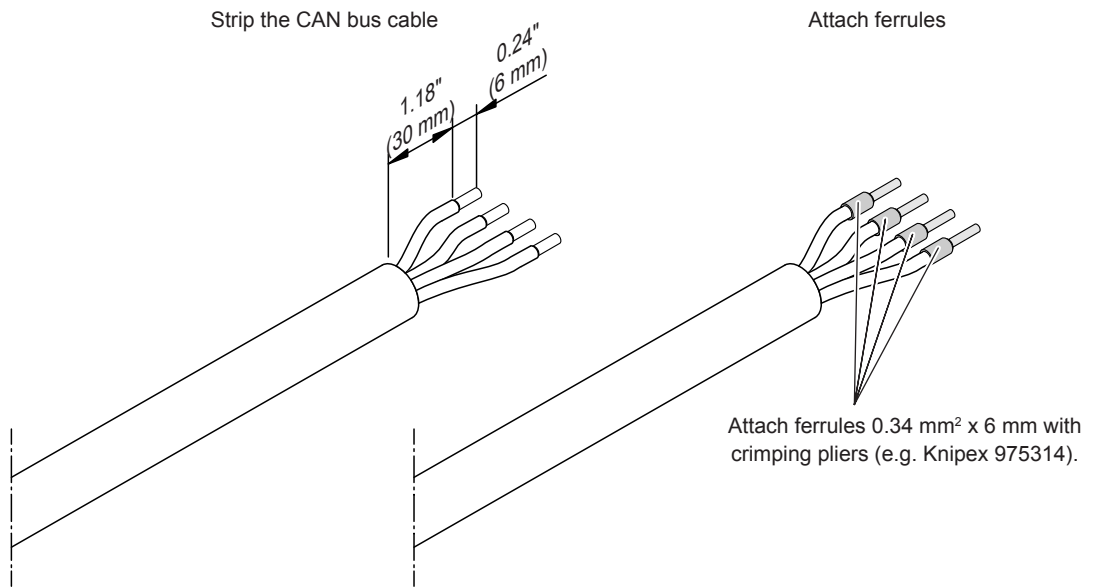


Fig. 19: Preparing cable(s)

- Connect the supplied **green** connector plugs to the CAN bus cables according to the connector assignment below.

Contact	Function	Cable color
1	CAN low (CAN L)	Green
2	CAN high (CANH)	Yellow
3	V in (40V)	White
4	Earth (GND)	Brown

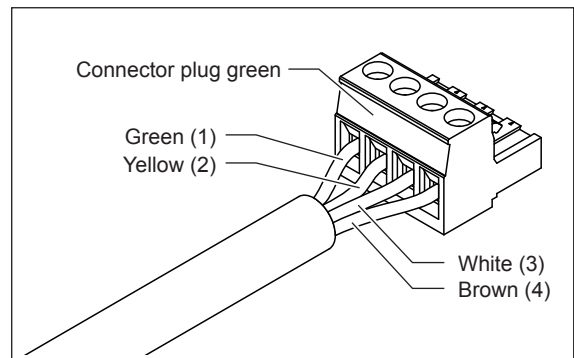


Fig. 20: Connecting the plug(s) to the CAN bus cable(s)

- Prepare the CAN bus cable(s) to be connected to the drain module(s) according to [Fig. 21](#).

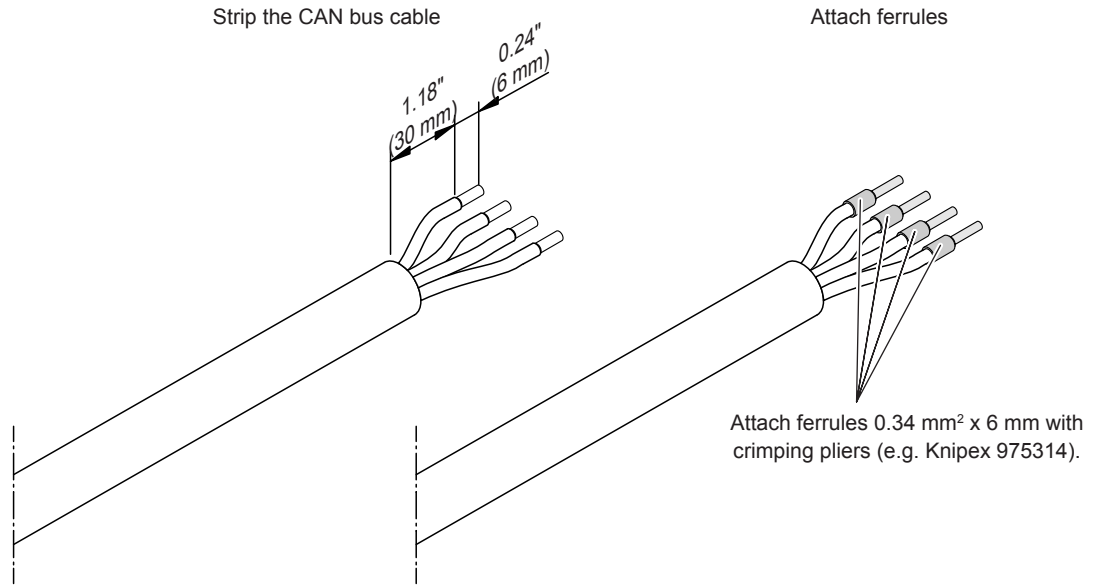


Fig. 21: Preparing cable(s)

- Connect the supplied **green** connector plugs to the CAN bus cables according to the connector assignment below.

Contact	Function	Cable color
1	CAN low (CAN L)	Green
2	CAN high (CANH)	Yellow
3	V in (40V)	White
4	Earth (GND)	Brown

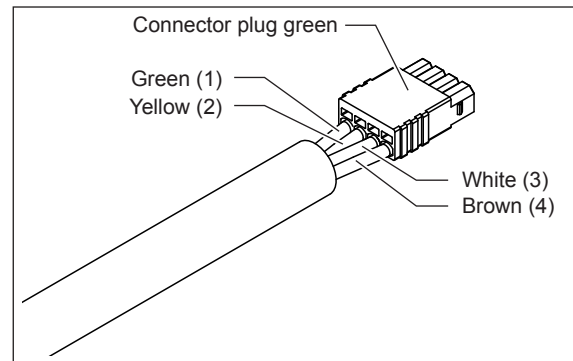


Fig. 22: Connecting the plug(s) to the CAN bus cable(s)

3. Before connecting the CAN bus cables, check the cables for continuity.

- To do this, use a multimeter to check the connections with wires of the same color, one after the other (green, yellow and brown; white does not have to be checked) on the green plug and on the black plug of the CAN bus cables of the same spray loop (1 or 2) for continuity. If the plugs are connected correctly, the green, yellow and brown strands must show continuity (Note: The white strands are controlled by the signal of the humidifier units and only have continuity in operation). Otherwise, all cable connections must be checked again and connected correctly.

4. **Connect the CAN bus cables in the central unit:**

- Connect the CAN Bus cable from spray loop 1 and, if present, spray loop 2 to the corresponding ports on the control box (CB) of the central unit according to [Fig. 23](#).
Important: At the position indicated, the shielding must be exposed and the cable with the exposed shielding must be routed through the clamp holder.

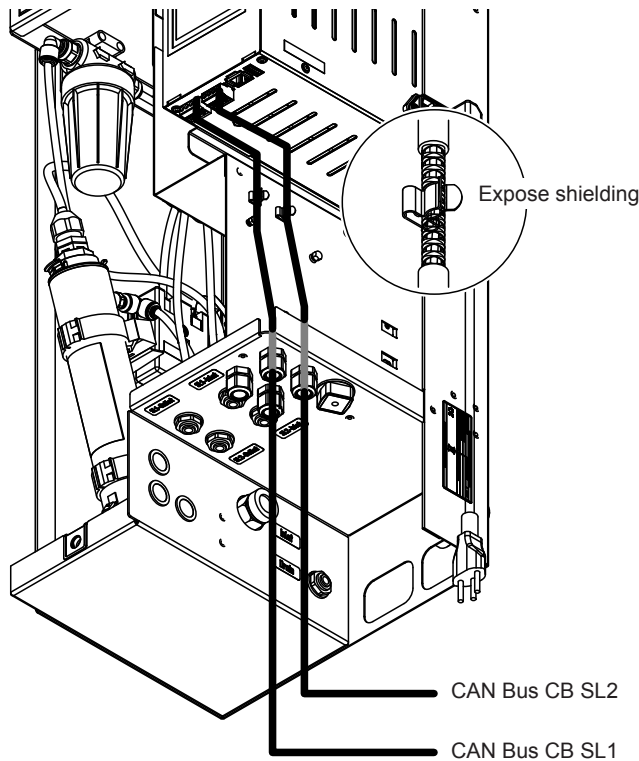


Fig. 23: Connecting CAN bus cables for spray loop 1 and spray loop 2 to the Control Box

5. Connect the CAN bus cables from spray loop 1 and, if present from spray loop 2 to the corresponding drain module (DM) in the central unit according to [Fig. 24](#).
Important: At the site indicated, the shielding must be exposed and the cable with the exposed shielding must be routed through the clamp holder.

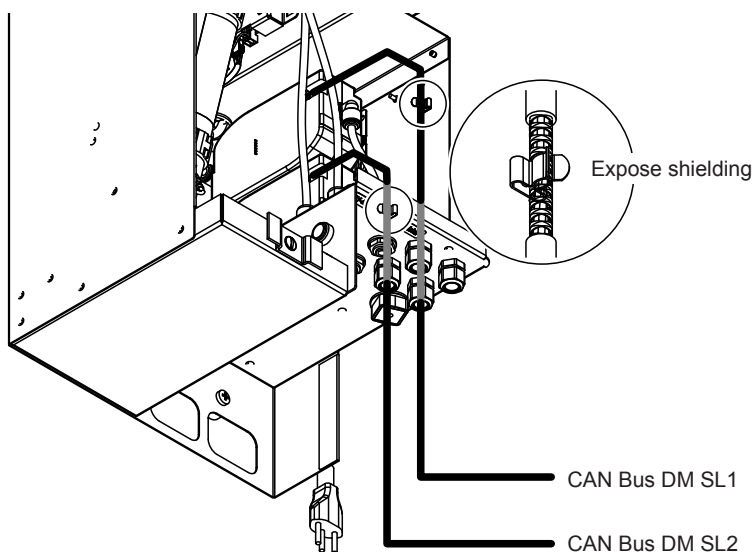


Fig. 24: Connecting CAN bus cables for spray loop 1 and spray loop 2 to the drain modules

3.7 Connection of the optional RO-HB reverse osmosis unit

Connection of single systems

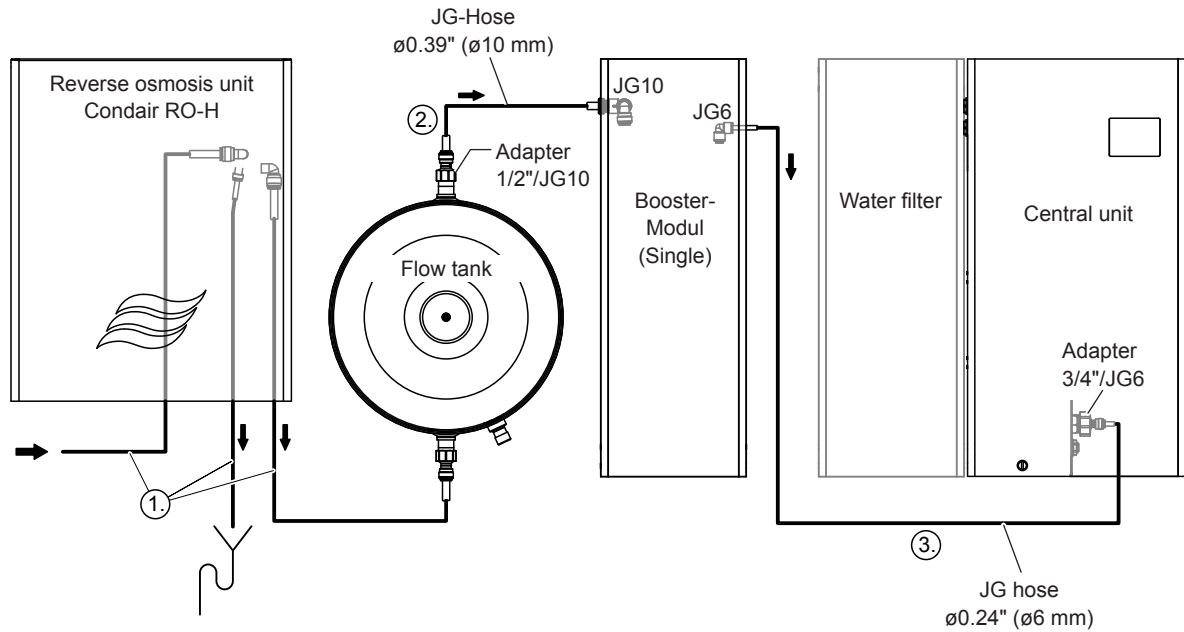


Fig. 25: Connection diagram for single systems

Establish the hydraulic connections (see [Fig. 25](#))

Note: The adapters are included in the scope of delivery of the reverse osmosis system Condair RO-HB.

1. Establish the hydraulic connections of the reverse osmosis system Condair RO-HB according to the information in the installation and operation manual for the reverse osmosis system.
2. Connect the outlet connection on the flow tank to the inlet connection on the booster module.
3. Connect the outlet connection on the booster module to the inlet connection on the central unit.

Connection of multiple systems

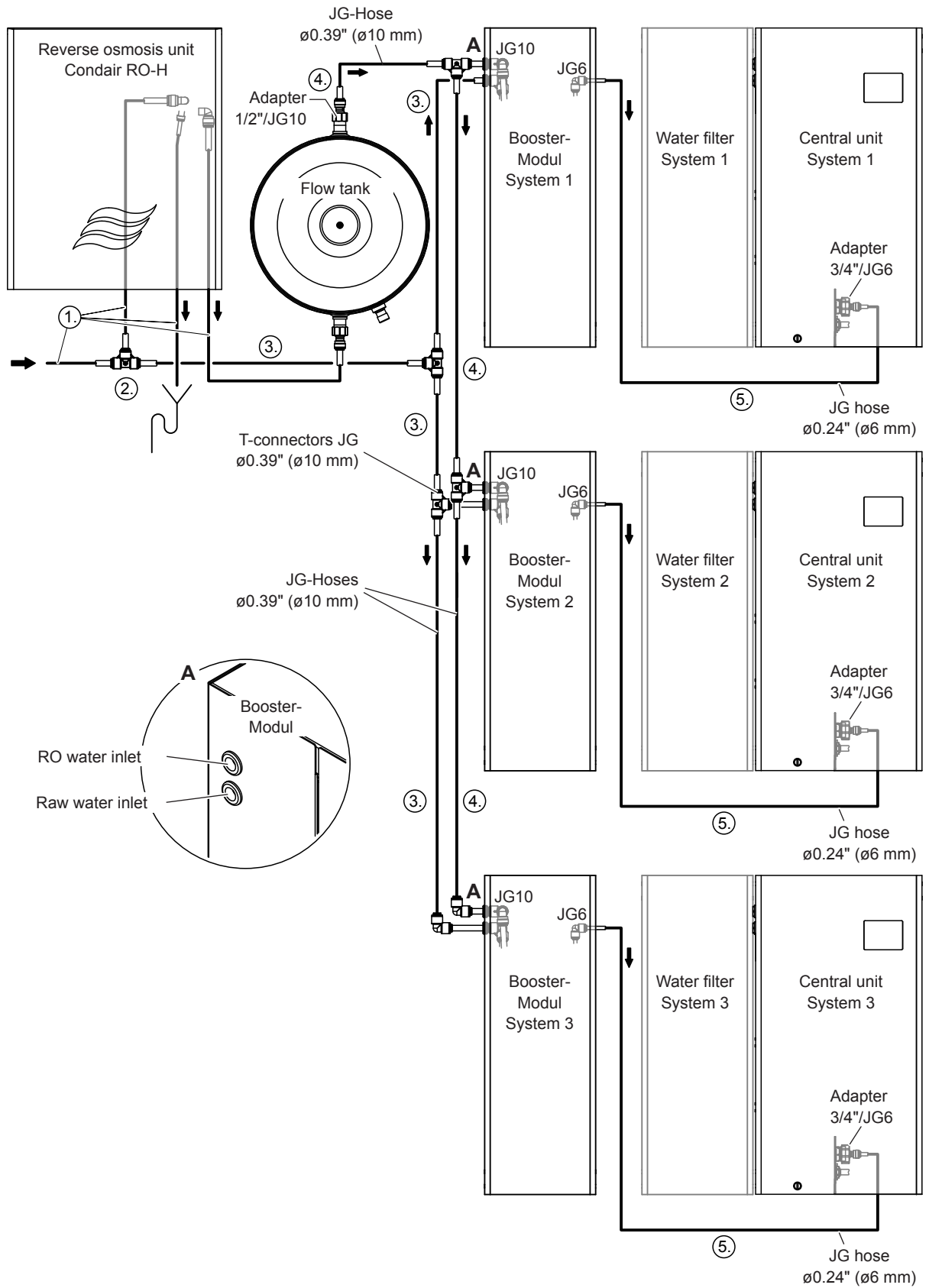


Fig. 26: Connection diagram for multiple systems

Establish the hydraulic connections (see [Fig. 26](#))

Note: The adapters, T-connectors and elbows are included in the scope of delivery of the reverse osmosis system Condair RO-HB.

1. Establish the hydraulic connections of the reverse osmosis system Condair RO-HB according to the information in the installation and operation manual for the reverse osmosis system.
2. Install a T-connector in the supply line immediately in front of the reverse osmosis unit Condair RO-H to connect the raw water supply to the reverse osmosis unit Condair RO-H and to connect the raw water supply (potable water) to the booster modules.
3. Connect the JG10 connection of the T-connector with JG hoses $\varnothing 0.39''$ ($\varnothing 10$ mm) and suitable JG10 T connectors and angle connectors to the raw water inlet connections on the booster modules (upper connection).
4. Connect the outlet connection on the flow tank with JG hoses $\varnothing 10$ mm and suitable JG10 T connectors and angle connectors to the RO water inlet connections on the booster modules (lower connection).
5. Connect the outlet connection on the booster module with the inlet connection on the respective central unit.

3.8 Flush the water feed line and connect to the central unit

When operating the Condair MN with raw water (potable water):

1. Route the water feed line into a water outlet.
2. Carefully open the shut-off valve in the water feed line and flush the water line for approx. 5 minutes.
3. Close the shut-off valve and connect the water line to the corresponding connection on the central unit.

3.9 Connect the control cable(s) of the booster module in the central unit(s)

Connection of the control cable for single systems (see [Fig. 27](#))

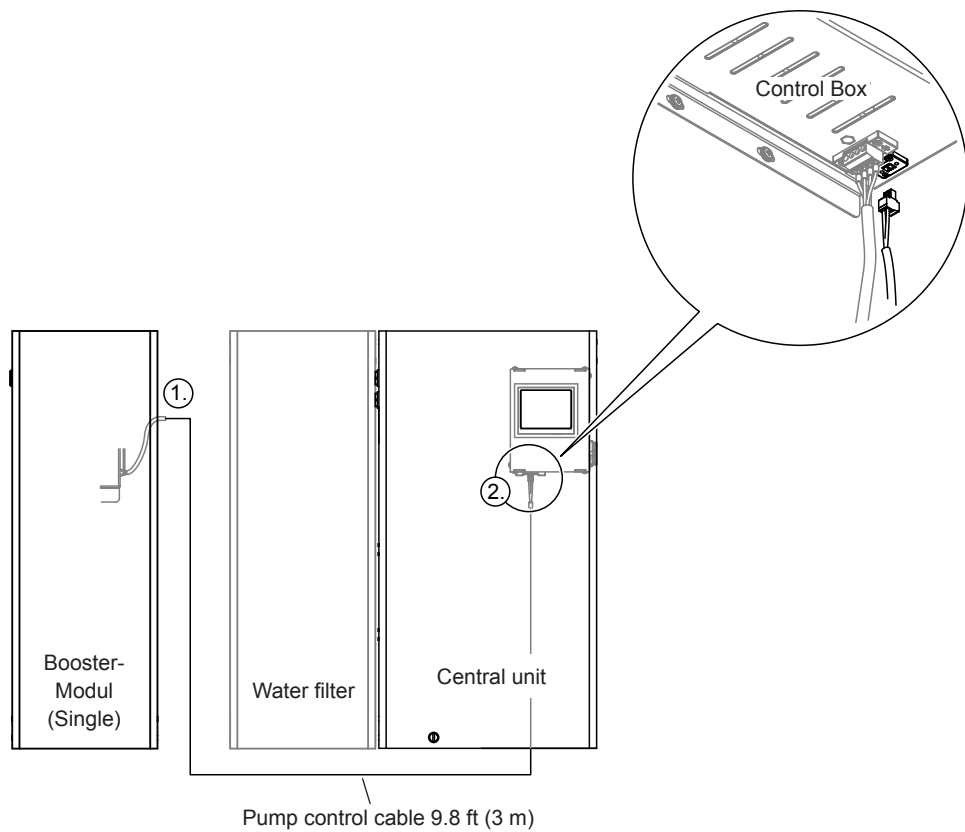


Fig. 27: Connection of the control cable for single systems

1. Guide the pump control cable connected to the booster module through the opening in the housing.
2. Guide the control cable through a cable gland into the housing of the central unit and plug it into the two-pole connection socket at the rear of the Control Box.

Connection of the control cables for multiples systems (see [Fig. 28](#))

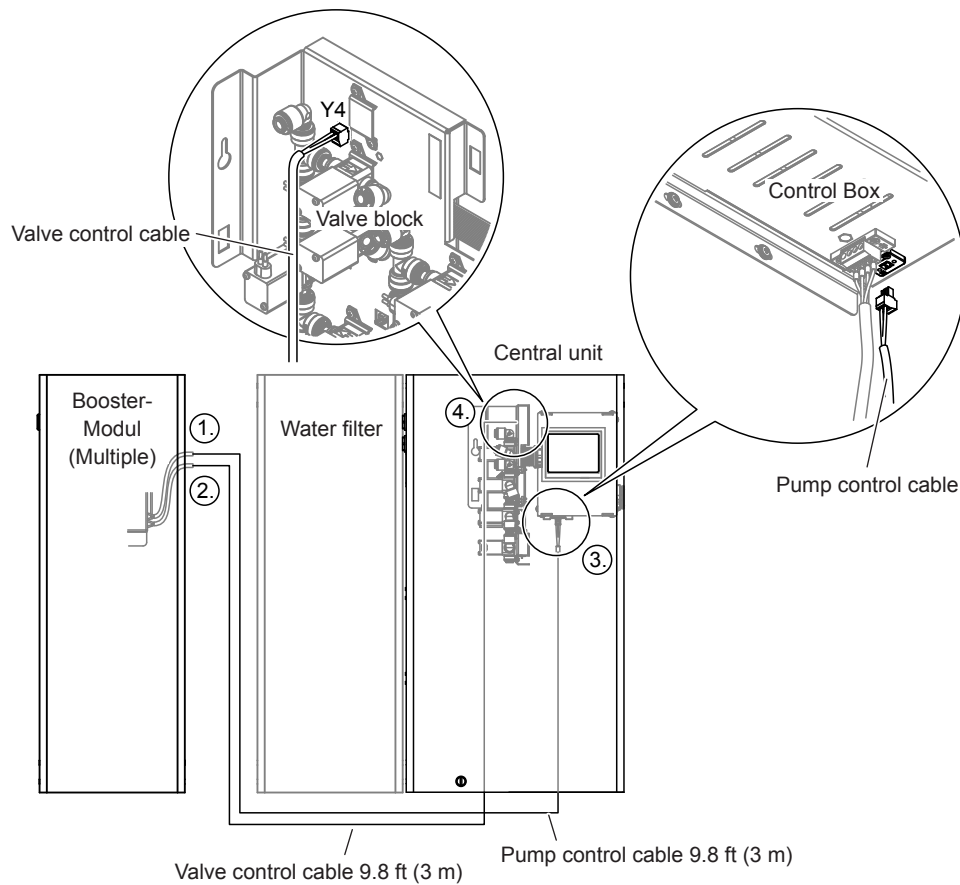


Fig. 28: Connection of the control cables for multiples systems

1. Guide the pump control cable connected to the booster module through the opening in the housing.
2. Guide the valve control cable connected in the booster module through the opening in the housing.
3. Guide the control cable through a cable gland into the housing of the central unit and plug it into the two-pole connection socket at the rear of the Control Box.
4. Guide the valve control cable through a cable gland into the housing of the central unit and plug it into the two-pole connection socket Y4 at the top of the valve block.

Repeat these steps for all booster modules and central units of the multiple system.

3.10 Connect the reverse osmosis system Condair RO-HB to the power supply

1. Connect the mains plug of the reverse osmosis unit Condair RO-H to the mains socket.
2. Connect the power plug of the booster module to the mains socket.

3.11 Connect the LAN cable to the central unit

The LAN cable (Cat. 5 cable or better) is connected in the central unit as follows:

1. Route the LAN cable to the control box in the central unit via the two-part cable feedthrough at the bottom of the central unit.
2. Plug the LAN cable into the RJ45 connection socket.

3.12 Connect the central unit to the mains with the mains plug

1. Make sure that the device switch is switched off.
2. Connect the mains plug of the central unit to the mains socket.

3.13 Commissioning and transfer

3.13.1 Update of the control software before commissioning

Before you start up the system with the service application, the control software must be updated to the current software version. Please note the information in [Section 4.4](#).

3.13.2 Commission the system with the MN service application

1. Connect the Ethernet cable of the central unit to the Ethernet port of the laptop on which the MN service application is installed.
2. Start the service application.
3. Switch the central unit on using the device switch on the right side.
4. Create a local connection to the central unit in the service application window (double-click the "Local" icon).

5. Start the "Workflow Commissioning" in the service application via "Control > Commissioning" and then input the following settings:
 - Compare the serial number of the central unit (see type plate) with the serial number in the "Basic configuration properties" and adjust the serial number in the "Basic settings" if necessary.

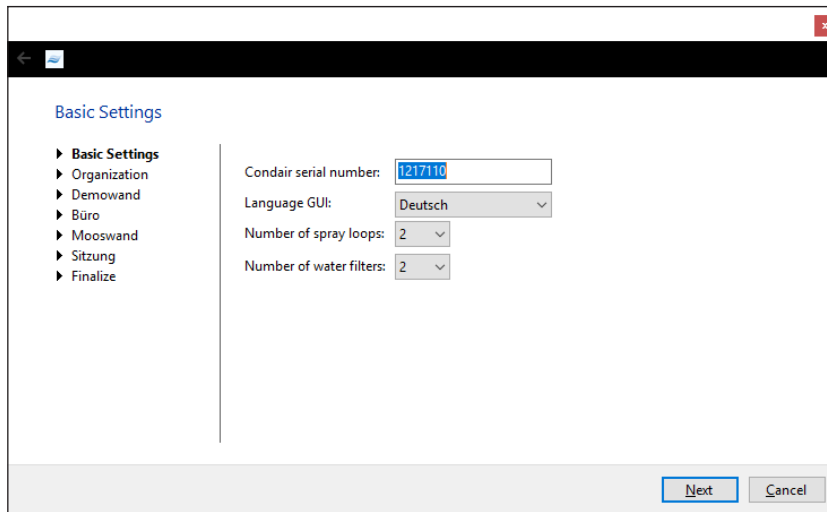


Fig. 29: Basic settings

- Select organization unit.
Note: The Condair MN is only visible to the selected organization unit.

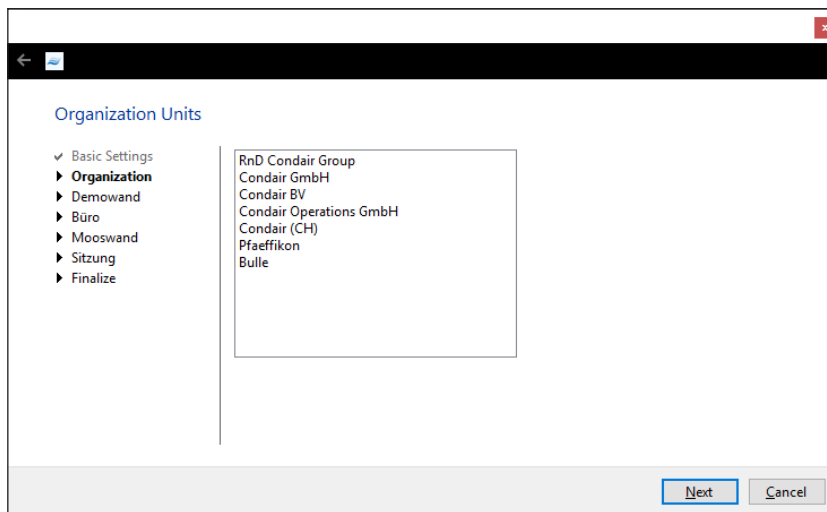


Fig. 30: Selecting the organization unit (Organization)

- Enter the designation (e.g. "Bedroom 1") and the humidity setpoints for the individual zones.

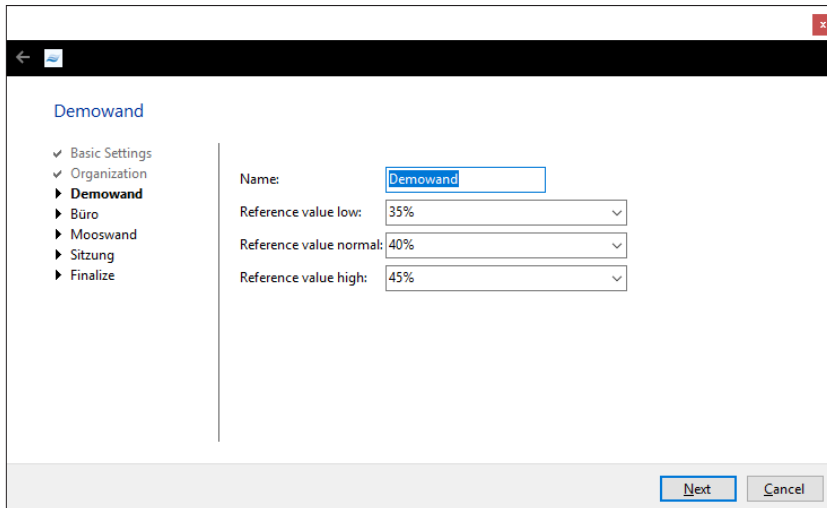


Fig. 31: Area properties

7. In the final window, select whether:

- the date of the last service should be set to the current date and time or not.
- the MN system is operated with the reverse osmosis system Condair RO-HB or not.
- the MN system should or should not be flushed during commissioning.

Then confirm the completion of commissioning with **<Finish>** (the system time is set automatically).

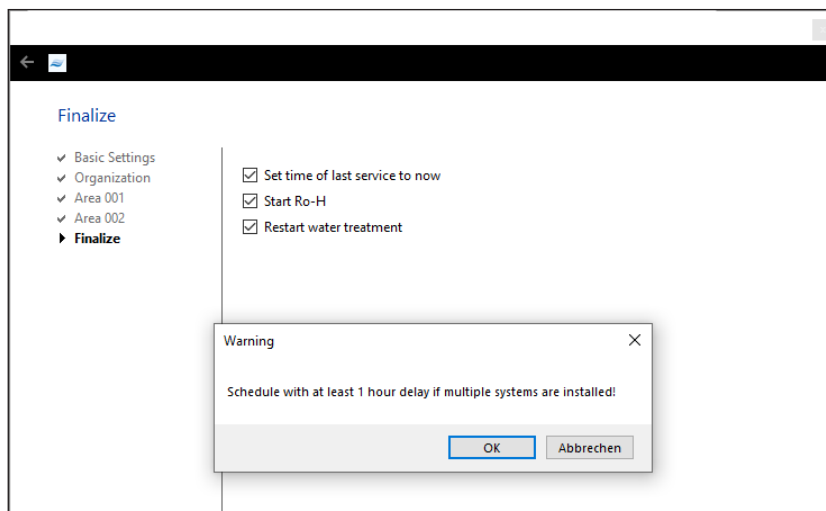


Fig. 32: Final window (Finalize)

8. If your MN system is operated with a reverse osmosis system Condair RO-HB and this feeds several central units, the periodic flushing times for each MN system must be offset by at least one hour. To do this, select the "Set periodic flush time configuration" function in the Service Application via "Control > Commands > Hygiene" and set the flushing time for each MN system with an offset accordingly.

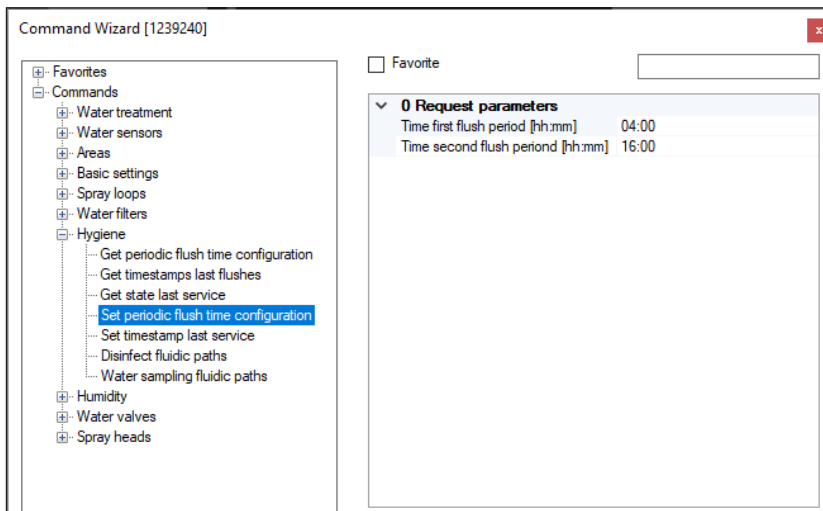


Fig. 33: Setting the periodic flushing time

9. Open the shut-off valve in the water supply line.
10. The system will begin the flushing and start-up procedure (duration approx. 15 - 20 minutes).
11. During the flushing procedure:
 - If your MN system is operated with a reverse osmosis system Condair RO-HB: Set the pressure reducer in the/in all booster module(s) to 5 bar.

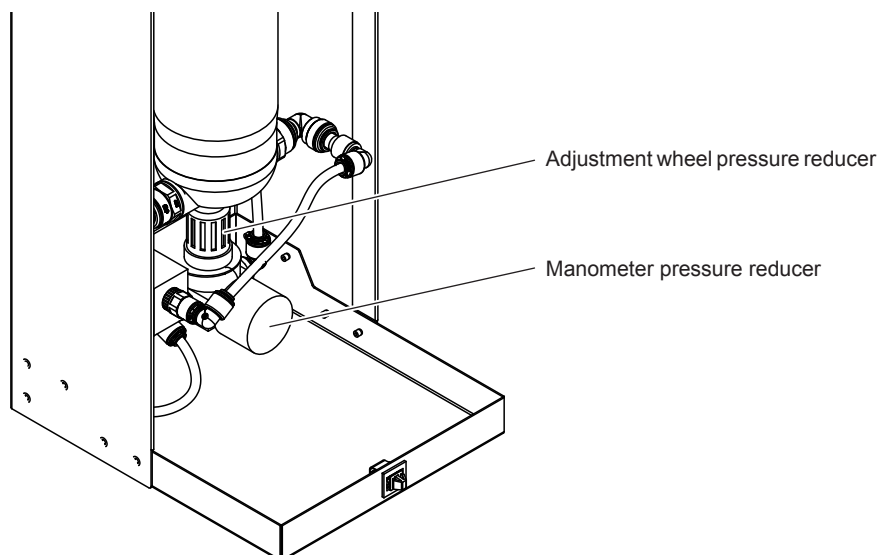


Fig. 34: Pressure reducer booster module

- Measure the discharge rate per unit of time at the outlet of the central unit or at the outlet(s) of the peripheral drain module and compare it with **the setpoint discharge quantity of ≥ 0.5 l/min per spray loop**.

Note: If the measured values are below the setpoint, this can be caused by:

- kinks in the water hoses to the humidifier units
- a spray loop that is too long
- a too low pressure

In this case, all humidifier units and spray loops must be checked again.

12. If the conductivity is too high (display Error?) after the flushing process, select the "StartEnforced" function in the service application via "Control > Commands...> Set water treatment state" and start a forced flush with **<Submit>**.
13. If everything is in order, use the service application to turn each zone on and check the humidifier units for leaks. If necessary, repair leaks.
14. Screw on the humidifier units and mount the panels (flush mounting) or covering hoods (surface mounting).
15. After installing the humidifier units and the panels or cover hoods, select the function "Water sampling fluidic paths" under "Control > Commands...>" in the service application. Select the spray circuit (1 or 2) to be tested, set the "Sampling delay time" to the desired value (see note below) and the "Sampling time" to 100 s, then start the process with **<Submit>**.

Note: If the peripheral drain modules are installed at some distance from the central unit, then the "Sampling delay time" must be set accordingly to allow sufficient time to reach the appropriate drain module to perform the measurement.

After the "Sampling delay time" has elapsed, measure the discharge rate during 60 s at the end of the central unit or at the outlet of the corresponding peripheral drain module. Repeat measurement for the second spray loop (if present).

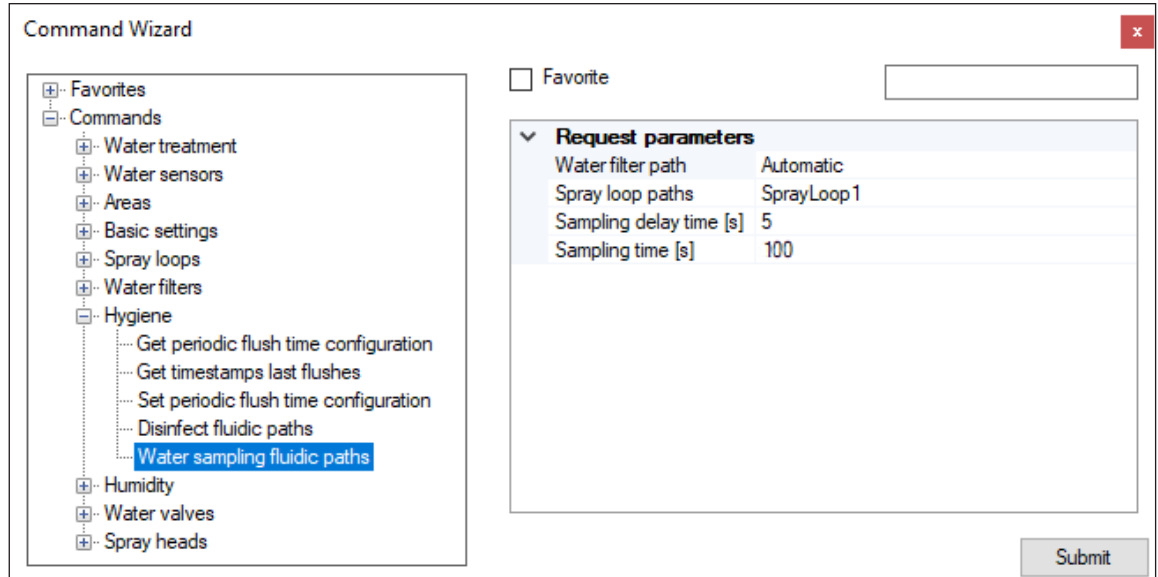


Fig. 35: Flushing spray loops with "Water sampling fluidic paths"

The measured values may deviate only minimally from those measured in point 10. A larger deviation suggests a kink in the water hoses to the humidifier units. In this case, all humidifier units must be checked again.

16. In case the external drain module(s) is/are mounted below or above the level of the central unit: Under "Control> Commands..." in the service application, select the function "Set water pressure difference spray loop 1" or "Set water pressure difference spray loop 2" and the value of the difference in height between drain module 1 and drain module 2 and the central unit in centibar.

Example:

- The drain module for spray loop 1 is **16.40 ft (5 m) above** the central unit
- The drain module for spray loop 2 is **9.84 ft (3 m) below** the central unit

This results in the following input values in centibar:

- Input value for water pressure difference for spray loop 1: **50**
- Input value for water pressure difference for spray loop 2: **-30**

17. Stop the service application and disconnect the Ethernet cable from the laptop.

3.13.3 Connect the gateway

– **Commissioning and configuration without WiFi**

1. Connect the gateway to the power supply.



Fig. 36: Connecting the gateway to the power supply

2. Connect the gateway to the in-house network via the Ethernet connection on the power connection side using an Ethernet cable.



Fig. 37: Connecting the gateway to the in-house network

3. Connect the gateway to the Control Box via the Ethernet connection on the antenna side using an Ethernet cable.



Fig. 38: Connecting the gateway to the Control Box

The gateway automatically establishes the connection to the Control Box.

– **Commissioning and configuration with WiFi**

1. Download the Putty to your laptop via "<https://www.putty.org/>".
2. Start the Putty via the Windows start menu.



3. Connect the gateway to the power supply.



Fig. 39: Connecting the gateway to the power supply

4. Connect the gateway to the laptop using an "RS232 to ultra mini serial connector" cable.



Fig. 40: Connecting the gateway to the laptop using the RS232 cable

5. Connect the gateway to the Control Box via the Ethernet connection on the antenna side using an Ethernet cable.



Fig. 41: Connecting the gateway to the Control Box

6. Make the following settings in the Putty:

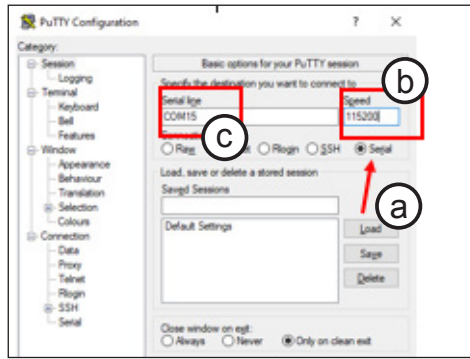
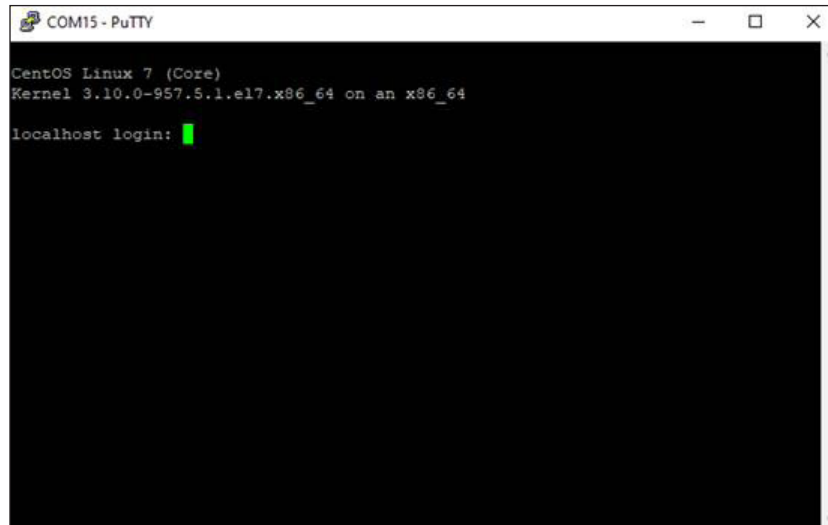


Fig. 42: Putty settings

- a. Set the connection type to Serial.
- b. Set the transmission speed (Speed) to 115200.
- c. Set the serial connection to the corresponding COM port (e.g. COM15)
Note: The COM port used for the serial connection can be checked in the Windows Device Manager under "Connections (COM&LPT) > USB Serial Port (e.g. COM15)".

7. Call up the Putty's command line editor and establish the WiFi connection in the command line window as follows:

- a. Press Enter if nothing is displayed.



- b. Log in with the following access data:
User: **service** (confirm with enter)
Password: **Condair8808Service** (confirm with enter)

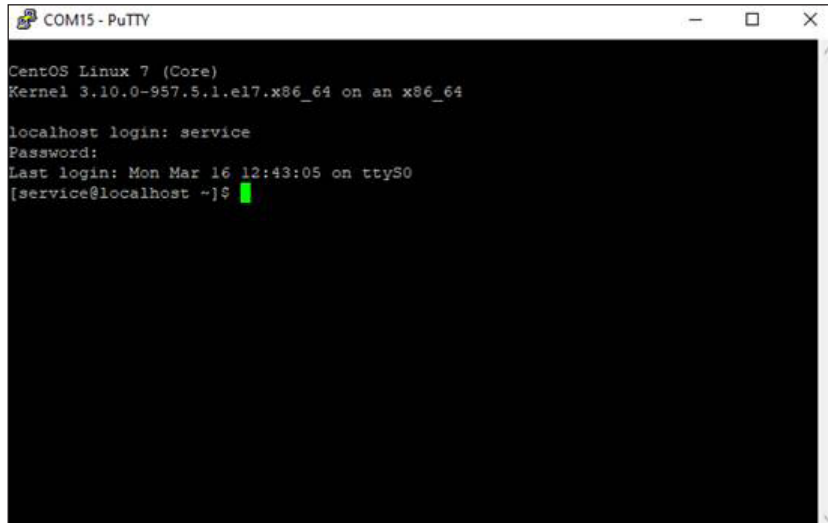
- c. Set the network configuration with the following command:

`./wifi-config.sh [Name] [Password]` (confirm with enter)

[Name] = SSID or network name

[Password] = WiFi network password

Example: `./wifi-config.sh WLAN1 Test123!`

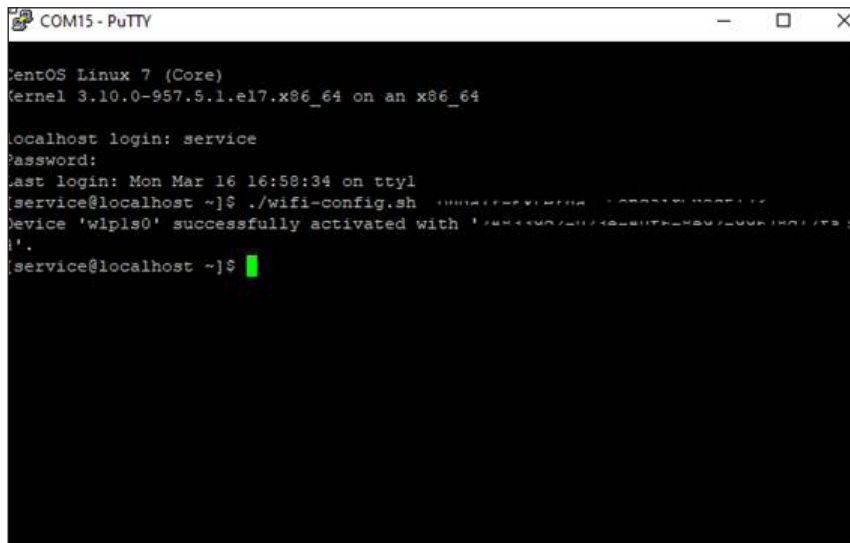


```
COM15 - PuTTY
CentOS Linux 7 (Core)
Kernel 3.10.0-957.5.1.el7.x86_64 on an x86_64

localhost login: service
Password:
Last login: Mon Mar 16 12:43:05 on ttyS0
[service@localhost ~]$
```

- d. Wait 10 seconds. If successful, the following message appears: **"successfully activated with"**.

Notes: If necessary, repeat the command according to step 7c.



```
COM15 - PuTTY
CentOS Linux 7 (Core)
Kernel 3.10.0-957.5.1.el7.x86_64 on an x86_64

localhost login: service
Password:
Last login: Mon Mar 16 16:58:34 on tty1
[service@localhost ~]$ ./wifi-config.sh
Device 'wlp1s0' successfully activated with '
[service@localhost ~]$
```

3.13.4 User app

The user app requires a functional connection to the internet in order to work.

1. Start the web browser.
2. Start remote access application by entering "https://humilife.com" in the command line of the web browser.
3. Enter the user name (same username as in the remote access application) and the set password and click on **<Register>**.
4. Check that there is a connection to the system by changing the humidity setting.
5. In the same login under "User settings" set the system name to the same as the user name (see point 3).

3.13.5 Transfer of the system

The following work must be carried out during the transfer:

1. Complete the commissioning report on the PC.
2. Complete the transfer document.
3. Explain the functions of the system to the customer:
 - Explain functions of the user app
 - Explain the procedure for replacing the water filter(s)
 - Explain what to do in the event of a fault
4. Transfer documents (manual, login data, etc.)

4 Service and replacement of components

4.1 Notes on servicing the Condair MN / service intervals

To ensure hygienic operation the Condair MD system must be serviced by authorized service specialists once a year.

The service is regulated in a corresponding service contract. Condair arranges and carries out the annual service. After completion, the service must be documented in the customer's service log.

The annual service includes the following work:

Work to be done	See	Yearly service
Take water sample(s) at the drain module(s).	Section 4.1.1	x
Replace UV lamp and check/clean quartz glass	Section 4.1.2	x
Replace the filter cartridge of the microfilter	Section 4.1.3	
If required, replace the water filter(s)	Section 4.1.4	x
If required, disinfect the water system	Section 4.1.5	x
Check the air pressure of the flow-through tank of the optional Condair RO-HB reverse osmosis system (if equipped)	Section 4.1.6	x

4.1.1 Taking water samples

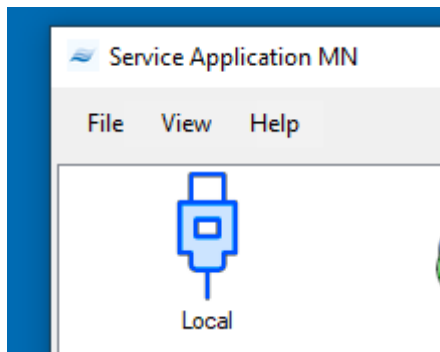
In the event of the annual service, a water sample of 0.066 gal (0.25 l) should be taken on the return of spray loop 1 and spray loop 2 (if present) for quality monitoring and statistics.

For taking the water samples, you will need an empty container of 1 liter capacity and the sampling kit consisting of:

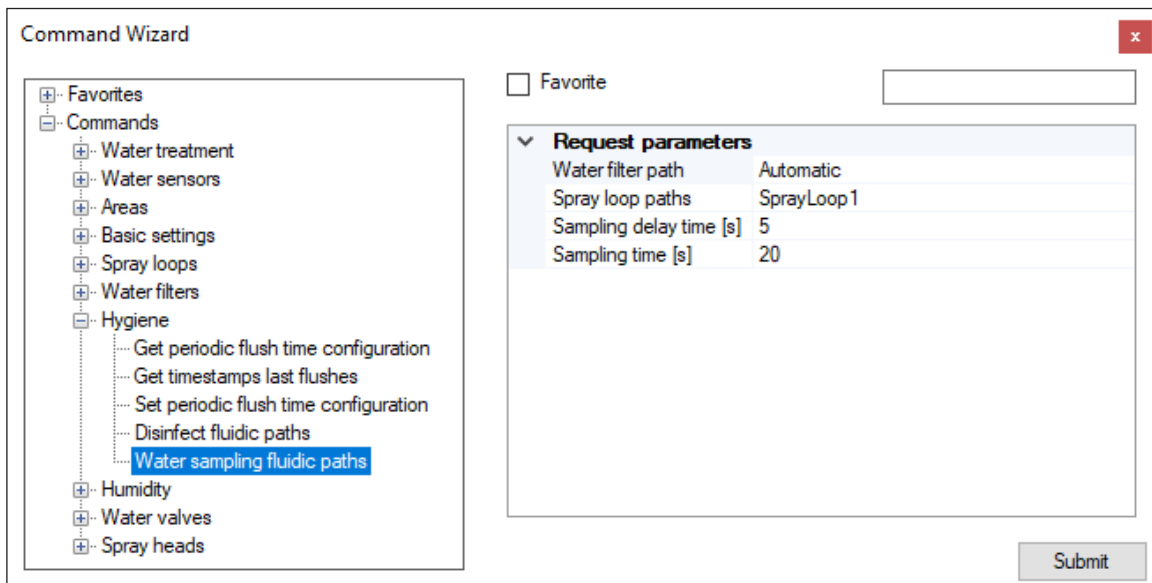
- paper towels
- 2 sterile sample containers with 0.066 gal (0.25 l) capacity
- Styrofoam cooling box
- 2 Cooling pads
- Tape
- Document folder with order document and address of the laboratory

To take the water samples, proceed as follows:

1. Disconnect the network cable from the central unit at the gateway and connect it to the laptop.
2. Start the MN service application on the laptop. In the service application window, establish a local connection to the central unit (double-click the "Local" icon).



3. Select the function " Water sampling fluidic paths" under "Control > Commands...>" in the service application.



4. Set the "Sampling delay time" to the desired value (see note below) and the "Sampling time" to 20 s (Factory settings: "Sampling delay time": 5 s, "Sampling Time": 20 s).
Note: If the peripheral drain modules are installed at some distance from the central unit, then the "Sampling delay time" must be set accordingly to allow sufficient time to reach the appropriate drain module to perform the measurement.
5. Pull out the hose at the inlet to the drain module 1 or drain module 2 and clean hose.
6. Hold the hose in an empty 0.264 gal (1 l) container and start process with **<Submit>** in the "Water sampling fluidic paths" window. Now, approx. 0.053 gal (0.2 l) of water are poured into the tank to rinse the hose.
7. Open the sample container and lay the lid with the inside facing down on a clean paper towel.
8. Insert the hose into the sample container and fix it firmly. Make sure not to touch the end of the hose and the inside of the sample container with your hands. Then, press **<Continue>** in the "Water sampling fluidic paths" window, the sample container will be filled.
9. Close the sample container with the lid well.
Important: Work properly. Avoid any contact with the water, as otherwise the water samples will be contaminated and lead to wrong results.
10. Label sample container: Date, spray loop number (1 or 2) and serial number of the system.
11. Push the hose back into the connection of the water drain module (as described on the screen) and remove any water residues.
12. If necessary, repeat steps 5 to 12 for the second spray loop.
13. In the "Water sampling fluidic paths" window, press **<Finalize>** to return the system to normal operating mode.
14. Complete the analysis order (sample name, date and signature) and place it in the document folder together with the folded address form.
15. Place the sample container(s) together with the cooling pads in the styrofoam box. Close the styrofoam box with adhesive tape and attach the document folder with the address to the styrofoam box.
16. Send styrofoam box with samples immediately by A-post to the analysis office.
17. Continue with the next point of the annual service.

4.1.2 Replacing UV lamp and check/clean quartz glass

 **WARNING!**
UV-C radiation

A UV lamp is built into the Condair MN's central unit. In principle, there is no danger from the UV lamp embedded in the central unit, as it is installed in a radiation-proof housing. If the UV lamp is operated outside of this housing, harmful UV-C radiation may be released. This may cause damage to the eyes and skin.

For this reason: the UV lamp must never be operated outside of the protective housing. The central unit must be switched off and disconnected from the mains power supply (remove the plug from the socket) before the central unit is opened.

 **WARNING!**

Waste from damaged UV lamps may lead to injury and cause damage to human health and harm to the environment.

For this reason: the waste from damaged UV lamps must be disposed of in accordance with local provisions on hazardous substances and the site of the damage must be cleaned properly.

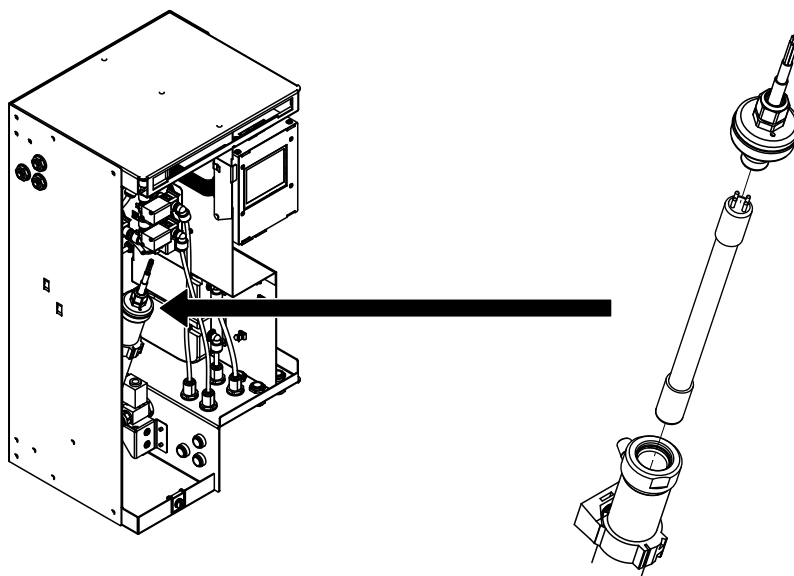


Fig. 43: Replacing the UV lamp in systems produced until March 31, 2020

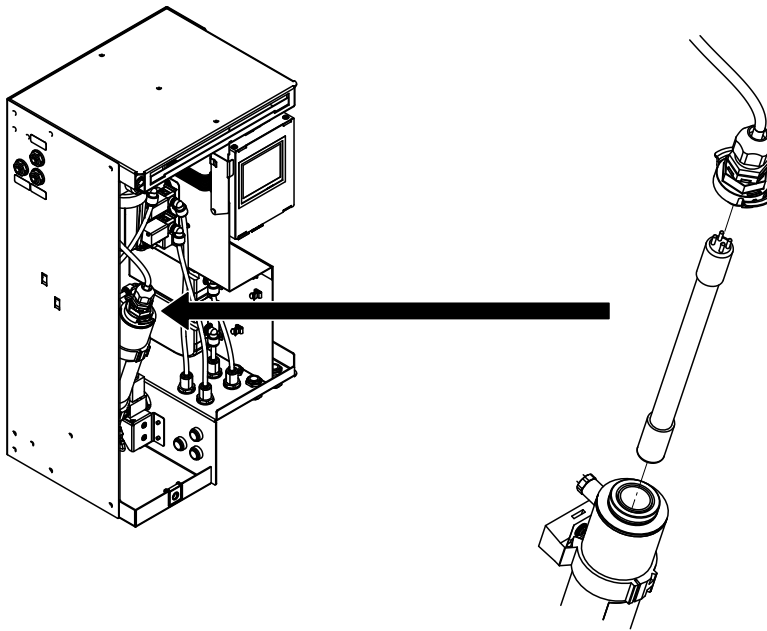


Fig. 44: Replacing the UV lamp in systems produced from April 1, 2020

To replace the UV lamp, proceed as follows:

1. Disconnect the network cable from the central unit at the gateway and connect it to the laptop.
2. Start the MN service application on the laptop. In the service application window, establish a local connection to the central unit (double-click the "Local" icon) and use the "Shutdown" function (path: "Control > Commands... > Set water treatment state") to shut the system down. The system will be automatically depressurized and the UV lamp deactivated.
3. **Important:** Wait until the status "Depressed_Shutdown" is displayed. Then stop the service application on the laptop.
4. Switch the central unit off and unplug the power cable.
5. Remove the front panel of the central unit.
6. Carefully remove the connector plug from the UV housing.
7. Disconnect the UV lamp from the connector plug.
8. Check the quartz glass with a flashlight for turbidity. If the quartz glass is cloudy, proceed as follows:
 - For systems that were produced **until March 31, 2020**:
 - Remove all water and electrical connections from the UV reactor (note assignment)
 - Remove the UV reactor.
 - Install replacement UV reactor.
 - Reconnect all water and electrical connections to the UV reactor.
 - For systems that were produced **from April 1, 2020**:
 - Pull off the lower cap on the UV reactor.
 - Push the quartz glass out of the UV reactor from below and remove.
 - Clean the quartz glass with a lint-free cloth.
 - Check the O-rings at the top and bottom of the UV reactor housing and replace if damaged.
 - Put the lower cap back on the UV reactor.
 - Carefully push the quartz glass into the UV reactor as far as it will go.
9. Connect new UV lamp to the connector plug.
10. Carefully insert the UV lamp into the housing and attach the connector plug to the housing.

11. Attach and lock the front cover of the central unit.
12. Plug the mains cable of the central unit in and switch the central unit on.
13. Start the MN service application on the laptop. In the service application window, establish a local connection to the central unit (double-click the "Local" icon) and start the system using the "Quick-Start" function (path: "Control > Commands... > Set water treatment state"). The system will then go into normal operating mode.
14. Stop the service application. Then disconnect the network cable from the central unit on the laptop and reconnect it to the gateway.

4.1.3 Replacing the filter cartridge of the microfilter

To replace the filter cartridge of the microfilter, proceed as follows:

1. Disconnect the network cable from the central unit at the gateway and connect it to the laptop.
2. Start the MN service application on the laptop. In the service application window, establish a local connection to the central unit (double-click the "Local" icon) and use the "Shutdown" function (path: "Control > Commands... > Set water treatment state") to shut the system down. The system will be automatically depressurized and the UV lamp deactivated.
3. **Important:** Wait until the status "Depressed_Shutdown" is displayed. Then stop the service application on the laptop.
4. Switch the central unit off and unplug the power cable.
5. Remove the front panel of the central unit.
6. Place an absorbent rag under the filter.
7. Carefully unscrew and remove the filter housing from the filter head.
8. Remove filter cartridge and clean filter housing.
9. Insert a new filter cartridge in the filter housing.
10. Screw the filter housing with the new filter cartridge into the filter head.
11. Wipe up any water residue.
12. Attach and lock the front cover of the central unit.
13. Plug the mains cable of the central unit in and switch the central unit on.
14. Start the MN service application on the laptop. In the service application window, establish a local connection to the central unit (double-click the "Local" icon) and start the system using the "Quick-Start" function (path: "Control > Commands... > Set water treatment state"). The system will then go into normal operating mode.
15. Stop the service application. Then disconnect the network cable from the central unit on the laptop and reconnect it to the gateway.

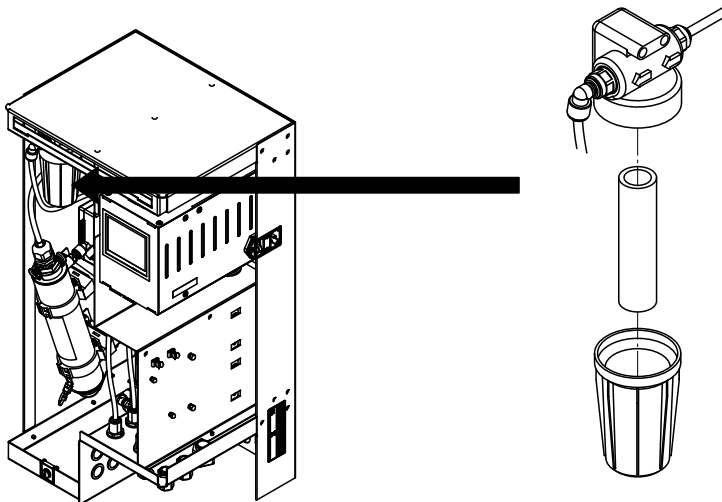


Fig. 45: Replacing the filter cartridge of the microfilter

4.1.4 Replace water filter(s)

Note: The replacement of the water filter(s) should, if possible, be carried out via the operating panel of the central unit using the "Change filter" service function. The replacement of the water filter is menu-driven with a corresponding entry in the log file. Please observe the information in the Condair MN operating instructions.

If it is not possible or desired to replace the water filter(s) using the "Change filter" service function, proceed as follows to replace the water filter(s):

1. Remove the front cover off of the housing.
2. Turn the water filter clockwise until it stops.
3. Slide the filter adapter upwards until it stops.
4. Remove the old water filter.
5. Remove the cap at the top of the water filter.
6. Place the water filter under the filter adapter so that the label faces forward and the notch in the water filter is under the left groove on the filter adapter.
7. Slide the filter adapter downwards while rotating the water filter anti-clockwise.
8. Turn the water filter anti-clockwise until it stops.
9. Relocate the front cover off of the housing.
10. Repeat steps 1 through 9 for the second water filter (if present).

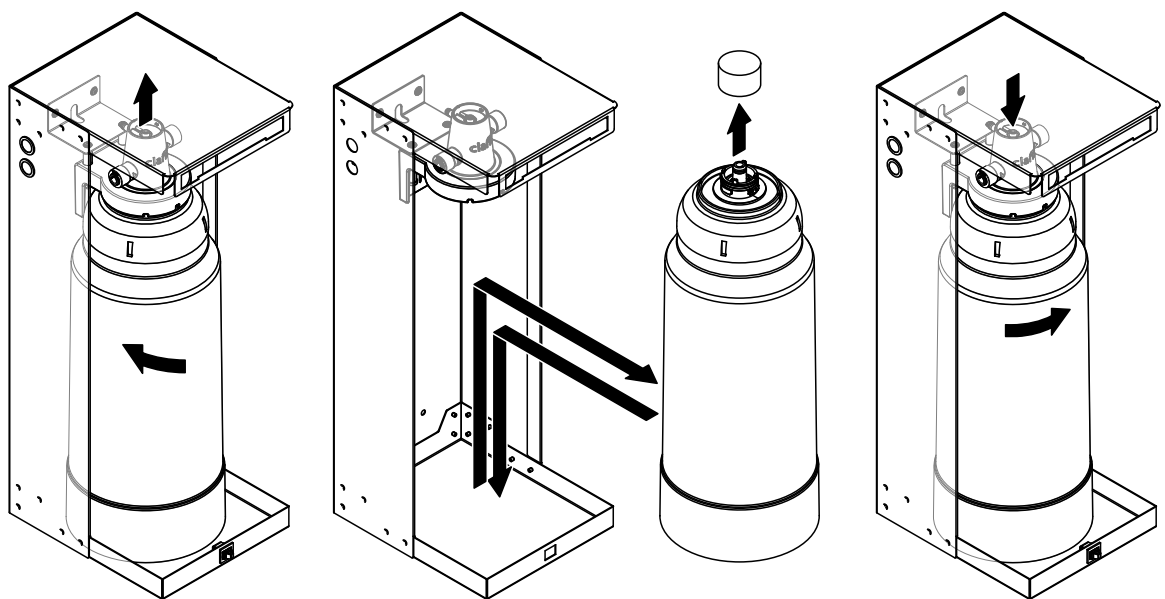


Fig. 46: Replacing the water filter

4.1.5 Disinfect water system

If the Condair MN has been idle or without a power supply for several days (>48 hours), or if the water samples have revealed increased microbial contamination, water system of the Condair MN and, if present, the RO-HB reverse osmosis system must be disinfected.

The following chapters describe how to disinfect the water system.

WARNING!

Contact with the disinfectant can cause chemical burns to the eyes, mucous membranes and skin.

For this reason: It is mandatory that you observe and follow the safety instructions of the manufacturer of the disinfectant and always wear appropriate protective equipment (gloves, protective goggles, etc.).

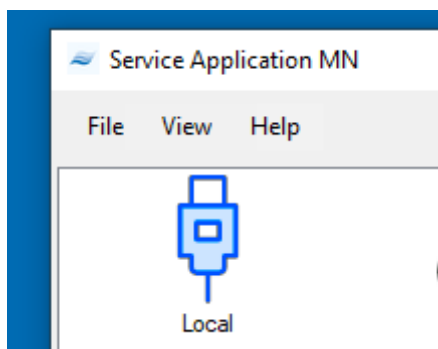
WARNING!

The components of the Condair RO-HB and the Condair MN can be contaminated if they are touched with bare hands.

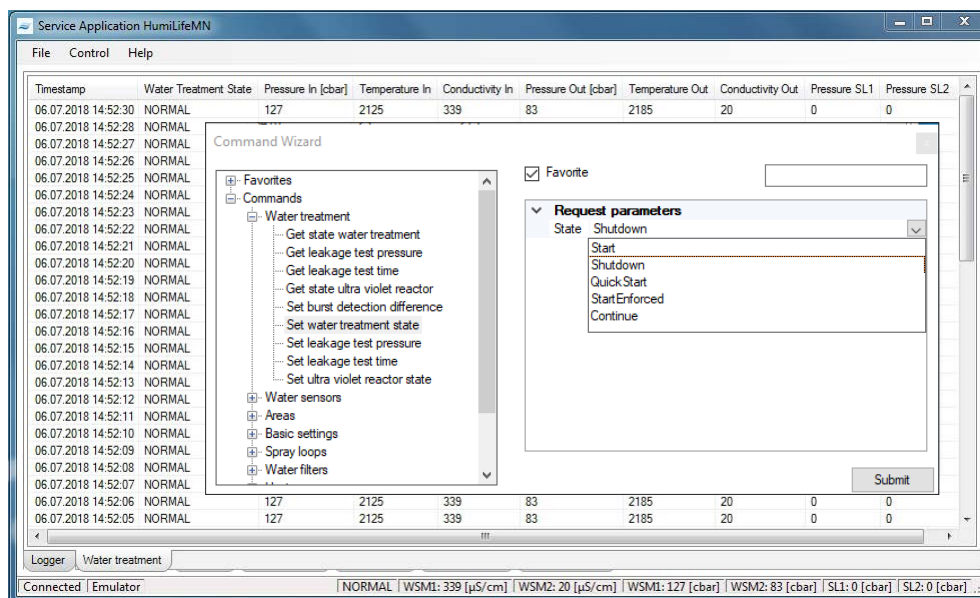
For this reason: Wash your hands and always wear clean disposable gloves when removing and installing components (filter, RO membrane).

4.1.5.1 Depressurize the water system

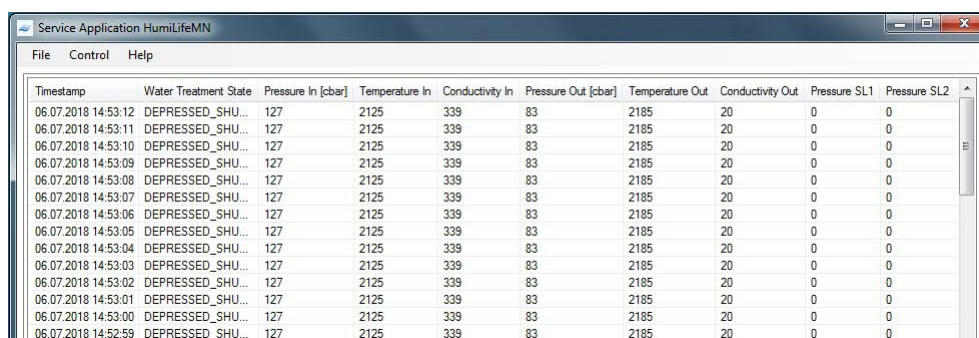
1. If the central unit is switched off: Plug the power cord in (if necessary) and switch the central unit on. If an error message is displayed, proceed to the next step.
The system is automatically purged upon power up; this flushes any contaminated water from the system. Wait until the rinsing process is finished (approx. 25 minutes).
2. Disconnect the network cable from the central unit at the gateway and connect it to the laptop.
3. Start the MN service application on the laptop. Create a local connection to the central unit in the service application window (double-click the "Local" icon).



- Once the connection is established, select "Set water treatment state" function under "Control>Commands...". Select "Shutdown" in the pull-down menu and confirm with **<Submit>**. The water system will be depressurized.



After the command has been transmitted, it takes approx. 30 s for the water system of the Condair MN to be depressurized. The status "DEPRESS-SHUTDOWN" will be displayed for as long as the pressure release is still in progress.

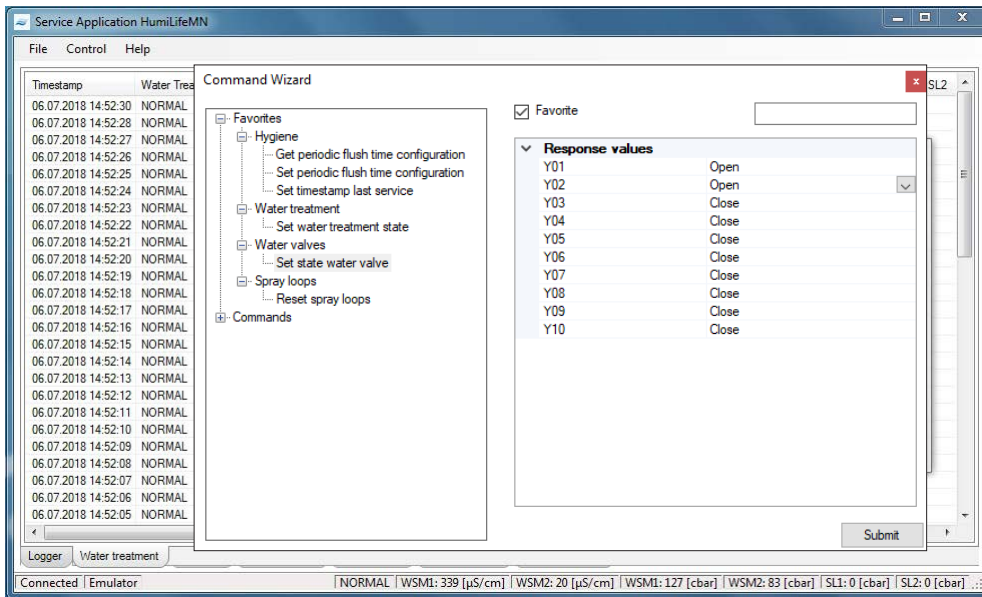


Wait for the "Depressed_Shutdown" status to appear.

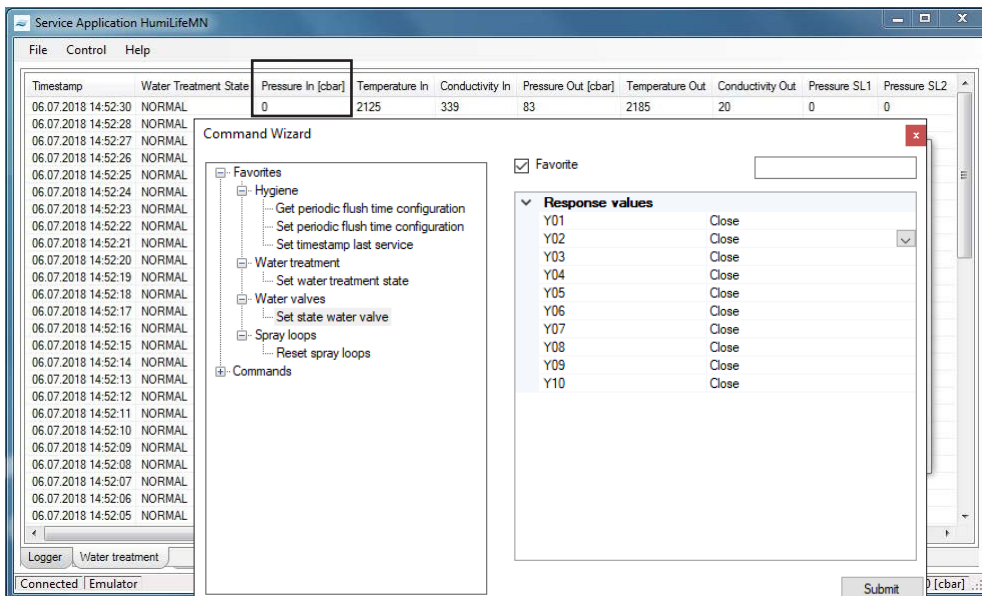
Important: For multiple systems, repeat steps 1-4 for all MN systems.

- Close the shut-off valve in the water supply line to the central unit or to the Condair RO-HB. If your system is equipped with a Condair RO-HB reverse osmosis system, proceed with step 6, otherwise with step 8.
- Unplug the mains cable of the Condair RO-H reverse osmosis unit and wait a few seconds. Plug the mains cable in again for approx. 10 to max. 15 seconds (the pressure in the water supply line is released), then unplug it again.

- Depressurize the flow tank: Select "Set state water valves" function under "Control > Commands...", Set the valves "Y1" and "Y2" to "Open" and confirm with **<Submit>**. After the command has been transmitted, it takes approx. 7 minutes for the pressure in the flow tank to be released.



As soon as the pressure display of the "Pressure In" parameter no longer shows any pressure, select the "Set state water valves" function under "Control > Commands...", set the valves "Y1" and "Y2" to "Close" and press **<Submit>** confirm.



- Carry out the disinfection of the Condair MN water system according to [Section 4.1.5.2](#) and then, if applicable, the disinfection of the Condair RO-HB reverse osmosis system according to [Section 4.1.5.3](#).

4.1.5.2 Disinfect the water system of the Condair MN

To disinfect the water system of the Condair MN, you will need the following service accessories:

- Circulation pump with On/Off switch (Recommendation: Renkforce garden pump, 1100 W, 1215 gal/h (4600 l/h), 65.2 psi (4.5 bar))

Attention: The maximum pump pressure must not exceed 72.5 psi (5 bar)!

- Sanosil S015 (0.264 gal (1 liter) for the disinfection of a spray loop or 0.528 gal (2 liters) for the disinfection of two spray loops)
- A 3 gal (approx. 12 liter) bucket
- Two JG $\varnothing 0.24$ " ($\varnothing 6$ mm) straight connectors (1 per water filter)
- Cleaning cloths
- Min. 10 ft. (3 m) JG hose $\varnothing 0.24$ " ($\varnothing 6$ mm) (new or always the same one)

1. Make sure that the water system is depressurized (see [Section 4.1.5.1](#)). Then disconnect the water supply hose from the connection to the central unit.
Caution: There may be some residual pressure.
2. Remove the filter cartridge of the micro filter in the central unit (see [Section 4.1.3](#)).
3. Remove the water filter(s) and pull off the inlet and outlet hoses on the filter adapter(s) and join the hoses with a JG $\varnothing 6$ mm straight connector (service accessory).

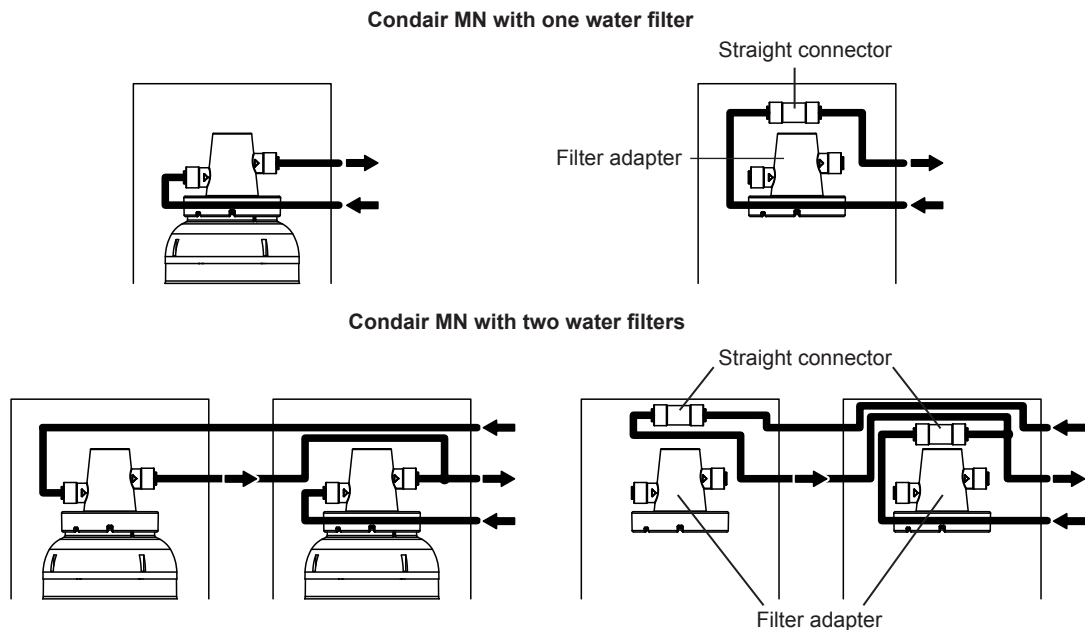


Fig. 47: Remove filter and join inlet and outlet hoses

4. If the system has **1 spray loop**, prepare the quantity of disinfectant solution described below:
Fill a 3 gal bucket (service accessory) with **1.32 gal (5 liters) of potable water** and mix with **0.264 gal (1 liter) of Sanosil S015** (service accessory) (16% solution).

If the system has **2 spray loops**, prepare the quantity of disinfectant solution described below:
Fill a 3 gal bucket (service accessory) with **2.11 gal (8 liters) of potable water** and mix with **0.528 gal (2 liters) of Sanosil S015** (service accessory) (20% solution).

Note: If your MN system is operated with water from the optional reverse osmosis system Condair RO-HB and feeds several MN systems (multiple systems), the appropriate amount of disinfectant solution must be prepared for each MN system.

5. For MN systems that are operated with raw water (potable water):

- Immerse the suction hose of the circulation pump (service accessory) in the bucket with the disinfectant solution and connect the pressure hose to the supply connection of the central unit (see [Fig. 48](#)). Then start the circulation pump according to the instructions of the pump.

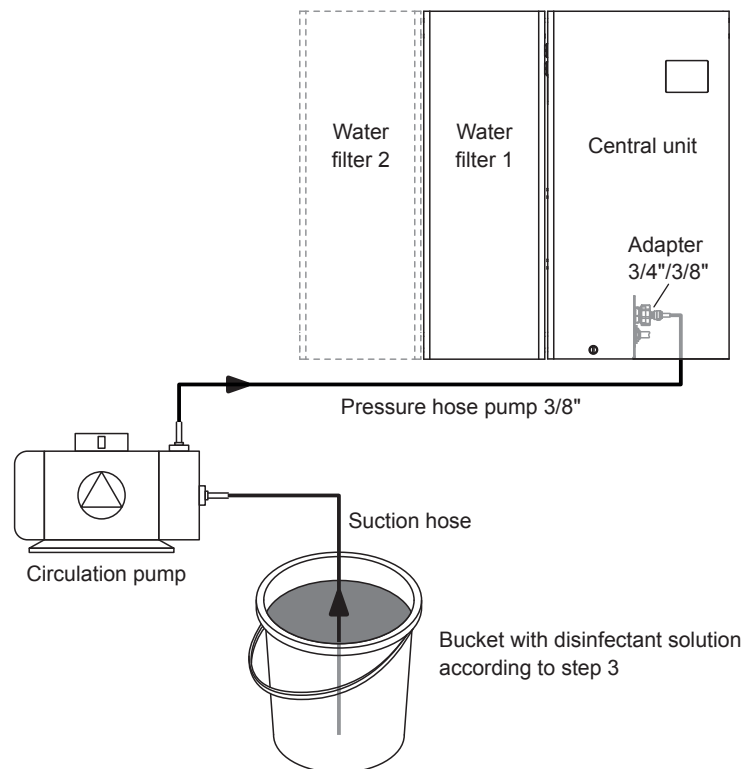


Fig. 48: Schematic diagram for the connection of the circulation pump for disinfection

For MN single systems that are operated with RO water from the RO-HB reverse osmosis system:

- Disconnect the hose from the flow tank from the connection on the booster module. Immerse a suction hose $\varnothing 0.39''$ ($\varnothing 10\text{ mm}$) into the bucket with the disinfectant solution and connect it to the connection of the booster module (see [Fig. 49](#)).

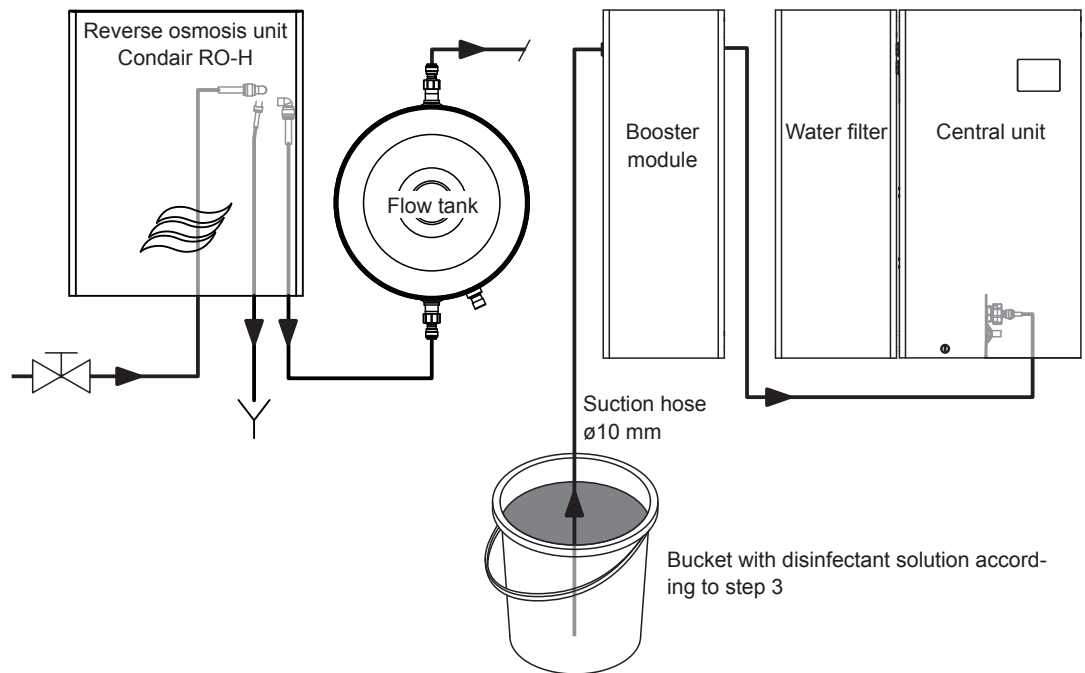


Fig. 49: Schematic diagram of the hose layout for disinfection of MN single system with RO-HB

For MN multiple systems that are operated with RO water from the RO-HB reverse osmosis system:

- Disconnect the hose from the flow tank to the T-connector (RO water) on the corresponding booster module. Immerse a suction hose $\varnothing 0.39''$ ($\varnothing 10$ mm) into the bucket with the disinfectant solution and connect it to the free connection of the T-connector (RO water) of the corresponding booster module (see [Fig. 50](#)).

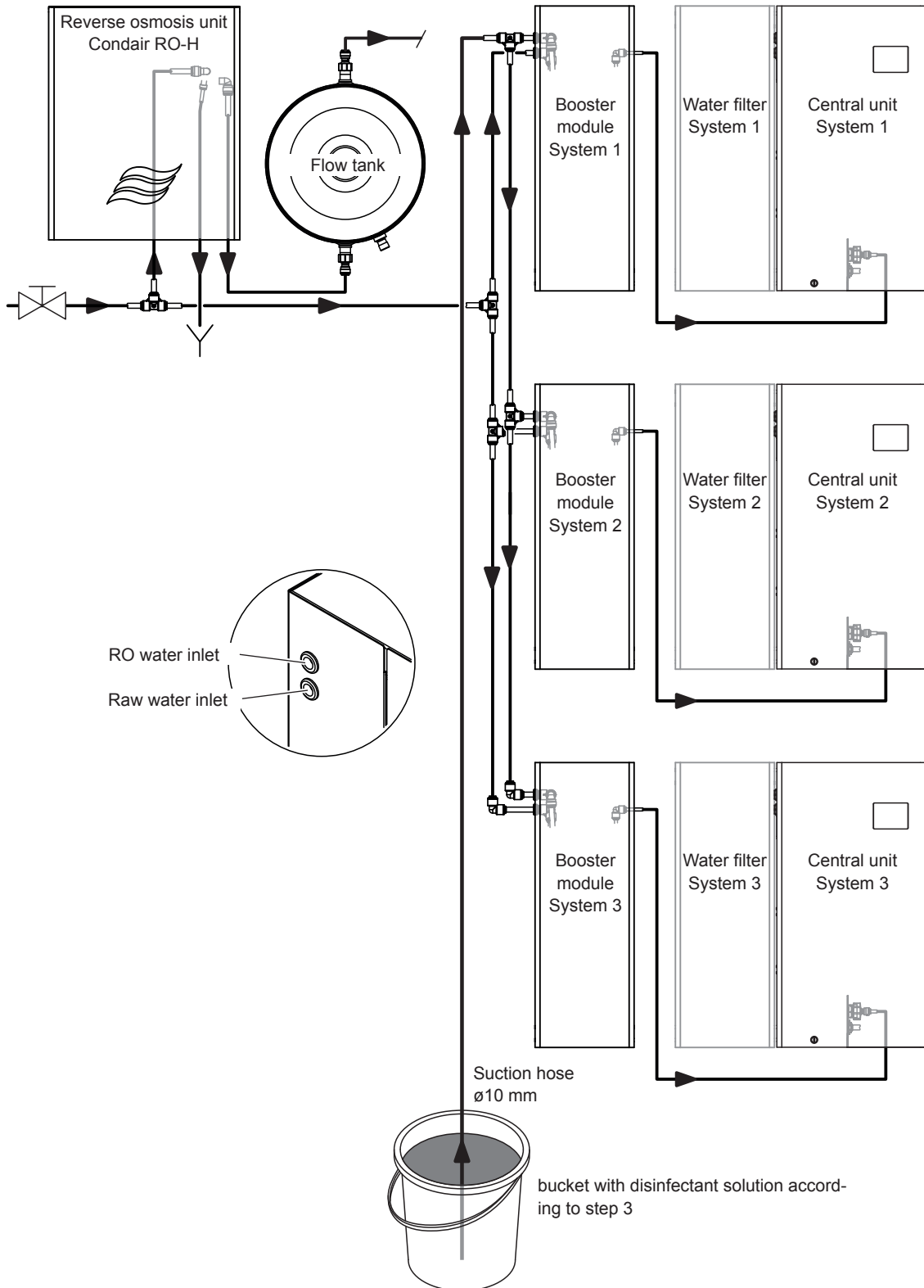
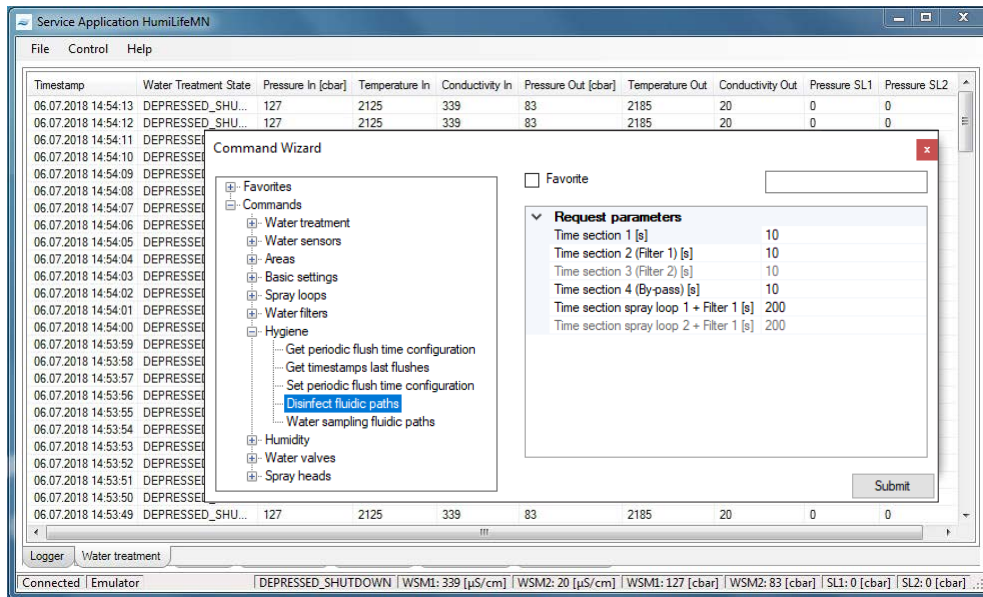


Fig. 50: Schematic diagram of the hose layout for disinfection of MN multiple system with RO-HB

6. Make sure that the booster module(s) is/are connected to the mains socket.
7. Select the "Disinfect fluidic paths" function under "Control> Commands..." in the service application for the disinfectant filling process. Set the values for "Time section 1-4" to 10 s and for "Time section spray loop 1-2" to 200 s (Factory setting: "Time section 1-4": 10 s, "Time section spray loop 1-2": 200 s). Start the process with <Submit>.



The system is now automatically filled with the disinfectant solution (filling time approx. 7 minutes). As soon as the system is filled, the process is automatically terminated.

Note: For MN multiple systems that are operated with the RO-HB reverse osmosis system, this step must be repeated for each central unit with a new bucket of disinfectant liquid.

8. **For MN systems that are operated with raw water (potable water):** Switch off the circulation pump.
9. **Allow the disinfectant to act for one hour.**
Note: The RO-HB reverse osmosis system can be disinfected during the reaction time, if installed (see [Section 4.1.5.3](#)).

10. After the reaction time has lapsed, the water system must be flushed. Proceed as follows:

- Rinse out the 3 gal bucket (the rest of the disinfectant solution can be safely disposed of in the drain).
- Then fill the bucket completely with fresh potable water.

For MN systems that are operated with raw water (drinking water):

- Immerse the suction hose of the circulation pump (service accessory) into the bucket with the fresh potable water and connect the pressure hose to the supply connection of the central unit (see [Fig. 51](#)). Then start the circulation pump according to the instructions of the pump.

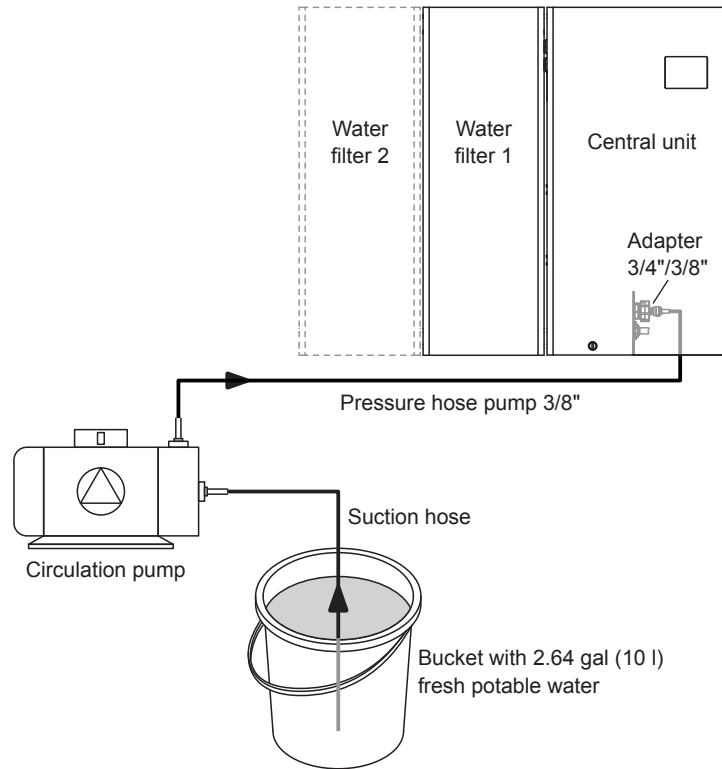


Fig. 51: Schematic diagram for the connection of the circulation pump for flushing

For MN single systems that are operated with RO water from the RO-HB reverse osmosis system:

- Immerse the suction hose $\varnothing 0.39''$ ($\varnothing 10$ mm) in the bucket with the fresh potable water (see [Fig. 52](#)).

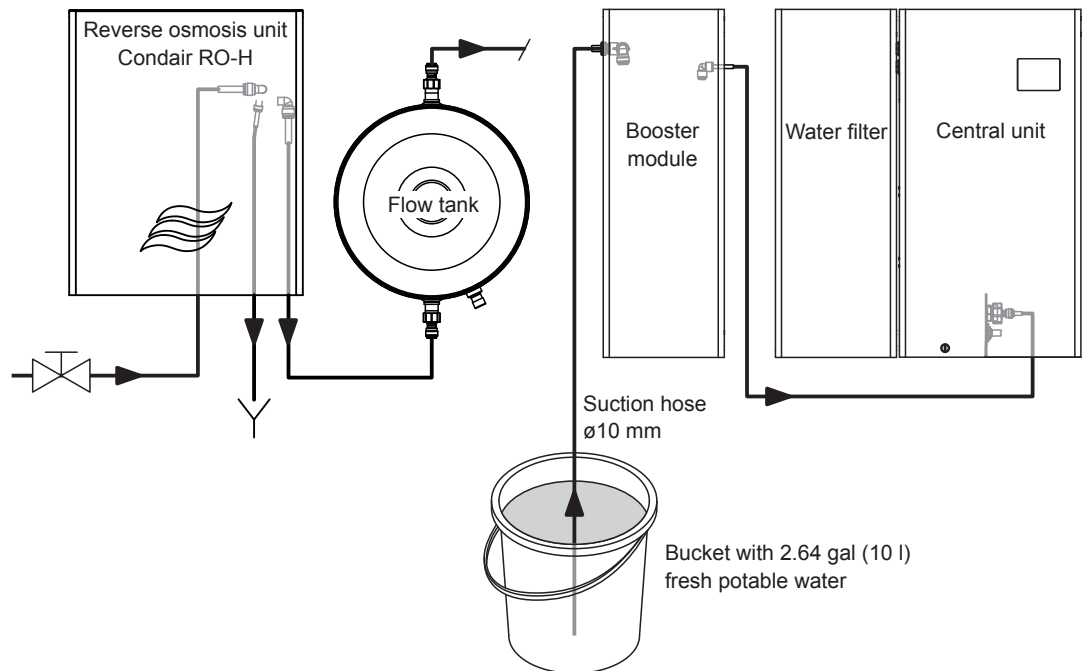


Fig. 52: Schematic diagram of the hose layout for flushing of MN single systems with RO-HB

For MN multiple systems that are operated with RO water from the RO-HB reverse osmosis system:

- Immerse the suction hose $\varnothing 0.39"$ ($\varnothing 10$ mm) in the bucket with the fresh potable water (see [Fig. 53](#)).

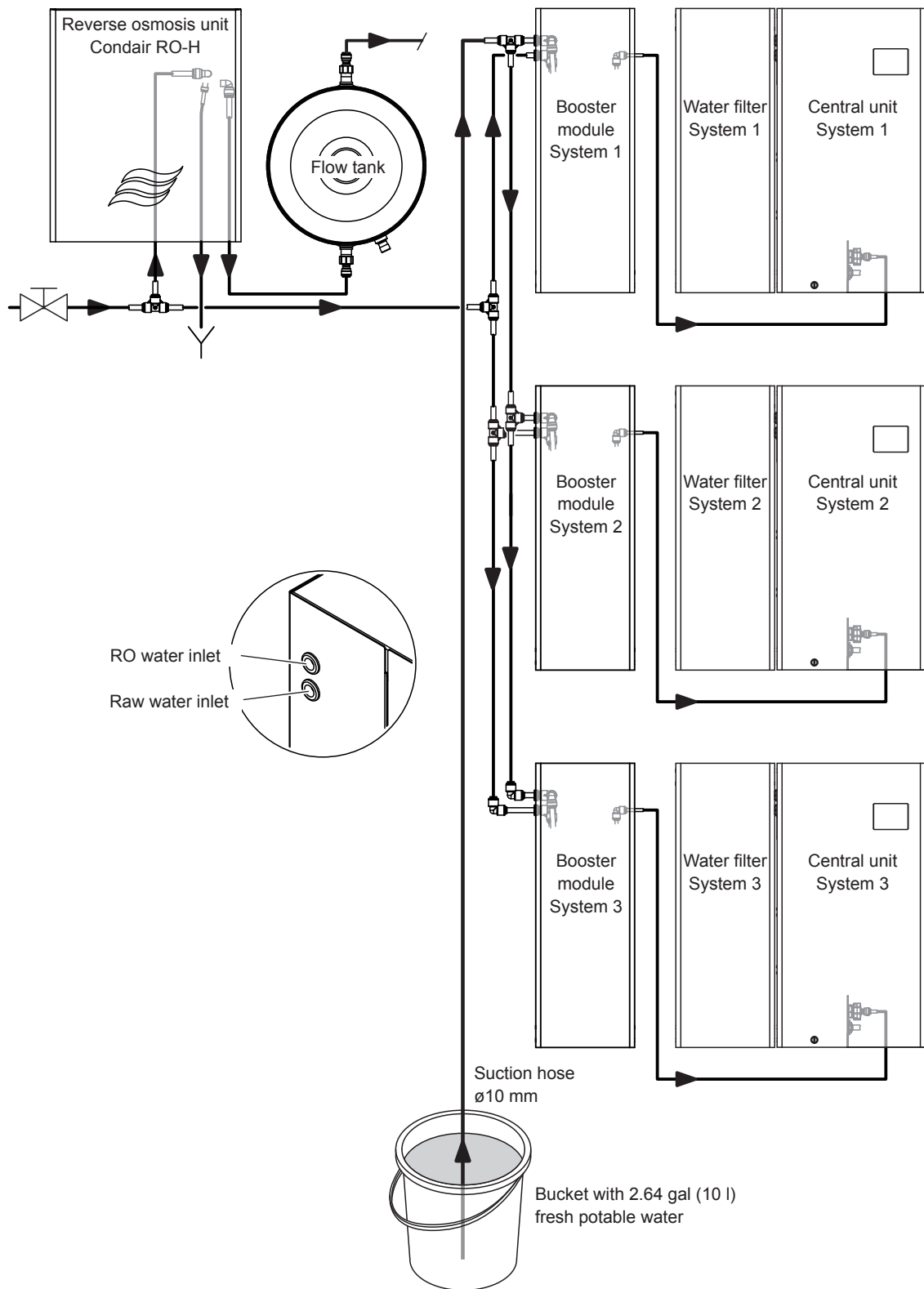
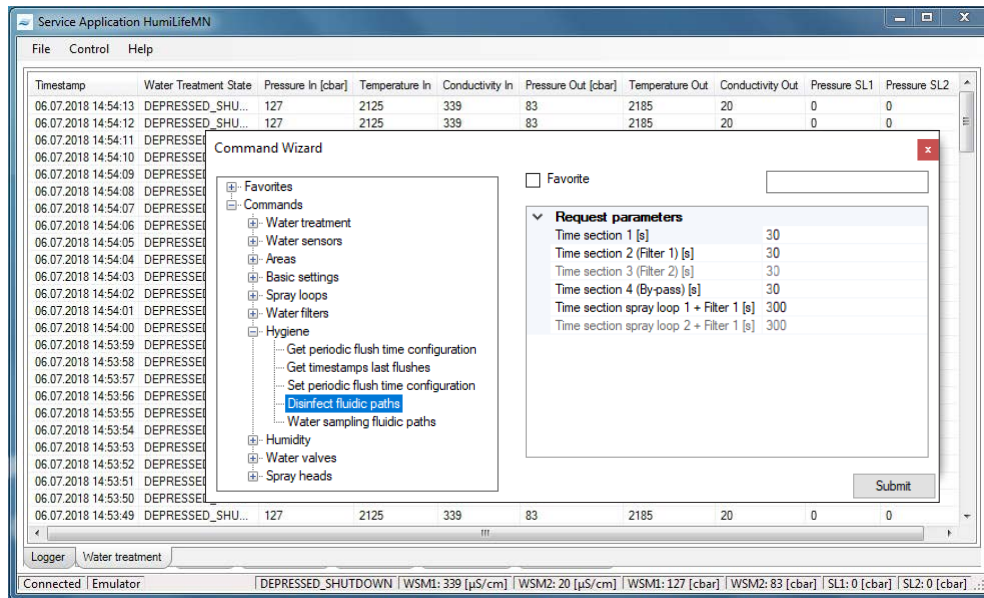


Fig. 53: Schematic diagram of the hose layout for flushing of MN multiple systems with RO-HB

- Select the "Disinfect fluidic paths" function under "Control> Commands..." in the Service Application. Set the values for "Time section 1-4" to 30 s and for "Time section spray loop 1-2" to 300 s. Start the flushing process with <Submit>.
- Start the flushing process with **<Submit>**. This flushing takes max. 12 minutes.



The determination of the individual flushing sections can be found in [Section 6.1](#).

Note: For MN multiple systems that are operated with the RO-HB reverse osmosis system, this step must be repeated for each central unit with a new bucket of fresh potable water.

11. When the flushing process is complete:

- **For MN systems that are operated with raw water (drinking water):** Switch off the circulation pump. Then remove the pressure hose of the circulation pump from the connection on the central unit and connect the water supply to the central unit.
- **For MN systems that are operated with RO water from the RO-HB reverse osmosis system:** Remove the suction hose from the connection on the booster module (for single systems) or the T-connector (for multiple systems) and connect the hose from the flow tank to the connection of the booster module or the T-connector. See connection diagrams in [Section 3.7](#).
- Remove the straight connector(s) to which the inlet and outlet hose(s) are connected in the housing(s) of the water filter(s) and reconnect the hose(s) to the filter adapter(s).

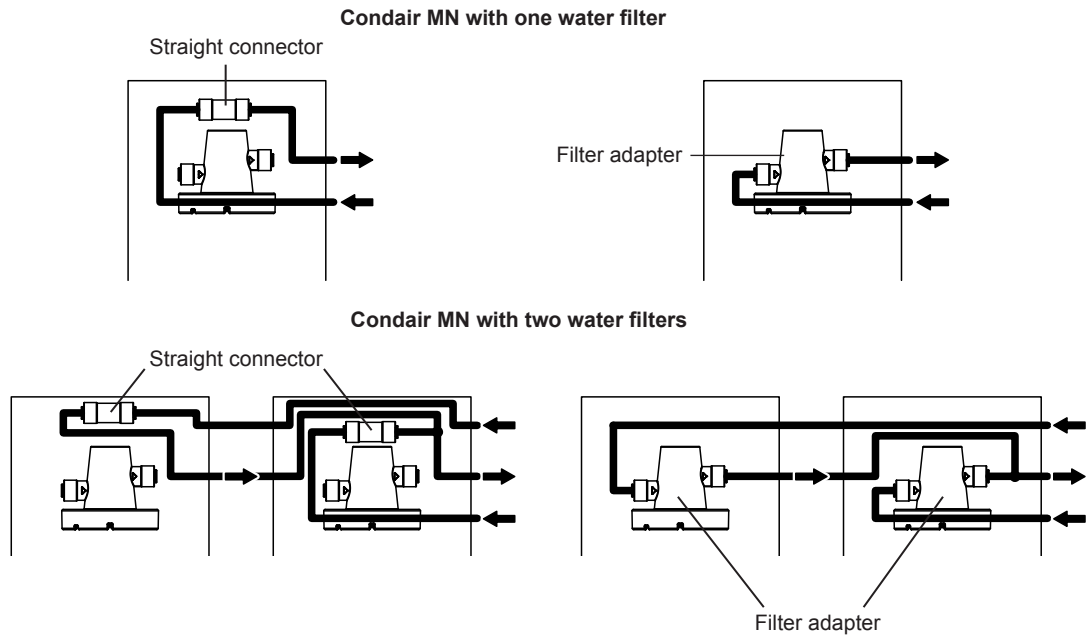


Fig. 54: Connect the inlet and outlet hoses to the filter adapter(s)

12. Install a **new** filter cartridge in the micro filter in the central unit (see [Section 4.1.3](#)).
13. The disinfection of the internal water system of the Condair MN is complete. If your system is equipped with a Condair RO-HB reverse osmosis system, continue with the disinfection of the Condair RO-HB reverse osmosis system according to [Section 4.1.5.3](#). Otherwise, put the system back into operation as described in [Section 4.1.5.4](#).

4.1.5.3 Disinfect the Condair RO-HB reverse osmosis system

To disinfect the Condair RO-HB, you will need the following service accessories:

- Sanosil S015, 1.06 gal (4 liters)
- A 3 gal (approx. 12 liter) bucket
- One new activated carbon filter cartridge and one new sediment filter cartridge
- A new RO membrane
- Cleaning cloths
- Manual shut-off valve with hose
- Min. 10 ft. (3 m) JG hose $\varnothing 0.24"$ ($\varnothing 6$ mm) (new or always the same one)

1. Place an empty bucket under the RO-H to catch any residual water.
2. Make sure that the water system is depressurized (see [Section 4.1.5.1](#)). Then disconnect the hoses marked in [Fig. 55](#) or [Fig. 56](#).

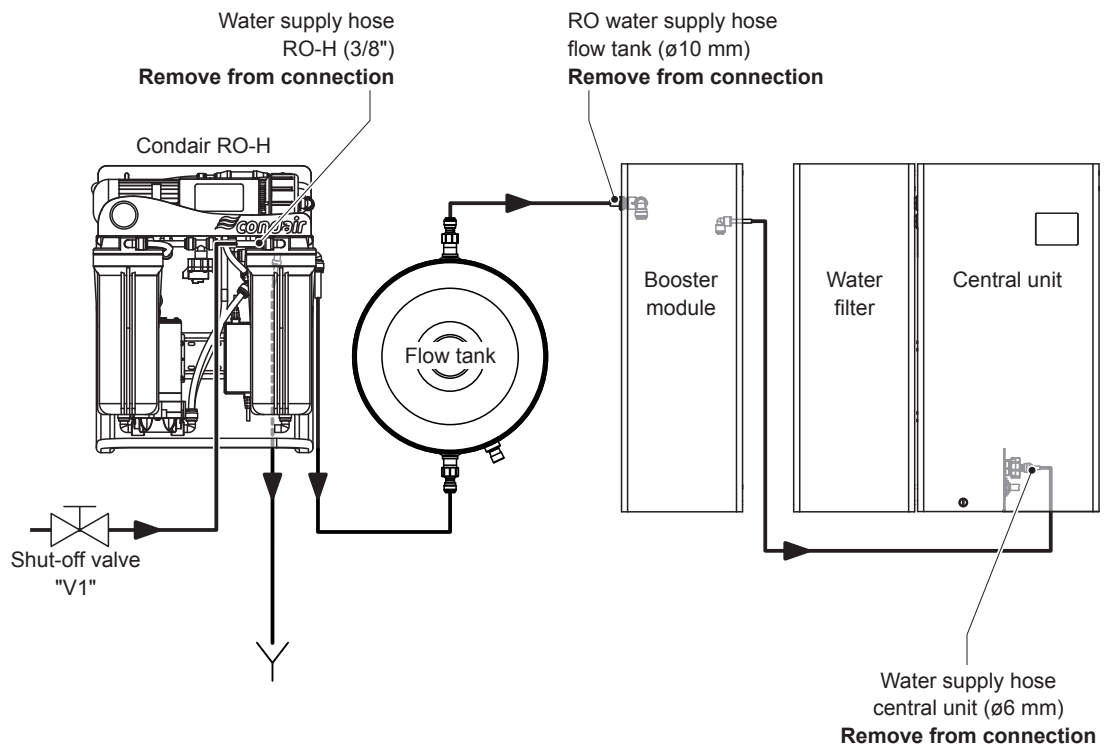


Fig. 55: Removing the hoses from MN single systems

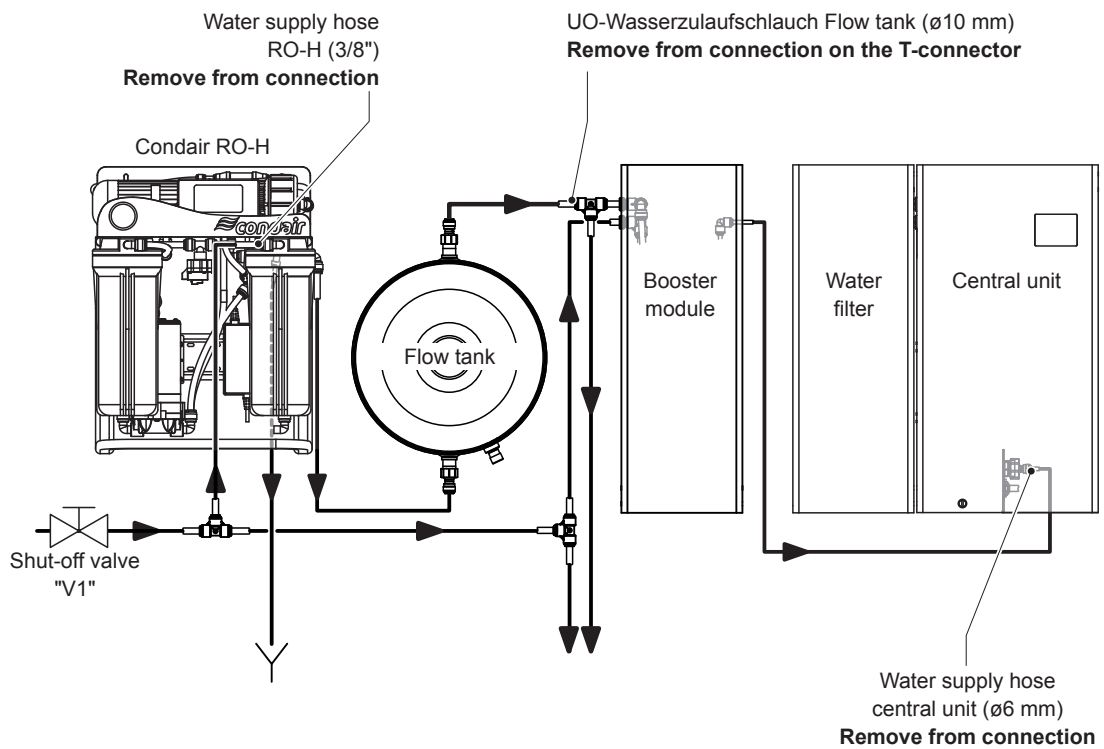


Fig. 56: Removing the hoses from MN multiple systems

3. Unscrew the filter housing of the activated carbon filter and sediment filter from the filter heads and remove the filter cartridges (see chapter 5.6 in the installation and operation manual of the Condair RO-HB).

! CAUTION!

Residual water may spill out; place a bucket under the filters

Note: Dispose of the activated charcoal filter cartridge and sediment filter cartridge in accordance with local regulations.

4. Clean the two filter housings and screw the **empty** filter housings back into the filter heads (see chapter 5.6 in the installation and operation manual of the Condair RO-HB).

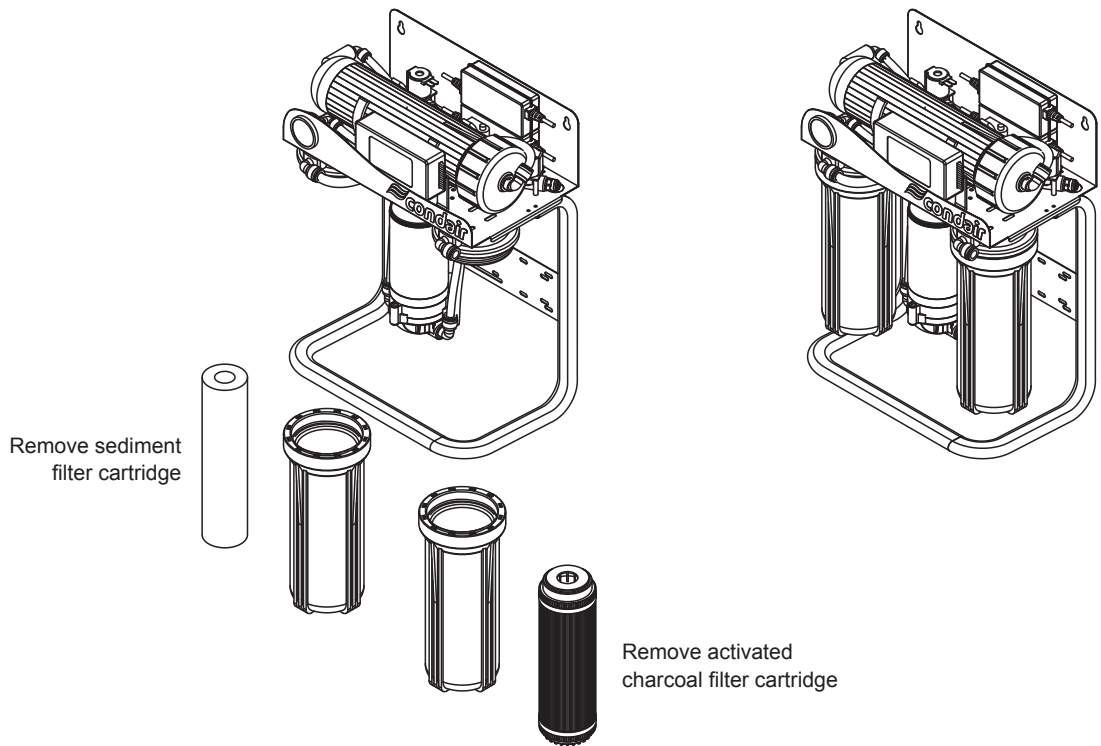


Fig. 57: Removing the activated carbon filter and sediment filter cartridge

5. Remove hose to the cover of the membrane housing, unscrew the cover and remove the RO membrane from the membrane housing (see chapter 5.6 in the installation and operation manual of the Condair RO-HB).

Note: Dispose of the RO membrane in accordance with local regulations.

6. Screw on the cover of the membrane housing again and reconnect the hose.

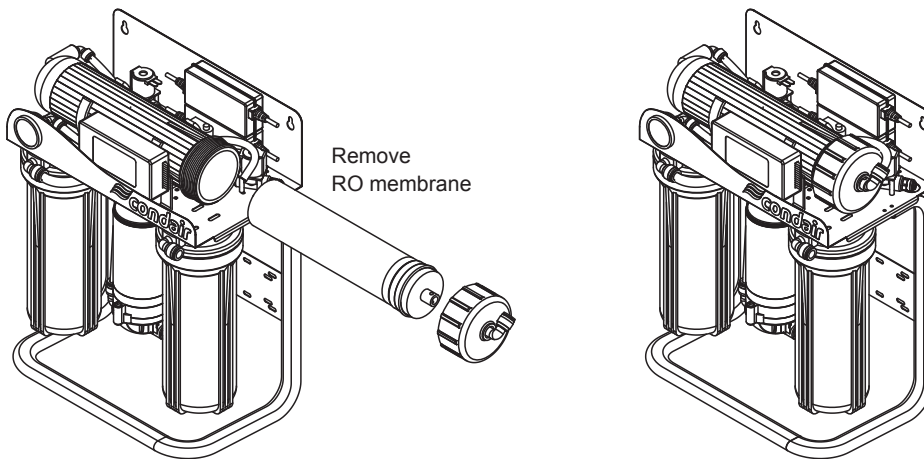


Fig. 58: Removing the RO membrane

7. Prepare disinfectant solution: Fill a 3 gal bucket (service accessory) with **1.59 gal (6 liters) of potable water** and mix it with **1.06 gal (4 liters) of Sanosil S015** (service accessory) (results in a 3% solution).

8. Create hose connections as shown in [Fig. 59](#) or [Fig. 60](#):

- Lead the outlet hose of the flow tank $\varnothing 0.39"$ ($\varnothing 10$ mm) into the bucket with the disinfectant solution.
- Immerse a suction hose $\varnothing 0.39"$ ($\varnothing 10$ mm) into the bucket with the disinfectant solution and connect it to the RO water connection of the booster module or to the T-connector of the corresponding booster module.
- Connect the outlet hose of the booster module $0.24"$ ($\varnothing 6$ mm) with an adapter $\varnothing 6-3/8"$ to the inlet connection of the reverse osmosis unit Condair RO-H.

Note: If the outlet hose of the booster module is too short because the reverse osmosis unit is too far away from the booster module, another, correspondingly long $0.24"$ ($\varnothing 6$ mm) hose must be used.

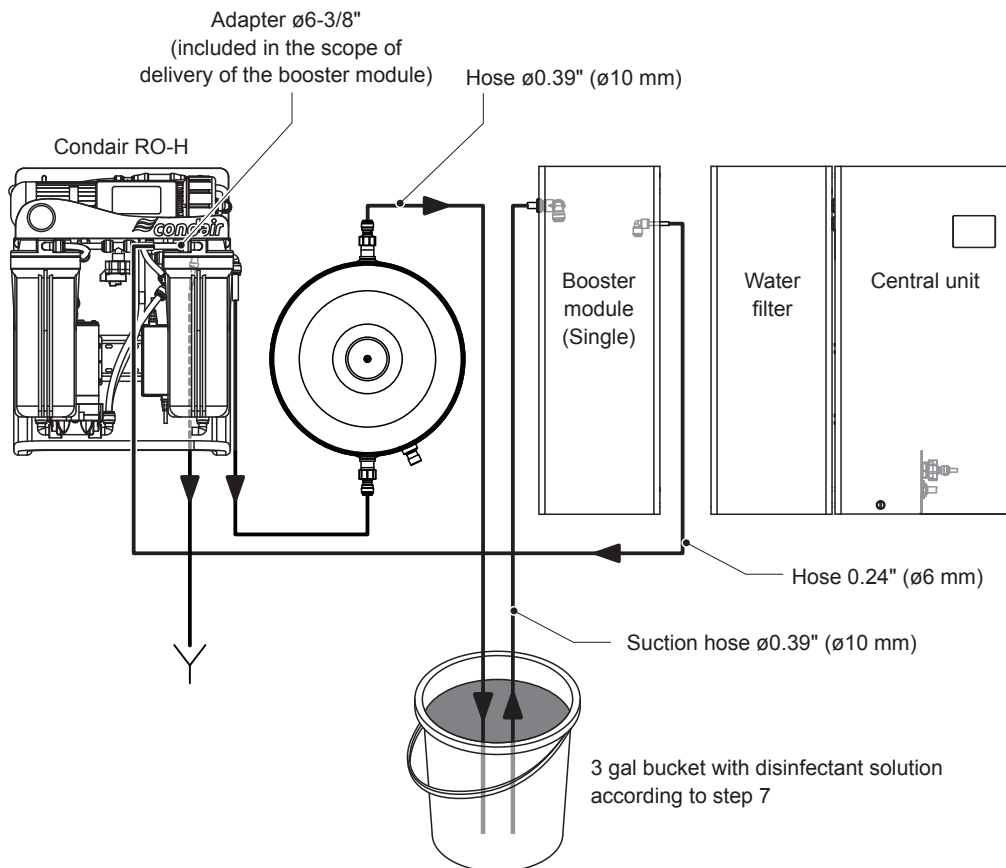


Fig. 59: Schematic diagram of the hose layout for disinfection of the Condair RO-HB for MN single systems

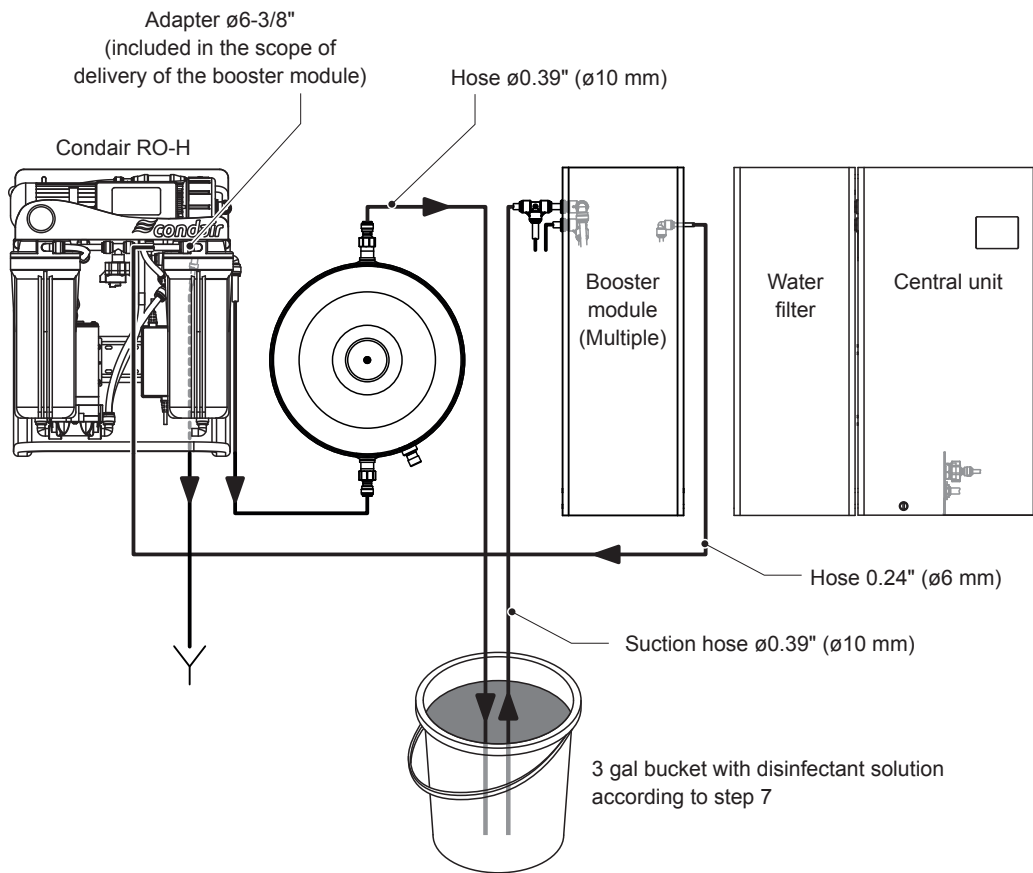
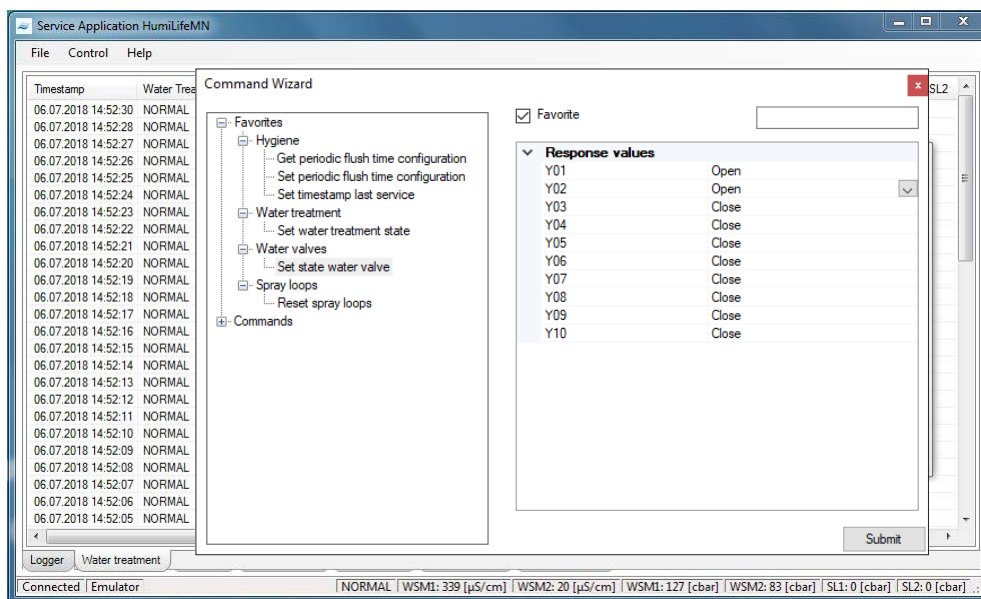
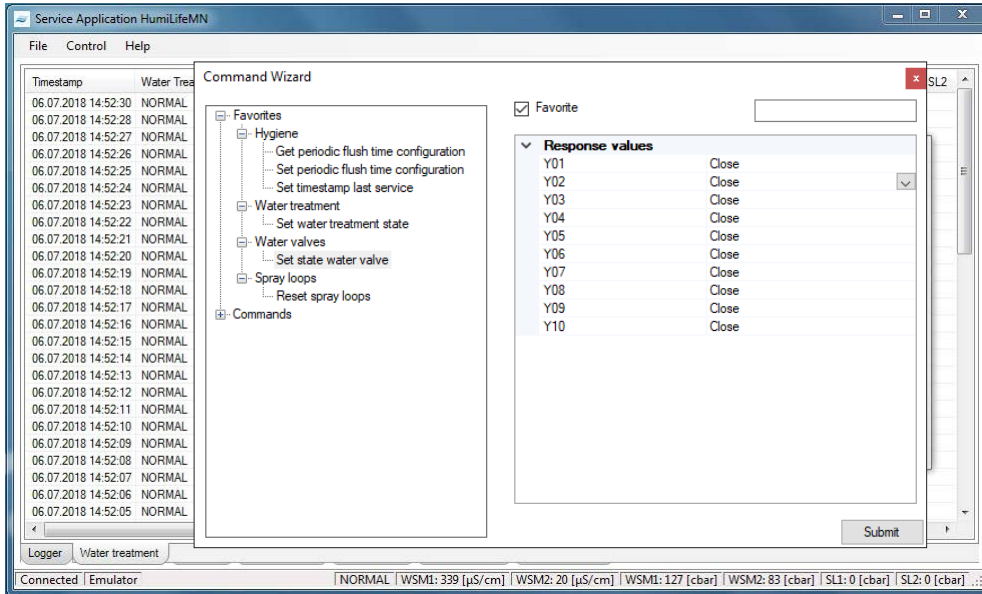


Fig. 60: Schematic diagram of the hose layout for disinfection of the Condair RO-HB for MN multiple systems

- When everything is connected according to [Fig. 59](#) or [Fig. 60](#), select the "Set state water valves" function under "Control > Commands ...", set the valves "Y1" and "Y2" to "Open" and confirm with **<Submit>**. The pump in the booster module starts up.



10. Connect the reverse osmosis unit Condair RO-H to the power supply. The disinfectant solution is then pumped into the reverse osmosis unit and the flow tank with the pump of the booster module (approx. 2.11 gal (8 l)).
11. Wait until the disinfectant solution runs out of the hose from the flow tank into the bucket with the disinfectant solution. Then select the "Set state water valves" function under "Control > Commands ...", set the valves "Y1" and "Y2" to "Close" and confirm with **<Submit>** and disconnect the reverse osmosis unit from the power supply.



12. Allow the disinfectant solution to act in the reverse osmosis unit Condair RO-H and the flow tank for at least 30 minutes.
13. Rinse out the 3 gal bucket (the rest of the disinfectant solution can be safely disposed of in the drain) and fill it with fresh potable water.

14. After the reaction time has lapsed, immerse the outlet hose of the flow tank $\varnothing 0.39"$ ($\varnothing 10$ mm) in the drain funnel on the building side and the suction hose in the bucket with the fresh potable water (see [Fig. 61](#) or [Fig. 62](#)).

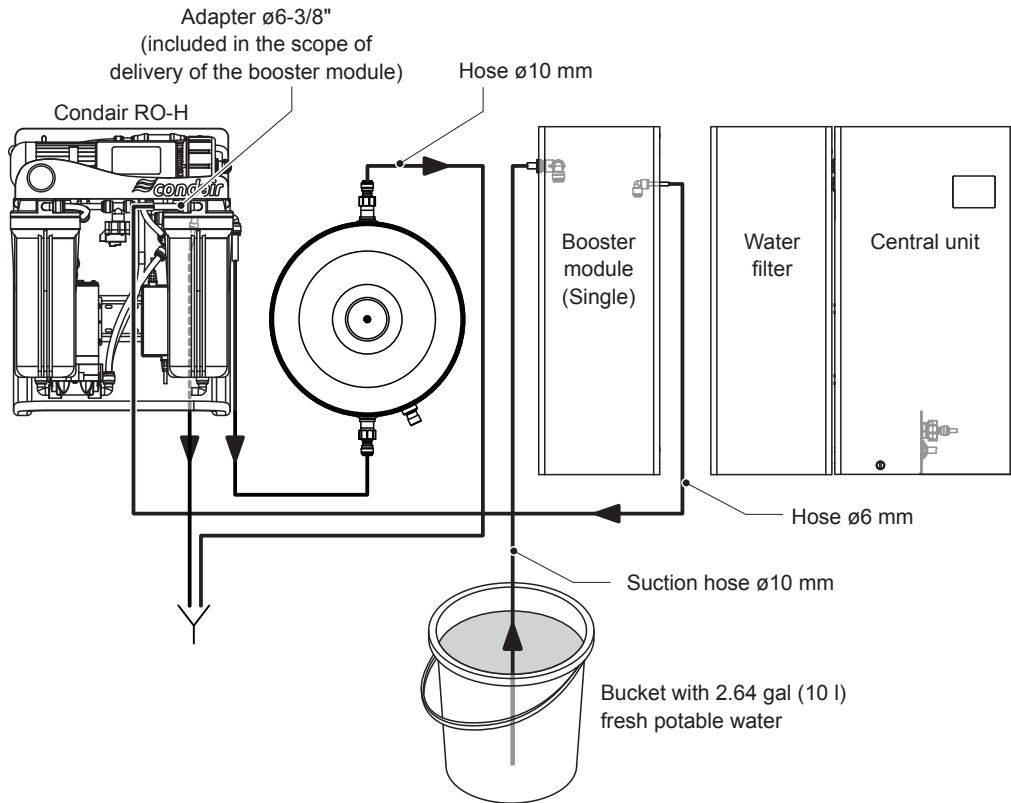


Fig. 61: Schematic diagram of the hose layout for flushing of the Condair RO-HB for MN single systems

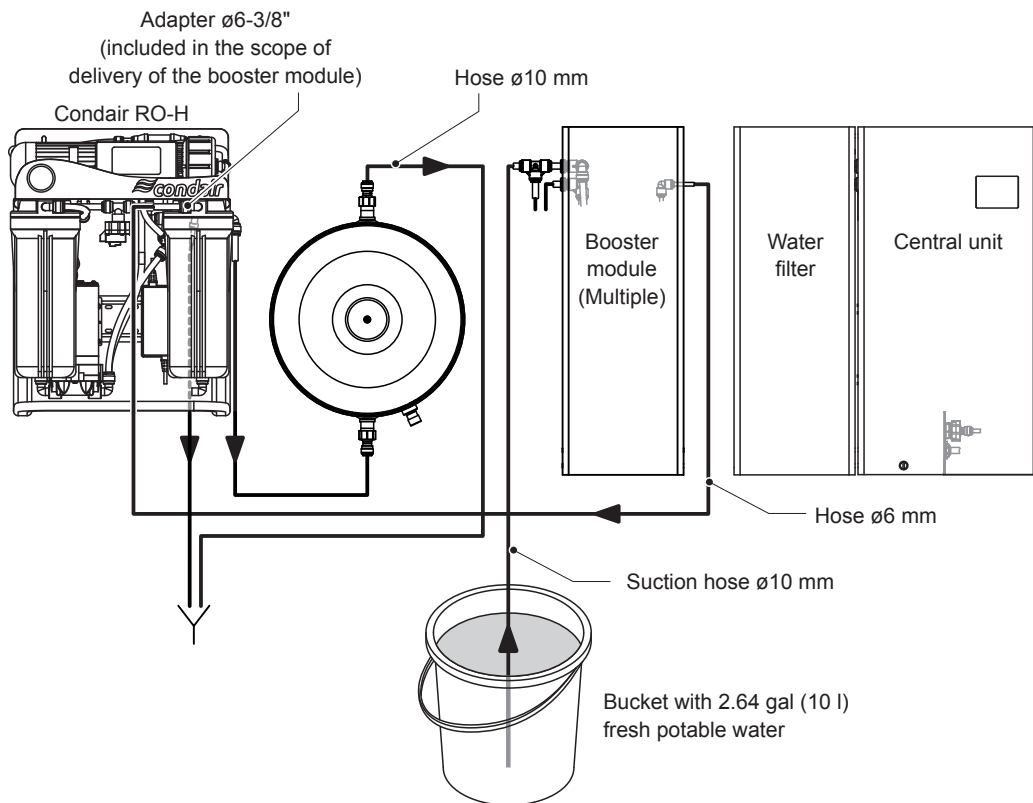
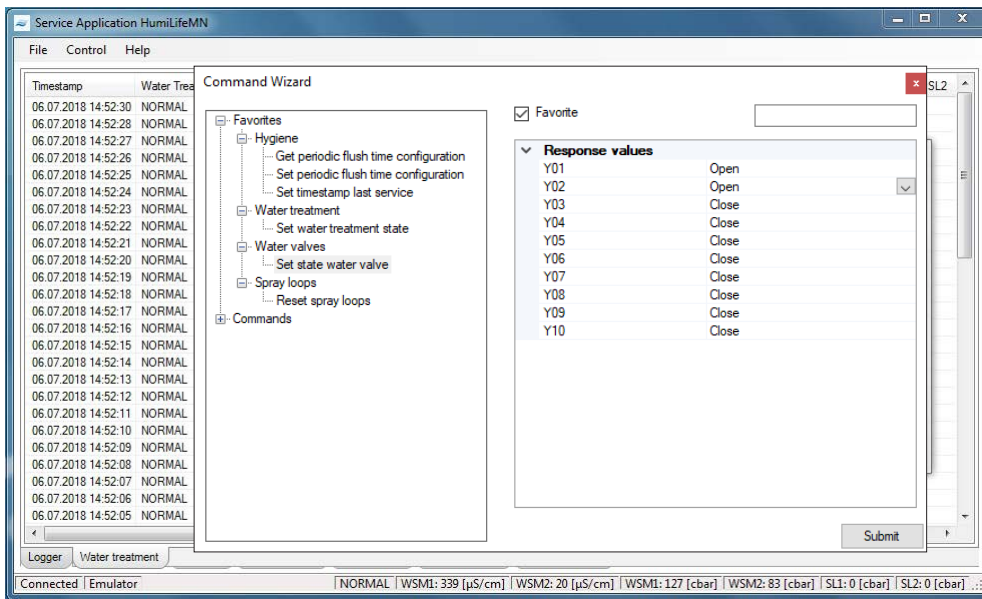


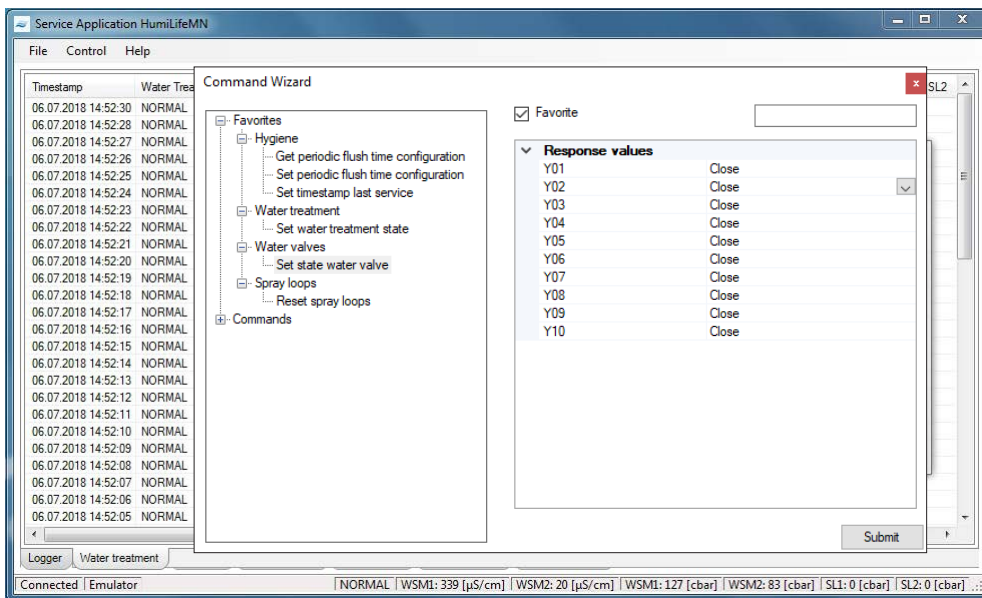
Fig. 62: Schematic diagram of the hose layout for flushing of the Condair RO-HB for MN multiple systems

- Under "Control > Commands ..." select the "Set state water valves" function, set the valves "Y1" and "Y2" to "Open" and confirm with **<Submit>**. The pump in the booster module starts up.



- Connect the reverse osmosis unit Condair RO-H to the power supply. The fresh potable water is then pumped with the pump of the booster module through the reverse osmosis unit and the flow tank into the drain funnel. Check whether the solution flows out into the funnel has visible dirt or particles. If soiling is found, repeat the flushing process (steps 13 to 16).

- As soon as the bucket with the fresh potable water is empty, select the "Set state water valves" function under "Control > Commands ...", set the valves "Y1" and "Y2" to "Close" and confirm with **<Submit>** and disconnect the reverse osmosis unit from the power supply.



18. Unscrew the filter housings from the filter heads and empty the filter housings into the bucket.
19. Put an empty bucket under the membrane housing. Lift the membrane housing on the side with the cover, pull off the hose and unscrew the cover of the membrane housing. Then empty the membrane housing into the bucket.
20. Install a new activated carbon filter cartridge (right) and a new sediment filter cartridge (left) in the filter housings and screw the filter housings back into the filter heads (see chapter 5.6 in the installation and operation manual of the Condair RO-HB).

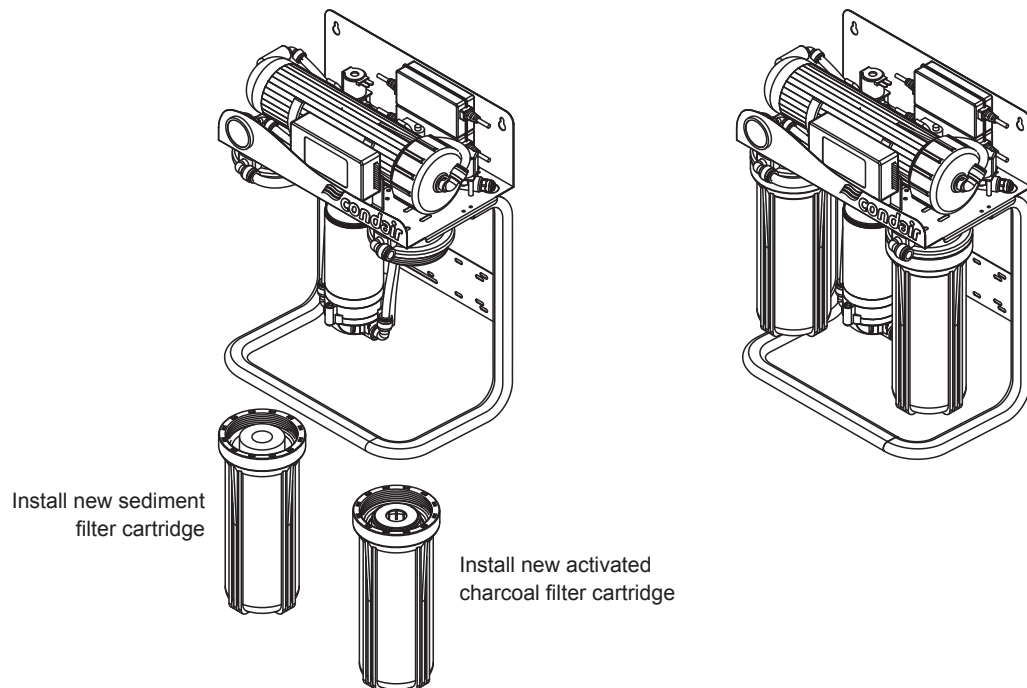


Fig. 63: Installing new activated carbon filter and sediment filter cartridge

21. Insert the new RO membrane into the membrane housing, screw on the cover and reconnect the hose (see chapter 5.6 in the installation and operation manual of the Condair RO-HB).

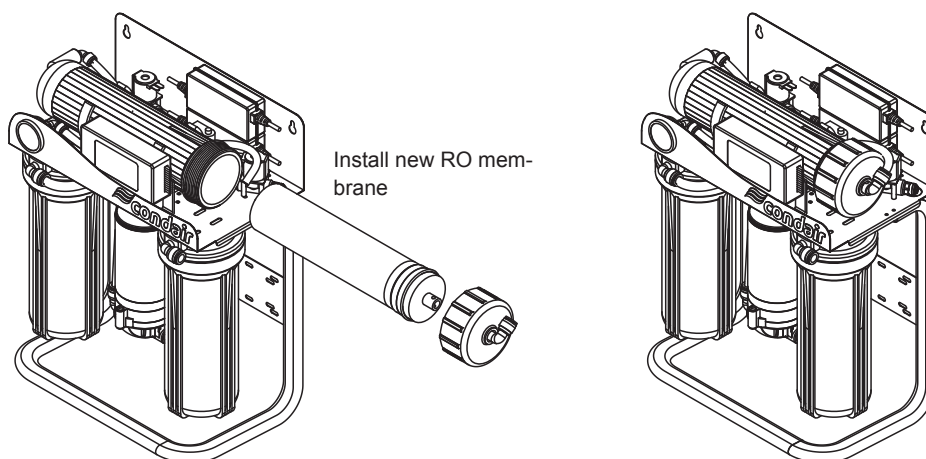


Fig. 64: Installing new RO membrane

22. Reconnect the reverse osmosis unit Condair RO-HB to the booster module and to the central unit or to the central units as shown in the corresponding figure in [Section 3.7](#).
Important: Flush the water supply hose before connecting it to the reverse osmosis unit RO-H: To do this, lead the water supply hose into a drain or empty bucket. Carefully open the shut-off valve "V1" and allow approx. 0.79 to 1.06 gal (3 to 4 liters) of water to run out. Close the shut-off valve "V1" again.
23. Open the shut-off valve "V1" in the water supply line to the reverse osmosis unit Condair RO-H (see [Fig. 55](#) or [Fig. 56](#)). The filter housings are filled and the system is pressurized.
24. Check system for leaks. Seal if necessary.
25. Connect the Condair RO-HB to the power supply.
26. The Condair RO-HB first flushes for approx. 30 seconds, then the permeate production is started and the flow tank is filled (duration: approx. 10-15 minutes). A counter is shown in the display of the controller of the reverse osmosis unit Condair RO-H.

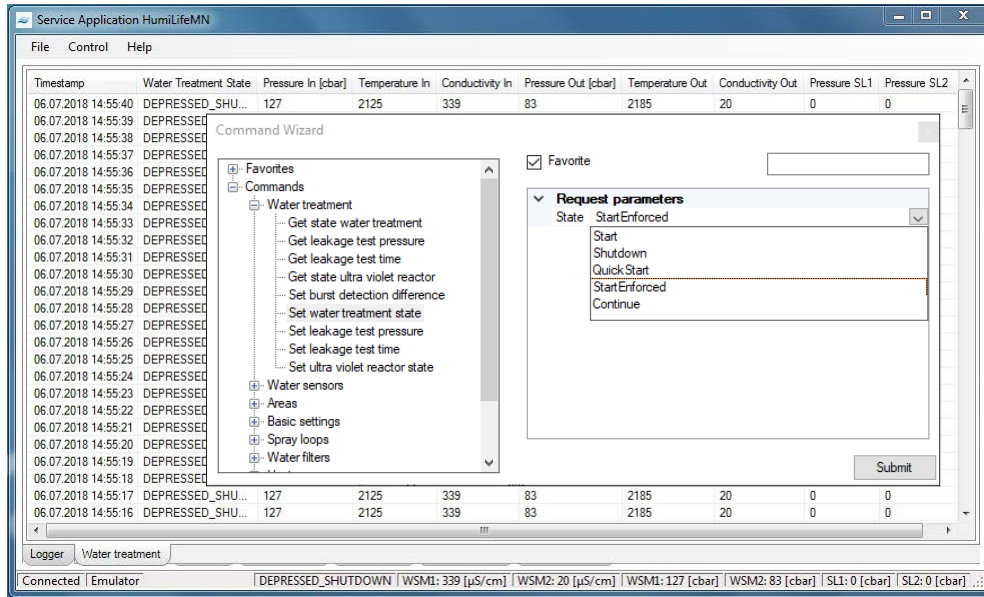


Fig. 65: Display Condair RO-HB controller

27. If the displayed TDS value is >15 ppm, press the **<Quality Flush>** key repeatedly until the TDS value in the display is below 10-15 ppm.
28. The disinfection process of the Condair RO-HB is complete. Continue with the steps for putting the system into operation according to [Section 4.1.5.4](#).

4.1.5.4 Put the system into operation

1. Start the system with the "StartEnforced" function (path: "Control > Commands... > Set water treatment state").



2. While booting up (about 30 s after confirming with **<Submit>**), replace the water filter(s) with the "Change filter" service function on the control panels.

As soon as the menu-guided procedure for the replacement of the water filter(s) is completed, the system is restarted, the water system is flushed via the water filter(s) and all error messages are deleted. Duration of startup, approx. 20 minutes. The system then automatically goes into normal operating mode and is ready for operation.

4.1.6 Check the air pressure of the flow tank of the Condair RO-HB reverse osmosis system

Check the air pressure of the flow tank at the compressed air connection (tire valve) with an appropriate gauge. The **pre-pressure must be 0.8 bar ±0.1 bar**. If necessary, top up compressed air via the compressed air connection.

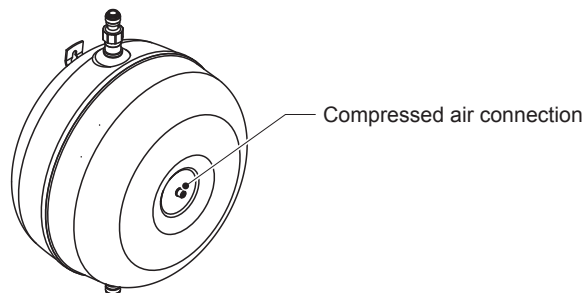
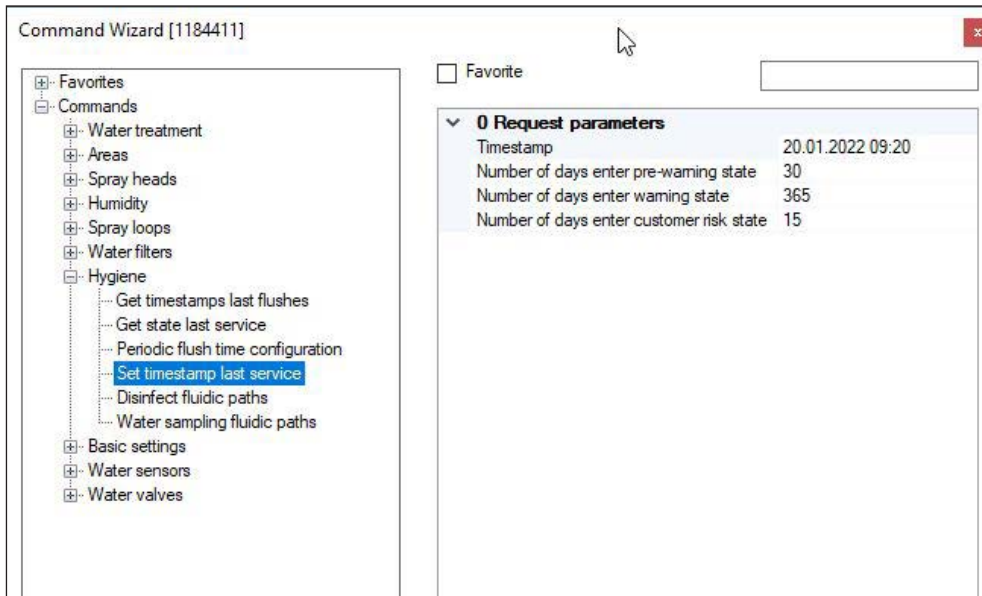


Fig. 66: Compressed air connection flow tank

4.2 Reset the maintenance counter

1. Disconnect the network cable from the central unit at the gateway and connect it to the laptop.
2. Start the MN service application on the laptop. Establish the local connection to the central unit (double-click the "Local" icon).
3. Select the "Set timestamp last service" function in the service application under "Control > Commands...>".
4. In the "Timestamp" field, enter the current date and time in the format "DD.MM.YYYY hr:min".
5. If necessary, specify the number of days for the pre-warning message for the next maintenance in the "Number of days enter pre-warning state" field and the number of days until the warning message for the next maintenance is triggered in the "Number of days enter warning state" field.



4.3 Replacement of components

4.3.1 Preparing the system for component replacement

1. Disconnect the network cable from the central unit at the gateway and connect it to the laptop.
2. Start the MN service application on the laptop. Establish the local connection to the central unit (double-click the "Local" icon) and use the "Shutdown" function (path: "Control > Commands... > Set water treatment state") to shut the system down. The system will be automatically depressurized and the UV lamp deactivated.
3. **Important:** Wait until the status "Depressed_Shutdown" is displayed. Then stop the service application on the laptop.
4. Switch the central unit off and unplug the power cable.

4.3.2 Resetting the system to normal operating mode after replacing components

1. Plug the mains cable of the central unit in and switch the central unit on.
2. Start the MN service application on the laptop. Establish the local connection to the central unit (double-click the "Local" icon) and start the system using the "QuickStart" function (path: "Control > Commands... > Set water treatment state"). The system will go into normal operating mode.
3. Stop the service application, disconnect the network cable from the central unit on the laptop and reconnect it to the gateway.

4.3.3 Replacing the water sensor modules

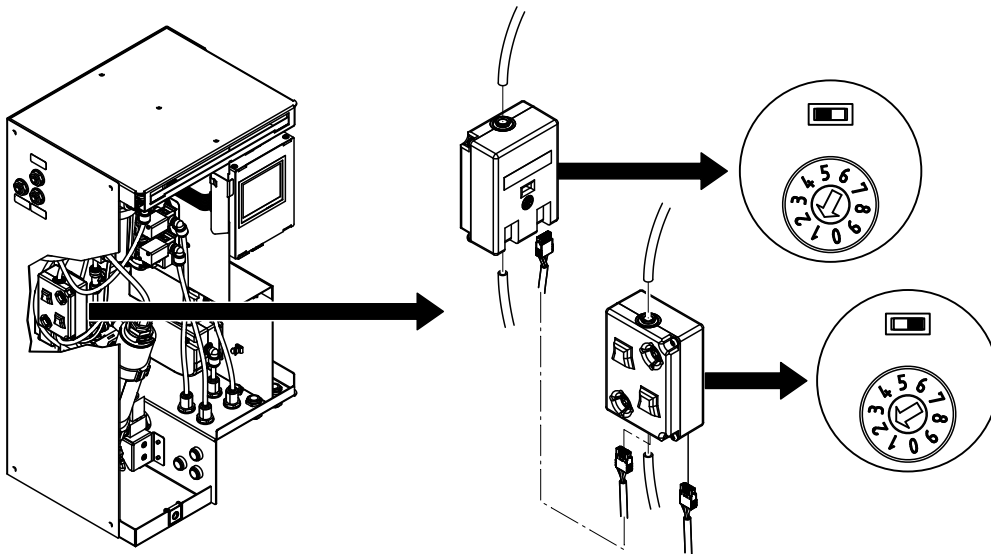


Fig. 67: Replacement of the water sensor module

1. Prepare the system for the replacement according to [Section 4.3.3](#).
2. Remove the front panel of the central unit.
3. Disconnect the two hoses at the bottom and top of the corresponding water sensor module.
CAUTION: Some residual water may escape when the hoses are loosened! Have rags to hand and immediately wipe off any leaked water.
4. Disconnect the one or two CAN bus cables from the water sensor module.
5. Push the corresponding water sensor module upwards out of the retaining tabs and remove.
6. For a new water sensor module, set the rotary switch and the slide switch as follows:
 - Water sensor module on the back wall:
Rotary switch to pos. 1 and slide switch to the left
 - Water sensor module on the side wall:
Rotary switch to pos. 2 and slide switch to the right
7. Hook the new water sensor module into the corresponding retaining tabs and push down until it stops.
8. Insert the one or two CAN bus cables into the corresponding connection(s) on the water sensor module.
9. Connect the two hoses to the connections at the top and bottom of the water sensor module.
10. Attach and lock the front cover of the central unit.
11. Reset system to normal operation mode according [Section 4.3.2](#).

4.3.4 Replacing the drain modules

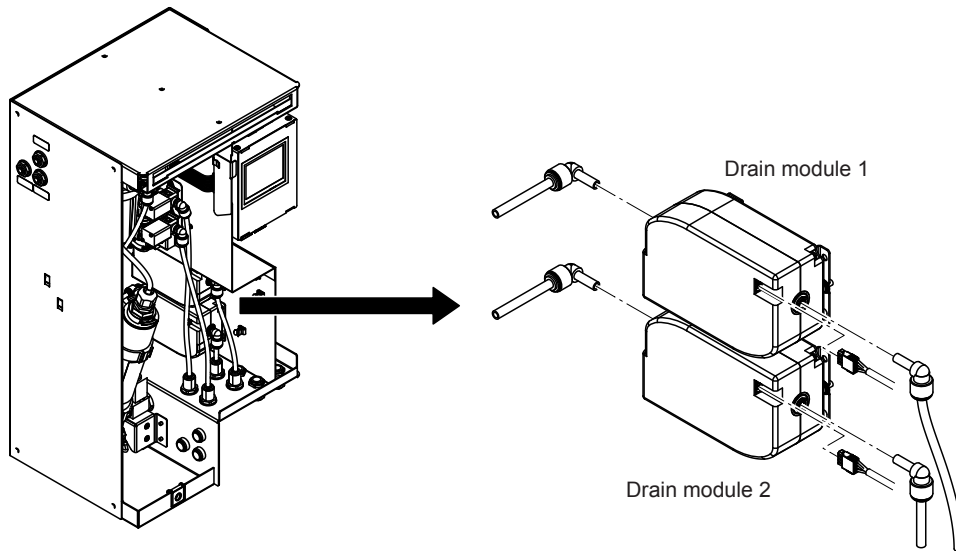


Fig. 68: Replacing the drain module

1. Prepare the system for the replacement according to [Section 4.3.3](#).
2. Remove the front panel of the central unit, if the internal drain module(s) must be replaced.
3. Pull off the right angle connectors (internal drain module) or the two hoses at the bottom and top (external drain module) from the corresponding drain module.
4. Disconnect the CAN bus cable from the corresponding drain module.
5. Push the defective drain module out of the holder and remove.
6. Hook the new drain module into the holder and push it into the holder until it stops.
7. Insert the CAN bus cable into the drain module connection.
8. Insert the angle connectors (internal drain module) or the two hoses at the bottom and top (external drain module) as far as possible into the respective connectors.
9. If the internal drain modules have been replaced, attach and lock the front cover of the central unit.
10. Reset system to normal operation mode according [Section 4.3.2](#).

4.3.5 Replacing the valve block

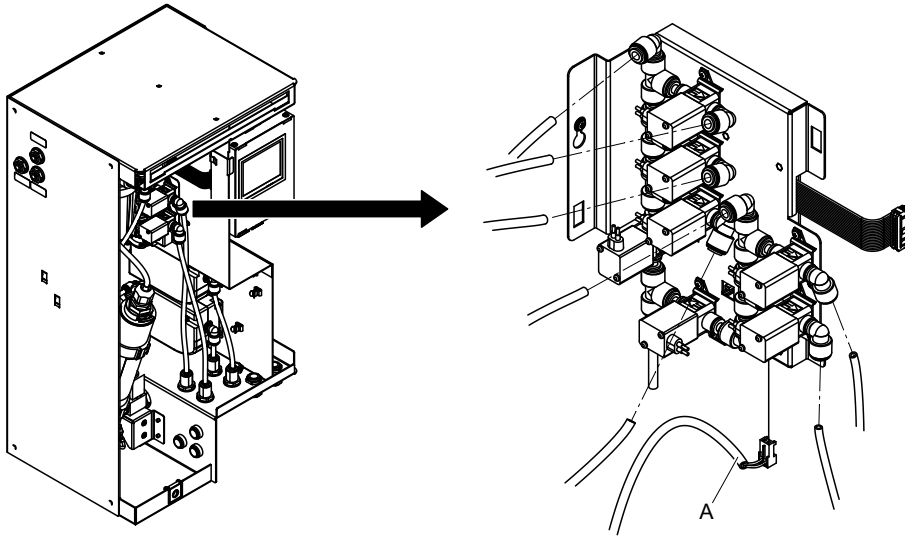


Fig. 69: Replacing the valve block

1. Prepare the system for the replacement according to [Section 4.3.3](#).
2. Remove the front panel of the central unit.
3. Mark all hoses according to the valves on the valve block and disconnect them.
4. Mark all connecting cables according to the valves on the valve block and disconnect them.
5. Fold the connector cover down and unplug the flat ribbon cable leading to the Control Box from the Control Box.
6. Disconnect the connection cable from the inlet valve and unhook cables from the tabs on the valve block plate.
7. Slightly loosen the screw on the back wall of the housing and remove the valve block.
8. Hook the new valve block into the screw on the back wall of the housing and tighten the screw.
9. Hook the connection cable "A" from the inlet valve into the valve block plate and insert it into the connection on the board of the valve block.
10. Connect the flat ribbon cable to the corresponding connector on the Control Box and fold the connector cover upwards.
11. Connect all connection cables to the valves on the valve block according to the notation in step 5.
12. Connect all hoses to the valves on the valve block according to the notation in step 4.
13. Attach and lock the front cover of the central unit.
14. Reset system to normal operation mode according [Section 4.3.2](#).

4.3.6 Replacing the inlet valve

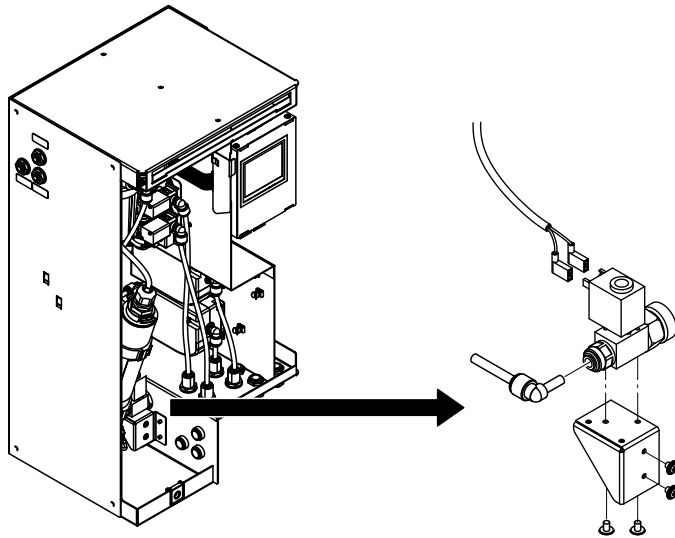


Fig. 70: Replacing the inlet valve

1. Prepare the system for the replacement according to [Section 4.3.3](#).
2. Remove the front panel of the central unit.
3. Close the shut-off valve in the water feed line.
4. Disconnect the inlet hose and outlet hose.
5. Disconnect the connection cable from the inlet valve.
6. Loosen the two screws on the retaining plate and remove the inlet valve and retaining plate together.
7. Loosen the two screws securing the inlet valve to the retaining plate and remove the inlet valve.
8. Mount the new inlet valve in the reverse order of steps 4 to 7.
9. Open the shut-off valve in the water supply line and check the inlet valve as well as inlet and outlet hose for leaks.
10. Attach and lock the front cover of the central unit.
11. Reset system to normal operation mode according [Section 4.3.2](#).

4.3.7 Replacing the control box

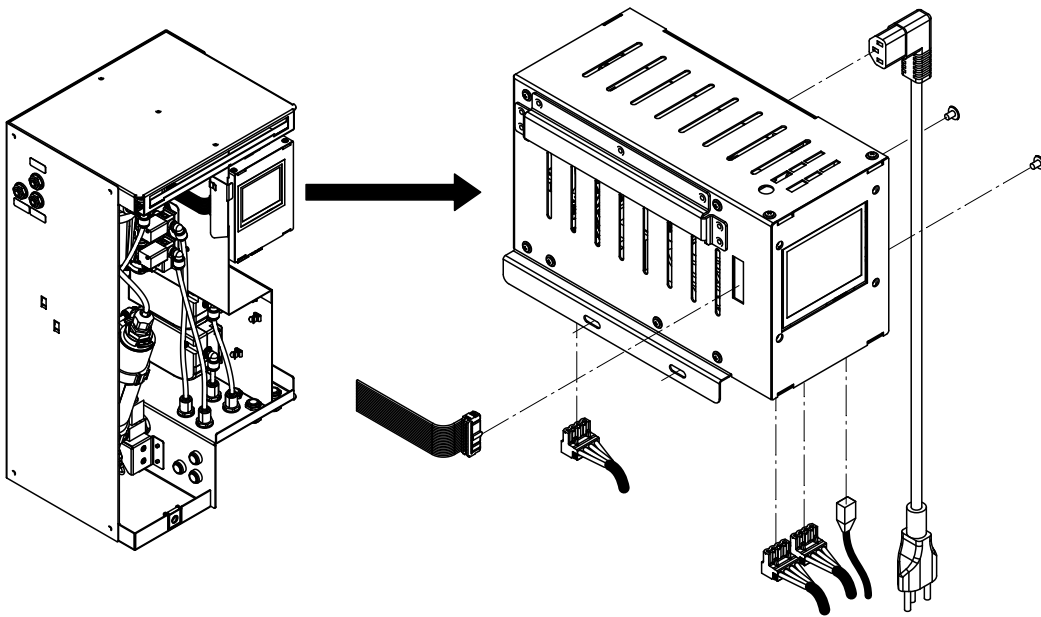


Fig. 71: Replacing the control box

1. Disconnect the network cable from the central unit at the gateway and connect it to the laptop.
2. Start the MN service application on the laptop. Establish the local connection to the central unit (double-click the "Local" icon) and use the "Shutdown" function (path: "Control > Commands... > Set water treatment state") to shut the system down.
3. In the service application, select "Workflow Commissioning" (path: "Control > Commissioning..."), and note the configuration data (serial number of the system, language, number of spray loops, number of water filters, selected organization unit, zone designations and nominal humidity setpoints of the zones). After recording the data, exit "Workflow Commissioning" with **<Abort>**.

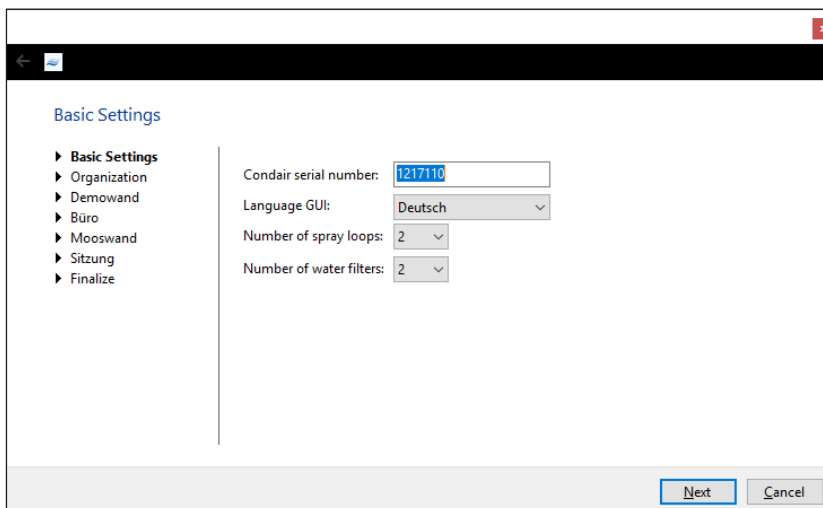


Fig. 72: Basic settings

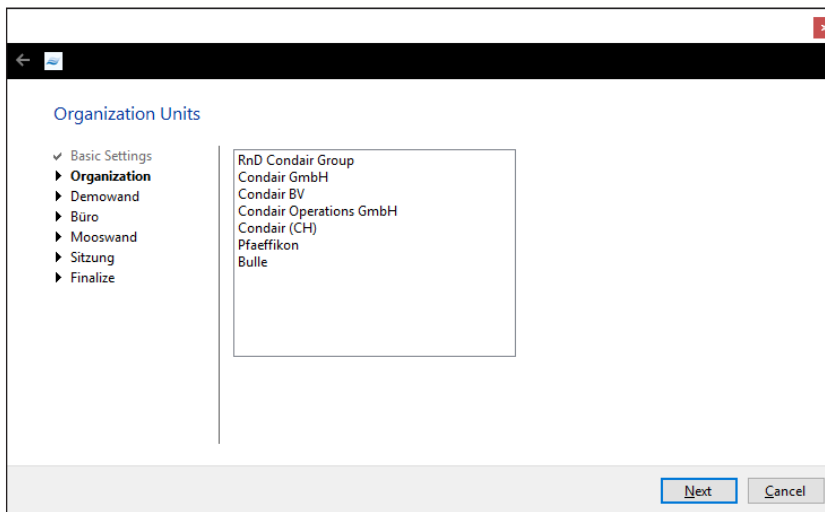


Fig. 73: Organization

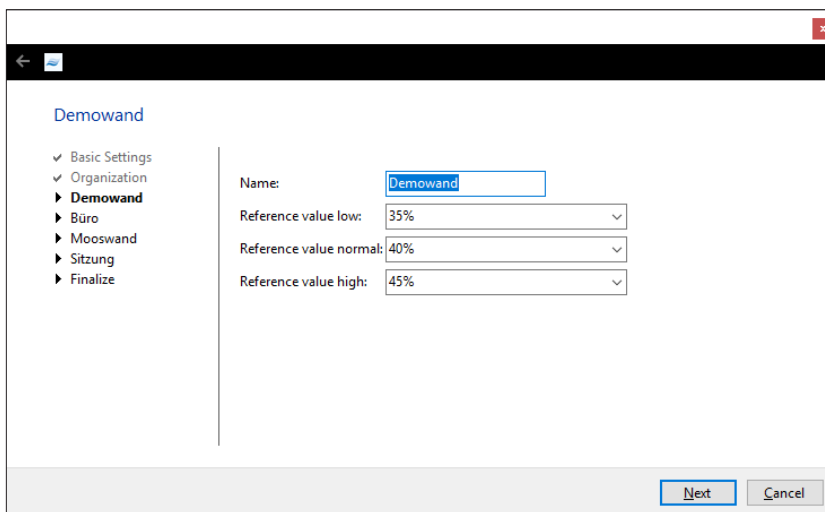


Fig. 74: Area properties

4. Turn the central unit off and unplug the power cord from the central unit.
5. Remove the front panel of the central unit.
6. Disconnect the CAN bus cable (one spray loop) or the two CAN bus cables (two spray loops) at the bottom of the control box from the control box connections.
7. Fold the connector cover down and unplug the flat ribbon cable leading to the Control Box from the Control Box.
8. Disconnect the UV lamp cable from the connector on the bottom of the control box.
9. Disconnect the network cable from the control box.
10. Loosen the two screws, slide the control box upwards out of the holder and remove the control box.
11. Install and connect new Control Box in reverse order of steps 4 to 10.
12. Update the control software (note instructions in [Section 4.4](#) and follow steps 6 to 13).
13. Attach and lock the front cover of the central unit.

14. Plug the mains cable of the central unit in and switch the central unit on.
15. Restart the MN service application on the laptop. In the service application window, establish a local connection to the central unit (double-click the "Local" icon) and select "Workflow Commissioning" (path: "Control> Commissioning...") and enter the configuration data (language, number of spray loops, number of water filters, the serial number of the system, zone designations and humidity set-points for the zones) according to the notation in step 3. After entering all configuration data, confirm with **<Execute>**.
16. Stop the service application. Then disconnect the network cable from the central unit on the laptop and reconnect it to the gateway.

4.3.8 Replacing the humidifier unit

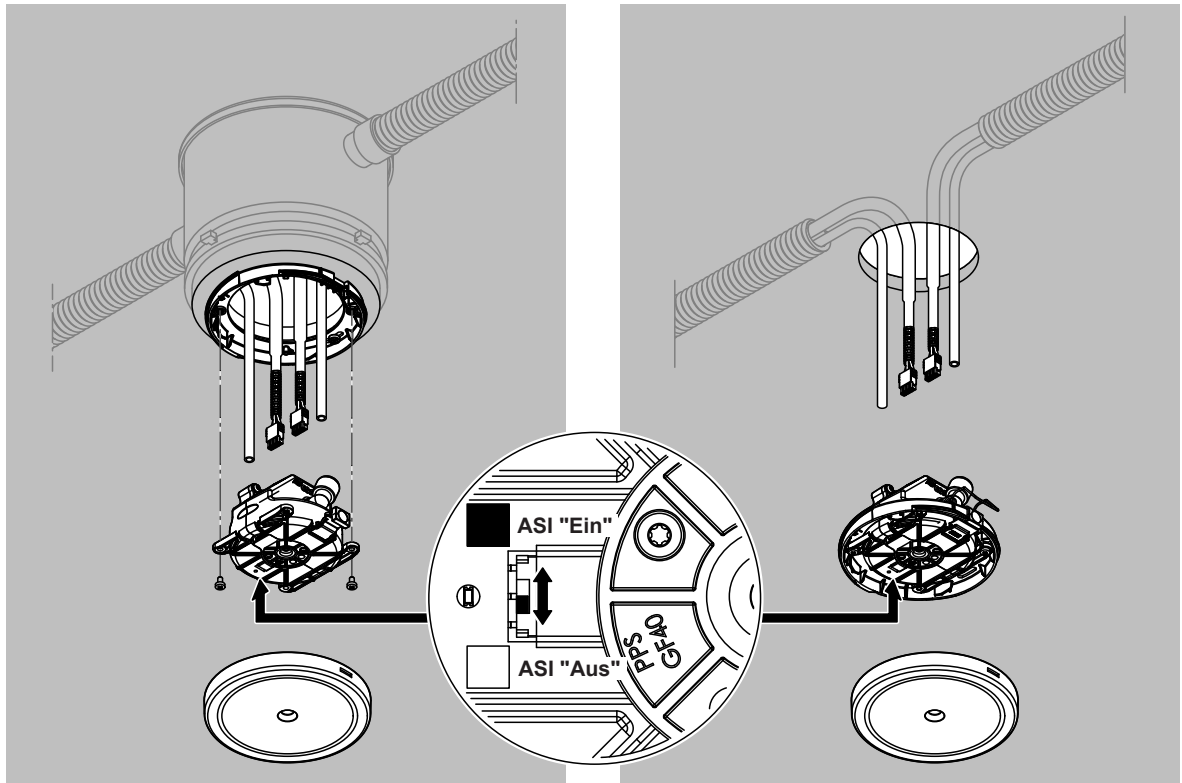


Fig. 75: Replacing the humidifier unit (screwed version on the left, pluggable version on the right)

1. Prepare the system for the replacement according to [Section 4.3.3](#).
2. Remove the panel (flush-mounted version) or hood (surface-mounted version) from the corresponding humidifier module.
3. Loosen the two screws (screwed version only, see [Fig. 75](#) left).
4. Carefully pull the humidifier unit downwards.
5. Disconnect the two hoses and the two CAN bus cables from the connections.
6. Remove the humidifier unit.
Important: Only remove one humidifier unit at a time; otherwise water could leak out of the open hoses.
7. Set the ASI switch on the new humidifier unit to the same position as it was on the old one.
8. Connect the two hoses and the two CAN bus cables to the new humidifier unit.
9. Attach the new humidifier unit with the two screws.
10. Install the panel (flush-mounted version) or hood (surface-mounted version).
11. Reset system to normal operation mode according [Section 4.3.2](#).

4.3.9 Replacing the humidifier unit's humidity sensor

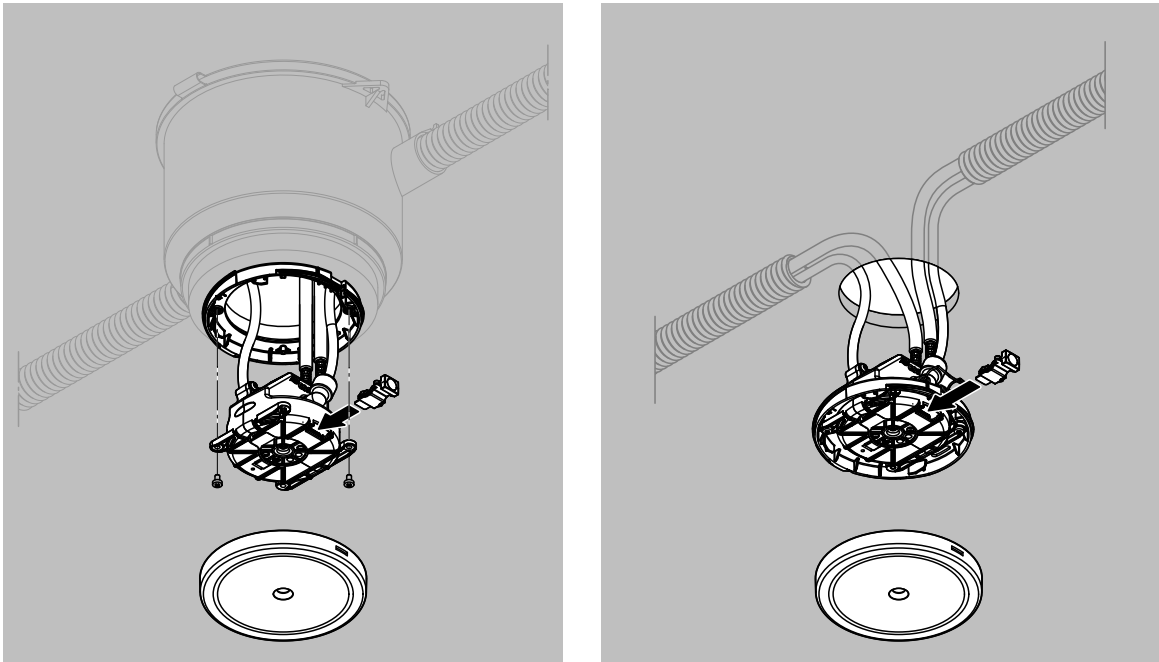


Fig. 76: Replacing the humidity sensor (screwed version on the left, pluggable version on the right)

1. Prepare the system for the replacement according to [Section 4.3.3](#).
2. Remove the panel (flush-mounted version) or hood (surface-mounted version) from the corresponding humidifier module.
3. Loosen the two screws (screwed version only, see [Fig. 76](#) left).
4. Carefully pull the humidifier unit downwards.
5. Disconnect the humidity sensor.
6. Insert the new humidity sensor.
7. Attach the humidifier unit with the two screws.
8. Install the panel (flush-mounted version) or hood (surface-mounted version).
9. Reset system to normal operation mode according [Section 4.3.2](#).

4.4 Updating the control software

To update the control software, you will need a FAT32-formatted USB memory stick with the actual version of the control software. The new version of the control software must be at the upper level of the USB memory stick.

Note: The latest version of the control software is always sent to the local agents via WeCare. Please get in touch with your area representative in this regard.



DANGER!
Risk of electrocution

The update of the control software must be carried out with the central unit open and turned on. If the central unit is open, live parts may be touched. Touching live parts may cause severe injury or death.

For this reason: The software update may only be performed by qualified personnel who are familiar with the associated risks.

1. Remove the front panel of the central unit.
2. With the central unit switched on, plug the USB memory stick with the new version of the control software into the USB interface at the bottom of the control box.
3. The controller automatically detects that a USB flash drive is inserted and the following message will appear in the central unit display. Respond to the question in the negative by pressing the <X> button.

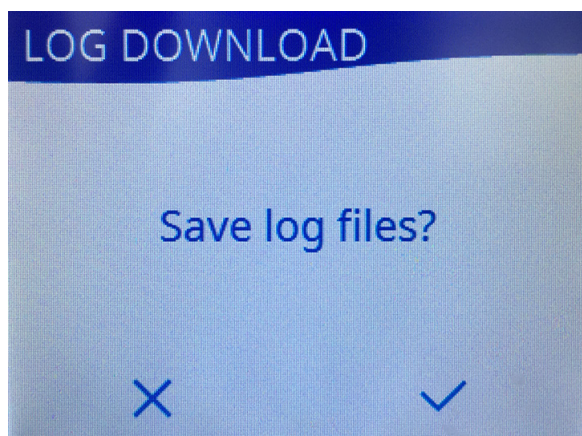


Fig. 77: Save notification system data

4. Then, a message will appear asking if you want to update the control software (if the update program is at the upper level of the USB memory stick). Respond to the question positively by pressing <✓>.

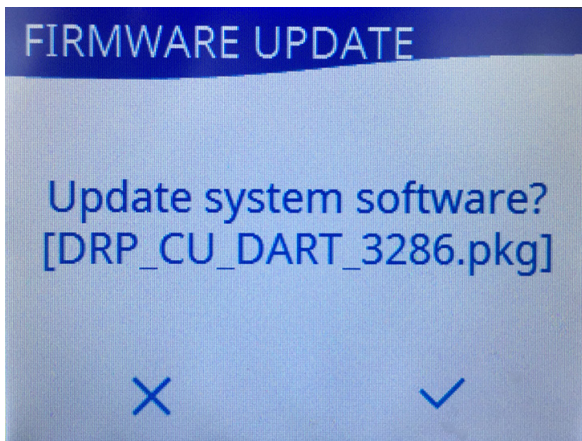


Fig. 78: Copy notification system software

The update will begin. A progress bar will appear in the display during the update process. When the process is completed, the home screen will reappear.

! CAUTION!

Do not interrupt a software update once it has started. Wait for the update to finish. Damaged control software or driver disk firmware may render the system unusable.

Note: If a software update is unintentionally interrupted, the system will not run. However, the software update can be restarted, if the USB memory stick is left in the USB interface of the control box, and the central unit is switched off and on again. The controller will then detect that the software has not been installed correctly and will automatically restart the update process (at point 8).

5. Remove the USB memory stick.
6. Attach and lock the front cover of the central unit.

5 Malfunctions

5.1 Fault messages

Code	Message	Possible cause	Fault message / Remedy
	Water quality	The water quality no longer meets the system requirements.	(depending on the error, see below)
(0x0253) 595	Conductivity_F1_toohigh	Water filter F1 is exhausted.	Water filter 1 is exhausted. Replace water filter 1.
(0x0254) 596	Conductivity_F1_high	Water filter F1 is nearly exhausted.	Water filter 1 is soon exhausted. Plan water filter replacement.
(0x0256) 598	Conductivity_F2_toohigh	Water filter F2 is exhausted.	Water filter 2 is exhausted. Replace water filter 2.
(0x0257) 599	Conductivity_F2_high	Water filter F2 is nearly exhausted.	Water filter 2 is soon exhausted. Plan water filter replacement.
(0x0258) 600	Conductivities_out_of_range	Conductivity value of both water filters too high.	Both water filters are exhausted. Replace water filters.
	Hydraulics	There is an error in the hydraulics.	Please contact your Condair representative.
	Electrical	There is an error in the electronics.	Please contact your Condair representative.
	Communication	There is an error in the communications.	Please contact your Condair representative.

5.2 Water system

Code	Message	Possible cause	Remedy
(0x0200) 512	Last_flush_IN_too_long_ago	see Section 5.6	
(0x0201) 513	Last_flush_BYP_too_long_ago		
(0x0202) 514	Last_flush_F1_too_long_ago		
(0x0203) 515	Last_flush_F2_too_long_ago		
(0x0204) 516	Last_flush_SL1_too_long_ago		
(0x0205) 517	Last_flush_SL2_too_long_ago		
(0x0237) 567	Leakage_IN	Hose(s) damaged or faulty hose connection(s).	Check hose connections and replace defective hose(s) if necessary.
(0x0238) 568	Leackage_OUT	Hose(s) damaged or faulty hose connection(s).	Check hose connections and replace defective hose(s) if necessary.
(0x0239) 569	Leackage_SL1	Hose(s) damaged or faulty hose connection(s).	Check hose connections and replace defective hose(s) if necessary.
(0x023A) 570	Leackage_SL2	Hose(s) damaged or faulty hose connection(s).	Check hose connections and replace defective hose(s) if necessary.
(0x023B) 571	Pipe_burst_IN	Hose(s) damaged or faulty hose connection(s).	Check hose connections and replace defective hose(s) if necessary.
(0x023C) 572	Pipe_burst_OUT	Hose(s) damaged or faulty hose connection(s).	Check hose connections and replace defective hose(s) if necessary.
(0x0714) 1812	Pipe_burst_SL	Hose(s) damaged or faulty hose connection(s).	Check hose connections and replace defective hose(s) if necessary.

5.3 Hydraulic

Code	Message	Possible cause	Remedy
(0x0210) 528	Valve_maininlet	Inlet valve is unplugged or the electrical connection to the valve has been interrupted.	Test and check connection cable; replace inlet valve if necessary.
(0x0211) 529	Valve_drain1	Drain valve 1 is unplugged or the electrical connection to the valve has been interrupted.	Test and check the connection cable, replace valve block if necessary.
(0x0212) 530	Valve_filter1	Valve water filter 1 is unplugged or the electrical connection to the valve has been interrupted.	Test and check the connection cable, replace valve block if necessary.
(0x0213) 531	Valve_filter2	Valve water filter 2 is unplugged or the electrical connection to the valve has been interrupted.	Test and check the connection cable, replace valve block if necessary.
(0x0214) 532	Valve_bypass	Bypass valve is unplugged or the electrical connection to the valve has been interrupted.	Test and check the connection cable, replace valve block if necessary.
(0x0215) 533	Valve_drain2	Drain valve 2 is unplugged or the electrical connection to the valve has been interrupted.	Test and check the connection cable, replace valve block if necessary.
(0x0218) 536	Valve_sprayloop_inlet_SL1	Spray loop Inlet Valve 1 is unplugged or the electrical connection has been interrupted.	Test and check the connection cable, replace valve block if necessary.
(0x0219) 537	Valve_sprayloop_inlet_SL2	Spray loop Inlet Valve 2 is unplugged or the electrical connection to the valve has been interrupted.	Test and check the connection cable, replace valve block if necessary.
(0x021A) 538	Valve_sprayloop_drain	Spray loop Drain Valve 1 is unplugged or the electrical connection to the valve has been interrupted.	Test and check the connection cable, replace valve block if necessary.

5.4 Water quality

Code	Message	Possible cause	Remedy
(0x0216) 534	UV_lamp	UV lamp does not start correctly.	Note: if the UV lamp has not ignited properly after 10 s, the error "(0x0217) 535" will occur.
(0x0217) 535	UV_unhandled	UV lamp does not turn on after 10 s.	Check electrical connections, and replace UV lamp or replace Control Box.
(0x0230) 560	Pressure_in_toolow	Problem in the supply network, no humidification possible.	Check inlet pipe. Replace Water Sensor Module 1 (WSM1).
(0x0231) 561	Pressure_in_toohigh	Inlet waterpressure is too high (>10 bar)	Check inlet pipe. Replace Water Sensor Module 1 (WSM1).
(0x0232) 562	pressure_in_low	Problem in the supply network; no flushing possible.	Check inlet pipe. Replace Water Sensor Module 1 (WSM1).
(0x0233) 563	pressure_in_high	Problem in the supply network, no humidification possible.	Check inlet pipe. Replace Water Sensor Module 1 (WSM1).
(0x0234) 564	Pressure_out_out_of_tolerance	Pressure system fault. The pressure value at Water Sensor Module 2 (WSM2) is below or above the set value.	Check inlet pressure. If necessary, adjust pressure values.
(0x0235) 565	Pressure_SL1_out_of_tolerance	Pressure system fault. The pressure value at the drain module 1 is above or below the set value.	Check inlet pressure. If necessary, adjust pressure values.

Code	Message	Possible cause	Remedy
(0x0236) 566	Pressure_SL2_out_of_tolerance	Pressure system fault. The pressure value at drain module 2 is above or below the set value.	Check inlet pressure. If necessary, adjust pressure values.
(0x0252) 594	Conductivity_F1_toolow	Conductance of the inlet water too low or water filter 1 is exhausted.	Check conductivity of inlet water, flush water filter (start flushing cycle section 2, see Section 6.1), replace water filter.
(0x0253) 595	Conductivity_F1_toohigh	Water filter 1 is exhausted.	Replace water filter 1.
(0x0254) 596	Conductivity_F1_high	Water filter 1 is nearly exhausted.	Plan replacement of water filter 1.
(0x0255) 597	Conductivity_F2_toolow	Conductance of the inlet water too low or water filter 2 is exhausted.	Check conductivity of inlet water, flush water filter (start flushing cycle section 3, see Section 6.1), replace water filter.
(0x0256) 598	Conductivity_F2_toohigh	Water filter 2 is exhausted.	Replace water filter 2
(0x0257) 599	Conductivity_F2_high	Water filter 2 is nearly exhausted.	Plan replacement of water filter 2.
(0x0258) 600	Conductivities_out_of_range	Conductivity value of both water filters too high.	Replace water filters 1 and 2.
(0x0260) 608	Temperature_in_toolow	The temperature of the inlet water is below the minimum limit of 2°C.	Check inlet pipe. Replace Water Sensor Module 1 (WSM1).
(0x0261) 609	Temperature_in_toohigh	Temperature of the inlet water is above the maximum limit of 30°C.	Check inlet pipe. Replace Water Sensor Module 1 (WSM1).
(0x0263) 611	Temperature_out_toolow	Temperature of the water downstream of the water filter is below the minimum limit of 2°C.	Possible sensor defect. Temperature already detected at "Temperature in 0x0260"
(0x0264) 612	Temperature_out_toohigh	Temperature of the water after the water filter is above the maximum limit of 30°C even after several automatic flushes.	Generate water consumption (start flushing cycle section 2, see Section 6.1) and wait briefly until the temperature drops. If necessary, replace the sensor on the water sensor modules.
(0x0271) 625	Conductivity_OUT	Sensor error Section 2, no values possible	Replace Water Sensor Module 2 (WSM2)
(0x0272) 626	Temperature_in	Sensor error Section 1, no values possible	Replace Water Sensor Module 1 (WSM1)
(0x0273) 627	Temperature_out	Sensor error Section 2, no values possible	Replace Water Sensor Module 2 (WSM2)
(0x0274) 628	Pressure_in	Sensor error Section 1, no values possible	Replace Water Sensor Module 1 (WSM1)
(0x0275) 629	Pressure_out	Sensor error Section 2, no values possible	Replace Water Sensor Module 2 (WSM2)

5.5 Electronics

Code	Message	Possible cause	Remedy
(0x0103) 259	Init_can_slave_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x0104) 260	Init_ETH_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x0105) 261	Init_HUB_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x0106) 262	Init_WAT_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x0107) 263	Init_UPD_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x0108) 264	Init_USB_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x010B) 267	Init_GUI_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x010C) 268	Init_HATTPD_failed	Fault on system master (hardware). This software error only appears during the initial commissioning or during a software update.	Replace Control Box.
(0x0110) 272	SL_not_configured	There are two spray loops connected to the system, but the system is configured for only one spray loop.	Change configuration to two spray loops or remove CAN bus cable from connection "SL2" and then plug in "SL1".
(0x0111) 273	SL_empty	Spray loop is not configured or the spray loop CAN bus cable is not connected to the Control Box.	Configure the spray loop or check the connection of the spray loop CAN bus cable to the Control Box.
(0x0112) 274	Valve_SL_not_configured	The valve for the second spray loop is not configured but is connected.	Adapt configuration or install correct valve block.
(0x0113) 275	Valve_Filter_not_configured	The valve for the second water filter is not configured but is connected.	Adapt configuration or install correct valve block.
(0x0300) 768	general_CAN_error	Failed CAN bus communication.	Analyse log file to locate the exact error.
(0x0301) 769	general_SAB_error	Failed SAB communication.	Replace corresponding component(s) (water sensor module 1/2, Control Box).
(0x0320) 800	CAN_main_voltage	Voltage on the SM 40 V is not correct.	Replace Control Box.
(0x0400) 1024	FLASH	FLASH does not respond.	Analyse the log file to locate the causative error. Check log file to find components.
(0x0401) 1025	OTP	OTP (One Time Programming) values incorrectly written or not written to the hardware of the components.	Replace corresponding component(s) (water sensor module 1/2, Control Box etc.). Search in the log file.
(0x0402) 1026	NODE	Component(s) have a hardware or software error.	Corresponding component(s) (humidifier units, Control Box, drain module)

Code	Message	Possible cause	Remedy
(0x0403) 1027	Fault_ID	Component with corresponding ID has a hardware or software error.	Replace the corresponding component.
(0x0404) 1028	Fault_Addr	Component with corresponding address has a hardware or software error.	Replace the corresponding component.
(0x0405) 1029	Sprayloop_enum	Failed serial numbering, interrupted connection or faulty component.	Problem with connecting or with searching for humidifier units. Replace humidifier units.
(0x0406) 1030	Sprayloop_conf	Problem with the configuration of the spray loop(s).	Replace appropriate components (humidifier units, drain module, Control Box, cable).
(0x0407) 1031	Sprayloop_no_termination	Drain module is disconnected or faulty or the CAN bus chain is not complete.	Check drain module and connection.
(0x0408) 1032	Sprayloop_enum_power	45 W power is not in the permissible range.	Check components (flashing on the humidifier unit, on the drain module), replace Control Box if necessary.
(0x0409) 1033	Sprayloop_power	50 W power is not in the permissible range.	Check components (flashing on the humidifier unit, on the drain module), replace Control Box if necessary.
(0x040A) 1034	Sprayloop_short_circuited	Short circuit detected on CAN bus. Short circuit on at least one component.	Check wires (cables) and components.
(0x040B) 1035	Sprayloop_voltage	Voltage in the CAN bus chain too low (line too long, faulty component or defective power supply).	Check cable length (max. ? m); replace faulty component(s).
(0x0480) 1152	Sensor_hum_temp	All humidity sensors of the humidifier units in a zone are deactivated.	Activate, insert or replace sensors.
(0x0485) 1157	Internal_voltage	Short circuit in humidifier unit or spray loop	Check the humidifier unit and examine the spray loop for a short circuit. Replace humidifier unit.
(0x0504) 1284	SAB_slave_missing	Connection problem with the SAB chain.	Check connection from driver board to water sensor modules.
(0x0505) 1285	SAB_wrong_ID	ID problem with the SAB chain.	Check the rotary switch on the water sensor module(s). Position 1 or 2 set.
(0x0506) 1286	SAB_slave_incompatible	Incorrect components	Replace water sensor module(s).
(0x0507) 1287	SAB_slave_retry	Incorrect components	Replace water sensor module(s).
(0x0508) 1288	SAB-slave_keepalive	Incorrect components	Replace water sensor module(s).
(0x0509) 1289	SAB_slave_adrchanged	Incorrect components	Replace water sensor module(s).
(0x050A) 1290	SAB_sup24V	Incorrect components	Replace water sensor module(s).
(0x050B) 1291	SAB_sup5V	Incorrect components	Replace water sensor module(s).
(0x050C) 1292	SAB_supfer2	Incorrect components	Replace water sensor module(s).
(0x050D) 1293	SAB_eeprom	Incorrect components	Replace water sensor module(s).
(0x050F) 1295	SAB_cfgdata	Incorrect components	Replace water sensor module(s).
(0x0510) 1296	SAB_sup48V	Incorrect components	Replace water sensor module(s).
(0x0512) 1298	SAB_sup40V	Incorrect components	Replace water sensor module(s).

Code	Message	Possible cause	Remedy
(0x0513) 1299	SAB_sup40cur	Incorrect components	Replace water sensor module(s).
(0x0514) 1300	SAB_sup3v3	Incorrect components	Replace water sensor module(s).
(0x0515) 1301	SAB_flash	Incorrect components	Replace water sensor module(s).
(0x0516) 1302	SAB_OTP	Incorrect components	Replace water sensor module(s).
(0x0517) 1303	SAB_update	Incorrect components	Replace water sensor module(s).
(0x0700) 1792	Sensor_pressure_SL	Drain module pressure sensor cannot be detected.	Replace drain modulemodule.
(0x0701) 1793	Level_detection_absent	No level detection available in the humidifier unit.	Replace humidifier unit.
(0x0702) 1794	level_detection	Only the upper level pin in the humidifier unit has responded.	Replace humidifier unit.
(0x0703) 1795	Reservoir overfilled	Both level pins have responded.	Check inlet pressure (must not exceed 6 bar). Replace humidifier unit.
(0x0704) 1796	Mesh	Fault at the atomiser membrane	Replace humidifier unit.
(0x0710) 1808	Valve_reservoir	Malfunction of the valve in the humidifier unit	Replace humidifier unit.
(0x0711) 1809	Reservoir_filling	Malfunction of the valve in the humidifier unit or of the water pressure in the spray loop.	Check water pressure; replace humidifier unit.
(0x0712) 1810	Reservoir_emptying	Malfunction of the valve in the humidifier unit or the atomiser membrane	Replace humidifier unit.

5.6 Re-commissioning process of the Condair MN after error message "Last flush XX too long ago" (last flush more than 48 hours ago)

5.6.1 Fault messages "Last flush XX too long ago"

Code	Message	Possible cause	Remedy
(0x0200) 512	Last_flush_IN_too_long_ago	Section 1 (see Fig. 79) has not been flushed for more than 48 hours. The cause lies in the hydraulics system or in the electronics.	Identify cause of system failure. Proceed according to Section 5.6.2 and Section 5.6.3 .
(0x0201) 513	Last_flush_BYP_too_long_ago	Section 3 (see Fig. 79) has not been flushed for more than 48 hours. The cause lies in the hydraulics system or in the electronics.	Identify cause of system failure. Proceed according to Section 5.6.2 and Section 5.6.3 .
(0x0202) 514	Last_flush_F1_too_long_ago	Section 2 (see Fig. 79) has not been flushed for more than 48 hours. The cause lies in the hydraulics system or in the electronics.	Identify cause of system failure. Proceed according to Section 5.6.2 and Section 5.6.3 .
(0x0203) 515	Last_flush_F2_too_long_ago	Section 3 (see Fig. 79) has not been flushed for more than 48 hours. The cause lies in the hydraulics system or in the electronics.	Identify cause of system failure. Proceed according to Section 5.6.2 and Section 5.6.3 .
(0x0204) 516	Last_flush_SL1_too_long_ago	Section 5 (see Fig. 79) has not been flushed for more than 48 hours. The cause lies in the hydraulics system or in the electronics.	Identify cause of system failure. Proceed according to Section 5.6.2 and Section 5.6.3 .
(0x0205) 517	Last_flush_SL2_too_long_ago	Section 6 (see Fig. 79) has not been flushed for more than 48 hours. The cause lies in the hydraulics system or in the electronics.	Identify cause of system failure. Proceed according to Section 5.6.2 and Section 5.6.3 .

Legend:

- IN = Inlet (Section 1)
- BYP = Bypass (Section 4)
- F1 = Water filter 1 (Section 2)
- F2 = Water filter 2 (Section 3)
- SL1 = Spray loop 1 (Section 5)
- SL2 = Spray loop 1 (Section 6)

5.6.2 Possible causes of the fault messages "Last flush XX too long ago"

1. Power interruption for more than 48 h:
 - a) A power failure has occurred.
 - b) The user has switched off the main fuse (example: holiday house).
 - c) The user accidentally switched off the system.
2. The system was not flushed for more than 48 h error "???" triggered - system shows "Error". This does not allow any flushing, since the system is depressurized in "Error" status.

5.6.3 States and measures

If the system is in "Error" state, the user has no possibility to return the system to normal operating mode. If the system was switched off, it can be switched on again and the system goes into the flushing process, but does not humidify. In this case, the user must contact the Condair service (if he has not concluded a service contract with monitoring).

If the user has concluded a service contract with monitoring, the respective service center will receive a message and will try to eliminate the fault remotely. If the fault can not be eliminated remotely, the responsible service representative will organize an on-site service.

In principle, a service contract with monitoring should never experience such a case because the system automatically reports back the system status that led to this error.

If a system has not been flushed for more than 48 hours, proceed as follows:

Previous experiences has shown that new systems do not show any serious contamination even after several days of downtime.

As a result, the system can be put into operation again using the "StartEnforced" function in the service application. The error message disappears, the system flushes and returns to normal operating mode.

If a system has been switched off for more than 10 days and consequently it is in "Error" state, proceed as follows:

- The service technician must take a water sample on site in accordance with the "Water Sampling" process (see [Section 4.1.1](#)). The water sample must be sent immediately to an accredited laboratory. The laboratory sends the results for evaluation and collection of experience values to the Condair Group AG in Pfäffikon.
- Immediately disinfect the system as described in [Section 4.1.5](#).

6 Appendix

6.1 Flushing section determination

Flushing sections	Open valves
Section 1	Y1+Y2
Section 2 (via water filter 1)	Y1+Y3+Y6
Section 3 (via water filter 2)	Y1+Y4+Y6
Section 4 (via bypass)	Y1+Y5+Y6
Spray loop 1 section	Y1+Yx+Y7+Y9 "x" stands for Y3 or Y4 (system will select the master water filter here)
Spray loop 2 section	Y1+Yx+Y8+Y10 "x" stands for Y3 or Y4 (system will select the master water filter here)

Starting position: To flush a flushing section, only the specified valves should be opened. All other valves remain closed.

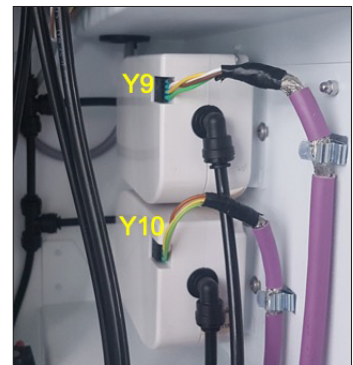
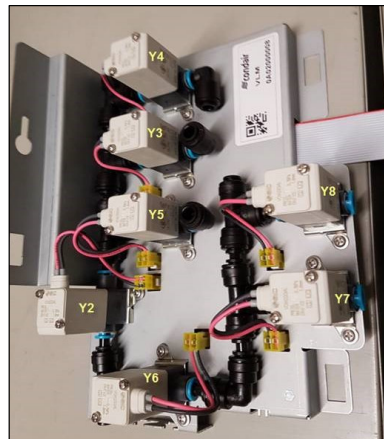
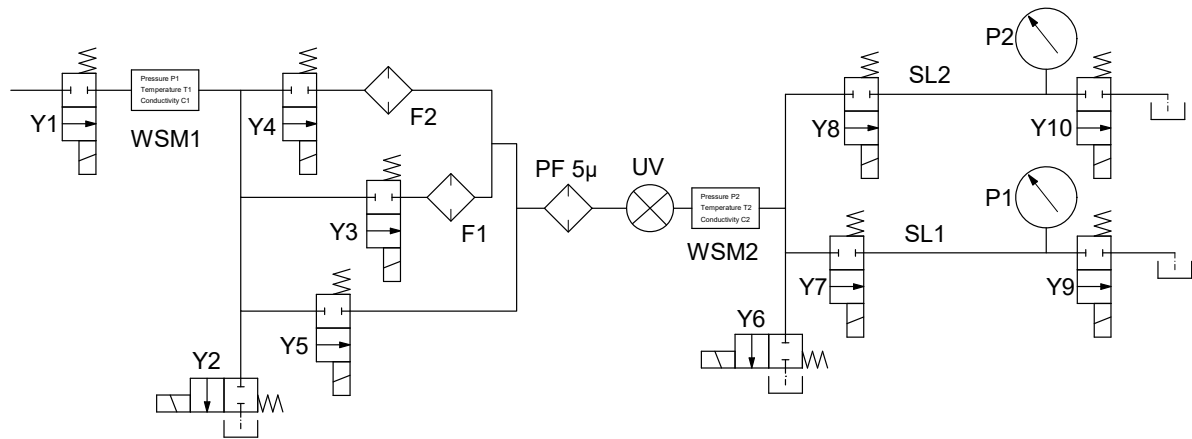


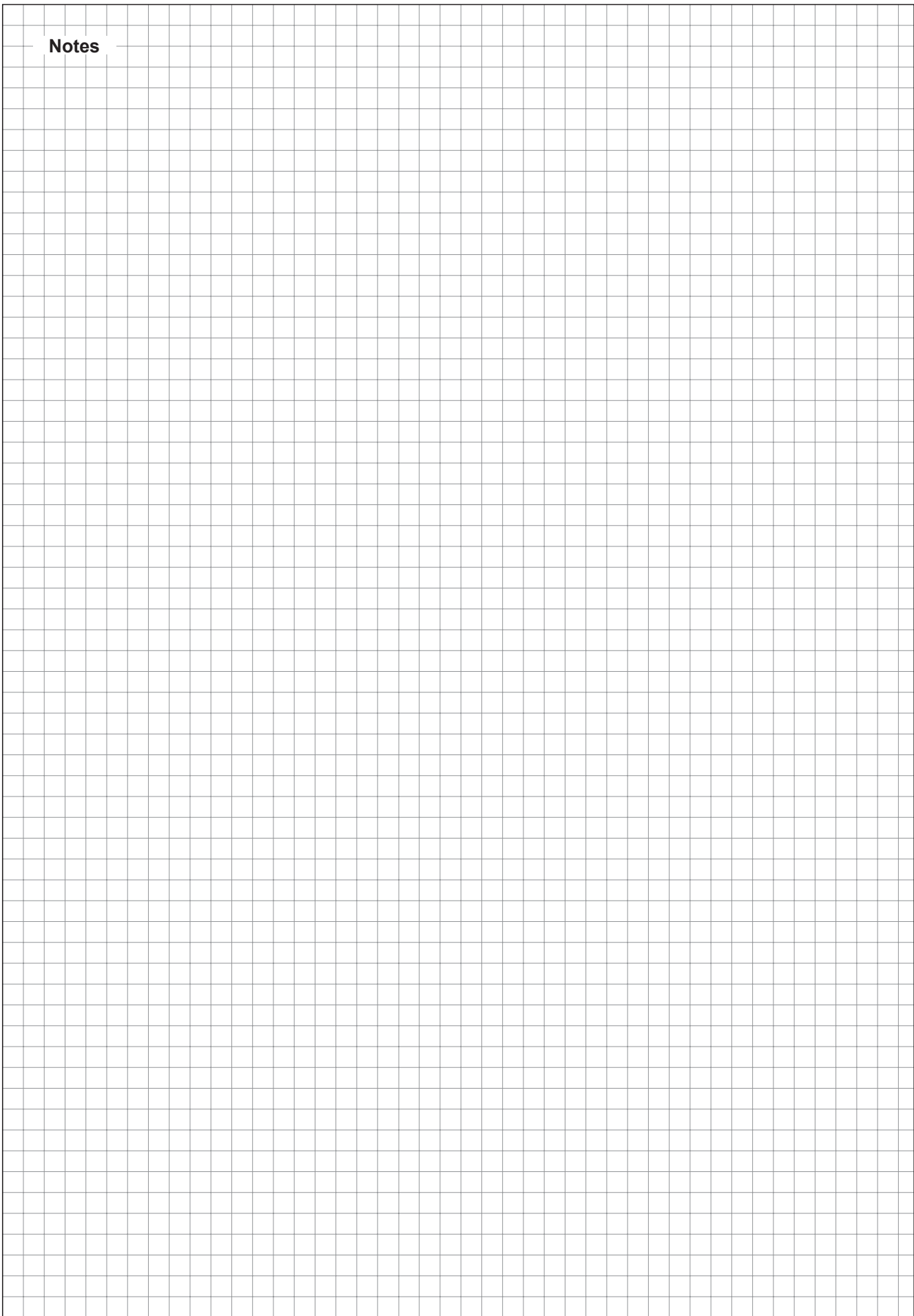
Fig. 79: Diagram of flushing sections

6.2 Tools, kits, software and materials needed for commissioning and service

The following tools, kits, software and materials must be carried by the service technician for commissioning and servicing the Condair MN.

- Standard Tool Case
- Hardware: Laptop or tablet with Ethernet connection and Windows 7 or higher
- Software:
 - Service Application Humilife MN on laptop or tablet
 - Latest firmware for control software update on USB stick
- Special tools:
 - Multimeter for verification of the electrical installation
 - Hand air pump for leak test
 - 0.26 gal (1 liter) measuring jug for evaluation of the system
 - Wire strippers (e.g. Weidmüller Stripex)
 - Crimping pliers (e.g. Knipex 975314)
 - John Guest hose cutter
 - John Guest hose connector release tool
 - Two JG $\varnothing 0.24$ " ($\varnothing 6$ mm) straight connectors (1 per filter)
 - 10 ft. (3 m) JG hose $\varnothing 0.24$ " ($\varnothing 6$ mm)
- Circulation pump with On/Off switch (Recommendation: Renkforce garden pump, 1100 W, 1215 gal/h (4600 l/h), 65.2 psi (4.5 bar))
Attention: The maximum pump pressure must not exceed 72.5 psi (5 bar)!
- Sanosil S015 container
- Water sampling kit consisting of:
 - Paper towels
 - 2 sterile sample containers with 0.066 gal (0.25 l) capacity
 - Styrofoam cooling box
 - 2 cooling pads
 - Adhesive tape
 - Document folder with order document and address of the laboratory
- Standard spare parts set according to definition

Notes





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