

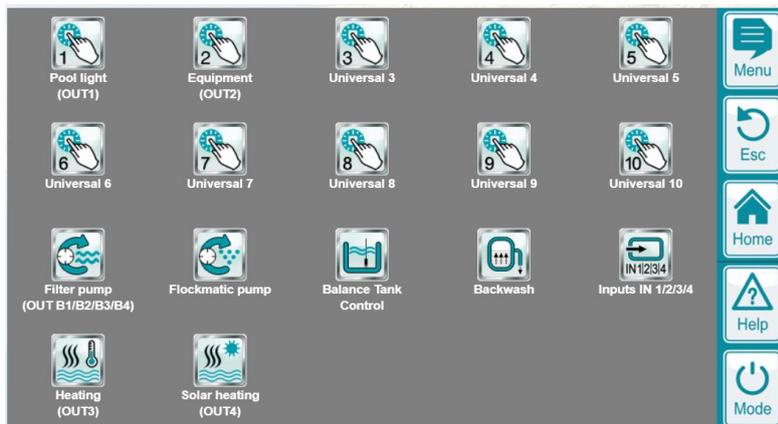
# PoolManager®

## Software update with additional functions

Version 1.2



### Quick Guide to PoolManager® Software Version 9.0.0



Compatible with

- PoolManager®
- PoolManager® PRO
- Analyt



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## 1 Marking of safety instructions

Please refer to the information on the labeling of the safety instructions in your PoolManager® or Analyt operating instructions.

## 2 General safety instructions



### DANGER!

Please be sure to follow the general safety instructions in your PoolManager® or Analyt operating instructions.

## 3 User Qualification

Please refer to the information on the different user qualifications in your PoolManager® or Analyt operating manual.

## 4 PoolConnect® app use and connection



### NOTE

With the new software version V9.0.0, the MQTT connection is available and enables the use of the PoolConnect® app.

This offers the option of conveniently controlling the PoolManager®, PoolManager® PRO or Analyt device remotely. This requires a connection to the Bayrol web portal. Detailed instructions can be found in the Bayrol technical support area at the following URL:

<https://www.bayrol.com/bayrol-technik-support>

## 5 Important Notes



### DANGER!

Serious malfunctions cannot be ruled out if the system is not properly installed and configured and a full test of all functions is performed.

**Possible consequences: malfunctions, property damage, water damage**

Carefully configure and check all settings. Test all functions carefully before putting the programmed functions into permanent operation.

## 6 Overview of new features

### 6.1 Automatic backwash

- Menu > additional functions: New icon menu for backwash



#### 6.1.1 Scheduled backwashes

- Every 1/2/3 weeks on one or more days of the week

#### 6.1.2 Additional unplanned backwashes

- Manual triggering (button in the menu)
- Triggering via input IN 1/2/3/4 (e.g. via pressure switch)
- Only in combination with the splash water tank control: Triggering when the tank level is high

#### 6.1.3 Backwash program

- Backwash (duration and filter pump speed adjustable)
- Optional: clear rinse (duration and filter pump speed adjustable)
- Optional: Water lowering in the filter before backwashing (duration adjustable, filter pump is off)
- Optional: Control of a compressor for rod valves

#### 6.1.4 Filter Pump Control

- Filter pump speeds adjustable for backwash and rinse
- Adjustable filter pump stop before and after all switching operations (usually a few seconds)

#### 6.1.5 Filling the overflow tank before backwashing

- Only in combination with the splash water tank control
- It is possible to set the minimum water level in the overflow tank for a backwash.
- If the minimum water level is not reached at the start of the backwash, we will wait up to 2 hours for the refill. If the minimum water level is still not reached after 2 hours, the backwash is stopped.

## 6.2 Extension of Universal Switching Functions 1 - 10

### 6.2.1 3 Switching programs for each switching function

- Each of the Universal Switching Functions 1 - 10 now has 3 flexibly programmable switching programs. Until now, each Universal Switching Function had only one switching program.
- The combination of three switching programs now results in extremely flexible and diverse programming options.

### 6.2.2 New Switching Program Types

In addition to the previously available switching program types, numerous new switching program types are now available:

Program Type	Description
On/off switch (IN)	Logical link to a switch or switching contact on one of the inputs IN 1/2/3/4
Taster (IN)	Logical link to a button or tactile contact on one of the inputs IN 1/2/3/4
Other Relay Output	Logical link to another physical relay output
Combined Cl (UV system)	Switching depending on the combined chlorine value (only with option total chlorine measurement), e.g. to activate the UV system
Free Chlorine (Auxiliary Pump)	Switching depending on the measured value of the free chlorine (only for Analyt and PoolManager® PRO), e.g. to activate the chlorine auxiliary pump
Other switching function (new)	Logical link to one of the other Universal Switching Functions 1 - 10. Such a link is also possible if no physical relay output is assigned to the other universal switching function.
Temperature Limit (new)	Switching depends on the temperature reading on one of the inputs T1/2/3. Optionally fixed limit value or other temperature-measured value as the limit value.
	
Overflow protection (new)	Switching in case of overflow protection
Dry run protection (new)	Switching with dry-running protection
Backwash (new)	Switching while backwash is in progress

## 6.3 Switching gutter/floor drain with the universal switching function 10

- The Universal Switching Function 10 has been extended not only to three but even to six switching programs.
- This allows for even more flexible programming. This is particularly necessary if an automatic changeover between channel operation and floor drain is to be implemented (with Besgo rod valve or actuator)
  - In skimmer pools, the function can be used to switch between skimmer operation and floor drain or to open the floor drain
- If the universal switching function 10 is used for the gutter/floor drain switch, the function can be linked to the backwash. The customer can then decide whether the backwash should be carried out in gutter operation from the overflow tank or via the floor drain.

## 6.4 New functions for the inputs IN 1/2/3/4

- Menu > additional functions: New icon menu for the switching inputs IN 1/2/3/4



- You can assign names for the inputs IN 1/2/3/4
- You can trigger messages when the inputs turn IN 1/2/3/4 on or off
- You can block the dosage depending on the inputs IN 1/2/3/4

## 6.5 Antifreeze function for the filter pump

- Filter pump automatically turns on at low temperatures to reduce the risk of frost damage
- You can set two temperature limits:
  - If the first limit value is not reached, the filter pump is initially switched on in intermittent operation. You can set the switch-on and switch-off time yourself.
  - If the second limit value is also not reached, the filter pump is switched on in continuous operation.

## 6.6 Display of user-entered designations for inputs and switching functions

- In all menus, the user-assigned designations for inputs and outputs are displayed, e.g.:
  - "1: Channel operation" when the Universal Switching Function 1 activates the channel operation
  - "IN 2: Cover closed" instead of "IN 2 [7]"
  - "T2: Air (outside)" instead of "T2 [4]"

## 6.7 Blocking of dosage depending on Inputs and Outputs

- You can now block the dosage for pH and disinfection depending on the inputs IN 1/2/3/4
- You can also block the dosage depending on the Universal Switching Functions 1 – 10

## 7 Backwash function

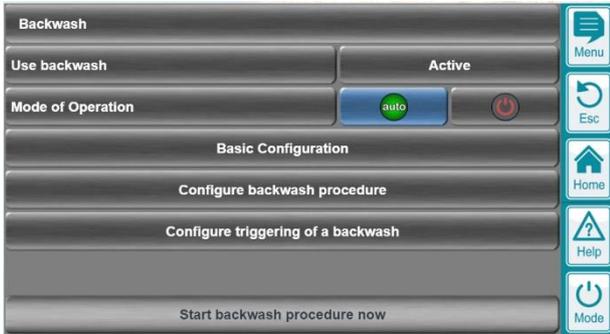


Menu > additional functions > New icon "Backwash"

### 7.1 Terms

- Scheduled backwashing: Automatic backwash that is done by programming the timer on a specific day of the week.
- Unplanned backwash: Automatic backwash that triggers at any time.
  - Manual start of the backwash program in the menu
  - Triggering an automatic backwash via one of the inputs IN 1/2/3/4 (e.g. by a pressure switch)
  - Triggering of an automatic backwash in case of high fill level in the splash water tank (only in combination with the splash water tank control)

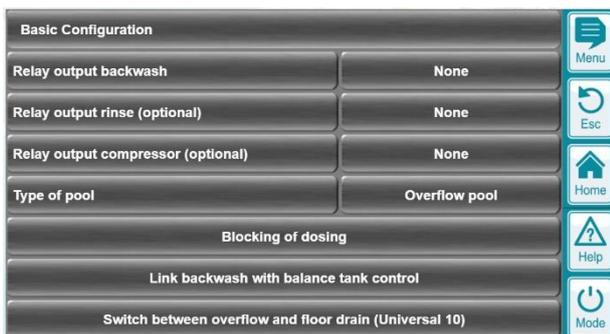
### 7.2 Main Menu Backwash



- Enabling/disabling the backwash function
- Buttons for Auto / Off mode
- Button to manually start the backwash program (or to stop manually while backwashing is running)

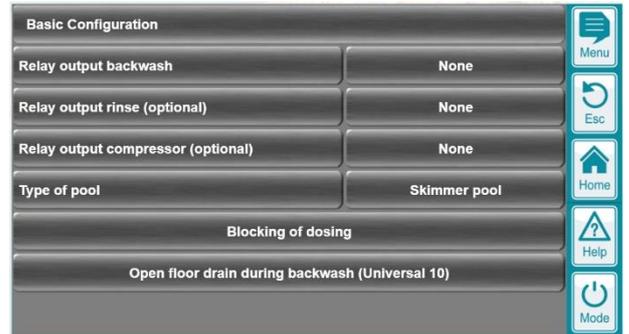
### 7.3 Basic Configuration

#### 7.3.1 Overflow pool



- Assignment of the relay outputs used

#### 7.3.2 Skimmer pool



- Assignment of the relay outputs used

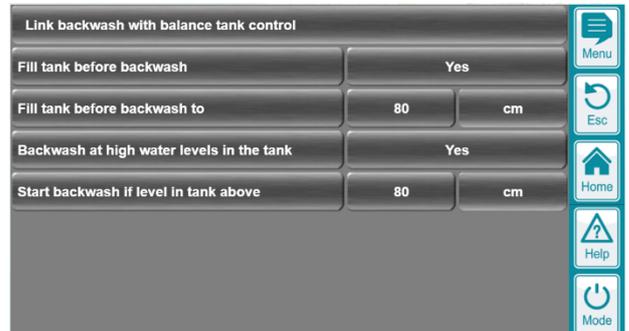
#### 7.3.3 Blocking of dosage



- During backwashing, the dosage for pH and disinfection is automatically blocked
- Here you can also program a follow-up time. The dosage then remains blocked for the specified time after a backwash. With the follow-up time, you can ensure that the dosing only starts after all readings have stabilized again.

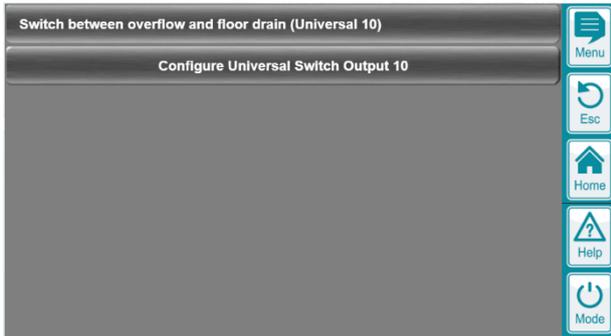
#### 7.3.4 Link backwash with Balance Tank Control

- Only in combination with the option "Splash water tank control"



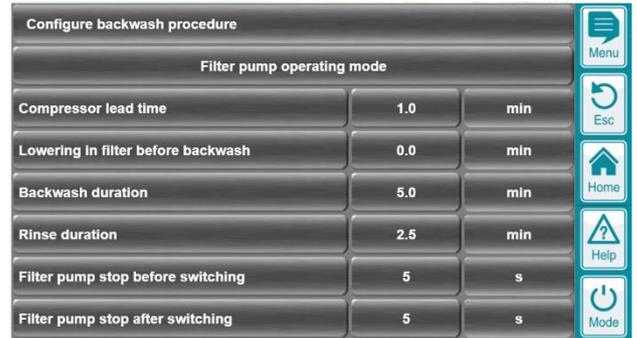
- Fill container before backwashing
  - With this feature, you can ensure that the splash water reservoir is refilled if needed before backwashing to ensure that there is enough water for backwashing.
  - You can enable or disable this feature and set the minimum level you want
  - Before backwashing, a maximum of 2 hours is waited for the container to be filled. If, after 2 hours, the minimum level has not been reached, the backwash is canceled and entered as "Last failed backwash".
- Triggering of an automatic backwash when the fill level in the splash water tank is high. This feature is described below in the "Configuring the Backwash Program Triggering" section.

### 7.3.5 Switching from gutter operation to floor drain (with Universal 10)



- Link to the configuration of the Universal Switching Function 10
- This switching function can be used to automatically switch between gutter operation and floor drainage.
- In this case, the backwash can also request a switch to gutter operation or floor drainage.
- The use of Universal Switching Function 10 for switching between gutter operation and floor drain is described below.

### 7.4 Configuring the Backwash Program



- Programming of the times for the individual steps of the backwash program

#### 7.4.1 Water lowering in the filter before backwashing

- The time for this step is set to 0 min by default, i.e. this step is omitted
- If you want to enable this step, set the desired amount of time.
- If the step is active, the flow is as follows:
  - The backwash output is activated. This will open the flow to the channel.
  - The filter pump remains switched off for the programmed time.
  - Depending on the pressure conditions, water can now drain from the filter into the duct, so that the upper part of the filter is filled with air at the beginning of the backwash.



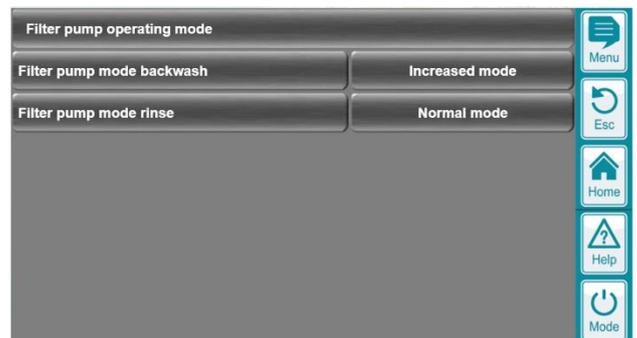
#### DANGER!

The lowering of the water in the filter can only work if the basin and filter installation is suitable for it. This depends, among other things, on the pressure conditions. Check valves or other installation measures may also be required.

#### Possible consequences: malfunctions, water loss

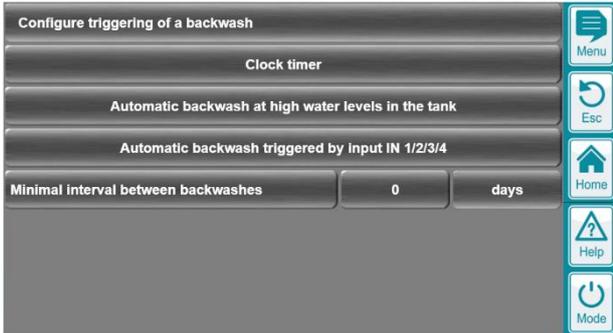
Activate the feature only if you have ensured that malfunctions are ruled out. Test the function manually before activating the automatic mode.

#### 7.4.2 Filter pump operating mode



- Choice of filter pump speed for backwash and rinse

## 7.5 Configuring the Triggering of the Backwash Program



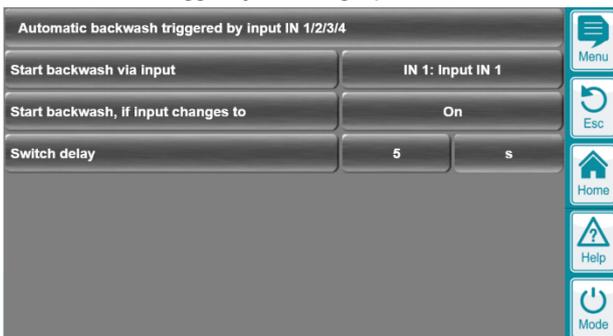
- Minimum distance between backwashes
  - **Scheduled** backwashes are omitted if the **set minimum distance has not yet passed since the last unplanned backwash**

### 7.5.1 Timer



- Cycle: Every week / Every 2 weeks / Every 3 weeks
- Weekday(s): One or more days of the week on which a scheduled automatic backwash is to occur.
- Start time: Desired time of backwash
- Last failed backwash: Date of the last backwash that could not be performed or could not be completed (e.g. because the filter pump was blocked)
- Last backwash: Date of last successful backwash
- Next backwash: Date of the next scheduled backwash

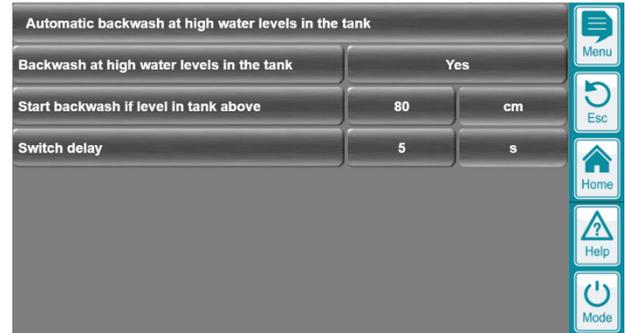
### 7.5.2 Backwash trigger by switching input IN 1/2/3/4



- Typical use case: Pressure switch to monitor filter pressure at one of the inputs IN 1/2/3/4
- Triggering an automatic backwash at high filter pressure
- In the menu, the input is selected. It also sets whether the backwash should be started when the input turns on or when it turns off.
- A switching delay can also be programmed so that the backwash is only triggered when the signal is stable for several seconds.

### 7.5.3 Triggering backwash when the tank level is high

- Only in combination with the option "Splash water tank control"



- Triggering of an automatic backwash in case of high fill level in the splash water tank (e.g. after rain ingress in outdoor pools)
- Enabling/disabling the feature
- Programming of the tank level at which an automatic backwash is to be triggered
- In addition, a switching delay can be programmed so that the backwash is only triggered when the measured level is stably above the limit value for several seconds.

### 7.6 Determination of the next backwash date

- The menu displays the last and next scheduled backwash dates
- It also shows the date of the last failed backwash (if there is one)



#### 7.6.1 Scheduled backwashes

- Scheduled backwashes take place every 1/2/3 weeks on the programmed backwash weekday
- It is also possible to program multiple backwash days of the week
- If no backwash weekday is enabled, there are no scheduled backwashes
- Scheduled backwashes only ever take place on the programmed backwash days of the week and are not postponed to another day of the week.

#### 7.6.2 Calculation of the next scheduled backwash date

- The day of the week of the last backwash is determined
- If there are additional programmed backwash weekdays in the week of the last backwash, the next backwash will occur on the next backwash weekday
- If there are no other programmed backwash weekdays in the week of the last backwash, the next backwash will occur on the first backwash weekday 1/2/3 weeks later.

#### 7.6.3 Unplanned backwashes

- If the last backwash was not planned but unplanned, the "Minimum distance between backwashes" setting is also taken into account
- The next scheduled backwash will then only take place after the minimum interval since the last unplanned backwash has elapsed.

### 7.7 Blocking and aborting a backwash

- In the following cases, the backwash is blocked and goes into a waiting state:
  - The overflow tank does not have the required minimum fill level
  - The switch to gutter/floor drain via the universal switching function 10 does not take place as desired, e.g. due to a blockage.
  - The filter pump does not switch to the desired operating mode, e.g. due to a forced shutdown with higher priority.
- In these cases, the waiting status is indicated by a yellow LED icon and corresponding text in the home view.
- If the gutter/floor drain switch does not take place within 30s as desired, the backwash is aborted.
- If the filter pump does not switch to the desired speed within 30 seconds, the backwash is aborted.
- If the overflow tank does not reach the minimum level within 2 hours, the backwash will be aborted.
- Switching of gutter/floor drain and speed of the filter pump is also monitored during the running backwash. If the current state deviates from the requested state, wait for 30 seconds and then cancel the backwash.

### 7.8 Display of the backwash function in the home View

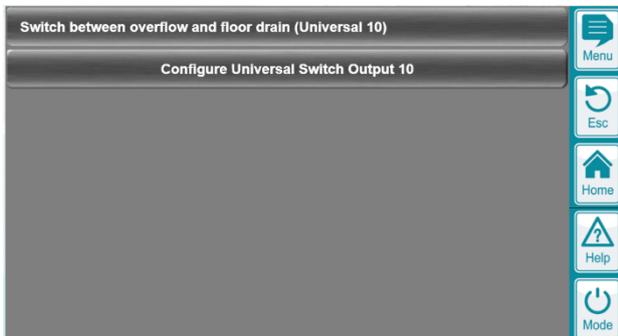
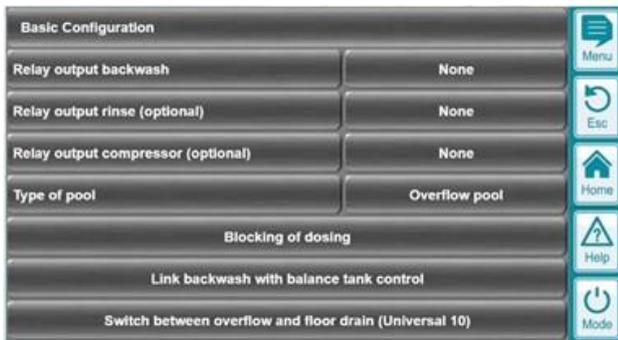
The home view shows the current status of the backwash function.

Here are some examples:

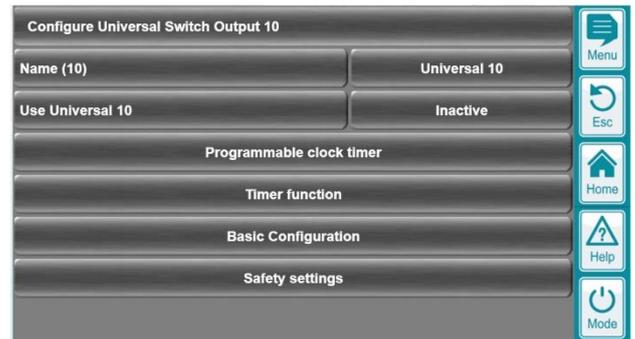
- Step 1 Idle state
- Step 2 Switch to gutter operation
- Step 3 Turning on the backwash outlet
- Step 4 Backwash in progress (display of remaining time)
- Step 5 Rinsing in progress (display of remaining time)

## 8 Switching gutter/floor drain (universal switching function 10)

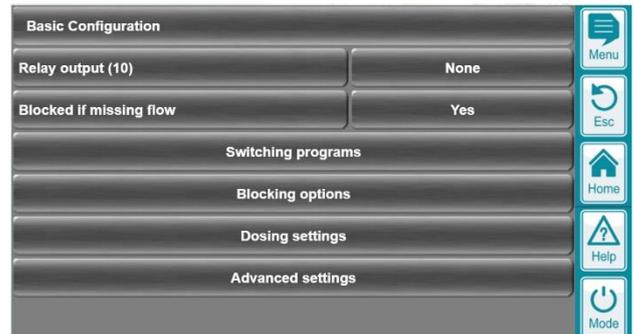
- The Universal Switching Function 10 has been extended to be able to control the switching between channel operation and floor drain
- The changeover can be carried out, for example, by a Besgo rod valve or an actuator.
- Since the enhancements are very extensive, they were only made for Universal Switching Function 10 and not for Universal Switching Functions 1 to 9.
- The configuration for the gutter/floor drain switch is made in the menu of the Universal Switching Function 10. This is also where the backwash, dry-run protection, and overflow protection functions are linked through corresponding switching programs.
- In the respective menus of these functions, however, there are direct shortcuts to jump directly into the configuration of the Universal Switching Function 10.
- For the backwash function, the shortcut looks like this:



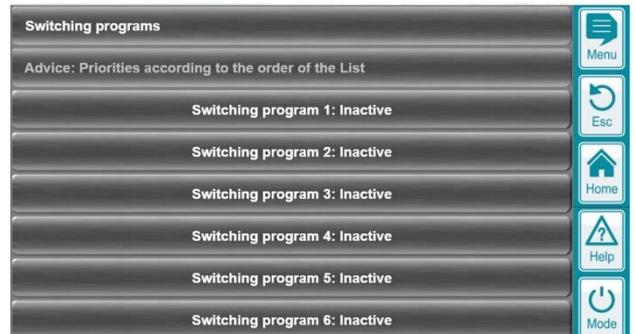
### 8.1 Menu Overview



- Main menu unchanged as with all Universal Switching Functions

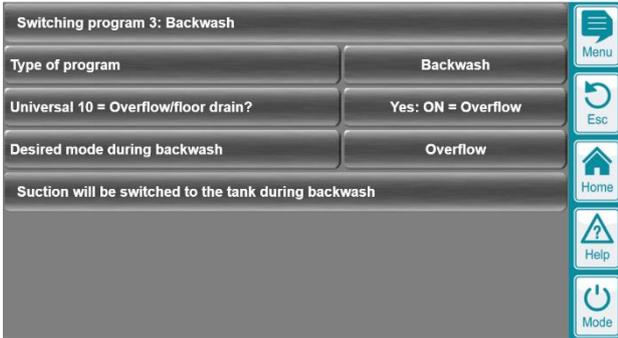


- Basic configuration with the submenu "Switching programs", also unchanged



- Expansion to 6 switching programs (while the universal switching functions 1 to 9 are extended to 3 switching programs)
- Possible functions, e.g.:
  - Dry-running protection switches to floor drainage so that circulation can continue
  - Overflow protection switches to gutter operation so that water is pumped out of the overflow tank
  - Backwash switches to either gutter operation or floor drain (as desired by the user)
  - When the roller shutter is closed, it switches to the floor drain
  - At low air temperatures, the floor drain is switched on to reduce heat loss
- The order of the switching programs in the menu determines the priorities

## 8.2 Switching program for backwashing



- When a switching program is configured for backwash, dry-run protection, or overflow protection, there is a "Does "Universal 10" switch gutter/floor drain?" setting in the switching program that specifies the following:
  - Does the Universal Switching Function 10 switch between gutter operation and floor drain (yes or no)?
  - Does turning on the function activates gutter operation or floor drain (it depends on the installation on site)?



- In addition, the desired operating mode is selected during backwashing

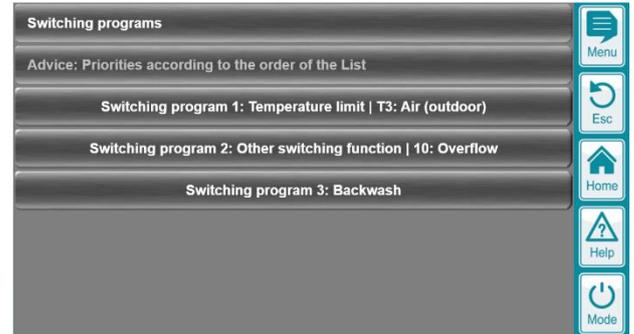


- An info text (at the bottom of the menu) summarizes the result of the current configuration, e.g. "During a backwash, suction is taken out of the gutter tank"

## 9 Extension of the switching programs for the universal switching functions 1 - 10

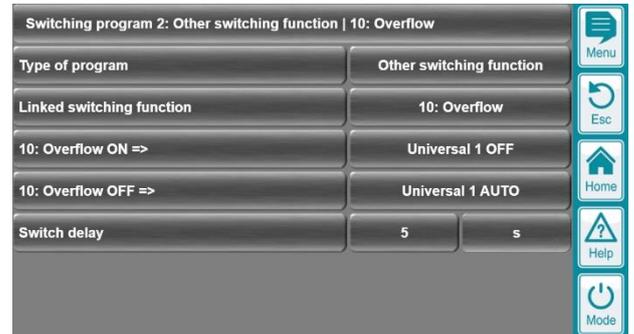
### 9.1 3 Switching programs

Menu > additional functions > Universal 1, 2, ...,10 > basic configuration > switching programs



- The universal switching functions 1 - 9 have been extended to 3 switching programs each
- The Universal Switching Function 10 has been extended to 6 switching programs

### 9.2 Switching Program Type "Other Switching Function"



- Link to one of the other Universal Switching Functions 1 - 10.
- For the linked other switching function, the number of the switching function is displayed (1 - 10), and additionally, the designation assigned by the user (e.g. "10: Channel operation")

### 9.3 Switching Program Type "Temperature Limit"

#### 9.3.1 Fixed limit

Switching program 1: Temperature limit   T1: Pool water		
Type of program	Temperature limit	
Fixed limit or other reading as limit	Fixed limit	
Temperature input for measurement	T1: Pool water	
Limit	4.0	°C
T1: Pool water < 4.0 °C :	Equipment AUTO	
T1: Pool water ≥ 4.0 °C :	Equipment AUTO	
Switch delay	0	s

- Type of Limit: Fixed Limit
- Limit value: 4 °C (fixed limit)
- Temperature input for measured value: This is the temperature that is monitored. If the limit value is exceeded, the programmed switching actions are carried out.
- In the example
  - At pool temperature below 4 °C, the "Universal 1" output switches ON
  - At pool temperature above 4 °C, there is no temperature-dependent switching action (neither ON nor OFF, but AUTO)

#### 9.3.2 Measured value as limit value

Switching program 1: Temperature limit   T1: Pool water		
Type of program	Temperature limit	
Fixed limit or other reading as limit	Other reading as limit	
Temperature input for measurement	T1: Pool water	
Temperature input for limit	T2: Solar temperature	
T1: Pool water < T2: Solar temperature :	Equipment AUTO	
T1: Pool water ≥ T2: Solar temperature :	Equipment AUTO	
Switch delay	0	s

- Type of limit value: Measured value as the limit value
- Temperature input for measured value: This is the temperature that is monitored. If the limit value is exceeded, the programmed switching actions are carried out.
- Temperature input for limit: This is the temperature used as the (variable) limit
- In the example
  - If the pool temperature is below the measuring water temperature, the output "Universal 1" will turn ON
  - If the pool temperature is above the Solar temperature, there is no temperature-dependent switching action (neither ON nor OFF, but AUTO)

#### 9.3.3 Display in Home View

In the home view, temperature-dependent switching is indicated by a special icon:



Temperature-dependent switching action is active

### 9.4 Switching program types "Overflow Protection", "Dry Running Protection", "Backwashing"

- Programming of switching actions at
  - Active overflow protection
  - Active dry-run protection
  - Running backwash

Switching program 1: Overflow protection (BTC)		
Type of program	Overflow protection (BTC)	
Overflow protection (BTC) ON =>	Equipment AUTO	
Overflow protection (BTC) OFF =>	Equipment AUTO	
Switch delay	0	s

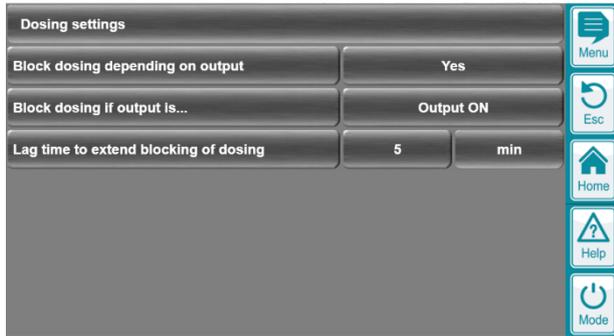
Switching program 1: Dry-run protection (BTC)		
Type of program	Dry-run protection (BTC)	
Dry-run protection (BTC) ON =>	Equipment AUTO	
Dry-run protection (BTC) OFF =>	Equipment AUTO	
Switch delay	0	s

Switching program 1: Backwash		
Type of program	Backwash	
Backwash ON =>	Equipment AUTO	
Backwash OFF =>	Equipment AUTO	
Switch delay	0	s

- The menus for these three types of switching programs are identical
- Desired switching actions for overflow protection ON / OFF, dry run protection ON / OFF or backwash ON / OFF
- Switching delay if the output is to react with a delay of a few seconds

### 9.5 Blocking of dosage

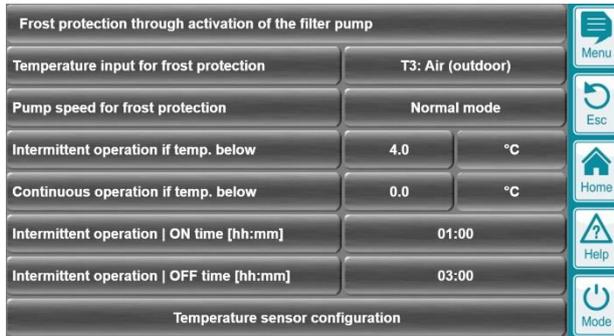
Menu > additional functions > Universal 1, 2, ...,10 > basic configuration > dosing settings



- For the universal switching functions 1 - 10, it is now possible to block the dosage for pH and disinfection depending on the switching state.
- If necessary, the blocking period can also be extended by a follow-up period.

### 10 Frost protection by switching on the filter pump

Menu > Additional functions > filter pump > frost protection by switching on the filter pump



- In case of low temperatures and risk of frost, the filter pump can be switched on automatically. The movement of the water reduces the risk of the water freezing and frost damage.
- Temperature input for antifreeze: This temperature is monitored by the antifreeze function. As a rule, it makes sense to measure the air temperature in the vicinity of the pool with a suitable PT1000 sensor.
- Frost protection operating mode: Desired speed of the filter pump in antifreeze mode
- Interval operation when the temperature is below: First temperature limit at which the pump is switched on in interval mode.
- Continuous operation when the temperature is below: Second temperature limit at which the pump is switched on in continuous operation.
- Duty cycle and switch-off time for interval operation
- Note: If you do not want intermittent operation, but only continuous operation, set both temperature limits identically.



**DANGER!**

The antifreeze function is only active when the filter pump is running in "Auto" mode. Programmed forced shutdowns of the filter pump by "external switches" have higher priority over the antifreeze function.

**Possible consequence:**

**Frost damage due to the frost protection function not being activated.**

Make sure that all the necessary conditions are met so that the antifreeze function turns on at low temperatures and frost function.



**DANGER!**

A prerequisite for correct functioning is a correct calibration of the temperature measurement

**Possible consequence:**

**Frost damage due to the frost protection function not being activated.**

Make sure that the temperature input used for the antifreeze function is correctly calibrated.

#### 10.1 Display in Home View

In the home view, the frost protection function is indicated by special icons:



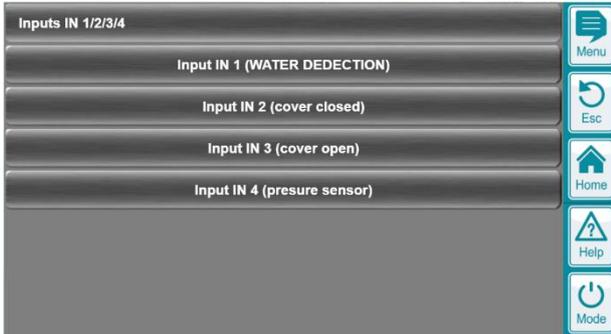
Antifreeze active in intermittent operation



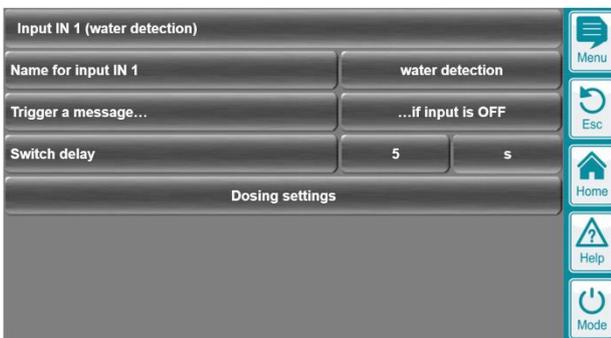
Frost protection active in continuous operation

## 11 Switching inputs IN 1/2/3/4

Menu > additional functions > New icon "Inputs IN 1/2/3/4"

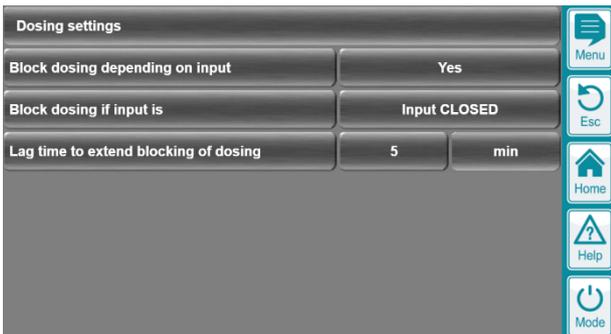


- Main menu with the four inputs, each of which can be assigned a label



- Configuration of the individual inputs
- Name of the entrance
- Ability to trigger a message when the input turns on or off
- A switching delay can be programmed. The message is then triggered only when the input remains stable in a state for a few seconds

### 11.1 Dosing Settings



- For the switching inputs IN 1/2/3/4, it is now possible to block the dosage for pH and disinfection depending on the switching state.
- If necessary, the blocking period can also be extended by a follow-up period.