Operating instructions
Product designation - controller

Article no. 390 192 01 - 17

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Article no. 390 192 02 - 17

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I. Important key information

1.1 General

Thank you for choosing to purchase our product. To ensure that you enjoy many years of use, please observe these instructions for the connection and setting work on the product.

Before connection and setting, the operating instructions must be carefully read and understood!

The manufacturer accepts no guarantee and / or liability in the event of improper usage or incorrect use.

Before setup, check that the scope of delivery is complete and check for any damage.

1.2 Conventions

1.2.1 Symbols and signal words

Symbol / signal word	Meaning
⚠ **DANGER**	Makes you aware of a hazardous situation that, if not avoided, will cause serious injury or death.
⚠ **CAUTION**	Makes you aware of a hazardous situation that, if not avoided, may cause minor or moderate injury.
HINWEIS	Makes you aware of potential property damage and other important information.

1.3 General safety and hazard notice

⚠	**DANGER**

- The electrical connection is only permitted to be carried out by qualified electrical engineers.
- The system should be de-energised before any activities are carried out on the control. When touching electrical components, note that the capacitors may still be discharging current.
- The relevant national and local laws, technical regulations, regulations relating to electrical installations as well as the regulations of the local power supply companies.

- Only install the control in switch cabinets and housings specified or supplied by Behncke.
- Installation in saline atmospheres (e.g. brine baths, proximity to the sea) can result in corrosion to electrical contacts.
- Only install the control in a well aerated and ventilated location. Heat accumulation should be avoided.
- Voltage fluctuations interrupt operation and may damage the equipment.
- Do not lay lines for data and signal transmission together with other live cables.

Electrical connection

General

Observe the safety instructions in the "Important key information" chapter.

DANGER

The electrical connection is only permitted to be carried out by qualified electrical engineers.

The entire system should be de-energised before any activities carried out on the control. When touching electrical components, note that the capacitors may still be discharging current!

The relevant national regulations, regulations relating to electrical installations as well as the regulations of the local power supply companies.

Only install the control in switch cabinets and housings specified or supplied by Behncke.

Installation in saline atmospheres (e.g. brine baths, proximity to the sea) can result in corrosion to electrical contacts.

Only install the control in a well aerated and ventilated location. Heat accumulation should be avoided.

Voltage fluctuations interrupt operation and may damage the equipment.

Do not lay lines for data and signal transmission together with other live cables.

Electrical connection

The connections and assignment of the individual terminals can be found in the circuit diagrams provided in the "Circuit diagrams" chapter.

Before you begin the installation work, check which system components are available. This will determine which of the circuit diagrams included in these instructions are relevant for the connection work.

Also observe the specifications given in the circuit diagrams.

Always lay the lines / cables so that they are easily accessible or can be easily replaced in the event of maintenance work or other activities.

Live lines must be chosen in accordance with the current load, distance, position as well as the type of installation.

Details on the individual connection terminals

The designation as well as the type of the individual connection terminals can be found in the table below.

Caution

Note the function of the individual connection terminals (e.g. input or output signals).

A faulty connection can result in the destruction of the control or in incorrect function.

Assignment of inputs

Type		name	Description
Inputs	230 V	E1	Badutronic
		E2	Badutronic
	PT1000	E3	Water temperature
		E4	Outdoor temperature
		E5	Boiler temperature
		E6	Service water temperature
		E7	Collector temperature
		E8	Lower tank temperature
		E9	3rd solar system sensor; the function depends on the system schematics (code 15)
		E10	Feed, yield recording / key switch for roller shutters
		E11	Return, yield recording / key switch for roller shutters
		E12	Attractions (as digital input)
	digital	E13	Frequency converter interference signal
		E14	Request or block of the filter pump (with floor valve as appropriate)
		E15	Request or block of the filter pump (with floor valve as appropriate)
		E16	Flow switch
		E17	Request of filter cleaning or filter operation with Badutronic

		E18	Float-type switch (skimmer pool) Lower request (overflow pool)
		E19	Roller shutter switch (closed position)
		E20	Middle fill level 1 or roller shutter switch (open position)
	0..10 V 4..20 mA interrupt	E21	Flowmeter (yield), Redox, chlorine, pH value, air humidity,
		E22	Redox, chlorine, pH value, air humidity
	0..10 V 4..20 mA	E23	Middle fill level 2, Redox
Inputs			Chlorine, pH value, air humidity
		E24	Middle fill level 3, Redox, chlorine, pH value, air humidity
		E25	Moisture sensor, Redox, chlorine, pH value, air humidity
		E26	Party switch, attractions, Redox, chlorine, pH value, air humidity
	Suspended electrodes	E27	SE6: Overflow protection
		E28	SE5: Level compensator
		E29	SE4: Replenish off
		E30	SE3: Replenish on
		E31	SE2: Run-dry protection
		E32	SE1: Reference electrode

Assignment of outputs

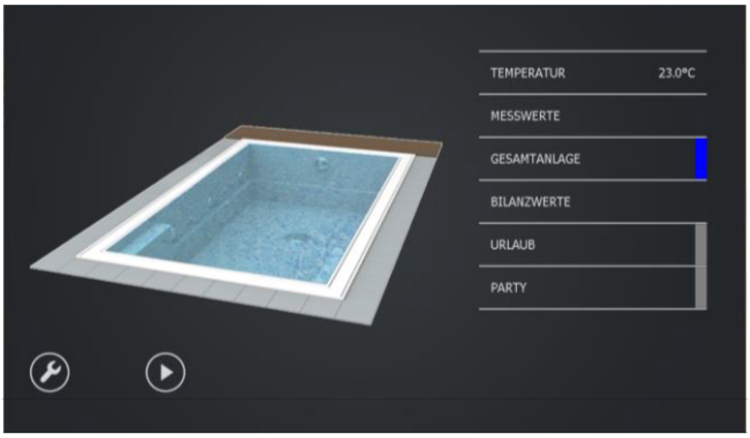
Outputs	3*230 V / 10 A	A1		Filter pump UV lamp for FP with actuation via 4 potential-free outputs
	Triac 230V / 3A	L1	A2	Backflush Filter pump direction Badutronic
			A3	Clear flushing
			A4	Replenish valve
		L2	A5	Boiler pump heating
			A6	Collector pump
			A7	2nd solar system output
	Relay 230 V / 3 A	L3	A8	Floor drain valve
			A9	Lowering valve
			A10	Heating / buffer swimming pool changeover valve
			A11	Attractions
	potential-free 3A N/O switch	A12		Filter pump speed
		A13		
		A14		
		A15		Dosing technology enabling
Outputs		A16		Attractions
		A17		Heating enabling (boiler)
		A18		Collective fault reporting
		A19		Roller shutter closed
		A20		Roller shutter open
	potential-free 3A changeover switch	A21		UV lamp enabling Blocking signal of the filter pump for actuation via 4 potential-free outputs
		A22		Solar system / tank swimming pool changeover valve, or absorber valve
	0..10 V	A23		Filter pump speed Collector pump speed Attraction output
		A24		Filter pump speed Collector pump speed Attraction output

Module slot	0..10 V	MoA-MoB	Filter pump speed Collector pump speed Attraction output
		MoC-MoD	Filter pump speed Collector pump speed Attraction output
		MoE-MoF	Filter pump speed Collector pump speed Attraction output

II. Activation

HINWEIS	Before switching on, check that all electrical connections are correctly connected.

After switching on the control, the following screen appears.



This menu can be used for a clear readout of the important status conditions of the swimming pool, swimming pool accessories as well as the water quality.

III. Instructions for use

The ▲ button can be used to access one level back each time

The ▶ button can be used to move the flow schema to the left (only present if the flow schema is larger than the screen size).

Pressing the 🔧 button takes you to the menu for the settings as well as the flow schema for the pool water treatment equipment.

Pressing the ! button will display the current fault messages present.

Note: The exclamation mark is shown in red when there is an fault message present.

The ✱* button can be used to access the next level for the settings

The ⓘ button is used to open a small viewing window with the current system status, e.g. filter pump display on / off, roller shutter open / closed

With no active touching of the buttons, the viewing window is closed again after a short time.

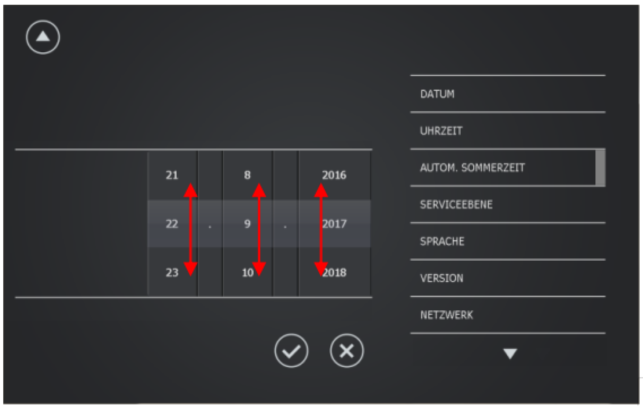
These settings should be made according to the system before the control can reliably execute the functions.

The ▲ button can be used to go back to the previous menu to continue the settings. Pressing the ▲ button multiple times will go back one level each time.

IV. Notes on making settings

In the menu options where a setting can be made, this is carried out by moving the setting parameters. No input is made using buttons except for the assignment of text to different setting parameters.

Example using the date setting:



Use your finger to change the day, month and year so that the required combination is visible in the field highlighted in colour.

Save your setting by pressing the ☑ field to confirm. To cancel – without saving – press ☒

A. Light – only after activation for settings

B. Attractions - only after activation for settings

C. Roller/cover shutter

The roller/cover shutter can be opened or closed by pressing the roller shutter button.

 Open Roller/Cover

 Close Roller/Cover

	**Danger**: The roller/cover shutter is only permitted to be closed when there are no persons in the swimming pool. The roller shutter is only permitted to be actuated (via switches, remote control, etc.) when there is continuous visual contact with the swimming pool whilst operating the roller shutter.

D. Temperature

Display of the current temperature of the pool water.

Pressing the button displays a slider that can be used to change the set temperature. (See M. Heating)

E. Measurements

Display of the measurements depending on the selected parameters (water temperature, outdoor temperature, boiler temperature, collector temperature, Redox voltage, content of free chlorine, pH value, air humidity).

The individual measurements are only displayed when these are activated or assigned in the subsequent settings (if no free chlorine measurement is present, for example, this is not activated and therefore not displayed).

F. Overall system

Pressing this button means that the system can be switched on or off, and switched to automatic mode

Switching off = switch off the filter pump, switch off the swimming pool attractions, switch off the heating

G. ECO mode

It is only possible to activate the ECO mode when the floor valve function has been activated or if a floor valve is fitted.

The roller shutter must be closed for ECO mode.

With ECO mode, the extraction is only carried out via the floor or wall run-offs, but not via the overflow gutter or water tank. The filter pump is operated at low speed.

H. Balance values

Display of the operating times of the filter pump, fresh water replenishment times, heating times, number of filter flushes, fault messages.

This display is activated the first time the system is switched on.

The ▶ button can be used to scroll through the next displays. The ▲ button can be used to go back to the previous menu to continue the settings

I. Holiday

To set operating times during absence periods and non-use of the swimming pool.

	Danger: Please note that to maintain the water quality, the swimming pool and the pool water treatment equipment must be checked even during absence periods. There is no supervision during absence periods. Ensure that no unauthorised use of the swimming pool can take place.

When holiday mode is activated, the lowest of the 3 adjustable pool water temperatures is activated. In addition, the filter pump is operated at low speed.

HINWEIS	Please note that at reduced speed, the pool water flow can be very negatively impacted. For this reason, make sure that the speed is always set to ensure adequate pool water flow even at reduced speed.

I.1 Holiday start

Enter the date

Make the setting and confirm with ☑.

I.2 Holiday end

Enter the date

Make the setting and confirm with ☑.

I.3 Daily gutter runtime

Enter the runtime [h] per day for operation with overflow gutter

Make the setting and confirm with ☑.

HINWEIS	The minimum possible daily runtime via the overflow gutter is 1 hour. The daily runtime via the gutter should be set higher so that the flush water lines and water tank are adequately flushed with disinfected water.

I.4 Gutter start

Enter the start time when operation with overflow gutter is to start.

Make the setting and confirm with ☑.

J. Party

One-off skipping of the next switch-off pulse (see V. Party)

J.1 Party active

Press this switch to activate the party function.

J.2 Min. swimming pool temperature

Set minimum temperature.

Make the setting and confirm with ☑.

HINWEIS	Before you continue with the setting, first check for safety purposes which system components are included in the swimming pool treatment equipment and the swimming pool.

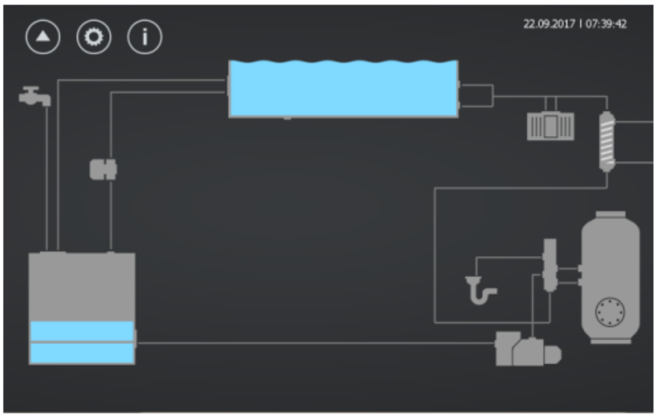
Main parts / system components

- Swimming pool with overflow gutter or with surface skimmer
- Swimming pool with automatic swimming pool cover
- Water tank / surface skimmer with level electrodes
- Filter pump (1 ~ , 3 ~, motor with frequency converter)
- Filter flush fittings (Besgo 5-way valves, Speck Badutronic)

- Cleaning fittings (Besgo 3-way valve)
- Swimming pool attractions

First press ⚒ to change to the display with the flow schema.

Note: after approx. 60 seconds with no further interaction, the start screen is displayed.



Screen with flow schema.

The following menu appears after pressing the ❋ button

This display shows the surface for the user of the swimming pool.

V. Settings by the user of the swimming pool

A. General

A.1 Date

Setting the date.

Do to this, set the day, month and year by moving the settings, and confirm with ☑.

A.2 Time

Setting the time.

To do this, set the time and minutes by moving the settings, and confirm with ☑.

A.3 Automatic summer time

Automatic setting for summer time - ACTIVE / INACTIVE

Please make the selection and confirm with ☑.

A.4 Service level

Code input

Enter the code and confirm with ☑.

A.5 Language

Setting the language

Select the language and confirm with ☑.

A.6 Version

Display of the current software version for the controller and for the control. In the event of any queries, please quote the version number and designation.

VI. Settings of all parameters

HINWEIS	It is only permitted for parameter setting work to be carried out by personnel authorised and trained by Behncke. The setting of all parameters must be carried out with reference to the relevant national laws and regulations as the condition of the water quality and the safety of the users is critical for the operation of a swimming pool. The service menu is only permitted to be used by authorised, specialist personnel. Incorrect operation by unauthorised third parties can bring about undesirable operating conditions that could cause injuries and property damage. The resultant costs are charged to the party causing the damage.

After entering the code for the service level, all options for entering and changing the settings will be available.

Once you have entered the code in the service level, confirm with ☑ and go back by pressing the ▲ button.

There will now be multiple menu options in the display that you can access by pressing the ▲ ▼ buttons. There is only ever a maximum of 5 menu options visible on the display at a time.

B. General

B.1 Date

Setting the date.

Do to this, set the day, month and year by moving the settings, and confirm with ☑.

B.2 Time

Setting the time.

To do this, set the time and minutes by moving the settings, and confirm with ☑.

B.3 Automatic summer time

Automatic setting of summer time - ACTIVE / NOT ACTIVE

Please make the selection and confirm with ☑.

B.4 Service level

Code input

Enter the code and confirm with ☑.

HINWEIS	The following further menu levels are only accessed by entering the code Pool type, roller shutter, valves, flow switch, moisture sensor, UV lamp, filter pump, filter cleaning, dosing system, lowering, re-heating, solar system, light, counterflow system, floor bubble jet, fountain shower, massage nozzle, free attraction, party

B.5 Language

Setting the language

Select the language and confirm with ☑.

B.6 Version

Display of the current software version for the controller and for the control.

In the event of any queries, please quote the version number and designation.

B.7 Factory settings

HINWEIS	Option to reset the settings to the factory settings (status on delivery). A reset means that all the settings are reset.

Following a reset, all settings need to be made again in relation to the system components fitted.

Resetting is only recommended when carried out by an authorised specialist firm or Behncke customer services.

B.8 Address

Assigned with more than one controller

Each controller should be assigned a different number

Select the assignment and confirm with ☑

B.9 Save / load configuration

An SD card is required to save the configuration. (Supplied as standard)

After saving the configuration, the SD card can be removed and used to restore the configuration.

HINWEIS	This restore process (Load configuration) means that all settings are overwritten.

C. Pool type

C.1 Pool type

Set whether the swimming pool has a gutter (overflow gutter) or a skimmer (surface skimmer).

Selection option: GUTTER / SKIMMER

Make the setting and confirm with ☑

C.2 Float-type switch type (only if skimmer pool type is selected)

Setting options

N/O float-type switch

N/C float-type switch

Make the setting and confirm with ☑

C.3 Suspended electrodes (only if gutter pool type is selected)

To set the function of the suspended electrodes (level electrodes) in the water tank

Designation and function:

SE 1 Reference electrode

SE 2	Run-dry protection (pump switches off or changeover to floor extraction via floor valve)
SE 3	Freshwater replenishment on / pump on
SE 4	Freshwater replenishment off
SE 5	Constrained switch-on (pump switches on regardless of the filter time on setting)
SE 6	Overflow protection / filter flush activation

Pressing the suspended electrodes button will take you to a submenu.

Make the setting and confirm with ☑

C.4 Activate SE5 for level compensation

Activating this option switches on the filter pump when the SE 5 level is reached

Selection option: NO / YES

Make the setting and confirm with ☑.

C.5 Level compensation delay time

Setting of the delay time to avoid cyclical switching due to wave movements.

Setting option 0 – 1 second

Make the setting and confirm with ☑.

C.6 Maximum level compensation run-on time

This is used to set the maximum operating time of the filter pump, after the SE 5 level is reached.

This operating time depends on the filter runtime set.

Setting option 0 – 1 minute

Make the setting and confirm with ☑.

C.7 Floor drain activation via SE 2

This means it is possible to switch over to extraction from the swimming pool (pool floor) if the SE 2 level is too low.

Note: this option is only possible if the floor valve is fitted.

Selection option: NO / YES

Make the setting and confirm with ☑.

C.8 Low water collective fault message

Issues a fault message if the water level is low (SE 2 level)

Selection option: NO / YES

Make the setting and confirm with ☑.

C.9 SE 6 collective fault

Issues a fault message if the water level is too high (SE 6 level)

Selection option: NO / YES

Make the setting and confirm with ☑.

C.10 Delay collective fault message

Sets a delay time to reduce the effect of water movements (wave movements).

Setting option 0 – 60 seconds

Make the setting and confirm with ☑.

D. Roller shutter

	Danger: The roller shutter is only permitted to be closed when there are no persons in the swimming pool. The roller shutter is only permitted to be actuated (via switches, remote control, etc.) when there is continuous visual contact with the swimming pool whilst operating the roller shutter.

D.1 Roller shutter

If a swimming pool cover (roller shutter) is fitted with an automatic drive unit, you can select this menu option to actuate the roller shutter via the Behncke Control II.

Selection option: NOT PRESENT / PRESENT

Make the setting and confirm with ☑.

If present – observe the following menu options:

D.2 Limit switch closed

Selection

- None
- E 19 (Input signal for limit switch closed – if the roller shutter is closed)
  Suitable for digital signals (TTL level) or potential-free switch coming from a limit switch if the roller shutter is in the "closed" position.

Make the setting and confirm with ☑.

D.3 Limit switch open

Selection

- None
- E 20 (Input signal for limit switch open – if the roller shutter is closed)
  Suitable for digital signals (TTL level) or potential-free switch coming from a limit switch if the roller shutter is in the "closed" position.

Make the setting and confirm with ☑.

D.4 Roller shutter runtime

This can be used to preset a maximum permissible time for the opening or closing process of the roller shutter. The process is interrupted after this time elapses!

This can be used as additional protection against a limit switch failing, for example.

Setting option 0 – 180 seconds

Make the setting and confirm with ☑.

D.5 Maximum roller shutter runtime

Setting of a maximum permissible runtime of the roller shutter after which a fault message is displayed (regardless of the position).

Setting option max. 300 seconds

Make the setting and confirm with ☑.

E. Valves

E.1 Badutronic 93

Selects the filter flush fittings. Either 6-way Badutronic 93 fittings (manufacturer: Speck) or 5-way rod-type valve (manufacturer: Besgo).

Selection options

- NOT FITTED (no Badutronic 93 – meaning that automatically the 5-way rod-type valve is active)
- FITTED (Badutronic 93 fitted)

Make the setting and confirm with ☑.

E.2 Rinsing valve

The rinsing valve can only be activated if the 5-way rod-type valve has been activated first.

Note: a rinsing function is already integrated into the Badutronic 93 meaning that no additional valve is required for this.

E.3 Floor valve

The floor valve is used to change over the extraction of the water from the swimming pool floor instead of the water tank (e.g. if the water level in the water tank is too low or following nighttime lowering).

If there is no floor valve fitted, the ECO mode function is not possible.

HINWEIS	For safety reasons, the floor valve is switched to floor extraction when not connected to the power. In gutter mode, the floor valve is powered continuously to prevent running empty via the rain shower container in the event of a power failure!

⚠	**Danger**: The floor drain (floor drains) must be dimensioned and installed in accordance with the latest technological regulations to avoid creating a hazard area due to intake / entanglement.

Make the setting and confirm with ☑.

When the floor valve is activated, the floor valve with the relevant pipes is automatically shown in the flow chart.

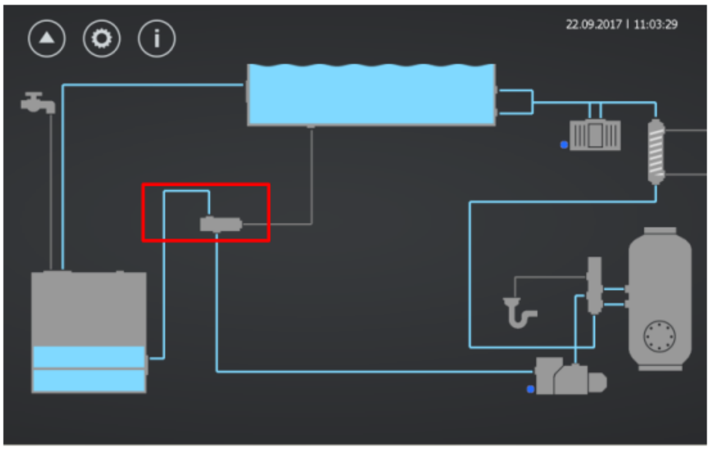


Figure – with 5-way rod-type valve and floor valve

If the floor valve is not activated, the lowering valve cannot be activated either.

E.4 Lowering valve

Note: the lowering valve is only shown if the floor valve has also been activated.
The lowering valve cannot be activated in combination with the "SKIMMER" pool type.

The lowering valve is required to lower the water level in the swimming pool. This lowering permits operation with reduced evaporation, e.g. during nighttime hours or at low outdoor temperatures. In this case, the removal of the water from the swimming pool is carried out from the swimming pool directly and with a free slope (via floor drains).

Make the setting and confirm with ☑.

When the lowering valve is activated, the lowering valve with the relevant pipes is automatically shown in the flow chart.

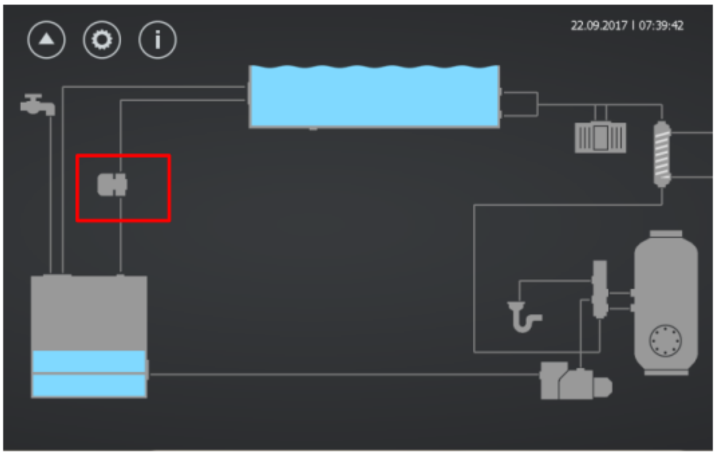


Figure – with 5-way rod-type valve, floor valve and lowering valve

E.5 Fresh water

E.5.1 Filling valve

The filling valve corresponds to the fresh water valve in the water tank or in the skimmer to regulate the water level and the required fresh water replenishment.

Caution:

The installation and connection for the fresh water for replenishment when using drinking water is carried out in accordance with DIN EN 1717 and DIN 1988 or other national regulations where applicable. Ensure that an adequately sized safety overflow with connection to the waste water line is fitted.

If the fresh water replenishment is carried out manually, the filling valve should not be activated or set to NOT PRESENT.

Make the setting and confirm with ☑.

E.5.2 Replenish valve delay time

Setting of the delay time to avoid cyclical switching due to wave movements of the water level.

Setting option 0 – 60 seconds

Make the setting and confirm with ☑.

E.5.3 Collective fault message for max. FW runtime

Setting that a fault message is generated when a preset maximum replenishment time is exceeded.

Selection option: INACTIVE / ACTIVE

Make the setting and confirm with ☑.

E.5.4 Collective fault message for max. FW daily runtime

Setting that a fault message is generated when a preset maximum replenishment time over one day is exceeded. In this process, the total runtime is taken into account from the total number of all replenishment operations on one day.

To do this, set a maximum permissible runtime (maximum time in which the replenishment valve is permitted to be open, considered across one day) – see E.5.8

Selection option: INACTIVE / ACTIVE

Make the setting and confirm with ☑.

E.5.5 Start the activation window

Setting the earliest time when a fill water replenishment is permitted to be carried out

Set the time and confirm with ☑.

E.5.6 End of the activation window

Setting the latest time when a fill water replenishment must be ended

Set the time and confirm with ☑.

E.5.7 Maximum fill time

Setting of the maximum permissible runtime of the fresh water

Maximum setting range 3 h 20 min.

Make the setting and confirm with ☑.

E.5.8 Maximum daily fill time

Setting of the maximum permissible runtime of the fresh water for one day

Maximum setting range 10 h: 00 min.

Make the setting and confirm with ☑.

F. Flow switch

F.1 Flow switch

To evaluate the switching condition of a flow switch that is installed in the clean water line, for example, and issue a signal if the flow is too low or there is no flow.

HINWEIS	The installation of a flow switch is recommended when adding a water treatment agent so that the dosing systems shut off safely if the flow is too low or there is no flow.

Selection option: NOT PRESENT / PRESENT

Make the setting and confirm with ☑.

If present:

F.2 Input 16

Suitable for digital signals (TTL level) or potential-free switch

- Flow switch with N/O contact and filter pump monitoring (switching of the dosing systems, heating and filter pump)
- Flow switch with N/C contact and filter pump monitoring (switching of the dosing systems, heating and filter pump)
- Flow switch with N/O contact without filter pump monitoring (switching of the dosing systems and heating)
- Flow switch with N/C contact without filter pump monitoring (switching of the dosing systems and heating)

Make the setting and confirm with ☑.

F.3 Response delay

Setting the time after which the switching status of the flow switch can be used for evaluation. Minor fluctuations in the flow can therefore avoid cyclical switching.

Setting option 0 – 600 seconds

Make the setting and confirm with ☑.

F.4 Flow switch collective fault

If a fault message is to be generated when switching the flow switch, this can be connected in addition to a collective fault message via activation.

Selection option: INACTIVE / ACTIVE

Make the setting and confirm with ☑.

G. Moisture sensor

When the moisture sensor responds (e.g. due to a leak in the plant room), a message is connected to the collective fault message.

Selection option: INACTIVE / ACTIVE

Make the setting and confirm with ☑.

HINWEIS	A moisture sensor does not replace plant room drainage. The area in which the pool water treatment technology is set up and installed, there must be correct and backflow-free drainage for the anticipated water volume

G.1 Input

Selection option of the input for the moisture sensor

None / E25

Make the setting and confirm with ☑.

G.2 Input type

Selection option

- N/O contact
- N/C contact

Make the setting and confirm with ☑.

G.3 Delay time

Setting the time after which the moisture sensor is to forward the switching signal.

Setting option max. 60 seconds

Make the setting and confirm with ☑.

G.4 Moisture sensor collective fault message

This should be activated if the moisture sensor signal is to be forwarded to a collective fault.

Make the setting and confirm with ☑.

H. UV lamp

If there is a UV lamp (UV radiation unit) is fitted in the pool water treatment equipment, this can be activated and actuated via the control.

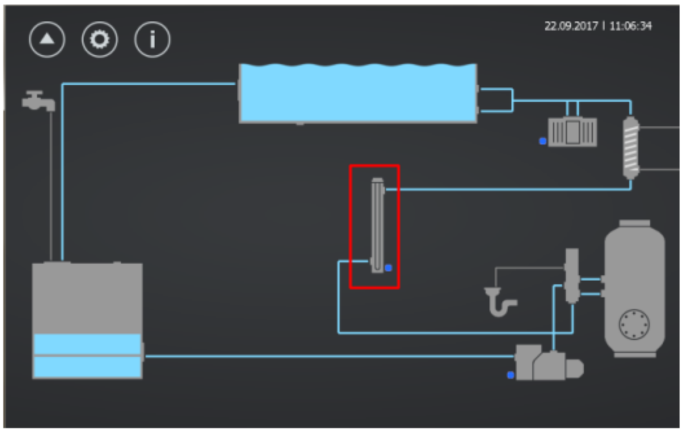


Figure – UV lamp

H.1 UV lamp

Selection option:

Not present / present

Make the setting and confirm with ☑.

H.2 Delay for activation

Input of the time when the UV lamp is to be operated after switching on the system.

Delay time setting [s]

Make the setting and confirm with ☑.

H.3 Coupling with filter pump timer

To operate the UV lamp depending on the filter pump runtime.

Selection option:

NO / YES

Make the setting and confirm with ☑.

I. Filter pump

I.1 Filter pump timer

Selection

All days the same / weekend weekdays / every day individually

Make the setting and confirm with ☑.

Making the selection takes you to the next input field

All days the same	**Weekend / weekdays**	**All days individually**
Switching points NIV 1-NIV 6	Mon-Fri, Sat-Sun	Mon-Sun
Assign switching time		
Assignment options depending on the pump and the presets made: ON, OFF, pump and floor extraction, reduced speed		

Setting of the operating times for the filter pump

Selection options

- All days the same (One setting is applied to each day, switching points NIV 1 – NIV 6)
- Weekend / weekdays (block settings for weekends (SAT-SUN) and weekdays (MON-FRI))
- Each day individually (Setting made separately for each day (MON,TUE,WED,THU,FRI,SAT,SUN))

The time and the switching status is set for each switching point (NIV 1 - NIV 6).

The following safety conditions are possible:

- REDUCED SPEED
- PUMP AND FLOOR
- OFF
- ON

Make the setting and confirm with ☑

HINWEIS	The filter runtime is based on the relevant national regulations for the treatment of swimming pool and bathing pool water. A reduction of the filter runtime results in an impairment of the water quality.

Following confirmation, a new input window opens with the setting options

There is a total of 6 switching points available.

Each of these switching points can be assigned one of several functions.

Note:

If there is no frequency converter present or there is none selected, the following 4 functions are available:

Pump and floor drain on	Water removal only via the floor drain, only possible if floor valve is present
Off	Filter pump off
On	Filter pump on

If there is a frequency converter present or if one is selected, the following 6 functions are available:

Low speed + floor drain	Low speed is activated and water is removed via the floor drain (only possible if there is no floor valve present)
Moderate speed + floor drain	Moderate speed is activated and water is removed via the floor drain (only possible if there is no floor valve present)
Off	Filter pump off
On	Filter pump on
Low speed + gutter	Low speed is activated and water removal is carried out from the water tank

For example:

Filter runtime daily from 8:00 – 20:00 hours and from 16:00 in the event of a reduced water level

Make the setting as follows:

Set *All days the same* and confirm with ☑

Then:

Set 1st switching point (*NIV 1*) to 08:00 hours and to *ON*

Set 2nd switching point (*NIV 2*) to 16:00 hours and to low speed + gutter

Set 3rd switching point (*NIV 3*) to 20:00 hours and to *OFF*

Then confirm with ☑

I.2 Filter pump type

Setting the control with reference to the electrical actuation of the filter pump

Danger:

Electrical connections and settings on the control relating to electrical consumers / equipment are only permitted to be carried out by an electrical engineer in accordance with the relevant national and international regulations, e.g. VDE, CENELEC. Observe the local regulations of the power supply companies and the laws and safety regulations for electrical installations in swimming pools.

The selection is carried out according to the connected filter pump. The relevant electrical connection parameters can be found on the nameplate of the pump or the frequency converter

Selection option

One-phase / three-phase / external contactor / frequency converter

Make the setting and confirm with ☑

The following table gives the variations of the possible settings.

One-phase	**Three-phase**	**External contactor**	**Frequency converter**
Input 14	Input 14	Input 14	Input 14
Input 15	Input 15	Input 15	Input 15
Digital input delay time	Digital input delay time	Digital input delay time	Digital input delay time
Mode	Mode	Mode	Frequency converter

Motor current monitoring	Motor current monitoring	Eco mode	Actuation
Eco mode	Eco mode		FC fault message
			FC collective fault message
			Mode
			Low speed
			Moderate speed
			High speed

I.3 Input 14

Suitable for digital signals (TTL level) or potential-free switch

This input can be used to switch the filter pump on or off from outside, depending on which of the following settings have been made:

The following selection options are available

- Filter pump request with N/O switch (pump switches on)
- Filter pump request with N/C switch (pump switches on)
- Filter pump blocking signal with N/O switch (pump switches off)
- Filter pump blocking signal with N/C switch (pump switches off)
- Filter pump request and floor drain with N/O switch (pump switches on)
- Filter pump request and floor drain with N/C switch (pump switches on)
- Filter pump request and gutter with N/O switch (pump switches on)
- Filter pump request and gutter with N/C switch (pump switches on)

Make the setting and confirm with ☑

Filter pump request and floor drain with N/O or N/C contact switches both the filter pump on and the changeover to the extraction via the floor valve (only if there is a floor valve fitted)

Filter pump request and gutter with N/O or N/C contact switches both the filter pump on and the changeover to extraction from the water tank (only if there is a floor valve fitted)

I.4 Input 15

Function as for input 14 with the external option to reset the actuation previously activated via input 14.

Suitable for digital signals (TTL level) or potential-free switch

This input can be used to switch the filter pump on or off from outside, depending on which of the following settings have been made:

The following selection options are available

• Filter pump request with N/O switch	(pump switches on)
• Filter pump request with N/C switch	(pump switches on)
• Filter pump blocking signal with N/O switch	(pump switches off)
• Filter pump blocking signal with N/C switch	(pump switches off)
• Filter pump request and floor drain with N/O switch	(pump switches on)
• Filter pump request and floor drain with N/C switch	(pump switches on)
• Filter pump request and gutter with N/O switch	(pump switches on)
• Filter pump request and gutter with N/C switch	(pump switches on)

Make the setting and confirm with ☑

Note:

Filter pump request and floor drain with N/O or N/C contact switches both the filter pump on and the changeover to the extraction via the floor valve (only if there is a floor valve fitted)

Filter pump request and gutter with N/O or N/C contact switches both the filter pump on and the changeover to extraction from the water tank (only if there is a floor valve fitted)

I.5 Digital input delay time

To set the delay time after which inputs 14 and 15 are to be activated.

Setting option 0 – 60 seconds

Make the setting and confirm with ☑.

I.6 Mode

Setting with reference to the actuation of the filter pump via a timer, set runtimes or continuous.

Selection options

- TIMER
- RUNTIME
- ALWAYS ON

Make the setting and confirm with ☑.

I.7 Motor current monitoring

This menu is only active when ONE-PHASE or THREE-PHASE has been selected.

Danger:

Electrical connections and settings on the control relating to electrical consumers / equipment are only permitted to be carried out by an electrical engineer in accordance with the relevant national and international regulations, e.g. VDE, CENELEC. Observe the local regulations of the power supply companies and the laws and safety regulations for electrical installations in swimming pools.

I.7.1 Motor current calculation

This function can be used to calculate the nominal motor current via the control. Manual setting using the motor nameplate is preferable.

Selection option: NO / YES

Make the setting and confirm with ☑.

I.7.2 Nominal pump current

Input of the nominal motor current according to the motor nameplate. The correct connection of the motor (rotary field, cable size and fuse) should be noted.

Maximum setting range 10.0 A

Make the setting and confirm with ☑.

I.7.3 Overcurrent factor

The permissible overcurrent is based on the motor and the motor contactor switch. A short-term overcurrent is produced when switching on or with voltage fluctuations, for example.

The setting is only permitted to be carried out by a qualified electrical engineer.

Maximum setting range 100 %

Make the setting and confirm with ☑.

I.7.4 Minimum current

Setting of the minimum current intensity that triggers a fault message if undershot. This can be used as a message for a possible cable break, for example.

Setting range 0 – 8 A

Make the setting and confirm with ☑.

I.7.5 Delay time monitoring

Delay time setting – time between the measurement of an overcurrent or minimum current up to the triggering of a fault message and switching off of the filter pump.

Trigger conditions:

- Overcurrent exceeded
- Minimum current exceeded
- Phase error

The setting range is max. 15 seconds. A maximum time of 5 seconds is recommended.

Make the setting and confirm with ☑.

I.7.6 Overcurrent collective fault message

Forwards the fault message to a collective fault message on overcurrent

Selection options: NO / YES

Make the setting and confirm with ☑.

I.7.7 Cable break collective fault message

Forwards the fault message to a collective fault message on cable break

Selection options: NO / YES

Make the setting and confirm with ☑.

I.7.8 Phase error collective fault message (only with three-phase pump)

Forwards the fault message to a collective fault message on phase error

Selection options: NO / YES

Make the setting and confirm with ☑.

I.1 Frequency converter

Note: This menu is only available when the frequency converter has been selected.

The following selection options are available

• Frequency pump without stop	For pumps with attached / integrated FC without stop function
• External frequency converter	For pumps with external FC
• Frequency pump with stop	For pumps with attached / integrated FC with stop function

Make the setting and confirm with ☑.

Explanation:

With stop function means that the pump can be stopped using the frequency converter. If this is not present, the pump is switched off directly for stopping.

I.1.1 FC fault message

This means that a fault message from an external frequency converter can be linked to the Behncke Control II

Selection option:

- N/O contact
- N/C contact

Make the setting and confirm with ☑.

I.1.2 FC collective fault message

Selection option:

- N/O contact
- N/C contact

Make the setting and confirm with ☑.

I.1.3 Low speed

Setting for low speed (e.g. for night operation or reduction mode)

Setting up to max. 66 % (with reference to the nominal frequency)

Make the setting and confirm with ☑.

I.1.4 Moderate speed

Setting for moderate speed (e.g. for normal operation)

Setting up to max. 100 % (with reference to the nominal frequency)

Make the setting and confirm with ☑.

I.1.5 High speed

Setting for high speed (e.g. for filter flushing)

Setting up to max. 100 % (with reference to the nominal frequency)

Make the setting and confirm with ☑.

HINWEIS	When setting the speed, bear in mind that at too low a speed, the flow in the pool and as a result the pool water quality may be impaired. In addition, too high a speed may negatively affect the quality of the filtration.

J. Filter cleaning

J.1 Start filter cleaning

Pressing this button initiates the filter cleaning (filter flushing) process manually, regardless of permanently set filter flushing programmes.

⚠	**Danger**: Only carry out filter flushing if it has first been ensured that there is adequate water in the water tank or in the swimming pool. When removing water from the swimming pool directly, ensure that the removal points are sized with reference to the volumetric flow for the filter flushing so that there are no hazards in relation to intake or entanglement points.

Selection option: NO / YES

Make the setting and confirm with ☑.

J.2 Filter cleaning mode

Setting of the time and frequency of the filter flushing.

The following selection options are available:

- Timer
- Runtime

If the timer is activated, the time for the filter cleaning is set in a separate menu.

If the runtime is activated, the filter flushing is carried out in line with a permanently set runtime.

The start (time) of the filter flushing should be set for each of these individual selection options.

Make the setting and confirm with ☑.

J.3 Filter cleaning timer (only with timer)

Note:

Only active if the timer has been selected.

Setting option: The filter flushing time is set individually for each day.

Set the start time (NIV 1) to do this.

Other selection option: Running the filter flushing

- Every week
- Every two weeks
- Every four weeks

Make the setting and confirm with ☑.

J.4 Max. runtime between cleaning cycles

Note: Only when runtime mode has been selected

Regardless of the permanently set filter flushing times, a maximum time can be set after which a filter flush is to be carried out.

This can be required with outdoor pools, for example, where a higher occurrence of dirt and contamination is anticipated.

Maximum setting range 200 h

Make the setting and confirm with ☑.

J.5 Start of the activation window

Note: Only when runtime mode has been selected

Setting for the earliest time at which the filter flushing is permitted to be start.

Make the setting for the time of the earliest start time and confirm with ☑.

J.6 End of the activation window

Note: Only when runtime mode has been selected

Setting for the latest time at which the filter flushing is permitted to be start.

Make the setting for the time of the latest start time and confirm with ☑.

J.7 Backflush runtime

Sets the duration of how long a filter flushing process is to be carried out.

Caution:

The minimum duration is based on the relevant national regulations and / or manufacturer specifications. Please note that the duration of the backflush (filter flushing) has an effect on the water quality. Filter flush times that are too short have a negative effect on water quality.

Setting range 0 - 900 seconds

Make the setting and confirm with ☑.

J.8 Flushing runtime

Sets the duration for the flushing (first filtrate drainage). This function is possible in combination with the Badutronic 93 or in combination with a flushing valve.

HINWEIS	The duration of the flushing process is based on the relevant national regulations and / or manufacturer specifications. Please note that the duration of the flush may have an effect on the water quality.

Maximum setting range 900 seconds

Make the setting and confirm with ☑.

J.9 Pause between cleaning steps

Timespan in which the pump is shut down so that the setting process to switch over from filtration to the filter flush and flush-cleaning can be carried out reliably.

Setting range 0 – 200 seconds

Make the setting and confirm with ☑.

J.10 Input 17

Suitable for digital signals (TTL level) or potential-free switch

The following selection options are available:

• Request with N/O contact (pulse)	Short signal for actuation
• Request with N/C contact (pulse)	Short signal for actuation
• Request with N/O contact (continuous contact)	Continuous signal for actuation (Contact for the duration of the signal present)
• Request with N/C contact (continuous contact)	Continuous signal for actuation (Contact for the duration of the signal present)

Make the setting and confirm with ☑.

J.11 Digital input delay time

To set the delay time after which time input 17 is to be activated.

Setting range maximum 20 seconds

Make the setting and confirm with ☑.

J.12 Activated via SE 6

When the water level of SE 6 is reached, this button can be pressed to run the filter flushing regardless of the preset filter flushing times. This means that in the event of the water level being too high in the water tank, water can be removed via filter flushing in the waste water line.

Selection option: NO / YES

Make the setting and confirm with ☑.

If yes, set the delay time as described below.

J.13 SE 6 delay time

Delay time when the filter flushing is to be carried out after dipping in electrode SE 6.

Selection option 0..60 s

Make the setting and confirm with ☑.

J.14 Use floor drain

Pressing this button means that the filter flushing is carried out by removing water from the swimming pool.

This may be necessary if, for example, the usable volume in the water tank is too low.

This function is only possible if there is a floor valve fitted.

Selection option: NO / YES

Make the setting and confirm with ☑.

> **Danger**:
>
> The floor drain (floor drains) must be dimensioned and installed in accordance with the latest technological regulations to avoid creating a hazard area due to intake / entanglement.

J.15 Forced circulation after filter cleaning

If the filter flushing is carried out outside the set filter runtimes, this function can be used to set that after a filter flush the filter is operated for a permanently set time.

Setting range 0 – 200 minutes

Make the setting and confirm with ☑.

The ▲ button can be used to go back to the previous menu to continue the settings

K. Measuring / dosing technology

⚠	**Danger**: When using chemicals, observe the specifications on the safety data sheets for the substances in question. When using chemicals, use the personal safety equipment required for the substances in question.

⚠	**Danger**: The installation of the dosing systems and the setting on the control must be carried out so that dosing can only be carried out when the filter pump is in operation and the pipes are conveying fluid. It may be necessary to install an additional flow monitor.

HINWEIS	The setting of the parameters for the individual chemicals must be carried out in accordance with the relevant national regulations / laws for the treatment of swimming and bathing pool water.

K.1 Redox

K.1.1 Input

Selection and assignment of the input signal

Selection option:

None / E21 / E 22 / E 23 / E 24 / /E 25 / E 26

When an input is selected, the following menu structure appears

Note: Each input signal can only be assigned once. After assigning the input signal, this assigned input no longer appears for the subsequent selection parameters.

K.1.2 Select the input type

0-10 V signal

4-20 mA signal

Make the setting and confirm with ☑

K.1.3 Redox value at 0 V / 4 mA

Input the corresponding measurement at 0 V or 4 mA.

Make the setting and confirm with ☑.

K.1.4 Redox value at 10 V / 20 mA

Input the corresponding measurement at 10 V or 20 mA.

Make the setting and confirm with ☑.

K.1.5 Lower Redox limit

Setting of the lower value for fault message

Make the setting and confirm with ☑

K.1.6 Upper Redox limit

Setting of the upper value for fault message

Make the setting and confirm with ☑

K.1.7 Redox fault delay

Setting of the delay time after which a fault message is issued.

Maximum setting range 3600 seconds

Make the setting and confirm with ☑

K.2 Chlorine

K.2.1 Input

Assignment and selection as under K.1 but for the content of free chlorine.

K.3 pH

Assignment and selection as under K.1 but for the pH value

K.4 Air humidity

Assignment and selection as under K.1 but for the air humidity (relative air humidity)

K.5 Level gauge 1

K.5.1 Input (input signal of digital N/O contact)

Assignment of level monitoring for a dosage pack of a water treatment agent.

Selection option

None / E 20

Make the setting and confirm with ☑

When an input is assigned, the following additional settings can be made:

K.5.2 Input type

Selection option

- N/O contact
- N/C contact

Make the setting and confirm with ☑

K.5.3 Delay time for level gauge 1

Setting of the delay time after which a signal message is issued

Maximum setting option 60 seconds

Make the setting and confirm with ☑

K.5.4 Name of level gauge 1

A keyboard appears when the button is pressed. This can be used to enter a name with a character length of 13 characters.

Complete with the OK button following input

K.6 Level gauge 1 / level gauge 2

This setting is carried out in accordance with the description above for "Middle 1"

K.7 Time between filter pump start and dosing activation

Earliest time after which the dosing is permitted to be begin after the filter pump is started.

Selection option

Maximum time setting 60 seconds

Make the setting and confirm with ☑

K.8 Dosing activation

Selection option

NO / YES

Make the setting and confirm with ☑

K.9 Level gauge collective fault message

Selection option

NO / YES

Make the setting and confirm with ☑

L. Lowering (only if the lowering valve has been selected)

Danger:

When using the lowering function, it must be ensured that the intake systems are implemented and installed in accordance with current, recognised technological regulations. Danger due to intake!

L.1 Forced switch-on start time

Start time setting when the circulation is to be carried out via the rain shower container.

Make the time setting and confirm with ☑

L.2 Forced switch-on end time

Stop time setting when the circulation is to be carried out via the rain shower container.

Make the time setting and confirm with ☑

L.3 Lowering cycle runtime

Setting of the duration as to how long the lowering process is permitted to take (opening time of the lowering valve).

Setting range: 10 – 600 seconds

Make the time setting and confirm with ☑

L.4 Lowering switch type

Selection options:

- N/O lowering switch contact (external switch)
- N/C lowering switch contact (external switch)

Make the setting and confirm with ☑

L.5 Lowering switch delay time

Setting of the delay time between the switching point of the lowering switch and activation of the lowering valve.

Setting range: 0 – 60 seconds

Make the setting and confirm with ☑

M. Heating

A total of 3 different set temperatures can be set for the swimming pool that are possible depending on adjustable times.

	Caution: Please note that excessively high temperatures could represent a risk to the user / swimmer. Temperatures > 36 °C are not permissible! In addition, temperatures could adversely affect materials and pool materials (deformation, surface changes).
HINWEIS	The set temperatures in the swimming pool depend on the output of the heat exchanger, the pool volume and the filled water temperature as well as the position (inside / outside the pool). This means it is possible that the set nominal temperatures are not reached or are not reached in a set time

M.1 Timer active

Individual swimming pool water set temperatures can only be set when the timer is active.

If the timer is not active, the pool temperature can be changed on the main screen.

M.2 Pool temperature 1

Setting for swimming pool set temperature 1

Maximum setting range 37 °C

Make the setting and confirm with ☑.

M.3 Pool temperature 2

Setting for swimming pool set temperature 2

Maximum setting range 38 °C

Make the setting and confirm with ☑.

M.4 Pool temperature 3

Setting for swimming pool set temperature 3

Maximum setting range 38 °C

Make the setting and confirm with ☑.

M.5 Swimming pool timer

Each of the 3 set temperatures can be activated at different / offset times.

The following options are available

Select for each set temperature (if required and possible based on the heat exchanger).

- All days the same (Setting is applied to each day MON – SUN)
- Weekend / weekdays (Setting is applied for MON-FRI or SAT-SUN)
- Each day individually (Setting made separately for each day)
- Always on
- Always off

Each switching point NIV 1 – NIV 6 can be assigned one of 3 set temperatures.

Make the setting and confirm with ☑.

M.6 Boiler

Button to activate the heating boiler.

Selection option: NO / YES

Make the setting and confirm with ☑.

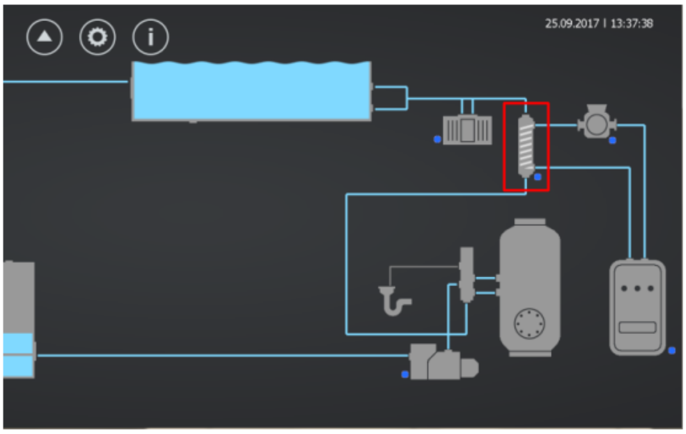


Figure – Heat exchanger (appears only when the boiler selection is active)

M.7 Heater activates filter pump

When the temperature in the swimming pool drops below the set temperature, this function can be used to activate the filter pump and thus the pool heating.

Selection option: NO / YES

Make the setting and confirm with ☑.

M.8 Delay until boiler activation

Setting of a delay time to avoid the cyclical switching of the filter pump as set under M.7.

Setting range 0 – 20 minutes

Make the setting and confirm with ☑.

M.9 Swimming pool re-heating hysteresis

Setting of the switching condition between switching on and off or switching off and on when the relevant temperature is reached.

Max. setting range 10.0 K

Make the setting and confirm with ☑.

M.10 Minimum boiler runtime

Setting range 0 – 45 minutes

Make the setting and confirm with ☑.

M.11 Boiler blocking time

Setting range 0 – 45 minutes

Make the setting and confirm with ☑.

M.12 Minimum boiler temperature

If there is no separate boiler for heating the pool, the temperature should be set to the required feed temperature

Max. setting range 65.0 °C

Make the setting and confirm with ☑.

M.13 Run-on time for pumps

Setting range 0 – 30 minutes

Make the setting and confirm with ☑.

M.14 Service water tank

Selection option:

- Not present
- Present

Make the setting and confirm with ☑.

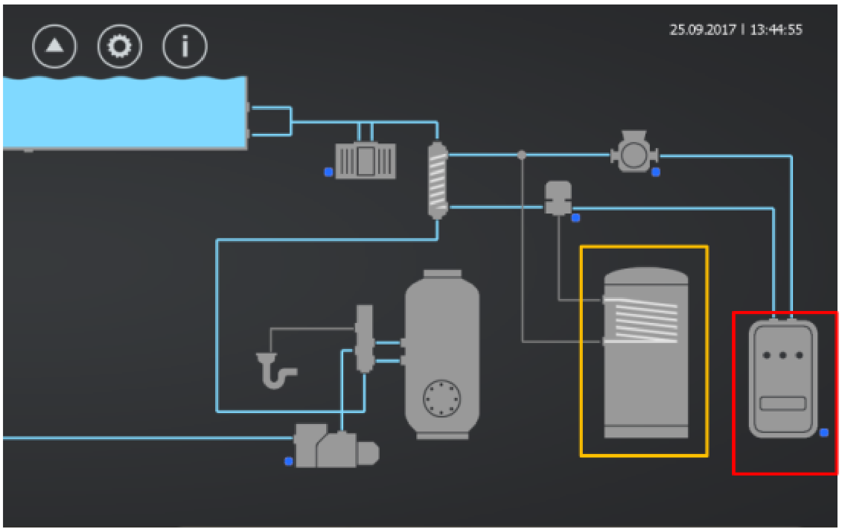


Figure – Heat exchanger, boiler, service water tank

M.15 Re-heating valve switching direction

Permits the inversion of the charging valve to the service water tank

Selection option: Normal / inverted

Make the setting and confirm with ☑.

M.16 Swimming pool sensor calibration

K temperature setting

Make the setting and confirm with ☑.

N. Solar system - general

HINWEIS	Before you begin the installation and setting of the solar system, observe the details in the relevant manufacturer specifications as solar systems may vary significantly in terms of design, connections, functions and operation.

HINWEIS	High temperatures can occur when using solar systems for heating. During planning and installation, ensure that high temperatures cannot result in the system components being destroyed.

HINWEIS	The installation and connection of solar systems are only permitted to be carried out by authorised and expert personnel. Correct handling and use with heat carrier agents should be observed in particular.

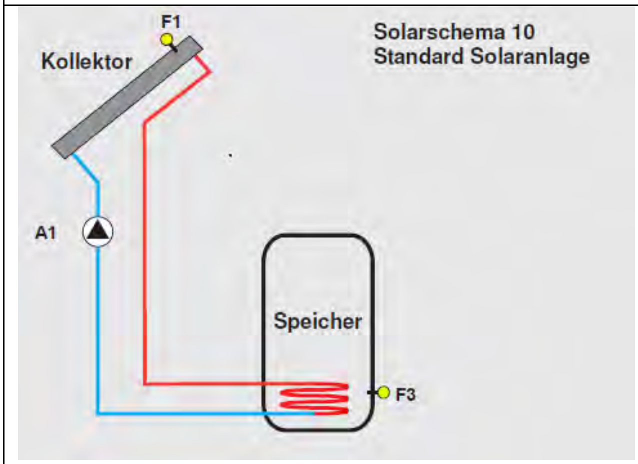
Due to the variety of options for solar swimming pool water heating, given below is a graphical overview of the options that can be actuated and operated using the Behncke 2.0. Profi control.

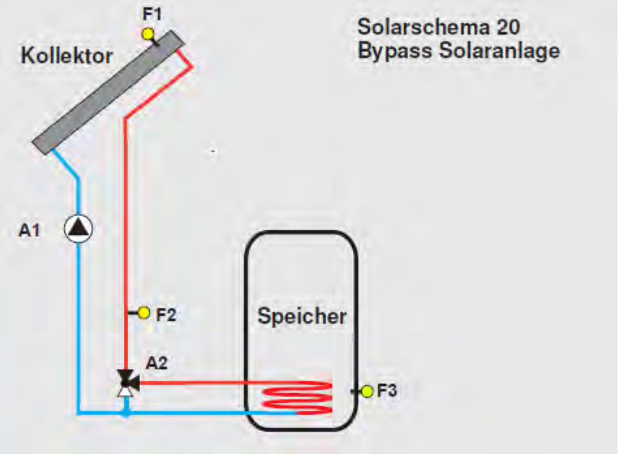
A distinction is made here as to whether the solar heating is carried out directly or indirectly.

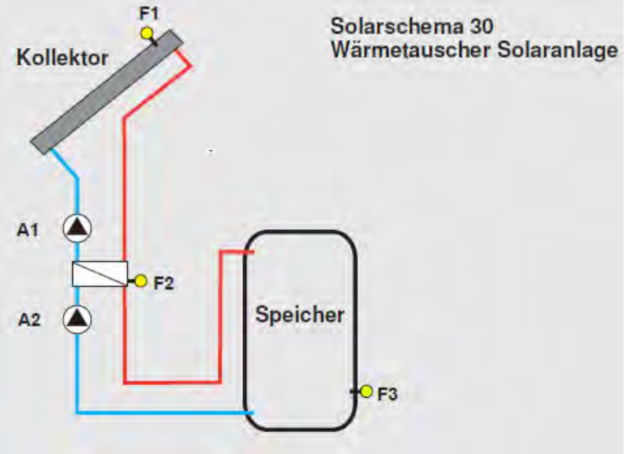
With direct solar heating, the pool water flows through absorbers fully or partially (e.g. extruded PP panels).

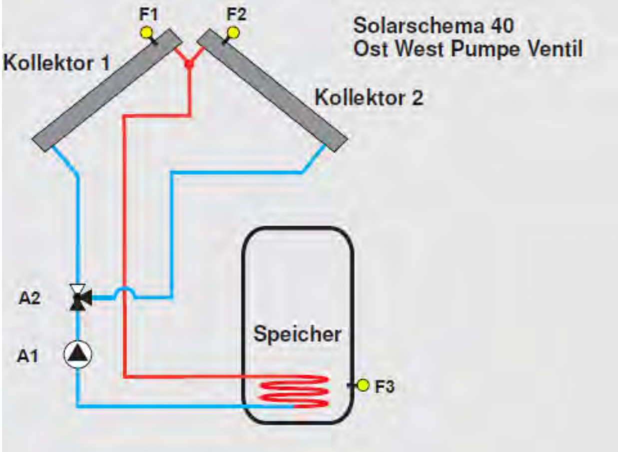
With indirect solar heating, a heat exchanger in the solar circuit is heated and gives off the heat to the pool water via a heat exchanger.

N.1.1 Options for indirect solar heating – graphical overview

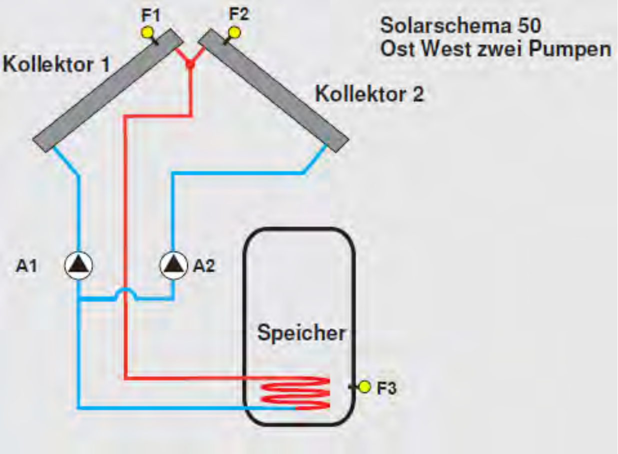
Standard solar system	
	The tank is charged via the collector and collector pump.

<table>
<tr><td colspan="2">Bypass valve - Solar system with bypass</td></tr>
<tr><td>
</td><td>The tank is charged via the collector and collector pump.

Once feed temperature F2 is higher than tank temperature F3, valve A 2 switches to the tank (charging process).</td></tr>
<tr><td colspan="2">Outdoor heat exchanger – Solar system with heat exchanger</td></tr>
<tr><td>
</td><td>Once feed temperature F2 is higher than tank temperature F3, collector pump A 2 switches on and begins the tank charging process.</td></tr>
</table>

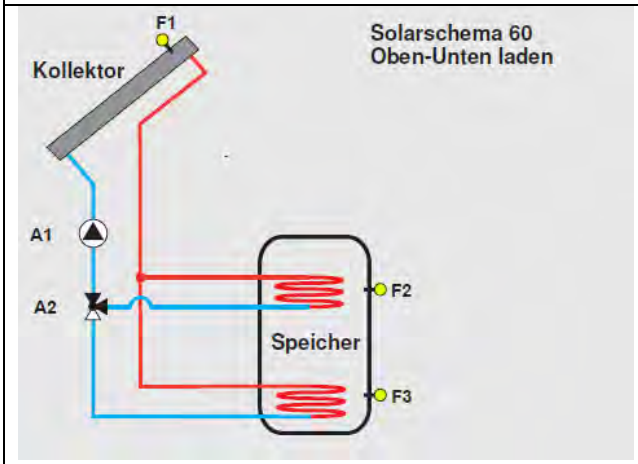
<table>
<tr><td colspan="2">East / west solar system with pump and valve</td></tr>
<tr><td>
</td><td>Collector pump A1 is switched on when collector temperature F1 or F2 is higher than tank temperature F3. The tank charging process begins.</td></tr>
</table>

East / west solar system with two pumps



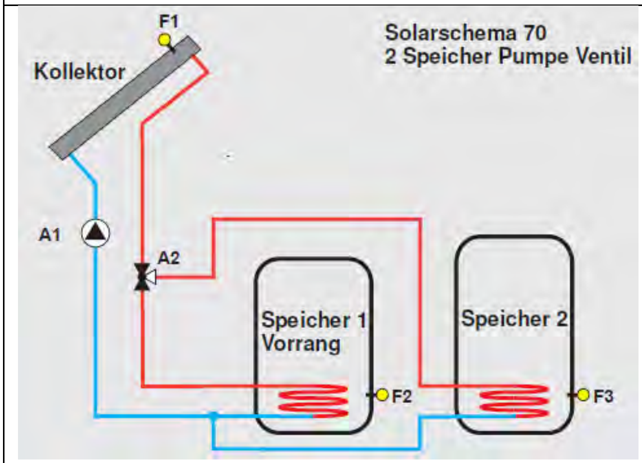
Collector pump A1 and / or A2 is switched on when collector temperature F1 or F2 is higher than tank temperature F3. The tank charging process begins.

Solar system top / bottom charging

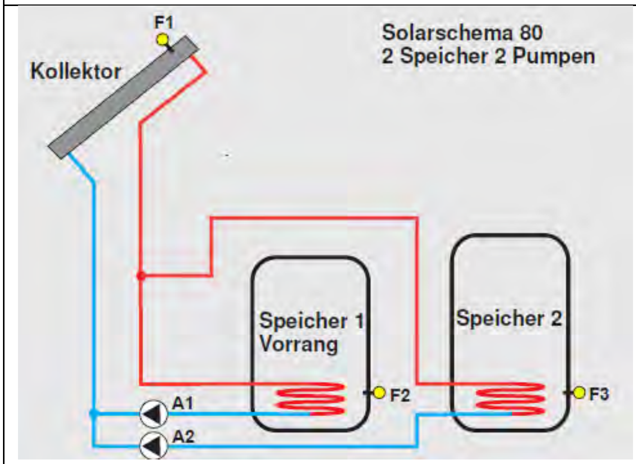


When collector temperature F1 is higher than the temperature in tank F2 or F3, the collector pump is switched on and circulates in the top or bottom area of the tank.

Two-tank solar system with pump and valve



When collector temperature F1 is higher than the temperature in tank F2 or F3, the collector pump is switched on. Valve A2 switches to the tank where the temperature is less than F1.

<table>
<tr><td colspan="2">Two-tank solar system with two pumps</td></tr>
<tr><td>
</td><td>When collector temperature F1 is higher than the temperature in tank F2 or F3, collector pump A1 or A2 is switched on. The tank charging process begins.</td></tr>
</table>

O. Solar system - settings

O.1.1 Absorber operating time

NO / YES

Make the setting and confirm with ☑.

O.1.2 Solar system type

Selection options

- Not present
- Absorber — direct pool water heating
- Standard — indirect pool water heating
- Bypass valve — indirect pool water heating
- External heat exchanger — indirect pool water heating
- East / west with pump and valve — indirect pool water heating
- East / west with two pumps — indirect pool water heating
- Top / bottom charging — indirect pool water heating
- Two tanks and pump / valve — indirect pool water heating
- Two tanks and two pumps — indirect pool water heating

Make the setting and confirm with ☑.

O.1.3 Overview table of functions

The following table shows the various setting options depending on the solar heating options previously selected under O 1.1.

Solar system - settings

Overview of functions	*Parameters*	*Standard*	*Bypass valve*	*External heat exchanger*	*East / west with pump and valve*	*East / west with 2 pumps*	*Top / bottom charging*	*2 tanks and pump / valve*	*2 tanks and 2 pumps*
Swimming pool set temperature	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Pipe collector	*Yes / No*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Pump switch-on difference	*Temp. difference [K]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Pump switch-off difference	*Temp. difference [K]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Min. collector pump cycle	*[%]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Max. collector pump cycle	*[%]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Pump 2/valve switch-on difference	*Temp. difference [K]*		*X*	*X*	*X*	*X*	*X*	*X*	*X*
Pump 2/valve switch-off difference	*Temp. difference [K]*		*X*	*X*	*X*	*X*	*X*	*X*	*X*
Minimum collector temperature [max. 80 °C]	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Maximum collector temperature [max. 120 °C]	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Maximum collector difference [max. 80 °C]	*Temperature [°C]*				*X*	*X*			

Solar system - settings

Insulation protection temperature [max. 200 °C]	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
No heating during solar charging	*Yes / No*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Swimming pool priority	*Yes / No*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Maximum swimming pool temperature	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Solar system activates filter pump	*Yes / No*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Delay activation [max. 60 sec.]	*Time [s]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Set tank temperature [max. 80°C]	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Maximum tank temperature	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Maximum service water temperature [max. 95 °C]	*Temperature [C°]*						*X*	*X*	*X*
Start temperature for overheating protection [max. 80 °C]	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Start temperature for collector cooling [max. 50 °C]	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Röhrentics start (only with pipe collector selected)	*Time [hh:mm]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Röhrentics end (only with pipe collector selected)	*Time [hh:mm]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Summer start	*Date*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*

Solar system - settings

Summer end	*Date*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Summer tank cooling	*Active / inactive*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Holiday tank cooling	*Active / inactive*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Start deicing		*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Solar system active during holiday	*Yes / No*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Safety reserve theor. changeover difference up to 25 K	*Temp. difference [K]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Temperature rise monitoring [max. 10 Min.]	*Time input [Min]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Fault monitoring		*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Outdoor temperature collective fault message	*Yes / No*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Min. swimming pool temperature for fault message	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Max. swimming pool temperature for fault message	*Temperature [C°]*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*
Swimming pool temperature collective fault message	*Yes / No*	*X*	*X*	*X*	*X*	*X*	*X*	*X*	*X*

O.1.4 Functional description of the individual setting options

Overview of functions	*Parameters*	*Functional description*
Swimming pool set temperature	*Temperature [C°]*	*Setting for the set temperature of the swimming pool water*
Pipe collector	*Yes / No*	*Selection as to whether or not a pipe collector is present. Otherwise the default value is "Flat collector"*
Pump switch-on difference	*Temp. difference [K]*	*Hysteresis between temperature in the tank and in the collector to switch on the pump*
Pump switch-off difference	*Temp. difference [K]*	*Hysteresis between temperature in the tank and in the collector to switch off the pump*
Min. collector pump cycle	*[%]*	*Minimum speed of the collector pump*
Max. collector pump cycle	*[%]*	*Maximum speed of the collector pump*
Pump 2 switch-on difference	*Temp. difference [K]*	*Hysteresis between temperature in the tank and in the collector to switch on the collector pump*
Pump 2 switch-off difference	*Temp. difference [K]*	*Hysteresis between temperature in the tank and in the collector to switch off the collector pump*
Minimum collector temperature	*Temperature [C°]*	*Temperature from which the solar system is to be active. From this temperature, the solar charging begins.*
Maximum collector temperature	*Temperature [C°]*	*Temperature of the collector from which cooling is carried out to protect against overheating. The collector pump runs until the collector has cooled down.*
Insulation protection temperature	*Temperature [C°]*	*Temperature from which the system is stopped to prevent damage.* *The solar charge only re-starts when the collector temperature has dropped to 20 °C below the set value.*
No heating during solar charging	*Yes / No*	*Blocking of the boiler. In other words, no heating with gas or oil, for example (if present).*
Swimming pool priority	*Yes / No*	*Setting as to whether the heating of the pool has priority over other consumers.*

Solar system - settings

Maximum swimming pool temperature	*Temperature [C°]*	*Setting for the maximum temperature of the swimming pool water.* *Maximum permissible temperature should not exceed 36 °C!*
Solar system activates filter pump	*Yes / No*	*Sets that the solar system filter pump is activated to heat the pool outside the filter time*
Delay enabling	*Time [s]*	*Delay time between filter pump start and charging mode*
Tank temperature setpoint	*Temperature [C°]*	*Solar system attempts to reach this set temperature in the tank.*
Maximum tank temperature	*Temperature [C°]*	*If this temperature is reached in the tank, the solar charging is ended.*
Maximum service water temperature	*Temperature [C°]*	*If this temperature is reached in the service water tank, the solar charging is ended.*
Overheat protection start temperature	*Temperature [C°]*	*Start temperature of the tank from which in summer the tank is only used to cool the collector.* *The heat is conveyed away from the tank.*
Collector cooling start temperature	*Temperature [C°]*	*Start temperature of the tank from which during a holiday the tank is only used to cool the collector.*
Röhrentics start (only with pipe collector selected)	*Time [hh:mm]*	*Cyclical switching on of the collector pump so that a valid temperature can be measured.* *Application of the temperature in the pipes to the sensor.*
Röhrentics end (only with pipe collector selected)	*Time [hh:mm]*	*Cyclical switching off of the collector pump so that a valid temperature can be measured.*
Summer start	*Date*	*Charging of the tank to overheat protection start temperature. Collector pump starts when the max. collector temperature is reached. Nighttime tank cooling via collector if the collector temperature is lower than the tank temperature.*
Summer end	*Date*	*End of summer switching*
Summer tank cooling	*Active / inactive*	*Activation / deactivation of the nighttime tank cooling with summer switching activated.*
Holiday tank cooling	*Active / inactive*	*Activation / deactivation of the nighttime tank cooling during holiday shutdown.*

Solar system - settings

Start deicing	*Yes / No*	*If there is snow and ice on the collector, this can mean that warm water is conveyed from the tank into the collectors to melt the snow / ice.*
Solar system active during holiday	*Yes / No*	*Select whether or not the solar function is active during a holiday. If activated, the tank is kept as cool as possible.*
Theor. changeover safety reserve	*Temp. difference [K]*	
Temperature rise monitoring	*Time input [Min]*	
Fault monitoring		
Outdoor temperature collective fault message	*Yes / No*	*Activate for the display of the outdoor temperature fault*
Min. swimming pool temperature for fault message	*Temperature [C°]*	*Setting of the minimum temperature for forwarding to fault message if not reached.*
Max. swimming pool temperature for fault message	*Temperature [C°]*	*Setting of the maximum temperature for forwarding to fault message if not reached.*
Swimming pool temperature collective fault message	*Yes / No*	*Activate for forwarding of swimming pool temperature (exceeded, not reached) to collective fault message*

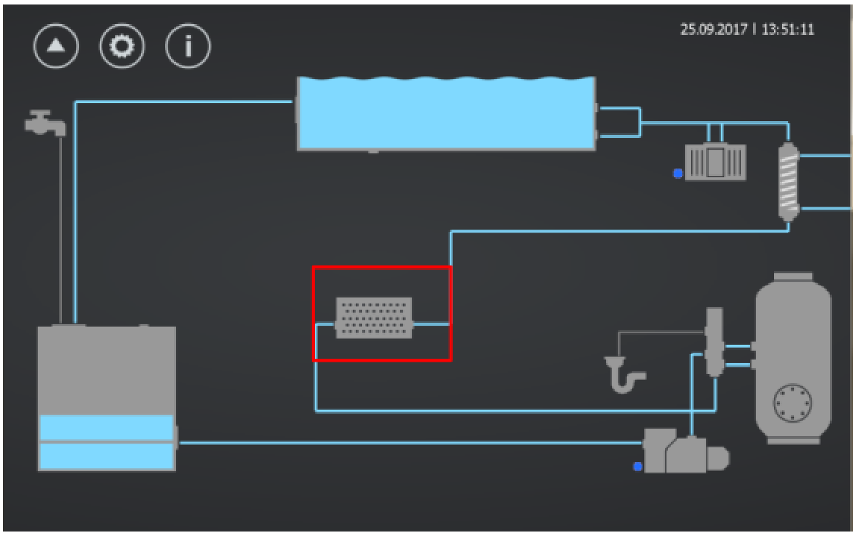


Figure – Absorber (direct flow)

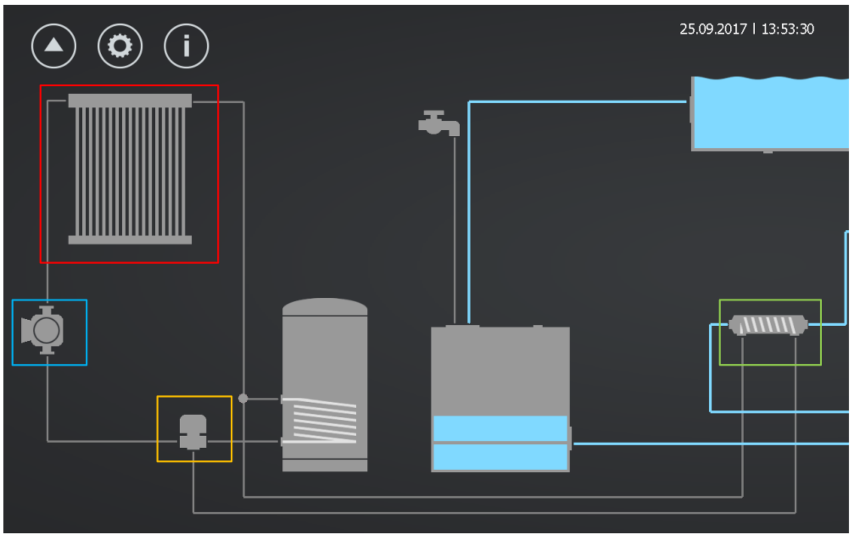


Figure – Collectors, valve, pump, heat exchanger (indirect flow)

P. Light

⚠	**Danger**: Electrical connections are only permitted to be carried out by an electrical engineer in accordance with the relevant national and international regulations, e.g. VDE, CENELEC. Observe the local regulations of the power supply companies and the laws and safety regulations for electrical installations in swimming pools.

HINWEIS	Note that the underwater lights are only permitted to be switched on when the pool is full, otherwise the underwater lights could be damaged due to inadequate heat conduction.

P.1.1 Output

Selection options

- Not present
- 230 V potential-free output

Make the setting and confirm with ☑.

P.1.2 Actuation

HINWEIS	Observe the relevant and associated operating instructions for the controllers and switchgear systems, e.g. switch box Control NT from Schmalenberger GmbH & Co KG.

Selection options

- None
- Analogue 1 (A23)
- Analogue 2 A 24
- Analogue 3 MO A-B
- Analogue 4 MO C-D
- Analogue 5 MO E-F
- DMX Behncke
- DMX Fluvo weiss
- DMX Fluvo RGB

Make the setting and confirm with ☑.

P.1.3 Input

Selection options

- None
- E12
- E26

Make the setting and confirm with ☑.

P.1.4 Type of input (only if E 12, E 20 E 26 is selected)

Selection options

- N/O contact request
- N/C contact request
- N/O blocking signal
- N/C blocking signal
- Button request

Make the setting and confirm with ☑.

P.1.5 Mode

Selection options

- Timer
- Interval

Make the setting and confirm with ☑.

P.1.6 Repeat time (only with interval)

Enter the time interval after which the light is to be switched on

Maximum 12 h

Make the setting and confirm with ☑.

P.1.7 Activation time (only with interval)

Enter how long the light is to be switched on

Maximum 4 h

Make the setting and confirm with ☑.

P.1.8 Locked by roller shutter

Selection options

NO / YES

Make the setting and confirm with ☑.

P.1.9 Timer

A total of 3 switch-on and 3 switch-off points each can be set here.

- All days the same
- Weekend / weekdays
- Each day individually

Make the setting and confirm with ☑.

P.1.10 Maximum runtime

Setting for the maximum runtime (operating time of the light)

Maximum 12 h

Make the setting and confirm with ☑.

Q. Counterflow system

HINWEIS	Observe the relevant and associated operating instructions for the controllers and switchgear systems, e.g. switch box Control NT, converter box from Schmalenberger GmbH & Co KG or other manufacturer specifications.

HINWEIS	When selecting and setting the swimming pool attractions, ensure that the pool attractions are operated on a daily basis to avoid stagnation water in the pipes.

	Danger: Pool attractions with water or water / air are only permitted to be operated if the necessary intake points are fitted and implemented in line with recognised technical regulations.

Q.1 Output

Selection options

- Not present
- Potential-free
- Fluvo Box 1
- Fluvo Box 2
- Fluvo Box 3
- Fluvo Box 4
- Analogue only
- Uwe Jetstream 1
- Uwe Jetstream 2
- Uwe Jetstream 3
- Uwe Jetstream 4
- Converter box 1
- Converter box 2
- Converter box 3
- Converter box 4
- Converter box 5
- Converter box 6

Make the setting and confirm with ☑.

Q.1.1 Actuation

Selection options (only active with selection of potential-free actuation, Fluvo Box, Uwe Jetstream)

- None
- Analogue 1 A23
- Analogue 2 (A24)
- Analogue 3 MO A B
- Analogue 4 MO C D
- Analogue 5 MO E F

Make the setting and confirm with ☑.

Q.1.2 Input

Selection options

None

E12, E 26, Fluvo 1..4, Uwe Jetstream 1..4 (depending on which output was selected)

Make the setting and confirm with ☑.

Q.1.3 Mode

Selection options

- Timer
- Interval

Make the setting and confirm with ☑.

Q.1.4 Repeat time

Enter the time interval after which the attraction is to be switched on

Maximum 12 h

Make the setting and confirm with ☑.

Q.1.5 Activation time

Enter how long the attraction is to be switched on

Maximum 4 h

Make the setting and confirm with ☑.

Q.1.6 Timer (only with timer selected)

A total of 3 switch-on and 3 switch-off points each can be set here.

- All days the same
- Weekend / weekdays
- Each day individually

Make the setting and confirm with ☑.

Q.1.7 Maximum runtime

Setting for the maximum runtime (operating time of the attraction)

Maximum 12 h

Make the setting and confirm with ☑.

Q.1.8 Required filter pump

Setting as to whether the attraction is only permitted to be operated in connection with the operation of the filter pump (circulation)

Selection options

NO / YES

Make the setting and confirm with ☑.

Q.1.9 Activation delay

Setting after which time the attraction (following activation) is permitted to be operated.

Maximum delay time 60 seconds

Make the setting and confirm with ☑.

R. Floor bubble jet

Procedure is the same as described under chapter Q

S. Fountain shower

Procedure is the same as described under chapter Q

T. Massage nozzle

Procedure is the same as described under chapter Q

U. Free attractions 1-4

Procedure is the same as described under chapter Q

A total of 4 attractions can be designated and parameterised individually.

V. Party

V.1 Input

Selection options for actuating the party function externally

None / E26

Make the setting and confirm with ☑.

The party function permits the pool water treatment equipment to be switched on outside the programmed filter runtimes. In this process, the filter pump is operated at moderate speed.

The party function is deactivated again if pressed once more or if the switch-on time of the programmed filter runtime is reached.

W. Inputs / outputs

W.1 Inputs

There are no selection options. The status conditions of the individual inputs (E1 .. E 26 and SE 2 .. SE 6) can be viewed in this menu option. If an input is active, this is displayed using a blue dot or the corresponding value (e.g. temperature °C).

W.2 Outputs

The individual outputs can be activated and deactivated by pressing.

Press the "All auto" button sets the outputs to Automatic,

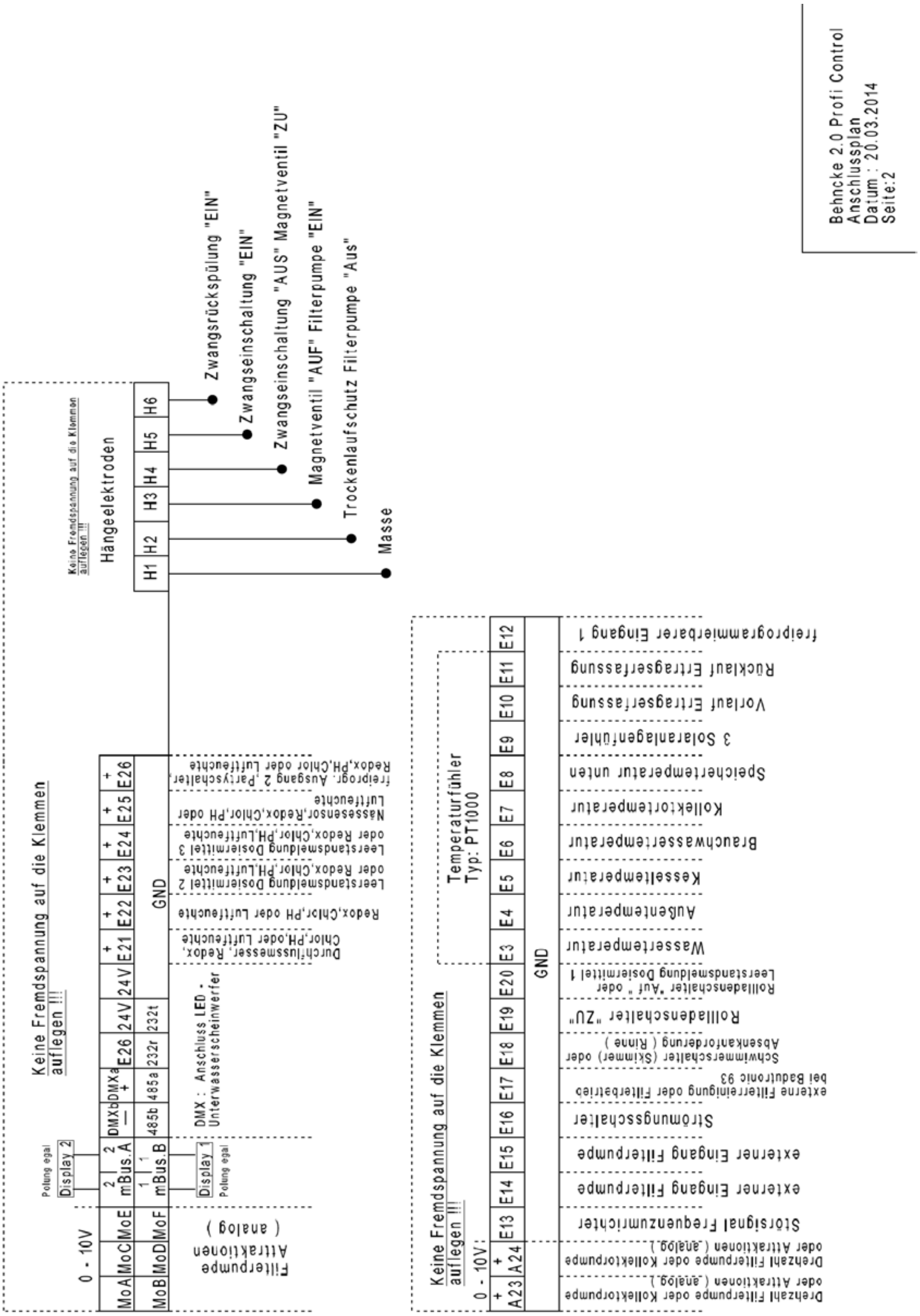
i.e. according to the presets / parameterisation

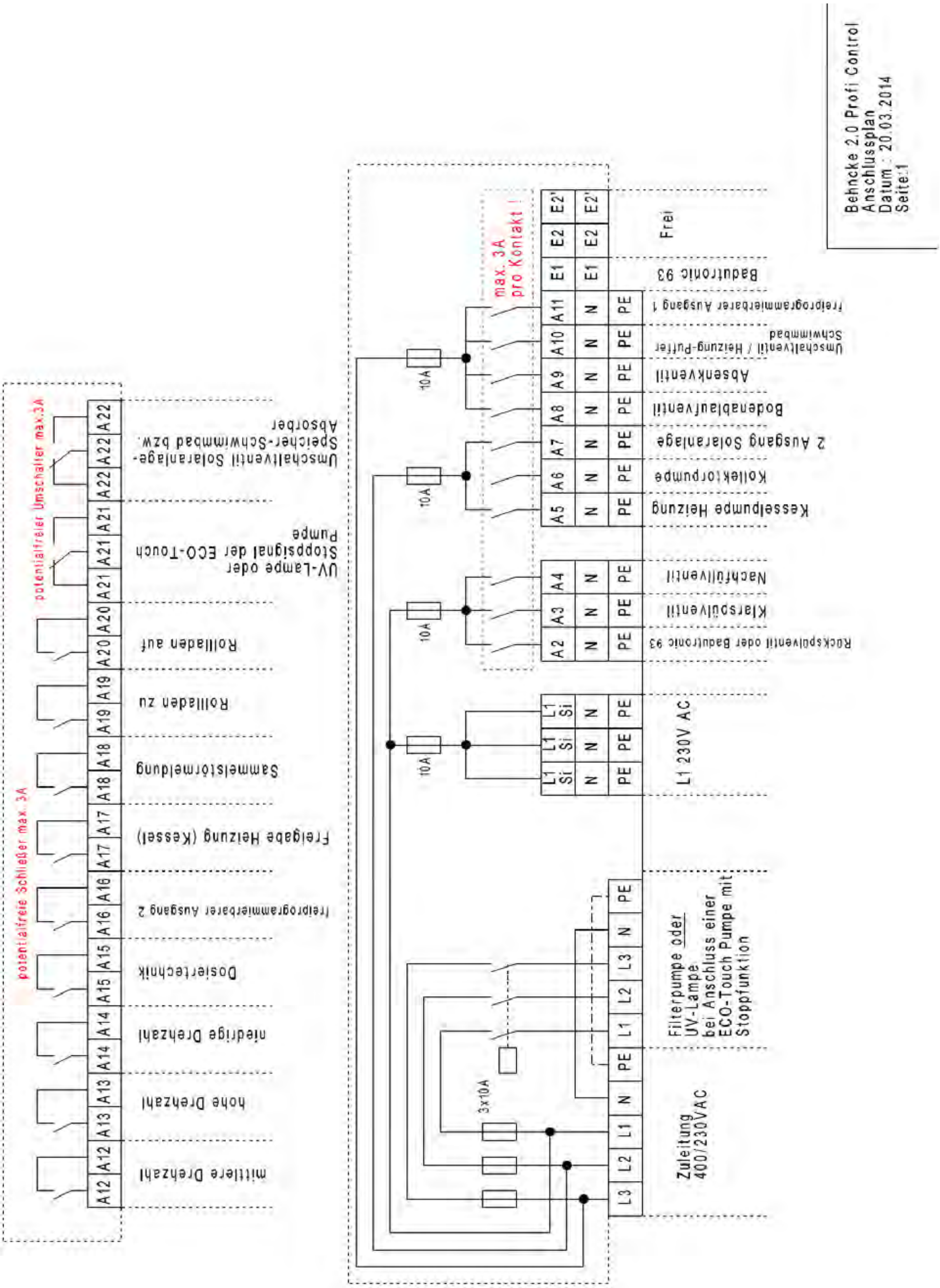
Active	= display of a green dot
Deactive	= display of a grey dot
Automatic	= display of a blue dot

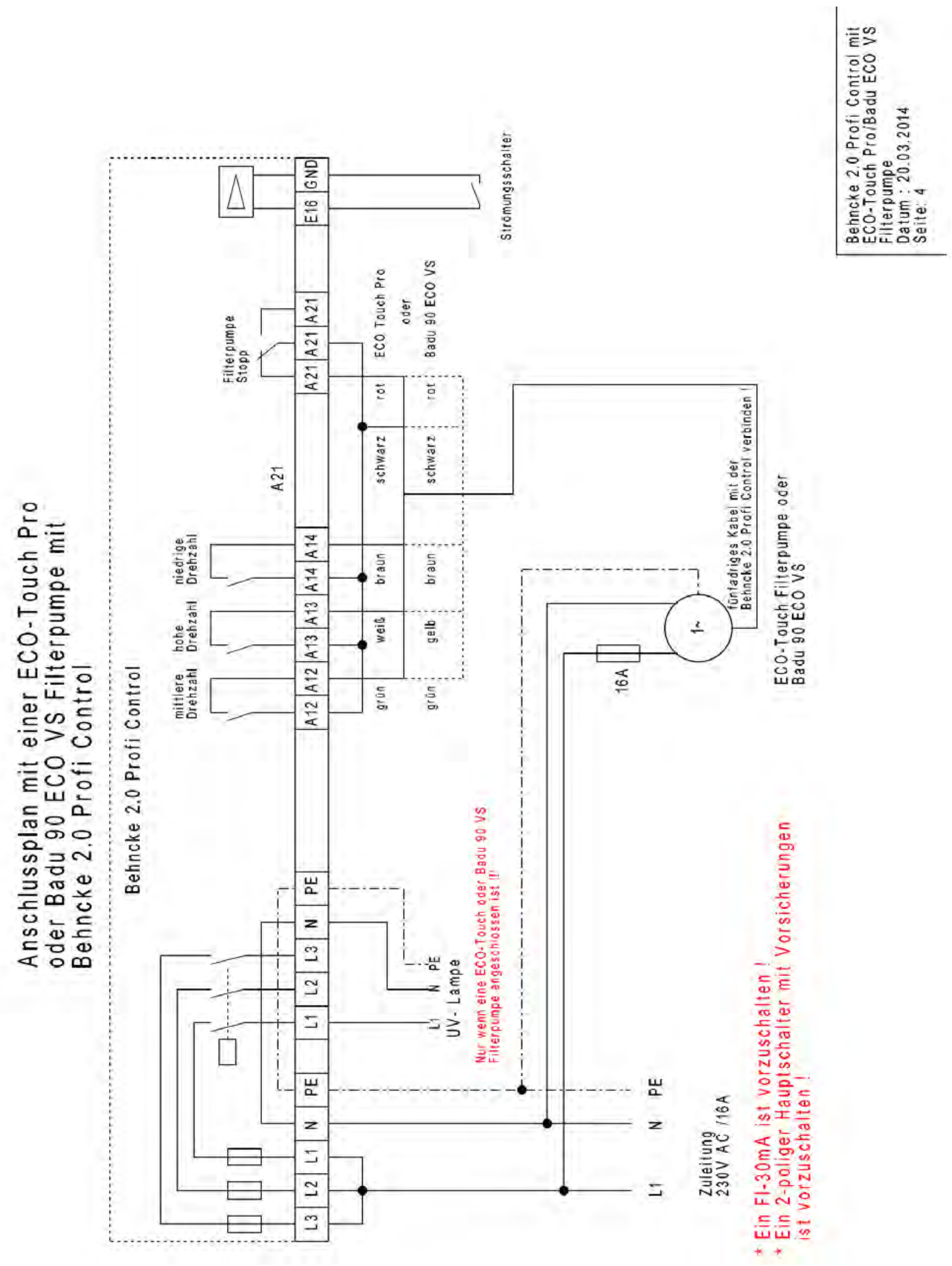
Pressing the "All off" button deactivates all outputs.

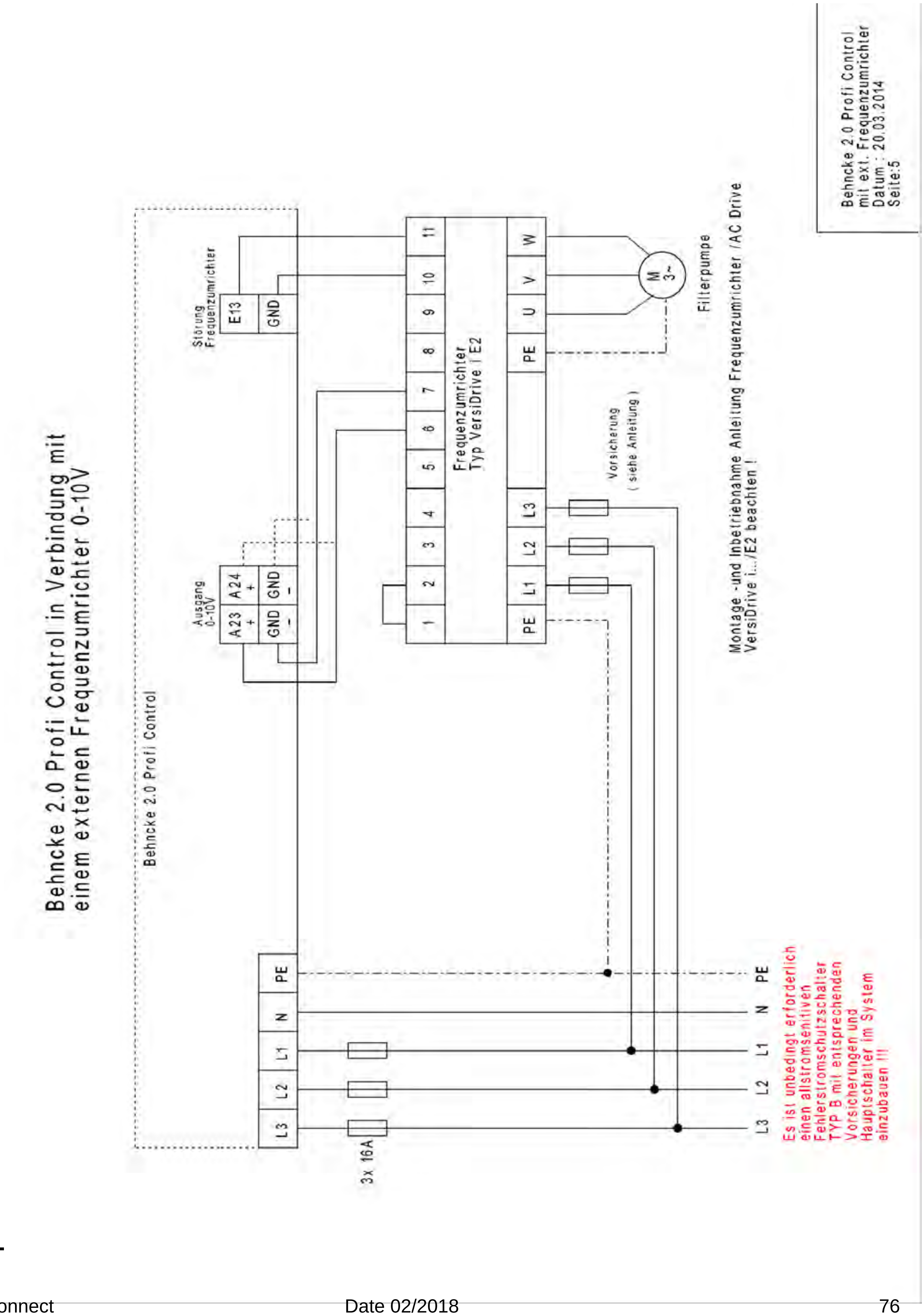
HINWEIS	Please note that if deactivated, the function and safety of the pool water treatment equipment will be restricted. This function is only permitted to be actuated by expert personnel.

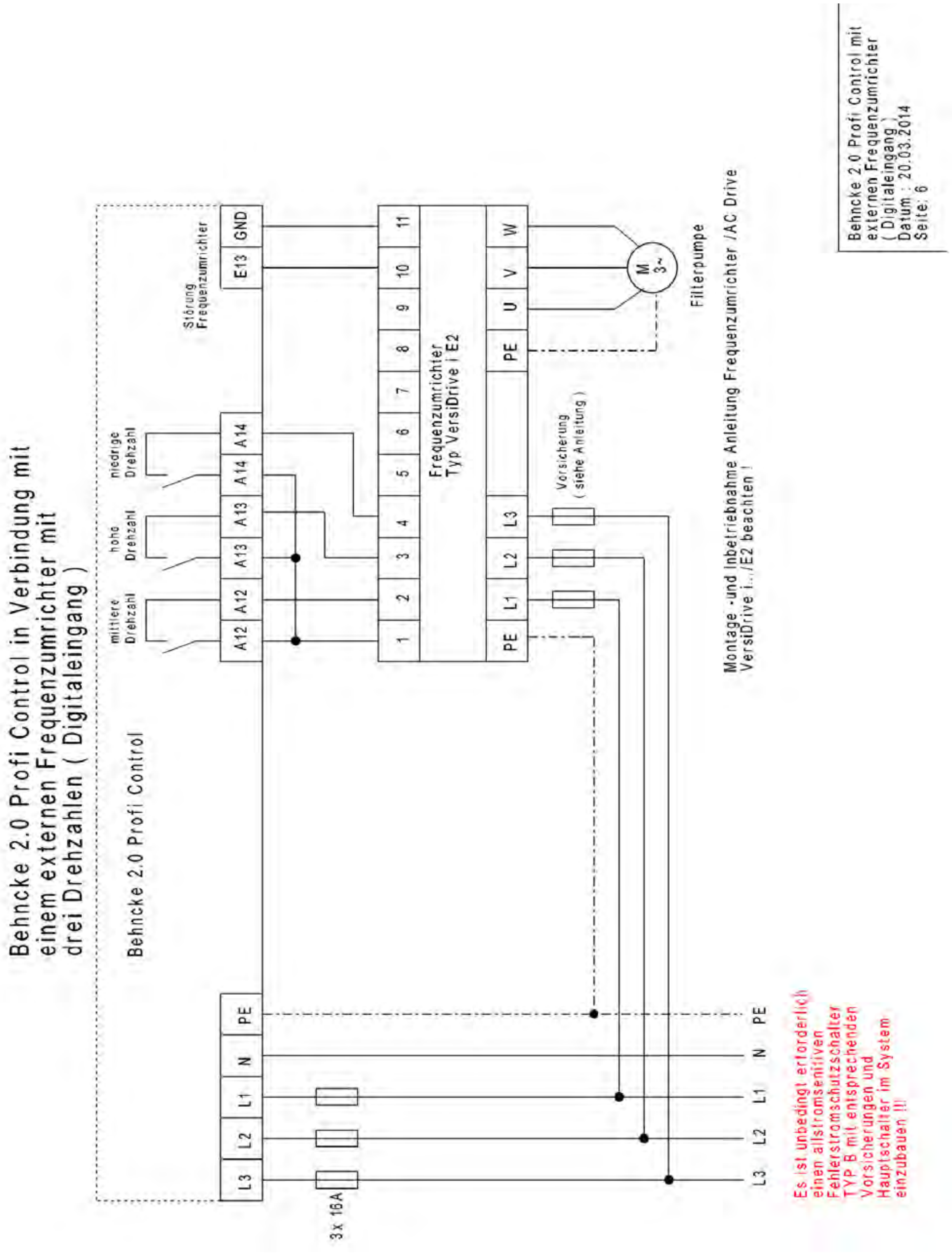
X. Circuit diagrams

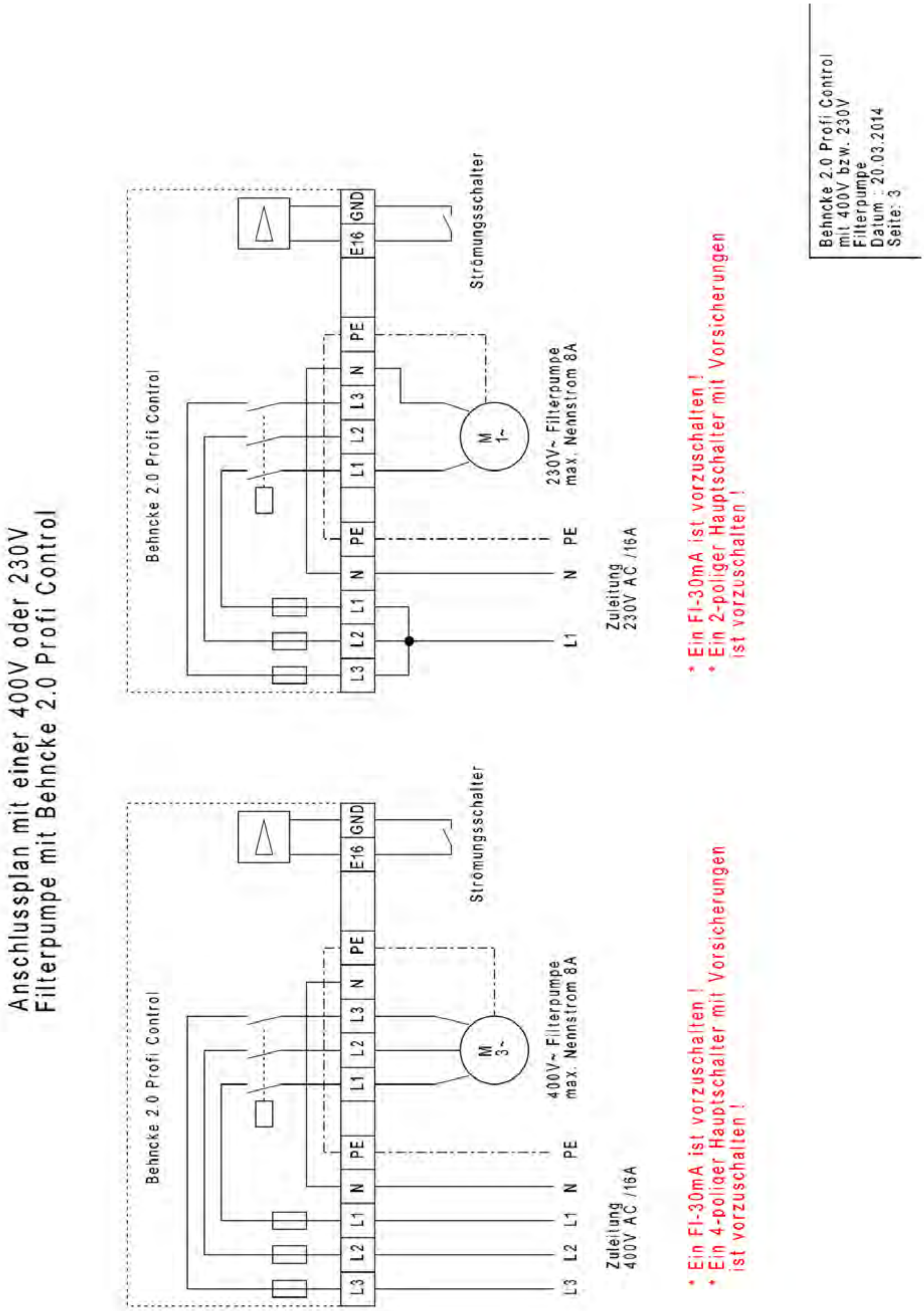


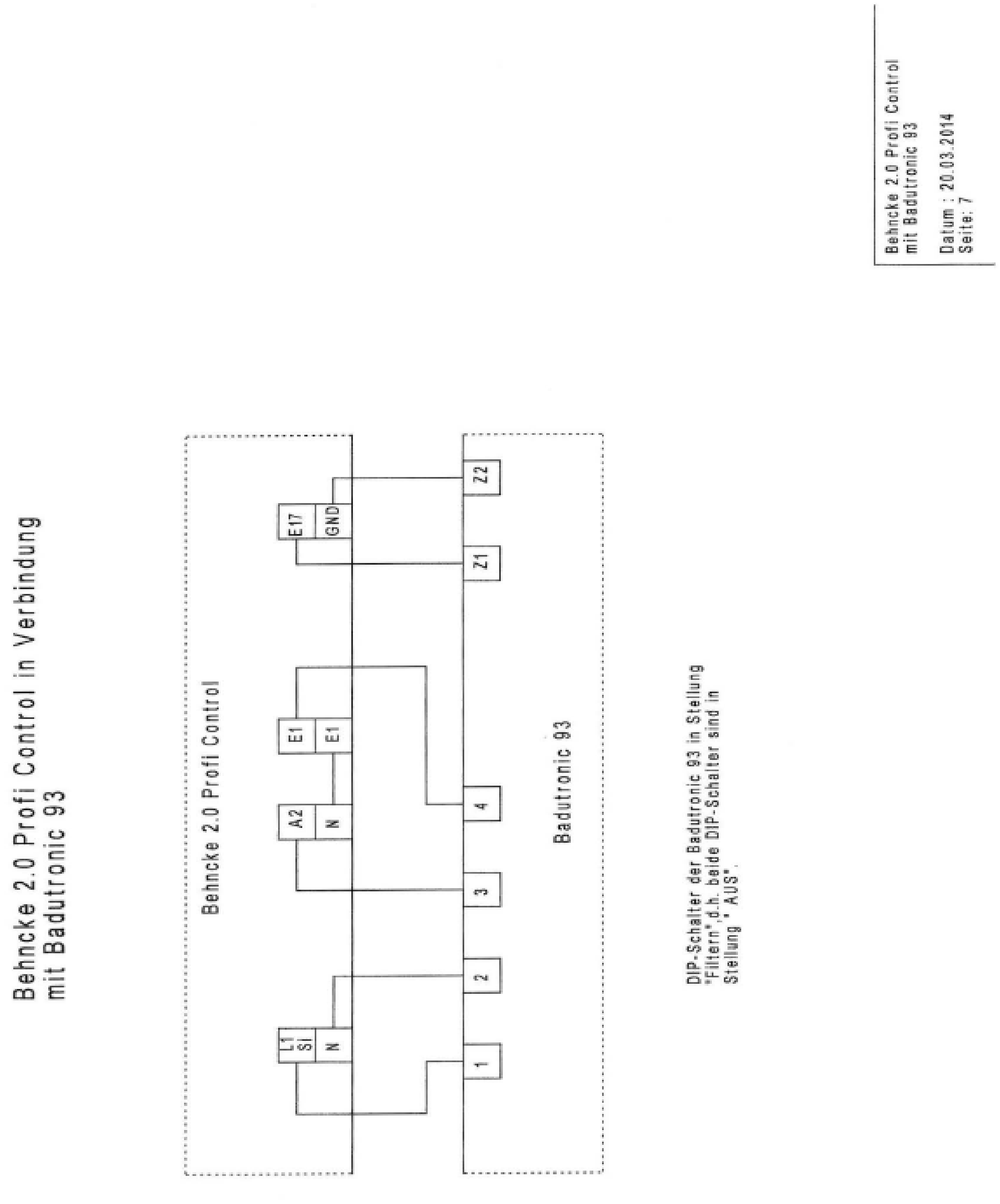

Behncke 2.0 Profi Control
Anschlussplan
Datum : 20.03.2014
Seite:1
max. 3A pro Kontakt !
Frei
Badutronic 93
frei programmierbarer Ausgang 1
Umschaltventil / Heizung-Puffer Schwimmbad
Absenkventil
Bodenablaufventil
2 Ausgang Solaranlage
Kollektorpumpe
Kesselpumpe Heizung
Nachfüllventil
Klarspülventil
Rückspülventil oder Badutronic 93
L1 230V AC
Filterpumpe oder UV-Lampe bei Anschluss einer ECO-Touch Pumpe mit Stoppfunktion
Zuleitung 400/230VAC
3x10A
10A
potentialfreie Schließer max. 3A
potentialfreier Umschalter max.3A
mittlere Drehzahl
hohe Drehzahl
niedrige Drehzahl
Dosiertechnik
frei programmierbarer Ausgang 2
Freigabe Heizung (Kessel)
Sammelstörmeldung
Rollladen zu
Rollladen auf
UV-Lampe oder Stoppsignal der ECO-Touch Pumpe
Umschaltventil Solaranlage-Speicher-Schwimmbad bzw. Absorber

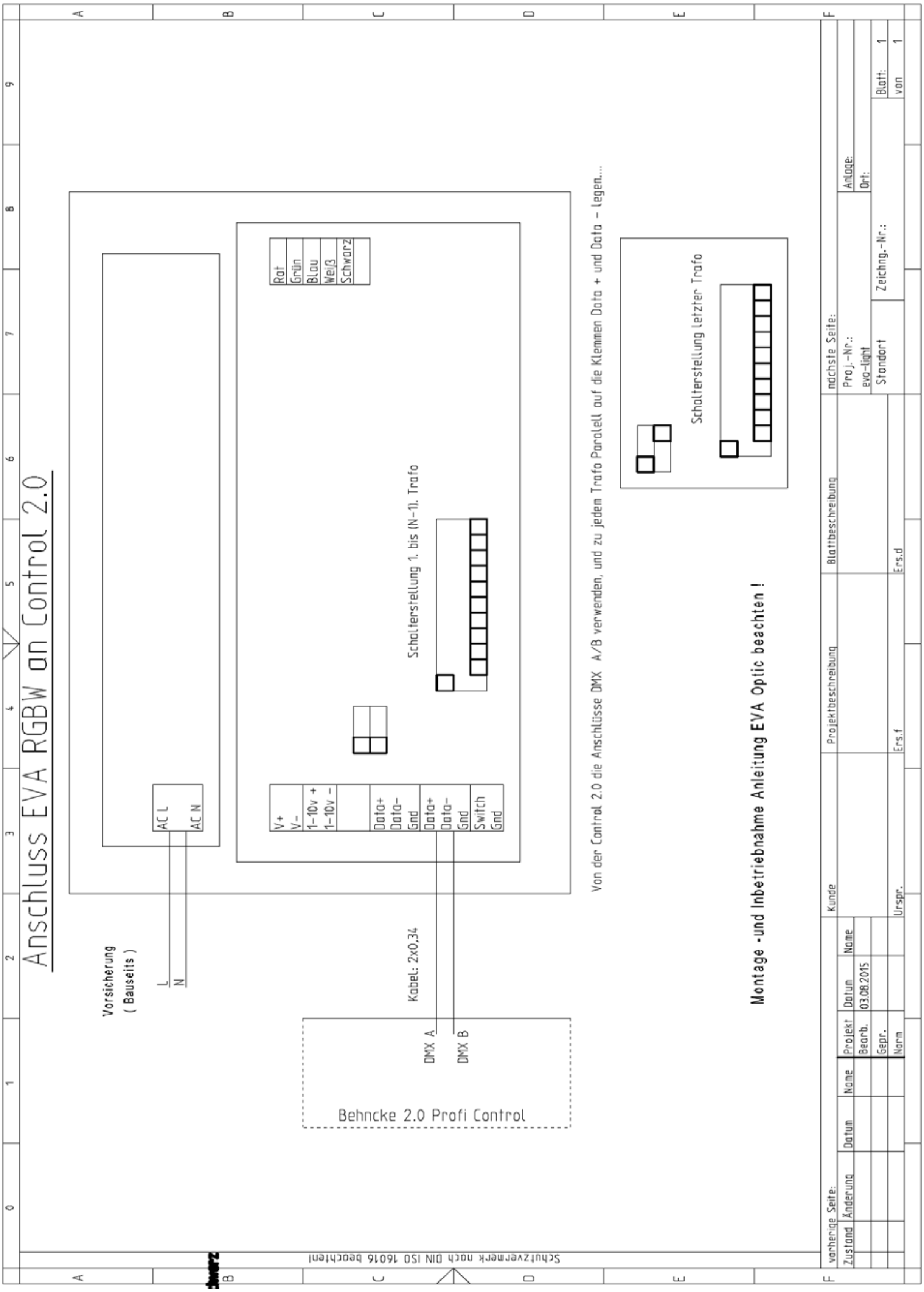

Anschlussplan mit einer ECO-Touch Pro
oder Badu 90 ECO VS Filterpumpe mit
Behncke 2.0 Profi Control
Behncke 2.0 Profi Control
mittlere Drehzahl
hohe Drehzahl
niedrige Drehzahl
Filterpumpe Stopp
A12 A12 A13 A13 A14 A14
A21
A21 A21 A21
E16 GND
Strömungsschalter
L3 L2 L1 N PE L1 L2 L3 N PE
grün
weiß
braun
schwarz
rot
gelb
ECO Touch Pro
oder
Badu 90 ECO VS
fünfadriges Kabel mit der Behncke 2.0 Profi Control verbinden !
ECO-Touch Filterpumpe oder
Badu 90 ECO VS
1~
16A
L1
N PE
UV - Lampe
Nur wenn eine ECO-Touch oder Badu 90 VS Filterpumpe angeschlossen ist !!
L1 N PE
Zuleitung
230V AC /16A
* Ein FI-30mA ist vorzuschalten !
* Ein 2-poliger Hauptschalter mit Vorsicherungen
ist vorzuschalten !
Behncke 2.0 Profi Control mit
ECO-Touch Pro/Badu ECO VS
Filterpumpe
Datum : 20.03.2014
Seite: 4

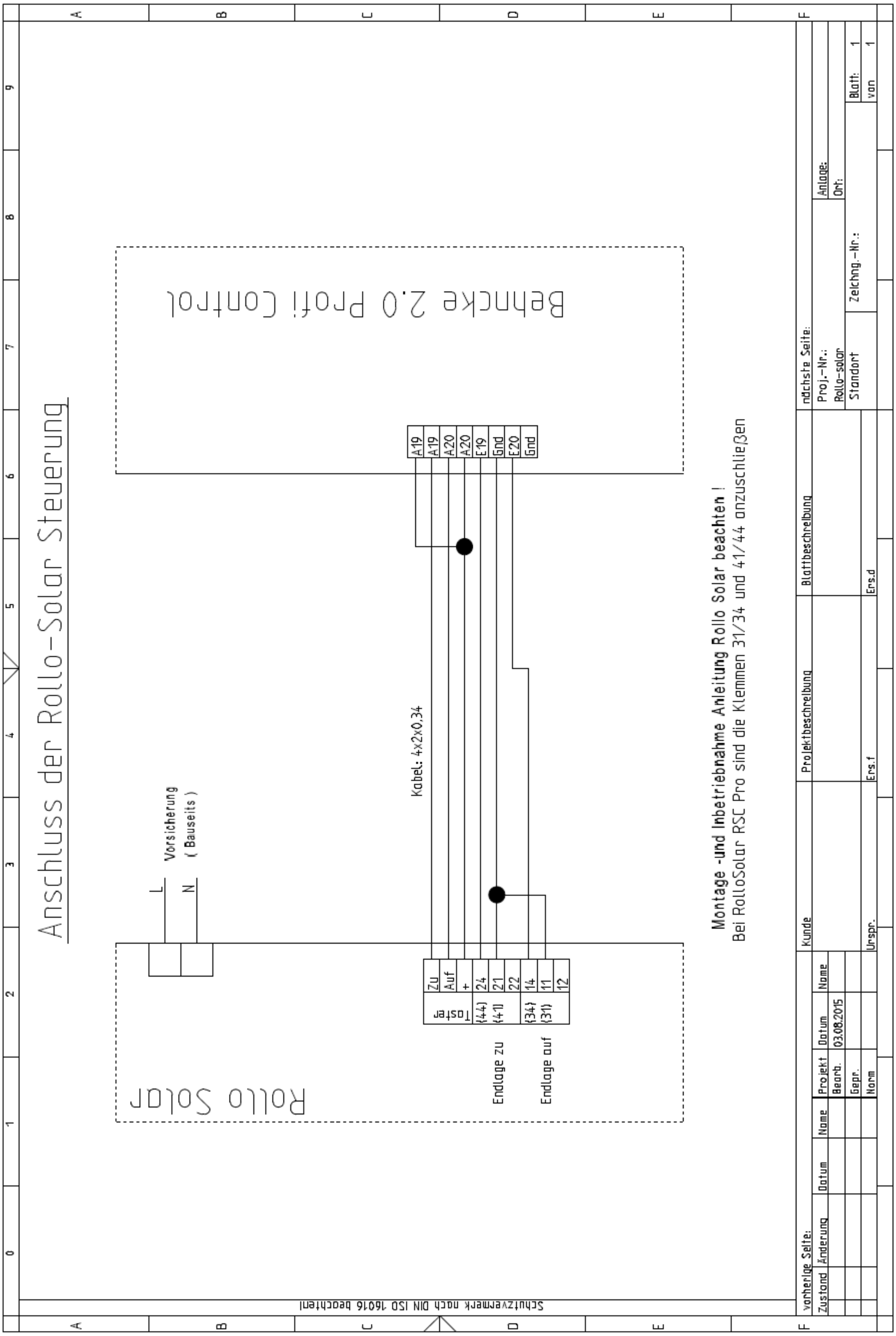

Behncke 2.0 Profi Control in Verbindung mit
einem externen Frequenzumrichter 0-10V
Behncke 2.0 Profi Control
Ausgang 0-10V
A23 +
A24 +
GND -
GND -
Störung Frequenzumrichter
E13
GND
1 2 3 4 5 6 7 8 9 10 11
Frequenzumrichter
Typ VersiDrive i E2
PE L1 L2 L3
PE U V W
Vorsicherung
(siehe Anleitung)
M 3~
Filterpumpe
Montage -und Inbetriebnahme Anleitung Frequenzumrichter /AC Drive
VersiDrive i.../E2 beachten !
Behncke 2.0 Profi Control
mit ext. Frequenzumrichter
Datum : 20.03.2014
Seite:5
L3 L2 L1 N PE
3x 16A
Es ist unbedingt erforderlich
einen allstromsenitiven
Fehlerstromschutzschalter
TYP B mit entsprechenden
Vorsicherungen und
Hauptschalter im System
einzubauen !!!

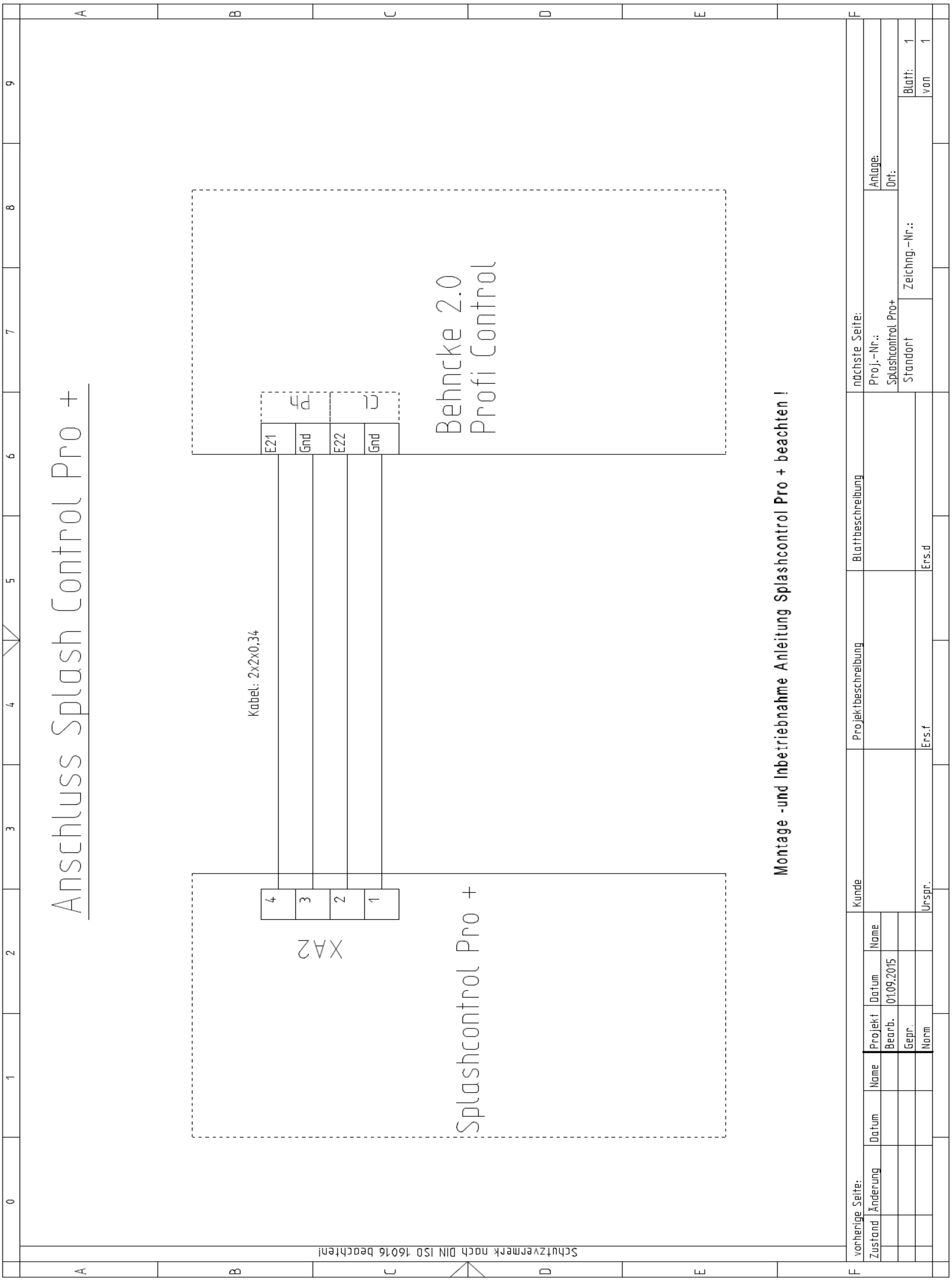

Behncke 2.0 Profi Control in Verbindung mit einem externen Frequenzumrichter mit drei Drehzahlen (Digitaleingang)
Behncke 2.0 Profi Control
mittlere Drehzahl
hohe Drehzahl
niedrige Drehzahl
Störung Frequenzumrichter
A12 A12 A13 A13 A14 A14 E13 GND
L3 L2 L1 N PE
3x 16A
Frequenzumrichter Typ VersiDrive i E2
1 2 3 4 5 6 7 8 9 10 11
PE L1 L2 L3 PE U V W
Vorsicherung (siehe Anleitung)
M 3~
Filterpumpe
Montage -und Inbetriebnahme Anleitung Frequenzumrichter /AC Drive VersiDrive i.../E2 beachten !
Es ist unbedingt erforderlich einen allstromsenitiven Fehlerstromschutzschalter TYP B mit entsprechenden Vorsicherungen und Hauptschalter im System einzubauen !!!
Behncke 2.0 Profi Control mit externen Frequenzumrichter (Digitaleingang) Datum : 20.03.2014 Seite: 6


Anschlussplan mit einer 400V oder 230V
Filterpumpe mit Behncke 2.0 Profi Control
Behncke 2.0 Profi Control
L3 L2 L1 N PE L1 L2 L3 N PE E16 GND
Strömungsschalter
M
3~
400V~ Filterpumpe
max. Nennstrom 8A
L3 L2 L1 N PE
Zuleitung
400V AC /16A
* Ein FI-30mA ist vorzuschalten !
* Ein 4-poliger Hauptschalter mit Vorsicherungen
ist vorzuschalten !
Behncke 2.0 Profi Control
L3 L2 L1 N PE L1 L2 L3 N PE E16 GND
Strömungsschalter
M
1~
230V~ Filterpumpe
max. Nennstrom 8A
L1 N PE
Zuleitung
230V AC /16A
* Ein FI-30mA ist vorzuschalten !
* Ein 2-poliger Hauptschalter mit Vorsicherungen
ist vorzuschalten !
Behncke 2.0 Profi Control
mit 400V bzw. 230V
Filterpumpe
Datum : 20.03.2014
Seite: 3


Behncke 2.0 Profi Control
mit Badutronic 93
Datum : 20.03.2014
Seite: 7
Behncke 2.0 Profi Control in Verbindung
mit Badutronic 93
Behncke 2.0 Profi Control
L1 SI
N
A2
N
E1
E1
E17
GND
1
2
3
4
Z1
Z2
Badutronic 93
DIP-Schalter der Badutronic 93 in Stellung
"Filtern",d.h. beide DIP-Schalter sind in
Stellung " AUS".


Anschluss EVA RGBW an Control 2.0
Vorsicherung
(Bauseits)
L
N
AC L
AC N
Rot
Grün
Blau
Weiß
Schwarz
V+
V-
1-10v +
1-10v -
Data+
Data-
Gnd
Data+
Data-
Gnd
Switch
Gnd
Schalterstellung 1. bis (N-1). Trafo
Von der Control 2.0 die Anschlüsse DMX A/B verwenden, und zu jedem Trafo Paralell auf die Klemmen Data + und Data - legen....
Schalterstellung letzter Trafo
Montage -und Inbetriebnahme Anleitung EVA Optic beachten !
Kabel: 2x0,34
DMX A
DMX B
Behncke 2.0 Profi Control
Schutzvermerk nach DIN ISO 16016 beachten!
vorherige Seite:
Zustand
Änderung
Datum
Name
Projekt
Bearb.
Gepr.
Norm
Datum
03.08.2015
Name
Kunde
Urspr.
Projektbeschreibung
Ers.f
Blattbeschreibung
Ers.d
nächste Seite:
Proj.-Nr.:
eva-light
Standort
Zeichng.-Nr.:
Anlage:
Ort:
Blatt: 1
von 1


Anschluss der Rollo-Solar Steuerung
Behncke 2.0 Profi Control
A19
A19
A20
A20
E19
Gnd
E20
Gnd
Kabel: 4x2x0,34
Vorsicherung
(Bauseits)
L
N
Rollo Solar
Taster
Zu
Auf
+
(44) 24
(41) 21
22
(34) 14
(31) 11
12
Endlage zu
Endlage auf
Montage -und Inbetriebnahme Anleitung Rollo Solar beachten !
Bei RolloSolar RSC Pro sind die Klemmen 31/34 und 41/44 anzuschließen
Schutzvermerk nach DIN ISO 16016 beachten!
Projekt
Datum
Name
Bearb.
03.08.2015
Gepr.
Norm
Kunde
Projektbeschreibung
Blattbeschreibung
nächste Seite:
Proj.-Nr.:
Rollo-solar
Standort
Zeichng.-Nr.:
Anlage:
Ort:
Blatt: 1
von 1
vorherige Seite:
Zustand
Änderung
Datum
Name
Urspr.
Ers.f
Ers.d



Anschluss Splash Control Pro +
Behncke 2.0
Profi Control
E21
Gnd
E22
Gnd
Kabel: 2x2x0,34
4
3
2
1
XA2
Splashcontrol Pro +
Montage -und Inbetriebnahme Anleitung Splashcontrol Pro + beachten !
Schutzvermerk nach DIN ISO 16016 beachten!
vorherige Seite:
Zustand
Änderung
Datum
Name
Projekt
Bearb.
Gepr.
Norm
Datum
01.09.2015
Name
Kunde
Urspr.
Projektbeschreibung
Ers.f
Blattbeschreibung
Ers.d
nächste Seite:
Proj.-Nr.:
Splashcontrol Pro+
Standort
Zeichng.-Nr.:
Anlage:
Ort:
Blatt: 1
von 1

Y. Notes

You can find this manual and all the drawing on the SD-Card.

Inputs:

E12: ______________________________

E21: ______________________________

E22: ______________________________

E23: ______________________________

E24: ______________________________

E25: ______________________________

E26: ______________________________

Outputs:

Mo A/B: ______________________________

Mo C/D: ______________________________

Mo E/F: ______________________________

A11: ______________________________

A16: ______________________________

A23: ______________________________

A24: ______________________________

Notes: