

Operating Manual

Swimming Pool Control Unit
BEHNCKE Control 1.3



! IMPORTANT !

READ CAREFULLY BEFORE USE

KEEP FOR FUTURE REFERENCE

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1 General Note

1.1 Information on the Operating Manual

Thank you for choosing to purchase our product. We ask you to observe this manual for the connection and setting of the product so that you can enjoy the product for a long time.



Before commencing any work, please read the operating manual in its entirety, in particular the chapter on safety and the respective safety instructions!

The operating manual is part of the product and must be kept accessible to the user at all times in close proximity to the swimming pool control unit. This operating manual provides important information on how to use the “BEHNCKE Control 1.3” swimming pool control unit. Compliance with all specified safety information and instructions is essential to ensure safe working.

The manufacturer provides no warranty and / or assumes no liability in the case of incorrect or improper use.

Check the delivery for completeness and possible damage before setting up the product.




In addition, the applicable local accident prevention regulations and general safety regulations must be observed for the area in which the swimming pool control unit will be used.

1.2 Explanation of Symbols

1.2.1 Warnings

Warnings are indicated by symbols in this operating manual. The instructions are introduced using signal words that indicate the extent of the hazard.

The instructions must be strictly observed and prudent action must be taken in order to avoid accidents, personal injuries and property damage.

	<p>DANGER! ...indicates an imminently dangerous situation that can lead to death or serious injuries if not avoided.</p>
	<p>WARNING! ...indicates a potentially dangerous situation that can lead to death or serious injuries if not avoided.</p>
	<p>CAUTION! ...indicates a potentially dangerous situation that can lead to minor or light injuries if not avoided.</p>

**NOTE!**

...indicates a potentially dangerous situation that can lead to property and environmental damage if not avoided.

1.2.2 Tips and Recommendations



...draws attention to useful tips and recommendations and information to maintain efficient and trouble-free operation.

1.3 Limitation of Liability

All information and instructions in this operating manual have been compiled taking account of the applicable standards and regulations, the latest technological standards, as well as our many years of knowledge and experience.

The manufacturer accepts no liability for damage due to:

- Non-observance of the operating manual
- Improper use
- People not trained to operate the control unit
- Unauthorised modifications

The actual scope of delivery may differ from the explanations and illustrations described here in the case of special versions, the use of additional ordering options or due to the latest technical changes.

1.4 Copyright



The content of the information, texts, drawings, images and other illustrations are protected by copyright and are subject to industrial property rights. Any improper use is a punishable offence.

1.5 Warranty Conditions

The warranty is based on the current statutory regulations.

1.6 Product Liability

Subject to errors and technical changes.

1.7 Information about the Product Manufacturer

Manufacturer: Ingenieurbüro Bickele und Bühler GmbH

Address: St. Poeltenerstraße 70

70469 Stuttgart, Germany

If you have any questions about the product, please contact:

Phone: +49 (0)89 456917 – 0

Email: info@behncke.com

1.8 General Information about the Product

The product designated the “BEHNCKE Control 1.3” swimming pool control unit consists of the components listed in Table 1:

Number	Article number	Article description
1		BEHNCKE Control 1.3

Table 1: System components

The swimming pool control unit is used for reading and controlling the following products in swimming pool areas:

- Filter pump
- Backwash valve
- Solar pump
- Solar valve
- Measurement and control system
- Fresh water valve
- Float switch
- Temperature sensor for outdoor areas
- Temperature sensor for swimming pool water
- Chemical level indicator
- Floor valve
- Rinse valve
- Roller shutter end positions
- Lowering valve
- Heating pump
- UV lamp
- Heating solenoid valve

The swimming pool control unit can be enhanced with the “Level control” (article number: 390 190 95) so that the fill level of a splash water tank in an overflow pool can be read using hang-in electrodes.

2 Safety

This section gives an overview of all the important safety aspects for the optimum protection of people and to guarantee safe and trouble-free operation. Failure to observe the instructions and safety information in this manual may result in serious danger.

Please read this section carefully before carrying out any work on the swimming pool control unit!

Observe all safety instructions!

Please contact the manufacturer if you have any questions regarding the safety instructions!

2.1 Intended Use



Important!

Intended use also includes

- Observing all information in the operating manuals and the operating instructions of the individual components of the product and the peripherals
- Adhering to the inspection and maintenance work.

The control unit must not be operated in environments with a temperature lower than 5°C.

The control unit must not be installed or operated in an explosive atmosphere.

The control unit must only be put into operation by specialists.

The control unit must only be operated by trained people.



WARNING!

Danger due to misuse!

Use only original spare parts.

Modifications and changes to the control unit and the components are prohibited for safety reasons without consultation with the manufacturer.

Approved modifications and changes to the electrical installation must only be made by qualified electricians for safety reasons.

Claims of any kind resulting from improper use are excluded!

2.2 Dangers in Handling the Control Unit

The swimming pool control unit has been built in accordance with the latest technological standards and the recognised safety regulations. Nevertheless, the following **dangers** may occur when the unit is used - in particular in the case of incorrect operation or misuse:

- Death or injury to the user or third parties or
- damage to the control unit or
- other material assets may occur.

All of the people involved in the installation, commissioning, operation, maintenance and repair of the swimming pool control unit must:

- Be mentally and physically capable to do this.
- Be instructed/trained in operating the unit.
- Strictly observe this operating manual.



CAUTION!

The control unit must only be used:

- For its intended use.
- In a safe and perfect condition.
- The system must be switched off and a qualified electrician must always be consulted in the case of faults that may impair safety.

Your safety is important!

2.3 Fundamental Dangers

The following section describes the general dangers and residual risks arising as a result of the risk assessment.

The safety instructions listed here and the warnings in the further chapters of this manual must be observed in order to reduce health risks and to avoid dangerous situations.

2.3.1 Electric Current



DANGER!

Risk of fatal injury from electric current!



Touching live parts poses an immediate risk of fatal injury. Damage to the insulation or individual components may prove fatal.

- In the case of damage to the insulation, switch off the power supply immediately and arrange for a qualified electrician to carry out the repair.
- Work on the electrical system must only be carried out by qualified electricians.
- Disconnect the power supply and check that no voltage is present when carrying out any work on the electrical system.
- Switch off the power supply and ensure that it cannot be switched on again before carrying out maintenance, cleaning and repair work.
- Attach a warning sign when carrying out any work : "DO NOT SWITCH ON! Work is



being carried out on the control unit.”

- Please note when touching electrical parts that they may still permit capacitors to discharge.
- Do not bypass or deactivate any fuses.
- Sparks may occur on the electrical connections. The control unit must therefore not be installed or operated in an explosive atmosphere.



- The electrical connection must only be carried out by qualified electricians.
- The respective national regulations relating to electrical installations as well as the requirements of the local energy supply companies must be observed.
- The control unit should only be installed in control cabinets and housings specified or supplied by Behncke.
- Installing the unit in a salt-laden atmosphere (e.g. brine bath or near the sea) can lead to corrosion on the electrical contacts.
- Voltage fluctuations interfere with the operation and may damage the device.
- Cables for the transmission of data and signals must not be laid together with other live cables.
- The device must be disconnected at the backup fuse before opening the terminal box cover.

2.4 Unexpected Start-up



DANGER!

Risk of fatal injury from an unexpected start-up

The BEHNCKE Control 1.3 works as soon as there is voltage at the power input and the individual functions are called up immediately.

- Secure the control unit against unauthorised access.
- Turn on the power to the control unit only when all the preparations for a safe start-up and safe operation have been completed.

2.5 Safety Devices

The following safety devices must be installed by the operator:

A 4-pin emergency stop switch with a backup fuse as well as a 30 mA residual current circuit breaker must be connected on-site upstream of the device!

The following safety notices are installed:



DANGER!

Risk of fatal injury from electric current!

The warning signs on electrical equipment indicate dangers caused by electric current.



2.6 Sources of Danger and Residual Risks

The operating instructions for the individual built-in components and peripherals must be consulted for all sources of danger and residual risks.



Danger!

The electrical equipment on the system is under high voltage. You should therefore observe the following information:

- Work on the electrical equipment must only be carried out by qualified electricians.
- The electrical equipment on the system must be checked at regular intervals.
- Loose connections and damaged components must be replaced immediately or secured.

Switch off the power supply to the system before carrying out any maintenance work!

There is a **risk of death or injury to the user** and a risk of damage to other material assets.

Never remove safety devices or disable them by making changes to the control unit!

2.6.1 Delimitation of the Respective Machine

The inspection ends at the control unit housing. All other inspections must be made by the commissioning engineer / operator / user.

2.6.2 Electrical Contact

There is an increased risk of electric shock due to the humid environment when working on electrical equipment on the system. Similarly, improper installation of the electrical protective conductor can lead to an electric shock, for example, through oxidation or a cable break.

- ⇒ Observe the VDE regulations as well as the regulations of the power supply company.
- ⇒ Construct swimming pools and their protective areas in accordance with DIN VDE 0100-702
- ⇒ All work on the electrical equipment must only be carried out by the appropriately qualified electricians.
- ⇒ Disconnect the power supply 30 minutes before carrying out work on the system Attach a warning sign :
- ⇒ “Do not switch on! Work is being carried out on the system.”
- ⇒ Check at regular intervals that the electrical system is in an orderly condition

- ⇒ The system must not be operated without the protective housings provided on the individual components

2.6.3 Compliance with the Degree of Protection

After carrying out work on the BEHNCKE Control 1.3, moisture may penetrate into the device if the housing or individual cable glands are not closed properly, ensuring that there is a reliable seal. This can lead to damage or destruction of the control unit or result in malfunctions.

- ⇒ Ensure that there is a reliable seal after carrying out any work on the device.

2.7 Dangers due to Structural Modifications and Spare Parts

Structural modifications can affect the operational safety. The control unit must therefore only be rebuilt and modified in consultation with the manufacturer. No components must be removed, in particular safety devices.

Only BEHNCKE spare parts and accessories must be used.

Any accessories must not endanger the safety of the system.

2.8 Safety Measures at the Installation Location

The control unit must be mounted securely on the wall, in a control cabinet or on a mounting plate and is not suitable for use in constant sunlight.

Make sure that the operating temperature of 40°C is not exceeded.

Operate the control unit only when all safety devices are fully functional.

The control unit or the surrounding area may be damaged if this information is not observed.

No explosive atmosphere is permitted in the installation area.

The installation area must not be colder than 5°C during operation and when carrying out maintenance, commissioning, cleaning and repair work.



CAUTION!

Check the control unit and connections for visible damage and to ensure they are functioning **at least once a week**.

Disconnect the control unit from the power supply in the case of visible damage and consult a qualified electrician.

2.9 Personnel Requirements

2.9.1 Qualifications



WARNING!

Risk of injury in the case of inadequate qualifications!

Improper handling can lead to serious personal injury and property damage.

- Specific activities must only be carried out by the people designated in the respected chapter of this manual.
- Keep unqualified personnel away from the danger areas.

The following qualifications for different areas of activity are designated in the operating manual.

- **Trained/instructed person**

Has received training from the operator in their assigned tasks and the possible dangers in the case of improper behaviour.

- **Specialist**

Is in a position to carry out their assigned work and identify possible dangers independently because of their technical training, skills and experience as well as their knowledge of the relevant regulations.

- **Qualified electrician**

Is a person who can assess their assigned work and identify possible dangers because of their technical (electrical engineering) training, skills and experience as well as their knowledge of the relevant standards and regulations.

- **Systems mechanic**

The vocational training of a systems mechanic incorporates the [job description](#) of a [gas fitter and plumber](#) and a [heating](#) and ventilation engineer, which now no longer exist in their original form. Instead, these have been amalgamated into the systems mechanic profession. In addition, components of [solar technology](#) and [electrical engineering](#) are included in order to be able to carry out minor electrical work, such as wiring a heating circuit or loading pump.

2.9.2 Authorised Users

The filter system must only be used by people who:

- Are mentally and physically capable to do this.
- Are instructed in operating it.

- Have read and understood this operating manual – in particular the safety chapter and warnings.

2.10 Responsibility of the Operator

The control unit is used in the private sphere.

The operator must:

- Be instructed in operating it.
- Have read and understood this operating manual – in particular the safety chapter and warnings.
- The operator must install a residual current circuit breaker in the power supply for safety reasons.
- The operator must install a main (emergency stop) switch in the power supply for safety reasons.

2.11 Personal Protective Equipment

It is necessary to wear personal protective equipment when carrying out any work in order to minimise the health risks.

- Always wear the necessary protective clothing for the respective work when carrying out the work.
- Observe the signs relating to personal protective equipment displayed in the working area.

Always wear:

Always wear the following when carrying out any work:



Protective work clothing

Is tight-fitting work clothing with low tear strength, with tight sleeves and no protruding parts.

Do not wear any rings, chains and other jewellery.

Wear a hairnet!



Safety shoes

For protection against heavy falling parts and slipping on slippery surfaces.

2.12 Behaviour in the Case of Danger and Accidents

In the case of an emergency: Take the right action

- Switch off the control unit immediately and disconnect it from the power supply.
- Rescue any people from the danger zone as long as this poses no danger to your own health.
- Initiate first aid measures.

- Alert a doctor and/or the fire service.
- Inform the responsible people at the place of use.
- Clear access routes for emergency vehicles.

3 Technical Data

3.1 Terminal Assignment

Check which system components are available before starting the installation. Then observe the circuit diagrams for connecting the unit that are included in this manual.

Pay attention to the information included in the circuit diagrams in this manual.

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

Live cables must be selected according to the power load, distance and type of installation.

Please refer to the following table for the designation and type of the individual terminals.

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

A faulty connection may destroy the control unit or lead to a malfunction.

3.1.1 Inputs

Type		Name	Description
Inputs Control 1.3	230 V	E1	Badutronic 93 feedback
	Standard signal	E2	- Average fill level
		E3	- pH - Redox
	PT1000	E4	Water temperature
		E5	Collector temperature
	Digital	E6	Flow switch
		E7	Float switch (skimmer)
		E8	Roller shutter switch
		E9	Fault signal on frequency converter
		E10	Badutronic 93 filter cleaning is running
		E11	- Request on filter pump (ext. overflow protection)
		E12	- Locking of filter pump (ext. dry run protection) - Average fill level

Inputs Level control	Hang-in electrodes	extE13	HE6: Overflow protection
		extE14	HE5: Level compensation
		extE15	HE4: Refilling off
		extE16	HE3: Refilling on
		extE17	HE2: Dry run protection
		extE18	HE1: Reference electrode

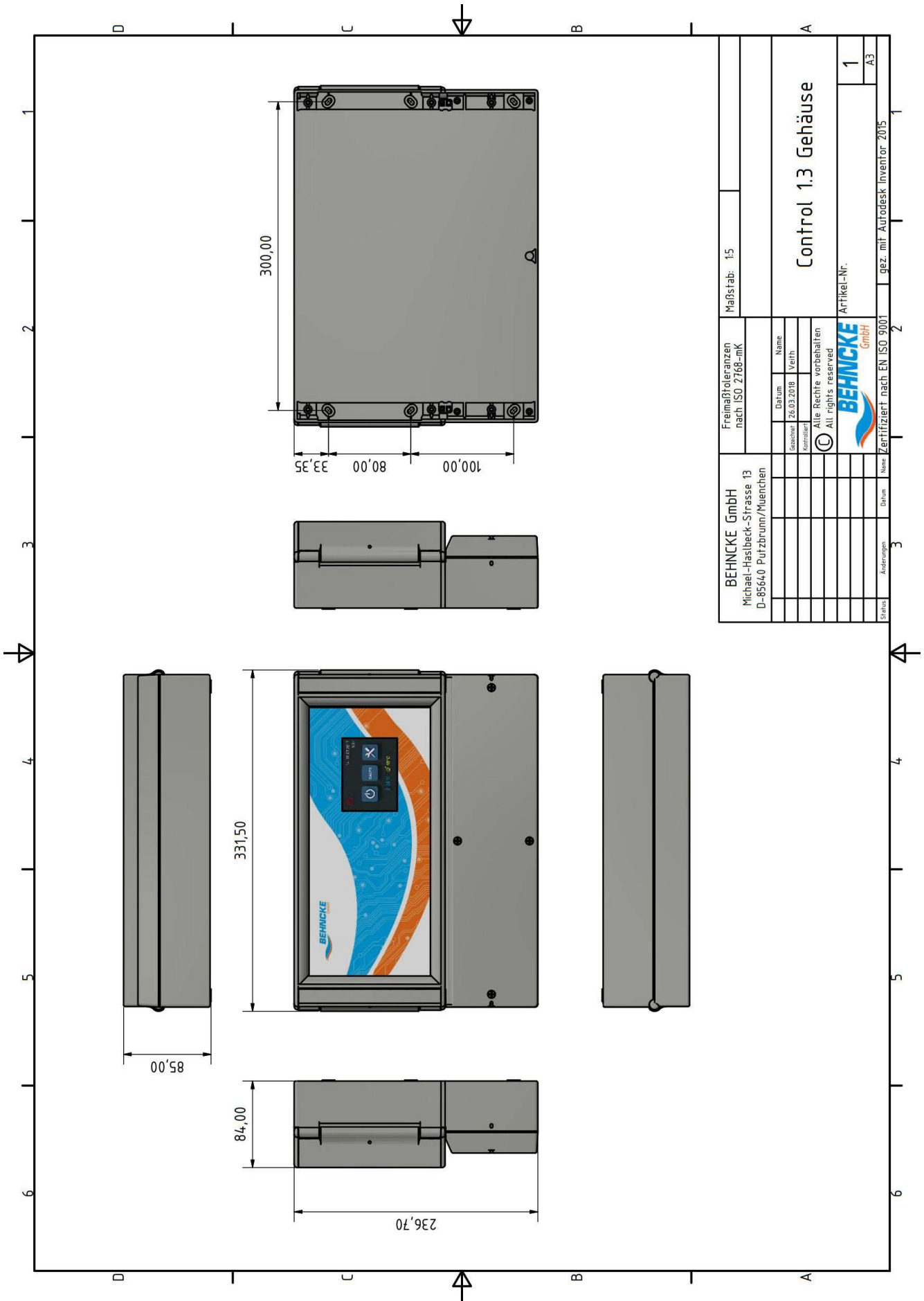
3.1.2 Outputs

Type		Name		Description
Outputs Control 1.3	3*230 V / 10 A	A1		Filter pump
	Triac 230 V / 3 A	L2	A2	Collector pump
			A3	Heating pump
	Relays 230 V / 3 A	L1	A4	UV lamp
			A5	Dosing technology
			A6	Filter request on Badutronic/lowering valve
	Relays 230 V / 3 A	L2	A7	Backwash valve
			A8	Rinse valve
			A9	Fresh water valve
			A10	Floor valve
	Potential free N/O contact 3 A	A11		Release for metering technology
		A12		Heating
		A13		Speed 2
		A14		Speed 3
		A15		Speed 1
	Potential-free switch 3 A	A16		General fault message/frequency converter stop signal
		A17		Collector valve
	Standard signal	A18		Speed of filter pump
Module slot	A,B,C,D		-	

3.2 Measurements and Dimensions

The following technical drawing can also be found on our authorised dealer portal.

www.behncke-reseller.com.



3.3 Operating Conditions

The control unit must only be operated under the following conditions:

- If all the wiring has been carried out by a specialist in accordance with the applicable standards
- The area must be frost-proof.
- The area must be covered and dry.
- The area must not have an aggressive atmosphere.
- The area must have a non-explosive atmosphere.

4 Transport, Packaging and Storage

4.1 Safety Instructions for Transport

Unauthorised transport



NOTE!

Damage caused by improper transport

Substantial property damage may occur in the case of improper transport.

- Proceed carefully when unloading packages, with deliveries and with internal transport and observe the symbols on the packaging.
- Only use the designated attachment points.
- Remove packaging only just before the installation
- Transport the control unit only with suitable tools and equipment

4.2 Transport Inspections

Check the delivery immediately upon receipt for completeness and transport damage

Proceed as follows in the case of outwardly visible transport damage:

- Do not accept the delivery or only under reservation.
- Note the extent of the damage on the transport documents or on the delivery note of the transport company and produce photographic evidence.
- Initiate a complaint.



Register a complaint for any defect as soon as it is detected. Claims for damage can only be made within the applicable periods for complaints.

4.3 Transport / Storage

The appropriate specialists must release the connections to the power supply before transport.

The control unit is delivered loose without a plug and wiring.



Important!

Secure the components supplied individually against transport damage. Store the control unit only in covered, frost-proof areas with a non-aggressive and non-explosive atmosphere.

4.4 Packaging

Remove and recycle packaging.

5 Installation and Commissioning

5.1 Safety Instructions for Installation and Initial Commissioning



The installation and initial commissioning should only be carried out by a systems mechanic or specialist!

- Work on the electrical equipment must only be carried out by qualified electricians.
- The electrical equipment on the system must be checked at regular intervals.
- Loose connections and damaged components must be secured immediately or replaced.



WARNING!

Risk of fatal injury from an improper installation and initial commissioning!

Errors during the installation can lead to life-threatening situations or cause substantial property damage.

- Do not climb on the control unit or its cables.
- Maintenance and cleaning work must only be carried out by specialists when the control unit is switched off, disconnected and has cooled down.

5.2 Installation

5.2.1 Requirements at the Installation Location

- The foundations and the mounting location must be designed for the anticipated static and dynamic loads.
- The area must be frost-proof.
- The area must be covered and dry.
- The area must not have an aggressive atmosphere.
- The area must have a non-explosive atmosphere.
- Condensation can damage the control unit, make sure that the area is well ventilated.
- The area must be equipped with sufficient lighting (at least 200lx)
- Ensure easy access for customer service work.
- Observe the minimum installation dimensions in accordance with the installation plan.
- The ambient temperature must be between +5 and +50°C
- The humidity must be below 90%

5.3 Basic Information on the Installation

The control unit must be fixed to the wall / a mounting plate. Secure the control unit against vibrations so that the mounting cannot work loose.

5.4 Electrical Connection

The electrical connection **must only be carried out by a qualified electrician**. The local regulations and the **VDE 0100 regulation must be taken into account**. A main (emergency stop) switch must be installed on-site in the control unit power supply.

- The main (emergency stop) switch must be set to off. A residual current circuit breaker (30 mA) must be installed in the power supply for safety reasons. All touching metal parts must be integrated into the equipotential bonding.

Some of the necessary connections for the individually configured peripheral devices are listed in chapter 6.4. Nevertheless, the circuit diagrams enclosed in this operating manual must be observed for the electrical connection.

6 Operation

6.1 Safety Instructions for Operating the Control Unit



WARNING!

Risk of injury due to improper operation!

Improper operation can lead to serious injuries or property damage.

- Operate the control unit in accordance with the information in this operating manual.
- The manual must be read and understood

6.2 Commissioning

Have you read and understood this operating manual – in particular the safety chapter? You must not operate this system before doing this!

Otherwise the system may be damaged. Otherwise there is a risk of death or injury to the user.



WARNING!

Only carry out the maintenance and cleaning work when the system is switched off and disconnected from the power supply!



DANGER!

Work on the electrical equipment must only be carried out by qualified electricians.

6.3 Menu Structure

The menu structure is divided into four main menus with the respective submenus. They are shown in table below. The parameters can only be changed in the menus highlighted in orange if the service level is activated. Not all submenus appear depending on which peripheral devices are set up in the control unit. For example, only the “Frequency Converter Settings” menu appears if a pump with a frequency converter has been set for the pump type.

General	System status	
	System information	
	Balance values	
	Backwash protocol	
	Messages	
	Date/time	
	Language	
	Activate/deactivate portal	
Treatment	Switching times	
	Filter cleaning	Trigger backwashing
		Switching times
		Backwashing setting
		Rinsing setting
		Pause
	Forced overflow channel	
	Pump type	
	Frequency converter settings	
	Flow switch	
	Level control	
	ECO functions	
	Forced on	
Forced off		
Warming	Heating	
	Solar mode	
	Sensor calibration	
Extras	Service level	
	Freely programmable terminals	Speed 2
		Speed 3
		Rinsing
		Solar pump
		Lowering valve
	Floor valve	
	Measurement and control technology	
	Chemical fill levels	
Factory settings		
Service		

6.4 General Menu Navigation

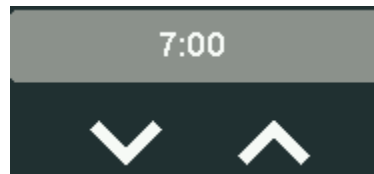
The control unit is operated with a touch screen. The individual menu navigation options for general operation are described below.

The following elements are used for operation purposes:

- The user scrolls to the next page within the menu by tapping on the arrow keys on the right-hand side of the screen
- The user accesses the corresponding submenu by tapping on a blue button
-



The user accesses the next menu level up (back) by tapping on the two arrows next to each other



The user can change the parameters highlighted in grey by tapping on the white arrows. If no arrows are provided, the user must tap on the parameters highlighted in grey in order to change them

OK

- The parameter changes made are accepted by tapping on the OK button. If you do not tap on the OK button and leave the submenu by tapping on the two arrows next to each other (back), the old values continue to be valid and the change has **not** been accepted.

6.4.1 Start Screen

The start screen of the system is shown in Figure 1.

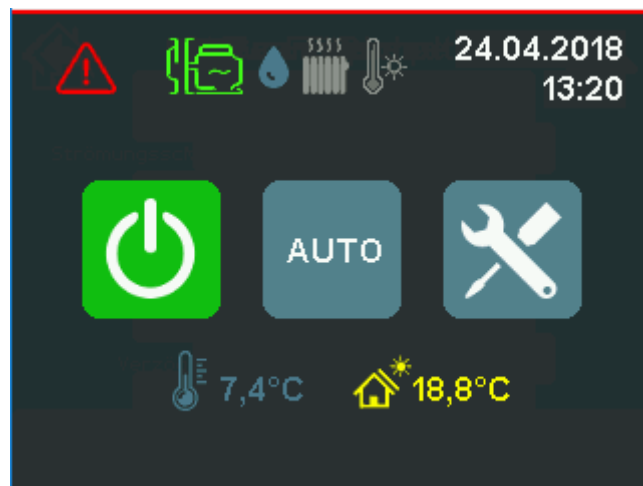


Figure 1: Start screen

- ON/OFF:

The control function is switched on and off by tapping on the left ON/OFF button. The button turns green when the control unit is switched on. The button turns blue when the control unit is switched off.

- **AUTO/CONTINUOUS:**

The control unit switches between the automatic (filter running time according to switching times) and continuous operation mode by tapping on the central button. The button turns blue in automatic mode. The button turns orange in continuous operation mode.

- **SETTINGS:**

The user accesses the settings menu by tapping on the right button with the screwdriver symbol.

- **DATE/TIME:**

The day, date and underneath the time are displayed in the top right-hand corner of the start screen

- **FAULT MESSAGES:**

If there are any fault messages, these are indicated by a red warning triangle in the top left-hand corner. The user can call up the fault messages by tapping on the warning triangle.

- **STATUS SYMBOLS (filter pump, fresh water, auxiliary heating, solar heating):**

Individual status symbols found to the left of the date are only displayed if the corresponding peripheral devices and their functions have been selected. A grey symbol indicates that the corresponding peripheral device is not currently active. The coloured symbol indicates the active status of the peripheral device. The colour of the pump symbol also shows the current speed. The following symbols are available:

- Green, one wave: the pump is running at low speed (ECO)
- Blue, two waves: the pump is running at normal speed
- Orange, three waves: the pump is running at maximum speed
- Blue, with an exclamation mark: the pump is in FORCED ON mode at normal speed
- Red, with an exclamation mark: the pump is in FORCED OFF mode and therefore stops

- **TEMPERATURE:**

The water temperature and the collector temperature/outdoor temperature are displayed in the middle at the bottom of the screen. The collector temperature is only displayed if “Solar → sensor available” is set. The water temperature is only displayed if “Heating → sensor available” is set.

- **MEASUREMENT & CONTROL TECHNOLOGY:**

The measurement and control technology measurements are displayed below the temperatures. These are only displayed if the measurement and control technology is connected and the inputs for the measurement and control technology have been set.

- Service level:

If a red line is displayed at the top of the screen, the user is in the service level and has access to all menu items.

6.4.2 General Settings Menu

6.4.2.1 Querying the System Status

The following control unit statuses can be queried in the “System Status” submenu. If one of the possible peripheral devices is not set up then its status is also not displayed.

- Filter pump status (filter pump)
- Backwash valve status (backwashing)
- Floor valve status (floor valve)
- Solar valve / collector valve status (solar)
- Auxiliary heating status (heating)

6.4.2.2 Querying the System Information

The current software version can be queried under “Version” in the “System Information” submenu as well as the Internet connection. OK is shown under “Portal XML” when there is an Internet connection.

6.4.2.3 Querying the Balance Values

The following control unit counters can be queried in the “Balance Values” submenu. If one of the possible peripheral devices is not set up then its balance values are also not displayed.

- Entire filter running time in hours (filter)
- Filter running time of the system since the last backwashing in hours (filter since filter backwashing)
- Entire running time of the solar heating in hours (solar)
- Entire running time of the auxiliary heating in hours (heating)
- Entire running time of the fresh water valve in hours (fresh water)
- Entire number of filter backwashing cycles (backwashing)
- Entire number of rinsing cycles (rinsing)

6.4.2.4 Backwash Protocol

The “Backwash Protocol” submenu lists the following backwashing information:

- The date on which the backwashing was triggered
- The time at which the backwashing was triggered
- The reason for which the backwashing was triggered

6.4.2.5 Messages

The “Messages” submenu lists the following information about the previous fault messages:

- The date on which the message appeared
- The time at which the message appeared

- The reason for which the message appeared

6.4.2.6 Setting the Time & Date

The user can set the current date and time in the control unit in the “Date/Time” submenu. The values are stored in the control unit so that these values do not need to be reset after a power failure.

6.4.2.7 Setting the Language

The user can change the language of the control unit in the “Language” submenu. The language of the control unit is changed by tapping on the respective blue button with the desired language. This changes the button labelling in all menus. The system automatically switches to the higher menu level after tapping on a language button.

6.4.3 Treatment Settings Menu

6.4.3.1 Switching Times

You need to go to the **Treatment** → **Switching Times** submenu to set the switching times of the filter pump. This is shown as a diagram in Figure 2. Please set the parameters in the sequence shown in this operating manual.



Figure 2: “Switching Times” submenu

In field ① you choose whether individual switching times or the same switching times should be selected for each day or whether different switching times should be selected for weekdays and weekend days.

In field ② you choose the day for which the 6 switching times apply.

In field ③ you set the time of the individual switching time.

In field ④ you set the mode of the individual switching time.

6.4.3.2 Filter Cleaning

The following parameters can be set in the “Backwashing” menu:

- Trigger backwashing
- Backwashing switching times

- Backwashing settings (running time and backwash valve type)
- Rinsing settings (running time and rinse valve type)
- Pause for which the pump turns off so that the valves can move
- Forced filtration running time through the pool overflow channel after backwashing (select only when the overflow pool is set)

Switching times (Setting the Backwashing)

You need to go to the **Treatment → Filter Cleaning → Switching Times** submenu to set the backwashing switching times. A switching time for the backwashing can be set for every day of the week. Thursday 16:00 is defined as a switching time in the basic configuration. The menu is shown in Figure 3.

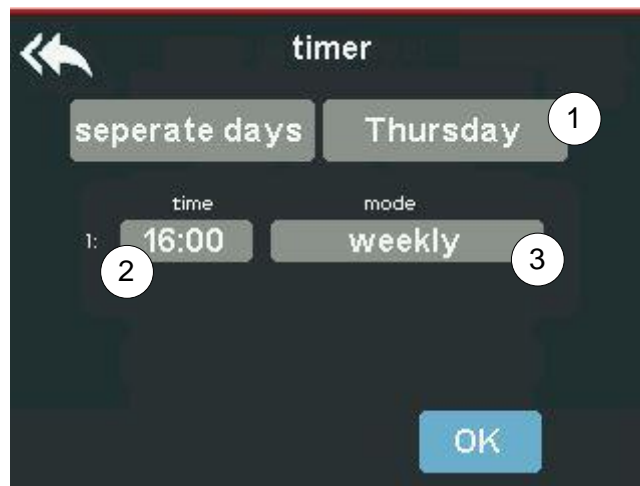


Figure 3: Backwashing switching times

In field ① you choose the day for which the switching time applies.

In field ② you set the time of the individual switching time.

In field ③ you set the repetition frequency of the individual switching time (weekly, every 2 weeks, every 4 weeks).

Trigger backwashing

You need to go to the **Treatment → Filter Cleaning → Backwashing** submenu in order to manually trigger the backwashing. The manual backwashing is triggered by confirming the query with the “Yes” button.

Backwashing Setting

You need to go to the **Treatment → Filter Cleaning → Backwashing Setting** submenu to set the backwashing parameters. This is shown in Figure 4.

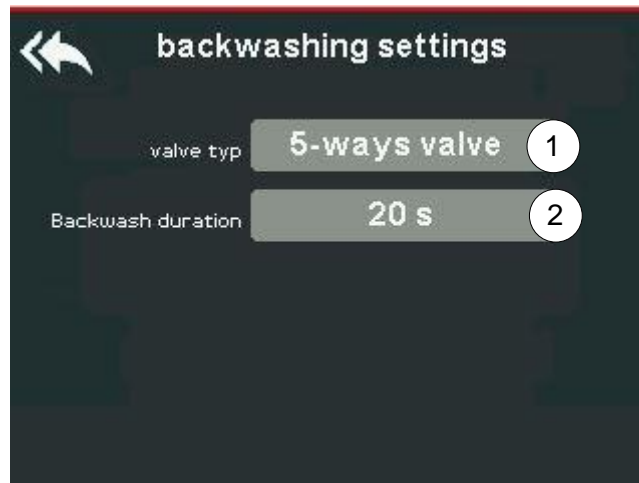


Figure 4: Backwashing setting

In field ① you choose the backwash valve type. You can choose between a rod valve and a Badutronic valve.

In field ② you set the running time of the backwashing.

The control unit can only be operated together with a Badutronic 93 and Omnitronic. The rod valve must be connected to the output A6. The Badutronic must be connected to the inputs E1 and E10 and to the output A6.

You need to go to the **Treatment → Filter Cleaning → Pause** submenu and select the desired pause time here (max 200 s) to set the pause in order to adjust the rod valve. This time also applies for a possible rinse valve.

Rinsing Setting

You need to go to the **Treatment → Filter Cleaning → Rinsing Setting** submenu to set the rinsing parameters. This has the same layout as the **Backwashing Settings** submenu (Figure 4).

In field ① you select whether a rinse valve (3-way rod valve) is connected.

In field ② you set the running time of the rinsing cycle.

The rinse valve must be connected to the output A7.

Pause

You need to go to the **Treatment → Filter Cleaning → Pause** submenu to pause the filter pump in order to adjust the backwash valves. Here the pause time is entered in seconds (max. 200 sec).

Forced Overflow Channel

The **Forced Overflow Channel** submenu is only available if an overflow pool has been set as the pool type (**Treatment → Level Control → Pool Type**). The filter pump continues to run at normal speed for the set time (max. 200 min) after backwashing, regardless of the switching times.

6.4.3.3 Pump Type (Setting)

You need to go to the **Treatment → Pump Type** submenu to set the pump type used. Here the user can choose between the following pump types:

- Single-phase: corresponds to a 230 V pump
- Three-phase: corresponds to a 400 V pump
- Frequency converter: the pump is controlled by a frequency converter and can therefore be operated at different speeds
- Contactor: pump is connected to an external contactor that is activated by the control unit

The power supply lines of the single-phase pump, the three-phase pump or the external contactor must be connected to the terminals A1. If a frequency converter is used, the pump must be supplied externally with continuous voltage. Only the control lines are then connected to the control unit. The following terminals are available for connection of the control lines:

- A13 (speed 2-normal, potential-free N/O contact)
- A14 (speed 3-increased, potential-free N/O contact)
- A15 (speed 1-slow, potential-free N/O contact)
- A16 (stop signal, potential-free switch)
- A18 (percentage speed, standard signal 0-10 V)

6.4.3.4 Frequency Converter Settings

The **Frequency Converter Settings** submenu is only available if “Frequency converter” has been set as the pump type (**Treatment → Pump Type**). You need to go to the **Treatment → Frequency Converter Settings** submenu to set the frequency converter used. This is shown in

Figure 5. The user can set the following frequency converter parameters:

- Frequency converter type: if an external frequency converter (external) or a pump with an integrated frequency converter is used. If the pump has an integrated frequency converter, you can choose between a frequency converter with or without a stop signal. The potential-free terminals can be switched in different logic depending on the setting. This can be found in table 2.
- Fault signal: defines whether the fault signal of the frequency converter works as an N/C or NO contact.
- Speed X: the corresponding speeds can be specified in percentage values if the integrated frequency converter is controlled by means of a standard signal (0-10 V). The values entered here are also displayed in the remote portal.

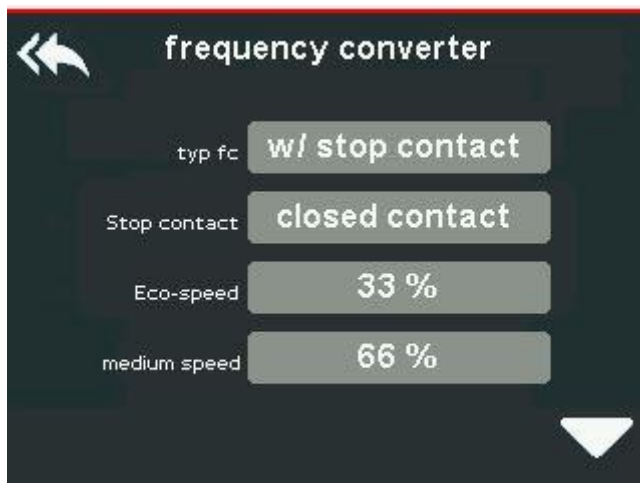


Figure 5: Frequency converter settings

Table 2: Frequency converter circuit diagram (X marks the active switching status)

Frequency converter type	Speed	Terminal A13	Terminal A14	Terminal A15	Terminal A16
External	Reduced	X		X	
	Normal	X			
	Increased	X	X		
	Stop				
Internal with stop	Reduced			X	
	Normal	X			
	Increased		X		
	Stop				X
Internal without stop	Reduced			X	
	Normal	X			
	Increased		X		
	Stop				

If a frequency converter is used, the pump must be supplied externally with continuous voltage. Only the control lines are then connected to the control unit. The following terminals are available for connection of the control lines:

- A13 (speed 2-normal, potential-free N/O contact)

- A14 (speed 3-increased, potential-free N/O contact)
- A15 (speed 1-reduced, potential-free N/O contact)
- A16 (stop signal, potential-free switch)
- A18 (percentage speed, standard signal 0-10 V)

6.4.3.5 Flow Switch

You need to go to the **Treatment** → **Flow Switch** submenu to set a flow switch. This is shown in Figure 6.

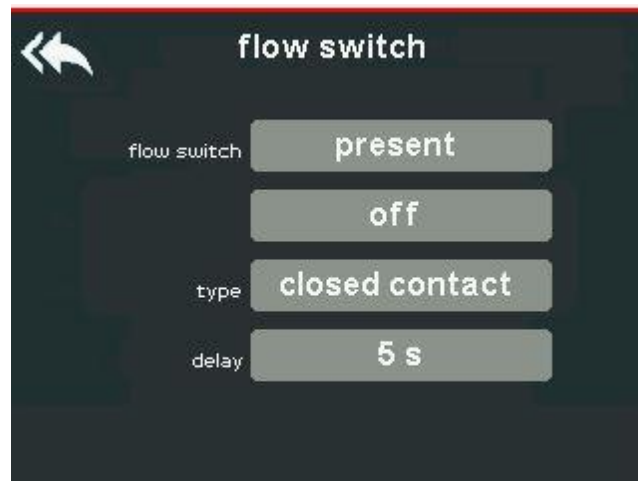


Figure 6: Flow switch

- Flow switch: defines whether a flow switch has been connected
- Forced pump: defines whether the filter pump should be stopped in the case of an error message from the flow switch.
- Type: defines the switching mode of the flow switch (N/O contact or N/C contact)
- Delay: defines the time until the control unit emits an error message due to the input signal from the flow switch.

The flow switch must be connected to the terminal E6.

6.4.3.6 Level Control (Setting)

You need to go to the **Treatment** → **Level Control** submenu to set the level control. This is shown in Figure 7.

- Pool type: defines whether the pool is a skimmer or overflow pool. A Behncke level control (art no. 39019095) is required as an add-on module for overflow pools.
- Fill valve: defines whether a fill valve (solenoid valve) is connected
- Type: only available for skimmer pools. Defines the switching mode of the float switch (N/O contact or N/C contact)
- Delay: defines the time until the control unit controls the fill valve due to an input signal.
- Dosing technology: defines whether the dosing technology is deactivated for the time during which the fill valve is activated.

- Max. fill time: defines the maximum time for which the fill valve can be continuously controlled. If the time is exceeded, the fill valve is switched off and an error message is displayed.
- Max. daily fill time: defines the maximum time for which the fill valve can be controlled in a day. If the time is exceeded, the fill valve is switched off and an error message is displayed.
- Forced HE5: defines whether a forced activation of the filter pump should occur when water comes into contact with the hang-in electrode HE5 (only for overflow pools).
- Forced HE6: defines whether a forced backwashing cycle should occur when water comes into contact with the hang-in electrode HE6 (only for overflow pools).



Figure 7: Level control

If a level control is required to control the level of an overflow pool, this must be connected to the BUS terminals. The hang-in electrodes are connected to the level control. Please refer to the operating instructions and circuit diagrams for the level control.

The float switch to control the level of a skimmer pool must be connected to the terminals E7.

If a (solenoid) fill valve is available, this must be connected to the terminals A9.

6.4.3.7 ECO Functions

You need to go to the **Treatment** → **ECO Function** submenu to set the ECO functions. This is shown in Figure 8.

- Floor valve: defines whether a floor valve is connected. The floor valve is automatically activated when the roller shutter is closed and water is therefore drawn in through the floor drain.
- Cover: defines the speed of the filter pump when the roller shutter is closed.

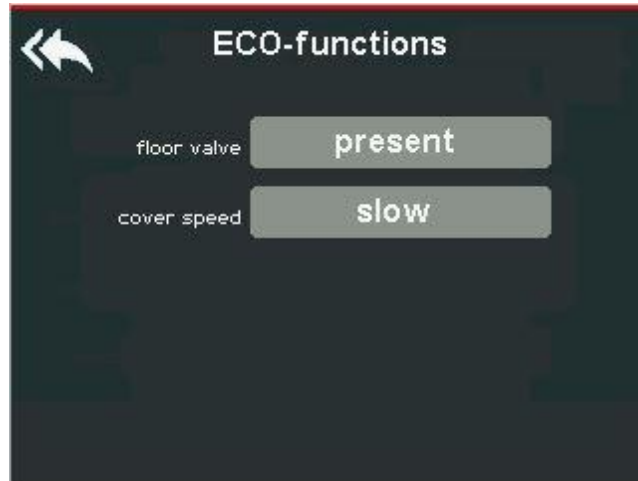


Figure 8: ECO functions

The limit switches of the roller shutter must be connected to the terminals E8.

The floor valve must be connected to the output A10.

6.4.3.8 Lowering Valve

The function of the lowering valve cannot be changed in the control unit. The terminal of the lowering valve is only controlled for overflow pools. The terminal can be used as a freely programmable terminal for skimmer pools.

The lowering valve is automatically activated as soon as there is an input signal on the input E8 (roller shutter closed). The lowering valve is supplied with continuous voltage (230 V) for the time during which the roller shutter is closed.



WARNING!

Make sure that the roller shutter does not come into contact with the pool shell when the lowering valve is activated (lower water level in the pool). In case of contact, there is a risk of property damage when opening the roller shutter!

The lowering valve must be connected to terminal A8.

6.4.3.9 Forced On

You need to go to the **Treatment → Forced On** submenu to set the forced activation. The input for the forced activation of the filter pump is defined here. The filter pump runs at normal speed as long as there is a signal on the input.

The switch for the forced activation must be connected to terminal E11.

6.4.3.10 Forced Off

You need to go to the **Treatment → Forced Off** submenu to set the forced deactivation. The input for the forced deactivation of the filter pump is defined here. The filter pump is switched off as long as there is a signal on the input.

The switch for the forced deactivation must be connected to terminal E12.

6.4.4 Warming Settings Menu

6.4.4.1 Heating

You need to go to the **Warming → Heating** submenu to set the auxiliary heating. This is shown in Figure 9. The following parameters can be set:

- Sensor: defines whether a water sensor is available. The heating function can be called up only if a sensor is available. If a water sensor is available, its temperature values are displayed on the start screen.
- Heating: defines whether the heating function should be used to warm up the water temperature.
- Temperature: defines the target value of the swimming pool water
- Delay: defines the delay time after which the heating should be activated after dropping below the target value (max. 20 min)
- Overrun: defines how long the filter pump should continue to run at normal speed after reaching the target temperature, regardless of the switching times.
- Forced: defines whether the filter pump must be switched on for heating purposes outside of the switching times.
- Hysteresis: defines the minimum required deviation between the target and actual temperature of the swimming pool water to activate the heating.



Figure 9: Auxiliary heating

The water sensor (PT1000) must be connected to the terminals E4.

The heating pump/heating solenoid valve must be connected to the terminals A3 (230 V).

The release signal for the heating must be connected to the terminals A12.

6.4.4.2 Solar Mode

You need to go to the **Warming → Solar Mode** submenu to set the solar mode. This is shown in Figure 10. The following parameters can be set:

- Sensor: defines whether a solar sensor is available. The solar heating function can be called up only if a sensor is available. If a solar sensor is available, its temperature values are displayed on the start screen.
- Solar: defines whether the solar heating function (solar pump and collector) should be used to warm up the water temperature.
- Temperature: defines the target value of the swimming pool water in solar mode
- Valve time: defines the pause time for adjusting the solar valve. The filter pump is switched off for this time.

- Difference: defines the minimum required temperature difference between the solar and swimming pool water temperature to activate the solar mode.
- Forced: defines whether the filter pump must be switched on for solar operation outside of the switching times.
- Running time: defines the minimum running time of the solar mode
- Speed: defines the speed at which the filter pump should run in solar mode

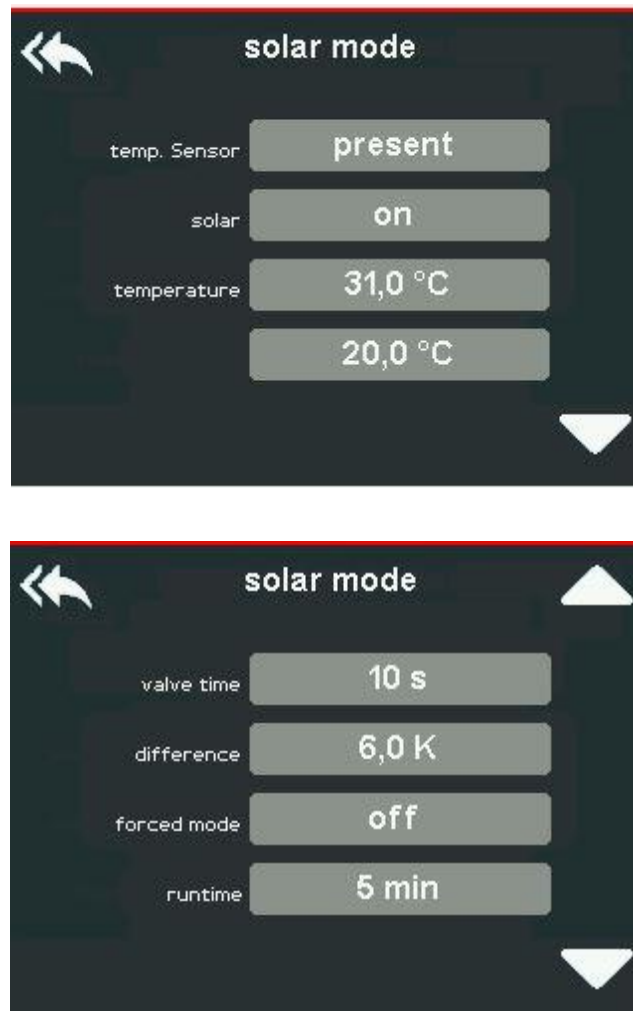


Figure 10: Solar mode

The solar sensor/collector sensor (PT1000) must be connected to the terminals E5.

The collector pump must be connected to the terminals A2 (230 V).

A rod valve/solenoid valve can be connected to the terminals A17 (potential-free switch, max 3 A) to activate the collector line. Voltage must be applied to the terminal for this purpose.

6.4.4.3 Sensor Calibration

You need to go to the **Warming → Sensor Calibration** submenu to set the sensor deviation. The value entered is added to the measured value. A negative correction value must be entered if the measured

value is too high. A positive correction value must be entered if the measured value is too low. The difference between the measured value and the target temperature of the swimming pool water must be entered as a correction value.

6.4.5 Extras Settings Menu

6.4.5.1 Service Level

You need to go to the **Extras → Service Level** submenu to activate the service level of the control unit. The four-digit service code of the control unit must be entered here. As an authorised dealer you can request this from the manufacturer. The service code must only be passed on to specialists.

The service level is deactivated automatically if there has been no input on the control unit for more than 5 minutes.

6.4.5.2 Setting Freely Programmable Terminals

You need to go to the **Extras → Freely Programmable Terminals** submenu to set freely programmable terminals. The terminals speed 2 (A13, potential-free N/O contact), speed 3 (A14, potential-free N/O contact), rinsing (A7, 230 V-3 A), solar pump (A2, 230 V-3 A), lowering valve (A8, 230 V-3 A) and floor valve (A10, 230 V-3 A) can be assigned in different ways in the control unit if they are not already used. You can choose between the following modes for each terminal:

- **Timer:**
 - Switching times: the control unit activates the terminal according to defined switching times that are set identically to the logic of the filter pump switching times.
 - Active: the terminal must be set to ACTIVE so that it is activated according to the switching times.
 - Locked: when this is set to “active”, the terminal is only activated if the filter pump is active at the same time. When this is set to “inactive”, the terminal is activated regardless of the filter pump.
- **Pulse:**
 - Long on: the control unit activates the terminal for the defined duration (max. 240 min).
 - Long off: the control unit deactivates the terminal for the defined duration (max. 240 min).
 - Active: the terminal must be set to “active” so that it is activated according to the set times.
 - Locked: when this is set to “active”, the terminal is only activated if the filter pump is active at the same time. When this is set to “inactive”, the terminal is activated regardless of the filter pump.

6.4.5.3 Measurement and Control Technology

You need to go to the **Extras → Measurement and Control Technology** submenu to set the reading of the measurement and control technology. The pH value, chlorine value or redox value (only two in total) can be read. The read values are displayed on the start screen. The last value is “frozen” if the filter pump is off (shown by orange values). The menu for the pH value is shown in Figure 11 as an example. The following parameters can be set:

- Input: defines on which input terminals the values should be read
- Signal type: defines whether the values are transmitted as a 0-10 V or 4-20 mA signal
- Value for X: defines the transmission value range



Figure 11: Measurement and control technology

Fixed limit values for the read values are stored in the control unit. If a value drops below or exceeds these limit values, this is indicated by an error message. The limit values cannot be changed.

The power supply of the measurement and control system must be connected to the terminals A5.

The release signal for the measurement and control system must be connected to the terminals A11.

6.4.5.4 Chemical Fill Levels

You need to go to the **Extras** → **Chemical Fill Levels** submenu to set the reading of the chemical fill levels. The empty status of the chemical can be recorded for a total of two substances. The menu is shown in Figure 12.

- Input: defines on which input terminals the values should be read
- Type: defines whether the empty status is determined via an N/C or N/O contact.
- Name: defines the name that should be displayed in the case of an empty status. You can choose between chlorine, pH, pH+, active oxygen, flocculant, ACO and miscellaneous as a name.



Figure 12: Chemical fill level

6.4.5.5 Factory Settings

You need to go to the **Extras** → **Factory Settings** submenu to reset the control unit to the factory settings. The control unit is reset if you confirm the query with “Yes”.

6.4.5.6 Service

You need to go to the **Extras** → **Service** submenu to call up the service functions. The following functions can be called up here:

- Reset counter: the operating hours counter is reset if you confirm the query with “Yes”.
- Solar test: the solar test function is called up for 3 minutes if you confirm the query with “Yes”. This activates the filter pump at maximum speed and the solar pump and collector valve are activated.

7 Maintenance

7.1 Safety Instructions for Transport

Basic Information



WARNING!

Risk of injury due to improperly carried out maintenance work!

Improper maintenance can lead to serious injuries or property damage.

- Before starting, ensure that there is sufficient room to carry out the installation work.
- Make sure that the installation location is tidy and clean! Loose components and tools lying around or on top of each other are sources of accidents.
- If components have been removed, make sure that they are installed properly. Reinstall all fixing elements and observe the screw tightening torques.
- All work must only be carried out by specialists/qualified electricians.

Environmental protection

Replaced parts must be disposed of in accordance with the local regulations.

7.2 Maintenance / Repairs

Proper maintenance is essential for the trouble-free operation of the control unit.



Attention:

Conclude a maintenance contract with your specialist swimming pool company.

8 Faults

8.1 Safety Instructions for Troubleshooting

Basic Information



WARNING!

Risk of injury due to improper troubleshooting!

Improper troubleshooting can lead to serious injuries or property damage.

- Before starting, ensure that there is sufficient room to carry out the installation work.
- Make sure that the installation location is tidy and clean! Loose components and tools lying around or on top of each other are sources of accidents.
- All work must only be carried out by specialists/qualified electricians.

8.2 Behaviour in the Case of Faults

As a basic rule:

1. Initiate an EMERGENCY STOP in the case of faults that pose an immediate danger to people or property.
2. Determine the cause of the fault.
3. Inform and consult a specialist.
4. Limit the damage as far as possible.

8.3 Error Messages and Faults

All the troubleshooting measures listed below must be carried out by a specialist.

Error/error message	Reason
The values of the measurement and control system are displayed in orange.	The system is outside of the filter running times. The value last measured during the filter running times is displayed and "frozen".
Hang-in electrode sequence	The hang-in electrodes of the level control are addressed in the wrong sequence. Please check whether they have been connected properly or have become loose on the bracket in the tank.
Overcurrent on the filter pump	The rated motor current is too high. Please check the pump.
Fault on the frequency converter	There is a fault on the external frequency converter. Please check the frequency converter.
Cable break on phase "X"	The control unit detects a cable break on phase X. Please check the supply lines.
Incorrect phase sequence	The wrong pump type has been set or the pump phases are incorrectly connected. Please check

	the supply lines
Temperature sensor error	The measured temperature values are outside of the logic limits stored in the control unit. Please check the line and the temperature sensor for damage.
Lack of water in the overflow tank	The overflow tank is almost empty (HE2 has no contact with water) so there is a risk of the pump running dry. Please check the fill valve.
Flow switch	No flow is registered via the flow switch. There is a risk of the pump running dry. Please check the pump and the flow switch.
No filter cleaning by the Badutronic	The Badutronic has carried out no filter cleaning within the defined time. Please check the settings and the Badutronic.
Filter cleaning cancelled due to lack of water	The filter cleaning has been cancelled due to a lack of water.
Filter cleaning cancelled on flow switch	The filter cleaning has been cancelled on the flow switch due to there being no flow.
Max. fill time reached	The fill valve is activated for a bit longer than the maximum permissible fill time. Please check the pool for any leaks and the set values.
Max. daily fill time reached	The fill valve is activated for longer in the day than the maximum permissible daily fill time. Please check the pool for any leaks and the set values.
Overfilling (HE6)	The hang-in electrode HE6 registers that the overflow tank is completely full and is overflowing. Please check the position of the HE6 in the tank and the settings.
Substance "X" empty	The empty status of substance X is registered via the empty status sensors. Please check the empty status and replace the substance with a new one.
Swimming pool temperature outside of the limits	The swimming pool sensor is defective or not connected.
Please check time	Please set the time in the "General" menu.

 Faults

Please set date	Please set the date in the "General" menu.
Calibration process failed (I > 8 A)	The motor current is greater than 8 A. The power must not be supplied via the control unit.
"X" outside of the limit values	The value for the parameter "X" (pH, chlorine, redox) is outside of the set limit values. The limit values cannot be changed. Please check the water values and the measurement & control system.
Communication with hang-in electrode extender	There is a communication error with the level control. Please arrange for a specialist to check the connections.
Communication with display extender	There is a communication error with the level control display. Please arrange for a specialist to check the connections.

9 Spare Parts



WARNING!

Risk of injury due to incorrect spare parts!

Incorrect or faulty spare parts can lead to damage, malfunctions or a total failure and compromise safety.

- Use only original spare parts supplied by the manufacturer

9.1 Ordering Spare Parts

It is important to specify the following information when ordering spare parts:

- Control unit (see type plate)
- Serial no. (see type plate)
- Year of manufacture (see type plate)



Spare parts orders without the above information cannot be taken into account.



Obtain spare parts through your authorised dealer or from a specialist swimming pool company.

10 Disassembly and Disposal

When it reaches the end of its service life, the control unit must be disassembled and disposed of in an environmentally friendly manner.

10.1 Disassembly

Before the disassembly work starts:

- Disconnect the control unit from the power supply (caution: voltage may still be present after you have disconnected it due to the capacitors). Consult a specialist for the disassembly.
- Then disassemble the assemblies and components in accordance with the applicable local environmental regulations.

10.2 Disposal

Send the disassembled components for recycling after they have been correctly dismantled:

- Remove and recycle packaging
- Scrap any leftover metal
- The control unit must be treated as waste electrical and electronic equipment for recycling purposes.



**Konformitätserklärung
Declaration of Conformity
Declaration de Conformité**

Wir
We
Nous

Ingenieurbüro Bickele & Bühler GmbH

Anschrift
Address
Adress

St.-Pöltener-Strasse 70
70469 Stuttgart
Germany

erklären in alleiniger Verantwortung, daß das Produkt
declare under our sole responsibility, that the product
declarons sous notre seule responsabilité, que le produit

Bezeichnung
Name
Nom

Behncke Control 1.3

Typ,Modell,Artikel-Nr., Größe
Type,Model, Article No.,Taille
Type, Modèle, Mo.d'Article,Taille

IBB Artikelnr. 7739

mit den Anforderungen der Normen und Richtlinien
fulfills the requirements of the standard and regulations of the Directive
satisfait aux exigences des normes et directives

**RICHTLINIE 2014/30/EG DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom
26.Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die
elektromagnetische Verträglichkeit**

bezogene Produktnormen

DIN EN 61326-1; VDE 0843-20-1:2013-07 Elektrische Mess-, Steuer-, Regel- und Laborgeräte -
EMV-Anforderungen - Teil 1: Allgemeine Anforderungen (IEC 61326-1:2012); Deutsche Fassung
EN 61326-1:2013

DIN EN 61326-2-2; VDE 0843-20-2-2:2013-08 -Elektrische Mess-, Steuer-, Regel- und Laborgeräte
- EMV Anforderungen - Teil 2-2: Besondere Anforderungen - Prüfanordnung, Betriebsbedingungen
und Leistungsmerkmale für ortsveränderliche Prüf-, Mess- und Überwachungsgeräte für den
Gebrauch in Niederspannungs- Stromversorgungsnetzen (IEC 61326-2-2:2012); EN 61326-2-
2:2013

bezogene Grundnormen

DIN EN 55011; VDE 0875-11:2011-04 Industrielle, wissenschaftliche und medizinische Geräte -
Funkstörungen - Grenzwerte und Messverfahren (IEC/CISPR 11:2009, modifiziert + A1:2010);
Deutsche Fassung EN 55011:2009 + A1:2010

DIN EN 61000-3-2; VDE 0838-2:2015-03 - Elektromagnetische Verträglichkeit (EMV) - Teil 3-
2:Grenzwerte - Grenzwerte für Oberschwingungsstrom (Geräte-Eingangstrom <= 16 A je Leiter)
(IEC 61000-3-2:2014); Deutsche Fassung EN 61000-3-2:2014

DIN EN 61000-3-3; VDE 0838-3:2014-03 - Elektromagnetische Verträglichkeit (EMV) - Teil 3-3: Grenzwerte - Begrenzung von Spannungsänderungen, Spannungsschwankungen und Flicker in öffentlichen Niederspannungs-Versorgungsnetzen für Geräte mit einem Bemessungsstrom ≤ 16 A je Leiter, die keiner Sonderanschlussbedingung unterliegen (IEC 61000-3-3:2013); EN 61000-3-3:2013

DIN EN 61000-4-2; VDE 0847-4-2:2009-12 Elektromagnetische Verträglichkeit (EMV) - Teil 4-2: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen die Entladung statischer Elektrizität (IEC 61000-4-2:2008); Deutsche Fassung EN 61000-4-2:2009

DIN EN 61000-4-3; VDE 0847-4-3:2011-04 Elektromagnetische Verträglichkeit (EMV) - Teil 4-3: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen hochfrequente elektromagnetische Felder (IEC 61000-4-3:2006 + A1:2007 + A2:2010); Deutsche Fassung EN 61000-4-3:2006 + A1:2008 + A2:2010

DIN EN 61000-4-4; VDE 0847-4-4:2013-04 Elektromagnetische Verträglichkeit (EMV) - Teil 4-4: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen schnelle transiente elektrische Störgrößen/Burst (IEC 61000-4-4:2012); Deutsche Fassung EN 61000-4-4:2012

DIN EN 61000-4-5; VDE 0847-4-5:2015-03 - Elektromagnetische Verträglichkeit (EMV) - Teil 4-5: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen Stoßspannungen (IEC 61000-4-5:2014); Deutsche Fassung EN 61000-4-5:2014

DIN EN 61000-4-6; VDE 0847-4-6:2009-12 Elektromagnetische Verträglichkeit (EMV) - Teil 4-6: Prüf- und Messverfahren - Störfestigkeit gegen leitungsgeführte Störgrößen, induziert durch hochfrequente Felder (IEC 61000-4-6:2008); Deutsche Fassung EN 61000-4-6:2009

DIN EN 61000-4-11, Ausgabe:2005-02 Elektromagnetische Verträglichkeit (EMV) - Teil 4-11: Prüf- und Messverfahren - Prüfungen der Störfestigkeit gegen Spannungseinbrüche, Kurzzeitunterbrechungen und Spannungsschwankungen (IEC 61000-4-11:2004); Deutsche Fassung EN 61000-4-11:2004

RICHTLINIE 2014/35/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt

DIN EN 61010-1, Ausgabe:2011-06 Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 1: Allgemeine Anforderungen (IEC 61010-1:2010 + Cor.:2011); Deutsche Fassung EN 61010-1:2010

und den angezogenen Prüfberichten übereinstimmt und damit den Bestimmungen entspricht.
and the taken test reports und therefore corresponds to the regulations of the Directive.
et les rapports d'essais notifiés et, ainsi, correspondent aux règlements de la Directive.



Dipl.-Ing. Andreas Bühler

Stuttgart, den 08.02.2018

Ort und Datum
Place and Date of Issue
Lieu et date d'établissement

Name und Unterschrift des Befugten
Name and Signature of authorized person
Nom et signature de la personne autorisée

12 Notes

13 Connection Diagrams

You will find connection and terminal diagrams to assist you on the following pages.

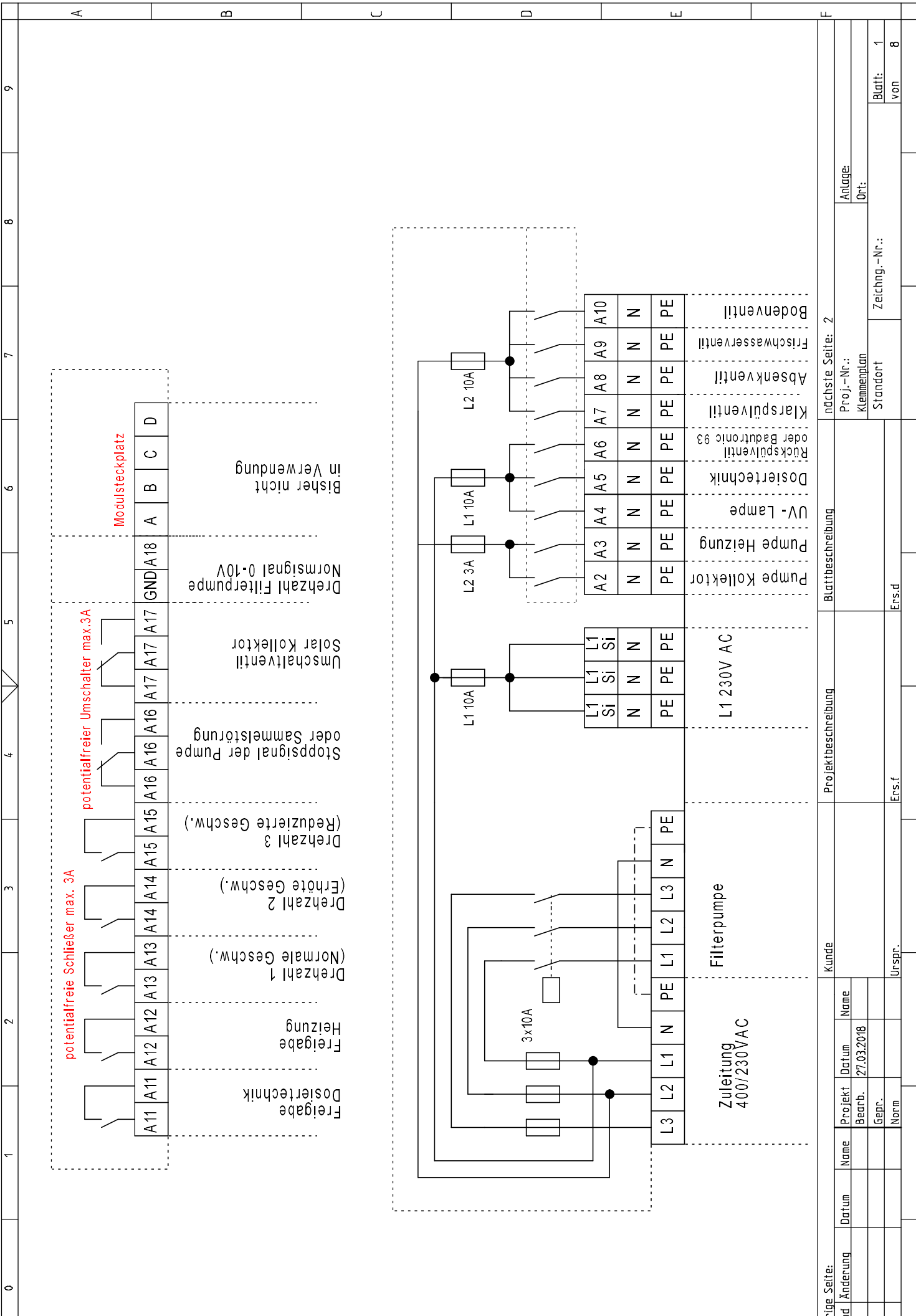
You will also find the belonging app if you scan the QR-Codes below.



Link Android-App



Link iOS-App



potentialfreie Schließer max. 3A

potentialfreier Umschalter max. 3A

Modulsteckplatz

Freigabe Dosiertechnik

Freigabe Heizung

Drehzahl 1 (Normale Geschw.)

Drehzahl 2 (Erhöhte Geschw.)

Drehzahl 3 (Reduzierte Geschw.)

Stoppsignal der Pumpe oder Sammelstörung

Umschaltventil Solar Kollektor

Drehzahl Filterpumpe Normsignal 0-10V

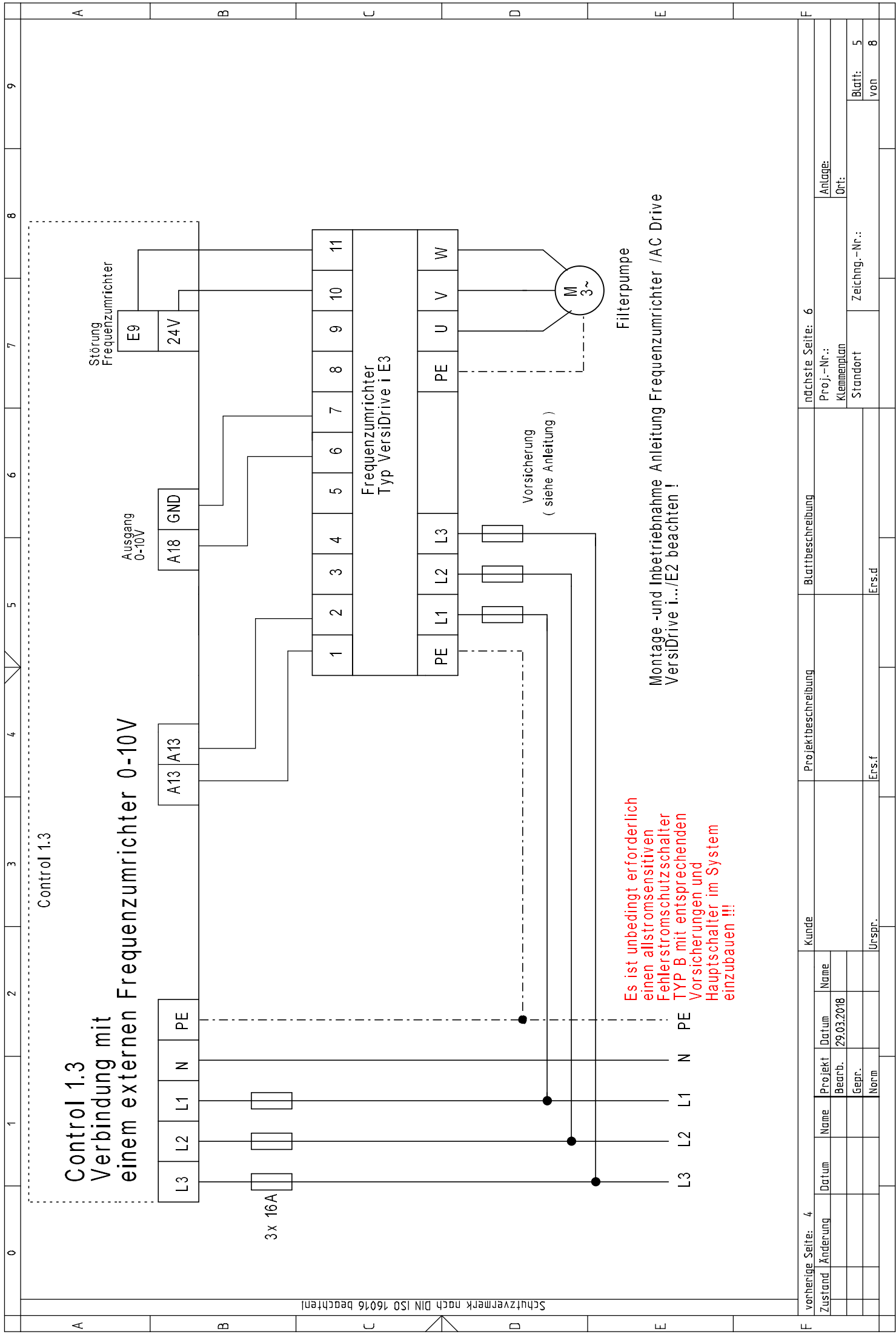
Bisher nicht in Verwendung

vorherige Seite:		Kunde		Blattbeschreibung		Blattbeschreibung		Blattbeschreibung		Blattbeschreibung	
Zustand	Änderung	Datum	Name	Projekt	Datum	Name	Projekt	Datum	Name	nächste Seite: 2	Anlage:
				Bearb.	27.03.2018		Proj.-Nr.:				
				Gepr.			Klemmenplan			Standort	Ort:
				Norm			Erstf			Zeichng.-Nr.:	Blatt: 1
							Ersf				von 8

	0	1	2	3	4	5	6	7	8	9						
A	Schutzvermerk nach DIN ISO 16016 beachten!															
B	Keine Fremdspannung auf die Klemmen auflegen !!!															
	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	BUS	BUS		
				GND			+24V			+24V			BUS	BUS		
	<p>Rückmeldung 93</p> <p>Badtronic 93</p> <p>Analog Eingang, (0-10V / 4-20mA) für Redox, Chlor, PH</p> <p>Fullstand Mittel</p> <p>Wassertemperatur (Pt100)</p> <p>Kollektortemperatur (Pt100)</p> <p>Stromungsschalter</p> <p>Schwimmerschalter</p> <p>Rollladerschalter "ZU"</p> <p>Störung Frequenzumr.</p> <p>Filterbetrieb Badtronic 93</p> <p>externer Eingang Filterpumpe (Zwang Ein/Aus) oder Fullstand Mittel</p> <p>Display 2 (Opt.)</p> <p>Niveausteuern (Opt.)</p>															
F	vorherige Seite: 1				Kunde				Projektbeschreibung				Blattbeschreibung			
	Zustand	Änderung	Datum	Name	Projekt	Datum	Name					nächste Seite: 4				
					Bearb.	27.03.2018						Proj.-Nr.:				
					Gepr.							Klemmenplan				
					Norm							Standort				
					Urspr.							Zeichn.-Nr.:				
					Ers.f							Blatt: 2				
					Ers.d							von 8				

	0	1	2	3	4	5	6	7	8	9
A	Control 1.3 in Verbindung mit Badutronic 93									
B	Control 1.3									
C	<p>The diagram shows a control circuit. Terminal 1 is connected to the N terminal of a switch (SI) and the N terminal of a fuse (L1). Terminal 2 is connected to the N terminal of a fuse (SI) and the N terminal of a switch (A5). Terminal 3 is connected to the N terminal of a switch (A5) and the N terminal of a fuse (E1). Terminal 4 is connected to the N terminal of a fuse (E1) and the N terminal of a switch (E1). Terminal Z1 is connected to the N terminal of a fuse (E10) and the N terminal of a switch (24V). Terminal Z2 is connected to the N terminal of a switch (24V).</p>									
D	Badutronic 93									
E	DIP-Schalter der Badutronic 93 in Stellung "Filtern", d.h. beide DIP-Schalter sind in Stellung "AUS".									
F	vorherige Seite: 2		Kunde		Projektbeschreibung		Blattbeschreibung		nächste Seite: 5	
	Zustand	Änderung	Datum	Name	Projekt	Datum	Name	Proj.-Nr.:	Anlage:	
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					Gepr.			Standort	Zeichng.-Nr.:	Blatt: 4
					Norm					von 8
					Urspr.			Ers.d		

Schutzvermerk nach DIN ISO 16016 beachten!



Control 1.3

Control 1.3 Verbindung mit einem externen Frequenzumrichter 0-10V

Störung
Frequenzumrichter

Ausgang
0-10V

3 x 16A

Frequenzumrichter
Typ VersiDrive i E3

Vorsicherung
(siehe Anleitung)

Filterpumpe

**Es ist unbedingt erforderlich
einen allstromsensitiven
Fehlerstromschutzschalter
TYP B mit entsprechenden
Vorsicherungen und
Hauptschalter im System
einzubauen !!!**

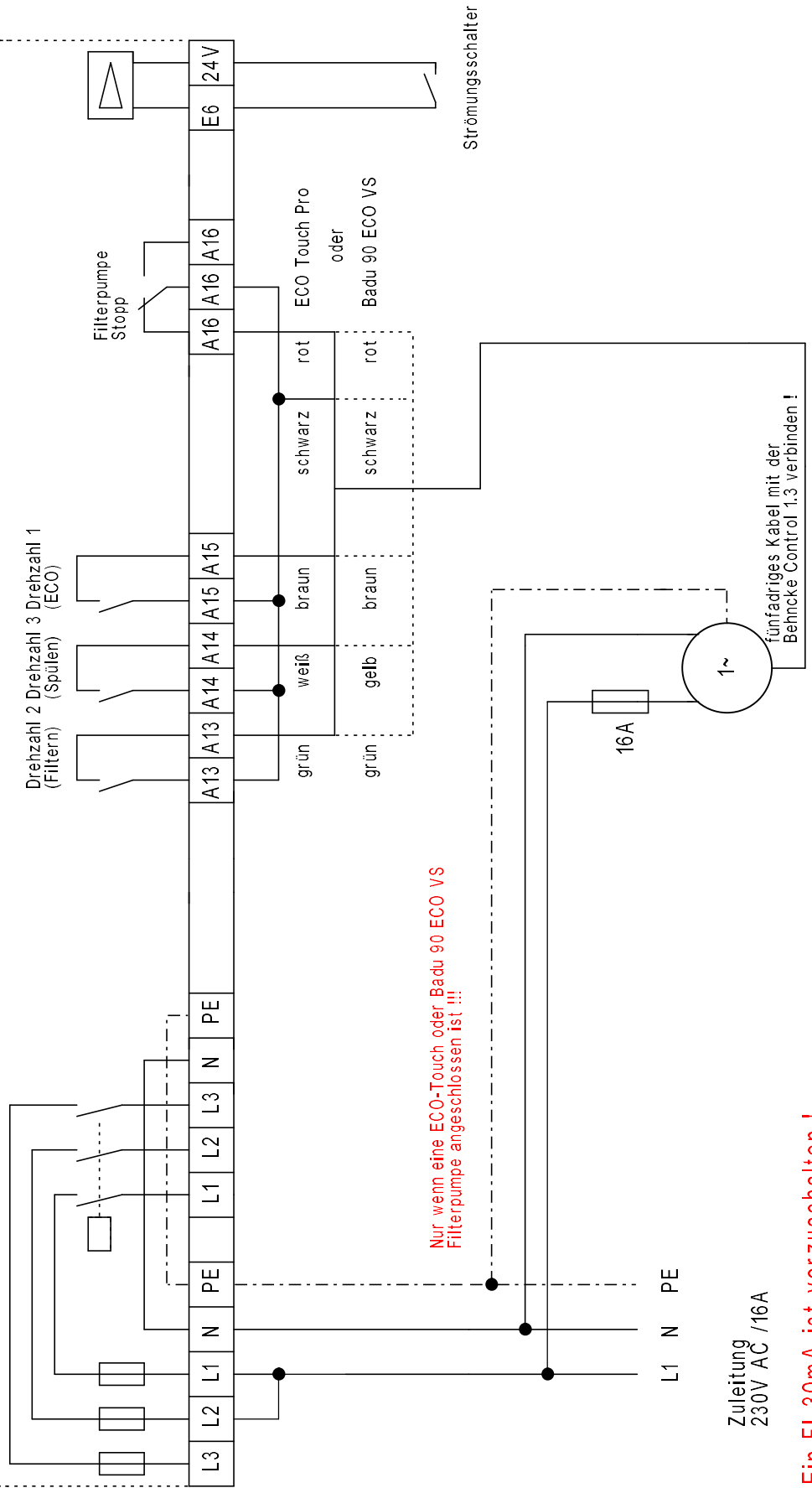
**Montage- und Inbetriebnahme Anleitung Frequenzumrichter /AC Drive
VersiDrive i.../E2 beachten !**

vorherige Seite: 4		Kunde		Projektbeschreibung		Blattbeschreibung		nächste Seite: 6	
Zustand	Änderung	Datum	Name	Projekt	Datum	Name	Proj.-Nr.:	Anlage:	
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				Gepr.			Standort	Zeichn.-Nr.:	
				Norm			Ers.d	Blatt: 5	
				Urspr.				von 8	

Schutzvermerk nach DIN ISO 16016 beachten!

Anschlussplan mit einer ECO-Touch Pro oder Badu 90 ECO VS Filterpumpe mit Control 1.3

Control 1.3



- * Ein FI-30mA ist vorzuschalten !
- * Ein 2-poliger Hauptschalter mit Vorsicherungen ist vorzuschalten !

Zuleitung
230V AC /16A

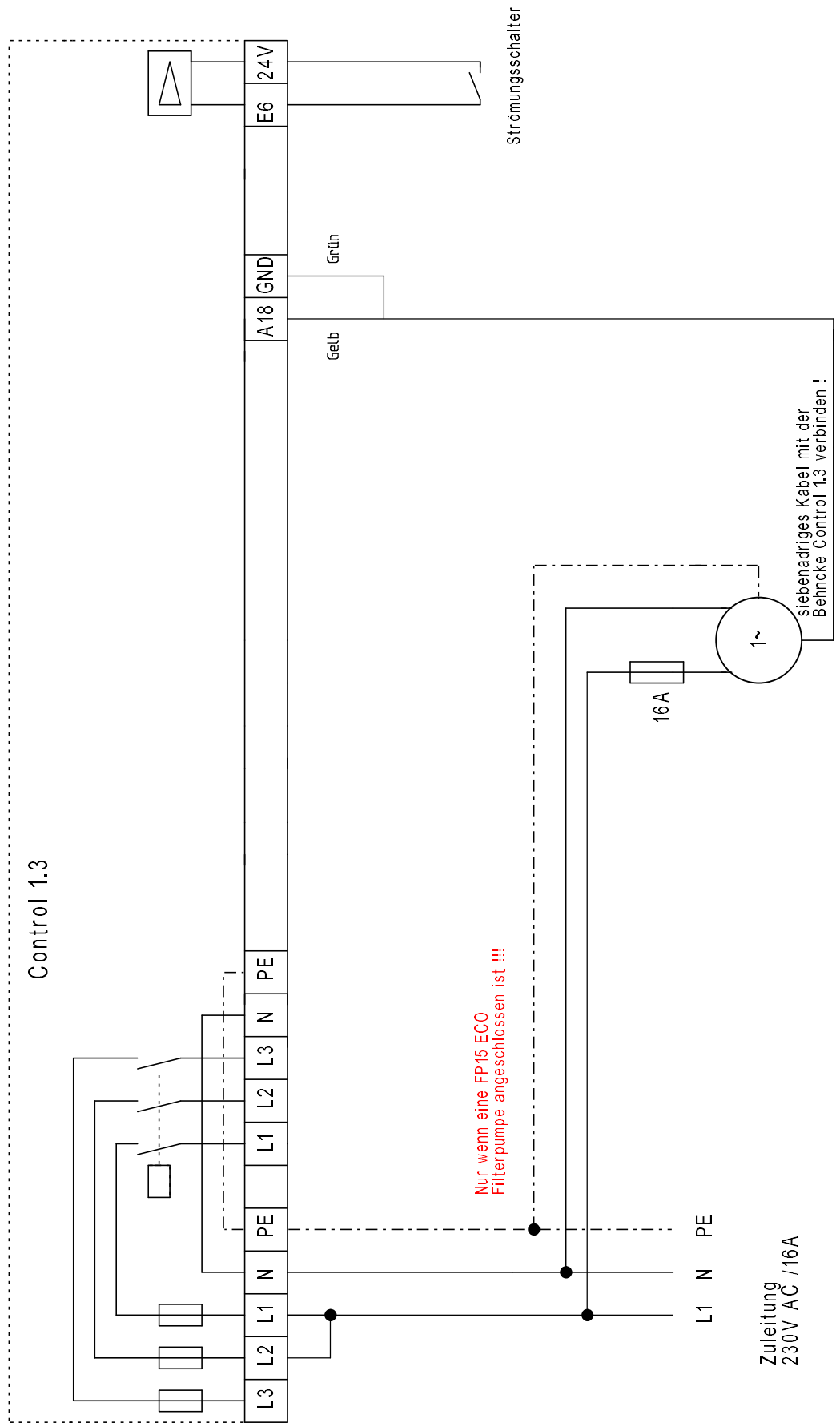
ECO-Touch Filterpumpe oder
Badu 90 ECO VS

Stromungsschalter

Schutzvermerk nach DIN ISO 16016 beachten!

vorherige Seite: 5	Kunde	Blattbeschreibung	nächste Seite: 7
Zustand	Projekt	Datum	Proj.-Nr.:
Änderung	Name	Datum	Klemmenplan
	Bearb.	29.03.2018	Standort
	Gepr.		Zeichng.-Nr.:
	Norm		Blatt: 6
	Urspr.		von 8
	Ers.f		
	Ers.d		

Anschlussplan mit einer FP15 ECO Filterpumpe an Control 1.3

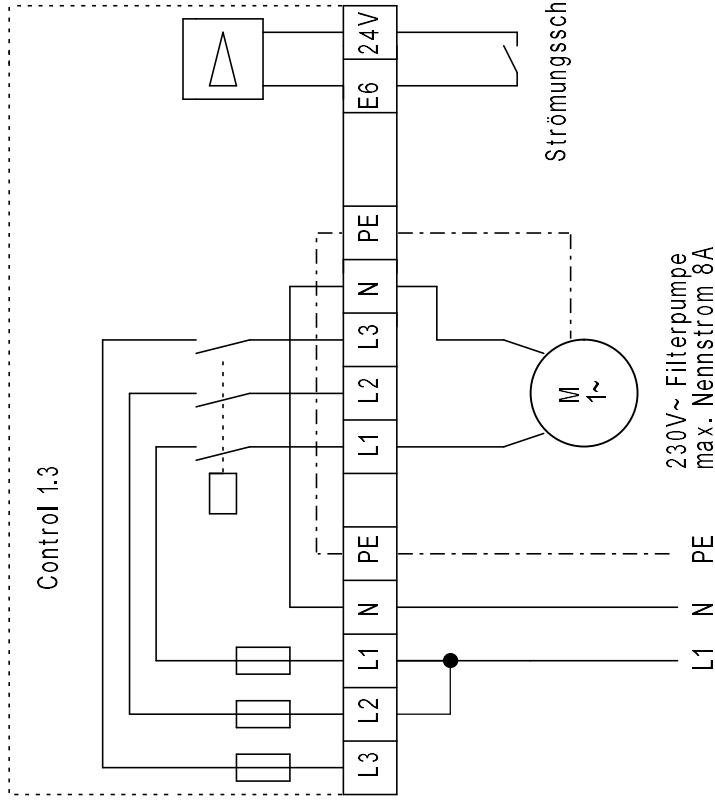
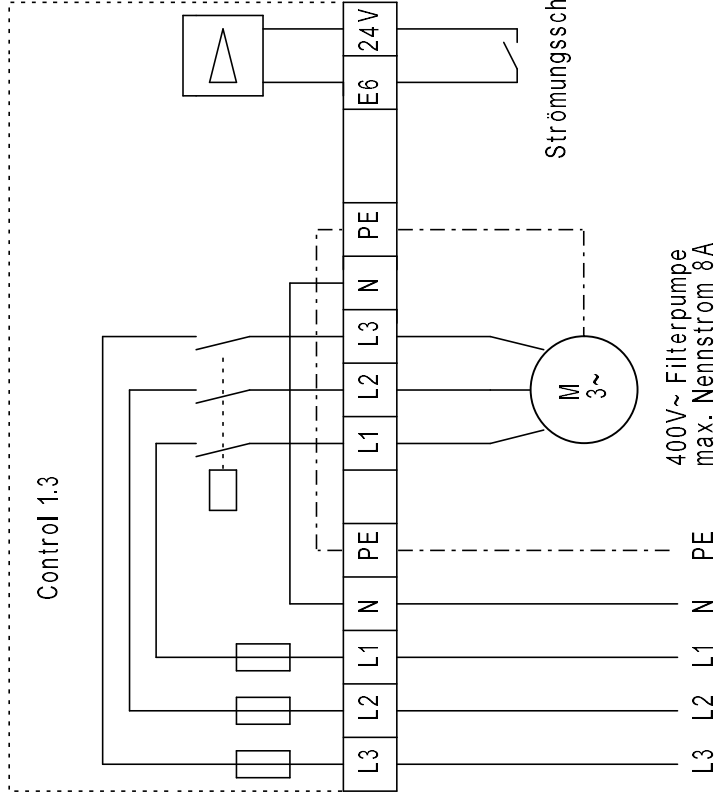


FP 15 ECO

Schutzvermerk nach DIN ISO 16016 beachten!

vorherige Seite: 6		Kunde		Blattbeschreibung		nächste Seite: 8	
Zustand	Änderung	Datum	Name	Projekt	Datum	Name	Proj.-Nr.:
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				Gepr.			Ort:
				Norm			Standort
				Urspr.			Zeichng.-Nr.:
				Ers.f			Blatt: 7
							von 8

Anschlussplan mit einer 400V oder 230V Filterpumpe mit Control 1.3

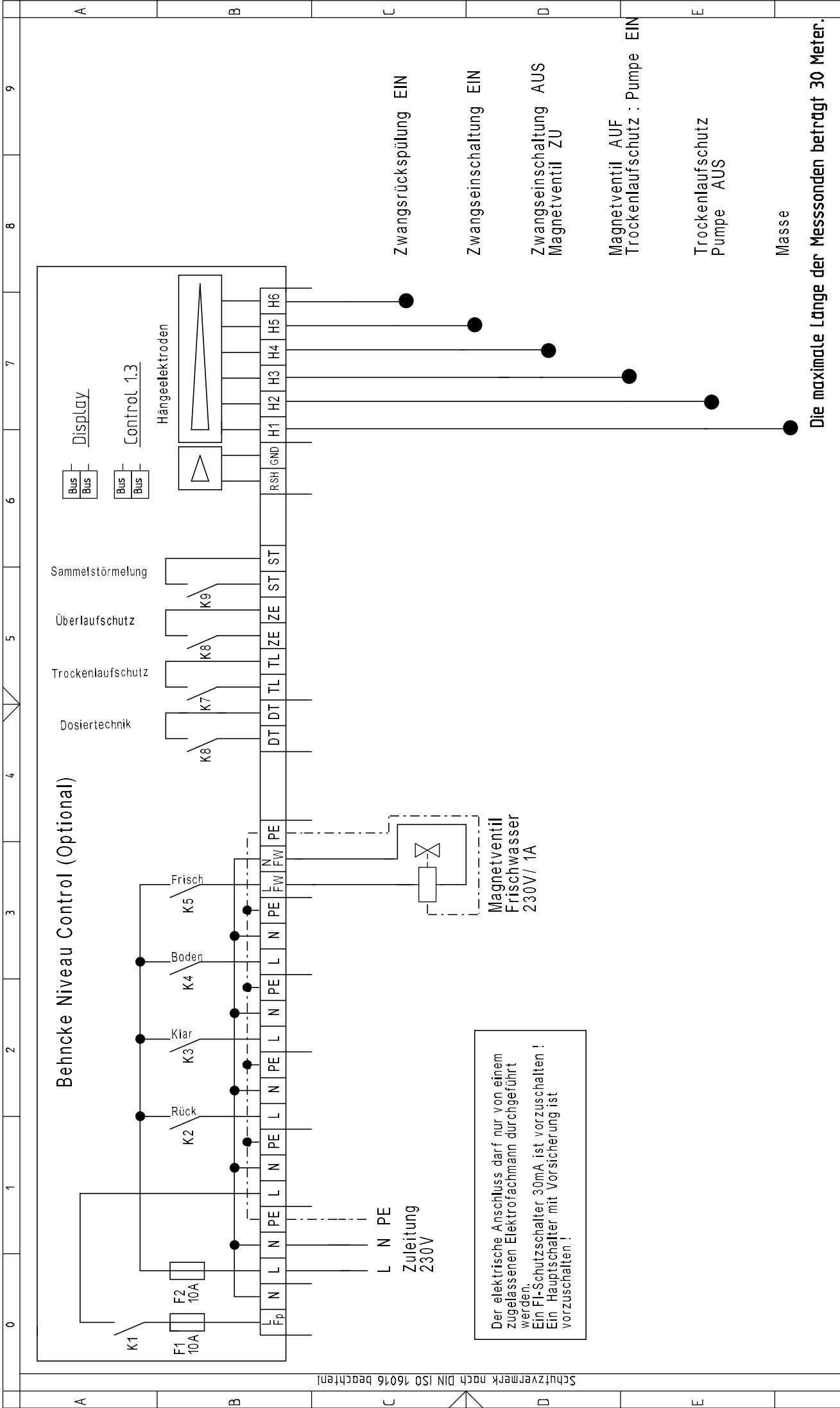


* Ein FI-30mA ist vorzuschalten !
* Ein 4-poliger Hauptschalter mit Vorsicherungen
ist vorzuschalten !

* Ein FI-30mA ist vorzuschalten !
* Ein 2-poliger Hauptschalter mit Vorsicherungen
ist vorzuschalten !

Schutzvermerk nach DIN ISO 16016 beachten!

vorherige Seite: 7	Kunde	Blattbeschreibung	nachste Seite: 9
Zustand	Name	Projekt	Proj.-Nr.:
Änderung	Datum	Bearb.	Klemmenplan
		Gepr.	Ort:
		Norm	Standort
	Urspr.	Ers.d	Zeichng.-Nr.:
			Blatt: 8
			von 8



vorherige Seite: 8		Kunde		Projektbeschreibung		Blattbeschreibung		nächste Seite:	
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				Gepr.				Standort	Zeichng.-Nr.:
				Norm					Blatt: 9
				Urspr.				Ers.d	von 8

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