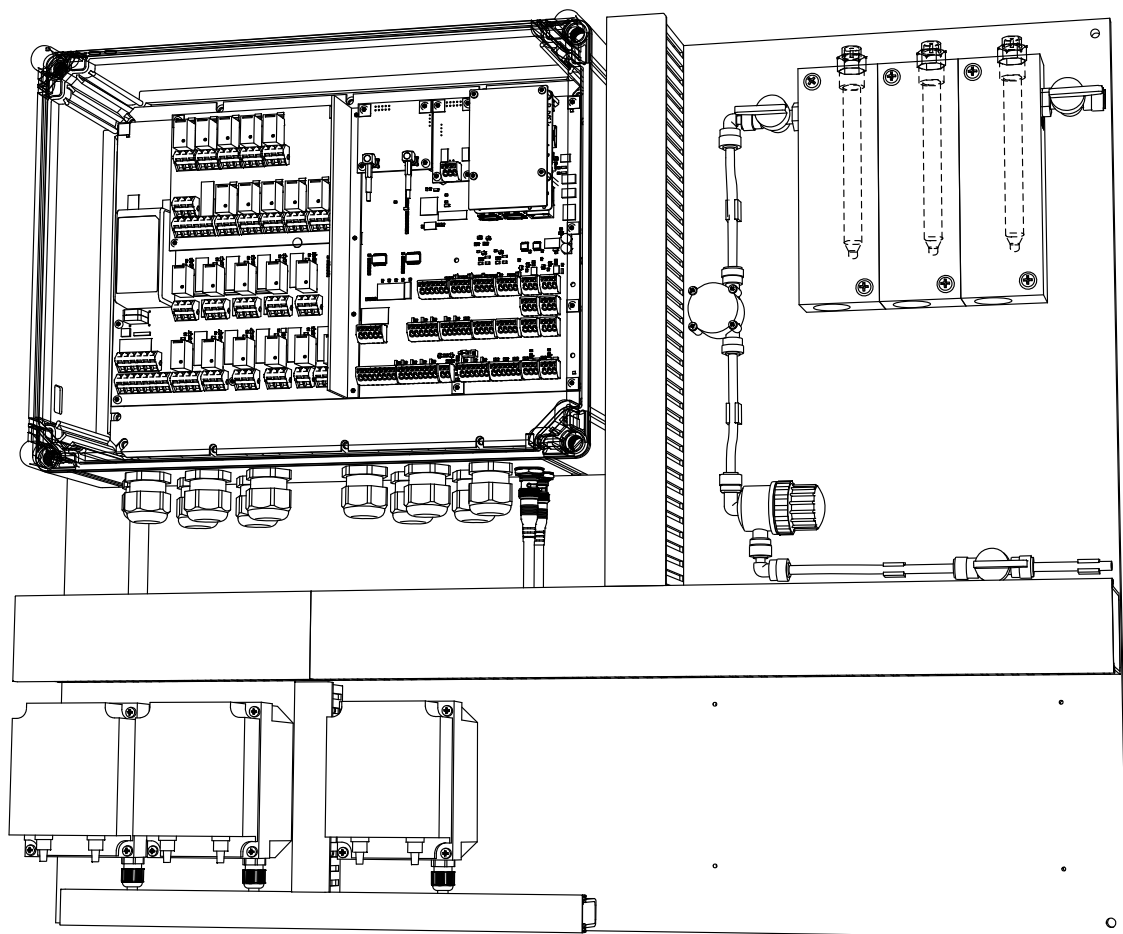


**EN Translation of the original installation instructions**

**BADU**<sup>®</sup> Blue  
**BADU**<sup>®</sup> Blue Pro



WG26.200.000-1-P



BADU® is a trademark of  
SPECK Pumpen Verkaufsgesellschaft GmbH

Hauptstraße 3  
91233 Neunkirchen am Sand, Germany  
Phone +49 9123 949-0  
Fax +49 9123 949-260  
info@speck-pumps.com  
www.speck-pumps.com

All rights reserved.

Contents may not be distributed, duplicated, edited or transferred to third parties without the written permission of SPECK Pumpen Verkaufsgesellschaft GmbH.

This document and all attached documents are not subject to update service!

**Subject to technical modifications!**

**UKCA:** Comply Express Ltd, Unit C2 Coalport House, Stafford Park 1, Telford, TF3 3BD, UK

---

## Table of contents

<b>1</b>	<b>About this document</b>	<b>6</b>
1.1	Using this manual	6
1.2	Target group	6
1.3	Other applicable documents	6
1.3.1	Symbols and means of representation	6
<b>2</b>	<b>Safety</b>	<b>7</b>
2.1	Intended use	7
2.2	Personnel qualification	7
2.3	Safety regulations	7
2.4	Structural modifications and spare parts	7
2.5	Signs	7
2.6	Residual risk	7
2.6.1	Electrical energy	7
2.6.2	Hazardous materials	8
2.7	Faults	8
2.8	Preventing material damage	8
2.8.1	Overheating	8
<b>3</b>	<b>Description</b>	<b>9</b>
3.1	Function	9
3.2	Expert mode	10
3.2.1	Overview of features	10
3.3	Optional accessories	11
3.3.1	Upgrading of BADU Blue to BADU Blue Pro	11
3.3.2	Free chlorine measurement retrofitting	11
3.3.3	Salt water electrolysis retrofitting	11
3.3.4	Flocculation retrofitting	12
3.3.5	Further accessories	12
<b>4</b>	<b>Transport and intermediate storage</b>	<b>13</b>
4.1	Transport	13
4.2	Storage	13
4.2.1	Storage of pH/redox/chlorine electrodes	13
4.3	Return	13
<b>5</b>	<b>Installation</b>	<b>14</b>
5.1	Installation site	14
5.1.1	Installation location	14
5.1.2	Ventilation and aeration	14
5.1.3	Reserve space	14
5.2	Installation	14
5.2.1	Schematic connection diagram of BADU Blue and BADU Blue Pro	15
5.2.2	Schematic connection diagram for solar application via the main line	16
5.2.3	Schematic connection diagram for solar application via the secondary line	16
5.2.4	Upgrading to BADU Blue Pro	17
5.3	Electrical connection (Qualified specialist)	17
5.4	Circuit diagrams	19
5.4.1	Circuit diagram for power supply	19
5.4.2	Circuit diagram for HKR heat pump	19
5.4.3	Circuit diagram for heat exchanger	20
5.4.4	Circuit diagram for heat exchanger with boiler enabling	21
5.4.5	Circuit diagram for main solar collector line	21
5.4.6	Circuit diagram for secondary solar collector line	22
5.4.7	Circuit diagram for chlorine electrode	22

5.4.8	Circuit diagram for BADU Green filter pumps.....	23
5.4.9	Circuit diagram for FloProVS AC Zodiac.....	23
5.4.10	Circuit diagram for additional terminal box 1~.....	24
5.4.11	Circuit diagram for additional terminal box 3~.....	24
5.4.12	Circuit diagram for BADU Omni actuating drive.....	25
5.4.13	Circuit diagram for BADU Omni actuating drive with battery pack.....	25
5.4.14	Circuit diagram for BESGO valves.....	26
5.4.15	Circuit diagram for 1-Wire sensors.....	26
5.4.16	Circuit diagram for pressure sensor.....	27
5.4.17	Circuit diagram for flow transmitter measuring cell.....	27
5.4.18	Circuit diagram for SPECK counter swim unit.....	28
5.4.19	Circuit diagram for BADU JET Turbo/BADU JET Turbo Pro counter swim unit.....	29
5.4.20	Circuit diagram for skimmer level control.....	30
5.4.21	Circuit diagram for overflow vessel.....	30
5.4.22	Circuit diagram for hose dosing pumps.....	31
5.4.23	Circuit diagram for canister empty signal contact.....	31
5.4.24	Circuit diagram for eco operation with two actuating drives.....	32
5.4.25	Circuit diagram for Rollo Solar cover.....	32
5.4.26	Circuit diagram for Aquadeck cover.....	33
5.4.27	Circuit diagram for Grando cover.....	33
5.4.28	Circuit plan for Hugo Lahme piezo button.....	34
5.4.29	Circuit diagram for ASTRAL DMX (RGB).....	34
5.4.30	Circuit diagram for ASTRAL LumiPlus (RGB).....	35
5.4.31	Circuit diagram for Hugo Lahme.....	35
5.4.32	Circuit diagram for EVA with blue PCB.....	36
5.4.33	Circuit diagram for EVA with blue and green PCB.....	36
5.4.34	Circuit diagram for EVA with green PCB.....	37
5.4.35	Circuit diagram for Zodiac EXO or GenSalt OT.....	37
5.4.36	Circuit diagram for Aseko ASIN Salt.....	38
5.4.37	Circuit diagram for Sugar Valley or Salt Relax.....	39
5.5	Terminal description.....	40
5.6	LEDs on the board.....	45
<b>6</b>	<b>Commissioning/Decommissioning.....</b>	<b>46</b>
6.1	Establishing a network connection.....	46
6.1.1	Network connection via WiFi Direct Access.....	49
6.2	Assembly.....	49
6.2.1	Hose dosing pump installation (optional during retrofitting).....	49
6.2.2	Fitting hoses to the hose dosing pump.....	49
6.2.3	Fitting the set for the injection point and injection valve/male connector.....	51
6.2.4	Fitting the hose to the shut-off ball valve of the measuring cell and male connector.....	51
6.2.5	Fitting the measuring cell expansion kit.....	52
6.3	Preparation, installation and commissioning of electrodes.....	53
6.3.1	Preconditions for installation and commissioning.....	53
6.3.2	Preparation of electrodes for pH, redox and chlorine.....	53
6.3.3	Installing the electrodes.....	53
6.4	Configuration of switching rules.....	54
6.4.1	Switching rule for counter swim units.....	54
6.4.2	Testing the switching rules.....	55
6.4.3	Switching rule for BADU JET Turbo and BADU JET Turbo Pro.....	57
6.4.4	Testing the switching rules.....	58
6.5	Factory settings.....	60
6.6	Decommissioning/Overwintering.....	60

---

<b>7</b>	<b>Maintenance</b> .....	<b>61</b>
7.1	Maintenance schedule.....	61
7.1.1	Cleaning of electrodes for pH, redox and chlorine .....	61
7.1.2	Cleaning the sealing lip on the injection valve.....	61
7.1.3	Hose changing on the hose dosing pump .....	62
7.1.4	Cleaning the filter screen in the measuring cell connection .....	62
7.2	Calibration of electrodes (suspending agent).....	63
7.3	Service life .....	63
7.4	Warranty .....	63
<b>8</b>	<b>Disposal</b> .....	<b>64</b>
8.1.1	Disposal of pH/redox/chlorine electrodes .....	64
<b>9</b>	<b>Technical data</b> .....	<b>65</b>
9.1	Power consumption fuse protection .....	65
9.2	Terminals .....	65
<b>10</b>	<b>Index</b> .....	<b>66</b>

# 1 About this document

## 1.1 Using this manual

This manual is a component of the pump/unit. The pump/unit was manufactured and tested according to the generally accepted rules of technology. However, if the pump/unit is used incorrectly, not serviced enough or tampered with, danger to life and limb or material damage could result.

- ➔ Read the manual carefully before use.
- ➔ Keep the manual during the service life of the product.
- ➔ Provide access to the manual for operating and service personnel at all times.
- ➔ Pass the manual on to any future owners or operators of the product.

## 1.2 Target group

This manual is aimed both at qualified specialists and the end customer. Descriptions aimed only at qualified specialists are indicated accordingly (qualified specialist). This indication applies to the whole point. All other points are universally valid.

## 1.3 Other applicable documents

- Packing list
- BADU Blue operating instructions

### 1.3.1 Symbols and means of representation

Warnings are used in this manual to warn you of personal injury.

- ➔ Always read and observe warnings.

#### **DANGER**

Danger for people.  
Non-observance results in death or serious injury.

#### **WARNING**

Danger for people.  
Non-observance can result in death or serious injury.

#### **CAUTION**

Danger for people.  
Non-observance can result in light to moderate injury.

#### **NOTICE**

Notes to prevent material damage, for better understanding or to optimise the workflow.

Important information and technical notes are specially marked to explain correct operation.

Symbol	Meaning
➔	Instructions for a one-step action.
1.	Directions for a multi-step action.
2.	➔ Observe the order of the steps.

## 2 Safety

### 2.1 Intended use

BADU Blue is a pool control system used exclusively for control in both private and hotel pools. Use for other appropriate tasks is also possible, but should be clarified with the manufacturer.

Observing the following information is vital for intended use:

- This manual
- Supplier documentation

The pump/unit may only be operated within the application limits, as specified in this manual.

Any other use or use exceeding this is **not** an intended use and must first be authorised by the manufacturer/supplier.

### 2.2 Personnel qualification

This unit can be used by **children** aged 8 and over as well as by persons with limited physical, sensory or mental capacity or by people with a lack of experience or knowledge, provided that they are supervised or have been instructed in the safe use of the unit and understand the resulting dangers. **Children** may not play with the unit. Cleaning and **user maintenance** may not be carried out by **children** without supervision.

- ➔ Ensure that the following work is only performed by trained professionals with the following qualifications:
  - Work (e.g. on probes or electrodes): qualified mechanics.
  - For work on the electric system: electricians.
- ➔ Ensure that the following requirements are fulfilled:
  - Personnel who do not yet have the appropriate qualifications must receive the required training before being allowed to work on the system.
  - The personnels' responsibilities, for example working on the product, electric equipment or hydraulic systems, are set based on their qualifications and the job description.
  - The personnel have read this manual and understand the necessary working steps.

### 2.3 Safety regulations

The operator of the system is responsible for the adherence to all relevant statutory regulations and guidelines.

- ➔ Observe the following regulations when using the pump/unit:
  - This manual
  - Warning and information signs on the product
  - The valid national regulations for accident prevention
  - The internal occupational, operational and safety regulations of the operator

### 2.4 Structural modifications and spare parts

Alterations or modifications can affect operational safety.

- ➔ Never modify or alter the unit without the manufacturer's permission.
- ➔ Only use original spare parts and accessories authorised by the manufacturer.

### 2.5 Signs

- ➔ Ensure that all the signs on the complete unit remain legible.

### 2.6 Residual risk

#### 2.6.1 Electrical energy

There is an increased risk of electric shock when working on the electrical system due to the humid environment.

Electrical protective earth conductors which were not installed correctly can also result in electric shocks, for example due to oxidation or cable breakage.

- ➔ Observe VDE and utility company regulations.
- ➔ Build swimming pools and their protection according to DIN VDE 0100-702.
- ➔ Before working on the electrical system, take the following measures:
  - Disconnect system from the power supply.
  - Attach a warning sign: "Do not switch on! The system is being worked on."
  - Ensure that the system is free of voltage.
- ➔ Check the electrical system regularly to ensure it is in proper working condition.

### 2.6.2 Hazardous materials

- Ensure that leaks of dangerous pumped fluids/gases are led away without endangering people or the environment.
- The device must be completely decontaminated during disassembly.

### 2.7 Faults

- In case of a fault, immediately switch the pump off and remove it from operation.
- Have all faults repaired immediately.

### 2.8 Preventing material damage

#### 2.8.1 Overheating

If the set temperature values are too high, this can lead to scalding and damage to the unit.

- Provide scalding protection on site.



### 3 Description

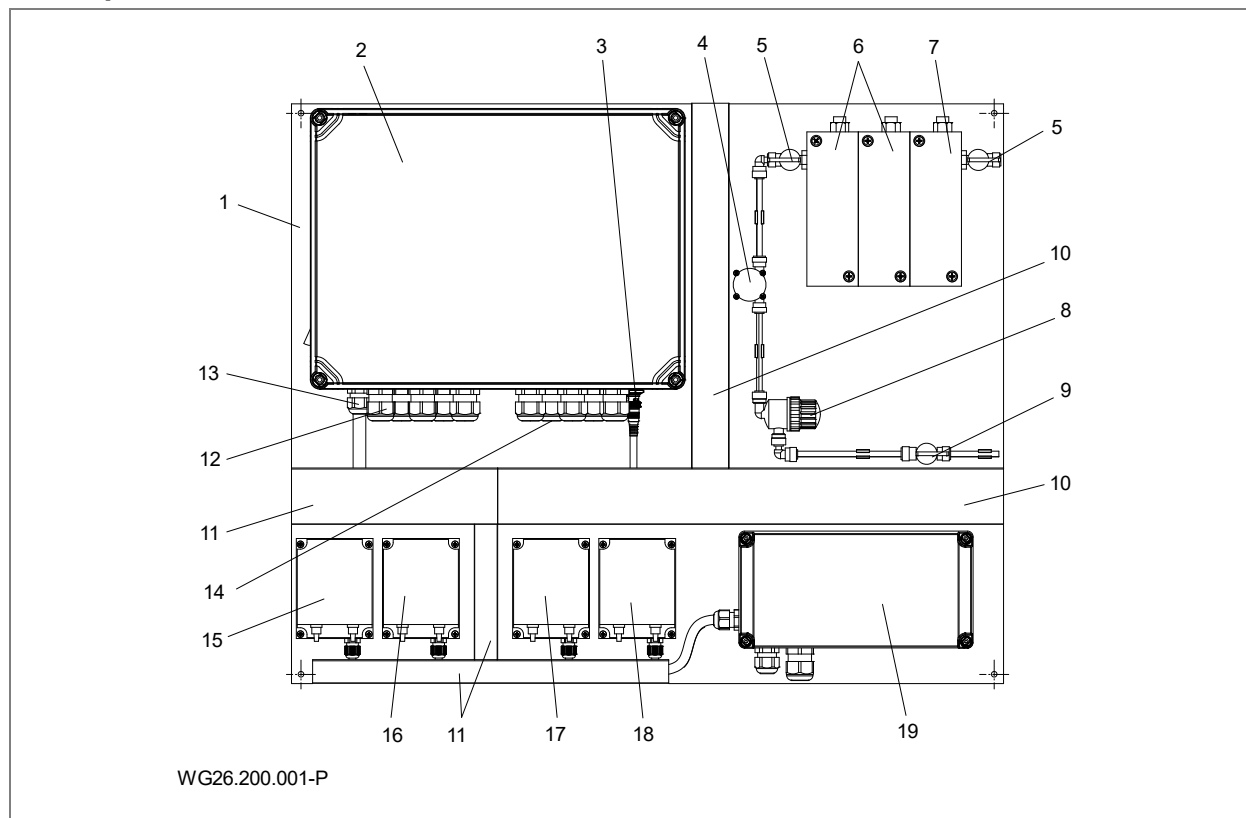


Fig. 1

1	Mounting board	11	Cable channel 0-24 V
2	Terminal boxes	12	Cable channel 230 V
3	Connection for redox and pH electrode	13	Cable gland for 230 V
4	Flow transmitter (impeller/Hall sensor)	14	Connection for 230 V power supply
5	Shut-off ball valve (measuring cell)	15	Cable gland for 0-24 V
6	Redox (ORP) and pH electrode	16	Dosing pump for chlorine
7	Chlorine electrode *	17	Dosing pump for pH minus
8	Shut-off ball valve (measuring cell)	18	Dosing pump for flocculant *
9	Filter with screen	19	Dosing pump for pH plus * (optional)
10	Ball valve for inflow probe setting	20	Additional terminal box for filter pump 1~/3~ (optional)

\* BADU Blue Pro version

#### 3.1 Function

BADU Blue is a pool control which is integrated in the network. It has been developed as a system that can be adapted to many different pool installations and a variety of technical equipment.

The control system provides functions that are not used in the pool itself. Unused characteristics are hidden to keep the user interface as clear as possible.

The control system is equipped with inline assistants that make extended searching in the operating instructions unnecessary. Initial commissioning of the control system is achieved using a configurator. Parameters that are recorded, evaluated and appropriately regulated and can be displayed and modified using a web app on a smartphone, tablet or PC. This can be displayed on the home network or through remote accessing. The pool manufacturer can also administer the control system via a backend.

#### NOTICE

The control system is subject to continuous further development. Consequently, new or improved functions and developments may not be described in these instructions. Please refer to the [www.speck-pumps.de](http://www.speck-pumps.de) website for the latest version of the installation instructions, or download it through the QR code on the board at the top right.

### 3.2 Expert mode

BADU Blue has two user levels for the logged in user: "Normal view" and "eXpert mode". The configuration of the normal view has a reduced scope and partially deactivated options. eXpert mode has a full range of functions.



This symbol must be visible in the corner at the top right to access eXpert mode. A window opens where the PIN can be entered.

The eXpert PIN in the factory settings is "1909". The PIN can be changed to another sequence of numbers and letters.

➔ Observe chapter 4.2.2 in the operating instructions.

#### 3.2.1 Overview of features

Features	BADU Blue	BADU Blue Pro
Control of water disinfection through		
> redox measurement	+	+
> free chlorine measurement	-	+
> salt electrolysis	-	+
Control of pH value		
> pH measurement with pH minus dosing	+	+
> pH measurement with pH plus dosing	+	+
Flocculant dosing system	-	+
Control of filter pump		
> variable	+	+
> unregulated	+	+
> automatic, runtime reduction depends on water temperature	+	+
> frost protection function	+	+
> filter pressure monitor (pressure sensor accessory)	+	+
> circulation monitor	+	+
Heating/heat pump/heat exchanger control	+	+
Control of suction via floor drain (eco) or overflow gutter/skimmer	+	+
Control of solar panel system in combination with the heat pump or heat exchanger is possible		
> solar panel frost protection function	+	+
> solar panel forced flushing	+	+
> solar panel priority circuit	+	+
Backwash control		
> BADU Omni actuating drive	+	+
> rod valve (backwashing and clean flushing possible)	+	+
Water level control		
> skimmer (float switch/conductive sensor)	+	+
> overflow vessel control (with level sensor/exact filling level measurement)	+	+
> safety switch-off/water refilling monitor	+	+
Pool lighting control		
> 230 V (with colour change through voltage interruption), time programs or manual operation	+	+
> DMX (24 channels, up to 12 light scenes can be configured), time programs or manual operation	+	+
Control of attractions (5+3(reserved for possible use of cover control) ext. relay)	-	+
Cover control	-	+
Connection of additional analog sensors with display on dashboard (1x 0-10 V and 2x 4-20 mA)	+	+
PV surplus (forced switching of filter pump/heat pump)	+	+
Temperature control with up to 12 sensors	+	+

Features	BADU Blue	BADU Blue Pro
Freely configurable switching rules (time, temperature and analog controlled)	-	+
7 digital inputs for actuating the ext. relays	-	+
Connection of 3 LED piezo buttons in conjunction with digital inputs	-	+
Connection of 4 empty signal contacts (suction lances) for container	+	+
Integration of weather interface	+	+
Backup function	+	+
Software updates through simple, independent installation	+	+
Support interface	+	+
Configuration-free remote access	+	+
Configuration assistant during initial commissioning	+	+
User notification by email, push notification (Pushover APP), http request to external systems, Telegram	+	+
System-wide log files, flow statistics and runtime overviews	+	+
Simple integration of measured valued in home automation systems (Jason API)	+	+
Inline assistant for direct access to operating instructions	+	+
Network based	+	+
User interface		
> dark/bright layout	+	+
> 5 languages available	+	+
> operating system and device-independent, browser-based access via intrasystem web server (no app installation required)	+	+
> optional free remote access via cloud server	+	+
Expert mode: Second user level with PIN code for user interface	+	+
WiFi direct access function	+	+

### 3.3 Optional accessories

A variety of optional accessories are available for BADU Blue that can be retrofitted at any time.

#### 3.3.1 Upgrading of BADU Blue to BADU Blue Pro

BADU Blue can be upgraded to BADU Blue Pro at any time. The following additional options are available for this purpose.

- Free chlorine measurement
- Salt water electrolysis
- Flocculant dosing system
- Cover control
- Additional 8 relay outputs
- Use of switching rules (time, temperature and analog controlled)
- Use of 7 digital inputs for controlling external relays
- Connection of 3 LED piezo buttons in conjunction with digital inputs

The following accessories are required for upgrading:

- BADU Blue relay expansion module (article no. 2716500552)
- BADU Blue potentiostat module (article no. 2716500525)
- BADU Blue hose dosing pump (article no. 2716500555)
- Measuring cell expansion kit (article no. 2716500512)
- Potentiostatic chlorine electrode (article no. 2716500537)

#### 3.3.2 Free chlorine measurement retrofitting

The following components are required for chlorine retrofitting:

- BADU Blue potentiostat module (article no. 2716500525)
- Potentiostatic chlorine electrode (article no. 2716500537)
- Measuring cell expansion kit (article no. 2716500512)

#### 3.3.3 Salt water electrolysis retrofitting

The following components are required for salt water electrolysis retrofitting:

- BADU Blue relay expansion module (article no. 2716500552)

- Redox plastic electrode gold, 1 m cable (article no. 22716500535)

The following components are recommended for salt water electrolysis retrofitting:

- Free chlorine measurement retrofitting

### NOTICE

Use of additional chlorine measurement is generally recommended where inline electrolysis is employed.

---

#### 3.3.4 Flocculation retrofitting

The following components are required for flocculation retrofitting:

- BADU Blue relay expansion module (article no. 2716500552)
- BADU Blue hose pump (article no. 2716500555)

#### 3.3.5 Further accessories

- 1-Wire sensor 3 m, 5 m, 10 m (article no. 2716500513, 514, 515)
- Flow transmitter (article no. 2716500516)
- Pressure sensor (article no. 2716500517)
- Lever sensor (article no. 2716500518)
- Additional terminal box 3~, 1.1 – 1.6 A (article no. 2716500571)
- Additional terminal box 3~, 1.4 – 2.0 A (article no. 2716500572)
- Additional terminal box 3~, 1.8 – 2.5 A (article no. 2716500573)
- Additional terminal box 3~, 2.2 – 3.2 A (article no. 2716500574)
- Additional terminal box 3~, 2.8 – 4.0 A (article no. 2716500575)
- Additional terminal box 3~, 3.5 – 5.0 A (article no. 2716500576)
- Additional terminal box 1~, 1.8 – 2.5 A (article no. 2716500583)
- Additional terminal box 1~, 2.2 – 3.2 A (article no. 2716500584)
- Additional terminal box 1~, 2.8 – 4.0 A (article no. 2716500585)
- Additional terminal box 1~, 3.5 – 5.0 A (article no. 2716500586)
- pH glass electrode (article no. 2716500534)
- Redox plastic electrode gold (article no. 2716500535)
- Redox glass electrode platinum (article no. 2716500536)
- Potentiostatic chlorine electrode (article no. 2716500537)
- Buffer solution set (article no. 2716500554)
- Set for injection point and sample water (article no. 2716500556)
- BADU Omni actuating drive with R41/3 A (article no. 2606100041)
- BADU Omni actuating drive with R51/3 A (article no. 2606100051)
- PVC holder temperature and adhesive drilling template flange (article no. 2606402119)
- PE hose 3 m, 5 m, 10 m (article no. 2716500590, 591, 5992)
- Conductive sensor pins 7.5 m, 25 m, 40 m (article no. 2606402161, 171, 185)
- Peristaltic hose for hose pump (article no. 2716500545)
- Injection valve for hose pump (article no. 2716500546)
- Snubber, wired (article no. 2716500539)
- Option: Battery pack and converter (article no. 2606402157)
- BADU Blue terminal box, complete (article no. 2716500561)
- BDAU Blue Pro terminal box, complete (article no. 2716500562)
- Solenoid valve 230 V (article no. 2716070003)
- BNR 300 level sensor (article no. 2716090005)

## 4 Transport and intermediate storage

### 4.1 Transport

- ➔ Check the delivery conditions:
  - Check the packaging for transport damage.
  - Determine damages, document them with photographs and contact the distributor.

### 4.2 Storage

#### NOTICE

Corrosion of the PCB and oxidation of electric contacts due to storage in moist air and varying temperatures.

- ➔ Store the control system in a dry place at a constant temperature if possible.

#### NOTICE

PCB breakage due to mechanical damage due to falling, tilting or breaking.

- ➔ Control failure following commissioning.

#### 4.2.1 Storage of pH/redox/chlorine electrodes

- Slow ageing occurs during the storage period, which is why storage is limited.
- Only store electrodes standing vertically.
- Only store electrodes in 3mol calcium chloride storage solution in the wetting cap provided.
- In the case of a longer storage period, the 3mol calcium chloride storage solution should be replaced after 6 months at the latest.

### 4.3 Return

- ➔ Measuring cells must be emptied.
- ➔ Remove the sensors and store in the storage solution.
- ➔ Ship the control system well padded on a pallet.

## 5 Installation

### 5.1 Installation site

#### 5.1.1 Installation location

The installation location must be easily accessible, dry and well ventilated. Individual control components must also be accessible. The installation location should meet the following requirements:

- Level ground
- Install at eye level where possible.
- Do not install the control system near moisture.
- Cables must be laid free of kinks.
- Avoid heat radiation, sunlight, frost and damp.
- The installation location should be as close to the water sampling point and return point.
- Installation on large consumers such as motors, counter swim units, heating systems and sauna heaters should be avoided.
- Roofing should be provided so that the control system is not exposed to moisture.
- A firm network connection is an imperative requirement.

#### 5.1.2 Ventilation and aeration

➔ Ensure sufficient ventilation and aeration. The ventilation and aeration must ensure the following conditions:

- Prevention of condensation.
- Limitation of ambient temperature from -10 °C to maximum 40 °C

#### 5.1.3 Reserve space

➔ Measure the reserve space so that the unit can be easily maintained.

### 5.2 Installation

Only secure the control system to the board on the wall using the available holes. Installation above or below the water level is possible.

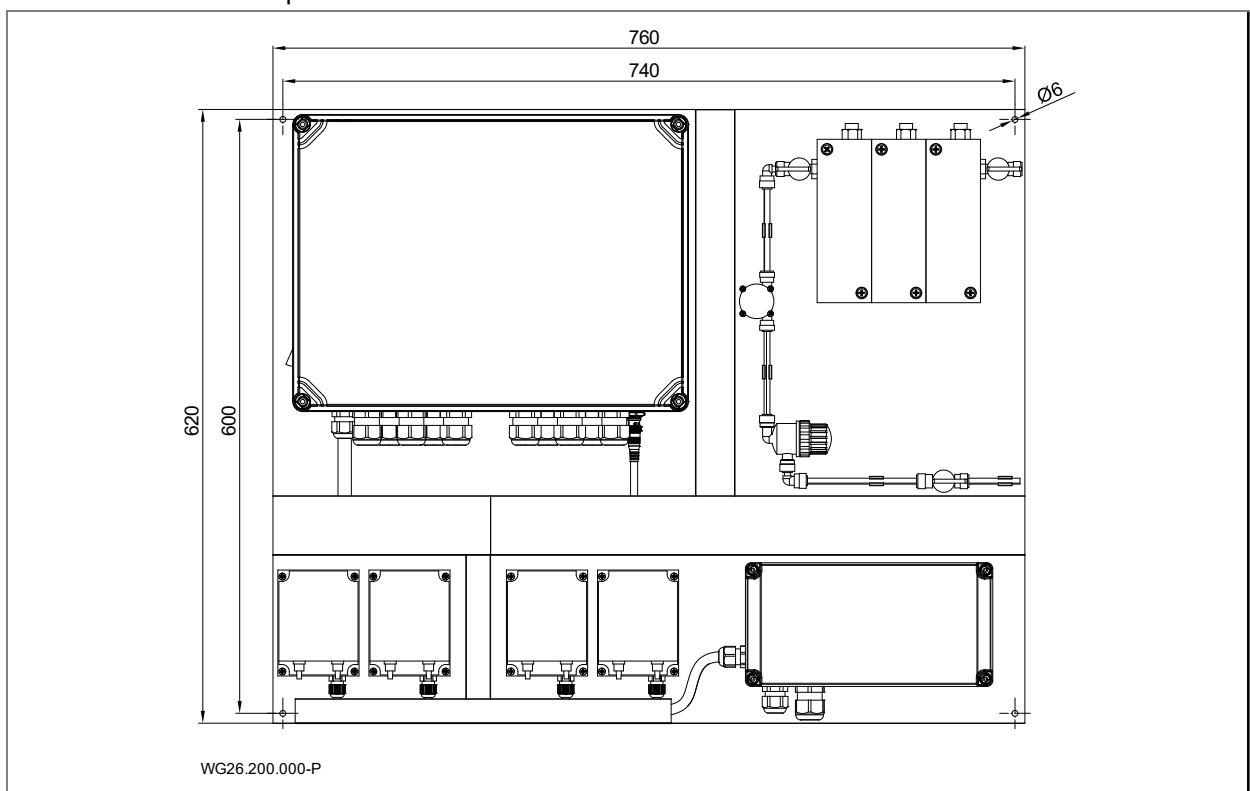


Fig. 2

5.2.1 Schematic connection diagram of BADU Blue and BADU Blue Pro

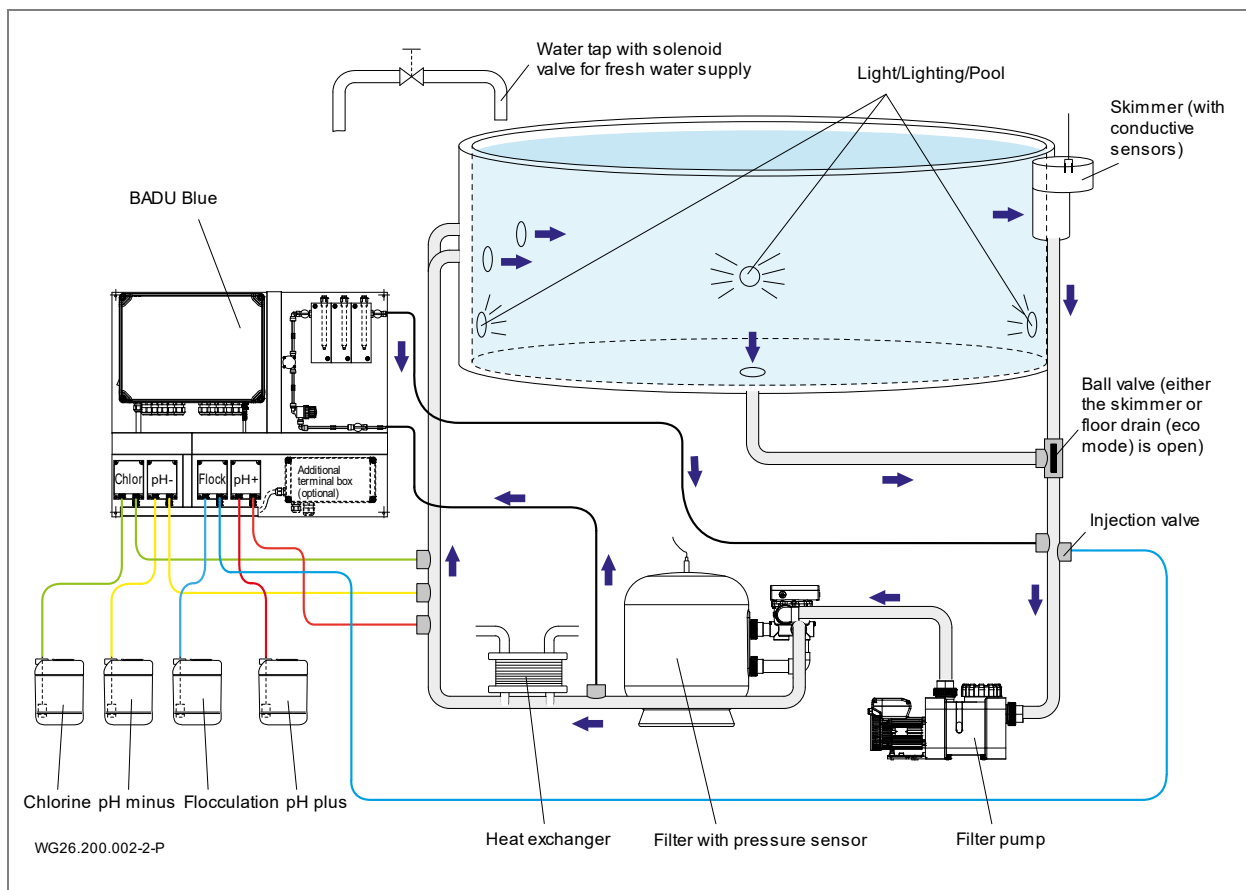


Fig. 3

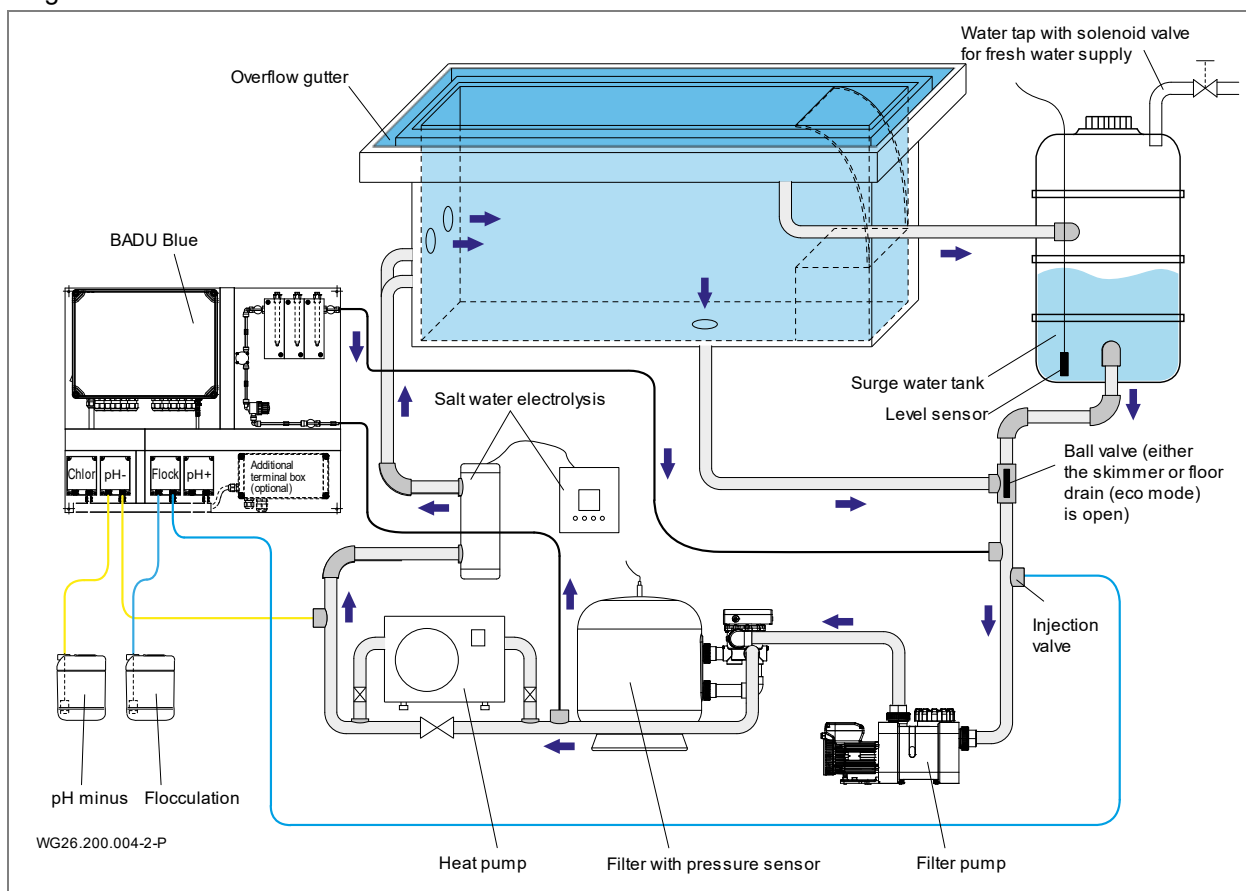


Fig. 4

5.2.2 Schematic connection diagram for solar application via the main line

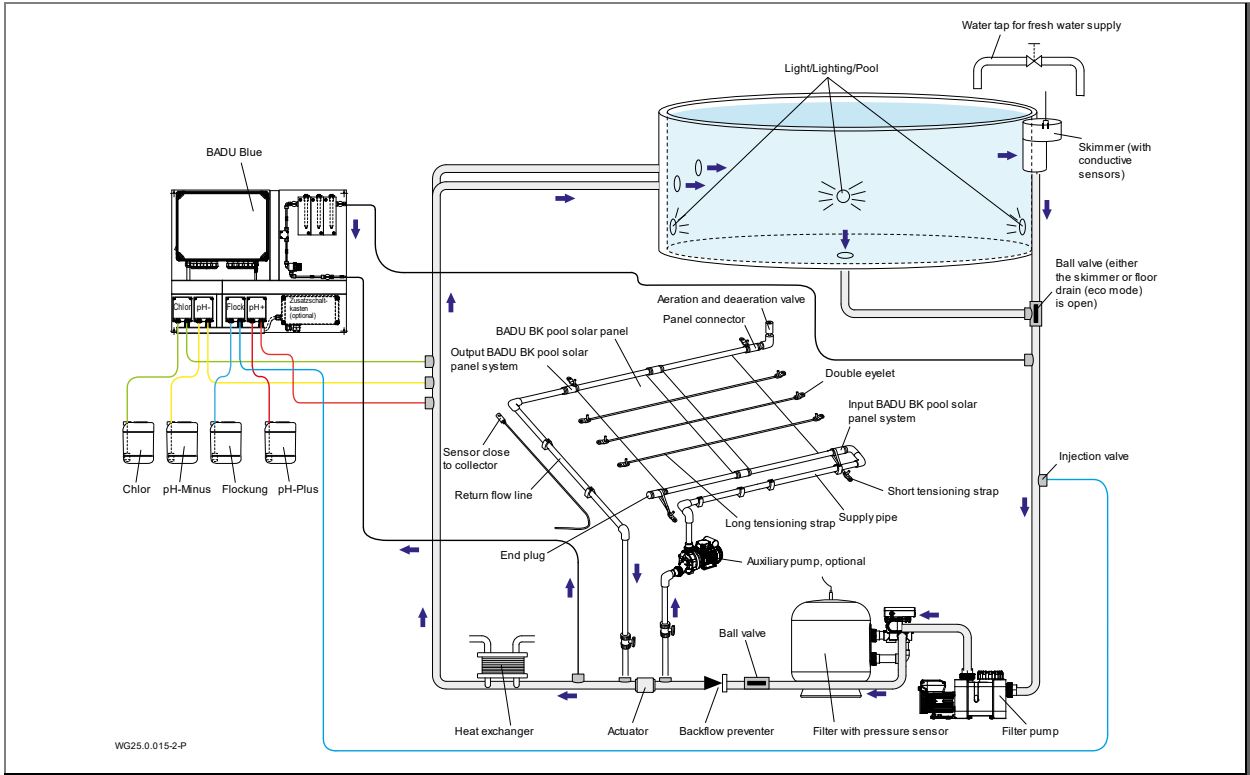


Fig. 5

5.2.3 Schematic connection diagram for solar application via the secondary line

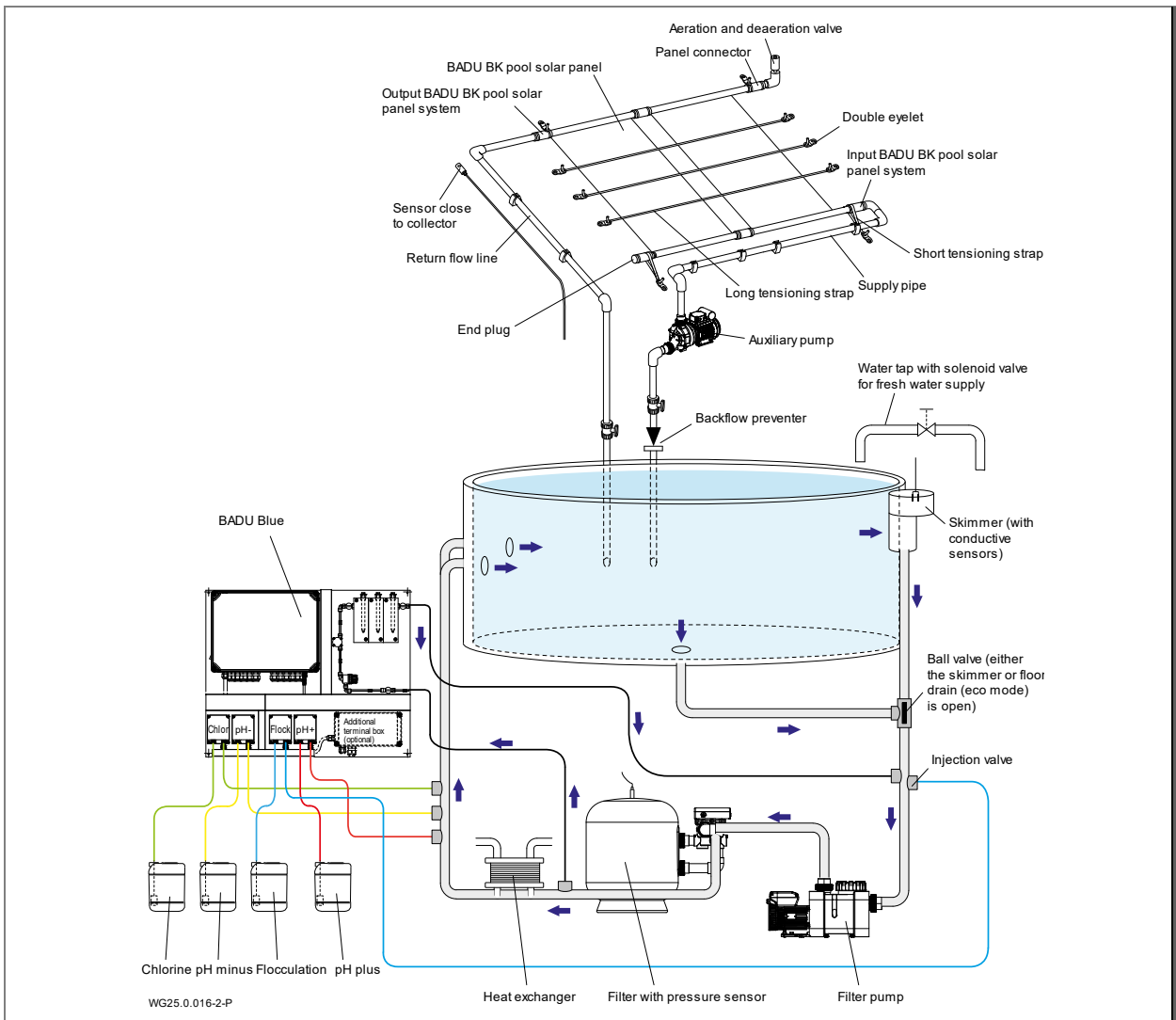


Fig. 6



### 5.2.4 Upgrading to BADU Blue Pro

BADU Blue can be expanded at any time with the required accessories to achieve the BADU Blue Pro version.

The PCB relay expansion module (2716500526) and potentiostat (2716500525) must be fitted for this purpose.

#### Assembly:

1. Unscrew the nuts on top from the distance bolts.
2. Unscrew the screws at the bottom from the distance bolts.
3. Fit the PCB to the two upper bolts.
  - ➔ Position the connection of relay expansion module (RE)/potentiostat to the carrier board (CB) accurately when fitting.
4. Screw the nuts onto the bolts.
5. Screw the screws into the thread provided.
6. Hand tighten the nuts and screws.
7. Clip the cable from the relay expansion module to the carrier board.

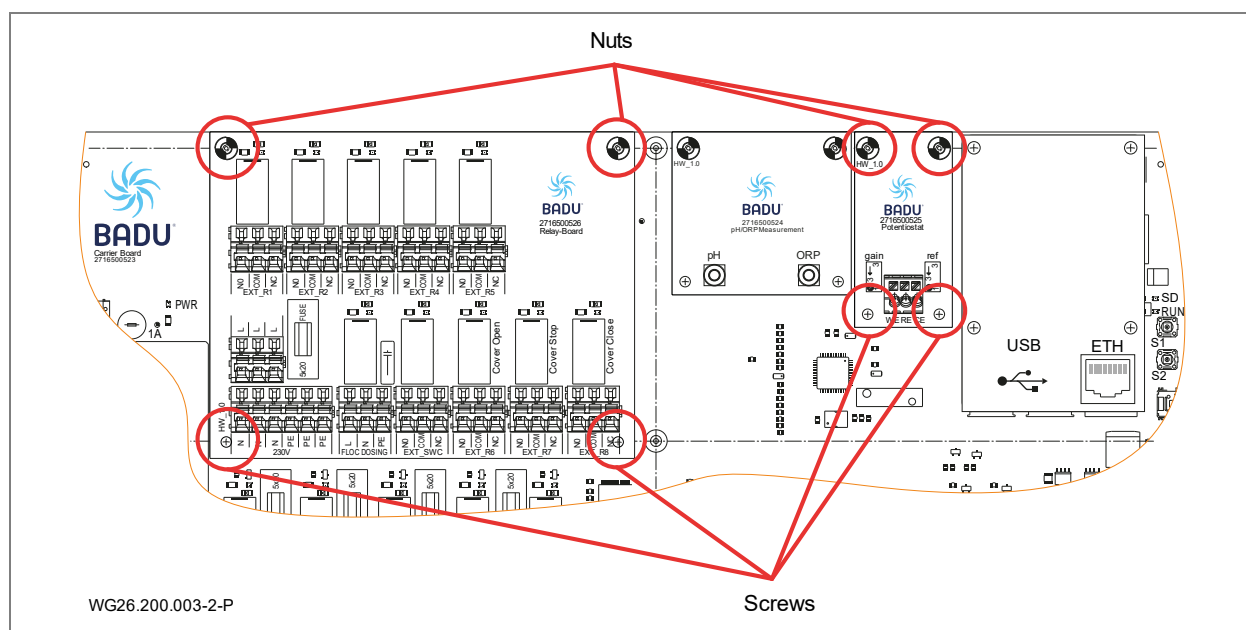


Fig. 7

### 5.3 Electrical connection (Qualified specialist)

#### ⚠ WARNING

Risk of electric shock due to incomplete assembly!

- ➔ Only apply power when the housing is closed with the transparent lid.

#### ⚠ WARNING

Risk of electric shock due to incorrect connections!

- ➔ Electrical connections must always be carried out by authorised specialists.
- ➔ Observe VDE and utility company regulations.
- ➔ Install pumps for swimming pools and their protection according to DIN VDE 0100-702.

#### ⚠ WARNING

Risk of electric shock due to electric current.

The control system is energised as soon as voltage is applied to the power input. Pumps or functions can be activated or switched.

- ➔ Do not touch energised parts!

### WARNING

Risk of electric shock, risk of short circuiting or damage due to short circuiting on components due to incorrect installation.

- Only entrust installation of electric connections to a qualified electrician.
- Do not switch/change connections.
- Note circuit diagram suggestions.

### WARNING

Risk of electric shock and fire and smoke hazard due to inadequate electric fuse protection.

- Have an electrician check the fuse protection.
- Note circuit diagram suggestions.

### WARNING

Fire and smoke hazard due to incorrect operating voltage range on relay expansion module or electric motor components (e.g. 230 V relay instead of 24 V).

- Only entrust installation to skilled electrical personnel.
- Have a qualified electrician check the components used.
- Separate 230 V and 24 V with a plastic angle piece on the board.
- Note circuit diagram suggestions.

### WARNING

Risk of electric shock or failure of sensors (incorrect induction) through switching/changing of cable channels.

- Have a qualified electrician check the components/installation used.
- Install cable channel in two colours (230 V – blue, to max. 24 V – grey)

### NOTICE

- Different coloured cable channels must be used.
- Low voltage and sensor cables (analog, digital, electrodes, piezo buttons and, most importantly, cover control cable) must be laid separately from 230 V cables. The cable channel for 230 V is blue, while the cable channel for 0-24 V is grey.
- Install a disconnecting device with at least a 3 mm contact gap per pole to interrupt the power supply.
- Protect power supply with a ground fault circuit interrupter, nominal residual current  $I_{FN} \leq 30$  mA.
- Only use suitable pipe types according to regional regulations.
- Adjust minimum diameter of the electrical pipes to accommodate the motor output and pipe length.
- If hazardous situations can occur, provide an emergency off switch according to DIN EN 809. The builder/operator must make a decision according to this standard.
- Connection by customer:
  - Lines must be protected and laid in accordance with the pertinent standards and local conditions (line length, ambient temperature, type of laying, etc.). These are DIN VDE 0100 Part 400 and DIN VDE 0100 Part 500 i.a. the rated flow of the pump must also be observed.
  - Short circuit breaking capacity  $I_{CN} \leq 6$  kA
- Mains power supply (L,N) 230 V, 50/60 Hz (continuous voltage)

## 5.4 Circuit diagrams

### 5.4.1 Circuit diagram for power supply

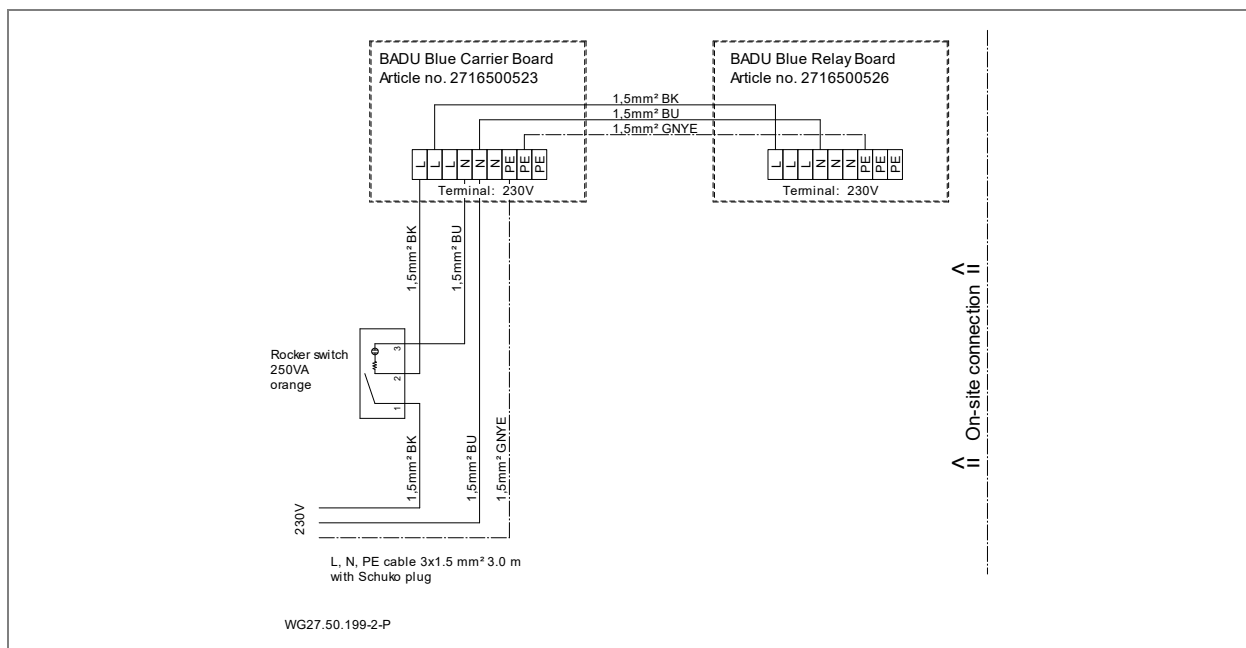


Fig. 8

### 5.4.2 Circuit diagram for HKR heat pump

**⚠ CAUTION**

Only entrust the layout and installation of the heat pump to skilled personnel!

**NOTICE**

- ➔ The bridge at terminal 5 and 6 must be removed from the heat pump PCB.
- ➔ OFF is indicated on the display when terminal 5 and 6 is open.
- ➔ Ensure that the nominal temperature of the heat pump is set to a freely selected maximum pool water temperature. Any exceeding of this temperature is impossible with the BADU Blue heating control system!

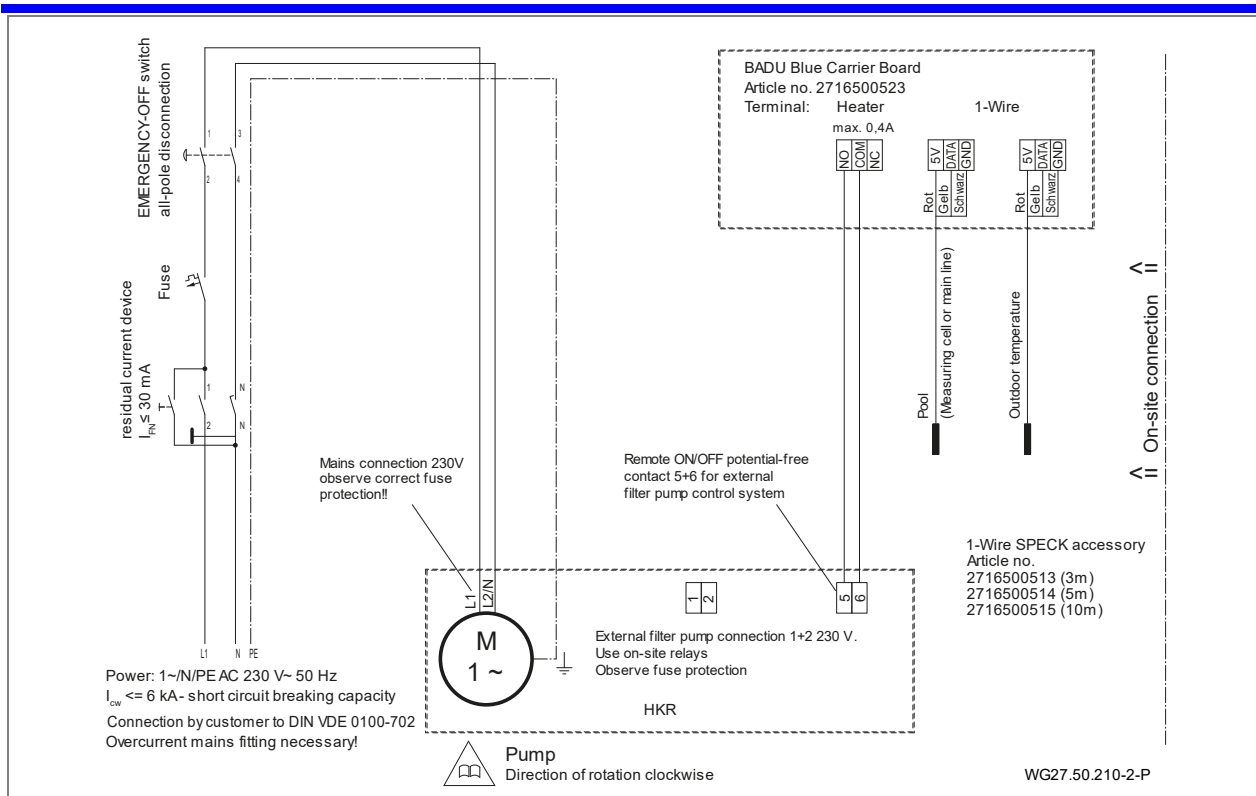


Fig. 9

5.4.3 Circuit diagram for heat exchanger

**⚠ WARNING**

Risk of scalding or electric shock.

➔ Only entrust the layout and installation of the heating pump for the heat exchanger to skilled personnel.

**NOTICE**

➔ The heating pump and heat exchanger must be available on site!

➔ Additional overtemperature protection must be available on site for the heat exchanger.

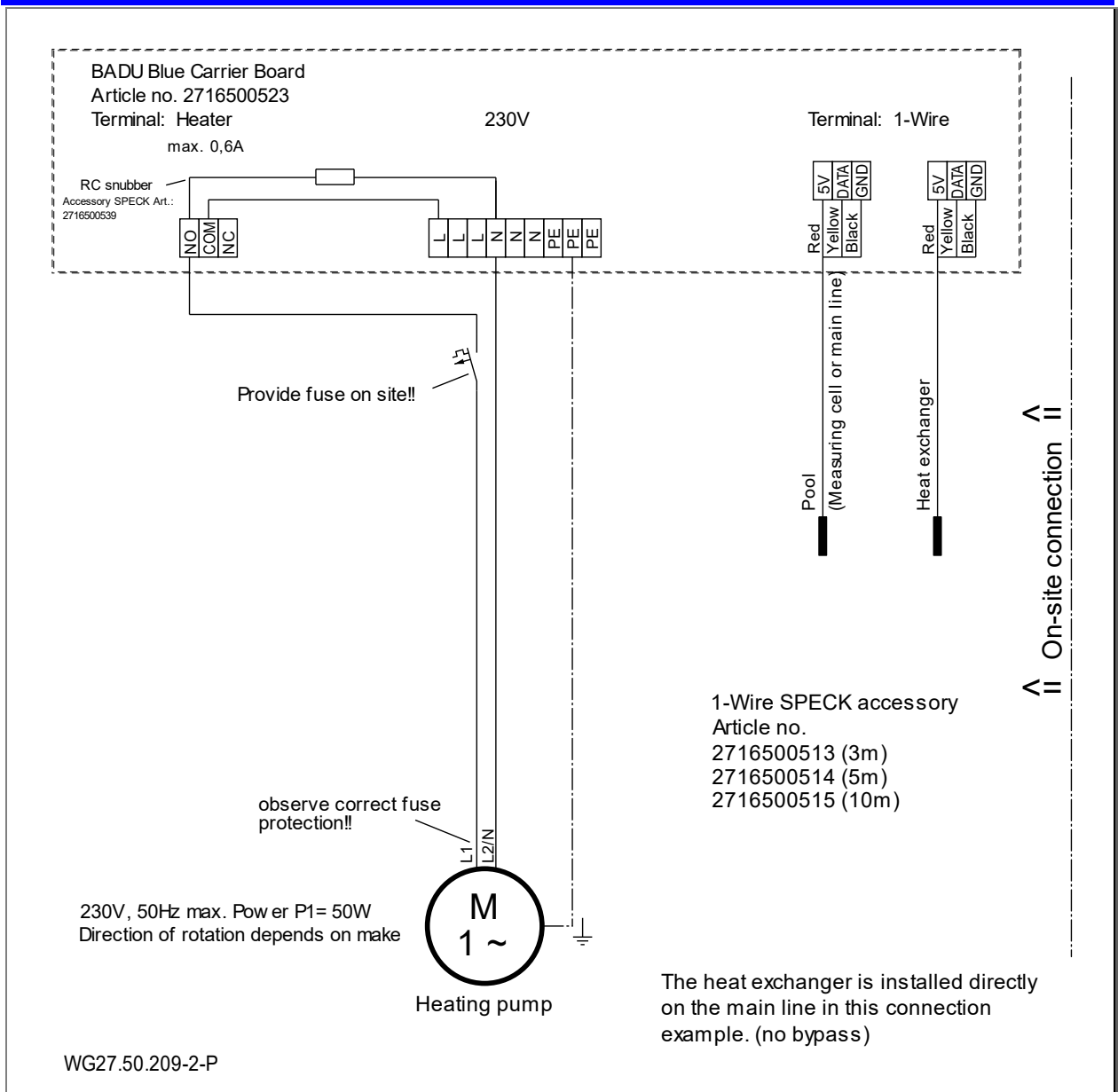


Fig. 10

5.4.4 Circuit diagram for heat exchanger with boiler enabling

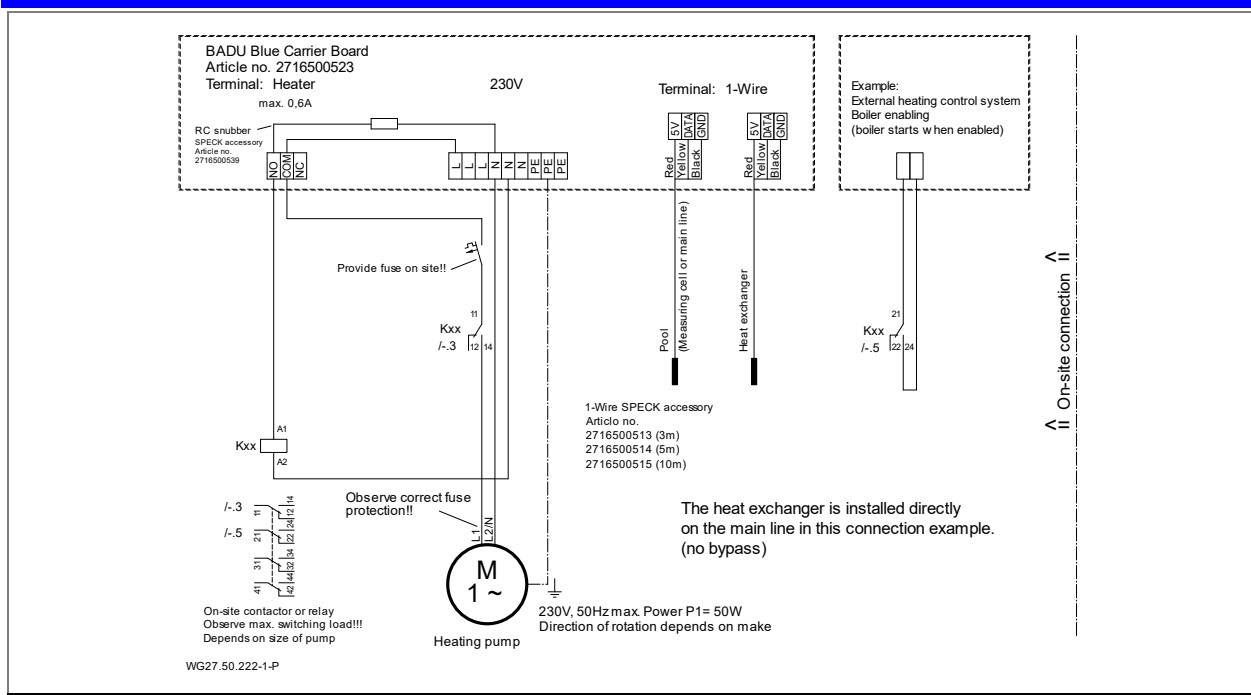
**WARNING**

Risk of scalding and electric shock.

- ➔ Only entrust the layout and installation of the heating pump for the heat exchanger to skilled personnel.

**NOTICE**

- ➔ The heating pump and heat exchanger must be available on site.
- ➔ Additional overtemperature protection must be available on site for the heat exchanger.

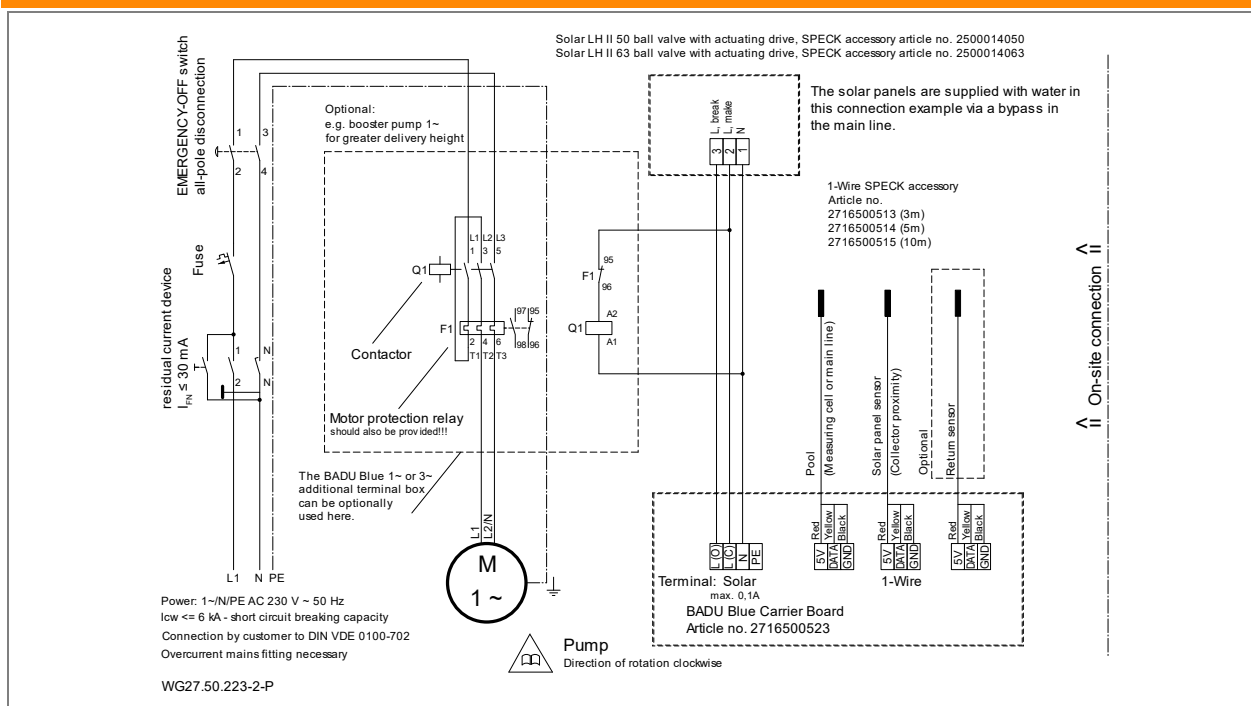


5.4.5 Circuit diagram for main solar collector line

**WARNING**

Risk of scalding and electric shock.

- ➔ Only entrust the layout and installation of solar collectors to skilled personnel.



5.4.6 Circuit diagram for secondary solar collector line

**⚠ WARNING**

Risk of scalding and electric shock.

➔ Only entrust the layout and installation of solar collectors to skilled personnel.

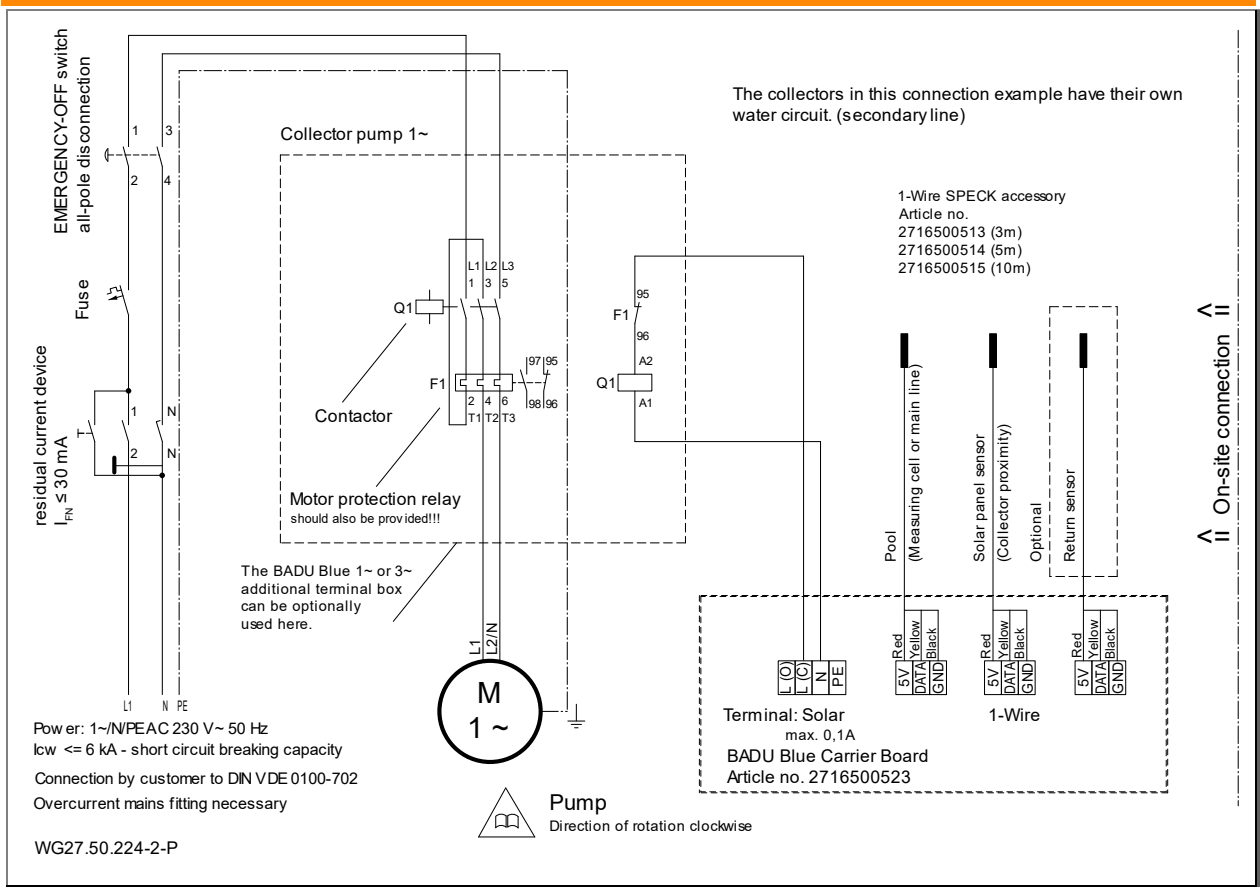


Fig. 13

5.4.7 Circuit diagram for chlorine electrode

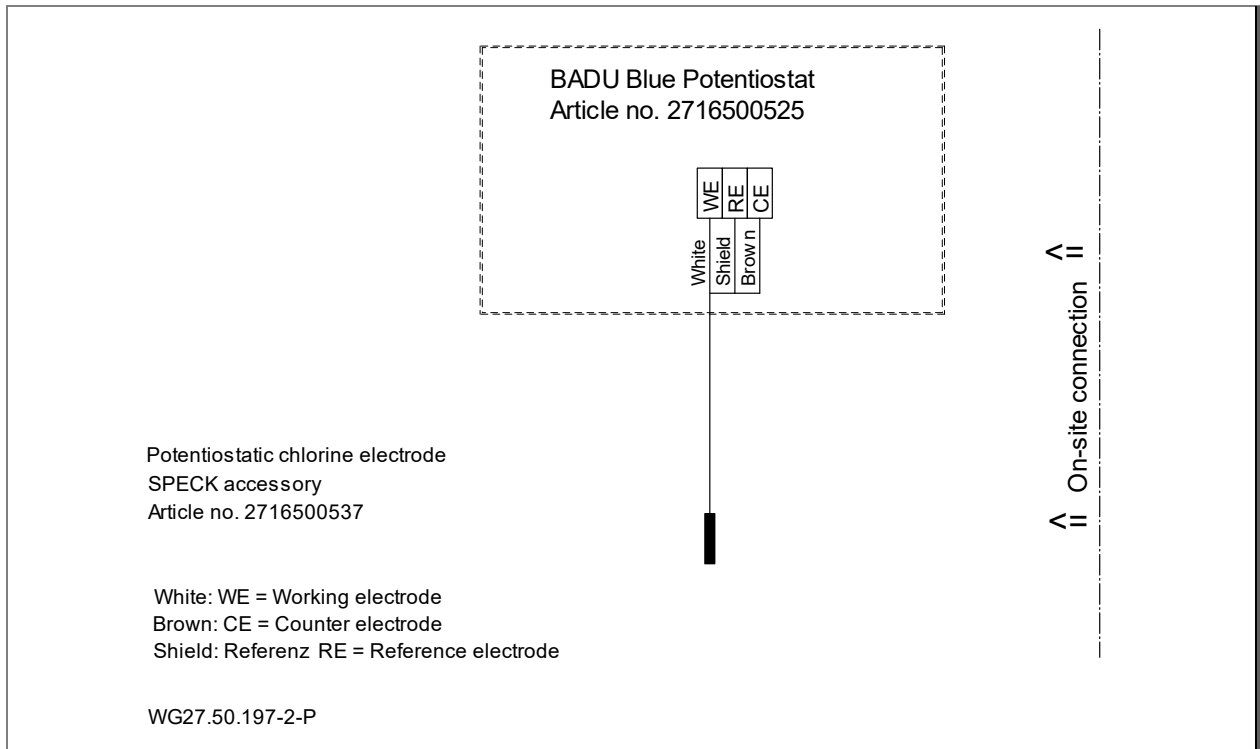


Fig. 14

5.4.8 Circuit diagram for BADU Green filter pumps

**NOTICE**

The pump should be switched on and off using the control cable (potential-free contacts) provided for this purpose.

**NOTICE**

The colours of the cables for N1, N2 and N3 may differ for other motor types.

➔ Observe the pump data sheet for the respective pump.

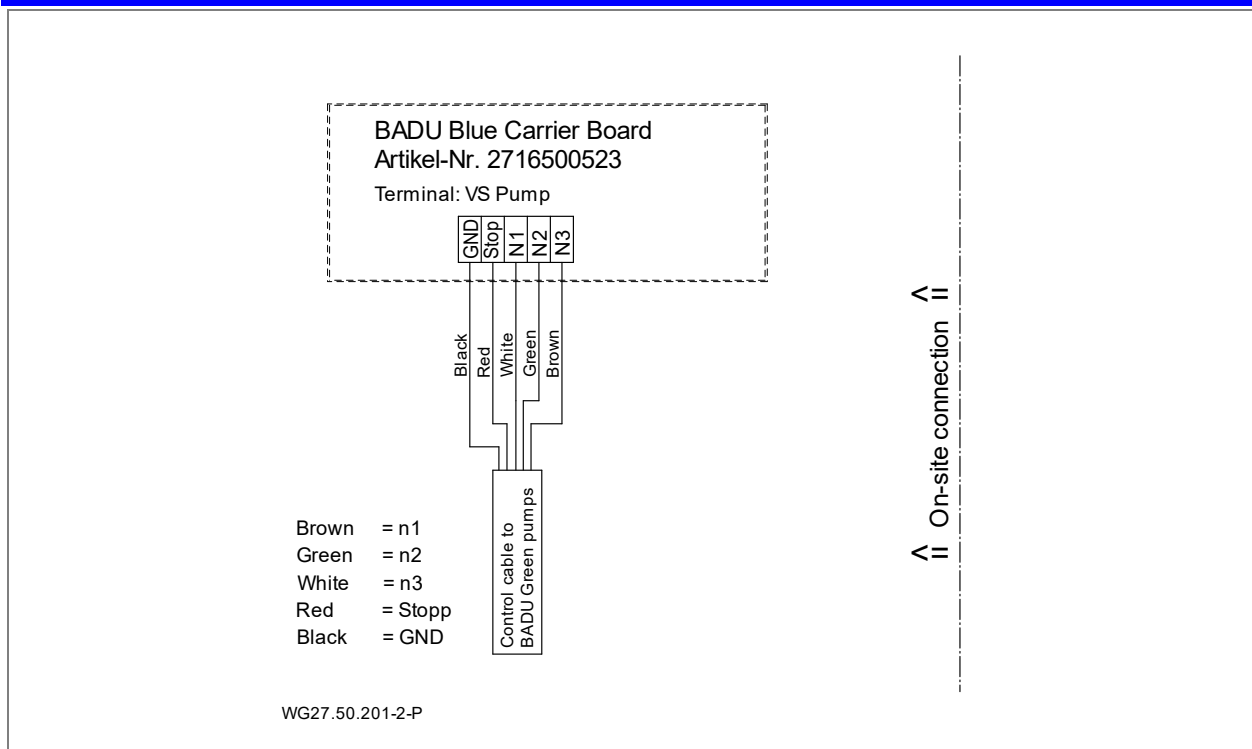


Fig. 15

5.4.9 Circuit diagram for FloProVS AC Zodiac

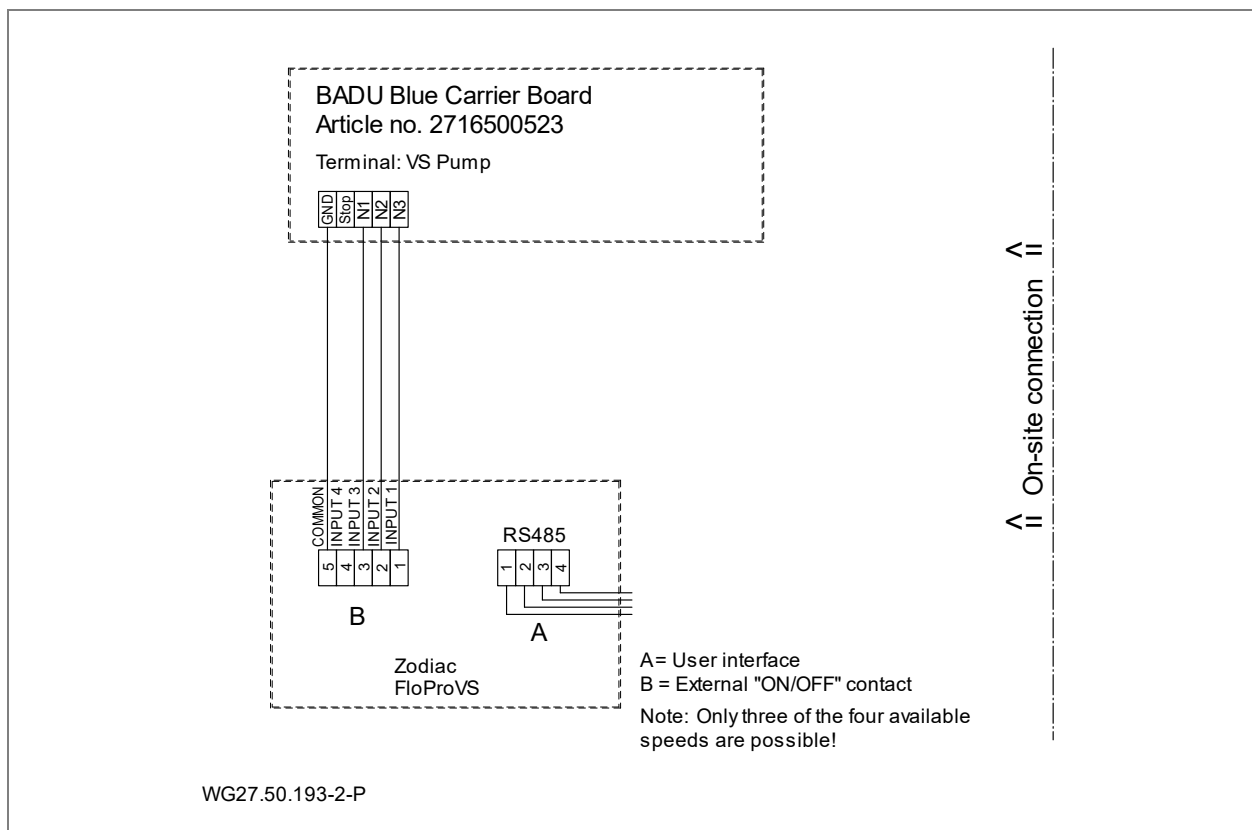


Fig. 16

5.4.10 Circuit diagram for additional terminal box 1~

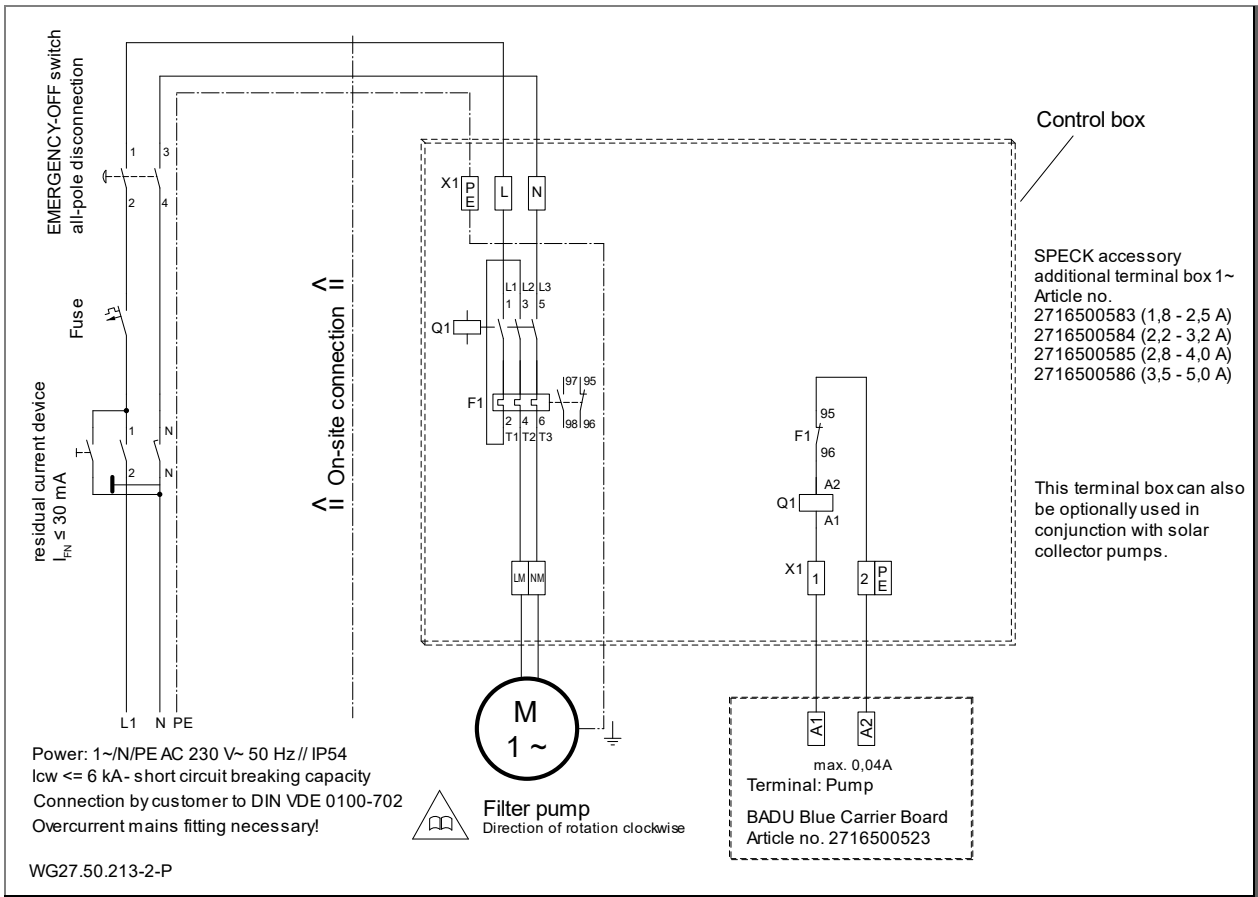


Fig. 17

5.4.11 Circuit diagram for additional terminal box 3~

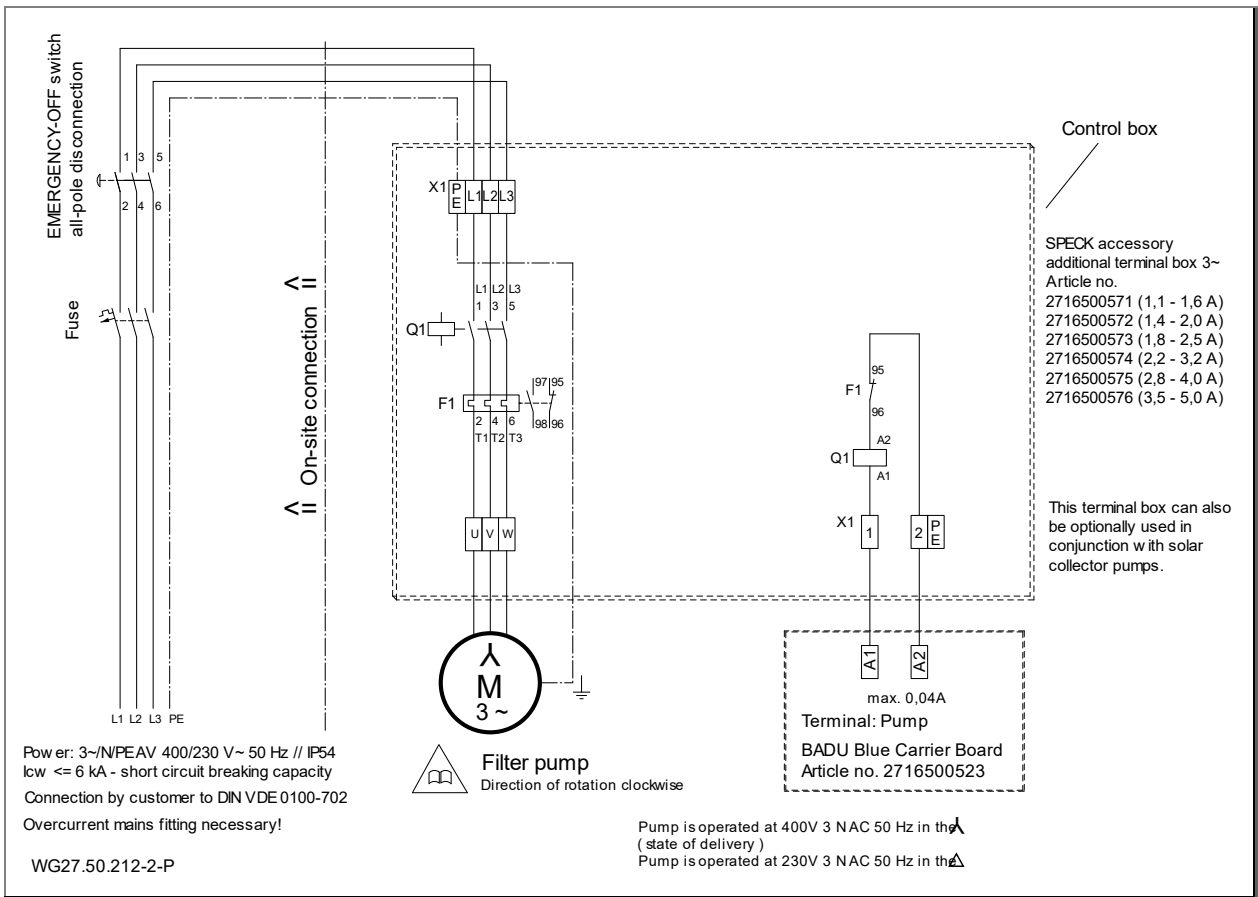


Fig. 18



5.4.12 Circuit diagram for BADU Omni actuating drive

**NOTICE**

Z1/Z2 is the enabling contact for the filter pump.  
 Refer to the BADU Omni actuating drive operating instructions for the DC1 – DC5 contact designations.

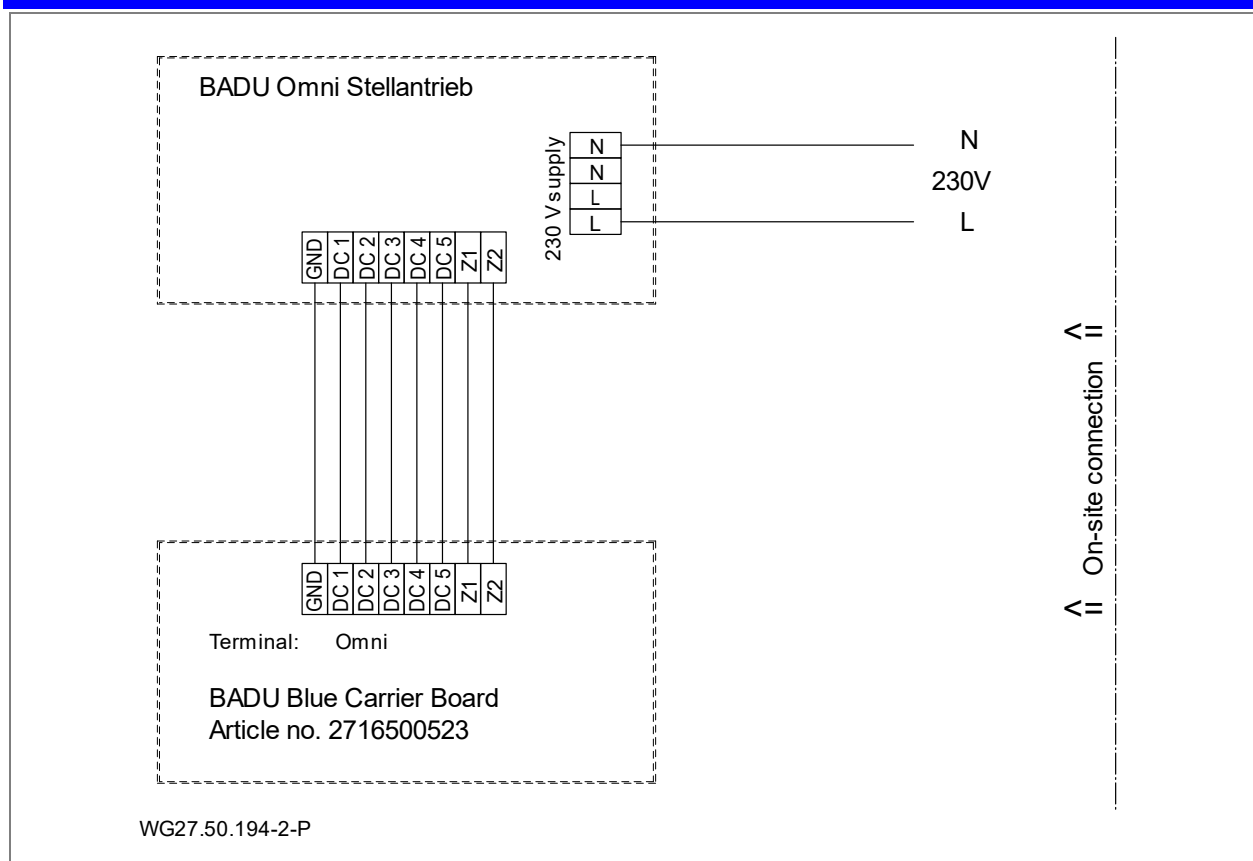


Fig. 19

5.4.13 Circuit diagram for BADU Omni actuating drive with battery pack

**NOTICE**

Z1/Z2 is the enabling contact for the filter pump.  
 Refer to the BADU Omni actuating drive operating instructions for the DC1 – DC5 contact designations.

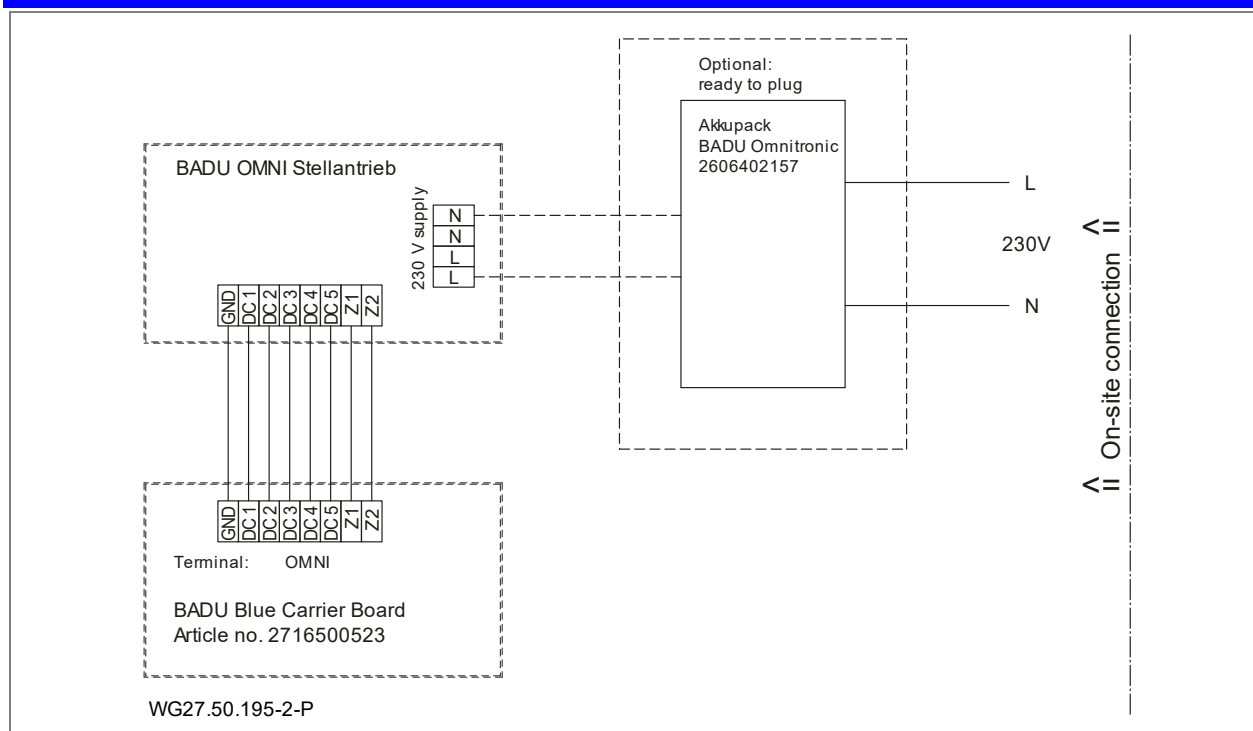


Fig. 20

5.4.14 Circuit diagram for BESGO valves

**NOTICE**

- ➔ Only entrust the layout of the BESGO valves suitable for the filter system to skilled personnel.
- ➔ Please consult the manufacturer's operating instructions for the correct connection of BESGO valves.

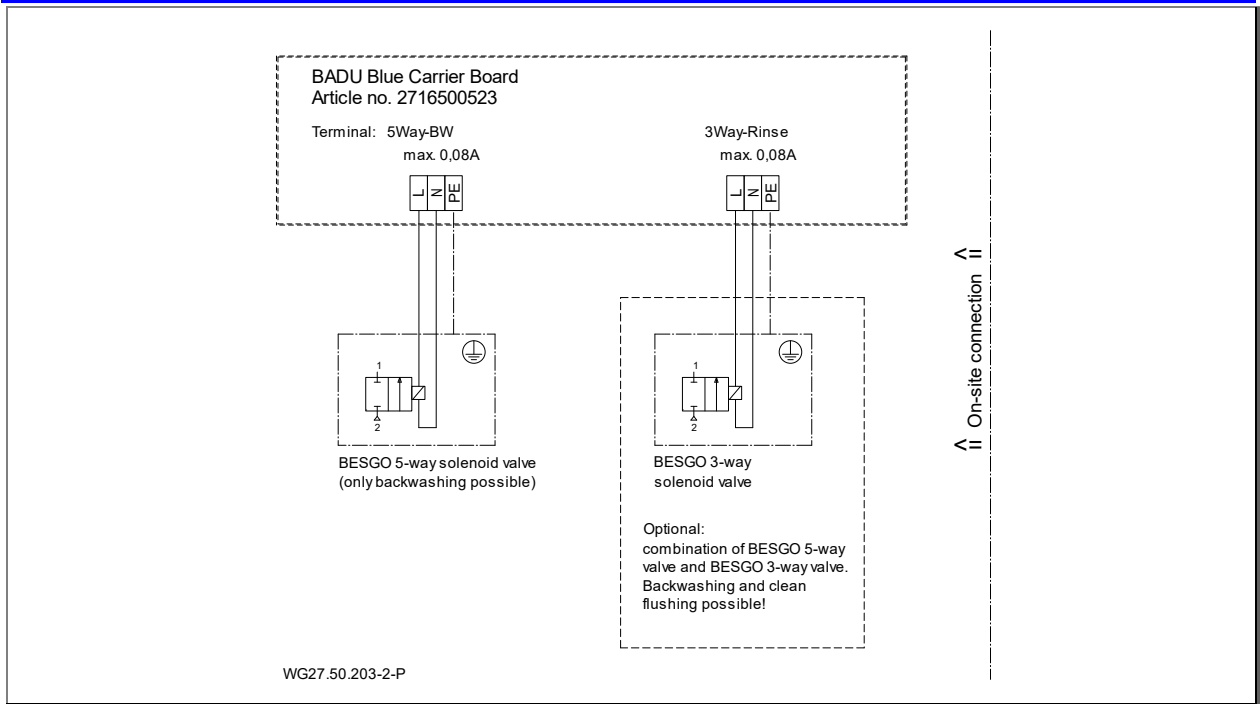


Fig. 21

5.4.15 Circuit diagram for 1-Wire sensors

**NOTICE**

- ➔ A maximum cable length of 50 m must be observed for each BUS line. Star-shaped distribution is possible.
- ➔ Uniform distribution (cable length and sensors) must be assured where possible.
- ➔ Use a maximum of six 1-Wire sensors per BUS line.
- ➔ In addition to the six dedicated temperatures, six temperatures can be freely assigned (e.g. garage temperature or shed temperature).
- ➔ Do not lay cable with other consumers (230/400 V).
- ➔ Ensure weather protection!

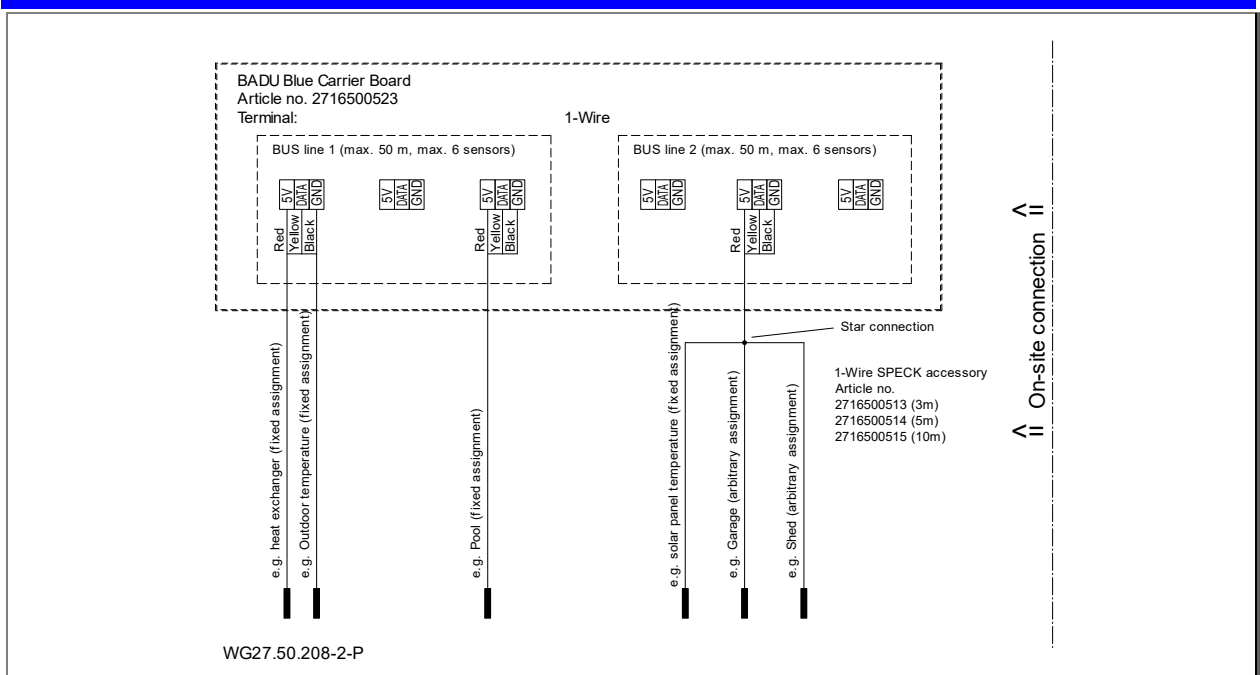


Fig. 22

5.4.16 Circuit diagram for pressure sensor

**NOTICE**

Do not lay the cable together with other consumers (230/400 V).

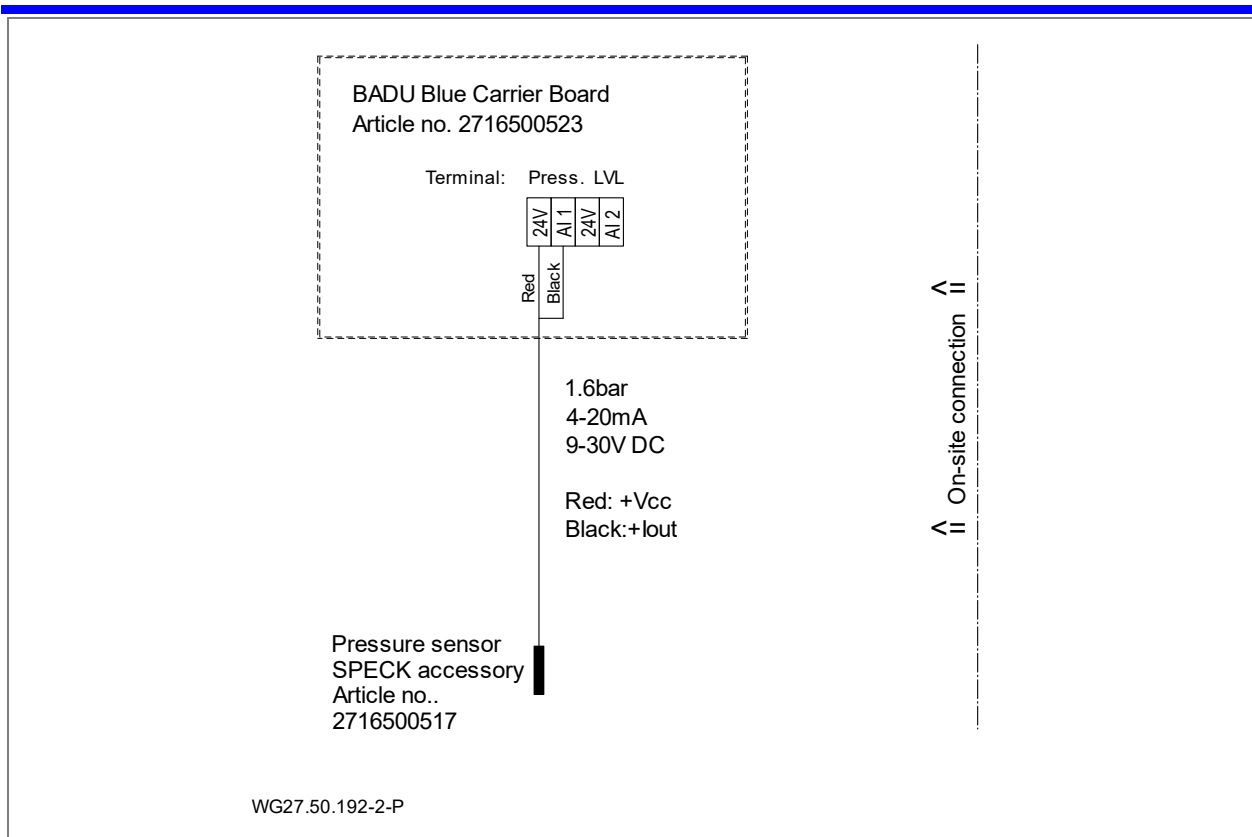


Fig. 23

5.4.17 Circuit diagram for flow transmitter measuring cell

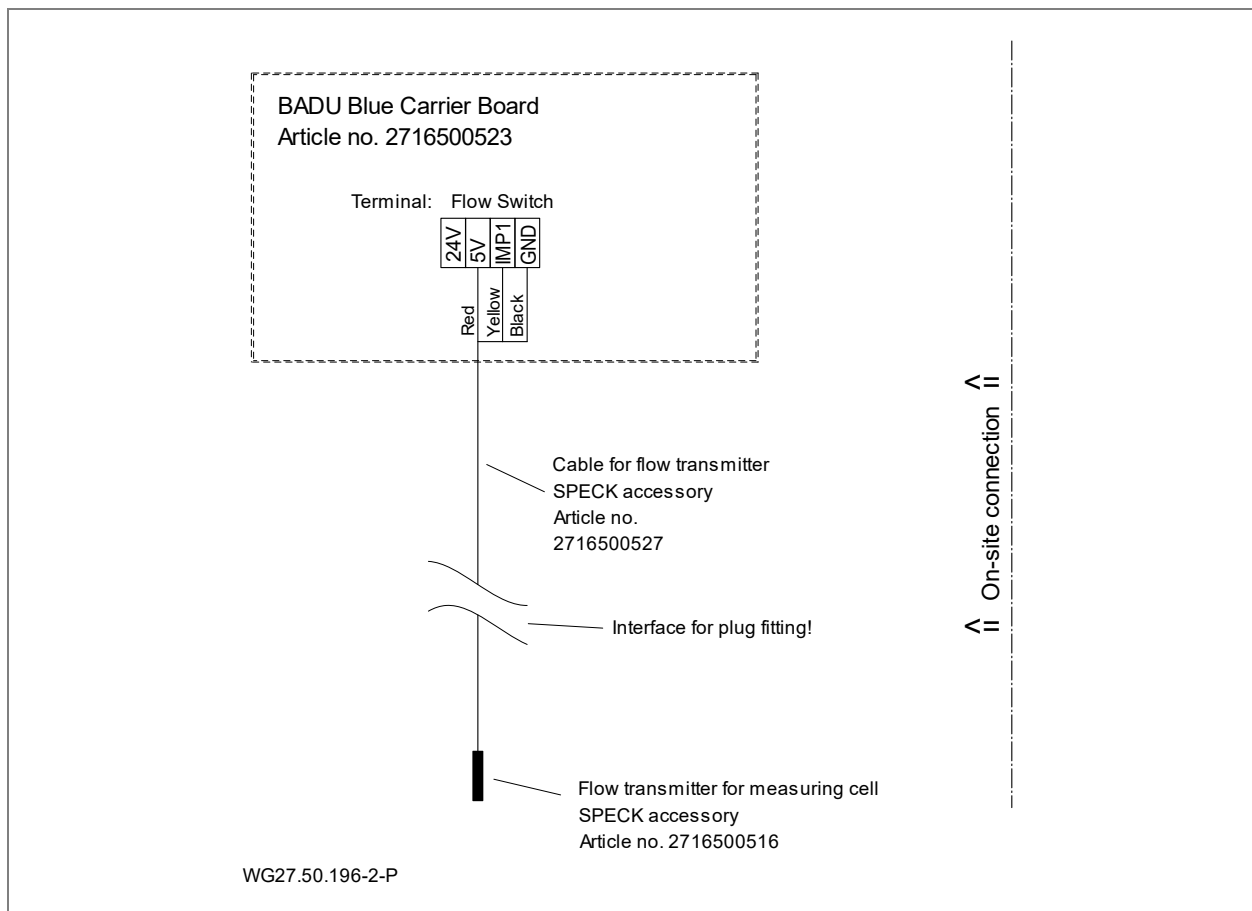


Fig. 24

5.4.18 Circuit diagram for SPECK counter swim unit

**NOTICE**

Exceptions to these counter swim units are the BADU JET Turbo and BADU JET Turbo Pro. There is a separate circuit diagram for these (See point 0 on page 29).  
 Connection of the counter swim unit is only possible with a relay expansion module. This can be retrofitted (SPECK accessory, article no. 2716500552).

**NOTICE**

A terminal box other than ext R1 can be used to connect the GSA Speck terminal box. Any other free ext relay terminal is possible.

**NOTICE**

The terminal box for the radio receiver is optional. This is already included in the scope of delivery for the BADU JET Primavera/BADU JET Primavera Deluxe and optionally available for all others.

- ➔ A switching rule should be created for operation of the counter swim unit. Please refer to these instructions for a switching rule creation example. See point 6.4.1 on page 54.
- ➔ The wires for terminal X5 (S1) and X8 of the PCB in the counter swim unit terminal box should be disconnected and connected directly in the BADU Blue (as shown).
- ➔ Consult the manufacturer's operating instructions.

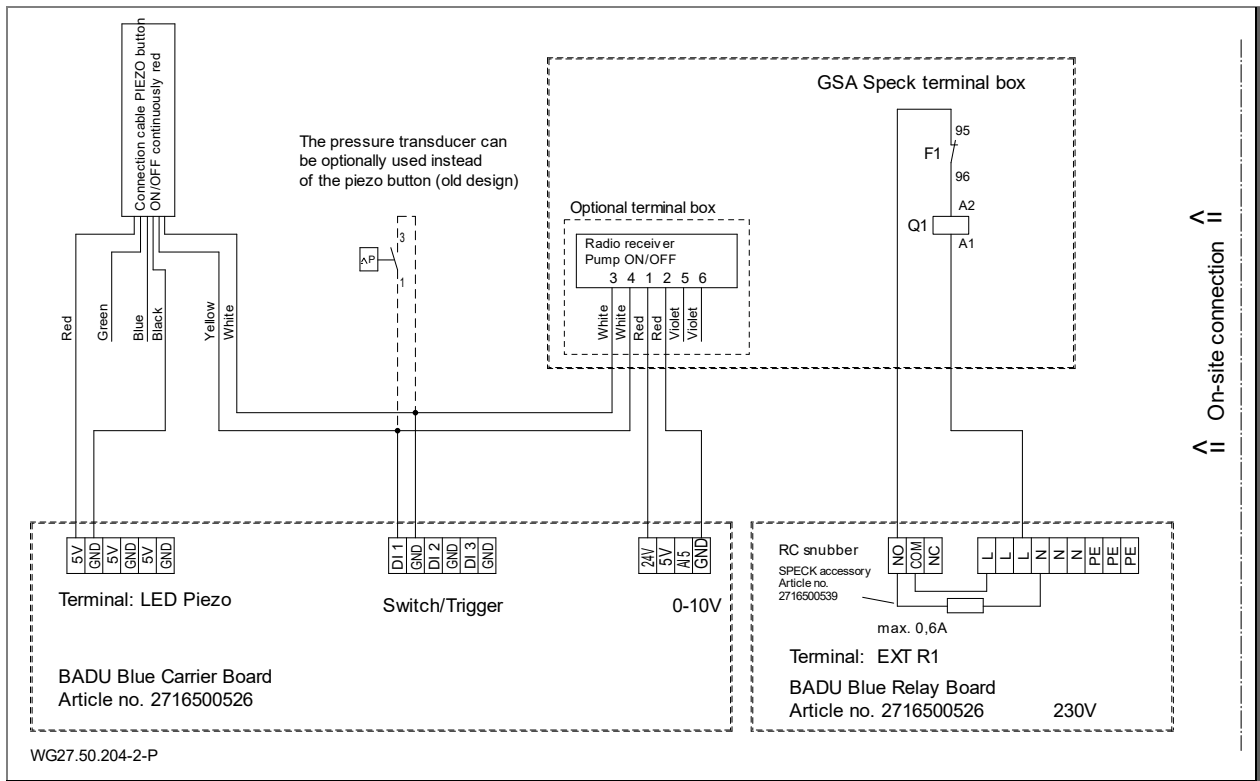


Fig. 25

5.4.19 Circuit diagram for BADU JET Turbo/BADU JET Turbo Pro counter swim unit

**NOTICE**

Connection of the counter swim unit is only possible with a relay expansion module. This can be retrofitted (SPECK accessory; article no. 2716500552).

**NOTICE**

A terminal other than ext R1 can also be used to connect the GSA BADU JET Turbo/BADU JET Turbo Pro terminal box. Any other free ext relay terminal is possible.

- ➔ Three switching rules should be created for operation of the BADU JET Turbo/BADU JET Turbo Pro. Please refer to these instructions for an example of this. See point 0 on page 57
- ➔ PCB A1 can be completely disconnected. The wires for terminals X5 (S1), X8 and X10 of PCB A1 in the counter swim unit should be connected directly to the BADU Blue (as shown).
- ➔ PCB A2: The wires for terminals X5 (S1) and X5 (S2) of PCB A2 in the counter swim unit should be connected parallel to the BADU Blue (as shown).
- ➔ WAGO terminals can be optionally used.
- ➔ Consult the manufacturer's operating instructions.

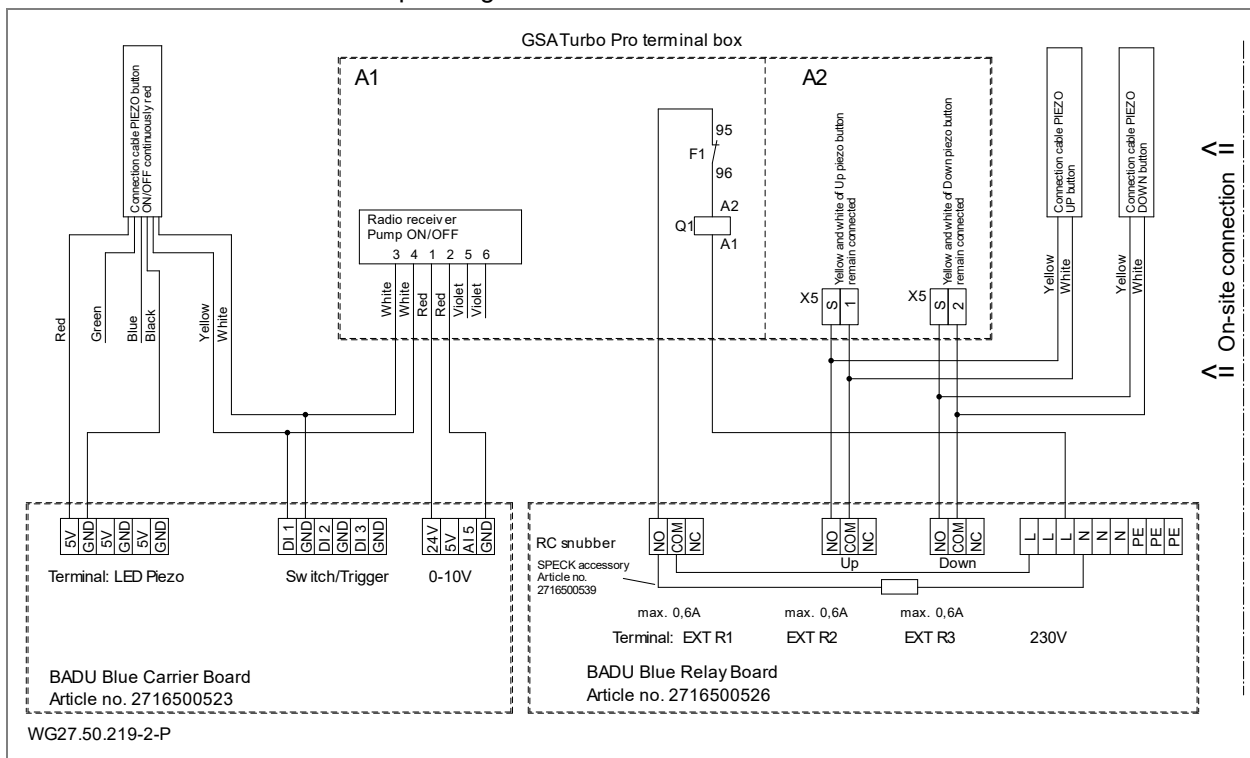


Fig. 26

5.4.20 Circuit diagram for skimmer level control

**NOTICE**

- ➔ Cable length for conductive sensors is max. 40 m!
- ➔ Shorten factory cable if possible. Do not extend!
- ➔ Do not use shielded cable or gel box for extensions, min. IP 66.
- ➔ Do not install cable in a rolled state!
- ➔ Do not lay cable with other consumers (230/400 V)!

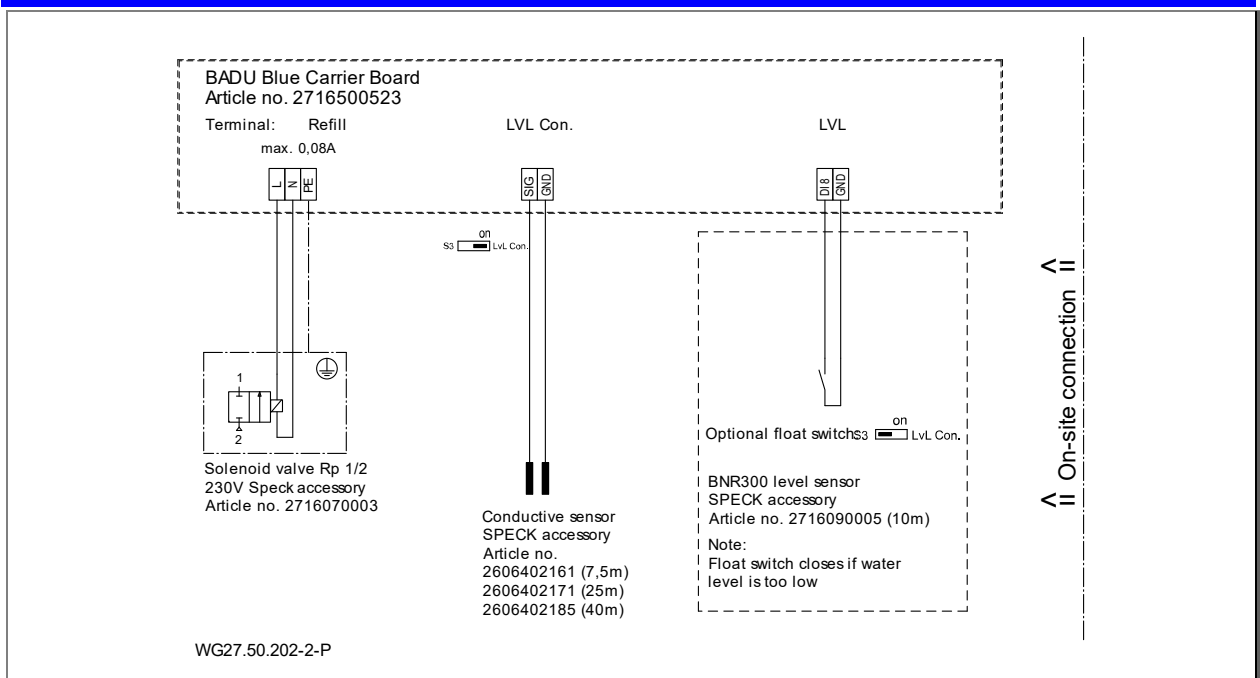


Fig. 27

5.4.21 Circuit diagram for overflow vessel

**NOTICE**

- ➔ Do not shorten the level sensor cable!
- ➔ Do not remove the air hose filter!

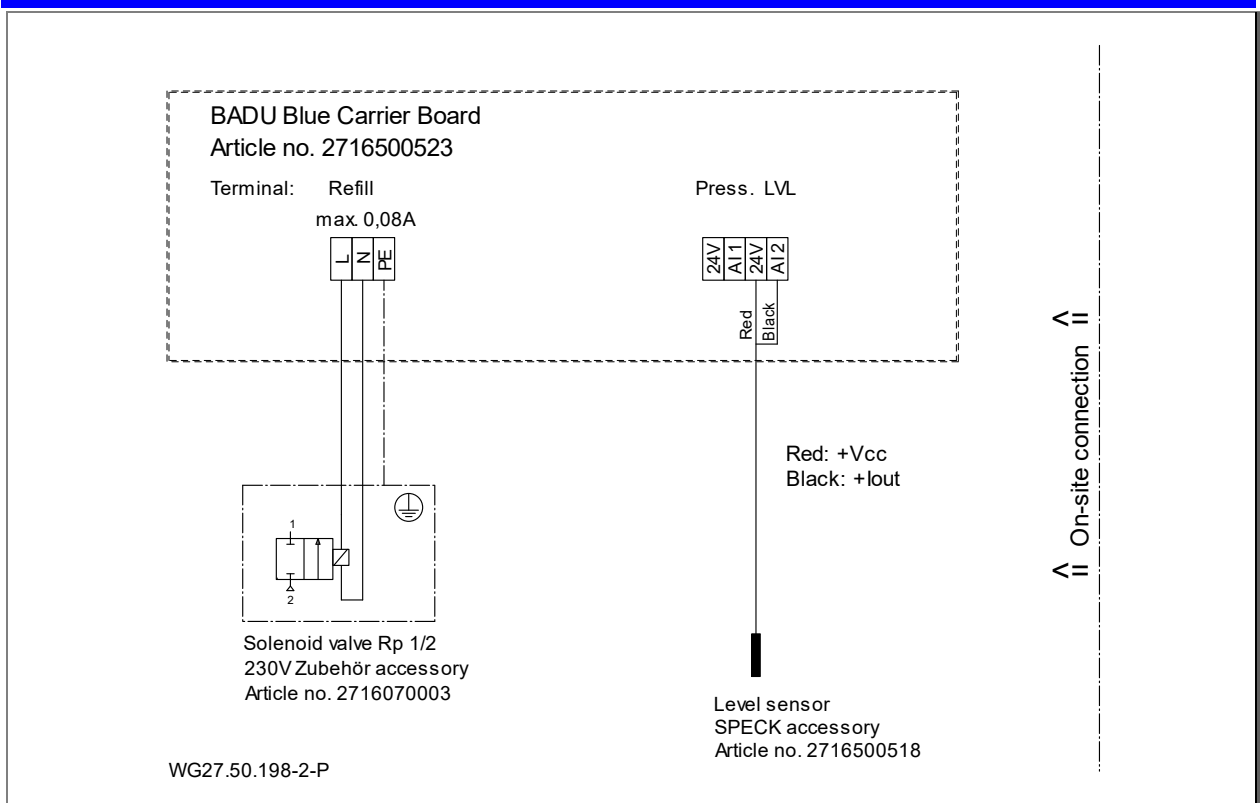


Fig. 28

5.4.22 Circuit diagram for hose dosing pumps

**NOTICE**

Flocculation is only possible with a relay expansion module: This can be retrofitted (SPECK accessory, article no. 2716500552).

**NOTICE**

If only the addition of pH+ (raising) is desired, the hose dosing pump can be disconnected at the pH-DOSING terminal and connected to the pH+ DOSING terminal.

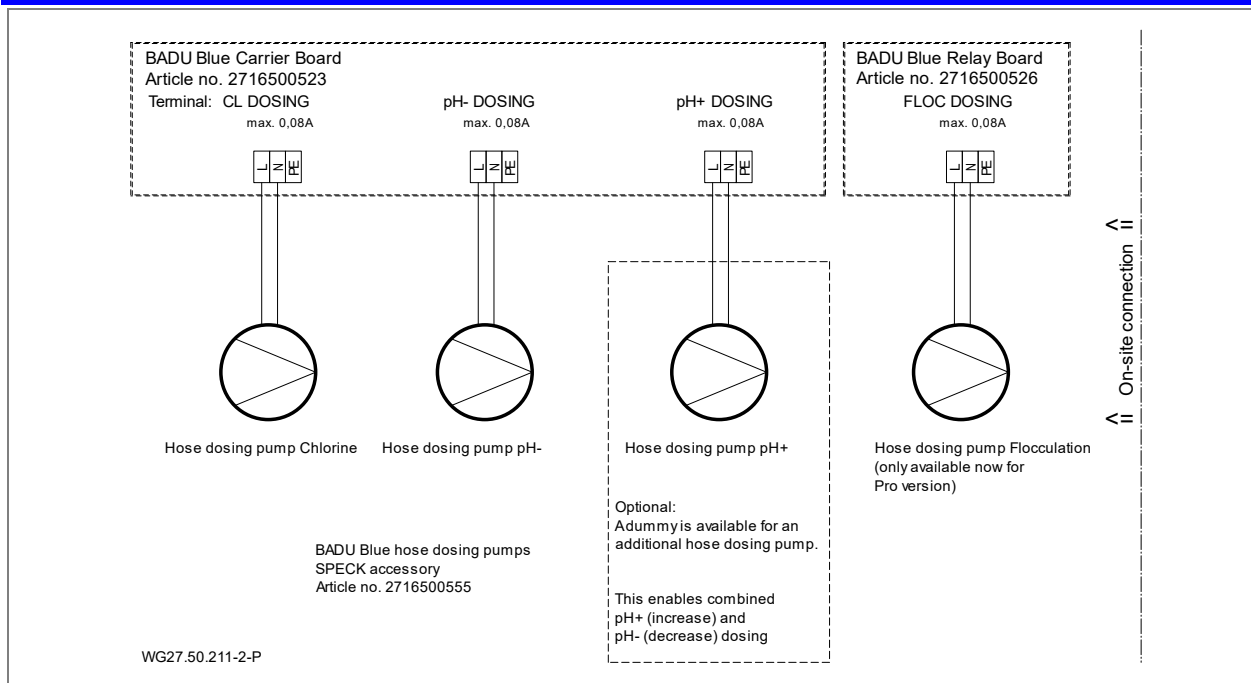


Fig. 29

5.4.23 Circuit diagram for canister empty signal contact

**NOTICE**

Break contacts can also be used instead of the make contacts depicted on the circuit diagram.

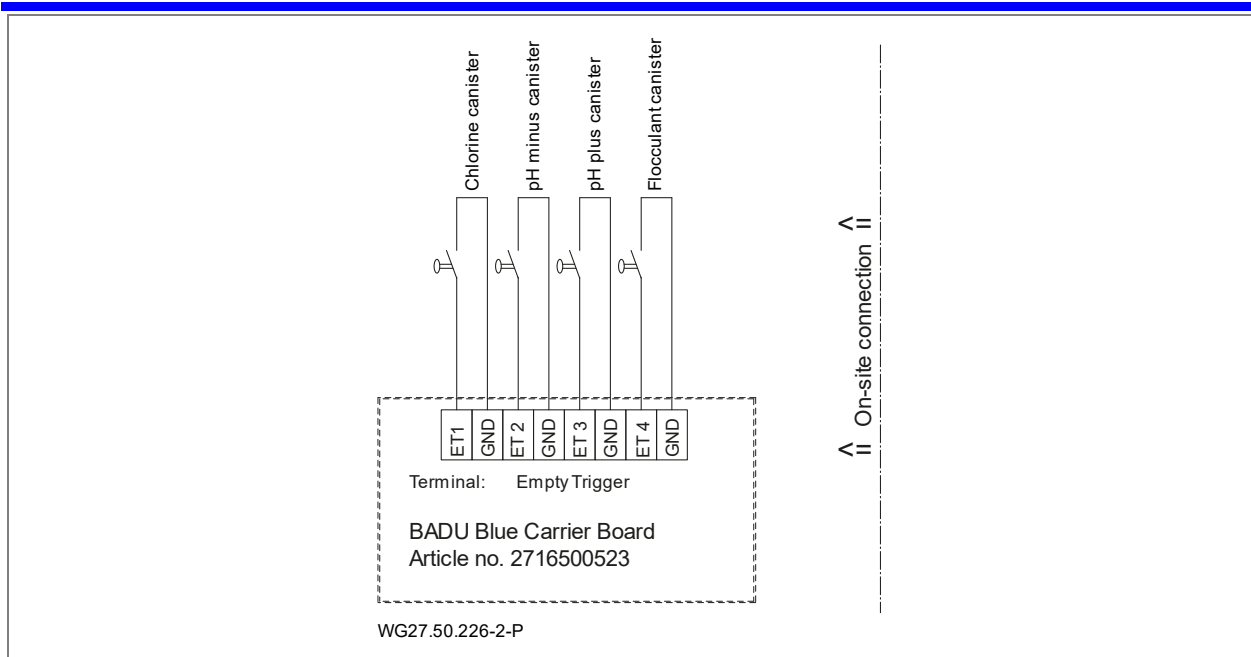


Fig. 30

5.4.24 Circuit diagram for eco operation with two actuating drives

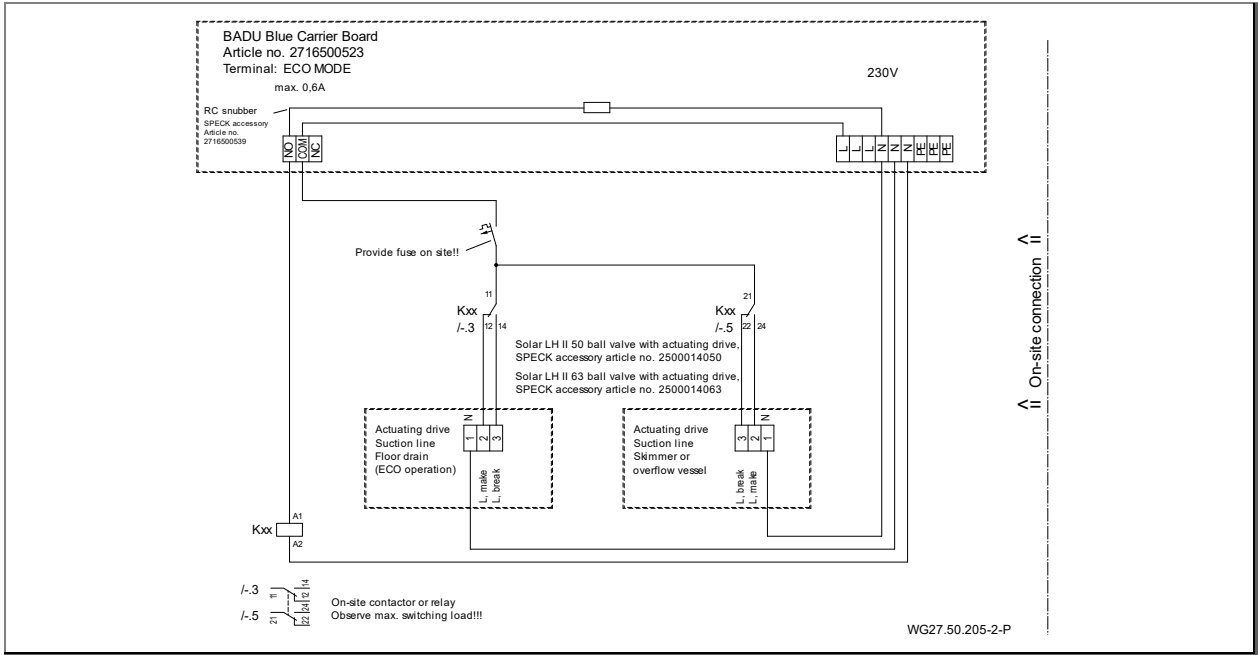


Fig. 31

5.4.25 Circuit diagram for Rollo Solar cover

**NOTICE**

Cover control is only possible with a relay expansion module. This can be retrofitted (SPECK accessory; article no. 2716500552).

**External stop button/switch: Terminal 33:**

The external stop button must have a break contact connected to the “Button” terminal and “STOP”. **The bridge connected between the “Button” and “STOP” terminals in the delivery state must be removed during this.** Actuating the button stops the system. To place the system in a secure emergency stop state, **an emergency stop switch or emergency OFF switch must be connected for this purpose (pursuant to EN 81) with rotary or pull release.**

**External switch/button: Terminal 34:**

“Button”, “OPEN” and “CLOSED” terminals, connection for potential-free switches or buttons.

**Pushbutton operation: Coded switch no. 1 is at OFF (default setting). This means that the “OPEN” or “Closed” button moves the cover to the respective position in the case of brief actuation (not longer than one second).**

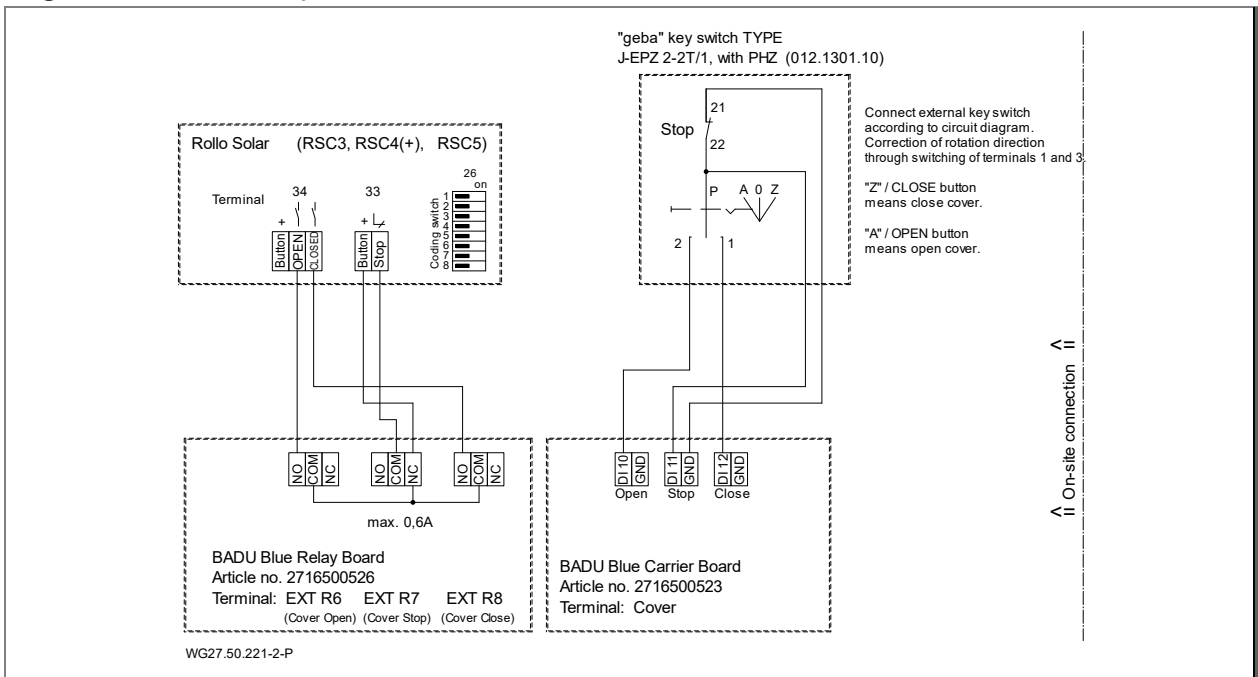


Fig. 32



5.4.26 Circuit diagram for Aquadeck cover

**NOTICE**

Cover control is only possible with a relay expansion module. This can be retrofitted (SPECK accessory; article no. 2716500552)

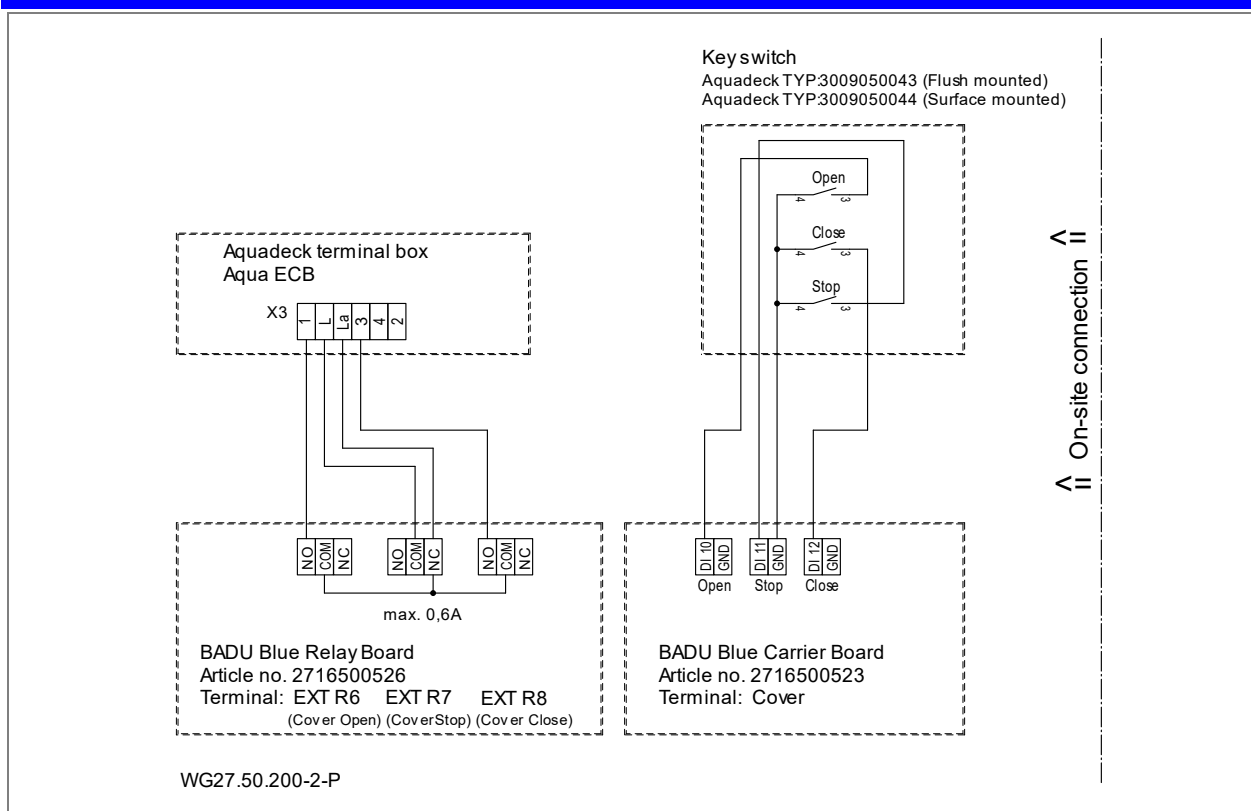


Fig. 33

5.4.27 Circuit diagram for Grando cover

**NOTICE**

Cover control is only possible with a relay expansion module. This can be retrofitted (SPECK accessory; article no. 2716500552)

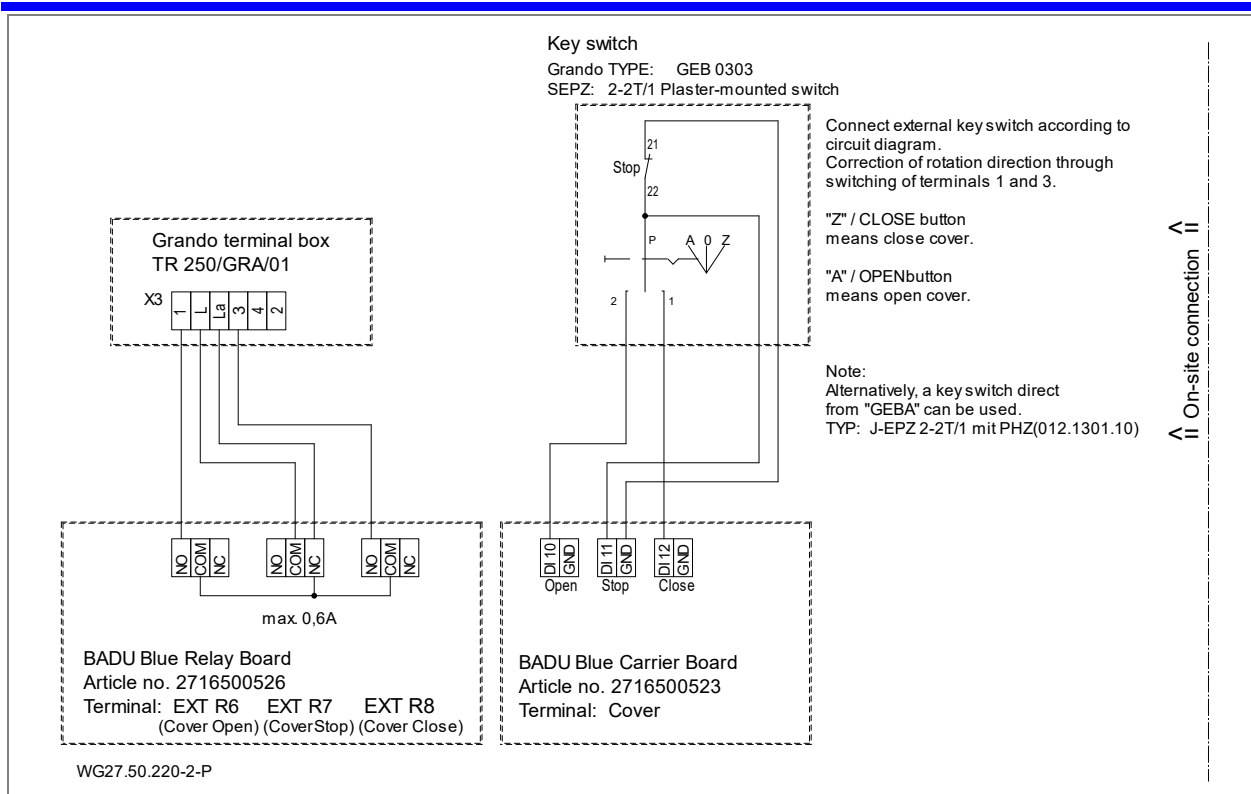


Fig. 34

5.4.28 Circuit plan for Hugo Lahme piezo button

**NOTICE**

Switch/trigger (digital inputs) 1 – 7 can be used to actuate EXT relays 1 – 8 (using a switching rule). The piezo button with an installation housing from Hugo Lahme can be used for this purpose.

- ➔ EXT relay 1 - 8 only possible with relay expansion module. This can be retrofitted (SPECK accessory; article no. 2716500552).
- ➔ Terminal resistor must be configured.
- ➔ Set DIP switches 1 and 2 to “off” for switch mode.
- ➔ Set DIP switch 1 to “on” and DIP switch 2 to “off” in button mode for toggle, timer or toggle/timer.

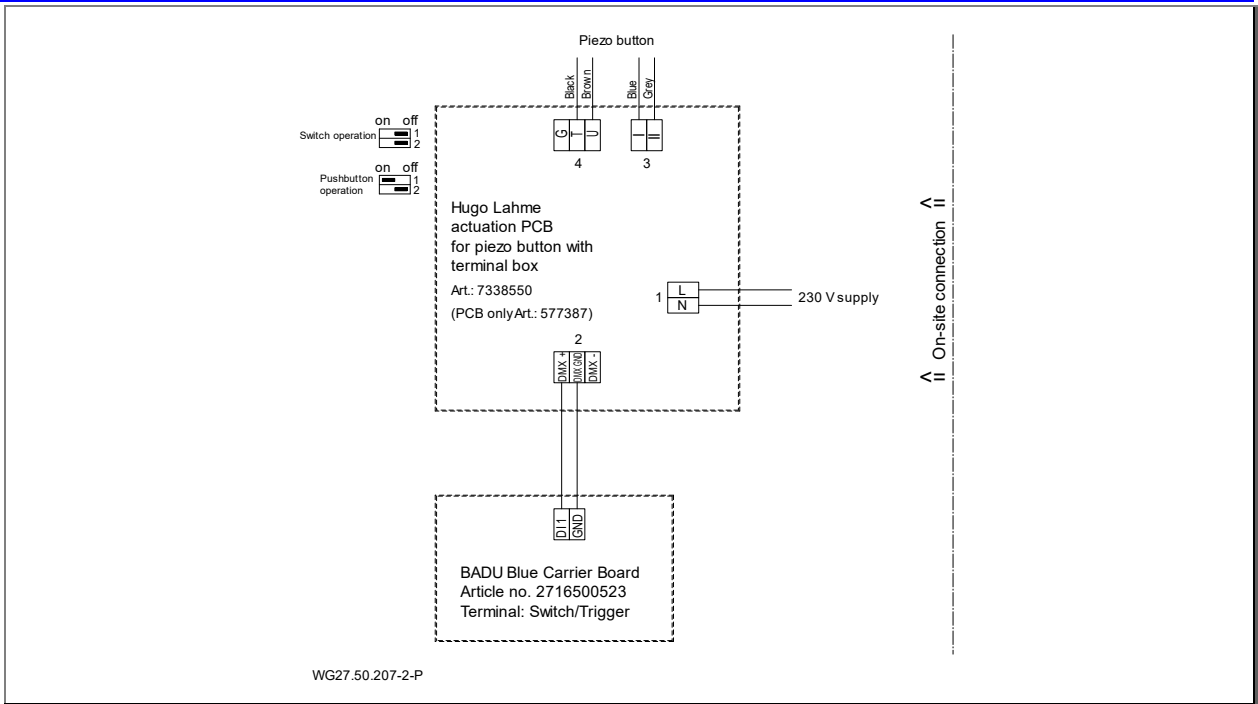


Fig. 35

5.4.29 Circuit diagram for ASTRAL DMX (RGB)

**NOTICE**

The RGB DMX 41107 modulator can be used for ASTRAL products for the Flexi (RGB-DMX), PAR56 (RGB-DMX), S-LIM (RGB-DMX) and Design (RGB-DMX) series.

- ➔ Ensure the correct dimensioning of cable lengths and cable cross sections on site.
- ➔ The manufacturer's operating instructions must be observed for correct connection of the lights to the associated channels.

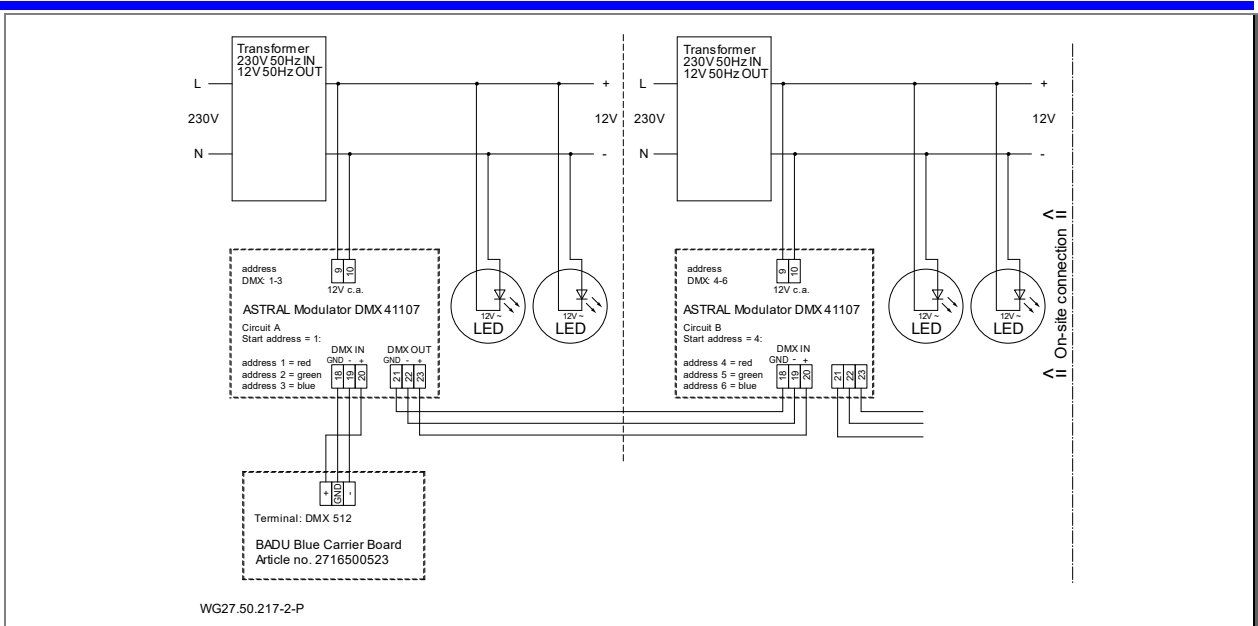


Fig. 36

5.4.30 Circuit diagram for ASTRAL LumiPlus (RGB)

**NOTICE**

To synchronise the LUMI Plus lights, switch the lights off and on again within a short period of time (1-2 seconds).

**NOTICE**

- ➔ Ensure the correct dimensioning of cable lengths and cable cross sections on site.
- ➔ The manufacturer's operating instructions must be observed for correct connection of the lights to the associated channels.

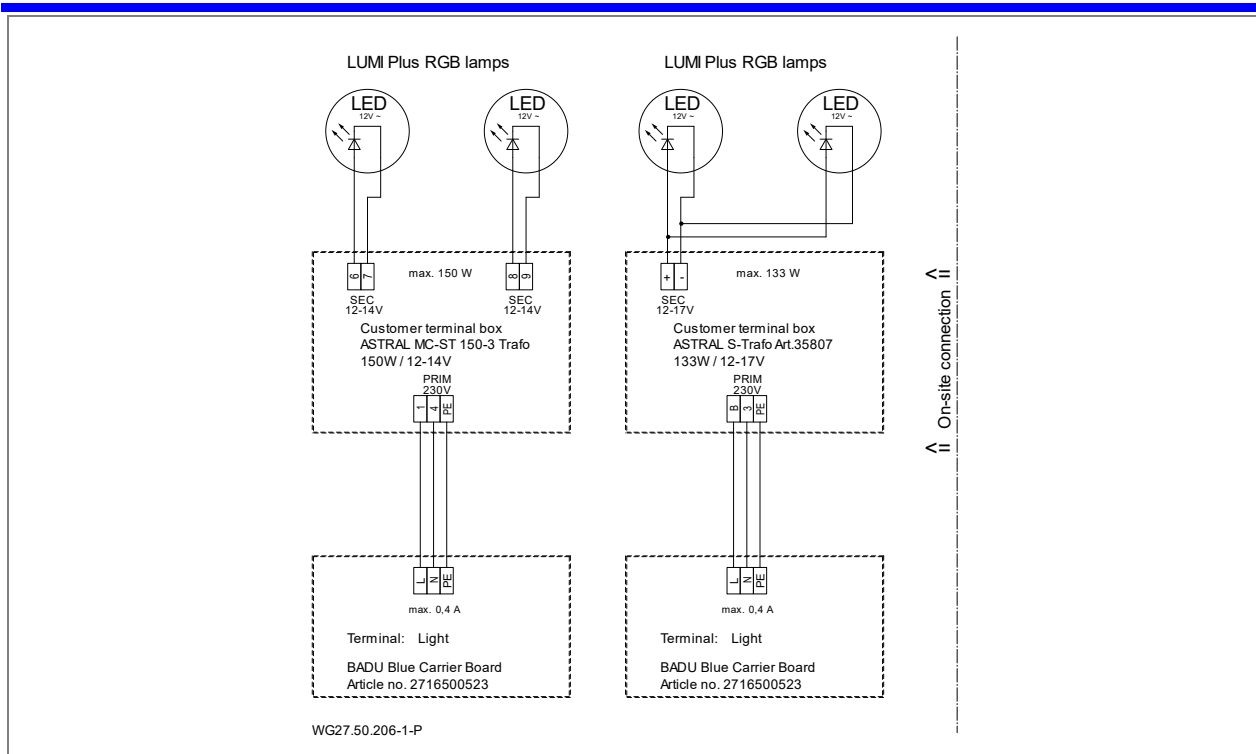


Fig. 37

5.4.31 Circuit diagram for Hugo Lahme

**NOTICE**

The DMX module is plugged into the PCB in the VitaLight ballast.

- ➔ The manufacturer's operating instructions must be observed for correct connection of the lights to the associated channels.

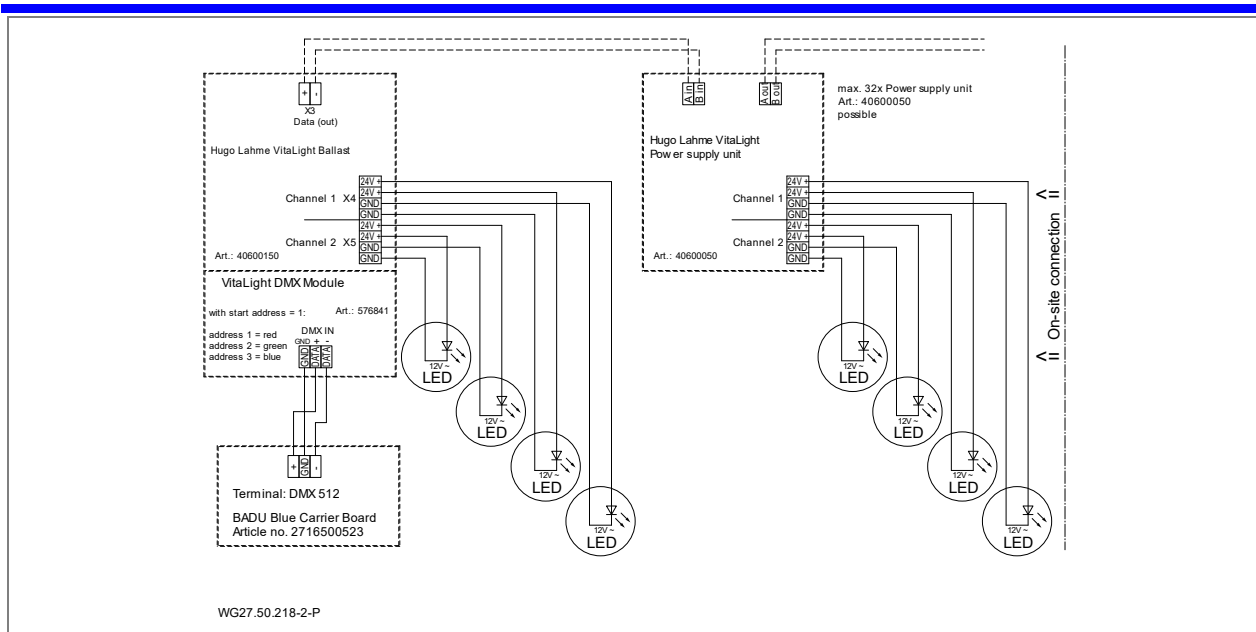


Fig. 38

5.4.32 Circuit diagram for EVA with blue PCB

**NOTICE**

- ➔ Use a connection cable conforming to the manufacturer's specification (EVA Optic DMX cable (green) EVA-AA-96).
- ➔ Do not connect the DMX casing to the mains connection earth!
- ➔ Observe the manufacturer's operating instructions.
- ➔ Terminal resistor must be configured.

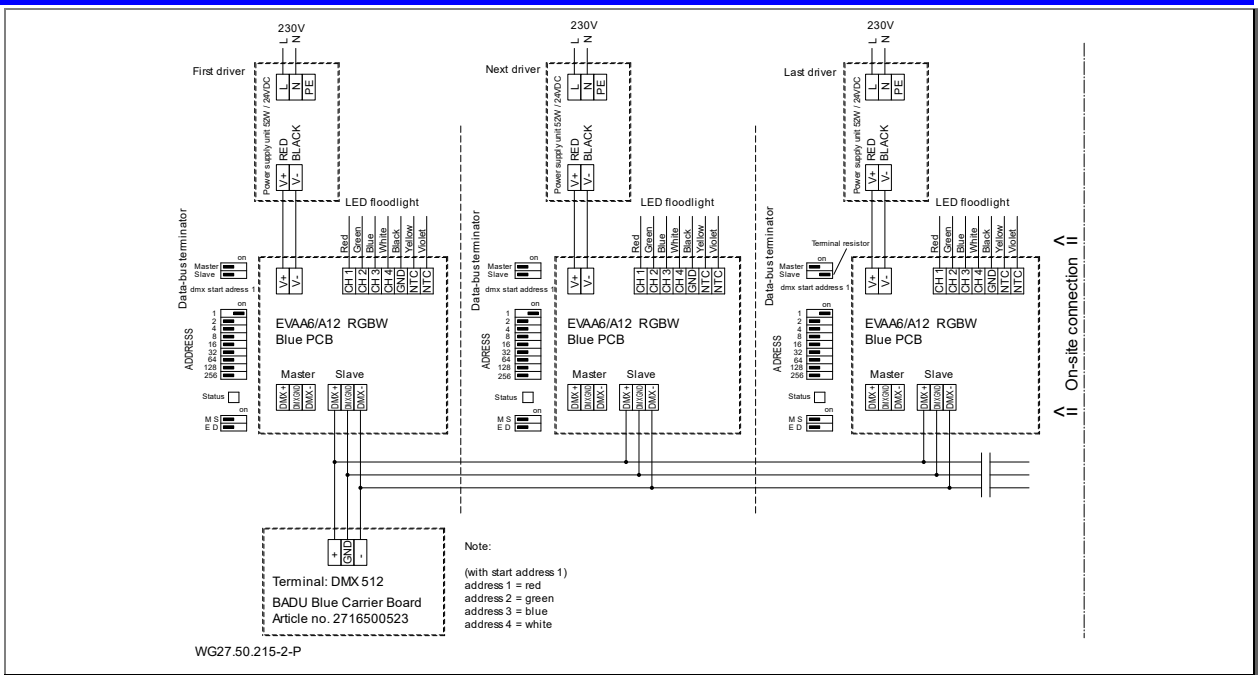


Fig. 39

5.4.33 Circuit diagram for EVA with blue and green PCB

**NOTICE**

- ➔ Use a connection cable conforming to the manufacturer's specification (EVA Optic DMX cable (green) EVA-AA-96).
- ➔ Do not connect the DMX casing to the mains connection earth!
- ➔ Observe the manufacturer's operating instructions.
- ➔ Terminal resistor must be configured.

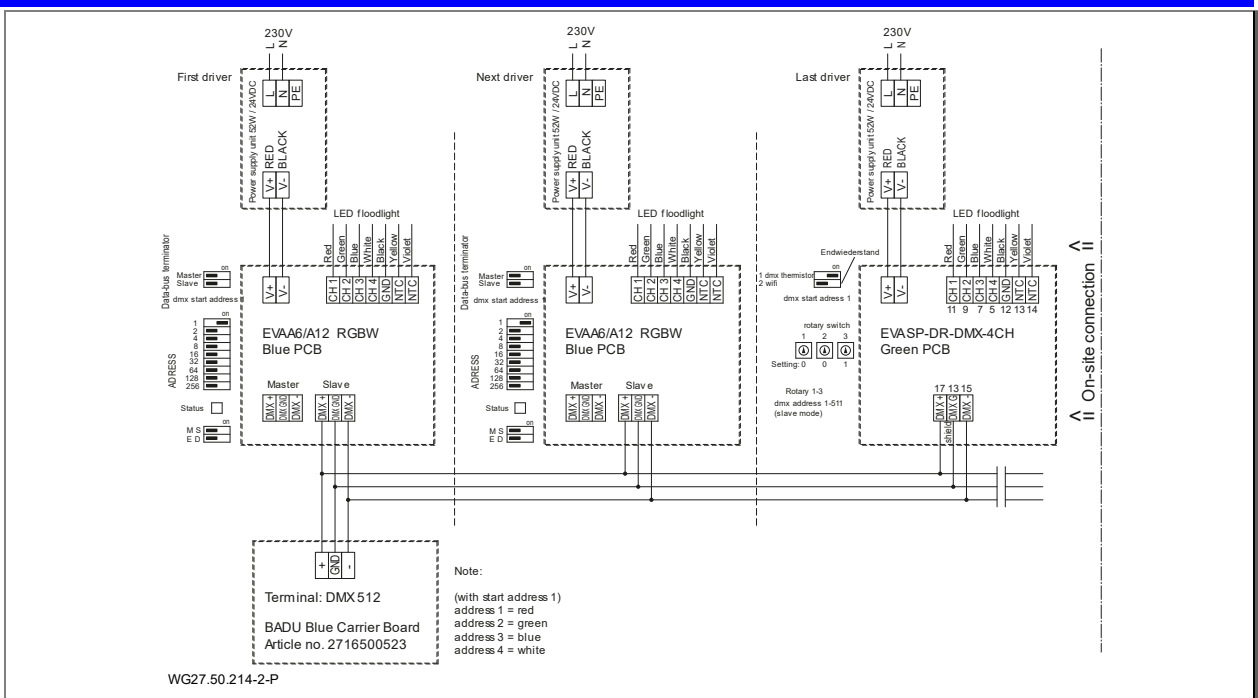


Fig. 40

5.4.34 Circuit diagram for EVA with green PCB

**NOTICE**

- ➔ Use a connection cable conforming to the manufacturer's specification (EVA Optic DMX cable (green) EVA-AA-96).
- ➔ Do not connect the DMX casing to the mains connection earth!
- ➔ Observe the manufacturer's operating instructions.
- ➔ Terminal resistor must be configured.

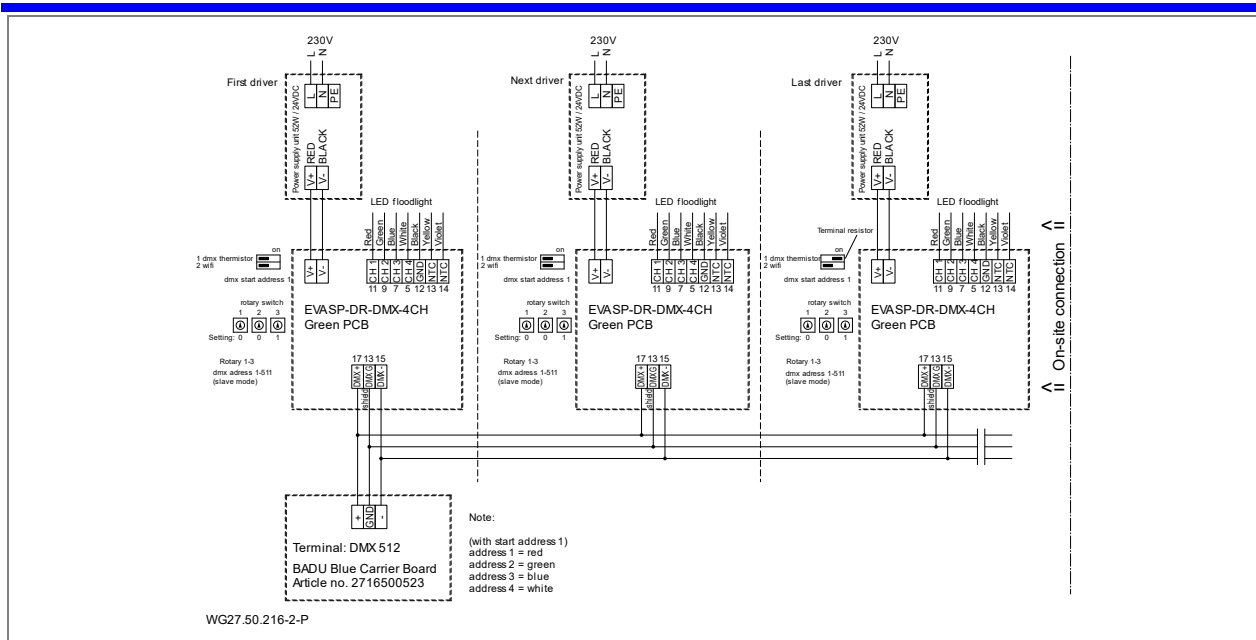


Fig. 41

5.4.35 Circuit diagram for Zodiac EXO or GenSalt OT

**NOTICE**

- ➔ The filter pump should **not** be connected to the EXO or GenSalt OT, but must be wired directly to the BADU Blue carrier board!
- ➔ Metering is controlled through the BADU Blue system. The additional pH link/dual link modules should therefore not be used in EXO or GenSalt OT.
- ➔ It is imperative that the slave mode be activated. Refer to the manufacturer manual for more detailed information.
- ➔ Connect EXO paddle switch accessories directly to EXO.

**NOTICE**

Salt water electrolysis is only possible with a relay expansion module. This can be retrofitted (SPECK accessory, article no. 2716500552)

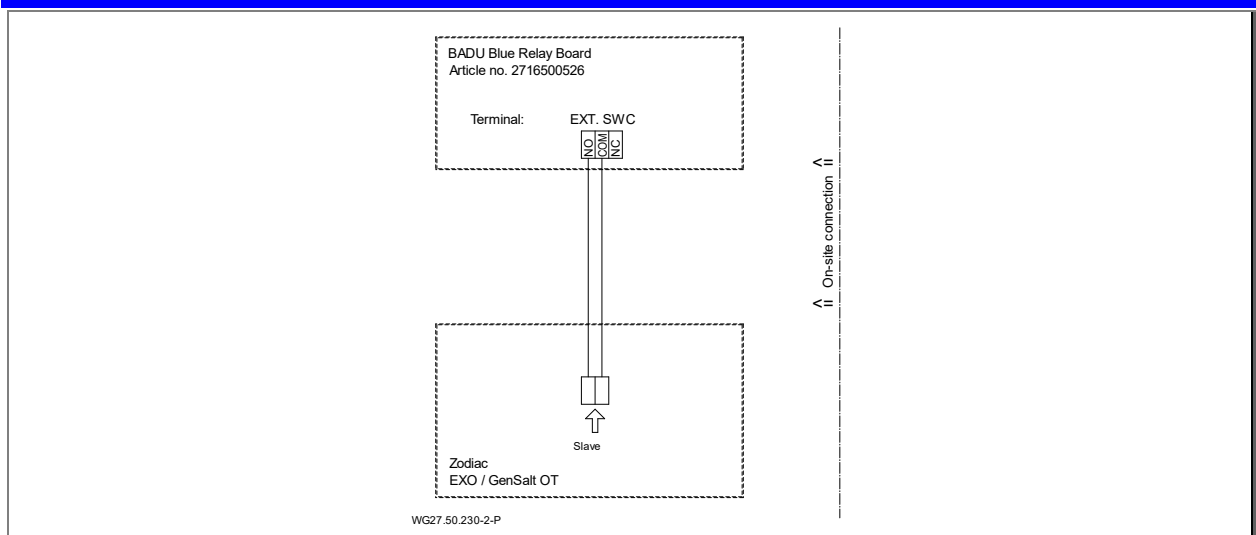


Fig. 42

5.4.36 Circuit diagram for Aseko ASIN Salt

**NOTICE**

- ➔ Select EXT mode on the display to activate the external control on your ASIN Salt.
- ➔ The 24 V control voltage from the BADU Blue can be used instead of 12 V.
- ➔ Refer to the Aseko ASIN manufacturer manual for more detailed information.
- ➔ Connect the flow meter and salt content accessories directly to the ASIN Salt.

**NOTICE**

Salt water electrolysis is only possible with a relay expansion module. This can be retrofitted (SPECK accessory, article no. 2716500552)

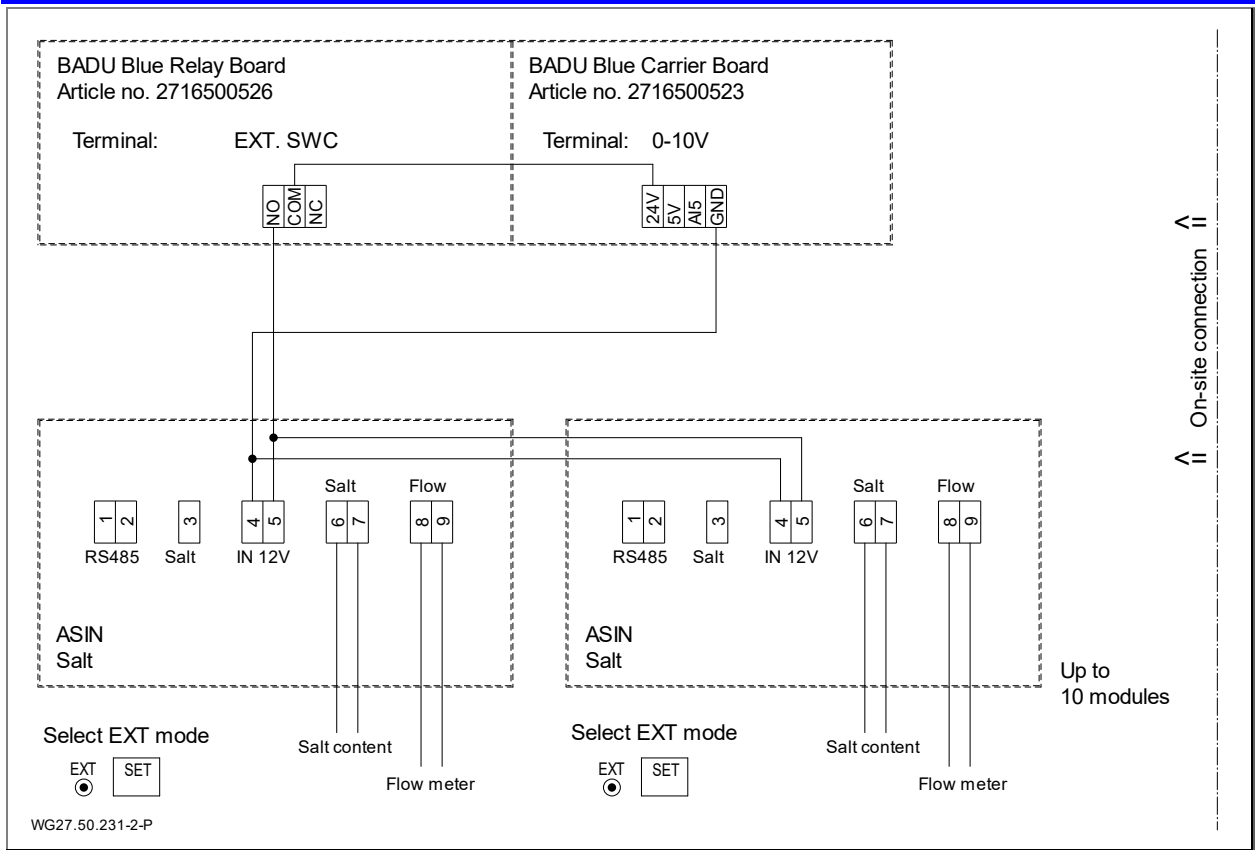


Fig. 43

## 5.4.37 Circuit diagram for Sugar Valley or Salt Relax

**NOTICE**

- The filter pump should **not** be connected to the Sugar Valley or Salt Relax (Bayrol). The filter pump must be wired directly to the BADU Blue carrier board.
- Metering is controlled through the BADU Blue. pH/redox probes of Sugar Valley or Salt Relax (Bayrol) must not be used.
- The enabling (EXT-SWC) of the BADU Blue is connected in series with the Sugar Valley or Salt Relax (Bayrol) flow switch, as indicated on the circuit diagram. It is therefore absolutely essential that it be activated correctly in the flow switch mode configuration. Chlorine production is therefore interrupted in the absence of inflow **and/or** enabling. This should be checked/tested on completion of configuration.
- Refer to the manufacturer's manual for the configuration menu password and further information.

**NOTICE**

Salt water electrolysis is only possible with a relay expansion module. This can be retrofitted (SPECK accessory, article no. 2716500552)

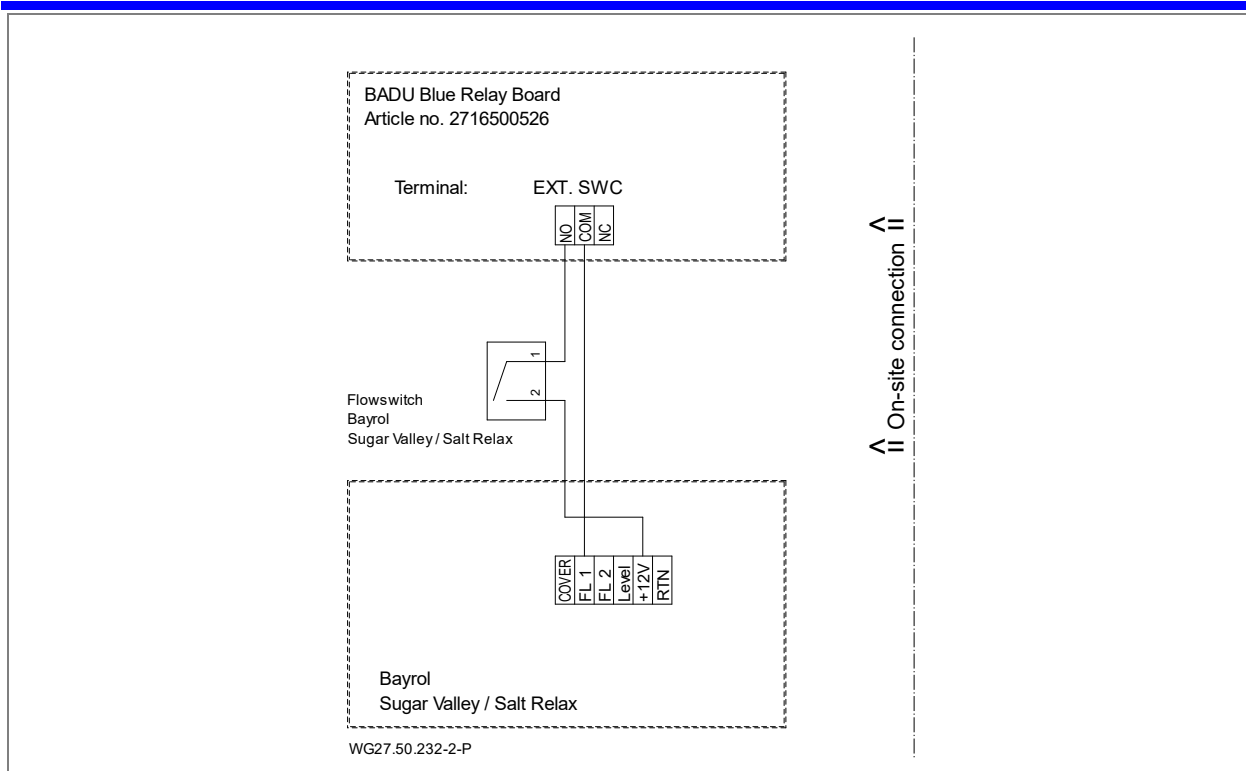


Fig. 44





## Terminal low voltage 0-24 V

No.	Function	Terminal and description		Comment
13	OMNI	GND	Signal ground	<b>BADU Omni actuating drive</b> Potential-free digital inputs for actuating the respective position
		DC1	Backwashing	
		DC2	Clean flushing	
		DC3	Emptying	
		DC4	Closed	
		DC5	Circulating	
		Z1-Z2	Digital input	Enabling contact (position reached)
14	Empty trigger	ET1	Chlorine canister empty signal contact	Potential-free connection of external switch or switching contacts. Make/break contact type selectable in configuration.
		GND	Signal ground	
		ET2	pH minus canister empty signal contact	
		GND	Signal ground	
		ET3	pH plus canister empty signal contact	
		GND	Signal ground	
		ET4	Flocculant canister empty signal contact	
15	Flow switch	24 V	Operating voltage	<b>Flow measurement</b> Connection of impeller to detect sample water
		5 V	Operating voltage	
		IMP1	Pulse input 1	
		GND	Signal ground	
16	Lvl. con.	SIG	Signal input	Conductive level measurement in skimmer
		GND	Signal ground	
	Lvl	DI8	Digital input 8	<b>Level measurement in skimmer</b> Potential-free connection of external switch or switching contact. Float switch
		GND	Signal ground	
	PV	DI9	Digital input 9	<b>Photovoltaic</b> Potential-free connection for external enabling of PV system. Acts as enabling contact for heating and filter pump in case of PV surplus.
		GND	Signal ground	
17	Cover open	DI10	Digital input 10	<b>Cover control</b> Potential-free connection of external switch or switching contacts. Make contact type. Stop contact DI11 is the exception and can be realised as a break contact!
		GND	Signal ground	
	Cover stop	DI11	Digital input 11	
		GND	Signal ground	
	Cover close	DI12	Digital input 12	
		GND	Signal ground	
18	RS 485	A	Data cable A	Interface not yet activated.
		GND	Signal ground	
		B	Data cable B	
19	DMX 512	+	Data cable +	<b>Colour light control</b> Light scenes RGB/RGBW actuation
		GND	Signal ground	
		-	Data cable -	
20	VS pump	GND	Signal ground	Potential-free connection of speed-controlled pumps.
		STOP	Stop contact	
		N1	Speed 1 contact	
		N2	Speed 2 contact	
		N3	Speed 3 contact	

No.	Function	Terminal and description		Comment
21 - 23	Switch trigger	DI1-7	Digital input 1-7	Potential-free connection of external switch or switching contacts.
		GND	Signal ground	
24	Flow pump	24V	Operating voltage	Connection of flow meter for determining the filter pump volume flow
		5V	Operating voltage	
		IMP2	Pulse input 2	
		GND	Signal ground	
25	1-Wire temp.	5V	Operating voltage	Connection option for 12 1-Wire temperature sensors
		DATA	Signal/data cable	
		GND	Signal ground	
26	LED piezo	5V	Operating voltage	Connection of piezo button
		GND	Signal ground	
27	Press. 4-20 mA	24V	Operating voltage	Connection of pressure sensor
		AI1	Analog input 1	
	Lvl. 4-20 mA	24V	Operating voltage	Connection of level probe for surge water tank control
		AI2	Analog input 2	
28	4-20 mA	24V	Operating voltage	Free analog input
		AI3-4	Analog input 3-4	
29	0-10V	24V	Operating voltage	Free analog input
		5V	Operating voltage	
		AI5	Analog input 5	
		GND	Signal ground	
30	pH/ORP measurement	pH	pH measurement input	Ready to plug
31	pH/ORP measurement	ORP	ORP/redox input measurement	Ready to plug
32	USB port	USB	Backup saving	
33	Network port	ETH	Ethernet	Connection in network; provided a network connection is available
45	Potentiostatic chlorine measurement	WE	Working electrode	Connection to chlorine electrode for measuring free chlorine.
		RE	Reference electrode	
		CE	Counter electrode	

<b>D1xx</b>	<b>If a signal input is shorted by GND, the desired input is set and evaluated by BADU</b>
<b>GND</b>	<b>Blue.</b>

**Cable cross sections to be used**

Single-wire conductor, stripped	0.2 ... 1.5 mm <sup>2</sup>
Fine-wire conductor, stripped	0.2 ... 1.5 mm <sup>2</sup>
Fine-wire conductor, stripped with wire end ferrule	0.25 ... 1 mm <sup>2</sup>
Stripped length	8.5 ... 9.5 mm

## Terminal low voltage 0-24 V

No.	Function	Terminal and description		Comment
1	230	L	Live wire/phase (current-carrying wire 230V)	Supply voltage and main board distribution
		N	Neutral (neutral conductor)	
		PE	Protective earth (grounding)	
2	SOLAR	L<O>	Live wire/phase (current-carrying wire 230V)	Open ball valve for solar panel
		L<C>	Live wire/phase (current-carrying wire 230V)	Close ball valve for solar panel
		N	Neutral (neutral conductor)	
		PE	Protective earth (grounding)	
3 + 4 + 5 + 43	Dosing outputs CL DOSING pH- DOSING pH+ DOSING FLOC DOSING	L	Live wire/phase (current-carrying wire 230V)	Actuation for hose dosing pumps
		N	Neutral (neutral conductor)	
		PE	Protective earth (grounding)	
6	PUMP	A1	Live wire/phase (current-carrying wire 230V)	Contactor triggering for filter pump/attraction pump that is not speed controlled
		A2	Neutral (neutral conductor)	
7	HEATER	NO	Normally open (make contact)	<b>Heating enabling</b> Potential-free switching contact. Make and break contact design. Heating enabling
		COM	Common (collective switching output)	
		NC	Normally closed (break contact)	
8	LIGHT	L	Live wire/phase (current-carrying wire 230V)	Actuation for lighting 230V
		N	Neutral (neutral conductor)	
		PE	Protective earth (grounding)	
9	REFIL	L	Live wire/phase (current-carrying wire 230V)	Actuation of solenoid valve for fresh water refilling
		N	Neutral (neutral conductor)	
		PE	Protective earth (grounding)	
10 + 11	Besgo rod valve 5-way BW 3-way rinse	L	Live wire/phase (current-carrying wire 230V)	Actuation of Besgo rod valves for backwashing and clean flushing.
		N	Neutral (neutral conductor)	
		PE	Protective earth (grounding)	
12	ECO MODE	NO	Normally open (make contact)	<b>Actuation of floor drain/skimmer ball valve</b> Potential-free switching contact. Make and break contact design.
		COM	Common (collective switching output)	
		NC	Normally closed (break contact)	
34 – 38	EXT_R1 to EXT_R5	NO	Normally open (make contact)	<b>External relay outputs</b> Potential-free switching contact. Make and break contact design.
		COM	Common (collective switching output)	
		NC	Normally closed (break contact)	
39	EXT_R6 / Cover open	NO	Normally open (make contact)	<b>Cover control Relay outputs</b>
40	EXT_R7 / Cover stop	COM	Common (collective switching output)	Potential-free switching contact.
41	EXT_R8 / Cover close	NC	Normally closed (break contact)	Make and break contact design.

No.	Function	Terminal and description		Comment
42	230V	L	Live wire/phase (current-carrying wire 230V)	Supply voltage and relay expansion module distribution
		N	Neutral (neutral conductor)	
		PE	Protective earth (grounding)	
44	EXT_SWC	NO	Normally open (make contact)	<b>Salt water electrolysis enabling</b> Potential-free switching contact. Make and break contact design.
		COM	Common (collective switching output)	
		NC	Normally closed (break contact)	

→ If inductive 230 V consumers are connected in the case of external relays (no. 34 – 41), interference snubbers should also be fitted.

<b>NO</b>	<b>The BADU Blue switching output can be used directly if devices to be actuated have a potential-free control input. The mains phase 230V can be bridged on the middle contact COM to operate 230V devices. (Note relay load!) Where higher loads are required, an appropriately configured contactor installed on site must be used!</b>
<b>COM</b>	
<b>NC</b>	
<b>L</b>	<b>Direct actuation of certain 230V devices. These terminals are appropriately labelled.</b>
<b>N</b>	
<b>PE</b>	
<b>A1</b>	<b>These contacts are connected directly to the coil connections of the contactor installed on site. Coil connection voltage 230V. Use for filter pump/attraction pump that is not speed controlled. Switches parallel to the “VS pump” terminal.</b>
<b>A2</b>	

**Cable cross section to be used**

Single-wire conductor, stripped	0.08 ... 2.5 mm <sup>2</sup>
Fine-wire conductor, stripped	0.08 ... 2.5 mm <sup>2</sup>
Fine-wire conductor, stripped with wire end ferrule	0.25 ... 1.5 mm <sup>2</sup>
Stripped length	5 ... 6 mm

### 5.6 LEDs on the board

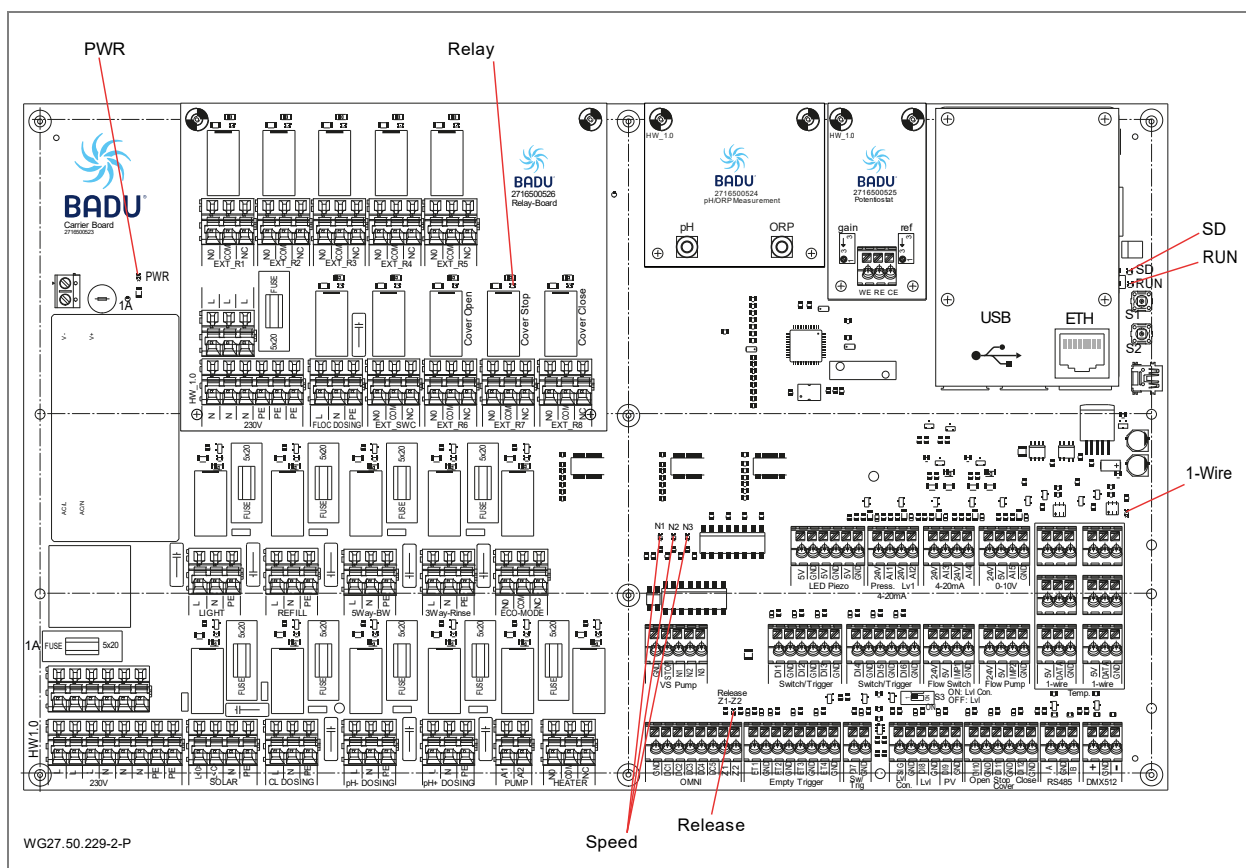


Fig. 46

LED	Designation
PWR	Illuminates when BADU Blue is supplied with power
Relay	LED illuminates if the relays have switched
SD	Indicates read and write access on the SD card
RUN	<b>Flashes:</b> BADU Blue app is not yet or not completely started; user interface is not accessible <b>Illuminates:</b> BADU Blue app is completely started; user interface is accessible
N1	Illuminates if the filter pump runs with speed n1
N2	Illuminates if the filter pump runs with speed n2
N3	Illuminates if the filter pump runs with speed n2
Release Z1-Z2	Illuminates if release Z1-Z2 is actuated
1-Wire	Illuminates if 1-Wire is connected

## 6 Commissioning/Decommissioning

### 6.1 Establishing a network connection

BADU Blue must be connected to the home network for operation. To achieve this, plug the home network LAN cable into connection 33 (See "Fig. 45" on page 40) on the upper right of the connection board.

BADU Blue requires about 30 seconds before it is ready to use.

The user interface can be accessed from any terminal (PC, laptop, tablet, ...). It is adequate in most cases to enter the URL: <http://badubblue.local> directly in the browser. The terminal should also be connected to the correct network.

The access data in the delivery state is:

Username: admin

Password: blue

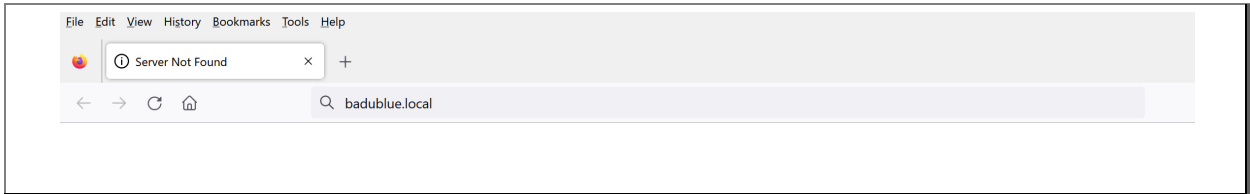


Fig. 47

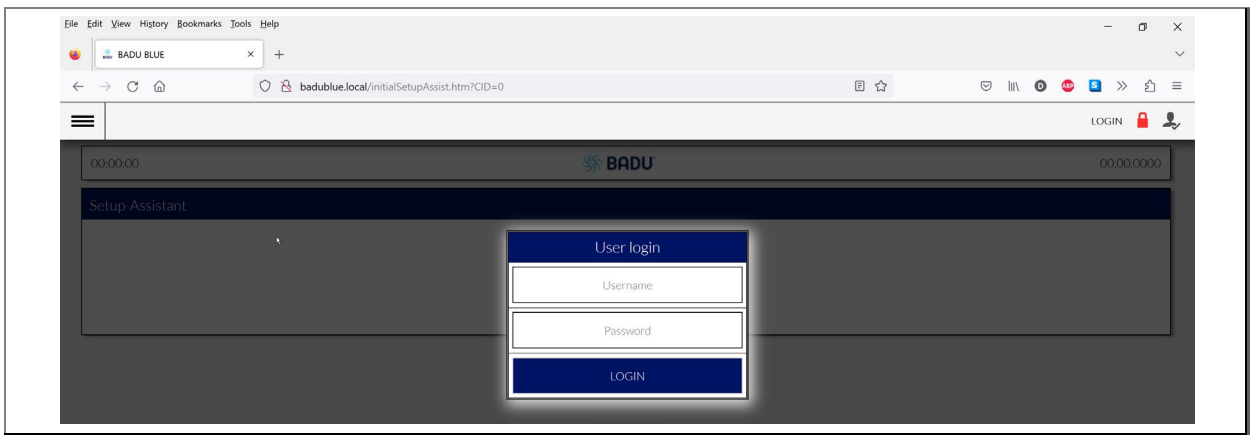


Fig. 48

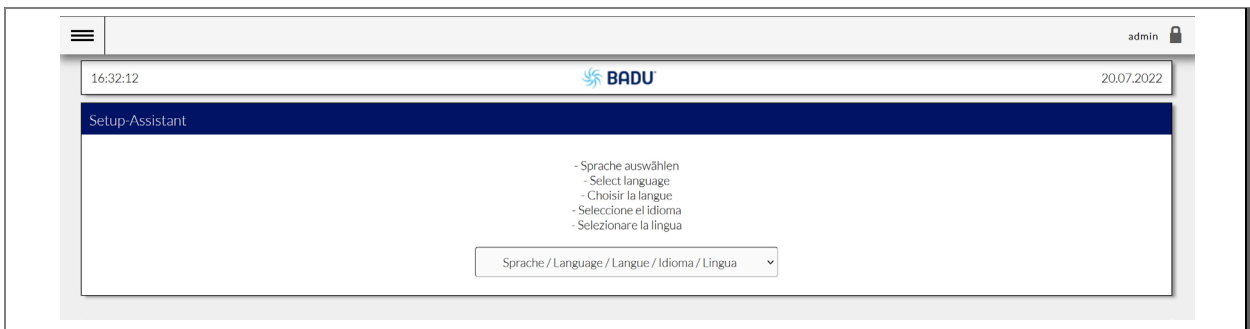


Fig. 49

As soon as the BADU Blue overview menu has been loaded, it can be stored on the mobile device as a bookmark for the home screen. The mobile device then creates its own icon for BADU Blue on the screen, and the user interface can then be opened like a normal app.

Create icon through local access

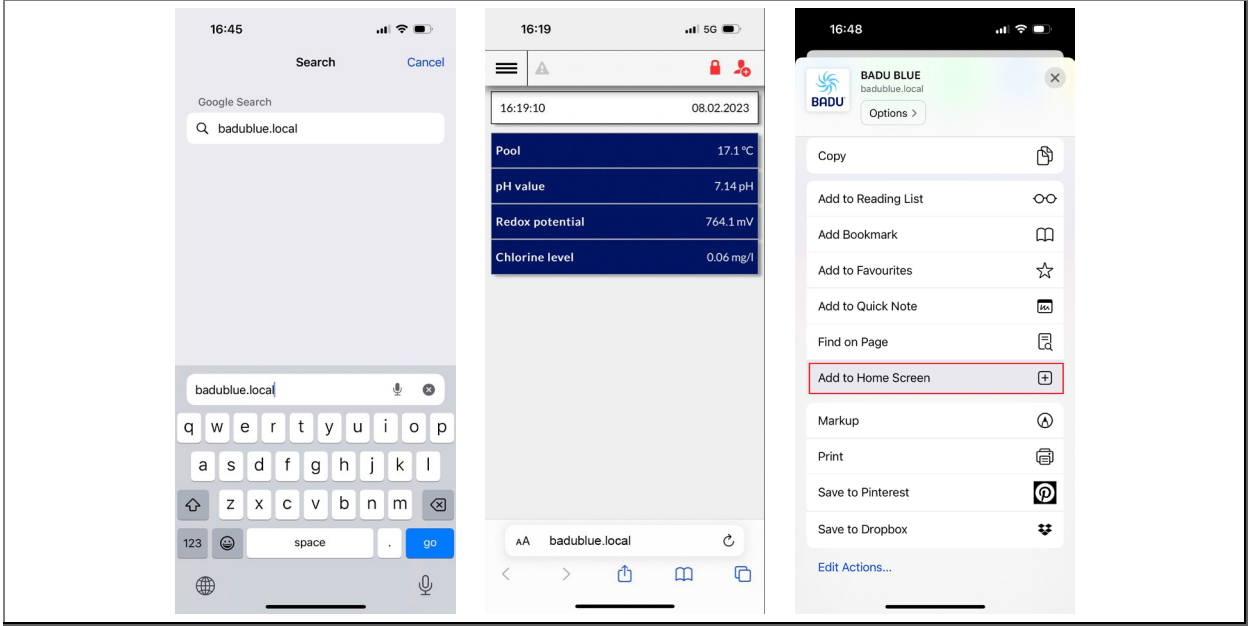


Fig. 50

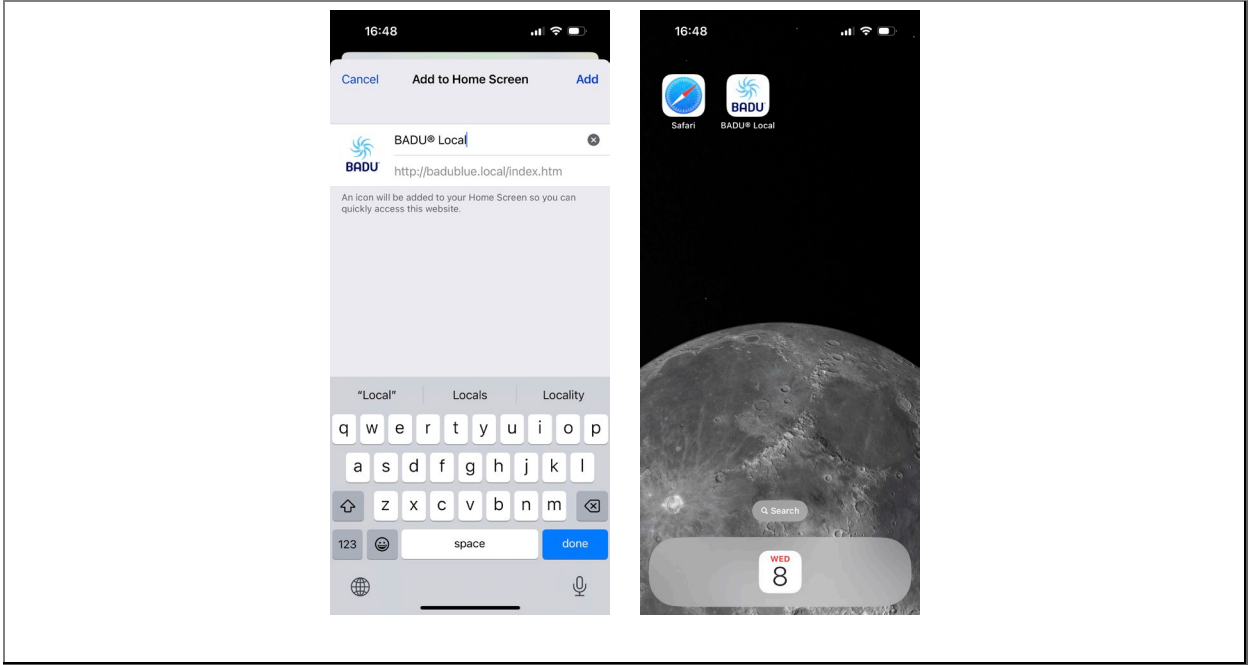


Fig. 51

In the case of subsequent activation of remote access (chapter 4 of the operating instructions), an additional icon for remote control can be placed on the screen.

Create icon through remote access

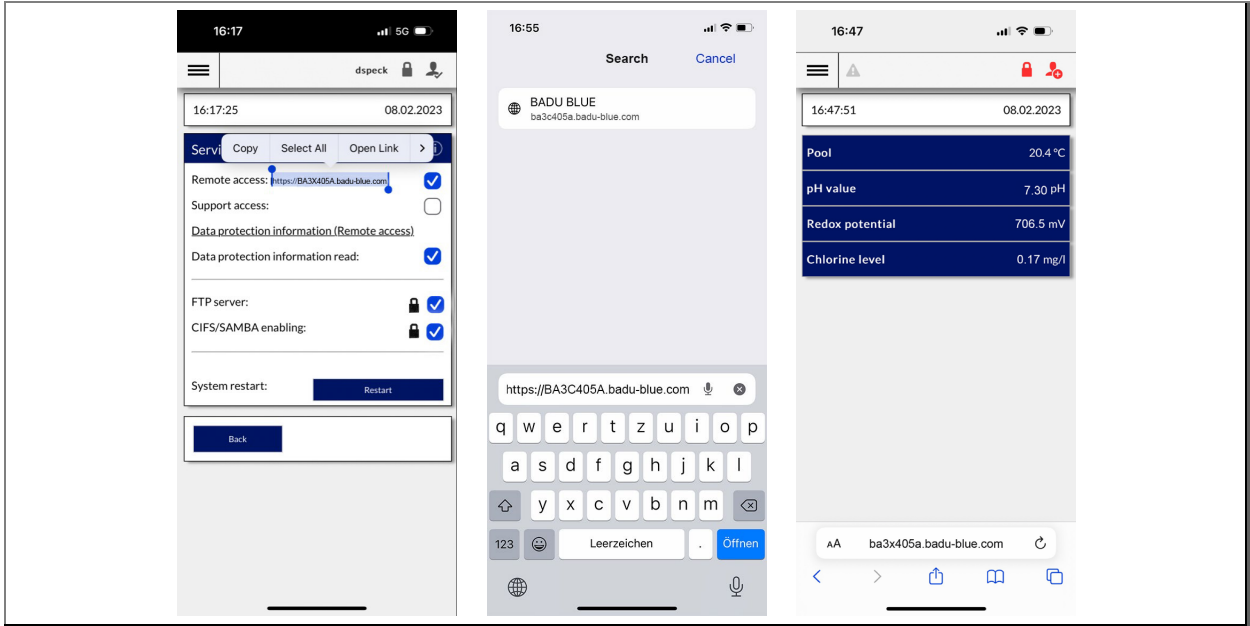


Fig. 52

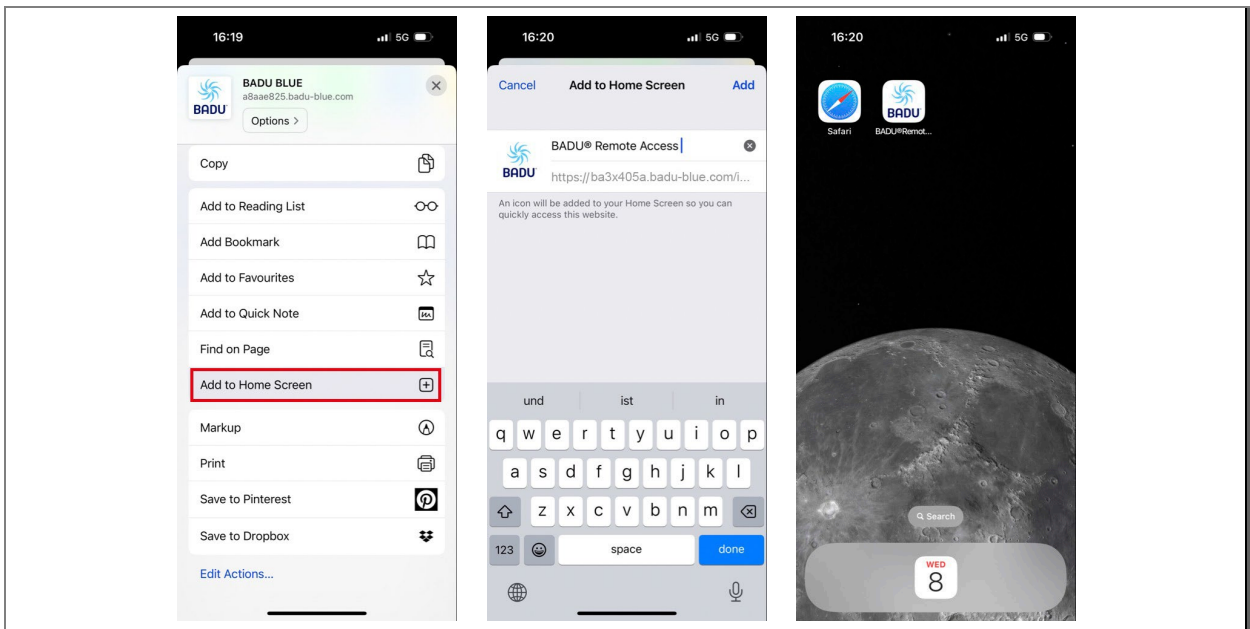


Fig. 53

It is imperative that the BADU Blue operating instructions be consulted for further settings and a more exact description. This can be downloaded through the QR code on the board or via [www.speck-pumps.com/de/badu/downloadbereich-badu-blue](http://www.speck-pumps.com/de/badu/downloadbereich-badu-blue).

**NOTE**

Note that local accessing is only possible in the home network. It is therefore absolutely essential that the icon be created for remote accessing and not confused. BADU Blue can also be accessed from outside with VPN accessing of one's own network following activation of the VPN with the local icon.



### 6.1.1 Network connection via WiFi Direct Access

If, during the construction phase of the swimming pool, an option for a network cable connection is not yet available or a swimming pool service technician requires access to the user interface at a later stage, this option can be used without accessing the customer's own network. BADU Blue can be configured via WiFi Direct Access.

BADU Blue provides a dedicated WiFi hotspot through which a mobile device (mobile phone, tablet or notebook) can be connected directly with BADU Blue. Following successful establishment of the connection, the user interface can be accessed via <http://badubblue.local> or <http://172.16.1.200>. This is even possible where no LAN cable connection has yet been connected to BADU Blue. The date and time is derived from the device if the LAN cable is not yet connected.

#### NOTE

A connection can only be established to the BADU Blue user interface via WiFi Direct Access. The internet connection of any LAN cable connected cannot be used for the connected device via this WiFi connection. It is also impossible to access the rest of the network connected to BADU Blue via a LAN cable.

## 6.2 Assembly

### 6.2.1 Hose dosing pump installation (optional during retrofitting)

(BADU Blue hose dosing pump, article no. 2716500555)

A holder with screws is included in the scope of delivery for the hose dosing pump. This should be screwed firmly to the bottom left of the BADU Blue mounting board. Holes for the holder are already provided on the mounting board. These should be used for the holder.

Following firm screwing of the holder to the board, the hose dosing pump can be clipped onto the holder.

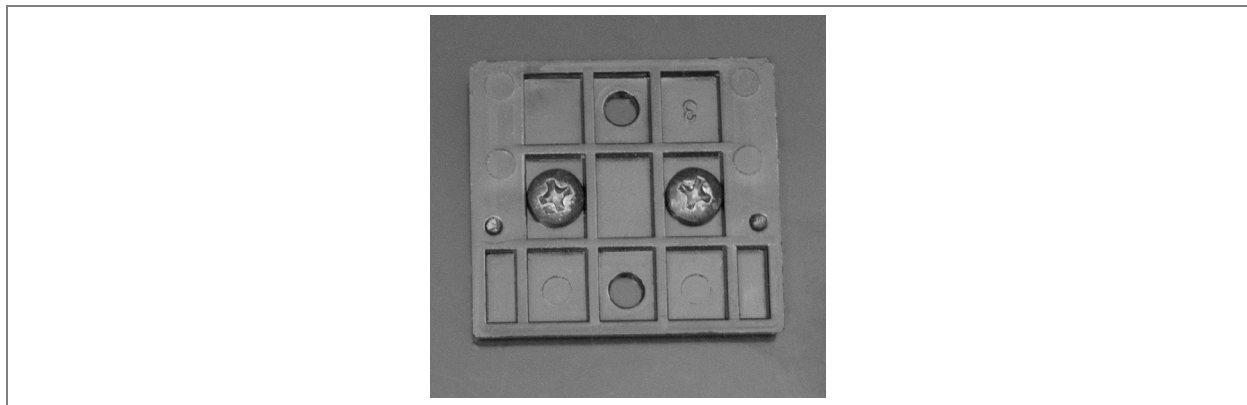


Fig. 54

### 6.2.2 Fitting hoses to the hose dosing pump

(BADU Blue hose dosing pump, article no. 2716500555)

#### ⚠ WARNING

Risk of burning. The suspending agent is acid, chlorine and lye.

➔ Wear safety glasses!

➔ In the event of eye contact, wash eyes out immediately with water and consult a doctor if necessary!

#### NOTICE

The hoses, weight and injection point must be fitted before the hose dosing pump can be used. The transparent house must be secured on the suction side, while the opaque hose is connected to the pressure side.

#### NOTICE

A hole can be drilled in the cover of the respective container prior to fitting the weight and foot valve, and the hose then pulled through this.

#### NOTICE

Prior to fitting the hose, the injection valve should be screwed into the position provided.

1. The caps should be fitted to a hose end in each case.

2. Push the two hoses firmly onto the screw fitting.
3. Tighten the caps.



Fig. 55

4. The hoses can now be cut appropriately to length.
5. The weight should be fitted to the transparent hose on the other side.
6. The foot valve should be pushed onto the end of the hose.
7. Pull the weight on the hose onto the foot valve.

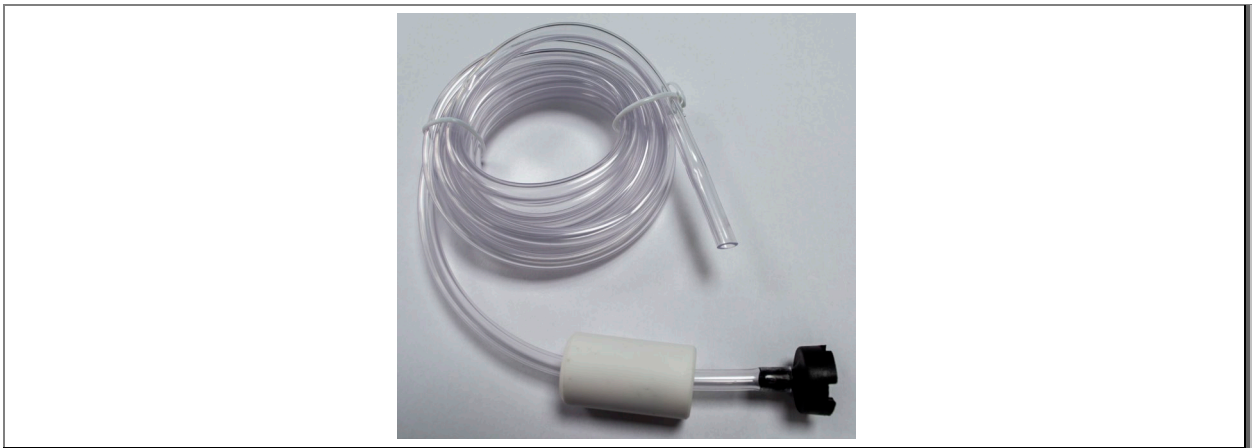


Fig. 56

8. The injection valve should be fitted to the opaque hose. Unscrew the cap for this purpose and push onto the hose.
9. Fit the hose to the injection valve.
10. Tighten the cap.

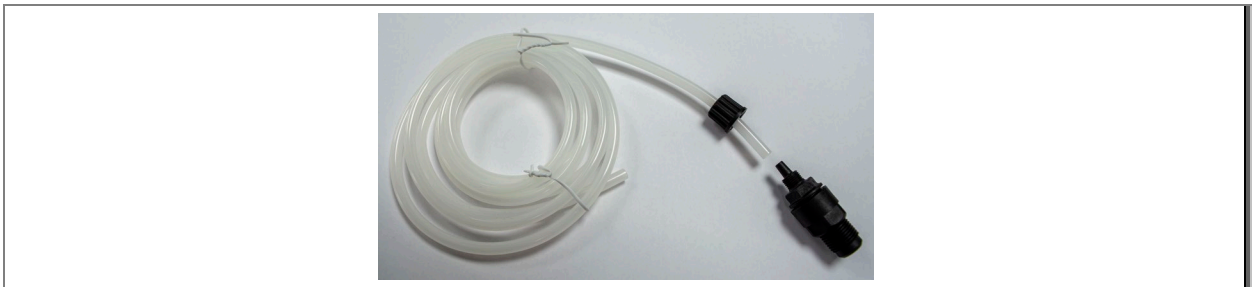


Fig. 57

### 6.2.3 Fitting the set for the injection point and injection valve/male connector

(Set for injection point and sample water, article no. 2716500556)

An adhesive flange should be fitted first to secure the injection valve.

➔ Close the stopcocks before fitting the adhesive flange to prevent any water flowing into the pipe.

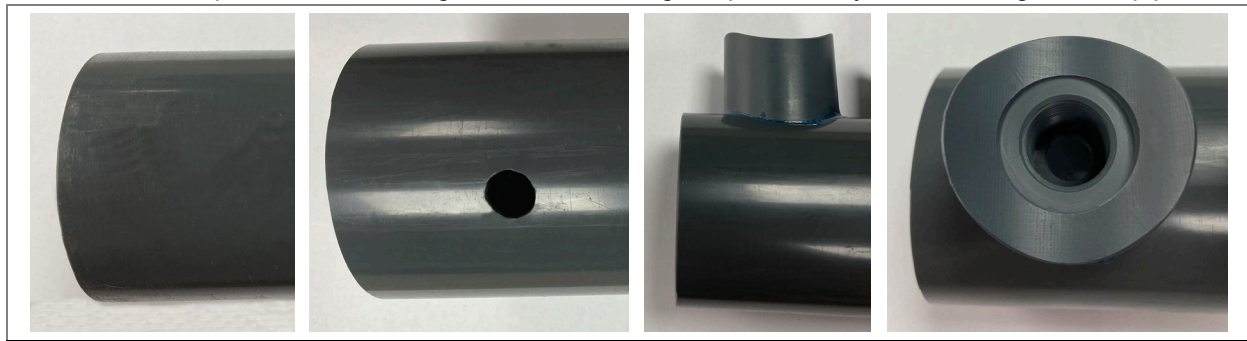


Fig. 58

#### NOTICE

Ensure that the right side is selected before adhering. A pipe with Ø 50 mm and Ø 63 mm is possible.

1. As the adhesive flange has an internal thread, a Ø 10 mm hole must first be drilled in the pipe. Pilot drill with a smaller drill bit if necessary.
2. The adhesive flange and the pipe should be cleaned in advance at the adhering position using PVC cleaner.
3. Apply PVC adhesive to both adhesive surfaces and adhere the parts.  
➔ Ensure that the adhesive flange is fitted corresponding to the Ø 10 mm hole.
4. Refer to the type plate of the adhesive used for the drying time.
5. Following the drying time, the injection valve/male connector can be screwed into the adhesive flange.

### 6.2.4 Fitting the hose to the shut-off ball valve of the measuring cell and male connector

The ball valves on the measuring cell and the male connector have no hoses in the delivery state. These must be mounted for commissioning.

1. The hose (2) should be inserted into the opening in the ball valve (1).  
➔ On inserting the hose (2), the hose (2) engages after a few millimetres for the first time. Push the hose (2) in a little deeper after this, applying a little pressure until it reaches the stop in the opening (1).
2. If the hose (2) is to be removed again, press the ring on the opening (1) towards the ball valve and pull out the hose (2).

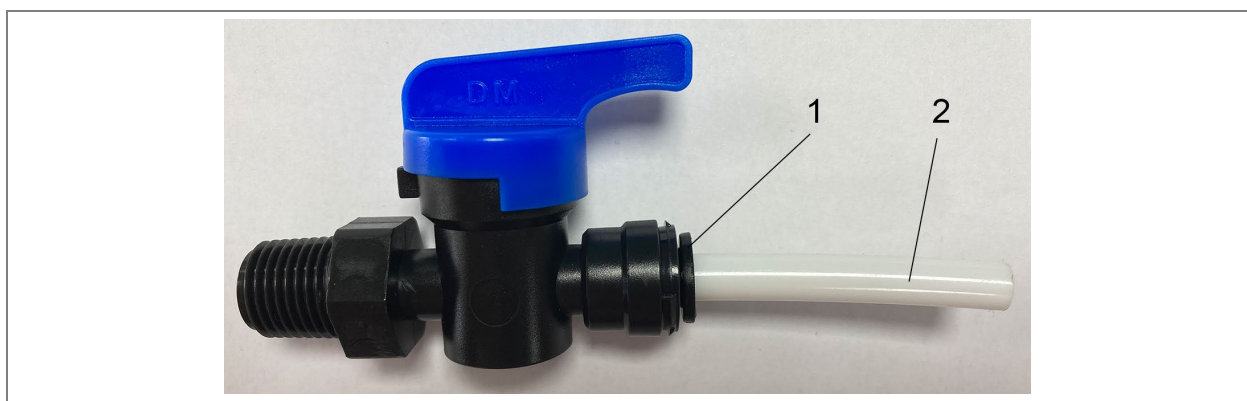


Fig. 59

The hose must be cut to the correct length following fitting. This may be also achieved prior to fitting in the ball valve, depending on the installation conditions.

Appropriate tools are provided for cutting to length. A sharp knife or cutter can also be used, but the hose should not be bent when cutting to length.

### 6.2.5 Fitting the measuring cell expansion kit

(Measuring cell expansion kit, article no. 2716500512)

Scope of supply:



Fig. 60

The following steps are necessary for fitting the measuring cell:

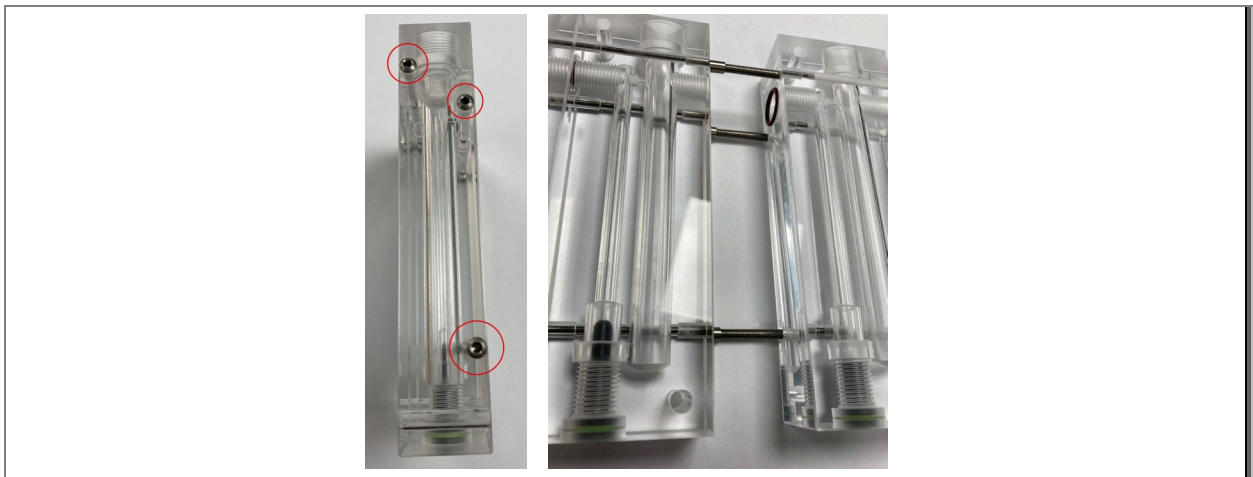


Fig. 61

1. Loosen the screws on the side labelled "OUT".  
➔ Use the hexagon Allen key included in the scope of delivery for this purpose.
2. Unscrew the threaded rod from the scope of delivery into three parts.
3. Screw the individual threaded rods into the sleeve of the threaded rods on the available measuring cell.
4. Place the O-ring in the groove on the side labelled "IN".
5. Thread the individual measuring cell onto the threaded rods.  
➔ Ensure that the O-ring does not fall out of the O-ring groove.

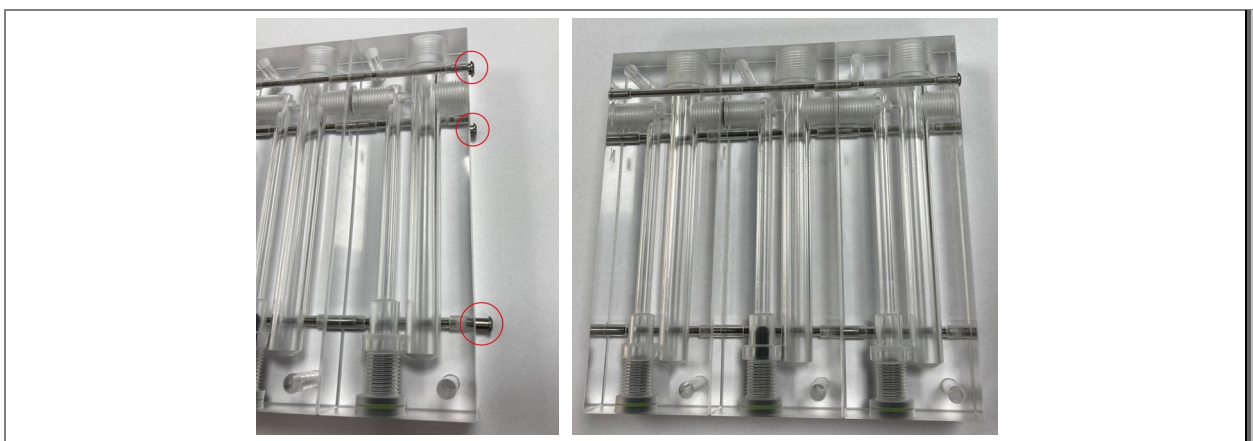


Fig. 62

6. Screw the screws loosened in step 1 onto the end of the threaded rod.
7. Hand tighten the screws with the hexagon Allen key provided. Counter hold them on the other side.

**NOTICE**

Ensure when fitting that the "IN" and "OUT" labels are correct and the result looks like the image on the right.

**6.3 Preparation, installation and commissioning of electrodes****6.3.1 Preconditions for installation and commissioning**

- The hose dosing pumps should be completely installed and operational.
- The measuring cell hoses should be already fitted to the pool water circuit, both on the pressure and suction side.
- The valves on the measuring cell lines should be closed to prevent any running water.

**6.3.2 Preparation of electrodes for pH, redox and chlorine****⚠ CAUTION**

The electrode should not be left too long in a dry atmosphere, as this will destroy it.

- ➔ Insert the electrode into the measuring cell immediately after removing it from the storage solution and tighten firmly by hand.

**NOTICE**

Be careful when working with tools. The electrode may be damaged as a result.

1. Following unpacking, visually inspect the electrodes for mechanical damage.
2. Unscrew the wetting cap and remove carefully. Rinse the electrode with water.
3. Dab the electrode dry. Never rub it.
4. Check the interior for air bubbles and remove any found through vertical oscillation.
5. Use the manufacturer's instructions for calibration and measurement.

**6.3.3 Installing the electrodes****⚠ CAUTION**

The electrode should not be left too long in a dry atmosphere, as this will destroy it.

- ➔ Insert the electrode into the measuring cell immediately after removing it from the buffer solution and tighten firmly.

**NOTICE**

The measuring cell should be closed using the small stopcocks, as the sample water can otherwise run out.

1. Observe points in See point 6.3.2 on page 53.
2. Check that the measuring cell is clean.
3. Remove the protective cap on the measuring cell thread.
4. Push the electrode into the measuring cell immediately after this and hand tighten the thread.
5. Following installation of all the electrodes, open the stopcocks in the measuring cell to allow the water to flow through.

## 6.4 Configuration of switching rules

Prior to creating a switching rule, the rule must be activated in the control system. Refer to chapter 22.3 of the BADU Blue operating instructions for more detailed information.

Configuration > Function - Switching rule > Switch inputs > Activate “Use”

### 6.4.1 Switching rule for counter swim units

The switching rule for the counter swim unit must be configured according to the following points.

1. Select dropdown menu.
2. Select “Switching rules”.
3. Select “Switch inputs”.

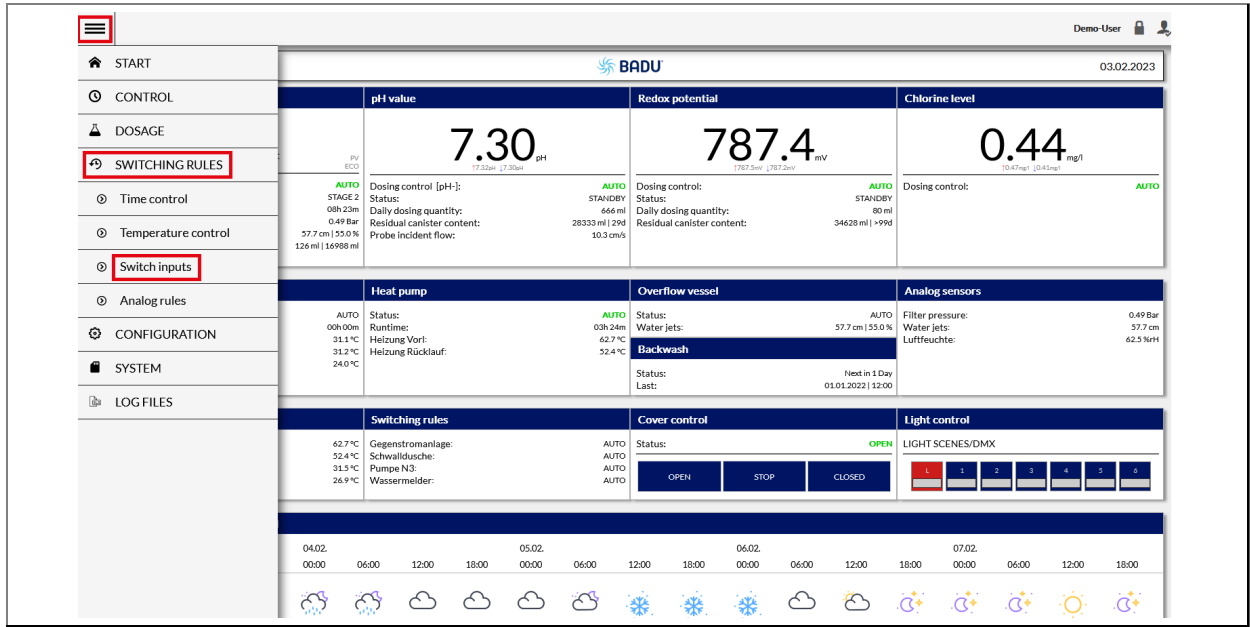


Fig. 63

4. Configure the switching rule as described in the example below.

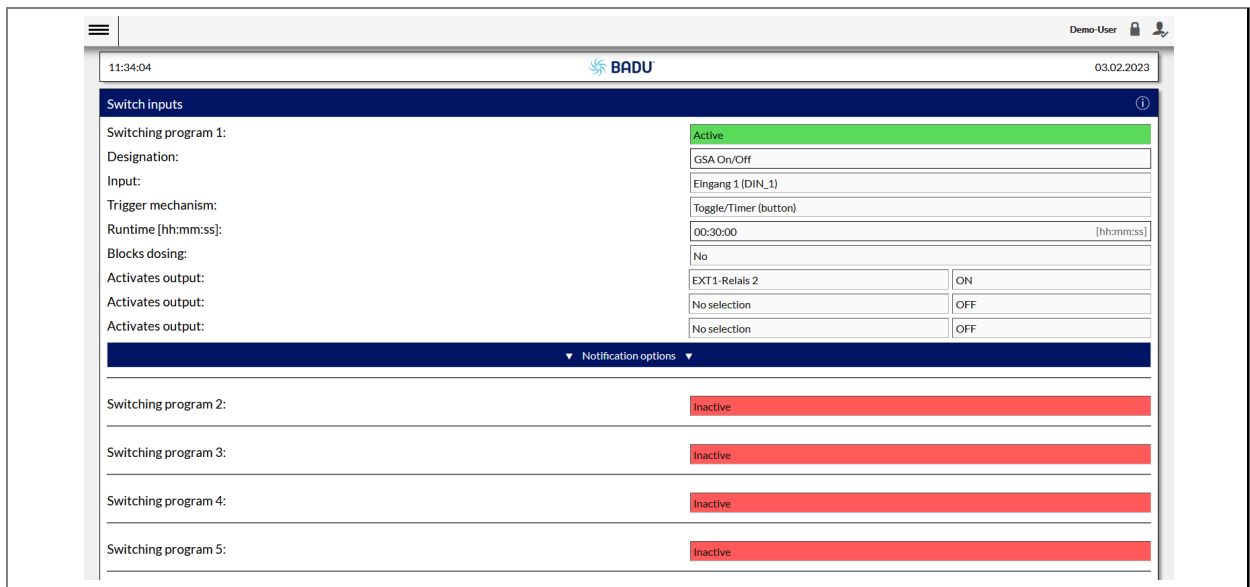


Fig. 64

5. Save settings with the “Accept” button at the bottom right.
6. The configuration must be subsequently tested.

### NOTICE

The counter swim unit should be indicated as in the switching example (circuit diagram). See point 5.4.18 on page 28

**NOTICE**

Configure a maximum runtime of 30 min. for the counter swim unit “On/Off”. This has safety advantages.

**NOTICE**

Other Ext relays can also be used for connecting if necessary. The respective connection used should then be selected in each case.

**6.4.2 Testing the switching rules**

Switching rules must be tested following creation.

1. Open the dashboard.
2. Click the “Switching rule” button.

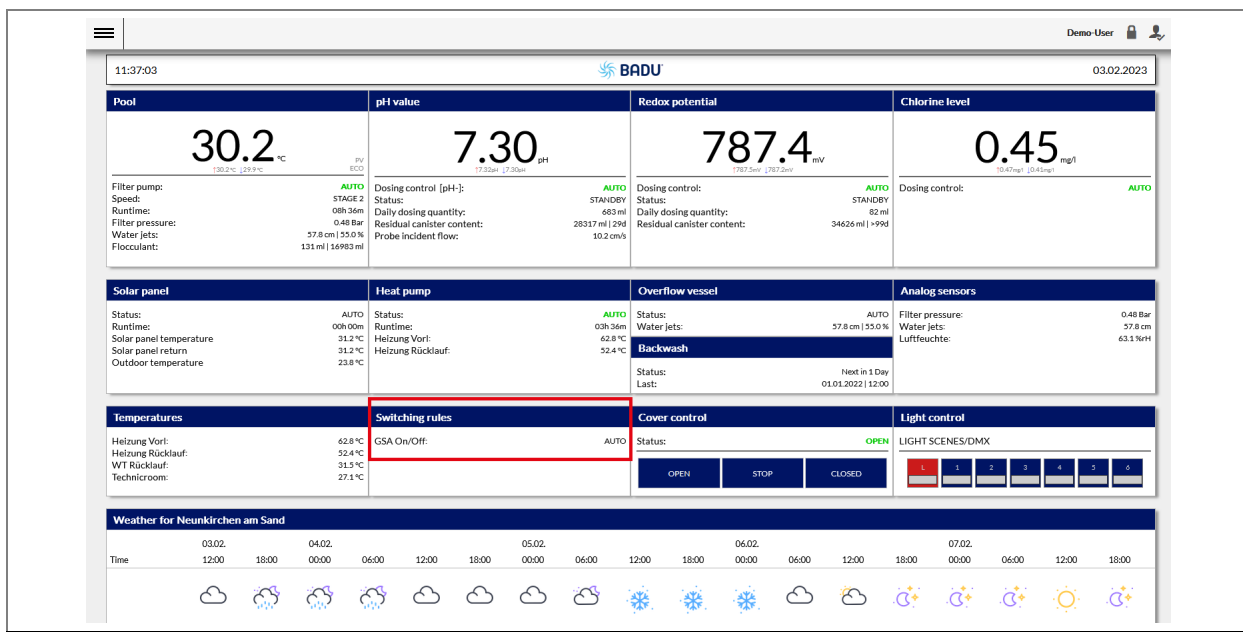


Fig. 65

3. Click “GSA On/Off” in the window that has just opened.

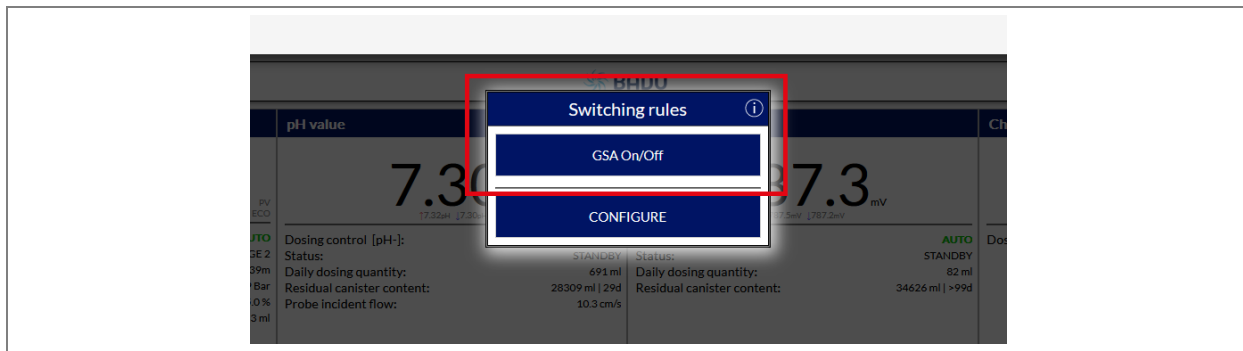


Fig. 66

4. Click Start.

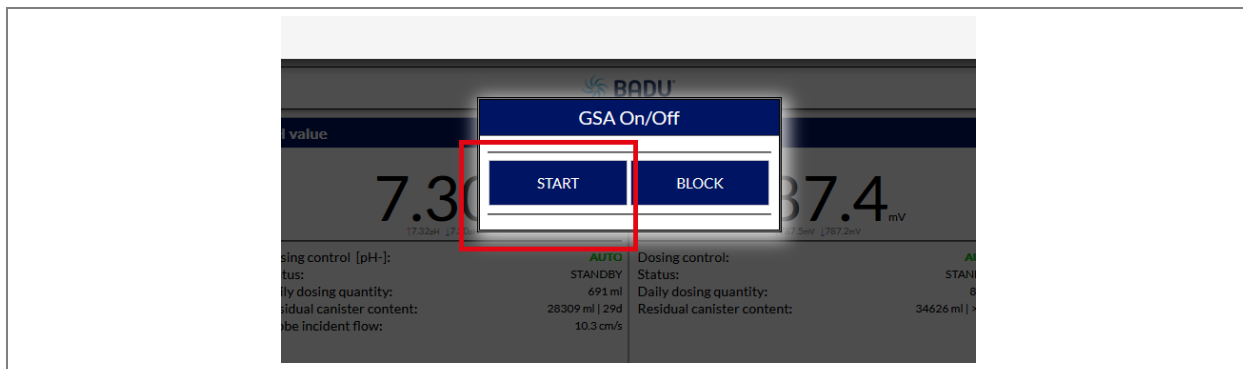


Fig. 67

A notice appears indicating that the switching rule is being executed.

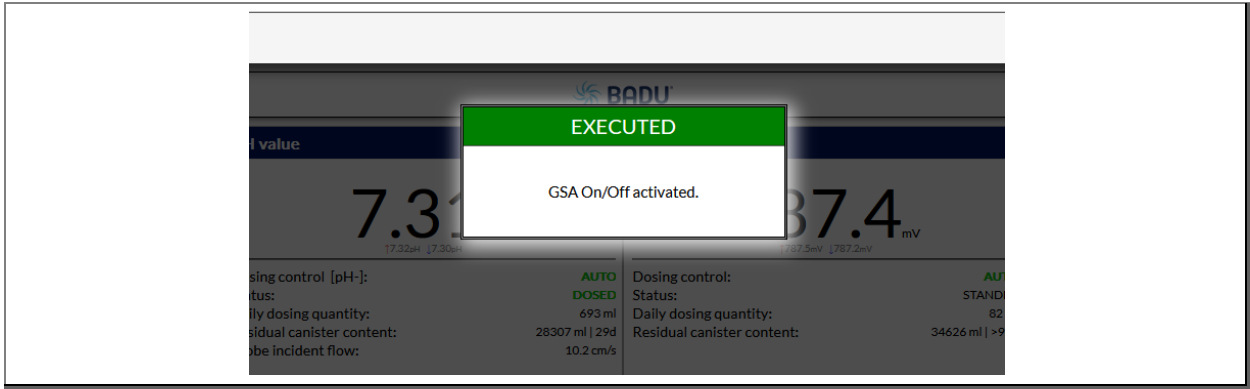


Fig. 68

A running clock is displayed in the “Switching rule” field. The green “AUTO” lettering indicates that the system is running. The counter swim unit runs as long as the runtime for switching inputs was specified. If the system is stopped, the switching rule is then also terminated.

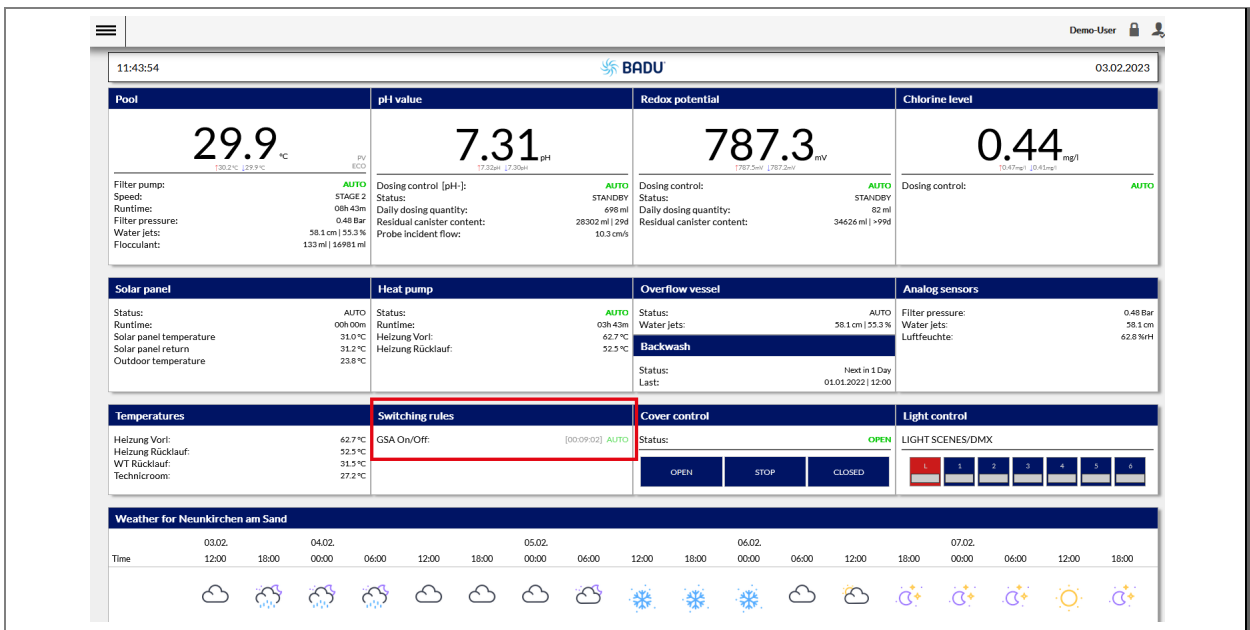


Fig. 69

**NOTICE**

➔ Check the wiring if the counter swim unit does not start.



### 6.4.3 Switching rule for BADU JET Turbo and BADU JET Turbo Pro

The switching rule for the counter swim unit must be configured according to the following points.

1. Select dropdown menu.
2. Select “Switching rules”.
3. Select “Switch inputs”.

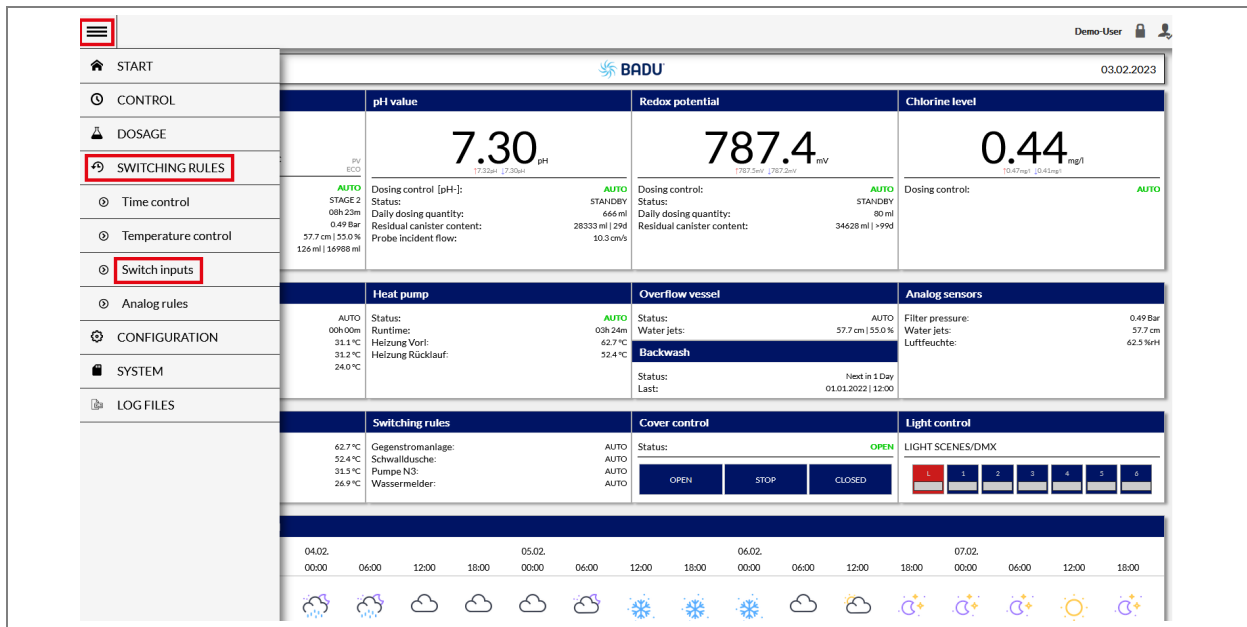


Fig. 70

4. Configure the three switching rules (On/Off, Up and Down) as described in the example below.

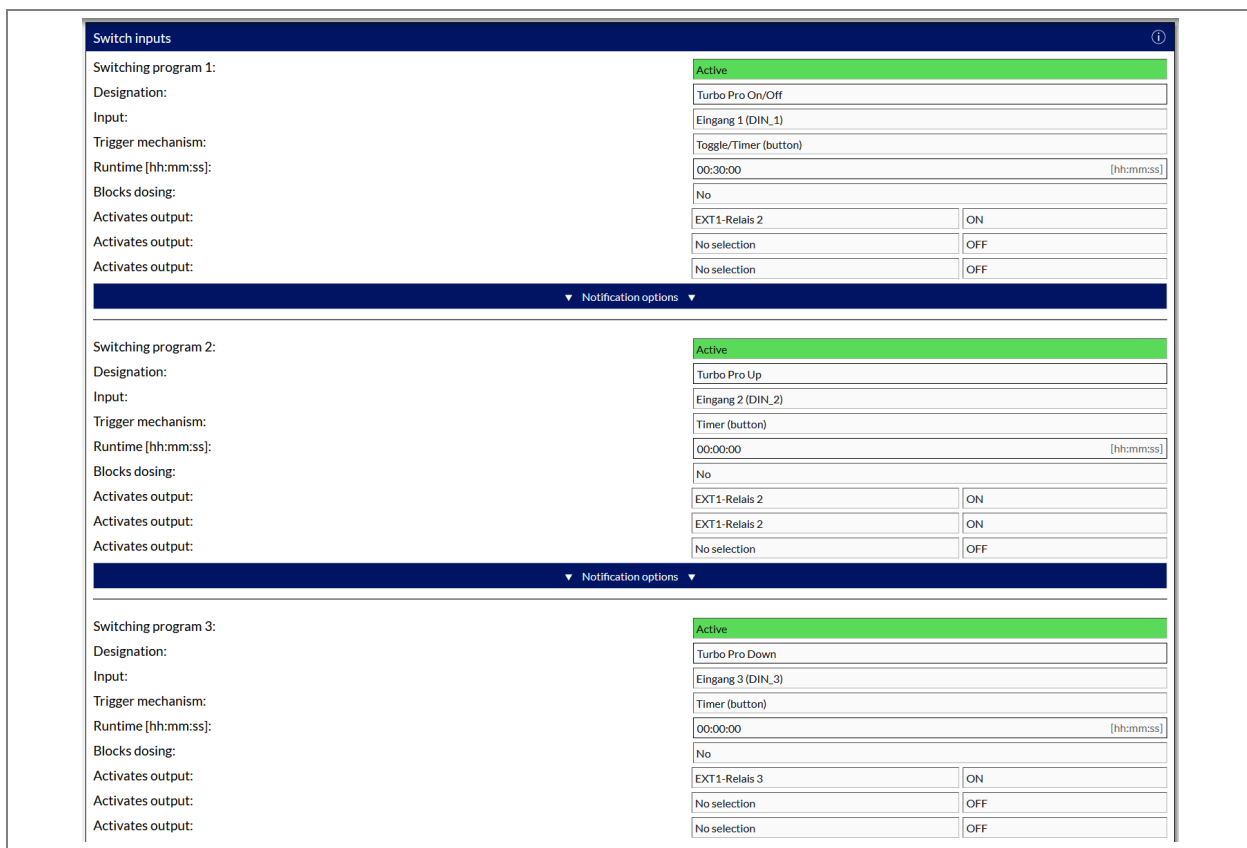


Fig. 71

5. Save settings with the “Accept” button at the bottom right.
6. The configuration must be subsequently tested.

**NOTICE**  
 The counter swim unit should be indicated as in the switching example (circuit diagram). See point 0 on page 29

**NOTICE**

Configure a maximum runtime of 30 min. for the BADU JET Turbo/BADU JET Turbo Pro “On/Off”. This has safety advantages.

**NOTICE**

Other Ext relays can also be used for connecting if necessary. The respective connection used should then be selected in each case.

**6.4.4 Testing the switching rules**

Switching rules must be tested following creation.

1. Open the dashboard.
2. Click the “Switching rule” button.

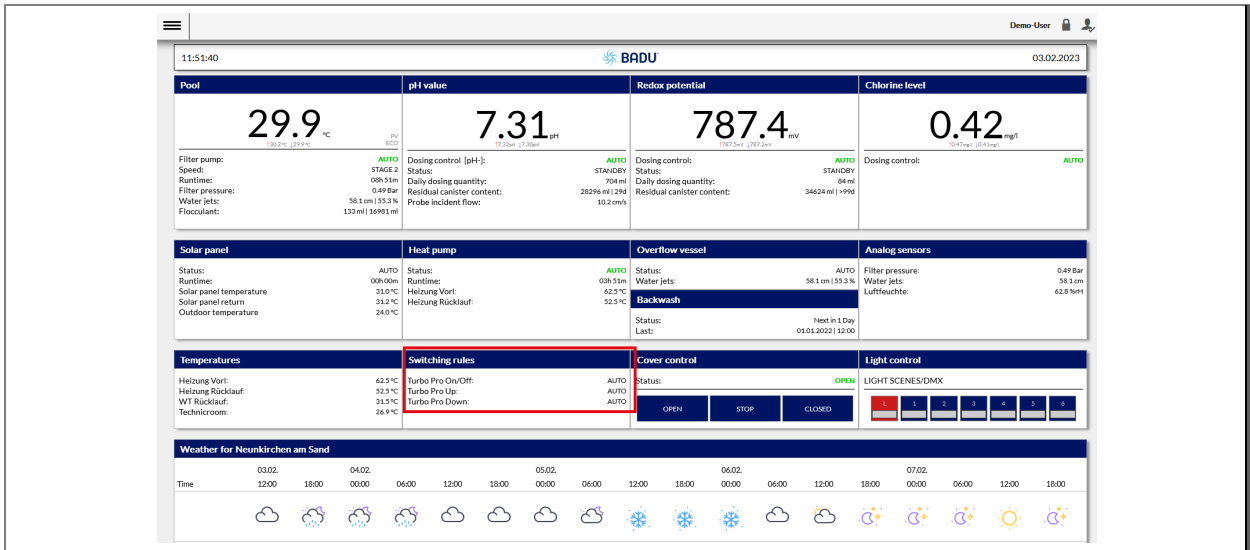


Fig. 72

3. Click “GSA On/Off” in the window that has just opened.

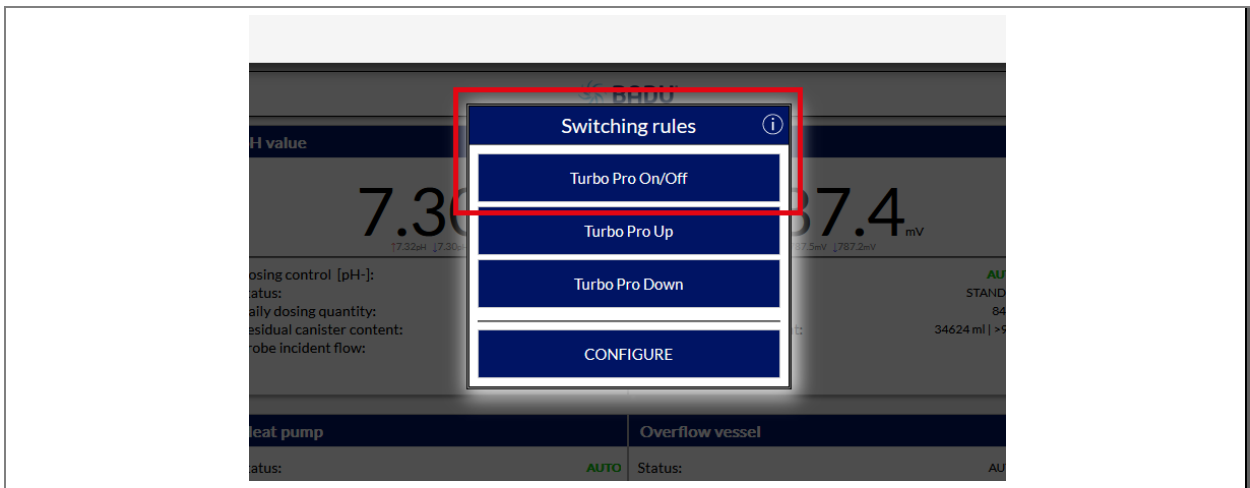


Fig. 73

4. Click Start.

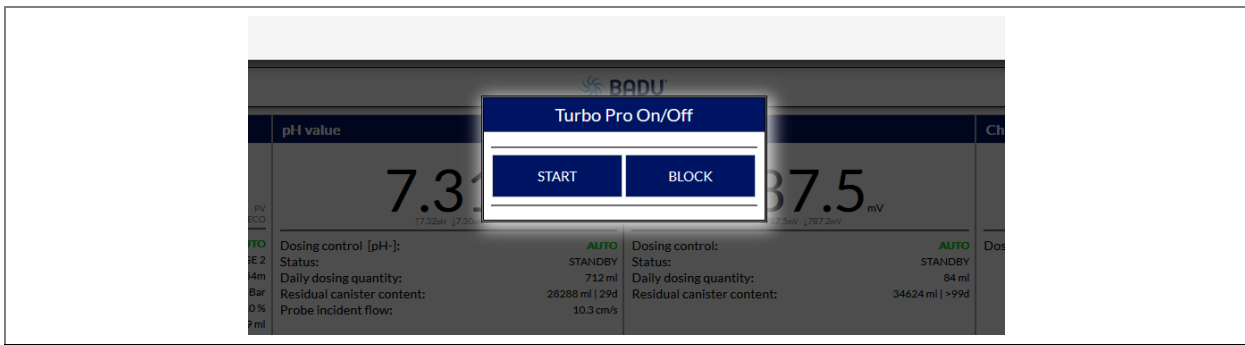


Fig. 74

A notice appears indicating that the switching rule is being executed.

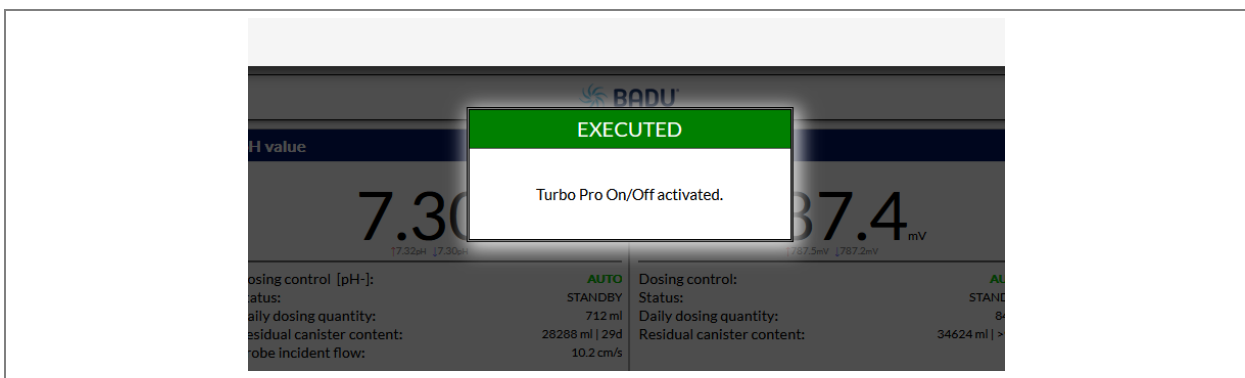


Fig. 75

A running clock is displayed in the “Switching rule” field. The green “AUTO” lettering indicates that the system is running. The counter swim unit runs as long as the runtime for switching inputs was specified. If the system is stopped, the switching rule is then also terminated. The switching rules for Up and Down should also be tested. Repeat steps 1 – 4 for this purpose.

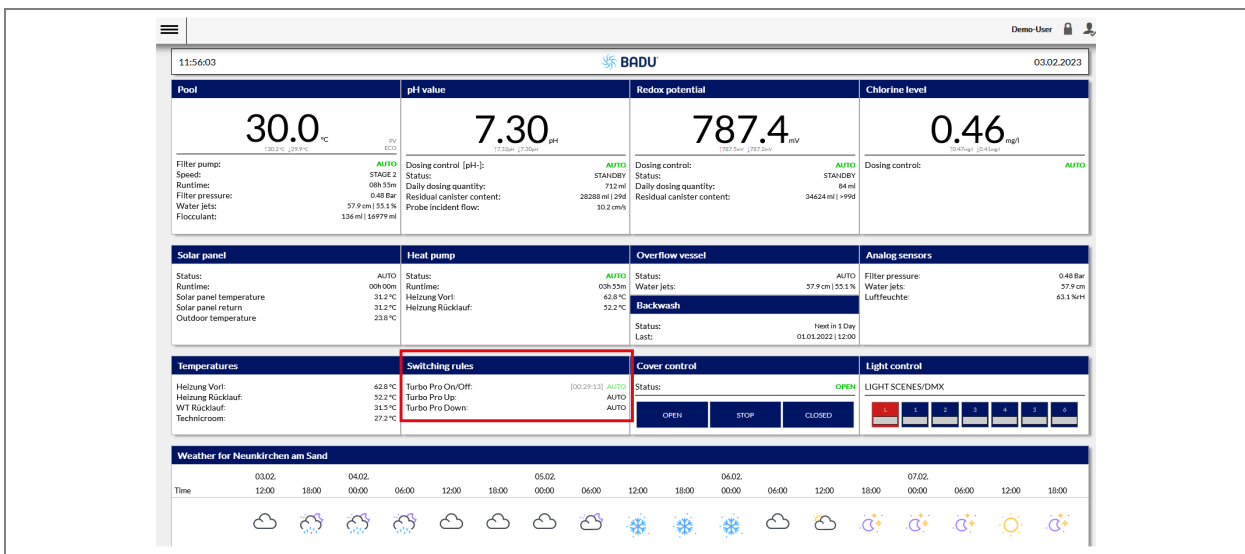


Fig. 76

**NOTICE**

➔ Check the wiring if the counter swim unit does not start.

## 6.5 Factory settings

BADU Blue can be reset to factory settings in two different ways.

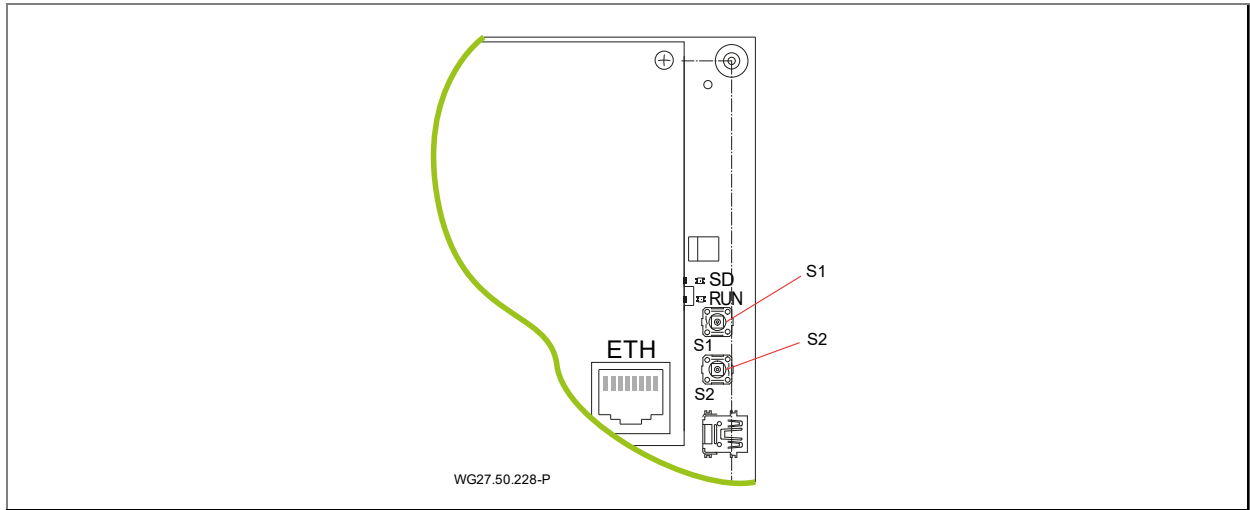


Fig. 77

### Button S1

The main computer is reset by pressing the S1 button. Different functions can be triggered by pressing S1 for differing lengths of time. An overview of this is contained in chapter 26 of the operating instructions.

### Button S2

The carrier board is reset and restarted by pressing the S2 button. All inputs are briefly deactivated during this, and the carrier board is operational again after 3 seconds.

## 6.6 Decommissioning/Overwintering

BADU Blue need not be decommissioned in winter. However, the following points should be observed if this is desired.

- **Dosing pump must be decommissioned for the winter:** Remove the dosing pump hose from the canister and place it in a container with clear water. The pump should suction for a certain period of time from this container (depending on the hose length) to purge the hoses and ensure that they no longer contain any chemicals. Hoses should be subsequently drained so that no liquid can freeze. The pump and hoses are resistant to frost and need not be removed.

### ⚠ WARNING

Risk of burning due to leaking liquids.

- ➔ Drain the pump hose and lines completely.
- ➔ Wear safety gloves.
- ➔ Safeguard the surroundings with cloths against leaking media.

### ⚠ WARNING

Risk of burning. The suspending agent is acid, chlorine and lye.

- ➔ Wear safety glasses.
- ➔ In the event of eye contact, wash eyes out immediately with water and consult a doctor if necessary.

- **Electrodes must be decommissioned for the winter:** The electrodes should be cleaned prior to going into storage. Place them in the cleaning solution for approx. 15-20 minutes for this purpose. ATTENTION! The electrodes should be no longer electrically connected. Use a soft brush for stubborn dirt.
- **Measuring cell must be decommissioned for the winter:** The hoses in measuring cells must be free of water, but need not be removed.

### NOTICE

If the filter pump remains in operation over the winter, but dosing components are decommissioned for the winter, all dosing control systems should be subsequently deactivated on the dashboard (MANUAL OFF).

### NOTICE

Refer to chapter 21 of the operating instructions for further information on decommissioning.

## 7 Maintenance

### 7.1 Maintenance schedule

When?	What?
Min. 1x per week	→ Inspection of water parameters disinfectant and pH values
Every 1-2 weeks	→ Calibration of chlorine electrode
Every 2-4 weeks	→ Inspection of water parameter salt content (for electrolysis)
Monthly	<ul style="list-style-type: none"> <li>→ Inspection of all dosing lines for leaks</li> <li>→ Inspection of all hoses for leaks</li> <li>→ Inspection and cleaning of filter screen</li> <li>→ Calibration of pH and redox electrode</li> <li>→ Maintenance of injection point</li> </ul>
Every 3 months	→ Visual inspection of dosing pump peristaltic hoses
Every 6 months	<ul style="list-style-type: none"> <li>→ Examination of injection points</li> <li>→ Examination of dosing hoses</li> <li>→ Examination of hub for dosing pumps</li> </ul>
Annually	<ul style="list-style-type: none"> <li>→ Replacement of pH and redox electrodes</li> <li>→ Calibration of new electrodes with fresh buffer solution</li> <li>→ Replacement of hoses on the dosing pumps</li> </ul>

#### 7.1.1 Cleaning of electrodes for pH, redox and chlorine

##### NOTICE

- Cleaning of the chlorine electrode must be realised in a de-energised state.
- Never store the electrode in a configured state while it is connected.

- Light deposits can be wiped off with a soft cloth and rinsed away with clear water. A simple washing-up liquid without any sheen function can be used if necessary.
- In the event of severe dirt, the electrode can be placed in 1M HCl for one minute or overnight in buffer 4.

#### 7.1.2 Cleaning the sealing lip on the injection valve

##### ⚠ WARNING

Risk of burning. The suspending agent is acid, chlorine and lye.

- Wear safety glasses and safety gloves!
- In the event of eye contact, wash eyes out immediately with water and consult a doctor if necessary.

The sealing lip on the injection valve should be cleaned regularly. See point 7.1 on page 61  
Observe the following steps for this purpose.

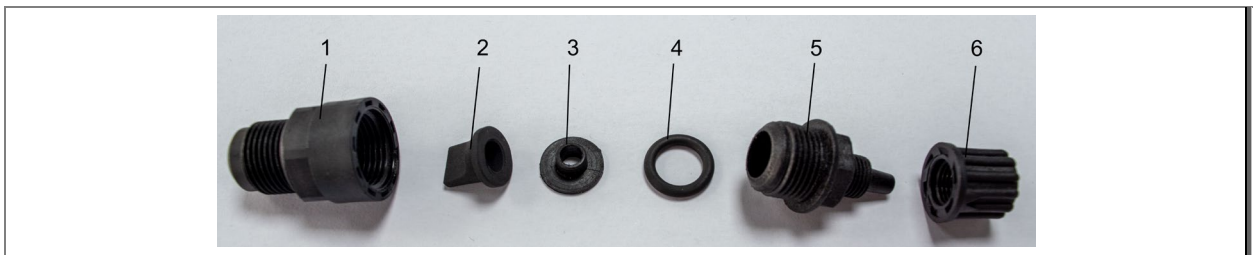


Fig. 78

1. Unscrew part 1 from the PVC holder.
2. The cap (6) and hose can remain fitted.
3. Unscrew part 5 from part 1.
4. Take the O-ring (4) out of the interior of part 1.
5. Remove the cap (3) together with the sealing lip (2).
6. Clean the sealing lip (2) carefully under running water. Remove any incrustations with a soft cloth.
7. Place the sealing lip (2) in part 1 again.
8. Press the cap (3) slightly into the sealing lip to ensure it is fitted cleanly.
9. Press in the O-ring (4) again. Ensure that it is not damaged during this.
10. Screw in part 5 again.
11. Reseal part 1, screw into the PVC holder again and check for leaks.

### 7.1.3 Hose changing on the hose dosing pump

#### **⚠ WARNING**

Risk of burning due to leaking liquids.

- Drain the pump hose and lines completely.
- Wear safety gloves.
- Safeguard the surroundings with cloths against leaking media.

#### **⚠ WARNING**

Risk of burning. The suspending agent is acid, chlorine and lye.

- Wear safety glasses!
- In the event of eye contact, wash eyes out immediately with water and consult a doctor if necessary!

#### **⚠ WARNING**

Risk of injury due to rotating parts. The rotor may start suddenly when changing the hose.

- The control system must remain disconnected from the mains power during hose changing on the pump.
- The mains plug should only be plugged in again on completion of work.

1. The transparent cover (1) should be pushed upwards by applying gentle pressure.
2. Remove the suction and pressure hose from the cable glands (2).
3. The two cable glands (2) should be removed upwards out of the holder.
4. The rotor (4) is pulled off upwards with the peristaltic hose (3).
5. The new peristaltic hose (3) is laid around the rotor (4).
6. The rotor (4) is fitted to the hub and pressed carefully downwards.
7. The two cable glands (2) should be pressed into the holder again.
8. The transparent cover (1) is clicked onto the hose dosing pump again.
9. The suction and pressure hose should be subsequently refitted to the cable gland (2).

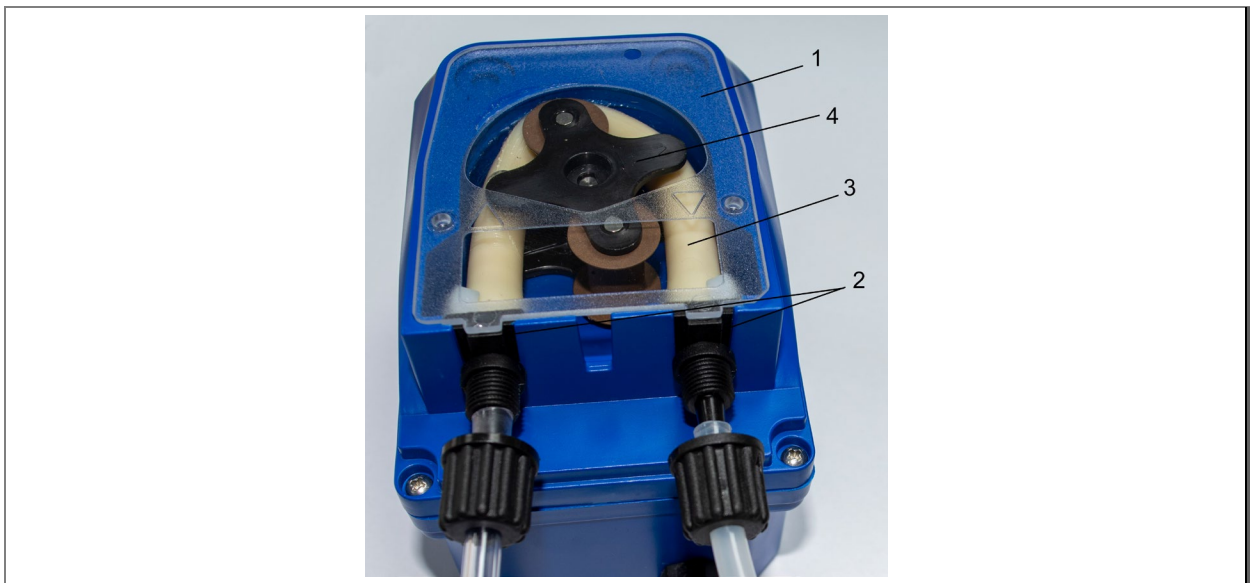


Abb. 79

### 7.1.4 Cleaning the filter screen in the measuring cell connection

#### **NOTICE**

The ball valves should be closed prior to removing the filter screen to prevent any water flowing out of the system.

1. Close the ball valves in the pipe system.
2. Unscrew the filter cover (4).
3. Carefully remove the filter screen (3) from the housing (1).
4. Clean the filter screen (3), removing any coarse dirt. Do not damage the screen during cleaning.
5. Ensure that the O-ring (2) is fitted in the groove prior to inserting the filter screen (3).
6. Check the O-ring (2).

7. Push the filter screen (3) into the housing (1).
8. Screw on the cover (4) and hand tighten.
9. Open the ball valves and reset the probe actuation with the ball valve.
10. Check the filter for leaks.

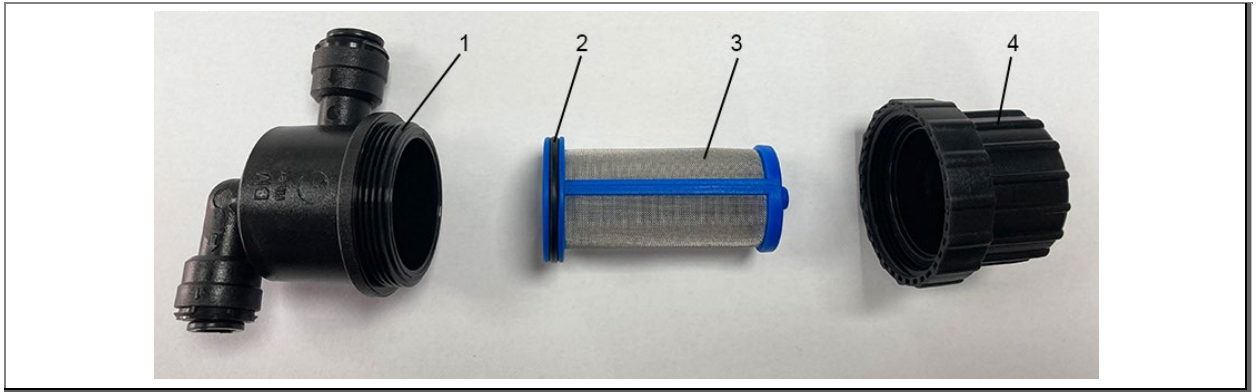


Fig. 80

## 7.2 Calibration of electrodes (suspending agent)

Calibration should be realised at regular intervals, but at least 1x each month. Calibration should be realised regularly at least 1x each week where the chlorine electrode is used.

Calibration is absolutely essential in the following situations:

- Initial commissioning
- Recommissioning following a downtime
- Water changing
- In the event of a change in water quality (cloudy water)
- Following the addition of water additives (algaecide). It is absolutely essential that the electrode be cleaned in advance of this.
- Electrode replacement
- If deviations occur between the display on the device and the manual test measurement
- Resetting to factory settings
- Following winter decommissioning. Prior to calibrating the electrode here, it should be cleaned in the cleaning solution and then run in. The pH and redox electrode should be run in for 12 hours, the chlorine electrode for 24-36 hours.

## 7.3 Service life

### pH electrode/redox electrode

The pH electrode/redox electrode has a service life of around 12 months, depending on the frequency and conditions of use.

### Chlorine electrode

The chlorine electrode should be replaced every three years.

## 7.4 Warranty

The warranty includes the devices delivered and all components. However natural wear and tear (DIN 3151/DIN-EN 13306) on all turning and dynamically loaded components, including electronic components under tension, is not covered under the warranty.

Failure to comply with the safety instructions may void the warranty.

### 8 Disposal

- Collect harmful media and dispose of it according to the regulations.
- At the end of its service life, the pump/unit or individual components must be disposed of correctly. Disposal in the household waste is not permitted!
- Dispose of the packaging materials in the household waste in accordance with the local regulations.

#### 8.1.1 Disposal of pH/redox/chlorine electrodes

The electrodes should be disposed of as hazardous waste. Used electrodes can be returned to Speck and will then be disposed of free of charge.



## 9 Technical data

### 9.1 Power consumption fuse protection

Designation	Current [A]	Power output [W]	Fuse protection
Blue Pro control system (Ethernet, pressure sensor, temperature sensor ...)	0.049	11.221	1A T
Relay expansion module relay 1 on	0.053	12.137	
Relay expansion module relay 2 on	0.057	13.053	
Relay expansion module relay 3 on	0.061	13.969	
Relay expansion module relay 4 on	0.065	14.885	
Relay expansion module relay 5 on	0.069	15.801	
Relay expansion module relay 6 on	0.073	16.717	
Relay expansion module relay 7 on	0.077	17.633	
Relay expansion module relay 8 on	0.08	18.32	
Relay expansion module relay flocculant on	0.082	18.778	
Relay expansion module relay EXT SWT on	0.086	19.694	
<b>All on</b>	<b>0.14</b>	<b>32.06</b>	
Solar		20	400mA T
Heating		50	
Light		100	600mA T
Refill		20	400mA T
Backwash		20	400mA T
Backwash rinse		20	400mA T
Dosing pump pH-		20	400mA T
Dosing pump pH+		20	400mA T
Dosing pump Cl		20	400mA T
Dosing pump flocculant		20	400mA T
Pump		50	400mA T
ECO mode		50	
Other relays (8x potential-free)		400	
Salt water electrolysis		50	
Control		32	
<b>Total</b>		<b>924.06</b>	<b>W</b>
Blue control system (Ethernet, pressure sensor, temperature sensor ...)	0.047	10.763	
Relay pump on	0.051	11.679	
Relay heater on	0.055	12.595	
Relay ECO mode on	0.059	13.511	
<b>All relays</b>	<b>0.112</b>	<b>25.648</b>	

### 9.2 Terminals

Life expectancy of the relay switching contacts at 23°C

Reduction of life expectancy of the relay switching contacts through high switching currents and inductive loads (causing high switching currents)

230V ~, 3A, resistive load

100,000 switching operations

Recommendation for wire ends

- stripped
- stripped with wire end ferrules

## 10 Index

### C

Commissioning 46

### D

Decommissioning 46

Disposal 64

### E

Electrical connection 17

### F

Faults 8

### I

Installation 14

Intended use 7

### M

Maintenance 61

### Q

Qualified specialist 17

### S

Spare parts 7

Storage 13

### T

Technical data 65

Transport 13

### W

Warranty 63

---

## UKCA Declaration of Conformity

Herewith we declare that the pump unit

BADU Blue  
BADU Blue Pro

Applied standard in particular:

**BS CISPR 11:2009**

EMC Radio Radiofrequency disturbance characteristics

**BS EN 61326-1:2013**

EMC requirements

**BS EN 61000-3-2:2014 /-3:2013**

EMC Limits

**BS EN 61000-4-2 /3/4/5/6/8/11**

EMC Testing and measurement techniques

### UKCA Authorised Representative

Comply Express Ltd  
Unit C2 Coalport House  
Stafford Park 1  
Telford, TF3 3BD  
UK



i.V. Sebastian Watolla  
Technical director



Armin Herger  
Managing Director

91233 Neunkirchen am Sand, 24.04.2023

**SPECK X**  
pumpen

SPECK Pumpen Verkaufsgesellschaft GmbH  
Hauptstraße 3, 91233 Neunkirchen am Sand, Germany

## EG-Konformitätserklärung

EC declaration of conformity | Déclaration CE de conformité | Declaración de conformidad

Hiermit erklären wir, dass das Pumpenaggregat/Maschine

Hereby we declare that the pump unit | Par la présente, nous déclarons que l'agrégat moteur-pompe | Por la presente declaramos que la unidad de bomba

Baureihe

Series | Série | Serie

BADU Blue

BADU Blue Pro

folgenden einschlägigen Bestimmungen entspricht:

is in accordance with the following standards: | correspond aux dispositions pertinentes suivantes: | cumple las siguientes disposiciones pertinentes:

### EG-Niederspannungsrichtlinie 2014/35/EU

Low voltage directive 2014/35/EU | Directives basse tension 2014/35/UE | directiva de baja tensión 2014/35/UE

### EMV-Richtlinie 2014/30/EU

EMC-Machine directive 2014/30/EU | Directives CE sur la compatibilité électromagnétique 2014/30/UE | directiva 2014/30/UE

Angewendete harmonisierte Normen, insbesondere

According to the provisions of the harmonized standard for pumps in particular | Normes harmonisées appliquées, notamment | Normas armonizadas aplicadas, especialmente

EN 61000-4-2 / -3/ -4/ -5/ -6/ -8    EN 61000-3-2 / -3    EN 55011



i.V. Sebastian Watolla

Technischer Leiter | Technical director |  
Gérant | Gerente



Armin Herger

Geschäftsführer | Managing Director | Directeur technique | Director técnico

91233 Neunkirchen am Sand, 24.04.2023

**SPECK X**  
pumpen

SPECK Pumpen Verkaufsgesellschaft GmbH  
Hauptstraße 3, 91233 Neunkirchen am Sand, Germany