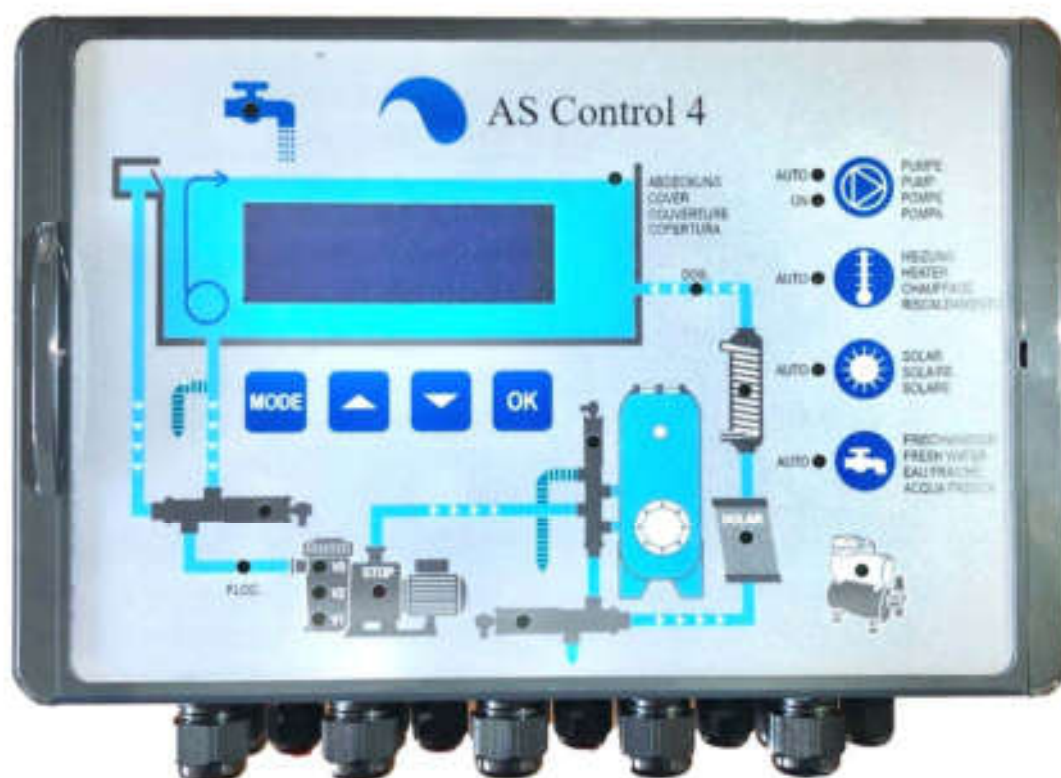


# User Manual

## *AS Control 4*



|                                                                                                   |           |
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## 1. GENERAL DESCRIPTION OF FUNCTIONS

The AS Control 4 (ASC4) is a comprehensive control unit for controlling a swimming pool. Various options are provided, so that the control unit is suitable for almost all areas of application, regardless of the size of the swimming pool and the needs in automation of the various processes.

The basis of the entire control system is the programming of the filtering and backwashing. A maximum of 9 filter times can be programmed. The desired pump speed can be set separately for each filter time. An automatic backwash valve (Besgo) is required for programmable backwashing.

Slim skimmers are often used today for high water levels in the pool. To ensure that sufficient pool water is available for backwashing, it is recommended to install an additional 3-way valve (Besgo) in the suction line of the pump in order to draw water from the pool through main drains or other suction points during backwash. Important! Suction points must be dimensioned in accordance with national safety regulations and building codes, so nobody can get sucked in (usually less than 0.5m/s of velocity). We recommend the use of 2 main drains.

The control unit can also measure the water temperature and control the heating system. Solar heating is another option. An additional solar temperature sensor will be necessary.

The ASC4 offers the option of automatically replenishing fresh water. The control unit can work with 2 different sensors (float switch or capacitive sensor). If it is an overflow pool, a separate buffer tank controller can be connected to the ASC4.

*Note: Experience shows that owners often do not carry out manual backwashing sufficiently and thus the basis for water treatment is not given. An automatic backwash is therefore highly recommended.*

## 2. GENERAL USE

The ASC4 is designed for swimming pools. Please read these instructions completely before connecting the control unit. The electrical connections must be carried out by a competent and licensed electrician. Always install ASC4 in a dry environment.

The manufacturer takes no liability for other applications or areas of application not mentioned above.

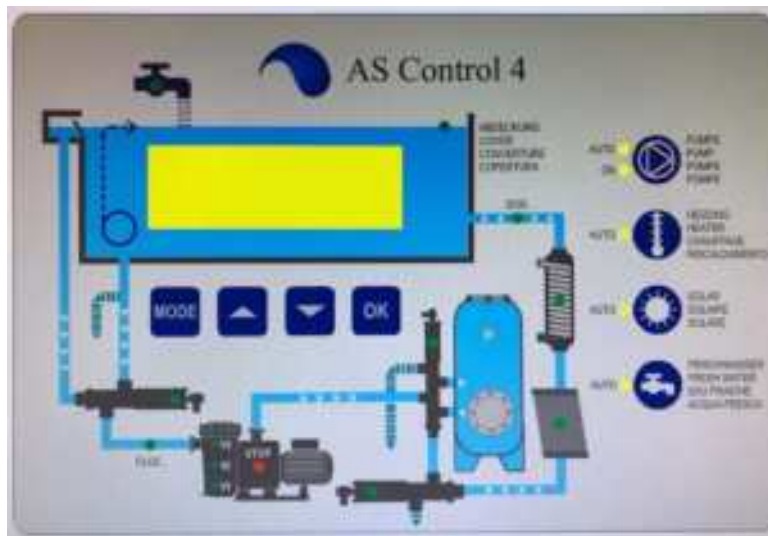
Main drain or other suction points:

The supplier takes no liability for the correct and safe suction of any suction points. The installation company is responsible for the correct and safe installation. The national standards for safety-related suction must be followed. If there are no standards, we recommend that you always use hair-safe suction and install at least 2 suction points that are 1.5 m apart. The suction speeds of the suction points must be less than 0.5 m / s. It is ideal if you place the suction points in places that the bather cannot reach, for example a pool cover niche.

Attention! Improper intake design can result in fatal accidents

### 3. Operation

#### 3.1 Control buttons and LEDs



**(Filter) Pump** AUTO/ON/AUS

Trigger a Backwash cycle

**Heater** AUTO/ON

Setting the setpoint

**Solar** AUTO/ON

Setting the setpoint

**Fresh water** AUTO/ON

**MODE** Enter and leave the menu

**↑↓** Navigation in the menu / Pump on: Select the velocity

**OK** Confirm selection

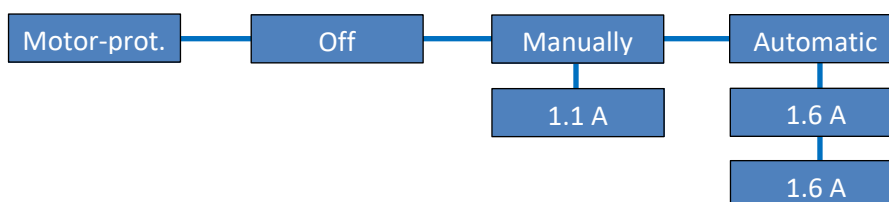
The yellow LEDs show the selected function using the buttons  
The green LEDs show the operating status.

#### 3.2 Hauptmenü



#### 3.3 Filter control

##### 3.3.1 Motor protection



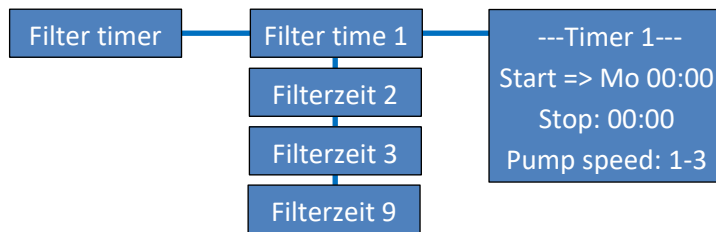
Frequency-controlled filter pumps are not connected to the ASC4, but directly from a power outlet. The motor protection is thus set to «Off».

**Manual setting:** To do this, the number of amperes on the motor plate must be read. This value + 10% can be adopted as the nominal current.

**Automatic setting:** The controller determines the current flow and adopts this value. Important! The filter pump must be in operation (frequency-controlled pumps at maximum speed).

The filter timer is only activated when the pump is on AUTO.

### 3.3.2 Filterzeiten



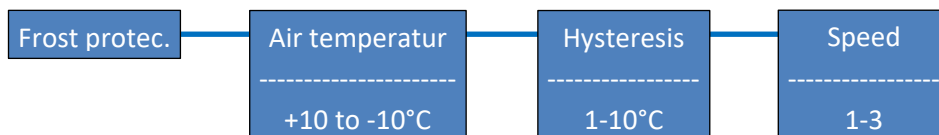
The following parameters can be set for each filter time (timer 1 - 9):

Start: Daily (every day) or week days (Mo - Su) + time

Stop:

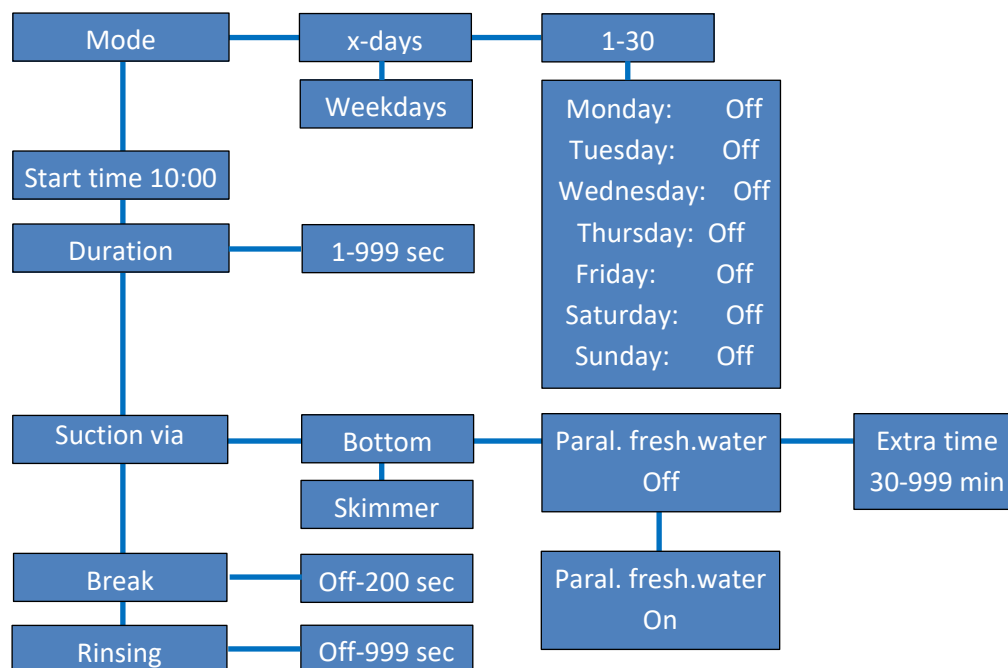
Pump Speed (for variable speed pumps): 1 – 3

### 3.3.3 Frost protection



For using the frost protection, the solar sensor is required. The outside temperature can force the filter pump to be switched on. The selected minimum air temperature determines the switch-on point of the filter pump. The hysteresis sets the switch-off point of the frost protection. The switch-off point is calculated as follows: switch-on point + the hysteresis. For variable speed pumps the speed of the pump can be selected.

### 3.4 Backwash



#### Mode:

x days: Backwashing is done in the programmed intervals.

Weekdays: Any chosen day of the week a backwash will take place.

#### Start Time

The backwash process starts at the programmed time

#### Duration:

The programmed seconds set the effective backwash time.

#### Suction via

For backwashing, the water can be drawn via the skimmer(s) or from other suction points – for example the main drains.

Why? Slim skimmers provide a high water level in your pool, but during backwash, the water level often drops below the skimmer and the pump runs dry. To solve that problem, we recommend drawing the water through suction points – for example the main drains – by using a 3-way besgo valve. We call it the bottom mode.

In the bottom mode, you must choose whether the Besgo 3-way valve is working

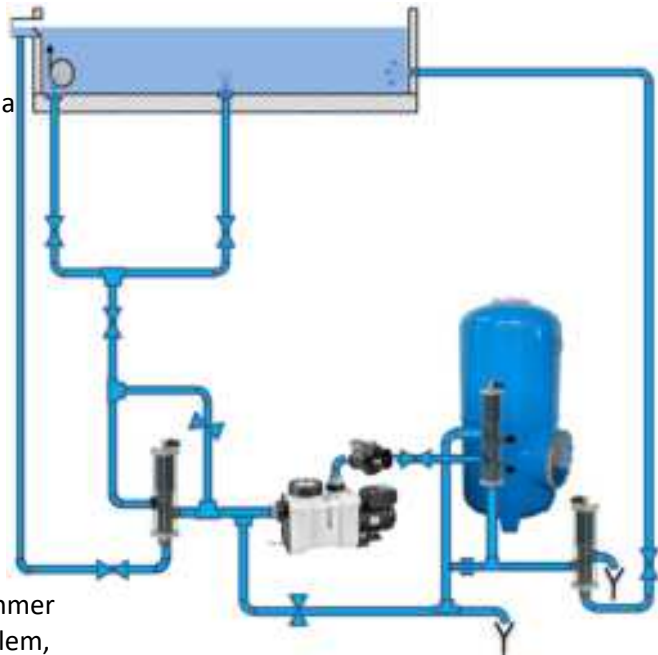
- parallel to the fresh water solenoid valve or
- always during the backwash process + an extra time to allow the pool to be refilled

#### Break:

Break time between the steps of backwashing.

#### Function test:

Pressing and holding the pump button  triggers a backwash process – according to the programmes backwash duration.



### 3.5 HEATING

|              |               |
|--------------|---------------|
| Setpoint     | 1-40°C        |
| Pump speed   | Default-1-2-3 |
| Hysteresis   | 0.1-5.0°C     |
| Extra time.  | Off-500 min   |
| Priority     | On-Off        |
| Water sensor | Yes-No        |

#### Setpoint:

The value of the water temperature can be set from 1 - 40 ° C

Important! The water temperature must not exceed the maximum allowed water temperature of the pool. Often for liner and polyester pools the manufacturer only guarantees to a certain water temperature.

#### Pump speed:

A different pump speed can be defined when switching on the heating to answer higher hydraulic resistance when using solar heating. If default is selected, the speed remains the same as before the heating was switched on (our recommendation).

#### Hysteresis:

The hysteresis influences the switch-on point of the heating. Setpoint minus the hysteresis = switch-on point. Example: Setpoint 28 ° C and Hysteresis 1.0 ° C, the heating switches on at a water temperature of 27 ° C. When the temperature reaches 28 ° C, the heating switches off again.

#### Extra filtration time:

The extra time can be used to prevent the heat exchanger from overheating. When you programme an extra time (recommendation is 2 – 5 minutes), the heater is switched off by the filter time but the pump continues for the extra time programmed before switching of.

#### Priority:

By activating the priority, the filter pump will switch on when the water temperature is too low and heat up the pool. The pump will then be controlled by the timer as well as by the water temperature.

#### Water sensor:

The water temperature can be shown or hidden on the display (----)

Quick access to setpoint heating: The heating setpoint  appears on the display by pressing and holding the heating button

### 3.6 Solar

|                  |        |                                                                                                                                                                                                                              |
|------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Setpoint         | 1-40°C | <b>Setpoint:</b><br>Important! The water temperature must not exceed the maximum allowed water temperature of the pool. Often for liner and polyester pools the manufacturer only guarantees to a certain water temperature. |
| Hysteresis (On)  | 2-10°C |                                                                                                                                                                                                                              |
| Hysteresis (Off) | 1-9°C  | <b>Pump speed:</b><br>A speed can be defined when the solar heating is switched on. If Default is selected, the pump speed is not changed.                                                                                   |
| Solar cooling    | On-Off |                                                                                                                                                                                                                              |
| Solar priority   | On-Off | <b>Hysteresis (On):</b><br>The switch-on point is influenced by: Setpoint solar, solar temperature, water temperature and hysteresis (on)                                                                                    |
| Solar sensor     | On-Off |                                                                                                                                                                                                                              |

#### Hysteresis (Off):

The switch-off point is calculated from: Setpoint solar, solar temperature, water temperature and the hysteresis (off).

Example: Water temperature 20 ° C, setpoint 30 ° C, Hyst. On 5°C, Off 2°C. If the solar sensor measures above 25 ° C, the solar heating is switched on, if the solar sensor is 22 ° C, the solar heating is switched off.

#### Solar cooling:

With solar cooling "on", the pool water is cooled if the setpoint is exceeded. This is only possible if the solar temperature is lower than the water temperature by the hysteresis (On). Example above: Water temperature 30 ° C, setpoint 28 ° C. If the solar sensor measures below 25 ° C, the solar cooling is switched on.

#### Solar Priority:

Solar priority «On», means that the pump is switched on even when the filter timer tells the pump not to run. The solar sensor is overruling the filter timer.

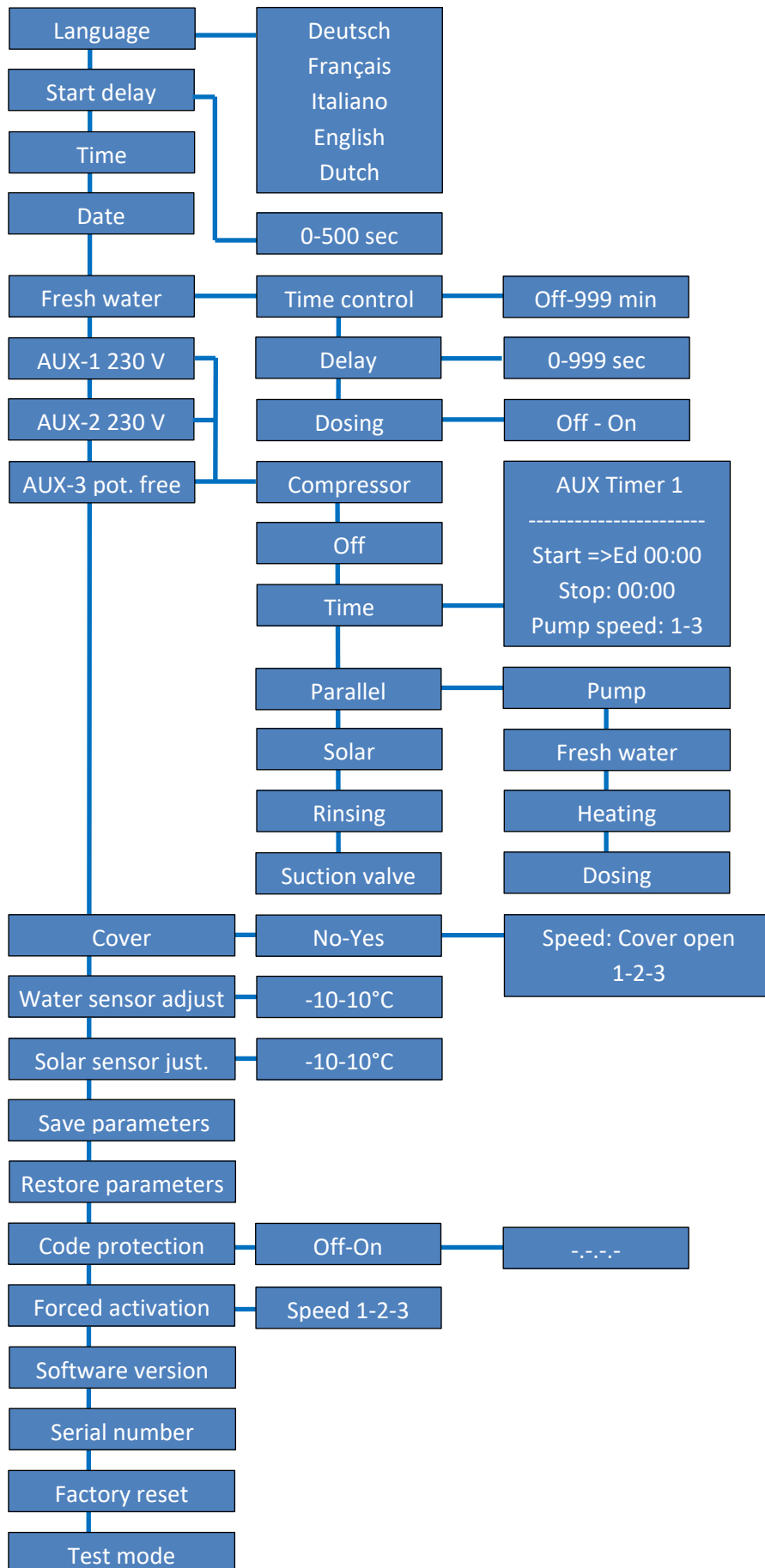
#### Solar sensor:

The solar temperature can be shown on the display or hidden (----)

Quick access to change Solar set point: The solar setpoint appears on the display by pressing and

holding the Solar button  for a few seconds.

### 3.7 System





#### Language:

Press ok to change the language.

#### Start delay:

Start delay means all outgoing signals – except for the filter pump – will be delayed for a few seconds.

#### Time:

Setting the time in 24h format.

#### Date:

Day of the week, day, month, year. Example: Thu, 21, 02, 20 (Thursday, February 21, 2020) .

#### Fresh water:

Time control can be used to set a dosing time limit for the fresh water. "Off" means that there is no limit.

Delay affects the level sensor in the skimmer. This sensor must reach an end position for the set time without interruption (waves in the pool).

Dosing «Off» means, any dosing (floculation, pH-correction, disinfection) is switched off during the make-up of the fresh water.

#### AUX-1, AUX-2, AUX-3:

These 3 outputs are freely programmable. AUX-1 and AUX-2 are 230 V outputs. AUX-3 is a potential-free switch contact. This means that a 230 V solar valve can also work with this contact.

The following options are available:

Connection air compressor.

Time control for a specific day of the week or daily.

Switch in parallel with the filter pump, or the fresh water solenoid valve, or the heating, or the metering. The dosing works in parallel to the filter pump, but not during backwashing.

As a solar output.

As contact for a rinse valve or a suction valve.

#### Cover:

If a limit switch of the cover control is connected to the ASC4, the pump speed can be chosen for the open pool (for example to have better skimming). If the limit switch contact is closed it means that the pool is open.

#### Water sensor, Solar sensor calibration:

The sensors can be adjusted by +/- 10 ° C.

#### Save parameters:

All parameters can be saved on the SD card.

#### Restore parameters:

The saved parameters on the SD card are loaded to the ASC4. (This allows you to program the configuration at home and your technician can easily restore it on site).

#### Password:

You can protect your configuration with a password. The customer can still change the setpoint heating, set point Solar and trigger a backwash cycle by pressing and holding (5 seconds) the buttons: Filter, Heating or Solar.

#### Forced activation:

For an externally controlled forced start, the speed of the filter pump can be set.

#### Software version:

Shows the current software version.

#### Serial number:

Shows the serial number.

#### Factory settings:

Choose between country specific factory settings.

#### Test mode:

All outputs can be switched in succession for testing.

### 3.8 Priorities

1. Priority: Pump Off: everything is off
2. Priority: Dry Protection: stops everything
3. Priority: Pump On : Pump is running in the choosen speed
4. Priority: Solar (If priority is on): Pump starts if the sensors give ok
5. Priority: Heating (if priority is on): pump starts if the sensors give ok
6. Priority: Cover open (the LED is not on)
7. Priority: Frost guard
8. Priority: Forced activation: (contact 49 + 50)
9. Priority: Filter timer: programmed filter times

## 4 Electrical connections and diagrams

### 4.1 Contacts

|   |   |    |
|---|---|----|
| 1 | 4 | 5  |
| L | N | PE |

Mains connection 230 V

|    |    |    |   |    |
|----|----|----|---|----|
| 1  | 2  | 3  | 4 | 5  |
| L1 | L2 | L3 | N | PE |

Mains connection 400 V: Use L1-L2-L3-N-PE 1+2+3+4+5 for 3-phase motors

|   |   |    |
|---|---|----|
| 8 | 9 | 10 |
| U | N | PE |

Filter pump connection 230 V: For pumps with 1-phase motors - Not for variable speed pumps.

|   |   |   |   |    |
|---|---|---|---|----|
| 6 | 7 | 8 | 9 | 10 |
| W | V | U | N | PE |

Filter pump connection 400 V: For frequency-controlled pumps, the mains connection is made via a separately secured outlet.

|    |    |    |
|----|----|----|
| 11 | 12 | 13 |
| L  | N  | PE |

230 V Connection: Dosing pump, UV system or sample water pump

|    |    |    |
|----|----|----|
| 14 | 15 | 16 |
| L  | N  | PE |

230 V connection: Flocculation pump

|    |    |    |
|----|----|----|
| 17 | 18 | 19 |
| L  | N  | PE |

230 V connection: Heating

|    |    |    |
|----|----|----|
| 20 | 21 | 22 |
| L  | N  | PE |

230 V connection: Fresh water solenoid valve

|    |    |    |
|----|----|----|
| 23 | 24 | 25 |
| L  | N  | PE |

230 V connection: Besgo backwash valve

|    |    |    |
|----|----|----|
| 26 | 27 | 28 |
| L  | N  | PE |

230 V connection: AUX-1

|    |    |    |
|----|----|----|
| 29 | 30 | 31 |
| L  | N  | PE |

230 V connection: AUX-2

|    |    |    |
|----|----|----|
| 32 | 33 | 34 |
| L  | N  | PE |

230 V connection: Permanent 230V on these contacts as long as the ASC4 has current

|    |    |    |
|----|----|----|
| 35 | 36 | 37 |
| C  | NO | NC |

potential free switch contact:  
AUX-3 C -> NO = make contact, C-> NC = break contact

|                                                                                   |    |
|-----------------------------------------------------------------------------------|----|
| 38                                                                                | 39 |
|  |    |

Potential-free closing contact: dosing

|                                                                                    |    |
|------------------------------------------------------------------------------------|----|
| 40                                                                                 | 41 |
|  |    |

Potential-free closing contact: heating

|                                                                                     |    |
|-------------------------------------------------------------------------------------|----|
| 42                                                                                  | 43 |
|  |    |

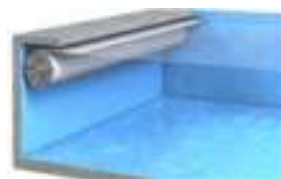
Potential-free closing contact: alarm

|     |     |     |
|-----|-----|-----|
| 44  | 45  | 46  |
| Gnd | 24V | 24V |
| 0V  | Auf | Zu  |

24 VDC connection: solar valve  
contact 44 = 0 VDC  
Contact 45 = 24 VDC Solar mode  
Contact 46 = 24 VDC normal mode

|       |    |
|-------|----|
| 47    | 48 |
| 12VDC |    |

cover connection:  
potential free contact: open =  
pool closed

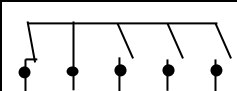


|       |    |
|-------|----|
| 49    | 50 |
| 12VDC |    |

Forced activation: By bridging these connections, the filter pump starts. You can choose the speed.

|       |    |
|-------|----|
| 51    | 52 |
| 12VDC |    |

Trigger backwashing by pressure sensor: By bridging these connections, a backwashing is triggered after a delay of 120 seconds.

|                                                                                     |    |    |    |    |
|-------------------------------------------------------------------------------------|----|----|----|----|
| 53                                                                                  | 54 | 55 | 56 | 57 |
| 0                                                                                   | I  | V1 | V2 | V3 |
|  |    |    |    |    |

Control for variable speed pumps: During operation contacts 53 and 54 are open. When contact 53 + 54 closes, the pump stops.

V1 = Contact 53 + 54 open and 54 + 55 closed.

V2 = Contact 53 + 54 open and 54 + 56 closed.

V3 = Contact 53 + 54 open und 54 + 57 closed.

|        |    |
|--------|----|
| 58     | 59 |
| Sensor |    |

Water temperature sensor

|        |    |
|--------|----|
| 60     | 61 |
| Sensor |    |

Solar temperature sensor

|     |     |      |
|-----|-----|------|
| 62  | 63  | 64   |
| +5V | Gnd | Sig. |

Level switch skimmer: contacts 63 + 64  
Contact open = level ok /  
contact closed = level too low



|     |     |      |
|-----|-----|------|
| 62  | 63  | 64   |
| +5V | Gnd | Sig. |

Capacitive contact sensor  
brown = 62, green = 63, yellow = 64



|       |    |
|-------|----|
| 65    | 66 |
| 12VDC |    |

Dry run protection 1: When removing  
the bridge the pump switches off.

|       |    |
|-------|----|
| 67    | 68 |
| 12VDC |    |

Dry run protection 2: When removing the bridge the pump switches

Overview of all contacts:

|              |              |              |              |          |          |          |    |    |    |    |
|--------------|--------------|--------------|--------------|----------|----------|----------|----|----|----|----|
| 58           | 59           | 60           | 61           | 62       | 63       | 64       | 65 | 66 | 67 | 68 |
| Water sensor | Solar sensor | Level switch | +5V Gnd Sig. | Dry pro. | Dry pro. | Dry pro. | 1  | 2  |    |    |

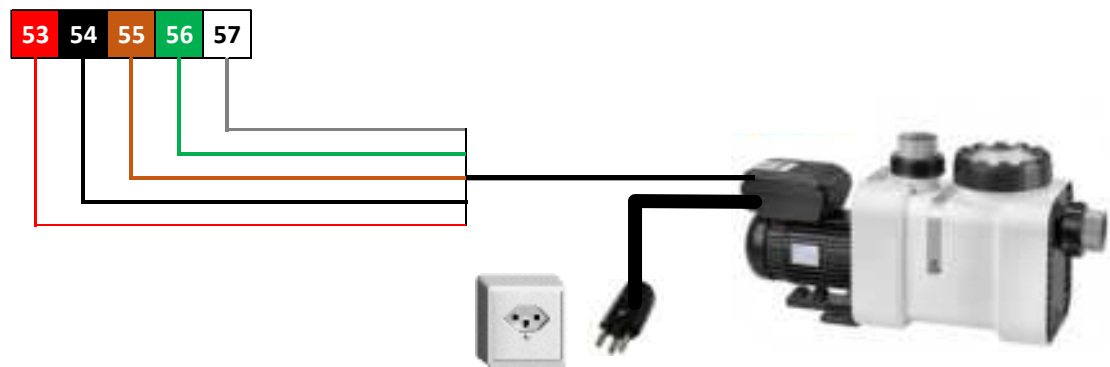
Gnd auf zu

|                 |                  |                |                   |             |              |                |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------------|------------------|----------------|-------------------|-------------|--------------|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 38              | 39               | 40             | 41                | 42          | 43           | 44             | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 |
| Dosing Pot.free | Heating Pot.free | Alarm Pot.free | Solar valve 24VDC | Cover 12VDC | Forced 12VDC | Pressure 12VDC |    |    |    |    |    |    |    |    |    |    |    |    |    |

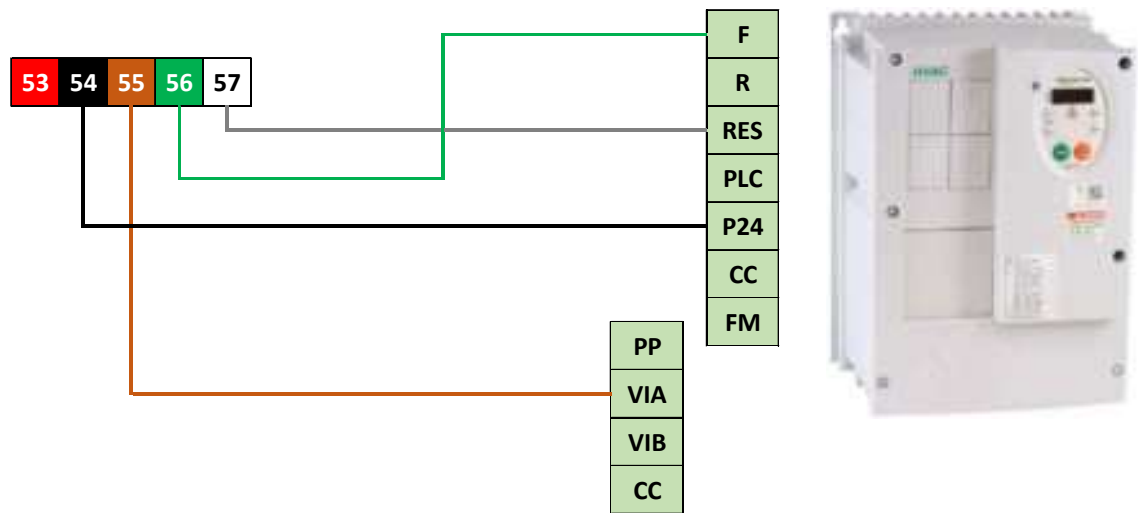
|                  |    |    |   |    |             |   |   |   |    |
|------------------|----|----|---|----|-------------|---|---|---|----|
| 1                | 2  | 3  | 4 | 5  | 6           | 7 | 8 | 9 | 10 |
| L1               | L2 | L3 | N | PE | W           | V | U | N | PE |
| Mains connection |    |    |   |    | Filter pump |   |   |   |    |

|             |    |    |              |    |    |         |    |    |             |    |    |          |    |    |      |    |    |      |    |    |      |    |    |      |    |    |
|-------------|----|----|--------------|----|----|---------|----|----|-------------|----|----|----------|----|----|------|----|----|------|----|----|------|----|----|------|----|----|
| 11          | 12 | 13 | 14           | 15 | 16 | 17      | 18 | 19 | 20          | 21 | 22 | 23       | 24 | 25 | 26   | 27 | 28 | 29   | 30 | 31 | 32   | 33 | 34 | 35   | 36 | 37 |
| L           | N  | PE | L            | N  | PE | L       | N  | PE | L           | N  | PE | L        | N  | PE | L    | N  | PE | L    | N  | PE | L    | N  | PE | C    | NO | NC |
| Dosing pump |    |    | Flocculation |    |    | Heating |    |    | Fresh water |    |    | Backwash |    |    | AUX1 |    |    | AUX2 |    |    | 230V |    |    | AUX3 |    |    |

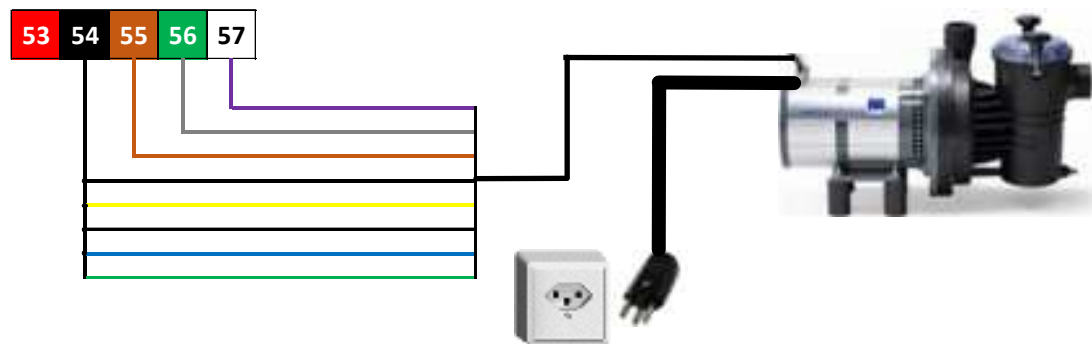
4.2 Connection ASC4 – Speck BADU PRIME ECO VS / DELTA ECO VS / PROFI ECO VS



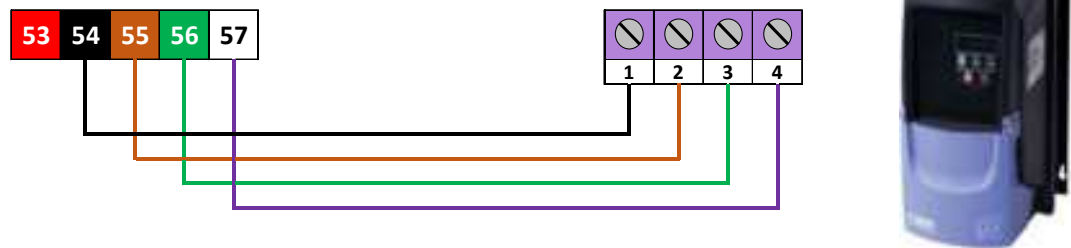
4.3 Connection ASC4 – frequency inverter AS



4.4 Connection ASC4 – UWE EO PM



4.5 Connection ASC4 – Invertek OptiDrive E2



## 5 Control board, fuses, battery, SD-card



- Fuse 1: **1** AI 230 V outputs, exception: Filter pump
- Fuse 2: **2** Filter pump output contact no.8 (U)
- Fuse 3: **3** Filter pump output contact no. 7 (V)
- Fuse 4: **4** Filter pump output contact no. 6 (W)

Backup battery 5: **5** Typ: CR2032

SD-card slot 6: **6** Typ: 2GB



## Notes

[illegible]