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Астана (7172)727-132  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
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Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Казахстан (772)734-952-31

Пермь (342)205-81-47  
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Саратов (845)249-38-78-78  
Севастополь (8692)22-31-93  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13

Сургут (3462)77-98-35  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93

<https://praher.nt-rt.ru/> || [phd@nt-rt.ru](mailto:phd@nt-rt.ru)



**AQUASTAR***comfort*  
1001 3001 4001 6001

**BEDIENUNGSANLEITUNG**  
USER MANUAL

# AQUASTAR*comfort*

1001 3001 4001 6001



EN

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## 1 Copyrights

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Knowledge of the instructions contained in this operation manual is indispensable for preventing failure and ensuring faultless operation of the Aquastar. Therefore, it is essential, that the person in charge of operating the equipment is familiar with the present documentation

## 2 Introduction to operation manual

This operation manual is intended to facilitate familiarization with the Aquastar and utilization of the same for the intended purpose.

This operation manual contains important information for safe, proper and economical operation of the Aquastar. Compliance with these instructions will contribute to

- preventing danger
- reducing repair costs and equipment failure, and
- increasing the liability and service life of the Aquastar

This operation manual supplements the instructions provided by existing accident prevention and environmental protection regulations. It must be available at the place of utilization of the equipment at any time and must be read by each person intending to use the Aquastar. This means

- operation, including
- correction measures in case of faulty operation and
- maintenance

In addition to the operation manual and the compulsory accident prevention regulations applicable at the place of utilization of the equipment, the generally subject specific technical rules must be taken into account.

## 3 Warranty and liability

Warranty and liability claims in the context of damage to person or property shall be excluded where such damage results from one or several of the causes listed below:

- Improper use of the Aquastar
- Improper installation, putting into operation, operation and maintenance of the Aquastar
- Operation of the Aquastar with defective or improper safety devices
- Non-compliance with the instructions contained in the operation manual for installation, putting into operation, operation and maintenance of the Aquastar

- Unauthorized modification of the Aquastar
- Insufficient monitoring of components subject to wear and tear
- Inadequately performed repair of the Aquastar
- Damage of the Aquastar resulting from foreign matter or Force Majeure

Before commissioning, all gaskets of the device have to be checked, the cable glands and all outside screwings must be retightened. Also leak and function tests have to be carried out. After the pressure test, all nuts and screws of the entire pipe system must be retightened in a depressurized state.

We recommend a maintenance service (testing of functionality and tightness) and careful visual inspection in regular maintenance intervals, whereas with high aggressive media, strong vibrations and significant variations of temperature, the intervals must be shortened. Seals must be considered as wear materials and must be lubricated and/or changed regularly. With unfiltered media we recommend the installation of line strainers.

Enduring damage due to neglect of the operation manual or due to damaging sealed parts lead to a lapse of the warranty. We do not take any liability for resulting damages thereof! Please read the operation manual carefully before starting operation.

#### 4 Instructions for safety at work

- Each person, involved in the user's facility, in the installation, dismantling, putting into operation, operation or maintenance of the Aquastar must have read and understood the entire operation manual and, in particular, the chapter 'Safety Instructions'.
- The instruction and warning signs calling attention to dangers must be taken into account!



**Dangerous voltage!**  
**This is for your own safety**

#### 5 Safety instructions

- This equipment has been built and examined according to safety precaution for electronic devices and has left the plant in a perfect safety-related condition
- To keep this status and to guarantee a safe operation, the user must observe the safety instructions, which are included in these instructions
- This installation work may only be undertaken by an authorized and licensed installer or electrical business
- This equipment is not intended for it by persons (including children) with reduced physical, sensory or mental abilities or for lack of experience and/or for lack of knowledge to be used it is, it by a person responsible for their security is supervised or received from it instructions, how the equipment is to be used. Children should be supervised, in order to guarantee that they do not play with the equipment.
- The electrical installations must be carried out according to the respective local and regional regulations (e.g. OEVE, VDE,...) and possible official regulations

- the electrical connection must have separating device built into the permanently installed electrical installation, which enables the disconnection of all electrical contacts with a contact space of min. 3 mm from the mains.
- Pay attention that the supply voltage is correctly protected and an earth-leakage circuit breaker  $\leq 30$  mA is installed.
- Only use the equipment in dry rooms, in which no combustible gasses and vapors are present.
- Do not put the equipment into operation immediately if it has been taken from a cold to a warm area. The thereby developing condensation water could destroy your equipment
- If the equipment has visible damages, does not work anymore or has been stored under adverse conditions for longer periods, then it is to be expected that a safe operation is no more possible. In this case the equipment is to be secured against unintentional start-up and if necessary to be decommissioned.
- Live parts can be uncovered when opening the cover or removing parts. Before an alignment, maintenance, a repair or change of parts or devices, the equipment must be separated from all voltage supplies, if opening the equipment is necessary. If after that an alignment, maintenance or a repair on the opened equipment under voltage is inevitable, it may only be done by experienced, skilled staff, which has knowledge of the associated dangers and/or the relevant regulations.
- Capacitors in the equipment can still be charged, even if the equipment is separated from all voltage supplies.
- Assembly and/or disassembly of the valve only in a pressure-free status (i.e. empty piping beforehand)
- Valve flow and/or direction of flow must be considered.



**Each person involved in the operation and maintenance of the equipment must have read and understood the present operation manual!**

**It is for your own safety!**

## 6 Residual Risk

### 6.1 Hazard generated by current



Manipulation of the Aquastar by operating staff is strictly prohibited and may only be performed by duly authorized staff, qualified for electrical work. Compliance with the corresponding instruction and prohibition signs is required.

### 6.2 Hazard generated by human error



The operating staff must be instructed in regard to the residual danger resulting from electricity and familiarized with correct operation. Efficiency of the safety training must be verified.

### 6.3 Hazard generated by current during cleaning work



Cleaning of the Aquastar may only be performed after disconnection from power supply (lever switch).

## 7 General

PRAHER Aquastar controls are significant technical products, which are manufactured with high accuracy to the most modern technical production methods. Entitled complaints will naturally be rectified as fast as possible if they occur. The equipment has a warranty after valid European law. The warranty begins with the purchase date.



**ATTENTION! For relief of the sealing system the valve is shipped on intermediate position and is not sealed! Prior to operation it has to be electrically set to position "Filter"!**

## 8 Directions for use

This is a control unit for a **Praher multiport valve** with 6 positions for fully automatic filter backwashing according to need, i.e. pressure and/or time. Operation of the Aquastar without corresponding valve can cause damage to the electronics.

A filter pump connection is activated about 20 sec after the respective position is reached. The dry running design guarantees safe operation.



**The Aquastar must never be operated without a Praher V6 valve to avoid damage to the device**

Additional electrical connections are available:

Backwash position; rinse position; for series connection of several valves installed in series; for interruption of a heater or a heat exchanger before cycle start; for a ball valve during the cycle.

## 9 Assembly

### Device installation – installation of the valve

Install the valve in the conduit according to the labeling and the sketch below. Use adapter unions. Threaded connections should be sealed only with Teflon strip. Although the device is functional in any position, it must not be installed with the actuator facing down.

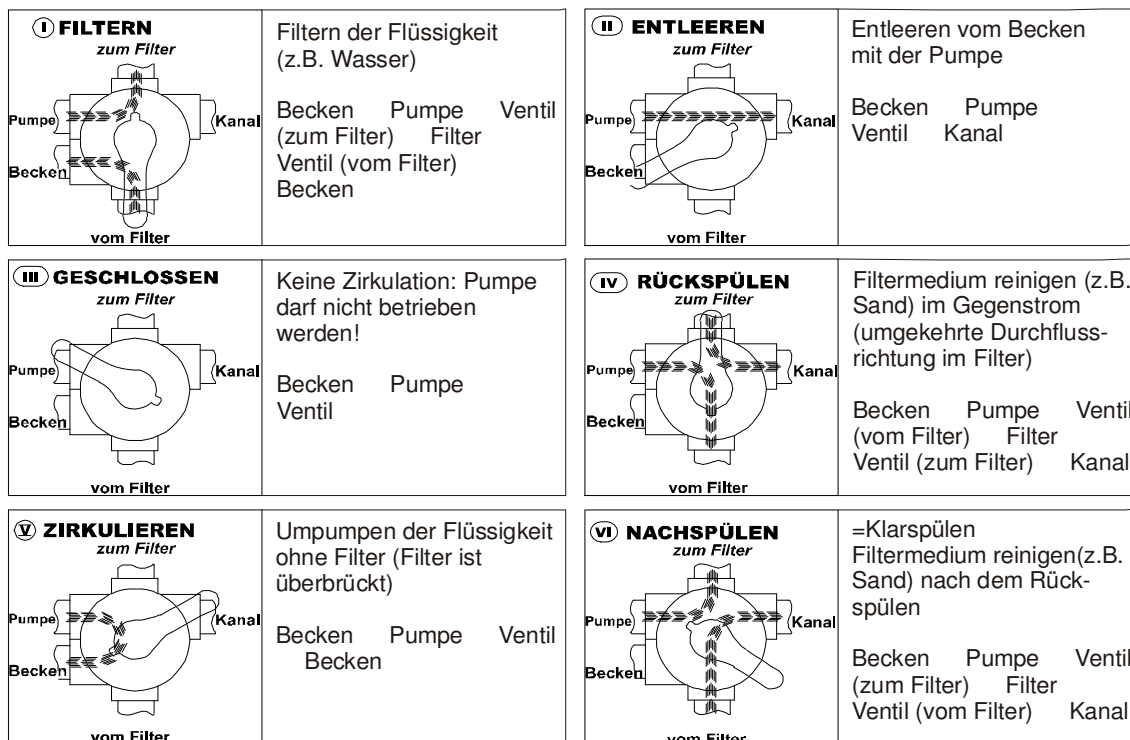
If the difference in level between system and tank exceeds 3 meters, stop valves or non-return valves should be installed to prevent severe damage to the actuator and the valve due to excessive pressure and flow.

As filter medium can be washed out during backwashing and rinsing, we recommend fitting the drain with a throttle. Otherwise a stuck valve disk can adversely affect the flawless functioning of the Aquastar. Polluted or grainy filtering media require the use of adequate pre filters.

**Important! During a cycle the filter pump motor must be shut off!**

The Praher Aquastar Comfort is approved for 6-way valves by Praher. Malfunctions can occur with any other valve type as we are unable to guarantee that these valves match the dimensions of the Praher 6-way valves.

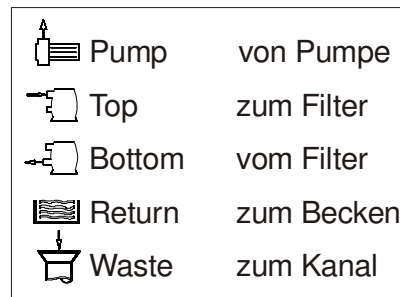
### 9.1 Function- and installation diagram



**6 - Wege Ventilausführung:** 1,5", 2" und 3"

**Anschlüsse:** Gewinde oder Klebe ( alle Anschlüsse offen)

**Max. Betriebsdruck:** ABS 1,5", 2" und 3"    3,5 bar  
 GFK 1,5", 2"    6 bar  
 GFK 3"    5 bar





## 10 Sequence of cycle

### Starting position FILTERN – device ON

- Start of backwash cycle by pressing the test key on the keyboard
- Control lamp 'test key' for backwash cycle activated is illuminated
- Output 'heating' clamp [22]-[21] switches off
- Set time of potentiometer ① (time delay) elapses (cooling down time for heat exchanger)
- Output 'pump' clamp [13]-[14] switches off (no continuity)
- Output 'backwash cycle connection' switches from clamp [19]-[20] to [18]-[19]
- Output ball valve switches from clamp [G]-[3] to [G]-[4]

### Valve goes to backwash position

- Pump time delay of approx. 20 sec. elapses
- Output 'pump' clamp [13]-[14] closes
- Output 'backwash' switches to clamp [26]-[27]
- Set time of potentiometer ② elapses (rinsing period)
- Output 'pump' clamp [13]-[14] switches off

### Valve goes to rinsing position

- Output 'rinsing' switches to clamp [24]-[25]
- Pump time delay of approx. 20 sec. elapses
- Output 'pump' clamp [13]-[14] closes
- Set time of potentiometer ③ elapses (rinsing period)
- Output 'pump' clamp [13]-[14] switches off

### Valve goes to filter position

- Output 'ball valve' switches from clamp [G]-[4] to [G]-[3]
- Pump time delay of approx. 20 sec. elapses
- Output 'pump' clamp [13]-[14] closes
- Output 'heating' switches to clamp [21]-[22]
- Output 'backwash cycle connection' switches to clamp [19]-[20]

## 11 Flushing and changeover times

Time delay ①	20 sec - 23 min
CHANGEOVER	
Filter - Backwash	ca. 45 sec
Backwash ②	50 sec - 9 min
CHANGEOVER	
Backwash time - Rinsing	ca. 35 sec
Rinsing ③	25 sec - 200 sec
CHANGEOVER	
Rinsing - Filter	ca. 25 sec.
Cycle time	3 min - 40 min

## 12 Function of membrane keyboard



### OFF

Pressing this key switches of the equipment, regardless of the valve position



### ON

Pressing this key (yellow control lamp is illuminated) switches on the equipment, valve goes to basic position - Filter



### TEST

Pressing this key (green control lamp is illuminated) triggers the backwash cycle for the length of a backwash procedure



### DRAIN

Pressing this key (red control lamp is illuminated) sets the valve to position „Waste“  
Water is being drained into the sewer system

### Only with Comfort 3501 / 4501 / 6501 by additional filter pump control



### MANUAL

Pressing the MANUAL key makes the filter pump change from automatic to manual operation. Filter pump switches on (independent from clock program)



### AUTOMATIC

Pressing this key makes the filter pump change to automatic operation and only at the set filter time the filter pump switches on (independent from clock program)

### 12.1 Circulate

In order to set the automatic 6-way backwash valve to position „CIRCULATE“ and afterwards again to position „FILTER“, following steps have to be made:

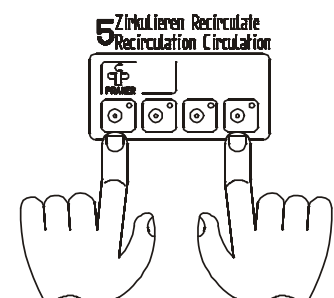
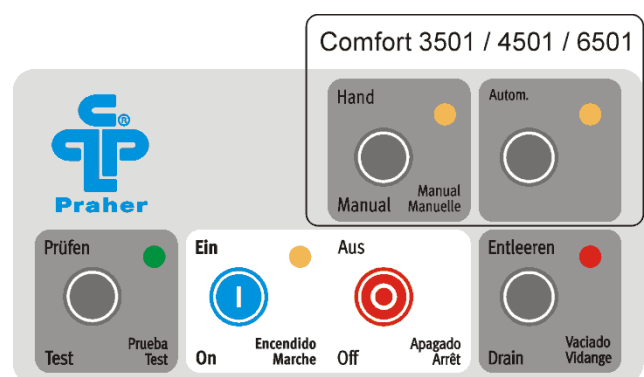
- Go to basic position press key „ON“
- Press keys „TEST“ and „DRAIN“ at the same time (min. 4 sec) until the LED of „TEST“ is illuminated



#### ATTENTION!

After simultaneous pressing of the keys first the LED of „TEST“ is illuminated and then the „DRAIN“ LED briefly. Only then the LED of „TEST“ starts blinking

- After „CIRCULATE“ is finished, press OFF
- Go to basic position press key „ON“



## 12.2 Winter Position

Winter Position as release for the sealing system during winter time

- Press key „On“ for basic position
- Press keys „Test“ and „On“ at the same time (min. 4 sec) until the Aquastar start to run
- When the winter position has been reached the Aquastar will automatically turn itself off
- Press key „On“ for basic position

The valve does not seal anymore!

## 13 Setting of the times

### 13.1 Setting the time delay (20sec – 23min)

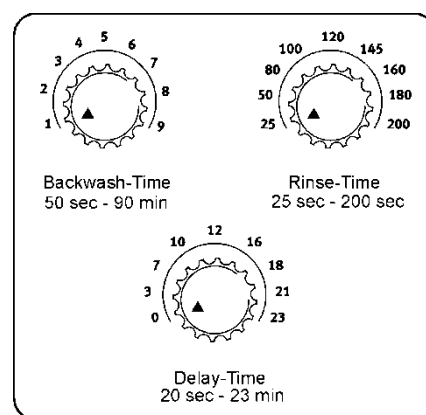
Set the time with the potentiometer (knob P3)

- Turn the potentiometer  
clockwise → longer time  
counter clockwise → shorter time
- Trigger backwash procedure with key “Test”

### 13.2 Setting the backwash time (50sec – 9min)

Set the time with the potentiometer (knob P1)

- Turn the potentiometer  
Clockwise → longer time  
counter clockwise → shorter time
- Trigger backwash procedure with key “Test”



### 13.3 Setting the rinsing time (25sec – 200sec)

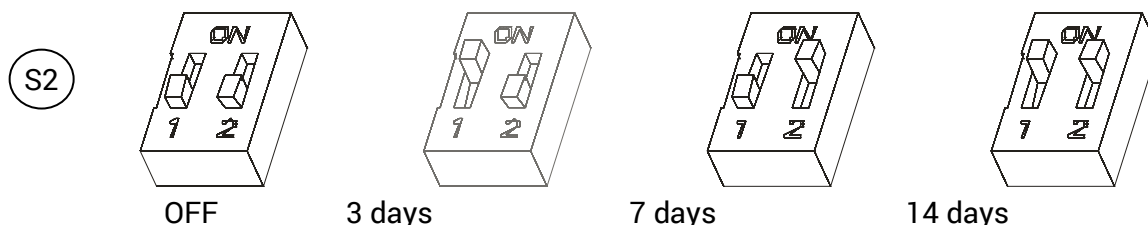
Set the time with the potentiometer. (knob P2)

- Turn the potentiometer  
Clockwise → longer time  
counter clockwise → shorter time
- Trigger backwash procedure with key “Test”

## 14 Setting switch points backwash time

The switch points for backwash time are set with switch S2 on the circuit board.

4 switch points for backwashing are available



**ATTENTION!** Prior to setting/adjusting the switch points backwashing the valve needs to be on position “FILTER” and the Aquastar has to be turned off. (see page 11)

### 14.1 Time of activation of backwash cycle

**Example:** Backwash every Monday 09:15

- set switch S2 to switch point 7 days and
- turn on the Aquastar at 09:15 (press „ON“ button on the keyboard)

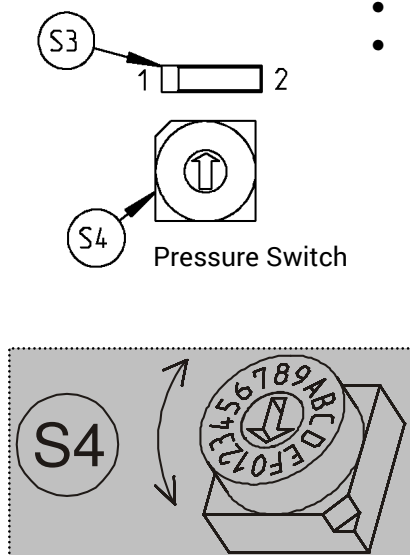
In order to alter the time of activation, just press the “TEST BUTTON” on the keyboard at the wanted activation time.

**Example:** Change activation from Monday 09:15 to Friday 08:00

- „TEST“ Button at the keyboard on Friday 08:00

## 15 Setting of the electric pressure switch

The operating pressure in the valve is measured by an electronic pressure switch. The triggering by pressure is set with the switch S3, S4 at the control board. In order to change the triggering pressure, turn the arrow (by using a screwdriver) clockwise or anti-clockwise until the arrow points to the requested figure (see chart).



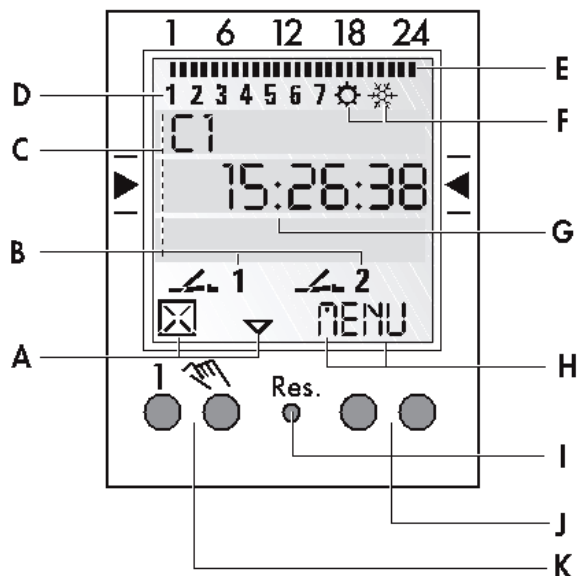
- Changeover 01 from 0,4 – 1,9 bar
- Changeover 02 from 2 – 5,75 bar

Pos.	pressure (bar)	
	Changeover 01	Changeover 02
0	0,4	2,0
1	0,5	2,25
2	0,6	2,5
3	0,7	2,75
4	0,8	3,0
5	0,9	3,25
6	1,0	3,5
7	1,1	3,75
8	1,2	4
9	1,3	4,25
A	1,4	4,5
B	1,5	4,75
C	1,6	5
D	1,7	5,25
E	1,8	5,5
F	1,9	5,75

The pressure values are tested and set but can slightly vary due to manometer tolerances!

## 16 Programming the digital clock for the Aquastar Comfort

### 16.1 Clock description



#### Display

- A Function display of both left keys
- B Channel displays
  - = Channel 1 EIN
  - = Channel 1 AUS
 Channel 1 = C1, Channel 2 = C2
- C Display for time, menu, prompt,...
- D Display of day of the week
- E Overview day- and switching program
- F Display summer/winter time
- G Power supply (permanent dots)
- Battery supply (blinking dots)
- H Function display of both right keys

#### General

- The line in the middle shows the menu item that can be chosen. If this is confirmed with OK this item is being activated.
- Blinking texts or symbols need an input.
- If no input is being made within 2 minutes the clock sets back to Auto- Mode

#### Keys

- I Reset
  - With reset the programs stay as they are.
  - Date and clock have to be set again. Press Reset key with a blunt object (i.e. ball point)
- J Right key
- K Left key with manual switch function

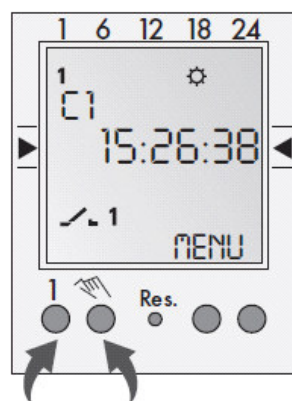
#### Function display of both left keys:

- Scroll upwards in the menu
- Scroll downwards in the menu
- Delete chosen item
- Confirm chosen item
- + Press short = +1
- Press long (~ 2 sec) = +5
- Press short = -1
- Press long (~ 2 sec) = -5

#### Function display of both right keys:

- MENU Exit auto mode and enter programming mode
- ESC press short = one step back
- press long (~ 2 sec) = back to auto mode
- OK Make choice and confirm
- EDT Change request in Read-mode
- N Do not execute command
- J Execute command
- DEL Delete

## 16.2 Operation Mode



### Info

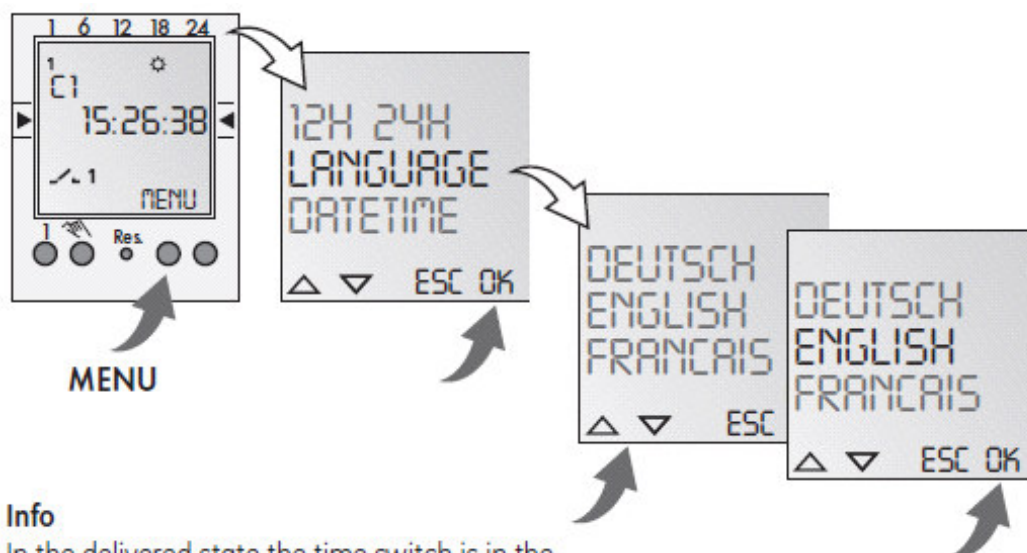
Left-hand button = Channel 1  
Right-hand button = Channel 2 (only with 2-channel version)

Press 1 x = FIX ON = continuous ON  
Press 2 x = FIX OFF = continuous OFF  
Press 3 x = return to Auto mode

FIX ON: FIX  
FIX OFF: FIX

AUTO: (no display) programmed switching times

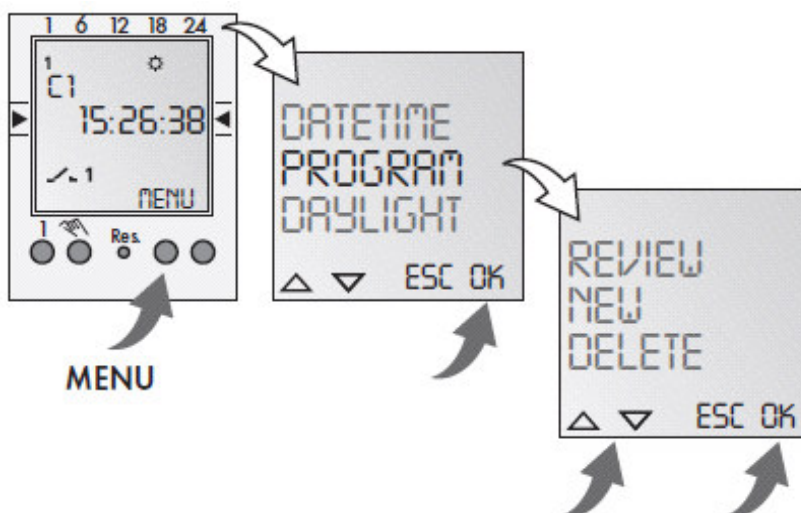
## 16.3 First operation – Choose menu language



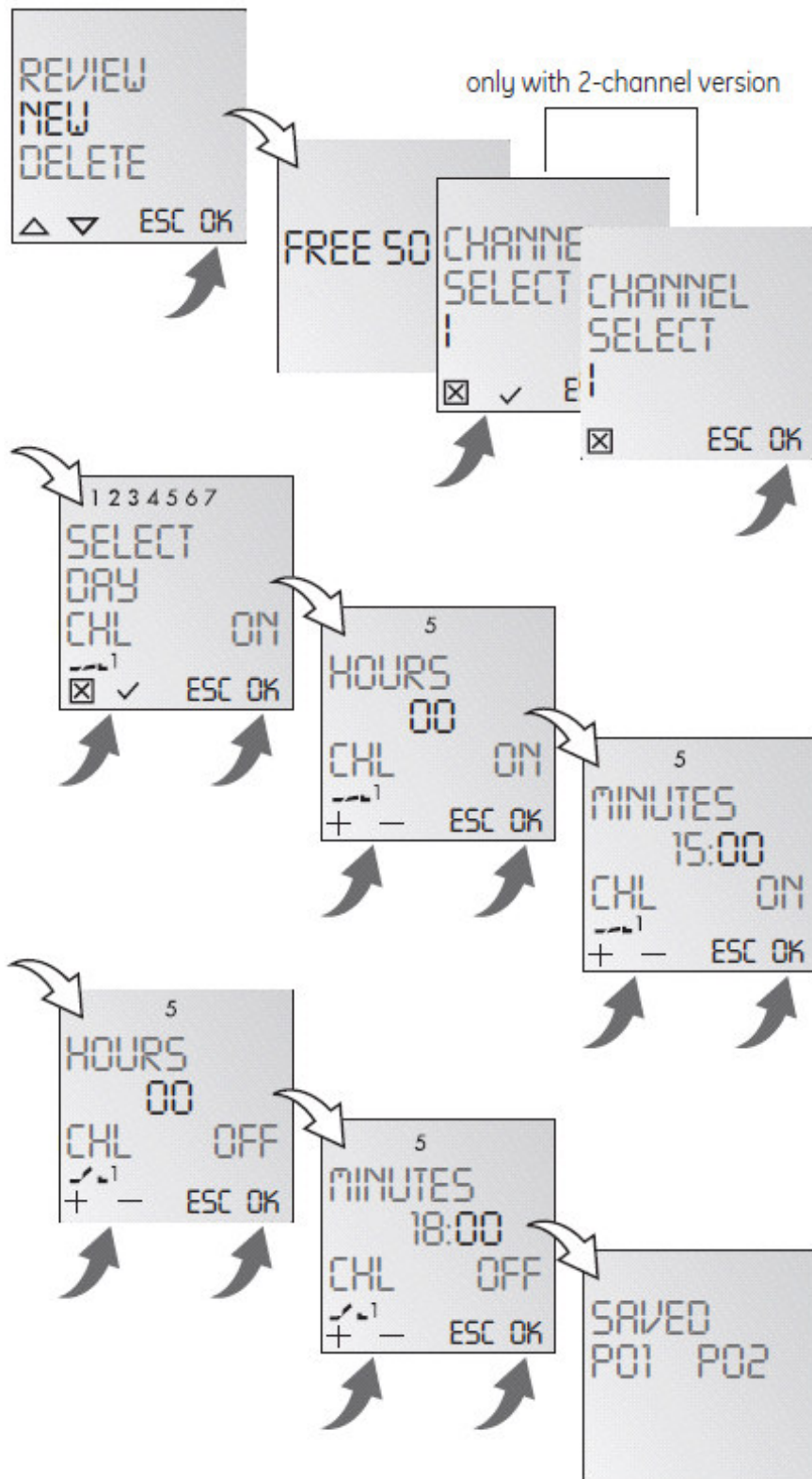
### Info

In the delivered state the time switch is in the Auto mode with a preset time, date and the menu language English.

## 16.4 Create a new program







### Info

The time switch has 50 memory spaces.

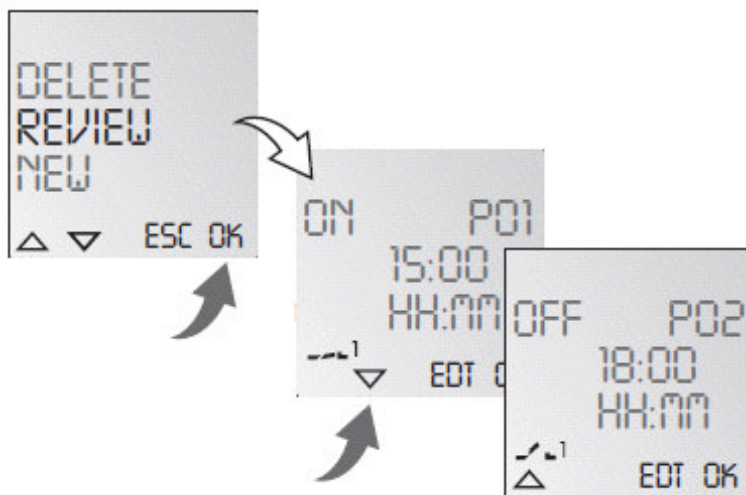
### Example

ON command for channel 1 at 3 pm. OFF command at 6 pm.

- Select NEW program and confirm with **OK**.
- The free memory spaces are briefly displayed.
- Select channel and confirm with **OK**.
- Select day block or individual day (block formation as desired) and confirm with **OK**.
- Enter hour for ON command (+/-) and confirm with **OK**.
- Enter minute for ON command (+/-) and confirm with **OK**.
- Enter hour for OFF command (+/-) and confirm with **OK**.
- Enter minute for OFF command (+/-) and confirm with **OK**.
- Program is saved.
- Program jumps to selection REVIEW, **NEW**, DELETE. Now additional programs can be created.

The timeout for the backwash clock must be programmed to one minute after triggering the backwash cycle!

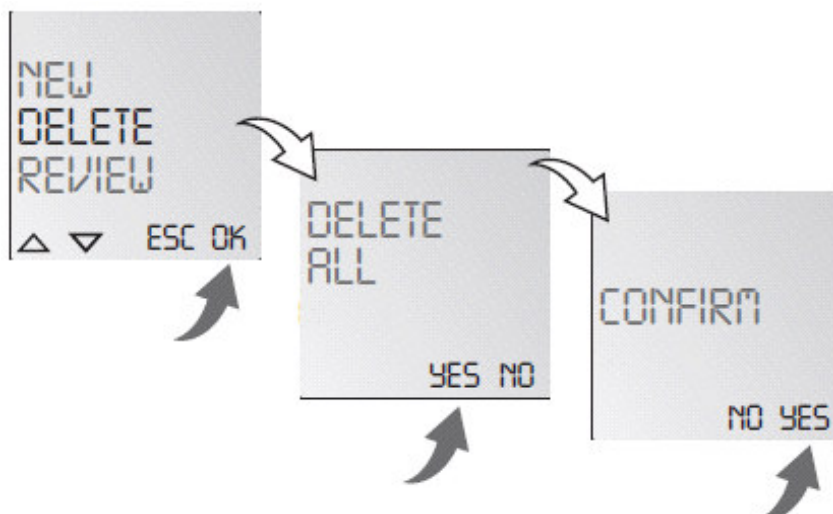
## 16.5 Viewing and adapting a program



### Info

- The program steps can be scrolled through with ▼ ▲.
- The respective program can be edited by pressing **EDT**. The procedure is the same as when creating a new program.

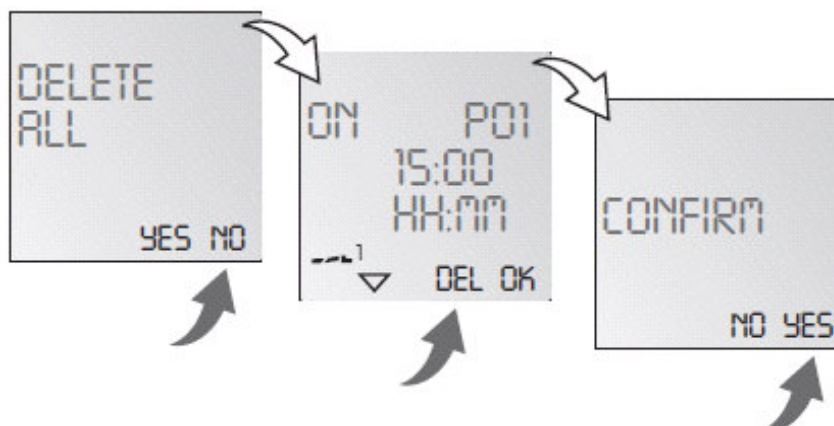
## 16.6 Delete all programs



### Info

- It is possible to delete all programs with **YES**
- By pressing **NO**, individual programs can be deleted.

## 16.7 Delete individual programs

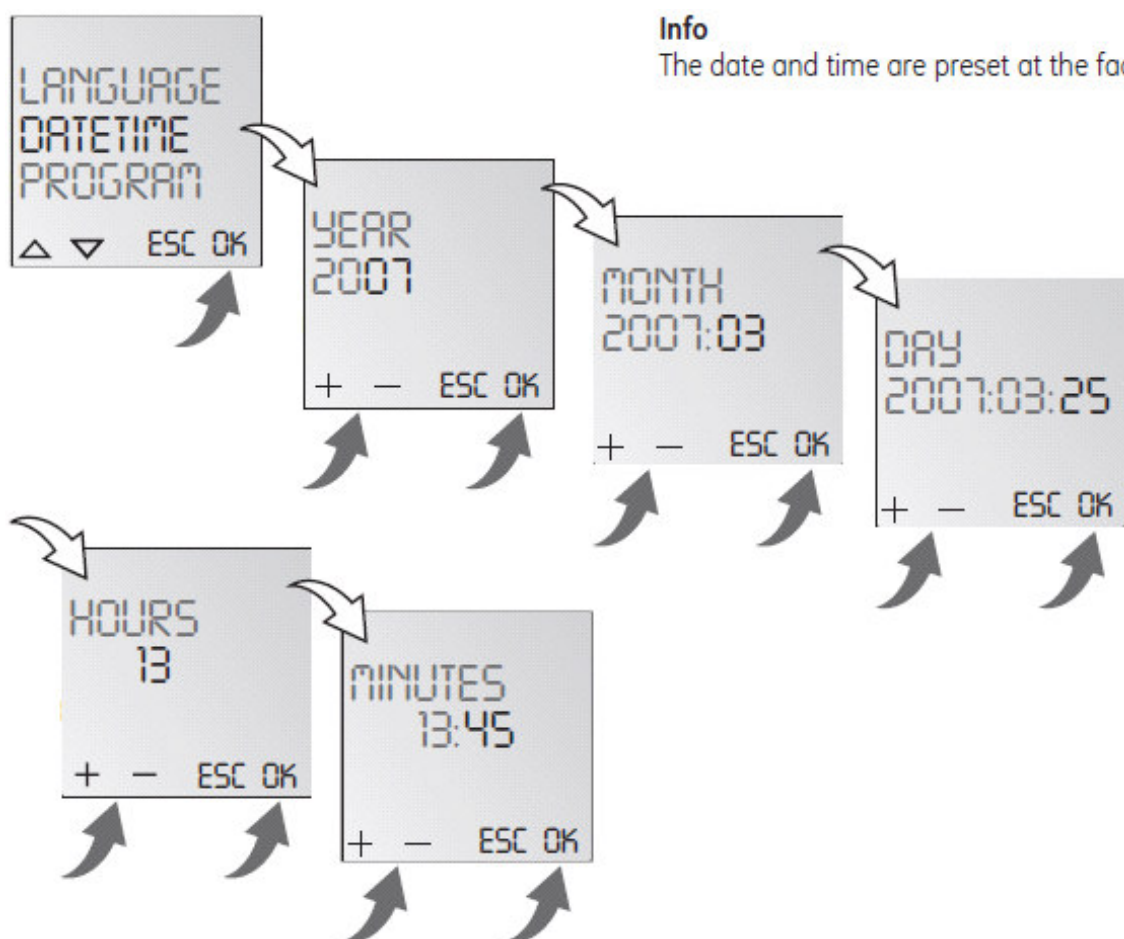


### Info

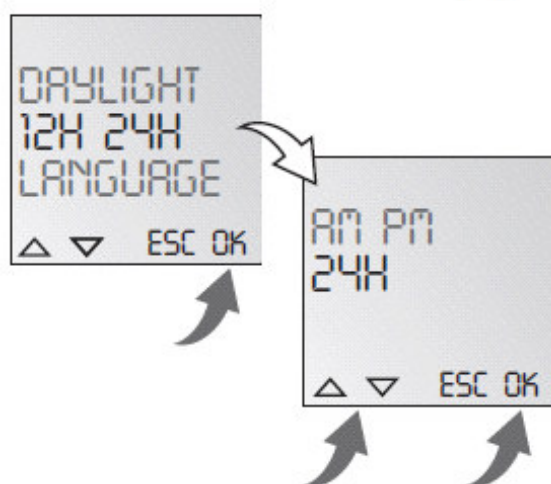
When deleting individual programs, the corresponding program steps are deleted (e.g. P01 ON and P02 OFF).



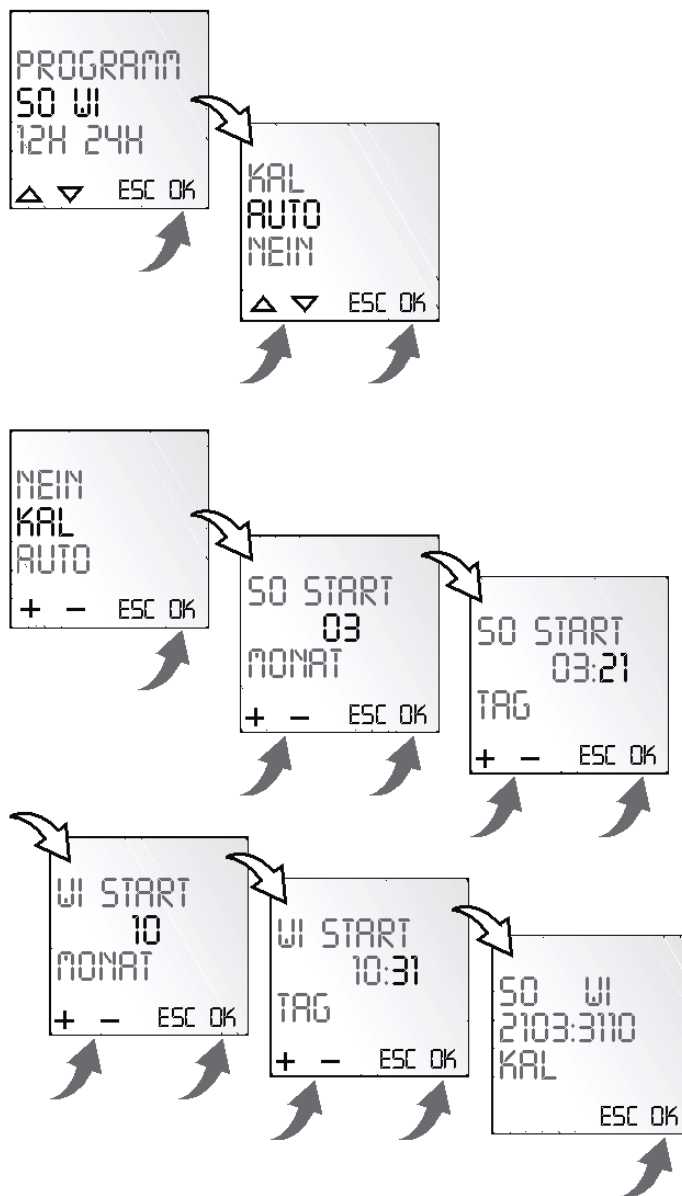
## 16.8 Setting of date and time



Set AM/PM (12-hour-) or 24-hour display



## 16.9 Switchover Summer/Winter Time



### Info

Folgende Einstellungen sind möglich:

### AUTO

werksseitige Voreinstellung der gesetzlichen Vorgabe. Diese wird automatisch für jedes Jahr neu berechnet.

### NEIN

keine Umschaltung

### KAL

Programmierung. Dazu muss das Startdatum der Sommerzeit und der Winterzeit eingegeben werden. Die werksseitige Voreinstellung wird überschrieben. Die programmierte Sommer-/Winterzeit wird automatisch für jedes Jahr neu berechnet. Die Umschaltung erfolgt am gleichen eingegebenen Wochentag in der gleichen Woche des Monats.

### Beispiel

21.03. Start Sommerzeit  
31.10. Start Winterzeit

### Achtung

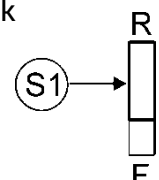
Während der Umschaltung von Sommer- zu Winterzeit bzw. umgekehrt dürfen keine Veränderungen an der Uhr vorgenommen werden!

## 17 Switch point for backwash and filter clock

- If no clock is installed switch is on „R“ (1001,4001)
- If a 1 channel clock is installed and used for triggering backwash cycle switch is on „R“ (3001,6001)
- If a 1 channel clock is installed and used for the filter pump switch is on „F“ (4501)
- If a 2 channel clock is installed switch always has to be on „F“  
channel 1 = backwash  
channel 2 = filter pump  
(3501,6501)

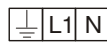
R = backwash clock

F = filter clock




## 18 Electric Connection


k) Connection to the supply voltage

 24V AC/DC 100 – 240V AC (170 – 300 DC)


l) Trigger backwash procedure external

 Activation of clamp [11/12] with potential free contact  
Attention! Do not connect to voltage!


m) Connection for pump:

Potential free: I max. 8 A  
 On position FILTER, RINSE, CIRCULATE and WASTE and after approx. 20 sec. the clamps [13→14] are interconnected.


n) Connection for ball valve

Potential free: I max. 8 A  
 With switched off actuator, on position FILTER and CIRCULATE, the clamps [G→3] are interconnected. On position WASTE and during the whole backwash cycle the clamps [G→4] are interconnected.


o) Connection for 2<sup>nd</sup> backwash pump

Potential free: I max. 4 A  
 On position Backwash the clamps [26→27] are interconnected.  
Only switches on if pump [13, 14] switches on.


p) Connection for signal on position RINSE

 Potential free: I max. 4 A  
On position RINSE the clamps [24→25] are interconnected.


q) Connection for signal on position CIRCULATE

 Potential free: I max. 4 A  
On position CIRCULATE the clamps [29→30] are interconnected

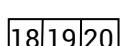
r) Connection for signal on position WASTE

 Potential free: I max. 4 A  
On position WASTE the clamps [31→32] are interconnected.

s) Connection for signal for heating / heat exchanger:

Potential free: I max. 4 A  
 After triggering the backwash cycle the clamps [21→22] are opened.  
Filter pump stays on for the duration of the set time delay (knob ) ①  
Heat exchanger cools down and then pump switches off.

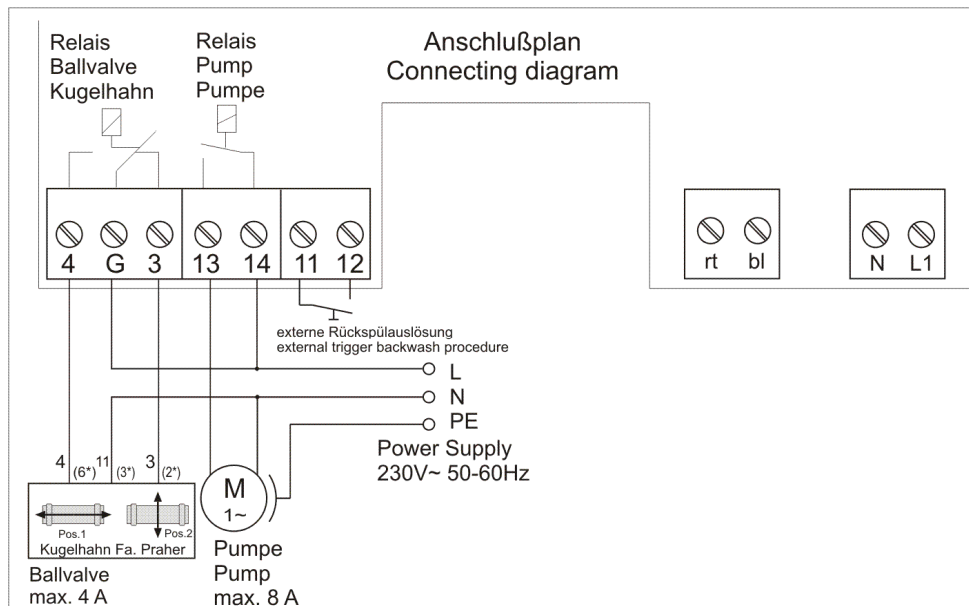
t) Connection for signal for backwash cycle:

Potential free: I max. 4 A  
 During the whole cycle [18→19] is interconnected, otherwise [19→20].

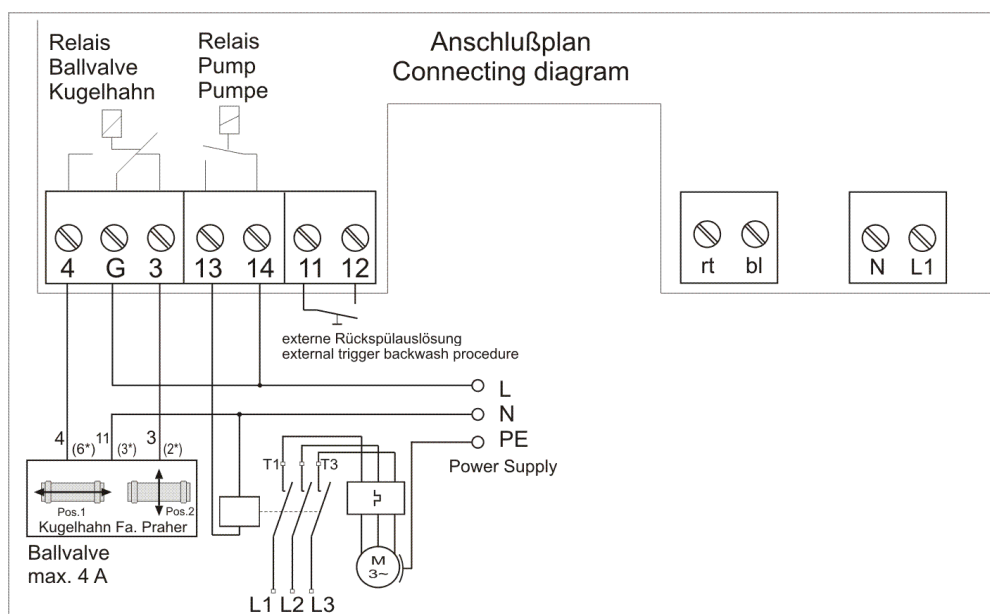
## 19 Technical data

<b>Voltage:</b>	24 V AC/DC 100-240V AC (170 – 300V DC)
<b>Protection type:</b>	IP 65
<b>Frequency:</b>	50-60 Hz
<b>max. own consumption:</b>	ca. 4 Watt / 12 Watt 1 1/2", 2" ca. 4Watt / 20 Watt 3"

## 20 Connection diagram for pump



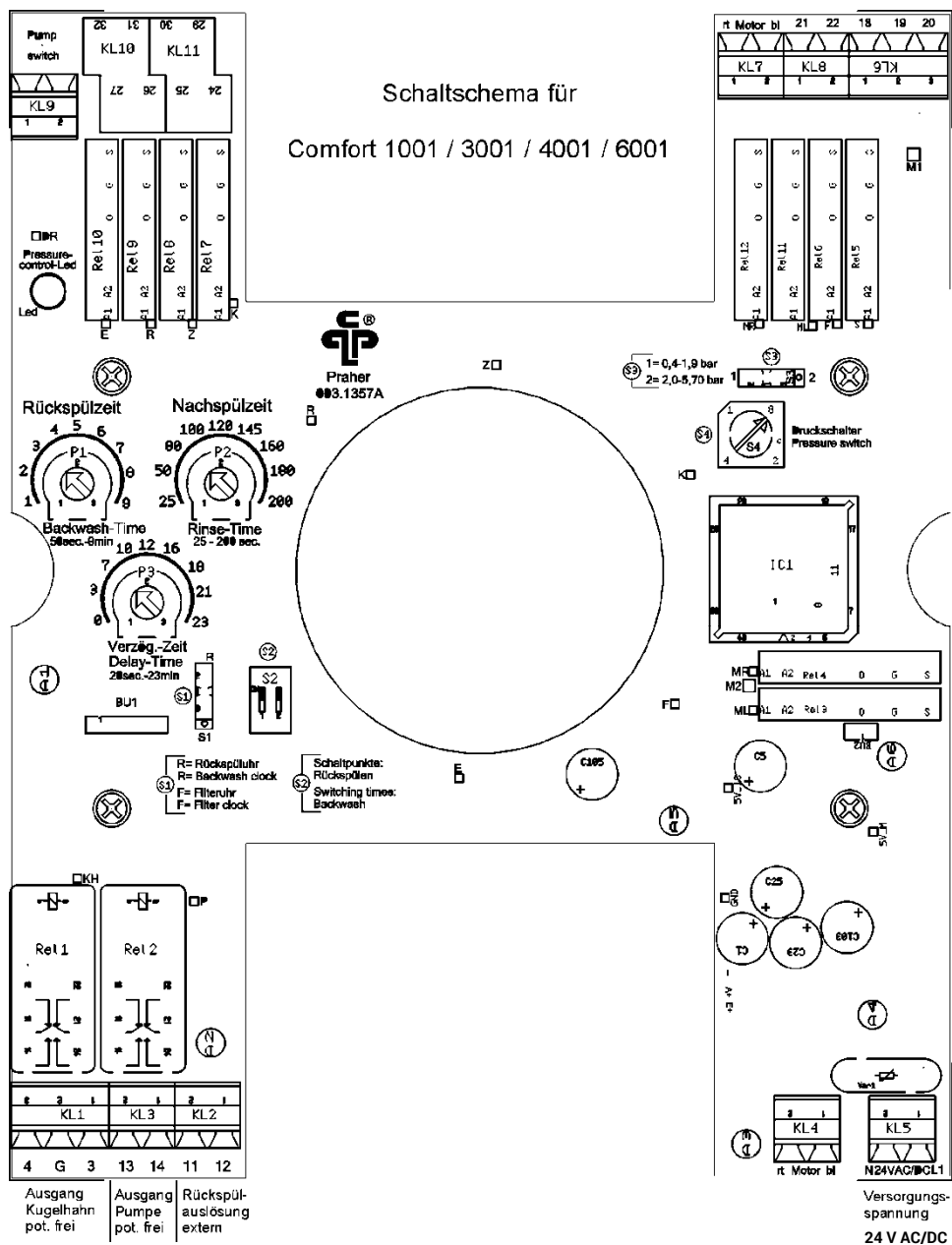
(\*...alte Klemmenbezeichnung)  
(\*...old Terminals)



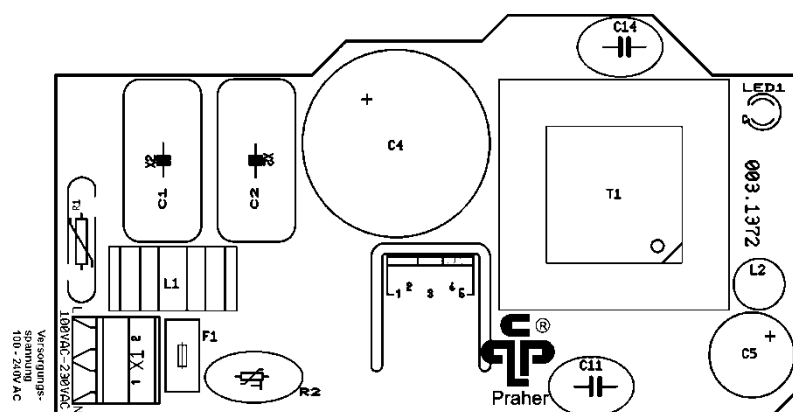
(\*...alte Klemmenbezeichnung)  
(\*...old Terminals)

## 21 Control boards

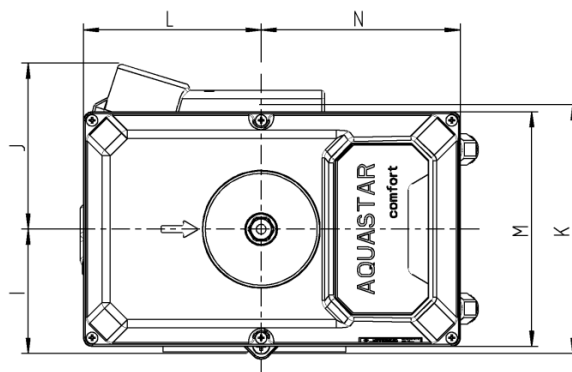
for all Comfort types



Control board for 100 – 240 V AC

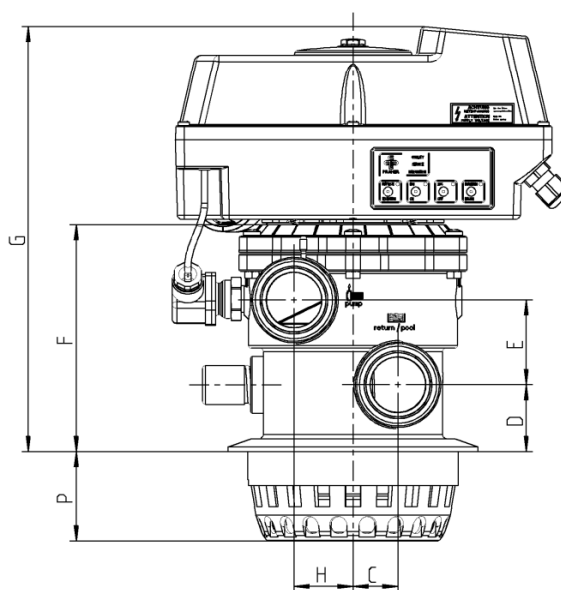
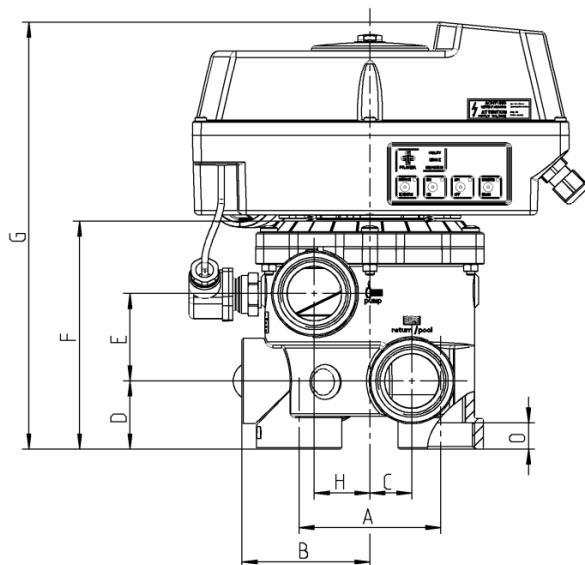


## 22 Dimensions



Side Mount

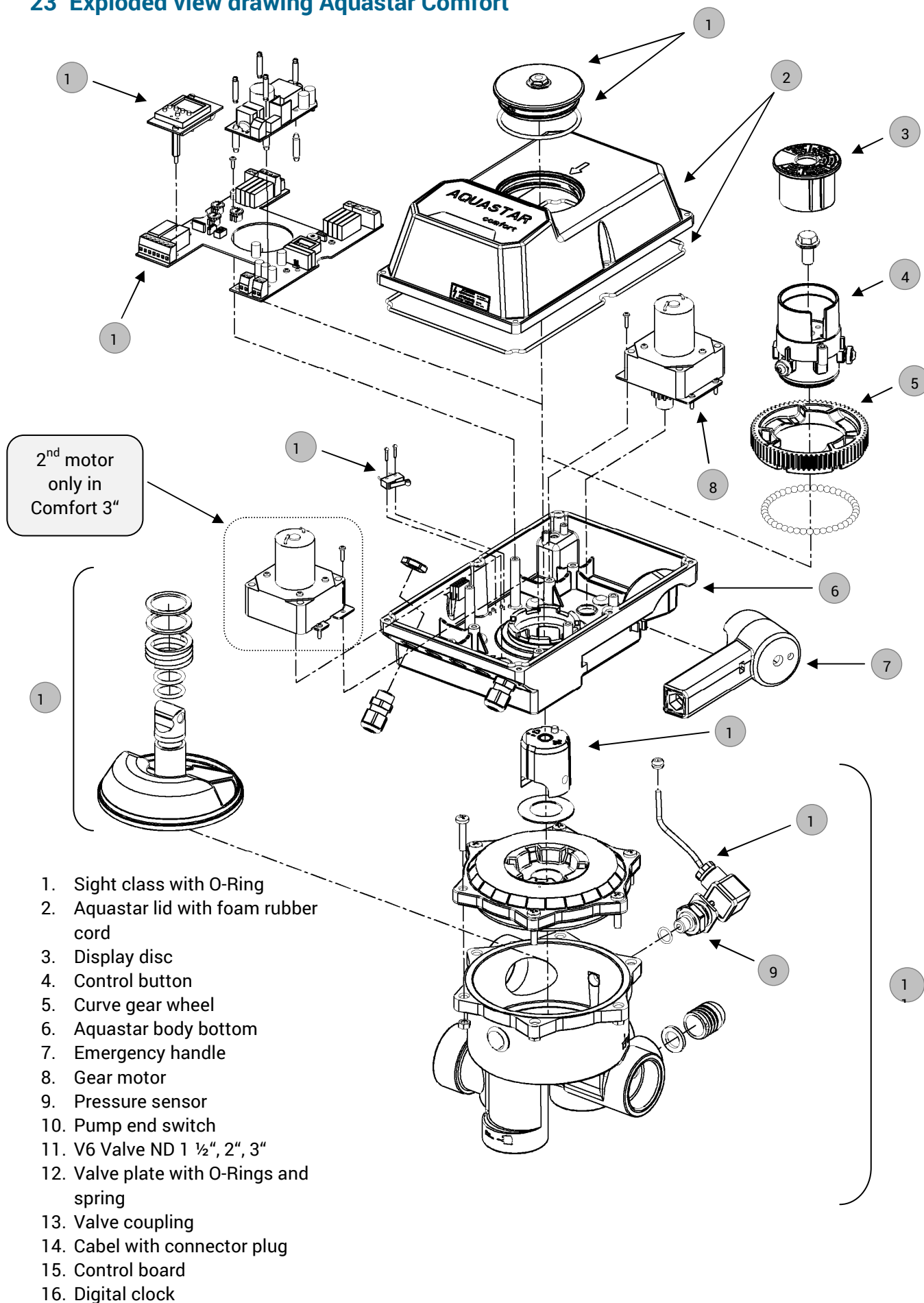
Top Mount



	1 ½" SM	1 1/2" TM	2" SM	3" SM
<b>A</b>	99,5	X	110	170
<b>B</b>	90	X	114	165
<b>C</b>	29,5	31,5	38	50
<b>D</b>	48	47	60	85,5
<b>E</b>	61,5	59,5	81	110
<b>F</b>	163,5	160	210	306
<b>G</b>	304	300	348	445
<b>H</b>	39	42,5	36	50
<b>I</b>	87,5	90	114	165
<b>J</b>	117	117	117	117
<b>K</b>	175	180	228	330
<b>L</b>	125	125	125	125
<b>M</b>	165	165	165	165
<b>N</b>	140	140	140	140
<b>O</b>	18,5	18,5	26	35
<b>P</b>	X	62,5	X	X

Dimensionen in m

## 23 Exploded view drawing Aquastar Comfort



## 24 Emergency handle

In case of power loss or control problems:

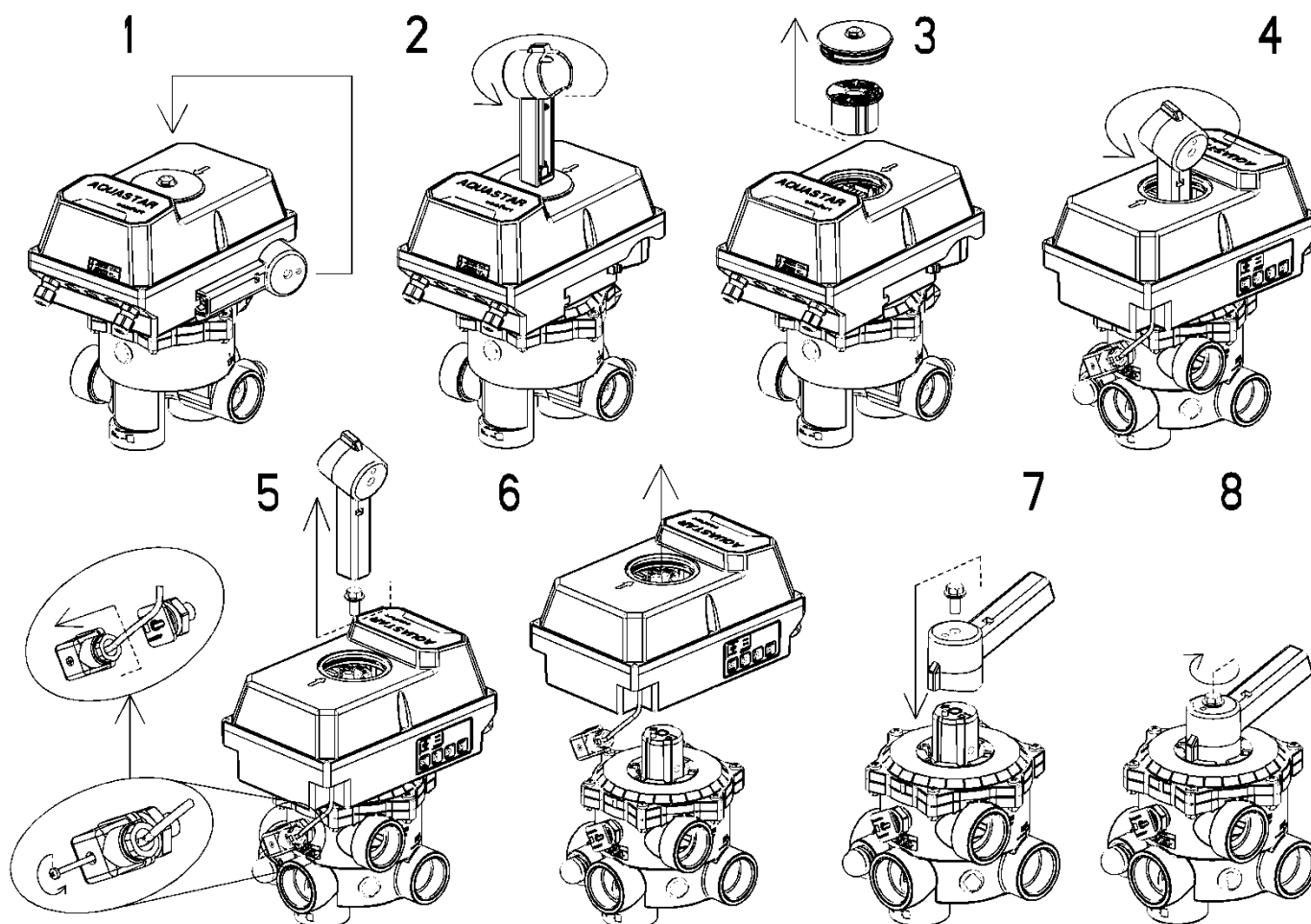
1. Prior to using the emergency handle disconnect the valve from the power supply. Interrupt the control cables to the valve.
2. Lower the system pressure (switch off pump, close ball valves, mind possible water columns)
3. Use the emergency handle according to the below chart.

### **Attention**

Lower the system pressure prior to using the emergency handle

**The emergency handle is not designed to replace the electric drive.  
In order to secure proper function of the emergency handle it should  
not be used permanently!**

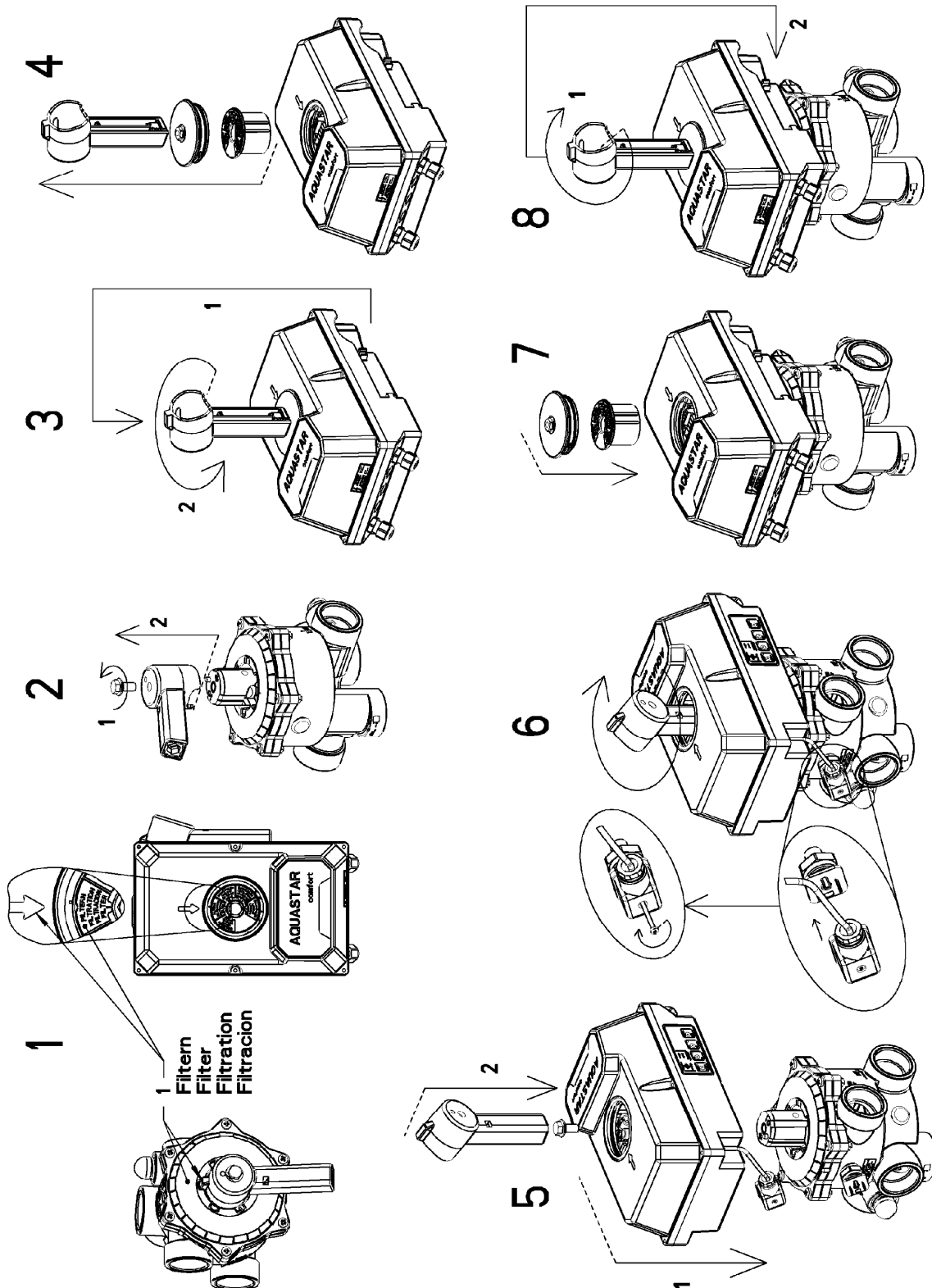
## 25 Dismantling





## 26 Installation

**Attention:** During installation screw tight the centre screw with a minimum torque of 10 Nm (pict 6) to secure the functionality and screw the sight glass hand-tight (4 Nm – 8 Nm) in the lid (pict. 8) in order to secure tightness of the Aquastar Comfort. If a pressure sensor is installed, make sure that the cable on the plug side looks diagonally downwards and make also sure that the cable inlet of the plug is screwed tight to secure the tightness of the pressure sensor.



## 27 Aquastar types and function overview

	1001	3001	3501	4001	4501	6001	6501
Time switch	×			×	×		
Pressure switch				×	×	×	×
Digital timer		×	×			×	×
Filter pump-clock			×		×		×
Voltage 24V AC/DV	×	×	×	×	×	×	×
Voltage 100 – 240V AC (170 – 300V DC)	×	×	×	×	×	×	×
Manual override	×	×	×	×	×	×	×
IP65	×	×	×	×	×	×	×
Pump connection 1,5" / 2" / 3"	×	×	×	×	×	×	×

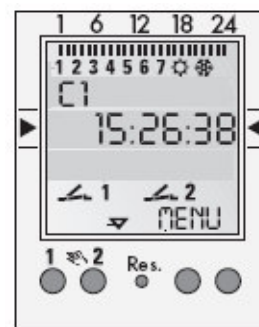
## 28 Setting of integrated clock

**Integrated clock for triggering backwash cycle** (channel 1)

**Settings:** each day the same, Mo-Fr same and Sa-Sun same or each day different times.

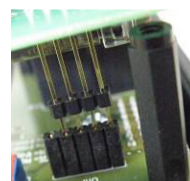
**Integrated clock for filter control** (channel 2 only for the 4501 channel 1)

**Settings:** each day the same, Mo-Fr same and Sa-Sun same or each day different times.

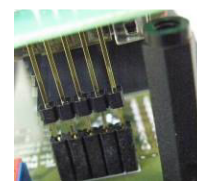


Picture: 2 channel clock

The battery is on the rear side of the clock; you thus need to unscrew and remove the clock to change the battery. When refitting the clock, make sure that the contacts are inserted correctly.



1-cannel clock



2-cannel clock

## 29 Clock battery

Clock battery: CR 2032

Must be replaced:

- when entire display flashes (battery nearly empty)
- when nothing is shown on the display (battery empty)

## 30 Power supplies to be used when connecting 24V

**Isolation transformer**

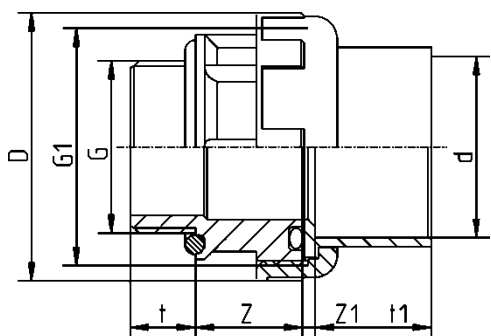
Nominal voltage: 24V  
Power: 63VA  
Open circuit voltage max. 28VAC

**used power supply**

Nominal voltage: 24V DC  
Nominal Current: mind. 2A

## 31 Aquastar Comfort Accessories

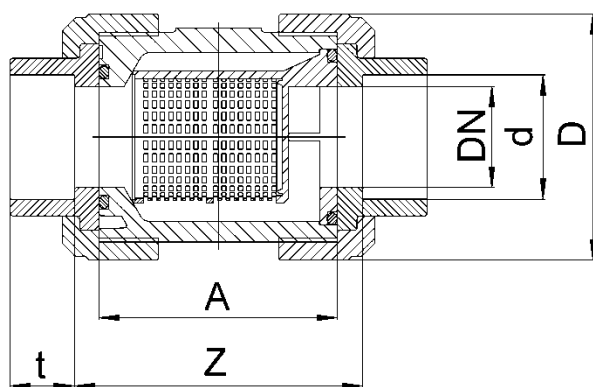
### OCEAN-adapter unions male thread – solvent socket



d - D	T	T1	Z	Z1	D	E1
50-1,5" BSP	18	31,5	30	3	74	2 1/4"
48,4-1,5" NPT	18	31,5	30	3	74	2 1/4"
50-2" BSP	23,5	31,5	36	3	92	2 3/4"
63-2" BSP	23,5	38,5	36	3	92	2 3/4"
60,3-2" NPT	23,5	38,5	36	3	92	2 3/4"

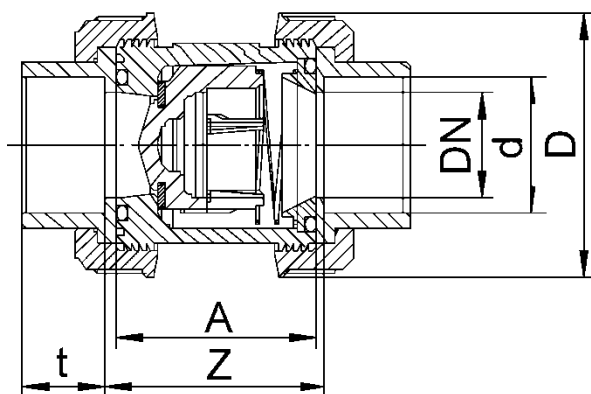
EN

### Line strainer S4



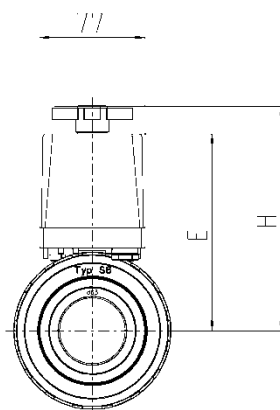
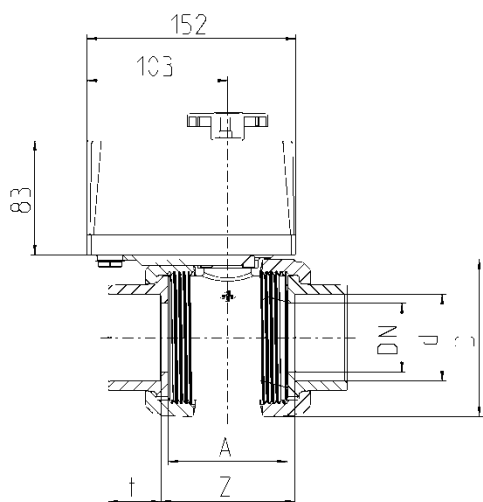
d	DN	A	Z	t	D	PN
50	40	95	104	31,5	101	16
63	50	109	121	38,5	124,5	16

### Check valve S6



D	DN	A	Z	t	D	PN
50	40	77	87	31,5	101,5	16
63	50	87	99	38,5	115,3	16

### PVC ball valve DN32 – DN50 S6 EO510 ECO 230V



PVC	S6	
DN	32	40
d	40	50
G	1 1/4"	1 1/2"
A	77	77
D	101,5	101,5
E	138,5	138,5
H	159	159
t	26,5	31,5
Z	87	87
PN	16	16
max. bar	3	3

## 32 Troubleshooting

- **All LEDs on the keyboard are flashing at the same time**
  - Motor overload
    - The pressure is too great on lifting the valve disk because the maximum water column of 3m was exceeded
    - The pump does not switch off on lifting the valve disk
    - The V6 valve is soiled or clogged by foreign matter
- **The drive rotates continually without approaching a position**
  - Device was driven without matching valve
    - Please return for repair; damage has already occurred in this case
- **The drive continually triggers the backwash cycle**
  - Slide switch S3 is in the wrong position
    - See chapter 15 Setting of the electric pressure switch
  - Rotary switch S4 is set to too low a pressure
    - See chapter 15 Setting of the electric pressure switch
  - The system contains pressure boosting components (e.g., Solar absorbers)
    - Set the pressure sensor so that the Aquastar does not trip at this increased pressure
  - The pressure sensor was retrofitted on a device that has a blue pressure sensor switch below the PCB
    - Use the translation list enclosed with the pressure switch set, and set S3 or S4 accordingly
- **The pump fails to switch on or off**
  - Slide switch S1 is in the wrong position
    - See chapter 17 Switch point for backwash and filter clock
  - Relay burnt out
    - The maximum pump current of 8A was exceeded
  - The pump is not properly connected
    - The pump must always be looped via contacts 13-14
- **The disk is not lifting freely, or the drive is not running smoothly, or flow noises can be heard**
  - The pump does not switch off on lifting the valve disk
    - The pump must always be looped via contacts 13-14
  - The drop from the water surface to the valve is too great
    - Make sure that the total water column does not exceed 3m.
  - The V6 valve is soiled or clogged by foreign matter
    - Clean the valve and use a pre-filter
- **The clock only triggers 1x**
  - The clock break time not correctly programmed
    - For details of programming the clock, see chapter 16 Programmieren der Digitaluhr für den Aquastar Comfort
- **The clock is flashing or there is no display**
  - The clock battery is almost flat or flat
    - Change the clock battery (see chapter 29 Uhrenbatterie)

Архангельск (8182)63-90-72  
Астана (7172)727-132  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89  
Иваново (4932)77-34-06

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Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
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Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93