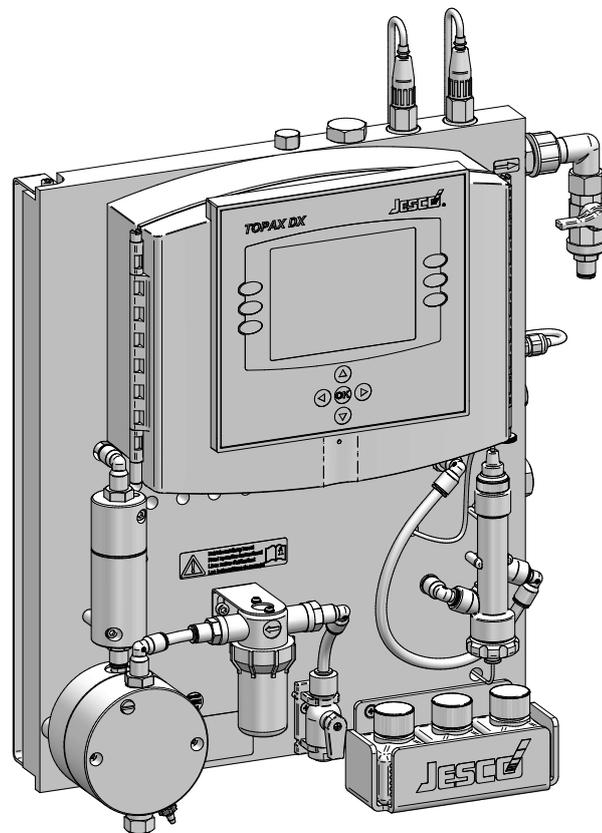


Water sampling station **EASYPRO Compact** Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

Table of Contents

1	Notes for the Reader	4	11	Maintenance	27
1.1	General non-discrimination	4	11.1	Maintenance intervals	27
1.2	Explanation of the signal words	4	11.2	Measuring cells	27
1.3	Explanation of the warning signs	4	11.3	Flow meter	27
1.4	Identification of warnings	4	11.4	Cleaning the sample water filter	27
1.5	Instruction for action identification	4			
2	Safety	5	12	Fault resolution	28
2.1	General warnings	5	12.1	Fault resolution for the pH value measurement	28
2.2	Hazards due to non-compliance with the safety instructions	5	12.2	Fault resolution for the disinfection measuring cell	29
2.3	Working in a safety-conscious manner	5			
2.4	Personnel qualification	5	13	Notes to EU conformity	30
3	Intended use	7	14	Declaration of no objection	31
3.1	Intended purpose	7	15	Warranty claim	32
3.2	Notes on product warranty	7	16	Index	33
4	Product description	8			
4.1	Scope of delivery	8			
4.2	Design and function	8			
4.3	Position numbers	8			
5	Technical data	9			
5.1	Water sampling station	9			
5.2	measuring cell	9			
5.3	TOPAX controller	10			
5.4	Terminal clips of the main board and the components	12			
6	Dimensions	14			
6.1	Water sampling station	14			
6.2	Wall holder	15			
7	Installation	16			
7.1	Installation location	16			
7.2	Wall mounting	16			
7.3	Installing the electrics	16			
7.4	Installing the hydraulics	17			
7.5	Installing the sensors	17			
7.6	Installation examples	19			
8	Start-up	23			
8.1	Setting the flow controller	23			
8.2	Calibrating the pH value and REDOX measuring cells	23			
8.3	Calibrating the disinfection measuring cell	24			
9	Operation	25			
10	Shutdown	26			
10.1	Short-term shutdown	26			
10.2	Long-term shutdown	26			
10.3	Storage	26			
10.4	Transportation	26			
10.5	Disposal	26			

1 Notes for the Reader

These Operating instructions contain information and behaviour rules for safe and designated operation of the Water sampling station EASYPRO Compact.

Observe the following principles:

- Read the entire operating manual prior to starting-up the device.
- Ensure that everyone who works with or on the device has read the operating manual and follows it.
- Maintain the operating manual throughout the service life of the device.
- Pass the operating manual on to any subsequent owner of the device.

1.1 General non-discrimination

In this operating manual, only the male gender is used where grammar allows gender allocation. The purpose of this is to make the text easy to read. Men and women are always referred to equally. We would like to ask female readers for understanding of this text simplification.

1.2 Explanation of the signal words

Different signal words in combination with warning signs are used in this operating manual. Signal words illustrate the gravity of possible injuries if the risk is ignored:

Signal word	Meaning
DANGER	Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.
WARNING	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.
CAUTION	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.
NOTE	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Table 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

Warning sign	Type of danger
	General danger zone
	Danger of electric shock
	Danger of damage to machine or functional influences

Table 2: Explanation of the warning signs

1.4 Identification of warnings

Warnings are intended to help you recognise risks and avoid negative consequences.

This is how warnings are identified:

Warning sign	SIGNAL WORD
	<p>Description of danger.</p> <p>Consequences if ignored.</p> <p>⇒ The arrow signals a safety precaution to be taken to eliminate the danger.</p>

1.5 Instruction for action identification

This is how pre-conditions for action are identified:

- ✓ Pre-condition for action which must be met before taking action.

This is how instructions for action are identified:

- ➔ Separate step with no follow-up action.
- 1. First step in a series of steps.
- 2. Second step in a series of steps.
 - ▶ Result of the above action.
- ✓ **Action completed, aim achieved.**

2 Safety

2.1 General warnings

The following warnings are intended to help you eliminate the dangers that can arise while handling the device. Risk prevention measures always apply regardless of any specific action.

Safety instructions warning against risks arising from specific activities or situations can be found in the respective sub-chapters.

	DANGER
<p>Mortal danger from electric shock!</p> <p>Live parts can inflict fatal injuries.</p> <p>⇒ Disconnect the external power supply before opening the water sampling station or the TOPAX controller.</p> <p>⇒ Secure the station to prevent it from being switched on again!</p>	

	WARNING
<p>Increased risk of accidents due to insufficient qualification of personnel!</p> <p>The device and the accessories may only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.</p> <p>⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications.</p> <p>⇒ Prevent access to the system for unauthorised persons.</p>	

2.2 Hazards due to non-compliance with the safety instructions

Failure to follow the safety instructions may endanger not only persons but also the environment and the device.

The specific consequences can be:

- The failure of important device functions and of the corresponding station.
- Failure of required maintenance and repair methods.
- Risk to persons when working on the product.

2.3 Working in a safety-conscious manner

Besides the safety instructions specified in this operating manual, further safety rules may apply. Always observe all safety-related regulations and guidelines applicable at the product's location of use. Note in particular the following items:

- safety regulations on handling electricity and live components,
- safety regulations on handling hazardous substances,
- accident prevention regulations
- safety and operating provisions,
- environmental protection provisions,
- other applicable directives and laws.

2.4 Personnel qualification

Any personnel who work on the device must have appropriate special knowledge and skills.

Anybody who works on the device must meet the conditions below:

- attendance at all the training courses offered by the owner,
- sufficient qualification for the respective activity,
- personal suitability for the respective activity,
- training in how to handle the device,
- knowledge of safety equipment and the way this equipment functions,
- knowledge of this operating manual, particularly of safety instructions and sections relevant for the activity,
- knowledge of fundamental regulations regarding health and safety and accident prevention.

All persons must generally have the following minimum qualification:

- training as specialists to carry out work on the device unsupervised,
- sufficient training that they can work on the device under the supervision and guidance of a trained specialist.

These operating instructions differentiate between these user groups:

2.4.1 Specialist staff

Thanks to their professional training, knowledge, experience and knowledge of the relevant specifications, specialist staff are able to perform the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.4.2 Trained electricians

Due to their professional training, knowledge and experience as well as knowledge of specific standards and provisions, trained electricians are able to do the electrical work assigned to them and to recognise and avoid any potential dangers by themselves.

They are specially trained for their specific working environment and are familiar with relevant standards and provisions.

They must comply with the legally binding regulations on accident prevention.

2.4.3 Trained persons

Trained persons have received training from the operator about the tasks they are to perform and about the dangers stemming from improper behaviour.

Trained persons have attended all trainings offered by the operator.

2.4.4 Personnel tasks

In the table below you can check what qualifications are the pre-condition for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Qualification	Activities
Specialist staff	<ul style="list-style-type: none"> ■ Installing the hydraulics ■ Start-up ■ Shutdown ■ Fault resolution ■ Maintenance ■ Disposal
Trained electricians	<ul style="list-style-type: none"> ■ Installing the electrics ■ Rectifying electrical faults
Trained persons	<ul style="list-style-type: none"> ■ Operation ■ Storage ■ Transportation

Table 3: Personnel qualification

3 Intended use

3.1 Intended purpose

The water sampling station EASYPRO Compact is intended for recording the measured values in water treatment and drinking water treatment. The operational safety of the devices supplied can only be ensured if used according to their purpose.

3.2 Notes on product warranty

Any non-designated use of the Water sampling station can impair its function and the protection provided. This leads to invalidation of any warranty claims!

Please note that liability is on the side of the user in the following cases:

- The Water sampling station is operated in a manner which is not consistent with these operating instructions, particularly safety instructions, handling instructions and the section "Intended Use".
- Information on usage and environment (see section 5 „Technical data“ on page 9) is not adhered to.
- if people operate the device who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories of the Lutz-Jesco GmbH are used,
- Unauthorised changes are made to the device.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.
- The device is commissioned before it or the corresponding system has been correctly and completely installed.
- Safety equipment has been bridged, removed or made inoperative in any other way.

4 Product description

4.1 Scope of delivery

Please compare the delivery note with the scope of delivery. The following components are available for the Water sampling station EASYPRO Compact.

- Base plate
- Wall holder
- TOPAX controller
- Sample water filter
- Flow controller
- Flow control
- Free chlorine measuring cell valve
- pH value measuring cell valve
- REDOX measuring cell valve
- Temperature sensor
- Buffer solutions for adjusting each measuring cell

The measuring cells are packaged separately and not pre-installed.

4.2 Design and function

The Water sampling station has a variable design. It can continuously measure the level of disinfection (effective chlorine content), the pH value, the REDOX potential and the sample water temperature. This water sampling station can therefore be used in the water treatment of public swimming pools, brine baths and industrial water treatment to control connected systems and control points.

4.3 Position numbers

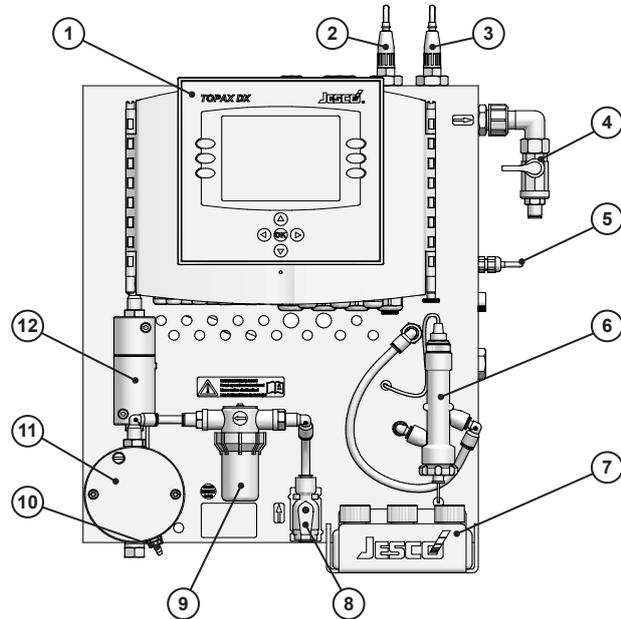


Fig. 1: Position numbers

No.	Position
1	TOPAX DX
2	REDOX measuring cell
3	pH value measuring cell
4	Outflow tap
5	Temperature sensor
6	Disinfection measuring cell
7	Sample mount for buffer solutions
8	Inflow tap
9	Sample water filter
10	Extraction point
11	Flow controller
12	Flow control

Table 4: Position numbers

5 Technical data

5.1 Water sampling station

Description	Value
Temperature	Maximum 40°C
Pressure resistance	Max. 6 bar, pressure loss c. 0.3 bar
Feed	PE hose 6/8 mm
Drainage	PE hose 6/8 mm
Mesh size of the sample water filter	0.5 mm
Water requirement	Approx. 30 l/h
Width	454 mm
Height	506 mm
Depth	161 mm

Table 5: Water sampling station technical data

5.2 measuring cell

Technical data for connecting a TOPAX controller.

5.2.1 Open 3-electrode measuring cell

Description	Value
Measuring range	Free chlorine 0 - 10.00 mg/l
Measuring electrode	Gold
Reference electrode	Silver / silver chloride with KCl gel filling
Counter electrode	Precious metal

Table 6: Open 3-electrode measuring cell technical data

5.2.2 pH single-rod measuring cell

Description	Value
Measuring range	pH 0.00 - 14.00

Table 7: pH single-rod measuring cell technical data

5.2.3 Redox single-rod measuring cell

Description	Value
Measuring range	0 to 1000 mV

Table 8: REDOX single-rod measuring cell technical data

5.3 TOPAX controller

Description	Value	
Supply voltage	90 - 264 V AC, 47 - 63 Hz	
Power consumption	Approx. 24 W	
Housing dimensions	302 x 231 x 108 mm (W x H x D) wall-mounted housing	
Display	Graphic colour display 5.7 inch, 320 x 240 pixels (RGB), with LED backlighting (lighting dims automatically after 10 minutes)	
Measurement inputs (potential-free)	Inputs for disinfection, pH value, REDOX potential, temperature	
Control characteristic for 4 inputs (Disinfection, pH value, combined chlorine, conductivity)	P, PI, PD or PID performances Fixed value regulation, standard channel selectable with disturbance variable feed forward 2-side controller	
Control parameters	Xp: 1 - 500%, Tn: 1 - 200 Minutes, Tv: 1 - 1200 seconds	
Measurement input Disinfection	potentialstatic electrode Measuring range adjustable from: 0 - 2.00 mg/l or 10.00 mg/l	
Measuring input for pH value	Measuring range pH 0 - 14	Connection via series terminals*
REDOX potential measuring input	Measuring range 0 - 1.000 mV	Connection via series terminals*
Temperature measuring input - Pt 100	Measuring range -10°C ... +100°C	Two-leader connection by means of line-up terminals*
Disturbance variable input	0/4 - 20 mA programmable Disturbance variable: 0.1 - 10 times amplification	
Digital inputs	<ul style="list-style-type: none"> - Low level alert input for metering pump 1 and 2 - Alarm level alert input for metering pump 1 and 2 - Filter cleaning: disconnection of control function without alarm - Measuring water shortage disconnection of the regulating function with alarm (external switch off) - Activate night-time economy mode 	
Controller outputs	Electronic output (optocouplers)	- 48 V DC; 250 mA (Pulse frequency 10 - 350 Impulses/min)
	Relay output	<ul style="list-style-type: none"> - ON/OFF - Pulse frequency 10 - 100 Impulses/min - Pulse length 10 - 3600 seconds - 3-point step output with - Position feedback Value of the Potentiometer 1 - 10 kOhm
	Continuous output	- 0/4 - 20 mA, max. load 500 ohms

Table 9: Technical Data TOPAX-Controller

Description	Value	
Alarm output	Relay output as collective alarm for the measuring size of free and combined chlorine, pH value, redox potential, temperature and conductivity as potential free changer	
	Measurement alarm	Min. and max. alarm freely adjustable, time delay adjustable: max. 200 min
Current outputs for remote transmission of measuring values - free and combined chlorine - pH value - redox potential - temperature and conductivity	0/4 - 20 mA possible spreading; max. load 500 ohms potential free	
	Useful spreading	>50 % with measuring input Disinfection and 0/4 ... 20 mA >10% during measurement input of pH-value and redox potential
	0/4 - 20 mA measurement output combined chlorine corresponds to 0.00 - 1,50 mg/l	
PC interface	RS 485	
Load capacity of the relay	230 V AC, 3 A (ohmic resistive load)	
Protection class	IP 65 with locked screw connections	
Ambient temperature	-5°C...+45°C	
Air humidity	95 % non-condensing	

Table 9: Technical Data TOPAX-Controller

5.4 Terminal clips of the main board and the components

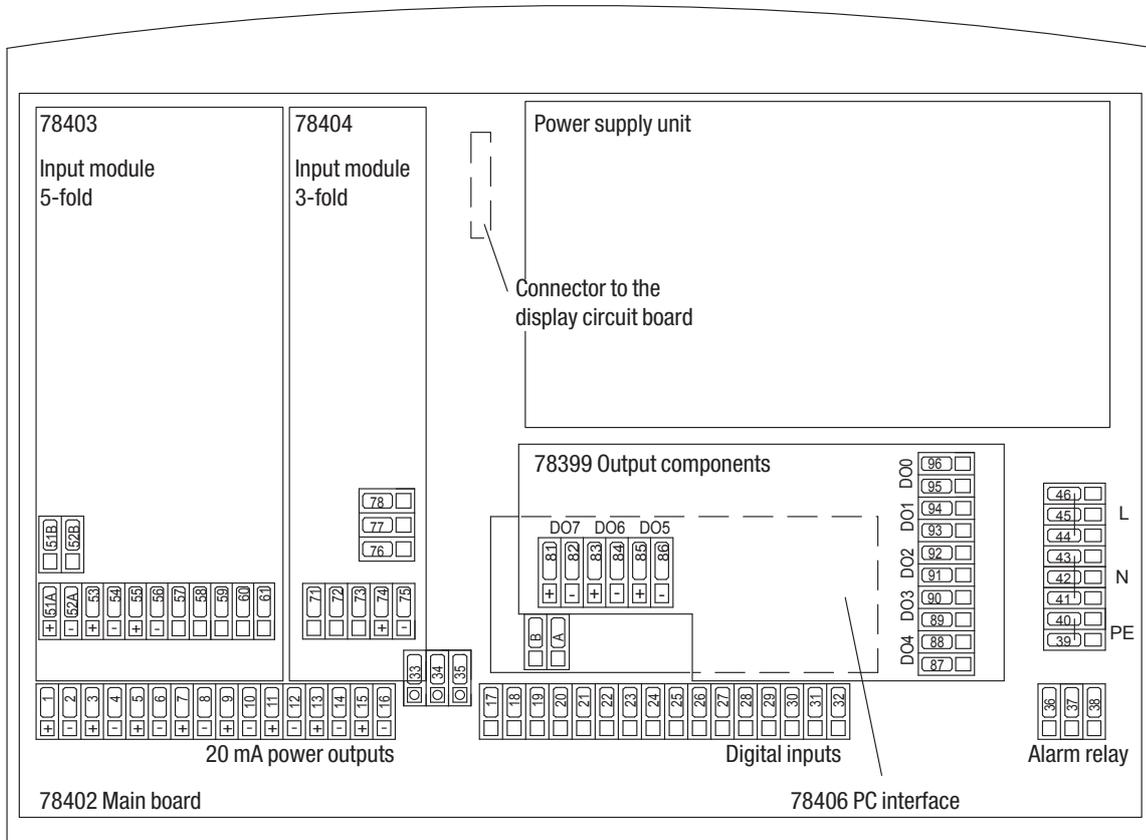


Fig. 2: Rear part of the housing with the main board, the input module 5-fold "78403", the input module 3-fold "78404", the output module "78399" and the partly hidden PC interface "78406".

5.4.1 Main board (part no. 78402)

Terminal	Function		
0/4...20 mA Analogue power outputs			
1	+	Measurement output 0/4...20 mA	Disinfection
2	-		
3	+	Measurement output 0/4...20 mA	pH value
4	-		
5	+	Measurement output 0/4...20 mA	Redox
6	-		
7	+	Measurement output 0/4...20 mA	Temperature or programmed as controller output
8	-		
9	+	Measurement output 0/4...20 mA	not used
10	-		
11	+	Measurement output 0/4...20 mA	programmed as controller output
12	-		
13	+	Continuous control output 0/4...20 mA	programmed as controller output
14	-		
15	+	Continuous control output 0/4...20 mA	programmed as controller output
16	-		

Table 10: Main board 78402 Analogue output

i The constant regulating outputs 0/40 ... 20 mA are also allocated automatically in the software configuration as per a fixed rank order of the terminals, in accordance with the allocation procedure for the output components.

Ranking of the outputs for automatic allocation:

1. Controller output disinfection (terminal 15/16)
2. Controller output pH value (terminal 13/14)
3. Output flocculation pump (terminal 11/12)

The clip allocation is automatically displayed at the end of the configuration.

Terminal	Function		
Digital inputs			
17	potential free input	measuring water shortage *)	
18			
19			
20			filter cleaning *)
21			
22			low level alert Controller 1 **)
23			
24			level alarm Controller 1 **)
25			
26			low level alert Controller 2 **)
27	potential free input	level alarm Controller 2 **)	
28			
29	potential free input	activate night mode operation	
30			
31	potential free input	not used	
32			
*) normally ON or normally OFF			
**) normally ON or normally OFF or not active			
33	A	internal PC interface	interface for software updates
34	B		
35	GND		
36	alarm relay as common alarm		Opener
37			middle contact
38			Closer
39	PE	protective conductor	Voltage: 90 up to 264 VAC
40	PE		
41	N	neutral conductor	
42	N		
43	N		
44	L	phase	
45	L		
46	L		

Table 11: Mainboard 78402 Digital inputs

5.4.2 Input module (5x) (part no. 78403)

Terminal	Function	
51A	+	
52A	-	
51B	+	
52B	-	
53	+	pH value
54	-	
55	+	Redox
56	-	
57		Temperature (polarity at wish)
58		
59		potentiometer with positional feedback for servo motor (polarity of clips 59 and 61 at wish)
60	Driver	
61		

Table 12: Input module 78403

5.4.3 Input module (3x) (part no. 78404)

Terminal	Function		Comment
71	Reference electrode (with integrated cable)	Disinfection (potentiostatic measuring cell)	See section 7.5.2 „Disinfection measuring cell“ on page 18
72	Counter electrode Stainless steel		
73	Measuring electrode (gold)		
74	+	20 mA passive (no supply to the sensor)	Disturbance variable
75	-		
76		Potentiometer with positional feedback for Servo motor. (polarity of clips 76 and 78 at wish)	
77	Driver		
78			

Table 13: Input module 78404

5.4.4 Output module (part no. 78399)

Terminal	Output		
81	+	Electronic output (DO7) (Optocoupler)	configurable
82	-		
83	+	Electronic output (DO6) (Optocoupler)	configurable
84	-		
85			not available
86			
87		Relay output (DO 4)	configurable
88			
89		Relay output (DO 3)	configurable
90			
91		Relay output (DO 2)	configurable
92			
93		Relay output (DO 1)	configurable
94			
95		Relay output (DO 0)	configurable
96			

Table 14: Output module 78399



The constant regulating outputs 0/4-20 mA are also allocated automatically in the software configuration as per a fixed rank order of the terminals, in accordance with the allocation procedure for the output components,

The outputs are allocated according to ranking:

1. Disinfection controller
2. controller pH value
3. DIN contact
4. Eco-contact
5. Flocculation contact

Depending upon output type, TOPAX-cotroller selects the next free relay output or optocoupler. The clamps are assigned in a firm order: clamps 87/88 to 95/96 for relays, or 81/82 to 83/84 for optocouplers.

6 Dimensions

6.1 Water sampling station

All dimensions in mm

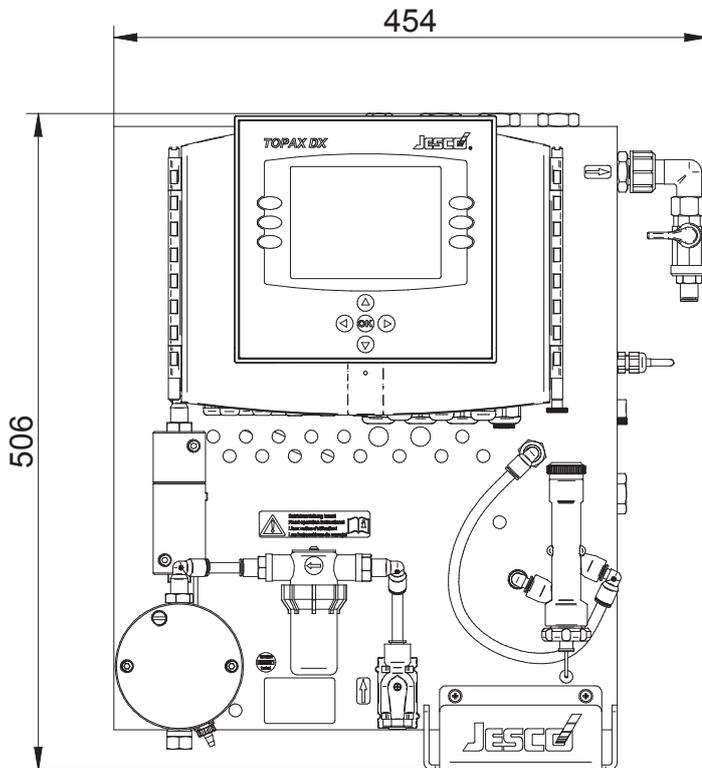


Fig. 3: Water sampling station dimensions

6.2 Wall holder

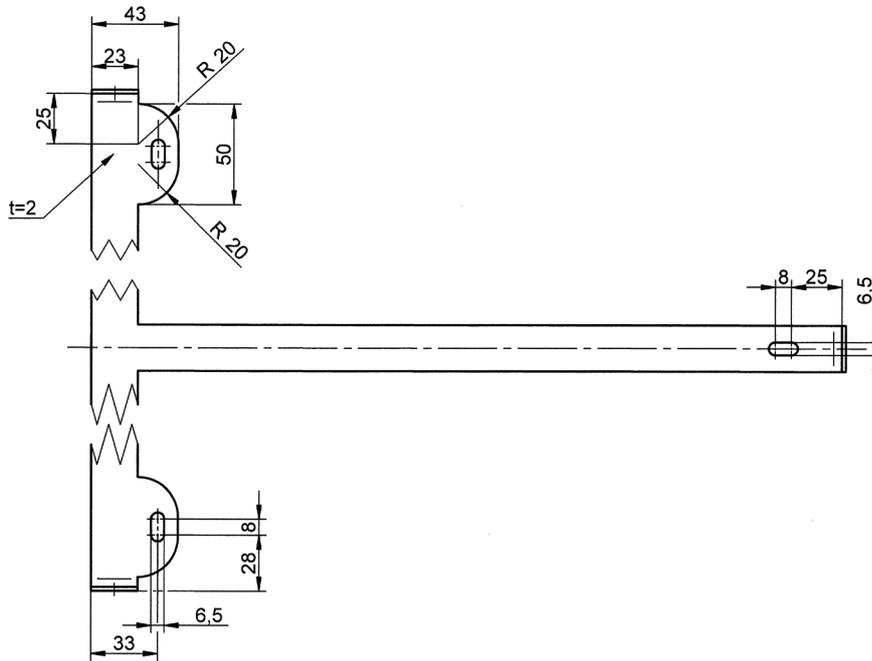


Fig. 4: Water sampling station, front view

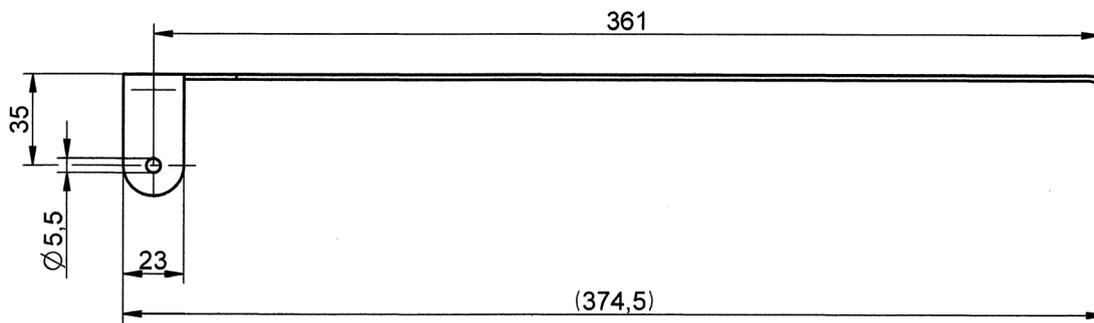


Fig. 5: Wall holder, plan view

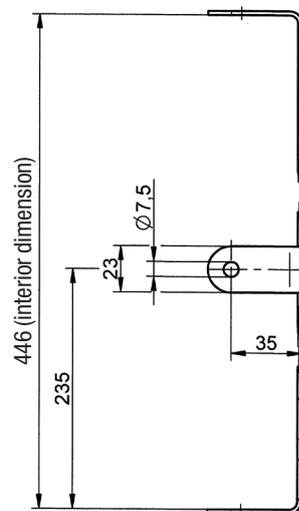


Fig. 6: Wall holder, view from right side

7 Installation



NOTE

Damage to the system due to incorrect installation

Non-compliance with installation regulations (e.g. use of incorrect materials) may damage system parts or distort measurement results.

- ⇒ Comply with all the guideline instructions for installing the water sampling station.
- ⇒ Only use materials suitable for the chemicals and disinfectant used.
- ⇒ Always tighten screw connections so they are finger-tight.

7.1 Installation location

The following criteria must be taken into account when selecting the assembly location:

- The installation surface is even.
- The water sampling station is opened to the left.
- The installation height is chosen so that the display of the controller is at eye level for the user.
- Below the water sampling station there must be at least 20 cm free space to route the inflow and outflow pipes.
- All pipes and cables can be routed without kinks.
- From the extraction point, the sample water must reach the Water sampling station over as short a distance as possible in order to avoid measured value deviations.
- Direct sunlight or heat radiation is avoided.

7.2 Wall mounting

This section takes you through the wall mounting of the Water sampling station step by step.

Perform the following working steps:

1. Unscrew the pre-installed wall holder from the water sampling station.
2. Attach the wall holder to the wall. The screws supplied are suitable for masonry.
3. Align the left side of the wall holder perpendicularly using a water level.
4. Hang the water sampling station from the wall holder again and tighten the screw supplied so they are finger-tight.

✓ **The water sampling station is fitted on the wall.**

7.3 Installing the electrics

This section takes you through installing the electrics of the water sampling station step by step.



NOTE

Electronic distortion of the measurement results.

Incorrect installation of the electrical cables can distort the measurement results. As a result, the controlling of connected systems and control points may be faulty.

- ⇒ Comply with all the guideline instructions for installing the water sampling station and connected devices.
- ⇒ Fix all cables during installation; always tighten screw connections so they are finger-tight.
- ⇒ Do not route the connections to the measuring cells parallel with the mains and control connections, and always with a gap of at least 15 cm. Lay connection junctions at an angle of 90°.
- ⇒ Ground the inflow and outflow of the sample water to shield the measuring cells from external potential.

During installation, the water sampling station can be unlocked and opened using the lock (right-hand side). Cables can then be routed to the water sampling station from behind.

Precondition for action:

- ✓ The Water sampling station has been successfully fitted to the wall in accordance with section 7.2 „Wall mounting“ on page 16.

Perform the following working steps:



DANGER

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ⇒ Disconnect the external power supply before opening the water sampling station or the TOPAX controller.
- ⇒ Secure the station to prevent it from being switched on again!

1. Unscrew the curled thumb screw from the right-hand side of the baseplate and open the baseplate.
2. Connect all connection cables to external actuators on the TOPAX controller. Follow the instructions on the TOPAX documentation. Then fix the cable to the rear of the station. Close the water sampling station again.
 - ▶ The water sampling station is now connected to all external devices. The cable screw connections on the underside of the TOPAX controller have been carefully sealed so as to prevent the ingress of dust and moisture.

3. Connect the TOPAX controller's power supply cable to an external power source.

✓ **The electrics of the water sampling station have been successfully installed.**

7.4 Installing the hydraulics


NOTE

Hydraulic distortion of the measurement results

Incorrect installation of the hydraulic lines can distort the measurement results. As a result, the controlling of connected systems and control points may be faulty.

- ⇒ Comply with all the guideline instructions for installing the water sampling station and connected devices.
- ⇒ Only use hose connections made from polyethylene (PE) with a diameter of 6/8 mm.
- ⇒ Prevent misrepresentations of the sample water en route to the water sampling station by taking the sample water 30 cm above the bottom of the tank or in the centre of the water pipe. The extracted sample water must reach the water sampling station within a short space of time, thereby arriving with a pressure of 0.2 bar.
- ⇒ If the extraction or supply of the sample water does not satisfy these requirements, an external sample water pump must be installed before the water sampling station.
- ⇒ If you expect heavy soiling (e.g. leaves, coarse, small floating materials, etc.) in the sample water, use an external pre-filter. It helps you prevent blockages in the water sampling station.

This section takes you through installing the hose connections of the Water sampling station step by step.

Precondition for action:

✓ The wall mounting and electrical installation have been successfully completed.

Perform the following work steps:

1. Connect the extraction point of the sample water to the inflow tap (pos. 8) by plugging the hose into the inflow tap.
2. Connect the return-flow hose of the sample water to the outflow tap (pos. 4) by plugging the hose into the outflow tap.

✓ **The hydraulic of the water sampling station have been successfully installed.**

7.5 Installing the sensors


DANGER

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ⇒ Disconnect the external power supply before opening the water sampling station or the TOPAX controller.
- ⇒ Secure the station to prevent it from being switched on again!

 The documentation of the TOPAX controller contains further information regarding the operation of the controller and regarding the various measuring cells and their functionality.

This section takes you through installing the sensors of the Water sampling station step by step.

7.5.1 Structure of the controller

The front housing section (A) and the rear housing section (B) of the TOPAX controller are fitted together with two pivots (C and D). You can open the controller from both sides. The pivots are screwed with nuts and can only be removed using a tool.

Fit all the nuts during re-assembly.

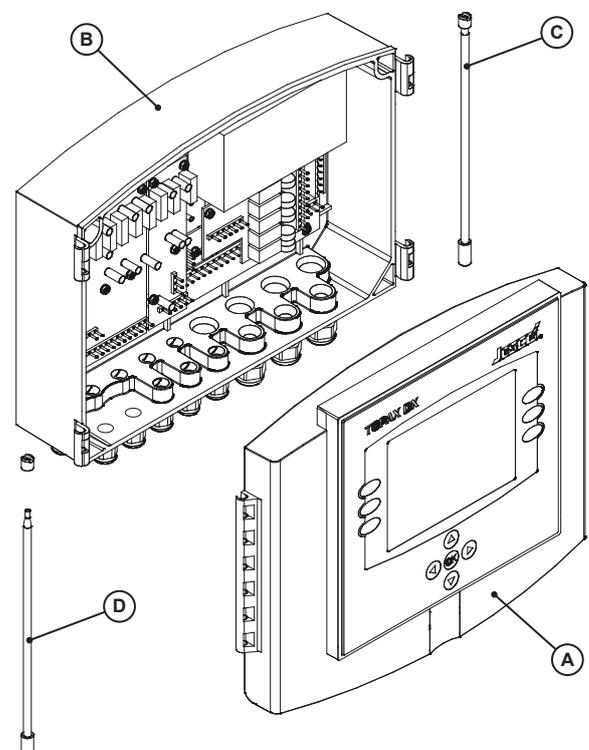


Fig. 7: Structure of the controller

7.5.2 Disinfection measuring cell

The DMZ-3 measuring cell for measuring the degree of disinfection (free chlorine) must be connected directly in the housing of the TOPAX controller. The counter electrode is already installed in the fitting and connected with the controller.

Precondition for action:

- ✓ The installation of the water sampling station, the electrics and the hydraulics has been performed successfully.
- ✓ The TOPAX documentation is within easy reach.
- ✓ The measuring cells documentation is within easy reach.

Perform the following work steps:

1. Unscrew the protective cap from the top of the valves and store these away carefully for future use.
2. Before installing the disinfection measuring cell (pos. 6), fill the cleaning balls in the valve. The cleaning balls are attached to the measuring cell.
3. Screw in the measuring cell into the valve from above and tighten the screw connection.
4. Open the housing of the TOPAX controller.
5. Connect the connecting cable of the measuring cell with the clamps 71 (reference electrode) and 73 (measuring electrode).

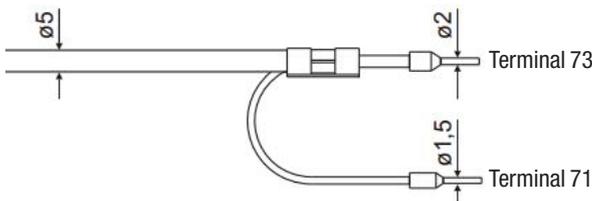


Fig. 8: Connecting cable DMZ-3

6. Lead the connecting cable through one of the cable screw connections on the underside of the controller and screw it tight to guarantee the protection class of the housing.
 7. Close the housing of the TOPAX controller.
- ✓ **The disinfection measuring cell has been installed successfully.**

7.5.3 Measuring cells Redox and pH value

The connecting cables are already installed on the TOPAX controller and need only be connected to the measuring cells.

Precondition for action:

- ✓ The installation of the water sampling station, the electrics and the hydraulics has been performed successfully.
- ✓ The TOPAX documentation is within easy reach.
- ✓ The measuring cells documentation is within easy reach.

Perform the following work steps:

1. Unscrew the protective caps from the top of the valves and store these away carefully for future use.

2. Screw the measuring cells (pos. 2 and 3) into the fittings. Observe the measuring cell documentation during installation.
3. Connect the measuring cells with the connecting cables.

- ✓ **The measuring cells of the water sampling station have been successfully installed.**

7.5.4 Temperature sensor Pt 100

The water sampling station is fitted with a temperature sensor (pos. 5) which is screwed into the baseplate from the side. This section describes how to replace the sensor.

Precondition for action:

- ✓ The installation of the water sampling station, the electrics and the hydraulics has been performed successfully.
- ✓ The TOPAX documentation is within easy reach.

Perform the following work steps:

1. Unscrew the sensor or the sealing plugs from the temperature measuring station.
2. Screw the new temperature sensor into the opening.
3. Open the housing of the TOPAX controller.
4. Connect the connecting cable of the temperature sensor with the clamps 57 and 58.
5. Lead the connecting cable through one of the cable screw connections on the underside of the controller and screw it tight to guarantee the protection class of the housing.
6. Close the housing of the TOPAX controller.

- ✓ **The temperature sensor of the water sampling station has been installed successfully.**

7.5.5 Sample mount for buffer solutions



Comply with the best-before date of the buffer solutions and always store them in a cool and dark location. Storage in a warm location can shorten the best-before date.

The water sampling station is delivered with a mount which can be fitted with the two screws.

Precondition for action:

- ✓ The mount and the two screws are on hand.
- ✓ A Phillips screwdriver (PH2) is on hand.

Perform the following work steps:

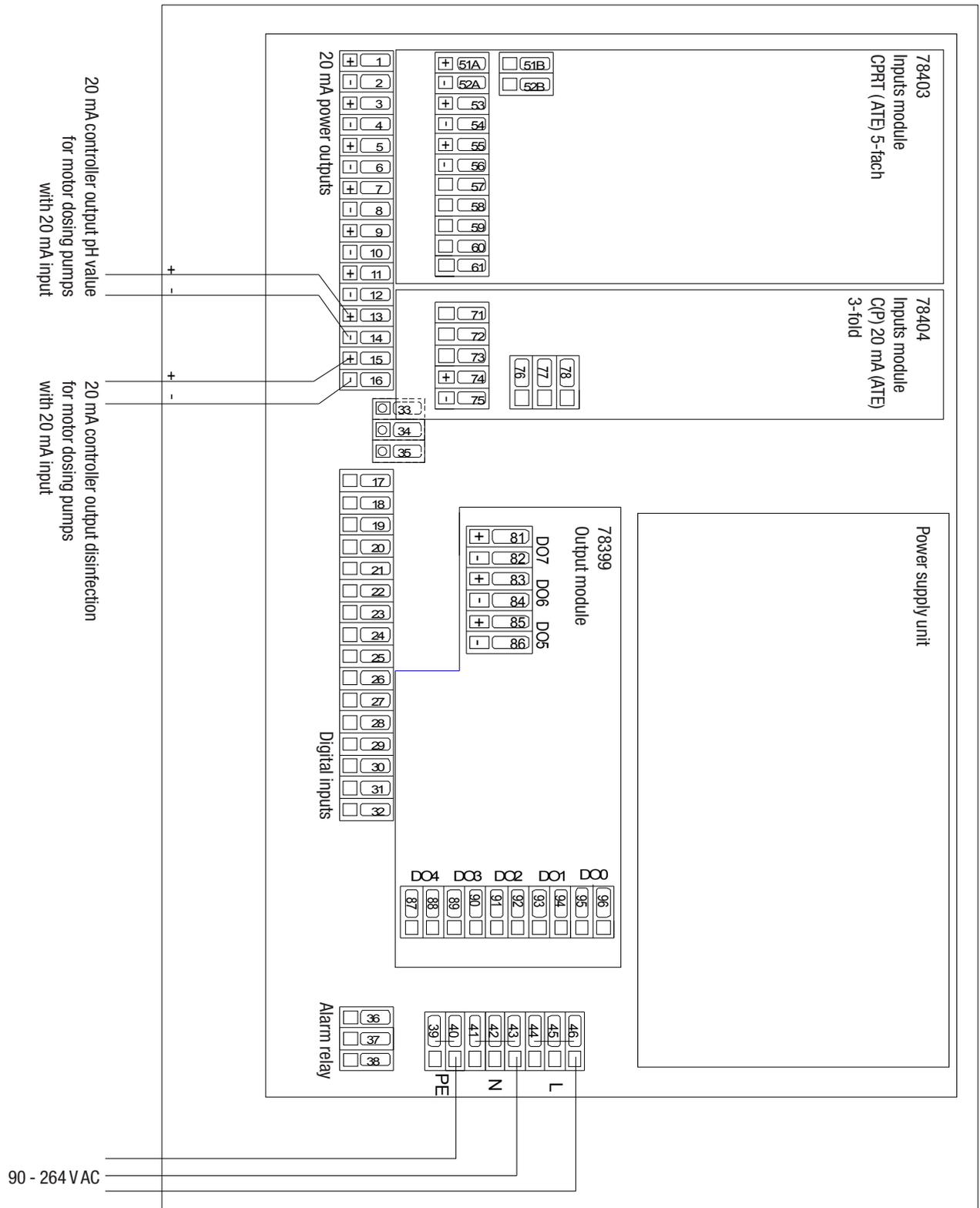
1. Hold the mount on the drillholes located at the lower left-hand corner of the baseplate.
2. Screw the mount tight with the two screws.

- ✓ **The mount for the buffer solutions has been fitted successfully.**

7.6 Installation examples

7.6.1 Example 1 (Controller connection)

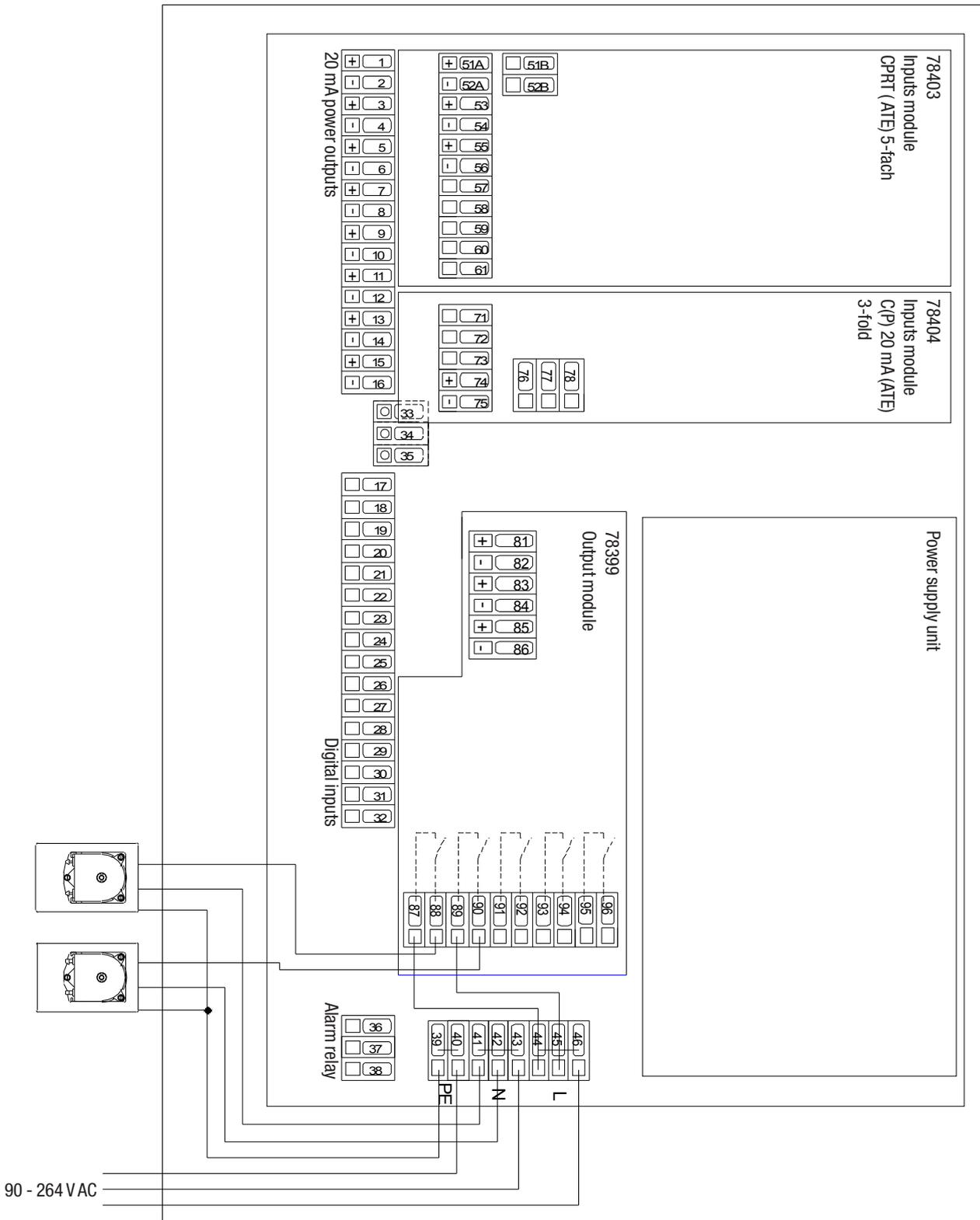
Disinfection: Continuous regulating output 0/4 - 20 mA
 pH value: Continuous regulating output 0/4 - 20 mA



7.6.2 Example 2 (Controller connection)

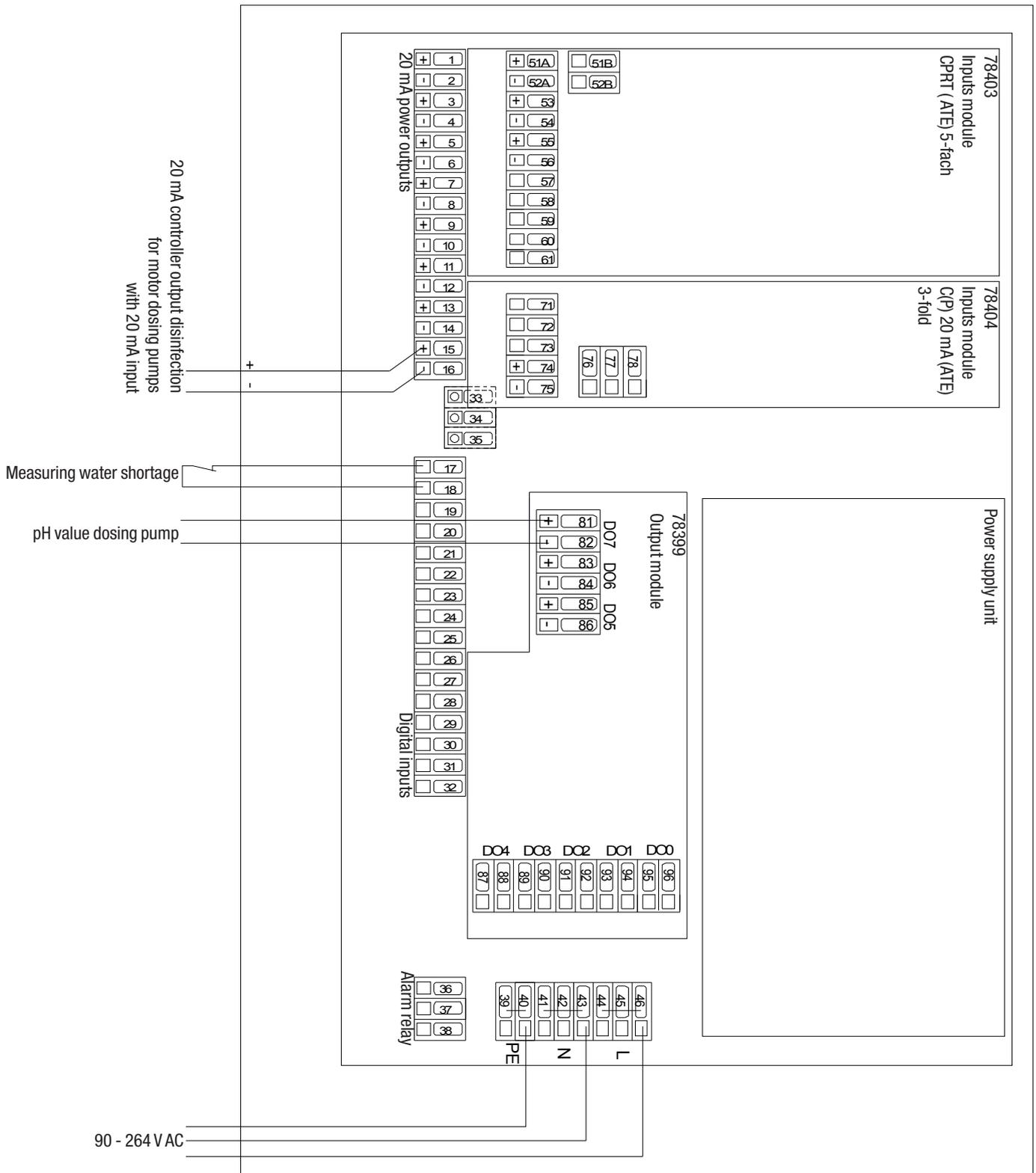
Disinfection: Peristaltic pump (pulse length - relay=

pH value: Peristaltic pump (pulse length - relay=



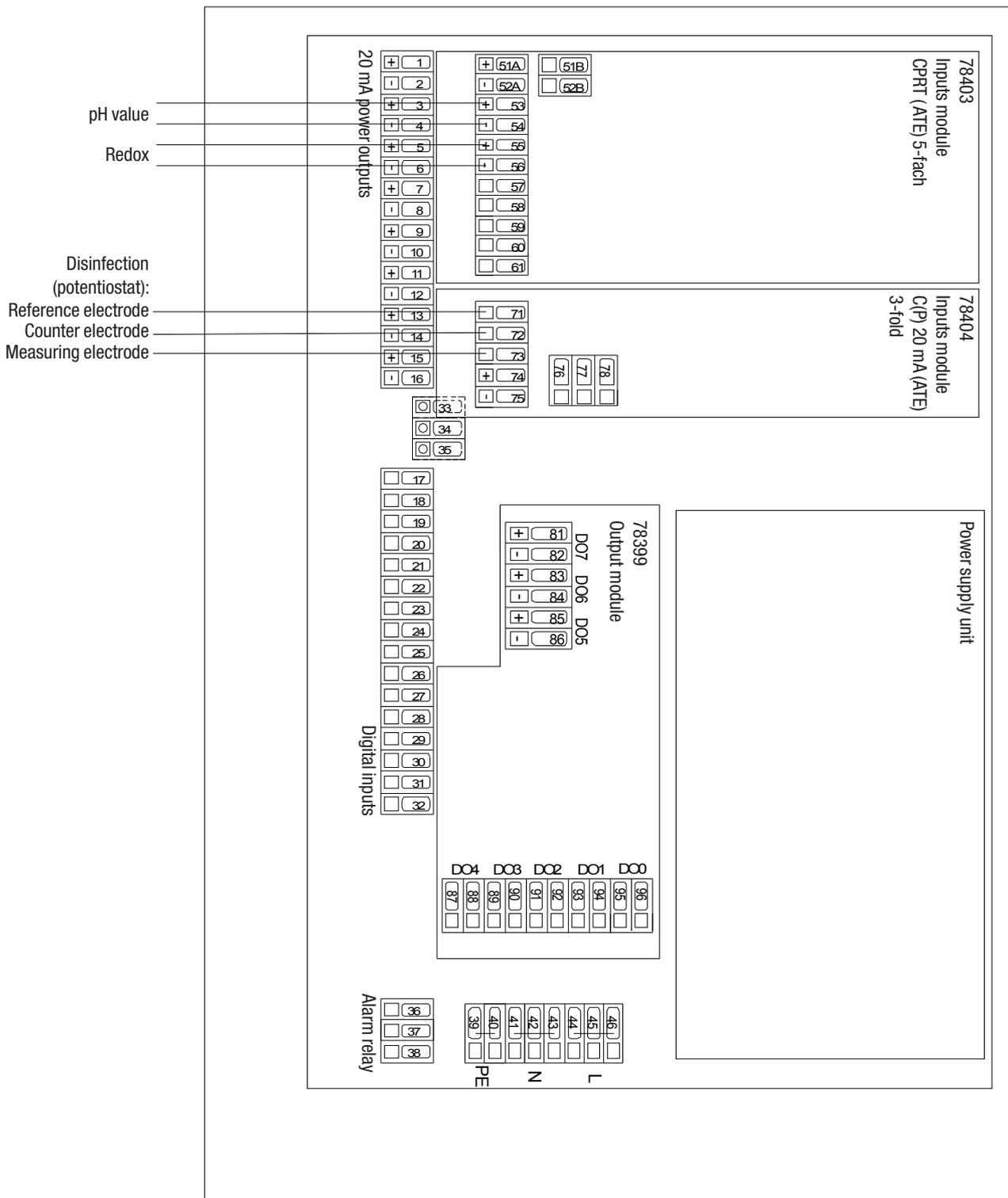
7.6.3 Example 3 (Controller connection)

Disinfection: Continuous regulating output 0/4 - 20 mA
 pH value: Magnetic metering pump
 (Pulse frequency - Optocoupler)



7.6.4 Example 4 (Connection measuring cells)

- Disinfection: Potentiostatic measuring cell
(water sampling station EASYPRO or PM)
- pH value: Single-rod measuring cell
- Redox: single-rod measuring cell



8 Start-up

This section takes you through the start-up of the Water sampling station EASYPRO Compact. At least 24 hours must be allocated for start-up in order to calibrate the TOPAX controller correctly.

	NOTE
<p>Distorting the measurement results</p> <p>The measurement results of high-impedance sensor inputs may be distorted in the first 24 hours due to the heat development inside the housing of the TOPAX controller.</p> <ul style="list-style-type: none"> ⇒ Activate the TOPAX controller 24 hours before start-up. ⇒ Factor in the distortion caused by the heat development and only perform the calibration for the measurement results 24 hours after activating the TOPAX controller. 	

8.1 Setting the flow controller

The first step during start-up is the setting of the flow volume on the flow controller. Proceed as follows.

Precondition for action:

- ✓ The installation of the water sampling station, the electrics, the hydraulics and the measuring cells has been performed successfully.

Perform the following work steps:

1. Open the inflow tap (pos. 8) and the outflow tap (pos. 4) on the water sampling station.
2. Adjust the flow volume using the setting screw of the flow controller (pos. 11).

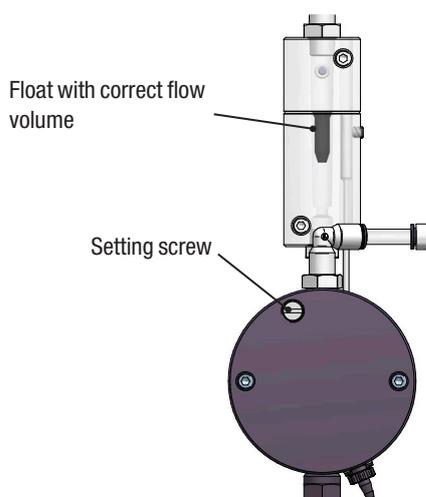


Fig. 9: Setting the flow controller

3. Read off the flow volume on the flow control (pos. 12). It has been set correctly if the upper level of the float lies against the notched marking.

- ✓ **The flow controller has been set successfully.**

8.2 Calibrating the pH value and REDOX measuring cells

This section takes you through calibrating the measuring cells of the EASYPRO Compact water sampling station step by step.

Precondition for action:

- ✓ The installation of the water sampling station, the electrics, the hydraulics and the measuring cells has been performed successfully. The TOPAX documentation is within easy reach.

Perform the following work steps:

1. Close the inflow tap (pos. 8) and the outflow tap (pos. 4) on the water sampling station. This interrupts the measurement and the control of the TOPAX controller (pos. 1), and the sample water circuit can be opened.
2. Unscrew and remove the measuring cell (pos. 2 or 3) from the baseplate.
3. Pour the appropriate buffer solution (pos. 7) into a suitable container and immerse the measuring cell into the buffer solution over and above the diaphragm.
4. Read the resulting measured value from the TOPAX controller.
5. Perform the rest of the calibration directly on the TOPAX controller as per the instructions of the TOPAX documentation.
6. Screw the measuring cell back into the baseplate.

- ✓ **The measuring cells have been calibrated successfully.**

8.3 Calibrating the disinfection measuring cell



NOTE

Prevent poor calibration

The measuring instruments for manual measurement are inclined to deviate when chlorine content is low and become more precise when chlorine content is high.

⇒ Before performing manual measurements, ensure there is sufficient chlorine content in the sample water. When doing so, operate in the upper range of chlorine content that you are aiming for.

At each Water sampling station start-up, the chlorine value of the sample water must be determined and saved as a reference value in the TOPAX controller. The measuring cell can measure the content of free chlorine (HOCl). The measuring cell can only be calibrated with chlorinated sample water and requires a manual measurement following the diethylene-p-phenylenediamine method (DPD method) with the aid of a photometer.

Precondition for action:

- ✓ The installation of the water sampling station, the electrics, the hydraulics and the measuring cells has been performed successfully.
- ✓ The TOPAX documentation is within easy reach.
- ✓ A facility is available for performing the DPD method for the manual measurement of the chlorine content.
- ✓ The sample water is chlorinated.

Perform the following work steps:

1. Take a sample of the process water and conduct the DPD method for determining the chlorine content.
 2. Enter the measurement results for the values free chlorine according to the instructions of the TOPAX documentation on the controller.
- ✓ **The disinfection measuring cell has been calibrated successfully.**

9 Operation

A TOPAX controller is installed on the EASYPRO Compact water sampling station. For operation, read the TOPAX controller's operating manual contained within the scope of delivery.

10 Shutdown

10.1 Short-term shutdown

Short-term shutdown involves deactivation for the calibration of the measured values or for maintenance work, for example. For long-term shutdown, see section 10.2 „Long-term shutdown“ on page 26.

Take the following action steps:

1. Close the inflow tap (pos. 8) of the water sampling station or switch off the sample water supply externally. This interrupts the measurement and the control of the TOPAX controller, and the sample water circuit can be opened.
 2. Disconnect the TOPAX controller's external power supply.
 3. Perform the planned work on the water sampling station.
 4. Reconnect the TOPAX controller's external power supply.
 5. Open the inflow tap of the water sampling station or switch the sample water supply back on externally. It starts the measurement and regulation.
- ✓ **The EASYPRO Compact water sampling station has been successfully shutdown temporarily and put back into operation again.**

10.2 Long-term shutdown

This section describes the required actions in the event of long-term shutdown in order to ensure the functionality of the water sampling station.

Perform the following working steps:

1. Close the inflow tap (pos. 8) of the water sampling station or switch off the sample water supply externally. This interrupts the measurement and the control of the TOPAX controller, and the sample water circuit can be opened.
 2. Disconnect the TOPAX controller's external power supply.
 3. Pinch off all cables in the TOPAX controller.
 4. Uncouple the ingoing hose connections from the inflow tap and from the sample water filter (pos. 9), as well as the outgoing hose connection from the outflow tap (pos. 4).
 5. Unscrew the temperature sensor (pos. 5) from the station, open the extraction point and bleed the water from the water sampling station.
 6. Now immediately take the measuring cells out of the valves and store them stood upright in a 3-molar potassium chloride solution.
- ✓ **The EASYPRO Compact water sampling station has successfully been shutdown for the long term.**

10.3 Storage

Precondition for action:

- ✓ The device has been shut down in accordance with the section 10.2 „Long-term shutdown“.

Storing the water sampling station correctly extends its service life. You should avoid negative influences such as extreme temperatures, high humidity, dust, chemicals, etc.

Unscrew the Water sampling station from the wall holder and store them away.

Ensure ideal storage conditions where possible:

- The storage place must be cold, dry, dust-free and generously ventilated
- Temperatures between + 0 °C and + 50 °C
- Relative air humidity must not exceed 90 %

10.4 Transportation

Precondition for action:

- ✓ The water sampling station has been shut down in accordance with chapter 10.2 „Long-term shutdown“.
- The water sampling station may only be transported in an empty state.
 - Avoid heavy blows at all costs.

If the device is sent back to the manufacturer, please follow sections 14 „Declaration of no objection“ on page 31 and section 15 „Warranty claim“ on page 32.

10.5 Disposal

- The device must be disposed of in accordance with applicable local laws and regulations. It should not be disposed of as domestic waste!
- As the disposal regulations may differ from country to country, please consult your supplier.
- In Germany, the manufacturer must provide free-of-charge disposal, provided the device has been safely returned along with a declaration of no objection (see page 31).

11 Maintenance

Products by Lutz-Jesco are manufactured to the highest quality standards and have a long service life. However, some parts are subject to operational wear. This means that regular visual inspections are necessary to ensure a long operating life. Regular maintenance will protect the device from operation interruptions.

DANGER

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ⇒ Before carrying out any maintenance work, always disconnect the device from the power supply.
- ⇒ Secure the system to prevent it from being switched on by accident.

WARNING

Increased risk of accidents due to insufficient qualification of personnel!

The system and its accessories may only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.

- ⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications.

11.1 Maintenance intervals

The device require regular maintenance to prevent errors. This table gives you an overview of maintenance work and the intervals at which you must carry it out. The next few sections contain instructions for carrying out this work.

Interval	Maintenance
daily	<ul style="list-style-type: none"> ■ Visual inspection of all components
weekly	<ul style="list-style-type: none"> ■ Check measured values ■ Recalibrate sensor inputs if necessary ■ Visual inspection of the sample water filter ■ If necessary, cleaning of the sample water filter
annually	<ul style="list-style-type: none"> ■ Cleaning the valves ■ Replacing the measuring cells ■ Replacing the sample water filter

Table 15: Maintenance intervals

11.2 Measuring cells

NOTE

Note the service life of the measuring cells

The service life of the measuring cells is approx. 12 to 15 months, whereby the storage time must be taken into account at 50%. If the service life is exceeded, this may distort measurement results.

- ⇒ Note the printed date of manufacture and replace obsolete measuring cells in good time.

The service life of the single-rod measuring cells depends on the operating conditions and the water properties (e.g. corrosiveness, grease etc.). In normal conditions the service life will be 12 – 15 months, which includes 50 % storage time. The counter electrode of the disinfection measuring cell can have a service life of up to several years, depending on the corrosiveness and the abrasiveness of the water. It must only be replaced when heavy signs of wear appear.

The following features indicated used pH single-rod measuring cells:

- The pH single-rod measuring cell takes an extraordinarily long time during the pH 6.8 adjustment process to reach the value of the buffer solution.
- The deviation of the pH single-rod measuring cell is too wide; the pH 6.8 adjustment is not possible.
- The white potassium chloride salt rings in the pH single-rod measuring cell are exhausted or discoloured.

11.3 Flow meter

The flow meter is fitted with a switching function via a reed switch. To check the switch function, check the electrical conductivity of the reed switch. The reed switch and the float must be located at the level of the marking. If the switch function is not working properly, the reed switch can be displaced in the compression fitting to perform fine tuning.

11.4 Cleaning the sample water filter

Perform the following working steps:

1. Close the shut-off taps of the water sampling station.
 - ▶ No more water is transported, the float in the flow meter will sink to the bottom.
2. Unscrew the transparent cover of the sample water filter.
3. Clean the filter sieve thoroughly. Then rinse it with clear water.
4. Re-insert the filter sieve.
5. Screw the cover back on. Ensure the connection here is tight.

✓ **The sample water filter has been cleaned successfully.**

12 Fault resolution

See below for information about how to rectify faults on the device or the system. If you cannot eliminate the fault, please consult with the manufacturer on further measures or return the device for repair.

Error	Possible causes	Measures for resolution
Balls in the disinfection measuring cell rotate too weakly or float does not float	Water inflow pressure too low	<ul style="list-style-type: none"> ■ Lay sample water pipe with larger cross-section ■ Installation of a sample water pump
	Sample water filter soiled	Clean or replace filter sieve
Float floats but reed switch does not switch upon connection	Harmonisation between float and reed contact not correct	Calibrate reed switch
	Reed contact defective	Replace reed contact
Display fluctuates during the excess chlorine measurement of the connected measurement amplifier	Fluctuating pH value influences the chlorine measurement	Stabilise the pH value in the water (e.g. optimise control path, controller parameters)
"Lack of sample water" display on the measurement device	Reed switch in the flow control defective	Replace reed switch
	Inflow tap (pos. 8) closed	Inflow tap (pos. 8) open
	Sample water flow dirty	Check visible parts and filter (pos. 9) for soiling and clean if necessary

Table 16: Fault resolution

12.1 Fault resolution for the pH value measurement

Error	Possible causes	Measures for resolution
Measured value fluctuates constantly	Loose measurement cable connections	Check measurement cable; re-attach if necessary
Measurement is very slow	Diaphragm blocked	Clean electrode
	Insufficient swelling layer on the glass membrane	Douse electrode in 3-molar KCl solution
	Electrode becoming obsolete	Replace electrode
	Buffer solution becoming obsolete	Check expiration date
The measurement deviates or is unstable	pH value measuring cell defective	Replace measuring cell
	Diaphragm is dry or soiled	Clean measuring cell
The display deviates by a constant value	pH value measuring cell not correctly installed	Check correct installation; check correct calibration
Display deviates by a constant value	External potential in the system	Remove external potential
TOPAX controller constantly displays pH value "7.00".	Short circuit	Check measuring cell for damage and replace if necessary
No reaction to pH buffer solution	Measuring cell not correctly installed	Check correct installation; check correct calibration
	Measuring cell defective	Check measuring cell for damage and replace if necessary

Table 17: Fault resolution for the pH value measurement

12.2 Fault resolution for the disinfection measuring cell

Error	Possible causes	Measures for resolution
Value for "free chlorine" fluctuates heavily	pH-value instability	Check pH value measurement
The chlorine measuring cell displays too much with respect to the DPD-1 measurement	May occur when using "water fining agents". Chlorine-oxygen bonds are contained in some of these agents which react with chlorine to make chlorine dioxide, thus distorting the measuring signal by greater values	Refrain from dosing this agent. A change of water might be required.
Use of "organic chlorine"	When using organic chlorine products, cyanuric acid accumulates in the swimming pool water. The DPD-1 method displays excessive chlorine content to which the measuring cell cannot be adjusted	Replace the water completely and use other chemicals for disinfection

Table 18: Fault resolution for the disinfection measuring cell

For faults to the TOPAX controller, please read separate operating instructions

13 Notes to EU conformity

The EASYPRO Compact water sampling station does not fall under the purview of the Machinery directive 2006/42/EG.

The EASYPRO Compact water sampling station falls under the purview of the pressure equipment directive 2014/68/EU.

The values stated below do not exceed the limit values according to article 4, paragraph 1. As such, the EASYPRO Compact water sampling station is designed and manufactured in accordance with valid good engineering practice. In accordance with article 4 section 3, as a pressure device, the EASYPRO Compact does not carry CE marking and cannot be issued with a EU declaration of conformity.

Device designation: Water sampling station

Type: EASYPRO Compact

Pressure stage: PN6

Nominal diameter: <DN20

Max. temperature: 45 °C

Medium: Water (H₂O)

The EASYPRO Compact water sampling station corresponds to the requirements of the Pressure equipment directive 2014/68/EU.

The electronic controller installed on the EASYPRO Compact water sampling station is fitted with a CE mark and holds a EU declaration of conformity.

The manufacturer and distributor of the EASYPRO Compact water sampling station is:

Lutz-Jesco GmbH / Am Bostelberge 19 / 30900 Wedemark / Germany

14 Declaration of no objection

Please copy the declaration, stick it to the outside of the packaging and return it with the device.

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: Part-no.:

Order No.: Date of delivery:

Reason for repair:

Dosing medium

Description: Irritating: Yes No

Properties: Corrosive: Yes No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address: Phone:

..... Fax:

..... Email:

Customer No.: Contact person:

Date, Signature:

15 Warranty claim

Warranty claim

Please copy and send it back with the unit!

If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty claim.

Sender

Company: Phone: Date:

Address:

Contact person:

Manufacturer order no.: Date of delivery:

Device type: Serial number:

Nominal capacity / nominal pressure:

Description of fault:.....

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Service conditions of the device

Point of use / system designation:.....

.....
.....

Accessories used (suction line etc.):.....

.....
.....
.....
.....

Commissioning (date):

Duty period (approx. operating hours):

Please describe the specific installation and enclose a simple drawing or picture of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

16 Index

C

Calibrating the measuring cells	23
Clean the filter	27
Control	23

D

Declaration of no objection	31
Dimensioned drawings	10
Dimensions	10
Disposal	26

E

EU conformity	30
---------------------	----

F

Flow switch	27
-------------------	----

G

General warnings	5
------------------------	---

H

Hazards due to non-compliance with the safety instructions	5
--	---

I

Installation	16
hydraulic	17
Installation examples	19
Installation location	16
Intended use	7

L

Long-term shutdown	26
--------------------------	----

M

Maintenance	27
Maintenance intervals	27
Measuring cells	9
Open 3-electrode measuring cell	9
pH single-rod measuring cell	9
Redox single-rod measuring cell	9

N

Notes for the Reader	4
----------------------------	---

P

Personnel qualification	5
Personnel tasks	6
Product description	8
Product warranty	7

S

Safety	5
Scope of delivery	8
Sensor technology	
Disinfection measuring cell	18
Measuring cells, Redox, pH value and total chlorine	18
Temperature sensor	18
Short-term shutdown	26
Shutdown	26
Signal words	
Explanation	4
Specialist staff	5
Storage	26
Structure of the device	8

T

Technical data	9
Temperature sensor	18
Terminal plans	12
Trained electricians	6
Trained persons	6
Transportation	26
Troubleshooting	28

W

Wall mounting	16
Warnings	
General warnings	5
Marking	4
Warning sign	
Explanation	4
Warranty claim	32
Working in a safety-conscious manner	5

