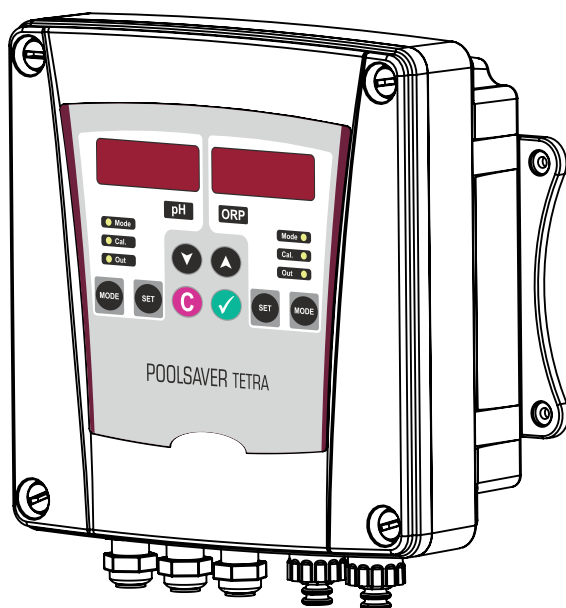


POOLSAVER TETRA USER MANUAL



Contents

1	Contents	
1	Contents	1
1.1	List of Pictures	2
2	Introduction	3
2.1	Explanation of Safety Warnings	3
2.2	User Competence	4
3	Safety and Responsibility	5
3.1	General Safety Warnings	5
3.2	Hazards arising from non-compliance with safety instructions	6
3.3	Safe operation	6
3.4	Personal protective equipment	6
3.5	Personnel competence	6
4	Appropriate and Desired Use	7
4.1	Notes about product warranty	7
4.2	Product Software	7
4.3	Principles	7
4.4	Foreseeable wrong use	7
4.4.1	Wrong assembly	7
4.4.2	Wrong installation	7
4.5	Wrong electrical wiring	7
5	Product Description	8
5.1	Product Data	8
5.2	General Specifications	8
5.3	Electrical Features	8
5.4	Scope of delivery	8
6	Technical Data	9
7	Dimensions	10
8	Mechanical Installation	11
8.1	Panel Assembly	11
8.2	Wall Assembly	12
9	Electrical Installation	13
9.1	Plug Electrical Connection	13
9.2	Fixed Electrical Connection	13
9.3	In-Device Diagram	14
9.4	Electrode Selection	14
10	Operation	15
10.1	General Specifications	15
10.2	LEDS and Their Meanings	16
10.3	Mode Setting	16
10.4	Adjusting Set Values	17
10.5	Electrode Calibration	18
10.5.1	Single Point Calibration	18
10.5.2	Double Point Calibration	19
10.6	Parameter Settings	20
10.7	Parameters	21
10.8	Output Control Modes	22
10.9	Ratio Control	22
10.10	RUN Mode Cancel Function	22
10.11	Password Use	23
10.12	Warning and Error Notifications	23
10.12.1	rLO (RangeL) Notification	23
10.12.2	rHI (RangeH) Notification	23
10.12.3	LL (Level) Notification	23
10.12.4	FLO (Flow) Notification	24
10.12.5	ErC (Timeout) Notification	24
10.12.6	LLO (Limit Low) Notification	24
10.12.7	(Limit High) Notification	24
10.12.8	t0 (WDT) Notification	24
10.12.9	SdLy (Startup Delay) Notification	24
11	Maintenance / Malfunction Cases	25
11.1	Maintenance	25
11.2	Malfunction Cases	25
11.2.1	Electrical Malfunctions	25
11.3	Warning and Error Notifications Table	26
12	Warranty / Standards	27
12.1	Warranty	27
12.2	Standards	27

1.1 List of Pictures

Picture 1 Device Sizes	10
Picture 2 Assembly Hole Dimensions	11
Picture 3 Wall Assembly	12
Picture 4 Plug Power Connection	13
Picture 5 Fixed Power Connection	13
Picture 6 In-Device Diagram	14
Picture 7 General Specifications	15
Picture 8 Mode Setting	16
Picture 9 Adjusting Set Values	17
Picture 10 Single Point Calibration	18
Picture 11 Double Point Calibration	19
Picture 12 Parameter Settings	20
Picture 13 Password Use	23

Introduction

2 Introduction

Please read following information carefully and completely. This information shall ensure that you benefit from operating instructions at optimum level.

These instructions define the functions of technical data.

2.1 Explanation of Safety Warnings

These operating instructions give information about the technical data and functions of the product. And provide detailed safety information.

Safety warnings and notes are categorized as below. Pictographs are used here as adapted for different circumstances. These pictographs are only for example.



DANGER!

Type and source of danger

Result: Death or severe injury.

Measures to be taken to prevent such danger.

Defines the danger that creates the threat directly. Causes death or severe injury unless prevented.



WARNING!

Type and source of danger

Possible Result: Death or severe injury.

Measures to be taken to prevent such danger.

Defines a possible dangerous situation. Causes death or grave injury unless prevented.



CAUTION!

Type and source of danger

Possible Result: Light or insignificant injuries. Material damage.

Measures to be taken to prevent such danger.

Defines a possible dangerous situation. Causes light or insignificant injury unless prevented. Can also be used for material damage warning.



NOTE!

Type and source of danger

Result: Causing damage to the product or individuals.

Measures to be taken to prevent such danger.

Defines a possible damaging action. Causes damage to the product or individuals unless prevented.



INFORMATION!

Operational tips and additional information
Source of information. Additional measures.

Defines operational tips and other useful information. Not given for a dangerous or harmful situation.

2.2 User Competence



WARNING!

Danger of injury in case of personnel incompetence!

Operator of device/facility is responsible for complying with competencies.

Incompetent personnel working with the device or keeping the device in danger zone might cause severe injuries or material losses.

- All operations should be handled by competent personnel
- Keep away incompetent personnel from danger zones

Training	Description
Informed Person	Defines a person that has been informed about possible hazards in case of unruly behaviors contrary to duties assigned, and informed about relevant situations and informed about necessary protection equipment and measures.
Trained User	Defines a person that meets the standards of an informed person and plus trained by the manufacturer or another authorized sales partner
Trained Expert	Defines a person that can recognize possible hazards and evaluate the duties assigned thanks to his/her knowledge of rules in addition to the training, information and experience in that field. The activities based on years of experience in that field can be taken into consideration while assessing someone as an expert.
Electricity Expert	Defines a person that can work in electrical facilities, and recognize and prevent possible dangers thanks to his/her knowledge of regulations and standards in place in addition to the training, information and experience. Electricity experts should have received training on the field of work and have knowledge on important standards and regulations. Electricity expert should fulfill the provisions of legal regulations for preventing accidents.
Customer Services	The service technicians that are trained and authorized for operations in the facility by the manufacturer are described as customer services.

Safety and Responsibility

3 Safety and Responsibility

3.1 General Safety Warnings

Following warnings are given for assisting you to eliminate possible dangers that might arise while using the product. Risk prevention measures are always valid independent of any special action. Safety instructions that give warning against certain activities or situations are given in relevant sub-sections.



DANGER

Life-threatening danger due to electric shock

Falsely wired, exposed or damaged cables might injure you.

Replace damaged cables immediately.

Do not use extension cables.

Do not bury cables.

Fix cables to prevent damage to other equipment.



DANGER

Do not use the product in explosive environments.



WARNING

Causing damage to the product or individuals.

There is no on/off switch on the device

Device starts operating when powered after connection to mains voltage.

Make sure that all screws are tightened and sealed properly.



WARNING

Usage Error!

Possible Result: Death or grave injury.

Make sure that device is used only by sufficiently qualified and competent personnel.

Operator is responsible for the competence of personnel.



WARNING

Electronic Malfunctions!

Possible Result: Material damage that might cause device to be damaged.

Device's electricity mains line shouldn't be set up on installation with damaged data line.

Operator is responsible for taking appropriate malfunction elimination measures.



CAUTION

Increased accident risk due to lack of qualification on personnel side!

Product and accessories can only be mounted, operated and maintained by staff with sufficient qualifications.

Make sure that all actions are taken by personnel with sufficient and appropriate qualifications.

Prevent access to system by unauthorized persons.



CAUTION

Purpose Oriented Usage

Causing damage to the product or individuals.

Device has been designed to measure and check liquids fluids.

This device can only be used in line with this operating manual and technical data in operating manuals and specifications of individual components (such as Sensors, Dosing Pumps, Calibration Tools, etc.)



CAUTION

Hassle-free Sensor Operation

Causing damage to the product or individuals.

Accurate measurement or dosing is only possible with perfect sensors.

Pay attention to operating manuals of sensors.

Check and calibrate sensors regularly.

3.2 Hazards arising from non-compliance with safety instructions

Non-compliance with safety instructions will bring risks not only for the staff but also for environment and the unit.

Here are some specific consequences:

Failure of vital functions in product and system.

Failure of necessary maintenance and repair methods.

3.3 Safe operation

There are more safety rules in addition to the safety instructions stated in this operating manual and they should be followed:

Accident prevention regulations safety and operating provisions

Safety measures for using dangerous items

Environmental protection provisions,

Applicable standards and legislation.

3.4 Personal protective equipment

You should use relevant protective equipment depending on the type of work and degree of risk.

As minimum, following protective equipment is provided:



Protective
Clothing



Protective
Gloves



Protective
Goggles

The operator should use protective equipment during these tasks:

Assigning,

When device is working,

Demounting, maintenance works, disposal.

3.5 Personnel competence

Any staff member working on the device should have specific knowledge and skills.

Anyone working on the device should meet following conditions:

- Participation in all training courses,
- Personal fitness to the specific task,
- Personal competence for the specific task,
- Training for the use of device,
- Safety equipment data and mode of operation
- This Operating Manual and especially the safety instructions relevant to this work with sub-sections,
- Knowledge on basic arrangements relevant to health, safety and accident-prevention.

All persons should have following qualifications as minimum:

- Receive training as expert to work on the product independently,
- Receive sufficient training to work on the product under the guidance and surveillance of a trained expert.

This Operating Manual differentiates user groups: (see 2.2 User Competence Page 4)

Appropriate and Desired Use

4 Appropriate and Desired Use

4.1 Notes about product warranty

Undefined use of the product in any way might risk the function or desired protection of the product. This shall invalidate warranty claims!

Please remember that responsibility lies with the user in following cases:

- Use of the product in an inconsistent way with the section titled "appropriate and desired use" especially with regards to safety
- Unauthorized changes on the device by the user

4.2 Product Software

Pool saver Tetra 4x R6

4.3 Principles

- Usage and environmental information ([See 6 Technical Data Page 9](#)).
- Product is not designed for outdoors unless appropriate protective measures are taken.
- Avoid liquid and dust leakage into product and also direct sunlight exposure.
- Do not operate the product in a potentially explosive environment unless there is EC Certificate of Conformity for potentially explosive atmospheres.

4.4 Foreseeable wrong use

You can find below information about unaccepted product practices or relevant equipment practices. This section has been designed to detect and prevent possible wrong uses beforehand. Foreseeable wrong use will affect product life:

4.4.1 Wrong assembly

Wrong or loose screwing.

4.4.2 Wrong installation

Wrong connection of sensors due to wrong material or improper connections.

Damage in cable lines due to twisting or excessive tightening.

Use of damaged parts,

4.5 Wrong electrical wiring

Unsafe mains or mains voltage that do not comply with standards.

Wrong connection cables for mains voltage.

Installation where it is not possible to cut off power supply immediately or easily.

5 Product Description

5.1 Product Data

POOLSAVER TETRA is an automatic measurement and control device for special needs of swimming pools. It is used for measuring, viewing and controlling pH and ORP parameters.

5.2 General Specifications

This operating manual is applicable to Poolsaver Tetra Control device. Installation, operation and service of all these control devices are different from each other (certain differences in technical data, malfunctions and repair).

- It has been designed after careful consideration of the status and conditions of pool chambers.
- pH and ORP set values can be adjusted entering calibration screen and using buttons.
- There are liquid level sensor inputs of channels. In case a sensor is attached, outputs will be closed when dosage liquid is finished.
- There is full microprocessor technology.
- This will keep the pool water at desired level.

5.3 Electrical Features

Device will process input pulses taking into consideration user settings. Results will be shown on the screen and check dosage pumps.

Device doesn't require an additional power switch. It will be ready once powered.

Device complies with electrical devices regulations. Device complies with following standards:

Electrical safety :
 TS EN 60950-1 / EN 60950-1(2001)
 TS 3033 / EN60529
 Electromagnetic compliance
 TS 3327 EN 55011:1995 /
 EN55011:1998+A1:1999+A2:2002

5.4 Scope of delivery

Control device
 User's Manual
 Calibration Liquids
 230V AC cable



CAUTION

Calibration liquid varies based on the model type of your device.

Technical Data

6 Technical Data

POOLSAVER Technical Specifications		
	pH	ORP
Measurement Interval	00,00 – 14,00 pH	0000 – 1600 mV
Solubility	0,01 pH	1 mV
Measurement accuracy	0,5% of input interval	
Measurement input	Standard BNC terminal	
Liquid level and flow sensor input	Standard BNC terminal	
Supply	230V 50Hz AC	
Supply Fuse	1A Fast 20x5mm	
Power consumption	4 W	
Relay Output	230V 2.5A (5A maximum) 2 units	
Relay Fuse	2A Fast 20x5mm	
Operating temperature interval	0-50°C	
Box	IP65 *	
Screen	7 Segment LED Display	
Packaging Dimensions	270 x 300 x 130 mm	
Product Dimensions	212 x 234 x 88 mm	
Packaged Weight	1,58 Kg	
Product Weight	1 Kg	

* : When all cables are connected and all covers and cable unions are closed



WARNING

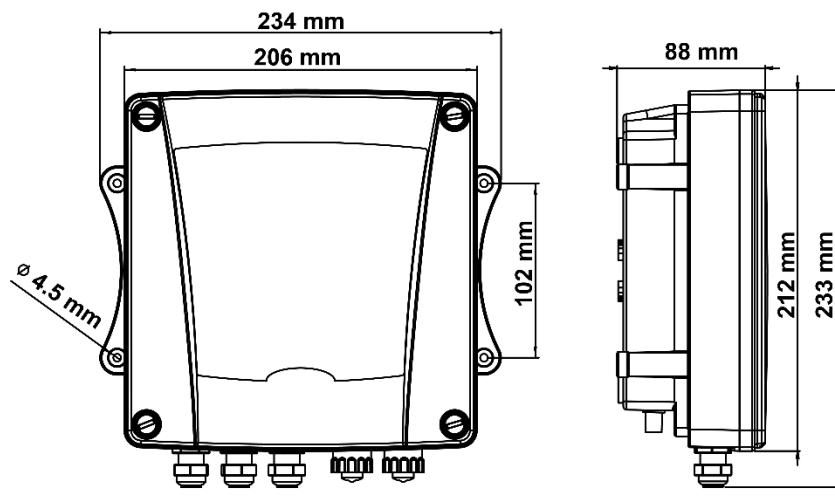
Usage Error!
Keep the cover closed when device is in use.

7 Dimensions

Below you can find sizes and assembly hole sizes. All sizes are given in mm.

Mark the surface on which the product is to be installed in accordance with the template before starting assembly.

Make sure that the surface is dry and clean.



Picture 1 Device Sizes

Mechanical Installation

8 Mechanical Installation

Mechanical Assembly:

See 2.2 [User Competence](#) Page 4



CAUTION

Assembly Site and Conditions

- Device meets IP65 protection and sealing if all seals and screws are placed correctly.
- Electrical assembly should be performed after mechanical assembly.
- Please choose a site that will lend easy access to control panel.
- Do not permit direct sunlight on the device.
- Operating environmental temperature: -20/+60°C and 90% relative humidity (non-condensing)
- Allowed working temperatures of other sensors and actors should be considered.
- This device has been designed only for indoor use. Place it inside a panel to protect from external factors for outdoor use.



CAUTION

Reading and Commanding Position

Install the device in a space with normal room temperature that is well ventilated and place it at eye level in order to read and manage it properly.



CAUTION

Assembly Position

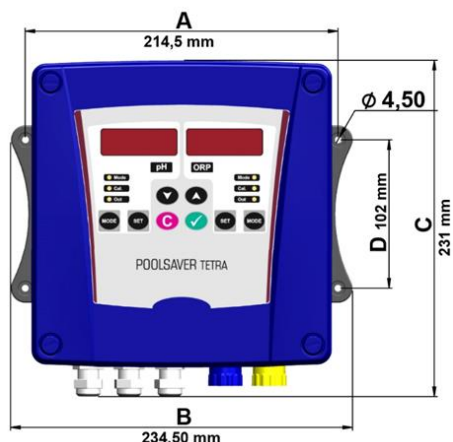
Device has been designed to be used with wall-type mount as a standard.

Assemble the device with the cable inlet facing downwards all the time.

Allocate sufficient space for cables and hoses.

Device can be mounted on wall directly using four wall plugs or on a plastic panel using four screws.

8.1 Panel Assembly



Picture 2 Assembly Hole Dimensions

A : 214,5 mm

B : 234,50 mm

C : 231 mm

D : 102 mm

Ø : 4,5 mm

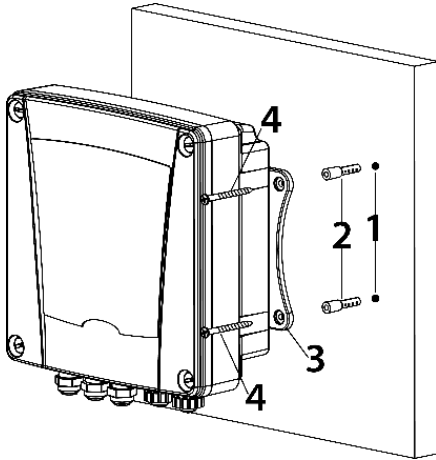


WARNING

Place the control device by leaving 110 mm space from four sides as minimum for the proper position.

Drill 4 holes in 2mm as per A and B dimensions on the panel. Fix to the wall using screws and shims.

8.2 Wall Assembly



Picture 3 Wall Assembly

- | | |
|--------------------|---------------|
| 1) Ø 8x50mm | 2) 8mm Anchor |
| 3) Hanging Bracket | 4) 4.2x50 YSB |
| Screw | |

Drill 4 holes in 8mm as per wall dimensions. Nail the pins inside the slots. Fix to the wall using screws.

Electrical Installation

9 Electrical Installation

Electrical Assembly: See [User Competence](#) page 4



WARNING

Parts Under Electric Voltage!

Possible Result: Death or grave injury.

Unplug from mains before opening the body.

Unplug damaged or broken devices from mains to make them off-circuit.



WARNING

Humidity on Contact Sites

Protect electrical wire, cable and connection socket from humidity using appropriate design and technical measures. Humidity in contact areas might cause damage



WARNING

Cable Duct

Cables should be driven inside a cable duct to reduce tension.

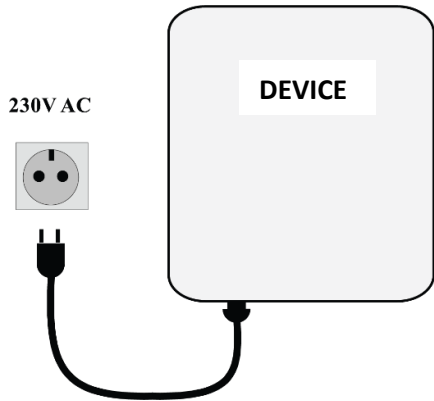
Power feed is 230V AC. AC connection methods are shown in the diagram above and electrical features are stated in technical specifications.

There are two relay outputs (for control and alarm). Terminal connection names in the device are stated as abbreviations in front of connectors.

Electronic circuit is protected by fuse. Appropriate fuse should be selected.

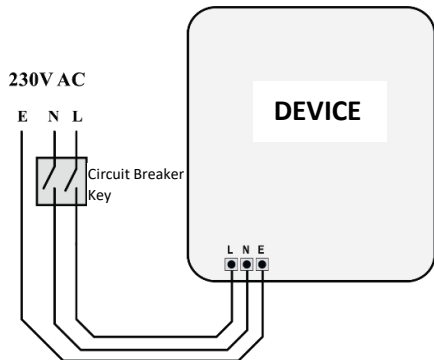
[See 6 Technical Data Page 9](#)

9.1 Plug Electrical Connection



Picture 4 Plug Power Connection

9.2 Fixed Electrical Connection



Picture 5 Fixed Power Connection

L: Phase N: Neutral E: Earthing (functional)*

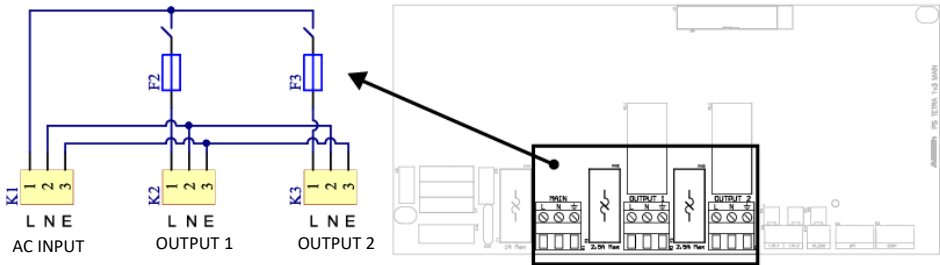
- A switch or circuit breaker should be integrated.
- Switch or circuit breaker should be placed appropriately and easily accessible.
- Switch or circuit breaker should be marked as separating element.



WARNING

Functional earthing connection is used for external devices. It is not a circuit protector.

9.3 In-Device Diagram



Picture 6 In-Device Diagram



WARNING

Do not connect to power before assembling the device!
Disconnect power before dismantling the device.

- Device can only be opened by qualified staff.
- Take necessary measures so that device is not powered during service.
- Device can only be powered after assembled to a wall or panel.
- Dismount 4 plastic pieces in corners to open the device.
- Upper part is connected to lower part with a flat cable. Take out that flat cable from the socket to separate upper part from lower part.
- Electrical connections are only found in the lower part. There will be no connection on the upper part.
- There are 3 terminals from left to right in lower part.
- Tighten the cable unions by moving power cables of dosage pumps and power input cable through the cable unions below the device.
- Connect the cables according to the symbols in front of the terminals using a screwdriver.

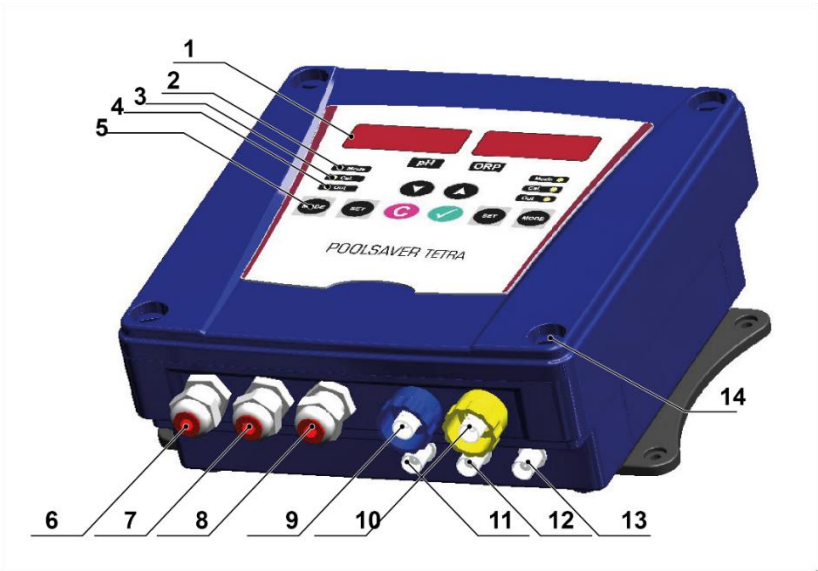
9.4 Electrode Selection

There are standard combined pH and ORP electrodes and liquid level sensor in the device. Connections are made with BNC connector. It is marked on the device which electrode and which liquid level sensor is to be connected where.

Operation

10 Operation

10.1 General Specifications



Picture 7 General Specifications

1	7 Segment LED Display	8	ORP output cable union (PG11)
2	Mode indicator	9	pH Electrode input (BNC)
3	Set / Calibration indicator	10	ORP Electrode input (BNC)
4	Output indicator	11	Flow sensor input (BNC)
5	Buttons	12	Liquid level sensor input for pH channel (BNC)
6	220V AC input cable union (PG11)	13	Liquid level sensor input for ORP channel (BNC)
7	pH output cable union (PG11)	14	Cover opening screws

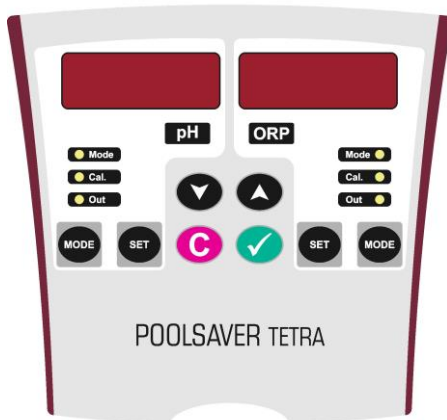
Poolsaver TETRA features 2 different 7 segment LED displays. All values and processes are visible on this screen. You can change set values using the buttons below the screen. Moreover, LEDs below the screen will show information about the action at that moment.

10.2 LEDS and Their Meanings

LED	Status of LEDs		
	If it's on	If it's off	If it's blinking
Mode	Pump is in continuous operating mode.	Pump doesn't work.	Pump will operate automatically based on the comparison of set values and values read by POOLSAVER TETRA
Cal.	Device is in SET mode		Device is in Calibration mode
Out	Pump is powered.	Pump is not powered.	

10.3 Mode Setting

There are two **MODE** buttons on the control panel. Each adjusts the operation of pump on their side. There are three different modes.



Picture 8 Mode Setting

STOP Pump will not work.

AUTO : Pump will operate automatically based on the comparison of set values and values read by **POOLSAVER TETRA**.

RUN: Pump will continuously work.

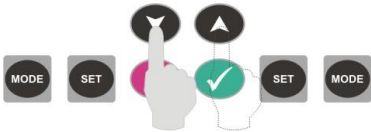
Operation

10.4 Adjusting Set Values



Press SET button on the side to be adjusted for the set value.

Picture 9 Adjusting Set Values



Bring the set value to desired value using up ▲ and down ▼ buttons.



Return to main screen pressing ✓ button again.

You will not see any image on other part during all these actions.

10.5 Electrode Calibration

Device calibration is made single point for ORP channel and double point for pH channel. Single point and double point calibration is made as follows.

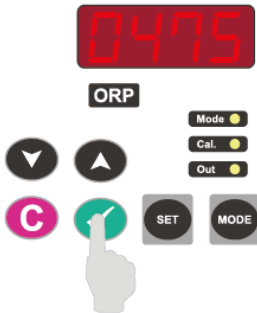
10.5.1 Single Point Calibration



Picture 10 Single Point Calibration

Use 2nd Buffer solution parameter (P004) for single point calibration. Adjust the parameter value based on buffer solution before starting.

Press SET button on the calibration side until you see CAL message on the screen.



You will see buffer solution value on the screen and device will start showing non-calibrated electrode value. In the meanwhile, electrode should be dipped into buffer solution.

Wait until the change on the screen stops and press ✓ button.

Operation

10.5.2 Double Point Calibration



Picture 11 Double Point Calibration

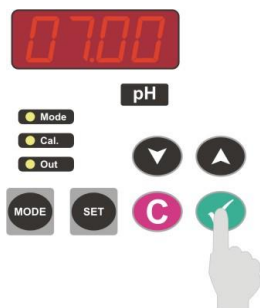
You should adjust 1st buffer (P003) and 2nd buffer (P004) solutions from parameters section according to buffer solutions at hand before starting calibration.

Press SET button on the calibration side until you see CAL message on the screen.



You will see first buffer solution value on the screen and device will start showing non-calibrated electrode value. In the meanwhile, electrode should be dipped into first buffer solution.

Wait until the change on the screen stops and press ✓ button.

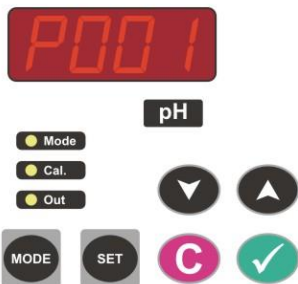


This time, device will show second buffer solution value on the screen and start showing non-calibrated value. In the meanwhile, electrode should be dipped into second buffer solution.

Wait until the change on the screen stops and press ✓ button.

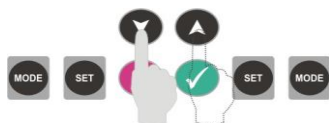
Your device has been calibrated. Device will start showing normal pH and ORP values on the main screen. These actions should be performed separately for each side.

10.6 Parameter Settings



Picture 12 Parameter Settings

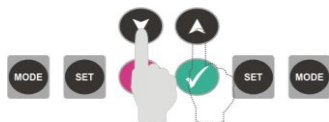
Press **MODE** button on the parameter change side until you see **P001** message on the screen.



Select the parameter to be changed using ▲ up and ▼ down buttons.



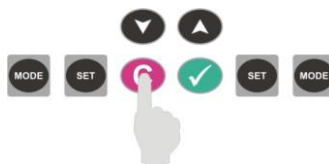
✓ You can bring parameter value to screen with button.



Change the value as you desire using ▲ up and ▼ down buttons.



Save parameter value with ✓ button and return to Parameter menu. Press **C** button to exit without saving.



Use **C** button to return to main screen.

Operation

10.7 Parameters

Par.No	Name	Description	Value
P001	Set_Offset	Set Offset value for control	0-100
P002	Ratio_Diff	Ratio control difference setting	0-250
P003	Buf_Sol_1	1st Buffer solution	0-1000 ORP 0-14,00 pH
P004	Buf_Sol_2	2nd Buffer solution	0-1000 ORP 0-14,00 pH
P005	Control_Mode	Control Mode 0: Relay Increase 1: Relay Decrease 2: Ratio Increase 3: Ratio Decrease	0-3
P006	Password	Password (password to be reset if Value 0)	0-999
P007	Disable Run Mode	0: Run Mod 1 min Active 1: Run Mod Continuous Active	0-1
P008	Limit Low	Low Limit value	0-14,00 pH 0-1600 ORP
P009	Limit High	High Limit value	0-14,00 pH 0-1600 ORP
P010	Startup_Delay	Delayed Start	0-60 (min)
P011	TimeOut	Time Out in Reaching Set Value	0-360 (min)
P012	SensType	Liquid level sensor operation mode setting parameter; 0: Normally open 1: Normally closed	0-1
P013	FlowSens	Flow Sensor Parameter 0: Passive 0: Normally Open 1: Normally Closed	0-2
P014	ClO2_App	Chlorine Dioxide application 0: Passive 1: Active	0-1
P015	Cal_Type	Calibration Type 0: Single Point Calibration 1: Double Point Calibration	0-1

10.8 Output Control Modes

Device output control modes are adjusted with Control Mode (P005) parameter status and descriptions are shown below.

	Cont Mode	Output
1	0	It gives output until read value is above (Set + offset) value. It cuts when exceeded, then waits until it goes below (Set - Offset) value.
2	1	It gives output until read value is below (Set - offset) value. It cuts when it is below, and waits until it goes above (Set + Offset) value.
3	2	If the read value is below (Set-Ratio_Diff), it gives continuous output. It gives ratio output until it exceeds (Set) value. It doesn't give output above (Set) value.
4	3	If the read value is above (Set-Ratio_Diff), it gives continuous output. It gives ratio output until it is below (Set) value. It doesn't give output below (Set) value.

10.9 Ratio Control

This will enable a softer control by reducing output as the read value approaches set value. Reducing action can be ensured by opening and closing the relay depending on the time.

E.g.; Pump will be always open when ratio is at 100%. It will be open 30 sec and closed 30 sec when 50% is adjusted. It will be 6 sec open and 54 sec closed when 10% is adjusted.

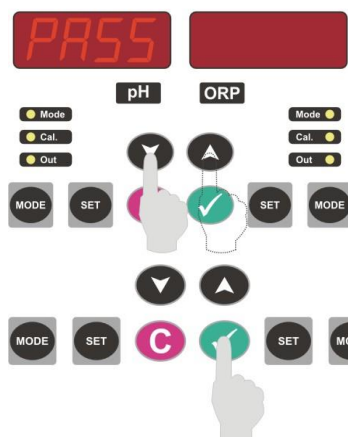
10.10 RUN Mode Cancel Function

When **P007 "0"** is set, device will return to AUTO status 1 min after being switched to RUN mode. If you would like to use it continuously in RUN mode, you need to switch **P007** to 1.

Operation

10.11 Password Use

If password parameter (P006) is adjusted different from 0, password protection will be activated. If password protection is activated, device will ask password for any intervention after a while.



When you see this screen, adjust the password with ▲up and ▼down buttons and press ✓ button.

If the Password is correct, password will be unlocked.

Picture 13 Password Use

If you forget the password, press and hold ▲Up and ▼Down buttons at the same time until you see "rSTP" message, and when you see this message, press and hold C button and see the same message in 3 seconds and the password will be reset.

10.12 Warning and Error Notifications

Device is equipped with certain warning and error notifications to notify certain situations that might require possible intervention upon any error and to keep the system under protection.

10.12.1 rLO (RangeL) Notification

You will see this warning if the measured value is below measurement threshold limit. This value is below 0.00pH for pH channel and 0000mV for ORP. Alarm channel will not give output until the trouble is eliminated. Check electrode calibration. If the problem is not because of that, please contact authorized service.

10.12.2 rHI (RangeH) Notification

You will see this warning if the measured value is above measurement threshold limit. This value is below 14.00pH for pH channel and 1600mV for ORP. Alarm channel will not give output until the trouble is eliminated. Check electrode calibration. If the problem is not because of that, please contact authorized service.

10.12.3 LL (Level) Notification

Liquid level error. This warning will activate only when liquid level control sensor is used. This shows that dosage liquid is consumed in the channel where notification is given. Alarm channel will not give output until the trouble is eliminated.

1. Fill up dosage liquid.
2. Check the sensor. If the problem is not because of that, please contact authorized service.

10.12.4 FLO (Flow) Notification

Flow error. This warning will activate only when flow sensor is used. This means that flow is interrupted in the installed system. Channels will not give output until the trouble is eliminated.

1. Ensure water flow in the channel to which sensor is installed.
2. Check the sensor. If the problem is not because of that, please contact authorized service.

10.12.5 ErC (Timeout) Notification

If the value has not reached set value in the time period set with **P011** Timeout parameter, you will see this warning. User can enter any time interval between 0 and 360 minutes. This generally occurs when system restore duration is long. Alarm channel will not give output until the trouble is eliminated. 1. Check electrode calibration 2. Enter the value appropriate for the system restore from the parameter. If the time is still not enough, you can deactivate by making **P011** parameter value "0".

10.12.6 LLO (Limit Low) Notification

If the measured value is below the value detected with P008 low limit parameter, you will see this screen. Values that are not entered in suitable interval will cause this message. Alarm channel will not give output until the trouble is eliminated.

1. Define the appropriate low limit to the system.
2. Check electrode calibration. If the problem is not because of that, please contact authorized service.

10.12.7 (Limit High) Notification

If the measured value is below the value detected with P009 high limit parameter, you will see this screen. Values that are not entered in suitable interval will cause this message. Alarm channel will not give output until the trouble is eliminated.

1. Define the appropriate high limit to the system.
2. Check electrode calibration. If the problem is not because of that, please contact authorized service.

10.12.8 t0 (WDT) Notification

Watchdog Timer Error. System error, please contact the authorized service.

10.12.9 SdLy (Startup Delay) Notification

Device will not give output in start phase throughout the duration set in P010 Startup Delay parameter. It will automatically start operating when time is over (if in Mode Auto)

You can press any button if you want to operate the device without waiting for delayed start. Device will start controlling the output depending on the set value.

Maintenance / Malfunction Cases

11 Maintenance / Malfunction Cases

11.1 Maintenance

Device is maintenance-free as long as the cover is kept closed.



WARNING

- Disconnect the power before any service action on the device.
- Fuses should be replaced with new ones only in appropriate values. [See 6 Technical Data Page 9](#)

11.2 Malfunction Cases

1- There is no image on the screen and LEDs are not on.

Check the circuit fuse (first left) in connector cover and power connection and make sure that power is set to 230V AC 50-60 Hz.

2- Device is operating normally however pump is not power although LEDs are on.

Check the output fuses in connector cover.

3- Value is "0" or abnormal in pH or ORP indicators.

Check electrode connection points and cables.

4- There is wrong value on the screen although electrode calibration has been made.

Replace electrodes with new ones and re-calibrate.

5- If the fault is none those,

Contact the authorized service.

11.2.1 Electrical Malfunctions



DANGER

It is dangerous for unauthorized persons to intervene with the device in case of malfunction.

For user competence, see [2.2 User Competence page 4](#)

For risks, see [3 Safety and Responsibility page 5](#)

Unplug the device before intervening with the device by an authorized person.

Take necessary precautions against electric shock before any intervention.

Make sure that device cover is closed and all safety measures are taken before plugging the device after repair.

11.3 Warning and Error Notifications Table

Screen	Description	Description
RLO	RangeL	Measured value is below device measurement limits
RHI	RangeH	Measured value is above device measurement limits
LL	Level	Liquid level Error
FLO	Flow	No Flow
ERC	Timeout	If the value has not reached set value in the time period set with Timeout parameter, you will see this warning. This generally occurs when system restore duration is long.
LLO	Limit Low	Measured value is below the value set with Low Limit Parameter. Relay will not give output.
LHI	Limit High	Measured value is above the value set with High Limit Parameter, Relay will not give output.
TD	WDT	Watchdog Timer Error
SDLY	Startup Delay	Device will not give output during the time period set in Startup Delay Parameter.

12 Warranty / Standards

12.1 Warranty

Device is under warranty for 2 years against damages arising from material and manufacturing faults according to legal regulations.
Damages arising from normal wear, overloading or undue usage are not covered by warranty.
Damages from material or manufacturing faults shall be compensated by repairing or replacing faulty part or the device completely.
Claims of warranty shall be accepted only if device is returned to the supplier or authorized service in full shape without disassembly.



CAUTION

Warranty Certificate should be filled and approved by the dealer where you buy the device. Please have the certificate stamped by the dealer and keep it.

12.2 Standards

Device complies with TS 3033 EN 60529 IP-55 standard when installed.
Low voltage devices regulation (73/23/EEC)
Electromagnetic compliance regulation (89/336/EEC)

EN 60950-1	Information technologies devices electrical Safety
TS EN55011:1995 EN 55011:1998+A1:1999+A2:2002 CISPR 11:1997+A1:1997+A2:2002	Electromagnetic compliance
EN 61000-6-1	Immunity Standard for Settlements, Commercial and Light industrial zones
EN 61000-6-2	Immunity for Industrial Zones
EN 61000-6-3	Emission Standard for Settlements, Commercial and Light industrial zones
EN 61000-6-4	Emission Standard for Industrial Zones