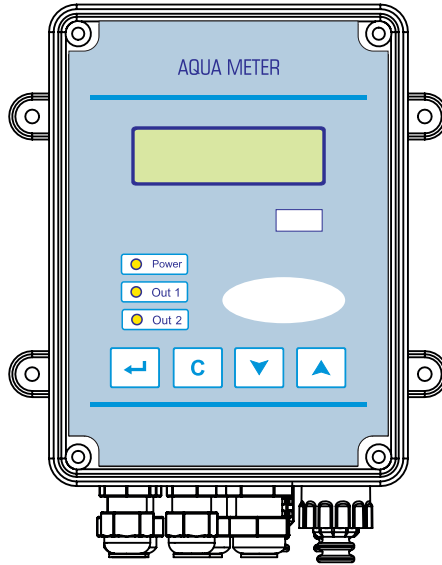


AQUA METER USER MANUAL



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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 severe 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 severe 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 to 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

Aquameter v3 R4

4.3 Principles

- Information on usage and environment ([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 to 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

AQUA METER is a Measurement Conversion and Control device that has been developed to measure three various values as pH, ORP and Conductivity and to convert them into and control various output units.

Described as AQUA METER pH, AQUA METER ORP or AQUA METER CON, each of these devices is related to only one unit. pH and CON devices also fulfill heat compensation of units by measuring heat at the same time.

5.2 General Specifications

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

Standard Hardware

- measurement, control and conversion device for pH, ORP, conductivity.
- pH, ORP measurement with standard combined electrodes; conductivity measurement with standard conductivity probe.
- Heat compensation in measurements with heat measurement feature.
- Fully digital adjustment and automatic calibration without adjustment bar, screw driver, etc. thanks to buffer liquids.
- Chemical Level Tracking
- Storage Level / Flow Tracking
- Ratio Control per Signal Input
- High operational reliability, electrical isolation, full insulation against humidity, acid and chlorine steam.
- Easy and flexible installation.
- Micro controller technology.
- Analogue control output (0-5V, 0-10V, 1-5V, 0-10mA, 0-20mA, 4-20mA,)

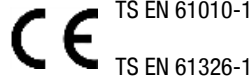
- Programmable alarm output.
- User Password
- Heat Sensor

5.3 Electrical Features

Device fulfills control duty by respecting user settings.

Device complies with electrical devices regulations.

Device complies with following standards:



5.4 Scope of Delivery

Control device
User's Manual
Assembly Set
Calibration Liquid



CAUTION

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

Technical Data

6 Technical Data

Model	pH	ORP	Conductivity
Measurement Range	pH 0,00 – 14,00 0 – 50°C NTC -25 – +125°C Pt100	0 – 1250mV	0,01 – 20,00mS 0 – 50°C NTC -25 – +125° Pt100
Solubility	0,01 pH, 0,1 °C	1 mV	0,01 mS 0,1 °C
Heat Compensation	NTC - Pt100		NTC - Pt100
Relay Control Output	NO; 220VAC 5A, NC; 250VAC 2A NO; 28VDC 5A, NC; 28VDC 1A		
Relay Alarm Output			
Analogue Output	0-5V, 0-10V, 1-5V, 0-10mA, 0-20mA, 4-20mA		
Chemical Level Input	NO-NC		
Storage Level / Flow Input	NO-NC		
Signal Input	0Hz – 1KHz		
Feeding	230VAC 50-60 Hz, 6W	12-28VDC (for DC model), 6W	
Fuse	AC model : 63mA Fast DC model : 1A Fast	20x5mm glass fuse 20x5mm glass fuse	
Operating Temperature	0 .. 50 °C		
Body	IP56		
Packaged Weight	1,17 Kg		
Product Weight	0,7 Kg		
Packaging Dimensions	210 x 240 x 180 mm		
Product Dimensions	143 x 80 x 183 mm		

7 Dimensions

Please find dimensions and assembly hole sizes of the device below. All dimensions 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.

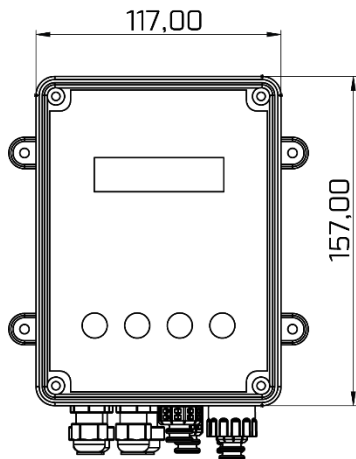


Figure 1 Front Side Device Size

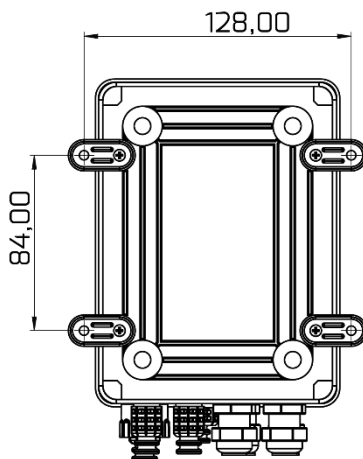


Figure 3 Device Rear Size

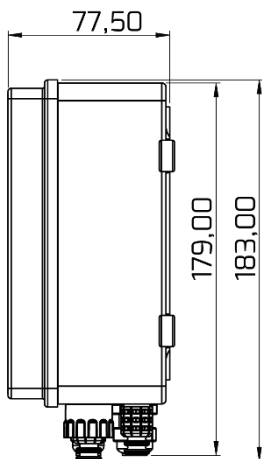


Figure 2 Device Side Size

Mechanical Installation

8 Mechanical Installation

Mechanical Assembly: See [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: $-20/+60^{\circ}\text{C}$ 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.

8.1 Wall Assembly

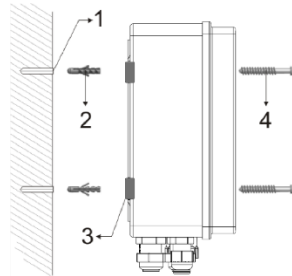


Figure 4 Wall Assembly

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

8.2 Panel Assembly

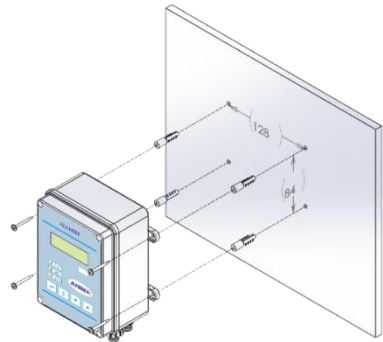


Figure 5 Panel Assembly

- A: 128 mm B: 84 mm C: \emptyset 4,5 mm



WARNING

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

1. Mark the hole dimensions on the surface of assembly.
2. Drill hole (1).
3. Place the anchor shown as (2) into the hole.
4. Align the hanging brackets (3) on the device to the holes.
5. Screw and fix the device (4).

8.3 Sensor Assembly for each model

8.3.1 For CON Models

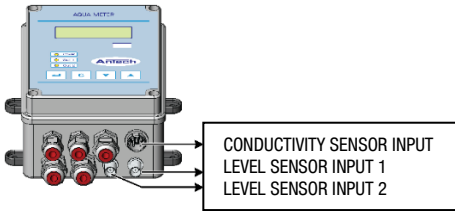


Figure 6 For Con Models

8.3.2 For ORP Models

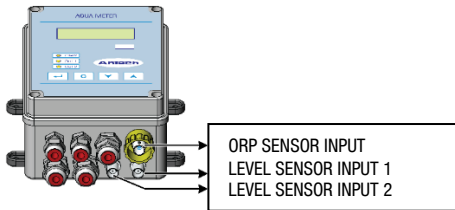


Figure 7 For ORP Models

8.3.3 For pH Models

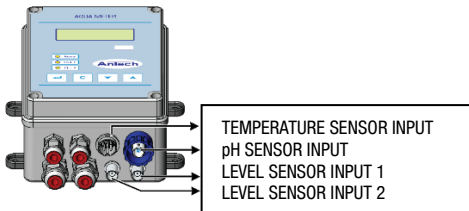


Figure 8 For pH Models

Electrical Installation

9 Electrical Installation

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



WARNING

Parts Under Electric Voltage!

Possible Result: Death or severe 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.

Based on the model, device power supply can be AC or DC. AC connection is shown next to here and electrical properties are described in the technical specifications. For DC connection, [see 9.3 Device Schema Page 14](#).

There are two relay outputs (for Control and Alarm). Names of terminal connections inside the device are given as abbreviations in front of the connectors.

Electronic circuit is protected with fuse. Please use appropriate fuse based on the model. [See 6 Technical Data Page 9](#)

9.1 Plug Electrical Connection

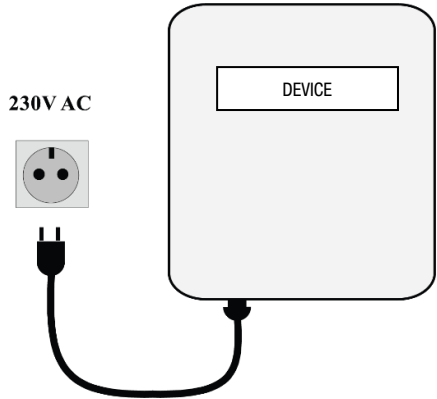


Figure 9 Plug Electrical Connection

9.2 Fixed Electrical Connection

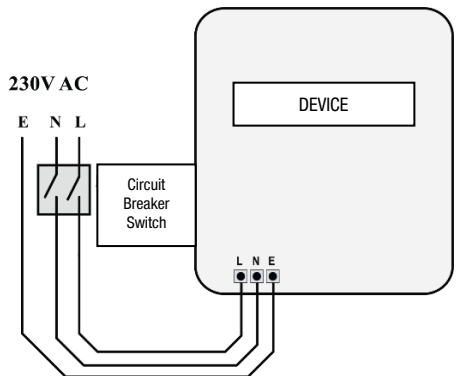


Figure 10 Fixed Electrical Connection

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 Device Schema

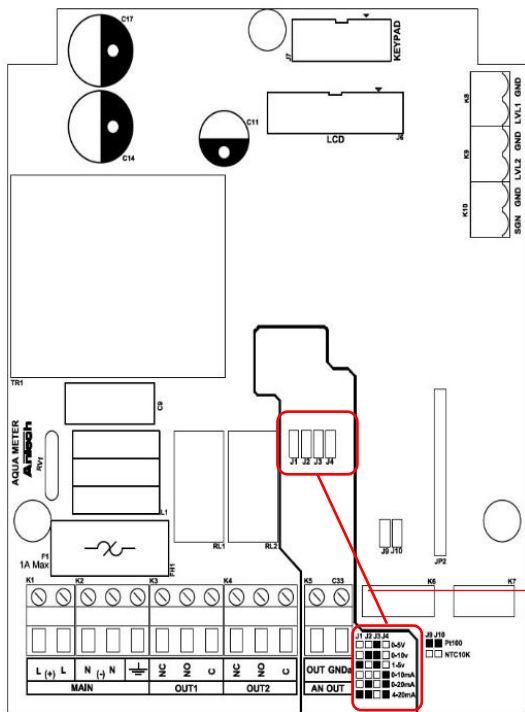


Figure 11 Mainboard

Jumper settings

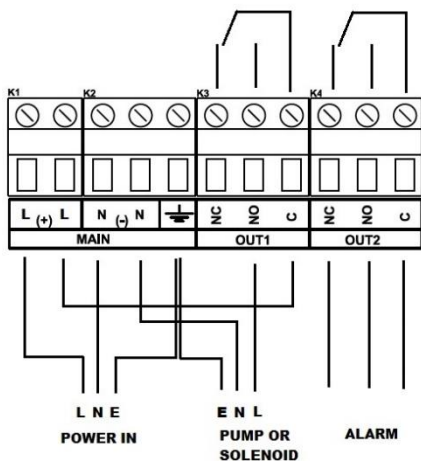


Figure 13 Mainboard AC input

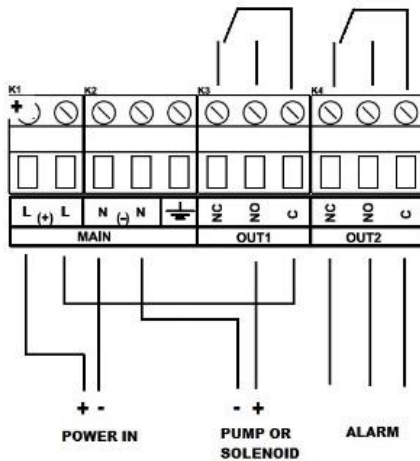


Figure 12 Mainboard DC input

Electrical Installation

9.4 Electrode Selection

Electrodes used by the device are shown on the table. Connections are made with BNC connector. It is stated on the device which electrode to be connected where.

Device Type	Electrode Type
pH	Standard Combined pH Electrode
ORP	Standard Combined ORP Electrode
Con	Conductivity Electrode

9.4.1 Heat Sensor

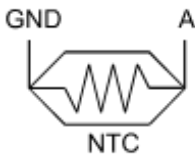


3 - GND
4 - B
5 - A

Figure 14 Heat Sensor

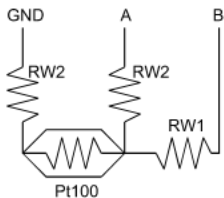
connecting to connection point on the device directly.

AQUA METER pH and Con devices support two types of heat sensors as NTC and Pt100. heat sensors are capable of



Detailed image of NTC Connection point is given on the left.

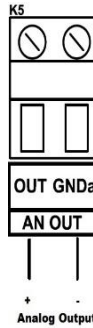
Figure 15 NTC connection



Pt100
Heat Sensor
Connection

Figure 16 pt100 connection

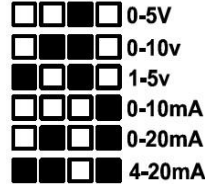
9.4.2 Analogue Output



Device can give 6 different analogue outputs in total. You can select one of those outputs using the jumpers on the device.

Figure 17 Analogue Output

J1 J2 J3 J4



Analogue Output
Connection and Jumper
Settings

Figure 18 Jumper settings

9.4.3 Digital Inputs

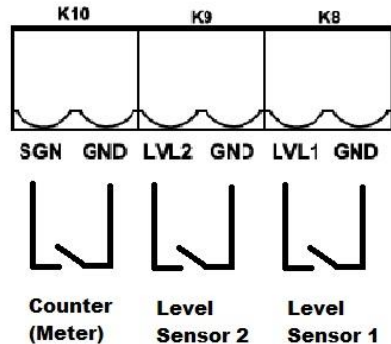


Figure 19 Digital Inputs

There are 3 digital inputs as two level sensors and one counter input while connections can be made as seen on top.

10 Operation

10.1 General Operation



Figure 20 Panel Tag

Control panel consists of 4 function buttons and 3 status LEDs. You can access and control parameters using these 4 function buttons.

Below you can find example of Set parameter.

10.2 Adjusting Device Output Control Mode

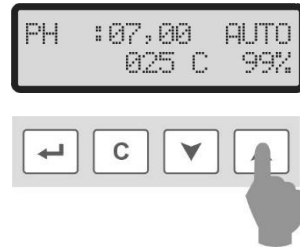


Figure 21 Adjusting Device Output Control Mode

Device output control mode is shown on right upper corner of screen.

There are three different statuses.

OFF : Device output is constantly off.

AUTO : Device output starts automatically based on the adjusted value.

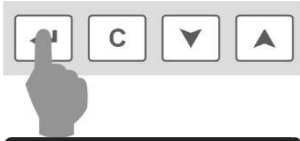
ON : Device output is constantly on.

These can be changed using up button.

Operation

10.3 Parameters

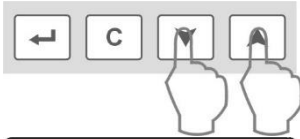
10.3.1 Changing Parameter Value



Access parameters by pressing enter button.



See the screen on the left.



Use Up [] and down [] buttons to find **Set** parameter.



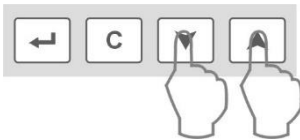
Screen on the Left



Enter the section to change parameter value by pressing enter button.



See the screen on the left.



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



Exit after setting the value with enter button and return to previous menu. [C] button will enable you to return to previous menu without setting the value.

Use [C] button to return to main screen.

Figure 22 Changing Parameter Value

10.4 Parameter List

	Parameter	Description	Value	Default		
				pH	ORP	Con
01	_Device	Settings from Factory Shows Device Type	0: pH 1: ORP 3: Conductivity	0	1	2
02	_Temp.Sens.	Settings from Factory Shows Temperature Sensor Type	0: Pt100 1: NTC 10K	1		
03	Mode	Device Operating Mode	0: Off 1: Auto 2: On	0		
04	Cont Mode	Device Control Mode	0: Relay Control 1: Ratio Control 2: Signal Ratio Control	0		
05	Output Mode	Output Mode	0: Increase Control 1: Decrease Control 2: Decrease / Increase Control	1	0	1
06	Cont. Run	Continuously Operating When device is On mode	0: Return to Auto Mode in 1 minute 1: Continuous Output	0		
07	Analogue Type		0: Ratio Control Output 1: Full Scale Output	0		
08	Temp Comp.	Temperature Compensation	0: Passive 1: Active	0	0	1
09	Log Interv.	Data Sending Period	0-30 min.	3		
10	Pass Enable	Password Protection	0: Passive 1: Active	0		
11	Cal Type	Calibration Type	0: Single Point 1: Double Point	1	0	0
12	LR	Output on Lower Limit Exceed Value	0: Passive 1: Active	0		
13	HR	Output on Higher Limit Exceed Value	0: Passive 1: Active	0		
14	Filter Delay	Filter Delay	0-99 sec.	0		
15	Level1 Type C	Level 1 Input Contact Type	0: NO 1: NC	0		
16	LV2/FL Type	Level 2 Input / Flow Switch Contact Type	0: NO 1: NC	0		

Operation

17	Pulse Count	Signal Control Count	Ratio Pulse	0 – 250 pulse			10 pulse		
18	RelayOnTime	Signal Control Time	Ratio Relay On	0,0-25,0 min.			1,0 min.		
				pH	ORP	Con			
19	Set	Set point		0,00-14,00pH	0-1250mV	0,00-20,00mS	7,00pH	650mV	5,00mS
20	Set Offset	Offset level		0,00-1,00pH	0-100mV	0,00-1,00mS	0,05pH	5mV	0,05mS
21	Ratio Diff.	Difference of analogue output 100% point from Set Value		0,00-14,00pH	0-1250mV	0,00-20,00mS	1,00pH	100mV	1,00mS
22	Low Alarm	Value low alarm		0,00-14,00pH	0-1250mV	0,00-20,00mS	6,00pH	550mV	4,00mS
23	High Alarm	Value high alarm		0,00-14,00pH	0-1250mV	0,00-20,00mS	8,00pH	750mV	6,00mS
24	Buf Sol 1	Buffer 1 Liquid (in pH and ORP devices)		0,00-14,00pH	0-1250mV	0,00-20,00mS	4,00pH	225mV	1,41mS
25	Buf Sol 2	Buffer 2 Liquid (in pH and ORP devices)		0,00-14,00pH	0-1250mV	0,00-20,00mS	7,00pH	475mV	2,77mS
26	Password	Password Set		0000 – 9999			0000		

** Varies depending on device type. Values are as follows.

pH=14,00 ORP=1250 Con=20,00

10.5 Calibration

Calibration varies depending on device model. pH and ORP devices are calibrated the same way whereas Cl and Con devices are different. All three calibrations are shown below.

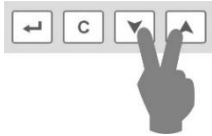
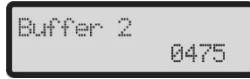


Figure 23 Access to the calibration menu

When you press down [▼] and up [▲] buttons at the same time, you will see "Calibration" message on screen and enter calibration menu.

10.5.1 Calibration of pH and ORP Devices

10.5.1.1 Single Point Calibration:



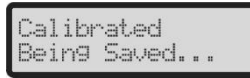
Once entered into calibration menu, you will see the screen on the left and this value shows you that you will calibrating for the value on Buf.Sol.2 parameter.

Buf.Sol.2 parameters should be adjusted according to the buffer liquid in your hand. In our example, 475mV buffer liquid is going to be used. And this has been introduced to the system before by entering parameter menu.



Dip the electrode into liquid when you reach this screen and wait for the value on the screen

to be ready. Once movement is stopped, press "Enter" button to complete calibration.



If calibration values are okay, you will see the message on the left to set the calibration values.



If calibration values are not within acceptable limits, then you will see error message and the device will return to main screen without calibration.

Press [C] button during calibration to cancel calibration.

Operation

10.5.1.2 Double Point Calibration:

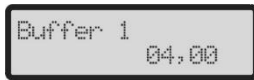


Figure 25 Double Point Calibration

Once entered into calibration menu, you will see the screen on the left and this value

shows you that you will calibrating for the value on Buf.Sol.1 parameter.

Buf.Sol.1 and Buf.Sol.2 parameters should be adjusted according to the buffer liquid in your hand. In our example, pH 4.00 and pH 7.00 buffer liquids are going to be used. And this has been introduced to the system before by entering parameter menu.

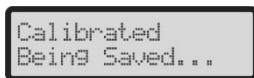
Dip the electrode into liquid when you reach this screen and wait for the value on the screen to be ready. Once stopped, press Enter button to pass on to second buffer liquid.

NOTE: Electrode should be cleaned with pure water before dipping second buffer into liquid.



This time, dip the electrode into second buffer liquid and wait for the

value on the screen to stop. Once movement is stopped, press "Enter" button to complete calibration.



If calibration values are okay, you will see the message on the left to set the calibration values.



If calibration values are not within acceptable limits, then you will see error message and the device will return to main screen without calibration.

Press [C] button during calibration to cancel calibration.

10.5.1.3 Calibration of Conductivity Device

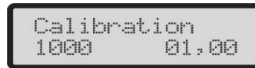


Figure 26 Calibration of Conductivity Device

You will see the screen on the left once entered to conductivity calibration.

Conductivity calibration is done as slope calibration (multiplication of raw value with the slope value on left and then divided into 1000 again).



After dipping the conductivity electrode into buffer liquid,

change Slope value with up and down buttons and bring the value on the right to the liquid value.



Press enter button to set the value. If you press [C] button, you will

return to main screen without setting the value.

10.6 Output Control Modes

There are two parameters setting the output control modes.

Cont Mode and Output Mode Parameters. Functions and descriptions of Relay outputs are given below based on the values.

	Cont Mode	Output Mode	Output 1	Output 2
1	0	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.	If read value is less than (Low_Alarm) value, If read value is more than (High_Alarm) value, If there is Level 1 Error, If there is Level 2 Error, It gives output.
2	0	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	0	2	It gives output until read value is above (Set + offset) value. It cuts when exceeded, then waits until it goes below (Set - Offset) value.	It gives output until read value is below (High_Alarm - Offset) value. It cuts when it is below, and waits until it goes above (High_Alarm + Offset) value.
4	1	0	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.	If read value is less than (Low_Alarm) value, If read value is more than (High_Alarm) value, If there is Level 1 Error, If there is Level 2 Error, It gives output.
5	1	1	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.	
6	1	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.	If the read value is above (High_Alarm+Ratio_Diff), it gives continuous output. It gives ratio output until it is below (High_Alarm) value. It doesn't give output below (High_Alarm) value.
7	2	X	When the number of signal from signal input reaches the number set in "PulseCount" parameter, it gives output as much as the time set in "RelayOnTime" parameter	If read value is less than (Low_Alarm) value, If read value is more than (High_Alarm) value, If there is Level 1 Error, If there is Level 2 Error, It gives output.

X: Value is ignorable.

Operation

Example pH Practice

In this example, it is aimed to bring the pH value that is tend to increase back to set value. When pH value is above "Chemical Dosing Starting Point", chemical is given and when pH value is below "Chemical Dosing Stopping Point", chemical is stopped.

Set Value : 7,20
Offset Value : 0,05
Low Alarm : 6,00
High Alarm : 8,00
Cont Mode : 0(Relay Control)
Output Mode : 1(Reduction Control)

Chemical Dosing Starting Point = $7,20 + 0,05 = 7,25$
Chemical Dosing Stopping Point = $7,20 - 0,05 = 7,15$
Offset interval = 7,15 and 7,25

If the value on sensor is above "Chemical Dosing Starting Point", relay gives output and chemical dosing starts.

If the value on sensor is below "Chemical Dosing Stopping Point", relay stops output and chemical dosing is stopped.

If the value on the sensor is between Offset interval, there will be no change in relay.

Offset interval is used for preventing frequent on-off action in relay due to tiny releases in input value.

If the sensor value is below Low Alarm value or above High Alarm value, then Relay 2 gives output. Relay can be used for alarm purposes.

10.7 Analogue Output Modes

Status	Analogue Type	Description
1	0	Analogue Dif. point is taken as "0" and the ratio that is calculated depending on Output Mode parameter is reflected to output. This has been developed for the control of dosing pumps that are ratio controlled.
2	1	Devices's minimum value is 0% and maximum value is 100% and the value is reflected to analogue output. It has been developed to use the device as transmitter.

10.8 Password Use

Device can be protected with password to prevent unauthorized use. In order to activate password protection, bring "10-Pass.Enable" parameter to 1.

"26-Password" parameter is used for changing the password.

If you forget password, firstly press and hold Down button more than 15 seconds. This will make "10-Pass.Enable" parameter "0". You will see "Password Disables" Message on the screen.

11 Maintenance / Malfunction Cases

11.1 Maintenance

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

11.2 Malfunction Cases

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 [User Competence page 4](#)

For risks, see [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.

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



TS EN 61010-1

TS EN 61326-1

