Emaux

DUAL PARAMETER WATER QUALITY MONITOR

USER MANUAL

CE

Model: WT500PR

EMPU22071340

EMAUX WT500PR

USER MANUAL

TABLE OF **CONTENT**

1. IMPORTANT SAFETY INSTRUCTION

IMPORTANT: The instruction manual you are holding includes essential information on the safety measures to be implemented for installation and start-up of this appliance. Therefore, the installer as well as the user must read the instructions before beginning installation and start-up. Keep this manual for future reference.

This device is intended for swimming pools and spas only; do not use it for potable water sanitation (drinking water).

This electricity supply must be connected through a residual current device (RCD) or Ground Fault Circuit Interrupter (GFCI) with a rated residual operating current not exceeding 30 mA, otherwise could result in electrical shock causing serious bodily injuries, including death.

1.1 Use and safety tips

Make sure that the installation of the device complies with electrical safety regulations. This instrument should be installed, used or maintained under the guidance of professional technicians.

The operator must aware of the possible consequences caused by parameter changes before using.

1.1.1 Electric safety

The controller must be connected to power source which matched to rate power and voltage. In order to ensure that all safety requirements are met, the controller must be used with the accessories specified in this manual, because those accessories has been tested their compatibility with the controller. If damaged or malfunctioning is found, it must be repaired or replaced by an authorized technical service center immediately.

1.1.2 Operating safety

Water drop and moisture must be prevented from entering the controller, or immerse the controller in liquid. If liquid enters the controller accidentally, turn the power off immediately. Clean the control and then hand it over to the relevant technicians for overhaul.

Notice:

• The controller should be operated pair with accessories which noted in this manual, and the controller must operate in full compliance with safety requirements.

• The controller must be used within operating condition which noted in this specification. The parameter settings of the controller must match with the water quality standards requirement for the region.

• The controller must be located in a place where pool operator or technician can monitor the alarm signals of the controller easily.

• To avoid any dangerous situation, pool owner/ operator/ technician must strictly follow the instructions.

• Process with caution and monitor pool water conditions are in safety range.

• If the controller is not operated in accordance with the above notice, our company will not be liable for any property or personal injury that may be caused thereby.

2. PRODUCT INTRODUCTION

Emaux The controller, left side of control panel is ORP and right side is pH. The controller should be installed by wall mount with probe wires in 5m. If probe wires need to be extended, the wire should not be longer than 15m and pool technician should test the measurement accuracy is within specification.

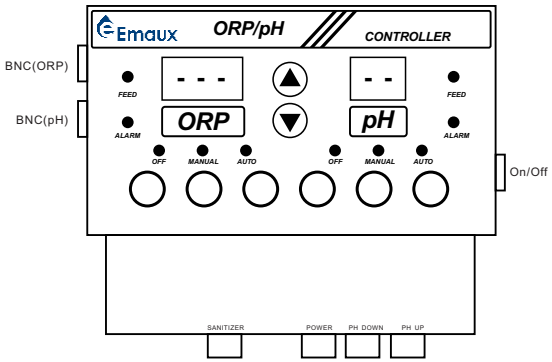
Technical specification

Item	Specification
Operating temperature	0℃～+40℃
Storage and transport temperature	0℃～+65 ℃
Relative humidity	0%～95%RH（without freeze）
pH testing range	0pH～14pH
ORP testing range	0～999mV
pH accuracy	±pH0.1
ORP accuracy	±5.0mV
Input voltage	AC 220V-240V，50/60Hz
Power	15W (Water quality Monitor)
Operating mode	Manual，Automatic
Output connection	3 manual dosing pump: Sanitizer (ORP+)，Acid (pH down)，Alk(pH up)
Type of dosing pump	AC 220V-240V，50/60Hz. 50W (max)
Display	Segment digit display
Size	214mm（H）X 185mm（W）X75mm（D）
Install type	Wall-mounted
Weight	1.1KG(without probes)
Casing Material	ABS(outer casing)，PC(transparent cover)

3. INSTALL AND WIRING

3.1 Controller install

Reference to requirements for safety tips and technical specification, find are suitable position to install the controller. Drill mounting holds at the appropriate position, fix the bracket and then install the controller on the bracket. Electric power connections (SANITIZER, POWER, PH DOWN, PH UP) are on the bottom side of the unit.pH and ORP probe connector are on the left hand side,Power on/off switch is on the right side. The controller should have a clearance of not less than 50mm from other electric equipment.



3.2 Electric install

3.2.1 Electricity connection

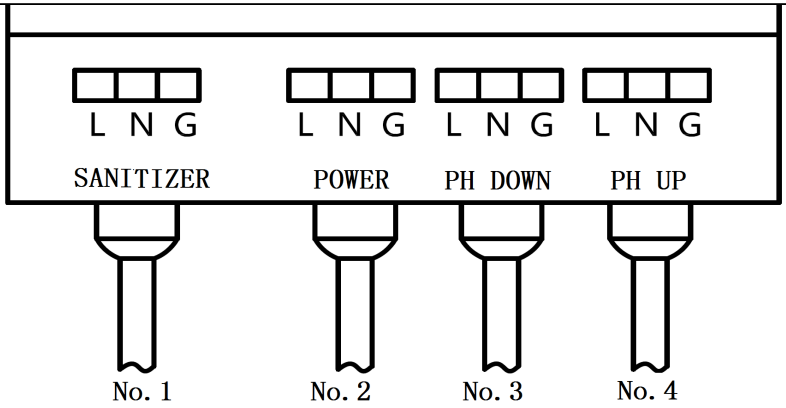
The control power input is AC 220-240V,50/60Hz.Electricity wires should be place away from probes to prevent interference.It is not recommended that the controller use a common power input source with other electric equipment which may generate surge voltage which can cause interference. A correct grounding connection which can prevent interference between equipment as well. It is highly recommended that the controller and diffuser pump are connected to the same on/off control so to prevent dosing during diffuser pump is not under operating condition.

Caution: Wires must be connected to GFCI or RCD and the wiring should comply with regulatory requirement for the region.

3.2.2 Probe install

During connect the controller with powers (SANITOZER, POWER, PH DOWN and PH UP), you must make sure the power is disconnected. Probe wire should be as short as possible and positioned far away from the power wire, pump, transformer or any other device which may cause interference. Probe (ORP and pH) must be connected to the corresponding BNC connector. Incorrect connection may cause probe or controller damage. pH and ORP probe which provide by Emaux should be paired to use with the controller. Probes should be used pair with Emaux probe holder. Probe holder can be install in; 1) main pipe (main line), or 2) sampling pipe (bypass line) (recommended method). Fix the probe holder on the pipe, place the probe into the holder sealing cap. Tighten the cap by hand only to avoid breaking the probe. Do not use a wrench.

Wiring box is on the lower side of the controller:



L: Live; N: Neutral; G: Ground

(Wiring box internal)

No.1 (SANITIZER) : connect to SANITIZER dosing pump

No.2 (POWER) : connect to power (220 – 240V AC)

No.3 (PH DOWN) : connect to Acid dosing pump

No.4 (PH UP) : connect to Alk dosing pump

3.2.2. 1 Probe use and maintenance

Probe must be always place in water vertically

• Keep your probes electrode moist. Probes for new or long term storage should be placed in protection cap with protective solution (which cover the glass electro). You should not remove the cap before use. Keep the cap: place the probe back to the cap for long term storage.

• Make sure the pipe are fill with water during install and use the probe. The probe must be electro must be in water always.

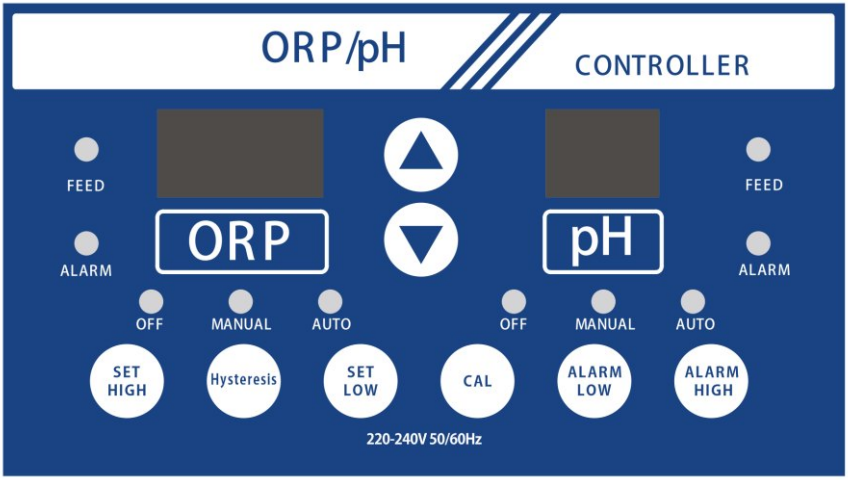
• Probe cannot install upside down or horizontally.

• When probe is in the pipe: make sure water in pipe does not freeze (especially during Winter), it will damage the probe.

To have an accurate measure result, flow rate inside the pipe (with probe) must be in 2-10L.

4. PH AND ORP SETTING

Panel



SET LOW	Hysteresis	SET HIGH	CAL	ALARM LOW	ALARM HIGH
Set low ORP/ pH setpoint	Set hysteresis	Set High pH setpoint	pH calibration	ORP/pH Alarm low limit	ORP/pH Alarm high limit

4.1 Functional setting

4.1.1 Power up:

Pull the power switch to "on", LEDs will light up for 3 sec than display the real time value for ORP and pH.

"ORP"digit display

Left Digit display is ORP, unit is in mV, which display ORP value and its related setting. Range from 0-999.

"pH"digit display

Right Digit display is pH, unit is in pH, which display pH value and its related setting. Range from 0-14.

4.2 Select ORP/ pH operating mode:

Press ORP/ pH to select operating mode: "OFF", "MANUAL" and "Automatic". When mode is selected, relative function LED will light.

4.3 Operating mode

4.3.1 Power up

During power up:

ORP in "OFF"mode, ORP LED OFF. SANITIZER feed relay is"open". SANTITIZER dosing pump is stop. At the same time, ORP FEED LED off.

pH in "OFF"mode, pH LED OFF. Acid and Alk feed relay are"open". ACID and ALK dosing pump are stop. At the same time, pH FEED LED off.

4.3.2 Automatic mode

4.3.2.1 Automatic model setup

4.3.2.1.1 Setup low ORP/pH setpoint

Press"SET LOW",digital display shows"- - - - -";

Press"ORP"or"pH",digital display shows ORP/pH low setpoint;

Press"∧","∨",adjust the expected ORP/pH low setpoint;

Press"SET LOW"to save the setting and return.

Without any key press for more than 8 seconds, system will return automatically without save the setting.

4.3.2.1.2 Setup high pH setpoint

Press"SET HIGH", digit display shows"- - - - -";

Press"ORP"or"pH", digital display shows pH high setpoint;

Press"∧","∨",adjust the expected pH high setpoint;

Press"SET HIGH"to save the setting and return.

Without any key press for more than 8 seconds, system will return automatically without save the setting.

4.3.2.1.3 Setup ORP or pH hysteresis value: D

Press "Hysteresis", digit display shows"- - - - - -";

Press"ORP"or"pH", digital display shows D value for ORP or pH;

Press"∧","∨",adjust the expected D;

Press"Hysteresis"to save the setting and return.

Without any key press for more than 8 seconds, system will return automatically without save the setting.

4.3.2.1.4 Setup Low ORP or pH alarm setpoint

Press "Hysteresis", digit display shows"- - - - - -"; Press"ALARM LOW", digit display shows"- - - - - -";

Press"ORP"or"pH", digital display shows ALARM LOW setpoint;

Press"∧","∨",adjust the expected ALARM LOW setpoint;

Press"ALARM LOW"to save the setting and return.

Without any key press for more than 8 seconds, system will return automatically without save the setting.

4.3.2.1.5 Setup High ORP or pH alarm setpoint

Press"ALARM HIGH", digit display shows"- - - - -";

Press"ORP"or"pH", digital display shows ALARM HIGH setpoint;

Press" Λ "," V ",adjust the expected ALARM HIGH setpoint;

Press"ALARM HIGH"to save the setting and return.

Without any key press for more than 8 seconds, system will return automatically without save the setting

4.3.2.2 Automatic mode control

4.3.2.2.1 ORP automatic mode:(***ORP AUTO LED light up***)

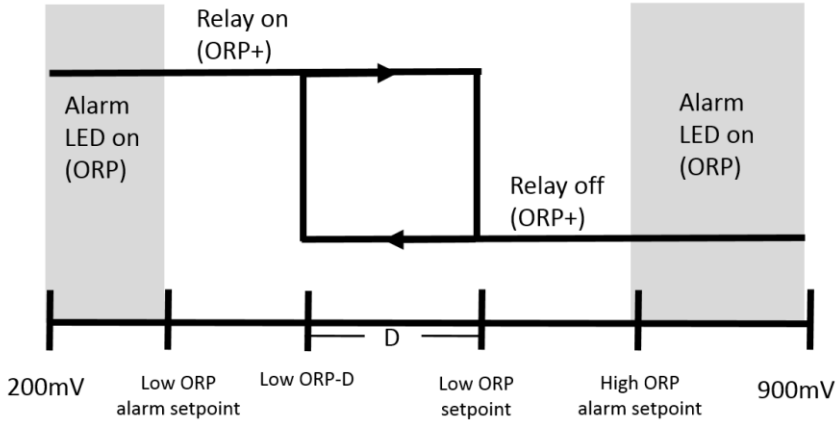
SANITIZER feed automatic control:

ORP ≤Low ORP setpoint-D (hysteresis), SANITIZER feed relay is "close", SANITIZER dosing pump is running. At the same time, ORP"FEED"LED lights up.

ORP≥Low ORP setpoint, SANITIZER feed relay is "open", SANITIZER dosing pump stop. At the same time, ORP"FEED"LED turns off.

ORP Alarm

ORP≤Low ORP ALARM setpoint or, ORP≥High ORP ALARM setpoint, ORP"ALARM"LED light up, otherwise LED off.



4.3.2.2.2 pH automatic mode:(***pH AUTO LED light up***)

ALK feed automatic control:

pH ≤ Low pH setpoint-D (hysteresis), ALK feed relay is "close", ALK dosing pump is running. At the same time, pH"FEED"LED lights up.

pH ≥ Low pH setpoint, ALK feed relay is "open", ALK dosing pump stop. At the same time, ALK"FEED"LED turns off.

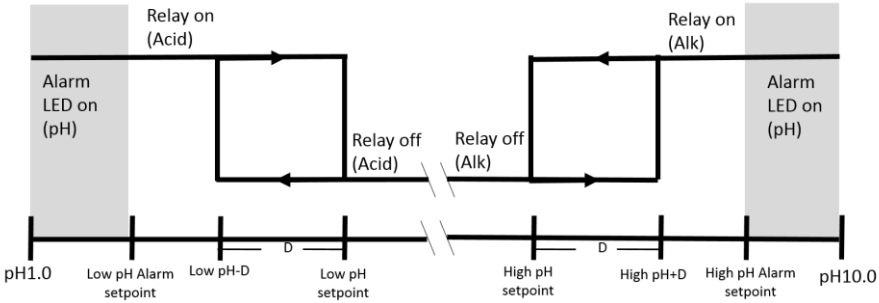
Acid feed automatic control:

pH ≥ High pH setpoint+D (hysteresis), Acid feed relay is "close", Acid dosing pump is running. At the same time, pH"FEED"LED lights up.

pH ≤ High pH setpoint, Acid feed relay is "open", Acid dosing pump stop. At the same time, Acid"FEED"LED turns off.

pH Alarm

pH≤Low pH ALARM setpoint or, pH≥High pH ALARM setpoint, pH"ALARM"LED light up, otherwise LED off.



Important note:

High pH setpoint must be higher than Low pH setpoint, otherwise, Acid dosing pump and Alk dosing pump may run at the same time.

4.3.2.3 Manual mod

ORP manual mode: （ORP manual LED light up）

Sanitizer feed relay is "close". If it is connected to Sanitizer dosing pump, the pump will run. At the same time, ORP FEED"LED light up.

pH manual mode: （pH manual LED light up）

Acid and Alk feed relay are "close". If it is connected to Acid/ Alk dosing pumps, pumps will run. At the same time, pH FEED"LED light up.

During using pH manual mode, suggest the controller is connected to either Acid or Alk dosing pump only. Otherwise, both pump will running at the same time.

5. CALIBRATION

5.1 Zero point calibration

ORP/pH zero point calibration:

Calibrate ORP or pH zero point

Power down the controller

Short contacts of BNC connector for ORP / pH (the function is under calibration) (refer to BNC (ORP/ pH) contact)

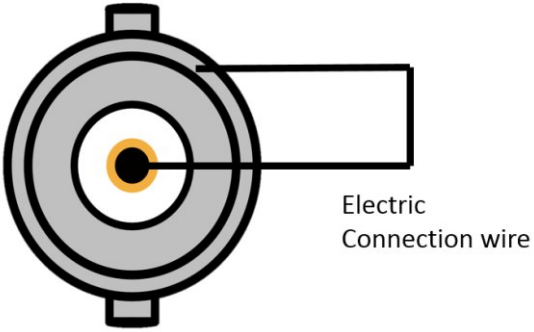
Press and hold "ORP"or"pH"(the function is under calibration), then power up the controller.

The unit will have a "beep" sound. Calibration is completed.

If Calibration is successful, digit display will show"ORP CL"for 3 seconds (when calibrate pH, it will show"PH CL") and return.

Power the controller off, remove connection wire on BNC connector and then reconnect probes to BNC.

Power the controller up, it will display the real time value for ORP and pH.



BNC (ORP/ pH) contact

5.2 pH probe calibration

Selecting high-quality pH value adjusting reagent to prepare standard solution;
Before pH probe calibration, run the procedure pH zero point calibration.
Turn the unit off and connect the probe to the controller, then power it up.
Put the cleaned pH electrode in the standard liquid and stir it a few times, etc., which shows that the instrument is stable.;
Press and hold "CAL" key for more than 3 seconds，LED display"- - - - -";
Press "PH" key，Digit display displays the measured value of the pH;
Press" Λ "," V "key，Adjust the displayed pH to the standard liquid pH.;
Press and hold "CAL" key for more than 3 seconds again, the calibration is done and return.
Without any key press for more than 8 seconds, system will return automatically without save the setting。

Note:
The PH value standard liquid should be chosen the pH value which is larger than 7.0. do not choose the pH value standard liquid whose PH value is close to 7.0. Otherwise, the correction error may occur.(as choose PH4.0 or pH 9.0).
ORP probe does not need to run probe calibration.

6. PARAMETER SETTING

ORP default setting (factory setting)

Parameter	Setting
Operating mode	OFF
Automatic Mode	
Low ORP setpoint	600mV
ORP hysteresis (D)	50mV
Low ORP Alarm setpoint	600mV
High ORP Alarm setpoint	750mV

pH default setting (factory setting)

Parameter	Setting
Operating mode	OFF
Automatic Mode	
Low pH setpoint	pH 6.5
High pH setpoint	pH 7.5
pH hysteresis (D)	pH 0.5
Low pH Alarm setpoint	pH7.0
High pH Alarm setpoint	pH7.8

Range of parameter：

ORP Parameter	
Low ORP setpoint	200～995mV
ORP hyseresis(D)	50～500mV
High ORP Alarm setpoint	Low ORP Alarm setpoint ～995mV
Low ORP Alarm setpoint	0mV～High ORP Alarm setpoint

pH Parameter	
High pH setpoint	(Low pH setpoint+pH0.5)～pH10.0
Low pH setpoint	pH1.0～(High pH setpoint -pH0.5)
pH hyseresis(D)	pH0.3～pH2.0
High pH Alarm setpoint	Low pH Alarm setpoint～pH10.0
Low pH Alarm setpoint	pH1.0～High pH Alarm setpoint
pH probe calibration	pH1.0～pH10.0

7. RESET TO DEFAULT (FACTORY SETTING)

Power the controller off, press and hold keys"SET HIGH"and "ALARM HIGH". And then press power the controller up. The control will have a beep sound. Reset to default is done.
If reset is successful, digit display will show "VAL RT"3 for 3 seconds and return. It will display the real time value for ORP and pH.

8. PROBE AND ACCESSORY LIST

Controller x 1
ORP probe x 1
pH probe x 1
buffer solution pH 4.0 x 1
buffer solution pH 9.0 x 1

9. TROUBLE SHOOTING

9.1 Error display

pH probe calibration error, pH digit display will show "--- Er".
Measurement error,digital display will show tES EE".

9.2 Trouble shooting

Problem	Corrective Action
Cannot power up	Check power line connection and make sure the power source connection is correct.
Digit display shows nothing or doesn't fully display	Check fuse or Digit display out of function
Incorrect ORP/ pH reading	Check probe connections; Run zero and probe calibration; Replace probes
Relay out of function; dosing pump does not run	Check dosing pump connection and power of controller; Check the power and voltage of dosing pump is correct and match with the controller.
pH probe calibrate incorrect, pH digit display shows"--- Er"。	Check probe connections; Run zero and probe calibration;
Measurement error，digital display will show tES EE"	Check all connections Restart the unit

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