



NORSUPGO® PH RX

USER MANUAL




NORSUP



WARNINGS

This manual is intended for technically qualified personnel responsible for the installation, configuration, and maintenance of the entire system. The manufacturer is not liable for damage and/or malfunctions resulting from intervention by unqualified personnel or from use contrary to this manual.

Before starting maintenance and/or repairs, ensure that the unit is de-energized and that no liquids can leak.

CE DIRECTIVES

This report presents the results of an EMC study on:

Product: Swimming pool water monitoring system
Type(s): NorsupGo
Manufacturer: Europe Pool Supplies BV (EPS BV)

The NorsupGo swimming pool water monitoring system must comply with the European Class B requirements of IEC/EN 55014-2, in accordance with the EMC Directive 2004/108/EC (now replaced by 2014/30/EU), without technical modifications.

The NorsupGo swimming pool water monitoring systems are also suitable for use in a domestic environment.

The requirements regarding power line harmonics according to IEC/EN 61000-3-2 and the requirements regarding inrush current (i.e., startup current) according to IEC/EN 61000-3-3 do not need to be met when P < 50 VA. The control system itself consumes less power. The mains outputs are all switched on/off by an AC relay.

The test results show that the NorsupGo swimming pool water monitoring system complies with the specified EMC specifications.



ENVIRONMENTAL PROTECTION

As a result of the implementation of European Directive 2002/96/EU into national law, the following applies:

Electrical and electronic devices must not be disposed of with household waste. Consumers are legally required to return electrical and electronic devices at the end of their useful life to public collection points specifically set up for this purpose or to a point of sale. Further specifications regarding this matter are outlined in the national legislation of the respective country. This symbol on the product, the user manual, or the packaging indicates that the product is subject to these guidelines. By recycling, reusing materials, or otherwise reusing old devices, you make a significant contribution to protecting the environment.

SHIPPING INSTRUCTIONS FOR RETURNS

If the unit needs to be returned for repair or calibration, please ensure that the pumps have been thoroughly flushed and no longer contain any chemicals that could be released during transport.

WARRANTY

All our products come with a 36-month warranty from the date of delivery. The warranty is void if the installation, maintenance, and operating instructions in this manual are not strictly followed. Furthermore, the applicable legal regulations regarding installation and setup must be observed.

www.norsup.eu

1.



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1 WHAT'S IN THE BOX

The system is fully configured to be put into operation immediately after installation, i.e., "turnkey." It comes complete with the items listed on the checklist.

2 INTRODUCTION

The NorsupGo® pH Rx is an easy-to-install and maintain system that monitors and adjusts the pH and Redox (chlorine) levels of the pool. The system features a digital unit that monitors the adjustable setpoints. The pH and Redox electrodes (probes) are equipped with a simple BNC connector.

3 INSTALLATION

Install the system away from direct heat sources, in a dry location protected from direct sunlight, and at a maximum ambient temperature of 40°C.

WARNING



Always follow the warnings and general installation instructions as stated at the beginning of this manual!

The minimum temperature must ensure that all substances to be dispensed remain at least liquid and, furthermore, must not fall below the value specified in the "TECHNICAL SPECIFICATIONS" section. The system must be installed on a vertical wall so that it hangs straight and securely. Choose a suitable location so that calibration, operation, and use are easily accessible.



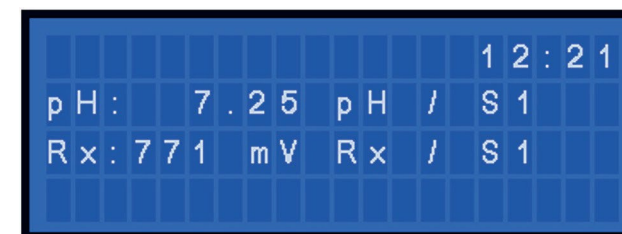
NOTE

The various components are packaged separately and must be connected via the connectors on the bottom. (See the "FUNCTIONAL DESCRIPTION OF THE SYSTEM" section for details).

4 TECHNICAL SPECIFICATIONS

pH/Rx inputs	Available on BNC connectors, input impedance > 10 ¹² Ω
Measurement ranges	0.00 to 14.00 pH, 0 to 1000 mV (redox), 0 to 100 °C (optional, upon request)
Accuracy	Better than 1% of full scale
Repeatability	Better than 0.2% of full scale
Configuration	Single configuration level
Level inputs	2 independent inputs for level sensors, available on connectors, accept SPDT contacts 5 V / 5 mA
Relay output (optional)	Configurable NO/NC contact for alarm (upon request)
Display	Large alphanumeric LCD display with four lines (x 16 characters) and backlight
Power supply	Standard 230 V~, 50 Hz (other options available upon request)
Safety fuse	Varistor
Ambient	Storage temperature -20 to +60 °C
Operating temperature	-10 to +40 °C
Relative humidity	Max. 90% non-condensing
Housing	Self-extinguishing plastic with Lexan front panel
Installation	Wall mounting with included screws and anchors
Dimensions	280 x 270 x 150 mm
Weight	approx. 2 kg

5 FUNCTIONAL DESCRIPTION OF THE SYSTEM



The display is illuminated and will dim after a period of inactivity. As soon as you click any button, the display will light up again. The display consists of 4 lines.

Line 1:

- In the top left corner, you will see the water temperature (provided a temperature sensor is installed).
- In the top right corner, you will always see the time (which you can adjust yourself).

Screen line 2:

- Current pH value
- A slash (/) indicates when the corresponding pump is running. You will actually see the slash (/) flashing.
- Various messages may appear after the slash. See page 7 for examples of these messages.

Screen line 3:

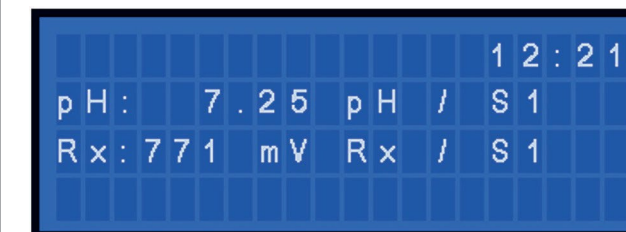
- Current Rx mV value
- A slash (/) indicates when the corresponding pump is running. You will actually see the slash (/) flashing.
- S1 stands for Start Delay; the 1 represents the number of minutes set (default 1 min.). This is to prevent the system from starting to dispense immediately upon startup of the installation.

Screen line 4:

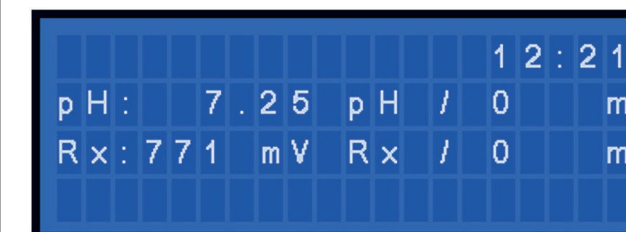
Screen line 4 will display nothing other than an alarm. The display will also not go into standby mode if an alarm is shown on this fourth line. On this line, you can immediately see what the alarm is, for example, "no flow."

6 WHAT CAN BE BEHIND THE SLASH ?

1. As you just saw, S1 appears after the slash during startup. This means that the system is in the start delay for 1 minute. After every alarm detected by the system, the start delay will begin again.

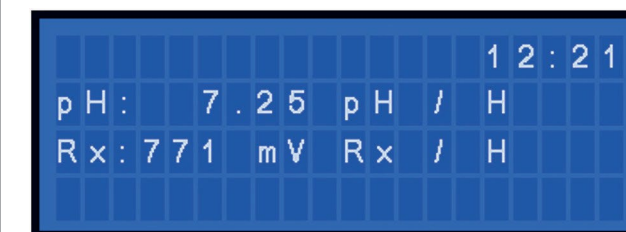


2. If you see /0 M', this means the pH is correct, the system does not need to take any action, and the desired value has been reached. If you see /15 M', this means the system will wait 15 minutes before resuming dosing. You will also see the 15 minutes counting down.



3. The slash may also spin; this means the pump is running. Behind the rotating line, you can see how many seconds the pump will run. After dosing, the 15-minute wait time starts again.

4. The 'H' stands for hysteresis. The system will dose based on hysteresis if the pause times for pH and Rx are set to 0 (can be set for pH only or Rx only).



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7 ELECTRICAL CONNECTION

The system is equipped with a cable with a plug that must be connected in parallel with the filter pump. You can connect the outlet in parallel if a residual current device (RCD) is not used (see flow contact). Standard power supply: 230 V~, 50 Hz, single-phase.

NOTE

Follow the legal guidelines regarding electrical installations. Ensure that all hydraulic and electrical components are properly installed before turning on the unit.



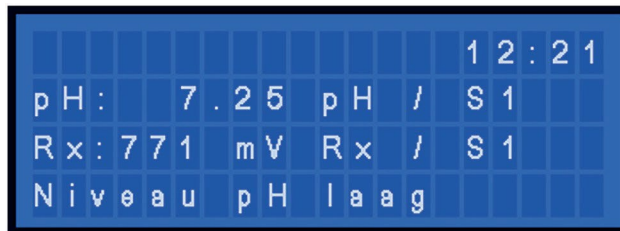
The pH and Redox electrodes are BNC-type; the stock level inputs (1 for each pump) are available on special connectors that do not require an installer. This also applies to the flow connector.

8 STOCK LEVELCONTROL

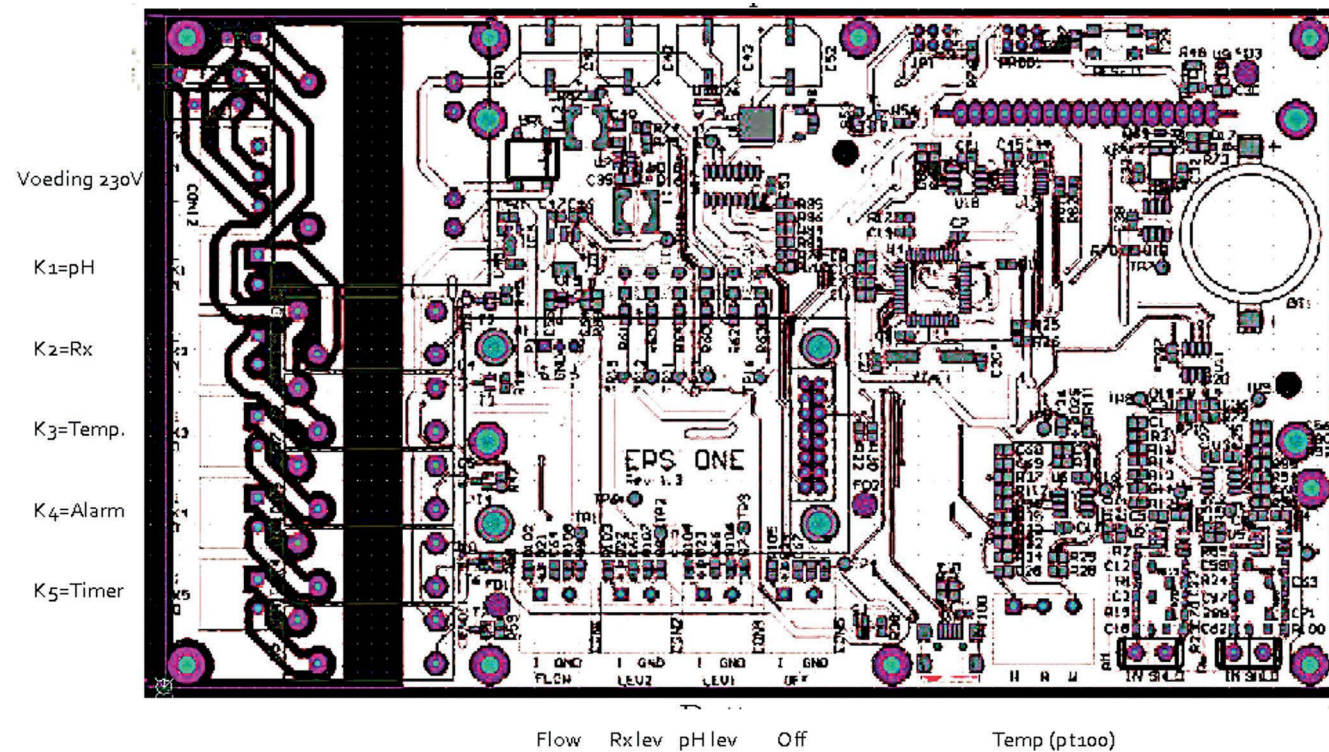
The system is designed to stop dosing as soon as the corresponding storage tank is empty. This control is made possible by an optional suction lance (see ACCESSORIES AND SPARE PARTS, part no. 301027). If you wish to use this, you will need 2 (1 per pump).

When the stock level in a tank falls below the level sensor, a message will appear on the fourth line of the display. Both pumps then stop dosing.

There are 2 inputs available (connector pins 3 and 4), one for each pump/storage tank. In the example below, the alarm message appears on line 4. In this case, the message is **Low pH level.**

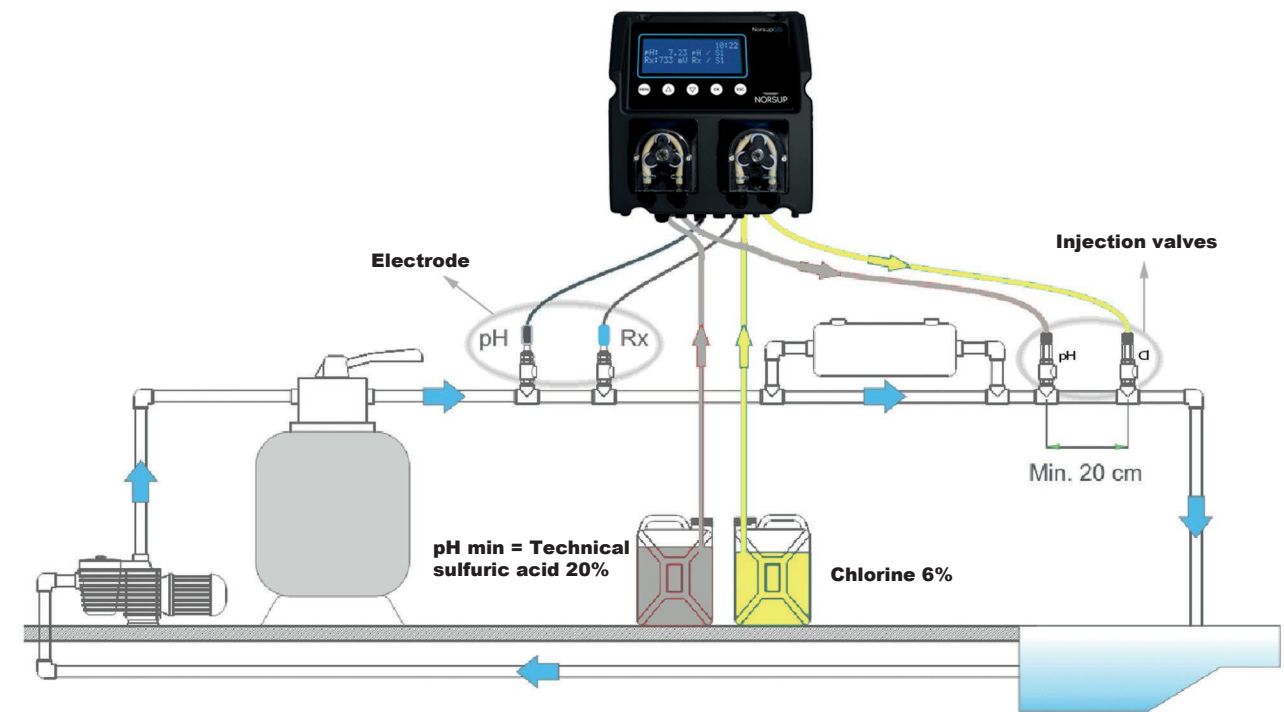


9 INTERNAL CONNECTIONS (for authorized technicians only)

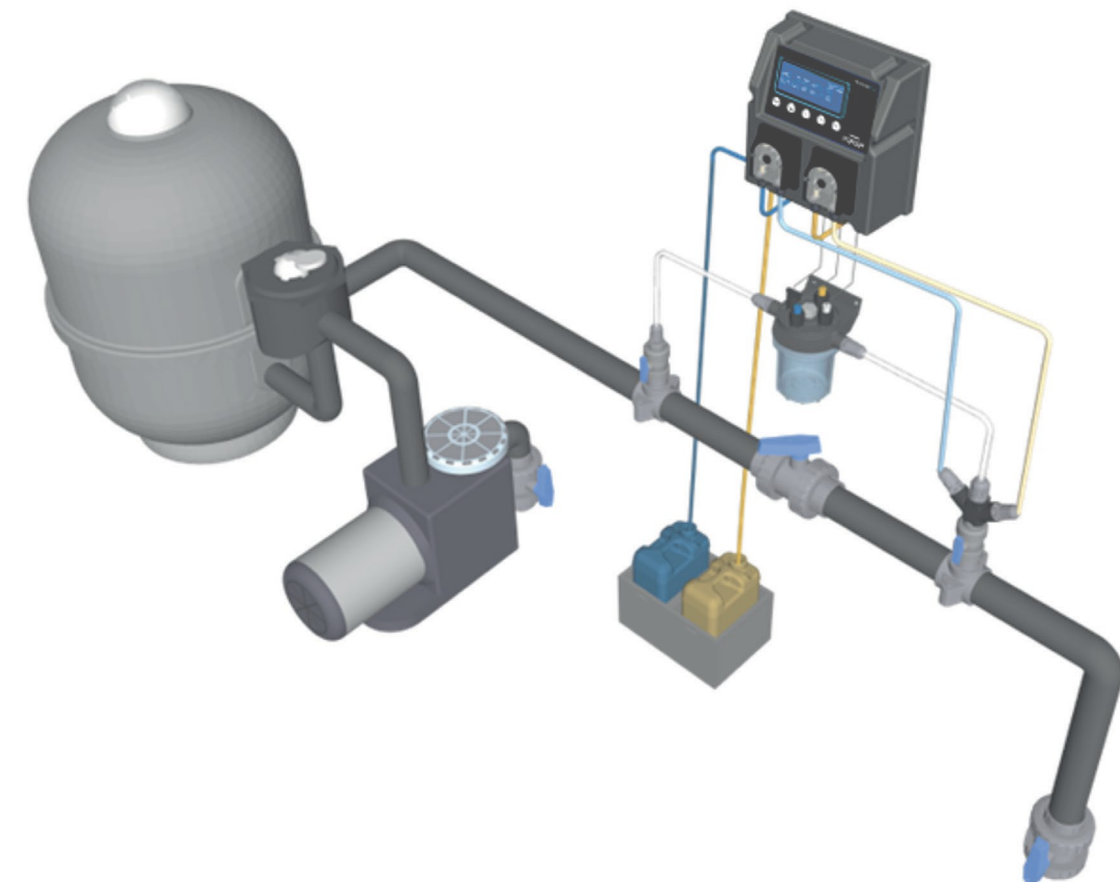


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10 HYDRAULIC DIAGRAM 1 (without 5-in-1 sampling jar and twinjector)



HYDRAULIC DIAGRAM 2 (With 5-in-1 sampling jar and twinjector)



11 ELECTRODE PLACEMENT

Step 1:
Unscrew the gland completely from the



Step 2:
Screw the electrode holder into the threading saddle



Step 3:
Slide the gland, including the plastic ring and O-ring, over the electrode.

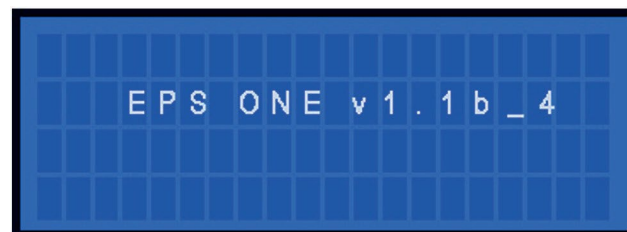
Step 4:
Insert the electrode into the tapping saddle.

Step 5:
Check that the electrode is not touching the bottom of the pipe, and only then tighten the gland (example is with a 50mm pipe).

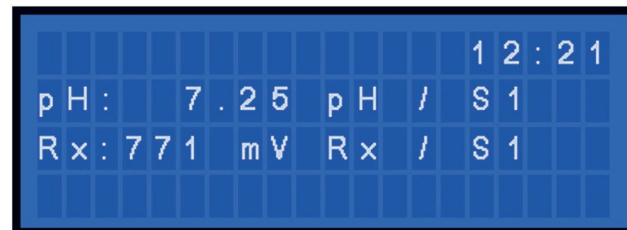


12 SYSTEMSTARTUP

When starting up the system, you will see the system name and software version for a few seconds. You can only see this during system startup.



The system then goes to the display menu. Upon startup, the system enters a startup delay. This allows time for the water to circulate properly; otherwise, the system will dose based on the measurement in stagnant water.



S1 stands for: startup delay, 1 minute.

13 OPERATING AND SETTING UP THE SYSTEM

To access the system configuration for calibration, manual pumping, and all other menu settings, press the [MENU] button. Use the [↑] / [↓] keys to select the following menu options:

- pH calibration
- Rx calibration
- Settings
- Manual
- Timer

Press 'OK' to select one of these options.

14 PARAMETER SETTINGS

PAR.	DESCRIPTION	MIN. VALUE	MAX. VALUE	DEFAULT SET	ADJUSTED TO
P01	Desired pH	6.80	7.60	7.20	
P02	Dosage	pH-min	pH-plus	pH-min	
P03	Dosage time pH	5 sec.	300 sec.	30 sec.	
P04	pH pause time	1 min.	120 min.	10 min.	
P05	Max. vol. pH	0.00 L/4h	9.99 L/4h	0.00 L/4h	
P06	Desired Rx	500 mV	999 mV	775 mV	
P07	Rx dosing time	5 sec.	300 sec.	60 sec.	
P08	Rx Pause Time	1 min.	120 min.	10 min.	
P09	Max. vol. Rx	0.00 L/4h	9.99 L/4h	0.00 L/4h	
P10	Pt100 offset	0.00 °C	100°C	0.00°C	
P11	Start-up delay	0 min.	60 min.	1 min.	
P12	Language	NL-FR-DE-EN	-	EN	
P13	Reset	-	-	-	12 for reset
P14	Password	0	999	0 (no password)	
P15	Alarm function	N.O.	N.C.	N.O.	
P16	Flow alarm	OFF	ON	ON	
P17	Pool vol.	0 m ³	250 m ³	60 m ³	
P18	pH/Rx pump L/H	0.50 L/H	6.00 L/H	1.50 L/H	
P19	LCD sleep time	0 sec.	600 sec.	300 sec.	
P20	Time	-	-	Current	
P21	Date	-	-	Current	

PARAMETER P01: Desired pH

Enter the desired pH value for the pool water here. The pump is activated at the appropriate times to keep this value constant within the tolerances.

PARAMETER P02: Dosage

This parameter allows you to choose between pH-min or pH-plus dosing. Of course, the corresponding correction fluid must be used. For pH-min, use technical sulfuric acid 20% (never use hydrochloric acid!) and for pH-plus, sodium hydroxide.

PARAMETER P03: pH dosing time

This parameter allows you to set the dosing time of the pH pump for pH control. The pump is only switched on again when the measured value deviates from the setpoint and can be corrected in relation to the pause time.

PARAMETER P04: pH Pause Time

This sets the time blocks during which dosing takes place. Dosing occurs once per time block. The goal is to allow the dosed chemicals time to mix thoroughly with the pool water.

PARAMETER P05: Max. vol. pH

This parameter is used to enter the maximum allowed volume that may be dosed per 4 hours. 0.00 l/4h = dosing alarm OFF.

PARAMETER P06: Desired Rx

See the description for P01 regarding functionality, but for Redox (chlorine).

PARAMETER P07: Rx dosing time

See the description for P03 regarding functionality, but for Redox (chlorine).

PARAMETER 08: Rx Pause Time

See the description for P04 regarding functionality, but for Redox (chlorine).

PARAMETER 09: Max. vol. Rx

See the description under P05 for the functionality, but for Redox (chlorine).

PARAMETER 10: PT100 offset

If a temperature sensor is connected and you notice a deviation in temperature compared to another temperature measurement, you can set an offset for this parameter.

PARAMETER 11: Start-up delay

This parameter ensures that the dosing of correction fluids does not take place until this startup delay time has elapsed. The time should be selected so that the system can reach a stable state before it is allowed to begin correction. 1 minute is usually sufficient, but if this is not the case, it can be adjusted.

PARAMETER 12: Language

Here you can select the language from NL-FR-DE-EN.

PARAMETER 13: Reset

Here you can perform a full reset of the system. The system will then revert completely to factory settings. This can be used, for example, to correct an excessive offset. Enter 12 to perform the reset.

PARAMETER 14: Password

Here you can set a password. This password is requested when you want to enter the menu. This can be useful, for example, if small children can easily access the system.

PARAMETER 15: Alarm function

N.O. stands for "Normally Open" (contact). N.C. stands for 'Normally Closed' (contact).

PARAMETER 16: Flow Alarm

The flow alarm is set to OFF by default because no flow sensor is connected to the system by default. If you are installing a system with flow detection and connecting it to the system, you must set the flow alarm to ON.

PARAMETER 17: Pool Volume.

Set your pool volume here. Since the system now knows the pool volume, the shock treatment can be performed correctly.

PARAMETER 18: pH/Rx pump L/H

Enter the pump capacity here to perform internal calculations. This should only be adjusted if the pump is replaced with one of a different capacity.

PARAMETER 19: LCD sleep time

Here you can set the time after which the display enters 'sleep mode'. This means the display is no longer backlit, but you can still read it. Press any button to turn the display back on. If the display needs to remain lit at all times, set this parameter to 0.

PARAMETER 20: Time

Adjust the time here if necessary.

PARAMETER 21: Date

Adjust the date here if necessary.

15 PH CALIBRATE

1. Click on 'MENU'
2. Click "OK" to calibrate the pH
3. Click "OK" to start
4. Then follow the instructions provided by the system.

16 RX CALIBRATION

1. Click on 'MENU'
2. Click "OK" to calibrate the RX
3. Click "OK" to start
4. Then follow the instructions provided by the system.

NOTE



- Check that the buffer solutions are not contaminated or past their expiration date.
- Is the electrode still in good condition? These do wear out. We recommend checking them annually.
- Make sure the electrode is properly connected to the control box and that there is no dirt or condensation around the connector.

17 CORRECTION

Under "Start," you can also select "Correction." . This means you can correct the pH or Rx yourself. For example, you have calibrated the pH electrode, but it still deviates by one-tenth from a photometric measurement you performed. In that case, you can adjust this yourself using the correction option.

18 MANUAL PUMPS

If you want to turn on one of the pumps manually for any reason, that is possible.

1. Go to the menu.
2. Then press the down arrow three times to reach the "Manual" option. Click 'OK'.
3. You will now see 'pH-' and 'Rx-pump' displayed. If you click 'OK', the selected pump will start running.
4. Clicking 'OK' again stops the pump.

19 TIMER

In the menu, you can also select "Timer," which is the last option in the menu (press the down arrow 4 times). Click 'OK' to select 'timer'; you will then see:

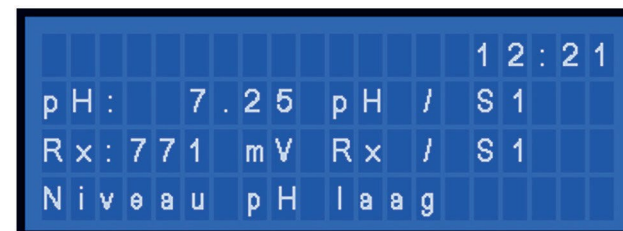


You can use this to control a third pump for your flocculant. Set how long the pump should dispense and how long it should wait (waiting time) before dispensing again.

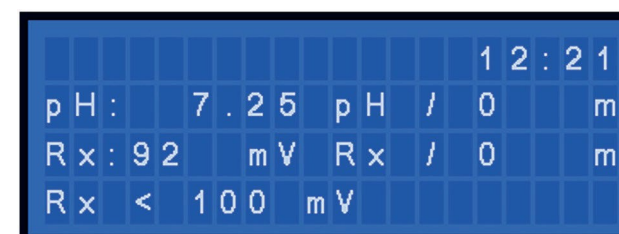
20 ALARM

An alarm can be triggered for each alarm situation as described below. If such a situation is detected, the display will light up and will no longer go into standby mode. On the fourth line, you can see what type of alarm it is. Only one alarm is displayed at a time. So if two alarms occur simultaneously, the first alarm is displayed and the second only after the first alarm has been cleared.

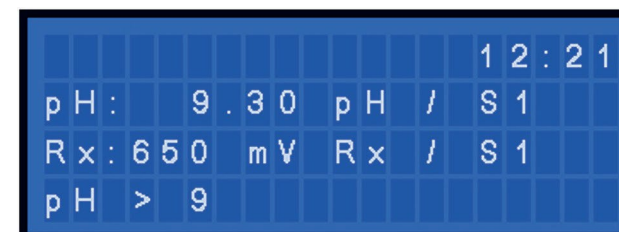
1. The level in a storage tank is **low/empty and** needs to be refilled. Both pumps will automatically stop dosing. In the example below, the message is "pH level low." . You will also receive a notification if the chlorine level is low/empty: "Chlorine level low." . This check is made possible by an optional suction lance (see ACCESSORIES AND SPARE PARTS, part no. 7043618). If you wish to use this, you will need 2 (1 per pump).



2. The measured Rx (chlorine) value is too low (<100 mV). This can occur because the pool has not been used for a long time, the supply tank has been empty for a long time, or due to a measurement error. To rule out a measurement error, you can try calibrating the electrode. If calibration fails, install a new Rx measuring electrode (probe).

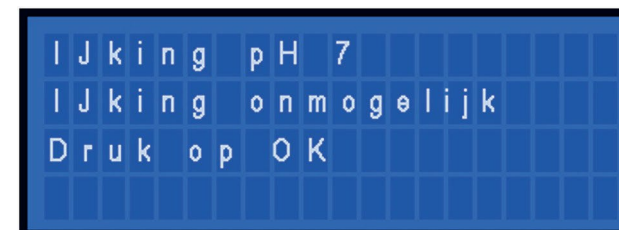


3. The measured pH value must be between 4.00 and 9.00. If higher than 9.00, you will receive an error message (the right-pointing arrow indicates higher), and if lower than 4.00, you will receive an error message (the left-pointing arrow). Check the actual values and/or the calibration.



4. Calibration impossible

Check the electrode, the electrode cable, and the connection, and check the expiration dates of the calibration solutions (unopened). If necessary, repeat the procedure with a new electrode. When replacing an electrode (possibly as a preventive measure), you must always go through the calibration procedure.



21 MAINTENANCE

Periodic maintenance is essential for the proper functioning of the system. The following instructions must be strictly followed.

NOTE



Before performing any maintenance, ensure that the device is disconnected from the power supply.

pH AND REDOX (ORP) ELECTRODES

If the electrodes respond slowly or give an incorrect reading after prolonged use, it is recommended to clean them with a special cleaning solution. Depending on the water parameters, this interval can range from 6 to 12 months.

You can order cleaning solution and storage solution from your dealer. During winter storage, always use the protective cap filled with storage solution and store the electrodes at room temperature.

To ensure an uninterrupted swimming season, we recommend starting the season with tested electrodes and new tubing for the pumps. The new tubing must be thoroughly greased with grease specifically designed for this purpose (see accessories and spare parts)

22 ACCESSORIES AND SPARE PARTS

ITEM	DESCRIPTION
pH electrode	pH Electrode, 120mm, S8 connector, without cable
RX electrode	RX Electrode, 120 mm, S8 connector, without cable
Suction lance	Suction lance, 25L can, 4m empty-level cable, 3m PVC suction hose
pH4	Calibration solution pH 4, 50 ml
pH7	Calibration solution pH 4, 50 ml
RX475	Calibration fluid Rx 475mV 50ml
Storage fluid	Electrode storage solution 50ml
Pump hose	EPS black pump, peristaltic pump tubing pH/Rx 6x9 CM14.5
Rotation module	3W EPS rotation module incl. ball bearing
Pump tube grease	Loctite 8104 grease for peristaltic pump tubing

23 CHECKLIST NORSUPGO PH RX

Date:		SETTINGS	SETPOINT
S/N NorsupGo:		01: Desired pH	7.20 pH
CHECK		02: Dosage	pH min.
<input type="checkbox"/>	pH pump check	03: Dosage time pH	30 sec.
<input type="checkbox"/>	Cl (Rx) pump check	04: pH pause time	10 min.
<input type="checkbox"/>	pH calibration	05: Max. vol. pH	0.00 L/4h
<input type="checkbox"/>	Rx calibration	06: Desired Rx	775 mV
<input type="checkbox"/>	Flow monitoring check	07: Rx dose time	60 sec.
<input type="checkbox"/>	pH empty signal check	08: Rx pause time	10 min.
<input type="checkbox"/>	CL low level check	09: Max. vol. Rx	0.00 L/4h
ATTRIBUTES		10: PT100 offset	0.00 °C
<input type="checkbox"/>	1x 8m Suction/Pressure Hose 4x6	11: Start-up delay	1 min.
<input type="checkbox"/>	2x Foot filter	12: Language	EN
<input type="checkbox"/>	2x Electrode Holder	13: Reset (code: 12)	-
<input type="checkbox"/>	2x Injection valve	14: Password	-
<input type="checkbox"/>	Buffer solutions (pH 7, pH 4, and Redox 475 mV)	15: Alarm function	N.O.
<input type="checkbox"/>	pH electrode	16: Flow alarm	ON
<input type="checkbox"/>	Rx electrode	17: Pool full.	60 m³
<input type="checkbox"/>	4x Drill Saddle 50mm or 63mm	18: pH pump L/H	1.5 L/H
Check performed by:		19: Rx pump L/H	1.5 L/H
		20: Time	Current
		21: Date	Current
		Settings check	<input type="checkbox"/>

CHECKLIST NORSUPGO PLUS PH RX

Date:	SETTINGS	SETPOINT
S/N NorsupGo:	01: Desired pH	7.20 pH
CHECK	02: Dosage	pH min.
<input type="checkbox"/> pH pump check	03: Dosage time pH	30 sec.
<input type="checkbox"/> Cl (Rx) pump check	04: pH pause time	10 min.
<input type="checkbox"/> pH calibration	05: Max. vol. pH	0.00 L/4h
<input type="checkbox"/> Rx calibration	06: Desired Rx	775 mV
<input type="checkbox"/> Flow monitoring check	07: Rx dose time	60 sec.
<input type="checkbox"/> pH empty signal check	08: Rx pause time	10 min.
<input type="checkbox"/> CL low level check	09: Max. vol. Rx	0.00 L/4h
<input type="checkbox"/> Pressure test	10: PT100 offset	0.00 °C
ATTRIBUTES	11: Start-up delay	1 min.
<input type="checkbox"/> 1x 8m Suction/Pressure Hose 4x6	12: Language	EN
<input type="checkbox"/> 2x Foot filter	13: Reset (code: 12)	-
<input type="checkbox"/> 1x connector & swivel 10X14	14: Password	-
<input type="checkbox"/> 4-meter sampling hose 10x14	15: Alarm function	N.O.
<input type="checkbox"/> Twinjector	16: Flow alarm	ON
<input type="checkbox"/> Buffer solutions (pH 7, pH 4, and Redox 475 mV)	17: Pool full.	60 m ³
<input type="checkbox"/> pH electrode	18: pH pump L/H	1.5 L/H
<input type="checkbox"/> Rx electrode	19: Rx pump L/H	1.5 L/H
<input type="checkbox"/> 2x tapping saddle 50mm or 63mm	20: Time	Current
<input type="checkbox"/> 2x Mini ball valve	21: Date	Current
Check performed by:		
	Settings check	<input type="checkbox"/>

CHECKLIST NORSUPGO TIMER PH RX

Date:	SETTINGS	SETPOINT
S/N NorsupGo:	01: Desired pH	7.20 pH
CHECK	02: Dosage	pH min.
<input type="checkbox"/> pH pump check	03: Dosage time pH	30 sec.
<input type="checkbox"/> Cl (Rx) pump check	04: pH pause time	10 min.
<input type="checkbox"/> Timer pump check	05: Max. vol. pH	0.00 L/4h
<input type="checkbox"/> pH calibration	06: Desired Rx	775 mV
<input type="checkbox"/> Rx calibration	07: Rx dose time	60 sec.
<input type="checkbox"/> Flow monitoring check	08: Rx pause time	10 min.
<input type="checkbox"/> pH empty signal check	09: Max. vol. Rx	0.00 L/4h
<input type="checkbox"/> CL low level check	10: PT100 offset	0.00 °C
ATTRIBUTES	11: Start-up delay	1 min.
<input type="checkbox"/> 1x 12m Suction/Discharge Hose 4x6	12: Language	EN
<input type="checkbox"/> 3x Foot filter	13: Reset (code: 12)	-
<input type="checkbox"/> 2x Electrode Holder	14: Password	-
<input type="checkbox"/> 3x Injection Valve	15: Alarm function	N.O.
<input type="checkbox"/> Buffer solutions (pH 7, pH 4, and Redox 475 mV)	16: Flow alarm	ON
<input type="checkbox"/> pH electrode	17: Pool full.	60 m ³
<input type="checkbox"/> Rx electrode	18: pH pump L/H	1.5 L/H
<input type="checkbox"/> 5x 50mm or 63mm tapping saddle	19: Rx pump L/H	1.5 L/H
Check performed by:	20: Time	Current
	21: Date	Current
	Settings check	<input type="checkbox"/>

