

# M05D *pH-Redox*

## User Manual



**ALLIGUARD**  
WATER TREATMENT SOLUTIONS

Lasithiou 77, Glyfada Athens, Greece 16674  
M: 6947 810 227 • 6906 185 915 / E: [grakanidis@alliguard.gr](mailto:grakanidis@alliguard.gr)  
[www.alliguard.gr](http://www.alliguard.gr)

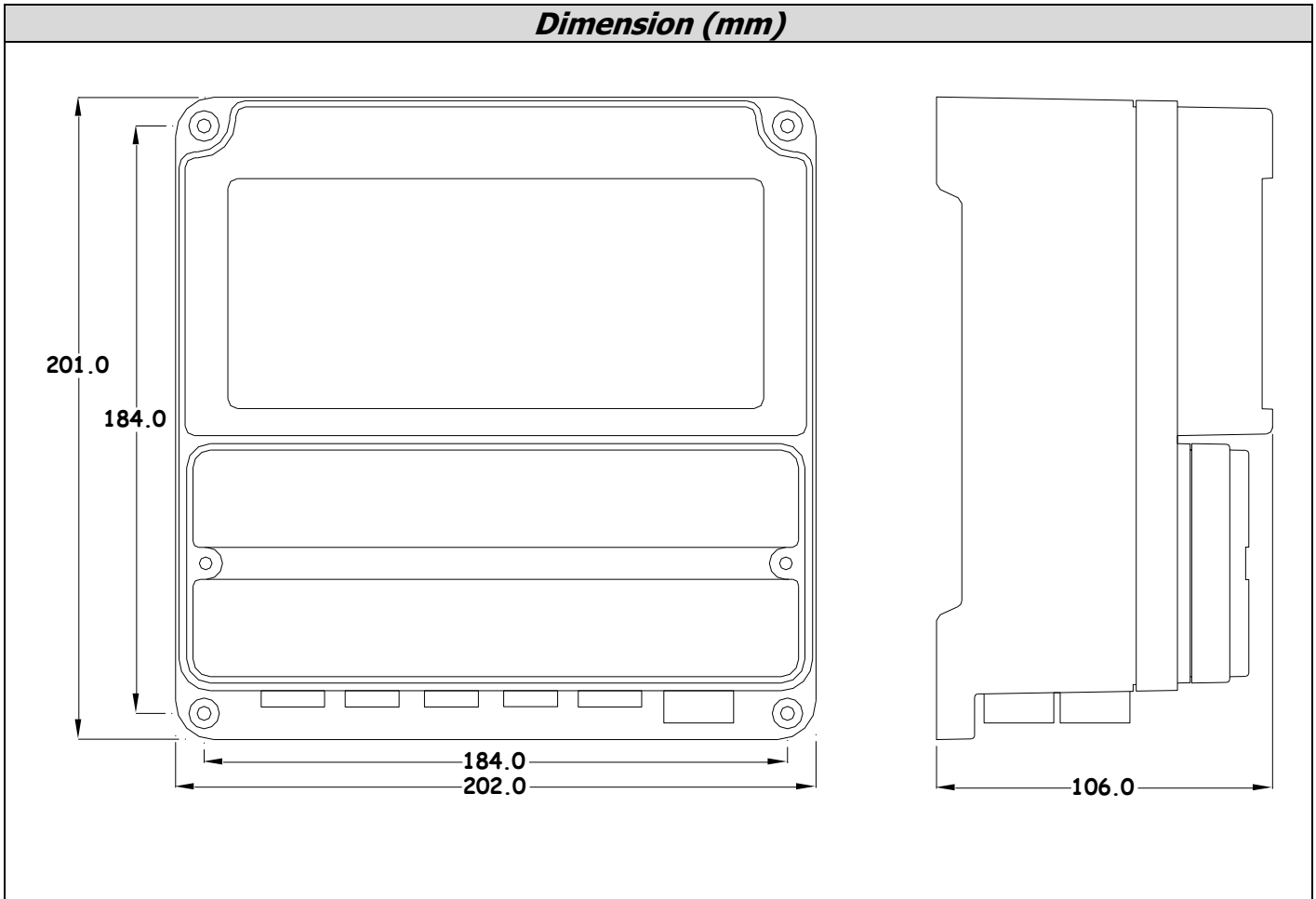
Thank you for purchasing a M I C O N product.

### **Package Contents**

Controller, user manual, mounting accessories, fuse.

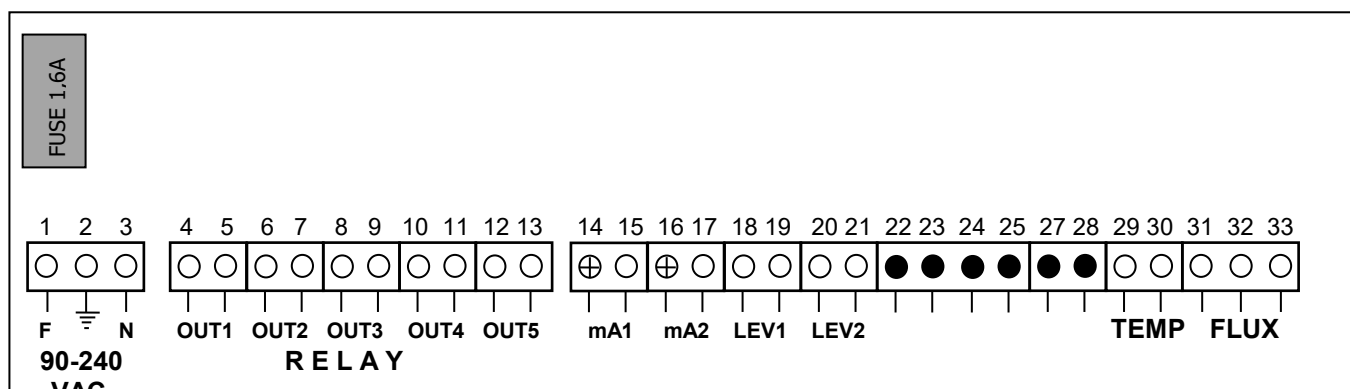
### **General features**

<b>Measure Range</b>	0-14.00 pH 0-2000mV
<b>Functions</b>	Measure, control and regulation of pH and orp
<b>Resolution</b>	±0.01 pH - 1mV
<b>Display</b>	Back lit graphic display 128x64
<b>Accuracy</b>	± 0.2% E.S.
<b>Controls</b>	Keypad (6 keys)
<b>Temperature Compensation</b>	Manual or automatic (0-100 °C) NTC <b>10K</b> ☒
<b>Set-point</b>	2 <b>free contact</b> relays (5 A max) pH Parameters control: treshold , isteresys, delay, Hi ad Low Alarm Mode: ON/OFF o proportional to time  2 <b>free contact</b> relays (5 A max) redox Parameters control: treshold , isteresys, delay, Hi ad Low Alarm Mode: ON/OFF o proportional to time
<b>Alarm</b>	1 <b>free contact</b> relays (5 A max)
<b>Analogic Output mA1</b>	pH Programmable output 4-20mA (400 max), with galvanic separation
<b>Analogic Output mA2</b>	Redox Programmable output 4-20mA (400 max), with galvanic separation
<b>Flow Sensor</b>	Designed for relay lock
<b>Wifi module</b>	Wifi module 2.4GHz
<b>Power supply</b>	100-240 Vac
<b>Case</b>	ABV V0 material - IP65
<b>Dimensions</b>	202 x 184 x 106 mm
<b>Weight</b>	1150 gr.



**Check that the electric system voltage matches the value on the instrument label**

## Electrical Connection to mainboard



## Connections

Power supply	Pin n.1 <b>(PHASE)</b> Pin n.2 <b>(GROUND)</b> Pin n.3 <b>(NEUTRAL)</b>
OUT 1	Set-point 1 pH (Pin 4-5) <b>free contact</b>
OUT 2	Set-point 2 pH (Pin 6-7) <b>free contact</b>
OUT 3	Set-point 3 redox (Pin 8-9) <b>free contact</b>
OUT 4	Set-point 4 redox (Pin 10-11) <b>free contact</b>
OUT 5	Alarm Relay (Pin 12-13) <b>free contact</b>
mA 1	4-20 mA pH output (Pin 14+/ 15-)
mA 2	4-20 mA redox output ( Pin 16+/ 17-)
LEV 1	pH level control (Pin 18-19)
LEV 2	redox level control (Pin 20-21)
Temperature probe (optional)	Pin n.29 Pin n.30 Before connect the temperature probe remove <b>10K<math>\Omega</math></b> resistor. <i>(As of 01/July/2024 the resistance has been changed from 1k to 10k)</i>
Stand-by fluximeter switch	Pin n.31 = Flux IN (black) Pin n.32 = + 12 (brown) Pin n.33 = GND (blue)

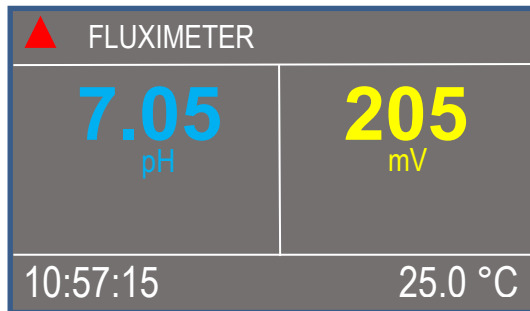
## Power Supply



Attention! It is necessary to make a connection to the 230Vac electrical network

Connect the power supply wires and power up the instrument. The display will show the software version and then switch to standard operating mode.

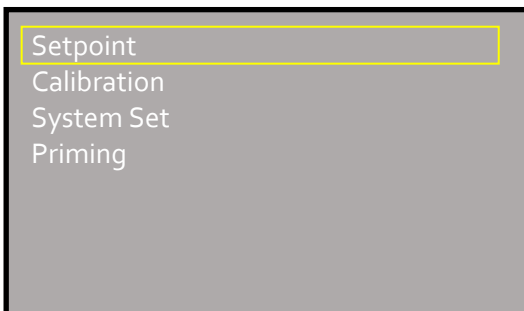
### Display



The main display shows the pH and the redox measures. Then it shows the status of relays, the time, the temperature and the error conditions (in this case it is the Fluximeter).

### Main menu

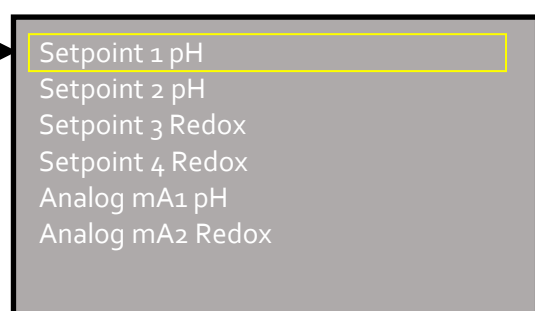
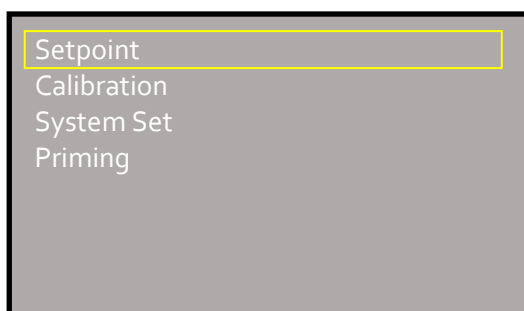
Pressing MENU hotkey you enter the navigation menu:



The navigation menu scrolls from top to bottom, by enter key you access to the submenu, which is yellow surrounded.

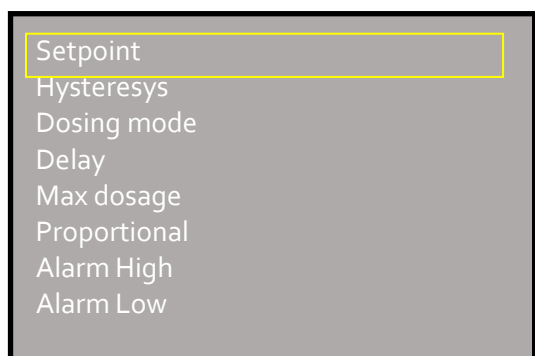
### Setpoint

#### Relay 1 – Relay2 – Relay 3 – Relay3 - Analog Out 1 – Analog Out 2



Set Point Menu and structure of the various submenu items

Use the arrow keys UP-DOWN to select menus and press ENTER.



Submenu items descriptions and Relay 1 pH and Relay 2 pH parameters setpoint setting.

	<b>Submenu</b>	<b>Description</b>	<b>Range</b>	<b>Default value</b>
Set Relay 1	Setpoint	Sets the relay treshold activation.	0.00 – 14.00pH	7.00pH
	Hysteresis	Sets a "dead zone" value to be added to the set-point. During this interval the relay doesn't perform any ON OFF status change	0.00 – 14.00pH	0.20pH
	Dosing Mode	Sets the direction of setpoint adjustment. Relay activation under the setpoint value (Minus) or over (Plus)	Acid - Alkaline	Acid
	Delay	Sets a time delay of relay activation-deactivation, after it has reached the set point value	0-255 seconds	0 seconds
	Max Dosage	Sets the set point activation limit This function programmed in combination with a metering pump, checks for maximum dosage. The instrument locks the outputs to the extent of recovery the measure under the Setpoint value.	0-1000min.	0 min.
Set Relay 2	Proportional	Sets the setpoint from On-Off mode to PWM mode. The output relay is activated with a time proportional between the measurement and the setpoint value. The greater the distance between the two values, the more the relay will stay in ON position. When the adjustment process brings the two values close to each other, the OFF time increases until it stops when the two values matches. The histeresys value added to the set point defines the scope of regulation.	OFF/ON	OFF
	Alarm Point HI	Sets Hi alarm value. Above this value the Relay 3 alarm output will activate.	0.00 – 14.00pH	0.00pH
	Alarm Point LO	Sets Hi alarm value. Below this value the Relay 3 alarm output will activate.	0.00 – 14.00pH	14.00pH

*Analogic output parameters setting*

	<b>Submenu</b>	<b>Description</b>	<b>Range</b>	<b>Default value</b>
Analog Out mA1	Upper line on the display	Sets the pH value to which correspond the minimum mA1 output value	0.00 – 14.00pH 04mA – 20mA	0.00pH 04mA
	Lower line on the display	Sets the pH value to which correspond the maximum mA1 output value	0.00 – 14.00pH 04mA – 20mA	14.00pH 20mA

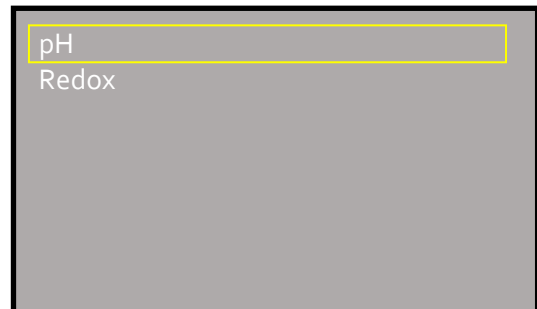
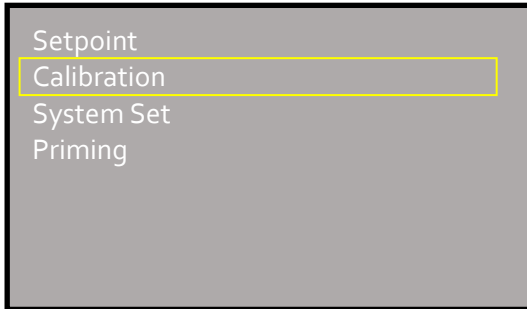
Submenu items descriptions and Relay 3 Redox and Relay 4 Redox parameters setpoint setting.

	<b>Submenu</b>	<b>Description</b>	<b>Range</b>	<b>Default value</b>
Set Relay 3	Setpoint	Sets the relay treshold activation.	0 – 2000mV	600mV
	Hysteresis	Sets a “dead zone” value to be added to the set-point. During this interval the relay doesn’t perform any ON OFF status change	0 – 2000mV	100mV
	Dosing Mode	Sets the direction of setpoint adjustment. Relay activation under the setpoint value (Minus) or over (Plus)	Plus – Minus	Plus
	Delay	Sets a time delay of relay activation-deactivation, after it has reached the set point value	0-255 secondi	0 second
	Max Dosage	Sets the set point activation limit This function programmed in combination with a metering pump, checks for maximum dosage. The instrument locks the outputs to the extent of recovery the measure under the Setpoint value.	0-1000min.	0 min.
Set Relay 4	Proportional	Sets the setpoint from On-Off mode to PWM mode. The output relay is activated with a time proportional between the measurement and the setpoint value. The greater the distance between the two values, the more the relay will stay in ON position. When the adjustment process brings the two values close to each other, the OFF time increases until it stops when the two values matches. The histeresys value added to the set point defines the scope of regulation.	OFF/ON	OFF
	Alarm Point HI	Sets Hi alarm value. Above this value the Relay 3 alarm output will activate.	0 – 2000mV	2000mV
	Alarm Point LO	Sets Hi alarm value. Below this value the Relay 3 alarm output will activate.	0 – 2000mV	0mV

*Analogic output parameters setting*

	<b>Submanu</b>	<b>Description</b>	<b>Range</b>	<b>Default value</b>
Analog Out 2	Upper line on the display	Sets the ppm value to which correspond the minimum mA1 output value	0 – 2000mV 04mA – 20mA	0mV 04mA
	Lower line on the display	Sets the ppm value to which correspond the maximum mA1 output value	00 – 2000mV 04mA – 20mA	1000mV 20mA

**Calibration**  
**- pH – Redox**



***pH sensor calibration process***

**Zero Calibration**

Put the probe in the sample solution 7.00pH and wait about 30 seconds to stabilize the measure. Change the Zero value on the display until 7.00pH. Press ENTER to confirm and move to the calibration of the slope (gain).

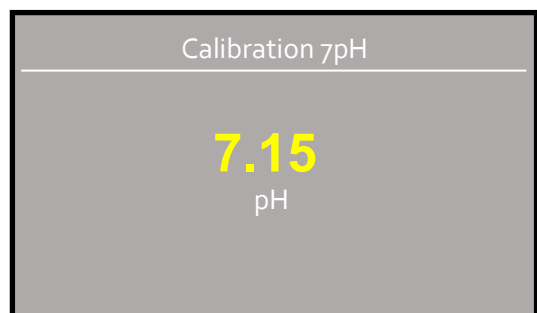
**Slope Calibration**

Put the probe in the sample solution 4.00pH and wait about 30 seconds to stabilize the measure. Change the value on the display until 4.00pH. Press ENTER to confirm and save the calibration.

Is possible to calibrate the slope with other values of the sample solutions.

If press ESC during the Zero or Slope procedure abort the calibration.

pH

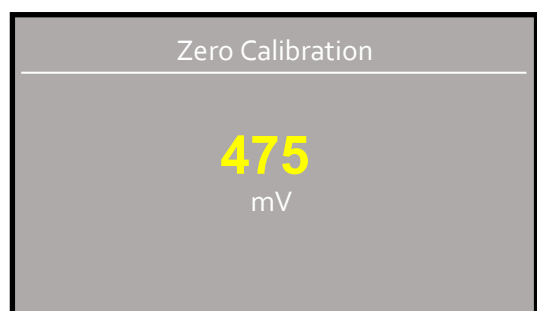


Redox

***Redox sensor calibration process***

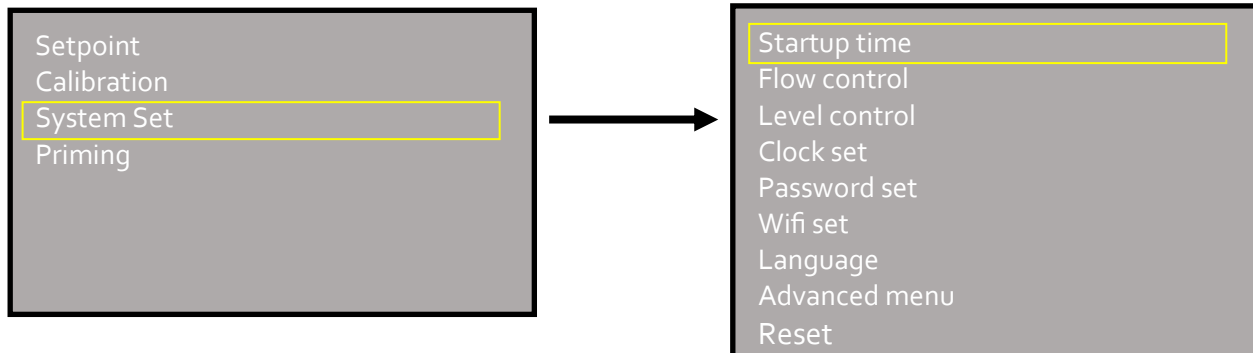
**Zero Calibration**

Put the probe in the sample solution (eg. 475mV) and wait about 30 seconds to stabilize the measure. Change the Zero value on the display until 475mV. Press ENTER to confirm and save the calibration.



## System Set

System Set Menu and structure of the various submenu items



### System Set Parameters.

	Submenu	Description	Range	Default value
<b>System Set</b>	Start-up Delay	Sets a delay for relay set point activation when the instrument is turned on	0-30min.	0 min.
	Flow Control	Sets the flow sensor control. It's possible to enable or disable.	Enabled/Disabled	Enabled
	Level Control	Sets the level sensor control. It's possible to enable or disable.	Enabled/Disabled	Enabled
	Clock	Sets internal clock date and time HH:MM:SS DD/MM/YY		
	Password	Sets main menu access password Type 0000 to disable the password.	0000-9999	0000
	Wifi set	See wifi menu		
	Language	Set the current language	English Italiano Francaise	English
	Advanced menu	See advanced menu		
	Reset	Perform reset values to manufactory default	ENTER or ESC	

The M05 use the Wifi local network (only M05 with wifimodule) to connect the regulators to the server. The user can connect the regulator with the smatphone application (Android-Ios). Micon Mremote APP is downloadable on Google play store and Apple Store.

### Wifi set

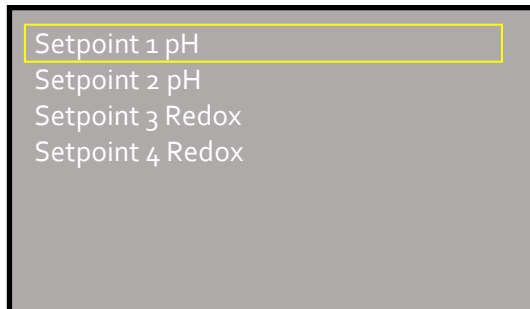
	Menu	Description
Wifi set	WifiScan	Scan the wifi network: wait a few seconds to complete scan wifi networks. Select the network and press ENTER. The menu switches automatically in Wifi Password, use the UP and DOWN keys to select the CHAR and press ENTER to continuous entry word. When the password is ready, select the SPACE char (press UP until space char appear), now press ENTER to finish and store wifi network. <i>The power off doesn't lose the wifi network and the connection is ready on power on.</i>
	WifiAPmode	Set the intrument on access point mode. Only for future use.

### Advanced Menu

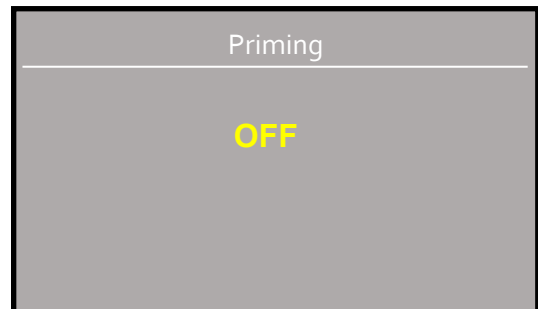
	Menu	Description	Range	Default
Advanced menu	Chlorine offset	Enables or disable the Chlorine probe Zero Calibration menu. Normally the zero calibration is not request, the user can be enable this menu for adjust the zero value during the probe calibration.	Enabled/Disabled	Disabled
	Fluximeter NO/NC	This menu changes the fluximeter sensor type from normal open to normal close and viceversa.	Normal Open - Normal Close	Normal Close
	Fluximeter NO/NC	This menu changes the level sensor type from normal open to normal close and viceversa.	Normal Open - Normal Close	Normal Open
	HI-LO Set lock	This function enables or disable the setpoints alarm lock. When the function is enabled the Setpoints outputs are locked outside of the Alarm HI – LO limit (see the Setpoint menu). When the function is disabled the alarm setpoints not have effect on outputs.	Enabled/Disabled	Enabled
	Water meter set	This menu has effect only with the water meter intstrument model. The menu sets the constant of the water meter Pulses/Litres.		

## Priming

Priming menu enables the setpoint output manually for precharge pumps chemical products



Select num of setpoint and press **ENTER**.  
Press **UP** to switch relay ON  
Press **DOWN** to switch OFF





**ALLIGUARD**

WATER TREATMENT SOLUTIONS

Lasithiou 77, Glyfada Athens, Greece 16674

M: 6947 810 227 • 6906 185 915 / E: [grakanidis@alliguard.gr](mailto:grakanidis@alliguard.gr)

[www.alliguard.gr](http://www.alliguard.gr)

**M I C O N**

Via Benito Graziani, 16  
02015 Cittaducale (RI) ITALY  
Tel.: +39.0746.601222

Web site: [www.micon.it](http://www.micon.it)

Email: [info@micon.it](mailto:info@micon.it)