



NOVA² Pool

Compact System for the Disinfection of
Swimming Pool Water, with Dosing Heads
(pH-Cl Version with CAC amperometric sensor)

Man. 071N2C v.05

WARNINGS



This manual is dedicated to the technical personnel responsible of the installation, management, and maintenance of the plants. The manufacturer assumes no responsibility for damages or malfunctions occurring after intervention by non-authorized personnel, or not compliant with the instructions prescribed in this manual.

PRIOR TO PERFORM ANY OPERATION IT IS MANDATORY TO READ THE WHOLE MANUAL!

The manufacturer declares that the information contained in this manual is consistent with technical and safety specifications of the device to which the manual refers.

The manual must be kept by the user and/or personnel responsible for the management and maintenance of the device. In the event of deterioration or loss, a copy may be requested from the manufacturer.



Based on its design and construction, this instrument complies with the essential safety requirements and the following EC directives:

2006/95/EC (ex EEC 73/23); 2004/108/EC (ex EEC 89/336); EEC 93/68.

The relevant harmonized standards on Safety, Immunity and emission have also been applied.

HEALTH AND SAFETY

The manufacturer cannot be held responsible for accidents or damage resulting from inappropriate use of the device, as well as from even partial failure to comply with the safety regulations and intervention procedures described in this manual.

During the configuration and subsequent use of the device, incorrect operating situations may occur that are not foreseen in this manual. These anomalies can sometimes be caused by environmental factors or by fortuitous failures that cannot be foreseen by the manufacturer.



All maintenance or repair must be performed with the system isolated both electrically and hydraulically.



During maintenance and repair of parts that normally become in contact with chemicals, always wear all prescribed personal protections (gloves, clothes, glasses, etc.).

Any intervention must be performed ONLY by qualified personnel and using original spare parts.



Attention to dosed chemicals! Before any operation on the dosing heads, discharge the liquid from the head and pipes. Take all necessary personal protective measures (i.e. gloves and goggles), as indicated in the SDS of the chemical, which must be always available and updated.



Attention to splashes! To prevent any leakage of the dosing liquid while operating on the dosing heads, for example during maintenance, before the intervention depressurize all hydraulic components of the system. It is advisable to install a discharge valve in the delivery line upstream of the dosing head, to prevent overpressure or explosion of hydraulic components due to a block on the injection line.



Install the system in an easily accessible place and respect the prescribed maintenance schedule.

WASTE DISPOSAL



Disposal of the electronic device and consumables must be carried out in compliance with current local regulations.

The manufacturer can modify the instrument or the technical manual without advanced notice.

Warranty

All STEIEL products are warranted for a period of 12 months from the delivery date.

Warranty is not valid if all instructions of installation, maintenance, and use, are not strictly followed by the user.

Local regulations and applicable standards have also to be followed.

The warranty does not extend to any damage caused by incompetence or negligence in the use of the device or by poor or omitted maintenance.

Any repair or modification made to the device by the user or unauthorized technicians will result in the forfeiture of the warranty.

Failure to comply with the methods of intervention and use of the device described in this manual will result in the forfeiture of the warranty.

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INTRODUCTION



NOVA² Pool is a measurement and dosage compact unit dedicated to the treatment of swimming pool water, both for private / residential and commercial / public use. In fact, it can be combined with different types of sensors for chlorine measurements, both direct and indirect.

The fully PVDF dosing heads ensure maximum chemical compatibility with dosed products. The dosing flow rate of the various models ranges from 5 to 25 L/h.

The control unit is also equipped with a sample water flow input and an external consent for unit start/stop. Minimum level inputs for chemical products are also available.

The wall installation, complete with sensor-holder, requires very little space.

- Compact systems with [software dedicated to swimming pool applications](#)
- [Two measurement inputs for pH electrode and amperometric sensor](#)
- Input for pH electrode available on BNC connector; input for chlorine on Weipu plug.
- Input for Pt100 or Pt1000 sensor, with [automatic detection](#) of sensor type, for temperature measurement and compensation.
- [User-friendly interface](#) with intuitive menus and four multi-function softkeys.
- Three-level configuration protected by [three different passwords](#)
- Large graphic display with [backlight colour changing](#) according to instrument status.
- Two inbuilt [electromagnetic dosing heads](#), with flow rate up to 25 l/h
- Two level inputs to monitor acid (pH) and chlorine tanks.
- Input for sample water flow control.
- Pause (external consent) digital input to disable all outputs.
- ["EcoMode" function](#) to reduce dosing and therefore save chemicals, controlled by an external contact or timer.
- [Internal RTC](#) for time schedule setting and data saving with date/time label.
- [USB port](#) for parameters' configuration, data downloading and system updating.
- Communication options: RS485 serial port with Modbus RTU protocol or integrated SteieLynx gateway.
- Power supply: 230 V~ (standard) or 115 V~ (upon request).
- Watertight IP65 casing, suitable for installation in damp technical rooms.
- Extremely fast and easy installation, with attachment to a wall bracket.
- [Can be combined with the exclusive and patented STEIEL easy+fix system](#), for a compact assembly of the sensor-holder, directly attached to the instrument case.

Available models:

- **pH/CAC mV** – direct ppm measurement of chlorine with probe closed with ion-selective membrane, mV signal
- **pH/CAC mA** – direct ppm measurement of chlorine with probe closed with ion-selective membrane, mA signal

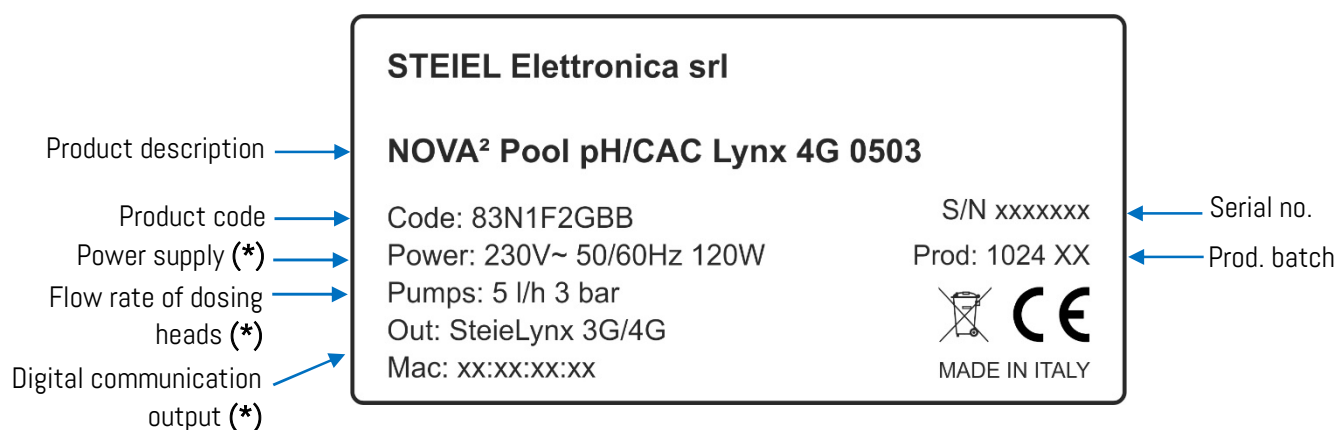


PACKING LIST

The unit is supplied complete with:

- Standard accessories for two electromagnetic dosing heads (suction/delivery/bleed hoses, foot valves and injection valves, kit fittings)
- Wall-mounting bracket with screws and dowels
- Command cable with M8 connector (L=2m), for external consent connection
- Serial communication cable (only for models with RS485 port)
- Instruction manual

PRODUCT LABEL (example)



(*) Available options:

Power supply: ▪ 230V~ 50/60Hz 120W ▪ 115V~ 50/60Hz 120W	Flow rate of dosing heads: ▪ 0503 – 5 l/h 3 bar ▪ 0703 – 7 l/h 3 bar ▪ 1503 – 15 l/h 3 bar ▪ 2502 – 25 l/h 2 bar	Digital communication: ▪ No communication ▪ RS485 Modbus RTU ▪ SteieLynx WiFi/LAN + MAC address ▪ SteieLynx 3G/4G + MAC address
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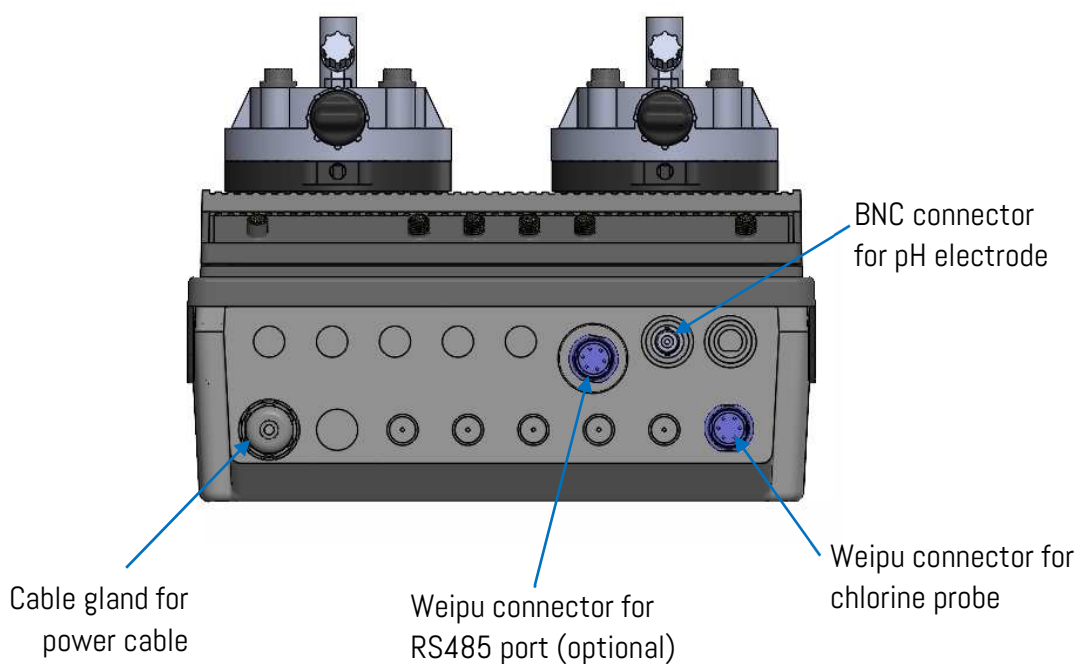
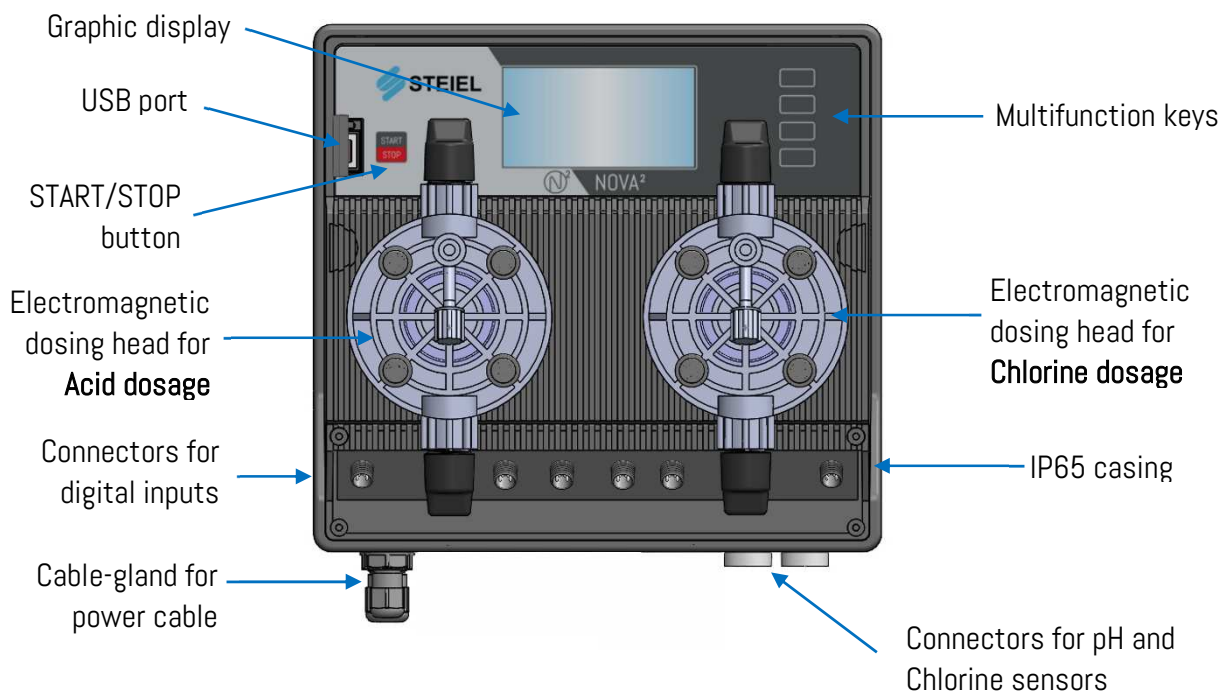


Do not remove the instrument label! In fact, you need to know the product code and / or serial number for the correct identification of spare parts.

Label removing or tampering completely voids the warranty!



DESCRIPTION OF THE INSTRUMENT





TECHNICAL DATA

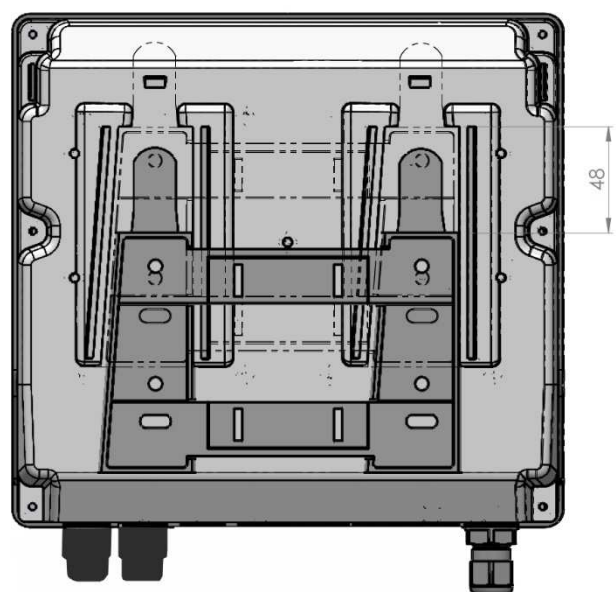
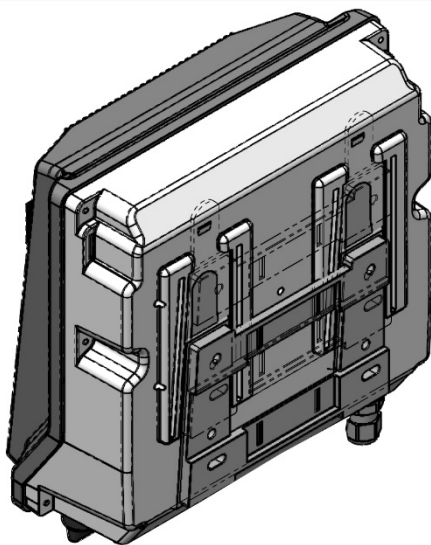
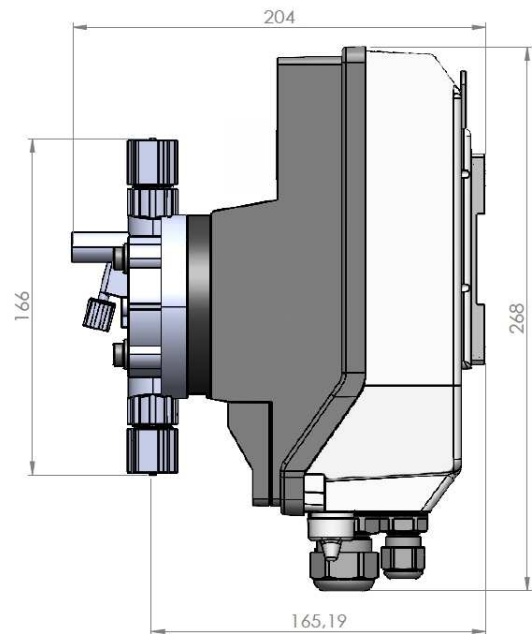
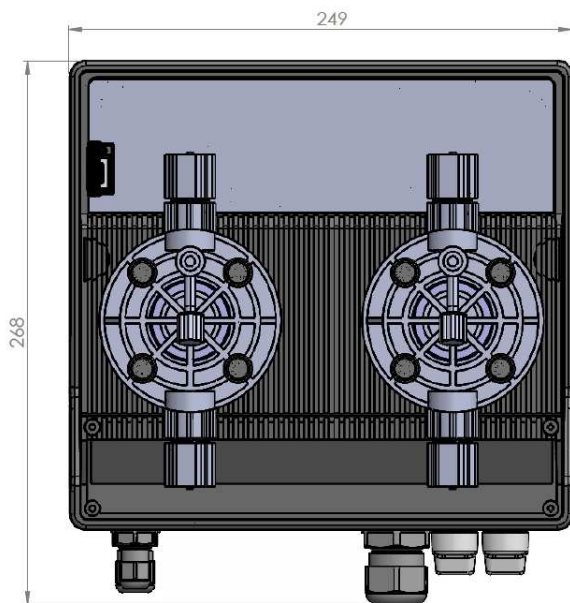
Power supply	standard: 230 V~ / 50/60 Hz / 120 W standard cable with Schuko plug (other options on request)
	optional, available on request: version @ 115 V~
Protection fuse	T 10A
pH measurement input	electrode input on BNC connector; range: 0.00 ...14.00 pH
Cl measurement input	input for CAC amperometric probe, available on quadripolar Weipu plug; ppm range, depending on used probe
Temperature input	for PT100 / PT1000 sensor, with automatic detection; input available on M8 connector
Dosing heads	2x electromagnetic, PVDF with ceramic balls and PTFE seals; 4 available flow rates (B0503, C0703, E1503, F2502)
Digital inputs, all available on M8 connectors	2x LEV, NO/NC contact, for level sensors of acid (pH) tank + chlorine tank
	1x EXT.CONNS, NO/NC contact, for external consent / pause command
	1x sample water flow, NO/NC contact, for NPN proximity sensor
	1x Eco Mode, NO/NC contact
Timer	internal RTC, with CR2032 buffer battery
Communication	1x USB port on the front panel, protected by a watertight cover; for configuration uploading / saving, datalogger downloading and FW updating Note: the USB key must be formatted with FAT filesystem.
	Options: 1x RS485 serial port with Modbus RTU protocol, available on dedicated connector, or integrated SteieLynx gateway
Protection rate	IP65
Dimensions	250 x 231 x 200 mm
Weight	approx. 8 kg



INSTALLATION

The instrument has been designed for an extremely quick wall **vertical** installation, thanks to the supplied bracket. You just need to drill four holes for the bracket fixing screws, then attach the instrument.

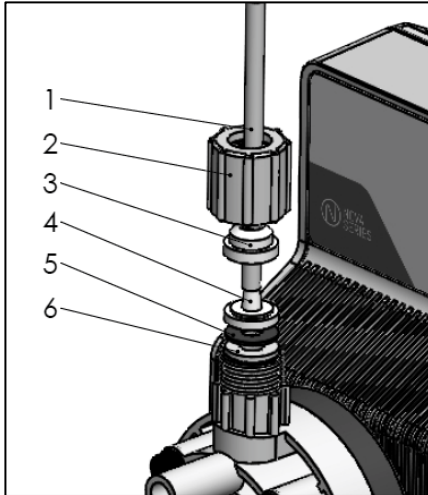
Note: All dimensions are in mm.





HYDRAULIC CONNECTIONS

SUCTION AND DELIVERY LINES



1. Hose
2. Threaded ring
3. Locking ring
4. Pipe-holder nozzle
5. Gasket
6. Valve

- Cut the hose to be connected to the pump (PVC Crystal for suction line or PE for delivery line).
- Insert the threaded ring (2) and the locking ring (3) on the hose.
- Attach the tube to the nozzle (4) pushing it up to the stop.
- Put the hose with the nozzle on the valve (6) and tighten the threaded ring while pushing the tube. Check that the gasket (5) is correctly located.
- Tighten by lightly pulling the tube and locking the threaded ring.

Notes:

- Gaskets (5) are supplied of different materials: FPM (black, with green mark on the edge), EPDM (black) and PTFE (white): **in this control unit, ONLY use FPM gaskets for both dosing heads.**
- Check that the delivery hose is correctly installed, verifying that it is not damaged by rubbing against rigid bodies.
- Avoid unnecessary bends and hose choking on both suction and delivery lines.

BLEEDING (OR VENT) LINE

- Use the 4x6 PVC Crystal hose. Fix the return hose on the purge valve of the dosing head.
- Put the free end of the return pipe into the tank of product to be dosed.
- Cut the pipe so that it cannot dive in the feed chemical.

PRIMING OF DOSING HEADS

Once completed also the unit wiring, access the secondary screens of each measurement (see page 16 for details) and start the priming procedure of the corresponding dosing head, by holding the **P ►** (PRIMING) button for a few seconds. The pump performs 180 strokes (max speed) and displays the counter of performed strokes. The procedure can be aborted by pressing the ESC button.



WIRING INSTRUCTIONS

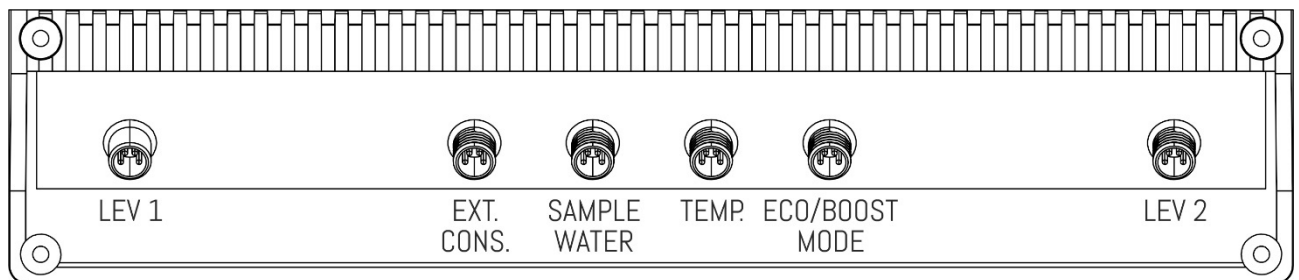


The unit is suitably protected according to high safety standards; anyway, it is recommended to unplug the instrument before any intervention!

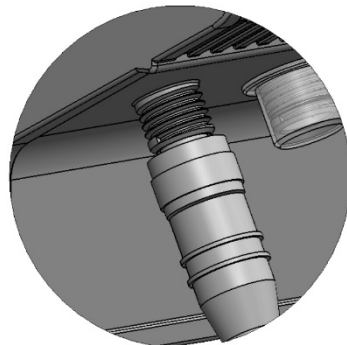
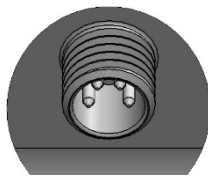
All connections are available externally on connectors; therefore, you don't need to open the front terminal compartment, unless the instrument is provided with integrated SteieLynx module (supplied with specific instructions).

DIGITAL INPUTS + TEMPERATURE

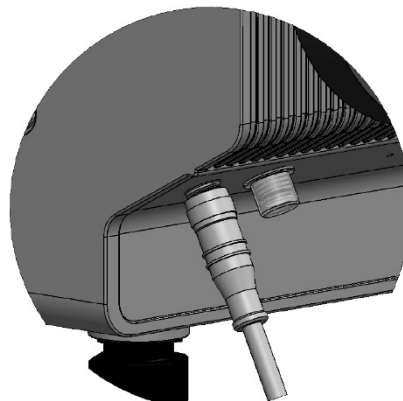
- All digital and temperature sensor inputs are available externally on M8 connectors, to be connected as indicated here below.



Procedure for the Connection of M8 Connector



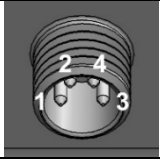
1. Remove the protective cap and insert the female connector (cable) by aligning it correctly with the pins of the male plug (instrument).



2. Slowly screw the threaded ring by hand to secure the cable to the instrument.



- The **EXT.CON.S** (external consent / pause) and **ECO/BOOST MODE** (command for Eco Mode function) inputs must be wired using the appropriate cable with M8 connector, as indicated in the table here below.

Connector on instrument case		Pin 1	Pin 2	Pin 3	Pin 4
Input	EXT.CON.S			V	V
	ECO MODE			V	V
Command cable		Brown wire	White	Blue	Black

- For all other inputs, the respective **sensors equipped with a cable with M8 connector** are supplied. In any case, the pinouts of the connectors are shown in the table below.

LEV 1 Input for level sensor of acid tank (pH adjustment): connect an SLP5 sensor (not included), equipped with 2 m cable with M8 connector.

LEV 2 Input for level sensor of chlorine tank: connect an SLP5 sensor (not included), equipped with 2 m cable with M8 connector.

SAMPLE WATER Input for sample water flow sensor: connect an NPN sensor (not included), equipped with cable with M8 connector.

TEMP. Input for Pt100 (or Pt1000) temperature sensor: connect a probe equipped with cable with M8 connector.

Connector on instrument case		Pin 1	Pin 2	Pin 3	Pin 4
	LEV 1 / LEV 2	--	--	DI1 / DI2	GND
(*)	SAMPLE WATER	--	+12V	DI6 (signal)	GND
(**)	TEMP.	--	--	PT100	GND

(*) In case of contact-type flow sensor (2 wires), connect it to pins 3 and 4, without polarity.

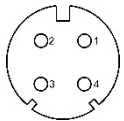
(**) In case of three-wire probe, connect the two wires of the same colour to pin 3.



MEASUREMENT INPUTS

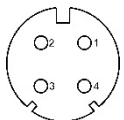
pH Electrode input available on BNC connector.

Chlorine Input for amperometric sensor available on quadripolar Weipu plug.

	Pin 1	Pin 2	Pin 3	Pin 4
CAC mV	Green wire	Yellow	White	Brown
CAC mA	Brown wire	White	--	--

RS485 SERIAL PORT (optional)

In the case of units provided with RS485 port, special serial cables are available with Weipu connector (2 or 10 m), with the following pin-out.

	Pin 1	Pin 2	Pin 3	Pin 4
RS485	B	A	GND	--
Serial cable	Yellow wire	Green	White	--



POWER-ON

At first power-on, the instrument asks to select the display interface language and to set the internal clock to the current date and time, also selecting the preferred visualization format for the date.

- **Language** → Italiano / English / Español / Français
- **Date / time** → Format → dd-mm-yyyy / mm-dd-yyyy / yyyy-mm-dd

Once completed these operations, you need to **set measure 2** accordingly with the used sensor.

Please note that this setting is generally performed at the factory according to the specifications given at the order.

- **Measure 2** → Choose the type (CAC mV or CAC mA) and model of the sensor used for disinfectant (chlorine, bromine, etc.) detection, from the proposed list (see table below).

List of CAC probes:

PROBE MODEL		MEASURE RANGE	MEASURED PARAMETER	
		ppm	Description	Visualization
CAC-CLI	XB	0.01 ... 0.5	Active free chlorine	Cl
	B	0.02 ... 2.0		
	SW	0.1 ... 10.0		
CAC-CLO	B	0.02 ... 2.0	Available free chlorine	Cl
	M1	0.1 ... 10.0		
CAC-CTO	M1	0.05 ... 5.0	Total chlorine	ClT
	M2	0.1 ... 10.0		
CAC-BRO	M	0.1 ... 10.0	Total bromine	Br
CAC-HYP	XB	1 ... 50	Hydrogen peroxide	H ₂ O ₂
	B	5 ... 200		

Notes:

- **Measure 1 is always associated to pH.**
- For quick restoration of the unit's configuration, it is recommended to save it on a USB stick before performing a reset of the instrument.

Upon subsequent power-ups, the display first shows the company name (STEIEL) and then a screen with the indications of instrument model / version and the hardware (HW) / firmware (FW) revisions of the electronic boards, before moving on to the stand-by screen.



NOVA ²				
NOVA ² Pool pH/CAC				
	Main B.	Meas. B.		
Rev. HW	0.0.1	0.0.1	0.0.1	0.0.1
Rev. FW	99.9.9	0.0.1	0.0.1	0.0.1

Arrows from the table below point to the corresponding boards in the image above:

- Main board
- pH input board
- Chlorine input board



DESCRIPTION OF THE DISPLAY INTERFACE

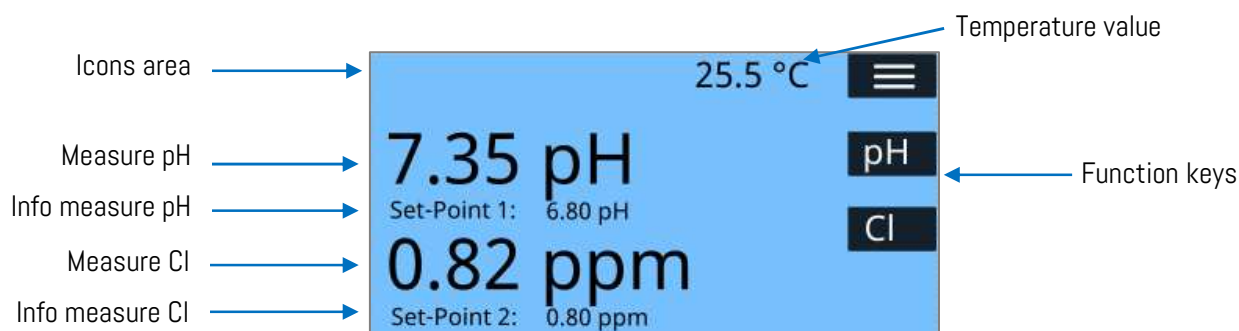
The NOVA² Pool unit features a graphic display with RGB backlight, changing colour according to the instrument status.

Moreover, up to 4 virtual keys are provide, changing function depending on the menu / mode and defining the action of the corresponding buttons on the front command panel of the instrument.

At the top left, graphic icons or short texts are displayed for a quick indication of the instrument status or the active functions (e.g., Timer, EcoMode, etc.)

At the top right, the temperature measurement detected by the connected Pt100 (or Pt1000) sensor is shown or the reference value set via software (with the indication "man"), in case of missing or not functioning sensor.

Stand-by screen (example)

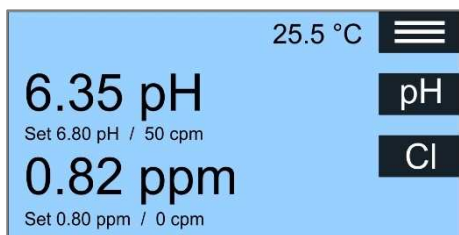


Graphic icons (or texts) at the top left of the display and related RGB backlight

No text or icon	→ Normal operation	→ blue backlight
ECO MODE	→ Indicates active EcoMode input	→ blue backlight
🕒	→ Indicates active Timer function	→ blue backlight during TIMER ON → orange backlight during TIMER OFF
OFF	→ Indicates instrument in manual STOP due to START/STOP button pressed	→ orange backlight
EXT. CONS.	→ Indicates instrument in pause status due to the activation of Ext. Cons. contact	→ orange backlight
⚠️	→ Active alarm (with related msg.) → Alarm automatically reset	→ red backlight → blue backlight



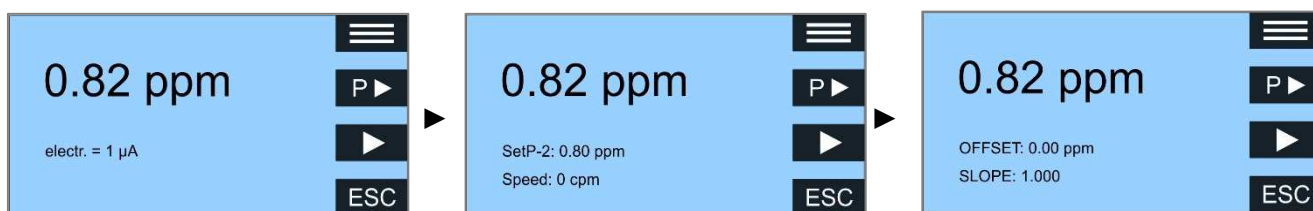
Secondary screens (measurement info)



From the stand-by screen you can access the secondary screens, which provide info about each measurement (SetPoint, sensor and dosing head, etc.), by pressing respectively the "pH" or "Cl" button.

The info is contained in one or more screens, which can be scrolled through by pressing the ► key.

Example of secondary screens for Chlorine measurement:



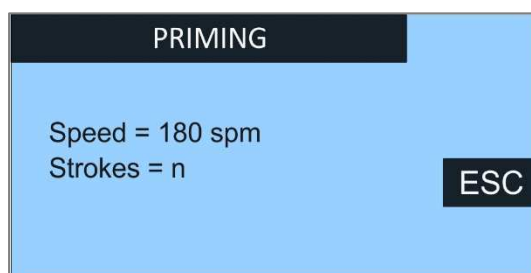
Priming of dosing heads

These screens also contain the **P ►** (PRIMING) softkey, which allows to prime the dosing head corresponding to the displayed measurement.

Hold the key for a few seconds to start the procedure.

The pump performs 180 strokes (max speed) and displays the strokes counter.

The procedure can be aborted by pressing the ESC button.





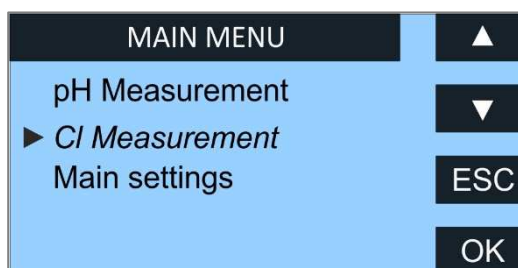
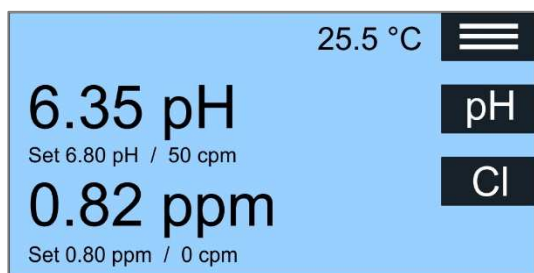
CONFIGURATION

To access the instrument configuration menus, from the stand-by screen, press the keys corresponding to the virtual  (MENU) button.

If a protection password has been set, the instrument will ask for inserting it to access the configuration mode and will enable only the levels unlocked by the entered password (see the Appendix section for more details).

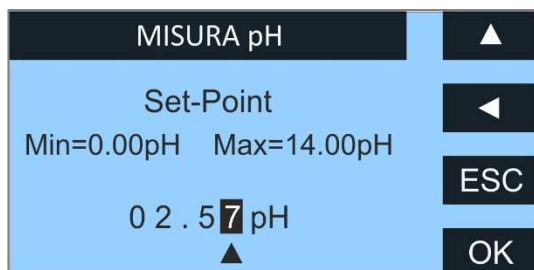
Now, select the desired option scrolling the available ones with the arrow keys ▲▼, confirm with OK and proceed through the various submenus to configure the instrument.

If no key is pressed for 2 minutes, the system automatically returns to the starting screen (stand-by); the instrument will remain in OFF status (outputs disabled and display with orange backlight) and it will have to be reactivated by the operator pressing the START/STOP button.



Command sequence to enter / edit values

Example:



Once selected and confirmed an editable parameter, a screen will activate with the highlighted editable field indicated by a cursor.

Please note that:

- The ▲ up-arrow key increases the value.

- The ◀ arrow key moves the cursor to the next position.

- The OK key saves the modifications and quits the editing mode.

- The ESC key quits the editing screen without saving the modifications.



AVAILABLE MENUS

Measure pH

- PUMP Control of the dosing head associated to the pH adjustment
- LEVEL Input for level sensor of acid tank
- CALIBRATION pH sensor
- HYDRAULIC CALIBRATION Injection volume of the acid (pH) dosing head
- pH PRIORITY Function which ensures to dose chlorine at the right pH
- LIMITS Alarm thresholds

Measure Cl (CAC)

- PUMP Control of the dosing head associated to the chlorine adjustment
- LEVEL Input for level sensor of chlorine tank
- CALIBRATION Amperometric sensor (CAC)
- HYDRAULIC CALIBRATION Injection volume of the chlorine dosing head
- LIMITS Alarm thresholds

Main settings

- COMM. OUTPUTS CONF. pH output with Chlorine error
Chlorine output with pH error
Start-up delay
Start-up pumps status
Pumps status in editing
- COMM. INPUTS CONF. External consent
Sample water flow
EcoMode
Temperature
- ALARMS Control of alarms
- USB Datalogger
Operations via USB port
- TIMER Setting of switching on / off times and outputs to drive
- CONNECTIVITY Control of the Modbus RTU communication
- SERVICE Alarm list, pump maintenance and other functions for technical personnel
- SYSTEM Password setting
Selection of display language
Date/time setting
Read-only technical info



MEASURE pH MEASURE Cl (CAC)

For each measurement channel, you can configure the operating parameters of the dosing head and level input; set alarm thresholds; perform sensor calibration.

PUMP

Each measurement channel is associated with a dosing head, controlled by the unit with a pulse signal; this menu allows to set all the operating parameters of the pH (acid dosage) and chlorine adjustments respectively.

➤ Disabled

➤ Enabled

→ PFM (default): Proportional adjustment with pulse signal.

Parameters to be set:

- **Setpoint** (adjustment end point)
- **Proportional band** (measurement range within which the output is modulated from the set "Frequency MIN" value to the "Frequency MAX" one, proportionally to the distance between the real time reading and the set-point to reach)
- **Direction** (typically, for swimming pools the setting is "Acidification" for pH and "Chlorination / Oxidation" for chlorine)
- **T. max dosage** (max time within which the regulation must reach the set-point; if the output remains active for longer than the set time, the dosage is stopped, and an alarm is generated)
- **Min frequency / Max frequency** (these values limit the frequency range within which the output pulses are modulated, depending on the distance between the real time reading and the set-point to reach)

➤ Enabled

→ On-Off:

Adjustment with constant dosage till the set-point.

Parameters to be set:

- **Setpoint** (adjustment end point)
- **Hysteresis** (tolerance range around the set-point, within which the output status does not change)
- **Direction** (typically, for swimming pools the setting is "Acidification" for pH and "Chlorination / Oxidation" for chlorine)
- **T. max dosage** (max time within which the regulation must reach the set-point; if the output remains active for longer than the set time, the dosage is stopped, and an alarm is generated)
- **Min frequency** (output dosing strokes in Off status)
- **Max frequency** (output dosing strokes in On status)
- **Delay ON / Delay OFF** of the relay (time tolerance range to avoid relay commutations due to irrelevant fluctuations)



LEVEL

Each measurement channel is associated with an input for the connection of a proper sensor which allows to monitor the liquid level in the suction tank and stop the related output upon liquid lack.

If used, these inputs must be enabled and configured accordingly with the connected sensor type.

- Disabled
- Enabled → Contact → NO (default) / NC

CALIBRATION OF SENSORS (See specific section)

For the selected input, this menu allows to calibrate the corresponding measurement sensor, delete previous calibrations and get info on the sensor status.

HYDRAULIC CALIBRATION (See specific section)

For the selected input, this menu allows to perform the hydraulic calibration of the corresponding dosing head.

pH PRIORITY (only for “pH Measurement” menu)

This function allows to activate the chlorine dosage only after reaching a right pH value, to ensure a reliable disinfection with no waste of chemical product.

If the function is enabled, at power-on the instrument checks and adjusts only the pH to bring it at a value between the max and min set-points, within a certain time interval (max time).

If the operation is successful, once the required pH level is reached, chlorine adjustment is also activated; if the action fails, an alarm is generated.

- Disabled (default)
- Enabled → Max time (enter value)
 → Set-point pH min / Set-point pH max

LIMITS

You can set MIN and MAX thresholds for each measurement channel. If the measured value falls below the minimum threshold or exceeds the maximum one, an alarm is generated.

- Threshold MIN → Disabled (default)
 → Enabled → enter value
- Threshold MAX → Disabled (default)
 → Enabled → enter value



MAIN SETTINGS

COMM. OUTPUTS CONFIG.

- **pH Out upon Chlorine error** → OFF / ON (**default**)
This parameter allows to set if keep adjusting pH upon an error which stops the chlorine dosage.
- **Chlorine Out upon pH error** → OFF (**default**) / ON
This parameter allows to set if keep adjusting chlorine upon an error which stops the acid (pH) dosage.
- **Start-up delay** → Enter value (5" ... 30')
This parameter allows to enter a stand-by time at the instrument power-on, during which the dosing heads are disabled to avoid errors due to unreliable readings by not correctly polarized sensors.
- **Start-up pumps status** → Remember (**default**) / Always ON / Always OFF
This parameter allows to set the status of dosing heads in case of reboot. You can decide to resume the status before the shut-down ("Remember"), or to have the instrument active ("Always ON") or disabled ("Always OFF").
- **Pumps status in editing** → Disabled (**default**) / Enabled
This parameter allows to set the dosing head status during the unit configuration. It is recommended to keep them disabled to avoid anomalous dosages due to transient settings.

COMM. INPUTS CONFIG.

- **Ext. Cons.**
Digital pause / external consent input, to be connected, for example, to the contactor of the filtration / recirculation pump of the swimming pool. If used, it must be enabled and appropriately configured.

Input **Disabled (default)**

Input **Enabled**

→ Type

→ NO / NC (**default**)

→ Delay ON / Delay OFF (time tolerance for the instrument answer on the opening / closing of the input contact)

- **Sample Water**

Input to be connected to an NPN proximity sensor to monitor the sample water flow. Upon flow lack, an alarm is generated. If used, it must be enabled and appropriately configured.

Input **Disabled (default)**

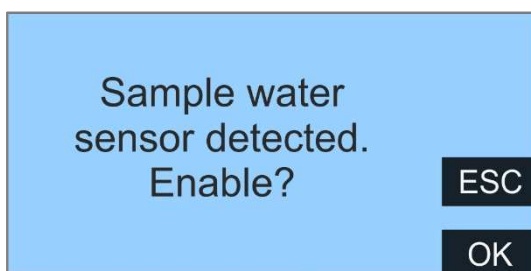
Input **Enabled**

→ Type

→ NO / NC (**default**)

→ Delay ON / Delay OFF (time tolerance for the instrument answer on the opening / closing of the input contact)

Note: In case of restoration of default settings, if a flow sensor is connected to this input, the instrument will automatically detect it and ask to confirm its enabling.





The following actions can be performed only with USB key inserted and after operator confirmation:

- Save config on USB (file.csv)
- Load config from USB (file.csv)
- FW updating

TIMER

The unit features an internal clock, which allows to schedule timed actions through 25 independent and fully configurable timers.

To each timer you can associate the control of a specific output, set the switching on / switching off times and choose in which day(s) of the week to enable it.

- **TIMER 1 / TIMER 2 / TIMER 3 / TIMER 4 / ... / TIMER 25**
 - Timer ON (activation time)
 - Timer OFF (switching off time)
 - Timer enables (day of the week setting)
 - Timer Mode
 - **Instrument** (pumps)
 - **Eco Mode** (this function can also be activated by an external contact, which always takes priority over timed schedule)
 - **Super chlorination** (chlorine dosage, without considering the adjustment setpoint; all controls are disabled, and the action can be manually stopped before the set time only pressing the START/STOP button)

CONNECTIVITY

This menu controls the possibly communication of the unit.

The RS485 serial line option with Modbus RTU protocol is available and requires setting the communication rate and ID code of the instrument.

- Disabled
- Enabled → Modbus RTU → Baud rate / ID

SERVICE

This menu is reserved for qualified and authorized technical personnel.

- **Alarm list** Allows to display the list of last alarms, complete with date and time.
- **Dosing pumps** Allows to perform the dosing heads maintenance and provides read-only info.
 - Replace membrane pH (**See "Maintenance" section** for details)
 - Replace membrane Cl (**See "Maintenance" section** for details)
 - Info pump pH / pump Cl (Read-only displaying of info about each dosing head: Total dosed volume [ml] / Total strokes nr. / Max calculated flow rate [l/h])
- **Inputs test** Allows to force all inputs to check their functioning.
- **Outputs test** Allows to force the adjustment outputs to check the functioning of the dosing heads; during this operation all controls are disabled.
- **pH / Cl meas. simulation** Allows to force each measurement input individually, to check the operation of the corresponding adjustment output.



- **Reset**
 - Alarm history (Delete the saved list of alarms)
 - Datalogger (Delete saved list of measurements)
 - Calibration pH / Cl (Delete the offset and slope data of each measurement, restoring factory values)
 - Hydraulic calibration pH / Cl (Delete the hydraulic calibration data of each dosing head, restoring factory values)
 - Measure autoset (Function reserved for the repair technician, in case of replacement of the input boards)
 - Factory reset (Full restoring of factory settings; the instrument will need to be reconfigured)

SYSTEM

This menu is reserved for qualified and authorized technical personnel.

- **Password**

Allows to enter three different passwords, for three different access levels to the instrument menus, to prevent interventions by unauthorized personnel.

***Note:** For further details about the different protection levels of the three passwords, see the "Appendix" section at the end of this manual.*

 - Disabled (**default**)
 - Enabled
 - Technician
 - Operator
 - Calibration
- **Softkey 4**

Allows to customize the function of the fourth virtual key to directly access to the calibration of the two measurement channels, to the USB port control menu or to the check of inputs/outputs status.

 - Disabled (**default**)
 - Enabled
 - CAL → Calibration pH / Calibration Cl
 - USB
 - I/O
- **Set Date/Time**

Allows to set current date / time and choose the displaying format for the date, exactly as at first power-on of the unit.
- **Language**

Allows to change the language of display interface.
- **FW updating**

With USB key inserted, you can update the instrument FW.
- **Info**

Read-only displaying of the following technical info:
FW and HW version / Instrument model and input types / S/N of power board and input boards / POWER ON and operating time hour-counter / Log nr. of alarms / Internal temperature



TABLES OF PARAMETERS

MEASURE pH

PUMP

			Valid values	Default values
Pump	Enabled / PFM (default)	Setpoint	0.00 ... 14.00 pH	7.20 pH
		Proportional band	0.05 ... 14.00 pH	0.30 pH
		Direction	Acidification / Alkalinization	Acidification
		T. max dosage	00 :00 ... 08 :00 hh : mm	00 :00
		Min frequency	0 ... 180 spm	0
		Max frequency	Freq. min ... 180 spm	50
	Enabled / On-Off	Setpoint	0.00 ... 14.00 pH	
		Hysteresis	0.05 ... 6.00 pH	
		Direction	Acidification / Alkalinization	
		T. max dosage	00 :00 ... 08 :00 hh : mm	
		Min frequency	0 ... 180 spm	
		Max frequency	Freq. min ... 180 spm	
		Delay ON	00 :00 ... 10 :00 hh : mm	
		Delay OFF	00 :00 ... 10 :00 hh : mm	
	Disabled			

LEVEL

			Valid values	Default values
Level	Disabled			
	Enabled	Contact	NO / NC	NO

pH PRIORITY

			Valid values	Default values
pH PRIORITY	Disabled			Disabled
	Enabled	Max time	00 :00 ... 59 :59 mm : ss	01 :00
		Set-point pH min	0.00 pH ... Set-point pH max	6.80 pH
		Set-point pH max	Set-point pH min ... 14.00 pH	7.50 pH

LIMITS

			Valid values	Default values
Threshold MIN	Disabled			Disabled
	Enabled		0.00 ... 14.00 pH	
Threshold MAX	Disabled			Disabled
	Enabled		0.00 ... 14.00 pH	



MEASURE Cl (CAC Probe, ppm)

PUMP

			Valid values	Default values (CAC-CLO-M1)
Pump	Enabled / PFM (default)	Setpoint	0.00 ... FS ppm	1.00 ppm
		Proportional band	0.05 ... FS ppm	0.30 ppm
		Direction	Chlorination / Dechlorination	Chlorination
		T. max dosage	00 :00 ... 08 :00 hh : mm	00 :00
		Min frequency	0 ... 180 spm	0
		Max frequency	Freq. min ... 180 spm	50
	Enabled / On-Off	Setpoint	0.00 ... FS ppm	
		Hysteresis	0.00 ... 50% FS ppm	
		Direction	Chlorination / Dechlorination	
		T. max dosage	00 :00 ... 08 :00 hh : mm	
		Min frequency	0 ... 180 spm	
		Max frequency	Freq. min ... 180 cpm spm	
		Delay ON	00 :00 ... 10 :00 hh : mm	
		Delay OFF	00 :00 ... 10 :00 hh : mm	
	Disabled			

LEVEL

			Valid values	Default values
Level	Disabled			
	Enabled	Contact	NO / NC	NO

LIMITS

		Valid values	Default values
Threshold MIN	Disabled		Disabled
	Enabled	0.00 ... FS ppm	
Threshold MAX	Disabled		Disabled
	Enabled	0.00 ... FS ppm	



MAIN SETTINGS

COMM. OUTPUTS CONFIG.

			Valid values	Default values
pH Out upon Chlorine error			OFF / ON	ON
Chlorine Out upon pH error			OFF / ON	OFF
Start-up delay			5 sec ... 30 min	5 sec
Start-up pumps status			Remember / Always ON / Always OFF	Remember
Pumps status in editing			Disabled / Enabled	Disabled

COMM. INPUTS CONFIG.

			Valid values	Default values
External consent	Disabled			Disabled
	Enabled	Type	NO / NC	NC
		Delay ON	2 ... 10 sec	2 sec
		Delay OFF	2 ... 10 sec	2 sec
Sample water	Disabled			Disabled
	Enabled	Type	NO / NC	NC
		Delay ON	0 ... 10 sec	2 sec
		Delay OFF	0 ... 10 sec	2 sec
Eco Mode	Disabled			Disabled
	Enabled	Type	NO / NC	NC
		Setpoint	0 ... Setpoint adjustment M2	
Temperature	Mode		Auto / Manual	Auto
	Range (meas. unit)		°C / °F	°C

ALARMS

			Valid values	Default values
Alarms	Enabled	Alarm conditions (*)	OFF / AUT / MAN	(*)
	Disabled			

(*) List of events that can generate an alarm condition, with corresponding factory setting:

MIN threshold pH exceeded / MAX threshold pH exceeded	OFF
MIN threshold Cl exceeded / MAX threshold Cl exceeded	OFF
Level pH / Level Cl	AUT
Under Range pH / Over Range pH	AUT
Under Range Cl / Over Range Cl	AUT
Max dosage pH / Max dosage Cl	OFF
Sample Water (lack of measure water flow)	AUT
pH priority	OFF



USB

			Valid values	Default values
USB	Datalogger	Sampling time	1, 5, 15, 30, 60 min	5 min
		Export data	File .csv	
		Device ID	0 ... 250	0
	Save config. on USB		File .csv	
	Load config. from USB		File.csv	
	FW updating			

Notes:

- La chiavetta USB deve essere formattata con filesystem FAT.
- All data / events are saved complete with date / time / temperature
- The data / events saved in the datalogger are:
 - Measurements (pH, M2, temperature) read according to the set sampling time
 - Switches of the START/STOP button
 - Sensor calibrations
 - Reset requests
 - Access to menus protected by technician / operator / calibration passwords
 - Access attempts with wrong password
 - Power-ons / offs of the unit
- The alarms are saved as alarm codes (listed here below), complete with date/time label:

AL01: Min threshold pH	AL09: Min threshold Cl
AL02: Max threshold pH	AL10: Max threshold Cl
AL03: Level1 pH	AL12: Level2 Cl
AL05: Under Range pH	AL13: Under Range Cl
AL06: Over Range pH	AL14: Over Range Cl
AL07: T. max dosage pH	AL15: T. max dosage Cl
AL18: No flow	
AL19: pH priority	

TIMER

		Action	
TIMER 1	TIMER ON	Enter activation time	
	TIMER OFF	Enter switching off time	
	Enable Timer	Choose the day of the week for Timer 1	
	Timer mode	Associate timer to:	Instrument (pumps) Eco Mode Super chlorination

Note: The unit features 25 independent TIMERS, each one functioning as described here above for TIMER 1.

CONNECTIVITY

				Valid values	Default values
CONNECTIVITY	Disabled				Disabled
	Enabled	Modbus RTU	Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115400	1200
			ID	00 ... 31	00



SERVICE

		Action
SERVICE	Alarm list	List of the occurred alarm events, complete with date/time label
	Dosing pumps	Maintenance and technical info of the two electromagnetic heads
	Inputs test	Functioning test of all inputs
	Outputs test	Functioning test of dosing heads
	pH Meas. simulation	Forcing the two measurement channels (individually), to check the behaviour of related dosing heads, without the measurement sensors necessarily being connected to the instrument
	Cl Meas. simulation	
	Reset	Alarm history Datalogger Calibration pH / Cl Hydraulic calibration pH / Cl Measure autoset Factory reset

SYSTEM

			Valid values	Default values
Password	Disabled			Disabled
	Enabled	Technician	0000 ... 9999	0000
		Operator	0000 ... 9999	0000
		Calibration	0000 ... 9999	0000
Softkey 4	Disabled			Disabled
	Enabled		CAL / USB / I/O	
Set date / time		Date / time setting for the internal clock and selection of the date displaying format		
Language		Italiano / English / Français / Español		
FW Updating		With USB key inserted, the unit asks confirmation to update the FW		
Info (read-only)		FW and HW version / Instrument model / S/N of power board and input boards / Hour-counter of POWER ON and operating time / Log nr. of alarms / Internal temperature		



CALIBRATION OF SENSORS

pH MEASURE

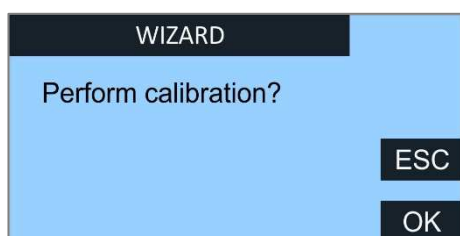
Available options:

- Wizard (2 points)
- Comparison (1 point)
- Buffer solutions (1 or 2 points)
- Reset calibrations
- Info

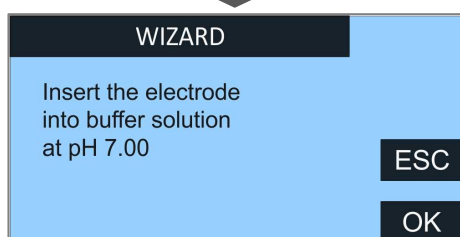
WIZARD PROCEDURE

Messages are displayed which guide the operator with step-by-step instructions to perform a two-point pH calibration, with pH7 and pH4 (or pH9) buffer solutions.

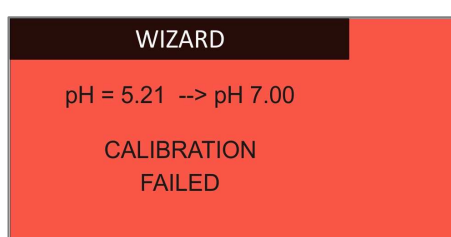
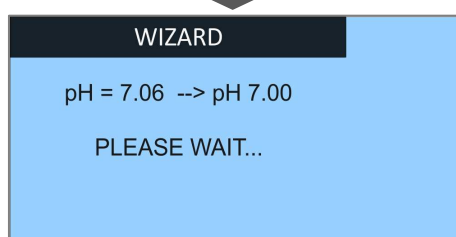
This procedure is recommended when precise measurement is required, also suitable for unskilled personnel.



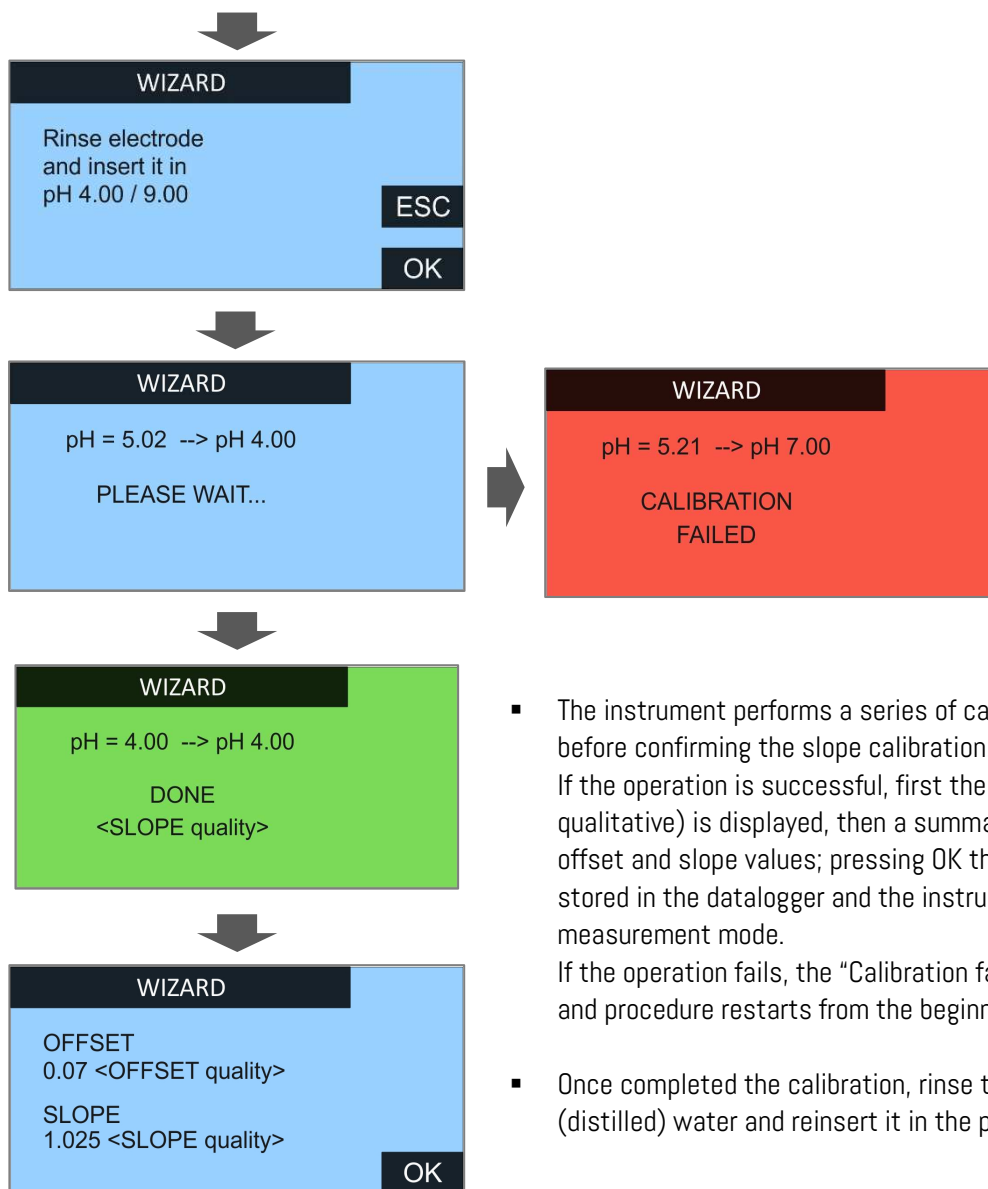
- Remove sensor from probe-holder.
- Rinse it with clean (distilled) water and let it drip dry, without rubbing it with paper or rags.
- Press OK.



- Follow display instructions.



- The instrument performs a series of calculations and checks before confirming the offset calibration. If the operation is successful, the offset value (numeric and qualitative) is displayed, and the unit automatically moves to the second point (slope). If it fails, the "Calibration failed" error is generated and procedure restarts from the beginning.



- The instrument performs a series of calculations and checks before confirming the slope calibration. If the operation is successful, first the slope value (numeric and qualitative) is displayed, then a summary screen of the new offset and slope values; pressing OK the calibration data are stored in the datalogger and the instrument resumes to normal measurement mode. If the operation fails, the "Calibration failed" error is generated and procedure restarts from the beginning.
- Once completed the calibration, rinse the sensor with clean (distilled) water and reinsert it in the probe-holder.

COMPARISON CALIBRATION PROCEDURE

One-point calibration via comparison with a reference instrument.

This procedure is recommended for a quick check / adjustment of the sensor.

- Leave the sensor in the probe-holder.
- Take a water sample from the probe-holder (through the dedicated outlet).
- Measure the pH value with a reliable reference instrument (not photometer).
- Adjust the value with the arrow keys and confirm.
- The calibration data are stored in the datalogger and the instrument resumes to normal measurement mode. If the operation fails, the "Calibration failed" error is generated and procedure restarts from the beginning.

CALIBRATION PROCEDURE WITH BUFFER SOLUTIONS

One or two-point calibration, with pH7 and pH4 (or pH9) buffer solutions.

The two-point procedure is recommended when a precise measurement is required, while the faster one-point calibration is suitable for a quick check / adjustment of the sensor.





- Remove sensor from probe-holder.
- Rinse it with clean (distilled) water and let it drip dry, without rubbing it with paper or rags.
- Select Offset calibration and confirm.
- Immerse the sensor in pH7 solution and wait for stable reading.
- Press OK to confirm.
- If the operation is successful, the offset value (numeric and qualitative) is displayed, and the unit automatically moves to the second point (slope).
If it fails, the "Calibration failed" error is generated and procedure restarts from the beginning.
- Rinse it with clean (distilled) water and let it drip dry, without rubbing it with paper or rags.
- Select Slope calibration and confirm.
- Immerse the sensor in pH4 (or pH9) solution and wait for stable reading.
- Press OK to confirm.
- If the operation is successful, first the slope value (numeric and qualitative) is displayed, then a summary screen of the new offset and slope values; pressing OK the calibration data are stored in the datalogger and the instrument resumes to normal measurement mode.
If the operation fails, the "Calibration failed" error is generated and procedure restarts from the beginning.
- Once completed the calibration, rinse the sensor with clean (distilled) water and reinsert it in the probe-holder.

Notes after sensor calibration

Qualitative indication about the electrode status:

Excellent / Good	Discrete	Insufficient	Calibration failed
Electrode properly working.	Have a new spare electrode available.	Sensor cannot be calibrated. Check calibration conditions * and repeat procedure. If the response does not improve, replace the electrode.	See note. *

* A calibration error can be due to the following causes:

- 1) Wrong or polluted buffer solution.
- 2) Dirty electrode; clean it properly.
- 3) During cleaning, the electrode was rubbed with paper or cloths and charged electrostatically; immerse it in pH4 buffer for approx. 20 minutes.
- 4) Air bubble in the sensitive bulb, due to the electrode wrong (horizontal or upside down) position for too long; place it vertically and wait for the air to go upwards.
- 5) The electrode bulb has been left drying; immerse it in pH4 buffer for 1 hour.
- 6) The electrode cable is damaged or oxidized; replace it.
- 7) The cable connector is moist or oxidized; dry and clean it.
- 8) The electrode is exhausted and must be replaced with a new one.

Note: Buy your pH electrode shortly before the replacement time, avoiding long storage; store it in a fresh area, with the bulb always immersed in storage solution.

RESET CALIBRATIONS

Calibrations of pH input are deleted, and factory calibration data are restored.

INFO

The unit displays qualitative (excellent, good, discrete, insufficient) and quantitative (offset and slope values) info about the sensor status.



MEASURE Cl (CAC Probe)

Available options:

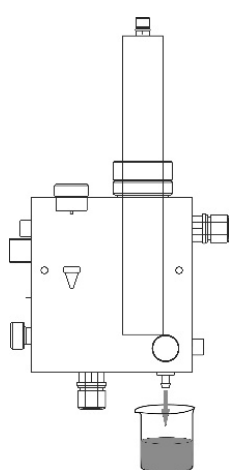
- Calibration
- Reset calibrations
- Info



CALIBRATION PROCEDURE

One-point (slope) calibration, for comparison with a reference instrument (e.g., chlorine analysis with DPD method).

The zero point (offset) is calibrated at the factory and normally no intervention is required.



- Leave the sensor in the probe-holder.
- Take a water sample from the probe-holder (through the dedicated outlet).
- Perform the analysis with a reliable reference photometer.
- Use the arrow keys to adjust the display value to that measured by the photometer, then confirm with OK.



- Calibration data are stored in the datalogger, and the unit automatically resumes to normal measurement mode.

RESET CALIBRATIONS

Calibration data of Chlorine input are deleted, and factory calibration values are restored.

INFO

The unit displays qualitative (excellent, good, discrete, insufficient) and quantitative (slope value) info about the sensor status.



Notes after sensor calibration

Qualitative indication about the probe status:

Excellent / Good	Discrete	Insufficient	Calibration failed
Sensor properly working.	The probe will need to be serviced shortly; procure standard spare parts.	Sensor cannot be calibrated. Check calibration conditions * and repeat procedure. If the response does not improve, replace the sensor.	See note. *

* A calibration error can be due to the following causes:

- 1) The DPD method has been performed incorrectly.
- 2) There are interferences in water.
- 3) The flow rate of sample water is unstable and / or out of the recommended range; check that the flow sensor is correctly installed in the probe-holder and that measure conduct walls are clean.
- 4) Dirty sensor; clean it properly.
- 5) The sensor needs maintenance (e.g. replacement of the membrane/electrolyte).

Warning! For sensor maintenance, always refer to the specific technical manual.

- 6) The sensor is exhausted and must be replaced with a new one.

Notes for CAC sensors:

- If the sensor displays unstable or too low values, check that the electrolyte gel has not been consumed, especially if the water temperature is above 30 °C; if necessary, top up.
- If sensor cannot be calibrated, replace the membrane and repeat the procedure.
- If these operations do not solve the problem, contact the technical support service.



Warning! For correct operations of the CAC sensor, replace the membrane-cap every 6 months (see specific manual for details).



HYDRAULIC CALIBRATION

The hydraulic calibration of the dosing heads allows to have a highly accurate dosage of the chemical product. Once started the procedure, the operator is guided by step-by-step instructions on the display.

Warnings:

- The dosage volume depends on the hydraulic operating conditions of the pump (back pressure and length of the injection line). It is therefore recommended that the system is installed at the final working point, at the operating pressure at which it will dose.
- Before starting calibration, check that the suction and delivery lines are totally filled, with no air bubble.
- Perform calibration with dosage liquid.
- Needed material: 500 / 1000 ml graduated cylinder.

Procedure:

pH MEASUREMENT	▲
Pump	▼
Level	
Calibrations	ESC
► Hydraulic calibration	
pH priority	OK

- Access the "Hydraulic calibration" submenu and confirm the procedure.

pH MEASUREMENT
Perform calibration?
ESC
OK

- Insert the suction hose with the foot valve in the cylinder and fill it with the dosage liquid till a known volume.

pH MEASUREMENT
Press START
Speed: 0 s/m
Strokes nr. : 0
ESC

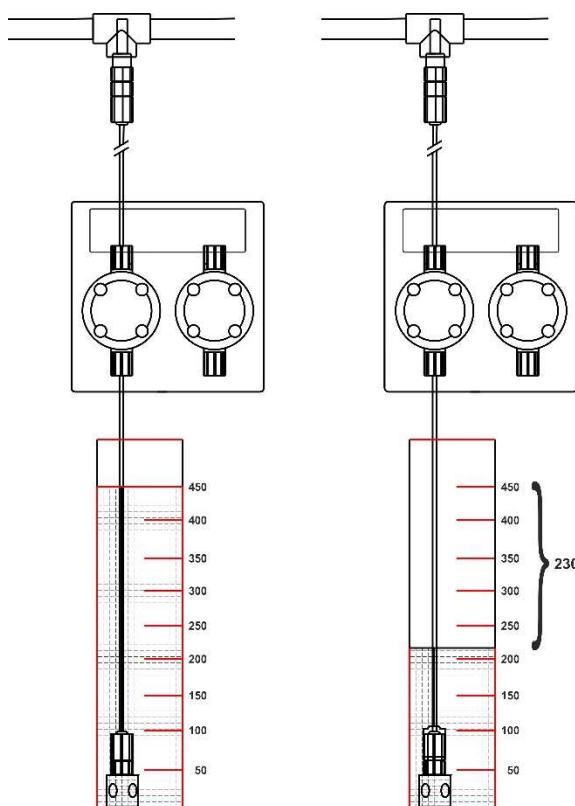
- Press the START/STOP button to start the suction cycle.

pH MEASUREMENT
Press STOP to end
Speed: 180 s/m
Strokes nr. : 177

- Wait for the pump performing at least 150 dosing strokes before stopping the operation by pressing START/STOP again.



- Check the liquid level in the cylinder and calculate, by difference, the sucked volume (see figure).



↓

pH MEASUREMENT	
Enter sucked vol.	▲
0 2 3 0 ml	◀
▲	
OK	

↓

pH MEASUREMENT	
Confirm calibration?	
Sucked Vol. : 230 ml	ESC
Injection Vol. : 1.30 ml	
Max flow rate : 14.04 l/h	OK

- Enter the value (in ml) and confirm.
- The unit uses this value to calculate the injection volume of the dosing head and its max flow rate.
- Results are then displayed in a summary screen. Press OK to confirm calibration and store data.





MAINTENANCE

The periodic maintenance is of fundamental importance for the good functioning of the pump and its duration over time. Should be performed in a systematic and precise way, following all the indications given in this section.



*The maintenance of dosing heads must be carried out **ONLY** by qualified technicians and using only original spare parts!*

PERIODIC CLEANING OF HYDRAULIC GROUP

Recommended average frequency: once a month.

The entire dosing line must be cleaned: foot filter, suction hose, suction valve, drain nozzle, bleed valve, dosing head, delivery valve, delivery hose, injection valve.

This operation is performed by first flowing clean water and then a dilute acid solution, for example 3% hydrochloric acid solution.

PERIODIC CHECKS

Checks every Three Months

- Check the integrity of the dosing membrane
- Check that the suction and injection hoses are securely attached
- Ensure that there are no bottlenecks in the injection tube
- Check that the suction and discharge valves are secure
- Check the tightness of the dosing head, verifying that no liquid leaks from the drain hole
- Check the integrity of electrical connections
- Check that the head bolts are tighten
- Check the proper functioning of the bleeding valve

Weekly Checks

- Check the feed liquid level in the suction tank
- Check that there are no impurities or dirt in the suction and injection hoses
- Check the foot filter for clogging, that can cause the decrease of flow rate
- Check values measured by the unit using reliable reference instruments (pH-meter and DPD photometer)

CLEANING AND REPLACING WEARING PARTS



Attention to dosed chemicals! Before any operation, discharge the liquid from the dosing head and pipes. Take all necessary personal protective measures (i.e. gloves and goggles), as indicated in the SDS of the chemical product, which must be always available and updated.



Before any intervention, unplug the pump or disconnect it from the mains.
Depressurize all the hydraulic components of the plant.

Please also refer to the exploded view of the dosing head, available later.



Valve Cleaning

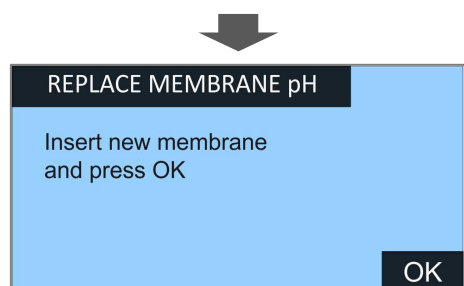
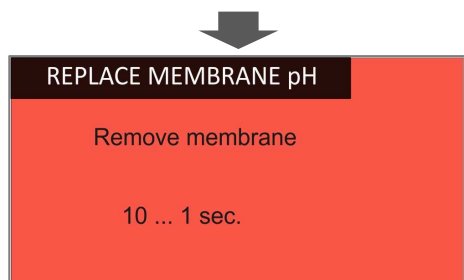
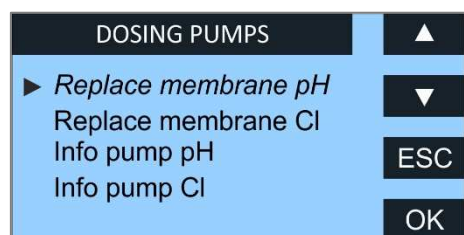
In case of malfunctioning, clean the suction and discharge valves, by disassembling them one by one so as not to exchange the pieces.

After this operation or valve replacement, it is necessary to hydraulically recalibrate the head.

- Using an Allen key (or similar tool), enter through the small connecting hole and push out the valve inserts.
- Pay attention to the flow direction of the fitting, that is different for suction and delivery.
- Please note that:
 - The inserts of suction and delivery valves are identical.
 - Under the inserts there is a spacer.
 - In the dosing head is placed a shaped seal (not O-ring).

Replacing of a Dosing Membrane

- Access the SERVICE menu and select the DOSING PUMPS item.



- Remove the dosing head by unscrewing the fixing bolts.
- Select the menu item corresponding to the membrane to be replaced and confirm with OK.
- Now, the technician is guided by the display messages for correct operations.
- Pressing START/STOP to start the procedure, the magnet is excited and pushes the membrane outwards for 10 seconds, to facilitate its removal.
- During this phase the display is red coloured and shows the countdown of the time available to complete the operation.
- Once inserted the new membrane, put back in place the dosing head, checking that the drain hole on the plate is facing downwards, then tighten the bolts; press OK to quit this mode.



DECOMMISSIONING



*Thoroughly clean the dosing head and the whole dosing line, as described above.
Take all necessary personal protective measures, also depending on the dosed chemical.*

- Ensure that the system is depressurized.
- Unplug the pump.
- Empty the head by turning it upside down and draining off the dosing product.
- **Rinse the head with an appropriate liquid.**
- In case of temporary decommissioning, respect the correct storage conditions: ambient temperature from -10 to +50 °C and RH max 92 %.

MEASUREMENT SENSORS

For cleaning procedure and periodic maintenance of the measurement sensors, please refer to their specific instruction manuals and to the video tutorials accessible by scanning the respective QR codes here below.



pH Electrode



CAC Probe



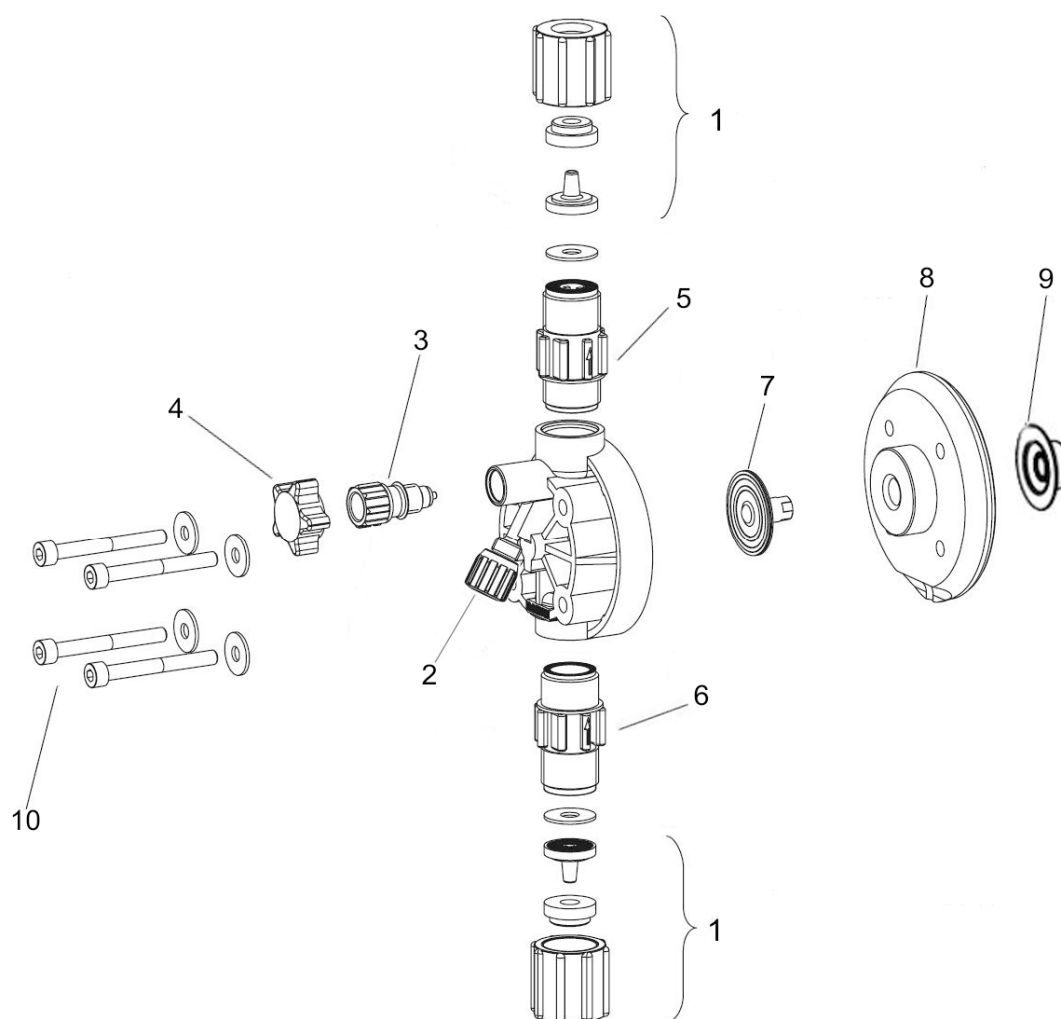
ACCESSORIES AND SPARE PARTS

Also see drawing on next page.

Ref.	Description	Part No.
Rif.1 (2 pc.) + 5 + 6 + 3 + 7 + 9	Complete maintenance kit for B0503 / PKT dosing head	97003000/PKT
	Complete maintenance kit for C0703 / PKT dosing head	97003001/PKT
	Complete maintenance kit for E1503 / PKT dosing head	97003002/PKT
	Complete maintenance kit for F2502 / PKT dosing head	97003003/PKT
Rif.1	Kit fittings for hose 4x6 mm	97003090
	Kit fittings for hose 5x8 mm	97003093
	Kit fittings for hose 9x12 mm	97003096
Rif.7	Spare dosing membrane for B0503 / PKT head	97003010
	Spare dosing membrane for C0703 / PKT head	97003011
	Spare dosing membrane for E1503 / PKT head	97003012
	Spare dosing membrane for F2502 / PKT head	97003013
Rif.9	Safety membrane	70110063
Rif.10	Kit of zinc-plated screws for B0503 head, L=45 mm	97003225
	Kit of zinc-plated screws for C0703 head, L=50 mm	97003226
	Kit of zinc-plated screws for E1503 / F2502 heads, L= 55 mm	97003227
Injection valve PKT, connection for hose 4x6 mm		97003030/PKT
Injection valve PKT, connection for hose 5x8 mm		97003031/PKT
Injection valve PKT, connection for hose 9x12 mm		97003032/PKT
Foot valve PKT with filter, connection for hose 4x6 mm		97003020/PKT
Foot valve PKT with filter, connection for hose 5x8 mm		97003021/PKT
Foot valve PKT with filter, connection for hose 9x12 mm		97003022/PKT
Spare dosing head, B0503 / PKT		9700310A/PKT
Spare dosing head, C0703 / PKT		9700310B/PKT
Spare dosing head, E1503/ PKT		9700310C/PKT
Spare dosing head, F2502/ PKT		9700310D/PKT
SLP5 – Level probe with 2 m cable and M8 connector		97009008



EXPLODED VIEW OF THE DOSING HEAD



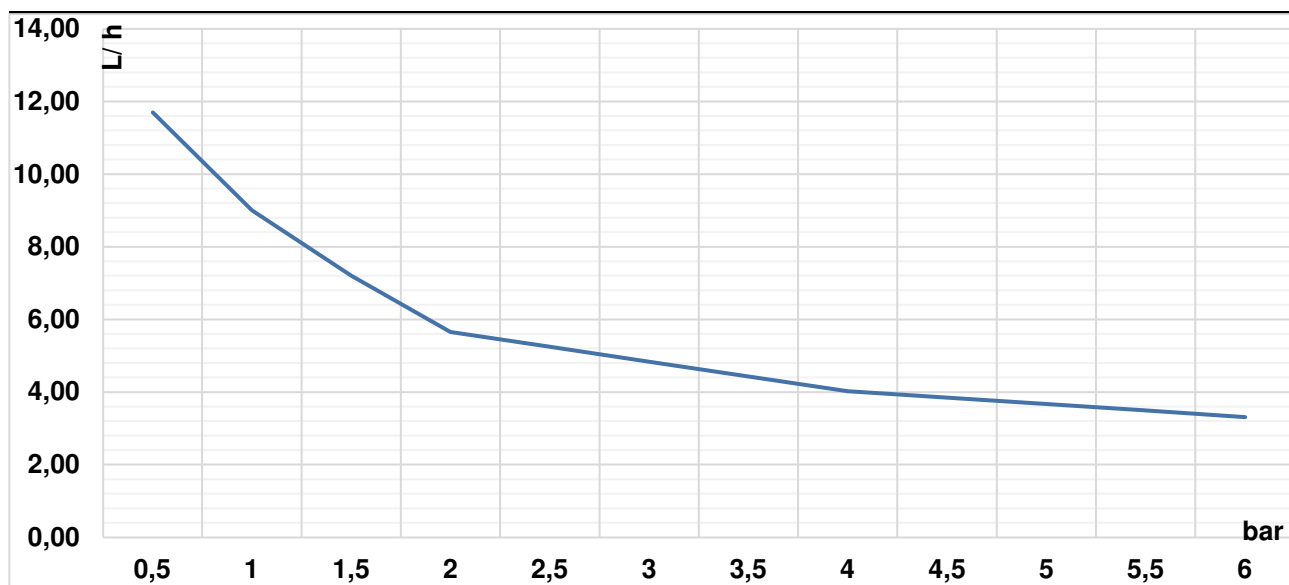
Ref.	Description
1	Kit fittings, including threaded ring, locking ring and hose-holder nozzle
2	Hose-locking ring for bleeding
3	Bleeding valve
4	Bleeding knob
5	Complete suction valve
6	Complete delivery valve
7	Dosing membrane
8	Plate
9	Safety membrane
10	Kit of head fixing screws/bolt

FLOW RATE CURVES OF THE DOSING HEADS



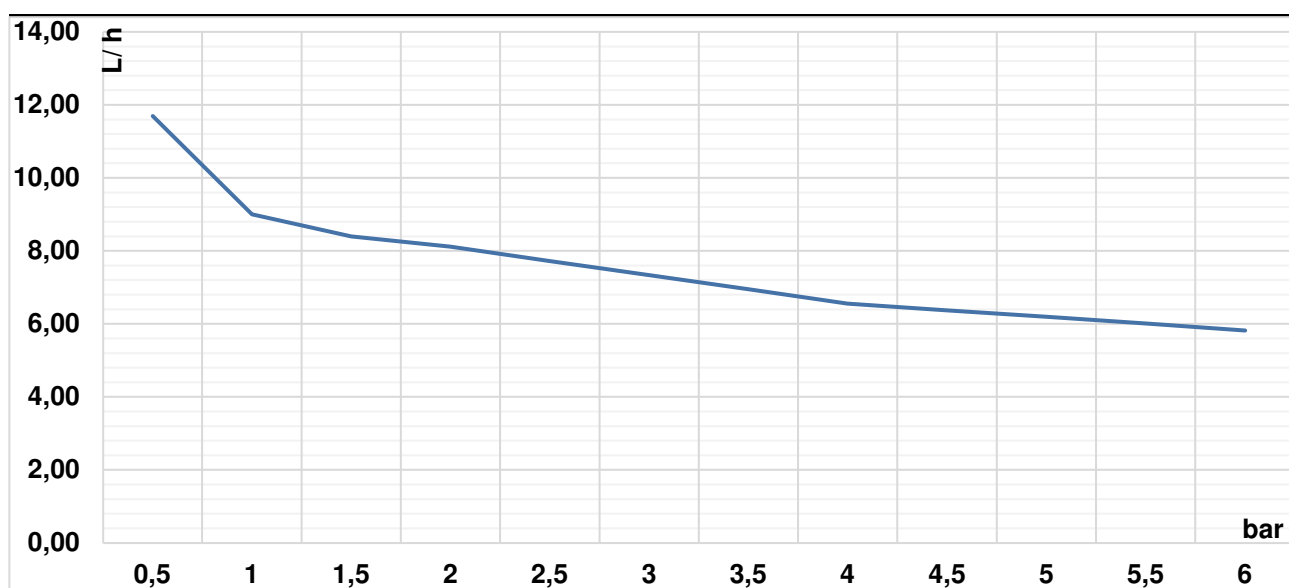
The hydraulic specifications in this section refer to standard PKT dosing heads, working frequency of 180 strokes/min, 230V power supply, ambient temperature 25 °C, dosage of non-viscous liquid (water), with 5 m delivery hose.

Head B0503 (hose 4x6)



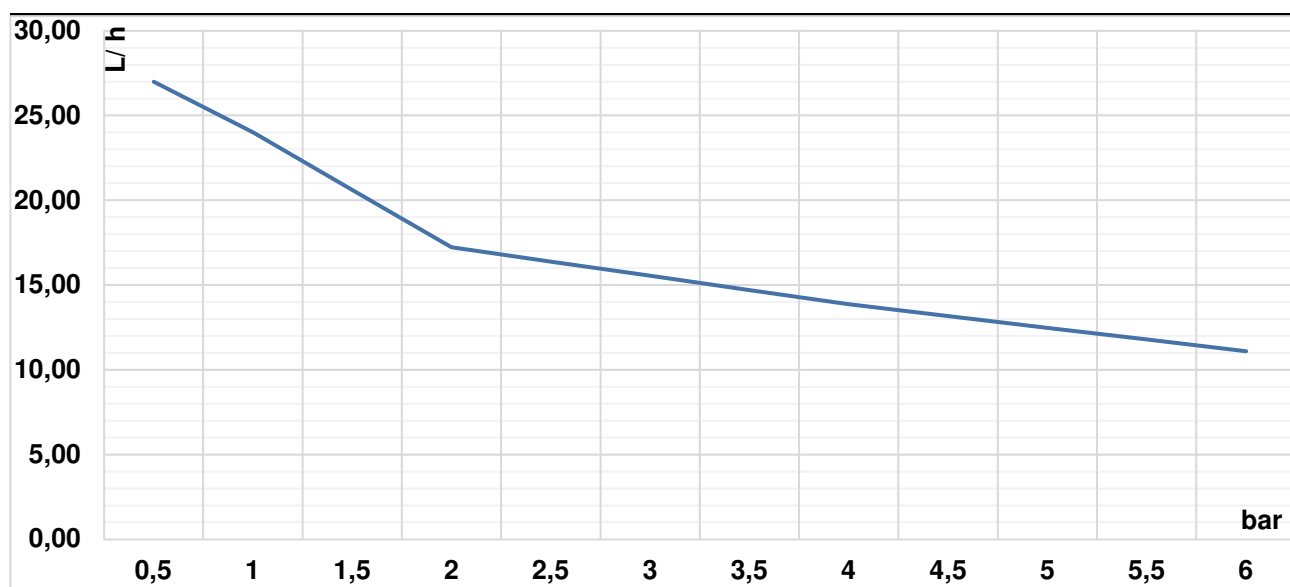
Pressure	bar	0.5	1	2	3	4	5	6
Injection vol.	ml	1.08	0.83	0.52	0.45	0.37	0.34	0.31
Flow rate	l/h	11.70	9.00	5.65	4.84	4.02	3.67	3.32

Head C0703 (hose 4x6)



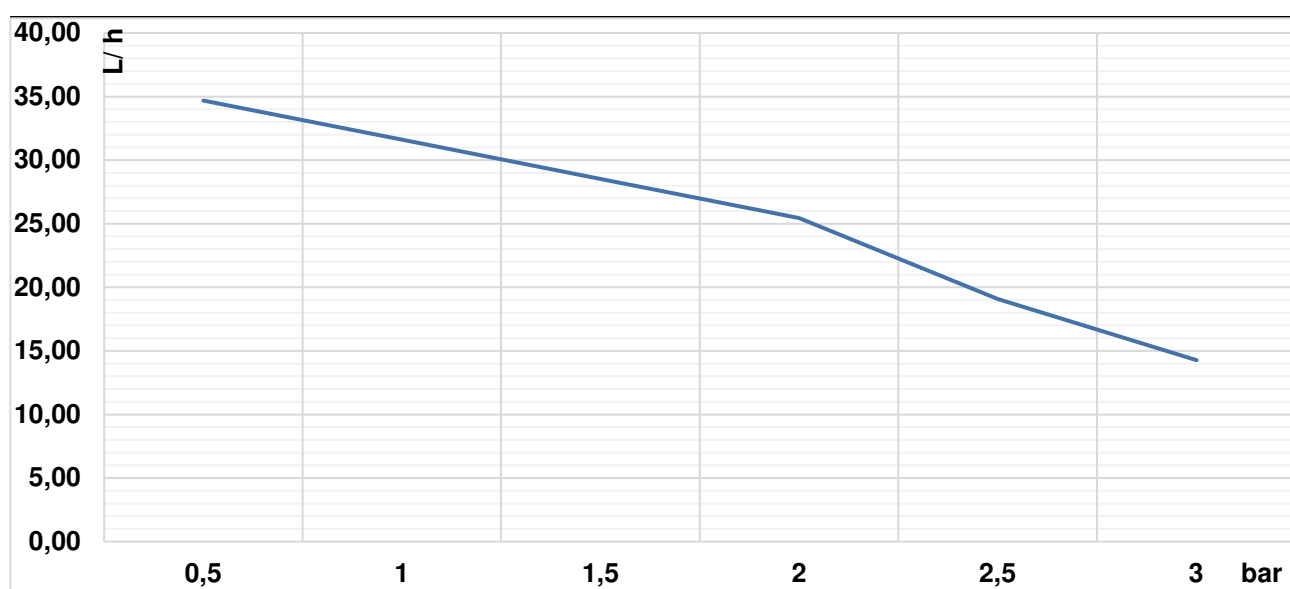
Pressure	bar	0.5	1	2	3	4	5	6
Injection vol.	ml	1.08	0.83	0.75	0.68	0.61	0.57	0.54
Flow rate	l/h	11.70	9.00	8.11	7.34	6.56	6.19	5.83

Head E1503 (hose 5x8)



Pressure	bar	0.5	1	2	3	4	5	6
Injection vol.	ml	2.50	2.22	1.59	1.4	1.28	1.16	1,03
Flow rate	l/h	27.00	24.00	17.22	15.4	13.86	12.48	11,10

Head F2502 (hose 9x12)



Pressure	bar	0.5	1	2	3
Injection vol.	ml	3.21	2.93	2.36	1.32
Flow rate	l/h	34.71	31.62	25.44	14.28

PASSWORD PROTECTION LEVELS

The instrument configuration menu is structured on three access levels, which can be protected by three different passwords, to prevent incorrect configurations by unauthorized personnel.

- The **TECHNICIAN password** allows complete access to all the menus and submenus of the unit; level reserved for the installer / system engineer.
- The **OPERATOR password** allows to set a series of parameters for customizing the adjustments based on the needs of the specific system; level reserved for the pool manager.
- The **CALIBRATION password** allows limited access to non-critical parameters; level reserved for personnel in charge of ordinary pool maintenance.

Measure pH Measure Cl	Pump	Enable	PFM	Setpoint
				Proportional band
				Direction
				Max dosage
				Frequency MIN
				Frequency MAX
			On-Off	Setpoint
				Hysteresis
				Direction
				Max dosage
				Frequency MIN
				Frequency MAX
				Delay ON
				Delay OFF
		Disable		
	Level			
	Calibration	Wizard		
		Comparison		
		Buffer solutions		
		Reset calibrations		
		Info		
	Hydraulic calibrat.			
	pH priority			
	Limits			

Main settings	Com. Outputs conf.		
	Com. Inputs conf.	External consent	
		Sample water	
		Eco Mode	
		Temperature	
	Alarms	Enable	Alarm conditions
		Disable	
	USB	Datalogger	Sampling time
			Export data
			Device ID
		Save config.	
		Load config.	
		FW updating	
	Timer		
	Connectivity		
	Service	Alarm list	
		Dosing pumps	
		Outputs test	
		Inputs test	
		pH/Cl simulation	
		Reset	Alarm history
			Datalogger
			Calibrations pH
			Calibrations Cl
			Hydraulic cal. pH
			Hydraulic cal. Cl
			Measure autoset
			Factory reset
	System	Password	Technician
			Operator
			Calibration
		Softkey 4	
		Set date/time	
		Language	
		FW updating	
		Info	

CODING SYSTEM FOR NOVA² Pool SERIES

83N1	↓	↓	↓	↓	↓
	A = 230V no plug F = 230V + Schuko G = 230V + UK plug B = 115V + US plug	1 = ORP 2 = CLE 3 = CAC mV 4 = CAC mA	0 = No communication U = RS485 Modbus RTU Y = Inbuilt SteieLynx Wi-Fi/LAN G = Inbuilt SteieLynx with 4G modem	B = 0503 C = 0703 E = 1503 F = 2502	B = 0503 C = 0703 E = 1503 F = 2502
	Power supply	M2 input	Communication	Acid dosing head (l/h / bar)	Chlorine dosing head (l/h / bar)

Example 1: NOVA² Pool unit with 230V power supply and Schuko plug, pH/CAC (mV) inputs, with inbuilt SteieLynx Wi-Fi/LAN gateway, and 5 l/h dosing heads.

Part No.: 83N1 F 3 Y BB

Example 2: NOVA² Pool unit with 230V power supply and Schuko plug, pH/CAC (mA) inputs, with RS485 Modbus RTU port and 7 l/h dosing heads.

Part No.: 83N1 F 4 U CC

