



INDUSTRIAL GROUP

A-TECHNOPOOL 3 SYSTEM PH-RX

OPERATING AND MAINTENANCE INSTRUCTIONS



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<https://www.aqua.it/prodotti/piscina/dosaggio/a-technopool-system-ph-rx/>



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1 General Comments

1.1 Warnings

The aim of the manual is to provide you with all the necessary information for a proper installation and maintenance in order to give you optimum results whilst in operation.

For this reason it is really important reading with attention the instructions given below since they furnish all the indications necessary for the sureness of the installation, use and maintenance



- ◆ This manual has to be preserved with care to be consulted in whatever occasion.
- ◆ At the moment of the receipt you have to check the integrity of the panel and of all its components, in case of anomalies consult skilled staff before making interventions.
- ◆ Before the installation of the pump check that all the data on the pump's label correspond to those of the electrical plant.
- ◆ Do not operate with bare/naked hands or feet
- ◆ Do not leave the equipment exposed to the action of the atmospheric agents.
- ◆ Avoid splashing water
- ◆ The equipment has to be operated from skilled person.
- ◆ In case of improper functioning of the panel switch off and contact our technical assistance for any necessary repairs.
- ◆ For a correct functioning it is necessary to use original spare parts and original accessories. The producer declines whatever responsibility in reference with break down due to tampering or the use of not original spare parts and accessories.
- ◆ The electrical plant has to be in conformity with the rules of the country where it is realised.
- ◆ The room temperature of utilisation can't over take 45° C

1.2 Design standard

Our products are built according to the actual general directives endowed with CE mark in conformity with the following European directives:

- n° **2004/108/CE** “ e s.m.i.
- n° **2006/95/CE** “DBT Low Voltage Directive” e s.m.i.
- n° **2011/65/UE** , **2012/19/UE** “direttive RoHs e WEEE” e s.m.i.

Granted this we think that in order to obtain an high trustworthiness and a lasting functioning of the pump it is necessary to follow with attention our manual particularly in reference with the maintenance.

The Producer declines all responsibility in reference with whatever intervention on the equipment from not skilled personnel.

3 INTRODUCTION

Technopool3 is an integrated system able to control two peristaltic pumps and a solenoid valve control relay, for the automatic management of water treatment in the swimming pool.

Peristaltic pumps are controlled in the following ways:

- **pH Pump:** for dosing the pH corrector.
The setpoint of the pH value is set to be maintained in the swimming pool.
- **Pump Rx:** for dosing the disinfectant.
The setpoint of the redox value is set to be maintained in the swimming pool.

On the other hand, the solenoid valve of the control relay, used for dosing the chlorine tablets, can be programmed in two ways:

- **cyclic**
Opening (ON) and closing (OFF) schedule of the relay are fixed or proportional to the temperature of the water reached during the latest dosing.
- **ON/OFF**
Opening (ON) and closing (OFF) schedule is controlled by the redox; therefore, it depends on the setpoint setting with a fixed hysteresis of 10 mV.

3.1 Technical features

- Back-lit LCD display 2x16.
- Red LED (pH) pH alarm signal.
- Red LED (Rx-ppm) redox alarm signal.
- Main ON/OFF switch.
- Dose enable switch for each pump.
- Solenoid valve output (dry contact, no voltage).
- Flow sensor input.
- Two inputs for level probes.
- An input for temperature probe PT 100.
- A BNC input for pH electrode.
- A BNC input for redox electrode.
- Alarm repetition output 24VDC.

Hereunder are the maximum pump capacities:

- 4 L/h @ 1 bar, Santoprene® tube.
- 1 L/h @ 3 bar, Silicone tube.

4 Electrical connections

Before proceeding with the installation, ensure the presence of a suitable earthing connection and of an appropriate sensitive differential switch. Observe electrical values indicated on the system label.



ATTENTION: Before carrying out maintenance on the system, always disconnect the power supply.



Always check all electrical connections, by using a multimeter. An incorrect voltage may damage the system not covered by the guarantee. The following manual must always be kept as reference for any electrical connection.

All electrical connections must be carried out in compliance with local laws regarding electrical systems.

4.1 Main power supply

Connect a voltage between 100 and 240VCA - 50/60Hz on clamp F N .

Electrical characteristics

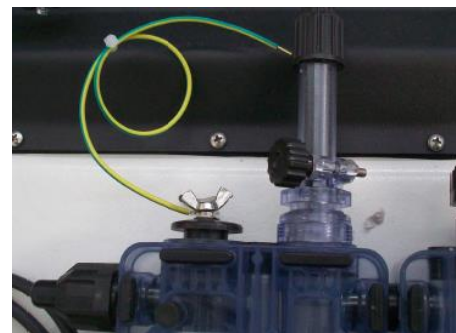
- Power supply: 100÷240 VAC 50/60 Hz.
- Absorption (max): 14 W
- pH Range: 0.00- 14.00
- Redox Range: 0...1000 mV

CAUTION !!!!!



Verify that the earth system is perfectly functional and complies with the applicable regulations. Make sure that the highly sensitive differential switch is present (0.03 A). Verify that the rated values of the pump are compatible with those of the mains. Never install the pump directly in parallel with inductive loads (e.g. motors/solenoid valves) if necessary, use an isolating relay.

There are 2 protection devices inside the pump: a varistor and a fuse.



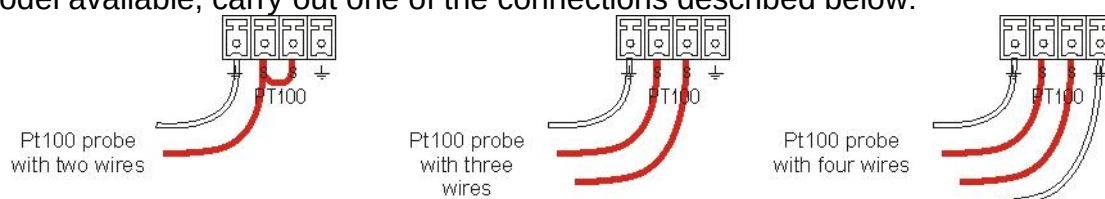
(Fig.A)

The modular probe holder grounding must not be connected to the ground cable of the panel but to an external ground node (fig. A).



4.2 Temperature probe

Connection of the temperature probe PT100 to the corresponding clamp; depending on the probe model available, carry out one of the connections described below:



4.3 Flow signal

Connect the flow sensor signal on input **PROX**.

4.4 Dosing enabling signal (V1)

Connect the enablement signal to the dosing (20-230VAC) on input **CHARGE**.

4.5 pH pump product level probe

Connect the level probe (on/off contact, without voltage) to input **LEVEL RIN**.

4.6 Rx pump product level probe

Connect the level probe (on/off contact, without voltage) to input **LEVEL SAN**.

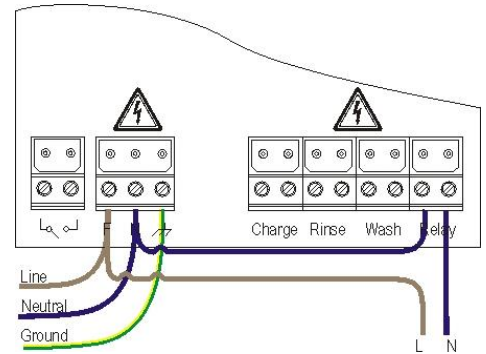
4.7 Alarm output – 24V OUT Clamp

It is an alarm repetition output that provides a voltage at **30VCC with a maximum absorption of 500mA**.

4.8 Solenoid valve output – RELAY Clamp

RELAY clamp provides a dry contact (not live) and it is used to control the solenoid valve.

To have a voltage on the **RELAY** clamp equal to the power voltage, i.e. 230VAC, follow the diagram indicated on the side.

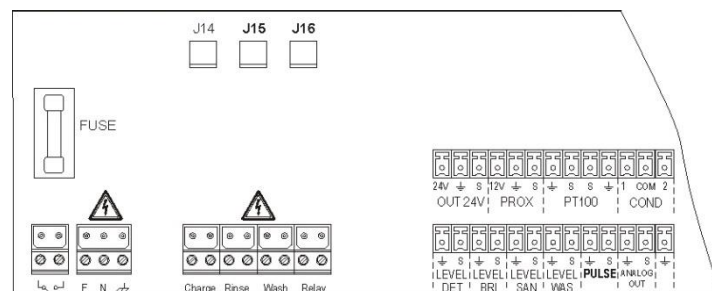


4.9 Pump switches

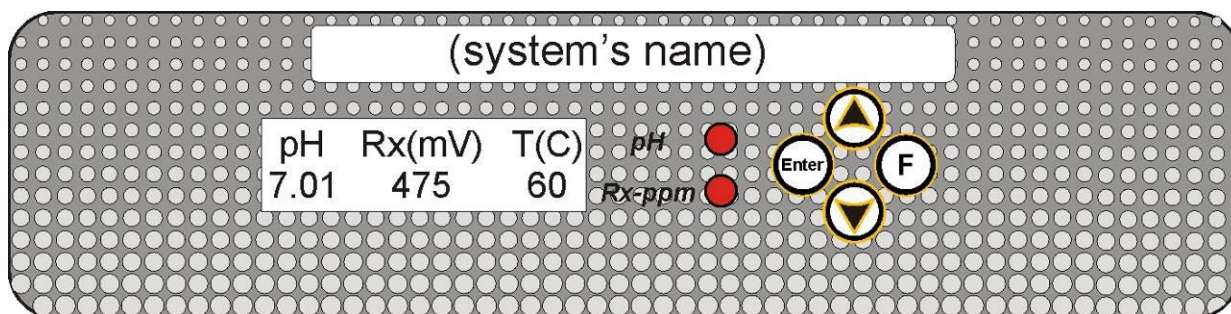
The system can be set with dose enable switches for each pump, which block the dosing of the associated pump.

Switches are connected to the circuit in the following way:

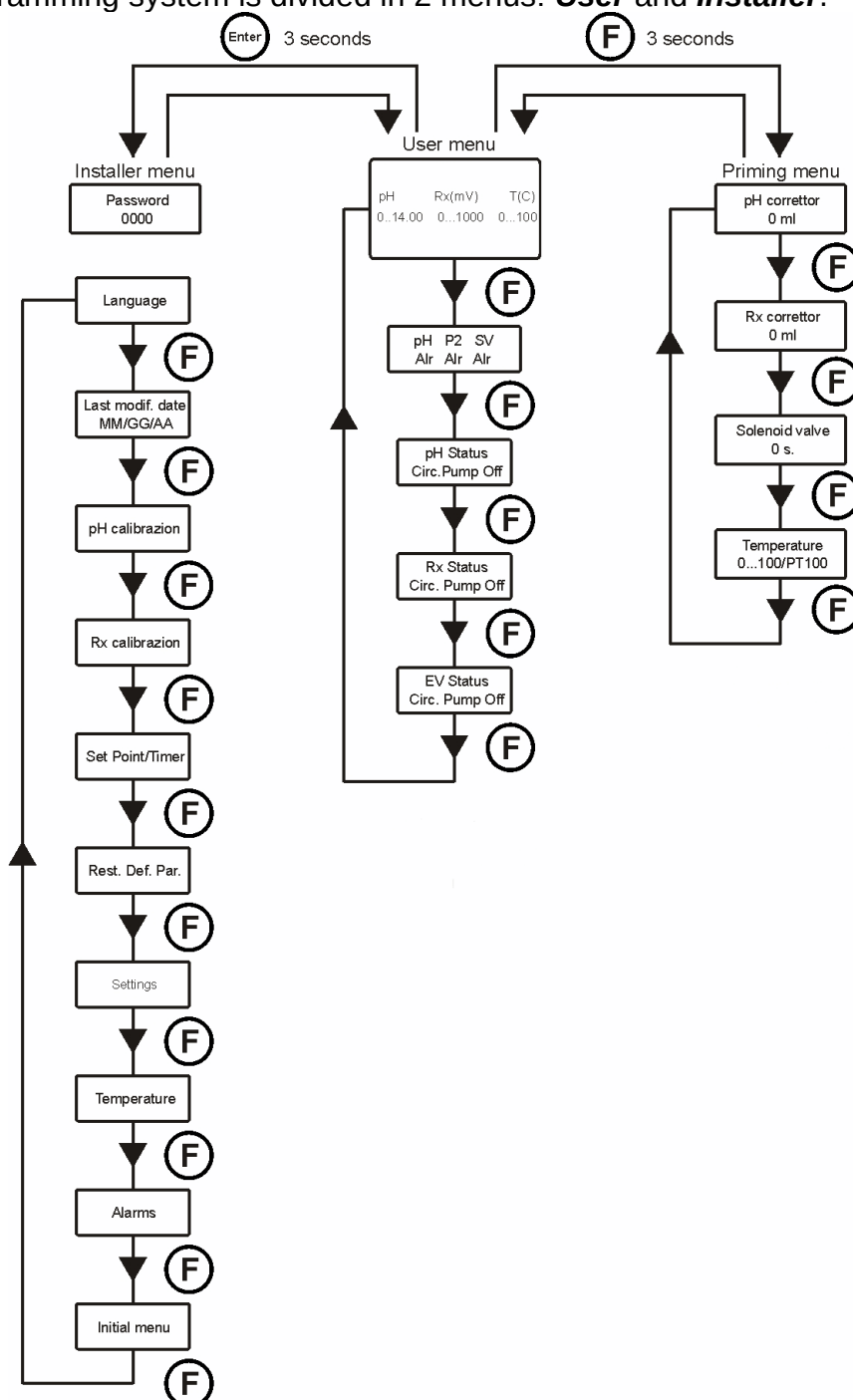
- pH Pump on connector **J16**
- Rx on connector **J15**



5 TECHNOPOOL3 MENU

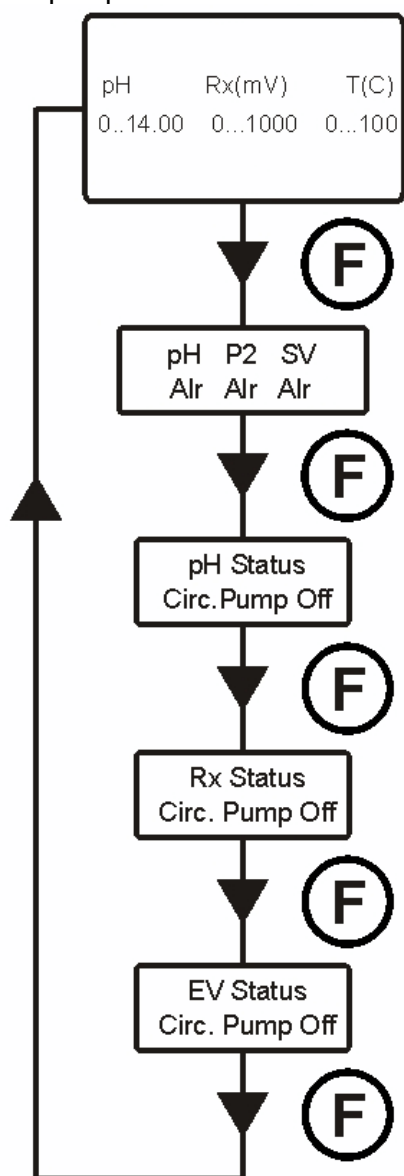


Tecnopool3 programming system is divided in 2 menus: **User** and **Installer**.



5.1 User Menu

The User Menu is used to verify the status of pumps and solenoid valve and also allows to prime the pumps.



Default screen shows the reading of the pH, Rx and the temperature.

Shows the status and the alarm of the pumps and solenoid valve.

Displays the status of pH pump.

Status	Description
Active	The pump is active
Inactive	The pump is inactive
Flow alarm	Flow alarm active
Circ. Pump Off	The recirculation pump is not operating
Switch Off	The pump switch is set on OFF
Level alarm	The product tank is empty
Range alarm	Reading of pH out of the allowed range
OFA alarm	Dosing alarm
Stabilisation	Stabilisation of the probe reading

Displays the status of Rx.

Status	Description
Active	The pump is active
Inactive	The pump is inactive
Flow alarm	Flow alarm active
Circ. Pump Off	The recirculation pump is not operating
Switch Off	The pump switch is set on OFF
Level alarm	The product tank is empty
OFA alarm	Dosing alarm
Stabilisation	Stabilisation of the probe reading

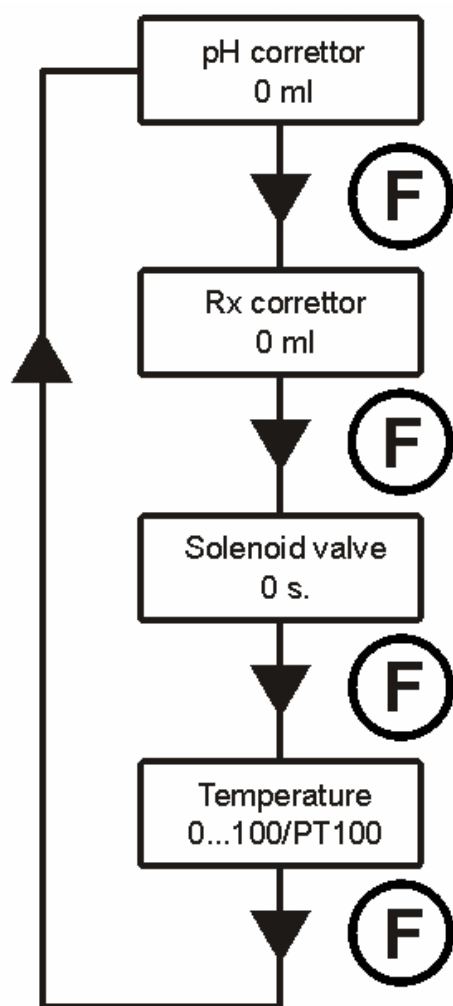
Displays the status of the solenoid valve.

Status	Description
Active	The solenoid valve is active
Inactive	The solenoid valve is inactive
Flow alarm	Flow alarm active
Circ. Pump Off	The recirculation pump is not operating
Stabilisation	Stabilisation of the probe reading

5.1.1 Manual activation of pumps and solenoid valve

The priming sub-menu can be accessed from the user menu, which allows the manual operation of pumps and solenoid valve.

To access this menu, press key **F** for 3 seconds; the following options will be displayed:



pH corrector

Press keys ▼▲ to set manually the values to be dosed and **Enter** to confirm and activate the dosing of the pH pump.

The dosing that can be set is 0÷999 ml or 1.0÷9.9 litres.

Rx corrector

Press keys ▼▲ to set manually the values to be dosed and **Enter** to confirm and activate the dosing of the Rx/Cl/HP pump.

The dosing that can be set is 0÷999 ml or 1.0÷9.9 litres.

Solenoid valve priming

Press keys ▼▲ to set manually the opening schedule of the solenoid valve and **Enter** to confirm and activate its opening.

The schedule that can be set is 0÷50 seconds (at steps of 10 seconds) or 1÷60 minutes (at steps of 1 minute).

Temperature (is displayed only if the temperature is not set on OFF)

Press keys ▼▲ to set the required temperature, only if the temperature has been set manually.

The temperature can be set at 0÷100° C.

Press key **F** for 3 seconds to exit the priming menu, or exit automatically after a minute without pressing any key.

5.2 Installer menu

The installer menu is used to program Technopool3 system.

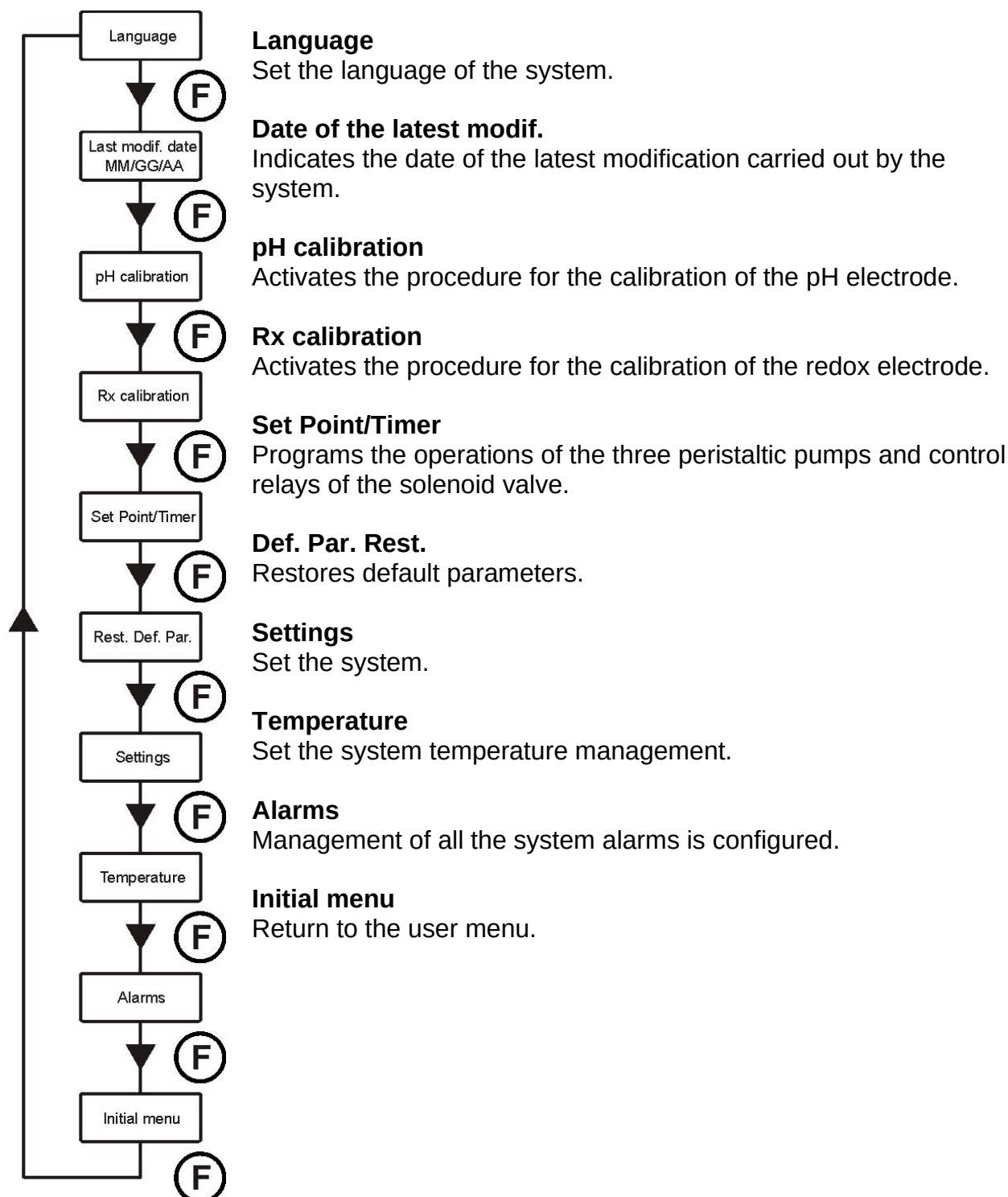
To access this menu, press key **Enter** for 3 seconds; password request will be displayed:

5.2.1 Password insertion

Password
0000

Press keys ▼▲ to set the value; to pass to the next digit press key **Enter**; to confirm press **Enter** for 3 seconds.
The default password is 0000.

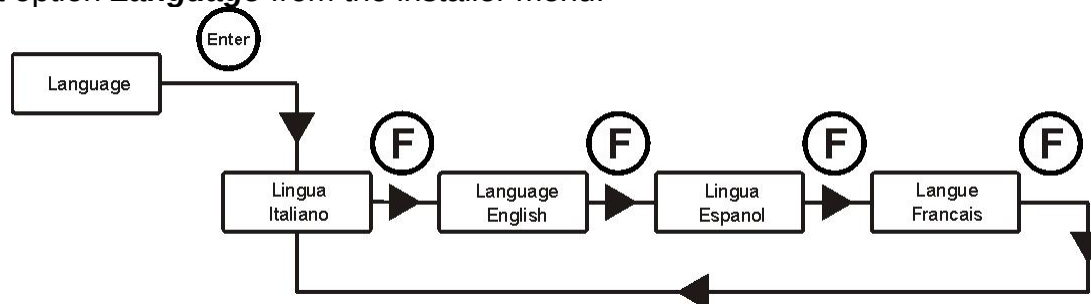
Once the password is confirmed, the installer menu will be displayed.



6 Quick programming

6.1 Selection of the language of the system

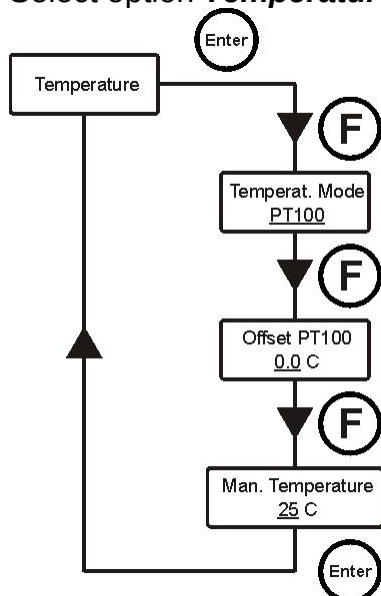
Select option **Language** from the installer menu.



To confirm and exit, press key **Enter** for 3 seconds.

6.2 Setting the temperature

Select option **Temperature** from the installer menu.



Temperat. Mode

Indicates how the temperature is managed: manually, automatically (with probe PT100) or OFF (deactivated). Press keys ▼▲ to select the mode and **Enter** to confirm.

PT100 offset (only if the Temperat. Mode is PT100)

This parameter allows to adjust the temperature display. In fact, the offset value can be added to or removed from the measured temperature, so to display the desired value. *This parameter is not considered for the calculation of the dosing but only for the display.*

Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set are -5.0÷10.0.

Man. Temperat. (only if the Temperat. Mode is Manual)

It represents the coefficient for calculating the compensation of conductivity; it is recommended to leave the default value. Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set are 0÷100° C.

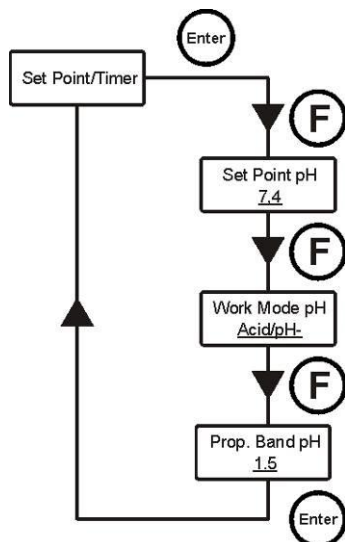
To confirm and exit, press key **Enter** for 3 seconds.

6.3 Setting the pH (pump pH)

The following parameters must be programmed for pH pump operation:

Set Point pH – Work Mode pH – Prop. Band pH

Enter the installer menu, select option **Set Point/Timer** , press key **Enter** and then key **F** more than once, until **Set Point pH** is displayed:



Set Point pH

The setpoint indicates the value of pH that is intended to keep.

Press keys ▼ ▲ to set the desired setpoint and **Enter** to confirm.

Setpoint values that can be set are 5.0÷9.0 pH.

Work mode pH

The operation mode sets the type of solution it is being dosed: Acid (the pump starts dosing when the value read by the probe is higher than the Setpoint) or Alkaline (the pump starts dosing when the value read by the probe is lower than the Setpoint).

Press keys ▼ ▲ to select the two options and **Enter** to confirm.

pH Work mode that can be set is Acid/pH⁻ or Alkaline/pH⁺.

Proportional band pH

Represents the value of the band for the proportional dosing in time.

The pump can be active for maximum 300 seconds. If it is activated for less time, it must be inactive for a time equal to the difference between the set pH cycle period (refer to par. 5.1) and the activation time.

Press keys ▼ ▲ to set the desired value and **Enter** to confirm.

The proportional band can be selected among the following values:

0.5 – 1 – 1.5 – 3 pH.

Time T_{ON} of pump activation is calculated with the following formula:

$$T_{ON} = \frac{300}{\text{Prop. Band pH} : |(\text{Read value pH} - \text{Set Point pH})|}$$

Read value - Set point difference is considered an absolute value.

On the other hand, T_{OFF} is the difference between the set pH cycle period – T_{ON} .

Example:

Set Point pH = 7 pH

Work Mode pH = Acid/pH⁻

Prop. band pH = 1.5 pH

Read value pH = 7.5 pH

$$T_{ON} = \frac{300}{1.5 : |(7.5 - 7)|} = \frac{300}{1.5 : |(0.5)|} = \frac{300}{1.5 : (0.5)} = \frac{300}{3} = 100 \text{ s.}$$

If during the dosing the pump reaches the setpoint, then it stops for the time obtained by the difference between the set pH cycle period (refer to par. 5.1) and the time the pump was active.

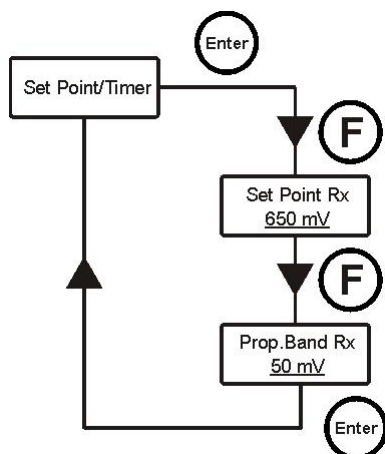
6.4 Setting the redox (P2 pump)

P2 Pump doses proportionally to the setpoint reading.

The following parameters must be programmed for redox pump operation:

Set Point Rx – Prop. band Rx

Enter the installer menu, select option **Set Point/Timer**, press key **Enter** and then key **F** more than once, until **Set Point Rx** is displayed:



Set Point Rx

The setpoint indicates the value of Rx that is intended to keep.

Press keys **▼▲** to set the desired setpoint and **Enter** to confirm.

Setpoint values that can be set are 0÷1000 mV.

Proportional band Rx

Represents the value of the band for the proportional dosing in time.

The pump can be active for maximum 300 seconds. If it is activated for less time, it must be inactive for a time equal to the difference between 300 and the activation time.

Press keys **▼▲** to set the desired value and **Enter** to confirm.

The proportional band can be selected among the following values:

20 – 50 – 100 – 200 mV

Time T_{ON} of pump activation is calculated with the following formula:

$$T_{ON} = \frac{300}{\text{Prop. Band Rx} : |(\text{Read value Rx} - \text{Set Point Rx})|}$$

Read value - Set point difference is considered an absolute value.

On the other hand, T_{OFF} is the difference between 300 – T_{ON} .

Example:

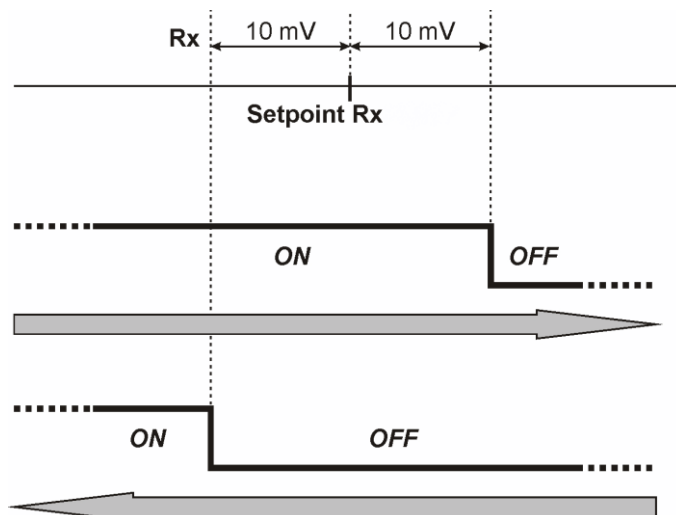
$$\begin{array}{l} \text{Set Point Rx} = 700 \text{ mV} \\ \text{Prop. band Rx} = 50 \text{ mV} \\ \text{Read value Rx} = 675 \text{ mV} \end{array} \quad T_{ON} = \frac{300}{50 : |(675 - 700)|} = \frac{300}{50 : |(-25)|} = \frac{300}{50 : (25)} = \frac{300}{2} = 150 \text{ s.}$$

If during the dosing the pump reaches the setpoint, then it stops for the time obtained by the difference between 300 seconds and the time the pump was active.

6.5 Setting the solenoid valve

The operation mode of the control relay of the solenoid valve can be ON/OFF or cyclical.

ON/OFF: The relay opening and closing is controlled by the redox reading; if the system reads a value lower than the set Setpoint, then the relay is activated (ON), otherwise it is deactivated (OFF). In this case, a hysteresis of 10 mV must be considered.



Cyclical: The relay opening and closing is continuously controlled by the On and OFF timing, which can be proportional to the temperature (set on automatic or manual) or not (temperature set on OFF).

Manual temperature or with PT100:

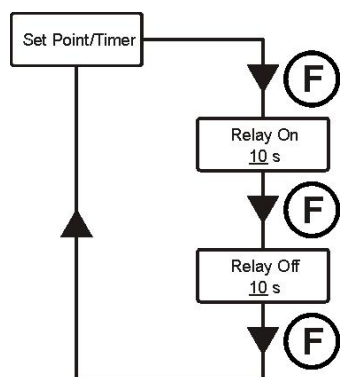
Relay On – Relay On T. Max – Relay Off – Relay Off T. Max

Temperature OFF (disabled):

Relay On – Relay Off

Enter the installer menu, select option **Set Point/Timer** , press key **Enter** and then key **F** more than once, until **Relay On** is displayed:

Temperature OFF (disabled):



Relay On

It indicates the relay ON schedule (solenoid valve open). Press keys ▼▲ to set the desired value and **Enter** to confirm.

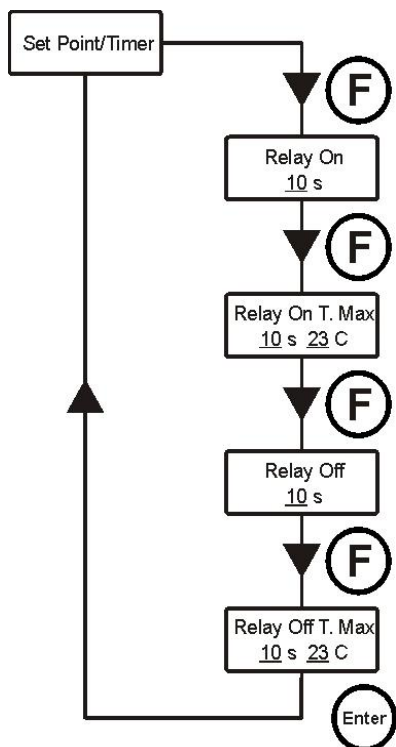
Values that can be set are 0÷59 seconds or 1÷60 minutes.

Relay Off

It indicates the relay OFF schedule (closed solenoid valve). Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set are 0÷59 seconds or 1÷60 minutes.

Manual temperature or with PT100:



Relay On

It indicates the relay ON schedule (solenoid valve open). Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set are 0÷59 seconds or 1÷60 minutes.

Relay On T. Max

Indicates the ON timing of the relay (solenoid valve open) to the programmed maximum temperature value.

Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set for the timing are 0÷59 seconds or 1÷60 minutes; whereas 23÷36° C for the temperature.

Relay Off

It indicates the relay OFF schedule (closed solenoid valve).

Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set are 0÷59 seconds or 1÷60 minutes.

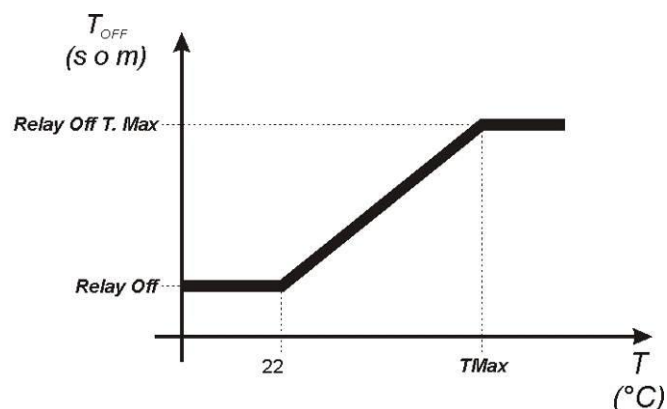
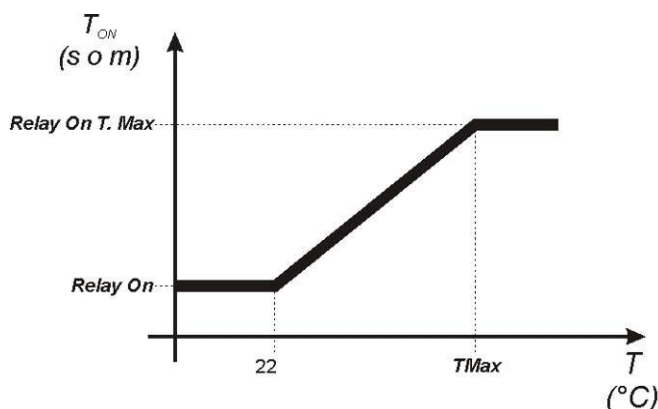
Relay Off T. Max

Indicates the OFF timing of the relay (solenoid valve closed) to the programmed maximum temperature value.

Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set for the timing are 0÷59 seconds or 1÷60 minutes; whereas 23÷36° C for the temperature.

The two ON and OFF timings are proportional to the temperature reached during the latest dosing, according to the diagram below:



To calculate exactly the dosing, the following formulas can be applied:

$$T_{\text{ON}} = \frac{(\text{Relay On T. Max} - \text{Relay On}) \times (\text{Temp. max. last dosing} - 22)}{(\text{Relay On T. Max} - 22)} + \text{Relay On}$$

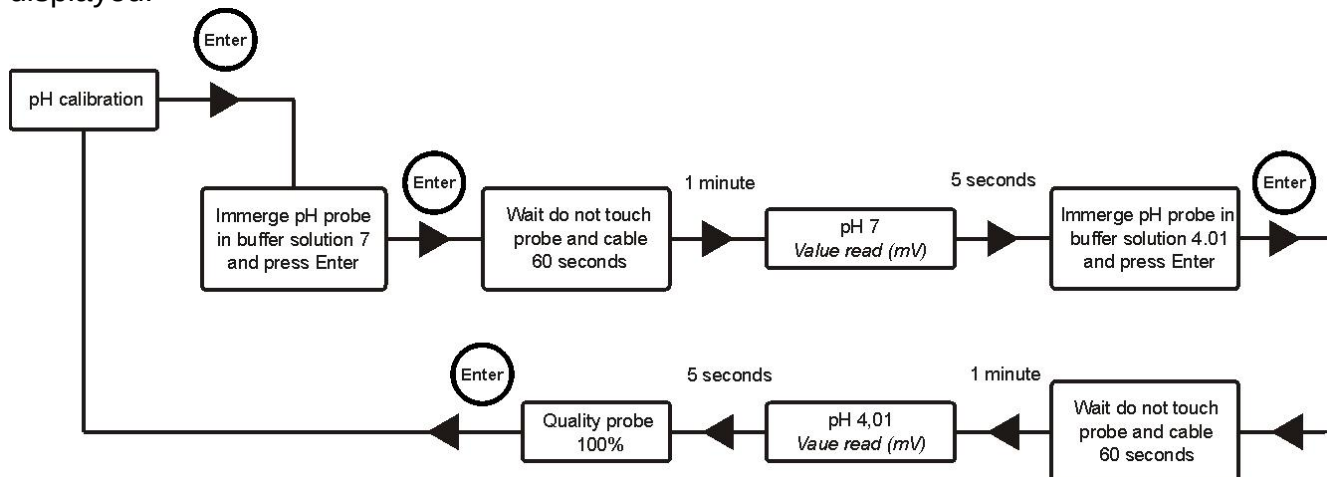
$$T_{OFF} = \frac{(\text{Relay Off T. Max} - \text{Relay Off}) \times (\text{Temp. max. last dosing} - 22)}{(\text{Relay Off T. Max} - 22)} + \text{Relay Off}$$

6.6 Calibration of pH electrode

The calibration of the pH electrode is carried out on two points, therefore it is requested to have the following material always available:

- pH 7 buffer solution.
- pH 4,01 buffer solution.
- Container with water for cleaning the electrode (i.e. a glass).

Select the option **pH Calibration** from the installer menu and follow the instructions displayed.



Once carried out the pH 7 calibration, rinse the electrode with water, so to prevent the pH 4 solution from polluting.

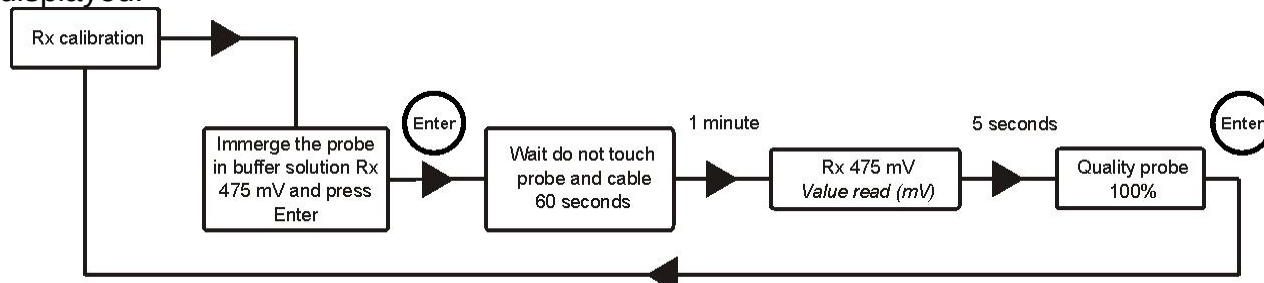
Once the procedure is completed, the quality of the calibrated electrode will be displayed; if the quality of the probe results 25% or less, carry out a new calibration. Should the result still be 25% or less, it is recommended to replace the probe.

6.7 Calibrating the redox electrode

The calibration of the redox electrode is carried out only on one point, therefore it is requested to have the following material always available:

- 475 mV buffer solution.

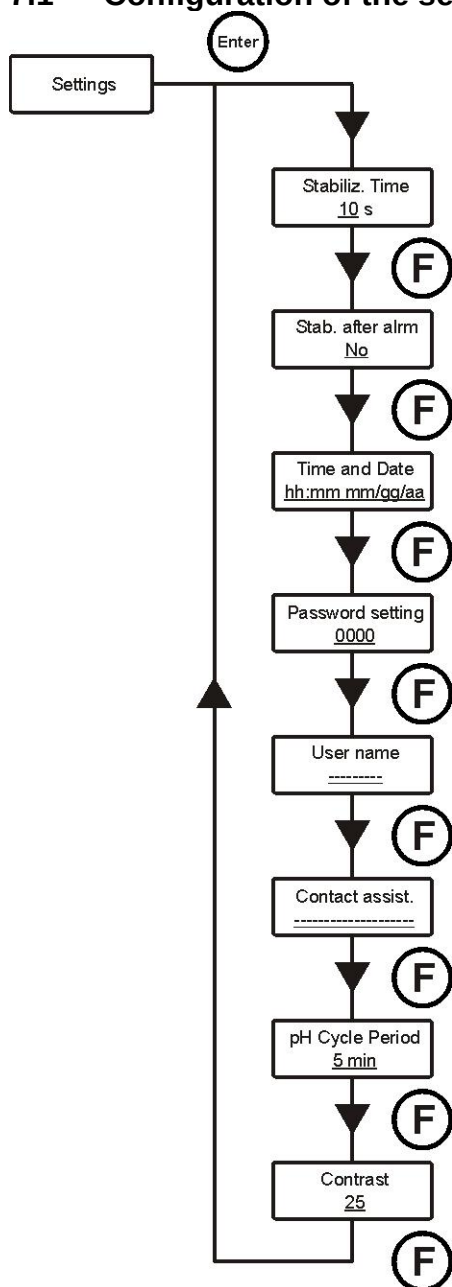
Select the option **Rx Calibration** from the user menu and follow the instructions displayed.



Once the procedure is completed, the quality of the calibrated electrode will be displayed; if the quality of the probe results 25% or less, carry out a new calibration. Should the result still be 25% or less, it is recommended to replace the probe.

7 ADVANCED PROGRAMMING

7.1 Configuration of the settings



- **Stabiliz. Time**

When the system is powered or after an alarm occurred, it waits a stabilisation time before it starts dosing (probes need some minutes to stabilise the readings).

- **Stab. after alarm**

Enables or disables the stabilisation time, after every alarm of the system.

- **Time and Date**

Sets hour and date of the system

Press keys ▼▲ to set the value and **Enter** to move the slider.

- **Password setting**

Set the password of the system.

Press keys ▼▲ to set the value and **Enter** to move the slider.

- **User name**

Set the name of the client.

Press keys ▼▲ to select a character and **Enter** to move the slider.

- **Contact assist.**

Set the name and telephone number of the After-Sales Assistance.

Press keys ▼▲ to select a character and **Enter** to move the slider.

- **pH Cycle period**

It is the time that must pass between the two doses for the pH pump.

Press keys ▼▲ to set the desired value and **Enter** to confirm.

Values that can be set for the timing are 5÷120 minutes.

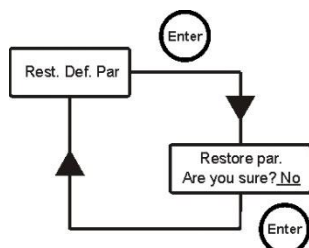
- **Contrast**

This is the contrast percentage of the LCD.

Use the ▼▲ keys to set the desired value and then confirm with the **Enter** key. *The time values that can be set are 1÷100.*

To confirm and exit, press key **Enter** for 3 seconds.

7.2 Restore the default parameters



The restoration of the factory parameters is enabled (refer to appendix 1). The system asks if you are sure to proceed.

Press keys ▼▲ to select the two options and **Enter** to confirm.



By activating this function, all programmed data will get lost!

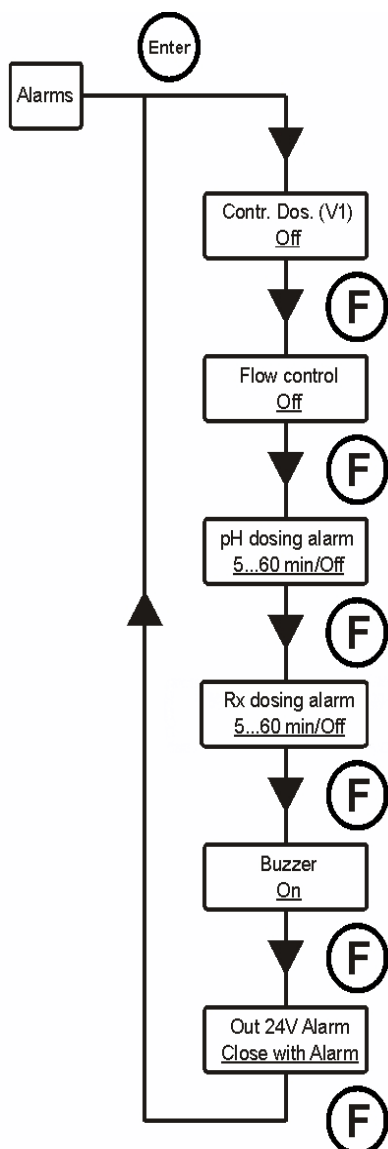
8 Alarms

The system is equipped with the following alarms:

- **Level alarm**, with 3 seconds of hysteresis; this alarm interrupts the operation of the relative pump.
- **Flow alarm**, with 3 seconds of hysteresis; this alarm interrupts the dosing of the system.
- **Dosing enabling alarm**, with 3 seconds of hysteresis; this alarm interrupts the dosing of the system.
- **pH measure alarm**: The system is equipped with a pH reading alarm. If the value of the pH is lower than 5 and higher than 9, the system stops the pumps. If the value of pH is lower than 5 or higher than 9, it is recommended to control the probe and the quality of the water.
- **Dosing Alarm**: product dose with no effect (with no variation in the pH or Rx reading). The dosing alarms can only be removed by restarting the system (use the ON/OFF switch) or automatically, when the measure nears the setpoint.

8.1 Setting the alarms

Select **Alarms** in the installer menu.



- **Contr. Dos. (V1)**
Enables or disables the dosing, when signal V1 occurs (signal of the active recirculation pump). Press keys ▼▲ to select the two options and **Enter** to confirm.
- **Flow control**
Enables or disables the dosing, when water flow occurs. Press keys ▼▲ to select the two options and **Enter** to confirm.
- **pH dosing alarm**
This is a dosing alarm and if the pH pump doses the product and there is no variation in pH (0.05 pH) during the set time, the system signals the alarm and stops dosing. The alarm is automatically disabled when the setpoint is neared (when the difference between the pH measure and the setpoint is less than 0.2 pH). Use the ▼▲ keys to set the desired value or disable the alarm (Off) and then confirm with the **Enter** key.
The time values that can be set are 5÷60 minutes.
- **Rx dosing alarm**
This is a dosing alarm and if the Rx pump doses the product and there is no variation in Rx (5 mV) during the set time, the system signals the alarm and stops dosing. The alarm is automatically disabled when the setpoint is neared (when the difference between the Rx measure and the setpoint is less than 20 mV). Use the ▼▲ keys to set the desired value or disable the alarm (Off) and then confirm with the **Enter** key.
The time values that can be set are 5÷60 minutes.
- **Buzzer**
Activates or deactivates the alarm acoustic signal. Press keys ▼▲ to select the two options and **Enter** to confirm.

- **Out 24V Alarm**

Sets the operation mode of **Out 24V** output, which can be set either open or closed, when alarms occur. Press keys ▼ ▲ to select the two options and **Enter** to confirm.

8.2 Alarm signal

Alarms are always signalled by the LCD display with the wording ***Alr.***

Moreover, the two LEDs light on to indicate that the pH or redox/Chlorine/Hydrogen peroxide pump has an alarm situation in progress.

9 Electrode winter break



Remove the electrodes during winter break. Fill in the protection cap with 1/3 of water and put it on the electrodes.

10 Coming season start-up procedures

- It's recommended to install a new electrode when season begin, in order to prevent failure during season.
- After the electrode replacement or start up of the apparatus, repeat the calibration procedure.

11 Returned goods procedure

The product must be sent back to the Manufacturer packed into it's own packaging, with all original protections, within the guarantee period.

The dosing pump must be properly washed with water in order to remove the chemical residuals from internal parts.

The electrode must be packed into it's own original box and provided by the protection cap duly filled in water.

If the above mentioned conditions will not be respected , the Manufacturer disclaim all responsibility for eventual damages occurred during transport.

12 Guarantee certificate

The Manufacturer guarantee the products from the shipment date to the first Customer.

During this period the Manufacturer will supply for free those components that, upon verification by the Manufacturer or an Authorized distributor, might reveal defective; from this guarantee are excluded all components subject to normal wear and tear, such as valves, gaskets, fittings, ring nuts, tubes, filters, valve injection, probes, electrodes and components in glass.

the Manufacturer reserve the right to repair or to replace the defective product.

the Manufacturer will not be responsible for any other claim by the customer for any direct or indirect damages caused by the use or by the impossibility to use, totally or partially, the product.

The reparation or replacement do not extend or renew the warranty period.

All expenses related to assembling and disassembling of the apparatus, transport, and used materials (filters, valves, etc.), remain at customer' cost

The reparation or replacement warranty right decade in following cases:



- ◆ The pump have not been used according to the instructions specified by the Manufacturer.
- ◆ The pump have been repaired, disassembled or modified by entity NON authorized by the Manufacturer.
- ◆ Non original spare parts have been used.
- ◆ The injection line have been damaged by using incompatible products.

- ◆ The electrical circuit board have been damaged by any external factor, i.e.: high-tension.

13 CHEMICAL COMPATIBILITY TABLE



Dosing pumps are widely used for dosing chemical products. It is important to select the most suitable material for the liquid to be dosed. The CHEMICAL COMPATIBILITY TABLE is a precious aid to that end. The following Table must be used as an indicative instrument. Modifications in the transported fluid composition or particular service conditions can reduce the resistance of the materials.

Product	Formula	Ceram.	PVDF	PP	PVC	Hastel.	PTFE	FPM (Viton)	EPDM (Dutral)	NBR	PE
Acetic Acid, Max 75%	CH ₃ COOH	2	1	1	1	1	1	3	1	3	1
Concentrated hydrochloric acid	HCl	1	1	1	1	1	1	1	3	3	1
Hydrofluoric acid 40%	H ₂ F ₂	3	1	1	2	2	1	1	3	3	1
Phosphoric acid, 50%	H ₃ PO ₄	1	1	1	1	1	1	1	1	3	1
Nitric acid, 65%	HNO ₃	1	1	2	3	1	1	1	3	3	2
Sulphuric acid 85%	H ₂ SO ₄	1	1	1	1	1	1	1	3	3	1
Sulphuric acid 98.5%	H ₂ SO ₄	1	1	3	3	1	1	1	3	3	3
Amines	R-NH ₂	1	2	1	3	1	1	3	2	3	1
Sodium bisulphite	NaHSO ₃	1	1	1	1	1	1	1	1	1	1
Sodium carbonate (Soda)	Na ₂ CO ₃	2	1	1	1	1	1	2	1	1	1
Iron chloride	FeCl ₃	1	1	1	1	1	1	1	1	1	1
Calcium hydroxide	Ca(OH) ₂	1	1	1	1	1	1	1	1	1	1
Sodium hydroxide (Caustic soda)	NaOH	2	1	1	1	1	1	2	1	2	1
Calcium hypochlorite	Ca(OH) ₂	1	1	1	1	1	1	1	1	3	1
Sodium hypochlorite, 12.5%	NaOCl + NaCl	1	1	2	1	1	1	1	1	2	2
Potassium permanganate 10%	KMnO ₄	1	1	1	1	1	1	1	1	3	1
Hydrogen peroxide, 30%	H ₂ O ₂	1	1	1	1	1	1	1	2	3	1
Aluminium sulphate	Al ₂ (SO ₄) ₃	1	1	1	1	1	1	1	1	1	1
Copper sulphate	CuSO ₄	1	1	1	1	1	1	1	1	1	1

Component with *excellent* resistance -1-

Component with *fair* resistance -2-

Non-resistant component -3-

Construction materials of pump and accessories

Polyvinylidene fluoride (PVDF)	valves, fittings, tubes
Polypropylene (PP)	valves, fittings
PVC	tubes
Hastelloy C-276 (Hastelloy)	Injection valve spring

Disclaimer

The information included in these tables has been obtained from highly qualified sources which we deem reliable and they are provided without any guarantee, explicit or implicit, concerning their exactness.

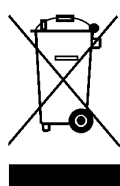
Conditions or methods for handling, storage and use of the material are beyond our control and/or knowledge.

For this reason and for other reasons we will not be held liable thereof and we expressly waive obligations of claim for damages or relating to the information contained herein.



14 APPENDIX 1 – Default parameters

Parameter	Default value
Language	English
Set Point pH	7,4
pH Work Mode	Acid
Proportional Band pH	1
Set Point Rx	650 mV
Proportional Band Rx	50 mV
Relay Mode	Cyclical
Relay On	0 s
Relay On at the maximum temperature	0 s
Relay Off	0 s
Relay Off at the maximum temperature	0 s
Maximum Temperature for Relay Timing	28 °C
Stabilisation Time	30 s
Stabilisation after Alarm	No
Password	“0000”
User name	“ ”
Contact assist.	“ +390522695805 ”
Out 24V Alarm (alarm repetition)	Closed with Alarm
Temperature Mode	PT100
Manual Temperature	25 °C
Offset PT100	0 °C
Dosing Control (V1)	On
Flow Control	Off
pH dosing Alarm	Off
Rx dosing Alarm	Off
Buzzer (alarm repetition)	Off
System kind	Technopool TpH
Pump pH flow	1.4 l/h
Pump Rx flow	1.4 l/h
Pump pH Max flow	4.0 l/h
Pump Rx Max flow	4.0 l/h
pH Cycle Period	5 min
Contrast	25



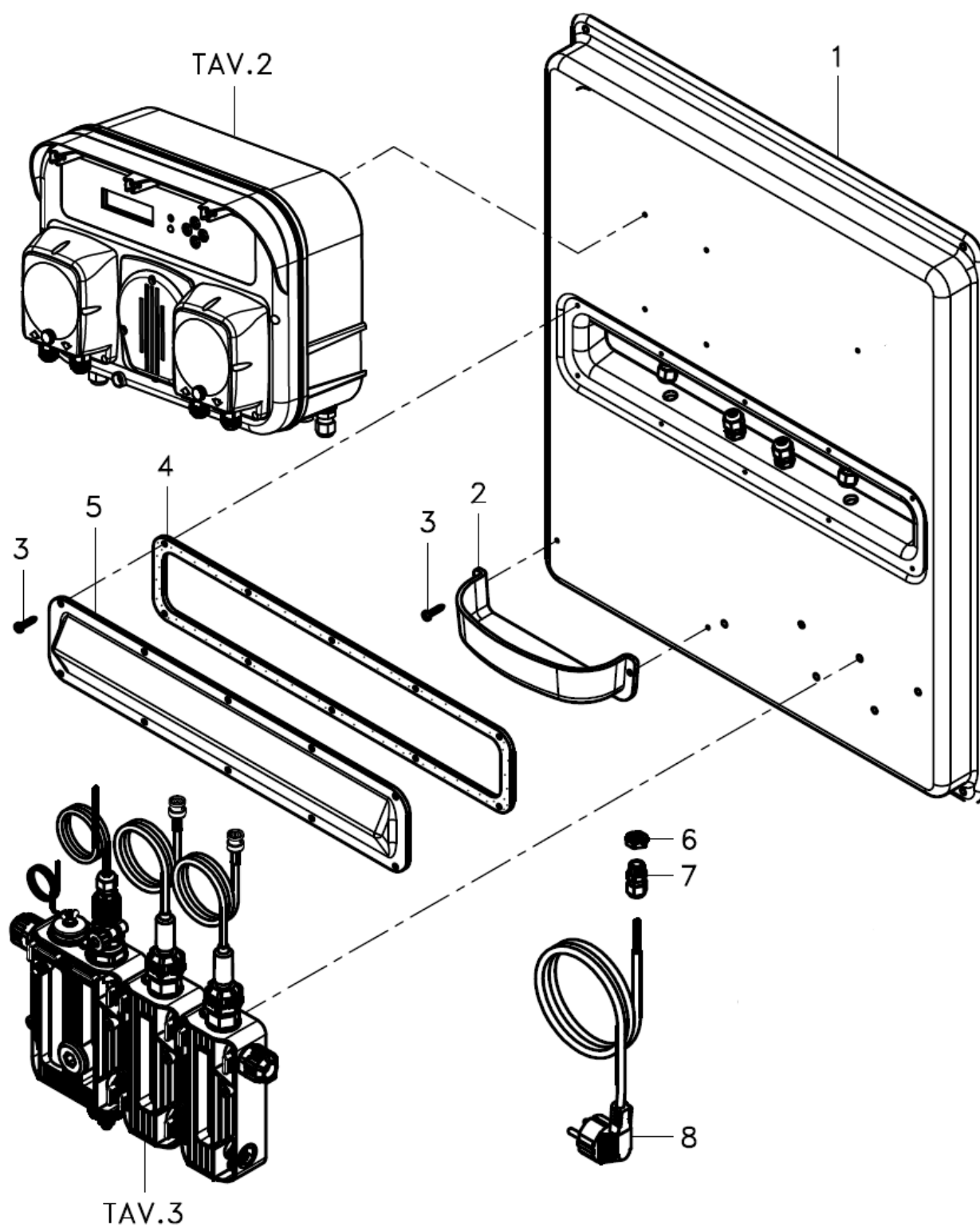
Pursuant to directives 2011/65/UE , 2002/96/EC, 2003/108/EC), it is notified that:

The electric and electronic devices must not be considered as household waste.

Consumers are obliged by law to return electrical and electronic devices at the end of their service lives to the public collecting points set up for the purpose or point of sale, when purchasing a new equivalent device in terms of one-to-one.

The crossed out rubbish mean symbol on the product, on the instructions manual or on the packaging indicates that the product is subject to the disposal rules envisioned by the Standard. Illegal disposal of the product implies the application of the administrative fines provided for by national regulations. By recycling, reusing the material or other forms of utilising old devices, you are making an important contribution to protecting our environment.

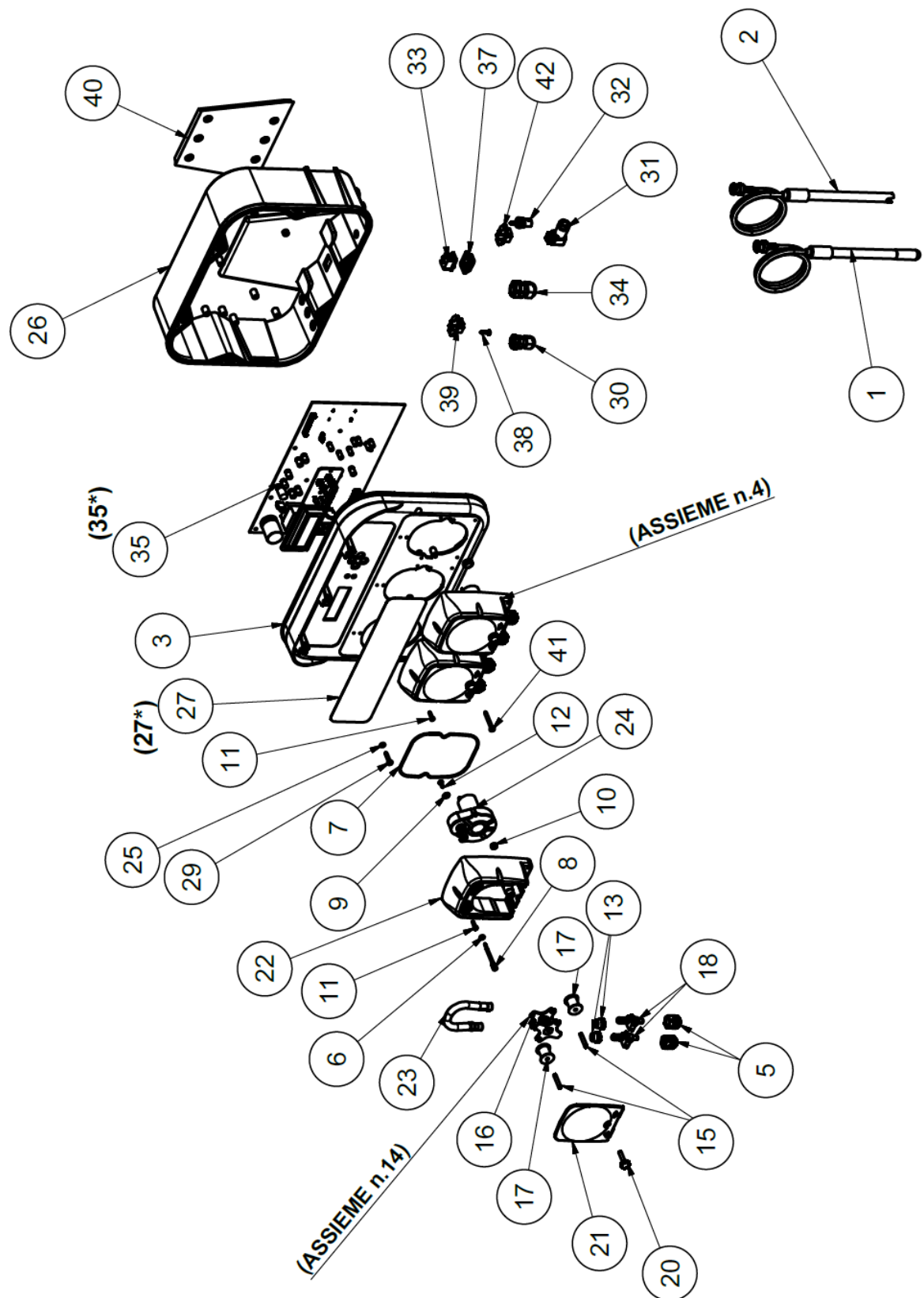
Disegni esplosi / Exploded drawings



SERIE A-TECHNOPOOL 3 SYSTEM pH/RX (Tavola 1)

it	Codice	Descrizione	Q.tà
1	ADSP4000048	PANNELLO 500x600 ABS GOFFRATO GRIGIO	1
2	ADSP4000047	CASSETTO PORTA SOLUZIONI TAMPONE	1
3	ADSP6000764	VITE AUTOFILETTANTE D4.2x16	18
4	ADSP6020306	GUARNIZIONE 436X86 IN GOMMA ESPANSA	1
5	ADSP4000046	COVER 435X85 IN ABS GOFFRATO NERO	1
6	ADSP6000626	DADO NERO PRESSACAVO PG7	1
7	ADSP6000424	PRESSACAVO PASSO PG7 - 1900.07 - NERO	1
8	ADSP6000419	CAVO ALIMENTAZIONE CON SPINA SHUKO	1

Esploso / Description / Explode / Dibujo



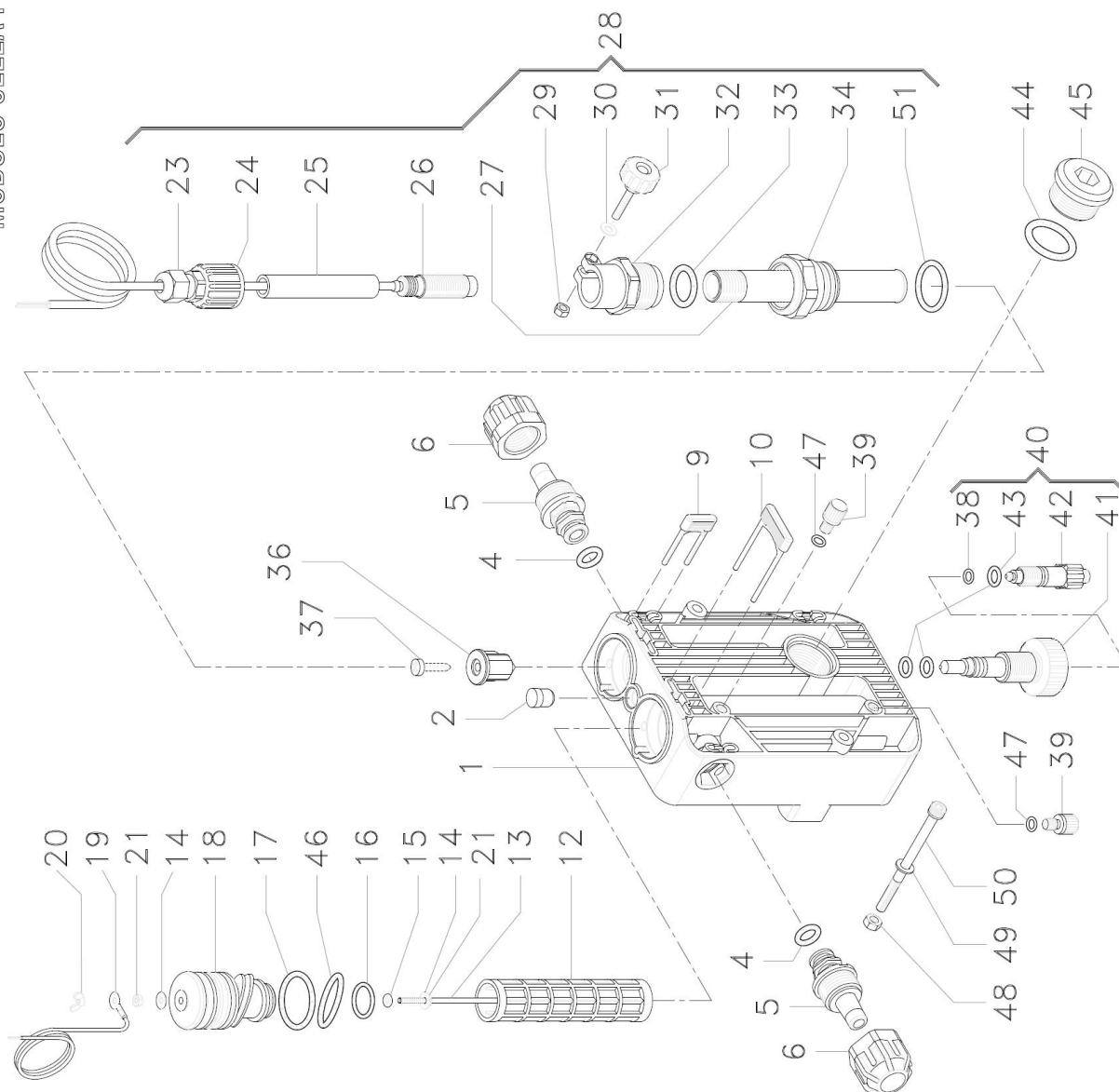
SERIE A-TECHNOPOOL 3 SYSTEM (Tavola 2)

ELENCO COMPONENTI			
N°	CODICE	DESCRIZIONE	QTÀ
1	ADELTPH05	ELETTRODO PH PLASTICA A-PH5 CAVO 5 METRI	1
2	ADELTRX05	ELETTRODO RX PLASTICA A-RX5 CAVO 5 METRI	1
3	ADSP3500003	COPERCHIO CASSA TRE POMPE ARNITE NERA VERSIONE 3 PERISTALTICHE	1
4	AD0Q00301F00I100	ASSIEME PDP TEC-CG 4-1 24VDC SANTOPRENE NERA (RICAMBIO TECHNOPOOL)	3
5	ADSP5004001E	GHIERA FISSATUBO PP NERA 1/8" 4X6 STD	2
6	ADSP5007072	OR "R1" NBR - 2.60X1.90	1
7	ADSP5007074	OR - RIF. 2412 - NBR	1
8	ADSP6000107	TAPPO ROSSO PER FORO REGOLAZIONE PER-R	1
9	ADSP6000469	RONDELLA PIANA FASCIA LARGA D. 3 x 9 - DIN 9021 INOX A2	2
10	ADSP6000502	DADO M 4 UNI 5587 - INOX A2	1
11	ADSP6000714	VITE M 2,9 X 13 UNI 6954 (TCTC) INOX A2	5
12	ADSP6000749	VITE M 2,9 X 9,5 UNI 6954 (AF-TCTC) INOX A2	2
13	ADSP8000006	SERRATUBO GRANDE PP NERO PER-R	2
14	ADSP8000009A	PORTA RULLINI COMPLETO PER-R/TEC 4/6-1	1
15	ADSP8000032	PERNO RULLINO IPCR/PER-R 4X19,3	2
16	ADSP8000059	PORTA RULLINI IPCR/CG/PER-R ARNITE PBT NERO	1
17	ADSP8000089	RULLINO PER-R D.13,6 DELRIN	2
18	ADSP8000014	RACCORDO PER-R PP NERO GRANDE	2
19	ADSP8000028	PERNO GUIDA PORTARULLINO PER-R	1
20	ADSP8000029	MANOPOLA FISSAGGIO COPERCHIO TRASPARENTE TEC	1
21	ADSP8000081	COPERCHIO FRONTALE TRASPARENTE TEC FUME'	1
22	ADSP8000084N	CASSA ANTERIORE TEC PP NERA	1
23	ADSP8000103	TUBO SANTOPRENE D. 5,8 X 9,4 55 NAT	1
24	ADSP8000254	MOTORE RAP 225 24VDC PER-R	1
25	ADSP5007072	OR "R1" NBR - 2.60X1.90	4
26	ADSP3500000	CASSA INFERIORE POMPA TRIPLA ARNITE NERA (VN)	1
27	ADSP7000480	ETICHETTA POLICARBONATO AQUA POOL SYSTEM NEUTRA (PER CASSA 3 POMPE)	1
27*	ADSP7000544	ETICHETTA POLICARBONATO TECHNOPOOL TIMER pH RER	1
29	ADSP6000767	VITE M 3,5 X 19 UNI 6954 (AF-TCTC) INOX A2	3
30	ADSP6000424	PRESSACAVO PASSO PG7 - 1900.07 - NERO	4
31	ADSP6000454	CONNETTORE FEMMINA 4 VIE G4W1F	1
32	ADSP6000463	CONNETTORE BNC FEMMINA	2
33	ADSP6000516	INTERRUTTORE ON/OFF 3A 250V TIPO A BILICO	1
34	ADSP6000581	PRESSACAVO + DADO PG9 NERO (vn)	1
35	ADSP6000638	SKD TECHNOPOOL3/TIMER PH-RX (EL214+EL201A+EL201BPH+EL201B)	1
35*	ADSP6000637	SKD TECHNOPOOL3/TIMER PH (EL214+EL201A+EL201B-PH)	1
37	ADSP6000686	COVER TRASPARENTE DI PROTEZIONE PER INTERRUTTORE ON/OFF	1
38	ADSP6000714	VITE M 2,9 X 13 UNI 6954 (TCTC) INOX A2	8
39	ADSP6000836	CONNETTORE MASCHIO 4 VIE G4A5M CABLATO LIVELLO PANDUIT 2 VIE	3
40	ADSP6020156	STAFFA FISSAGGIO A PARETE HC300 PP NERO	1
41	MB010300	VITE M 3,5 X 32 UNI 6954 (AF-TCTC) INOX A2	2
42	ADSP6000834	CONNETTORE MASCHIO 3 VIE G4A5M (FILI BLU-NERO-MARRONE) PER HC300 CL-P	1

Esploso / Description / Explode / Dibujo (Tavola 3)



MODULO CELLA FILTRO - FLUSSO COD. ADSP3600004

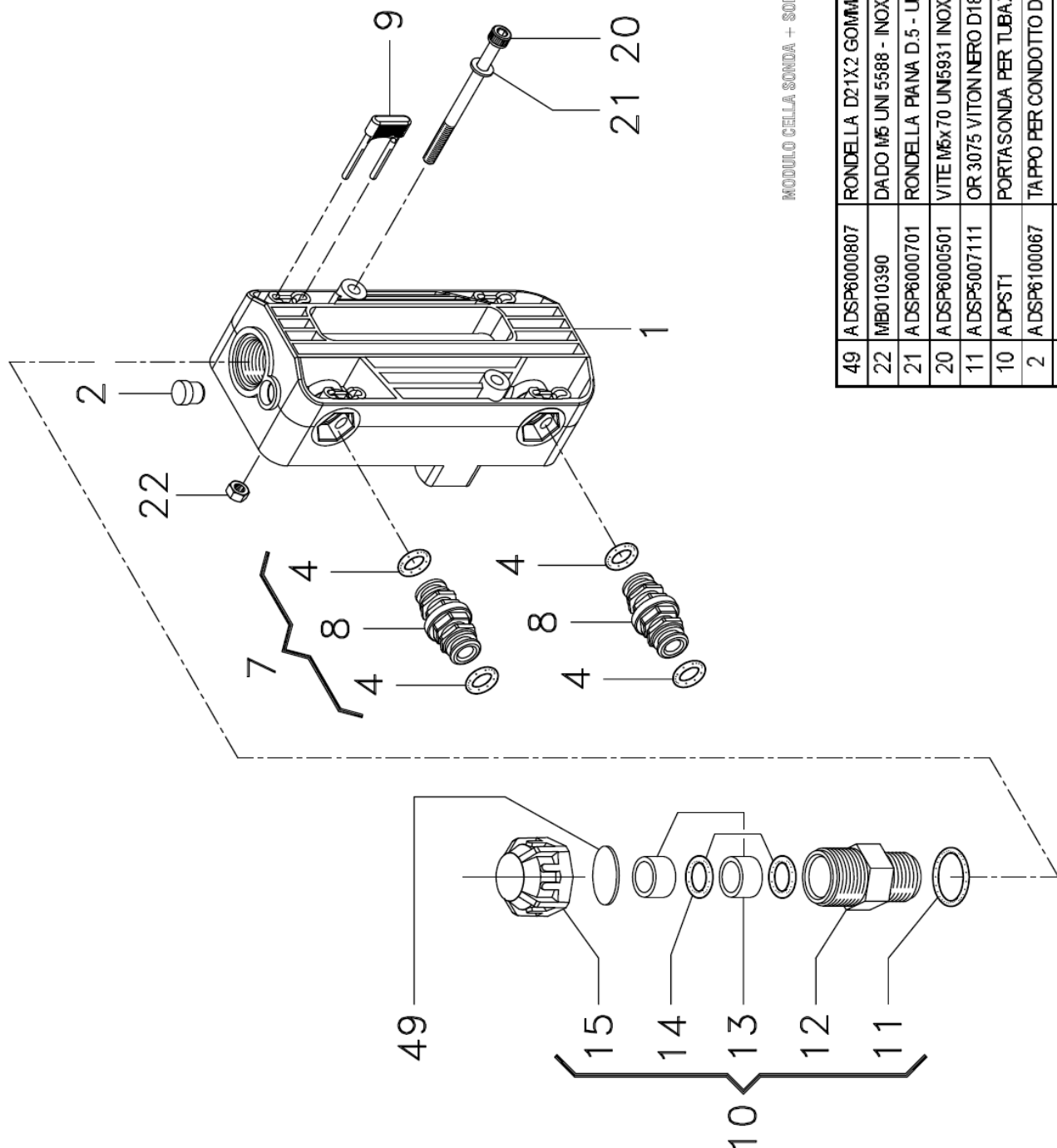


POS	CODICE	DESCRIZIONE	QTA
51	ADSP5007106	OR - RIF. 3100 - VITON NERO	1
50	ADSP6000501	VITE MEX70 UNI 5931 (TCE) INOX A2	2
49	ADSP6000701	RONDELLA PAWA D.5 - UNI 6592 INOX A2	2
48	MB010390	DADO M6 UNI 5588 - INOX A2	2
47	MG010980	OR 3.5X2 VITON NERO	2
46	ADSP5007205	OR 132 VITON NERO 2.62 X 23.81 (VN)	1
45	PA010100	TA PRO 3/4 M -	1
44	MG010660	OR 20.22X3.53 RIF. 4081 NBR70SH COD.DIS. 013.1102.05	1
43	ADSP5007213	OR - METRICO D.8X12 - VITON NERO	3
42	ADSP6100079	SPILLO PRELIEVO PER CELLE MODULARI PP	1
41	ADSP6100078	VITE REG. FLUSSO PP CON FORO PER SIFLO PRELIEVO PER CELLE MOD.	1
40	ADSP4000821	VITE REGOLAZIONE FLUSSO COMPLETA DI RUBINETTO PRELIEVO	1
39	ADSP6100075	TA PRO SPURGO M6 PER PORTA SONDA MODULARE	2
38	ADSP5007022	OR 2015 VITON NERO 3.69 X 1.78 FKM 65	1
37	ADSP6000764	VITE 4.2 X 16 INOX A2 TESTA CLINDRICA TAGLIO CROCE AUTOFILETTANTE	1
36	ADSP6100066	PESO FLUSSOSTATO PER PORTA SONDA MODULARE	1
34	ADSP6100068	TA PRO PORTA SENSORE DI FLUSSO M24X1.5 PER PORTA SONDA MODULARE	1
33	ADSP5007206	ORM D.16 X T.3 VITON NERO (VN)	1
32	ADSP6100070	RACCORDO BLOCCA SENSORE DI FLUSSO PER PORTA SONDA MODULARE	1
31	ADSP600029A	MANOPOLA FESSAGGIO COPERCHIO TRASPARENTE PER R	1
30	ADSP6000805	RONDELLA D04 X 10 X 1 A2	1
29	ADSP6000502	DADO M04 X 4mm UNI 5587 INOX A2	1
28	ADSP6100071	SENSORE FLUSSO COMPLETO PER PORTA SONDA MODULARE	1
27	ADSP6100072	TUBO D12X63 PER SENSORE DI FLUSSO PER PORTA SONDA MODULARE	1
26	ADSP6100072	GUIDA PORTA SENSORE DI FLUSSO (M12 RNP) (VN)	1
25	ADSP6004005	GHERA 3/8" PP PER VALVOLA A SFERA	1
24	ADSP6004005	PRESSACAVO + DADO PG7 NERO	1
23	ADSP6004004	DADO M03 INOX	2
20	ADSP6000635	DADO AD ALETTE M8 UNI 5448-A AISI A2	1
19	ADSP6020012	CAVO TERRA CM 35 CON CAPOCORDA	1
18	ADSP6100065	TA PRO PER FILTRO PORTA SONDA MODULARE	1
17	ADSP5007211	OR M25 25X3 VITON NERO	1
16	ADSP5007087	OR 2056 VITON NERO D14x1.78	1
15	ADSP5007049V	OR 2010 VITON NERO 2.57 X 1.78	1
14	ADSP6000469	RONDELLA A FASCE LARGA D03 X 09 INOX	2
13	ADSP6000031	ELETTRODO TERRA PER PORTA SONDA D3X120 INOX	1
12	A03R050	CARTUCCIA RICAMBIO AQUA-MINI	1
10	ADSP6100073	FORCELLA TAPPETTO PER PORTA SONDA MODULARE	2
9	ADSP6100074	FORCELLA GIUNTI PER PORTA SONDA MODULARE	3
6	ADSP5004002	GHERA FISSA TUBO PP NERA 1/2" 10x14	2
5	ADSP6100063	GIUNTO A TACCO A FORCELLA PP 1/2" PER TUBO 10X14	2
4	MG010990	OR 9.13X2.62 RIF. 109 NBR 70SH	2
2	ADSP6100067	TA PRO PER CONDOTTO D.9 PER PORTA SONDA MODULARE	1
1	ADSP6100060	MODULO CELLA FILTRO - FLUSSO PER PORTA SONDA MODULARE	1

Esploso / Description / Explose / Dibujo (Tavola 3)



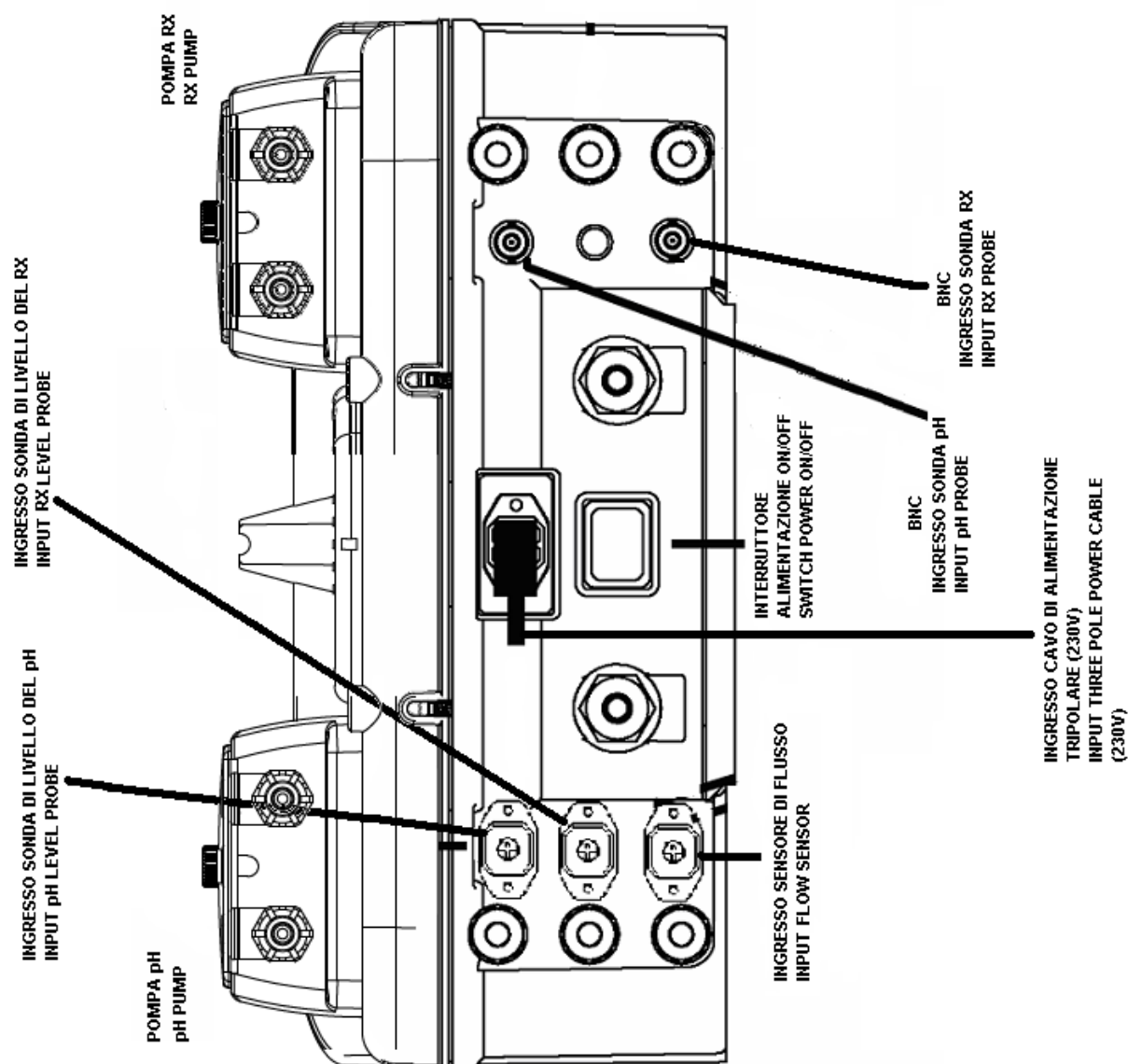
16/03/2012



MODULO CELLA SONDA + Sonda FILETTATA REDOX COD. ADSP3600005

49	A DSP6000807	RONDELLA D21X2 GOMMA NBR NERA	1
22	MB010390	DADO M5 UNI 5588 - INOX A2	2
21	A DSP6000701	RONDELLA PIANA D.5 - UNI6592 INOX A2	2
20	A DSP6000501	VITE M5x70 UNI5931 INOX A2	2
11	A DSP5007111	OR 3075 VITON NERO D18,72x2,62	1
10	A DPST1	PORTA Sonda PER TUBAZIONE A -PSL 1 A ITA CCO 1/2" -PP- AQUA	1
2	A DSP6100067	TA PPO PER CONDOTTO D.9 PER PORTA Sonda MODULARE	1
1	A DSP6100061	MODULO CELLA ELETTRODO PER PORTA Sonda MODULARE	1

CONNESSIONI SULLA CASSA - CONNECTIONS ON THE CASE





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