ISTRUZIONI PER L'INSTALLAZIONE E LA MANUTENZIONE (IT)
INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE (GB)
INSTRUCTIONS POUR L´INSTALLATION ET LA MAINTENANCE (FR)
INSTALLATIONS-UND WARTUNGSANLEITUNGEN (DE)
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INSTRUCTIES VOOR INSTALLATIE EN ONDERHOUD (NL)
POKYNY K MONTÁŽI A ÚDRŽBĚ (CZ)
INSTRUÇÕES PARA A INSTALAÇÃO E A MANUTENÇÃO (PT)
KURMA VE BAKIM BİLGİLERİ (TR)
ІНСТРУКЦІЇ З МОНТАЖУ ТА ТЕХНІЧНОГО ОБСЛУГОВУВАННЯ (UA)

E.SWIM
E.PRO
E.SWIM SVRS
E.PRO SVRS

CE

DAB
WATER•TECHNOLOGY

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KEY

The following symbols have been used in the discussion:



Situation of general danger.
Failure to respect the instructions that follow may cause harm to persons and property.



Situation of electric shock hazard.
Failure to respect the instructions that follow may cause a situation of grave risk for personal safety.



Notes and important remarks.

IMPORTANT WARNINGS AND SAFETY RECOMMENDATIONS
This manual concerns the product DAB E.SWIM / E.PRO.

GENERAL RISK FACTORS



Before installation, carefully read this manual which contains important information for use of the product.
This document must be kept so that it can also be consulted afterwards.



Installation and operation must comply with the local safety regulations in force in the country in which the product is installed.
Everything must be done in a workmanlike manner.
Failure to respect the safety regulations not only causes risk to personal safety and damage to the equipment, but invalidates every right to assistance under guarantee.

INSTALLATION AND SERVICING BY SKILLED PERSONNEL



This product should be installed and serviced only by authorized competent and skilled service personnel
It is advisable that installation be carried out by competent, skilled personnel in possession of the technical qualifications required by the specific legislation in force.
The term skilled personnel means persons whose training, experience and instruction, as well as their knowledge of the respective standards and requirements for accident prevention and working conditions, have been approved by the person in charge of plant safety, authorizing them to perform all the necessary activities, during which they are able to recognize and avoid all dangers. (Definition for technical personnel IEC 60364.)



We suggest special maintenance at least once a year by qualified personnel.

USE ONLY BY COMPETENT PERSONS



The appliance may be used by children over 8 years old and by persons with reduced physical, sensory or mental capacities, or who lack experience or knowledge, on condition that they are under supervision or after they have received instructions concerning the safe use of the appliance and the understanding of the dangers involved. Children must not play with the appliance. Cleaning and maintenance intended to be carried out by the user must not be performed by children without supervision.

MECHANICAL SAFETY



NEVER LET THE PUMP RUN WITHOUT WATER.
Water also performs the functions of lubricating, cooling and protecting the seals: **dry running can cause permanent damage to the pump and will void the guarantee.**
Always fill the filter before starting the pump.

- Protect the pump from unfavourable weather conditions.
- For long periods of inactivity or frost, remove all the caps and completely drain the pump body. Keep the caps!
- To use as an outdoor pump, provide suitable protection and install the pump on an insulating base at least 100 mm high.
- Store the pumps in a dry covered area, with constant air humidity.
- Do not wrap the motor in plastic bags! Risk of condensation!
- If testing the seal of the pipes at a pressure higher than 2.5 bar, exclude the pump (close the gate valves before and after the pump).
- ATTENTION: do not lubricate the O-ring gasket of the transparent cover with oil or grease.
- Use only water and neutral soap to clean the transparent cover, do not use solvents.
- Periodically inspect and clean the pump filter.

- With the pump under the water level, close the gate valves on suction and delivery before removing the filter cover.



The pumps may contain small quantities of residual water from testing. We advise flushing them briefly with clean water before their final installation.

ELECTRICAL SAFETY



Use is allowed only if the electric system is in possession of safety precautions in accordance with the regulations in force in the country where the product is installed (for Italy CEI 64/2).



All repair and maintenance work must be carried out only after having disconnected the pump from the power supply mains.

RISKS LINKED TO HEATING



When the machine is operating, touch only the parts for settings and controls (operator keyboard): the other parts can reach temperatures higher than 40°C.
Keep inflammable materials far away from the machine.
Run the machine in ventilated environments.

TYPES OF PUMPED LIQUIDS ALLOWED



The machine has been designed and made for pumping fresh or salt water from swimming pools, clean or slightly dirty, with a limited content of fibres and small suspended solid particles.
The water temperature must not be higher than 40°C / 105°F.
DO NOT USE THE PUMP WITH LIQUIDS WITH DIFFERENT CHARACTERISTICS!
Use of the pump with a concentrated amount of sand can cause early wear and decreased pump performance.



Do not add swimming pool chemicals (such as disinfectants, water treatment substances, etc.) directly to the pump or in front of the pump inlet: undiluted chemicals are aggressive and can damage the pump, while also voiding the guarantee.

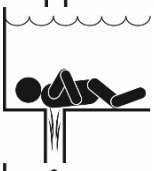
SPECIFIC RISKS FOR SWIMMING POOLS, BATHING POOLS AND SIMILAR



WARNING – Suction Entrapment Hazard. Suction in suction outlets and/ or suction outlet covers, which are damaged, broken, cracked, missing, or unsecured cause severe injury and/or death due to the foll owing entrapment hazards (symbols complements of APSP):



Hair Entrapment - Hair can become entangled in suction outlet cover.



Limb Entrapment - A limb inserted into an opening of a suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a mechanical bind or swelling of the limb.

Body Suction Entrapment - A differential pressure applied to a large portion of the body or limbs can result in an entrapment.

Evisceration/ Disembowelment - A negative pressure applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is damaged, broken, cracked, missing, or unsecured can result in evisceration/disembowelment.

Mechanical Entrapment - There is potential for jewelry, swimsuits, hair decorations, fingers, toes, or knuckles to be caught in an opening of a suction outlet cover resulting in mechanical entrapment.

Note: See section 1.3 for SVRS-related notes.



This is a real risk: in the USA there were 74 documented cases of entrapment and evisceration between 1990 and 2004 (Source: CPSC, USA 2005).
It is therefore obligatory and indispensable to respect all the applicable national and local regulations.



Particular care must be taken in checking periodically that the grids on the suction openings are intact and clean.

Over time, the grids become deteriorated due to age, contact with water and exposure to the sun and to atmospheric agents: they must be checked regularly and with the greatest care, immediately evacuating people from the area if damage is found.

ATTENTION – To reduce the risk of entrapment:

To reduce the risk of entrapment the pump must be installed in accordance with the latest federal, state and local swimming pool codes and must be connected to a minimum of two functioning suction outlets per pump or otherwise installed in accordance with the latest APSP-7 standard.

Do not operate pump if any suction outlet cover is damaged, broken, missing or not securely attached.

The use of an approved ASME A 112.19.17 safety vacuum release system (SVRS) is recommended and may be required under federal (U.S.), state or local law.

This pool motor is NOT equipped with a Safety Vacuum Release System (SVRS).

SVRS helps prevent drowning due to body entrapment on underwater drains.

In some pool configurations, if a person's body covers the drain, the person can be trapped by suction.

Depending on your pool configuration, a SVRS may be required to meet local, state, and federal requirements.

For information regarding SVRS requirements and the Virginia Graeme Baker Pool and Spa Safety Act visit www.cpsc.gov.



Dangerous pressures

During any operation on the system, air can get in and be pressurized. Compressed air can cause the sudden opening of the cover and cause damage, injuries and even death.

DO NOT RELEASE OR WORK ON THE COVER WHEN THE PUMP IS UNDER PRESSURE.

Use only for fixed facilities of swimming pools and bathing pools. Do not use for seasonal facilities that can be dismantled (that is, where the water retaining walls are deflated or disassembled in winter).

RESPONSIBILITY

The Manufacturer does not vouch for correct operation of the electropumps or answer for any damage that they may cause if they have been tampered with, modified and/or run outside the recommended work range or in contrast with other indications given in this manual.

The Manufacturer declines all responsibility for possible errors in this instructions manual, if due to misprints or errors in copying. The Manufacturer reserves the right to make any modifications to products that it may consider necessary or useful, without affecting their essential characteristics.

1. GENERAL

1.1 Description

The system consists of a centrifugal pump and an electronic inverter with advanced control software. It offers a powerful and flexible system for the automation of the water flow for swimming pools, spas, bathing pools and other applications.

The pump is particularly efficient. The presence of the inverter allows considerable energy saving, and therefore economic advantages and protection for the environment; it also allows the complete automation and programmability of switching on, which can be configured easily and rapidly by means of the wide built-in screen and convenient keyboard.

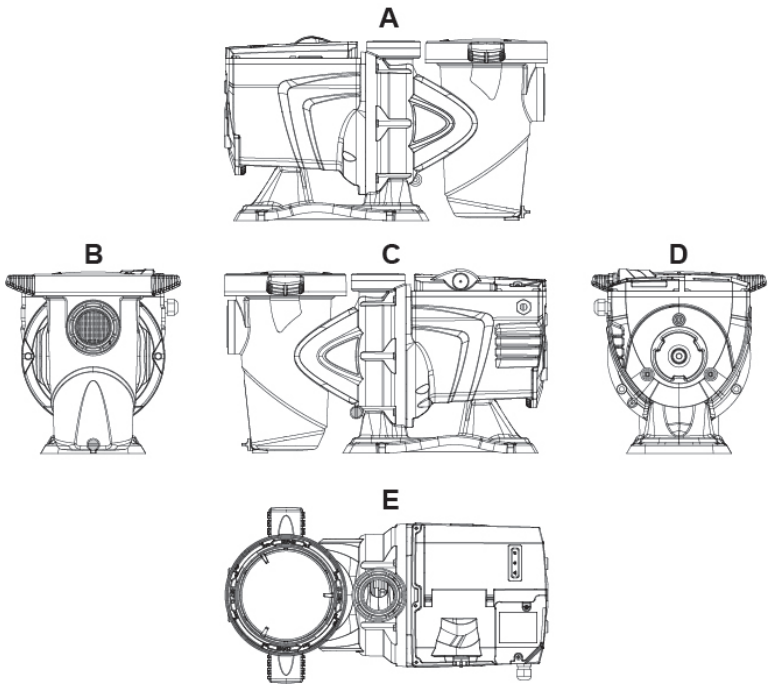


Figure 1

1- User panel cover
2- User panel
3- QR code
4- Quick guide
5- Terminal board cover
6- External connector
7- Power cable inlet

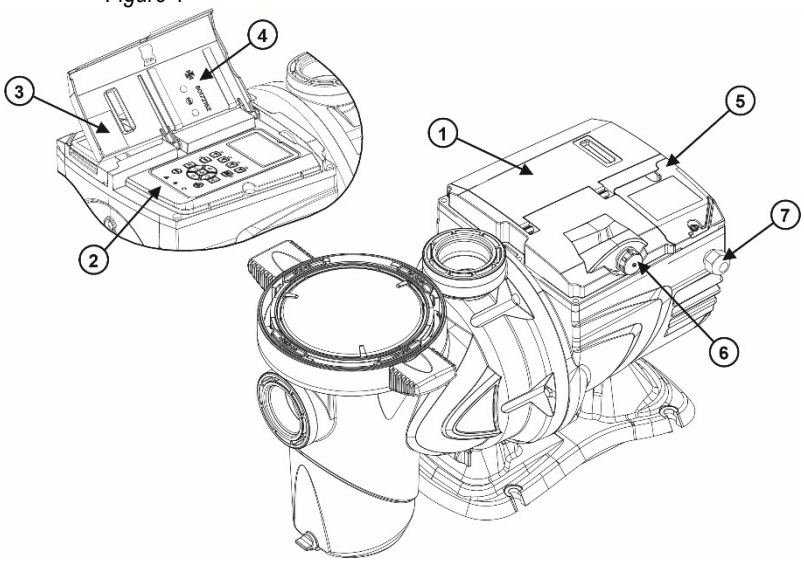


Figure 2

1.2 Technical characteristics

The technical characteristics are summed up in the table below.

Topic	Parameter	E-SWIM 150 / E.PRO 150	E-SWIM 300 / E.PRO 300
ELECTRIC POWER SUPPLY	Voltage	220-240 V +/- 10%	220-240 V +/- 10%
	Frequency	50/60 Hz	50/60 Hz
	Maximum current	5.6 SFA	10 SFA
	Maximum power	1250 W	2250 W
CONSTRUCTION CHARACTERISTICS	Overall dimensions	550 x 300 x 316 mm / 22.6 x 12.2 x 12.4 in	574 x 304 x 354 mm / 22,6 x 12 x 13,9 in
	Empty weight (excluding packaging)	18 kg / 39 lb	21,3 kg / 47 lb
	Protection class	IP55	IP55
	Motor insulation class	F	F
HYDRAULIC PERFORMANCE	Maximum head	16 m / 52 ft	26 m / 85,3
	Maximum flow rate	32 m3/h / 141 gpm	42,6 m3/h / 188 gpm

	Maximum working pressure	2,5 bar	2,8 bar
WORKING CONDITIONS	Max liquid temperature	40°C / 104°F	40°C / 104°F
	Max ambient temperature	50°C / 122°F	50°C / 122°F

Table 1 – Technical Characteristics

1.3 SVRS Notes (Only applicable to model SVRS)

The Safety Vacuum Release System (SVRS) model is designed to provide an additional layer of protection against body suction entrapment. It complies with ASME/ANSI A112.19.17 -2010 SVRS standard.

1. SVRS devices shall only be installed in conjunction with an ASME A112.19.8 suction fitting, or a 12 in. x 12 in. (305 mm x 305 mm) drain grate or larger, or an approved channel drain system at each suction outlet or drain outlet.
2. Check valves and hydrostatic valves shall not be used in suction systems protected by SVRS devices.



WARNING – The presence of a hydrostatic valve in the suction piping has been shown to prolong the high vacuum present at the drain, even though the drain was protected by an SVRS device.

3. All SVRS devices shall be factory set or field adjusted to site -specific hydraulic conditions. Once installed, the system shall be tested by simulating an entrapment event.
4. A ball, butterfly, or sliding gate valve shall be installed within 2 ft. (0.6 m) upstream from the S VRS (between the SVRS and the protected suction outlet), or a test mat shall be used to cover the suction outlet to simulate an entrapment event. There shall be three simulated entrapment tests conducted to verify proper adjust ment and operation of the device.
5. One SVRS device shall be installed for each circulating pump plumbed directly to the suction outlet(s) without the use of valves that could isolate the SVRS device from the suction system.

The reference standard for details and guidelines on how to avoid the risk of entrapment is **"ANSI/APSP 7".**
Other standards of a local nature may be applicable and obligatory.

In the pump **with SVRS**, the SVRS function is always active, except for a few moments in particular phases of operation.
It is also possible to disable the SVRS temporarily from the menu (described below); this is useful, for example, when cleaning the pool with a vacuum cleaner.



Before starting the pump with SVRS disabled, always check that there is no one in the pool.

The inactive SVRS condition is indicated by the flashing of the red alarm LED (⚠) (fault) and by a flashing message on the display (homepage).
After the SVRS has tripped, it is necessary to ascertain the actual situation in the pool, taking action and providing first aid if needed.
After the SVRS has tripped, the pump can be restarted automatically or by manual RESET (see par. 5.1).
Pumps with SVRS are sensitive to the presence of air in the pipes, which can cause false tripping of the SVRS. All efforts must therefore be made to limit the presence of air in the system.

2. INSTALLATION



The system must be used preferably in the technical area for installing swimming pool pumps.
In no case must it be run if exposed without protection to atmospheric agents.
The place of installation must be well ventilated.

2.1 Hydraulic connections

Follow these recommendations with care:



- Install the pump horizontally, on a flat and sturdy base, as close as possible to the edge of the pool.
- The pump is able to overcome a maximum difference in level of 4 m (with non-return valve).
- Install the filter and the pump in a protected, well ventilated place.
- Avoid letting the motor be immersed in water.
  For pump-system connections use only adhesives suitable for plastics.
- Provide adequate support for the suction and delivery pipes so that they do not weigh down on the pump.
- Do not make the couplings between the pipes too tight.
- Suction pipe diameter > = pump inlet diameter.
- If a metal pipe is connected, fit a plastic coupling on the pump inlet.
- The suction pipe must be perfectly airtight.
- ATTENTION: before connecting the pipes, check that their inside is clean.
- To avoid problems in suction, install a foot valve and make a positive slope of the suction pipe towards the pump.

2.2 Pipe Sizing Chart

MAXIMUM RECOMMENDED SYSTEM FLOW RATE BY PIPE SIZE		
Pipe Size in. [mm]	Maximum Flow Rate GPM [LPM]	Minimum Straight Pipe Length "L" in. [mm] *
1 ½" [50]	45 [170]	7 ½" [190]
2" [63]	80 [300]	10" [254]
2 ½" [75]	110 [415]	12 ½" [317]
3" [90]	160 [600]	15" [381]

*** Note:** It is recommended that a minimum length of straight piping (shown as "L" in above diagram), equivale nt to 5 pipe size diameters, be used between the pump suction inl et and any plumbing fittings (elbows, valves, etc.).
When installing the E.swim, care should be taken to ensure proper pipe and equipment sizing to handle the maximum flow required.
It is recommended to set the maximum flow limit in order to not exceed the maximum flow rate. (See section 5.1 Pump Limits).

WARNING – Hazardous Pressure. Pumps, filters, and other equipment/ components of a swimming pool filtration system operate under pressure. Incorrectly installed and/or improperly tested filtration equipment and/or components may fail resulting in severe personal injury or death.

2.3 Plumbing

1. Use Teflon tape to seal threaded connections on molded plastic components. All plastic fittings mus t be new or thoroughly cleaned before use. NOTE - Do NOT use Plumber's Pipe Dope as it may cause cracking of the plastic components. When applying Teflon tape to plastic threads, wrap the entire threaded portion of the m ale fitting with one to two layers of tape. Wind the tape clockwise as you face the open end of the fitting, b eginning at the end of the fitting. The pump suction and outlet ports have molded -in thread stops. Do NOT attempt to force hose connector fitting past this stop. It is only necessary to tighten fittings enough to prevent l eakage. Tighten fitting by han d and then use a tool to engage fitting an additional 1 ½ turns. Use care when using Teflon tape as friction is reduced considerably; do NOT over -tighten fitting or you may cause damage. If leaks occur, remove connector, clean off old Teflon tape, re -wrap with one to two additional layers of Teflon tape, and re -install connector.
2. Fittings (elbows, tees, valves, etc.) restrict flow. For better efficiency, use the fewest possible fittings. Avoid fittings that could cause an air trap. Pool and spa fitting s MUST conform to the International Association of Plumbing and Mechanical Officials (IAPMO) standards.

2.4 Electrical connection to the supply line

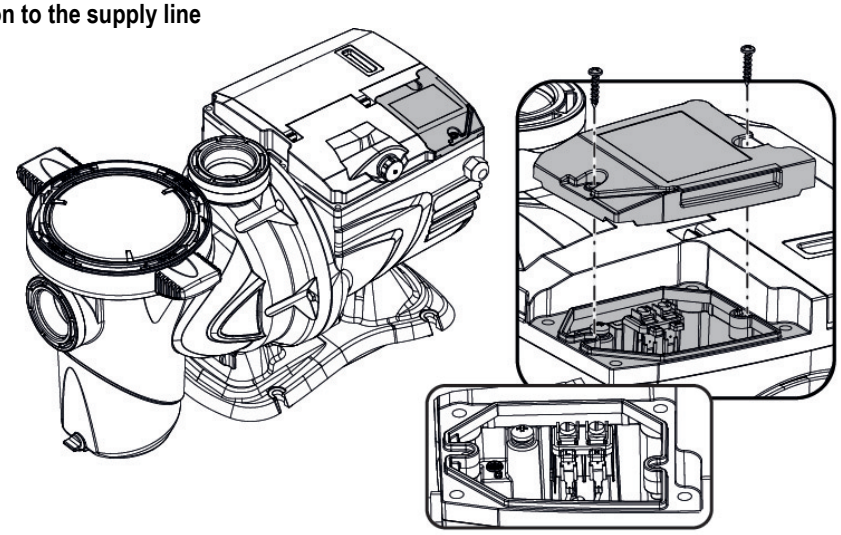


Figure 3

To improve immunity to the possible noise radiated towards other appliances it is recommended to use a separate electrical duct to supply the product.

Attention: always respect the safety regulations!
Electrical installation must be carried out by an expert, authorized electrician, who takes on all responsibility.

The system must be correctly and safely earthed as required by the regulations in force.



The mains voltage must be the same as that on the motor data plate.
Connect to the mains with a two-pole switch, with contact opening distance of at least 3 mm.
The thermal magnetic circuit breaker and the power cables must be correctly sized.
The leakage current to earth is max. 3.5 mA. It is recommended to use a type F differential switch. The system must be adequately sized. The pump must be fed by means of an isolation transformer or a differential switch, which must have a differential operating current no higher than 30 mA.



The mains terminals may still have dangerous voltage when the motor is stopped and for a few minutes after disconnecting from the power mains.



The line voltage may change when the electropump is started. The line voltage may undergo variations depending on other devices connected to it and on the quality of the line.



In the case of electropumps without a cable, provide power cables type H05 RN-F for internal use and type H07 RN-F for external use, complete with plug (EN 60335-2-41). If the power cable is damaged, it must be replaced by the manufacturer or by their authorized technical assistance service, so as to avoid any risk.

2.5 Electrical connections for auxiliary inputs and outputs

The pump has a connector for configurable user inputs and outputs.
The following figure shows the connector contacts, while the table below sums up the associated signals:

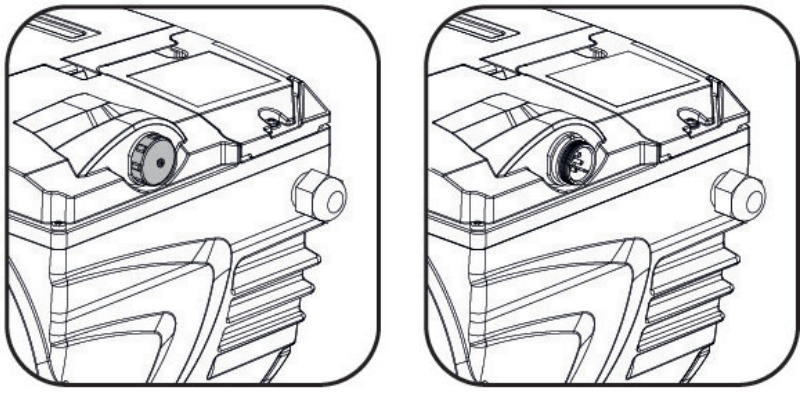


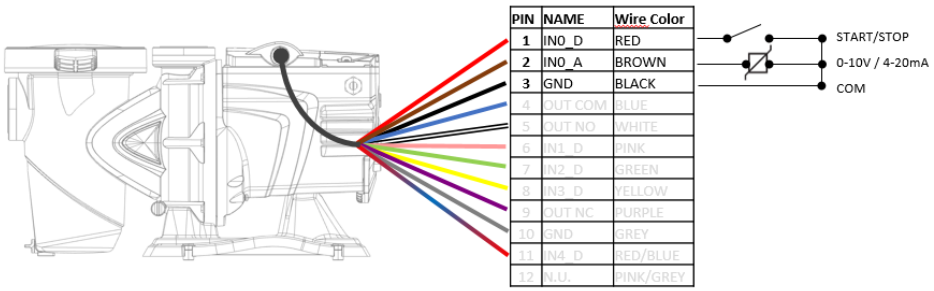
Figure 4

PIN	NAME	Wire Color	SIGNAL DESCRIPTION
1	IN0_D	RED	Digital Input 0 (start/stop)
2	IN0_A	BROWN	Analog Input 0 (0-10V or 4-20mA)
3	GND	BLACK	Earth
4	OUT COM	BLUE	Output relay: Common Contact
5	OUT NO	WHITE	Output relay: Contact Normally Open
6	IN1_D	PINK	Digital Input 1
7	IN2_D	GREEN	Digital Input 2
8	IN3_D	YELLOW	Digital Input 3
9	OUT NC	VIOLET	Output relay: Contact Normally Closed
10	GND	GREY	Earth
11	IN4_D	RED/BLUE	Digital Input 4
12	N.U.	PINK/GREY	Not used

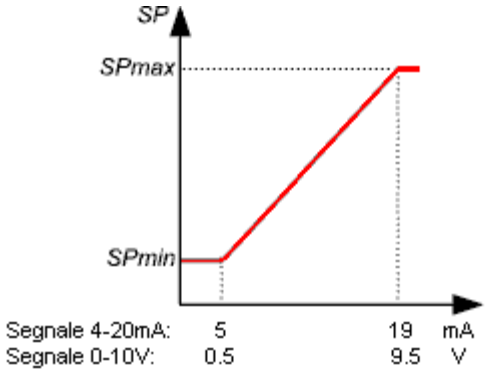
2.5.1 Inputs

The auxiliary inputs can be configured for different types of control:

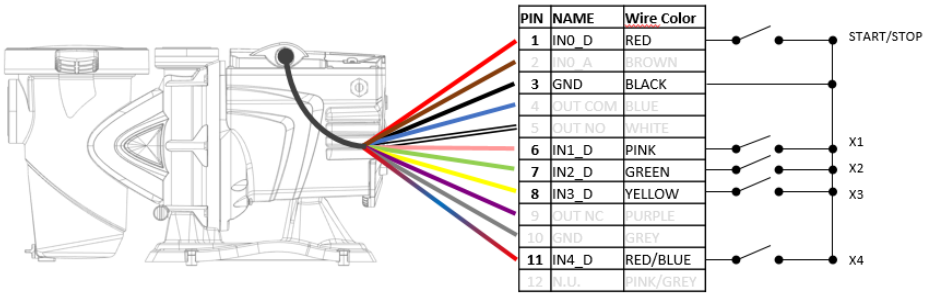
1) Digital/analog control:
PIN 1: digital input, clean contact (maximum voltage 5Vdc, maximum current 1mA); the contact is configurable if normally closed or open (see par. 5.7 “INPUT TYPE”)
PIN 2: An input for an external analog signal, configurable as 0-10V or 4-20 mA .
PIN 3: Earth contact for the connection of all inputs.



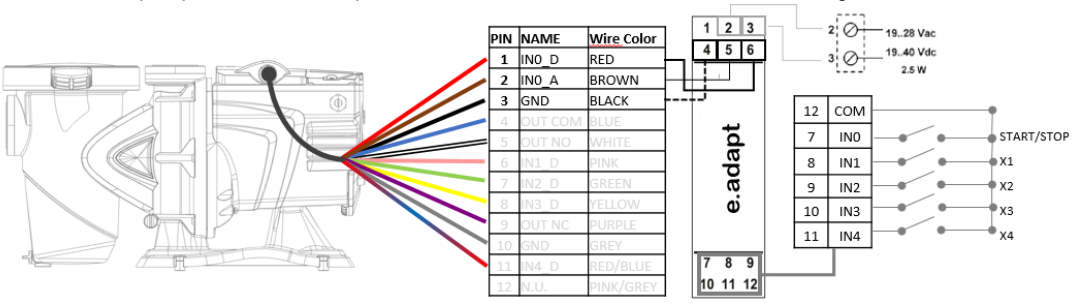
The following figure shows the relationship between the analog signal on input and the setpoint SP to be activated.



2) Control via digital contacts:
PIN6, PIN7, PIN8, PIN11 digital input, clean contact (maximum voltage 5Vdc, maximum current 1mA); the contact is configurable if normally closed or open (see par. 5.7 “INPUT TYPE”)
PIN 1: A RUN/STOP digital input, with clean contact (maximum voltage 5Vdc, maximum current 1mA); the closed contact means “run”, the open contact means "stop".
PIN 3: Earth contact for the connection of all inputs.



For pump Versions with 5-pin connector, the E.ADAPT module is used for digital contacts:



The operation can be with auxiliary inputs enabled or in override/priority with respect to the programming of the timers.
This allows us to control the pump as a simple slave with respect to the external control panel or as a semi-slave where the external controls have priority over the programming of the pump but do not exclude it completely.
The inputs are not opto-isolated.

2.5.2 Output

The output is made from a relay NO and NC (clean contact), with the following electrical characteristics.

Characteristics of the output contacts	
Max. bearable voltage [V]	24Vac / 24Vdc
Max. bearable current [A]	2A -> resistive load 1 A -> inductive load
Max. bearable power	2.5VA / 2W

Table 2 - Output contact

The functions that can be activated on the output contact are described in paragraph 5.4.



To connect to the input and output connector, use only the cable kit. The details of the connector and of the connection are included in the kit.



Attention: keep the cable for the input and output signals well away from the power and alternate supply lines (230V and similar), so as to limit disturbances and interference that can alter the signals.



When it is not in use, the connector on the pump must be kept accurately closed, with the cap well tightened. Only in this way is the necessary resistance to water and damp guaranteed.

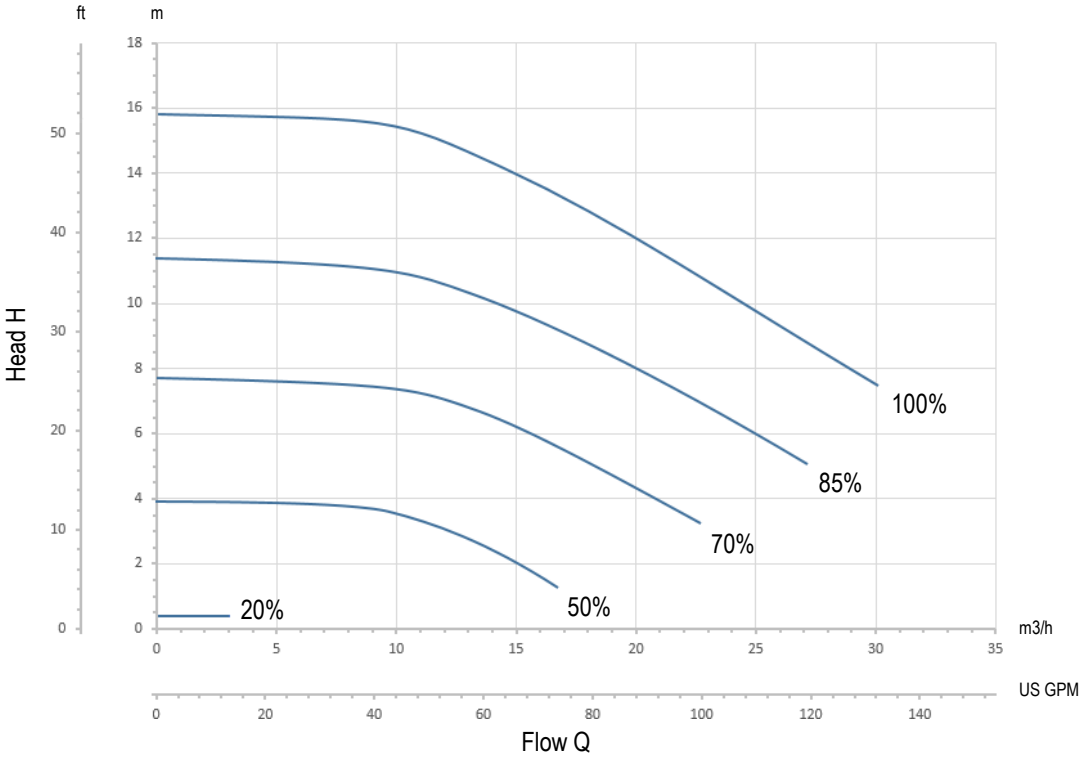
3. SWITCHING ON AND USING THE PUMP

3.1 Operating mode

3.1.1 Regulating modes

The following diagram shows the indicative curves of the system's hydraulic performances.

E.SWIM - E.PRO 150



E.SWIM - E.PRO 300

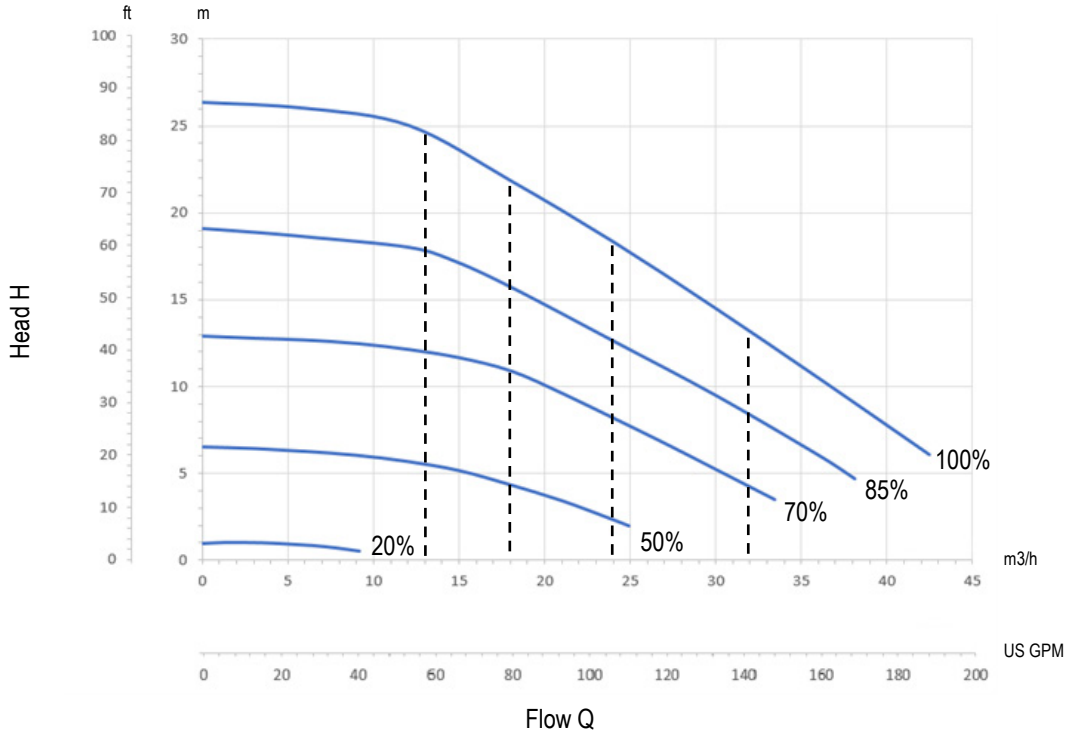


Figure 11

The inverter automatically regulates the rotation speed of the pump, shifting the work point, as necessary, to any part of the area subtended by the maximum curve (100%).
Regulation during pumping can takes place in flow control mode or in fixed curve mode.
- In “flow control” (“Flow”) the system assesses the instantaneous flow of water and varies the pump speed so that the flow corresponds to the setpoint, expressed in this case in “**m³/h**” (cubic metres per hour) or “**GPM**” (US gallons per minute). In this mode, the work point moves (ideally) on a vertical line, corresponding to the flow value chosen.
- In “fixed curve” mode (“Speed %”), the setpoint (expressed as a percentage “%”) indicates the operating curve on which you want to be positioned. As can be seen in the figure, the operating point then moves following the trend of the curve chosen, which is similar to the trend of fixed speed curves in traditional pumps.

Generally, when the work point falls below the maximum curve, the system reduces the absorbed power and thus decreases the energy consumption.
The operating software is programmed to limit the motor rpm to a minimum value of 1260; in cases where the system's operating point is theoretically below the range defined by this curve, the software may automatically raise other parameters (e.g. flow rate) above the set value to make the system work within the above-mentioned limits.

3.1.2 Command modes
The system can operate in three control modes: "Manual" mode and "Auto" mode.
In “Manual” mode:
- The speeds are already pre-set but can be modified from the "Manual Speeds" menu or directly from the home page in instantaneous mode (see par. 5.2)
- the operator manually commands the switching on of the pump by pressing the keys from “SET1” to “SET4” or “QuickClean”;
- the LED next to the key that has been pressed lights up (for example, if “SET1” is pressed the LED above this key is lit).

In “Auto con Timers” mode:
- The speeds can be set from the "Timer Speeds" menu (par. 5.3).
- switching on and off are automatically commanded by Timers, which can be programmed as desired on a weekly basis (see par. 5.3 Timer Setting menu);

In these first two modes the pump acts as a Master and works alone through its integrated control.

In “Auto External” mode:
- The speeds can be set from the " External Speeds" menu (par. 5.4).
- Switching on and off is controlled by signals from an external control unit ("EXT").

- The pump can be controlled with different types of signals: Digital/analog; single digital contact; multiple digital contacts (see par 5.4 External Control/Settings/source speeds menu)
- Operation can be: Exclusive with respect to internal programming, or priority with respect to Timers that remain enabled but do not work as long as the external contact is active (see par 5.4 External Control/Settings menu)

In this case, the pump works as a SLAVE with respect to a control unit or as a SEMI-SLAVE, where it is integrated with a control unit that has priority over programming.

The "Auto" modes are disabled when the system leaves the factory.
To activate them, you must first of all configure the necessary parameters and then press the "Auto" key (the respective LED lights up).

3.2 Rapid starting and stopping of the pump ("Manual" mode).



The pump leaves the factory and is delivered with Priming enabled: if the programming of Priming is not changed (see par. 5.5), ***when switched on for the first time, the pump may start at top speed.***
Before pressing "RUN/STOP", make sure that the valves are open, the pipes are not blocked, and keep away from the filter and from parts that can be pressurized.
Check well all the IMPORTANT SAFETY WARNINGS AND RECOMMENDATIONS.

Once the first configuration has been carried out with the WIZARD (in conditions with the white LED blinking and the "Auto" LED off), starting the pump is very easy:

- press the key from "SET1" to "SET4" corresponding to the desired setpoint (e.g. "SET1"), or the "QuickClean" key; the LED corresponding to the key pressed lights up, indicating the selection made;
- press "RUN/STOP".

At this point, switching on is enabled and the pump starts; the green running LED lights up, while the white LED is lit with a steady light (indicating that now the system is active).
The system performs *startup*: the pump starts at a fixed speed (50%) for a few seconds.



Startup is necessary for the pump to switch on correctly, and it is always performed at each start of the motor.

Priming is then performed (par. 5.5), if it is enabled (according to factory setting).
After that, the pump continues to run according to the setpoint associated with the "SETx" or "QuickClean" function used (in the example, the "SET1" setpoint).



The factory values are given in chapter 7.
For the "SETx" keys, it is easy to change the setpoint (choosing also between flow or speed) and the other characteristics (duration) by means of the menu (see 3.3).
Also the operation associated with the "QuickClean" key can be customized (see 5.5).



Pressing a "SETx" or "QuickClean" key puts the pump into "Manual" mode, which has precedence over "Auto" mode: even with "Auto" active ("Auto" LED on), pressing a "SETx" or "QuickClean" key will start the pump with the setpoint associated with the key.

An execution time or duration is also associated with each "SETx" function and with "QuickClean".
The following events may occur while the pump is running:

- the end of the time (or duration) associated with the "SETx" or "QuickClean" key selected previously is reached,
- or the same "SETx" or "QuickClean" key is pressed again;

in both cases, the key function ceases, its LED switches off, and the pump stops.



However, if the "Auto" function was active in the background ("Auto" LED lit), it now takes control of the machine, deciding either to switch off the pump or to switch on with another setpoint, depending on the programming made. So the pump might not switch off.

It is very easy to stop the pump manually: with the pump running, just:

- press "*RUN/STOP*".

the pump thus stops in any case (*), interrupting all active modes (this means that also "Auto" mode, which may have been active in the background, switches off); the green running LED switches off. The white LED starts to blink, indicating that the system has been disabled.
When "RUN/STOP" is pressed again, the system is re-enabled and everything is restarted; the white LED is now lit with a steady light.
(*) The only exceptions: the *Antifreeze* and *Antilock* functions start the pump even if the system is disabled (see paragraphs 5.6).



After a blackout during operation in Manual mode, the system does not restart unless the SETx key that was lit had the duration "24/24". In this case, the system restarts with the same setpoint as before.

3.3 Rapid changing of the setpoint and of the pre-set parameters

When the pump is running with a "SETx" key pressed (as described above):

- pressing a "SETx" key different from the active one (e.g. "SET3", while "SET1", is active) will perform the setpoint of the new key (for the whole respective duration) and the lighting of the LEDs changes accordingly;
- instead, by pressing the up arrow and down arrow keys, you can increase of decrease the flow or speed (setpoint) at which the pump is operating. The setpoint value is shown on the display on the homepage (see par. 4.4).

The modified value is stored automatically in the same “SETx” key currently selected (the one with the LED lit).
Also if “QuickClean” has been pressed and the pump is running, the setpoint can be changed with the arrow keys as described above; the new value is saved directly in the “QuickClean” key.



Both a setpoint and an execution time (or duration) are associated with each “SETx” and “QuickClean” key. Unlike the setpoints, the times cannot be changed with the quick method described above; however, they can be changed easily (see 5.2). The factory values are given in chapter 7.

3.4 Advanced use (“Auto” mode)

Auto with Timers

On this machine there is a powerful and sophisticated system of timed starting at different speeds, each with a different duration, which can be planned as preferred on a weekly basis. A simple setting of the parameters is sufficient to perform all the desired cycles completely automatically for seven days. This mode is called “Timers”. (See par. 5.3.)
Before enabling the "Timers" mode, the 4 speeds S5-S8 and the control mode (if constant flow or constant speed) must be programmed from the "Timer Speeds" menu and then the daily and weekly washing cycles from the "Timer Control" menu.

Auto with Remote Control

It is also possible to have all the pump starts commanded by an external control unit, connected to the input signals (described in 2.5).
The speeds are determined either directly by the analog signal if present or by the settings of the 4 speeds X1-X4 programmable from the External Speeds menu.
The external control mode can be enabled, in this case the pump is controlled exclusively by the external contacts through the control unit or other, or it can be in Override mode that does not completely disable the operation of the timers but has priority over them: when an input is active it has priority over the programming set on the pump.
External control is disabled by default.

Activating the "Auto" mode

To activate "Auto" modes (in conditions with flashing white LED and "Auto" LED off):
• with the pump stopped, press the “Auto” key (the LED next to the key lights up),
• then press “RUN/STOP” (the white LED lights up with a steady light).
From this moment, the pump starting operations, with their respective speeds and operating times, will be decided automatically, without requiring any further intervention by the operator.

Priority of Manual mode.

Even with “Auto” mode active (“Auto” LED on), pressing a “SETx” or “QuickClean” key will start the pump immediately with the setpoint and the duration associated with the key. The pump thus goes into “Manual” mode, which has precedence over “Auto” mode.
However, “Auto” mode remains active in the background and resumes control as soon as the function of the key that was pressed ceases.
To deactivate “Auto” mode:
• press the “Auto” key again (the LED next to the key lights up).
If you need to stop the pump manually when it is operating, just:
• press “RUN/STOP”,
the pump thus stops in any case (*), interrupting all the active modes.
This means that “Auto” mode stops and also any active manual mode (“SETx” or “QuickClean”); the green running LED switches off. The white LED starts to blink, indicating that the system has been disabled.
When “RUN/STOP” is pressed again, the system is re-enabled and everything restarts as before. The white LED is now lit with a steady light.
(*) Only exceptions: the Antifreeze and Antilock functions start the pump even if the system is disabled (see paragraphs 5.6).

4. STARTING OPERATIONS

4.1 Priming

Installation below water level:

Fit one gate valve in the suction pipe and one in the delivery pipe to isolate the pump.
Fill the pump, slowly and completely opening the gate valve in the suction pipe, and keeping the gate valve on delivery open to let the air out.

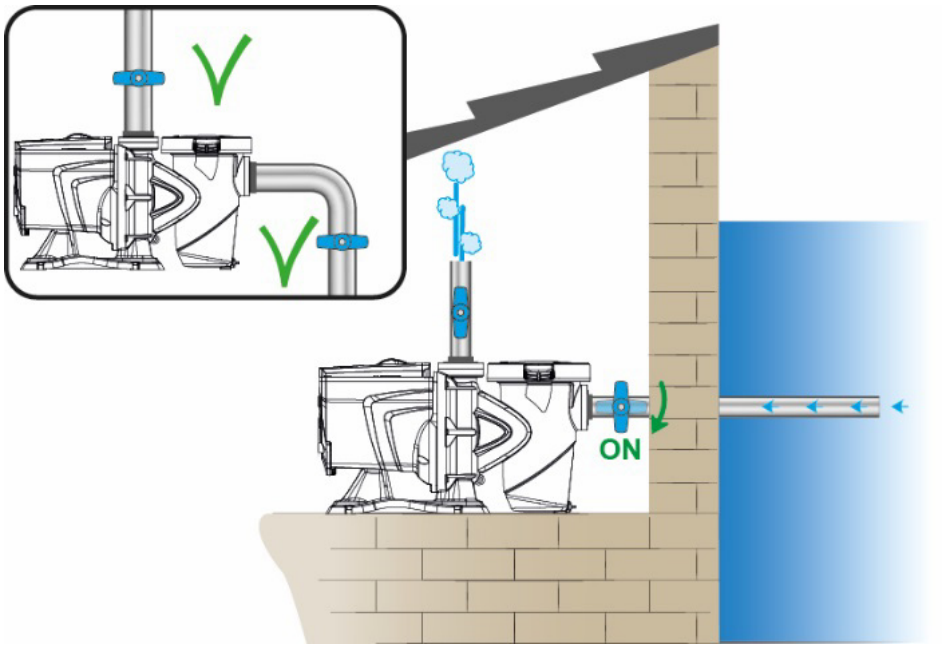


Figure 8

Installation above water level:

If there are several suction pipes, arrange the pipes and the manifold below water level and reach the pump with only one vertical pipe.
To reduce the priming time, it is recommended to install the pump with as short a suction pipe as possible.
Fill the basket of the filter with water up to the level of the suction mouth.
It is strongly recommended to install a check valve on the suction line to facilitate the priming of the pump.

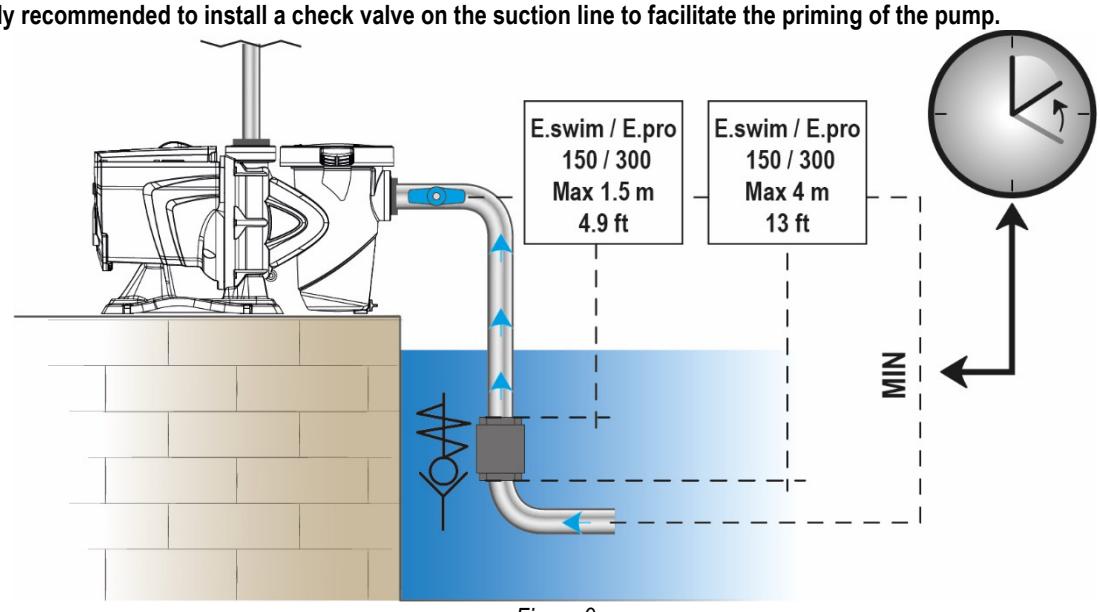
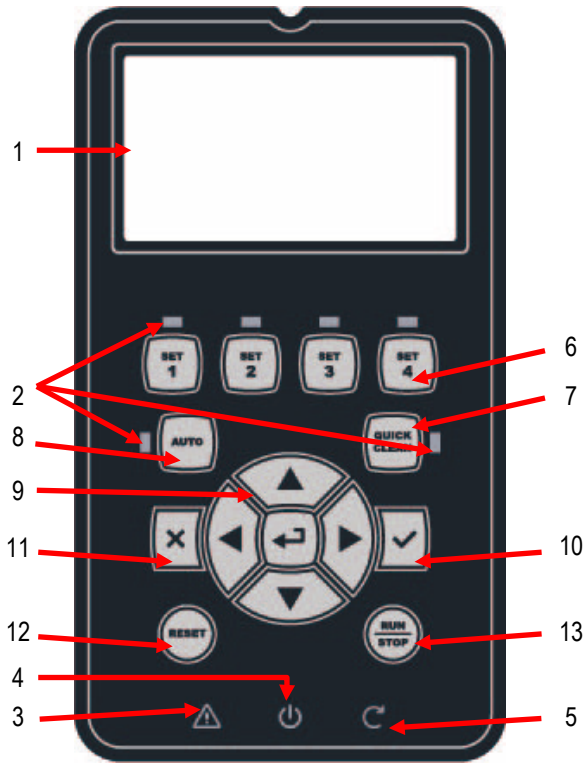


Figure 9

4.2 Keyboard and Display



Description of the elements:

1. LCD graphic screen
2. (Six) LED warning light indicating the active function; each LED indicates the activation of the key next to it.
3. LED red warning light (⚠), for alarm indication (fault).
4. LED white warning light (⏻), lit to indicate that the board is live; if it is blinking, it means that the board is live, but the pump is not enabled (see "*RUN/STOP*" key below).
5. LED green warning light (↻), indicates that the pump is running.
6. (Four) keys "*SET 1-4*" for manual control of switching on, for directly selecting (or deselecting) a set flow or speed (setpoint) .

   The table in chapter 7 shows the factory values of the setpoints associated with the keys from "SET1" to "SET4". These values are suitable for most installations, but they can be easily changed if desired (see 5.2).
7. Key for activating "*QuickClean*" mode, to command quick cleaning or quick recirculating with a high flow rate.
8. Key for enabling "*Auto*", mode, for activating the automatic control of the pump (which may be timed ("*Timers*") or given by external signals ("*EXT*").
9. Keys for navigating and accessing the menus:
   - the "*ENTER*" key allows you to access the menus and the items on which you are positioned;
   - the "*arrow*" keys allows you to move about on the display or in the active menu, and to select an item; they also allow you to change the value of the selected item.
10. "*OK*" key, to confirm and to leave without saving the changes made.
11. "*ESC*" key, to cancel any changes and leave (without saving).
12. "*Reset*" key, to cancel the alarms (*faults*) that may be in progress.
13. "*RUN/STOP*" key, to enable or disable running of the pump; the pump enabled status is indicated by the steady lighting of the white LED ⏻ , which blinks if running of the pump is disabled.

When the pump is running (green LED ↻ lit), the pump stops if "RUN/STOP" is pressed, whatever the operating condition, in both "Manual" and "Auto" mode.
However the "RUN/STOP" control is not direct starting control, but only an enabling: if it is pressed with the pump stopped (green LED ↻ off), the pump starts only if a mode is active that contemplates switching on at the current moment.

In STOP condition, when the white LED is blinking, the pump can never stop until "RUN/STOP" is pressed.
The only exceptions:
- the "Antifreeze" function can start the pump even in STOP status, to avoid breakages due to frost (see paragraph 5.6);

- the "Antilock" function can start the pump even in STOP status, to avoid mechanical blocking of the impeller after long inactivity (paragraph 5.6).

The keyboard can be blocked with a ("Password"; in this way access to the functions can be restricted, to avoid undesired intervention. See paragraph 5.1.

4.3 Guided configuration (WIZARD)

When switched on for the first time, the device proposes to perform the WIZARD easy configuration, which guides the user in a fast and easy setting of the most important parameters.

It is necessary to perform the WIZARD: the initial system status is that of the factory configuration, and in that the language and the units of measure may not be those used in your country, the weekly clock starts at a random time, and the other parameters may not be suitable for your system.

If you need to revise all these parameters quickly at a later date, you can reload the WIZARD by selecting a specific item on the menu (paragraph 5.1).

The WIZARD presents the following pages in sequence:

1. Select Language
2. Select time display mode (24h or am/pm)
3. Set current time
4. Set current day
5. Set Unit of measure of head
6. Set Unit of measure of flow
7. Set Unit of measure of temperature
8. Selecting Regulating Mode
9. Setting the maximum limit of head (Hmax)
10. Select maximum limit of flow (Qmax)
11. Final confirmation

Each page of the Wizard presents a single parameter to configure, starting from the language.



Figure 10

As well as the title, the page shows these indications:

- symbol "1/11": indicates the current page number (1), out of the total pages of the WIZARD (11), and of course it changes from one page to the next;
- in the centre of the page is the list (or menu) of the various languages available, and the box shows the language currently selected;
- the vertical bar, represented on the left, shows the position where we are on the list (or menu) of the languages available; in the example, we are in the first position and the sign on the bar is at the top;
- the keys to use are indicated at the bottom (as well as the arrows which, for simplicity, are not shown):
  - "*OK*" key [OK]: confirms any changes made and allows you to proceed to the next page;
  - "*ESC*" key [ESC]: cancels any changes made; when you press it again, or if no changes have been made, it returns to the previous page.

As is intuitive, use the *up arrow* and *down arrow* keys to scroll through the list of languages to select the one you want, then press "*OK*" [OK]. The selected language is activated and you proceed to the next page (number 2/11) of the WIZARD.

On some pages, such as the one with hours and minutes, the arrows also allow you to change the value displayed.

After having chosen the units of measure and, if necessary, set the limits of the flow rate and head, a page is shown telling you that the Wizard is complete. By pressing "*ESC*" you can go back to review or change the settings; by pressing "*OK*" you leave the Wizard and proceed to normal pump operation.

4.4 Main page of the display (homepage)

This is the appearance of the home page, which appears on the display in normal operating conditions and sums up all the information on system operation.

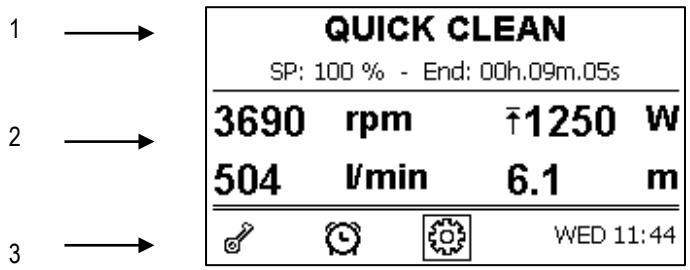


Figure 7

The information forms three groups:

1. The status lines (at the top) provide information on:
   - the status (running, stopped) along with the current command (SET1 – SET3, QC, Timer A-H, etc.), or any active Warnings and Faults; in the example in the figure: the pump is running for Timer D.
   - the active setpoint value ("*SP*") and possibly the time expected for the end of the active function ("*End*"). In the example in the figure the setpoint is 12.0 m3/h and the pump will stop at 22:00.
2. The instantaneous values of the electrical and hydraulic magnitudes, which are grouped in the space in the centre of the screen and continuously updated during operation.
   The appearance of the symbol (↑) next to a parameter indicates that the parameter has reached its maximum value, based on current working conditions; the appearance of the symbol (↓) indicates that the parameter has reached its minimum value, based on current working conditions
3. The rapid access bar (at the bottom): contains the date and time with some icons; you navigate on these elements with the *right arrow* and *left arrow* keys, and move the selection (highlighted by the box), then press "*ENTER*" [Enter] to go to the selected item. This gives simple and direct access to the items used most frequently, without having to scroll through the menu. These are the items available and the functions accessed:
   - "Configuration" → Menu access (see chapter 4.3),
   - Current "Date and time" → direct change of date and time (paragraph 4.5.3),
   - "Timer" → access to the *Timers* (paragraph 5.3),
   - "Key" (or padlock) → direct access to the protection system with Password, described in paragraph 5.1; the symbol represents the current status:
     - (key) Password not entered, free access to all functions;
     - (closed padlock) Password entered and active, access to the control keys is prevented (except the "*RESET*" key);
     - (open padlock) Password entered but temporarily deactivated, access is temporarily allowed.

4.5 Menu access and navigation

The menu is accessed by pressing the "*ENTER*" key [Enter] when the item "Configuration" is selected in the bar at the bottom of the homepage (par. 4.4).
The complete structure of the menu, with all the items of which it is composed, is shown in chapter 5.

4.5.1 Appearance and opening page of the menu

When you enter the menu, the opening page appears, as in the figure:

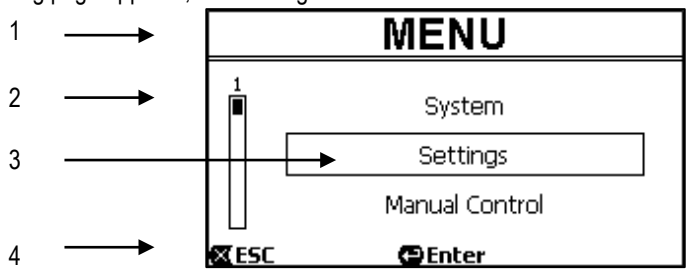


Figure 12

The page contains these elements:

1. The line at the top shows the page title, in this case "Menu".
2. The bar on the left indicates in what position we are with respect to the extension of the menu; in this case we are at the start and the internal sign is at the top end.

3. The centre of the page contains a part of the list of items that make up the menu, which we can scroll through with the arrow keys (up and down); the item on which we are positioned is highlighted by the flashing box (dotted in the figure). The previous menu item (at the top) and the next item (at the bottom) are also shown.
4. The line at the bottom indicates which keys can be used on the page, as well as the arrows (not shown for simplicity). In this case we can press ESC" [ ] to leave, or "ENTER" [ ] to access the selected item.

The following figure shows how the display changes when the down arrow key is pressed.

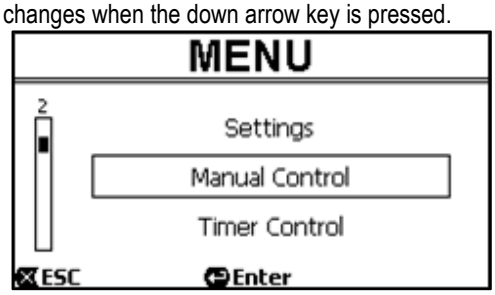


Figure 13

Now the flashing box (dotted here) highlights the item after the one in the previous situation; in the vertical bar on the left, the internal sign is lower down, showing that we are positioned farther down the items that make up the menu.
When we press the up arrow key, we return to the situation in the previous figure.
The list of items in the menu should by considered as cyclical, that is as a loop: from the last item it returns to the first with the down arrow key. And from the first item it goes to the last with the up arrow key.
The complete structure of the menu is shown in chapter 5.

4.5.2 Access to a sub-menu

When some items on the menu are accessed, a further menu, or sub-menu, may open.
This happens, for example, on the initial page of the menu, shown above

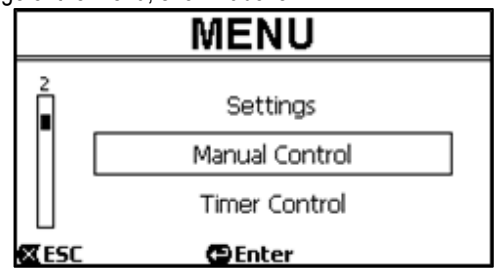


Figure 14

When we press "*ENTER*" [Enter] to access the "*Settings"* item, we access the respective "*Menu - Settings*":

Title
Position on the menu tree
(branch 1)



Figure 15

We can also navigate the sub-menus with the arrow keys and access the desired item by pressing "*ENTER*" [Enter].
The symbol at top right represents the position on the menu tree; here we are in branch number 1.
As well as the complete menu structure, chapter 5 also shows the branch (and item) numbering of all the parts of the menu.

4.5.3 Changing a parameter in the menu

Let us see how to change the value of a parameter, for example the time setting. Suppose we want to set 12:34 as the current time.

1. Navigating in the menu (see table in chapter 5), we arrive at this page:

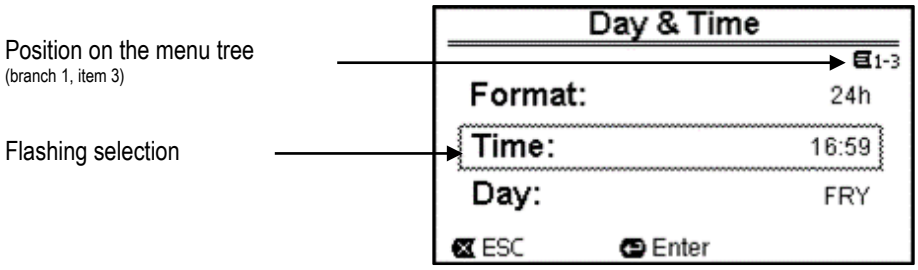


Figure 16

2. Pressing "*ENTER*" [Enter] opens the modification of the selected line:

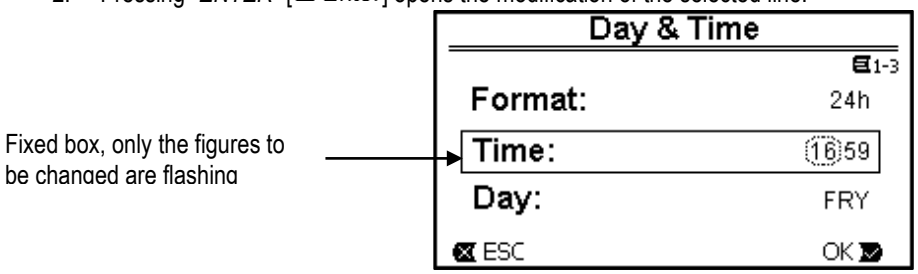


Figure 17

3. The figures for the hours are flashing and are changed as desired with the up arrow and down arrow keys:

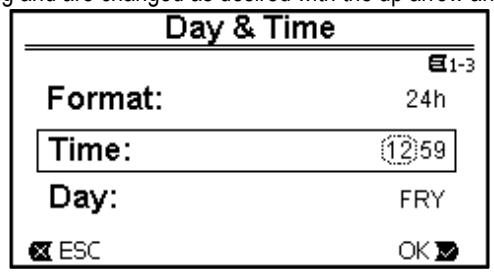


Figure 18

4. When we reach the desired value, we proceed to the minutes with the right arrow key:

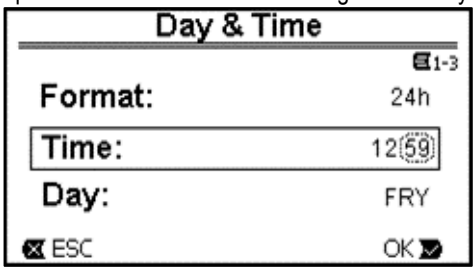


Figure 19

5. Now the figures for the minutes are flashing, they too are changed with the up arrow and down arrow keys:

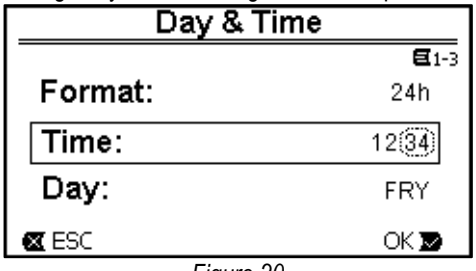


Figure 20

6. When the new value is completed (12:34 in the example), we confirm by pressing "*OK*" [OK], and leave the hour and minute setting, as shown in the following figure. (Instead, if we want to abandon the changes made, we press "*ESC*" [ESC] to return to the figure in point 1).

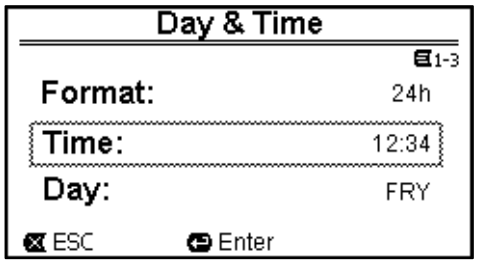


Figure 21

If necessary, we can now move about the page (with the *up and down arrow* keys) to change the other values (format and day of the week), proceeding in the same way as described so far.
Pressing "*ESC*" [ESC] takes us back in the (sub-) menu structure, and navigation can be continued in each of these.
Pressing "*ESC*" [ESC] several times takes us right out of the menu, until we return to the main page (par. 4.4).

5. MENU OUTLINE

This is the complete (tree) structure of the menu.

1	Settings	WIZARD	*W1/11… W11/11*	*Wizard*
		Language	*1-2*	*Select language*
		Date and Time	*1-3*	*set time*
		Unit of Measure	*1-4*	*select unit of measure*
		Pump Limits	*1-5*	*set limits*
		SVRS	*1-6*	*SVRS settings*
		Screen	*1-7*	*preferences*
		Password	*1-8*	*PW set/reset*
2	Manual Control	Manual Speeds	*2-1*	*Manual Speed Settings*
		Quick Clean	*2-2*	*Set Quick Clean*
3	Timer Program	Timer Speeds	*3-1*	*Timer Speed Settings*
		Timer Settings	*3-2*	*set speed, start and stop time, days*
		Preset Timers	*3-3*	*select preset filtration cycles (Summer, Winter, Reset)*
		Timer summary	*3-4*	*Day by day summary*
4	External Control	External Speeds	*4-1*	*External Speed Settings*
		Settings	*4-2*	*Ext Control Settings*
		Inputs	*4-3*	*Type of input contact (NO, NC)*
		Output	*4-4*	*Set status/alarm*
		Status	*4-5*	*I / O Status*

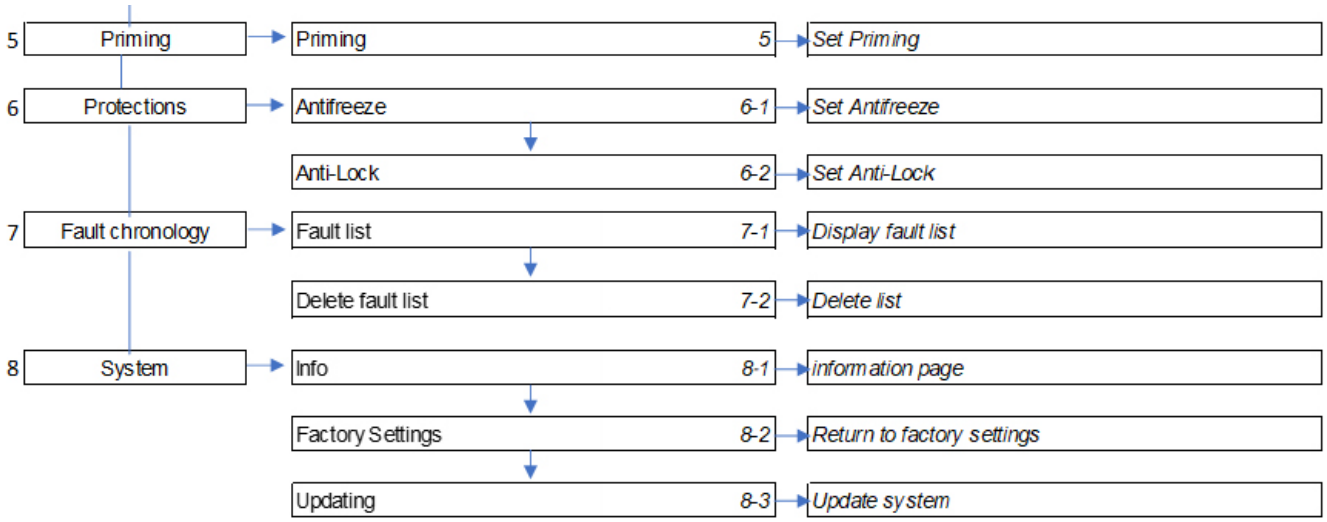
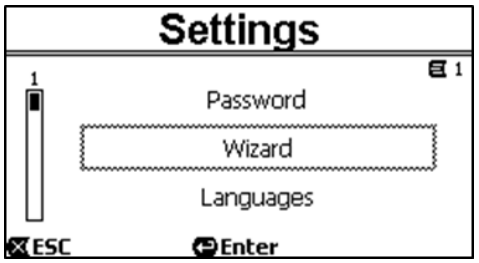


Table 3 – Menu Structure

The numbers, shown on the right in the various boxes, represent the branch and item numbering of the different parts of the menu and are shown on the display (providing a quick reference for the position where we are).
The following paragraphs describe each menu item in detail.

5.1 Settings menu

SETTINGS



The "Settings" sub-menu allows us to reactivate the WIZARD (as at the first installation) and to access a series of parameters for customising the system.

WIZARD

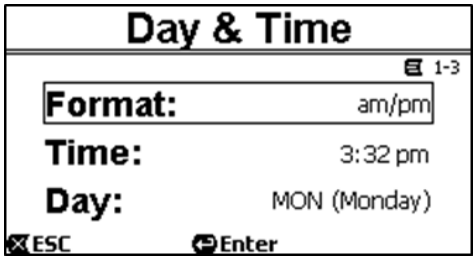
The easy configuration Wizard, proposed automatically at the first switch-on (see par. 4.3), can be loaded manually from this menu item.

LANGUAGE



PARAMETERS	VALUES	DESCRIPTION
Languages	<English Italiano Français Dutch Deutsch Español Português>	Selection of the language we want to use on the displays.

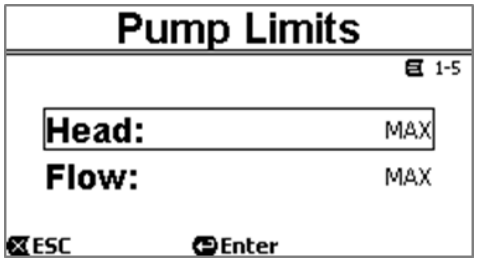
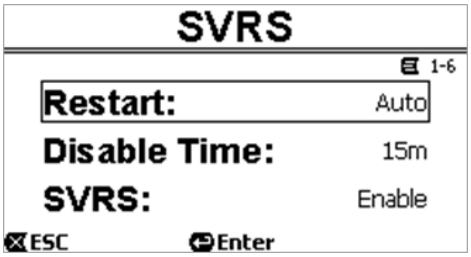
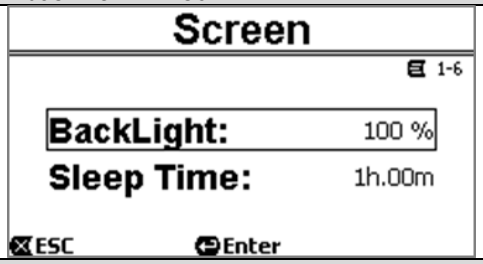
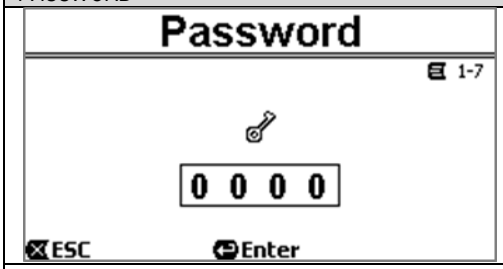
DATE AND TIME



PARAMETERS	VALUES	DESCRIPTION
Format	am/pm	Sets the preferred format
Time	hh:mm	Sets the current time
Day	Day of the week	Sets the day of the week

UNIT OF MEASURE

PARAMETERS	VALUES	DESCRIPTION
Head H	m (metri) ft (feet)	Sets the unit of measure for the Head
Flow Q	m3/h	Sets the unit of measure for the Flow rate

		US GPM l/min	
	Temperature	°C °F	Sets the unit of measure for the Temperature
PUMP LIMITS	PARAMETERS	VALUES	DESCRIPTION
	**Head Hmax**	*E.swim 150* 5 m - 16 m *E.swim 300* 6.5 ÷ 26.3 m MAX	If the system is not able to bear pressures or flows that are too high, it is possible to impose maximum limits on the pump control.
	Flow Qmax	*E.swim 150* 10 m3/h - 30 m^3/h *E.swim 300* 25 ÷ 42.6 m^3/h	
	Note: if the upper limits H_{max} and Q_{max} are set at values lower than "MAX", it is possible to set the setpoints even at values larger than the limits; however, during activation these upper limits will never be exceeded (self-limitation of the system) and the setpoints may not be reached.		
SVRS (only for models with SVRS)	PARAMETERS	VALUES	DESCRIPTION
	**Restarting**	Auto	Enables AUTOMATIC restart after stopping for SVRS protection. Manual reset with the "RESET" button is always enabled.
		Manual	Allows only manual restart with the "RESET" button after stopping for SVRS protection.
	Disabling time	1 min-60	Sets the temporary deactivation time. Useful for cleaning the pool with Hydraulic Cleaners.
	SVRS	enable/disable	Pressing the "ENTER" key temporarily disables the function. A countdown shows the time still available before the SVRS is automatically enabled.
Before starting the pump with SVRS disabled, always check that there is no one in the pool. For example, by pressing the QuickClean button you can now start the pump without the SVRS being able to trip. When the pump is running, the inactive SVRS condition is indicated by the flashing of the red alarm LED (⚠) (fault) and by a flashing message on the display (homepage).			
ADJUSTING THE VISOR	PARAMETERS	VALUES	DESCRIPTION
	**Backlight**	0-100%	*Backlight*
	Sleep Time	20 sec - 10 m / always	When the backlight is off, the first time any key is pressed has the sole effect of restoring the backlighting.
PASSWORD	PARAMETERS	VALUES	DESCRIPTION
	**Password**	0000	All the keys are unlocked and usable and you can freely access the various menus and modify all the parameters. The "key" symbol appears on the homepage
		XXXX	Password set: the protection system is activated. The "closed padlock" symbol appears on the homepage
With the protection active, access to all the keys is blocked, except: - the navigation and menu access keys ("ENTER" key and "arrow" keys): it is possible to navigate in the menu pages and to view the various parameters, but any attempt to change them will require you to enter the password. The only parameter that can be changed is the language. - "RESET" key: in the event of an alarm, you can press this key to restart the pump.			
When the correct password is entered, the keys are unlocked and the parameters can be changed; the "open padlock" symbol appears on the homepage (paragraph 4.4). When you have finished changing the parameters, the password can be reactivated from the homepage, by selecting the "open padlock" icon (paragraph 4.4) and pressing "ENTER". After eight hours of inactivity (without any keys being pressed), the password will be automatically reactivated anyway.			
If the password is lost: • Make a note of all the parameter values and reset the device the factory values (see par. 7.1). The reset operation deletes all the device parameters, including the password, and thus re-enables the system.			

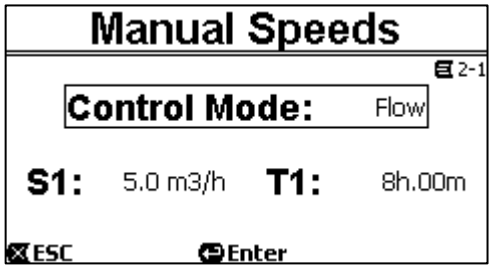
5.2 Manual Speed Settings

MANUAL CONTROL

From the "Manual Control" menu, you can set the speed or flow rate parameters and the operating time associated with the "SET 1-4" and "QUICK CLEAN" manual operating keys.
The manual speeds can also be changed directly with the "up" and "down" keys without entering the menu.

MANUAL SPEEDS

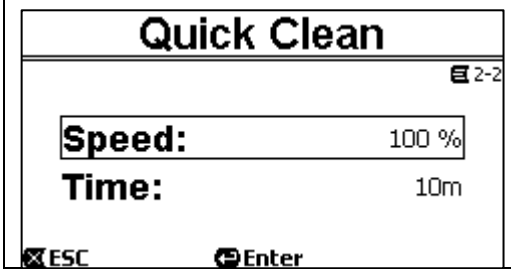
The parameters associated with the keys from "SET1" to "SET4" can be viewed and changed under this menu item.



PARAMETERS	VALUES	DESCRIPTION
Mode	FLOW/SPEED	The first choice to make is whether you want the setpoints "SET1-4" to set the system regulation mode to "Flow" or "Speed %".
S1-S4	*E.swim 150* 5 - 25 m³/h (20 ÷ 110 GPM) *E.swim 300* 13 ÷ 32 m³/h (60 ÷ 140 GPM)	Setting the speed with flow control.
	20% - 100%	Setting the speed with fixed curve control (in percentage%)
T1-T4	10 min - 18 h / 24/24	Setting the duration time at the relative speed. The duration value indicates the time that the speed remains active, after which it ends; if you want the speed to remain always active without interruption, the duration must be programmed as 24/24.

QUICK CLEAN

The "QuickClean" key allows you to perform a rapid wash of the system or fast recirculation, for example by cleaning, suction, adding chemicals, and so on.



PARAMETERS	VALUES	DESCRIPTION
Speed	20% - 100%	Setting the speed with fixed curve control (in percentage%)
TIme	1 min - 10 h	Setting the duration time at the relative speed. The duration value indicates the time that the speed remains active, after which it ends.

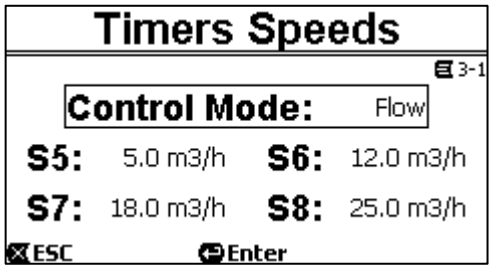
5.3 Control with Timers

TIMER CONTROL

This menu allows you to set the automatic filtration cycles of the electronic pump. The parameters related to the different speeds (S5-8), the start and stop times of each cycle (up to 8 cycles: A-H) and the day of the week are set. In addition, from the "Preset Timers" menu, you can select an already set basic filtration cycle from which to start to configure the most suitable cycle for your needs.

SPEED WITH TIMERS

This menu items allows you to view and change the parameters associated with the speeds from 5 to 8 managed by the timers.

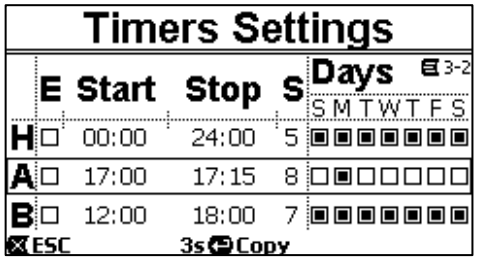


PARAMETERS	VALUES	DESCRIPTION
Control Mode	FLOW/SPEED	The first choice to make is whether you want the setpoints "SET5-8" to set the system regulation mode to "Flow" or "Speed %".
S5-S8	*E.swim 150* 5 - 25 m3/h (o 20 ÷ 110 GPM) *E.swim 300* 13 ÷ 32 m3/h (o 60 ÷ 140 GPM)	Setting the speed with flow control.
	20% - 100%	Setting the speed with fixed curve control (in percentage%)
The speeds from 5 to 8 cannot be loaded from the keyboard, but they are activated and deactivated only by the TIMERS system. Unlike speeds 1-4, they do not have any associated duration, as the activation time is decided always and only by the TIMERS.		

SETTING OF THE TIMERS

There are eight different timers on the machine, from *Timer A* to *Timer H*, each of which allows timed starting and stopping, on a weekly basis, of a setpoint chosen from *Set Points 5-8*.

With a simple setting you can thus automatically carry out all the desired cycles, repeated weekly.



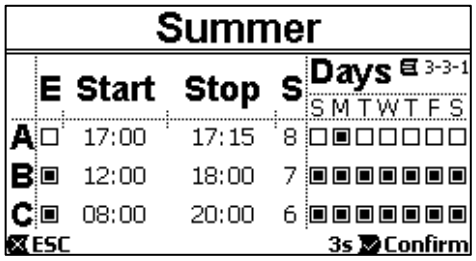
PARAMETERS	VALUES	DESCRIPTION
Enable Timer ("E")	The possibility of enabling or disabling a timer may be useful, for example, at the change of season, allowing you to exclude a timer but leaving all its data set to be used again later.	
the START time	00:00 - 23:59	sets the time of starting the work cycle
the STOP time	00:01 - 24:00	sets the time of ending the work cycle
Desired speed ("S")	S5-S8	Selects one of the 4 speeds for the set work cycle
Days of the week	Lun / Dom	You can enable the work cycle for the days of the week you want

Another special function is available: holding down "*Enter*" [Enter] for three seconds makes a copy of the timer on which you are positioned; moving to another timer and holding down "*OK*" [OK] for three seconds pastes the whole configuration of the first timer onto this one; the operation is then confirmed by pressing "*OK*" [OK] or cancelled by pressing "*ESC*" [ESC].

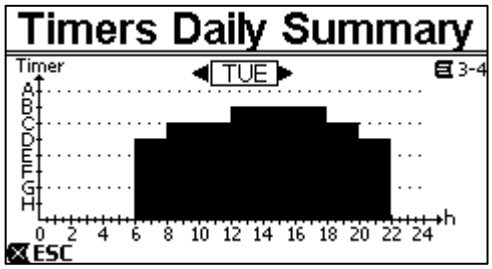
If two or more timers have been programmed as "active" at the same time, the one that comes first in alphabetical order will have precedence, that is Timer A will have precedence over Timer B and so on.

PRESET TIMERS

From this menu you can choose a configuration of preset timers that facilitate the automatic programming of filtration cycles.



PARAMETERS	DESCRIPTION
SUMMER	Pressing the ENTER key displays the preset cycle. Hold down the key for 3sec to confirm. Once confirmed, the "Timers Setting" menu opens to make any changes to the preset cycle. Press the ESC key to cancel.
WINTER	
RESET	Allows you to delete all cycle settings

DISPLAY TIMER TABLE	*DESCRIPTION*
	The set timers are displayed like a chrono-thermostat: the profile of the set points used as a function of the time is shown for each day of the week. This offers an immediate check of the operation of each whole day.

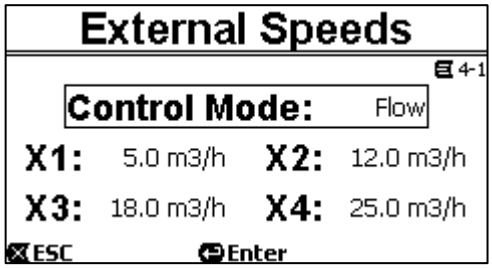
5.4 External Remote Control

EXTERNAL CONTROL MENU

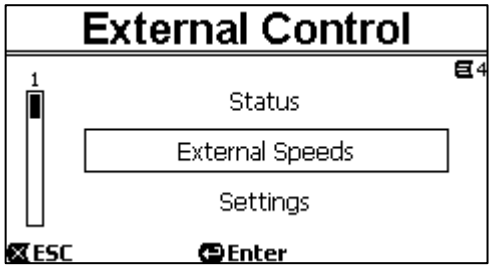
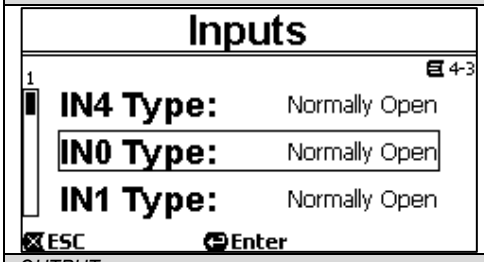
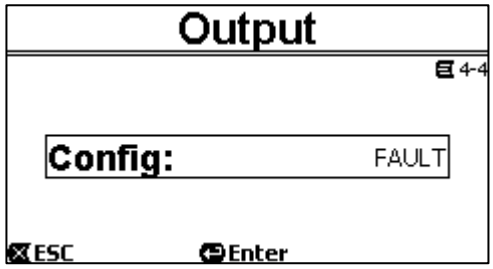
From the External Control menu, the external speed values are set and the possibility of controlling the pump from the available external inputs is enabled. In addition, a series of parameters are set to choose the input source, the pump operating mode (MASTER or SEMI-MASTER/Override), the type of link with the set speeds (see Start Input, Speeds mode parameters) and the type of input and output signal (normally open or closed).

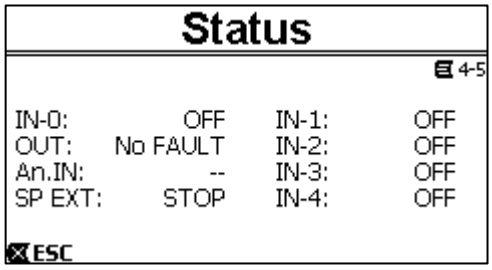
EXTERNAL SPEEDS

This menu items allows you to view and change the parameters associated with the speeds X1-X4 that are activated by an external digital signal.

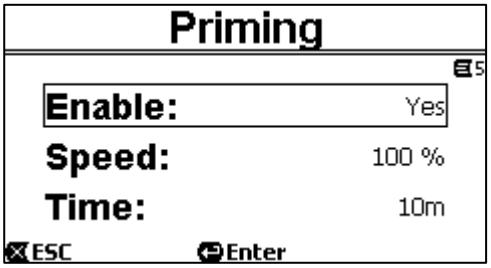


PARAMETERS	VALUES	DESCRIPTION
Control Mode	FLOW/SPEED	The first choice to make is whether you want the setpoints "X1-4" to set the system regulation mode to "Flow" or "Speed %" (see paragraph 3.1.1).
X1-X4	*E.swim 150* 5 - 25 m3/h (o 20 ÷ 110 GPM) *E.swim 300* 13 ÷ 32 m3/h (60 ÷ 140 GPM)	Setting the speed with flow control.

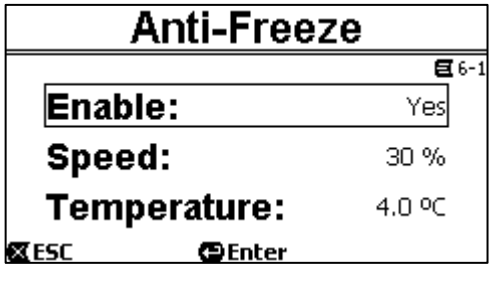
		20% - 100%	Setting the speed with fixed curve control (in percentage%)
		STOP	Setting of the speed "0" (STOP), useful for the connection of a possible float or safety switch in OVERRIDE mode
	Speeds X1-X4 do not have their own associated duration, but are activated and deactivated according to external input signals.		
SETTINGS	PARAMETERS	VALUES	DESCRIPTION
	**Config**	Disabled	External Control Disabled
		Enabled	External Control enabled and Timers A-H disabled
		Override	External Control enabled with priority over the enabled Timers A-H
	Origin speed	Digital IN	Speed determined by the state of the digital inputs.
		0-10 V	Speeds determined by 0-10V analog voltage signal (see chapter 2.5)
		4-20mA	Speeds determined by 4-20 mA analog current signal (see chapter 2.5)
		X1	The speed X1 set in the "External Speeds" menu is implemented.
		E.ADAPT	Speed determined by the status of the inputs of the "E.ADAPT" module
	Start Input	IN-0	Starting of the pump is determined by the status of input IN-0.
		Speed	Pump starting determined by the status of inputs IN1-4. Without
	Speed Mode	Priority	Each input is associated with a speed (IN1 --> X1; IN2 --> X2; etc.); in the case of more than one enabled input, the one with the highest number (IN4>IN3>IN2>IN1) has priority.
		Combinations	a speed according to table X is associated with each combination of inputs IN1 and IN2 IN1 (0) + IN2 (0) --> SPEED (X1) IN1 (1) + IN2 (0) --> SPEED (X2) IN1 (0) + IN2 (1) --> SPEED (X3) IN1 (1) + IN2 (1) --> SPEED (X4)
NOTE: In case of Speed Mode = Priority, speeds X1-X4 are available. In case of Speed Mode = Combination, speedsX1 is not available. In case of Start Input = Speeds, X1 is not enabled and the combination 0 0 does not cause the pump to start.			
INPUTS	PARAMETERS	VALUES	DESCRIPTION
	**IN0-IN4 Type**	NO	Normally Open
		NC	Normally Closed
OUTPUT	PARAMETERS	VALUES	DESCRIPTION
	**Config**	RUN	The relay signals when the pump is working
		FAULT	The relay signals when the pump fails
		NOTE: NC or NO depends on the connection. For the version with 5Pin connector the contact type is chosen, whether NO or NC	
STATUS	PARAMETERS	DESCRIPTION	

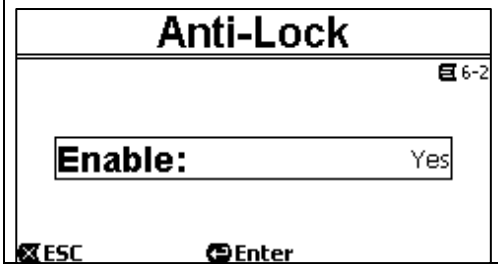
Useful page for verifying the correct functioning of the connections. 	**IN-0**	Status of the digital Input
	OUT	Output relay status
	AN	Status of the Analog Input
	AP ext	Value of the enabled External Speed
	IN1-4	Status of the digital inputs

5.5 PRIMING Menu

PRIMING		
Each time the pump starts, the system performs the priming procedure (if enabled). Priming consists of two phases: - At the end of pump startup (as described in par. 3.2), the flow is checked; if it regular, Priming has already been completed and it passes to the conditions of the active setpoint. - If this is not the case, the system has discharged and must be primed again: it now enters the second phase, where the pump is activated at Priming Speed, until it is primed or at any rate for all the Priming time		
	PARAMETERS	VALUES / DESCRIPTION
	Enable	Yes/No Enables or disables the Priming function that occurs at each start. It is usually disabled in installations below water level.
	Speed	50%-100% Sets the maximum speed during priming, which can be reduced in the case of systems unable to withstand high speeds.
	Time	1-30 min Sets the duration time in the priming phase. At the end of this time, if priming has been successful, it proceeds regularly according to the active setpoint. But if priming has not been successful, it goes into "NoPriming" fault status ("Pump not primed" block). See chapter 6.

5.6 Protections menu: ANTIFREEZE and ANTI-LOCK

PROTECTIONS			
The pump is equipped with a smart system of protections against freezing and against the blocking of the rotor in case of prolonged non-use. Both protections can be enabled and parameterized.			
ANTIFREEZE			
The function automatically rotates the pump if the temperature falls to values close to zero. The water inside the pump is thus kept moving and slightly heated, thus limiting the risk of the formation of ice. This function protects the pump, but it cannot generally prevent the formation of ice in the swimming pool or in other parts of the system.			
	PARAMETERS	VALUES	DESCRIPTION
	Enable	Yes/No	Enables or disables the function.
	Speed	20%-100%	Sets the pump rotation speed during the intervention of Antifreeze.
	Temperature	4°C - 10 °C (40°F - 50°F)	Sets the Antifreeze intervention temperature.
	The temperature sensor is fitted close to the motor and does not directly feel the water temperature, but that of the pump motor group. If the pump is in a technical room, the outdoor temperature may be lower, even much lower, than the one measured by the sensor.		
ANTI-LOCK			
This function prevents mechanical blocks occurring in the case of long inactivity; it acts by periodically turning the pump, at a very low speed that does not create a head.			
	PARAMETERS	VALUES	DESCRIPTION

	**Enable**	Yes/No	Enables or disables the Anti-Lock function. When the function is enabled, the pump performs an unlocking cycle lasting a few seconds every 23 hours (elapsed without any start of the pump).

ATTENTION: The protections work only as long as the system is regularly powered: with the electric power disconnected or in the absence of current (even accidental, such as after a blackout) the protection cannot work. So it is advisable not to leave the system loaded during periods of inactivity in winter, but empty it accurately.

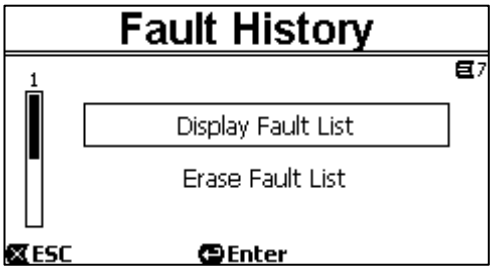
In cases of long inactivity, it is advised not to disconnect the electric power to keep the antilock protection active (see the following paragraph). The intervention of protection function turns the pump even if the system is in STOP status (white led blinking), and is not influenced by the active operating mode (manual or automatic).

If you want to prevent protection function intervening and turning on the motor, the function must be disabled.

5.7 ALARMS AND FAULTS LOG Menu

FAULTS LOG

This item on the menu allows you to consult the fault history and erase it.

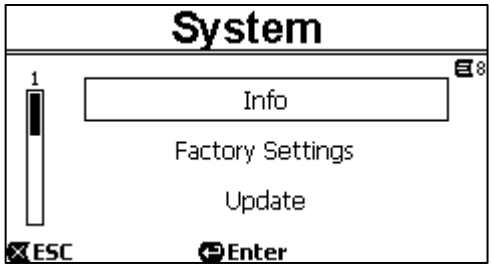


Sub-Menu	DESCRIPTION
Display fault chronology	The alarms list is scrolled with the up arrow and down arrow keys. Once the maximum number of faults that can be stored (up to 16) has been reached, the oldest faults are overwritten.
Delete fault list	Pressing the "ENTER" key deletes the list

5.8 SYSTEM Menu

SYSTEM

This menu item groups together a number of pages for the advanced user.



Sub-Menu	DESCRIPTION
Info	Information on operating status, totals and statistics (operating hours, pumped volume, energy consumption) and other data (such as firmware version, serial number). The totals and statistics shown are overall and partial; the partial totals can be reset (Reset) by the user (by holding down "OK" [] for 3 seconds, as indicated on the display).
Sub-Menu	DESCRIPTION
Factory settings	Resets the factory settings (see also paragraph 7.1).
Sub-Menu	DESCRIPTION
Updating	Allows updating of the product firmware, which can be done via wireless using the appropriate device "DAB E.sylink".

6. PROTECTION SYSTEMS – LOCKS (FAULT)

The device is equipped with protection systems to preserve the pump, the motor, the supply line and the inverter. If one or more protections trip, the one with the highest priority is immediately notified on the display.

Faults cause switching off of the motor and lighting of the red warning LED (⚠).

In some types of fault, the motor restarts as soon as normal conditions are restored; in others, attempts at automatic reset are carried out after a certain space of time.

It is also possible to try to cancel the error condition manually (see the following paragraphs).

If the error condition remains, you must take steps to eliminate the cause of the fault.

In system fault condition, with the red LED (⚠) lit, the keys "SET1-4" or "QuickClean" are not accepted; however, if one them is already active, it remains.

Fault No.	*Description on the display*
e1 / e14	Internal error
e15	Motor phases short circuit
e16	Short circuit to earth
e17 / e19	Internal error
e20 / e22	Electronic excess temperature
e23	Low mains voltage
e24	High mains voltage
e25	Motor excess temperature
e26	Motor blocked
e27	Dry operation
e28	Pump not primed
e29	No current
e31	Internal error
e33	Intervention of SVRS (Suction Release Safety System) protection

Table 5 – List of Faults

6.1 Manual reset of error conditions

In block (fault) status, the user can cancel the current error and force a new attempt by pressing and releasing the "*Reset*" key.
If the action is successful, the red warning LED (⚠) goes out and the system returns to normal operation.
Instead, if the error condition remains, you must take steps to eliminate the cause of the fault.

6.2 Automatic reset of error conditions

For some types of fault, automat reset attempts are contemplated.
In particular for:

- e27 Dry operation
- e28 Pump not primed

a new attempt is made after a few minutes, and repeated cyclically.
If an attempt is successful during the reset sequence, the sequence is interrupted, the red warning LED (⚠) goes out and the system returns to normal operation.
In the case of the "Excess temperature" faults, the system resume operation as soon as the temperature returns within the normal operating range.

6.3 Viewing the block history

The list of the faults and blocks that have occurred most recently can be consulted under the menu item "Fault History". See paragraph 5.11.

7. FACTORY SETTINGS

The system leaves the factory with a series of preset parameters, which may be changed according to the requirements of the plant and of the user. Each change of the settings is automatically saved in the memory.
The factory (or default) settings are summed up in the following table. You can make a note of the values modified for your own installation in the "MEMO" column.



As indicated in the table, some default values may differ depending on the market for which the system is intended.

If desired, it is possible to restore the default settings, proceeding as described in paragraph 6.1.

Factory settings						
Menus	**Function**	**Parameter**	**Value**	**(*)**	**Value**	**(*)**
			1.5 CV		**3 CV**	
1	Origin speed		Digital IN			
1-2	Language		English			
1-3	Time format		24h	AM PM		
1-4	Unit of Measure	Head Unit	m (metres)	ft (feet)		
		Flow Unit	m3/h	US GPM		
		Temperature Unit	°C	°F		
1-5	Pump Limits	H max (head)	MAX			
		Q max (flow)	MAX			
1-6	SVRS	Restarting	AUTO			
		Disabling time	15 min			

1-7	Screen	Sleep Time	1:00 h			
		Back lighting	100%			
1-8	Password	value	0 (not active)			
2-1	Manual speed	type of setpoint	FLOW		FLOW	
2-1	SET1	setpoint Q	5 m3/h	20 GPM	13 m³/h	60 GPM
		setpoint %	50%			
		duration	8 h (10 min - 18 h /)			
2-1	SET2	setpoint Q	12 m3/h	50 GPM	18 m³/h	80 GPM
		setpoint %	70%			
		duration	4 h (10 min - 18 h /)			
2-1	SET3	setpoint Q	18 m3/h	80 GPM	24 m³/h	110 GPM
		setpoint %	85%			
		duration	2 h (10 min - 18 h /)			
2-1	SET4	setpoint Q	25 m3/h	110 GPM	32 m³/h	140 GPM
		setpoint %	100%			
		duration	1 h (10 min - 18 h /)			
2-2	Quick Clean	Speed	100%			
		Durata	10 min			
3-1	Timers Speeds	Type of setpoint	Flow			
3-1	SET5	setpoint Q	5 m3/h	20 GPM	13 m³/h	60 GPM
		setpoint %	50%			
3-1	SET6	setpoint Q	12 m3/h	50 GPM	18 m³/h	80 GPM
		setpoint %	70%			
3-1	SET7	setpoint Q	18 m3/h	80 GPM	24 m³/h	110 GPM
		setpoint %	85%			
3-1	SET8	setpoint Q	25 m3/h	110 GPM	32 m³/h	140 GPM
		setpoint %	100%			
4-1	External speed	type of setpoint	FLOW		FLOW	
4-1	X1	setpoint Q	5 m3/h	20 GPM	13 m³/h	60 GPM
		setpoint %	50%			
4-1	X2	setpoint Q	12 m3/h	50 GPM	18 m³/h	80 GPM
		setpoint %	70%			
4-1	X3	setpoint Q	18 m3/h	80 GPM	24 m³/h	110 GPM
		setpoint %	85%			
		duration				
4-1	X4	setpoint Q	25 m3/h	110 GPM	32 m³/h	140 GPM
		setpoint %	100%			
4-2	Settings	Config	Disable			
		Source speed	Digital IN			
		Initial input	IN-0			
		Speed mode	Priority			
4-3	Inputs	IN0 Type – IN4 Type	Normally open			
4-4	Outputs	Config	FAULT			
		Type	Normally open			
5	Priming	function	enabled			
		Max Priming Speed	100%			
		Max Priming Time	10 min			
6-1	Anti-Freeze	function	enabled			
		speed	30%			
		temperature	4°C	40°F		
6-2	Anti-Lock	function	enabled			
			(*) Factory value on some markets			

Table 6 – Factory (default) settings

7.1 Restoring the factory settings

To restore the factory values, switch off the device, wait until the display has switched off completely, press and hold down simultaneously the two keys “SET1” and “SET4” and turn on the power; release the keys only when the messages appear on the display. This restores the factory settings (consisting of a message and a rereading on EEPROM of the factory settings permanently saved in the FLASH memory and listed in the table above). Once all the parameters have been set, the device returns to normal operation.



NOTE: this operation obviously deletes all the parameters that have previously been modified by the operator. Once the factory values have been restored, it will therefore be necessary to reset all the parameters that characterise the system, as at the first installation: for the sake of convenience, the system again proposes the WIZARD (paragraph 4.3).

8. TROUBLESHOOTING

- The pump does not start (display off):
  No electric power.
  Check that there is voltage and that the connection to the power network is correct.

- The pump is not sucking:
  No water in the prefilter or clogged prefilter.
  Closed valve in the pipes.
  Air getting into the suction pipe.

- The motor is not working:
  The electric power supply or switch are turned off.
  Motor electrical connections are faulty.
  Impeller blocked by foreign bodies, shaft not turning.

- Noisy pump:
  Air getting into the suction pipe.
  Presence of foreign bodies in the pump body.
  Cavitation.
  Ball bearing damaged.

- Low flow rate: low pressure in the filter.
  Basket or impeller clogged.
  Air getting into the suction pipe.
  Motor turning in the opposite direction.

- Low flow rate: high pressure in the filter.
  Delivery pipe choked.
  Inadequate section of the power supply cables.
  Pump filter clogged.

9. MAINTENANCE



Disconnect the power supply before starting any work on the system.

The system requires no routine maintenance operations.
Periodically inspect and clean the pump filter.
We suggest special maintenance at least once a year by qualified personnel.

10. DISPOSAL

This product or its parts must be disposed of in an environment-friendly manner and in compliance with the local regulations concerning the environment. Use public or private local waste collection systems.

11. GUARANTEE

Any use of faulty material or manufacturing defects of the appliance will be eliminated during the guarantee period contemplated by the law in force in the country where the product is purchased, by repair or replacement, as we decide.
The guarantee covers all substantial defects that can be assigned to manufacturing faults or to the material used if the product has been used correctly, in accordance with the instructions.
The guarantee is void in the following cases:

- attempts to repair the appliance,
- technical alterations to the appliance,
- use of non-original spare parts,
- tampering,
- inappropriate use, for example industrial use.

Excluded from the guarantee:

- parts subject to rapid wear.

When making a request under guarantee, apply to an authorised technical assistance service, presenting proof of purchase of the product.