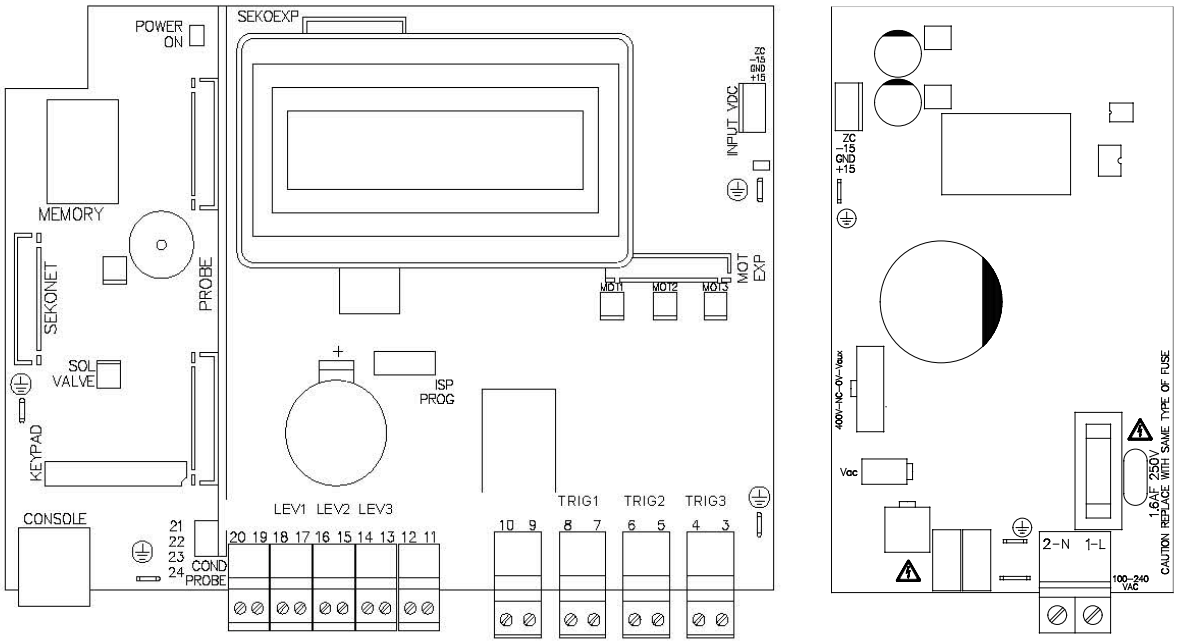
PODAB
Pump-o-Matic
3 pumps

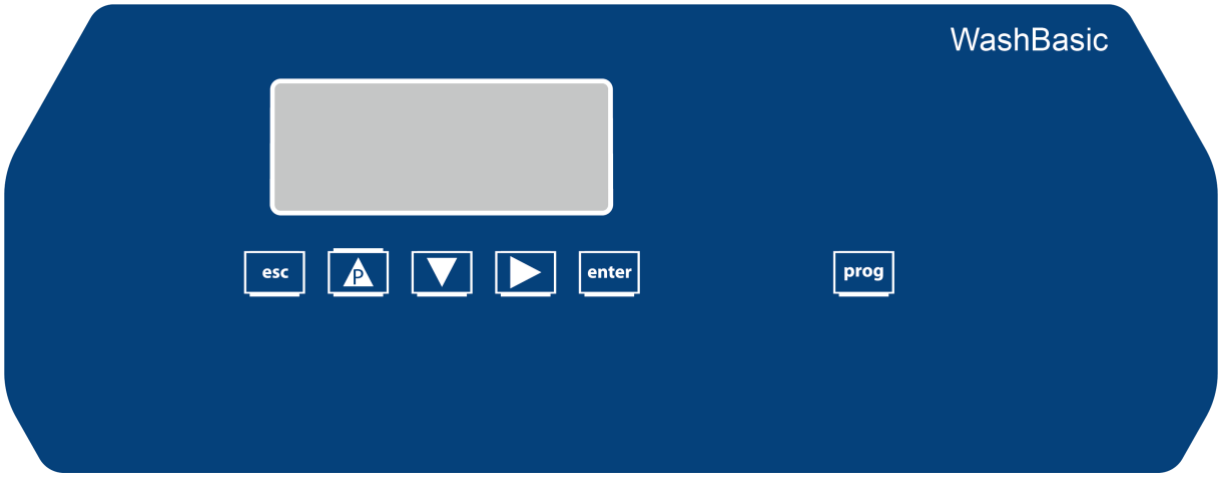
INSTALLATION MANUAL **EN**

SCHEME OF CONNECTIONS

CPU **POWER SUPPLY**



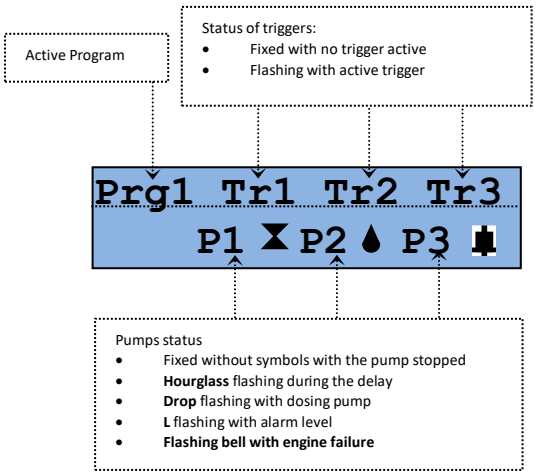
Signal	Signal type	Connector	Type
Supply	VAC(115-230)	LN(1-2)	INPUT
Trigger3	VAC(24 o 115-230)	Rinse (3-4)	INPUT
Trigger2	VAC(24 o 115-230)	Washing (5-6)	INPUT
Trigger1	VAC(24 o 115-230)	Pre-wash (7-8)	INPUT
Alarm output	Dry contact	Not used	\
Switch	Dry contact	Not used	\
Level3	Dry contact	Product 3(13-14)	INPUT
Level2	Dry contact	Product2(15-16)	INPUT
Level1	Dry contact	Product1(17-18)	INPUT
Temperature sensor	PT100	Not used	\
Probe conductivity meter	Vdc(0-5V)	Not used	\
Inductive probe	Vdc(0-5V)	Not used	\
Console interface	Vdc(0-5V)	Not used	\
External memory	Vdc(0-5V)	Not used	\
Keyboard	Vdc(0-5V)	Not used	\
Control solenoid valve	Vdc(0-24V)	SOL VALVE	OUTPUT
Motor control 1	Vdc(0-5V)	MOT1	OUTPUT
Motor control 2	Vdc(0-5V)	MOT2	OUTPUT
Motor control 3	Vdc(0-5V)	MOT3	OUTPUT



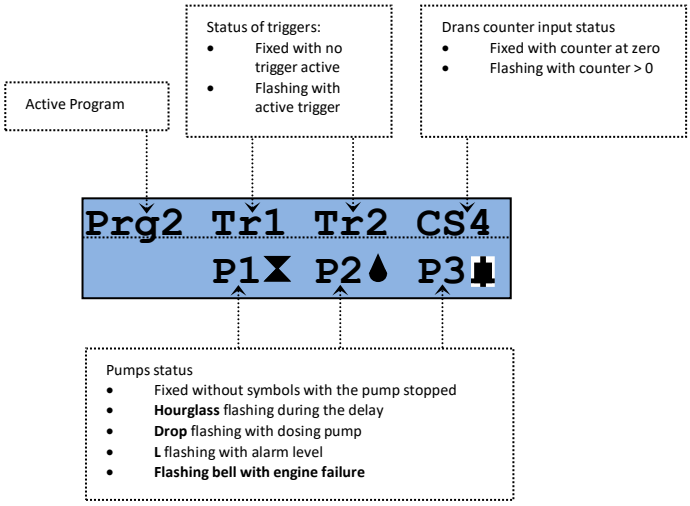
Display in standby

When you open, the system displays the following information:

METHOD WITH TR3 (Trigger 3) SET AS SIGNAL

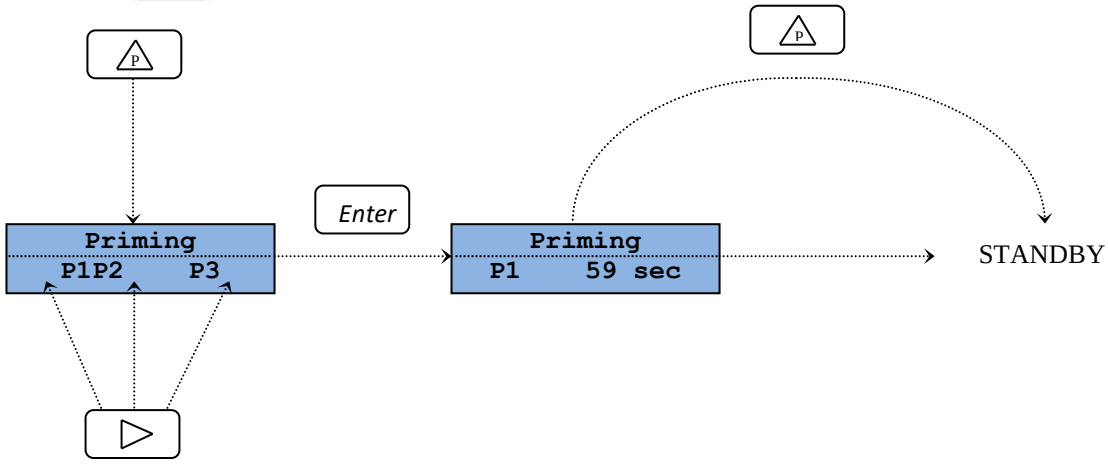


METHOD WITH TR3 (Trigger 3) SET AS DRAINS COUNTER



Priming pumps

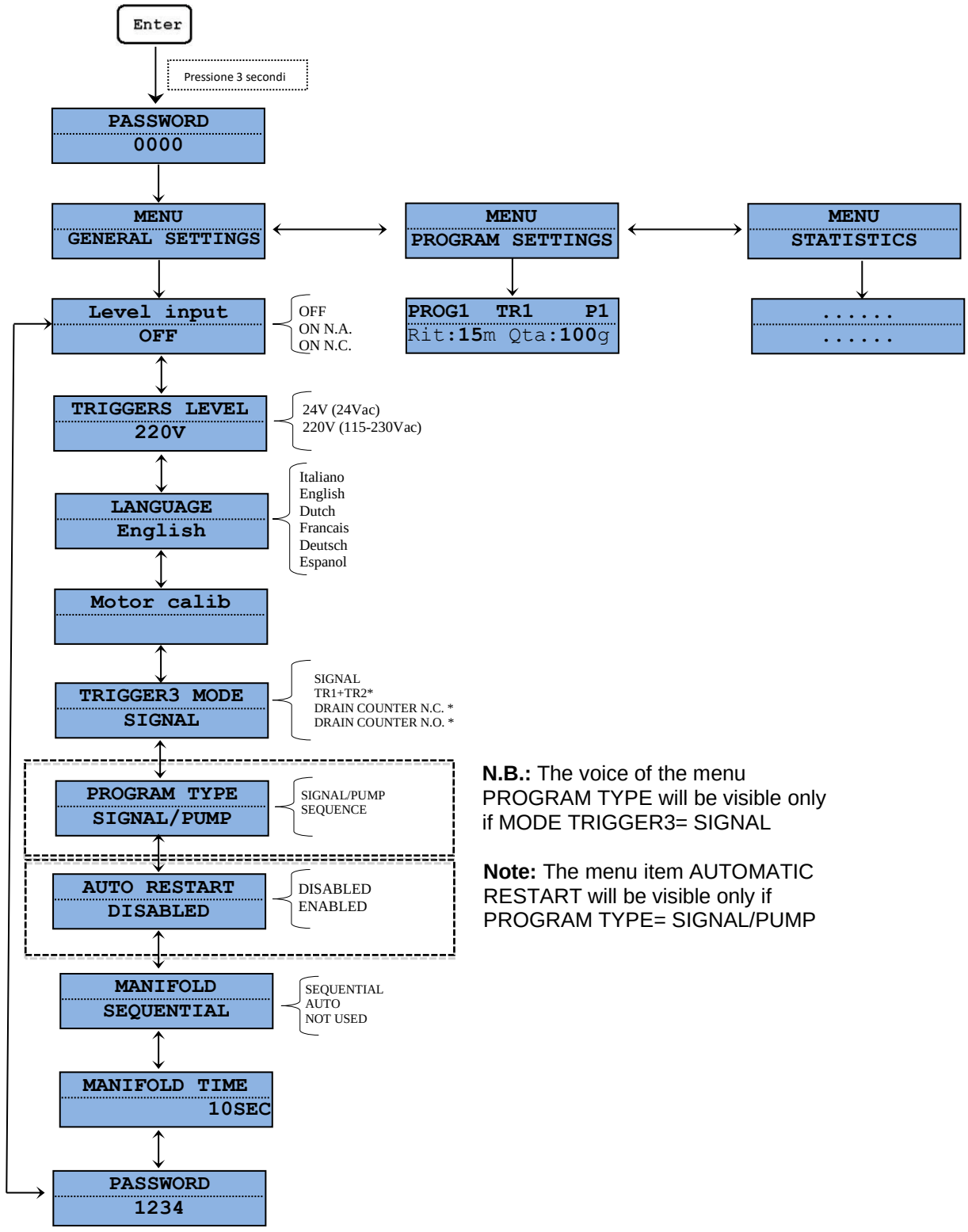
By pressing the button P the system goes into priming mode, with the button ▷ you chose the pump to prime, after confirmation with button Enter dosage goes to a maximum time of 60sec. At any time you can block priming by pressing the button Esc.



If your system has a flushing manifold, the flushing will run in parallel to priming of the pump and, once finished priming, it will remain active for the set flush time to allow cleaning of the flushing manifold and the hose connection to the apparatus to the washing machine.

Programming menu

Press the Enter key for 3 seconds to enter the programming mode. To exit, press the Esc key until the system requires saving the changed data. At that point, the system automatically returns to normal operation.



N.B.: The voice of the menu PROGRAM TYPE will be visible only if MODE TRIGGER3= SIGNAL

Note: The menu item AUTOMATIC RESTART will be visible only if PROGRAM TYPE= SIGNAL/PUMP

* If the Trigger 3 is set as **Discharge Counting** or **TR1+TR2** the **Program Type** will be automatically set to **Sequence**.

As shown in the menu, Trigger 3 can be set to function like all the other triggers (signal phase indicator) but it can also be set in drain counter mode.

Trigger 3= TR1+TR2
In this case in the input connector of Trigger 3 is not connected any signal, but at the contemporeney presents of Trigger 1 and Trigger 2, the system recognizes this mode as Trigger 3 and performs the setting dosage for the TR3.

TRIGGER 3= DRAIN COUNTER
In this case, it is possible to program the system to perform a given dosage only after a certain number of activations of the drain solenoid valve have been counted. For each washing program, up to 5 successive metering conditions can be defined, CS1 ... CS5, on the occurrence of each, it is possible to program a different dosage.

From the program menu, you can also define whether the drain solenoid valve is Normally Open or Normally Closed. In the first case, a drain will be counted as each low-high-low variation of Trigger 3 (…⎍…) and, after counting the drains, the system will dose only when the signal on the Trigger 3 has returned to the low level, that is, when the drain is closed; in the second case, a valid drain will be counted as each high-low-high variation (⎴) of the signal, and the system will dose only after the signal has returned to high, and therefore, only when the drain is closed.

Operation mode

In SEQUENTIAL mode Trigger 3 has priority over Trigger 1 and 2, and Trigger 2 has priority over Trigger 1. If two signals arrive at the same time, the dosage is performed for the trigger with a higher priority. If during a dosage is activated another Trigger with a higher priority, the system will stop the dosage in progress, will perform the flushing, and will carry out the dosage programmed for the Trigger just arrived.
However, if during a dosage is activated a trigger with lower priority, this will be ignored.

SIGNAL/PUMP
In this mode, each signal is able to activate at any time the dosage programmed for it. Whenever the system detects the activation of a Trigger signal (1, 2 or 3) it performs the dosage program scheduled for that Trigger, regardless of the dosages carried out up to that moment. If the same Trigger is repeated several times, the corresponding dosage is also repeated. If 2 triggers are activated simultaneously, it is performed the dosage programmed for the trigger with the higher number, which has a higher priority: in SIGNAL/PUMP mode the Trigger 3 has priority over Trigger 2 and 1, and Trigger 2 has priority over 1. Once the dosage is started, the other triggers are ignored until the dosage (and eventually the flushing) in progress is finished

SEQUENCE (Trigger 3 in signal mode)
In this mode, the triggers are taken into consideration only if they arrive in a certain sequence.
After switching on, the system starts to dose only if it receives the Trigger 1 or Trigger 2 (usually related to the PRE-WASH and WASH phases). If, however, the Trigger 3 arrives first, it is ignored.
Once the dosage programmed for the first valid Trigger received (1 or 2) has been performed, that Trigger is ignored and the system waits for the next trigger, and so on.
Once the dosage programmed for Trigger 3 has been performed, if the AUTOMATIC RESTART mode is enabled, after the LOCKOUT time, the system is pending for Trigger 1 or 2, to begin a new cycle. Otherwise, the program will terminate and has to be restarted by pressing the ▷ key.

Ex.
If the first signal received after the start of the program is Trigger 1, the system triggers the dosing programmed for this trigger and then waits for Trigger 2 to perform the next dosage and then for Trigger 3 to perform the last dosage of that program.
If the first signal received after the start of the program is Trigger 2, the system starts the dosage programmed for this trigger, and once this is finished, it waits for Trigger 3 to perform the next dosage.
If the first signal received after the start of the program is Trigger 3, the system does nothing and waits for Trigger 1 or 2 to start the wash program.

In the programming menu, by pressing the button Enter you can change the 5 wash programs, with the ▷ button you choose the parameter to change and the values thereof can be changed using the buttons and ▽

By pressing again the button Enter you will confirm the data entered.

In front of each trigger, you can program the activation of each of the pumps in the system, defining a delay and a different dosage for each of them. The pumps that do not need to be activated with a certain trigger should be programmed at a dosage equal to zero in correspondence with that trigger.

If you are calibrating of the engines, the dosing pumps must be programmed in grams, if you have not performed the calibration, the pumps are programmed in seconds:

AUTOMATIC RESTART
If automatic restart is enabled, after the last dosage set for the current program the system goes into standby for a fixed period of 300 seconds during which it ignores any trigger received. During this phase, the display shows the message **LOCKOUT TIME**, with the countdown of the 300 seconds.
After the expiration of lockout time, if the automatic restart is enabled, the system returns to the beginning of the program and waits for the first valid trigger.

But if the feature is disabled, after the last dosage set for the current program the display will show:

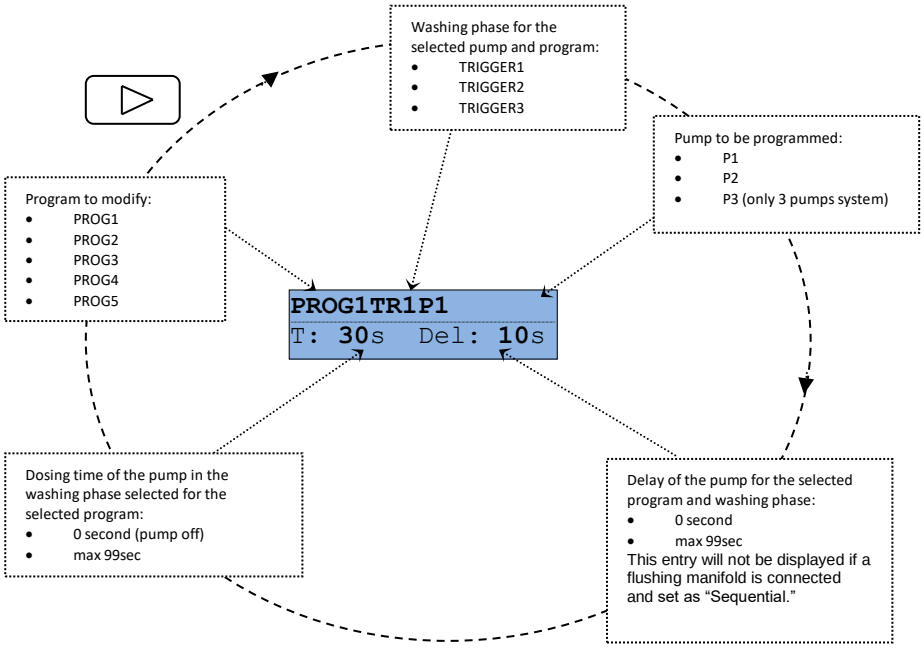
PROG. TERMINATED,

press the ▷ key

to return to the beginning of the program and wait for the first valid trigger.
In both cases, whether the feature is enabled or not, during the lockout time or during the manual restart state it is possible to change the program.

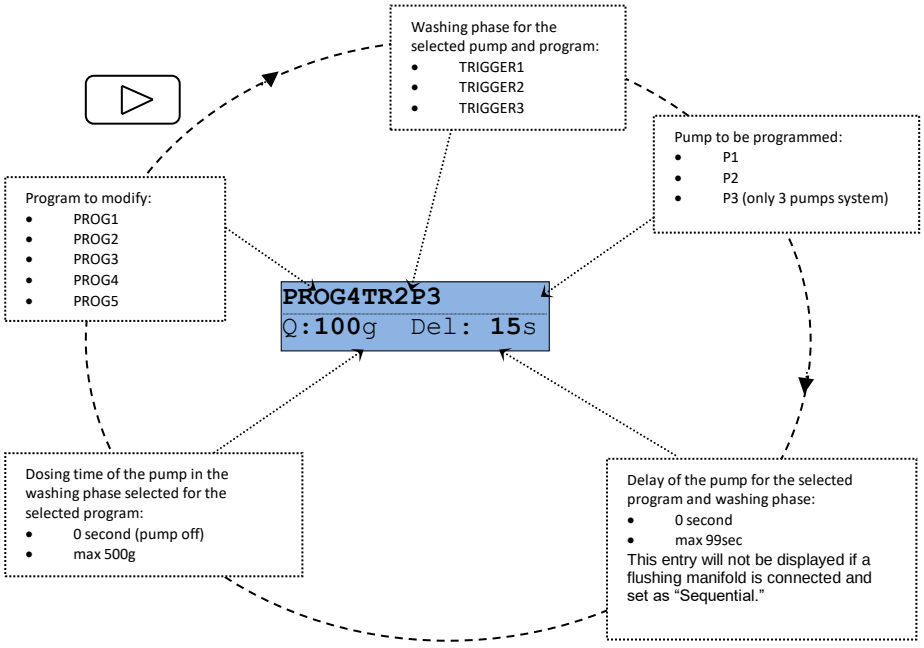
PROGRAM RESET
If you want to suspend the dosage during the program execution, simply press and hold the ESC key. After 5 seconds the display will show **PROG. RESET** and, and if you continue to hold down the key for another 5 seconds, the display will show **PROG. HAS BEEN RESET** and the system returns to the beginning of the program and waits for the first valid trigger.
The same procedure is valid also to clear the lockout time in case of automatic restart.

Trigger 3 in signal mode (with pumps not calibrated):



In the above example, it has been set in Schedule 1 that upon arrival of the Trigger 1, pump P1 will dose for 30 seconds, after a delay of 10 sec.

Trigger 3 in signal mode (with calibrated pumps):



In the above example, it has been set in Program 4 that at the arrival of Trigger 2, pump P3 will dose 100g of product, after a delay of 15 sec.

SEQUENCE (Trigger 3 in mode drain counter)
If the Trigger 3 is configured in drain counter mode, the system starts the dosing schedule only if it receives the Trigger 1 or 2, unless all pumps have been programmed with a zero dosage for these two signals. Once you have programmed dosage for Trigger 1 or 2, that trigger is ignored and the system waits for the next trigger. Once all the dosages programmed for Trigger 1 and 2 are complete, the system starts counting the activation of the signal at the input Trigger 3, until it reaches the value set in the condition CS1, after which it performs the dosage programmed for that condition, and continues to count the activations on Trigger 3, until it reaches the value set for the condition CS2 and so on until condition CS5. Any conditions set to a value of zero are ignored.

Ex.
If at the beginning, the system receives the Trigger 1, after the end of dosage scheduled for Trigger 1, it waits for Trigger 2 to make your next dose and then starts counting drains on Trigger 3.
If at the beginning, the system receives the Trigger 2, after the end of the dosage scheduled for Trigger 2, it waits for the Trigger 3 and begin to count the drain of this input until the set value in the condition CS1, after which the system performs the programmed dosage for this condition, and if the conditions of CS2 ... CS5 are set, it continues to count down the drains on the Trigger 3 to the set value in the next state.
If at the beginning the system receives the Trigger 3, it does nothing and waits for the Trigger 1 or 2 to start the washing program, unless there are not programmed any dosage for Trigger 1 and 2. In that case, the system immediately starts to count the drains on Trigger 3, until the attainment of the condition set in the condition CS1.

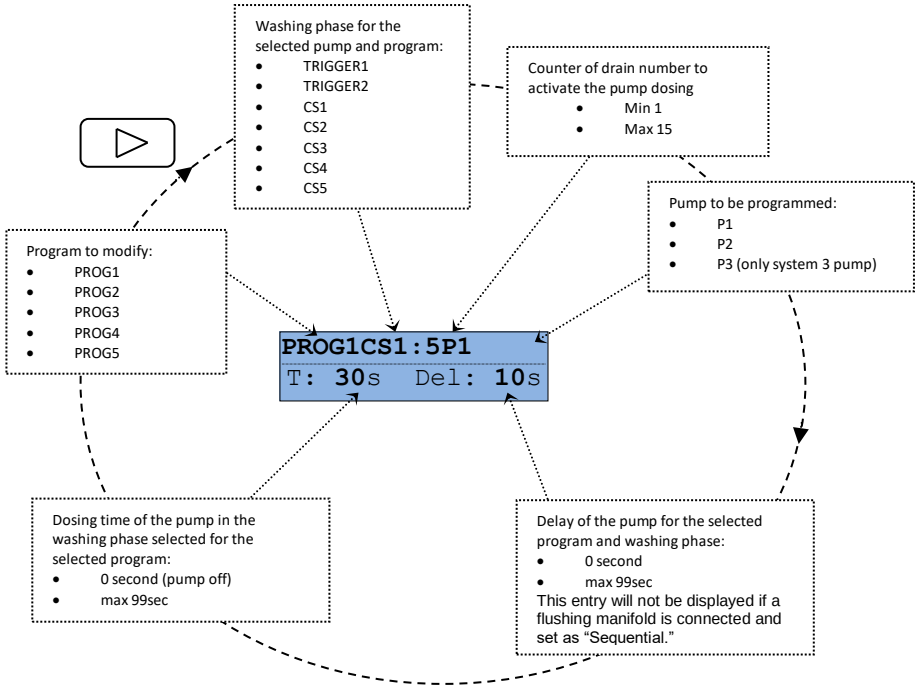
After dosing scheduled for each CS condition, the drain count is reset and starts over again. Once all the dosages specified in conditions CS1 ... CS5 are complete, the system returns to the beginning of the same wash program, waiting for Trigger 1 or 2.

In the programming menu, by pressing the button [Enter], you modify the 5 programs, with the button [▷]
You chose the parameter to modify which the value can change with buttons [△] and [▽] .

Pressing again the button [Enter], you confirm the entered data.

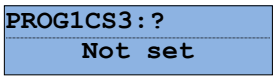
In front of each trigger, you can program the activation of each of the pumps in the system, defining a delay and a different dosage for each of them. The pumps that do not need to be activated with a certain trigger should be programmed at a dosage equal to zero in correspondence with that trigger.

Trigger 3 in mode drain counter (with pumps non calibrated):



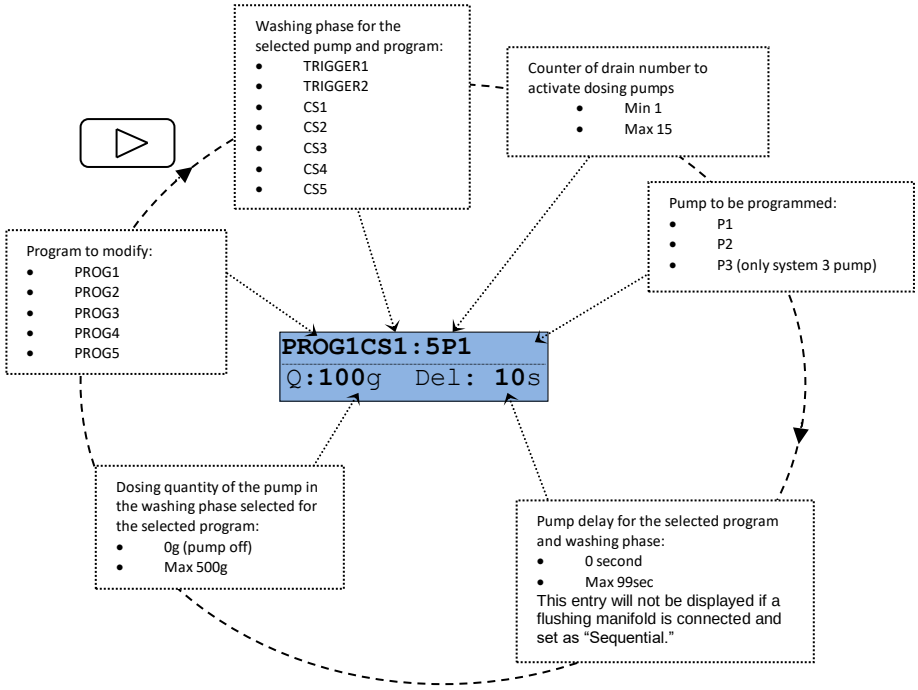
In the example above, in the Program 1, the condition CS1 is set so that once 5 drains have been counted on the input of Trigger 3, the pump P1 doses for 30 seconds, after a delay of 10 sec.

During the programming phase, if one of the conditions available (ex CS3) has not yet been set, that condition will appear next to the symbol '?' And on the second line the following warning:



Moving with button [▷] on the symbol '?' it's possible to set a value between 1 and 15 and then to program the desired dosage in front of the occurrence of that condition.

Trigger3 in mode counter drain (with pump calibrated):



E.g.
In the previous example, the condition CS1 on the Program 1 is set so that once 5 drains have been counted on the Trigger 3 input, the pump P1 doses 100g of chemical product, after a delay of 10 sec.

Operation of flushing valve

Sequential (Sequential/Auto)
Valve= dispensing for the various pumps is performed sequentially; the pumps programmed for each trigger will be activated one after the other, from pump 1 to pump 3, spaced out by a water flushing between one dispensing and the next. Flushing is activated one second before the start of the first pump; then flushing stops while the pump is dispensing. Flushing is reactivated for 2 seconds before the start of the next pump and so on. When dispensing is completed for all pumps, a final flushing will be performed to transfer the packet of chemical products to the washing machine. This will take place as follows:

WATER… CHEMICAL1… WATER… CHEMICAL2… WATER… CHEMICAL3… WATER (FINAL FLUSHING)

If valve is activated in sequential mode, delayed activation for each pump may not be programmed: programmed pumps will be activated in sequence, from 1 to 3, spaced out by 2 seconds of water.

Auto= Flushing is activated one second before the start of the pump or pumps programmed for that trigger. Flushing remains active during pump dispensing and for a final time period that will enable transferring of the chemical products to the washing machine. The programmed pumps will all dispense simultaneously or staggered based on the delays programmed for each pump. This will take place as follows:

WATER… (WATER+CHEMICAL1+CHEMICAL2+CHEMICAL3)… WATER (FINAL FLUSHING)

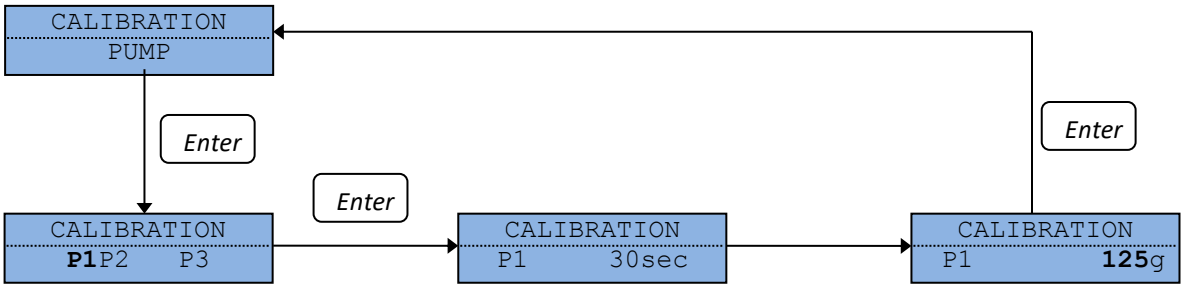
Not Used= Although present, the flushing valve is not used.

Flushing time
Use this entry to set the duration of the final flushing at the end of the dispensing programmed for each trigger to 1-99 seconds. This time should be set based on the distance from the dispensing system to the washing machine so to allow the flushing water to transfer the dispensed chemical products to their destination.

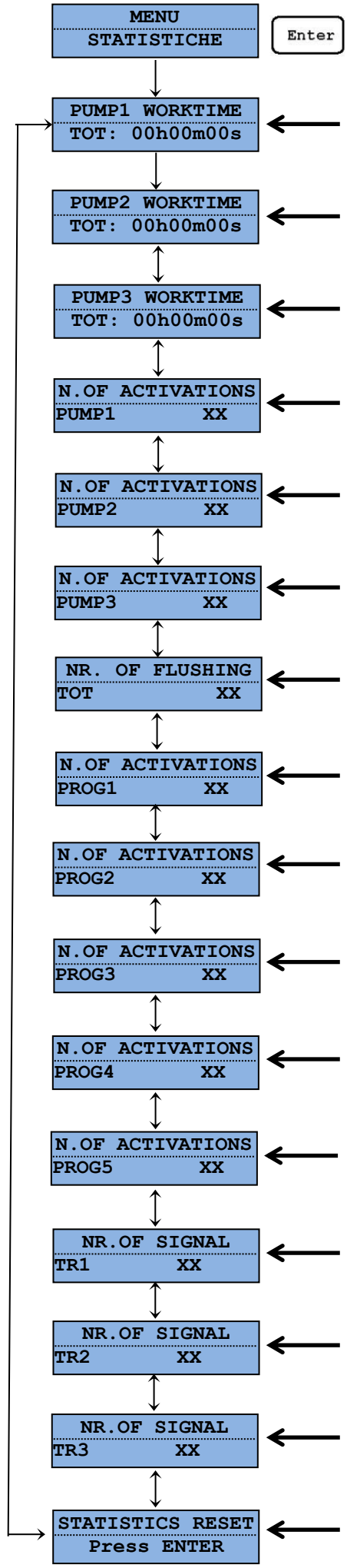
Calibration of engines

Entering in calibration mode, with the button , you choose the engine to calibrate, confirming with the button Enter, a dosing of 30 seconds goes, after which the system displays the calibration data currently being used (or nominal amount of dosage, if the system has never been previously calibrated), which should correspond to the quantity of product dispensed in those 30 seconds, which the operator has measured with a burette. If the quantity actually dosed differs from the value measured with the burette, the operator can change the displayed value with the buttons and then confirm with key Enter

The system will take into account in this way the actual pump flow rate in all subsequent doses.



Statistics



Shows the total activation time of the pump 1; when the pump exceeds 99 hours, the system will show the days, the hours and the minutes. If the system is calibrated will show the total amount dosed by the pump.

Shows the total activation time of the pump 2; when the pump exceeds 99 hours, the system will show the days, the hours and the minutes. If the system is calibrated will show the total amount dosed by the pump.

Shows the total activation time of the pump 3; when the pump exceeds 99 hours, the system will show the days, the hours and the minutes. If the system is calibrated will show the total amount dosed by the pump.

Shows the total activation time of the pump 3; if the system is calibrated will show the total amount dosed by the pump.

Shows the total number of activations of the pump 1.

Shows the total number of activations of the pump 2.

Shows the total number of activations of flushing socket

Shows the total number of activations of the program 1.

Shows the total number of activations of the program 2.

Shows the total number of activations of the program 3.

Shows the total number of activations of the program 4.

Shows the total number of activations of the program 5.

Shows the total number of valid signals on the TR1 terminal.

Shows the total number of valid signals on the TR2 terminal.

Shows the total number of valid signals on the TR3 terminal.

By pressing Enter the system will ask whether to confirm or not the statistics reset. If confirmed, the statistics will be reset to zero.

Level alarm

If you are connecting suction lances fitted with a level sensor to the level inputs of the apparatus, when the level of the chemical in one of the canisters is lowered to the point of triggering the sensor, the system detects a level alarm. In this case:

• the alarm repeat relay is activated
• the buzzer will sound intermittently
• next to the name of the chemical pump in depletion there will be a blinking "L"

However, the pump will not be locked and if one of the washing programs requires activation, this will carry out the dosage using as much of the chemical product as possible from the tank. The user can mute the alarm sound level by pressing any key on the keyboard, though the "L" blinking next to the pump will continue until the liquid level inside the offending tank is restored. When programming, the system pays close attention to the level probes mode: Normally Open or Normally Closed.

Modes of Operation

Selecting the wash program to be executed (PROG1 ... PROG5) is done by pressing the button *prog* in normal operation mode. The program number is incremented by one, each time you press the button, and when you see the desired program number, the system is ready to start the wash program.

In correspondence with each trigger, you can program the activation of each of the pumps in the system, defining a delay and a different dosage for each of them. The pumps that do not need to be activated with a certain trigger should be programmed at a dosage equal to zero in correspondence with that trigger.

At arrival of Pre-wash, Wash and Rinse triggers, the pumps programmed for each signal carried on its own dosing cycle programmed, during the "Delay" phase, the pump is stopped but next to the name of the pump, the display will show a flashing "R"; throughout the dosage phase, however, the name of the pump will flash and will only stop after the pump has dosed the amount set, even if meanwhile the trigger that activated it goes off-line.

Each Trigger is recognized active if the input signal remains stably on for a time of at least 6 seconds (filtering time). Signals of shorter duration are ignored. In the calculation of drains however, the input signal must instead remain on for at least a second order that counted as valid.

In general, the following Triggers have priority over the current dosage: if the system receives a valid trigger and starts the dosage for it, but the system detects another valid next trigger before it has finished, the dosage in progress is suspended and the dosage relative to the last Trigger received is immediately started. It must be said that, of course, if the system has been programmed and installed properly, this condition should never occur.

In the SIGNAL / PUMP mode, the system is always ready to perform the dosage defined for each trigger and, every time that trigger occurs, the system performs the dosage programmed for it. In this mode, the Trigger 3 has priority over all others, and Trigger 2 has priority over Trigger 1.

System Reset

To restore the factory settings with the system turned off, press and hold the buttons  and  , then turn the system on, release the buttons when the screen will display the reset request, confirm the operation with the button  .