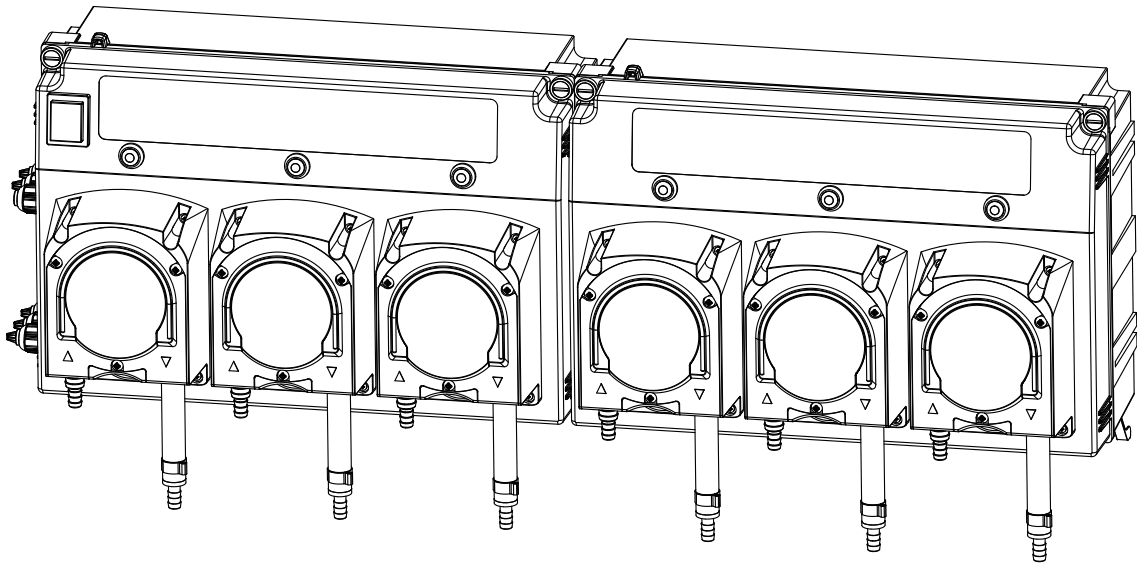# Multi washer dosing system

WARNINGS

Before installing or using this product read through and understand this manual in order to prevent any type of danger for the user or incorrect operation of the equipment.

Please keep this manual in a suitable place for any future reference.

Make sure that the equipment is complete and that no damage is present as this could affect the correct operation of the equipment. Otherwise, contact the manufacturer before undertaking any other action.

The manufacturer recommends the use of original parts. If such recommendation is not respected, the manufacturer shall not be liable for any damage to the equipment.

The equipment shall be used with chemical products which must be fully compatible with the manufacturing materials and previously agreed with the customer.

Make sure you have disconnected the signal, air and power supply sources before undertaking any maintenance operation on the equipment or the system.

The equipment must not be installed on unstable or irregular surfaces and it must be placed in a vertical position.

Make sure the voltage values are within those indicated on the label of the equipment, when the latter is connected to the electrical power network.

Failure to follow the user recommendations indicated in this instruction manual or the manufacturer's specifications on the correct use of the equipment may null and void the warranty and the manufacturer's liability.

This product must be installed and repaired in compliance with the laws and regulations in force. The installation or repair of the equipment described in this document must be performed exclusively by trained and qualified personnel using suitable tools.

The equipment must be installed indoors, in sufficiently ventilated rooms, far from corrosive environments.

The customer must guarantee sufficient water and pressure for the correct operation of the system.

GENERAL DESCRIPTION

The multi washer laundry equipment is an automatic dosing system designed to be used in professional or industrial washer-extractors.

The equipment consists of a central unit made up of a compact block with peristaltic pumps and some peripherals to manage the software for the laundry.

| FEATURES	
Power Supply	100÷240 Vac
Consumption	1,5 A
Environmental	IP Rating - 44 Pollution category – 2 Installation category - II
Temperature	10 to 49°C (50 to 120°F) maximum
Humidity	95% relative humidity, maximum
Pump flow rate	2 l/min
Inlet water flow rate	Min. 3l/min
Manifold	PVC with check valves
Inlet pressure	Min. 2,0 Bar
Trigger signal voltage	12÷230 V
Solenoid valve voltage	24 VDC
Pump fittings	Ø10
Washing machine output coupling	Ø12
Communication	CanBus
Communication with PC	Wi-Fi and Ethernet

Equipment and peripherals description

DOSING EQUIPMENT

The dosing unit was designed to inject the chemicals into the washer machine with the peristaltic pumps.

The system can vary from 2 to 8 pumps with a flow rate to 30, 60, 90 or 120 l/h.

An internal CanBus connect each pump at the network.
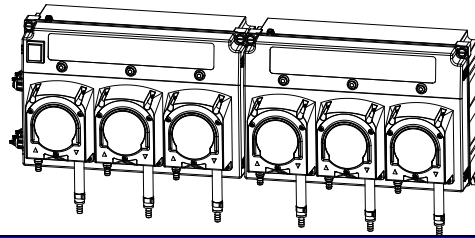
SIM (TRIGGER INTERFACE MODULE)

The trigger interface module has eight fully-isolated 24 to 240 V trigger inputs. The trigger inputs are connected to the module via a pin connector. The CanBus connects to each interface module through a connector at the other peripherals.
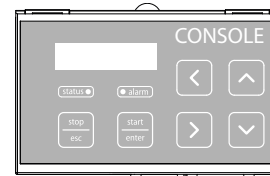The module must be installed one for each washing machine.
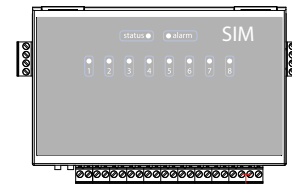
CONSOLE CENTRAL UNIT

The console is connected to the PC by Ethernet and/or Wi-fi. By mean of internal web server, it's possible to configure and set all parameters of the installation.
The CanBus connects the console through a connector at the dosing equipment.

WASHER FORMULA SELECTOR

The formula selector allows the operator to select one of 50 different wash formulas by the keys in the frontal panel. Two displays one 2x16 that shows the formula name and the other one 2 digits 7 segmemts that shows the formula number . The module also allows to monitoring status of washing machine and an alarm sitituation by leds in the frontal panel.
The CanBus connects to each interface module through a connector at the other peripherals.

The formula selector must be installed one for each washing machine.
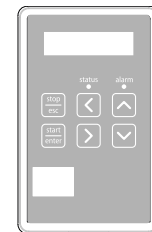
WATER INLET MODULE

The water inlet consists in:
-Faucet: to open/close the water inlet.
-Y filter: to filter any impurities.
-Pressure regulation: to set the maximum pressure inlet of 2 bar in order to avoid the damaging of the pumps.
-Watermeter pulse sender: to count the water flow input.
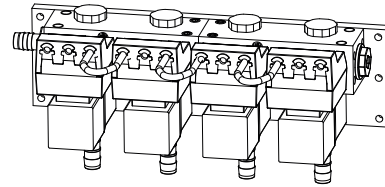-Solenoid Valve: to open the water flow piloted from the system.
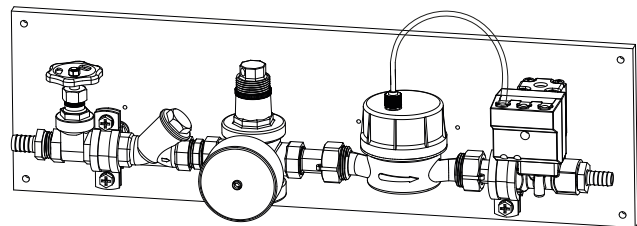
FLUSHING MANIFOLD

The flushing manifold transports the chemical pushed from water in the various washer machines.
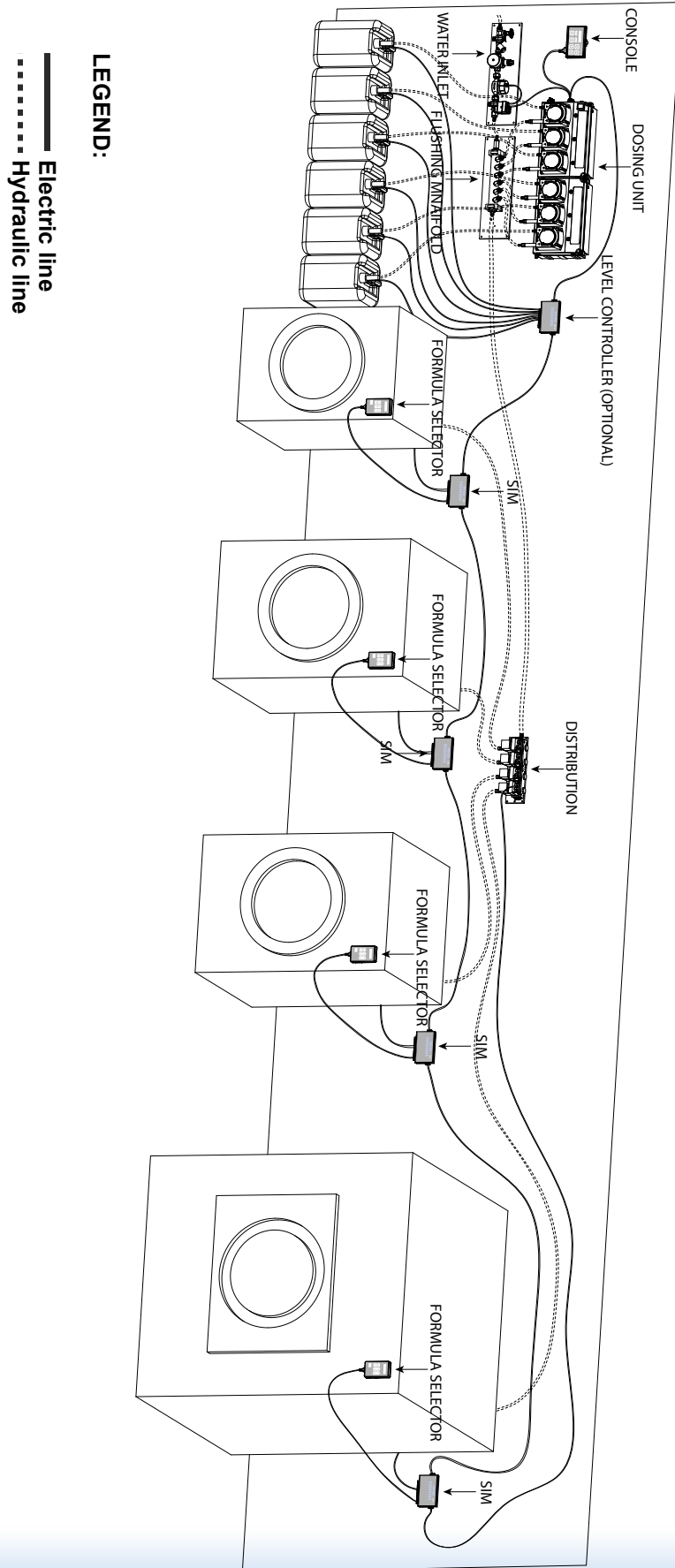The flushing manifold can vary from 4 to 8 chemical inputs.
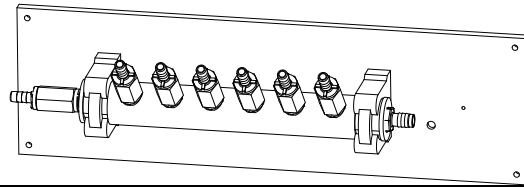
CHEMICALS DISTRIBUTOR

The distributor consists of a series of solenoid valve, each one connects to each washer machines.
The distributor in connected to the manifold by hose, and the chemical is routed to the washing machine that made the request.
The distributor can vary up to 8 solenoid valves for 8 wsahing machines.
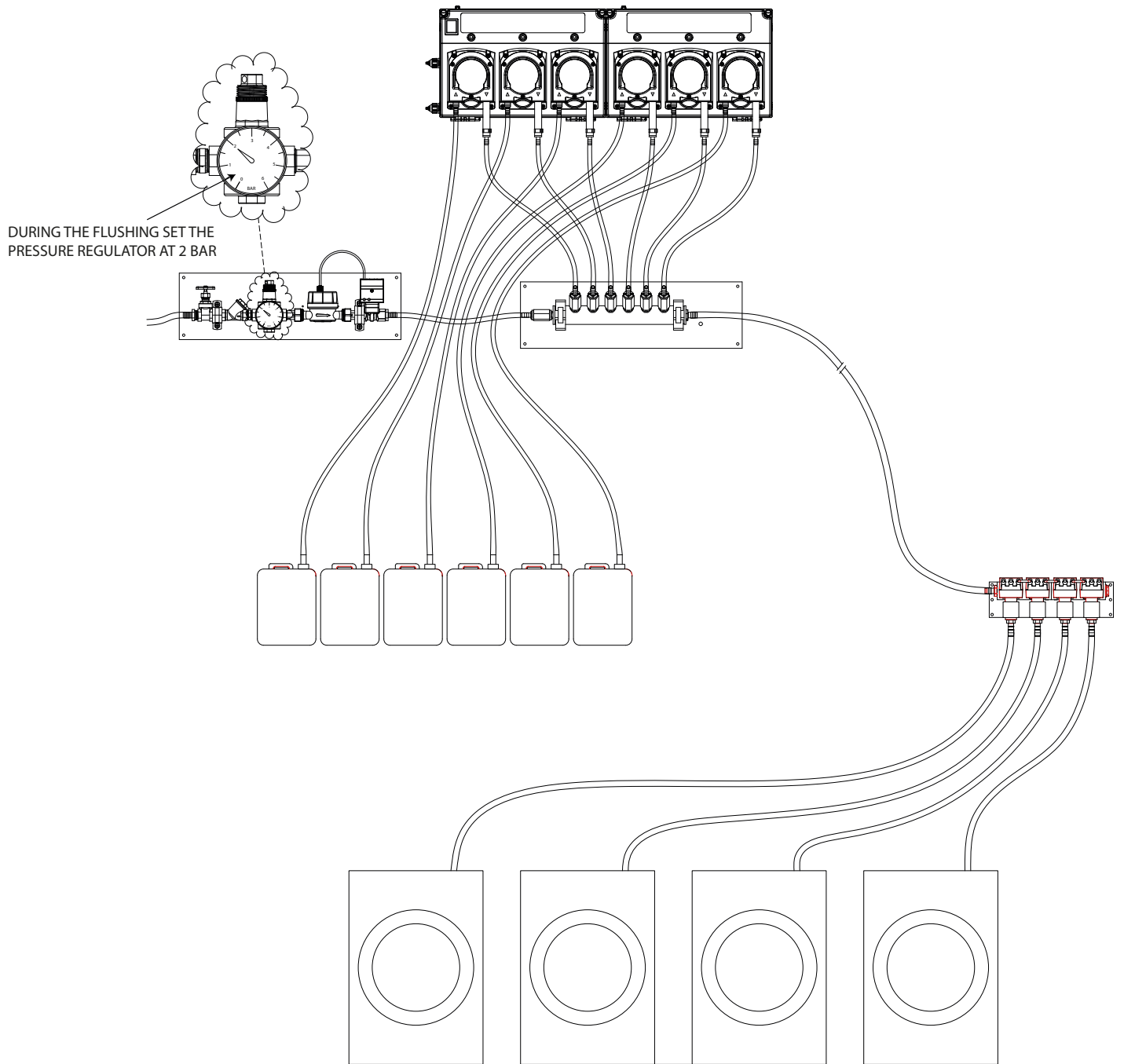
GENERAL TYPICAL INSTALLATION

LEGEND:

Electric line

Hydraulic line

WATER INLET

CONSOLE

FLUSHING MANIFOLD

DOSING UNIT

LEVEL CONTROLLER (OPTIONAL)

FORMULA SELECTOR

SIM

DISTRIBUTION

FORMULA SELECTOR

SIM

FORMULA SELECTOR

SIM

FORMULA SELECTOR

SIM

HYDRAULIC SCHEME LAYOUT

DURING THE FLUSHING SET THE
PRESSURE REGULATOR AT 2 BAR

INSTALLATION

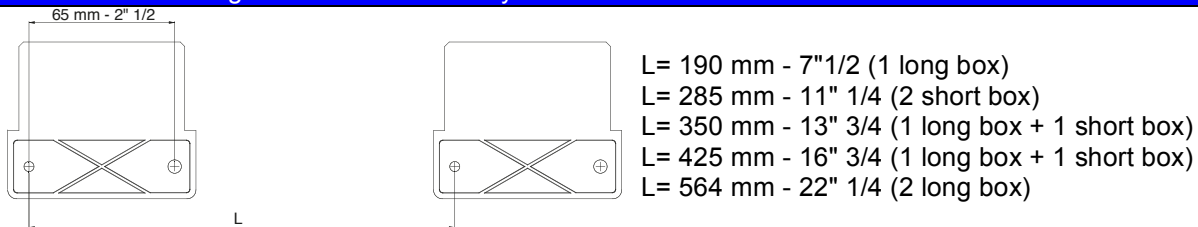✋ **CAUTION: Do not install the equipment where it would be directly exposed to chemical vapours or fumes. Do not place it close to the sources of heat.**

☠ **CAUTION: Always disconnect the Multi washer System and the laundry machine from the power supply before making any connections.**
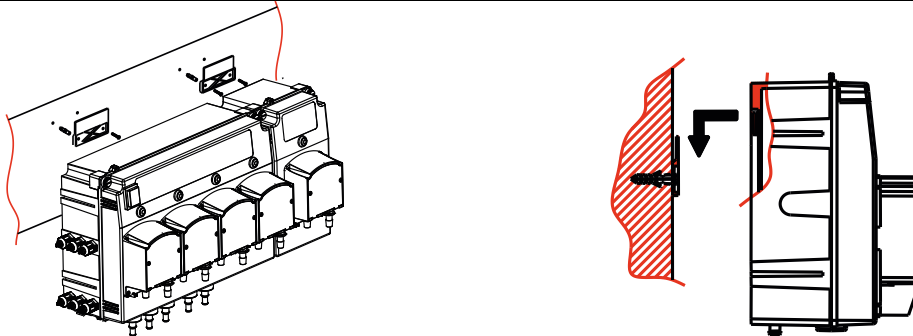
✋ **All the wiring connections to the Multi washer System should be checked using a multimeter. Incorrect connections could seriously damage the unit and invalidate the warranty. Refer to the wiring diagram contained in this manual for all signalling and power-supply connections.**
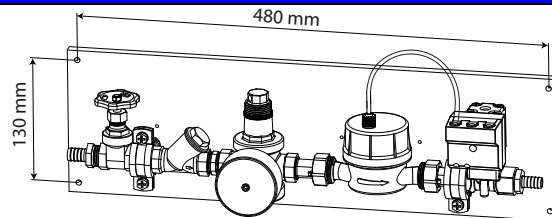
INSTALLATION

| 1 - Fix the mounting brackets to the wall by means of the anchor bolts ∅=6 mm |
|---|

65 mm - 2" 1/2

L= 190 mm - 7"1/2 (1 long box)
L= 285 mm - 11" 1/4 (2 short box)
L= 350 mm - 13" 3/4 (1 long box + 1 short box)
L= 425 mm - 16" 3/4 (1 long box + 1 short box)
L= 564 mm - 22" 1/4 (2 long box)

L

2 - After securing the brackets in place, hang the dosing unit onto them.

3 – Fix the water inlet panel to the wall.

480 mm

130 mm

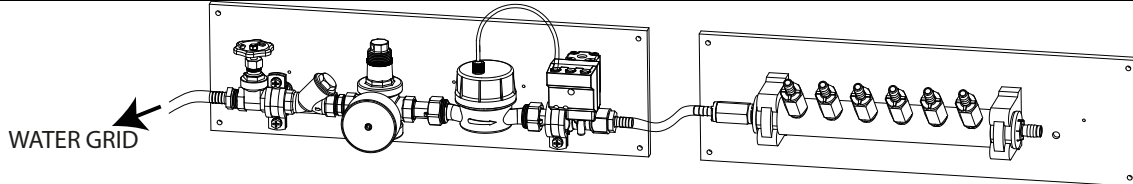| 4 – Fix the flushing manifold panel to the wall. |
|---|

480 mm

130 mm
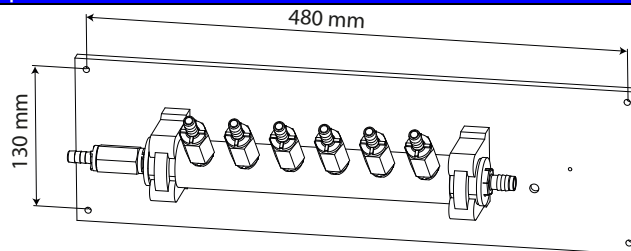
5 - Fix the chemicals distributor to the wall.
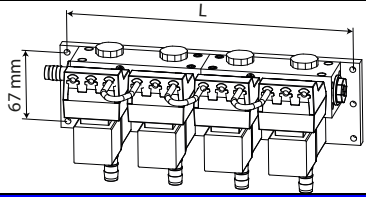
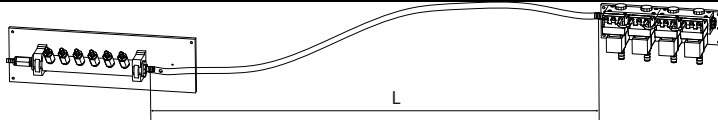L= 267 mm (3 or 4 solenoid valves)
L= 387 mm (5 or 6 solenoid valves)

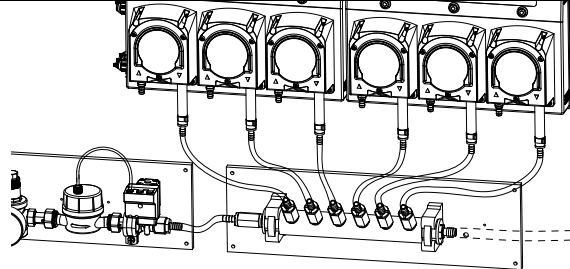## 6 – Connect the water inlet hose to the flushing manifold inlet.

WATER GRID

7 – Connect the flushing manifold outlet to the chemicals distributor inlet.
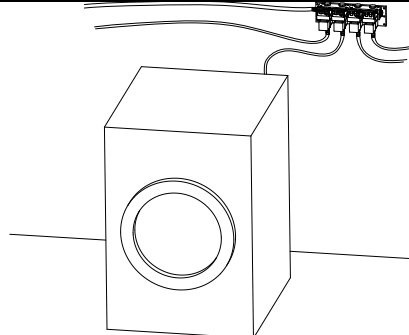
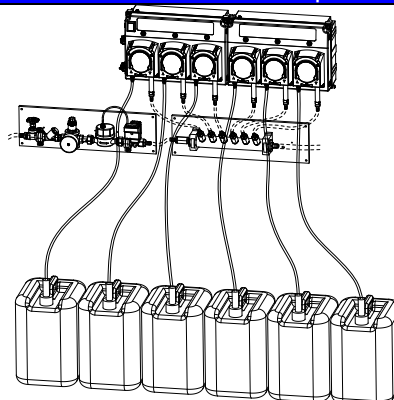| Internal hose Ø [mm]	L= Distance [m]
10	≤ 20
12	>20 - ≤40
14	>40

8 – Connect each delivery tube of peristaltic pumps to the chemical inlet of flushing manifold.

9 – Connect each solenoid valves outlet of chemical distributor to each washing machine.

10 – Connect each chemical product hose to the suction tube of peristaltic pumps.

ELECTRICAL WIRING

*SWITCH OF THE LAST DEVICE
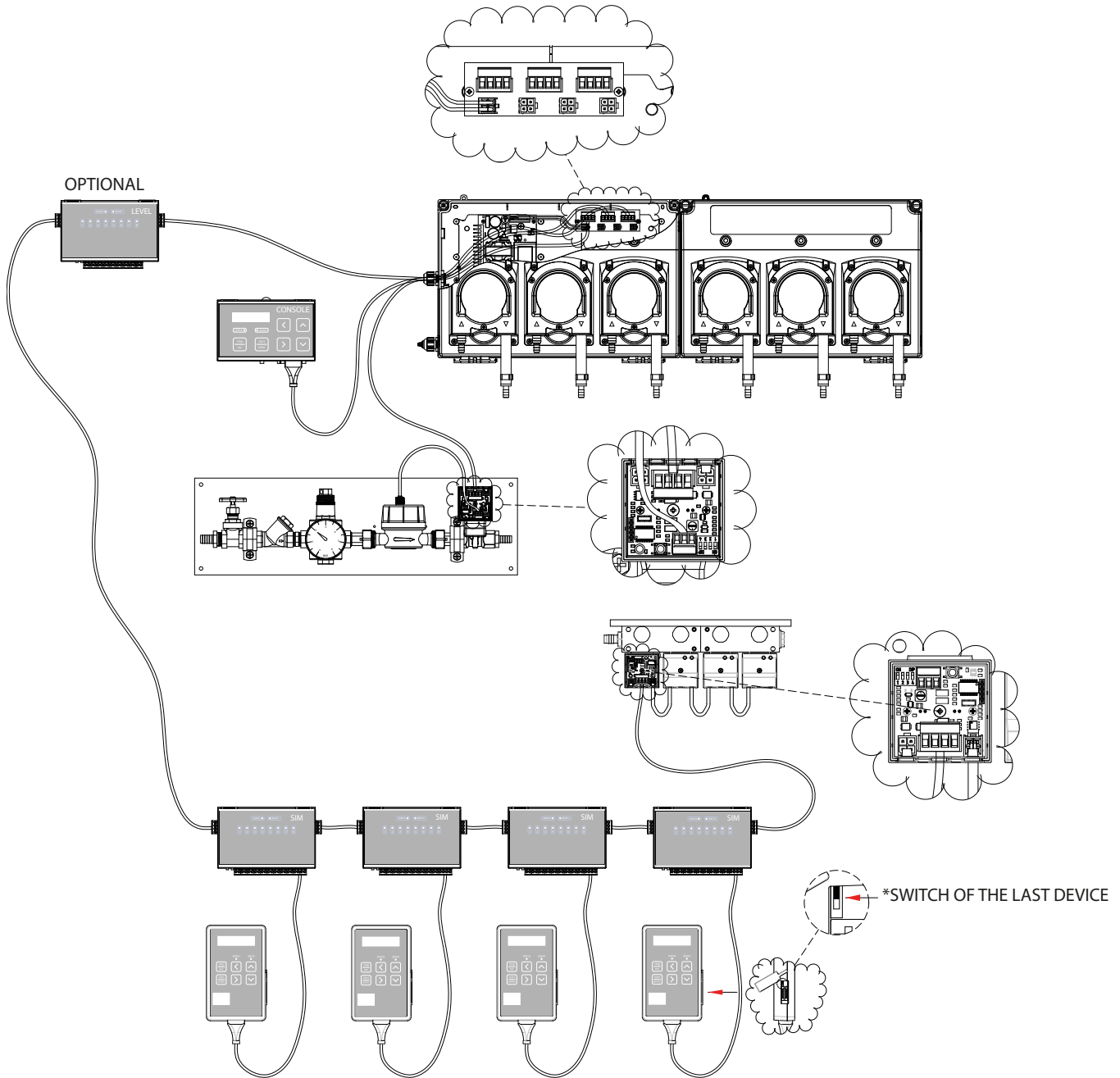
*For an installation up to 7 washing machines slide the IMPEDANCE TERMINATION SWITCH to the "DOWNWARD" position only for the last device present on the bus. (the device farther away from dosing unit).
For an installation of more than 7 washing machines leave the IMPEDANCE TERMINATION SWITCH on the "UPWARD" position.

ELECTRICAL WIRINGS

☠ **CAUTION: Always disconnect the Multi washer System and the laundry machine from the power supply before making any connections.**

✋ **Incorrect connections could seriously damage the unit and invalidate the warranty. Refer to the wiring diagram contained in this manual for all signalling and power-supply connections.**

CANBUS INPUT/OUTPUT CABLE

✋ **Always connect the CanBus cable as shown in the table below:**

Wire colour	Description
White	+VDC
Brown	GND
Green	BUS+
Yellow	BUS-

DOSING EQUIPMENT CIRCUIT DIAGHRAM
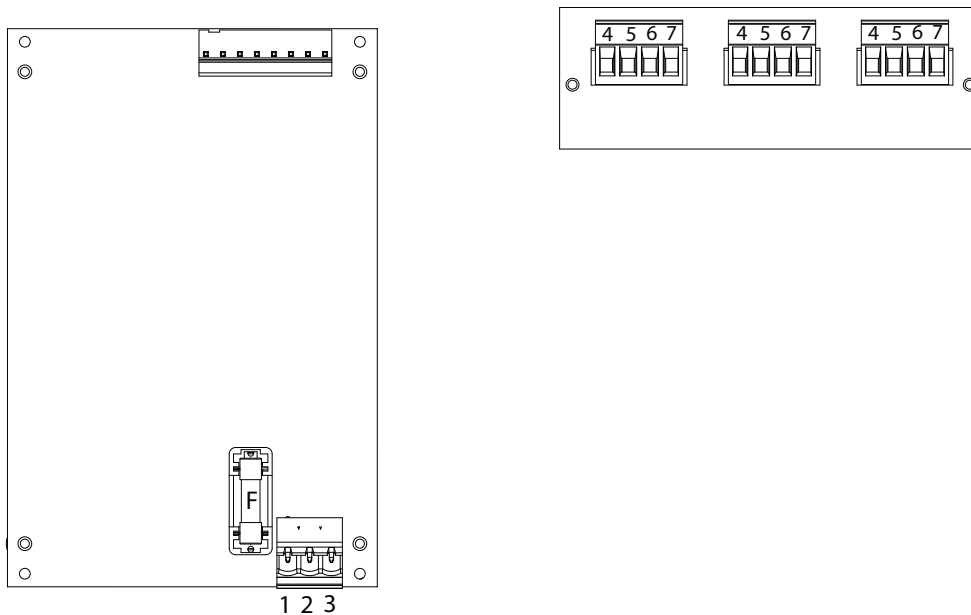
ID	FUNCTION	DESCRIPTION
1	POWER SUPPLY (L)	Power supply 100÷240 Vac
2	POWER SUPPLY (N)	
3	GROUND (GND)	
4	+VDC	CanBus connector
5	GND	
6	BUS+	
7	BUS-	
F	FUSE	Replace fuse with same type and value

1 – Connect the supplied cable to the Console.
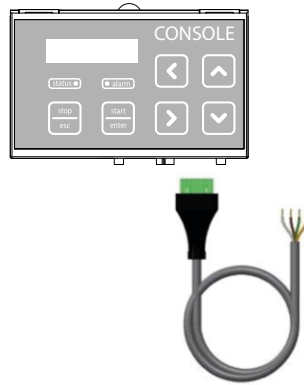
2 – Connect the Console to any CanBus connector the Multi washer system.
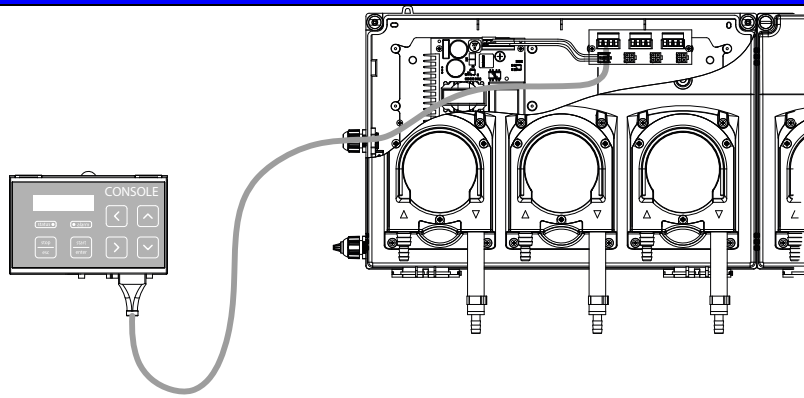
3 – Open the cover of the Solenoid Valve of Water inlet module and connect it to any CanBus connector of the Multi-washer system.

N° Pin	Features
4	+VDC
5	GND
6	BUS+
7	BUS-

4 – Fix each Trigger interface modules inside each washing machine and connect it as shown below.
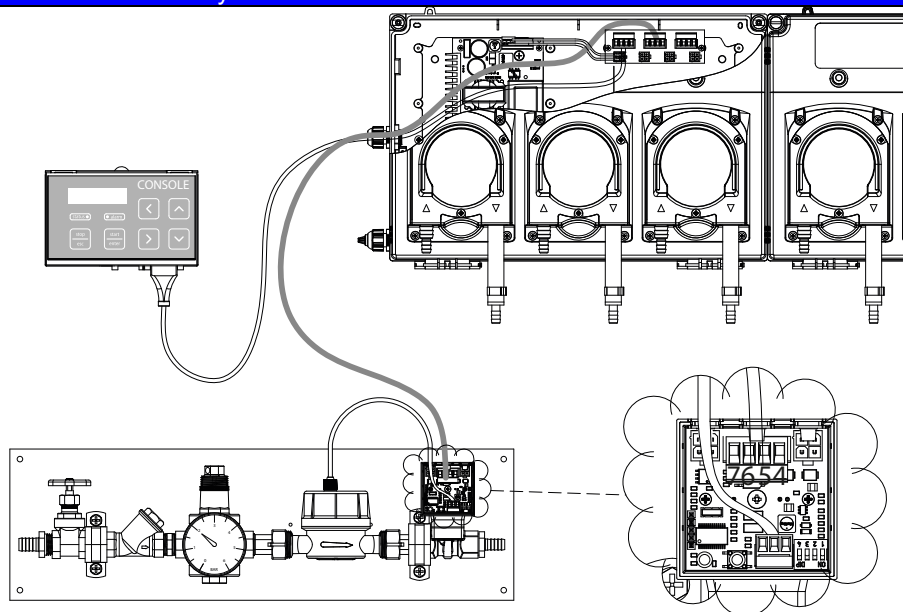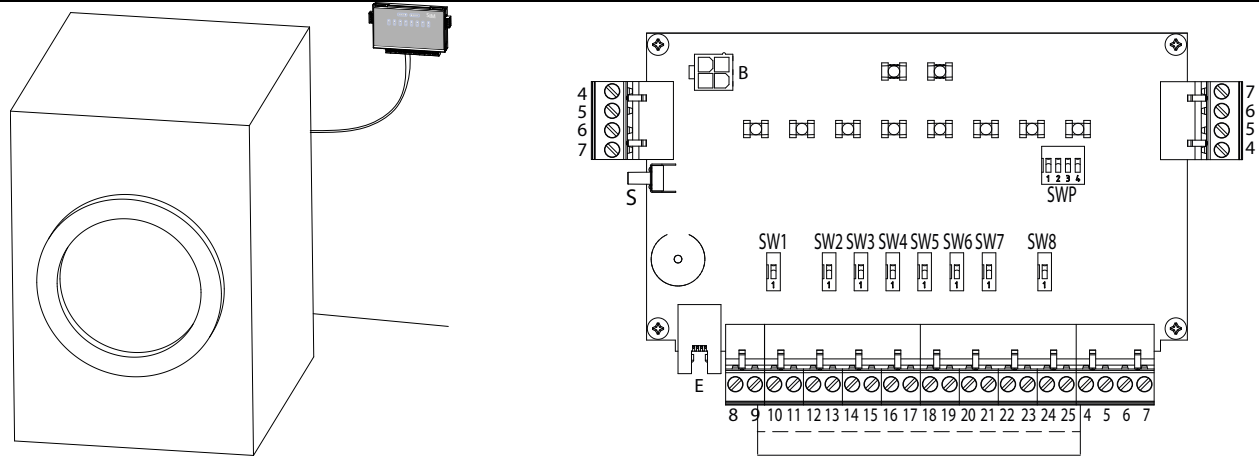

ID	FEATURES	DESCRIPTION
4	+VDC / White wire	CanBus connector
5	GND / Brown wire	
6	BUS+ / Green wire	
7	BUS- / Yellow wire	
8	RELAY COM	Relay output
9	RELAY N.O.	
10	INPUT 1 +	Input signal from solenoid valves of the laundry machine
11	INPUT 1 -	
12	INPUT 2 +	
13	INPUT 2 -	
14	INPUT 3 +	
15	INPUT 3 -	
16	INPUT 4 +	
17	INPUT 4 -	
18	INPUT 5 +	
19	INPUT 5 -	
20	INPUT 6 +	
21	INPUT 6 -	
22	INPUT 7 +	
23	INPUT 7 -	
24	INPUT 8 +	
25	INPUT 8 -	
SW1…SW8	INPUT SIGNAL VOLTAGE SWITCH	Sensitivity of input signal voltage switch: upward - 0 (100÷240V), downward - 1 (12÷36V)
E	External input/output	External input/output

✋If the signals from washing machine have the ground (GND) in common is enough to connect only one ground (GND) of one of the signals.

✋The negative poles (–) of the signal terminals are connect together by the lower part of the PCB, so if the signals from the washing machine have a common ground (GND), you can drive a single GND to the SIM and then connect a single wire for each of the other signals. If instead the signals from washing machine don't have a common ground (GND), it is needed to break the lower part of the circuit as shown in the picture, and then connect two wires for each signal.
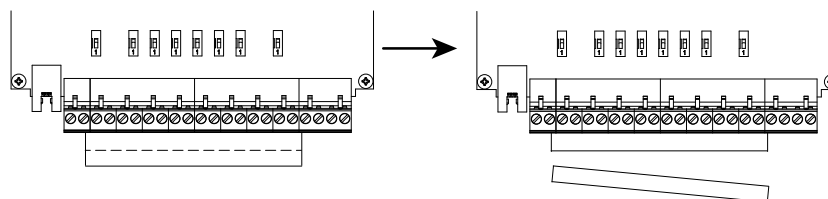
5 – Connect a Trigger interface module to any CanBus connector of the Multi-washer system.
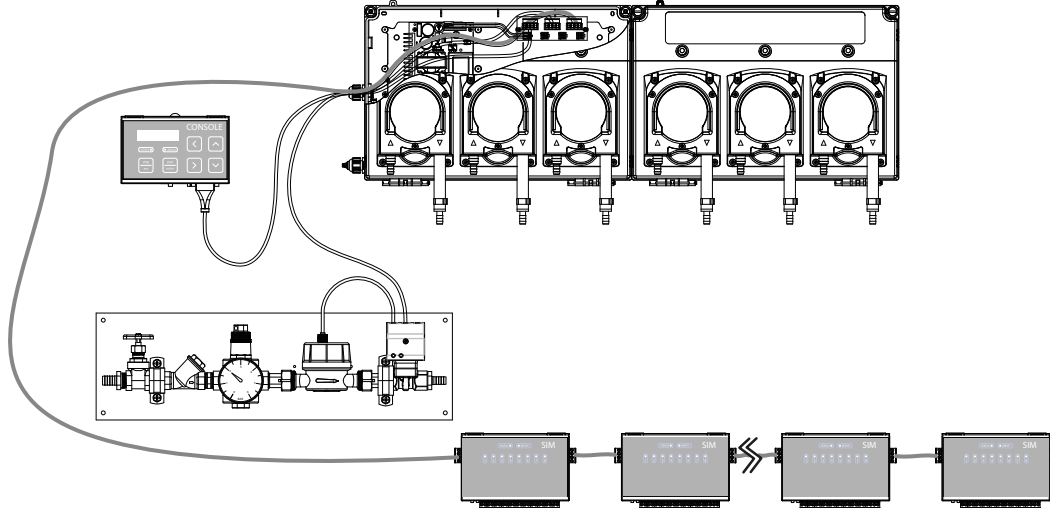
6 – Connect the chemical distributor to the any CanBus connector.

N° Pin	Features
4	+VDC
5	GND
6	BUS+
7	BUS-
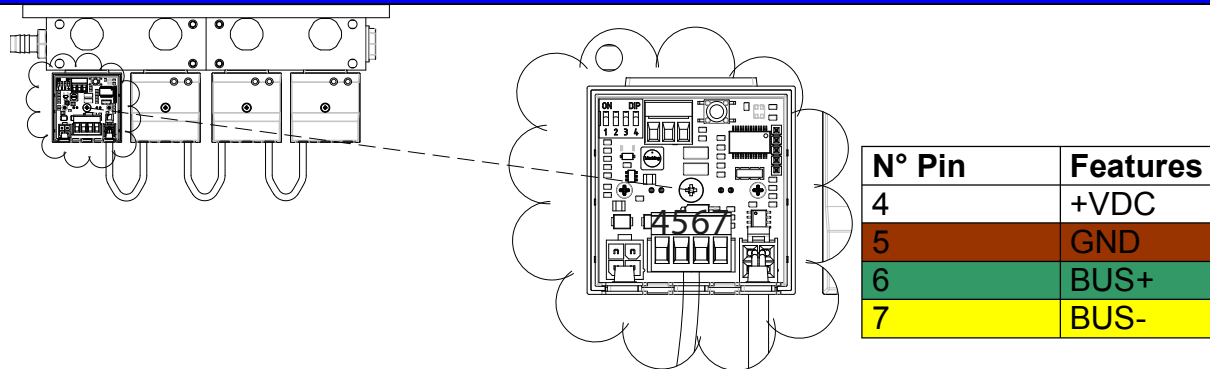
7 – Fix each Formula selector in front at each washing machine and connect it to the Trigger interface module.
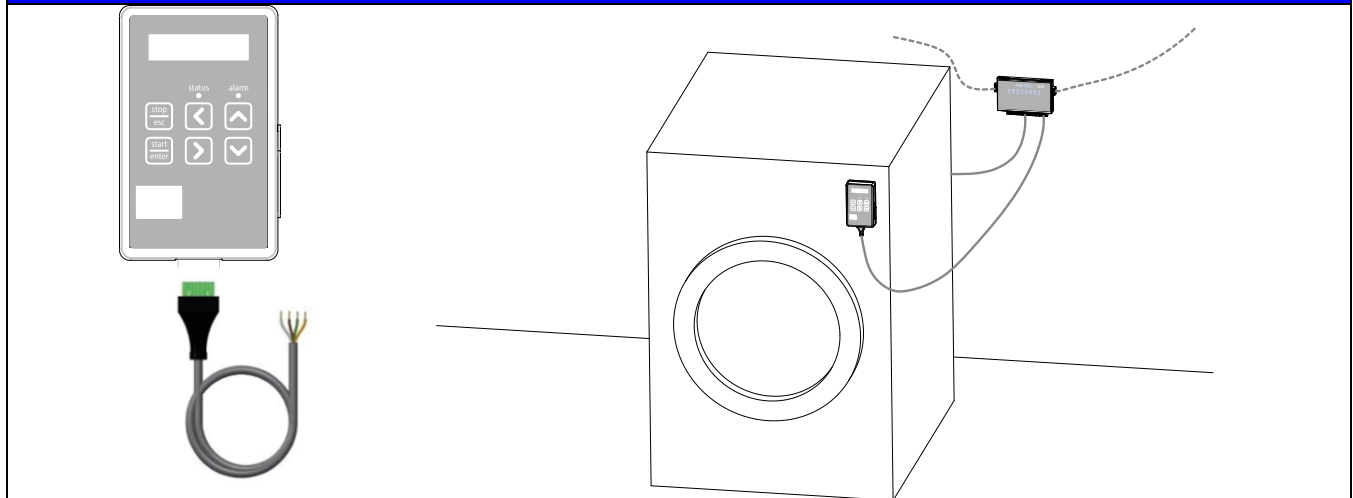
SYSTEM CONFIGURATION

The CAN (Control Area Network) is a serial bus system specifically designated to interface both intelligent devices and sensors or actuators, in order to develop a real time network, reliable and able to work in extreme conditions.

The CAN protocol is a CSMACD (Carrier Sense Multiple Access with Collision Detection) type protocol by means of which each peripheral device, once it has been assigned an address, can communicate directly with the recipient as if it were a master, or receive messages intended for it as if it were a slave.

Even though the CAN protocol provides that all peripheral devices can be both master and slave, generally is always provided a specific device to work as a main unit and be responsible for controlling the network.

The multi-machine 4G is based on the use of peripheral devices, interconnected by CANBUS for the control of all its devices, and uses the Multiwasher Console unit as a network controller.

The various peripheral devices are subdivided into families as follows:

- Motor pumps + flow meter driver;
- Solenoid distributor driver;
- Solenoid water inlet + flow meter driver;
- Washing machine trigger interface (8 triggers);
- Washing machine formula selector (FS Washer);
- Alarm unit.

As mentioned, all the CAN peripheral devices are connected on a common serial bus, therefore, in order to be accessed, each of these must have a unique address which is assigned to it through a procedure, directly on the plant, after having been connected and powered; the only exception is represented by the motor driver peripherals family, which are initialized at the factory.

Once the installation is performed, at system start up, the network controller (Multiwasher Console) performs a check of the connected devices, after which, if peripheral devices without address were found, will alert the operator about their presence through acoustic and luminous signals, and then the operator will have to start the configuration process to assign a unique address to all the devices.

1 – Switch on the system pressing the power supply button in frontal panel of the dosing system.
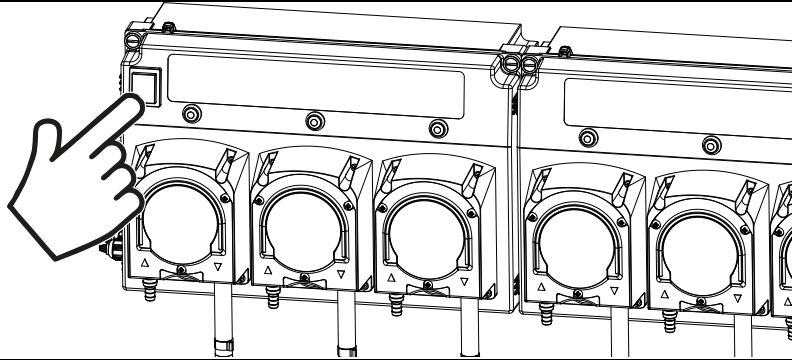
2 – At the first system powering, the led alarm of the Console blink and the buzzer ring, to mute the buzzer, press any key and the led alarm will become red fixed. The Console show onto the display the following message:


```
E06: NEW DEVICE
4D 1M 4S 4W 1L 1U
```
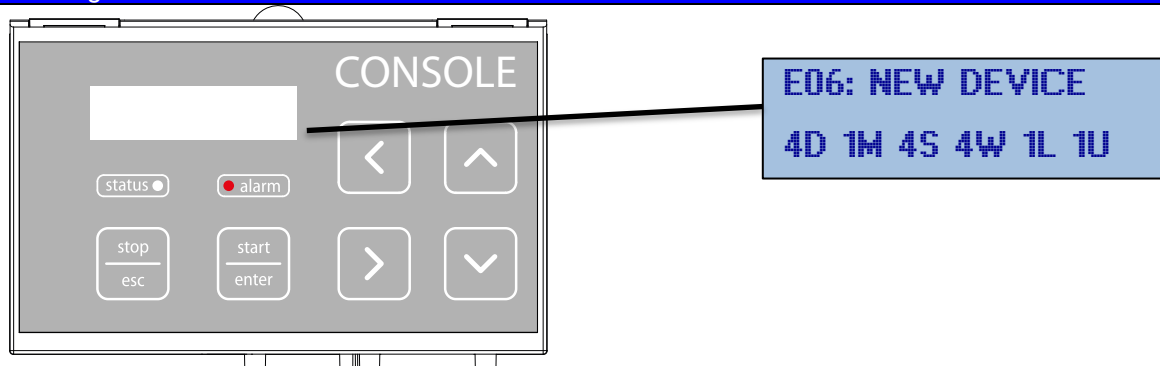
3 – The second line of the Console display shows the number and the kind of devices found.
The peripherals are divided for device families, following the ID list of the device:

ID	Device
nP*	P= pump (ex. 2P= 2 pumps)
nS	n= number of the devices S= SIM (ex. 1S= 1 SIM)
nD	n= number of the devices D= distributor valve (ex. 4D= 4 distributor valves)
nM	n= number of the devices M= (ex. 4M= 4 FS Washer)
nW	n= number of the devices W= Water inlet module (ex. 1W= 1 water inlet module)
nA	n= number of the devices A= Alarm module (ex. 1A= 1 Alarm module)
nL	n= number of the devices L= Level (ex. 2L= 2 level boxes)
nI	n= number of the devices I= Inlet valve (ex. 4I= 4 inlet valves)
nR	n= number of the devices R= Relay module (ex. 1I= 1 relay module)
nE	n= number of the devices E= pneumatic pump (ex. 1E= 1 pneumatic pump)
nF	n= number of the devices F= Flux (ex. 2F= 2 flush kits)

*this device will be shown only if will be replaced pump/s or added new pump/s.

4 – Acquisition Water inlet: the led of solenoid valve blinks red and green, press the switch with a little screwdriver and the led will become green fixed. Once acquired the device, the Console does not show the device in the display if it was only one, or else it will take away one if more devices.

✋ Pay attention: the first acquired device of the family, will be recognized from the system as the first, the second acquired device, will be recognized as the second and so on.

LED   SWITCH
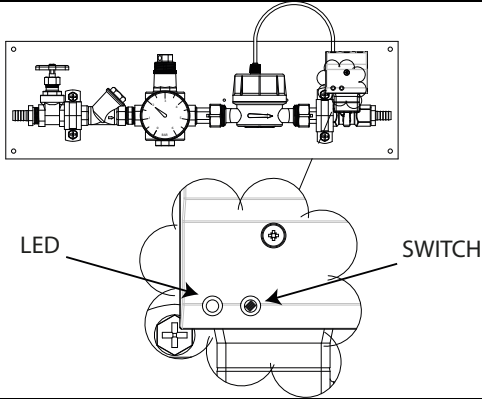
```
E06: NEW DEVICE

4D 1M  4S 4W
```

```
E06: NEW DEVICE

4D 4S 4W
```

5 – Acquisition Distributor: the led of all solenoid valves will blink red and green, press the switch of all solenoid valves with a screwdriver and the led will become green fixed. Once acquired the device, the display Console will take away one, once acquired the last solenoid valve the Console does not show the device in the display.

✋ Pay attention: the first acquired device of the family, will be associated from the system at the first washing machine, the second acquired device, will be associated at the second washing machine and so on.

SWITCH   LED
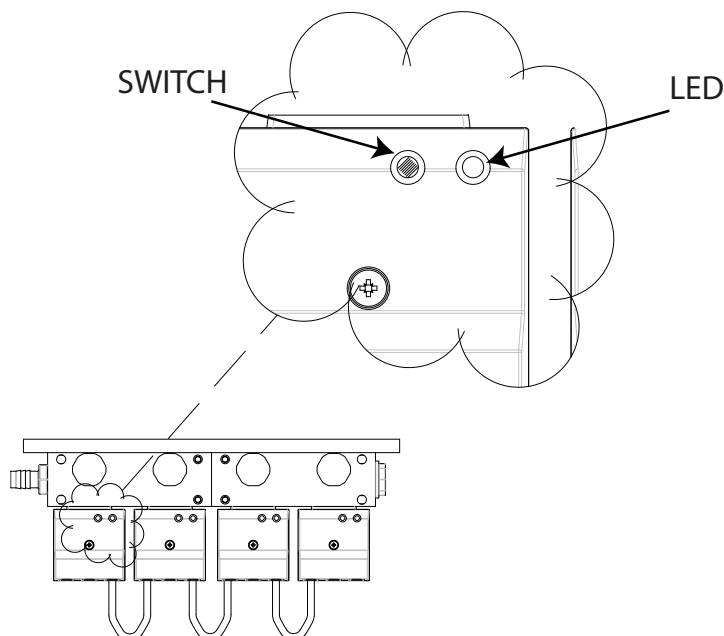
```
E06: NEW DEVICE

4D 4S 4W
```

```
E06: NEW DEVICE

3D 4S 4W
```

```
E06: NEW DEVICE

4S 4W
```

6 – Acquisition SIM: the alarm led blinks red and the status led green fixed, press the switch to the side and the alarm led will switch off and the status led will remain green fixed. Once acquired the device, the display Console will take away one, once acquired the last SIM, the Console does not show the device in the display.

✋ Pay attention: the first acquired device of the family, will be associated from the system at the first washing machine, the second acquired device, will be associated at the second washing machine and so on.
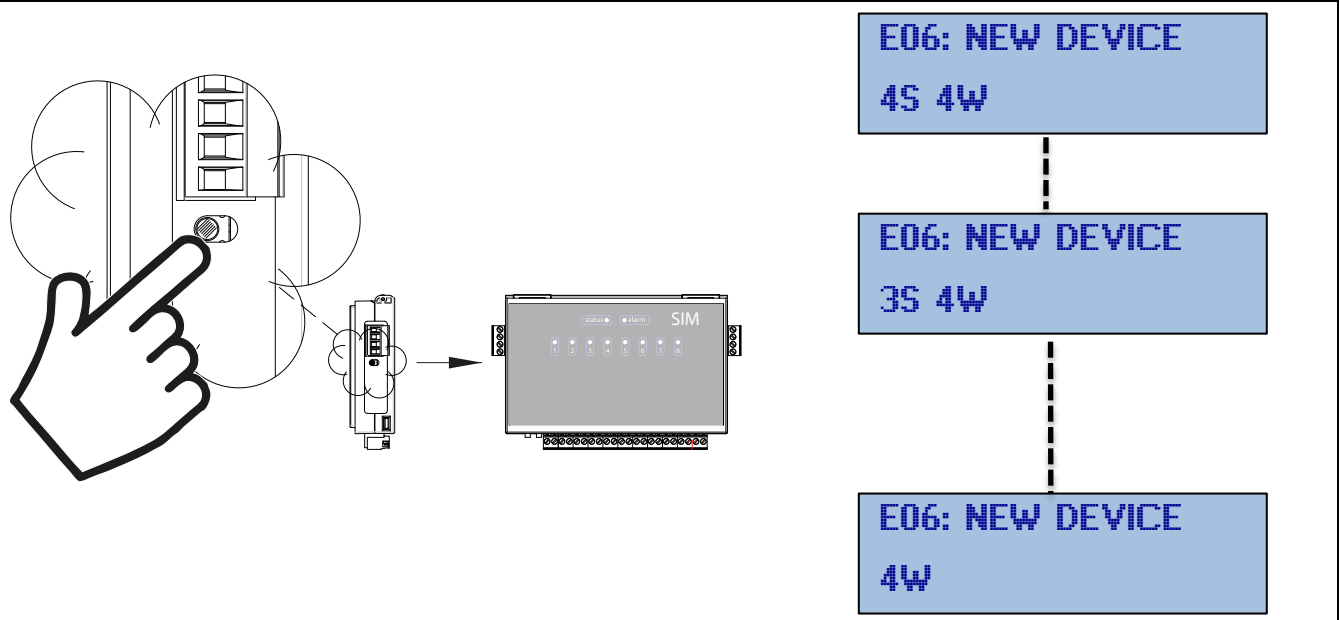

E06: NEW DEVICE
4S 4W

E06: NEW DEVICE
3S 4W

E06: NEW DEVICE
4W

5 – Acquisition Formula Selector: the alarm led in the frontal panel, red fixed and the display 2x16 shows "E05: Comunc.", and the display 2 digits 7 segmemts shows "E5", press the Start/Enter key and the alarm led will switch off and the status led become green fixed, the display 2x16 will show "Formula selector" and the display 2 digits 7 segmemts will show "--". Once acquired the device, the display Console will take away one, once acquired the last Formula selector the Console does not show the device in the display.

✋ Pay attention: the first acquired device of the family, will be associated from the system at the first washing machine, the second acquired device, will be associated at the second washing machine and so on.
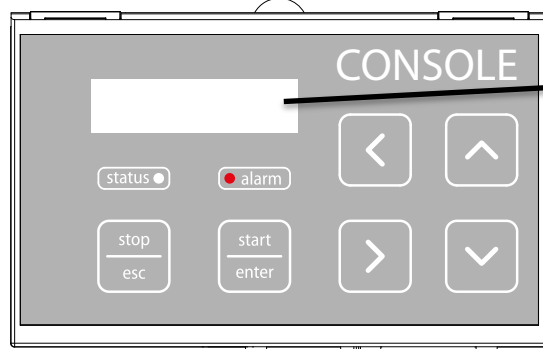

E06: NEW DEVICE
4W

E06: NEW DEVICE
3W

E01: CONFIG.
Silent [any-key]
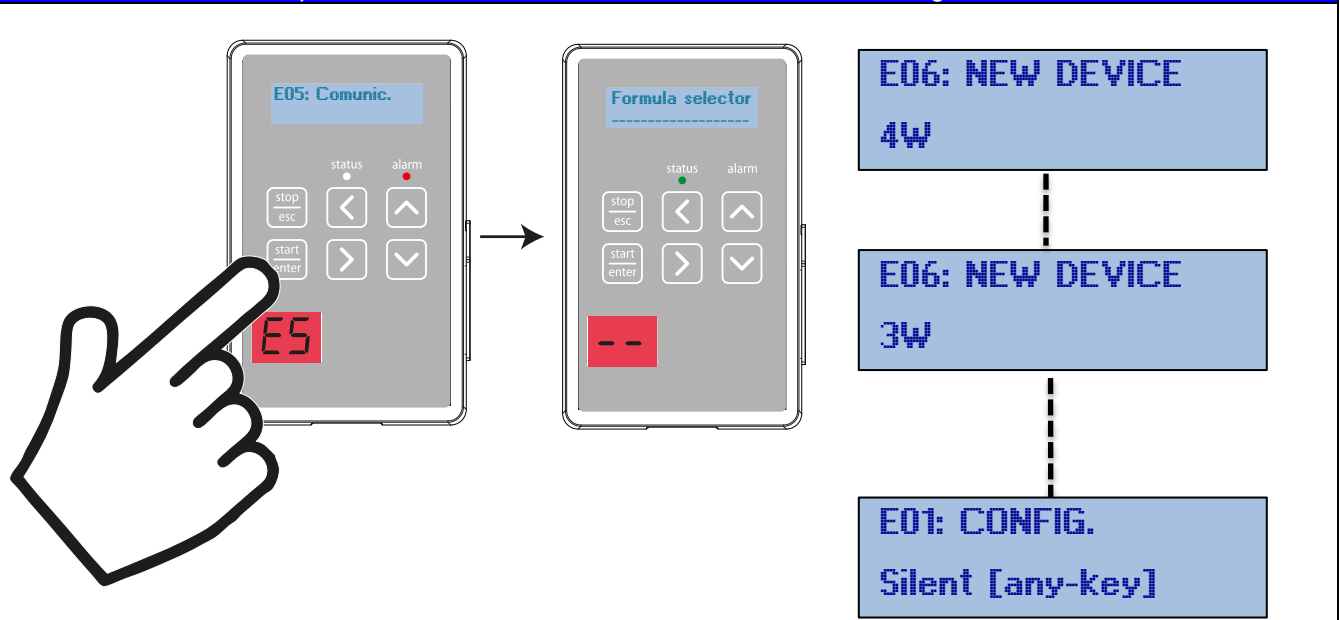
6 – Once acquired all devices the display Console shows the following message and the alarm blinks and the buzzer rings:

CONSOLE

E01: Config.

Silent [any-key]

7 – Press any key to mute the buzzer and the led alarm will become red fixed

CONSOLE
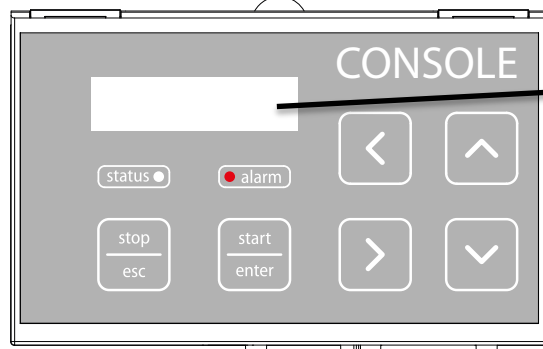
E01: Config.

Accept [Enter]

8 – Press Start/Enter key to confirm the configuration, otherwise Stop/Esc to annul the configuration and repeat again the acquisition procedure. Confirming the configuration the system is ready to work.

CONSOLE

Smart4G-MultiW

STANDBY

FS WASHER FUNCTIONING

Once acquire the last device the FS washer shows the number of washing machine and the washing machine name (if set in web application)
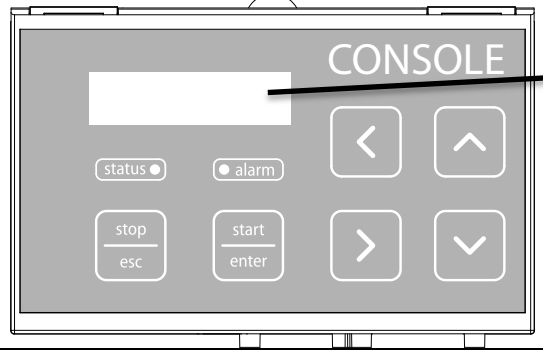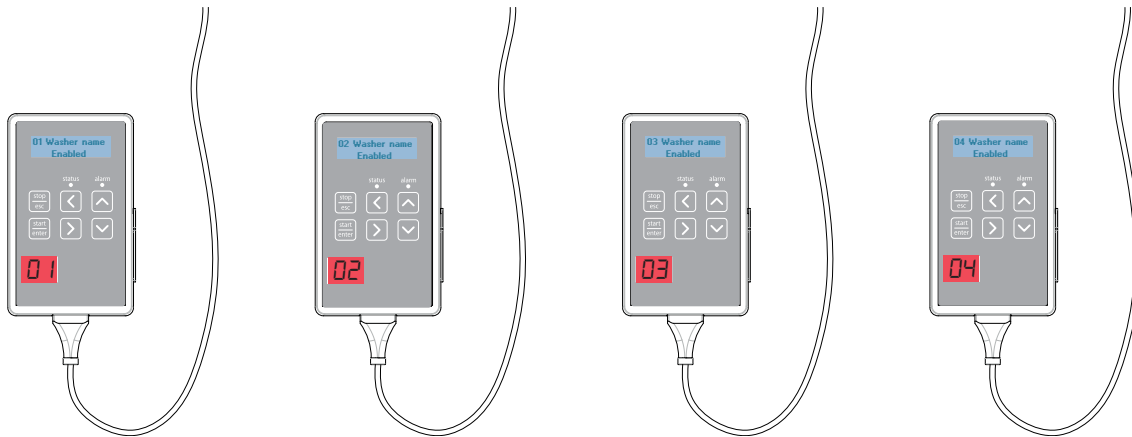

Formula Select
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Formula selector in stand-by mode. (Status led fix green).

Formula Select
TOWELS

∧

Formula Select
WHITES

∨

By pressing UP or DOWN key is can browse the formulas pre loaded from web application

WHITES
Signal 01

Start
Enter

By pressing Start/Enter key is can to start the chosen formula, in the first row the console shows the name of formula and in the second row the signal or the input that it waits to start. (Status led flushing green).

WHITES
PAUSED

Stop
Esc

During the formula running, by pressing Stop/Esc key the console goes in pause mode (Status led fix red). To come back in the normal function press Start/Enter key. If you press again the Stop/Esc key the console will go in stand-by mode.

Autowash
Waiting triggers

In Autowash mode, the FS washer waits the valid signals combination and then it is starts the assigned formula at that specified signal combination.

FS Washer Alarms

At the presence of communication alarm, the console will show onto the display E05: Communic. The led alarm blink and the buzzer ring, to mute the buzzer, press any key and the led alarm will become red fixed. Once the alarm no longer present the FS washer will come back in normal working mode.

PUMPS PRIMING AND TUBE LOADING

The buttons located above each pump are used for priming the related pump and also for replacing squeeze tube with a new one.

Priming: To prime a pump shortly press the button above the pump. The pump will be activated for 30 seconds. If you want stop the priming press again the same button.

🖐 **If present an input signal the Priming and Tube replacing functions are disabled and pressing the button has no effects.**

MAINTENANCE AND ACCESSORIES

MAINTENANCE

☠ **CAUTION: Before carrying out any maintenance, always close the water delivery valve. If you need to access the circuits inside the box of the product, also disconnect the main power supply.**

Scheduled maintenance of the Multi washer system includes the following:
• Regular replacement of the squeeze tube (every year at least) or whenever required in the event of chemical aggression.
• Cleaning of the filter of the solenoid valve.
• Cleaning of the bottom filters of the suction devices.

Replacement of the squeeze tubes
• Unscrew and remove the cover from the pump;
• Take out the peristaltic tube without disconnecting it from the connecting tubes in order to avoid any leak of product;
• Press for more than 5 seconds the button above the pump to activated the **Tube Loading functions**
• Introduce the new tube (supplied already greased) into the pump and help it to get the right position, while the motor is moving in steps.
• When the tube is fully loaded, press again the button to stop the function.
• Put the front cover back into place and screw it.
• Proceeding very cautiously, disconnect the connecting tubes from the old tube and connect them to the new tube in the same positions;
• It will be advisable to prime the pump before starting the machine again.

ACCESSORIES

LEVEL MODULE	
The level module has eight level inputs and an alarm relay output. The signal input from the level probe are dry contacts. The CanBus connects the device at the other peripherals.	
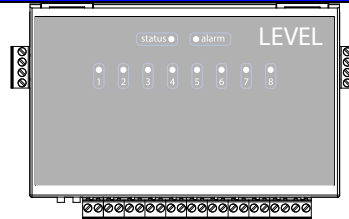
Level module installation example:

LEVEL CONTROLLER