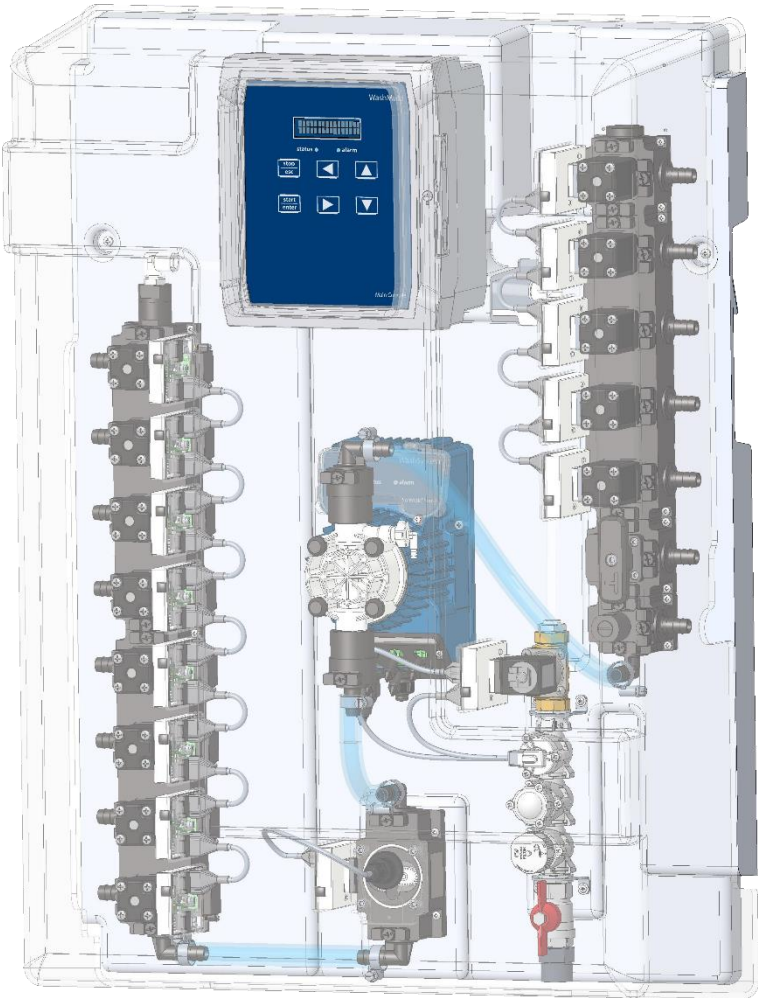


WashMulti Solenoid

Installation & Setup Guide



Contents

Safety	3	CANbus wiring	17
Installation standards	4	Minimum viable system setup	17
Intended use / Capabilities	4	Flow-meter CANbus module	18
WashMulti Solenoid typical installation overview	5	Water valve CANbus module	18
Specifications	6	Product suction valves CANbus module.....	19
Standard system configurations	6	Solenoid pump valve CANbus module	19
Main solenoid pump specifications	6	Washer interface installation and wiring	20
Electrical specifications	6	Washer interface connections	21
Oval gear flowmeter specifications	7	Distributor connections	24
Environmental specifications (all system modules)	7	Formula selector connections	25
Ratings and conformance (all system modules).....	7	Alarm module connections	26
Formula selector.....	7	Level module connections	27
Washer interface module.....	7	WashMulti Solenoid power ON and setup	28
Water supply specifications	8	Flow meter acquisition.....	29
Alarm module	8	Water inlet acquisition.....	29
Level module	8	Product suction valves acquisition	30
Installation procedure	9	Distributor valves acquisition.....	31
WashMulti Solenoid wall mounting	9	Solenoid pump valves acquisition	32
Opening the cover	10	Washer interface acquisition	32
Chemical manifold solenoid valves	11	Alarm module acquisition	33
Connecting tubing	11	Level module acquisition	33
Suction tubes routing	11	Formula selector acquisition	34
Distributor solenoid valves	12	Acceptance of configuration setup	34
Distributor inlet/outlet tubing.....	13	Formula selector functions	35
Water inlet group	13	Formula selector in stand-by mode	35
Delivery and water inlet tubes	14	Formula selector in manual mode	36
Solenoid pump	14	Formula selector in AFS.....	36
Electrical Installation	15	Formula selection steps	37
Electrical connections.....	15	Alarm events	37
Main unit console connections	15	Product priming	37
LAN cable connection.....	16	Calibration procedure	38
Mains power wiring.....	16		

Note: The images in this manual are indicative only.

Safety



Always wear the required Personal Protective Equipment including gloves and goggles that must be worn when potentially exposed to any hazardous materials and when carrying out hazardous work tasks. Turn the dispenser off during cleaning and other routine maintenance activities and note that parts may be contaminated with product. If possible, flush tubing out with water prior to carrying out any maintenance. For information on products that are used in this dispenser read the product label and relevant Material Safety Data Sheet (MSDS).



Use caution to avoid personal injury or damage to equipment.



Caution! Risk of electrical shock.



Disconnect all power to this unit before servicing. Electrical installation of this dispenser should only be performed by trained personnel in accordance with local electrical wiring regulations. Before working on this dispenser, isolate it from any electrical source and lock out/tag out.



If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



Trigger voltages must all be below 240VAC/VDC.



Adding or replacing pumps, pump tubes, valves or other components should only be performed by qualified personnel.



Grounding is required for safety. It also increases the dispenser's resistance to electrical noise. Failure to properly ground the system may cause the system to exceed emissions standards.



The ground wire must be no longer than the mains wires.



If wires are routed through holes, the holes must also be plugged using cable glands, conduit, etc.



The duty cycle of the pumps is 60% with the maximum continuous run time of 10 minutes.



Do not activate the system until all of the tubing connections have been completed and secured.



Prevent unnecessary damage to the dispenser pumps. Do not allow the pumps to operate when out of products for long periods of time.



Switch off the system when system sits idle for long periods of time.

Installation standards

Any specific installation recommendations relating to this unit are explained in this Installation and Setup Guide.

Intended use / Capabilities

WashMulti Solenoid is a centralized chemical dosing system designed for laundry applications. Installations can serve any combination of up to 5 washer extractors.

The main unit contains 1 solenoid pump, solenoid valves for 3 or 5 washers and 4/6/8 solenoid valves for chemical products. For enhanced accuracy, WashMulti Solenoid has a built-in flow meter sensor.

An incorporated water powered flush system and centralized machine distributor is used to transport the product solution to each machine.

Formula and Automatic Formula Selection modes are available for programming the system.

See Wash Series Programming Guide for details.

WashMulti Solenoid typical installation overview

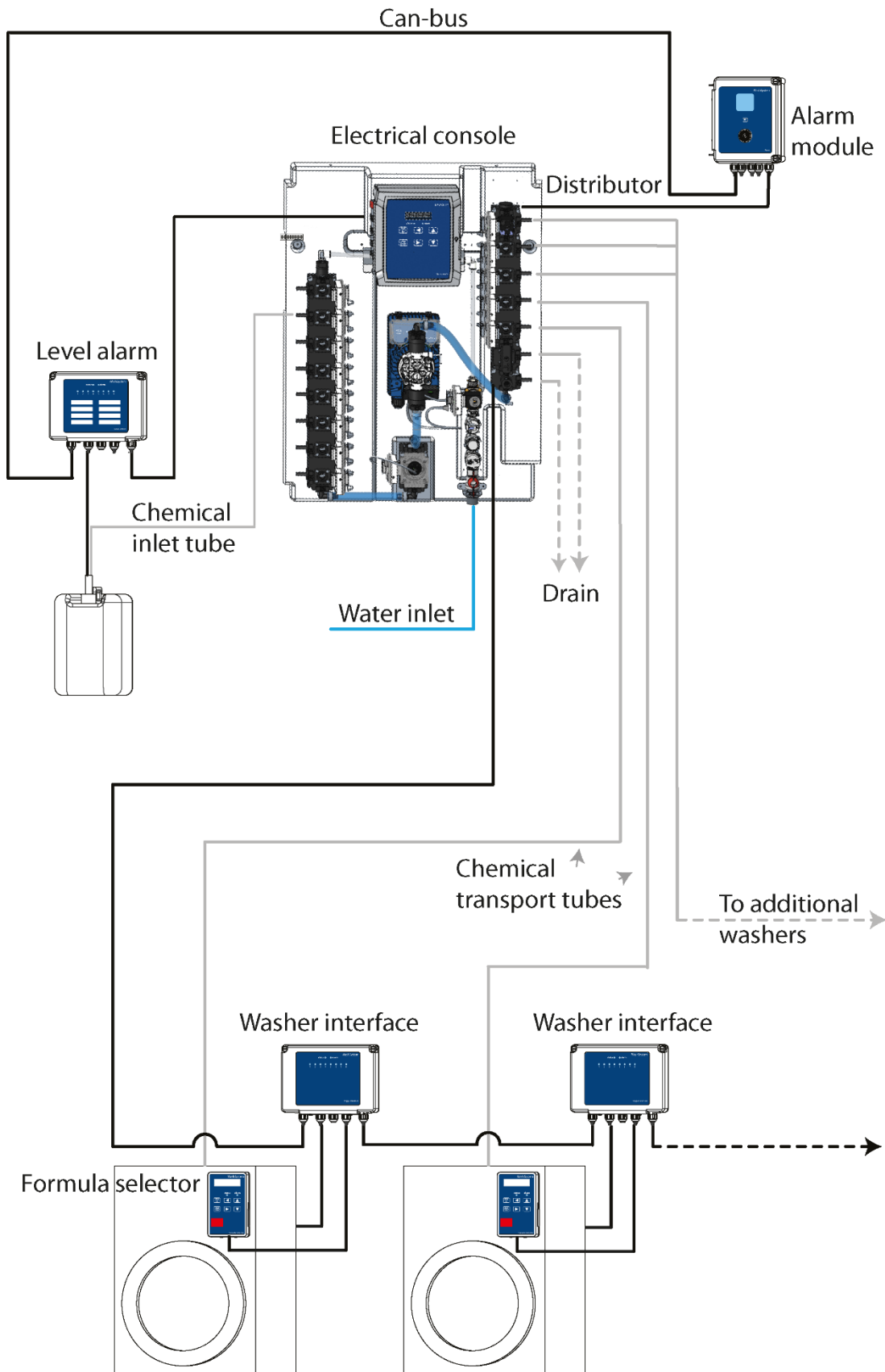


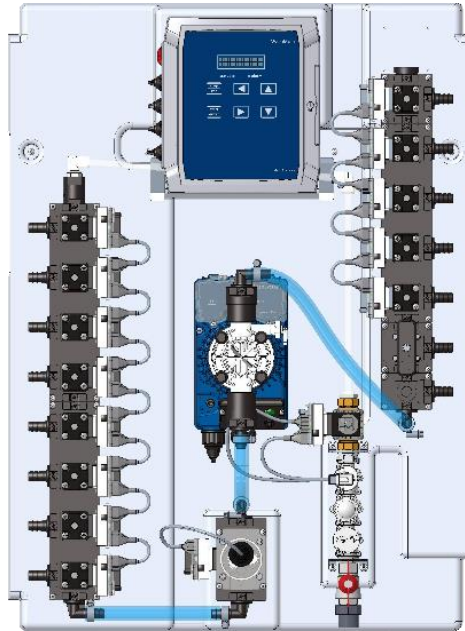
Fig. 1 WashMulti Solenoid Full System Installation

Specifications

Standard system configurations

A standard system can have 4 upto 8 solenoid suction valves.

Below you can find the available WashMulti Solenoid standard systems:



Dimensions	Height	Width	Depth
	83 cm	60 cm	31 cm
	(32.5 in)	(23.6 in)	(12.2 in)

Main solenoid pump specifications

Max Flow-rates	Flow rate 70 l/h with water @20°C (flow derates with high viscosity fluids)
Max pressure	5 Bar

Electrical specifications

These symbols on or inside the unit mean:



Power "ON" (supply)

Power "OFF" (supply)

CE Compliant	100–240 VAC 50/60 Hz, 2 Amp. Transient voltages typically present at mains supply. Mains supply fluctuations not to exceed ±10%
Fuse	6.3A T 250V (internal, replaceable)
Water Valve Output	30 VDC, 0.5 Amps
Pump Drive Outputs	30 VDC, 1 Amp normal, 2 Amps max
Distributor valve	30 VDC
Power Switch	On/off rocker switch main console

Oval gear flowmeter specifications

Pulses/l (nominal K)	925
Measuring range in constant flow	0.2 to 10 LPM
Accuracy	+/- 3%
Applicable viscosity range	1-1500 cps
Applicable density	0.9-1.4 g/ml

Environmental specifications (all system modules)

Altitude	Maximum operating altitude 2000 meters (6500 feet)
Internal Ambient Temperature Range	5-40°C (41-104°F) For indoor use only
Humidity	Maximum relative humidity 80% at up to 30°C (86°F) decreasing linearly to 50% relative humidity at 40°C (104°F)
Pollution Degree	2
Installation Category	II

Ratings and conformance (all system modules)

Intended for indoor use only.

Formula selector

Dimensions	Height	Width	Depth
	15.0 cm	9.3 cm	3.2 cm
	(5.9 in)	(3.6 in)	(1.2 in)
Weight	0.24 kg (0.52 lbs)		
Displays	2-line, 16-character LCD; 2-digit, 7-segment		
Power	30 VDC, supplied by CANbus cable		
Connection	4-pin, pre-cabled connector, connected to washer interface module.		
	Maximum distance from washer interface to programmer is 10 meters (32,8 feet)		
IP rating	IP54		

Washer interface module

Dimensions	Height	Width	Depth
	17.6 cm	19.4 cm	8.6 cm
	(6.9 in)	(7.6 in)	(3.4 in)
Weight	1.14 kg (2.51 lbs)		
Power	30 VDC, supplied by CANbus cable		
Trigger Input	8 inputs (max)		
Trigger Input Voltage	12-24 VDC or 24-240 VAC/5mA (manual voltage selection switches)		
Relay output	Dry contact, hold signal for washing machine.		
IP rating	IP54		

Water supply specifications

Recommended flow rate	Min: 2 L/min, Max: 10 L/min
Pressure	Min: 1 Bar, Max: 10 Bar (dynamic) The system is equipped with pressure regulator fixed to 3 bar
Temperature	10–40°C (50 – 104°F)
Recommended water hardness	Min: 0°f, Max: 30°f (0–17 dH)
Connection	BSP 3/4" male

Alarm module

Dimensions	Height	Width	Depth
	15.9 cm (6.2 in)	22.4 cm (8.8 in)	9.0 cm (3.5 in)
Weight	1.14 kg (2.51 lbs)		
Power	30 VDC, supplied by CANbus cable		
Relay output	Dry contact		
IP rating	IP54		

Level module

Dimensions	Height	Width	Depth
	17.6 cm (6.9 in)	19.4 cm (7.6 in)	8.6 cm (3.4 in)
Weight	1.14 kg (2.51 lbs)		
Power	30 VDC, supplied by CANbus cable		
IP rating	IP54		

Installation procedure

WashMulti Solenoid wall mounting

Install the main unit box with a recommended vertical rise of 1.5–2 meters (59"–78.7").

Select a place on the wall where the main unit will be at eye level. (Fig. 2 shows the recommended installation height).

Hold the stainless bracket against the wall. We recommend using a spirit level.

Mark the 4 bracket holes, drill $\varnothing 8$ mm holes, insert the anchors in the holes and fix the bracket with the 4 screws. Hang the main unit on the bracket. (Fig. 2)

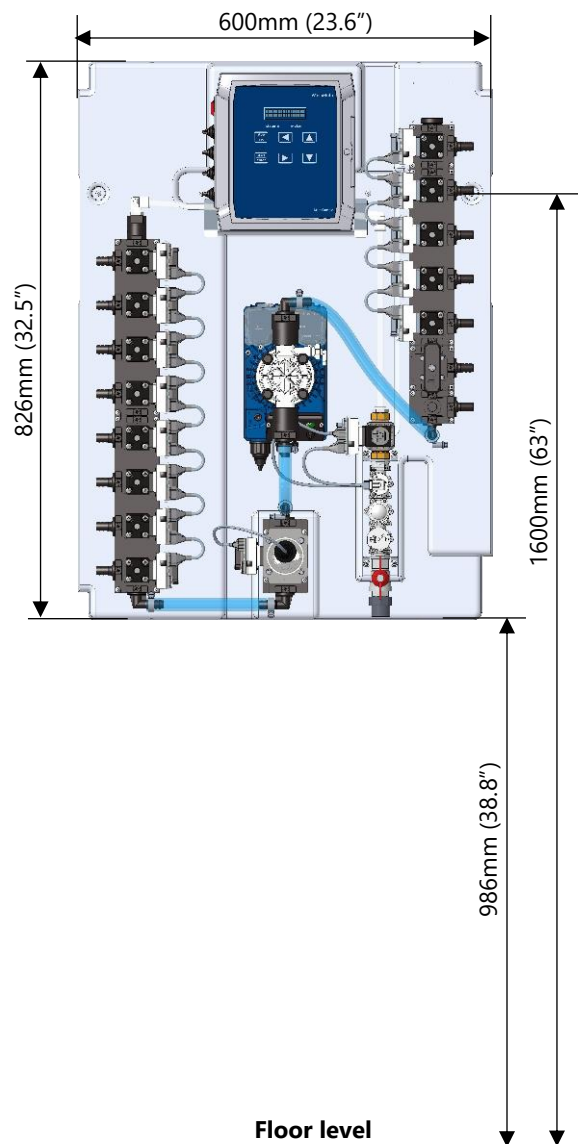


Fig. 2 Mounting WashMulti Solenoid to the wall



Warning: Because of its weight, 2 people must lift the unit to hang it on the wall!

Opening the cover

WashMulti Solenoid unit front cover can be opened:

1. Remove the two screws located on the lower edge of the system
2. Remove the two pins or screws located on the upper and of the system
3. Remove the cover, pulling it straight forward, away from the main body.

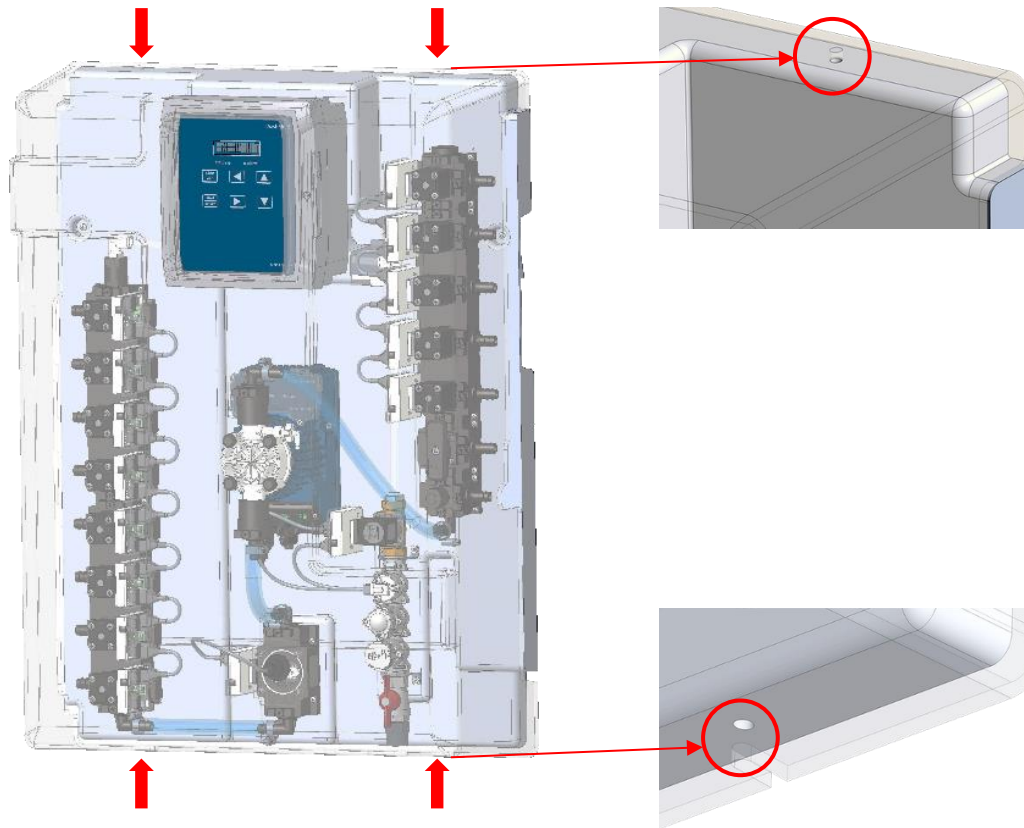


Fig. 3 System cover removal

To close the cover, follow the steps above in reverse order. Pay attention to fit the cover to its exact position.

Chemical manifold solenoid valves

The main unit contains 4/6/8 chemical manifold solenoid suction valves as standard.

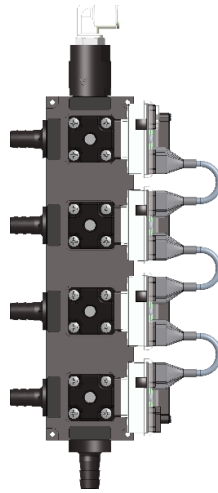


Fig. 4 Manifold suction valves

Connecting tubing



To protect against pressurized chemical spray, wrap a rag around tube connections when replacing tubes and always wear gloves and safety glasses.



Note: The viscosity of the chemicals you pump will impact the flow rate and the maximum distances chemical can be transported without flush.

Suction tubes routing

Reinforced tube 12x19 mm should be used for suction tubing.

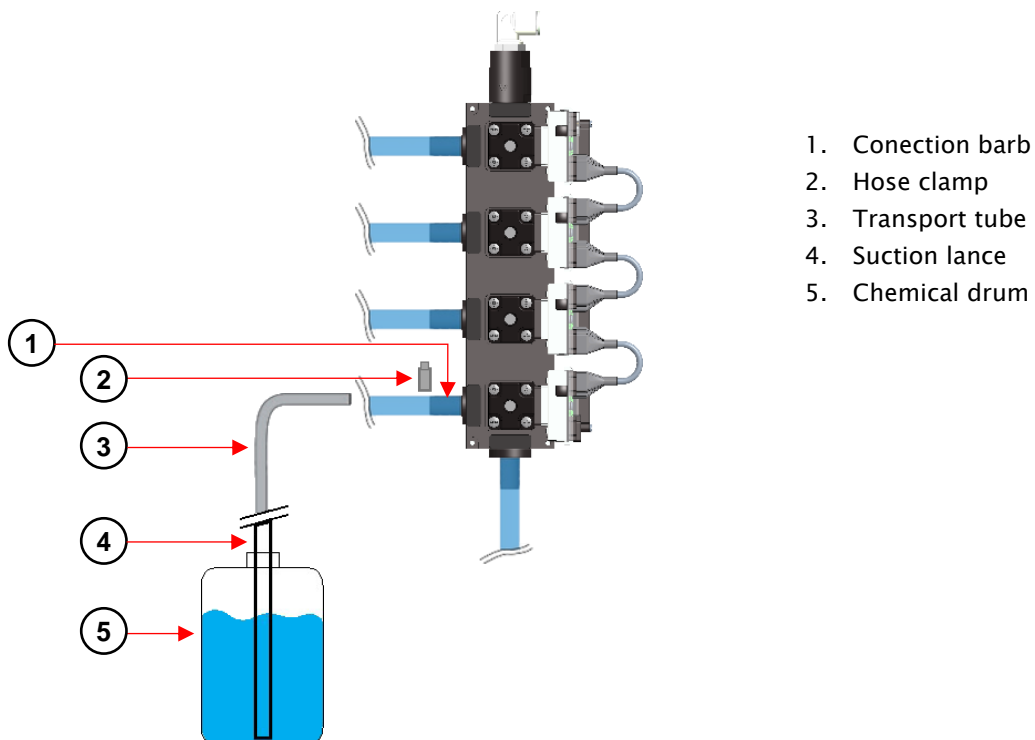


Fig. 5 Installing manifold tubing

When connecting the chemical manifold tubing, follow the instructions below:

1. Position chemical drums as close as possible to the WashMulti Solenoid to minimize the suction tube run length.
2. Connect suction tubing to the solenoid suction valve barb and secure it with metal hose clamps.



For optimal performance, we suggest using a suction lance with low level switch, for each chemical



It is recommended to route the transport tubes through plastic trunking or flexible protection tubes, in order to avoid tube damage from external factors or chemical spillage in the event of tube burst.

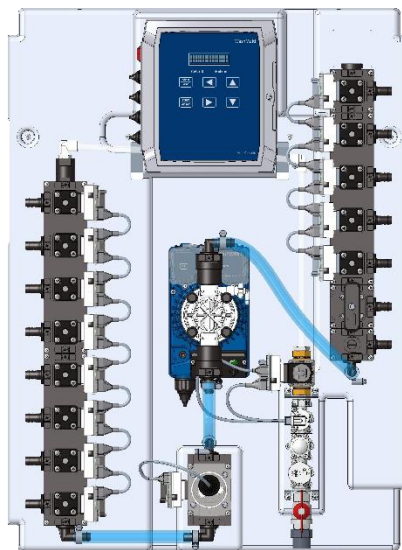
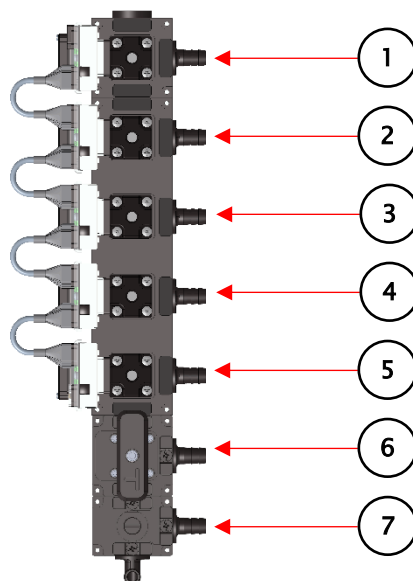


Fig. 6 Suction tube routing

Distributor solenoid valves

The distributor has 5 valves for washing machines and other 2 specific valves.



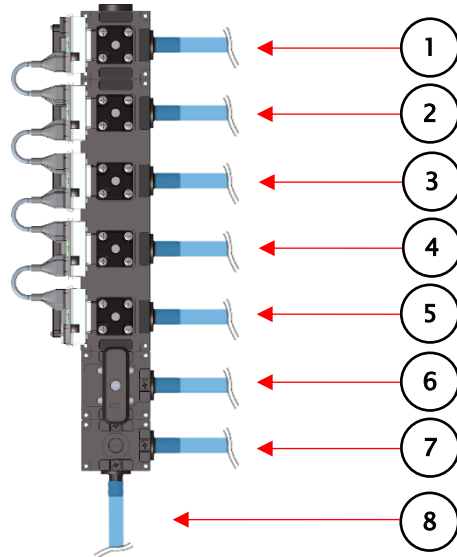
1. Washing machine 5 valve
2. Washing machine 4 valve
3. Washing machine 3 valve
4. Washing machine 2 valve
5. Washing machine 1 valve
6. 3-way valve
7. Safety valve

Fig. 7 Distributor valves

Distributor inlet/outlet tubing

Use a reinforced inlet/outlet tube 12mm ID x 19mm OD.

1. Connect the first 2 outlet of distributors to the drain.
2. Connect the other outlets of distributor to the washers and secure with hose clamp.



1. Outlet for washer machine 1
2. Outlet for washer machine 2
3. Outlet for washer machine 3
4. Outlet for washer machine 4
5. Outlet for washer machine 5
6. Drain
7. Drain
8. Distributor inlet from WashMulti Solenoid

Fig. 8 Installing distributor tubing



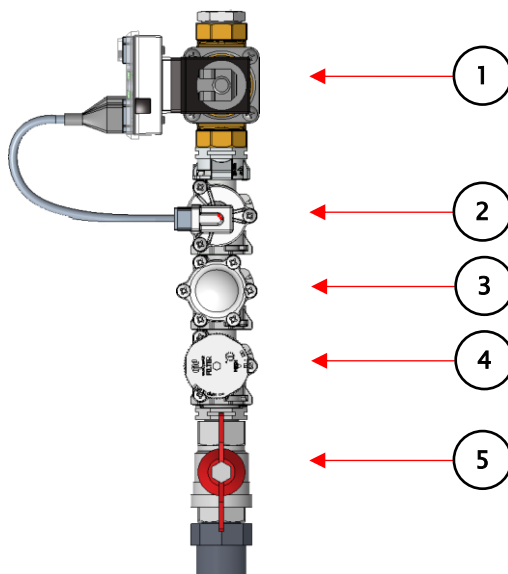
Check every jubilee clamp and fitting on tube for leaks 5-7 days after the installation. Re-tighten the clamps if necessary.



It is recommended that you check and re-tighten if necessary, all the tube clamps of the system, 5-7 days after the initial installation.

Water inlet group

The water inlet group is an assembly that includes the parts that control the pressure and the flow of the water that enters the WashMulti Solenoid system.



1. Water solenoid valve (CANbus controlled device)
2. Water flow-meter
3. Pressure regulator, fixed to 3 bar
4. Filter
5. Ball valve

Fig. 9 Water inlet group

Delivery and water inlet tubes

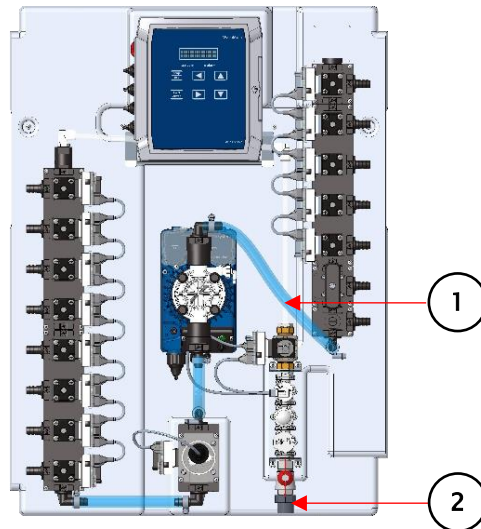
1. For the water supply to the system, use the standard water inlet tubing is BSP 3/4" female (2 meters supplied).



Fit the appropriate backflow prevention on the water inlet, according to the regulations of the local water network supplier.

Screw the nut at one end of tube to the water line (BSP 3/4" male) and the other one to the water inlet of the main unit (BSP 3/4" male).

2. Use the supplied reinforced tubing 12IDmm x 19mmOD to connect the main unit to the distributor valve.
3. Secure the tube to the distributor with metal hose clamps.

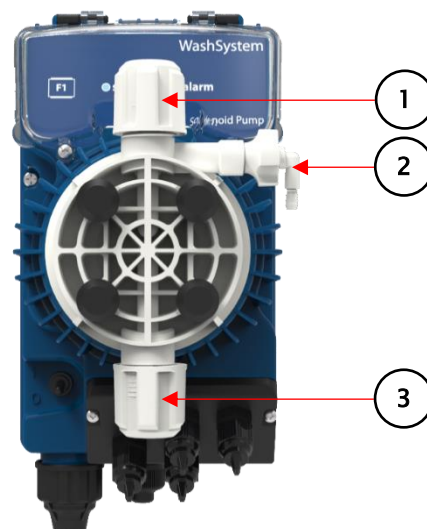


1. Delivery tube
2. Water inlet

Fig. 10 Installing inlet/outlet tubing

Solenoid pump

The solenoid pump controls the supply for the WashMulti system.



1. Water outlet
2. Pump manual priming valve
3. Water inlet

Fig. 11 Solenoid pump

Electrical Installation



When installing power wiring through a conduit fitting, electrical insulation must be provided to prevent the wires from wearing against possible sharp edges of the fitting.



Use a 5 Amp branch circuit protection.



A circuit breaker must be included in the installation's building. It must be installed in close proximity to the equipment and within easy reach of the operator and it must be marked as the disconnecting device for the equipment.



Hole plugs must be used on holes through which you have not routed wires.

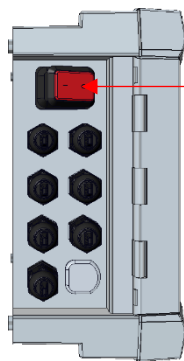


Recommended flex cable for the power supply 3 core 1 mm minimum or higher according to local wiring regulations



Recommended flex cable for the CANbus communication 4 core 0.5mm minimum

Electrical connections



Power
Switch



Fig. 12.1 – console unit, left side view showing wiring holes (in detail)

Fig. 12.2 – main unit console, front view

Main unit console connections



HIGH VOLTAGE. The Main Unit must only be opened by electrically trained personnel.



Isolate the triggering signals or turn off the power in all the machines.

1. To open the main unit console box, loosen the screws from box lid.
2. Unscrew the screws on the right.
3. Pull the cover left so the unit is completely open.



To avoid disconnection of the wires connected to the main PCB, DO NOT remove the screws on the right side of the cover.

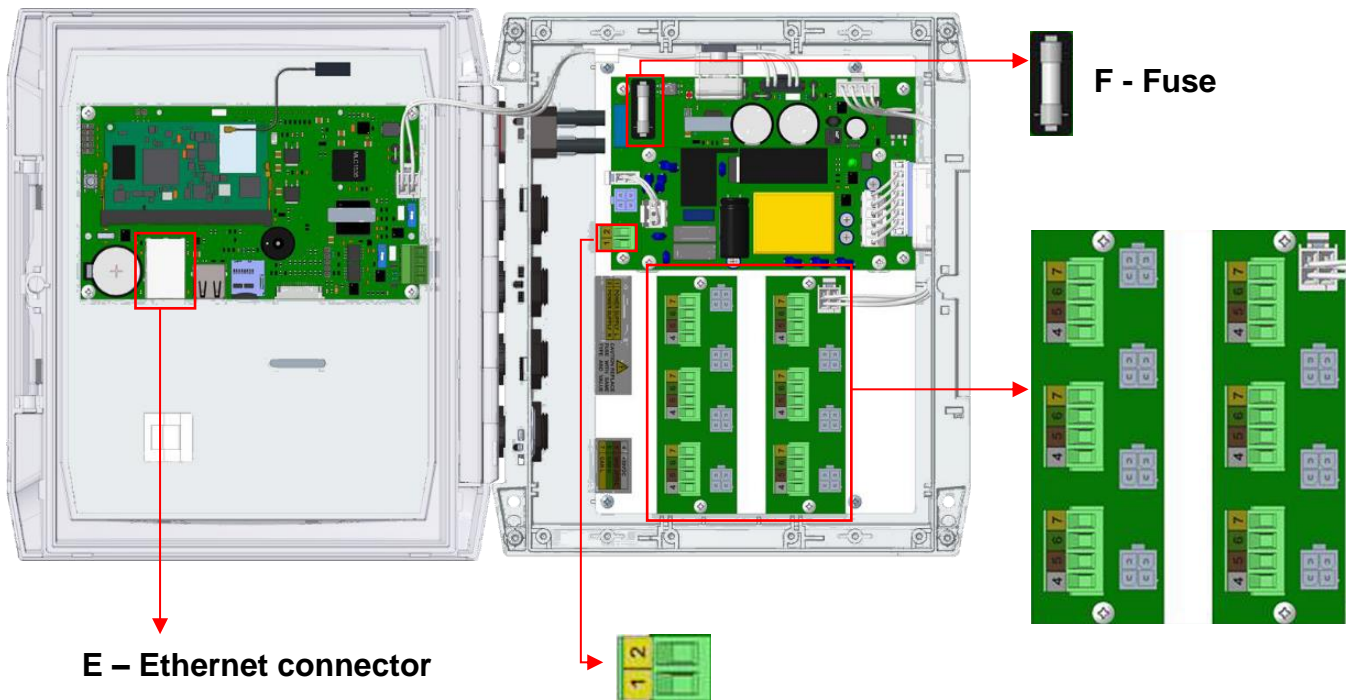


Fig. 13 Main unit console, printed circuit board

1	Line	Power Supply 100÷240VAC 50/60Hz
2	Neutral	
4	+VDC / White wire	CANbus connectors
5	GND / Brown wire	
6	BUS+ / Green wire	
7	BUS- / Yellow wire	
E	ETHERNET	Ethernet connection
F	FUSE	6.3A T 250V (internal, replaceable)

LAN cable connection



For data safety reasons, it is recommended to use the provided 3G/4G router to connect the system to Internet.

Make a cut with a knife on the LAN cable rubber cover of the controller and pass the LAN cable RJ45 connector through it. This will provide a seal around the cable.

Mains power wiring

Ensure the mains cable is wired and secured tightly through the cable gland. Connect the mains voltage power to the terminal strip according to label designations, “L” (Live) and “N”.

CANbus wiring

The CAN (Control Area Network) is a serial bus system specifically designated to interface both intelligent devices and sensors or actuators, to develop a real-time network that is 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 it is provided with a specific device to work as a main unit, responsible for controlling the network.

The WashMulti Solenoid is based on the use of peripheral devices, interconnected by CANbus for the control of all its devices, and uses the main Console unit as a network controller.

The various peripheral devices are subdivided into families as follows:

- Solenoid pump
- Flow meter
- Distributor solenoid valves;
- Water inlet Solenoid valve;
- Washing machine trigger interface;
- Washing machine formula selector;
- Alarm module
- Level depletion control module.

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 equipment when connected and powered. The only exception is for the motor driver peripherals family, which is initialized at the factory.

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



CANbus wires must not be crossed and should follow the color coding on the connectors white, brown, green and yellow throughout the installation for easier inspection.



Do not wire more than 1 device cable to each CANbus connector to avoid issues.



It is recommended to connect all the CANbus devices in serial mode in order to have easy problem solving if something goes wrong. Do not make more than two branches of the CANbus line. Use cable conduit or trunking for all the CANBUS cables for better protection.



If there is a CANbus cable routed through the main or auxiliary unit and exiting from the right side of the unit, route the cable over the suction hoses, though the clamps attached on the unit back plate.

Minimum viable system setup

There is a minimum setup of CANbus devices that should be detected on the system configuration:

- 1 water valve
- 1 chemical suction valve
- 1 washer interface
- 1 distribution valve

If at least one of each device from this list is not detected, the system will give an error message (E18: Setup error) and will not be able to function.

Flow-meter CANbus module

This board is located on top of the flow-meter. It is used to connect the flow-meter to the CANbus network and contains the button for acquiring the flow-meter. The picture below shows the board and the setting of the dip switches.

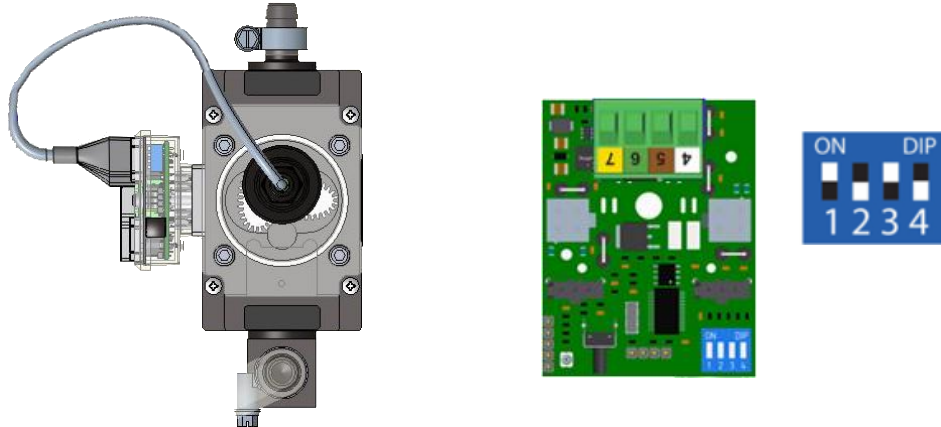


Fig. 14 Flow-meter printed circuit board

Water valve CANbus module

This board is located on the top of the water valve. It is used to connect the water solenoid valve to the CANbus network and contains the button for acquiring the water valve. The picture below shows the board and the setting of the dip switches.

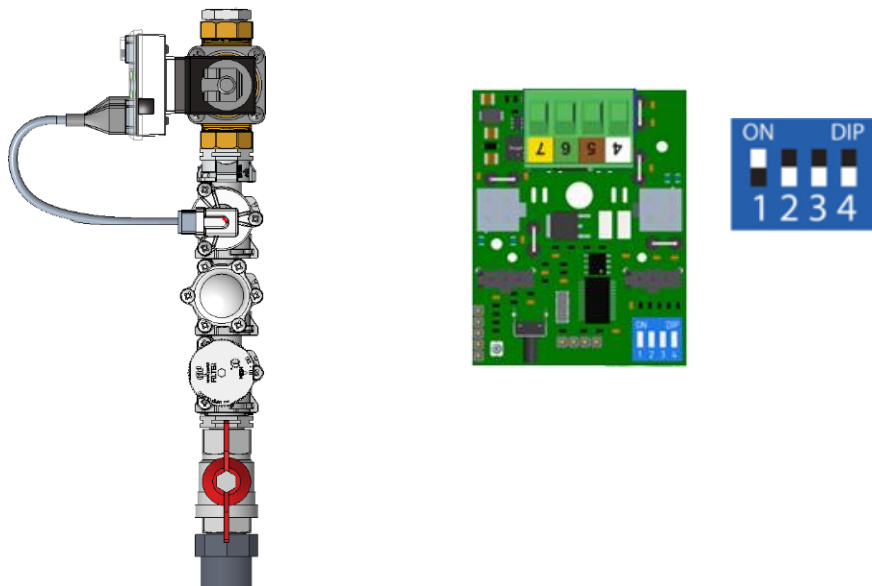


Fig. 15 Water valve, printed circuit board

Product suction valves CANbus module

These boards are located on the top of the suction valves. These are used to connect the product suction valves to the CANbus network and contain the buttons for acquiring the solenoid product suction valves. The pictures below show the boards and the settings of the dip switches.

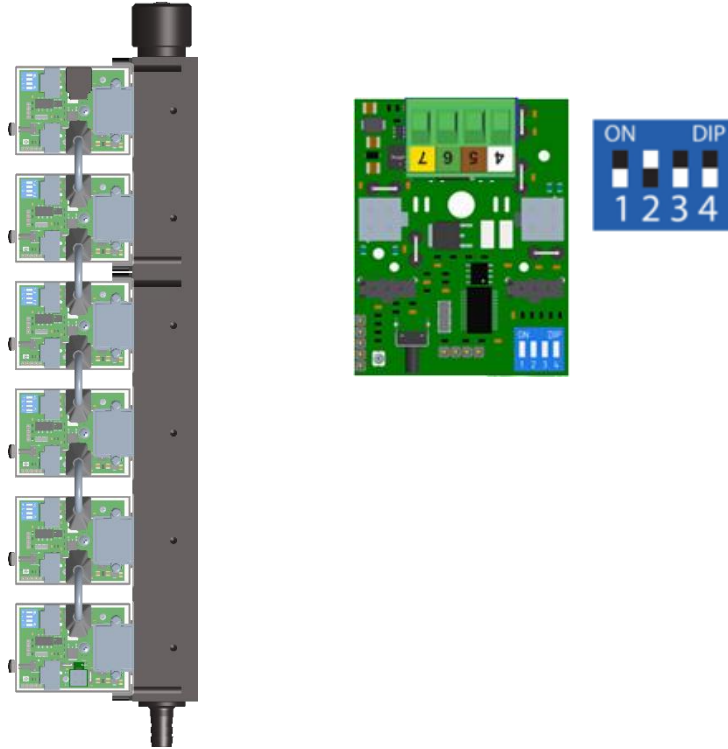


Fig. 16 Product suction valves manifold, printed circuit board

Solenoid pump valve CANbus module

These boards are located on the left of the solenoid pumps group. These are used to connect the solenoid pumps to the CANbus network and contain the buttons for acquiring the solenoid pumps. The pictures below show the boards and the settings of the dip switches.

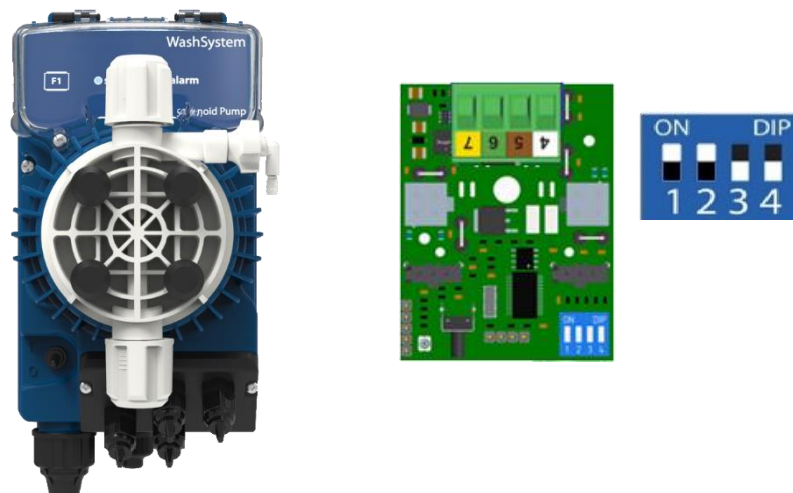


Fig. 17 Solenoid pump, printed circuit board

Washer interface installation and wiring



CAUTION: Ensure that the trigger wire voltage and temperature rating are suitable for the application. The current required for the triggers is only 5mA.

The Washer interface module serves as an interface, through CANbus communication, between the WashMulti Solenoid and the washer trigger signals. It also serves as the wiring connection between the Formula selector (if present) and the WashMulti Solenoid (always through CANbus communication).

The washer interface should be installed close to the machine, in a place that is accessible and is protected from water and chemical spillage, steam, extreme heat and vibrations.

If the triggers from washing machine have a common line, you only need to connect one wire of the signals into one of the negative terminal (INPUT $x-$).

The negative poles (-) or common line of the signal terminals are connected together by the lower part of the PCB that is used as a bridge. If the signals from the washer don't have a common line, you need to break the lower part of the circuit as shown in the picture, and then connect two wires for each signal (Fig.19)



If the common negatives bridge is bent or damaged, then you have to break it and re-wire the negatives.

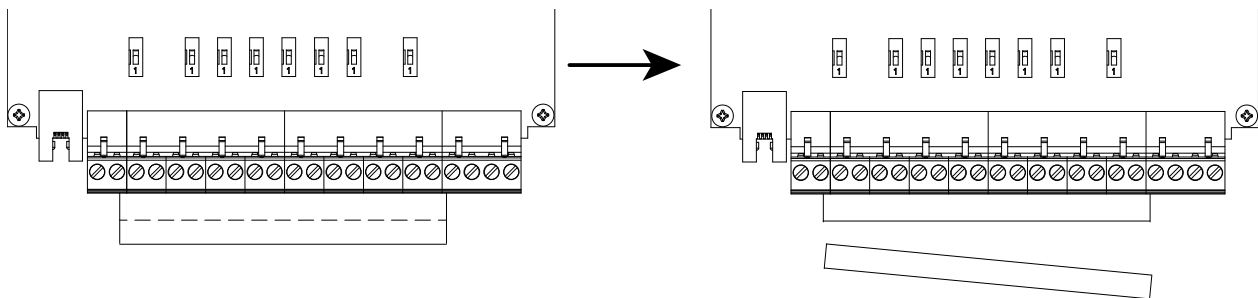


Fig. 18 Washer interface module, no common ground of triggers

Washer interface connections

To open the Washer interface module box, loosen the screws from the boxlid and pull the cover down. All cables should be threaded through the cable glands and secured tightly.

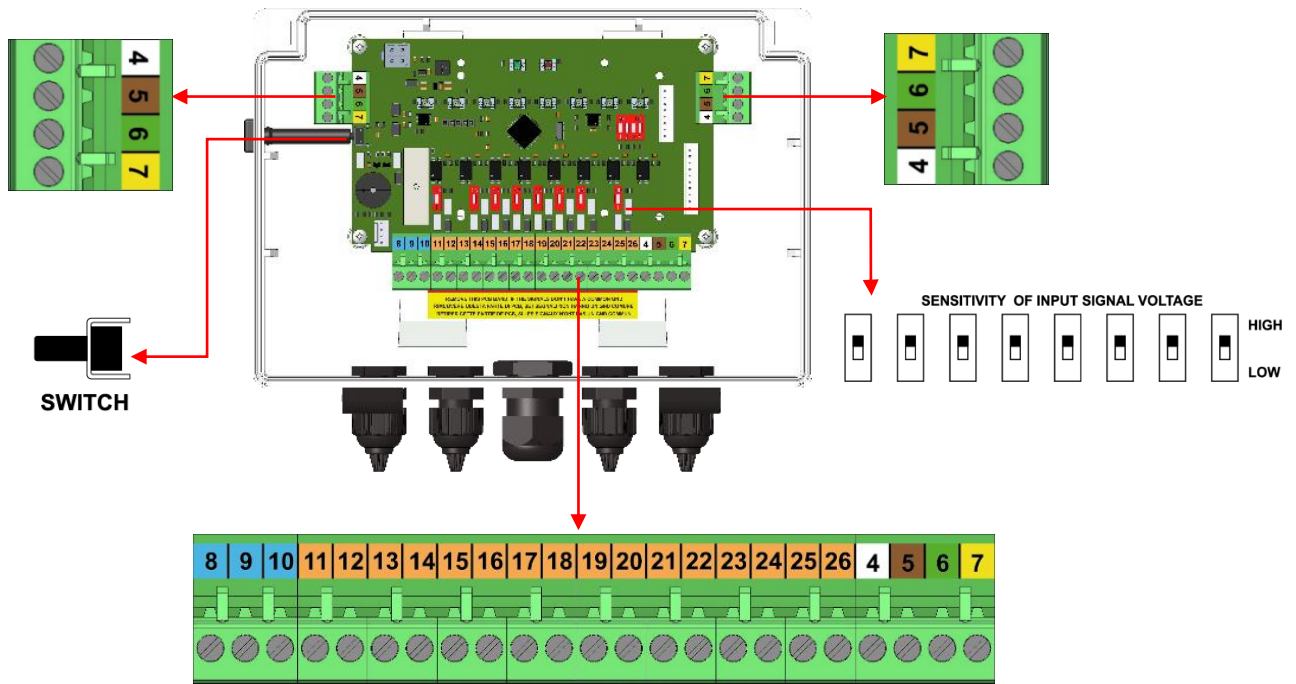




Fig. 19 Washer interface module, printed circuit board





The washer interface has inputs for 8 triggering signals. The signals can come from the dedicated signal outputs of the washing machine or from other sources of the machine (water valves, drain valve, weight cell output, door switch etc). The source and the number of triggering signals that will be used on each installation, depends on the capabilities of the machine and the WashMulti Solenoid setup and programming.



Always refer to the washing machine vendor Service support and the machine instruction manual regarding the accepted triggering signal options from the machine.

4	+VDC / White wire	CANbus connector	
5	GND / Brown wire	The washer interface has 3 CANbus connections, use the left and right connectors to loop in and out between washer interfaces. Use the connector on the longer strip for the connection of the optional Formula selector.	
6	BUS+ / Green wire		
7	BUS- / Yellow wire		
8	RELAY N.C.	Relay output (hold signal for washing machine) Use this function to put one machine on hold while dosing another machine. Can be used when two or more machines send dose request at the same time. Connect to the dedicated contact of the machine that has "Hold" option. Contact rating (Res. load) 8A 250VAC/30VDC	
9	RELAY COM		
10	RELAY N.O.		
		Wire color	
11	INPUT 1 +	White	Input triggers from washing machine 12 - 24 VDC 24 - 240 VAC  Use the suggested cable color coding for a common signal cabling practice
12	INPUT 1 -	Brown	
13	INPUT 2 +	Green	
14	INPUT 2 -	Yellow	
15	INPUT 3 +	Grey	
16	INPUT 3 -	Pink	
17	INPUT 4 +	Blue	
18	INPUT 4 -	Red	
19	INPUT 5 +	Black	 Ensure high voltage triggers are not mistaken to be connected to CANbus connections on the same terminal strip
20	INPUT 5 -	Violet	
21	INPUT 6 +	Grey-Pink	
22	INPUT 6 -	Blue-Red	
23	INPUT 7 +	White-Green	
24	INPUT 7 -	Brown-Green	
25	INPUT 8 +	White-Yellow	
26	INPUT 8 -	Yellow-Brown	
SWITCH	ACQUIRING SWITCH	Press during the acquiring procedure to recognize the device TRIGGER INTERFACE (xS)	
SW1...SW8	TRIGGER VOLTAGE THRESHOLD	Trigger voltage threshold: In case of voltage spikes, set switches to upward position to ignore signals lower than 60VAC	

The triggering signals can be used for the following functions:

Trigger use	Description	Trigger Nr
Trigger signal for formula dosing	Up to 6 triggering signals can be used for product dosing activation during the wash phases. Each triggering signal can activate the dosing of up to 4 products.  It is recommended to combine the logical sequence of triggers (1-2-3...6) together with the wash phase sequence, as common practice	1 - 6
End formula signal	One of the 6 triggering signals for formula dosing, can be selected as the "End Formula Signal". The activation of this signal indicates that all products of the formula are dosed and the wash cycle is over. Typically, the last wash phase signal (i.e. softener signal) or a separate signal can be used for this purpose.	1 - 6
	For details on the programming of the system, using the Triggering signal for formula dosing and the end formula signal, please read the Wash Series Programming Guide, Formula Settings.	
Drain	Input for system drain valve	6
Abort trigger	Connect a triggering signal that aborts the program. I.e. use the signal from the emergency button or the door open switch	1 - 8 Recommended as common practice: 7 - 8
Automatic Formula Selection, Fixed combination of triggering signals	Binary combination of multiple triggering signals (up to 7 signals)	1 - 7
Automatic Formula Selection, Trigger 1 duration	Trigger 1 can be set as the only trigger for selecting all programs. Depending on the time base that has been set, the system checks the duration of the trigger and divides it by the time base and the result number will be the program that is activated  Not recommended option for programming more than 30 formulas on the same machine	1 - 7 Recommended as common practice: 1
Automatic Formula Selection, Trigger 1 and 2 duration	Same function as Trigger 1 duration. The first trigger represents tens and the second trigger represents units.	1 - 7 Recommended as common practice: 1 - 2
Automatic Formula Selection, Free Combination	Allows a combination of signals on your choice	1 - 7
	For details on the programming of the system, using the Abort Trigger, Washer load signal and the Automatic Formula selection, please read the Wash Series Programming Guide, Washer Settings.	

Distributor connections

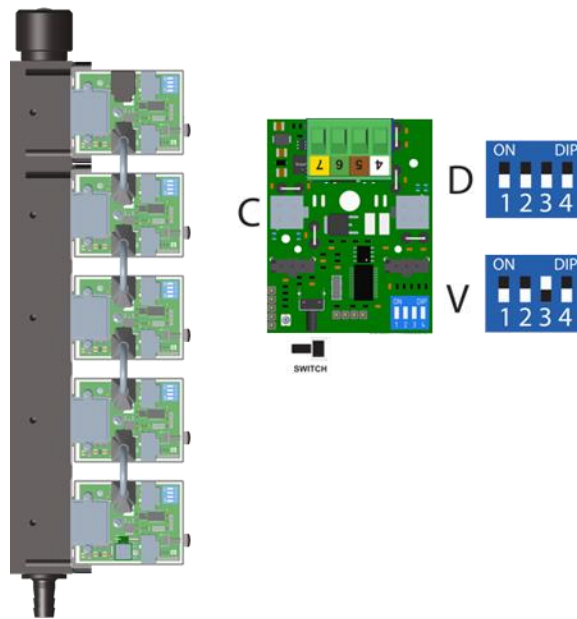


Fig. 20 Distributor, printed circuit board

4	+VDC / White wire	CANbus connector
5	GND / Brown wire	
6	BUS+ / Green wire	
7	BUS- / Yellow wire	
C	Distributor connector	To connect distributor auxiliary valve
D	Distributor valve Dip-Switch	For the distributor valves, set or keep the Dip-Switch as shown in the picture
V	Drain valve Dip-Switch	For the Drain valve, set or keep the Dip-Switch as shown in the picture
SWITCH	ACQUIRING SWITCH	Press during the acquiring procedure to recognize the device DISTRIBUTOR/DRAIN VALVE (xD, xV)

Formula selector connections

1. Fix the Formula selector using the adhesive strip to the washer or the bracket to the wall.
2. Connect the cable with the black/green connector to the formula selector and secure it with the supplied screws
3. Connect the other end of the cable to the washer interface.

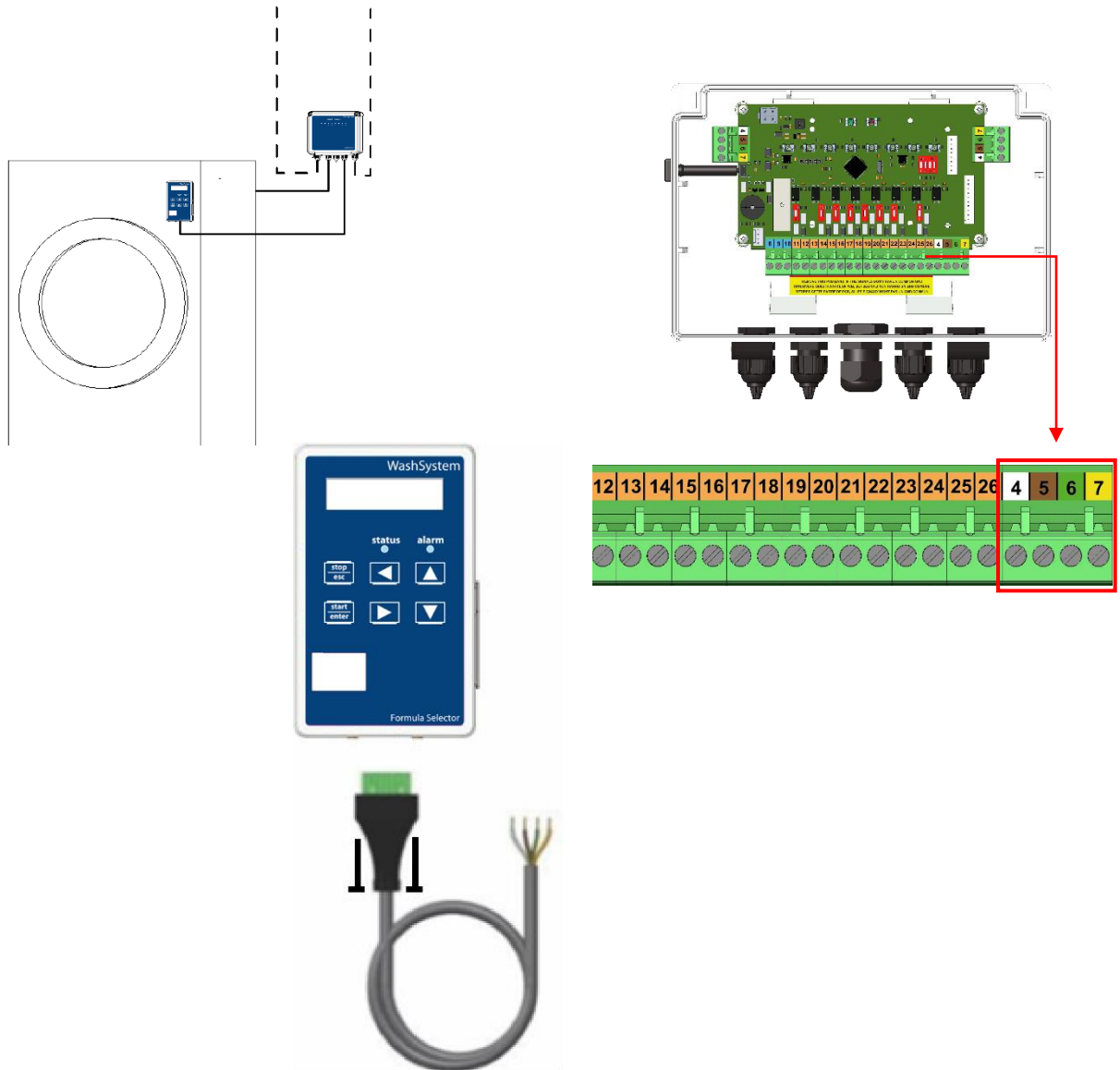


Fig. 21 Formula selector connections

4	+VDC / White wire	CANbus connector
5	GND / Brown wire	
6	BUS+ / Green wire	
7	BUS- / Yellow wire	

Alarm module connections

To open the Alarm module box, loosen the screw(s) from the boxlid and pull the cover to the side.

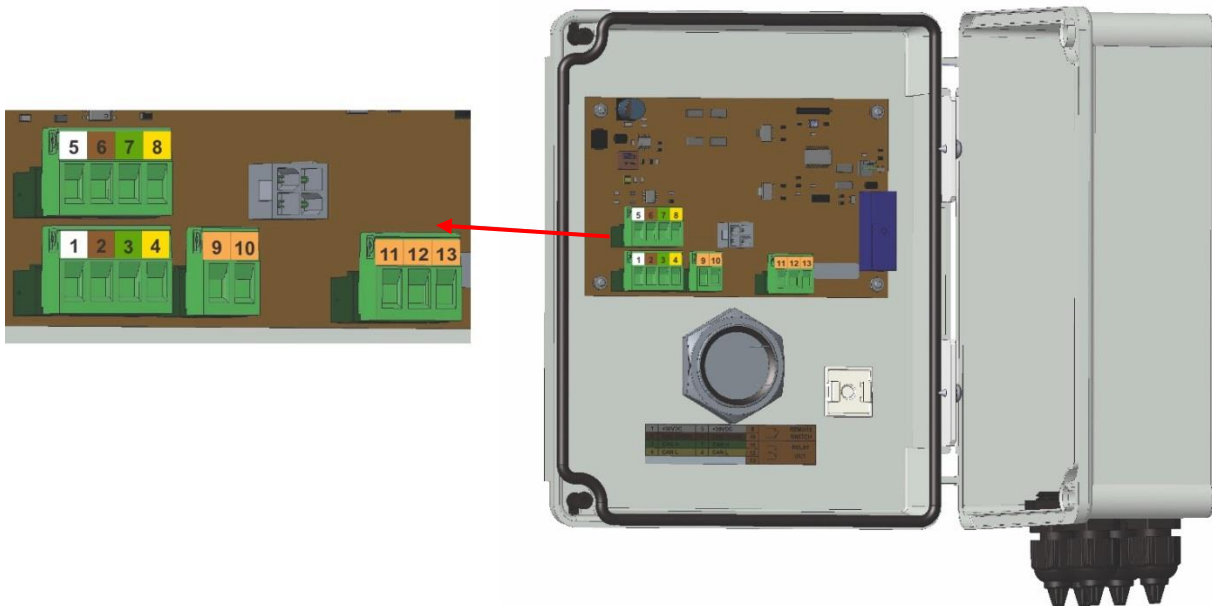


Fig. 22 Alarm module, printed circuit board

1	+VDC / White wire	CANbus connector
2	GND / Brown wire	
3	BUS+ / Green wire	
4	BUS- / Yellow wire	
5	+VDC / White wire	CANbus connector
6	GND / Brown wire	
7	BUS+ / Green wire	
8	BUS- / Yellow wire	
9	REMOTE SWITCH	Dry contact to connect a remote switch, can be used for an external Acquiring / Alarm mute switch, if the Alarm Module is installed on a non-accessible place.
10		
11	RELAY N.O.	Relay output Contact rating (Res. load) 8A 250VAC/30VDC
12	RELAY COM	
13	RELAY N.C.	
SWITCH	ACQUIRING SWITCH	Press during the acquiring procedure to recognize the device ALARM MODULE (xA)

Level module connections

To open the Level module box, loosen the screw(s) from the box lid and pull the cover down.

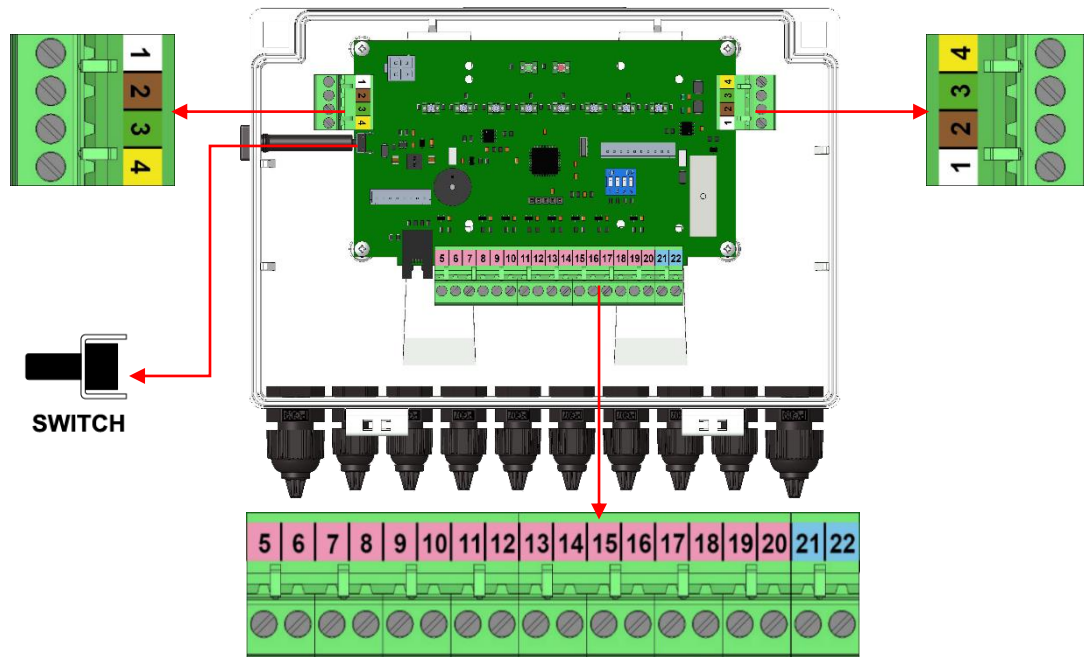


Fig. 23 Level module, printed circuit board

1	+VDC / White wire	CANbus connector The washer interface has 3 CANbus connections, use the left and right connectors to loop in and out between washer interfaces. Use the connector on the longer strip for the connection of the optional Formula selector.
2	GND / Brown wire	
3	BUS+ / Green wire	
4	BUS- / Yellow wire	
5	Signal Level 1	Level signals from suction lances with level sensor. Dry contact N.O.
6		
7		
8		
9		
10		
11		
12		
13	Signal Level 2	
14		
15		
16		
17		
18		
19		
20		
21	OUTPUT RELAY	NOT USED
22		
SWITCH	ACQUIRING SWITCH	Press during the acquiring procedure to recognize the device LEVEL MODULE (xL)



One level unit can handle up to 8 products. If the system is using more products, you can install a second level unit connected on the same CANbus network.

WashMulti Solenoid power ON and setup



Caution! Risk of electrical shock.

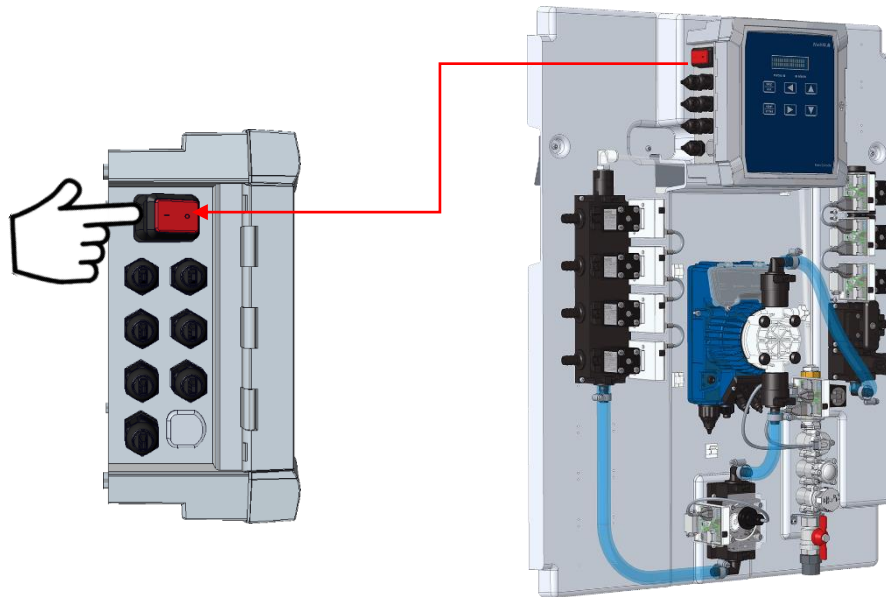


Fig. 24 System power ON

Switch on the WashMulti Solenoid by pressing the power supply button on the left side of the Main unit console.

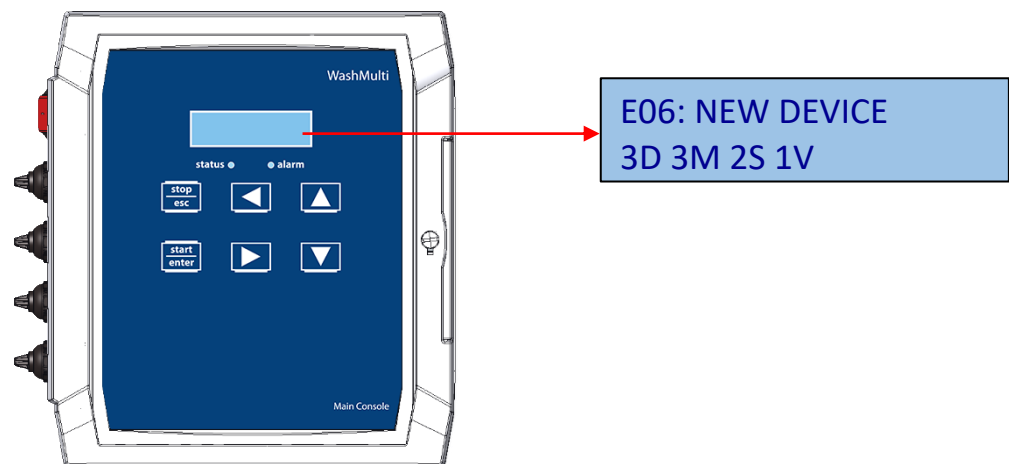


Fig. 25 Display main unit

The first time the system powers up, the alarm LED of the Main unit will blink and the buzzer will sound. To mute the buzzer, press any key and the alarm LED will become steady red. The Main display unit shows the list of the new devices found.

The second line of the Main unit display shows the number and kind of devices found.

The peripherals are divided for device families, following the ID list of the device:

ID	Device
nP	n= number of devices P= Solenoid valves (ex. 6P= 6 solenoid valves)
nG	n= number of devices G= Gear flowmeter (ex. 1G= 1 flow meter)
nS	n= number of devices S= Washer interface (ex. 3S= 3 washer interfaces)
nD	n= number of devices D= Distributor valve (ex. 4D= 4 distributor valves)
nM	n= number of devices M= Formula selector = (ex. 4M= 4 formula selectors)
nW	n= number of devices W= Water inlet module (ex. 1W= 1 water inlet module)
nA	n= number of devices A= Alarm module (ex. 1A= 1 alarm module)
nL	n= number of devices L= Level (ex. 2L= 2 level boxes)
nV	n= number of devices V= Drain valve (ex. 1V= 1 drain valve)
nN	n= number of devices N= Solenoid pump (ex. 1N= 1 solenoid pump)

Flow meter acquisition

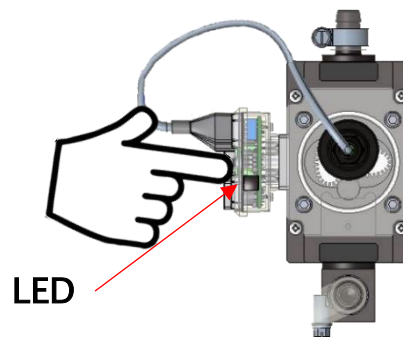


Fig. 26 Flow meter acquisition

The LED of the flow meter board will blink red and green. Press the switch of the board and the LED will go to steady green. Once the device is acquired, the Main unit will automatically detract the device on the display.

Water inlet acquisition

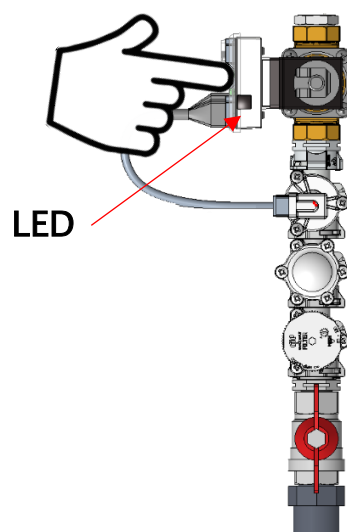


Fig. 27 Water inlet acquisition

The LED of the solenoid valve will blink red and green. Press the switch of the solenoid valve and the LED will go to steady green. Once the device is acquired, the Main unit will automatically detract the device on the display.

Product suction valves acquisition

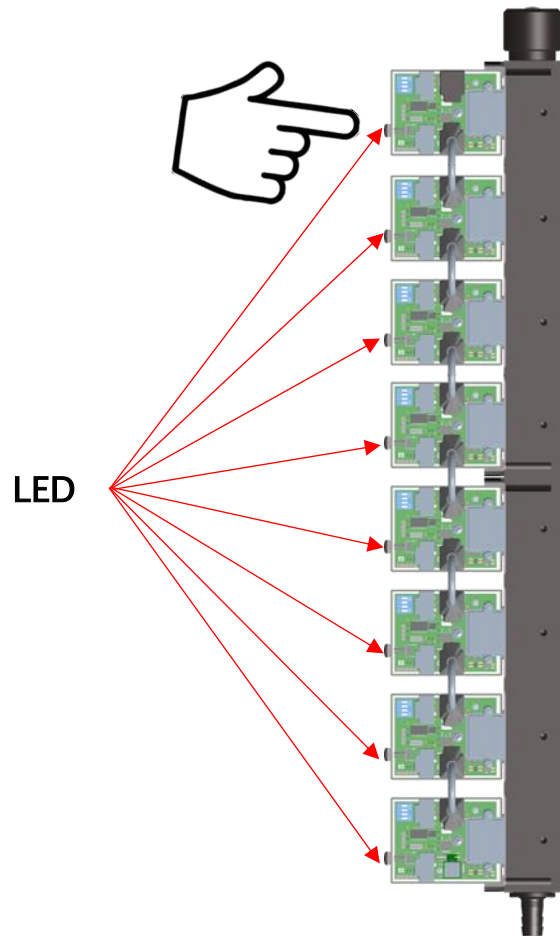


Fig. 28 Product suction valves acquisition, top view

The LED of all solenoid valve will blink red and green. Press the switch of all the solenoid valves and the LED will go to steady green. Once the device is acquired, the Main unit will automatically detract the last product suction valve from those remaining. This last product suction valve will no longer appear on the display.



Attention: the first acquired chemical valve of the family, will be associated by the system as the first chemical, the second acquired chemical valve, will be associated as the second chemical and so on.

Distributor valves acquisition

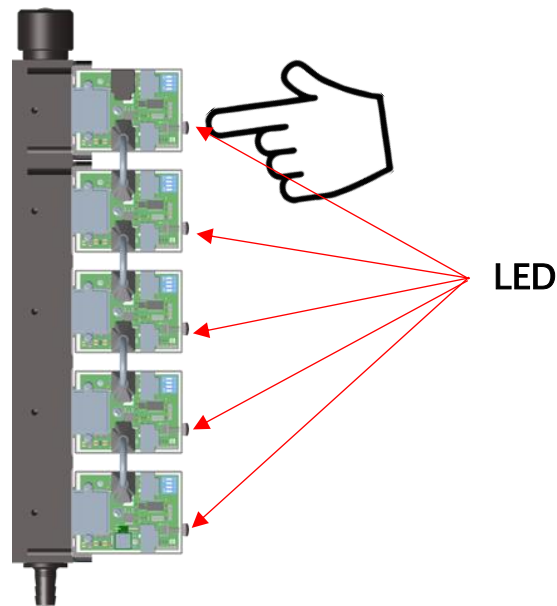


Fig. 29 Distributor valves acquisition, top view

The LED of all solenoid valve will blink red and green. Press the switch of all the solenoid valves and the LED will go to steady green. Once the device is acquired, the Main unit will automatically detract the last acquired solenoid from those remaining. This last device will no longer appear on the display.



Attention: the first acquired distributor valve of the family, will be associated by the system as the first washer, the second acquired distributor valve, will be associated as the second washer and so on.



The drain valve (V, the first valve from the bottom on the distributor assembly) can be acquired at any step of the procedure.

Solenoid pump valves acquisition



Fig. 30 Solenoid pump acquisition

The LED of the solenoid pump valve will blink red and green. Press the switch of all the solenoid pump valve boards and the LEDs will go to steady green. Once the devices are acquired, the Main unit will automatically detract the devices on the display.

Washer interface acquisition

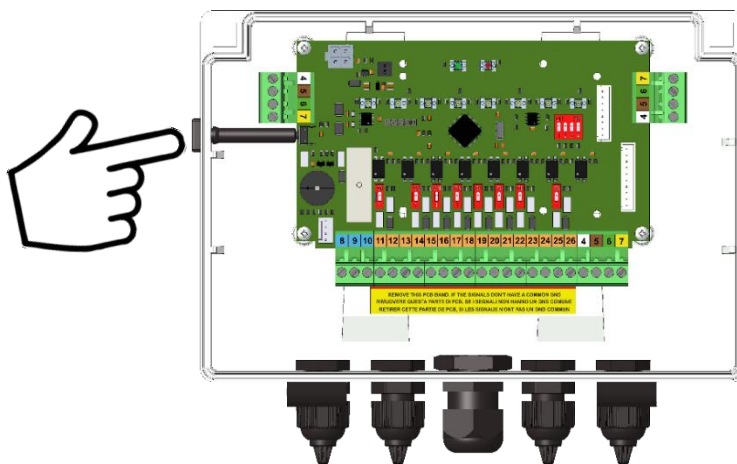


Fig. 31 Washer interface acquisition

The alarm LED blinks red and the status LED green is fixed. Press the switch to the side and the alarm LED will switch off and the status LED will remain steady green. Once the device is acquired, the Main unit will automatically detract the last acquired Washer Interface from those remaining. This last device will no longer appear on the display.



Attention: the first acquired device of the family, will be associated by the system as the first washer, the second acquired device, will be associated as the second washer and so on

Alarm module acquisition

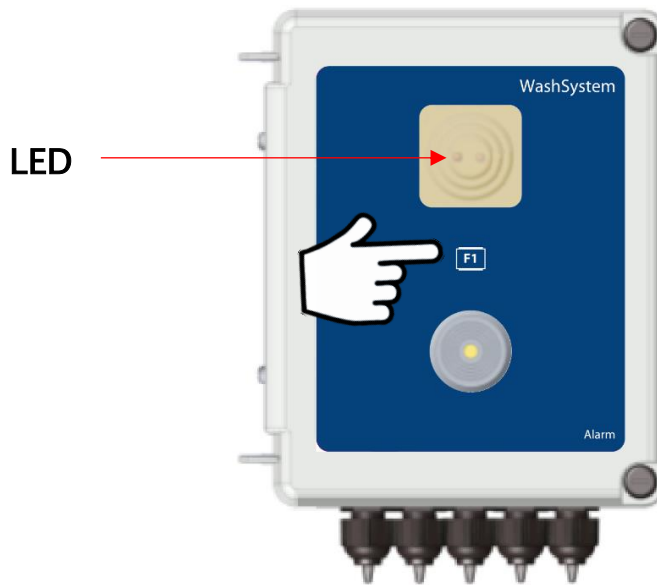


Fig. 32 Alarm module acquisition

The LED of the alarm module will blink red and green. Press the button of the device front and the LED will go to steady green. Once the device is acquired, the Main unit will automatically detract the device on the display.

Level module acquisition

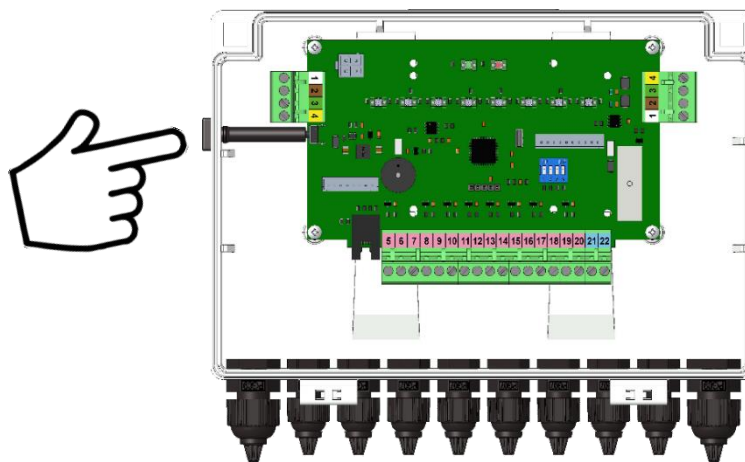


Fig. 33 Level module acquisition

The alarm LED blinks red and the status LED green is fixed. Press the switch to the side and the alarm LED will switch off and the status LED will remain steady green. Once the device is acquired, the Main unit will automatically detract the last acquired Washer Interface from those remaining. This last device will no longer appear on the display.



Attention: the first acquired device of the family, will be associated by the system as the first eight chemical products (from 1 to 8), the second acquired device, will be associated as the second eight chemical products (from 9 to 16) and so on.

Formula selector acquisition

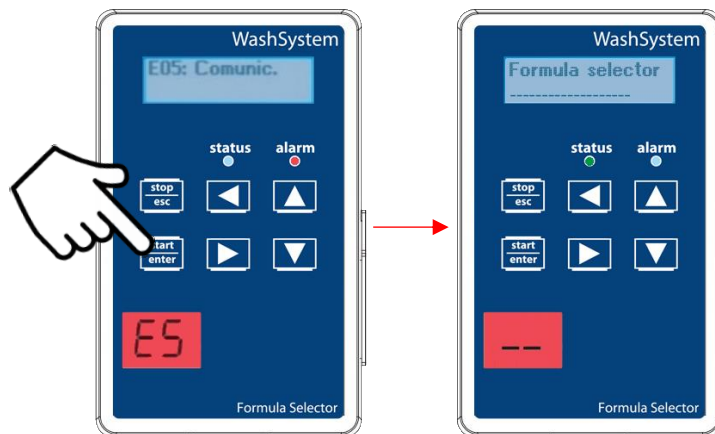


Fig. 34 Formula selector acquisition

The alarm LED in the front panel will lit steady red and the LCD display will show “E05: Comunic.”

The 2-digit display will show “E5”.

To acquire, press the Up and Down keys to set the corresponding washer number for the Formula Selector and the **Start/Enter** key. The alarm LED will switch off and the status LED will turn to steady green. The LCD display will then read “Formula selector” and the 2 digit display will read the related machine number i.e. “02”.

Once the device is acquired, the Main unit will automatically detract the last acquired Formula selector from the main unit display.



If there are Formula Selectors on all washers connected to the system, the Formula selectors can be acquired by pressing only the **Start/Enter** keys of all selectors in a sequence. In that case the first acquired Formula Selector, will be associated by the system as the first washer, the second acquired device, will be associated as the second washer and so on.

If some washers are connected without Formula Selector (AFS) and some are connected with Formula Selector, the sequential acquisition should NOT be performed. In that case you should acquire the connected Formula selectors by selecting the washer number manually, as described above.

Acceptance of configuration setup

After all CANbus devices are configured, the system console display will show: "Accept new configuration? Y/N".

Press Enter to accept the configuration, insert the Administrator PIN and press Enter again. The system will store the current configuration.

Formula selector functions

The formula selector allows the operator to select one of the 50 different washing formulas using the buttons in the frontal panel. It has two displays:

- an LCD display, that shows the formula name and other messages
- a 2-digit LED display, that shows the selected formula number.

The module also allows to monitor the status of washer and any alarm situation using LEDs in the frontal panel. The formula selector must be installed one for each washer. This is not necessary if the washer works in auto selection formula mode (AFS).

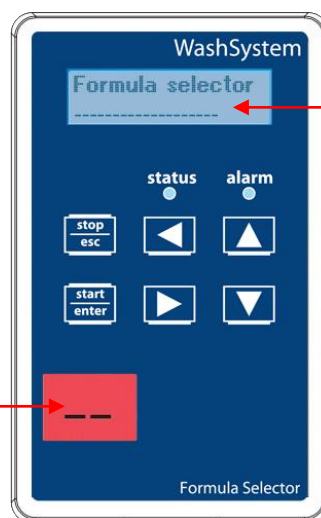
Once the last device is acquired, the Formula Selector washer shows the number of washers and the washer name (if it is programmed).



Fig. 35 Formula selector

Formula selector in stand-by mode

In Stand-by mode the 2-digit LED screen displays two dashes (--)



The LCD screen displays the name and number associated with the washer

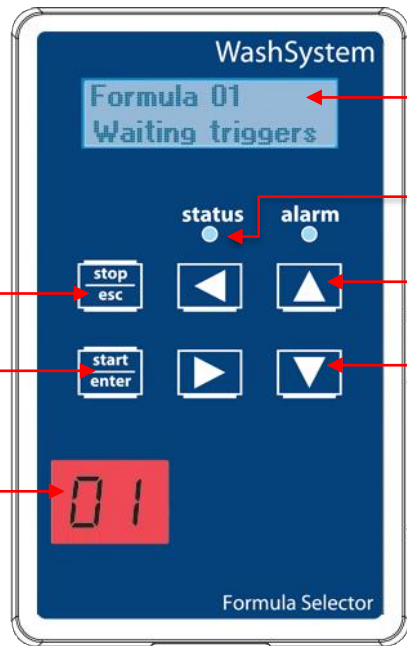
Fig. 36 Formula selector

Formula selector in manual mode

With the **Stop / Esc** button you can pause the washing formula running.
With extra pressure you can cancel the formula

Start / Enter button allows you to apply the formula or to restart from pause

Displays the number associated to the wash formula



The first line shows the selected formula, on the second line the instructions currently running

The status LED:

- **Fixed green:** formula selector in stand-by mode;
- **Blinking green:** indicates that the formula is running;
- **Steady Red:** indicates that the system is in pause mode;

With the **Up** and **Down** keys, you can select the wash formula to be made between those loaded in the formula selector

Fig. 37 Formula selector

Actions that can be done with the formula selector:

- Manually select and start a formula execution
- See the selected formula that is executed, on the formula selector display
- Manually cancel the executed formula (i.e. if the machine is stopped in the middle of a wash cycle)
- See the system alarms on the formula selector display
- See the active trigger signals on the formula selector display

Formula selector in AFS

When the formula selection on a machine is done by AFS, it is not mandatory to have a formula selector installed on that machine. However, there are still some functions that can be executed if a formula selector is installed:

- See the selected formula that is executed, on the formula selector display
- Manually cancel the executed formula (i.e. if the machine is stopped in the middle of a wash cycle)
- See the system alarms on the formula selector display
- See the active trigger signals on the formula selector display

Formula selection steps

1. Use the up and down buttons to select the washing formula:

			Button				
	Formula No.	Formula Name					
	1	White Sheets	↑	Pressing UP would move from 4 to 3			
	2	White Towels					
	3	Coloured Sheets					
	4	Coloured Towels					
	5	Uniforms	↓	Pressing DOWN would move from 4 to 5			
	6	Cloths					
	7	Woolens					
	8	Specials					



The arrow buttons are designed to move the formula selection as they were rows on a table as shown on the example below:

2. Press the **Start/Enter** button to apply the chosen formula;
3. Press the **Stop/Esc** button once to pause the formula or press twice to cancel the formula.
4. If the formula is in pause mode, you can restart it with **Start/Enter** button.

Alarm events

If an alarm is triggered, the console display will show Exx: Alarm type. The alarm LED will blink and the buzzer will sound. To mute the buzzer, press any key and the alarm LED will become steady red. Once the alarm is no longer present the FS washer will return to normal working mode.

Product priming

The buttons located in each chemical solenoid valve are used also for priming of product suction line.

1. Press the button and keep it pressed. The system will open the water and the drain valves and will pre-flush the transport line for 5 sec.
2. Provided that the button remains pressed, the chemical solenoid valve will open and the solenoid pump will start priming the product suction line. The solenoid pump will work as long as the button remains pressed and for up to 30 sec. maximum. The drain valve will remain open.
3. When the suction line is primed, release the button. The solenoid pump will stop and the water valve will open again to flush the transport line for the flushing time set for the first washer machine.
4. Repeat the procedure from step 1, for all products.



Do not prime excessive amounts of product to the drain.

Calibration procedure



Always wear the required Personal Protective Equipment including gloves and goggles when potentially exposed to any hazardous materials and when carrying out work tasks.

Note that parts may be contaminated with product.



For information on products that are used in this dispenser read the product label and relevant Material Safety Data Sheet (MSDS).

The WashMulti Solenoid can be calibrated using two methods, either a volumetric or weighed calibration can be performed. Prior to the calibrations being taken, it's important to enter the chemical information and product density values in the **Chemical Settings** page on the web application.

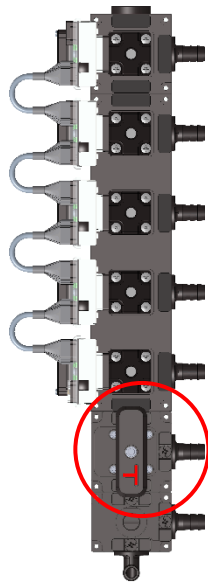


Fig. 38 3-way calibration valve on distributor

Rotate the 3-way valve handle anticlockwise to activate calibration mode.

Calibration by Volume – A timed dose is dispensed into a measuring cylinder via the 3-way valve, the measured value (in ml) is then programmed into the system. A graduated measuring cylinder of 2L +/-20ml is required as the minimum.

Calibration by Weight – A timed dose is dispensed and diverted to the drain. The product is placed on scales on the pick-up side and the measured weight (in gr) is programmed into the system. Digital weighing scales of 30Kg +/- 2g is required as a minimum.

To perform the calibration, you have to access the **Calibrations** page on the web application. Please refer to the **Wash Series Programming Guide** for instructions on logging in to the web application and the related pages.



It is the flow meter that is being calibrated with the product, not the pump tubes. Although it's best practice to perform calibrations regularly, it's not necessary for re-calibrations unless the product characteristics or the product suction tube length or ID change.



The calibration on each product can be performed either in grams or ml. However, it is highly recommended to use the same units (ml or gr) for all products and for the dose settings, as common installation practice.

1. Open the Calibrations page in the web application

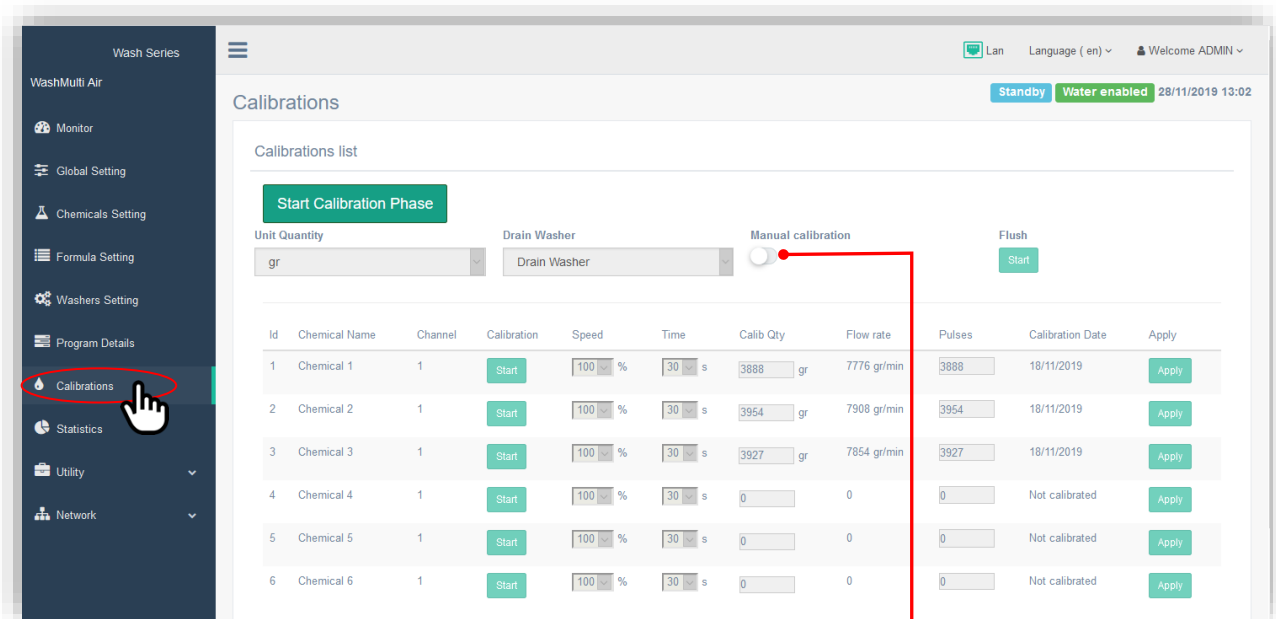


Fig. 39 Calibration page

Manual calibration: if activated, allows the manual insertion of the calibration values. Use this option only if you already know the quantity and the number of pulses you have to use for calibration.

2. Begin the calibration procedure

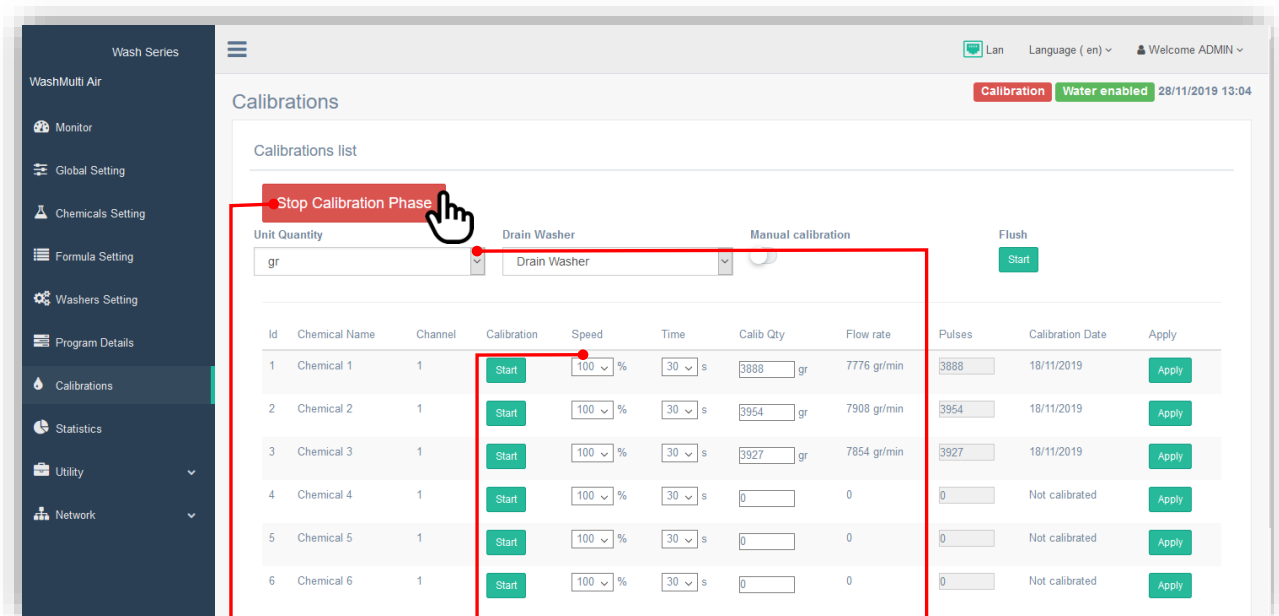


Fig. 40 Calibration page

Click the **Start** button in the calibration phase

Speed:
Set the speed of the pump for calibration

Select the calibration units:
 – gr: for calibration by weight
 – ml: for calibration by volume
 Use the same units for the calibration of all products!



If the system is in the middle of a wash formula execution, it will not enter the calibration phase. To force stop the formula execution, press **ESC** button on the formula selector of the related machine(s). Setting the system to Calibration phase will force it to ignore all dosing requests that come during the calibration.



If the system is in stand-by mode (not dosing), after you press the **Start** button it turns red and reads **Stop**. If the system is dosing, the calibration phase cannot be enabled, the **Start** button will remain green. Try entering the calibration phase when the dosing is completed.



The calibration page buttons change from green **Start** to red **Stop** when pressed. When a button is shown green text, means that this function is not activated. When a button is shown red text, means that this function is activated.

3. Select the calibration dosing time and the pump to calibrate

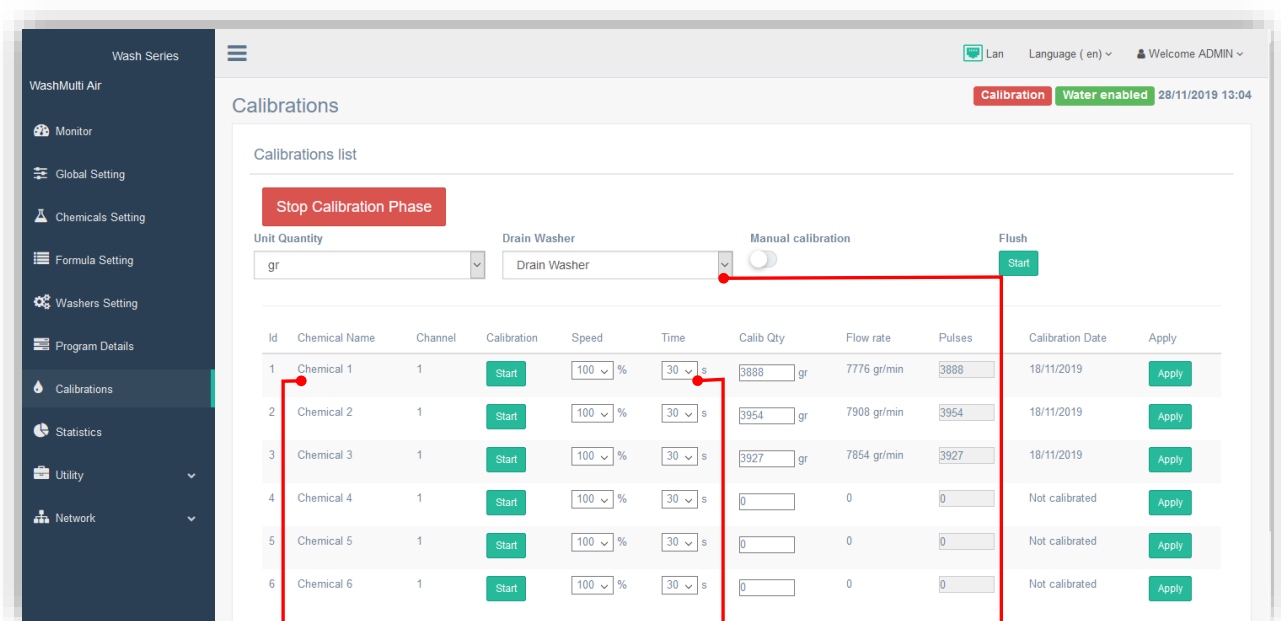



Fig. 41 Calibration page

Select Chemical/pump:
Select the chemical/pump to calibrate.

Select Calibration dosing Time:
Sets the period of time during which the pump doses at maximum speed to perform the calibration
 Select 60 sec for better calibration accuracy.

Drain Washer:
Used when performing weighted calibration
If the system is not equipped with a drain valve, you can select the machine which will drain during the calibration.



The drain washer option is used to select where the products used for the calibration will be dumped, when weighted calibration is performed and the 3-way valve handle is set to dosing position.

4. Pre Flush

Wash Series
WashMulti Air

Monitor
Global Setting
Chemicals Setting
Formula Setting
Washers Setting
Program Details
Calibrations
Statistics
Utility
Network

Calibrations

Stop Calibration Phase

Unit Quantity: gr
Drain Washer: Drain Washer
Manual calibration:

Flush: Stop

Id	Chemical Name	Channel	Calibration	Speed	Time	Calib Qty	Flow rate	Pulses	Calibration Date	Apply
1	Chemical 1	1	Start	100 %	30 s	3888 gr	7776 gr/min	3888	18/11/2019	Apply
2	Chemical 2	1	Start	100 %	30 s	3954 gr	7908 gr/min	3954	18/11/2019	Apply
3	Chemical 3	1	Start	100 %	30 s	3927 gr	7854 gr/min	3927	18/11/2019	Apply
4	Chemical 4	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
5	Chemical 5	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
6	Chemical 6	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply

Fig. 42 Calibration page

Click the Start button in the Pre Flush phase

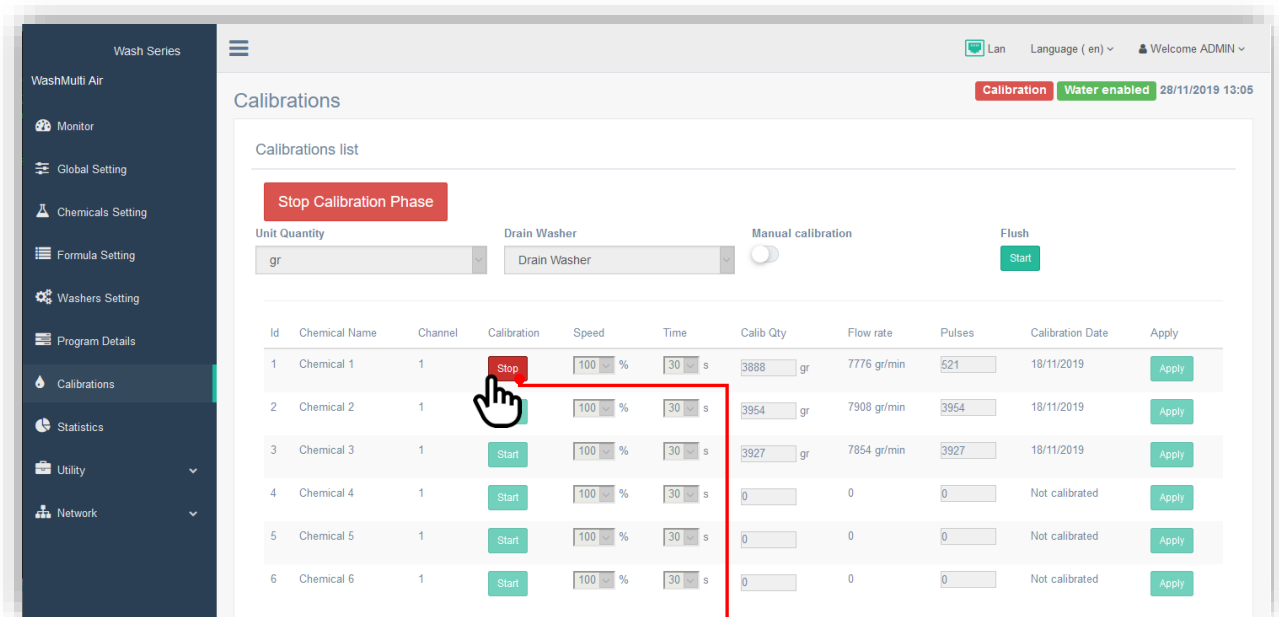
The system will perform a flush cycle for the preset desired time.
Then the water valve will close and the button will read green **Start**.
To end the flush function before the set time, press the **Stop** button.
Use this function to flush out any chemical residue.



The pre-flush time is equal to the flush time for the 1st washer, as it is set on the **Washer Settings** page.

If you perform Volumetric calibration, turn the 3-way valve to the dosing position or place the outlet hose to a bucket before flushing.

5. Pump calibration



Wash Series

WashMulti Air

Monitor

Global Setting

Chemicals Setting

Formula Setting

Washers Setting

Program Details

Calibrations

Statistics

Utility

Network

Lan Language (en) Welcome ADMIN

Calibration Water enabled 28/11/2019 13:05

Calibrations

Calibrations list

Stop Calibration Phase

Unit Quantity: gr

Drain Washer: Drain Washer

Manual calibration:

Flush: Start

Id	Chemical Name	Channel	Calibration	Speed	Time	Calib Qty	Flow rate	Pulses	Calibration Date	Apply
1	Chemical 1	1	Stop	100 %	30 s	3888 gr	7776 gr/min	521	18/11/2019	Apply
2	Chemical 2	1	Start	100 %	30 s	3954 gr	7908 gr/min	3954	18/11/2019	Apply
3	Chemical 3	1	Start	100 %	30 s	3927 gr	7854 gr/min	3927	18/11/2019	Apply
4	Chemical 4	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
5	Chemical 5	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
6	Chemical 6	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply

Fig. 43 Calibration page

Click the button Start to proceed with calibration:

The selected pump will dose for the set time. Then the pump will stop and the button will read green **Start**.

To end the pump function before the set time, press the **Stop** button.

6. Final Flush

The screenshot shows the 'Calibrations' page in the WashMulti Solenoid interface. At the top, there's a status bar with 'Calibration' and 'Water enabled' indicators. Below that, a 'Calibrations list' table is displayed. The table has columns for Id, Chemical Name, Channel, Calibration, Speed, Time, Calib Qty, Flow rate, Pulses, Calibration Date, and Apply. A red box highlights the 'Stop' button in the 'Flush' column of the table. A red arrow points from this button to a text box below the screenshot.

Id	Chemical Name	Channel	Calibration	Speed	Time	Calib Qty	Flow rate	Pulses	Calibration Date	Apply
1	Chemical 1	1	Start	100 %	30 s	3888 gr	7776 gr/min	3888	18/11/2019	Apply
2	Chemical 2	1	Start	100 %	30 s	3954 gr	7908 gr/min	3954	18/11/2019	Apply
3	Chemical 3	1	Start	100 %	30 s	3927 gr	7854 gr/min	3927	18/11/2019	Apply
4	Chemical 4	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
5	Chemical 5	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
6	Chemical 6	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply

Fig. 44 Calibration page

Click the button Start in the Final Flush phase

The system will perform a flush cycle for the preset desired time. Then the water valve will close and the button will read green **Start**. To end the flush function before the set time, press the **Stop** button. Use this function to flush out any chemical residue.



The final flush time is equal to the flush time for the 1st washer, as it is set on the **Washer Settings** page.

If you perform Volumetric calibration, turn the 3-way valve to the dosing position or place the outlet hose to a bucket before flushing.

Turn the 3-way valve back to calibration position, after the flushing, to perform calibration with the next product.

7. Insert the calibration quantity value

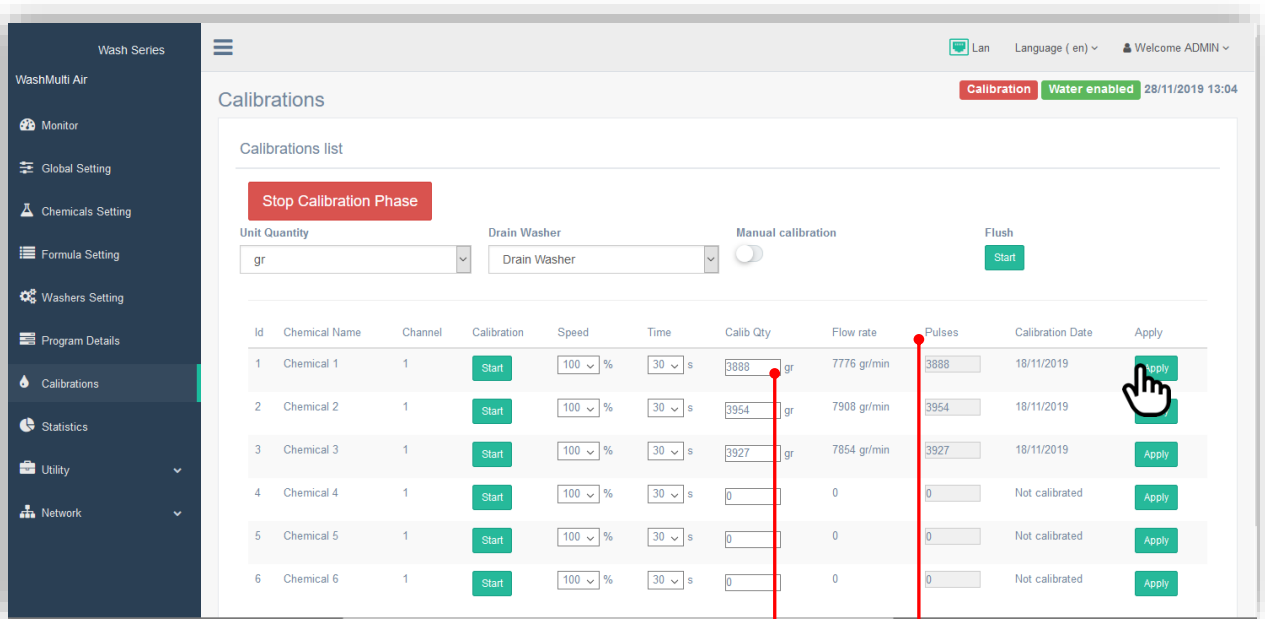


Fig. 45 Calibration page

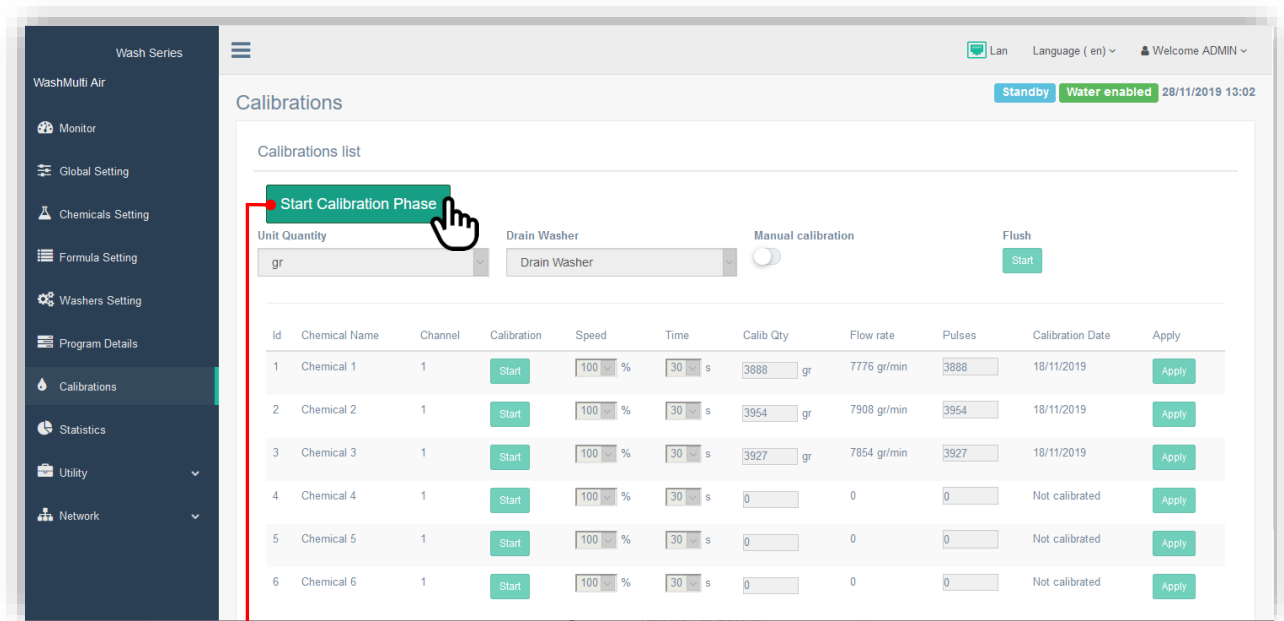
Insert Quantity: Insert the quantity dosed, selecting the unit of measurement (ml or gr). Then click **Apply** to save.

The calibration values are displayed on this table. The values are updated after each calibration, together with the calibration date.



To calibrate the system with the other products, repeat the steps 4 to 8.

8. Finalization of calibration procedure



Calibrations

Standby Water enabled 28/11/2019 13:02

Calibrations list

Start Calibration Phase

Unit Quantity: gr Drain Washer: Drain Washer Manual calibration: Flush: Start

Id	Chemical Name	Channel	Calibration	Speed	Time	Calib Qty	Flow rate	Pulses	Calibration Date	Apply
1	Chemical 1	1	Start	100 %	30 s	3888 gr	7776 gr/min	3888	18/11/2019	Apply
2	Chemical 2	1	Start	100 %	30 s	3954 gr	7908 gr/min	3954	18/11/2019	Apply
3	Chemical 3	1	Start	100 %	30 s	3927 gr	7854 gr/min	3927	18/11/2019	Apply
4	Chemical 4	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
5	Chemical 5	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply
6	Chemical 6	1	Start	100 %	30 s	0	0	0	Not calibrated	Apply

Fig. 46 Calibration page

Click the button Stop to exit the calibration:
The button will change to **Start** in green, showing that the system has returned to dosing function.



If you performed Volumetric calibration, turn the 3-way valve to the dosing position after the end of the calibration procedure.