

user manual

EvoClean

(HYDSPL0409, HYDSPL0410, HYDSPL0411, HYDSPL0412, HYDSPL0413, HYDSPL0414)

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introduction

Overview

The EvoClean is a low maintenance, venturi-based, water powered laundry unit. It features an integrated control system that can be used for applications requiring four, six or eight products and also offers an integrated flush manifold, 'out-of-product' alarm and optional remote formula select.

Note: The EvoClean may be referred to as the 'Dispenser' or 'unit' throughout this manual.

Please look at and read these instructions carefully before starting installation, operation, maintenance and keep for future reference.

Remove all packaging and check the EvoClean includes all parts against the Contents of Packaging or damage before starting installation.

Any alterations made to the EvoClean and fittings will invalidate the Warranty.

1. safety



THANK YOU FOR YOUR INTEREST IN OUR PRODUCTS

Please use this equipment carefully and observe all warnings and cautions.



WARNING

Please read precautions thoroughly before operation. Meet all applicable local codes and regulations.

WEAR

Protective clothing and eye wear when dispensing chemicals or other materials or when working in the vicinity of all chemicals, filling or emptying equipment, or changing metering tips.

ALWAYS

Observe safety and handling instructions of the chemical manufacturer.
Direct discharge away from you or other persons or into approved containers.
Dispense cleaners and chemicals in accordance with manufacturer's instructions.
Exercise CAUTION when maintaining your equipment.
Reassemble equipment according to instruction procedures.
Be sure all components are firmly screwed or latched into position.

KEEP

Equipment clean to maintain proper operation.

- This unit is not to be used with ATEX chemicals
- This unit is not to be used with chemicals outside the temperature of 0-60°C

Do not mix cleaning chemical products.



Electrical

- All mains electrical work must be carried out in accordance with local and national regulations, and by a qualified electrician.
- The Alarm should only be operated at or within the voltage specified in this Installation and Manual.
- The unit **MUST** be disconnected from its power source during cleaning, servicing or when replacing parts.
- The installer and user are responsible for ensuring the installation and operation of this Alarm are in accordance with this Installation and User Manual and local and national regulations.

2. description

The EvoClean (Patent Pending GB1708496.3) is a low maintenance, venturi-based, water-powered laundry unit. It features an integrated control system that can either be supplied on-board the unit or off-board within a housing. The EvoClean can be used for applications requiring up to four, six or eight products and also offers an integrated flush manifold, 'out-of-product' alarm, optional remote formula select and downloadable reports. This guide contains instructions for installing, programming, operating and troubleshooting the EvoClean. For further information and the option to download the PC formula editor please navigate to:

<http://hydrosystemseurope.com/product/evoclean/>

2.1 Intended Use

- The EvoClean is intended for use in industrial applications. It is not suitable for domestic use and it must not be used outside of its intended use.
- The product must only be used for washing and rinsing of laundry that are marked accordingly. The manufacturer waives any responsibility arisen from incorrect usage or transportation.

2.2 ECOLAB models:

- HYDSPL0411 - EVOCLEAN 2, 4 PRODUCT, LF, 5/16, AF, RFS, ECOLAB
- HYDSPL0412 - EVOCLEAN 2, 4 PRODUCT, HF, 5/16, AF, RFS, ECOLAB
- HYDSPL0409 - EVOCLEAN 2, 6 PRODUCT, LF, 5/16, AF, RFS, ECOLAB
- HYDSPL0410 - EVOCLEAN 2, 6 PRODUCT, HF, 5/16, AF, RFS, ECOLAB
- HYDSPL0413 - EVOCLEAN 2, 8 PRODUCT, LF, 5/16, AF, RFS, ECOLAB
- HYDSPL0414 - EVOCLEAN 2, 8 PRODUCT, HF, 5/16, AF, RFS, ECOLAB

3. contents of packaging

- EvoClean Unit
 - Accessory Kit :
 - Wall Mount Brackets
 - Clips
 - Screws
 - Wall Plugs
 - Chemical Pickup tube and Install Kit*
 - Remote Formula Select*
 - Calibration Cylinder*
 - Backflow Device*
- *Do not come as standard - Optional extra.

4. site survey & installation requirements



CAUTION

Before an installation takes place it is advisable to complete a site survey to ensure the EvoClean can be installed in a position that meets all of the requirements listed below.

- Unit is to be installed by a trained technician; all local and national electrical and water regulations are to be observed.
- Unit must not be installed near areas that suffer excess temperature changes, direct sunlight, frost or moisture of any kind.
- Area must be free of high levels of electrical noise.
- Ensure the unit can be mounted in an accessible position above the height of the required discharge location.
- Unit must be mounted on a suitable wall, that is flat and perpendicular to the floor.
- The unit location should be well lit for any maintenance and free of high levels of dust / air particulates.
- Scheduled maintenance should be carried out on the dispenser at least once per year.
- It is a legal requirement if the EvoClean is supplied from the water mains, that a backflow device offering protection equal or higher than the products being dispensed to prevent back siphoning of non-potable water into the water mains. If used, hose sets used to connect the EvoClean to the mains water supply must also be compliant with IEC 61770.



WARNING

Ensure the incoming water supply hose is supported to prevent unnecessary stress on the inlet fitting.

1. Connect incoming water supply using fittings provided. This will either be a 3/4" female Garden Hose fitting, or a 1/2" O.D.
2. A locally approved back-flow prevention device (not provided) may be required for sale and legal operation.



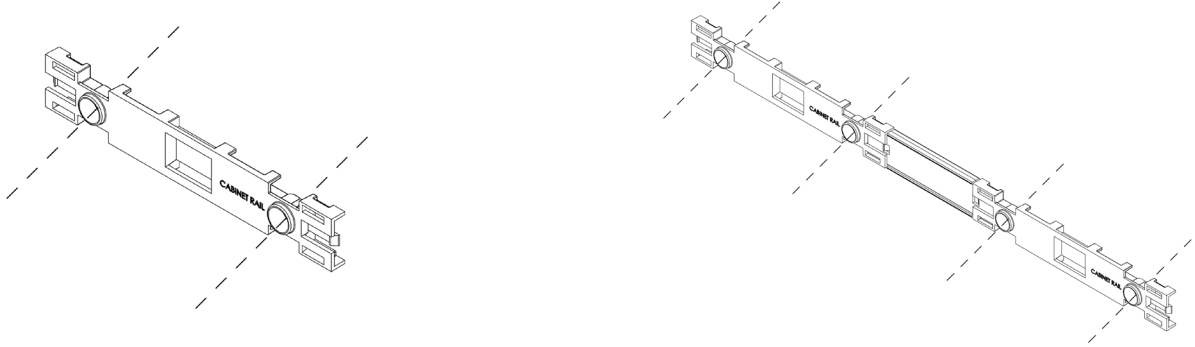
WARNING! For units installed in Australia

This apparatus MUST be installed in accordance with the requirements of the Plumbing Code of Australia (PCA) AS/NZA3500.1, including all backflow prevention requirements outlined.

5. installation & connection

5.1. Installation Step 1: Site Survey & Mounting Kit

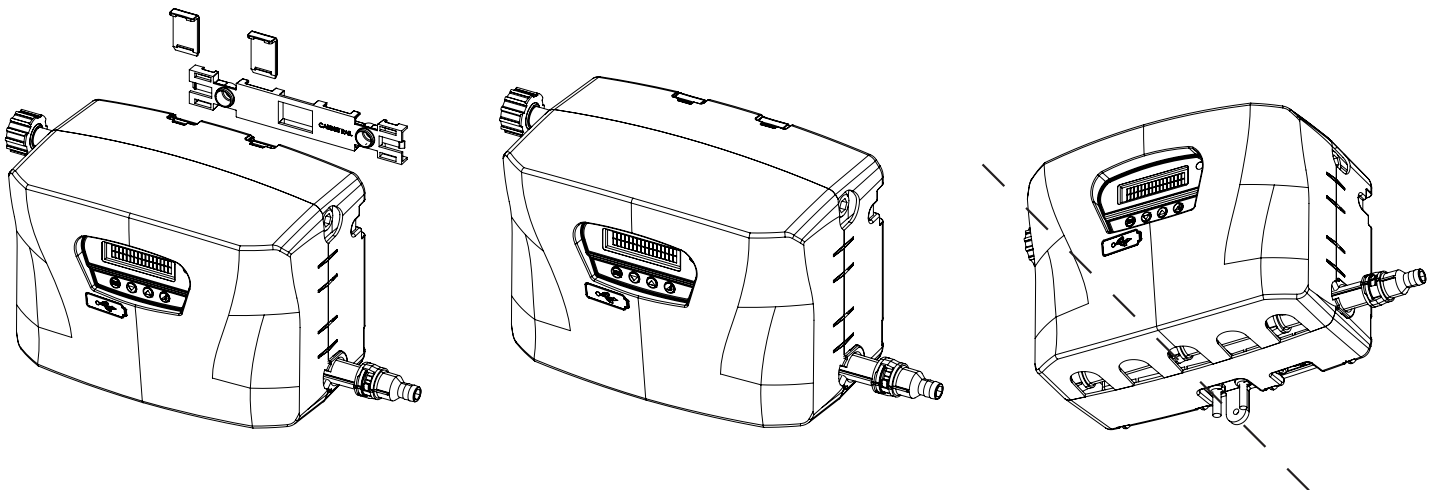
- 5.1.1.** Choose a location near to the laundry machine. Use the mounting bracket to mark the appropriate locations for the mounting hardware. Use the mounting bracket as a hole template to mark the securing holes.



Mounting bracket: 4 product unit (Left), or 6/8 product unit including joins (Right)

- 5.1.2.** Wall anchors are provided, please ensure they are appropriate to the wall/surface being mounted to.

- 5.1.3** Mount the dispenser onto the mounting bracket. Push down the clips to secure the unit.



- 5.1.4.** Secure the dispenser at the bottom, with the remaining screw provided.

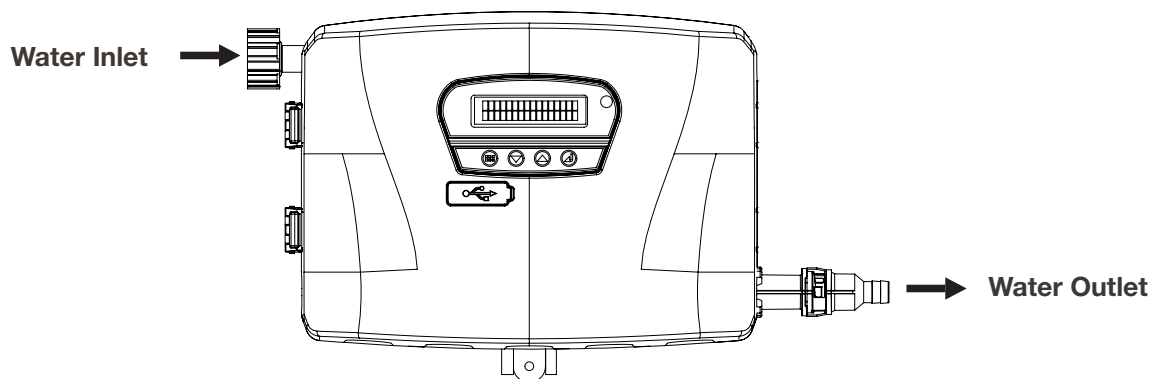
Note: Please secure any cables so as not to create a hazard for the operator.

5.2. Installation Step 2: Incoming Water Supply

5.2.1. Connect incoming water supply to EvoClean using fittings provided. This will either be a 3/4" Female BSP swivel, or 15mm push-fit. Ensure the incoming water supply hose is supported so as not to create unnecessary force on the inlet.

5.2.2. It is a legal requirement, if the unit is supplied from the water mains, that a backflow device is installed offering protection equal or higher than the chemical class being used. This is to prevent back siphoning of non-potable substances into the water mains.

Note: It is possible to have the water inlet on either side of the dispenser but the outlet will always need to be on the right.



5.2.3. Hose sets used to connect the EvoClean to the mains water supply must also be compliant with IEC 61770.

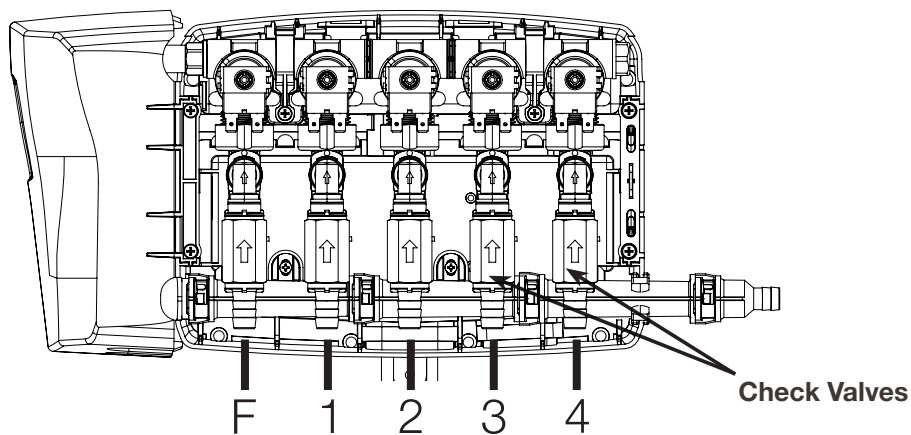
5.3. Installation Step 3: Route Discharge Hose to Machine

Note: It is recommended that the delivery hose between the EvoClean and the washing machine be as short as possible. Any vertical routes should be kept to a minimum.

5.3.1. Connect outlet (see above) to the washing machine using 12.7mm (1/2") or 13mm ID Flexible braided PVC Hose.

5.3.2. Secure PVC hose to barb with cable tie.

5.4. Installation Step 4: Routing Pickup Tubes



Note: The check valves are supplied detached in a bag with the unit. To prevent damage, do not install hoses to the check valve while connected to the manifold.

5.4.1. Eductors run from left to right in the following order:

In 4 Product units (Single cabinet)

- F (Flush) 1, 2, 3, 4

In 6 product units (Single cabinet)

- F (Flush) 1, 2, 3, 4, 5, 6

In 8 Product units (Twin cabinet)

- F (Flush) 1, 2, 3, 4, 5, 6, 7, 8.

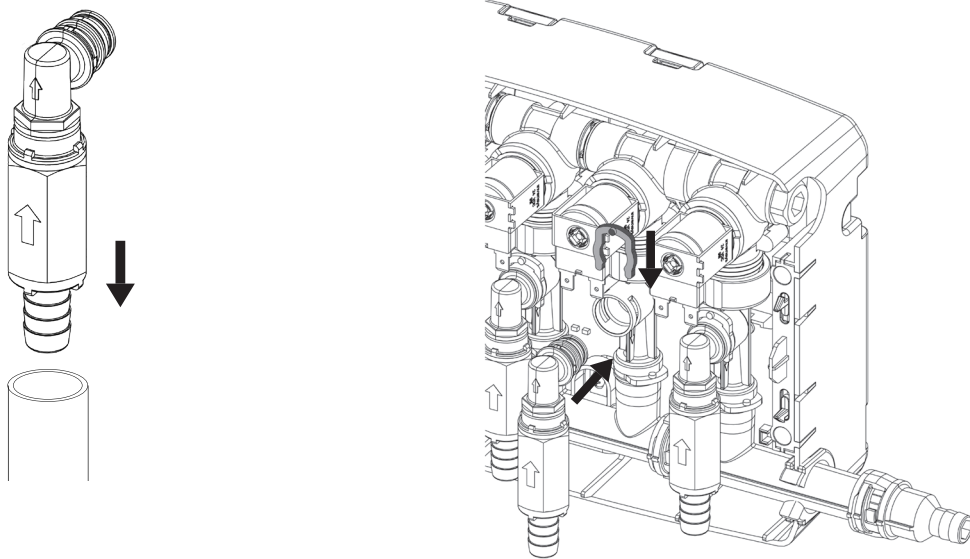
Note: Flush - Do not connect any tube to this position.

5.4.2. Measure the distance from the Eductor to the base of the chemical container.

5.4.3. Cut the 12.7mm (½") or 13mm ID Flexible PVC Hose tube to length.

Note: Alternative hose options are available. Contact Hydro Systems for further information.

5.4.4. Push the PVC hose on to the detached check valve and secure with cable tie, then push the elbow into the eductor and secure with the clip, as shown in the diagram on the next page.



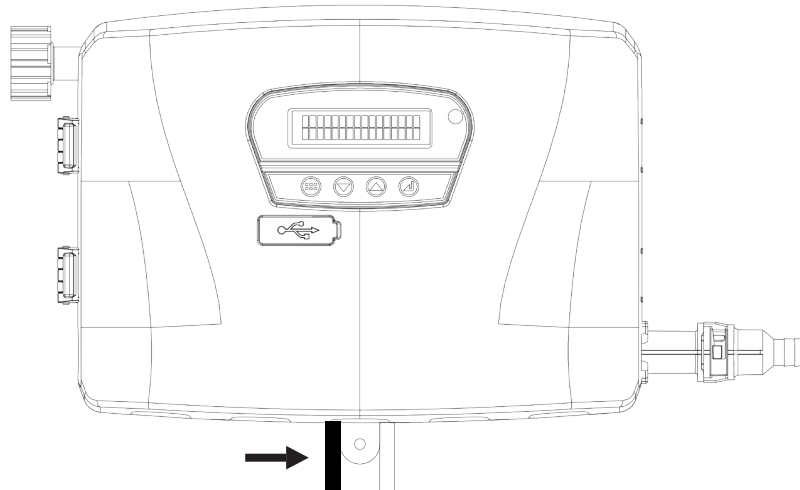
5.4.5. Take chemical container lid and drill 20mm (¾") hole for PVC Hose to pass through, ensure tube is not a tight fit (to avoid vacuum).

Note: Do not drill lid when screwed onto chemical container to avoid swarf.

5.4.6. Replace lid on container, and place the inlet tube into the container.

5.5. Installation Step 5: Trigger Connections

5.5.1. The EvoClean uses the following trigger signal inputs.



10-way harness (4, 6 and 8 product units)

Trigger	Supply Signal (+)	Signal Common (-)	Connected in RELAY mode:	Connected in NORMAL mode:
Trigger 1	Black	Red	Solenoid 1	Pre-Wash
Trigger 2 Hot	Green	Orange	Solenoid 2	Main-Wash
Trigger 2 Cold	White	Orange	Solenoid 2	Main-Wash
Trigger 3 Spare	Blue	Brown	Solenoid 3	SPARE
Trigger 4	Yellow	Purple	Solenoid 4	Final Rinse
Trigger 5	Grey	Purple	Solenoid 5	AFS mode*

* See 5.5.3 - Auto Formula Select

3-way harness (6 and 8 product units only)

Trigger	Supply Signal (+)	Signal Common (-)	Connected in RELAY mode:	Connected in NORMAL mode:
Trigger 6	Black	Purple	Solenoid 6	-
Trigger 7	Red	Purple	Solenoid 7	-
Trigger 8	White	Purple	Solenoid 8	-

5.5.2 All signal inputs are optically isolated high impedance input circuits. Supply signal voltages may range from 24-240 VAC, 50-60 Hz (20 mA maximum draw) or 12-24 VDC, (5 mA maximum draw) that accommodate the range typically found in most washing machines. Each signal input connects to a signal input wire and the common. With DC signals, polarity must be observed. The signals should be positive voltages (+). The Common is negative (-).

5.5.3. Auto Formula Select (AFS)

When operating in 'normal mode' the formula can be selected automatically upon receipt of a signal from the washer extractor. The formula selection is based on the length of signal received. The signal length is calculated as 2x the formula number being selected. For instance, a 10 second signal will result in formula 5 being selected, a 20 second signal will result in formula 10 being selected and so on. The same logic is applicable for all of the Evoclean's 21 formulas.

AFS mode does not need to be selected as trigger 5 is dedicated to AFS when the unit is set to 'normal mode'. If AFS mode is not required then trigger 5 should not be connected and the wires isolated as discussed in 5.5.5.

When a signal is received on trigger 5 the unit will show 'AFS Active' on screen. Once this signal has been received the unit will change formula and will then await signals once a wash cycle has been initiated. If the formula that has been selected is not 'enabled' the unit will show an error message and the formula will not change. Also, if the unit is part way through a cycle a signal on trigger 5 will be ignored until the unit has reset.

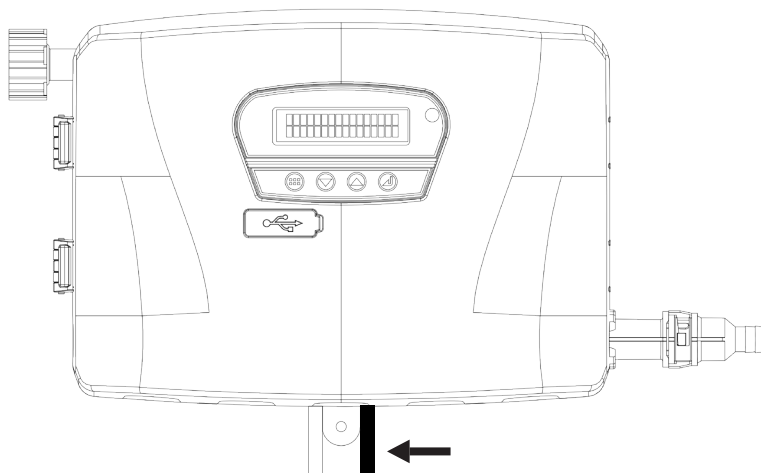
Note: The tolerance on signal length is +/- 1 second.

5.5.4 Use appropriate terminal connectors to connect the signal wires to the laundry machine.

5.5.5 If one or more trigger wires are not used, they do not need to be connected but should be suitably isolated and secured.

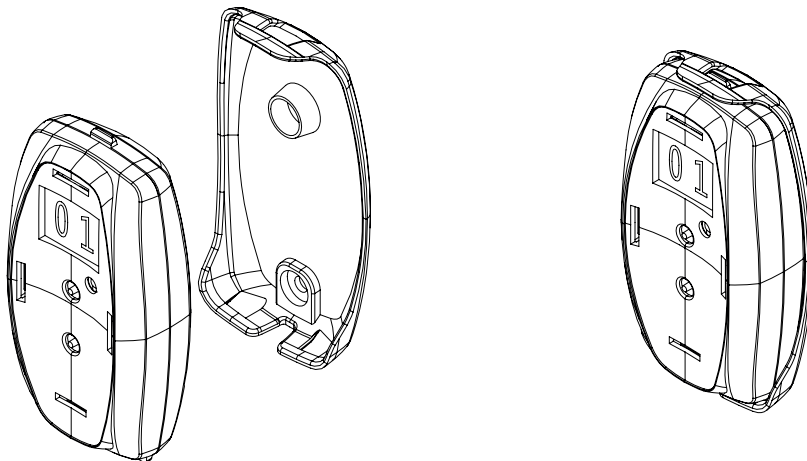
5.6. Installation Step 6: Power

- 5.6.1.** Connect black power cable to power supply, ensuring correct polarity is followed; Brown is live and Blue is neutral.
- 5.6.2.** It is a legal requirement to allow disconnection of the appliance from the supply after installation. The disconnection may be achieved by having the plug accessible or by incorporating a switch in the fixed wiring in accordance with the wiring rules.



5.7. Installation Step 7: Remote Select (optional)

- 5.7.1.** The remote select is typically located on the front of the laundry machine. This allows the machine operator to change the formula as required. Once the formula has been selected the wash program can then be started.
- 5.7.2.** If purchased with the EvoClean, the remote formula select is installed using the flat flexible white cable already connected to the EvoClean.
- 5.7.3.** There is a handy wall bracket that allows the remote select to be mounted and removed as necessary. The wall bracket can be installed using the double sided tape provided (front of machine) or using screws (wall), not supplied.



CAUTION

Wires left hanging loose may be a tripping hazard. Ensure all cables are secure. Be sure the tubing will be out of the way of walkways and will not impede motion required in the area. Creating a low place in the run of tubing will minimize drainage from the tubing.

6. setup & programming

6.1. Modes of Operation

On 1st power up the unit will prompt the installer to input the date and time. For subsequent power up's this screen will not be shown.

The date & time is formatted as:

```
YYYY-MM-DD HH:MM  
2016-10-19 11:45
```

Once set the unit will then prompt the installer to set one of the six languages (English, French, German, Italian, Spanish or Japanese) that are preprogrammed into the EvoClean.

```
Select Language?  
Back ↓      ↑ Yes
```



```
ENGLISH  
Back ↓      ↑ Set
```

6.1.1. Normal mode allows the installer to select any of the solenoids to operate once a validated trigger signal is received (as detailed in 5.5.1). Depending upon which input signal is received will determine which amount is used. For example a signal on trigger 1 will inject the 'prewash' amount for any chemical selected to run. This allows for different volumes of chemical to be injected at different points in the cycle. Once all the chemicals have been injected the flush solenoid will open for the time set so that no chemical is left in the delivery hose.

Normal Mode allows the user to easily select a formula from a list of formulas by navigating to it using the up/down arrows. Once the formula is shown the washer extractor can then be started and the particular formula is run. Each formula has the option of being named (up to 10 characters).

The unit will accept a signal in order to change the formula automatically. This is referred to as AFS and is detailed in 5.5.3.

6.1.2. In Relay mode the trigger signals (as detailed in 5.5.1) are directly linked to the operation of a particular solenoid (chemical). Once a signal is received the solenoid will operate for the length of time that the signal is present. When a signal is received the corresponding solenoid will operate, if during this time another signal is received then once the 1st solenoid closes the next one will run. If two signals are received at the same time, the lowest numbered solenoid will operate 1st followed by the next lowest, for the length of time the signal is/was present. The flush will operate after the solenoid closes for the length of time set or until another signal is received.

Go to Enter setup > Operational mode and select Relay Mode. The only other setup required is for the flush duration. This can be programmed by going to Enter setup > Edit Settings > Flush Settings where the flush duration can be set manually in seconds or by using the 'learn' feature where the flush is started/stopped by the push of a button.

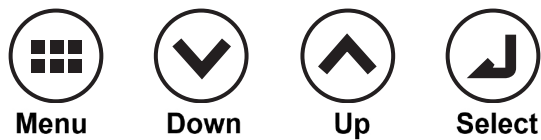
Note: When operating the unit in relay mode a maximum of 8 products can be used (see 5.5.1).

6.2. Menu Structure

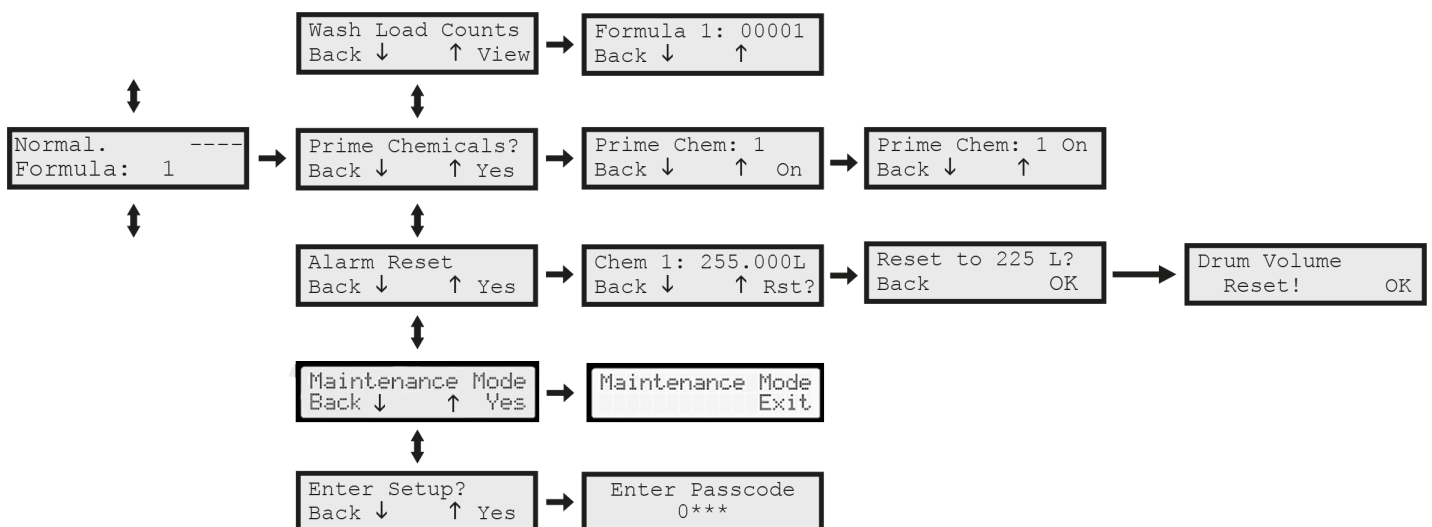
6.2.1. The EvoClean programming menu structure is laid out as shown at the end of this section. The following sub-sections detail individual programming procedures.

6.2.2. It is advisable to refer to the menu structure at the end of this section when navigating through screens, until you are familiar with the sequence.

6.3. Unit Controls



6.4. User Screens



6.4.1. In normal mode the unit will show the home screen detailing which formula has been selected. If the user has navigated to any other part of the menu then after 5 minutes the unit will revert back to the home screen. Once a particular formula has finished the unit will then revert back to Formula 1 (see alternative options in 6.5.7.2).

6.4.2. In relay mode the home screen will just say '**RELAY**' and only show the functionality that has been enabled in the 'Edit settings' screen.

Note: It is advisable to refer to the menu structure as detailed on pages 20 & 21.

6.4.3. Maintenance mode

(Firmware version V2.09 onwards): The EvoClean now includes a 'maintenance mode' that can be navigated to from the home screen (as per above).

When maintenance mode is activated the LED on the unit and RFS will flash and 'maintenance mode' will be displayed on screen. When activated the unit will not accept any trigger signals, it will also not operate any solenoids or any other functions. Maintenance mode will remain active until deactivated by the user.

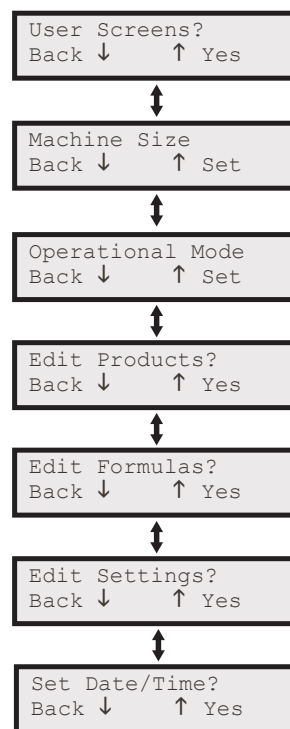
Note: When in maintenance mode the unit remains powered throughout. No covers should be removed. Unit must be electrically isolated before covers are removed.

6.5. Setup & Programming Step 1: Program Controller

To begin setting up the EvoClean the installer needs to navigate to:

Enter setup > Enter passcode (Default = 1234) and the following screens will then be accessible.

The interface has been designed to allow simple and intuitive programming. It is recommended that the unit is setup in the following order.



6.5.1. User Screens - Under user screens, the installer has the functionality to prime the individual chemicals during setup and also view and reset the wash counts per formula.

6.5.2. Machine Size – This is set to the size of the washer extractor being installed. This can be set from 1 – 200kg. All chemical delivery settings refer to this figure when calculating the amount of chemical to be injected during a formula.

6.5.3. Operational Mode – As detailed in section 6.1.

6.5.4. Edit Products

This is where the chemical specific settings are inputted. The chemicals are numbered from 1 upwards and each one includes the following settings:

- a) Prewash amount.
- b) Main-wash amount.
- c) Final rinse amount.

The chemical amounts are inputted in mls/kg and the controller calculates the chemical to be injected in conjunction with the machine size in kgs. Special mls/kg amounts can be set within formulas to allow the user extra functionality.

d) Delay time - Although the chemical will be diluted with water anywhere from 2.5:1 up to 4:1 depending on the application, there may be situations where the installer requires a delay time to be added between when the trigger signal is received and the operation of the valve. This can be set from 1 to 999 seconds.

e) Chemical cost – This can be set from 0.01 to 9.99. Inputting a figure here will allow the unit to calculate the cost of chemical usage and output the results as a report. This figure is without units so that multiple currencies can be used.

f) Drum size – When set, this will allow the unit to calculate the amount of chemical left within the drum. When 5% of the volume is left the unit will alarm to tell the user that the chemical is running low.

g) Custom name - The chemical can be given a custom name (up to 10 characters).

h) Calibration - See section 6.7.

6.5.5. Intermediate Flush

(Firmware version V2.09 onwards): Additional functionality has been added to the delay function of the EvoClean. An intermediate flush option has been added so that if the delay time is set at between 40 – 999 seconds the unit will deliver a flush cycle between chemicals. The sequence of operations will be (40-999 seconds):

- i. The preceding chemical will run.
- ii. The unit will then flush for the length of time set with in 'edit settings' (or the length of delay time if the flush time is longer than the delay time set).
- iii. The remainder of the delay time will elapse.
- iv. The next chemical will run.

6.5.6. Edit Formulas

6.5.6.1 Enable/Disable

This allows the user to enable or disable a particular formula. If the formula is disabled, it will not show on the screen when the user scrolls through the formulas.

6.5.6.2 As detailed in section 5.5.1, in Normal mode a signal received on one of the 4 Input Pins will inject programmed amounts of product.

Beginning with Prewash signal, change the 'x' to a '✓' if that numbered product is required in that formula. This will automatically select the mls/kg amount as set within 'edit products'.

Note: This is a display example from a 4 product unit.

If a custom mls/kg amount is required within a specific formula the unit will allow this. In addition to the 'x' or '✓' you can also select 's'.

```
F01P Chemicals:
1✓2x3x4x
```

When the select button is pressed in order to move to the right, if an 's' has been selected an additional screen is shown. This will allow the user to adjust the mls/kg amount.

```
F01P Chemicals:
1s2x3x4x
```

Repeat the process for the Main wash, Spare and Final Rinse signal.

```
F01P:C1 mls/kg:
10 ↓      ↑ Set
```

6.5.7. Edit Settings

- 6.5.7.1** Signal filter - This is where the signal filter time can be set. The signal is unverified until it reaches the filter time at which point it becomes verified.
- 6.5.7.2** Default formula - After a wash cycle has ended the EvoClean will reset. The user can set the unit to revert to the following states:
1. A preferred formula selected from all enabled formulas.
 2. 'Select at start' – The unit will not accept any trigger signals until a formula is selected.
 3. 'Previous formula' – The unit will stay on the previous formula.
- 6.5.7.3** Allow user prime - This feature can be enabled or disabled as required. If disabled it will hide the relevant screen preventing the user from using this feature.
- 6.5.7.4** Change engineers passcode - this allows the installer to change the passcode. A passcode of '0000' cannot be set but all others are available. The default passcode is 1234.
- 6.5.7.5** Change user passcode – This gives the end user limited functionality to download a usage report on insertion of a USB drive. A passcode of '0000' or the engineers' passcode cannot be set but all others are available. The default passcode is '1111'.
- 6.5.7.6** Set lockout
On receipt of a signal on trigger 4 the unit will then reset after 5 minutes. Triggers 1-3 can be locked out for a time, as set here, up to 99 minutes.
- 6.5.7.7** Product alarms - this feature can be enabled or disabled as required. If enabled it will hide the relevant screen preventing the user from using this feature (see 5.8).

6.5.8. Flush Settings

- a) Auto Start/Stop - this is an auto learn function and allows the user to press and hold a button to operate the flush. Once released the time is automatically updated.
- b) Set manually - Allows the user to manually adjust the flush time in seconds.

6.5.8.1 Firmware - This is where the firmware version can be shown. It will also show the firmware version of the remote select, if attached.

6.5.8.2 Select language – languages available

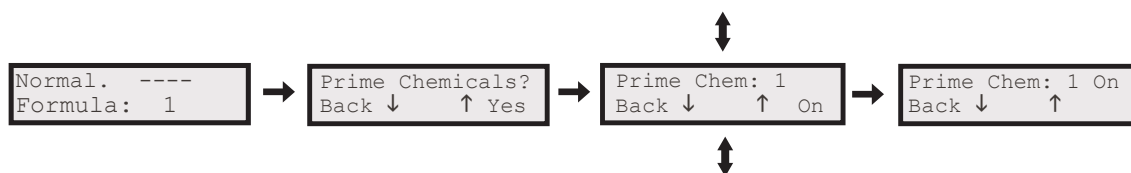
1. English
2. French
3. Italian
4. Spanish
5. German
6. Japanese

6.5.9. Set Date/Time

This can be set here and is used to record when certain operations have taken place. The date and time is also used during the downloading of reports.

```
YYY-MM-DD HH:MM
2016-10-19 11:45
```

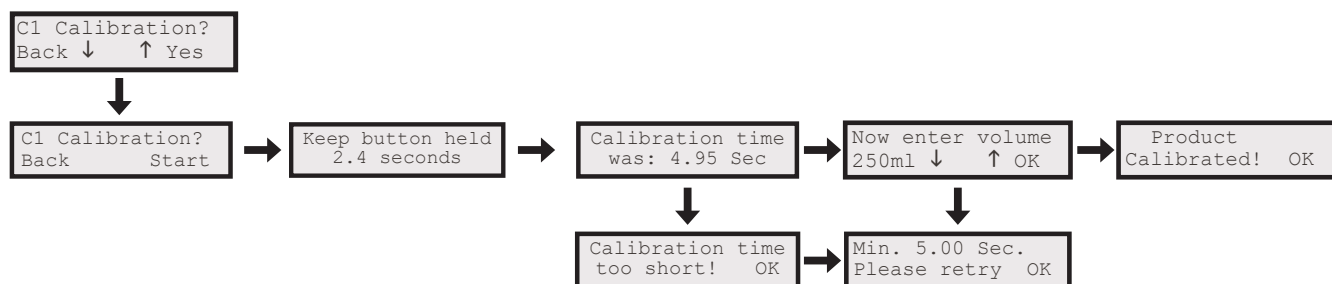
6.6. Setup & Programming Step 2: Priming



6.6.1. Once the unit is sited, the pickup tubes are installed, the unit is now ready to be primed.

6.6.2. Once you have navigated to the 'Prime Chem: X' screen the 'select' button is pressed (and held) whilst the chemical is drawn up the pickup tube. To finish, release the button.

6.7. Setup & Programming Step 3: Calibration



6.7.1. To enable the EvoClean to accurately inject the correct amount of chemical it requires calibrating. This is carried out for all chemicals being set up.

6.7.2. The unit is calibrated by the time taken to draw a minimum of 200ml of chemical. Once the chemical has been drawn the user then inputs the exact amount in ml.

6.7.3. The chemical must be fully primed for the calibration to be valid.

6.7.4. Once you have navigated to the calibration screen it is then a case of pressing (and holding down) the 'select' button to activate the relevant solenoid. Once the chemical has been drawn the button is then released.

6.7.5. As long as the minimum time threshold has been passed the unit will say 'Product Calibrated', if the calibration time was too short then the unit will input the default minimum and the installer will have to recalibrate.

6.8. Alarm Function

Depletion:

6.8.1. Alarms are triggered when the estimated remaining liquid is less than 5% of full drum.

6.8.2. Two tone sounder and flashing LED indicate an Alarm condition. Sounder is silenced as soon as any key is pressed, the LED keeps flashing until the 'Alarm Reset' function is used to reset drum liquid back to its default full value. If LED still remains flashing there will be another chemical that is also low.

6.8.3. Setting the drum size for a particular chemical to zero will mean it is not monitored so will not trigger an alarm or show estimate of remaining volume.

6.8.4. Changing the drum size through the settings menu will always reset the volume estimate for that chemical back to full drum.

6.8.5. Changing the setting of 'Product Alarms' in the menu to 'Disabled' will discard all volume estimates. Changing it to 'Enabled' will reset all volume estimates to full drum values.

6.8.6. The 'Alarm Reset' menu shows the estimated volume remaining in the drum as well as offering the option to reset it to full again.

6.8.7. Volume estimates never hit zero. If the amount used should mean none is left (or technically a negative value), its set to 0.001L. In the background if it is set to zero this means it's not monitored (e.g. when drum size is zero).

6.8.8. In the 'Alarm Reset' menu, chemicals that have caused the alarm are shown with an asterisk (*) after the volume estimate.

Sensor:

6.8.9 The EvoClean allows the addition of an external sensor. This should be a micro-switch type in a NO (normally open) state when sufficient chemical is present.

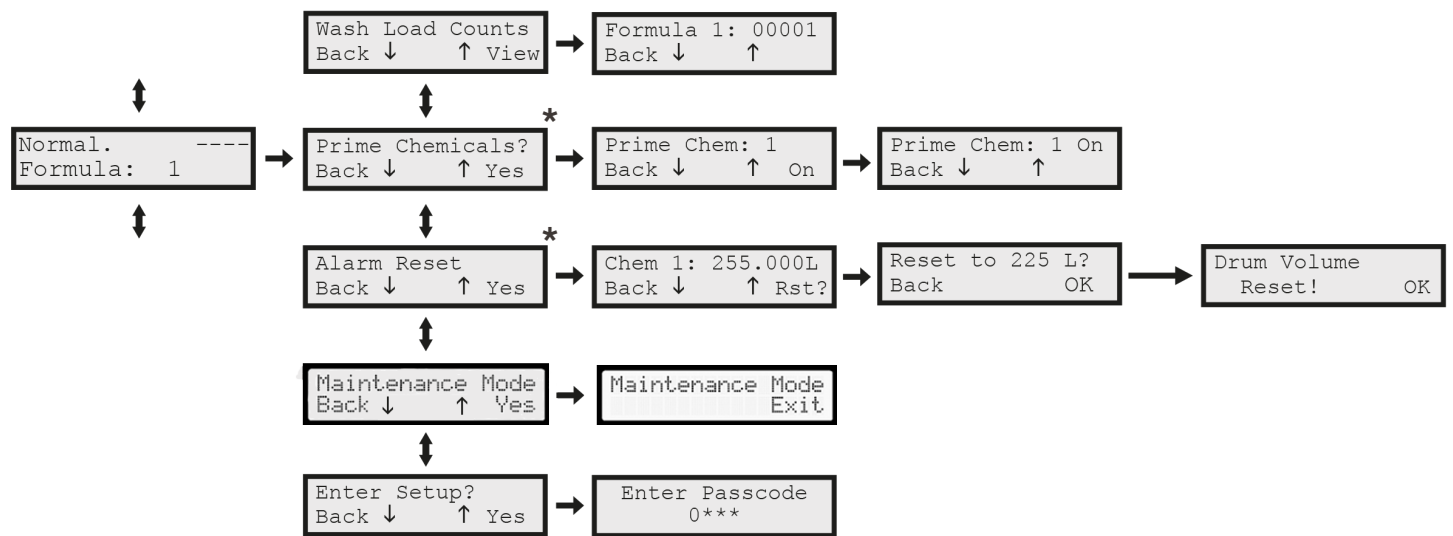
6.9. Formula Editor

6.9.1. To aid programming of the unit a PC application can be downloaded from the Hydro Systems Europe website (www.hydrosystemseurope.com)

6.9.2 This will allow the installer to produce and edit programs remotely that can then be installed on the EvoClean using a USB storage device.

7. menu structure

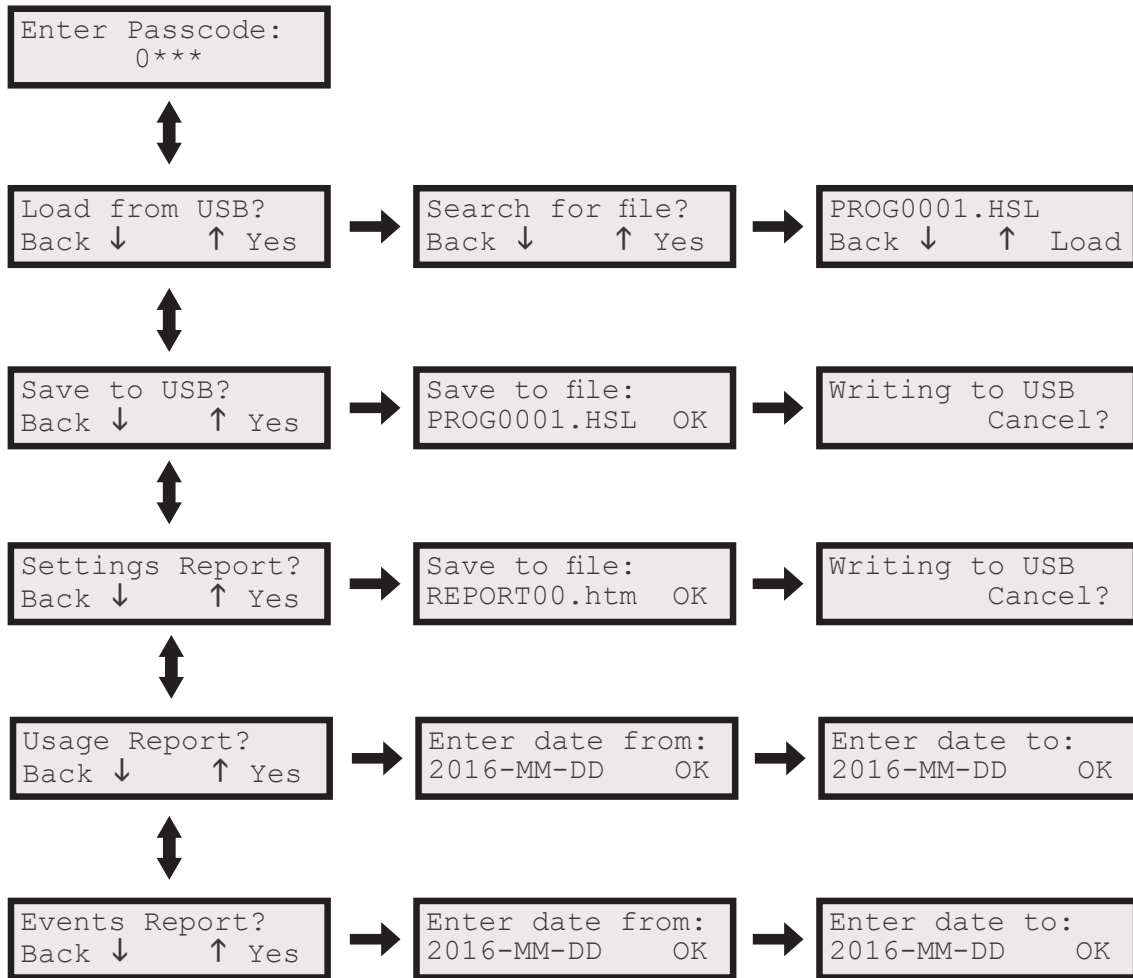
7.1. Home Screen



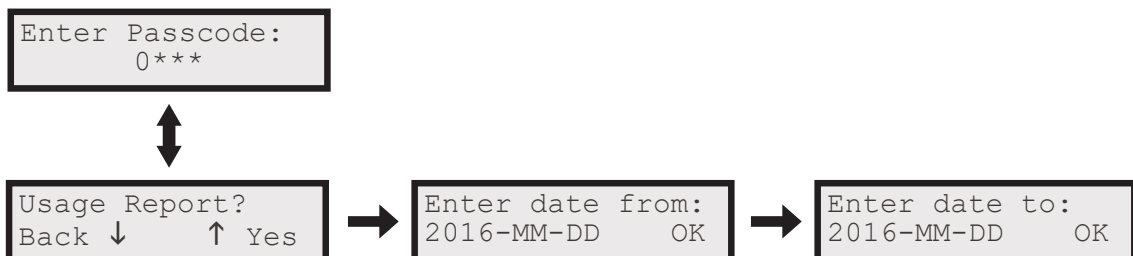
* These screens are not shown if disabled.

7.2. USB Insert Memory Stick

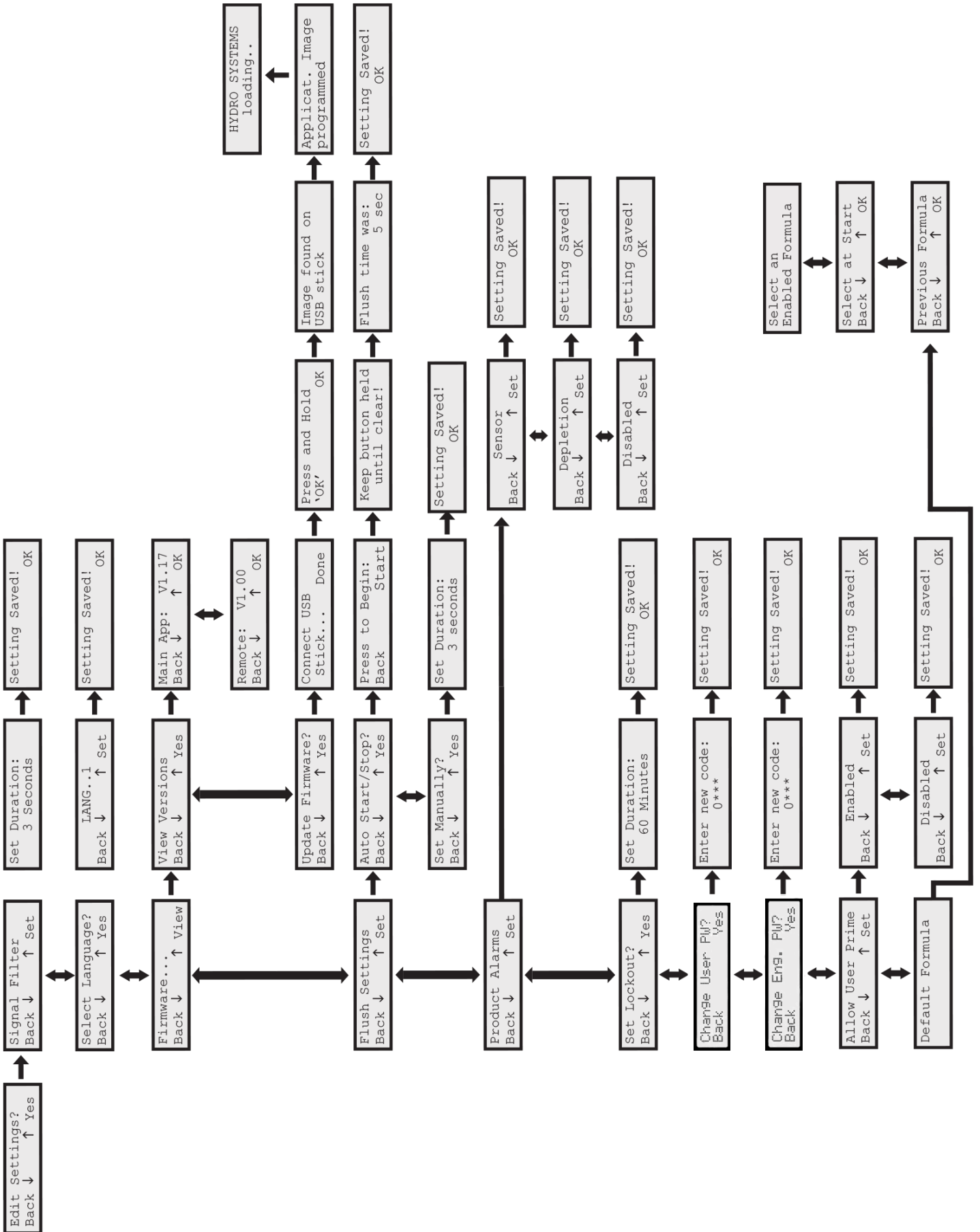
Engineers passcode (See 6.5.7.4)

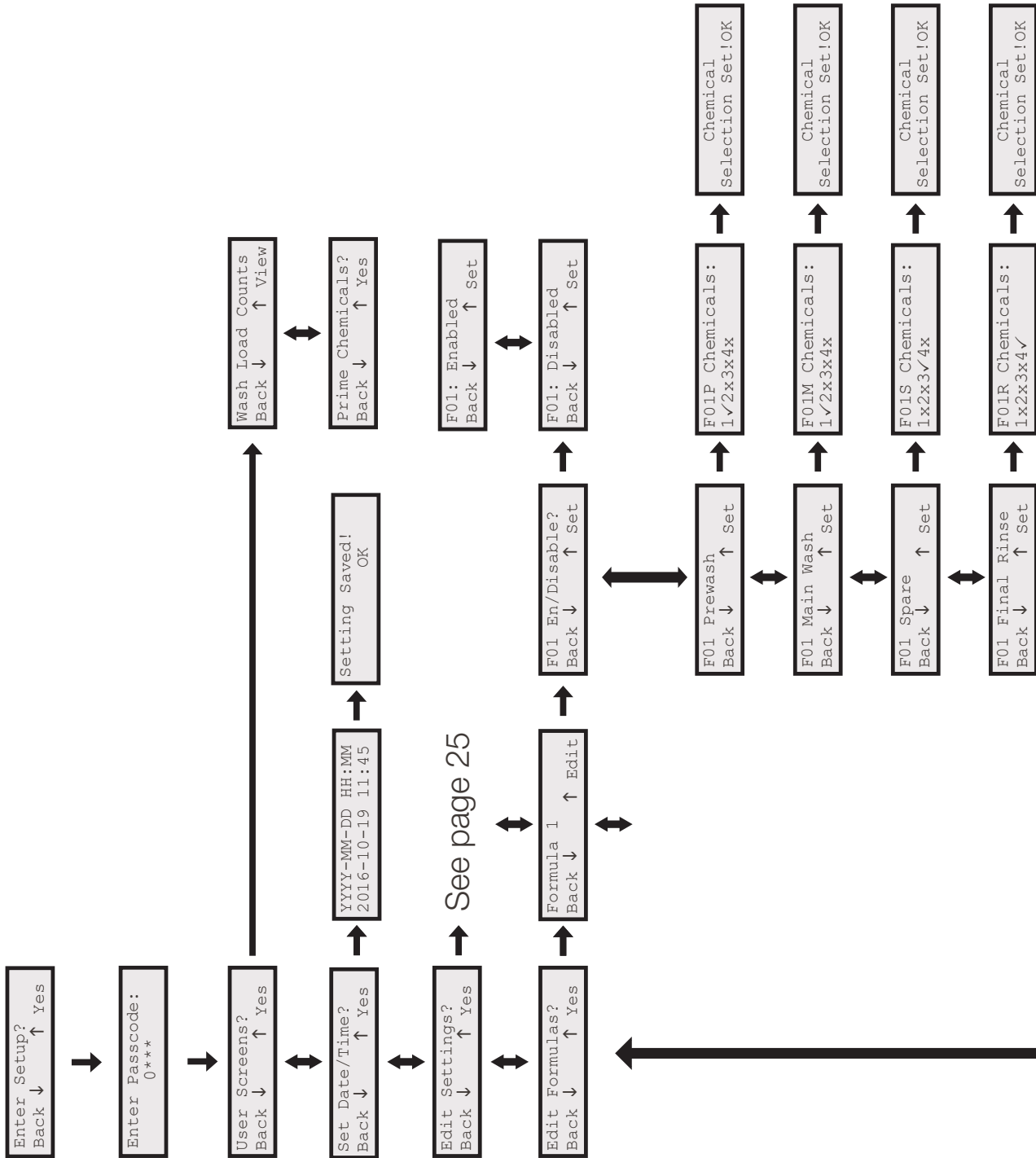


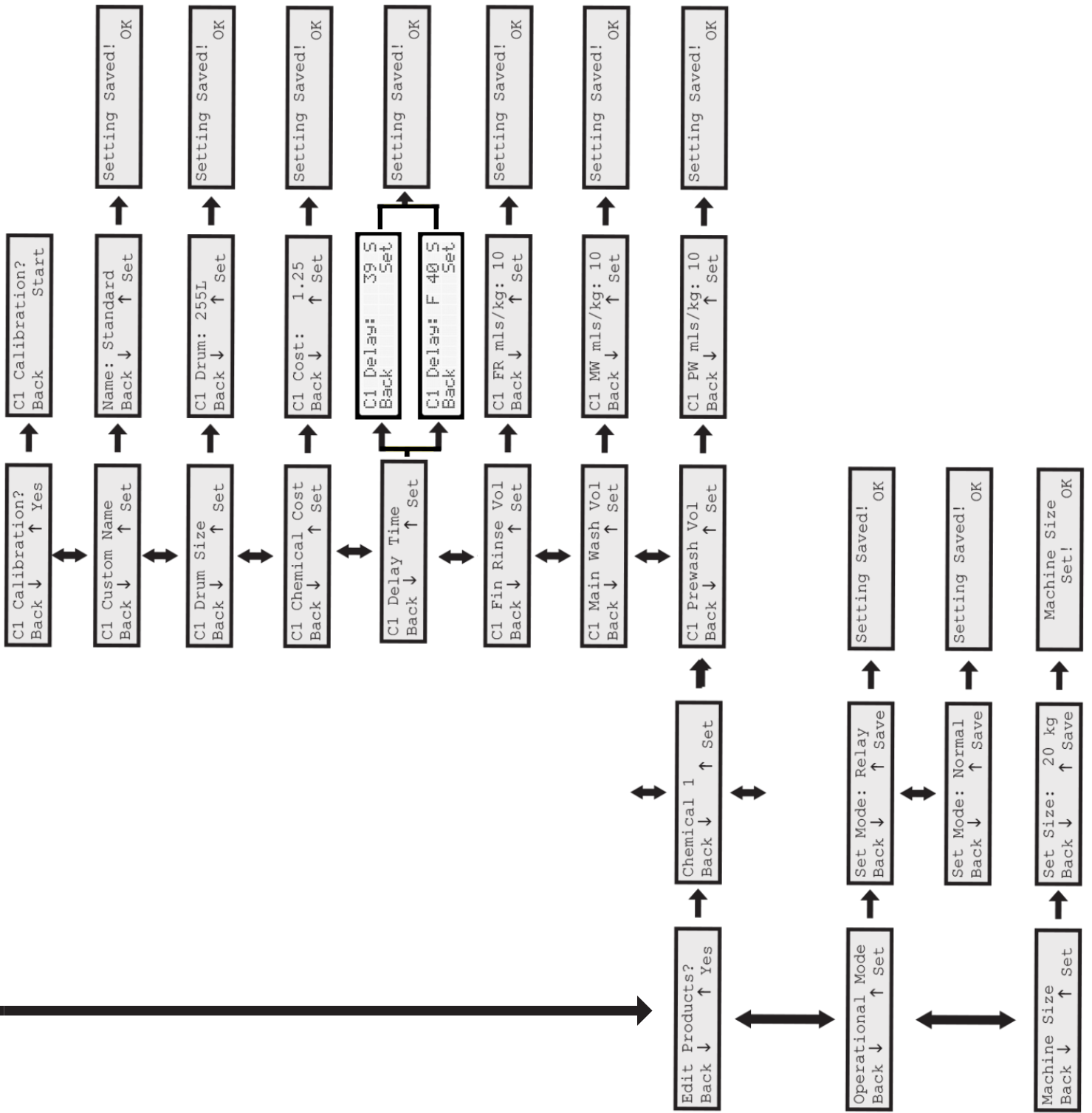
Customer Passcode (See 6.5.7.5)



7.3. Settings Screen







8. maintenance



CAUTION

Before any maintenance, isolate the incoming power source and disconnect. All trigger signals should also be isolated.

8.1. Maintenance - Legal Requirements

- 8.1.1. If the power supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- 8.1.2. New hose-sets supplied with the appliance are to be used and that old hose-sets should not be reused.

8.2. Maintenance - Advised

- 8.2.1. Unit frontage cleaned with a dry cloth (can be done without disconnection).
- 8.2.2. Clean / Replace chemical pickup hoses.
- 8.2.3. Clean / Replace inlet strainer.
- 8.2.4. Clean / Replace outlet hose to machine.
- 8.2.5. Clean / Replace venturis as required.

9. specifications

UNIT											
Voltage / Frequency / Current		115v-230vAC / 50-60Hz / 0.085 – 0.158A									
Water Pressure (Min/Max)		Min. (Low Flow 2L/Min)		0.18 mPa (1.8 Bar / 26.1 PSI)		Max. 0.6 MPa (6 Bar / 87 PSI)					
		Min. (High Flow 4L/Min)		0.2 mPa (2.0 Bar / 29 PSI)							
Electrical Class		Class II									
SYSTEM CABINET											
Cabinet Material		Front		ASA		Rear		PP-TF			
Size (mm)		4 Product		220		270		Depth		162	
		6 Product		220		360				162	
		8 Product		220		565				162	
IP RATING		IP22									

10. troubleshooting



CAUTION

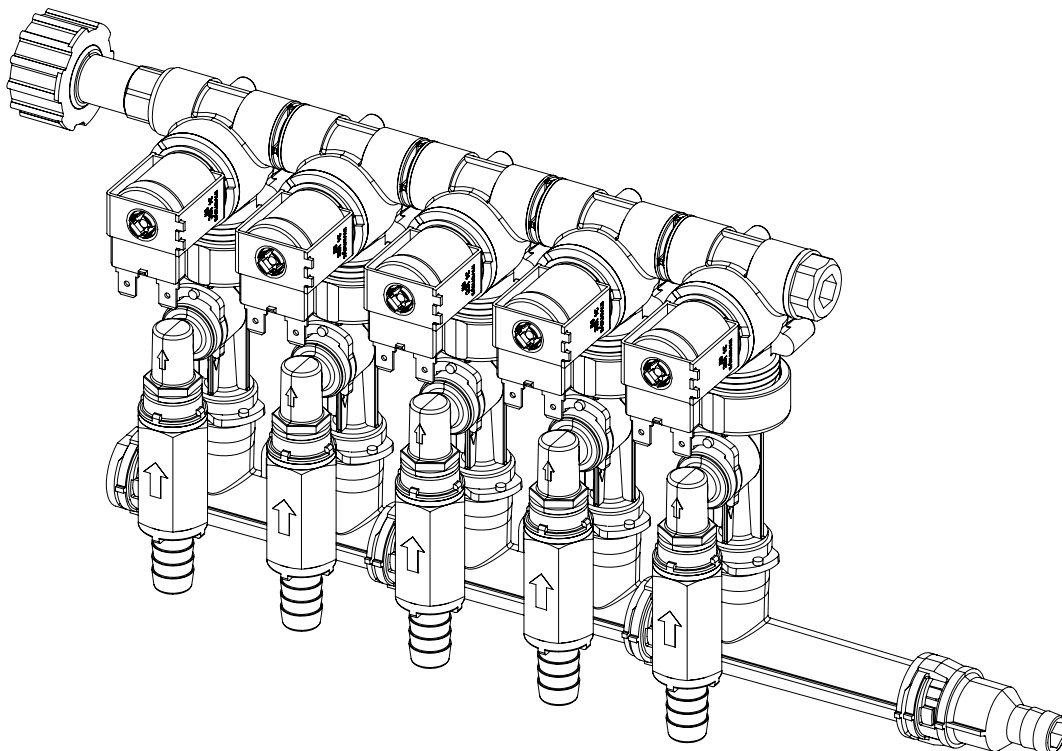
Before any fault finding/troubleshooting, isolate the incoming power source and disconnect. All trigger signals should also be isolated.

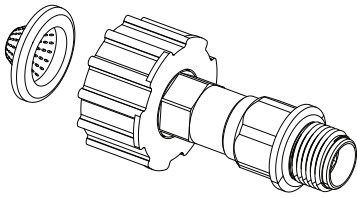
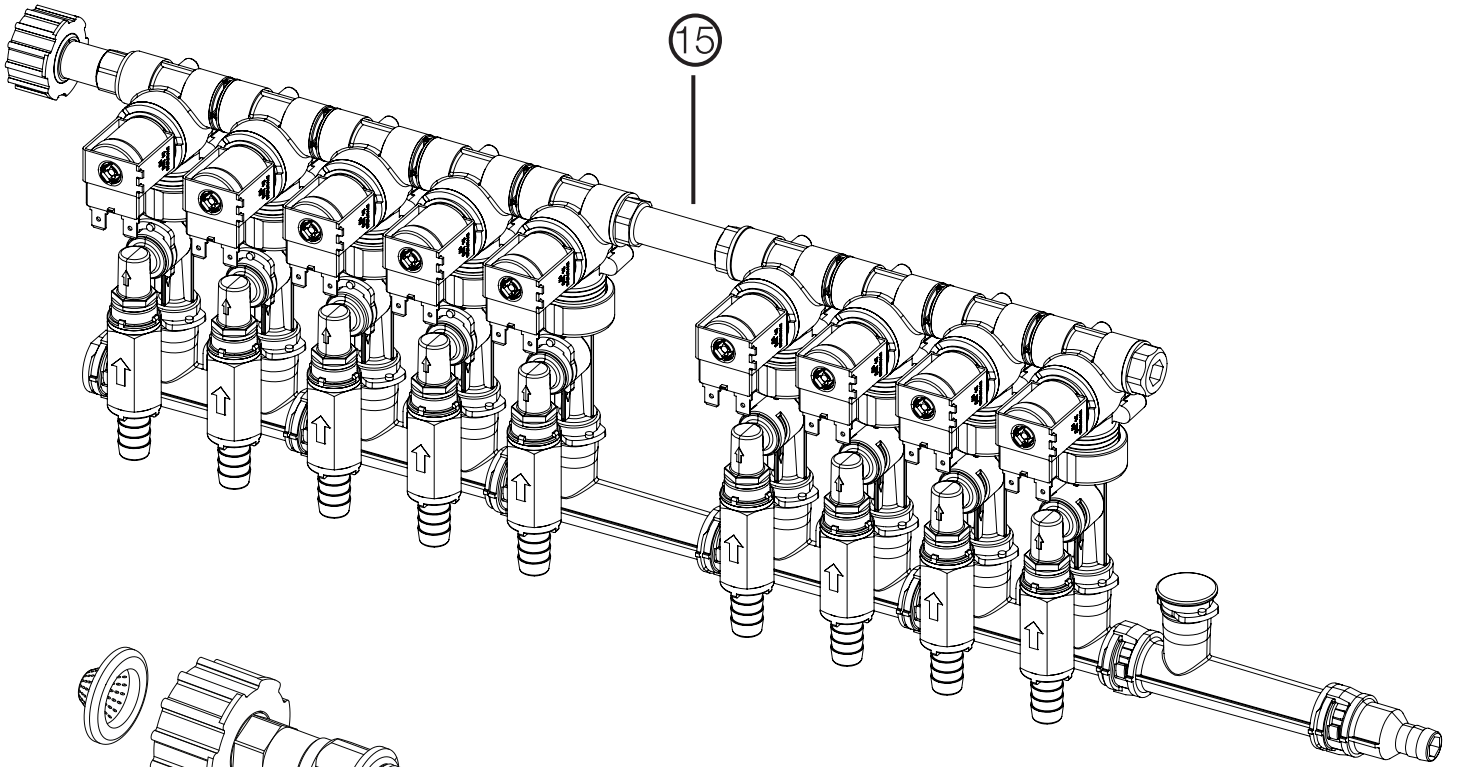
Issues listed here are to be investigated and resolved by a competent engineer.

Any fault conditions not listed within this manual should not be attempted to be fixed/replaced without the advice of Hydro Systems Europe (Any unauthorised attempts to repair the unit will invalidate the warranty).

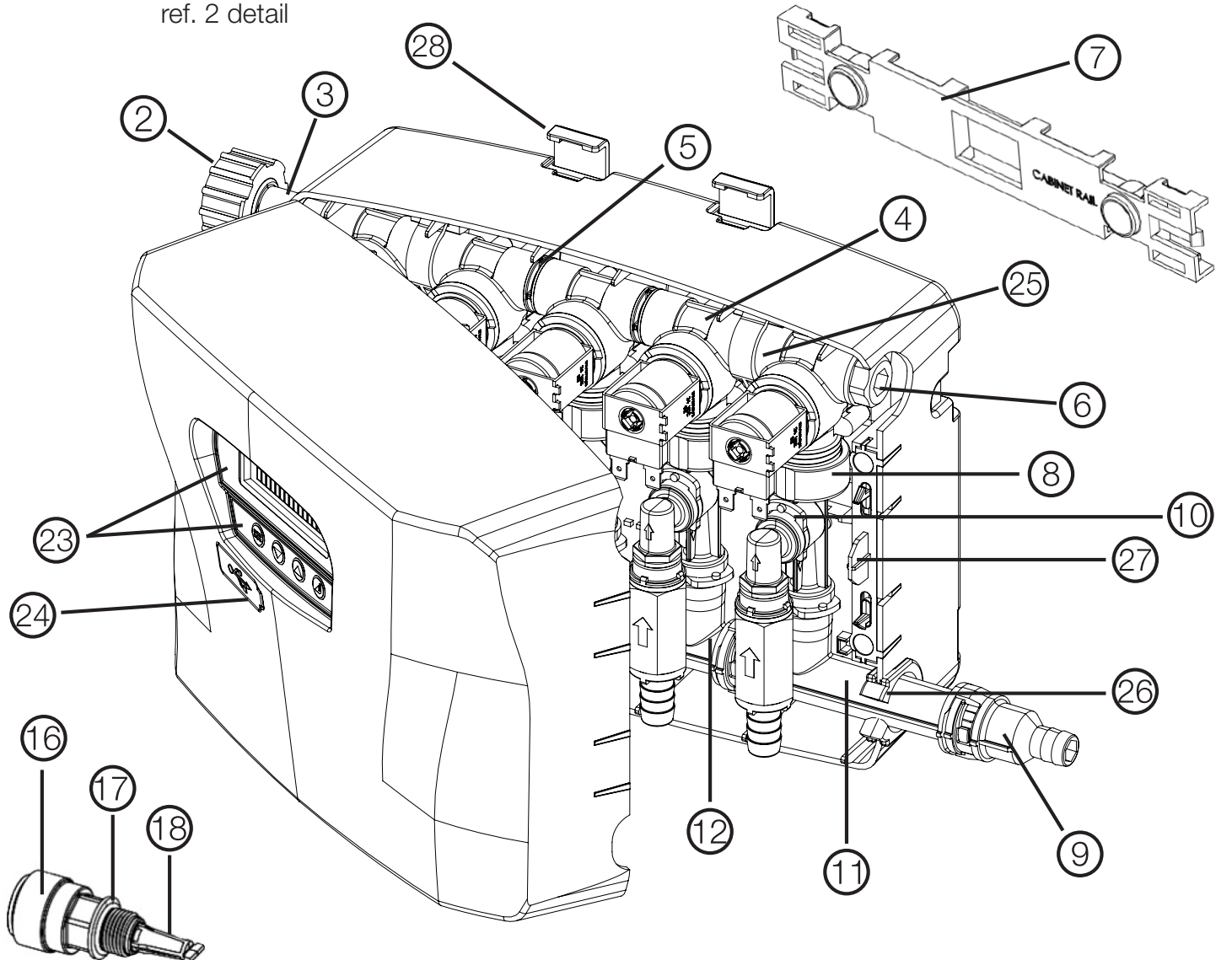
Issue	Potential Issue	Resolution
Unit will not draw chemical	Low water pressure	Check water line. Booster pump may be required
	Pick up tube not in chemical	Ensure pick up assembly is correct.
	Eductor blocked	Remove & clean in warm water
	Solenoid valve faulty	
	Blockage in chemical pickup	Remove, clean and replace.
Unit will not power up	No power to the unit Faulty PCB	Check power supply Check fuses

11. unit diagram & replacement parts





ref. 2 detail



11.1. Replacement Parts

Components shown on the following page should only be replaced by a competent engineer.

Any components not listed within this section should not be attempted to be replaced without the advice of Hydro Systems Europe (Any unauthorised attempts to repair the unit will invalidate warranty).



CAUTION

Before any maintenance, isolate the incoming power source and disconnect.

ITEM #	DESCRIPTION	PART #	NOTES
1	STRAINER WASHER	238100	
2	SWIVEL COLLAR 3/4" BSP	10082835	INLET OPTION, 3/4" FEMALE BSP
3	SWIVEL STEM	10082801	
4	WATER VALVE, 24vDC	10095315	
5	VALVE NIPPLE	10075906	
6	END PLUG	10075926	
7	WALL BRACKET	10094361	
8	EDUCTOR, 2LPM	10097802	
	EDUCTOR, 4LPM	10097801	
9	HOSE BARB, 0.5 IN (12 MM)	90099387	
	HOSE BARB, 0.37 IN (10 MM)	90099388	
10	EVOCLEAN CLIP, 10 PACK	10095123	
11	SINGLE PORT MANIFOLD, 1-WAY TEE, PP	90099384	
12	DOUBLE PORT MANIFOLD, 2-WAY TEE, PP	90099385	
	EVCL, CHK VLV, AF, 1/2 B X 1/4 FNPT, PT HS, PVC, MK2, ASM (1)	90099463	NOT SHOWN
	EVCL, CHK VLV, EP, 1/2 B X 1/4 FNPT, PT HS, PVC, MK2, ASM (1)	90099464	NOT SHOWN
	EVCL, CHK VLV, AF, 1/4NPT-F X 3/8IN BARB, MK2, ASM (1)	90099603	NOT SHOWN
	EVCL, CHK VLV, AF, 1/4 FNPT X 1/4 FNPT, PT HS, PVC, MK2, ASM (1)	90099604	NOT SHOWN
	EVCL, CHK VLV, AF, 5/16 B X 1/4 FNPT, PT HS, PVC, MK2, ASM (1)	90099605	NOT SHOWN
	EVCL, CHK VLV, EP, 3/8 B X 1/4 FNPT, PT HS, PVC, MK2, ASM (1)	90099606	NOT SHOWN
	EVCL, CHK VLV, EP, 5/16 B X 1/4 FNPT, PT HS, PP, MK2, ASM (1)	90099607	NOT SHOWN
	EVCL, CHK VLV, EP, 5/16 B X 1/4 FNPT, PT HS, PVC, MK2, ASM (1)	90099608	NOT SHOWN
	14	MANIFOLD END PLUG	90099390
15	PIPE NIPPLE	10075904	
16	15MM PUSHFIT BODY	90094370	
17	PUSHFIT O-RING	10096188	INLET OPTION, 15MM PUSHFIT
18	PUSHFIT STRAINER	10094764	
19	EPDM WASHER, 10 PACK	10095173	NOT SHOWN, USED IN ITEMS 8
20	EPDM O-RING, 10 PACK	10098127	NOT SHOWN, USED ON ITEMS 4,5
21	AFLAS O-RING, 10 PACK	10098128	NOT SHOWN, USED ON ITEMS 10,11,13,14, 15
22	LOCK KEY	10097834	NOT SHOWN
23	MAIN UNIT FRONT LABEL PACK	10098135	
24	USB COVER	10097831	

ITEM #	DESCRIPTION	PART #	NOTES
25	TOP MANIFOLD CLIP ASSEMBLY (x2)	10098136	
26	MANIFOLD END SUPPORT	90099306	
27	LOCK ASSEMBLY	10098138	
28	UNIT TO WALL CLIPS	10098139	
29	OPTIONAL NON-RETURN VALVE KIT (NRV) - 4 PRODUCT UNIT	90099599	NOT SHOWN (STANDARD IN APAC REGION ONLY)
30	OPTIONAL NON-RETURN VALVE KIT (NRV) - 6 PRODUCT UNIT	90099600	NOT SHOWN (STANDARD IN APAC REGION ONLY)
31	OPTIONAL NON-RETURN VALVE KIT (NRV) - 8 PRODUCT UNIT	90099597	NOT SHOWN (STANDARD IN APAC REGION ONLY)
	KIT, TUBING, 1/2IN (12MM) X 15M, BRD PVC, (1)	HYD90099609	NOT SHOWN
	KIT, FOOTVALVE, FKM, W/SCREEN, ASM, BLU (4)	HYD90099610	NOT SHOWN
	KIT, FOOTVALVE, FKM, W/SCREEN, ASM, BLU (6)	HYD90099611	NOT SHOWN
32	KIT, FOOTVALVE, FKM, W/SCREEN, ASM, BLU (8)	HYD90099612	NOT SHOWN
	KIT, FOOTVALVE, EP, W/SCREEN, ASM, GRY (4)	HYD90099613	NOT SHOWN
	KIT, FOOTVALVE, EP, W/SCREEN, ASM, GRY (6)	HYD90099614	NOT SHOWN
	KIT, FOOTVALVE, EP, W/SCREEN, ASM, GRY (8)	HYD90099615	NOT SHOWN

11.2. Accessory Parts

ITEM #	DESCRIPTION	PART #	NOTES
A	REMOTE FORMULA SELECT	10097825	
B	CHEMICAL PICKUP PVC HOSE 1.8M (6")		

12. decommissioning & disposal

Hydro products are manufactured from materials which can be recycled. Dispose of Hydro products in accordance with the current local regulations.

- All electrical connections have been removed and disposed of according to local regulations
- Any hazard Warning signs have been removed or totally defaced

- Safe for disposal sign/note appended to each piece of listed items
- The items have been left in a condition such that it is safe for lay personnel or contractor to remove it without need for precautions against exposure to any electrical supply or other agents.



CAUTION

Before decommissioning the unit, isolate the incoming power source and disconnect. All trigger signals should also be isolated and removed.

13. warranty

Seller warrants solely to Buyer the Products will be free from defects in material and workmanship under normal use and service for a period of one year from the date of completion of manufacture. This limited warranty does not apply to (a) hoses; (b) and products that have a normal life shorter than one year; or (c) failure in performance or damage caused by chemicals, abrasive materials, corrosion, lightning, improper voltage supply, physical abuse, mishandling or misapplication. In the event the Products are altered or repaired by Buyer without Seller's prior written approval, all warranties will be void.

No other warranty, oral, express or implied, including any warranty of merchantability or fitness for any particular purpose, is made for these products, and all other warranties are hereby expressly excluded.

Seller's sole obligation under this warranty will be, at Seller's option, to repair or replace F.O.B. Seller's facility in Cincinnati, Ohio or Bracknell, England any Products found to be other than as warranted.

Limitation of Liability

Seller's warranty obligations and Buyer's remedies are solely and exclusively as stated herein. Seller shall have no other liability, direct or indirect, of any kind, including liability for special, incidental, or consequential damages or for any other claims for damage or loss resulting from any cause whatsoever, whether based on negligence, strict liability, breach of contract or breach of warranty.

14. WEEE regulations

WEEE Regulations apply to companies who Manufacture & Distribute electrical or electronic equipment. (EEE)

The WEEE Regulations apply to importers, producers, retailers and users of EEE, and to businesses that treat or recover WEEE. The Low Level Alarm unit is a product placed onto market POST 13.08.05 , therefore called 'future WEEE'. As a producer Hydro Systems Europe have the option to take responsibility for the EEE placed on the market. If Hydro Systems Europe chooses to receive WEEE they must make sure that it is disposed of in an environmentally sound way, including the treatment, reuse, recovery and recycling of the components where appropriate.

Responsibility as a producer of EEE

Hydro Systems Europe, as a producer of EEE, are registered with a producer compliance scheme who register them with the relevant environmental regulator.

Through the regulator they become part of an approved producer compliance scheme (PCS).The PCS supply a unique and permanent producer registration number.

If disposal is outsourced it (the product) must be taken to an appropriately licensed site (approved authorised treatment facility - AATF) where it can be treated safely.

15. electrical approvals

Compliance to standards and test data / EC declaration of conformity

This Low Level Alarm complies with the following EU directives;

2014/35/EU	Conforms with the safety objectives of the low voltage directive and its amending directives.
2004/108/EC	Conforms with the essential requirements of the electromagnetic compatibility directive and its amending directives.

Has been designed and manufactured to the following specifications:

BS EN 60335-1:2012+A11:2014	Household and similar electrical appliances. Safety. General Requirements.
BS EN ISO 12100:2010	Safety of machinery. General principles for design. Risk assessment and risk reduction.
BS EN 61000-6-1: 2007	Electromagnetic compatibility (EMC). Generic standards. Immunity for residential, commercial and light-industrial environments.
BS EN 61000-6-3 : 2007+A1:2011	Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments.