



USER AND MAINTENANCE MANUAL



METERING PUMP | MULTIPOINT VALVE | UNDERWATER LIGHT | PRESSURE VESSEL



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1.INTRODUCTION

Evolve is a Fully Automatic Multi Port valve with advanced quick response microprocessor (CPU).It carries out operations like Slow Rinse/FastRinse/ Brine Injection/ Down flow Service (In Softener) & back to Service by its own. Evolve comes with one and half year warranty, with easily available spares & a good network after sales services with nationwide chain of dealers. Evolve consists of 16X2 Dual Light LCD display which has the capability to indicate fault by changing the colour of the display. The unique design does not require the whole PCB box to be dismantled for handling the

2.FEATURES

- Regeneration/Backwash can be started By:
 - a. Pressing a key.
 - b. From an external pulse from any instrument or PLC.
 - c. From a pulse signal from the previous Auto valve (Master/Slave) .
 - d. By pump-on timing set able which is up to 99:59 Hrs with Least Count 1 min
 - e. By volume, Flow rate by using electronic flow sensor.
- 16X2 LCD display With fault Detection.
- No need to remove entire Housing to Access the Wiring.
- Splash Proof Enclosure.
- Display colour changes to RED in case of fault.
- Supports RS-485. Useful to connect E-volve with PLC and Computer For remote Monitoring.
- Three auxiliary Outputs and Inputs.
- Optional inputs are:
 - a. Brine switch interlock.
 - b. Raw water / Treated water tank level control
 - c. Conductivity Interlock for DM plant.
- Working stand by Dual Pump operation.
- Cycle Counter: This tells how many cycles have been completed.
- Hold and Skip facility to assist trouble shooting.
- External input count.
- Internal Buzzer for Audio Alarm in case of malfunction.

3.TECHNICAL SPECIFICATIONS

1.Inlet/Outlet/drain connection	:	1" BSP
2.Valve threading for mounting	:	2.5" NPSM
3.Flow Rate	:	5m ³ /hr @0.35kg/ cm ²
4.Max. Operating Pressure	:	5kg/ cm ²

Additional For Softener

5.Ejector Suction at 2kg/ cm ²	:	450Lph
6.Ejector ratio	:	1:1
7.Brine Line	:	1/2"

3.1. ELECTRICAL SPECIFICATION

1. Supply Voltage	:	230v 50Hz (±20%)
3. Power consumption	:	3 Watts
4. Memory retention	:	10 Years
5. Operating Temperature	:	Upto 50°C

4.POSSIBLE AUTOMATION

4.1 Semi Auto

In semi automation you can press Button manually to initiate regeneration/ backwash. The auto valve goes into regeneration and back to service on its own.

4.2 Fully Auto

Fully auto automation regenerations is initiate by external signal.

A. Flow sensor-: It displays flow rate as well as volume. Using this feature flow sensor in E-volve count down the programmed output based on the signal from flow sensor when it reaches to zero the E-volve goes into regeneration automatically.

B.Pump on time-: Using this features you can programmed the number of hours and minute the water pump is ON before regeneration starts. You can set the time from minium 01 minute to maximum 99 hrs and 59 min.

C. External input signal from any instrument, PLC or from master/slave.

5.INSTALLATION GUIDELINES

- Install the Evolve in Shade/ inside a covered room.Keep it away from sunlight
- Keep it away from dust & water.
- Kindly go through the operation and maintenance manual before installation.

PRECAUTIONS

Electrical

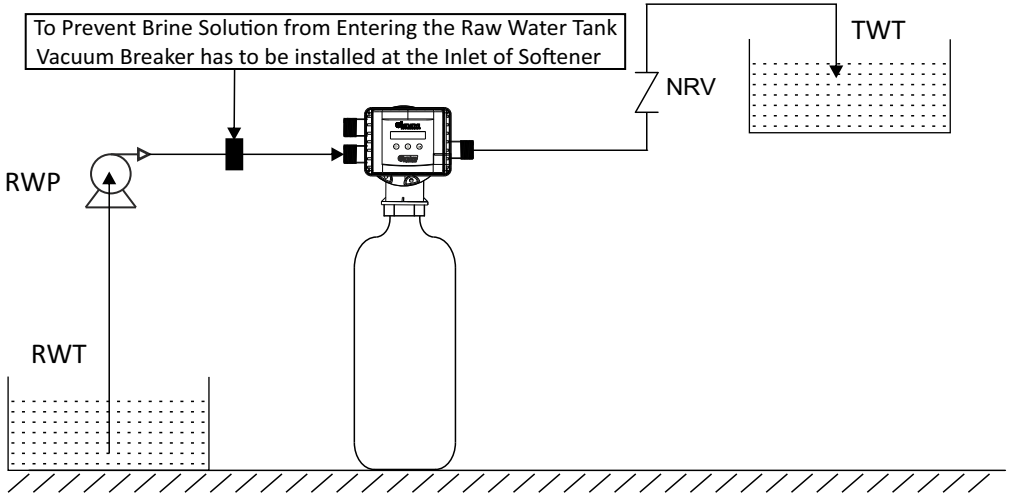
- Ensure voltage is within range Specified for the Evolve i.e. 180-280 volts.
- Electrical connection Should be made between “Live-Neutral” & “Not Live- Ground” Avoid Giving supply to Evolve from the same line as heavy electrical equipment.

General

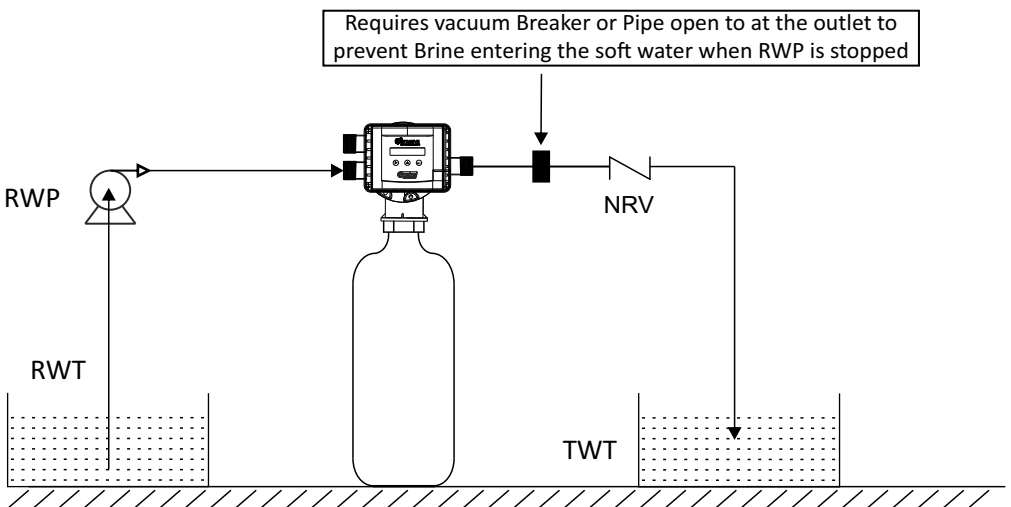
- Install Evolve in any shaded place away from direct sunlight
- Evolve is resistant due to dust and water but cannot be used in a sub-merged condition.
- Before performing any maintenance on the unit, release internal pressure and disconnect power supply.

6. PIPING DIAGRAM

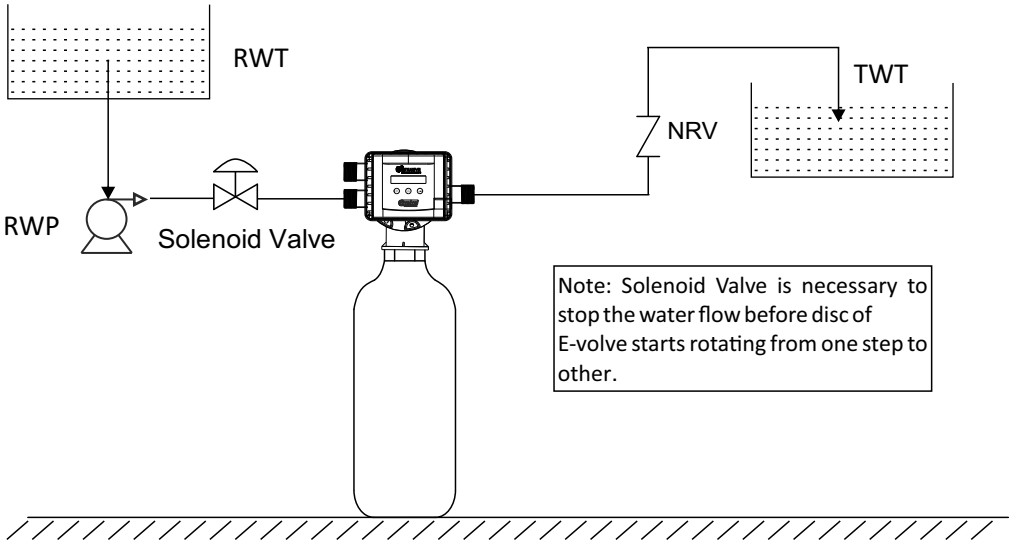
6.1 Standard: When Raw Water Tank is on ground level



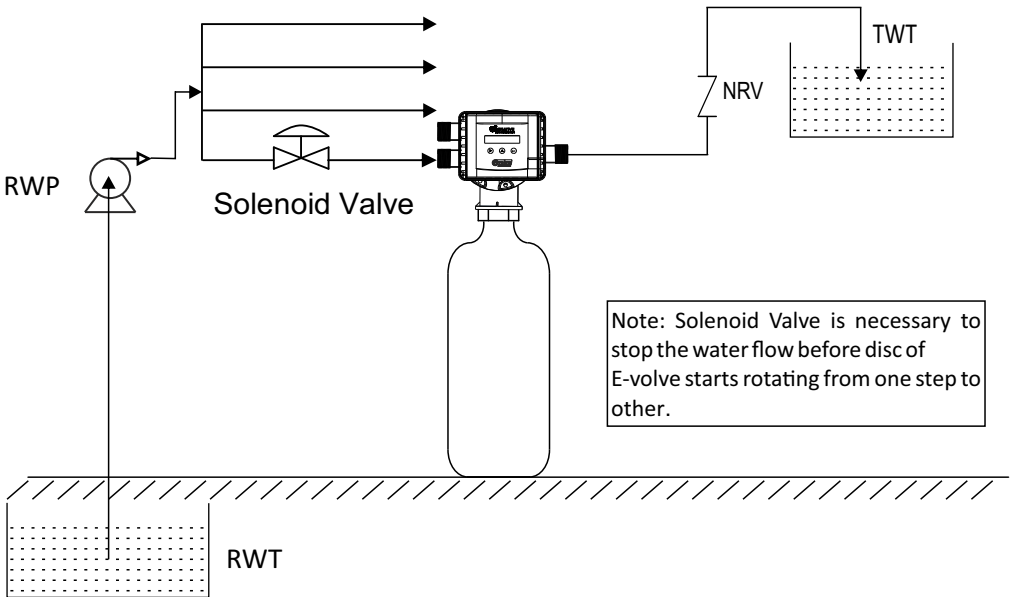
6.2. When Raw Water Tank and Treated Water Tank is on ground level



6.3 When Raw Water Tank is above ground level giving Positive Head



6.3 When softener is getting the raw water supply from common pump



7.PROGRAMMING INSTRUCTION

No Motor Current-: Display light Turns From Green to Red If there is no Motor Current. Also Internal Buzzer gets ON

KEYBOARD LOCKED

NO MOTOR CURRENT

REGN/BWASH TOUT

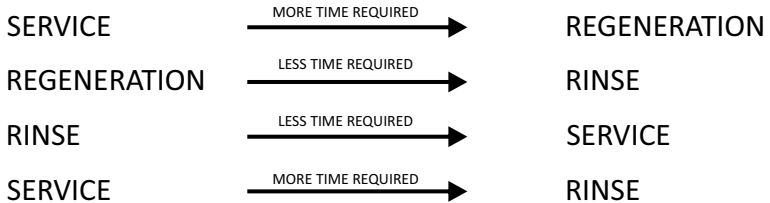
Motor ON delay time :-

MOTOR ON DELAY:000 5

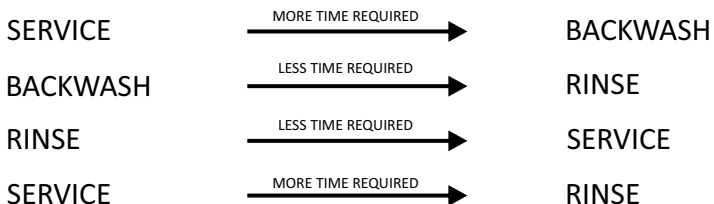
When Evolve changes its position from Service to Regeneration or Regeneration to Rinse and so on it will send signal to Raw water pump/Solenoid valve to stop. Once the pump or solenoid valve stops , the pressure in the system reduces. However it takes some time for system pressure to become zero. The time in which system pressure goes to zero after Raw water pump/Solenoid valve is stopped, can be programmed as Motor ON delay time. In Evolve we can set motor on delay time from min 1 sec to Maximum 999 Sec. Normally even in same system the time required by system to attain zero pressure also varies.

Time required for change the position

SOFTENER



FILTER



Softener/Filter Home:- Displays Evolve is in Service Operation

Position Timing:- To set Required time of desired operation like Regeneration/Rinse/backwash.

POSITION TIMING ?

Cycle count :- Displays number of time the unit had finished regeneration.

CYCLE COMPLETED:XXX

Regeneration Time:- The required duration of regeneration in XX mins.

REGM TIME: XX

Rinse Time:- The required duration of rinse in XX mins.

RINSE TIME: XX


Backwash Time:- The required duration of backwash in XX mins.

BACKWASH TIME: XX

Reset cycle counter:- Select YES or NO if you wish to reset cycle counter

RESET CYC. CNTR?

Sensors :-

If there is no Sensor is selected & Evolve goes in Regeneration mode once the  key is pressed or When External Signal like Another Evolve / PLC or Cond. Meter/ Batcher / pH meter / External Timer etc. is used to give potential free pulse input to Evolve to go in Regeneration Mode.

Pump Time -When RO Panel is used to give signal to Evolve to go into regeneration mode. Pump Time is to be used when you want to regenerate the Softener/ Backwash the Filter after X hrs of pump operation. This is fairly accurate & economical alternative to flow sensor/flow batcher.

Flow Sensor – If this feature is active then sensor can send Evolve in continuous loop.

Startup Rinse :-

STARTUP RINSE ?

MAN (Manual) - Unit goes into Rinse mode when ENTER key is pressed.

AUTO(Automatic)-Unit goes into Rinse mode automatically whenever unit restarts/switched ON.

Brine I/L(Interlock) :-

BRINE IP

It is to be selected as ON whenever Brine switch is used and as OFF when Brine switch is not used. A brine level switch can be inserted in the brine tank and it switches between brine and water.

1. When regeneration is initiated by any means, the Evolve first checks whether the Brine switch indicates presence of brine. If not it gives an alarm indicator.

2. When regeneration step is over, if the brine switch still detects brine it gives an alarm "Regeneration incomplete". Also refer Installation Drawing for brine switch.

External I/P count :-

EXT IP

It indicates no. of External input signals after which unit would go into regeneration mode. This is useful when more than one units are operating in series or parallel. E.g. If External I/P count is set as 3, then Evolve goes in Regeneration only after receiving the signal 3 times.

Pump Interlock :-

PUMP IL

When Pump Interlock is kept ON, if pump stops during regeneration cycle for any reason, the unit will STOP countdown of the regeneration time. When pump restarts, the Autovalve will restart the countdown from position / time where pump was stopped. When Pump Interlock is kept OFF & if pump stops during regeneration cycle for any reason the unit still counts down the Regeneration Time. However this is NOT ADVISABLE for healthy running of Softener

Pressure Switch Input:- This is input from pressure Switch to Evolve for Desired Operation.

PRESSURE SW IP

Auxiliary Output :- Evolve have three auxiliary output which have following mode

AUX 1 OP	AUX2 OP	AUX3 OP	PUMP OUTPUT
----------	---------	---------	-------------

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 ON DURING CYCLE 2 ON MOTOR ON DELY 3 ON DURING SERIVE 4 DELYED ON/OFF P1 5 DELYED ON/OFF P2 6 PULSE OUTPUT | <ul style="list-style-type: none"> 7 ALARM OUTPUT 8 DUAL PUMP OPRN 9 ALTNET DUAL PUMP 10 MASTER OUTPUT 11 PUMP/SLV OUTPUT |
|---|--|

Pump Output

1	ON DURING CYCLE	7	ALARM OUTPUT
2	ON MOTOR ON DELY	8	DUAL PUMP OPRN
3	ON DURING SERVIC	9	ALTNET DUAL PUMP
4	DELYED ON/OFF P1	10	MASTER OUTPUT
5	DELYED ON/OFF P2	11	PUMP/SLV OUTPUT
6	PULSE OUTPUT		

Auxiliary Input :-Evolve have three auxiliary output which have following mode

AUX1 IP

AUX2 IP

AUX3 IP








1	PULSE IP	7	CYCHLD IP
2	COND IP	8	INPUT OFF
3	MASTER IP	9	PAPIL IP
4	SLAVE IP	10	BRINE IP
5	DOSING IP	11	RWLVL IP
6	ALTDIP IP	12	TWLVL IP

Default Display :-

DEF DISP



This feature allows to select Display on Evolve as Filter/Downflow Softener / Cation / Anion / Softener.

8. HOW TO ENTER A PASSWORD




E-Volve Password is a three digit number. To enter Password press these two   Buttons at a time. Then display shows this  window. At first the digit in HUNDRED's place will blink. We can increment the number by pressing the  key till desired number appears. Then press  key to move to TEN's place. Again We can increment the number by pressing the  key till desired number appears. We have to follow same procedure to enter UNIT's place number. Then Press key  for entering in programming

There are Three password :-

1. Password 123
2. Password 456
2. Password 678



If the password entered is incorrect, the display shows Home screen To enter the password again press   this two button at the same time and repeat the whole procedure again.

9. SELECT TIME AND OPERATION


We can enter the required time for Regeneration, Rinse etc. by pressing PASSWORD: 456 . In position timing we can set time for RINSE and BACKWASH/REGENERATION time The key is  used to increment the digit and the  key is used to shift the digit position among HUNDRED, TEN and UNIT's place. To toggle between the various options available in this mode  key is also used. For any fault conditions the inbuilt buzzer sounds, The fault condition can be terminate by Pressing Enter key.

10. SKIP an operation



To SKIP an operation (Regeneration / Rinse) press  key once. An operation can be skipped in two cases



Case 1: If by mistake manually start key  is pressed or by error an external unit has sent a signal to start Regeneration , press  key to SKIP the operation & take the E-Volve back to Service mode.

Case 2: It is used to reduce the operation (Regeneration/Rinse) time.

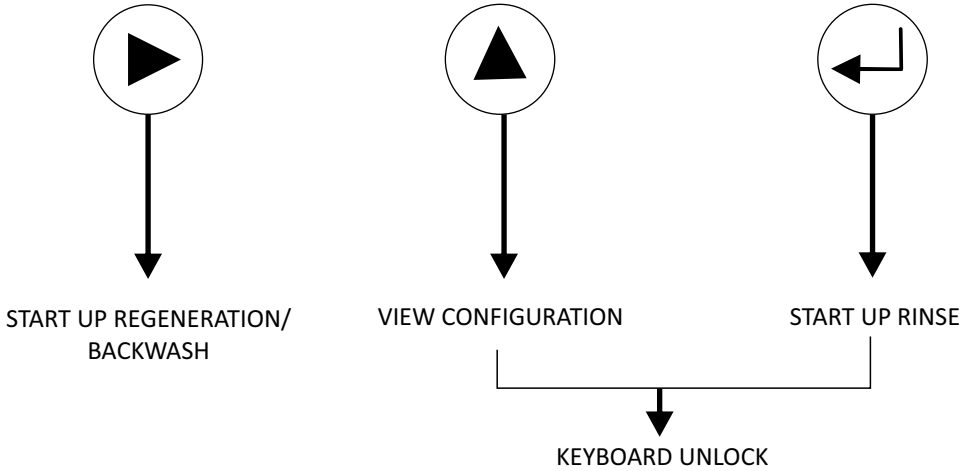
E.g. If programmed time for an operation (Regeneration/Rinse) is 30 min. and we want to reduce it to 15 min. then press  key when countdown of the operation has reached (30 - 15 = 15) min.

11. HOLD an operation

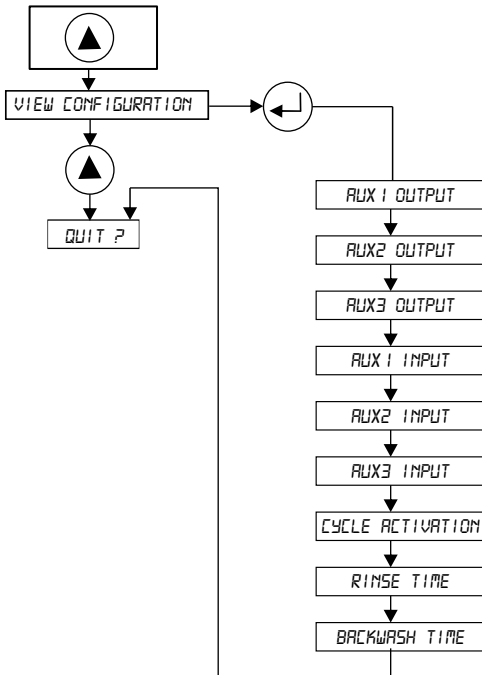
To extend the time of an operation (Regeneration / Rinse) than the programmed time we can be put it on HOLD, to extend by pressing  key. The valve will start an operation again after pressing  key once again.

E.g. The programmed time of an operation is 20 min. and we want to extend it to 30 min. Then press  key anytime during the operation. HOLD an operation for 10 min (30-20=10) again  press key to restart the time countdown.

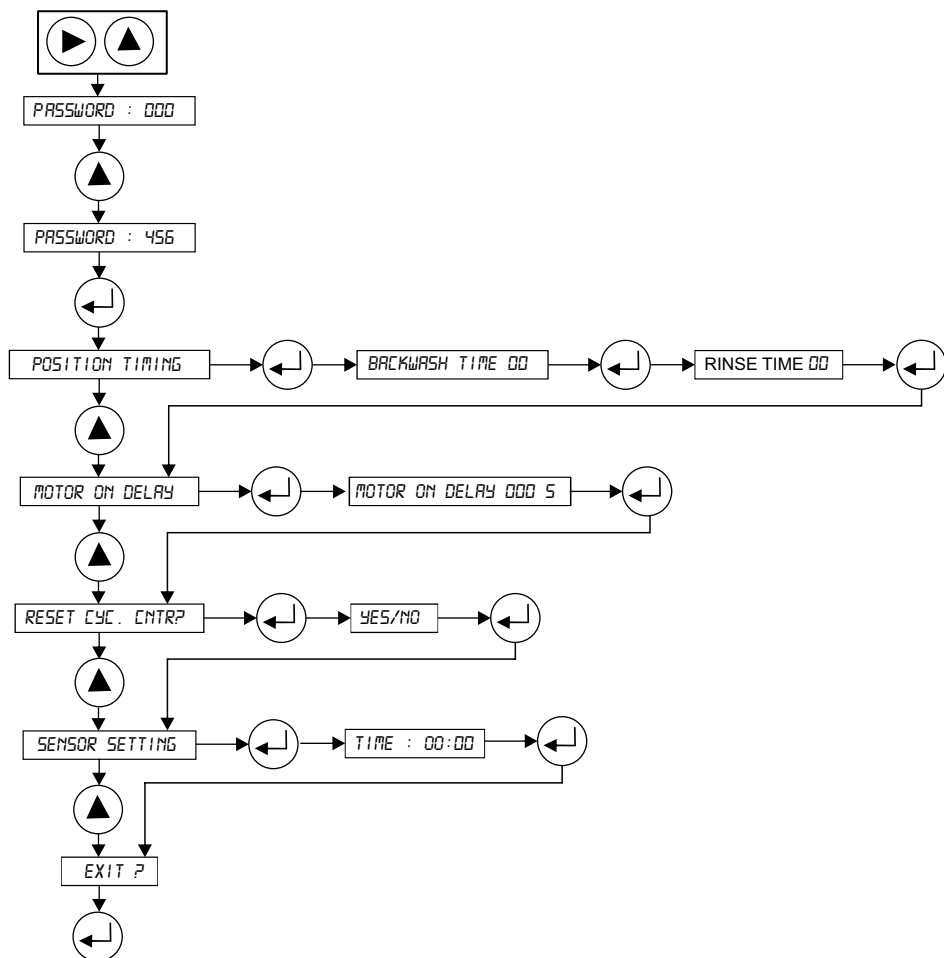
12. PROGRAMMING FLOWCHART



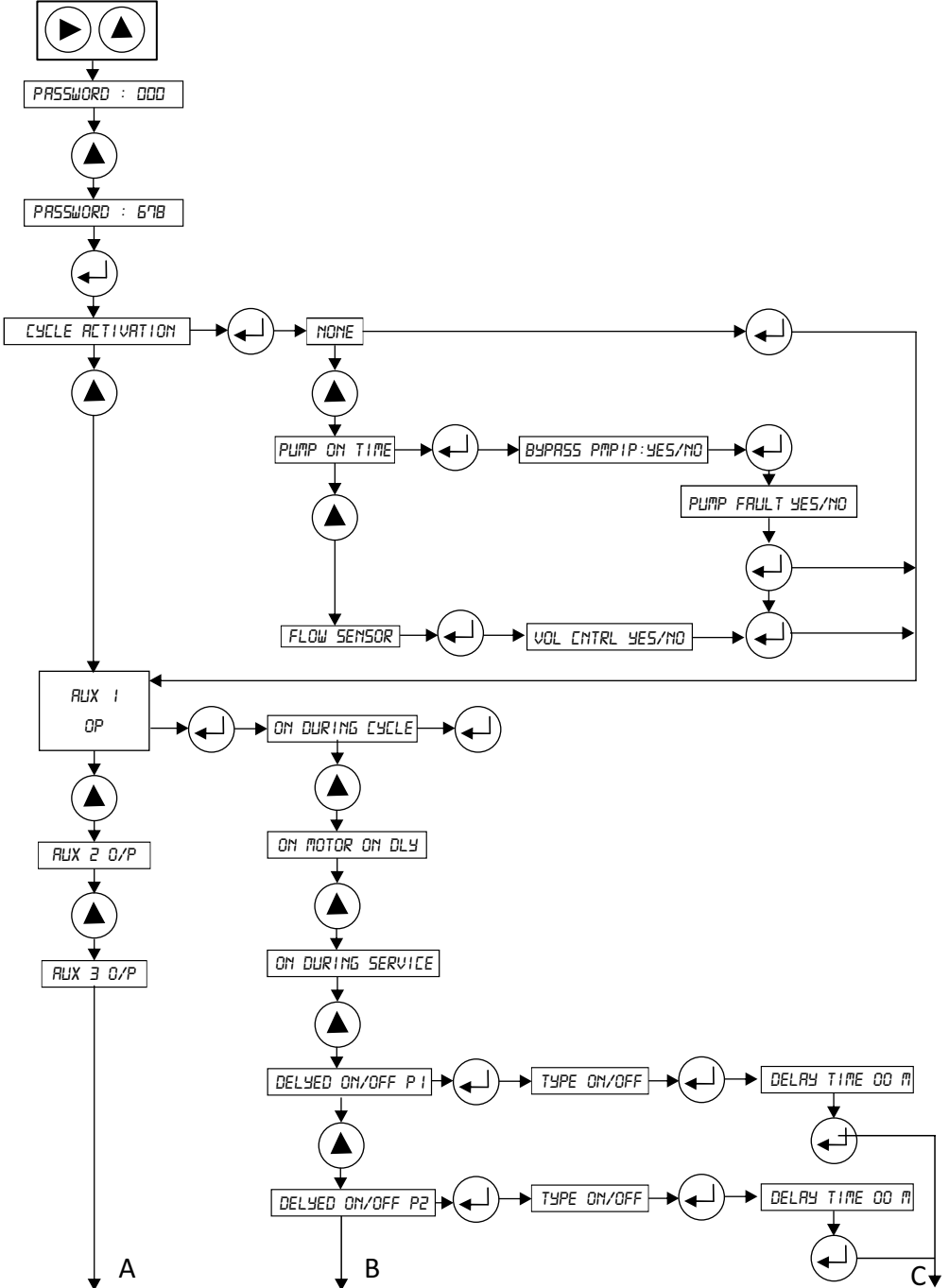
VIEW CONFIGURATION

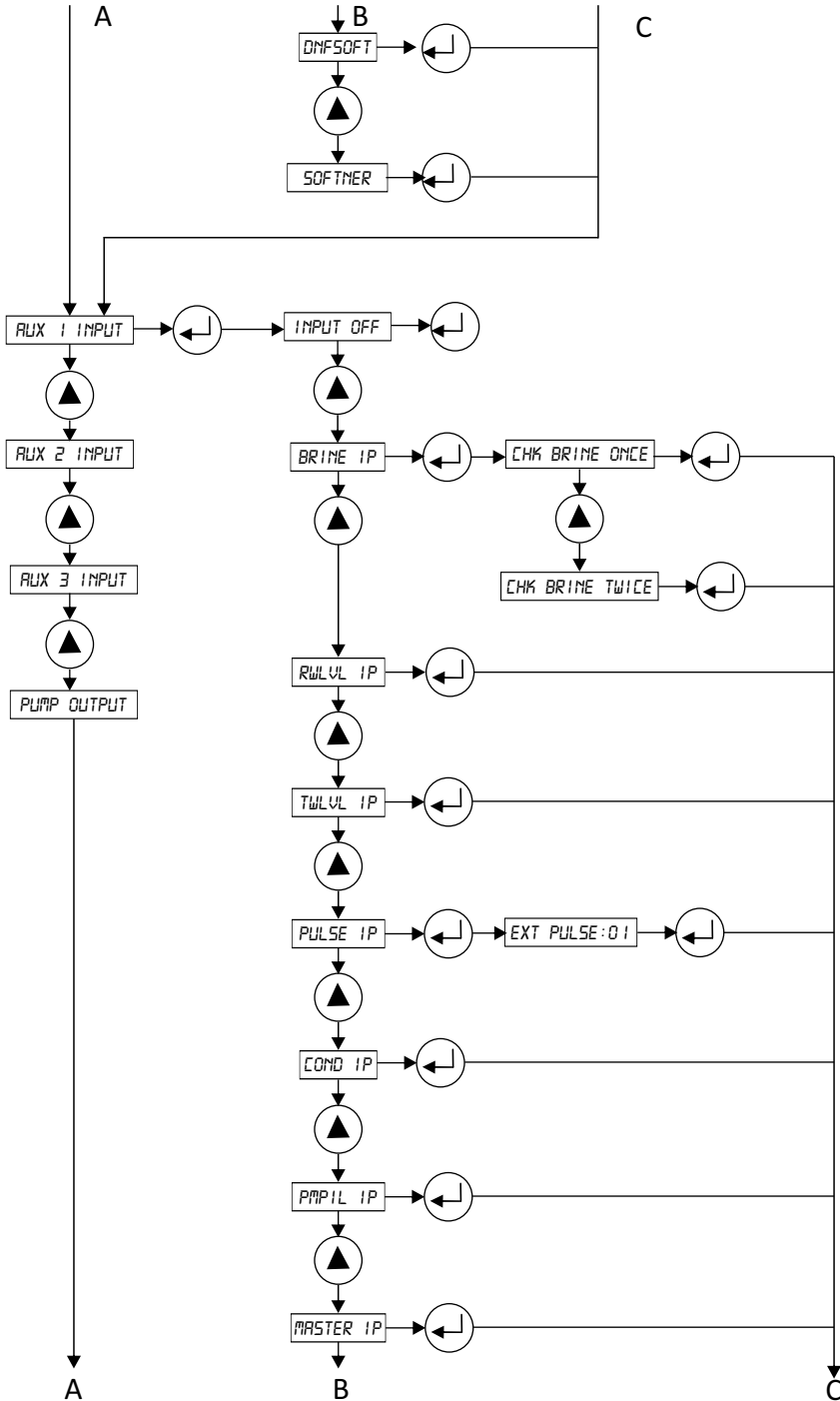


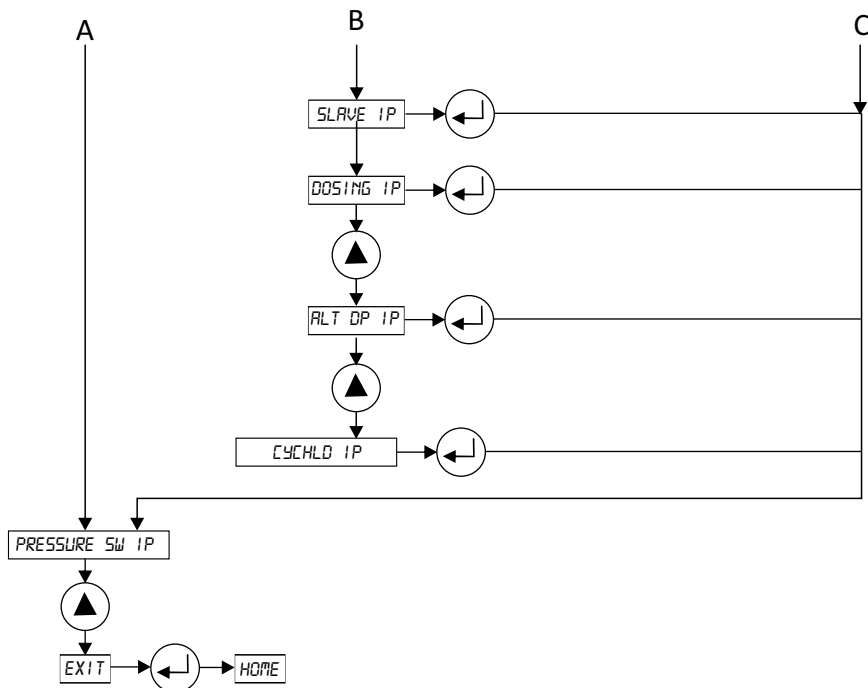
PASSWORD 456



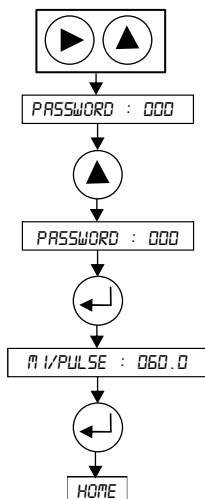
PASSWORD 678







PASSWORD 123



DEFAULT SETTINGS

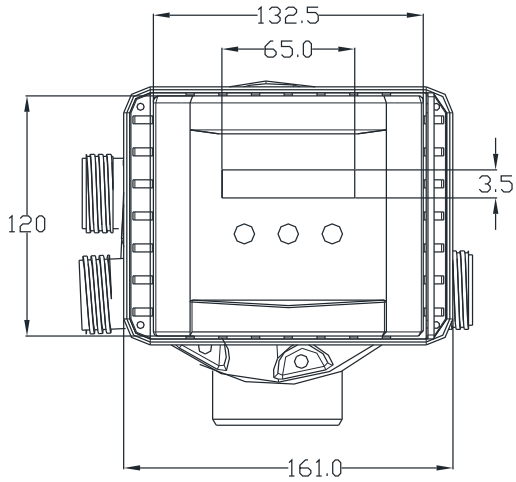
OUTPUT

AUX 1 O/P - ON DURING CYCLE
 AUX 2 O/P - SLAVE
 AUX 3 O/P - PULSE OUTPUT

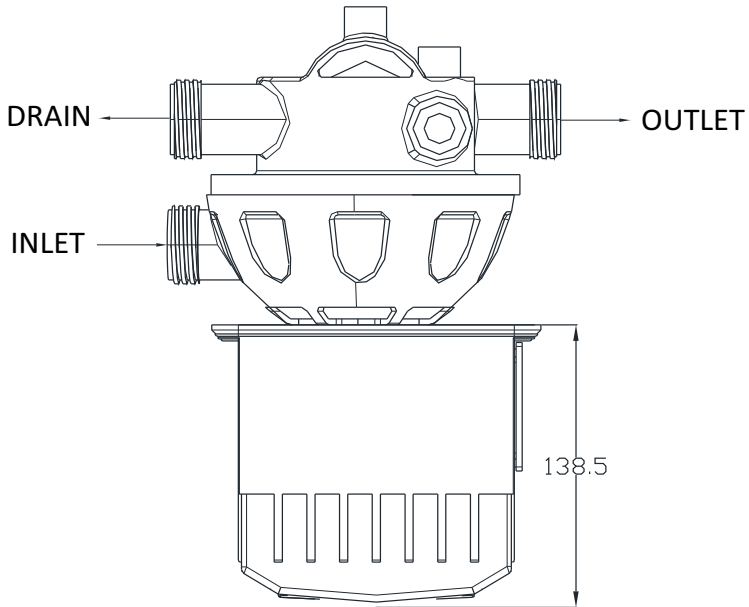
INPUT

AUX 1 I/P - PULSE I/P
 AUX 2 I/P - CYCHLD I/P
 AUX 3 I/P - OFF

13.GENERAL ASSEMBLY

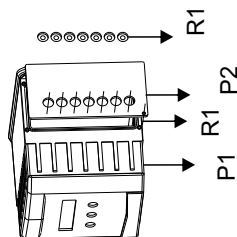
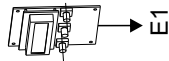
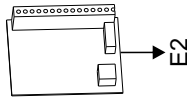
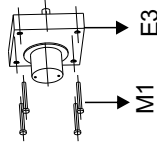
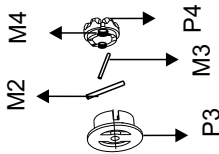
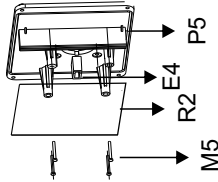
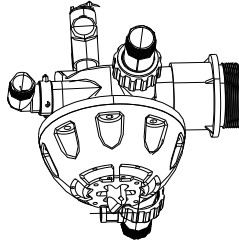


FRONT VIEW



TOP VIEW

15. EXPLODED VIEW



16 PART LIST

SR.NO.	DESCRIPTION	PART NO
1	PCB Housing	P1
2	PCB Housing Plate	P2
3	Rotar	P3
4	CAM Ring	P4
5	Base Plate	P5
6	Bolt(25x4)	M1
7	Rotar PIN (45x3)	M2
8	Roller PIN (45x6)	M3
9	Roller (9x6.5x6)	M4
10	Screw(10x3)	M5
11	LCD PCB	E1
12	Main PCB	E2
13	Motor	E3
14	Sensor	E4
15	PCB Housing Plate washer	R1
16	Washer	R2

17 CONNECTION TERMINALS

FLOW SENSOR R-G-B (7-6-3)	PUMP ON TIME (3-6)		COM	1
			INPUT 3	2
			COM	3
			INPUT 2	4
			INPUT 1	5
			CYCLE START I/P	6
			(+)12V	7
RS 485 (8-9)	TX+		8	
	TX-		9	
R.O. PANEL	OUTPUT - 3	C	10	
	OUTPUT - 3	NC	11	
	OUTPUT - 2	C	12	
	OUTPUT - 2	NC	13	
	OUTPUT - 1	C	14	
	OUTPUT - 1	NC	15	
	W/S, DP OPRN (16-17)		16	
	N		17	
RWP CONTRACTOR(17-18)		18		
230V AC (19-20)	NEUTRAL		19	
	PHASE		20	

Other Quality Products

◆ ELECTRONIC METERING PUMP



INGRESS PROTECTION 65



CE CERTIFIED



Dosing rate
1.5, 3.0, 6.0 & 10.0 LPH
@4kg/cm²



Solid PTFE diaphragm
for longer life.



INGRESS PROTECTION 65



CE CERTIFIED



4 TO 20 mA INPUT



Dosing rate
1.5, 3.0, 6.0 & 10.0 LPH
@4kg/cm²



LCD Display



Solid PTFE diaphragm
for longer life.



INGRESS PROTECTION 65



4 TO 20 mA INPUT



PULSE OUTPUT



Dosing rate
40 LPH @3kg/cm²



LCD Display

