

AUTOMATIC CONTROL VALVE

Installation and Operating Manual

HOV2



TO ACHIEVE OPTIMAL PERFORMANCE AND EFFECTIVE HARD WATER PROTECTION, PLEASE READ THIS INSTALLATION INSTRUCTION MANUAL CAREFULLY IN ITS ENTIRETY BEFORE STARTING THE INSTALLATION.

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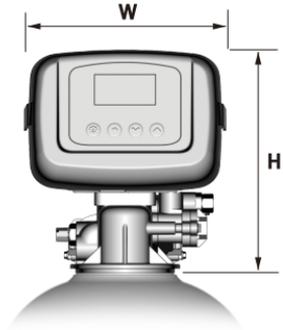
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SPECIFICATIONS AND MODELS



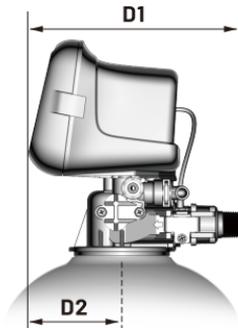
• Outline Size

W (Width)	191 mm (7.5 inch)
H (Height)	216 mm (8.5 inch)
D1 (Depth)	210 mm (8.3 inch)
D2 (Depth)	92 mm (3.6 inch)



• Configuration reference

Mineral Tank	Injector	BLFC (gpm)	DLFC (gpm)
6"	#000	0.25	1.2
7"	#00	0.25	1.5
8"	#00	0.25	2.0
9"	#0	0.5	2.4
10"	#1	0.5	3.0
11"	#1	0.5	3.5
12"	#2	1.0	4.0
13"	#2	1.0	5.0
14"	#3	1.0	5.0
16"	#4	1.0	7.0



SYSTEM OPERATION

Introduction to the display and functions



1. Regeneration type
2. The current time
3. Flow indicator
4. Day of week
5. Displays information for regeneration
 - Regeneration day override
 - Regeneration Time
 - Capacity Remaining(display varies depending on the regeneration type)
6. Setting button
7. Right button
8. Down button
9. Up button

SYSTEM OPERATION

Introduction to the display and functions

• Immediate regeneration:

In the service interface, press and hold the right button for 5 seconds, the water softener will immediately enter regeneration.



HOLD TIME

• Delayed regeneration:

- In the service interface, press the right button, and the water softener will enter the delayed regeneration state.
- This state does not need to wait for the volume or regeneration day override to run out, enters regeneration when the set regeneration time is reached.
- Press the right arrow again to cancel this state.



SINGLE TAP



Alternate display



Delayed regeneration-screen display

• Factory reset:



PRESS HOLD

Press and hold the setting button, power on. reset all parameter to the factory settings.



Interface after factory reset

SYSTEM OPERATION

View historical information



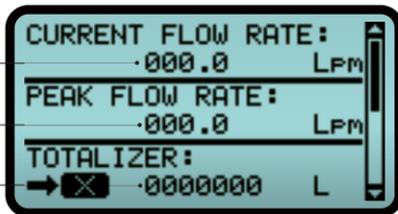
HOLD TIME

Press and hold the Up button for 5 seconds to view historical information.

H1 — Current flow rate

H2 — Peak flow rate

H3 — Totalizer



On the current page, Press the right button for 10 seconds to reset the totalizer



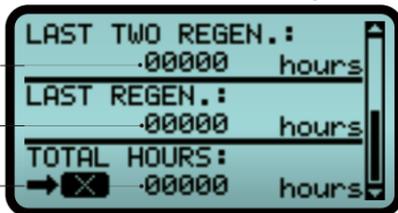
10s

HOLD TIME

H4 — Last two regeneration

H5 — Last regeneration

H6 — Total hours



On the current page, Press the right button for 10 seconds to reset the total hours

Press the down and up buttons to turn the page



SINGLE TAP



SINGLE TAP

Press and hold the Menu button for 5 seconds to exit



HOLD TIME

SYSTEM OPERATION

View historical information



H1 Current flow rate

Displays the current outlet flow rate.

Range:

0~999.9 litres per minute

0~264.1 gallons per minute

H2 Peak flow rate

Displays the highest flow rate measured since the last regeneration.

Range:

0~999.9 litres per minute

0~264.1 gallons per minute

H3 Totalizer

Displays the total volume of treated water that passes through a meter.

Range:

0~9999999 litres

0~2641728 gallons

H4 Last two regenerations

Displays the hours between the last two regenerations.

Range:

0~65535 hours

H5 Last regeneration

Displays the hours since the last regeneration.

Range:

0~65535 hours

H6 Total hours

Displays the total hours the appliance has been in service.

Range:

0~65535 hours

SYSTEM OPERATION

System programming



Press and hold the Down and Up buttons at the same time for 5 seconds to enter the system programming.

HOLD TIME

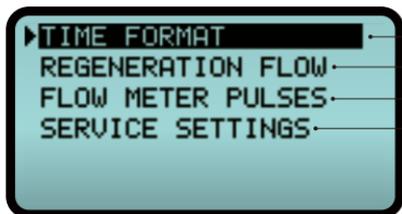


Enter your password (Password required)



Password=1,2,3,4,5,6 (default)

Once the password is entered correctly, enter the system programming



Time format S1
Regeneration flow S2
Flow meter pulses S3
Service settings S4

Press the right button to enter the submenu settings option



SINGLE TAP

Press the down and up buttons to select the option you want to set



SINGLE TAP



SINGLE TAP

Press and hold the Menu button for 5 seconds to exit the system programming



HOLD TIME

SYSTEM OPERATION

System programming



In system programming mode, the button functions



Move down or
decrement
the number

SINGLE TAP



Move up or
increment
the number

SINGLE TAP



Move to the right
(Cycle movement)
or OK

SINGLE TAP



Return

SINGLE TAP



Save to exit

HOLD TIME

S1 Set time format



Default: 24-Hour

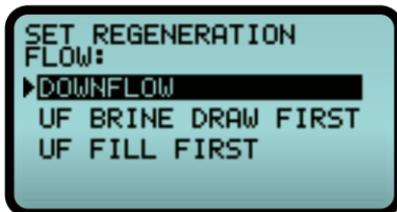
Options:
[12-Hours AM/PM]
[24-Hour]

SYSTEM OPERATION

System programming



S2 Set the direction of water flow during regeneration



Default: Downflow

Options:

[Downflow]

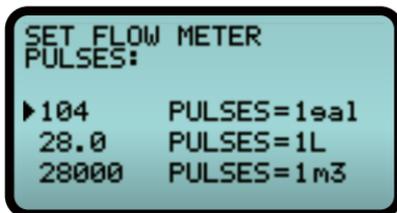
[Upflow brine draw first]

[Upflow Water refill first]

Note :

That some Regeneration flow require that the valve be built with specific subcomponents. Ensure the valve is configured properly before changing the Regeneration flow setting.

S3 Set the number of pulses per unit volume of the flow rate



Default:

104 pulses for 1 gallon

28 pulses for 1 liter

28000 pulses for 1M³

Range:

1-999 pulses (gallon)

0.1-99.9 pulses (liter)

100-99900 pulses (M³)

SYSTEM OPERATION

System programming



S4 Set service information



Default: OFF



Set[ON]



Preview



Set



Uppercase characters



Lowercase characters

ASSISTANCE INFORMATION

SYSTEM OPERATION

System programming



Preview



Set

TELEPHONE



Assistance information



Telephone



Regeneration type



Service information-screen display

SYSTEM OPERATION

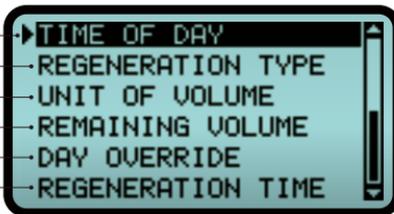
User programming



Press and hold the Setting button for 5 seconds to enter user programming.

HOLD TIME

- U1 Time of day and day of week
- U2 Regeneration type
- U3 Unit of Volume
- U4 Remaining volume
- U5 Regeneration day override
- U6 Regeneration time



Page 1

Page 2

- U7 Regeneration cycle step times
- U8 Dosing Pump
- U9 Chlorine Producer
- U10 Auxiliary relay
- U11 Low salt alarm
- U12 Language



Press the right button to enter the submenu settings option



SINGLE TAP

Press the down and up buttons to select the option you want to set



SINGLE TAP



SINGLE TAP

Press and hold the setting button for 5 seconds to exit the user programming



HOLD TIME

SYSTEM OPERATION

User programming



In user programming mode, the button functions



Move down or
decrement
the number

SINGLE TAP



Move up or
increment
the number

SINGLE TAP



Move to the right
(Cycle movement)
or OK

SINGLE TAP



Return

SINGLE TAP



Save to exit

HOLD TIME

U1 Set the current time and day of the week



Current time

Day of the week

Default: 08:00 SUN

SYSTEM OPERATION

User programming

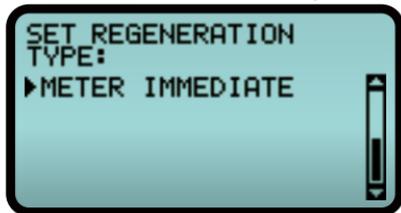


U2 Set regeneration type



Page 1

Page 2



Default: Meter delayed

Meter delayed control

A Meter delayed control measures water usage and regenerates the system at the programmed regeneration time after the calculated system capacity is depleted.

Time clock delayed control

A Time clock delayed control regenerates the system on a timed interval. The control will initiate a regeneration cycle at the programmed regeneration time when the number of days since the last regeneration equals the regeneration day override value.

Day of the week control

This control regenerates the system on a weekly schedule. The schedule is defined in Master Programming by setting each day to either “off” or “on.” The control will initiate a regeneration cycle on days that have been set to “on” at the specified regeneration time.

Hours delayed control

This control regenerates the system triggers regeneration within 12 hours at the set regeneration time.

Meter immediate control

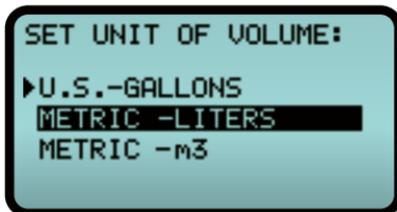
A meter immediate control measures water usage and regenerates the system as soon as the system capacity is depleted.

SYSTEM OPERATION

User programming



U3 Set unit of volume



Default: Metric - liters

Options:
[U.S.- Gallons]
[Metric - liters]
[Metric - cubic meter]

U4 Set remaining volume



Default: 10000L

Range: 1-99999 gallons
1-999999 liters
0.01-999.99 M³

U5 Set regeneration day override

NOTE: If the regeneration day override turned on, it is a mixed regeneration mode, also known as holiday mode. The volume and days are recorded at the same time. If any one of them meets the regeneration conditions, the regeneration will start.



Default: OFF

Range:
01-99 days
or OFF

SYSTEM OPERATION

User programming



U6 Set regeneration time



Default: 02:00

U7 Set regeneration cycle step times

The displays in below will be changed according to the brine flow direction set.



Preview



Set



Default: 10 minutes
Range: 1-999 minutes

BACK WASH

SYSTEM OPERATION

User programming



Preview



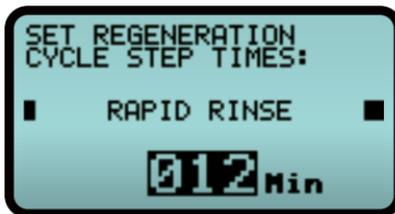
Set

Default: 60 minutes
Range: 0-999 minutes

BRINE DRAW



Preview



Set

Default: 12 minutes
Range: 0-999 minutes

RAPID RINSE



Preview



Set

Default: 10 minutes
Range: 0-999 minutes

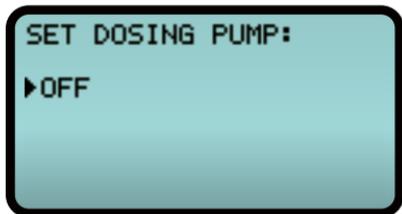
WATER REFILL

SYSTEM OPERATION

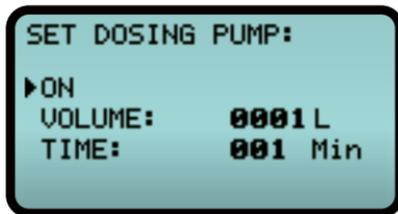
User programming



U8 Set Dosing pump



Default: OFF



Set [ON]

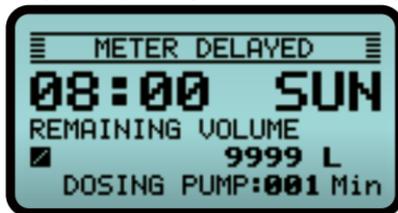
[VOLUME]: Sets the used volume to trigger the dosing pump to start

Range: 1-999 gallons
1-9999 liters
0.01-9.99 M³

[TIME]: Set dosing pump running time

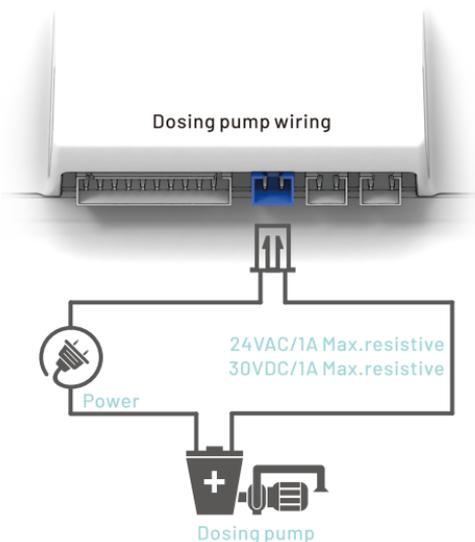
Range: 1-999 minutes

Dosing pump operating status-screen display



For example:

when using a volume of 1 litre of water, the dosing pump will run for 1 minute.



SYSTEM OPERATION

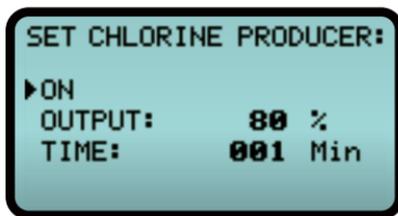
User programming



U9 Set Chlorine Producer



Default: OFF

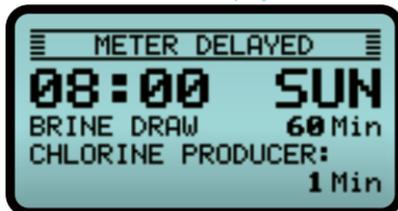
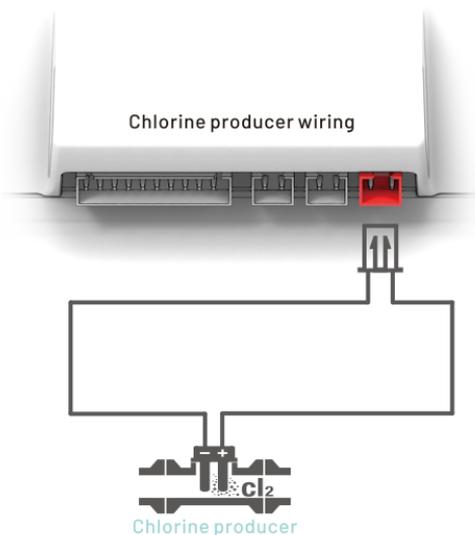


Set [ON]

[OUTPUT]: Chlorine producer output
Range: 10%~100%
Default: 80%

[TIME]: Set Chlorine producer running time
Range: 1 minute~According to the maximum
time of Brine Draw

Chlorine producer operating status-
screen display



For example:
When the valve is in Brine draw ,
Chlorine producer will run for 1 minutes.

SYSTEM OPERATION

User programming

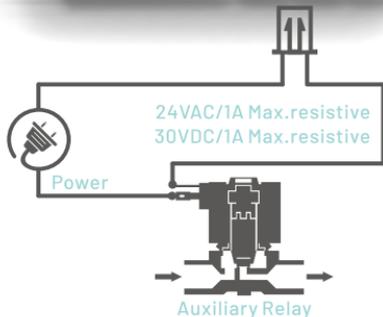


U10 Set Auxiliary Relay



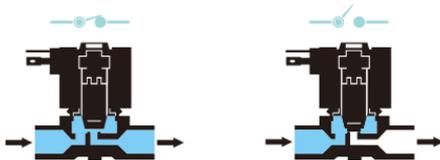
Default: Normally Closed
Options: [Normally Closed]
[Normally Open]

Auxiliary Relay wiring



When the water softener is in the service position, the solenoid valve is energized and opened.

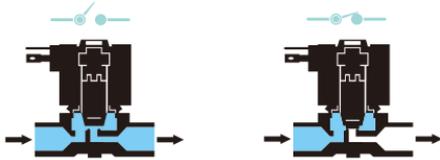
When the water softener is in the regenerative position, the solenoid valve is de-energized and closed.



Normally closed solenoid valve

When the water softener is in the service position, the solenoid valve is de-energized and opened.

When the water softener is in the regenerative position, the solenoid valve is energized and closed.



Normally open solenoid valve

SYSTEM OPERATION

User programming



U11 Set Low salt alarm

Displays the amount of salt remaining



Default: OFF



Set[ON]



Default: 0.5 GPM

Options:[0.125]/[0.25]/[0.5]/[1.0]

Preview



Set

BRINE LINE FLOW CONTROLS



Default: KG

Options:[KG]/[LBS]

Preview



Set

UNIT OF SALT

SYSTEM OPERATION

User programming



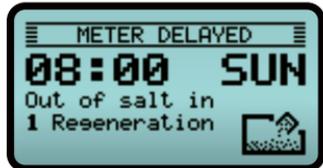
Range: 1-453 KG
2-999 LBS



Enter the amount of salt to add

AMOUNT OF ADDED SALT

When the low salt alarm function is turned on:



Low salt alarm-screen display

- When the amount of remaining salt meets only one regeneration, a low salt alarm will be triggered.
- After the alarm is triggered, the buzzer will sound from 9 a.m. to 11 a.m. and from 2 p.m. to 9 p.m.
- When the buzzer alarm sounds, when the screen back light is on, press any button to cancel the sound. (However, the second day will still ring during the specified time period.)

NOTE: In addition to the parameters that need to be set for the initial salt addition, every time you add salt in the future, you can directly enter the salt addition interface to enter the actual salt weight.

U12 Set Language

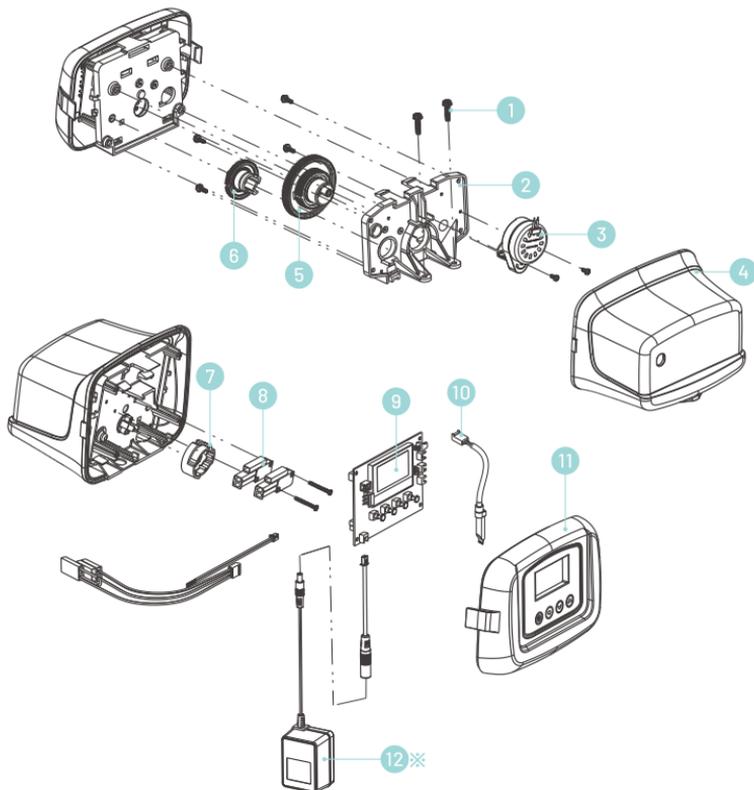


Default: English

Options:
[English][Deutsch]
[French][Italian]
[Spanish][Russian]
[Polski][Dutch]
[Danish]

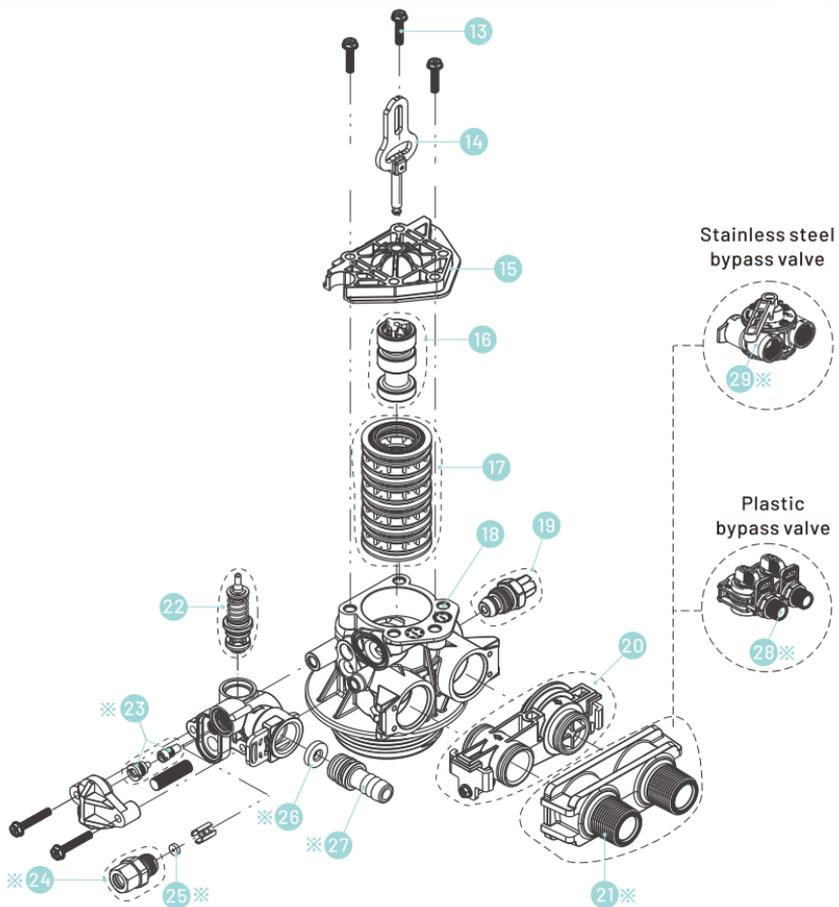
CONTROL VALVE ASSEMBLY

※ Customized specification



CONTROL VALVE ASSEMBLY

※ Customized specification



CONTROL VALVE ASSEMBLY

Control valve assembly list

※ Customized specification



Item No.	Description
1.....	Screw
2.....	Bracket
3.....	Motor
4.....	Back Cover
5.....	Gear main, black
6.....	Brine cam, black
7.....	Cam, switch, black
8.....	Micro switch
9.....	Circuit board
10.....	Harness assembly, for SM
11.....	Cover, front
※12.....	Transformer
13.....	Screw
14.....	Piston rod assembly
15.....	End plug assembly
16.....	Piston assembly
17.....	Seal & Spacer kit assembly
18.....	Mixing valve body, assembly
19.....	Mixing ,assembly
20.....	Meter assembly
※21.....	Yoke
22.....	Brine stem assembly
※23.....	Nozzle & Throat assembly
※24.....	Brine fitting assembly
※25.....	B.L.F.C. button
※26.....	D.L.F.C. button
※27.....	Drain fitting
※28.....	Yoke, quick-plug
※29.....	Stainless steel bypass valve body

CONTROL VALVE ASSEMBLY

Control valve assembly list



12 Transformer

-Transformer ,24V,CN
-Transformer ,24V,US
-Transformer ,24V,EU
-Transformer ,24V,EN

21 Yoke

-Yoke,1" NPT
-Yoke,3/4" NPT
-Yoke,1" BSP
-Yoke,3/4" BSP

23 Nozzle and throat Ass.

-000#,brown
-00#,violet
-0#,red
-1#,white
-2#,blue
-3#,yellow
-4#,green

24 Brine fitting Ass.

-Ferrule type brine fitting
-Quick-plug brine fitting

25 Brine line flow controls (B.L.F.C.)

-B.L.F.C. , 0.125 gpm
-B.L.F.C. , 0.25 gpm
-B.L.F.C. , 0.5 gpm
-B.L.F.C. , 1.0 gpm

26 Drain line flow controls (D.L.F.C.)

-D.L.F.C., 1.2 gpm
-D.L.F.C., 1.5 gpm
-D.L.F.C., 2.0 gpm
-D.L.F.C., 2.4 gpm
-D.L.F.C., 3.0 gpm
-D.L.F.C., 3.5 gpm
-D.L.F.C., 4.0 gpm
-D.L.F.C., 5.0 gpm
-D.L.F.C., 7.0 gpm

27 Drain fitting

-Straight drain hose barb
-Drain hose 90° elbow barb

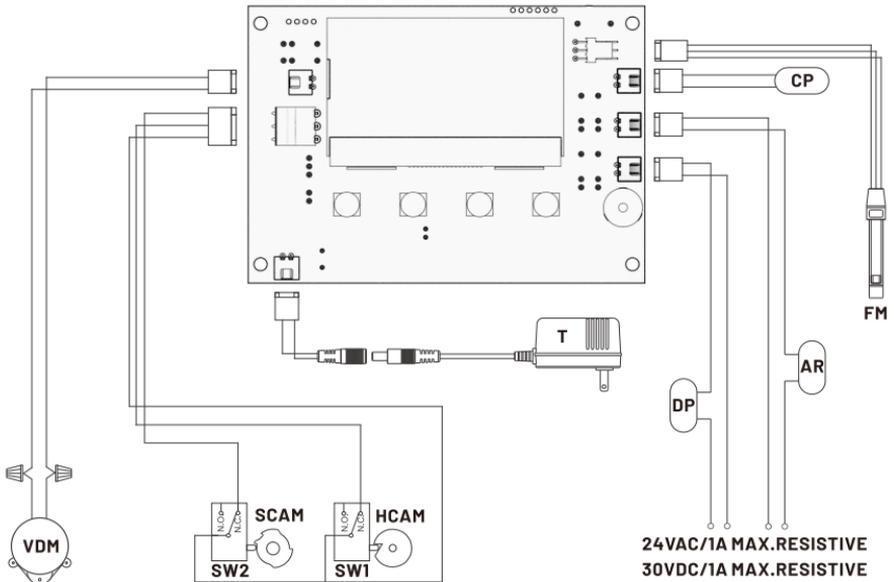
28 Yoke, quick-plug

-1" NPT,90 deg.
-3/4" NPT,90 deg.
-1" BSP,90 deg.
-3/4" BSP,90 deg.
-1" NPT
-3/4" NPT
-1" BSP
-3/4" BSP

29 Stainless steel bypass valve body

-1" NPT, body
-3/4" NPT, body
-1" BSP, body
-3/4" BSP, body

SYSTEM WIRING DIAGRAM



T-24V Transformer

FM-Flow meter

AR-Auxiliary relay

DP-Dosing pump

CP-Chlorine producer

VDM-Valve drive moto

SW1-Valve homing switch

SW2-Valve step switch

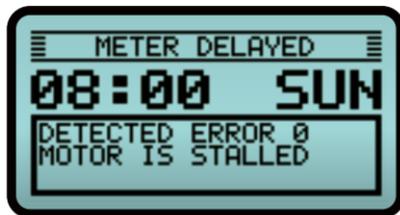
SCAM-Valve step cam

HCAM-Valve homing cam

DETECTED ERROR [0]

Probable Cause:

- The motor is stalled
- The micro-switch is faulty
- The wiring is faulty
- The circuit board is faulty



DETECTED ERROR [1]

Probable Cause:

- Motor is running continuously
- The circuit board is faulty



Recover and resetting:

Unplug the device from the power source, and when the device returns to power, the screen display code clears.

If the condition that caused the error has not been resolved, the error code will reappear on the screen. Do not attempt to further resolve this issue.

WET

FUTUREPROOFED
WATER AND ENERGY
TECHNOLOGIES