



Master Programming Manual

for Sanitizer Plus



Effective June 2015

Button appearance and position may be different than actual valve.

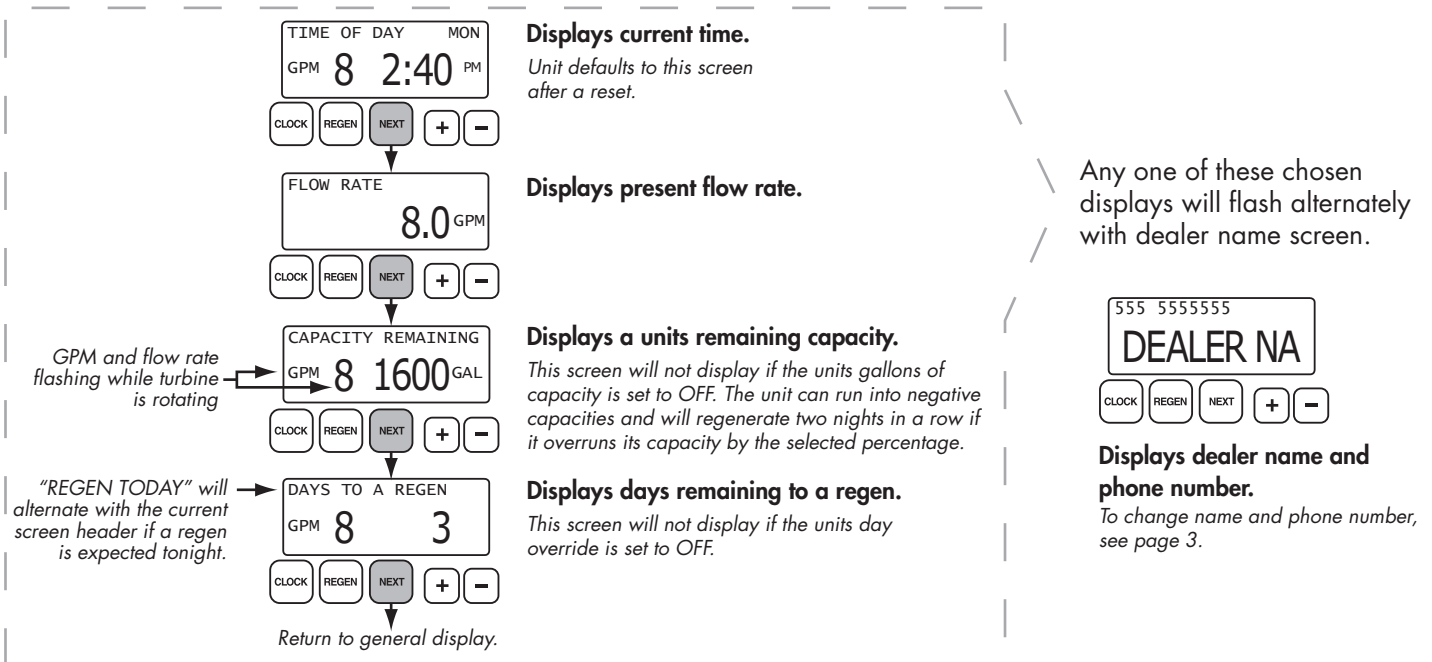
Cycle times, sequences and settings in this guide are only examples of how your system may be programmed. Actual settings are determined by the manufacturer. Please contact them if more information is needed.

Important sequences to note:

1. To unlock valve to adjust settings, push the following buttons in the following order: **-**, **NEXT**, **+**, **CLOCK**. This will allow user to change manufacturer's settings. When finished, lock settings by pushing the same sequence.
2. To clear an error on screen, push **NEXT** and **REGEN** at the same time and hold for three seconds.
3. If service alarm is triggered, push **+** and **-** for three seconds to reset to original set points. This will reset both gallon and year alarms.

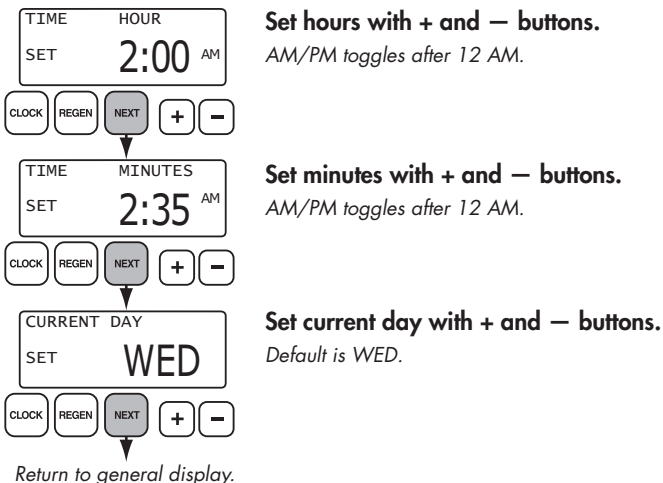
General Operation Screens

Pressing **NEXT** will toggle between one of four displays. Press **REGEN** to set a regeneration to occur tonight.



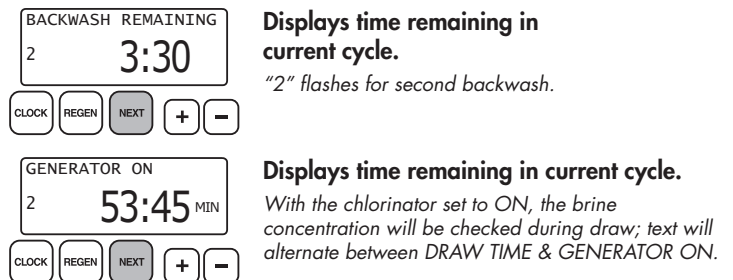
Set Time Screens

Accessed by pressing **CLOCK**.



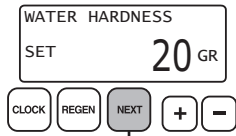
Typical Regen Screens

Only viewed when in regeneration.



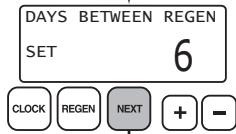
Installer/User Screens

Accessed by pressing **NEXT** and **+** simultaneously for three seconds.
Returns to general display after 5 minutes.



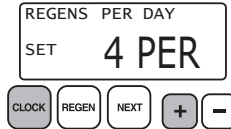
Set water hardness with + and - buttons.

Adjustable from 1-150 grains, within limits determined by capacity settings, as to not override gallons capacity setting. Default is 20.



Set days between a regeneration with + and - buttons.

Adjustable from 1-28 days, or OFF. Default is 6.



Set multiple number of regenerations per day with + and CLOCK buttons.

Adjustable from 1-6 days or select "OFF" to return to Days Between Regen.

(Example screen indicates unit set to regen 4 times in one day.)



Set hour of regen time with + and - buttons.

If IMMEDIATE REGEN is set (see page #), regen will be immediate once total capacity is exhausted and ON ZERO will be displayed. Default is 2:00 AM.

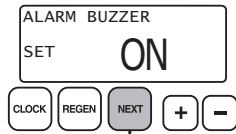


To activate optional Service Alarms, see page 4.



Set minutes of regen time with + and - buttons.

If IMMEDIATE REGEN is set (see page #), regen will be immediate once total capacity is exhausted and ON ZERO will be displayed. Default is 2:00 AM.



Turn alarm buzzer ON or OFF with + and - buttons.

When ON, alarm will sound after a failed regen or when an error occurs.

NOTE: When alarm buzzer screen is displayed, you can access dealer name and phone number setting.



Change dealer name and phone number by pressing CLOCK and + buttons.

Pressing NEXT proceeds to next character. Pressing + or - changes the character.

Alarm buzzer feature allows you to program the time in which the alarm buzzer will sound. Alarm will sound automatically after regeneration.



Set backlight operation with + and - buttons.

Default is ON. OFF will turn display backlight off after 5 minutes of keypad inactivity.

NOTE: To access service alarms, press CLOCK and + buttons simultaneously for three seconds.

Return to general display.



See next page for proper use.

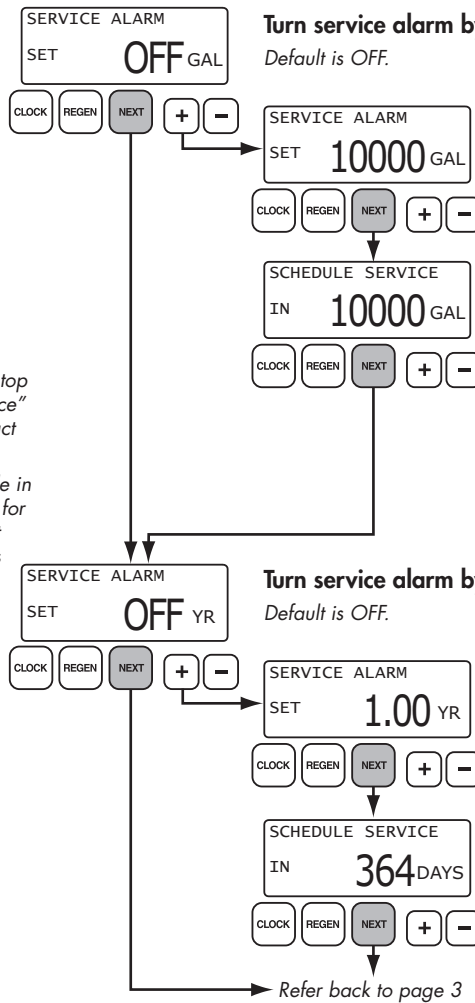
Service Alarm Use

If activating service alarms, please use the following instructions.

Service alarm feature is used to warn the owner that the unit currently needs service. For example, you can use this feature to remind the owner when a filter needs replacement, an R.O. system needs servicing, or routine maintenance needs to be performed. This can be set by gallons, time or both. Default is OFF for both.

NOTE:

1. When using service alarms, top line will read "Call for Service" and will alternate with contact screen when in alarm mode.
2. To reset a service alarm while in status display, push + and - for three seconds. This will reset both gallon and year alarms independently.



Turn service alarm by gallons ON or OFF with + and - buttons.
Default is OFF.

Use + button to set number of gallons.
Increments are between 100-9,999,000 gallons.

Status Display
This display will show gallons remaining before service alarm is set to trigger. Push + and - for three seconds to reset to gallon setpoint.

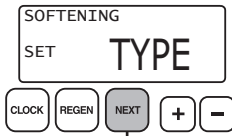
Turn service alarm by years ON or OFF with + and - buttons.
Default is OFF.

Use + button to set duration of time in years.
Increments are between .25-9.75 years.

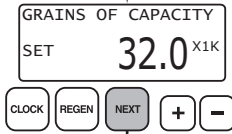
Status Display
This display will show time remaining before service alarm is set to trigger. Push + and - for three seconds to reset to year setpoint.

Service/OEM SOFTENING Screens

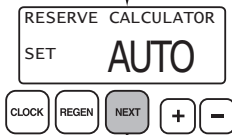
Accessed by pressing **NEXT** and **—** simultaneously for three seconds.
Returns to general display after 5 minutes.



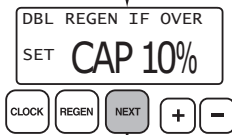
Select SOFTENING or FILTERING with + and — buttons.
If you have selected FILTERING, please refer to "Service/OEM FILTERING screens", page 7.



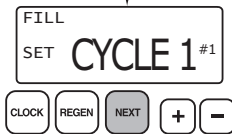
Set systems grains of capacity with + and — buttons.
*X1K = 1,000 grains
Default is 32.*



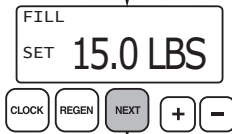
Set reserve calculator with + and — buttons.
*AUTO automatically calculates reserve capacity.
OFF will regen by days override setting only.
GALS BETWEEN REGEN will regen by specific gallon setting.
Default is AUTO.*



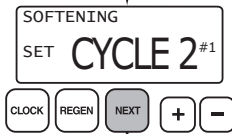
Set double regen point with + and — buttons.
If units capacity is overrun by this percentage, the unit will regen two nights in a row. Default is 10%.



Set first cycle position with + and — buttons.



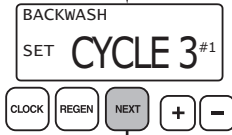
Set salt pounds per regen with + and — buttons.
Default is 15.0 pounds.



Set second cycle position with + and — buttons.



Set softening time with + and — buttons.
*This is the time between brine tank fill and start of backwash.
This time window allows the salt to dissolve and achieve proper brine strength. This process will start prior to regen time setting.
Default is 240:00 minutes.*



Set third cycle position with + and — buttons.



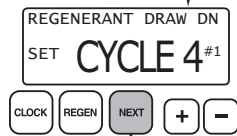
Set backwash time with + and — buttons.
Default is 12:00 minutes.

During FILL and SOFTENING positions, unit will deliver soft water.

→ continue to next page

Accessed by pressing **NEXT** and **—** simultaneously for three seconds.
Returns to general display after 5 minutes.

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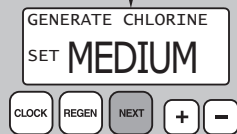
Set fourth cycle position with + and — buttons.



Set draw time with + and — buttons.

Default is 90:00 minutes.

Only appears on units equipped with chlorine generator option.

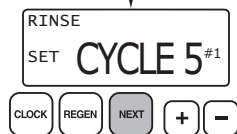


To turn chlorine generator on or off, or to change amount of chlorine to be generated to setting other than MEDIUM, hold **CLOCK** and **+** buttons simultaneously. Use **+** and **—** buttons to change to LOW, HIGH or OFF.

Default is MEDIUM.

HIGH setting is used when additional chlorine production is needed, as in larger units. Consult manufacturer before changing.

WARNING: If resin media is used, this **MUST** be set to OFF or LOW position.

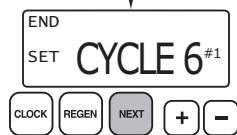


Set fifth cycle position with + and — buttons.



Set final rapid rinse time with + and — buttons.

Default is 4:00 minutes.



Set end cycle with + and — buttons.

After all cycles have been configured, an END cycle is added (14 cycles max).

Return to general display.

Service/OEM FILTERING Screens

Accessed by pressing **NEXT** and **—** simultaneously for three seconds.
Returns to general display after 5 minutes.

FILTERING
SET TYPE

CLOCK REGEN NEXT + -

Select SOFTENING or FILTERING with + and — buttons.

If you have selected SOFTENING, please refer to "Service/OEM SOFTENING screens", pages 5-6.

GALLONS CAPACITY
SET 1000 GAL

CLOCK REGEN NEXT + -

Set gallons of capacity with + and — buttons.

To turn off, set below 0. OFF does not use metered water to determine a regen and will not be an option if days override is not set. Default is 1000 gallons.

DBL REGEN IF OVER
SET CAP 10%

CLOCK REGEN NEXT + -

Set double regen point with + and — buttons.

If units capacity is overrun by this percentage, the unit will regen two nights in a row. Default is 10%.

BACKWASH
SET CYCLE 1 #1

CLOCK REGEN NEXT + -

Set first cycle position with + and — buttons.

BACKWASH TIME
SET 15:00 MIN

CLOCK REGEN NEXT + -

Set backwash time with + and — buttons.

Default is 15:00 minutes.

RINSE
SET CYCLE 2 #1

CLOCK REGEN NEXT + -

Set second cycle position with + and — buttons.

RINSE TIME
SET 4:00 MIN

CLOCK REGEN NEXT + -

Set final rapid rinse time with + and — buttons.

Default is 4:00 minutes.

END
SET CYCLE 3 #1

CLOCK REGEN NEXT + -

Set end cycle with + and — buttons.

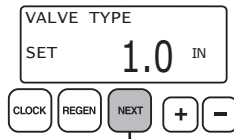
After all cycles have been configured, an END cycle is added (14 cycles max).

Return to general display.

Configuration Screens

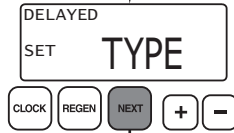
Accessed by pressing **NEXT** and **-** simultaneously for three seconds.

Once screen changes, press **NEXT** and **-** simultaneously again for three seconds.



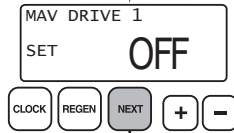
Select meter size with + and - buttons.

Set to 1", 1.0r, 1.25", 1.5", 2", 3" or 1.0T. Upflow brining will not be an option if set to anything other than 1" or 1.0T. With 1.0T set, meter calibration will be fixed, with a different value for each tank. With 1.0T set, MAV 1 setting will not be viewed, but forced to be set to Alternator Mode w/ Delayed Rinse+Fill set to OFF. With 1.0T set, the Backwash-Air regeneration step will not be available. Default is 1".



Set regen time control with + and - buttons.

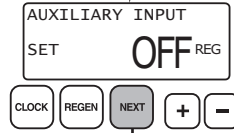
DELAYED sets regen to specified regen time.
DELAY + IMMEDIATE sets regen to occur after 10 minutes of no water usage.
IMMEDIATE sets an immediate regen upon zero gallons of remaining capacity.
Default is DELAYED.



Set first MAV drive control with + and - buttons.

ALT A and ALT B are only used in twin configurations (see MAV manual for more details).
SYSTEM CONTROLLER configures board to operate with the Clack System Controller.
SEPARATE SOURCE changes state at the start and end of regen cycle.
NO HARD BYPASS configures MAV as a no hard water bypass.
TIME changes state at a set time referenced to the start of regen, for a preset duration of time independent of actual regen status. Inactive during alternate regeneration cycle.
Default is OFF.

WARNING: Leaving valve in ALT A, ALT B or ENABLED without proper hardware will result in errors.



Set auxiliary input with + and - buttons.

IMMED indicates unit will regen immediately.
DELAY indicates that after a 2 minute signal from external contact, unit will regen at delayed regen time.
HOLD indicates that unit will not regen while external contacts are closed.
ALARM indicates that control valve's internal alarm will sound upon external contact closure.
Default is OFF.

WARNING: External contact is needed to operate any of the above settings properly. If no external contact is connected, no setting is needed.

→ continue to next page

Accessed by pressing **NEXT** and **-** simultaneously for three seconds.
 Once screen changes, press **NEXT** and **-** simultaneously again for three seconds.

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Set first relay trigger with + button. Press + to reach desired triggering event. If not using a relay, make sure OFF is selected and press NEXT.

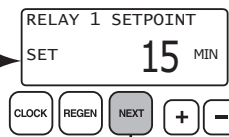
OFF indicates that no external devices are being used.
 Default is OFF.

Return to general display.



Set relay trigger with + and - buttons.

TIME indicates that relay will be energized for a specified period of time during regen only. To set by this, press **NEXT**.



Set relay setpoint with + and - buttons.

This is the delay time period after regen starts that relay will initially energize. 0 indicates an immediate start.



Set relay duration with + and - buttons.

This is the duration of time, after relay setpoint, that relay will remain energized.

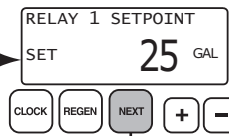
NOTE: Can be all or any part of total regen time, but will turn off at end of regen.

Return to general display.



Set relay trigger with + and - buttons.

GALLONS indicates that relay will be energized after a specified number of gallons are expended in service position only. To set by this, press **NEXT**.



Set relay setpoint with + and - buttons.

This is the gallons that will be expended before relay will initially energize.



Set relay duration with + and - buttons.

This is the duration of time, after relay setpoint, that relay will remain energized. Adjustable from 1 sec to 500 min.

NOTE: Will shut off if a regen is initiated.

Return to general display.

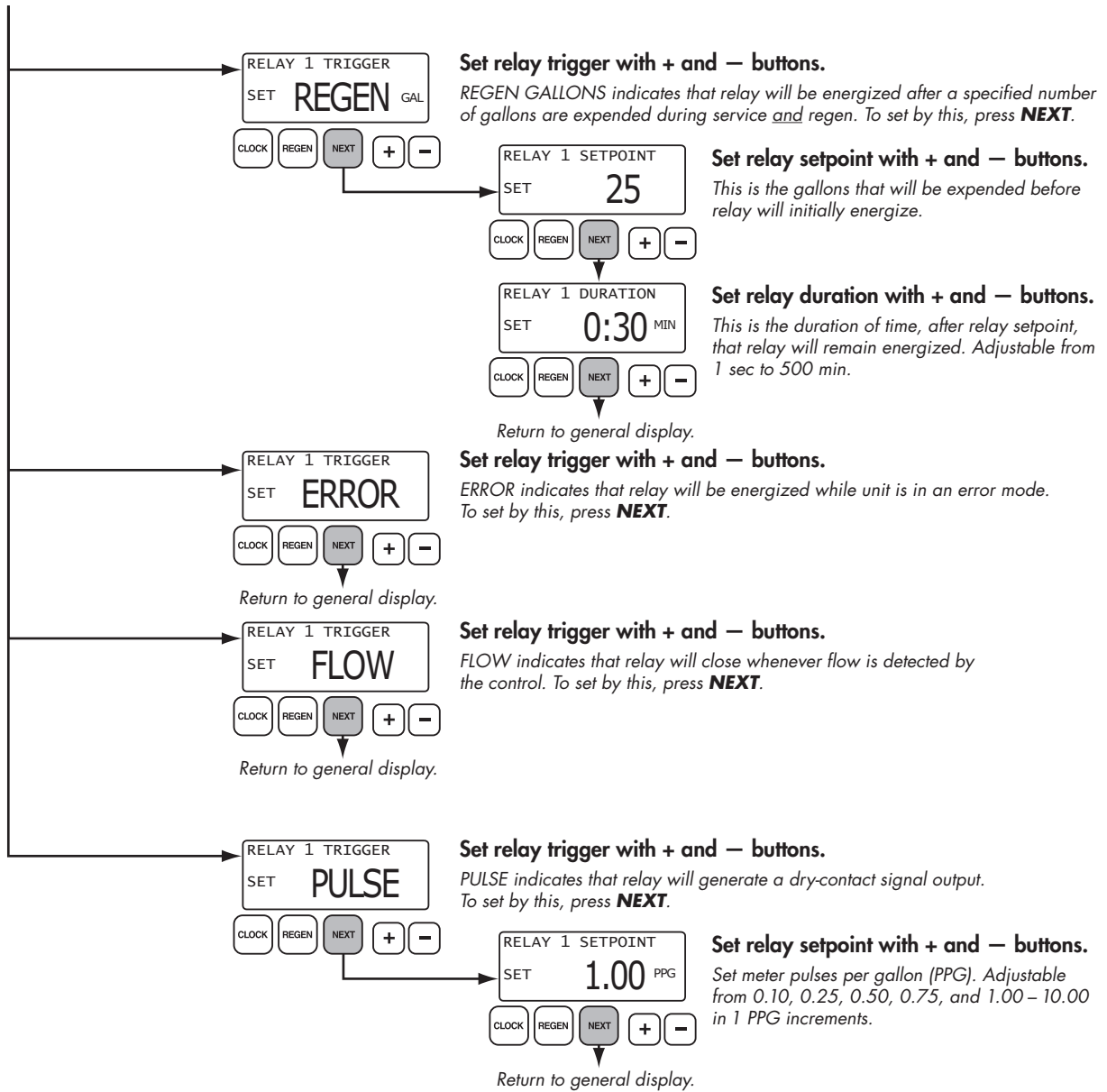
If using Relay:

1. Push **+** to engage one of the following Relay Triggers:
 - Time
 - Gallons
 - Regen
 - Error
 - Flow
 - Pulse
2. Press **NEXT** to program Setpoints and Durations.

→ continue to next page

Accessed by pressing **NEXT** and **-** simultaneously for three seconds.
Once screen changes, press **NEXT** and **-** simultaneously again for three seconds.

continued from previous page



First Level History Screens

Accessed by pressing **+** and **-** simultaneously for three seconds.
Returns to general display after 5 minutes.

DAYS SINCE REGEN
5

Displays number of days since last regen.

CLOCK REGEN NEXT + -

VOLUME SINCE REGEN
980 GAL

Displays number of gallons since last regen.

CLOCK REGEN NEXT + -

RESERVE FOR
MON 320 GAL

Displays reserve capacity.

Use **+** and **-** buttons to scroll through each day of the week to view calculated reserve capacity.

CLOCK REGEN NEXT + -

USAGE WED R
DAY 15 230 GAL

Displays gallon usage history.

Use **+** and **-** buttons to scroll through past 90 days of water usage history. T1 and T2 usage for this day combined in this display (1.0T Mode Only).

"R" indicates a regen has occurred that day.
"M" indicates a manual regeneration.

"S" indicates a step through manual regeneration.
"E" indicates a valve error has occurred.

CLOCK REGEN NEXT + -

Only viewed if set for twin system.

3 DAYS 12:35
A→B 0.00 GAL

Displays tank transfer history.

Use **+** and **-** buttons to scroll through last 10 tank transfers. Viewed in 1.0T Mode only.

"1" indicates most recent tank transfer.
"A" indicates service flow transferring away from tank.
"B" indicates service flow transferring to tank.
"3" indicates days ago of transfer (99 day max)
"0.00" indicates gallons used at time of transfer.

CLOCK REGEN NEXT + -

Displays gallon usage by hour any time within last 90 days. Access by pressing **+** and **-** buttons simultaneously for three seconds.

Use **+** and **-** buttons to scroll through each hour of the day.

WED 12- 1 AM
DAY 15 0 GAL

CLOCK REGEN NEXT + -

Back to usage screen

MAX FLOW HISTORY
MON 12 GPM

Displays peak flow rate history.

Use **+** and **-** buttons to scroll through last 7 days to view peak flow rate for that day.

CLOCK REGEN NEXT + -

TOTAL GALLONS
250 X1K

Displays total gallons used since startup.

X1K = 1,000 gallons

CLOCK REGEN NEXT + -

TOTAL DAYS
970

Displays total days unit has been in service.

CLOCK REGEN NEXT + -

TOTAL REGENS
190

Displays total regens since startup.

CLOCK REGEN NEXT + -

continue to next page

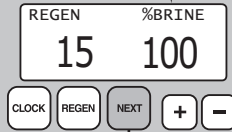
First Level History Screens

cont'd

Accessed by pressing + and - simultaneously for three seconds.
Returns to general display after 5 minutes.

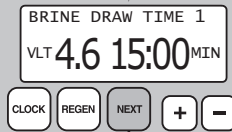
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Only appears on units equipped with chlorine generator option.



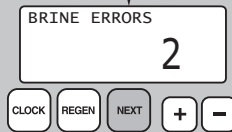
Displays brine concentration history.

Use + and - buttons to scroll through last 50 regenerations to view brine concentration. Units with multiple brine cycles only record the first one.



Displays voltage consumed and brine draw time.

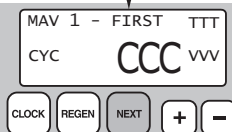
Use + and - buttons to scroll through last 50 regens and view voltage consumed, along with time it took to draw brine from tank.



Displays total number of times chlorinator detected an error, including low salt.

Errors will be recorded from all brine cycles.

Only appears on units equipped with MAV.



Displays MAV drive time history for an active MAV 1 output.

Use + and - buttons to select a MAV output. Pushing both + and - buttons will reset this display.

First = Average of the first three drive times measured for that MAV in that direction.

Last = Last drive time measured for that MAV in that direction.

Ave = Current average drive time calculated for that MAV in that direction.

TTT = Relative MAV drive time measured (First/Last/Ave).

CCC = Total number of cycles in/out for that MAV.

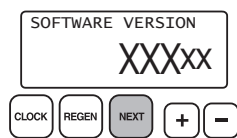
VVV = Relative MAV drive voltage measured (First/Last/Ave).

Return to general display.

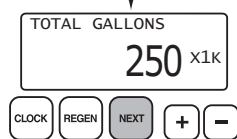
Second Level History Screens

Accessed by pressing **+** and **-** simultaneously for three seconds.
Once screen changes, press **+** and **-** simultaneously again for three seconds.

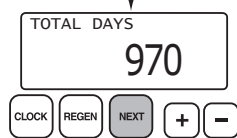
Non-resettable history.



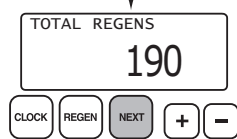
Displays software version.



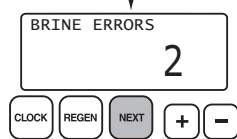
Displays total gallons used since startup.



Displays total days unit has been in service.

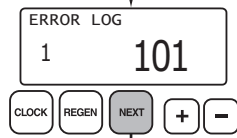


Displays total regens since startup.



Displays total number of times chlorinator detected an error, including low salt.

Errors will be recorded from all brine cycles.



Displays last ten valve errors that occurred. Scroll through with **+ and **-** buttons.**

Error Code Description

- 101 UNABLE TO START: Valve not sensing valve movement with motor energized.
- 102 MOTOR STALLED: Valve unable to find next cycle position (stalled).
- 103 MOTOR RAN TOO LONG: Valve unable to find next cycle position.
- 104 VALVE HOMING: Valve unable to find Home position.
- 106 MAV 1 RAN TOO LONG: MAV 1 motor ran too long, unable to find proper park position.
- 107 MAV 1 STALLED: MAV 1 motor ran too short, unable to find proper park position (stalled).
- 109 INVALID MOTOR STATE: Control can no longer operate properly due to detection of an invalid motor state.
- 201 INVALID REGEN STEP: Control can no longer operate properly due to detection of an invalid regeneration cycle step; internal software error.
- 204 LEAK DETECTED.
- 402 POWER DOWN MEMORY: Check sum error for operational data and status section of EEPROM memory — specific type of memory failure.
- 403 PROGRAM MEMORY: Check sum error for programming section of EEPROM memory — specific type of memory failure.
- 404 DIAGNOSTIC MEMORY: Check sum error for diagnostic section of EEPROM memory — specific type of memory failure.
- 405 HISTORY MEMORY: Check sum error for history section of EEPROM memory — specific type of memory failure.
- 406 CONTACT MEMORY: Check sum error for contact screen section of EEPROM memory — specific type of memory failure.
- 404 DIAGNOSTIC MEMORY: Check sum error for diagnostic section of EEPROM memory — specific type of memory failure.
- 410 CONFIG DOWNLOAD: Configurator file downloaded to the control was not originally uploaded from another control with the identical software revision.

Return to general display.

