

# SmartLine Owner's Manual

[SmartLine Controller Owner's Manual](#)

[Controller Program Template](#)

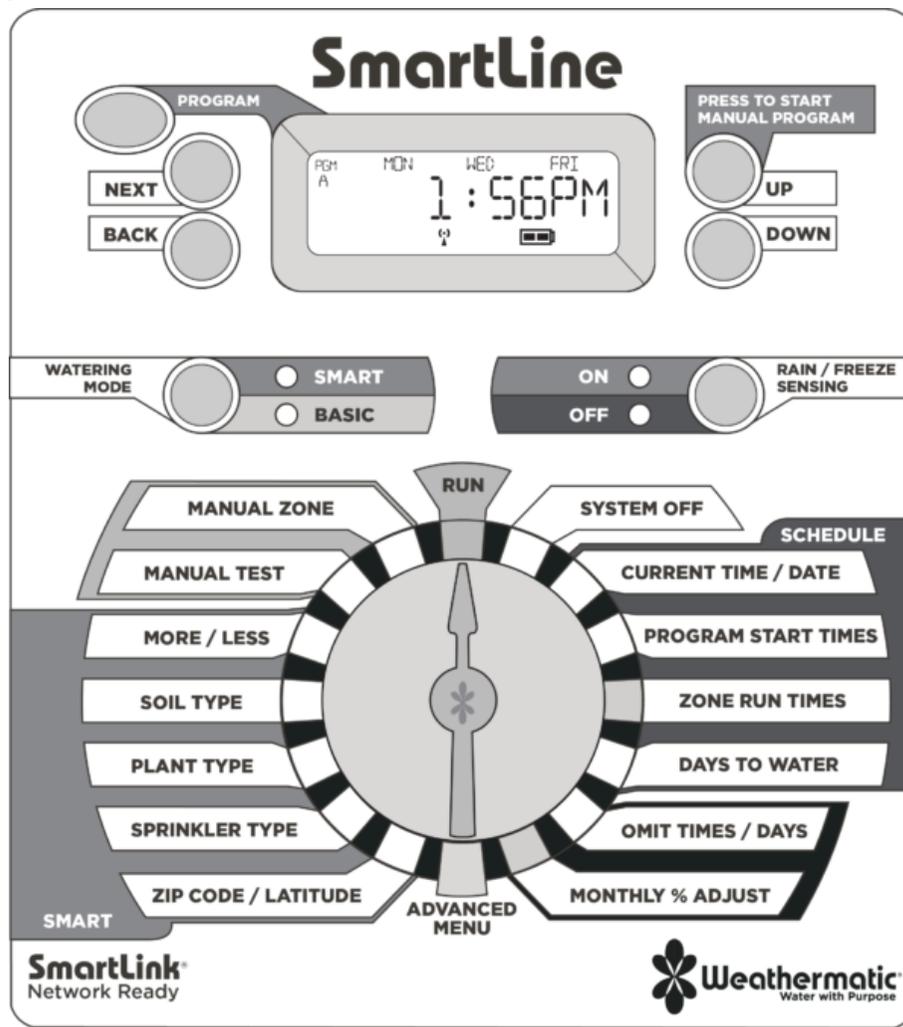
[Controller Basic Watering Schedule Template](#)

[Controller Smart Watering Schedule Template](#)

## 1.0 Getting Acquainted With Your SmartLine® Controller

SmartLine® is the smart choice for water conservation and beautiful landscaping. The “get acquainted” information in this section will make programming your unit easier and faster.

### 1.1 Getting Acquainted With Your Control Panel



The SmartLine® Controller LCD Display provides the following information when the controller is set to RUN, SYSTEM OFF, or when there is no active watering operation underway (display with program in IDLE mode):

**Time of Day:** SmartLine® Controllers use a Real Time Clock/Calendar instead of a backup battery to maintain correct time during a power outage. For the SL1600 and SL4800, the display will show a blank

battery icon in the display, this is used for viewing the RFS5 and SLW5 when testing the battery levels from the ADVANCED MENU of the control panel.

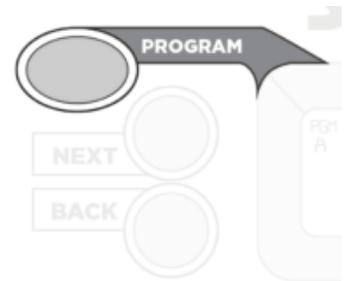
**Next Watering Day or Days:** The display will show the watering days in the current week for Program A. To view watering days for Program B, C or D just press the PGM button.

**Fault Indicator:** Appears ONLY when a fault is detected. Turn dial to Advanced Menu and press the DOWN then NEXT button to view faults. Once you turn the dial to Advanced Menu the fault indicator will stop flashing but will continue to appear on the screen until the fault is removed or user clears fault in Advanced Menu. If fault is cleared in Advanced Menu, it will appear again the next time the program runs if the problem is not corrected.

No AC: Appears when there is no AC supply to the controller.

### PGM Button:

The SmartLine® controller has 4 watering programs (A, B, C, and D). This is like having 4 controllers in one. You can assign zones to any of the 4 programs, allowing for complete flexibility of your irrigation schedule. Programs A, B, C, and D can be programmed to operate concurrently. The display will alternately show all active running programs when in use. Sprinkler zones should be assigned to Programs A, B and C as Program D is intended for micro irrigation with low flow and long run times. Sprinkler zones should be assigned to A, B, or C.



Care must be taken when programming. In order to not exceed your irrigation system's hydraulic capacity, double check the strength of your piping and points of connection. Exceeding this capacity could lead to fault indications and interrupted irrigation schedules. The electrical capacity is limited, depending on your model. A pump start relay may require more mA than a solenoid. Keep aware of these boundaries when scheduling programs to initiate and operate simultaneously.



**START MANUAL PROGRAM Button:** Press to initiate a watering operation when the programming dial is set to the RUN position. The SmartLine® controller will run Program A. Or, you can push the PGM button before you push the START MANUAL PROGRAM button to select the program you want to run. You can use the NEXT button to advance to other zones in a program that you have started. Start Manual Program will override any omits or delays.

**Display With Program Running:** When a program is running, the screen will display: program that is operating; zone number that is operating; and run time remaining. An ORANGE LED indicates program is in PAUSE mode waiting for a programmed delay in the controller to expire (run/soak, master valve delay, zone to zone delay, omit time). The display will show the reason for the pause.



**Display With Dial In SYSTEM OFF Position:** When the SmartLine® controller dial is in the SYSTEM OFF position, the processor and clock continue to operate and all program values are retained in the non-volatile memory. In the SYSTEM OFF position no automatic watering will occur. The Mode Selection LED will display red when controller is turned to SYSTEM OFF.



If you move the dial to any position other than RUN or SYSTEM OFF, and there is no control panel activity for 1 hour, the controller will return to the RUN mode, and the display screen will show the idle default screen or will return to a program in progress that was interrupted.

**Watering Mode Button:** Used to select SMART or BASIC watering. During normal operation the MODE LED will display GREEN. It will change to ORANGE during a pause in operation and will display RED when SmartLine® controller dial is turned to SYSTEM OFF.



**Rain/Freeze Sensing Button:** Used to activate or bypass optional sensors for rain, freeze, or wind. If these sensors are connected to your SmartLine® controller, they will override watering operations if the ON LED is selected. If your sensor/s have paused your system operation, the ON LED will be RED until the sensors allow watering to resume. In the event of a “rain” pause, the LED will change from RED to ORANGE for an additional pause time before the LED displays GREEN and system operation resumes. Smart Watering deficits will decrement to 0 at the rate of 1” per hour. The sensor LED will display GREEN again when the sensor/s are no longer pausing your system operation.



**Note:** No watering will take place when the RAIN/FREEZE SENSING LED is RED. This indicates a Rain, Freeze or other type sensor has tripped, and programs are prevented from running. An ORANGE MODE LED means watering is paused temporarily due to: run/soak, master valve delay, zone to zone delay, or omit time. A program in operation will also pause if you turn the dial to any position other than RUN or SYSTEM OFF. The program in operation will resume when you return the dial to RUN or if there is no programming activity for 60 minutes.

**Note:** The SLW Delay dryout period is factory set for 48 hours. To change the delay period, see SLW in Advanced Menu.

If you wish to deactivate the sensors, use the RAIN/ FREEZE SENSING button to light the green OFF LED. Example: You wish to water after fertilizing and your rain sensor is still pausing the watering program. As long as the OFF LED is on, the sensors will not pause your system operation. Note: You may have zones you want to omit from rain/freeze shutdown. Example: Potted plants under cover. If you are using an SLW Weather Sensor or the RFS5 rain/freeze sensor communicating with your controller through an SLHUB, see SLW in Advanced Menu for instructions. If you are using a rain/freeze sensor connected to your controller at the SEN terminals, see SENSOR in Advanced Menu for instructions.

**Note:** The RAIN/FREEZE SENSING button can be used to bypass rain and freeze sensors.

## 1.2 Quick-View

With the dial in the RUN or OFF position and FLOW is enabled through SmartLink Network, press the down button once to reveal REAL-TIME FLOW. It will display the current flow rate from active running zone valve(s) or mainline activities such as Quick Coupler Valves or Hose Bibs through the LEAK DETECT function.

# 2.0 Programming the Controller

Your SmartLine® controller has two operating modes: BASIC mode or Weathermatic's patented SMART mode. The BASIC mode uses user assigned zone run times. The SMART mode overrides user assigned zone run times and calculates zone run times based on the location of the site, inputs by zone, and weather readings from the SLW Weather Sensor. Note: SMART requires the optional SLW Weather Sensor.

Smart watering calculates ET (evapotranspiration), the landscape's daily water loss, and schedules the correct amount of irrigation to replace the loss. When combined with a Weathermatic SLW Weather Sensor, Smart mode gives you the power to reduce water waste. Many water districts are offering rebates for Smart mode users. Check with your local district.

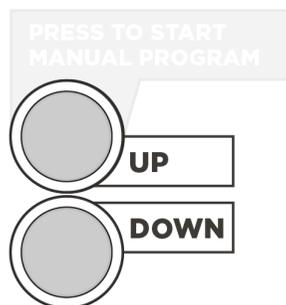
Both the BASIC mode and SMART mode operate based on the user's programmed start times, watering days, omit times/days, and several Advanced Menu features (rain delay, zone to zone delay, and master valve settings).

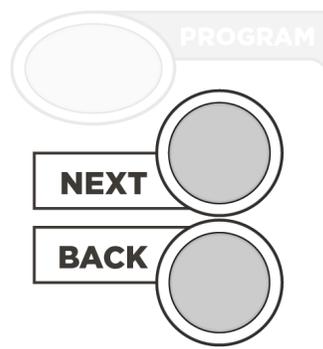
Important Note: Zone run times must be entered for every zone in use for the controller to recognize the zone in either BASIC or SMART modes.

## 2.1 Using the Programming Buttons

A FLASHING DISPLAY indicates that user choices are available. The UP and DOWN Adjust Value buttons are used to scroll through numeric values or to make a choice of menu options.

**NEXT and BACK Buttons:** When watering zones are being programmed, the left side of the display will indicate the zone number. The NEXT and BACK buttons are used to scroll through the zones. If the flashing display indicates a menu selection rather than a numeric value, the NEXT button will open the menu for further programming. The BACK button will exit the menu and cause the chosen value to be saved in memory.





**RAPID ADVANCE:** While programming, holding down the UP or DOWN button will cause the flashing display value to rapidly advance. Rapid advance can also be used with the NEXT and BACK buttons to rapidly advance through zones.

**MENUS WITHIN MENUS:** In cases where there are menus within menus, each press of the BACK button will return to the next higher menu until the top level menu of the dial position is reached.

**A VALUE CHANGE:** Saves after 30 sec of inactivity or dial position changed to RUN or OFF.

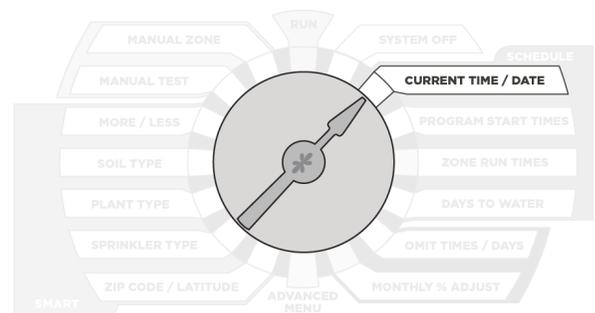
## 2.2 Current Time/Date

Use UP and DOWN buttons to change the flashing value for the hour. Scrolling past 12 will automatically change AM/PM. Remember holding down the UP or DOWN button will rapidly advance through the flashing menu.

Use NEXT button to flash minutes. Use UP and DOWN buttons to set minutes. Push NEXT to access calendar setting. Use UP and DOWN buttons to set month/day/year. (Note: For international users, the display will read

day/month/year.) Your SmartLine® controller has a 100-year calendar, so when you have entered the correct date, the SmartLine® controller will automatically display the correct day of the week.

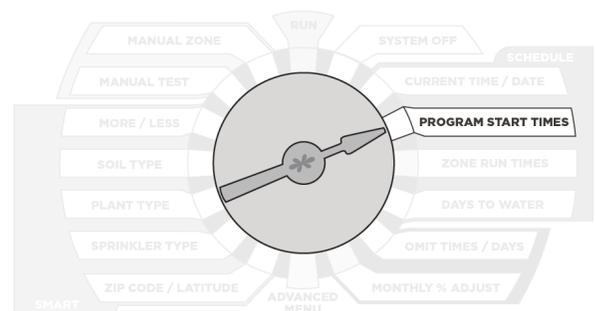
Your SmartLine® controller will automatically adjust for leap years and USA daylight savings time. See DS TIME, in Advanced Menu to to turn the feature on/off and change the DST schedule.



## 2.3 Program Start Times

Set Start Time for each program to be used (A, B, C and D). If more than three program start times are desired, refer to NUM STRT, in Advanced Menu. The program will start at the time you designate and will water all zones with set Zone Run Times for that program.

For most watering programs set only Start Time #1. The #1 Time will water all zones with Zone Run Times set in that program in consecutive order. Extra start times will re-run all zones. Extra start times may be used for new planting grow-in or other special local conditions. Unused start times must be set in the OFF position. To set a start time at OFF, press on either UP or DOWN button until you reach the OFF position located between 11:50 PM and Midnight.



When setting program start times, check the program icon in the display to see whether you are working in A, B, C or D. Use PGM button to move between programs. Use NEXT and BACK buttons to move between start times. Use UP and DOWN buttons to set each start time desired. Start times are selectable in 10-minute increments.

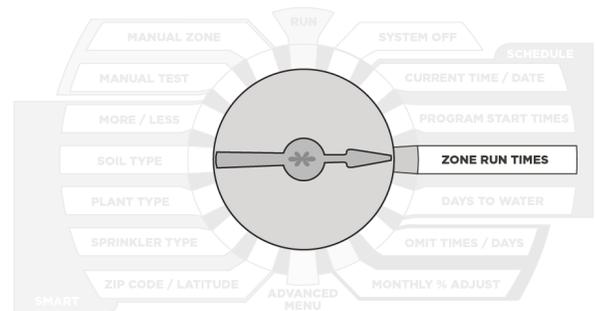
Push PGM button to assign zone time in one or more programs. Care has to be taken when programming. You need to have awareness of the hydraulic capacity of the irrigation system piping and points of connection so that they are not exceeded. Further care should be taken so the electrical capacity of the controller is not exceeded. The electrical capacity is 750 mA or 3 irrigation solenoids. A pump start relay may require more mA than a solenoid. Keep aware of these boundaries when scheduling stations to initiate and operate simultaneously.

**Note:** Be sure you select the AM/PM time as desired by scrolling past 12. (For international users, the display will show international hours instead of AM/PM.)

## 2.4 Zone Run Times

Your SmartLine® controller will display remaining hours, minutes and seconds when a zone is watering. However, in this position you are only required to set minutes (or hours and minutes) for each zone as desired for operation time. Seconds are not selectable.

Use NEXT and BACK buttons to select zone for run time setting. All zones are selectable from 1 minute to 9 hours and 55 minutes. Run times of OFF to 59 minutes are selectable in one minute increments. Run times of 1 hour to 9 hours 55 minutes are selectable in 5-minute increments. Use UP or DOWN buttons to set flashing time values for each zone. If a zone is not to be used, set it to OFF. Caution: If an unused zone is turned on and activates a pump start relay, the pump may overheat or cause a pipe to burst. To prevent operating a pump with no flow (dead heading), make sure all unused zones are set to OFF.



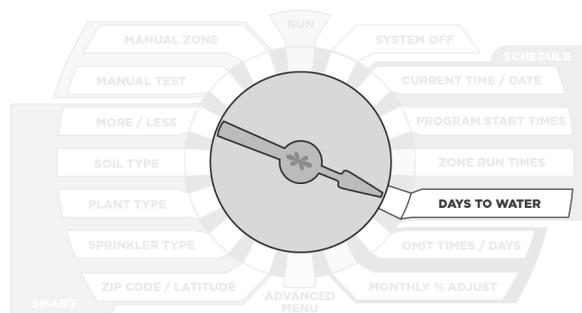
**Note:** Run/Soak feature can reduce the need to set multiple start times for the purpose of preventing runoff. Using the combination of multiple start times and Run/Soak cycles can lead to extended watering windows since Run/Soak cycles are applied to each start time. See Soil Type, page 9 section 4.2.3.

## 2.5 Days to Water

In this dial position you can select DAYS, EVEN, ODD and INTERVAL watering schedules. Use UP and DOWN buttons to select which type of schedule you want in your SmartLine® controller. Remember to check the Program (PGM) selection showing in the display. You can select a different watering schedule for each program if you wish.

If you select DAYS, then use the NEXT button to step through each day of the week and the UP and DOWN buttons to select ON or OFF status for each day. Days selected to water will be displayed at the top of the display.

If you select an INTERVAL schedule, push NEXT button. The flashing number indicates the day interval for watering. SmartLine® controller will allow an interval of 1 (every day) to 30 (water once every 30 days). After you have selected the interval you want, push NEXT to set the day you want the interval schedule to start on. Use UP and DOWN buttons to select start day at top of display. The controller will begin on the next upcoming start day.

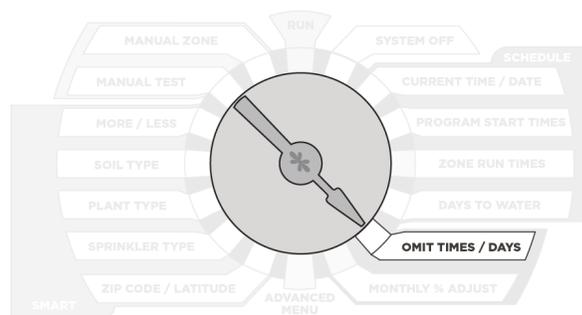


**Note:** The display will only show the upcoming watering days for the current week.

To select EVEN or ODD watering days, simply press the UP or the DOWN button when viewing the panel option DAYS TO WATER. If ODD is flashing on the display when you turn the dial to another position, you have selected ODD. The same is true for EVEN. When you return the dial to RUN, you can view the next day that your schedule will run. The SmartLine® Controller will run ODD or EVEN programming at the next available start time, even if it is on the same day that you set up the schedule. If you are using an ODD schedule, the SmartLine® controller will not water on the 31st day of a month and February 29th of a leap year to prevent two consecutive watering days (31st and 1st or 29th and 1st).

## 2.6 Omit Times/Days/Dates (Optional)

The omit settings are used to set a watering blackout period. For example, if you live in a municipality that restricts outdoor watering between 10:00 am and 6:00 pm, you can blackout that time period. If a watering program in progress is paused for a blackout period, the ORANGE LED will display during the pause. The watering cycle will automatically resume at the end of the blackout period. Use the UP and DOWN buttons to select OMIT:TIME, OMIT:DAY, and OMIT:DATE. You may choose any or all of these omit options.



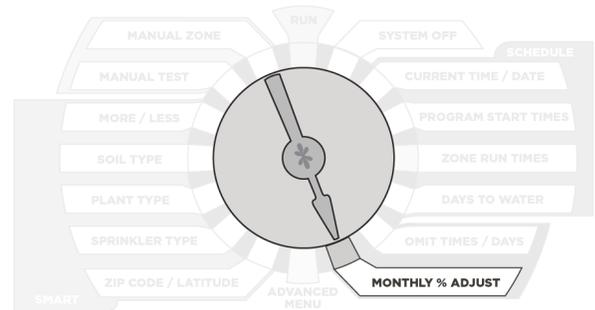
If you want a watering blackout for the same period each day, select OMIT:TIME. Then push NEXT. A forward (>) arrow indicates the beginning time for the blackout. Use UP and DOWN buttons to set beginning time. Then push NEXT. A reverse arrow (<) indicates the end time for the blackout. Use UP and DOWN buttons to set ending time. The OMIT:TIME function will pause any active watering program until the blackout period has expired.

If you want to omit a specific day or days each week from watering schedules, select OMIT:DAY with the UP and DOWN buttons. Then push NEXT. Display will show a day of the week with Omit or Allow flashing. Use UP and DOWN buttons to select Omit or Allow. Use NEXT or BACK to scroll between days of the week. Omitted days will be visible at the top of the display. Any running user program will be stopped at midnight in order to honor omit days or dates. Programs scheduled to start on an omit day will be skipped.

If you want to omit specific dates during the year, select OMIT: DATES. Then push NEXT. Enter the month and date. Push NEXT to enter up to 15 dates. Scrolling the month value between 12 and 1 causes mm/dd to appear and clears the omitted date/s. Any running user program will be stopped at midnight in order to honor omit days or dates.

## 2.7 Monthly % Adjust (Optional)

The Monthly % Adjust feature allows the user to modify zone run times by program for each month to easily adjust watering for seasonal climate changes. The time programmed for each zone in ZONE RUN TIMES is always the value for the 100% setting in Monthly % Adjust. When you use the Monthly % Adjust, you are increasing or decreasing the 100% time value. % settings in this mode are 0 to 300% in 5% increments. Use UP and DOWN buttons to select % desired. Press PGM to choose program. A 0% setting will adjust zones to a zero second runtime.



PROGRAMMING IS COMPLETE FOR BASIC OPERATION. RETURN THE DIAL TO THE RUN POSITION.

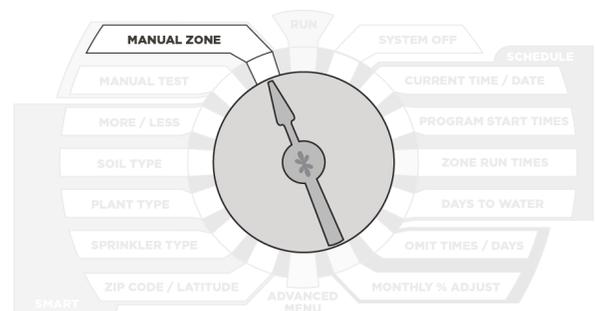
**Note:** When the SmartLine® controller is in SMART mode this feature is voided. SMART mode will change zone watering times daily.

# 3.0 Manual Start Functions

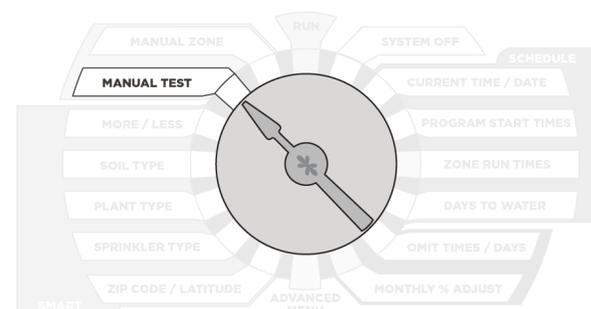
The SmartLine® controller has two dial positions for manual system starts:

## 3.1 Manual Zone

Manual Zone allows user to water a single zone for specified period of time. Use NEXT and BACK buttons to select zone. Use UP and DOWN to select run time for the zone. A zone can be operated with the Manual Zone function regardless of whether the zone has an assigned run time. You must return dial to RUN for Manual Zone operation to begin. All manual watering operations will override watering day settings, omit settings, and rain/freeze events.



## 3.2 Manual Test



The Manual Test can be used to set a test run time for all zones which have an assigned zone run time in any program. Any zone without an assigned zone run time will NOT run in the Manual Test. Use UP and DOWN buttons to set Manual Test run time. The Manual Test can be set to run a minimum of 10 seconds or a maximum of 10 minutes. You must return dial to RUN for Manual Test operation to begin.

Manual Test will detect open circuits (less than 30 mA draw) on any used zone or a short on any output (master valve or zone). If the display indicates FAULT while running a Manual Test, refer to Advanced Menu to identify the FAULT.

## 4.0 Programming for Smart Watering Mode

Weathermatic's patented SMART mode overrides user-assigned zone run times and calculates zone run times based on the location of the site, inputs by zone, and weather readings from the SLW Series On-Site Weather Sensor. SMART mode is designed to help you protect your landscaping, reduce wasteful run-off, and minimize your water costs.

Warning: Smart mode positions on the dial can only be selected when an optional SLW Series On-Site Weather Sensor accessory is installed. Additionally, Basic Program Function must be set up completely before setting up SMART mode. SMART Mode replaces the Zone Run Times with a calculated value using the SMART settings.

### 4.1 Set ZIP Code or Latitude

SMART operation first requires that the SmartLine® Controller know "where in the world" it is located. Users in the USA can set location by ZIP Code. Users outside of the USA can set location by latitude. Use UP and DOWN buttons to select ZIP Code (USA) or LATITUDE. To find your latitude, see World Latitudes in the Reference section.

If you are setting a ZIP Code, push NEXT. Display will show 5 numerical positions for ZIP Code settings. Use UP and DOWN buttons to set the flashing number. Then push NEXT to flash the next number. Use UP and DOWN buttons to set second number. Continue process until all 5 numbers of your ZIP Code are set.

If you are outside the USA, you will enter LATITUDE. You can use the UP and DOWN buttons to choose any latitude between 60 degrees south and 60 degrees north. 0 degrees setting is marked as EQUATOR.

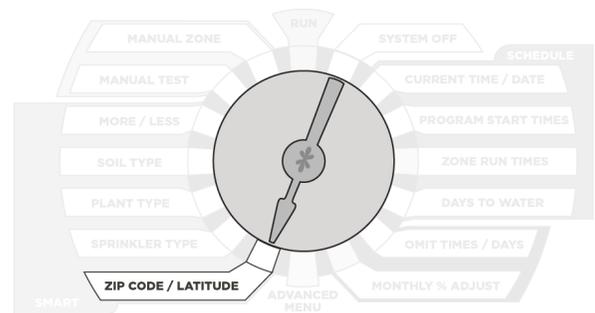
Find your Latitude/Longitude

### 4.2 Enter Smart Data for Zones

Enter SMART data for zones: Sprinkler Type, Plant Type, Soil Type, and MORE/LESS. The SmartLine® controller cannot calculate run times without SMART data for each zone and without Zone Run Times assigned to each operational zone, which serve to back up SMART mode.

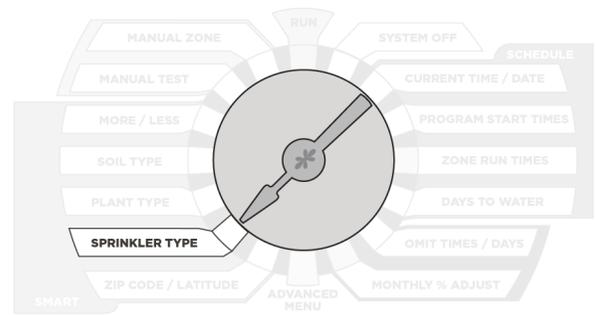
#### 4.2.1 Sprinkler Type

In order to calculate run time, the controller must know the expected precipitation rate for each zone. Use NEXT and BACK buttons to move between zones. Use UP and DOWN buttons to set zone to OFF or to specify the precipitation rate.



| SPRINKLER TYPE | DEFAULT PRECIPITATION RATE |
|----------------|----------------------------|
| SPRAY          | 1.5 inches per hour        |
| ROTOR          | 0.5 inch per hour          |
| DRIP           | 1.1 inches per hour        |
| BUBBLER        | 2.3 inches per hour        |

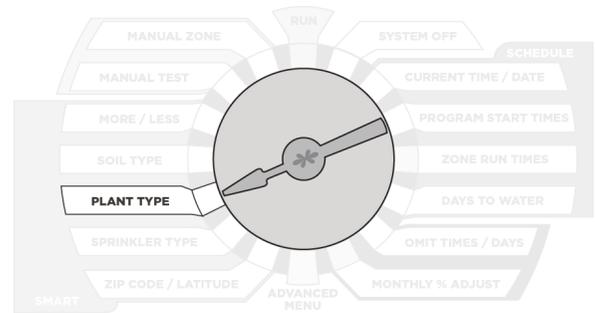
Precipitation rate can be entered two ways: by sprinkler type or by



specific precipitation rate. If you do not know the specific precipitation rate for the zone, you can select the sprinkler type, or watering equipment used on that zone: Spray, Rotor, Drip, or Bubbler irrigation. The SmartLine® controller will apply a default precipitation rate for the sprinkler type selected. If you know the specific precipitation rate expected for the zone, stated by the sprinkler manufacturer, you can use the UP and DOWN buttons to scroll past the sprinkler types and select that number. For USA users, inches per hour will be displayed (.2 to 3.0 inches per hour). Numeric precipitation rate resolution is 0.01 in/hr below the 2.0 in/hr setting. For international users, the controller will display precipitation numbers in centimeters per hour. As a rule in SMART mode, the lower the precipitation rate entered, the longer the zone run time will be to achieve required plant life needs. For zones selected to use set Zone Run Times rather than SMART run times, select STD setting Sprinkler Type. Program features and operations are supported with STD zones, including Run/Soak, and STD zones may run within SMART programs or separately.

#### 4.2.2 Plant Type for Zones

This position is used to specify the type of plant material to be watered by each zone as an important component of determining the watering needs for each zone. Use the UP and DOWN buttons to select plant type or percent for each zone. Press NEXT and BACK buttons to access each zone.



| PLANT TYPE | DEFAULT % |
|------------|-----------|
| CTURF      | 80%       |
| WTURF      | 60%       |
| SHRUBS     | 60%       |
| ANNUALS    | 100%      |
| TREES      | 80%       |
| NATIVE     | 25%       |

Plant type selections are:

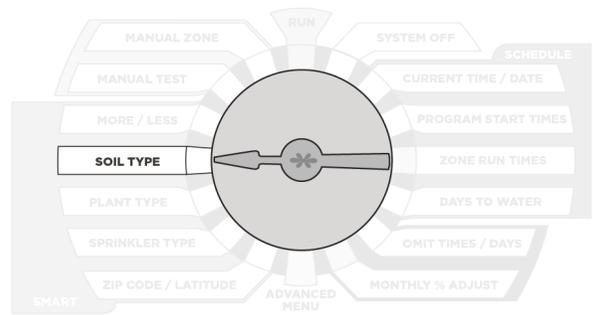
CTurf (cool turf like bluegrass); WTurf (warm turf like St. Augustine); Shrubs; Annuals (floral beds); Trees; and Native plants. The SmartLine® controller formula uses cool turf mowed at 4 to 6 inches tall as the base watering number (100%) or crop factor. The cool turf default is 80% considering average mowing heights of 2 to 3 inches, which result in less transpiration and lower water requirements. If you prefer more specific input, you can scroll past the plant types and use % designations of 10 to 300%. For

example, a Native plant zone might be assigned 30% rather the default of 25%. As a rule in SMART mode, the higher the plant type percentage entered, the longer the zone run time will be to achieve required plant life needs.

For maximum water savings, it is recommended that your sprinkler system be zoned with a separate valve for each type of plant material. If you have mixed types of plants in a single zone, you will need to select which type of plant to use in the determination of water requirements.

#### 4.2.3 Soil Type for Zones

Soil settings for soil type and degree of slope are used to enable your SmartLine® controller to automatically calculate the maximum length of a zone run time before pausing watering for a calculated period to allow the water to soak into the soil. These Run/Soak (also called Cycle/Soak) periods based on industry BASIC formulas reduce wasteful runoff caused by watering more than the soil can absorb. The Run/Soak feature included in Advanced Menu can be manually entered for use with the BASIC mode. However, in the SMART mode, the SmartLine® controller will automatically calculate Run/Soak times with soil inputs made at the soil type position on the dial. Run/Soak settings made in Advanced Menu are not active when controller is in SMART soak schedules can be viewed by selecting Advanced Menu, Review and Run/Soak.



| SLOPE/GRADE | DEGREE OF SLOPE |  |
|-------------|-----------------|--|
| SLIGHT      | 1-5             |  |
| MILD        | 6-10            |  |
| MODERATE    | 11-15           |  |
| STEEP       | 16-20           |  |
| EXTREME     | 21-25           |  |

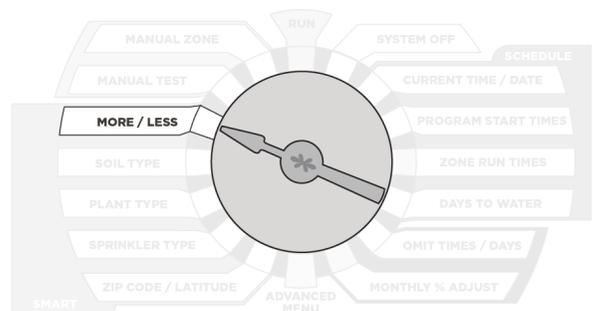
Use the UP and DOWN buttons to select Clay, Loam or Sandy soil type for each zone. After you have selected a soil type for a zone, push NEXT button to advance to the next zone. Slope for each zone can also be set in the Soil Type menu. From the Soil Type menu, use the UP and DOWN buttons to select Slope. Using the NEXT button select the degrees of slope (elevation change) for each zone. Set each zone for 0 to 25 degrees of slope based on the chart provided.

Use NEXT button to move between zones.

**Note:** Factory default settings are clay soil and zero slope.

#### 4.2.4 More/Less (optional)

**Note:** Run/Soak period can reduce the need to set multiple start times for purpose of preventing runoff. Using the combination of multiple start times and Run/Soak cycles can lead to extended watering windows since Run/Soak cycles are applied to each start time.



| SHADE LEVEL     | MORE/LESS % |
|-----------------|-------------|
| TOTAL SHADE     | -50%        |
| FILTERED SHADE  | -20%        |
| MORNING SHADE   | -10%        |
| AFTERNOON SHADE | -30%        |

When your SmartLine® controller is set in SMART mode, the Seasonal % Adjust in the BASIC mode is inactivated since the automatic adjustments are made daily rather than monthly. You can use MORE/LESS to fine tune the run time calculation by zone in the SmartLine® controller by -50 to +25%.

Use UP and DOWN buttons to select % adjustment. Use NEXT and BACK buttons to move between zones.

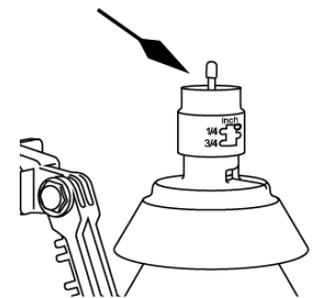
This feature can be useful to reduce run time adjustments for shady and partially shaded zones. The table provided may be used for general shade guidelines. Other factors may result in needing to use MORE/LESS for fine tune adjustments including sprinkler efficiency, zone efficiency, and wind. Sprinkler efficiency varies between types of sprinklers and the manufacturer's design. Zone efficiency varies based on the design layout of sprinklers in a zone, sometimes overlapping or sometimes not. High winds can serve to dry out plant and soil to increase the need for water. For optimum results considering the many unique variables in each zone, users should periodically monitor plant life health and water usage, especially after initial controller setup, so proper adjustments can be made.

THIS COMPLETES PROGRAMMING FOR SMART WATERING. RETURN THE DIAL TO THE RUN POSITION.

#### 4.2.5 Activating the SLW Series On-Site Weather Sensor

SLW5 wireless and SLW1 wired weather stations both communicate with the controller via an SLHUB transceiver. Install the SLHUB by inserting the pins of the HUB into the connector located at the top right of the controller cabinet. On the SLW Weather Sensor, press and hold down the Rain Sense test tab in the center of the rain sensor for 15 seconds.

SLW Weather Station Rain Sense spindle



#### 4.2.6 WATERING MODE Button



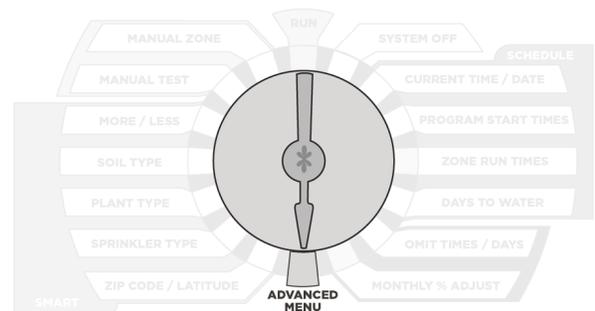
Press the WATERING MODE button on the control panel to place the

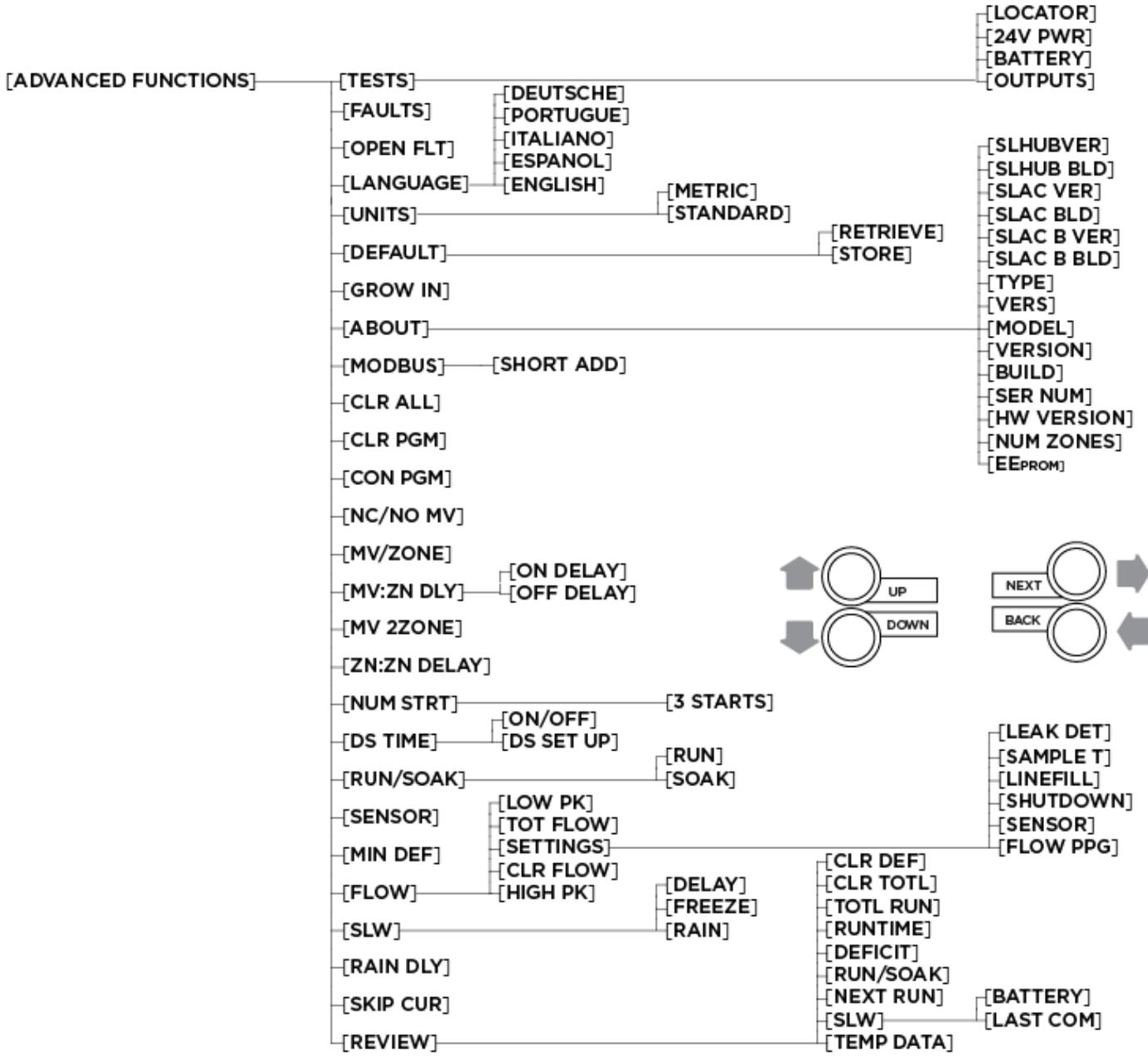
SmartLine® controller in the SMART mode. A GREEN LED on the SMART position will confirm that you have communicated with the SLW Weather Sensor. If there is no SLW Weather Sensor installed or ZIP Code or Latitude or time/date setting and at least one zone with a sprinkler type set, pressing the WATERING MODE button will flash the SMART LED to RED and then return to the BASIC mode. When this occurs, you can press the MODE button to see a scrolling message indicating the reason SMART mode is not available.

## 5.0 Advanced Menu

Advanced Menu provides additional information and allows more technical inputs commonly used by professional installers. Advanced Menu contains menus within menus. To advance to a sub-menu, press the NEXT button. Each press of the BACK button will return you to a higher level until the top level of the Advanced Menu dial position is reached.

Refer to the chart below for the location of features within the menus.





## 5.1 TESTS

Your SmartLine® controller can assist you with several diagnostic functions by pressing NEXT when TESTS appears.

### 5.1.1 OUTPUTS

Use the UP to select OUTPUTS function. Then use NEXT and BACK buttons to scroll through MV and Zone Valves to view AC Amp reading for each valve. Scroll BACK to OUTPUTS display to move to next diagnostic function. Typical range is .15 to .35 Amps per valve with a valve connected. An OPEN or SHORT message indicates a problem with a zone. Note: If you have more than one valve on a zone, the SmartLine® controller will measure total current for the combined valves.

| 1 amp = 1,000 milliamps |          |
|-------------------------|----------|
| 0.250 A                 | 250 mA   |
| 0.500 A                 | 500 mA   |
| 0.750 A                 | 750 mA   |
| 1.000 A                 | 1,000 mA |

### 5.1.3 24V PWR

Use the UP button to select 24V PWR. Push Next button once to read output voltage for the transformer. Normal reading is 24 to 30 volts AC.

## 5.1.4 LOCATOR

This feature will create a “chatter” for a selected valve as a convenient method of locating buried valves. Use NEXT button to scroll to the valve you want to “chatter.”

**Note:** *In order for the locator feature to work, you will need to turn off the system water pressure at the manual cut-off valve or water meter. Pressure must be off while attempting to “chatter” a valve. The SmartLine® controller will automatically sequence “chatter” to each valve including the master valve(s).*

## 5.2 FAULTS

This feature is used to identify problems that may require attention or repair to insure proper operation of the system. Use NEXT button to view the type of fault. If more than one fault exists, you can use the UP and DOWN buttons to search for additional faults. Use the NEXT button to view the type of fault. If more than one fault exists, you can use the UP and DOWN buttons to search for additional faults. Use the NEXT button on the fault description currently displayed and the screen will read CLEAR, press the NEXT button to CLEAR the fault and the fault icon on the display will disappear. However, if the cause of the fault is not corrected, the controller will continue to skip watering a zone with a fault and will resume the flashing FAULT icon on the display each time that zone is operated. If additional faults are present repeat the procedure to remove them from the panel. Once the faults have been cleared the screen will read, no faults present. However, if the cause of the fault is not corrected, the controller will continue to skip watering a zone with a fault and will resume the flashing FAULT icon on the display each time that zone is operated.

Faults

- ☰ FAULT: ZONE XX INSUFFICIENT WATERING OPPORTUNITY
- ☰ FAULT: REMOTE BATTERY FAILURE
- ☰ FAULT: NO RECENT CONTACT WITH WEATHER SENSOR
- ☰ FAULT: ZONE XX OPEN, MV1 OPEN, MV2 OPEN
- ☰ FAULT: ZONE XX SHORT, MV1 SHORT, MV2 SHORT

## 5.3 OPEN CIRCUIT FAULT

This is a user selectable feature that sends a fault message for zones that detect no electrical load. From the ADVANCED MENU dial position press the UP button until the “OPEN FLT” menu is displayed. Press the NEXT button to enter the menu and the UP or DOWN buttons to select on or off for the alert.

## 5.4 LANGUAGE

English, Espanol (Spanish), Italiano (Italian), Portuguese, or Francais (French) may be selected.

## 5.5 UNITS

This setting allows for you to choose either STANDARD (United States customary units) or METRIC. Press the BACK button when the display reads your desired selection.

- **Step 1:** Set up your long-term SMART or BASIC watering program.
- **Step 2:** Go to Advanced Menu and select DEFAULT. Press NEXT and STORE will appear on the display. Press the NEXT button and the screen will display CONFIRM, press the NEXT button once more and within a few seconds the display will read COMPLETE to confirm that you have successfully stored your program.
- **Step 3:** Set up your temporary Grow-In program.
- **Step 4:** Go to Advanced Menu and select GROW IN. Press NEXT once to view default days for grow in. Use UP and DOWN buttons to select 1 to 99 days for the grow in period. At the end of your grow in, the controller will automatically retrieve the long-term program stored in Step 2. Return dial to Run.

## 5.8 ABOUT

Provides information on software version in the SmartLine® controller.

|                   |  |
|-------------------|--|
| 5.8.1 MODEL       | Displays the model name of the controller.   |
| 5.8.2 VERSION     | Displays current version of the controller's software.                                     |
| 5.8.3 BUILD       | Displays current build version of the controller.  |
| 5.8.4 SER NUM     | Displays the controller's serial number.   |
| 5.8.5 HW VERSION  | Displays the hardware version of the controller.   |
| 5.8.6 NUM ZONES   | Displays the maximum number of zones that can be created.                                  |
| 5.8.7 EEPROM      | Displays the amount of EEPROM available in bytes.  |
| 5.8.8 SLHUB VER   | Displays the version of the RFS weather sensor. NI is show if this is not installed.       |
| 5.8.9 SLHUB BLD   | Displays the build version of the RFS weather sensor. NI is show if this is not installed. |
| 5.8.10 SLAC B VER | Displays the version of the aircard. NI is show if this is not installed.                  |
| 5.8.11 SLAC B BLD | Displays the build version of the aircard. NI is show if this is not installed.            |
| 5.8.12 Z96 TYPE   | Displays the decoder manager type if SmartWire equipped.                                   |
| 5.8.13 Z96 VERS   | The display reads Z96 VERS here.   |

## 5.9 MODBUS

### 5.9.1 SHORT ADD

This displays a static address along with a user programmable address to integrate with third party software.

## 5.10 CLR ALL

This feature is similar to CLR PGM except that it clears all user programmed data for all four programs and returns most Advanced Menu changes to factory defaults. Turn the dial to Advanced Menu and use and use the UP button to navigate to CLR ALL. Press the NEXT button and the screen will display CONFIRM. Press the NEXT button once more and the display will show CLEARING when finished to confirm that all programs have been cleared.

## 5.11 CLR PGM

This feature allows the user to clear all programmed values specific to a selected program. All zone run times and daily start times will be set to OFF; watering days will default to Days of the Week (all on); Season % will equal 100% for all months and Run/Soak will be OFF. Omit times/days are not reset when clearing a program.

Turn the dial to Advanced Menu and use the UP button to navigate to CLR PGM. Press the NEXT button and the display will read CONFIRM. Use the PGM button to select the program (A, B, C or D) to be cleared. Press the NEXT button and when the selected program has been cleared from the panel the display will read COMPLETE. Repeat these steps to clear each individual program to be reset.

## 5.12 CON PGM

Programs will prioritize in the order of Programs Start Times, unless they are all set to start at the same time. In this example the priority would be pgm D, and then A, B and C. Program D is set to the highest priority

## 5.13 NC/NO MV

Enter this menu to select between normally open or normally closed master valves for MV1 and MV2. Check with your valve manufacturer on the Model that has been installed to ensure the correct selection has been made. Maybe we should define the MV Types as; Normally Closed Master Valve requires the controller to send a 24VAC signal to activate the solenoid and open the valve to deliver water downstream to the zone valves. A Normally Open Master Valve will remain open at all times on the system without requiring a 24VAC signal to allow access to water in the mainline for Quick Coupler Valves or Hose Bibs connected throughout the system.

## 5.14 MV/ZONE

This feature allows you to select which master valve(s) to be assigned for each zone operation. The default is MV1. The other options are MV2, BOTH, OFF.

Caution: If an unused zone is turned on and activates a pump start relay, the pump may overheat or cause a pipe to burst. To prevent operating a pump with no flow (dead heading), make sure all unused zones are set to OFF.

## 5.15 MV/ZN DLY

This function allows the user to set a delay time between the opening of the master valve and the opening of the first zone valve as well as a delay between the closing of the last zone valve and the closing of the master

valve.

Use the NEXT button to enter menu. Select setting for the ON Delay or OFF Delay by pressing NEXT. Use UP and DOWN buttons to select delay time. Use UP and DOWN buttons to set ON Delay time from 0 seconds to 1 minute in 1 second increments. OFF Delay can be set from 0 seconds to 3 minutes in 1 second increments.

## 5.16 MV2 ZONE

A second master valve circuit can be enabled in this menu by designating a zone valve to be MV2

## 5.17 ZN/ZN DLY

This function allows user to set delay times between zone starts for use in systems with slow closing valves or pump systems that are operating near maximum flow or have slow well recovery. Use UP and DOWN buttons to change value. Adjustable in one-minute increments from 0 (the SmartLine® controller default setting) to 30 minutes; adjustable in 10 minute increments from 30 minutes to 3 hours.

## 5.18 NUM START

This SmartLine® feature allows you to select the number of Watering Program Start Times that you want to appear at Program Start Times on the dial. The default number of start times shown is 3. To select 1 to 8 start times, go to Advanced Functions, NUM STRT. Press Next to view the default of 3 start times. Scroll the UP/DOWN buttons to select 1 to 8 start times to be visible on the dial. Return the dial to Run.

## 5.19 DS TIME

Your SmartLine® controller can automatically adjust the time for daylight saving time (DST). The factory default setting is OFF and has been preset for the current USA schedule. To turn DST adjust ON, press the next button at DS TIME, the NEXT button at ON/OFF then select ON.

The DS Time feature can be customized to match any international DST schedule. Press the NEXT button at DS TIME in advanced functions. Select DS SETUP and press the NEXT button again. You will be prompted to enter the START schedule (time of day is moved ahead 1 hour per START schedule), and the STOP schedule (time of day is moved back 1 hour per STOP schedule). DST start and stop are formatted with the the Week (first, second, third, last), the Day (Sun-Sat) and the Month (Jan-Dec). All DS Time adjustments are made at 2 am. To return the DS Time schedule back to the USA factory default, use the US DEFLT option.

|                   |  |
|-------------------|--|
| 5.19.1 DST ON/OFF | If you would like for your controller to automatically set the time of day on the occurrence of Daylight Saving Time, make sure it is turned on in this menu   |
| 5.19.2 DS SETUP   | Your controller is programmed with the a default of starting Daylight Saving Time starting on the second Sunday in March and ending on the first Sunday in November. If you would like to adjust these settings, you may do so in this menu. |

## 5.20 RUN/SOAK

The purpose of Run/Soak is to break up long run times that often cause wasteful runoff. The Run/Soak is programmable for each program if you are using the BASIC watering mode. Note: If you are using SMART, these inputs are not used since the Run/Soak period is automatically calculated.

Turn the dial to Advanced Menu and use the UP button to navigate to RUN/SOAK. Press the NEXT button and the screen will display RUN, now press the PGM button to select the program you wish to set the RUN feature. After the program has been selected, press the NEXT button and then using the UP or the DOWN button adjust the RUN value. \*\*NOTE: the RUN time can be set from OFF to 30 minutes (SmartLine® controller default is OFF). Once completed, press the BACK button and the screen will again display RUN, now press the UP or the DOWN button and the screen will display SOAK. Press the NEXT button to enter the SOAK feature and then using the UP or the DOWN button adjust the SOAK value. \*\*Note: the SOAK time can be set from OFF to 2 hours in one-minute increments. Repeat these steps for adjusting multiple programs within the panel.

## 5.21 SENSOR

Sensor is an ON/OFF toggle to override the SEN terminals rain/freeze functions on selected zones. Factory default is ON.

## 5.22 MIN DEF

This feature allows a Minimum Deficit to be set. The feature requires that a zone deficit be greater than the MIN DEF setting in order to run during a scheduled program. The setting is global for all zones in SMART. The range for the global setting is 0.00 to 0.50 inches. The factory default is 0.15 inches.

## 5.23 FLOW

The Flow menu must be accessed by first activating a SmartLink Flow Aircard connected to the controller.

|                     |  |
|---------------------|--|
| 5.23.1 HIGH PK      | Shows the highest flow value for each individual zone, can scroll through each zone for a 7-day history. |
| 5.23.2 CLR FLOW     | Clears All flow data from the controller.  |
| 5.23.3 SETTINGS     | Allows the user to set Flow parameters.  |
| > 5.23.3.1 FLOW PPG | A settable value that lets the controller know how many pulses to expect per gallon.                     |
| > 5.23.3.2 SENSOR   | Lets the user select a custom sensor or one of our preset flow sensor types.                             |
| > 5.23.3.3 SHUTDOWN | Allows the user to select if the controller should shut down operation per zone or by system.            |
| > 5.23.3.4 LINEFILL | The time it takes for the system to completely fill the line.  |
| > 5.23.3.5 SAMPLE T | How often the controller reads flow pulses from the Aircard.   |
| > 5.23.3.6 LEAK DET | A settable value that determines when the controller will produce a Leak Detect fault.                   |

|                     |   |
|---------------------|---|
| > 5.23.3.7 LOW LMT  | The lowest flow value the controller can sense without producing a fault.                               |
| > 5.23.3.8 HIGH LMT | The highest flow value the controller can sense without producing a fault.                              |
| 5.23.4 TOT FLOW     | Shows the daily total flow for each zone. Can scroll through each zone for a 7-day history.             |
| 5.23.5 LOW PK       | Shows the lowest flow value for each individual zone, can scroll through each zone for a 7-day history. |

## 5.24 SLW

|               |   |
|---------------|---|
| 5.24.1 RAIN   | The rain selection is on/off toggle to override the SLW sensor feature for selected zones. Factory default is ON for all zones.   |
| 5.24.2 FREEZE | The freeze selection is on/off toggle to override the SLW freeze sensor feature for selected zones. Factory default is ON for all zones.  |
| 5.24.3 DELAY  | This feature allows the user to adjust the factory set 48 hour watering delay that will occur after a rain event shutdown if you are using an SLW Weather Sensor. To eliminate the delay or to reduce or increase the factory default hours, turn the dial to Advanced Menu and use an UP and DOWN button to select SLW DLY. Press the NEXT button and 48 hours will show in the display. Use the UP and DOWN buttons to eliminate the delay or to select a different number of hours (0–99 hours). Note: The SLW DLY begins after the SLW rain sensor has reset following a rain event. Accumulation of new water deficits will not begin until after the SLW DLY has cleared. |

## 5.25 RAIN DLY

The rain delay feature allows user to globally suspend watering operations for all programs for a selected number of days in either the BASIC or SMART watering modes.

Use UP or DOWN buttons to select 1 to 14 days for watering suspension. The watering blackout will automatically be cleared from the SmartLine® controller after the assigned days have expired and watering will resume at the next available start time. SMART watering deficits will reset at zero and will not resume accumulation until the delay has ended.

## 5.26 SKIP CUR

You can increase the skip circuit threshold here. Some accessories, like pump start relays, In rush currents exceed the factory setting of 1.0 Amp for SL800 and 1.5A for all other controllers. The maximum setting is 2.5A.

## 5.27 REVIEW

Turn dial to Advanced Menu. Push NEXT button to access review functions. Use UP/DOWN buttons to select review functions you wish to view.

|                       |   |
|-----------------------|---|
| 5.27.1<br>TEMP/DATA   | TEMP/DATA provides the daily high/low temperature readings in Fahrenheit (Celsius for 230V applications. Celsius is set using METRIC under UNITS menu) from the SLW Weather Sensor for the past 5 days. Press NEXT to view daily high and low readings for the prior day. Continue pressing NEXT to view up to 7 days of temperature history.   |
| 5.27.2 SLW            |   |
| > 5.27.2.1<br>LASTCOM | This feature records time elapsed since last successful communication between the weather station and control panel.  |
| > 5.27.2.2<br>BATTERY | Check the battery status in your wireless weather station here.   |
| 5.27.3 NEXT<br>RUN    | NEXT RUN is the total amount of run time SMART has calculated for each zone based on ET deficits and SMART system audit information entered on the SMART side of the dial. NEXT RUN is calculated and revised each night at midnight 365 days per year. The cumulative run time will carry forward until the next scheduled watering cycle. NEXT RUN times will return to zero after each watering cycle. To review NEXT RUN, turn the dial to Advanced Menu. Use the UP arrow button to access Review and then use the NEXT and BACK buttons to scroll through the zones.  |
| 5.27.4<br>RUN/SOAK    | This feature allows the user to review expected Run/Soak schedules that will occur when the controller is in the SMART mode. Turn the dial to Advanced Menu. Use the UP button to go to REVIEW and press the NEXT button. Use the UP button to advance to RUN/SOAK. Press the NEXT button and zone 01 will show in the display. Press NEXT again and RUN with a time will show. This is the maximum RUN time the controller can do in SMART before going to SOAK. Press NEXT again and SOAK will show in the display with a time. This is the minimum time the zone must soak before it is ready to run again. SMART Run/Soak times can be changed by adjusting the soil and slope settings at SOIL TYPE on the programming dial. The times are also affected by adjusting the SPRINKLER TYPE setting on the dial for precipitation rate.                 |
| 5.27.5<br>DEFICIT     | <p>Deficit is the amount of water (displayed in inches) that needs to be replaced for your plant material due to water loss through evapotranspiration – evaporation from soil and transpiration from plants. Your SmartLine® controller will calculate the water deficit each day at midnight based on data communicated to it by the SLW series Weather Sensor. The water deficit will continue to accumulate until the next scheduled watering cycle and will return to a zero reading when watering is finished. The SmartLine® controller uses an internationally recognized formula called the Hargreaves formula for calculating evapotranspiration.</p> <p>During a rain event, deficits will decrease to zero. SmartLine® will not begin calculating deficits and run times again until the ACTIVE LED goes back to green after the SLW DLY.</p> |

|                    |  |
|--------------------|--|
|                    | If you wish to change the deficit numbers, press and hold down either the UP or DOWN button for 5 seconds. This allows you to use the DOWN button to reduce the latest deficit for the zone to as low as 0 inches.   |
| 5.27.6<br>RUNTIME  | This is the computed runtime based on the deficit for the next scheduled run.  |
| 5.27.7 TOTL<br>RUN | TOTL RUN is the total run time for each zone since the date shown (default date in the SmartLine® controller is January 1, 2000 shown as 01/01/00). You can review TOTL RUN for either the BASIC or SMART modes. After you select TOTL RUN with the UP button, use NEXT to view the date when TOTL RUN accumulation began. Use NEXT again to view the total run times for each zone.<br><br>You can use the NEXT and BACK buttons to move through the zones. After you go through all the zone positions, use the NEXT button one more time to take you back to the TOTL RUN screen. |
| 5.27.8 CLR<br>TOTL | CLR TOTL is used to clear and reset the total run time for each zone shown in the TOTL RUN menu.<br><br>From the CLR TOTL menu, press NEXT and the display will show KEEP. If you want to clear the TOTL RUN time and reset the accumulation date, press either the UP or DOWN button to display CLEAR. With CLEAR showing in the display, either press NEXT or BACK or turn the dial to complete the clearing and resetting. This feature will stop accumulations on a zone after 255 hours of cumulative zone run time.  |
| 5.27.9 CLR<br>DEF  | To clear deficits, press NEXT. Use UP or DOWN buttons to select KEEP or CLEAR. Press NEXT or BACK to exit CLEAR DEFICITS.  |

## 6.0 Troubleshooting the Controller

Total Reset Procedure for Controllers 

Watering Cycle Pause Functions 

Changing SLW or RFS5 Batteries 

Faults

-  FAULT: ZONE XX INSUFFICIENT WATERING OPPORTUNITY
-  FAULT: REMOTE BATTERY FAILURE
-  FAULT: NO RECENT CONTACT WITH WEATHER SENSOR
-  FAULT: ZONE XX OPEN, MV1 OPEN, MV2 OPEN
-  FAULT: ZONE XX SHORT, MV1 SHORT, MV2 SHORT

Problems

- ☰ PROBLEM: Controller does not turn on zone when expected
- ☰ PROBLEM: Display shows 0 ZONES
- ☰ PROBLEM: Controller keeps repeating a watering cycle
- ☰ PROBLEM: Display shows zone is running but no sprinklers are operating
- ☰ PROBLEM: FAULT icon on display
- ☰ PROBLEM: No Display
- ☰ PROBLEM: Controller won't allow to SMART and/or no antenna icon on display