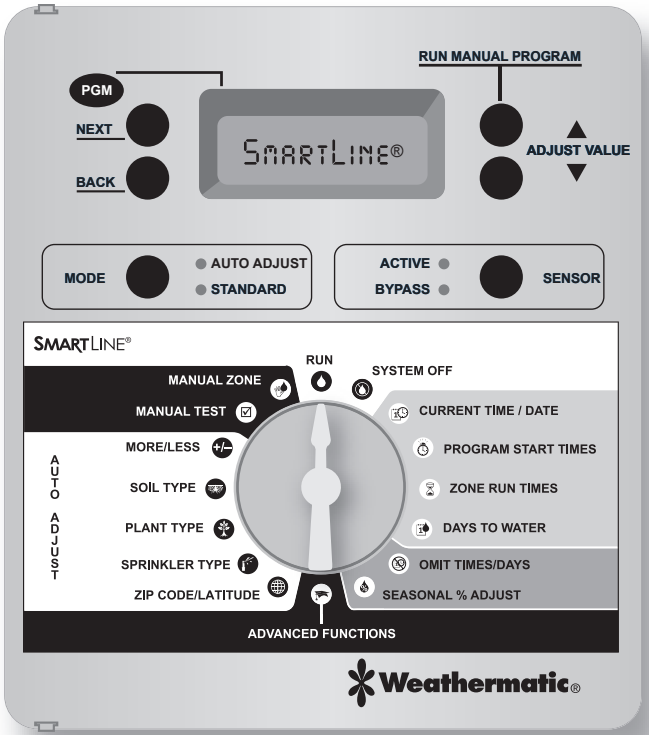
SMARTLINE®

Controller Models
SL800
SL1600
SL1620
SL1624
SL4800

Owner's Manual

www. SMARTLINE .com



Weathermatic®

Congratulations! Your SmartLine® irrigation controller is designed to maintain the health and quality of your landscape while conserving water to minimize your operation costs. The SmartLine® controller can perform Standard timed watering schedules or, with the addition of the optional SLW Series On-Site Weather Station, the controller's Auto Adjust mode will analyze "on site" weather data to automatically set optimum watering times for each zone, based on Weathermatic's patented methodology. Auto Adjust will also save water by automatically setting run and soak cycles to minimize runoff.

ATTENTION INSTALLER:

PLEASE READ BEFORE INSTALLING AND SAVE THIS MANUAL FOR SYSTEM OWNER.

This controller is not intended for use by young children or the infirm without supervision. Young children should be supervised to insure they do not play with this appliance.

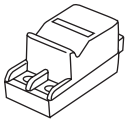
If the supply cord is damaged it must be replaced by the manufacturer, the manufacturer's service agent or a similarly qualified person in order to avoid a hazard.

U.S. Patent No. 6,314,340

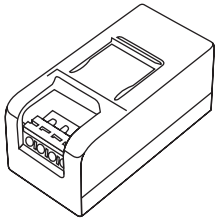
TRADEMARKS:

Weathermatic®
SmartLine®

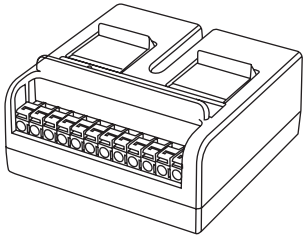
Smart Solutions for the Professional®



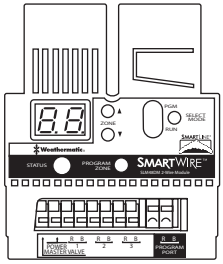
SLM2 2-Zone Module for SL800 only



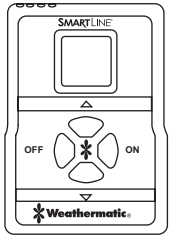
SLM4 4-Zone Module for SL1600 only



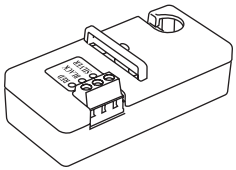
SLM12 12-Zone Module for SL4800 only



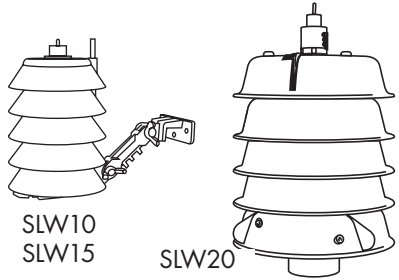
SLM48DM SmartWire Decoder Module for SL1600 Series only



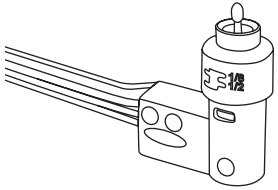
SLRC Wireless Handheld Remote Control



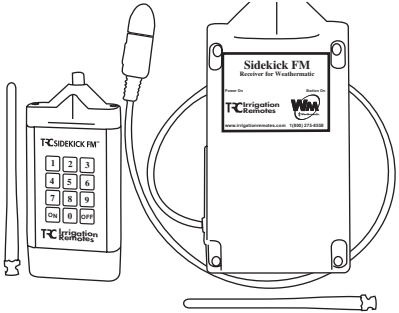
SLHUB SmartLine® communication hub wired & wireless models



SLW Series On-Site Weather Stations SmartLine® weather stations with rain and freeze sensing



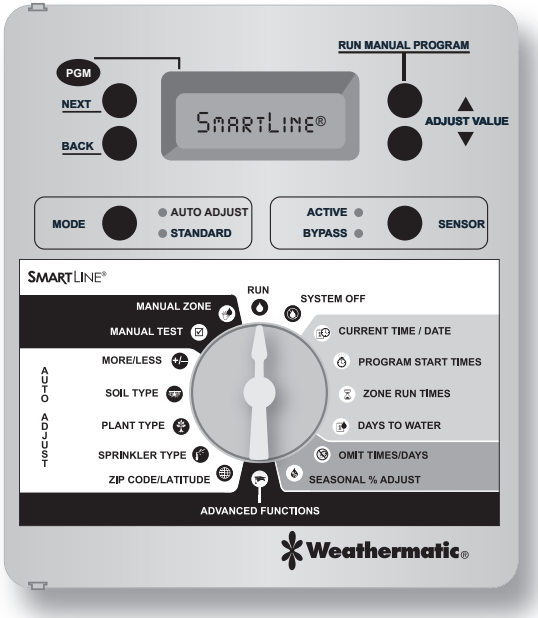
No. 955 Rain Sense Rain sensor for use when SLW Series On-Site Weather Station is NOT installed.



Sidekick Wireless Remote Control Transmitter (Available through authorized TRC distributors. Contact TRC at 1-800-275-8558 or www.irrigationremotes.com.)

SmartLine® accessories available through your professional Weathermatic installer. For the Weathermatic distributor directory, go to **www.weathermatic.com**.

2.1 Getting Acquainted With Your SmartLine® Control Panel



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

Battery Strength: SmartLine® Controllers use a Real Time Clock/Calendar instead of a backup battery to maintain correct time during a power outage. For the SL1600, SL1620, SL1624, and SL4800, the display will show a blank battery icon in the display until/unless a battery (not supplied) is installed in the controller or the dial is rotated to one of the Auto Adjust positions. If communications have been established with the optional SLW Weather Station, the battery icon will indicate the batterry strength of the battery in the SLW Weather Station when the dial is rotated to one of the Auto Adjust Positions. Battery usage is only necessary for programming when the control panel is open or removed.

Note: If you are utilizing the optional SLW Series On-Site Weather Station, you can also use the same display icon to check the status of the 9V alkaline battery in the SLW weather station. If you turn the dial to any Auto Adjust position, the display battery icon will show strength for the SLW weather station battery.

Communications: If you are utilizing the optional SLW Series On-Site Weather Station, an antenna icon on the display indicates a good link between the SLW weather station and the SmartLine® controller. If the antenna bands are flashing, this indicates communication has occurred within the last 5 minutes. If no communication has occurred for 5 days, the antenna icon will disappear and the SmartLine® controller will utilize zone run times programmed in the Standard watering mode.

Next Watering Day or Days: The display will show the watering day or 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 Functions to view faults. Once you turn the dial to Advanced Functions, 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 Functions. If fault is cleared in Advanced Functions, it will appear again the next time the program runs if the fault 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 program you like or more than one program except that zones assigned to Program D cannot be given a run time in A, B, or C. Program D will operate concurrently with A, B, or C. Display will alternately show both programs while the concurrent schedule is running. Program D is normally used for micro irrigation with low flow and long run times. Sprinkler zones should be assigned to A, B, or C.

Programs A, B, and C will stack operations. This means that if your run time for Program A overlaps B or C, then B will not start until A is completed and so on. If you want exact start times for all programs, make sure your total run time for each program can complete before the next program run is scheduled to start.

RUN MANUAL PROGRAM Button:

Press to initiate a watering operation when the programming dial is set in either the RUN or SYSTEM OFF position. The SmartLine® controller will run Program A. Or, you can push the PGM button before you push the RUN 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. Run Manual Program will override any omits, delays or sensor pause.

Special Feature: *You can also use the RUN MANUAL PROGRAM button to start a continuous run operation. If you press and hold the RUN MANUAL PROGRAM button for 15 seconds, the selected program will operate in a continuous loop. In other words, it will keep running the program continuously until the dial is switched to SYSTEM OFF. This feature is only operable in the Standard mode.*

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. See 7.3.

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, there is no power to valves and no automatic watering will occur. If the dial is in the SYSTEM OFF position at 12:00 am, all Auto Adjust watering deficits are cleared and no new deficits will accumulate. The RUN MANUAL PROGRAM button

can still be used to start a program. The RED LED will be displayed 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 30 minutes; 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.

Mode Button: Used to select Auto Adjust or Standard 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.

Note: No watering will take place when the MODE LED is RED. However, the SmartLine® controller will retain programs and current date/time. An ORANGE LED means watering is paused temporarily due to: run/soak, master valve delay, zone to zone delay, or omit hours. 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 (1) when you return the dial to RUN or (2) if there is no programming activity for 30 minutes.

Sensor 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 ACTIVE LED is selected. If your sensor/s have paused your system operation, the ACTIVE 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. During a sensor pause, Auto Adjust 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.

If you wish to deactivate the sensors, use the SENSOR button to light the green BYPASS LED. Example: You wish to water after fertilizing and your rain sensor is still pausing the watering program. As long as the BYPASS LED is lit, the sensors will not pause your system operation.

Note: The SENSOR button can be used to bypass rain and freeze sensors regardless of whether your SmartLine® controller is in Standard or Auto Adjust mode. The bypass feature does NOT override the SLW On-Site Weather Station's ability to continue to provide data to your SmartLine® controller for Auto Adjust operation. It can only be used to bypass rain and freeze pause functions.

2.2 Programming

Your SmartLine® controller has two operating modes: **STANDARD** mode or Weathermatic's patented **Auto Adjust** mode**.** The Standard mode uses user assigned zone run times. The Auto Adjust 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 station. *Note: Auto Adjust requires the optional SLW weather station.*

Both the Standard mode and Auto Adjust mode use the user program start times, watering days, omit times/days, and several advanced functions (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 Standard or Auto Adjust modes.

Using the Programming Buttons

A FLASHING DISPLAY indicates that user choices are available. The ▲ and ▼ arrow 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.

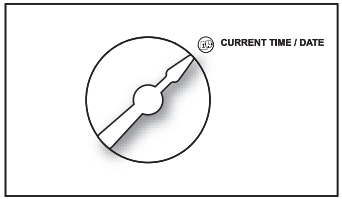
RAPID ADVANCE: While programming, holding down the ▲ or ▼ arrow button will cause the flashing display value to rapidly advance. Rapid advance can also be used with the NEXT and BACK buttons to rapidly advance through zones.

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** will be entered in memory any time you (1) move to a different menu or (2) move the programming dial to a different position.

3.0 Programming for Standard Watering Mode

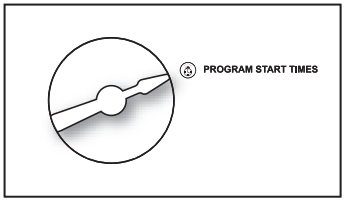
3.1 Current Time/Date



Use ▲ and ▼ arrow buttons to change the flashing value for the hour. Scrolling past 12 will automatically change AM/PM. Remember holding down the UP or DOWN arrow button will rapidly advance through the flashing menu. *(Note: For international users, if controller is powered by 230VAC, 50 Hz AC, display will read in international hours rather than AM/PM.)*

Use NEXT button to flash minutes. Use ▲ and ▼ arrow buttons to set minutes. Push NEXT to access calendar setting. Use ▲ and ▼ arrow 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. A manual adjustment is required for Daylight Savings Time.

3.2 Program Start Times



8 start times are available per program (A, B, C and D). The program will start at the time you designate and water all zones assigned to that program in consecutive order. For most Auto Adjust programs, one start time is sufficient since Auto Adjust will provide automatic soak periods to prevent runoff. Unused start times must be set in the OFF position. To set a start time at OFF, hold down on either arrow button until you reach the OFF postion located at midnight.

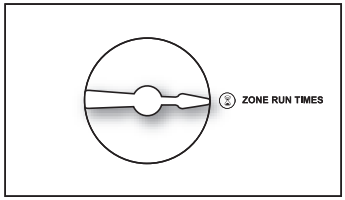
When setting program start times, check the program icon in the display to see whether you are working in A, B, C or D. Use PGM button to move between programs. Use NEXT and BACK buttons to move between start times. Use up and down arrow buttons to set each start time desired. Start times are selectable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

If a run time overlaps the next program start time, the SmartLine® controller will stack the start times within each program and between programs, beginning those operations at the time the

Note: Run/Soak period 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.

previous operation is completed, beginning with start time 1 in Program A. If a concurrent program in D is running at the same time as a program in A, B or C, the display will alternately show the icon for both programs in the display.

3.3 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 ▲ or ▼ arrow buttons to set flashing time values for each zone. If a zone is not to be used, set it to OFF. A zone with an OFF setting is OFF in both Standard and Auto Adjust modes.

Push PGM button to assign zone time in one or more programs. *Note: Program D is for concurrent operation for micro irrigation zones.* Zones assigned to Program D cannot be assigned to Program A, B, or C. Display will say USED if attempt is made to enter time in A, B, or C for a zone already assigned operating time in D.

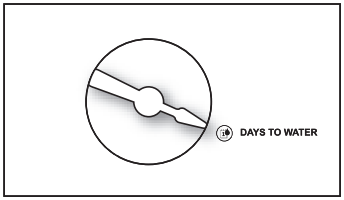
Note: If display shows "0 ZONES," this indicates no SLM4 modules are currently installed or have ever been installed under AC power with the control panel firmly closed.

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: If you are using an SLW weather station for Auto Adjust watering, the controller will not use the zone run times that you set (See 4.0). However, you must enter zone run times for all zones in use. The run times you enter are used as backup in the event of communication loss with your SLW. They are also used for the Run Manual Program function.

All zones to be utilized must be assigned a run time whether you are using the Standard or Auto Adjust Mode. Your SmartLine® controller will use Zone Run Times as the backup program for Auto Adjust. They will also be used as the run times for the Run Manual Program Function.

3.4 Days to Water



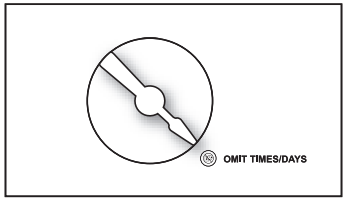
In this dial position you can select a DAYS, INTERVAL, or ODD/EVEN schedule. Use ▲ and ▼ arrow buttons to select which type of schedule you want in your SmartLine® controller. Remember to check the Program (PGM) selection showing in the display. You can select a different watering schedule for each program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

If you select DAYS, then use the NEXT button to step through each day of the week and the ▲ and ▼ arrow 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 ▲ and ▼ arrow buttons to select start day at top of display.

If you select ODD/EVEN day scheduling, push NEXT button and then use ▲ or ▼ arrow buttons to select watering on ODD or EVEN days. 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).

3.5 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 ▲ or ▼ arrow buttons to select OMIT: TIME, OMIT:DAYS, and OMIT:DATES. 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 ▲ and ▼ arrow buttons to set beginning time. Then push NEXT. A reverse arrow (<) indicates the end time for the blackout. Use ▲ and ▼ arrow buttons to set ending time. The OMIT:TIME function will pause any active watering program until the blackout period has expired. Scrolling the beginning time (forward arrow) between 12:00 am and 11:50 pm causes NONE SET to appear and clears the omit time.

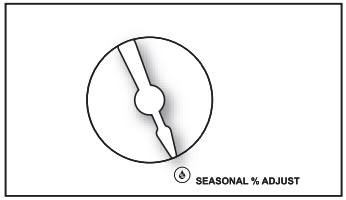
If you want to omit a specific day or days each week from watering schedules, select OMIT:DAYS with the ▲ and ▼

arrow buttons. Then push NEXT. Display will show a day of the week with Omit or Allow flashing. Use ▲ and ▼ arrow 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 7 dates. Scrolling the month value between 12 and 1 causes mm/dd to appear and clears the omitted date. Any running user program will be stopped at midnight in order to honor omit days or dates.

3.6 Seasonal % Adjust (Optional)

The Seasonal **%** 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 SET ZONE RUN TIMES is always the value for the 100% setting in Seasonal % Adjust. When you use the Seasonal % Adjust, you are increasing or decreasing the 100% time value.



Note: The seasonal percent adjust is inactivated during Auto Adjust watering.

% settings in this mode are 0 to 300% in 5% increments. Use ▲ and ▼ arrow buttons to select % desired. Press PGM to choose program.

THIS COMPLETES PROGRAMMING FOR **STANDARD** WATERING MODE. RETURN THE DIAL TO THE RUN POSITION.

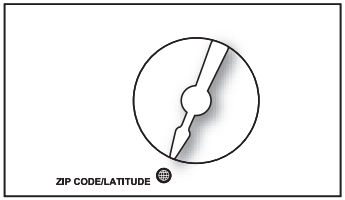
4.0 Programming for Auto Adjust Watering Mode

Weathermatic's patented Auto Adjust 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 Station. Auto Adjust is designed to help you protect your landscaping, reduce wasteful run off, and minimize your water costs.

Warning: Auto Adjust positions on the dial can only be selected when the optional SLW Series On-Site Weather Station accessory is installed. Additionally, Standard Program Function must be set up completely (see Sections 4.1–4.4) before setting up Auto Adjust mode. Auto Adjust Mode replaces the Zone Run Times with a calculated value using the auto adjust settings.

Peel off label to reveal Auto Adjust settings.

Step 1: Set ZIP Code or Latitude



Auto Adjust 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 ▲ and ▼ arrow buttons to select ZIP Code (USA) or LATITUDE. To find your latitude, see chart of World Latitudes on page 25.

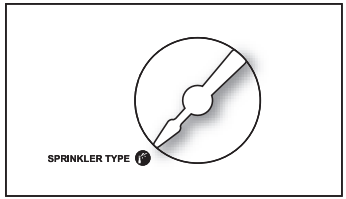
If you are setting a ZIP Code, push NEXT. Display will show 5 numerical positions for ZIP Code settings. Use ▲ and ▼ arrow buttons to set the flashing number. Then push NEXT to flash the next number. Use ▲ and ▼ arrow buttons to set second number. Continue process until all 5 numbers of your ZIP Code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

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

Step 2: Enter Auto Adjust Data for Zones:

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

Sprinkler Type:

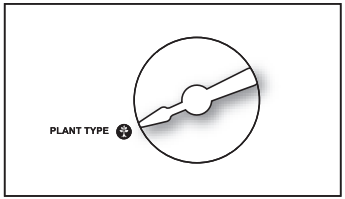


In order to calculate run time, the controller must know the expected precipitation rate for each zone. Use NEXT and BACK buttons to move between zones. Use ▲ and ▼ arrow buttons to set zone to OFF or to specify the precipitation rate.

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, as stated by the sprinkler manufacturer, you can use the ▲ or ▼ arrow 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). For international users, the controller will display precipitation numbers in centimeters per hour. As a rule in Auto Adjust mode, the lower the precipitation rate entered, the longer the zone run time will be to achieve required plant life needs.

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

Plant Type:

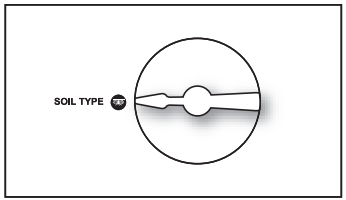


This position is used to specify the type of plant material to be watered by each zone as an important component of determining the watering needs for each zone. Use the ▲ and ▼ arrow buttons to select plant type or percent for each zone. Press NEXT and BACK buttons to access each zone. Plant type selections 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 Auto Adjust mode, the higher the plant type percentage entered, the longer the zone run time will be to achieve required plant life needs.

PLANT TYPE	DEFAULT %
CTURF	80%
WTURF	60%
SHRUBS	60%
ANNUALS	150%
TREES	80%
NATIVE	25%

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.

Soil Type:



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 standard formulas reduce wasteful runoff caused by watering more than the soil can absorb. The Run/Soak feature included in Advanced Functions can be manually entered for use with the Standard mode. However, in the Auto Adjust 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 Functions are not active when controller is in Auto Adjust mode.

Use the ▲ and ▼ arrow buttons to select **Clay**, **Loam** or **Sand** soil type for each zone.

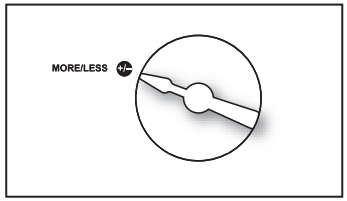
SLOPE/ GRADE	DEGREE OF SLOPE
SLIGHT	1–5
MILD	6–10
MODERATE	11–15
STEEP	16–20
EXTREME	21–25

After you have selected a soil type for a zone, push NEXT button. You can now use the ▲ and ▼ arrow buttons to select degrees of slope (elevation change) for each zone. Set each zone for 0 to 25 degrees of slope based on the chart below. Push NEXT again after making the slope entry to advance to the next zone.

Use NEXT and BACK buttons to move between zones.

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.

More/Less:



When your SmartLine® controller is set in Auto Adjust mode, the Seasonal % Adjust in the Standard 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 ▲ and ▼ arrow 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 at right may be used for general shade guidelines.

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

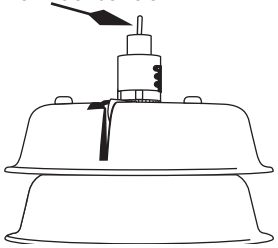
Other factors may result in needing to use MORE/LESS for fine tune adjustments including sprinkler efficiency, zone efficiency, and wind. Sprinkler efficiency varies between types of sprinklers and the manufacturer's design. Zone efficiency varies based on the design layout of sprinklers in a zone, sometimes 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 **AUTO ADJUST**. RETURN THE DIAL TO THE RUN POSITION.

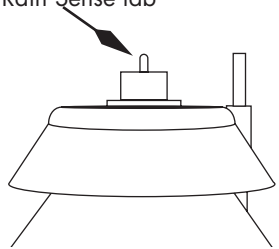
Step 3: Activating the SLW Series On-Site Weather Station:

Verify the time and date are set and the ZIP Codes or Latitude are set on the SmartLine® Controller before proceeding with SLW weather station activation.

SLW20 Weather Station
Rain Sense tab



SLW10/15 Weather Station
Rain Sense tab



On the SLW weather station, press and hold down the Rain Sense test tab in the center of the rain sensor for 15 seconds.

On the SmartLine® controller, verify that the antenna icon appears on the bottom line of the LED display. The antenna indicates communication has been established. The SLW weather station provides rain and freeze pause functions to prevent watering during periods of rain and freezing weather. The rain override will pause watering after a minimum of 1/8th inch of rainfall is received (the factory setting of 1/8th inch can be changed incrementally up to 1 inch by sliding the rain sensor into the desired position). The SLW weather station will also pause watering when the outside temperature drops to 37 degrees Fahrenheit (1.5 degrees Celsius). The Sensor LED will display RED during these rain or freeze periods. 24VAC power to the valves is reconnected when the temperature is again above 37 degrees F (1.5 degrees Celsius). However, after a rain event, the SmartLine® controller will continue to pause watering after the rain sensor has disengaged, in order to prevent over-watering.

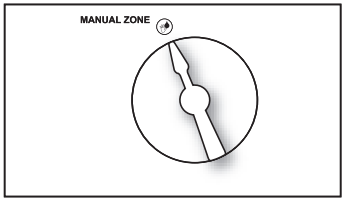
Step 4: MODE Button:

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

5.0 Manual Start Functions

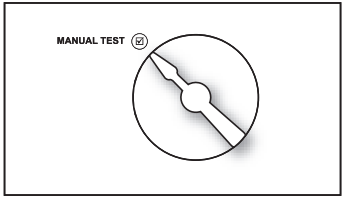
The SmartLine® controller has two dial positions for manual system starts:

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 ▲ and ▼ arrows 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.

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 ▲ and ▼ arrow 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.**

The Manual Test will also 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 when the dial is in the Manual Test position, refer to Advanced Functions procedures to identify the fault.

In addition to manual operation using Manual Zone and Manual Test, you can run a program by pressing and holding the ▲ arrow button, also labeled RUN MANUAL PROGRAM. Be sure to use the PGM button to select the specific program you choose to run manually. RUN MANUAL PROGRAM can be stopped by pressing the UP arrow button or moving the dial out of the RUN position. If you push the RUN MANUAL PROGRAM button and press and hold down for 15 seconds, the selected program will operate in a continuous loop. In other words, it will keep running the program continuously until the dial is switched to SYSTEM OFF. This feature is only operable in the Standard mode.

All manual watering operations will override watering day settings and omit settings.

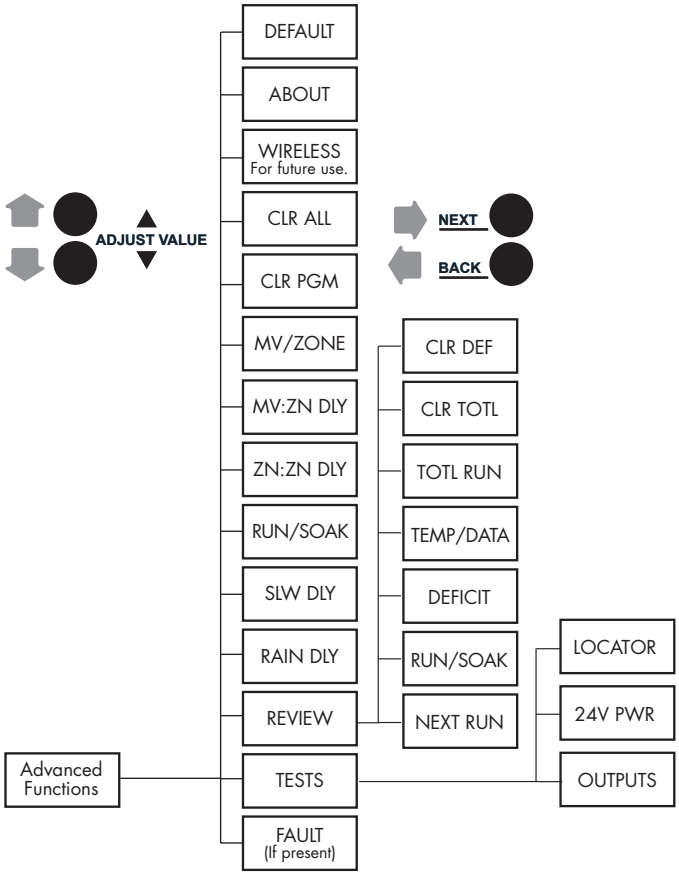
6.0 Advanced Functions

Advanced Functions provide additional information and allow more technical inputs commonly used by professional installers. Advanced Functions contains menus within menus. Each press of the BACK button will return you to a higher level until the top level of the Advanced Functions dial position is reached.

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

6.1 FAULT

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 ▲ and ▼ arrow buttons to search for additional faults. Use NEXT button one more time and it will flash KEEP. If you want to clear the fault, use the UP arrow and it will flash CLEAR. If you turn the dial out of the Advanced Functions positions while CLEAR is flashing, 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.



SCROLLING FAULT MESSAGE	FAULT DESCRIPTION
ZONE XX SHORT	OUTPUT SHORT CIRCUIT: A load placed on any output that results in a current draw exceeding the skip current setting will result in a fault after the output is turned on. The output will be skipped until the next watering program attempts to use it. If the MV/P output is shorted, all zones using it will effectively be skipped. The fault indication can be manually cleared or will be automatically cleared if the short condition goes away and the output turns on successfully. See Section 6.2.1 for instructions on reading actual current outputs.
ZONE XX OPEN	OUTPUT OPEN CIRCUIT: If a zone exhibits a load that results in a current draw less than 30 mA a zone open fault is created, but operation continues normally. The fault can be manually cleared or will automatically clear if a load exceeding 30 mA is placed on the output and the output turns on successfully. See Section 6.2.1 for instructions on reading actual current outputs.
NO RECENT CONTACT WITH WEATHER STATION	COMMUNICATIONS FAILURE: If the SmartLine® controller is in Auto Adjust mode and the daily high/low temperature has not been received by midnight, this communication fault is set. Also, if the battery in the SLW weather station is dead, the communication fault is set. If 5 days pass without communication, the controller will revert to the Standard mode Zone Run Times. The fault indication can be manually cleared or will clear automatically once communication is received.
REMOTE BATTERY FAILURE	If the SmartLine® controller receives communication from the SLW weather station that indicates the remote battery is low, the fault is set. The fault indication can be manually cleared or will clear automatically if the SLW weather station sends another message that indicates a good battery. The fault will also clear if no communication is received for a full day (i.e. communication failure). See Section 7.2 Replacing SLW Series Weather Station 9V Battery.
ZONE XX INSUFFICIENT WATERING OPPORTUNITY	INSUFFICIENT WATERING OPPORTUNITY: If the SmartLine® controller is in Auto Adjust mode, and a daily deficit is calculated that results in a zone watering deficit in excess of the 1.5" maximum, the deficit is capped to the maximum and the fault is set. The fault will clear automatically if the deficit drops below 1.5 or can be cleared manually.

6.2 TESTS

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

6.2.1 OUTPUTS

Use the ▲ arrow 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 150 to 350 mA 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.

6.2.2 BATTERY

Use ▲ arrow button and Battery will flash. Use NEXT button and you will see the DC V reading for the backup battery in the SmartLine® controller. A minimum of 7.5 volts is required to power the display. If the reading is less than 7.5 volts, the battery should be replaced. This function does not provide voltage readings for the 9V battery in the optional SLW weather station. However, if you turn the dial to any Auto Adjust programming position, the battery icon reading you see in the display is for the battery in the SLW weather station. SmartLine® Controllers use a Real Time Calendar Clock instead of a backup battery to maintain correct time during a power outage. A battery icon will not be seen in the display unless you turn the dial to any Auto Adjust position to the check the battery in the optional SLW. Battery usage is only necessary for the programming when the control panel is open or removed.

6.2.3 24V PWR

This function displays output voltage at the transformer. Normal reading is 24 to 30 volts AC.

6.2.4 LOCATOR

This feature will create a "chatter" for a selected valve as a convenient method of locating buried valves. Use NEXT and BACK buttons to scroll to the valve you want to "chatter."

Note: If you are not utilizing a master valve, you must turn off the system water pressure at the manual cut-off valve or water meter for the locator feature to work. Pressure must be off while attempting to "chatter" a valve. The SmartLine® controller will automatically turn off MV output when a "chatter" test is initiated.

6.2.5 SLW BATTERY

If you turn the dial to any Auto Adjust programming position, the battery icon reading in the display is for the battery in the SLW weather station. SmartLine® Controllers use a Real Time Clock/Calendar instead of a backup battery to maintain correct time during a power outage. A battery icon will not be seen in the display unless you turn the dial to any Auto Adjust position to the check the battery in the optional SLW control panel. Battery usage is only necessary

for the programming when the control panel is open or removed.

6.3 REVIEW

6.3.1 NEXT RUN

NEXT RUN is the total amount of run time Auto Adjust has calculated for each zone based on ET deficits and Auto Adjust system audit information entered on the Auto Adjust 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 Functions. Use the up arrow button to access Review and then use the Next and Back buttons to scroll through the zones.

6.3.2 Auto Adjust Run/Soak Review

This feature allows the user to review expected Run/Soak schedules that will occur when the controller is in the Auto Adjust mode. Turn the dial to Advanced Functions. Use an arrow button to go to REVIEW and press the NEXT button. Use the ▲ arrow 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 Auto Adjust 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. Auto Adjust 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.

6.3.3 DEFICIT

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 11:50 pm based on data communicated to it by the SLW series weather station. The water deficit will continue to accumulate until the next scheduled watering cycle and will return to a zero reading when watering is finished.

When Advanced Functions is displaying DEFICIT, use NEXT and BACK buttons to view deficit for each zone. The NEXT or BACK buttons will also return you to the DEFICIT level. When display is at the DEFICIT level, you can then use the ▲ arrow button to move to NEXT RUN readings.

If you wish to reduce the deficit numbers, press and hold down either the ▲ or ▼ arrow button for 5 seconds. This allows you to use the ▼ arrow button to reduce the latest deficit for the zone to as low as 0 inches.

Deficit is only available for review when you are using Auto Adjust mode.

Note: If the dial is in the SYSTEM OFF position at 12:00 am, all Auto Adjust watering deficits are cleared and no new deficits will accumulate until dial is moved from SYSTEM OFF position.

6.3.4 TEMPDATA

TEMPDATA provides the daily high/low temperature readings in Fahrenheit (Celsius for 230V applications) from the SLW weather station 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 5 days of temperature history.

6.3.5 TOTL 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 Standard or Auto Adjust modes. After you select TOTL RUN with the ▲ arrow button, use NEXT to view the date when TOTL RUN accumulation began. Use NEXT again to view the total run times for each zone.

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.

6.3.6 CLR TOTL

CLR TOTL is used to clear and reset the total run time for each zone shown in the TOTL RUN menu.

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 ▲ or ▼ arrow 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.

6.3.7 CLR DEF

To clear deficits, press NEXT. Use ▲ or ▼ arrow buttons to select KEEP or CLEAR. Press NEXT or BACK to exit CLEAR DEFICITS.

6.4 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 Standard or Auto Adjust watering modes.

Use ▲ and ▼ arrow buttons to select 1 to 7 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. Auto Adjust watering deficits will reset at zero and will not resume accumulation until the delay has ended.

6.5 SLW DLY

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 Station for Auto Adjust Watering. To eliminate the delay or to reduce or increase the factory default hours, turn the dial to Advanced Functions and use an arrow button to select SLW DLY. Press the NEXT button and 48 hours will show in the display. Use the ▲ and ▼ arrow 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.

6.6 Set Manual 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 Standard watering mode. Note: If you are using Auto Adjust, these inputs are not used since the Run/Soak period is automatically calculated.

Use NEXT button to access RUN time allowed before the zone watering pauses for the specified soak time. Use PGM button to select program. Use ▲ and ▼ arrow buttons to set RUN time from OFF to 30 minutes (SmartLine™ controller default is OFF). Use NEXT button to access soak time required for water to infiltrate into soil before zone watering is continued. Use the ▲ and ▼ arrow buttons to set soak time from 1 minute to 2 hours in one-minute increments.

6.7 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 ▲ and ▼ arrow buttons to change value. Adjustable in one-minute increments from 0 (the SmartLine® controller default setting) to 30 minutes; adjustable in 10 minute increments in settings from 30 minutes to 3 hours.

6.8 MV:ZN DLY

(Master Valve Advance Open and Delayed Close):

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 ▲ and ▼ arrow buttons to select delay time. Use arrow 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.

Note: The Master Valve/ Pump Start circuit will operate during the first 5 seconds of any programmed delay to aid in closing of the valve and to avoid unnecessary cycling of the pump. The 5 second period is programmable in the MV:ZN DLY setting. (See Section 6.7)

6.9 MV/ZONE

This feature is used to indicate which zones will use the master valve/pump start relay. Use NEXT button to set each zone ON or SYSTEM OFF (SmartLine® controller default is master valve ON for all zones). Use ▲ and ▼ arrow buttons to select ON or OFF. Use NEXT button to select zone.

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.

6.10 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 and Auto Adjust settings are not reset when clearing a program.

From the CLR PGM menu, press NEXT and the display will show KEEP. Use PGM button to select program to be cleared. Then, press either the ▲ or ▼ arrow button to display CLEAR. With CLEAR showing in the display, either press NEXT or BACK or turn the dial to complete the clearing of the selected program. Likewise, with KEEP showing in the display, either press NEXT or BACK or turn the dial to keep the selected program.

6.11 CLR ALL

(Not available on SL1600 firmware 1.10 or earlier.)

This feature is similar to CLR PGM except that it clears all user programmed data for all four programs. Turn the dial to Advanced Functions and use an arrow button to select CLR ALL. Press the NEXT button and KEEP will show in the display. Press the ▲ and ▼ arrow button to select CLEAR. Press NEXT to clear all programs. The display will show CLEARING to confirm that all programs have been cleared. Note: This function is not the same as the Total Master Reset as described under *7.1* in your Owner's Manual.

6.12 WIRELESS

Reserved for future use with wireless remote options.

6.13 ABOUT

Provides information on software version in the SmartLine® controller.

6.14 DEFAULT

(Not available on SL1600 firmware 1.10 or earlier.)

This is an optional function that allows the user to store a program that can be retrieved later if it is inadvertently deleted or changed. Once the controller has been programmed, go to Advanced Functions and use an arrow button to select DEFAULT. Press NEXT and STORE will appear on the display. Press NEXT one more time and wait several seconds. The display will show COMPLETE to confirm that you have successfully stored your program. If the controller has had the operating program changed and you want to return to the stored program, go to DEFAULT, press NEXT and one of the arrow buttons. The display will show RETRIEVE. Press NEXT and the display will show COMPLETE to confirm that the DEFAULT program has been restored as the operating program.

7.0 Troubleshooting

7.1 Total Reset Procedure For The SmartLine® controller

A total reset will clear all programming data in the SmartLine® controller including the time/date setting. All settings will return to factory default.

For the SL1600, SL1620, SL1624, and SL4800:

- Turn dial to Advanced Functions.
- While pressing the ▲ arrow button, use an open paper clip or ballpoint pen to push in the Reset switch located on the back of the operating panel. Release the reset button while continuing to press and hold the ▲ arrow button.

> Note: If you only want to clear the values in one program only, you should use the Clear Programs (CLR PGM) function located in Advanced Programming (See Sec. 6.9).

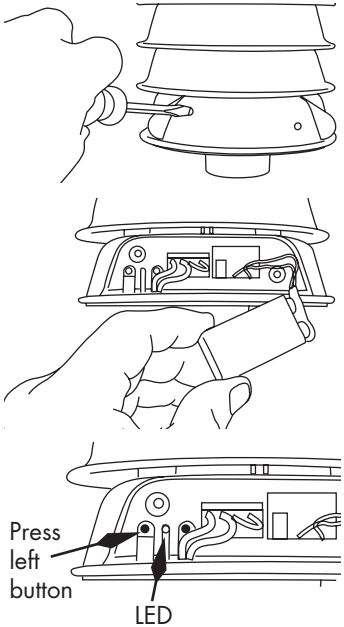
- Once the display shows CLEARING, release the ▲ arrow button.
- Reprogram SmartLine® controller.

For the SL800:

- Unplug the power supply on the side of the SL800.
- Turn dial to Advanced Functions.
- While continually holding down on the UP arrow button, reapply the power connection to the SL800.
- The display will read "CLEARING" to verify that the Reset is complete. Re-enter your controller settings.

7.2 Replacing SLW weather station 9V Battery

- For the SLW20, remove the two Phillips screws that hold the SLW weather station access panel in place (taking care not to lose them) and remove the access panel.
- For models SLW10, SLW15, open snap-in door on the bottom of the SLW weather station to access battery.
- Replace the existing battery with a new 9V alkaline battery.



- You will now need to re-initialize the station. Press the left button on the station panel and wait 3 seconds. You should see a series of 4 GREEN blinks from the LED if communication is re-established with the controller.
- Return to the controller and push the MODE button to place the controller back in the Auto Adjust position. If communication with the station is successful, the Auto Adjust GREEN LED will light and the antenna icon will appear in the display.

7.3 Watering Cycle Pause Functions

SmartLine® controllers will "pause" watering cycles in response to certain sensor readings or program settings in the controller. Pauses are a normal function of the controller. Watering pauses will be indicated on all SmartLine controllers by the presence of a RED or ORANGE LED as shown in the table at right. SmartLine® SL1600 Series versions later than 1.10, SL800 later than 1.93, and all SL4800s will also display the reason for the pause.

MODE	SENSOR		
LED Color	LED Color	Display Message	Reason
Green	Red	Rain	Rain sensor disks are wet. Cycle cancelled
Green	Red	Freeze	Temperature is 37 degrees F or colder
Green	Orange	RAIN DLY	Irrigation cancelled for additional hours in SLW DLY. (See page 19.)
Green	Orange	AUX DLY	Auxiliary sensor connected to SLW has activated a delay
Orange	Green	RC PAUSE	System being operated remotely
Orange	Green	OmitTime	Cycle paused for omit hours set
Orange	Green	SOAK	Zone waiting for soak time out
Orange	Green	ZONE DLY	Waiting for next zone valve to open
Orange	Green	PAUSE	Waiting for MVP to turn on or off

PROBLEM	CAUSES	SOLUTIONS
Controller won't allow entry to Auto Adjust and/or no antenna icon on display	System requires installation of SLW weather station	Install optional SLW weather station
	SLW weather station not initialized to controller	Initialize SLW weather station according to instructions in Auto Adjust section
	Missing required Auto Adjust settings	Push and hold down MODE button for a scrolling message indicating needed information. Enter needed information for time, date, and ZIP Code or Latitude
	9V battery in SLW weather station is drained	Replace battery as shown in Section 7.2
	Communication cable problem	Check cable and connections at controller
	Defective SLW weather station	Replace SLW weather station. If SmartLine® controller has no communication for 5 days, it will revert to Standard program settings
	Defective SLHUB communication hub	Replace SLHUB communication hub

Note: You can use the diagnostic panel on the SLW to determine the reason the controller will not let you enter Auto Adjust. Push the diagnostic button once. Observe the blinking LED.

First Blink RED—The 9V battery in the SLW should be replaced. Second or Third Blink RED—The SLW is defective and should be replaced. Fourth Blink Red—Communication problem is in the cable or SLHUB.

If all SLW diagnostic blinks are GREEN, all SLW functions and communications between the SLW and SLHUB are working properly. Recheck data entry required into controller.

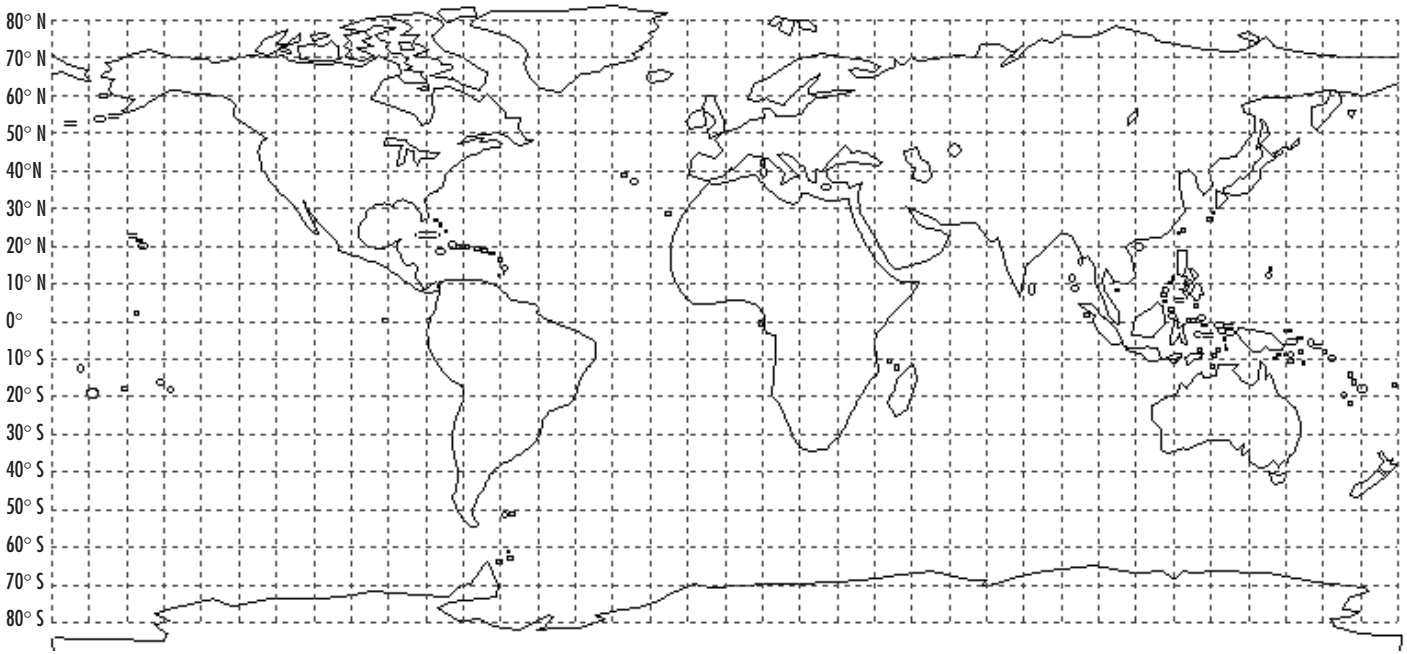
No Display	No power to controller	Check power wiring, breaker, and be sure control panel is firmly closed. Replace 9V battery
	No 24V power from transformer	Replace transformer. Likely power surge damage
FAULT icon on display	Shorted or open condition on a zone(s)	Check solenoid(s) and wiring (turn dial to Advanced Functions for fault information in Sec 6.1)
	Shorted MV/P	Check solenoid(s) and wiring
	Insufficient watering opportunity	Check programming watering days, verify omit settings are not excessive, and review accuracy of Auto Adjust settings for sprinkler and plant type.

(Continued on next page.)

PROBLEM	CAUSES	SOLUTIONS
FAULT icon on display	No deficit accumulation in Auto Adjust mode No recent communication	Verify deficits as shown in Section 6.3.2 Verify SLW weather station installation according to instructions in Auto Adjust
Display shows zone is running but no sprinklers are operating	Water supply to system is shut OFF Valve failure Open or disconnected wire	Turn on water supply to system Verify valve operation Run MANUAL TEST as shown in Section 5.0 Verify FAULT icon is shown display. Turn dial to Advanced Functions to determine location of fault
SmartLine™ controller does not turn on zone when expected	Zone set to OFF Dial set to SYSTEM OFF No zone run time set; no daily start time set Sprinkler Type set to OFF (in Auto Adjust mode) Omit times/days are activated Rain or freeze sensor has stopped watering (Sensor LED is red; Sensor LED is orange during extended rain delay period) if SLW weather station is utilized.	Set zone run time Position Turn dial to RUN Program zone run time and daily start time Program Sprinkler Type setting Verify omit times/days Replace sensor if faulty Select BYPASS mode if desired Reset start time to later in the day to avoid early morning freezing temperatures.
Controller keeps repeating a watering cycle	Extra start times are set at the Program Start Times position on the dial.	Turn dial to Program Start Times. Use NEXT button to view all start times. Hold down on either Arrow button to change the start times or to advance to the OFF position. Each Program will start and run all zones assigned to that program in consecutive order. Therefore, for most programs, only one start time is needed and the rest should be set to OFF. See Program Start Times, Section 3.2 of this manual for more information.

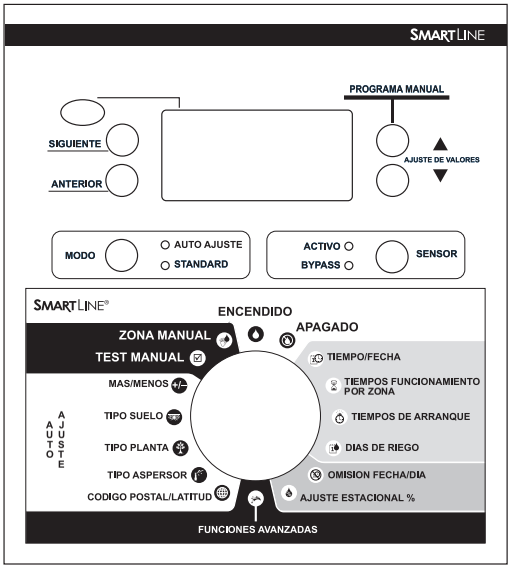
PROBLEM	CAUSES	SOLUTIONS
SmartLine® controller does not turn on zone when expected	Sensor jumper is removed and no sensor is connected (Sensor LED is red)	Install jumper wire between SEN terminals Select BYPASS mode if desired
	Sensor wires have been cut (Sensor LED is red)	Repair wires
	Zone comes on at unexpected time	Program daily start times not set properly or multiple start times set. Check all programs and daily start times
	Stacked program has commenced normal operation	Modify settings (such as daily start times, zone run times) to prevent stacking if undesirable
	Time of day or date not set properly	Review/set time of day and date
	Watering days or omit days/dates not set properly	Review/set watering days or omit days/dates
	Run/Soak feature has extended watering window	Normal operation to allow water infiltration and prevent runoff
	Controller does not operate zone for expected run time	Pause for Run/Soak in progress. This is normal operation to allow water infiltration and prevent runoff
	Auto Adjust mode has calculated a different run time than expected	Normal operation of Auto Adjust mode to match watering to plant requirements
	Module not installed	Install module
	No initial AC power-up of controller	Connect AC power and close control panel
Display shows 0 ZONES	Defective module	Replace module in zone 1-4 position

World Latitudes

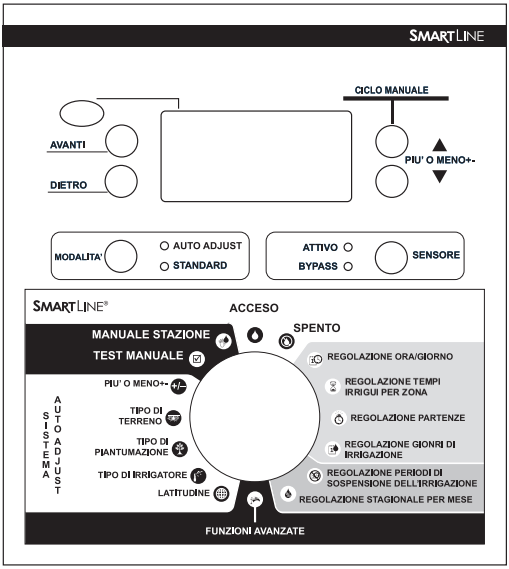


Control Panel Translations

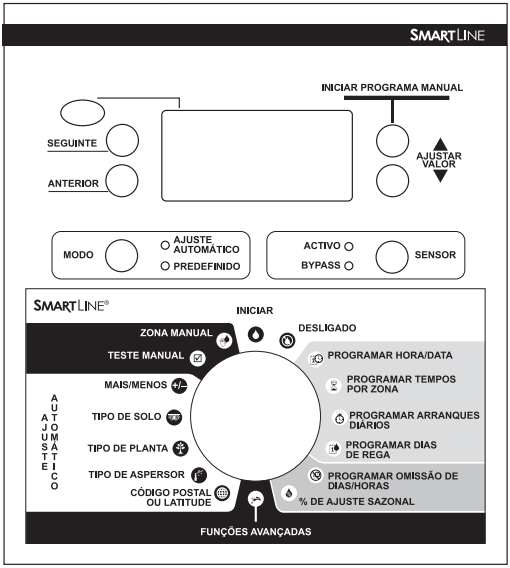
Control Panel—Spanish



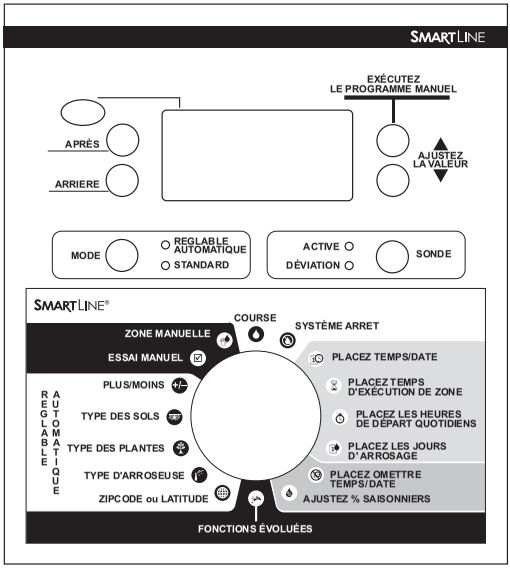
Control Panel—Italian



Control Panel—Portugese

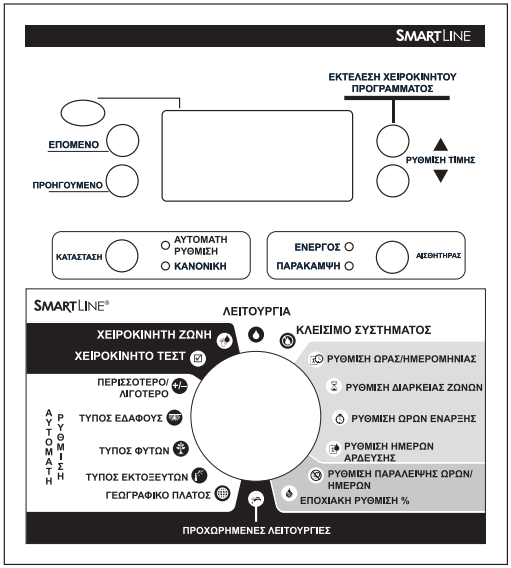


Control Panel—French

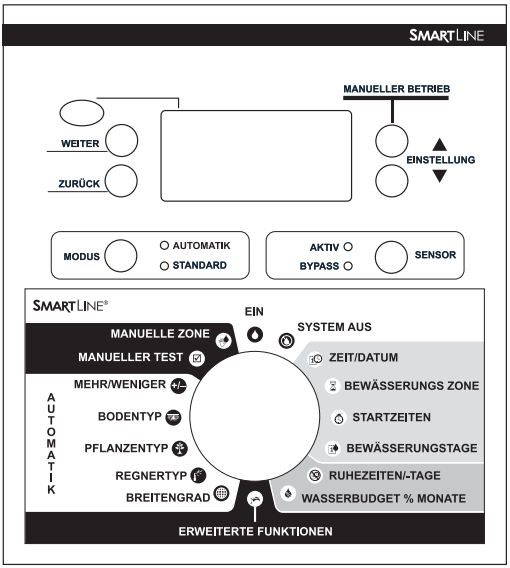


Control Panel Translations

Control Panel—Greek



Control Panel—German



Notes:

Basic Programming (Applies to both Standard and Auto Adjust Watering Schedules.)

	Program A	Program B	Program C	Program D
Days of the week	S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
Odd/Even	☐ Odd ☐ Even	☐ Odd ☐ Even	☐ Odd ☐ Even	☐ Odd ☐ Even
Interval (Every 1–30 days)	_____ days	_____ days	_____ days	_____ days
Omit Days/Dates/Times	Days:	Dates:	Times: From>	To<
Daily Start Times	1 ___ 5 ___	1 ___ 5 ___	1 ___ 5 ___	1 ___ 5 ___
	2 ___ 6 ___	2 ___ 6 ___	2 ___ 6 ___	2 ___ 6 ___
	3 ___ 7 ___	3 ___ 7 ___	3 ___ 7 ___	3 ___ 7 ___
	4 ___ 8 ___	4 ___ 8 ___	4 ___ 8 ___	4 ___ 8 ___

Notes:

Standard Watering Schedule

Zone	Location	Program A Zone Run Time	Program B Zone Run Time	Program C Zone Run Time	Program D Zone Run Time
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

Seasonal % Adjust

PGM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%
B	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%
C	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%
D	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%

Standard Watering Schedule

Zone	Location	Program A Zone Run Time	Program B Zone Run Time	Program C Zone Run Time	Program D Zone Run Time
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					

Seasonal % Adjust

PGM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%
B	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%
C	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%
D	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%	____%

Auto Adjust Watering Schedule

ZIP Code/Latitude _____

Zone	Location	Sprinkler Type	Plant Type	Soil Type		More/Less
				Soil	Slope	
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

Auto Adjust Watering Schedule

ZIP Code/Latitude _____

Zone	Location	Sprinkler Type	Plant Type	Soil Type		More/Less
				Soil	Slope	
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
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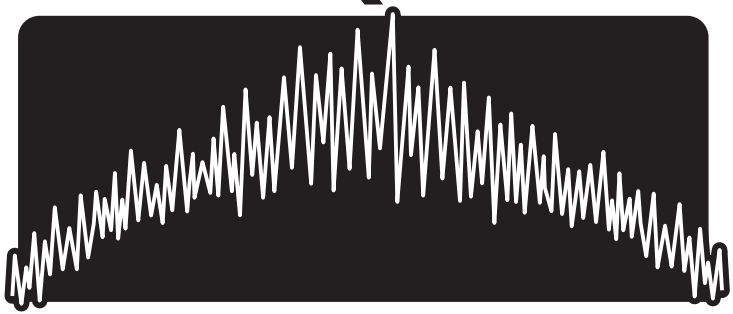
45						
46						
47						
48						

SMARTLINE®



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