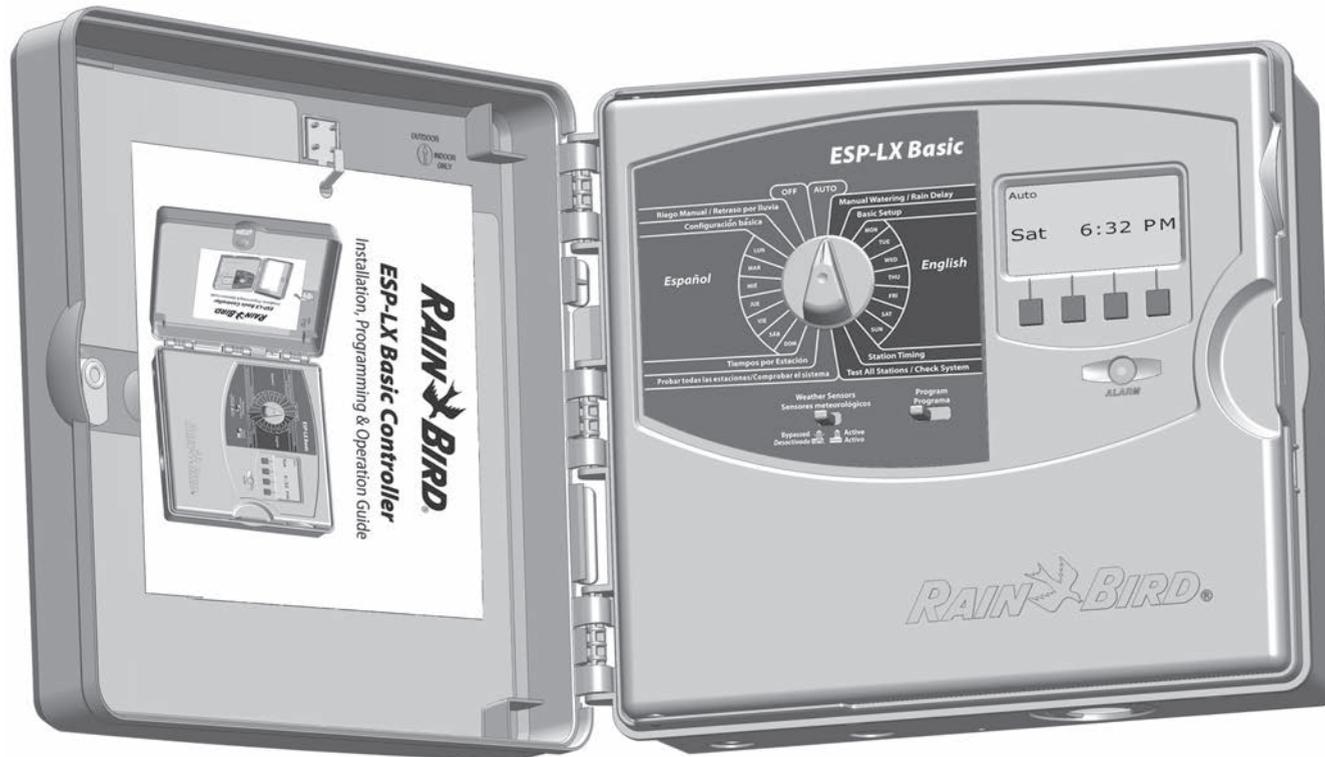




ESP-LX Basic Controller

Installation, Programming & Operation Guide



Symbols

 **NOTE:** Symbol is intended to alert the user to important operating functionality, installation or maintenance instructions.

 **WARNING:** Symbol alerts the user to the presence of electricity or electromagnetic energy which may constitute a risk of electric shock, radiation exposure or other hazard.

 **CAUTION:** Symbol is intended to alert the user to important instructions or conditions that could seriously affect irrigation effectivity or controller operation.

 **DIAL:** Symbol indicates that the user is required to turn the dial on the controller to the appropriate setting in order to follow subsequent instructions as described in that section.

 **REPEAT:** Symbol indicates that a repetition of previous steps or actions may be required in order to continue or complete the controller programming process.

Safety Information

 **WARNING:** A circuit breaker or cutoff switch must be provided in the fixed wiring to isolate the controller.

 **WARNING:** The current date and time on the controller is retained by a long-life lithium battery, which must be disposed of in accordance with local regulations.

Regulatory Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Rain Bird Corporation could void the user's authority to operate the equipment.

This product was FCC certified under test conditions that included the use of shielded I/O cables and connectors between system components. To be in compliance with FCC regulations, the user must use shielded cables and connectors and install them per instructions.

For technical assistance contact Rain Bird at 800 RAINBIRD (1-800-724-6247) U.S. and Canada

Visit us on the web at www.rainbird.com

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Section A - Introduction & Overview

Welcome to Rain Bird

Thank you for purchasing your new state-of-the-art Rain Bird ESP-LX Basic controller.

For over seven decades Rain Bird has led the irrigation industry in meeting water management needs by providing the highest quality products and services available.

ESP-LX Basic Controller

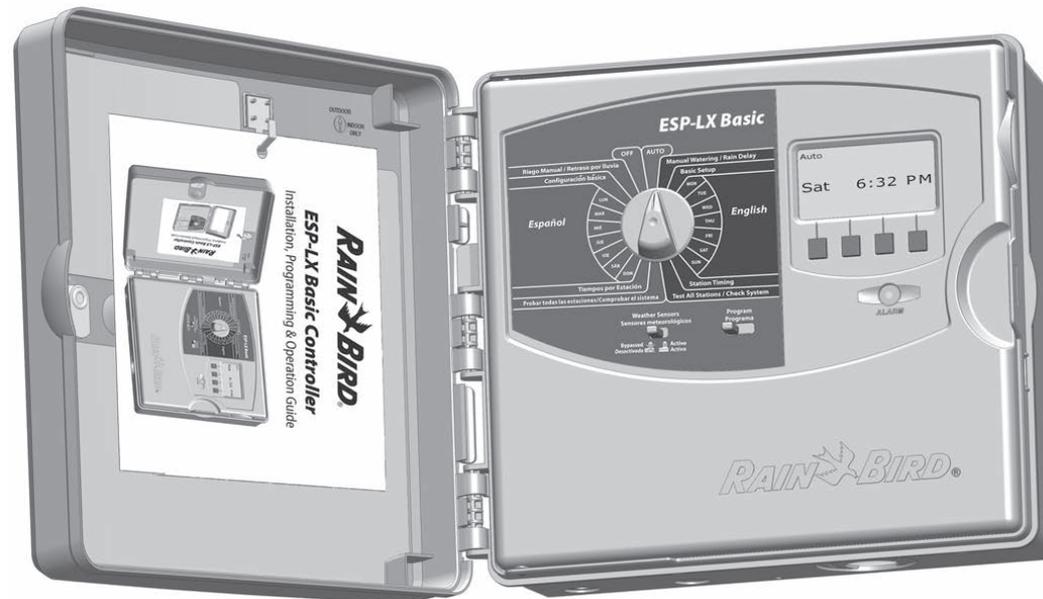
Your new Rain Bird controller is designed to provide years of highly manageable irrigation control.

The ESP-LX Basic is an irrigation controller designed for commercial use. It accommodates 12 stations and through the addition of Station Modules can easily be expanded to address up to 48 total stations.

Controller Features

The ESP-LX Basic controller has a variety of advanced features to help you manage water efficiently, including:

- Large variety of user-configurable irrigation program options to meet the most demanding irrigation needs while still addressing municipal mandates and restrictions.
- Upgrade with optional Station Modules.
- Supports one local weather sensor input.
- Dual language interface, English and Spanish.
- Outdoor-rated plastic cabinet which can be upgraded to the optional metal cabinet (LXMM) and pedestal (LXMMPED). Also available in a Stainless Steel cabinet (LXMSS) and pedestal (LXMMSSPED).
- UL, CUL, CE and C-TICK certified.



Controls, Switches and Indicators

Key operational features of the ESP-LX Basic Controller front panel:

1 Programming Dial

Used for programming and to turn the controller on and off.

2 Weather Sensor Switch

Set the controller to obey or ignore input from an optional sensor. See Section B, Weather Sensor Bypassed/Active Switch for more details.

3 Program Select Switch

Select Watering Program A, B, C, or D. See Section B, Program Select Switch for more details.

Dual Language Interface

The ESP-LX Basic Controller can be programmed in both English and Spanish.

The left side and right side of the programming dial have the same functionality. Use the left side of the dial if you prefer to program in Spanish, and the right side for English. The display will change languages accordingly.

When the dial is turned to OFF or AUTO, the display will show language that was last used. For example, if the dial is turned from right side then OFF and AUTO will display in English.

4 Display

Displays time of day during normal operation; shows commands during programming; shows active station and remaining run time during watering.

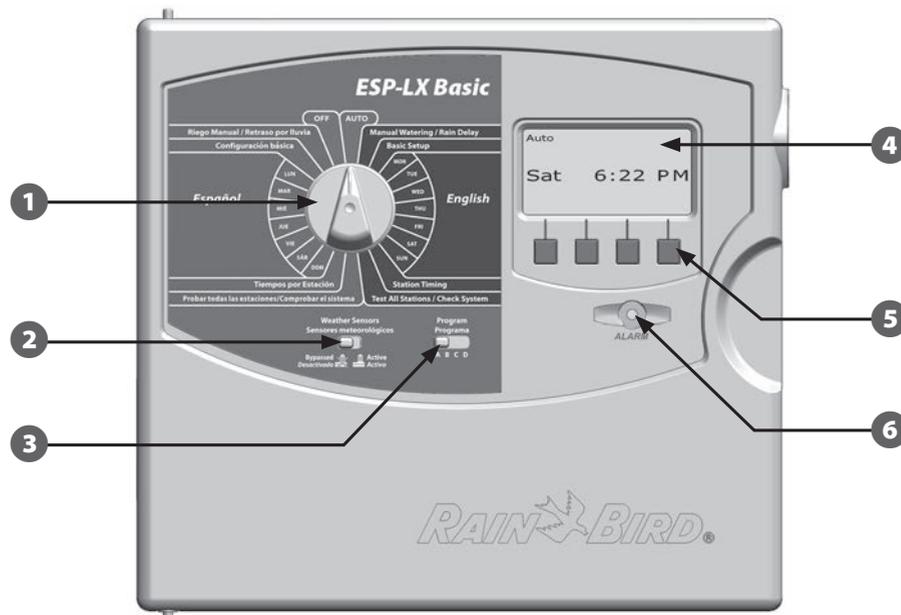
5 Programming Buttons

Press buttons to enter and change program information.

- Press and HOLD buttons to accelerate settings for hours, minutes and seconds, dates or percentages.

6 Alarm Light

Illuminates to indicate various types of alarm conditions. See Alarm Conditions for more details on how to review and clear alarms.



ESP-LX Basic Controller Front Panel Features

Basic Operation

Valves (or stations) operate at times as specified by irrigation programs.

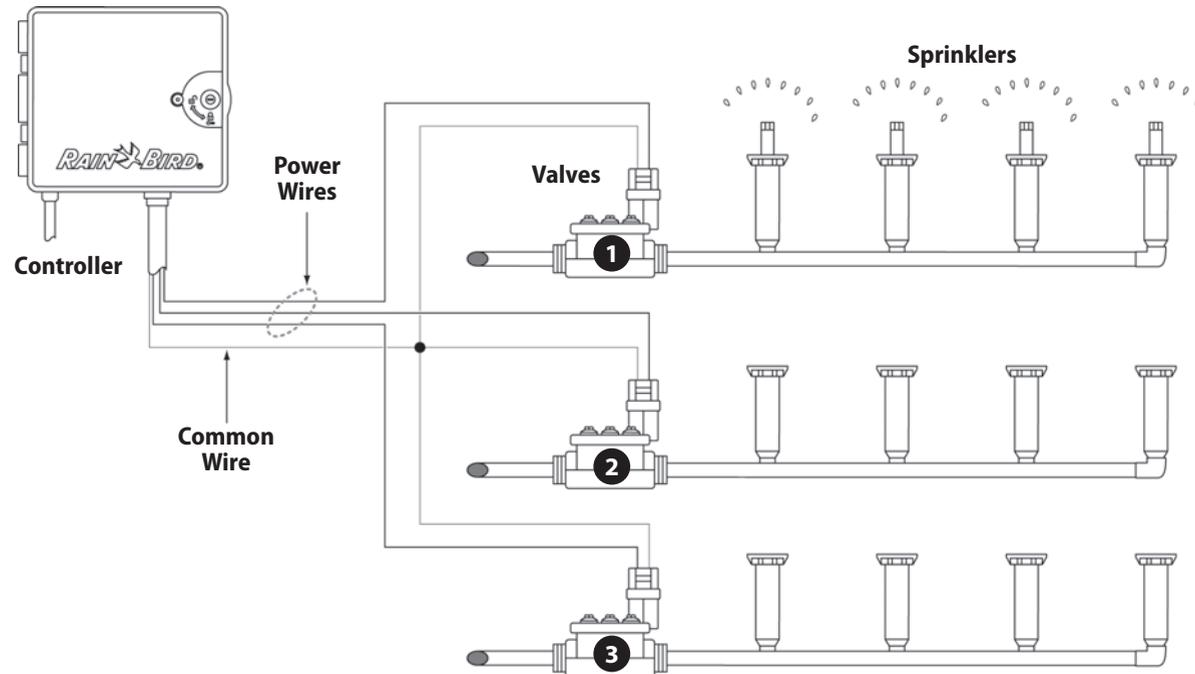
The controller sends power to the first valve solenoid to open. When finished, the controller signals the solenoid to shut off its valve and then signals the second valve solenoid to open. Then when the second valve is finished, the third valve will begin watering and so on.

! **NOTE:** The ESP-LX Basic's Cycle+Soak feature may delay valve operation. See Section D, Set Up Cycle+Soak for more details.

The ESP-LX Basic lets you set a delay between stations. For example, if you set a one minute delay, station 1 will run until finished, followed by a one minute delay. Then station 2 will run, followed by another one minute delay, and so on. See Section D, Station Delay for more details.

The order in which stations are selected to operate depends on the following settings:

- SimulStation settings
- Station run times
- Station program assignment



LX Basic System Wiring Diagram

ESP-LX Basic Modules

Base Module

The LXBASEMOD Base Module is the standard base module for ESP-LX Basic Controller models.

The Base Module installs in module slot 0 and provides wiring terminals for multiple controller inputs and outputs including valve common, master valve, weather sensor, and 24 VAC.



LXBASEMOD Base Module

! **NOTE:** The Base Module includes a jumper wire connecting the weather sensor (SEN) terminals. Do not remove the jumper wire unless you install a weather sensor. See Section G, Installation, Connect Local Weather Sensor for more details.

ESPLXM-SM Station Modules

ESPLXM-SM Station Modules install in module slots 1 through 4 and provide wiring terminals for irrigation valves and a valve common.

Each ESP-LX Basic controller comes standard with a 12 station module. This can easily be expanded by adding one to three additional Station Expansion Modules. Each station module adds 4, 8, or 12 additional stations to increase capacity to a maximum of 48 stations. Station Modules can be identified by the blue stripe on the middle of the module.



ESP-LXM-SM8 Station Module



ESP-LXM-SM12 Station Module

Programming Overview

Irrigation Controller Definitions

Programs

The process of telling the controller exactly when and for how long you want to water. The controller opens and closes the remote control valves according to a program you set.

Each program contains:

Watering Days

The days of the week or calendar dates on which irrigation is allowed. For example, specific days such as Monday, Wednesday and Friday could be designated as your “watering days”. Alternatively, the Cyclical watering cycle can be used to water at a regular interval, such as every third day.

Watering Start Time

The time(s) of day that irrigation begins; this is the time that the first station in the program begins watering; all other stations in the program then follow in sequence.

NOTE: The term “start time” refers to the time that a program starts, not to the time that each individual station begins to run.

Station Run Time

The length of time (in hours and minutes) that each individual station is programmed to run.

Programming Chart

Before you begin programming, fill out the Programming Chart on page 71 of this user manual.

- 1 Locate the Programming Chart in the back of the manual.

Programming Chart

Overview
Programs
 The process of telling the controller exactly when and for how long you want to water.
Each program contains:
Watering Days
 The days of the week that irrigation is allowed. Also, the Cyclical watering cycle can be used to water at a regular interval, such as every third day.
Watering Start Times
 The time(s) of day that irrigation begins. All other stations in the program then follow in sequence.
Station Run Times
 The length of time (in hours and minutes) that each individual station is programmed to run.

Program Info	Program A	Program B	Program C	Program D
Program Name				
Select Days To Water (Mon-Sun) For Custom	MTWTFSS □□□□□□□	MTWTFSS □□□□□□□	MTWTFSS □□□□□□□	MTWTFSS □□□□□□□
-OR- Select Days Watering Allowed For Non-custom	□□□□□□□ □□□□□□□ □□□□□□□	□□□□□□□ □□□□□□□ □□□□□□□	□□□□□□□ □□□□□□□ □□□□□□□	□□□□□□□ □□□□□□□ □□□□□□□
1	am / pm	am / pm	am / pm	am / pm
2	am / pm	am / pm	am / pm	am / pm
3	am / pm	am / pm	am / pm	am / pm
4	am / pm	am / pm	am / pm	am / pm
5	am / pm	am / pm	am / pm	am / pm
6	am / pm	am / pm	am / pm	am / pm
7	am / pm	am / pm	am / pm	am / pm
8	am / pm	am / pm	am / pm	am / pm
Seasonal Adjust	%	%	%	%
Monthly Seasonal Adjust	□□DN	□□DN	□□DN	□□DN
Station Delay				
Program Water Window Start Time	am / pm	am / pm	am / pm	am / pm
Program Water Window End Time	am / pm	am / pm	am / pm	am / pm

Monthly Seasonal Adjust %	%
JAN	%
FEB	%
MAR	%
APR	%
MAY	%
JUN	%
JUL	%
AUG	%
SEP	%
OCT	%
NOV	%
DEC	%

Default Values for Monthly Seasonal Adjust = 100%

Fill Out Programming Chart

- 2 Follow the instructions to enter information about your system hardware and settings in the appropriate fields on the Programming Chart.

Station #	Description	No. of Valves	Requires MV	Obeys Weather Sensor
1	ENTRY - SPRAYS	52	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	ENTRY - COLOR BEDS	26	<input type="checkbox"/>	<input type="checkbox"/>

2

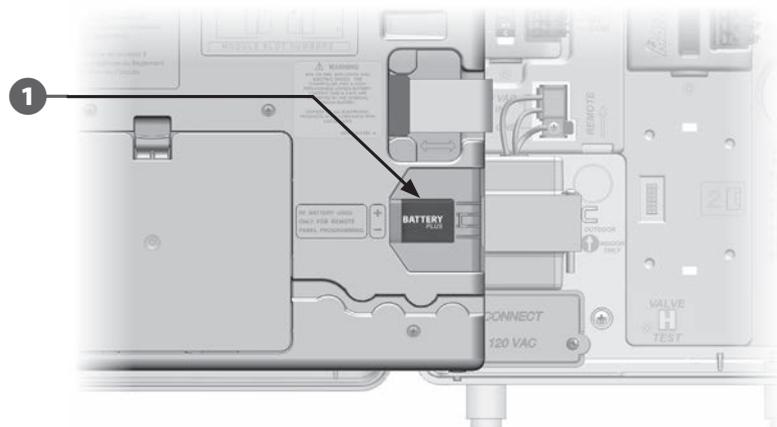
Remote Programming

The ESP-LX Basic controller front panel can be programmed while operating under battery power.

This feature is useful if the controller is installed in an area that is not easily accessible. It also lets you enter program information before installing the controller at the job site. All program information is stored in nonvolatile memory so it will be preserved indefinitely in the event of a power outage or removal of the battery.

! **NOTE:** Under battery power, all programs in progress will continue to run in the controller memory, but irrigation will not occur until power is restored. Without battery power, programs in progress are cancelled.

1 Install a new 9-volt battery in the battery compartment in the back of the front panel.



! **NOTE:** To perform remote programming under battery power, detach the front panel from the cabinet. See Access Controller Cabinet in Section G for more details.

⚠ **CAUTION:** The controller can not run irrigation or system diagnostics with the front panel detached. Re-connect the front panel to the controller's AC power source as soon as remote programming is completed.

Programming Checklist

When programming the ESP-LX Basic controller for the first time, it is recommended that you complete the following steps in order.

For your convenience a check-off box is provided for each step.

! **NOTE:** Use this checklist and the Programming Chart in the back of the manual as a guide to program your controller.

Set Up Hardware

- Install SM Station Modules Page 65
- Fill out Programming Chart..... Page 71
- Set date and time..... Page 14
- Set up stations Page 42

Set Up Programs

A B C D

- Select program (A, B, C or D)..... Page 13
- Select watering days *..... Page 16
- Set watering start times Page 21
- Set station run time(s)..... Page 22

* Select by Custom Days, Odd, Odd31, Even or Cyclical watering cycles.

Set Up Programs (Optional)

- Set seasonal adjust Page 33
- Create a water window Page 38
- Set Cycle+Soak..... Page 39
- Set up a station delay Page 40
- Set up SimulStations..... Page 41

Review Setup

- Confirm program Page 23
- Test stations Page 29

Complete Setup

- Set controller to AUTO Page 10

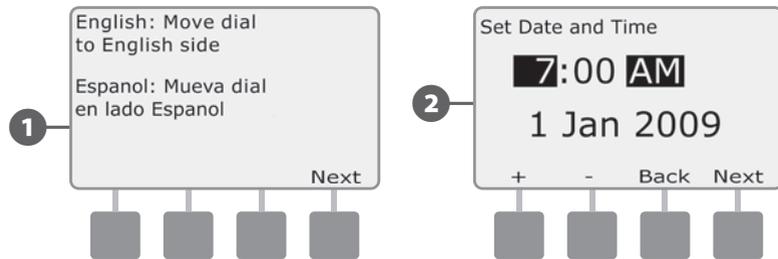
Initial Startup

When the ESP-LX Basic controller is powered on for the first time, a series of startup screens is displayed.

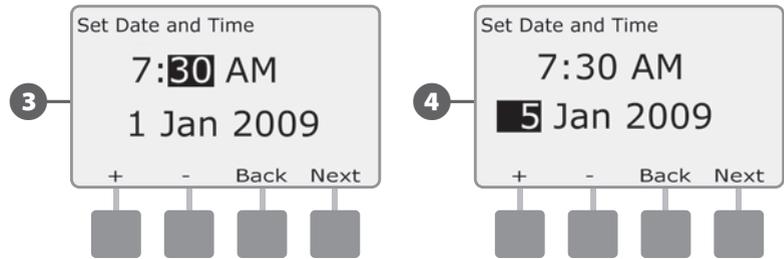
When the controller is first started, you will need to enter the current date and time and verify the current module configuration.

- 1 Select English or Spanish by turning the dial right or left; then press Next.
- 2 The Set Date and Time screen appears. Press the + and - buttons to set the current hour; then press Next.

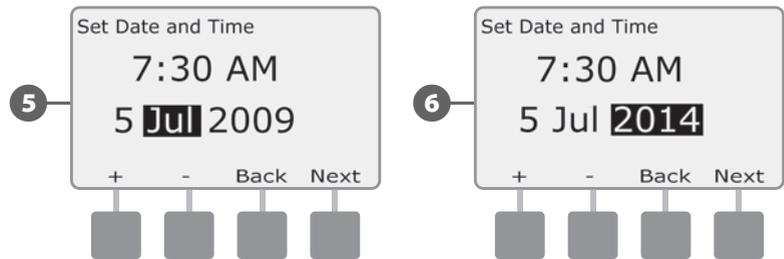
- !** **NOTE:** Be sure to set the hour correctly to either AM or PM.
- Press and HOLD buttons to accelerate settings for hours and minutes



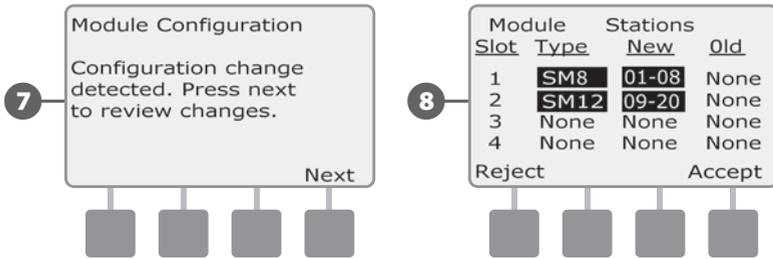
- 3 Press the + and - buttons to set the current minute; then press Next.
- 4 Press the + and - buttons to set the current day; then press Next.



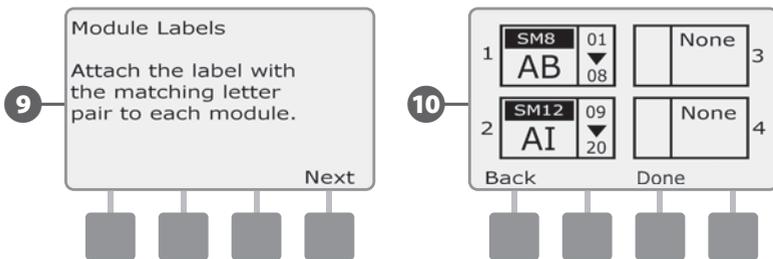
- 5 Press the + and - buttons to set the current month; then press Next.
- 6 Press + and - to set the current year; then press Next.



- 7 The Module Configuration screen is displayed. Press Next to continue.
- 8 The Module Summary screen displays the module type detected in each module slot. Press Accept to accept the module configuration.



- 9 The Module Labels screen is displayed. Locate the Module Station Numbering Labels that are provided on a separate foldout sheet. Press Next to continue.
- 10 The Module Station Numbering Graphic displays a pair of letters (example: Slot 1 = Label AB) for each installed module. Find the station numbering label on the foldout sheet with the matching letter pair and place it over the blue strip on the module. Press Done to finish.



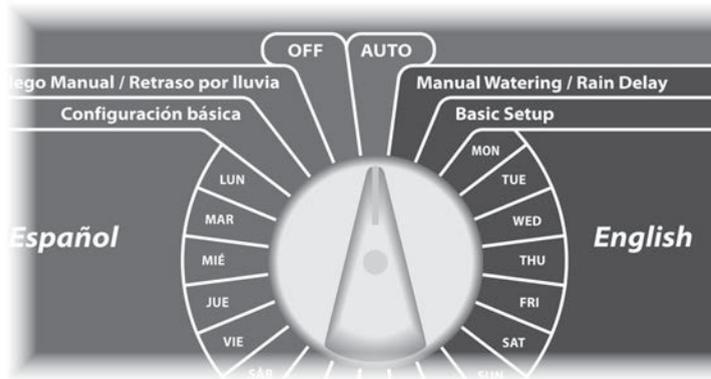
AUTO

Automatic Operation

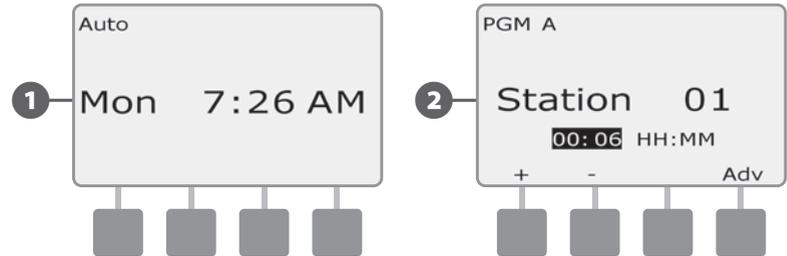
The controller will operate automatically with the controller dial set to AUTO.

If you forget to return the dial to AUTO, the controller will automatically continue to run programs, unless the dial is set to the OFF position when all irrigation is canceled.

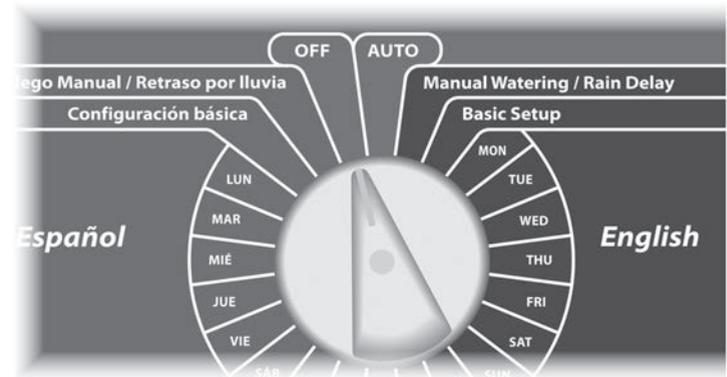
▶ Turn the controller dial to AUTO.



- 1 The Auto screen is displayed with the current day and time shown, and will display in the language that was last used. If turned from right it will display in English, and if turned from the left it will display in Spanish.
- 2 When a program is running in AUTO mode, the station number will display on the screen. Press the + or - buttons to add or subtract minutes from the run time for the currently running station. To advance to the next station in a program, press the Adv button.



- ▶ To cancel a currently running program, turn the controller dial to OFF for three seconds and then return the dial to AUTO.



Alarm Conditions

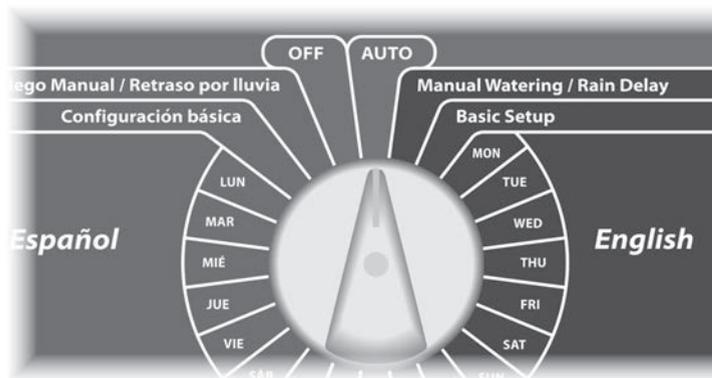
An alarm condition can occur when programming omissions or other issues prevent normal irrigation.

Review Alarm Messages

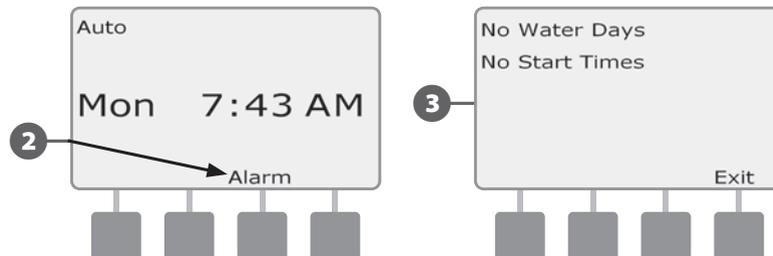
- 1 When an alarm condition is detected, the alarm light on the controller front panel will illuminate.



- 2 Turn the controller dial to AUTO.



- 2 When an alarm condition is present, the Alarm button label will be present on screen. Press the Alarm button to view alarm details.
- 3 Any current alarm conditions will then be displayed. Press the Next button if necessary, to advance to the next page.

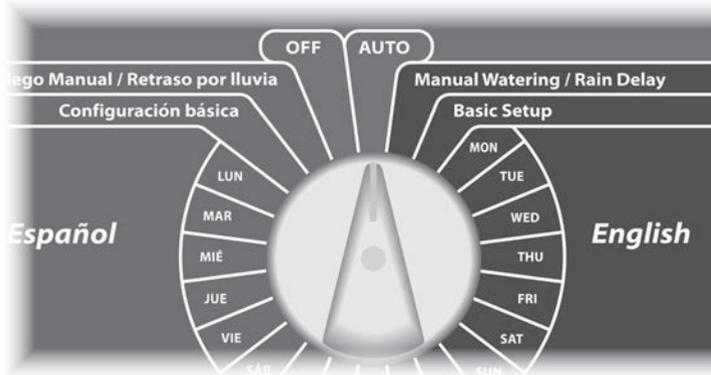


- NOTE:** Take the appropriate action to address each alarm condition. When all alarms have been addressed, the alarm light on the front panel will no longer be illuminated.

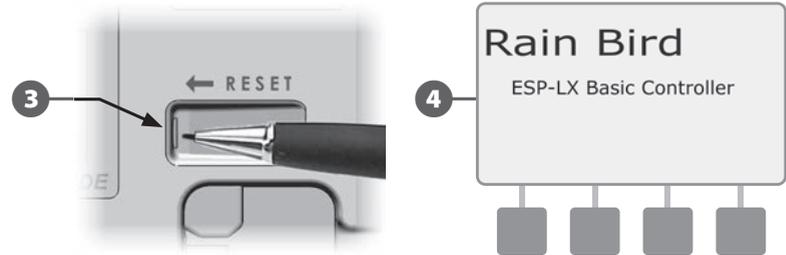
Resetting the Controller

Sometimes you may want to reset (or reboot) the ESP-LX Basic controller. Using the controller's reset feature does not change or delete the programs you have programmed into the controller.

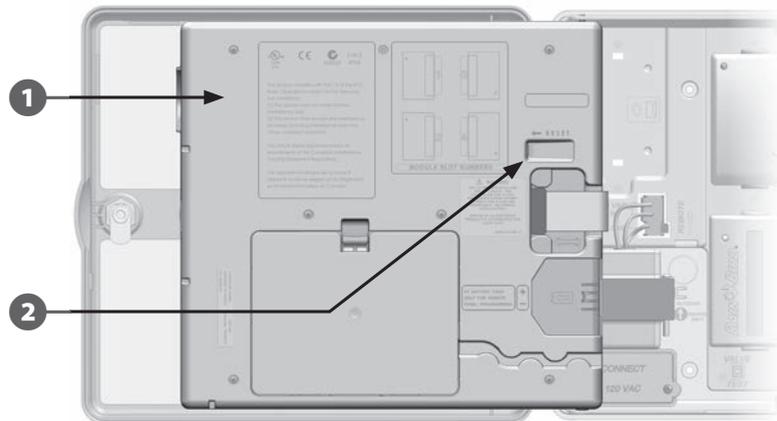
- 1 Turn the controller dial to AUTO.



- 3 Use a pen or pencil to depress the RESET button.
- 4 The "Rain Bird" screen appears, confirming reset.



- 1 Open the controller outer cabinet door and inner front panel.
- 2 Locate the RESET button on the back of the front panel.



Section B - Basic Programming

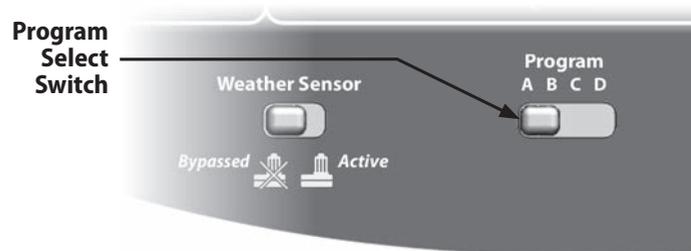
Program Select Switch

Always begin programming by setting the Program Select switch to the desired program.

Four independent Programs, A, B, C and D are available in the ESP-LX Basic controller. Multiple programs allow you to set watering schedules to meet different requirements for plant materials, soils, slopes, and shady or sunny areas. Two programs can operate simultaneously.

Select Program

On the controller front panel, slide the Program Select switch under the A, B, C, or D, then begin programming.



! **NOTE:** When programming the controller, any program-specific information you enter, such as start times or watering days, will affect only the selected program.

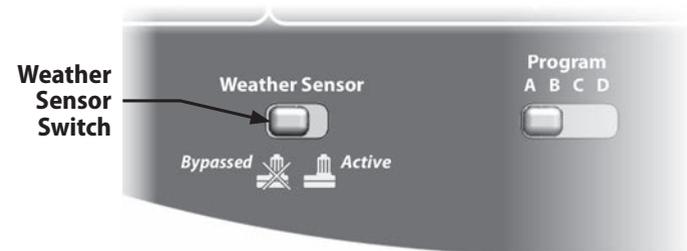
Weather Sensor Bypassed/Active Switch

A weather sensor is not required for the ESP-LX Basic controller, but can increase functionality by allowing you to prevent or pause irrigation based on changing weather conditions.

You can set the controller to ignore or obey input from one supported weather sensor, which connects to the LX base module via a separate wired or wireless connection. See Section G, Connect Local Weather Sensor for more details.

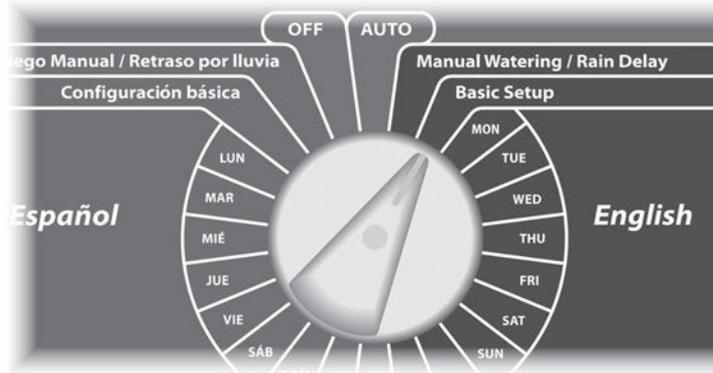
Bypass or Activate Weather Sensor

On the controller front panel, slide the Weather Sensor switch to Bypassed (to ignore) or Active (to obey).

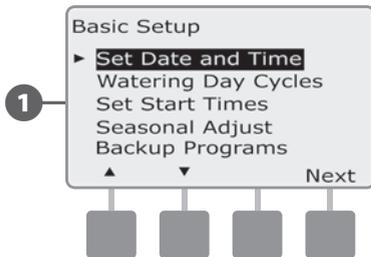


Set Current Date and Time

➤ Turn the controller dial to Basic Setup.



➊ The Basic Setup screen appears with Set Date and Time selected; press Next.

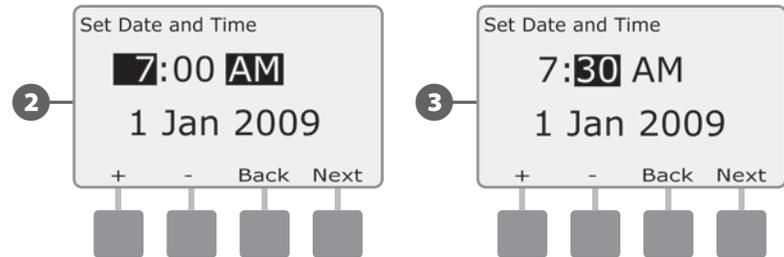


➋ The Set Date and Time screen appears. Press the + and – buttons to set the current hour; then press Next.

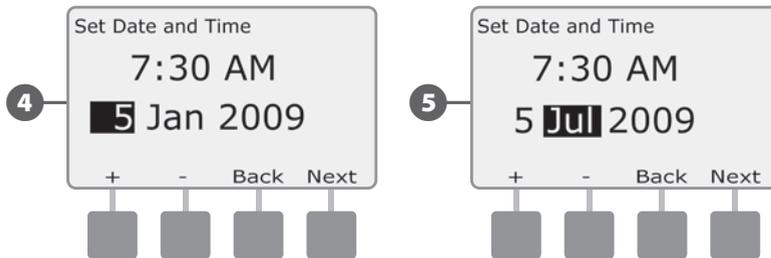
! **NOTE:** Be sure to set the hour correctly to either AM or PM.

- Press and HOLD buttons to accelerate settings for hours and minutes.

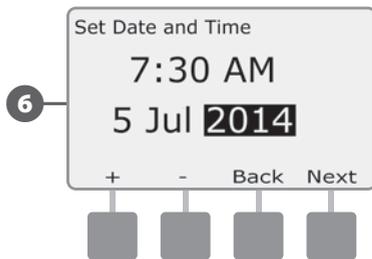
➌ Press the + and – buttons to set the current minute; then press Next.



- 4 Press the + and – buttons to set the current day; then press Next.
- 5 Press the + and – buttons to set the current month; then press Next.



- 6 Press + and – to set the current year.



- 7 Press Back to return to the Basic Setup Menu.

Watering Day Cycles

The ESP-LX Basic controller supports a variety of flexible watering day cycle options.

Watering Cycle Definitions

- ◆ **Custom Days:** irrigation starts on selected days of the week.
 - ◆ **Odd Dates:** irrigation starts on all odd numbered calendar days, such as the 1st, 3rd, 5th, etc.
 - ◆ **Odd Dates no 31st:** irrigation starts on all odd numbered calendar days, such as the 1st, 3rd, 5th, etc., but not on the 31st.
 - ◆ **Even Dates:** irrigation starts on all even numbered calendar days, such as the 2nd, 4th, 6th, etc.
 - ◆ **Cyclical Dates:** irrigation starts at regular chosen intervals such as every 3rd or 5th day, regardless of the calendar date.
- ⚠ **CAUTION:** Regardless of the Watering Cycle, irrigation will start only on days of the week where program starts are allowed. It's important to select allowed irrigation days carefully to avoid landscape damage in case irrigation delays are lengthy.
- ⚠ **NOTE:** A watering cycle is selected as soon as it is highlighted with the cursor.

Custom Days

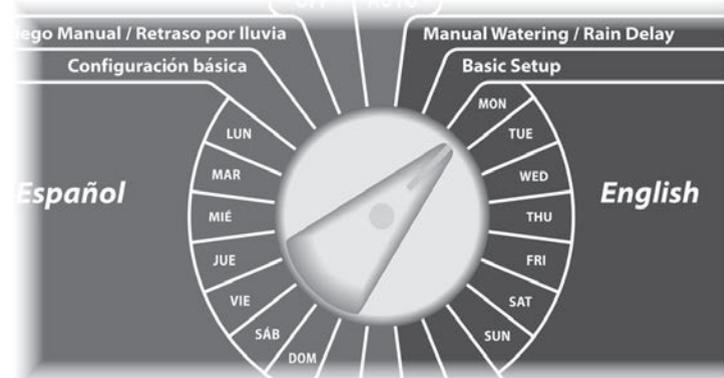
Custom Days are specific days of the week on which irrigation programs are allowed to start.

There are two methods to select Custom Days.

Method 1:

Select Custom Days using the days of the week dial positions.

- ▶ Turn the controller dial to **MON**.

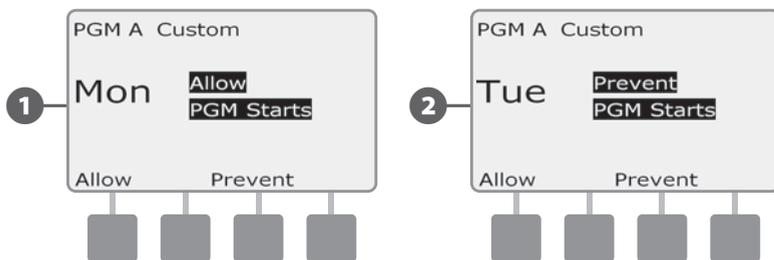


! **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

1 The Custom screen appears. Press the Allow button to allow irrigation to start on a given day or press Prevent to prevent irrigation from starting.

! **NOTE:** Watering day selections (Allow or Prevent) will carry over to the Watering Day Cycles menu option and vice versa.

2 Turn the controller dial to **TUE** and repeat the process.

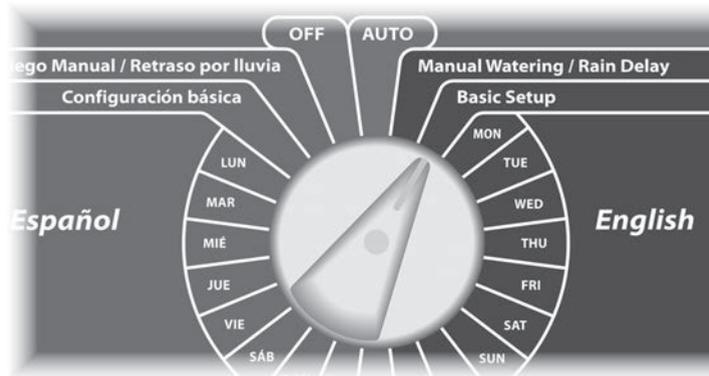


↻ Repeat this process for all other days of the week in the program. Then change the Program Select switch and repeat this process to select Custom Watering Days for other programs as desired.

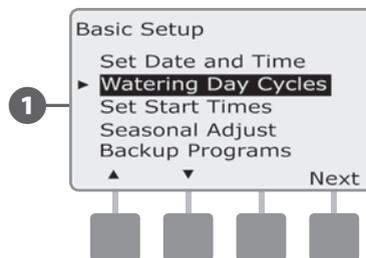
Method 2:

Select Custom Days using the Watering Day Cycle menu option.

▶ Turn the controller dial to Basic Setup.



1 The Basic Setup screen appears. Press the Down Arrow button to select Watering Day Cycles; then press Next.

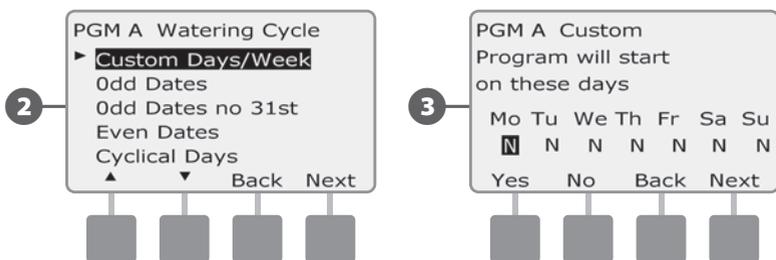


2 The Watering Cycle screen appears with Custom Days/Week selected; press Next.

! **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

3 The Custom screen appears. Press the Yes button to allow irrigation to start on a given day or press No to prevent irrigation from starting.

! **NOTE:** Watering day selections (Yes or No) will carry over to the days of the week dial positions and vice versa.



4 Press the Next and Back buttons to navigate through the days of the week and repeat the selection process as desired.



↻ Change the Program Select switch and repeat this process to set Watering Cycles for other programs as desired.

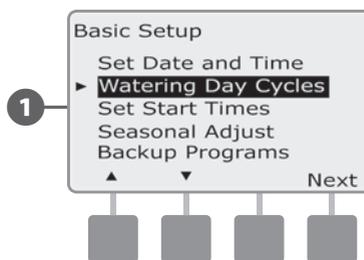
Odd, Odd no 31st, Even

The process for setting up Odd, Odd no 31st, and Even Watering Cycles is the same.

▶ Turn the controller dial to Basic Setup.



1 The Basic Setup screen appears. Press the Down Arrow button to select Watering Day Cycles; then press Next.



- 2 The Watering Cycle screen appears with Custom Days/Week selected. Press the Down Arrow button to select Odd Dates; then press Next.

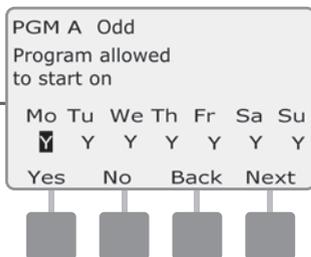
NOTE: If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

- 3 The Odd screen appears. Press the Yes button to allow irrigation to start on a given day or press No to prevent irrigation from starting.

NOTE: Watering day selections (Yes or No) will carry over to the days of the week dial positions and vice versa.

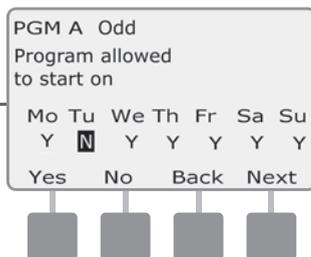


2



3

- 4 Press the Next and Back buttons to navigate through the days of the week and repeat the selection process as desired.

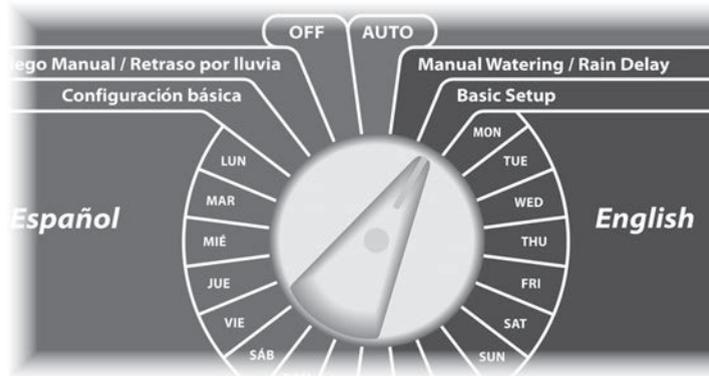


4

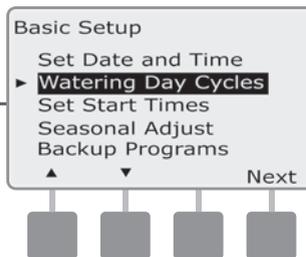
- Change the Program Select switch and repeat this process to set Watering Cycles for other programs as desired.

Cyclical Days

- Turn the controller dial to Basic Setup.



- 1 The Basic Setup screen appears. Press the Down Arrow button to select Watering Day Cycles; then press Next.

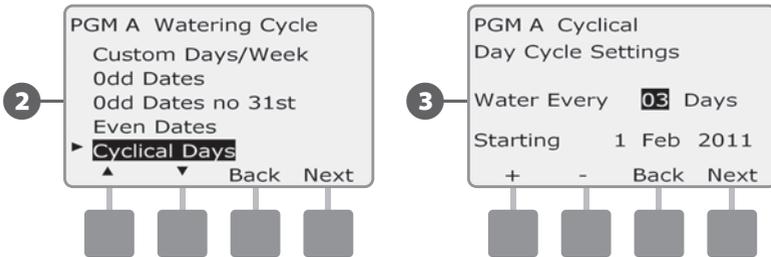


1

2 The Watering Cycle screen appears. Press the Down Arrow button to select Cyclical Days; press Next.

! **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

3 The Day Cycle Settings screen appears. Press the + and – buttons to set the watering day cycle (from 1 to 30 days). For example, set to 03 if you want to water every third day; then press Next.

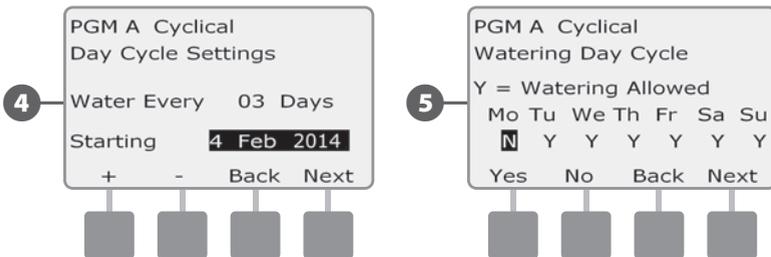


4 Press the + and – buttons to set the first date for the Watering Cycle to begin; then press Next.

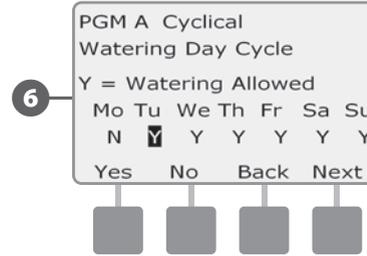
- Press and HOLD buttons to accelerate settings for dates.

5 The Watering Day Cycle screen appears. Press the Yes button to allow irrigation to start on a given day of the week or else press No to prevent irrigation from starting.

! **NOTE:** Watering day selections (Yes or No) will carry over to the days of the week dial positions and vice versa.



6 Press the Next and Back buttons to navigate through the days of the week and repeat the selection process as desired.



↻ Change the Program Select switch and repeat this process to set Cyclical Watering for other programs as desired.

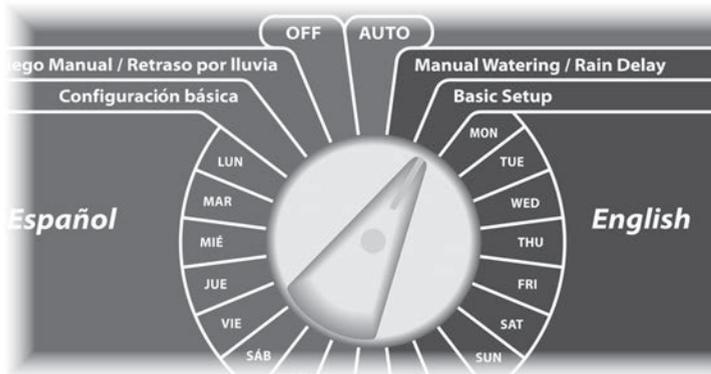
Set Watering Start Times

Start times are the time(s) of day that the program begins.

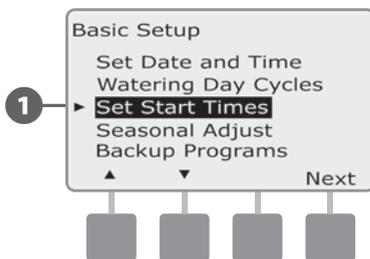
You can assign up to eight Start Times per day to a single program. Multiple Start Times allow you to run a program more than once on each day. For example, if you're growing new lawn seed, you may want to water several times a day to keep the seedbed or top dressing damp.

! **NOTE:** Start times apply to the entire program and not just to an individual station.

▶ Turn the controller dial to Basic Setup.



1 The Basic Setup screen appears. Press the Down Arrow button to select Set Start Times; then press Next.

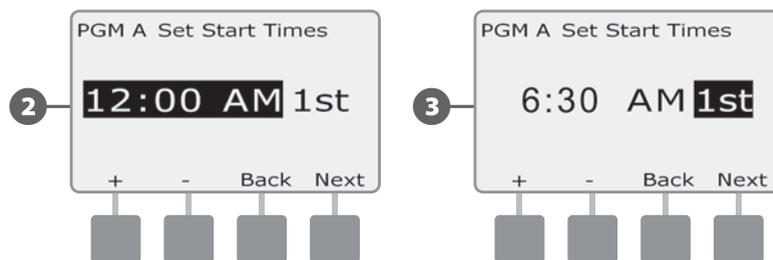


2 The Set Start Times screen appears. Press the + and – buttons to set the 1st Start Time for the current program. If more Start Times are desired, press Next.

- Press and HOLD buttons to accelerate settings for hours and minutes.

! **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

3 Press Next again to select the 2nd Start Time. Repeat Steps 2 and 3 to set all desired Start Times (1 through 8).



4 Press Back at any time to return to the Basic Setup Menu.

↻ Change the Program Select switch and repeat this process to set up additional Watering Start Times for other programs as desired.

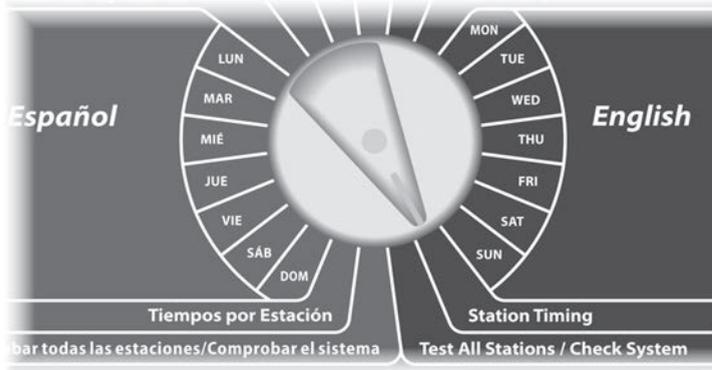
! **NOTE:** Cycle+Soak™ is an alternative method of dividing the total Station Run Time into smaller cycle times. If you plan to use Cycle+Soak, only a single Watering Start Time is required for each program. See Section D, Set Up Cycle+Soak for more details.

Set Station Run Times

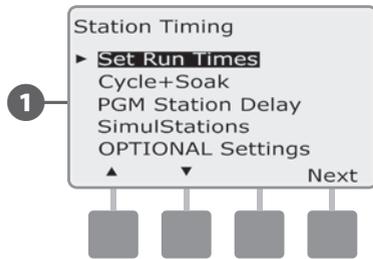
Run Times are the number of minutes (or hours and minutes) that each station runs.

Station Run Times are particular to programs; so typically stations are set for a single program.

➤ Turn the controller dial to Station Timing.



➊ The Station Timing screen appears with Set Run Times selected; press Next.

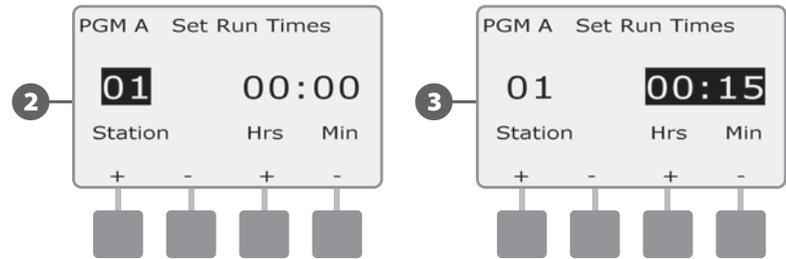


➋ The Set Run Times screen appears. Press the + and – buttons on the left to select the station to program.

⚠ **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

➌ Press the + and – buttons on the right to set the Station Run Time. Range can be from 00 minutes (no Run Time) up to 24:00 hours.

- Press and HOLD buttons to accelerate settings for hours and minutes.



↻ Change the Program Select switch and repeat this process to set up additional Station Run Times for other programs as desired.

⚠ **NOTE:** Seasonal Adjust % adjustments will adjust the Station Run Time down to the second. For example, if the Run Time is set for 1 minute and the Seasonal Adjust % is set to 50% then the adjusted Run Time equals 30 seconds.

⚠ **NOTE:** To return to the Station Timing menu, turn the dial to another position and then back to Station Timing.

Section C - System Diagnostics

Test All Stations / Check System

Review and confirm scheduled Irrigation Programs, Program Run Times and Station Run Times

Confirm Programs

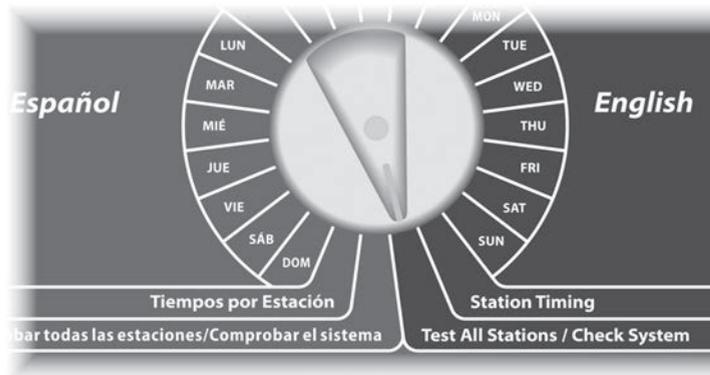
Review and confirm scheduled irrigation Programs, Program Run Times and Station Run Times.

The ESP-LX Basic controller can make calculations and provide feedback on Start Times and total Run Times for programs and stations.

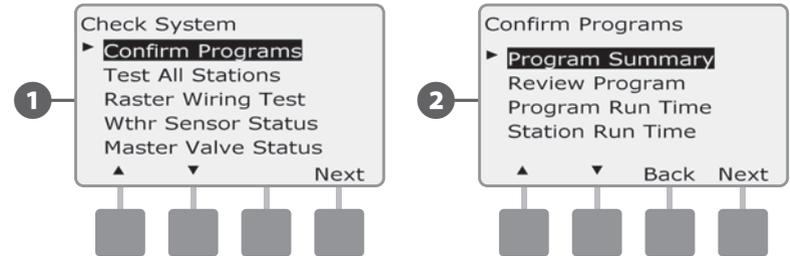
Program Summary

Review program information for all programs:

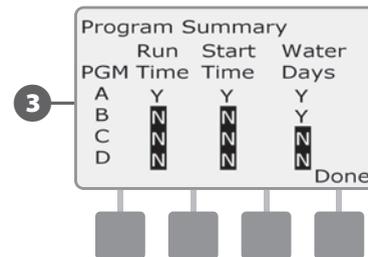
Turn the controller dial to Test All Stations/Check System.



- 1 The Check System screen appears with Confirm Programs selected; press Next.
- 2 The Confirm Programs screen appears with Program Summary selected; press Next.



- 3 The Program Summary screen appears, providing a summary of Run Times, Start Times and Water Days for all programs.



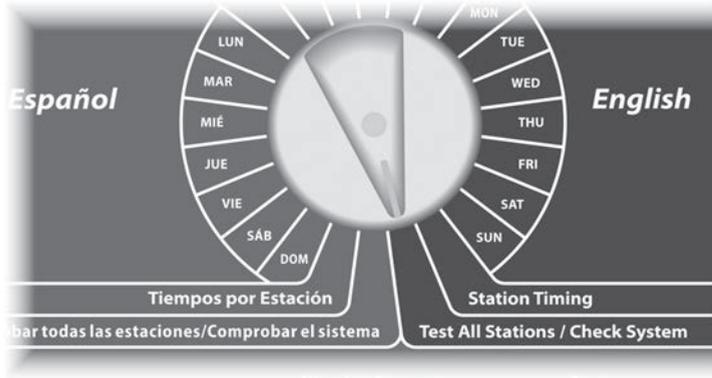
NOTE: In the above example, Program A will run because it has Station Run Times, Start Times and Water Days all programmed, as indicated by the "Y" in each column for PGM A.

Program B however will not run as it is missing both the Run Time and Start Time, as indicated by the "N" in each of those columns for PGM B.

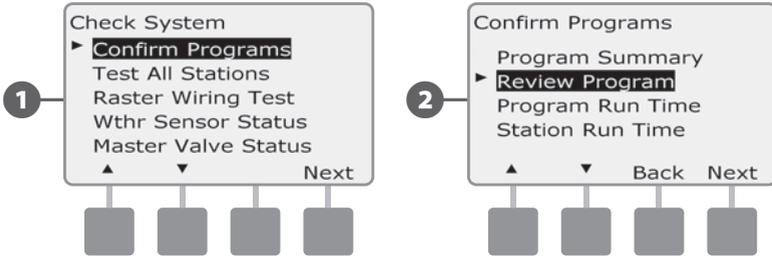
Review Program

Review program information for a station:

- Turn the controller dial to Test All Stations/Check System.



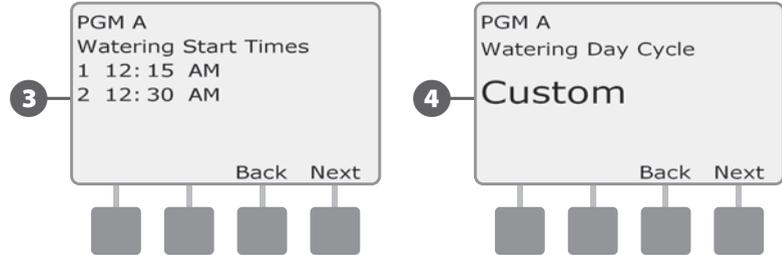
- The Check System screen appears with Confirm Programs selected; press Next.
- The Confirm Programs screen appears. Press the Down Arrow button to select Review Program; then press Next.



- The Watering Start Times review screen appears with start times displayed for the currently selected program. Press Next.

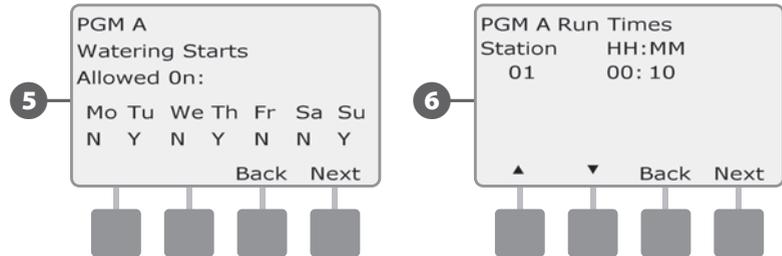
NOTE: If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

- The Watering Day Cycle review screen appears with the current watering day cycle displayed. Press Next.

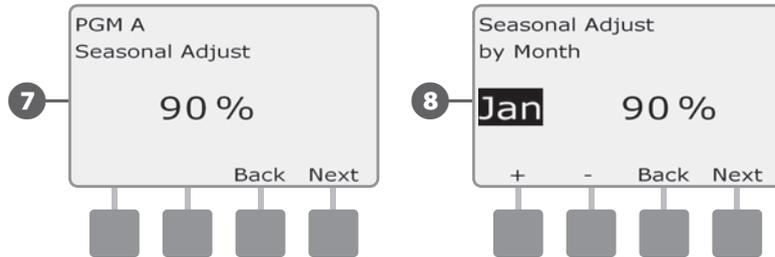


- The Watering Days review screen appears with allowed watering days displayed. Press Next.

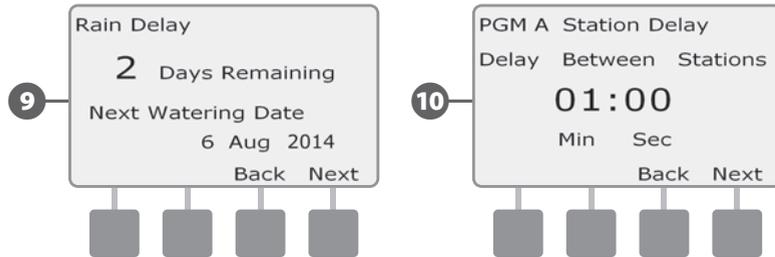
- The Run Times review screen appears with run times for each station displayed. Press Next.



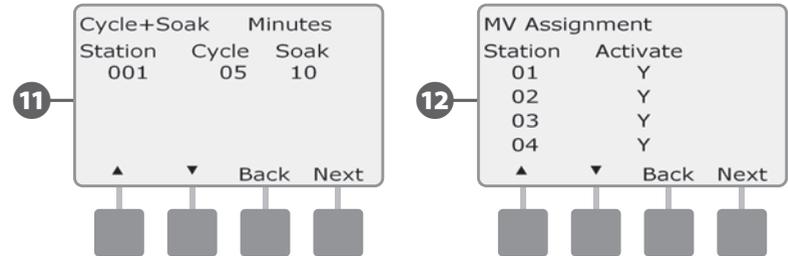
- 7 The Seasonal Adjust review screen appears with seasonal adjustment percentage displayed. Press Next.
- 8 The Seasonal Adjust by Month review screen appears with seasonal adjustment percentage displayed for the first allowed month. Press the + and - buttons to see Seasonal Adjust percentage for other months as desired; then press Next.



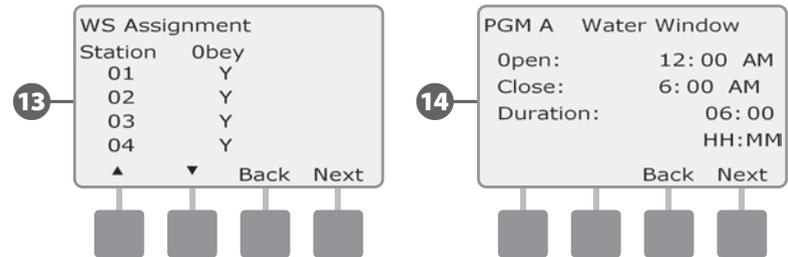
- 9 The Rain Delay review screen appears with number of days remaining until next watering date displayed. Press Next.
- 10 The Station Delay review screen appears with delay time between stations displayed. Press Next.



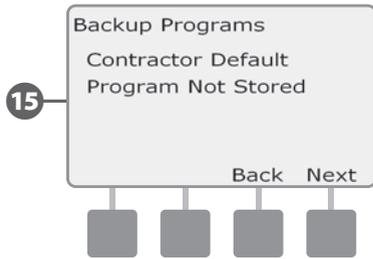
- 11 The Cycle+Soak Minutes review screen appears with the Cycle+Soak times for each station displayed. Press Next.
- 12 The Master Valve Assignment review screen appears with MV information displayed. Press Next.



- 13 The Weather Sensor Assignment review screen appears with stations that use sensor override displayed. Press Next.
- 14 The Water Window review screen appears with water window open time, close time and duration displayed. Press Next.



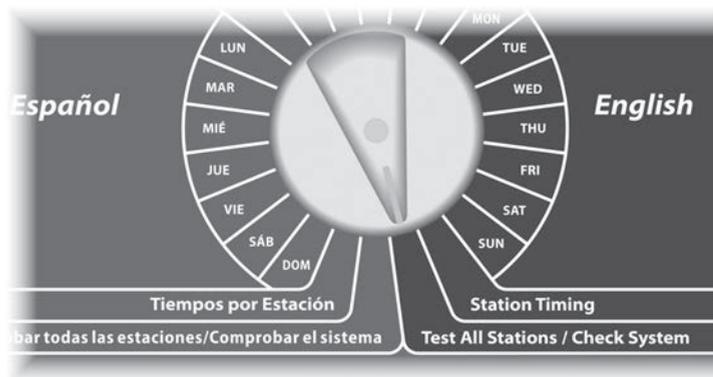
- 15 The Backup Programs review screen appears with the Contractor Default backup program status displayed. Press Next.



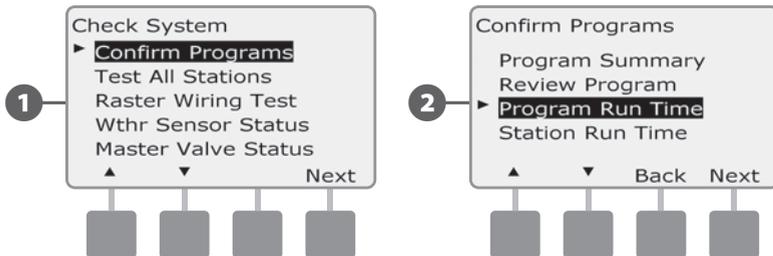
Program Run Time

Review total Run Time for an individual program:

- Turn the controller dial to Test All Stations/Check System.

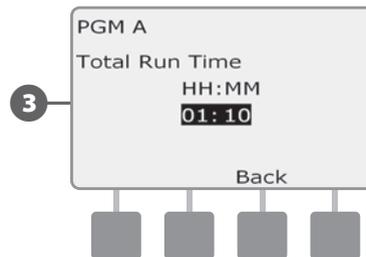


- The Check System screen appears with Confirm Programs selected; press Next.
- The Confirm Programs screen appears. Press the Down Arrow button to select Program Run Time; then press Next.



- The Total Run Time screen appears and total Run Time is displayed for the currently selected program.

NOTE: If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.



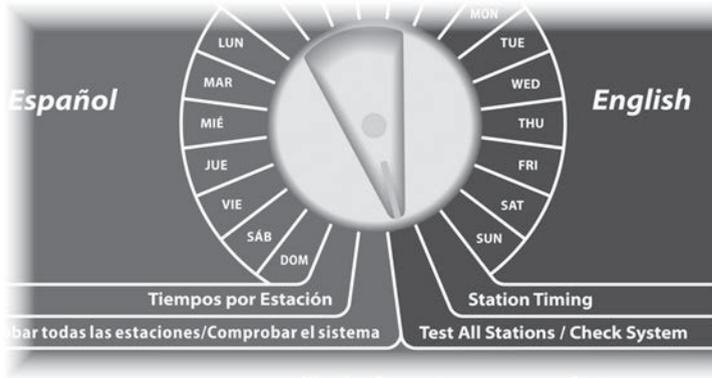
NOTE: For stations set up for Cycle+Soak, the Cycle Time (when irrigation is occurring) will be included in Program Run Time calculations but Soak times will NOT be included. See Section D, Set Up Cycle+Soak, for more details.

Change the Program Select switch and repeat this process to review and confirm Program Run Times for other programs as desired.

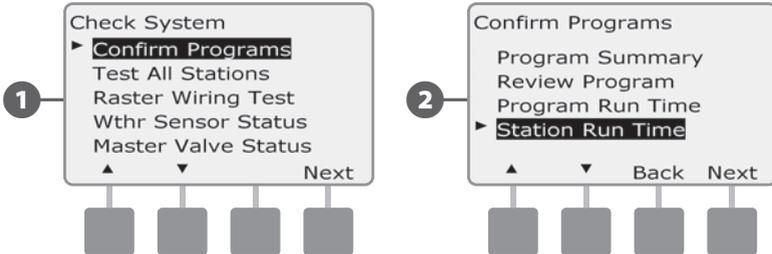
Station Run Time

Review total Run Time for all stations:

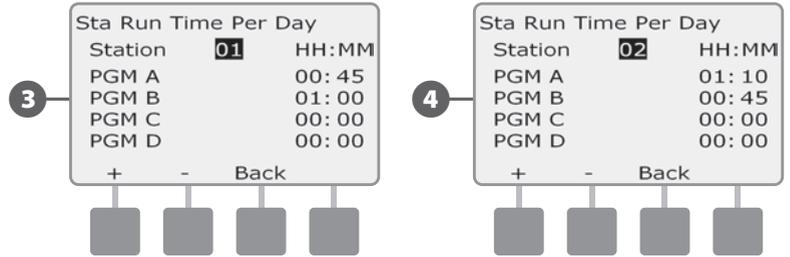
- Turn the controller dial to Test All Stations/Check System.



- The Check System screen appears with Confirm Programs selected; press Next.
- The Confirm Programs screen appears. Press the Down Arrow button to select Station Run Time; then press Next.



- The Sta Run Time Per Day screen appears with total Run Time displayed for the currently selected station in all four programs. For programs where a particular station is not used no runtime will show.
- Press the + and - buttons to advance and see additional stations.



- NOTE:** Soak times for stations set up with Cycle+Soak are not included in the Station Run Time calculations. See Section D, Set Up Cycle+Soak for more details.

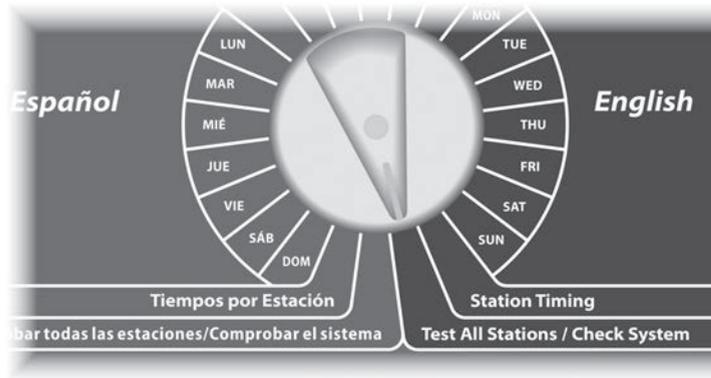
Test All Stations

You can test all stations connected to your controller by running each of them in station number sequence.

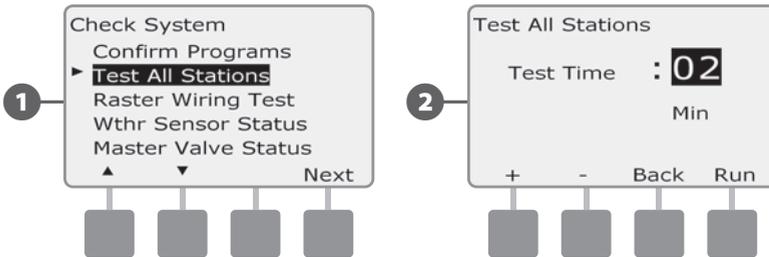
Sometimes this is useful after installation, for general maintenance or as a first step in troubleshooting your system.

NOTE: Only stations with programmed run times are included in the Test All Stations operation.

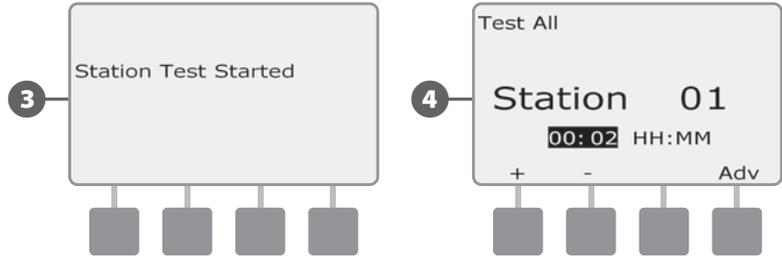
Turn the controller dial to Test All Stations/Check System.



- 1 The Check System screen appears. Press the Down Arrow button to select Test All Stations; then press Next.
- 2 The Test All Stations screen appears. Press the + and – buttons to adjust the Test Run Time (adjustable from 1 to 10 minutes) per station; then press Run.



- 3 A confirmation screen appears.
- 4 Once Run is pressed, stations can be monitored and advanced by turning the dial to the AUTO position and using the Adv button. Press the + and – buttons to increase or decrease Run Time minutes for the current station.



Wiring Diagnostics

Although finding the exact location of issues in the field often requires some amount of in-the-field troubleshooting, the controller has some built-in features to help you narrow down the possible issues.

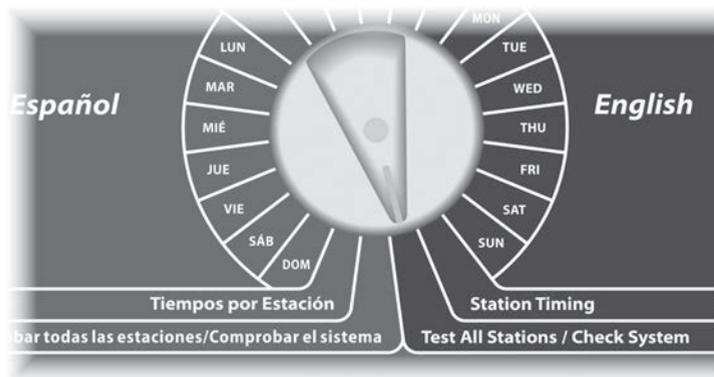
Before beginning diagnostics, it may be helpful to run a **Test All Stations check** to ensure valves are working properly.

! **NOTE:** The Test All Stations manual test will take priority above pre-programmed irrigation and allow you to determine which stations are working properly. See Test All Stations for more details.

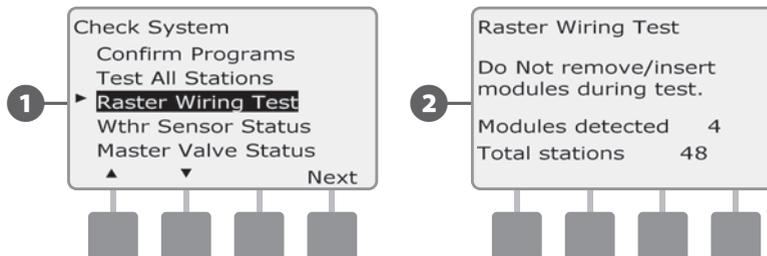
Raster Wiring Test

The ESP-LX Basic controller can quickly test to determine if any stations have shorted or open wires or valve solenoids.

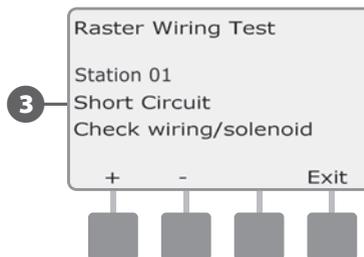
 Turn the controller dial to Test All Stations/Check System.



- 1 The Check System screen appears. Press the Down Arrow button to select Raster Wiring Test; then press Next.
- 2 The Raster Wiring Test screen appears. The test begins automatically.

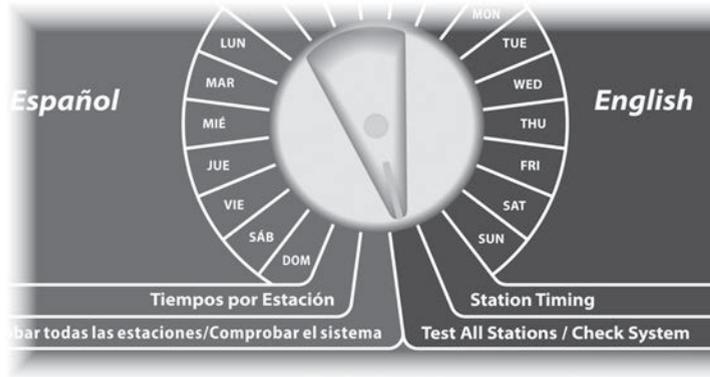


- !** **NOTE:** During the test every installed station number is briefly displayed on the screen.
- 3 When the test is complete, the results are displayed on the screen. Press the + and - buttons to scroll through all stations that have short circuits or open circuits.

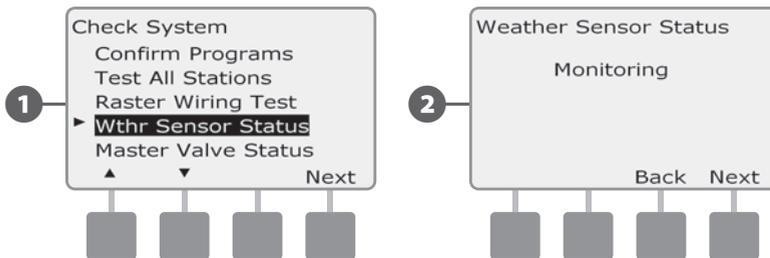


Weather Sensor Status

- Turn the controller dial to Test All Stations/Check System.



- The Check System screen appears. Press the Down Arrow button to select Wthr Sensor Status; then press Next.
- The Weather Sensor Status screen appears, showing the status of the installed weather sensor.



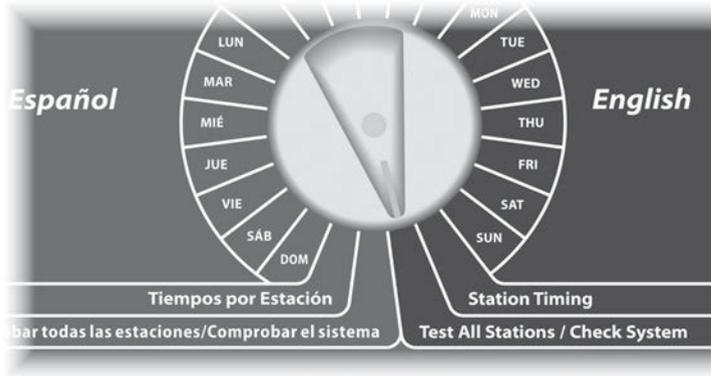
The sensor will display one of five status conditions:

- Monitoring - sensor is active monitoring current weather conditions.
- <Inactive> installation has not been completed or the sensor is not linked to any stations.
- PAUSING - current weather condition has caused the sensor to pause irrigation.
- PREVENTING - current weather condition has caused the sensor to prevent irrigation.
- BYPASSED - sensor switch is in the Bypassed position and the sensor is not monitoring current weather conditions.

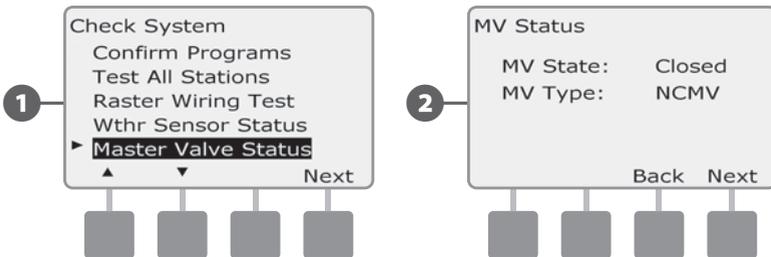
! **NOTE:** If current weather conditions are sufficient for the weather sensor to prevent or pause irrigation, then a message appears on the Auto screen. This is not considered an alarm, so the controller alarm light will not illuminate.

Master Valve Status

Turn the controller dial to Test All Stations/Check System.



- 1 The Check System screen appears. Press the Down Arrow button to select Master Valve Status; then press Next.
- 2 The MV Status screen appears, showing the status of the installed master valve.



Section D - Advanced Programming

The ESP-LX Basic controller has a wide variety of advanced but easy-to-use features designed to simplify irrigation.

Seasonal Adjust %

Seasonal Adjust % allows you to use the heaviest irrigation season as a baseline and adjust to lesser amounts of watering at other times of the year. For example, you could set July at 100% and set October to 50% so there would be half as much watering in Fall than in Summer.

Seasonal adjustments can be managed in two ways:

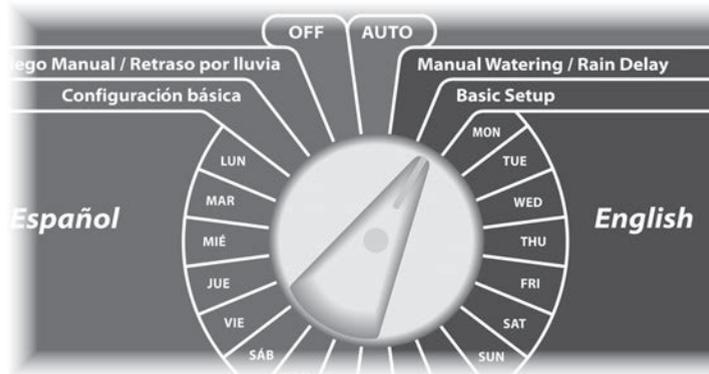
- By Individual Program - adjusting an individual program (A, B, C, or D) affects all scheduled watering for that program, for all months of the year.
- By Month - affects watering for a selected month. Then you select the individual programs that will be affected by the monthly adjustment.

 **CAUTION:** Multiple Seasonal Adjustment settings affect each other and can significantly impact irrigation. For example, if you set a program-level Seasonal Adjustment of 10% and then a monthly Seasonal Adjustment of 10%, irrigation will be reduced to 1% of normal (10% of 10%). Consider using only one type of Seasonal Adjustment setting.

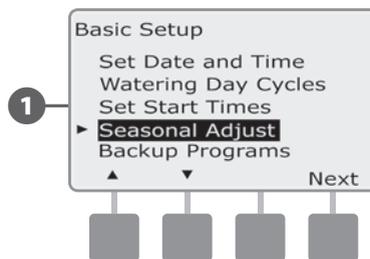
 **CAUTION:** Setting a small number for the Seasonal Adjustment percentage will greatly reduce watering and setting to 0% will cancel irrigation entirely. Use caution when making Seasonal Adjustment settings.

Adjust Individual Program

 Turn the controller dial to Basic Setup.



1 The Basic Setup screen appears. Press the Down Arrow button to select Seasonal Adjust; then press Next.

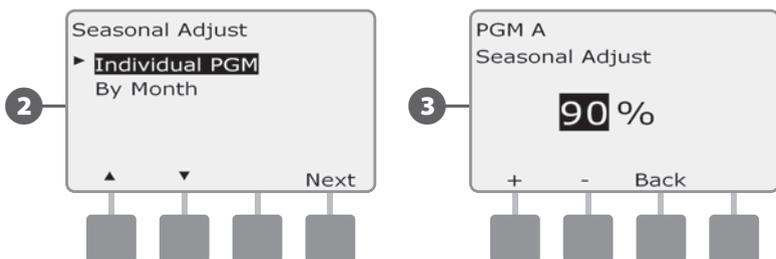


2 The Seasonal Adjust screen appears with Individual PGM selected; press Next.

3 Press the + and - buttons to set the seasonal adjustment percentage (from 0 - 300%).

- Press and HOLD buttons to accelerate settings for percentages.

! **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

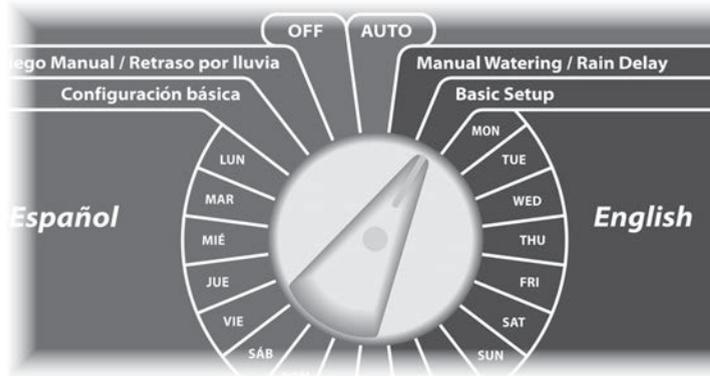


↻ Change the Program Select switch and repeat this process to set Seasonal Adjustments for other programs as desired.

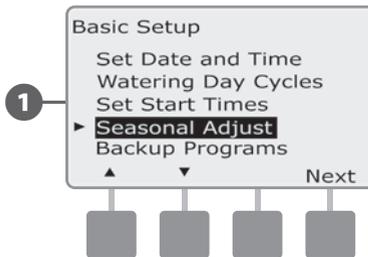
Adjust By Month

Select Months to Adjust

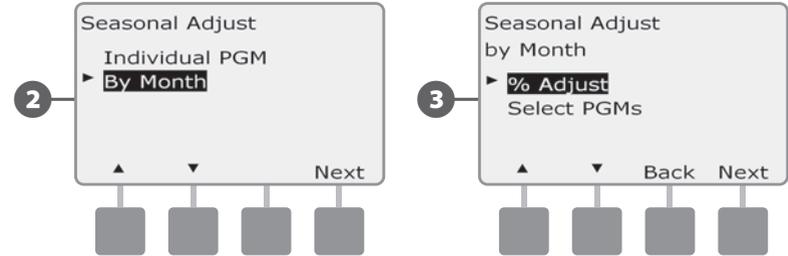
- 1 Turn the controller dial to Basic Setup.



- 1 The Basic Setup screen appears. Press the Down Arrow button to select Seasonal Adjust; then press Next.



- 2 The Seasonal Adjust screen appears. Press the Down Arrow button to select By Month; then press Next.
- 3 The Seasonal Adjust by Month screen appears with % Adjust selected; then press Next.



- 4 Press the + and - buttons to select the month you would like to adjust; then press Next.
- 5 Press the + and - buttons to set the Seasonal Adjustment percentage (from 0 - 300%); then press Next.
- Press and HOLD buttons to accelerate settings for percentages.



- Repeat this process to set Seasonal Adjustments for other months as desired. To apply these adjustments to one or more programs, refer to the Select Programs to Adjust section.

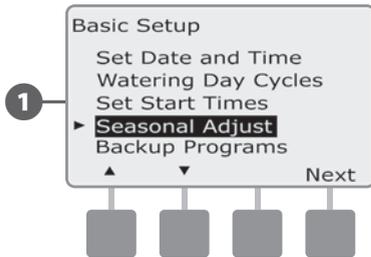
NOTE: The % Adjust will automatically change to the new month's percentage setting on the first day of the month.

Select Programs To Adjust

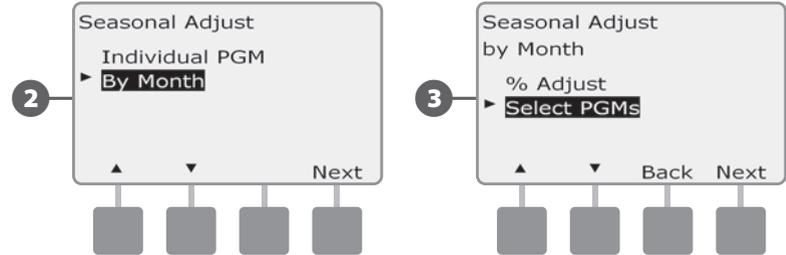
- Turn the controller dial to Basic Setup.



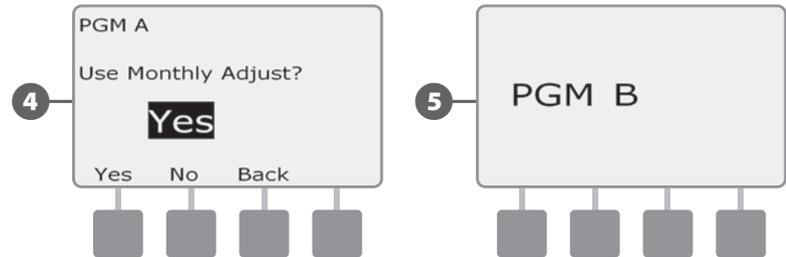
- The Basic Setup screen appears. Press the Down Arrow button to select Seasonal Adjust; then press Next.



- The Seasonal Adjust screen appears. Press the Down Arrow button to select By Month; then press Next.
- The Seasonal Adjust by Month screen appears. Press the Down Arrow button to select Select PGMs; then press Next.



- Press the Yes or No buttons to set Monthly Adjust for the current selected program.
- To set another program, change the Program Select switch to the desired program; a confirmation appears.



- Repeat this process to set Monthly Adjustments for other programs as desired.

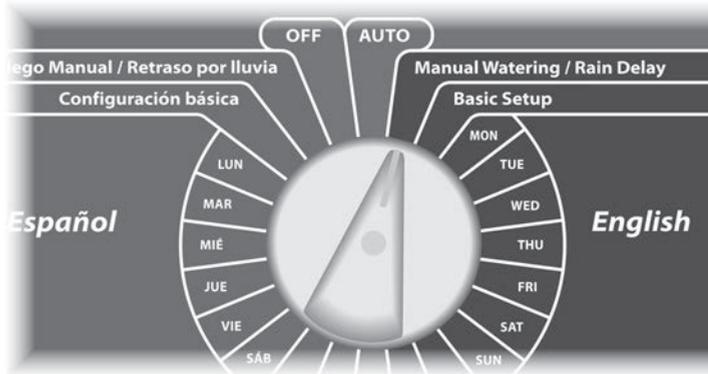
Delay Watering

Rain Delay

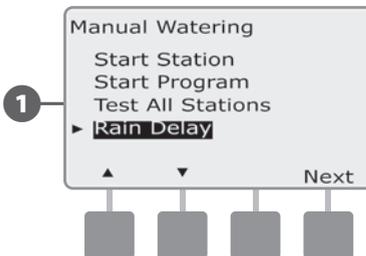
The ESP-LX Basic controller's Rain Delay feature lets you discontinue irrigation for a few days after a period of heavy rain.

! **NOTE:** If you have a rain sensor attached to your controller, it may be unnecessary to manually program a Rain Delay. Consult the rain sensor device documentation for more details.

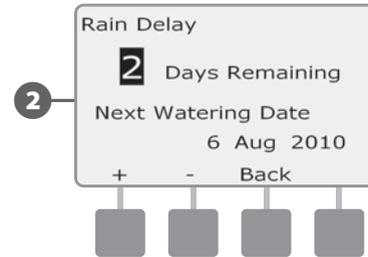
▶ Turn the controller dial to Manual Watering / Rain Delay.



1 The Manual Watering screen appears. Press the Down Arrow button to select Rain Delay; then press Next.



2 The Rain Delay screen appears. Press the + and - buttons to set the number of days (from 0 to 14 days) for the Rain Delay. The next irrigation date after the Rain Delay calculates and displays automatically.



Water Windows

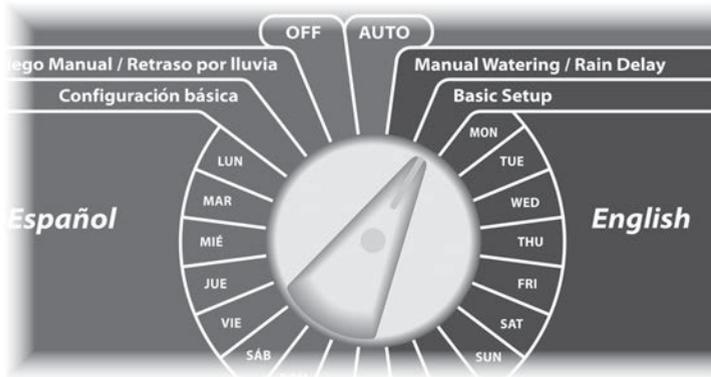
Used to specify certain times of the day/night when irrigation is allowed.

Otherwise watering is not allowed outside these “Water Windows”. This is helpful to comply with local regulations which may prohibit irrigation during certain hours.

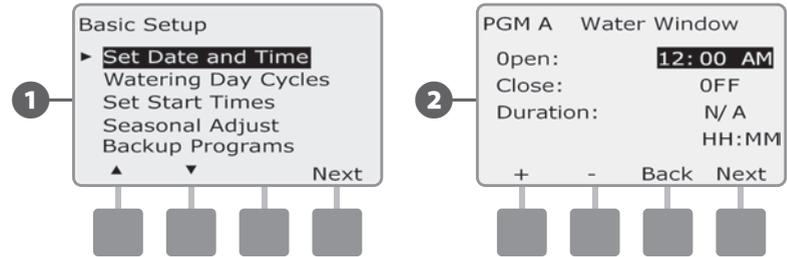
CAUTION: Be sure a Water Window is sufficient to allow irrigation programs to run completely. Irrigation scheduled outside the Water Window will not run but will resume when the Water Window opens again. This can cause irrigation programs to “stack” and eventually create an alarm condition if the controller stacks 8 or more programs.

NOTE: Water Windows can be scheduled to cross midnight. For example, a Water Window can start at 10:00 PM and continue until 4:00 AM the next morning. Be sure your Watering Start Times are set to occur within the Water Window. See Section B, Set Watering Start Times for more details.

Turn the controller dial to Basic Setup.



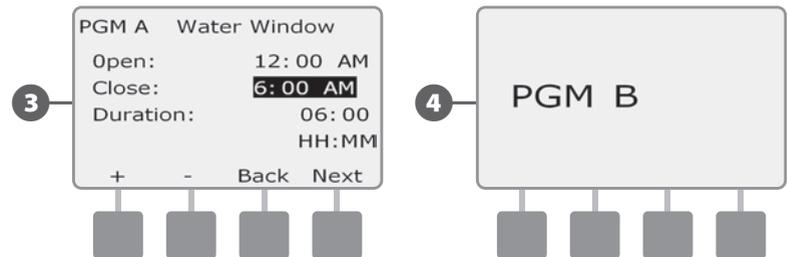
- 1 The Basic Setup screen appears. Press and hold the third button from the left (Key3).
- 2 The Water Window screen appears. Press the + and – buttons to set the time when the Watering Window opens; then press Next.
 - Press and HOLD buttons to accelerate settings.



- 3 Press the + and – buttons to set the time when the Watering Window closes. As you adjust the close time, the duration of your Water Window calculates automatically.

NOTE: To clear a previously set Water Window, press the + and – buttons to set both the Open and Close times to OFF (between 11:59 and 12:00 AM).

- 4 To set another program, change the Program Select switch to the desired program; a confirmation appears.



Repeat this process to set or clear Water Windows for other programs as desired.

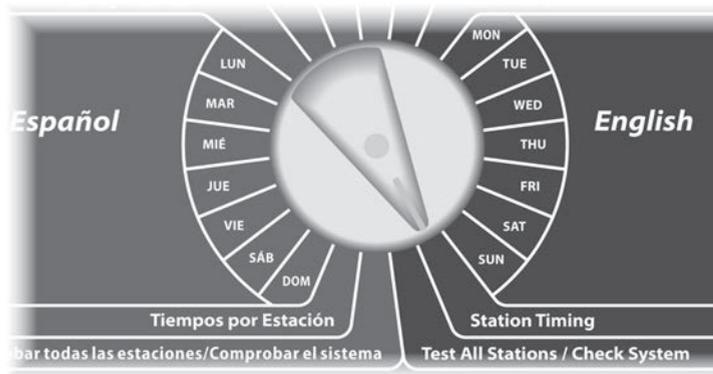
Set Up Cycle+Soak™

The ESP-LX Basic controller Cycle+Soak™ feature allows water to be applied to stations intermittently and without creating complex programs. It can apply to any station and is useful for locations such as hillsides which can be difficult to irrigate effectively.

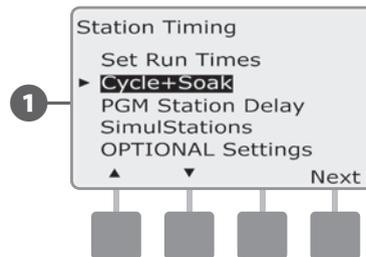
Cycle+Soak consists of two settings, the cycle time (how long a station will run before soaking) and soak time (how long irrigation is paused before applying another cycle). For example, a station can be set up to receive 15 minutes of irrigation in three 5 minute cycles, with two 10 minutes periods of soak time in between waterings.

NOTE: Cycle+Soak settings apply to stations no matter which programs it may be used in.

Turn the controller dial to Station Timing.



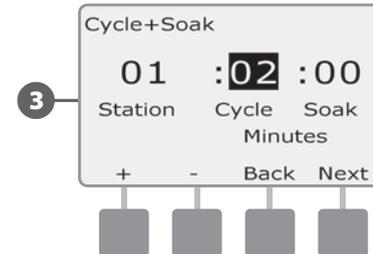
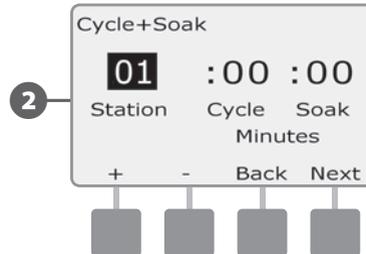
1 The Station Timing screen appears. Press the Down Arrow button to select Cycle + Soak; then press Next.



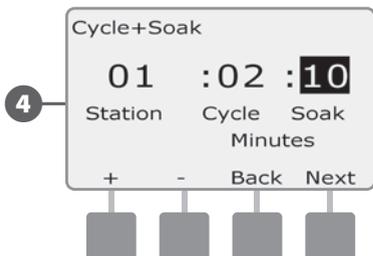
2 The Cycle+Soak screen appears. Press the + and - buttons to enter the desired station number; then press Next.

3 Press the + and - buttons to set the Cycle time (between 1-60 minutes). Or to cancel Cycle+Soak on that station, set to 0 minutes; then press Next.

- Press and HOLD buttons to accelerate settings for minutes.



- Press the + and - buttons to set the Soak time (between 1-60 minutes). Or to cancel Cycle+Soak on that station, set to 0 minutes; then press Next.



NOTE: Consider using short Soak times, particularly if your watering schedule or Water Window is short. Long soak times could prevent irrigation from completing prior to the end of the Water Window. See previous Water Windows for more details.

Repeat this process to set up Cycle+Soak on other stations.

Program Station Delay

The ESP-LX Basic controller can be programmed to include a delay between stations.

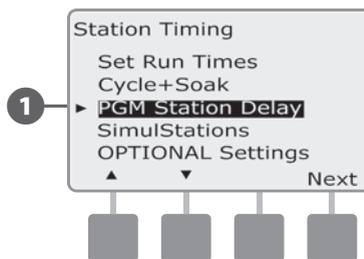
This feature delays the start of the next sequential station in a program after the previous station completes.

CAUTION: Consider using short Station Delay times, particularly if your watering schedule or Water Window is short. Long delay times could prevent scheduled irrigation from completing prior to the end of the Water Window. See previous Water Windows for more details.

Turn the controller dial to Station Timing.



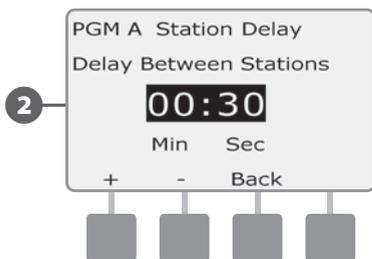
The Station Timing screen appears. Press the Down Arrow button to select PGM Station Delay; then press Next.



2 The Station Delay screen appears. Press the + and – buttons to set the delay time (from 00:01 second to 10:00 minutes). To clear Station Delay on that station, set the delay time to 00:00.

- Press and HOLD buttons to accelerate settings for minutes and seconds.

! **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.

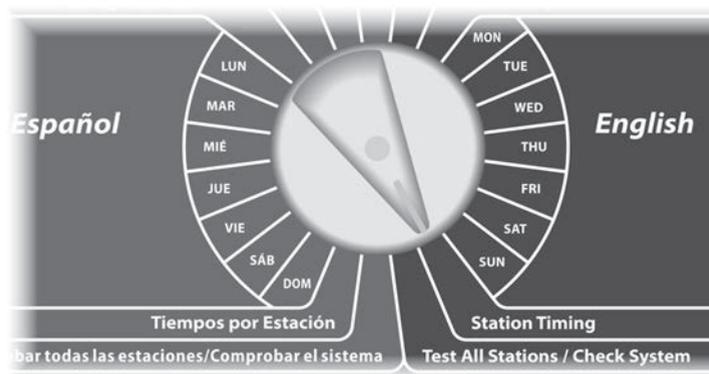


↻ Change the Program Select switch and repeat this process to set Station Delay for other programs as desired.

SimulStations

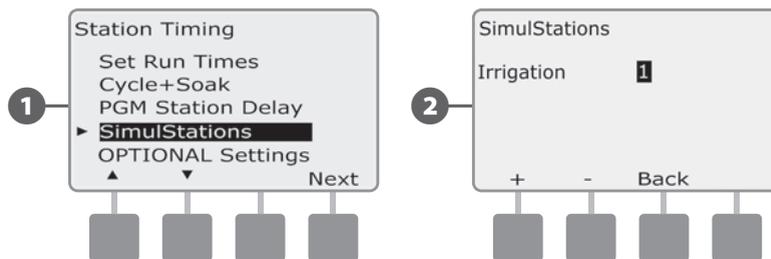
The ESP-LX Basic controller defaults to operating a single station at a time. Systems with larger water sources may support operating two stations simultaneously.

▶ Turn the controller dial to Station Timing.



1 The Station Timing screen appears. Press the Down Arrow button to select SimulStations; then press Next.

2 The SimulStations screen appears. Press the + and – buttons to set the number of irrigation stations (1 or 2) that can operate simultaneously.

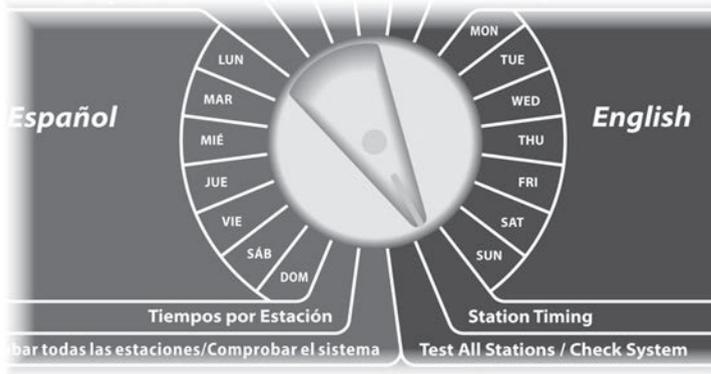


Optional Settings

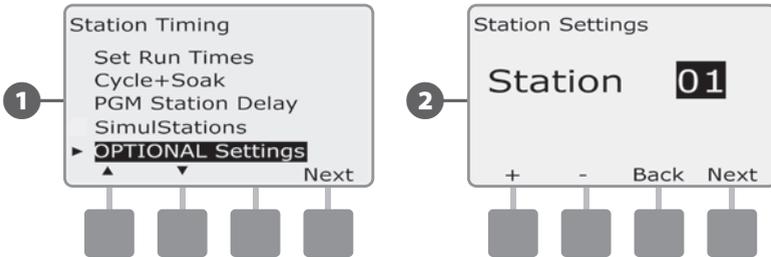
Station Settings

The Station Settings option tells the ESP-LX Basic controller how to interact with other stations, the master valve, and the weather sensor.

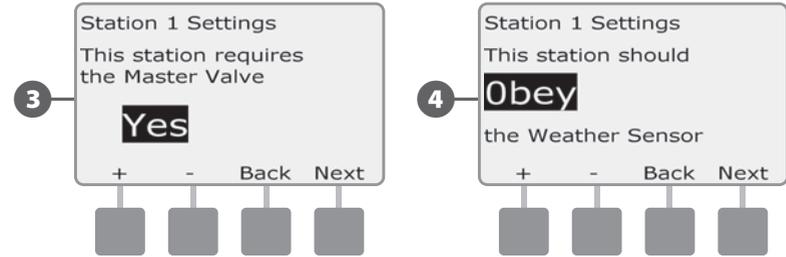
▶ Turn the controller dial to Station Timing.



- 1 The Station Timing screen appears. Press the Down Arrow button to select Optional Settings; then press Next.
- 2 The Station Settings screen appears. Press the + and – buttons to enter the desired station number; then press Next.



- 3 Press the + and – buttons to select Yes if the station requires a master valve, otherwise select No; then press Next.
- 4 The Weather Sensor Assignment screen lets you select whether a station obeys or ignores the installed weather sensor. Press the + and – buttons to select Obey or Ignore; then press Next.



! **NOTE:** The weather sensor can be turned on (Active) or off (Bypassed) using the Weather Sensor switch on the controller front panel.

↻ Repeat this process to set up additional stations.

Section E - Options & Special Features

Backup and Recall Programs

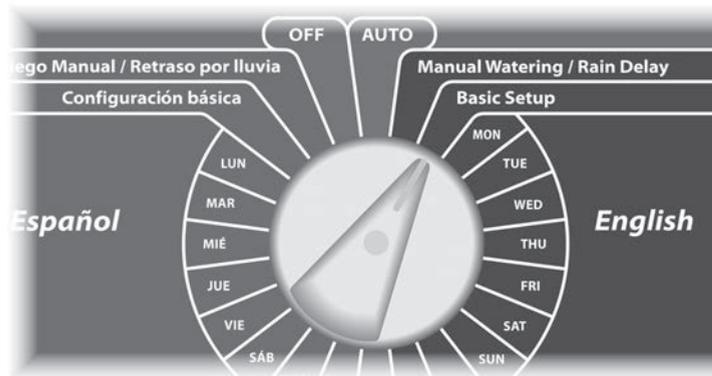
The ESP-LX Basic controller comes standard with a simple to use backup programs feature.

Backup Programs allows you to save your programs as Contractor Default and then recall them at a later time. It also includes a Delayed Recall feature that lets you save a normal irrigation schedule as the Backup and then restore it later automatically. This may be useful for new seed or sod where frequent irrigation can be programmed to occur until a set date when Delayed Recall automatically returns the controller programming to the normal irrigation schedule.

 **CAUTION:** The Backup Programs feature saves and restores ALL irrigation programming in ALL programs (A, B, C & D).

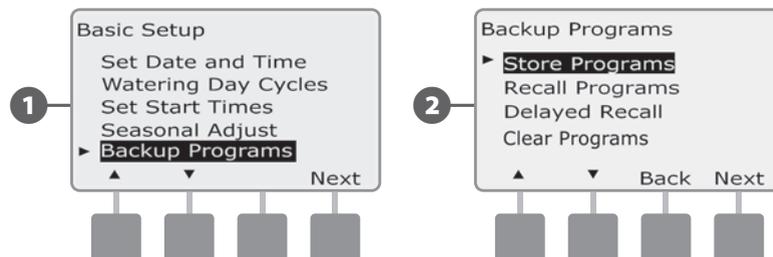
Store Default Programs

 Turn the controller dial to Basic Setup.



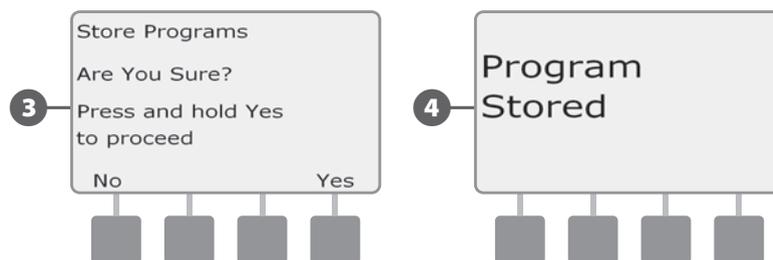
1 The Basic Setup screen appears. Press the Down Arrow button to select Backup Programs; then press Next.

2 The Backup Programs screen appears with Store Programs selected; press Next.



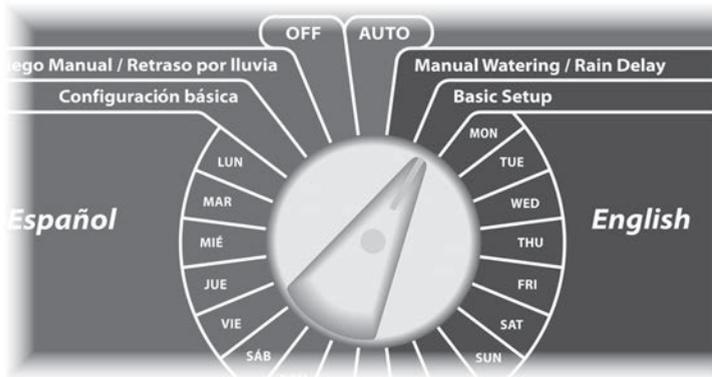
3 A confirmation screen appears. To Store Programs, press and hold down the Yes button for four seconds. If you're not sure, press No.

4 A confirmation screen appears.

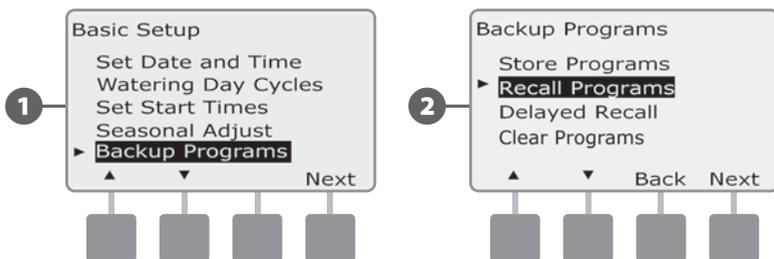


Recall Default Programs

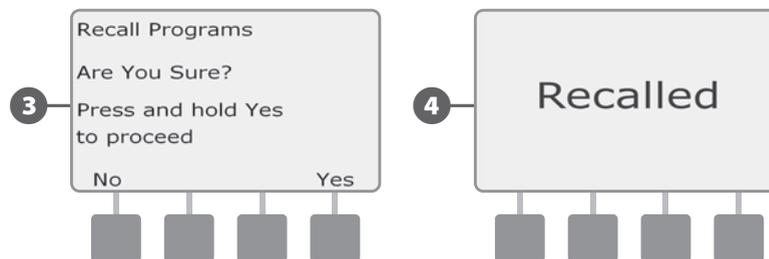
- Turn the controller dial to Basic Setup.



- The Basic Setup screen appears. Press the Down Arrow button to select Backup Programs; then press Next.
- The Backup Programs screen appears. Press the Down Arrow button to select Recall Programs; then press Next.



- A confirmation screen appears. To Recall Programs, press and hold down the Yes button for four seconds. If you're not sure, press No.
- A confirmation screen appears.



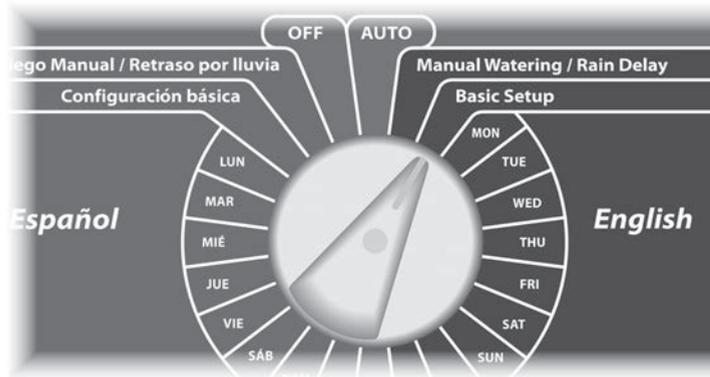
- CAUTION:** Once current programs have been replaced using Recall Programs they can not be restored.

Delayed Recall

Use the Delayed Recall feature to automatically replace the currently loaded programs with a previously stored program at a future date.

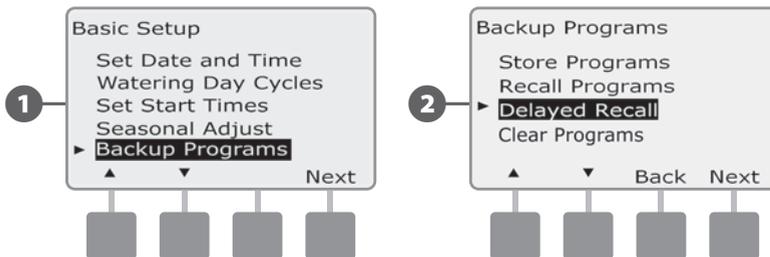
 **CAUTION:** Once current programs have been replaced with the Delayed Recall feature, they can not be restored.

 Turn the controller dial to Basic Setup.

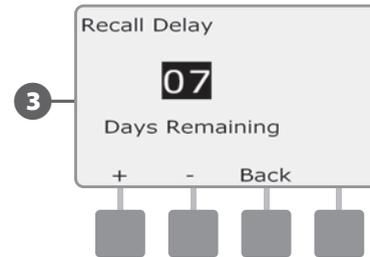


1 The Basic Setup screen appears. Press the Down Arrow button to select Backup Programs; then press Next.

2 The Backup Programs screen appears. Press the Down Arrow button to select Delayed Recall; then press Next.



3 The Recall Delay screen appears. Press the + and - buttons to enter the number of days (from 0 to 90 days) before Contractor Defaults are restored. For example, set it to 7 days if you want your original programs to be restored in one week. If you want to clear a previously Delayed Recall, set the number of days to 0.



Clear Programs

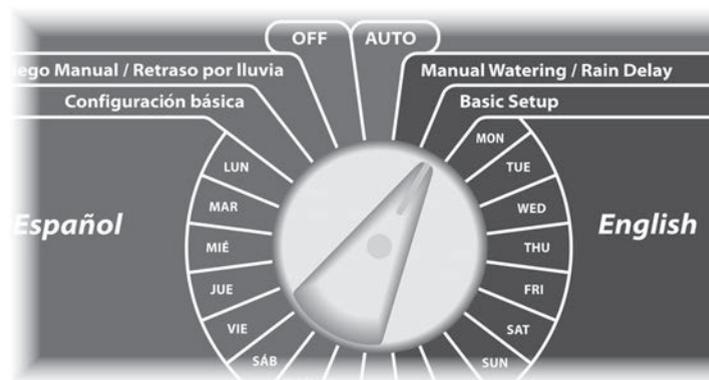
The ESP-LX Basic controller allows you to clear an individual Program, all of your Programs, or to Restore the controller to its factory default condition.

 **CAUTION:** It's recommended to back up your Programs before clearing them. The ESP-LX Basic controller's built in Store Programs feature can backup one set of programs. See Section E, Backup and Recall Programs for more details.

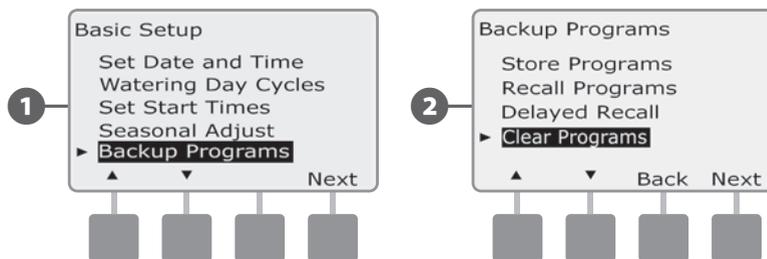
 **NOTE:** Irrigation start days, Start Times and station Run Times will no longer be present for the cleared Programs. If no Programming exists then an Alarm will be displayed. See Section A, Alarm Conditions for more details.

Clear Individual Program

 Turn the controller dial to Basic Setup.



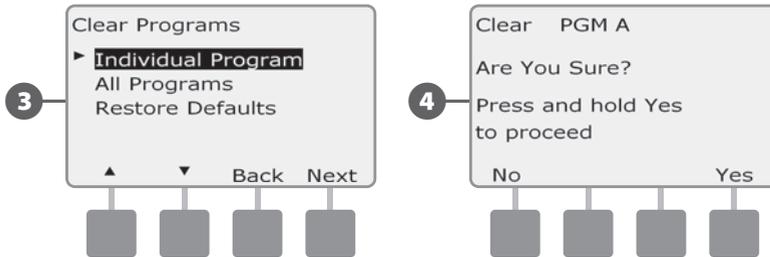
- 1 The Basic Setup screen appears. Press the Down Arrow button to select Backup Programs; then press Next.
- 2 The Backup Programs screen appears. Press the Down Arrow button to select Clear Programs; then press Next.



3 The Clear Programs screen appears with Individual Program selected; press Next.

4 A confirmation screen appears. To clear the selected Program, press and hold down the Yes button for four seconds. If you're not sure, press No.

! **NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.



5 A confirmation screen appears.



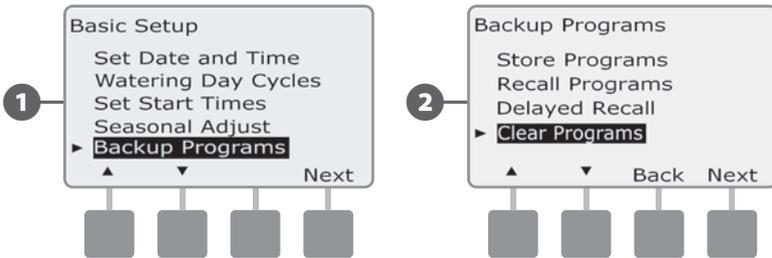
↻ Change the Program Select switch and repeat this process to clear other Programs.

Clear All Programs

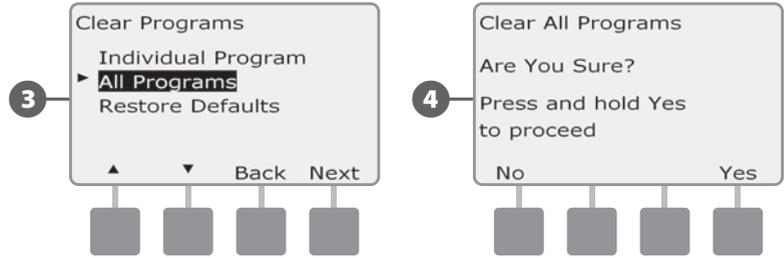
➤ Turn the controller dial to Basic Setup.



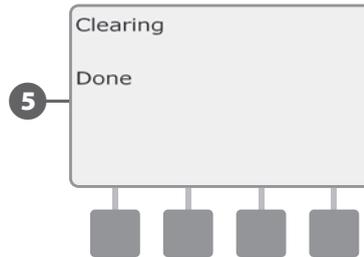
- 1 The Basic Setup screen appears. Press the Down Arrow button to select Backup Programs; then press Next.
- 2 The Backup Programs screen appears. Press the Down Arrow button to select Clear Programs; then press Next.



- 3 The Clear Programs screen appears. Press the Down Arrow button to select All Programs; then press Next.
- 4 A confirmation screen appears. To Clear All Programs, press and hold down the Yes button for four seconds. If you're not sure, press No.



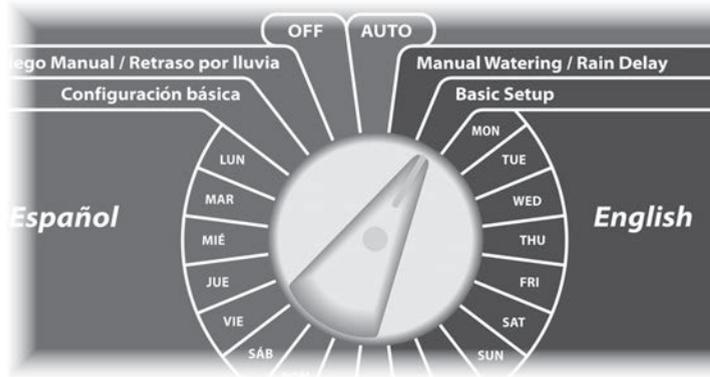
- 5 A confirmation screen appears.



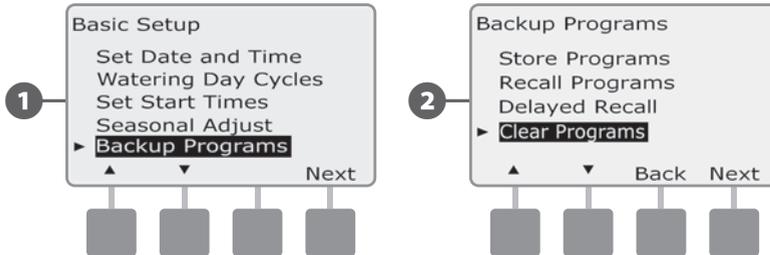
Restore Defaults

Restore the ESP-LX Basic controller's factory default settings.

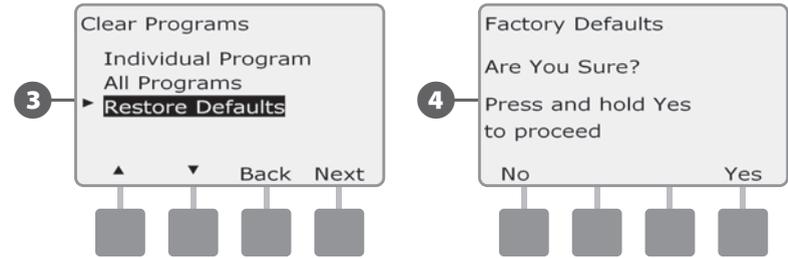
- 1 Turn the controller dial to Basic Setup.



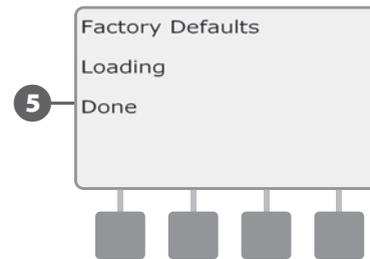
- 2 The Basic Setup screen appears. Press the Down Arrow button to select Backup Programs; then press Next.
- 3 The Backup Programs screen appears. Press the Down Arrow button to select Clear Programs; then press Next.



- 4 A confirmation screen appears. To Restore Factory Defaults, press and hold down the Yes button for four seconds. If you're not sure, press No.
- 5 The Clear Programs screen appears. Press the Down Arrow button to select Restore Defaults; then press Next.



- 6 A confirmation screen appears.



-  **CAUTION:** Be very careful about using the Restore Defaults option as all previous settings will be permanently cleared from system memory. Consider using the Clear All Programs option instead.

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Section F - Auxiliary Operation

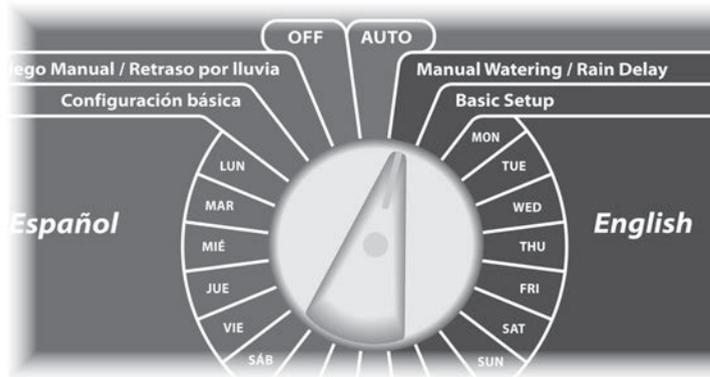
Manual Watering

The ESP-LX Basic controller allows you to manually start a station or a program.

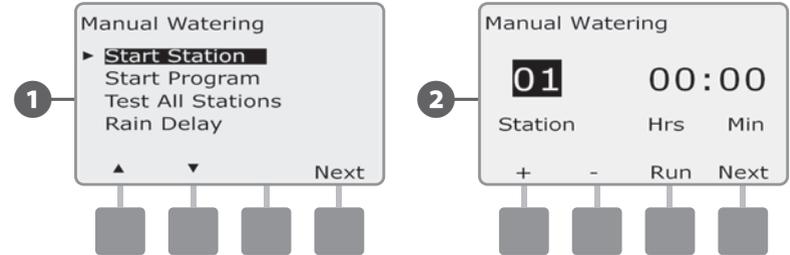
Start Station Manually

! **NOTE:** Manual Watering > Start Station will pause currently running programs.

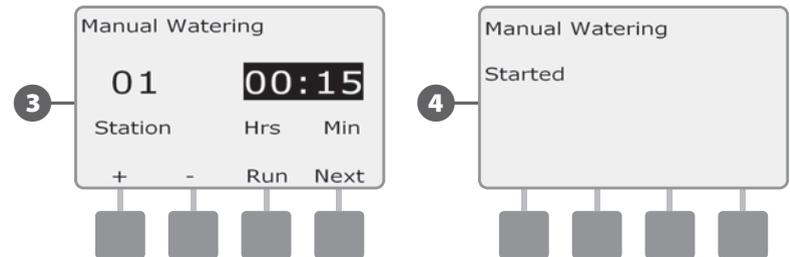
▶ Turn the controller dial to Manual Watering / Rain Delay.



- 1 The Manual Watering screen appears with Start Station selected; press Next.
- 2 The Manual Watering screen appears. Press the + and – buttons to enter the station you want to run manually; then press Next.



- 3 The Station Run Time defaults to the Program Run Time. Press the + and – buttons to adjust the Run Time. Press the Run button to start irrigation for that station.
 - Press and HOLD buttons to accelerate settings for hours and minutes.
- 4 A confirmation screen appears.



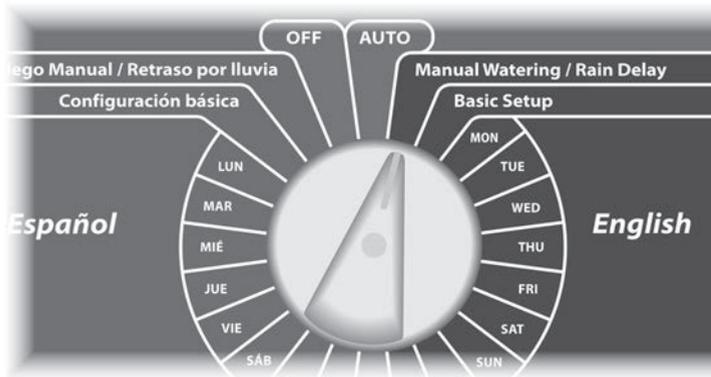
↻ Repeat this process to manually water other stations.

! **NOTE:** Stations will run sequentially in the selected order.

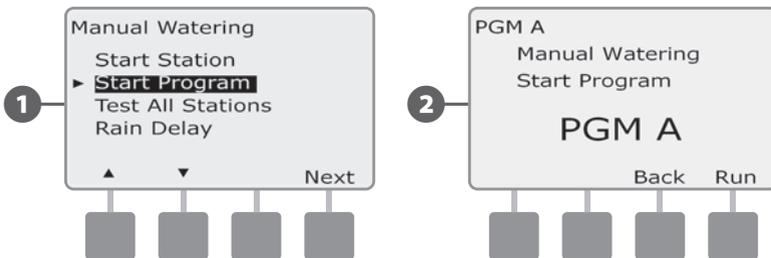
! **NOTE:** To view the Station while running, turn the dial to AUTO. Use the Adv button to advance to the next station, and + and – to increase or decrease the Run Time of the current station.

Start Program Manually

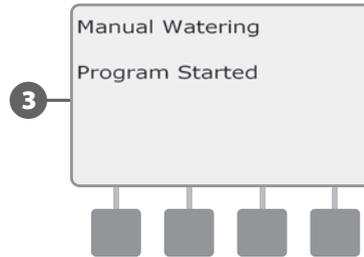
- Turn the controller dial to Manual Watering / Rain Delay.



- The Manual Watering screen appears. Press the Down Arrow button to select Start Program; then press Next.
 - The Manual Watering Start Program screen appears. Press Run to start the Program or else press Back to cancel.
- NOTE:** If the desired program is not selected, use the Program Select switch to change it. See Section B, Program Select Switch for more details.



- A confirmation screen appears.



- Repeat this process to manually start other Programs. Programs will run sequentially in the order in which they were selected.

- NOTE:** To view the Program while running, turn the controller dial to AUTO position. You can use the Adv button to advance to the next station and the + and – buttons to increase or decrease the Run Time of the current station.

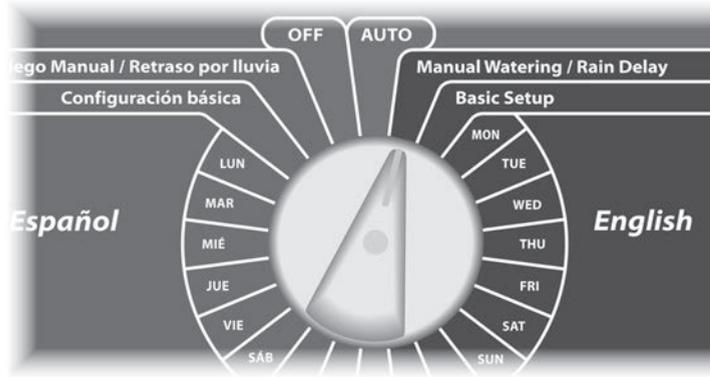
Test All Stations

You can test all stations connected to your controller by running each of them in sequence.

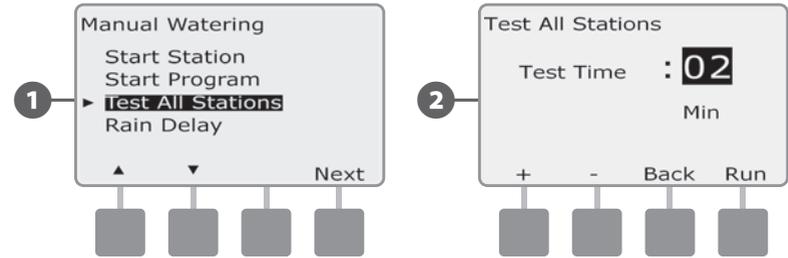
Sometimes this is useful after installation, for general maintenance or as a first step in troubleshooting your system.

! **NOTE:** Only stations with programmed run times are included in the Test All Stations operation.

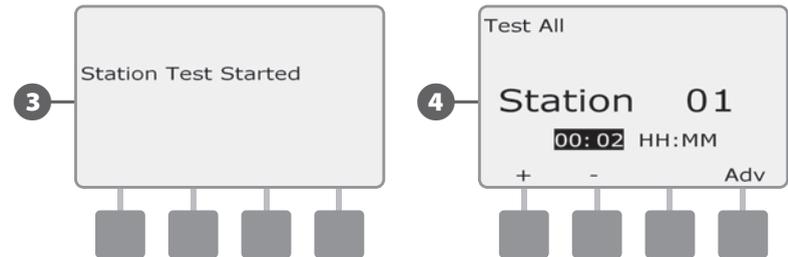
▶ Turn the controller dial to Manual Watering / Rain Delay.



- 1 The Manual Watering screen appears. Press the Down Arrow button to select Test All Stations; then press Next.
- 2 The Test All Stations screen appears. Press the + and – buttons to adjust the Test Run Time (adjustable from 1 to 10 minutes) per station; then press Run.



- 3 A confirmation screen appears.
- 4 Once Run is pressed, stations can be monitored and advanced by turning the dial to the AUTO position and using the Adv button. Press the + and – buttons to increase or decrease Run Time minutes for the current station.



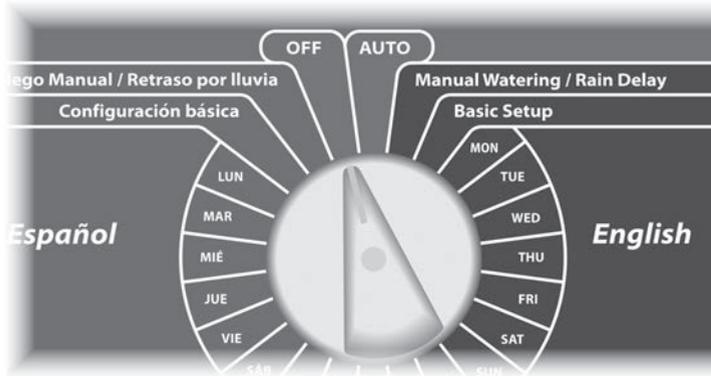
OFF

Turns off irrigation.

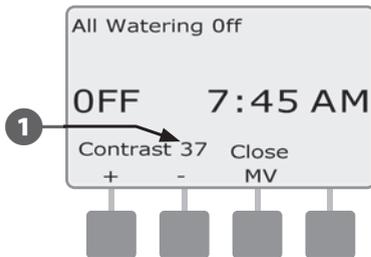
Adjust Display Contrast

Adjust the contrast settings for the controller display for better visibility.

- Turn the controller dial to OFF.



- 1 The All Watering Off screen appears and the current contrast adjustment setting will display for 10 seconds. Press the + and - buttons to adjust contrast up or down.



Section G - Installation

This section explains how to mount the ESP-LX Basic controller, connect the wiring, and verify proper operation.

Prepare For Installation

Installation Checklist

When installing the ESP-LX Basic Controller for the first time, it is recommended that you complete the following steps in order.

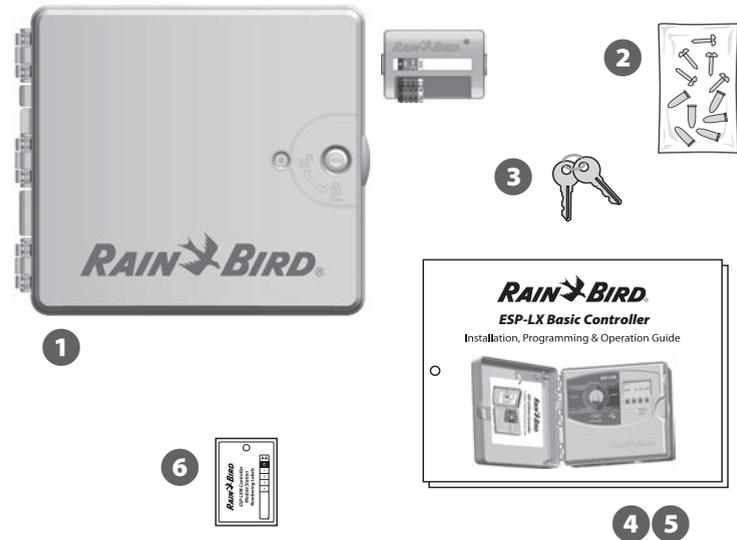
For your convenience a check-off box is provided for each step.

- Check box contents.....Page 55
- Gather installation toolsPage 56
- Select a locationPage 57
- Mount the controllerPage 60
- Connect source powerPage 61
- Install base and station module(s).....Page 64
- Connect field wiring.....Page 67
- Complete the installationPage 70

Check Box Contents

All components below are included with your ESP-LX Basic controller and are required for installation. If anything is missing, please contact your distributor before proceeding.

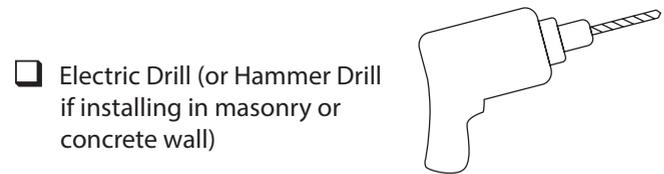
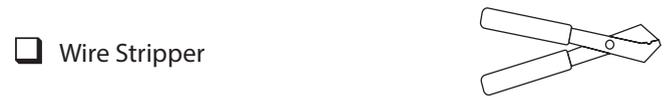
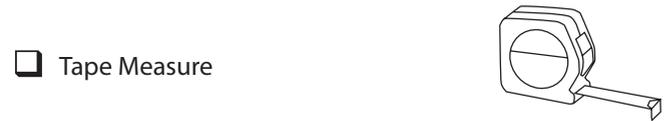
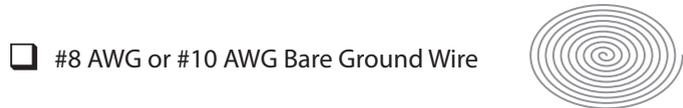
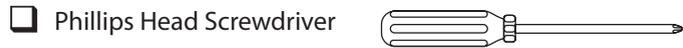
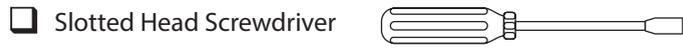
- 1** ESP-LX Basic controller and modules
- 2** Mounting hardware (5 screws, 5 plastic wall anchors)
- 3** Controller cabinet keys
- 4** ESP-LX Basic Controller Installation, Programming, & Operation Guide
- 5** Mounting Template
- 6** Station Numbering Labels



Box Contents

Gather Installation Tools

Before beginning installation, gather the following tools and materials:



Install the Controller

The ESP-LX Basic controller mounts to a wall (or suitable mounting surface).

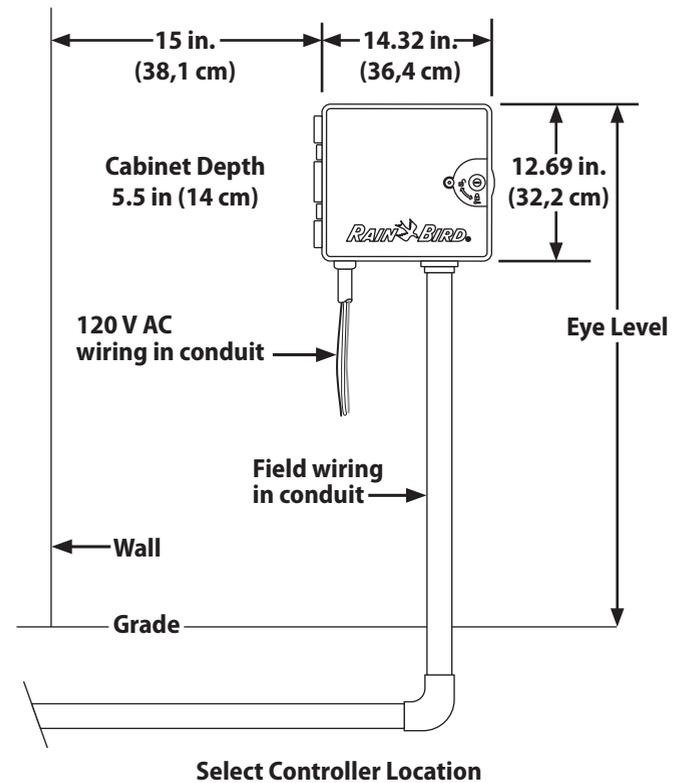
! **NOTE:** An optional metal cabinet (LXMM) and pedestal (LXMMPED) are also available for the ESP-LX Basic controller. If you intend to use those options, follow the installation instructions for those products before installing the controller.

⚡ **WARNING:** This controller must be installed in compliance with local electrical codes.

Select Location for Controller

Select a location that:

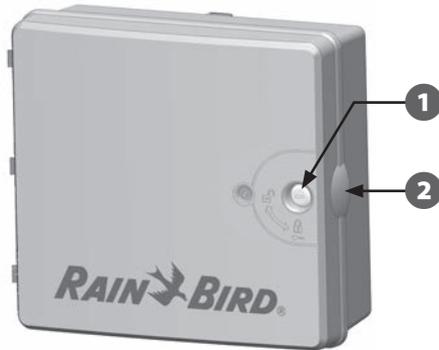
- Is easily accessible
- Allows for comfortable viewing
- Has a flat wall surface
- Near 120 V AC power source
- Is safe from potential vandalism
- Is outside the range of operating sprinklers



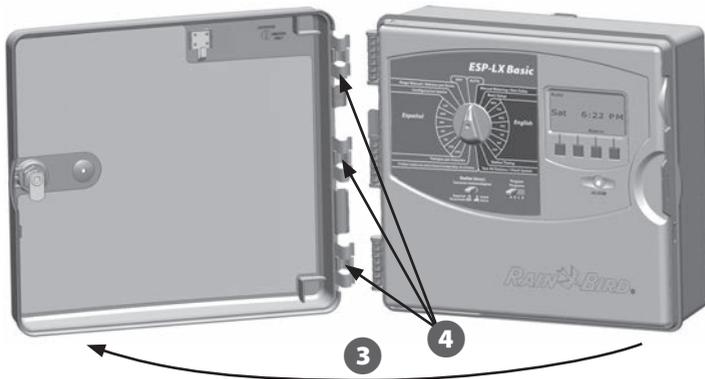
Access Controller Cabinet

Remove Cabinet Door and Front Panel

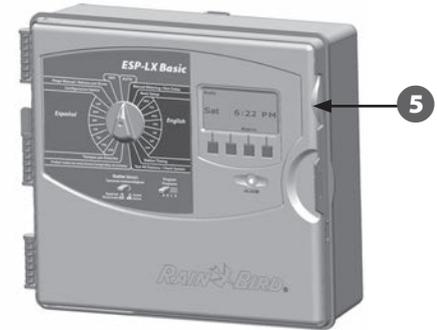
- 1 The controller comes with an outer door lock to deter vandalism and prevent unauthorized access to controller operations. If necessary, unlock the cabinet door using the supplied key.
- 2 To open the controller door: grasp the crescent-shaped handle on the right-hand-side of the outer cabinet.



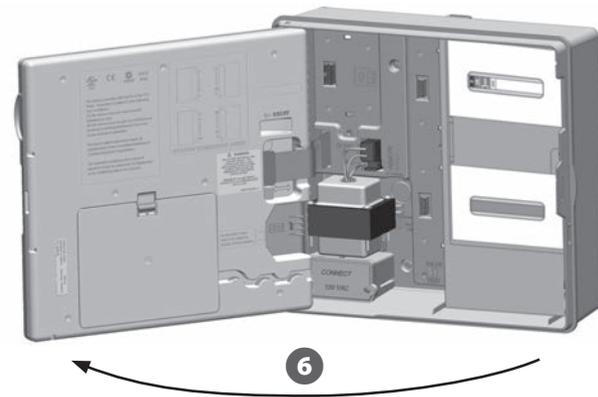
- 3 Pull it towards you to open the door, swinging it to the left.
- 4 To remove the door, carefully pull the door away from the cabinet until the door hinges separate from the plastic posts.



- 5 To open the controller front panel: grasp the crescent-shaped handle on the right-hand-side of the front panel.



- 6 Pull it towards you to open the front panel, swinging it to the left.

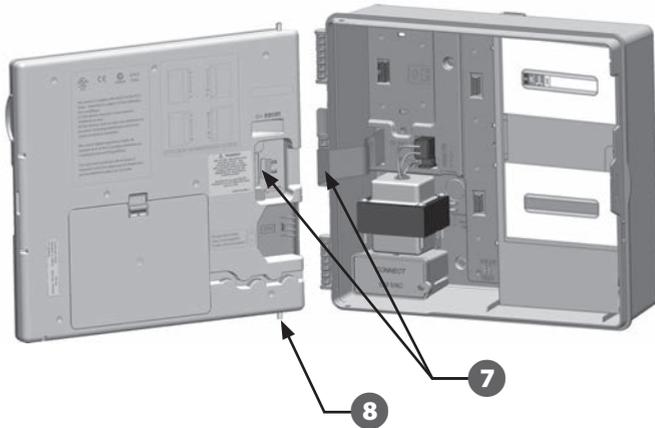


- 7 To remove the front panel: disconnect the ribbon cable from the front panel by gently pulling the connector out of the socket.



CAUTION: Be careful not to bend the pins in the sockets when attaching or detaching the ribbon cable.

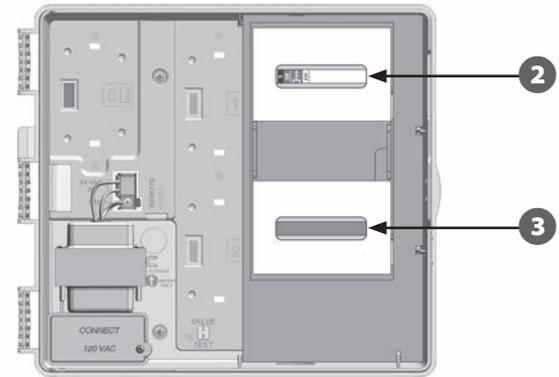
- 8 Rock the front panel upward and nudge the bottom corner pin out of the lower pin-hole to remove the front panel.



Remove Modules

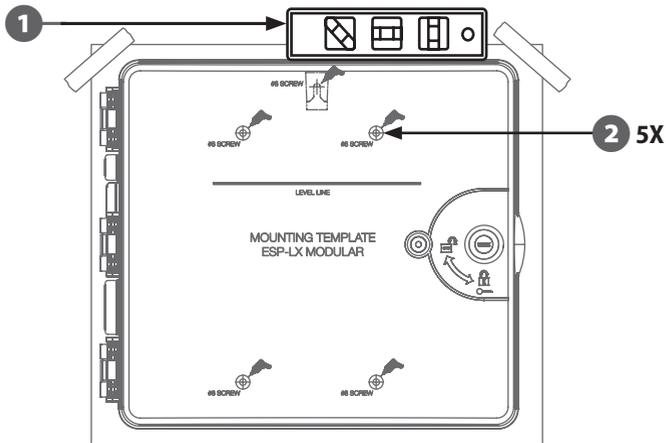
Every ESP-LX Basic Controller ships with two modules packaged inside the cabinet, one base module and one station module (SM12).

- 1 Remove both the modules and cardboard packaging from inside the controller and set the modules aside for installation later.
- 2 The top-most box contains the Base Module, with a multi-color label visible through the box window.
- 3 The bottom-most box contains the 12 Station Module, with a solid blue color label visible through the box window.

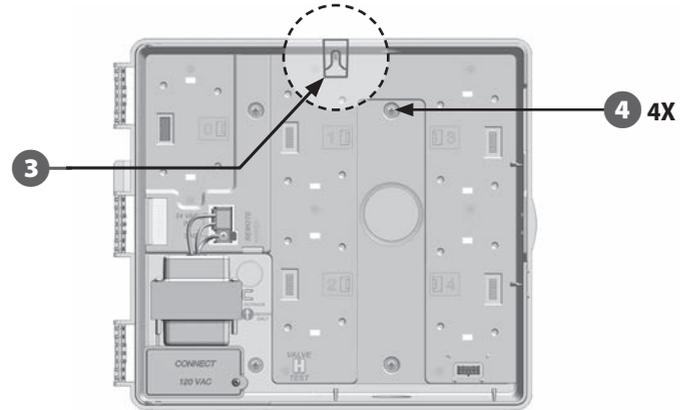


Mount Controller

- 1 Using a level, tape the mounting template to the mounting surface at approximately eye level. Make sure that at least one of the five mounting hole marks is aligned on a wall stud or other solid surface.
- 2 Use a tapping tool (or nail) and hammer to tap pilot holes through the five mounting hole marks and into the mounting surface. Then remove the template and drill holes in the mounting surface, installing wall anchors if necessary.



- 3 Drive the first screw into the topmost-center hole. Then hang the controller on the screw by the key-hole slot on the back of the cabinet.
- 4 Line up the controller cabinet mounting holes with the remaining pilot holes and drive the four remaining screws through the cabinet back plane into the mounting surface.



! **NOTE:** If the controller needs to be mounted on an uneven surface like stucco, place (or install) a section of exterior plywood between the controller and the wall.

Connect Power to the Controller

Surge Protection and Grounding

The ESP-LX Basic controller is equipped with built-in electrical surge protection. For this system to function, you must properly ground the controller.

⚡ WARNING: The ESP-LX Basic controller must be properly surge protected and grounded. Doing so can help prevent damage to the controller and irrigation system and also significantly reduce troubleshooting, repair time and expense. Failure to do so could result in failure of your controller and voiding the warranty.

Ensure that all grounding devices are compliant with local electrical codes.

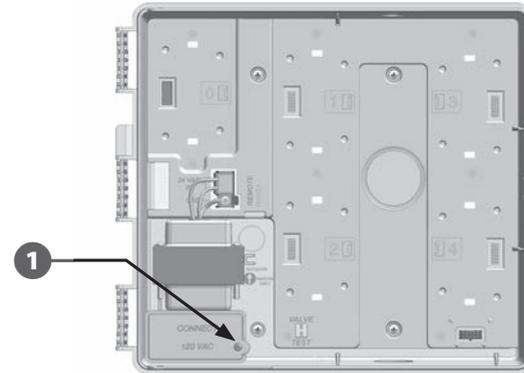
Connect Power Source

The ESP-LX Basic controller has an internal transformer that reduces supply voltage (120 VAC) to 24 VAC. You will need to connect power supply wires to the transformer's three wires. (Line, Neutral, Ground)

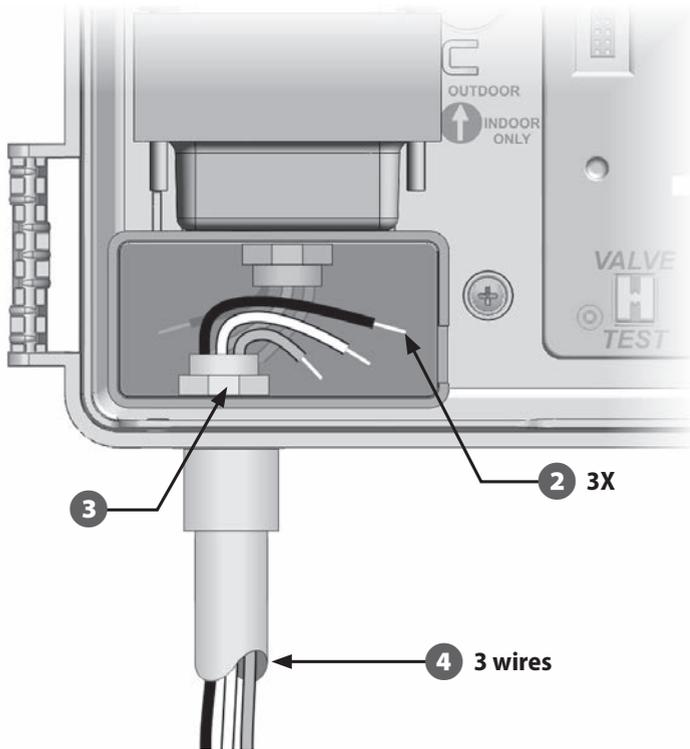
⚡ WARNING: Electric shock can cause severe injury or death. Make sure power supply is turned OFF before connecting power wires.

⚡ WARNING: All electrical connections and wiring runs must be made according to local building codes.

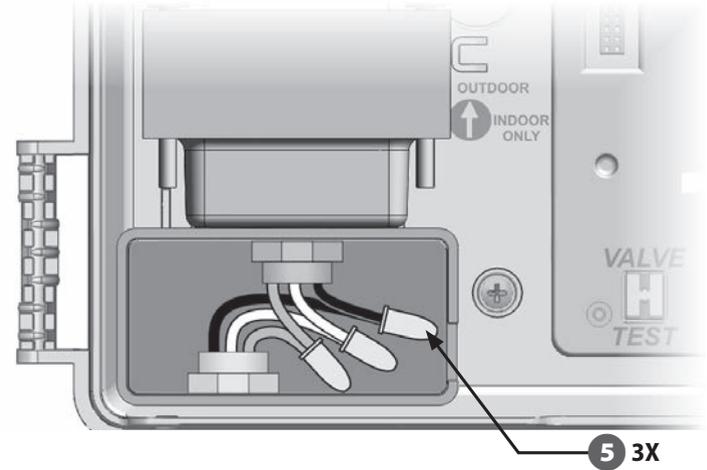
- 1 Locate the transformer wiring compartment in the lower left corner of the controller cabinet. Remove the screw on the right-hand side and pull the cover off to expose the wiring compartment.



- 2 Strip the insulation from the three incoming wires to expose approximately 1/2 in (13 mm) of bare wire.
- 3 Remove the knockout on the bottom of the cabinet below the transformer and attach a 1/2 in (13 mm) conduit fitting to the bottom entrance of the wiring compartment.
- 4 Feed the three supply wires from the power source through the conduit into the wiring compartment.

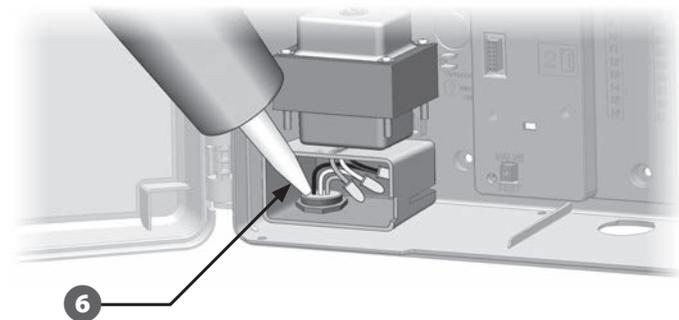


- 5 Using the provided wire nuts, connect the wires accordingly.



⚡ WARNING: The ground wire **MUST** be connected to provide electrical surge protection. You will void the controller warranty if you do not ground the controller.

- 6 Once wiring is completed, fill top of conduit with waterproof caulking to prevent insect intrusion into the controller cabinet.

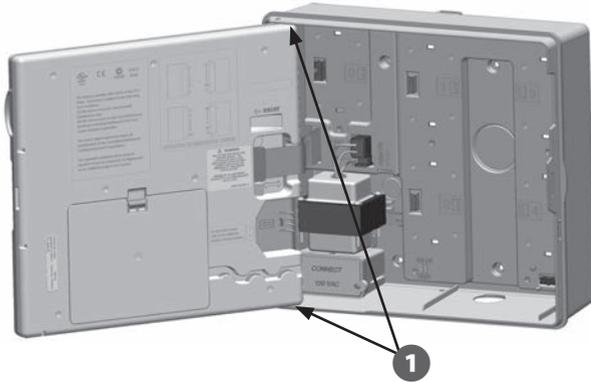


- 7 Verify that all connections are secure. Then replace the cover of the transformer wiring compartment and secure it with the screw.

Re-install Front Panel

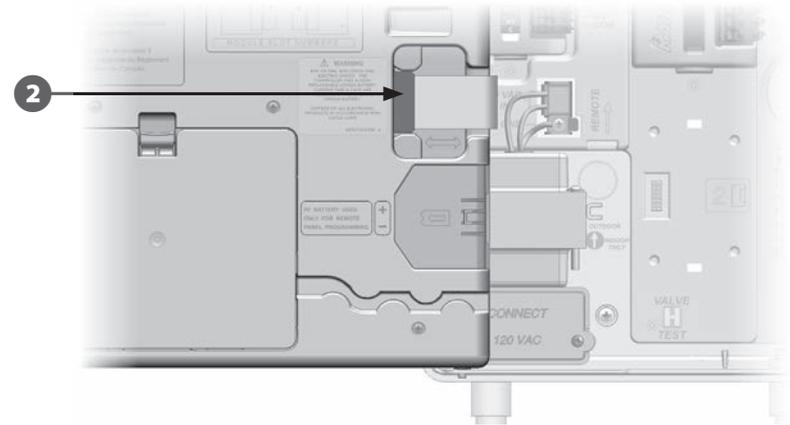
⚡ WARNING: To prevent electrical shock, make sure all supply power is OFF before installing the front panel. Electrical shock can cause severe injury or death.

- 1 Reinstall the front panel by inserting the top corner pin into the top pin-hole; then push up and rock the bottom corner pin into the lower pin-hole.



- 2 Reconnect the ribbon cable to the front panel by gently pushing the connector into the socket.

⚠ CAUTION: Be careful NOT to bend the pins in the socket.



- 3 Turn on the power source.

! NOTE: The first time you power up the controller, the display will prompt you to select the language you wish to use. See Section A, Initial Startup Screen for more details.

Wiring Connections
120 VAC
Black supply wire (hot) to the black transformer wire
White supply wire (neutral) to the white transformer wire
Green supply wire (ground) to the green transformer wire

Install Modules

Install Base Module

Install the LXBASEMOD Base Module in Slot 0.

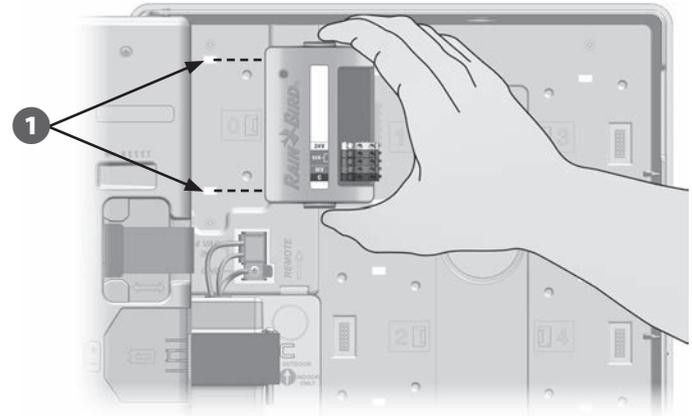


LXBASEMOD Base Module

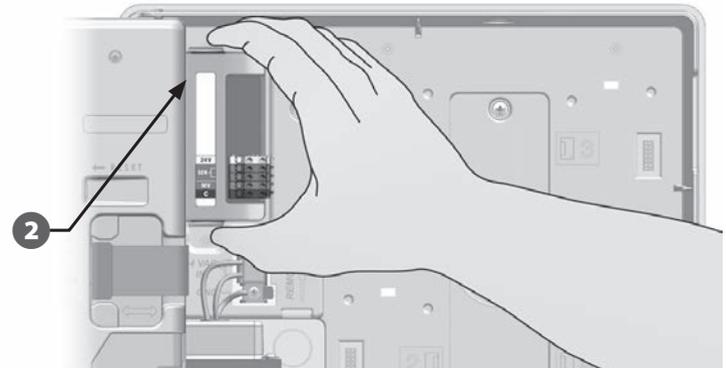
 **CAUTION:** Be careful not to bend the pins in the sockets when installing the module.

 **NOTE:** The Base Module include a jumper wire connecting the weather sensor (SEN) terminals. Do not remove the jumper wire unless you install a weather sensor.

- 1 Orient the connector on the bottom of the module with the connection socket in Slot 0 on the controller backplane.



- 2 Carefully fasten the module onto the controller backplane, pressing firmly until it snaps into place. The red light on the module will flash on and off once if the module is installed correctly. If the light does not flash once, verify the module is seated correctly.



-  **NOTE:** To remove the module, press in on the (two) release buttons on either side of the module.

Install Station Module

Install the station module in Slot 1 that was included with your ESP-LX Basic controller. Additional station modules can be purchased separately.



ESP-LXM-SM8 Station Module

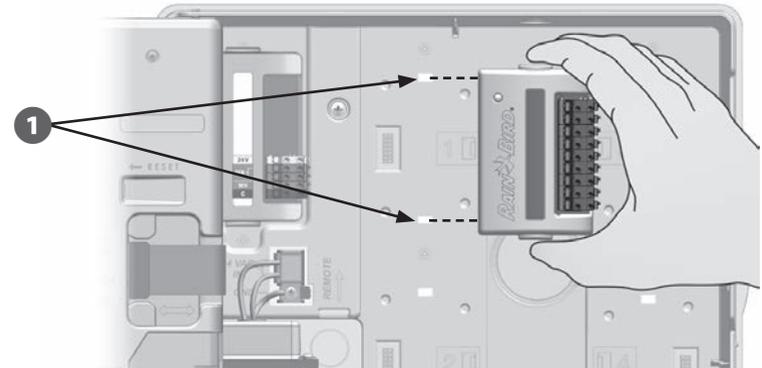


ESP-LXM-SM12 Station Module

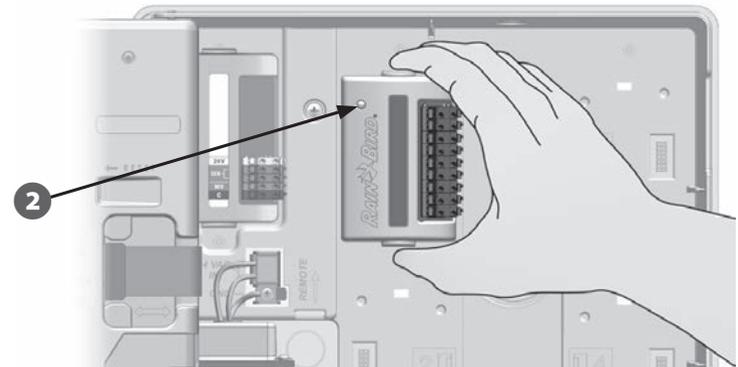


CAUTION: Be careful not to bend the pins in the sockets when installing a module.

- 1 Orient the connector on the bottom of the station module with the connection socket in Slot 1 on the controller backplane. (An ESP-LXM-SM8 is shown.)



- 2 Carefully fasten the module onto the controller backplane, pressing firmly until it snaps into place. The red light on the module will flash on and off once if the module is installed correctly. If the light does not flash once, verify the module is seated correctly.

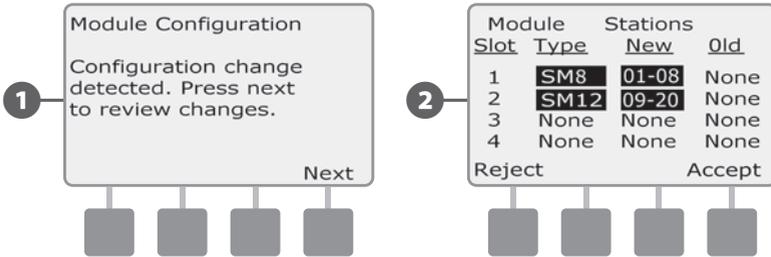


NOTE: To remove a module, press in on the (two) release buttons on either side of a module.

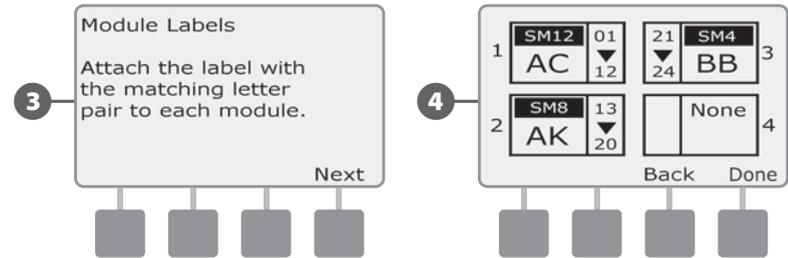
Dynamic Station Numbering

The ESP-LX Basic controller will automatically detect any new station modules that have been installed. Follow the instructions on the front panel LCD to configure a station module.

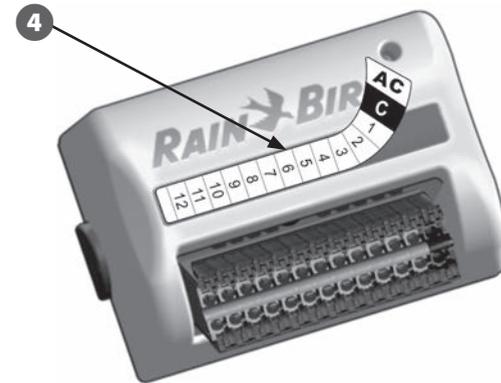
- 1 A Module Configuration screen is displayed whenever the ESP-LX Basic Controller detects a change in module configuration. Press Next to continue.
- 2 The Module Summary screen displays the module type detected in each module slot along with the new and old assigned station numbers. Press Accept to accept the new module configuration. (Reject will retain the current configuration.)



- 3 The Module Labels screen is displayed. Locate the Module Station Numbering Labels that are provided on a separate foldout sheet. Press Next to continue.
- 4 The Module Station Numbering Graphic displays a pair of letters (example: Slot 1 = Label AC) for each installed module. Find the station numbering label on the foldout sheet with the matching letter pair and place it over the blue strip on the module. Press Done to finish.



- NOTE:** The Module Status can be reviewed at any time by turning the dial to the Station/MV Settings dial position and selecting Module Status. See Module Status in Section D for details.

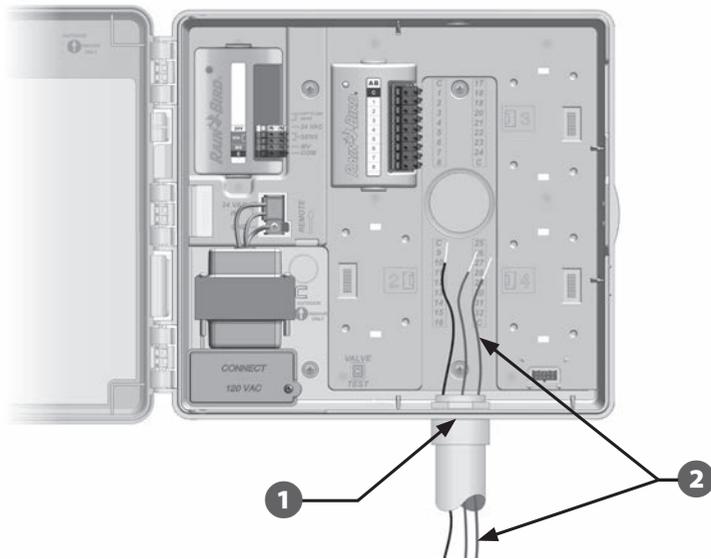


Connect Field Wiring

Connect Valve Wires

Field wires for valves are connected to module terminals using quick connectors. Press the swing arm of the appropriate terminal and insert the wire. When you release the spring arm, the clamp will hold the wire.

- 1 Locate (or remove) the large knockout on the bottom of the controller cabinet. Attach a conduit fitting to the bottom of the cabinet; then attach conduit to the fitting.
- 2 Feed the field wires through the conduit and into the controller cabinet.

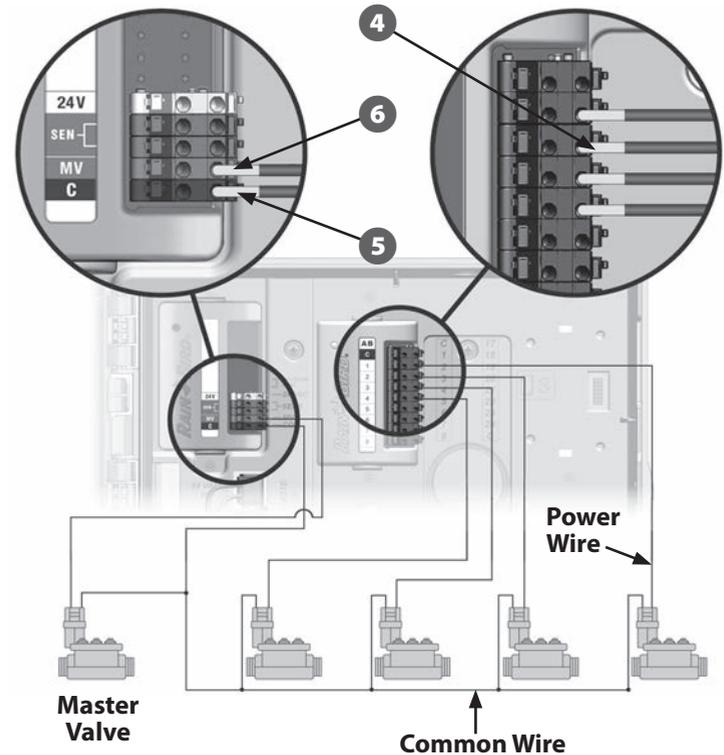


- 3 Field wires for valves are connected to module terminals using quick connectors. Press the swing arm of the appropriate terminal and insert the wire. When you release the spring arm, the clamp will hold the wire.

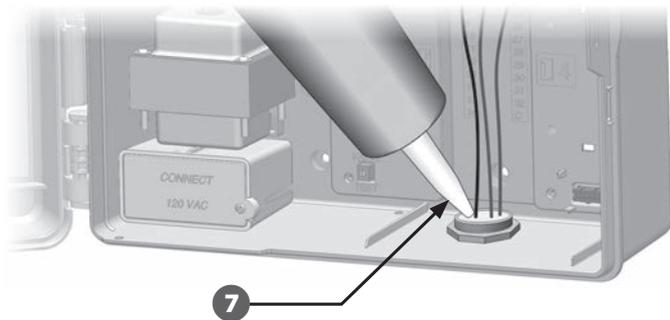
- 4 Strip the wire jacket back by a maximum of 1/2 inch (12 mm) and connect each valve wire to one of the numbered terminals on a station module.
- 5 Connect the common wire(s) to any one of the COM terminals on the controller. Wires used to connect the valves must be code-approved for underground installation.

NOTE: Complete the following step only if your system uses a master valve or a pump start relay. The controller does not provide main power for a pump.

- 6 Connect the master valve or pump start relay wiring to the MV and COM terminals.



- 7 Once wiring is completed, fill top of conduit with waterproof caulking to prevent insect intrusion into the controller cabinet.



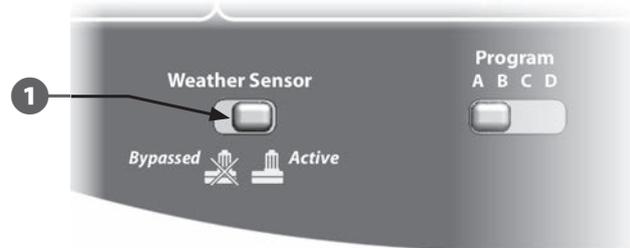
Connect Local Weather Sensor

The ESP-LX Basic can accept input from a single weather sensor wired directly to the controller or through a wireless receiver.

A local weather sensor can be bypassed with the sensor bypass switch on the controller front panel.

To Enable a Local Weather Sensor:

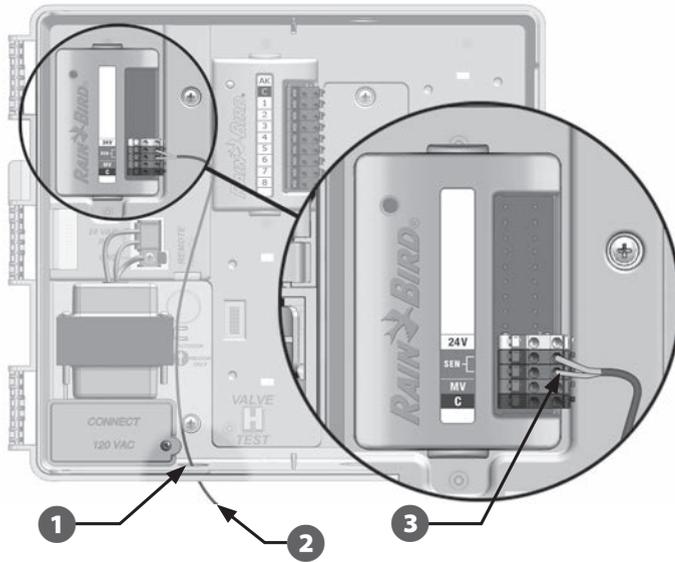
- 1 On the controller front panel, slide the Weather Sensor switch to Active.



- !** **NOTE:** Follow the sensor manufacturer's instructions to correctly install and make wire connections to the sensor. Ensure the sensor installation is in compliance with all local codes.

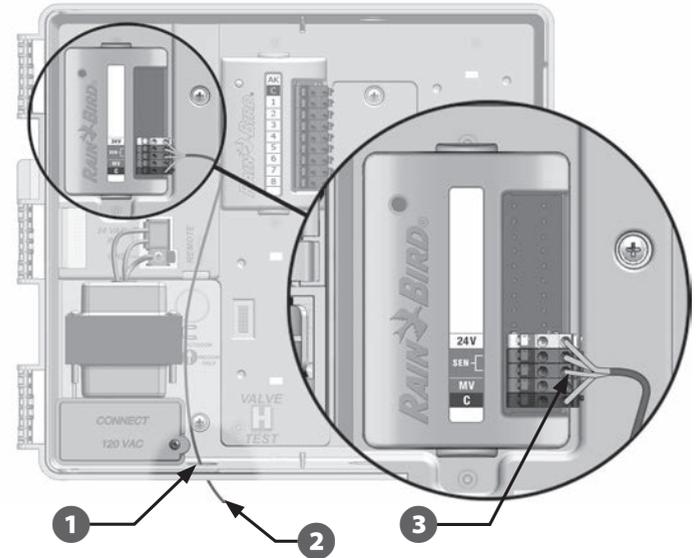
To Connect a Wired Local Weather Sensor:

- 1 Run continuous sensor wire from the weather sensor to the ESP-LX Basic controller.
- 2 Route wire through knockout on the bottom of the controller.
- 3 Remove the yellow jumper wire (if present). Connect the two sensor wires to the sensor (Sen) inputs. When finished, tug gently on the wires to make sure the connections are tight.



To Connect a Wireless Local Weather Sensor:

- 1 Run wire from the wireless receiver to the ESP-LX Basic controller.
- 2 Route wire through knockout on the bottom of the controller.
- 3 Remove the yellow jumper wire (if present). Connect the two sensor wires to the sensor (Sen) inputs, the power wire to the 24V input, and the common wire to the common (C) input. When finished, tug gently on the wires to make sure the connections are tight.



! **NOTE:** Ensure that the configuration for your controller and irrigation programs are set up correctly for your sensor. For example, if one of your programs is set up to manage your landscape lighting you may want to ensure that it's stations ignore input from a local weather sensor. See Section C, Weather Sensor, for more details.

Complete Installation

Install Front Door

- 1 Line up the three door hinges with the plastic posts on the controller.
- 2 Press the hinges onto the posts until the front door snaps into place.



Verify Field Installation

Once some or all valves have been wired and programmed into the ESP-LX Basic controller you can check the electrical portion of the installation even if water is not available to test the valves.

If water is available and you would like to test some or all of your stations, the easiest way to do so is by using the Test All Stations feature of the controller. See Section C, Test All Stations for more details.

Programming Chart

Overview

Programs

The process of telling the controller exactly when and for how long you want to water.

Each program contains:

Watering Days

The days of the week that irrigation is allowed. Also, the Cyclical watering cycle can be used to water at a regular interval, such as every third day.

Watering Start Times

The time(s) of day that irrigation begins. All other stations in the program then follow in sequence.

Station Run Times

The length of time (in hours and minutes) that each individual station is programmed to run.

Monthly Seasonal Adjust %	
JAN	%
FEB	%
MAR	%
APR	%
MAY	%
JUN	%
JUL	%
AUG	%
SEP	%
OCT	%
NOV	%
DEC	%
Default Values for Monthly Seasonal Adjust = 100%	

Program Info	Program A	Program B	Program C	Program D	
Program Name					
Select Days To Water (Mon-Sun) For Custom - OR - Select Days Watering Allowed For Non-custom	M T W T F S S <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> __ Day Cycle <input type="checkbox"/> Even <input type="checkbox"/> Odd <input type="checkbox"/> Odd 31	M T W T F S S <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> __ Day Cycle <input type="checkbox"/> Even <input type="checkbox"/> Odd <input type="checkbox"/> Odd 31	M T W T F S S <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> __ Day Cycle <input type="checkbox"/> Even <input type="checkbox"/> Odd <input type="checkbox"/> Odd 31	M T W T F S S <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> __ Day Cycle <input type="checkbox"/> Even <input type="checkbox"/> Odd <input type="checkbox"/> Odd 31	
Set Watering Start Times	1	am / pm	am / pm	am / pm	am / pm
	2	am / pm	am / pm	am / pm	am / pm
	3	am / pm	am / pm	am / pm	am / pm
	4	am / pm	am / pm	am / pm	am / pm
	5	am / pm	am / pm	am / pm	am / pm
	6	am / pm	am / pm	am / pm	am / pm
	7	am / pm	am / pm	am / pm	am / pm
	8	am / pm	am / pm	am / pm	am / pm
Seasonal Adjust	%	%	%	%	
Monthly Seasonal Adjust	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	
Station Delay					
Program Water Window Start Time	am / pm	am / pm	am / pm	am / pm	
Program Water Window End Time	am / pm	am / pm	am / pm	am / pm	

Station #	Description	No. of Valves	Requires MV	Obey Weather Sensor	Station Cycle Time	Station Soak Time	Program A Station Run Time	Program B Station Run Time	Program C Station Run Time	Program D Station Run Time
1			<input type="checkbox"/>	<input type="checkbox"/>						
2			<input type="checkbox"/>	<input type="checkbox"/>						
3			<input type="checkbox"/>	<input type="checkbox"/>						
4			<input type="checkbox"/>	<input type="checkbox"/>						
5			<input type="checkbox"/>	<input type="checkbox"/>						
6			<input type="checkbox"/>	<input type="checkbox"/>						
7			<input type="checkbox"/>	<input type="checkbox"/>						
8			<input type="checkbox"/>	<input type="checkbox"/>						
9			<input type="checkbox"/>	<input type="checkbox"/>						
10			<input type="checkbox"/>	<input type="checkbox"/>						
11			<input type="checkbox"/>	<input type="checkbox"/>						
12			<input type="checkbox"/>	<input type="checkbox"/>						
13			<input type="checkbox"/>	<input type="checkbox"/>						
14			<input type="checkbox"/>	<input type="checkbox"/>						
15			<input type="checkbox"/>	<input type="checkbox"/>						
16			<input type="checkbox"/>	<input type="checkbox"/>						
17			<input type="checkbox"/>	<input type="checkbox"/>						
18			<input type="checkbox"/>	<input type="checkbox"/>						
19			<input type="checkbox"/>	<input type="checkbox"/>						
20			<input type="checkbox"/>	<input type="checkbox"/>						
21			<input type="checkbox"/>	<input type="checkbox"/>						
22			<input type="checkbox"/>	<input type="checkbox"/>						
23			<input type="checkbox"/>	<input type="checkbox"/>						
24			<input type="checkbox"/>	<input type="checkbox"/>						

Station #	Description	No. of Valves	Requires MV	Obey Weather Sensor	Station Cycle Time	Station Soak Time	Program A Station Run Time	Program B Station Run Time	Program C Station Run Time	Program D Station Run Time
25			<input type="checkbox"/>	<input type="checkbox"/>						
26			<input type="checkbox"/>	<input type="checkbox"/>						
27			<input type="checkbox"/>	<input type="checkbox"/>						
28			<input type="checkbox"/>	<input type="checkbox"/>						
29			<input type="checkbox"/>	<input type="checkbox"/>						
30			<input type="checkbox"/>	<input type="checkbox"/>						
31			<input type="checkbox"/>	<input type="checkbox"/>						
32			<input type="checkbox"/>	<input type="checkbox"/>						
33			<input type="checkbox"/>	<input type="checkbox"/>						
34			<input type="checkbox"/>	<input type="checkbox"/>						
35			<input type="checkbox"/>	<input type="checkbox"/>						
36			<input type="checkbox"/>	<input type="checkbox"/>						
37			<input type="checkbox"/>	<input type="checkbox"/>						
38			<input type="checkbox"/>	<input type="checkbox"/>						
39			<input type="checkbox"/>	<input type="checkbox"/>						
40			<input type="checkbox"/>	<input type="checkbox"/>						
41			<input type="checkbox"/>	<input type="checkbox"/>						
42			<input type="checkbox"/>	<input type="checkbox"/>						
43			<input type="checkbox"/>	<input type="checkbox"/>						
44			<input type="checkbox"/>	<input type="checkbox"/>						
45			<input type="checkbox"/>	<input type="checkbox"/>						
46			<input type="checkbox"/>	<input type="checkbox"/>						
47			<input type="checkbox"/>	<input type="checkbox"/>						
48			<input type="checkbox"/>	<input type="checkbox"/>						

Quick Reference Guide

ESP-LX Basic

STEPS REQUIRED FOR OPERATION:

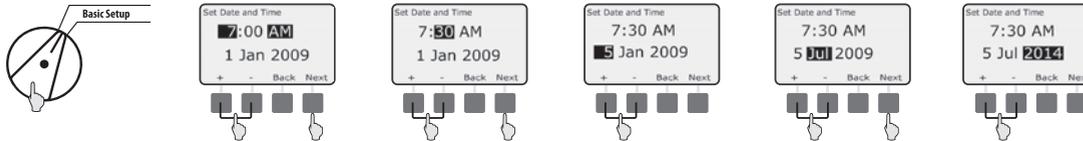
1. Program Select
2. Days To Water
3. Watering Start Times
4. Station Run Times

To verify: Turn the dial to Test All Stations / Check System, select Confirm Programs and review the Program Summary.

Programming Questions?
Call 1-800-RAINBIRD
www.rainbird.com/ESPLXB

Basic Programming

Basic Setup > Set Current Date and Time

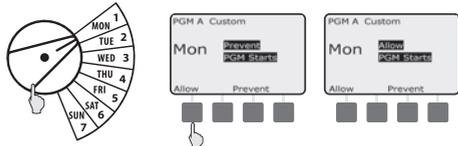


1 Program Select



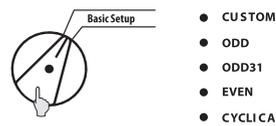
The Program Select Switch is only used to select a program and does not determine which program will run.

2 Set Days To Water - Custom Cycle



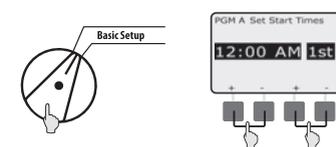
Basic Setup > Watering Day Cycles

OR

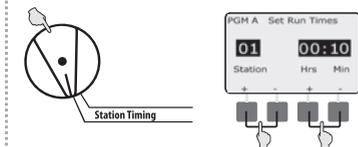


- CUSTOM
- ODD
- ODD31
- EVEN
- CYCLICAL

3 Basic Setup > Set Watering Start Times

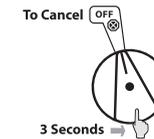
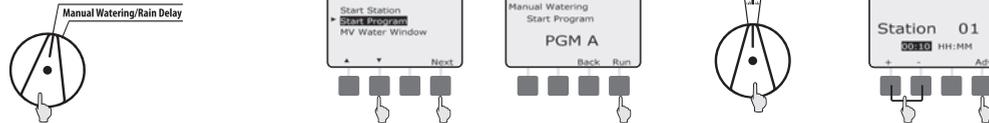


4 Station Timing > Set Station Run Times

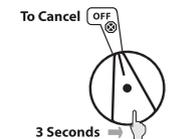
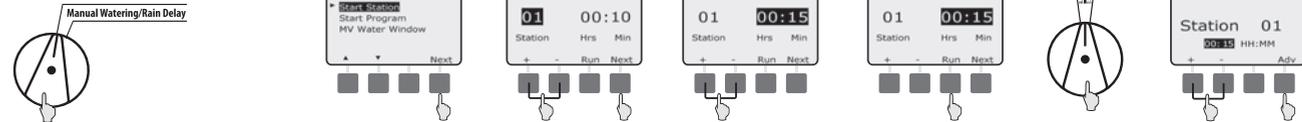


Manual Watering Options

Manual Watering/ > Manual Watering > Start Program Rain Delay

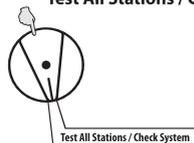


Manual Watering/ > Manual Watering > Start Station Rain Delay



Troubleshooting

Test All Stations / Check System



- Confirm Programs
 - Program Summary
 - Review Program
 - Program Run Time
 - Station RunTime
- Test All Stations
- Raster Wiring Test



Alerts user to conditions that prevent watering. See the Alarm button in the Auto dial position for alarm messages.

Alarm Message	Action
Station Short	Run Raster Test - turn dial to Test All Stations.
No Modules or No Base Module	Check / reinsert modules.

Station and Base Module LED	
Flashing (red)	Module not recognized - reinstall. Station Short - run Raster Test.
Solid (red)	Recognizing module properly. Programming a station. Station is currently running.
LED not lit (dark)	No controller power. No station activity - check Run Time, Start Time and/or Days to Water. Module not recognized - reinstall.

Declaration of Conformity

Application of Council Directive: 2004/108/EC

**Standards To Which
Conformity Is Declared:** EN55014-1: 2001 Class B
EN55022 Radiated Emissions
EN55022 Conducted Emissions
EN61000-3-2
EN61000-3-3

EN55014-2: 2001
EN61000-4-2
EN61000-4-3
EN61000-4-4
EN61000-4-5
EN61000-4-6
EN61000-4-8
EN61000-4-11

Manufacturer's Name: Rain Bird Corporation
Manufacturer's Address: 9491 Ridgehaven Court
San Diego, CA 92123
619-671-4048

Equipment Description: Irrigation Controller
Equipment Class: Requirements for household
appliances, electric tools and
similar apparatus

Model Numbers: ESP-LXME, ESP-LX BASIC

*I the undersigned, hereby declare that the equipment specified
above conforms to the above Directive(s) and Standard(s).*

Place: Tucson, AZ USA

Signature: 

Full Name: Ryan L. Walker

Position: Director



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