RAIN BIRD®

ESP-SMTe Controller User Manual

Now with both
Simple Smart Programming
and
Advanced ET Watering Features

ALARM

```
          AUTO MODE
     Monday 02 May 2016
          05:00 PM
     Next Irrigation
     Estimate 05 May
```

ENGLISH
ESPAÑOL

ESP-SMTe

Introduction

Welcome to Rain Bird

Thank you for choosing the ESP-SMTe Smart Modular Control System from Rain Bird. The ESP-SMTe is an indoor or outdoor weather-based irrigation controller. Two ESP-SMTe models are available that can be expanded up to 22 stations by adding optional station modules:

- 4 Station Indoor Controller (ESP4SMTei)
- 4 Station Outdoor Controller (ESP4SMTe)

The Intelligent Use of Water®

We believe it is our responsibility to develop products that use water efficiently.
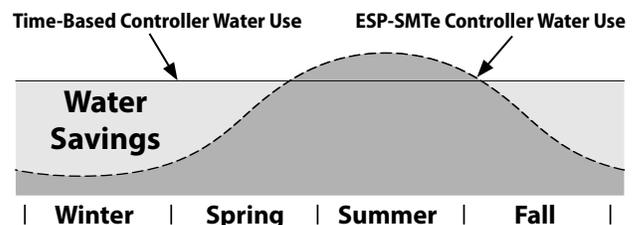
ESP-SMTe Controller Features

The ESP-SMTe has two programming mode options that make watering adjustments based on inputs from the weather sensor.

Simple Smart Mode

In Simple Smart mode, the ESP-SMTe acts like a traditional time-based controller. Watering is scheduled on specific days, with fixed start times and run times. Automatic adjustments are made to run times based on current weather conditions.

Advanced ET Mode

In Advanced ET mode, the ESP-SMTe uses state of the art technology to determine water needs for each zone to ensure optimal landscape health with minimal water usage. Advanced mode will change the irrigation schedule daily based on water needs.

Time-Based Controller Water Use   **ESP-SMTe Controller Water Use**

Water Savings

| Winter | Spring | Summer | Fall |

Technical Support

Questions?

For help setting up and operating the Rain Bird ESP-SMTe Controller, scan the QR code to visit —→
www.rainbird.com/espsmte

Additional user documentation is available under the Manuals & Literature tab, including:

- User Manual (this document)
- Contractor's Manual (full operations manual)
- Interactive Site Profile Chart
- Foreign Language Support

To learn more about Rain Bird irrigation systems and our Rain Bird Academy training programs, visit:
www.rainbirdservices.com/training

To see instructional videos for the ESP-STMe, visit
www.youtube.com/

Or call Rain Bird toll free Technical Support at
1-800-724-6247 (USA and Canada only)

Installation

Mount Controller

①　Drive a mounting screw into the wall, leaving an 1/8 inch gap between the screw head and the wall surface (use the supplied wall anchors if necessary), as shown.

②　Locate the keyhole slot on back of the controller unit and hang it securely on the mounting screw.

1/8 IN.
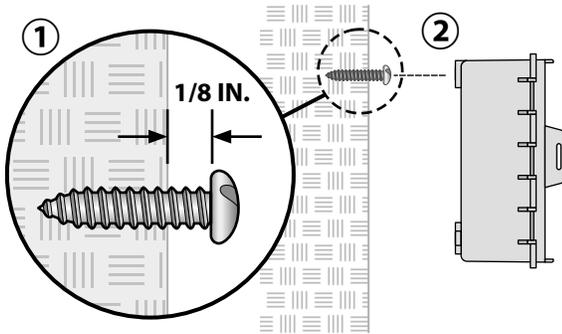
③　Open the front panel, and drive three additional screws through the open holes inside the controller and into the wall, as shown.
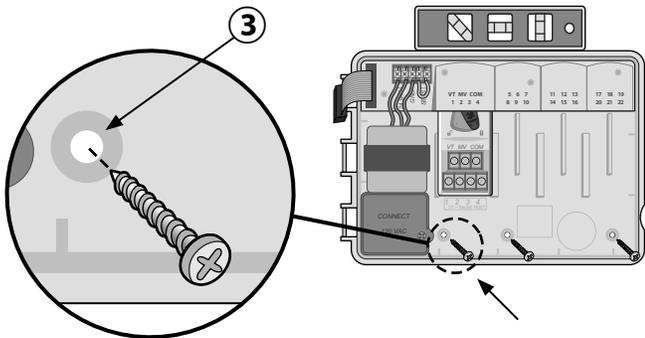
Wiring Connections

Connect Valves

①　Route all field wires through the opening at the bottom or back of the unit. Attach conduit if desired, as shown.

⚡ **WARNING:** Do not route the valve wires through the same opening as the power wiring.

②　Connect one wire from each valve to the terminal on the base module or Station Module that corresponds to the desired station number (1-22).

③　Connect a field common wire (C) to the common terminal (C) on the base module. Then connect the remaining wire from each valve to the field common wire, as shown.

④　To perform a Valve Test, connect the common wire to the "COM" terminal and the power wire to the "VT" terminal. This will immediately turn the valve "ON".

Connect Master Valve (optional)

⑤　Connect a wire from the master valve (M) to the master valve terminal (MV) on the base module. Then connect the remaining wire from the master valve to the field common wire, as shown.
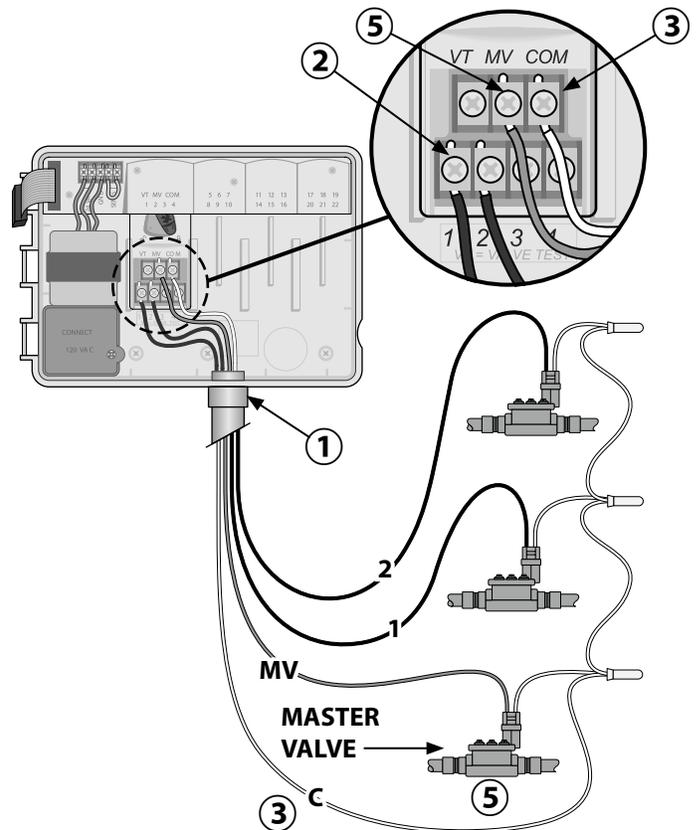
Connect Pump Start Relay (optional)

The ESP-SMTe can control a pump start relay, to turn the pump on and off as needed.

(1) Connect a wire from the pump start relay (PSR) to the master valve terminal (M) on the base module. Then connect another wire from the pump start relay to the field common wire, as shown.

(2) To avoid the possibility of damage to the pump, connect a short jumper wire from any unused terminal(s) to the nearest terminal in use, as shown.

! NOTE: The ESP-SMTe controller DOES NOT provide power for a pump. The relay must be wired according to manufacturer instructions.

Only the following Rain Bird pump start relay models are compatible with the ESP-SMTe:

Description	Note	Model No.
Universal Pump Relay	110 volt only	PSR110IC
Universal Pump Relay	220 volt only	PSR220IC
Dual Pole Pump Relay	110/120 volt	PSR110220

! NOTE: Connection to pump and external power not shown. Refer to pump installation instructions.

PSR

PUMP START RELAY
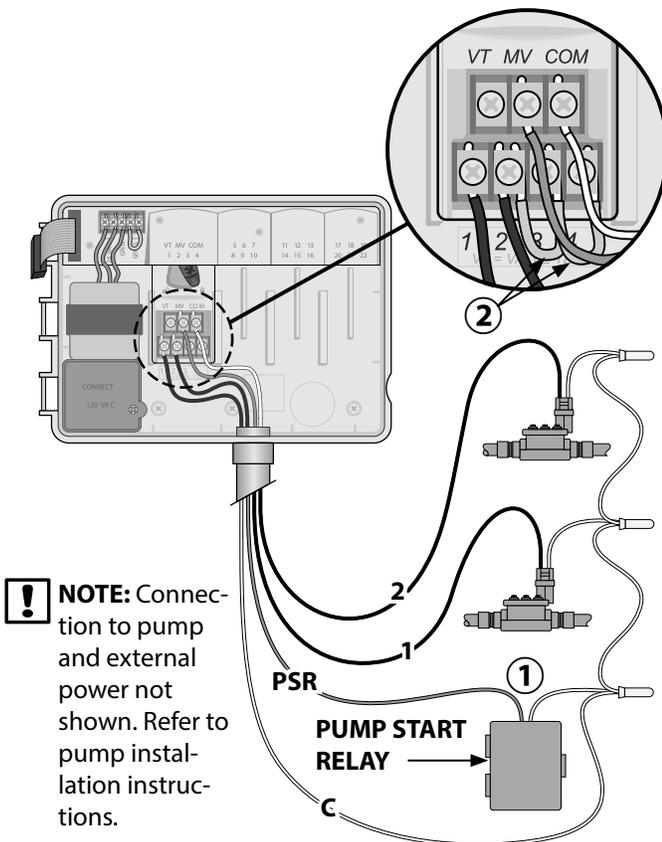
Connect Power

⚡ WARNING: DO NOT plug in the transformer or connect external power until you have completed and checked all wiring connections.

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

Indoor Model

(1) Route the transformer power cord through the conduit opening at the bottom left of the unit. Knot the cable/cord inside the controller cabinet to prevent it from being pulled out.

⚡ WARNING: Do not route the power cord through the field wire opening at the bottom right of the unit.

(2) Connect the two power wires on the cord to the two 24VAC terminal connections on the controller.

(3) Connect the ground wire on the cord to the GND terminal.

(4) Plug the transformer into an electrical outlet.

TO EXTERNAL POWER SUPPLY
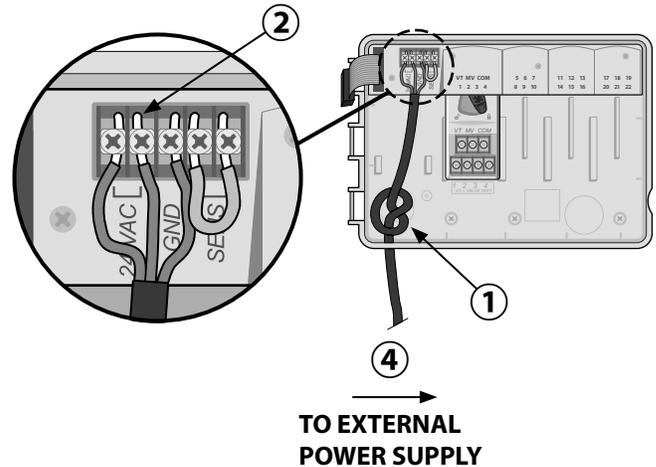
Outdoor Model

Power Wiring Connections
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

① Locate the transformer wiring compartment in the lower left corner of the controller unit. Use a screwdriver to remove the cover and expose the transformer connection wires.

② Route the three external power source wires through the conduit opening at the bottom of the unit and into the wiring compartment.

③ Using the provided wire nuts, connect the external power source wires (two power and one ground) to the transformer connection wires inside the wiring compartment.

⚡ **WARNING:** Ground wire must be connected to provide electrical surge protection. Permanently mounted conduit shall be used for connecting main voltage to the controller.

④ Verify that all wiring connections are secure, then replace the wiring compartment cover and secure it with the screw.
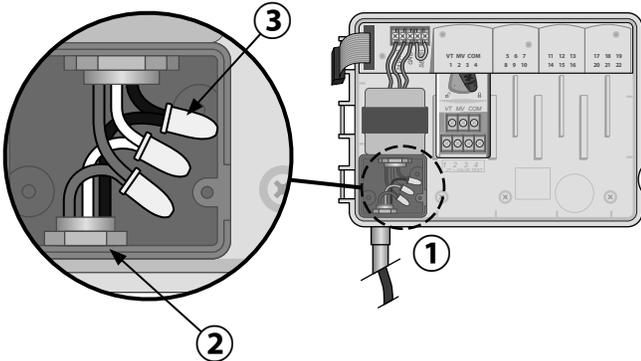
Station Expansion Modules

Optional Station Modules are installed in the empty slots to the right of the base module to increase the station capacity up to 22 stations.

⚠ **NOTE:** For ideal station sequencing, it is recommended that a 6-Station module always be installed in Bay 2. For more details see the Station Numbering section.

Base Module
(included)

Expansion Modules
(sold separately)

3-STATION
(ESPSM3)

6-STATION
(ESPSM6)

Install Modules

① Verify the securing lever on the module is in the unlocked position (slide to the left).

② Place the module under the desired slot between the plastic rails.

③ Push the module up into the slot until secure.

④ Slide the securing lever to the locked position (slide to the right).

🔁 **REPEAT** for additional modules.

⚠ **NOTE:** Modules can be installed or removed with OR without AC power connected. They are considered "hot-swappable".
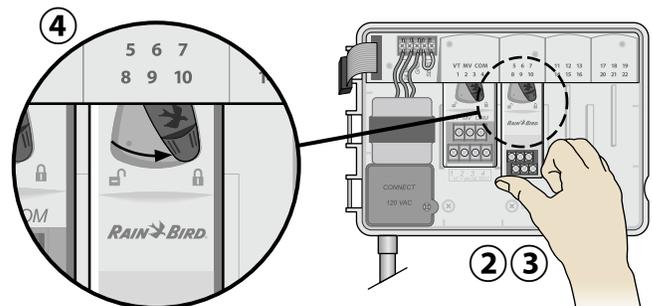
Station Numbering

Fixed Station Numbering Description

The controller is configured with Fixed Station Numbering. Each bay is set up to accept a 6 station module and reserve the station number for future use if a 6 station module is NOT installed in Bays 2, 3 or 4.

Station numbers are pre-assigned as follows:
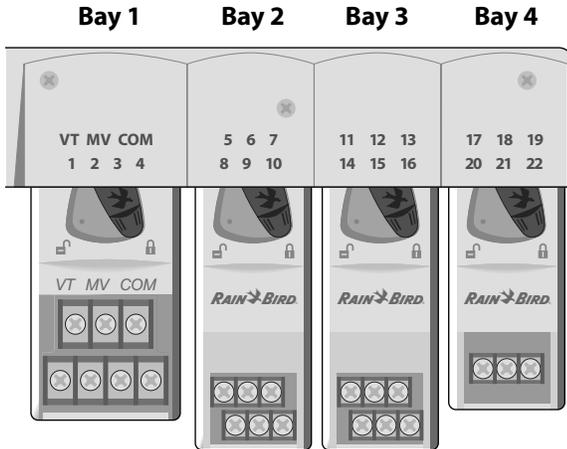
Example Of Recommended Installation For 19 Stations

Module Configuration

Example of installation with station numbering gaps:

- A total of 19 stations are installed.
- The Base Module is installed in Bay 1 and uses Stations 1 through 4.
- A 6-Station Expansion Module is installed in Bays 2 and 3 using Stations 5 through 16.
- A 3-Station module is installed in Bay 4 and uses stations numbered 17 through 19.

Because a 3-Station module is installed in Bay 4, only the first three station numbers assigned to that bay will be used and the unused numbers will be "reserved" for future use.

During programming, the controller will skip any unused station numbers, creating a gap in station numbering.

For the previous example, the first screen of the Zone Setup Wizard is displayed. The "No Module" message indicates there is no module associated with Zone 14.

! **NOTE**: Station numbering gaps will not prevent the controller from operating properly. It only affects station numbering. During programming when connected to AC power, the controller will skip any unused stations where a module is not installed.

Connect Weather Sensor Wire to Controller

① Begin by running 18-2 AWG, UV rated wire from sensor to controller (200 ft. max.)

! **NOTE:** 25 feet of 18-2 AWG, UV rated wire is provided.

② Strip wire insulation approx 3/8" and insert leads into connector located on back of front panel (polarity not important).
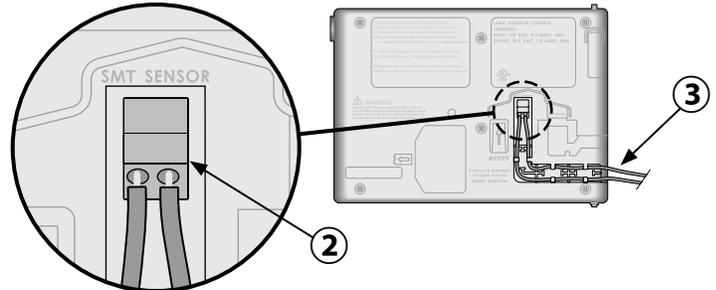
③ Route the two wires through the provided channel and out through one of the knockouts, located in the bottom of the controller cabinet.

Complete Controller Installation

① Reinstall and reconnect the front panel.

② Apply power to the controller and test the system.

! **NOTE:** The electrical connections can be checked even if water is not available. If water is available and you would like to test some or all of your stations, use the Test All Stations feature of the controller.Weather Sensor Installation

Weather Sensor Installation

Choose Location

- Select a convenient outdoor location in close proximity (wire-run distance is 200 feet maximum) to the ESP-SMTe controller. Place in an unobstructed area away from reflective heat so that the unit can provide accurate on-site temperature and rainfall measurements.

- Mount the unit at least 6 feet above the ground surface to accurately measure ambient temperature. Suggested installation locations include the eave of a residence roof, a wooden fence post, etc.

- The sensor mounting bracket is designed to mount on any vertical surface. Easy adjustment of the mounting arm ensures the installed sensor is level. UV rated #16AWG or #18AWG wire is recommended for the communication wires if more than 25 feet is required.
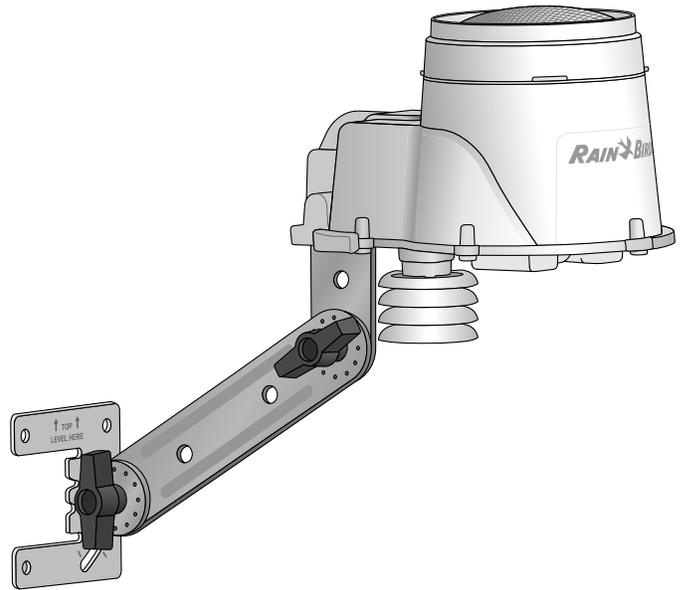
Sensor Mounting Options

Do's

- Mount the weather sensor at least six feet above grade.

- Ensure that sensor is free from obstructions to allow for collection and accurate measurement of rainfall.

- Sensor does not require direct sun to work correctly provided any shade or other obstruction does not block rainfall.

Don't's

- Do NOT install sensor in a location where spray from a sprinkler will collect in the sensor.

- Do NOT install the sensor where rainfall will be reduced or blocked from entering the sensor funnel

- Do NOT install the sensor where it will be impractical to service – the rain sensor may require cleaning depending on the amount of leaves, dust, etc that may collect in the debris screen, funnel, or tipping bucket rain sensor.
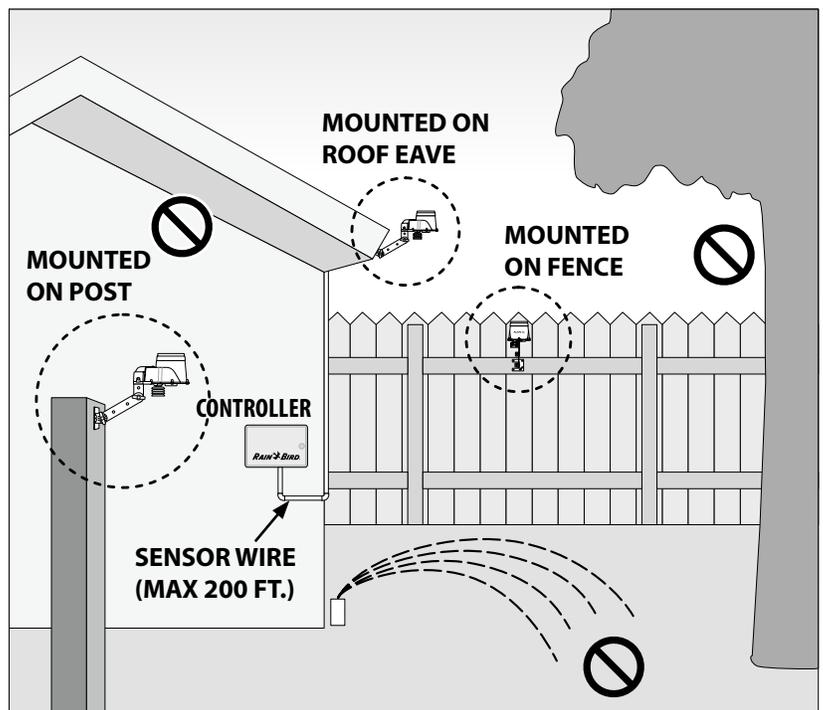
Mount Weather Sensor

Begin by running the communication wire to the location where the sensor will be mounted.

(1) Place the mounting bracket base assembly against a mounting surface that permits the top of the mounting bracket to be adjusted to vertical. Drive a screw into the **upper left hole** of the base (do not tighten completely).

(2) Drive a second screw into the middle area of the adjustment slot, located on the lower right corner of the mounting base.

(3) Level the mounting base and hold it in place, then tighten the screw in the adjustment slot.

(4) Tighten the upper left screw, then drive the two remaining screws into the mounting base, securing it to the mounting surface.
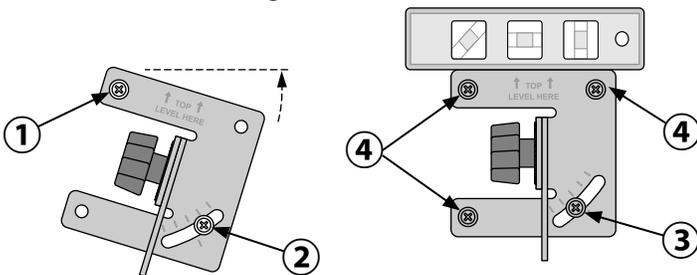
Connect Weather Sensor Wire

(1) Loosen the captured-screw of the wiring compartment cover to expose the sensor housing and green wiring connector within.

(2) Strip the two wire leads 1/4" and insert into the connectors (polarity is not important).

(3) If AC power is available, the green LED will blink. Once communication is established between the sensor and controller, the LED will light solid.

(4) Re-attach the wiring compartment cover and route the wire through the two openings. Then re-tighten the captured screw to secure the cover.
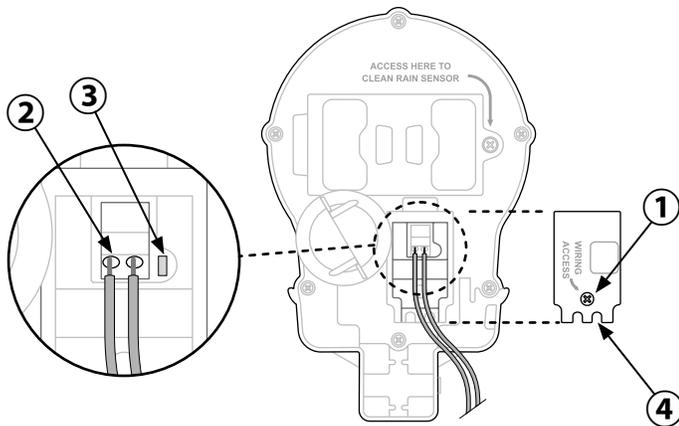
(5) Feed the communication wire(s) through the three holes in the mounting arm, providing "strain-relief" for the wires. Leave enough extra wire at the top end so the sensor pod can easily be installed and removed.

(6) Mount the sensor housing assembly to the top of the mounting arm. Align the mounting hole on the bracket with the arm and tighten using the provided thumb-screw

(7) Adjust each of the mounting arms to assure that the top of the sensor is secured and level.

(8) Press the sensor debris cover onto the top of the sensor.
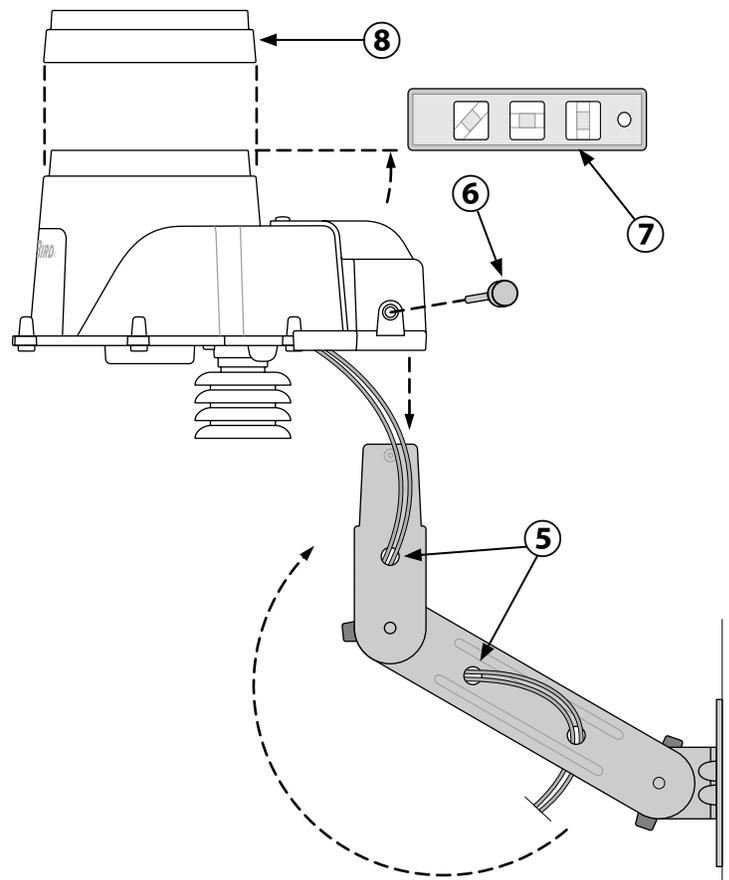
Normal Operation

Controls and Indicators

Key operational features of the ESP-SMTe Controller:

AUTO RUN: Watering occurs automatically

Programming Dial

Initial Controller & Zone Set-Up Dial Positions

OFF: Cancels all irrigation

Manual Watering: Start watering selected zones immediately

System Restore: Restore contractor and factory default settings

System Review: Review controller settings and logs

Fine-Tune Watering: Adjust run times by zone

Special Features: Block irrigation on days of special events

ALARM

AUTO MODE
Monday 02 May 2016
05:00 PM
Next Irrigation
Estimate 05 May

ENGLISH
ESPAÑOL

ESP-SMTe

Alarm Light: Illuminates when conditions prevent watering

Large Back Lit Dot-Matrix Display

Programming Buttons: Press and Hold to accelerate settings

English/Spanish Button: For easy switching of display language

Remotely Programmable: Using 9V battery (installed inside front panel)

RAIN BIRD

ESP-SMTe Controller Front Panel

Weather Sensor Features

Removable Debris Screen: Easily remove and clean when clogged

Sensor Housing

Adjustable Mounting Bracket

Mounting Base: Install on eave, roof, side of house or post

TOP
LEVEL HERE

RAIN BIRD

Solar Shield With Temperature Sensor: Measures temperature and sends to controller

Removable Tipping Rain Bucket: Measures rainfall amounts and sends to controller

! **NOTE**: When installing the weather sensor, keep away from radiating heat, etc.

Operating Modes

When the ESP-SMTe Controller is powered on for the first time, the option to select a programming mode is displayed.

This screen is also available under the **Advanced Controller Setup** dial position (see page 15) or after a Factory Default reset.

```
        SELECT
    PROGRAMMING MODE

    1) Simple Smart
    2) Advanced ET

BACK      ↑     ↓   SELECT
```

AUTO RUN

AUTO RUN is the normal operating mode for the controller.

Irrigation starts automatically when required, and the next estimated watering date is displayed.

Turn the dial to **AUTO RUN.**

In AUTO Mode:

- The display shows the current day of the week, date, time, and the next estimated watering day.

```
        AUTO MODE

    Monday 02 May 2016
        05:00 PM
    Next Irrigation
    Estimate 05 May
```
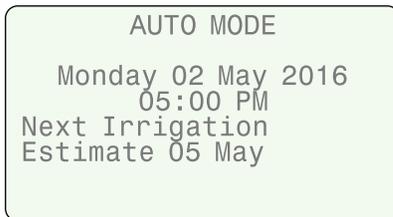
[!] NOTE: On a scheduled watering day, "Next Irrigation Estimate will change to "Adjusted: 0%" and display any automatic adjustments to irrigation.

During Watering:

- The display shows the current day, current active zone, and the Time Remaining for that Zone.

```
   WATERING — AUTOMATIC
   Wednesday 06:45 PM

   Watering Zone      2
   Minutes Remaining  14
                    ADV.
                    ZONE
```
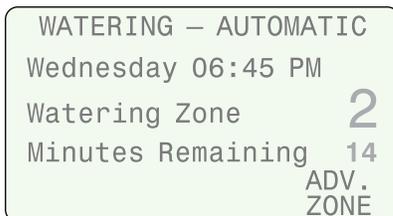
OFF

Cancel all active watering immediately and stop automatic irrigation.

Turn the dial to **OFF.**

- Press ▬ or ✚ to adjust the LCD contrast if desired.

```
ALL WATERING  OFF
Tuesday 03 May 2016

      7:25 PM

  ADJUST CONTRAST
      —     +
```
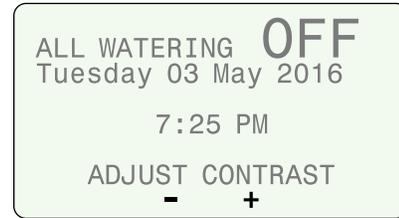
Controller Configuration and Zone Information settings remain stored in memory while the controller is **OFF** or if there is a loss of power. Date and time are also maintained for up to 10 years by an internal battery. A 9V battery is not required to maintain settings or date and time.

[!] NOTE: Automatic irrigation will **NOT** occur if the controller remains in **OFF** mode.

Simple Smart Programming

This section provides instructions to setup and operate the ESP-SMTe.

To program in Simple Smart mode, select Simple Smart on the Select Programming Mode screen. This screen is available under the **Advanced Controller Setup** dial position (see page 15) or after a Factory Default reset.

```
    SELECT
PROGRAMMING MODE

1) Simple Smart
2) Advanced ET

BACK    ↑    ↓  SELECT
```
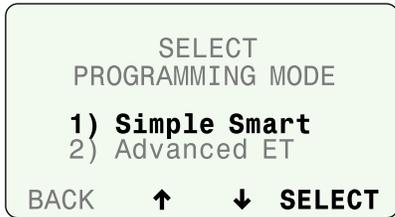
Set Date and Time

Set the current calendar Date and Time of day.

Turn the dial to **Set Date & Time**.

```
  SET CURRENT
 DATE AND TIME

  01 Jan 2013

   12:00 AM

BACK   -   +   NEXT
```
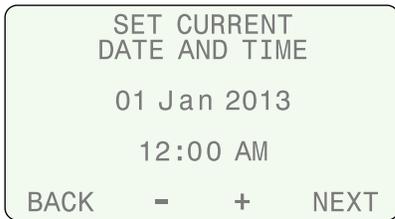
① Set the current month, day and year.

② Set the current time.

```
  SET CURRENT
 DATE AND TIME

  02 May 2016

   10:30 AM

BACK   -   +   NEXT
```
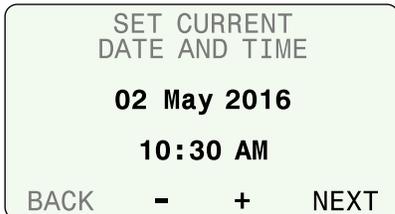
Configure Controller

Enter site location info and basic irrigation schedules.

In Simple Smart mode, configure the controller by entering the site zip code for your site, selecting the days to water, and entering the start times that watering will begin.

! **NOTE:** For Advanced ET mode, see page 21.

Turn the dial to **Configure Controller**.

```
CONFIGURE CONTROLLER

Set Site Info
Set Schedule
Review Settings

BACK    ↑    ↓  SELECT
```

Set Site Info

Enter the zip code for your site and the Rain Shutoff parameters for rain sensor shutoff.

① Select **Set Site Info**.

```
CONFIGURE CONTROLLER

Set Site Info
Set Schedule
Review Settings

BACK    ↑    ↓  SELECT
```

② Select **Set Zip Code**.

```
     SITE INFO

Set Zip Code
Set Rain Shutoff

BACK    ↑    ↓  SELECT
```

③ Enter the zip code for your site.

```
   SITE ZIP CODE

 Enter Site Zip Code
     92010

BACK         +    NEXT
```
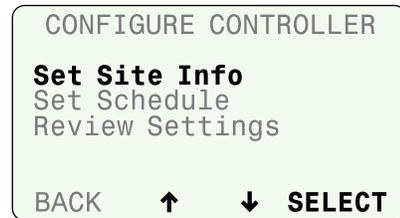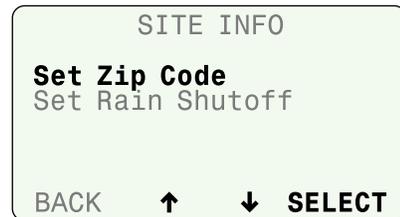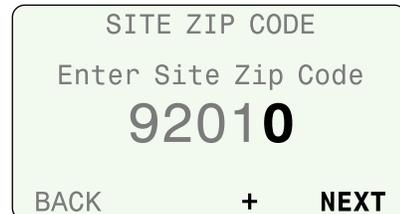
④ Select **Set Rain Shutoff**.

```
          SITE INFO

Set Zip Code
Set Rain Shutoff



BACK      ↑      ↓   SELECT
```

⑤ Enter the number of Days to delay watering when a set amount of rain is detected; then press **NEXT**.

⑥ Set the amount of rain that will start the delay; then press **NEXT**.

```
         RAIN SHUTOFF

Delay Watering For

1 Full Days        When
Rain Reaches    0.20 in
BACK      -      +     NEXT
```

⑦ Press **BACK** to return to the Configure Controller menu.

Set Schedule

For each Program (A and B), select the Days to Water and the Start Times that irrigation will begin.

① Select **Set Schedule**.

```
   CONFIGURE CONTROLLER

Set Site Info
Set Schedule
Review Settings


BACK      ↑      ↓   SELECT
```

② Press **UP** or **DOWN** until **PROGRAM** is blinking; then press **PGM SELECT** to choose **A** or **B**.

```
 PROGRAM A

Set Days to Water
Set Start Times


                   PGM
BACK      ↑      ↓   SELECT
```

③ Select **Set Days to Water**.

```
 PROGRAM A

Set Days to Water
Set Start Times



BACK      ↑      ↓   SELECT
```

④ Select a watering day option.

⚠ **NOTE:** After selecting a watering day option, the screen will automatically advance to **Step 5, Block One Day a Week**.

Water Every Day:

No restrictions on days to water.

```
PROGRAM A    WATER DAYS

Water Every Day
By Days of the Week
Even Days: 2,4,6,… 30
Odd Days: 1,3,5,…no31
Cyclical:Every x Days
BACK      ↑      ↓   SELECT
```

Days of the Week:

Set a custom weekly schedule.

```
PROGRAM A     WATER DAYS

Water Every Day
By Days of the Week
Even Days: 2,4,6,… 30
Odd Days: 1,3,5,…no31
Cyclical:Every x Days
BACK      ↑      ↓   SELECT
```

• Press **OFF** or **ALLOW** to water on the selected day; then press **NEXT**.

```
WATER BY DAY OF WEEK
Allow Watering:
Mo    We    Fr

Watering OFF:
    Tu    Th    Sa   Su

BACK    OFF  ALLOW NEXT
```

Even Days:

Water only on even calendar days.

```
PROGRAM A    WATER DAYS

Water Every Day
By Days of the Week
Even Days: 2,4,6,… 30
Odd Days: 1,3,5,…no31
Cyclical:Every x Days
BACK      ↑      ↓   SELECT
```

Odd Days:

Water only on odd calendar days (except 31st).

```
PROGRAM A    WATER DAYS

Water Every Day
By Days of the Week
Even Days: 2,4,6,… 30
Odd Days: 1,3,5,…no31
Cyclical:Every x Days
BACK      ↑      ↓   SELECT
```

Cyclical

Water on a cycle of every 2 to 14 days.

```
 PROGRAM A      WATER DAYS

 Water Every Day
 By Days of the Week
 Even Days: 2,4,6,… 30
 Odd Days: 1,3,5,…no31
 Cyclical:Every x Days
 BACK     ↑    ↓  SELECT
```

1 Press ━ or ✚ to set the irrigation cycle and the date to begin the cycle; then press **NEXT**.

```
    CYCLICAL WATERING


 Water Every  3 Days

 Begin Watering 01 May

 BACK     ━    +    NEXT
```

2 Select a desired day of the week (or none) to Block Watering.

```
 BLOCK WATERING ON A
 SPECIFIC DAY OF WEEK
 None            Monday
 Tuesday      Wednesday
 Thursday        Friday
 Saturday        Sunday
 Sat & Sun
 BACK     ↑    ↓  SELECT
```

3 Select **Set Start Times**.

```
 PROGRAM A

 Set Days to Water
 Set Start Times



 BACK     ↑    ↓  SELECT
```

4 Set the first Start Time; then press **NEXT START** to enter additional times (up to 6 total), or, press **DONE** to finish.

```
       PROGRAM A
 SET START TIMES


 1st 06:00 AM
 NEXT
 START    ━    +     DONE
```

🔄 **REPEAT** Steps 2 - 7 for Program B if necessary.

Review Settings

1 Select **Review Settings**.

```
 CONFIGURE CONTROLLER

 Set Site Info
 Set Schedule
 Review Settings


 BACK     ↑    ↓  SELECT
```

2 Review the Site Info settings, then press **MORE**.

```
   CONTROLLER SETTINGS
 Zip Code         92010
 Peak ET        0.22 in
 Delay Watering For
 1 Full Days       When
 Rain Reaches  0.20 in

 BACK              MORE
```

3 Review the Watering Day options and programmed Start Times for Program A, then press **MORE**.

```
     PGM A SETTINGS
 By Days of the Week
 Mo    We    Fr
 Start Times:
 1)06:00 AM  4)--:-- AM
 2)08:00 AM  5)--:-- AM
 3)--:-- AM  6)--:-- AM
 BACK              MORE
```

4 Review Watering Day options and programmed Start Times for Program B, then press **MORE**.

```
     PGM B SETTINGS
 Odd Days: 1,3,5,…no31

 Start Times:
 1)05:30 AM  4)--:-- AM
 2)--:-- AM  5)--:-- AM
 3)--:-- AM  6)--:-- AM
 BACK              MORE
```

Input Zone Information

Enter run times for every zone and set up a watering schedule for new plants.

> 🛈 **NOTE:** For Advanced ET mode, see page 21.

⧖   Turn the dial to **Input Zone Information**.

- The current programming mode is displayed. Press **MORE** to continue.

```
┌─────────────────────────────┐
│  INPUT ZONE INFORMATION     │
│                             │
│   Controller in SIMPLE      │
│     programming mode        │
│   enter zone run times.     │
│                     MORE    │
└─────────────────────────────┘
```

Set Zone Run Times

Enter desired Run Times for each zone and program.

> 🛈 **NOTE:** Run Times should be entered based on the hottest time of year for your location. The SMTe will make adjustments to the Run Times in Simple Smart mode based on local weather conditions.

① Select the desired zone.

② Select Program A or Program B.

③ Set the Run Time; then press **NEXT**.

```
┌─────────────────────────────┐
│  ZONE:  1                   │
│  PGM:   A                   │
│                             │
│  RUN TIME:     HR:MIN       │
│               0:20          │
│   BACK    -    +    NEXT    │
└─────────────────────────────┘
```

Set Grow-In Schedule

New plants have different watering needs than plants that are already established. New plants are watered every day during a set Grow-In Schedule period, then are watered according to regular schedules when the period ends.

① Press ➕ when OFF is blinking to enable the Grow-In Schedule for the selected zone; press **NEXT** to return to the Set Run Times screen.

```
┌─────────────────────────────┐
│  ZONE: 1                    │
│  Grow-In Schedule           │
│  Days              OFF      │
│                             │
│                             │
│   BACK    -    +    NEXT    │
└─────────────────────────────┘
```

② Set the number of days the Grow-In period will last.

③ Set the number of Cycles per day (up to 8).

④ Set the Cycle time (duration of each Cycle).

⑤ Set the Start Time (time the first Cycle begins).

⑥ Set the Start interval time (minutes between Cycles).

```
┌─────────────────────────────┐
│  ZONE: 1                    │
│  Grow-In Schedule           │
│  Days                 1     │
│  Cycles per day       1     │
│  Cycle time         5Min    │
│  Start time     06:00 AM    │
│  Start interval     5Min    │
│  BACK    -    +    NEXT     │
└─────────────────────────────┘
```

Special Features

Select additional features and controller setup options.

Turn the dial to **Special Features**.

```
      SPECIAL FEATURES
   Event Days Off
   Short Circuit Test
   Adv. Controller Setup
   Advanced Zone Setup
   Save Contractor Dflts
   Set Units
        ↑      ↓   SELECT
```

Event Days Off

Event Days Off allows you to select up to four dates to block irrigation for special occasions up to a year in advance.

① Select **Event Days Off**.

```
      SPECIAL FEATURES
   Event Days Off
   Short Circuit Test
   Adv. Controller Setup
   Advanced Zone Setup
   Save Contractor Dflts
   Set Units
        ↑      ↓   SELECT
```

② Press ✚ to add a new date.

③ Set the date; then press **NEXT** to set additional dates.

```
       EVENT DAYS OFF

      04 Jul 2016
      -----------
      -----------
      -----------

   BACK    −     +     NEXT
```

④ To delete an Event Day Off, select the date using **NEXT** or **BACK** and press and HOLD ▬.

Short Circuit Test

Verify the integrity of the wires between the controller and the valves.

① Select **Short Circuit Test**.

```
      SPECIAL FEATURES
   Event Days Off
   Short Circuit Test
   Adv. Controller Setup
   Advanced Zone Setup
   Save Contractor Dflts
   Set Units
        ↑      ↓   SELECT
```

The test result for each zone is displayed; the test takes about 30 seconds to complete.

② Press **RETEST** to run the test again if desired.

```
      SHORT CIRCUIT TEST
   M:G 5:G 10:G 15:N 20:N
   1:G 6:G 11:G 16:N 21:N
   2:G 7:G 12:G 17:N 22:N
   3:G 8:G 13:G 18:N
   4:G 9:G 14:N 19:N SKip
   Short G:NoShort NoMod
   BACK        RETEST
```

! **NOTE**: "NoMod" indicates that no module is present for that station number.

Advanced Controller Setup

Set time delays between zones and set thresholds that determine when the controller will suspend irrigation due to weather conditions.

① Select **Adv. Controller Setup**.

```
      SPECIAL FEATURES
   Event Days Off
   Short Circuit Test
   Adv. Controller Setup
   Advanced Zone Setup
   Save Contractor Dflts
   Set Units
        ↑      ↓   SELECT
```

② Set each value; then press **NEXT**.

```
   ADV CONTROLLER SETUP

   Zone To Zone Delay:
            2 Seconds
   Suspend Watering When
   Rain Reaches    0.04in
   -OR- Temp Below  35°F
   BACK    −     +     NEXT
```

- **Zone to Zone Delay** sets a time delay between one station valve turning off and the next station valve turning on.

- **Suspend Watering When Rain Reaches** value suspends irrigation when measured rainfall reaches the specified amount.

- **Suspend Watering When Temp Below** value suspends irrigation when the temperature falls below a specific value.

Select Programming Mode

After setting the Temp Below value on the Advanced Controller Setup screen (and pressing **NEXT**), the option to switch programming modes is displayed.

- Select the desired programming mode.

```
        SELECT
   PROGRAMMING MODE

   1) Simple Smart
   2) Advanced ET

 BACK      ↑    ↓  SELECT
```

Advanced Zone Setup

Set each zone to use (or not to use) an installed master valve, pump start relay, or the ESP-SMTe Rain Gauge.

① Select **Advanced Zone Setup**.

```
   SPECIAL FEATURES
 Event Days Off
 Short Circuit Test
 Adv. Controller Setup
 Advanced Zone Setup
 Save Contractor Dflts
 Set Units
           ↑    ↓  SELECT
```

② Select the desired zone.

③ Select **YES** for Auto-Adjust to choose whether a zone's durations are adjusted due to weather.

④ Select **YES** if MV is energized when the selected zone starts.

⑤ Select **YES** if the zone's irrigation should be suspended due to rain or not (e.g. plants under a covered patio).

```
 ADVANCED SETUP  Zone 1

 Auto-Adjust        YES
 Use Master Valve   YES
 Use Rain Gauge     YES


 BACK     —    +     NEXT
```

Save Contractor Defaults

Save the current Configure Controller and Input Zone Information settings for all zones to memory.

① Select **Save Contractor Dflts**.

```
   SPECIAL FEATURES
 Event Days Off
 Short Circuit Test
 Adv. Controller Setup
 Advanced Zone Setup
 Save Contractor Dflts
 Set Units
           ↑    ↓  SELECT
```

② Press **SAVE** to save zone and controller settings to Contractor Defaults.

③ Read the Warning; then press **SAVE**.

④ Current Settings are saved; press **CONTINUE**.

```
   CURRENT SETTINGS

    SAVED
    To Contractor
   Settings Backup

            CONTINUE
```

Set Units

Set the Time format (AM/PM or 24-Hour) and Units format (English or Metric) that is displayed by the controller.

① Select **Set Units**.

```
   SPECIAL FEATURES
 Event Days Off
 Short Circuit Test
 Adv. Controller Setup
 Advanced Zone Setup
 Save Contractor Dflts
 Set Units
           ↑    ↓  SELECT
```

② Select the desired Time Format.

```
   SET TIME FORMAT


      Automatic
       AM/PM
      24-Hour

 BACK     ↑    ↓  SELECT
```
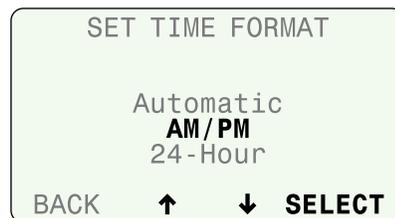
③ Select the desired Units Format.

```
   SET UNITS FORMAT


      Automatic
       English
       Metric

 BACK     ↑    ↓  SELECT
```
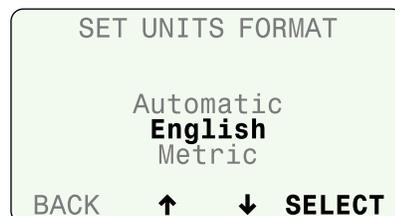
Fine-Tune Watering

Adjust the calculated run time for each zone.

Turn the dial to **Fine-Tune Watering.**

① Press **BACK** or **NEXT** to select the zone to adjust.

② Press ▬ or ✚ to set the adjustment percentage for the selected zone.

```
   FINE TUNE % BY ZONE
1 +20  7  +0 13  +0 19 n/a
2  +0  8  +0 14 n/a 20 n/a
3  +0  9  +0 15 n/a 21 n/a
4 n/a 10  +0 16 n/a 22 n/a
5  +0 11  +0 17 n/a
6  +0 12  +0 18 n/a
  BACK    -    +    NEXT
```

③ After making any adjustments, return the dial to **AUTO RUN**.

If minor adjustments are required to calculated run times, you can increase or decrease run times for ET zones by a selected percentage. These adjustments will apply until you set the value back to 0.

The Fine Tune % By Zone value can be adjusted from -60% to +60%. For example, if a +50% adjustment is set, then a calculated run time of 10 minutes will become 15 minutes.

⚠ NOTE: Fine-Tune Watering adjustments always apply to all zones in Simple Mode.

⚠ NOTE: Fine Tune settings can be adjusted for Newly Planted zones, but will not take effect until the Newly Planted mode expires.

System Review

View system settings and weather information.

⚠ NOTE: The information under System Review is for review purposes only. This allows the review of programming settings without accidentally making unwanted changes.

Turn the dial to **System Review**.

```
    CONTROLLER REVIEW
  Controller Settings
  Zone Settings
  Weather Data
  Weather Log
  Event Log

          ↑     ↓  SELECT
```

Controller Settings

Review Configure Controller settings.

① Select **Controller Settings**.

```
    CONTROLLER REVIEW
  Controller Settings
  Zone Settings
  Weather Data
  Weather Log
  Event Log

          ↑     ↓  SELECT
```

② Review location data and delay settings; then press **MORE**.

```
   CONTROLLER SETTINGS
 Zip Code          92010
 Peak ET         0.22 in
 Delay Watering For
 1 Full Days        When
 Rain Reaches   0.20 in

 BACK               MORE
```

③ Review Program A; then press **MORE**.

```
     PGM A SETTINGS
 By Days of the Week
 Mo    We     Fr
 Start Times:
 1)06:00 AM  4)--:-- AM
 2)08:00 AM  5)--:-- AM
 3)--:-- AM  6)--:-- AM
 BACK               MORE
```

④ Review Program B then press **MORE**.

```
     PGM B SETTINGS
 Odd Days: 1,3,5,…no31

 Start Times:
 1)05:30 AM  4)--:-- AM
 2)--:-- AM  5)--:-- AM
 3)--:-- AM  6)--:-- AM
 BACK               MORE
```

Zone Settings

Review Input Zone Information and Advanced Zone Setup settings.

① Select **Zone Settings**.

```
    CONTROLLER REVIEW
  Controller Settings
  Zone Settings
  Weather Data
  Weather Log
  Event Log

          ↑     ↓  SELECT
```

(2) Review zone settings; then press **MORE**.

```
ZONE: 1
PGM:  A
Run time(h:mm):  0:20
Auto Adjust:       YES
Use Master Valve: YES
Use Rain Gauge:    YES
BACK    -     +     MORE
```

(3) Review Grow-In Schedule; then press **BACK**.

```
ZONE: 1
Grow-in is Active
  For Next      1 Days
Water 1 Cycles of  5min
Soak     5 min
Starting at:   06:00AM
BACK
```

Weather Data

Review the current temperature and rainfall over the past 24 hours based on data from the SMTe Weather Sensor.

(1) Select **Weather Data**.

```
    CONTROLLER REVIEW
Controller Settings
Zone Settings
Weather Data
Weather Log
Event Log

        ↑      ↓   SELECT
```

(2) Review Weather Data; then press **BACK**.

```
      WEATHER DATA

Current Temp:    72°F

Rain in Last
   24 Hours: 1.24 in

BACK
```

Weather Log

Review a daily log of high and low temperatures, calculated ET values, and rainfall over the past month.

(1) Select **Weather Log**.

```
    CONTROLLER REVIEW
Controller Settings
Zone Settings
Weather Data
Weather Log
Event Log

        ↑      ↓   SELECT
```

(2) Review Weather Log; then press **BACK**.

```
WEATHER LOG    (°F,in)
Date   Hi Low ETo Rain
03May  85  55 .12    0
02May  87  56 .15    0
01May  84  53 .11    0
30Apr  80  55 .14  .23
29Apr  86  54 .15  .15
BACK   PgDn PgUp
```

Event Log

Review notifications and error messages concerning irrigation events by date or by zone. Check these messages if the controller is not operating as expected.

(1) Select **Event Log**.

```
    CONTROLLER REVIEW
Controller Settings
Zone Settings
Next Irrigation Est.
Weather Data
Weather Log
Event Log
BACK      ↑      ↓   SELECT
```

(2) Events and alarms can be viewed by date or by zone.

⚠ **NOTE**: A table in the Contractor's Manual on the website (www.rainbird.com/esp-smte) lists all the messages that can appear in the Event Logs.
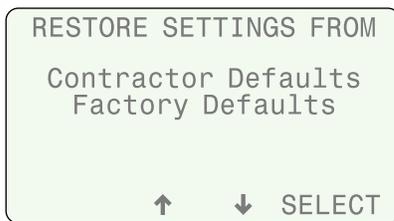
```
      EVENT LOG

Alarms and Notes
Events by Date
Events by Zone


BACK      ↑      ↓   SELECT
```

System Restore

Restore Contractor Default settings and restore original Factory Default settings.
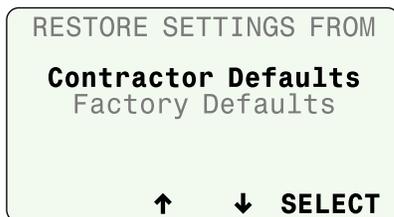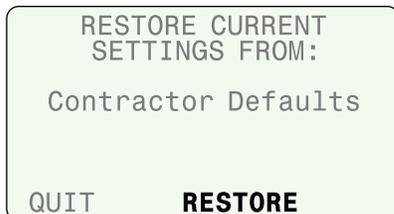
Turn the dial to **System Restore.**

```
  RESTORE SETTINGS FROM

    Contractor Defaults
     Factory Defaults



         ↑      ↓ SELECT
```

Contractor Defaults

Restore settings that were saved using the Save Contractor Defaults feature.

! **NOTE:** Current settings are overwritten.

① Select **Contractor Defaults**.

```
  RESTORE SETTINGS FROM

    Contractor Defaults
     Factory Defaults



         ↑      ↓ SELECT
```

② Press **RESTORE** to restore the Contractor Defaults.

```
     RESTORE CURRENT
     SETTINGS FROM:

    Contractor Defaults


  QUIT        RESTORE
```

③ The following screen is displayed while the controller reconfigures.

```
     RESTORING TO
   Contractor
    Defaults

    Please Wait While
    Unit Reconfigures
```

- When the restore is complete, the display returns to the **RESTORE SETTINGS** menu.

Factory Defaults

Restore the original factory default settings.

! **NOTE:** All current zone settings are erased. Any settings saved using Save Contractor Defaults are NOT affected.

① Select **Factory Defaults**.

```
  RESTORE SETTINGS FROM

    Contractor Defaults
     Factory Defaults



         ↑      ↓ SELECT
```
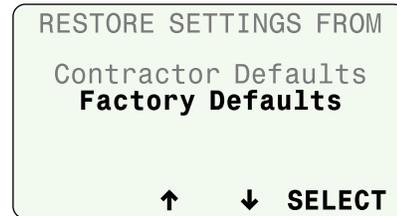
② Press **RESTORE** to restore the Factory Defaults.

```
     RESTORE CURRENT
     SETTINGS FROM:


     Factory Defaults

  QUIT        RESTORE
```
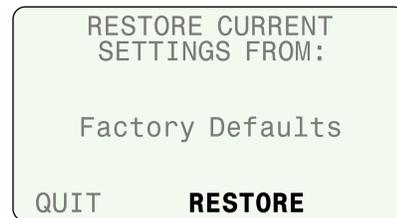
③ The following warning is displayed; press **RESTORE**.

```
       WARNING
   Restoring Factory
  Defaults Will Delete
  ALL Current Settings.
   Contractor Defaults
    Will Be Retained.
  QUIT        RESTORE
```

④ The following screen is displayed while the controller reconfigures.

```
     RESTORING TO
     Factory
     Defaults

    Please Wait While
    Unit Reconfigures
```

⑤ When the restore is complete, the option to switch programming modes is displayed.

```
        SELECT
    PROGRAMMING MODE

    1) Simple Smart
    2) Advanced ET

  BACK    ↑      ↓ SELECT
```
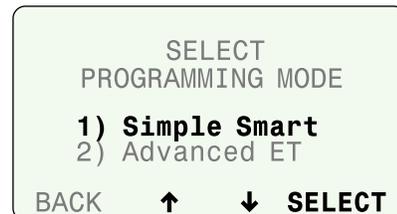
⑥ Select the desired programming mode and begin programming the controller per the mode selected.

Manual Watering

Start watering immediately for selected zones or for all zones.

! **NOTE**: If Manual Watering is started during automatic irrigation, the watering schedule is canceled for the day and resumes on the next Allowed Watering Day.

Turn the dial to **Manual Watering**.

Water Individual Zone

① Select **Water Individual Zone** from the Manual Watering screen.

```
     MANUAL WATERING

  Water Individual Zone
     Water All Zones
   Water Selected Zones

        ↑     ↓  SELECT
```

! **NOTE**: A selected zone will be activated even if it is not ENABLED. A zone that does not have an associated station module will display **No Module**.

② Select the desired zone; then press **NEXT**.

③ Set the run time for the selected zone; then press **NEXT**.
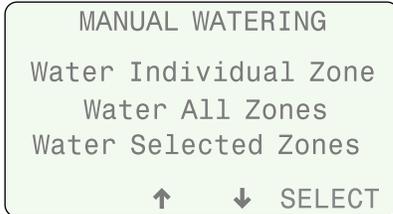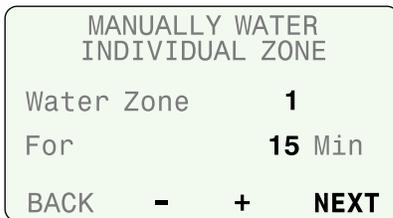
```
    MANUALLY WATER
    INDIVIDUAL ZONE

 Water Zone        1

 For              15 Min

 BACK    –    +    NEXT
```

Water All Zones

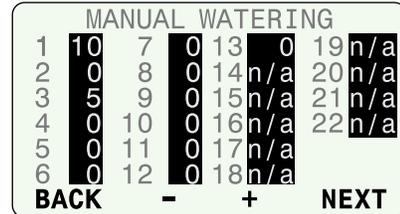① Select Water All Zones from the Manual Watering screen.

! **NOTE**: All zones will be activated even if they are not ENABLED. Zones will not activate that do not have an associated station module installed.

② Set the run time for all zones; then press **START**.

```
    MANUALLY WATER
      ALL ZONES

    Water All Zones
   For  10  Minutes Each

 CANCEL  –     +   START
```
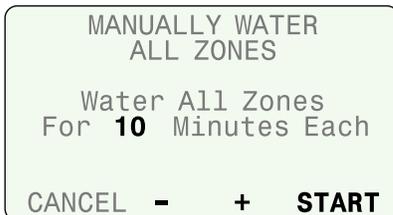
Water Selected Zones

① Select **Water Selected Zones** from the Manual Watering screen..

! **NOTE**: Selected zones will be activated even if they are not ENABLED. Zones that do not have an associated station module will display **n/a**.

② Select the desired zone or zones.

③ Set the run time for every desired zone; then press **NEXT** until you reach the end of your available zones.

```
     MANUAL WATERING
 1 10   7  0 13   0 19 n/a
 2  0   8  0 14 n/a 20 n/a
 3  5   9  0 15 n/a 21 n/a
 4  0  10  0 16 n/a 22 n/a
 5  0  11  0 17 n/a
 6  0  12  0 18 n/a
 BACK    –    +    NEXT
```

④ **NEXT** will change to **START**; then press **START**.

```
     MANUAL WATERING
 1 10   7  0 13   0 19 n/a
 2  0   8  0 14 n/a 20 n/a
 3  5   9  0 15 n/a 21 n/a
 4  0  10  0 16 n/a 22 n/a
 5  0  11  0 17 n/a
 6  0  12  0 18 n/a
 BACK    –    +    START
```
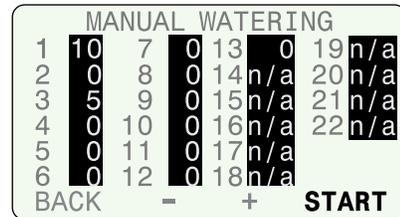
During All Manual Watering:

The Watering - Manual screen shows the current zone and time remaining.

① Press **–** or **+** to adjust the time remaining if desired.

② Press **ADV. ZONE** to advance to the next zone if desired.

```
    WATERING-MANUAL

 Watering Zone        1
 Minutes Remaining    9

                     ADV.
 CANCEL  –     +     ZONE
```
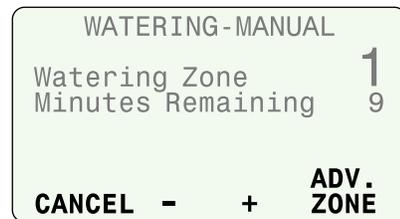
③ To cancel watering, press **CANCEL** or turn the dial to **OFF** for three seconds and then return the dial to the AUTO RUN position.

Advanced ET Programming

In the Advanced ET programming mode, the ESP-SMTe is a fully "weather-based" irrigation system.

> **! NOTE:** A complete guide to programming in Advanced ET mode is available at www.rainbird.com/esp-smte.

Weather Based Irrigation Overview

Watering is based on actual landscape needs instead of the predetermined schedule used by "time-based" programming.

Current weather data from the SMTe Weather Sensor and specific site conditions are used to automatically update irrigation schedules so that plants only get water when it is needed.

The ESP-SMTe in Advanced ET mode will use 30% to 50% less water than a traditional time-based watering schedule.

Factors That Affect Irrigation

Weather

Local weather conditions will affect the amount of water that plants need. Current weather data as well as historical data such as wind speed and humidity are used for scheduling.
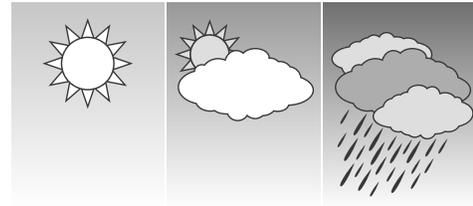
Soil Type

Different soil types vary greatly in the ability to hold water and the rate that water filters down through the soil. The Soil Type in each zone helps determine when plants need water.

Clay   **Sand**   **Loam**
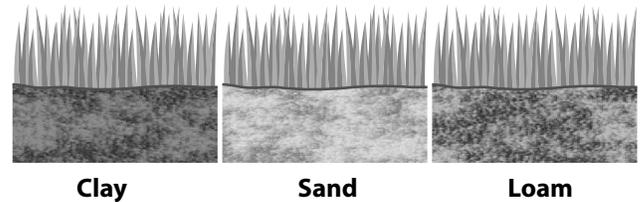
Irrigation Scheduling

1. Controller determines when irrigation is required.

2. Controller schedules irrigation.

```
CONTROLLER SETTINGS
Zip Code          92010
By Days of the Week
Mo    We    Fr
      Water Windows
05:00 AM  To  09:00 AM

BACK              MORE
```

The ESP-SMTe Smart Modular Control System continuously monitors weather conditions on-site to determine when irrigation is required.

4. Controller monitors weather conditions.

3. Irrigation occurs.
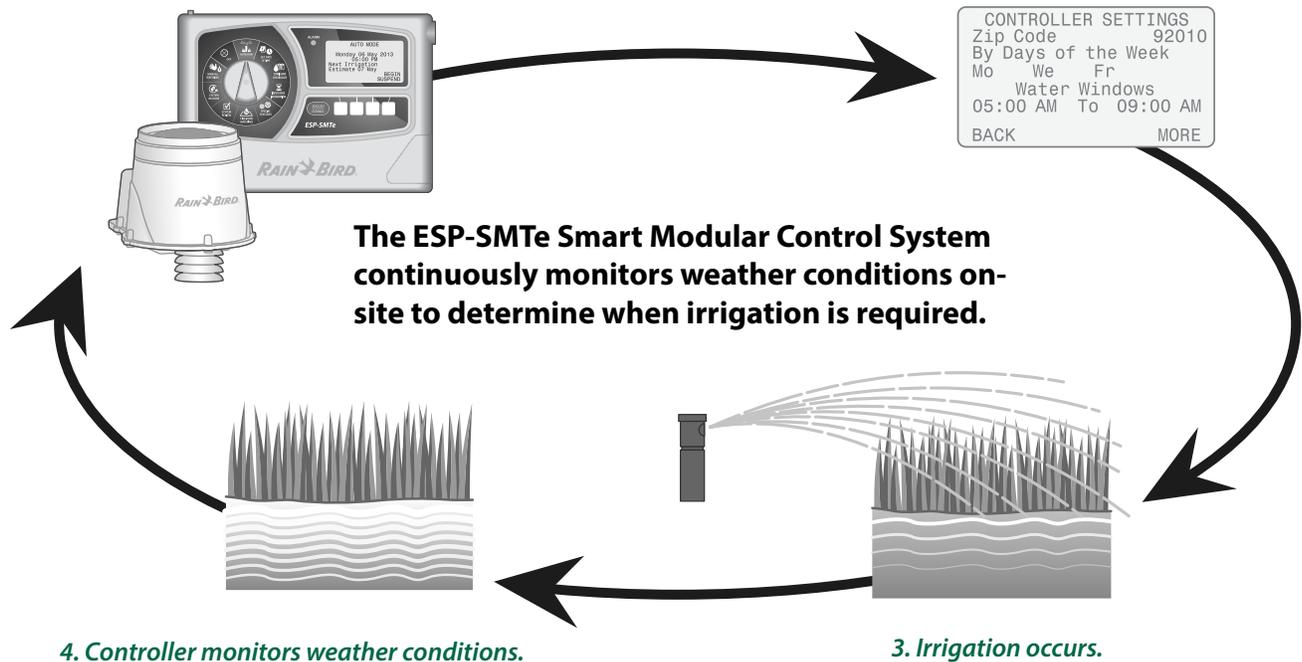
Evapotranspiration (ET)

The ESP-SMTe calculates water needs based on water lost from the soil surface (evaporation) and water used by the plants (transpiration). The rate that water is lost is called evapotranspiration, or ET.

Plant Available Water (PAW)

The total amount of water that can be stored in the soil for the plant is called Plant Available Water, or PAW. This amount varies based on the soil type and plant root depth.

Management Allowed Depletion (MAD)

When the amount of water available to the plant gets too low, irrigation is scheduled. This level is referred to as Management Allowed Depletion, or MAD and is set by the user at the controller.

Factors that Determine Irrigation

Configure Controller

Enter site location info and basic irrigation schedules.

To program in Advanced ET mode, select Advanced ET on the Select Programming Mode screen. This screen is available under the **Advanced Controller Setup** dial position (see page 15) or after a Factory Default reset.
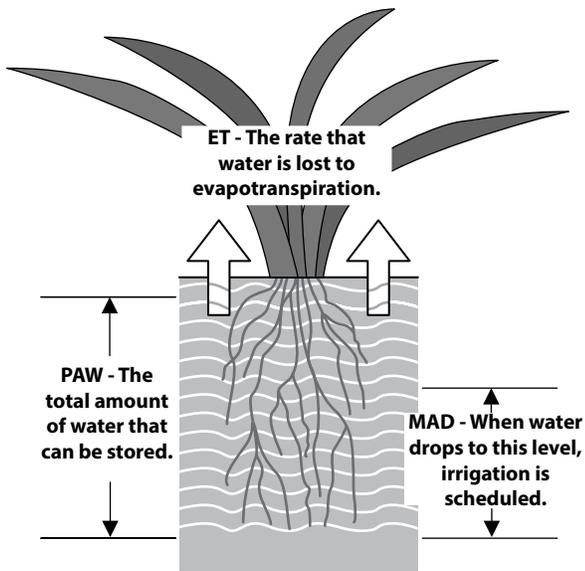
```
      SELECT
   PROGRAMMING MODE

   1) Simple Smart
   2) Advanced ET

 BACK     ↑    ↓  SELECT
```
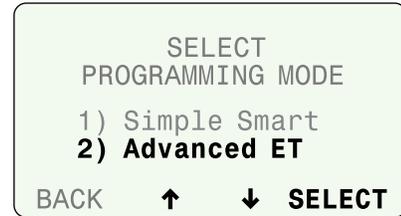
Configure the controller by entering site location information for your site, selecting the days to allow watering, and entering the times that watering can occur.

Turn the dial to **Configure Controller**.

```
   CONFIGURE CONTROLLER

   Enter Site Zip Code
         - OR -
   Enter Custom Data for
   Location

   BACK     ↑    ↓  SELECT
```
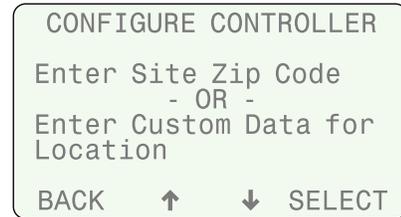
Step 1. Enter Site Location

The ESP-SMTe controller will use historical weather data (for wind speed and humidity) based on zip code or you can enter custom values for your site.

NOTE: If outside the United States you must use Custom Data for Location.

Select Location by Zip Code

① Select **Enter Site Zip Code**.

```
   CONFIGURE CONTROLLER

   Enter Site Zip Code
         - OR -
   Enter Custom Data for
   Location

            ↑    ↓  SELECT
```

② Enter the complete zip code for your site; then press **NEXT**.

```
        SITE ZIP CODE

     Enter Site Zip Code
          92010

BACK      —      +      NEXT
```

③ If the zip code is correct, press **YES**.

```
        SITE ZIP CODE


          92010
        Is This Correct?
NO                        YES
```

Enter Custom Data for Location

Refer to the Contractor's Manual on the Rain Bird website to enter Custom Data.

! **NOTE**: Contact your local weather station for Custom Data (Latitude, Elevation, average Wind Speed and Humidity).

```
      CONFIGURE CONTROLLER

   Enter Site Zip Code
          - OR -
   Enter Custom Data for
   Location

          ↑      ↓   SELECT
```

Step 2. Set Allowed Watering Days

Check with your local water authorities to see if there are any current water restrictions in effect that would limit the days or times of day that you can schedule irrigation.

Select one of the following options to determine the days that the controller is allowed to water.

No Restrictions

- Select **No Restrictions** if there are no restrictions on days that you can irrigate.

```
      ALLOWED WATER DAYS

   No Restrictions
   By Days of the Week
   Even Days: 2,4,6,… 30
   Odd Days: 1,3,5,…no31
   Cyclical:Every x Days
   BACK      ↑      ↓   SELECT
```

>> Go To Step 3, Block One Day a Week

Days of the Week

*To set a custom weekly schedule, select **By Days of the Week**.*

```
      ALLOWED WATER DAYS

   No Restrictions
   By Days of the Week
   Even Days: 2,4,6,… 30
   Odd Days: 1,3,5,…no31
   Cyclical:Every x Days
   BACK      ↑      ↓   SELECT
```

① Press **OFF** or **ALLOW** to set each day of the week as an Allowed Watering day or a non-watering day.

② When each day is set, press **NEXT**.

```
   WATER BY DAY OF WEEK
   Allow Watering:
   Mo    We    Fr

   Watering OFF:
       Tu    Th    Sa  Su

   BACK    OFF  ALLOW  NEXT
```

>> Go To Step 4, Set Allowed Watering Windows

! **NOTE**: For details on other options, see the Contractor's Manual on the Rain Bird website.

Step 3. Block One Day a Week

Select a specific day of the week to block irrigation (only if No Restrictions is selected). The controller will always block irrigation on this day.

- Select a day of the week (or none) to block irrigation.

```
   BLOCK WATERING ON A
   SPECIFIC DAY OF WEEK
   None           Monday
   Tuesday       Wednesday
   Thursday         Friday
   Saturday         Sunday
   Sat & Sun
   BACK    ↑      ↓   SELECT
```

Step 4. Set Allowed Watering Windows

Set a time that irrigation can occur on Allowed Watering Days.

(1) Set the start and end times for the 1st Watering Window; then press **NEXT**.

```
 SET ALLOWED WATER TIME
 1st Watering Window
 05:00 AM   To   09:00 AM

 2nd Watering Window
         OFF

 BACK      −    +     NEXT
```

(2) If desired, Set the 2nd Watering Window to **ON** and set the start and end times; then press **NEXT**.

(3) Set the Daily Water Window for new plants and zones that may water every day regardless of allowed watering days; then press **NEXT**.

```
 DAILY WATER WINDOW

 Water Every Day Except
 Blocked Days Between

 09:00 AM  and  04:00 PM

 BACK      −    +     NEXT
```

! **NOTE**: The Daily Water Window allows irrigation of new plants every day, and is not affected by Allowed Watering Days, Blocked Days or Event Days Off. The number of days that a Daily Water Window is in effect is set in the Enter Plant Maturity step under Input Zone Information.

(4) Set Rain Shutoff (days and inches); then press **NEXT**.

```
        RAIN SHUTOFF
 For Time-base and
 Grow-in Zones Only:
 Shutoff Watering for
  1 Full Day(s) when
 Rain Reaches:  0.20 in
 BACK      −    +    NEXT
```

! **NOTE**: Once the desired amount of rain has been exceeded, the controller will stop watering time based and grow-in zones for the number of Full Days specified. Full Days begin at midnight so 1 Full Day is the rest of today and all of tomorrow.

Step 5. Review

Review the Configure Controller settings.

(1) Press **BACK** to make changes if desired, then press **MORE**.

```
   CONTROLLER SETTINGS
 Zip Code          92010
 By Days of the Week
 Mo    We    Fr
      Water Windows
 05:00 AM  To  09:00 AM
 04:00 PM  To  06:00 PM
 BACK              MORE
```

(2) Review settings.

```
   CONTROLLER SETTINGS

   Daily Water Window

 09:00 AM  To  04:00 PM

 BACK              MORE
```

(3) Review settings and press **DONE**.

```
   CONTROLLER SETTINGS
 For Time-base and
 Grow-in Zones Only:
 Shutoff Watering for
  1 Full Day(s) when
 Rain Reaches:  0.20 in
 BACK              DONE
```

Input Zone Information

Enter site information for each zone.

Detailed site information about soil, sprinklers, and plant types is needed to determine irrigation schedules.

> **!** **NOTE**: For more details, see the Contractor's Manual on the Rain Bird website.

⧗   Turn the dial to **Input Zone Information**.

- The current programming mode is displayed. Press **MORE** to continue.

```
INPUT ZONE INFORMATION

     Controller in
     ADVANCED mode
      enter zone
      information.

   ↑      ↓     MORE
```
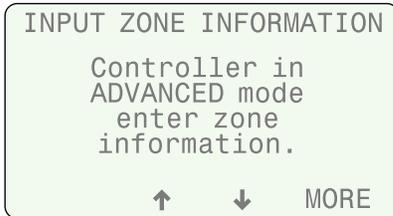
Zone Setup Wizard

- Select **Zone Setup Wizard**.

```
INPUT ZONE INFORMATION


Zone Setup Wizard
Copy Zone to Zone


   ↑      ↓   SELECT
```

Step 1. Enter Zone Number

The number of available zones depends on the number and type of station modules that are installed.

> **!** **NOTE**: If you select a zone number that does not have an associated module installed, "No Module" is displayed.

① Select the desired Zone Number; then press **NEXT**.

```
       SELECT ZONE

      Zone 1

       OFF
  BACK   -   +    NEXT
```

② Press **ENABLE** to enable the selected Zone; then press **NEXT**.

```
       SELECT ZONE

      Zone 1

     ENABLED
  BACK   OFF ENABLE NEXT
```

> **!** **NOTE**: Zone information can still be entered when the Zone is in **OFF** mode, but the controller will not include the zone in irrigation scheduling. This is useful if you want to pre-program all your zones.
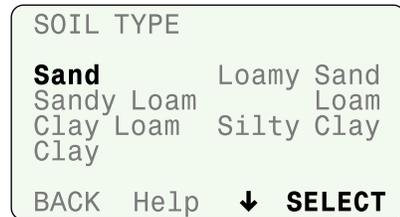
Step 2. Select Soil Type

Different soil types vary greatly in the ability to hold water and the rate that water filters down through the soil.

To help determine your soil type, highlight an option and press **Help** for a brief soil description.

> **!** **NOTE**: You can also refer to the Soil Type section in the Appendix of the Contractors Manual on the Rain Bird website.

- Select the soil type for your site.

```
SOIL TYPE

Sand         Loamy Sand
Sandy Loam         Loam
Clay Loam  Silty Clay
Clay

BACK   Help   ↓  SELECT
```

> **!** **NOTE**: The default values for soil data that the controller uses to determine irrigation are listed below. The soil type you choose will affect irrigation frequency (number of days between watering) and watering run times.

Soil Types

Soil Type	Available Water (inches of water per inch of soil)	Basic Intake Rate (inches per hour)	Management Allowed Depletion (MAD)
Sand	0.06"	0.60"	50%
Loamy Sand	0.08"	0.50"	50%
Sandy Loam	0.12"	0.40"	55%
Loam	0.17"	0.35"	50%
Clay Loam	0.18"	0.20"	50%
Silty Clay	0.17"	0.15"	40%
Clay	0.17"	0.10"	35%

Step 3. Select Zone Type

Select a Zone Type based on the type of sprinkler that is installed in the selected zone to help the controller schedule watering times..

(1) Select the Zone Type or select Time-Based.

```
ZONE TYPE          Zone 1
         Sprinkler
     Point Source Drip
      Inline Grid Drip
         Time-Based
 BACK       ↑    ↓   SELECT
```

! **NOTE**: Time-Based is typically used for zones that irrigate potted plants or is used to fill a pool.

(2) Select the desired option for the Water Window.

```
ZONE TYPE          Zone 1
         Sprinkler

    Select Water Window:

   1st+2nd: Restricted
    Daily Water Window
 BACK       ↑    ↓   SELECT
```

! **NOTE**: If **1st+2nd: Restricted** is selected, any restrictions entered during Controller Configuration will be applied. If **Daily Water Window** is selected, the programmed Daily Water Window will be used and zones will be allowed to water **only if required**.

Step 4. Select Sprinkler Type

Every type of sprinkler or drip system will apply water at a different rate, called the Net Application Rate. This rate is defined as the amount of water that your type of sprinkler can apply to the landscape in a certain period of time.

! **NOTE**: For example, a sprinkler with an Application Rate of 2 inches per hour can apply twice as much water in a period of time as a sprinkler with a rate of only 1 inch per hour.

The Net Application Rate options in **Step 4** depend on the Zone Type selection made in **Step 3**.If selected Zone Type is Sprinkler:

(1) Select the appropriate sprinkler type from the list.

```
SPRINKLER TYPE  Zone 1
         Sprays
         Rotors
     Rotary Nozzle
        Bubblers
 BACK       ↑    ↓   SELECT
```

(2) Adjust the default Net Application Rate if desired; then press **NEXT**.

```
Sprays             Zone 1

Net Application Rate:

  1.60in/hr
 BACK      –    +    NEXT
```

! **NOTE**: Increasing the default Net Application Rate will decrease irrigation run times, and decreasing the value will increase the run times.

Default Net Application Rates

Sprinkler Type	Net Application Rate (in/hr)
Sprays	1.60
Rotors	0.45
Rotary Nozzle	0.50
Bubblers	2.50

Application Rate 2 in/hr

Application Rate 1 in/hr

Application Rates vs. Run Time

If selected Zone Type is Point Source Drip:

(3) Use the instruction screens on the display as a guide to determine proper Application Rate.

(4) Adjust the default Net Application Rate if desired; then press **NEXT**.

```
POINT SOURCE   Zone 1

Net Application Rate:
  0.80 in/hr

BACK     -    +    NEXT
```
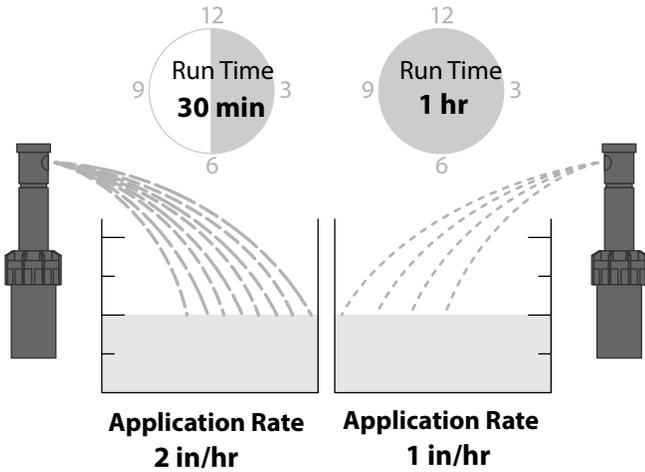
> ⚠ **NOTE**: Increasing the Net Application Rate will decrease irrigation run times, and decreasing the value will increase the run times.

>> Go To Step 5, Cycle+Soak

If selected Zone Type is Inline Grid Drip:

(5) Set the values for emitter Flow Rate, Emitter Spacing, and Row Spacing; then press **NEXT**.

```
INLINE GRID    Zone 1

Flow Rate      0.90 GPH

Emitter Spacing  18  in

Row Spacing      12  in

BACK     -    +    NEXT
```
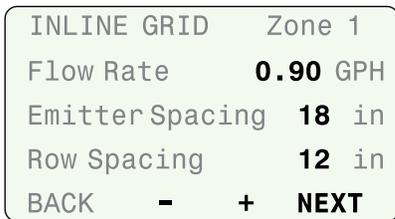
(6) Change the Adjust Factor to adjust the Estimated Application Rate if desired; then press **NEXT**.

> ⚠ **NOTE**: For detailed information on setting up Point Source Drip and Inline Grid Drip systems, see the Contractor's Manual on the Rain Bird website.
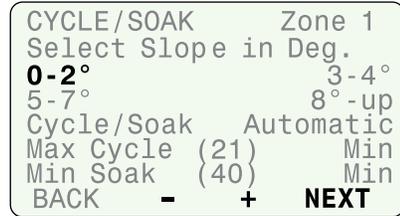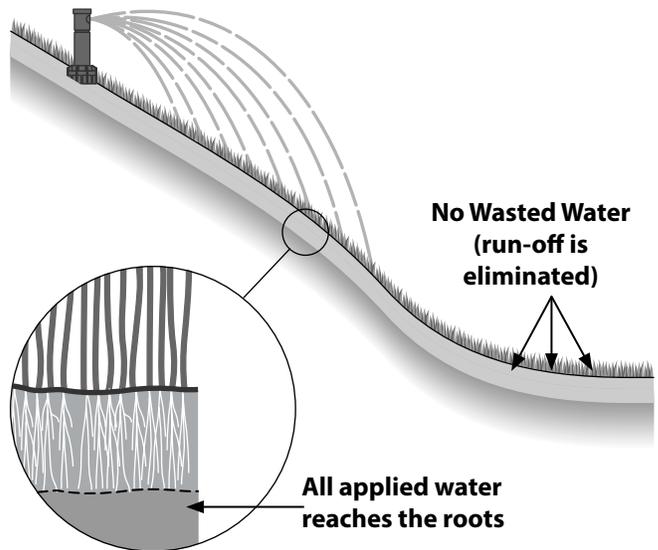
>> Go To Step 5, Cycle+Soak

Step 5. Cycle+Soak™

Cycle+Soak™ divides your irrigation Run Time into several *Cycles* in order to prevent run-off on steep slopes. The unit will then *Soak* for a minimum amount of time to allow water to reach the root zone.

For example, Cycle+Soak™ will break up a 30 minute Run Time into several cycles instead of watering continuously for the entire period. It may water for 10 minutes, let the water soak into the soil, run for 10 more, etc. This prevents waste due to run-off and all the water will reach the roots.
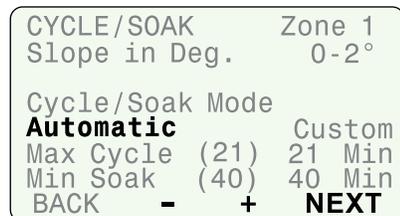
(1) Select the **Slope** degree (by pressing ━ or ➕) that best represents the zone topography; then press **NEXT**.

```
CYCLE/SOAK      Zone 1
Select Slope in Deg.
0-2°                3-4°
5-7°               8°-up
Cycle/Soak    Automatic
Max Cycle (21)      Min
Min Soak  (40)      Min
 BACK    -    +    NEXT
```

30 min Run Time (Divided into three 10 min cycles)

No Wasted Water (run-off is eliminated)

All applied water reaches the roots

Watering With Cycle+Soak™

(2) The **Automatic** mode is selected. To accept the automatically calculated cycle and soak values, press **NEXT**.

```
CYCLE/SOAK      Zone 1
Slope in Deg.    0-2°

Cycle/Soak Mode
Automatic       Custom
Max Cycle (21)  21 Min
Min Soak  (40)  40 Min
 BACK    -    +    NEXT
```

>> Go To Step 6, Select Plant Type.

③ To use Custom values, press ✚ to select **Custom**; then press **NEXT**.

```
CYCLE/SOAK      Zone 1
Slope in Deg.    0-2°

Cycle/Soak Mode
Automatic       Custom
Max Cycle (21)  21  Min
Min Soak  (40)  40  Min
 BACK     –    +   NEXT
```

④ Adjust the Maximum Cycle and Minimum Soak values; then press **NEXT**.

```
CYCLE/SOAK      Zone 1
Slope in Deg.    0-2°

Cycle/Soak Mode
                Custom
Max Cycle (21)  15  Min
Min Soak  (40)  30  Min
 BACK     –    +   NEXT
```

>> *Go To Step 6, Select Plant Type.*

Step 6. Select Plant Type

Different plant types have different water needs. Select the dominant plant type for the selected zone.

> **!** **NOTE**: To use Custom Plant Factors, refer to the Contractor's Manual on the Rain Bird website.

- Select the plant type for the zone.
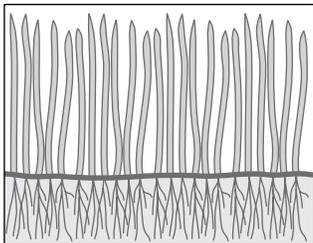
```
PLANT TYPE      Zone 1
Grass Lawn      Annuals
Ground Cover     Shrubs
Desert Plants     Trees
Mixed Planting
         - OR -
Custom Plant Factors
BACK      ↑    ↓  SELECT
```
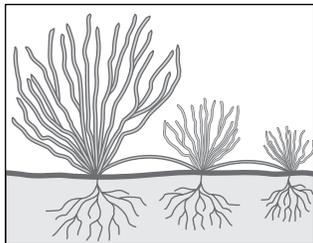
Grass Lawns options:

The figures below show the difference between Cool and Warm Season Varieties.

Cool Season Variety   Warm Season Variety

Most "Cool Season" grasses do not spread through runners, but rather from actual seed that germinates. Cool Season Varieties usually have individual blades that grow in a vertical orientation.

Most "Warm Season" grasses grow (spread) through runners that branch out horizontally from the established lawn or from planted stolons. In general, Warm Season grasses go dormant in the winter.

>> *If a Grass Lawn type is selected, skip Step 2.*

If a plant type other than Grass Lawn is selected:

① Select an estimated Plant Water Need.

```
PLANT WATER
NEEDS

Mixed Plants
        High
     Average
        Low
 BACK    ↑    ↓   SELECT
```

> **!** **NOTE**: Increasing the Water Need (Low to High) will increase irrigation frequency (water more often). Decreasing Water Need will decrease irrigation frequency (water less often).

② Enter Root Depth (or accept default value for selected plant type); then press **NEXT**.

```
ROOT DEPTH      Zone 1

 Set Root Depth to:

      6  in

 BACK    –    +    NEXT
```

> **!** **NOTE**: Increasing the root depth will decrease irrigation frequency (water less often) and increase watering run times. Decreasing the root depth will increase irrigation frequency (water more often) and decrease run times.

>> *If Grass Lawns was selected, Go to Step 8, Enter Shade Factor.*

>> *For all other Plant Types, Go to Step 7, Enter Plant Density.*

Step 7. Select Plant Density

Plant Density is the relative amount of foliage (leaf surface area and plant spacing) in the zone. This applies to all other Plant Types (Step 6) except **Grass Lawn**.

- Select the appropriate plant density for the zone.

```
PLANT DENSITY   Zone 1

Mixed Plants
        Dense
        Medium
        Sparse

 BACK    ↑    ↓   SELECT
```

> **!** **NOTE**: Increasing the Plant Density (Sparse to Dense) will increase irrigation frequency (water more often). Decreasing the Plant Density will decrease irrigation frequency (water less often).

Step 8. Select Shade Factor

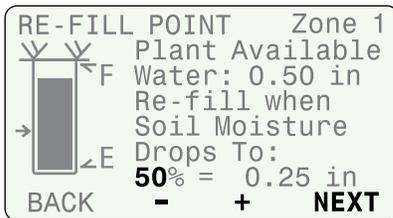Shade Factor is the approximate amount of time that plants are exposed to direct sunlight each day.

- Select the appropriate shade factor for the zone.

```
SHADE FACTOR

      Full Sun
      25% Shade
      50% Shade
      75% Shade
      Full Shade
 BACK     ↑      ↓    SELECT
```
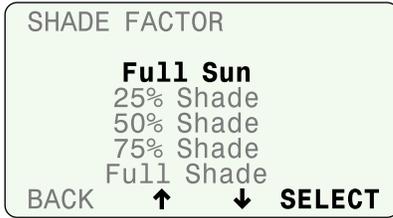
> **!** **NOTE**: Increasing the Shade Factor (less exposure to the sun) will decrease irrigation frequency (water less often). Decreasing the Shade Factor (more exposure to the sun) will increase irrigation frequency (water more often).

Step 9. Enter Refill Point

- Adjust the Refill Point if desired; then press **NEXT**.

```
RE-FILL POINT    Zone 1
  ∀ ∀    Plant Available
      F  Water: 0.50 in
         Re-fill when
         Soil Moisture
      E  Drops To:
        50% =  0.25 in
 BACK     -      +      NEXT
```

> **!** **NOTE**: The graphic on the left of the screen shows the amount of water in the soil. When this amount drops to the level indicated by the arrow (Refill Point) then irrigation is scheduled. Increasing the Refill Point will cause shorter, more frequent irrigation, and decreasing the Refill Point will cause longer, less frequent irrigation

Step 10. Select Plant Maturity

New plants have different watering needs than plants that are already established. New plants are watered every day during the daily Grow-in Period, then are considered Established when the Grow-in Period ends.

For Established Plants:
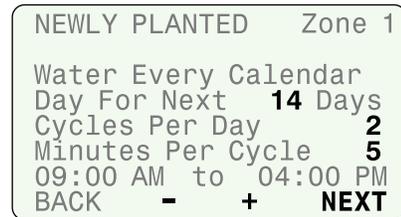
- Select **Established**.

```
PLANT MATURITY   Zone 1

      Established
        - OR -
      Newly Planted
      Grow-in Period

 BACK     ↑      ↓    SELECT
```
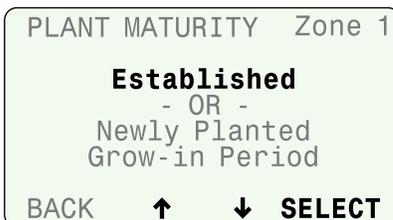
>> *Go to Step 11, Select Next Action.*

For Newly Planted Plants:

1 Select **Newly Planted (Grow-in Period)**.

```
PLANT MATURITY   Zone 1

      Established
        - OR -
      Newly Planted
      Grow-in Period

 BACK     ↑      ↓    SELECT
```

2 Set the number of days (1-199) for the desired Daily Period.

3 Set the desired number of Cycles per Day (1-8).

4 Set the desired Minutes per Cycle (1-30); then press **NEXT**.

```
NEWLY PLANTED    Zone 1

Water Every Calendar
Day For Next   14 Days
Cycles Per Day       2
Minutes Per Cycle    5
09:00 AM  to  04:00 PM
 BACK     -      +      NEXT
```

Step 11. Select Next Action

After programming, select the desired Next Action.

- **Program Next Zone** returns to the Select Zone screen (Step 1) to program another zone.

- **Review This Zone** displays all the zone information selected during programming.

- **Change This Zone Data** returns to the Select Zone screen (Step 1) to edit zone information.

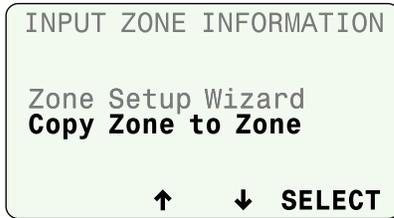- **Copy Zone To Zone** displays the Copy Zone Data screen.

```
NEXT ACTION      Zone 1

   Program Next Zone
   Review This Zone
  Change This Zone Data
   Copy Zone To Zone

 DONE     ↑      ↓    SELECT
```
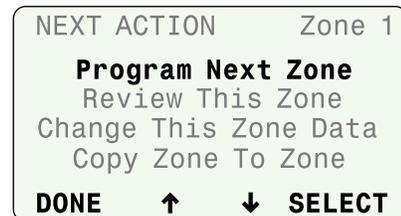
Copy Zone to Zone

Copy zone information from one zone to another zone.

⧗   Turn the dial to **Input Zone Information**.

① Select **Copy Zone to Zone**.

```
INPUT ZONE INFORMATION


Zone Setup Wizard
Copy Zone to Zone


              ↑      ↓   SELECT
```
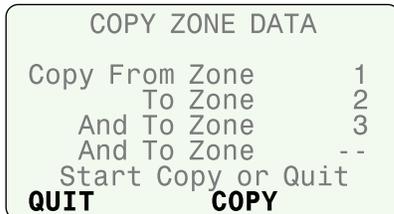
② Select the source Zone number (**Copy From Zone**).

③ Select up to three destination zones (**To Zone**); then press **NEXT**.

```
       COPY ZONE DATA

Copy From Zone          1
        To Zone         2
    And To Zone         3
    And To Zone        - -

BACK      −     +     NEXT
```
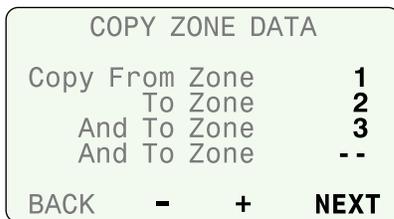
④ Select **COPY** if the selections are correct.

⑤ Select **QUIT** to re-enter selections.

```
       COPY ZONE DATA

Copy From Zone           1
        To Zone          2
    And To Zone          3
    And To Zone         - -
     Start Copy or Quit
QUIT           COPY
```

⚠ **NOTE**: If **QUIT** is selected, NOT COPIED will be displayed on the screen.

⑥ When the copy is complete, press **NEXT**.

Options

Reset Button

The Reset button resets the controller. Active watering is canceled, and all previously programmed configuration and zone information remains stored in memory. Irrigation will resume on the next Allowed Watering Day.

Insert a small tool into the access hole and press until the controller is reset.
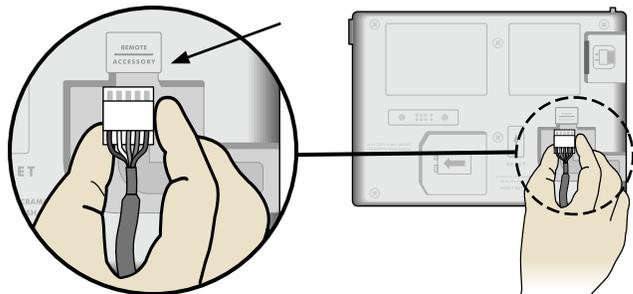
⚠ **NOTE:** We suggest using a non-metallic object such as a pencil or pen to press the Reset button.
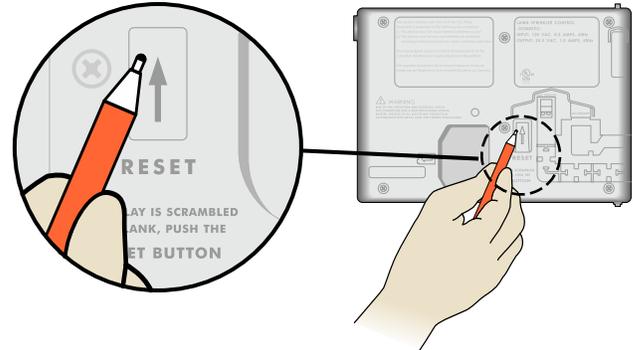
Remote Accessories

⚠ **NOTE:** Use only Rain Bird approved devices with 5 pin accessory port. Unapproved devices may damage controller and void warranty.

- The front panel provides a port for the use of external devices.

Troubleshooting   Watering or Electrical Issues

Symptom	Possible Cause	Correction
Automatic irrigation is not occurring.	Dial is set to OFF.	Set the dial to AUTO RUN.
	A NOTE or ALARM condition is active that prevents irrigation.	Turn dial to AUTO RUN and read the screen. If an ALARM is active the message will alternate with the AUTO RUN screen every few seconds. If no ALARMS are active then any NOTES will alternate every few seconds. There are also messages that appear on the AUTO RUN screen on the second line. Individual ALARMS, NOTES and messages are described below.
	NOTE – All Zones Are Off	Unit is new. This condition exists when the controller has been installed but has not been programmed. If you have hired someone to install the unit contact them and find out when they plan to program the controller. If you plan to program the controller yourself go the www.rainbird.com/esp-smte and download the Contractor's Manual.
	NOTE – All Zones Are Off Unit has previously been irrigating	This condition exists when the controller's program has been erased. Turn the dial to RESTORE SETTINGS, select "Contractor Defaults", and press RESTORE to restore the stored program. If this doesn't restore normal operation contact the installing contractor.
	NOTE – All watering days are off	This is handled the same as "All Zones Are Off" described above.
	NOTE – Irrigation Suspended Due To Rain	The controller generally will not irrigate if there has been rain in the last two hours. If you want the controller to continue irrigation press "CLEAR" to erase the rain from the memory. Alternately, you can select MANUAL WATERING and irrigate the desired zones.
	NOTE – Irrigation Suspended Due To Extreme Cold	For safety reasons, the controller will not irrigate when the temperature is near or below freezing. If irrigation is necessary MANUAL WATERING will override this safety feature.
	With the dial in the AUTO RUN position the screen reads "Irrigation Suspended For xx Days" or hours or minutes.	Set the Dial to AUTO RUN and press the RESUME button to clear the user activated Suspend feature.
	"No AC Power" appears on the second line of the AUTO RUN screen.	The controller cannot irrigate without AC power. The front panel will operate and can be programmed using the 9 V batteries, but this will not power sprinkler valves.
	Irrigation will not occur if irrigation is not permitted or required.	The following methods can be used to determine if irrigation is permitted or required.
	Irrigation is not required based on accumulated weather data.	Turn the dial to SYSTEM REVIEW and select "Next Irrigation Estimate". Review the zone calendars to see when irrigation is scheduled. On the calendar, today is shown in reverse video. Days that are blank indicate that watering is not required. Days with a number in them provides the estimated minutes of irrigation needed that day. If the landscape needs irrigation, manually water the affected zone(s).
	Today is not an "Allowed Watering Day".	The "Next Irrigation Estimate" calendars display an X for each day that watering is not allowed by the controller programming. The features that block watering are described below. If regulations permit, change the "Allowed Watering Days" by setting the dial to CONFIGURE CONTROLLER and change the Block Watering on Specific Day of Week.
	Event Day Off feature is activated.	The controller can be set to block up to 4 days in the future. This can be used to prevent irrigation for a party or other event for which wet lawn areas is undesirable. Turn the dial to SPECIAL FEATURES and select "Event Days Off" to view or change this schedule. Manual watering can be used to irrigate selected zones if desired.
	Block Day of Week feature is activated.	If the grounds are maintained on Wednesdays, that day may be set as a "Blocked Day of Week". Set the dial to CONFIGURE CONTROLLER and display the Block Watering on Specific Day of Week screen. Change the selection for Block Watering day if desired.
	Watering restrictions may be active.	The controller can be programmed to block specific days of the week, odd days of the month, even days of the month, or cyclic days (a specific number of days between each irrigations). The irrigation estimate calendars will display an X on each day that is blocked. The settings can be viewed by turning the dial to SYSTEM REVIEW and selecting the "Controller Settings" option. If local laws permit the settings can be adjusted by turning the dial to CONFIGURE CONTROLLER and stepping through the settings until the desired options are reached.
	Zone to Zone Delay is activated for an extended duration.	Set the dial to SPECIAL FEATURES. Select "Adv. Controller Setup" and change the Zone to Zone Delay feature to a shorter time value.
	An individual zone has been set in the OFF (inactive) mode.	Set the dial to INPUT ZONE INFORMATION. Select "Zone Setup Wizard" and change the Zone setting to ENABLED (active).
	AC Power has been lost and is not currently available. The screen is blank.	Reset the circuit breaker or make the necessary repairs to assure a consistent 120 VAC +/- 10% power supply.
Display is blank.	An electrical surge or lightning strike has disrupted or damaged the controller's electronics.	Push the RESET button located on the back of the controller front panel. Turn off the controller and disconnect the 9V battery if applicable. After 2-3 minutes restore AC power to the controller. If the electrical surge did no permanent damage, the controller will accept programming commands and function normally.

Troubleshooting   Watering or Electrical Issues

Symptom	Possible Cause	Correction
Temperature Reading does not match the actual temperature for an extended period of time.	Unit is absorbing reflective heat and/or from adjacent pavement.	Relocate the sensor to a more appropriate location.
Inaccurate rain fall measurement occurs on a regular basis.	Debris Screen is clogged and is not allowing rainfall to activate the tipping bucket.	Clean the debris off the Debris Screen. Remove the Tipping Rain Bucket from the sensor housing. Clean with mild soap and water. Verify that the tipping mechanism is functioning properly and reinsert the mechanism into the sensor housing.
	Sensor rain funnel is clogged.	Clear the funnel.
Individual valve does not come on.	Valve wiring problem.	Set the dial to SPECIAL FEATURES and run the Short Circuit Test to identify short conditions and repair accordingly.
Zone is too Wet.	Incorrect Zone Parameters are set such as the Sprinkler Precipitation Rate.	For ET and Drip zones set the dial to FINE TUNE WATERING and decrease watering by up to 60% in 1% increments. For Time-Based zones adjust the run time for the affected zone(s).
Zone is too Dry.	Incorrect Zone Parameters are set such as the Sprinkler Precipitation Rate.	For ET and Drip zones set the dial to FINE TUNE WATERING and increase watering by up to 60%. For Time-Based zones adjust the run time for the affected zone(s).
Run off is occurring on a regular basis.	Zone input information may not match actual site conditions.	Set the dial to INPUT ZONE INFORMATION and change the soil type and/or degree slope.
NOTE on Display Screen.	Unusually High Temperature Reading.	Verify that the temperature sensor is not being heated by an air conditioner or reflective surface. Relocate the sensor in a different location to more accurately measure the ambient temperature of the site.
NOTE on Display Screen.	Unusually High Rainfall Reading.	Verify that the Rain Gauge is not receiving runoff from the roof, trees, etc. Check the mounting bracket is secure and not swaying back and forth.
NOTE on Display Screen.	Watering Not Completed During Watering Window.	If this is an occasional occurrence, the controller will finish the required irrigation during the next allowed watering day. If it is a regular occurrence, expand the Watering Window using CONFIGURE CONTROLLER. Another solution is to reduce the soak time for the affected zones.
NOTE on Display Screen.	Irrigation Suspended Due to Extreme Cold.	If irrigation is desired at this temperature, set the dial to the SPECIAL FEATURES, select "Adv. Controller Setup" and change the user set value (Temp Below) to a lower threshold temperature value.
NOTE on Display Screen.	Irrigation Suspended Due to Rain.	If irrigation is desired at the current rainfall amount, set the dial to SPECIAL FEATURES, select "Adv. Controller Setup" and change the user set value (When Rain Reaches) to a higher rainfall threshold.
NOTE on Display Screen.	Unit is re-initializing, Please WAIT.	Unit has encountered a small problem. The controller will normally correct itself. However, it the NOTE doesn't go away after a couple minutes press the Reset button.

Troubleshooting Alarms and Notes

Symptom	Possible Cause	Correction
ALARM 1 on Display Screen.	Sensor Pod Communication Error	If there are no obvious wiring or connection problems, press the Reset button located on the back of the front panel. After the front panel is reset, communication with the Sensor Pod is usually established within 15 seconds.
		Check the status LED lights on the Sensor Pod by removing the wiring access cover with a screwdriver (underneath the Sensor Pod): Solid - Good Communication Blinking- No Communication (reset front panel) Off- No Power (check wiring)
ALARM 2 on Display Screen.	No Temperature Data Error	Press the Reset button located on the back of the front panel. If the alarm does not clear, see if there is a wiring or connection problem.
		If the alarm is unable to be cleared, the Sensor Pod may need to be replaced.
ALARM 3 on Display Screen.	Short Circuit Error	See if there is a wiring or connection problem.
		Fix any wiring problem between the controller and the identified zone or valve. **NOTE:** A shorted Master Valve will prevent any zone that is activated with the Master Valve from watering. Always repair a shorted Master Valve before fixing zone wiring.
		Sprinkler valves can also be shorted internally. Disconnect the valve from the wire to the controller and run the Short Circuit Test (turn the dial to **Special Features**) to see if the short is cleared.

Safety Information

CAUTION: This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capacity, or lack of experience and knowledge unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

WARNING: Special precautions must be taken when valve wires (also known as station or solenoid wires) are located adjacent to, or share a conduit with other wires, such as those used for landscape lighting, other "low voltage" systems or other "high voltage" power.

Separate and insulate all conductors carefully, taking care not to damage wire insulation during installation. An electrical "short" (contact) between the valve wires and another power source can damage the controller and create a fire hazard.

WARNING: All electrical connections and wiring runs must comply with local building codes. Some local codes require that only a licensed or certified electrician can install power. Only professional personnel should install the controller. Check your local building codes for guidance.

NOTE: Date and time are retained by a lithium battery which must be disposed of in accordance with local regulations.

CAUTION: Use only Rain Bird approved accessory devices. Unapproved devices may damage the controller and void warranty. For a list of compatible devices go to: www.rainbird.com

FCC Part 15

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 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 bin in compliance with FCC regulations, the user must use shielded cables and connectors and install them properly.

• This class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Cet appareil Numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada

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