# Table of Contents

**Introduction** .....1
Welcome to the World of WeatherTRAK®! .....1

**Chapter 1: Getting to Know Your *WeatherTRAK ET Plus*** .....5
Overview of the Controller .....6
Selecting and Adjusting the Settings .....9

**Chapter 2: Setting Up Your *WeatherTRAK ET Plus*** .....13
Setting the Irrigation Start Time .....14
Setting the Water Window .....14
Setting the High ET Start .....15
Setting the Clock .....16
Setting the Time Zone .....16
Setting Auto Daylight Savings .....17
Setting the Maximum Active Stations .....17
Viewing the Serial Number .....18
Viewing the Phase Integrity .....18
Setting the Lock Phase .....18
Displaying the Microzone .....19
Displaying the WT Version .....20
Setting the Water District Number .....21
Setting the Radio Antenna .....22

**Chapter 3: Programming Your *WeatherTRAK ET Plus*** .....25
Setting Schedules .....26
Introduction to Programming .....30
Programming Fully Automated .....31
User Program With ET .....42
User Program No ET .....49
Copying .....49
Reviewing .....55
Adjusting .....57

**Chapter 4: Using Special Features .....63**
Running .....64
Using Rain Pause .....65
Operating Manually .....67
Understanding Alerts.....71
Using ET.....73
Using Display Adjust .....74
Using Help .....75
Setting to Off .....77
Activating the Rain Service .....78
Setting the Zip Code.....78
Setting the ET Zone .....79
Displaying the Group Number.....79
Setting the Maximum Backup ET .....80

**Appendix A: Quick Reference Guide .....83**
Getting Started .....83
Schedules .....83
Programs .....84
Copy .....85
Review .....85
Adjust (Auto Mode Only) .....86
Manual .....86
Rain Pause .....87

**Appendix B: Troubleshooting Guide .....89**
Alert Troubleshooting .....89
The Controller Programs Correctly But There is No Station Output From the Controller .....90
My Landscape is Too Wet .....90
My Landscape is Too Dry .....90
Adjust is Not Working .....90
Controller Just Installed, Activated and Still Beeping .....91
What Do the Beeps Mean .....91
The Display is Blank.....91
The Display is Frozen.....92
ET Display Has a “P” After It.....92
Week 1 in the Review Screen is Much Different Than Weeks 2 Through 8 .....92
The Display in REVIEW Shows “99+” Minutes of Runtime .....93



**Appendix C: Site Gathering Data .....95**
Introduction .....95
The Processes.....96

**Appendix D: FCC Information.....103**

**Index .....105**

# Introduction

## Welcome to the World of WeatherTRAK®!

### What is WeatherTRAK?

The *WeatherTRAK ET plus* Controller is smart irrigation made simple.

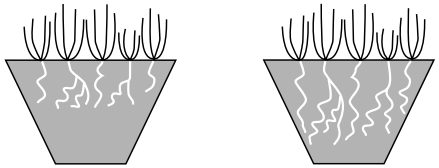
For years, a multitude of independent field studies by water districts and other municipal groups has proven that the *WeatherTRAK ET plus* saves time, money, and water.

### Why Should I Care About Accurate Irrigation?

Research has proven that over-watering is not only costly, but also threatens the life of your landscape.

Over-watering leads to poor plant health and disease. It also dramatically increases water bills, depletes precious water supplies and creates runoff pollution, endangering local watershed areas and beaches.

In many cases, landscapes become conditioned to inaccurate irrigation. Often times the plants have adjusted to inconsistent watering and have developed survival mechanisms such as shallow rooting.



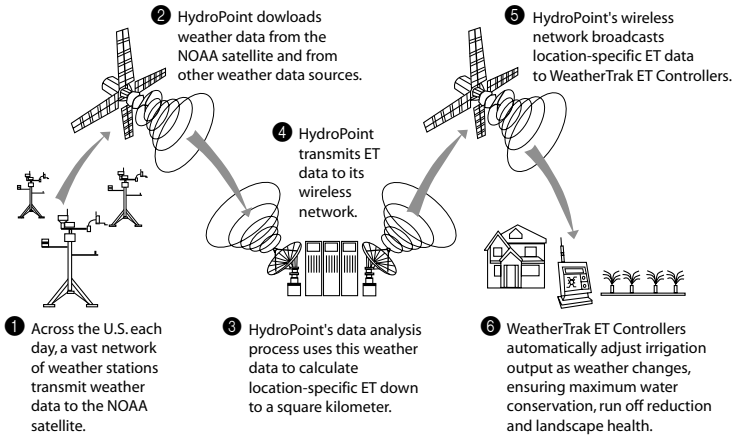
Shallow roots from frequent overwatering

Deeper roots from correct watering

Over time, the *WeatherTRAK ET plus* system reconditions your landscape to a natural balance, leading to healthier plants and a greater efficiency in the way they use and absorb water.

## How Does it Work?

First, the *WeatherTRAK ET plus* controller automatically calculates a program that matches your landscape's specific needs. Next, the ET Everywhere Service analyzes the weather conditions in your area, and automatically broadcasts customized irrigation adjustments directly to your controller, twenty-four hours a day, seven days a week. This revolutionary technology ensures the most accurate, cost-effective irrigation ever devised.




**The *WeatherTRAK ET Plus* System**

## What is the WeatherTRAK ET Solution?

The *WeatherTRAK ET plus* offers three key solutions to your irrigation needs:

1. *The WeatherTRAK ET Plus Scheduling Engine.* You simply enter basic information about your landscape into the *WeatherTRAK ET plus* and the controller automatically sets a scientifically based, customized schedule for you.

2. *The ET Everywhere Service.* HydroPoint obtains weather station data from a host of public and private partners including NOAA, cities, states, universities, water districts and other organizations that own and manage weather station networks or individual weather stations.

   HydroPoint collects, analyzes and validates weather data gathered from thousands of weather stations. We utilize these weather stations to provide input parameters for our local evapotranspiration (ET)* calculations.

   The ET Everywhere Service provides accurate ET down to *one square kilometer*, automatically adjusting the water flow with changes in your local weather conditions. The ET Everywhere Service is centrally managed at a HydroPoint Data Center.

3. *Customer Service.* HydroPoint offers the irrigation industry's most professional and personalized customer support. We're here to answer any questions you have: from understanding how to install the *WeatherTRAK ET plus* to questions about horticulture, water conservation, and proper plant maintenance.

* ET is a scientific formula that determines the amount of water lost from a plant and its soil due to transpiration and evaporation caused by weather conditions.

If you need help, just call us at: **(800) 362-8774** or look us up on the web at: **www.hydropoint.com.**

## How Do I Maintain My Landscape?

Although the *WeatherTRAK ET plus* eliminates most adjustments, it's only as good as your overall irrigation system.

You or your contractor still need to inspect your system at least once a month to ensure its operating at its peak efficiency.

Remember that your landscape will likely need to be tuned and reconditioned. It will take time and a phased-in approach to develop an optimal water schedule. But with the *WeatherTRAK ET plus*, you will begin to see dramatic results in water savings and plant health within a few short weeks or months.

1 **Chapter 1**

# Chapter 1: Getting to Know Your *WeatherTRAK ET Plus*

In this chapter you will learn about:

- Overview of the Controller, and
- Selecting and Adjusting the Settings.

**Important:**

Before using your controller

1. Make sure to inspect your existing irrigation system for any leaks or broken pipes. The efficiency of your new controller depends on the condition of your system. By having an efficient system, you will gain the most from using the *WeatherTRAK ET plus*.

2. Install your new controller. HydroPoint recommends that you have the controller installed and programmed by an irrigation professional.

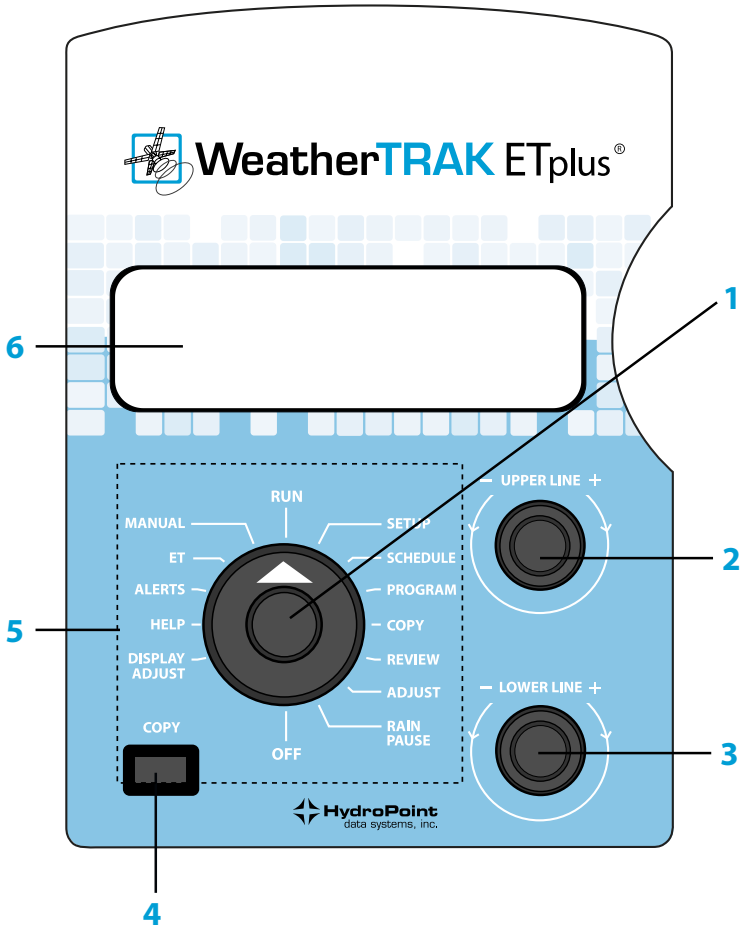
HydroPoint has provided a separate poster to show you step-by-step how to install the *WeatherTRAK ET plus.*

## Overview of the Controller

The main controls on the *WeatherTRAK ET plus* are:

- a Function Selector (1),
- an Upper Line Dial (2), and
- a Lower Line Dial (3).

You will also see a Copy button and an information display.




1. **Function Selector**
   Turn this dial left or right to select items to view. (For example, "Run," "Setup," "Program," etc.)

2. **Upper Line Dial**
   Turn this dial left or right to select items on a list that appear on the upper line of the display.

3. **Lower Line Dial**
   Turn this dial left or right to change the items on the list that you have selected. These will appear in the second line of the display.

4. **Copy**
   Use this button to copy information that has been set for one station to another station.

5. **Function Selector Positions**

   *Run*
   Set the controller to this position for day-to-day operation. You will see a display that shows:
   - the time and date,
   - which valves are on (manually or automatic),
   - whether the controller is in Rain Pause or if the rain sensor is active and,
   - how many days until watering resumes.

   *Setup*
   This position lets you adjust the time, date and time zone.

   *Schedule*
   Use this position to set the days your irrigation system can operate.

   *Program*
   This position lets you customize your landscape specific parameters by setting various "user modes." These user modes include items such as:
   - Auto,
   - User Program with ET,
   - User Program No ET, and
   - Off.

   *Copy*
   This feature allows you to:
   - copy one station's settings to another station,
   - copy one station's settings to all other stations, or
   - restore default values.

*Review*
This setting displays each station's:
- irrigation run time,
- number of cycles,
- soak times,
- adjustment factor expressed as a percentage, and
- operating days.

*Adjust*
When you set a station to Auto, this feature adjusts:
- the percentage (ET).

When in auto mode, you can adjust the station ET. They are adjustable in increments of 5% (in a range of -50% to +25%).

*Rain Pause*
This feature lets you shut down the controller for a specific number of days.

*Off*
This setting stops all irrigation. The controller will still receive daily (ET) updates and the schedule will be recalculated.

*Display Adjust*
This feature lets you adjust the contrast of the display for better viewing.

*Help*
Select "Help" to see the toll free phone number to call for information about your *WeatherTRAK ET plus* controller. The "Help" feature also displays important activation and troubleshooting information about your controller.

*Alerts*
This setting provides a list of alerts that you will receive about your controller. You will be alerted if you attempt to make a setting that could harm your plants, as well as alerts for electrical and communication malfunctions.



*ET*
This setting displays:
- the last ET value received (daily value) with the time and date it was received,
- the weekly ET value, which is an accumulation of the ET values sent over the last seven days, and
- an optional feature where you can set custom plant and turf types and associated water requirements.

*Manual*
This feature lets you manually operate one, multiple or all stations for a specific period of time, in increments of 1 minute, from 1 to 99 minutes.

6. **Information Display**
   This three-line display shows the status of your controller and the adjustments that you make to it.

## Selecting and Adjusting the Settings

You can select and adjust the controller's settings in three simple steps.

1. Turn the **Function Selector** dial to one of the following settings. Going clockwise they are:
   - Run
   - Setup
   - Schedule
   - Program
   - Copy
   - Review
   - Adjust
   - Rain Pause
   - Off
   - Display Adjust
   - Help
   - Alerts
   - ET
   - Manual

   You will see the display change as you turn the dial.

2. Turn the **Upper Line** dial to the left or right to scroll through items on the list.

   For example, if you choose “Setup” with the Function Selector, you can turn the Upper Line dial left or right to scroll through the entire list of setup features.

   **Important:** As you scroll through a list, many lists will “loop” through the last item to the first item. This allows you to not have to retrace your previous steps to go to items in the current list.

3. Turn the **Lower Line** dial to the left or right to change the items on the list that you have selected. For example, if you select “Set Clock” on the upper line with the Upper Line dial, you actually change the clock settings on the lower line with the Lower Line dial.

   These changes appear in the second (lower) line of the display.

4. The latest setting is automatically saved.

2 **Chapter 2**

# Chapter 2: Setting Up Your *WeatherTRAK ET Plus*

Now that you have installed your *WeatherTRAK ET plus* controller and you are familiar with the way to make changes to the settings, it's time to set up the controller.

This chapter explains:

- Setting the Irrigation Start Time,
- Setting the Water Window,
- Setting the High ET Start,
- Setting the Clock,
- Setting the Time Zone,
- Setting Auto Daylight Savings,
- Setting the Maximum Active Stations,
- Viewing the Serial Number,
- Viewing the Phase Integrity,
- Setting the Lock Phase,
- Displaying the Microzone,
- Displaying the WT Version,
- Setting the Stacking Option,
- Setting the Water District Number, and
- Setting the Radio Antenna.

After you are finished with the basic set-up, we will ask you to call HydroPoint to activate your *WeatherTRAK ET plus*.

To start, turn the **Function Selector** dial to **"Setup."**

## Setting the Irrigation Start Time

With the *WeatherTRAK ET plus*, once you set a start time, the rest of the irrigation calculations are done automatically.

To set the irrigation start time:

1. Turn the **Upper Line** dial until you see:

```
SET IRRIG START     (HOUR)
12:01am
```

2. Turn the **Lower Line** dial to set the **hour** (AM or PM) you would like irrigation to begin.

3. Turn the **Upper Line** dial to the right once more to select the start time minutes.

4. Use the **Lower Line** dial to change the start time minutes.

   **Note:** The default start time is 12:01am. You cannot set the time to 12:00.

## Setting the Water Window

The "water window" allows you to create a "window" of time that irrigation is allowed to operate. The calculated program may be shorter or longer than the window. If it is longer than the window, it will not complete. Any incomplete run times will be carried over to the next irrigation day. You will get an alert on the third line of the display indicating the water window alert.

To create a water window, the end time must be at least six hours from the start time to allow for effective watering.

To set the water window:

1. Turn the **Upper Line** dial until you see:

```
SET WATER WINDOW     (HOUR)
23:00 hrs     (End 11:01pm)
```



   The lower line of the display shows the default setting of 23:00 hours.

2. Turn the **Lower Line** dial to set the number of hours.

3. Turn the **Upper Line** dial to the right once more to select the number of minutes.

4. Turn the **Lower Line** dial to set the water window minutes (00 to :59).

   **Note:** The minimum window you can set is 6 hours.

## Setting the High ET Start

With the *WeatherTRAK ET plus*, you set a High ET Start Time for when you need to water more than once per day to adjust for extreme weather conditions.

During periods of high ET, the *WeatherTRAK ET plus* may water every day of the week using a single start time. If you need more water within a given day, (typically for turf), the *WeatherTRAK ET plus* will irrigate a second cycle long enough to replenish the required ET.

To do this:

1. Turn the **Upper Line** dial until you see:

```
SET HIGH ET START     (HOUR)
01:00pm
```

2. Turn the **Lower Line** dial to set the High ET start hour (1 to 9).

   The lower line of the display shows the default setting of 1 PM.

3. Turn the **Upper Line** dial to the right once more to select the High ET start minutes.

4. Use the **Lower Line** dial to change the High ET start minutes (00 to :59).

## Setting the Clock

To set the clock:

1. Turn the **Upper Line** dial until you see:

```
SET CLOCK  (YEAR)
Jun 03 2004
```

2. Turn the **Lower Line** dial to set the year.

3. Turn the **Upper Line** dial to the right once more to select the month.

4. Turn the **Lower Line** dial to change the month.

Continue using the **Upper** and **Lower Line** dials to set the day, hour, and minutes.

## Setting the Time Zone

The *WeatherTRAK ET plus* receives a regular time broadcast, which is based on Greenwich Mean Time (GMT).

The controller then automatically adjusts this time based on the local time zone and Daylight Savings Time (if used).

To set the time zone:

```
SET TIME ZONE
Pacific
```

Turn the **Lower Line** dial to select your time zone. The choices are:

- Atlantic,
- Eastern,
- Central,
- Mountain,
- Pacific (Default Setting),
- Alaska, and
- Hawaii.



## Setting Auto Daylight Savings

1. Turn the **Upper Line** dial until you see:

```
AUTO DAYLIGHT SAVINGS?
Yes
```

2. Turn the **Lower Line** dial to select **"Yes"** or **"No."**

When your controller receives the daily ET broadcast, it will automatically adjust the controller to your local time, with or without daylight savings.

## Setting the Maximum Active Stations

You should always set the maximum active stations to correspond to the actual number of valves that are wired to the controller.

- If you set this higher than the actual number of valves that you are using, you may add unnecessary time to the irrigation window. This may cause unnecessary water window alerts.

- If you set this lower than the actual number of valves that you are using, you will prevent some of the valves from operating at all.

- There is separate master valve terminal on the output board of the controller. You do not need to count the master valve as an active station.

To set the maximum active stations:

1. Turn the **Upper Line** dial until you see:

```
SET MAX ACTIVE STATIONS
12
```

2. Turn the **Lower Line** dial to select the number of valves connected to the controller. (The default number is 12.)

## Viewing the Serial Number

Under "Setup," to view the serial number of your controller, turn the **Upper Line** dial until you see:

```
SERIAL NUMBER
00649127
```

Please write down your serial number for future reference.

SN #::_____

## Viewing the Phase Integrity

To view the phase integrity, which indicates wireless reception strength, turn the **Upper Line** dial until you see:

```
PHASE INTEGRITY
A=68  B=81  C=73  D=74
```

You should leave the phase integrity screen on for several minutes to acquire all of the data that HydroPoint is transmitting.

## Setting the Lock Phase

To activate your controller, you will be asked to lock to a phase. Do not perform this setting until the HydroPoint Customer Service Representative asks you to do it.

To do this:

1. Turn the **Upper Line** dial until you see:

```
LOCK PHASE
None
```

2. Turn the **Lower Line** dial to select a lock phase. Your choices are:
   - A,
   - B,
   - C, or
   - None (Default Setting).

When you lock onto a phase other than "None," the controller will beep when receiving your activation message.

*** Note: This feature is used only at ET Everywhere Service activation. After activation all phases are 'live' and will be used to receive daily ET updates. Locking on a phase at activation allows for faster activation process. At midnight of the day of activation, the controller will "unlock."**

## Displaying the Microzone

The microzone provides the specific location of the controller and enables the *WeatherTRAK ET plus* to receive its daily local ET updates.

To view the microzone, turn the **Upper Line** dial until you see:

```
MICROZONE
12345678
```

This displays the current microzone. The value shown is the default value.

**Note:** This value is transmitted to each controller during ET Everywhere Service activation. You do not set this value.

## Displaying the WT Version

This information will be used for ET Everywhere Service activation only.

To view this, turn the **Upper Line** dial until you see:

```
WT VERSION
ver 00300a29
```

The number you see is the current *WeatherTRAK ET plus* version.

## Setting the Stacking Option

Stacking is an irrigation term for sequential versus simultaneous operation of two or more schedules.

Your controller has two schedules: A and B.

Stacking (Stacking = yes, the default setting) means that all stations on both schedule A and schedule B will run sequentially (one at a time) until all programmed stations have completed their cycle run time. Non-stacking (Stacking = no) means that the stations in program A can operate at the same time as the stations in program B (simultaneous operation). The hydraulics of your irrigation system determine whether or not non-stacking can be set.

1. Turn the **Upper Line** dial until you see:

```
STACKING
Yes
```

2. Turn the **Lower Line** dial to select:
   - Yes (default), or
   - No.



## Setting the Water District Number

HydroPoint provides a water district number if, and only if, you are a registered and willing participant in a water agency program. This may be set manually. This identification will allow your *WeatherTRAK ET plus* to be notified of specific water agency requirements.

To set the water district number:

1. Turn the **Upper Line** dial until you see:

```
SET WATER DIST.# Digit 1
12345
```

2. Turn the **Lower Line** dial to select a number from **"0"** to **"9."**

3. Continue to turn the **Upper Line** and **Lower Line** dials until you have selected the correct five-digit number.

*** Note: There are some menu displays that you will set later. The following settings are not mandatory and will be covered in Chapter 4.**

## Setting the Radio Antenna

There are two options for setting the radio antenna:

- Internal, (which is the default), and
- External.

Usually, you will use the internal antenna.

In some areas, the internal antenna may not function due to local topography or interference from metal items, such as mounting the controller inside a steel cabinet. You can install an external antenna to allow the controller to receive a better signal.

To set the antenna:

1. Turn the **Upper Line** dial until you see:

```
RADIO ANTENNA
Internal
```

2. Turn the **Lower Line** dial to select **"Internal"** or **"External."**

3. Turn the **Upper Line** dial until you see:

```
SETUP COMPLETE
```

You can purchase a kit that has the connection cable and antenna. Please call your local distributor or HydroPoint Sales for more information.

**You are ready to activate your *WeatherTRAK ET plus* Controller! Please call us now at: (800) 362-8774.**

*** Note: Activation should take 5 minutes to complete. Be sure to have your program settings worksheet and the serial number when you call.**

3 **Chapter 3**

# Chapter 3: Programming Your *WeatherTRAK ET Plus*

This chapter explains how to set schedules and program your *WeatherTRAK ET plus*.

You will learn about:

- Setting Schedules,
- Introduction to Programming,
- Programming Fully Automated,
- User Program With ET,
- User Program No ET,
- Copying,
- Reviewing, and
- Adjusting.

## Setting Schedules

Schedules are water days that you can assign on a station-by-station basis. You must set a schedule before you begin any programming.

There can be up to two different schedules:

- A, or
- B.

Once you create a schedule, you then apply it to a given station during programming. You can assign only one schedule for each station.

**Note:** Schedules do not determine or affect run times. Run times are determined when you program each station. These schedules are used for auto mode stations only. You will create schedules for the user modes in the program sections for those stations.

To set up a schedule:

1. Turn the **Function Selector** dial to **"Schedule."**

   You will see the following display:

```
SET SCHEDULE
SCH A
```

2. Turn the **Lower Line** dial to select one of the following:
   - A (default), or
   - B.

3. Turn the **Upper Line** dial until you see:

```
SET WATER DAYS SCH A
Automated by WeatherTRAK
```

4. Turn the **Lower Line** dial to choose one of the following:
   - Automated by WeatherTRAK (Default Setting),
   - Odd/Even,
   - Interval, or
   - Days of Week.



After you select a schedule, please see the following procedures for the schedule that applies to you.

**If you selected "Automated by WeatherTRAK,"** you will see the following display:

```
BEST NON-WATER DAY SCH A
None
```

This is the default setting. You can set a non-watering day if you wish. The controller will never allow any watering on the day you select. If you wish to allow the controller water on any day, select "NONE."

To select a non-watering day, turn the **Lower Line** dial to choose one of the following:

- Sun through Sat, or
- None (Default).

**Note:** This is a "hard" non-water day and the *WeatherTRAK ET plus* will never water on the day you selected. *WeatherTRAK ET plus* may also skip days if it determines that irrigation can wait until the next water day.

**If you selected "Odd/Even,"** you will see the following display:

```
WATER DAY ODD/EVEN SCH A
Odd
```

Turn the **Lower Line** dial to choose one of the following:

- Odd (default), or
- Even.

The *WeatherTRAK ET plus* will NOT water on the current day if it does not meet the schedule.

**Note:** If you select "Odd" watering day, the controller will allow watering on both day 31 of the current month and day 1 of the following month.

**If you selected "Interval,"** you will see the following display:

```
WATER DAY INTERVAL SCH A
01 Day    (water every day)
```

Turn the **Lower Line** dial to choose one of the following:

- 01 Day-31 Day.

**Note:** The *WeatherTRAK ET plus* treats the current day as Day "0" and will water on that Day. Day "01" will start at 12:01 AM on the day following the current day.

A "01" Day Interval will water every day, a "02" Day Interval will water every second day, and a "03" Day Interval will water every 3 days.

**If you selected "Days of Week,"** you will see the following display:

```
Jan S M T W T F S  SCH B
    Y Y Y Y Y Y Y
```

1. Turn the **Lower Line** dial to choose one of the following:
   - Y for Yes-OK to water on this Day (Default Setting)
   - - for Non-Water Day - Never water on this day.

   **Note:** The lower line of the display shows the default settings for January. For each month of the year, the user selects which days of the week to water. Note that there is a cursor beneath the "Y," (Yes) that is under the "S," for Sunday to indicate it can be changed.

   Some watering may occur on non-water days if watering cycles that start during "Y" days extend into "—" days AND there is no water window to stop this.



The *WeatherTRAK ET plus* will water on "Y" days as needed in response to the changing weather. During winter months, some of these days may be skipped, while in the summer, every "Y" day may be required to irrigate. If you do not set enough days to allow watering during times of high ET, the system will alert you of the problem. (Please see "Understanding Alerts" on page 71 for more information.)

2. Turn the **Upper Line** dial to the next position.

```
Jan S M T W T F S  SCH B
    Y Y Y Y Y Y Y
```

   The cursor will move to the **"Y"** under the **"M"** for **Monday**.

   For example:
   Continue to turn the **Upper Line** dial until the cursor appears under the **"T"** for **Thursday**.

3. Turn the **Lower Line** dial to the desired setting.

4. Turn the **Upper Line** dial past the **"S"** for **Saturday**. The upper line changes to these headings:
   - Feb S M T W T F S SCH B,
   - Mar S M T W T F S SCH B,
   - Apr S M T W T F S SCH B," etc. through December.

   Set the irrigation days of the week for each month of the entire year.

## Introduction to Programming

You need to program the *WeatherTRAK ET plus* in order to create an irrigation routine for each station at your site.

There are four Program Modes you can select. They are:

- Fully Automated,
- User Program With ET,
- User Program No ET, and
- Off.

All programs are based on their assigned schedule watering days you created in the A and B schedules. (Please see "Setting Schedules" on page 26 for more information.)

The **"Fully Automated"** Mode is the first (and recommended) method of programming.

To ensure that water is applied in the proper amounts at the proper time, the *WeatherTRAK ET plus* asks you to enter information about the specific conditions for each irrigation zone at your site.

Based on your input the controller will automatically calculate the correct irrigation program. Once activated, the controller will start receiving the daily ET Everywhere Service Broadcast and automatically adjust the program every day in response to current local weather conditions.

The controller will then water on the best days according to the schedule that you selected.

The other two methods of programming are **"User Program With ET"** and **"User Program No ET."** These require you to determine your own irrigation program of run times, the number of cycles, minimum soak times, and what days of the week to water, hence the name **"User Programmed."**

The **"User Program With ET"** mode will still receive the daily ET Everywhere Service updates and will adjust the program accordingly. You will initially set the controller's base schedule for the best program for that day's current ET and then the daily ETs will adjust run times accordingly.



The **"User Program No ET"** mode does not use the ET Everywhere Service and the program remains unchanged unless you change it. This mode always applies the same amount of water regardless of changing weather and changing landscape requirements.

## Programming Fully Automated

With this method, the design of the irrigation program is completely automated based on parameters that you select. (The irrigation program is automatically adjusted by the ET Everywhere Service Broadcast.) Once you have set the parameters, the *WeatherTRAK ET plus* will adjust the watering programs in response to changing weather conditions throughout the year.

The *WeatherTRAK ET plus* uses a 50% soil moisture depletion model to determine when and how much to water each plant type.

There are 14 steps to program each station on your controller using the fully automated feature.

They are:

1. **Set Station to Program**
   You program one station at a time.

2. **Set Program Mode**
   Fully Automated.

3. **Set Schedule**
   You assign a schedule, (A or B), from one that you have already created.

4. **Use Water Window**
   You tell the controller whether or not you want to use the water window defined during setup.

5. **Set Sprinkler Type**
   You select the kind of sprinkler equipment you will be using.

6. **Set Precipitation Rate**
This is the amount of water applied in inches per hour. After you select a sprinkler type, you set the precipitation rate.

**Note: The precipitation rate is vital to determine the proper run times for each station and to allow the system to operate properly and efficiently.**

- The default precipitation rate is matched to the chosen sprinkler type. The greater the precipitation rate, the shorter the run times and/or fewer cycles needed to apply the needed water.
- The lower the precipitation rate, the longer the run times and/or more cycles required to apply the needed water.
- Please see "Appendix C: Site Data Gathering" on page 95.

7. **Set Efficiency**
This is where you set the overall efficiency of the sprinklers.

- The default values are based on industry published values.
- The default efficiency rate is matched to the chosen sprinkler type.
- Higher efficiencies mean shorter run times and/or fewer cycles required to apply the needed water.
- Lower efficiencies mean longer run times and/or more cycles required to apply the water needed.
- Please see "Appendix C: Site Data Gathering" on page 95.

8. **Set Soil Type**
You enter the kind of soil that you have in that station/zone.

9. **Set Plant Type**
This is the type of plant material you are irrigating.

There are two types of parameters for each plant type:
- crop coefficient, and
- root depth.

By selecting a plant type, you select values for both.



The **crop coefficient** adjusts the gathered ET to the ET amount required by the specific plant material.

Some plants may need much less water than the relative daily ET to thrive, i.e., native plants, while other plants may require more. The crop coefficient allows the *WeatherTRAK ET plus* to customize each station to a particular type or group of plants to give you efficient water usage.

The root depth is necessary for proper irrigation because different watering patterns can affect how deep the applied water infiltrates the soil. Deep-rooted plants require a different irrigation pattern than shallow-rooted plants to supply water deeper into the soil.

The *WeatherTRAK ET plus* adjusts the watering pattern to account for the plant type selected.

10. **Set Root Depth**
This is the depth of your plant's roots. The default values are based on standard values for selected plant and soil types which you can adjust as required.

- Larger root depths allow for longer intervals (days) between watering.
- Smaller root depths create shorter intervals between watering.

11. **Set Microclimate**
This is the amount of direct sunlight your plants receive each day.

If the area is:

- Sunny all day, this will increase watering 10% of the ET.
- Sunny most of day, this will water exactly to ET.
- Shady most of the day, this will decrease watering by -15% of ET.
- Shady all of the day, this will decrease watering by -30% of ET.

12. **Set Slope Factor**
This refers to the relative flatness of your landscape.

- Slope factors are aimed at reducing runoff and maximizing water intake by the plants roots.
- Slope factors will impact the duration of each water cycle and the number of cycles required to apply water.
- The steeper the slope the greater the number of cycles and the lower the run time per cycle.

13. **Set Sprinkler Location**
This is when the sprinklers are on a slope.

- If the slope is "0", you will not be allowed to select a location because it's not applicable.

14. **Set Usable Rainfall**
This feature only works with the Rainfall Service.

All of these values are entered for each station. To speed up the entry process, you can copy information from one station to another and then edit as required.

## To Begin Fully Automated Programming:

### *Set Station to Program*

1. Turn the **Function Selector** dial to **"Program."**

You will see the following display:

```
SET STA TO PROGRAM
Program STA 01
```

2. Turn the **Lower Line** dial to the desired station. You have the following choices:
   - STA 1, 2, 3, etc. up to the Maximum Active Station number that you entered during **"Setup."**



### *Set Program Mode*

1. Turn the **Upper Line** dial until you see:

```
SET PROGRAM MODE STA 01
Fully Automated
```

2. Turn the **Lower Line** dial to select **"Fully Automated"** from the following choices:
   - Fully Automated (Default Setting)
   - User Programmed-With ET
   - User Programmed-NO ET
   - OFF

**Note:** Each of the program modes is shown sequentially.

### *Set Schedule*

1. Turn the **Upper Line** dial until you see:

```
SET SCHEDULE STA 01
A
```

2. Turn the **Lower Line** dial to select one of the following choices:
   - A, or
   - B.

### *Use Water Window*

1. Turn the **Upper Line** dial until you see:

```
USE WATER WINDOW  STA 01
Yes   (end time 11:01pm)
```

This tells the controller whether this station should use the water window you entered in "Setup". The controller calculates the end time.

2. Turn the **Lower Line** dial to choose:
   - Yes (end time number), or default
   - No.

### *Set Sprinkler Type*

1. Turn the **Upper Line** dial until you see:

```
WATER DAY INTERVAL SCH A
01 Day  (water everyday)
```

The lower line of the display shows the default setting.

2. Turn the **Lower Line** dial to choose one of the following sprinkler types:
   - Spray Head (Default Setting),
   - Full Circle Rotor,
   - Part Circle Rotor,
   - Mixed Rotors,
   - Full Circle Impact,
   - Part Circle Impact,
   - Mixed Impacts,
   - Stream Rotors,
   - Bubbler,
   - Drip Emitter, or
   - Stream Spray.

### *Set Precipitation Rate*

1. Turn the **Upper Line** dial until you see:

```
PRECIP Digit 2    STA 01
1.70 Inches/Hr (default)
```

**Note:** This setting should match the precipitation rate that you gathered using the Precipitation Rate Work Sheet.

2. Turn the **Lower Line** dial to choose one of the following precipitation rates:
   - 0 to 9.



3. Turn the **Upper Line** dial to the next position.

```
PRECIP Digit 2    STA 01
1.70 Inches/Hr (default)
```

Note that the cursor has moved to the "7," which can now be changed.

4. Turn the **Lower Line** dial to change the number.

Repeat these steps until you have set your desired precipitation rate.

### *Set Efficiency*

1. Turn the **Upper Line** dial until you see:

```
EFFIC'NCY Digit 1 STA 01
65 Percent (default)
```

Note that there is a cursor under the "6" to indicate this digit can be changed.

2. Turn the **Lower Line** dial to choose one of the following System Efficiency settings:
   - 1 to 9 (default depends on sprinkler type selected previously).

3. Turn the **Upper Line** dial to the next position.

```
EFFIC'NCY Digit 2 STA 01
65 Percent (default)
```

Note that the cursor has moved to the "5," which can now be changed.

4. Turn the **Lower Line** dial to choose the desired response.
   - 0 to 9 (default 5 to create 65).

   **Note:** The value "(default)" will appear if the sprinkler is using the sprinkler type's default value.

### *Set Soil Type*

1. Turn the **Upper Line** dial until you see:

```
SET SOIL TYPE STA 01
Sandy
```

2. Turn the **Lower Line** dial to choose one of the following soil types.
   - Sandy (Default Setting),
   - Sandy Loam,
   - Loam,
   - Clay Loam, or
   - Clay.

### *Set Plant Type*

1. Turn the **Upper Line** dial to the next position.

```
SET PLANT TYPE STA 01
Cool Season Grass
```

2. Turn the **Lower Line** dial to choose one of the following plant types:
   - Cool Season Grass (Default Setting),
   - Warm Season Grass,
   - Combined Grass,
   - Flowers,
   - Trees,
   - Shrubs - High Water Use,
   - Shrubs - Medium Water Use,
   - Shrubs - Low Water Use,
   - Mixed - High Water Use,
   - Mixed - Medium Water Use,
   - Mixed - Low Water Use,
   - Native Trees/Shrubs,
   - Native Grasses,
   - Custom Plant A,
   - Custom Plant B, or
   - Custom Turf.

### *Set Root Depth*

1. Turn the **Upper Line** dial until you see:

```
SET ROOT DEPTH STA 01
06 Inches   (default)
```

   **Note:** The lower line of the display shows the default setting based on the selected plant and soil type or the last value you selected. If you change the plant type, the root depth will revert to the default root depth based on the plant type.

2. Turn the **Lower Line** dial to choose one of the following custom root depths:
   - 02 to 36 (default setting as per plant type).

   **Note:** The minimum root depth is 02 inches. Also, the term "(default) will appear next to the root depth if it matches the plant's default root depth.

### *Set Microclimate*

1. Turn the **Upper Line** dial until you see:

```
SET MICROCLIMATE STA 01
Sunny All Day
```

   The lower line of the display shows the default setting.

2. Turn the **Lower Line** dial to choose one of the following micro-climates:
   - Sunny All Day (Default Setting),
   - Sunny Most of the Day,
   - Shady Most of the Day, or
   - Shady All Day.

### *Set Slope Factor*

1. Turn the **Upper Line** dial until you see:

```
SET SLOPE FACTOR STA 01
None/Slight 0-5% Grade
```

The lower line of the display shows the default setting.

2. Turn the **Lower Line** dial to choose one of the following slope factors:
   - None/Slight 0-5% Grade (Default Setting),
   - Gentle 6-8% Grade,
   - Mild 9-12% Grade,
   - Moderate 13-20% Grade, or
   - Steep > 20% Grade.

### *Set Sprinkler Location*

1. Turn the **Upper Line** dial until you see:

```
SPRINKLER LOCATION STA 01
All Parts of Slope
```

2. Turn the **Lower Line** dial to choose one of the following locations of sprinklers with relationship to the slope.
   - None, No Slope Set (Default Setting if no slope),
   - All Parts of Slope (Default Setting if slope > none),
   - Top of Slope,
   - Middle of Slope, or
   - Bottom of Slope.



### *Set Usable Rainfall*

1. Turn the **Upper Line** dial until you see:

```
USABLE RAINFALL STA 01
Inactive
```

The lower line of the display shows the default setting of "Inactive."

2. Turn the **Lower Line** dial to choose one of the desired percentage of estimated rain to be on this station.
   - Inactive to 100% in 25% increments (default setting: Inactive).

**Note:** By default this feature will be inactive. Rain Service is only available in select regions and must be activated by HydroPoint Customer Service. If not activated, no % can be set. This feature is not the same as Rain Pause. Please see "Using Rain Pause" on page 65 for more information.

### *To End Automatic Programming*

1. Turn the **Upper Line** dial until you see:

```
PROGRAM COMPLETE STA 01
```

*** Note: Programming may seem a little long at first. But the COPY feature makes it easy once you have programmed one station.**

To speed up the process of entering this information on other stations, you simply use the COPY feature to copy the data from one station to either select stations or to all stations. You can then edit to make changes to the stations as required. Please see "Copying" on page 49 for more information.

You can also directly program additional stations.

2. Turn the **Lower Line** dial to start the next station program schedule, or you can turn the Function Selector dial to other programming functions.

## User Program With ET

To program with ET, you must enter the entire irrigation schedule (cycle time, number of cycles per operating day, soak time) and also assign a Schedule (water days.) The program you create is then modified by the daily ET Everywhere Service Updates. Stations in this mode will run according to the same Start Times you set in "Setup."

Remember, if you choose the stacking option, it is a sequential operation. Non-stacking is a simultaneous operation.

The steps to program your controller with ET are:

1. **Set Station**
   This allows you to program one station at a time.

2. **Set Program Mode**
   User Programmed with ET.

3. **Set Cycle Time**
   This is how long to water for each cycle.

4. **Set Number of Cycles**
   This is how many times to repeat a cycle.

5. **Set Soak Time**
   This is the minimum time between cycles to let the soil absorb water.

6. **Set Water Days**
   This allows you to select the days to water.

You enter these values for each valve. To speed up the entry process, information can be copied from one station to another and then edited as required.



### To Begin Programming With ET:

*Set Station*

Turn the **Function Selector** dial to **"Program."**

*Set Program Mode*

1. Turn the **Upper Line** dial to **"Set Program Mode."**

2. Turn the **Lower Line** dial to **"User Programmed—With ET,"** as in the display below.

```
SET PROGRAM MODE STA 02
User Programmed--With ET
```

*Set Cycle Time*

1. Turn the **Upper Line** dial until you see:

```
SET CYCLE TIME STA 02
05.0 Minutes
```

First, you will set whole minutes. Then you will set tenths of minutes.

For this example, we will change the Cycle Time to 25.8 minutes.

2. Turn the **Lower Line** dial to the desired minutes (Turn to 25):
   - 00 to 99 (Default Setting: 05.0)

3. Turn the **Upper Line** dial until you see:

```
SET CYCLE 10ths STA 02
25.0 Minutes
```

You can now change the lower line of the display to show the desired tenths of minutes.

4. Turn the **Lower Line** dial to the desired tenths of minutes (Turn to 8):
   - 0 to 9.

   This is what the display looks like when the cycle time is set to 25.8 minutes.

```
SET CYCLE 10ths STA 02
25.8 Minutes
```

*Set Number of Cycles*

1. Turn the **Upper Line** dial until you see:

```
SET # OF CYCLES STA 02
01 Cycles/Operating Day
```

2. Turn the **Lower Line** dial to the desired number of cycles (00 turns station OFF):
   - 00 to 20 (Default Setting: 01).

*Set Soak Time*

1. Turn the **Upper Line** dial until you see:

```
SET SOAK TIME STA 02
30 Minutes
```

2. Turn the **Lower Line** dial to the desired soak time:
   - 0 to 480 in 10-Minute increments (Default Setting: 30).

   **Note:** Due to the nature of some soils, it is important that you apply water in short cycles to prevent irrigation water from running off the landscape area onto pavement, roadways, or other areas.



By inserting a minimum soak time between the irrigation cycles, the irrigation water is allowed to soak into the soil before the next cycle begins.

**Note:** Some soak times may be longer than the minimum soak time that you set because other stations may be completing their cycle run times before the station can return to watering.

*Set Water Days*

1. Turn the **Upper Line** dial until you see:

```
SET WATER DAYS STA 02
Let Me Set Water Days
```

2. Turn the **Lower Line** dial to the desired watering day type:
   - Let Me Set Water Days (Default Setting),
   - Water 7 Days Per Week, or
   - Set Water Day Intervals.

   "Let Me Set Water Days" allows you to set which days of the week the controller will irrigate. You can choose different days for each month of the year.
   - "Water 7 Days Per Week" irrigates every day, or

   - "Set Water Day Intervals" allows you to set a regular interval for irrigation. For example, if you set a water day interval of "2," the controller will irrigate every other day. If you set a water day interval of "7," the controller will water every seven days or once a week, etc.

   The choices for "SET WATER DAYS" are shown below.

*For "Let Me Set Water Days":*

1. Turn the **Upper Line** dial until you see:

```
Jan S M T W T F S STA 02
    Y - - Y - - -
```

   The lower line of the display shows the default settings for January.

For each month of the year, the user selects which days of the week to water.

**Note:** There is a cursor beneath the "Y" under the "S" for Sunday to indicate it can be changed. In this example, we will set Sunday and Thursday as Water Days.

2. Turn the **Lower Line** dial to **"Y"**:
   - Y for Yes, (Default Setting) or,
   - — for No.

3. Turn the **Upper Line** dial until you see:

```
Jan S M T W T F S STA 02
    Y Y - - - - -
```

The cursor will move to the "Y" under the "M" for Monday.

4. Turn the **Lower Line** dial to the desired setting. ( "-" for "No.")

Continue this sequence until you have set all of the irrigation days of the week for January.

For example, turn the **Upper Line** dial until the cursor appears under the "—" for Thursday. Turn the **Lower Line** dial to "Y". Turn the **Upper Line** dial once to move the cursor to the "Y" under "F" for Friday. Turn the **Lower Line** dial to "—" for No.)

5. Turn the **Upper Line** dial past the **"S"** for **Saturday**. The upper line changes to these headings:
   - "Feb S M T W T F S STA 02,"
   - "Mar S M T W T F S STA 02,"
   - "Apr S M T W T F S STA 02," etc. through December.

Set the irrigation days of the week for each month of the entire year.

6. Turn the **Upper Line** dial until you see:

```
PROGRAM COMPLETE STA 02
```



After the water days are set for the year, the entry process is finished.

The following worksheet can help you to determine the weekly schedule for each month of the year. Make a copy of the table shown below and mark an "Y" in those days that irrigation should occur.

| January | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|---|---|---|---|---|---|---|---|
| February | | | | | | | |
| March | | | | | | | |
| April | | | | | | | |
| May | | | | | | | |
| June | | | | | | | |
| July | | | | | | | |
| August | | | | | | | |
| September | | | | | | | |
| October | | | | | | | |
| November | | | | | | | |
| December | | | | | | | |

You can now program additional stations.

Turn the **Upper Line** dial to start the next station program schedule, or, turn the **Function Selector** dial to **"RUN"** or other programming functions.

**Note:** To speed up the process of entering this information on other stations, you can use the "COPY" feature to copy the data from one station to either select stations or to all stations. You can then edit to make changes to the stations as required. Please see "Copying" on page 49 for more information.

*For "Water 7 Days Per Week":*
Turn the **Upper Line** dial until you see:

```
SCHEDULE COMPLETE STA 02
```

There are no other choices. The entry process is finished. You can now program additional stations or use the COPY function to copy programs between stations.

*For "Set Water Day Intervals":*

1. Turn the **Upper Line** dial until you see:

```
WATER DAY INTRVL STA 02
01 Day (water everyday)
```

2. Turn the **Lower Line** dial to:
   - 01 to 31 (Default Setting: 01).

3. Turn the **Upper Line** dial until you see:

```
PROGRAM COMPLETE STA 02
```

After the irrigation interval is set, the entry process is finished. You can now program additional stations, or use the COPY function to copy programs between stations.



## User Program No ET

To program without ET, you must figure out the entire irrigation schedule (cycle time, number of cycles per operating day, soak time and days of operation) and enter it into the controller.

Unless you change it, the schedule remains the same.

This mode is different from the "User Programmed—With ET Mode" in that the irrigation schedule is not modified by the daily ET Everywhere Service updates. Stations in this mode will run according to the Start Times that you entered in "Setup."

Remember that stacking is a sequential operation and non-stacking is a simultaneous operation.

**Note:** The steps to program your controller without ET are the same as programming with ET.

Follow the same steps for programming with ET if you wish to program without ET.

## Copying

This feature lets you copy the information you entered for one station to another station, multiple stations, or all stations. The information can then be edited as required. This speeds up programming and minimizes your chances for error.

Occasionally, you may wish to erase all of the programming you entered in your *WeatherTRAK ET plus* controller and start over. You can easily do this with "Copy Program Defaults." Or, you may want to start over with the "Setup" defaults. You can do this by using "Copy Setup Defaults."

The steps to use the "Copy" feature include:

1. **Copy From the Station Number**
   Set the source station with the **Upper Line** dial.

2. **To Station Number (Press COPY)**
   Set the destination station(s) with the **Lower Line** dial, then press the **"Copy"** button.

3. **Copy Program Default**
   This erases all station programming and restores factory-set defaults to individual stations or all stations.

4. **Copy Schedule Defaults**
   This erases all schedules and restores factory-set defaults to all schedules.

5. **Copy Setup Defaults**
   This erases all user selections and restores the factory-set defaults for the "Setup" feature.

### *Copy From the Station Number*

1. Turn the **Function Selector** dial to **"COPY."**

   The display will look like this:

```
COPY FROM STA 01
To STA 02 (Press COPY)
```

2. Turn the **Upper Line** dial to select the desired source station:
   - Station 1, 2, 3, ... to last available station on controller.

### *To Station Number (Press Copy)*

1. Turn the **Lower Line** dial to the desired destination. These include:
   - Station 1, 2, 3, ... to last available station on controller, and
   - All Stations.

2. Press the **"COPY"** button.

   For this example, we will copy the program information from Station 3 to Station 4. (Turn the Upper Line dial to "COPY FROM STA 03.")

```
COPY FROM STA 03
To STA 02 (Press COPY)
```



Now change the Destination Station (Turn the **Lower Line** dial "To STA 04.")

```
COPY FROM STA 03
To STA 04 (Press COPY)
```

Now press the **"COPY"** button.

The display will change briefly to this:

```
COPYING                    DONE!
```

Then the display will change back to this:

```
COPY FROM STA 03
To STA 04 (Press COPY)
```

Another example of the COPY function is:

```
COPY FROM STA 01
To ALL STA's (Press COPY)
```

This will copy program data from Station 1 to all stations of the controller.

**Note:** If you want to make minor changes to the copied data, simply turn the Function Selector dial to "PROGRAM," set the Station number, and edit as needed.

### *Copy Program Defaults*

You can copy program defaults to individual stations or to all stations.

1. Turn the **Function Selector** dial to **"COPY."**

```
COPY FROM STA 01
To STA 02 (Press COPY)
```

2. Turn the **Upper Line** dial past all of the "COPY FROM STA 01, 02, 03..." displays through to the last Station on your controller. The next display is:

```
COPY PROGRAM DEFAULTS
To STA 02 (Press COPY)
```

3. Turn the **Lower Line** dial to the desired setting. These include:
   - Station 1, 2, 3, ... to last available station on controller , and
   - All Stations (Default Setting).

4. Press the **"COPY"** button. The display will change briefly to this:

```
COPYING                    DONE!
```

Then the display will change back to this:

```
COPY PROGRAM DEFAULTS
To STA 02 (Press COPY)
```



### *Copy Schedule Defaults*

1. Turn the **Function Selector** dial to **"COPY."**

```
COPY FROM STA 01
To STA 02 (Press COPY)
```

You will see the following display:

2. Turn the **Upper Line** dial past all of the "COPY FROM STA 01, 02, 03..." displays through to the last Station on your controller, and past "COPY PROGRAM DEFAULTS." The next display is:

```
COPY SCHEDULE DEFAULTS
          (Press COPY)
```

The lower line of the display shows the only setting for this feature.

3. Press the **"COPY"** button to complete the process. This will copy the schedule defaults to both schedules. The display will change briefly to this:

```
COPYING                    DONE!
```

Then the display will change to this:

```
COPY SCHEDULE DEFAULTS
          (Press COPY)
```

The SCHEDULE defaults are now restored.

*Copy Setup Defaults*

1. Turn the **Function Selector** dial to **"COPY."**
   You will see the following display:

```
COPY FROM STA 01
To STA 02 (Press COPY)
```

2. Turn the **Upper Line** dial past all of the "COPY FROM STA 01, 02, 03..." displays through to the last Station on your controller, and past "COPY PROGRAM DEFAULTS" and past "COPY SCHEDULE DEFAULTS." The next display is:

```
COPY SETUP DEFAULTS
        (Press COPY)
```

   The lower line of the display shows the only setting for this feature.

3. Press the **"COPY"** button to complete the process. The display will change briefly to this:

```
COPYING                 DONE!
```

   Then the display will change to this:

```
COPY SETUP DEFAULTS
        (Press COPY)
```

   The Setup defaults are now restored.



## Reviewing

The Review feature lets you look at each station's entire irrigation schedule with a turn of the dial.

The following are examples of Review displays for each Program mode.

1. Turn the **Function Selector** dial to **"REVIEW."**

   If using the Fully Automated Mode the display will look like this:

```
STA 01 04.6 MIN 03X  AUTO
Wk1:-M-W-FS +10%   Soak30
```

2. Turn the **Lower Level** dial to see up to week 8.

   Reading from left to right, the upper line of the display shows:
   - STA 01 — Station Number
   - 04.6 MIN — Length of cycle in Minutes
   - 03X — Number of cycles
   - AUTO — Program Mode

   - Station 1 will irrigate for 4.6 minutes per cycle, run for 3 cycles, and is in the Fully Automated Mode.

   Reading from left to right, the Lower Line of the display shows:
   - Wk1:-M-W-FS — Watering days for Week 1 (current week)
   - +10% — ADJUST setting
   - H — High ET Start will operate
   - Soak 30 — Soak time

   In summary, the review shows:
   - The watering days are Monday, Wednesday, Friday and Saturday,
   - There is one Irrigation Start time,
   - there is an "Increase ADJUST setting of 10% (see following section on ADJUST) ,
   - there is a "High ET Start Time" in effect, and
   - there is a 30 minute Soak period between cycles.

**Note:** If the "Hi ET Start Time" is used for a given day, then Hi ET will replace the 10% field and the percent adjust will not be shown.

3. Turn the **Upper Line** dial to "**REVIEW** the next Station(s)."

If you are using "User Programmed—With ET," the display will look like this:

```
STA 02 15.2 MIN 06X U-NO
Wk1:-M-W-S         Soak 0
```

**Note:** The Lower Line dial is not used with User Program modes.

Reading from left to right, the upper line of the display shows:
- STA 02 — Station Number
- 15.2 MIN — Length of cycle
- 02X — Number of cycles
- U-ET — Program Mode

Reading from left to right, the lower line of the display shows:
- Wk1: -M-W—S — Watering days for Week 1 (current week)
- Soak 0 — Soak time

4. Turn the **Upper Line** dial to "**REVIEW** the next Station(s)."

If you are using "User Programmed—No ET, " the display will look like this:

```
STA 03 12.0 MIN 06X U-NO
Int 05 To Go       Soak10
```

Reading from left to right, the upper line of the display shows:
- STA 03 — Station Number
- 12.0 MIN — Length of cycle
- 06X — Number of cycles
- U-NO — Program Mode



Reading from left to right, the lower line of the display shows:
- Int 05 — Watering day Interval
- To Go 02 — Number of Days to next Water Day
- Soak 10 — Soak time

5. Turn the **Upper Line** dial to "**REVIEW** the next Station(s)."

If you hold down the **"COPY"** button, the display will look like this:

```
STA 03 12.0 MIN 06X U-NO
Int 05 To Go       Soak10
```

Reading from left to right, the upper line of the display shows:
- STA 03 — Station Number
- 12.0 MIN — Length of cycle
- 06X — Number of cycles
- U-NO — Program Mode

**Note:** The examples shown are just part of a larger set of displays that can occur as the schedules and programming change.

## Adjusting

The ADJUST feature is for tweaking any stations running in the "Fully Automated" mode. The ADJUST feature can increase or decrease a station's run time from the automatically calculated run time.

***Note: Use ADJUST on any Stations that are continually wetter or drier than desired.**

The ADJUST function should not be confused with or compared to the Water Budget feature seen in other controllers.

In the "Fully Automated" mode and the "User Programmed—With ET" mode, the HydroPoint ET Everywhere Service Broadcast automatically modifies the irrigation schedule to respond to current water requirements based on actual weather.

**Note:** If you want to change an irrigation run time in the "User Programmed—With ET" mode or the "User Programmed—-NO ET" mode, it is necessary to make the changes back in the PROGRAM mode. The ADJUST feature does not operate in these two modes.

The steps to use the ADJUST feature include:

1. **Adjust**
   You can select individual controller stations with the Upper Line dial.

2. **Increase/Decrease Irrigation Percentage**
   You can adjust irrigation by applying a percentage with the Lower Line dial.

To use Adjust:

1. Turn the **Function Selector** dial to **"ADJUST."**

   The display will look like this:

```
ADJUST            STA 01
No Change             0%
```

   The upper line and lower line of the display show the default settings.

2. Turn the **Upper Line** dial to select the station.

3. Turn the **Lower Line** dial to change the percentage.

   For this example, we will set Station 3 and decrease irrigation -5%.

1. Turn the **Upper Line** dial to **"STA 03."** You can also set:
   - Station 1, 2, 3, ... to the last available station on the controller.

2. Turn the **Lower Line** dial to **"Decrease Irrigation -5%."** You can also set the following:
   - Decrease Irrigation -50%,
   - Decrease Irrigation -45%,
   - Decrease Irrigation -40%,
   - Decrease Irrigation -35%,
   - Decrease Irrigation -30%,
   - Decrease Irrigation -25%,
   - Decrease Irrigation -20%,
   - Decrease Irrigation -15%,
   - Decrease Irrigation -10%,
   - Decrease Irrigation - 5%,
   - no change, 0% (Default Setting),
   - Increase Irrigation + 5%,
   - Increase Irrigation +10%,
   - Increase Irrigation +15%,
   - Increase Irrigation +20%, or
   - Increase Irrigation +25%.

"No Change" will not alter the schedule. This is what the display looks like when Station 3 is set to Decrease Irrigation -5%:

```
ADJUST            STA 03
Decrease Irrigation -5%
```

Any stations that are in the "User Programmed" mode will look like this:

```
ADJUST            STA 01
Non-Adjustable Mode   0%
```

Repeat this pattern of selecting a station to ADJUST and the desired percentage until complete. After a station and the percentage change is set, the controller will calculate a new irrigation schedule for that station.

To see a station that has an ADJUST value, turn the **Function Selector** dial to **"REVIEW."** The display will look like this:

```
STA 01 09.1 MIN 02X AUTO
Wk1:-MTW-FS-10% Soak 15
```

Reading from left to right, the upper line shows:

- STA 01 — Station Number
- 09.1 MIN — Length of cycle
- 02X — Number of cycles
- AUTO — Program Mode

Reading from left to right, the lower line shows:

- Wk1: -MTW-FS — Watering days for Week 1 (current week)
- -10% — ADJUST setting
- Soak 15 — Soak time

**Note:** If increasing the irrigation by the ADJUST method exceeds the maximum calculated cycle time, a cycle will need to be added and the adjusted cycle time will be reduced. (The maximum cycle time applies to an amount of water up to the runoff point due to soil saturation.)

For example, if the automatically calculated irrigation schedule requires 4 minutes per cycle, 4 times per day for a total of 16 minutes, and the user ADJUSTS irrigation to increase 20%, the new cycle time will be 4.8 minutes (4 x 1.20). The total adjusted run time will be 19.2 minutes (4.8 x 4). If the maximum allowable cycle time to runoff is 4 minutes, the adjusted irrigation schedule will increase the number of cycles to 5 and reduce the cycle run time to 3.7 minutes (i.e. 3.7 * 5=19.2).

4 **Chapter 4**

# Chapter 4: Using Special Features

In this chapter you will learn about many of the special features of the *WeatherTRAK ET plus*.

These include:

- Running,
- Using Rain Pause,
- Operating Manually,
- Understanding Alerts,
- Using ET,
- Using Display Adjust,
- Using Help,
- Setting to Off,
- Activating the Rain Service,
- Setting the Zip Code,
- Setting the ET Zone,
- Displaying the Group Number, and
- Setting the Maximum Backup ET.

## Running

After you have completely programmed your *WeatherTRAK ET plus*, you can turn the Function Selector dial to "RUN." The controller will now operate normally. Leaving the controller Function Selector in any setting except "Off" will allow automatic operation.

Here are some examples of what the display may look like when on "RUN":

```
Jan 31 2001  11:15:06am
STA ON A:--B:--M:--
```

Reading from left to right, the upper line shows:

- Jan 31 2001 — Date
- 11:15:06am — Time
- The current date and time are shown.

Reading from left to right, the lower line shows:

- STA ON — Identifies Stations On
- A:— — No stations watering for Schedule A
- B:— — No stations watering for Schedule B
- M:— — No stations watering that were set by MANUAL

**Note:** There is no indication on the screen that the master valve is on. When the master valve is in use, it will be on when any other valves are on in either A, B, or M.

```
Sep 21 2004 09:11:22pm
STA ON A:01 B:02 M:03
```

Reading from left to right, the upper line shows:

- Sep 21 2004 — Date
- 09:11:22pm — Time

Reading from left to right, the lower line shows:

- STA ON — Identifies Stations On
- A: 01 — Station 1 is watering as part of schedule A
- B: 02 — Station 2 is watering as part of schedule B
- M: 03 — Station 3 is watering as set by user in MANUAL

**Note: *WeatherTRAK ET plus* can run up to 3 values at the same time.**

## Using Rain Pause

Rain Pause is a feature that allows you to turn off all stations of the controller for a specific number of days.

Rain Pause is different from "Off." With Rain Pause, after a period of days has gone by, the controller will return to its normal operation. "Off" stops all irrigation indefinitely until you return it to "Run" or some other feature.

You can put the controller into "Rain Pause," or HydroPoint may send a Rain Pause message.

The longest Rain Pause, whether entered by you or by HydroPoint, will take effect. For example, if you entered a Rain Pause of 10 days and then receive a Rain Pause message of four days from HydroPoint, the controller will remain in Rain Pause for 10 days.

If HydroPoint sends a cancel Rain Pause, any Rain Pause that you entered will remain in effect. The counter, "XX Days to Resume" updates every day at midnight.

You can install a Rain Switch on the *WeatherTRAK ET plus*. If used, the Rain Switch will activate once the controller detects a pre-set amount of rain. Ten minutes after the switch is activated, any irrigation in progress will stop, and no programs will run until the switch deactivates. One hour after deactivation, the controller will allow irrigation.

**Note:** Your *WeatherTRAK ET plus* controller has an override switch to disable the Rain Switch when you want to operate the controller during a wet-rain sensor period.

The steps to use the Rain Pause feature are:

1. **Rain Pause**
   This turns off all stations of the controller.

2. **Days to Resume**
   This sets the number of days to Pause.

*Rain Pause*
Turn the **Function Selector** dial to **"Rain Pause."**

The display will look like this:

```
RAIN PAUSE ALL STATIONS
00 Days to Resume
```

*Days to Resume*
1. Turn the Lower Level dial to:
   - 00 to 14 Days (Default Setting: 00).

No irrigation will occur until Rain Pause has counted down to zero; irrigation will then resume for all stations on the next scheduled Water Day.

Rain Pause has no effect on Manual operations. (As each day elapses, this display will update to show the number of days remaining until it will resume normal irrigation.)

2. Turn the **Function Selector** dial to **"RUN."** The display will look like this:

```
Mar 26 2004   08:45:23pm
STA ON Rain Pause MAN--
```

   The upper line shows the current date and time.

   The lower line shows that all programmed stations of the controller are in Rain Pause and that there are no stations on in the "Manual" mode.



**Note:** If your controller is in Rain Pause and you need to either increase or decrease the number of days before it resumes normal irrigation, turn the Function Selector dial to "Rain Pause" and change the number of days with the Lower Line dial.

If the rain switch is tripped, no stations will run.

If you have installed and activated a rain switch, the display will look like this:

```
Mar 26 2004   08:45:23pm
STA ON Rain Switch MAN--
```

The upper line shows the current date and time.

The lower line shows that all programmed stations of the controller are affected by the Rain Sensor and that there are no stations on in the "Manual" mode.

## Operating Manually

Manual operation allows you to immediately start irrigation of all stations or single station(s). Manual operation is for a specified number of minutes and will start immediately, whether or not the current day is an allowed irrigation day. Only one station can be on at a time when watering in "Manual."

The steps to manually operating your controller are:

1. **Manual Water Specific Stations**
   This involves manually watering individual stations.

2. **Minutes**
   These are the minutes that manual operation will run.

3. **Manual Water All Stations**
   This involves manually watering all stations with the same run time.

   **Note:** Manual operation is useful to test your system to ensure that all the sprinklers are working properly and are correctly identified.

### *Manual Water Specific Stations*

1. Turn the **Function Selector** dial to **"MANUAL."**

   The display will look like this:

```
MANUAL WATER
Specific Stations
```

2. Leave the setting at the default of "Specific Stations." The choices are:
   - Specific Stations (Default Setting), or
   - All Stations.

   The process to manually water specific stations is to first set the station with the Upper Line dial, and then set the amount of time with Lower Line dial.

3. Turn the **Upper Line** dial to the next position.

```
MANUAL WATER SET STA 01
00.0 Minutes
```

   You can set each station for a different time. In this example, we will set Station 4 to water for 10 minutes.

4. Turn the **Upper Line** dial to **"STA 04"**. The other settings include:
   - STA 01 thru 12 (Default Setting: STA 01)

### *Minutes*

The lower line shows the default setting. Only whole minutes are set.

5. Turn the **Lower Line** dial to **"10.0."** The other settings include:
   - 00 to 99 (Default Setting: 00.0).



This is what the display looks like when Station 4 is set for 10.0 minutes.

```
MANUAL WATER SET STA 04
10.0 Minutes
```

Repeat this pattern of selecting a station to manually water for the desired amount of time until complete.

MANUAL irrigation starts immediately on the first station that had a time entered.

```
MANUAL WATER SET STA 04
09.9 Minutes     NOW ON
```

There are 9.9 minutes remaining on station 4. When irrigation has finished on this station, the screen will change to this:

```
MANUAL WATER SET STA 04
00.0 Minutes
```

**Note:** In manual operation, the controller will run the stations in their numerical order, which may not be the order in which they were entered.

### *Manual Water All Stations*

1. Turn the **Function Selector** dial to **"MANUAL."**

   The display will look like this:

```
MANUAL WATER
Specific Stations
```

2. The choices using the **Lower Line** dial are:
   - Specific Stations (Default Setting), and
   - All Stations.

3. Turn the **Upper Line** dial.

   The display will look like this:

```
MANUAL WATER ALL STATION
00.00 Minutes
```

   The lower line of the display shows the default setting. Only whole minutes are set.

4. Turn the **Lower Line** dial to the desired minutes for manual operation. These include:
   - 00 to 99 (Default Setting: 00.0).

   Manual irrigation starts immediately on Station 1. The display will change to show the status of irrigation as in the example below (time set for two minutes).

```
MANUAL WATER ALL STATION
01.9 Minutes STA 01 ON
```

   There are 1.9 minutes remaining on Station 1. After Station 1 has completed watering, Station 2 will go on for two minutes, then Station 3, etc. to the last Station on the controller. When all irrigation is finished, the screen will change to this:

```
MANUAL WATER ALL STATION
00.0 Minutes
```

   **Note:** If the Function Selector dial is turned to the "OFF" position, after one (1) second, the Manual mode stops. (This prevents momentary interruption of any irrigation when rotating the Function Selector dial through the "OFF" position.)



To cancel a "MANUAL WATER All Stations" entry, simply turn the Lower Line dial to "0.0 Minutes." The manual valve currently on will stop irrigation, and no other manual valves will irrigate.

**Note:** Manual watering will occur immediately regardless of what other stations are on and will run concurrently with all other programmed stations.

## Understanding Alerts

The "Alerts" feature provides status alerts for key functions of the *WeatherTRAK ET plus*.

ALERTS covers issues related to ET Service Communication, Electrical Status, Water Window Violations and Required Water Day Warnings.

If any 1 or more status sections are in Alert Mode, then the 3rd line of the display (on all screens, not just in "Alerts") will read:

**"Status: Warning See Alert."**
This will display until you fix the problem associated with each alert.

*To fix Day alerts:* reset the available water days or day interval in the month displayed in the alert.

*To fix Electrical Short alerts:* repair the electrical system or component that has caused the short. The alert will then go away on the next irrigation run.

*To fix Water Window alerts:* expand the water window, reduce the run times with the ADJUST feature, or allow more days to irrigate.

*To fix Communication Alerts:* call Hydropoint Customer Service at 800-362-8774.

To see alerts:
Turn the **Function Selector** dial to **"Alerts."**

### Water Window Status Alert

```
MANUAL WINDOW STATUS
TIME: 300 MIN (+60)
STATUS: WARNING SEE ALERT
```

This alert shows the total amount of used window (run time plus idle soak time) and shows the amount that this exceeds the Set window. If the Run Time is under the window allotment, then there is not a warning, but this screen still shows the time and amount it is under.

In this example, the allowed water window is 300 minutes. The +60 indicates that the calculated schedule is 60 minutes more than the window is scheduled to complete.

### Water Day Status Alert (A)

```
DAY STATUS SCHEDULE A
Jul: 1 DAY INTERVAL REQ.
STATUS: WARNING SEE ALERT
```

This alert shows for Schedule A if the user defined Scheduled days are fewer than the days that the scheduling engine determines are required.

This alert also shows the actual day interval that the *WeatherTRAK ET plus* Scheduling Engine suggests. This is done by using the MAX ET Value for each time of year. If there is a violation for multiple months it will show the earliest month first until the schedule for that month is corrected. If there are multiple months in violation, then the next month will only show up when the first month has been resolved.



### Communication Status Alert

The display will look like this:

```
COMMUNICATION STATUS
COMMUNICATION LOST
STATUS: WARNING SEE ALERT
```

This will appear if the ET Everywhere Service has failed to communicate for 10 days. For these 10 days, *WeatherTRAK ET plus* will use the last received ET to calculate programs. After 10 days, it will default to use the MAX Backup ET from Setup.

## Using ET

ET is the position that you select when you want to view the current ET.

To do this:

1. Turn the **Function Selector** dial to **"ET."**

2. Turn the **Upper Level** dial until you see:

```
CURRENT DAILY ET: 0.14
11-28-02 00:09:24
```

This is the current Daily ET stored in the controller. The lower line shows the date and time the ET was received by the controller.

3. Turn the **Upper Level** dial until you see:

```
CURRENT WEEKLY ET: 0.95
11-28-02 00:09:24
```

Kc is a mathematical notation for Landscape Coefficient. This is an adjustment factor for each station based on the plant type that is being irrigated. For example, native plants use less water than most non-native plants and will have a lower Kc.

### Custom Plant Types (Kc)

```
SET KC CUSTOM PLANT A
1.00
```

```
SET KC CUSTOM PLANT B
1.00
```

```
SET KC CUSTOM TURF JAN
1.00
```

## Using Display Adjust

Display Adjust lets you adjust the contrast of the display.

1. Turn the **Function Selector** dial to **"DISPLAY ADJUST."**

   The display will look like this:

```
ADJUST CONTRAST
Rotate Knob 2 to Change
```

2. Turn the **Upper Line** dial left or right to change the contrast to the most desirable setting.



## Using Help

If you are having problems with any aspect of your *WeatherTRAK ET plus* controller, help is available from a Customer Service Representative at the number shown in the display.

Help screens are tools to identify and/or troubleshoot any problems that may occur with the *WeatherTRAK ET plus* controller. You may be asked to look at these displays, write down what is stored in them, and report this information to a HydroPoint Representative. Unlike other features, there are no entries for you to make in "HELP". The lower line of the displays shown below are typical examples of help screens.

1. Turn the **Function Selector** dial to **"HELP."**

   The display will look like this:

```
FOR CUSTOMER SERVICE
DIAL 1-800-362-8774
```

2. Turn the **Upper Line** dial.

   The display will look like this:

```
THE CURRENT WEEKLY ET 1.67
11-28-02 00:09:24
```

   This is the current daily ET stored in the controller. The Lower Line shows the date and time the ET was received.

3. Turn the **Upper Line** dial to the next position.

```
SERIAL NUMBER
00649765
```

4. Turn the **Upper Line** dial to the next position.

```
MICROZONE
12345678
```

5. Turn the **Upper Line** dial to the next position.

```
DATA ENCRYPTION MASK
02341234567877665244 (OK)
```

6. Turn the **Upper Line** dial to the next position.

```
START TIMES
1st 11:00pm Hi ET 1:00pm
```

You enter the "Start Time" with the "Setup" function.

7. Turn the **Upper Line** dial to the next position.

```
BEEP ON MESSAGE?
No
```

The default is "No." The controller will beep when it receives any message. If this is changed to "Yes,"at midnight it will revert back to the default setting.

```
PHASE INTEGRITY
A=68 B=81 C=73 D=74
```

8. Turn the **Upper Line** dial to the next position.

The unit is gathering statistical data on the signal integrity of each phase. It can take several minutes to acquire sufficient data.



9. Turn the **Upper Line** dial to the next position.

```
LOCK PHASE
None
```

The phase options are "None," "A," "B," "C," or "D. " When locked on a phase other than "None," "Beep on Message" will turn on automatically.

10. Turn the **Upper Line** dial to the next position.

```
RESET/ERASE or RESTART
Hold Copy to RESET/ERASE
```

There is a blank screen before this. Two actions can be performed here. One action is to restart the controller microprocessor, retaining all of the programming previously completed. This is called a RESTART. A second action can be performed called a RESET. This action will restart the controller microprocessor **and erase** all of the programming previously entered into the controller. You will be required to call HydroPoint Customer Service and reactivate the controller. You should only do this when directed by HydroPoint Customer Service.

## Setting to Off

OFF stops all irrigation of your *WeatherTRAK ET plus* controller until you return the Function Selector dial to "RUN" (or any other Function position other than "OFF.")

Turn the **Function Selector** dial to **"OFF."**

The display will look like this:

```
Jan 21 2005  12:47:56pm
Irrigation is Turned OFF
```

The upper line of the display shows the date and time.

The lower line indicates that no irrigation will occur until the Function Selector dial is turned to another position.

Once the Function Selector dial is turned to "OFF" and it remains in the OFF position for at least one (1) second, all active controller functions are stopped until you return the Function Selector dial to the "RUN" position (or any other Function position). This prevents momentary interruption of any irrigation when rotating the Function Selector dial through the "OFF" position.

## Activating the Rain Service

*WeatherTRAK ET plus* Rain Service monitors the rainfall in your area with a sophisticated array of rain sensors and other weather devices. The rainfall amount is then sent to your controller with the daily ET Everywhere Service broadcast. The rainfall is then used to calculate a new soil depletion value to take advantage of the rainfall in its calculating of the next day's irrigation schedule.

The Rain Service is available in some markets. This service can only be activated by calling HydroPoint Customer Service.

1. Under **"Setup"**, turn the **Upper Line** dial until you see:

```
RAIN SERVICE ACTIVE
No
```

2. Turn the **Lower Line** dial to select **"Yes"** or **"No."**

   **Note:** This is only changeable after activation by HydroPoint.

## Setting the Zip Code

To set your zip code:

1. Under **"Setup"**, turn the **Upper Line** dial until you see:

```
SET ZIP CODE Digit1
15645
```

2. Turn the **Lower Line** dial to select a number from **"0"** to **"9."**

3. Continue to turn the **Upper Line** and **Lower Line** dials until you have selected the correct five-digit zip code.

## Setting the ET Zone

The ET Zone number is provided at activation. Along with the Microzone value it is used by the controller to receive its local ET updates. In most locations, you will not be required to set this at activation.

To set the ET zone number:

1. Under **"Setup"**, turn the **Upper Line** dial until you see:

```
SET ET ZONE# Digit 1
12345
```

2. Turn the **Lower Line** dial to select a number from **"0"** to **"9."**

3. Continue to turn the **Upper Line** and **Lower Line** dials until you have selected the correct five-digit zone number.

## Displaying the Group Number

The group number is assigned at activation or at a later date via HydroPoint Customer Service. If not assigned, the default is 00000. This number is used to group controllers together for sending Data Service messages.

To set the group number:

1. Under **"Setup,"** turn the **Upper Line** dial until you see:

```
GROUP NUMBER
00835
```

2. Turn the **Lower Line** dial to select a number from **"0"** to **"9."**

3. Continue to turn the **Upper Line** and **Lower Line** dials until you have selected the correct five-digit group number.

   You can now return the Function Selector to "Run" or another programming function. If you return the Function Selector to "Run," the display will show the current time and date.

## Setting the Maximum Backup ET

This value is used by the controller as a backup in the event that a communication failure occurs with the *WeatherTRAK ET plus* and daily ET values are not received.

To set the Maximum Backup ET:

1. Under **"Setup,"** turn the **Upper Line** dial until you see:

```
MAX BACKUP ET Digit 1
2:00
```

   The lower line shows the default setting: "2.00."

2. Turn the **Lower Line** dial to select a number from **"0"** to **"9."**

3. Continue to turn the **Upper Line** and **Lower Line** dials until you have selected the correct three-digit number.

   **Note:** The maximum Backup ET value includes a seasonal curve associated with the set number such that it that will automatically adjust the backup ET value according to the time of the year.

# Appendix A: Quick Reference Guide

## Getting Started

*Site Survey*
Gather the required site data for your irrigation system and landscape parameters. (precipitation rate, zone efficiency, sprinkler type, plant type, soil type, root depth, slope amount and sprinkler location, etc.)

*Setup Controller*

1. Turn the **Function Selector** dial to Setup.
2. Using the **Lower Line** dial set the irrigation start hour .
3. Rotate the **Upper Line** dial to select irrigation start minute.
4. Using the **Lower Line** dial, select the irrigation start minute.
5. Rotate the **Upper Line** dial until you see Set Clock (Year).
6. Using the **Lower Line** dial, set the clock hour.
7. Continue using the **Upper** and **Lower Line** dials to set the clock month, day, hour, minute, time zone and max active stations.

*Activate*
Call HydroPoint Data Systems Customer Service to activate your controller at 800-362-8774. Be sure to have the site data worksheet available.

## Schedules

The Schedule feature allows you to set the water day pattern for your irrigation system. There are two schedules, A and B.

To set the day pattern for a schedule:

1. Turn the **Function Selector** dial to **"Schedule."**
2. Using the **Lower Line** dial select the schedule to set .

3. Rotate the **Upper Line** dial to select the day pattern type.

4. Using the **Lower Line** dial, select the day pattern for the selected schedule.

5. Rotate the **Upper Line** dial to select the setting for the selected day pattern.

6. Using the **Lower Line** dial, set the day pattern settings.

   Water Day patterns available: Automatic, Odd/Even, Interval, Custom.

## Programs

The Program feature will allow you to modify any of your station-specific settings.

To set a stations program:

1. Turn the **Function Selector** dial to **"Program."**

2. Using the **Lower Line** dial select the station to program.

3. Rotate the **Upper Line** dial to select the program mode.

4. Using the **Lower Line** dial, select the program mode.

5. Automatic Mode: Using the **Upper** and **Lower Line** dials, select a schedule (A or B), enter the landscape and irrigation system parameters you gathered in the Site Data Gathering section.

6. User with ET or User NO ET mode: Using the **Upper** and **Lower Line** dials, enter the cycle runtime, number of cycles, soak time and day pattern for the station.

7. Refer to the Users Guide for more information.



## Copy

The Copy feature allows you to quickly copy the program settings of one station to one or more stations.

*One to one:*

1. Turn the **Function Selector** dial to **"Copy."**

2. Using the **Upper** and **Lower Line** dials select the station to copy from and copy to.

3. Press the **"Copy"** button.

*One to many:*

1. Turn the **Function Selector** dial to **"Copy."**

2. Using the **Upper Line** dial, select the station to copy from.

3. Using the **Lower Line** dial rotate through all station numbers. and select **"All Stations."**

4. Press the **"Copy"** button.

*Defaults restoration:*

1. Turn the **Function Selector** dial to **"Copy."**

2. Using the **Upper Line** dial, rotate through all the station numbers and select the type of setting you want to revert to default.

3. Press the **"Copy"** button.

## Review

The Review feature allows you to see what the irrigation schedule is projected to be for each station.

*How to Review:*

1. Turn the **Function Selector** dial to **"Review."**

2. Using the **Upper Line** dial select the station to review.

3. Using the **Lower Line** dial, select a week to view (weeks 1 – 8).

## Adjust (Auto Mode Only)

The Adjust feature allows you to easily adjust (increase or decrease) the watering times per station in 5% increments. Adjust should be used for fine tuning each station according to its specific watering needs.

*How to adjust:*

1. Turn the **Function Selector** dial to **"Adjust."**
2. Using the **Upper Line** dial select the station to adjust.
3. Using the **Lower Line** dial, select the amount to adjust the station.

## Manual

The Manual feature allows you to immediately start irrigation for a specified number of minutes for all stations or a single station(s). Only one station can be on at a time when watering in Manual.

*To water all stations:*

1. Turn the **Function Selector** dial to **"Manual."**
2. Using the **Lower Line** dial select Manual Water All.
3. Rotate the **Upper Line** dial to the right one notch.
4. Using the **Lower Line** dial, select the number of minutes to operate.

*To water selected stations:*

1. Turn the **Function Selector** dial to **"Manual."**
2. Using the **Lower Line** dial select Specific Stations.
3. Rotate the **Upper Line** dial to the right until the desired station is selected.
4. Using the **Lower Line** dial, select the number of minutes to operate.



## Rain Pause

The Rain Pause feature allows you to suspend irrigation for All Stations for up to 14 days. After a Rain Pause setting has expired, normal irrigation will resume. Rain Pause can be set automatically but can be4 changed from the controller.

*To set a Rain Pause:*

1. Turn the **Function Selector** dial to **"Rain Pause."**
2. Using the **Lower Line** dial, set the number of days to pause.

# Appendix B: Troubleshooting Guide

## Alert Troubleshooting

*Water Window Alert*
During times of high ET, the water window you selected may not have enough time in it to adequately irrigate all zones.

To correct this:
1. Increase the water window.

2. Increase the number of days to irrigate.

3. Change the station program parameters or adjust to reduce the required amount of water for each zone.

*Day Interval Alert*
1. During times of high ET, the number of days you allow irrigation may not be enough to adequately irrigate all zones.

2. To correct this:
   – Increase the number of days to irrigate.
   – Change the station program parameters or adjust to reduce the required amount of water for each zone.

*Communication alert:*
Call HydroPoint Data Systems Customer Service at: **800-362-8774**.

*Electrical Alert*
Most likely, this is caused by a blown solenoid or wiring problem.

To correct this:
1. Check the solenoid on each affected valve.

2. Check the wiring from the controller to each valve.

3. If the above solutions do not fix the problem, call your local irrigation repair company or HPDS distributor for more information.

## The Controller Programs Correctly But There is No Station Output From the Controller

1. **Turn the Function Selector to RUN.**
   Check the Date and Time settings. Be sure they are correct. If the date is wrong, controller will not be in sync with the actual date which may cause valves to not operate on correct days. If the time is wrong, controller will not be in sync with the actual time, so valves will not operate at the correct time.

2. **Keep the Function Selector at RUN.**
   If RAIN SWITCH displays, your rain sensor is active and is blocking operation of the controller. If no rain sensor has been installed, check the sensor terminals, there should be a jumper wire between them for proper operation.

3. **The Controller Fuse May Be Blown.**
   Replace the fuse. Fuses are available from HydroPoint Data Systems distributors.

## My Landscape is Too Wet

Call HydroPoint Data Systems Customer Service at 800-362-8774.

## My Landscape is Too Dry

Call HydroPoint Data Systems Customer Service at 800-362-8774.

## Adjust is Not Working

1. **Turn the Function Selector to RUN.**
   Check the Date and Time settings. Be sure they are correct.

2. **Turn the Function Selector to Review.**
   ADJUST changes may be subtle, shown as a small difference in the run time or number of cycles, or it may be more significant depending on how large the adjustment was. If you are towards the end of the week when reviewing the schedule (Wed. or later) the affect of ADJUST may not be evident in the current week. Remember, any days that have already irrigated will appear in the REVIEW display in spite of any ADJUST. You should see the effect of ADJUST in week 2, 3, etc. with different day intervals.



## Controller Just Installed, Activated and Still Beeping

1. **Turn the Function selector to RUN.**
   Check the Date and Time settings. Be sure they are correct.

2. **Turn the Function Selector to Run and hold down the COPY button.**
   You will see Phase X(L) where X is one of the four phases and the L signifies that the phase is locked. “Beep on message” is automatically turned on when the installer locked on a phase to activate. The installer did not turn off beep after activation. The beeper will automatically turn off at midnight or go to HELP, turn to “Beep on Message?” and set to NO.

## What Do the Beeps Mean

1. **Two Beeps:** a good message has been received for your controller.

2. **Four Beeps:** a good message has been received but it is for another controller.

3. **Six Beeps:** a bad message was received and it will be ignored.

4. **Alternating long and short beeps:** The controller’s fuse has blown and needs to be replaced. Replace the fuse. Fuses are available from HydroPoint Data Systems distributors.

5. **One beep every 30 seconds:** Communications to the controller have not occurred for over 10 days.

## The Display is Blank

1. **Turn the Function selector to RUN.** You should now see a display.

2. **If not,** power down the unit, wait for 30 seconds and restart the unit. The display should return.

3. **If not,** call HydroPoint Data Systems Customer Service at **800-362-8774.**

## The Display is Frozen

1. **Turn the Function selector to RUN.** The display should change and show the date and time.

2. **If the display shows PHASE on the lower line:** The copy button may be stuck in the "pressed" position. Free the copy button.

3. **If COPY button was stuck:** The controller may have been initialized.

4. **If the controller was initialized:** You must reenter all the setup, schedule and program information. You may need to reactivate the controller. Call HydroPoint Data Systems Customer Service at 800-362-8774.

5. **If COPY button was not stuck:** The controller may need to be initialized. Call HydroPoint Data Systems Customer Service at 800-362-8774.

## ET Display Has a "P" After It

1. **Turn the Function Selector to RUN.** Check the Date and Time settings. Be sure they are correct.

2. **Turn the Function Selector to Diagnostics.** If you see a "P" after ET, the controller is currently running and an ET was communicated to the unit during station operation. The controller will label the ET as "Pending" until the irrigation cycle(s) are complete. It will then apply the new ET to all programs for the next irrigation.

## Week 1 in the Review Screen is Much Different Than Weeks 2 Through 8

1. When the controller is installed, any days previous to today will not be shown in Week 1 schedule. The controller shows what days have irrigated or it anticipates will irrigate if the weather remains as it is today. If the controller is installed on a Friday, there will be no irrigation days shown prior to Friday, which may result in no irrigation days at all for week 1.

2. Turn the **Lower Line** dial to see Week 2 through 8 irrigation days. The irrigation days will display a pattern as you look at subsequent weeks.



## The Display in REVIEW Shows "99+" Minutes of Runtime

1. The run time programmed is greater than 99 minutes. There are only two digits available in the display to show the run time, so if the time actually exceeds 99 minutes it shows "99+".

2. This is a display issue only; the controller will irrigate the full run time.

# Appendix C: Site Data Gathering

## Introduction

HydroPoint Data Systems (HPDS) manufactures a line of ET-based irrigation controllers that allow the user to enter details about their landscape. This is done to calculate an economical irrigation schedule.

**Note: As with any irrigation schedule, an initial calculation of the schedule is performed and then adjustments are made to it to fine-tune the amount of water that is used to properly maintain the landscape. These adjustment may require follow-up visits to a site in order to monitor the landscape and make adjustment to the controller settings. These visits are vital to obtaining a proper and efficient schedule for the landscape.**

The follow-up visits are a prime opportunity to sell upgrades to the owner's irrigation system. If the system is over-pressurized, under-pressurized, has improper head spacing or other design flaws, even the best control system will not compensate for this. You have a golden opportunity to up sell your services to improve the irrigation system and assist in saving the owner money and waster water.

The schedule adjustment process requires a base program calculated on as much information about the landscape as possible. It is then adjusted up or down according to the landscape response. The goal is to adjust the program to the point of slight stress in the landscape and then adjust if back up slightly to keep the landscape green. This allows a green landscape while using only enough water to keep it that way.

One of the parameters a user must enter to calculate an efficient schedule is a precipitation rate (PR). The outlined processes enables a user to gather site information to determine a base precipitation rate for each station. Fine-tuning of this precipitation rate may be necessary if the irrigation system was not installed to exact manufacturer standards.

## The Processes

*Precipitation Rate Gathering - Initial Controller Installation Process*

**Review the System Installation**

Make note of the following:

1. A descriptive name for each active station on the controller.
2. The manufacturer of the irrigation nozzles on each station.
3. The spacing of heads for each station (general observation only).
4. The pressure at the heads (general observation only, a measurement may be required).
5. For retrofit applications, the age of the irrigation system components, especially the sprinkler nozzles and piping. These items have a tendency for their performance to degrade over time.
6. All other station properties are gathered and entered on the Site Data sheet and into the controller at this time.

**Enter the Station Precipitation Rate in the Controller**

1. If the precipitation rate of the station is known from an irrigation design or other calculation, enter it in the stations properties. This is most common with new irrigation installations.
2. If the precipitation rate is not known, such as a retrofit installation, set the station SPRINKLER TYPE to the type of heads that are installed on that station. The controller will set a default precipitation rate for you.



*Precipitation Rate Gathering – Follow-Up Site Visit Process*

**Review the landscape conditions.**

- ✓ Closely check the condition of the landscape. Look for stress in the plant materials or other signs of under watering or over watering such as soggy areas, puddles immediately after irrigation, etc.
- ✓ Use a soil probe to check the depth of moist soil as evidence of the depth the irrigation program is producing. This is very important in areas showing signs of stress and areas where there may be too much water. This information will help in defining which of the following steps should be taken to fine-tune the irrigation program.
- ✓ **If the landscape is green with no signs of stress,** the schedule is adjusted down 5% and monitored. If it is still green with no signs of stress after 2 weeks, it is adjusted down 5% again. This process continues every 2 weeks until the landscape shows signs of stress and then the schedule is adjusted up 5% for a final adjustment.
- ✓ **If the landscape is visibly wet** with extremely wet soil, puddles and runoff, the initial adjustment may need to be adjusted 10% or 15% down for the first 2 week adjustment period and then the process follows the downward 5% adjustment every 2 weeks until stress is noticed.
- ✓ **If the landscape shows signs of stress** and very dry soil with the base schedule, an initial adjustment up 5% is done. The landscape is monitored every 2 weeks and adjustments of 5% upward are programmed until the landscape shows no signs of stress.
- ✓ **If the landscape is extremely dry or extremely wet,** an adjustment in the precipitation rate may need to be done. The following steps will help you identify a proper precipitation rate for your system.

### *Compare Site Information to Criteria*

1. Do the heads have head-to-head coverage? (Does one head spray all the way to the next head? i.e. it does not spray less than or greater than the spacing between heads) **If YES, go to next step. If NO, go to step 2.**

2. Do you have access to the manufacturers sprinkler nozzle data? **If YES, go to Process 1. If NO, go to next step.**

3. Do the heads produce a lot of misting spray? **If YES, go to Process 3. If NO, go to next step.**

4. Is the system less than 10 years old? **If YES, go to Process 2. If NO, go to Process 3.**

### *Process 1: Manufacturer's Charts*

1. Look up the sprinkler head data in the manufacturers catalog for the sprinkler head, nozzle size, pressure and spacing that you found for each zone.

2. If the pressure at the heads appear to be too high or too low, measure the pressure at a head closest to the valve and a head furthest from the valve. Calculate the average pressure.

3. Identify on the manufacturers chart, the precipitation rate (PR) for each head at the average or measured pressure in each zone. If the measured pressure is above or below the manufacturers chart for the head, a rework of the system may be required before continuing with this process.

4. Enter the data on the PR gathering sheet and in the WeatherTRAK ET plus controller.



### *Process 2: Basic Precipitation Rate Calculation*

1. Measure the row spacing for each zone. Measure the head spacing for each zone.

2. Measure the pressure at a head closest to the valve and a head furthest from the valve. Calculate the average pressure.

3. Look up the flow rate for a full head for the sprinkler type, nozzle size and pressure of the heads on each zone. If the manufacturer's information is not available, HPDS has charts for many different types of sprinkler heads available and general information that will get you information sufficient to complete this step.
4. If the measured pressure is above or below the manufacturers chart, a rework of the system may be required before continuing this process.

5. Calculate the PR with this formula:
   **PR = (96.3 * Full head flow (gpm)) / (row spacing * head spacing (in feet))**

6. Enter the data on the PR gathering sheet and in the WeatherTRAK ET plus controller.

7. **Note:** This process assumes the sprinklers are installed in a matched precipitation rate arrangement. If the zone is not installed as a matched precipitation rate zone, a rework of the irrigation system may be necessary.

### *Process 3: Station Catch Can Audit*

1. Obtain a Landscape Irrigation Audit Kit.

2. Perform an audit of each representative station on the controller.

3. Calculate the PR and Efficiency using the formulas below:
   **PR = (CV avg * 3.66) / (TR * CDA)**
   Where: CV avg = the average catch can amount in milliliters
   TR = the test run time in minutes
   CDA = the throat area in square inches

Example:
PR = (35 ml X 3.66) / (11 minutes X 16.5 sq.in.) = 128.1 / 181.5 = .71 in/hr

Where the average measurement was 35 ml, the test took 11 minutes and the catch can throat size is 16.5 square inches.

**Efficiency = Avg. of Low quarter catchments / Avg. of all catchments * 100**

Where: Avg. of low quarter = the average of the lowest 25% catchments
Avg. of all catchments = average of all catchments

Example:
Efficiency = 19 ml / 35 ml * 100 = 54.3% efficiency

Where 19 ml is the average of the lowest 25% of all the catchments and 35 is the average of all the catchments.

### *Process 4: Sprinkler Type Default*

1. If all of the first three processes are not possible, then set the controller to the default PR.

2. Process to use the default:
   - In the programming process, select the sprinkler type for the desired zone.
   - Turn the **Upper Lin**e dial to Precipitation Rate.
   - Do not change the default setting.
   - Continue with programming the station.

### *Miscellaneous*

1. What to do if the pressure is too high.

2. What to do if the pressure is too low.

3. What to do if the irrigation system is not working properly.

4. What to do if the manufacturers information is not available.

# Appendix D: FCC Information

The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rule. 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 this 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 one or more of 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 the party responsible for compliance can void the user's authority to operate the equipment.

# I Index


## A

Activating the Rain Service .....63, 78

Adjust .....8, 58

Adjusting .....25, 57

Auto Daylight Savings .....13, 17

Automatic Programming, Ending .....41

## B

Bubbler .....36

## C

Clock .....13, 16

Combined Grass .....38

Cool Season Grass .....38

Copy .....7

Copy From the Station Number .....49, 50

Copy Program Default .....50, 52

Copy Schedule Defaults ....50, 53

Copy Setup Defaults .....50, 54

Copying.....25, 49

Crop Coefficient.....32

Custom Plant A .....39

Custom Plant B .....39

Custom Turf .....39

Cycle Time, Setting .....42, 43

## D

Decrease Irrigation .....58

Display Adjust, Using.....63, 74

Displaying the Group Number .....63, 79

Drip Emitter .....36

## E

Efficiency, Setting.....32, 37

ET Everywhere Service ..2, 3, 19, 20, 30, 31, 42, 49, 57, 73, 78

ET, Using .....63, 73

ET Zone, Setting .....63, 79

## F

Flowers .....38

Full Circle Impact .....36

Full Circle Rotor.....36

Function Selector ..6, 7, 10, 13, 78

## H

Help, Using.....663, 75

High ET Start .....13, 15

## I

Information Display .....9

Introduction to Programming .....25, 30

Irrigation Start Time .....13, 14

## L


Lock Phase .....13, 18

Lower Line Dial .....7


## M


Manual .....9, 67, 68, 69

Maximum Active Stations 13, 17

Maximum Backup ET, Setting the .....63, 80

Microclimate, Setting .....33, 39

Microzone .....13, 19

Mixed - High Water Use .....38

Mixed - Low Water Use.....38

Mixed - Medium Water Use ..38

Mixed Impacts .....36

Mixed Rotors .....36


## N


Native Grasses .....39

Native Trees/Shrubs .....39

Number of Cycles, Setting .....42, 44


## O


Off, Setting to .....63, 77

Operating Manually .....63, 67


## P


Part Circle Impact .....36

Part Circle Rotor .....36

Phase Integrity .....13, 18

Plant Type, Setting.....32, 38

Precipitation Rate, Setting .....32, 36

Program.....7

Programming Fully Automated .....25, 31

Program Mode, Setting ....31, 35, 42, 43

Program, No ET, Using.....25, 49

Program, With ET, Using ..25, 42


## R


Radio Antenna .....13, 22

Rain Pause, Using .....63, 65

Reviewing .....25, 55

Root Depth, Setting .....33, 39

Run.....7

Running.....63, 64


## S


Schedule .....2, 3, 7, 49

Schedule, Setting .....31, 35

Schedules, Setting .....25, 26

Serial Number .....13, 18

Setup .....7

Shrubs - High Water Use .....38

Shrubs - Low Water Use.....38

Shrubs - Medium Water Use ..38

Slope Factor, Setting .....34, 40

Soak Time, Setting .....42, 44

Soil Type, Setting .....32, 38

Spray Head .....36

Sprinkler Location, Setting .....34, 40

Sprinkler Type, Setting .....31, 36

Stacking Option .....13, 20

Station, Setting .....42, 43

Station to Program, Setting .....31, 34

Stream Rotors .....36

Stream Spray .....36


## T


Time Zone .....13, 16

Trees .....38


## U


Understanding Alerts .....63, 71

Upper Line Dial .....7

Usable Rainfall, Setting.....34, 41


## W


Warm Season Grass .....38

Water District Number .....13, 21

Water Days, Setting .....42, 45

Water Window .....13, 14

Water Window, Using .....31, 35

WT Version .....13, 20


## Z


Zip Code, Setting the .....63, 78