ETWATER® CONTROLLER
USER GUIDE

TABLE OF CONTENTS

HOW THE ETWATER CLOUD-BASED SYSTEM CONTROLLERS WORK TOGETHER

1. Use the ETwater online management system to setup your account by entering your landscape profiles. Then, install the ETwater smart controller.

2. Microclimate forecasts localized to latitude / longitude coordinates and cross-referenced to an exclusive hourly histrorical weather database.

3. ETwater servers access the weather data, compute evapotranspiration, and generate daily watering schedules for each landscape profile. Servers then connect wirelessly to ETwater smart controllers to exchange schedules and data.

4. ETwater smart controllers execute daily irrigation schedules.

CONTROLLER SERVICE REGISTRATION

YOUR ETWATER ACCOUNT

After installing your ETwater controller, and before it can begin watering, you'll need to create an account an online ETwater account and create a landscape profile for the landscape being watered. Once this is done, you'll have access to all of the important watering information you'll need to ensure your site is efficiently irrigated. You can log in at any time at jainsunity.com to review such information as:

• When your ETwater controller will water again, and which stations will water

• When your ETwater controller last watered

• The number of hours in your water window

• When your ETwater controller last communicated with the ETwater server

• Current weather information, including ET data

• Watering adjustments, restrictions, and suspensions.

REGISTERING YOUR ETWATER CONTROLLER

You'll need:

• Your ETwater panel's 10 digit serial number can be found when you push the "**enter**" button twice and it will display. You can also find it on the SmartWorks and Smartbox controller's box. Enter serial number here:

_____

• Contact information, including an email address, for the person who will manage the irrigation system,

• Contact information, including an email address, for the person responsible for paying future service fees. This is usually the property manager or owner,

• The address and zip code where the controller will be installed.

• Follow the onscreen instructions (see following page) until you have clicked on the "**I agree**" button on the Terms of Service page. This will complete your registration.

  1. Go to www.jainsunity.com

  2. Select the sign up link if you do not have an online ETwater account, or, if you already have an account select Sign in and proceed to add the controller to an existing site or create a new site. The online ETwater help documentation will step you through that process.

  3. Enter all of the relevant contact, billing and site information.

  4. Read the Terms of Service and click Accept if you agree to the terms.

CREATING A LANDSCAPE PROFILE FOR YOUR ETWATER SMART CONTROLLER

It is important that the landscape profiles you enter be as accurate as possible. We recommend that you use our Landscape Profile Checklist on Page B-35 to help you document your landscape, visiting the actual site if necessary.

Next, you must enter the required landscape information for each of your watering zones. Click the "Create Station" button on the controller overview page, and select the "step-by-step" landscape set up process. The process asks you to define your landscape in terms of sun exposure, soil type, slope, plant material, irrigation method, etc.

IMPORTANT: Your smart controller will not water any zone that does not have a landscape profile configured for it.

SETTING UP ETWATER

ETWATER SERVICE REGISTRATION

How it works

Your smart controller will make a daily connection to ETwater's cloud server and retrieve an irrigation schedule for each of the watering stations in your landscape. These daily schedules reflect your local weather conditions and the ET value in your area so that you use only the amount of water necessary to maintain a healthy landscape and reduce runoff.

For more information on the science of ET irrigation and how each of your schedules is generated, please visit our website at www.jainsunity.com/help-center.

Step 1: Register your controller Go to www.jainsunity.com, click the "**Sign Up**" link in the "Customer Login" box, and follow the steps to register your controller.
You'll need:

• The controller's serial number, which you'll find on the shipping box or base of the controller.

• (Once the controller is powered on, you can view the serial number by pressing the **ENTER** key.)

• Enter serial number here:

_____

• Contact information, including email address, for the person who will manage the irrigation system

• Contact information, including email address, for the person responsible for paying future data service fees, usually the property manager or owner

• The address and zip code where the controller will be installed

Follow the onscreen instructions until you have clicked on the "**I agree**" button on the Terms of Service page. This will complete your registration.

Step 2: Configure your stations After registering your controller, you must enter the required landscape data for each of your watering zones. Click the "**configure now**" link on the controller overview page, and select the "**step-by-step**" landscape set up process. The process asks you to define you landscape in terms of sun exposure, soil type, slope, plant material, irrigation method, etc.

If you don't know the answers to these questions, we recommend you use our Landscape Configuration Checklist (see appendix) to help you document your land-scape, visiting the actual site if necessary. It is important that the landscape profiles you enter be as accurate as possible. Additional forms are available at hydrorain.com/etwater/etwater-support/.

If you have watering zones with identical landscape profiles, you can use the "**station copy**" feature to copy one zone's profile to another zone.

Once you are familiar with the station configuration process, you can use the "**Advanced Setup**" mode to add or edit your profiles. The Advanced Setup mode pre-sents all the profile information in a single form with dropdown boxes from which to make your selections.

You are now ready to install your controller!

If for some reason the controller was installed before it was registered, you should review the **"communications report**" on your Account Overview page to determine if it has already connected with the ETwater server. If it has connected, it should continue to do so on a daily basis. If it has not already connected, you will need to execute a Test Dial, as described on page A-7 of the Installation Instructions.

SMARTBOX™ CONTROLLER

USER GUIDE FOR WIRELESS COMMERCIAL SMARTBOX GENERATION 4 SERIES

Compatible Firmware versions: 6.18 and greater
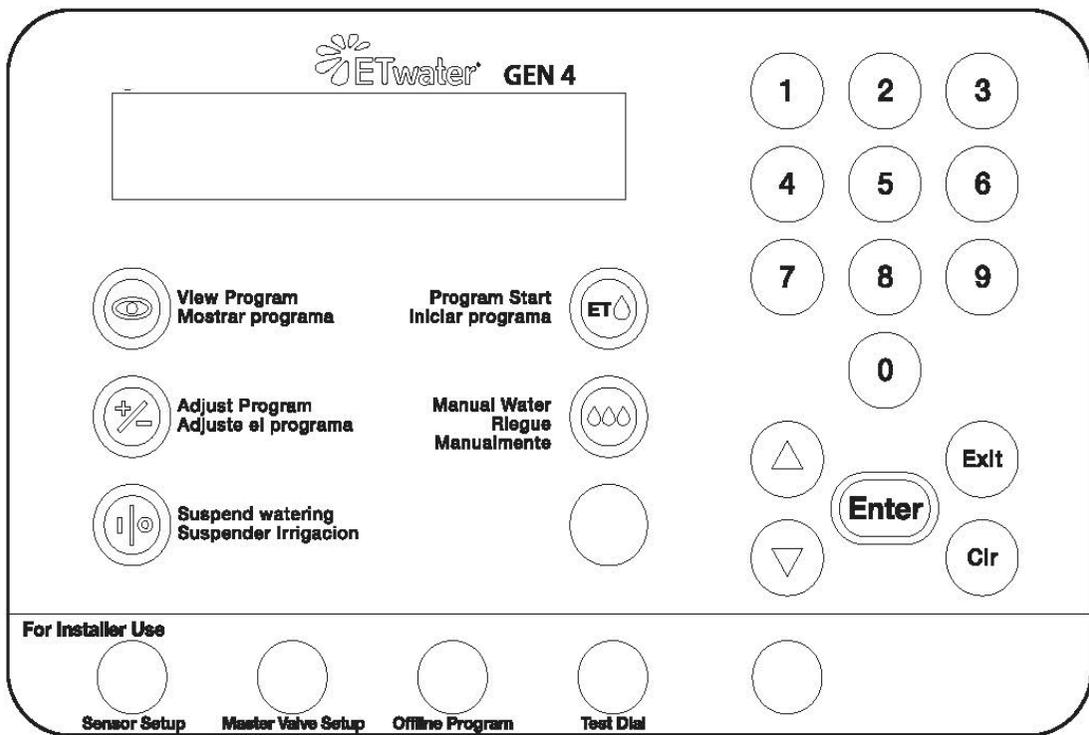
IMPORTANT: This Smart Controller receives updated irrigation schedules wirelessly from the ETwater server using cellular technology. The server sets the correct schedules based on the actual landscape type that is programmed through the ETwater dashboard. The schedules automatically adjust according to changes in your local weather. **PLEASE NOTE:** To take full advantage of ETwater controllers features, users must be registered using the ETwater online application.
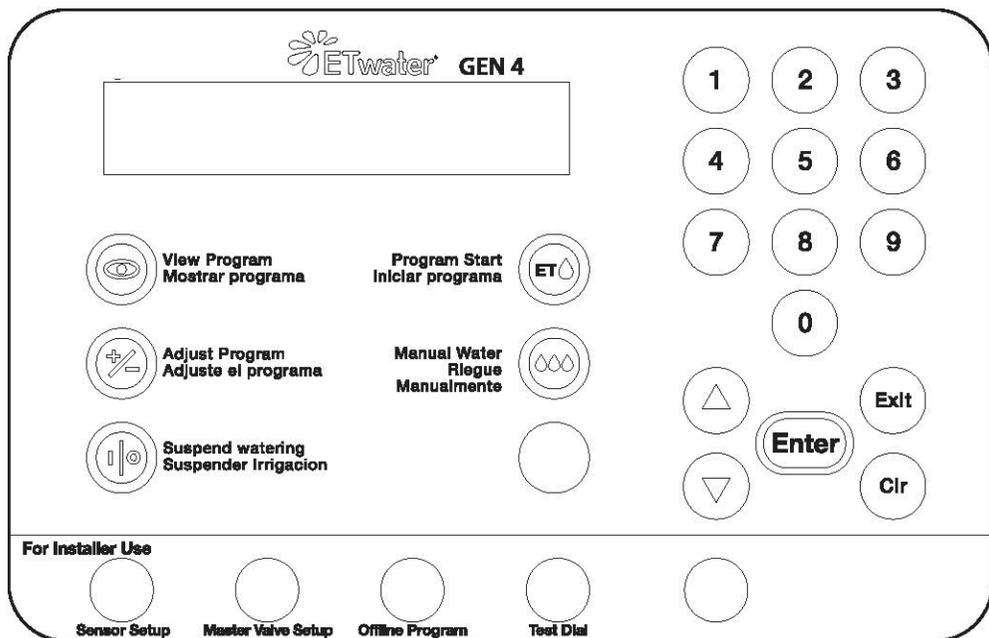
LEARNING THE KEYPAD

BUTTON	FEATURE
VIEW PROGRAM	Displays upcoming watering start time. Enter a station number to view its irrigation schedule.
ADJUST PROGRAM	Increase or decrease run time for one station or all stations. Enter a station number to adjust run time for one station. Scroll up or down to find the percentage change you want to make.
SUSPEND WATERING	Stops scheduled irrigation. The controller will continue to connect to the server to receive irrigation schedule updates. You can also suspend watering from your JAIN Unity account.
PROGRAM START	Run downloaded watering program for one station or all stations. Controller must be configured online for this feature to operate.
SENSOR SETUP	Enables rain sensor. If the rain sensor is enabled, a sensor must be attached.
MASTER VALVE SETUP	Select normally "open" or "closed" master valve. Default setting is normally closed.
OFFLINE MODE:	Select operating mode for watering program. Offline will use program set at controller and will not adjust for weather.
TEST DIAL	Initiates a connection to the ETwater server. After pressing the Test Dial button, the cell signal strength will display. If the signal strength is sufficient, 10 and above press ENTER to begin the connection. "Successful Call Complete" will display once dial is complete.
MANUAL WATER	Run one station or all stations for the specified number of minutes. Use 'up' arrow button to select "multi". In this mode, you can manually water stations simultaneously. **Note:** When watering stations individually, you can stack up to four stations by pressing the 'manual water' button after the duration is entere.d
ARROW KEYS	Use the 'up' arrow button to view the last connection date and time. Use the 'down' arrow button to perform a Valve check to identify open or shorted station wires.

ETWATER CUSTOMER CARE SERVICES
Phone: 888-685-5505
Email: ETwater.Support@husqvarnagroup.com

INSTALLATION GUIDE

COMMERCIAL WIRELESS SMART CONTROLLER (MODEL 205 Gen 4)

Step 1: Turn off power and remove existing controller

Turn off the circuit breaker supplying power to the installation site. If you have an old controller already in place, disconnect it from the power source, and label the valve wires. Then disconnect the valve wires and remove the old unit from the mounting surface.

Step 2: Mount ETwater smart controller

Slide the front cover off its hinges. Remove the lower panel first (2 screws), then remove the four screws that anchor the upper panel. Remove the upper panel, being careful not to pull on the ribbon and antenna cables that are attached to the back. Nestle the panel into the bottom of the controller such that it remains in place while you attach the controller to the mounting surface using the screws and washers provided. Position the black rubber washer between the mounting surface and the back of the controller. Position the small plastic washer inside the controller.

Your wireless ETwater Smart Controller uses cellular service to communicate with the ETwater servers. There are two types of antennas available: high gain or a van-dal-proof, dome style pancake. **IMPORTANT:** Installation inside metal enclosures, elec-trical closets, or subterranean rooms will likely result in poor or insufficient cell signal strength. If you would like to have your site pre-tested for antenna compatibility, or if you are unable to connect to the Unity server (see Step 8), please call customer care.

Step 3: Perform a valve check

IMPORTANT: Weakness in valve wiring can cause systems to fail or perform unreliably, so we recommend performing a valve check on all stations

Step 4: Attach valve wires

Attach your labeled valve wires to their corresponding terminals, and attach the common wire to any of the available valve common (VC) terminals or any uncoated metal in the enclsoure. You will need to strip the insulation back by about a quarter of an inch, making sure that no exposed wire comes in contact with other parts of the module. Once the valve wires are attached, you may replace the lower panel.

Step 5: Connect cellular antenna

Screw the black cellular antewnna (included) onto the ¼" brass fitting on the base of the controller. (For pancake or other vandal-resistant antennas, use the same brass fitting)

Step 6: Make electrical connections

Connect 110 volt AC power and ground in accordance with all local codes and National Electrical Codes. Turn circuit breaker on.

Step 7: Initialize controller and Test Dial

Press the TEST DIAL button. A message on the LCD screen will report the cellular signal strength. Readings in the range of 10 to 32 should be sufficient, and you will be directed to press **ENTER** to continue the test dial process.After a successful connection, the LCD screen will display "**Successful Call Complete**," followed by "**ETWATER Online**" with the correct time and date.

If you receive a signal strength of 1 to 9, make sure the antenna is securely con-nected. If the strength still falls in that range, contact customer care. A signal strength of 99 indicates the controller can't connect to the local cell tower. Press **EXIT**, wait two minutes, and press the **TEST DIAL** button again. If the controller still will not initialize, contact customer care.

Step 8: Replace outer door

Replace outer door and lock cabinet if desired.

> **WARNING:** If the controller is installed in an area known to receive lightning strikes, ETwater recommends the controller be thoroughly grounded via a grounding rod or similar installation.

OPTIONAL

Step 9: If applicable, connect master valve and booster pump

The ETwater controller provides 24 Volt AC switched power to control a master valve and a booster pump. A standard 24 volt master valve can be connected directly to the MV terminal and any VC terminal. To specify the type of master valve, press the **MASTER VALVE SETUP** button and select the value corresponding to either "normally open" or "normally closed."

Booster pumps require the use of an external relay to switch the high power required by the pump. The coil of the relay must be rated for 24 Volt AC operation. Connect the coil of the pump control relay to the MP terminal on the base module and any VC (Valve common).

The contacts of the relay are connected between the power source (usually 120V or 240V AC) and the appropriate leads on the pump motor. The contacts of the relay must be rated for 24 Volt AC operation. Connect the coil of the pump control relay to the MP terminal on the base module and any VC (Valve common).

The contacts of the relay are connected between the power source (usually 120V or 240V AC) and the appropriate leads on the pump motor. The contacts of the relay must be rated to handle the voltage and horse-power and/or current of the pump motor.

Step 10: Test valve connections

Using the **MANUAL WATER** button on the keypad, test each valve to ensure it is functioning properly. To test a valve:

1. Press **MANUAL WATER**

2. Enter the station number and press **ENTER**

3. Enter the number of run-time minutes, then press **ENTER**

To end watering before the run-time minutes have ended, press the **EXIT** key. Repeat this process for each valve.

You can initiate up to four manual watering events that will run consecutively. After entering a station and its run-time minutes, press the **MANUAL WATER** button again and enter the next station number and desired run-time minutes. Repeat this process until you have programmed up to four stations to water manually.

FLOW SENSOR

To attach a flow sensor, connect the flow sensor's red wire to the F terminal on the base module, and connect the flow sensor's black wire to the terminal marked with a dash (-), just below the F terminal.

ETwater controllers will only work with Data Industrial flow sensors or their equivalent.

Call customer care to activate the flow sensor feature and to receive directions on how to set up the flow sensor in your online ETwater account.

ETWATER CUSTOMER CARE
888-685-5505

RAIN SENSOR

IMPORTANT: Use the instructions below to install and activate your rain sensor even if you have different instructions that came with your sensor.

Attach one of the rain sensor wires to the R terminal on the base module, and connect the other rain sensor wire to the terminal marked with a dash (-), just below the R terminal. Do not install the rain sensor such that the common wire is interrupted.

Once the controller is powered on, press the **SENSOR SETUP** button, then press the **UP** arrow button to activate the rain switch.

REMOTE CONTROL

When using a TRC brand remote control, make sure to have the correct DCI-1 and DCI-2 cables to attach it to the ETwater controller. The DCI-1cable attaches directly to the gold-colored 6-pin connector on the upper right corner of the base module, while the DCI-2 allows the portable receiver to attach to the cables outside the controller. If you are installing a permanent remote control receiver card, the cable will already be attached to the receiver card.
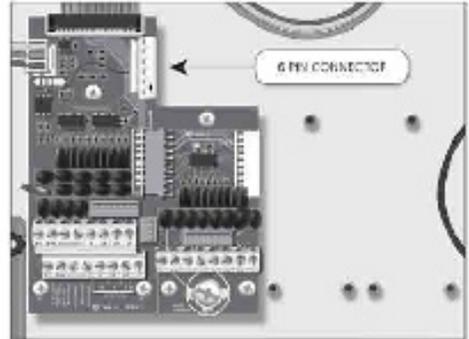
ADDING STATION TERMINALS

You may increase the number of your watering stations by purchasing and installing additional expansion modules. Each module can operate up to 8 valves.

CALL ETWATER CUSTOMER CARE TO COMPLETE THE INSTALLATION PROCESS.

Install the modules as follows:

- Label the new stations using the labels provided.

- Turn off the power to the controller by unplugging the unit or by removing the red-yellow-green cables connected from the transformer to the base module

- Plug the new expansion module into the last module already in place (i.e., immediately to the right of the existing module). Secure it in place with the 3 screws provided.

- Power up the controller by plugging the unit back in or by reapplying the red-yellow-green connector

- Press ENTER on the front panel to confirm the new module count.

- Connect the valve wiring to the new module, and execute a manual watering of the new stations to confirm that the wiring and solenoids are in proper working condition.

- Access your account on the JAIN Unity website and enter the landscape profiles for your new stations.

PROGRAMMING CONTROLLER OFFLINE

FIRMWARE VERSIONS 6.18 AND GREATER

<u>Please Note:</u> To find the version of firmware your controller currently has press the enter key twice and the serial number and version of firmware will display on the screen

INTRODUCTION

When powered, all ETwater controllers will default to the online operational mode. The Online mode is used when the controller's watering schedule is going to be programmed using your online ETwater account. ETwater products are designed and optimized to work in "**Online**" or "**Connected**" mode, taking advantage of wireless connectivity, multiple weather sources and databases, and irrigation schedules that adjust daily based on the weather.

The Offline operational mode can only be programmed at the controller, and does **not** contact the ETWater server, therefore, the controller will not automatically adjust for local weather conditions. The below instructions will step you through setting up offline programming. ETwater products are not designed with offline as a primary operating mode, and have **limited functionality** when set offline. Offline and online operational modes run schedules differently. An Online watering schedule cannot be used when the operational mode is set to offline, and an offline watering schedule cannot be used when the operation mode is set to Online.

Programming an ETwater Controller in Offline mode

1. If the controller is online press the Offline Program button on the front of the keypad and press the Down Arrow button to select **OFFLINE** which will be displayed on the LCD screen; press **ENTER**. The display will then read " offline is timed irrigation"

2. The offline program menu will display. (Press - 1 to Set Clock, 2 to edit Start Times, 3 to delete starts, 4 for # stations, 5 to edit stns, and 6 for defaults) *Default programs are set for 10 mins per station beginning at 10pm*

3. **Set Clock:** Selection 1 - The correct time and date may already be set on the controller. If not, set it using the following steps.

   a. Press 1 on the Main Menu to **SET CLOCK**

   b. Set the **HOUR** using the **ARROW** keys or the **NUMBER** keys and press **ENTER**

   c. Set the **MINUTES** using the **ARROW** keys or the **NUMBER** keys and press **ENTER**

   d. Set the **SECONDS** using the **ARROW** keys or the **NUMBER** keys and press **ENTER**

```
Set Clock:  Hour
01:21:40 PM ▼▲
```

   e. Last, set the **AM/PM** using only the **ARROW** keys and press **ENTER**

   f. The display should read "Time has been set"

   g. You must now set the **MONTH, DAY,** and **YEAR** and press **ENTER** after each entry

   h. When finished, the display should read, "Date has been set"

   i. You have successfully set the **TIME** and **DATE** of your controller

4. **Edit Start Times:** Selection 2 – Start times must be set before you create a program in

You can set up to nine different start times. If more than one station has the same start time, they will water sequentially. **Note:** *All stations have a default program of 10 minutes every day and are assigned to start time 1. When creating your custom offline schedule be sure to keep this in mind to avoid overlapping start times*

   a. Select Edit Start times to create new start times or change existing ones. Start times are assigned to a number between 1 and 9. If a start time hasn't been set then the assignment number will say "**Not Set**".

```
Set Which Start Time?
Select 1-9  1: Not Set
```

   b. To set **START TIME #1**, press the "**1**" button and press **ENTER**

c. You will be asked to **SET START TIME** of the selected number

    i. Using the **ARROW** keys or **NUMBER** keys, input the desired **START TIME** starting with **HOUR, MINUTES, SECONDS,** and **AM/PM**

    ii. Press **ENTER** when complete. If successful, the display should read "Start time has been set"

    iii. You are brought back to the **START TIME** menu. If necessary, use the same procedure to select and assign more **START TIMES**

    iv. After setting the **START TIMES**, press **EXIT** to return to the Main Menu

    v. Proceed to Selection 5 to Edit Stns.

Attention: Without a program set, your controller will not water.

5. **Set Program:** Selection 5 – Setting the program is where you assign the start times you created to a station, and set up each station's program.

```
Press 5 to Edit Stns   ▲
Press 6 for Defaults
```
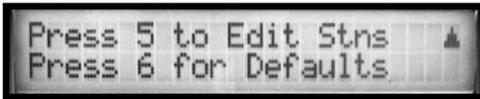
    a. Select the station you want to program using the **NUMBER** keys.

```
Set Offline Program
Select Station  ▮
```

    b. Press **ENTER**

    c. If you want to program or edit an irrigation schedule for a station, press **1** to **EDIT** Stn

```
Press 1 to Edit Stn  1
Press 2 to Copy Stn  1 ▼
```
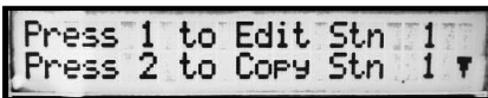
d. Select the number assigned to the **START TIME** you want the station to use by pressing the number (1, 2, 3, up to 9) until that number appears on the **START TIME** display

  i. If a **START TIME** is selected for a station, the number should be visible on the display. If it is not selected, there should be a dash (-) in place of the number.
  Attention: If no START TIME is set, the controller will not water.

  ii. Press **ENTER** when complete.

```
Start Times 1_____
Select 1-9  1: 01:00 PM
```
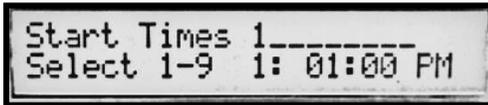
e. Enter the **DAYS TO SKIP BETWEEN WATERINGS** using the **NUMBER** keys and press **ENTER**. If more than 1 START TIME is selected, the station will default to every day watering and will not ask which **DAYS TO SKIP BETWEEN WATERINGS**

  To water every day, skip 0 days.
  To water every other day, skip 1 day.

```
Station  1:  Skip  0
Days Between Waterings
```
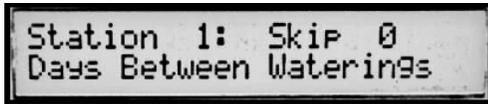
f. Enter in the **RUN TIME** for the station using the **NUMBER** keys and press **ENTER**

```
Set Station  1
Run Time  0  Minutes
```
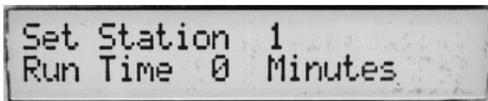
g. Choose number of cycles ***controller will not allow overlapping start times***

```
Number of cycles:
    1
```
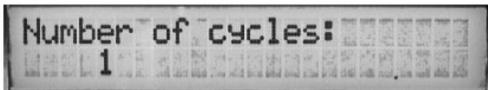
h. Enter in the **BLOCK DAYS** (days to not water) using the **NUMBER** keys 1 through 7 and press **ENTER**

   i. 1 = Sunday, 2 = Monday and so on. If a blocked day is selected, the letter of the day will appear on the display
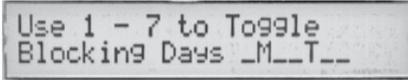
```
Use 1 - 7 to Toggle
Blocking Days _M__T__
```

i. If successful, the display should read **"Saving station program"**
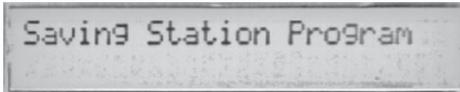
```
Saving Station Program
```

6. **Copy Program:** Once you finish programming one station, you can copy that program to all the other stations.

   a. From Main Menu select 5 to edit then select the station you are copying from then choose 2 to Copy Program

   b. Select the station number you will copy the program to

   c. press **ENTER**

   d. If successful, the display should read "Program for Station 1 copied to Station 2" (where station 1 is the source of the schedule and station 2 is the destination of the schedule)

7. **Moving Program:** Once you've set a program you can move that program to other stations. This would be used if you change your landscape or the irrigation system.
Note: Station 1 is the only station that cannot be moved

   a. From Main Menu select 5 to edit then select the station you are moving from then choose 3 to Move Program

   b. Select the station number you will move the program to

   c. press **ENTER**

   d. If successful, the display should read "Move Completed"

ATTENTION: Any changes to Start Times need to be made by editing the Start Time in section 2 and editing the program in section 5. Even if the Start Time changing has the same numerical value that is assigned to the existing program you need to update the program by removing and then adding the Start Time on each programmed station. The program start time will not change if this process is not followed.

NOTE: TO CHECK YOUR SETTINGS FOR A STATION, PRESS THE **"VIEW PROGRAM"** BUTTON WHEN THE DISPLAY READS "ETWATER OFFLINE," Press 2 ENTER A STATION NUMBER, AND PRESS ENTER.

SMARTWORKS™
REPLACEMENT PANEL

USER AND INSTALLATION GUIDE

for Wireless SmartWorks Replacement
Panels Models: 204W – PB, 204W –PR,
204WPI, 204W-PRE, 204WPB-QC)
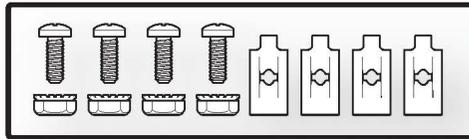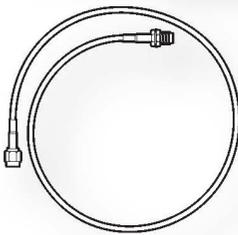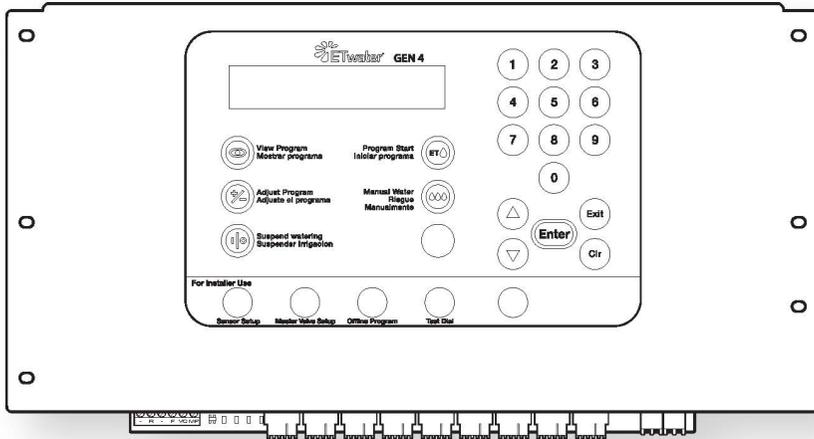
PHONE 800.438.3400
EMAIL ETWATER.SALES@HUSQVARNAGROUP.COM
ETWATER | HUSQVARNA GROUP
845 Overland Road, North Salt Lake, UT 84054

ETwater®

Husqvarna Group

SMARTWORKS PANEL FEATURES

SMARTWORKS AND SMARTBOX CONTROLLERS HAVE THE SAME KEYPAD

KEYPAD OPERATION

View Program: Displays upcoming watering start time. Enter a station number to view the irrigation schedule. Use the **DOWN ARROW** button to see when that station last watered.

Adjust Program: Increase or decrease run time for one station or all stations. Enter a station number to adjust run time for one station. Use the **UP ARROW** or **DOWN ARROW** buttons to scroll up or down to select the percentage adjustment you want to make.

Suspend Watering: Stops scheduled irrigation from occurring. The controller will continue to make its daily call to the JAIN Unity servers to receive irrigation schedule updates. Tip: you can also suspend watering from your computer.

Program Start: Run the downloaded irrigation schedule for one station or all stations. (you can see the program using the **VIEW PROGRAM** button) for one station or all stations. Note: the controller must be operating in 'online' mode for this feature to operate.

Manual Water: Run one station or all stations for a specified number of minutes. Use **UP ARROW** button to select 'multi' operation. In this mode, you can manually water stations simultaneously. To water stations consecutively, configure the first station to run, and then press the **MANUAL WATER** button again to set up the next station to run. You can run up to four stations consecutively. Note: for 'All' functionality, the controller must be operating in 'online' mode.

Reset: this feature resets the controller in the event it doesn't respond to manual commands, or if there is a communication issue. Press the **1** button and the **9** button simultaneously to reset the controller.

Sensor Setup: Enables the rain sensor. See the Rain Sensor installation instructions above. Important: If a rain sensor is attached to the controller, the rain switch *must be enabled*. If a rain sensor is not attached to the controller, the rain switch *must be disabled*.

Master Valve Setup: Configure the master valve to be normally open or normally closed. See the Master Valve setup instructions above. Note: the default setting is 'normally closed'.

Offline Program: The ETwater smart controller can be programmed to run in offline mode. In this mode, the controller will not contact the ETwater servers and the controller will not adjust the irrigation schedules according to changes in local weather. Offline programming instructions are available in the SmartBox section (A-1) of this User Guide.

Test Dial: Initiates a connection to the

> **NOTE:** Minimal support is available for controllers operating in offline mode.

ETwater servers. See the Test Dial instructions above.

Enter: Displays *controller serial number*, firmware version and maximum possible station count.

DIAGNOSTIC FEATURES

The ETwater SmartWorks panel has been designed to communicate the status of key field conditions.

Valve condition – The "**CURRENT**" LED will illuminate red if the controller detects an open or short condition on a station circuit. If the LED is red, perform a valve test (see Step 2D) to determine if the circuit is open or shorted. The "**CURRENT**" LED will illuminate green if the circuit is sound.

> **NOTE:** the "FAULT" LED will illuminate red once immediately after the controller detects an open or shorted circuit.

Tip: If a valve is shorted, the controller will recognize the problem, skip the station and continue irrigating the other stations in the schedule. When the controller makes its next scheduled call to the server, the controller will report the issue and you will receive an alert in your email inbox as well as a posting on your ETwater online dashboard.

Rain sensor status – the green "**RAIN**" sensor will illuminate if the sensor is dry and the wiring to the sensor is correct. The green light is the proper status when it is not raining.

If the green light is not lit, the sensor is wet, or there is a problem with the sensor wiring.

> **NOTE:** proper rain sensor configuration and a wet sensor will result in a "Rain Sensed" display on the LCD.

Flow sensor status – the green "**FLOW**" light will come on if the flow sensor is wired to the panel correctly, and if the flow sensor impeller is sending data to the panel. The green light will also come on after the proper range is configured online.

ERROR MESSAGES

Flow Fault: If you have activated the optional flow management service, the controller will display flow fault messages if there are flow problems. Flow fault #1 means high flow has been detected for one/many stations. Flow fault #2 means low flow has been detected for one/many stations. Flow fault #3 means unscheduled flow has been detected. Flow fault #4 means a slow leak has been detected. Unscheduled flow means the flow sensor detects water flow when the controller is not scheduled to be irrigating.

Reminder: If the controller detects a high flow condition, it will automatically shut off that station. If the controller detects three high flow conditions in a row, the controller will shut down completely and the master valve will close. You will also be emailed immediately. If unscheduled flow is detected, the controller will shut the master valve and you will be emailed immediately.

> **IMPORTANT:** Press exit to restore keypad operation and log in to your web site to review the flow messages!

SMARTWORKS™ REPLACEMENT PANEL

SOME THINGS TO CONSIDER BEFORE INSTALLING YOUR SMARTWORKS REPLACEMENT PANEL

Is there a cellular signal in the area of the controller?

All ETwater controller products work with mulitiple cellular carriers but they need to have a signal to connect to our server and download a program. One way to verify signal strength in the area would be to make a call using your mobile device. Our controllers work like a mobile phone where they make "calls" to our server, so if you can't make a call our controllers will be unsuccessful as well. Is the existing controller compatible with an ETwater replacement panel?

• Irritrol MC Plus

• Rain Master Sentar

• Rain Master Hawk

• Rain Master Eagle

• Rain Master Evolution DX2

• Rain Bird ESP-MC

• Rain Bird ESP SAT

Is existing controller's setup in working order?

Turn on each active valve on the existing controller and check to ensure the valve opens/closes and there are no irrigation system issues such as leaks, broken heads, and mis-aimed heads. If you find irrigation system issues, make all necessary repairs before installing the SmartWorks panel.

SmartWorks Replacement Panel Installation Instructions
Pre – Install Requirements:

The SmartWorks replacement panels uses a cellular signal to connect to the ETwater server for program updates. They are where the panel is installed must have a strong cellular signal.

Required Tools: (Phillips screwdriver, 3/8" drill bit (for metal), power drill, crescent wrench)

(1) REPLACEMENT PANEL FOR RAIN BIRD 50-PIN
ETWATER MODEL 204W-PB-QC

PARTS DETAIL

The kit contains a number of fasteners:

- Four (4) spring nuts
- Four (4) #6 flat head thread forming screws
- Two (2) #8 flat head screws

- Four (4) #8 machine screws and nuts
- Six (6) acorn nuts
- Six (6) nylon rivets

SMARTWORKS™ REPLACEMENT PANEL
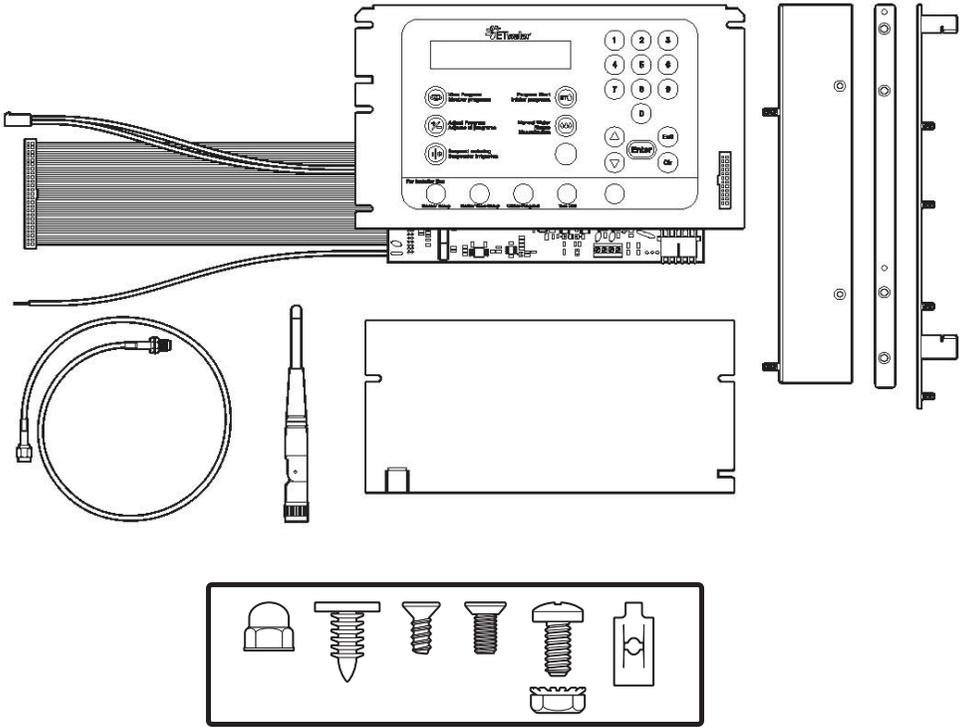
REMOVING THE RAIN BIRD® PANEL

• Disconnect the power to the existing Rain Bird controller. This is done by unplugging the connector from the transformer (bottom left corner of the box) to the output board which is located in the bottom of the Rain Bird box.

• Unlatch the panel and locate the ribbon and sensor cables underneath the panel. Disconnect these cables from the Rain Bird output board.

• Remove the panel from the hinge assembly by sliding the panel up and out of the lower holed hinge.
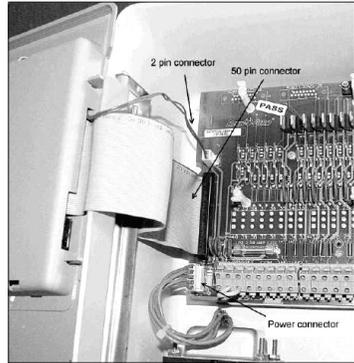
REMOVING THE INTERNAL PLASTIC FRAME (Some models only.)

• The internal plastic frame is held in place with eight connectors (two connectors on all four sides). A combination of plastic pins and nut/screw fasteners are typically used to secure the frame.

• Remove the plastic pins by either:

– using pliers to press the pin tabs in and then push the pin assemblies out, or

– using a cutting tool to cut the pins and push them out through the enclosure wall.

• If the pins are flat, use a screwdriver to tap them out through the enclosure wall.

• The nut/screw fasteners can be removed with a nut driver or small crescent wrench. Note: The pin assembly underneath the terminal lugs is best removed using needle nose pliers.

• Make sure the frame is loose by pushing the right side down into the enclosure and pull the entire frame out of the enclosure by lifting the left side.
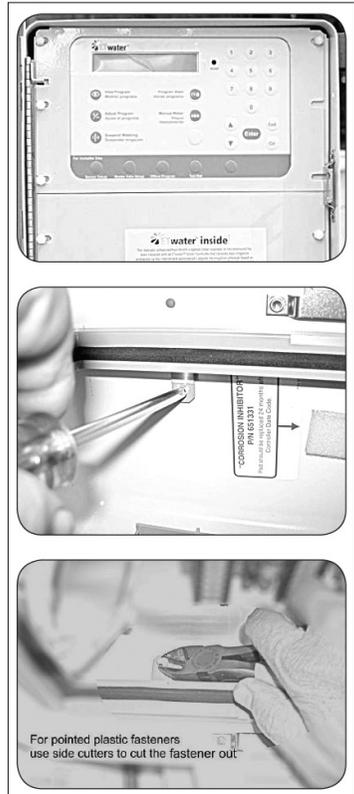
PANEL SUPPORT
Installing the right side adapter.

- On the boxes with plastic frames, the right side adapter, (the "L" shaped metal piece) attaches to the right side of the enclosure by threading two #8 machine screws from the outside of the enclosure, through the enclosure wall and into the adapter.
- This adapter supports the ETwater front panel.

#8 machine screws installed from the outside

CORROSION INH PM 65133

TOP RIGHTBACK SIDE

NOTE: This is the first step in which you'll be using the replacement metal parts enclosed in the assembly kit.

These parts have labels on the back side to help with orientation.
The threads on parts have been protected with a sheath that needs to be removed.

Installing the left side adapter.

Insert two spring nuts one in the top hole the other in the bottom hole

Attach left side adapter using #6 flat head screws
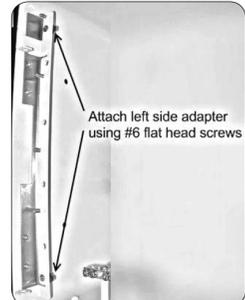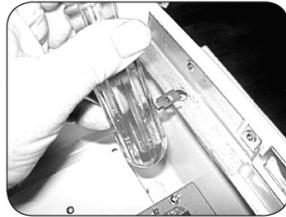
- The left side adapter connects to the hinge assembly. First, slide spring nuts over the lower section of the first and third hinge rail holes (Use a screw-driver handle to slide them on if needed.) The spring nuts will anchor the metal adapter piece.

- Second, find the left side adapter among the metal parts.
- Position the adapter as shown, taking care not to place the adapter too far up the hinge rail. Thread two #6 flat head screws through the adapter and the spring nuts to attach the metal to the hinge rail.

- Before tightening the screws, ensure that the adapter is flush with the hinge rail.

SMARTWORKS™ REPLACEMENT PANEL

Antenna connection

2 pin connection

50 pin connection

Yellow wire to 24 VAC

Antenna connection
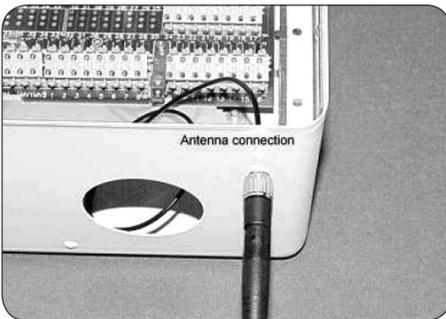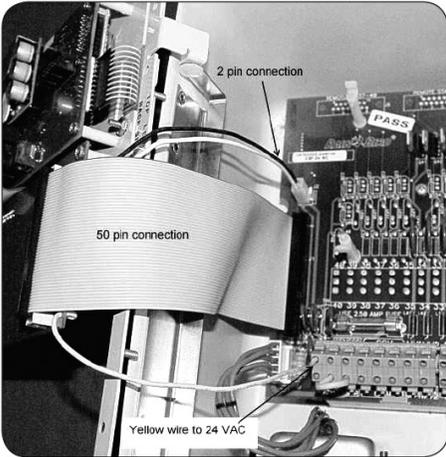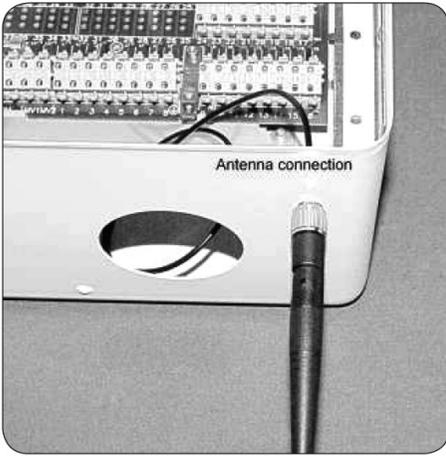
ATTACH RIBBON, GROUND, AND ANTENNA CABLES

- Remove the brass nut and washer from the end of the antenna cable and set the fasteners aside. Thread the brass connector through a convenient hole and screw on the brass washer and nut and tighten. Screw on the antenna but only tighten finger tight

NOTE: ETwater has vandal-resistant and if necessary, high-gain antennas that you can order and install to ensure the wireless connection will be consistent and reliable.

- The antenna needs to be installed outside of the metal box.
- Retrieve the ETwater 50-pin panel from the kit. Notice the flat gray ribbon cable, the 2 pin connector, and the yellow wire on the large PC board and verify that each of these is connected to the back side of the panel.
- Insert the loose end of the ribbon cable into the left side of the Rain Bird output board. The cable only installs one way, it is critical that you DO NOT force the cable connection.
- Next, connect the 2 pin connector into the socket on the left upper side of the output board.
- Thirdly, insert the yellow wire into the 24 VAC terminal block which is at the bottom far left of the output board.
- Connect the antenna cable into the connector on the back of the panel as shown.

SENSOR WIRING

Rain Sensor:

- Connect the rain sensor wires to the two rain sensor positions on the four position terminal strip on the PC board that extends approximately 2" below the face panel.

- To install a rain sensor, connect the sensor to the ETwater PC Board. Do not connect the rain sensor to the Rain Bird board. If installing a wireless rain sensor that requires power, the power is derived from the Rain Bird board using the termina ls marked VAC and COM. The other sensor wires connect to the ETwater board the same as the wired rain sensor.
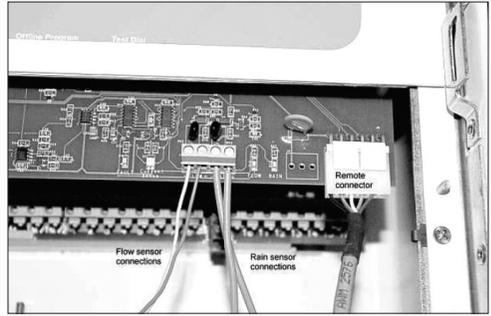
Flow Sensor:

- Connect the flow sensor wires to the two flow sensor terminals on the four position terminal strip on the ETwater PC board that extends approximately 2" below the face panel.

ATTACHING TRANSFORMER CONNECTOR (POWER)

- Plug the connector from the transformer back into the output board.

- The panel should now be powered. The panel will beep once and the display will illuminate. The display will read "ETWATER Online." The date and time will not be set. The panel will automatically attempt a connection to the ETwater servers ten minutes after power is connected. At that time the display will read "Contacting Unity Attempting to Connect". If the connection is successful, the display will briefly change to "Successful Call Complete", and the display will then show ETwater ONLINE with the correct time and date. The server connection can also be initiated via the 'Test Dial" button.

INSTALLING SMARTWORKS™ PANEL

- The panel installs best if the left side is first positioned so the cut out sections intersect with the three screw posts. As you press the right side of the panel into position, make sure the green ribbon cable just under the far edge of the panel does not get pinched between the "L" shaped **right side adapter and the panel itself.**

SMARTWORKS™ REPLACEMENT PANEL

INSTALLING LOWER PANEL

- The lower panel drops into place.

- If you anticipate the use of a remote control in the field, the TRC style connector is on the right side of the upper panel approximately 2" below the face plate or you have the option of specifying an ETwater Universal Remote Adaptor (available from an authorized ETwater Distributor). If you choose to use the Universal Remote Adaptor, a lower panel with a punch out and 9-pin connector/PC board is provided.

FINISHING INSTALLATION

- Use the six threaded plastic caps to secure the panels.

- You may also want to check the outside of the enclosure for holes, and use the nylon rivets to fill the holes.

- If the panel was able to connect successfully ten minutes after power was connected, or if you used the 'Test Dial' button to initiate a connection, the panel will begin to contact the ETwater online dashboard automatically.

- Make sure the serial number has been registered online, and that the station landscape parameters have been configured. If you will not be managing the controller via the computer and another person is going to manage ETwater, make sure you supply that person with the serial number and complete information from the landscape audit
(provided with the ETwater controller).

- The serial number is easily located on the shipping box, behind the keypad panel or will display if you press the 'Enter' button.

NOTE: The stamping on the top part of the lower panel reminds you which side faces out.

NOTES: There is no cap or plug for the hole located in front of the latching mechanism.

The controller will not irrigate automatically until it is properly configured online.

(2) REPLACEMENT PANEL FOR RAIN BIRD ESP - MC AND ESP SAT
ETWATER MODEL 204W-PB

The kit contains two circuit boards, brackets and connectors.

PARTS DETAIL

The kit contains a number of fasteners.

- **Three (3) #6 pan head thread forming screws** These hold down the bottom panel in the MC and 12SAT boxes

- **Ten (10) #6 machine screws** These hold the TRIAC and Terminal boards to the bottom panel

- **Two (2) #8 machine screws** Only used on the MC box for mounting the right side adapter

- **Four (4) spring nuts** Two are used for the left side adapter on all boxes Two are used on the right side adapter on the CCU and 12SAT boxes

- **Four (4) #6 flat head thread forming screws** Two are used for mounting the left-hand adapter on all boxes. Two are used on the right side adapter on the CCU and 12SAT boxes

- **Six (6) plastic #6 acorn nuts** These fasten the CPU panel and front lower panel

- **Four (4) #8 flat head machine screws and nuts** These are used in the CCU box only to mount the bottom panel to the box

- **Six (6) nylon rivets** Used in 12SAT box to mount the left side adapter or in the ESP MC box to fill the top and left-hand side holes

NOTE: You may be left with some extra parts, depending on which model you are retrofitting.

REMOVING THE RAIN BIRD® PANEL
WARNING: Turn off main power to controller before disassembling!

Unlatch the panel and locate the ribbon and battery cables underneath. The wide panel ribbon cable disconnects by pulling it straight out of the panel. The battery cable easily disconnects from the board below.

To remove the panel from the hinge assembly, push the panel up such that it slides off of the four gray plastic lugs that anchor it to the hinge rail. The panel will release from the hinge rail.

Set the panel aside.

POWER/GROUND CONNECTIONS
You will be reusing the 5-pin power connector that comes off the transformer. Locate the connector on the bottom left of the output board and pull it straight off the board. **DO NOT cut the power wires!**

The Rain Bird® enclosure can be grounded by a green ground cable that connects the output board to the terminal lug. The enclosure can also be grounded by a bare copper wire (coming up from the pedestal) that connects to the terminal lug at the bottom left of the enclosure.

The bare copper wire can remain attached, but the green cable, if it is installed, must be removed.

STATION /SENSOR WIRE CONNECTIONS
Use the **station wire labels (included)** to label each **station wire, valve common wire** and **master valve** or **pump start** wire. After double-checking that all wires have been labeled, remove them from the circuit board.

Determine if a rain sensor is attached to the circuit board. Label and disconnect those wires.

NOTE: For installers installing many SmartWorks replacement panels, and who feel comfortable with the process, consider removing the station wire from the Rain Bird® output board and immediately connecting it to the SmartWorks terminal board. The SmartWorks TRIAC board and Terminal board would have to be separated, but it saves having to label each wire.

REMOVING THE OUTPUT BOARD

The output board is anchored by three screws. Remove the screws and reserve them for future use.

Note the two plastic tabs at the bottom edge of the output board that help anchor the board to the plastic base below. You may have to slide the board "back and up" to release it from the tabs.

The output board should be completely loose. If there are other wire connections, make note of the connections and disconnect them. Set the output board aside.
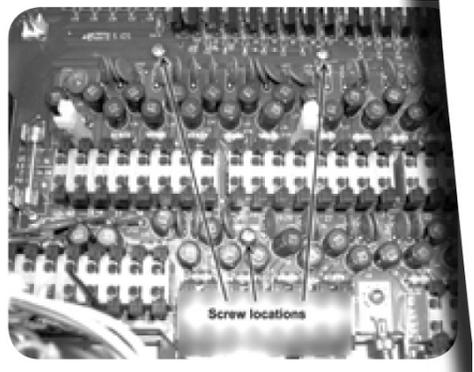
REMOVING THE INTERNAL PLASTIC FRAME

The internal plastic frame is held in place with eight connectors (two connectors on all four sides). A combination of plastic pins and nut/screw fasteners are used to secure the frame.

Remove the plastic pins by 1–Using pliers to press the pin tabs in and then push the pin assemblies out, or 2–Use a cutting tool to cut the pins and push them out through the enclosure wall.

If the pins are flat, use a screwdriver to tap them out through the enclosure wall.

The nut/screw fasteners can be removed with a nut driver or small crescent wrench.

NOTE: The pin assembly underneath the terminal lugs is best removed using needlenose pliers.

Make sure the frame is loose by pushing the right side down into the enclosure and pull the entire frame out of the enclosure by lifting the left side.

SMARTWORKS™ REPLACEMENT PANEL

INSTALLING THE BOTTOM PANEL

Note: This is the first step where you'll be using the replacement metal parts from the kit.

Align the bottom panel over the three screw holes in the plastic base. The panel will slide under the two plastic clips at the bottom edge of the base.

To attach the bottom panel, use the three screws that anchored the Rain Bird® output board, or use three **#6 x ½" pan head thread forming screws from the kit.**
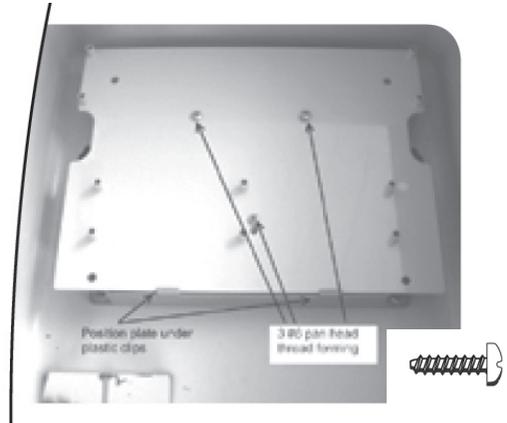
INSTALLING TRIAC AND TERMINAL BOARDS

The **TRIAC** and **Terminal boards** are supplied already connected. Note, however, how the boards attach via the six-pin connectors.

The **TRIAC** and Terminal boards attach to the bottom panel using ten **#6 x ½" pan head machine screws.** Align the boards over the panel so the holes are revealed and install the screws. Hand tightening will provide sufficient torque.
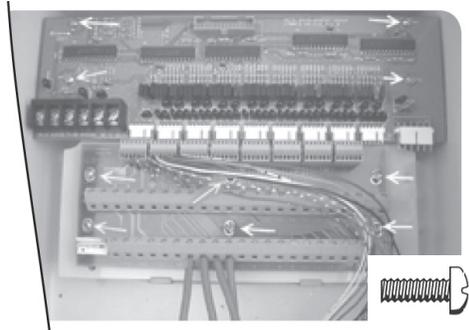
PANEL SUPPORT—INSTALLING THE RIGHT SIDE ADAPTER

The right side adapter, the **"L" shaped metal piece**, attaches to the right side of the enclosure by threading two **#8 x ½" pan head machine screws** from the outside of the enclosure, through the enclosure wall and then into the adapter itself.

To check your work, after installation the right side adapter will function like a shelf.

Panel Support—Installing the Left Side Adapter

The left side adapter will connect to the hinge assembly.

First, slide **spring nuts** over the lower section of the first and third hinge rail holes. The spring nuts will be necessary to anchor the **metal adapter piece.**

NOTE: If it is difficult to slide the spring nuts over the hinge rail, use a screwdriver handle to press them into position.

Second, find the left side adapter among the metal parts. The adapter is completely flat with two prein-stalled screw posts and four pre-drilled holes.

Position the adapter as shown, taking care not to place the adapter too far up the hinge rail. Thread two #6 flat head screws through the adapter and the spring nuts to attach the metal to the hinge rail. Before tightening the screws, ensure the adapter is flush with the hinge rail.

Correct orientation of left sider adapter

SMARTWORKS™ REPLACEMENT PANEL

MASTER VALVE WIRING
The fifth wire connects to the MV position ONLY IF your master valve is normally open. If the master valve is normally closed, coil and secure the fifth wire.

CONNECT STATION/SENSOR WIRING

Ensure all the station wires terminate inside the enclosure, and that none have fallen into the pedestal during the installation.

Connect the station wires to the **Terminal board**. Note the station numbers have been printed on the Terminal board.

Connect the rain sensor wires to the two rain sensor positions on the six position terminal strip on the **TRIAC board.** Polarity doesn't matter with a simple two wire sensor.

If installing a wireless rain sensor that requires power, use the rain sensor positions on the **TRIAC board** (blue wire on the left, white wire on the right), and attach the power wires to the 24V terminals at the bottom left of the **Terminal board.**

ATTACH RIBBON, ANTENNA AND GROUND CABLES

Retrieve the ETwater SmartWorks panel from the kit. Notice the **flat gray ribbon cable** and **round black or thin gray antenna cables** that attach to the back of the panel.

Insert the loose end of the ribbon cable into the top of the **TRIAC board**. The cable only installs one way, so **DO NOT force the cable connection**. One way to orient the cable correctly is to fully roll it out and smooth it so it is not crimped or bent. The connector will connect easily in this fashion.

Remove the brass nut and washer from the end of the antenna cable. Set the fasteners aside.

NOTE: You can attach the antenna cable to the enclosure via one of the pre-drilled holes at the base of the enclosure. If the connection is made in this manner, the wireless signal may not be strong enough to ensure consistent and reliable wireless communication. ETwater Systems recommends the antenna connection be made so the brass fitting will terminate outside the enclosure and/or pedestal.

When the antenna finally attaches to the brass fitting (see Attaching Antenna), we recommend the antenna be outside the enclosure.

NOTE: double check that the bare ground wire is still attached to the terminal lug. If there is no bare ground wire, connect a wire from the back of the keypad panel to the terminal lug.
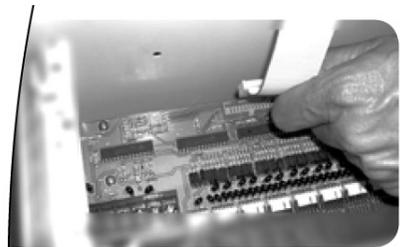
ATTACH TRANSFORMER CONNECTOR (POWER) BATTERIES

The existing transformer/power connector will connect to the five-pin connector on the bottom left of the Terminal board. The connector attaches only one way, with the plastic pins facing up. **DO NOT force the connector!**
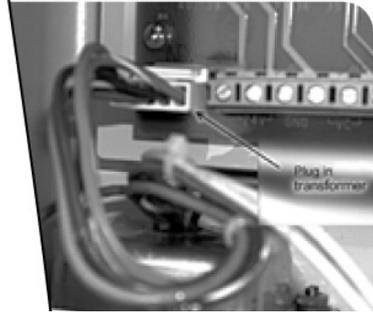
The panel is now powered. The panel will beep once and the display will illuminate. The display will read **"ETwater."** The date and time will not be set. The panel will automatically attempt a connection to the ETwater servers ten minutes after power is connected. At that time the display will read **"Contacting ET Water Attempting to Connect."** If the connection is successful, the display will briefly change to **"Successful Call Complete,"** and the display will then show **"ETwater Online"** with the correct time and date.

The server connection can be initiated immediately via the **'Test Dial' button**.

INSTALLING SMARTWORKS™ PANEL

The panel installs best if the left side is first positioned so the cut out sections intersect with the three screw posts. As you press the right side of the panel into position, make sure the green ribbon cable just under the far edge of the panel **does not get pinched** between the **"L" shaped right side adapter** and the **panel itself.**

INSTALLING FRONT LOWER PANEL

The lower panel drops into place so the sticker is facing you. Note also the stamping on the top part of the lower panel that reminds you which side faces out.

SMARTWORKS™ REPLACEMENT PANEL

ATTACHING ANTENNA

Before securing the SmartWorks panels, consider where you have installed the brass antenna fitting. If you have installed it through the bottom of the enclosure or if the fitting location will be entirely outside the pedestal, please thread the antenna (included) onto the brass fitting.

NOTE: Your irrigation distributor has vandal-resistant and, if necessary, high-gain antennas that you can order and install to ensure the wireless connection will be consistent and reliable.

FINISHING INSTALLATION

Use the six threaded plastic caps to secure the panels.

NOTE: There is no cap or plug for the hole just in front of the latching mechanism.

You may also want to check the outside of the enclosure for holes, and use the nylon rivets to plug the holes.

If the panel was able to connect successfully ten minutes after power was connected, or if you used the **'Test Dial' button** to initiate a connection, the panel will begin to contact the JAIN Unity servers automatically.

Make sure the serial number has been registered online, and that the station landscape parameters have been configured. If you will not be managing the controller via the computer, make sure you supply that person with the serial number. The serial number is located on the shipping box, behind the keypad panel and will display if you press the 'Enter' button.

Installation of your ETwater smart controller is now complete.
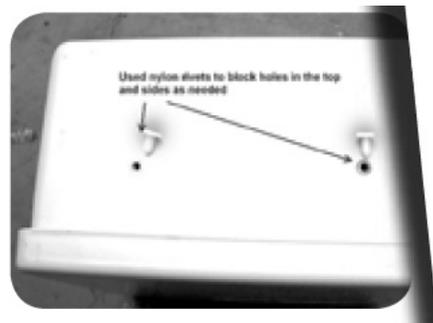
(3) REPLACEMENT PANEL FOR RAIN MASTER DX2 EVOLUTION
ETWATER MODEL 204W-PRE

PARTS DETAIL

The kit contains a number of fasteners.

- **Three (3) #6 pan head thread forming screws**
  These hold down the bottom panel in the MC and 12SAT boxes

- **Ten (10) #6 machine screws**
  These hold the TRIAC and Terminal boards to the bottom panel

- **Two (2) #8 machine screws**
  Only used on the MC box for mounting the right side adapter

- **Four (4) spring nuts**
  Two are used for the left side adapter on all boxes
  Two are used on the right side adapter on the CCU and 12SAT boxes

- **Four (4) #6 flat head thread forming screws**
  Two are used for mounting the left-hand adapter on all boxes. Two are used on the right side adapter on the CCU and 12SAT boxes

- **Six (6) plastic #6 acorn nuts**
  These fasten the CPU panel and front lower panel

- **Four (4) #8 flat head machine screws and nuts**
  These are used in the CCU box only to mount the bottom panel to the box

- **Six (6) nylon rivets**
  Used in 12SAT box to mount the left side adapter or in the ESP MC box to fill the top and left-hand side holes

> **NOTE:** You may be left with some extra parts, depending on which model you are retrofitting.

REMOVING THE RAIN MASTER FRONT PANEL

With power off to the controller, remove the Rain Master front panel by removing the 4 screws that hold it in place. Carefully disconnect and remove all cables that connect to the front panel as you remove the panel from the pedestal. A typical front panel is shown here:

REMOVING THE RAIN MASTER SOLENOID CONTROL BOARDS

NOTE: Some installations may have the control boards mounted vertically in the cabinet rather than horizontally, as shown below. Regardless, the replacement ETwater control boards will fit in either orientation. Additionally, to minimize wiring errors, some people find it easiest to leave the valve wires connected to the DX2 control boards and transfer them, one-by-one to the new ETwater control boards after the new boards are mounted.
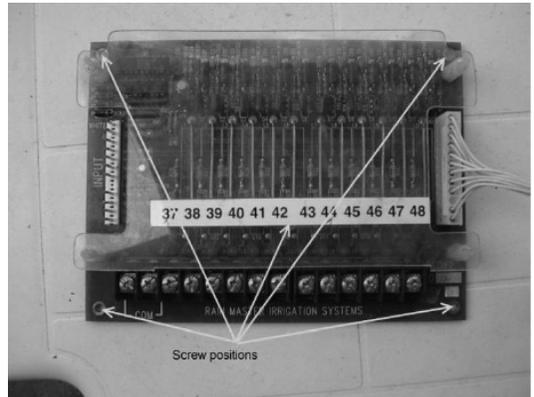
Removal of each of the four existing control boards requires removing five screws, as indicated here:

Unplug the cables leading to the control boards, and then unscrew each of the control boards from the metal brackets to which they are mounted. If you plan on transferring the wires one-by-one to the new control boards you may leave them attached while fitting the ETwater control boards in place. Otherwise, label each of the station wires with their number and remove them from the boards. To secure the ETwater control board, use the original screws from the original control boards.

Two of the four boards to be removed.
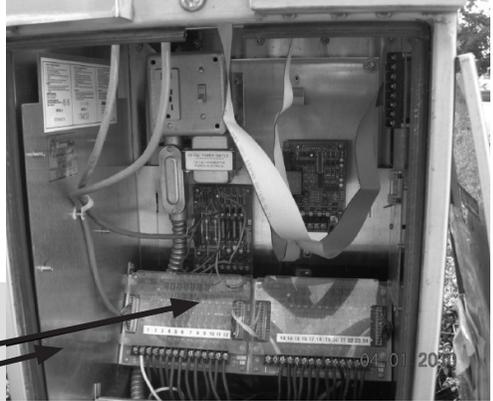
MOUNTING THE ET WATER CONTROL BOARD BASE PLATE

Note: The ETwater control boards come pre-mounted on a metal base plate. Holes in this plate will align properly with the mounting posts in the cabinet in both horizontal and vertical arrangements.

If your installation had the DX2 control boards mounted vertically in the cabinet, then we recommend that you mount the ETwater base plate on the right-hand set of mounting posts. For horizontal mounting the ETwater control base plate should be mounted to the top set of mounting posts. To mount the base plate, align the holes to the mounting posts and use six of the screws that you removed in the previous step to mount the plate securely in position.

Next, connect the valve wires to the control board being sure to use the same station numbers that the wires were previously connected to.

SMARTWORKS™ REPLACEMENT PANEL

INSTALL THE ET WATER FRONT PANEL

The ETwater front panel installs in place of the Rain Master panel using four screws. Hold the front panel in place with the wide ribbon-cable dropping freely towards the new valve control boards, and then install the four screws required to hold the panel securely in place.

CONNECT POWER AND RIBBON CABLES

Connect the red and yellow wires from the power harness to the 24 VAC screw terminals to which the orange transformer wires are connected on the power distribution board above the shelf. The wires can be attached in either order.

Next, connect the ribbon cable to the top left connector on the left-most ETwater valve control board.

Finally, connect the other end of the power harness into the connector on the left edge of the left-most valve control board. This picture shows the ribbon cable and power harness connected properly:
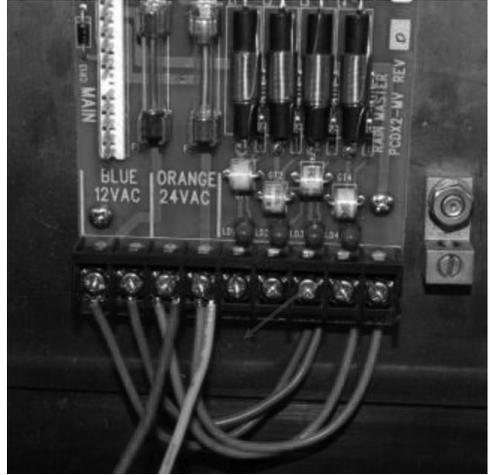
Note: If your wiring harness has a third, Green wire, it can be wrapped up and left disconnected.

Valve control assembly showing ribbon cable (top) and power cable (bottom) connections.
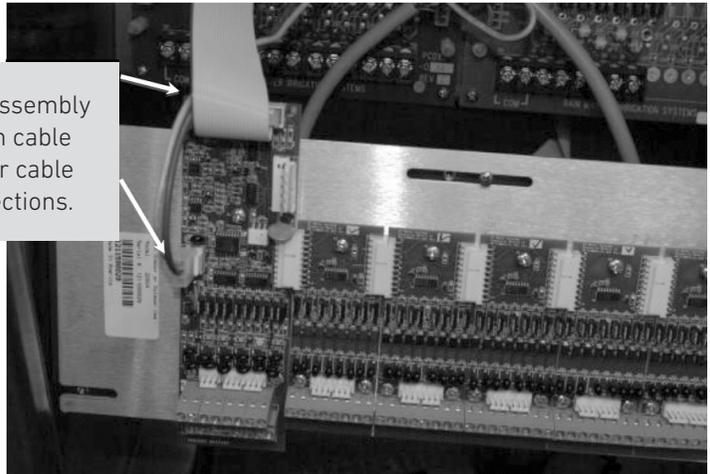
INSTALL AND CONNECT EXTERNAL ANTENNA

The ETwater smart controller uses a cellular data connection and needs a good signal in order to operate properly. The DX2 Replacement Kit comes with a small, flat, self adhesive antenna. Because cellular signals will not provide a strong enough signal inside the cabinet, the antenna MUST be mounted to the OUTSIDE of the stainless steel cabinet. Due to the variety of cabinets in which DX2 units are mounted, there is no single best method to route the antenna cable from the external antenna to the inside of the cabinet. Some possibilities are listed below:

• Look for air vents on the sides of the cabinet (not on the door), and, using a screwdriver, pry one of the vents open wide enough to accept the cable.

• Mark, center punch, and drill a hole using a good, high-speed set of metal drill bits.

• Route the cable out of the cabinet via the valve wiring pathway.

Regardless of how you get the cable from the outside to the inside, before mounting the antenna, clean the surface to which it is being applied using alcohol and allow it to dry thoroughly before pressing the antenna into place.

Once the antenna is mounted, connect the other end of the cable to the front-panel's antenna connector.

SMARTWORKS™ REPLACEMENT PANEL

SMARTWORKS™ REPLACEMENT PANEL

PERFORM A TEST-DIAL TO CONFIRM INSTALLATION

Once everything is assembled, panels mounted, cables connected, you are ready to reapply power to the unit and perform a test-dial to verify operation of the unit. At the same time, we recommend you also test the field wiring using the built-in Valve Test. To perform these tests:

1. Re-apply power to the station and wait 30 seconds for the front panel to initialize itself and become active.

2. Press the "**Test Dial**" button on the front panel. A message on the LCD screen will report the cellular signal strength and you will be directed to press **ENTER** to continue the test dial process.

3. Press "**Enter**" to connect to the JAIN Unity server. After a successful connection, the LCD screen will display "**Successful Call Complete**," followed by "**ETwater Online**" with the correct time and date.

4. Perform a Valve Test by pressing the Down arrow on the front panel, select the desired stations to test, and press **Enter**
   OK = No problems found
   SH = Valve short – check field wiring
   OP = Valve open – check solenoid and field wiring

FINISHING INSTALLATION

- If the panel was able to connect successfully ten minutes after power was connected, or if you used the '**Test Dial**' button to initiate a connection, the panel will begin to contact the ETwater online dashboard automatically.

- Make sure the serial number has been registered online, and that the station landscape parameters have been configured. If you will not be managing the controller via the computer and another person is going to manage ETwater, make sure you supply that person with the serial number and complete information from the landscape audit (provided with the ETwater controller).

- The serial number is easily located on the shipping box, behind the keypad panel or will display if you press the '**Enter**' button.

REPLACEMENT PANEL FOR IRRITROL MC-PLUS AND RAINMASTER SENTAR, EAGLE + HAWK SERIES
ETWATER MODELS: 204W-PI & 204WPR

CPU panel
Left side adapter
Ribbon cable
Bottom panel
TRIAC board
Terminal board
Right side adapter
Right side

The kit contains two circuit boards, brackets and connectors.

PARTS DETAIL

The kit contains a number of fasteners.

- **Three (3) #6 pan head thread forming screws**
  These hold down the bottom panel in the MC and 12SAT boxes

- **Ten (10) #6 machine screws**
  These hold the TRIAC and Terminal boards to the bottom panel

- **Two (2) #8 machine screws**
  Only used on the MC box for mounting the right side adapter

- **Four (4) spring nuts**
  Two are used for the left side adapter on all boxes
  Two are used on the right side adapter on the CCU and 12SAT boxes

- **Four (4) #6 flat head thread forming screws**
  Two are used for mounting the left-hand adapter on all boxes
  Two are used on the right side adapter on the CCU and 12SAT boxes

- **Six (6) plastic #6 acorn nuts**
  These fasten the CPU panel and front lower panel

- **Four (4) #8 flat head machine screws and nuts**
  These are used in the CCU box only to mount the bottom panel to the box

- **Six (6) nylon rivets**
  Used in 12SAT box to mount the left side adapter or in the ESP MC box to fill the top and left-hand side holes

Note: You may be left with some extra parts, depending on which model you are retrofitting.

SMARTWORKS™ REPLACEMENT PANEL

Step 1. Check the existing setup

Turn on each active valve on the existing controller and check to ensure the valve opens/closes and there are no irrigation system issues such as leaks, broken heads, and mis-aimed heads. If you find irrigation system issues, make all necessary repairs before installing the SmartWorks panel.

The landscape data for each station will need to be recorded and entered online. While checking the irrigation system it is a good time to record this data. To record the landscape data, please use the accompanying Landscape Checklist form.

Step 2. TURN OFF POWER and remove existing panel from controller enclosure

Your SmartWorks panel is designed to fit inside the enclosure of selected Irritrol®, RainMaster® and Rain Bird® controllers.

Incorrect installation or installation into a non-approved host controller may damage either or both units and will void the warranty.

2A. Irritrol Installations

Turn off the circuit breaker supplying power to the controller. If the circuit breaker isn't accessible, the ribbon cable typically located on the far left side of the controller supplies AC power to the panel, as well as valve common and master valve connections and must be unplugged. Remove the lower panel and set aside. Before removing the existing upper panel, please note how many ribbon cables lead from the terminal board in the back of the enclosure to the connectors on the bottom edge of the upper panel.

The same ribbon cables will connect the SmartWorks panel to the station wiring. This makes installation more efficient so you won't need to re-wire or change existing station wiring (unless you've already identified an existing problem with the field wiring).

Label and remove any rain sensor, flow sensor or ground wires that may be attached to the existing panel. Next, remove the ribbon cables from the upper panel. Set the panel aside.

2B. Rain Master Installations

Turn off the circuit breaker supplying power to the controller. If the circuit breaker isn't accessible, the wire connection on the far left supplies AC power to the panel, as well as valve common and master valve connections and must be unplugged. Remove the lower panel and set aside. Before removing the existing upper panel, please note the wire connections are grouped by color. After the power connection, you'll see bundles of red, orange, yellow, green, blue, indigo and violet wires. Note how many different color bundles you are using.

The same wiring bundles will connect the SmartWorks panel to the station wiring, so you won't need to re-wire or change existing station wiring (unless you've already identified an existing problem with the field wiring).

Label and remove any rain sensor, flow sensor or ground wires that may be attached to the upper panel. Next, pull the wire bundles off the upper panel. The bundles terminate in a handy six-pin connector. This connector slides off the pins. Remove and reserve the screws anchoring the upper panel. Set the panel aside.

We recommend the cellular antenna (included) (picture) be installed outside of the enclosure to ensure maximum wireless signal strength. Is there an existing hole in the enclosure big enough to accept the threaded brass fitting on the end of the antenna cable (picture)? If not, drill a ¼" hole through the SIDE or BACK of the enclosure, not the top. Use the brass nut and washer (picture) to anchor the fitting in place.

Do not power the panel at this point. Starting with the wire bundle on the far right, attach the cables to their appropriate six-pin connections on the new panel. Leave the last wire connection (the one on the far left) unattached. Note: there are wire connection adapters installed on the ETwater SmartWorks panel. The adapters convert the large six-pin connector on the wire bundles to the smaller six-pin connector on the panel.

Find the brass fitting on the back of the upper panel. Thread the loose end of the antenna cable onto the fitting. Hand tight is sufficient.

Hold the panel in place while you use the four screws you reserved to anchor the panel to the enclosure.

Reconnect any rain sensor or flow sensor wires. Please see the Rain Sensor and Flow Sensor connection instructions in Step 3 and Step 4 below.

A valve common terminal is available for your use on the terminal strip as well as a pump start relay ("MP") terminal.

Turn the circuit breaker on and attach the final wire connection to the last four-pin connector.

The controller will display "ETwater Online" with no date and the time counting up from 12pm.

2C. Valve Test feature
Once the controller is powered, use the "down arrow" button to select the valve check feature. The controller will check all 48 stations (it will check the maximum possible stations, even if the stations are unused) and report if the circuit is good "ok", open "OP" or shorted "SH".

You can check "all" stations or you can enter an individual station. The controller will 'activate' that station and report the number of milliamps the circuit can hold. The table on the next page describes what the displayed milliamp number means.

2D. Install and Connect External Antenna

The ETwater smart controller uses a cellular data connection and needs a good signal in order to operate properly. Because cellular signals will not provide a strong enough signal inside the cabinet, the antenna MUST be mounted to the OUTSIDE of the stainless steel cabinet. There is no single best method to route the antenna cable from the external antenna to the inside of the cabinet. Some possibilities are listed below:

- Look for air vents on the sides of the cabinet (not on the door), and, using a screwdriver, pry one of the vents open wide enough to accept the cable.
- Mark, center punch, and drill a hole using a good, high-speed set of metal drill bits.
- Route the cable out of the cabinet via the valve wiring pathway.

Regardless of how you get the cable from the outside to the inside, before mounting the antenna, clean the surface to which it is being applied using alcohol and allow it to dry thoroughly before pressing the antenna into place.

Once the antenna is mounted, connect the other end of the cable to the front-panel's antenna connector.

Do not power on the panel at this point. Starting with the ribbon cable on the far right, attach the cables to their appropriate connections on the bottom edge of the upper panel. Leave the last cable (the one on the far left) unattached as this provides power to the panel.

Find the brass fitting on the back of the upper panel. Thread the loose end of the antenna cable onto the fitting. Hand tight is sufficient. (picture)

Hold the panel in place while you use the two screws (included) to anchor the panel to the enclosure. Reconnect any rain sensor or flow sensor wires. Please see the Rain Sensor and Flow Sensor connection instructions in Step 3 and Step 4 below.

A valve common terminal is available for your use on the terminal strip as well as a pump start relay ("MP") terminal.

Turn the breaker on and connect the final ribbon cable to supply AC power to the panel.

The controller will display "**ETwater Online**" with no date and the time counting up from Noon.

Reading	Circut Status
Between 50 and 600 milliamps	Good
Between 600 and 1200 milliamps	Bad connection tending towards short condition
Over 1200 milliamps	Shorted
Between 0 and 50 milliamps	Bad connection tending towards open condition
0 milliamps	Open

Step 3. Connect the Rain Sensor (optional)

Before attaching a rain sensor or any accessories to an ETwater product carefully review the installation and operations instructions for that product. Then review the ETwater instructions to ensure proper installation and operation.

Mini-Clik style rain sensor wires can connect to either rain sensor terminal. **Polarity is critical** to operation with the Wireless Rain-Clik style rain sensors. The power wires (both wires are the same color, usually yellow or red) connect to AC power and AC neutral terminals on the terminal board. Of the three remaining wires, one (usually orange or black) is for **normally open** master valve applications. The white (neutral) wire connects to the right rain sensor terminal; the positive wire (usually blue) connects to the left rain sensor terminal. If the master valve is normally closed, coil and disregard the normally open master valve sensor wire.

Next, press the SENSOR SETUP button and use the UP ARROW button to change the sensor status from 'disabled' to 'rain switch'. Then, press the ENTER button to finish the setup process.

> **Note:** if you are using a Wireless Rain-Clik or related sensor, the sensor could default to active status if power to the panel is interrupted. If the sensor is active, re-synchronize the sensor receiver and transmitter by pressing the test spindle or reset button on the transmitter. Consult the sensor operating instructions if this step doesn't re-synchronize the transmitter and receiver.

Step 4. Connect the Flow Sensor (optional)

Before attaching a flow sensor or any accessories to an ETwater product carefully review the installation and operations instructions for that product. Then review the ETwater instructions to ensure proper installation and operation.

The positive flow sensor wire (usually red) connects to the left flow sensor terminal. The neutral flow sensor wire (usually black) connects to the right flow sensor terminal.

TIP: Don't forget to set up your flow sensor in JAIN Unity!

Step 5. Test Dial the ETWater Controller

Before leaving the site, ensure the controller has completed a Test Dial successfully.

Press the **TEST DIA**L button. The wireless signal strength reading will appear on the LCD and can range from 0 to 31.

SMARTWORKS™ REPLACEMENT PANEL

Signal Quality Reading	Signal Quality	Connection Possible?
99	Unknown/Not found	No
0	None	No
1–10	Low	Inconsistent
11–25	Medium	Yes
26–31	Excellent	Yes

If the signal strength is sufficient, you will be directed to press the ENTER button to continue the test dial process. After a successful connection, the LCD screen will display "Successful Call Complete". The following screen will display "**ETwater ONLINE**" with the correct date and time.

If the wireless signal is reported as 99 or 0 or the display reads "modem not found" wait two full minutes and try the test dial process again.

Tip: check when the controller last connected. To see when the controller last connected, press the UP ARROW button to view the last connect date and time. If you want your web site updated with the latest information stored in the controller, you can initiate the test dial procedure.

Tip: use the Instant Connect feature. If you are using your computer to change the irrigation schedules, or you have applied a controller suspension or watering restriction, and you want the controller to adjust accordingly, click the "connect now" button that you'll find in the communications log on your web site.

Step 6. Verify/Set Master Valve Settings
The MASTER VALVE SETUP button allows you to designate your master valve to operate in 'normally open' or 'normally closed' configurations. The default setting is normally closed, which means the controller will activate the master valve terminal during any irrigation event.

FINISHING INSTALLATION
- If the panel was able to connect successfully ten minutes after power was connected, or if you used the 'Test Dial' button to initiate a connection, the panel will begin to contact the JAIN Unity online dashboard automatically.
- Make sure the serial number has been registered online, and that the station landscape parameters have been configured. If you will not be managing the controller via the computer and another person is going to manage Unity, make

sure you supply that person with the serial number and complete information from the landscape audit (provided with the ETWater controller).
- The serial number is easily located on the shipping box, behind the keypad panel or will display if you press the 'Enter' button.
- Installation of your ETwater smart controller is now complete.

SMARTWORKS™ REPLACEMENT PANEL

ADDITIONAL RESOURCES

QUESTION AND HELP MATRIX

Question	Your issue is:	Solution
The panel I bought doesn't fit in the enclosure	You bought the wrong SmartWorks panel model.	Write down the existing controller manufacturer and model type and ask your distributor if there is a SmartWorks panel for your site.
I can't drill a hole for the antenna in the enclosure.	The controller may not be able to communicate consistently.	Call ETwater Customer Care and we will test the controller connection capability.
Do you have other antennas? There is a chance of vandal- ism in the area.	Is there a vandal- resistant antenna available?	ETwater offers high-gain and vandal resistant antennas.
My controller will not display "successful call complete" after I test dial.	Your controller is not communicating with the server.	Is the antenna attached? If so, reset the controller and try the test dial procedure again. If you need more help, please call the ETwater Care team.
What are the red and green lights on the modem?	How does the wireless modem operate?	The green light signifies the wireless modem board is powered. The red light flashes to confirm a network connection. A rapid flash (once every two seconds) means no connection is established. A slow flash (once every five seconds) means a connection is established.
My cell phone drops calls when it is busy or if there is a network problem. What happens if your controller can't communicate?	Wireless network problems and controller irrigation schedules.	The irrigation schedules are stored in non-volatile memory and will never be erased. If the controller can't connect, it will execute the last schedule it received. ETwater will alert you if the controller has missed communication.
Why aren't there batteries with the controller?	Does the controller need batteries?	The controller uses batteries that are already installed on the circuit board. There are no batteries for you to install. The irrigation schedules will never be erased or lost if the power goes out.

ADDITIONAL RESOURCES

Question	Your issue is:	Solution
The controller displayed "success-ful call complete" but there are no schedules. What do I do? There are no knobs or dials to program the controller.	How do you program the controller?	Use your serial number and register the controller at www.jainsunity.com. Then, configure the stations using the pictorial guide.
The controller is watering, but I need to reduce or increase how much water is being applied.	Adjusting the irriga-tion schedules.	Adjust the irrigation schedules on your ETwater online dashboard. You can change the frequency and run time. At the controller, you can use the ADJUST PROGRAM button to increase or decrease run time.
I'm not sure the controller is water-ing. The site looks dry overall.	Site irrigation troubleshooting	Use the MANUAL WATER button to activate a station. Check the "current" light to see if there is a valve problem. Use your multimeter to confirm the controller is outputting voltage. Check if the master valve opens.

TROUBLESHOOTING TIPS

NO CELL SIGNAL: This error occurs when the controller has not connected to the network tower in the area. If you are just setting up your controller, wait 45 seconds after receiving the error, then press TEST DIAL again. During the connection, the display screen will read "Contacting ETwater". A successful connection message will display after the call has completed. Check all antenna connections if error still occurs after above step.

NO MODEM FOUND: This error displays if the modem has been dislodged from the main circuit board or the antenna is not connected securely. To clear the error, power down the controller, gently remove the modem, check all the pins for any damage, reseat the modem, pressing firmly down to ensure all pins connect, then power up the controller. Give the controller 45 seconds to completly boot up, then perform a test dial. If error persists the modem may be damaged. Contact ETwater Customer Care.

LOW SIGNAL STRENGTH: Low signal strength, anything below 10, can be caused by the antenna not being securely fastened to the modem, or the location of the controller in relation to the closest cellular tower. Adjust the antenna in different directions to receive signal strength of at least 10. Any signal strength under 10 may not consistently connect to the JAIN Unity server. If signal strength cannot be improved through adjusting the antenna your controller may require a high gain antenna.

OUTPUT FAILURE: When the words "output failure" appear on the screen that means either your base module or one of the expansion modules have been damaged.

Another cause is that the gray ribbon cable is not fully connected. To determine the cause first check the ribbon cable to make sure it is connected firmly at both ends, then power cycle the unit. If the output failure is still on the screen remove each expansion module one at a time, power cycle the unit, and if the output failure does not return you have found the module causing the problem. If the Output Failure returns then proceed to the next expansion module

VALVE CHECK: ETwater allows you to check all stations to confirm there are no open or short circuits. To complete a valve check, first select the down arrow button and follow the instructions on the screen.

LANDSCAPE CHECKLIST

Use this form to record your current station configurations (irrigation method, plant type, slope, soil, sun exposure, etc.) At the bottom, also record the current watering schedule for each station. For example, Station #1 may now water twice a week (2 sessions) for one hour each, for a total watering time of 2 hours per week. This information will help you configure your stations on our website, and also allow you to compare your current watering schedule and usage with your new ETwater schedule.

Mark the applicable row using the checkboxes at right, and use a new sheet as needed.	☐	Station Number											
	☐	1	2	3	4	5	6	7	8	9	10	11	12
	☐	13	14	15	16	17	18	19	20	21	22	23	24
	☐	25	26	27	28	29	30	31	32	33	34	35	36
	☐	37	38	39	40	41	42	43	44	45	46	47	48
Irrigation Method													
Spray Head													
Rotor													
Impact													
Stream													
Drip													
Bubbler													
Precipitation: inches or gallons per hour													
Plant Type* *(Choose as many as apply)*													
Cool Season Grass													
Warm Season Grass													
Flowers/Bedding Plants													
Shrubs (Native_													
Shrubs (Non-native)													
Groundcover/Vines													
Trees (Native)													
Trees (Non-native)													
Ornamental Grasses													
Vegetables/Herbs													
Cactus/Succulents													
Slope													
Flat/Negligible (0-5%)													
Gentle (6-8%)													
Medium (9 to 12%)													
Steep (13-20%)													
Very Steep (over 20%)													
Soil													
Sandy (porous)													
Sandy Loam													
Loam (medium)													
Loamy Clay													
Clay (dense)													
Sun Exposure													
Sunny all day													
Shady part of the day													
Shady all day													
Current Watering Schedule													
Sessions per week													
Minutes per session													
Total minutes per week													
New schedule: approx. minutes per week													

* Plant types: Please note the approximate age of your plants and whether they are deciduous or evergreen. Also, for plants over one year old, our system will assume they have the normal mature root depth for the type of plant indicated. If you believe your plants have not achieved their normal root depth, you may change this value using the Advanced Setup page or Edit Station feature on the website.

ADDITIONAL RESOURCES

LIMITED WARRANTY

ET Water Systems, Inc. ("ETwater") warrants that any ETwater hardware product will be free from defects in materials and workmanship under normal use for a period of three (3) years after the date of purchase. Your sole and exclusive remedy and ETwater's entire liability under this warranty is, at ETwater's option, either (i) repair of the product, (ii) replacement of the product, or (iii) refund of the purchase price of the product (as evidenced by a copy of your purchase receipt), less any rebates or credits.

EXCLUSIONS

The above mentioned warranty shall not apply (i) if the product has been altered or modified without ETwater's authorization, (ii) if the product has not been installed, operated, repaired, or maintained in accordance with ETwater's instructions, (iii) if the product has been subjected to abnormal physical, thermal, or electrical stress, or to misuse, neglect, or accident, or (iv) if product failure occurs as a result of any cause not attributable to ETwater.

WARRANTY SERVICE PROCEDURES

You must notify ETwater (by contacting us at 1-888-685-5505) of any defect in the product within the applicable warranty period and provide dated proof of original purchase prior to the return of the product. Within ten (10) business days after the date of notification, ETwater will provide you with a Return Material Authorization ("RMA") number and the location to which you must return the product. You are responsible for proper packaging of the product returned to ETwater, shipment to ETwater's designated location, and return of the product within ten (10) business days after issuance of the RMA number. ETwater does not accept responsibility for any product lost in transit and recommends that the return be insured for the full value of the product.

Transportation costs relating to warranty service and any applicable duties will be borne by you. If a warranty claim is invalid for any reason, ETwater will contact you.

DISCLAIMER

EXCEPT AS SPECIFIED IN THE LIMITED WARRANTY ABOVE, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, NON-INFRINGEMENT, OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE, ARE HEREBY EXCLUDED AND DISCLAIMED TO THE EXTENT ALLOWED BY APPLICABLE LAW. IN NO EVENT WILL
ETWATER OR ITS AFFILIATES OR SUPPLIERS BE RESPONSIBLE FOR ANY THIRD PARTY PRODUCTS, INCLUDING WITHOUT LIMITATION, HOST CONTROLLERS, SPRINKLERS OR DRIP IRRIGATION SYSTEMS, NOT PROVIDED BY ET WATER SYSTEMS, INC.

LIMITATION OF LIABILITY

IN NO EVENT WILL ET WATER OR ITS AFFILIATES OR SUPPLIERS BE LIABLE FOR ANY LOSS OF USE, INTERRUPTION OF BUSINESS, LOST PROFITS, OR LOST DATA, OR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR OTHERWISE, EVEN IF ET WATER OR ITS AFFILIATE OR SUPPLIER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE, AND WHETHER OR NOT ANY REMEDY PROVIDED SHOULD FAIL OF ITS ESSENTIAL PURPOSE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM JURISDICTION TO JURISDICTION.

ETWATER CUSTOMER CARE

The ETwater Customer Care Department can be reached by phone, email or via the Live Chat feature. We ask that customers have their contact information ready to verify, along with any applicable serial numbers and details of their inquiry or reported issue. If for some reason you cannot get a hold of us, or do not have time to talk, leave us a detailed message and let us know what is the best time to reach you. We are always happy to schedule a call.

Online 'Live Chat' feature available through jainsusa.com/etwater website and within the online ETwater customer dashboard and Unity Mobile versions.

Phone: (888) 685-5505

Email: ETwater.support@husqvarnagroup.com

ETwater Customer Care can resolve most inquiries remotely. If a request is related to a Return Merchandise Authorization (RMA), we ask that customers first report the issue to Customer Care who will work to resolve.This procedure helps to ensure that all variables are considered when seeking a resolution, which provides a comprehensive and long lasting solution over a quick fix. If a resolution involves an RMA Request, then it will need to be authorized before an RMA Number is provided along with instructions specific to the case.

All customer inquiries are handled in the order that they are received and will be addressed within 24-48 hours. Customer inquiries that are escalated to Tier 2 may take up to 72 hours before being addressed by a Tier 2 Specialist. This is to ensure that every major or substantive report has been thoroughly reviewed and that customers are provided with a detailed analysis of findings or next step options.

ADDITIONAL RESOURCES