Solar Sync®
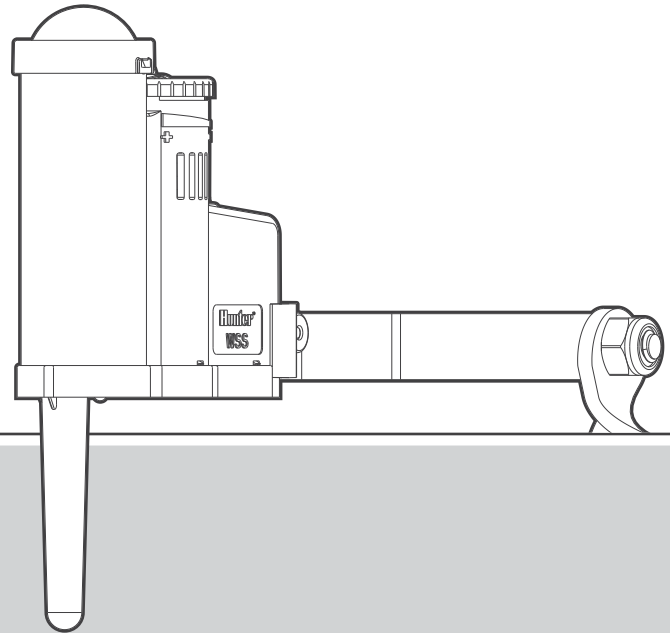
OWNER'S MANUAL

Solar Sync Sensor
Wired and Wireless Solar Sync Models

Evapotranspiration Sensor
for Compatible Hunter Controllers

Hunter®

Table of Contents

The Solar Sync is a sensor system that, when connected to a compatible Hunter controller, will automatically adjust your controller watering schedule based upon changes in local climate conditions.

Controller Compatibility

The Solar Sync is designed for use with the following Hunter controllers:

- X-Core®
- Pro-C®
- ICC2
- I-Core®
- ACC
- ACC2

Key Benefits

1. **Wireless Operation:** Up to 800' (243 m) line-of-sight. No wires are required between the rain sensor and controller (wireless model).

2. **EPA WaterSense Approved:** Add a Solar Sync sensor to your Hunter controller to enable smart control using local weather readings that tailor watering schedules to actual on-site conditions.

3. **Optional Quick Response®:** Innovative technology that turns off the irrigation system immediately rather than after detecting a fixed amount of rain. No calibration is required.

4. **Freeze Sensor:** Designed to keep the irrigation system from operating when temperatures drop to 37°F (3°C) or below. When temperatures rise above this temperature, the sensor will enable automatic watering.

5. **Maintenance-Free Design:** Provides trouble-free operation for at least 5 years. There are no batteries to replace.

EPA WaterSense Approved
Recognized as a responsible water-saving tool by the U.S. Environmental protection Agency

The Solar Sync system is easily installed on any compatible Hunter irrigation controller (see controller Owner's Manual or application guide to verify compatibility). The system consists of a sensor and receiver. The receiver is only necessary when accompanied by a wireless sensor. The sensor must be placed in an area where it can receive full sun and rain exposure. The receiver is installed next to or attached to your Hunter controller. The Solar Sync sensor measures solar radiation and temperature and calculates the daily evapotranspiration (ET) factor for irrigation. This represents the amount of water lost by the plants due to local climatic conditions, which needs to be replaced by irrigation.

Enter a midsummer watering program in your controller per the programming instructions in the Owner's Manual provided with your controller. The Solar Sync receives data from the sensor and applies it daily to the controller's water schedule by adjusting the controller's programmed irrigation run times through the Seasonal Adjustment feature in the controller.

Wired Solar Sync

Wireless Solar Sync

Solar Sync receiver
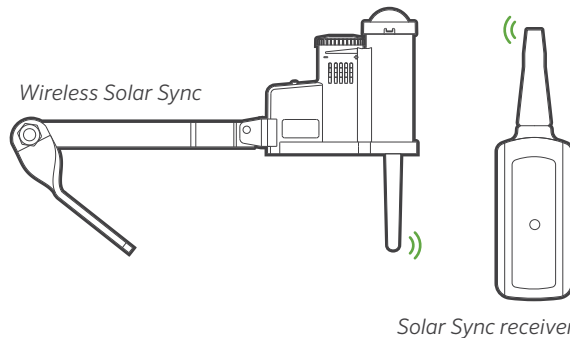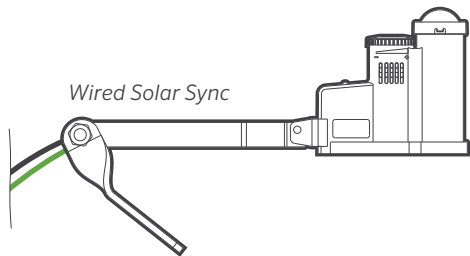
Choosing the Sensor Location

Using the screws provided, mount the Solar Sync sensor on any surface where it will be exposed to unobstructed sun and rainfall, but not in the path of sprinkler spray.

The sensor gutter mount can also be used as an optional mounting method. The gutter mount allows the sensor to be mounted directly to the edge of a gutter.

> **! Note**
>
> Place the Solar Sync sensor where it can receive full exposure to the sun.
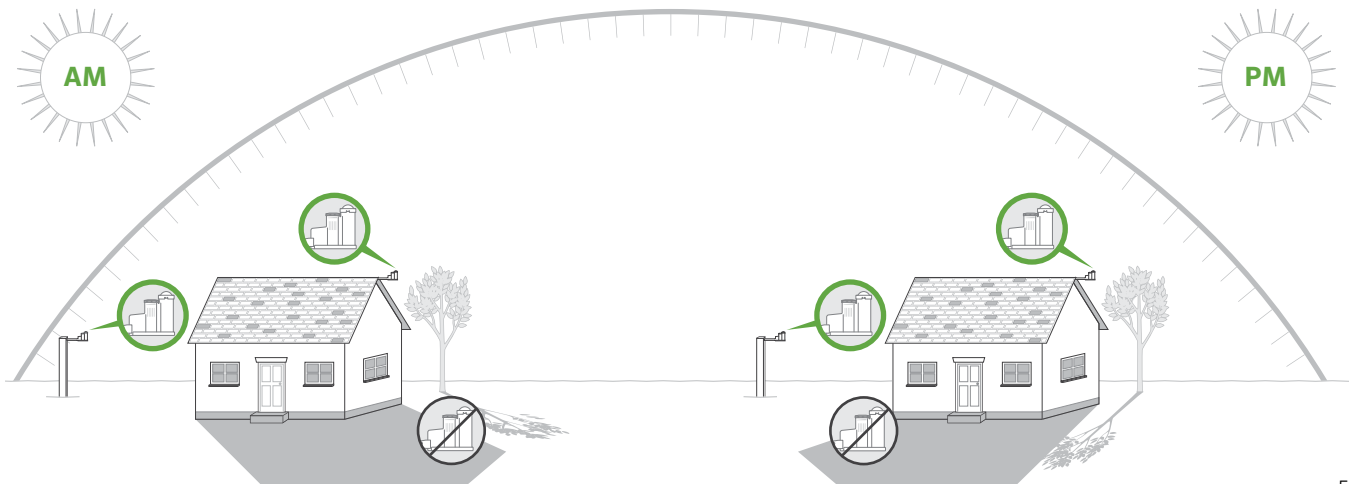
Wireless Solar Sync Sensor Components

The Wireless Solar Sync includes a downward-facing antenna that communicates with the receiver.
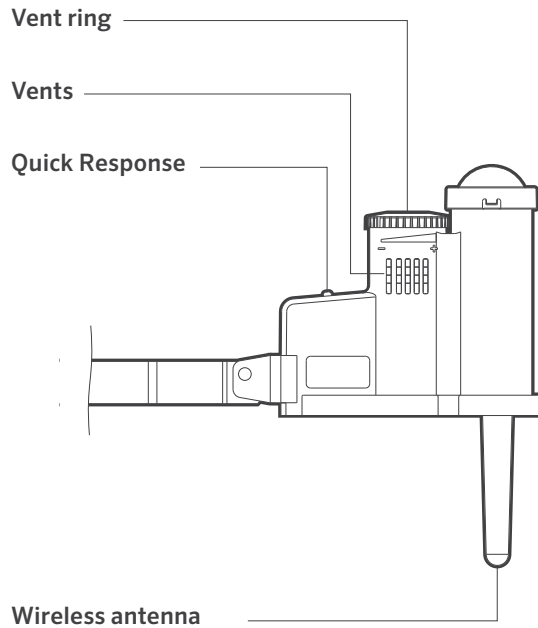
Wireless Solar Sync Receiver Components

The Solar Sync receiver is designed to be mounted on the wall next to the controller, or mounted in an available knockout on the side of the controller.

Vent ring

Vents

Quick Response

Wireless antenna

LED light

Wired Solar Sync Components

Solar radiation sensor

Vent ring

Vents

Quick Response
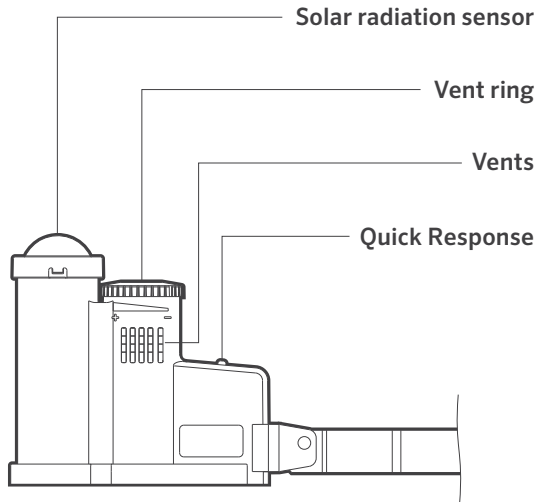
Installing the Sensor

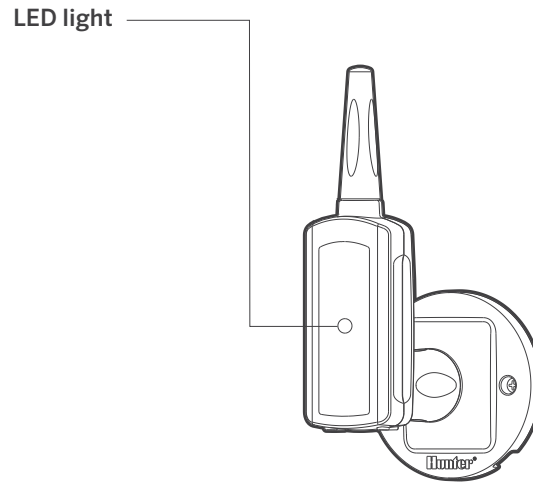The Solar Sync sensor can be mounted using the wall bracket, or the gutter mount. To mount the Solar Sync using the wall bracket (A), use the screws provided to attach the sensor.

To mount the Solar Sync using the gutter mount (B), tighten the locking screw over the edge of a rain gutter.

The sensor needs to be oriented upright (C) and the swivel bracket can be moved for mounting on angled surfaces. Loosen the locknut and screw to install at the desired angle and retighten.

A

C

B
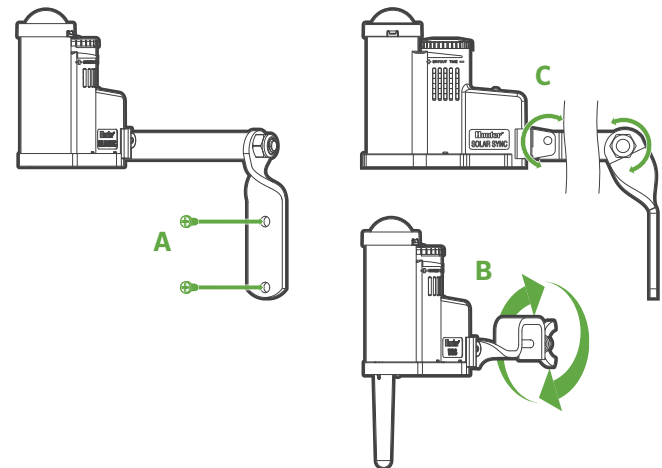
Installing the Receiver

The Solar Sync receiver (A) can be installed either on the wall using the mounting bracket (C) provided, or by using an available knockout in the controller cabinet. Mount the receiver to the wall using the screws provided near your controller.

Mount the receiver on the side of your controller using the extender (B) provided in any available knockout.
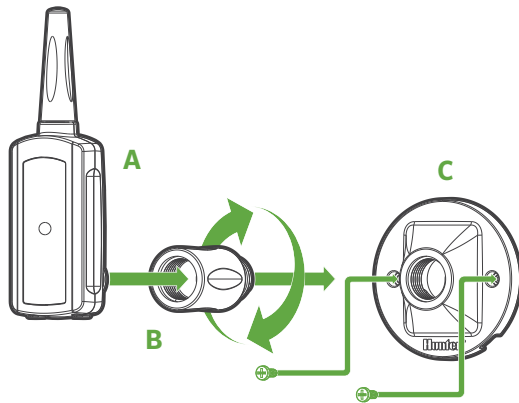
Maintaining the Sensor

The Solar Sync sensor is designed for outdoor use, but must be kept clean to function correctly. We recommend wiping the dome covering the solar radiation sensor every six months. Do not use harsh chemicals or abrasives on the dome.
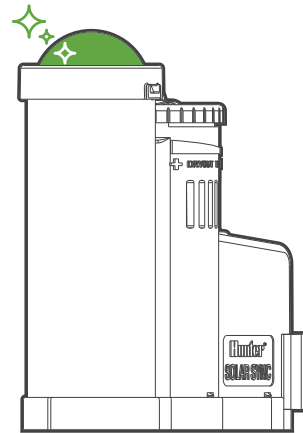
Wiring the Sensor/Receiver to Hunter Controllers

Compatible system: SOLAR-SYNC-SEN

1. Make sure power to the controller is turned off

2. Remove the metal jumper plate (if installed) from the sensor terminals

3. Connect the **black** wire to the "SEN" terminal location (it does not matter which "SEN" terminal is used)

4. Connect the **green** wire to the other "SEN" terminal location

> **! Note**
>
> Additional setup steps required for I-Core, ACC, and ACC2 controllers.

- **I-Core controllers:** Connect the black and green wires to the "S1" terminals only. Turn the dial to the "Advanced Features" position to complete setup.

- **ACC controllers:** Connect the black and green wires to the corresponding black and green "ET" terminals. Use features at the "Set Sensor Operation" dial position on ACC to complete setup.

- **ACC2 controllers:** Connect the black and green wires to the corresponding black and green "Solar Sync" terminals. Use "Devices and Sensor Response" operations on ACC2 to complete setup.
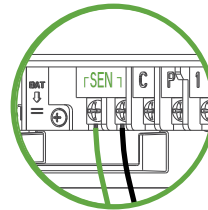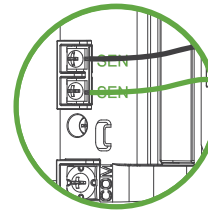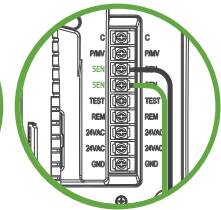
X-Core **Pro-C** **ICC2**
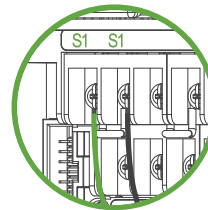
I-Core **ACC** **ACC2**

SCAN for help

?

https://hunter.help/**solarsyncsuport**
https://hunter.help/**acc2support**
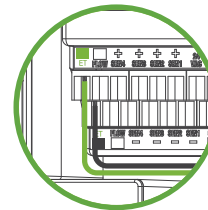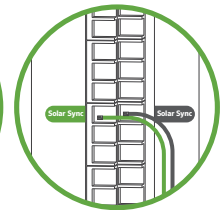
Manual Pairing the Wireless Receiver/Sensor

The Wireless Solar Sync receiver and sensor are already paired with the same frequency for an easy installation. When installed, the wireless receiver will automatically go into a "search" mode looking for the signal from its paired sensor. However, it is a good idea to initialize communication manually between the wireless receiver and sensor during installation to verify correct signal transmission.
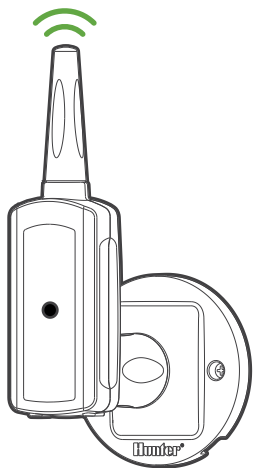
Initialize Communication Manually Between Wireless Receiver and Sensor

1. After the receiver's green and black wires are connected (see "Wiring the Sensor/Receiver to Hunter Controllers" section), restore power to the controller.

    The red LED in the center of the wireless receiver will turn on and stay solid for 10 seconds, indicating that it is searching for a signal from a wireless sensor.

2. While the red LED is solid and the wireless receiver is in search mode, press and hold the spindle on the wireless sensor. The LED in the wireless receiver will blink four times and then turn off, indicating that the signal from the wireless sensor has been acknowledged.

**Validate Receiver/Sensor Communication
or Readdress**

• Press and hold the spindle on the wireless sensor.

• The LED on the wireless receiver will blink two
times, confirming that the receiver is addressed
to the sensor properly.

> **! Note**
>
> In the event of a power outage (or any other
> reason when the receiver loses radio contact
> with the wireless sensor), the receiver will
> automatically go into search mode to
> re-establish communication with the sensor
> once power is restored. **However, when power
> is restored the controller will automatically go
> into rain shutoff mode until communication
> with the sensor is re-established, which may
> be up to 60 minutes (maximum).** Performing
> the steps listed above to validate receiver/
> sensor communication will remove the
> controller from rain shutoff mode and restore
> the programmed irrigation schedule.
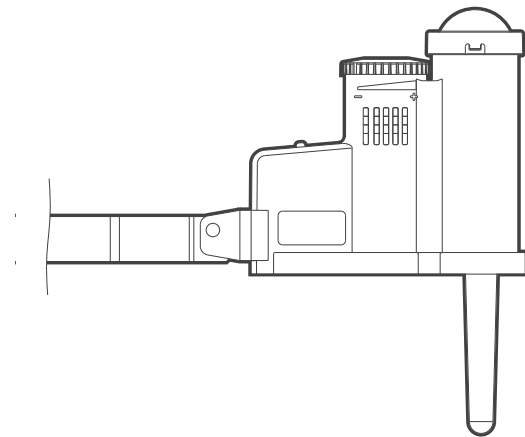
Programming the Controller

Program your Hunter controller as specified in the Owner's Manual. When setting station run times, enter the time that would normally be programmed during the peak summer watering season. The Solar Sync is designed to adjust all run times daily based upon on-site weather conditions. This is done through the Seasonal Adjustment feature on your controller. We recommend that all programming be conducted with the controller Seasonal Adjustment set at 100%.

> **! Note**
>
> Set station run times for peak summer watering with Seasonal Adjustment set at 100%.

Making Adjustments

After programming the controller to use Solar Sync, we recommend that you leave it alone for a few days to gather sun and temperature data. If necessary, there are two ways to make adjustments:

- If you find an individual zone is wetter or drier than the rest of the site, simply increase or decrease the amount of run time entered in the controller for that station.

- When making adjustments to program run times, make sure to reset the Seasonal Adjustment valve to 100%. Solar Sync will make the appropriate adjustment automatically based on measured weather conditions.

- If your landscape is wetter or drier than it should be, use the controller to increase or decrease run times.

Making Adjustments (continued)

After Solar Sync has been installed and programmed, we recommend allowing the system to run for a few days at the initial setting. Because of the variation in site conditions (including sensor location, amount of direct sunlight available to the sensor, reflective heat from surrounding structures, etc.), **the initial setting may require adjustment to achieve the desired performance**.

The calibration of the Solar Sync to a particular site can easily be accomplished by adjusting the Region and/or Water Adjustment settings. The instructions below outline this process:

1. Allow system to operate at initial settings for a minimum of three days.

2. Observe the Seasonal Adjustment on the controller. If the Seasonal Adjustment amount appears to be lower or higher than expected for that time of year, the Solar Sync settings need to be adjusted.

A. Seasonal Adjustment too low: Make sure the controller dial is in the **RUN** position. Increase the value on the Water Adjustment scale (10 is max). Once the setting is changed, the controller will immediately be updated with the new Seasonal Adjustment %. Increase the Water Adjustment setting until the desired Seasonal Adjustment % is shown. If you max out the Water Adjustment scale at 10 and still require more Seasonal Adjustment, move down to the next lower Region (from Region 4 to 3, for example).

B. Seasonal Adjustment too high: Make sure the controller dial is in the **RUN** position. Decrease the value on the Water Adjustment scale (default setting is 5). Once the setting is changed, the controller will immediately be updated with the new Seasonal Adjustment %. Decrease the Water Adjustment setting until the desired Seasonal Adjustment % is shown. If you minimize the Water Adjustment scale down to 1 and still require a reduction in Seasonal Adjustment, move up the next Region (from Region 2 to 3, for example).

Calibration and Setup Period

The table below will assist you in identifying the region where you live. There are four basic ET regions, each with descriptions of the region, along with typical ET and temperature characteristics. If possible, choose the region based upon average July ET or peak summer ET.

https://hunter.info/**ReferenceMap**
https://hunter.info/**SeasonalAdjustment**

A	B	C	D
Based upon the ET of your region using the average July ET or peak summer ET. This is the preferred option when selecting your region.	Based upon the temperature for your region using the average July or the driest month high temperature (not the highest temperature for July).	Based upon the general description of your region.	**Region based on A through C**
If the average July* ET is **is 0.17" (4.3 mm) or less per day**	If the average temperature for July* is **65°–75°F (18°–24°C)**	• **U.S. Northern States** • **Coastal Regions**	**Region 1**
If the average July* ET is **0.18"–0.23" (4.6–5.8 mm) per day**	If the average temperature for July* is **75°–85°F (24°–29°C)**	• **Mountains** • **U.S. Northern Inland States**	**Region 2**
If the average July* ET is **0.24"–0.29" (6.1–7.4 mm) per day**	If the average temperature for July* is **85°–95°F (29°–35°C)**	• **U.S. Southern States** • **Inland and High Deserts**	**Region 3**
If the average July* ET is **0.30" (6.7 mm) or more per day**	If the average temperature for July* is **95°–105°F (35°–41°C)**	• **Deserts**	**Region 4**

* For Southern Hemisphere locations, use the month of January.

Station Run Times

It is important to understand that Solar Sync provides a
global Seasonal Adjustment to the controller. This means
that all station run times will be modified by the Seasonal
Adjustment percentage shown. When programming the
controller, the run times should be entered that represent
peak season watering schedules. If the Solar Sync is
adjusting to the appropriate Seasonal Adjustment value but
the run time for a particular station appears to be too long or
short, adjust the station run time in the controller program.

Seasonal Adjustment

— +

Controller Run Time in Peak Summer

A

July for Northern Hemisphere

B

January for Southern Hemisphere

Problem	Cause	Solution
Controller shows "NO SS" in display	• Wires not properly connected to controller terminals. Sensor may not be installed.	Check the connection between sensor/receiver and controller.
Seasonal Adjustment too low	• Region is too high • Water Adjustment setting is too low • Location of sensor does not allow for full sun	Make sure the controller dial is in the RUN position. Increase the value on the Water Adjustment scale (10 is maximum). Once the setting is changed, the controller will immediately be updated with the new Seasonal Adjustment %. Increase the Water Adjustment setting until the desired Seasonal Adjustment % is shown. If you max out the Water Adjustment scale at 10 and still require more Seasonal Adjustment, move down to the next lower Region (from Region 4 to 3, for example).
Seasonal Adjustment too high	• Region is too low • Water Adjustment setting is too high	Make sure the controller dial is in the RUN position. Decrease the value on the Water Adjustment scale (default setting is 5). Once the setting is changed, the controller will immediately be updated with the new Seasonal Adjustment %. Decrease the Water Adjustment setting until the desired Seasonal Adjustment % is shown. If you minimize the Water Adjustment scale down to 1 and still require a reduction in Seasonal Adjustment, move up the next Region (from Region 2 to 3, for example).
Controller's Seasonal Adjustment is reset to 10% and does not change	• If using a wireless Solar Sync model, the communication has been lost between the sensor and receiver.	Follow steps to readdress wireless sensor on page 13. Once communication between wireless sensor and wireless receiver is re-established, the percentage (%) will increase for normal operation.

Problem	Cause	Solution
Rain or Freeze shutoff not activating	• Rain Sensor Bypass Switch on the Controller is set to "Bypass" • Remove jumper plate that is bridging the two SEN terminals on the controller	Set the Controller Bypass Switch in the "Active" position. Remove the jumper plate.
Run times for a particular station are too short/too long	• Program Run Time too long/too short	Solar Sync provides a global Seasonal Adjustment to the controller. If a particular station has run times too long or too short, make the appropriate adjustment to the program in the controller.
Solar Sync still adjusting run times with sensor switch in bypass.	• Solar Sync's automated Seasonal Adjustment cannot be deactivated by the Bypass switch. The Bypass switch only controls the Rain/ Freeze shutoff function of the Solar Sync	Use controller delay feature. To access the Solar Sync Delay setting: **Step 1:** Place the dial in the RUN position. Then press and hold the + button. Next, rotate the dial to the Solar Sync position. Finally, release the + button. The following screen will be presented: d:00 (where d indicates days and 00 indicates the number of days to be delayed). **Step 2:** Press the + or - buttons to increase/decrease the number of days the delay should run. **Step 3:** Once the desired number of days is displayed, move the dial back to the **RUN** position to activate the delay. **NOTE:** Number of total days depends on controller model.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by taking one or more of the following measures:

• Reorient the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that of which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Hunter Industries could void the user's authority to operate this device. If necessary, consult a representative of Hunter Industries Inc. or an experienced radio/television technician for additional suggestions.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

Innovation, Science and Economic Development Canada (ISED) Compliance Notice

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.

2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage, et

2. L'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CE

Hereby, Hunter Industries declares that the radio equipment type model WSS-SEN (comprised of WSSTR and WSSR) is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: http://subsite.hunterindustries.com/compliance

http://hunter.info/**compliance**

Helping our customers succeed is what drives us. While our passion for innovation and engineering is built into everything we do, it is our commitment to exceptional support that we hope will keep you in the Hunter family of customers for years to come.

Gene Smith, President,
Landscape Irrigation and Outdoor Lighting