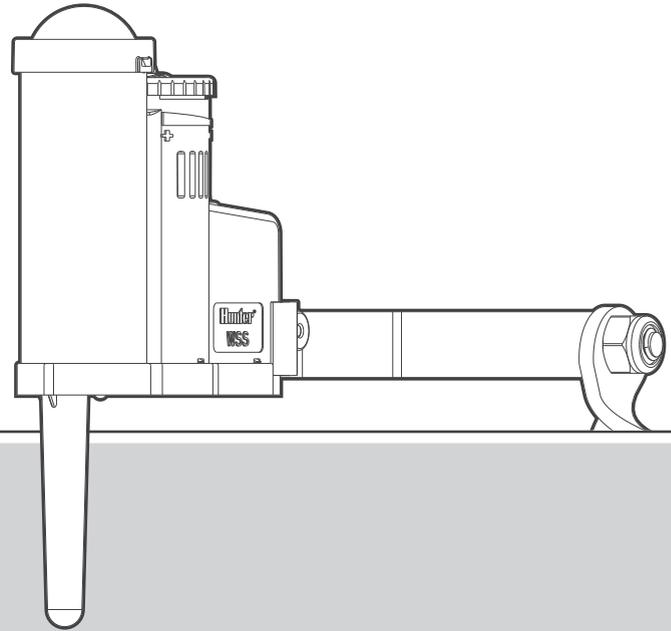


Solar Sync[®]

OWNER'S MANUAL



Solar Sync Sensor

Wired and Wireless Solar Sync Sensors

Evapotranspiration Sensor
for Compatible Hunter Controllers

Hunter[®]

Introduction

The Solar Sync is a sensor system that, when connected to a compatible Hunter controller, will automatically adjust your controller watering based upon changes in local climate conditions. The Solar Sync utilizes a solar and temperature sensor to measure on-site weather conditions used to determine evapotranspiration (ET), or the rate at which plants and turf use water. In addition, the Solar Sync sensor includes a Hunter Rain-Clik and Freeze-Clik sensor that will shut down your irrigation system when it rains and/or during freezing conditions.

The result is a new water-efficient irrigation product that promotes water conservation and healthier plants. You simply program your controller like you normally would, and the Solar Sync takes over from there, eliminating the need to manually adjust your watering schedule.

Need more helpful information on your product? Find tips on installation, controller programming and more...



hunter.direct/solarsynchelp



1-800-733-2823

Table of Contents

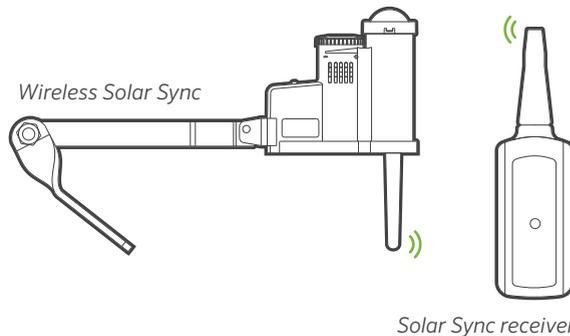
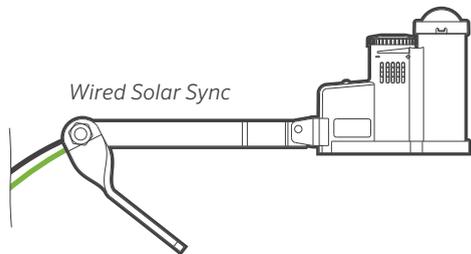
2	Introduction	
4	System Overview and Operation	
5	System Installation	
5	..... Choosing the Sensor Location	
6	..... Solar Sync System Components	
8	..... Installing the Sensor	
8	..... Installing the Receiver	
9	..... Maintaining the Sensor	
9	..... Bypassing the Sensor	
10	System and Controller Wiring	
10	..... X-Core with Wired Solar Sync	
10	..... X-Core with Wireless Solar Sync	
11	..... Pro-C with Wired Solar Sync	
11	..... Pro-C with Wireless Solar Sync	
12	..... I-Core with Wired Solar Sync	
12	..... I-Core with Wireless Solar Sync	
13	..... ACC with Wired Solar Sync	
13	..... ACC with Wireless Solar Sync	
14	Setup and Programming	
14	..... Programming the Controller	
14	..... Making Adjustments	
16	Calibration and Setup Period	
17	..... Station Run Times	
18	Specifications and Dimensions	
18	..... Controller Compatibility	
18	..... Specifications	
18	..... Dimensions	
19	FCC Notice and Certificate of Conformity to European Directives	
19	..... FCC Notice	
19	..... Certificate of Conformity to European Directives	

System Overview and Operation

The Solar Sync System is simply and 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. The Solar Sync sensor also includes a Hunter

Rain-Click rain sensor that will automatically shut down the irrigation system during rain events, thus preventing unwanted irrigation when it is raining.

Enter a mid summer 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.

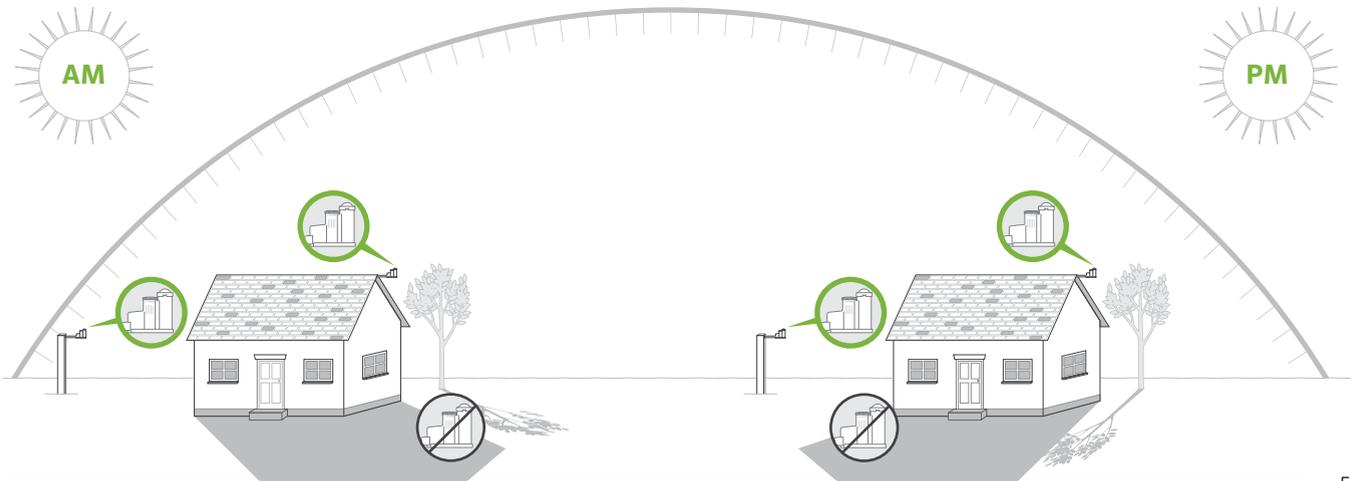


Choosing the Sensor Location

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.

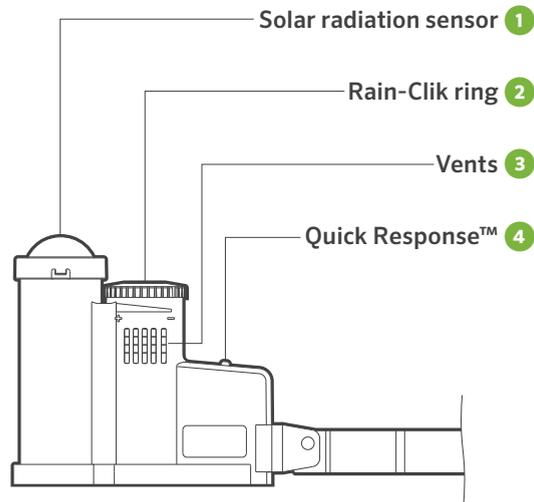
Note
Place Solar Sync sensor where it can receive full sun.



Solar Sync System Components

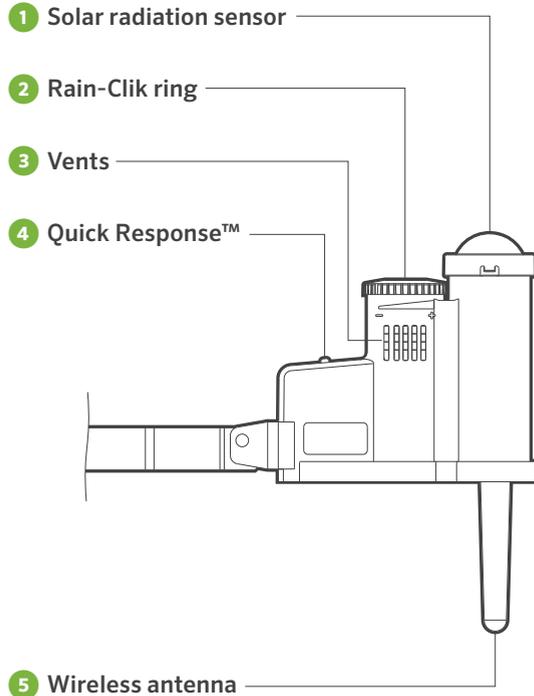
The Rain-Clik will keep the irrigation from starting or continuing during rainfall. No adjustment or calibration is required for the Rain-Clik sensor. The Rain-Clik uses patented Quick Response technology that will shut the system off during the first few minutes of rain. The only adjustment that is necessary is the vent ring that will either slow down or speed up the time at which the sensor dries out and the system is turned back on. Opening the vent will speed up the dry out time and closing the vents will slow down the dry out time.

In addition, the Solar Sync's built-in temperature sensor provides system shutdown when freezing conditions occur. At approximately 37°F (3°C) and below the Solar Sync will command the controller to shut down. A "sensor off" indication will be displayed on your controller when the sensor is active. When the temperature rises above 37°F (3°C), automatic irrigation will be reactivated.



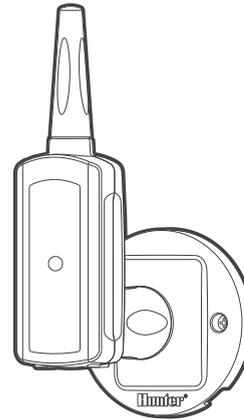
System Components

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



System 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.

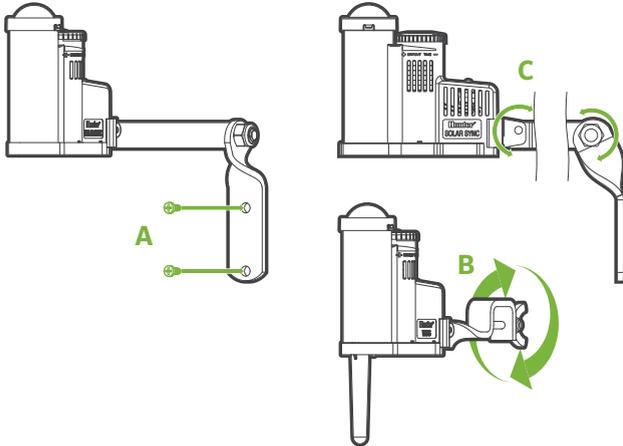


Installing the Sensor

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

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

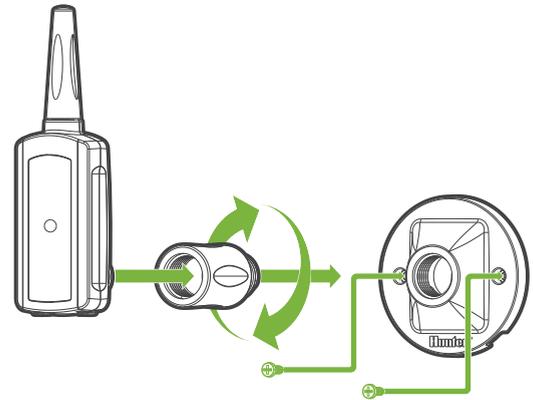
The sensor needs to be oriented upright (C) and the swivel bracket can be moved for mounting on angled surfaces. Loosen the locknut and screw to install at the desired angle and then retighten.



Installing the Receiver

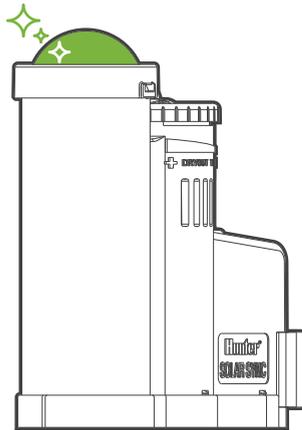
The Solar Sync receiver (A) can be installed either on the wall using the mounting bracket (C) provided, or by using an available knockout in the controller cabinet. Mount the receiver to the wall using the screws provided near your controller.

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



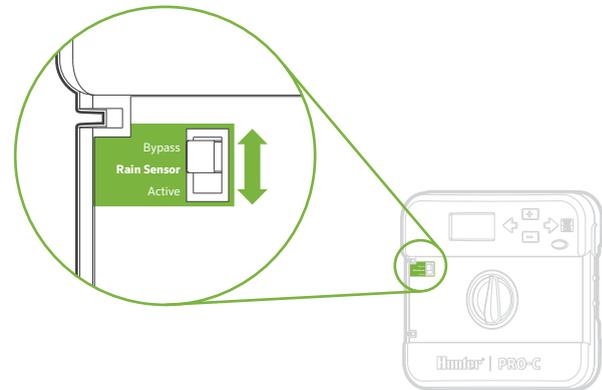
Maintaining the Sensor

The Solar Sync sensor is designed for outdoor use, but must be kept clean to function correctly. Wiping the dome covering the solar radiation sensor every 6 months is recommended. Do not use harsh chemicals or abrasives on the dome.



Bypassing the Sensor

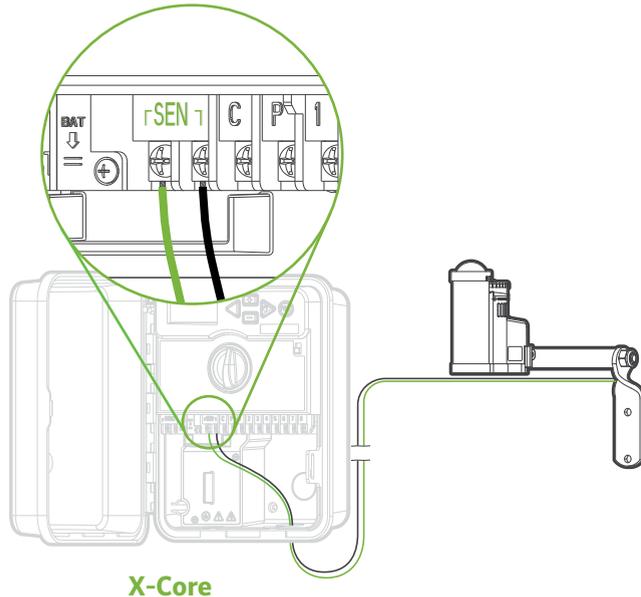
If the Rain Sensor or Freeze Sensor is preventing system operation, **SENSOR OFF** will be displayed on the controller's display. To disable the rain and freeze sensor, move the **RAIN SENSOR** switch on the controller to **BYPASS**. This allows you to operate your system during rain and freeze conditions. The Solar Sync will continue to make adjustments to your controller's watering schedule. The controller's Rain Sensor switch should be in the **ACTIVE** position for the Rain Sensor and Freeze Sensor to interrupt watering during rainy and/or freezing conditions.



X-Core with Wired Solar Sync

Compatible system: SOLAR-SYNC-SEN

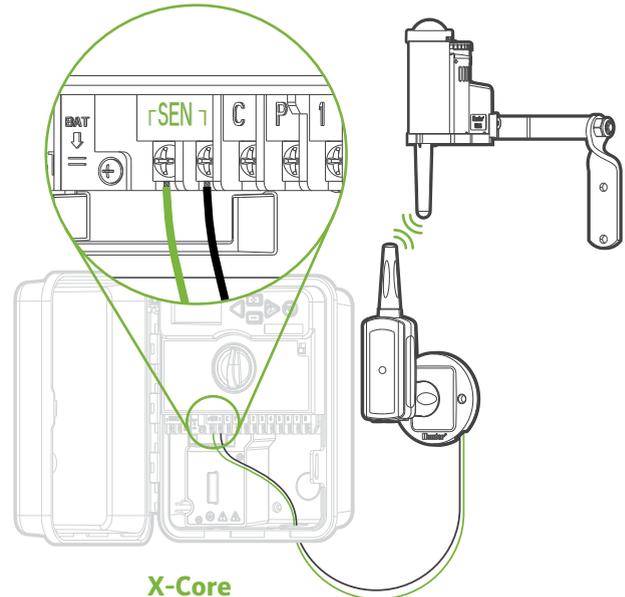
The X-Core controller has Solar Sync control built in, allowing the sensor be wired directly to the sensor terminals inside the controller. Mount the sensor using the included hardware.



X-Core with Wireless Solar Sync

Compatible system: WSS-SEN

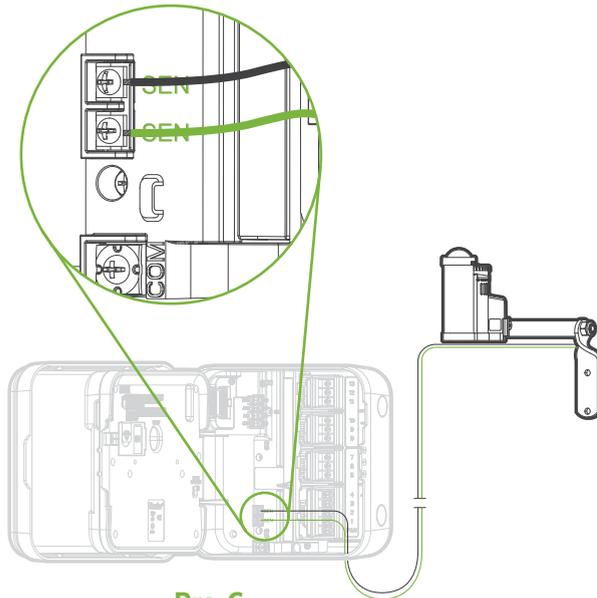
The X-Core controller has Solar Sync control built in, allowing the receiver be wired directly to the sensor terminals inside the controller. Mount the receiver to the wall with the included wall mounting bracket and hardware. Mount the sensor using the hardware provided.



Pro-C with Wired Solar Sync

Compatible system: SOLAR-SYNC-SEN

The modular version of the Pro-C controller has Solar Sync control built in, allowing the sensor to be wired directly to the sensor terminals inside the controller. Mount the sensor using the included hardware.

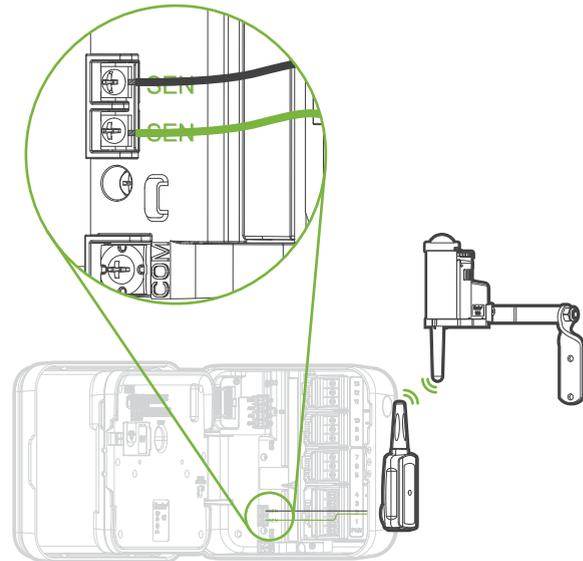


Pro-C

Pro-C with Wireless Solar Sync

Compatible system: WSS-SEN

The modular version of the Pro-C controller has Solar Sync control built in, allowing the receiver to be wired directly to the sensor terminals inside the controller. Mount the receiver in the knockouts provided on the side of the controller or mount the receiver and sensor to the wall with the wall mounting bracket and hardware provided.

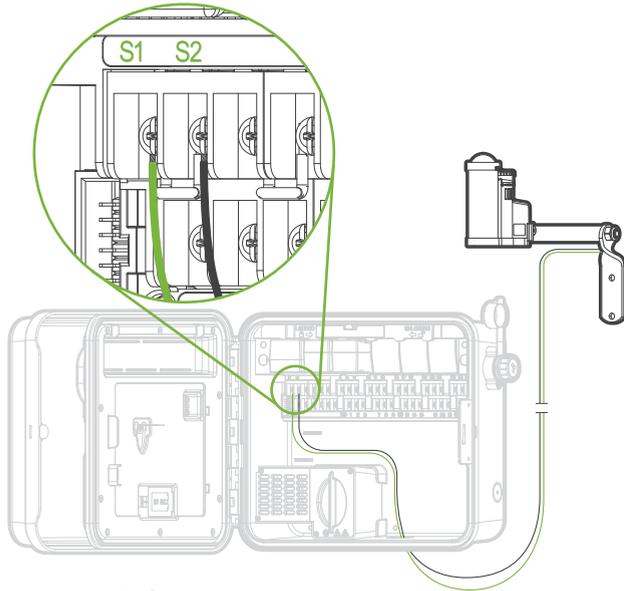


Pro-C

I-Core with Wired Solar Sync

Compatible system: SOLAR-SYNC

The I-Core controller has Solar Sync control built in, allowing the sensor be wired directly to the sensor terminals inside the controller. Mount the sensor using the included hardware.

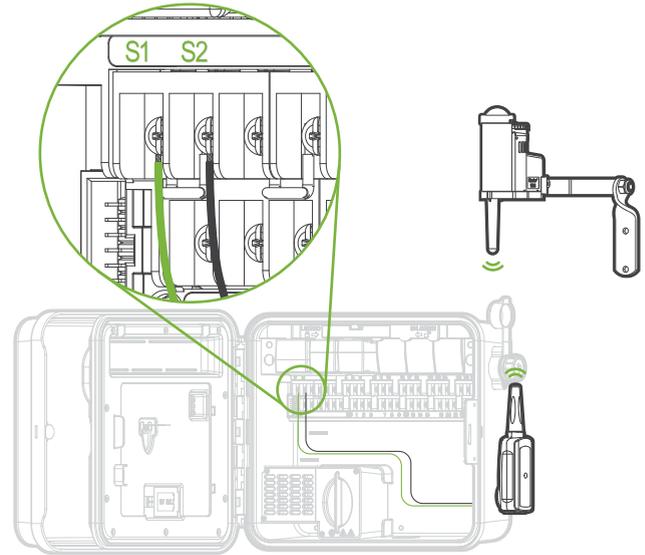


I-Core

I-Core with Wireless Solar Sync

Compatible system: WSS

The I-Core controller has Solar Sync control built in, allowing the receiver be wired directly to the sensor terminals inside the controller. Mount the receiver in the knockouts provided on the side of the controller or mount the receiver and sensor to the wall with the wall mounting bracket and hardware provided.

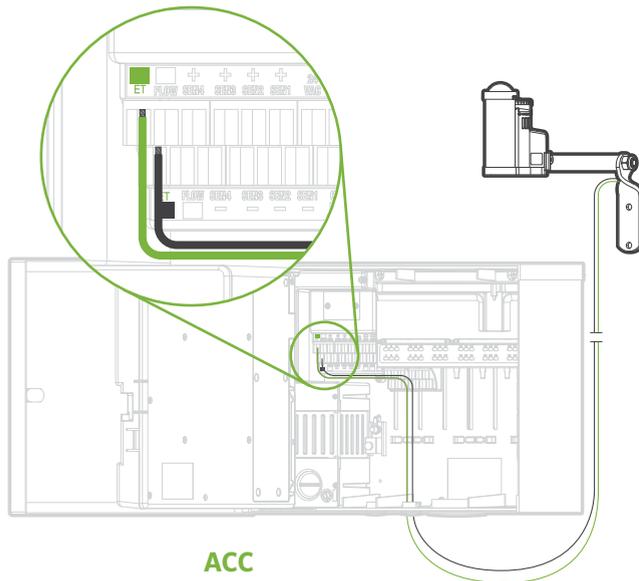


I-Core

ACC with Wired Solar Sync

Compatible system: SOLAR-SYNC-SEN

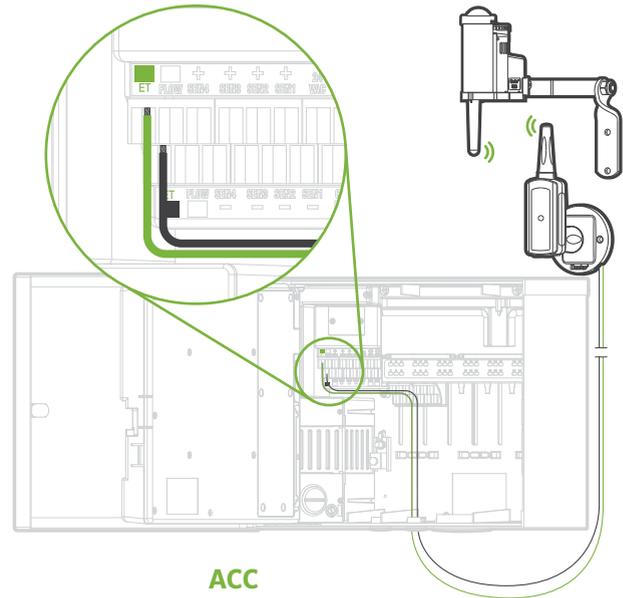
The ACC controller has Solar Sync control built in, allowing the sensor be wired directly to the sensor terminals inside the controller. Mount the sensor using the included hardware.



ACC with Wireless Solar Sync

Compatible system: WSS-SEN

The ACC controller has Solar Sync control built in, allowing the receiver be wired directly to the sensor terminals inside the controller. Mount the receiver in the knockouts provided on the side of the controller or mount the receiver and sensor to the wall with the wall mounting bracket and hardware provided.



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. It is recommended 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, it is recommended 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 adjust 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

After Solar Sync has been installed and programmed, it is recommended to allow the system to run for a few days at the initial setting. Because of the variety 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 in order 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 3 days.
2. Observe the Seasonal Adjust on the controller. If the Seasonal Adjust amount appears to be lower or higher than expected for that time of year, the Solar Sync settings need to be adjusted.
 - A. Seasonal Adjust too low – Make sure 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 Adjust %. Increase the Water Adjustment setting until the desired Seasonal Adjust % is shown. If you max out the Water Adjustment scale at 10 and still require more Seasonal Adjust, move down to the next lower Region (from Region 4 to 3, for example).
 - B. Seasonal Adjust too high – Make sure 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 Adjust %. Decrease the Water Adjustment setting until the desired Seasonal Adjust % is shown. If you minimize the Water Adjustment scale down to 1 and still require a reduction in Seasonal Adjust, 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 type of region you live in. There are four basic ET regions, each with descriptions of the region, along with typical ET and temperature characteristics. It is recommended that, if possible, the region be chosen based upon average July ET or peak summer ET.

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 0.17" (4.3 mm) or less per day	If the average temperature for July* is 65°–75°F (18°–24°C)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • U.S. Southern States • Inland and High Desert 	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)	<ul style="list-style-type: none"> • 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 adjust 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 adjust 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.



A



July for Northern Hemisphere

B



January for Southern Hemisphere

Controller Compatibility

The Solar Sync is designed for use with Hunter X-Core, Pro-C, I-Core and ACC controllers.

Specifications

- Power Input: 24 VAC 50/60 Hz (from controller)
- Current draw: 25 mA @ 24 VAC
- Non-volatile memory
- Replaceable 10-year lithium battery: CR2032. (for backup timekeeping only)
- Max distance (wired) sensor to controller: 200' (60 m)
- Max distance (wireless) sensor to controller: 800' (240 m)
- Wiring: 18 AWG (1 mm) or 20 AWG (0.8 mm) diameter minimum from the sensor to the controller
- UL Listed
- Direct burial and UV approved

Dimensions

Wired Solar Sync Sensor:

- 3" H x 8¼" W x 1" D (7.6 cm H x 21 cm W x 2.5 cm D)

Wireless Solar Sync Sensor:

- 4⅝" H x 8¼" W x 1" D (11.7 cm H x 21 cm W x 2.5 cm D)

Solar Sync Receiver:

- 5⅜" H x 1½" W x 1" D (13.5 cm H x 3.8 cm W x 2.5 cm D)

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, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Certificate of Conformity to European Directives

Hunter Industries declares that the irrigation sensor Solar Sync complies with the standards of the European Directives of “electromagnetic compatibility” 87/336/EEC and “low voltage” 73/23/EEC.

A handwritten signature in black ink, reading "Pete Woytowitz", written over a horizontal line.

Pete Woytowitz, Project Engineer

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.

A handwritten signature in black ink, appearing to read 'G. R. Hunter', with a long horizontal flourish extending to the right.

Gregory R. Hunter, President of Hunter Industries

HUNTER INDUSTRIES INCORPORATED | *Built on Innovation*®
1940 Diamond Street, San Marcos, California 92078 USA
www.hunterindustries.com