

## TROUBLESHOOTING SENSOR CONNECTIVITY

### REMOVE SPRUCE SENSOR FROM THE NETWORK

Start by un-joining the sensor on the hardware itself. Unpair the Sensor by holding the magnet to the magnet pad for 3 seconds. You will see a green flash, indicating that the sensor is currently joined, then two red flashes, indicating that the sensor was successfully un-joined.

After the sensor has un-joined, re-try the join process as outlined on the back side of these instructions.

Still need help?

Visit our support page at  
[support.spruceirrigation.com](https://support.spruceirrigation.com)

## SPRUCE IRRIGATION APP

Search for "Spruce Irrigation" in the Google Play or iTunes App Store.



You can also access the app from  
any browser at:

[app.spruceirrigation.com](https://app.spruceirrigation.com)



[spruceirrigation.com/terms](https://spruceirrigation.com/terms)

© 2019 Plaid Systems  
Plaid Systems, Spruce, and the Spruce Logo are  
trademarks of Plaid Systems



Spruce™ Wireless Soil Moisture Sensor  
Model Number: PS-SPRZMS-SLP3  
Contains FCC ID: XFF-Z357PA20



#### FCC Compliance Statement

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.

#### Note

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 to an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

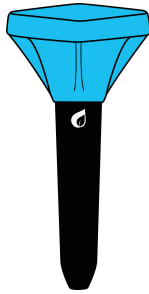
Changes or modifications to this product not authorized by Plaid Systems could void the electromagnetic compatibility and wireless compliance and negate your authority to operate the product.

#### Canada Statement

This Class B digital apparatus complies with Canadian ICES-003. This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

## IN THE BOX

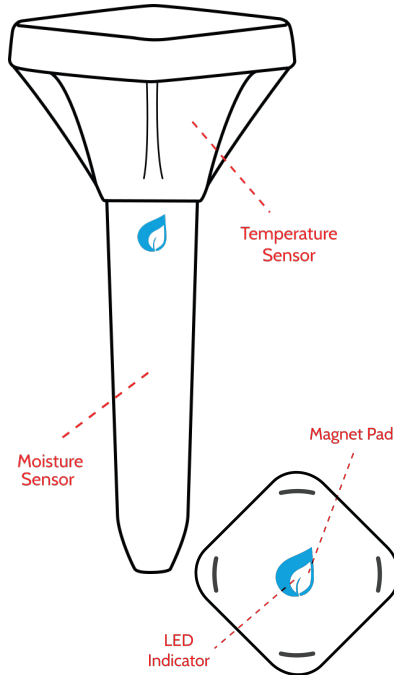
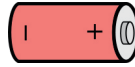
Spruce Sensor



Sensor Joining  
Magnet



CR123A Battery  
(pre-installed)



## LED CODES

Touch the magnet to the magnet pad for sensor status and various actions.

### AFTER ONE TAP

**2 green blinks:** Sensor is joined to a network.  
This also initiates a manual report.

**2 red blinks:** Sensor is not joined to a network.  
The join is also started at this time.

**1 green blink, then 2 red blinks:** Sensor is joined to a network but cannot find its parent.

### AFTER TOUCH AND HOLD FOR THREE SECONDS

**2 green blinks, then 2 red blinks beep:** Sensor has been removed from a network

Need more information?

Visit

[support.spruceirrigation.com](https://support.spruceirrigation.com)

Operating Range

Spruce Sensors can be safely operated between 0°F and 120°F. Moisture readings will only be valid above freezing temperatures (32°F).

## YOUR PLANTS WILL THANK YOU FOR THIS

Your Spruce Sensor will make your life easier by telling you how wet or dry your soil really is. Pair Spruce Sensors with your Spruce Controller for in-ground irrigation systems and let the system control itself.

The Spruce Sensor measures soil moisture content between 3 inches to 5 inches below the soil surface. The Spruce Sensor can be used indoors or outdoors.

Keep up to date with your soil levels via the Spruce App, available on Google Play, the Apple App store, or in your browser.

A Spruce Controller or a SmartThings Hub is required for operation.



spruce

Soil Moisture Sensor

Quick Start Guide

# SPRUCE SENSOR INSTALLATION

## ① START LOOKING FOR DEVICES

Your Spruce Sensor can connect to either your Spruce Controller or your SmartThings Hub. Perform the following steps near either your Spruce Controller or the SmartThings Hub.

### CONNECTING TO SPRUCE CONTROLLER

The Spruce Controller must already be online and connected to your Spruce account. Login to the Spruce App, tap on the add devices button, then follow the on-screen instructions..

### CONNECTING TO SMARTTHINGS

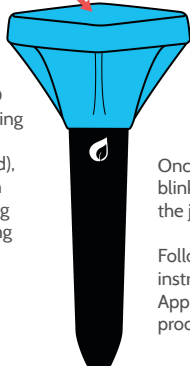
Open the SmartThings App and Add a Thing. Refer to the SmartThings documentation for more details.

## ② JOIN THE SENSOR TO THE NETWORK



Tap and remove the included magnet to the magnet pad once.

The Spruce Sensor LED will blink red 2x (indicating that the sensor is currently not connected), then alternate between red and green, indicating that the sensor is looking for a network.



Once joined, the LED will blink once, indicating that the join was successful.

Follow the on-screen instructions in the Spruce App to complete the join process in the app.

## ③ READING DATA

Moisture data is expressed as volumetric water content, and can be viewed in the Sensor section of the Spruce App. It typically reads 15%-45%. The range varies based on soil type.

### AUTOMATIC POLLING

The sensor will poll for moisture and temperature every 1 minute, and will report if there is a change. The sensor will always report after 1 hour, even if there is no change in value.

### MANUAL TRIGGER

If the sensor is currently joined to a network, a data poll can be manually triggered by tapping the magnet to the magnet pad once. The sensor will blink green 2 times, indicating that the sensor is currently joined, and that the sensor has checked for data.

## ④ SELECTING PLACEMENT FOR CONTROLLER FEEDBACK + AUTOMATIC SCHEDULING

Place the sensor in a location where it will be exposed to watering from the zone of your choice; ideally, in the middle of the watering area. Find a spot that is representative of the zone. Once installed, Spruce Sensors are low enough that lawn mower blades can pass over without contact.

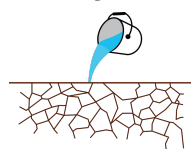
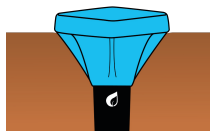
**WARNING:** Impact from a riding mower tire or any other large machinery at appreciable speed can damage the Spruce Sensor. Use caution to avoid impact with Spruce Sensors, or locate the sensors outside of the operating area of large equipment.

## ⑤ PHYSICAL INSTALLATION

Push the Sensor into the ground until the bottom of the Spruce Sensor is flush with the soil surface.

**WARNING:** Attempting to insert the sensor into hard, dense soil may cause the sensor to break.

If the sensor is difficult to insert, soak the soil with water until the soil is soft enough for insertion.



## SENSOR CALIBRATION

Spruce Sensors are calibrated at the time of manufacture, and shouldn't need to be calibrated after joining. If minor differences in moisture data are observed between different sensors, the sensor may be calibrated again.

Refer to the Spruce Support site for further instructions on the calibration procedure.

## SENSOR RANGE

Spruce Sensors work best up to 100 feet from your Spruce Controller.

Obstructions such as walls or other radio devices can drastically reduce range. Similarly, an open line of sight increases the range significantly. Any Zigbee wall-powered device in the same Zigbee network will also act as a range extender for Spruce Sensors. No additional setup is required for range extension to occur.

## BATTERY

Spruce Sensors use a CR123A battery which lasts for more than one season. If a battery change is needed, open the Spruce Sensor lid by twisting the lid counter clockwise.

Rechargeable CR123A batteries are also suitable for use in the Spruce Sensor. Please be aware that most rechargeable batteries typically have a lower capacity, resulting in shorter battery lifetime.