

Smartfield™

Growing a Greener Future



SmartProfile™ Base Station Installation Guide

Only Smartfield™ trained and certified installers are authorized to install and maintain equipment.

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This guide is frequently updated to reflect changes in the product. The latest version can always be found at <http://www.smartfield.com/>

Instructions to the User

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

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operations with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

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Introduction



Congratulations! You have just purchased the SmartProfile™ Base Station, one of the most advanced irrigation management tools available.

SmartProfile™ Base Station

SmartProfile™ is a remote soil moisture sensing station, which provides information from the grower's field to their home computer. This system utilizes Watermark sensors to determine a value for soil water suction, which can be used to determine the overall soil moisture content.

How does it know?

Once SmartProfile™ is installed; the system is setup on our website (www.cropinsight.com). On the website, the user inputs what crop is planted in their field, the soil type, and sets up limits for all measurement recorded. All measurements from this point will be compared to the limits set by the user and can send alert messages, via email or text messaging, to the user when these limits are exceeded.

Guidebook Conventions

To highlight the most important points – we have used a set of simple icons, which draw attention to key information and settings.

Key:

	The Check Icon indicates a setting that we recommend you use or enable.
	The Info Icon highlights important facts and information about SmartProfile™ Base Station, to help you make better use of the product.
	The Hazard Icon highlights areas where potential problems can arise.

Important Safety Precautions

	Only Smartfield trained and certified installers are authorized to install and maintain equipment; non-certified installations void equipment warranty.
	Important: DO NOT begin installation until all utility lines have been located and marked by your local utility company. Digging without knowing the location of utility lines can result in a damaged system, injury or death.
	This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner and / or operator of this equipment.
	Warning: Before installing this product, read and follow all warning notices and instructions, which are included. Failure to follow safety warnings and instructions can result in severe injury or property damage.
	CAUTION: To comply with FCC RF exposure compliance requirements, a separation distance of 20 cm must be maintained between the antenna of the device and all persons.

Contents

One (1) SmartProfile™ box assembly
One (1) 6 foot inside pole
One (1) 5-watt Solar Panel Assembly with attached power cord
One (1) RF Antenna

Hardware Kit

Three (3) ¾ x 2 ¾ x ¾ inch bolts
Two (2) ¾ inch x 1 inch
Four (4) ¾ inch locknuts
One (1) 4 arm knob
One (1) spade

Tools Needed

Two (2) 7/16 inch wrenches
¾ inch open wrench
¾ inch deep socket wrench
#2 Phillips screwdriver
Dyke pliers
T-post driver
Post level
Drive cap (provided by Smartfield™)
GPS Locator Device
Small standard screwdriver

Installation



The SmartProfile™ Base Station box weighs approximately 20 lbs. Please remember to lift with your legs.

After opening the box, remove the SmartProfile™ Base Station and gently set aside.

1. Spade install from sensor and base station documents.
2. Driving post:
 - a. Choose a convenient or user-preferred location for the SmartProfile™ system. Remember the system must be within a 1,000-foot range from the Base Station. **Note:** It is recommended the SmartProfile™ system be located next to the sensor post.
 - b. Using a GPS device, track and record the location (coordinates) of the SmartProfile™ system.
 - c. Find the metal post with attached spade. Position the spade of the post to face north. Place the provided driver cap on the top of post to prevent warping while driving. Using a post driver, drive the post into the ground until spade is completely underground. Make sure the post is plumb.
3. Mounting SmartProfile™ system:
 - a. Due to bolt size, place the SmartProfile™ system on the driven metal post facing either east or west.
 - b. Select the preferred height of the SmartProfile™ system and secure to post using two bolts.



It is recommended to secure at a height appropriate for the 5-foot Watermark probe cable.

4. Mounting Solar Panel & RF Antenna:

- a. Using the black knob, secure the 5-watt Solar Panel in one of the top three holes of the outside metal post. **Note:** Make sure Solar Panel is facing south.
- b. Tighten the ¼ nuts and bolts with two 7/16-inch wrenches to ensure the solar panel remains pointed south.
- c. Place the RF Antenna on the Solar Panel mounting bracket tab.

5. Connecting the RF Antenna:

- a. Locate the RF Antenna cord and screw into the correct outlet found on the bottom of the system.

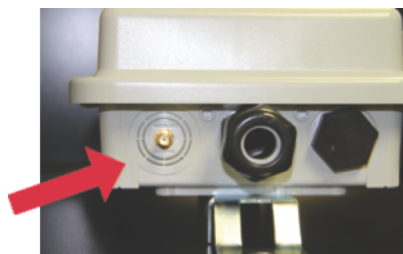


Figure 1: Showing the RF Antenna outlet located on the bottom of the system.

Installation

6. Connecting Watermark Probes (if equipped):
 - a. Run the Watermark Probe cord through the opening in the bottom of the system and plug into the motherboard socket labeled "WM-1". **Note:** If plugging in more than one Watermark Probe, make sure to skip the sockets labeled "TH" and use the sockets labeled "WM". Additional Probes should be connected in an incremental fashion (WM-1, WM-2, WM-3, etc.)



Figure 2: Showing the battery power cord plugged into the motherboard socket labeled "Battery".

	<p>The LED display under "Watermark" should light up (and remain lit) depending on the number of Watermark Probes you have connected.</p>
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7. Placement of Temperature Probe (if equipped):
 - a. Place the Temperature Probe underground at the same depth and parallel to the Watermark Probe (Recommended).
8. Connecting Temperature Probe (if equipped)
 - a. Run the Temperature Probe cord through the opening in the bottom of the system and plug into the motherboard socket labeled "TH-1". **Note:** if plugging in more than one Temperature Probe, make sure to skip the sockets labeled "WM" and use the sockets labeled "TH". Additional probes should be connected in an increment fashion (TH-1, TH-2, TH-3 etc.).

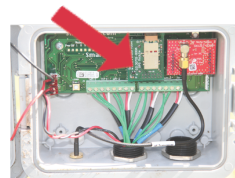


Figure 3: Showing the Watermark Probe and Temperature Probes correctly plugged into the motherboard.



	<p>The LED display under "Temperature" should light up (and remain lit) depending on the number of Temperature Probes you have connected.</p>
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9. Record Watermark and Temperature Probe Information:
 - a. Record the depths and board locations for each probe for setup on C1.
10. Powering the SmartProfile™ system:
 - a. Inside the SmartProfile™ system, locate the battery power cord and plug into the motherboard socket labeled "Battery". **Note:** you should see all LED displays light up briefly. The first LED will remain lit and then begin blinking continuously, followed by an occasional blink from the RF LED.

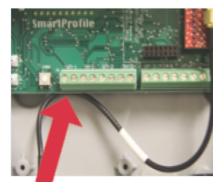


Figure 4: Showing the battery power cord plugged into the motherboard socket labeled "Battery".

11. Connecting the Solar Panel:
 - a. Locate the Solar Panel power cord. With the system door still open, run the cord through the opening at the bottom of the system and plug into the motherboard socket labeled "Solar Panel". Ensure the Solar Panel cable is properly secured to the pole.

Smartfield One (1) Year Limited Warranty

Smartfield's warranty obligations for these hardware products are limited to the terms set forth below: Smartfield, Inc. ("Smartfield") warrants SmartCrop®, SmartRate™, SmartRate™ PRO, SmartWeather™, PivotScout™, PivotScout™PRO, SmartProfile™, and other Smartfield-branded hardware products against defects in materials and workmanship under normal use for a period of ONE (1) YEAR from the date of retail purchase by the original end-user purchaser ("Warranty Period"). If a hardware defect arises and a valid claim is received within the Warranty Period, at its option and to the extent permitted by law, Smartfield will either (1) repair the hardware defect at no charge, using new or refurbished replacement parts, (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product, or (3) refund the purchase price of the product. Smartfield may request that you replace defective parts with new or refurbished user-installable parts that Smartfield provides in fulfillment of its warranty obligation. A replacement product or part, including a user-installable part that has been installed in accordance with instructions provided by Smartfield, assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes Smartfield's property. Parts provided by Smartfield in fulfillment of its warranty obligation must be used in products for which warranty service is claimed. When a refund is given, the product for which the refund is provided must be returned to Smartfield and becomes Smartfield's property.

EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to hardware products manufactured by or for Smartfield that can be identified by the "Smartfield" trademark or "SmartCrop" trademark, trade name, or logo affixed to them. The Limited Warranty does not apply to any non-Smartfield hardware products or any software, even if packaged or sold with Smartfield hardware. Manufacturers, suppliers, or publishers, other than Smartfield, may provide their own warranties to the end user purchaser, but Smartfield, in so far as permitted by law, provides their products "as is". Software distributed by Smartfield with or without the Smartfield or SmartCrop brand name (including, but not limited to system software) is not covered under this Limited Warranty. Refer to the licensing agreement accompanying the software for details of your rights with respect to its use.

Smartfield does not warrant that the operation of the product will be uninterrupted or error-free. Smartfield is not responsible for damage arising from failure to follow instructions relating to the product's use.

This warranty

does not apply: (a) to damage caused by use with non-Smartfield products; (b) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes; (c) to damage caused by operating the product outside the permitted or intended uses described by Smartfield;

(d) to damage caused by service (including upgrades and expansions) performed by anyone who is not a representative of Smartfield; (e) to a product or part that has been modified to alter functionality or capability without the written permission of Smartfield; (f) to consumable parts, such as batteries, unless damage has occurred due

to a defect in materials or workmanship; (g) to cosmetic damage, including but not limited to scratches, dents and broken plastic on ports; or (h) if any Smartfield serial number has been removed or defaced.

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EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE EXTENT PERMITTED BY LAW, SMARTFIELD IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOSS OF USE; LOSS OF REVENUE; LOSS OF ACTUAL OR ANTICIPATED PROFITS (INCLUDING LOSS OF PROFITS ON CONTRACTS); LOSS OF THE USE OF MONEY; LOSS OF ANTICIPATED SAVINGS; LOSS OF BUSINESS; LOSS OF OPPORTUNITY; LOSS OF GOODWILL; LOSS OF REPUTATION; LOSS OF, DAMAGE TO OR CORRUPTION OF DATA; OR ANY INDIRECT OR CONSEQUENTIAL LOSS OR DAMAGE HOWSOEVER CAUSED INCLUDING THE REPLACEMENT OF EQUIPMENT AND PROPERTY, ANY COSTS OF RECOVERING, PROGRAMMING, OR REPRODUCING ANY PROGRAM OR DATA STORED OR USED WITH SMARTFIELD PRODUCTS AND ANY FAILURE TO MAINTAIN THE CONFIDENTIALITY OF DATA STORED ON THE PRODUCT. THE FOREGOING LIMITATION SHALL NOT APPLY TO DEATH OR PERSONAL INJURY CLAIMS, OR ANY STATUTORY LIABILITY FOR INTENTIONAL AND GROSS NEGLIGENT ACTS AND/OR OMISSIONS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

OBTAINING WARRANTY SERVICE

Please access and review the online help resources referred to in the documentation accompanying this hardware product before requesting warranty service. If the product is still not functioning properly after making use of these resources, please contact the Smartfield representatives using the information provided in the documentation. When contacting Smartfield via telephone, other charges may apply depending on your location. When calling, a Smartfield representative will help determine whether your product requires service and, if it does, will inform you how Smartfield will provide it. You must assist in diagnosing issues with your product and follow Smartfield's warranty processes. Smartfield may restrict service to the fifty states of the United States of America and the District of Columbia, and provide warranty service (i) at a Smartfield repair service location, (ii) by sending you prepaid way bills (and if you no longer have the original packaging, Smartfield may send you packaging material) to enable you to ship the product to Smartfield's repair service location for service, or (iii) by sending you new or refurbished customer-installable replacement product or parts to enable you to service or exchange your own product ("DIY Service"). Upon receipt of the replacement product or part, the original product or part becomes the property of Smartfield and you agree to follow instructions, including, if required, arranging the return of original product or part to Smartfield in a timely manner. When providing DIY Service requiring the return of the original product or part, Smartfield may require a credit card authorization as security for the retail price of the replacement product or part and applicable shipping costs. If you follow instructions, Smartfield will cancel the credit card authorization, so you will not be charged for the product or part and shipping costs. If you fail to return the replaced product or part as instructed, Smartfield will charge the credit card for the authorized amount.

Service options, parts availability and response times may vary. Service options are subject to change at any time. In accordance with applicable law, Smartfield may require that you furnish proof of purchase details and/or comply with registration requirements before receiving warranty service. Please refer to the accompanying documentation for more details on this and other matters on obtaining warranty service.

If your product is capable of storing software programs, data and other information, you should protect its contents against possible operational failures. Before you deliver your product for warranty service it is your responsibility to keep a separate backup copy of the contents and disable any security passwords. **THE CONTENTS OF YOUR PRODUCT WILL BE DELETED AND THE STORAGE MEDIA REFORMATTED IN THE COURSE OF WARRANTY SERVICE.** Your product will be returned to you configured as originally purchased, subject to applicable updates. You will be responsible for reinstalling all other software programs, data and passwords. Recovery and reinstallation of software programs and user data are not covered under this Limited Warranty.

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