



Sensor Installation Guide



For more information, please visit us online at www.cropx.com.

CropX Sensor Installation Guide

Introduction

This manual provides step-by-step instructions for installing a CropX sensor in your field.

CropX offers two sensor models:

- ➊ CropX 'Pro' – Soil measurements at 8" & 18" (20 cm & 45cm); see fig. 1 below (left)
- ➋ CropX 'Deep' – Soil measurements at 8", 18" & 36" (20cm, 45cm & 90cm); see fig. 1 below (right)

Each model is shipped with a matching installation kit (installation process is the same for both models).

On each sensor a label is affixed, indicating the HW model type.

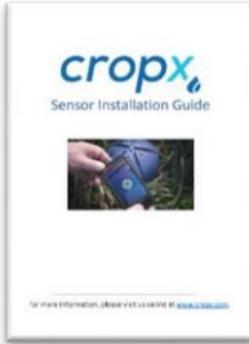
***Note: Prior to installing your sensor, you should complete your registration and set up your farms & fields.*



Figure 1 - CropX 'Pro' (left) and 'Deep' (right) sensors



CropX Installation Kit Contents:

| Item Description | Item image |
|---|--|
| <ul style="list-style-type: none">❖ Drill bit<ul style="list-style-type: none">‘Pro’: 0.7" X 21.6" (18 x 550 mm)‘Deep’: 1.02" X 45.2" (26 x 1150 mm) |  |
| <ul style="list-style-type: none">❖ Handle |  |
| <ul style="list-style-type: none">❖ Sensor head adapter |  |
| <ul style="list-style-type: none">❖ CropX Sensor Installation Guide |  |

Step 1: Setting Up

- 💧 Visit CropX's knowledge base at <https://cropx.com/knowledge-base/>, or scan the QR code to learn how to get started.
- 💧 Go to the Apple App Store or the Google Play Store, search for **CropX Adaptive Irrigation**, and download the app to your phone.
- 💧 Launch the CropX app by clicking on the CropX icon & create an account.
- 💧 If you have yet to add a new field, you may do so by clicking on the 'add a new field' sign at the first screen and following the instructions.
- 💧 By clicking on one of the fields you've created, if no sensors are currently installed, a link to **install your sensor** will appear. Click on it to go to the interactive installation guide that will guide you through the installation process.

****Note: Allow the system to use your mobile device's *Bluetooth & Location Services*, when prompted.**

Step 2: Sensor Installation

Although sensors are shipped with fully charged batteries that should last the whole season, **we recommend charging your batteries** for 10 hours prior to installation, using the USB cable provided (see charging instructions on the last page).

Please ensure you have the following for installation:

- 💧 Sensor(s);

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- 💧 CropX Installation Kit;

Customer to provide:

- 💧 A smartphone;
- 💧 ½" cordless drill, minimum 18V (fully charged);
- 💧 Container filled with a ½ gallon (~2L) of water for each sensor

Installation Recommendations:

For optimal sensor installation and accuracy, it should be installed:

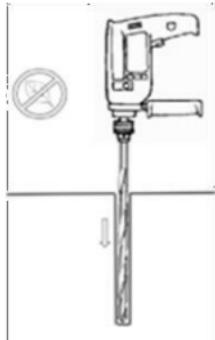
- 💧 In moist soil, preferably around field capacity
- 💧 Within the zone outlined on the map
- 💧 In a location in the field that best represents the crop
- 💧 (between the plants, in average plant density)
- 💧 In a flat surface, with no slope, no ditch or cracked soil
- 💧 Away from the tractor and pivot wheel tracks
- 💧 In a uniformly planted area
- 💧 Several inches from an active emitter, if your crop is surface or sub-surface drip irrigated

Please be Mindful of the Following:

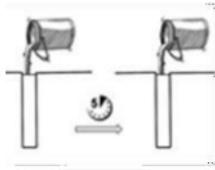
- 💧 Remove any leaves or straw from the installation site
- 💧 Do not apply downward force
- 💧 Do not screw the sensor all the way down to the soil surface (leave a 1-finger gap)
- 💧 Do not damage the sensor antenna

To Install the Sensor:

- Drill a **vertical** hole in the soil using your drill and the provided drill bit. If necessary, drill and retract several times until the bit reaches the full depth.



- Pour water slowly into the hole until it's full, wait 5 minutes and then top off the hole with more water until it's full. Wait 5 more minutes and if the soil is dry, add more water.



***Note: Try not to pour water outside of the hole as much as possible.*

- Insert the sensor into the hole and screw it gently with both hands, until it stands firmly in the ground. Do not apply downward force. Ensure there is no debris (plants, leaves, etc.) caught on the sensor during installation.



- Mount the sensor head adapter in the grooves on top of the sensor head.



- Mount the handle on the sensor head adapter and tighten it.

- Screw the sensor almost all the way down using the handle, leaving a 1-finger gap between the ground level and the bottom of the sensor head.



- Remove the sensor head adapter from the sensor.
- Set the antenna extension cable to a pole/peg such that the antenna is positioned above the maximum height reached by the plant canopy at the end of the growing season.

Uninstalling the Sensor

It is recommended to uninstall the sensors at the end of each season, by completing the following:

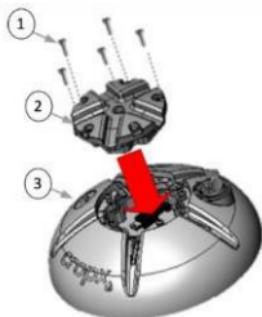
- ⚡ Bring the handle, the sensor head adapter, a 1/2 gallon of water and a shovel.
- ⚡ Using the app, click on the sensor you wish to uninstall and a path between you and the sensor will be displayed. Go to the sensor.
- ⚡ Ensure the soil is moist. It is recommended to wet the soil around the sensor both a day prior to uninstalling, and just before the uninstallation.
- ⚡ Connect the sensor head adapter to the handle.
- ⚡ Mount the sensor head adapter to the grooves on the top of the sensor head.
- ⚡ Mount the handle on the sensor head adapter socket tool and loosen it counterclockwise.
- ⚡ If you feel strong resistance from the sensor while trying to screw it out, pour water around the sensor area to soften the soil. You may use the shovel to dig around the sensor to further loosen the soil but make sure to keep a distance of at least a foot away from the sensor.
- ⚡ After removing the sensor, keep the sensor in a safe and dry place and charge it prior to the next installation.

***Note: In addition to the physical uninstallation of the sensor, it should also be deactivated from the App.*



Charging the Sensor

- 💡 Gently remove the 5 screws on top of sensor.
- 💡 Remove the charging socket cover.
- 💡 Connect the USB cable to the USB cable port (cable provided) and connect to a certified UL/CE USB power adapter.
- 💡 Allow the sensor to fully charge for at least 10 hours, until the light changes to green (this may take up to 24 hours, depending on the charging source).
- 💡 Before reattaching the charging socket cover, make sure the rubber sealing ring is in place and clean from dust & debris.



Technical Data:

Battery and Power:

Risk of explosion if battery replaced by an un-authorized personnel.

Dispose used batteries according the local regulations.



3.7V/10.4Ah/38.48Wh (Two Li-Ion battery pack)

Charging at: 5VDC @ 2A max

Environmental grade:

CropX Pro/Deep sensors comply with outdoor grade
IP68



Temperatures range:

Storage range -4°F to +140° F (-20°C to +60°C)

Operating range 32°F to +122°F (0°C to +50°C)



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FCC Regulatory warnings:

Class B- Industrial use

The FCC Wants You to Know

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.

FCC Regulatory notices

FCC Warning (Modification statement)

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC Rules.

Wireless notice

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines radio frequency (RF) Exposure rule. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The distance between user and device should be no less than 20cm.

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