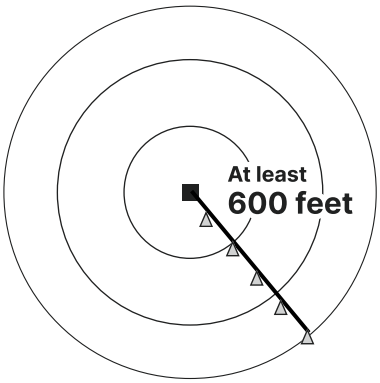
Reinke Direct ET by CropX

Sensor Installation Guide - Pivot Mount

This guide provides step-by-step instructions for installing a Reinke Direct ET Sensor on your Reinke pivot.
****Note:** Prior to installing the sensor, create a CropX account and set up the fields.

New to CropX? Please visit our Quick Start Guide

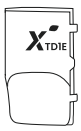


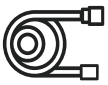
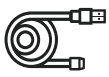
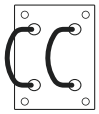
There must be at least 600 feet (183 meters) or more from the center point to the planted field edge.

For center pivot installations with 600 feet (183 meters) or more to the planted field edge, please use the following instructions for mounting the sensor onto the center pivot system.

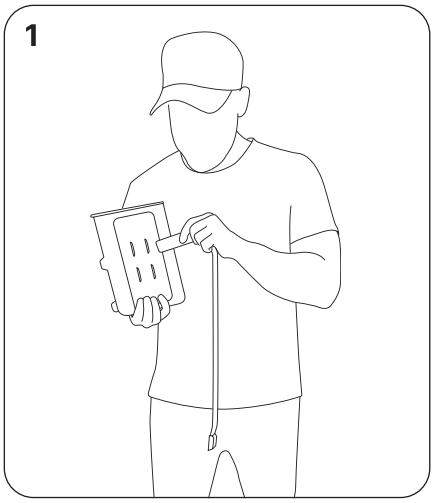
If you have a different situation, please contact us to discuss your options. support@cropx.com or your local service provider

The sensor is shipped with an installation kit

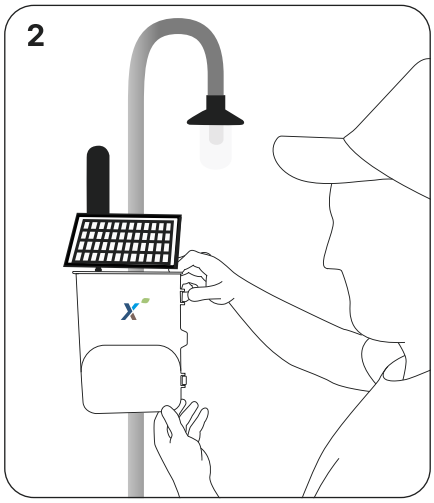
A		Telemetry device
B		Thermocouple protector (Cage)
C		Solar panel
D		Antenna

E		Antenna extension cable
F		Micro USB cable
G		U-Bolt bracket
H		Rain Gauge

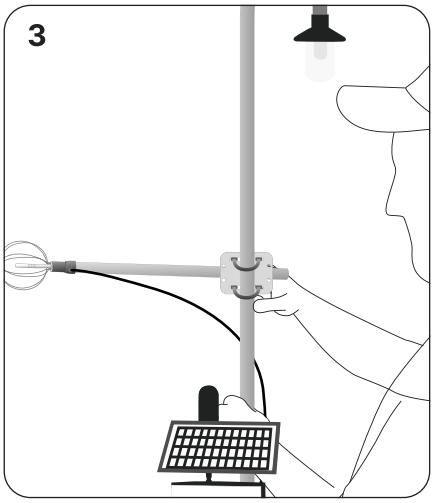
Installation



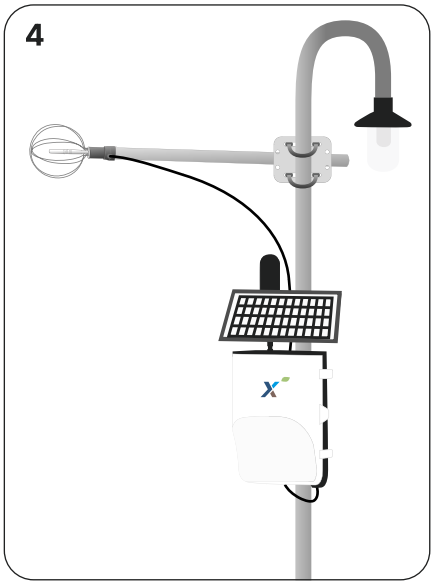
Slide the hose clamps through the slots in the back of the telemetry unit.



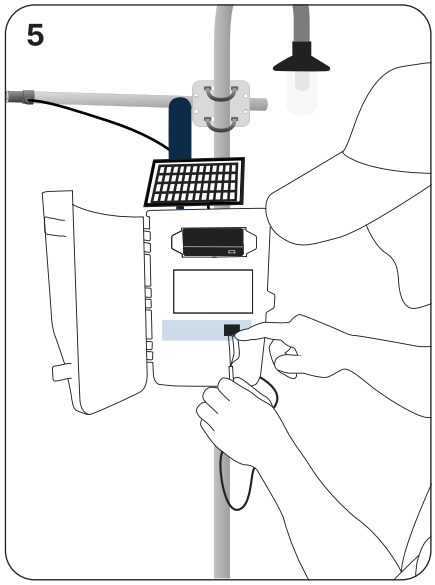
Securely install the telemetry device to the light pole located on your pivot using the hose clamps or zip ties from the previous step.



- Secure your ET sensor to the light pole using the provided u-bolt bracket.
- Do not completely tighten the ET sensor and bracket to the pole at this time.
- Leave slack in the cords so you can easily wire your sensor to the telemetry device in the next step.

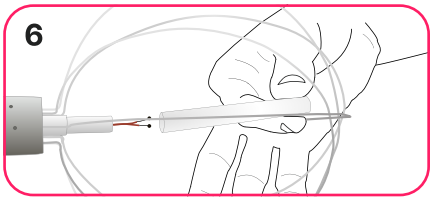


- To finish the hardware install, move the ET sensor bracket up a bit further and completely secure the provided u-bolt bracket to the light pole.
- Secure your cable slack so wind doesn't disturb your cabling and you maintain a solid connection to the telemetry device.

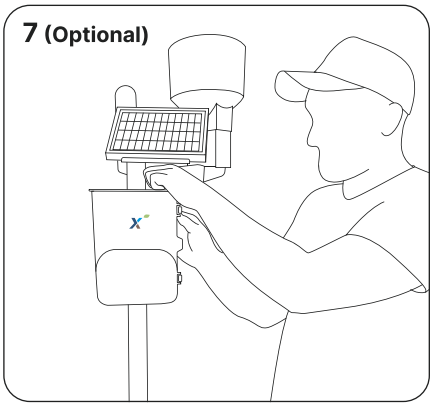


Connect the thermocouple connector to the slot provided. (See the scheme below)

*Occasionally, batteries may become dislodged, preventing the device from charging or functioning properly. In such cases, please ensure the battery is firmly in place by pressing until you hear a confirmation beep.



Gently **remove** the sensor white cap.



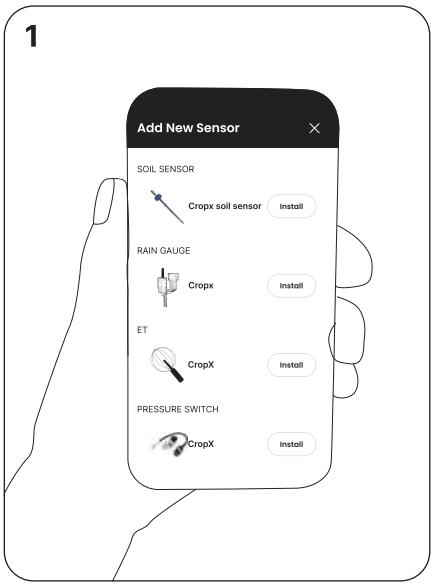
Attach the Rain gauge to the lightning pole using the hose clamps and the cable to the “Pulse” input of the telemetry unit (use A first) Brown wire- “Signal” White wire- “GND”

Wiring Scheme

SDI-12(A)	SDI-12(B)	SDI-12(A)	SDI-12(B)	Current Loop	Auxiliary port *Optional
Power Data GND	Power Data GND	Signal GND	Signal GND	Power Power Sense GND	
Sentek, Aqua Check, TerraSen		Rain bucket, Flow meter Pump switch, Pressure switch		Effluent pond level meter	ET Sensor

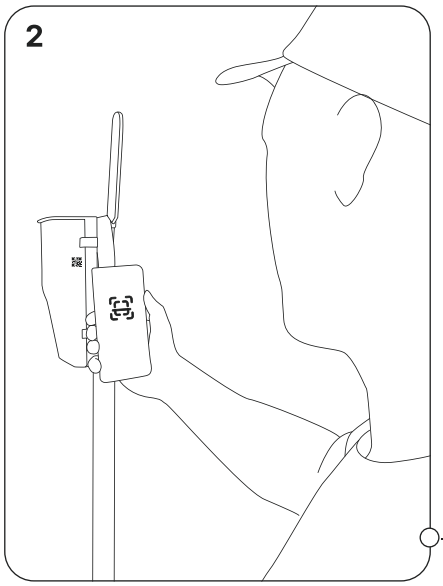
Closing the loop

1



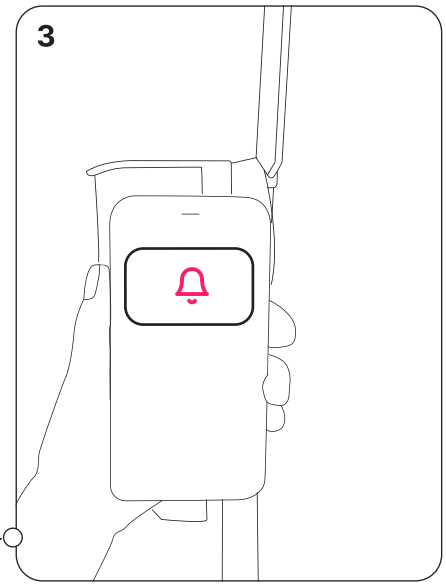
- Open the CropX mobile app, click the green “+” button, and tap “Add a sensor”
- Select the **ET sensor** from the list and follow the installation instructions on the app.

2



- Make sure that the CropX app is allowed access to the camera.
- Scan the QR code, using the CropX app. Fill in all the necessary details in the form and click Submit.

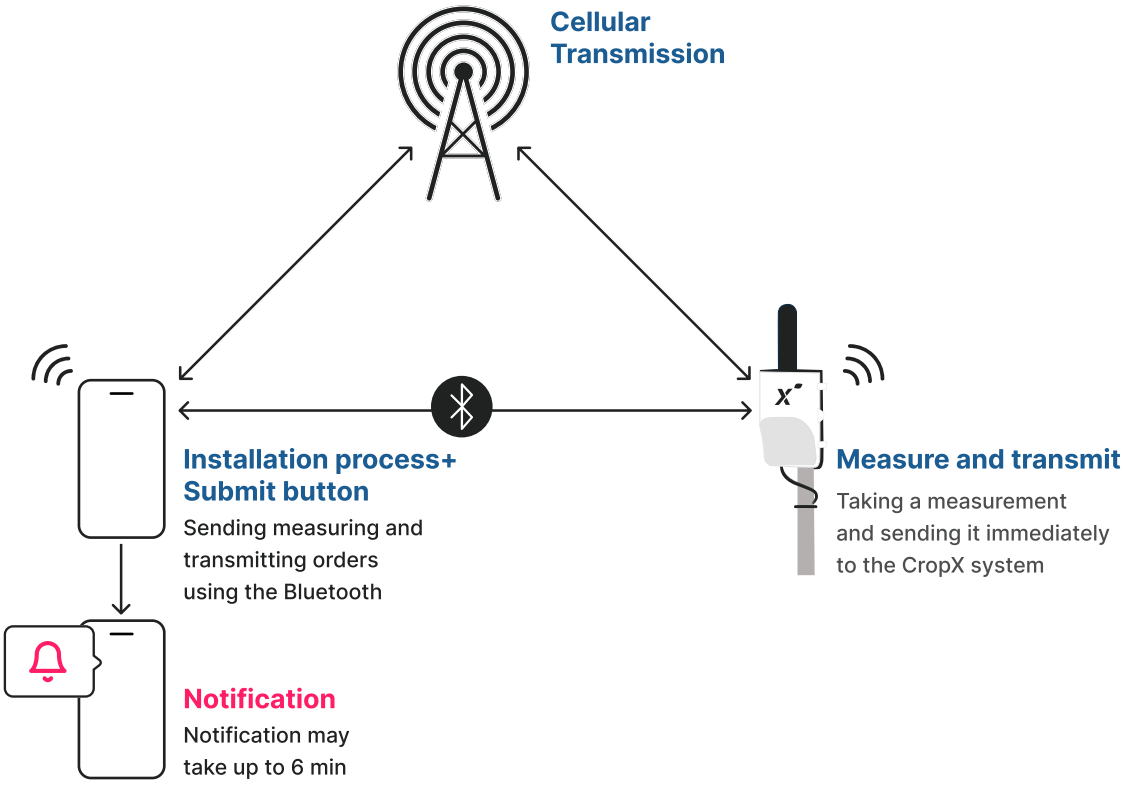
3



The installation has been completed. In a few minutes you will receive a notification

Transmission verification during installation

Now, with the help of Bluetooth and cellular communication from the sensor, a signal will be transmitted to the CropX system to verify that the sensor is in a place with cellular coverage and is working properly.
*make sure your BLE service in your mobile device turn on.

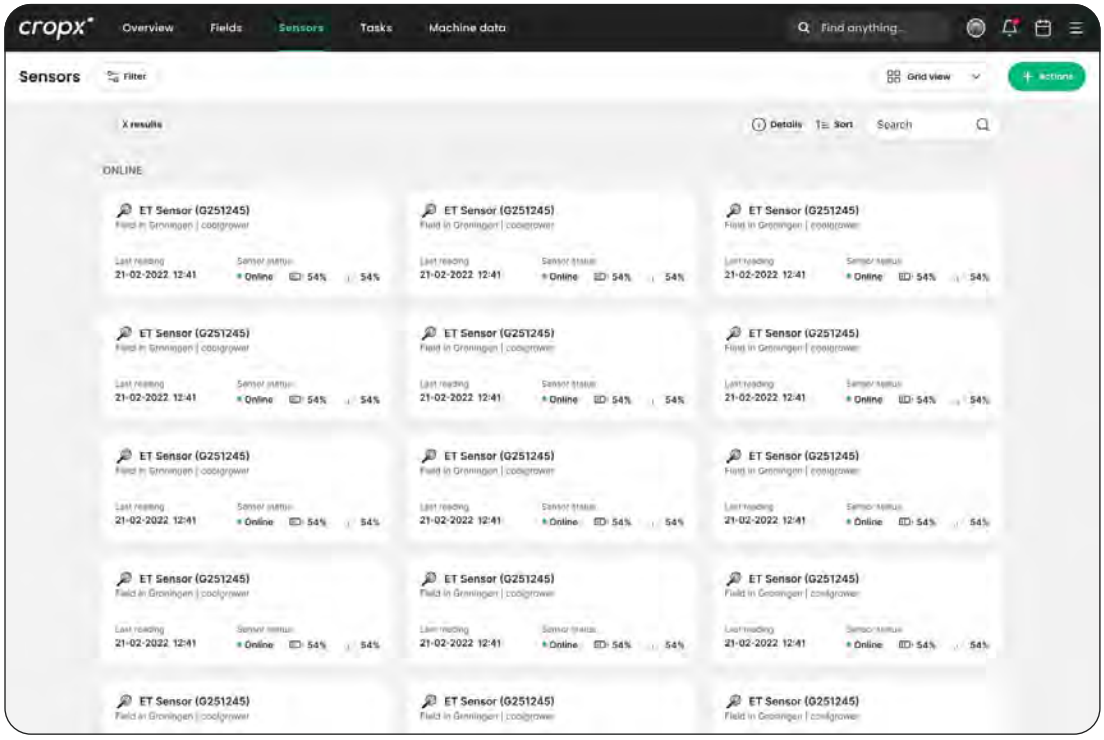


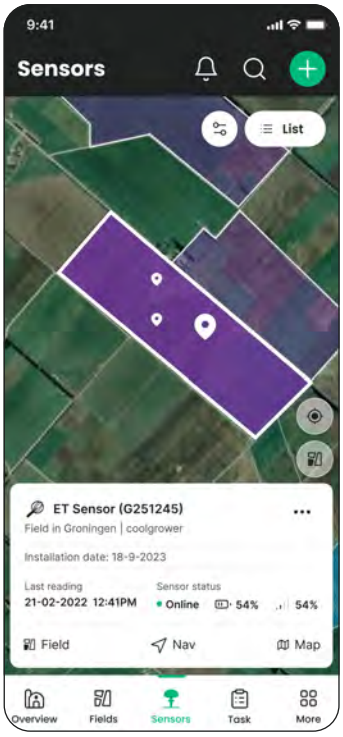
View data on CropX web and mobile apps

With an active **Reinke Direct ET by CropX subscription**, you can monitor your ET from anywhere using CropX web and mobile apps. You can also access other CropX features including weather data, satellite imagery, variable rate scripting and more.

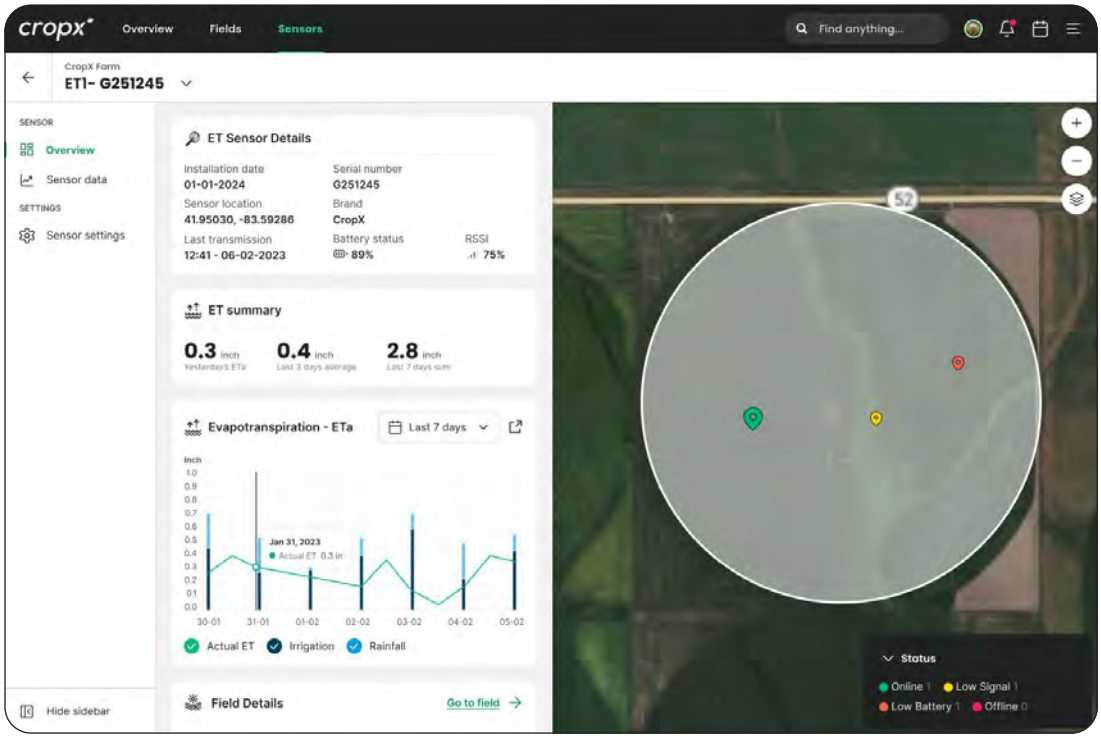
Sensors Page

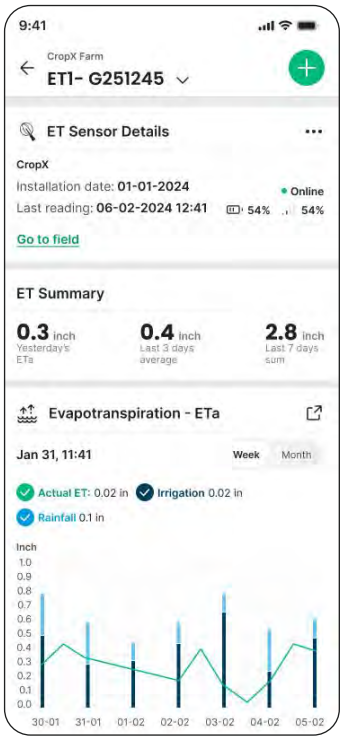
https://myfarm.gcp.cropx.info/sensors





Sensor Overview





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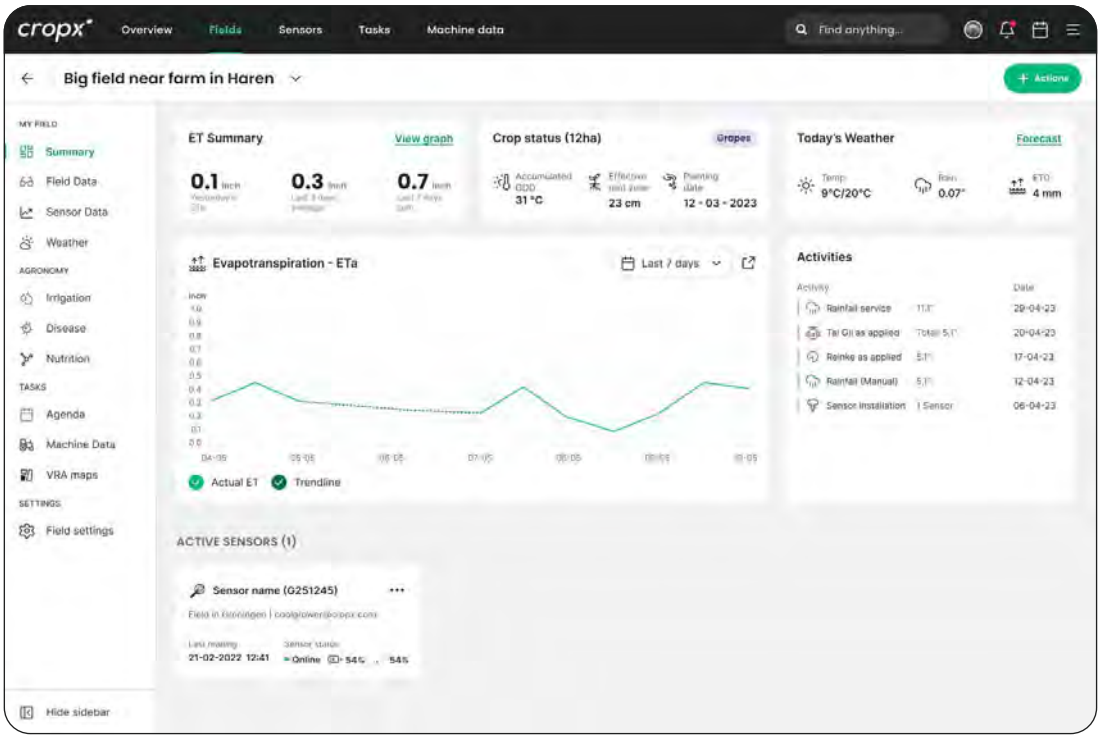
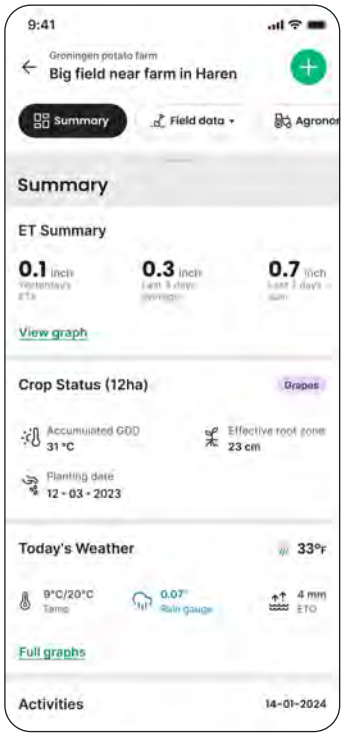
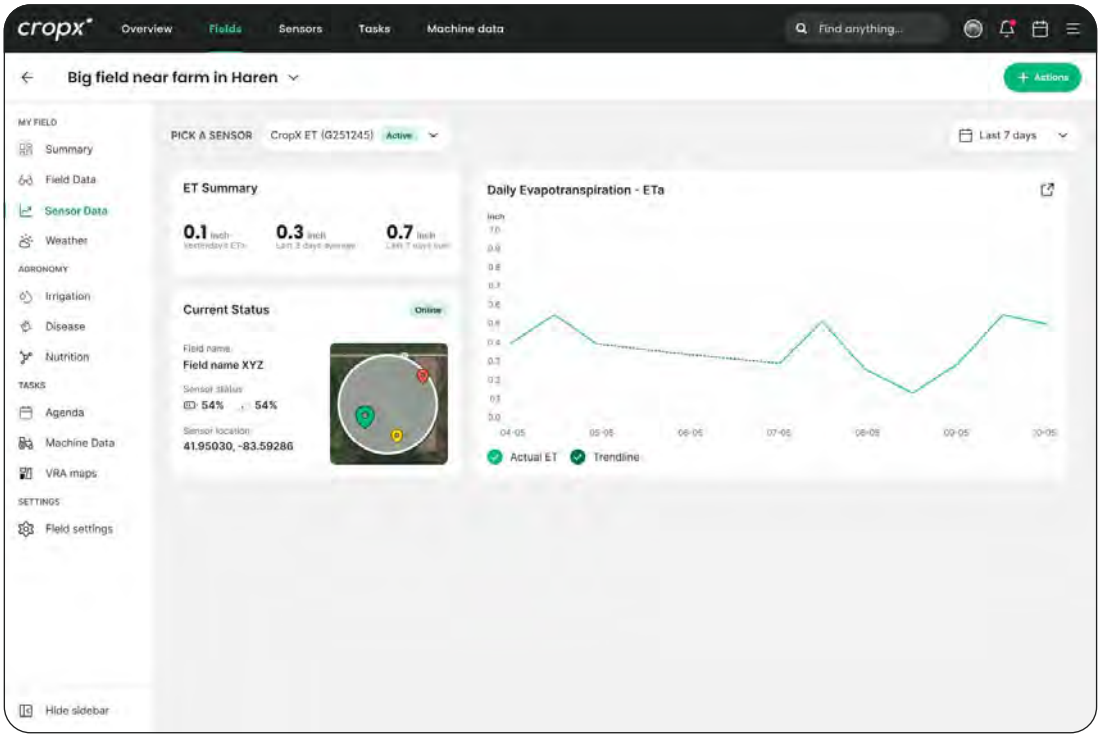
Field Summary





Sensor Data



Installation Q&A

Is it possible to install the ET sensor with any CropX telemetry device?

No. The ET sensor must be connected to a CropX Telemetry device with an ET port (on the rightmost thermocouple port)

Is it possible to install additional devices on the CropX telemetry device with an ET port?

Yes, our telemetry unit allows you to install a soil sensor, rain gauge, pressure switch and more.

Is a solar panel necessary to use with the CropX telemetry unit to support an ET sensor?

Yes, because of the sensor's high transmission and measurement frequency -
we recommend using the ET sensor with a solar panel connected to ensure long-term use.

After installing the sensor, how can I see the measured information?

All the information will be displayed in the CropX app in the field and on the relevant sensor
according to the QR (At this point we only show the ETa graph)

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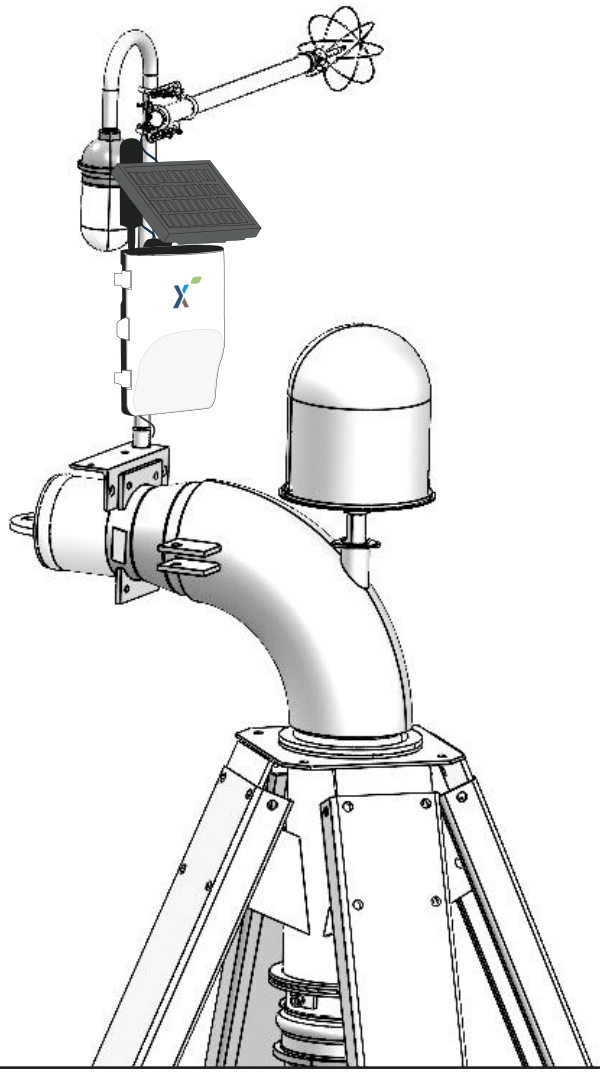

Evapotranspiration & Irrigation Management

Learn what evapotranspiration (ET) is, why it changes, and how it can be used to inform irrigation decisions.

What is Evapotranspiration (ET)?

Evapotranspiration (ET) is the combined processes of the evaporation of water from the soil and plant surfaces and transpiration of water through the plant tissues.

What Influences ET?

Any of the following with cause a change in the ET:

- A change in water availability in the soil.
- A change in the ability of the plants to keep up with atmospheric demand for water.
- A change in the ability of the atmosphere to pull water through the plant.

In other words, a change in any component of the Soil-Plant-Atmosphere Continuum will influence ET.

What is the Soil-Plant-Atmosphere Continuum?

Water is lost from a crop as the plants pull the water from the soil into their roots, the water is pulled through the plants to their leaves, and the water is vaporized in the leaves and transpired out into the atmosphere. The movement of water from the soil, through the plant, and into the atmosphere, and eventually returned to the soil as rainfall, is called the Soil-Plant-Atmosphere Continuum (SPAC).

Why is Evapotranspiration Important?

A change in any one part of the Soil-Plant-Atmosphere Continuum (SPAC) will also change the requirement of when and how much to irrigate a field. Evapotranspiration integrates the SPAC - and accomplishes this over a broad area of a crop field.

If there is insufficient water available in the soil, then the ET will decrease as the plants physiologically regulate their water use. If the plants are hedged, then the ET will decrease because there is less leaf area intercepting light and losing water to the atmosphere. If there is a heat spell, the ET will increase because the atmospheric demand has increased and can more strongly pull water through the plants.

What is the Actual ET (ETa)?

The Actual ET (in contrast to Reference ET) is the amount of water that is vaporized and transpired from your field and lost to the atmosphere. In other words, the Actual ET (ETa) is the evapotranspiration from the field being measured.

What is the Reference ET?

Reference ET describes the atmospheric demand. The Reference ET is the ET from a healthy and actively-transpiring grass field with ample water in the soil. Because there is no limitation in water availability in the soil and because the field is completely covered with actively-transpiring plant tissues (i.e., the soil and plant aspects of the SPAC are fixed), then any increase or decrease in Reference ET is due to changes in the atmospheric demand. Reference ET tells you how hard the atmosphere can pull water through a plant.

CropX ET Sensor unit SKU

CPX-ETKV2-00 ET Accessories Kit (w/o PS)

P/n	Description
OSK2K3708-1	OSK2K3708/CHAL-003-BW Butt-Welded Thermocouple - Each 4ft
CPX-CON00048	3 POS SPRING TB PLUG PITCH 3.50
CPX-MA00001	ET Protector Cage Assembly
CPX-MA00002	ET Pivot Mouting Accessories

CPX-ETKV2-10 ET Accessories Kit (Including PS)

P/n	Description
OSK2K3708-1	OSK2K3708/CHAL-003-BW Butt-Welded Thermocouple - Each 4ft
CPX-CON00048	3 POS SPRING TB PLUG PITCH 3.50
CPX-MA00001	Protector Cage Assembly
LER00035TBPNKCBC25	Pressure Switch
5346K81	Straight Adapter for 1/8" Hose ID, 1/8 NPTF Female
3272	Poly Tubing Size: 1/4" (.170" ID x .250" OD) Length: 100'
314025	Raindrip 314025B 25-Count 1/4-Inch Double Barbed Elbow
CPX-MA00003	ET Ground Mounting Accessories

CPX-ETKV2-20 ET Accessories Kit Long (w/o PS)

P/n	Description
TBD	CHAL-003-BW Butt-Welded Thermocouple - Each 26ft
CPX-CON00048	3 POS SPRING TB PLUG PITCH 3.50
CPX-MA00001	Protector Cage Assembly
CPX-MA00002	ET Pivot Mouting Accessories

CropX ET Sensor unit SKU

CPX-ETKV2-30 ET Accessories Kit Long (Including PS)

P/n	Description
OSK2K3708-1	OSK2K3708/CHAL-003-BW Butt-Welded Thermocouple - Each 4ft
CPX-CON00048	3 POS SPRING TB PLUG PITCH 3.50
CPX-MA00001	Protector Cage Assembly
LER00035TBPNKCBC25	Pressure Switch
5346K81	Straight Adapter for 1/8" Hose ID, 1/8 NPTF Female
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314025	Raindrip 314025B 25-Count 1/4-Inch Double Barbed Elbow
CPX-MA00003	ET Ground Mounting Accessories

Technical Data:

Battery and Power:

Risk of explosion if battery is replaced by un-authorized personnel

Dispose used batteries according to 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(
What if the temperature is below 0°C?
The moisture values are not accurate below 0 but the sensor is working.

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