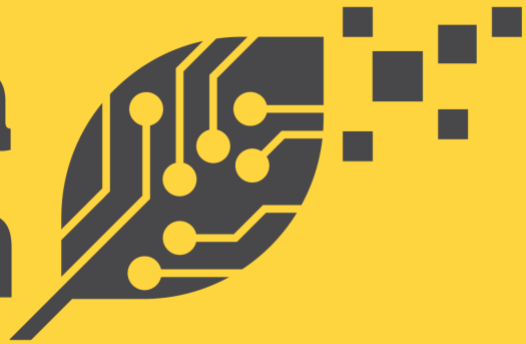


Athena IR-Tech



Transp-IR

Installation Guide

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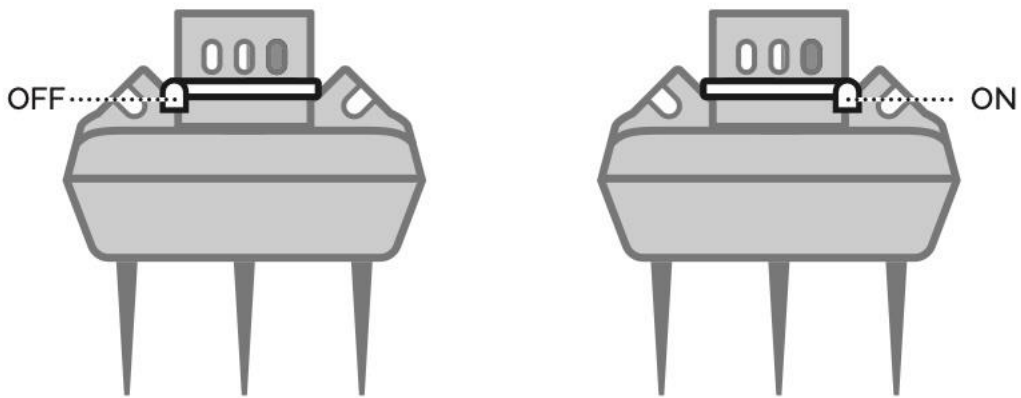
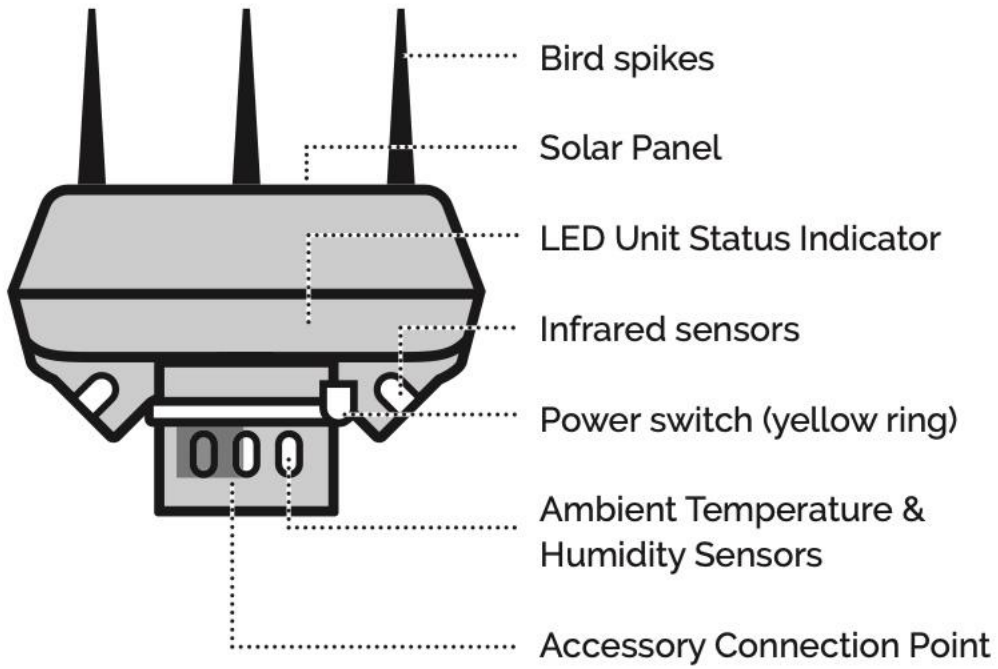
What's Inside the Box?



Transp-IR field Unit

Our field unit that measures leaf and ambient temperature, humidity and solar radiation and transmits this information every 10 minutes to the cloud.

Transp-IR Field Device



Before Heading Out To the Vineyard

Installation Accessories Checklist

Be sure to bring these additional items for the installation.

Mounting pipe for vineyard post

1 – 32mm PVC Pressure pipe Class12 (PN12)

See p. 7 for pole length worksheet and mark height placement guide.



Stardropper for early season installation

165cm, or longer, “stardropper” or “Y” steel fence post



For metal vineyard posts

When attaching the mounting pipe to a vineyard post we recommend using either:

2 metal hose clamps

to attach at the top and at the base of the vineyard post. For 90-100mm CCA posts select hose clamps that have a minimum 125mm diameter



4 cable ties

at least 500mm long to attach at the top and at the base instead of using metal hose clamps. Link 2 cable ties together for each post if necessary



Tools

Flathead screwdriver - To tighten the hose clamps



Tape measure - To measure the PVC pipe height



Small Phillips head screwdriver - To tighten the gimbal screws

Angle Grinder - To cut the PVC pipe to length

Transp-IR Field Placement Overview

Carefully planning and aligning the unit's placement is critical to accurate Crop Water Index measurement.



Fully connected and sending data – Quick blink every 3 seconds..

Error (Not connected to the network) – Long blink every 1.5 seconds.

Choose a representative location

The **Transp-IR** units should be placed in a locations that best represents the vineyard conditions you want to monitor. Typically, they will be installed in areas where there is low or high vigour or growth variability.

The **Transp-IR** unit has 2 IR sensors embedded in the gimbals that must point down directly at the vine canopy and not at the midrow. The IR sensors have a 35° field of view.

Check Mobile Reception

The device should be place in a location with good mobile service. Generally, if you see two bars on your mobile phone the **Transp-IR** device will be able to connect to the cloud and transmit data.

LED Status Indicator

Just inside the clear cover where the serial number is, there is an LED that will provide the unit connection status. Here is what the colours of the LED mean:

Initial Powerup – One quick blink.

Looking for cellular network – Rapid on/off blinking.

Pro Tip

Consider installing the **Transp-IR** unit where you already have other sensing technology such as soil moisture probes or dendrometers installed. This will allow you correlate your Crop Water Index measurements with the measurements from your other technology.

Early Stage Alternate Installation

An alternate installation method for early stage vineyards where the required height of the field device is below the top of the vineyard post would be to secure the field device to a star dropper inserted into the ground where 2 vine cordons meet between the vineyard posts.

Here is a photo where the vineyard posts are still too high to install the Transp-IR device against. In this case installing the Transp-IR field device against a star dropper between 2 vineyard posts is desirable.



Transp-IR Device Post Length

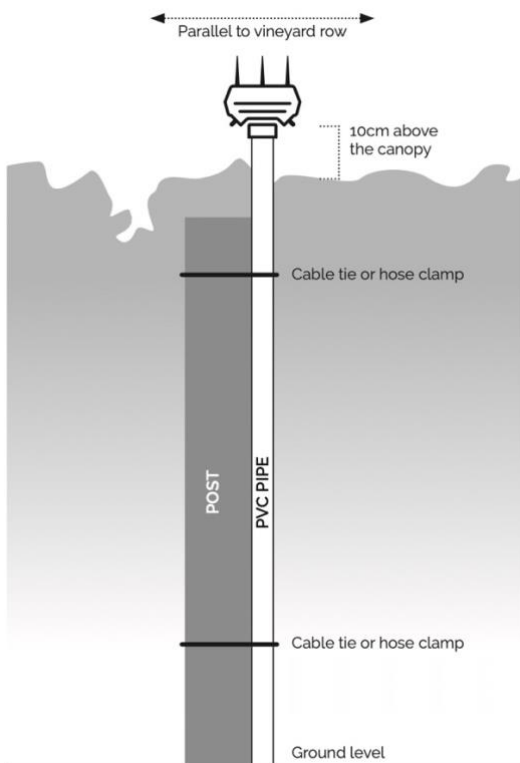
The PVC device post will need to be long enough to extend above the canopy approximately 300 mm later in the season but close enough to the canopy early in the year (approximately 100mm) to ensure the infrared temperature sensors are only reading the canopy temperature and not the midrow.

Determine the length of the PVC device post

To determine the length of the PVC device post measure from the soil level to the top of your current canopy. This will be the length you will need to cut the PVC pipe.

Transp-IR Height Placement Guide

Use this guide for the placement of **Transp-IR** unit at the correct height for your vines.



Recommended height above the canopy

The most important thing to consider is that the infrared temperature sensors are using their 35° field of view to only capture the temperature of the canopy and not the midrows. To achieve this, the unit should be placed above the canopy at a height of about 70% of the width of the canopy with the gimbals at a 45° angle.

Pre-flowering it is recommended that the unit is placed no more than 10 cm above the canopy.

Adjust device post throughout the year

Throughout the year you will need to adjust the device post up so that the device is always above the canopy by no more than 70% of its width.

Example

Post Flowering

For a 50 cm wide canopy the unit should be about 35 cm above the canopy.

Installation Guide for Grapevines

This will walk you through how to install **Transp-IR** device in your vineyard.

Important Note: It's important that you do not turn on the **Transp-IR** device until you are at the position in the vineyard where you will install the device. The built in GPS in the **Transp-IR** will determine its location when turned on and send the location to the cloud for storage.

Step 1. Post Placement

It is optimal to place the device post attached to a vineyard post. Place the device post next to the vineyard post and adjust it between any wires and the canopy to get the device post as vertical as possible. Don't secure the PVC pipe to the vineyard post yet; you'll want to be able to tilt it towards yourself to put the device on the top of the PVC pipe before securing it to the vineyard post.

Step 2. Install field device

On the bottom of the device, where the gimbals are, there is a 32mm PVC pipe insert. Insert the end of the PVC device post into the PVC pipe insert. Then turn the yellow ring from OFF to ON. OFF and ON are stamped on the clear plastic cover of the unit near the yellow ring.

Inside the device next to the power switch an LED will start to blink to indicate the unit has initiated the sequence to find the cellular network and begin transmitting data to the cloud.

At this point the field device will have sent the location of the unit to the cloud. When you add the device to a block within the software the unit will show up on a map. You can then manually move the pin representing the unit on the map to place it in the exact location if the GPS coordinates didn't quite get it right.

Step 3. Record device number

On the side of the clear portion of the device are 2 numbers that identify the unit. The top 13 digit number is a unique identifier of your unit on the cellular network. The red arrow is pointing to this number. Ignore the bottom number as that is an internal Athena identifier.

You will need to record this number, and the vineyard site and block where it is located, to assign the device to the correct vineyard block you will create in the software.



Step 5. Attach the PVC post to the vineyard post

Tilt the PVC post up so that it is positioned against the vineyard post. Turn the PVC post so that the two sensors are oriented along the vine row

Once the device is oriented then lift the PVC post so that the device is at the height according to the height of your canopy. Please consult details on p. 8-9 for height details.

After adjusting the PVC post to the correct height then secure the PVC post to the vineyard post with either the hose clamp or cable ties. We recommend securing the PVC post near the base and also just below the top of the vineyard post.

You're finished in the field!

Great job! **Transp-IR** is now setup and has already started transmitting data to the cloud.

Welcome email and Spam

Should have already received a welcome email from noreply@athenairtech.com. If you have not received this email please check your spam folder. If you are part of a larger organisation that use Outlook please contact your IT department and ask them to find any emails that may have been blocked at the corporate firewall that have been sent from noreply@athenairtech.com..

Please also ask them to add the following domains to their "allowed list" or "white list" of internet domains that are allowed through the firewall:

- Athenairtech.com

You can now either choose to complete the installation in the software using your phone or tablet in the field or back at your desk. You will now need to create your site(s) and block(s) and assign your device to your blocks.

Software Configuration Quick Start Guide

Now that you've installed the device in the vineyard, let's get it connected to the software so you can start to see your Vine Water Index.

The process of assigning the devices to the software involves configuring your organisation and then assigning the devices.

Process Overview

1. **Log in to Athena IR-Tech dashboard.**
2. **Create your site(s).** These will be the vineyard locations you have.
3. **Create your block(s).** These will be the areas within your vineyard locations (Sites) where you have your various varieties planted.
4. **Assign devices to the blocks.** This step will link the device with the varietal planted in the block.

Step 1. Log in to Athena IR-Tech dashboard

Go to <https://athenairtech.com> and click the Login button at the top of the screen. Enter your userid and password.

Step 2. Create your site(s).

1. Click on **Sites** on the left hand side of the screen.
2. Click on the **+ Add Site** yellow button.
3. Enter the name of the site and the street address.
4. Click the **Save** yellow button.

Step 3. Create your block(s).

1. Click on the name of the site you just created.
2. Click on the **+Add Block** yellow button.
3. Enter the **Name** of the block and select the appropriate **Crop Species** from the list.
4. Select the appropriate crop variety from the Crop Variety list.
5. There is no need to complete **Pump Flow Rate** and **Irrigated Area** sections just yet.
6. Click on the **Display in Dashboard** button if you want this block to appear in the dashboard you see when you initially sign in.

Step 4. Assign devices to the blocks

1. Click on the name of the block you just created.
2. Click on the **+Add Device** yellow button.
3. Click on the down arrow in the **Device** list and select the serial number of the device you installed in this block.
4. Enter a **Name** for the device.
5. Click the **Save** yellow button.
6. At the Block details screen ensure the phenological stage is correct at the top of the screen. If it is not then click the green button to **Change** to the next stage.

You are now done configuring your organisation and assigned the field devices to the organisation.

Note: The field device needs to accumulate 3 days worth of data before it will display the Crop Water Index every day. Until that time you can see the readings recorded every 10 minutes on the Dashboard graphs by clicking on the buttons to show the various data points.