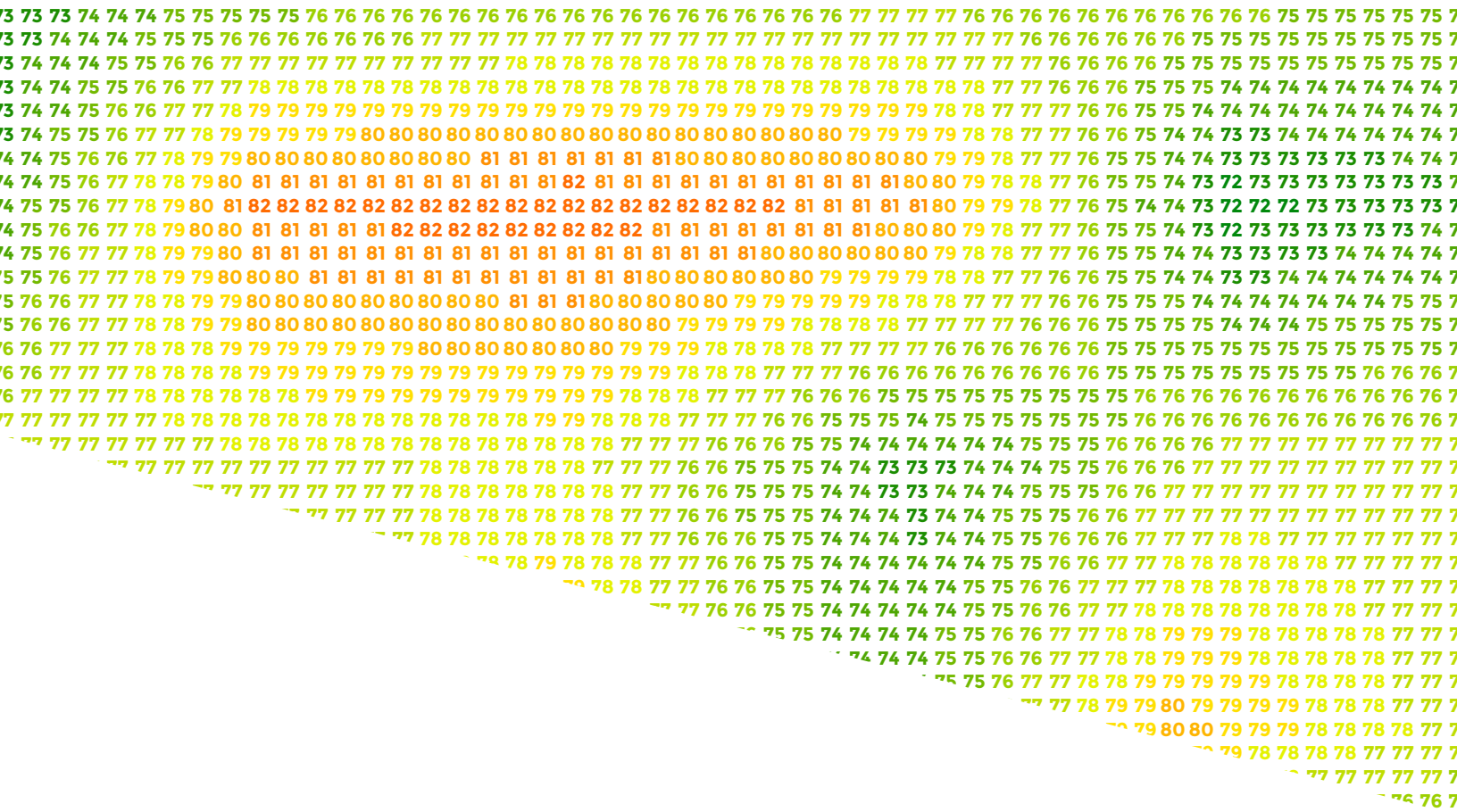
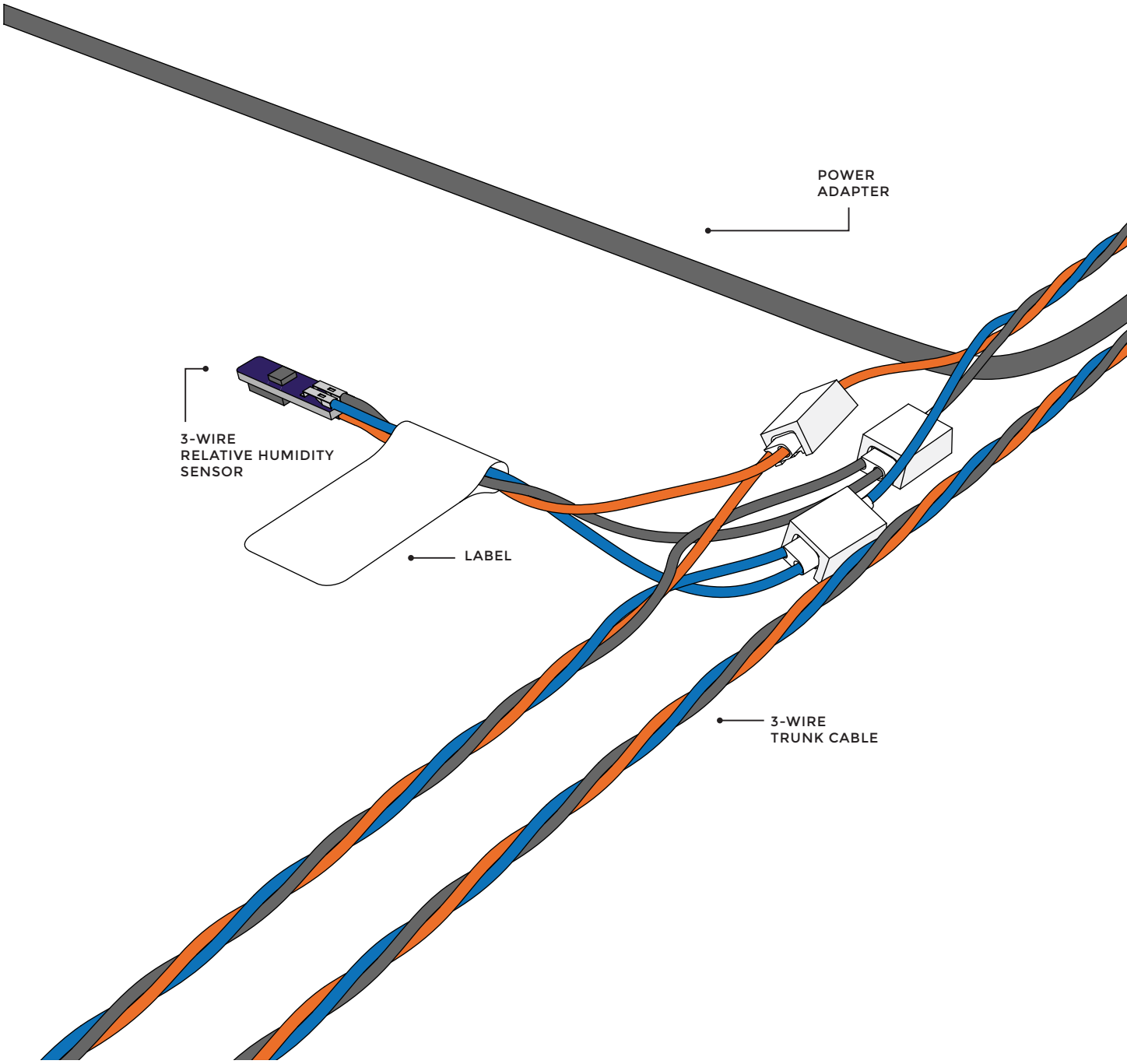


# POINTELIST™

## HARDWARE INSTALLATION AND ACCOUNT INSTRUCTIONS

KT INNOVATIONS
An affiliate of KieranTimberlake
pointelist.com

For support and a list of frequently asked questions, visit cloud.kierantimberlake.com/pointelist.



**BEFORE YOU INSTALL YOUR NETWORK**

Define your study area

Plan out your sensor locations

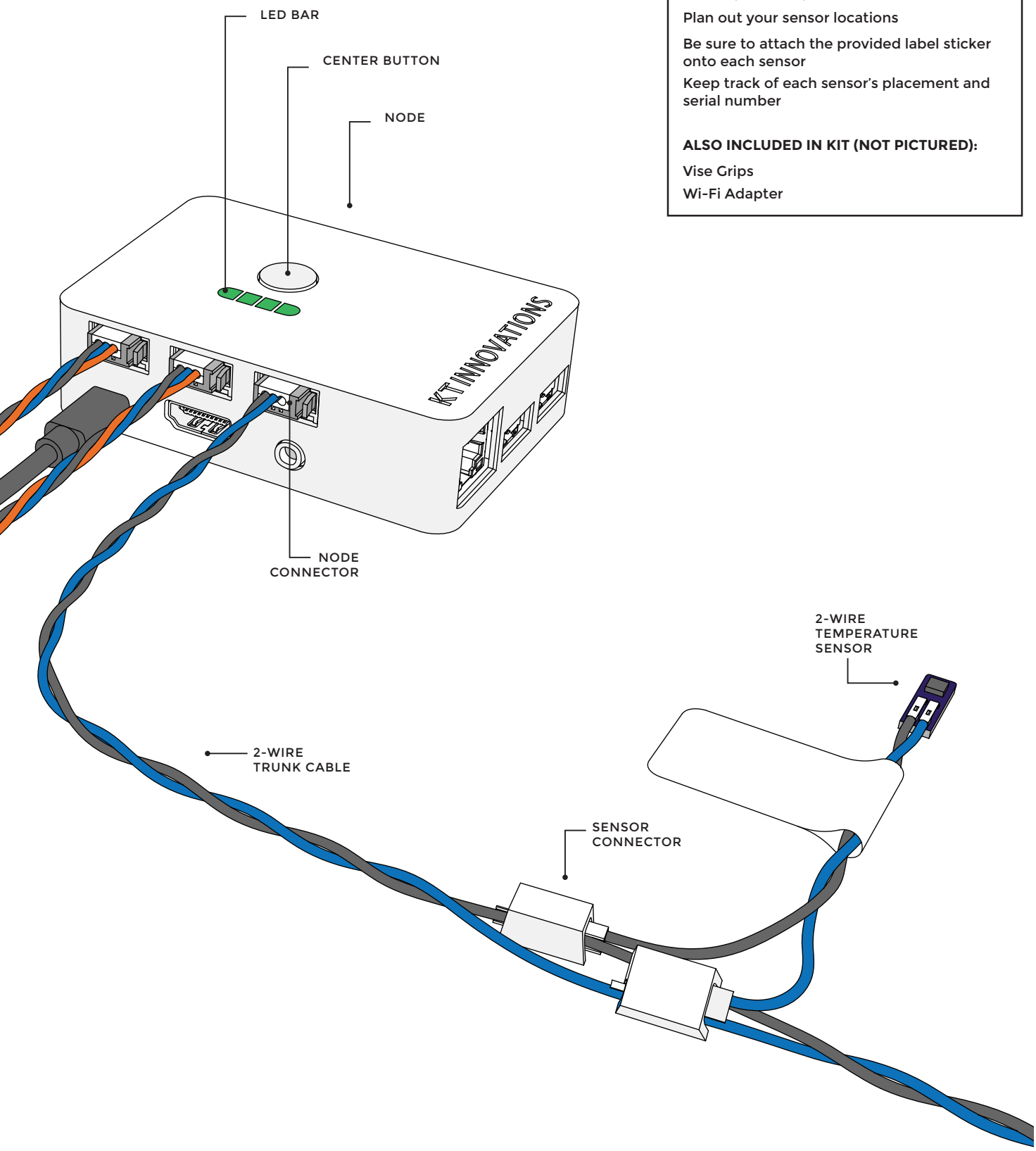
Be sure to attach the provided label sticker onto each sensor

Keep track of each sensor's placement and serial number

**ALSO INCLUDED IN KIT (NOT PICTURED):**

Vise Grips

Wi-Fi Adapter



# HARDWARE INSTALLATION

# 1 NODE SETUP

## GETTING STARTED

1. Plug the power adapter into your node.
2. The first time you turn on your node, the center button will turn from green to blue, indicating that the node is on and is checking for network information. If your node does not contain any stored network information, the center button will turn yellow and the LED bar will flash.

## TO CONNECT USING ETHERNET

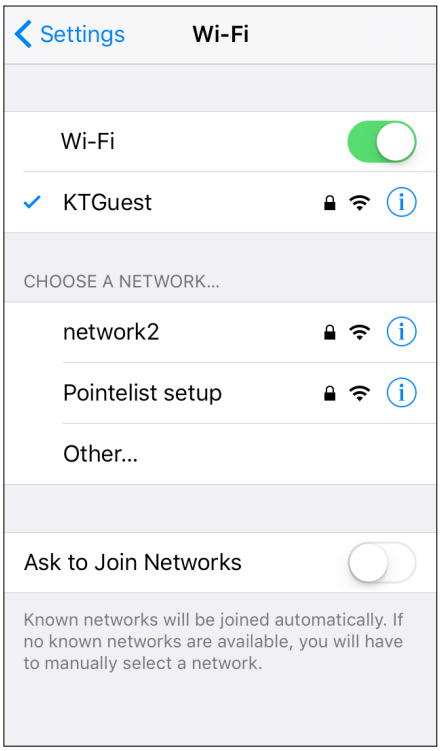
1. To connect your node to the Internet via an Ethernet connection, simply plug your Ethernet cord into the node.
2. Once the center button and LED bar turn green, your node is connected and you are ready to continue to Trunk Cable Setup.

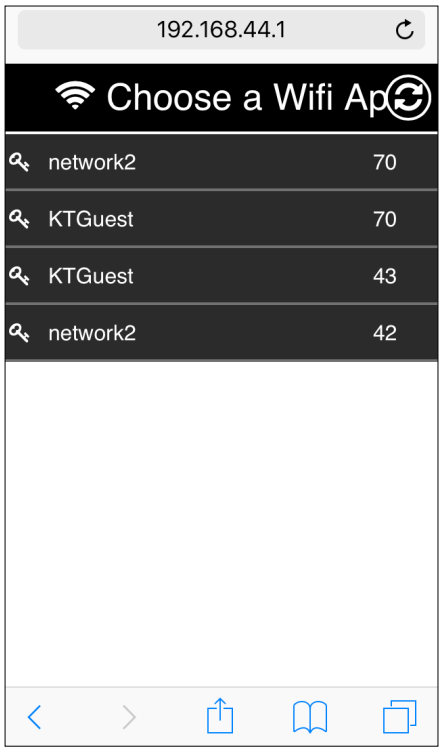
## TO CONNECT USING WI-FI

1. Once the center button is yellow, press and hold it for 3 seconds. The center button will then turn blue, indicating that your node is ready to be connected to the Internet. If your node is installed in a hard-to-reach area and is not readily accessible, the center button will still turn blue after approximately 1 minute. Once your node is ready to connect to the Internet, you can access the node's Wi-Fi settings on your smartphone or other device and select the network whose name contains "pointelist." Enter the password "yardbird" to connect to the network.
2. Open your browser and enter "192.168.44.1: 3000" in the address bar. Once there, chose your network from the list of available networks, enter your network's password, and hit submit.

**3.** After approximately 2 minutes, the center button and LED bar will turn green, indicating that you're connected to Wi-Fi.

**4.** To reset the Wi-Fi network used to connect to the Internet, press and hold the center button for 3 seconds. Once the center button turns blue, the node has been reset and you may select a new Wi-Fi network.



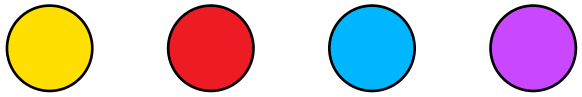



## ACTIVITY MODES

Your node can perform 4 different activities, each of which has its own color-coded sequence. The color of the center button and LED bar will indicate which activity mode your node is in, including:

### ACCESS MODE

A blue center button with an unlit LED bar indicates that the node is reset and is ready to connect to your network. To enable and disable Access Mode, press and hold the center button for 3 seconds.



### NETWORK RECOVERY MODE

In Network Recovery Mode, the node is attempting to reconnect to the Internet either because the router has failed or the Internet Service Provider (ISP) has lost service. The node will continuously attempt to reconnect and will reboot every hour until it has an Internet connection and reenters Data Mode. In Network Recovery Mode, the LED bar will flash and the center button will change from yellow to red to blue, with the blue center button indicating that the node is in Access Mode. The node will enter Access Mode approximately once every 5 minutes, and will stay in Access Mode for 3 minutes to allow you to reconnect to a Wi-Fi network even when the node isn't physically accessible. To keep the node in Access Mode, press and hold the center button for 3 seconds.

### DATA MODE

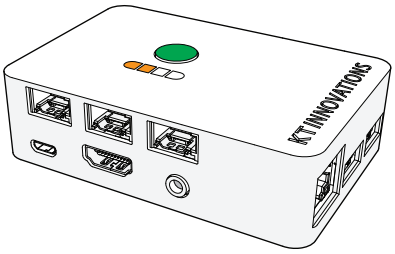
A purple center button with a flashing LED bar indicates that the node has connected to the Internet and is successfully posting data to your Pointelist account.

### SERVER RECOVERY MODE

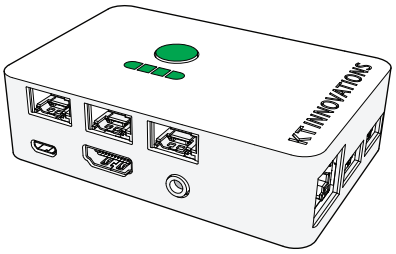
In Server Recovery Mode, the node has an Internet connection but is attempting to reconnect to the Pointelist server, usually because of a temporary loss of cloud services. During this mode, the node's center button will be yellow and the LED bar will be unlit, indicating that the node is continuously attempting to reconnect to the server. Once the node has successfully reconnected, the center button will turn purple to indicate the node has reentered Data Mode.

## WI-FI SIGNAL AND CONNECTIVITY

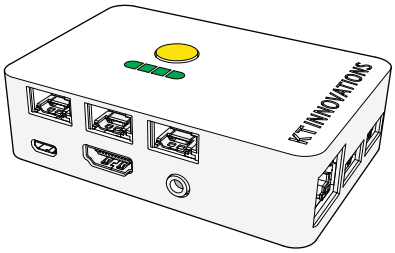
Internet connectivity is unrelated to Wi-Fi strength. Your node can register a strong Wi-Fi signal while still not being connected to the Internet, and vice versa. When the node is in Data or Server Recovery Mode, the following LED bars indicate Wi-Fi signal and connectivity strength:



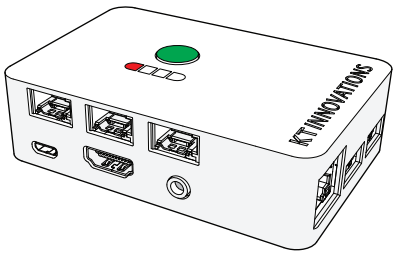

**ACCEPTABLE**
2 orange LED bars may appear if the Wi-Fi signal temporarily drops.




**STRONG**
3-4 green LED bars indicate a strong Wi-Fi signal.




**NOT CONNECTED**
A yellow center button indicates the node is not connected to the Internet. This may be caused by router failure, temporary loss of cloud services, or loss of service with your ISP.




**WEAK**
1 red LED bar may require you to change the position or location of your node in order to access a stronger connection. Ensure the node's Wi-Fi signal is not blocked by metal or thick concrete portions of your study area.

# 2 TRUCK CABLE SETUP

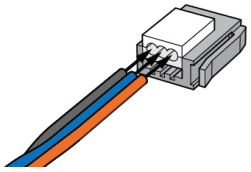
## PREPARING TRUNK CONNECTORS

1. Select either the 2-wire trunk cable or the 3-wire trunk cable from your kit. Note the difference between the trunk cable and the wire sensors: the trunk cables have raw wire on each end, and do not contain a sensor.
2. Following the Figure A, insert the ends of each individual wire of the trunk cable into the black trunk connector.
3. Be sure to begin with the left-most slot and to follow the color order as shown in Figure A (from left to right: grey, blue, orange for the 3-wire trunk cable; grey, blue for the 2-wire trunk cable). The positions of these wires must be exact in order for the system to operate correctly.

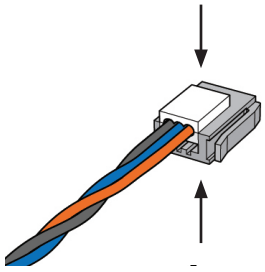
## INSTALLING NODE CONNECTORS

1. Ensure that all the wires are fully inserted into the node connector.
2. Using the vise grips, clamp down on the clear plastic section of the node connector until it is flush with the black plastic covering. This step allows the node connector to attach to the trunk cable without the use of wire strippers.
3. After the node connector has been attached to the trunk cable, insert the entire trunk wire into the node.

FIGURE A



**INSERT**
Proper order: grey, blue, orange



**CLAMP**
Clamp vise grips on top and bottom

# 3 WIRE SENSOR SETUP

## BEFORE YOU BEGIN

Select either the 2-wire temperature sensor or the 3-wire relative humidity sensor. The wire sensors and attachable stickers denoting their serial numbers are located in individual bags within your kit.

## INSTALLING SENSOR CONNECTORS TO TRUNK CABLES

1. Remove the sensor from the bag and attach the enclosed label sticker directly onto the sensor wire.* The sensor should match the trunk cable you are using. For example, if you've selected a 2-wire trunk cable, you will need to attach the 2-wire temperature sensors.
2. Following Figure B, use a slender object, such as a thumbnail, to push each individual, distinctly colored wire on the trunk cable into Slot A of the sensor connector. This means that each sensor will have either 2 sensor connectors (if the 2-wire temperature sensor is being used) or 3 sensor connectors (if the 3-wire relative humidity sensor is being used).
3. When installing the sensor connectors to the trunk cable, it may help to gently separate the intertwined wires to create more space (See Figure C).

*Be sure to note the placement of each sensor by marking down its location in the space provided on the sensor's bag. You will need this information when you digitally activate the sensors.

# 4 WIRE SENSOR INSTALLATION

## INSTALLING SENSOR CONNECTORS TO SENSORS

Referring to Figure B, insert the ends of each individual, distinctly colored sensor wire into Slot B of the matching sensor connector. For example, if a 3-wire relative humidity sensor is being used, the orange wire of the sensor will be inserted into the sensor connector that is attached to the orange wire of the trunk cable.

1. Ensure that all the wires are fully inserted into the sensor connector (see Figure D). NOTE: All wires must be fully and completely inserted into the connector before the clear plastic section of the sensor connector is clamped down. If the wires are not fully inserted, your sensor will be unable to deliver data to your Pointelist account.
2. Using the vise grips, clamp down on the clear plastic section of the sensor connector until it is flush with the white plastic covering. Repeat this process with each of the sensors you wish to connect to the trunk cable.

FIGURE B

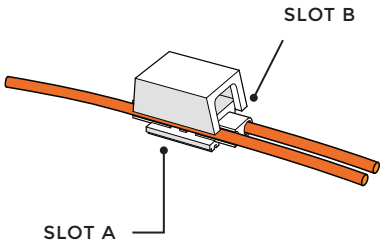
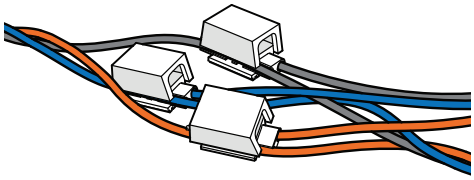
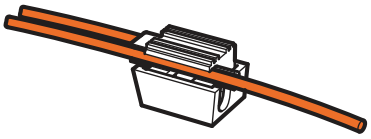


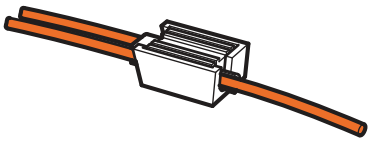

FIGURE C



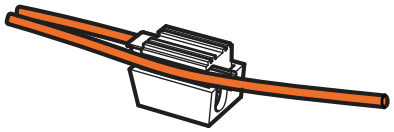
## FIGURE D



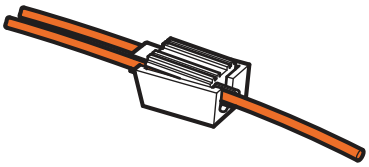
CORRECT



CORRECT



**INCORRECT**
Trunk wire is not fully inserted into slot A



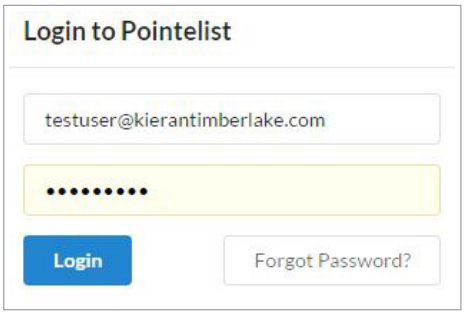
**INCORRECT**
Connector is not completely crushed

# ACCOUNT INSTRUCTIONS

# 1 ACCESSING YOUR ACCOUNT

## LOGGING IN

1. To login to your account, visit https://cloud.kierantimberlake.com/pointelist/#/login.




2. Enter the email and password you used to register your account.
3. If you wish to change your password, you may do so by selecting the "Forget Password?" button located on the bottom right-hand corner of this screen.

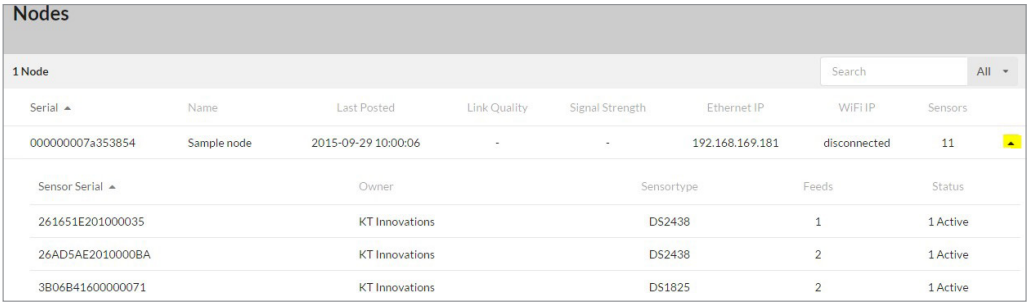
## INVENTORY CATALOG

1. Your main navigational tool is the sidebar on the left-hand side of your screen.
2. In the "Hardware" section of this sidebar, you will find an inventory of all the equipment contained in your kit split into a "Nodes" section and a "Sensors" section.
3. The "Nodes" section lists out the node you received in your kit.

   Each node will have a serial number, name, time and date of the last data taken, IP address, and connectivity status listed, along with how many sensors are assigned to each node.

**4.** To rename your node, click on the node, select the "Edit" icon on the top right-hand side of your screen and enter the new name of your node.

Clicking the down arrow button on the right-hand side of your node will show you which sensors are assigned to the node, as well as the sensor serial number, owner, type, and status.

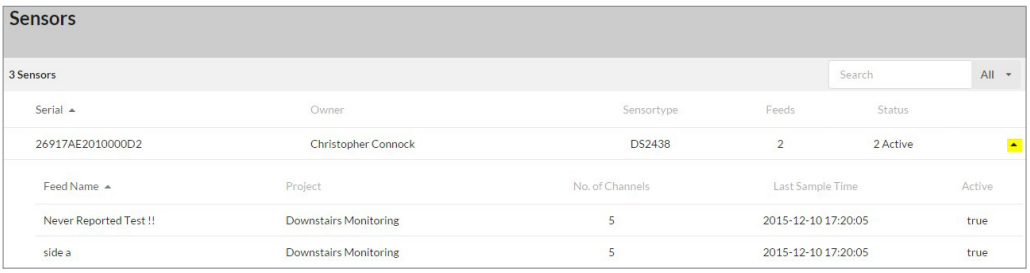



**5.** The "Sensors" section is pre-loaded with a list of each individual sensor by serial number.

Clicking on the down arrow to the right of each sensor will allow you to see:

- The feed and project each sensor is reporting to
- Number of sensor channels
- Time of last reading
- Activity status

❗ Note: even when sensors are properly installed, you will not begin receiving data to your account until you have activated the sensors (see instructions below)



# 2 ACCOUNT SETUP

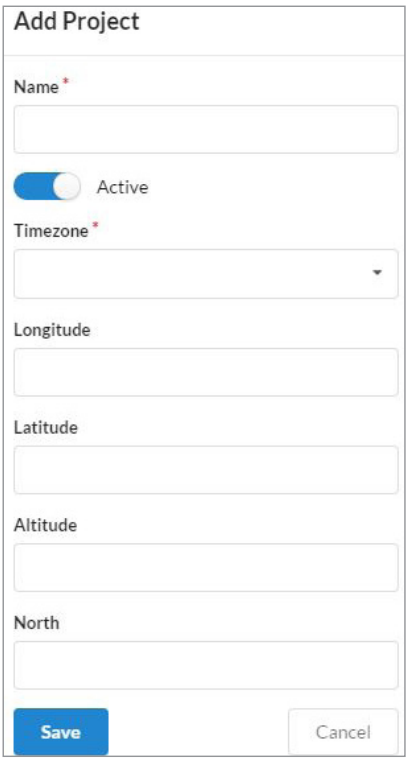
## USER PREFERENCES

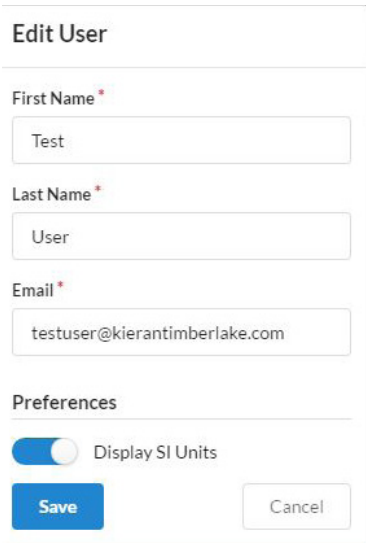
1. To edit your user preferences, click on the gear symbol next to your name on the left-hand sidebar.
2. Within the Edit User menu, you can change your first and last name and email address, as well as update your unit preferences. Selecting the "Display SI Units" bar will cause all of your data across all of your projects to be presented in the International System of Units.

## ADDING A PROJECT

1. Click on the plus sign next to the "My Projects" link on the left-hand sidebar.
2. Fill out the prompted information and click the "Save" button. Name and time zone are required fields, denoted by red asteriks. All other fields are optional, but may help you keep track of your study area.

Note: your project will

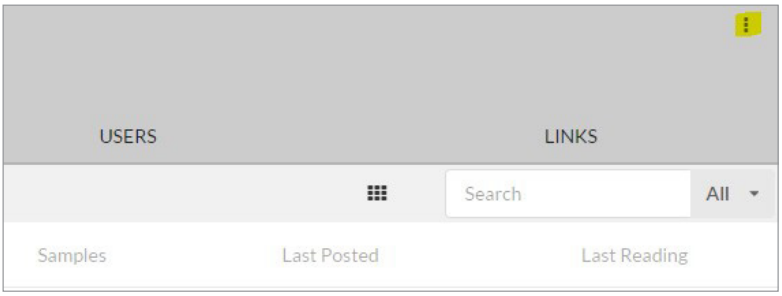


automatically be set to "Active." If you have not yet installed your Pointelist node and sensors, you may wish to set is as "Inactive."

3. Once you've saved your project, it will appear below the "My Projects" link on the left-hand sidebar.

4. You can view and edit the location, time zone, GPS coordinates, and other information at any time by clicking on the icon on the top left-hand corner of the page and selecting "Edit Project" from the drop-down menu.




## ADDING A SENSOR/CREATING A FEED

1. After you've created a project, you will be able to add your sensors and begin tracking data.

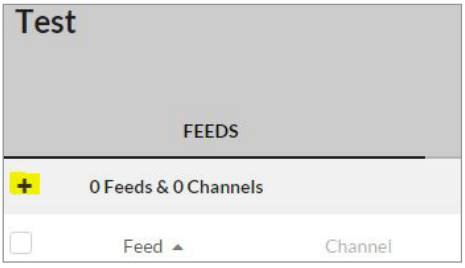
2. Sensors are added to your project in the form of feeds.

   While sensors refer to the actual hardware that is used to measure your space, feeds refer to the data that hardware delivers.

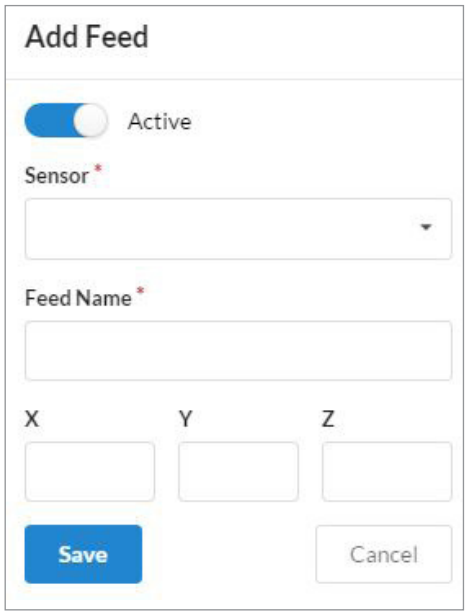
   Additionally, one feed may deliver multiple data channels (for example: a 3-wire relative humidity feed will have a temperature channel and a relative humidity channel).

   While sensors are only identified by their serial number and are pre-loaded into the "Sensor" page of your account, feeds can be renamed based on their location or other identifying factor.

3. To add a feed to your project, go to your project page and click the "+" button underneath the "Feeds" header on the top right-hand side of your screen.



4. Begin typing the desired sensor's serial number into the input bar labeled "Sensor", and your pre-loaded serial number will auto-fill once you have entered the first few digits.
5. Select the sensor you wish to add to the project and create a name for the feed this sensor will report to (ex: north wall relative humidity).




6. If desired, fill out the optional X, Y, and Z coordinates.

   These will allow you to keep track of your sensor's particular location in your study area.
7. Similar to adding a project, your sensor will automatically be set to "Active", meaning that as soon as the sensor is installed and the node is configured, data will begin to be delivered to your account.
8. Click the "Save" button, and your feed will automatically appear as either one or two channels on your project (depending on whether the sensor being used is a 2-wire temperature or a 3-wire relative humidity sensor).

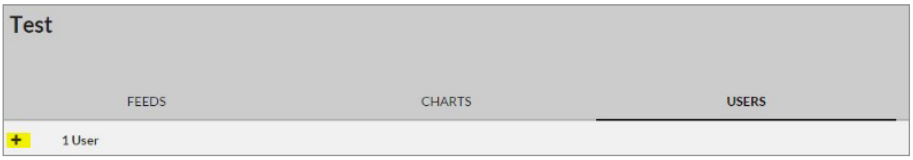
## ASSIGNING SENSORS TO MULTIPLE PROJECTS

1. It is possible to assign one sensor to multiple projects as long as each project has the same project owner.
2. In this case, a sensor remains in one location and plugged into one single node, but reports data to multiple projects within your account.

# 3 MANAGING YOUR PROJECTS

## GRANTING ACCESS

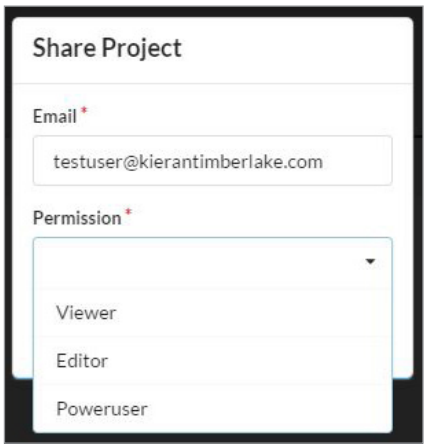
1. Granting access to your project will allow other users to view your Pointelist account, including project information, sensor location, and data feeds.
2. To grant access to a new user, click on the project from beneath the "My Projects" section on the left-hand sidebar.
3. Select the "Users" tab from the top of the screen, and click the plus icon above the owner's name on the top right-hand side of your screen.




4. Enter the email address and the desired permission level of the new user.
5. The project owner is the only user who has the ability to grant access to new users, name and create projects, and name and create feeds.

"Viewers" are able to see the project and look at charts that have already been created, but cannot create or name projects, charts, or feeds.

"Editors" are able to create and name new charts, but cannot create or name feeds.



## NAVIGATING YOUR PROJECTS

**1.** If you have been invited to a project, a new option will appear in the left-hand sidebar labeled “Shared Projects”.

**2.** “Shared Projects” will appear in the same way that “My Projects” do for your primary account.

## PROJECT INFORMATION

**1.** To view the other users on a project, select the project from “My Projects” or “Shared Projects” and click on the “Users” tab at the top of the screen.

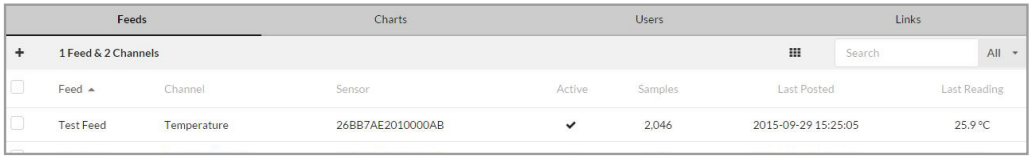
Note: as a viewer or editor, you will be able to see users’ names only, not email addresses.

Using the same navigating bar, you can also: view your feeds (“Feeds”); create, view, or download charts (“Charts”); view a virtual outline of your system including your nodes and sensors (“Links”).

# 4 ANALYZING YOUR DATA

## VIEWING RAW DATA

1. After installing and activating your sensors and setting up your project page, you are ready to begin analyzing your data.
2. Select your project from the "My Projects" or "Shared Projects" options on the left-hand sidebar.
3. The feeds being reported from each sensor will appear in a list, with the name of the feed, the feed channel, the sensor, the sensor status (active or inactive), the number of readings taken, the date and time of the last reading, and the measurement listed.




4. You may also choose to view this data in a grid format by selecting the toggle grid icon on the top left-hand corner of your screen, underneath your project's name.


5. The name of the feed, channel, sensor serial number, status (active or inactive), number of readings taken, date and time of the last reading, and the latest measurement are listed in this list view.
6. To test that your sensors have been installed correctly and are reporting data, click the center button once to request an immediate data reading from your sensors. The center button of your node will turn purple while this data is reported to your account in real time.

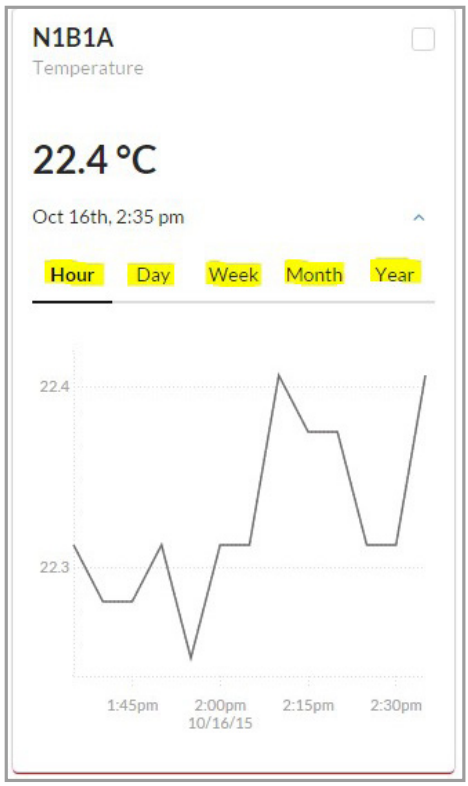
## IN-APPLICATION DATA

**1.** View your real-time data by simply checking the reading of each feed, or choose a condensed chart view of your information over a set period of time.


**2.** To see a condensed chart for each feed, view your data in a grid format and click the down arrow on the lower right-hand portion of an individual feed.

**3.** A chart will appear with your feed readings over a set period of time.

Note: blank spaces in your data mark times when no data was registered.

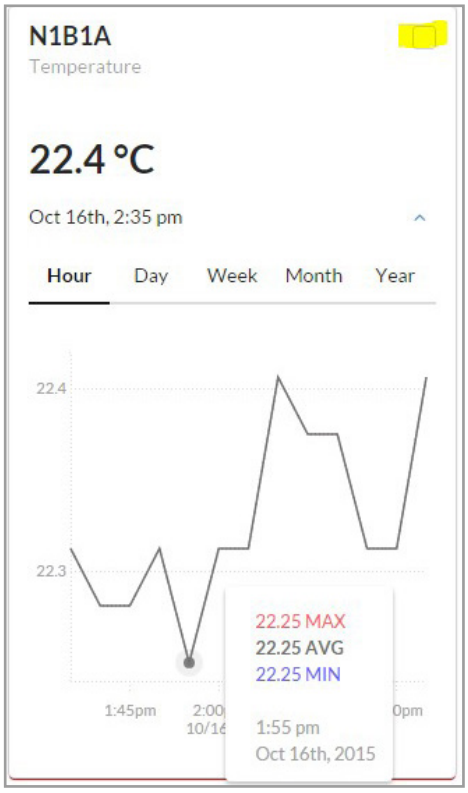



**4.** You can choose to view how your feed has changed over an hour, day, week, month, or year by selecting one of these options from the top of your condensed chart.

5. Scrolling over the data with your mouse will cause a tool tip to pop up, detailing the maximum, minimum, and average measurement of a given point.
6. You can download the feed's complete data to a .csv file onto your device by clicking the box in the upper right hand corner of a highlighted feed (shown at left).

   Note: this option is only available when 1 feed is selected.

   If multiple feeds are selected, they must be added to a chart in order to be downloaded (see instructions below).




7. Using this same tool bar, you are also able to edit the feed name and coordinates, delete the feed, or add the feed to a new or existing chart.

   Note: deleting one channel will delete the entire feed from the project.

   For example, if you are using a 3-wire relative humidity senor and are receiving a temperature channel and a relative humidity channel, deleting one of these channels will delete the entire feed.

## APPLICATION PROGRAMMING INTERFACE (API)

1. For users who wish to build their own custom applications for viewing and analyzing data, an API is available at https://cloud.kierantimberlake.com/pointelist/api.

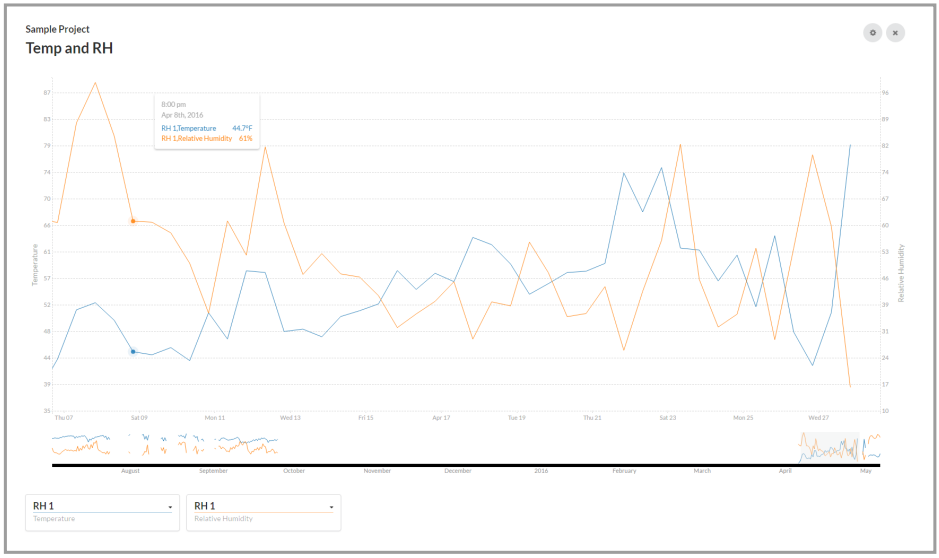
## CREATING AND VIEWING CHARTS

1. Adding feeds to a chart is an effective way to view a large number of feeds in one view.

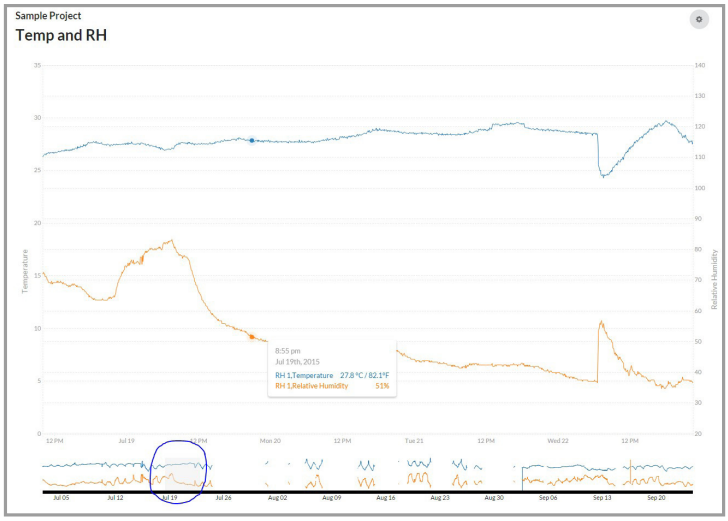
2. To add a feed to a chart, click the white box in the upper right-hand corner of a feed on your project page and click the "Add to Chart" button on the tool bar at the top of your screen.


1. If you have already created a chart, select it from the drop-down menu.
2. If you have not yet created a chart, select the "Add to New Chart" option from the drop-down menu and name the chart before your feed is automatically saved to the chart.
3. You may select several feeds at once and then perform this function, or you can add feeds one at a time.
4. The "Charts" section of your project page will show you all of your created charts and allow you to delete, edit, or download charts.
5. Click on your chart's name to view it in a pop-up window.

   As you scroll your mouse over the data, you will be able to read each feed's data, along with the date and time it was taken.



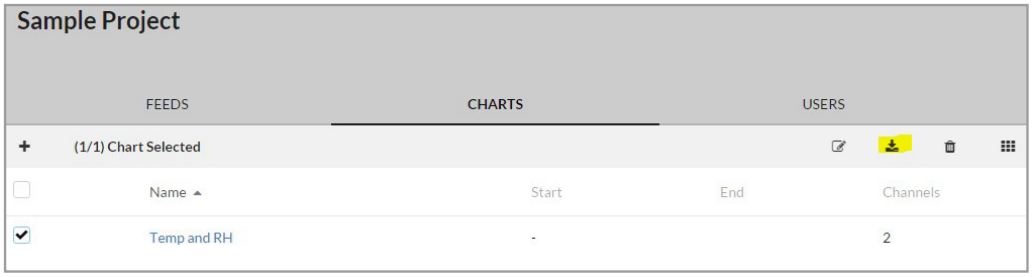
To view data from a specific time period, highlight it in the summary bar located below the chart. Your chart view will now show data from that time window.

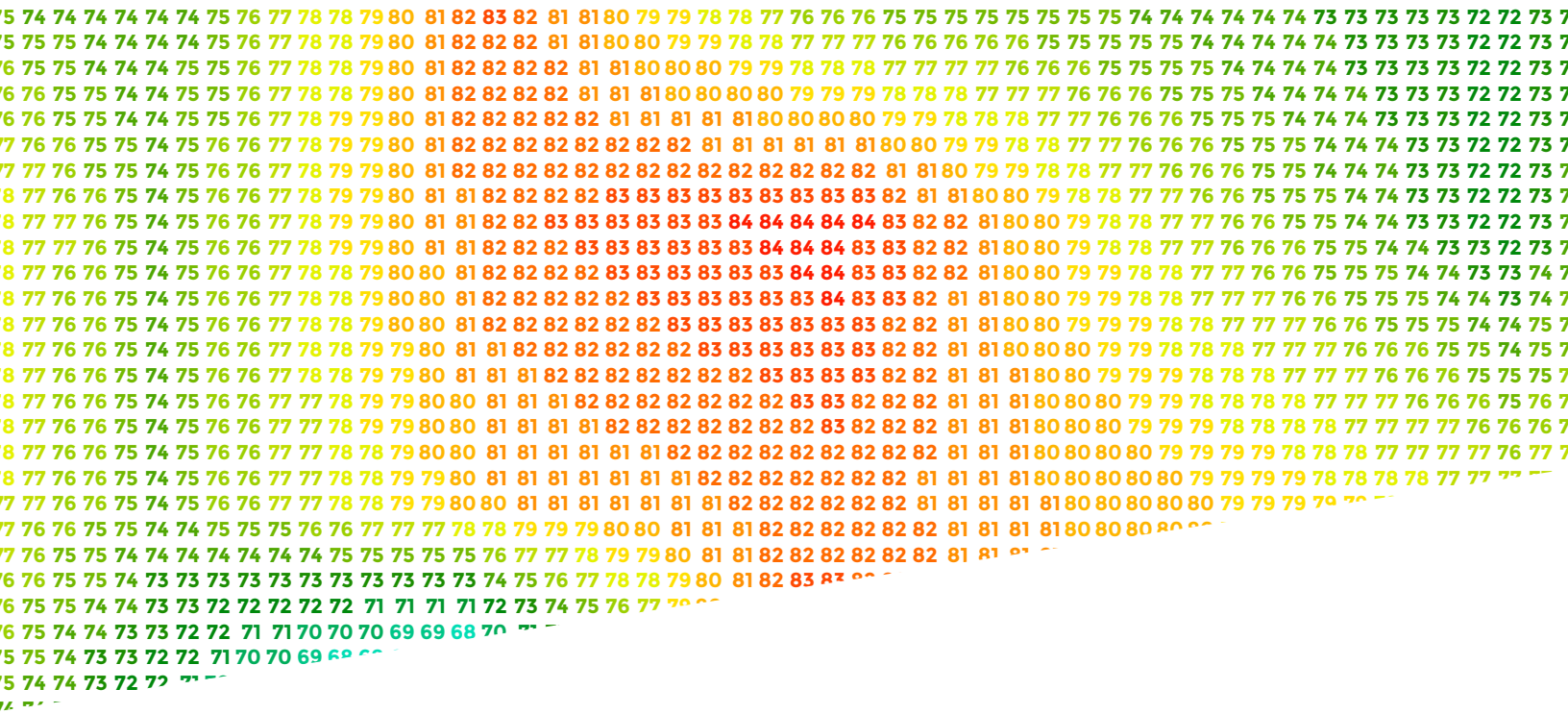



**6.** To download a chart, select it from the list and click the "Download" icon on the upper right-hand side of your screen.

Charts are downloaded as .csv files and include the raw data organized by date and time, and the minimum, maximum and average measurements of the relative humidity and temperature feeds.

The .csv files can be opened with Excel, and will list the minimum, maximum and average measurements of the relative humidity and temperature feeds.





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