



A Division of Grid Connect Inc.

Smart Power Cord Users Guide



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Disclaimer and Revisions

The information in this guide may change without notice. The manufacturer assumes no responsibility for any errors that may appear in this guide.

Date	Rev.	Author	Comments
3/05/2020	A	MBJ	Preliminary Release
3/11/2020	B	GPM	Basic Edits to improve content and readability

Provisioning the Smart Power Cord to ConnectSense Cloud.

1.1 Overview of the ConnectSense Smart Power Cord

LEDS

There are 2 LEDs on the Smart Power Cord.

Status LED: Blue, usually used to indicate relay on/off status

Wi-Fi LED: Red or Yellow; indicates connection to Wi-Fi and AWS

When holding the cord with the Push button below the LEDs, the Wi-Fi LED is on the upper left and the Status LED is on the upper right as shown below.



Push Button

The push button on the Smart Power Cord can be used to manually turn on and off any device that is plugged into the Smart Power Cord. If desired, the button can be disabled through the configuration screen. The button is also used to provision the Smart Power cord on the ConnectSense Cloud application. If you hold down the push button for roughly 15 seconds it will reset the Smart Power Cord to default configuration and put the Wi-Fi interface into SoftAP mode so that it can be provisioned onto the customers network and the ConnectSense cloud application.

SoftAP

The ConnectSense Smart Power Cord has an internal Wi-Fi radio. The Wi-Fi can be used in 2 different modes:

- Client Station mode – to connect to network Access Points (APs)
- SoftAP mode – allows host computers to connect to it for configuration

For provisioning the Smart Power Cord to the cloud, we use the “SoftAP” or soft access point. The use of the SoftAP is temporary and is only enabled during the provisioning process. To Provision the Smart Power Cord to the ConnectSense Cloud, you need to make a Wi-Fi connection from a host computer to the SoftAP wireless connection in the Smart Power Cord. Once the Smart Power Cord is connected to the cloud, the SoftAP is disabled for security.

1.2 Setup Steps

Follow this Quick Start guide to get your unit up and running quickly.

- To follow along with this document, you will need a ConnectSense Smart Power Cord (SC) and a small load like a fan or light bulb. (See section 1.7)

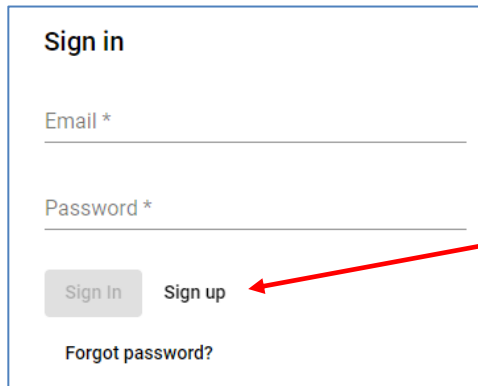
The setup procedure consists of the following steps:

1. Connect the Smart Power Cord to the wall outlet to power the unit. In this example you are connecting to the 120VAC power, the cord will handle up to 240VAC.
2. Plug a test device that you want to monitor/control into the other end of the Smart Power Cord.
3. Using a host computer, sign into the ConnectSense Cloud application using a Web Browser.
4. Hold down the push button for roughly 15 seconds to reset the Smart Power Cord to default configuration and put the Wi-Fi interface into SoftAP mode so that it can be provisioned onto the customers ConnectSense cloud application.
5. Connect a Host computer's Wi-Fi interface to the SoftAP interface of the cord that you want to provision.
6. The Smart Power cord will sense the SoftAP connection and then perform a scan of the Wi-Fi environment to find an Access Point to connect it to the internet and AWS.
7. Select the network and provide the passphrase key. The Smart Power Cord will associate with the AP and make a secure network connection to AWS.
8. The Smart Power Cord is now connected.

1.3 Create an Account on the ConnectSense Cloud application

First we must create a user account by going to the following web address. If you already have an account, jump to the next section

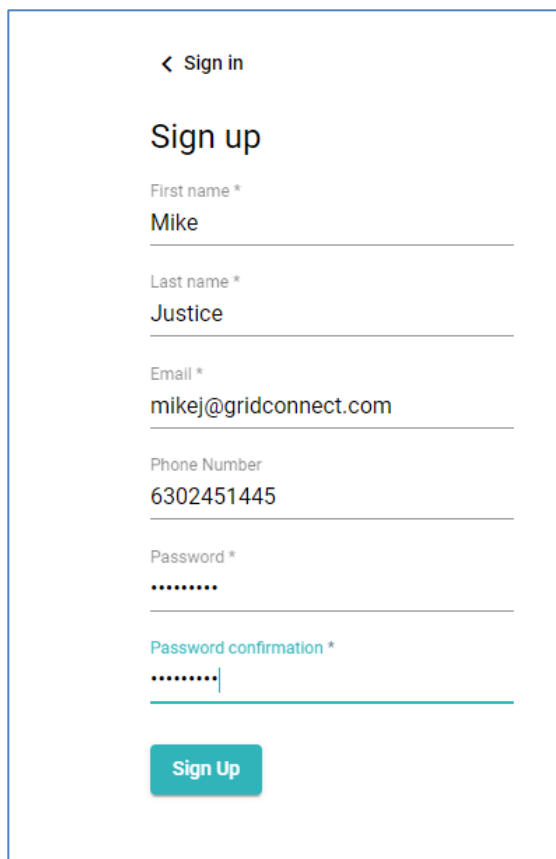
www.cord.connectsense.com



A sign-in dialog box with a light gray background. It contains the following elements: a title "Sign in" at the top; an "Email *" input field; a "Password *" input field; two buttons, "Sign In" (disabled, light gray) and "Sign up" (active, dark gray); and a "Forgot password?" link at the bottom.

Click on the "Sign up" button

That will show the following dialog box. Fill it out and click on the "Sign Up" button.



A sign-up dialog box with a light gray background. It features a back arrow and the text "< Sign in" at the top. The title "Sign up" is centered. Below the title are several input fields: "First name *" with the value "Mike"; "Last name *" with the value "Justice"; "Email *" with the value "mikej@gridconnect.com"; "Phone Number" with the value "6302451445"; "Password *" with masked characters "....."; and "Password confirmation *" with masked characters ".....". A teal "Sign Up" button is at the bottom.

Now go back to:

www.cord.connectsense.com

and **Sign in** and sign into your account


Sign in

Email *

Password *

[Forgot password?](#)

Your email will be verified. Click on “Confirm your account” to complete the account setup.



Welcome to ConnectSense!

Please verify your email address by clicking the following link:

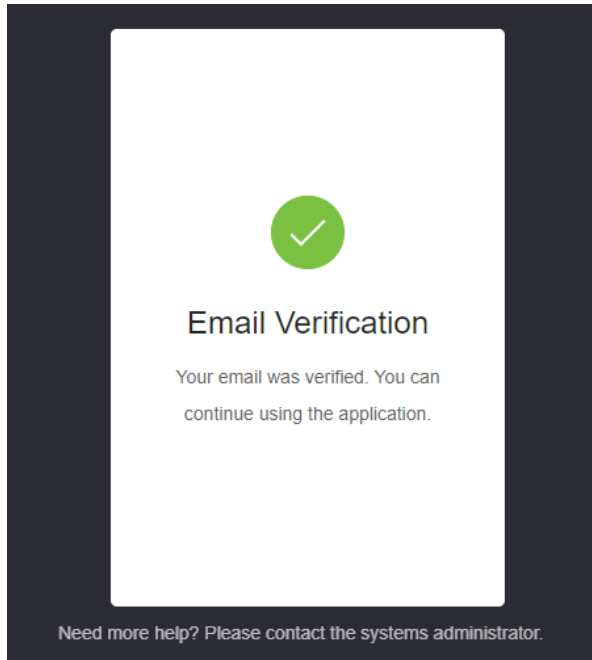
[Confirm my account](#)

Thanks!

Username-Password-Authentication

If you did not make this request, please contact us by replying to this mail.

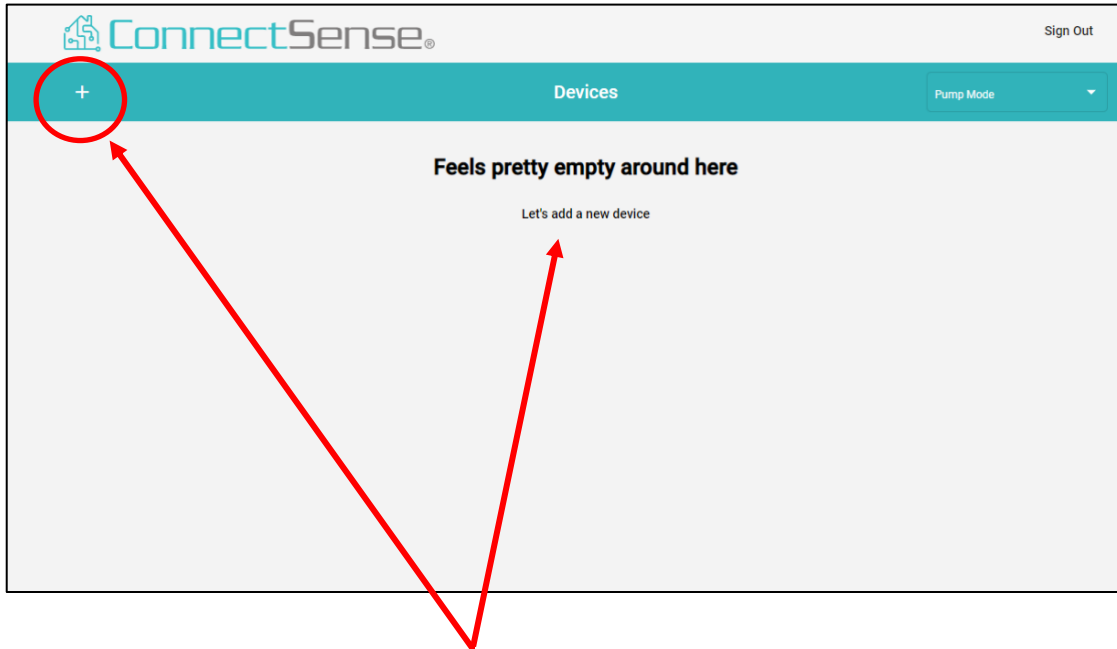
If it is successful, you will see the following screen.



1.4 Connecting the Smart Power Cord to the Network

This section will show you how to Add the Smart Power Cords to ConnectSense Cloud and get them connected. This section assumes that you already have an account on the ConnectSense Cloud.

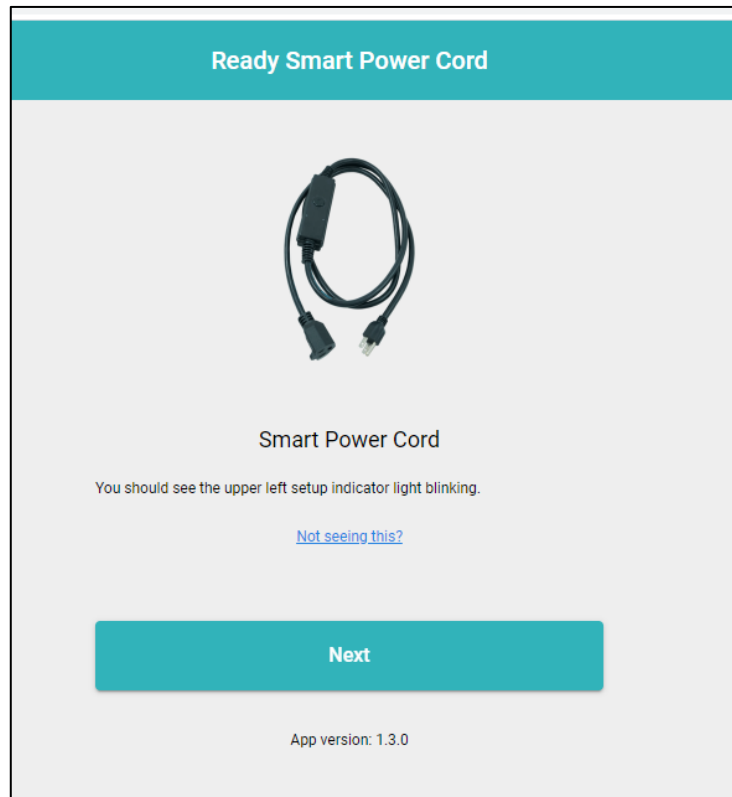
The following is the Main screen for the ConnectSense Cloud application. You can add multiple Smart Power Cords to the ConnectSense Cloud. As you add them, they will display on this screen.



Click on the “+” OR “let’s add a new device” link to add Smart Power Cords (first device only)

1. Select the “+” in the top left-hand pane to ADD a Smart Power Cord to the account

For the first device you can click on “let’s add a new device” link to add a new device. This will bring up the following window.

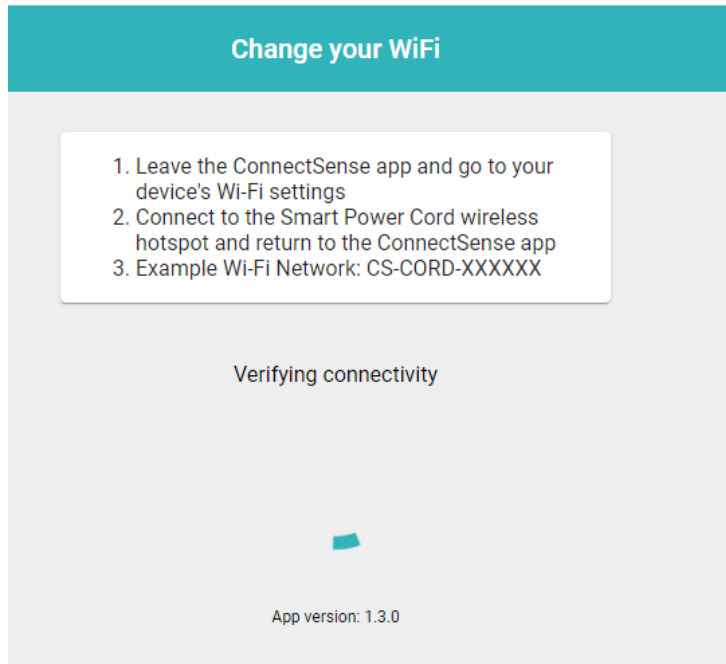


2. Press and hold the push button for 15 seconds on the Smart Power Cord

To reset and activate the Smart Power Cord’s SoftAP network, press and hold the push button for 15 seconds until you see the Wi-Fi LED flash Red. Once the Wi-Fi LED flashes Red, the LED Light will switch to look yellow and start flashing.

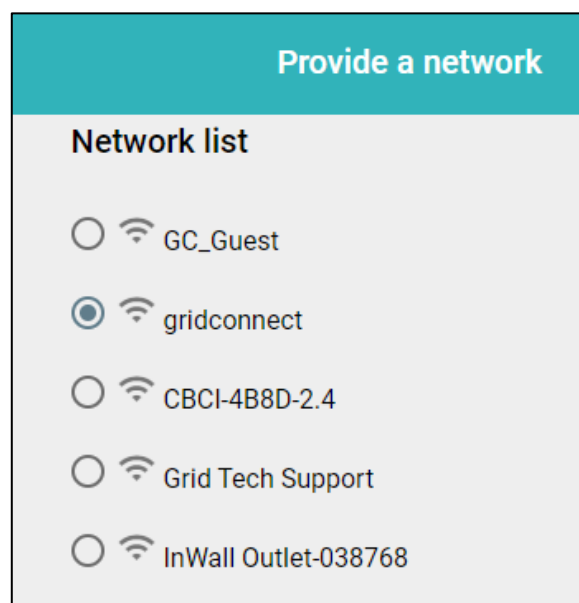
3. Click Next on the screen

You should see the Wi-Fi LED (upper left) light blinking. The status LED should be solid Blue. The screen will change and look like this:



4. Now, use your host computer to scan for available networks and then change the Wi-Fi connection to the network (SoftAP on the Smart Power Cord) named “CS-CORD-XXXXXX” (where XXXXX is the unique serial number for each Smart Power Cord)

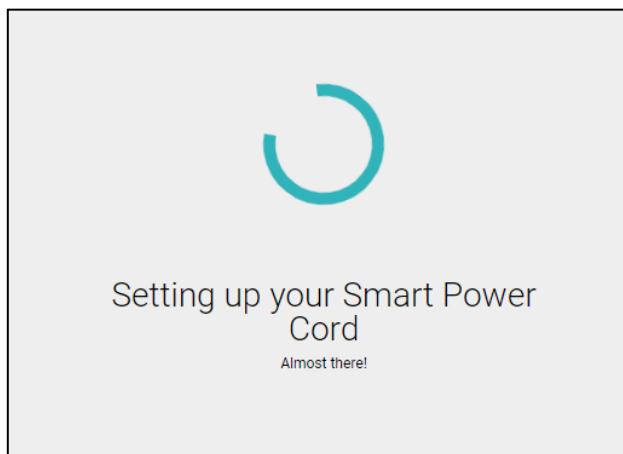
When the Smart Power Cord gets a connection to the SoftAP, it will use its client station radio to perform a Wi-Fi scan of the environment and the screen will change to show all of the Access Points that it can see. The screen will change as shown:



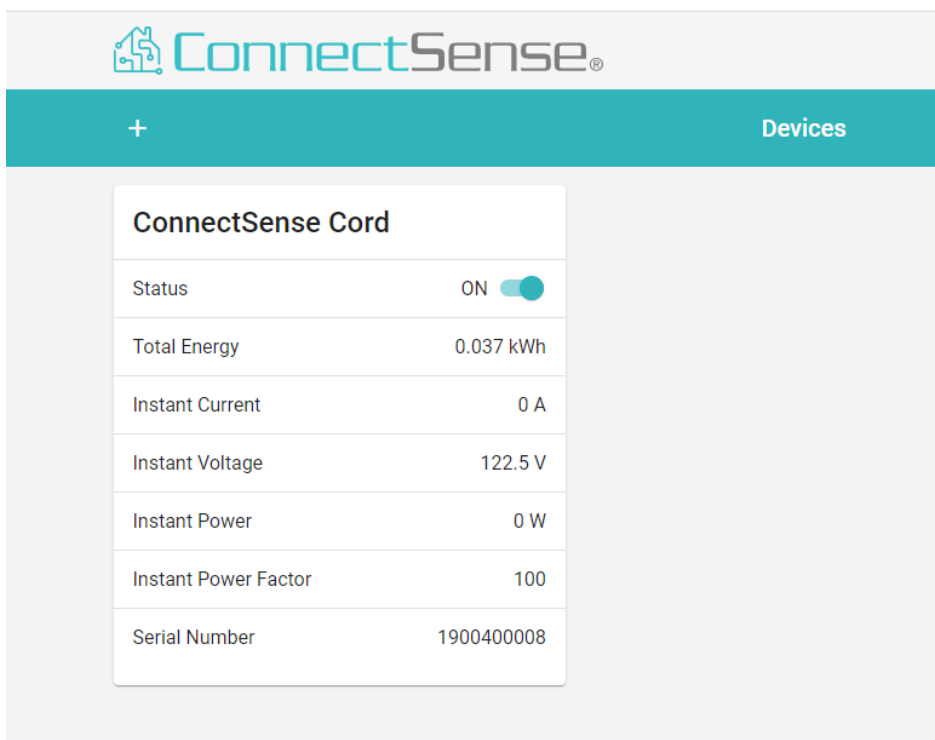
5. Now select a Wi-Fi network that you want the Smart Power Cord to use that will allow a connection to the Internet and AWS.

Once you select a network, you will likely need to add the security passphrase to connect to the Wi-Fi network.

The screen will change to this:



Now the LED should go off and this screen below shows that the cord is now on the Wi-Fi network.



The Smart Power Cord is now connected. The default name of this cord is "ConnectSense Cord". You can edit the name if you are using multiple Smart Power Cords or to make it more meaningful for the application.

1.5 Display Modes

There are currently 3 different display Modes – Pump, Appliance and Advanced. Each of these modes will display different information about the device attached to the cord. You can select more information about each device by selecting the cord. Below are the different display modes and more information screens.

Pump Mode

ConnectSense®

Sign Out

+

Devices

Pump Mode

ConnectSense Cord

Load Cycles	14
Pump Status	Not Running
Serial Number	1900400008

1. Appliance Mode

ConnectSense®

Sign Out

+


Devices

Appliance Mode

ConnectSense Cord

Status	ON
Total Energy	0.009 kWh
Instant Current	0 A
Instant Voltage	119.9 V
Instant Power	0 W
Instant Power Factor	100
Serial Number	1900400008

2. Advanced Mode


Sign Out

ConnectSense Cord

Advanced Mode

DASHBOARD

RULES

SETTINGS

Cumulative Values

Total Cord Runtime	sec
Total Energy	0.009 kWh
Relay Cycles	10
Total Relay ON Time	1914 sec
Load Cycles	14
Total Load ON Time	625 sec

Instant Values

Status	ON <input checked="" type="checkbox"/>
Relay ON Time	313 sec
Load Status	OFF
Load OFF Time	313 sec
Instant Current	0 A
Instant Voltage	119.8 V
Instant Power	0 W
Instant Power Factor	100
Temperature	C

Log History

From: 03/04/2020 11:35 AM

To: 03/05/2020 11:35 AM

Items per page: 5

1 - 1 of 1

Date Time	I AVG (A) <input checked="" type="checkbox"/>	P AVG (W) <input checked="" type="checkbox"/>	PF AVG <input checked="" type="checkbox"/>	U AVG (V) <input checked="" type="checkbox"/>	I MIN (A) <input type="checkbox"/>	I MAX (A) <input type="checkbox"/>	P MIN (W) <input type="checkbox"/>
2020-03-05 11:31:34	0	0	100	119.8	0	0	0

3. Available Graphs, you can select which parameters you wish to display

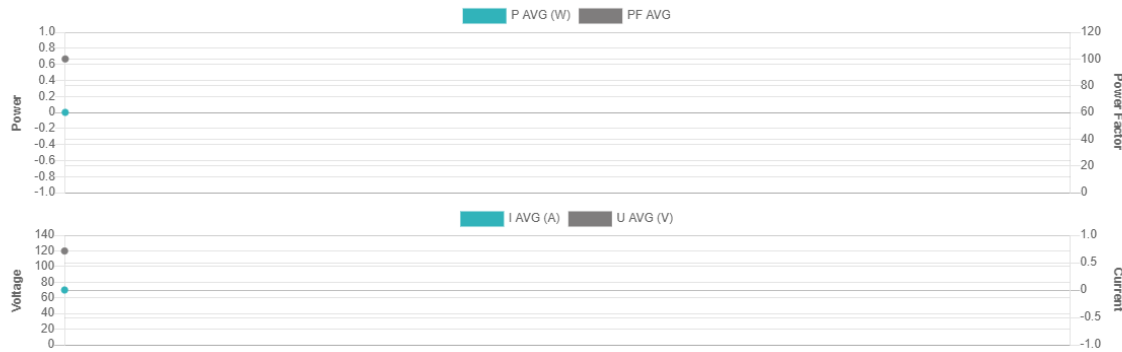
03/04/2020 11:35 AM

03/05/2020 11:35 AM

Items per page: 5

1 - 1 of 1

Date Time	I AVG (A)	P AVG (W)	PF AVG	U AVG (V)	I MIN (A)	I MAX (A)	P MIN (W)
2020-03-05 11:31:34	0	0	100	119.8	0	0	0



Power Signature

Refresh Data

Refresh Data: ON

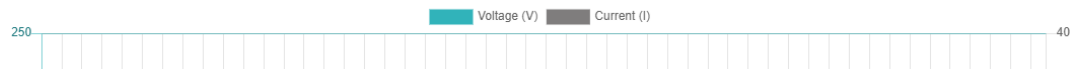
Refresh Data: OFF

Samples: 200

Resolution

Current Scale

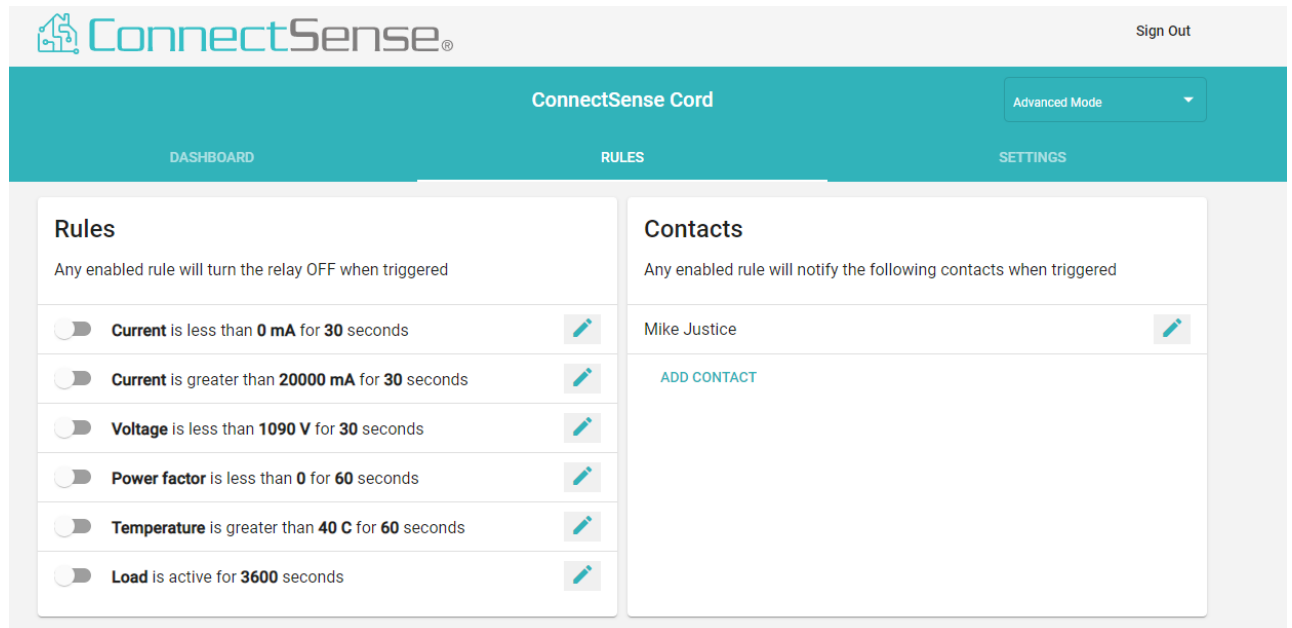
Displaying 200 entries at 2.0 kHz on demand



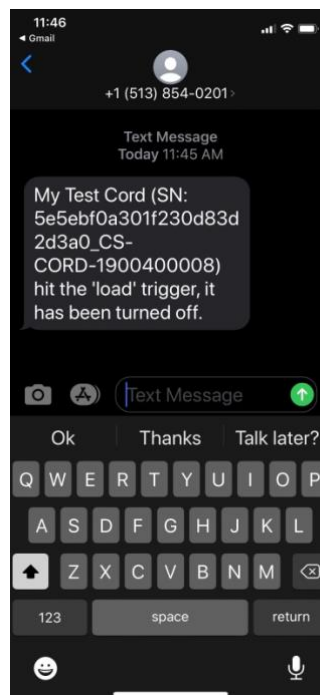
4. Power Signature shows the real-time data



- Rules for shut down of the device (power on/off) and notification via text and/or email



- Sample Text message which shows the name of the cord and parameter that triggered the event, note the relay and be turned off as part of the notification.



7. Settings - Change the name of the Cord, the reporting frequency, or removing a device

ConnectSense® Sign Out

My Test Cord Advanced Mode

DASHBOARD RULES **SETTINGS**

Device Name: *
My Test Cord

Log Reporting Interval (seconds) *
300

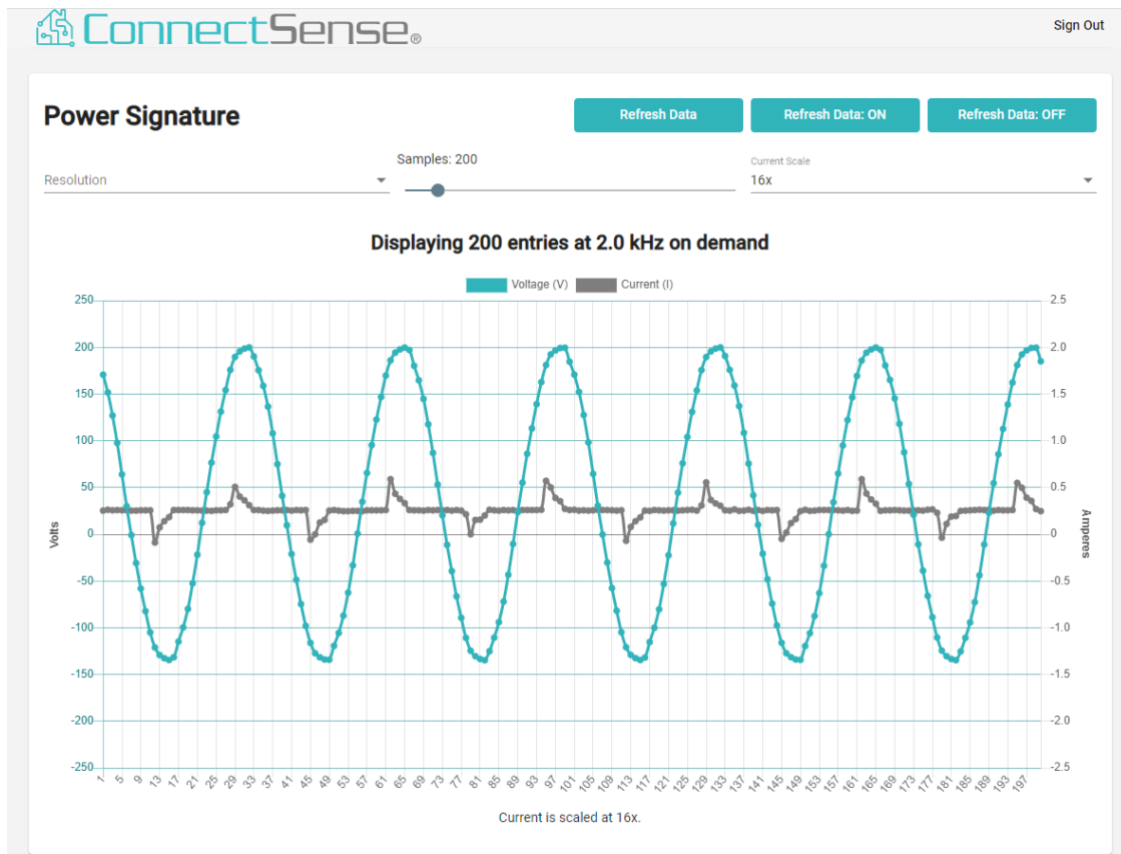
High Current Circuit Interruption ☐

Firmware Version:

SAVE

REMOVE DEVICE

8. Power Signature shows in this example – Voltage and Current



9. Displaying the variables about your cord

ConnectSense®

Sign Out

My Test Cord

Advanced Mode

DASHBOARD

RULES

SETTINGS

Cumulative Values

Total Cord Runtime	sec
Total Energy	0.009 kWh
Relay Cycles	10
Total Relay ON Time	2208 sec
Load Cycles	16
Total Load ON Time	657 sec

Instant Values

Status	ON
Relay ON Time	607 sec
Load Status	ON
Load ON Time	11 sec
Instant Current	0.051 A
Instant Voltage	119.6 V
Instant Power	6.1 W
Instant Power Factor	54
Temperature	C

Log History

From: 03/04/2020 11:36 AM

To: 03/05/2020 11:36 AM

Items per page: 5

1 - 1 of 1

Date Time	I AVG (A)	P AVG (W)	PF AVG	U AVG (V)	I MIN (A)	I MAX (A)	P MIN (W)
2020-03-05 11:31:34	0	0	100	119.8	0	0	0

1.6 Sample Label on the Smart Power Cord



1.7 Sample load device – a variable speed computer fan



1.8 Smart Power Cord Specifications

See the data sheet

1.9 Smart Power Cord Warranty

See the website