Honeywell

Connected Power App

USER GUIDE

SYSTEM OVERVIEW

The Honeywell Connected Power System gives building owners and occupiers the opportunity to monitor energy and control the status of the Connected Power Outlets installed throughout their building. This capability and further functionality are provided by integrating the solution with the Building Management System (BMS). The additional functions include scheduling, grouping, monitoring internal outlet temperatures and responding to preset power levels regarding either over or under power. Combined with the ability to monitor and control the Connected Power Outlets, the use of low-power devices can be closely managed in a convenient way, enhancing safety and energy efficiency across a building's estate.

BASICS AND PRINCIPLES OF OPERATION

The Connected Power System consists of Connected Power Outlets and Connected Power Hubs which are linked to each other via a wireless mesh network.

Using this network, these Connected Power Outlets can communicate directly with the Connected Power Hubs, or via other Connected Power Outlets. Both the outlets and hubs communicate with smartphones and tablets via BLE (Bluetooth® Low Energy) technology, allowing the installer to set up the network between the outlets and hubs using the Honeywell Connected Power Commissioning Mobile app on their smartphone or tablet.

The Connected Power Hubs are linked to the building's BMS network and communicate with it using BACnet protocol. Building owners or occupiers can control and monitor the Connected Power Outlets using Honeywell's building energy management system on a PC workstation (the 'Connected Power Module').

Wireless Mesh Network

The wireless mesh network uses radio frequency (RF) signals to connect the Connected Power Outlets and Connected Power Hub to each other. It has two layers: one allows each Connected Power Outlet to connect directly to its Connected Power Hub, and the other layer links all devices to each other. The latter forms multiple communication routes between devices so that messages between a Connected Power Outlet and its Connected Power Hub can be relayed by other Connected Power Outlets. This means that in the event of a blockage in the network, an alternative route can be used. In this way, a mesh network can often continue to operate even when a device is removed or a communication route becomes unstable, making it much more dependable than a conventional non-meshed network.

CAPABILITIES AND LIMITATIONS

Each Connected Power Hub can communicate with up to 50 Connected Power Outlets, and each Connected Power System can contain up to 50 Connected Power Hubs.

It is usual for all systems using RF technology to measure their quoted range in ideal conditions. This means that Connected Power Outlets can communicate with Connected Power Hubs up to 82 ft (25 m) away using the wireless mesh network (which uses RF to transmit signals between devices). The devices do not have to be in direct line of sight of each other.

Any barriers between devices such as walls and ceilings will reduce the radio range, and in rare cases a signal may be blocked out completely.

TIP: Prior to installation on site, it is recommended to survey the site to identify which outlets should be replaced with Connected Power Outlets, and the best places to locate the Connected Power Hubs. This will help to ensure that signals can be transmitted, and that the Connected Power Hubs can connect to the Local Area Network (LAN).

SECURITY

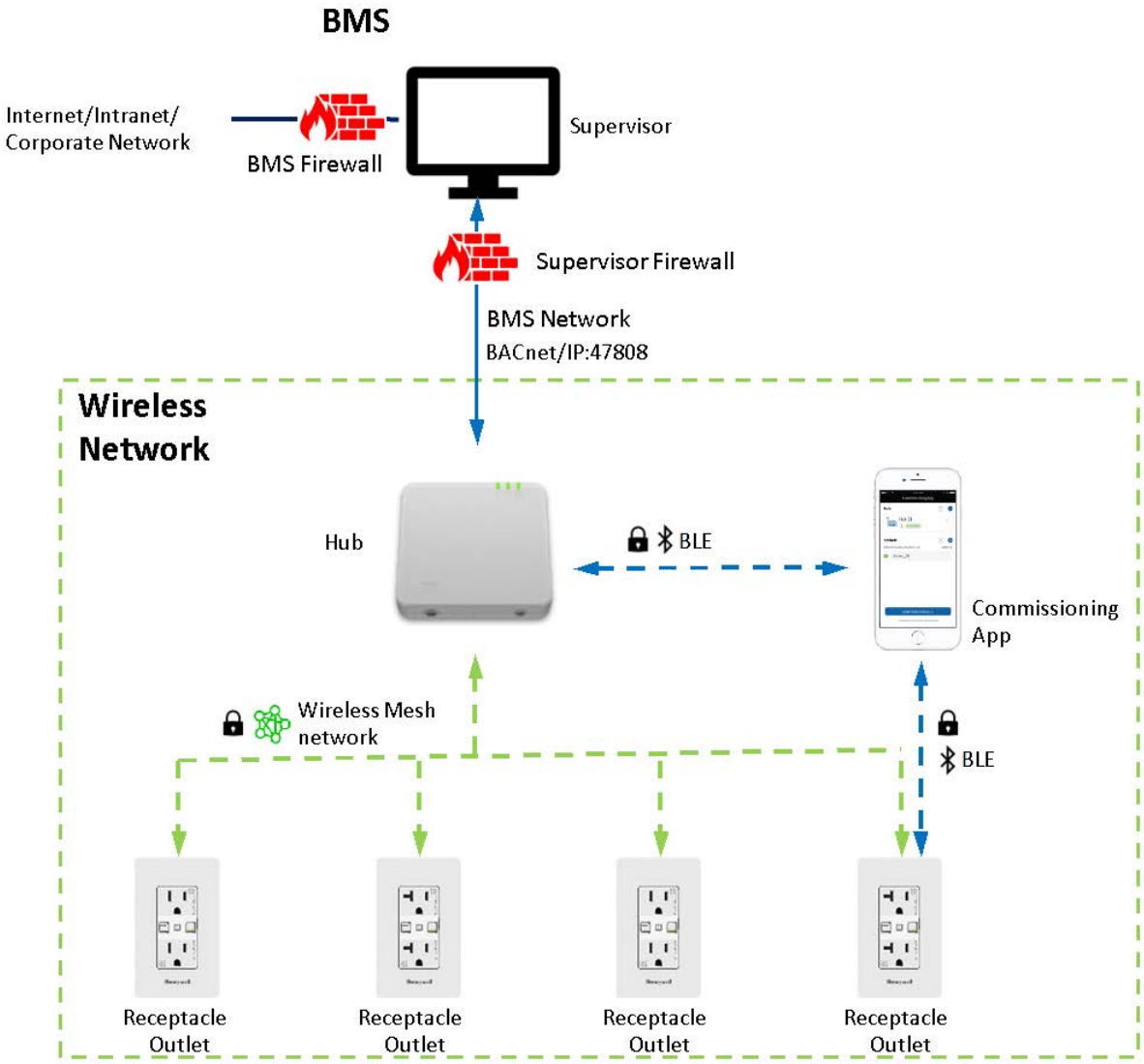

Fig. 1 System Architecture

The wireless mesh network used for linking the connected power hubs and connected power outlets is proprietary with AES authenticated encryption.

Communication between the Connected Power Hubs, Connected Power Outlets, and the Honeywell Connected Power Commissioning Mobile app is done via Honeywell GWP Secure Channel over BLE, and adheres to Honeywell PKI/ECDH/AES-128.

Ensure that the connected power hubs are physically secured, and that authorized persons can only access them. The connected power hubs should connect to the BMS via a dedicated physical Local Area Network (LAN) or Virtual LAN.

The Connected Power Module within respective supervisor PC workstation requires two network connections. The first connects to the Internet/Intranet/Corporate network to get system updates. To provide separation and protection to the BMS, a firewall must be used between the Internet/Intranet/Corporate network, and the Connected Power Module within the supervisor.

The second network connection links the Connected Power Module within the supervisor to the BMS network, so that the Connected Power Module within the supervisor can communicate with the Connected Power Outlets via the Connected Power Hubs. A firewall should be used between the BMS network and the Connected Power Module within the supervisor/ PC workstation running the supervisor software, to provide protection to the Connected Power Module within the supervisor.

INSTALLATION

To prevent the risk of electrocution it is essential to turn off the mains electricity supply before commencing work.

Install Connected Power Outlets

The design of the Connected Power Outlets is retrofittable and design to be fitted into standard wall boxes and that the wiring required has not been changed.

Please refer to the Honeywell NA Connected Power 15 and 20-Amp Datasheets for wiring details.

Install Connected Power Hubs

The connected power hub is a **Class II** device and requires mains power. It is recommended that the connected power hub is hardwired.

There are three terminals supplied on the Connected Power Hub - **Line**, **Neutral** and **Earth**. The Earth terminal is not required to be connected. However, for convenience, this allows a 3-conductor cable to be used.

1. Connect your **Connected Power Outlet** into the mains and switch the power on. Both LEDs on the Connected Power Outlet will show an orange light for 2 seconds.
2. Switch on your connected power hub. The **Power LED** on the Connected Power Hub will show a constant green light. The **Bluetooth® LED** will show a single short yellow flash for 0.3 seconds every 10 seconds.
3. Connect the connected power hub to the **Building Management System** network using an Ethernet cable.

BUILD THE NETWORK

Map Out the Network

Honeywell partnered integrators can use the **Map Out Tool** to generate configuration data for both the Connected Power Hub(s) and the associated Connected Power Outlets. The Map Out Tool provides an export in Excel which can be imported into the Connected Power Commissioning app to set up systems.

1 Fill out the project details in the fields on the **Home** tab of the **Map Out Tool**. Click **NEXT.**

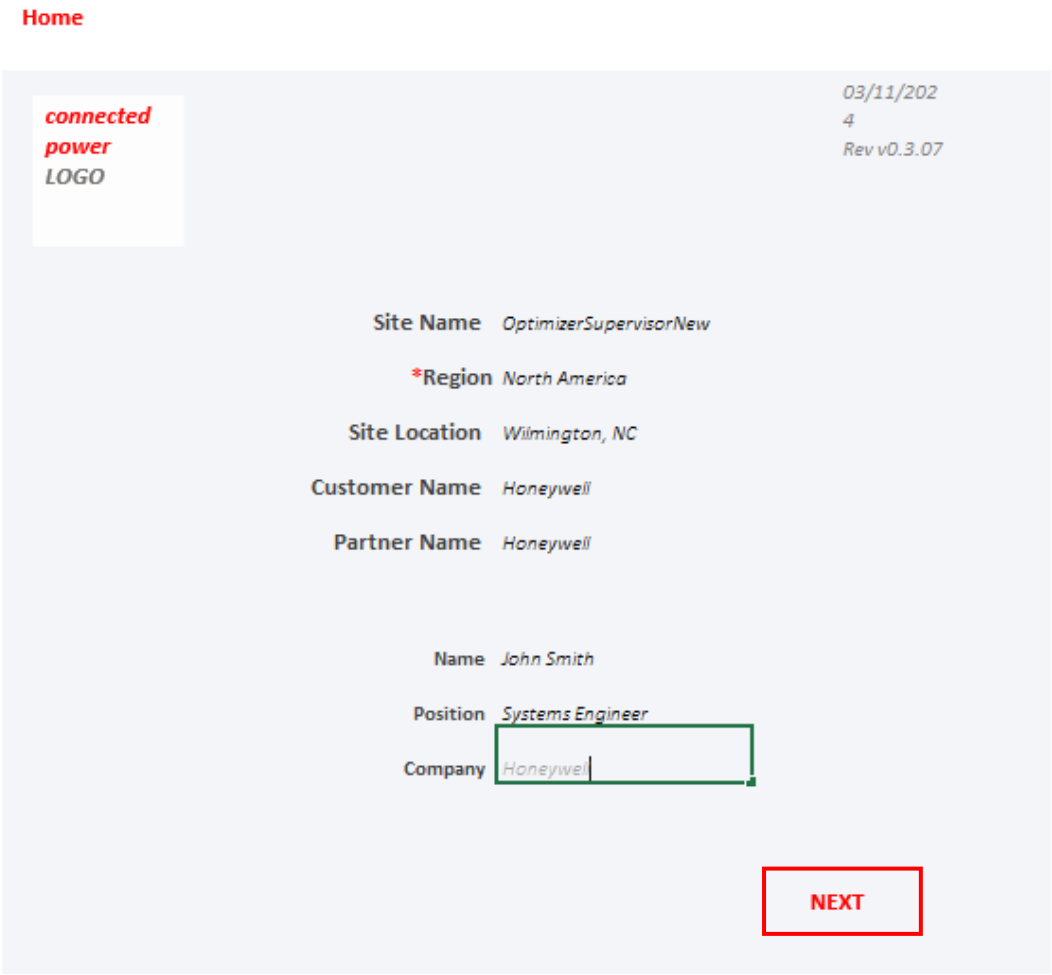

Fig. 2 Home Tab - Map Out Tool

2 Fill in the Rooms details, the name of the room, floor where the Hub(s) are located, and the Hub and Outlet Quantity select **NEXT**.

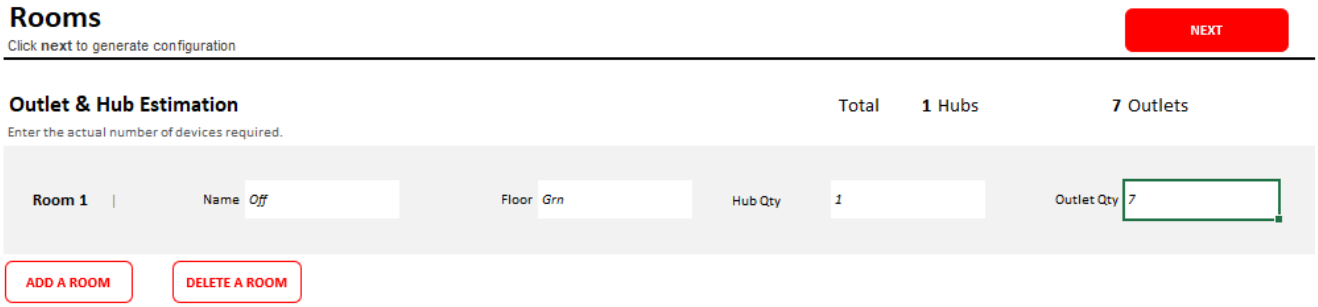

Fig. 3 Rooms Details

3 The Hub(s) list is presented the network configuration will need to be filled in as well as BACnet details once complete select **NEXT**.

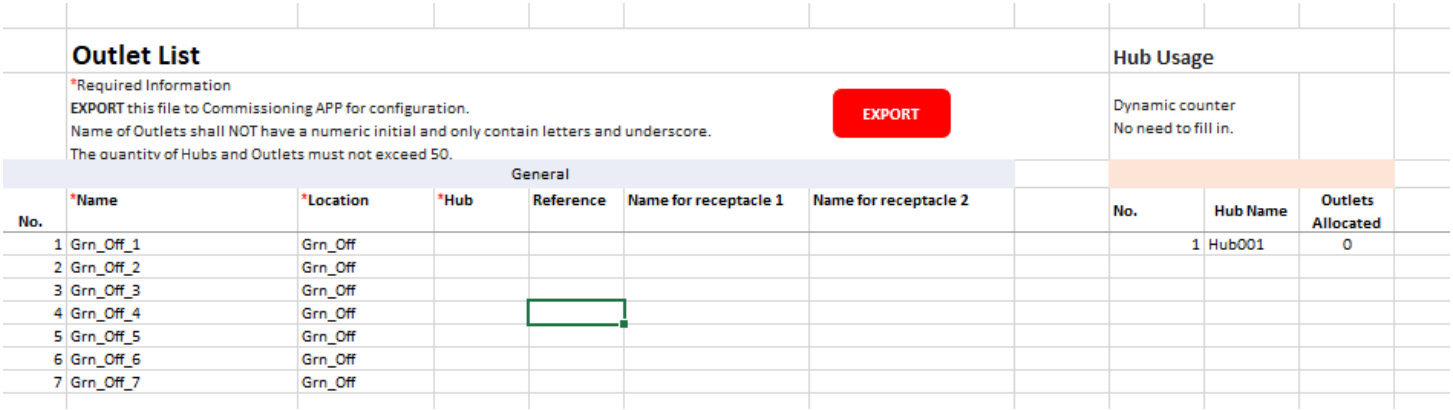

Fig. 4 Outlet List

4 The Outlet list will then be presented. This is where we associate Outlets with a particular Hub(s) and name receptacles connected to the associated outlets. Once complete, select export, this produces an outlet file which will loaded in the Commissioning Application to aid Commissioning our Connected Power System. The file will be saved in a location of choice and will be named as xxxxxx.xlsx where x is a number character between 0 and 9.

Set up the Network

The connected power hubs and connected power outlets are set up using the Honeywell Connected Power Commissioning app, which can be downloaded from the appropriate store (Google Play or Apple App store).

You will need to allow the Honeywell Connected Power Commissioning app to access your camera and Bluetooth® via your smartphone or tablet settings.

Get Started with the Connected Power Commissioning App

Once the connected power commissioning app has been downloaded and installed on your phone or tablet, you will be prompted to set up a site. Each site should correspond to a building estate to make it easier to configure each installation's Connected Power Hubs and Connected Power Outlets.

The recommended way to configure the connected power hub and outlet to the commissioning app is to use **IMPORT FROM MAPOUT TOOL**. If not available, user can configure by Create New Site.

Follow the below steps to setup a site:

1 In the Welcome screen, click **IMPORT FROM MAPOUT TOOL**.

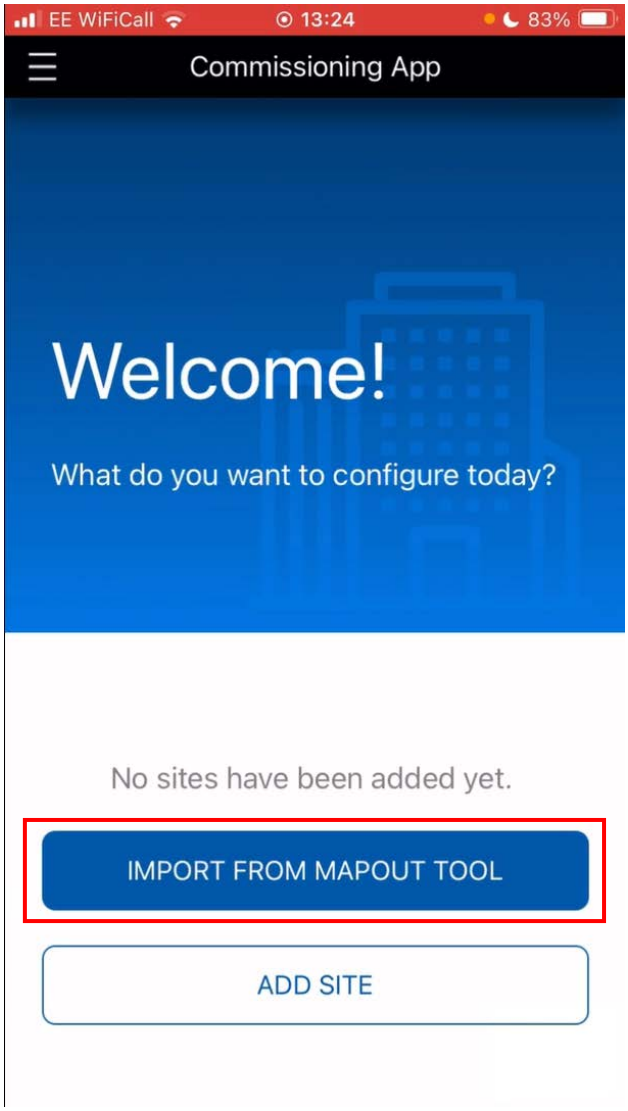

Fig. 5 Welcome Screen

2 Read the NOTICE and click **OK** to continue.

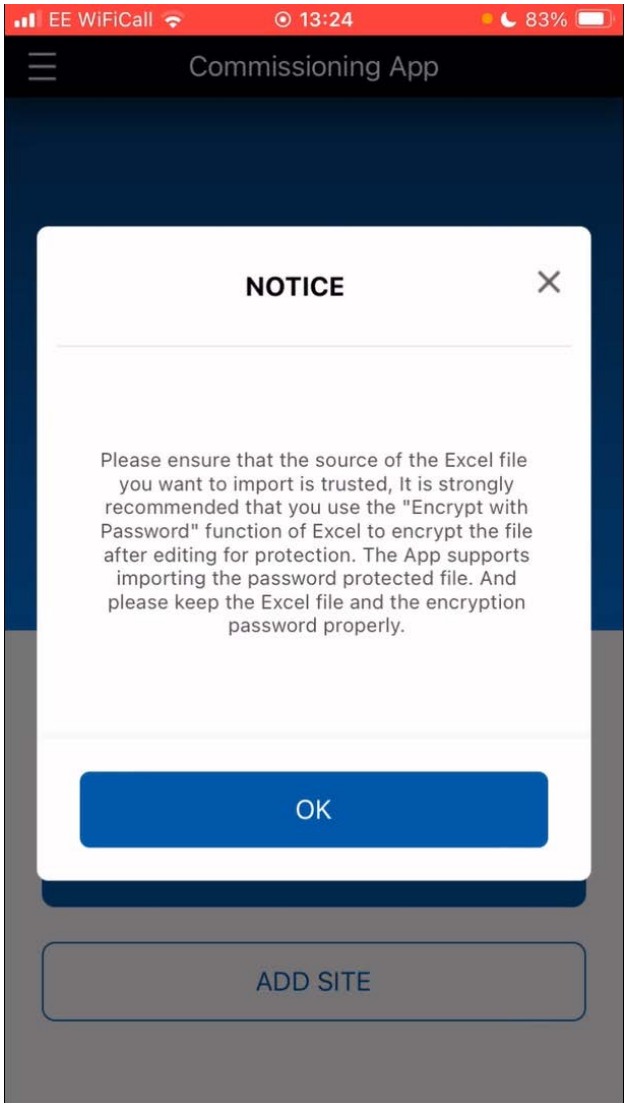

Fig. 6 Notice

This will navigate to the local files to select a file.

3 Select file from local files.

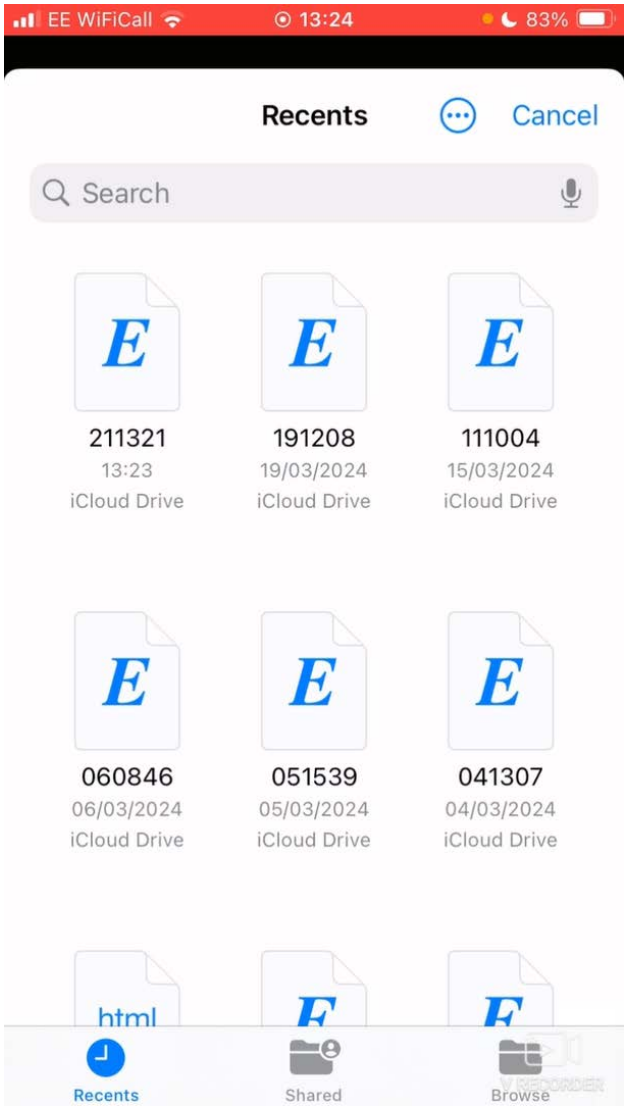

Fig. 7 Recent Files

4 Selected file imported.
Select **CREATE NEW SITE**.

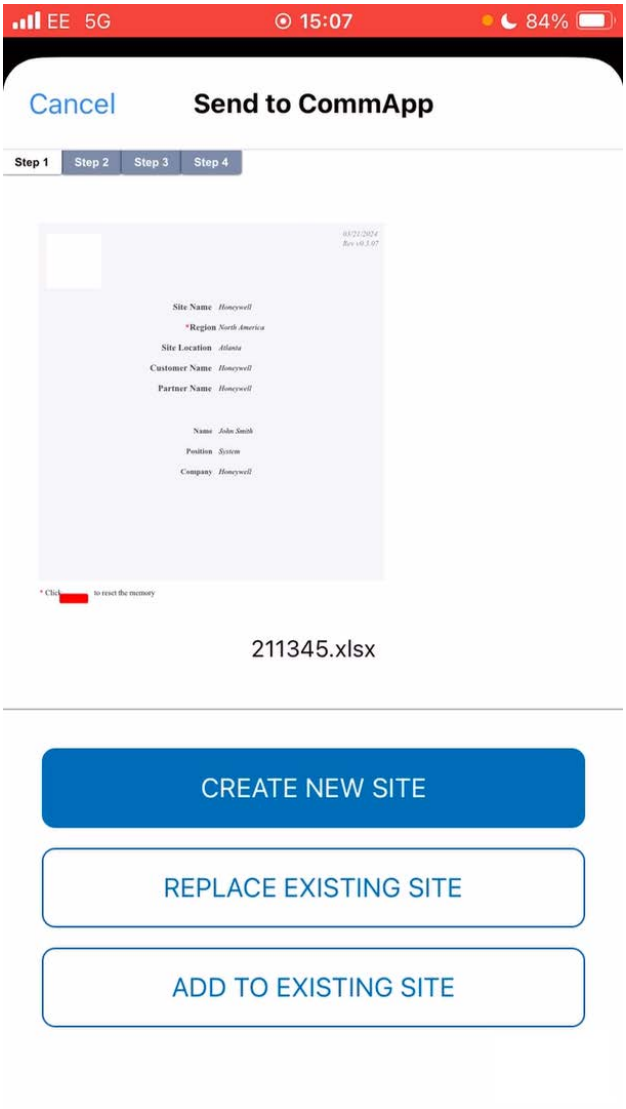

Fig. 8 Create a New Site

Site is added and displayed under All Sites.

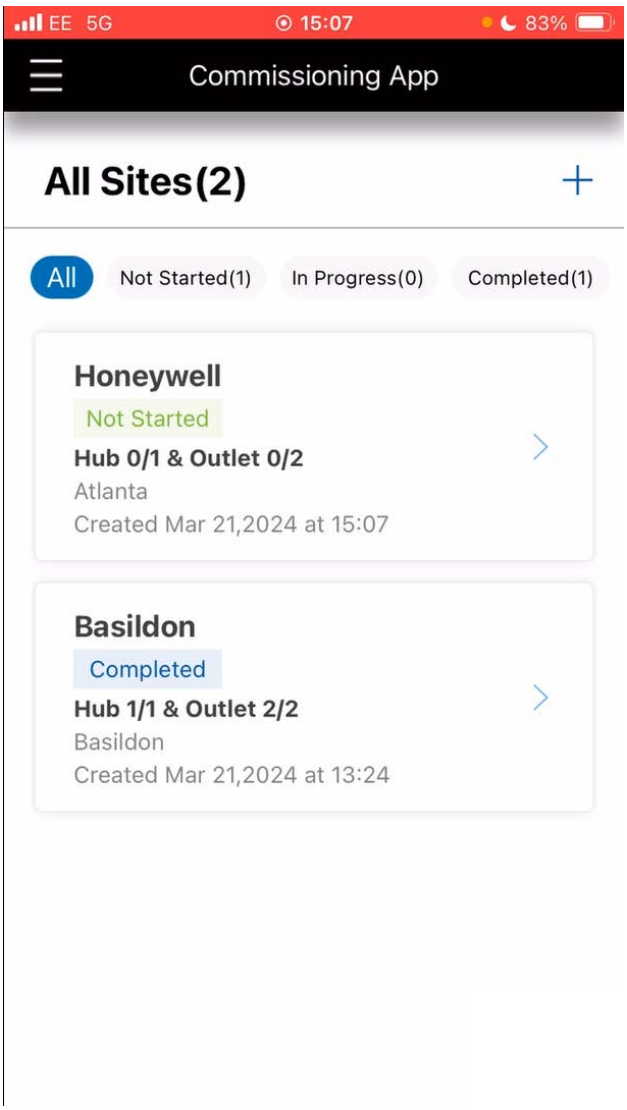

Fig. 9 Configured Sites

Commission a Connected Power Hub

Once you have added the installation location, you will need to configure your Connected Power devices there. These devices can then be configured through the application to properly connect to the Supervisor system.

First, add a Connected Power hub to the site.

Follow below steps to configure a hub:

1 Click **Arrow** > icon adjacent to site name.

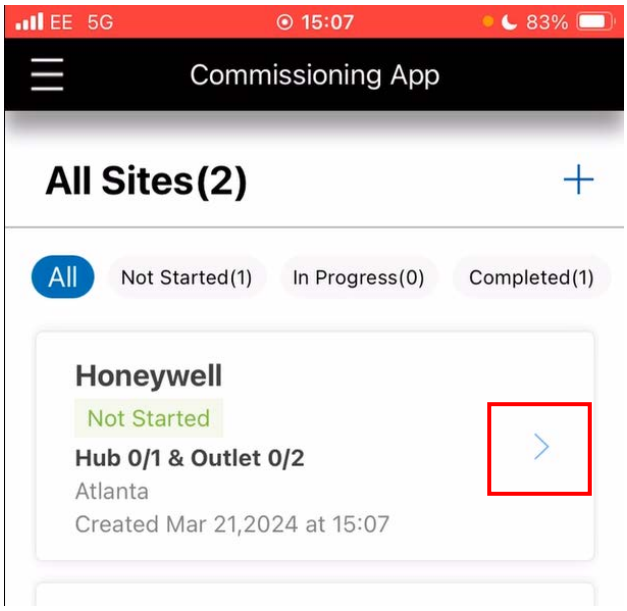

Fig. 10 All Sites

2 Displays All Hub List. Click **Arrow** > icon adjacent to hub name.

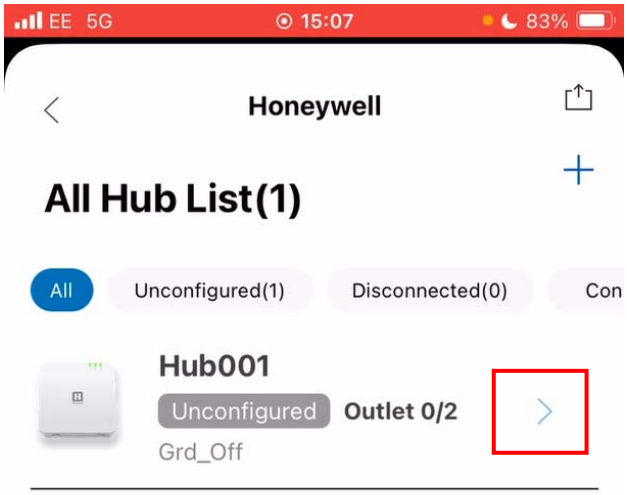

Fig. 11 All Hub List

3 Click **Config** to configure Hub.

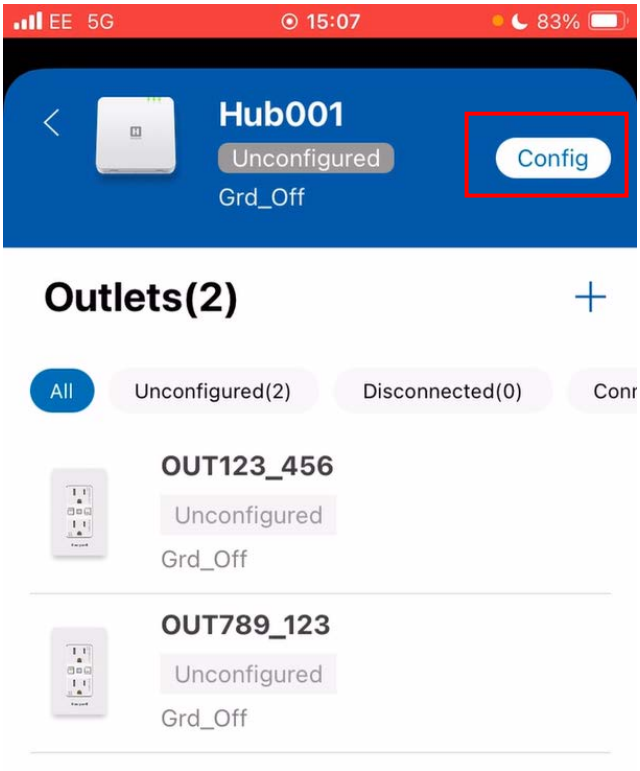

Fig. 12 Outlets

4 This will open the camera to scan the hub QR code.

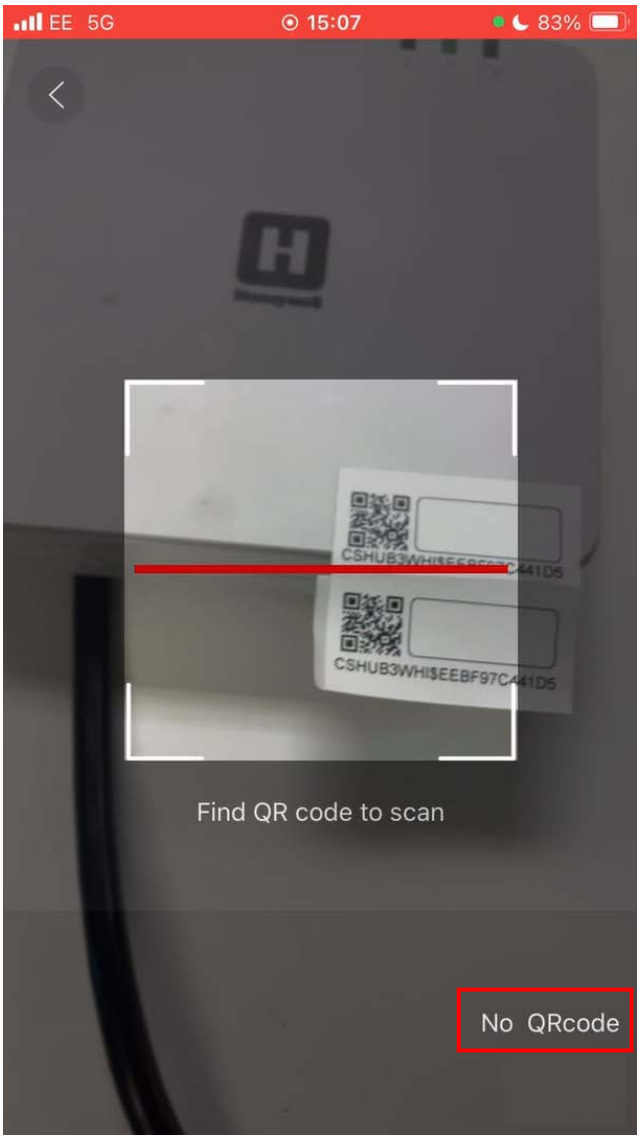

Fig. 13 Scanning Hub QR Code

Proceed to step 7 after a successful scan.
If the QR code is not accessible select **No QR code.**

5 Manually add hub by pressing and holding the program button for 5 seconds to make the hub enter commissioning mode as shown in below image. Click **NEXT** to continue.

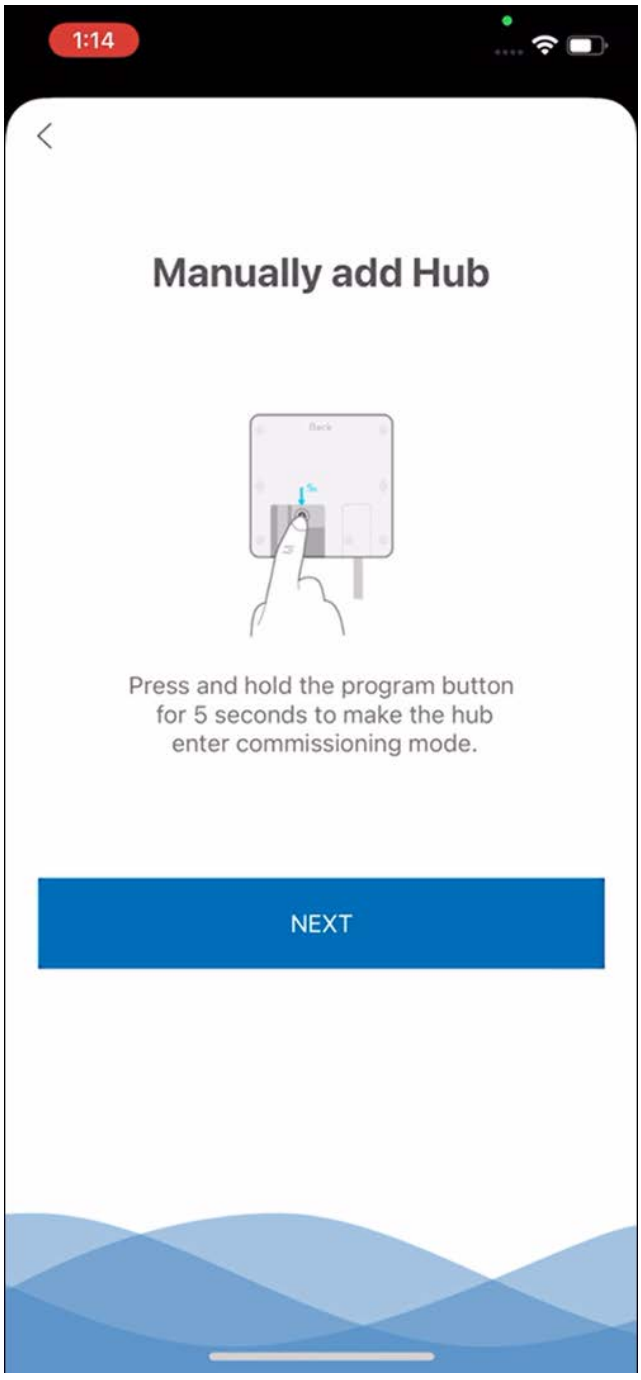

Fig. 14 Manually Add a Hub

6 Displays list of Discovered Hub, click **Connect**.

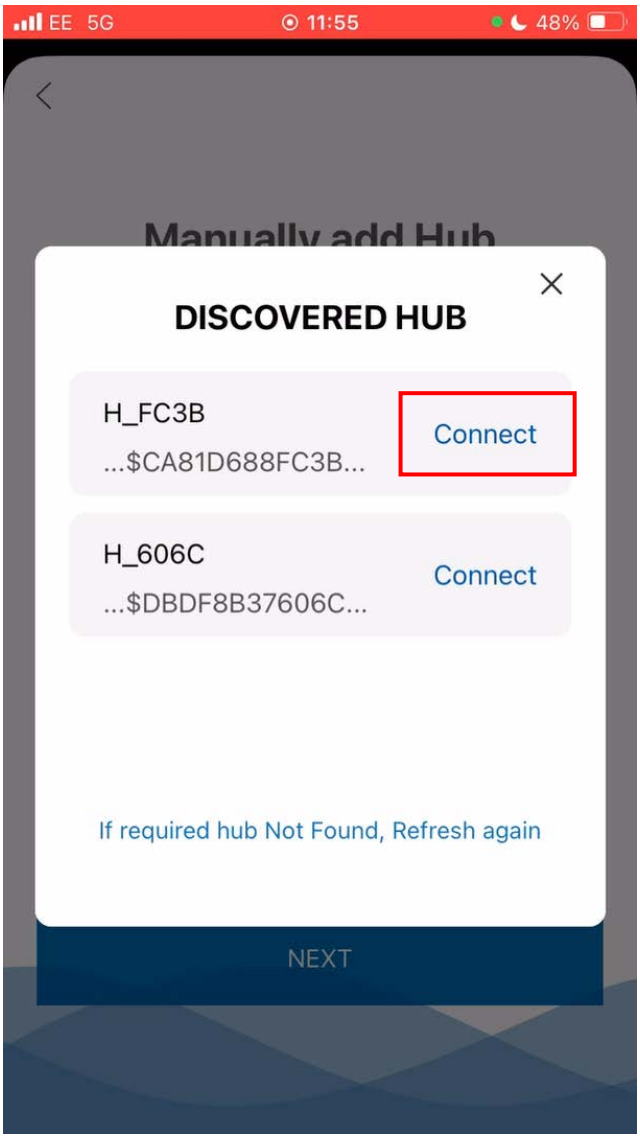

Fig. 15 Discovered Hub

7 The first-time user connects to the hub, will be prompted to set a password. Set a password, confirm, and click **OK**.

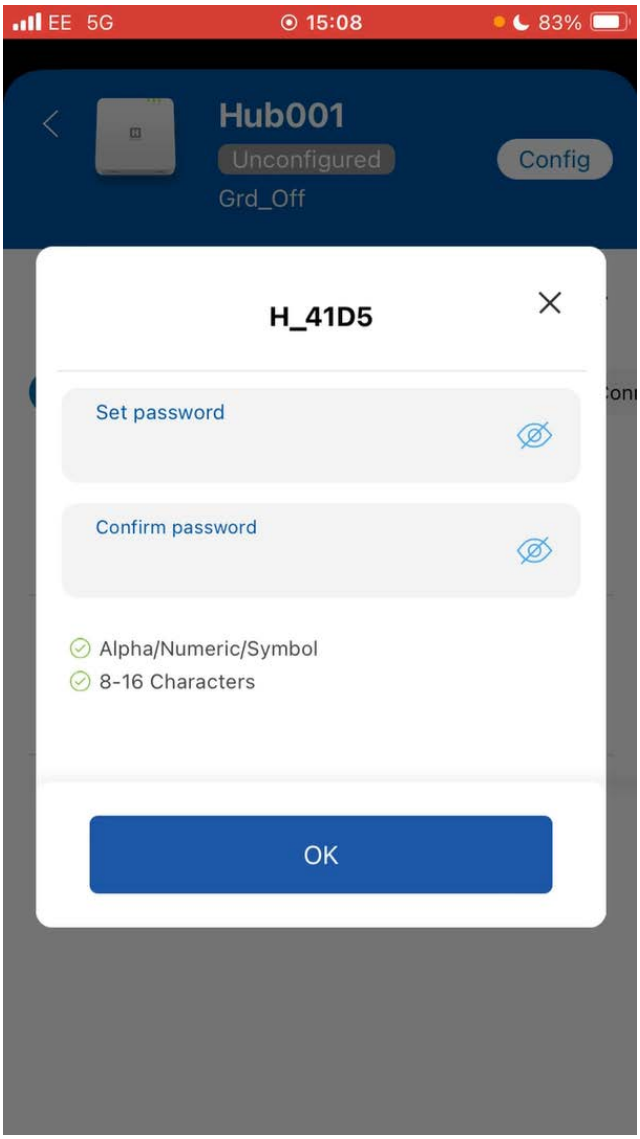

Fig. 16 Configure Password

8 Enter the password to log in to the Hub and click **OK.**

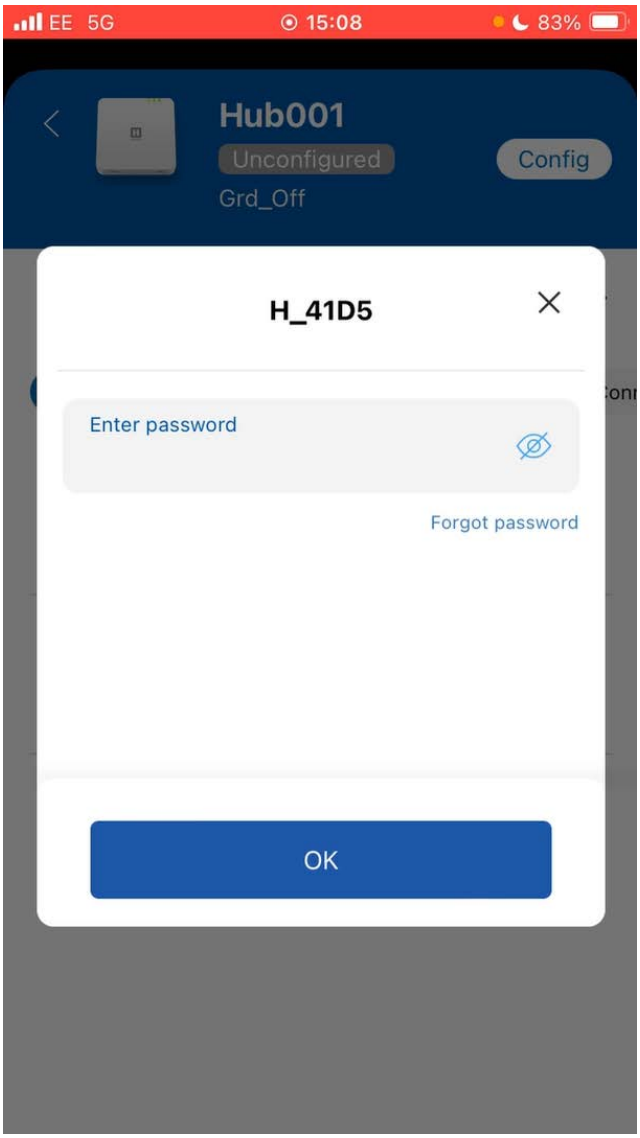

Fig. 17 Login Hub

9 After logging in, all the information set up in the Map out tool is pushed to the Hub. Here the user can make changes if necessary and click **SAVE**.

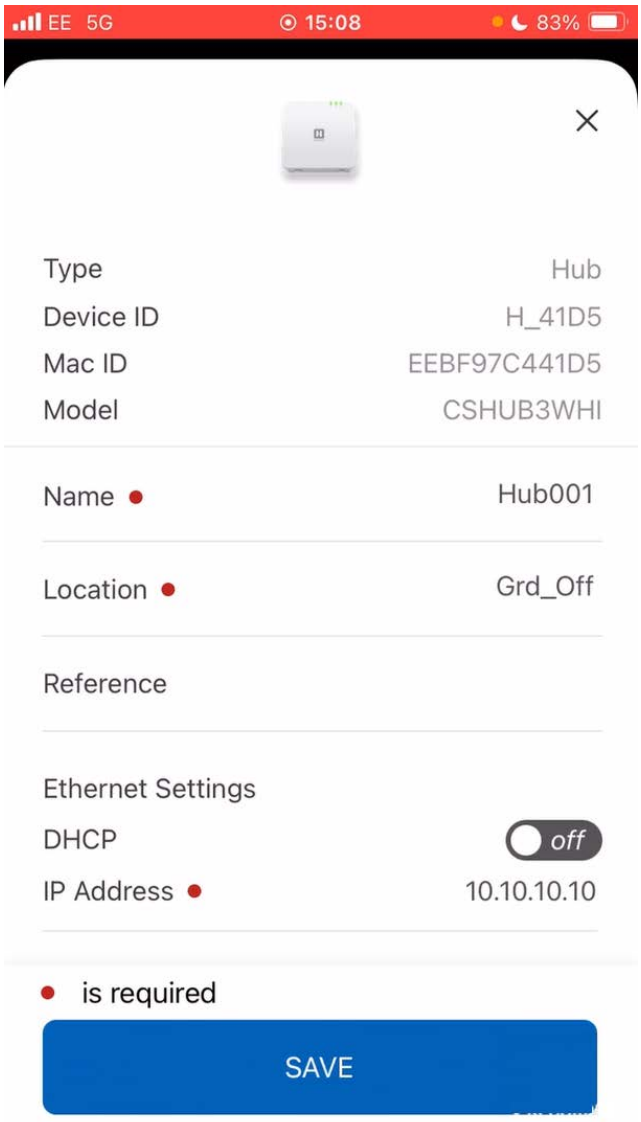

Fig. 18 Hub Details

Hub is configured and status shows connected.

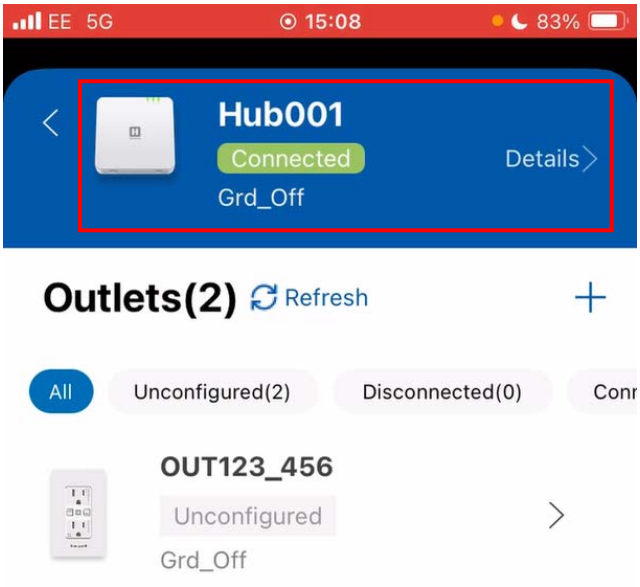

Fig. 19 Connected Hub

Commission Connected Power Outlet

Follow below steps to configure an outlet:

1 Click **Arrow** > icon adjacent to Outlet name.

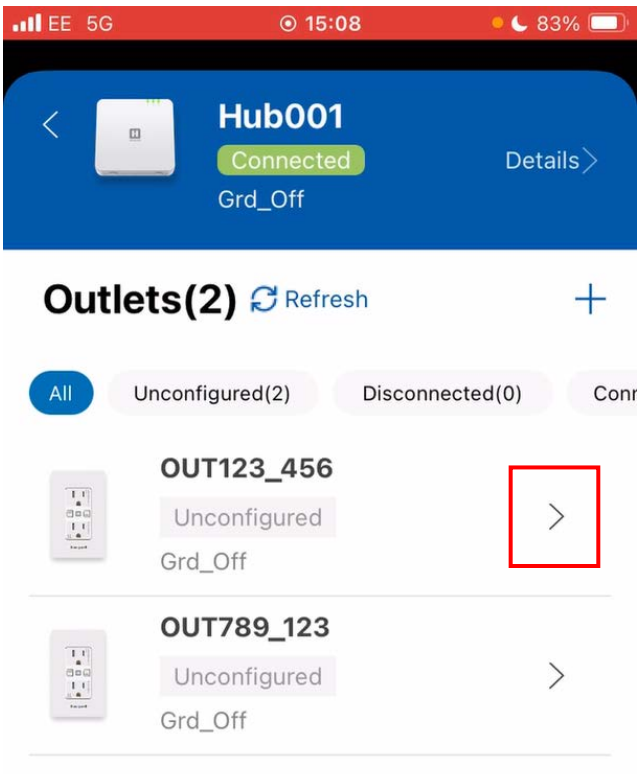

Fig. 20 Arrow Icon

2 Scan the QR code on the outlet.

Fig. 21 Scan Outlet QR Code

Proceed to step 5 after a successful scan.
If the QR code is not accessible select **No QR code.**

3 Manually add Outlet by pressing and holding the outlet button for 5 seconds to make the outlet enter commissioning mode as shown in below image. Click **NEXT** to continue.

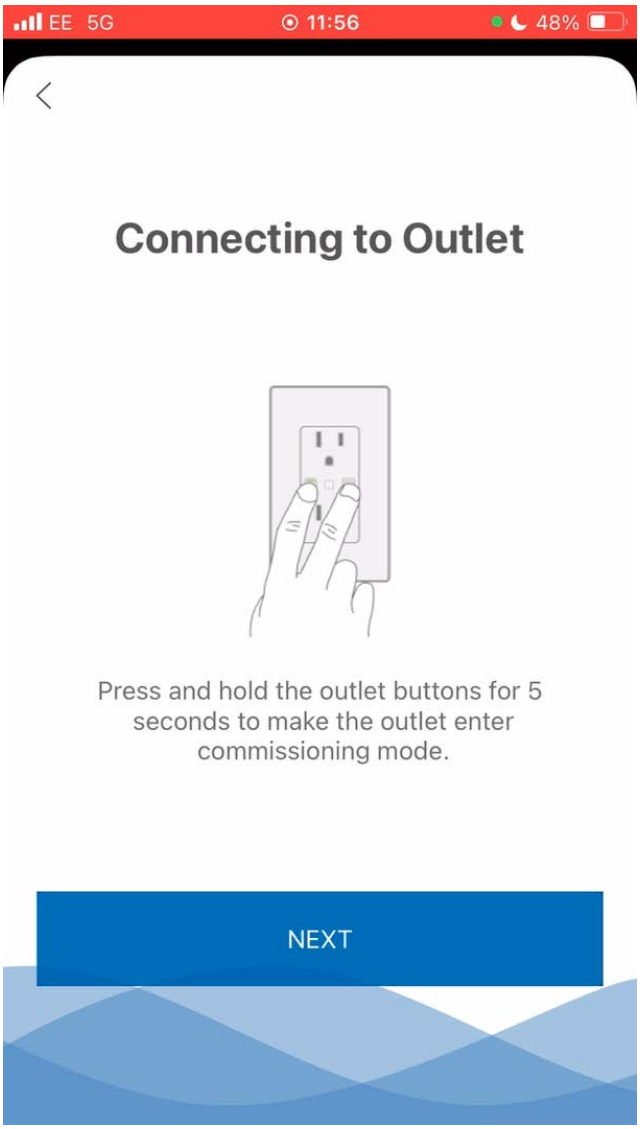

Fig. 22 Connecting to Outlet

4 Displays list of Discovered Outlets, click **Connect**.

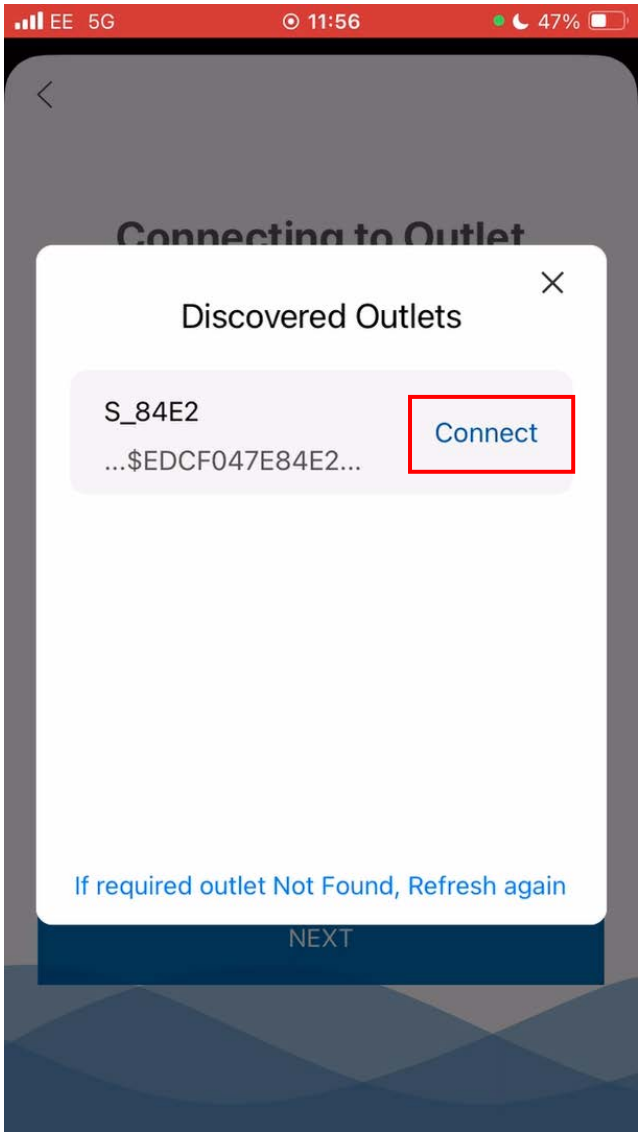

Fig. 23 Discovered Outlets

5 Change the details of the outlet as needed, and then click **SAVE**.

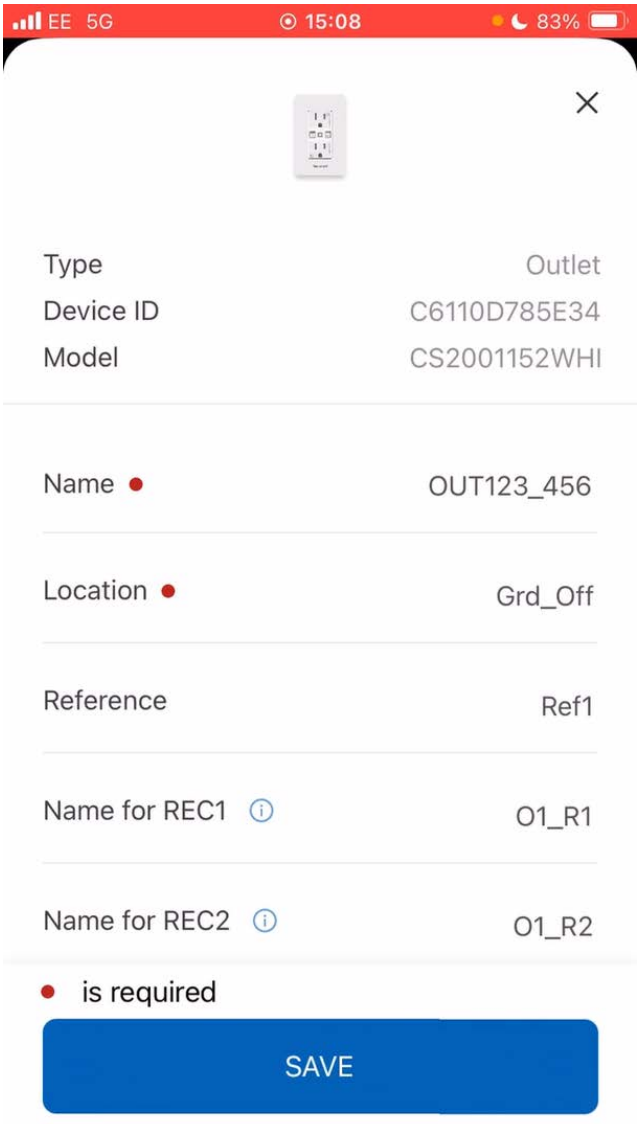

Fig. 24 Outlet Details

6 Click **Refresh** to update the current status of the outlet. Outlet is configured.

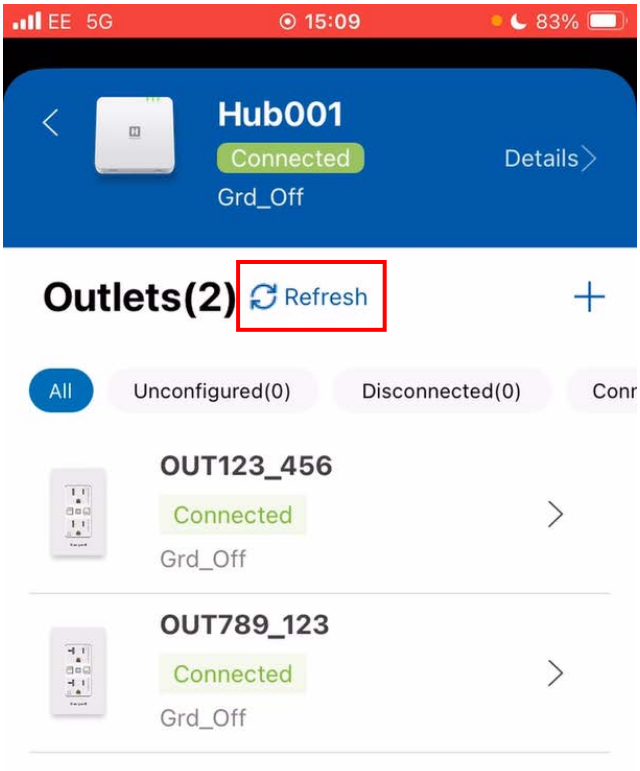

Fig. 25 Connected Outlets

7 If the status of the outlet is not displayed as Connected, click **Details** in the upper right corner of the screen.

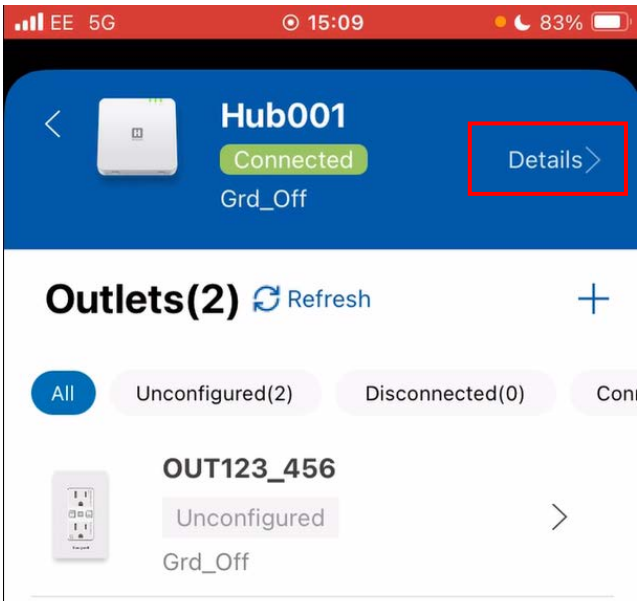

Fig. 26 Details Option

8 Click **FIND** from the hub Details screen.

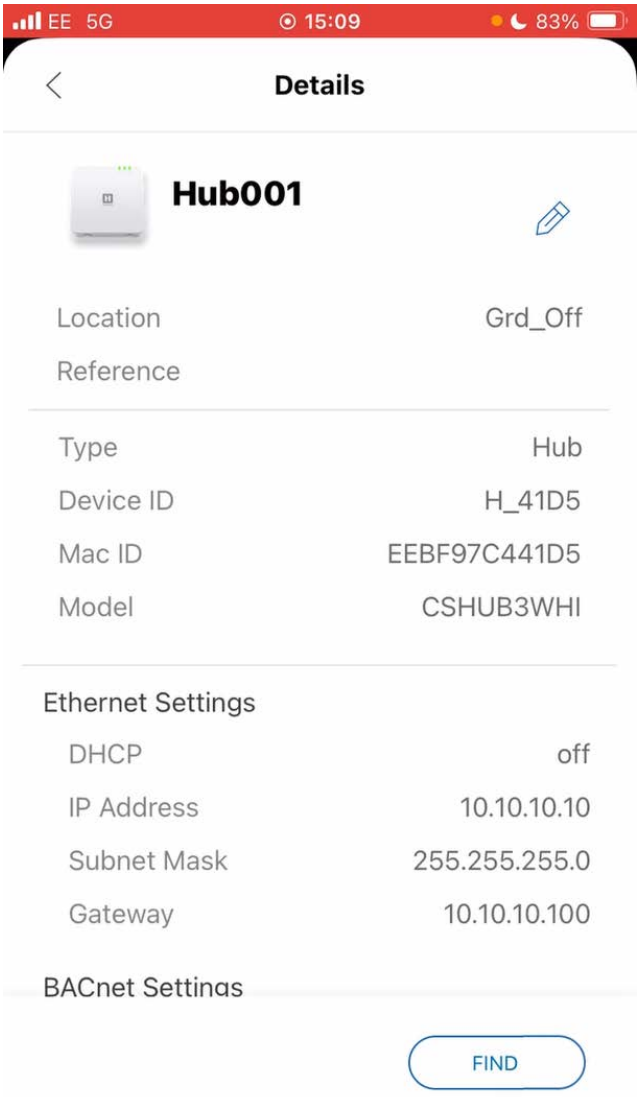

Fig. 27 Hub Details

9 The hub's buzzer starts sounding, click **OK**.

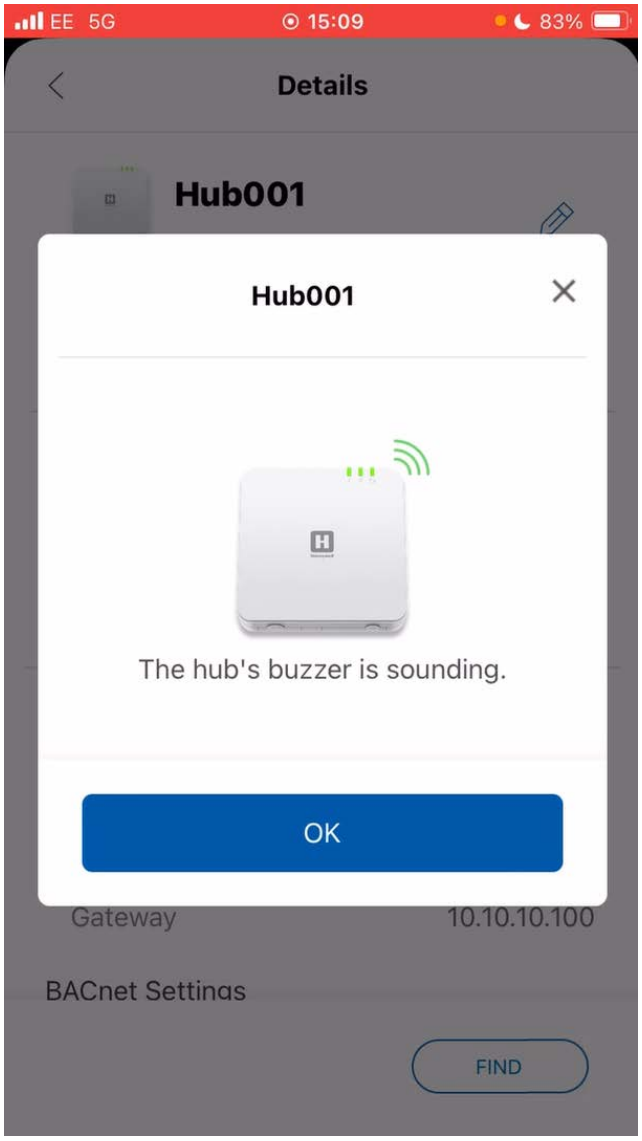

Fig. 28 Hub's Buzzer

10 Navigate back to the outlets list and click **Refresh**. The outlet status changes to Connected.

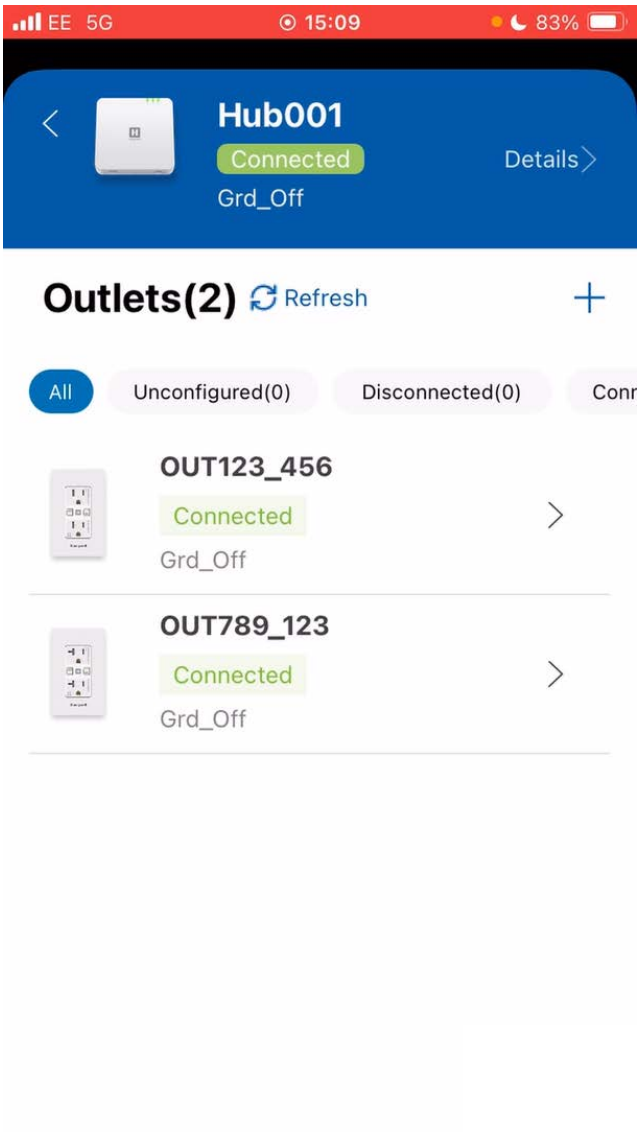

Fig. 29 Connected Outlets

11 Repeat step 1 - 10 to configure another outlet.

Create New Site

Follow below steps to add a site:

1 In the Welcome screen, click **ADD SITE**.

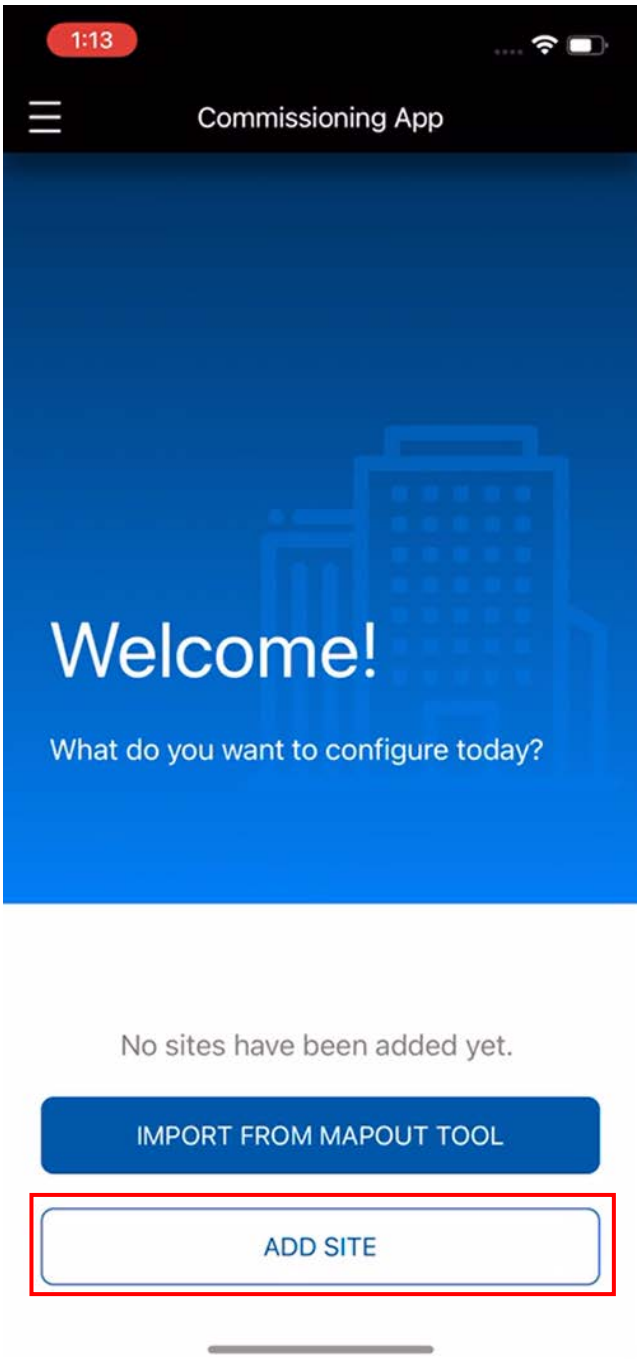

Fig. 30 Welcome Screen

2 Enter the **Site Name**, **Region**, and **Location**.

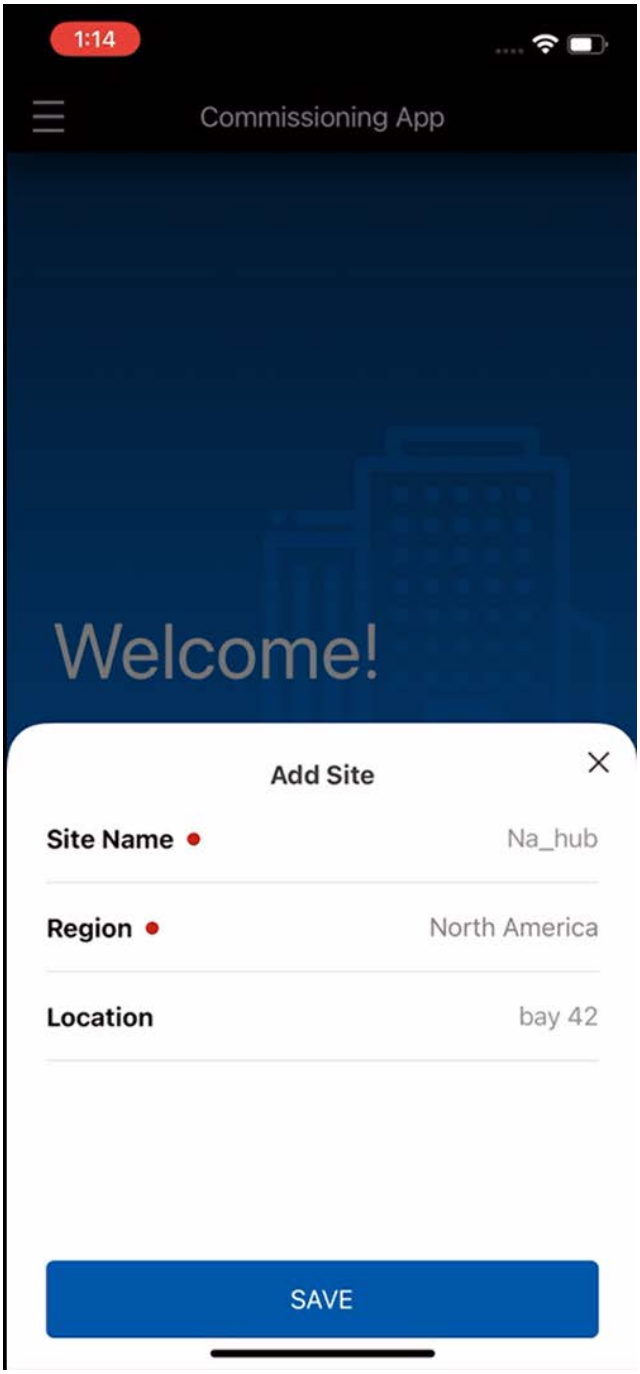

Fig. 31 Enter Site Details

IMPORTANT:
The user cannot enter any special characters other than underscore (_) for the site/outlet name.

3 Click **SAVE**. The site is added to the app.

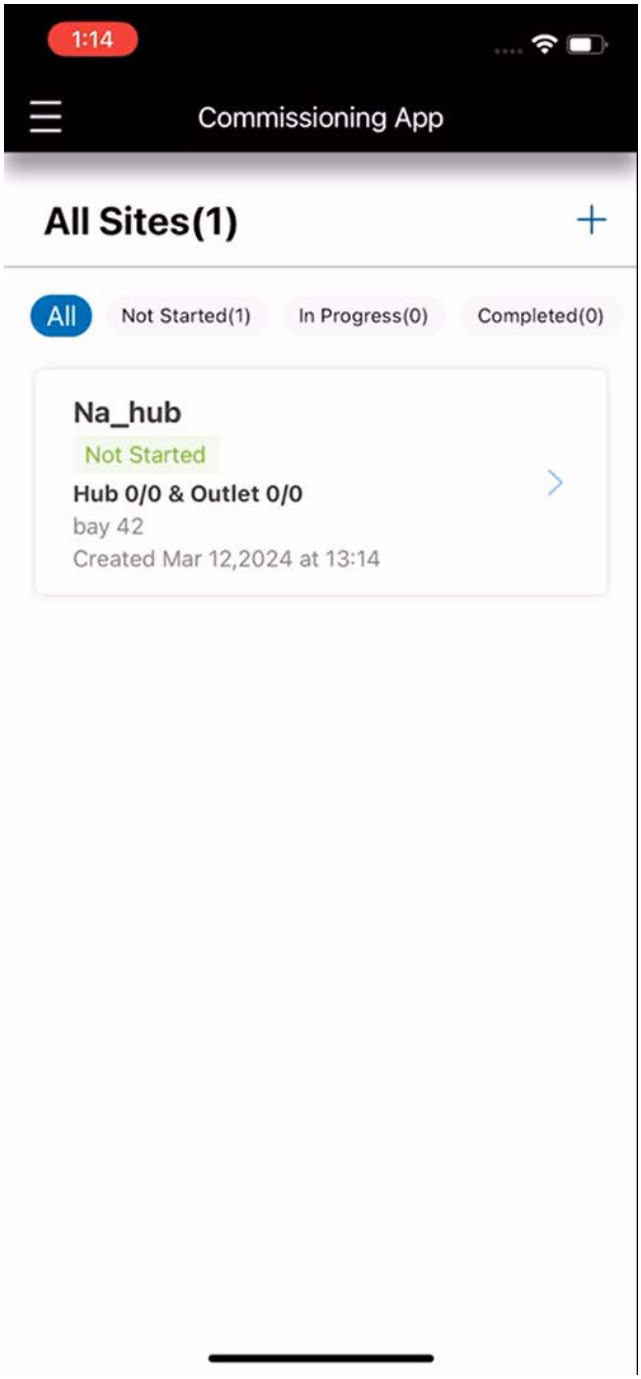

Fig. 32 All Sites

4 Also, to add more sites, click **Plus** + icon in the upper right corner of the screen.

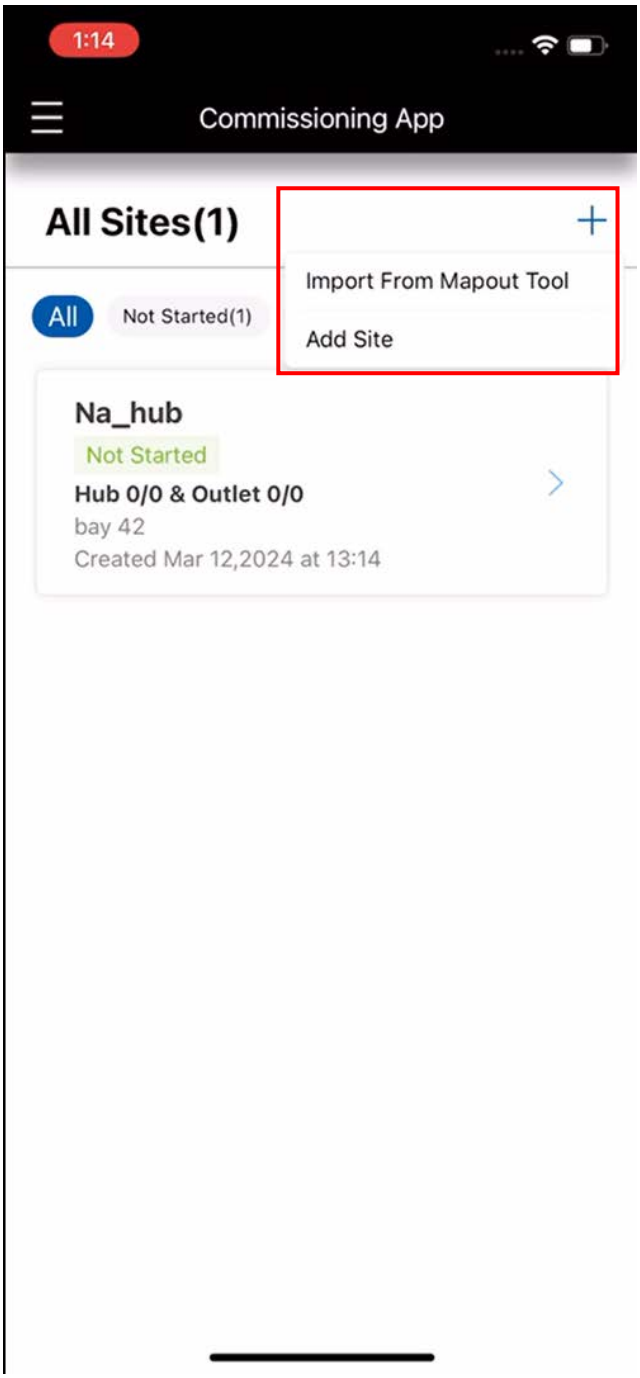

Fig. 33 Add Site

ONBOARD CONNECTED POWER USING THE SUPERVISOR

To on-board the Connected Power Hubs to Honeywell's building energy management system, please refer to relevant manual for the supervisor brand you are using.

The table below shows the various ports available on the system. Some of these would need to be opened to allow onboarding to be successful.

Table 1 Hub Protocol

Protocol	Port	Type of communication	Allow through BMS firewall?	BMS Firewall Inbound/Outbound
foxs	4911	Station	No	Not allowed both
platformtls (Platform Port)	5011	Niagarad (Platform)	No	Not allowed both
http	80	Browser	Possibly for windows update	Inbound is not allowed, Outbound is allowed
https	443	Browser	Possibly for windows update	Inbound is not allowed, Outbound is allowed

NETWORK MAINTENANCE

Add an additional Connected Power Hub

1 To add more hubs, press the + button on the commissioning app's home page.

2 Enter the **Name**, **Location** and **Reference** for the new hub. For more information see the **Add a Hub Manually** guide, in the Commission a Connected Power Hub section.

3 Follow the steps in the Commission a Connected Power Hub section.

Remove a Connected Power Hub

See Connected Power Hub Non-volatile Memory (NVM) Reset section.

Add a Connected Power Outlet

1 To add more Connected Power Outlets, select the appropriate hub and press the + button.

2 Press **Scan QR** or **No QR Code** to find the Connected Power Outlet you want to add.

3 Follow steps 3-4 in the Scan QR code, or steps 3-5 in the 'Via Bluetooth®' in the Commission Connected Power Outlet section.

4 Select the Connected Power Outlet you wish to add, and press **Configure**.

5 Follow steps 2-5 in Commission Connected Power Outlet above.

Add Multiple Connected Power Outlets

Multiple Connected Power Outlets can be added at the same time.

1 Select the connected power outlets you wish to add, and press **Configure.**

2 A Connected Power Hub will automatically be assigned.

3 To rename multiple connected power outlets at the same time, type in a name in the **Batch Rename** field. The connected power commissioning app will then rename the multiple selected connected power outlets in sequence.
For Example: If you type in 'My Office', the Connected Power Commissioning app will rename the Connected Power Outlets one by one: "My Office 01"and "My Office 02' etc.

4 Press **Connect**.

5 This process takes 1-5 minutes to complete. To check on progress, pull down this page to **Refresh**.

Modify Connected Power Outlet Information

1 Ensure that the Connected Power Hub which is linked to the Connected Power Outlet you wish to edit is connected to the connected power commissioning app via **Bluetooth®**.

2 Press the ⟩ icon. You can then see a list of the outlets which are connected to this connected power hub.

3 Press the **Pencil** icon next to the connected power outlet you wish to modify.

Remove a Connected Power Outlet

1 Ensure that the connected power hub which is linked to the connected power outlet you wish to edit is connected to the connected power commissioning app via **Bluetooth®**.

2 Press the (**>**) button. You can then see a list of the connected power outlets which are connected to this connected power hub.

3 On the row in which the connected power outlet you wish to remove is located, swipe from right to left.

4 Two options will then appear on the right-hand side – **Replace** and **Delete**. Press **Delete**.

5 Once connected power outlet is removed from the network, single short **ORANGE** flash of both receptacle **LEDs** together for 0.3s every 10s.

Replace a Connected Power Outlet with a new Connected Power Outlet

1 Ensure that the connected power hub which is linked to the Connected Power Outlet you wish to edit is connected to the Connected Power Commissioning app via Bluetooth®.

2 Press the **>** button. You can then see a list of the connected power outlets which are connected to this connected power hub.

3 On the row in which the connected power outlet you wish to replace is located, swipe from right to left.

4 Two options will then appear on the right-hand side – **Replace** and **Delete**. Press **Replace**.

5 The connected power commissioning app will delete the connected power outlet you no longer wish to use.

6 Press and hold down the **Rockers** on the new connected power outlet you wish to use for 5 seconds to put it into commissioning mode.

7 The connected power commissioning app will discover the new connected power outlet. press replace followed by confirm to complete the process.

LED INDICATIONS

Connected Power Hub

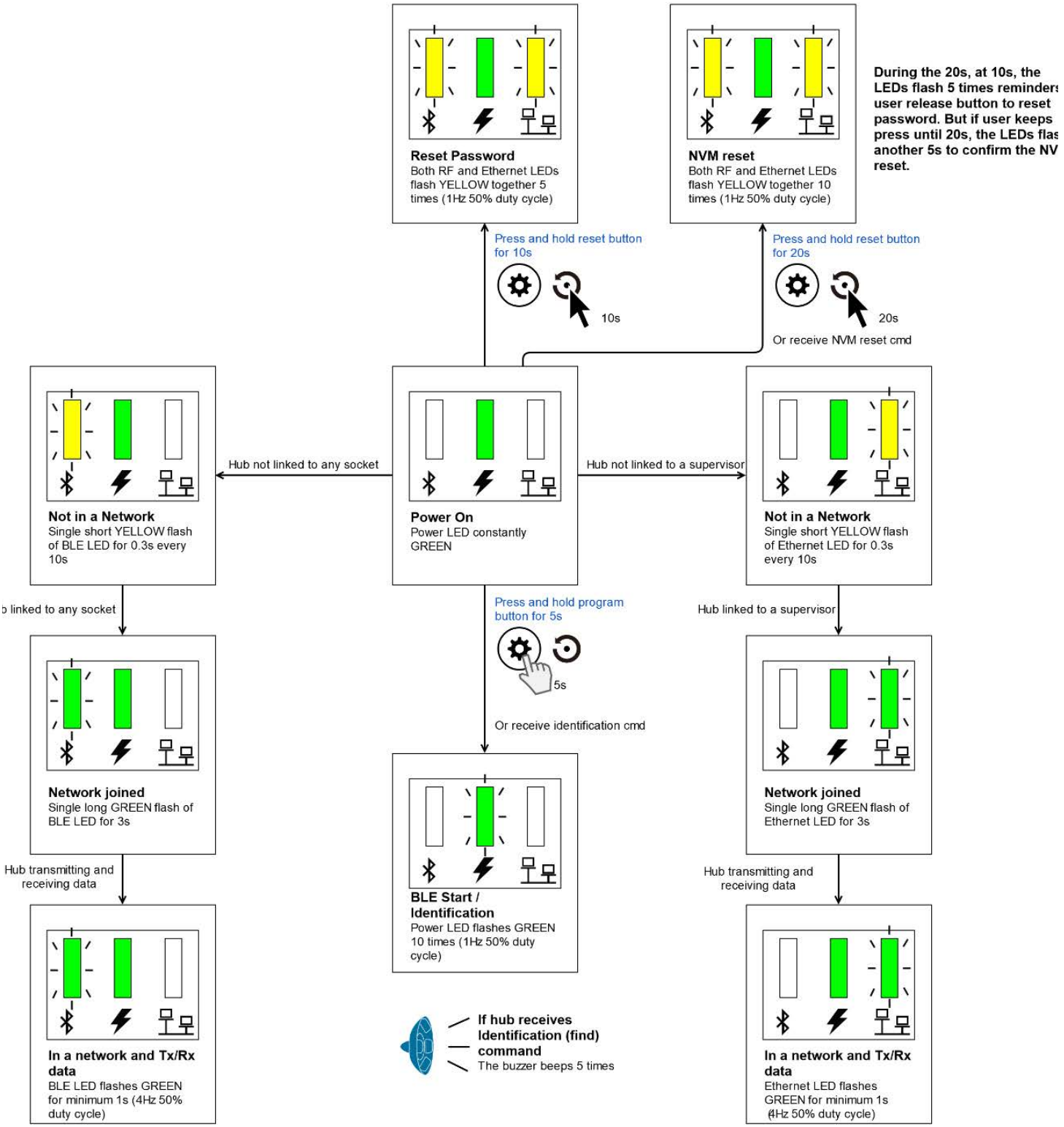

Fig. 34 Connected Power Hub

Connected Power Outlet

Power Up

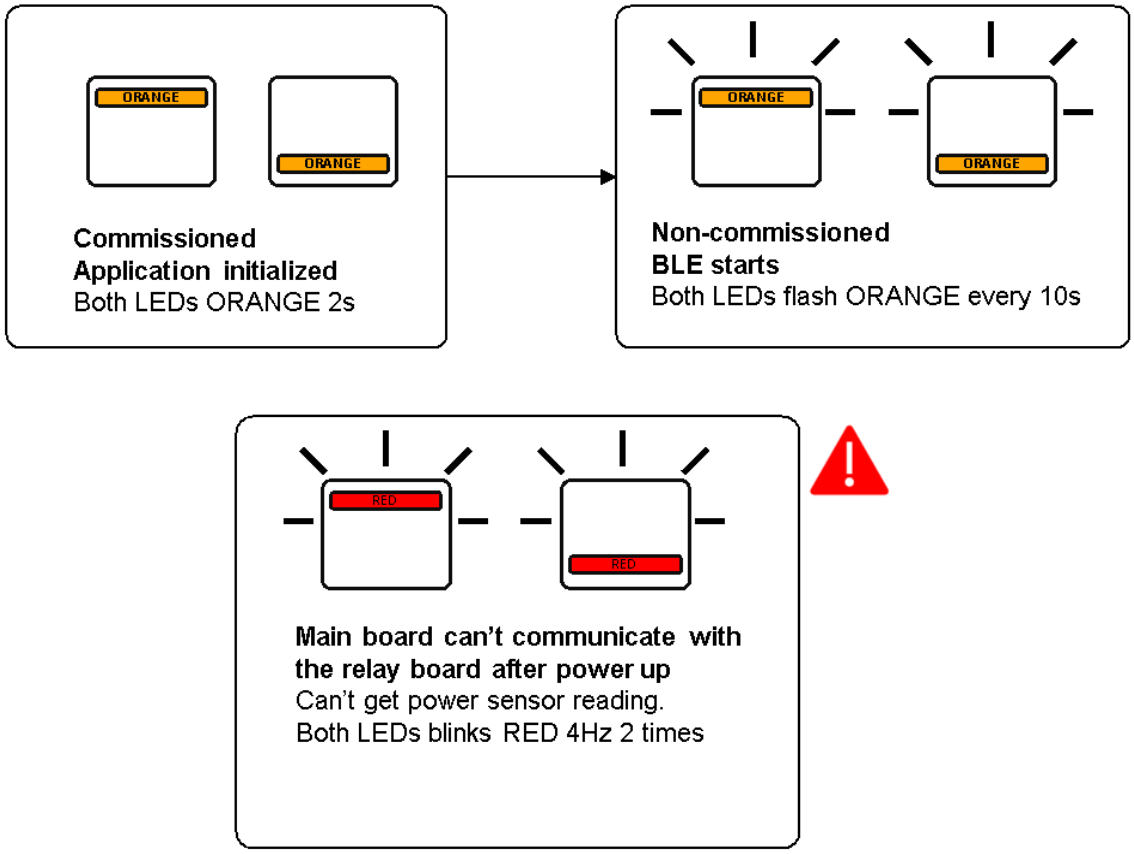

Fig. 35 Power up Condition

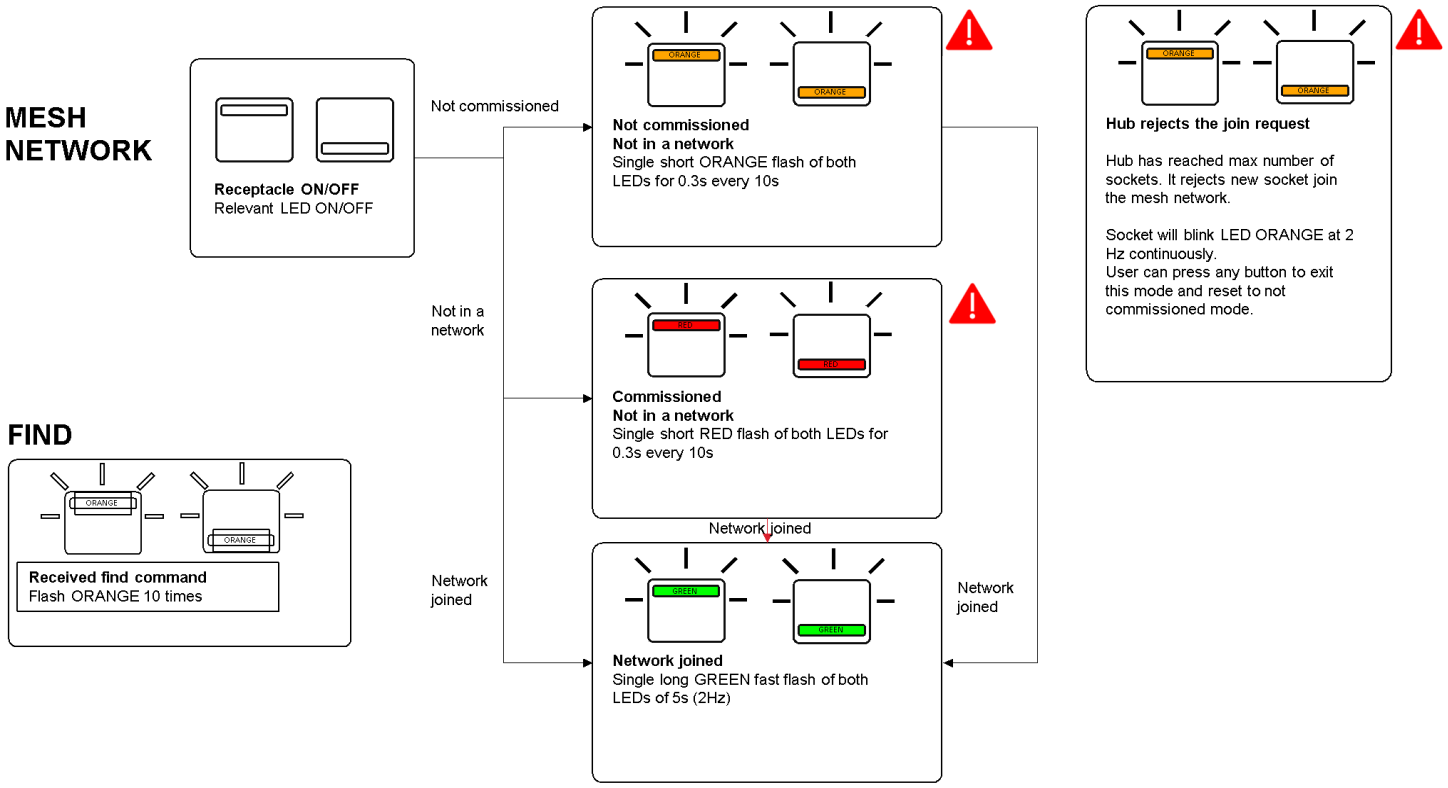

Fig. 36 Connected Power Outlet Structure

LED Indication On

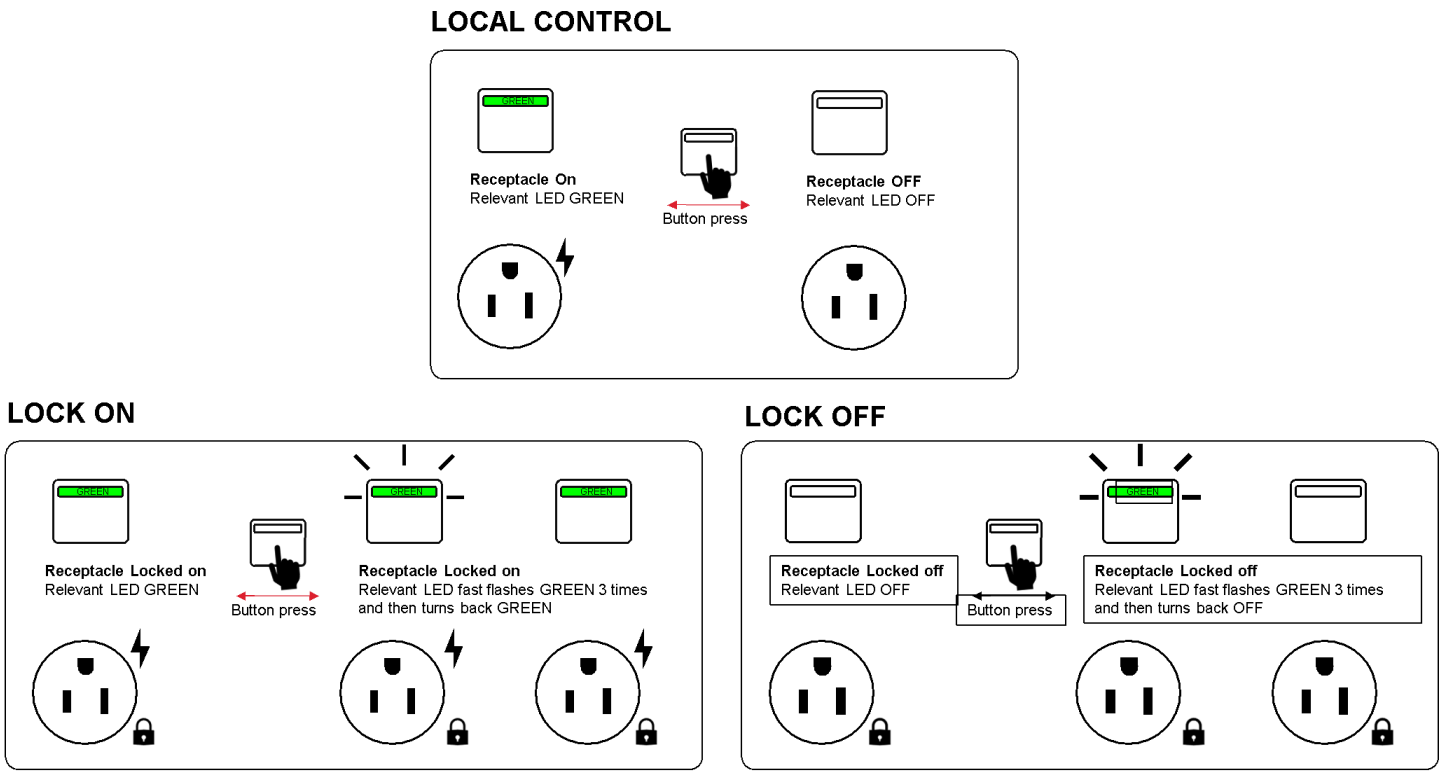

Fig. 37 LED Lock-on

LED Indication Off

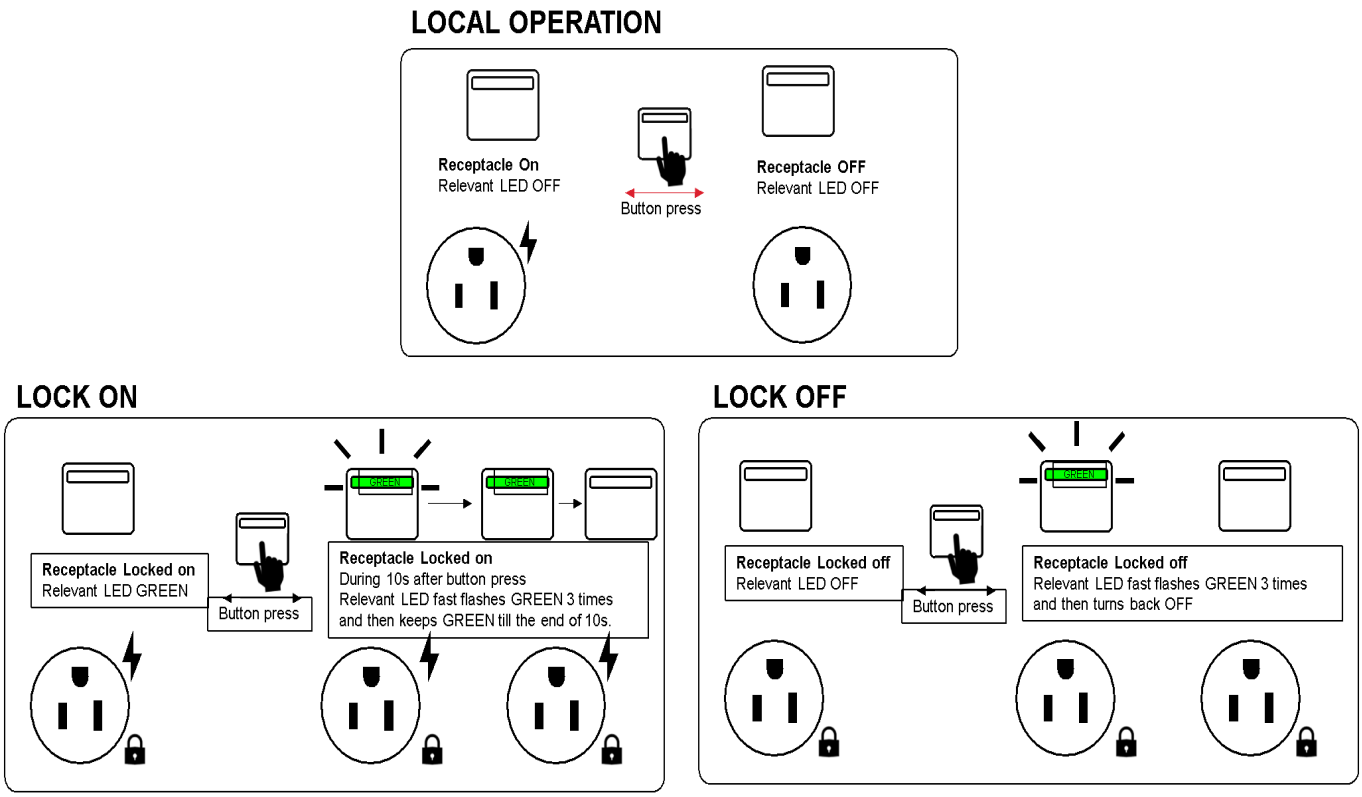

Fig. 38 LED Lock-off

NVM Reset

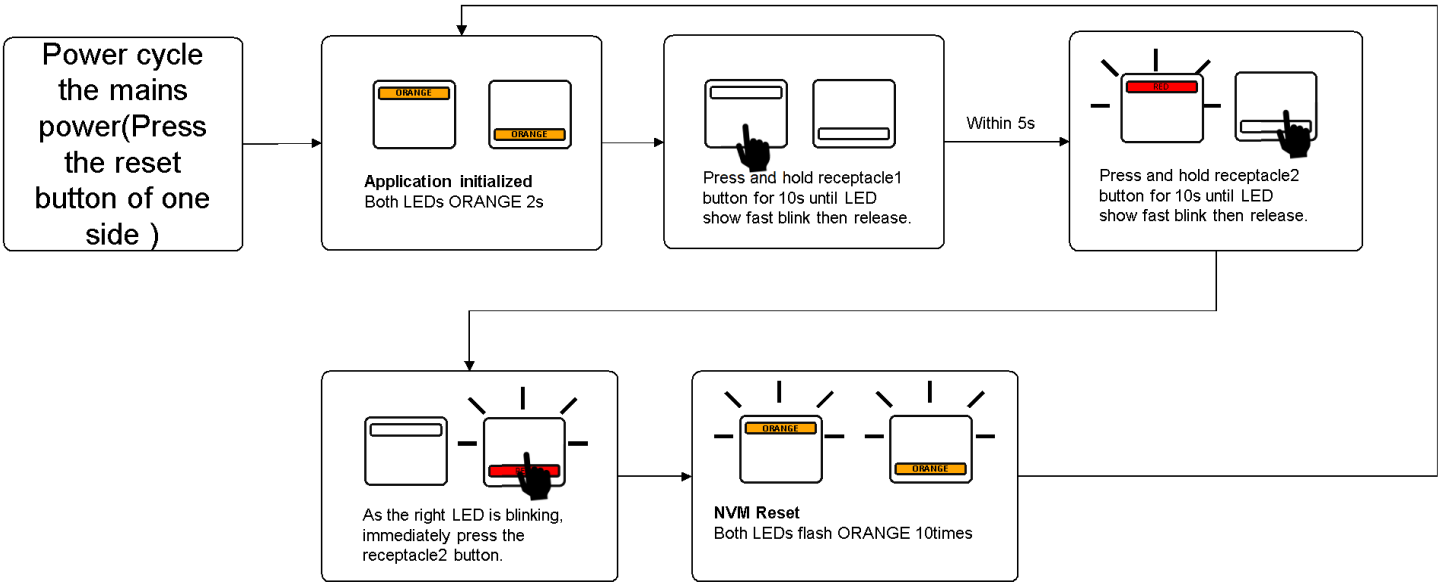

Fig. 39 NVM Reset

TROUBLESHOOTING

Connected Power Hub Password Reset

Should a user lose or forget their password, it can be reset using the below procedure:

1. Insert a suitable tool into the reset button and hold for 10 seconds. Both the Bluetooth® and Ethernet LEDs will flash yellow together 5 times.
2. Follow step 1 in the **Setting up password and modifying Connected Power Hub information** section.

Connected Power Hub Non-volatile Memory (NVM) Reset

In the event of a connected power hub being commissioned to the wrong connected power outlet(s), or the connected power hub being attached to the wrong network, its memory can be cleared by performing an **NVM** (non-volatile memory) reset using the procedure below:

To perform an NVM reset on a connected power hub, insert a suitable tool into the reset button and hold for 20 seconds. Both the **Bluetooth®** and **Network LED**s on the Connected Power Hub will flash yellow together 10 times. This will clear the Connected Power Hub's non-volatile memory (NVM), allowing it to be recommissioned.

Connected Power Outlet NVM Reset

In the event of a connected power outlet(s) being commissioned to the wrong connected power hub, the easiest way of removing it from the hub is using the delete option form within the commissioning applications.

However, if the outlet has not been deleted from the hub using the commissioning app the second method is to clear its memory this can be performed using the procedure below.

To perform a NVM reset on a connected power outlet:

1 Remove the cover and make sure both receptacles are turned ON (LED flashes green).

2 Use a screwdriver to press the outlet reset button as shown below.

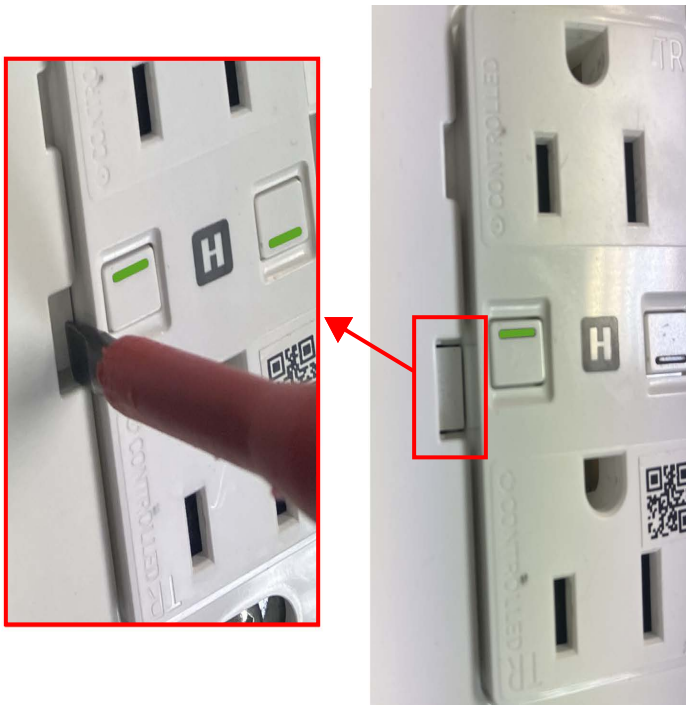

Fig. 40 Outlet Reset button

3 Press and hold down the receptacle 1 button for 10 seconds. The left LED will blink quickly in red for five seconds.

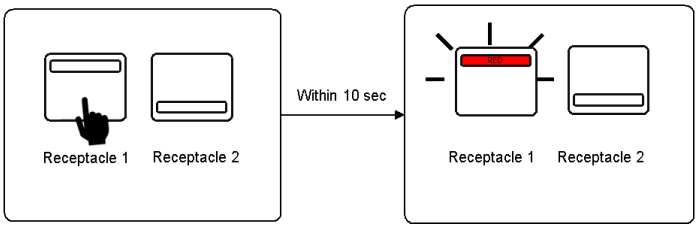

Fig. 41 Press and Hold Down Receptacle 1

4 During this time, release the receptacle 1 button, and immediately press and hold down the receptacle 2 button for 10 seconds. The right LED will then blink quickly in red.

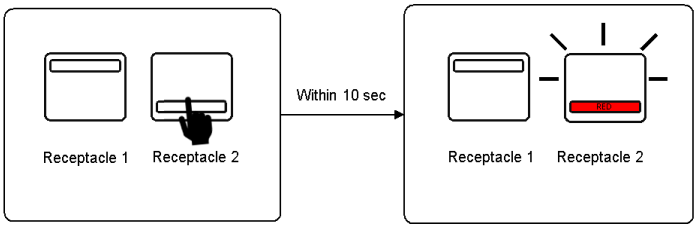

Fig. 42 Press and Hold Down Receptacle 2

5 While it is blinking, press the receptacle 2 again. Both LEDs will then blink in orange 10 times.

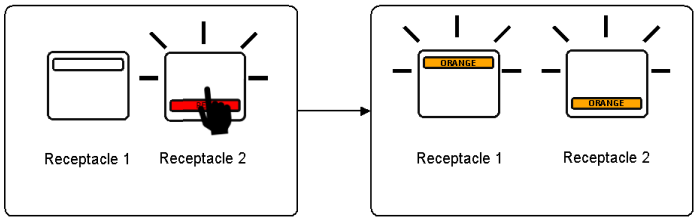

Fig. 43 Press Receptacle 2

6 Once the connected power outlet has been reset, both LEDs will show an orange light for 2 seconds.

Fig. 44 NVM Reset Indication

This procedure will clear the Connected Power Outlet's non-volatile memory, allowing it to be recommissioned.

WARNINGS AND PRECAUTIONS

1 To ensure a safe installation:
   a This product should be installed by a competent person (e.g., a qualified electrician).
   b It is essential that all connections are made as instructed, that cables are not stressed and that terminal screws are fully tightened.
   c Connected power hub should be used for indoor usage only.
2 Ensure that all electrical connections are correct and fully secured and that the product is screwed securely to its mounting box before turning the mains electricity supply on.
3 Ensure that the connected power hub is physically secure, and that only authorized persons can access the Connected Power Hub.
4 Ensure that the network installation, operation and maintenance follow the Supervisor's security guide.
5 Ensure that the Connected Power Hub is on a separate dedicated physical network or virtual network for BACnet communication.
6 Only authorized persons can open the device terminal cover(s).

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