

Connected Power App

USER GUIDE

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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 Sockets 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 socket temperatures and responding to preset power levels regarding either over or under power. Combined with the ability to monitor and control the Connected Power Sockets, 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 Sockets and Connected Power Hubs which are linked to each other via a wireless mesh network.

Using this network, these Connected Power Sockets can communicate directly with the Connected Power Hubs, or via other Connected Power Sockets. Both the sockets and hubs communicate with smartphones and tablets via BLE (Bluetooth® Low Energy) technology, allowing the installer to set up the network between the sockets 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 Sockets 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 Sockets and Connected Power Hub to each other. It has two layers: one allows each Connected Power Socket 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 Socket and its Connected Power Hub can be relayed by other Connected Power Sockets. 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 Sockets, 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 Sockets 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 sockets should be replaced with Connected Power Sockets, 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

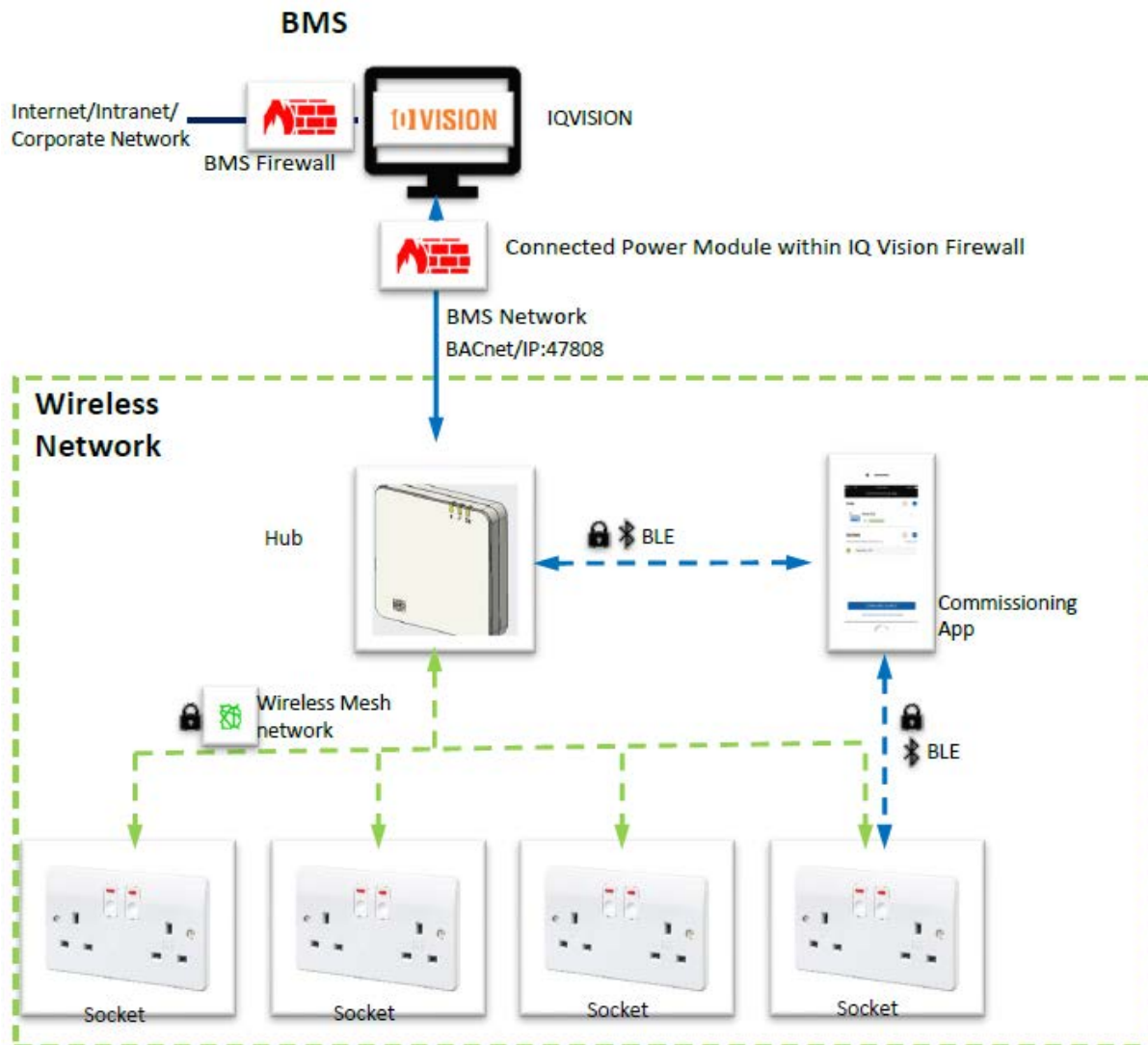


Fig. 1 System Architecture

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

Communication between the Connected Power Hubs, Connected Power Sockets, 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 Sockets 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 Sockets

The design of the Connected Power Sockets 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 Connected Power Hub and Connected Power Socket Leaflet 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 6mm² cables cable to be used.

- 1 Connect your **Connected Power Socket** into the mains and switch the power on. Both LEDs on the Connected Power Socket 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 Sockets. 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**.

Home

*connected
power
LOGO*

*29
Rev
v0.2.38*

Site Name *Basilton*

*Region *United Kingdom*

Site Location *Basilton*

Customer Name *Honeywell*

Partner Name *Honeywell*

Name *John Smith*

Position *System Engineer*

Company *Honeywell*

NEXT

Fig. 2 Home Tab - Map Out Tool

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

Rooms
Click **next** to generate configuration

Socket & Hub Estimation Total **1 Hubs** **2 Sockets**
Enter the actual number of devices required.

Room 1 | Name *Fam* | Floor *Grd* | Hub Qty *1* | Socket Qty *2*

ADD A ROOM **DELETE A ROOM** **NEXT**

Fig. 3 Rooms Details

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

Socket List **Hub Usage**

*Required Information
EXPORT this file to Commissioning APP for configuration.
Name of Sockets shall NOT have a numeric initial and only contain letters and underscore.
The quantity of Hubs and Sockets must not exceed 50.

EXPORT

General							No.	Hub Name	Sockets Allocated
No.	*Name	*Location	*Hub	Reference	Name for left outlet	Name for right outlet			
1	H321_456	Grd_Fam	Hub001	Ref1	Doc	Monitor1	1	Hub001	2
2	H789_123	Grd_Fam	Hub001	Ref2	Phone_Charger	Monitor2			

Fig. 4 Socket List

- The Socket list will then be presented. This is where we associate Sockets with a particular Hub(s) and name outlets connected to the associated sockets. Once complete, select export, this produces an socket 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 sockets 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 Sockets.

The recommended way to configure the connected power hub and socket 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**.

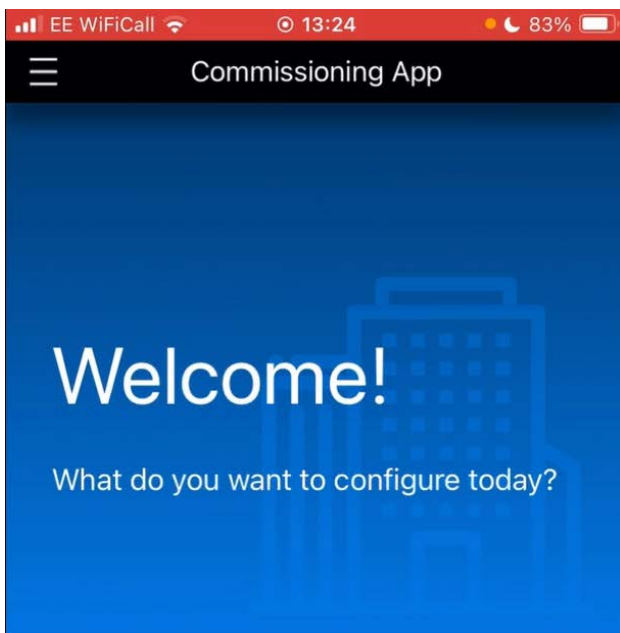


Fig. 5 Welcome Screen

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

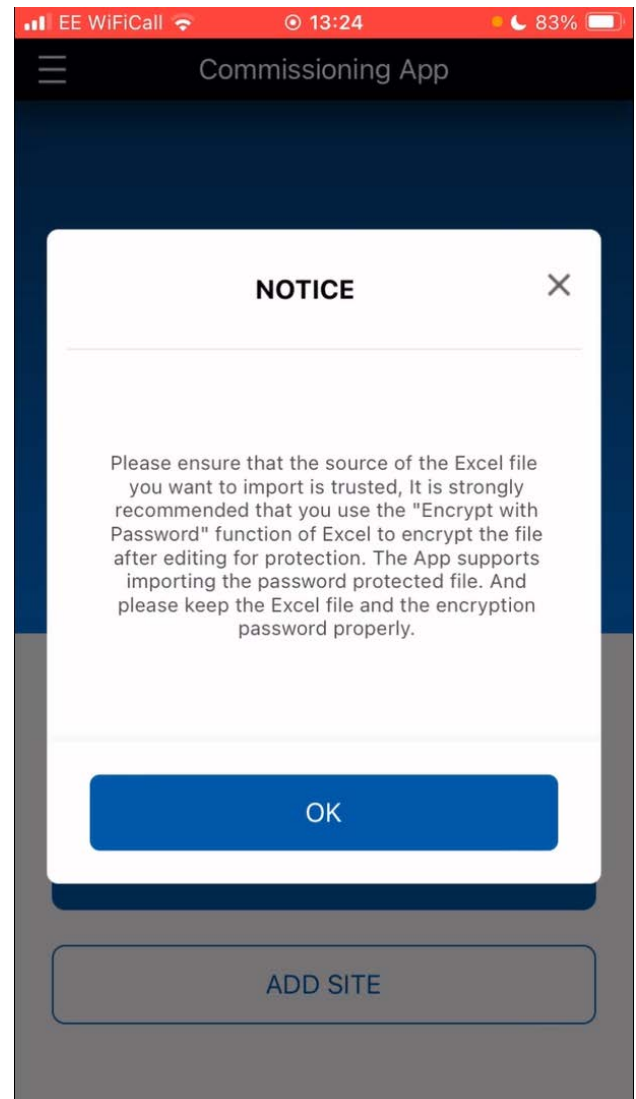


Fig. 6 Notice

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

3 Select file from local files.

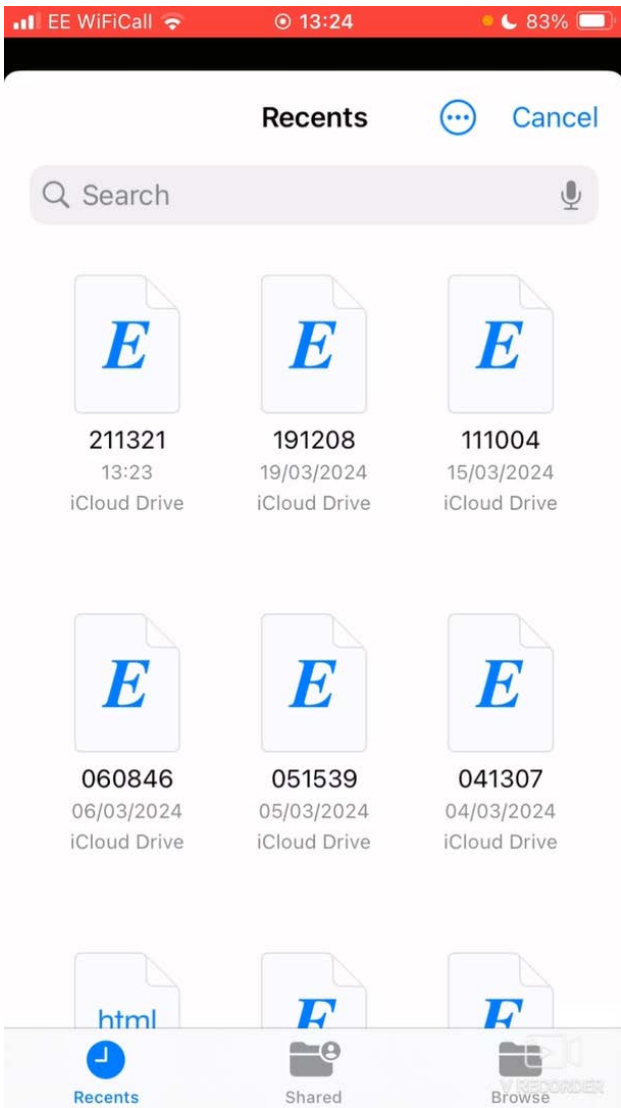


Fig. 7 Recent Files

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

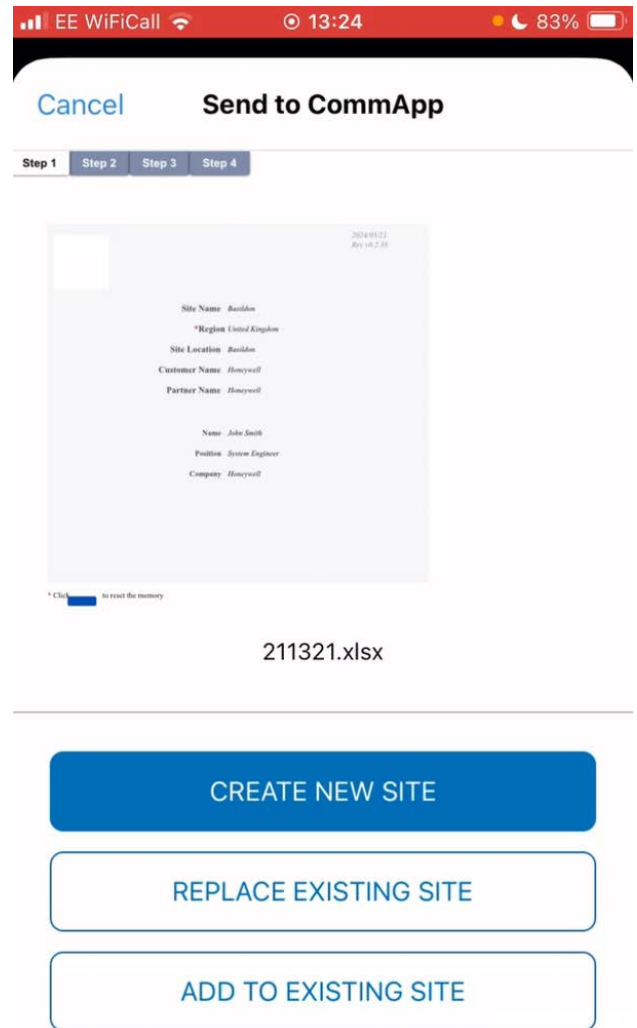


Fig. 8 Create a New Site

Site is added and displayed under All Sites.

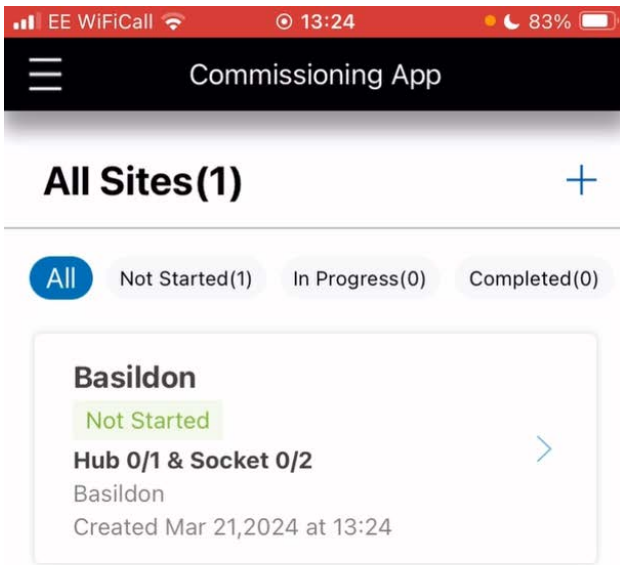


Fig. 9 Configured Sites

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.

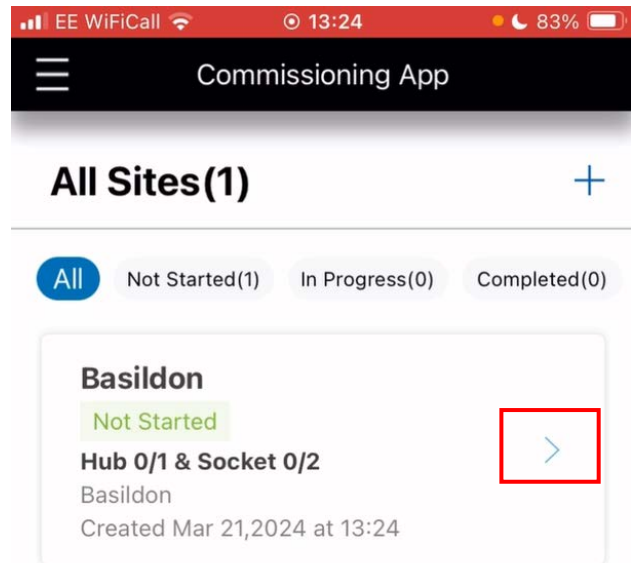


Fig. 10 All Sites

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

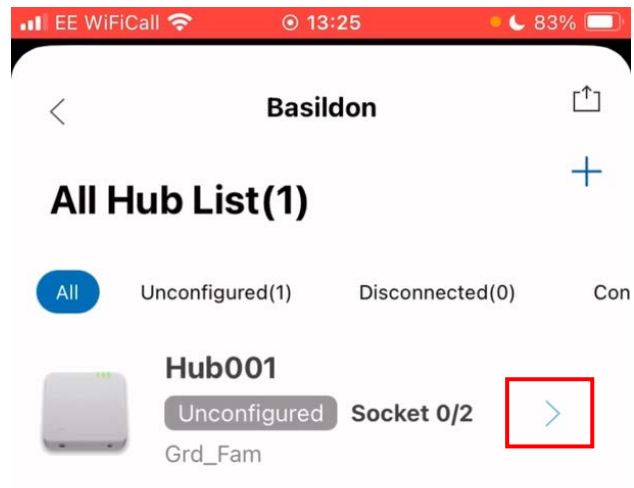


Fig. 11 All Hub List

3 Click **Config** to configure Hub.

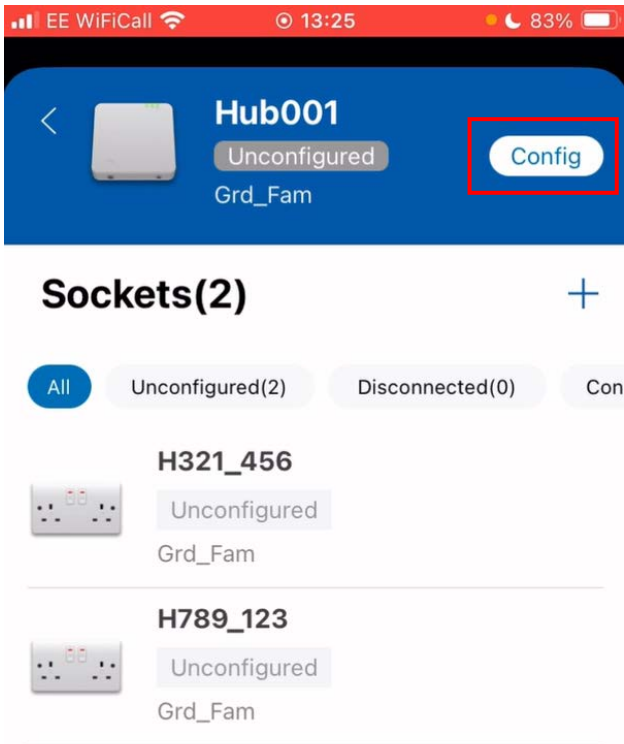


Fig. 12 Sockets

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

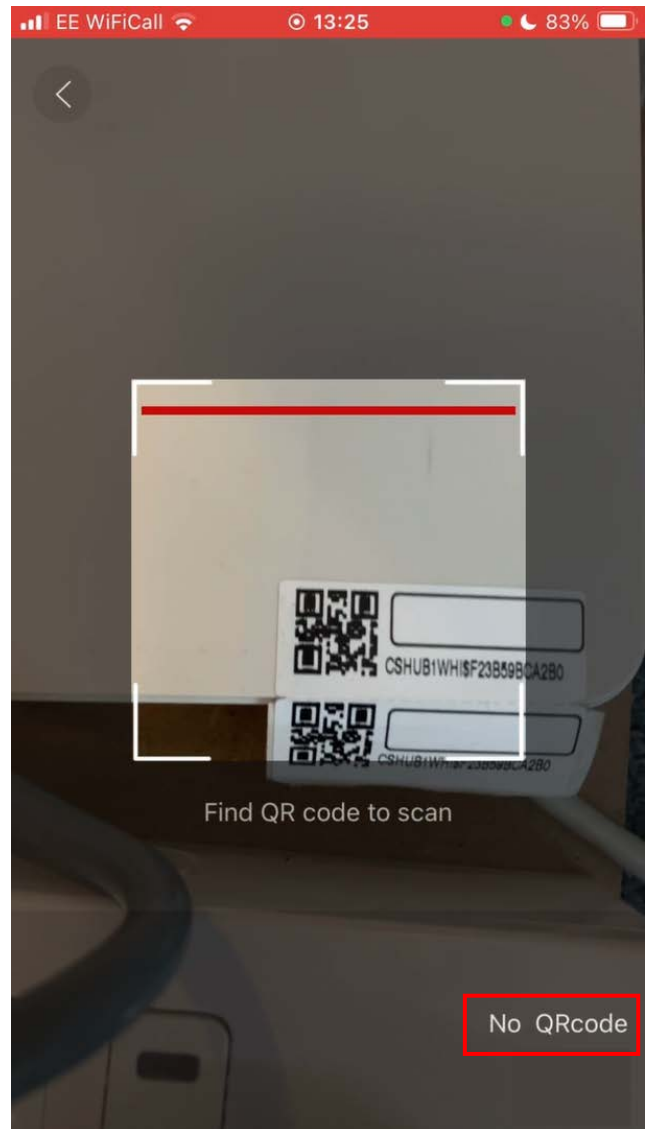


Fig. 13 Scanning Hub QR Code

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.

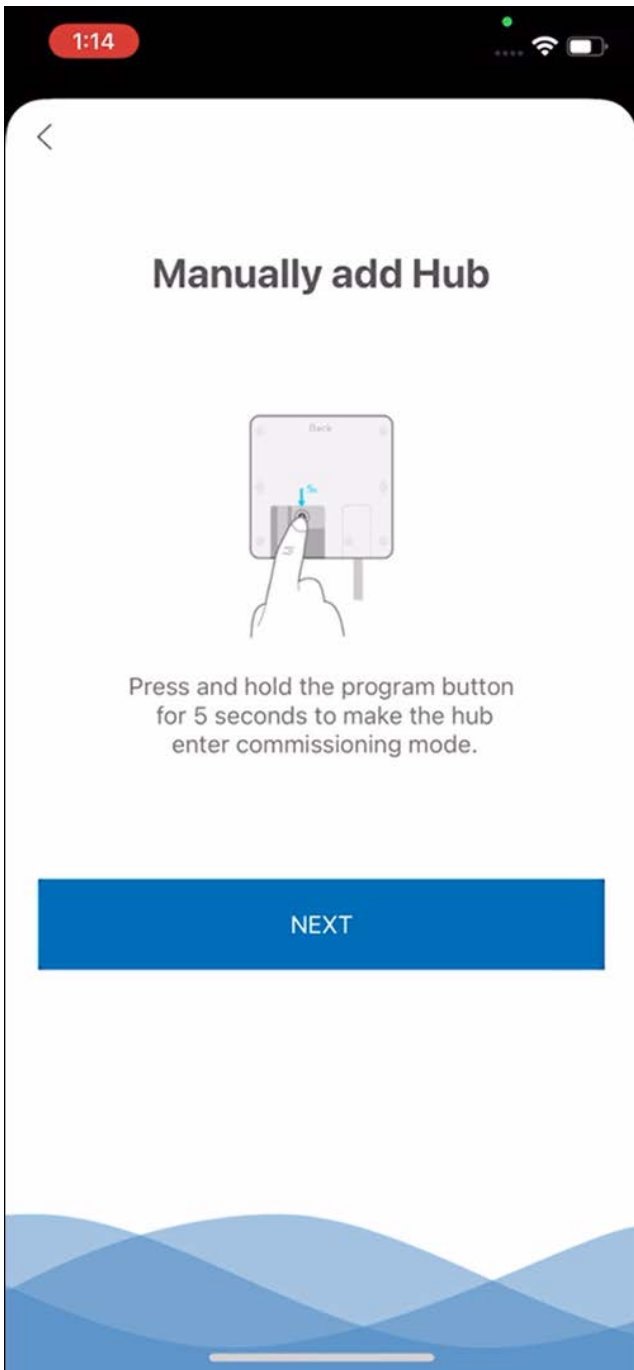


Fig. 14 Manually Add a Hub

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

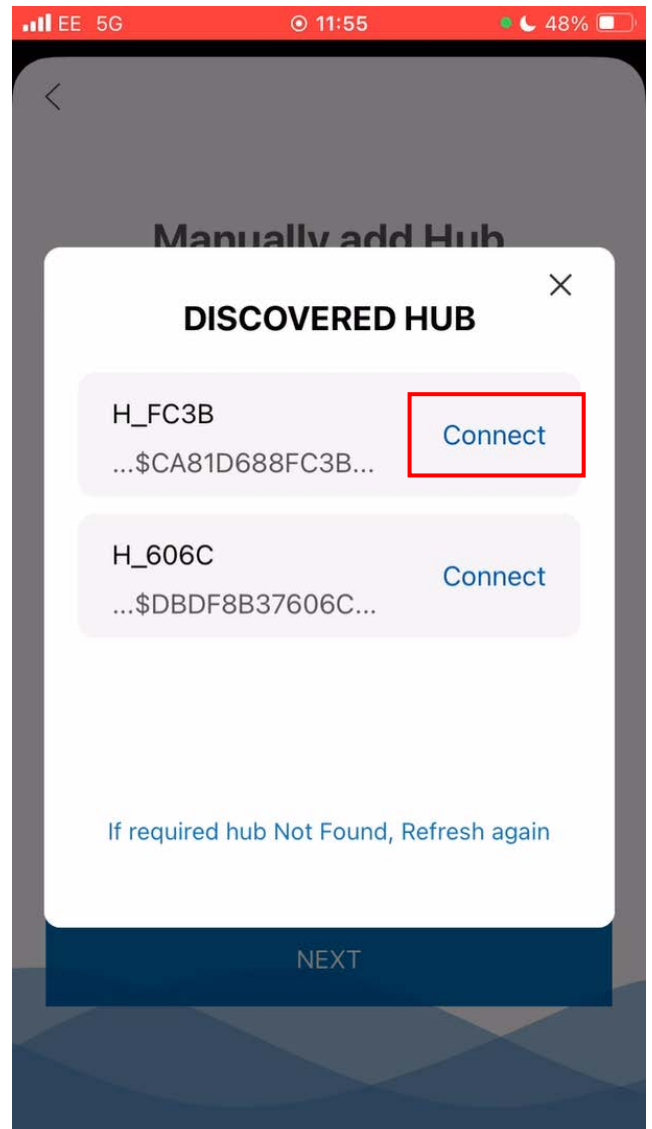


Fig. 15 Discovered Hub

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

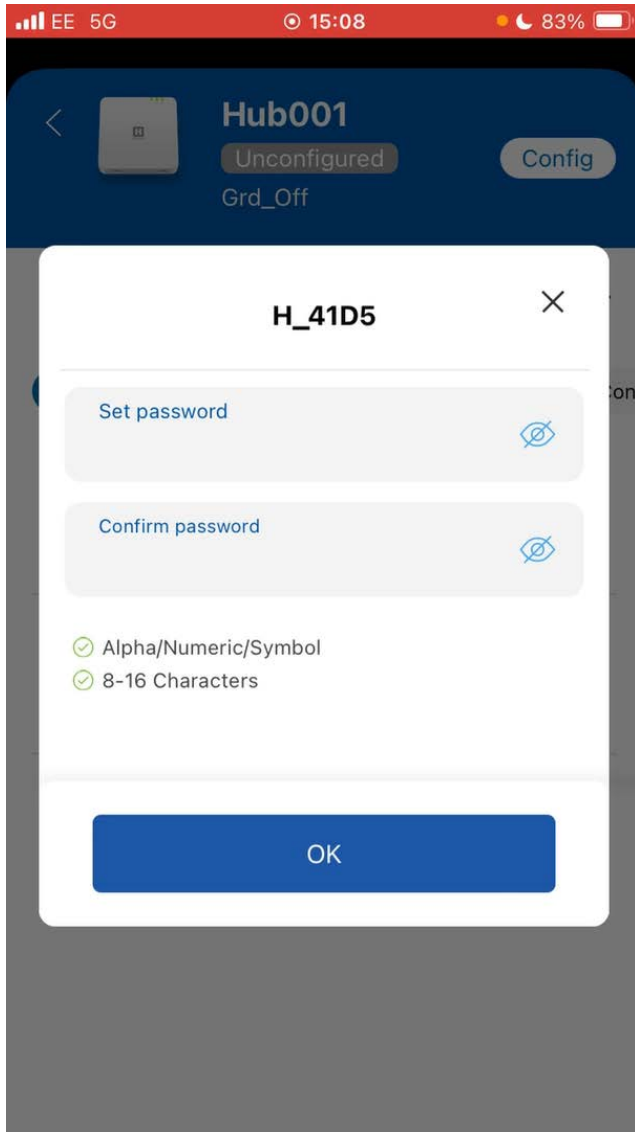


Fig. 16 Configure Password

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

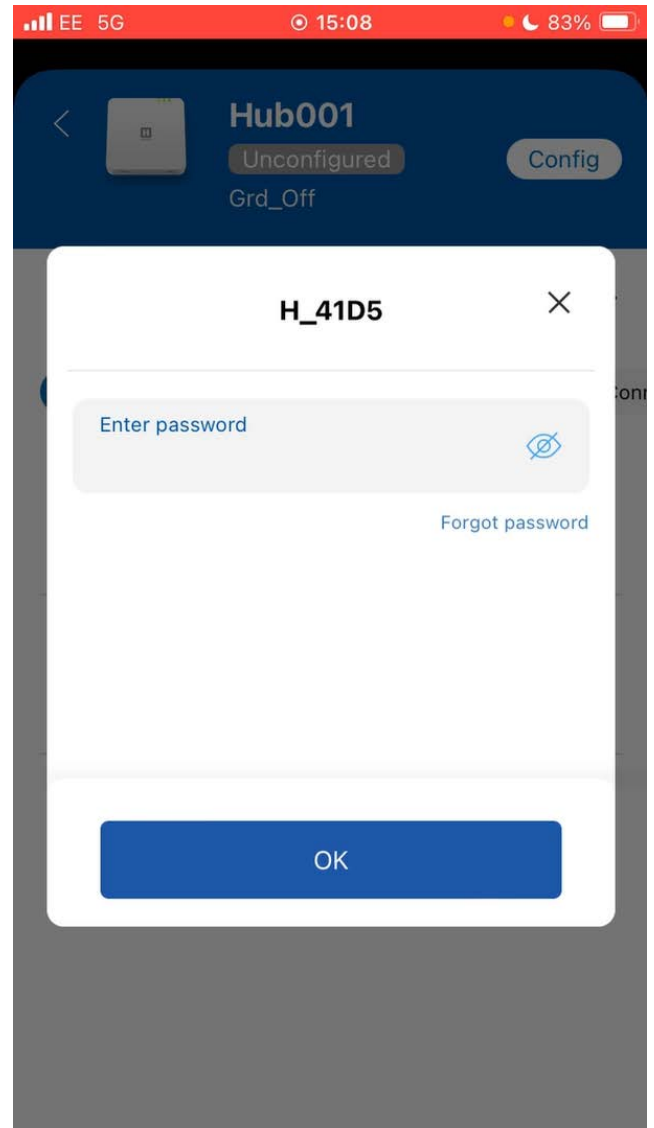


Fig. 17 Login Hub

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**.

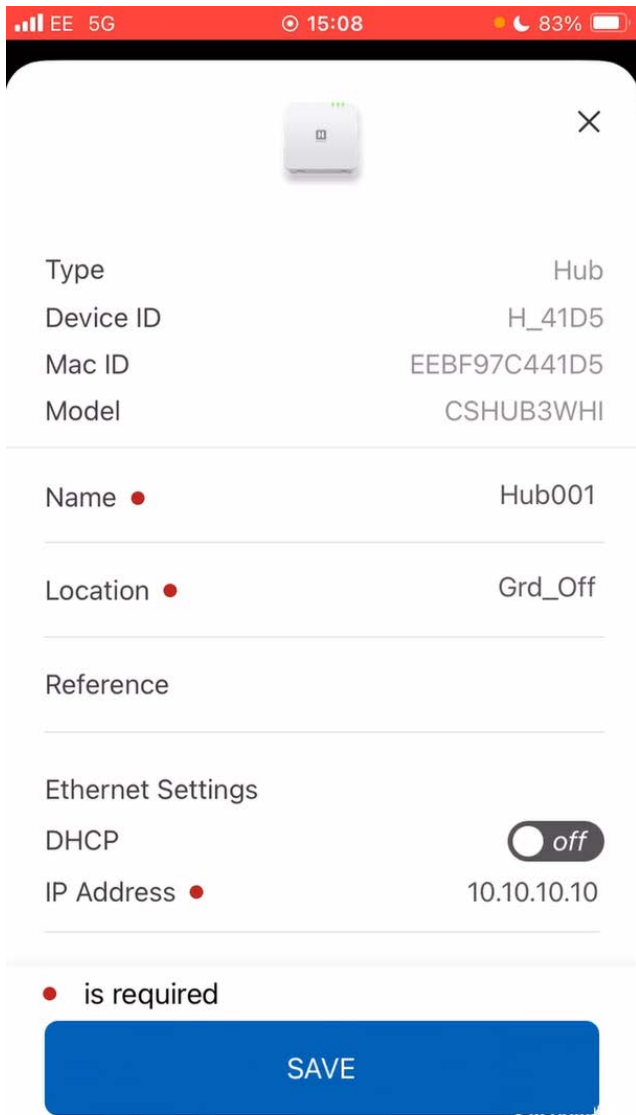


Fig. 18 Hub Details

Hub is configured and status shows connected.



Fig. 19 Connected Hub

Commission Connected Power Socket

Follow below steps to configure an socket:

- 1 Click **Arrow** > icon adjacent to Socket name.

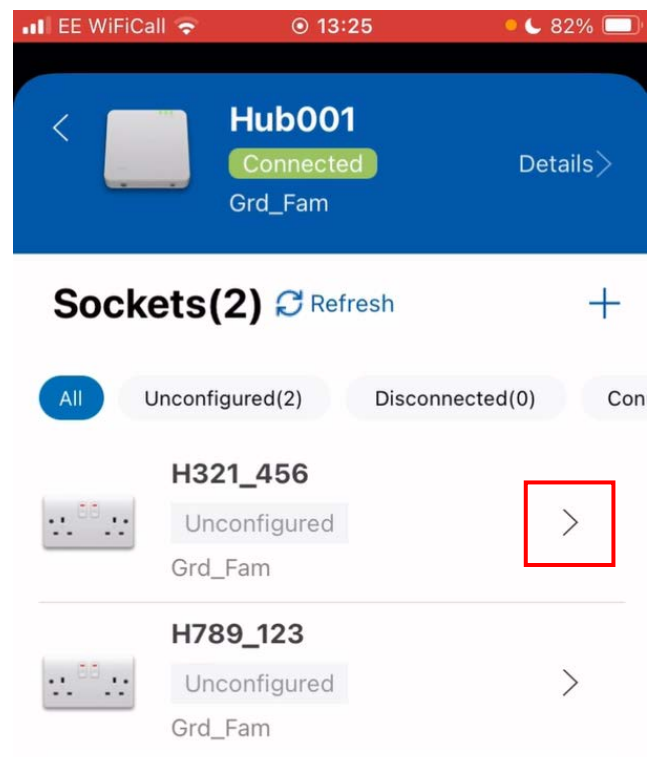


Fig. 20 Arrow Icon

2 Scan the QR code on the socket.



Fig. 21 Scan Socket QR Code

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

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

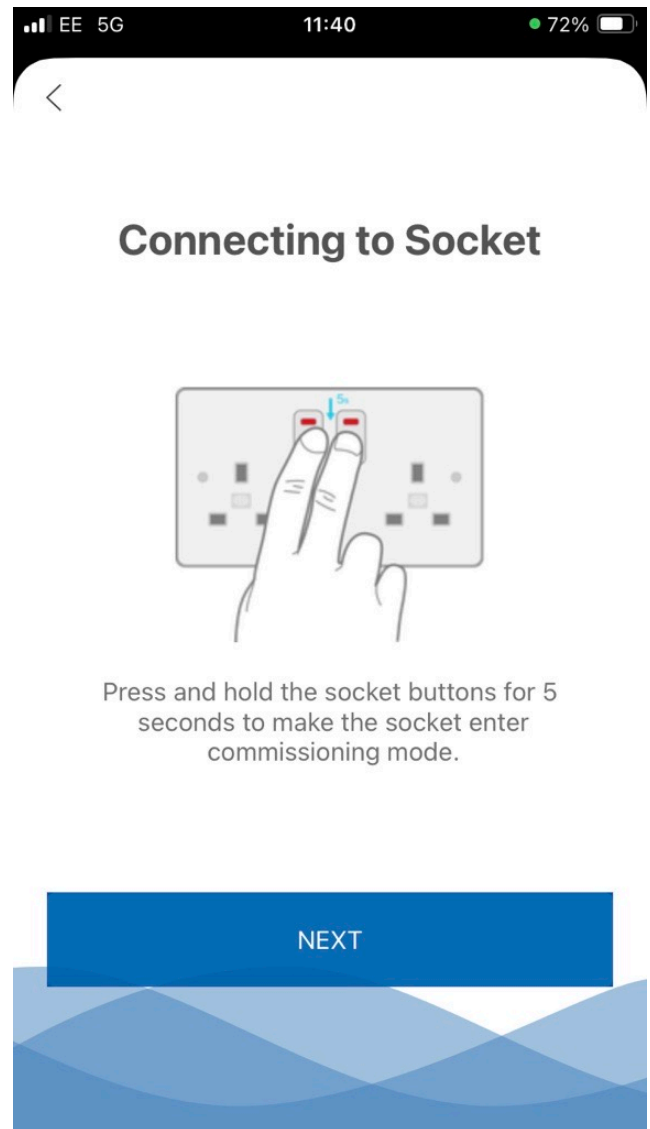


Fig. 22 Connecting to Socket

- 4 Displays list of Discovered Sockets, click **Connect**.

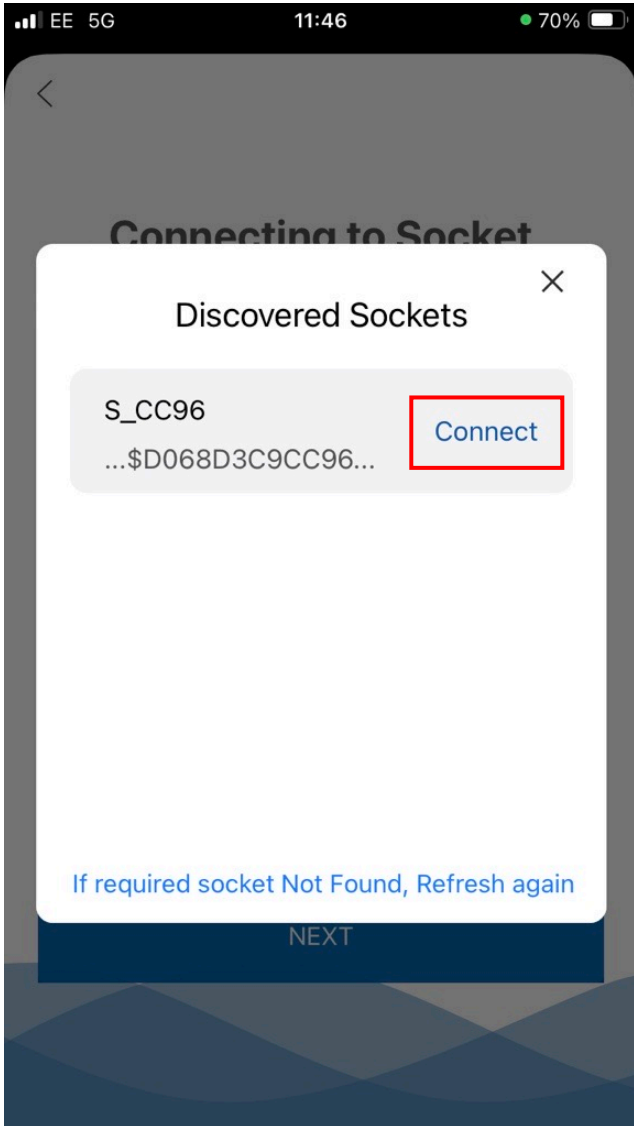


Fig. 23 Discovered Sockets

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

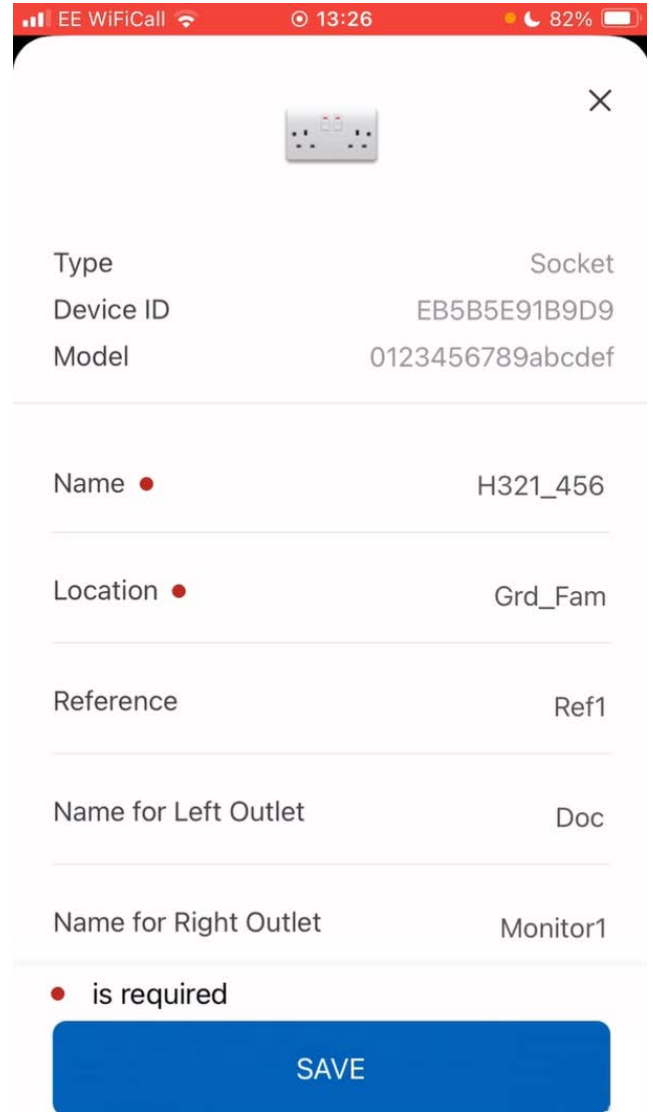


Fig. 24 Socket Details

- Click **Refresh** to update the current status of the socket. Socket is configured.



Fig. 25 Connected Sockets

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

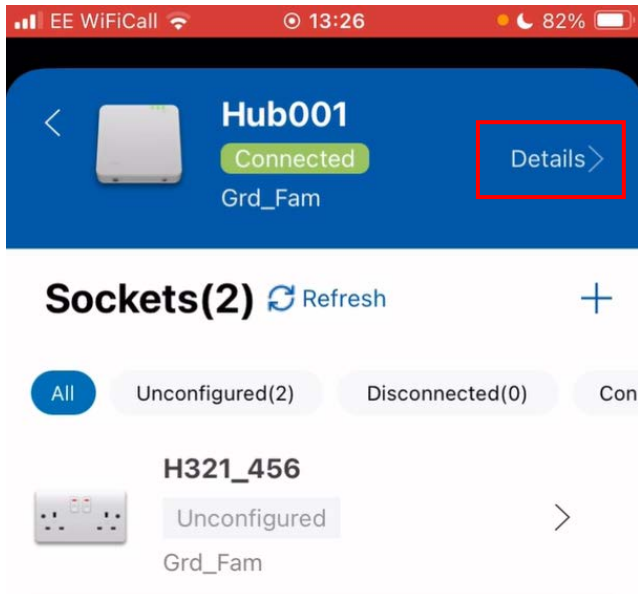


Fig. 26 Details Option

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

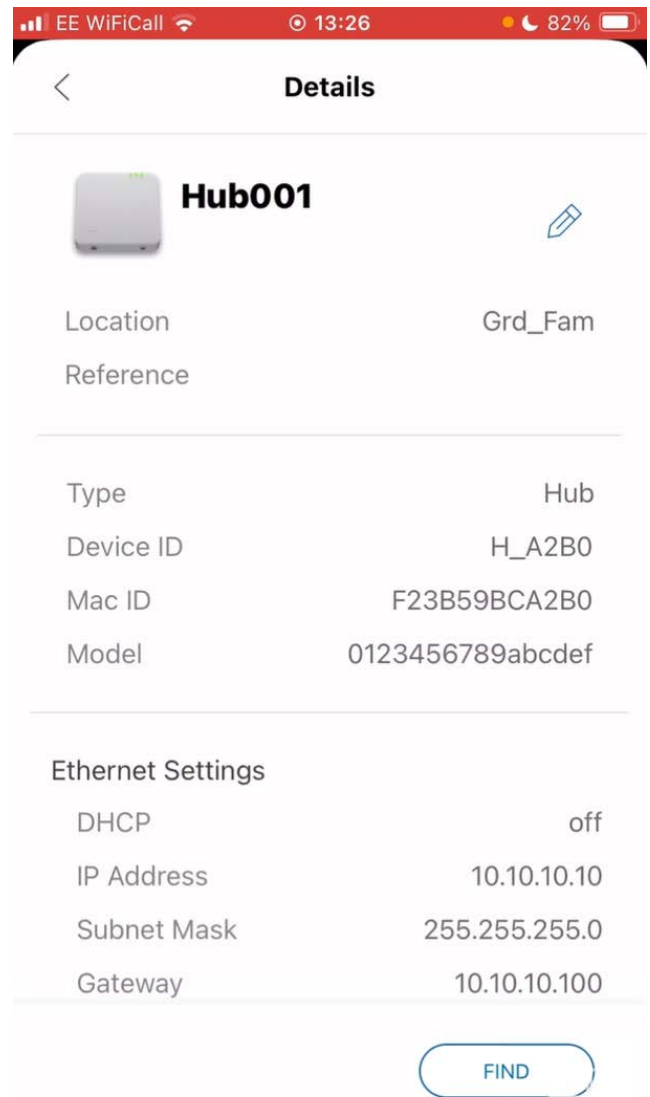


Fig. 27 Hub Details

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

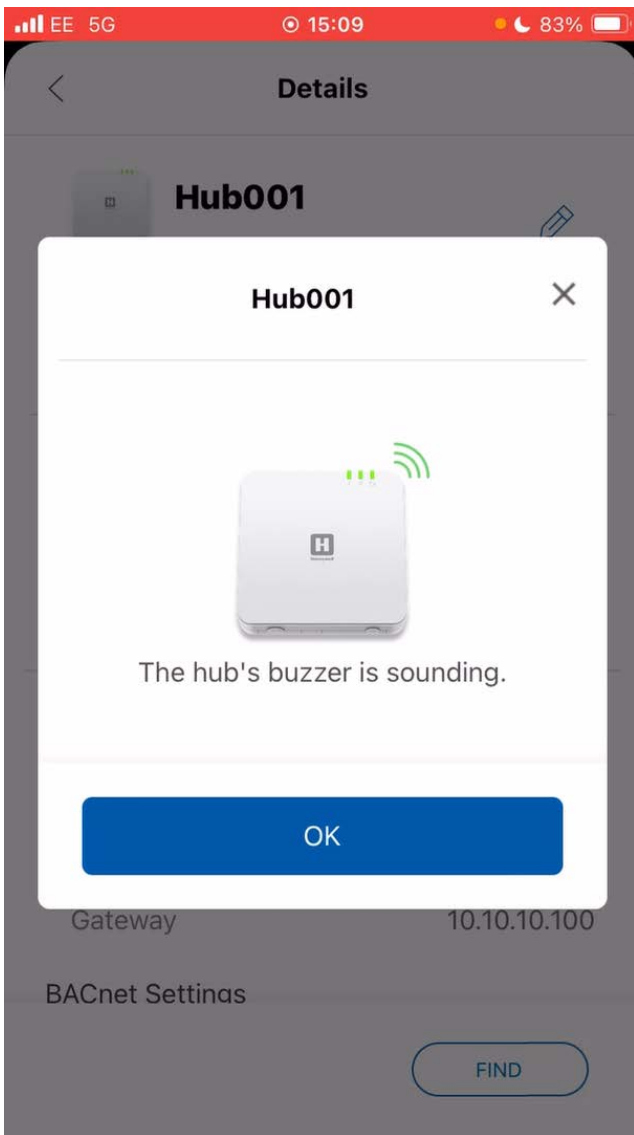


Fig. 28 Hub's Buzzer

10 Navigate back to the sockets list and click **Refresh**. The socket status changes to Connected.

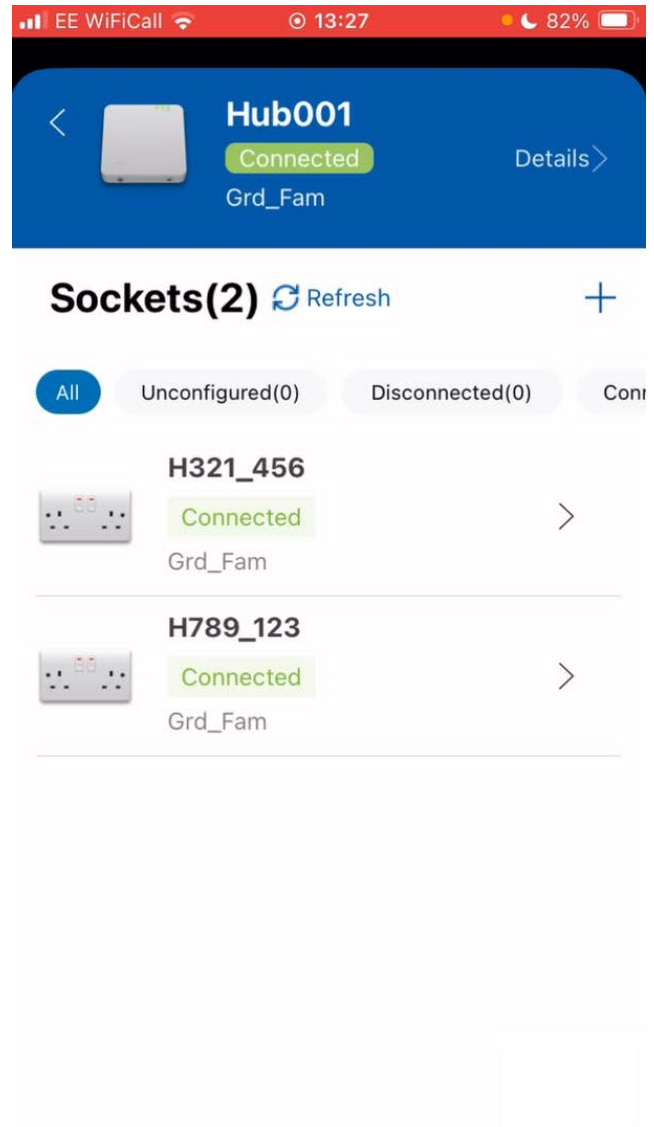


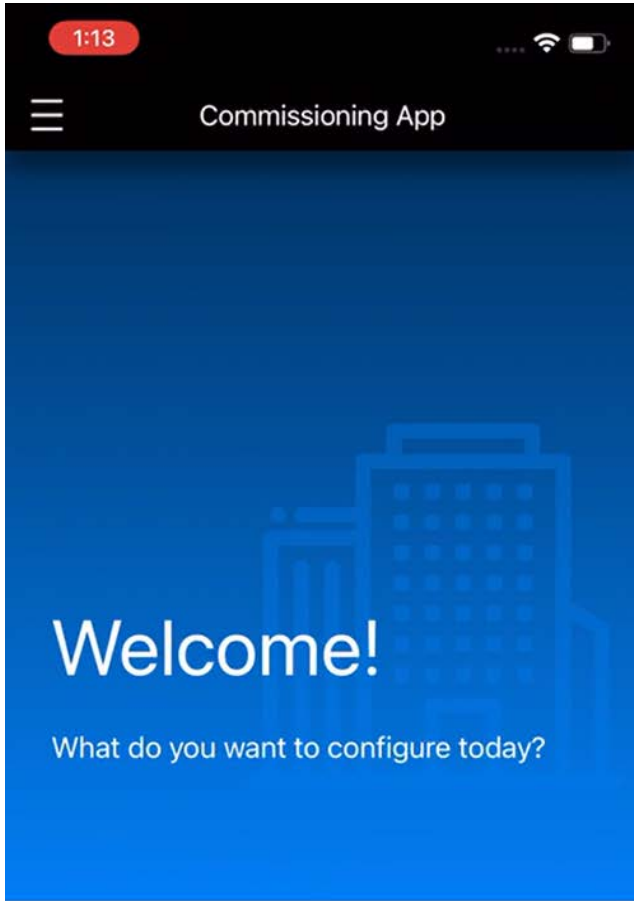
Fig. 29 Connected Sockets

11 Repeat step 1 - 10 to configure another socket.

Create New Site

Follow below steps to add a site:

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



No sites have been added yet.

IMPORT FROM MAPOUT TOOL

ADD SITE

Fig. 30 Welcome Screen

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

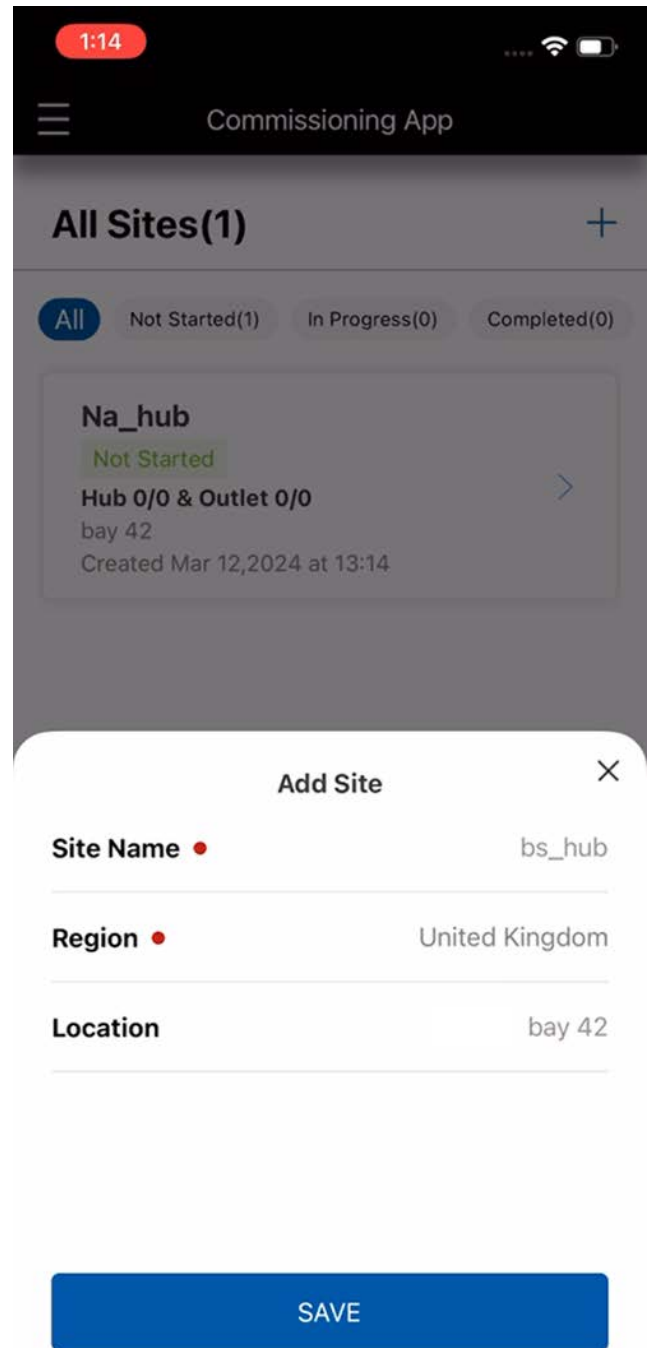


Fig. 31 Enter Site Details



IMPORTANT:

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

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

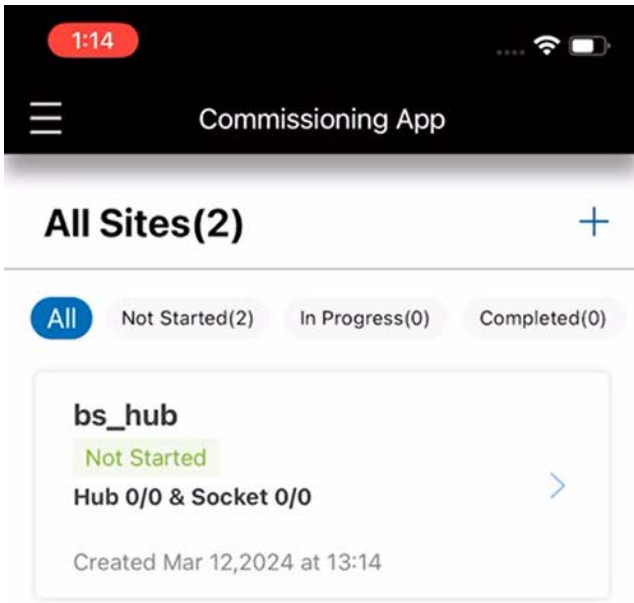


Fig. 32 All Sites

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

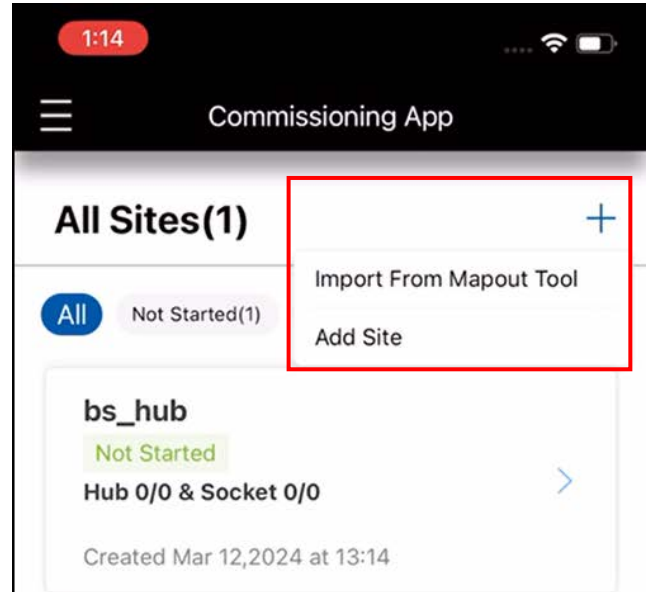


Fig. 33 Add Site

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 Socket

- 1 To add more Connected Power Sockets, select the appropriate hub and press the **+** button.
- 2 Press **Scan QR** or **No QR Code** to find the Connected Power Socket 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 Socket](#) section.
- 4 Select the Connected Power Socket you wish to add, and press **Configure**.

- 5 Follow steps 2-5 in [Commission Connected Power Socket](#) above.

Add Multiple Connected Power Sockets

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

- 1 Select the connected power sockets you wish to add, and press **Configure**.
- 2 A Connected Power Hub will automatically be assigned.
- 3 To rename multiple connected power sockets 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 sockets in sequence.
For Example: If you type in 'My Office', the Connected Power Commissioning app will rename the Connected Power Sockets 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 Socket Information

- 1 Ensure that the Connected Power Hub which is linked to the Connected Power Socket 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 sockets which are connected to this connected power hub.
- 3 Press the **Pencil** icon next to the connected power socket you wish to modify.

Remove a Connected Power Socket

- 1 Ensure that the connected power hub which is linked to the connected power socket 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 sockets which are connected to this connected power hub.
- 3 On the row in which the connected power socket 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 socket is removed from the network, single short **ORANGE** flash of both outlet **LEDs** together for 0.3s every 10s.

Replace a Connected Power Socket with a new Connected Power Socket

- 1 Ensure that the connected power hub which is linked to the Connected Power Socket 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 sockets which are connected to this connected power hub.
- 3 On the row in which the connected power socket 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 socket you no longer wish to use.
- 6 Press and hold down the **Rockers** on the new connected power socket 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 socket. press replace followed by confirm to complete the process.

LED INDICATIONS

Connected Power Hub

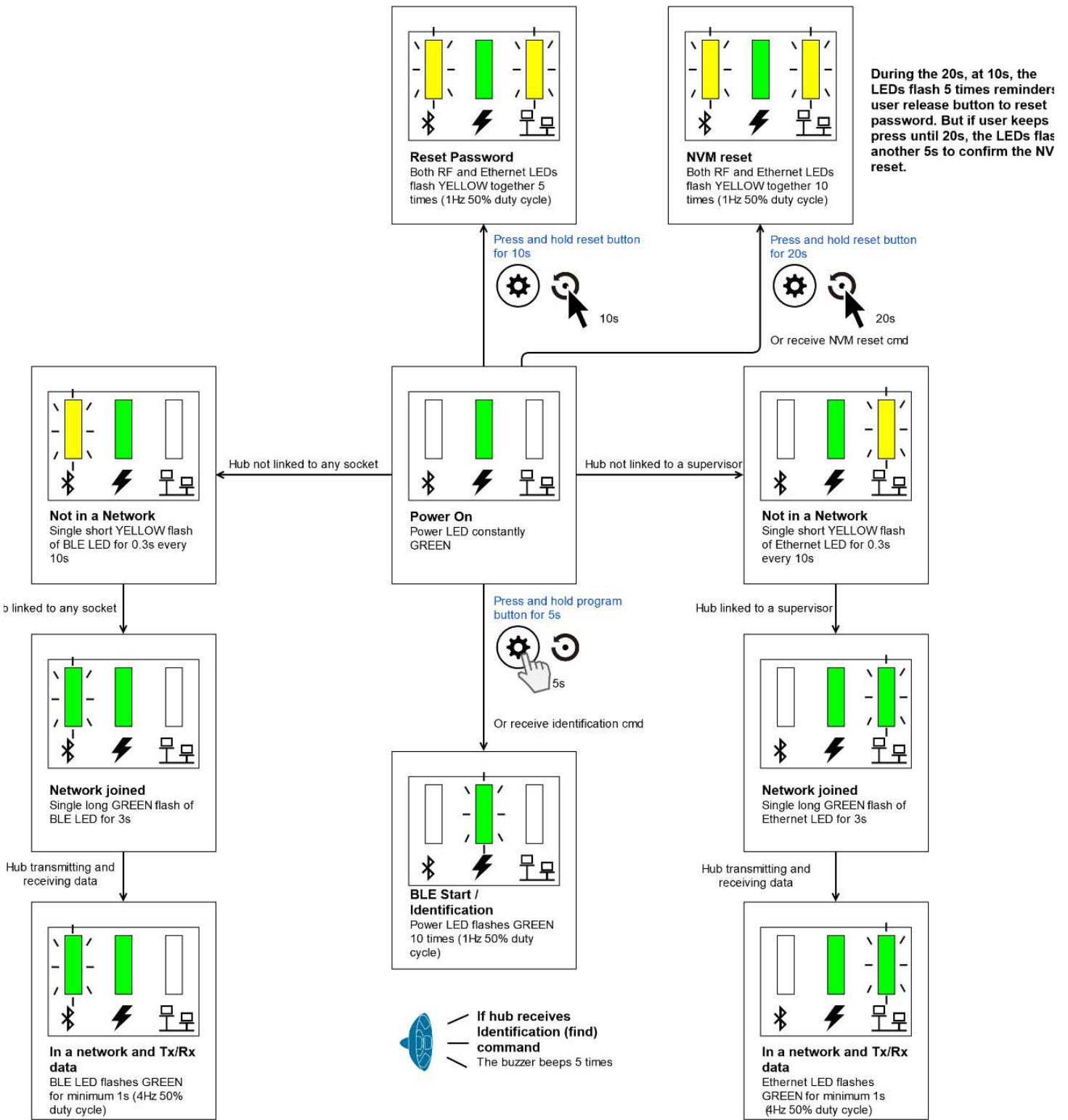


Fig. 34 Connected Power Hub

Connected Power Socket

POWER UP

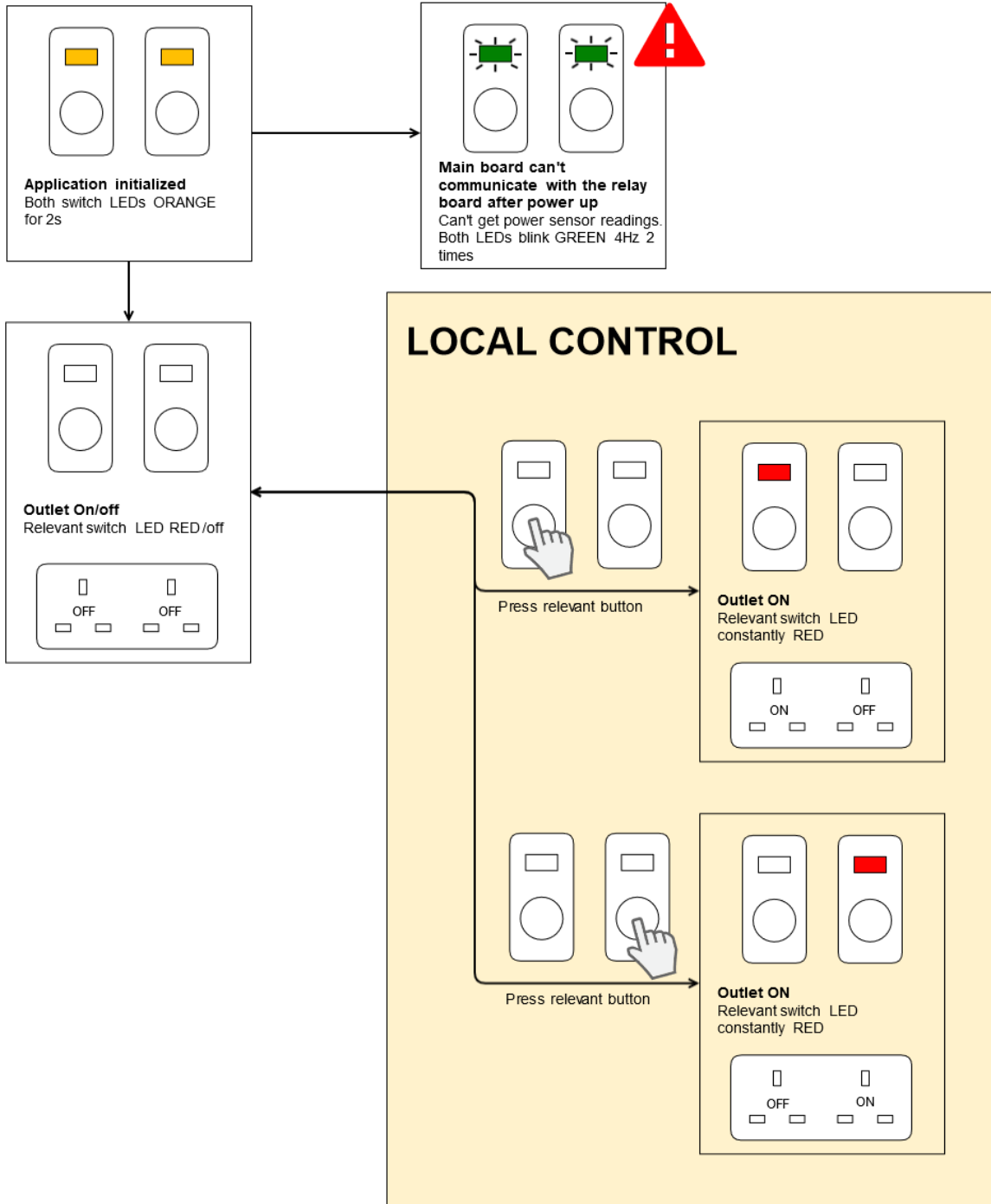


Fig. 35 Power up Condition

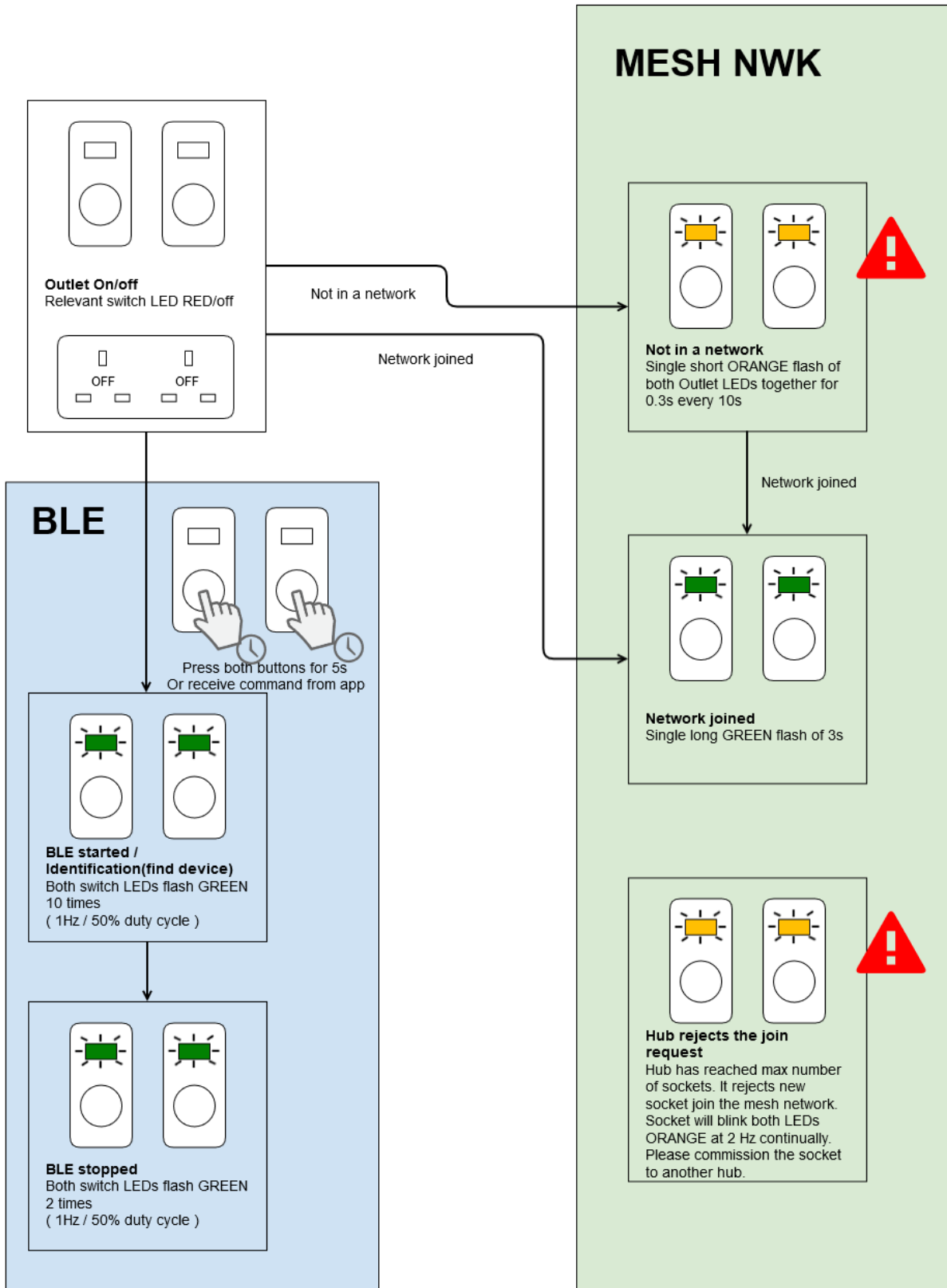


Fig. 36 Connected Power Socket Structure

LED Indication On

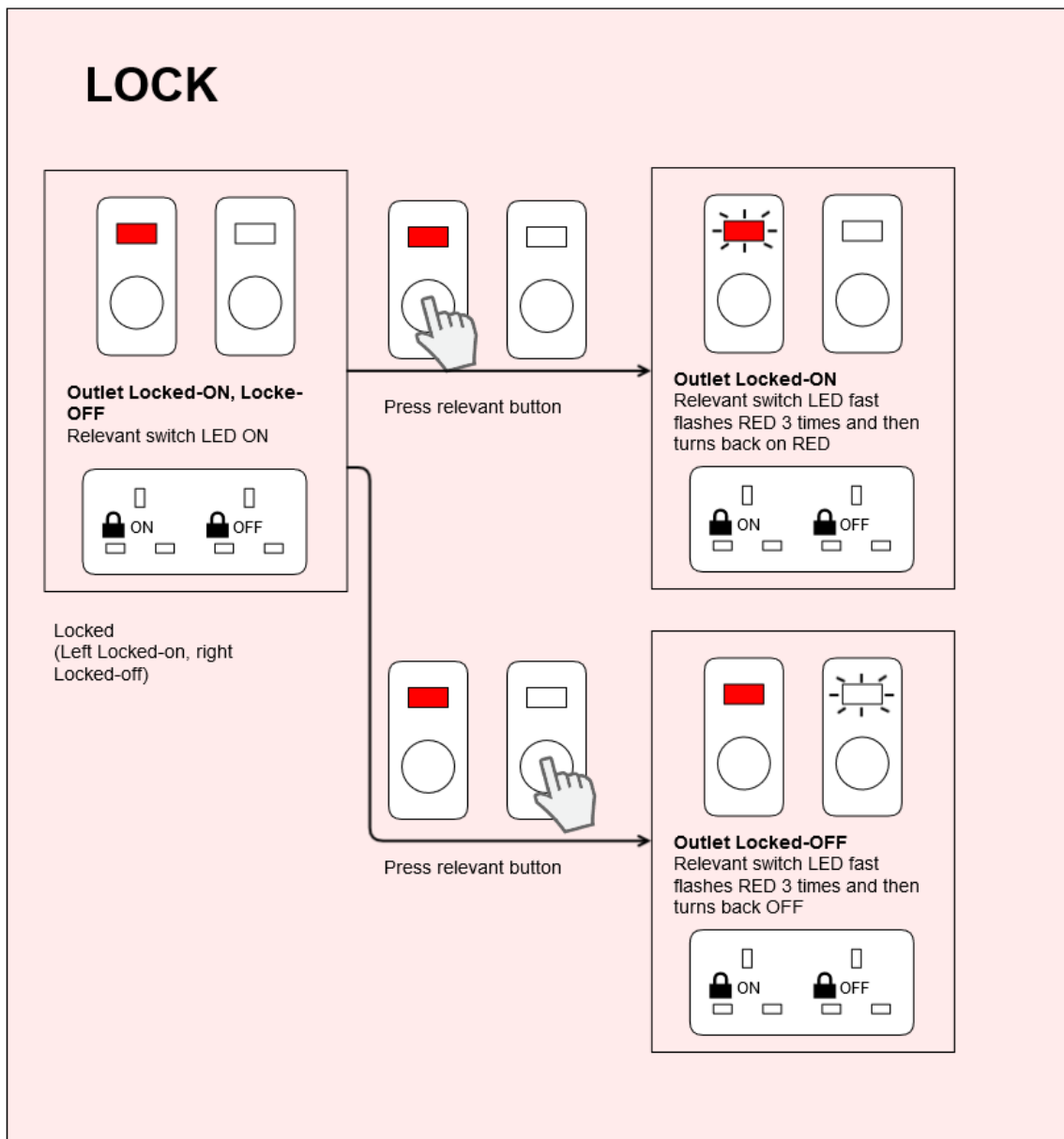


Fig. 37 LED Lock-on

NVM Reset

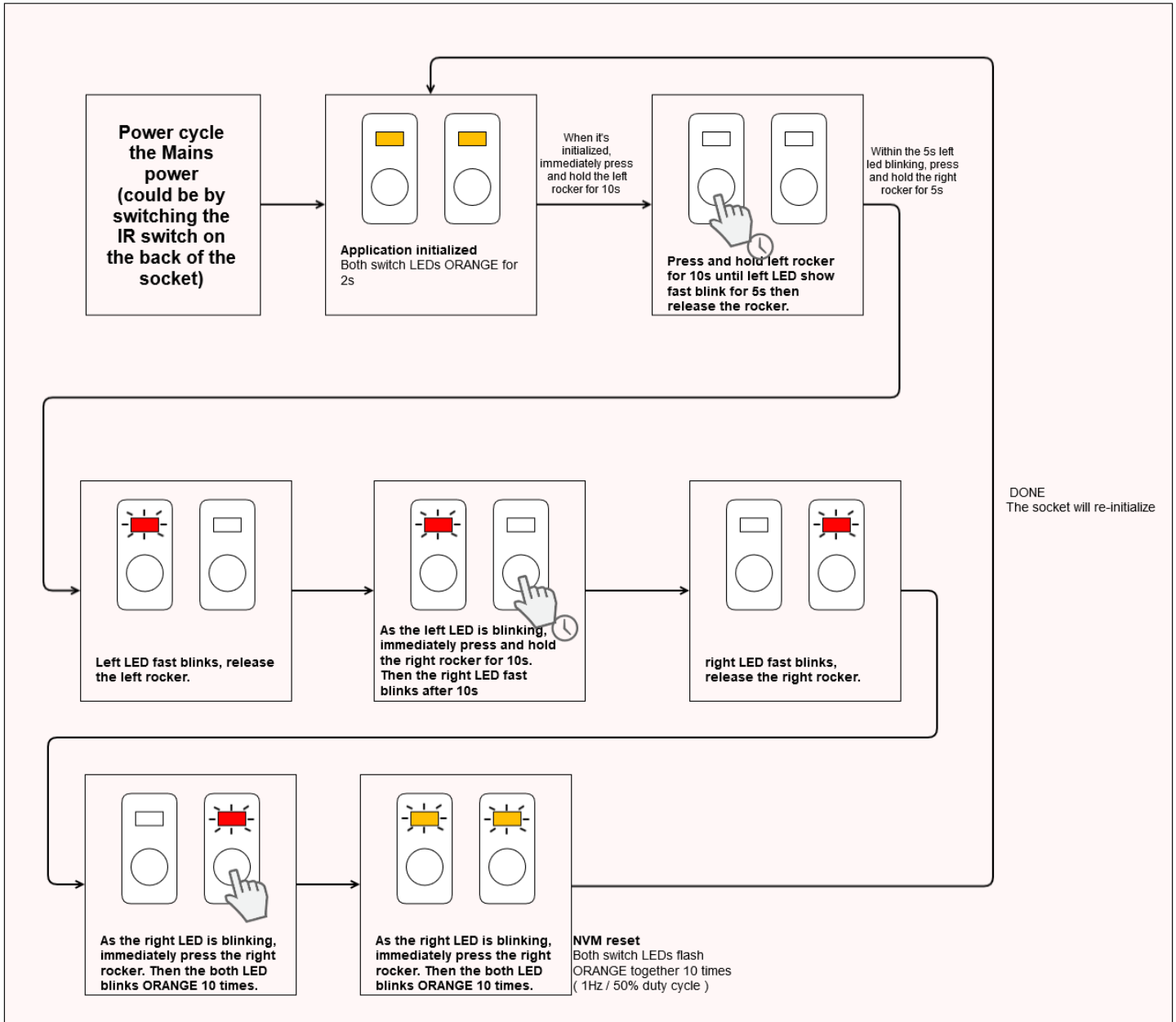



Fig. 38 NVM Reset

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 socket(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 LEDs** 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.

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.

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- 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, operations 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).
- 7 Ensure each hub has a unique network number when commissioning or updating the system. This will avoid data conflicts within the system.
- 8 Ensure each hub and socket(s) device IDs are unique when commissioning or updating the system to avoid data conflicts.
- 9 Special characters and spaces should not be used in the Map out tool for location details.
- 10 Names within the Map out or locations within the Commissioning app should not start with a numeric.
- 11 During bulk addition operation when using the Commissioning app, special characters, spaces should not be used for location or starting with a numeric.