

Droplet installation & Commissioning Guide

2021

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Droplet basics: Connecting to Power & Internet

2021

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Droplet Specifications



Residential Droplet

- Wifi
- Ethernet
- USB
- Many protocols via converters

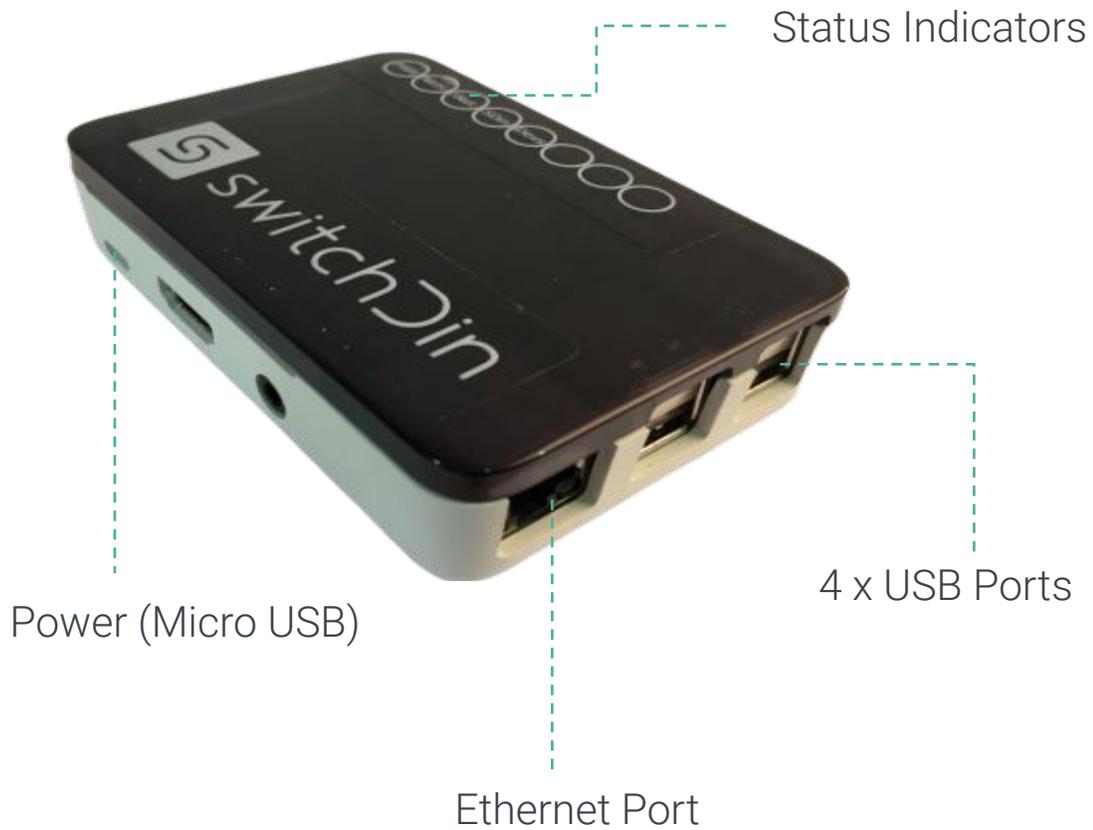


Utility Droplet

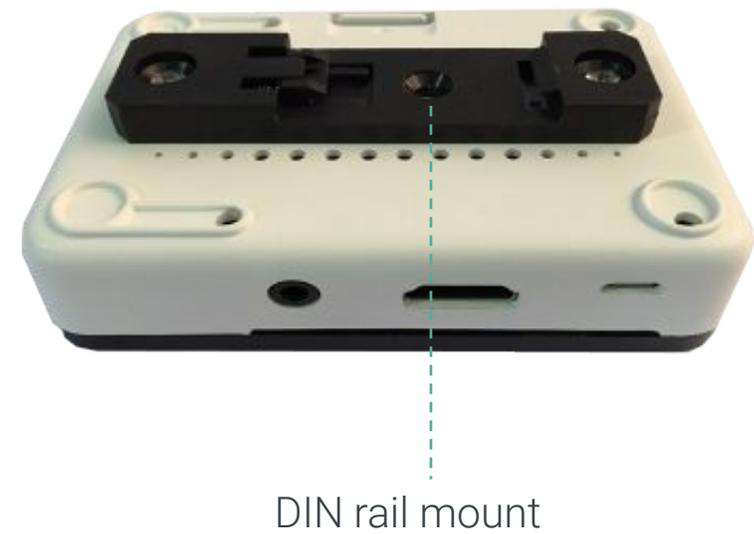
- USB
- 2 x Ethernet
- Rugged aluminium enclosure
- RS232, RS485 and more via converters
- 3G/4G LTE modem

Droplet Overview

Droplet top view



Droplet underside

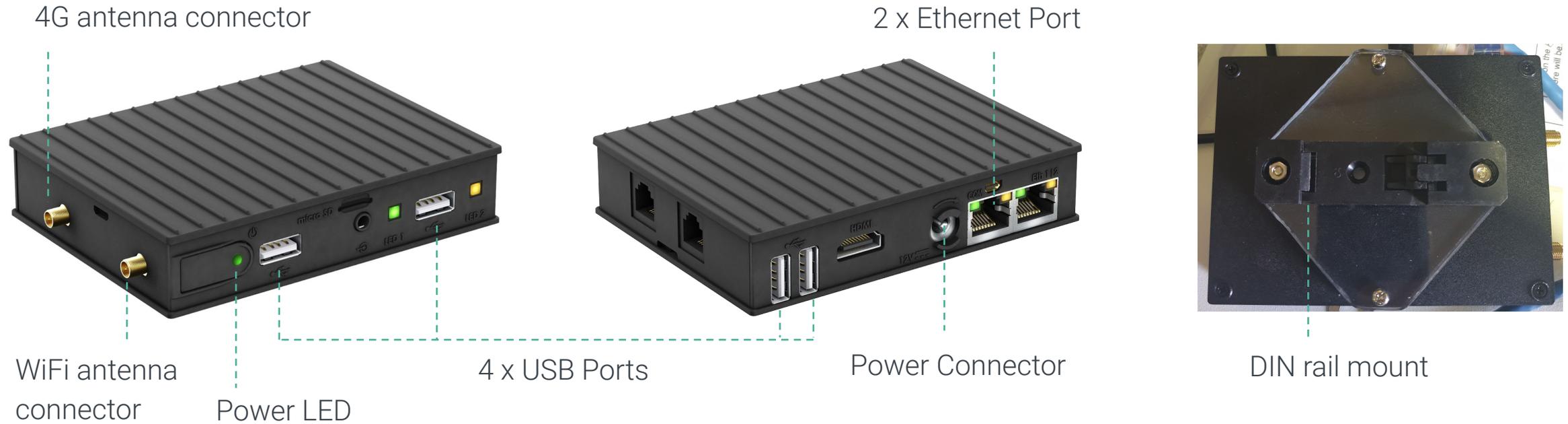


Residential Droplet Installation



Packing List	Inspection	Mounting
<ul style="list-style-type: none">• 1 x SwitchDin Droplet• 1 x Power Supply• 1 x USB adaptor (optional depending on inverter)	<ul style="list-style-type: none">• Check that all parts are as per packing list.• Check for signs of physical damage.• If any parts are missing or visibly damaged, please contact SwitchDin prior to installation.	<ul style="list-style-type: none">• The Droplet can be mounted on a standard DIN rail.• Indoor installation.• Below 40 degrees ambient

Utility Droplet Overview



Utility Droplet Installation



Packing List	Inspection	Mounting
<ul style="list-style-type: none">• 1 x SwitchDin Droplet• 1 x Power Supply• 2 x antenna• 1 x din rail mount	<ul style="list-style-type: none">• Check that all parts are as per packing list.• Check for signs of physical damage.• If any parts are missing or visibly damaged, please contact SwitchDin prior to installation.	<ul style="list-style-type: none">• The Droplet can be mounted on a standard DIN rail.• Indoor installation.• Below 60 degrees ambient

Droplet internet connection

Residential Droplet



Connect to Ethernet

Utility Droplet



Connect to Ethernet

WiFi (Resi only)



Download the **SwitchDin Installer app** from the Google Play or iOS App store and follow the instructions.

Notes for internet/network connection

- The best place to install the Droplet is close to the router/modem with an ethernet connection. This simplifies installation and provides the highest reliability.
- If a wifi or ethernet over powerline extender is being used, it is compulsory to connect the device directly to the USB port of the Droplet using an Ethernet - USB converter (see below)

Required LED indicators
for successful internet
connection (G,R,B,G,G)



Ethernet



Power the Droplet

Residential Droplet



Plug power supply into GPO

Utility Droplet



Plug power supply into GPO

Internet pre-requisites

1. Mobile/tablet being used for commissioning is required to have an internet connection (wifi/4G) to configure the Droplet.
2. Internet connection required on site for Droplet/Stormcloud operation.

Connecting Droplets to Devices

2021

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Fronius connection

Activate Modbus TCP Port 502

(Fronius Datamanager Modbus TCP & RTU document page 69 onwards)

- Connect Fronius Smart meter to Fronius inverters as usual.
- Connect all inverters to the same network and subnet as the Droplet (Ethernet preferred)



Fronius daisy chain connection

Activate Modbus TCP Port 502
on MASTER inverter

(Fronius Datamanager Modbus TCP & RTU
document page 72 onwards)

- Connect Fronius Smart meter to Fronius inverters as usual.
- Connect Fronius inverters in daisy chain configuration.
- Connect MASTER inverter to the same network and subnet as the Droplet (Ethernet preferred)

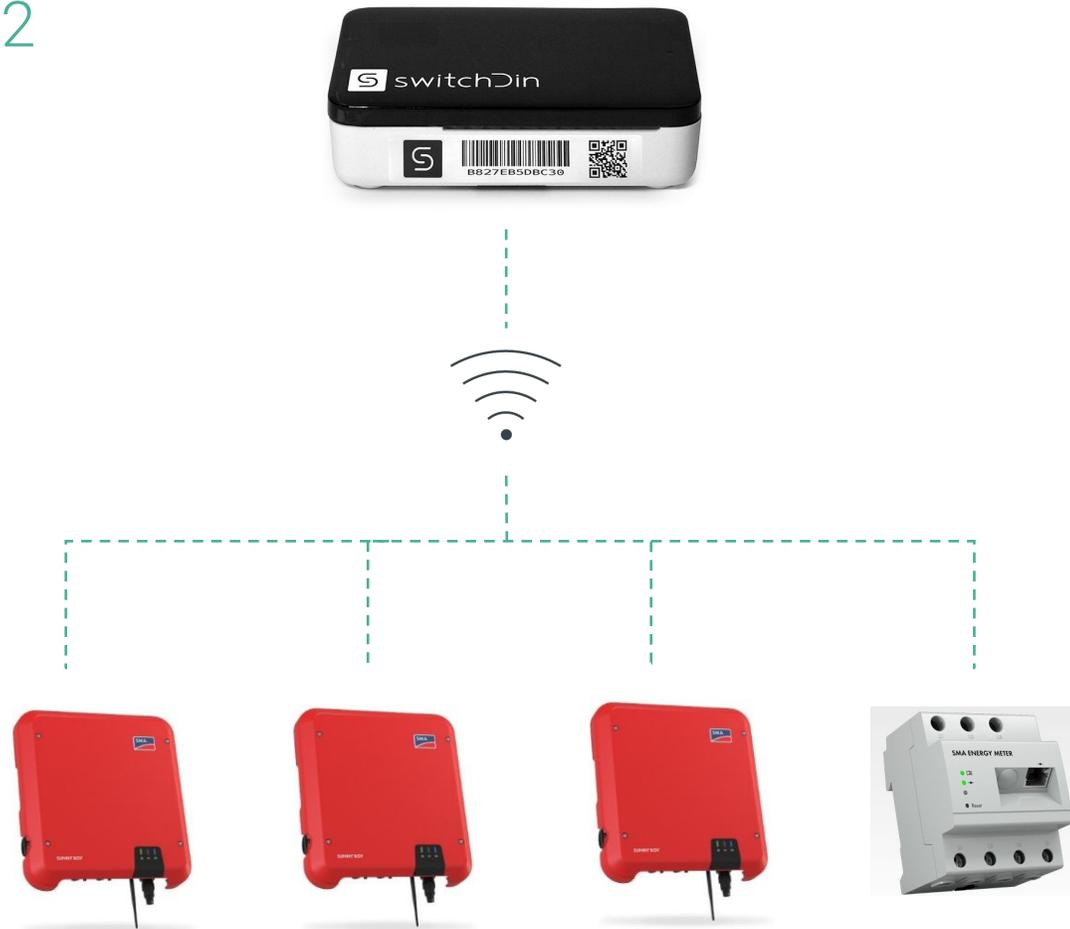


SMA connection

Activate Modbus TCP Port 502

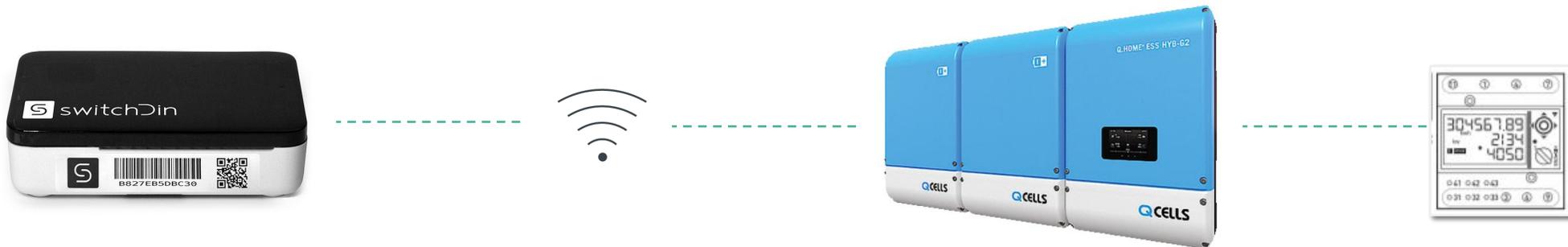
(Technical Information - SMA
and SunSpec Modbus® Interface
document page 20)

- Connect all inverters and energy meter to the same network and subnet as the Droplet (Ethernet preferred)



Q CELLS connection Option 1

- Connect Q.HOME to energy meter as per normal installation.
- Connect Q.HOME to the same network and subnet as the Droplet (Ethernet preferred)
- Commission the Q.HOME



Q CELLS connection Option 2 (if converter is supplied)

- Connect Q.HOME to energy meter as per normal installation.
- Connect Q.HOME to the same network and subnet as the Droplet (Ethernet preferred)
- Commission the Q.HOME



Qcells activating Modbus TCP port 1502

Directly from inverter

Enable PMS External Mode as per Section 7 in the [Q.HOME manual](#).

The screenshot shows the 'Install Setting Menu' of an inverter. On the left is a 'MENU LIST' with 'BMS Setting', 'Install Setting', and 'Maintenance' highlighted in yellow. The main area is titled 'Install Setting Menu' and contains several sections: 'Country / Region Information' (Country: Australia, Region: Sydney, Grid Regulation: AS/NZS 4777.2:2015), 'Country / Region Config', 'SAVE and ReSTART', 'Product Information' (Installed PV-1 Power: 3300 W, Installed PV-2 Power: 3300 W, Feed In Limit percentage: 100%), 'Automatic Operation type' (Smart Mode selected), 'Battery Count: 1', 'PMS External Mode Enable' (radio buttons for 'Enable' and 'Disable', with 'Enable' selected and highlighted by a red box), 'Date/Time Setting' (Year: 2020, Month: 08, Day: 18; Hour: 18, Minute: 08, Second: 23), and 'Smart Meter Selection' (Meter Type: RS485).

Through qhomestory.com

Log in and within the basic setting > product details page enable 3rd party control

The screenshot shows the 'Product Details' page for a Q.HOME inverter. The top bar displays the model number 'HSHP4601QAJ09002AB'. Below this, there are fields for 'SITE ID', 'Serial No.', 'Model Name', and 'Date Installed'. To the right, there are fields for 'User Name', 'Country', and 'Operation Test'. A 'Back' button and an 'Operation Test' button are visible. Below the main information, there are tabs for 'Product Info.', 'Installation Info.', 'basic settings', 'advanced settings', 'Rates Info', and 'User'. The 'basic settings' tab is active, showing sliders for 'PV1 Capacity (W)', 'PV2 Capacity (W)', and 'Feed-In Limit(%)'. At the bottom, the '3rd Party Control' option is highlighted with a red box and is set to 'Enable' (radio button selected). Other options include 'smeterD0ID' with 'NONE', 'EM112', and 'EM04' radio buttons.

Having issues? Please call 1800 QHOME and QCELLS support



Eguana Technologies Evolve

Activate Modbus TCP Port on PV inverters

- Install Eguana system as normally directed.
- Connect all inverters to the same network and subnet as the Eguana. The Droplet is built into the Eguana. (Ethernet preferred)



Redearth Sunrise

Droplet already built in with 3G/4G capability from Redearth.

- Install and commission as normal.
- Ensure NMI and choice of Agent is provided to Redearth



Wiring while using a wifi/powerline extender

1. Connect inverter to energy meter as per normal installation.
2. Connect inverter Ethernet directly to Droplet via Ethernet to USB converter provided.
3. The Droplet will provide internet connection to the inverter.
4. Connect the Droplet to the extender.
5. Commission the inverter.

Configuring & Commissioning Droplets and Connected Devices

2021

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Status and Installer App

Status Indicators

	Indication	Red	Green	Blue
PWR	Power	N/A	Power	N/A
WiFi	WiFi	No WiFi	WiFi connected	Weak WiFi signal
iNet	Internet	No internet	Internet connected	Configure via SwitchDin app
SDin	SwitchDin comms	Cannot see SwitchDin	Connected to SwitchDin	N/A
Devs	Devices attached	No devices	Devices detected	N/A



Download and open the Installer app

The app is available by searching for “SwitchDin” in the Apple iOS App Store or the Google Play store.

Create an account!

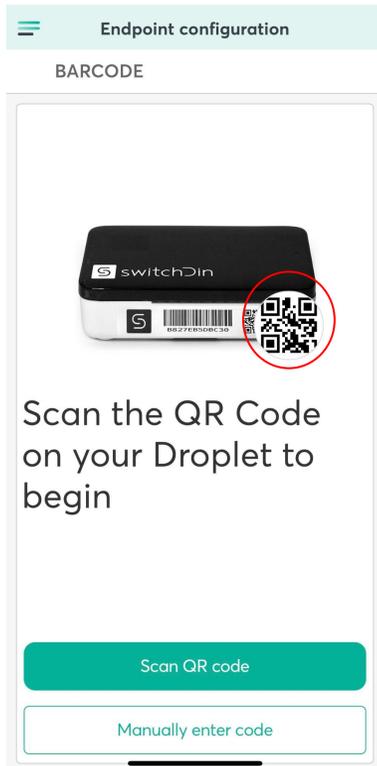


V0.2.28+

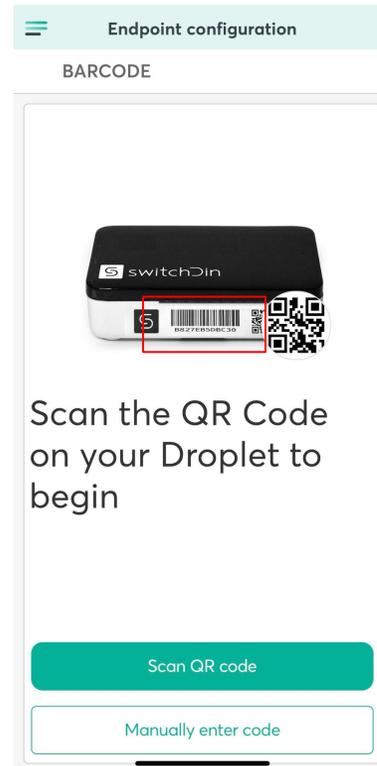


Commissioning

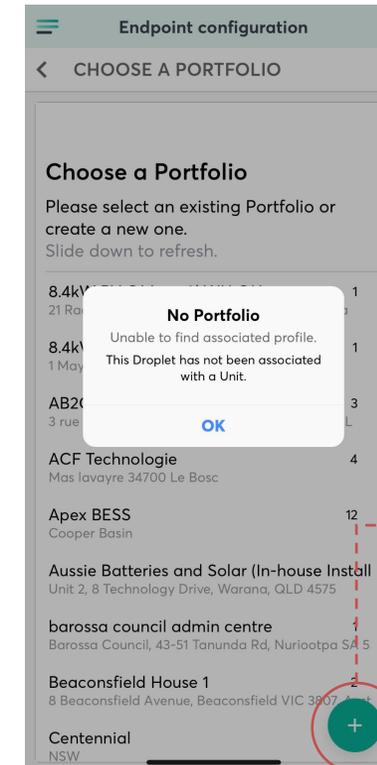
Scan QR Code



Or manually enter serial number



Create portfolio or add to existing



Only create a portfolio if it is your first installation!

Use a single portfolio for systems which require an agent!

Commissioning - setting up a site

Create a UNIT or choose an existing UNIT

Endpoint configuration

< CHOOSE A UNIT

Choose a Unit

Please select an existing Unit or create a new one.
Slide down to refresh.

Example Portfolio

Example Unit
91 Parry St, Hamilton East NSW 2303, Australia

+

Enter UNIT details

Create New Unit

QOSPOS

Name

Address

Street Address

CREATE NEW UNIT

Add Droplet to UNIT

Endpoint configuration

< CLAIM ENDPOINT

+
Add Droplet to a unit

Please confirm that you wish to add this Droplet to this Unit

Droplet serial number: b827ebf3e2ee

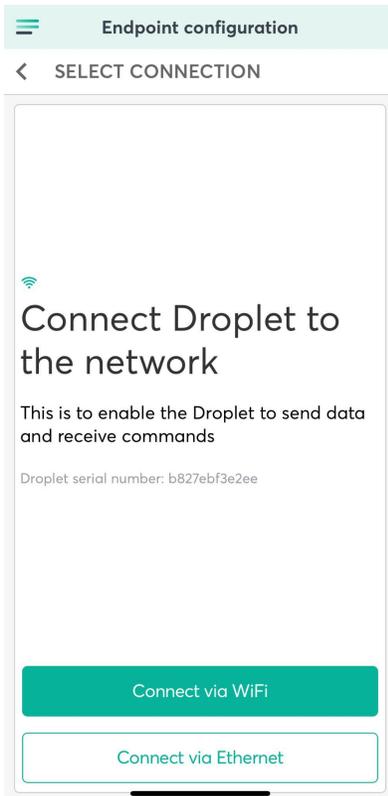
EXAMPLE PORTFOLIO

Example Unit
91 Parry St, Hamilton East NSW 2303, Australia

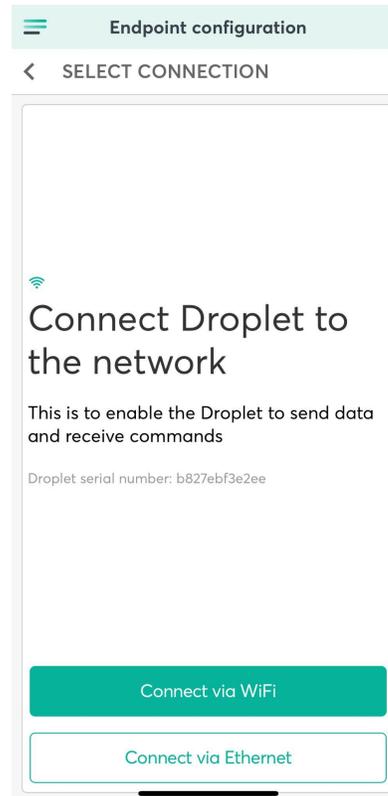
Add Droplet

Commissioning – Ethernet preferred

Connect via Ethernet Connection should be automatic



If Ethernet is not available. Connect via WiFi

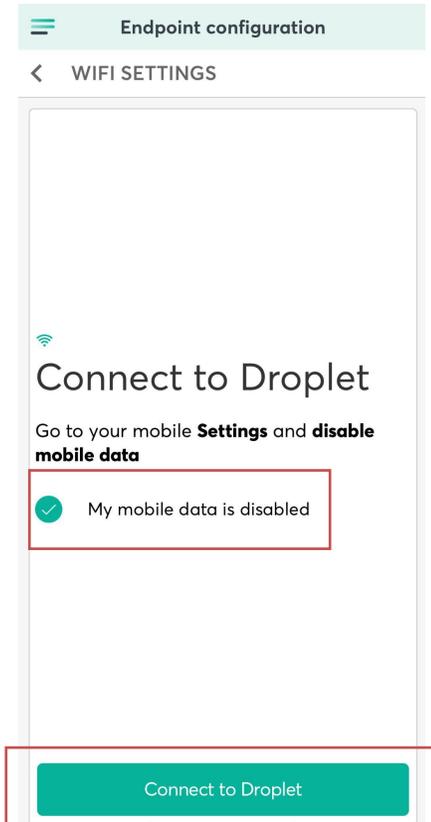


Turn off mobile data to ensure personal hotspot is off

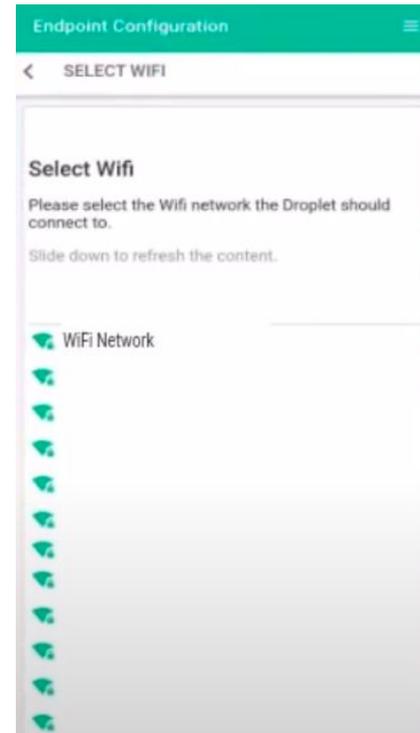


Commissioning Wifi - skip if Ethernet is used

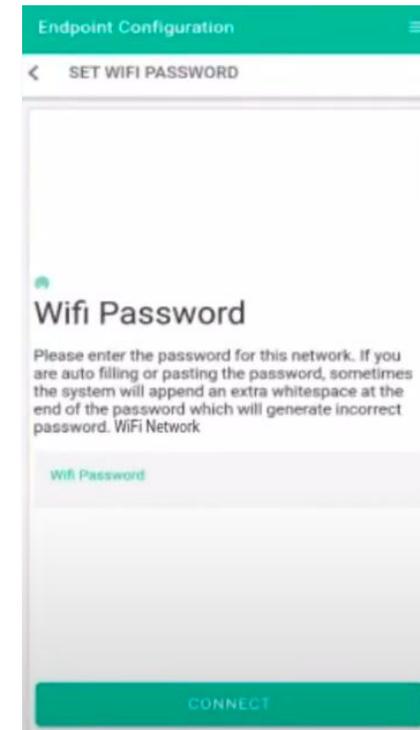
Connect to Droplet



Select WiFi network



Enter WiFi password

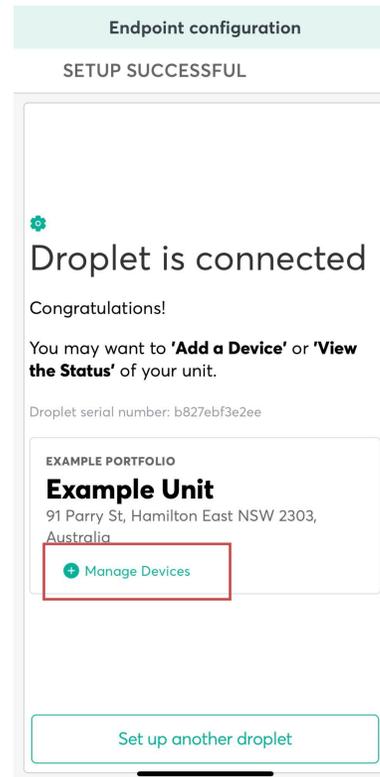


Commissioning

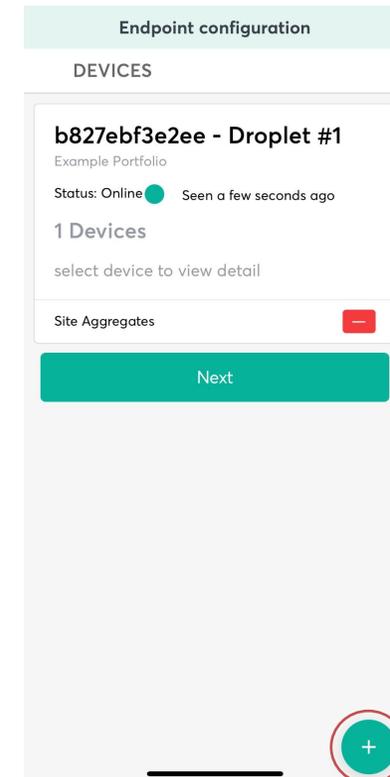
Turn on your mobile data



Select MANAGE DEVICES

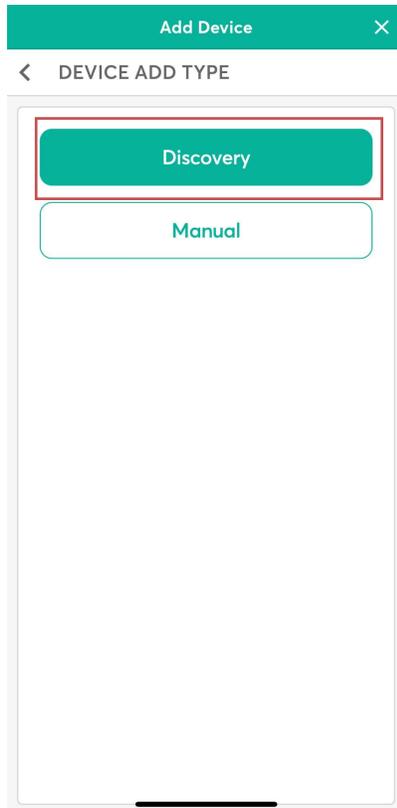


Add a device

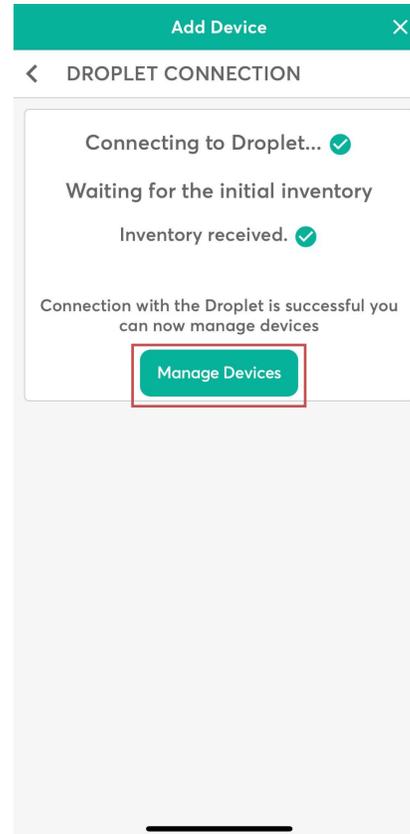


Commissioning

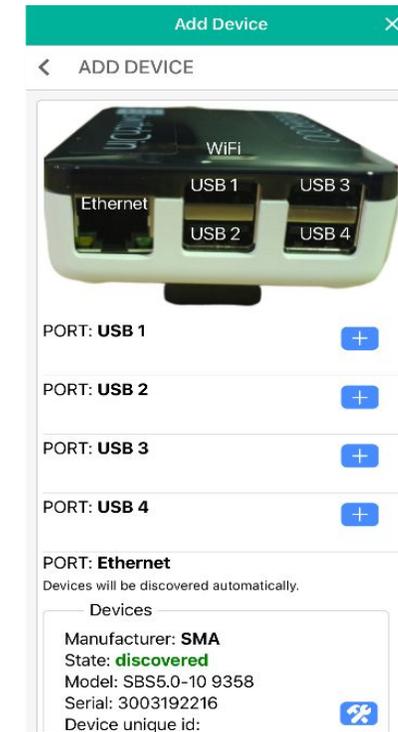
Choose DISCOVERY option



Select MANAGE DEVICES

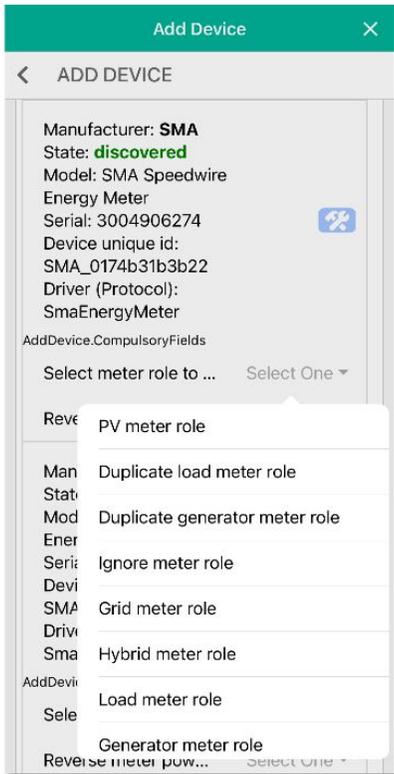


The Droplet will automatically discover the devices

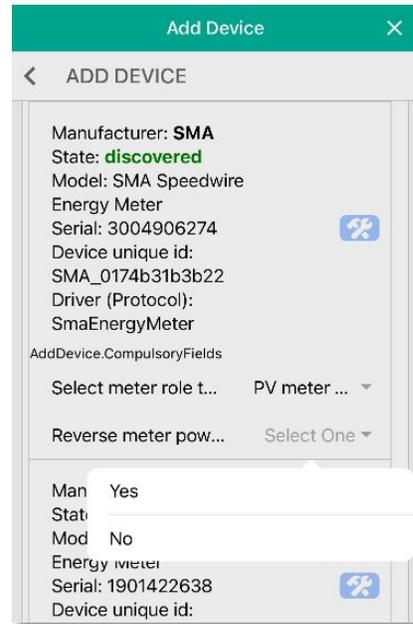


Configuring meter connection point

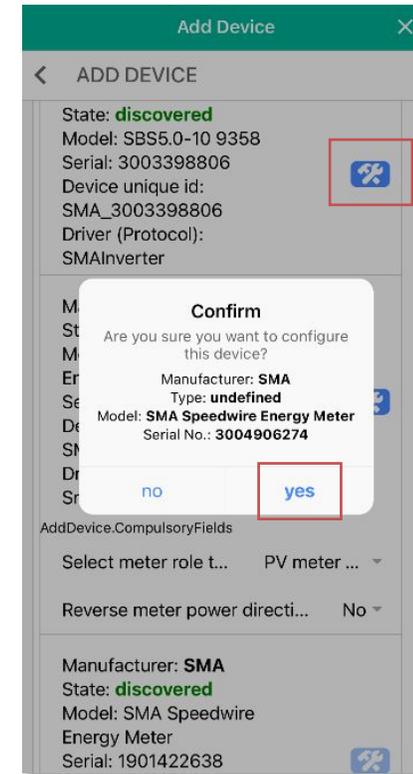
Choose PV
or GRID meter role
from drop down menu



Reverse meter power
(if meter is installed
in reverse)

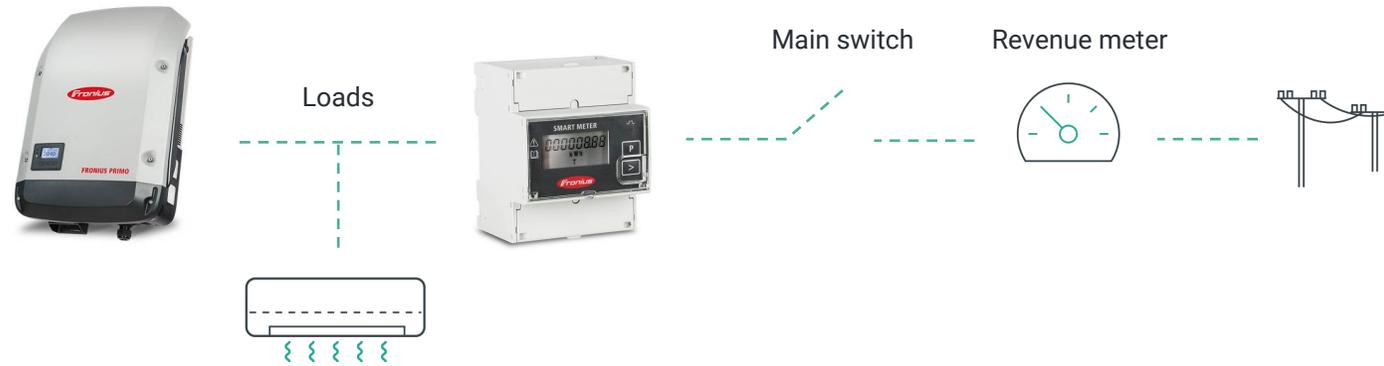


Configure meter

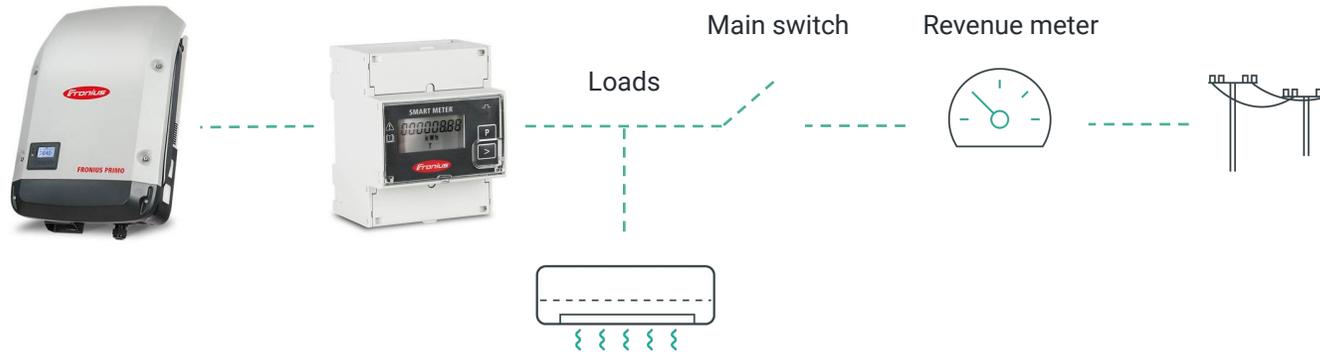


Meter Role Definitions

Grid meter

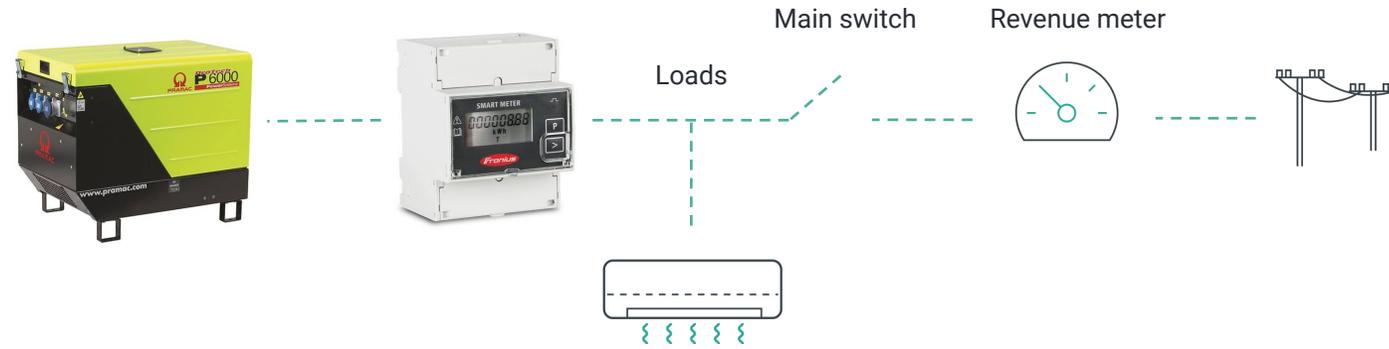


PV meter

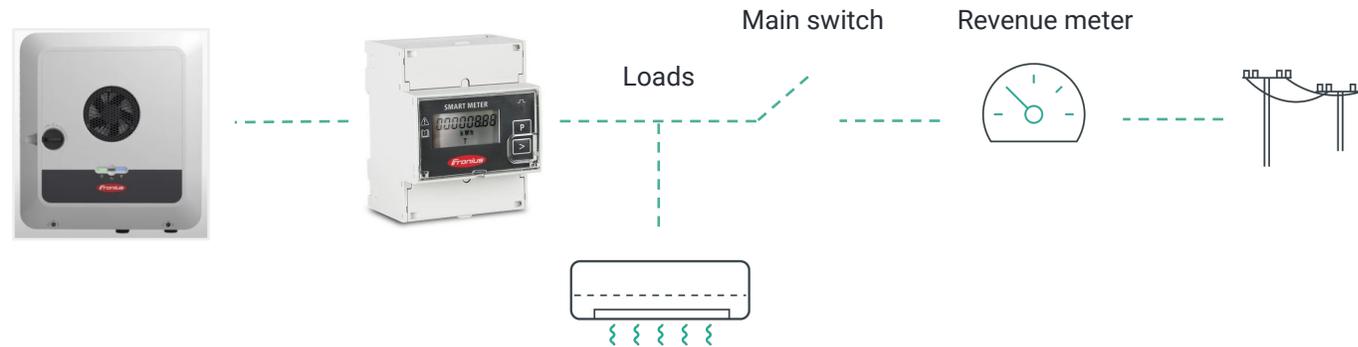


Meter Role Definitions

Generator meter



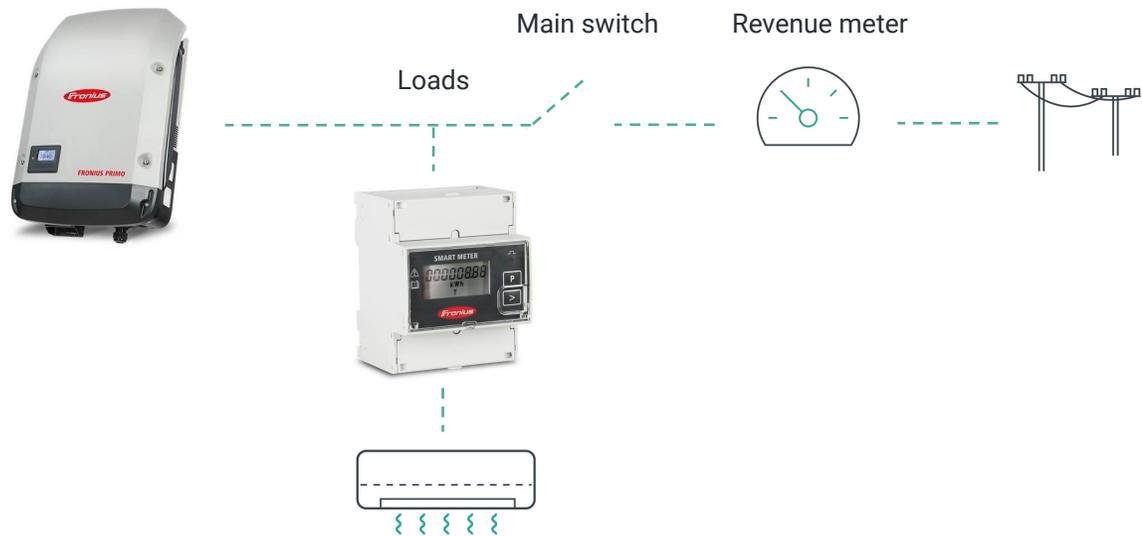
Hybrid meter



Meter Role Definitions

Duplicate meter roles

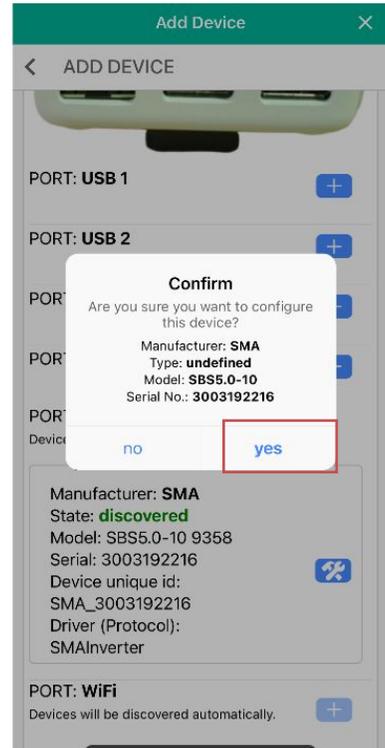
Connected to the AC output of the sources but SwitchDin are already communicating directly to that source.
E.g Already communicating with Fronius PV inverter directly but there is a PV meter installed on the output.



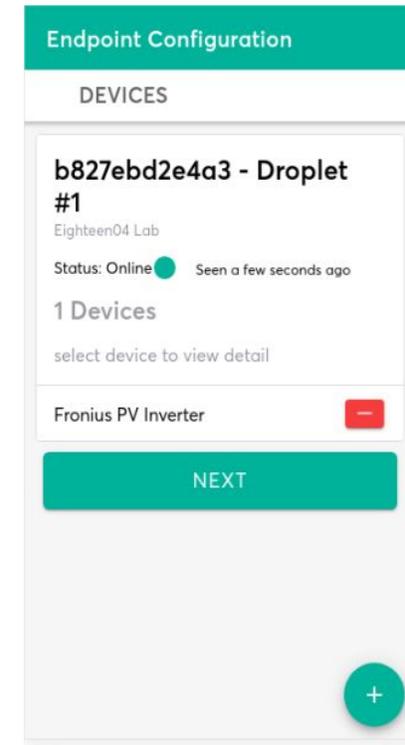
Commissioning

Configure the inverter

Manufacturer: **Fronius**
State: **discovered**
Model: Symo Hybrid GEN24
Serial: 30427994
Device unique id: Fronius_30427994
Driver (Protocol): FroniusInverter

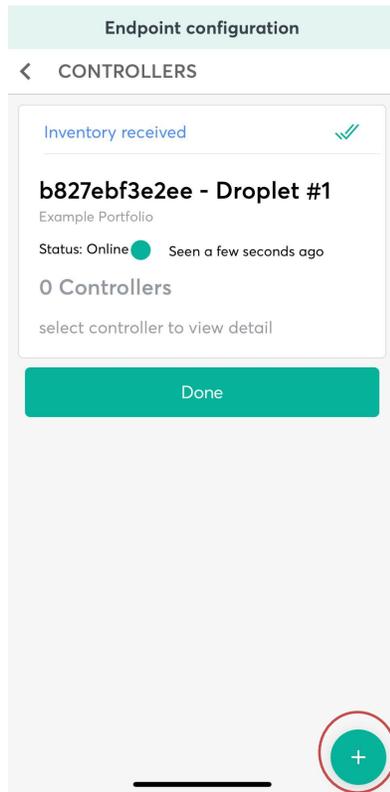


Ensure devices are in the list and choose NEXT

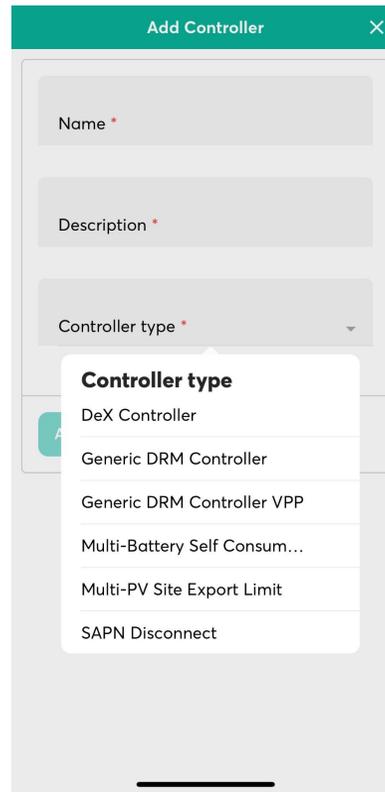


Adding controllers (if required)

Add a controller



Provide info and choose controller



Controller definitions

DeX - required for Simply Energy South Australian VPP customers.

Generic DRM - Software based DRM controller

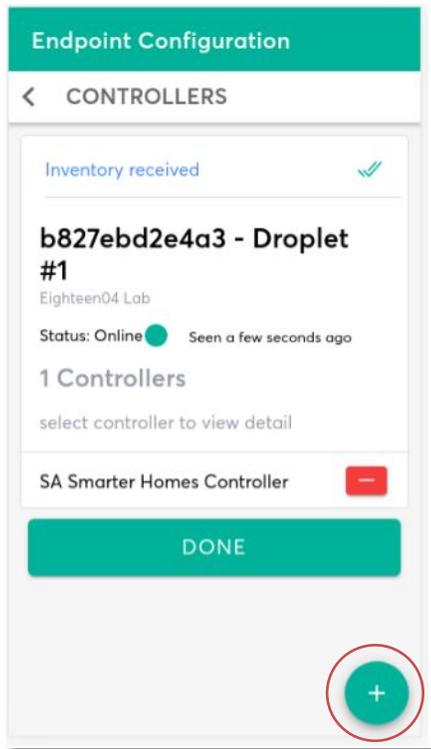
Generic DRM VPP - Software based DRM controller to be used in SwitchDin VPP

Multi-PV Site Export Limit - Export limit algorithm for multiple PV inverters

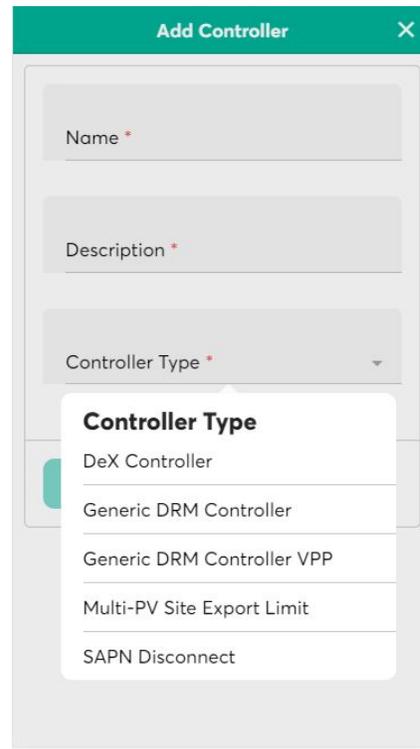
SAPN Disconnect - South Australian remote disconnection controller.

Adding controllers (if required)

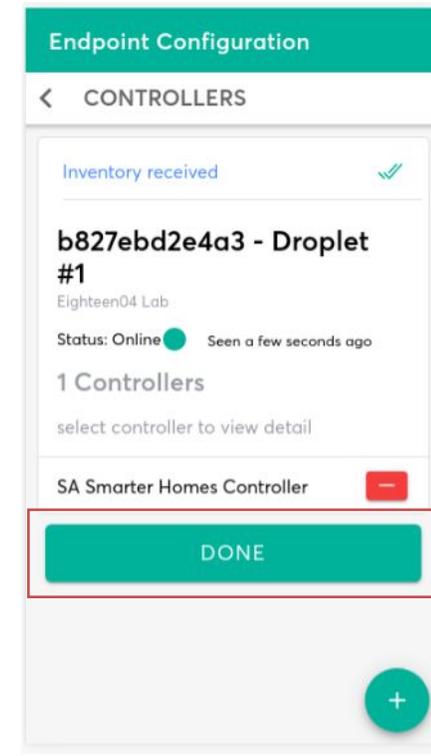
Add a controller



Provide info and choose controller

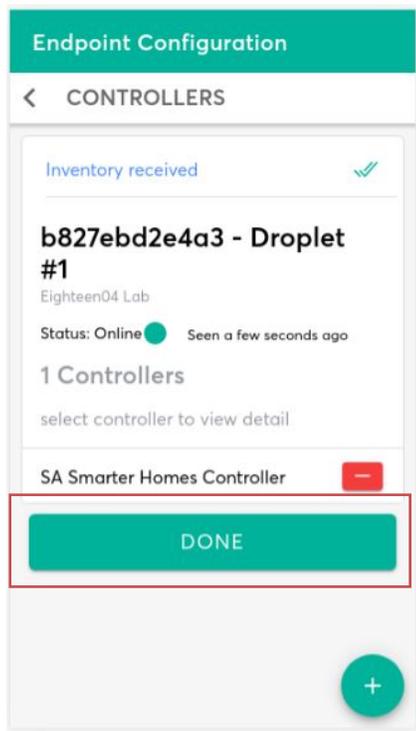


Controller definitions

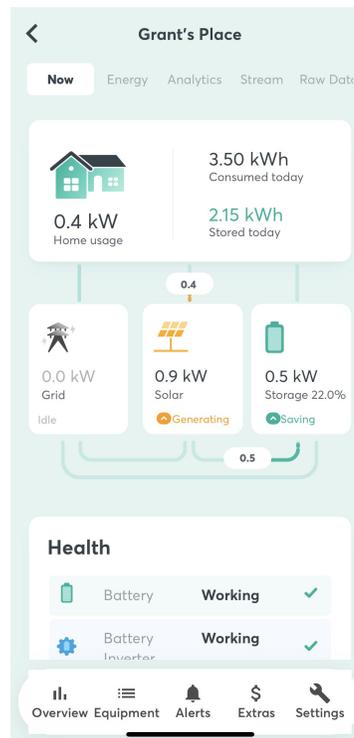


Checking if the device is communicating

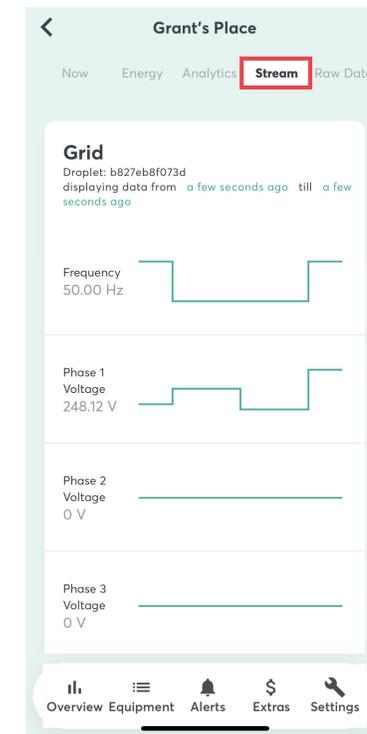
Finish procedure



Check to see if device data is available

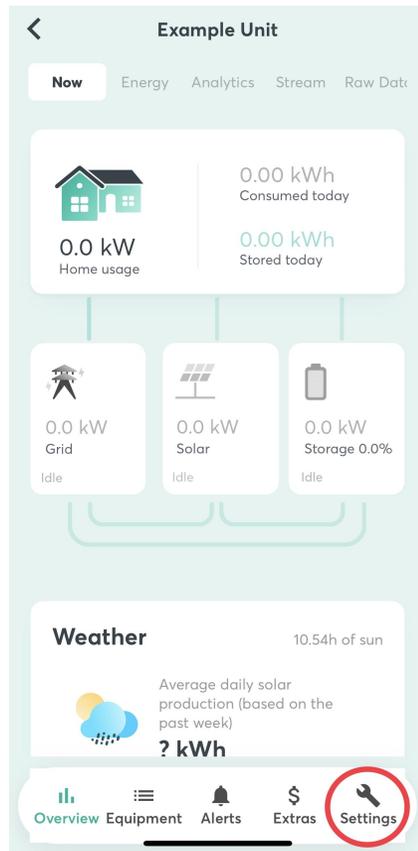


You can also check a 10 second stream of parameters

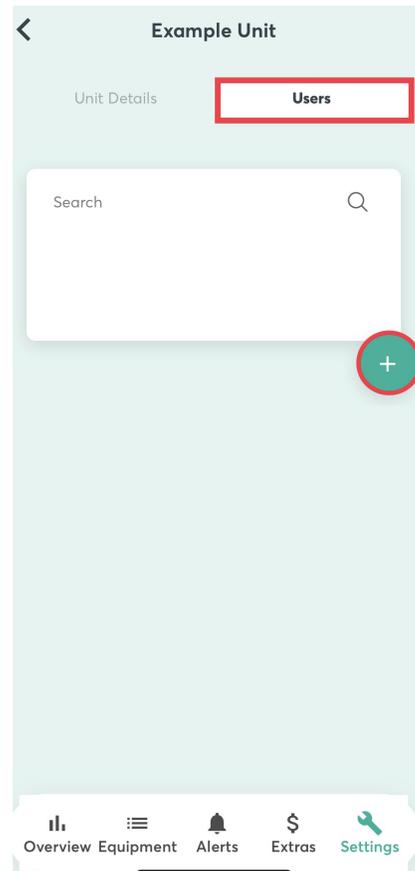


Add end customer to the unit

Go to SETTINGS



Invite users



Enter details and UNIT OWNER BASIC access level

The screenshot shows the 'Invite user' form. At the top, there's a green header with 'Invite user' and a close icon. Below this is the 'User details' section. A note states: 'The person will be granted access to this Unit. Access will be granted immediately if the User already has an account, otherwise they will be prompted to create one.' The form contains four input fields: 'Name*', 'Email*', 'Access level*' (a dropdown menu), and 'Profile theme*' (a dropdown menu with 'SwitchDin' selected). At the bottom, there is a green 'Invite user' button.

Troubleshooting

Troubleshooting

The LED Header indicates that there is no power. What should I do?

1. Check the GPO is switched on and has voltage.
2. Check whether the micro USB connector has become dislodged from the Droplet.
3. Test another power supply which uses micro USB. A mobile phone charger may be suitable.
4. Link to **video troubleshooting guide**

The LED header indicates the inverter is not connected. What should I do?

1. Is the inverter on the same network/subnet as the Droplet?
2. Is the inverter powered up?
3. Is the Modbus TCP port open/activated?
4. Is the Droplet connected to the network?
5. Have the cables connecting Droplets to inverters been tested for continuity?
6. Power cycle inverter and Droplet.

Troubleshooting

The Droplet will not connect to the network. What should I do?

1. Reboot router/modem/switch.
2. Check number of devices connected to the network. Home networks may have a limit of 10-20 devices.
3. If possible, try ethernet instead of wifi as the wifi may be weak.
4. Ensure password entered is correct.
5. Check internet connectivity of the Ethernet cable by plugging into a laptop.
6. IF using Ethernet, are the two lights on the ethernet port blinking. If there are no blinking lights the link is broken. Check the continuity of the Ethernet cable.
7. Link to **video troubleshooting guide**

Troubleshooting

The wifi network has changed. What should I do?

1. Reboot router/modem/switch.
2. Check number of devices connected to the network. Home networks may have a limit of 10-20 devices.
3. If possible, try ethernet instead of wifi as the wifi may be weak.
4. Ensure password entered is correct.
5. Check internet connectivity of the Ethernet cable by plugging into a laptop.
6. IF using Ethernet, are the two lights on the ethernet port blinking. If there are no blinking lights the link is broken. Check the continuity of the Ethernet cable.
7. In case of network change (or change of password), ensure the droplet iNet LED has gone Blue, and reconfigure the new WiFi using the app.
8. Link to **video troubleshooting guide**



Process for support

Troubleshooting

Follow the troubleshooting guide in this document and videos on support page.

Send information

If the Troubleshooting does not fix the issue, send the following info to **support@switchdin.com**

1. Droplet ID
2. How is the droplet Connected to devices/inverters?
3. Brand/model of inverters/meters?
4. Description of issue and relevant troubleshooting results.

If the Droplet is connected to the internet, we will be able to remotely perform diagnostics.

If needed, call

If the Droplet is not connected to the internet and there is an urgent need of support,

please call our helpdesk on **+61 02 4786 0426**

Remote Device Tunnelling using SwitchDin Droplets



Troubleshooting

Overview

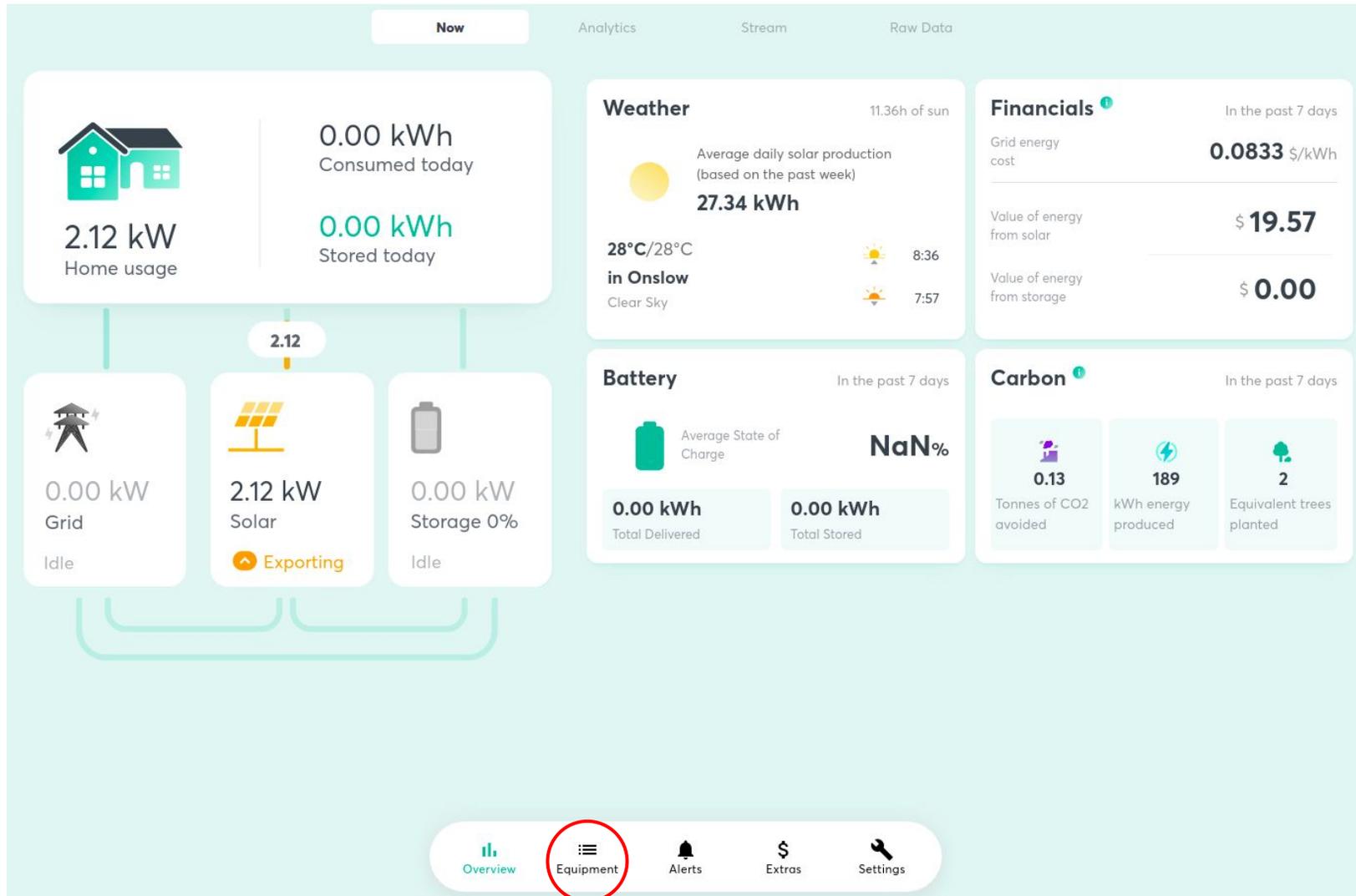
- The Droplet is able to curl back webserver port on a configured device.
- This provides functionality to tunnel via both port 80 (HTTP) and port 443 (HTTPS).

Notes

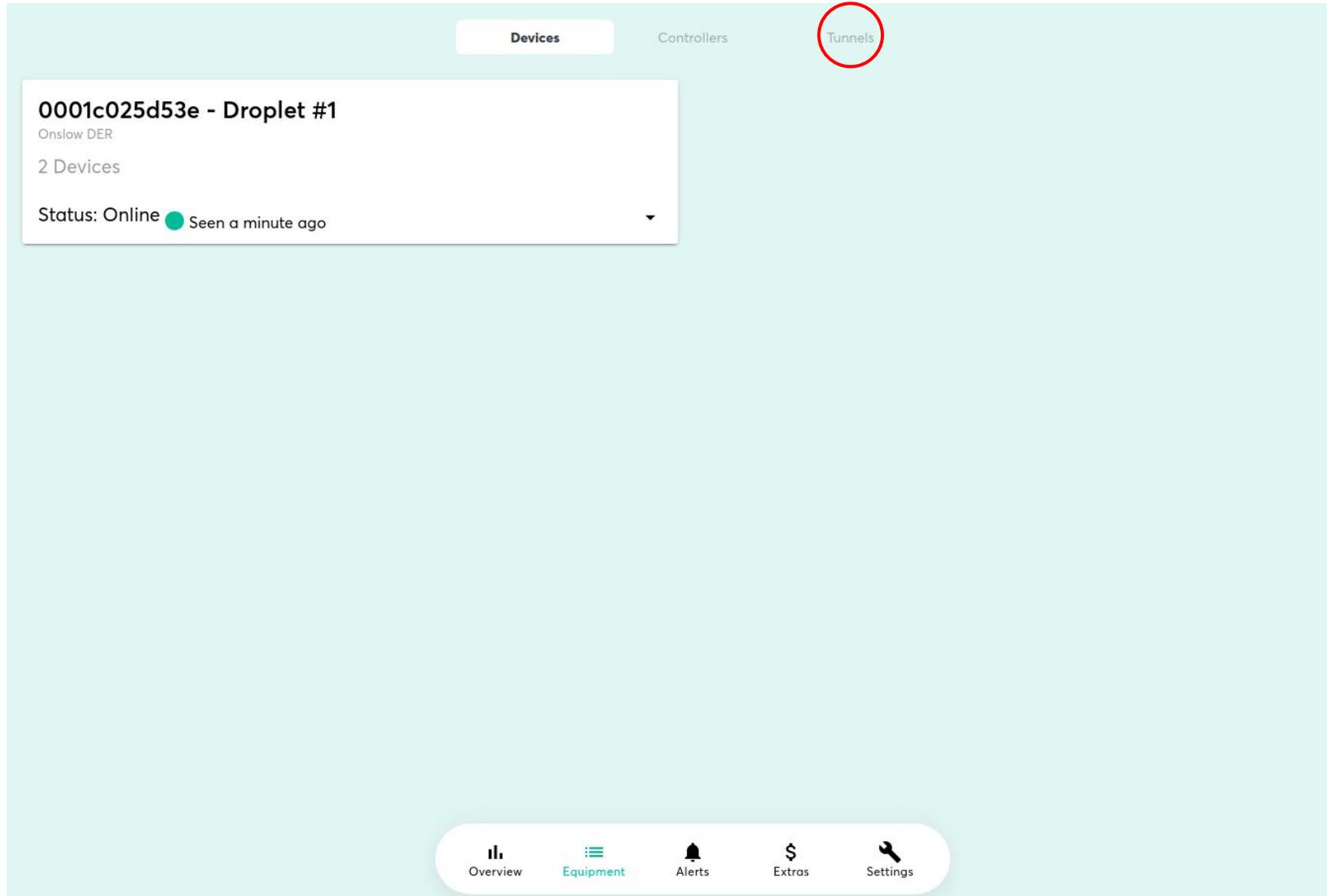
- This feature requires appropriate user account permissions - contact SwitchDin support.
- Only available for devices that are successfully configured with the Droplet using the installer app.
- The actual port & availability depends on the device, and not on the Droplet.
- Only available using the web interface - <https://pwa.switchdin.com/>
- Firefox browser preferred

Device Tunnelling: Steps

Navigate to Equipment tab within the Unit



Click on Tunnels tab



Click on plus sign to create a new tunnel

Devices Controllers **Tunnels**

0001c025d53e - Droplet #1 ▲

Onslow DER

Active

No active Tunnels found

History

Filter

Device	Port	Server port	Request time	Closing time	Service	Protocol	Control	Comms	Multiple	User
Fronius PV Inverter	80	41573	25-03-2021 19:16:50	25-03-2021 19:26:50	Websserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Dhruti Patel
Fronius PV Inverter	80	54319	25-03-2021 19:16:19	25-03-2021 19:26:19	Websserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Dhruti Patel

Items per page: 5 1 - 2 of 2 < >

+

Overview Equipment Alerts Extras Settings

Select device to tunnel from the dropdown

Create new Tunnel ✕

DEVICE LOG - 0001C025D53E

Droplet Firmware updates take place from 12:00 to 13:00 UTC. Use caution when performing Tunneling controls during this period

Device *

Device is required

CREATE NEW TUNNEL

Create new Tunnel ✕

DEVICE LOG - 0001C025D53E

Droplet Firmware updates take place from 12:00 to 13:00 UTC. Use caution when performing Tunneling controls during this period

Device *
Fronius PV Inverter

[SWITCH TO MANUAL DEVICE IP](#)

A service will be disabled if a Tunnel is already active for ALLOW_MULTIPLE = FALSE

Service *
Webserver (HTTP)

Disable control

Disable comms

Allow multiple | MUST_BE_TRUE

Protocol *
TCP

Confirm the port and click on create tunnel

Create new Tunnel ✕

DEVICE LOG - 0001C025D53E

Disable control

Disable comms

Allow multiple | MUST_BE_TRUE

Protocol *
TCP

Only supporting TCP

Duration (minutes) *
10

Port *
80

CREATE NEW TUNNEL

Confirm tunnel is created & click on device to open in a new tab

0001c025d53e - Droplet #1
Onslow DER

Active

Filter

Device	Port	Server port	Request time	Closing time	Service	Protocol	Control	Comms	Multiple	User	Action
Fronius PV Inverter	80	48969	28-04-2021 10:59:01	28-04-2021 11:09:01	Webserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Zuhair Ahmed	STOP

Items per page: 5 1 - 1 of 1 < >

History

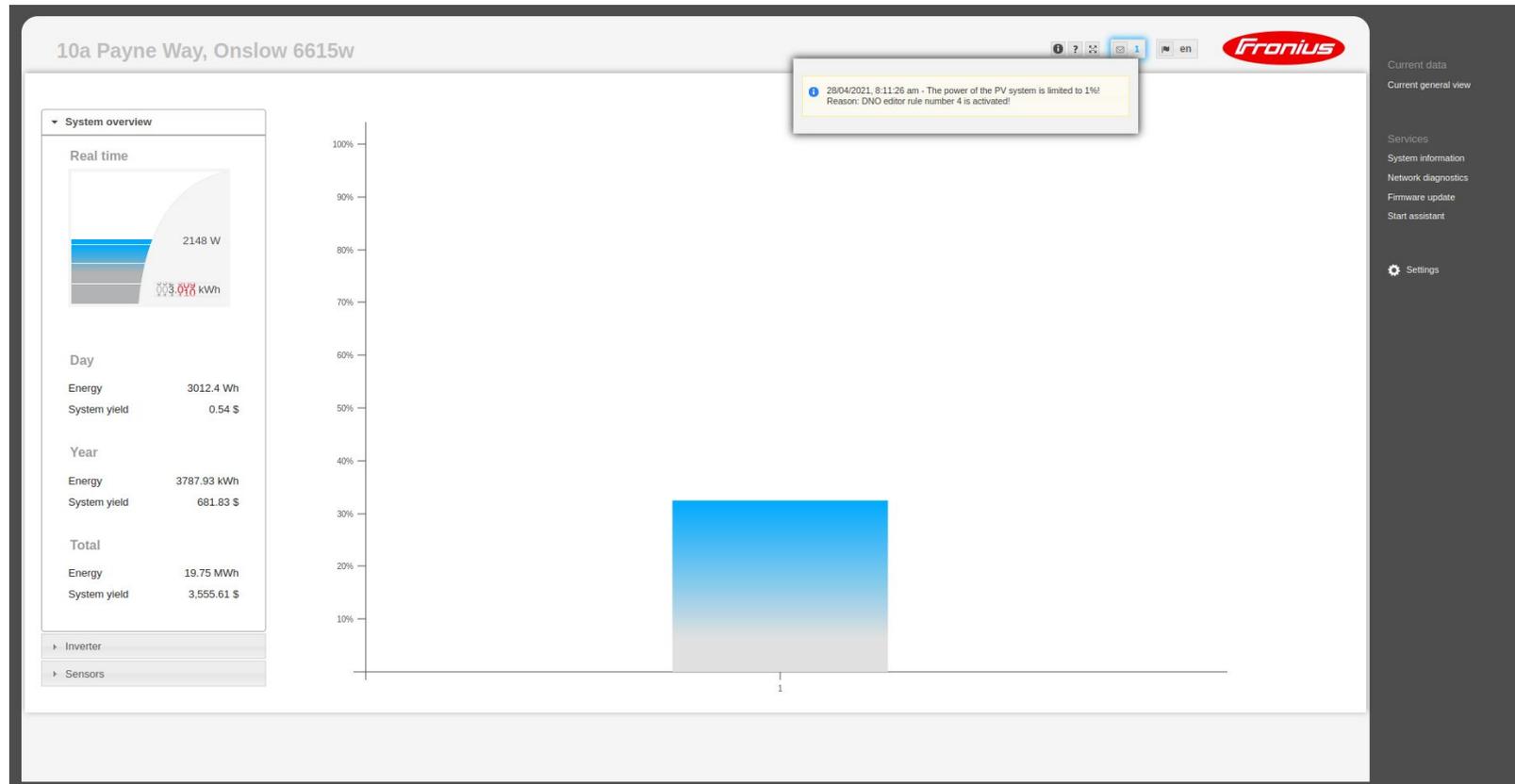
Filter

Device	Port	Server port	Request time	Closing time	Service	Protocol	Control	Comms	Multiple	User
Fronius PV Inverter	80	41573	25-03-2021 19:16:50	25-03-2021 19:26:50	Webserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Dhruti Patel
Fronius PV Inverter	80	54319	25-03-2021 19:16:19	25-03-2021 19:26:19	Webserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Dhruti Patel

Items per page: 5 1 - 2 of 2 < >

Overview Equipment Alerts Extras Settings

Example: Fronius webserver landing page accessed remotely



To close the tunnel, click STOP

The screenshot displays a web interface for managing tunnels. At the top, there are tabs for 'Devices', 'Controllers', and 'Tunnels'. The main content area is titled '0001c025d53e - Droplet #1' and shows an 'Active' tunnel. Below this, there is a table with columns: Device, Port, Server port, Request time, Closing time, Service, Protocol, Control, Comms, Multiple, User, and Action. The first row shows a tunnel for 'Fronius PV Inverter' with a 'STOP' button highlighted by a red circle. Below the active tunnel, there is a 'History' section with a similar table showing two previous tunnel instances.

Device	Port	Server port	Request time	Closing time	Service	Protocol	Control	Comms	Multiple	User	Action
Fronius PV Inverter	80	48969	28-04-2021 10:59:01	28-04-2021 11:09:01	Webserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Zuhair Ahmed	STOP

Device	Port	Server port	Request time	Closing time	Service	Protocol	Control	Comms	Multiple	User
Fronius PV Inverter	80	41573	25-03-2021 19:16:50	25-03-2021 19:26:50	Webserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Dhruti Patel
Fronius PV Inverter	80	54319	25-03-2021 19:16:19	25-03-2021 19:26:19	Webserver (HTTP)	TCP	FALSE	FALSE	MUST_BE_TRUE	Dhruti Patel

Click 'yes' and confirm tunnel is closed successfully

Confirm

Are you sure?

Do you want to close this
Tunnel? Fronius PV Inverter -
Zuhair Ahmed

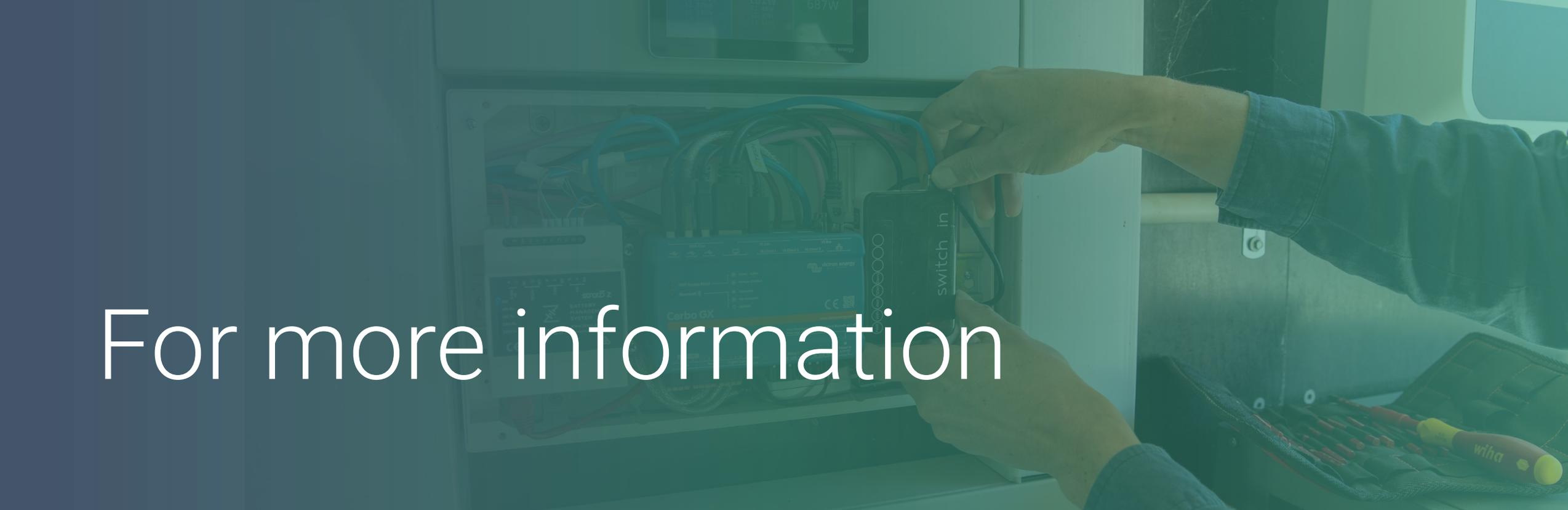
NO

YES

Success

Tunnel closed successfully

OK



For more information



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