

# Droplet installation & Commissioning Guide (SA Flexible Exports)

2021

[www.switchdin.com.au](http://www.switchdin.com.au)



# Important Information

# Droplet™

Now with 5 year warranty



Stage 1 compatible devices:



SnapINverter Primo



MIN TL-X

Coming soon:



Sunny Boy AV  
Sunny Boy  
TriPower



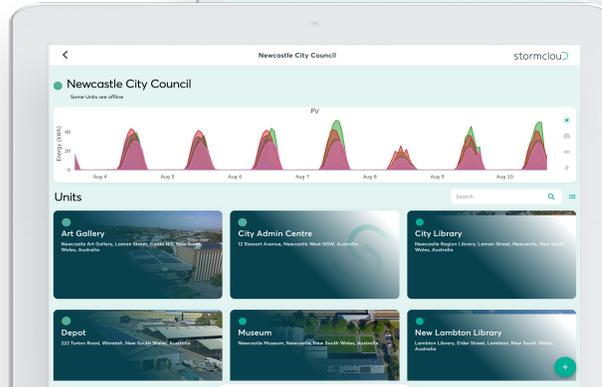
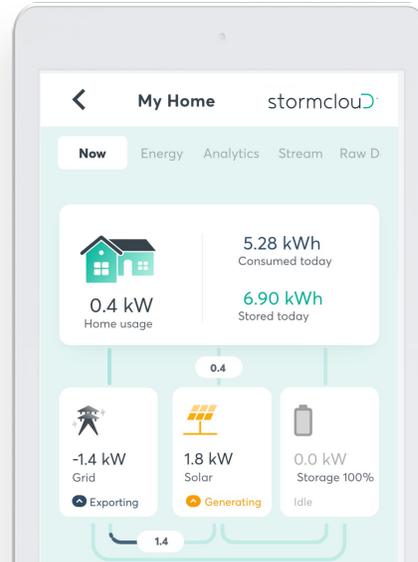
Snap Symo  
(GEN24 Primo)



UNO-DM

# stormcloud™

Free monitoring, alerts & more



## Where to buy:

### Supply Partners:

Phone: (07) 3122 7584

Email: [sales@supplypartners.com.au](mailto:sales@supplypartners.com.au)

Web: [supplypartners.com.au](http://supplypartners.com.au)

### Solar Juice

Phone: (02) 9725 1111

Email: [sales@solarjuice.com.au](mailto:sales@solarjuice.com.au)

Web: [solarjuice.com.au](http://solarjuice.com.au)

### Tradezone

Phone: 1800 092 778

Email: [sales@tradezone.com.au](mailto:sales@tradezone.com.au)

Web: [tradezone.com.au](http://tradezone.com.au)



# Droplet basics: Connecting to Power & Internet

2021

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# Droplet Specifications

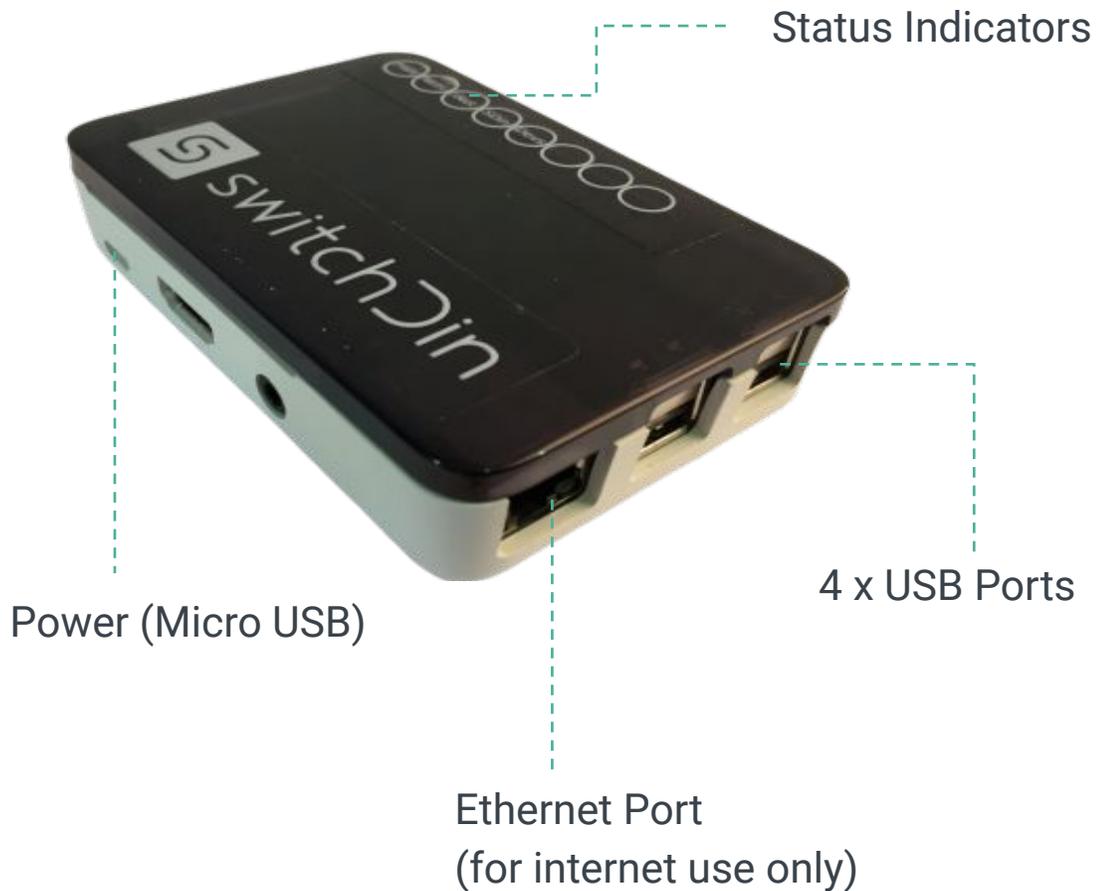


## Residential Droplet

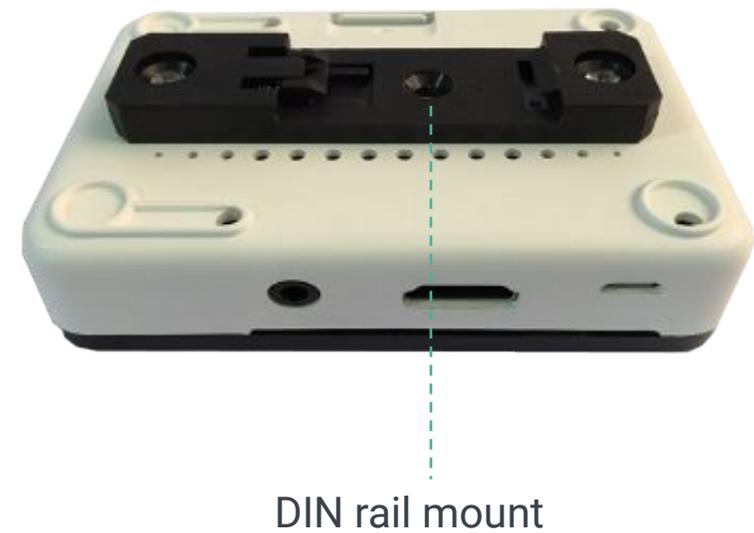
- Wifi
- Ethernet
- USB
- Many protocols via converters

# Droplet Overview

Droplet top view



Droplet underside



# Residential Droplet Installation



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

# Droplet internet connection

## Residential Droplet



Connect to Ethernet

## WiFi



Download the SwitchDin 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

## Internet prerequisites

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 Droplet to Fronius SnapInverter (SA Flexible Exports)

2021

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# Hardware Checklist

- Fronius SnapINverter Primo 3-8.2kW
- Any Fronius Smart Meter
- SwitchDin Residential Droplet
- GPO for SwitchDin Droplet
- Sets of cables (ethernet & ethernet to USB adaptor)





# Enable Modbus TCP and Port 502

**Settings**

- GENERAL
- PASSWORDS
- NETWORK
- FRONIUS SOLAR.WEB
- IO MAPPING
- LOAD MANAGEMENT
- PUSH SERVICE
- MODBUS** ←
- INVERTERS
- FRONIUS SENSOR CARDS
- METER
- DNO EDITOR

## Modbus

off  tcp  rtu

Modbus port:

String control address offset:

Sunspec Model Type:  float  int + SF

Demo mode:

Inverter control via Modbus:

Restrict the control:

✓ ✕

### Controlling priorities

1. Controlling via Modbus
2. IO control
3. Dynamic power reduction

**Legend:**  
1 ... highest priority  
2 ... medium priority  
3 ... lowest priority

**Note:** a change of control priorities is possible only in the DNO editor with the service password.

# Enable Failsafe

- NETWORK
- FRONIUS SOLAR.WEB
- IO MAPPING
- LOAD MANAGEMENT
- PUSH SERVICE
- MODBUS
- INVERTERS
- FRONIUS SENSOR CARDS
- METER
- DNO EDITOR** ←



## IO control

unlocked	Input pattern	Active power	Power factor $\cos\phi$	DNO output	excluded inverter(s)	
	I1 I2 I3 I4 I5 I6 I7 I8					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> 100 %	<input type="checkbox"/> 1 <input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> 60 %	<input type="checkbox"/> 1 <input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> 30 %	<input type="checkbox"/> 1 <input type="radio"/> ind <input checked="" type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> 0 %	<input type="checkbox"/> 1 <input checked="" type="radio"/> ind <input type="radio"/> cap	<input checked="" type="checkbox"/>		-
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> %	<input type="checkbox"/> <input type="radio"/> ind <input type="radio"/> cap	<input type="checkbox"/>		+

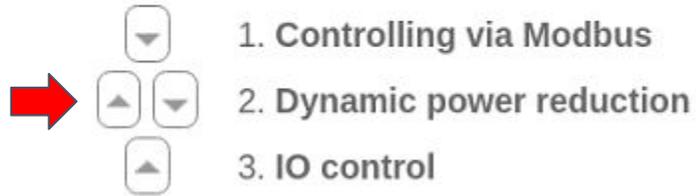
... not applicable   
  ... not considered   
  ... pin open   
  ... pin closed



# Control Priorities

- NETWORK
- FRONIUS SOLAR.WEB
- IO MAPPING
- LOAD MANAGEMENT
- PUSH SERVICE
- MODBUS
- INVERTERS
- FRONIUS SENSOR CARDS
- METER
- DNO EDITOR

## Controlling priorities

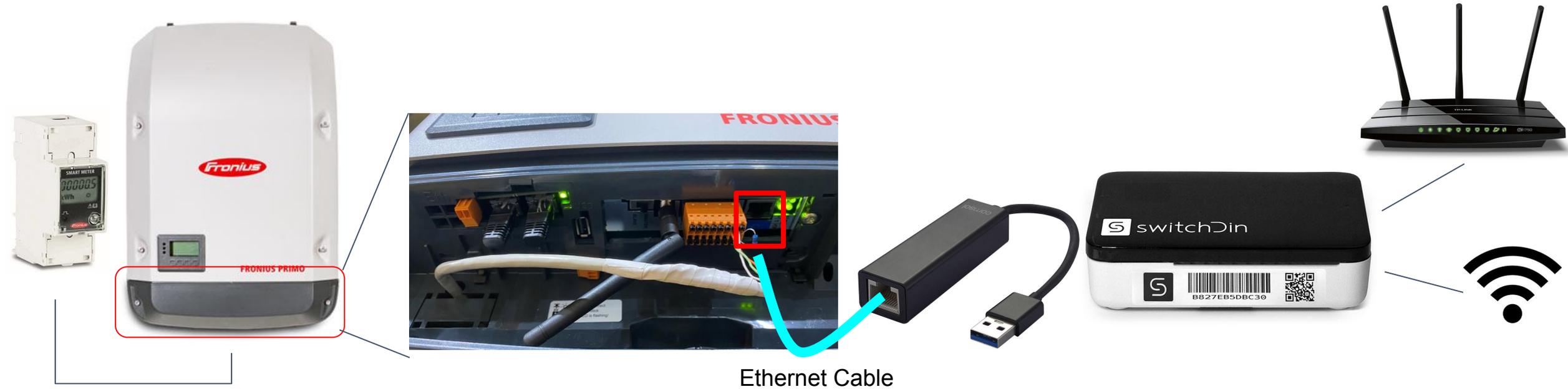


### Legend:

- 1 ... highest priority
- 2 ... medium priority
- 3 ... lowest priority



# Connecting Droplet to inverter (Inverter → Droplet → Router)



Using a screwdriver, open the inverter cover

Plug ethernet cable into the inverter port

Plug the other end of the ethernet cable into an adaptor

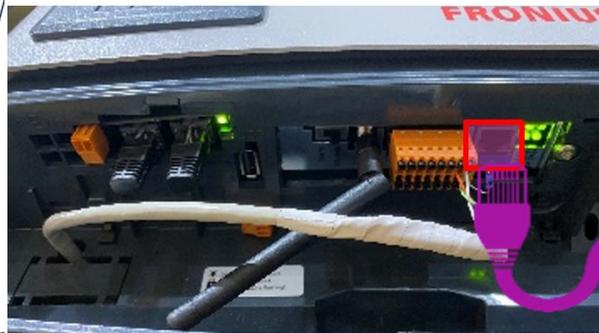
Connect the adaptor to any USB port on the Droplet

Connect the Droplet to the internet to router via ethernet cable or WiFi

# Connecting Droplet to inverter (Inverter → Router → Droplet)



Using a screwdriver, open the inverter cover



Plug ethernet cable into the inverter port



Plug the other end of the ethernet cable into the router



Connect the router to the SwitchDin Droplet

# 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.

# Connecting Droplet to Growatt MIN TL-X inverter (SA Flexible Exports)

2021

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# Hardware Checklist

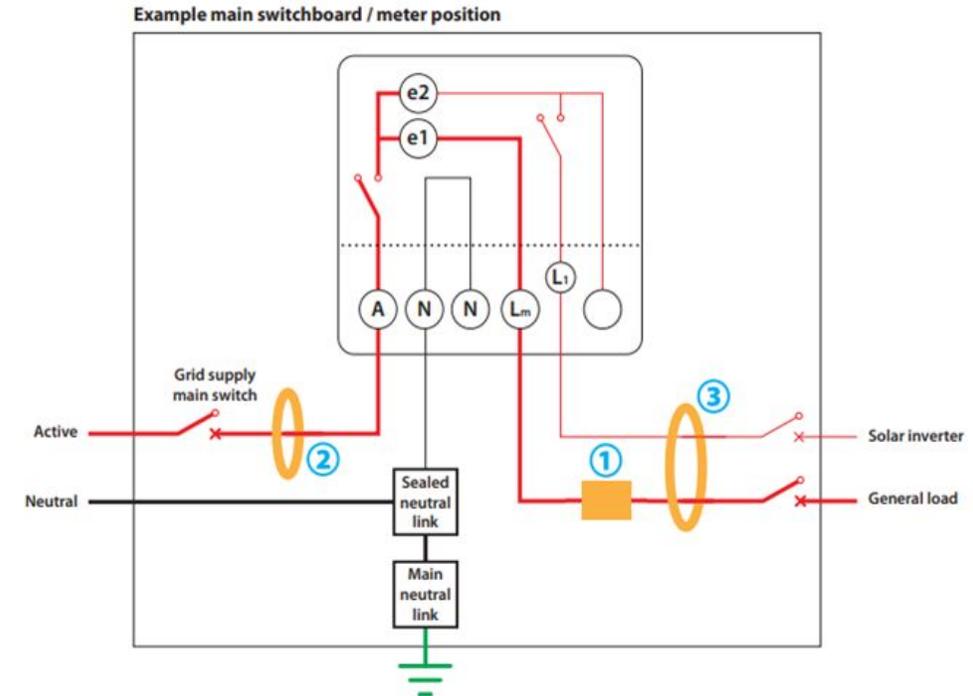
- Growatt MIN TL-X 2.5-6.0
- Any Eastron Meter with Modbus
- SwitchDin Residential Droplet
- GPO for SwitchDin Droplet
- Sets of cables -
  - Option 1
    - ethernet, RS485 to USB converter
  - Option 2
    - ethernet, DB9 cable (male) and DB9 (female) to USB adaptor



# Eastron Smart Meter

- Connect Eastron Energy Meter on grid or load side
- Refer to OTR Wiring Information and Diagram:

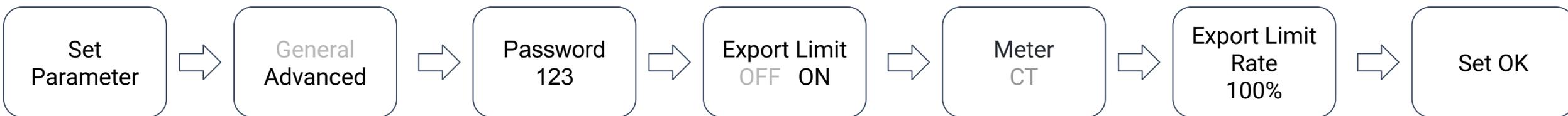
[Smart Meter Minimum Technical Standard and associated Deemed to Comply Wiring Arrangements \(energymining.sa.gov.au\)](http://energymining.sa.gov.au)



# Growatt inverter settings

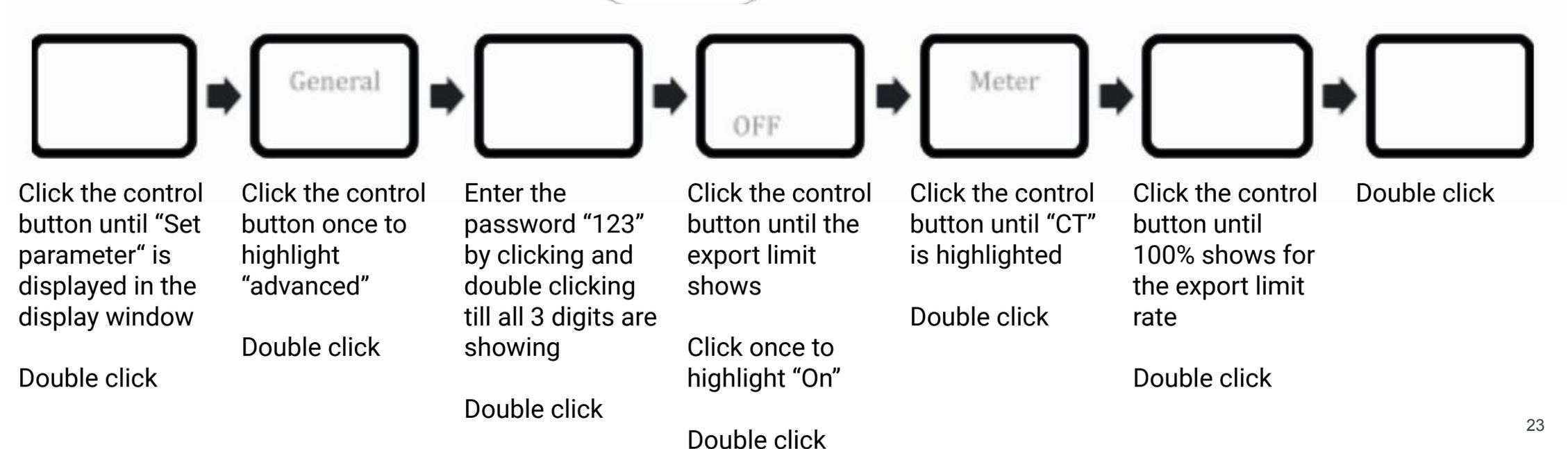
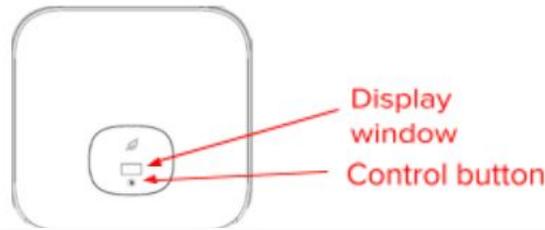


Touch	Description
Single	Switch Display or Number +1
Double	Enter
Triple	Previous menu



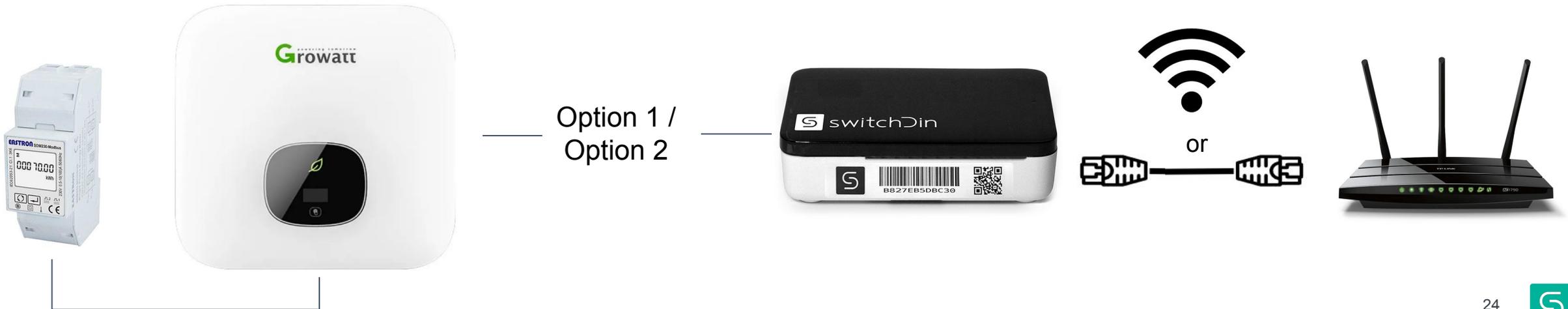
# Growatt inverter settings

Use the control button on the front screen of the inverter to set the export limit settings as shown below:



# Wiring the Droplet to the Growatt inverter

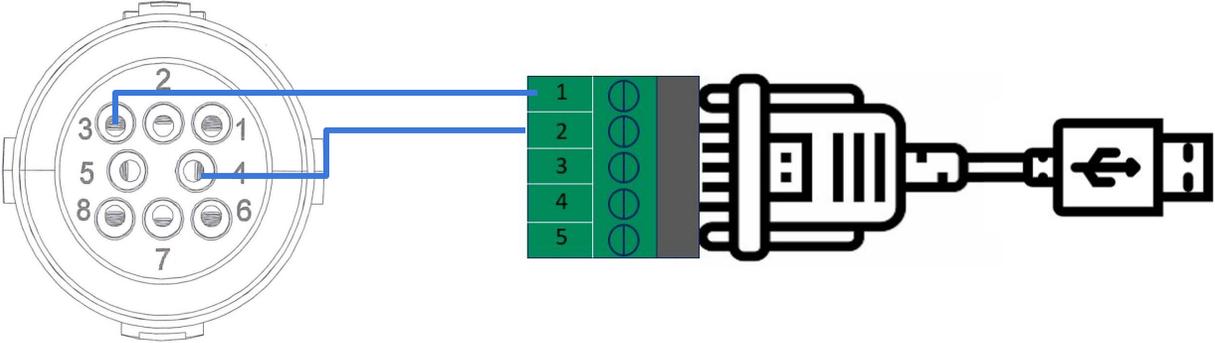
1. Connect inverter to energy meter as per normal installation.
2. Connect inverter to Droplet via
  - Option 1 - Eastron RJ45 cable + RS485 to USB converter
  - Option 2 - RS485 (male) + RS 485 (female) to USB converter
3. Connect the Droplet to the router / extender.



# Option 1: Eastron RJ45 Cable + RS485 to USB converter

1. Use the cable provided by Eastron meter
2. Connect as below

8- pin Signal Connector (Inverter)	RS485 to USB converter
3	1
4	2



### RS485 to USB converter equivalent pin

DB9	Output Signal	Full Duplex connection	Half-Duplex connection
1	T/R+	TXD(A+)	RS485(A+)
2	T/R-	TXD(B-)	RS485(B-)

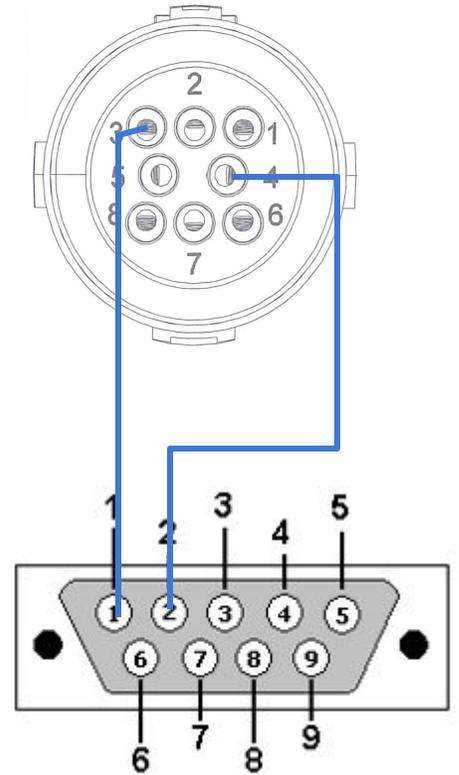


RS485 to USB converters



# Option 2: RS485 (male) + RS485 (female) to USB

1. Cut the DB9 (male) cable into half, strip the cable and identify pin 1 and 2 on the DB9 cable
2. Safely terminate all the unused cables
3. Connect pin 1 on the DB9 cable to pin 3 on the 8-pin signal connector
4. Connect pin 2 on the DB9 cable to pin 4 on the 8-pin signal connector
5. Connect the male side of DB9 cable to the DB9 (female) USB adaptor
6. Connect the USB adaptor to any of the USB ports on the droplet
7. Connect the Droplet to the internet via ethernet cable (preferred) or WiFi



8- pin Signal Connector (Inverter)	DB 9 Cable
3	1
4	2

# Configuring & Commissioning Droplets and Connected Devices (SA Flexible Exports)

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!

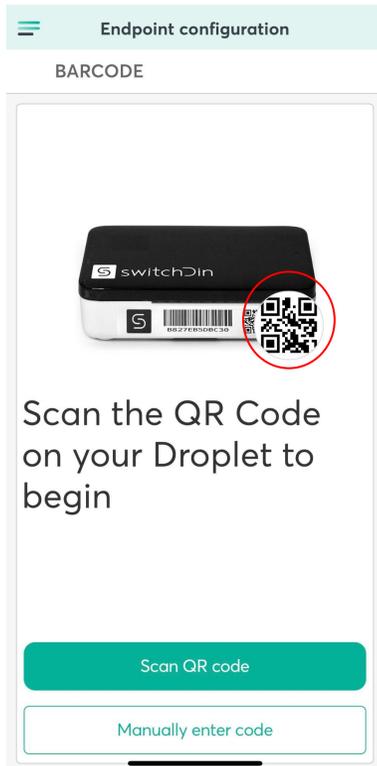


V0.2.28+

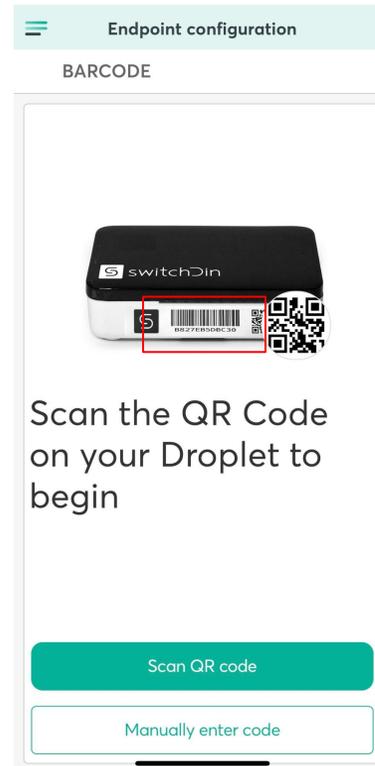


# Commissioning

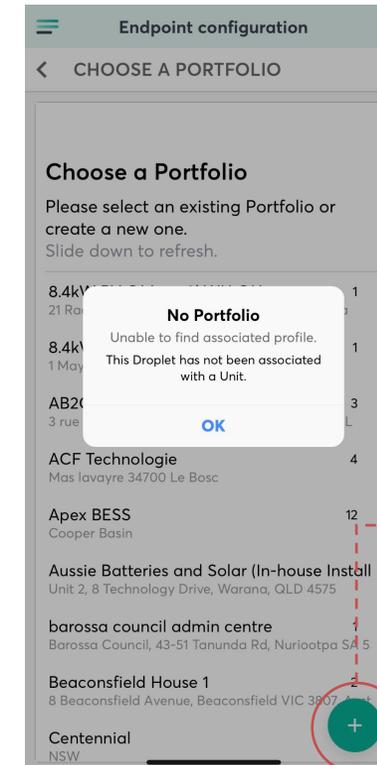
## Scan QR Code



## 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

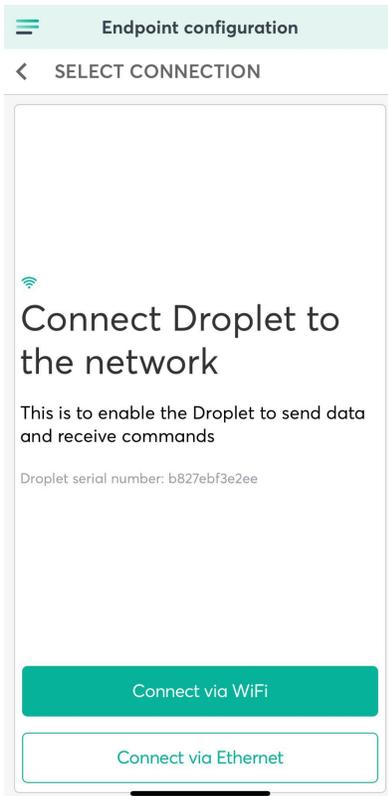
EXAMPLE PORTFOLIO

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

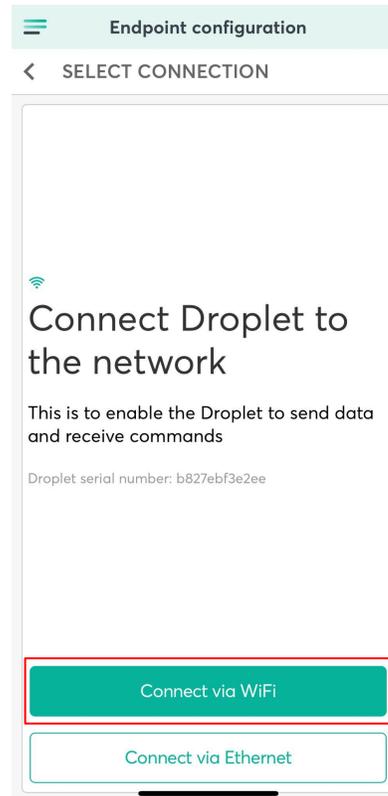
Add Droplet

# Commissioning – Ethernet preferred

Connect via Ethernet Connection should be automatic



If Ethernet is not available. Connect via WiFi

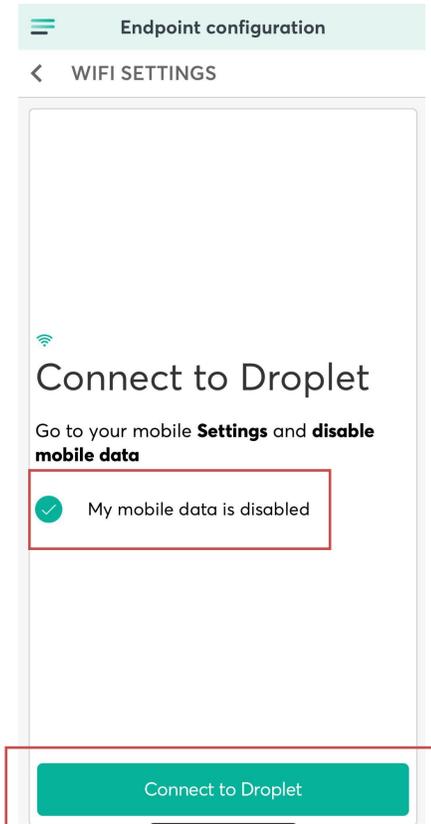


Turn off mobile data to ensure personal hotspot is off

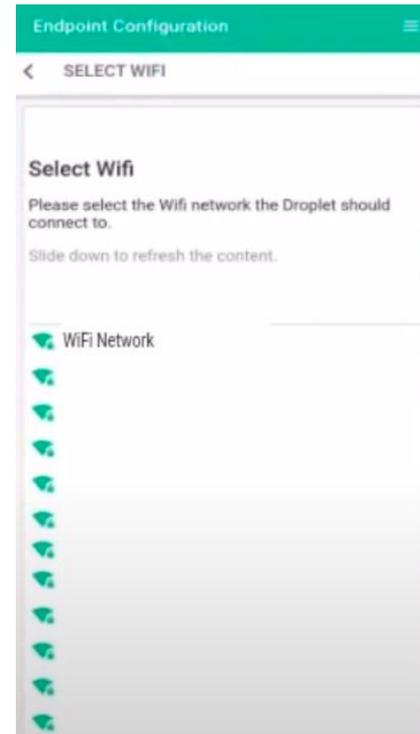


# Commissioning Wifi - skip if Ethernet is used

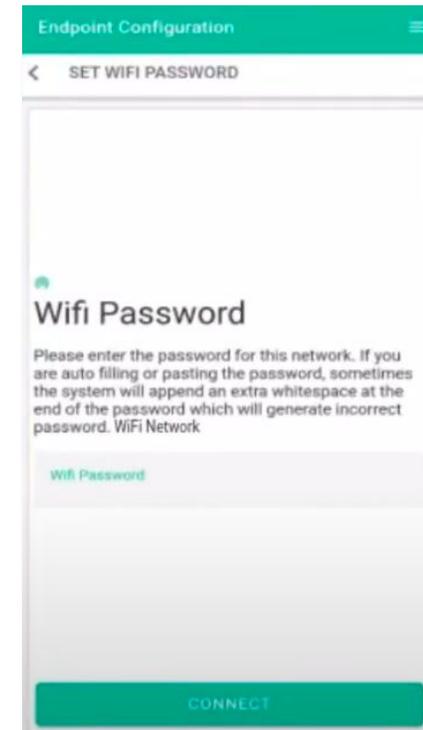
## Connect to Droplet



## Select WiFi network



## Enter WiFi password

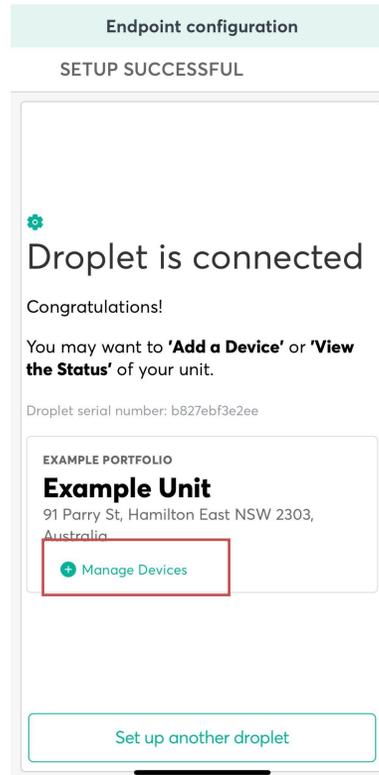


# Commissioning

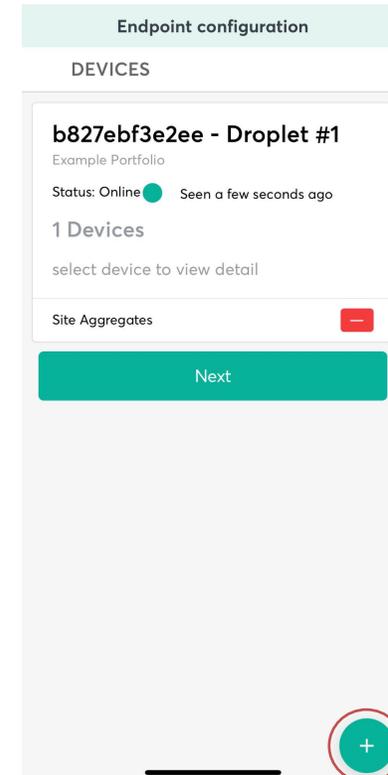
Turn on your mobile data



Select MANAGE DEVICES

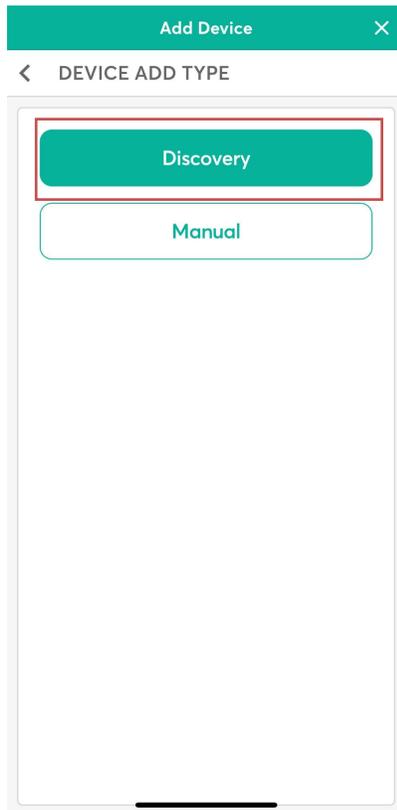


Add a device

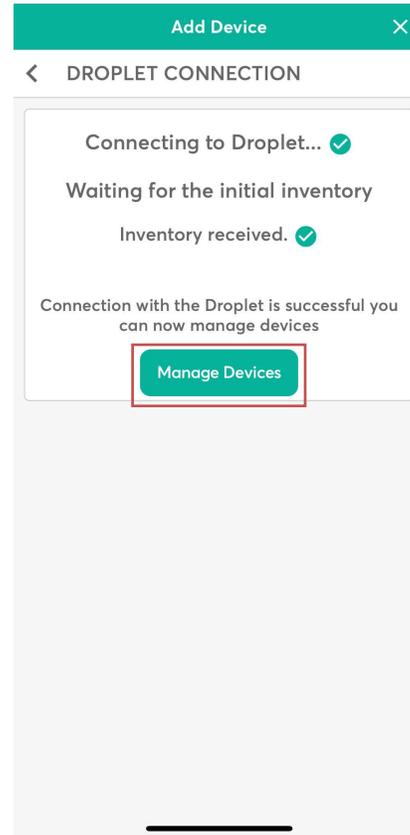


# Commissioning

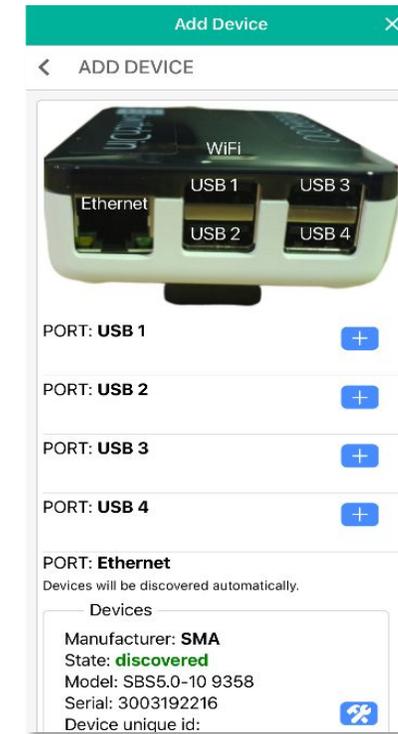
Choose DISCOVERY option



Select MANAGE DEVICES

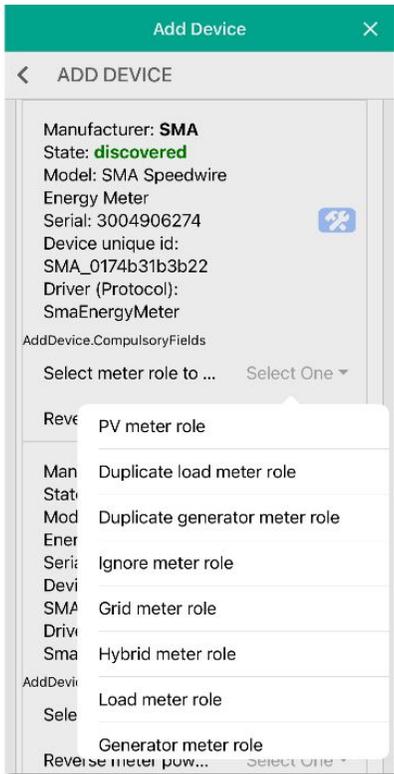


The Droplet will automatically discover the devices

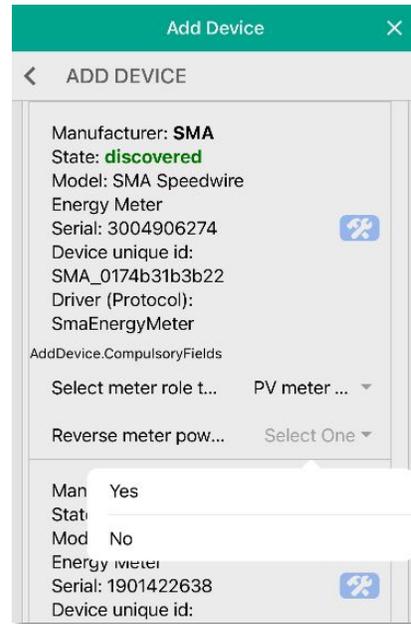


# Configuring meter connection point

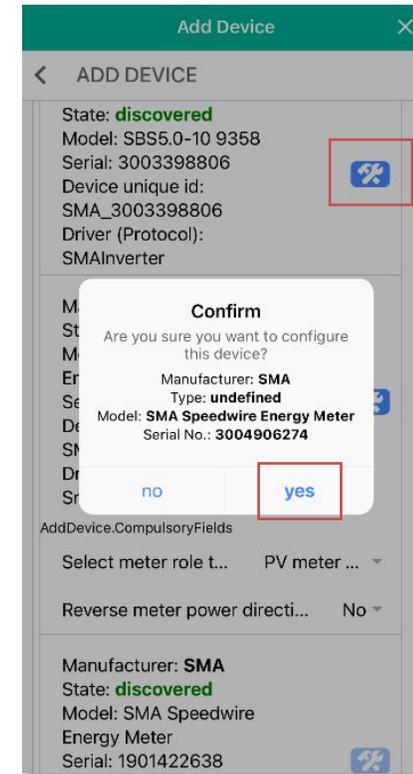
Choose PV  
or GRID meter role  
from drop down menu



Reverse meter power  
(if meter is installed  
in reverse)

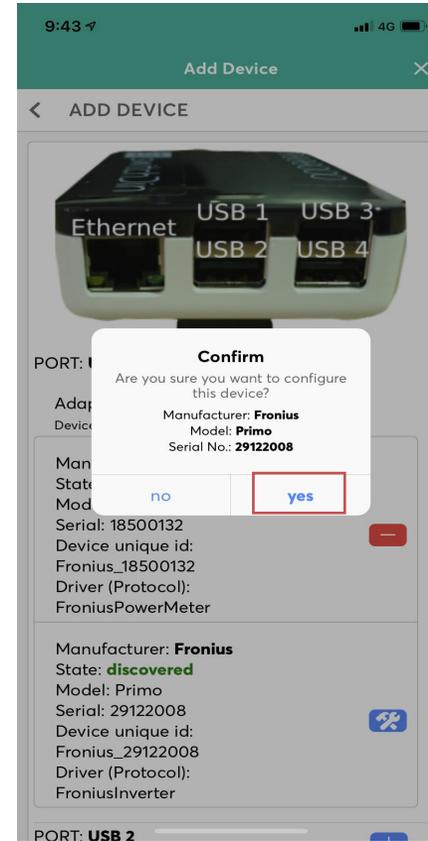


Configure meter



# Commissioning

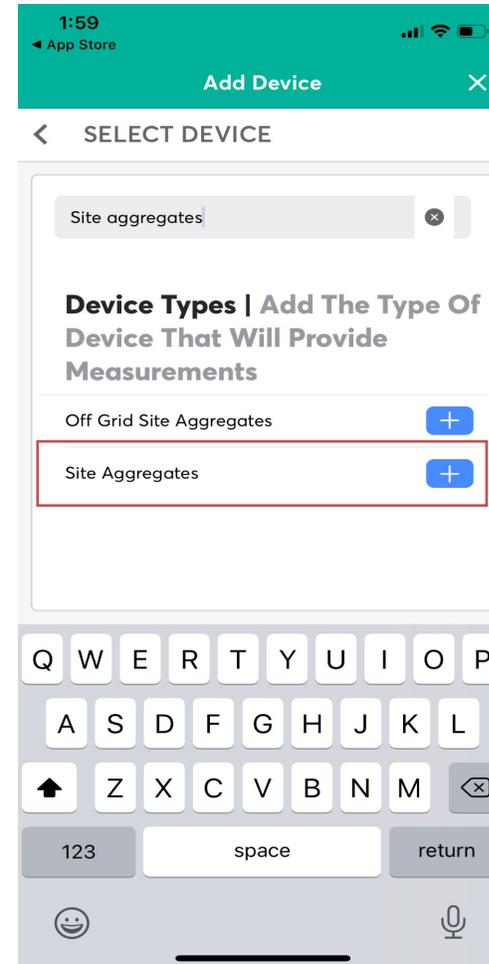
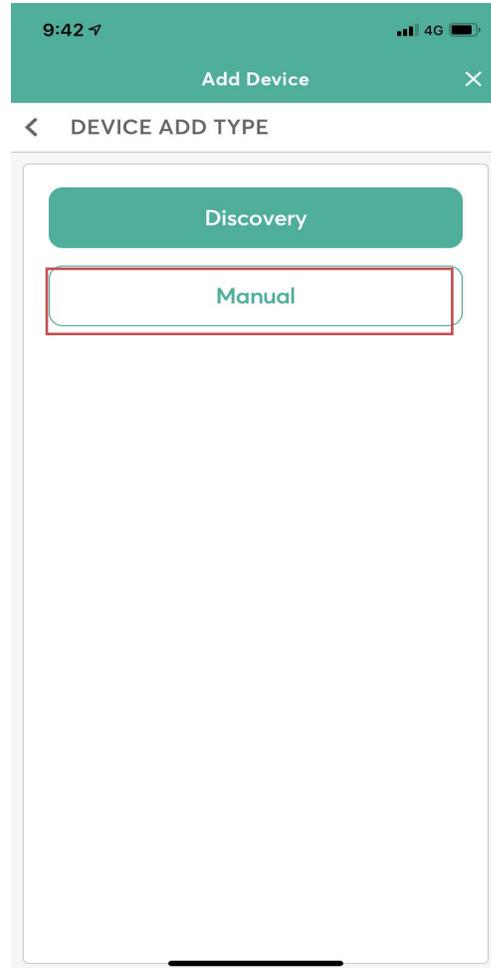
## Configure Fronius



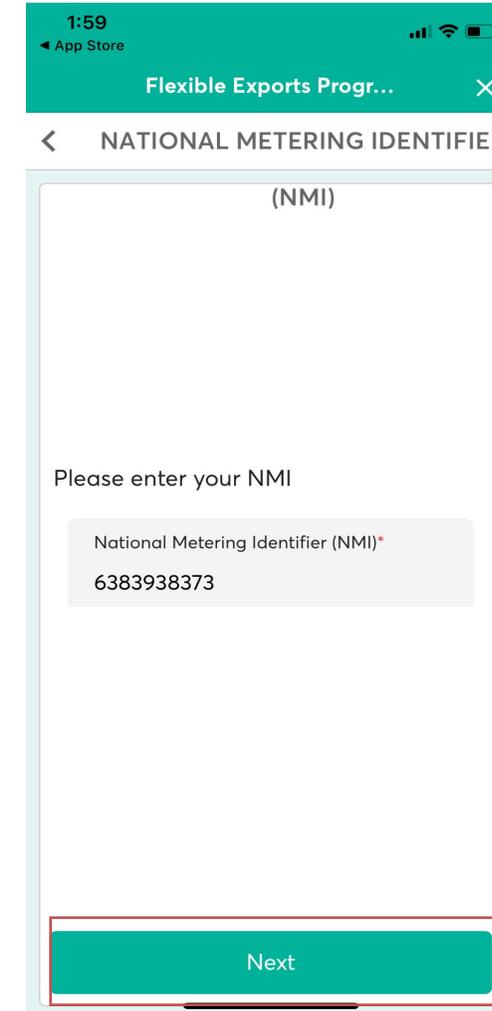
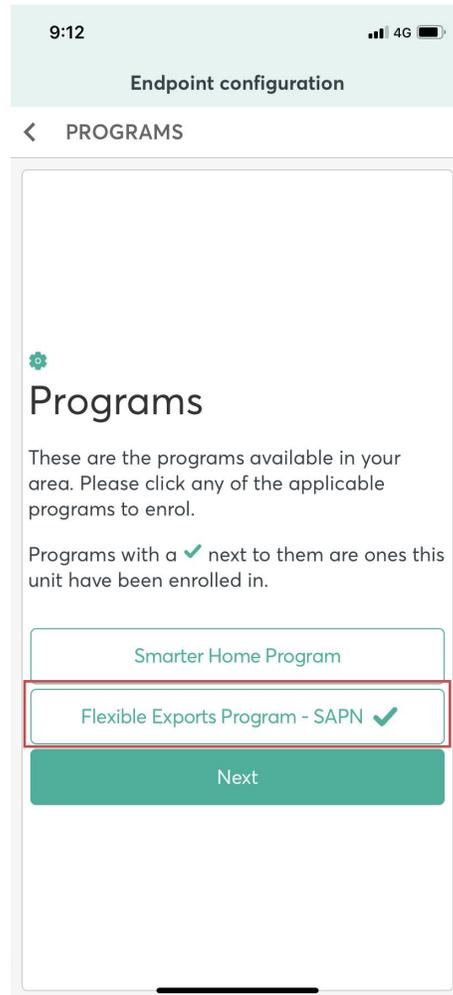


# Commissioning

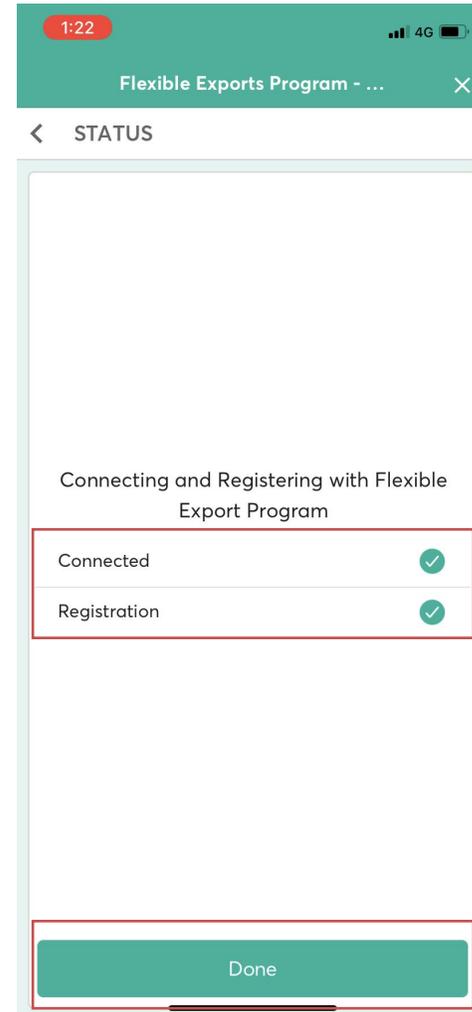
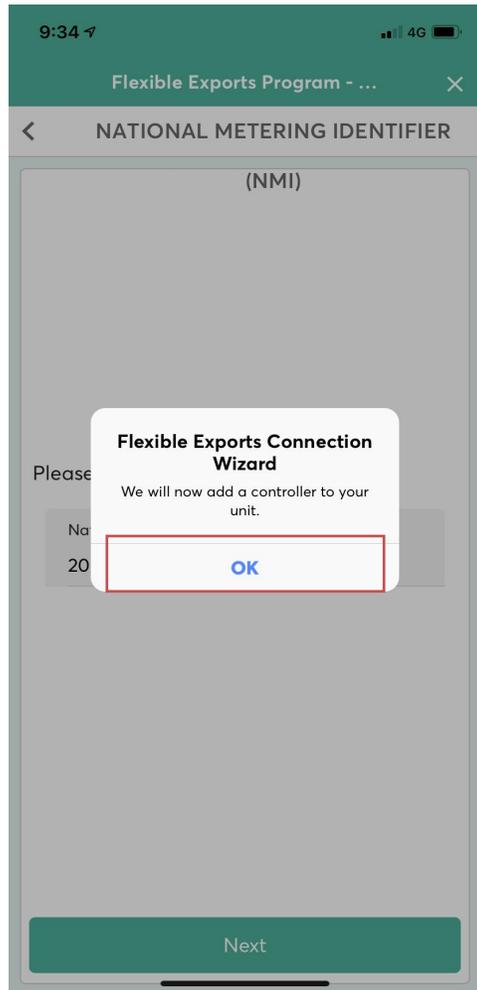
For Load Leg/Consumption Path Metering



# Running Flexible Exports Program

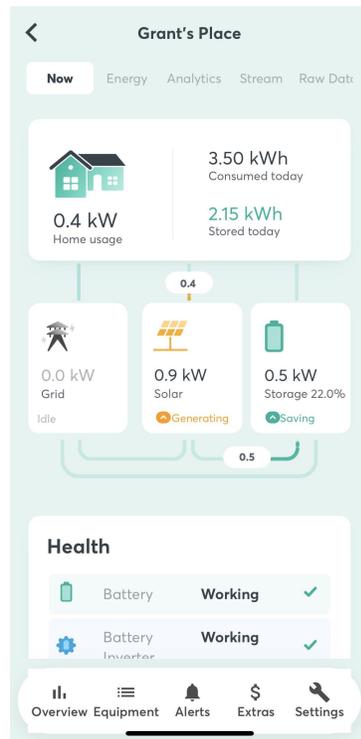


# Running Flexible Exports Program

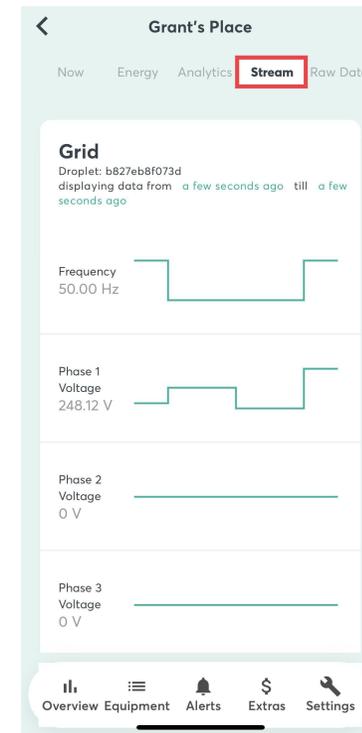


# Checking if the device is communicating

Check to see  
if device data is available

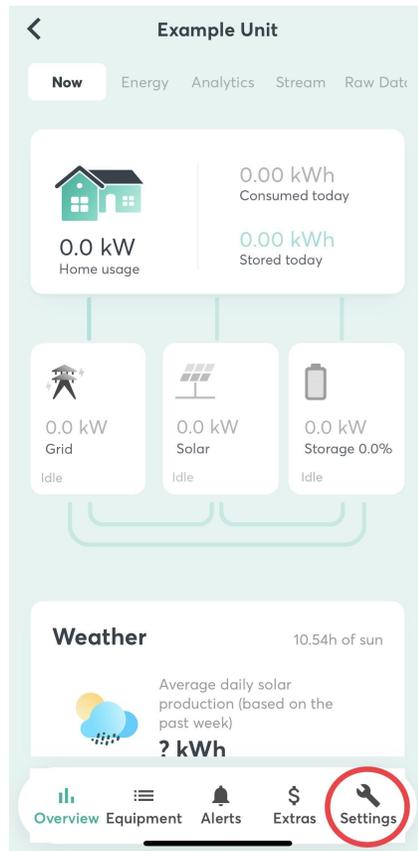


You can also check  
a 10 second stream of parameters

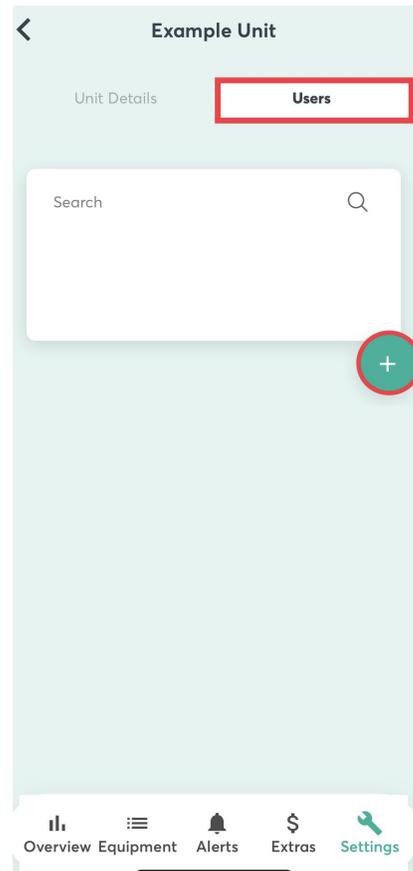


# Add end customer to the unit

Go to SETTINGS



Invite users

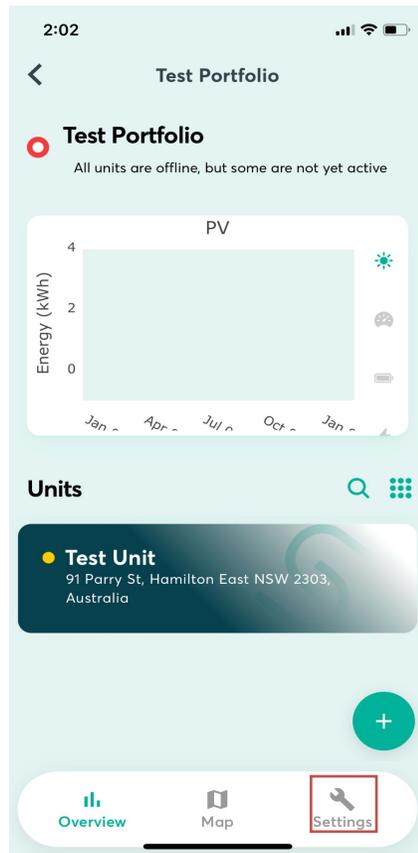


Enter details and UNIT OWNER BASIC access level

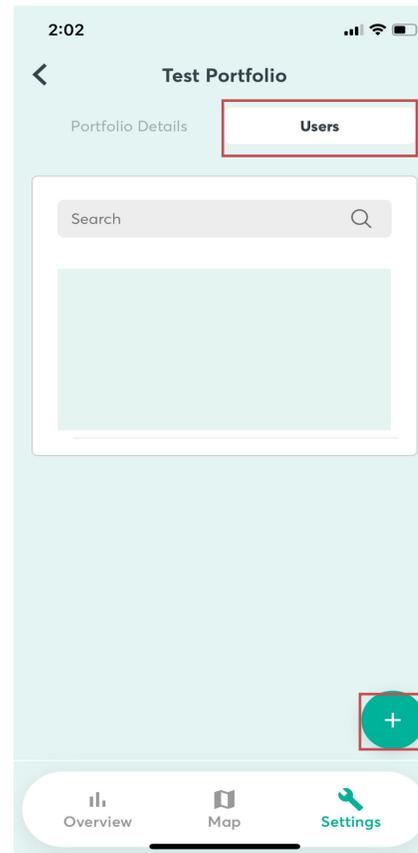
The screenshot shows the 'Invite user' form. At the top, there's a green bar with the text 'Invite user' and a close icon. Below this is the 'User details' section. A note states: 'The person will be granted access to this Unit. Access will be granted immediately if the User already has an account, otherwise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

# Add SAPN to the portfolio (first time)

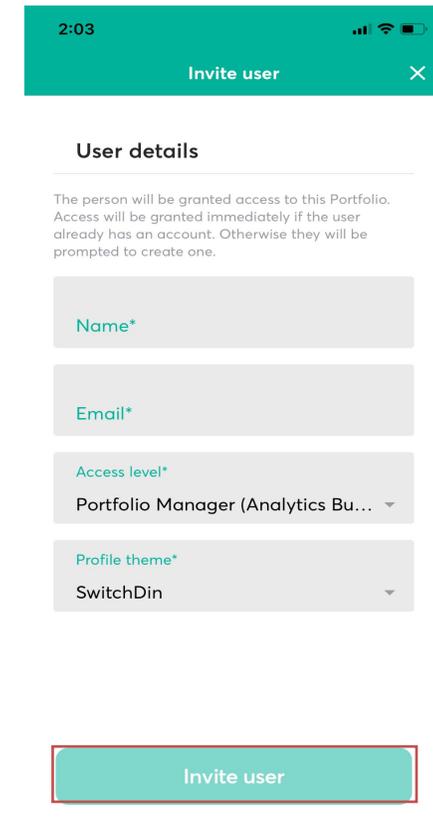
Go to Portfolio SETTINGS



Invite users



Enter SAPN details and PORTFOLIO MANAGER ANALYTICS access level



# 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](#)

# Troubleshooting

## Fronius Inverter ramping down after commissioning?

1. Check if NMI added is correct.
2. Remove device, and re-run the process.

# 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](mailto: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

# End of training