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HORIZON POWER

Quick Reference Guide

SGD + Growatt Installation

1. Growatt compatible devices

Here is the list of Growatt inverters compatible with Horizon Power Smart Connect Solar

Model	Size in KW	No Of Phases	Equipment Category
MIN 2500TL-X (AS4777-2 2020)	2.5	1	Grid Connect PV Inverter
MIN 3000TL-X (AS4777-2 2020)	3	1	Grid Connect PV Inverter
MIN 3600TL-X (AS4777-2 2020)	3.6	1	Grid Connect PV Inverter
MIN 4200TL-X (AS4777-2 2020)	4.2	1	Grid Connect PV Inverter
MIN 4600TL-X (AS4777-2 2020)	4.6	1	Grid Connect PV Inverter
MIN 5000TL-X (AS4777-2 2020)	5	1	Grid Connect PV Inverter
MIN 6000TL-X (AS4777-2 2020)	6	1	Grid Connect PV Inverter
MOD 15KTL3-X (AS4777-2 2020)	15	3	Grid Connect PV Inverter
MOD 13KTL3-X (AS4777-2 2020)	13	3	Grid Connect PV Inverter
MOD 12KTL3-X (AS4777-2 2020)	12	3	Grid Connect PV Inverter
MOD 11KTL3-X-AU (AS4777-2 2020)	11	3	Grid Connect PV Inverter
MOD 10KTL3-X-AU (AS4777-2 2020)	10	3	Grid Connect PV Inverter
MOD 9000TL3-X-AU (AS4777-2 2020)	9	3	Grid Connect PV Inverter
MOD 8000TL3-X-AU (AS4777-2 2020)	8	3	Grid Connect PV Inverter
MOD 7000TL3-X-AU (AS4777-2 2020)	7	3	Grid Connect PV Inverter
MOD 6000TL3-X (AS4777-2 2020)	6	3	Grid Connect PV Inverter
MOD 5000TL3-X (AS4777-2 2020)	5	3	Grid Connect PV Inverter
MOD 4000TL3-X (AS4777-2 2020)	4	3	Grid Connect PV Inverter
MOD 3000TL3-X (AS4777-2 2020)	3	3	Grid Connect PV Inverter

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2. Hardware & Software Checklists

Hardware

A   Growatt TL-X or TL3-X
B   Horizon Power Secure Device Gateway 'SGD'
C   SGD Power Supply
D   Ethernet cable + Ethernet/USB adapter
E   Any serial/twisted pair cable (RJ45) and a RS485 to USB converter
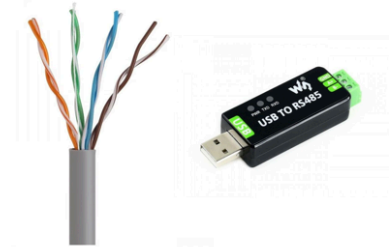   Please note these are not provided with the SGD box and must be catered by the installer.

A

B

C

C

E

Software

Ensure you have a user account with installer accreditation for the following applications:

Growatt OSS application: this platform is best accessed from a laptop and can achieve what you would on the ShinePhone mobile app.
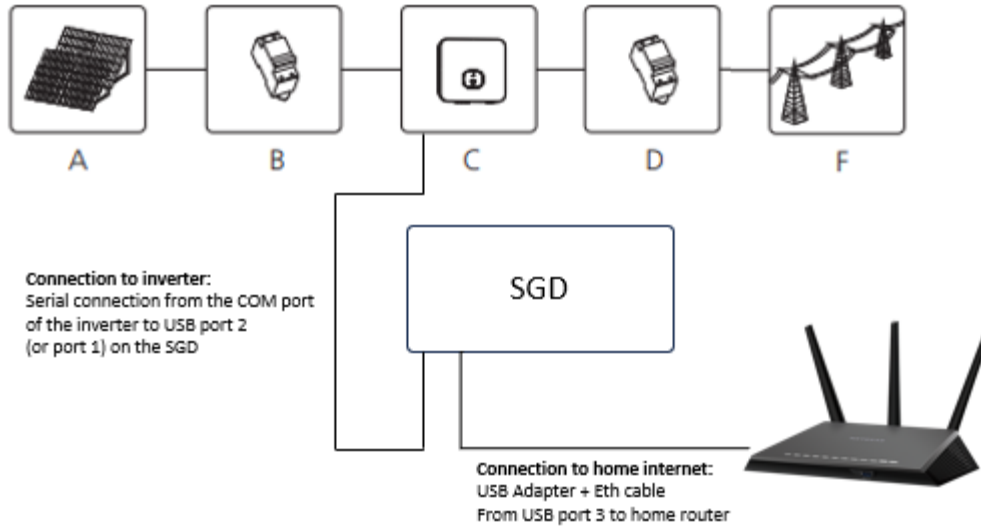
ShinePhone (Growatt): Some Growatt inverter settings may be accessible from the OLED display of the inverter.

Stormcloud (SwitchDin): Ensure you pass the HP Installer accreditation to get installer permissions open on the user account you create on this app.

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3. Physical connection

Behind the meter configuration overview

Here is the overview of the physical connections you need to establish between devices

Connection to inverter:
Serial connection from the COM port of the inverter to USB port 2 (or port 1) on the SGD

Connection to home internet:
USB Adapter + Eth cable
From USB port 3 to home router

Position	Description
A	PV modules
B	DC load circuit breaker
C	Inverter
D	AC load circuit breaker
F	Utility grid

Mount the SGD

Start by mounting the SGD on a DIN Rail using the pre-fitted DIN Rail mounting bracket.
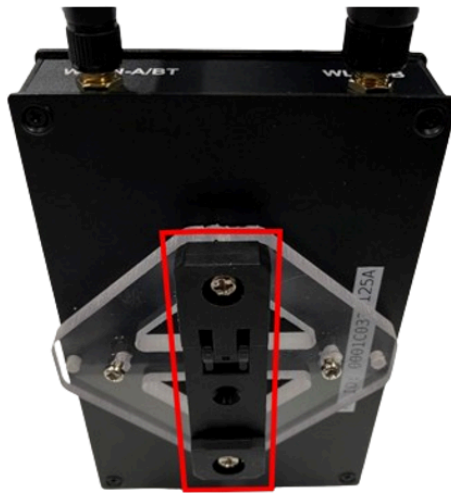
DIN rail mounting bracket

Connect to Home Internet

Then connect the SGD to the internet by plugging the USB-Ethernet adapter with a CAT 6 cable from the home router into the USB port number 3 as shown here.

Please be aware that there is no other USB port that will accept any Internet traffic.

**For home internet
connect USB-Ethernet adapter here ONLY**

Connect to Growatt inverter

Pick a set of wires, and connect the right pins to the RS485 to the USB converter according to the manufacturer's manual.

Then connect the USB adaptor to any of the USB ports left on the droplet.
Do not use USB port #3 which is restricted to Internet connection only.

Connect USB to RS485 converter here
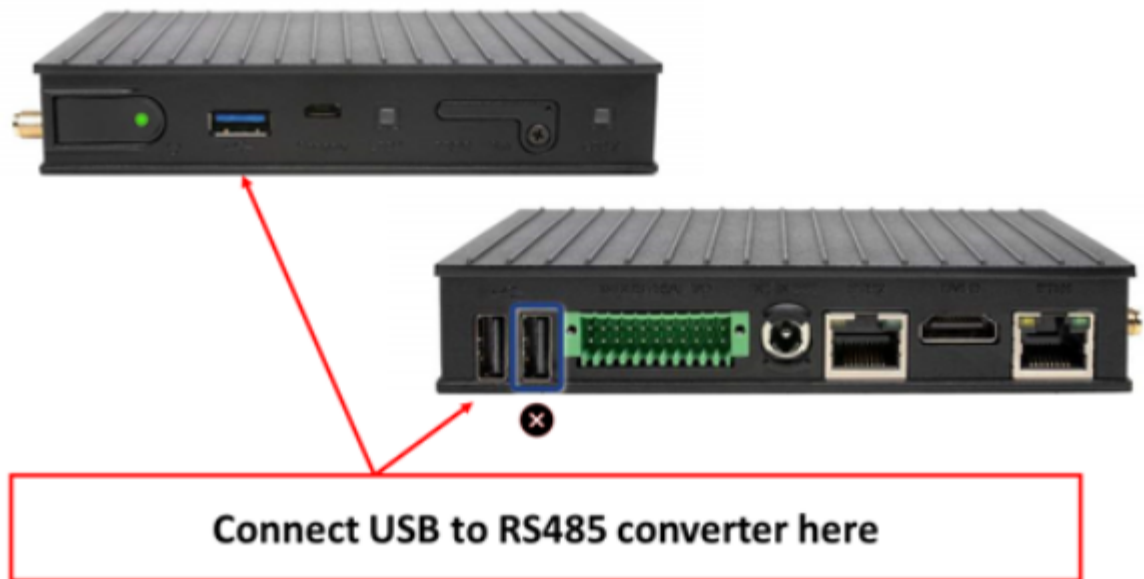
Start with picking a set of wires, and connect **PIN 4** of the 8-pin Growatt SYS COM plug (from the inverter) to **PIN 2 (T/R+)** on the RS485 to USB converter breakout board.

Then connect **PIN 3** of the 8-pin Growatt SYS COM plug (from the inverter) to **PIN 1 (T/R-)** on RS485 to the USB converter.

This series inverter provides two RS485 ports. You can monitor one or more inverters by RS485. Another RS485 port is for smart meter(Export limitation functionality.).

| NO.	Definition		NO.	Definition	
1	+12V	Power supply for external relay(≤2W)	5	CT-P	Signal for export limitation
2	COM		6	CT- N	
3	RS485A1	Signal for communication	7	RS485A2	Signal for Smart Meter
4	RS485B1		8	RS485B2	

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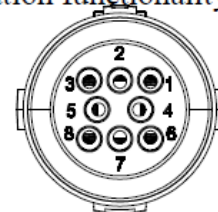
Connect the main 4G antenna

Make sure you connect the main 4G antenna to the WLAN-B connection as shown here.

Connect main 4G antenna here

Power up the SGD

Ensure you connect the power supply as below.
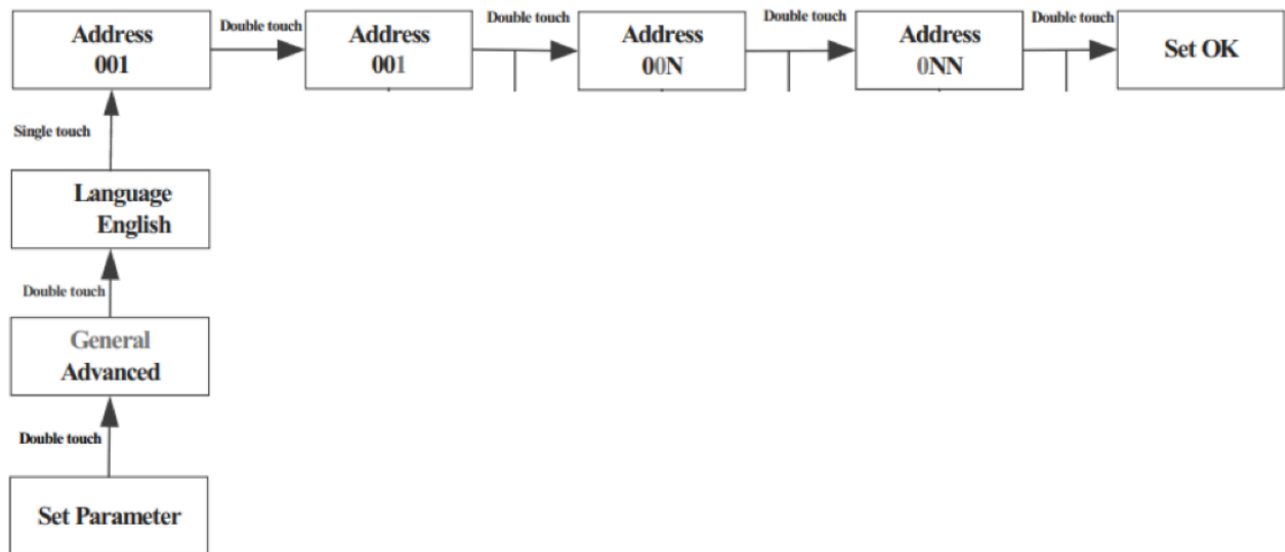

Connect power supply input here
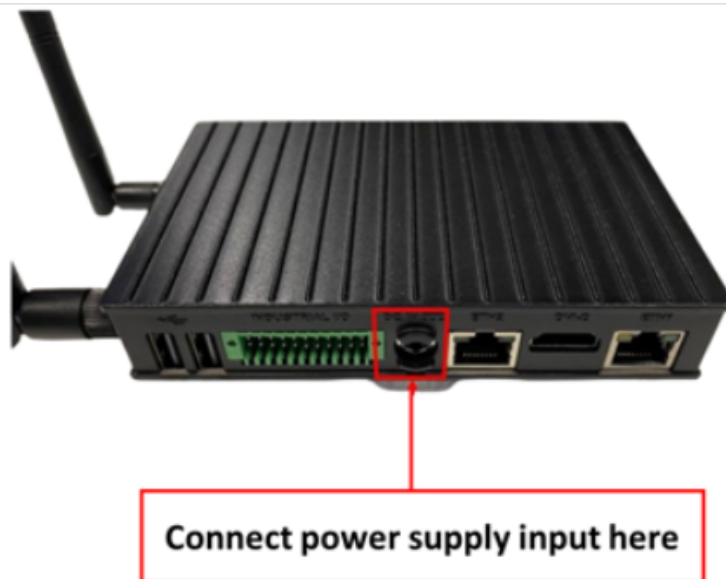
4. Growatt inverter settings

COM Address

Modbus can be set on the RS485 port of the inverter by accessing the COM address via the OLED display or the ShinePhone app.

The default COM address is 1.

If you need to change the COM address, single touch on the OLD display or make number +1. Then double touch to confirm the setting.

Failsafe mode

Ensure that the **value for export limitation is set to 0**.

The failsafe setting is a protection when communication between SGD is lost, the inverter runs at the default setting to not over the limitation value.

The Generation & Export limitation control function is disable in factory, under the permission of Distribution Network Service Provider, you can ajust the setting.

- Single touch to switch display or make the number +1.
- Double touch to confirm your setting.

Control type:

☐ SW stands for enabling soft limit control function

☐ HW stands for enabling hard limit control function
☐ Both stands for enabling soft and hard limit control function at the same time.
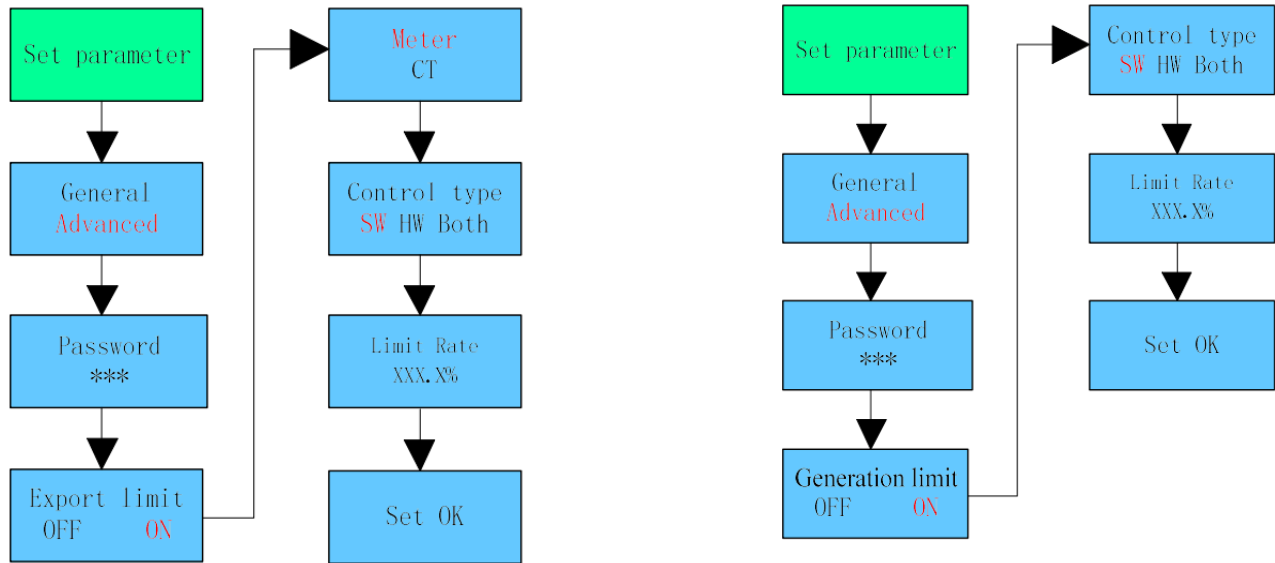
Under the permission given by your energy provider, the ratio of your system output power divided by the rated power of the inverter is called Limit Rate. (*For instance, if the energy provider only accepts 4kVA/kW from your 5kW system, then the Limit Rate of 5kW inverter is 80.0%.*)

Inverter region setting

Ensure that via the OLED display you set the country to Australia and the region to **C** for Horizon Power. When inverter powered on, OLED will light automatically. Once the PV power is sufficient, OLED displays the following:
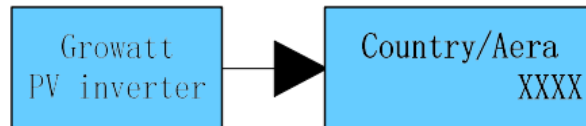
Press the touch key once a second to scroll through the different Country, showing on the screen will constantly change.

Press the touch key 5S, the OLED shows Country setting is complete.

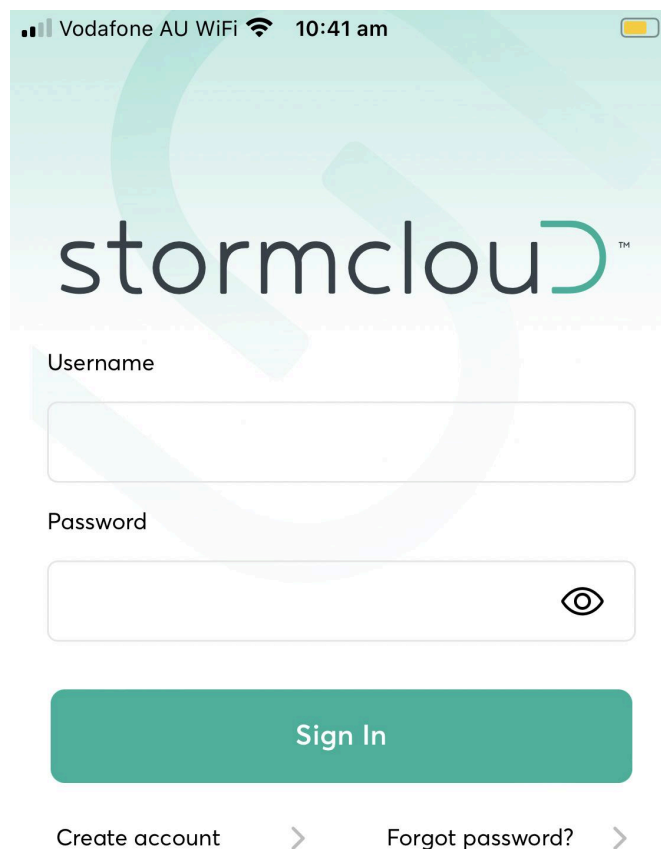When the Country setting is complete, the OLED display shows "Set Region" as below (Only for Australia):
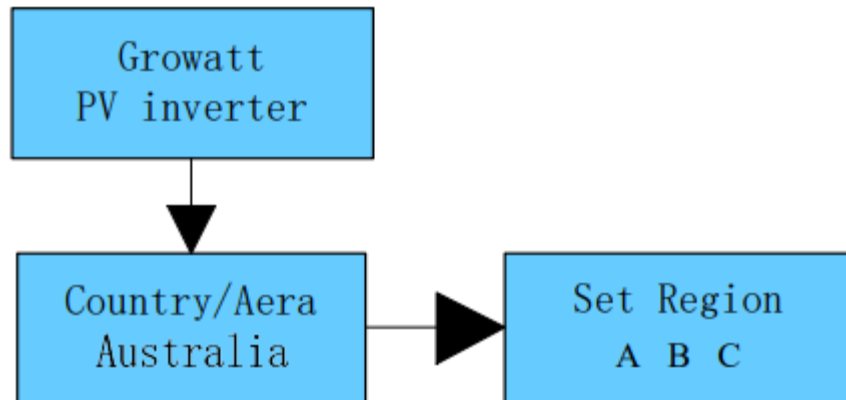
5. Commissioning the SGD

Open the Stormcloud application and sign in.

Please follow this link if you are creating your user account. You must ensure you have permissions on this account opened by SwitchDin.

Your username is an email address. (both username and password are CASE sensitive)
If two-factor authentication has been enforced, you will receive a passcode valid for 300 seconds in your email inbox to finish logging in to the SwitchDin portal.

Create a portfolio

On first signing into the application, you can create a folder regrouping all the sites where you install SGDs. We call this folder a portfolio. As an installer, feel free to use the name of your business or area.
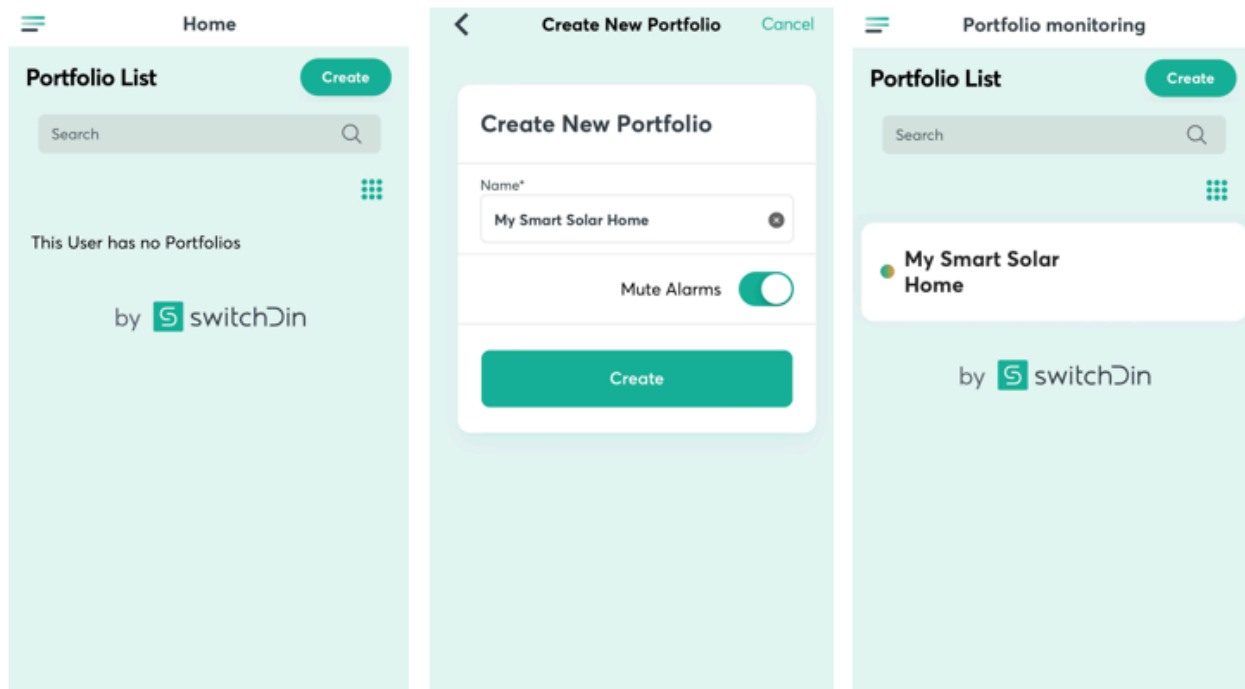

Create a unit

Tap on your portfolio to create your first unit. Tap on 'Create' in the top right corner.

In the Unit Name field, please use the following naming convention:
Street address or significant place name - Town - Inverter size (kW)

For example:

1.   12 Test Road - Onslow - 5kW
2.   Broome Test School - Broome - 25kW

Then enter the address in the Street Address field and tap Create New Unit.
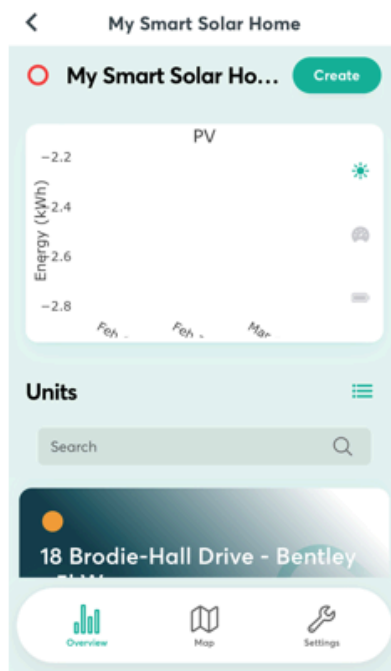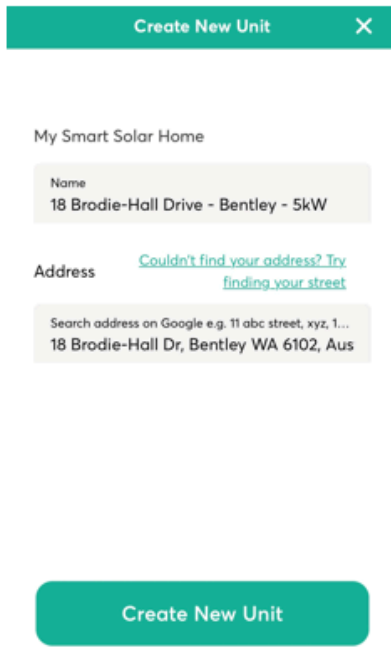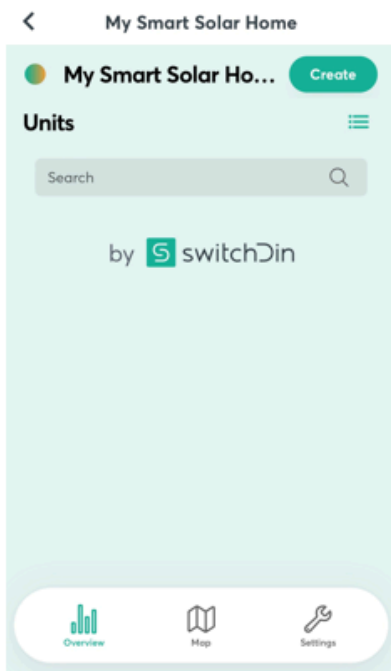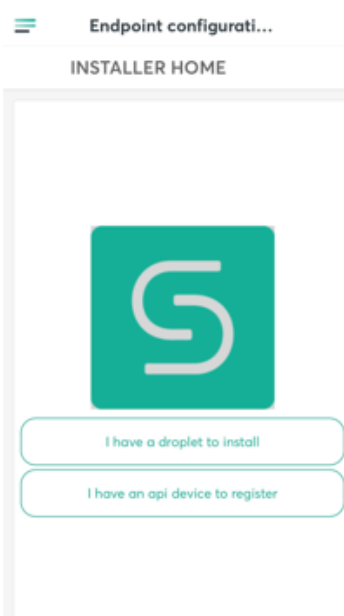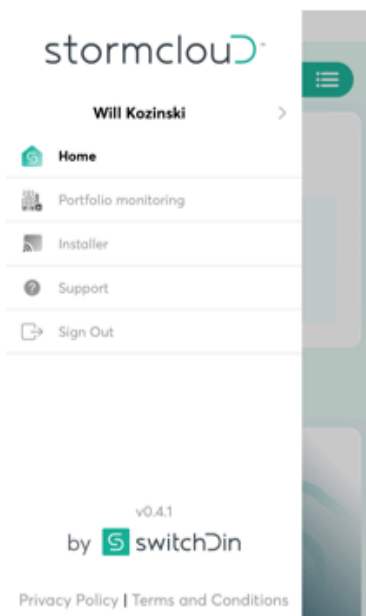
Add the SGD to the unit

Start the Installer application from your mobile application's top left menu bar.

Select 'I have a droplet to install'

Scan the QR code on the SGD or manually enter the serial number (located below the bar code on the SGD). If you cannot reach the QR code or serial number on the SGD, it can also be found on the packaging it arrived in.
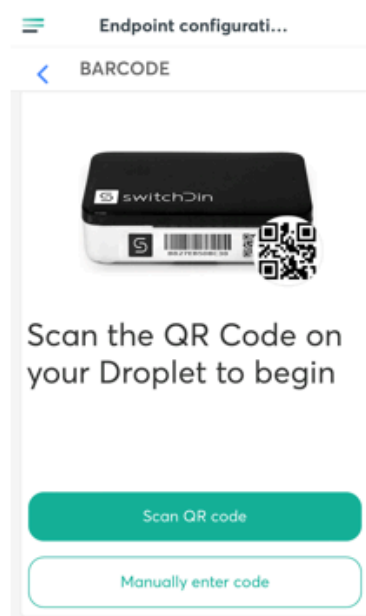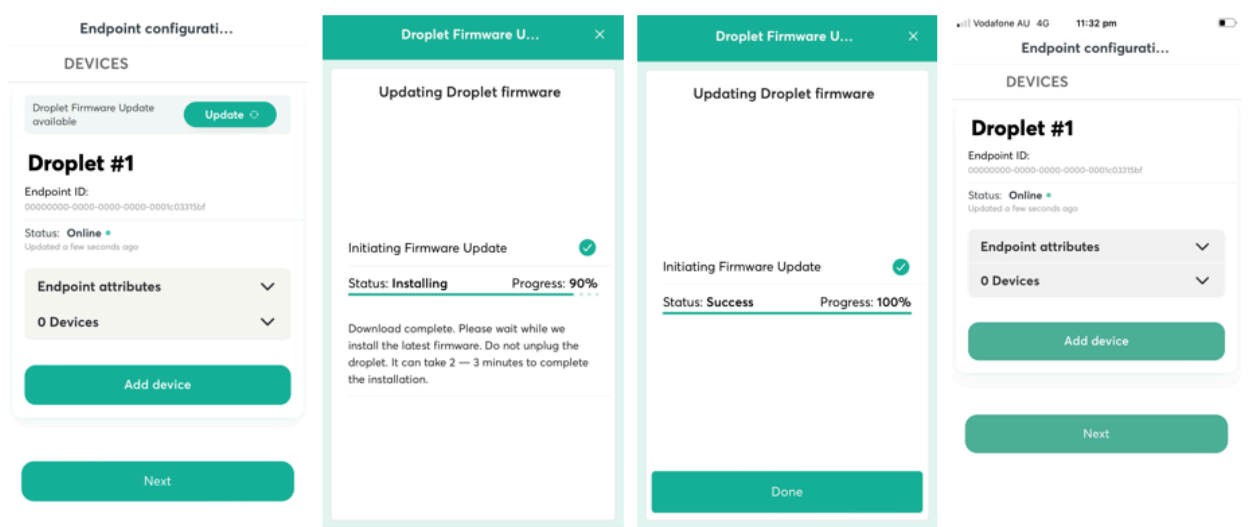
Then select 'Connect via Ethernet' as you should have plugged the USB/ETH adaptor into the local LAN and port USB3 of the SGD.
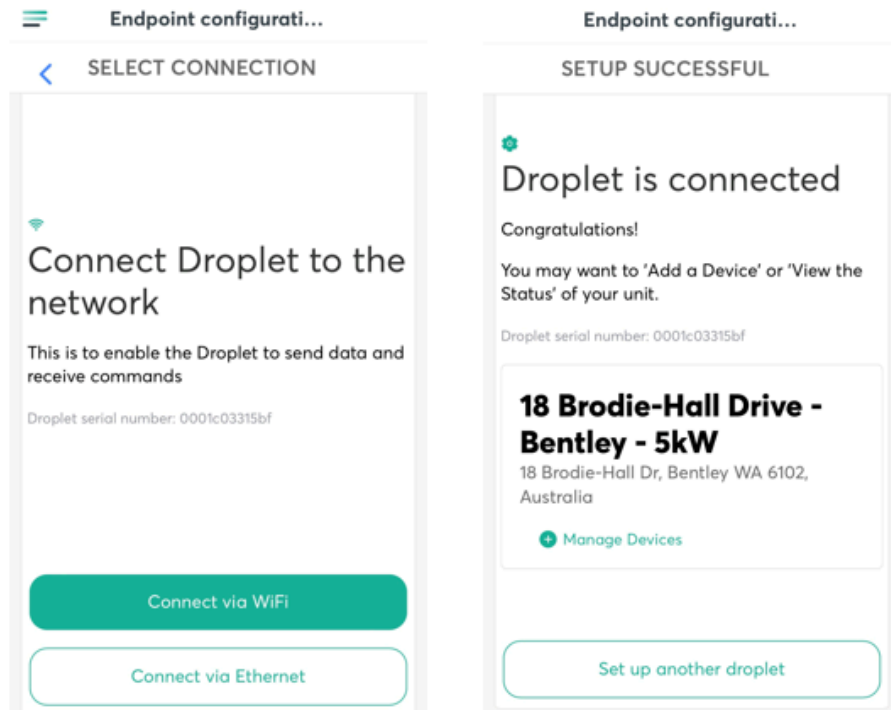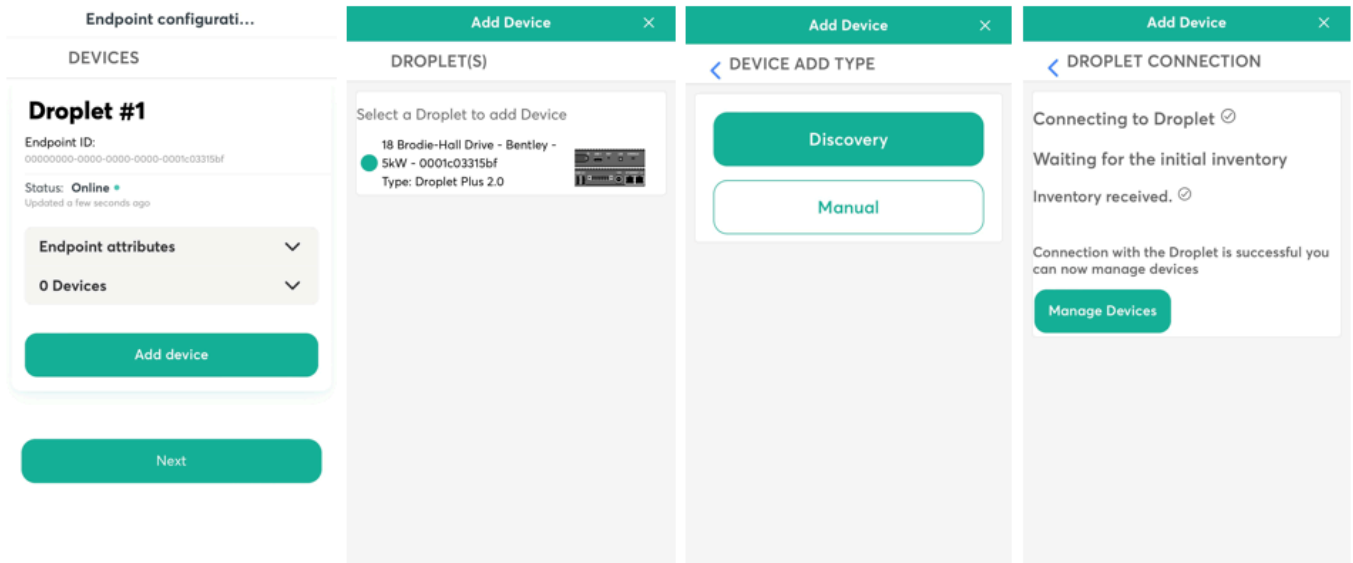

Update firmware

Select 'Manage Devices' and tap at the top of the screen to download the latest firmware update if available.

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Manage Devices

Tap on Add device, tap on the droplet you want to select, then tap on 'Discovery'.
Tap on 'Manage Devices'

Tap the settings button in front of the USB port you have used to connect the inverter to the SGD. Then select the model/type of inverter. Specify if you have a grid or load meter.

Optional: If you have connected a smart meter, you will configure it from selecting the other USB port you have used.

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Add the Horizon Power Controller

Now that a device has been added to the SGD, you will be able to tap on 'Add Controller'. Select 'Horizon Power Controller' from the drop-down menu then 'Create'.