Sungrow Commercial systems in Cascading Mode

Part 2 – Commissioning and Settings for string Inverters

Disclaimer

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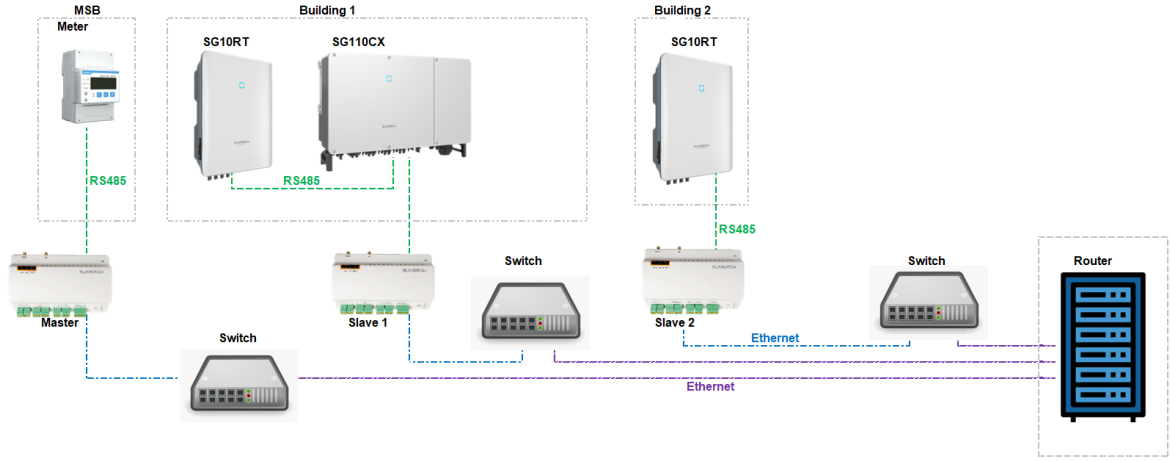
System Overview/structure:

The cascading Logger100 structure allows individual parts of a PV system to be located on different buildings, ***provided that*** they are all on the same LAN. The diagram below shows an example where the meter is located at the MSB, and there are inverters on different buildings, and are all connected to the same router via ethernet.



In this ‘Cascading’ setup, the meter can control the export and monitor the entire system.

The Inverters and meter are connected to the Logger1000 units via RS485, and each Logger1000 is connected to the LAN via ethernet/switch.

Each Logger1000 will have a static IP address assigned to it (discuss with IT personnel).

Wiring:

Please ensure all parts have been correctly wired as per the wiring documentation, and that the inverters have all been initialised and are powered by either AC or DC, or both.

Initialise/Grid Settings:

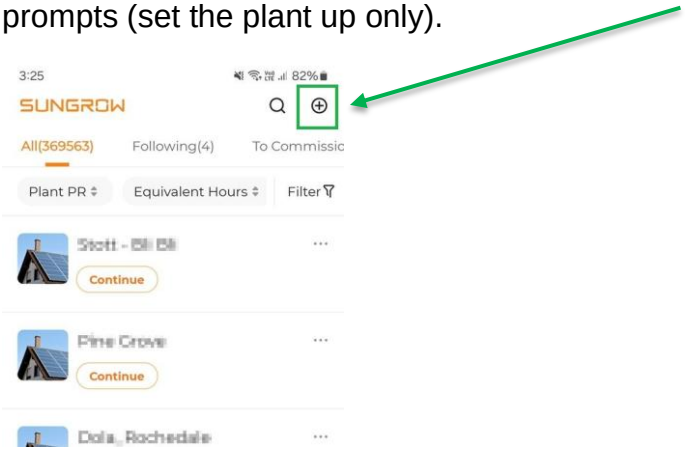
Power up the inverters and set the grid code for each. You may switch off the AC once you have done this and leave just the DC on to that the inverter is on, but in standby (it will need to be on for the following process).

iSolarCloud:

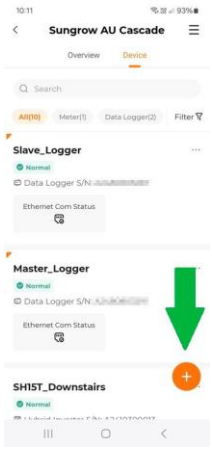
You will need to set up the plant on iSolarCloud using the Master Logger1000.

This is easiest done on your smart phone App.

Open your iSolarCloud App, log in, and tap the + sign on the top right. Follow the prompts (set the plant up only).



Use the Master to create the plant, log in, and add any subsequent slave Loggers to the same plant by tapping the orange +. It will ask you to scan the QR code.



Add all slave loggers by tapping the orange +

*Until the system has been connected to the Australian server, no data will appear.

Naming and address architecture of Loggers/Plant:

The Logger1000 that is connected to the meter shall be designated ‘Master’ and all other Loggers shall be Slave 1, Slave 2 etc. Always begin commissioning with the Master.

As the DHCP does not work in cascade mode, each Logger must have a static IP address assigned within the same range to it, i.e. 192.168.1.2, 192.168.1.3 etc

Please consult with the site IT manager in case the customer wants to specify the addresses.

Equipment:

Sungrow recommends that you perform all commissioning via a laptop. (This can also be done using a tablet or smart phone).

Step 1 – Master Logger:

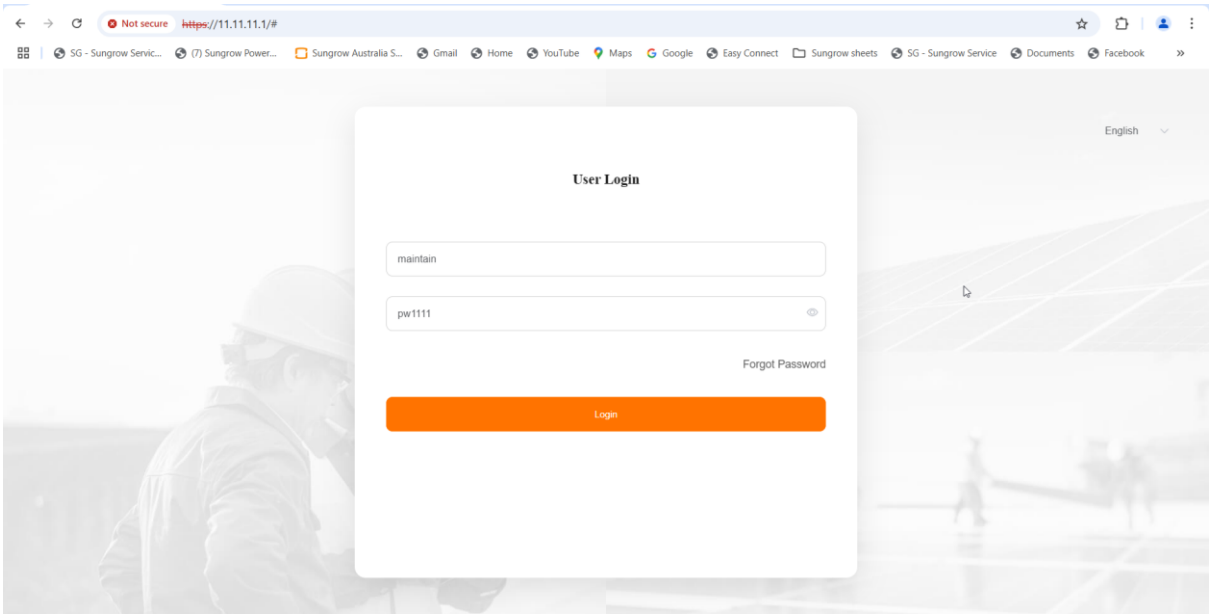
Once all the connections (RS485) have been completed and the inverters operational, power up the Logger1000.

Go to the WiFi settings on your Laptop, and scan for the serial number of the master Logger, and connect.

Open any browser, and type in 11.11.11.1 into the address bar.

You will see a log-in box.

Type in maintain and pw1111.



It will ask you to create a new password, then you will need to log back in again using the new password.

Once logged in, the Setup Wizard will display.

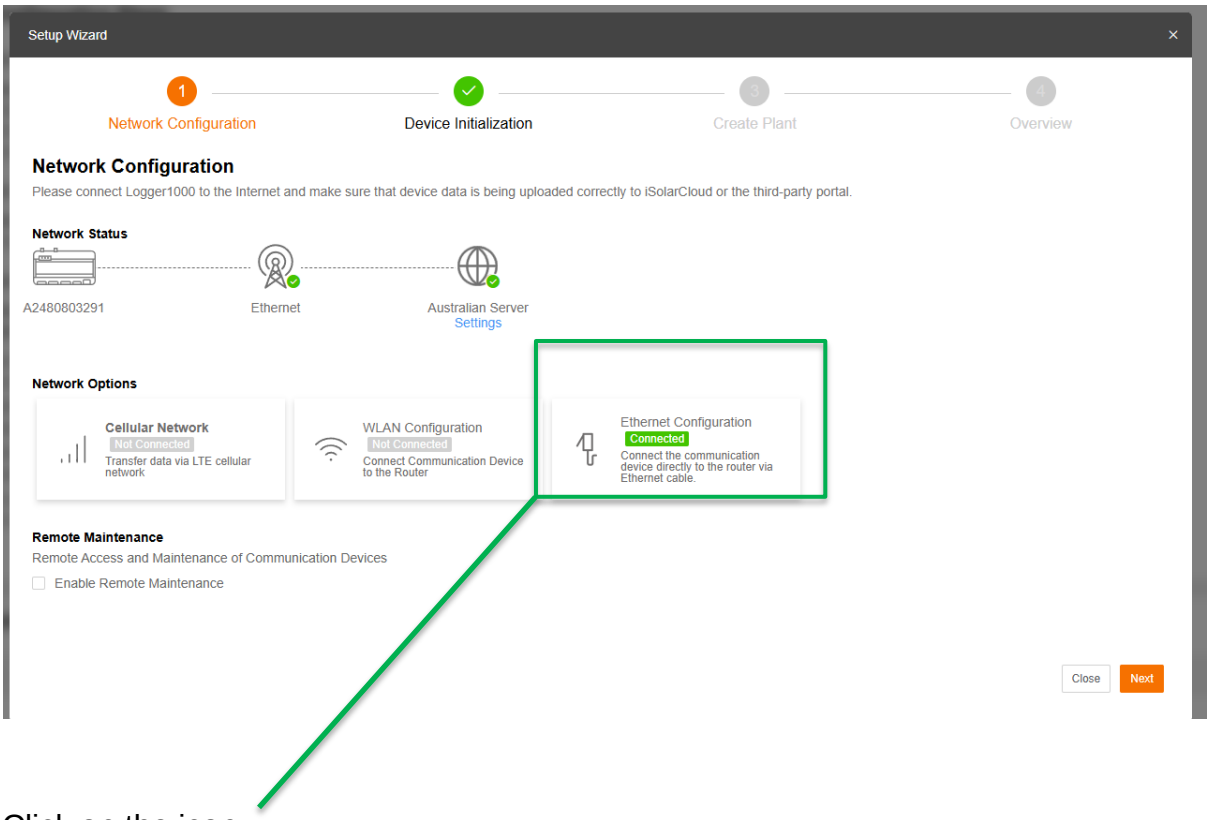
Network configuration:

First, we need to configure the network settings.

The ethernet port will show as connected as long as it is connected to a network.

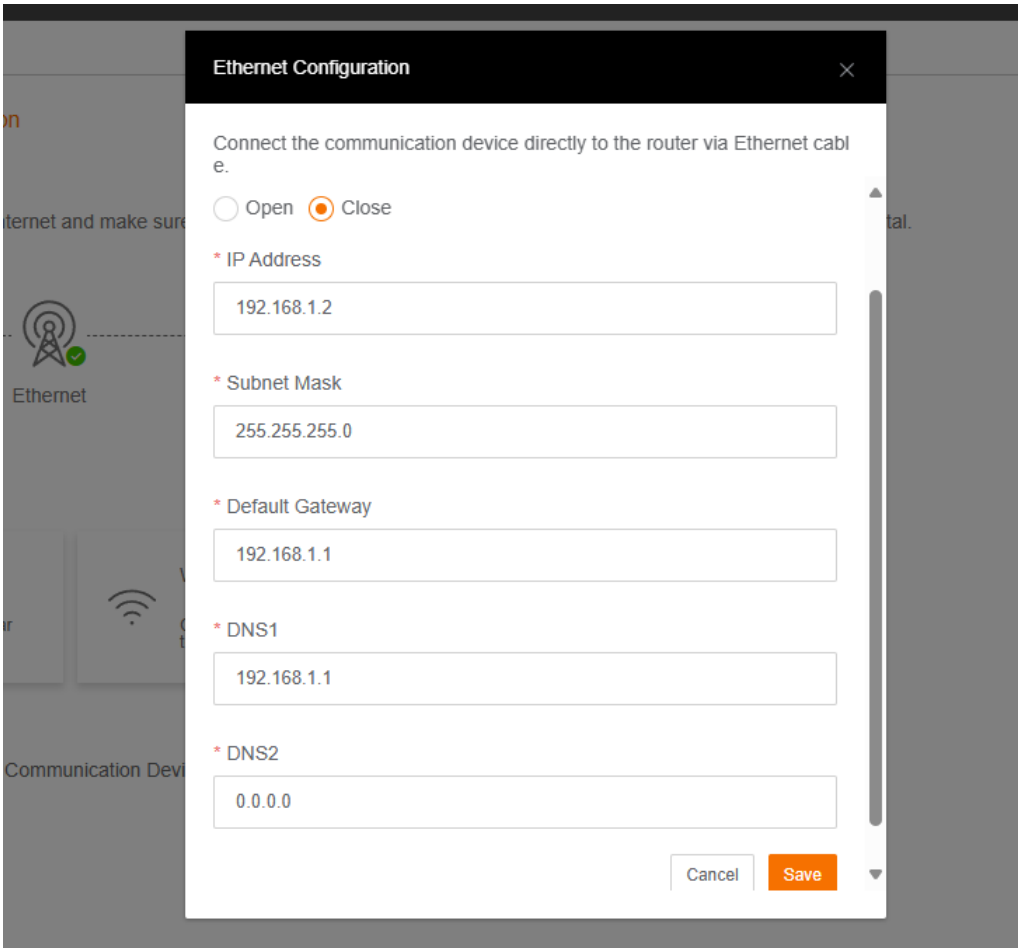
Click on ‘Ethernet Configuration’

(Master and slaves will be set in same manner later)



Click on the icon.

Close the DHC and enter the required IP Addresses etc and other information (some knowledge of networking is required here).



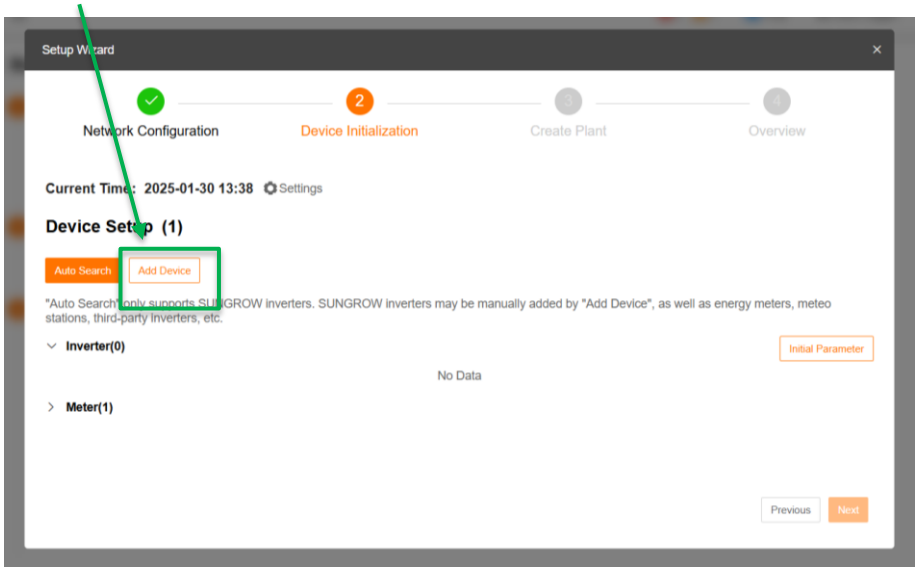
Once you have done this, you will need to re-connect and log back in using ***HTTPS://11.11.11.1***

Once logged in to the Master Logger, you will need to add the meter and slave Loggers. (Any inverters that are connected will automatically scan).

(Master will not connect to slaves until to set the slave IP address)

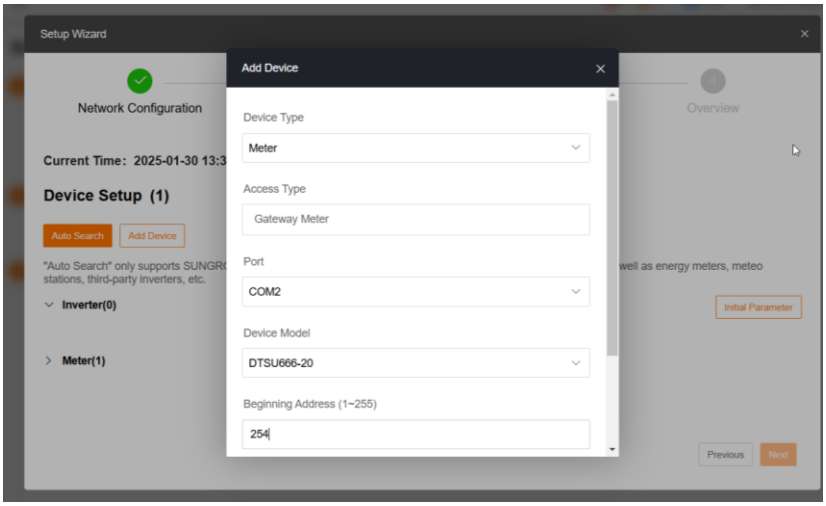
Click ‘NEXT” to take you to the Device Initialisation page.

Click on *'Add Device'*

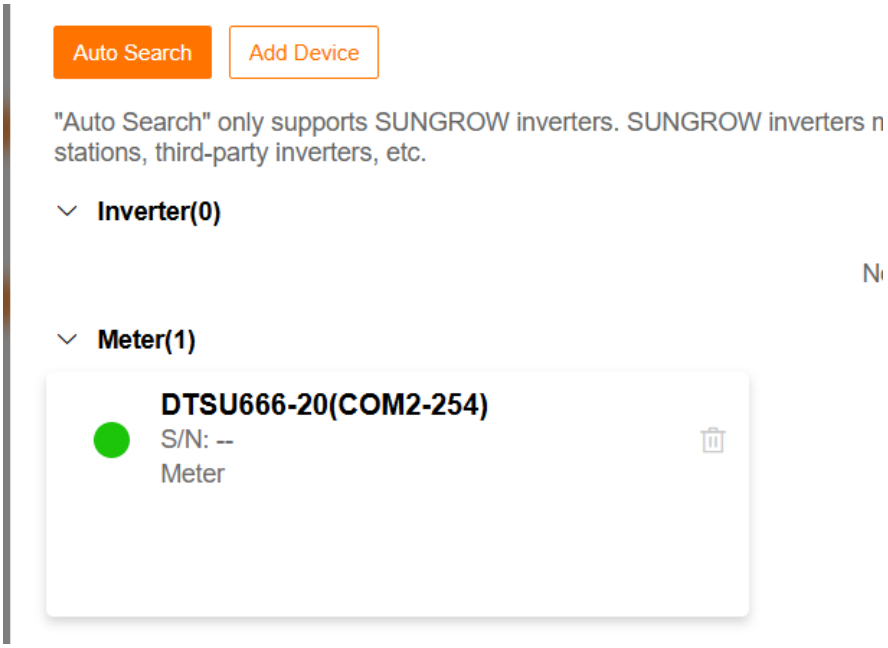


Select 'Meter' > Gateway meter > (The COM channel is the same as RS485 channel – in the below example, the meter is connected to A2/B2 on the Logger RS485 so we select COM 2) > Select the meter model > Set address to 254.

Scroll down and save.



If successful connection, the meter will display green dot.



Current transformers:

Refer to Appendix 1

Export Control:

Refer to Appendix 2

Adding Loggers:

At this point, you can add the slave loggers using the IP addresses assigned to each. They will connect once the Slave loggers IP addresses have been set (see next step).

(See below pictures)

Enter “Sungrow Logger”.

The port will default to NET.

Cascading Scheduling is set to open.

Protocol type will populate default.

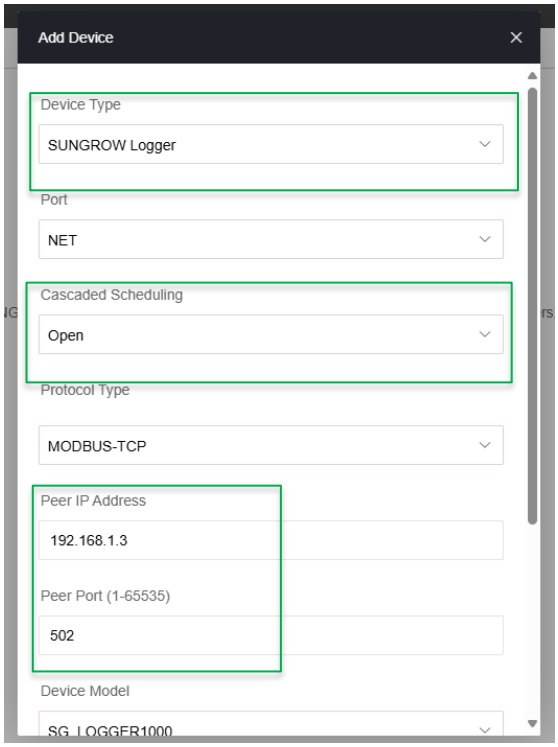
Enter the IP address of Slave 1 (i.e 192.168.1.2)

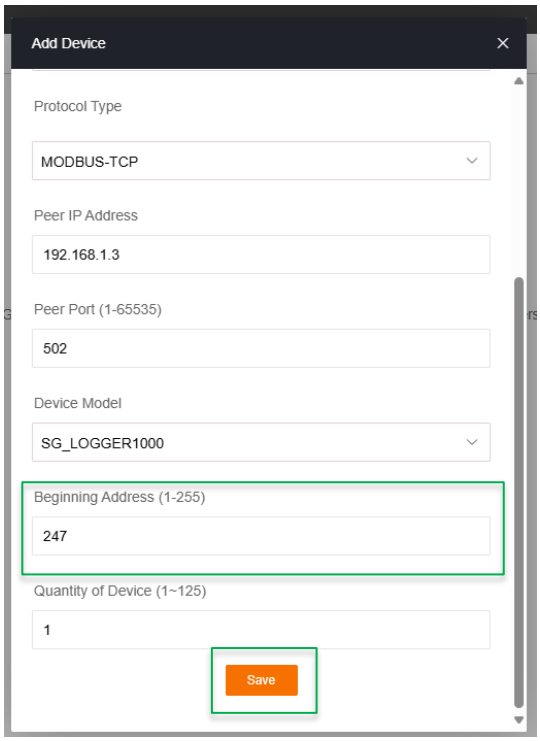
Peer Port = 502

Device model will populate default.

Beginning address and Qty will populate default.

Save.



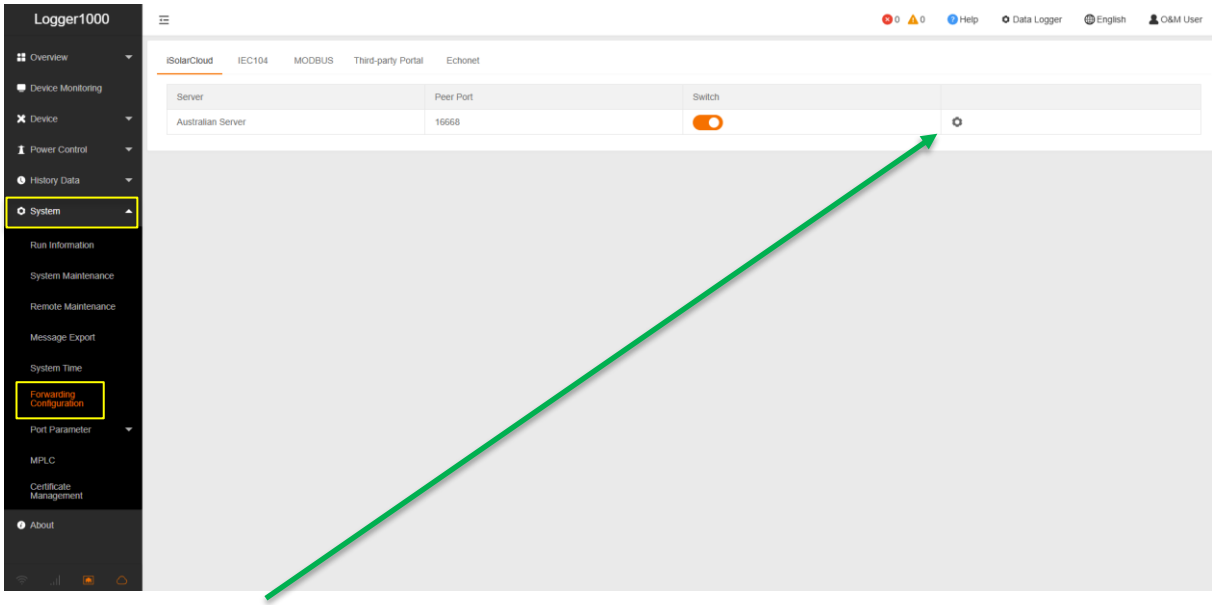


Add any other subsequent Slave Loggers in the same fashion ensuring the IP addresses are correct and don't conflict.

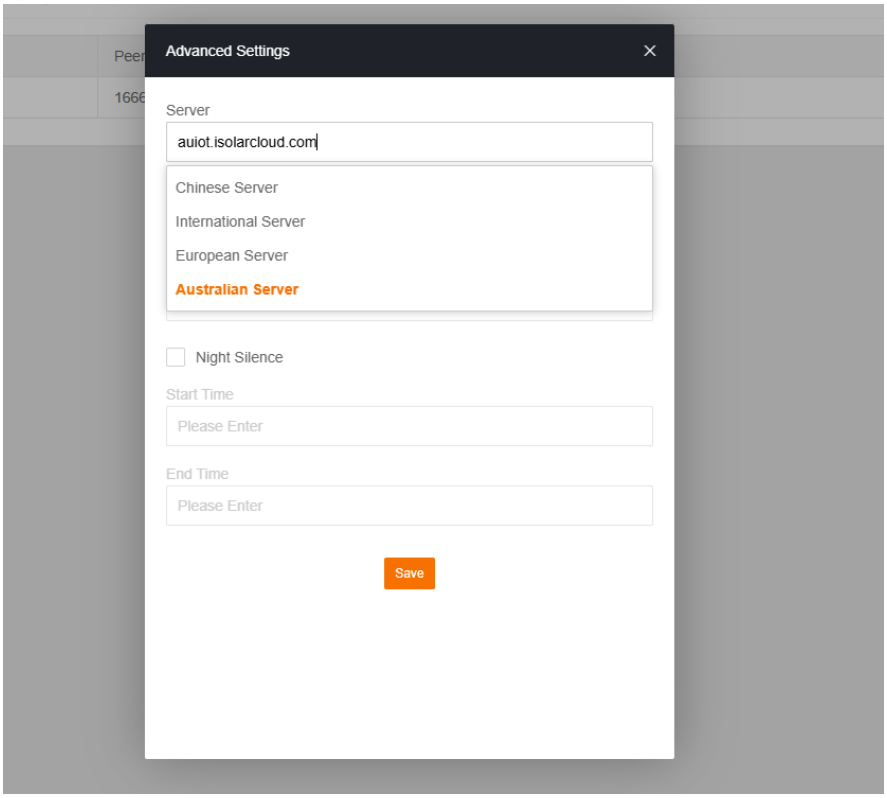
Setting the Forwarding Configuration and Remote Maintenance:

Close down the setup wizard.

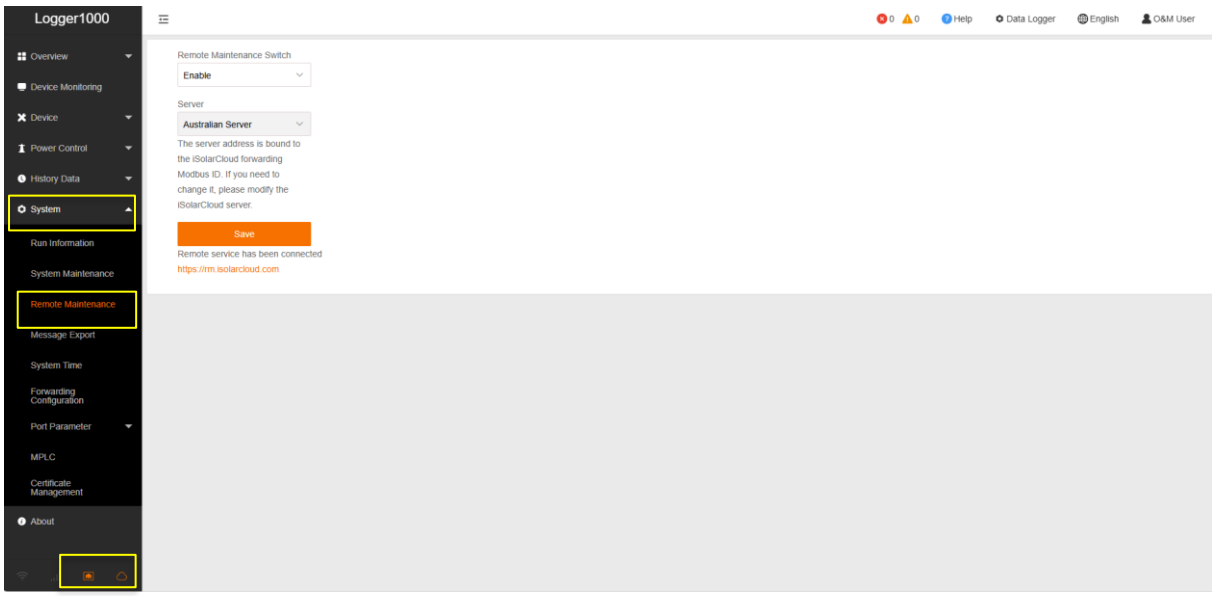
From the menu on the left, select '*System* > *Forwarding Configuration'*.



Click the gearwheel on the right and select the ‘Australian Server’ and save.



From the menu on the left, select *System* > *Remote Maintenance*



Enable the function, and check that is it set to Australian Server, and save.

If connection to the cloud is successful, a hyperlink in orange will display below the save button (it may take a few moments to connect to server).

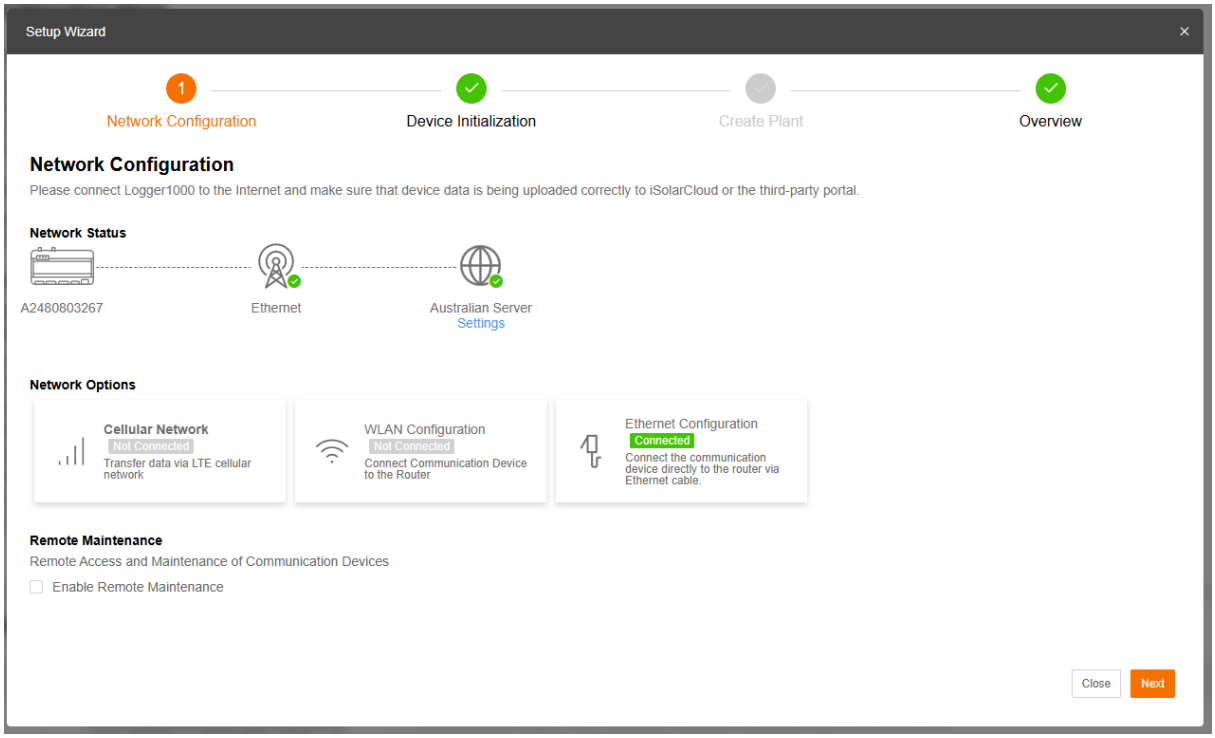
The icons at the bottom of the menu should also light up.

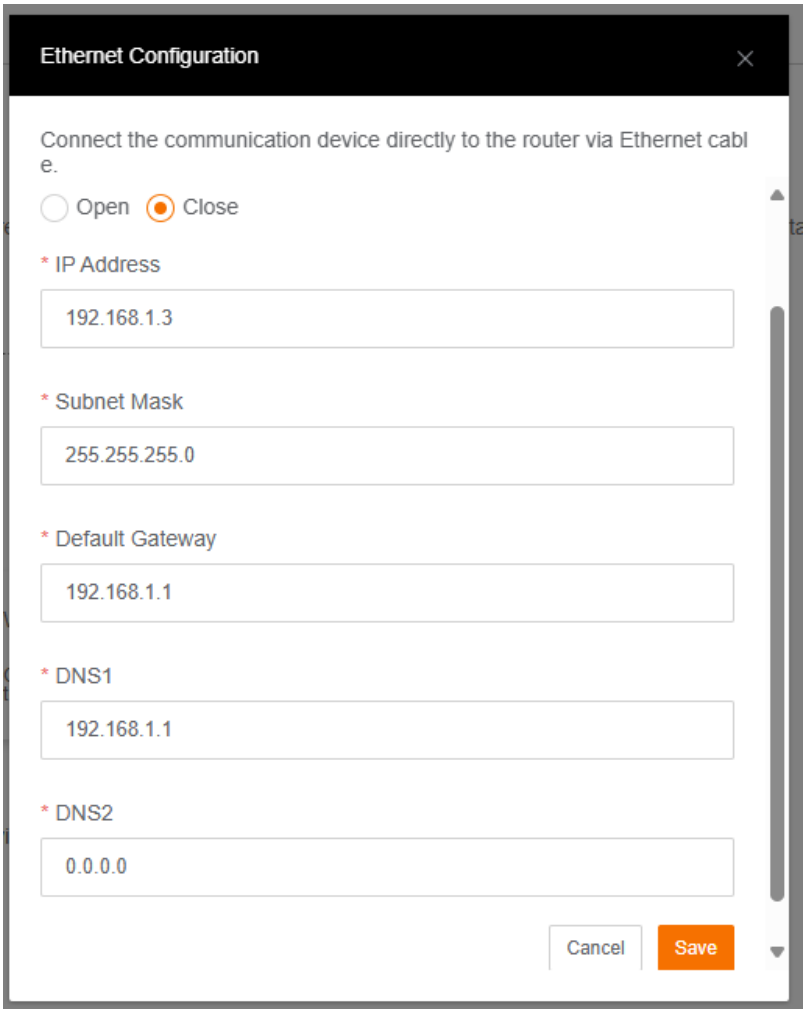
Log back out.

Slave Logger Settings:

Log into the slave loggers one-by-one using the same WiFi method as before.

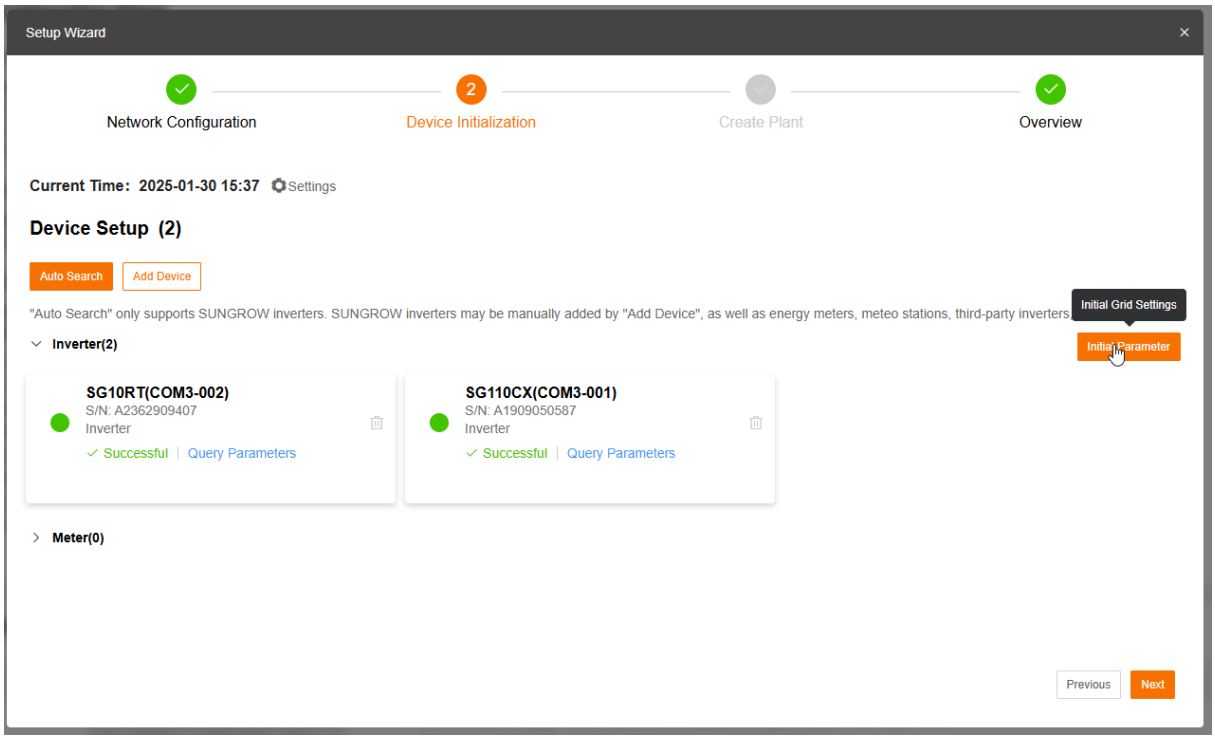
In ‘Network Configuration’ set the IP address in the same manner as in the Master Logger. Click ‘Next’.



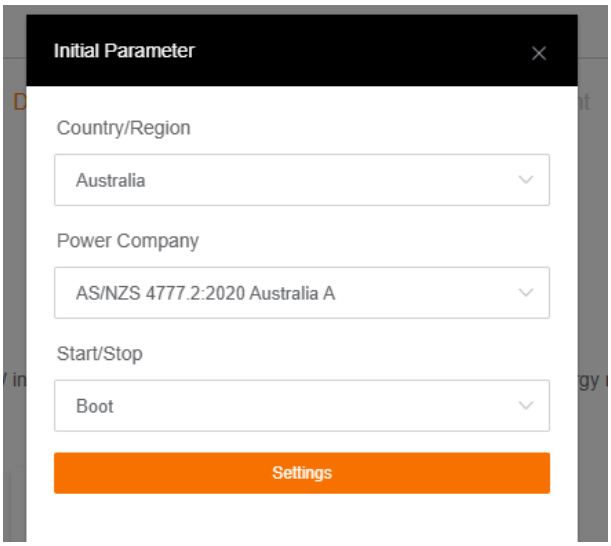


Inverters:

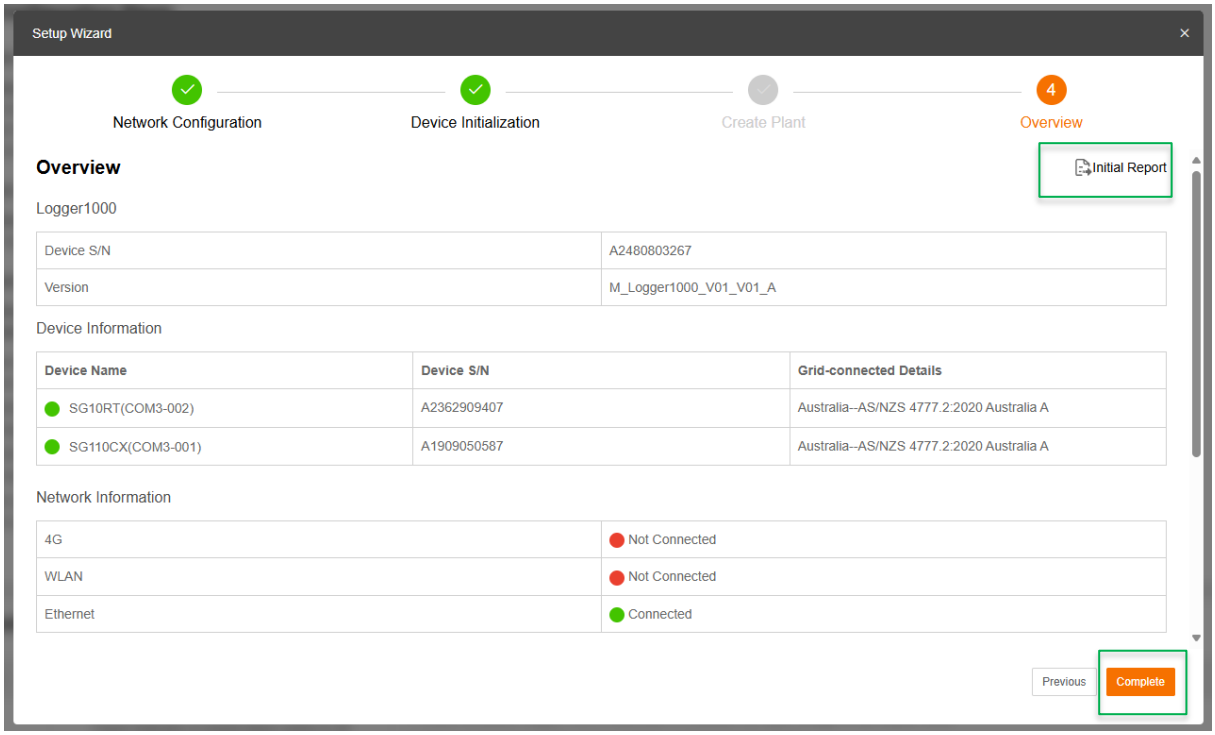
On the Device Initialisation step, all inverters that have been connected will show here. Click the “Initial Parameter” box.



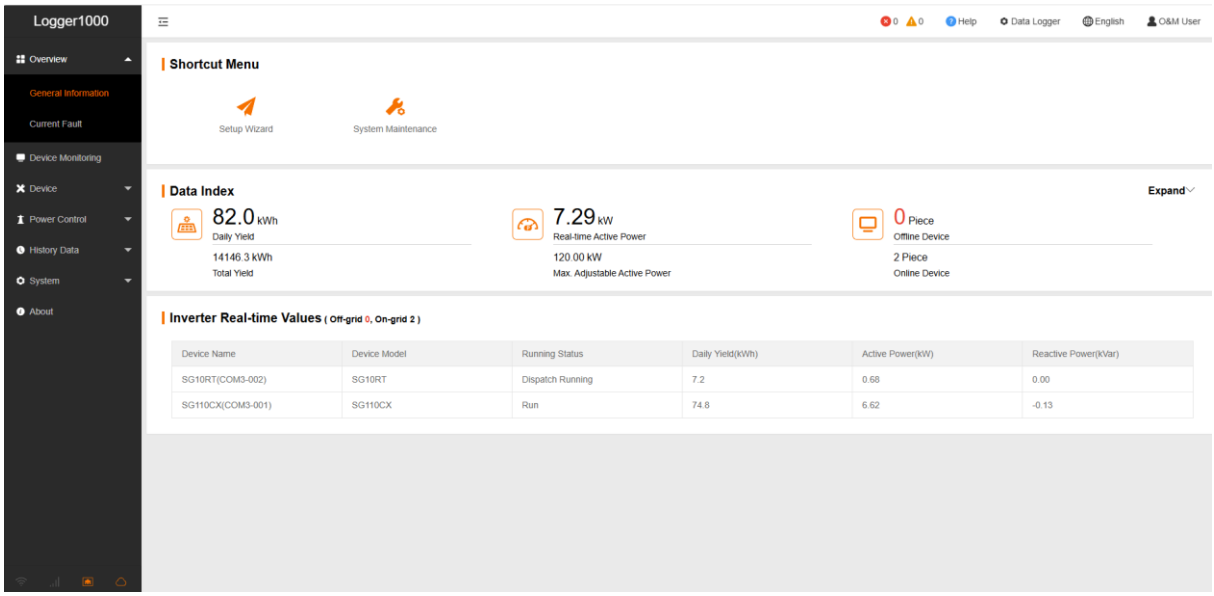
Ensure that the correct grid settings – click on ‘Settings’ to save. There should be a confirmation for each inverter appear.



You can skip the ‘Create Plant’ section, and can download a report on the final step before finishing by clicking ‘Complete’.



Inverter data should start to display on the General Information page.



Appendix 1 – Current Transformer Settings:

If using a DTSU666-20, the default Ct's are 100A/333mV.

If using a DTSD1352, the Ct's are 5 Amp secondary type.

The CT value needs to be set in the Master Logger if necessary.

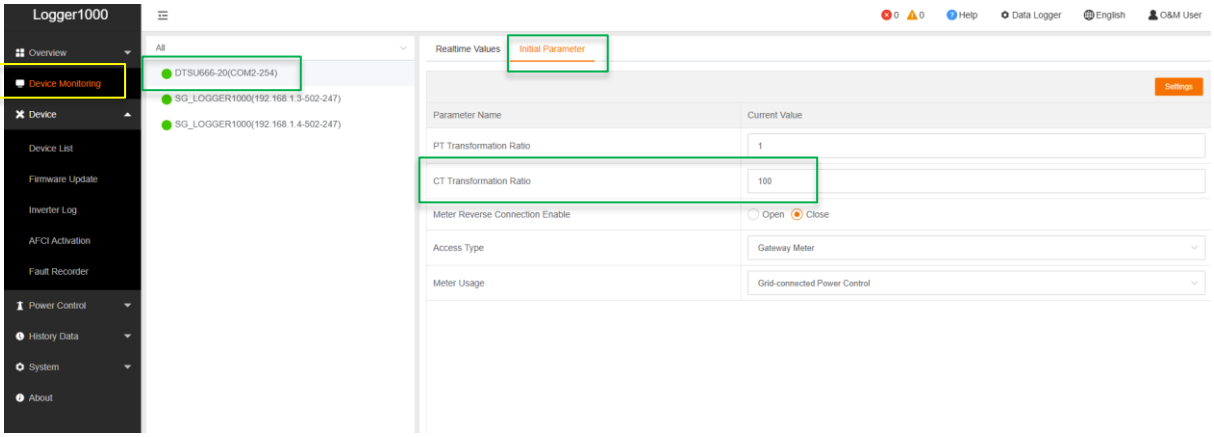
DTSU666-20:

Log into the master Logger.

Select Device Monitoring, click on the meter, And Initial Parameter.

Set the CT transformation ratio to 100.

If you are using larger Ct's i.e. 250 Amp, please refer to Sungrow for instructions.



DTSD1352:

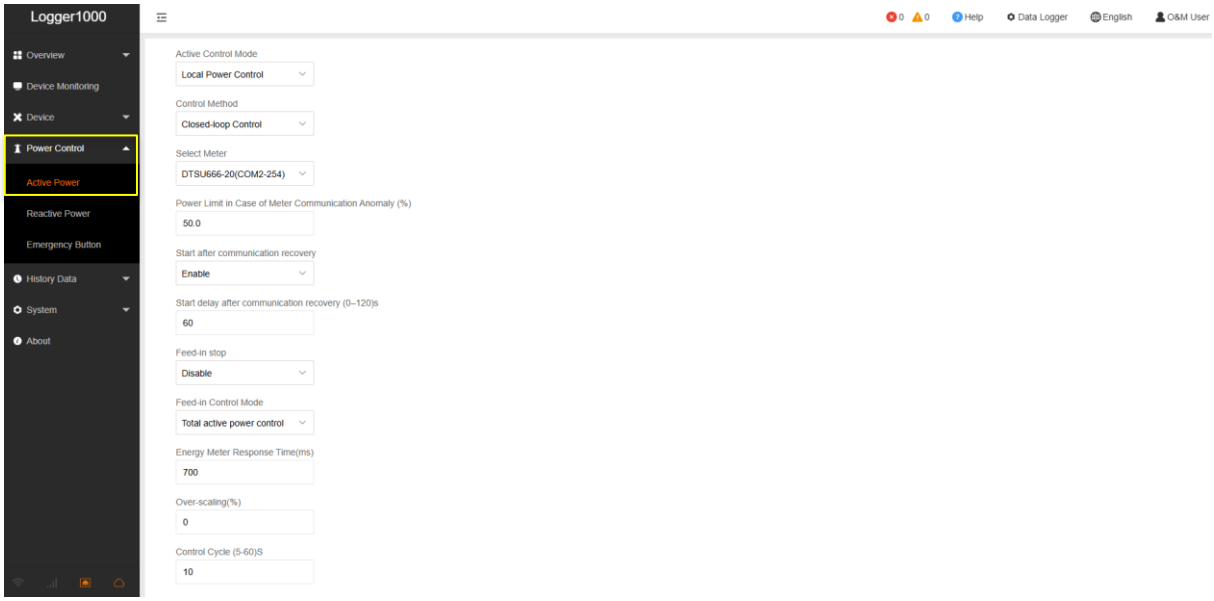
If using a DTSD1352, or other meter where the secondary current is 5 Amps, follow the above procedure, except enter the *'Ratio'* in the CT transformation field i.e. a 200/5 Ct will have a ratio of 40.

Appendix 2 – Export Control:

Only ***after*** the slave loggers have been commissioned.

Log into the **master Logger**.

From the menu on the left, select Power Control > Active Power.



Active Control Mode = Local Power Control

Control Method = Closed Loop Control

Select Meter = Model of Meter

Power Limit in Case of Communication Anomaly = The % of total that equals the export limit

Start After Communication Recovery = Enable

Start Delay = Default 60

Feed-in Stop = Default Disable

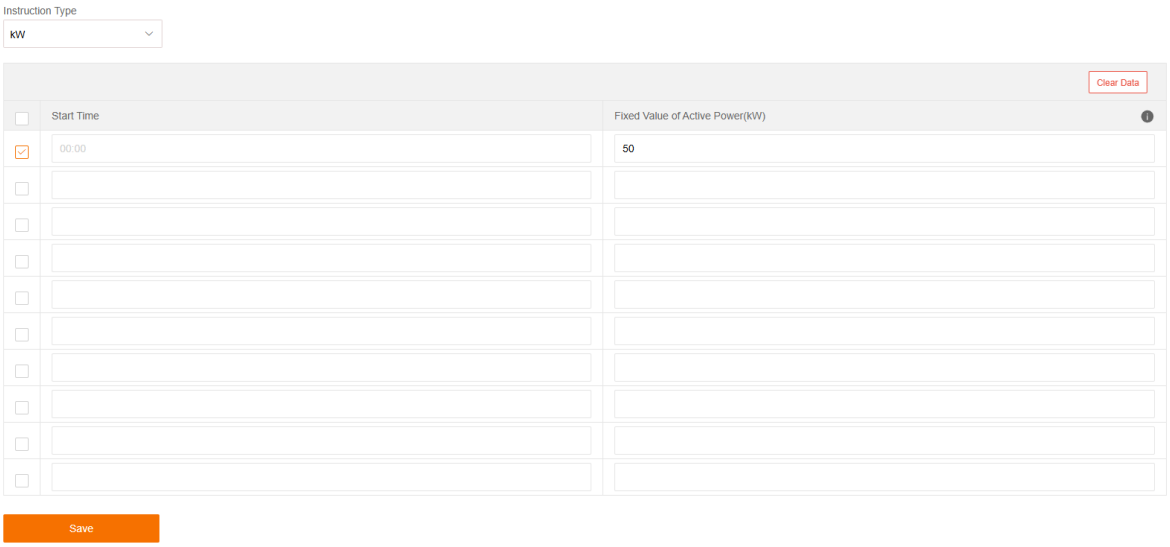
Feed-In Control Mode = Default Total Active Power Control

Energy Meter Response Time = Default 700

Over-scaling % = Default 0

Control Cycle = Default 10

Scroll down:



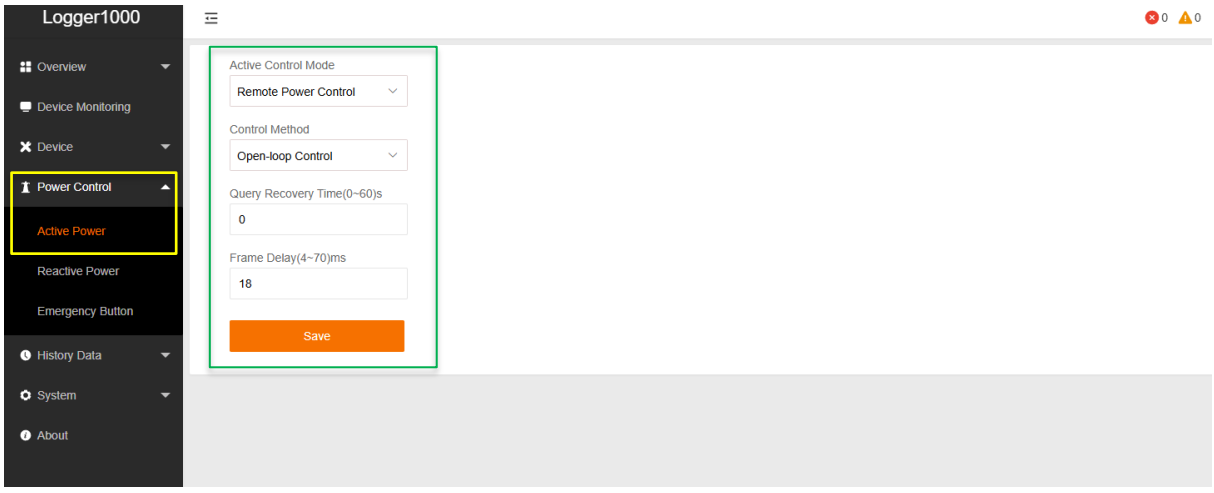
Instruction Type = kW

Check the first box and enter the feed-in limit

Save

Check Slave Loggers:

Log into Slave Loggers and select Power Control > Active Power from the menu on the left. The settings should be automatic once the master has been set. Enter data only if necessary.



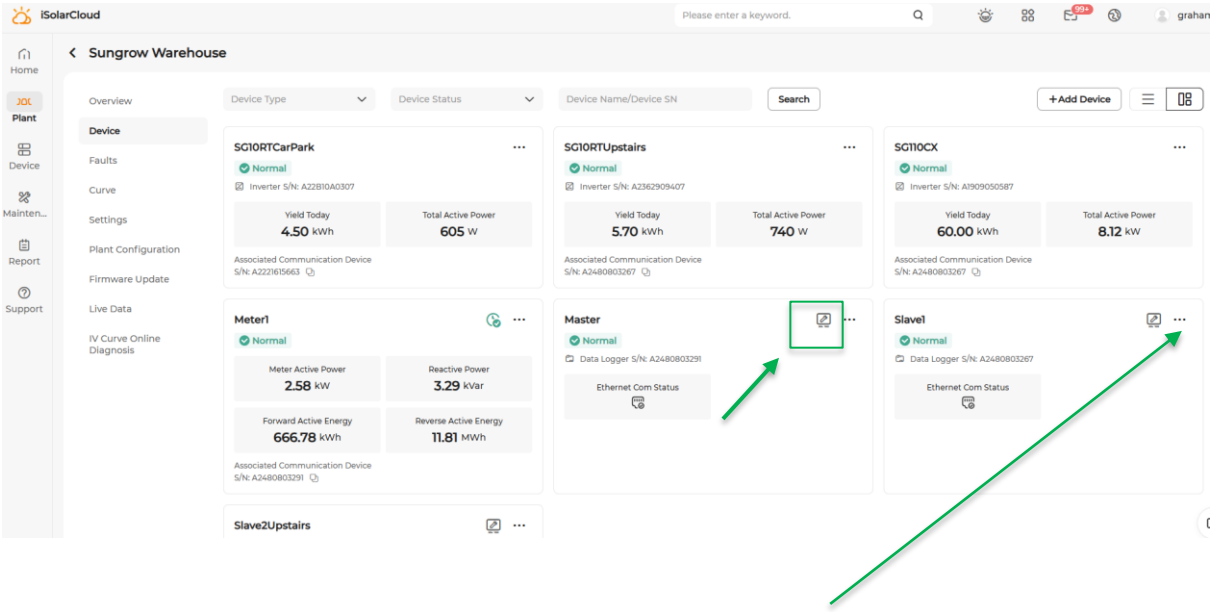
Testing the cloud connection:

Log into the plant that has been created on the iSolarCloud, and open the plant.

Click on Devices.

You can rename the devices here (optional).

Check the master logger is communicating (Desktop). Click the link icon and you should be able to remotely log in to the Master Logger using the login password etc.



You can re-name each device by clicking on the three dots and select ‘Modify’.