Sungrow Commercial systems in Cascading Mode

Part 2 – Commissioning and Settings for string Inverters

Disclaimer

The material in this document has been prepared by Sungrow Australia Group Pty. Ltd. ABN 76 168 258 679 and is intended as a guideline to assist solar installers for troubleshooting. It is not a statement or advice on any of the Electrical or Solar Industry standards or guidelines. Please observe all OH&S regulations when working on Sungrow equipment.

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.



10:11		P. 31	# 93% #
<	Sungrow AU	Cascade	≡
	Overview	Device	
Q S	narch		
AII(10)	Meter(1) Dat	ta Logger(2)	Filter 🗑
Slave	Logger		
Data	Logger S/N data	10.50	
Ether	net Com Status		
Maste	r_Logger		
O Nore	lar		
Data	Logger S/N	ORIGINE .	
Ether	net Com Status		V
54151	Downstairs		Ð
0.00	Domistans		-
- Nore	id in second files and	10700037	

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.

← → C O Not secure https://11.11.11.1/#						☆ ひ	2 :
🔡 📔 🗞 SG - Sungrow Servic 🔇 (7) Sungrow Power 🚺 Sungrow Australi	S 🔇 Gmail 🔇 Home	🔇 YouTube 💡 Maps	G Google S Easy Connec	t 🗋 Sungrow sheets	SG - Sungrow Service	S Documents S Facebook	*
						English	
		User Login					
	maintain						
	pw1111			٢			
			Formel	Deseuverd			
			Forgo	Password			
				_			
HE GERMAN							

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)

Setup Wizard			×
1 Network Configuration	Device Initialization	Create Plant	Overview
Network Configuration Please connect Logger1000 to the Internet and ma	ike sure that device data is being uploaded co	prrectly to iSolarCloud or the third-party portal.	
Network Status	Australian Server Settings		
Network Options Cellular Network Not Connected Transfer data via LTE cellular network	WLAN Configuration	Ethernet Configuration Connecte Connect the communication device directly to the router via Ethernet cable.	
Remote Maintenance Remote Access and Maintenance of Communicati	on Devices		
			Close Next

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

	Ethernet Configuration	×
n	Connect the communication device directly to the router via Ethernet cate	bl
ternet and make sure	Open 💿 Close	▲ tal.
	* IP Address	
. @	192.168.1.2	
Ethernet	* Subnet Mask	
	255.255.255.0	
	* Default Gateway	
1	192.168.1.1	
r (Îî _t	* DNS1	
	192.168.1.1	
Communication Devi	* DNS2	
Communication Devi	0.0.0.0	
	Cancel Save	
		_

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'

Setup Wizard			×
Network Configuration	2 Device Initialization	Create Plant	Overview
Current Time: 2025-01-30 13:38	© Settings		
Device Settep (1)			
*Auto Search only supports SUUGROW stations, third-party inverters, etc.	inverters. SUNGROW inverters may be	e manually added by "Add Device", as	well as energy meters, meteo
✓ Inverter(0)	No Da	ita	Initial Parameter
> Meter(1)			
			Previous Next

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.

A 100 A	dd Device		0
Network Configuration	Device Type	ĺ	Overview
Current Time: 2025-01-30 13:3	Meter	~	
Device Setup (1)	iccess Type		
Auto Search Add Device	Gateway Meter		
"Auto Search" only supports SUNGR(fort		well as energy meters, meteo
 Inverter(0) 	COM2	~	Initial Param
	Device Model		
> Meter(1)	DTSU666-20	~	
в	leginning Address (1~255)		
	254		

If successful connection, the meter will display green dot.

Auto So "Auto So stations	earch Add Device earch" only supports \$, third-party inverters,	SUNGROW inverte	ers. SUNGROW	inverters n
∨ Inve	erter(0)			
				N
∨ Met	er(1)			
•	DTSU666-20(CO S/N: Meter	M2-254)	11	

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 Device	×	Add Device	
Device Type		Protocol Type	
SUNGROW Logger	~	MODBUS-TCP	\sim
NET	~	Peer IP Address	
Cascaded Scheduling		192.168.1.3	
Open	~	3 Peer Port (1-65535)	
Protocol Type		302	
MODBUS-TCP	~	SG_LOGGER1000	~
eer IP Address		Beginning Address (1-255)	
192.168.1.3		247	
Peer Port (1-65535)		Quantity of Device (1~125)	
502 Device Model		1 Save	
SG LOGGER1000	~ •		

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'.

Logger1000	Ξ			8 0 🗛0	Help	O Data Logger	🌐 English	💄 O&M User
ដ Overview 👻	iSolarCloud IEC104 MODBUS Third-party Porta	Echonet						
Device Monitoring	Server	Peer Port	Switch					
🗙 Device 🗸 👻	Australian Server	16668			0			
1 Power Control 👻								
History Data								
Ô System ▲								
Run Information								
System Maintenance								
Remote Maintenance								
Message Export								
System Time								
Forwarding Configuration								
Port Parameter 🗸								
MPLC								
Certificate Management								
 About 								
a 💿 🔿								

Click the gearwheel on the right and select the 'Australian Server' and save.

Peer Advanced Settings ×	
1666 Server	٦
auiot.isolarcloud.com	
Chinese Server	
International Server	
European Server	
Australian Server	
Night Silence	
Start Time	
Please Enter	
End Time	
Please Enter	
Save	



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

Logger1000	Ξ	⊗ 0 <u>∧</u> 0	🕜 Help	O Data Logger	🌐 English	LO&M User
🚼 Overview 🔻	Remote Maintenance Switch					
Device Monitoring	Enable ~ Server					
X Device V	Australian Server 🗸					
Power Control	The server address is bound to the iSolarCloud forwarding					
History Data	Modbus ID. If you need to change II, please modify the					
O System	ISolarCloud server.					
Run Information	Save Remote service has been connected					
System Maintenance	https://m.isolarcloud.com					
Remote Maintenance						
Message Export						
System Time						
Forwarding Configuration						
Port Parameter 👻						
MPLC						
Certificate Management						
 About 						

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'.

Setup Wizard			×
1	🕗	💿 –	
Network Configuration	Device Initialization	Create Plant	Overview
Network Configuration Please connect Logger1000 to the Internet and	d make sure that device data is being uploa	ided correctly to iSolarCloud or the third-par	rty portal.
Network Status			
A2480803267 Ethernet	Australian Server Settings		
Network Options			
Cellular Network	WLAN Configuration	Ethernet Configuration Connectine communication device directly to the router via Ethernet cable.	
Remote Maintenance			
Remote Access and Maintenance of Communi	ication Devices		
Enable Remote Maintenance			
			Close Next

Ethernet Configuration ×	<
Connect the communication device directly to the router via Ethernet cabl e.	
Open 🖲 Close	•
* IP Address	
192.168.1.3	
* Subnet Mask	
255.255.255.0	
* Default Gateway	
192.168.1.1	
* DNS1	l
192.168.1.1	
* DNS2	l
0.0.0.0	
Cancel Save	•

Inverters:

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

Setup Wizard			
Network Configuration	Device Initialization	Create Plant	Overview
Current Time: 2025-01-30 15:37 Osettings			
Device Setup (2)			
Auto Search Add Device			1-11-1 0-1 0-10-10-10-10-10-10-10-10-10-10-10-10-10
"Auto Search" only supports SUNGROW inverters. SUNGROV	V inverters may be manually added by "Add Device"	, as well as energy meters, met	teo stations, third-party inverters, initia Cho Settings
SG10RT(COM3-002) S/N: A2362909407 Inverter	SG110CX(COM3-001) S/N: A1909050587 Inverter	Ū	
✓ Successful Query Parameters	✓ Successful Query Parameters		
> Meter(0)			
			Previous Next

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

	,
Country/Region	
Australia	\sim
Power Company	
AS/NZS 4777.2:2020 Australia A	\sim
Start/Stop	
Boot	\sim
Settings	

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

Setup Wizard				×
~		O		- 4
Network Configuration	Device Initialization	Create Pla	int	Overview
Overview				Initial Report
Logger1000				
Device S/N		A2480803267		
Version		M_Logger1000_V01_V01_A		
Device Information				
Device Name	Device S/N		Grid-connected Details	
SG10RT(COM3-002)	A2362909407		AustraliaAS/NZS 4777.2:2020 Aust	ralia A
SG110CX(COM3-001)	A1909050587		AustraliaAS/NZS 4777.2:2020 Aust	ralia A
Network Information				
4G		Not Connected		
WLAN		Not Connected		
Ethernet		Connected		
				Previous

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

Logger1000	Ξ				😢 0 🛕 0 🕐 Help 💿 (Data Logger 🛛 🔀 English	L O&M User
Cverview	Shortcut Menu						
General Information	Setup Wizard	System Maintenance					
 Device Monitoring Device 	Data Index						Expand
Power Control	Bala mack Balay Yield 14146 3 kWh Total Yield		Real-time Active Power 120.00 kW Max. Adjustable Active Power		O Piece offline Device 2 Piece Online Device		
 About 	Inverter Real-time Values (or	f-grid 0, On-grid 2)					
	Device Name	Device Model	Running Status	Daily Yield(KWh)	Active Power(kW)	Reactive Power(kVar)	
	SG10RT(COM3-002)	SG10RT	Dispatch Running	7.2	0.68	0.00	
	SG110CX(COM3-001)	SG110CX	Run	74.8	6.62	-0.13	
e 1 • 0							

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.

Logger1000	=		🔕 0 🛕 0 📀 Help 🌣 Data Logger 🛞 English 🛔 O&M User
🗄 Overview 🔫	All	Reatime Values Initial Parameter	
Device Monitoring	DTSU666-20(COM2-254)		Settings
X Device	SG_LOGGER1000(192.168.1.3-502-247)	Parameter Name	Current Value
Device List		PT Transformation Ratio	1
Firmware Update		CT Transformation Ratio	100
Inverter Log		Meter Reverse Connection Enable	Open Close
AFCI Activation		Access Type	Gateway Meter ~
Fault Recorder		Meter Usage	Grid-connected Power Control
T Power Control 👻			
History Data			
♦ System 👻			
 About 			

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.

Logger1000	Ξ	⊗ 0 <u>∧</u> 0	🕜 Help	O Data Logger	English	LO&M User
👪 Overview 🔻	Active Control Mode					
Device Monitoring	Local Power Control *					
🗙 Device 🗸 👻	Control Method Closed-loop Control V					
Power Control	Select Meter					
Active Power	DTSU666-20(COM2-254) 🗸					
Reactive Power	Power Limit in Case of Meter Communication Anomaly (%) 50.0					
Emergency Button	Start after communication recovery					
S History Data	Enable V					
🌢 System 👻	Start delay after communication recovery (0-120)s 60					
About	Feed-In stop					
	Disable V					
	Feed-in Control Mode					
	Total active power control $~~$ \sim					
	Energy Meter Response Time(ms)					
	700					
	Over-scaling(%)					
	0					
	Control Cycle (5-60)S					
🗢 🖬 🗈 🗢	10					

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 kW	on Type		
		Clear D	ata
	Start Time	Fixed Value of Active Power(kW)	0
		50	

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.

🍐 iSola	arCloud			Please	enter a keyword.	Q 🔅 🕅	E 💬 🕲 😩 grahi
fi) Home	< Sungrow Warehou	JSe					
JOL	Overview	Device Type 🗸 🗸	Device Status	Device Name/Device SN	Search		+Add Device
Plant	Device						
Device	Faults	SG10RTCarPark		SGIORTUpstairs		SG110CX O Normal	
*	Curve	Inverter S/N: A22B10A0307		Inverter S/N: A2362909407		Inverter S/N: A1909050587	
ainten	Settings	Vield Today 4.50 kWh	Total Active Power 605 W	Vield Today 5.70 kWh	Total Active Power 740 W	Vield Today 60.00 kWh	Total Active Power 8.12 kW
Report	Plant Configuration	Associated Communication Device S/N: A2221615663 D		Associated Communication Device S/N: A2480803267 2		Associated Communication Device S/N: A2480803267 Q	
(2) Support	Live Data	Meterl	@	Master		Slavel	@
	IV Curve Online Diagnosis	Normal		Normal		Normal	
		Meter Active Power 2.58 kW	Reactive Power 3.29 kVar	Data Logger S/N: A2480803291 Ethernet Com Status	1	Data Logger S/N: A2480803267 Ethernet Com Status	
		Forward Active Energy 666.78 kWh	Reverse Active Energy 11.81 MWh	6		10	
		Associated Communication Device S/N: A2480803291 D					
		Slave2Upstairs					

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