Droplet installation & Commissioning Guide (SA Flexible Exports)





Important Information

Droplet

Now with 5 year warranty



stormclou

Free monitoring, alerts & more



Where to buy:

Supply Partners: Phone: (07) 3122 7584 Email: sales@supplypartners.com.au Web: supplypartners.com.au Solar Juice Phone: (02) 9725 1111 Email: sales@solarjuice.com.au

Web: solarjuice.com.au

Tradezone

Phone: 1800 092 778

Email: sales@tradezone.com.au

Web: tradezone.com.au

Droplet basics: Connecting to Power & Internet

2021 www.switchdin.com.au



Droplet Specifications



Residential Droplet

- Wifi
- Ethernet
- · USB
- Many protocols via converters



Droplet Overview

Droplet top view



Droplet underside



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Residential Droplet Installation



Packing List	Inspection	Mounting
 1 x SwitchDin Droplet 1 x Power Supply 1 x USB adaptor (optional depending on inverter) 	 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. 	 The Droplet can be mounted on a standard DIN rail. Indoor installation. Below 40 degrees ambient

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)





Power the Droplet

Residential Droplet



Plug power supply into GPO

Internet prerequisites

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

Connecting Droplet to Fronius SnaplNverter (SA Flexible Exports)

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Hardware Checklist

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



Fronius Smart Meter

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



Smart Meter Minimum Technical Standard and associated

Example main switchboard / meter position



Enable Modbus TCP and Port 502



Enable Failsafe

NETWORK

FRONIUS SOLAR.WEB

IO MAPPING

LOAD MANAGEMENT

PUSH SERVICE

MODBUS

INVERTERS

FRONIUS SENSOR CARDS

METER



↓ ✓ ×

Control Priorities

NETWORK

FRONIUS SOLAR.WEB

IO MAPPING

LOAD MANAGEMENT

PUSH SERVICE

MODBUS

INVERTERS

FRONIUS SENSOR CARDS

METER



Controlling priorities

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2. Dynamic power reduction

3. IO control

Legend:

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



Connecting Droplet to inverter (Inverter \rightarrow Droplet \rightarrow 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 adapter 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 \rightarrow Router \rightarrow 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. Commision the inverter.

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

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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:

<u>Smart Meter Minimum Technical Standard and associated Deemed</u> to Comply Wiring Arrangements (energymining.sa.gov.au)



Example main switchboard / meter position

Growatt inverter settings



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-)	DTECH 0.5m USB to RS422 RS485 USB Port to RS-485/422 Converter Industrial USB to RS485 Converses Serial Port Converter

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)





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+

Scan QR Code



Or manually enter serial number = **Endpoint configuration Endpoint configuration** BARCODE **<** CHOOSE A PORTFOLIO Choose a Portfolio Please select an existing Portfolio or create a new one. 5 switchDin 8.4k 5 No Portfolio Only create a Unable to find associated profile. 8.4k This Droplet has not been associated portfolio if it with a Unit. Scan the QR Code AB2 is your first OK on your Droplet to ACF Technologie installation! begin Apex BESS Aussie Batteries and Solar (In-house Install barossa council admin centre Barossa Council, 43-51 Tanunda Rd, Nuriootpa SA Beaconsfield House 1 Manually enter code Centennial

Use a single portfolio for systems which require an agent!

Create portfolio or add to existing



Commissioning - setting up a site

Create a UNIT or choose an existing UNIT

=	Endpoint configuration	
СНО	DSE A UNIT	
Choose	e a Unit	
Please se new one. Slide dow	lect an existing Unit or create	a
Exampl	e Portfolio	
Example 91 Parry St,	Unit Hamilton East NSW 2303, Australia	

Create New Unit	×
QOSPOS	
Name	
Address	
Street Address	
CREATE NEW UNIT	

Enter UNIT details

 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 	Enapoint configuration	
+ 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	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 PORTFOLIO EXAMPLE PORTFOLIO 91 Parry St, Hamilton East NSW 2303, Australia		
+ 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 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	+	
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 to a u	nit
Droplet to this Offit Droplet serial number: b827ebf3e2ee EXAMPLE PORTFOLIO Example Unit 91 Parry St, Hamilton East NSW 2303, Australia	Please confirm that you wish to add t	his
EXAMPLE PORTFOLIO Example Unit 91 Parry St, Hamilton East NSW 2303, Australia	Droplet to this Unit	
Example Unit 91 Parry St, Hamilton East NSW 2303, Australia		
Australia	Example Unit	
	91 Parry St, Hamilton East NSW 2303, Australia	



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

Select WiFi network

Connect to Droplet **Endpoint configuration** = ✓ WIFI SETTINGS Connect to Droplet Go to your mobile Settings and disable mobile data My mobile data is disabled

En	dpoint Configuration
	SELECT WIFI
Se	lect Wifi
Plea	ase select the Wifi network the Droplet should nect to.
Slid	e down to refresh the content.
•	WiFi Network
-	
-	
-	
-	
-	
٩,	
•	
•	





Turn on your mobile data



Select MANAGE DEVICES



Add a device

Endpo	int configuration
DEVICES	
b827ebf3e	2ee - Droplet #1
Status: Online	Seen a few seconds ago
1 Devices	Seen a rew seconds ago
select device to	view detail
Site Aggregates	8
	Next
	T CAL

Choose DISCOVERY option

	Add Device	×
(DEVICE ADD TYPE	
	Discovery	
	Manual	

Select MANAGE DEVICES



The Droplet will automatically discover the devices



Configuring meter connection point

Choose PV or GRID meter role from drop down menu

	Add Device	×
< AD	D DEVICE	
Manu	ifacturer: SMA	
State	: discovered	
Mode	el: SMA Speedwire	
Energ	gy Meter	
Seria	I: 3004906274	
Devic	2017462162622	
Drive	r (Protocol):	
Smal	EnergyMeter	
AddDevic	e CompulsoryFields	
Addbevic	ecompulsoryrields	
Selec	t meter role to Select Or	ne 💌
Rev€	PV meter role	
Man	Duplicate load meter role	
State		
Mod	Duplicate generator meter r	ole
Ener		
Devi	Ignore meter role	
SMA	Grid meter role	
Drive		
Sma	Hybrid meter role	
AddDevi		
0.1	Load meter role	
Sele		
-	Generator meter role	

Reverse meter power (if meter is installed in reverse)



Configure meter

	Add Device >	
<	ADD DEVICE	
S M S D S D	tate: discovered lodel: SBS5.0-10 9358 erial: 3003398806 evice unique id: MA_3003398806 river (Protocol):	
3	WAIIweiter	
M. Confirm		
S	Are you sure you want to configure	
M	this device?	
EI	Manufacturer: SMA	
5	Model: SMA Speedwire Energy Meter	
- 0	induct. Shirt opecutive Energy meter	
D	Serial No.: 3004906274	
D SI D	Serial No.: 3004906274	
D SI D SI	Serial No.: 3004906274	
D Si D Si AddD	No.: 3004906274 No.: 3004906274 No yes vevice.CompulsoryFields	
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D Si D Si Add Si Ri Ri Si	no yes No: 3004906274 No: 3004906274 No: 9004906274 No yes No verse meter role t PV meter vo verse meter power directi No verse lanufacturer: SMA tate: discovered	
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D S D S Addd S R M S M S M Ei	no yes No.: 3004906274 No.: 3004906274 No yes vevice.CompulsoryFields elect meter role t PV meter • everse meter power directi No • lanufacturer: SMA tate: discovered lodel: SMA Speedwire nergy Meter	

Configure Fronius





Configure Growatt



Add Device 🗡		
(SELECT DEVICE	
	Search	Q
	Accuenergy	~
	Ceta	~
	Eastron	~
	Goodwe	*
	Growatt	~
	Solis	~
	Sungrow	~
	SwitchDin	~
_		



<

10:18 🔊 📲 4G 🔳 Add Device ADD DEVICE USB 1 USB 3 Ethernet USB 2 USB 4 PORT: USB 1 Adapter: serial Manufacturer: Growatt State: discovered Model: MIN 5000TL-X Serial: HMG4B0301K00000000000 0000000 Device unique id: Growatt_HMG4B0301K0000 000000000000000 Driver (Protocol): GrowattInverter AddDevice.CompulsoryFields Use grid power mete... Include grid... 🔻 PORT: USB 2 + PORT: USB 3 +

For Load Leg/Consumption Path Metering



Running Flexible Exports Program

9:12	9:33 🕫 💶 🖬	1:59
Endpoint configuration	Flexible Exports Program 🗙	Flexible Exports Progr 🗙
< PROGRAMS	WELCOME	NATIONAL METERING IDENTIFIER
 Programs These are the programs available in your area. Please click any of the applicable programs to enrol. Programs with a next to them are ones this unit have been enrolled in. Smarter Home Program Flexible Exports Program - SAPN 	Flexible Exports Connection Wizard By completing this wizard you are selecting the SAPN Flexible Exports Program. You will need to provide the customers NMI, confirm connection, and registration with SAPN.	(NMI) Please enter your NMI National Metering Identifier (NMI)* 6383938373
	Start	Next

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

<	Example Uni	t
Now End	ergy Analytics	Stream Raw Data
0.0 kW	0.0 Cons 0.0 Store	0 kWh sumed today 0 kWh ad today
∦∰* O.O kW Grid Idle	0.0 kW Solar	0.0 kW Storage 0.0%
Weather	Average daily so production (base	10.54h of sun olar ed on the
ditte	? kWh	\sim
II. II Overview Equip	≡ ≜ oment Alerts	\$ Extras Settings

Invite users

K Exan	nple Unit	
Unit Details	User	s
Search		Q
		(+)
	•	a

Enter details and UNIT OWNER BASIC access level

Invite user	>
User details	
The person will be granted access to this Unit. Acce will be granted immediately if the User already has account, otherwise they will be prompted to create one.	ss an
Name*	
Email*	
Access level*	Ŧ
Profile theme* SwitchDin	-

Invite user

Add SAPN to the portfolio (first time)



Invite users

2	:02	.ıI \$ ■,
<	Test P	ortfolio
	Portfolio Details	Users
	Search	Q
		+
	II. Dverview M	ap Settings

Enter SAPN details and PORTFOLIO MANAGER ANALYTICS access level

2:03	·11 🗢 🔲
h	nvite user X
User details	
The person will be gra Access will be granted already has an accou prompted to create of	inted access to this Portfolio. d immediately if the user nt. Otherwise they will be ne.
Name*	
Email*	
Access level* Portfolio Mane	ager (Analytics Bu 👻
Profile theme* SwitchDin	*



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.

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

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



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

- 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

