AC Coupling Setup Guide For Dura-i G3

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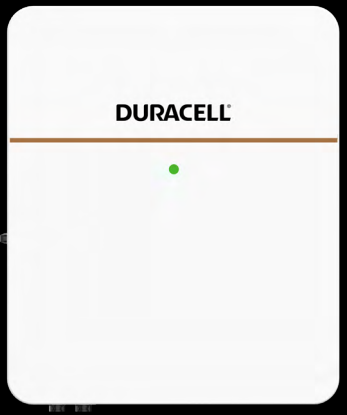

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Contents

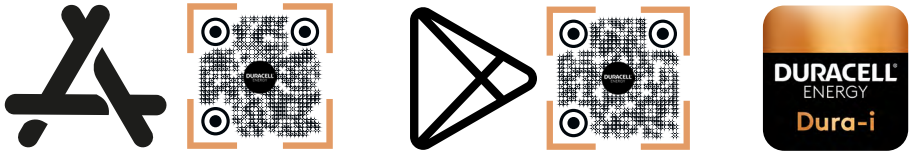
1. Introduction

The AC Couple function on the Dura-i Inverter is designed to allow the end user the ability to smartly control consumption and storage of energy generated by previously installed photovoltaic panels. The Dura-i will work with the already installed PV inverter to smartly allocate the generated power to be distributed more efficiently. This guide gives you detailed information and technical guidance on how to achieve this. Please note however, this is not a guide on how to install the inverter, please complete the installation guide provided with the inverter before moving onto this guide.

2. Setup Process

2.1. Install the inverter

Install the inverter using the provided installation guide. Power on the inverter and connected batteries using the correct startup procedure: Battery first then AC



3. Wire up the Energy Meter

Note that the only energy meters currently supported by the Dura-i are the Carlo Gavazzi EM 330 in **Figure 1.**, the CHINT DDSU666-CT **Figure 2.** and the Eastron SDM120 in **Figure 3.**

Your energy meter should be provided by us and will be pre-wired for Dura-i. If your energy meter has not been pre-wired, follow the diagram below to complete the wiring process.

Once the energy meter is wired it will need a minimum of 1 Amp of power. This goes into the positive and negative din rail terminal blocks as seen above and is down to the installer to choose where this power comes from.

3.1.1. Wire up Carlo Gavazzi EM 330

Terminal	Cable
N	240V AC Neutral
1	240V AC Live
16	240V AC Live
17	240V AC Neutral

Terminal	Cable
4	Positive CT
5	Negative CT
11	RS485 Port 7
12	RS485 Port 9

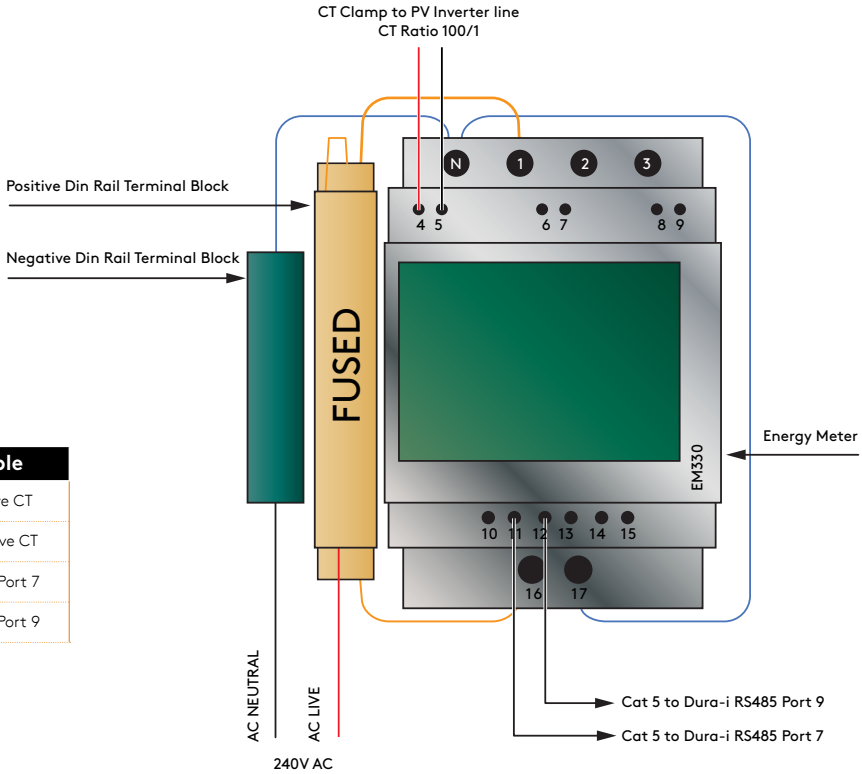


Figure 1.

3.1.2. Wire up CHINT DDSU666-CT

Terminal	Cable
1	240V AC Live
2	240V AC Neutral
9	Positive CT
10	Negative CT
24	RS485 Port 7
25	RS485 Port 9

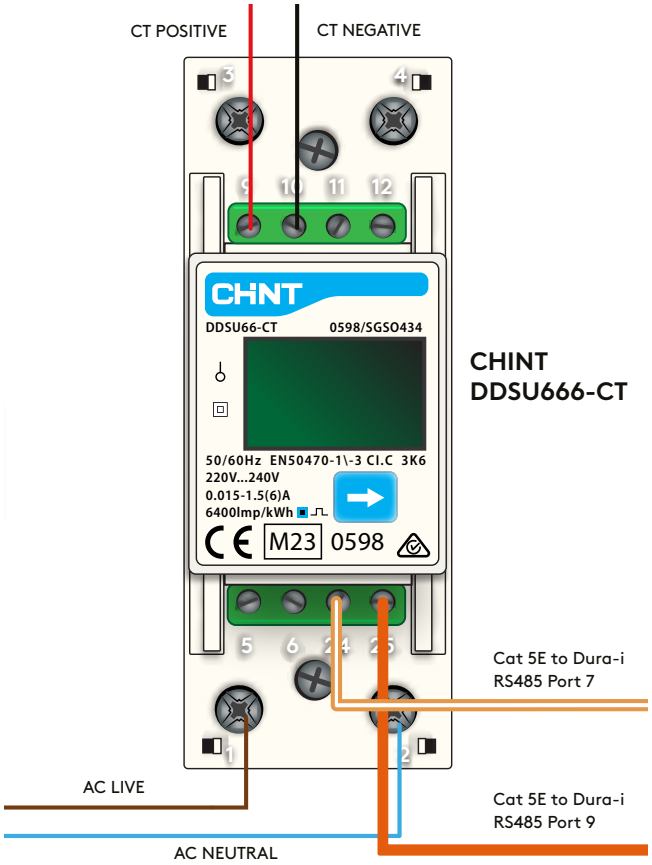


Figure 2.

3.1.3. Wire up the Eastron SDM120

Terminal	Cable
4	240V AC Live
3	240V AC Neutral
1	White CT wire
2	Black CT wire
9	RS485 Port 7
10	RS485 Port 9

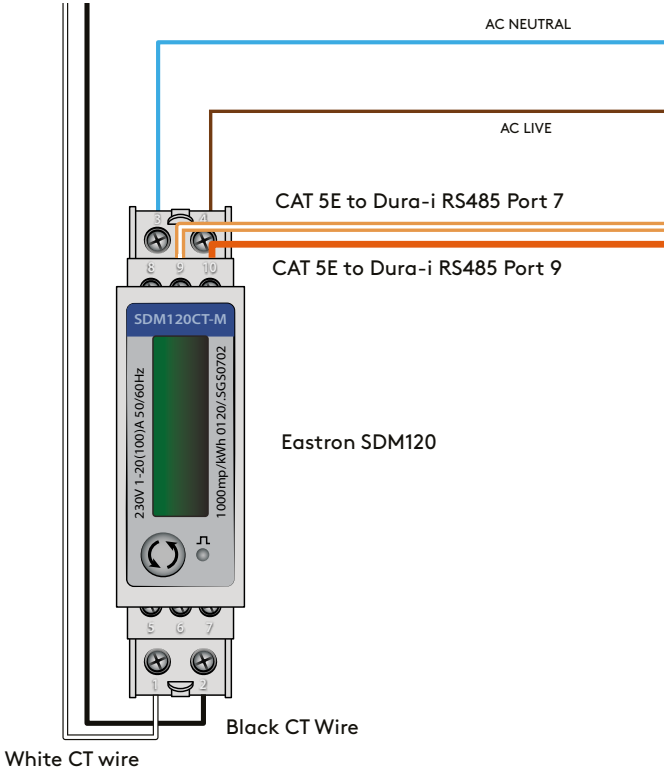


Figure 3.

4. Connect the meter to the PV Inverter

Connect the meter to the already installed PV inverter by clamping the CT clamp around the live AC which connects the PV inverter to the grid. Use the system diagram at the end of this document as a visual aid to assist with this wiring. This allows the Dura-i to read what the PV is producing.

5. Connect the meter to the Dura-i

For the CHINT: Using CAT 5E cable, connect port 11 on the meter to port 7 on the RS485 port at the base of the Dura-i and connect port 12 on the meter to port 9 on the RS485 port on the Dura-i. For the Carlo Gavazzi Using CAT 5E cable, connect port 24 on the meter to port 7 on the RS485 port at the base of the Dura-i and connect port 25 on the meter to port 9 on the RS485 port on the Dura-i. For the Eastron: using CAT 5E cable, connect port 10 on the meter to port 7 on the RS485 port at the base of the Dura-i and connect port 9 on the RS485 port on the Dura-i.

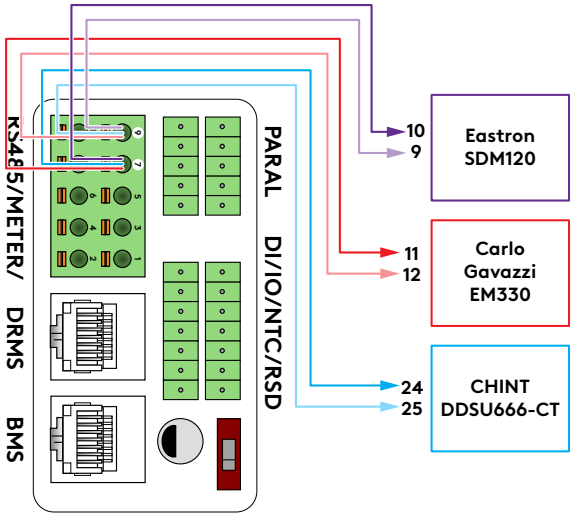


Figure 4.

6. Enable Meter 2

Now that the physical connections have been made, we need to allow the inverter to read the PV CT through the RS485 port.

Meter 2 is disabled by default so to enable it, navigate to **Setting** then **Inverter** then **Other** and switch on **AC coupling function**.

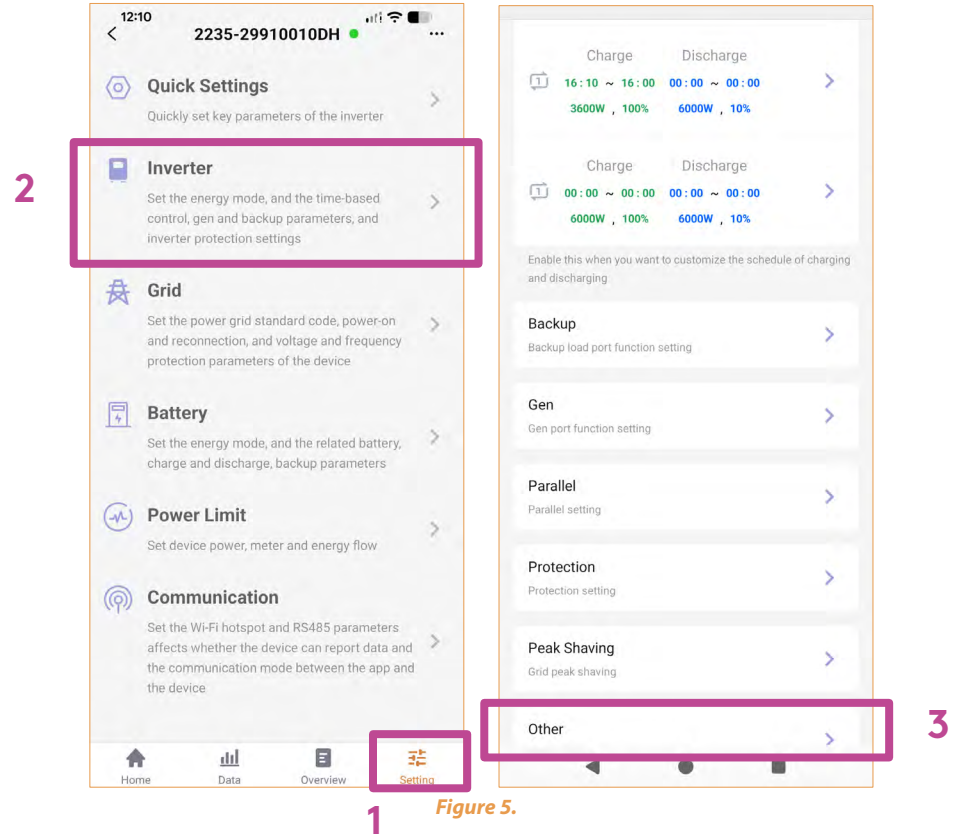


Figure 5.

Then below that, click on **RS485 device (Hybrid)** and select either **Gavazzi/ET/EM300, CHINT DDSU666** or **Eastron SDM120**.

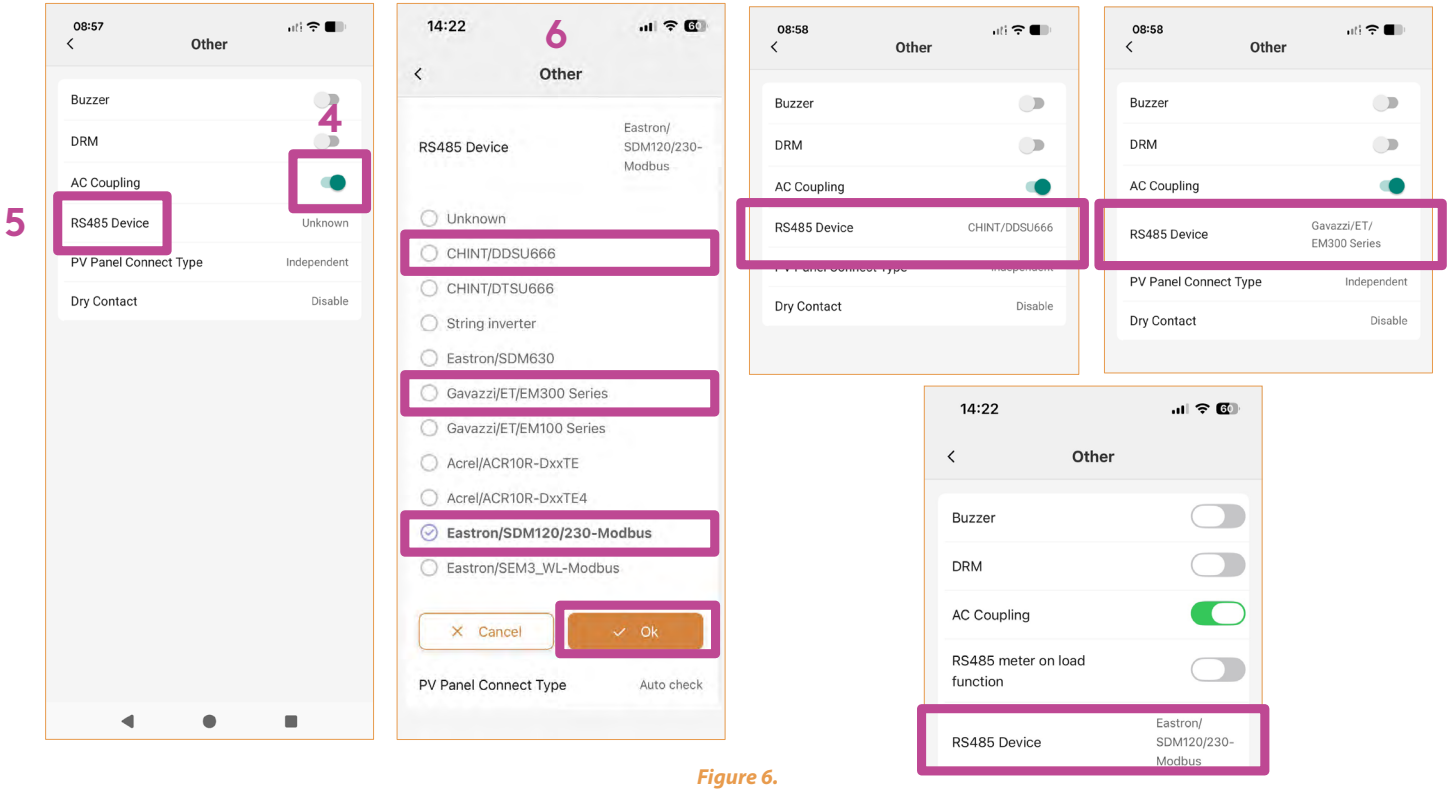


Figure 6.

7. Meter Settings

7.1. Meter Settings for CHINT DDSU666-CT

If sourcing your own CHINT meter please use the CT's recommended to go with this specific model. Because of this there are no further settings requirements for this meter.

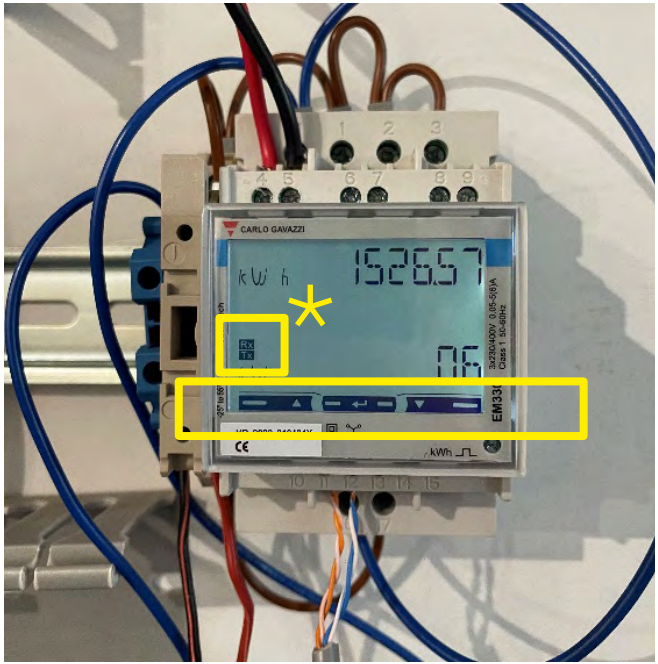
7.2. Meter settings for the Eastron SDM120

If sourcing your own Eastron meter please use the CT's recommended to go with this specific model. Because of this there are no further settings requirements for this meter.

7.3. Meter Settings for Carlo Gavazzi EM 330

Now that the physical connections are made, and the inverter is ready to communicate with the meter, we need to set up the meter to communicate with the inverter. The meter that we supply will be pre-configured for the Dura-i but in the event that your meter needs configuring follow the steps below.

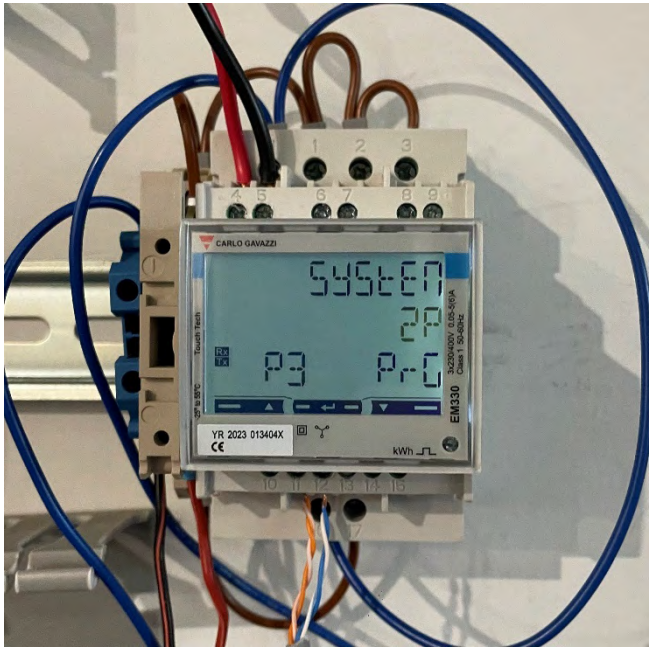
The energy meter is operated via the touch screen. There are 3 sections on the bottom of the screen; left-hand side with a small arrow pointing up, right-hand side with an arrow facing down and the middle section which acts as the 'enter/select' button. You will need to hold down this middle section for 1-3 seconds for settings to set.



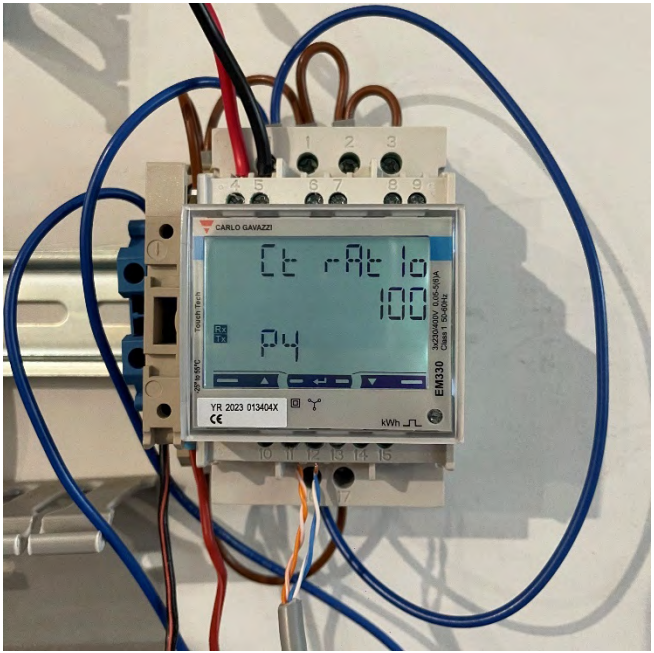
*These symbols show that communication between the meter and the inverter are active.

1. Hold down the 'enter/select' section for roughly 1-3 seconds until it comes up with 'Pass' at the top, this is where you will need to enter the password to gain access.

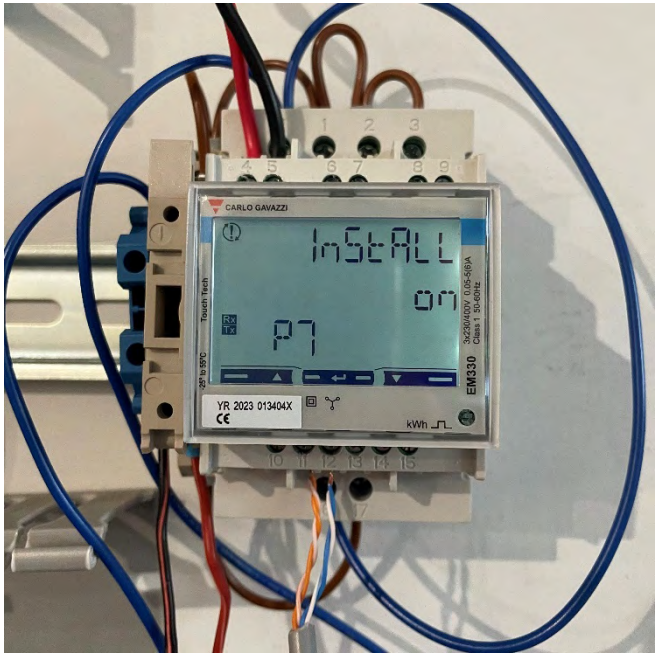
2. Hold down the 'enter/select' section again for roughly 1-3 seconds to select the password as '0000'. You will need to do this for all 4 numbers in the password and will know you are done because all 4 of the zeroes stop flashing. You will then have access.
3. Use the left-hand side tab to go up to 'P3' and ensure that 'System' is set to '2P'. If this is on anything else, follow the previous method of altering settings to adjust to this one. Don't forget to hold down the centre button to set the setting.



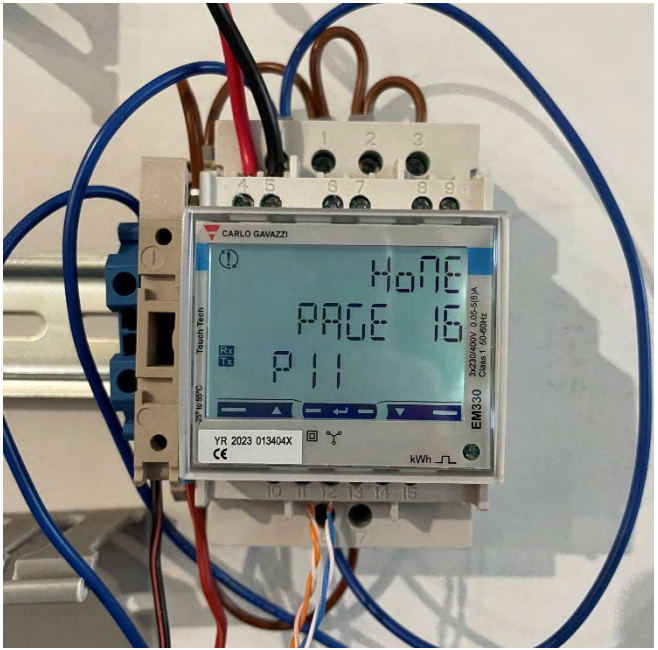
4. Use the left-hand side tab to go up to ‘P4’ and ensure that the ‘CT ratio’ is set to ‘100.’ If this is on anything else, follow the previous method of altering settings to adjust this one.



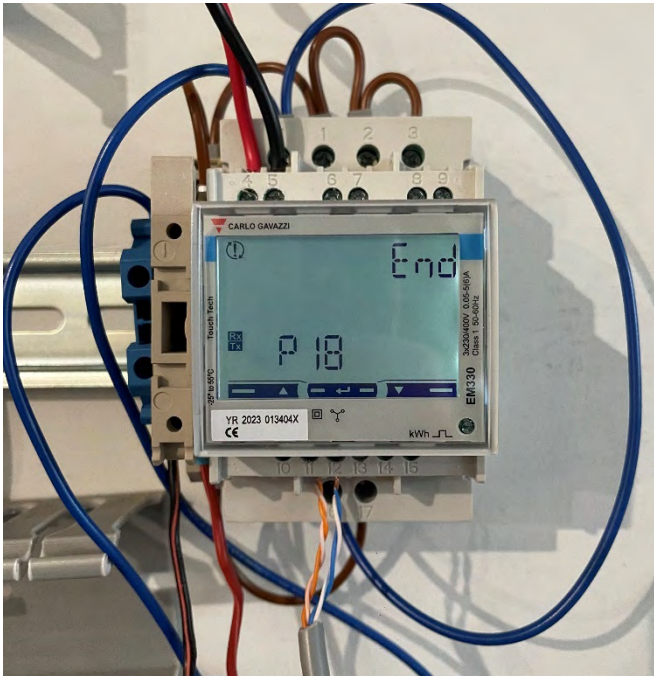
5. Use the left-hand side tab to go up to ‘P7’ and ensure that ‘Install’ is set to ‘On.’ If this is on anything else, follow the previous method of altering settings to adjust this one.



6. Use the left-hand side tab to up to ‘P11’ and ensure that the ‘Home Page’ is set to ‘16.’ If this is on anything else, follow the previous method of altering settings to adjust this one.



7. Once all these steps have been completed, use the right-hand side tab to go up to ‘P18’ and use the ‘enter/select’ tab to end the change of settings stage.



8. This energy meter is now configured and ready.

7.4. Log into the Service Account

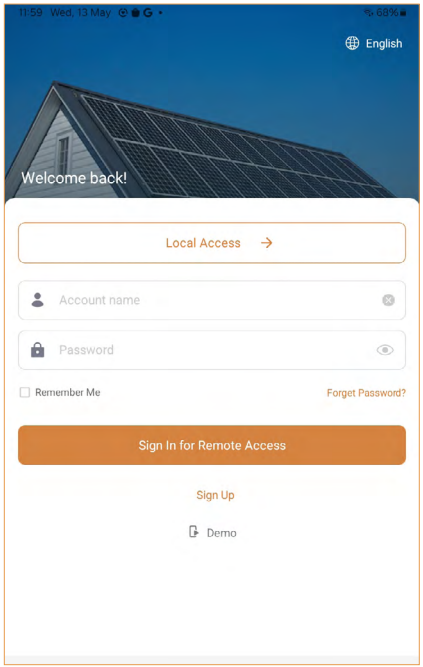


Figure 7.

If you do not have login credentials, contact **sales.uk@duracellenergy.co.uk** or call **01386 577845**.

7.5. Access Account Management

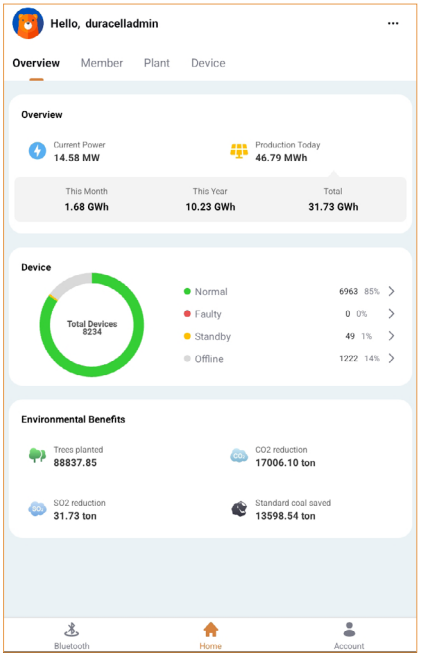


Figure 8.

This section shows all your previous plants and installations.

7.6. Start New Commissioning

1. Tap on the '...' (meatballs) in the top right.

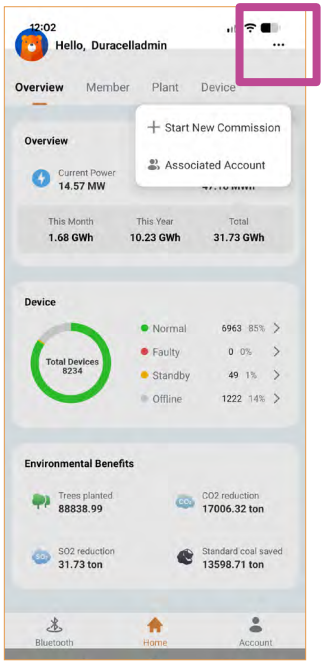


Figure 9.

7.7. Create Plant & Add Inverter

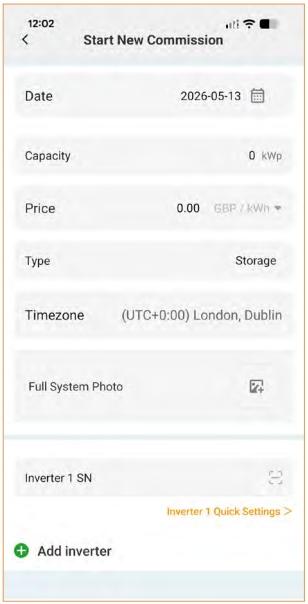


Figure 10.

1. Fill in the plant-specific details and add a full system photo.

2. Scan or input the inverter serial number.

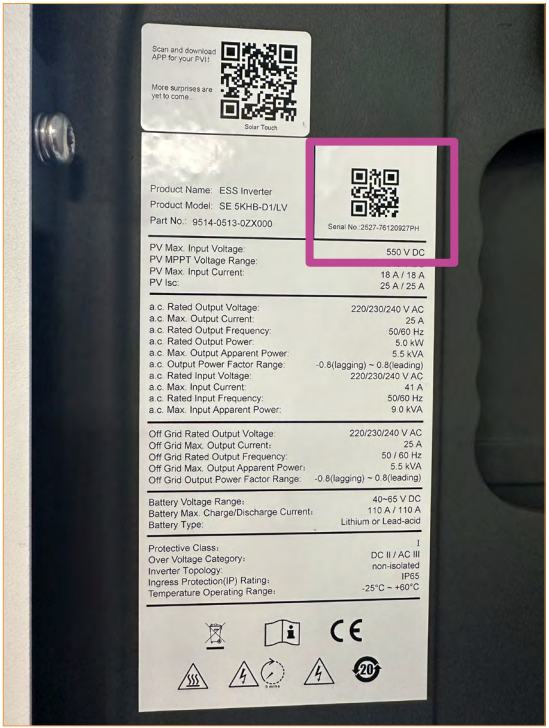


Figure 11.

7.8. Enable Bluetooth & Select the Inverter

3. Turn on Bluetooth on your mobile device and select the inverter serial number you will be commissioning.

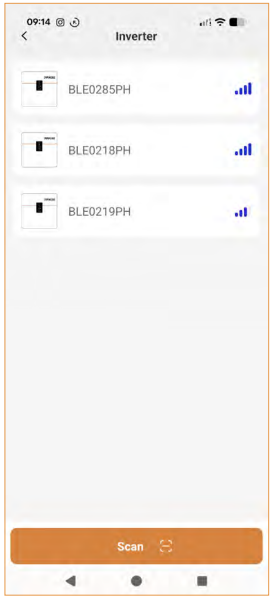


Figure 12.

For parallel installations, follow the **Parallel Install Guide** found at this link

7.9. Complete Quick Setup

Follow the steps of the quick setup guide on -the Dura-i installers app.

Step 1. Configure the internet connection

First please read the tips on the screen carefully. Then choose the Wi-fi SSID and enter the Wi-fi password. Click the **Ok** button and wait for "Wi-fi router loading successfully".
If the configuration was successful, the indicator light on the Wi-fi /LAN module will change colour from Orange to Flashing Blue and then to Green.

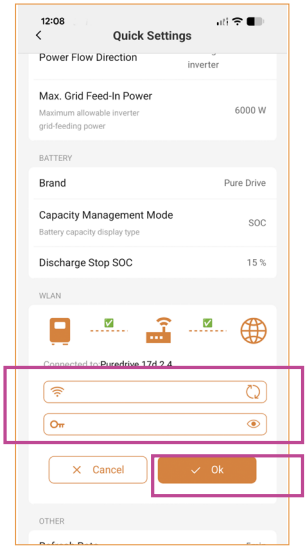


Figure 13.

Step 2. Grid Standard and Date & Time Parameters

Note: You must seek approval from the local DNO before changing export limits.

To configure Date & Time, click on the displayed date and time and then "Calibrate with phone".

The grid standard will be pre-set for the inverter export limitation.

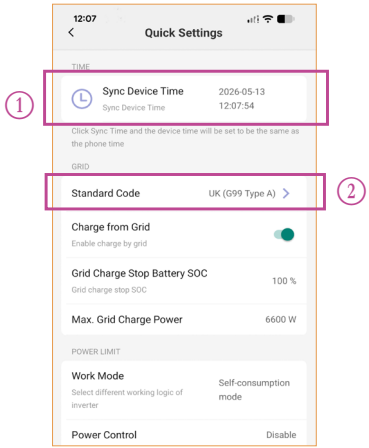


Figure 14.

Step 3. Power control parameters

In this step you will set how the inverter reads grid and house load.

1. For "Hybrid work mode" choose the work mode best suited to the customers' needs. See **7.1. Inverter Working Mode on page 56 of the Dura-i G3 Install Guide**
   The most commonly used setting is Self-consumption mode. This allows the inverter to prioritise the house load before charging the batteries or exporting generated PV energy to the grid. For "Power control" select CT Sensor.
2. For "Meter location" select the location you have chosen in **Figure 13 on page 17 of the Dura-i G3 Install Guide.** For standard installation it is recommended to install the CT on the incoming grid live cable before the main house distribution board as shown in **6.6. Grid Meter Connections on page 45. of the Dura-i G3 Install Guide**
3. For "Power flow direction" select the direction in which the arrow on the CT sensor is pointing. For standard installation it is recommended to install the CT pointing from the grid to inverter as show in **Figure 13 on page 17. of the Dura-i G3 Install Guide.**
4. For "Maximum feed in grid power", this should be set to the size limitation of the inverter OR the maximum allowed by the DNO as grid standard, whichever is lower.

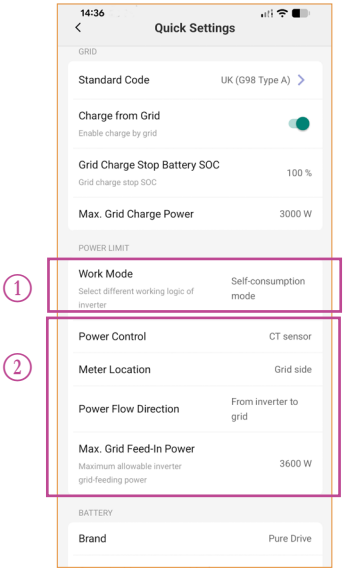


Figure 15.

Step 4. Battery type parameters

In this step you will set the Work Mode and Battery Type.

1. For “Battery brand selection”, choose the type of battery that is connected to the inverter.

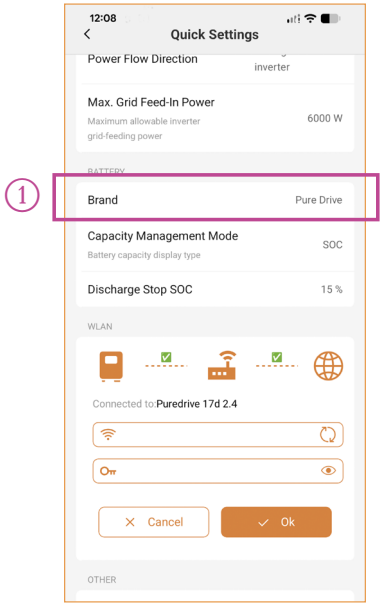


Figure 16.

Step 5. Turn on inverter

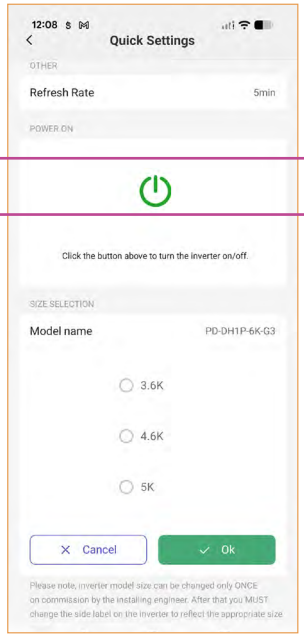


Figure 17.

In this step, please click the power button to turn on the inverter.

Note: DO NOT COMPLETE THIS STEP IF YOU ARE INSTALLING PARALLEL INVERTERS. Please now switch to the Parallel Setup Guide.

Step 6. Change inverter size (if required)

If you need to change the size of the inverter, select the relevant size and press **Ok**.

	NOTE	Inverter model size can be changed only ONCE on commission by the installing engineer. After that you MUST change the side label on the inverter to reflect the appropriate size of KW.
	NOTE	You must seek approval from the local DNO before changing export limits.

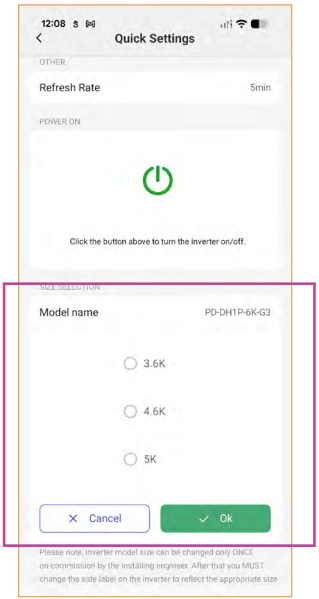


Figure 18.

8. Wiring Diagrams

8.1. AC Coupling Wiring Diagram - CHINT

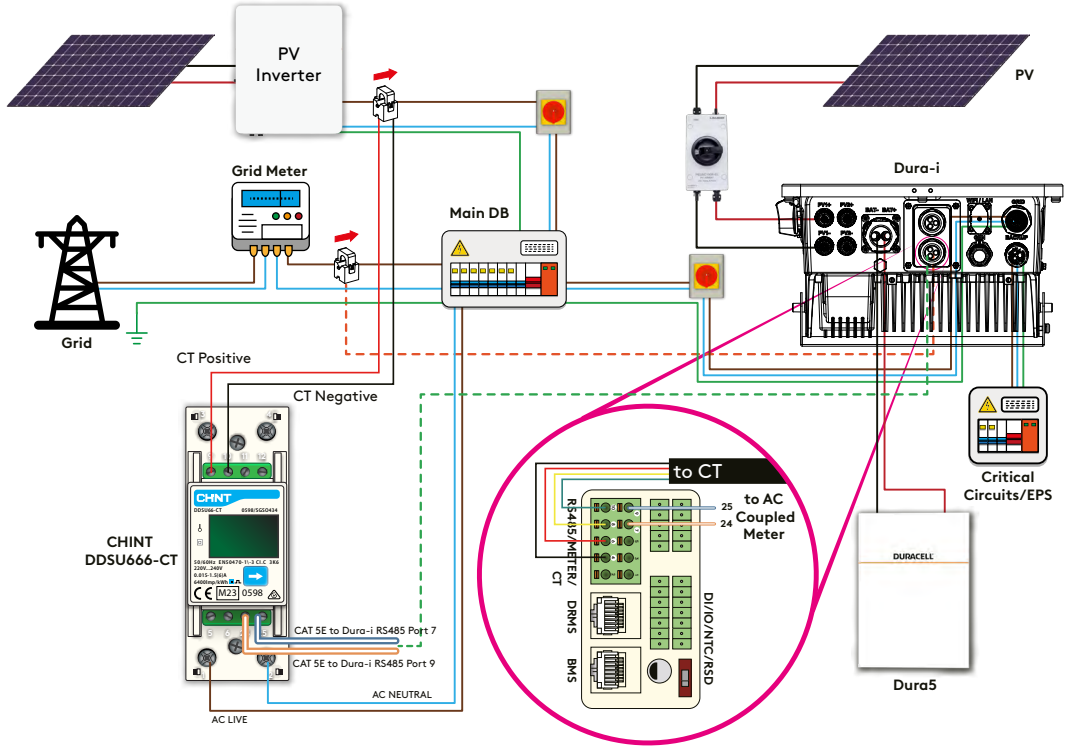


Figure 19. AC Coupling Connection Wiring Diagram - CHINT

8.2. AC Coupling Wiring Diagram - Carlo Gavazzi

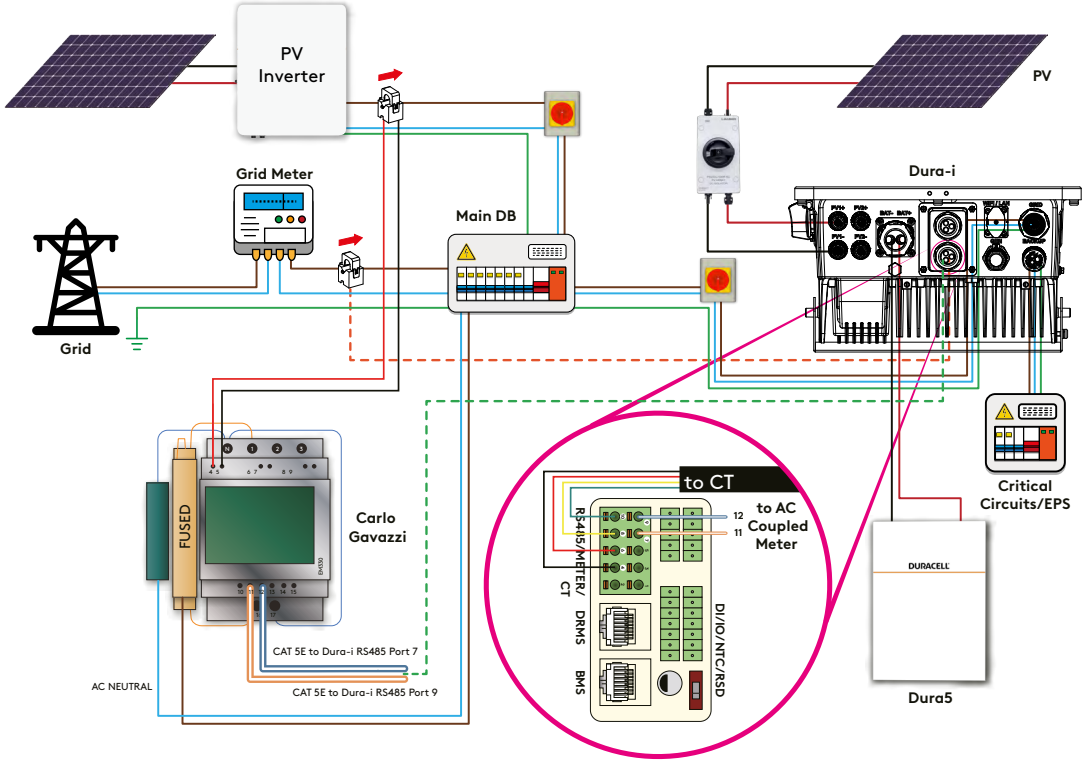


Figure 20. AC Coupling Connection Wiring Diagram - Carlo Gavazzi

8.3. AC Coupling Wiring Diagram - Eastron

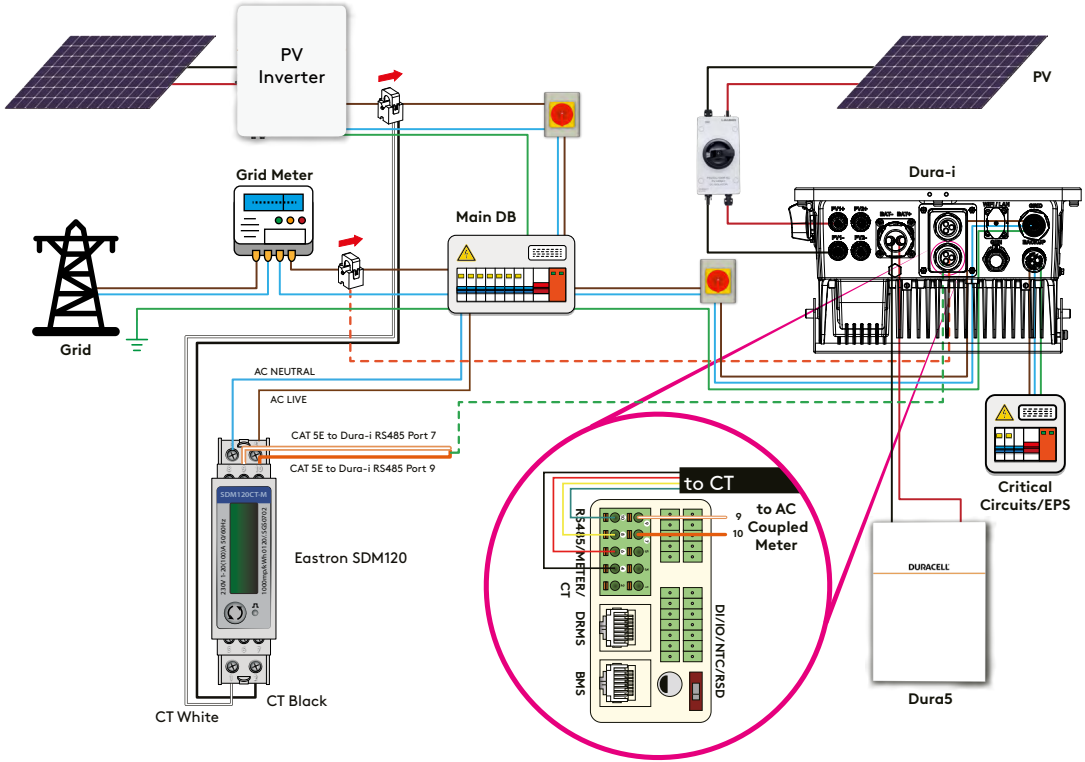


Figure 21. AC Coupling Connection Wiring Diagram - Eastron

Notes

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