SolarEdge Inverter Integration guide

V5 - September 2023

Connection Options

1. **Data Connection:** A data connection between the CET device and SolarEdge inverter allows the CET HEMS to read production values directly and send control signals to the inverter to curtail production. If a data connection is provided, there is no need to monitor the inverter with CT(s).

   If the Inverter is installed at a distance from the CET device, a data connection is required because it will not be possible to connect a CT directly to the inverter AC connection(s). An additional PLT Adapter or Wi-Fi extender can be used to connect inverters if running a cable is impractical.

   A data connection is also required if:
   a. The CET system is being used to manage **export limiting** at the site; or
   b. There is a **battery** installed at the site; or
   c. The installation is in South Australia and is required to meet the SA Government **Relevant Agent** remote disconnection requirements.

2. **CT monitoring:** If a data connection is not required and there are spare CTs available, the inverter can be monitored using CTs, with one CT required for each phase.

   If direct access to the dedicated solar circuit is not achievable (e.g. if the inverter is installed on a remote shed / sub-board), a data connection is strongly recommended.

Note: SolarEdge power meters are not required when integrating SolarEdge inverters with the CET HEMS.

Reducing HD-Wave Inverter Electrical Interference

SolarEdge HD-Wave inverters produce a lot of conducted electromagnetic interference (EMI) relative to other inverter brands. EMI from HD-Wave inverters can significantly reduce the range of the Powerline Telecommunications (PLT) used by the Combined Energy HEMS.

It is strongly recommended to double-wrap the inverter AC supply wires (Live, Neutral and Earth) through the solid-core ferrite that is supplied with HD-Wave inverters as shown in the image below:

This option may not be practical for all SolarEdge inverter models, depending on how the ferrite is integrated into the enclosure. In cases where the solid core ferrite is not accessible, or if additional filtering is required, clip-on ferrites may be added to individual conductors and to the Ethernet data cable to further reduce interference:

The following clip-on ferrite is recommended and is available from a number of suppliers:
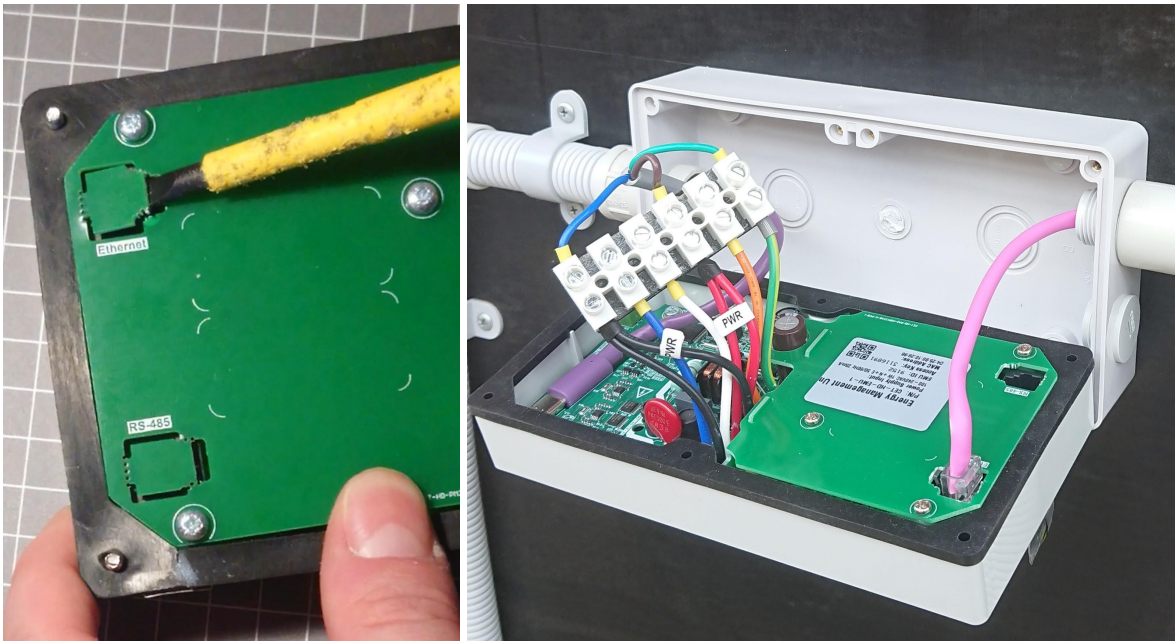Manufacturer: **FAIR-RITE**
Part Number: **0431164181**

Data Connection

CET Power Meter (New system)

Using a flat blade screwdriver, carefully remove the breakout tab covering the RJ45 "Ethernet" port. Connect the SolarEdge inverter to the RJ45 port using a double insulated Ethernet cable (e.g. Clipsal 5005C305B):

CET Gateway One (Old system)

A double-insulated Ethernet cable (e.g. Clipsal 5005C305B) should be used to connect from the Ethernet port on the Gateway (circled below) to the corresponding port on the inverter:
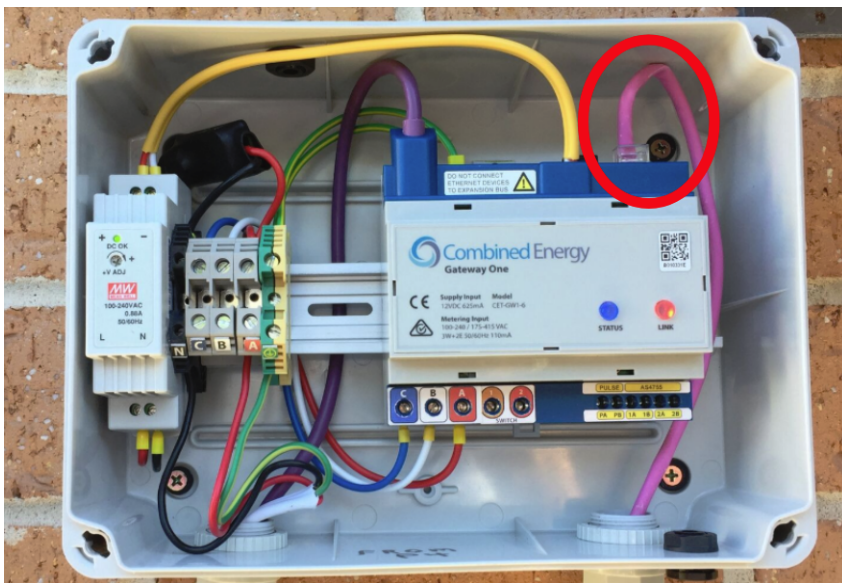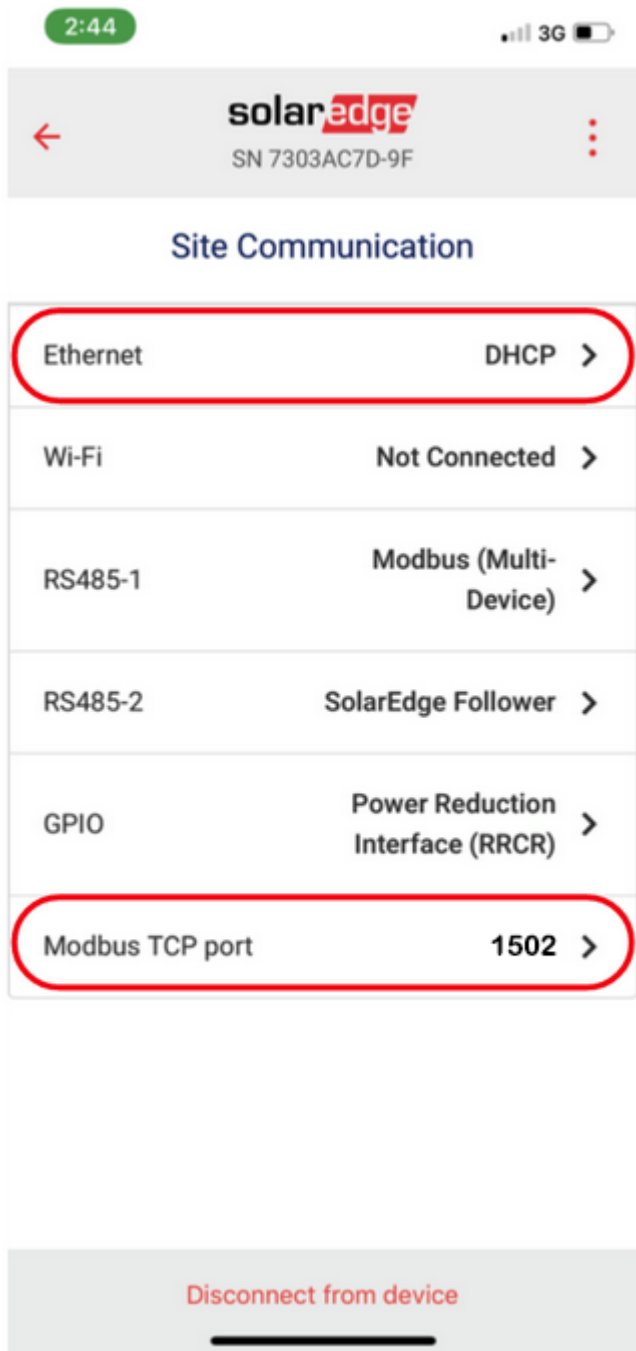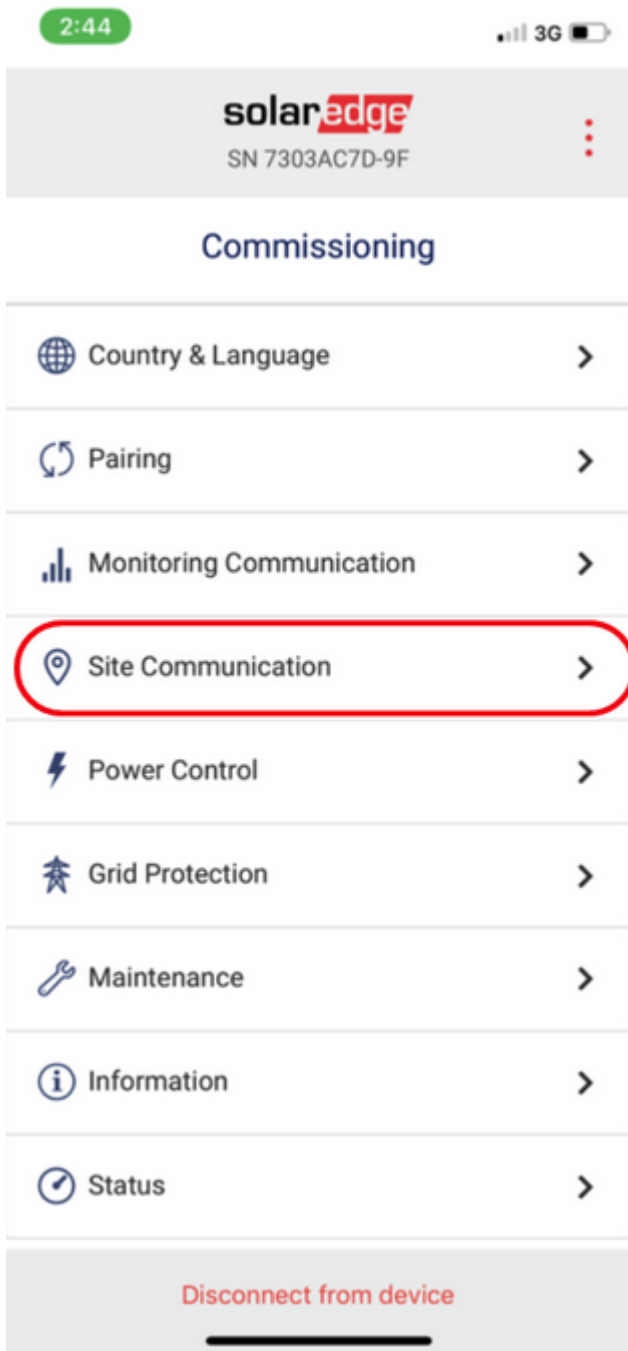
Configure SolarEdge Inverter

Configure using SolarEdge SetApp

To enable modbus via Ethernet, open the SolarEdge SetApp and navigate to: **Commissioning** > **Site Communication.** Configure the following:
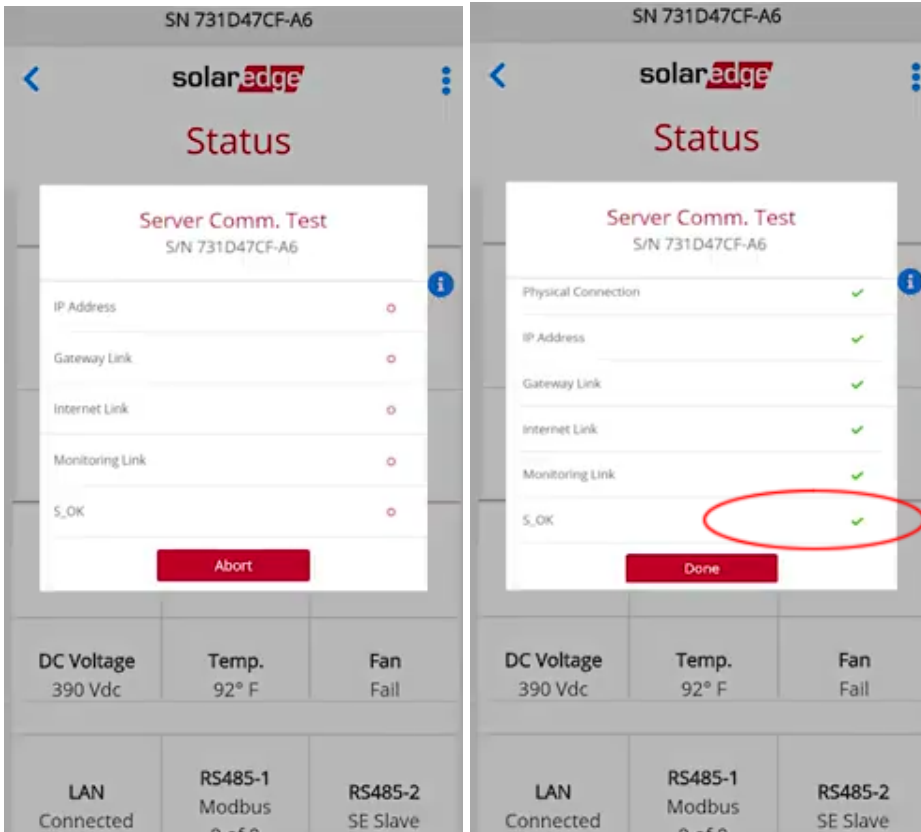
1. Ethernet: **DHCP**
2. Modbus TCP Port: Set to **1502**

After this is complete, please use the "**Help**" > "**Request callback**" option in the CET OnSite app and a CET representative will complete the configuration of the CET HEMS data connection.

Once CET have configured the inverter connection, the following section in SetApp can help debug/verify the connection:
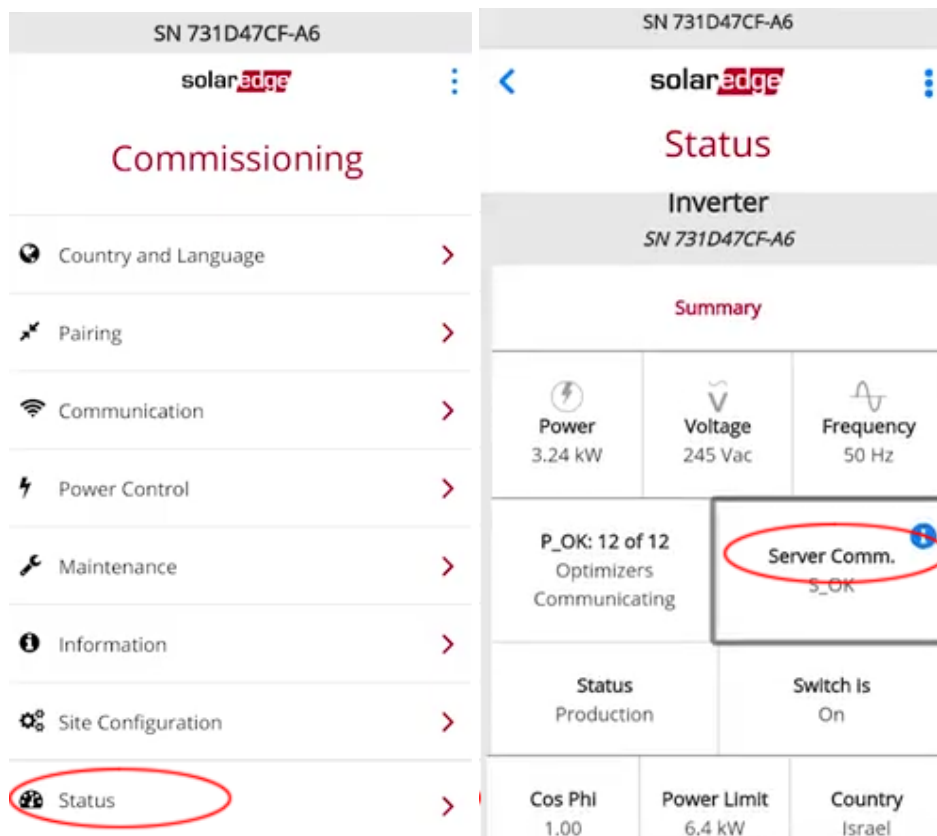
If physical connection passes and the rest fail, check the cable is correctly constructed - this is possible with incorrect pairing.

Using in-built LCD Screen

To setup MODBUS TCP on the SolarEdge Inverter:
Using the SolarEdge menus select the following options

1. Communication >> Server >> LAN
2. Communication >> LAN Config >> DHCP
3. Communication >> LAN Config >> Modbus TCP (set port to 1502)

After this is complete, the CET HEMS will be able to find the SolarEdge inverter. Please use the "Help" > "Request callback" option in the CET *onSite* app and a CET representative will complete the configuration.

Master/Slave AKA Leader/Follower

Inverters are configured as slaves on device ID 1 out of the box. This only works for stand-alone inverters. Any master/slave relationship must be configured:

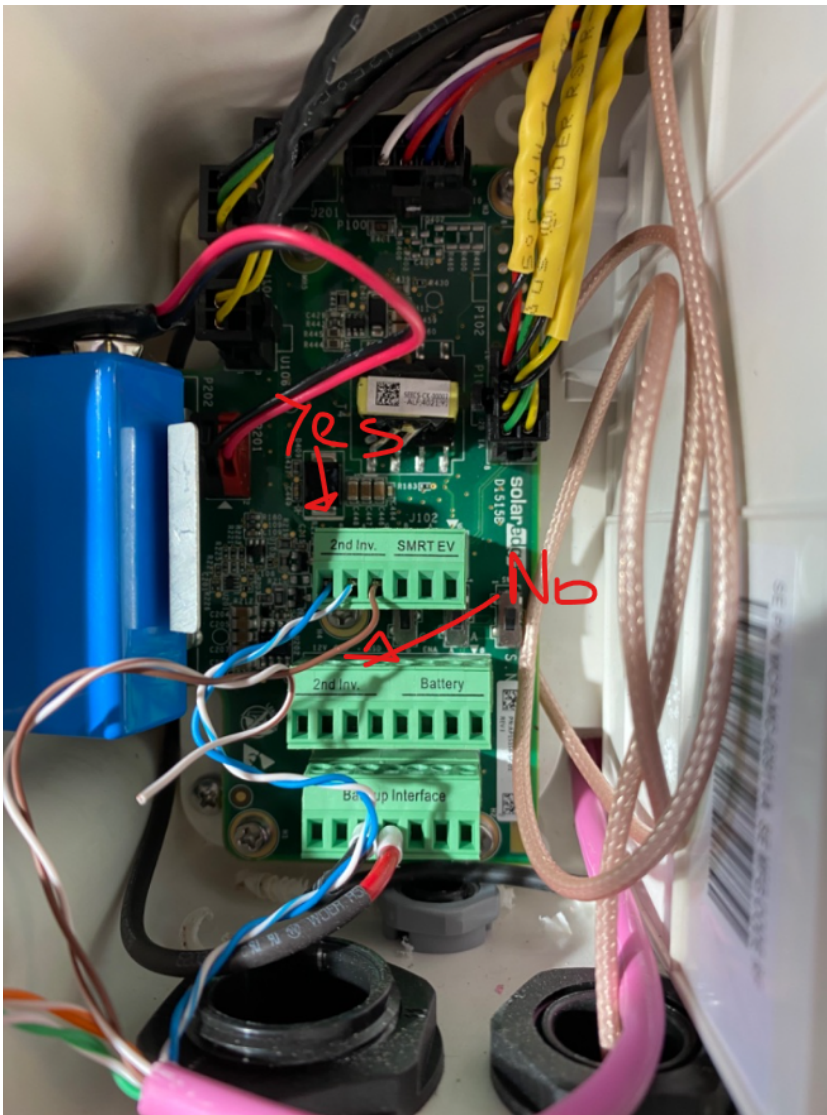*Note: SolarEdge Device ID = CET Modbus Unit*

On the Slave:
Change Device ID to 2 (or anything other than 1)

Master:
Device ID should already be 1
Set RS485-2 - Master (leader) - then detect slaves

Note: SE5000H-AUSNBBX14 - wiring for slave into master:

Battery Configuration (StoreEdge)

Ensure DIP switches on the StorEdge are set to the correct position (all **up**) for the Australian region.