SOLAR RELAY

INVERTER CONTROL
with GOODWE

NS and DNS Series

CATCH Power
A trademark of Project H Pty Ltd
180 Dumaresq Street
Glen Innes
NSW 2370
Australia
Ph: +64 2 5700 5717
W: www.Catchpower.com.au
E: sales@catchpower.com.au

IMPORTANT..PLEASE READ

The CATCH Solar Relay works by emulating the energy meter the inverter would normally use.

This means two things are really important.

1. You need to read the inverter manual:

Make sure you understand how to setup the inverter for export control. When you read the manual it will talk about an energy meter or CT…Follow the instructions exactly as they are in the manual. If there are any changes required we will let you know further down in this document.

2. Read the CATCH Solar Relay installation manual:

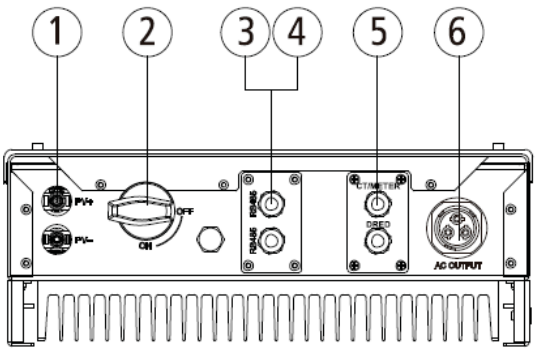
The manual outlines how to setup the CATCH Solar Relay to control loads. It also outlines circuit breaker requirements, how to use the CATCH Configurator App, etc.

Once you have followed step one and two you are ready to proceed….

Wiring Instructions

CATCH Solar Relay and the inverter communicate using RS485. Connecting the two pieces of hardware requires a 2 core RS485 cable. When the RS485 cable run is greater than 20m it is recommended to use a 2 core cable designed specifically for RS485 communication, it will typically have a 120 Ohm characteristic impedance. However, for short cable runs any 2 core cable will typically do the job, as long as it is rated for the voltages it will be exposed to. The pink CBUS data cable is ideal for short cable runs.

NS Series



The image above is the bottom of the NS Series inverter.

1. Remove bottom plate number 3 & 4.
2. Pass the RS485 cable through the CT Meter gland.
3. Using the green connectors supplied. Connect the RS485 cable to either pin 1 and 2 **or** pin 5 and 6 as shown

The diagram below shows 2 separate cables, you only need 1, you choose the 1&2 or 5&6 connection points, not both.

Line	Function
1	RS485+
2	RS485-
3	Reserved
4	Reserved
5	RS485+
6	RS485-

Pin 6 is closest to the inverter heat sink

Pin 1 and 2

OR

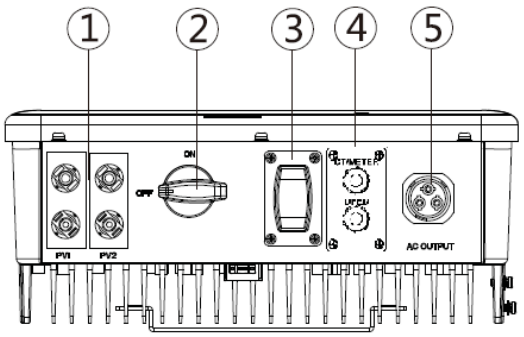
Pin 5 and 6

Pin 1/Pin 5 => Catch Solar Relay RS485 A
Pin 2/Pin 6 => Catch Solar Relay RS485 B

DNS Series

The installation manual of the DNS Series inverter talks about using a CT for export limiting. You will not need to install the CT. The CATCH Solar Relay will be doing the job of the CT.

YOU WILL NOT NEED THE GOODWE CT FOR THIS INSTALLATION



The image above is the bottom of the DNS Series inverter.

1. Remove bottom plate number 3 & 4.
   The RS485 connection point is located behind panel 3, next to the Wifi dongle.

2. Pass the RS485 cable through the CT Meter gland plate and pass the wire through to the 6pin socket next to the WiFi dongle connector.

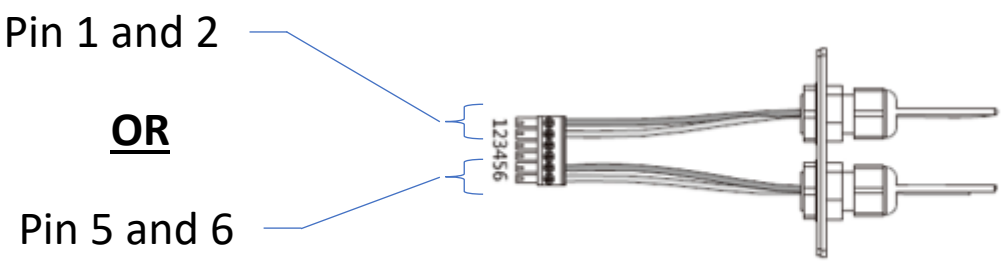
3. Using the green connectors supplied. Connect the RS485 cable to either pin 1 and 2 **or** pin 5 and 6 as shown.
   If there is no 6 pin socket connector supplied with the inverter then use the 2 pin socket that was meant for the CT connection, you do not need the CT, so you can use the connector.

DNS Series..Continued

The diagram below shows 2 separate cables, you only need 1, you choose the 1&2 or 5&6 connection points, not both.

Line	Function
1	RS485+
2	RS485-
3	Reserved
4	Reserved
5	RS485+
6	RS485-

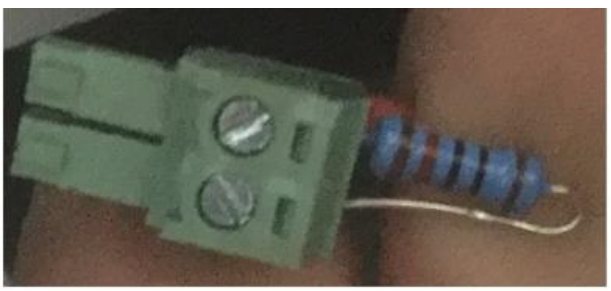
Pin 6 is closest to the inverter heat sink



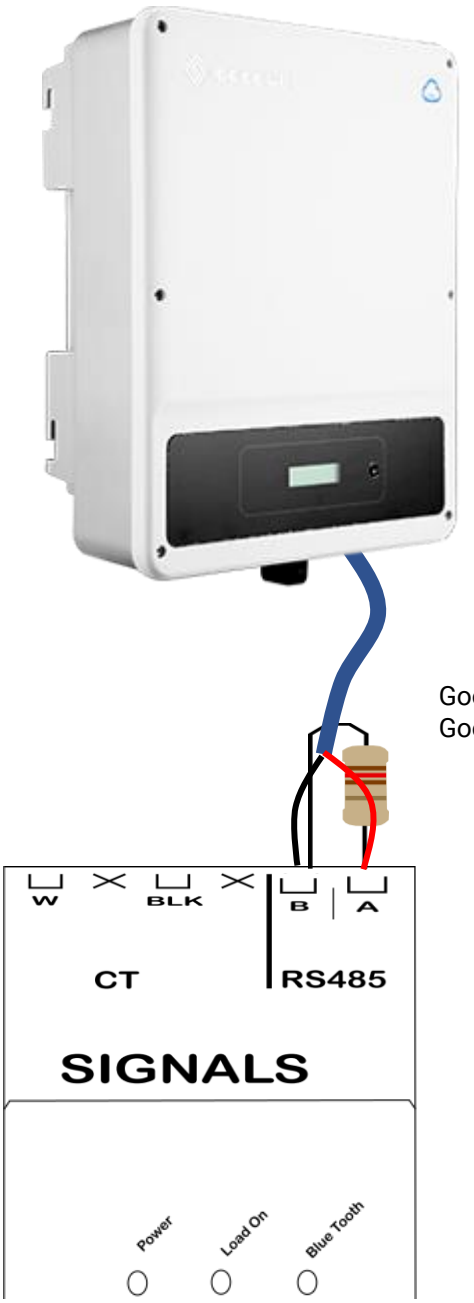
Pin 1 or Pin 5 => Catch Solar Relay RS485 A
Pin 2 or Pin 6 => Catch Solar Relay RS485 B

Add RS485 termination resistor

For the NS and DNS series a 120 Ohm termination resistor needs to be manually added inside the inverter connection point. In short cable runs you may get away with not having it, but it will definitely be needed for longer cable runs. A resistor is not supplied with the inverter.



Connecting the RS485 Wires to CATCH Solar Relay



Goodwe Pin 1/Pin 5 => Catch Solar Relay RS485 A
Goodwe Pin 2/Pin 6 => Catch Solar Relay RS485 B

Ensure the data cable is rated for the voltages it will be in close proximity to.
A 120 Ohm terminating resistor may be required at the CATCH Relay terminals as shown in the diagram below if the cable run is longer than 10m.

Inverter Setup

The link below walks you through the process of configuring the GOODWE inverter for export limiting.

https://www.youtube.com/watch?v=dnfvOa1H6w0

Set the Power Limit On/Off

1. Navigate to the `Power Limit OFF` menu option using short presses.
2. Long press on the button until the password screen appears. The default password is `1111`.
3. Use longer 2sec presses to get to the last digit of the password then don't press anything for 10sec. Eventually you will move onto the Power Limit menu option.
4. Short press to change the Power Limit option from off to On.
5. Don't press anything for 10sec. Eventually it will go back to the main screen.

Power limiting is now turned on. The next step is to set the actual export limit.

Set the Power Limit On/Off

1. Navigate to the Set `Power Limit` menu option using short presses.
2. Long press on the button until the password screen appears. The default password is `1111`.
3. Use longer 2sec presses to get to the last digit of the password then don't press anything for 10sec. Eventually you will move onto the Power Limit menu option.
4. Use short presses to change the Power Limit digits and 2sec presses to move to the next digit.
5. Don't press anything for 10sec. Eventually it will go back to the main screen.

You have now set the power limit.

Inverter Setup..Continued

The power limit is expressed as a percentage. For example:
If you are configuring a 5kW inverter, and the export limit is 3kW, the export limit should be set to `100*3kW/5kW = 60%`

Important GOODWE characteristics to note

- Consumption data does not get sent to the GOODWE monitoring portal. Regardless of whether you are using the CATCH Solar Relay or the GOODWE CT, no consumption data is displayed on the portal. The Goodwe HomeKit is required for this.

- If communications is lost between CATCH Solar Relay and the inverter, the inverter will ignore export limiting and ramp up to full production.

- If there are multiple inverters on site. The Goodwe inverter ignores all export limits until it reaches its own export limit power output.

  As an example, if the site is export limited to 3kW, there is an existing 1.5kW system on site and you are installing a 5 kW system. Typically you will set the Goodwe export limit to 3kW, however this will result in a total possible export of 3kW + 1.5kW. To rectify this problem using the Cluster Export feature of the Solar Relay.

SOLAR RELAY Setup

The screen below is from the CATCH Power Configuration App. The App can be downloaded from Google Play Store or the Apple iStore.

IMPORTANT

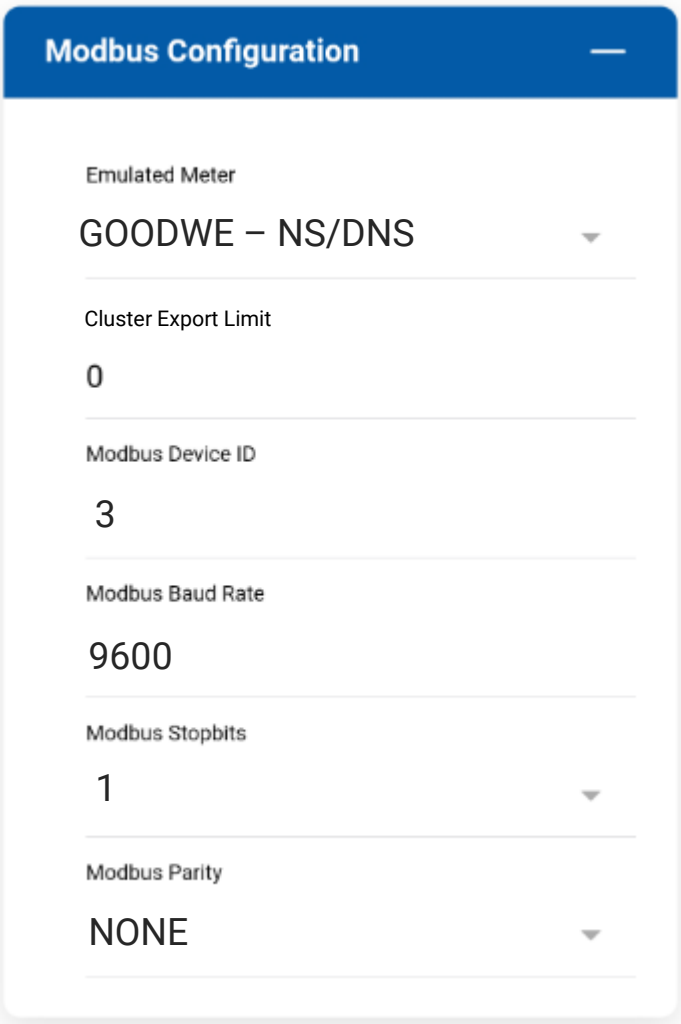
DO A FIRMWARE UPGRADE BEFORE YOU BEGIN

We are adding new inverters, and new control features all the time. Your relay firmware is most likely out of date already. Follow the onscreen instructions and perform a firmware update before you continue on

SOLAR RELAY Setup

Navigate to the Configuration screen and expand the Modbus Configuration section.
Fill it out using the details below.

Save your changes.



Checking the status of the RS485 interface

Within the CATCH Power app if you navigate to the bottom of the Live Data screen you will see something similar to the screen below.

The RS485 Active field should toggle between zero and one. Regularly, if you do not see it with a value of 1 it indicates there is a problem.