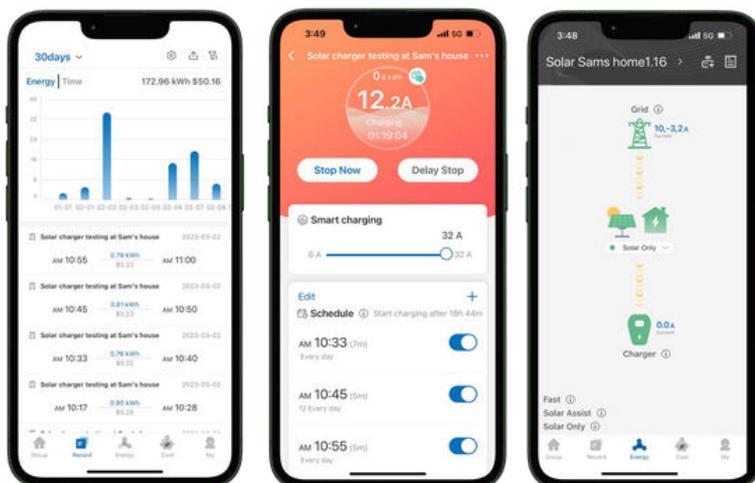


OCULAR



OCULAR IQ SOLAR USER MANUAL

IOCAW13-7S-Solar
IOCAW13-22S-Solar
IOCAW13-7T-Solar
IOCAW13-22T-Solar

ocularcharging.com.au
sales@ocularcharging.com.au
1300 912 650

Welcome to your Ocular IQ Solar!

Warning: This product shall only be installed, repaired or serviced by an authorised electrician. All applicable local, regional and national regulations for electrical installations must be respected.

Download the Ocular app



Scan



Or

[Click here to download](#)



Scan



Or

[Click here to download](#)

Ways to charge - IQ Solar

The Ocular Solar charger can start a charging session in three ways depending on the settings; using the Ocular app, plug and charge and using an RFID card.

Ocular App

After downloading the Ocular App and adding the charger to it, you can start and stop a charging session via the app, you can also stop a charging session through your car.

Plug and charge

If the charger is set to plug and charge, you can start a charging session by simply plugging the charger to your car. The charging session can be terminated by the car, using the RFID card if it's been activated or using the Ocular app.

Scheduling

You can set a schedule to start and stop a charging session. Set the start and stop times and the days for the schedule to repeat. Just plug the car in and the car will start charging when the schedule starts.

Using RFID Card

If the charger is set to using RFID card, you can start a charging session by first plugging the charger to your car, then scan the RFID card on the charger to start charging. The charging session can be terminated by either the car or swapping the RFID card again.

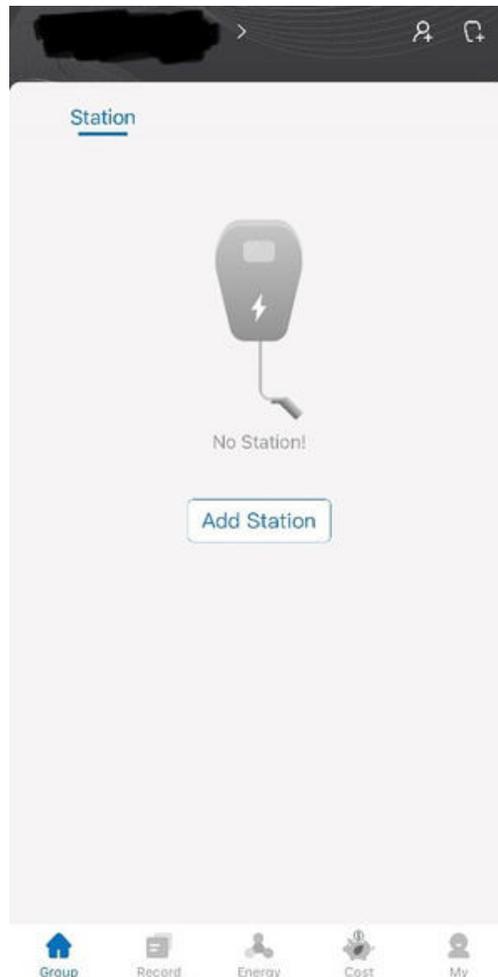
STEP 1: Set up the app and charger

Please ensure you have downloaded the OCULAR APP, other apps will not be compatible with your charger. (see page 1)



Please scan QR Code or [CLICK HERE](#) to watch this video on how to connect your charger and start charging!

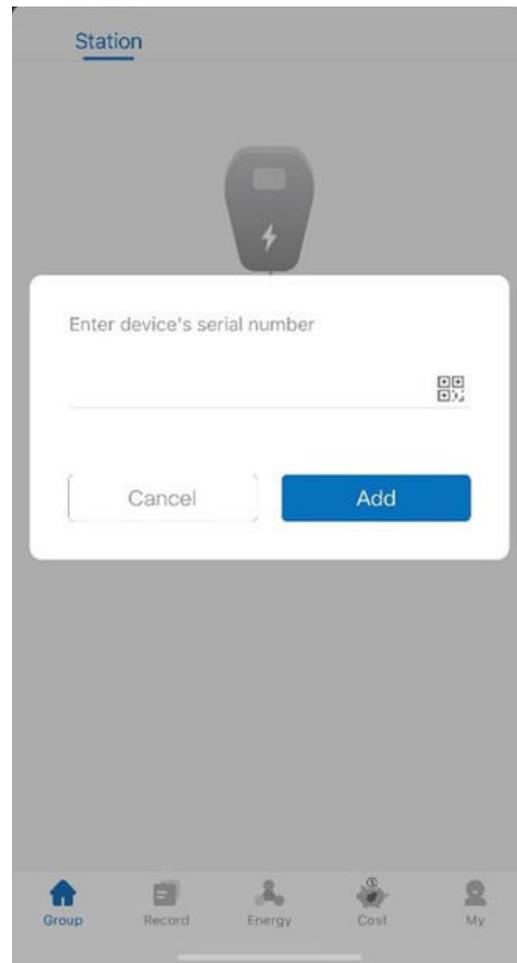
1. Register for an account, then log in. After log in, you will see this page.



2. Press add station, then enter your charger's serial number which can be found on the silver sticker on the side of the charger.

The serial number begins with AW

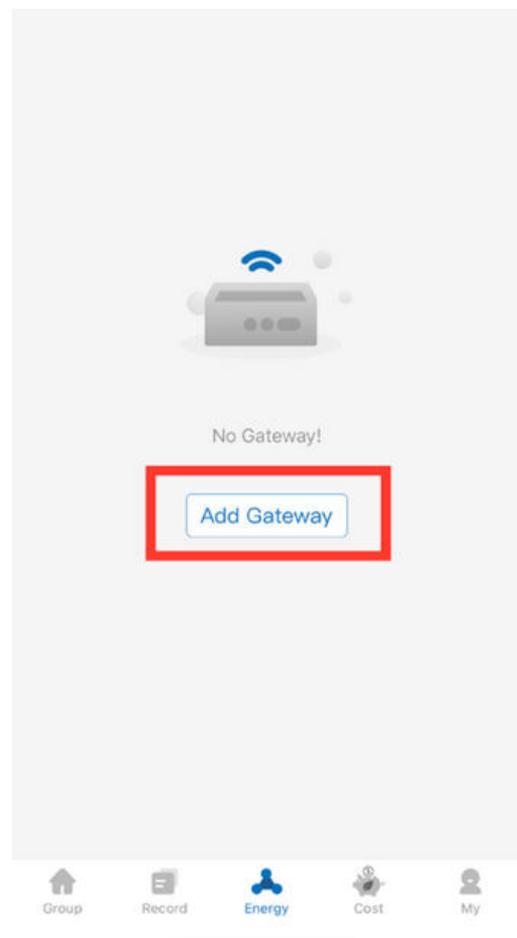
eg. AW12345678912



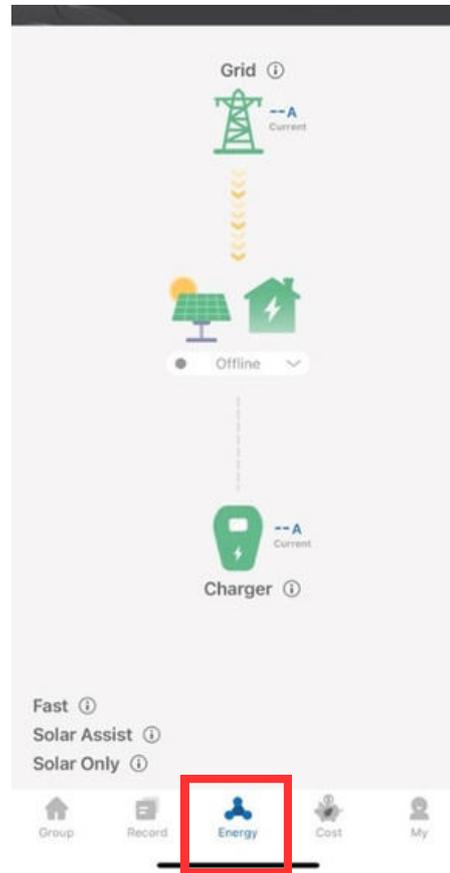
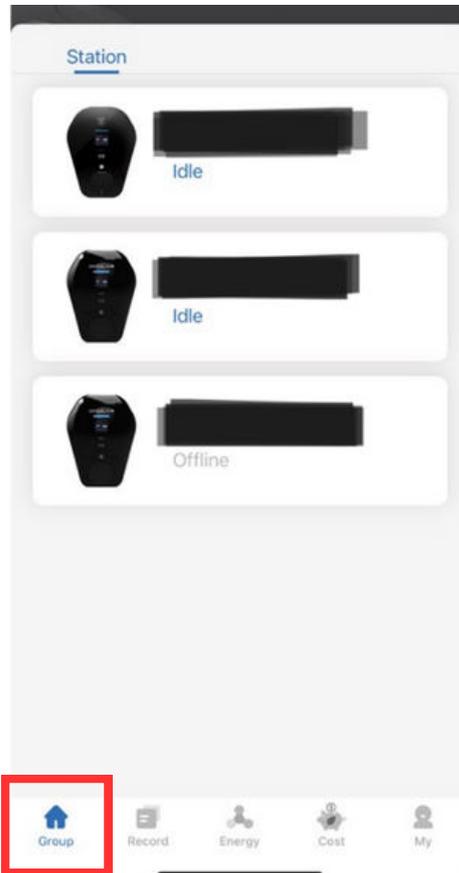
3. Select the 'energy tab', then select 'add gateway'.

Enter M_ followed by the serial number.

eg. M_AW12345678912



4. Now your charger has been successfully added. You can now see your charger under the 'group' tab and the energy tab should now show a colourful diagram.



STEP 2: start and stop a charging session

Option 1: Using the app

1. Under Energy tab, choose your desired charging mode: Solar only, Solar assist or Fast mode by pressing the drop down and selecting the desired mode.

You can change the mode on the energy tab at any point in the charging session, you do not have to unplug or restart.

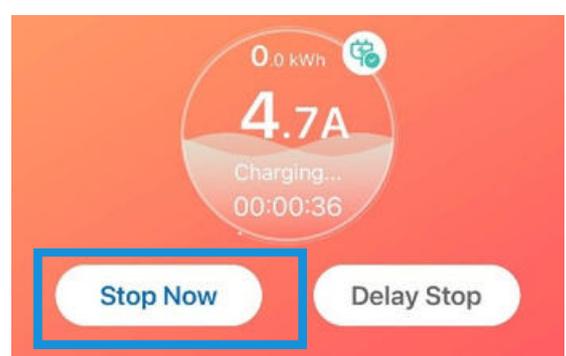
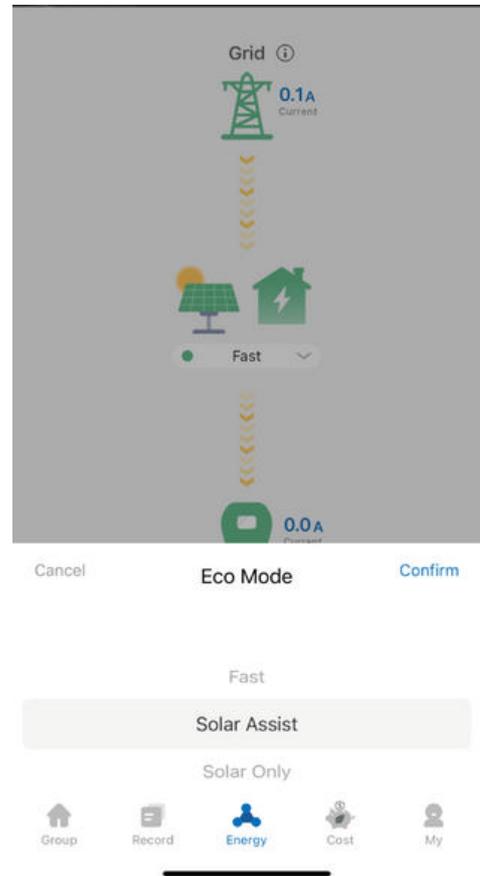
(If you want more information on these settings, please see FAQ section at the end of this manual.)

2. Go to the 'Group' tab and select your charger.

3. Plug your charger into the car, then start a charging session by pressing the 'start' button.

This will then change to a 'stop' button, press this to stop the charging session or stop charging through the vehicle.

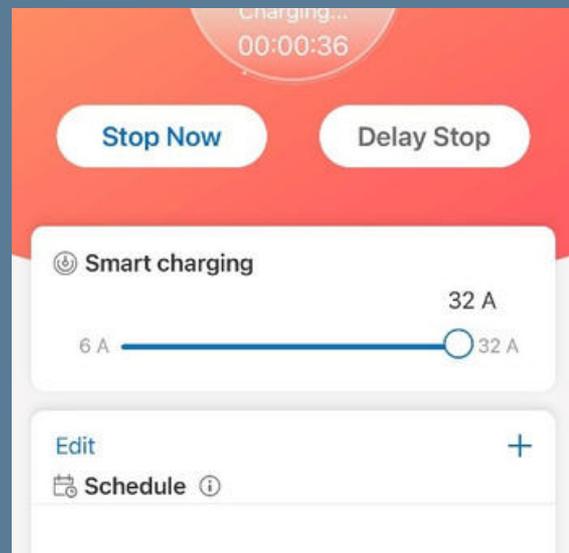
To delay start, press the delay start button and choose up to a 3 hour delay.



If your charger is not providing max charging speed, your current limit may be set too low.

1. Once the charging session has begun, change the current limit by adjusting the slider up to 32A.
2. Press the 3 dots in the top right to enter the settings. Ensure the Max current limit bar is set to the correct Amps

If there has been a hard limit set by the electrician, your max current limit may be less than 32 Amps.

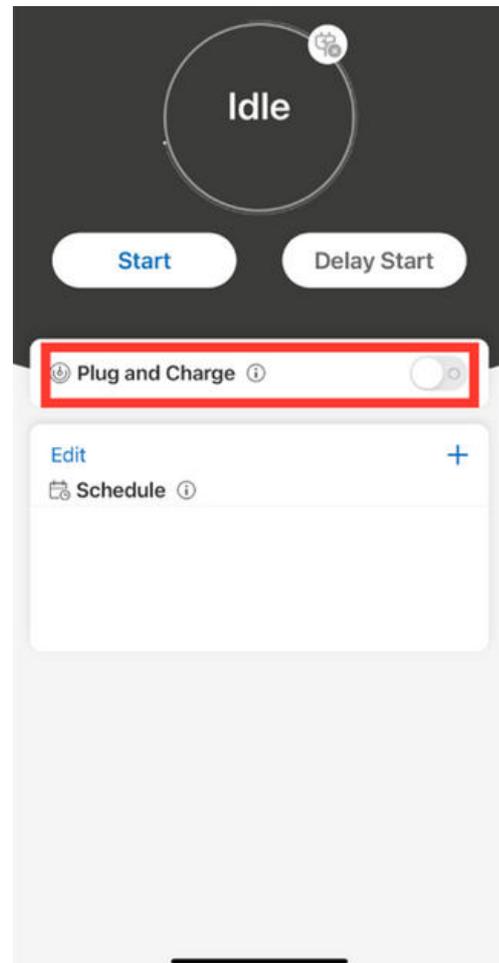


Option 2: Plug & Charge

1. Go to the 'Group' tab and select your charger. Turn on the plug and charge feature by pressing the button.

When you plug the car in, you will start charging on the saved mode settings and override any scheduled charging sessions, you do not have to press 'start'. To stop charging press 'stop' on the car, or on the app.

You will charge with the pre-selected energy mode. You can change the mode on the energy tab at any point in the charging session, you do not have to unplug or restart.



Option 3: Scheduled charging sessions

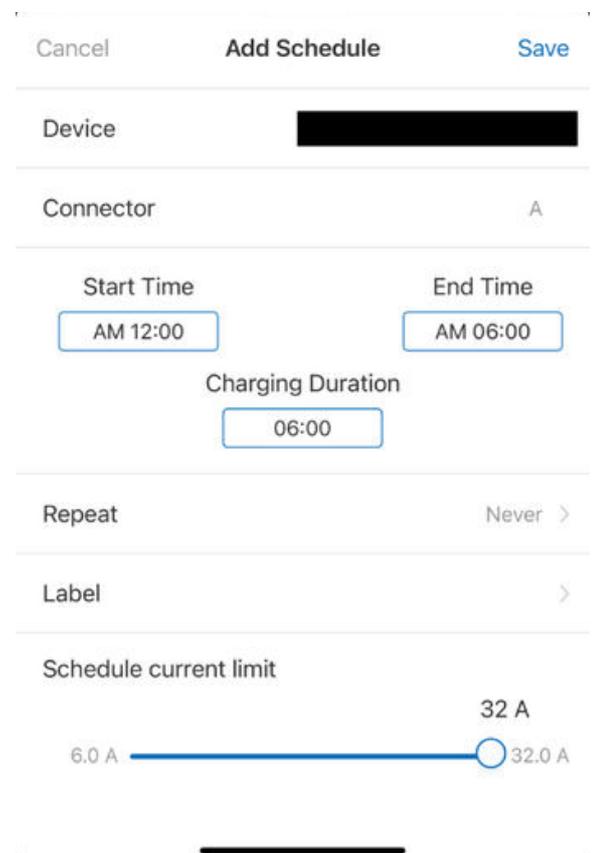
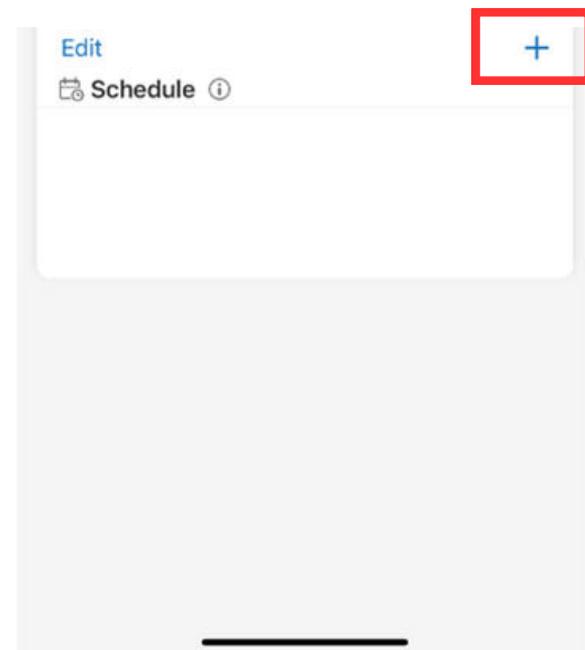
1. Press the plus button on the top right of the Schedule tab, and set the start time and end time.

2. Select repeat to choose which days to utilise this charging schedule.

You will charge with the pre-selected energy mode. You can change the mode on the energy tab at any point in the charging session, you do not have to unplug or restart.

The session will stop at the set time, or you can stop it earlier through the app or car.

YOU MUST TURN OFF PLUG AND CHARGE FOR THIS FEATURE



Option 4: RFID Card

Your charger will come with 2x blank white RFID cards

To bind an RFID:

1. Go to 'My' tab
2. Select My Card
3. Select Bind New Card
4. Enter New Card name, and select the device to read the card
5. Scan the card across the RFID Symbol.
You should hear a beep and a tick will appear on the screen if successful



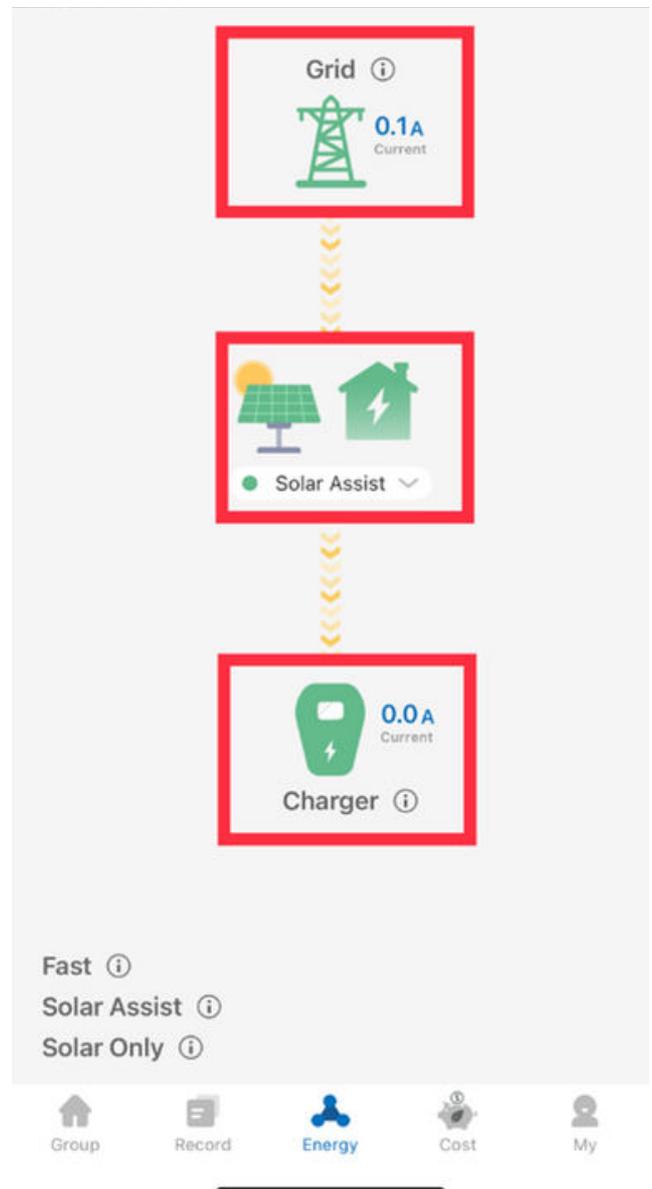
RFID SYMBOL

What can you do with this RFID?

- Start charging (will act as an override function if you have scheduling, delay, etc)
- Stop charging (no matter which function it has set, or how you started the charging session, the charging session will stop once you swipe the RFID card)
- When plug & charge, delayed charging and scheduled charging turned off, the RFID card acts as a form of authentication/security swipe before you (or anyone else) can start a charging session

Guide to the energy tab

- On the top is the grid, the middle is your home and the bottom you will see your charger.
- In the grid section, you will see either one number or three numbers, depending on whether you have a single or three-phase charger.
- A positive number means your home is drawing power from the grid.
- If you see that the number is negative, then that means you are producing excess solar, which is being exported to the grid.
- The number next to your charger represents the charging speed.



Guide to the energy modes

1 Fast Mode

In this mode, the vehicle will be charged at maximum power. This power can come from a renewable energy source or the grid. If you have set a current limit on the schedule or by the electrician during installation that will determine maximum power.

2 Solar Assist

This mode will charge your EV at a minimum of 6 Amps plus any excess solar produced. If solar production is low, power will be drawn from the grid.

This is the preferred solar mode, particularly on cloudy days or when you have a smaller solar system. This will ensure a continuous charge plus any excess solar that your home generates.

3 Solar Only

This mode charges your EV only when enough excess solar is produced. Please note a minimum of:

Single Phase - 7 Amps

Three Phase - 20 Amps across all three (3) phases is required to use this mode to prevent excess starting and stopping of the charging session which is not recommended.

If the solar production drops below the Single and Three phase threshold the charging will pause and then restart after 2-3 minutes of continuous excess solar above the Single and Three phase threshold.

We recommend this mode when you have a clear excess of solar power produced. Use Solar Assist when your production is low or intermittent.

Guide to Charging Records & Cost Estimates

Records

Go to the 'Records' tab for a complete overview of your charging history.

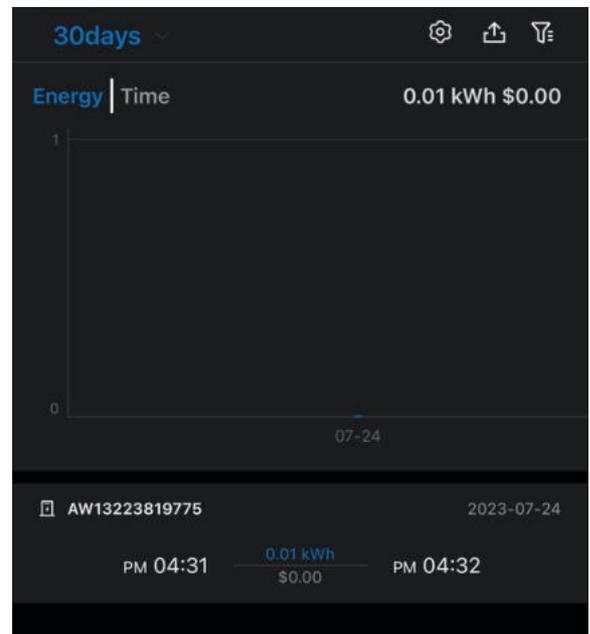
You can choose the time frame of your records: 7 days, 30 days, 90 days up to 1 year, by pressing the days and selecting from the drop down menu.

You can export the data by selecting the share  button and receive the data in your chosen email.

Costs

Go to the 'Costs' tab.

Here you can enter your electricity rate and press calculate and you will be able to see the cost of electricity over the chosen period of time.



The screenshot shows the 'Costs' tab in the OCULAR app. It displays the 'Electricity Rate' as '0.25 \$/kWh', 'Total Energy' as '0.01 kWh', and 'Total Cost' as '\$0.00'. A blue 'Calc' button is present. At the bottom, there are 'Cancel' and 'Confirm' buttons, and a dropdown menu for selecting the time frame, currently set to '30days'.



OCULAR

IQ SOLAR FAQs

What's the difference between the 7kW and 22kW?

The 7kW version is best for a single-phase power supply to your home, whereas the 22kW version works best with three-phase power. If you're not sure what type of power supply you have in your home, please speak to your electrician. The unit is available with a universal socket or with a 5m Type 2 cable.

When should I choose a Single or Three-phase IQ Solar?

We recommend matching your charger to the Solar systems output. I.e. if you have a single-phase solar system choose a single-phase IQ Solar.

Can the 3-phase Ocular IQ Solar be connected to single-phase only?

Yes, it will act like a standard single-phase charger. Just 1 CT input will be available to use.

Can we charge a single-phase capable EV with a 3-phase Ocular charger?

Yes, absolutely!

Is the Ocular IQ Solar compatible with all EVs?

Yes, every EV in Australia.

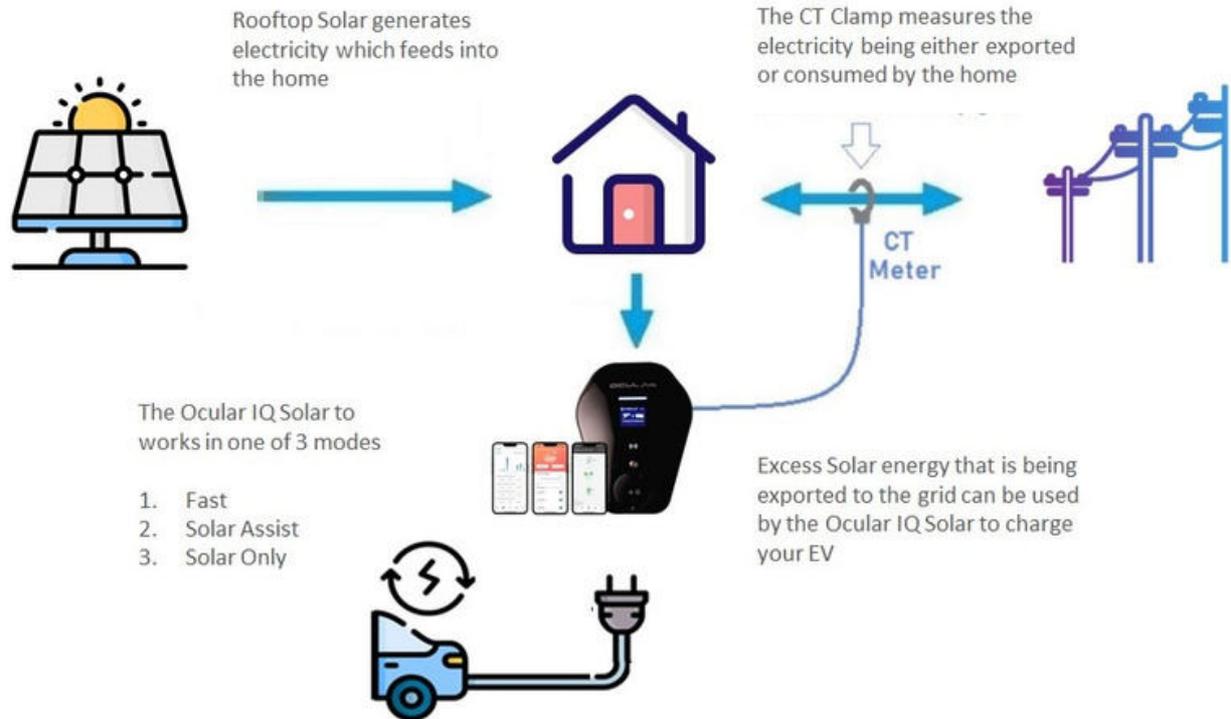
When am I exporting electricity?

On the Ocular App, look at the Energy tab. A negative value indicates you are exporting to the grid (excess solar), while a positive value indicates you are consuming electricity from the grid. Remember, the Solar Only Mode requires your home to be exporting excess solar to the grid. See Solar Only mode below.

Does the Ocular IQ Solar work with any solar system?

Yes. If you have a solar system that is constantly exporting electricity to the grid, then the Ocular IQ Solar will allow you to use that excess solar efficiently to recharge your vehicle's battery. We use a CT to measure the excess solar being sent to the grid in real time.

How the Ocular IQ Solar understands your homes electricity usage



How many CT clamps are provided?

One CT for single-phase versions and three for three-phase versions. You must only use the CT clamps provided or an approved CT from the Ocular team. This is to ensure that the solar and load control readings are accurate at all times. CTs are supplied in the charger box.

What happens if I have a stationary storage home battery?

For the most part, any excess solar produced by the system will be absorbed by the battery. The Ocular IQ Solar modes work by using CT clamps to understand what you are exporting out to the grid. You may find that the home battery is absorbing most of your excess solar generated first and so what's going out to the grid is minimal. Despite this, it's fine to still install a charger, but you may find the Solar Assist mode best to draw a small amount from the grid/battery when no excess solar is being produced. If there is excess solar available, it can then utilise the available excess solar that the battery is not taking.

What does each charging mode do?

The Ocular IQ Solar is designed to offer flexibility through three (3) charging modes: Fast, Solar Assist or Solar Only.

For solar charging our preferred mode is Solar Assist as it always ensures a baseline load + excess solar.

Fast Mode:

In this mode, the vehicle will be charged at maximum power. This power can come from a renewable energy source or the grid. If you have set a current limit on the schedule or by the electrician during installation that will determine maximum power.

Solar Assist:

This mode will charge your EV at a minimum of 6 Amps plus any excess solar produced. If solar production is low, power will be drawn from the grid.

This is the preferred solar mode, particularly on cloudy days or when you have a smaller solar system. This will ensure a continuous charge plus any excess solar that your home generates.

Solar Only:

This mode charges your EV only when enough excess solar is produced. Please note a minimum of:

Single Phase - 7 Amps

Three Phase - 20 Amps across all three (3) phases is required to use this mode to prevent excess starting and stopping of the charging session which is not recommended.

If the solar production drops below the Single and Three phase threshold the charging will pause and then restart after 2-3 minutes of continuous excess solar above the Single and Three phase threshold.

We recommend this mode when you have a clear excess of solar power produced. Use Solar Assist when your production is low or intermittent.

Our experience shows that large variable loads like air conditioning can absorb most of the solar generation. Use the Energy tab on the Ocular App to understand the excess available and choose the Solar Assist mode if excess generation is consistently below the Single and Three phase threshold.

Note that smaller solar systems or cloudy days may result in only a small amount of electricity going into the vehicle or none at all. Use Solar Assist when your production is low or intermittent.

Note a very minimal amount of power may be taken from the grid for a short period of time if solar production drops suddenly. The charging will stop until there is a clear excess of solar available.

For three-phase three (3) values will be shown on this screen, for single-phase only one (1) value will be shown on this screen.



Solar Only mode will not work when all three (3) phases are exporting less than 20 Amps.

This means that there is no clear excess when summing all three (3) phases.

When summing up all 3 phases, the solar is only exporting 4 Amps, which is less than the required 20 Amps before charging.

Solar excess is indicated by a negative (-) value.

In this case, choose Solar Assist or Fast Mode if you would like to charge your car.



Solar Only mode will only work when all three (3) phases are exporting greater than 20 Amps in total.

In this example, the Solar Only mode will work at 8 Amps as this is averaged across all three (3) phases.

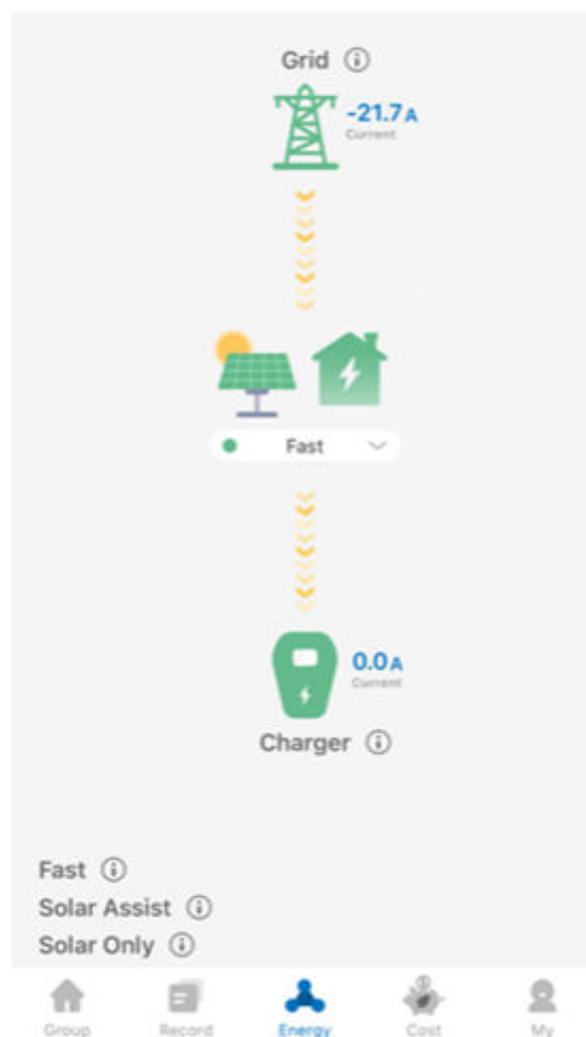
$$(5+5+14)/3 = 8 \text{ Amps per phase}$$

When Should I choose Fast, Solar Assist or Solar Only

The key here is to know how much your solar is producing and when you need your car to be fully charged. The charger prioritises the home's use of excess solar first. Eg. the oven, TV, kettle and air conditioner. A negative value indicates you are exporting to the grid (excess solar) while a positive value indicates you are consuming electricity from the grid. Remember the Solar Only mode requires your home to be exporting excess solar to the grid.

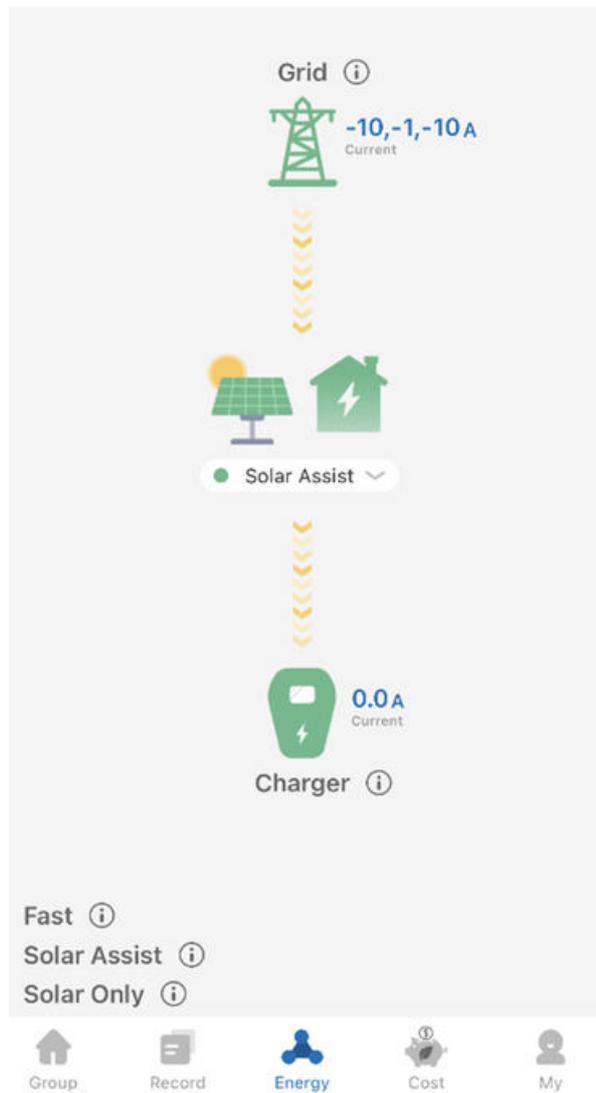
Fast Mode

Switch to Fast Mode on the Energy tab of the App to charge at the fastest rate. In this mode, the vehicle will be charged at maximum power. This power can come from a renewable energy source or the grid. This mode charges your battery quickly when you don't have time to wait or in the evening when you have no excess solar.



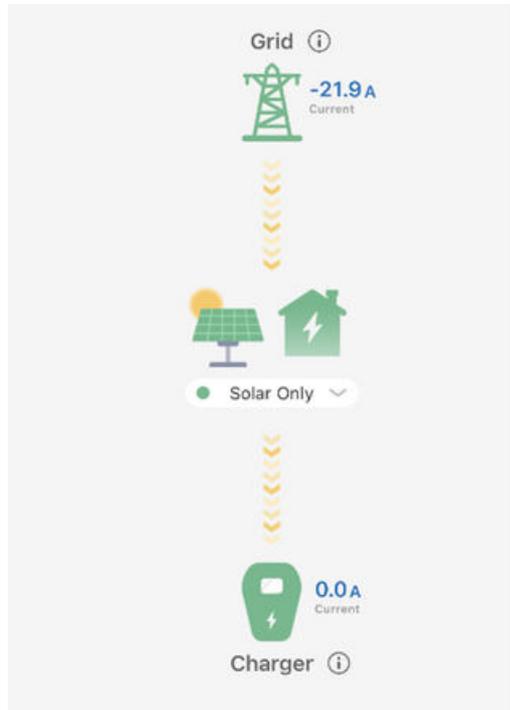
Solar Assist

This is the ideal mode for solar users. Solar Assist mode balances usage of excess solar but avoids the potential of starting and stopping during a charging session due to fluctuations in your energy generation. As shown in the examples, the three-phase charger has only two (2) phases exporting 10 Amps while one (1) phase is only exporting 1 Amp. In Solar Assist, this will still allow for a charge allowing you to charge at 6 Amps per phase. In Solar Only, all three (3) phases would need to export more than 7 Amps to work (displayed -7 on the App).

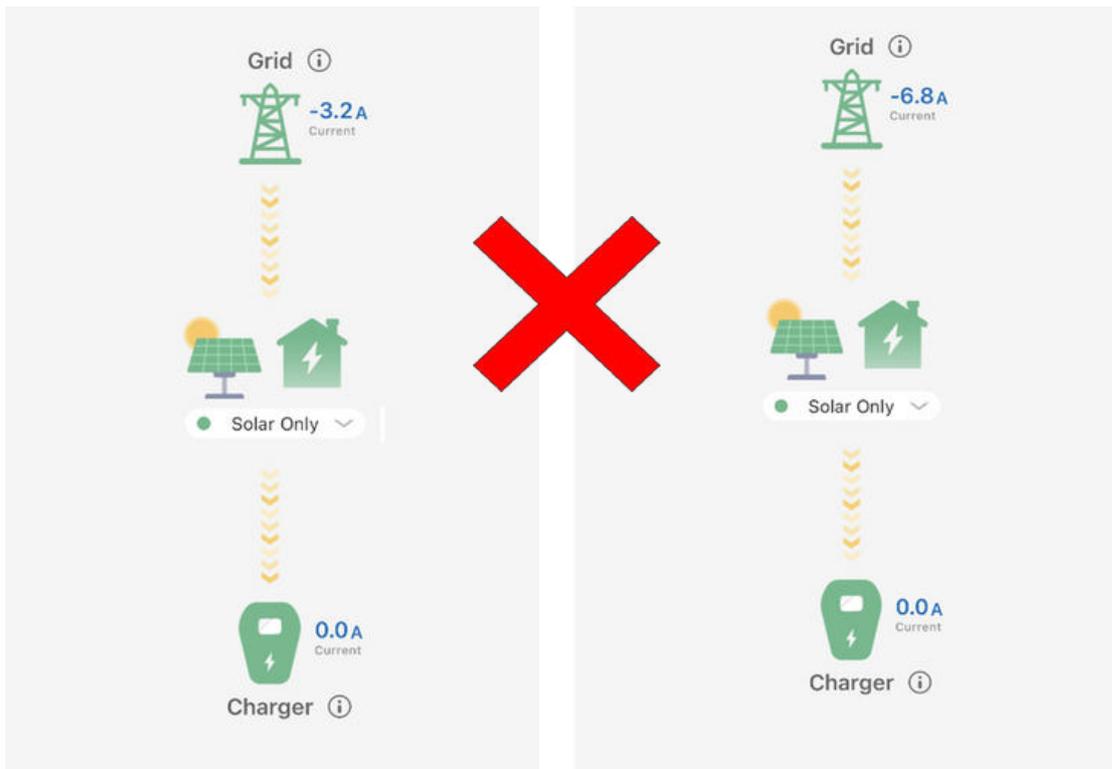


Solar Only - Single Phase

The ideal mode if you have a large solar system that produces a clear excess, in order to efficiently use your energy that has been generated, minimising the use of grid energy. The example below shows a clear -21.9 Amps excess solar which is ideal. Avoid this mode when you have high variability in solar export such as a very cloudy day, small excess solar (consistently around 0 to -8 Amps).

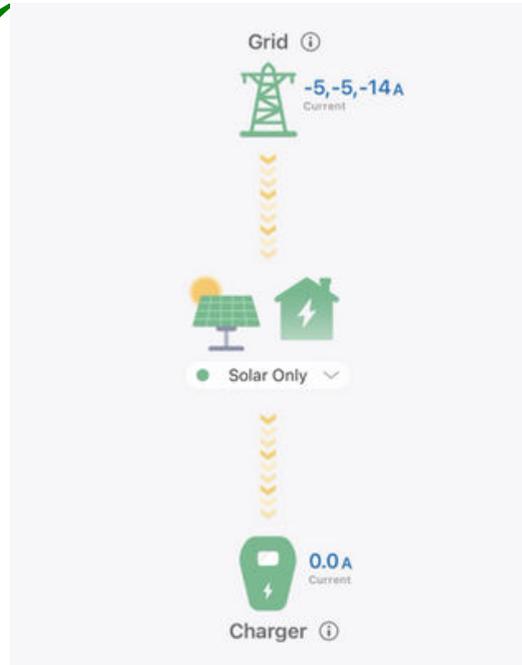


Don't use the Solar Only mode when solar export is low as shown below. Charging will be paused or possibly start and stop continuously due to low export. Solar Assist or Fast Mode recommended to have a stable charge.



Solar Only - Three Phase

The example below shows a clear -5, -5, -14 Amps excess which is ideal. The sum is -24 Amps, where when averaged per phase, comes to 8 Amps. This means L1 and L2 will import 3 Amps from the grid, whilst L3 will export 6 Amps to the grid. The balancing in the new algorithm allows Solar Only mode to charge even when 1 or 2 phases are not above the general threshold of around 7 Amps. Avoid this mode when you have high variability in solar export such as a very cloudy day, small excess solar (consistently around 0 to -20 Amps).



Don't use the Solar only mode when solar export is low as shown below. Charging will be paused or possibly start and stop continuously due to low export. Solar Assist or Fast Mode recommended to have a stable charge.



Can I use my own installer?

If you wish to use your own installer, they must be a fully qualified electrician. Ocular cannot be held responsible for any issues or failures of any products caused by the installation process or from a result of an incorrect setup and configuration. We highly recommend you engage one of our trained and authorised installers to ensure the unit is connected correctly the first time. All installers must be trained and certified by Ocular prior to installation or the warranty will be void.

What is load management?

The Ocular IQ Solar CT Clamps can perform both solar and load management. If set up by the electrician, it can indicate the home's electricity supply capacity. The Ocular IQ Solar will then balance the charging speed based on the real-time load in the house to prevent the home's electricity from overloading.

Do I need solar to use the Ocular IQ Solar?

No, the hardware unit can be operated as a smart EV charger that can still schedule, record and monitor all your charging sessions. Solar modes or CTs can be connected in the future for an added cost.

What happens if my charger goes offline or losses internet?

If the unit goes offline the charger will actively try to re-connect. However, in cases where there is poor WIFI or a password change, this will mean the charger appears offline on the App. If you have "plug and charge" set on the App, the system will still work but in a basic mode in the last available configuration.

If you change your internet password you will need to refer to the installation guide to reset it.

How do I get internet to the charger?

There are 2 methods.

1. Ethernet CAT 6 cable to your internet modem.
2. WI-FI to the charger – Please note a minimum of 4 bands is required to have a strong and stable connection. Installer will need to enter the WIFI name and password into the charger backend.

Where do I download the Ocular App?

The Ocular App is required to use the charger. Visit the Apple or Google App store to download the Ocular App or search via your relevant app store.

Can you schedule a charging session?

Yes, you can schedule multiple sessions per day and also adjust your charging speed. Take advantage of solar daytime charging or schedule to charge off-peak. You must be plugged in before the start time for the schedule to work. Otherwise, you need to press start on the App.

Do I have to be plugged into the charger before a scheduled App charging session?

Yes, you must be plugged in before the start of the App scheduled session to have the schedule function work. Eg. if you set a schedule from 6 pm to 7 pm you must be plugged in before 6 pm for the scheduling to start. If you plug in after 6 pm then you need to press the start button on the App to start a charging session. This will override the schedule for the individual charging session for the day.

Is the Ocular IQ Solar OCPP compatible?

Yes, the Ocular IQ Solar is OCPP compatible. Please note, if an OCPP software platform is enabled on the charger, the Ocular App and some of the local functions of the unit will not be available.

Does the unit connect directly to a home battery?

The unit does not connect directly to the battery. It uses CTs to monitor the excess solar being exported to the grid at the home's switchboard. We do not connect directly to any battery system.

Will the Ocular IQ Solar work with off-grid solar systems?

No. We require a grid connection to ensure reliable charging. A very minimal amount of electricity may be taken from the grid for a short period of time if solar production drops suddenly.

What is the refresh rate for the energy tab?

The energy tab will be refreshed every 30 seconds via the cloud servers which are hosted in Australia.

How far can the charger be from my electricity supply?

The unit must be installed within 15 metres of your home's electricity box which is exporting electricity. The CT clamps are configured for accuracy and a distance greater than 20m can affect the accuracy of the readings.

How do I connect my charger to the internet?

For connecting these chargers to the internet we recommend a hardwired connection or a full wifi connection. If either of these is unable to be implemented then we recommended a TP link wifi extender. It is the homeowner's responsibility to supply a reliable internet connection.



If you have questions after reading this guide in full,
please contact the Ocular Team.

sales@ocularcharging.com.au

1300 912 650