OCULAR

IQ HOME SOLAR
USER MANUAL

IOCAH30-7TE-RW
IOCAH30-22TE-RW

Version 2.2

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

Welcome to your Ocular IQ Home Solar!

Download the Ocular app

Download on the App Store

GET IT ON Google Play

Click here to download

Click here to download

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.

PRODUCT OVERVIEW

No	Item
1	Type-2 charging cable and plug
2	LED status indicator
3	RFID
4	Physical button
5	Plug storage recess

SECTION 1

WAYS TO CHARGE - IQ HOME SOLAR

The Ocular Home Solar charger can start a charging session in two ways depending on the settings; using the Ocular app and Plug & Charge.

OCULAR APP

After downloading the Ocular app and adding the charger to it (See section 3), 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 (See section 3: Plug & Charge), you can start a charging session by simply plugging the charger to your car. To stop charging, push the button on the front of the charger. You can also stop charger from your car (check owners manual for instructions) or from the 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.

START AND STOP CHARGING WITH RFID CARDS

The Ocular IQ Homes comes with two RFID cards that can be used to start and stop charging sessions. This provides a way to control the charger without using the App, while restricting use to only card holders.

SECTION 2

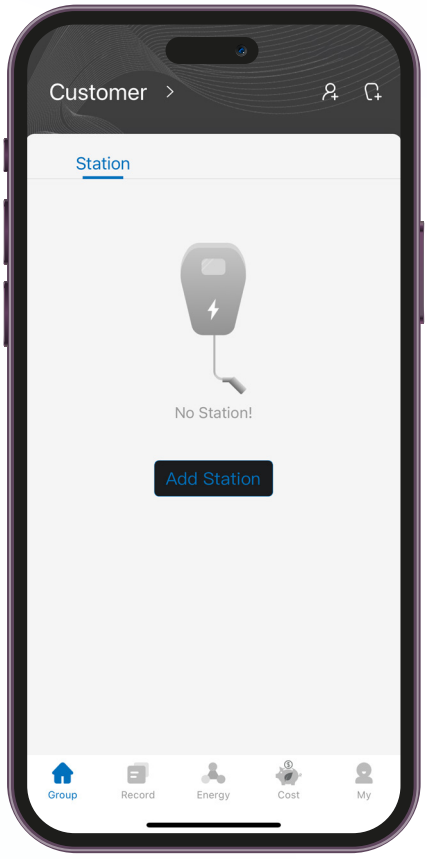
SET UP THE APP & CHARGER

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.

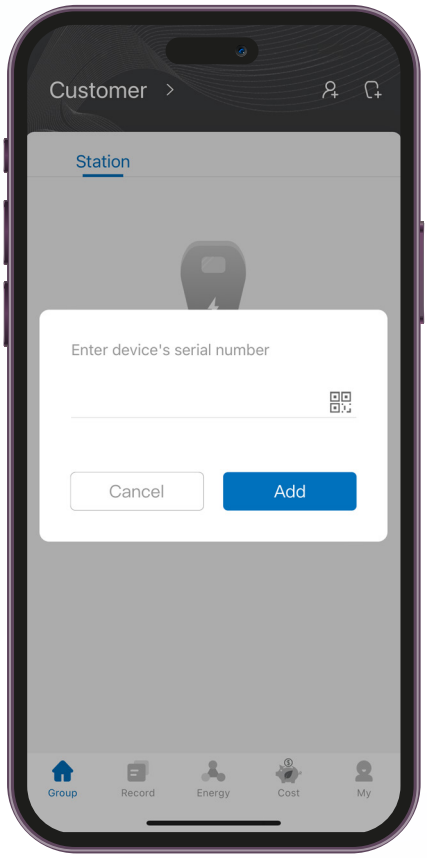


2

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

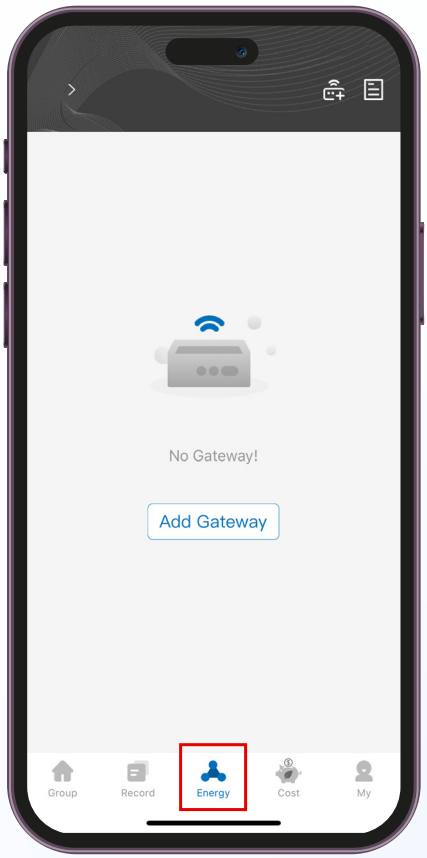


3

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

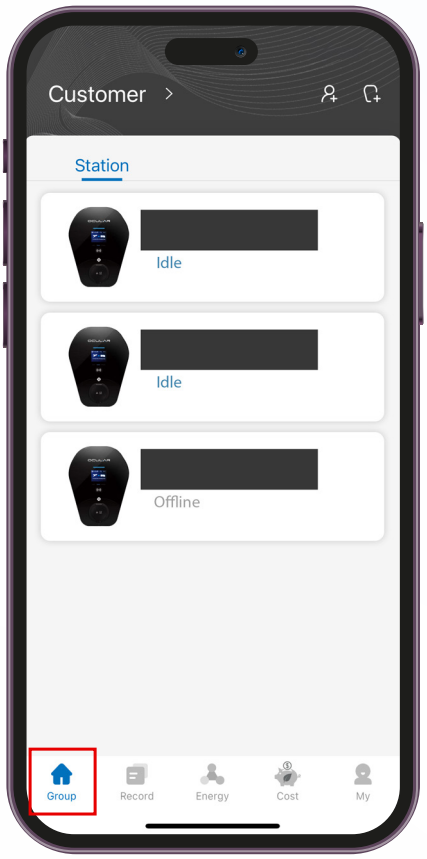
Enter M_ followed by the serial number.

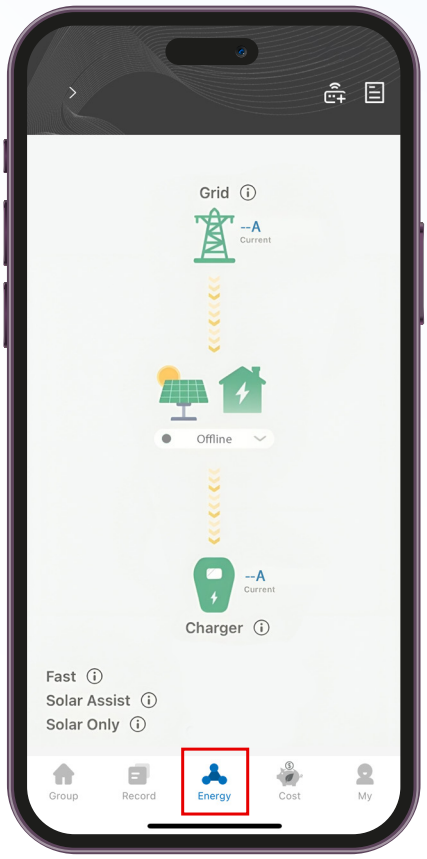
eg. M_AW12345678912



4

Now your charger has been successfully added. You can now see your charger under the 'group' tab and the energy tab will show a diagram of your home's electrical setup.





HOW TO INVITE PEOPLE TO YOUR GROUP

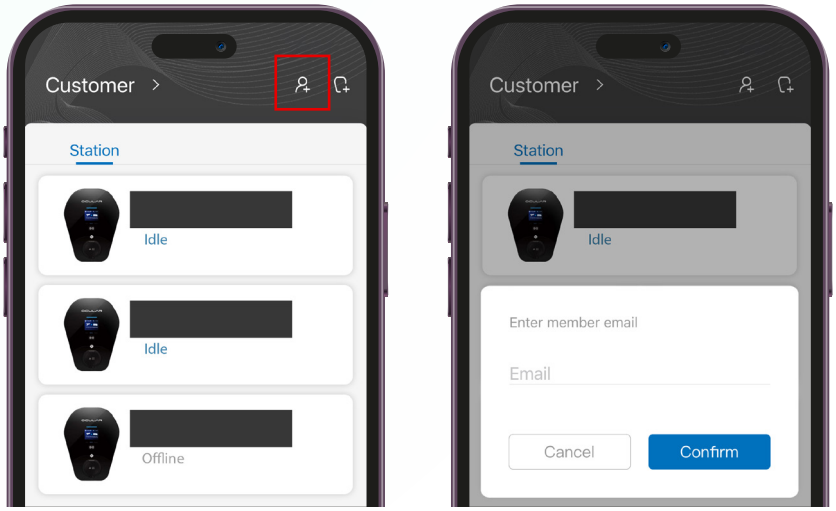
After registering your account and charger, you can invite other users to your group so that they can also use your charger from their app.

1

They will need to download the Ocular app and register for an account following instructions from Section 2, Step 1.

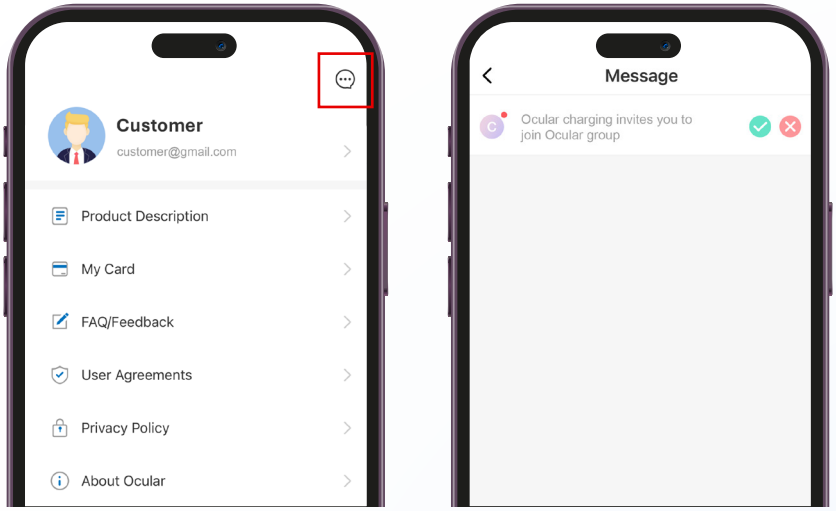
2

Once they are registered, go to your group and click on the invite symbol on the top right corner of the screen, and then enter the email address they used to register their account and click on Confirm.



3

An invitation will be sent to their Ocular app shortly after, to accept it, first go to My/Profile tab, then click on the message symbol on the top right corner of the screen.



SECTION 3
START & STOP A CHARGING SESSION

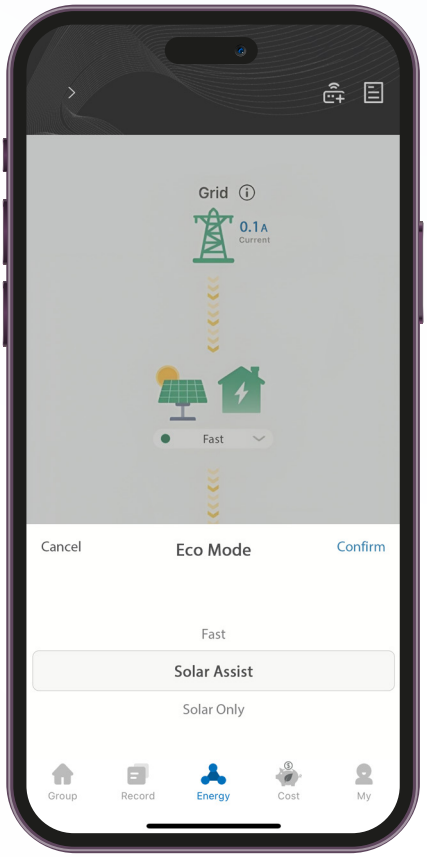
OPTION 1 : USING THE APP

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.

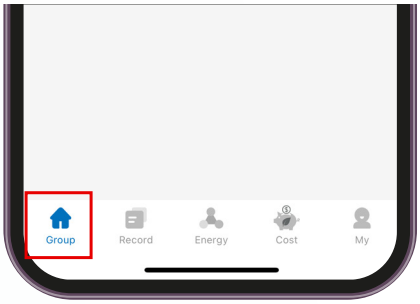
You can change the mode on the energy tab at any point in the charging session, you do not have to unplug or restart.

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



2

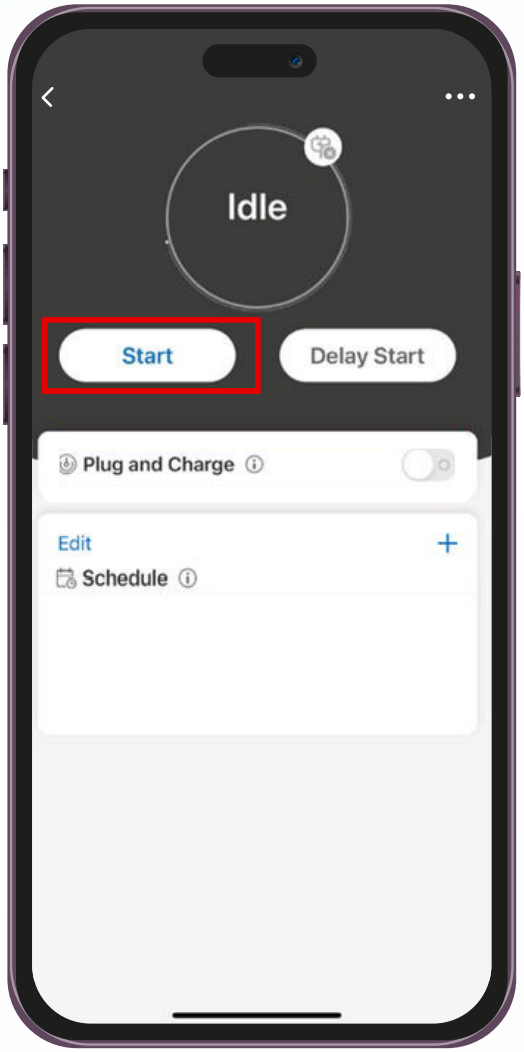
Go to the 'Group' tab and select your charger.

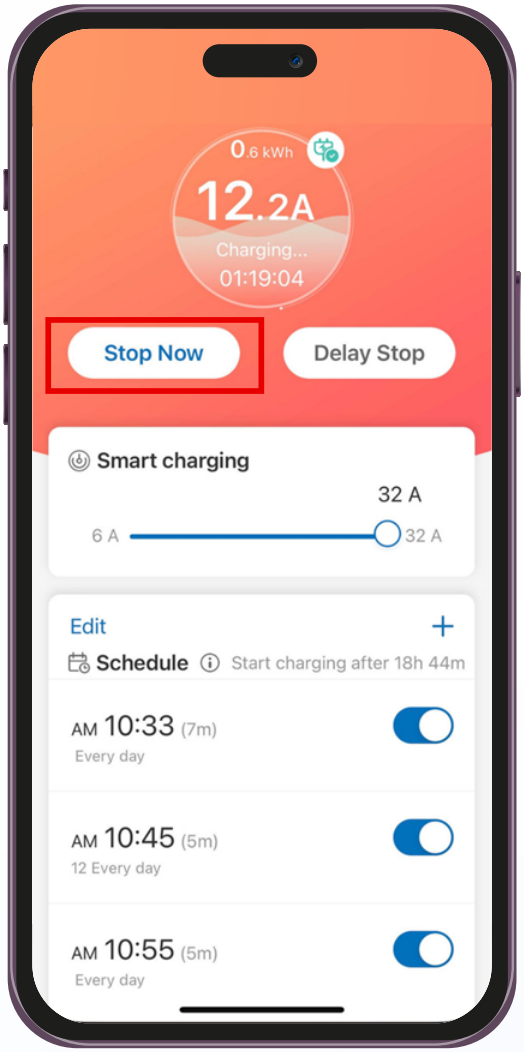


3

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.





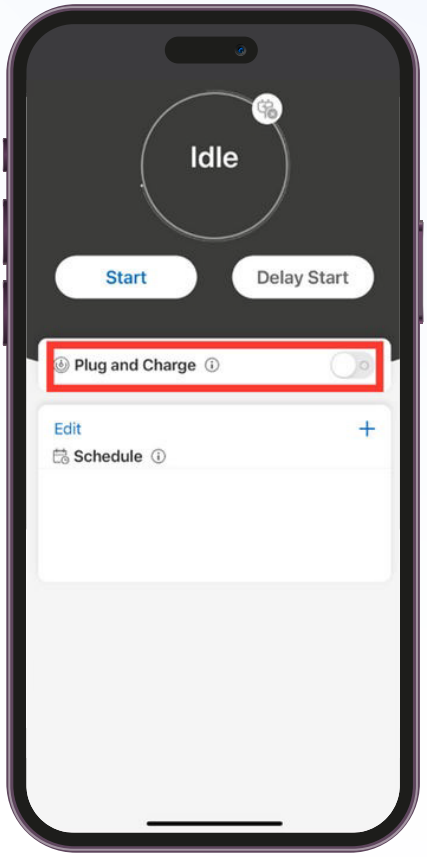
OPTION 2 : PLUG & CHARGE

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, push the button on the front of the charger. You can also stop charger from your car (check owners manual for instructions) or from the app.

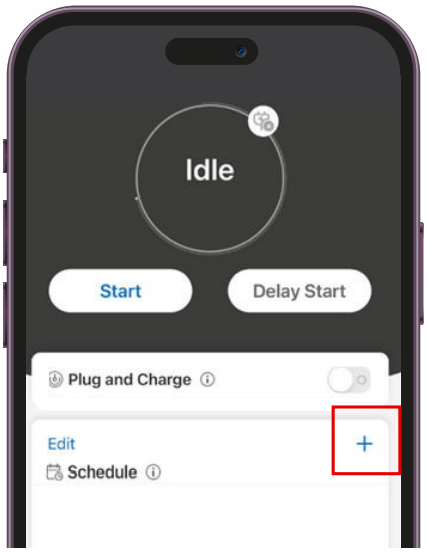
You will charge with the pre-selected energy mode. You can change the mode on the energy tab at any point in the charging session, you do not have to unplug or restart.



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.



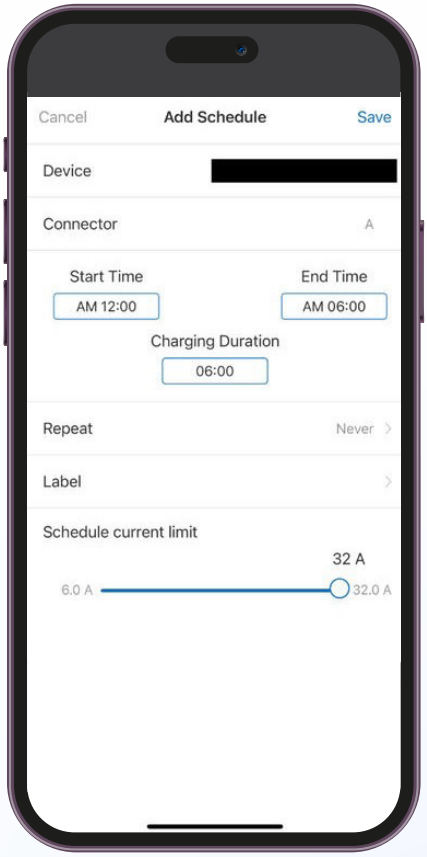
2

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

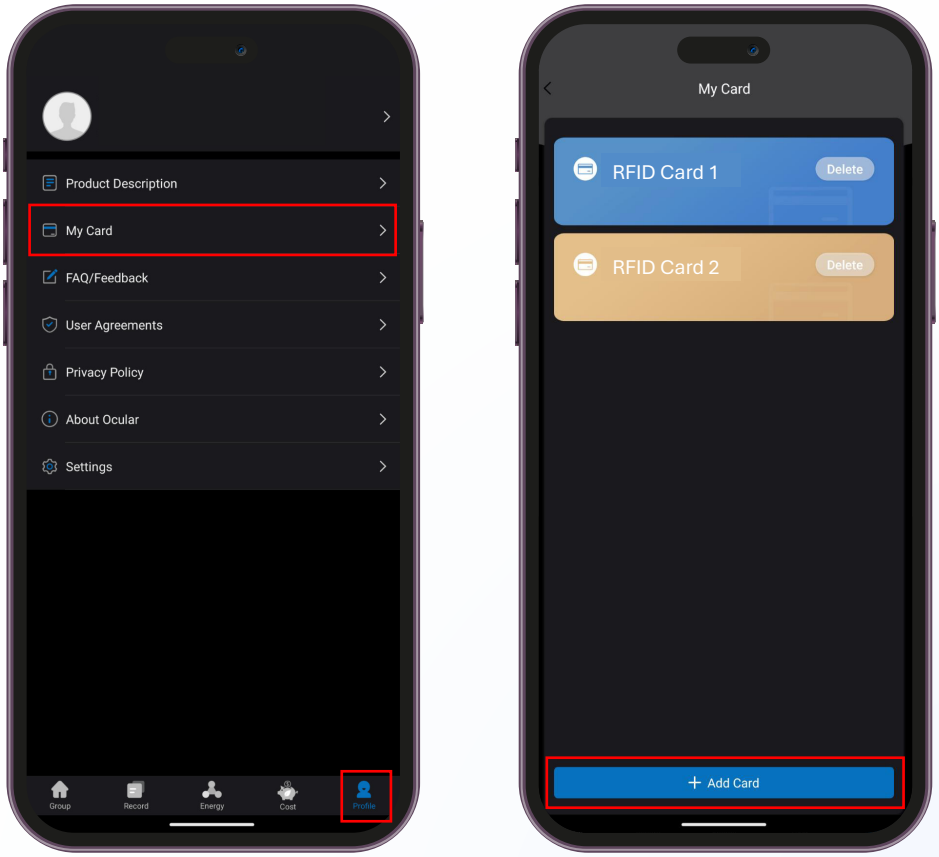


OPTION 4 : START AND STOP CHARGING WITH RFID CARDS

The Ocular IQ Homes comes with two RFID cards that can be used to start and stop charging sessions. This provides a way to control the charger without using the app, while restricting use to only card holders.

TO BIND A NEW RFID CARD TO A CHARGER

1. Open the Ocular app
2. Navigate to the Profile Tab
3. Select the “My Card” Option
4. On the RFID Card page, select “+ Add Card”
5. Give the card a name
6. Select the charger that you want the card to work on
7. Select “Bind”
8. You will be prompted to tap the RFID Card on the front of the charger
9. Tap the RFID card
10. The card with authenticate, the charger will beep and the card will be added to the list



TO START CHARGING WITH THE RFID CARD

1. Ensure the charger is not set to Plug and Charge (See Section 3 Option 2 for more information)
2. Plug the charger into the vehicle
3. Tap the RFID card on the card reader
4. The charging session will start
5. You can view the progress of the charging session in the app

TO STOP THE CHARGING SESSION WITH THE RFID CARD

1. Tap the RFID card on the card reader
2. The charging session will stop and you can unplug the vehicle

SECTION 4
ENERGY TAB

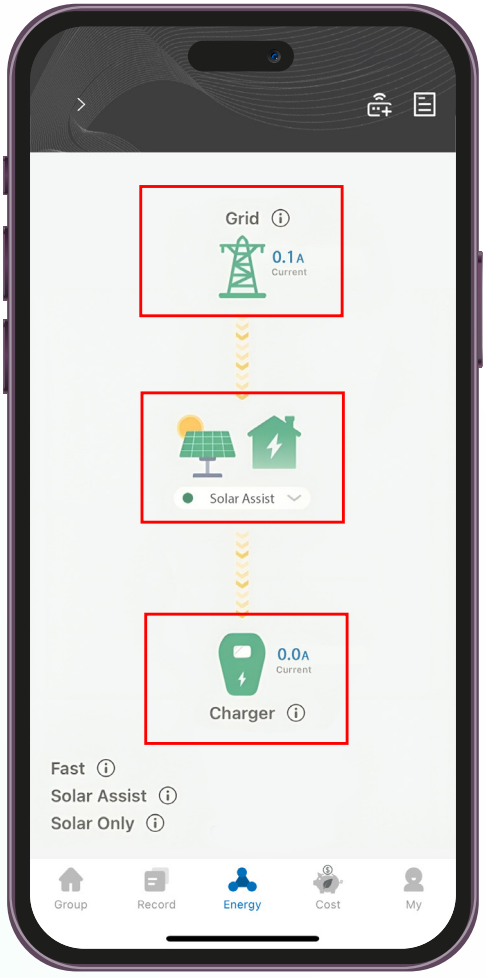
On the energy tab you will see a diagram of the setup of the charger. On the top is the grid, the middle is your home and at the bottom you will see your charger.

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.

Underneath the icon representing the home, you will find the dropdown menu for changing charging modes.



SECTION 5
CHARGING MODES

FAST MODE

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

SOLAR ASSIST

This mode will charge your EV at a minimum of 6 Amps plus any excess solar produced. If solar production is low, up to 6 Amps 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 charging session without the charging stopping and starting multiple times due to clouds, which is not ideal for the vehicle.

SOLAR ONLY

This mode charges your EV only when enough excess solar is produced. Note that there is a minimum amount of amps that need to be produced before the solar mode will start charging. This is because electric vehicles do not like being charged slower than these levels. The minimum depends on the charger configuration:

Single Phase - 7 Amps
Three Phase - 21 Amps total across all three (3) phases.

If the solar production drops below the Single or 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.

SECTION 6
UNDERSTANDING & CHANGING CHARGING SPEED

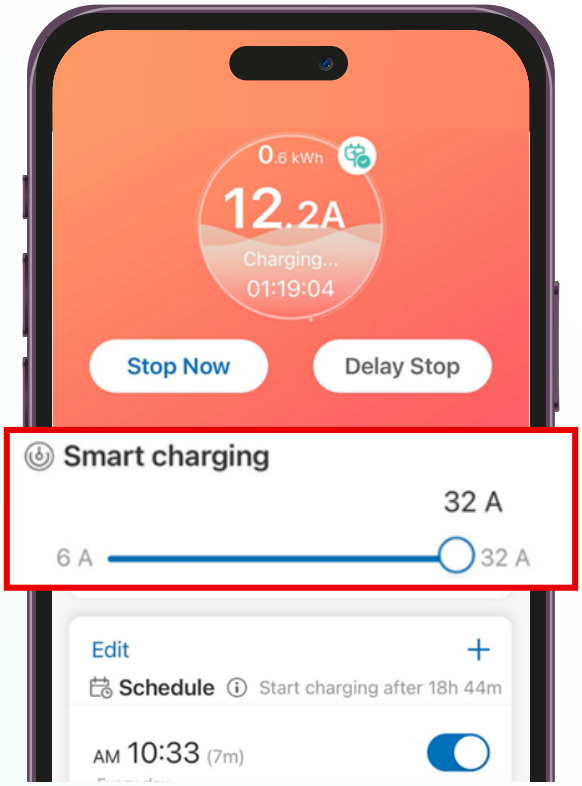
If your charger is not providing max charging speed, your current limit may be set too low.

There are two ways to change the charging speed:

1. **Change charging speed during a charging session (Smart Charging Speed):**

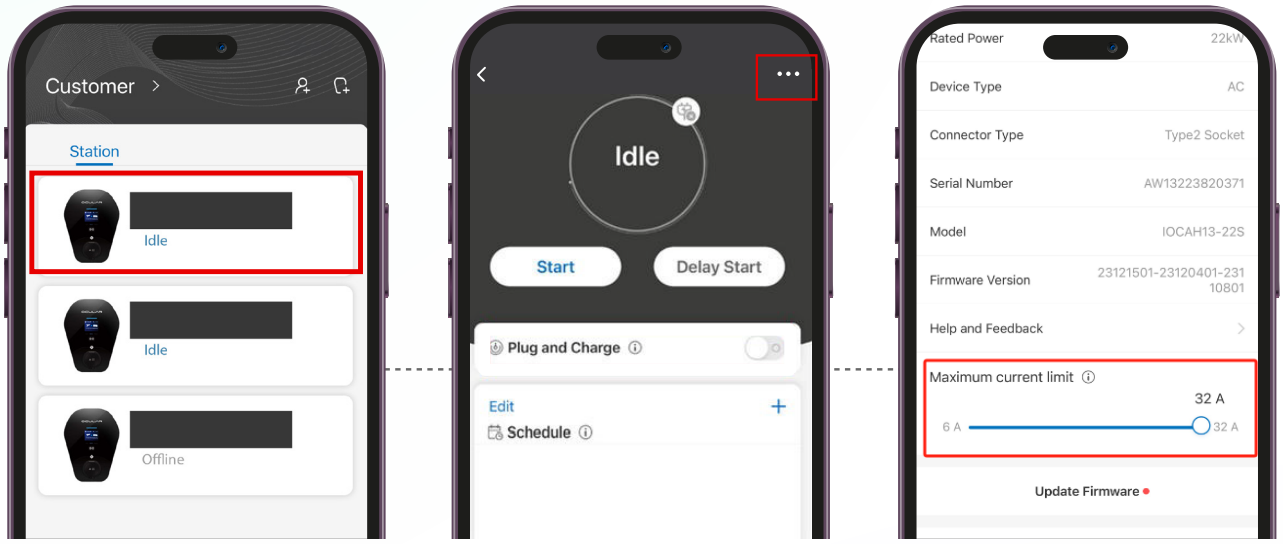
   Once the charging session has begun, there will be a slider appearing on the screen for you to adjust the speed up to 32 A. However, the maximum charging speed depends on the **Maximum Current Limit** set on the charger.

   For example, if the smart charging speed is set to 32 A but the maximum current limit is set to 10 A, then the charger will only charge up to 10 A.



2. Change Maximum Current Limit:

To change the max charging speed, select your charger from the Group tab, then click on the three dots on the top right of the screen to enter setting, there will be another slider to change the maximum current limit.



If the charger is still charging slow after changing both the Smart Charging Speed and Maximum Current Limit, check if the charger is set to Solar Only or Solar Assist mode following instructions from Section 3.

Please note: the inbuilt load controller in your charger monitors your homes available power and will slow charge to ensure your home does not get overloaded. Your charger may also have been down-rated by your electrician during installation.

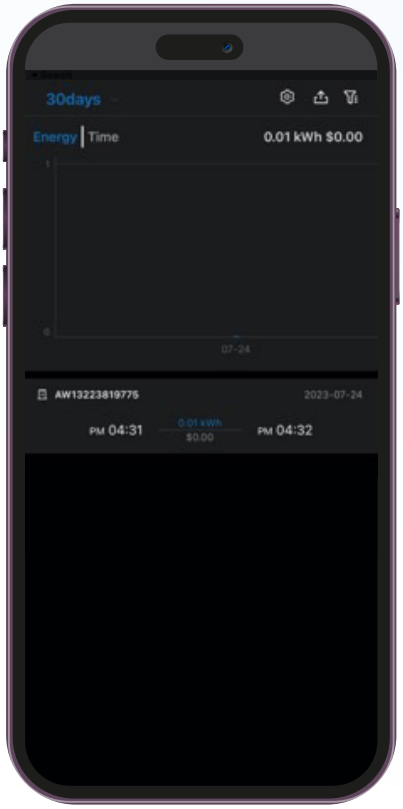
SECTION 7
GUIDE TO CHARGING RECORDS & COST ESTIMATES

RECORDS

Go to the 'Record' 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.

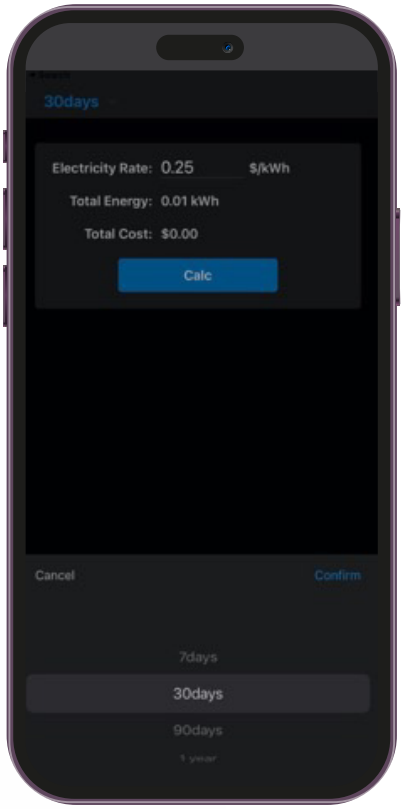
You can export the data by selecting the share button and receive the data in your chosen email.



COSTS

Go to the 'Cost' 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.



IQ HOME SOLAR FAQs

DOES THE CHARGER NEED TO BE CONNECTED TO THE INTERNET?

The charger must be connected to the internet to function normally.

- Ethernet using a CAT 6 cable to your internet modem
- WIFI to the charger
    - Installer will need to enter the WIFI name and password into the charger backend.
    - Please note a minimum of 4 bands is required to have a strong and stable connection.
    - It is the homeowner's responsibility to supply a reliable internet connection where the charger is to be installed.
    - If either of these is unable to be implemented then we recommended a TP link WI-FI extender.

WHAT HAPPENS IF MY CHARGER GOES OFFLINE OR LOSSES INTERNET?

If the unit goes offline the charger will actively try to re-connect. The app will not work if the WI-FI has dropped out. If this happens charger will not work unless "plug and charge" was set on the app or until the WI-FI signal returns. If you change WI-FI password you will need to refer to the installation guide to reset it.

HOW FAR CAN THE CHARGER BE FROM MY ELECTRICITY SUPPLY?

The CT Clamps that come with the charger have a cable length of 20 metres. If the charger needs to be installed further way from the switch box than 20m, the installing electrician can extend the CT clamp cables by following the instructions in the installation guide. The CT clamps can be extended up to 75 metres.

SHOULD I PURCHASE A SINGLE PHASE (7KW) OR THREE PHASE (22KW) CHARGER?

The 7kW option available is a single phase (1P) charger whereas the 22kW option is a three phase (3P) charger. Which phase charger you chose depends on the phase of your EV, house supply and solar inverter. If you're not sure what type of power supply you have in your home, please speak to your electrician.

EV	House Supply	Solar Inverter	Recommended Charger
1P	1P	1P	1P
3P	1P	1P	1P
1P	3P	1P	1P
3P	3P	1P	1P or 3P*
1P	3P	3P	3P
3P	3P	3P	3P

*For max charging speed priority choose 3P whereas for max solar consumption choose 1P.

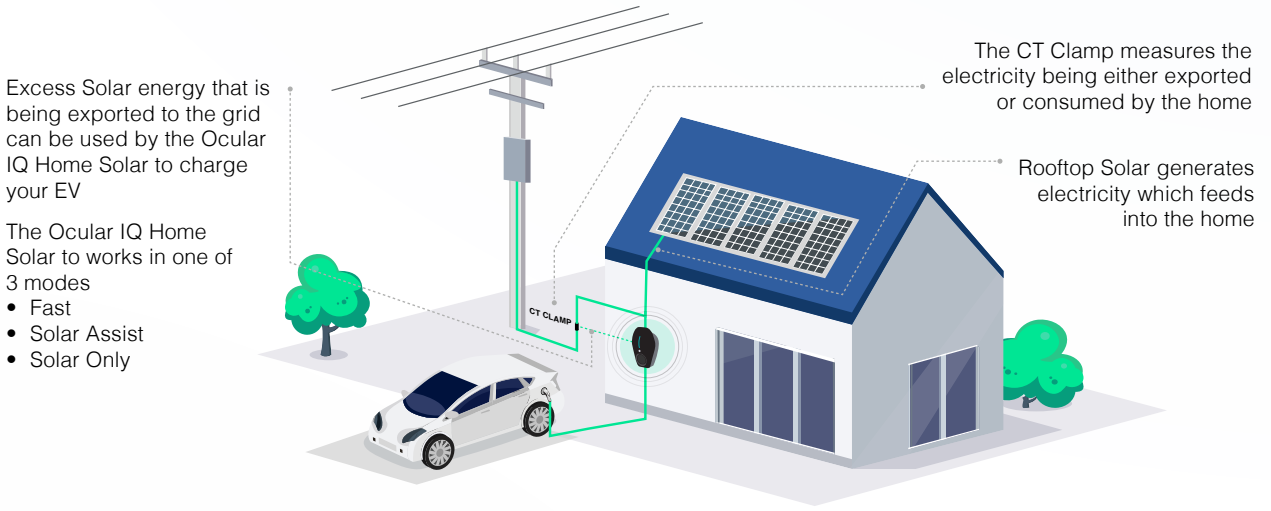
IS THE OCULAR IQ HOME SOLAR COMPATIBLE WITH ALL EVS?

Yes, The IQ Home Solar is compatible with every EV in Australia and New Zealand that use and adhere to the Type 2 charging standard.

DOES THE OCULAR IQ HOME 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 Home Solar will allow you to use that excess solar efficiently to recharge your vehicle's battery. CT Clamps installed on the incoming mains supply are used to measure the excess solar being sent to the grid in real time.

How the Ocular IQ Home Solar understands your homes electricity usage



DO I NEED SOLAR TO USE THE OCULAR IQ HOME 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 CT clamps can be connected in the future for an added cost. The CT clamps will also allow the charger to be load managed, meaning that your home is protected from overloading during charging sessions.

WHAT HAPPENS IF I HAVE A HOME BATTERY?

For the most part, any excess solar produced by the system will be absorbed by the battery. The Ocular IQ Home 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. Every battery system behaves differently, and the ocular team cannot guarantee the interaction between the charger and the battery.

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.

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.

WHAT MODE SHOULD I CHOOSE BASED ON MY SOLAR PRODUCTION?

This depends on the mode you have set the IQ Home Solar to.

Fast Mode
In this mode, the vehicle will be charged at maximum power. This power can come from solar panels, the grid or both. If you have set a current limit on the schedule or by the electrician during installation that will determine maximum power. There is NO minimum amount of excess solar energy required for use.

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. There is NO minimum amount of excess solar energy required for use.

Solar Only
This mode charges your EV only when enough excess solar is produced.

For a single phase charger, the minimum excess solar needed is 7 Amps exported to the grid, roughly equivalent to 2kW. For a three-phase charger, the minimum power being exported to the grid needs to be 21 Amps total across the three phases, which is roughly equivalent to 5kW. For three phase chargers the 21 Amps export can come from any combination of the phases, even if one or more of them are importing.

If the solar production drops below the indicated threshold the charging will pause and then restart after 2-3 minutes of continuous excess solar above the 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 such as on a cloudy day.

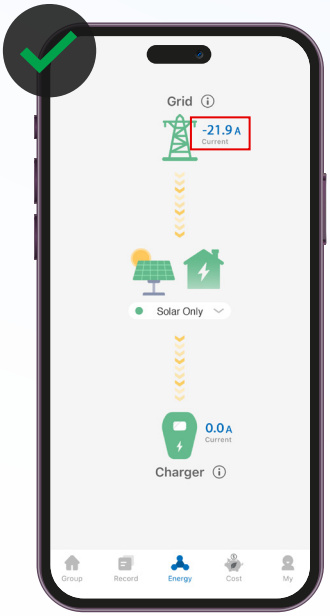
Our experience shows that large variable loads like air conditioning can absorb most of the solar generation. Use the Energy tab on the Ocular app to understand the excess available and choose the Solar Assist mode if excess generation is consistently below the Single and Three phase threshold.

HOW MUCH EXCESS SOLAR ENERGY IS MY HOME IS PRODUCING?

You can tell this from the Energy tab on the Ocular app. This will differ slightly depending on whether your system is single or three phase. For single-phase, only one (1) value will be shown on this screen. Reading this is important for determining whether Solar Only can be used.

Single Phase

The negative sign indicates that power is in excess and is being exported from the solar panels to the grid. When this number is consistently between 0 and -7 Amps there is not sufficient excess solar to use solar only.



Three Phase

There will be three numbers presented on the app. You can find the net power exported or drawn from the grid by adding the numbers together.

Solar Only mode will only work when all three (3) phases are exporting greater than 21 Amps in total.

In this example. The Solar Only mode will work as more than 21 Amps is being exported to the grid across the three phase.

5+5+14 = 24 Amps total export.

Solar Only mode will not work when all three (3) phases are exporting less than 21 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 21 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.

WHAT IS NET METERING?

Net metering is a function specific to 3 Phase installations and only affects solar only and solar assist modes. The charger monitors the solar excess on all three phases and will charge if the total excess across all phases is greater than 21 Amps, rather than needing 7 Amps individually across each phase. This means that if one phase has a high load, for example the rest of the household load, the charger will still operate as long as the other phases are exporting enough for the total to be more than 21 Amps.

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.

WHAT IS LOAD MANAGEMENT?

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

WHERE DO I DOWNLOAD THE OCULAR APP?

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

GET IT ON Google Play

Download on the 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 HOME SOLAR OCPP COMPATIBLE?

Yes, the Ocular IQ Home 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.

WILL THE OCULAR IQ HOME 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.

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