

OCULAR






# IQ SOLAR

# INSTALLATION

# GUIDE

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

Version 2.0

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## IMPORTANT!

**Read this entire document before installing or using the charger. Failure to do so or to follow any of the instructions and warnings in this document can result in fire, electrical shock, serious injury, or death.**

**The charger must be installed by a qualified electrician.**

**The entire installation must comply with the latest AS 3000 standards.**

## SPECIFICATIONS

Model Number	IOCAW13-7S / 7T-SOLAR	IOCAW13-22S / 22T-SOLAR
Voltage & Wiring	230V AC single-phase: LIVE, NEUTRAL, & EARTH.	400V AC three-phase: L1, L2, L3, NEUTRAL, & EARTH.
Current and Power	Maximum 32A and 7kW	Maximum 32A and 22kW
Frequency	50-60 Hz	
Internal RCD	AC 30mA, DC 6mA	
Data Protocol	OCPP 1.6J, 2.0	
Charging Connector	SAE J1772, IEC62196 Type-2	
Buttons	1 x Physical Button	
RFID	ISO 14443 A/B	
Display	2.8" LCD	
Network Connectivity	Ethernet, Wi-Fi	
Working Temperature	-30°C to 50°C	
Storage Temperature	-40°C to 70°C	
Working Humidity	5% - 95% without condensation	
Enclosure Dimensions	380 x 288 x 160 mm	
Shipping Dimensions	495 x 375 x 330 mm	
Shipping Weight	6.7Kg	7.7Kg
IP Rating	IP55	
Certifications	EN IEC 61851-1, EN IEC 61851-21-2, EN 61008-1, IEC 62955	

## PRODUCT OVERVIEW



No	Item
1	LED indicator
2	2.8" LCD screen
3	Status indicator, Fault, Online, Charging
4	RFID card reader
5	Physical button
6	Type-2 charging socket

## SAFETY INSTRUCTIONS

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This document contains important instructions and warnings that must be followed when installing and maintaining the workplace pedestal charger

### WARNINGS



Do not install or use the charger near flammable, explosive, harsh, or combustible materials, chemicals, or vapors.

Turn off input power at the circuit breaker before installing or maintaining.

Do not use or stop using the charger if it is defective, appears cracked, frayed, broken or otherwise damaged, or fails to operate.

Do not attempt to open, disassemble, repair, tamper with, or modify the charger. The charger is not user serviceable. Contact iocharger or authorized service provider for any repairs.

Do not touch the charger sockets with sharp metallic objects, such as wire, tools or needles.

Do not put fingers into the charger sockets.

Do not use this charger if the EV charging cable is frayed, has broken insulation, or displays any other indication of damage.

Do not use this charger if the enclosure or the EV charging connector is broken, cracked, open, or shows any other indication of damage.

**Ferrules must be used to ensure warranty is valid**

### CAUTIONS



The charger should be installed only by a qualified approved technician.

Make sure that the materials used and the installation procedures follow local building codes and safety standards.

Incorrect installation and testing of the charger could potentially damage either the vehicle's Battery and/or the charger itself. Any resulting damage is excluded from the warranty for both the vehicle and the charger.

Do not operate the charger in temperatures outside its operating range of -30°C to +50 °C.

Ensure that the EV charging cable is positioned properly to the charging sockets. Do not use cleaning solvents to clean any of the charger's components.

## NOTES BEFORE INSTALLATION

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The charger should be protected by an external Residual Current Device (RCD) to be installed in the upstream circuit which complies with the following:

- Type-A Rated residual operating current not exceeding 30 mA
- Required as per Appendix P, AS 3000:2018 Australia Standard for EV charging stations.

Recommended (Note installation requirements are site specific and may vary):

- 40A 30mA Type A RCBO
- Isolation Switch close to the charger
- 10mm<sup>2</sup> 2C ( or 4C) + E Cabling

## TOOLS REQUIRED

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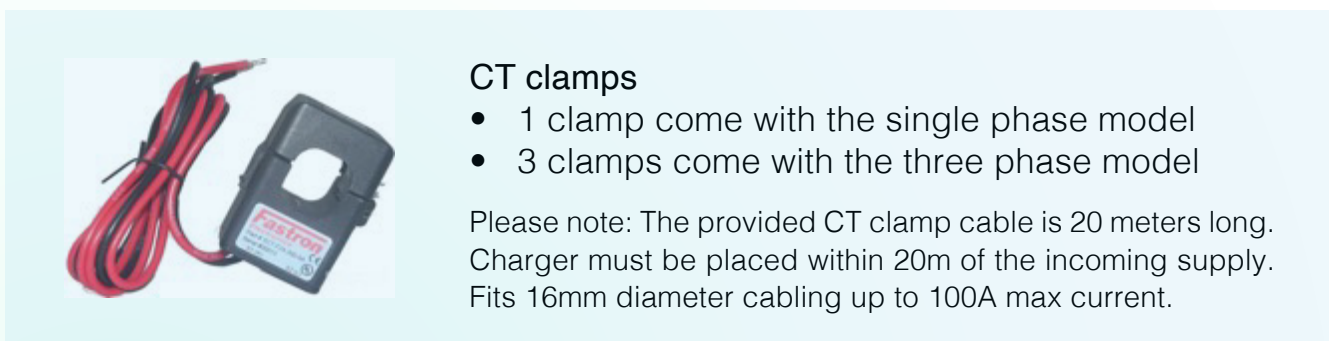
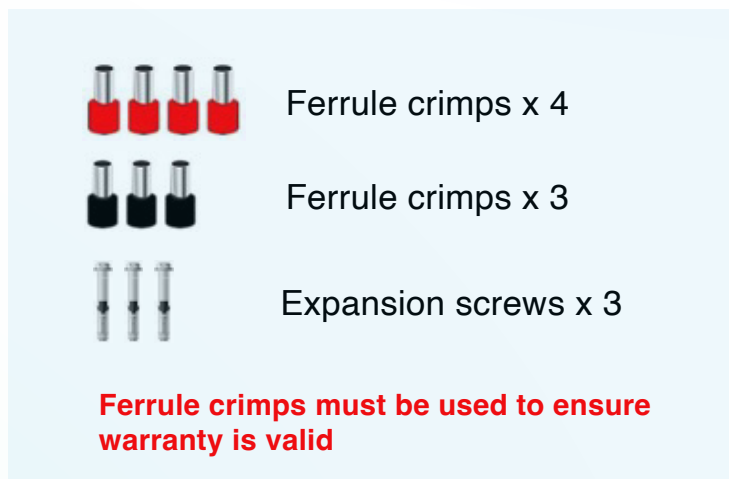
- Philips #2 screwdriver
- Electric drill
- Laptop or mobile device

## BOX CONTENTS

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EV Charger with backplate



### CT clamps

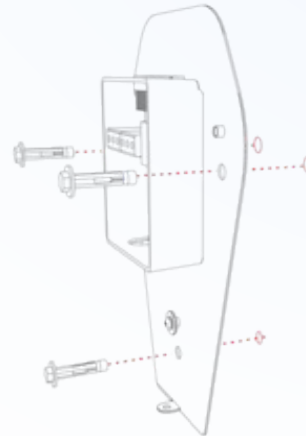
- 1 clamp come with the single phase model
- 3 clamps come with the three phase model

Please note: The provided CT clamp cable is 20 meters long. Charger must be placed within 20m of the incoming supply. Fits 16mm diameter cabling up to 100A max current.



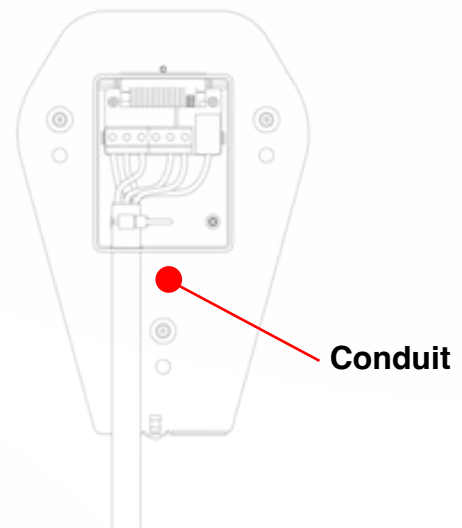
## WALL MOUNTING AND WIRING

1. Remove the backplate from the charger by sliding it down. Mount the backplate to the wall with the included screws.



2. Connect the cable through the bottom of the junction box. Ensure conduit is connected to the bottom of the power box.

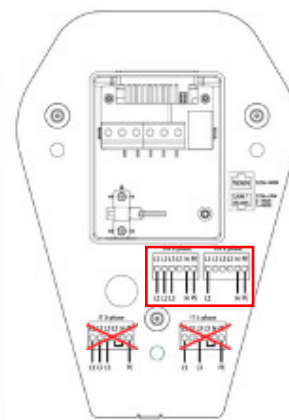
Conduit can come out the bottom of the charger, or be passed through the wall to remain hidden.



3. Connect the incoming supply to the terminals.

In Australia only the TN network is used, as shown on the label on the back plate

**Ferrule crimps must be used to ensure warranty is valid**



Single Phase Example

## INTERNET CONNECTION AND CHARGER MOUNTING

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1. Connect the charger to the internet.

The charger can be connected via ethernet or WIFI. Ethernet is recommended for stability.

Connect the ethernet cable to the top port.



2. Install the charger to the backplate.  
Line up the mounting screws and then slide the charger down to lock the connection.



3. Fix the charger to the backplate at the bottom of the charger with the included screw.



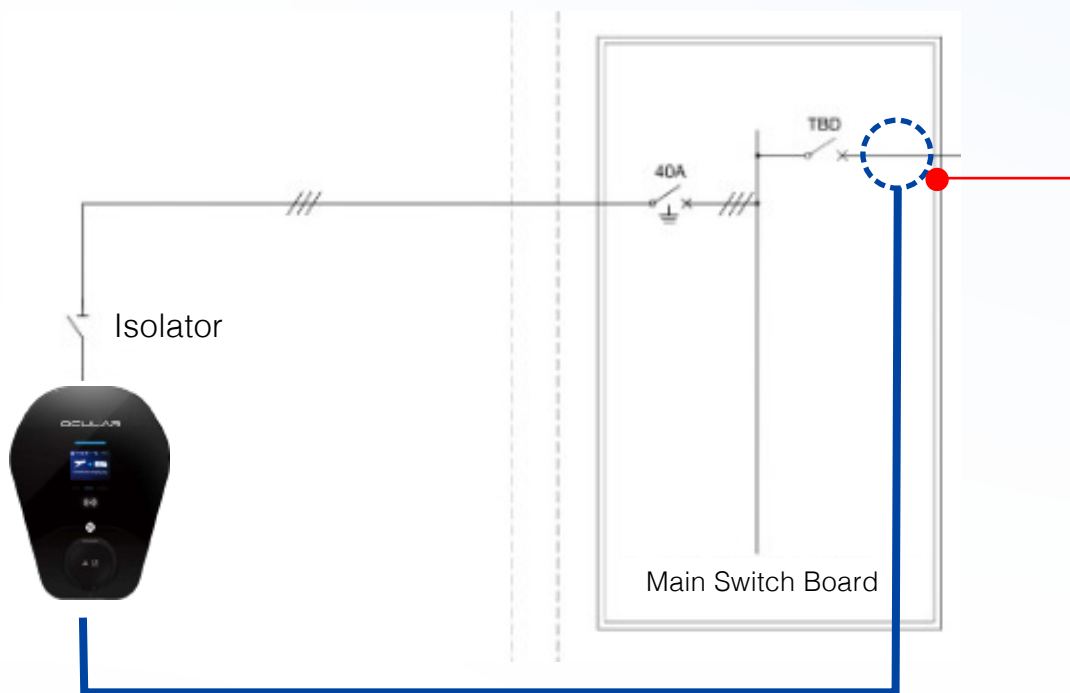
## WIFI

Wi-Fi setup will be shown later in the manual. It is not recommended in commercial installations or apartments. Unstable/weak WI-FI connection may cause undesired



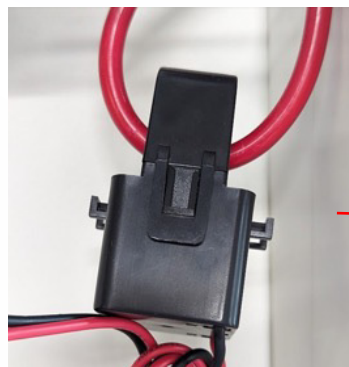
## CT CLAMP INSTALLATION

CT Clamps need to be installed on the **grid side** of the main switch board.



### Note:

The CT Clamp cable is 20 meters long. The Charger must be installed within 20 meters of the incoming supply.

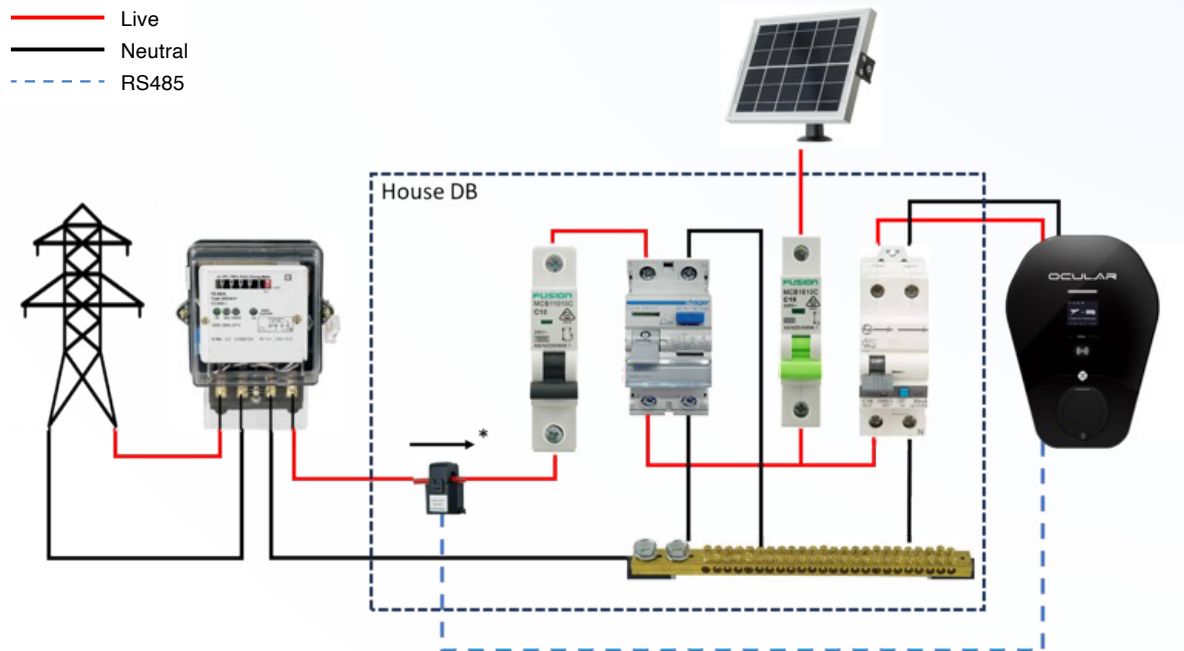


### Critical Installation Note:

The CT Clamps have a direction requirement. The Clamps need to be installed so that the arrows are pointing towards the main switch board, i.e. Away from the grid.

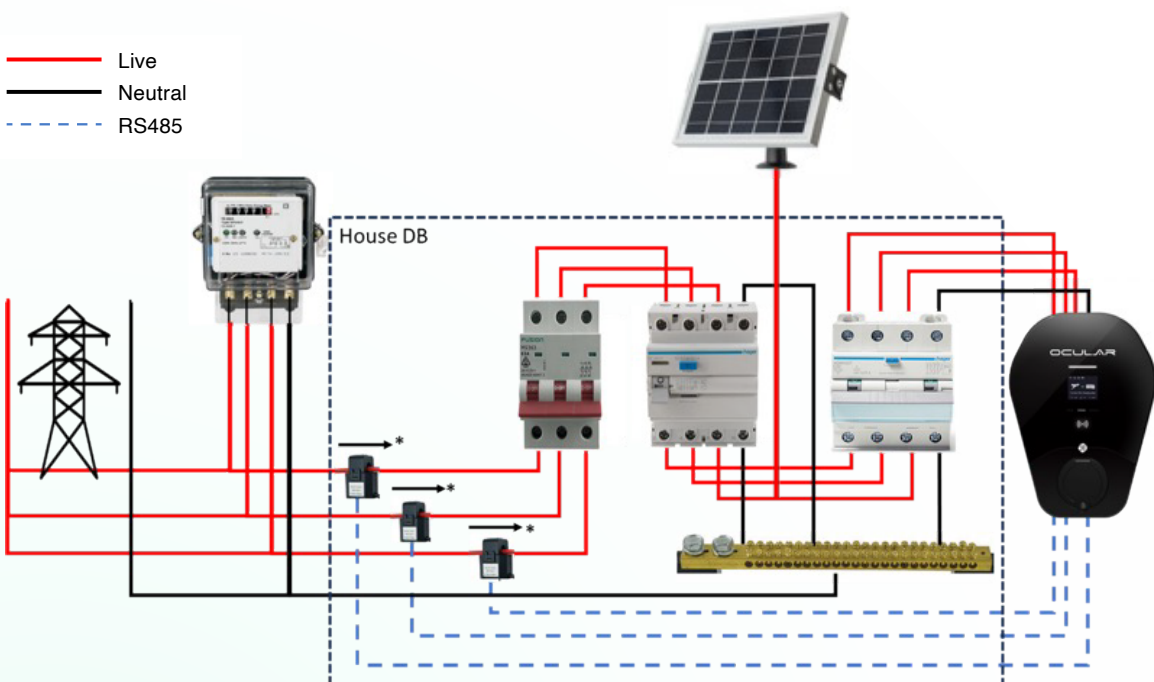
**Failure to correctly install the CT clamps will require a return to site.**

## SINGLE PHASE CT INSTALLATION



The arrow on the CT must be pointing towards the Main Board and away from the grid supply

## THREE PHASE CT INSTALLATION

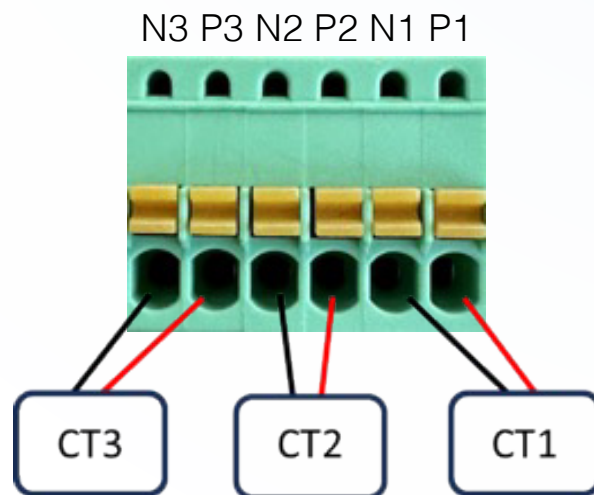


The arrow on the CT must be pointing towards the Main Board and away from the grid supply

## CT CLAMP INSTALLATION & WIRING

Run the CT clamp wires through the grey gland/hole located at the bottom of the charger. Wire into terminal block as indicated in the picture below.

For Single Phase, use the first two ports on the right.



# WEB-INTERFACE ACCESS AND WIFI CONNECTION

## 1. Find the chargers' local hotspot using laptop or smart device.

Search for the charger's hotspot like you would for any Wi-Fi network. This hotspot will have the following SSID: **IOC – 2.4GHz - \*\*\*\*\***  
(if needed you can find the full SSID on the sticker side of the charger)

The password for this Hotspot is: **IOC12345**

## 2. Navigate to the web-interface of the Ocular Charger.

Open a web browser (Chrome, Safari, Edge) and search: **192.168.10.1:8900**  
The web interface will ask for Username and Password:

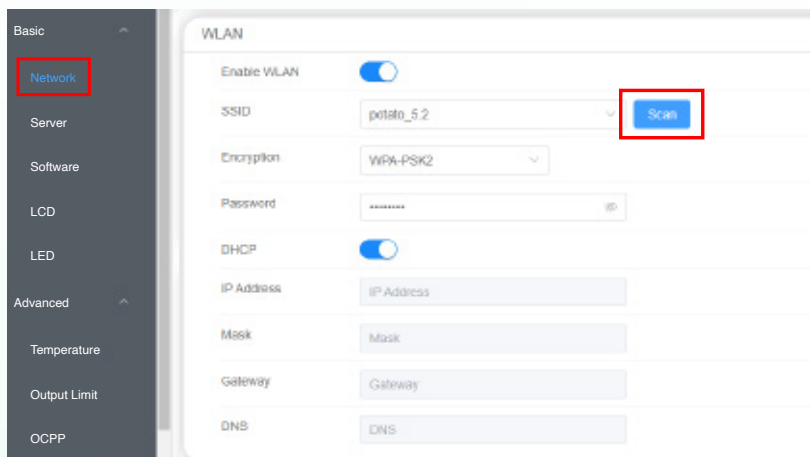
Username : **install**

Password : **Evcharging123**

After entering the username and password the Ocular web-interface will load.

## 3. (Optional): Set up WIFI configuration (not needed if ethernet is used).

- Navigate to the Network tab (see picture below).
- Click the "Scan" button to start scanning for available WiFi network.
- Use the dropdown list to select the required network, enter the password.
- Click **Submit** then **reboot** (top right-hand corner) to apply changes.
- You will then need to log back in to the web-interface to continue configuration.

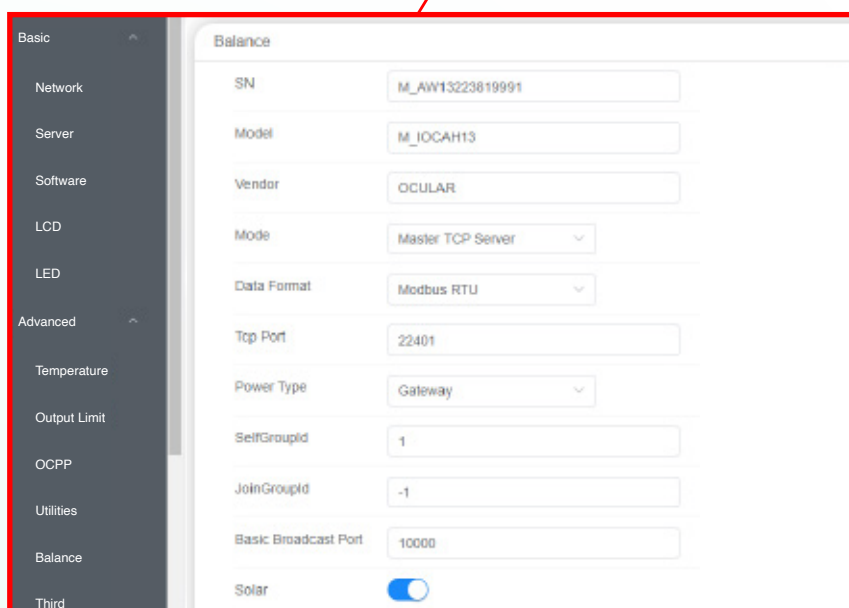
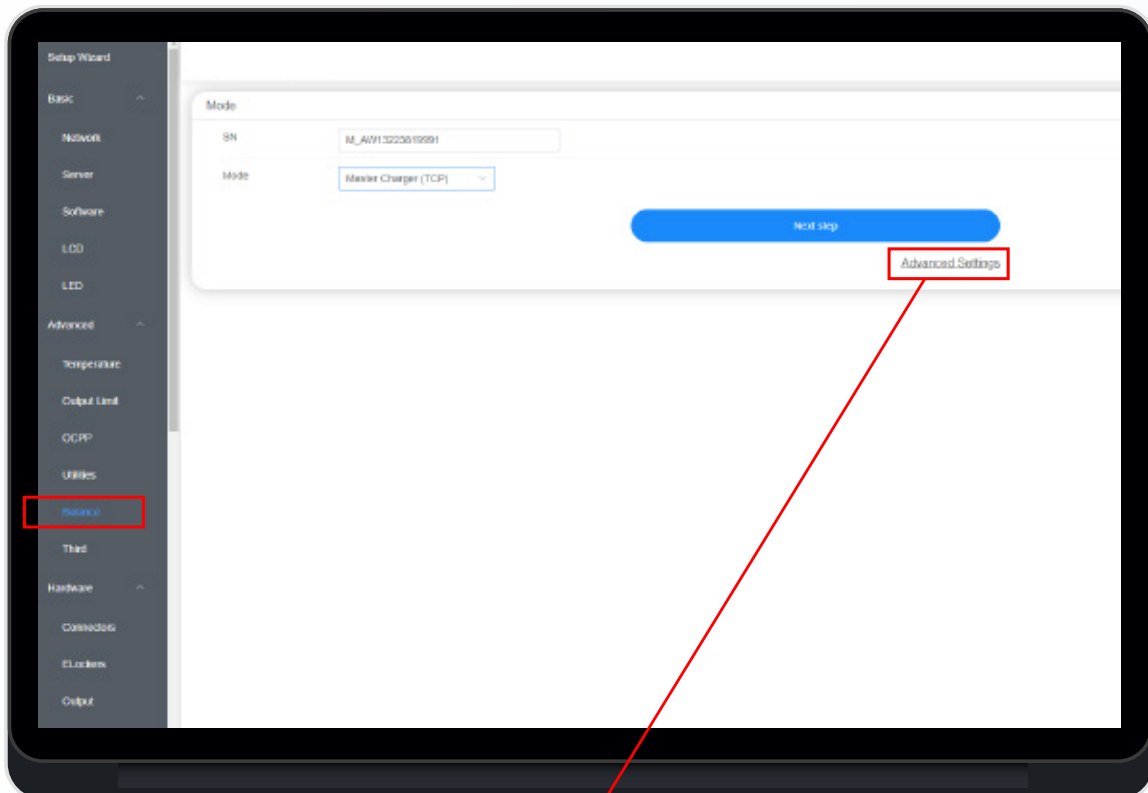


**Note: The interface may look different on a smart phone, but all the settings required are the same.**

## CHARGER CONFIGURATION - ACCESSING THE ADVANCED SETTINGS PAGE

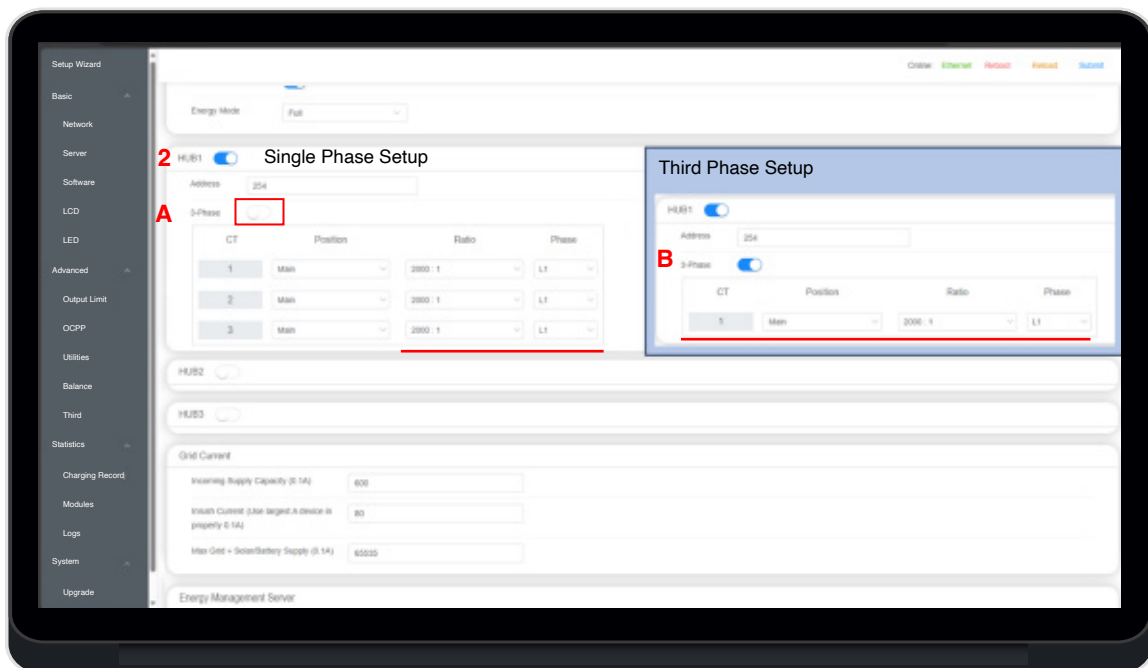
**Do not change settings other than outlined below as this may affect operations.**

1. Log in to the web-interface of the charger. (Refer to page 11).
2. Click on the Balance tab, and then click on “Advanced Settings”.
3. A new page will open that shows the Balance and CT clamp settings.



## CHARGER CONFIGURATION - CT CLAMP SET UP

1. Scroll down the page until you can see the settings boxes for HUB1 and Grid Current.
2. Ensure HUB1 is switched on (Blue indicator).
3. Configure HUB1 settings as in the pictures below. Note the differences between the Single Phase and 3 Phase setups.
  - A. Single Phase** - Turn off the 3-Phase switch, set CT1 position to “Main”, ensure ratio is set to 2000:1 and set Phase to “L1”.
  - B. Three Phase** - Turn on the 3-Phase switch, set CT1 position to “Main”, ensure ratio is set to 2000:1 and set Phase to “L1”.





## CHARGER CONFIGURATION - GRID SUPPLY SET UP

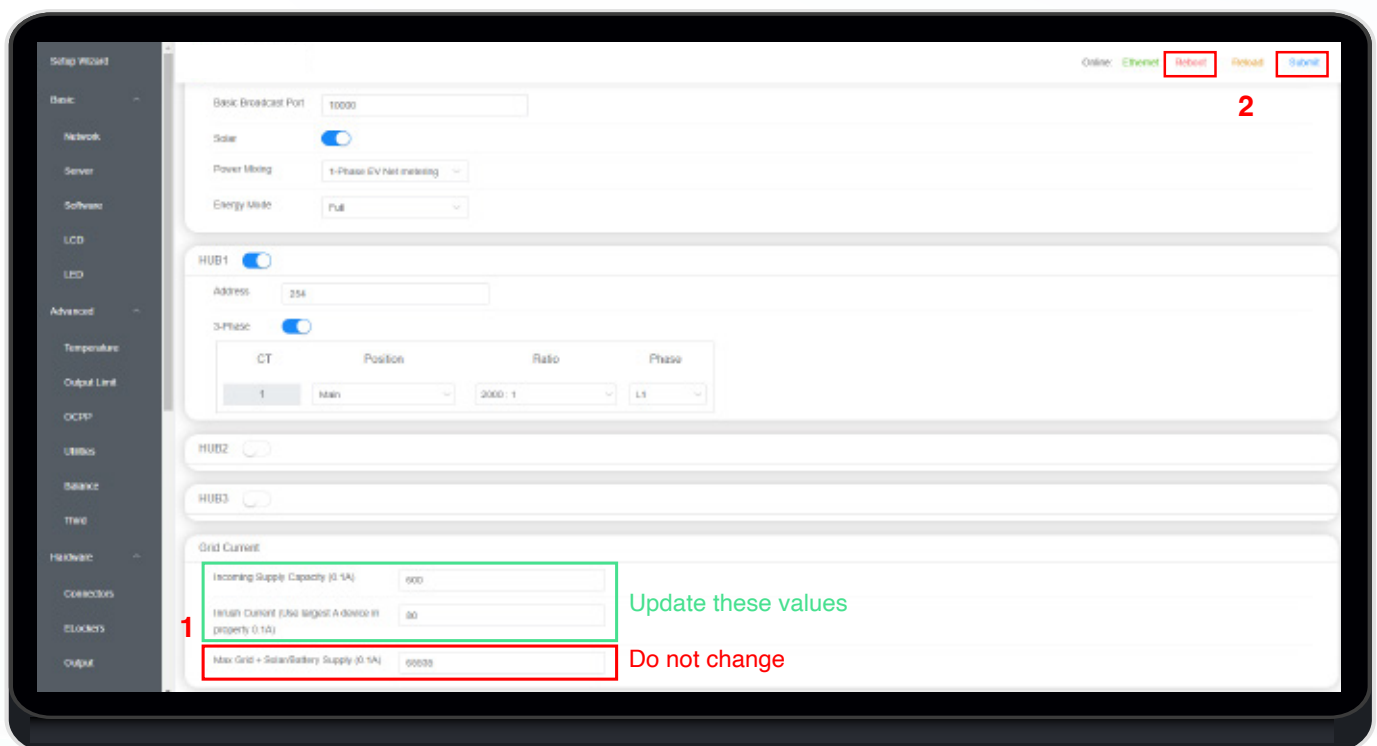
1. Set the Rated Current and Safe Current.

**Rated Current:** This is the maximum current that the main MCB can handle.

**Safe Current:** This is the safe current reserved to prevent the circuit from overloading. The actual available current for the charger is:

**Actual available current = rated current - safe current - load current**

2. In the top right hand corner of the screen, click “Submit” and then “Reboot”.
3. The charger will reboot and then can be used.



### Example

A 80Amp Main Switch Board should have:



Rated Current – 800

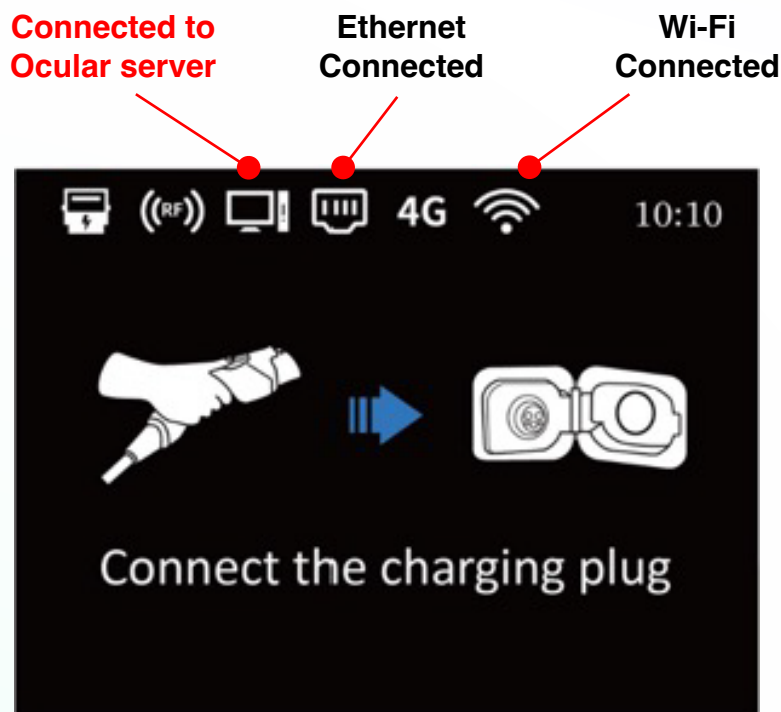
Safe Current – 80 (10% safety is recommended as a minimum. This can be higher if required. The charger will stop charging completely if it sees load above 720 which is 72 Amps.)

\*Please note, the scale is 0.1A i.e. 1 Amp is a value of 10\*

## INSTALLATION VERIFICATION

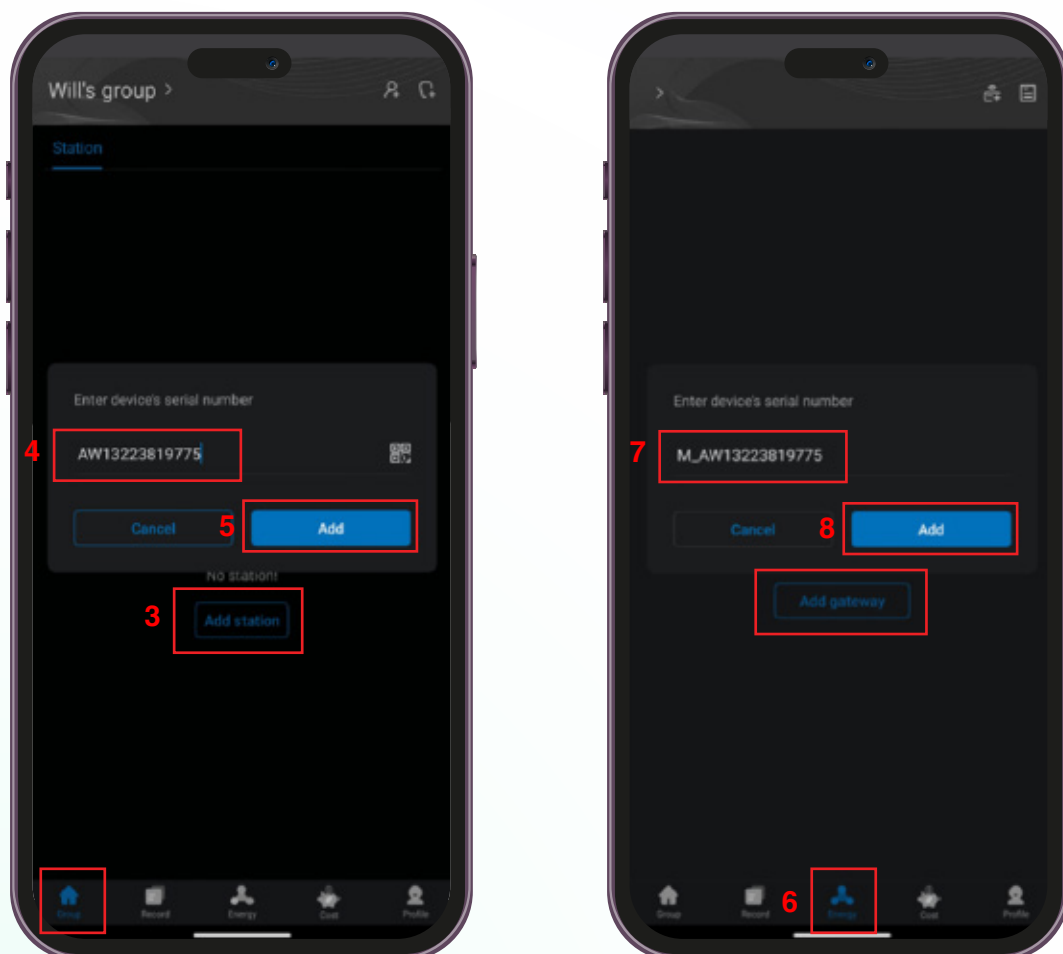
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1. Verify all cabling is wired properly.
2. Verify that the CT clamps are installed in the correct direction.
3. Take a photo of the CT clamp installation at the main board as a record. This will help any future troubleshooting.
4. Turn on the charger and check for any errors on the screen.
5. Verify that the charger is connected to the Ocular Server by checking Icons on charger screen.
  - A. If the charger is showing  (Server Error) then the charger will not function and this will likely require a return to site. If the screen is not showing , check the wifi/ethernet connection. If problem persists, contact ocular support on 1300 912 650.
6. Show customer how to set up the IQ Solar App. (See next page)
7. Test charging with simulator or electric vehicle.



## CONNECT CHARGER TO OCULAR SMART HOME APP

1. Search “Ocular Smart Home” or Ocular Charging” on the google play or apple app store.
2. Download, install, and launch the app.
3. Navigate to the Group page and click “Add Station”.
4. Enter the charger serial number. This can be found on a sticker on the side of the charger. It starts with AW and will look like AW1234567890.
5. Click “Add”. The charger should now show up in the group page.
6. Navigate to the “Energy” tab.
7. Enter the gateway serial number. This is the same as the charger serial number but with M\_ in front of it. It will look like M\_AW1234567890.
8. Click “Add” The energy tab should now show your solar and charger activity.
9. The charger can now be used.



## APPENDIX A - TROUBLESHOOTING

Situations		Actions
Status indicator is not blue after the charger is powered on	1	Make sure the AC power input is connected correctly.
	2	Turn OFF the charger and then back ON using the switch.
	3	If the problem persists, contact your installer for Technical Support.
Status indicator does not flash blue when the charger is connected to the EV	1	Unplug the charging plug and reconnect it fully to the receptacle on the EV.
	2	Inspect the cable and plug for damage.
	3	Inspect the EV and its receptacle for damage.
	4	If the situation persists, contact your installer for Technical Support.
Status indicator flashes red while charging	1	There is a temporary error.
	2	Wait until the temporary error is resolved and the charger returns to normal condition. It usually takes less than 10 seconds.
	3	If the status indicator doesn't return to blue, turn OFF the charger and then back ON.
	4	If the situation persists, contact Ocular Charging for Technical Support.
Status indicator is solid red	1	There is a critical error.
	2	Unplug the charging plug from the EV immediately.
	3	Turn OFF the charger and then back ON.
	4	If the situation persists, contact your installer for Technical Support.

## APPENDIX B – CHARGER SCREEN DETAILS

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### LCD DISPLAY DETAILS

This page contains icons displayed on the top left of the charger that may help diagnose or verify the operation of the charger.

**Active** - Charger component/feature is enabled and operating effectively.

**Inactive** - Charger component/feature has been disabled in the configuration settings for the charger.

**Error** - Charger component/feature has been enabled but something in the setup has been incorrectly done e.g. Sim- card details are incorrect on the charger, OCPP details are incorrect.

### INTERNET CONNECTION ICONS



Ethernet Active



Ethernet Inactive



Ethernet Error



Wi-Fi Active



Wi-Fi Inactive



Wi-Fi Error



4G Active



4G Inactive



4G Error

### POWER METER AND RFID CARD READER ICONS



Meter Active



Meter Inactive



Meter Error



RF Card Active



RF Card Inactive



RF Card Error

### OCPP CONNECTION ICON



Meter Active



Meter Inactive



Meter Error

## APPENDIX B – CHARGER SCREEN DETAILS



Connect the charging plug



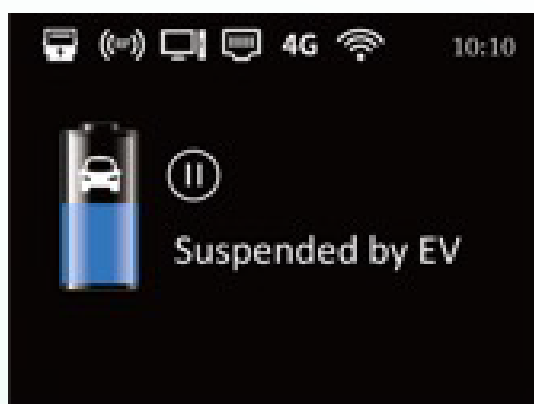
Remove the charging plug



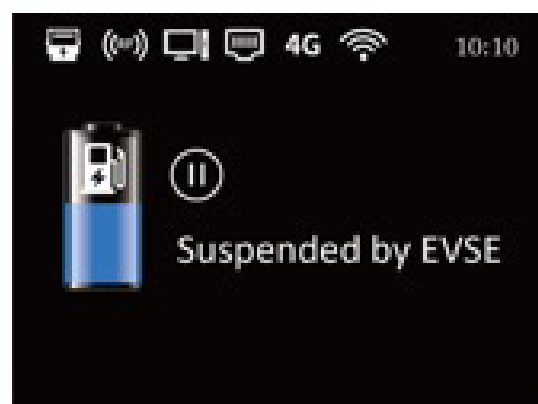
Scan the QR code or swipe the RFID card to start charging



Charging in process - Shows Session Duration, Total power used, charging current and voltage per phase



Suspended by EV - Indicator that charging session has been stopped by your EV e.g., limit set on car



Suspended by EVSE - Indicator that charging session has been stopped by your charger



## APPENDIX C – CT CLAMP SPECIFICATIONS

Prior to setting up the CT clamps, please ensure that you have the correct CT and CT Ratio setup.

Only use CT clamps provided by Ocular – The wrong CT clamps will cause a misreading and void warranty. If you must use your own CT please speak to Ocular and confirm suitability.

The Rate Transformation Ratio **must be 2000:1 or the CT clamps will generate incorrect readings.**

