eo

EO Mini Pro 2 Installation & User Guide.

Contents

Introduction

Your EO Mini Pro 2 MUST be installed by an EO Approved Installer. In accordance with the "IET Code of Practice for Electric Vehicle Charging Equipment Installation" and local regulations.

Instructions include:

+ How to mount and wire up the EO Mini Pro 2.

+ Setting the current rating (rotary switch).

+ What the LED colours mean.

+ Limit and suspend options.

2.0   Pre-Installation.

2.0
Pre-Installation.

Before the EO Mini Pro 2 is installed, it is recommended that the strength of the wifi signal is checked. If a weak Wi-Fi signal is present then there is a chance that the installation of the EO Mini Pro 2 may fail. In order to check that the Wi-Fi signal is strong enough please complete the following steps:

01
Download the "Wi-Fi SweetSpots" app from the Apple store or Google Play Centre

02
Connect the phone to the desired Wi-Fi.

03
Measure the data rate at the proposed location of the EO Mini Pro 2 and ensure that the data rate is greater than 5Mbps.

If the Wi-Fi signal is not strong enough then the wifi needs to be boosted with a suitable Wi-Fi extender.

3.0 Installation Instructions for the EO Mini Pro 2.

3.0

3.0
Physical installation instructions.

3.01

Remove the EO Mini Pro 2 from the packaging. Undo the 4 screws in the corners, then remove the front faceplate of the EO Mini Pro 2 and keep in a safe place (along with the plastic bungs for the front plate screws).

3.02

Drill the correct size hole in the bottom of the EO Mini Pro 2 base to take the cable glands. If Load Management or solar is to be used, then it is recommended that two cable glands are used – one for the power cable and one for the CT Clamps.

NOTE:
Cable entry must be from below to ensure weathertightness of the enclosure. Use either a cone drill or a hole saw to cut the hole to the right diameter.

3.03

Offer the back plate of the EO Mini Pro 2 up to the installation location; make sure the surface is flat and level. Level the EO Mini Pro 2 base and mark the position of the 4 holes. Take the EO Mini Pro 2 base away and drill the four holes. Do NOT drill through the EO Mini Pro 2 base or base screw holes. We suggest using a 6mm masonry drill bit if affixing to brickwork.

3.04

Clean out the EO Mini Pro 2 base for dust and attach the EO Mini Pro 2 base to the wall using four screws. Ensure that the base is the correct way up and that it is flush against the wall.
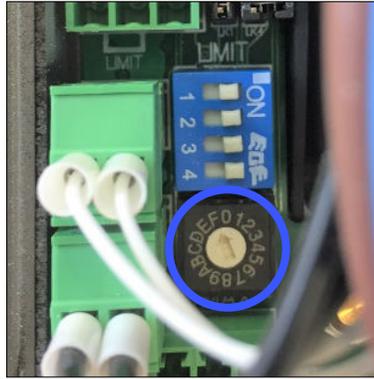
3.05

Use the rotary switch on the EO Mini Pro 2 to select the correct current rating as per the enclosed instructions and section 6.3.

3.06

Strip and prepare the power cable – EO recommends crimping ferrules onto the ends of the prepared power cable wire.
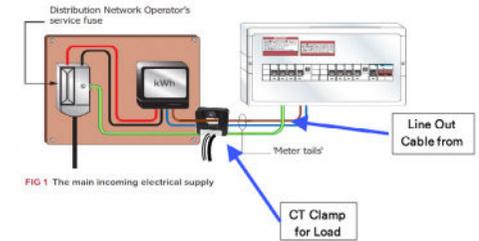
3.07

Mount the CT Clamps around the relevant supply cables. Note – only the live cable flows through the CT Clamp and the Source Arrow points to the source / input of the current (not the flow of current).

3.08

Connect the other end of the CT Clamp to the EO Mini Base.

Connector	Left or Right	CT Connection & Cable Colour
CT1 (Left)	Left	Load Management - White
CT1 (Left)	Right	Load Management - Black
CT2	Left	DO NOT USE
CT2	Right	DO NOT USE
CT3	Left	Solar - White
CT3	Right	Solar - Black
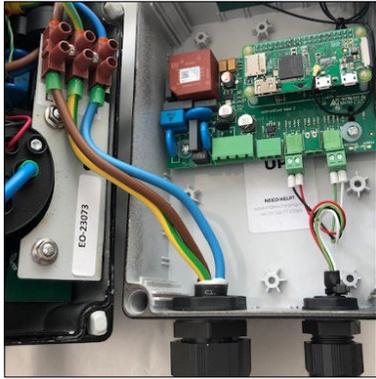
3.09

Connect the power cable to the front of the EO Mini Pro 2.

3.10

Connect the Power Cable (four pin plug) and the Comms cable (three pin plug) from the front of the EO Mini Pro 2 to the back of the EO Mini Pro 2.

3.11

Position all cables so that you can close the EO Mini Pro 2 front plate to the EO Mini Pro 2 back plate, making sure that no cables are trapped. Secure the EO Mini Pro 2 front plate to the EO Mini Pro 2 back plate. Do NOT over tighten the screws.

Ensure that the 4 plastic bungs are inserted into the screw holes.

The EO Mini Pro 2 is now physically installed and the connection to the EO Cloud can now begin.

4.0 Connecting the EO Mini Pro 2 to the EO Cloud.

The following steps should be taken by the installer and customer in order to connect the EO Mini Pro 2 to the EO Cloud using the EO Smart Home app.

The process for connecting the EO Mini Pro 2 can be summarised into the following steps:

01
Installer
Download the EO Smart Home app onto a smart phone and create an account.

02
Installer
Using the app, connect to the Wi-Fi hotspot created by the EO Mini Pro 2 and enter site details such as Solar, ALM and site capacity.

03
Installer
Check that the EO Mini Pro 2 is operational by running the installation test on the app.

04
Homeowner
Download the "EO Smart Home" app onto a smart phone and create an account.

05
Homeowner
Using the app enter user details such as vehicle, location.

06
Homeowner
Join the EO Mini Pro 2 to the local Wi-Fi.

07
Homeowner
Start charging!

At this point it is possible to view the status of the EO Mini Pro 2 using the app.

NOTE:
The EO Mini Pro 2 only works with 2.4GHz Wi-Fi networks.

4.1
Creating an account.
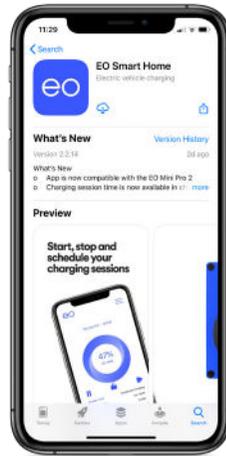
01

Install the EO Smart Home app onto your mobile device.

NOTE:
The minimum version for Android is Android6.
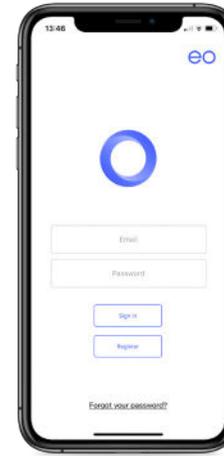
02

Log into the EO Smart Home app. If you do not have an account, create one.
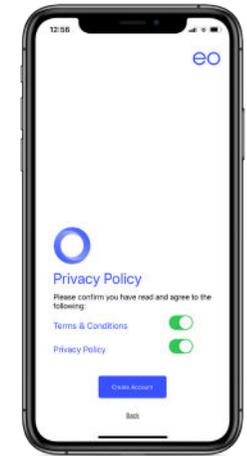
03

Accept both the Terms and Conditions and Privacy Policy.

4.2
Installer - Check the EO Mini Pro 2 is wired correctly.

The Installer must verify that the Mini Pro 2 is wired up correctly and that the CT Clamps correctly. This is done using these simple steps:
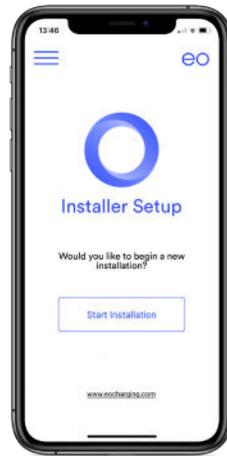
01

Select "Begin Installation" from the left hand menu if the above screen isn't shown.
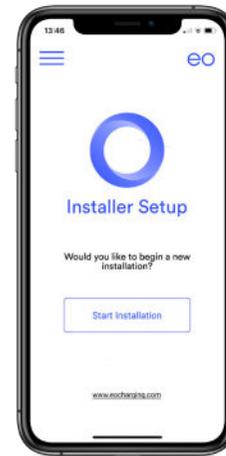
02

Click "Start Installation" and the app shall ask the installer to scan the QR code on the side of the EO Mini Pro 2. Scan the QR code and then the app will attempt to join the Wi-Fi hotspot of the EO Mini Pro 2.

03

If successful then the installer will be able to configure the following options:

+ Does the site need Load Management? Yes/No

+ Site Voltage

+ Site Supply

+ Safety Margin (a 10% value is automatically suggested)

+ Does the site have Solar?

+ CT Rating for Site/Load Management

+ CT Rating for Solar

04

The app will now connect to the EO Mini Pro 2, send down the above settings and then perform a connectivity test. If everything is wired correctly then the tests shall pass.
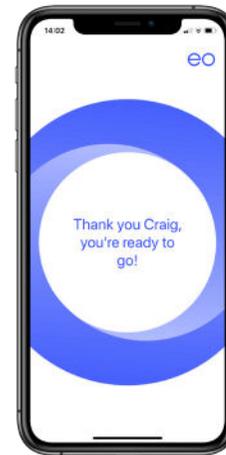
05

At this point the Installer's section is complete and the homeowner now needs to complete the set up with the site specific details such as Wi-Fi details.

5.0 Connect the EO Mini Pro 2 to the Wi-Fi.

5.0
Connect the
EO Mini Pro 2
to the Wi-Fi.
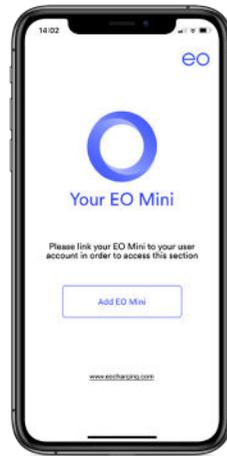
01

The homeowner needs to log into their version of the app. If the following screen is not shown then select "My EO Home" from the left hand menu.
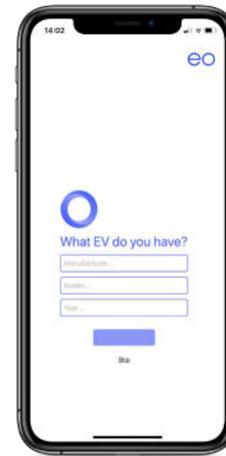
02

Select the Vehicle from the database.
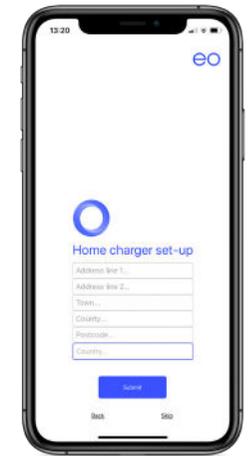
03

Enter the site address.
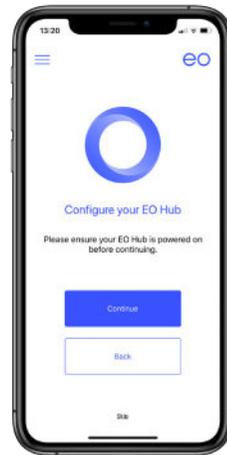
04

Click "Start Installation" and the app shall ask the homeowner to scan the QR code on the side of the EO Mini Pro 2. Scan the QR code and then the app will attempt to join the Wi-Fi hotspot of the EO Mini Pro 2.

05

The app shall now scan for any available Wi-Fi networks and ask the homeowner which Wi-Fi network the EO Mini Pro 2 should join.
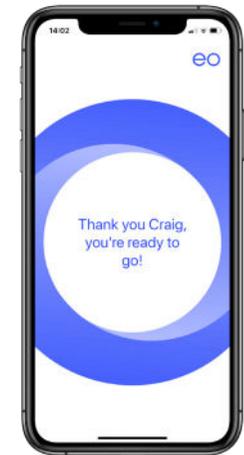
06

The EO Mini Pro shall now join the homeowner's Wi-Fi and associate the EO Mini Pro 2 to the Home Owner's account in the EO Cloud. Note that this process can take a few minutes.

6.0

Additional EO Mini Pro 2 Installation Information.

6.1
Important Installation Information

The installer must select the Earthing and RCD configuration in accordance with local regulation & best practice.

The EO Mini Pro 2 does not include protection against loss of Protective Earth Neutral (PEN) conductor. Therefore the unit must be installed with an earth electrode or an alternative fault protection solution.

Where the EO Mini Pro 2 includes DC leakage protection a Type A RCD can be fitted at the supply. Otherwise a Type B RCD or equivalent should be used. EO recommend a 20A supply rated supply circuit for a 16A charging station and 40A supply for on 32A charging station.

Characteristics of power supply input	Permanently connected to 230V AC supply.
Characteristics of power supply output	Supplies 230V AC to the vehicle.
Normal environmental conditions	Can be installed indoors or outdoors.
Access requirements	Can be installed with no access restrictions.
Mounting method	Stationary equipment intended for surface or post mounting.
Protection against electric shock	Class I equipment.
Charging mode	Mode 3 charging equipment. Note - Adaptors and conversion adaptors sets are not allowed to be used with the equipment. Cord extension sets are not allowed to be used.
Ventilation during supply of energy	Does not support ventilation during charging.
Height of Installation	The lowest point of the vehicle connector should be between 0.5m and 1.5m above ground level.

6.2
Wiring Connections.

The following wiring connections are possible:

6.2.1
Single Phase TN Networks.

By default the Earth Jumper is attached which enables the EO Mini Pro 2 to check that an earth connection is present before allowing charging sessions.
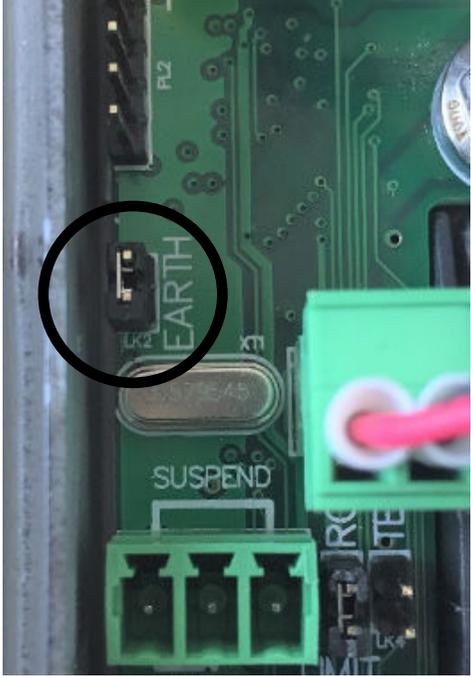
Wiring System	Markings on the Mini Pro 2			Earth Jumper
	Live	**Earth**	**Neutral**	
TN (220V)	L1	PE (Protective Earth)	N	ON
TN (110V)	L1	PE (Protective Earth)	L2	

6.2.2
Single Phase IT networks (e.g. Norway).

For markets that with an IT network, then the Earth Jumper must be removed. Removing this jumper will allow the EO Mini Pro 2 to be connected without a neutral connection.

Wiring System	Markings on the Mini Pro 2			Earth Jumper
	Live	**Earth**	**Neutral**	
TN (220V)	L1	PE (Protective Earth)	L2	OFF
TN (110V)	L1	PE (Protective Earth)	L2	
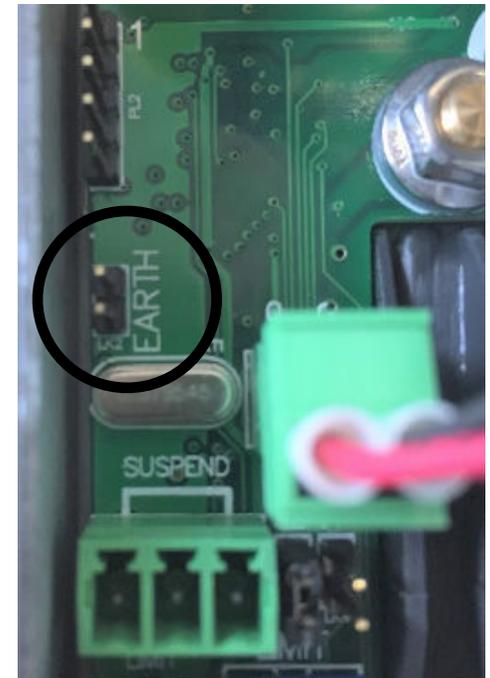
6.3
Setting the
Maximum Current.

It is possible to change the maximum current rating of the EO Mini Pro 2 by using the rotary switch.
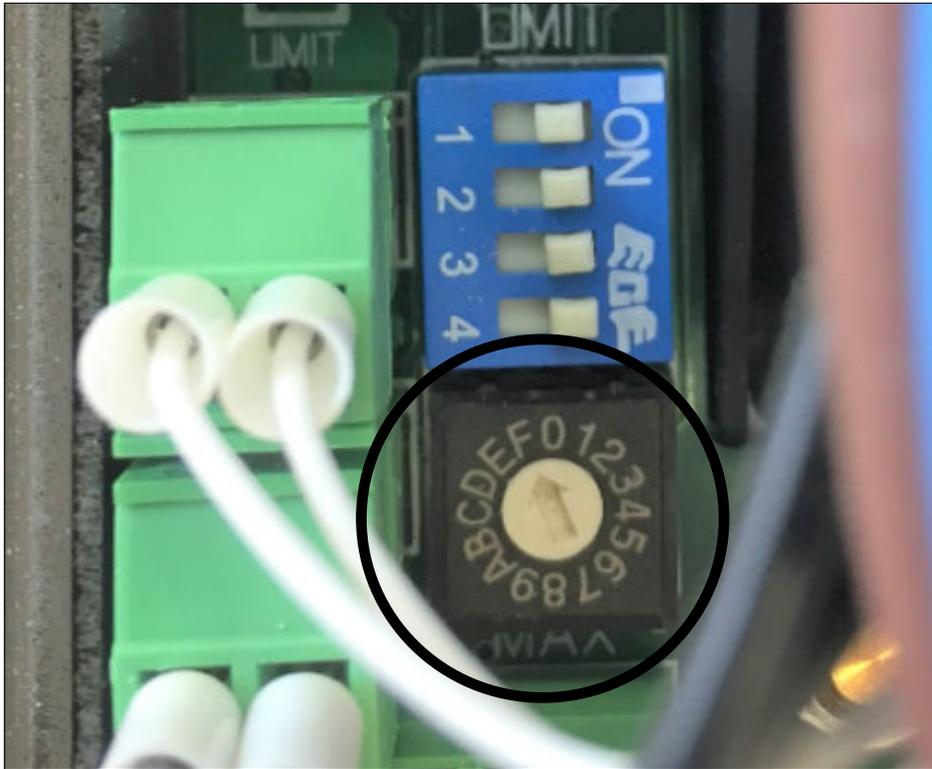
Rotary Switch Position	Maximum Current of the EO Mini (Amps)
0	0A - Off - Default
1	6
2	8
3	10
4	13
5	15
6	16
7	18
8	20
9	22
A	24
B	25
C	26
D	28
E	30
F	32

7.0

How to use the EO Mini Pro 2.

The following sections detail the user instructions on how to use the EO Mini Pro 2 and the EO Smart Home app.

7.1
Charging a vehicle.

In order to charge a vehicle, the following steps should be followed:

+ Turn on the EO Mini Pro 2.

+ Plug the charging cable into vehicle.

+ Plug the charging cable into EO Mini Pro 2 (not applicable if a tethered unit is installed).

+ The Vehicle should start to charge immediately or will charge at the scheduled time.

In order to stop a charging session, the following steps should be followed:

+ Stop the charging session from the vehicle e.g. unlock the vehicle.

+ Remove the cable from the vehicle.

+ Remove the cable from the EO Mini Pro 2 (not applicable if a tethered unit is installed).

7.2
Storage of tethered cable.

When not in use, the tethered cable should be wound up and stored on a locally provided hook. The plug should latched into the plug holder on the front of the EO Mini Pro 2.

7.3
Cleaning.

It is recommended to periodically clean the terminals of the socket with a suitable solvent based cleaner to ensure that the socket is free from dirt and other contaminates.

8.0

EO Mini Pro 2 Status Light.

The colour of the LED should be interpreted as follows:

8.1
Power Up.

When the unit is powered up the following sequence should be observed:

LED Colour	State	Notes
Not illuminated	Power OFF	No power is available
LED solid RED	Initialising	Initialising
LED pulses BLUE	Ready	Unit has started up successfully and is ready to charge

8.2
Normal Operation.

LED Colour	State	Notes
LED pulses BLUE	Ready	Ready to charge
LED pulses GREEN	Cable is inserted	EO Mini Pro 2 is communicating with the vehicle and trying to start a charging session
LED solid GREEN	Charging	A charging session has started successfully
LED pulses BLUE	Cable is removed	Ready to charge
LED solid YELLOW	PAUSED	The EO Mini Pro 2 has been put on pause by a schedule or the Pause button or Load Management

8.3
Fault Conditions.

The EO Mini Pro 2 can detect certain fault conditions and when a fault condition is detected then the LED flashes RED a certain number of times to indicate the nature of the fault. The fault codes are:

LED Colour	Notes
Solid Red	An internal fault has occurred
Two short red flashes	There is no earth connection
Three short red flashes	More than 6ma of DC current has leaked to earth
Four short red flashes	Live and Neutral are connected back to front
Five short red flashes	The mains supply has dropped below 170V
Red then Purple	An over current event has occurred i.e. the vehicle has tried to draw more than 130% of the cable capacity

The LED is latching. This means that as soon as a fault is detected, then the fault code is displayed on the LED until the end of the charging session.

If the fault subsequently disappears during the charging session, then the LED will continue to display the fault code so that the end user is aware that a fault has occurred. The LED will only return to normal operation when the cable has been removed at the end of the charging session.

This is designed to indicate to the end user, whether a fault has occurred and indicates a potential problem with the installation or might explain why the charging session was interrupted.

Without this functionality, a fault might occur on the EO Mini Pro or vehicle and the notification may disappear before the end user can be notified.

9.0 Troubleshooting Guide.

9.0
Troubleshooting Guide.

The EO Mini Pro 2 is not connecting to the local Wi-FI:

+   Check to see if the EO Mini Pro 2 Wi-Fi hotspot is broadcasting e.g. eoHub-12345.

+   Repeat the installation process using the EO Smart Home app.

The EO Mini Pro 2 keeps dropping out of Wi-Fi:

+   The Signal strength of the Wi-Fi could be too weak to maintain a steady connection.

+   An alternative would be to use a hard wired ethernet connection.

The vehicle didn't charge on a scheduled charge:

+   Verify the scheduling settings of the EO Smart Home app.

+   Verify that the vehicle is capable of being woken up by a change in the control pilot signal (contact vehicle manufacturer for confirmation).

I get an error code on the app:

+   If you receive an error code then please note it down and contact EO Support who would be happy to help.

10.0

Further Technical Support.

All EO Charging technical documentation is published in the EO Resource Centre, this is found at:
www.eocharging.com/resource-centre

The EO Support team can be reached at:
support@eocharging.com
+44 (0) 333 77 20383

EO

Happy Charging!