

SUNPOWER

FROM MAXEON SOLAR TECHNOLOGIES

NEW REVISION: A

User Manual for SunPower Drive

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xxxxRevA

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DRAFT ONLY

User Manual for SunPower Drive

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

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2.0 Instructions for Charging

Operation is divided into two parts:

1. Charging connection operation from EVSE to EV.
2. Operation of starting and Ending the charging process.

The user shall firstly connect the charging equipment to the vehicle and then the LED light will turn from green in standby to blue after the connection is completed.

Summary of charging operation

1. Plug the charging connector into the vehicle charging socket and confirm that it is connected properly. If the blue LED light is always on, the charging station is in connection status.
2. After a charging session is initiated properly, the blue LED light shall be in a steady breathing state, indicating that the charging process has started.

2.1. Charging RFID

Start charging



1. Connect the charging connector to the vehicle correctly and confirm the connection. If the blue LED indicator light is on, it indicates that the charger has been connected and everything is ready.
2. Place the card in front of the RFID reader, and the status light will flash blue if it has detected the card. Then the EVSE will do the authentication. If the authentication is successful, the status light shall start pulsating blue (gradually breathing on and off), which indicates that the charging process

has started If card swiping fails due to network connection, please swipe the card again.

End charging



N.B. Do not pull a mechanically-locked connector out of the socket plugged into the vehicle with any force.

1. Place the RFID card in front of the reader area; the indicator light shall flash blue if the reader has detected the card. Then it shall authenticate to stop. If the authentication is successful, the status light will turn green (free mode). The charging process will stop. If the electric vehicle has been fully charged, the charger will automatically stop. There's no need to swipe the card.
2. Press the Unlock button and unplug the charging connector.
3. Put away the charging cable, wrap it in the cable winding trough, and make sure the connector is properly stowed.

2.2. Charging with QR code

Start charging



1. Connect the charging connector to the vehicle correctly and confirm the connection. If the blue LED indicator light is normally on, it indicates that the charger has been connected and everything is ready.
2. Open "Star Charge" Application (hereinafter can be referred to as APP), click the QR Code scan icon indicated in the upper right corner of Figure 5-3 and scan the QR Code at the bottom right part of the Aurora main body. After successfully bound, click "Oneclick Charge" icon to start charging, as shown in Figure 5-3. When the blue LED light is breathing (gradually on and off), it indicates that the charging process has started.

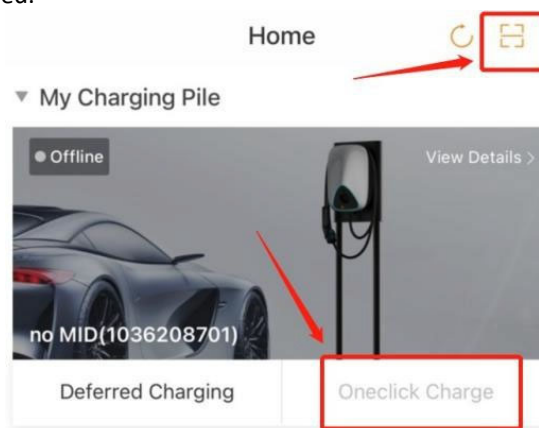


Figure 5-3: Mobile client interface

End charging



N.B. Do not pull a mechanically-locked connector out of the socket plugged into the vehicle with any force.

1. Open “Star Charge” APP and click the "Stop charging" icon, as shown in Figure 5-4. If successful, the status light will turn green to free mode and the charging process will stop. If the electric vehicle has been fully charged, the charger will automatically stop.

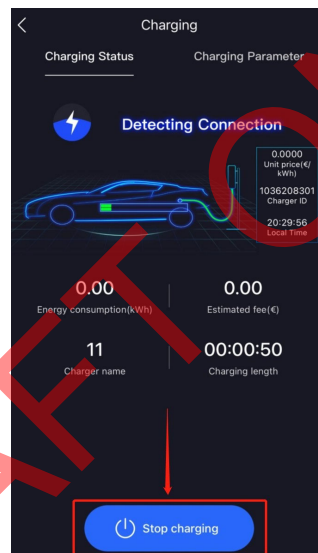


Figure 5-4: Stop charging interface

2. Press the Unlock button and unplug the charging connector.
3. Put away the charging cable, wrap it in the cable winding trough, and make sure the connector is properly stowed.

2.3. Charging with Bluetooth

Preparation

1. Make sure the charging equipment is connected to power supply and keep the power on normally.
2. Turn on Bluetooth on the mobile phone.
3. Open “Star Charge” APP, click “Me” icon, and then click “Bluetooth”, as shown in Figure 5-5. Click “Add New” and scan the QR Code at the bottom right part of the charger main body as indicated in Figure 5-7. Or the user can switch to “Input terminal number” to enter the QR Code manually, as shown in Figure 5-8. To get the charger ID, the user can refer to the number underneath the QR Code on Charger main body.

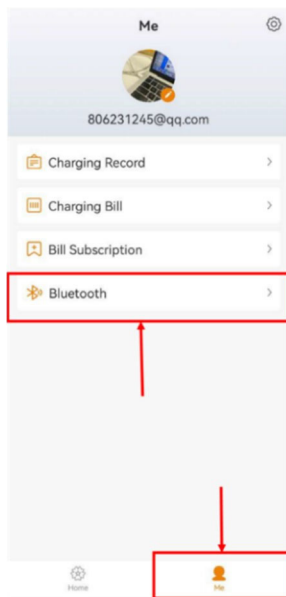


Figure 5-5: Click Bluetooth

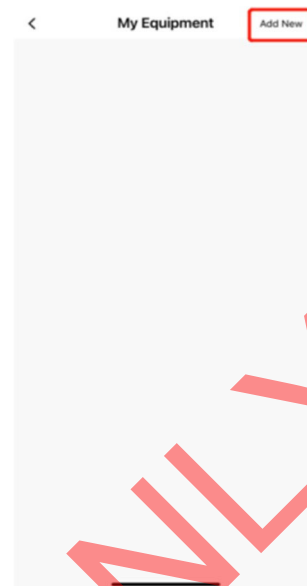


Figure 5-6: Click Add New

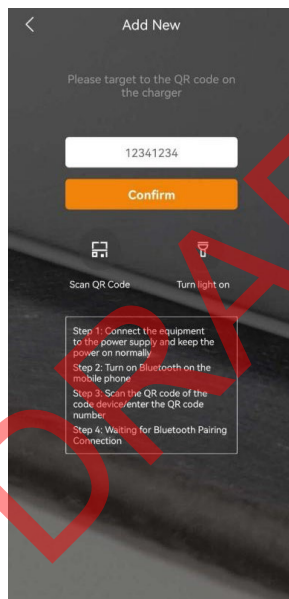


Figure 5-7: Enter the QR code number



Figure 5-8: Scan the QR code

4. Enter the correct PIN

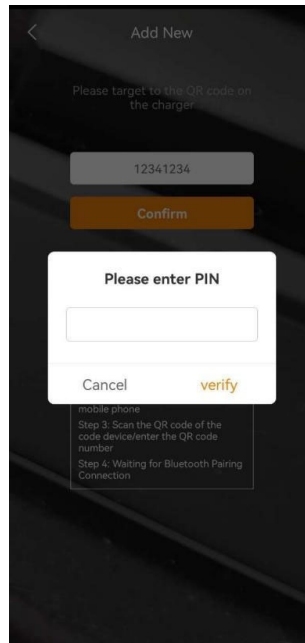


Figure 5-9: Enter the PIN

5. Wait for Bluetooth Pairing Connection.
6. After successful Bluetooth Pairing, it shall show "Connected" as shown in Figure 5-10. Click "Start" to initiate charging.

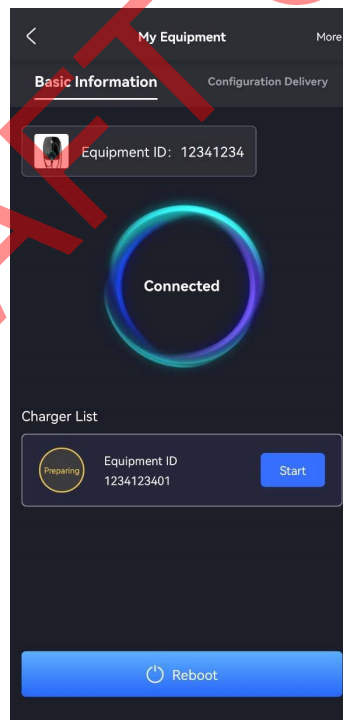


Figure 5-10: Start charging

Start charging

1. Open "Star Charge" app, click "me", and then click "Bluetooth", as shown in Figure 5-11.

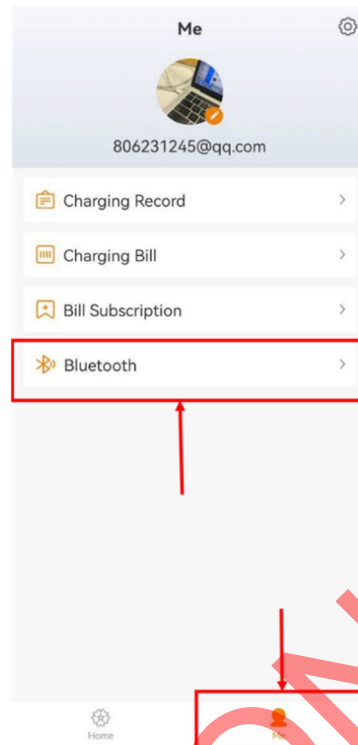


Figure 5-11: Choose Bluetooth

2. Select the corresponding charging station, as shown in Figure 5-12.

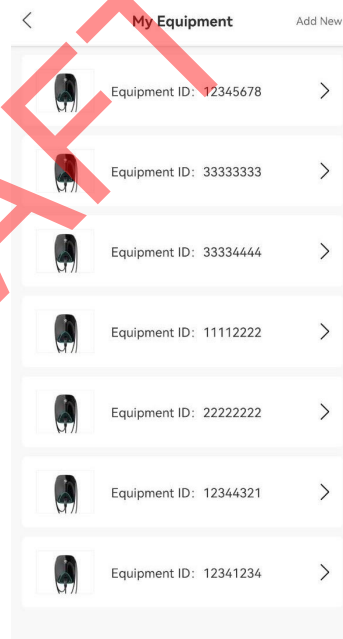


Figure 5-12: Choose the charging station

3. Click “start” to start charging.

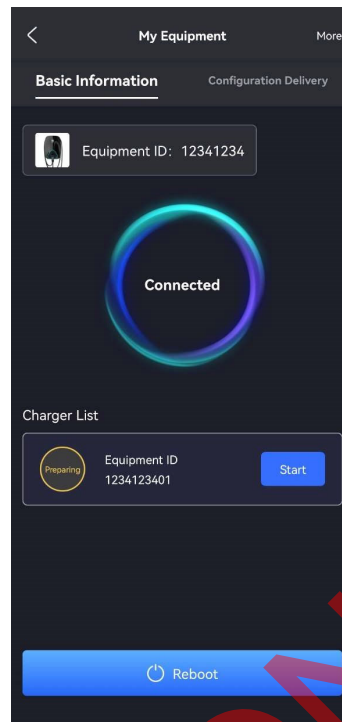


Figure 5-13: Start charging

End charging

N.B. Do not pull a mechanically-locked connector out of the socket plugged into the vehicle with any force.

1. Open "Star Charge" APP and click the "Stop charging" icon, as shown in Figure 5-14. If successful, the status light will turn green to free mode and the charging process will stop. If the electric vehicle has been fully charged, the charger will automatically stop.
2. Press the Unlock button and unplug the charging connector. Put away the charging cable, wrap it in the cable winding trough, and make sure the connector is properly stowed.

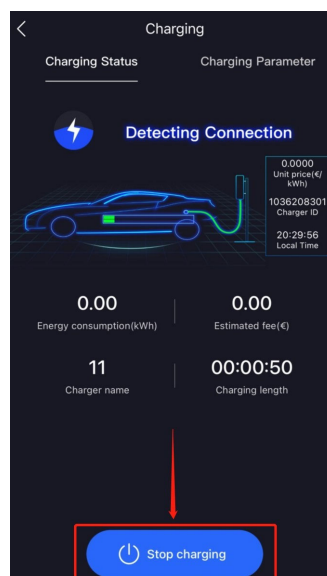


Figure 5-14: Stop charging interface

3.0 Maintenance

3.1. Routine Maintenance

The recommended maintenance cycle is explained in the following table.

The maintenance cycle may be subject to changes according to the standards and regulations of the country where the charging equipment is installed and operated. Please make sure the local relevant laws and regulations are strictly complied with.

Check Item	Cycle	Handling
Charging connector	monthly	Check
Residual Current Leakage switch protection	monthly	Check
Emergency stop function check	monthly	Test
Dust inspection of control boards	monthly	Check and Clear

4.0 Troubleshooting

4.1. The Charging station cannot be powered ON

Phenomenon: The Charging station cannot be powered ON

Troubleshooting tips

1. Check whether the input power is as per the norms.
2. Check whether the breaker beside the charging station trips. If it is, turn it ON. Check whether the power indicator is on. If it is ON, the fault is cleared. If it is still OFF, please check whether the breaker in the distribution box trips and use the same method to recover.
3. After eliminating the factors that would cause fault, measure the input, and output voltage of the breaker using a multimeter or a test pencil. If the input voltage is about 400V when the breaker is on, there is no output voltage or abnormal output voltage, the breaker is broken and replace it.
4. If the input and output voltages of the breaker are normal, there may be a fault in the charging station. First, open the charging station and measure whether the relay board gets 400V. Observe the indicator light of the mainboard when the mainboard is on. If all of them are off, it is preliminarily determined that the mainboard does not have a 12V auxiliary power supply (abnormal switching power supply or fuse).
5. Check whether the input voltage of the mainboard is 400V. Check whether the input voltage of the switching power supply is 400V and the output voltage is 12V.

4.2. The charging station is connected to the vehicle but charging doesn't get recognized by the EV

The light does not turn green after the charging connector is inserted in.

Troubleshooting tips

1. Check whether dust has accumulated in the charging connector or charging socket. If so, clean it.
2. Check whether there is an issue with the charging connector. The resistance of CP to PE is 220 Ohm when the charging connector is not inserted.

Table B.2 – Current coding resistor for EV plug and vehicle connector

Current capability of the cable assembly (A)	Nominal resistance of Rc Tolerance $\pm 3\%$ ^c (Ω)	Minimum dissipation rating of resistances ^{a,b} (W)	Range of resistance Rc for interpretation by the EV supply equipment ^e (Ω)
	Error condition ^d or disconnection of plug		>4500
13	1500	0, 5	1100 – 2460
20	680	0, 5	400 – 936
32	220	1	164 – 308
63 (3-phase) / 70 (1-phase)	100	1	80 – 140
	Error condition ^d		<60
a	The power dissipation of the resistor caused by the detection circuit shall not exceed the value given above. The value of the pull-up resistor Ra shall be chosen accordingly.		
b	Resistors used should preferably fail open circuit failure mode. Metal film resistors commonly show acceptable properties for this application. Dissipation ratings are chosen to avoid destruction in the case of fault to +12V supply		
c	Tolerances to be maintained over the full useful life and under environmental conditions as specified by the manufacturer.		
d	EV supply equipment shall not provide power.		
e	The minimum and maximum values of each range shall be tested. The choice of the resistance value at the transition between current levels is at the discretion of the EV supply equipment designer.		

- If the above tests are normal, try to replace the mainboard to check if the mainboard is broken.

4.3. Input Overvoltage is observed

The charging station stops abnormally

Troubleshooting tips

Check the input voltage of the charging station. If the input voltage is too low or too high, we can advise the customer to replace the more stable line to meet the working conditions of the charging station.

4.4. Not fully charged, report that the battery is full or the connection is unsuccessful

The indicator light is green but there is no current.

Troubleshooting tips

- It is recommended that the customer recharge and check whether it is an accidental fault.
- If the fault still exists, it is recommended to drive the vehicle to an external charging station or an Auto-mobile Sales Service-shop charging station for trial charging.
- If there is another failure, the vehicle is judged to be faulty. It is recommended that the customer go to the 4S shop to check the vehicle.
- Try to charge after replacing the relay board.