

### INSTRUCTIONS TO FOLLOW

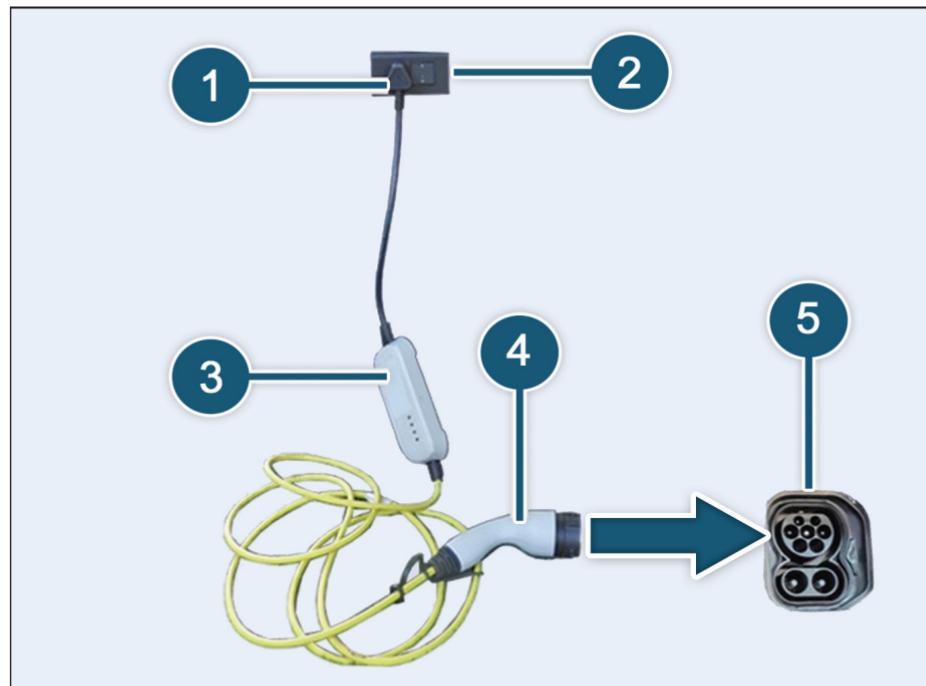
Carefully read these instructions and the charging instructions before charging your electric vehicle. The Normal Charging gun is located inside the boot of the vehicle.

As shown in the image, the parts for Normal

Charging system are:

1. Home Charging box socket
2. Plug
3. Control box
4. Charging gun
5. Charging port

### Charging Box Socket



## CHARGING

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### Instructions:

- It is recommended to charge the vehicle to 100% every time, whenever vehicle is being charged.
- After a maximum of 4 continuous fast charging cycles/opportunity charging cycles (Opportunity Charging - where it was below 100% SoC) it is mandatory to use slow/AC Charging and charge the vehicle to 100% SoC.
- Slow/AC Charging till 100% SoC is must, at least once a 15 Days or after every 4 fast /opportunity charging cycles whichever is earlier, for SoC Calibration & Cell Balancing.
- Avoid charging vehicle under heavy rain / thunderstorms
- Avoid driving vehicle below 10% SOC.
- Make sure the charge station's supply cable is positioned so it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- There are no user serviceable parts inside the charging gun. Contact authorised TATA MOTORS EV service

centre should you experience any problems with the charging gun. Do not attempt to repair or service the charge station or charging gun yourself may result in injury.

- Do not operate your charge station and gun if it or the supply cable is visibly damaged. Contact your Service Representative for service immediately. Refer to the 'Emergency and Breakdown' section in this manual for information on the Service Representative in your area.
- Do not place fingers inside the coupler on either end of the charging gun.
- Do not allow children to operate this device. Adult supervision is mandatory when children are in proximity to a charge station that is in use.
- Not for use in commercial garages.
- Slow Charging only happens in park brake engaged condition. So always keep the park brake engaged during a charging session
- Change of vehicle state (Ignition OFF to Ignition ON or vice-versa) should be

avoided while charging

- Post switch off the charger, provide min 5 seconds for touching and pulling out the gun.
- If the charging gun removed and reinsertion required it could be done after at least 10 seconds of removal of the charging gun from socket.
- Do not disengage/play around with the Park brake/hand brake while vehicle in fast charging condition.
- Overcurrent and leakage current protections are given in the home charging box and charging gun. The RCBO should always be in ON state during normal charging use-case and there should be no error (Red) LEDs on the charging gun. In case any tripping of RCBO is observed or error LEDs start blinking on the Charging gun, please contact TML authorized EV workshop.
- Home charging box comes with a key and lock. It is recommended to lock the box during overnight charge or when the charging box is not in use to avoid misuse of charging point.

### WARNING

Unplug both couplers of your Portable Charging Gun before cleaning.

### NOTE

*During normal operation, the charging gun or couplers may feel warm. If either coupler or the charging gun feels hot during charging, unplug the gun and have a qualified electrician inspect the connections before you continue charging.*

### CAUTION

Do not use a damaged charging station, plug point or charging port. Using the charger with a worn or damaged port may result in unanticipated consequences.

### WARNING

The charger generates electromagnetic waves that can seriously impact med

ical electric devices such as an implantable cardiac pacemaker in a person. When a person has an implant like the one mentioned above, make sure to ask the medical team and the manufacturer whether charging your EV will impact the operation of the medical electric device implant. In such case, do not go near the vehicle when it is charging.

### WARNING

Ensure that the charging gun is always stored in a safe place. Do no expose it to rain or wet conditions. Avoid pouring or dripping water or other liquids over it. If water penetrates the electrical devices, the risk of electric shock increases. Ensure that all plugs and cables are free of moisture before using the charging gun. Never connect the charging gun to the mains with wet or moist hands or when the charging gun is wet.

### NOTE

*Charging station and domestic plug point must be approved/certified by a qualified electrician before using the charging gun. Coupler Receptacle has to have proper Grounding, electrical connection and has to contain a Residual-Current Circuit Device (RCD).*

### CAUTION

Make sure that the device is always stored in a safe place. Do no expose the device to rain or wet conditions. DO NOT use this product if the EV charge connector/cable is damaged. During charging the vehicle must not be exposed to rain, lightning and snow.

### NOTE

*Charging should be done in Ignition OFF state.*

## CHARGING

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### IMPORTANT TIPS

#### Do and Don't

- Do not allow the vehicle to be discharged to 0% in storage.
- Long duration Parking
  - Avoid parking vehicle below 20% SOC for more than 14 days.
  - Ideal condition to park vehicle for longer duration (> 14 days) is with SOC between 40% to 60%.
  - If vehicle is not to be used for very long duration (more than 3 months) and is in parked condition, ensure the SOC between 50% to 60%.
  - After the resting period the vehicle must be charged to 100% using Slow/AC Charging before use.
- During the resting period, the user may choose either of the following options to prevent discharge of low voltage battery.
  - Periodically (weekly once) user may switch on the remote Air conditioning for 20-30 mins. This wakes up both the high voltage and

low voltage systems and prevents low voltage battery from getting discharged.

- If possible, user may choose to disconnect the negative terminal of the low voltage battery. This results in complete vehicle sleep and minimum loss of charge for both low voltage and high voltage batteries
- Do not direct high pressure washer fluid/ water jets (Pressure above 0.5 bar) at electrical devices and connector during washing. This is to prevent malfunction/failure of electrical system due to water ingress. No High pressure washing in Motor compartment, Under-floor battery pack and CCS Charging port.
- Drive though calm water only and only if it is not deeper than 300mm and at this depth, the vehicle speed to be maintained at creep speed.
- If car gets completely or partially submerged in water, switch off the ignition, evacuate the car and call RSA (Roadside Assistance) at 18002098282 for

assistance.

- As EV service requires certain skillsets and trained manpower, it is always recommended to get the car serviced or repaired at only TML authorized EV workshop.
- Always check the SOC level before start of journey & ensure car is adequately charged. You may check the SOC level on the mobile app also.
- Remote AC command not to be executed through mobile app while/during the charge initiation process.
- If AC is switched ON remotely using Zconnect, it is required to switch it off using the Zconnect app before unlocking the vehicle. If it is not followed, the vehicle requires two ignition ON cycle to move as it will not move in the first ignition ON cycle.

### TYPES OF CHARGING

#### Charging Instructions

1. Vehicle must be parked with park brake in engage state before connecting the charging gun.
2. Vehicle charging port must be free of dust, water or snow while connecting the charging gun; if not proper cleaning method must be used to remove dust, water and ice.
3. If the charging gun is removed, reinsertion should be done after at least 10 seconds of removal of the charging gun

#### Types of Charging

There are three types of charging available in EV, Normal, AC (WMU) and Fast charging methods.

In Normal Charge, plug the charging gun (provided with the car) into a 230V electrical outlet.

For AC (WMU) charging (If applicable) use wall mounted unit charging gun (provide with WMU) for vehicle charging.

For Fast Charging, go to the nearest Fast

Charging station to charge your car in a short duration.

#### Gun Unlocking Feature on EV

Once you switch off AC power supply, The charging gun will unlock after pressing charger gun unlock switch available in fascia in Normal Charging. In case of Fast Charging it will take around 15 seconds for the charging gun to unlock.

## CHARGING

Here are the details of the different types of charging mechanisms:

Types Of Charging	Charging Component Specification	Charge Port	Charge Gun	Power Source
Normal/AC Charging	<ul style="list-style-type: none"><li>• Nominal Voltage: 230V AC RMS single Phase 50Hz</li><li>• Power Rating: 3.3Kw AC RMS</li><li>• Rated Current 16A AC RMS</li></ul>			
AC Charging (WMU)	<ul style="list-style-type: none"><li>• Nominal Voltage: 230 V AC RMS single Phase 50Hz</li><li>• Power Rating: 7.5Kw AC RMS</li><li>• Rated Current 32A AC RMS</li></ul>			
Fast/DC Charging	Charging station voltage capability should be greater than or equal high voltage battery pack nominal voltage.			

## Normal / AC Charging

- In electricity grid, electric power is AC (alternating current) by nature. However, electric power in battery is DC (Direct Current) by nature. Hence, to charge an electric car by AC grid, power has to be converted from AC to DC. And to convert AC power to DC power On-board Charger is used. This type of charging is called Normal charging/AC charging.
- Normal charging is recommended for usual charging of the vehicle. This charging method is most suitable for parking spots where the car will stay parked for longer duration of time.
- It takes Approximately 15.5 hours(time for a 0-100% charge, may increase basis factors such as ambient temperature, electrical load on meter, vehicle usage during and before charging, air conditioning usage during charging, aux loads etc.) of components to achieve 100 per cent charge with Normal Charging. The charging gun will be locked after switching on the AC sup-

ply.

## Precautions For Normal Charging

- Proper maintenance of earthing pit is must. Add water & add salts at regular intervals into the earth pits in order to maintain the value of earth resistance. Check annually the condition of the electrodes so as to add or replace electrodes.
- The electrical socket used for EV charging and its associated wiring should be able to supply 15A dedicated load continuously.
- Check the charging inlet for accumulation of dust or any foreign objects.
- Don't try to pull off the charging gun during charging.
- Don't pull out the charging gun if it is in locked condition as excess force can break or damage the locking mechanism.

## Normal Charging Procedure

- Engage the Automatic Parking Brake. (Charging won't start if APB is not engaged).



- Connect the plug to AC power socket.



- DO NOT plug into a power strip.

## CHARGING



4. Open the protective cap on Charging Gun.



5. Pull the 'Charging-inlet Flap Open Lever' to open the charging inlet flap.



6. Open the protective cap on Charging Inlet.



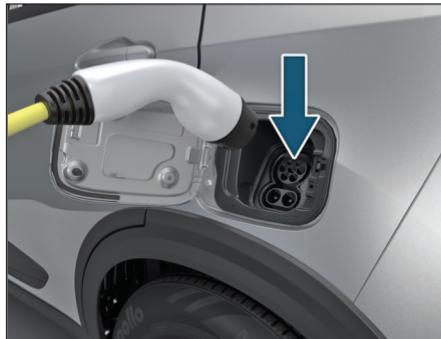
7. Before connecting the charging gun to vehicle charging socket, make sure the gun lock is released.

### ⚠ CAUTION

If the Gun Lock is not released please don't insert the Charging Gun forcefully into the socket. It may damage the Charging Socket

8. If the actuator is engaged and the gun is not getting inserted properly, contact TATA MOTORS EV service center.
9. Remove any dust on the Charging

Gun and Charging Inlet. Connect the charging gun to vehicle AC Charging Inlet.



10. Switch on the AC supply
11. Charging Gun will be locked after switching on the AC supply. You will hear a "click" sound, when the gun is connected correctly.

***(i) NOTE***

*When vehicle is in Charging Mode, it will not go in Drive (D), Sport (S) or Reverse(R).*

12. Normally the car starts automatically charging. If not, please refer 'Troubleshooting Guide for Normal Charging' table.
13. Open the door and see instrument cluster for State of Charge, Time to Charge and Gun connection status.
14. In case the park brake is not engaged

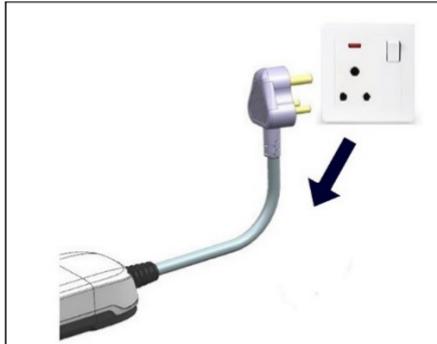
## CHARGING

or partially engaged the charging won't start and 'Engage Park Brake to start charging' message will be displayed on instrument cluster.

### (i) NOTE

*Infotainment and cabin cooling can be used during charging of the vehicle by putting the vehicle in Ignition.*

15. To stop the charging, switch off the AC power supply.
16. The charging gun will be unlocked after switching off the AC supply and pressing charging gun unlock switch
17. Pull out the plug.
18. Put on the protective caps on both Charging Gun and Vehicle Inlet.



### (i) NOTE

*Once Normal/Fast charging is completed, 90 seconds of time gap is required before the vehicle can be started. After turning off the vehicle, wait for four seconds if you want to start the vehicle again.*

### (i) NOTE

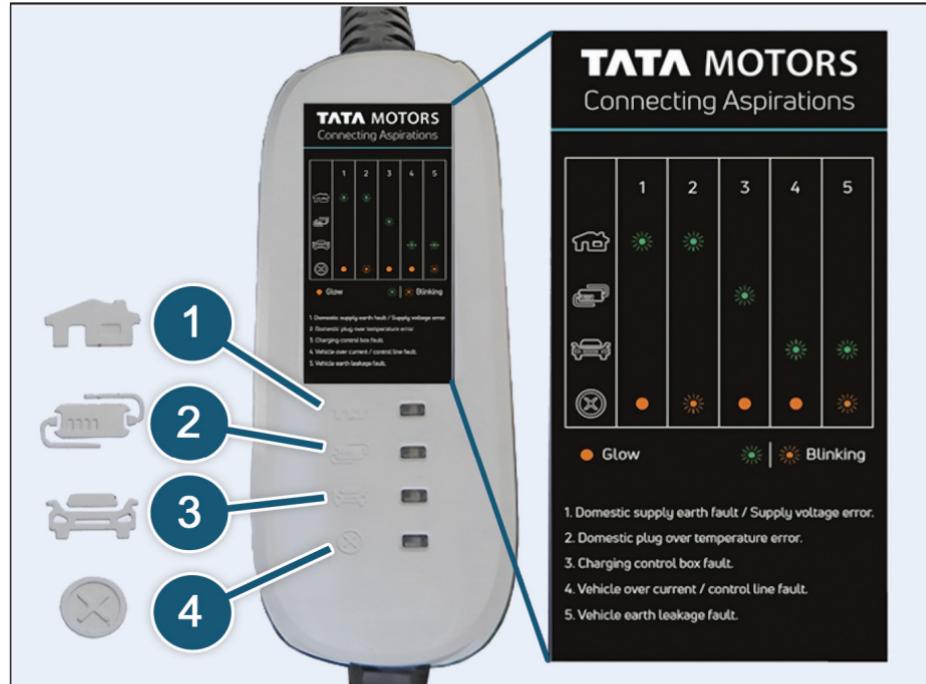
*In emergency charging shutdown conditions, Gun won't be unlocked. Contact authorised TATA EV Service Centre.*

### (i) NOTE

*In unforeseeable circumstances if the charging gun is stuck to the socket after charging is done, user has to contact the service personnel. No mechanical override to remove the charging gun is available for user.*

## Normal Charging Control Box Indications:

1. Home
2. Control Box
3. Vehicle
4. Fault



## CHARGING

Working State	Home	Control Box	Vehicle	Fault	Example	Description
Self-inspection state	Blink	Blink	Blink	Blink		Self-inspection for system
Standby state	On	Off	Off	Off		No fault Check for engagement of park brake
				Blink		Plug temperature is high
Charging state	On	On	Blink	Off		No fault
				Blink		Plug temperature is high
Charging stopped	On	On	On	Off		No fault
				Blink		Plug temperature is high

## Troubleshooting Guide For Normal Charging

Refer the below table if charging is not starting or if it stops abruptly. The below symbols of 'House', 'Control Box', 'Vehicle' and 'Fault' can be seen on the control box beside the respective LEDs.

Fault Category	Indication	Home	Control Box	Vehicle	Fault	Recommended Action
Interface fault in home		Blink	Off	Off	On	Improper earth connection. Check the earth pit.
		Blink	Off	Off		Short circuit between PE and phase. Error in domestic supply side. "Stop Charging"
		Blink	Off	Off		AC voltage is either less than 190V or more than 250V. Error in domestic supply side. "Stop Charging"
Control box fault		Off	Blink	Off	On	Contact TATA MOTORS EV Service Centre
		Off	Blink	Off	Blink	

## CHARGING

Fault Cate- gory	Indication	Home	Control Box	Vehicle	Fault	Recommended Action
Vehicle box	  	Off	Off	Blink	On	Go to nearest TATA MOTORS EV Service Centre
	  	Off	Off	Blink	Blink	

### Legend



- Off

- On

### AC Charging (Wall Mount Unit)

This type of charging will help customer to improve the charging time for vehicle charging.

Approximately 6.5 hours (time for a 0-100% charge, may increase basis factors such as ambient temperature, electrical load on meter, vehicle usage during and before charging, air conditioning usage during charging, aux loads etc.)

### AC (WMU) Procedure

1. APB should be in engaged condition (Charging won't start if APB is not engaged).



2. Pull the 'Charging-inlet Flap Open Lever' to open the charging inlet flap.



3. Open the protective cap on Charging Inlet (AC side).
4. Remove the charging gun from the WMU. (WMU will be separately installed at customer end)

## CHARGING



5. Open the protective cap on WMU Charging Gun.



6. Before connecting the WMU charging gun to vehicle charging socket, make sure the gun lock is released.
7. If the actuator is engaged and the gun is not getting inserted properly, contact TATA MOTORS EV service center.
8. Remove any dust on the Charging Gun and Charging Inlet. Connect the WMU charging gun to vehicle AC WMU Charging Inlet.



9. Scan the RFID provided, on the WMU to start charging.
10. Charging gun will be locked automatically. You will hear a “click” sound,

when the gun is connected correctly.



11. Normally the car starts automatically charging. If not, please refer ‘Troubleshooting Guide in WMU’s owners’ manual.
12. Open the door and see instrument cluster for State of Charge, Time to Charge and Gun connection status.
13. To stop the charging, scan the RFID on WMU.
14. The charging gun will be unlocked after pressing the fascia switch on the dashboard panel. Pull out the gun.

15. Put on the protective caps on both Charging Gun and Vehicle Inlet. Place the Charging gun back and close the charging inlet flap.

### Fast / DC Charging

- Fast charging of electric vehicle is achieved by using Fast/DC charging stations; they convert the AC power from the grid to DC power and can directly charge the HV battery pack thus bypassing the On-Board Charger.
- Fast charging can be done wherever Fast/DC charging station is available. User can charge at high speeds at public charging stations.

#### *(i)* NOTE

*Battery performance and durability can deteriorate if the fast charger is used constantly. Use of Fast Charging should be minimized in order to help prolong high voltage battery life.*

#### *(i)* NOTE

*After a maximum of four fast charging cycles, the battery pack you must use Normal charging to 100% State of Charge for the optimum performance of the high voltage battery pack.*

*bient temperature, the time required for charging the high voltage battery may vary.*

### Fast Charging Procedure

1. Engage the Automatic parking brake (APB) switch. (Charging won't start if APB is not engaged).



#### *(i)* NOTE

*Depending on the condition and durability of the high voltage battery, charger specifications, charger rating, and am*

2. Pull out the Charging Gun from DC/Fast Charging Station.
3. Open the protective cap on Charging Gun.

## CHARGING



4. Pull the 'Charging-inlet Flap Open Lever' to open the charging door.
5. Open the charger-inlet flap.
6. Before connecting the charging gun to vehicle charging socket, make sure the gun lock is released.

### ⚠ CAUTION

If the Gun Lock is not released please don't insert the Charging Gun forcefully into the socket. It may damage the Charging Socket.

7. Remove any dust on the Charging Gun and Charging Inlet.
8. Connect the charging gun to vehicle AC and DC Charging Inlet.
9. Switch on the DC charging station supply.



10. Charging Gun will be locked after switching on the DC charging station.
11. You hear a "click", when the Gun is connected correctly, Click sound is because of Gun locking after supply is switched on.



12. Normally the car starts automatically charging. If not, please refer Charging Gun's Fault Indication & Indication Priority Table on the charging station.

### ⓘ NOTE

*When vehicle is in Charging Mode, it will not go in Drive (D), Sport (S) or Reverse (R).*

13. To know the State of Charge, Time to Charge and Gun connection status please see instrument cluster. This status is displayed only when driver door is opened.

14. In case the park brake is not engaged or partially engaged the charging won't start and 'Engage Park Brake to start charging' message will be displayed on instrument cluster.

 **NOTE**

*Infotainment and cabin cooling can be used during charging of the vehicle by putting the vehicle in Ignition.*

15. To stop the charging, switch off DC charging station.  
16. The charging gun will be unlocked 15 seconds after switching off the supply from DC charging station. For fast charging no fascia switch input is required. It unlocks automatically.  
17. Put on the protective caps on both Charging Gun and Vehicle Inlet.

 **NOTE**

*If you remove the charging gun from the vehicle and if you wish to reinsert the gun to recharge the vehicle, please wait for at least 10 seconds before charging*

*gun is plugged again.*

 **NOTE**

*In emergency charging shutdown conditions, Gun won't be unlocked. Contact authorised TATA EV Service Centre.*

## **CHARGING**

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### **State Of Charge (SoC) Gauge For High Voltage Battery**

Provided in the instrument cluster as a telltale. It shows the charging status of the high voltage battery. Low charge or minimum position on the indicator indicates that there is not enough energy in the high voltage battery.

Full charge or max position indicates that the HV battery is fully charged.

- When driving on highways, make sure to check in advance if the HV battery is charged enough.
- When the bar turns red on the high voltage charge indicator, the low charge warning lamp turns ON to alert you of the battery level.
- When SoC < 25%, sports mode cannot be selected. There is no limiting to speed. <10% SoC Speed limit will be there (limp home). @ 4% SoC, AC will be turned OFF.



### **Action to be Taken When Charging Stops Abruptly**

- Check the reason for interruption of charging.(Refer 'Troubleshooting guide for Normal Charging' table).
- Switch off the AC supply.
- Remove the charging gun from the charging inlet.
- Wait for 5 minutes.
- Restart the charging. (Refer charging procedure).

### **Cleaning of Charging Inlet**

Covering the charging gun and charging inlet by dust cap will ensure protection from water and dust.

### Precautions to be Taken While Cleaning the Charging Inlet

- Keep the vehicle lid always closed
- When the lid is open ensure that dust caps are in closed position
- During normal charging, make sure that DC charging cap is closed
- In case of any dust/mud/snow accumulation in the charging port and also on CCS2 especially actuator area, it can be cleaned with blowing air before charging.
- Allow the water to drain completely through drain holes.
- Allow the charging port to dry completely.

#### NOTE

*Water entering into the charging port will always be drained through the drain system. If water is stagnant in charging port area call Tata MOTORS Authorised EV service centre to rectify the issue.*

## CHARGING

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### CPL while charging the vehicle

S.n.	Functions	Charging Gun	Cpl Condition
1	Charging state	Charging gun in Plug condition	Charging sequence is displayed on vehicle (CPL). With animation running outwards progressively.
2	Discharging State	Charging gun in Un-Plug condition	Charging sequence is displayed on vehicle (CPL) With animation running inwards progressively.
3	Charging Error	Charging gun Not connected Properly.	Charging error is displayed on vehicle (CPL) By blinking of some portion of CPL in center.

### CHARGING DO'S AND DON'TS

- The charging gun provided for home charging has to be stored safely and securely in the trunk of the vehicle or has to be plugged on to the Home Charging Box in locked condition.
- The wall box charging unit is also used for slow or home charging. It comes with a key and lock. It is recommended to lock the home charging box when the vehicle is kept for overnight charging or when nobody is around while the vehicle is being slow charged. This ensures that the charging unit along with the charging gun cannot be misused or stolen.
- Wet surfaces are good conductors of electricity. Though the vehicle is equipped with safety mechanisms to protect users, it is advisable to take a few precaution while plugging in for charging. Hence, before charging, ensure that the power source socket, the charging gun and the charging port (CCS2) port in the vehicle are dry. Also ensure that you are standing on dry

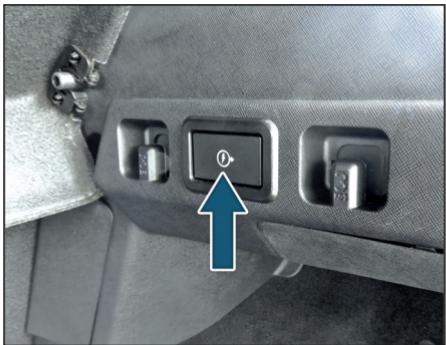
ground and your hands are dry as well while using the high voltage charging equipment.

- Usage of damaged cables, Power Source socket and vehicle side CCS2 port must be avoided as they may result in electrical hazard and inconsistent charging experience.
- While plugging in for home charging, ensure power source is off. Subsequently ensure charging gun is connected at both ends – One at power source and the other at vehicle's CCS2 port. Then switch ON the power source switch to commence charging. Confirm that the vehicle is charging from the green charging tell tale displayed on the instrument cluster. The cluster remains ON to display charging status for 60 sec after the start of charging.
- If charging gun is removed before 100% charging and again needs charging upto 100%, it is advisable to wait for at least 10 seconds before reinserting the gun in the charging port.

# CHARGING

## V2X CHARGING

The V2X charging system offers a flexible and energy exchange method for charging electric vehicles (EVs) without the need for charging stations. A new framework for vehicle-to-vehicle charging technology is introduced that can work plug-in electric cars.



Below parcel tray RH side in luggage compartment

### Vehicle Ignition OFF / ON Conditions

The transponder in the ignition key carries a Unique Identification Code (UID). The

vehicle unlocks when the code on the key matches with the code on the Battery Management System (BMS). In case of PEPS variant, Immobilizer function is provided by PEPS ECU.

### Vehicle To Vehicle Charging (V2V)



V2V Gun

### Vehicle Ignition OFF state

1. User can decide the discharge SOC limit of the source vehicle (donor) and can preset the SOC limit in infotainment before starting the V2V function.

- Since infotainment system won't be awake in Ignition OFF state, Limit can be set only in ignition ON or Crank on condition.
  - Discharge SOC Limit cannot be changed during the V2V function.
  - Incase if no limit is set by the user, 30% SOC will be consider as default discharge SOC limit
2. Keep both sink (recipient) and source (donor) vehicle nearby and ensure maximum up to 3m distance between the charging inlets of the vehicles.
  3. Make sure to keep the vehicles and the V2V charger in dry environment/in shade
  4. If the Source/sink vehicle is in OFF state, Open/close the door or if vehicle is in locked state Press RKE unlock Button and open the door to wake up the vehicle control unit. Once wakes up, Vehicle control unit will remains in wakeup state for 120sec
  5. Remove the caps & connect the V2V gun to the source and sink vehicle within in 120sec of step 4. Check the

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- labels on the V2V gun and make sure that the V2Vgun side labeled as "source" should connect to the source vehicle & the other end labeled as "sink" should connect to the sink vehicle. If user couldn't connect the V2V gun within 120sec of step4. Remove the Gun completely and repeat from step 4
6. Make sure park-brake/EPB is engaged.
  7. Ensure V2V gun is connected to both vehicles and press the V2X switch of source vehicle within 120sec of step5 to start the 220V AC power supply and to charge the sink vehicle. If user couldn't press V2X switch within 120sec of successful step 5. Remove the Gun completely and repeat from step 4 to initiate the V2V function again.
  8. Check for the telltale indication frequently when the V2V function is in progress to ensure there is no interruption/fault.
  9. V2V function will stop from source ve-

- hicle side, if there is no energy dissipation has happened for 100secs from successful step 7. In this case, remove the gun completely and start from step 4 to reinitiate the V2V function
10. Charging will automatically stop if the source vehicle SOC goes below the user set SOC limit or at 30%. In that case follow the procedure from step 16.
  11. Also monitor the SOC of both vehicles frequently to check if sink vehicle is charged enough/ source vehicle SOC is reached the minimum required SOC level
  12. To stop the V2V charging from source vehicle side, press the V2X switch of source vehicle to disable the 220V AC supply and follow from step 16 after 5sec
  13. To stop the V2V charging from sink vehicle side, press its fascia switch and then ensure to press the V2X switch of source vehicle to stop the AC power supply. & follow step 14
  14. After 5 sec delay press source vehicle fascia switch and then remove both the guns
15. In case V2V charging gets interrupted from source/sink vehicle side due to any fault, Press the Gun unlock fascia switch in both vehicle and completely remove the gun from both side and repeat from step 4. If the issue still remains, Press the Gun unlock fascia of both vehicle and completely remove the gun. After that keep the vehicles in Ignition OFF state for 120 seconds. Then repeat from Step 4.If the charging get interrupted again from vehicle side go to step 16 and contact nearby TAT service station
  16. To remove the gun, Press Fascia switch of both vehicles. Close the V2V charging gun caps to ensure that it is not exposed to mud/metal particle etc.

### DON'TS

1. Don't shift the gear
2. Don't crank source or sink vehicle during V2V charging
3. Don't use un authorized V2V gun

## CHARGING

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4. Don't press the V2X switch of sink vehicle throughout the V2V function
  5. Don't keep the V2V charging gun open at sink vehicle side while pressing the v2x switch in the source vehicle
  6. Don't perform V2V charging in other vehicles which is not recommended by the TPEM ( list to be published later) as source and sink vehicle
  7. Don't keep the V2V gun caps open after the use to ensure it is not exposed to mud/metal particle etc.
  8. Don't start V2V charging function if source Vehicle SOC is lesser than or equal to 30%.
  9. Do not perform V2V charging during rain or in any situation where it might be exposed to water
  10. Don't press V2X switch and fascia switch together to stop the function( keep minimum 5sec delay )
  11. Don't keep both vehicle at far distance where the gun has to stretch maximum to connect between the vehicles.
  12. Don't disengage the park brake in either of the vehicles during the charging.
  13. Do not insert the V2L connector when vehicle is in Crank or EV ready condition.
  14. Don't disassemble or remodel the V2V adaptor
  15. Don't Drop the V2V gun to cause high impact and don't keep heavy objects over the gun
- Vehicle Ignition ON state**
1. Keep both sink (recipient) and source (donor) vehicle nearby and ensure maximum up to 3m distance between the charging inlets of the vehicles.
  2. Turn ON the ignition of both sink (recipient)/source (donor) vehicle. Make sure to keep the vehicles in Ignition ON mode throughout the procedure
  3. Engage the park-break OR EPB of both vehicles.
  4. Remove the caps & connect the V2V gun to the source and sink vehicle. Check the labels on the V2V gun and make sure that the V2Vgun side labeled as "source" should connect to the source vehicle & the other end labeled as "sink" should connect to the sink vehicle.
  5. Ensure V2V gun is connected to both vehicles and press the V2X switch of source vehicle to start the 220V AC power supply and to charge the sink vehicle. ( TBC with VCU team-V2V status if V2X switch enabled in sink vehicle also)
  6. Check telltale indication in instrument cluster of vehicles to ensure V2V charging is on.( check for the HMI)
  7. Check for the telltale indication frequently when the V2V charging is in progress to ensure there is no interruption/fault.
  8. Charging will automatically stop if the source vehicle SOC goes below 30%. In that case follow the procedure from step 14.
  9. Also monitor the SOC of both vehicles frequently to check if sink vehicle is charged enough/ source vehicle SOC is reached the minimum required SOC

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- level
10. If SOC of source vehicle reaches the agreed Limit and to stop the V2V charging from source vehicle side, press the V2X switch of source vehicle to disable the 220V AC supply and follow from step 14 after 5sec
11. If Sink vehicle is charged up to the agreed SOC level and to stop the V2V charging from sink vehicle side, press its fascia switch to stop charging and then ensure to press the V2X switch of source vehicle to stop the AC power supply. & follow step 12
12. After 5 sec delay press source vehicle fascia switch and then remove both the guns & follow step 15
13. In case V2V charging gets interrupted from source/sink vehicle side due to any fault, Press the Gun unlock fascia switch in both vehicle and completely remove the gun from both side while keeping the vehicles in Ignition ON and repeat from step 1. If the issue still remains, Press the Gun unlock fascia switch in both vehicle and completely remove the gun from both side both. After that both vehicle should brought in to ignition OFF state. Keep the vehicles in Ignition OFF state for 30sec. Then repeat from Step 1. If the charging get interrupted again from vehicle side go to step 14 to 15 and contact service station.
14. To remove the gun, Press Fascia switch of both vehicles. Close the V2V adaptor caps to ensure that it is not exposed to mud/metal particle etc.
15. Turn off the Ignition in both vehicles
- DON'TS**
1. Don't switch off the Ignition in source or sink vehicle during V2V charging
  2. Don't crank source or sink vehicle during V2V charging
  3. Don't use un authorized V2V gun
  4. Don't press the V2X switch of sink vehicle throughout the sink vehicle charging
  5. Don't keep the V2V charging gun open at sink vehicle side while pressing the v2x switch in the source vehicle after connecting the source side gun.
6. Don't perform V2V charging in other vehicles which is not recommended by the TPEM ( list to be published later) as source and sink vehicle
7. Don't keep the V2V gun caps open after the use to ensure it is not exposed to mud/metal particle etc.
8. Don't start V2V charging function if source Vehicle SOC is lesser than or equal to 30%.
9. Do not perform V2V charging during rain or in any situation where it might be exposed to water
10. Don't press V2X switch and fascia switch together to stop the function(keep minimum 5sec delay )
11. Don't keep both vehicle at far distance where the gun has to stretch maximum to connect between the vehicles.
12. Don't disengage the park brake in either of the vehicles during the charging.
13. Don't insert the V2L connector when vehicle is in Crank or EV ready condi-

## CHARGING

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tion.

### Vehicle To Load Charging (V2L)



#### Vehicle Ignition OFF state

1. User can decide the discharge SOC limit of the vehicle and can preset the SOC limit in infotainment before starting the V2L function.
  - Since infotainment system won't be awake in Ignition OFF state, Limit can be set only in ignition ON or Crank ON condition in the previous cycle.

- Discharge SOC Limit cannot be changed during the V2L function.
  - Incase if no limit is set by the user, 30% SOC will be consider as default discharge SOC limit
2. Make sure to keep the vehicle and the V2L adaptor in dry environment/in shade
  3. If the vehicle is in OFF state, Open/close the door or If vehicle is in locked state Press RKE unlock button and open the door to wake up the vehicle control unit. Once wakes up, Vehicle control unit will remains in wakeup state for 120sec
  4. Remove the V2L adaptor caps & connect the V2L adaptor gun to the source vehicle within in 120sec of step 3.
  5. Make sure park-brake/EPB is engaged.
  6. If user couldn't connect the V2L gun within 120sec of step 3, then remove the Gun completely and repeat from step 3
  7. Connect external load to the V2L adaptor 3pin socket. Make sure that Electrical loads are healthy/in good condition and ensure the relevant cables and plugs of loads are connected properly.
  - When using multiple loads make sure Total power consumption of the loads should be lesser than 3.3Kw or total current demand of loads should be lesser than 16A.
  - If the electric appliances demand exceed the maximum power and current capacity that the vehicle can provide, V2L function will stop from vehicle side
  - It is recommended to use home appliances with Power factor greater than 0.85
  - If multiple loads are connected on extension box, it is recommended to use extension box with MCB (16A) & with M Type plug and socket. The MCB switch needs to be in switched off/ turned off condition
  8. Press V2X switch with in 120sec of

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- step 4 to start 220V AC power supply from vehicle. If user couldn't press V2X switch within 120sec of step 3. Remove the Gun completely and repeat from step 3 to initiate the V2L function.
9. Ensure safety precaution against the live 220VAC voltage in the V2L adaptor
  10. Turn on the loads.
  11. Check telltale indication in instrument cluster to ensure V2L discharging is initiated/in progress
  12. Check for the telltale indication frequently when the V2L discharge function is in progress to ensure there is no interruption/fault.
  13. V2L function will stop if there is no energy dissipation has happened/if there is no load is connected for 100secs from successful step 8. In this case, remove the gun completely and start from step 3 to reinitiate the V2L discharge function
  14. To stop the V2L discharge function, First switch off the external loads and then press V2X switch second time to

disable the 220V AC power supply and Go to step 17.

15. V2L function will automatically stops if the source vehicle SOC goes below the user set value or at the default value of 30%. In that case go to step 17
16. In case V2L function gets interrupted from vehicle side due to any fault, Press the Gun unlock fascia switch in vehicle and completely remove the gun repeat from step 3.
  - If the issue still remains, Press the Gun unlock fascia and completely remove the gun. Keep the vehicles in Ignition OFF state for 120sec. Then repeat from Step 3.
  - If the charging get interrupted again from vehicle side go to step 17 and vehicle along with the V2L adaptor need to be taken to nearby TATA service station
17. Switch off and remove the Connected Loads then Press Fascia switch and remove the V2L adaptor. (Close the V2L adaptor caps to ensure it is not ex-

posed to mud/metal particle etc).

### DON'TS

1. Don't crank the vehicle during V2L charging
2. Don't use unauthorized V2L adaptor
3. Don't use High power home appliances like air conditioner, dryer having power consumption more than 3.3Kw and current requirement more than 16A
4. Don't hang the appliances on the V2L adaptor
5. Don't use appliances or extension box which is not having national safety certificate. Refer each device manual to know the usage and precautions to be taken.
6. Don't use any unhealthy or improper electrical connection/ apparatus for V2L discharge function like loads with insulation failure, short circuit, improper 3pin/2pin plug, open cables without plug)
7. Don't allow the appliances/extension box cables to twist or overlapped.

## CHARGING

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8. Don't use the appliances if its cable sheath is damaged.
9. Don't use the electric devices which require continues power supply like medical equipment. since AC power supply may get interrupt based on the vehicle condition
10. Don't use the load which required high power at the starting/initial operation
11. Don't use the loads which is sensitive to Inverter type AC supply
12. Don't touch V2L adaptor socket side during V2L function
13. Don't keep the V2L adaptor caps open after the use to ensure it is not exposed to mud/metal particle etc.
14. Don't start V2L charging function if Vehicle SoC is lesser than 30%.
15. Don't perform V2L charging during rain or in any situation where it might be exposed to water
16. Don't press V2X switch and fascia switch together to stop the function.( keep minimum 5sec delay)
17. Don't disengage the park brake during

V2L charging

18. Don't mishandle the V2L adaptor.
19. Do not insert the V2L connector when vehicle is in Crank or EV ready condition.
20. Don't shift the gear
21. Don't disassemble or remodel the V2L adaptor
22. Don't Drop the V2L adaptor to cause high impact and don't keep heavy objects over the adaptor

### Vehicle Ignition ON state

1. Turn ON the source vehicle ignition. Make sure to keep the vehicle in Ignition ON mode throughout the procedure.
2. Make sure to engage the park-brake/EPB.
3. Make sure to keep the vehicle and the V2L adaptor in dry environment/in shade.
4. Remove the caps & connect the V2L adaptor gun to the source vehicle.
5. Connect external load to the V2L

adaptor 3pin socket.

- Make sure that Electrical loads to be used for V2L charging are healthy/in good condition and ensure the relevant cables and plugs of loads are connected properly.
- Total power consumption of the loads used should be lesser than 3.3Kw and it is recommended to use the loads with Power factor greater than 0.85
- In case of multiple loads, it is recommended to use extension box with MCB (16A) & with M Type plug and socket.
- 6. Press the V2X switch to start the 220V AC power supply.( check for the HMI).
- 7. Ensure safety precaution against the live 220VAC voltage in the V2L adaptor
- 8. Turn on the loads.
- 9. Check telltale indication in instrument cluster to ensure discharging is initiated/in progress.( check for the HMI)
- 10. Check for the telltale indication fre-

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- quently when the V2L is in progress to ensure there is no interruption/fault.
11. To stop the V2L charging, first switch off the External loads and then Press V2X switch in the vehicle to stop the AC power supply and Go to step 14 .( check for the HMI)
12. V2L charging function will automatically stops if the source vehicle SOC goes below 30%(Configurable). In that case go to step 14.( check for the HMI & telltale indication on instrument cluster)
13. In case V2L charging gets interrupted from vehicle side due to any fault, , Press the Gun unlock fascia switch in vehicle and completely remove the gun while keeping the vehicles in Ignition ON and repeat from step 1
- If the issue still remains, Press the Gun unlock fascia and completely remove the gun. After that vehicle should brought in to ignition OFF state. Keep the vehicles in Ignition OFF state for 30sec. Then repeat from Step 1.
- If the charging get interrupted again from vehicle side go to step 14 to 15 and vehicle along with the V2L adaptor need to be taken to service station.
14. Switch off the Connected Loads then Press Fascia switch and remove the V2L adaptor and connected loads. (Close the V2L adaptor caps to ensure it is not exposed to mud/metal particle etc.)
15. Turn OFF the vehicle ignition.
- DON'T'S**
- Don't switch off the vehicle Ignition during V2L charging
  - Don't crank the vehicle during V2L charging
  - Don't use unauthorized V2L adaptor
  - Don't use any unhealthy or improper electrical connection/ apparatus for V2L charging. ( e.g.: loads having power consumption>3.3Kw ,insulation failure, short circuit, improper 3pin/2pin plug, open cables without plug)
  - Don't keep the V2L adaptor caps open after the use to ensure it is not exposed to mud/metal particle etc.
6. Don't start V2L charging function if Vehicle SOC is lesser than 30%.
7. Don't perform V2L charging during rain or in any situation where it might be exposed to water
8. Don't press V2X switch and fascia switch together to stop the function.( keep minimum 5sec delay)
9. Don't disengage the park brake during V2L charging
10. Don't mishandle the V2L adaptor.
11. Do not insert the V2L connector when vehicle is in Crank or EV ready condition.