Electric Vehicle System Overview

Electric Vehicle

An electric vehicle is driven using a battery and an electric motor. While general vehicles use an internal combustion engine and gasoline as fuel, electric vehicles use electrical energy that is charged inside the high voltage battery. As a result, electric vehicles are eco-friendly in that they do not require fuel and do not emit exhaust gases.

Characteristics of Electric Vehicles

1. It is driven using the electrical energy that is charged inside the high voltage battery. This method prevents air pollution since fuel, like gasoline, is not required, negating the emission of exhaust gases.
2. A high performance motor is used in the vehicle as well. Compared to standard, internal combustion engine vehicles, engine noise and vibrations are much more minimal when driving.
3. When decelerating or driving downhill, regenerative braking is utilized to charge the high voltage battery. This minimizes energy loss and increases the distance to empty.
4. When the battery charge is not sufficient, AC charge, DC charge and trickle charge are available. (Refer to “Charge Types for Electric Vehicle” for details.)

Information

What does regenerative braking do?

It uses an electric motor when decelerating and braking and transforms kinetic energy to electrical energy in order to charge the high voltage battery. (Torque is applied in the opposite direction when decelerating to generate braking force and electric energy.)

Battery Information

- The vehicle is composed of a high voltage battery that drives the motor and air-conditioner, and an auxiliary battery (12 V) that drives the lamps, wipers, and audio system.
- The auxiliary battery is automatically charged when the vehicle is in the ready ( ) mode or the high voltage battery is being charged.

Main Components of Electric Vehicle

- **On-Board Charger (OBC) :** A device that charges the high voltage battery by converting AC power of the power grid to DC power.
- **Inverter :** Transforms direct current into alternate current to supply power to the motor, and transforms alternate current into direct current to charge the high voltage battery.
- **LDC :** Transforms power from the high voltage battery to low voltage (12 V) to supply power to the vehicle (DC-DC).
- **Motor :** Uses electrical energy stored inside the high voltage battery to drive the vehicle (functions like an engine in a standard vehicle).
- **Reduction gear :** Delivers rotational force of the motor to the tires at appropriate speeds and torque.
- **High voltage battery (lithium-ion polymer) :** Stores and supplies power necessary for the electric vehicle to operate (12 V auxiliary battery provides power to the vehicle features such as lights and wipers).

❊ OBC : On-Board Charger

❊ LDC : Low Voltage DC-DC Converter

⚠ WARNING

- **Do not intentionally remove or disassemble high voltage components and high voltage battery connectors and wires. Also, be careful not to damage high voltage components and the high voltage battery. It may cause serious injury and significantly impact the performance and durability of the vehicle.**
- **When inspection and maintenance is required for high voltage components and the high voltage battery, we recommend that you contact an authorized HYUNDAI dealer.**

High Voltage Battery (lithium-ion polymer)

- The charge amount of the high voltage battery may gradually decrease when the vehicle is not driving.
- The battery capacity of the high voltage battery may decrease when the vehicle is stored in high/low temperatures.
- Distance to empty may vary depending on the driving conditions, even if the charge amount is the same. The high voltage battery may expend more energy when driving at high-speed or uphill. These actions may reduce the distance to empty.
- The high voltage battery is used when using the air-conditioner / heater. This may reduce the distance to empty. Make sure to set moderate temperatures when using the air-conditioner/heater.
- Natural degradation may occur with the high voltage battery depending on the number of years the vehicle is used. This may reduce the distance to empty.
- When the charge capacity and distance to empty keep falling, we recommend that you contact an authorized HYUNDAI dealer for inspection and maintenance.
- If the vehicle will not be in use for an extended period of time, charge the high voltage battery once every three months to prevent it from discharging. Also, if the charge amount is not enough, immediately charge to full and store the vehicle.
- AC charge is recommended to keep the high voltage battery in optimal condition.

  If the high voltage battery charge amount is below 20%, you can keep the high voltage battery performance in optimal condition if you charge the high voltage battery to 100%. (Once a month or more is recommended.)

⚠ CAUTION

- **Make sure to use a designated charger when charging the high voltage battery. Using different types of chargers may have a serious impact on vehicle durability.**
- **Make sure that the high voltage battery charger gauge does not reach "L (Low) or 0". If the vehicle is kept at "L (Low) or 0" for a long period, it may damage the high voltage battery and the high voltage battery may have to be replaced depending on the level of degradation.**
- **If the vehicle is in a collision, we recommend that you contact an authorized HYUNDAI dealer to inspect whether the high voltage battery is still connected.**

High Voltage Battery Warmer System

The high voltage battery warmer system prevents reduction of battery output when battery temperature is low. If the charging connector is connected, the warmer system automatically operate according to the battery temperature.

Charging time may shorten compare to vehicles without the high voltage battery warmer system. But, electricity charge may increase because of high voltage battery warmer system operation.

⚠ CAUTION

The high voltage battery warmer system operates when the charging connector is connected to the vehicle.

However, the high voltage warmer system may not operate when battery temperature drops below -35°C (-31°F).

EV MODE

If you select the "EV" menu at the home screen you can enter EV mode.

For details on EV Mode, refer to the Multimedia manual that is provided separately.

The EV mode has a total of 5 menus, Nearby station, Energy information, Charge management, ECO driving and EV settings.

❊ EV mode menu may vary depending on which functions are applicable to your vehicle.

Nearby Stations

Select 'EV → Map → Charging stations' on the screen. Stations around the current location are searched. Select a station to see detail information of the station.

Energy Information

Select 'EV → Energy information' on the screen.

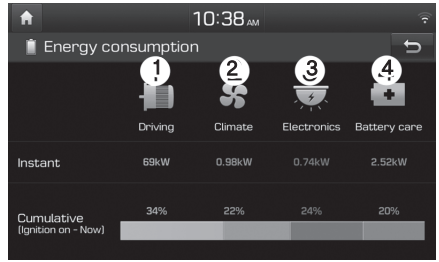
You can check battery information and energy consumption.

Battery information

You can check the reachable range, total battery power remaining, and expected charging time for each charge type.

- The distance to empty is calculated based on the real-time fuel efficiency while driving. The distance may change if the driving pattern changes.
- The distance to empty may vary according to the change of the driving pattern even if the same target battery charge level is set.

Energy consumption



You can check the current energy consumption for each system of the vehicle.

① 'Driving' shows the total power and energy consumption of the driving motor's driving energy and regenerative energy.

② 'Climate' shows the power and energy consumption which are used by the heater or air conditioner.

③ 'Electronics' shows the power and energy consumption which are used by the vehicle systems including the cluster, infotainment system (speaker and navigation), headlamp, vehicle control unit, etc.

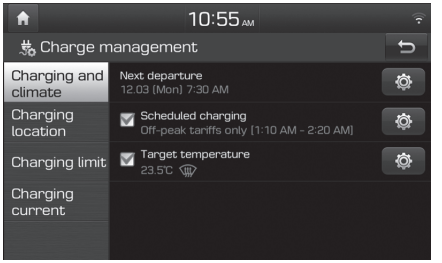
④ ‘Battery care’ shows the momentary power and energy consumption which are used when:

- Operating the winter mode to increase the battery temperature during winter to improve the driving performance.
- Cooling down the battery temperature during summer to prevent over temperature of the battery.

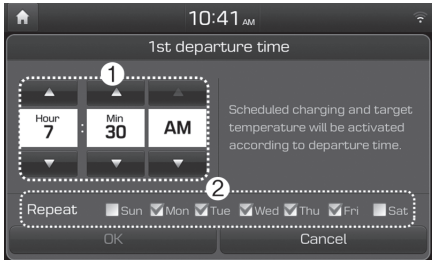
Charge Management

Select ‘EV → Charge management’ on the screen. You can set the date and time of when to charge the battery, climate control temperature, location-based charging options and other various functions.

Charging and climate

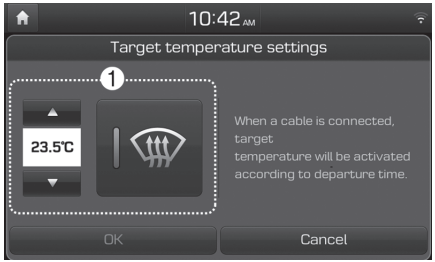


You can set the date and time of when to charge the battery and the climate control temperature. Also, you may select the time to start charging using the off-peak time setting.



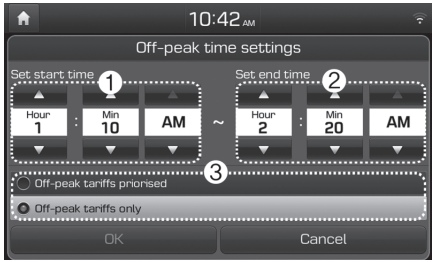
Departure time

1. Set anticipated departure time for scheduled charging and target temperature.
2. Select the day of the week to activate scheduled charging and target temperature for departure time.



Target temperature settings

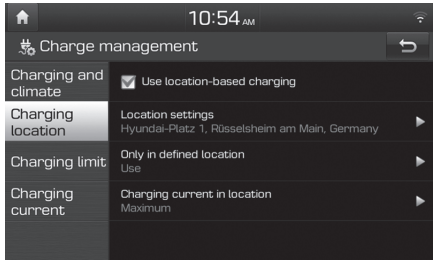
1. Set target temperature.



Off-peak time settings

1. If selected, starts charging only on the designated off-peak time If deselected, starts charging only on the scheduled time
2. Set the most inexpensive time to complete charging
3. • Off-peak tariffs priorised: If selected, starts charging at off-peak time (may keep on charging pass off-peak time to charge 100%)
   • Off-peak tariffs only: If selected, charges only within off-peak time (may not charge 100%)

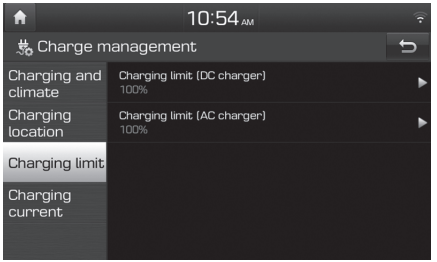
Charging location

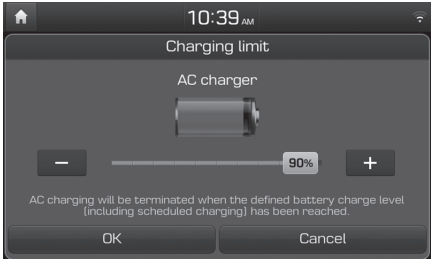


If location-based charging is selected, scheduled charging and target temperature will be activated at the location the driver has set. Also, the charging current can be selected when charged with AC charger.

❊ Scheduled charging function must be turned on to activate when location-based charging is selected.

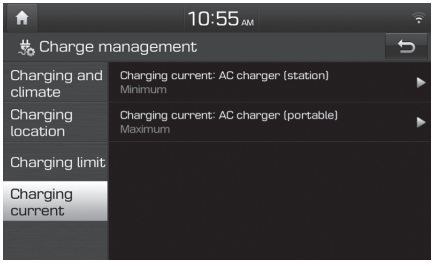
Charging limit





- The target battery charge level can be selected when charged with AC charger or DC charger
- The charging level can be changed by 10%.
- If the target battery charge level is lower than the high voltage battery charge level, the battery will not be charged.

Charging current

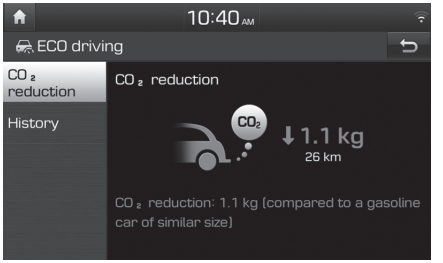


- You can adjust the charging current for an AC charger. Select an appropriate charging current for the charger used.
- If the charging process does not start or abruptly stops in the middle, re-select another proper current and re-try charging the vehicle.
- Charging time varies depending on which charging current is selected

ECO Driving

Select 'EV → ECO Driving' on the screen. You can check the CO2 reduction and ECO driving history.

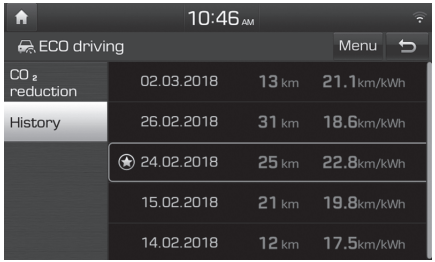
CO2 reduction



You can check CO2 reduction information compared to the gasoline vehicle of similar size.

EV MODE (CONT.)

Driving history



You can check the date, driving distance and the energy efficient rating of the previous driving trips. The date with the highest energy efficient driving is marked with a star shaped icon.

EV Settings

Select 'EV → ECO settings' on the screen. You can set the Winter mode, Warning and EV route functions.

Winter mode

You can select or deselect the Winter mode.

The Winter mode is efficient during the winter time when the high voltage battery temperature is low.

This mode is recommended to improve driving and DC charging performances during winter by raising the battery temperature to an adequate level.

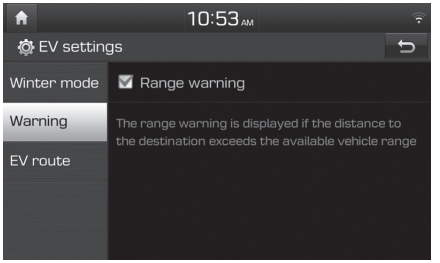
However, the driving distance may be reduced as the energy is required to increase battery temperature.

Also, if the battery temperature is low during driving or when scheduled air conditioner/heater is activated, this mode is operated to improve driving performance.

However, the mode is not operated to ensure driving distance when the battery level is low.

✻ This mode is available for the vehicles equipped with the battery heater.

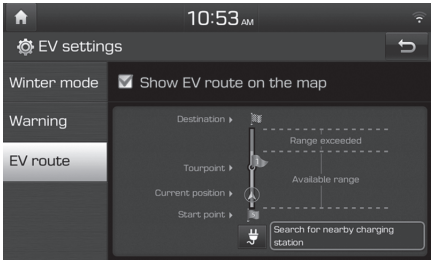
Warning



You can select or deselect the Range Warning.

- **Range Warning** : If the destination set in the navigation cannot be reached with the remaining battery, a warning message is displayed.

EV route



If EV route is selected, EV related information will show on the route. You can check the distance the vehicle can be driven with the current battery amount along the route. An icon is also indicated so the driver is able to search for nearby charging stations.

CHARGE TYPES FOR ELECTRIC VEHICLE

Charging Information

- **AC Charge :**

  The electric vehicle is charged by plugging into a AC charger installed in your home or a public charging station. (For further details, refer to the 'AC Charge'.)

- **DC Charge :**

  You can charge at high speeds at public charging stations. Refer to the respective company's manual that is provided for each DC charger type.

  Battery performance and durability can deteriorate if the DC charger is used constantly.

  Use of DC charge should be minimized in order to help prolong high voltage battery life.

- **Trickle Charge :**

  The Electric vehicle can be charged by using household electricity. The electrical outlet in your home must comply with regulations and can safely accommodate the Voltage / Current (Amps) / Power (Watts) ratings specified on the portable charge.

Charging Time Information

Charging type		Economical battery type	Extended battery type
AC charge		Takes approx. 6 hours 10 minutes at room temperature when charged to 100%.	Takes approx. 9 hours 35 minutes at room temperature when charged to 100%.
DC charge	100 kW charger	Takes about 54 minutes at room temperature when charged to 80%. Can be charged to 100%.	Takes about 54 minutes at room temperature when charged to 80%. Can be charged to 100%.
	50 kW charger	Takes about 57 minutes at room temperature when charged to 80%. Can be charged to 100%.	Takes about 75 minutes at room temperature when charged to 80%. Can be charged to 100%.
Trickle charge		Takes approx. 19 hours at room temperature when charged to 100%.	Takes approx. 31 hours at room temperature when charged to 100%.

Information

Depending on the condition and durability of the high voltage battery, charger specifications, and ambient temperature, the time required for charging the high voltage battery may vary.

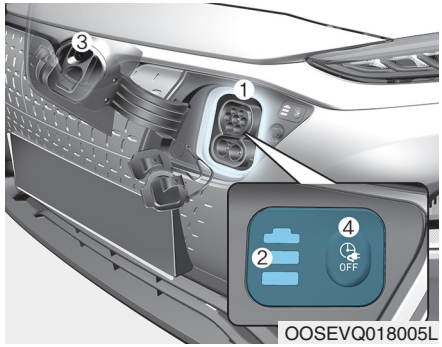
Charging Types

Category	Charging inlet (Vehicle)	Charging connector	Charging outlet	How to charge
AC Charge	 OOSEVQ018003L	 OAEEQ016078L	 OLFP0Q5007K	Use AC charger installed in homes or public charging station
DC Charge	 OOSEVQ018004L	 OAEEQ016022L	 OAEEQ016023	Use the DC charger at public charging station
Trickle Charge	 OOSEVQ018003L	 OAEEQ016078L	 OAEEQ016024	Use household current

- **Depending on the condition and durability of the high voltage battery, charger specifications, and ambient temperature, the time required for charging the high voltage battery may vary.**
- **Actual charger image and charging method may vary in accordance with the charger manufacturer.**

CHARGE INDICATOR LAMP FOR ELECTRIC VEHICLE

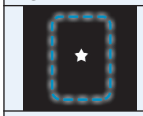
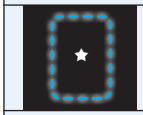
Charging Status



OOSEVQ018005L

When charging the high voltage battery, the charge level can be checked from outside the vehicle.

① Charging status

Lamp status	Details
 white ON	Charging door open (charging standby)
 green ON	Charging
 green blink	Scheduled charging set
 red blink	Charging error (charging system malfunction)
 yellow ON	Charging 12 V auxiliary battery or scheduled air conditioner/heater is operating

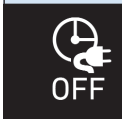
② Charging level

Lamp status		Details
Before charging (illuminate)	While charging (blink)	
		High voltage battery level very low
yellow	yellow	
		High voltage battery level low
green	green	
		High voltage battery level middle
green	green	
		High voltage battery level high
green	green	

③ High voltage warning

Lamp status	Details
	High voltage electricity flowing (Charging 12 V auxiliary battery or scheduled air conditioner/heater is operating)

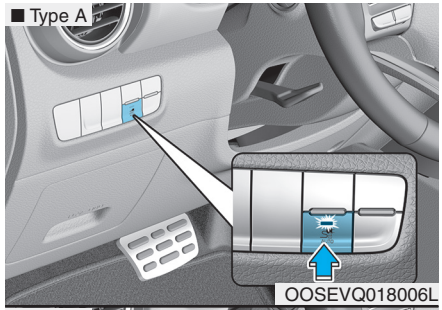
④ Immediate charging

Lamp status	Details
	Scheduled charging deactivation button Press to charge immediately.

CHARGING CONNECTOR LOCK

Charging Connector AUTO/ LOCK Mode

■ Type A



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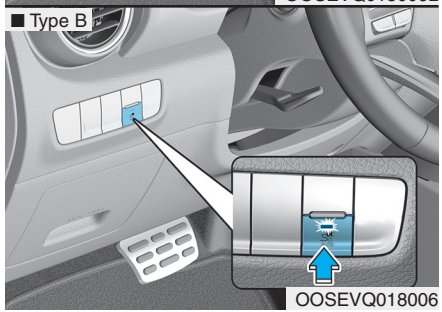
■ Type B



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You may select when the charging connector can be locked and unlocked in the charging inlet.

Press the AUTO button to change between AUTO mode and LOCK mode.

Information

The charging inlet is locked during the DC charge regardless of AUTO/LOCK mode. After charging is complete the locked charging inlet is unlocked.

When the Charging Connector Is Locked

	LOCK	AUTO
Before charging	O	X
While charging	O	O
Finished charging	O	X

- LOCK mode (button indicator off) :

  The connector locks when the charging connector is plugged into the charging inlet. The connector is locked until all doors are unlocked by the driver. This mode can be used to prevent charging cable theft.

  - If the charging connector is unlocked when all doors are unlocked, but the charging cable is not disconnected within 15 seconds, the connector will be automatically locked again.
  - If the charging connector is unlocked when all doors are unlocked, but all doors are locked again, immediately, the connector will be automatically locked again.

- AUTO mode (button indicator on) :

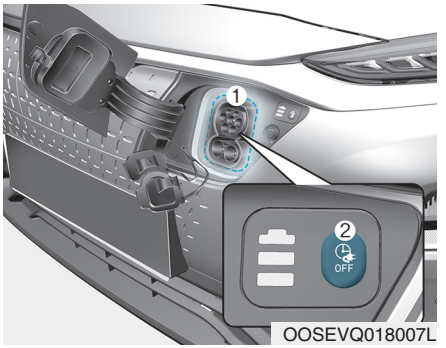
  The connector locks when charging starts. The connector unlocks when charging is complete. This mode can be used when charging in a public charging station.

SCHEDULED CHARGING

Scheduled Charging (if equipped)

- You can set-up a charging schedule for your vehicle using the Audio or Navigation screen or Blue Link application.

  Refer to the Multimedia manual or the Blue Link manual for detailed information about setting scheduled charging.
- Scheduled charging can only be done when using a AC charger or the portable charger (ICCB: In-Cable Control Box).



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- When scheduled charging is set and the AC charger or the portable charger (ICCB: In-Cable Control Box) is connected for charging, the indicator lamp blinks in green (1) for 3 minutes to indicate that scheduled charging is set.
- When scheduled charging is set, charging is not initiated immediately when the AC charger or portable charger (ICCB: In-Cable Control Box) is connected. When immediate charging is required, use the Audio or Navigation screen to deactivate the scheduled charge setting or press schedule charging deactivation button (2) for 3 seconds.
- If you press the scheduled charging deactivation button (2) to immediately charge the battery, charging must be initiated 3 minutes after the charging cable has been connected.

  When you press the scheduled charging deactivation button (2) for immediate charging, the scheduled charge setting is not completely deactivated. If you need to completely deactivate the scheduled charge setting, use the Audio or Navigation screen to finalize the deactivation.

Refer to "AC Charge (Station) or Trickle Charge" for details about connecting the AC charger and the portable charger (ICCB: In-Cable Control Box).

PRECAUTIONS FOR CHARGING ELECTRIC VEHICLE

Charging Precautions

■ AC Charger

OLFP0Q5007K

■ DC Charger

OAEEQ016023

Actual charger image and charging method may vary in accordance with the charger manufacturer.

⚠ WARNING

- **Electromagnetic waves that are generated from the charger can seriously impact medical electric devices such as an implantable cardiac pacemaker.**

  When using medical electric devices such as an implantable cardiac pacemaker, make sure to ask the medical team and manufacturer whether charging your electric vehicle will impact the operation of the medical electric devices such as an implantable cardiac pacemaker.
- **Check to make sure there is no water or dust on the charging cable connector and plug before connecting to the charger and charging inlet. Connecting while there is water or dust on the charging cable connector and plug may cause a fire or electric shock.**

⚠ WARNING

- **Be careful not to touch the charging connector, charging plug, and the charging inlet when connecting the cable to the charger and the charging inlet on the vehicle.**
- **Comply with the following in order to prevent electrical shock when charging:**
  - **Use a waterproof charger.**
  - **Be careful when touching the charging connector and charging plug with your hands wet, or when standing in water or snow while connecting the charging cable.**
  - **Be careful when there is lightning.**
  - **Be careful when the charging connector and plug is wet.**

⚠ WARNING

- Immediately stop charging when you find abnormal symptoms (odor, smoke).
- Replace the charging cable if the cable coating is damaged to prevent electrical shock.
- When connecting or removing the charging cable, make sure to hold the charging connector handle and charging plug.

  If you pull the cable itself (without using the handle), the internal wires may disconnect or get damaged. This may lead to electric shock or fire.

⚠ CAUTION

- Always keep the charging connector and charging plug in clean and dry condition. Be sure to keep the charging cable in a condition where there is no water or moisture.
- Make sure to use the designated charger for charging the electric vehicle. Using any other charger may cause failure.
- Before charging the battery, turn the vehicle OFF.
- When the vehicle is switched OFF while charging, the cooling fan inside the motor compartment may automatically operate. Do not touch the cooling fan while charging.
- Be careful not to drop the charging connector. The charging connector can be damaged.

AC Charge

■ AC Charger

OLFP0Q5007K

Actual charger image and charging method may vary in accordance with the charger manufacturer.

How to Connect AC Charger

1. Depress the brake pedal and apply the parking brake.
2. Turn OFF all switches, shift to P (Park), and turn OFF the vehicle.

   If charging is initiated without the gear in P (Park), the charging will start after the gear is automatically shifted to P (Park).

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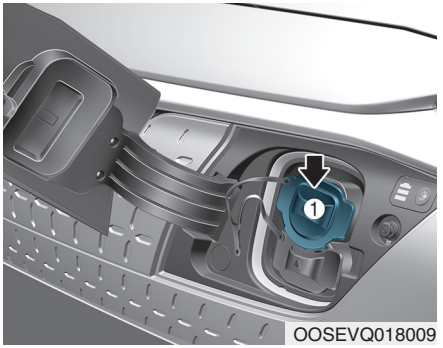
3. Push the charging door where the icon is located to open. The charging door opens only when the door is unlocked.

Information

If you cannot open the charging door due to freezing weather, tap lightly or remove any ice near the charging door. Do not try to forcibly open the charging door.



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4. Remove the charging inlet cover (1).
5. Check if there is dust on the charging connector and charging inlet.
6. Hold the charging connector handle and connect it to the vehicle charging inlet. Push the connector all the way in. If the charging connector and charging terminal are not connected properly, this may cause a fire.

Information

Charging connector AUTO/LOCK mode

The charging connector is locked in the inlet at a different period according to which mode is selected.

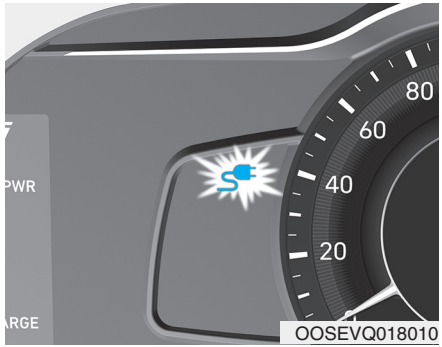
- **LOCK mode : The connector locks when the charging connector is plugged into the charging inlet.**
- **AUTO mode : The connector locks when charging starts.**

For more details, refer to "Charging Connector AUTO/ LOCK Mode" in this chapter.

■ AC Charger


OLFP0Q5007K

7. Connect the charging plug to the electric outlet at a AC charging station to start charging.



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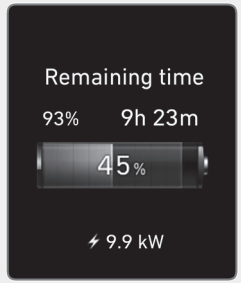
8. Check if the charging indicator light of the high voltage battery in the instrument cluster is turned ON. Charging is not done when the charging indicator lamp is OFF.

   When the charging connector and charging plug are not connected properly, reconnect the charging cable to charge.

Information

- **During AC charging, the radio reception may be bad.**
- **During charging, the gear cannot be shifted from P (Park) to any other gear.**



OOSEV048133L

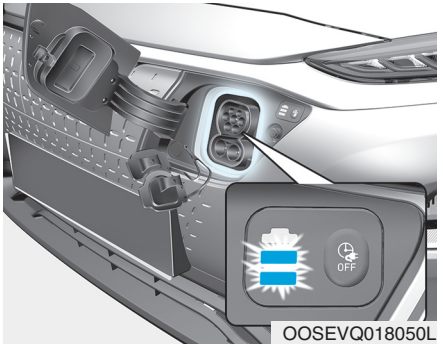
9. After charging has started, the estimated charging time is displayed on the instrument cluster for about 1 minute.

   If you open the driver seat door while charging, the estimated charging time is also displayed on the instrument cluster for about 1 minute. When scheduled charging or scheduled air conditioner/heater is set, the estimated charging time is displayed as "--" .

Information

Depending on the condition and durability of the high voltage battery, charger specifications, and ambient temperature, the time required for charging the battery may vary.

Checking Charging Status



When charging the high voltage battery, the charge level can be checked from outside the vehicle.

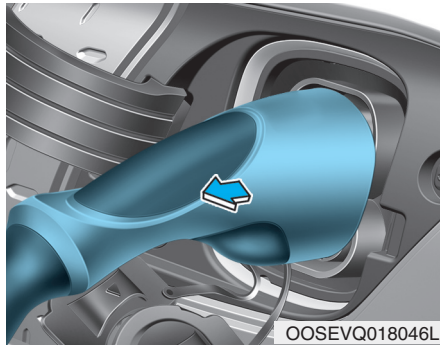
Lamp status		Details
Before charging (illuminate)	While charging (blink)	
 yellow	 yellow	High voltage battery level very low
 green	 green	High voltage battery level low
 green	 green	High voltage battery level middle
 green	 green	High voltage battery level high

How to Disconnect AC Charger

■ AC Charger

OLFP0Q5007K

1. When charging is complete, remove the charging plug from the electrical outlet of the AC charging station.



OOSEVQ018046L

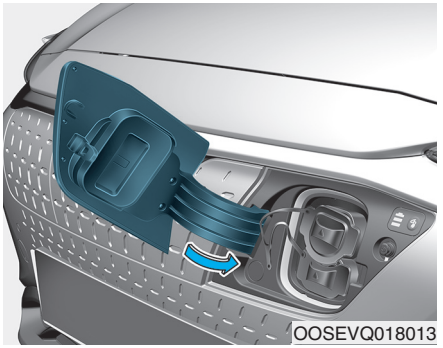
2. Hold the charging connector handle and pull it out.

Information

To prevent charging cable theft, the charging connector cannot be disconnected from the inlet when the doors are locked. Unlock all doors to disconnect the charging connector from the inlet.

However, if the vehicle is in the charging connector AUTO mode, the charging connector automatically unlocks from the inlet when charging is completed.

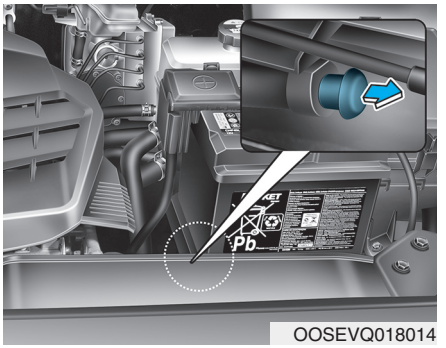
For more details, refer to "Charging Connector AUTO/ LOCK Mode" in this chapter.



OOSEVQ018013

3. Make sure to install the charging inlet cover.
4. Make sure to completely close the charging door.

Unlock Charging Connector in Emergency



OOSEVQ018014

If the charging connector does not disconnect due to battery discharge and failure of the electric wires, open the hood and slightly pull the emergency cable. The charging connector will then disconnect.

DC Charge

■ DC Charger

OAEEQ016023

You can charge at high speeds at public charging stations. Refer to the respective company's manual that is provided for each DC charger type.

Battery performance and durability can deteriorate if the DC charger is used constantly.

Use of DC charge should be minimized in order to help prolong high voltage battery life.

Actual charger image and charging method may vary in accordance with the charger manufacturer.

Information

If you use a DC charger when the vehicle is already fully charged, some DC chargers will send out an error message. When the vehicle is fully charged, do not charge the vehicle.

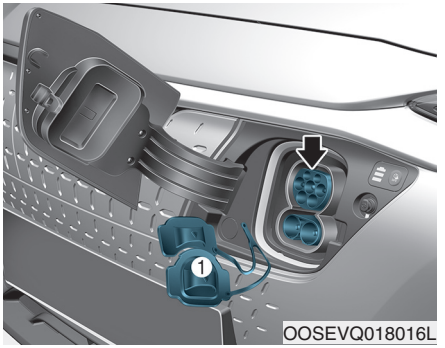
How to Connect DC Charger

1. Depress the brake pedal and apply the parking brake.
2. Turn OFF all switches, shift to P (Park), and turn OFF the vehicle.

3. Push the charging door where the icon is located to open. The charging door opens only when the door is unlocked.

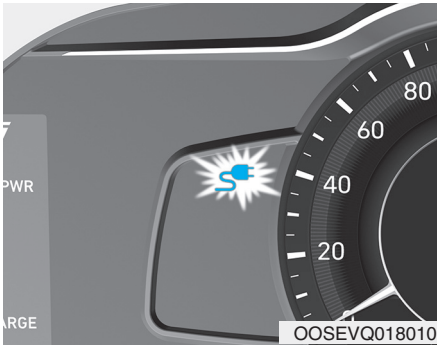
Information

If you cannot open the charging door due to freezing weather, tap lightly or remove any ice near the charging door. Do not try to forcibly open the charging door.



4. Remove the charging inlet cover (1).
5. Check whether there is dust or foreign substances inside the charging connector and charging inlet.
6. Hold the charging connector handle and connect it to the vehicle charging inlet. Push the connector all the way in. If the charging connector and charging terminal are not connected properly, this may cause a fire.

   Refer to the manual for each type of DC charger for how to charge and remove the charger.



7. Check if the charging indicator light of the high voltage battery in the instrument cluster is turned ON. Charging is not done when the charging indicator lamp is OFF.

   When the charging connector is not connected properly, reconnect the charging cable to charge it again.

   During cold weather, DC charging may not be available to prevent high voltage battery degradation.

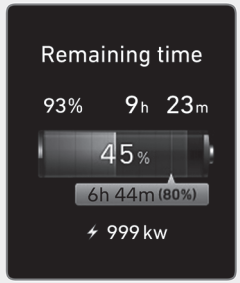
Information

To control the temperature of the high voltage battery while charging, the air conditioner is used to cool down the battery which may generate noise from operation of the air conditioner compressor and cooling fan.

Also, the air conditioner's performance may be degraded during summer due to operation of the cooling system for the high voltage battery.

Information

During charging, the gear cannot be shifted from P (Park) to any other gear.



OOSEV048198L

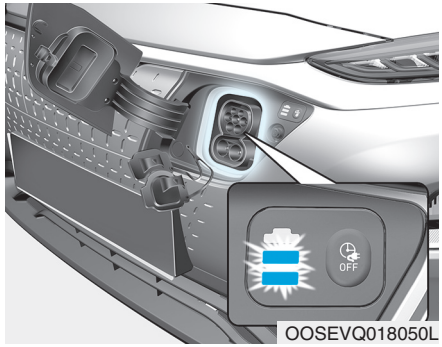
8. After charging has started, the estimated charging time is displayed on the instrument cluster for about 1 minute.

   If you open the driver seat door while charging, the estimated charging time is also displayed on the instrument cluster for about 1 minute.

Information

Depending on the condition and durability of the high voltage battery, charger specifications, and ambient temperature, the time required for charging the battery may vary.

Checking Charging Status



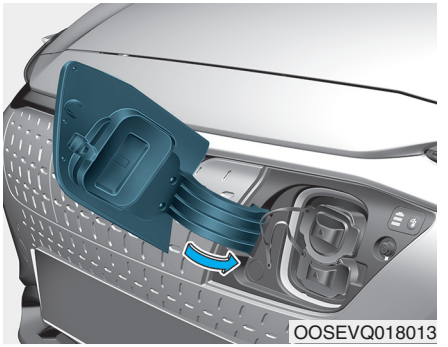
OOSEVQ018050L

When charging the high voltage battery, the charge level can be checked from outside the vehicle.

Lamp status		Details
Before charging (illuminate)	While charging (blink)	
 yellow	 yellow	High voltage battery level very low
 green	 green	High voltage battery level low
 green	 green	High voltage battery level middle
 green	 green	High voltage battery level high

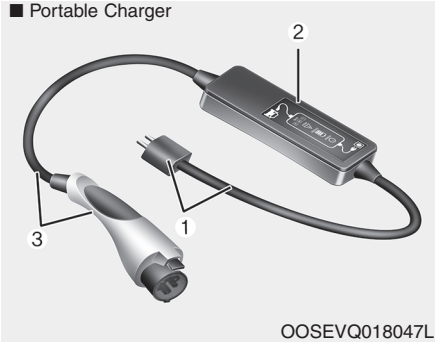
How to Disconnect DC Charger

1. Remove the charging connector when DC charging is completed, or after you stop charging using the DC charger. Refer to each respective DC charger manual for details about how to disconnect the charging connector.



2. Make sure to install the charging inlet cover.
3. Make sure to completely close the charging door.

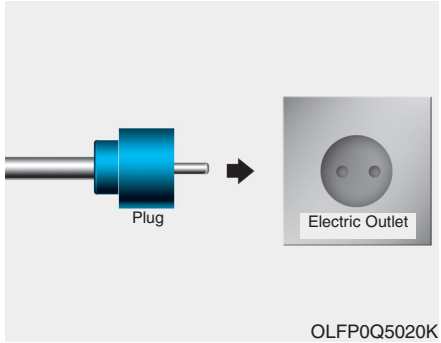
Trickle Charge



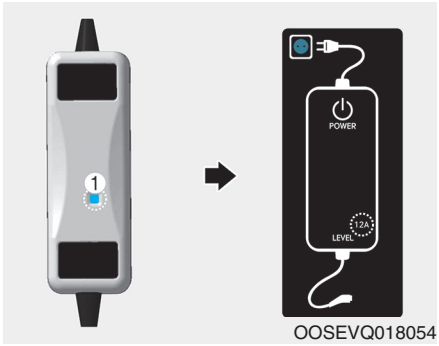
(1) Code and Plug (Code set)
(2) Control Box
(3) Charging Cable and Charging Connector

Trickle Charge can be used when AC Charge or DC Charge is not available by using household electricity.

How to Set the Charge Level of the Portable Charger



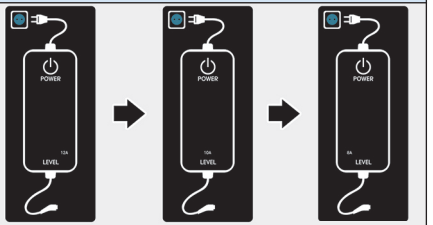
1. Check the rated current of the electric outlet prior to connecting the plug to the outlet.
2. Connect the plug to a household electric outlet.
3. Check the display window on the control box.



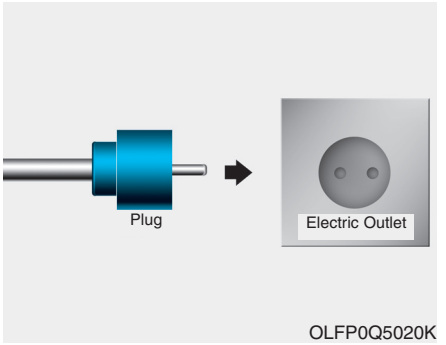
4. Press the button (1) on the back of the control box for more than 1 second to adjust the charge level. (Refer to charging cable type and example for setting the charge level.)
5. The charge level on the display window of the control box changes every time you press the button (1).
6. When setting the charge level is complete, start charging according to the trickle charge procedure.

❉ Example for setting the ICCB charge level

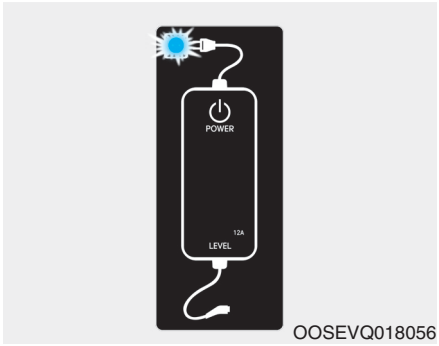
The example is only for reference and may vary according to the surrounding environment.

Outlet current	ICCB charge level	Control box display window
14-16A	12A	 OOSEVQ018055
13-12A	10A	
11-10A	8A	
9-8A	6A	

How to Connect Portable Charger (ICCB: In-Cable Control Box)



1. Connect the plug to a household electric outlet.



OOSEVQ018056

2. Check if the power lamp (green) illuminates on the control box.
3. Depress the brake pedal and apply the parking brake.
4. Turn OFF all switches, shift to P (Park), and turn OFF the vehicle.

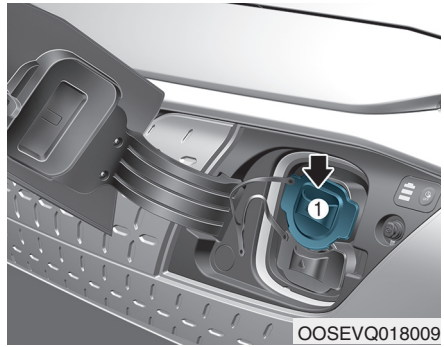
   If charging is initiated without the gear in P (Park), the charging will start after the gear is automatically shifted to P (Park).


OOSEVQ018008L

5. Push the charging door where the icon is located to open. The charging door opens only when the door is unlocked.

Information

If you cannot open the charging door due to freezing weather, tap lightly or remove any ice near the charging door. Do not try to forcibly open the charging door.



OOSEVQ018009

6. Remove the charging inlet cover (1).
7. Check if there is dust on the charging connector and charging inlet.
8. Hold the charging connector handle and connect it to the vehicle charging inlet. Push the connector all the way in. If the charging connector and charging terminal are not connected properly, this may cause a fire.

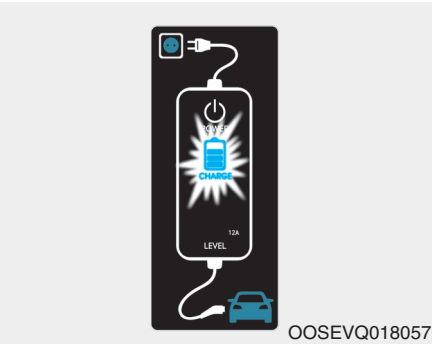
Information

Charging connector AUTO/LOCK mode

The charging connector is locked in the inlet at a different period according to which mode is selected.

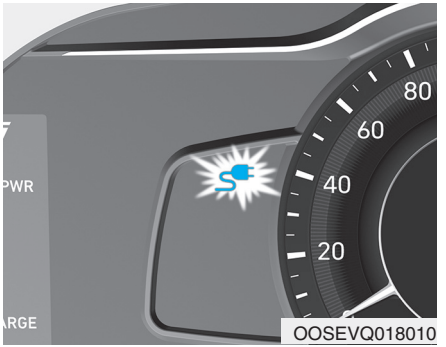
- **LOCK mode : The connector locks when the charging connector is plugged into the charging inlet.**
- **AUTO mode : The connector locks when charging starts.**

For more details, refer to "Charging Connector AUTO/ LOCK Mode" in this chapter.



OOSEVQ018057

9. Charging starts automatically (charging lamp blinks).



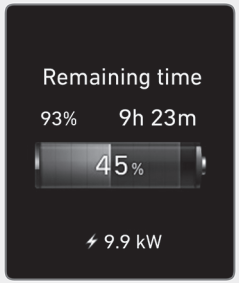
OOSEVQ018010

10. Check if the charging indicator light of the high voltage battery in the instrument cluster is turned ON. Charging is not done when the charging indicator lamp is OFF.

    When the charging connector is not connected properly, reconnect the charging cable to charge it again.

Information

During charging, the gear cannot be shifted from P (Park) to any other gear.



OOSEV048133L

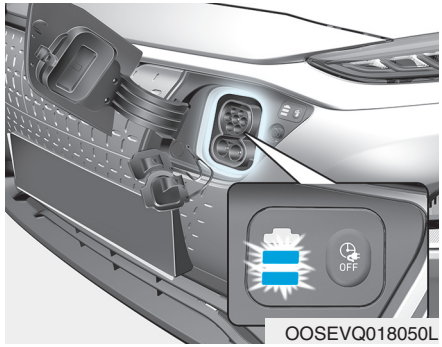
11. After charging has started, the estimated charging time is displayed on the instrument cluster for about 1 minute.

    If you open the driver seat door while charging, the estimated charging time is also displayed on the instrument cluster for about 1 minute. When scheduled charging or scheduled air conditioner/heater is set, the estimated charging time is displayed as "--" .

Information

Depending on the condition and durability of the high voltage battery, charger specifications, and ambient temperature, the time required for charging the battery may vary.

Checking Charging Status



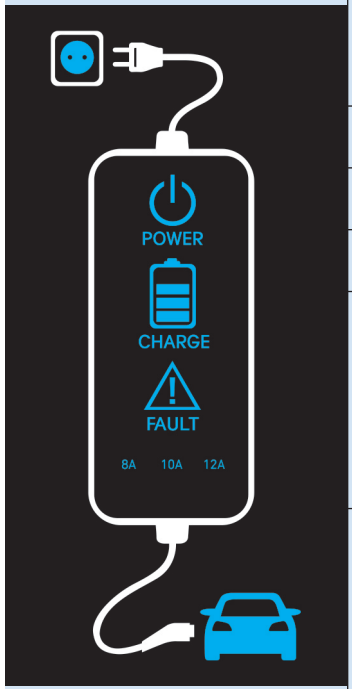
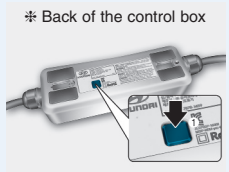
OOSEVQ018050L

When charging the high voltage battery, the charge level can be checked from outside the vehicle.

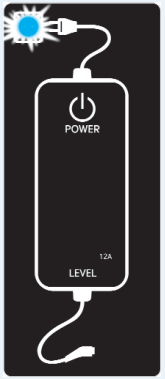
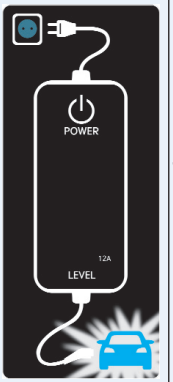
Lamp status		Details
Before charging (illuminate)	While charging (blink)	
		High voltage battery level very low
yellow	yellow	
		High voltage battery level low
green	green	
		High voltage battery level middle
green	green	
		High voltage battery level high
green	green	

CHARGING ELECTRIC VEHICLE (TRICKLE CHARGE) (CONT.)

Charging Status Indicator Lamp for Portable Charger

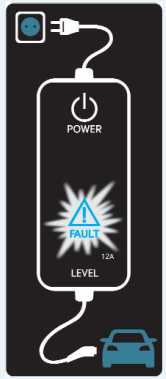
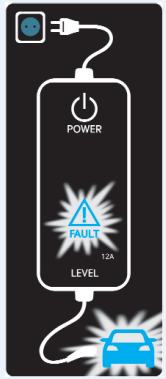
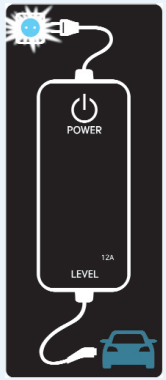
<table>
<tr><th>Control Box</th><th colspan="2">Indicator</th><th colspan="5">Details</th></tr>
<tr><td rowspan="11"> 
</td><td rowspan="2">PLUG</td><td>(Green)</td><td colspan="5">On : Power on
Blink : Plug temperature sensor failure</td></tr>
<tr><td>(Red)</td><td colspan="5">On : Plug high temperature protection
Blink : Plug high temperature warning</td></tr>
<tr><td>POWER</td><td>POWER</td><td colspan="5">On : Power on</td></tr>
<tr><td>CHARGE</td><td>CHARGE</td><td colspan="5">Blink : Charging In power saving mode, only the CHARGE indicator is illuminated.</td></tr>
<tr><td>FAULT</td><td>FAULT</td><td colspan="5">Blink : Charging interrupted</td></tr>
<tr><td rowspan="4">CHARGE LEVEL</td><td></td><td>Type A</td><td>Type B</td><td>Type C</td><td rowspan="4">The charging current changes (3 level) whenever the button (1) is pressed for 1 sec with the charger plugged into an electrical outlet but not the vehicle.
❊ Back of the control box
  </td></tr>
<tr><td>12A</td><td>12 A</td><td>10 A</td><td>8 A</td></tr>
<tr><td>10A</td><td>10 A</td><td>8 A</td><td>7 A</td></tr>
<tr><td>8A</td><td>8 A</td><td>6 A</td><td>6 A</td></tr>
<tr><td rowspan="3">VEHICLE</td><td>(Green)</td><td colspan="5">Charging connector plugged</td></tr>
<tr><td>(Blue)</td><td colspan="5">Charging</td></tr>
<tr><td>(Red)</td><td colspan="5">Blink : Charging impossible</td></tr>
</table>

Charging Status Indicator Lamp for Portable Charger

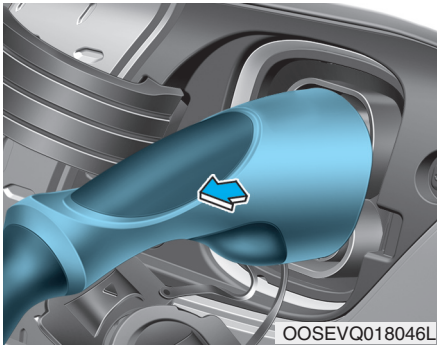
NO	Control Box	Status / Diagnosis / Countermeasure	NO	Control Box	Status / Diagnosis / Countermeasure
1		• Charging connector plugged into vehicle (Green ON) • Plug temperature sensor failure (Green blink) • Plug high temperature protection (Red blink) • Plug high temperature warning (Red ON) We recommend that you contact an authorized HYUNDAI dealer.	2		- Charging connector plugged into vehicle (Green ON)
3		- While charging • Charge indicator (Green blink) • Vehicle indicator (Blue ON)	4		- Before plugging charging connector into vehicle (Red blink) • Abnormal temperature • ICCB (In-Cable Control Box) failure We recommend that you contact an authorized HYUNDAI dealer.

CHARGING ELECTRIC VEHICLE (TRICKLE CHARGE) (CONT.)

Charging Status Indicator Lamp for Portable Charger

NO	Control Box	Status / Diagnosis / Countermeasure	NO	Control Box	Status / Diagnosis / Countermeasure
5		- Plugged into vehicle (Red blink) • Diagnostic device failure • Current leakage • Abnormal temperature We recommend that you contact an authorized HYUNDAI dealer.	6		- After plugging charging connector into vehicle (Red blink) • Communication failure We recommend that you contact an authorized HYUNDAI dealer.
7		• Plug temperature sensor failure (Green blink) • Plug high temperature protection (Red blink) • Plug high temperature warning (Red ON) We recommend that you contact an authorized HYUNDAI dealer.	8		- Power saving mode • 3 minutes after charging starts (Green blink)

How to Disconnect Portable Charger (ICCB: In-Cable Control Box)



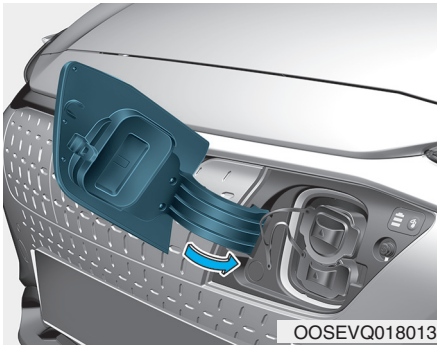
1. Hold the charging connector handle and pull it out.

Information

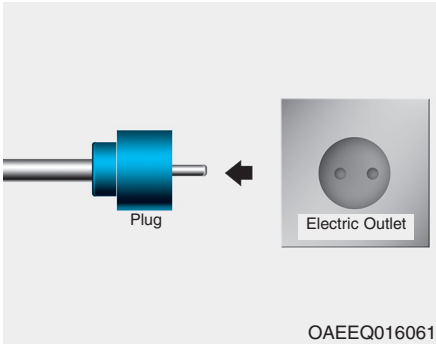
To prevent charging cable theft, the charging connector cannot be disconnected from the inlet when the doors are locked. Unlock all doors to disconnect the charging connector from the inlet.

However, if the vehicle is in the charging connector AUTO mode, the charging connector automatically unlocks from the inlet when charging is completed.

For more details, refer to "Charging Connector AUTO/ LOCK Mode" in this chapter.

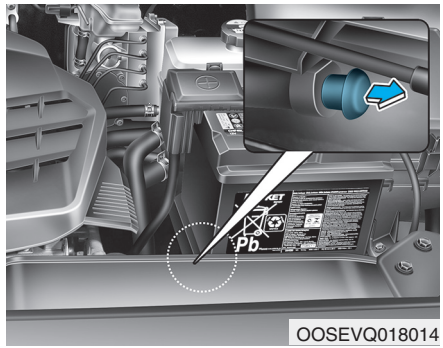


2. Make sure to install the charging inlet cover.
3. Make sure to completely close the charging door.



4. Disconnect the plug from the household electric outlet. Do not pull the cable when disconnecting the plug.
5. Close the protective cover for the charging connector so that foreign material cannot get into the terminal.
6. Put the charging cable inside the cable compartment to protect it.

Unlock Charging Connector in Emergency



If the charging connector does not disconnect due to battery discharge and failure of the electric wires, open the hood and slightly pull the emergency cable. The charging connector will then disconnect .

Precautions for Portable Charger (ICCB: In-Cable Control Box)

- Use the portable charger that is certified by HYUNDAI Motors.
- Do not try to repair, disassemble, or adjust the portable charger.
- Do not use an extension cord or adapter.
- Stop using immediately when failure occurs.
- Do not touch the plug and charging connector with wet hands.
- Do not touch the terminal part of the AC charging connector and the AC charging inlet on the vehicle.
- Do not connect the charging connector to voltage that does not comply with regulations.
- Do not use the portable charger if it is worn out, exposed, or there exists any type of damage on the portable charger.

- If the ICCB case and AC charging connector is damaged, cracked, or the wires are exposed in any way, do not use the portable charger.
- Do not let children operate or touch the portable charger.
- Keep the control box free of water.
- Keep the normal charging connector or plug terminal free of foreign substances.
- Do not step on the cable or cord. Do not pull the cable or cord and do not twist or bend it.
- Do not charge when there is lightning.
- Do not drop the control box or place a heavy object on the control box.
- Do not place an object that can generate high temperatures near the charger when charging.
- Charging with the worn out or damaged household electric outlet can result in a risk of electric shock. If you are in doubt to the household electric outlet condition, have it checked by a licensed electrician.
- Stop using the portable charger immediately if the household electric outlet or any components is overheated or you notice burnt odors.

CHARGING THE ELECTRIC VEHICLE (ABRUPT STOP)

Action to be taken when charging stops abruptly

When the high voltage battery does not charge, check the followings:

1. Check the charging setting for the vehicle. Refer to “Charge Management”, in this chapter
   (e.g. When scheduled charging is set, charging is not initiated immediately when the AC charger or portable charger (ICCB: In-Cable Control Box) is connected.)

2. Check the operation status of AC charger, portable charger and DC charger.
   (Charging Status Indicator Lamp for Portable Charger, refer to “Checking Charging Status” for trickle charge in this chapter.)
   ❊ Actual method for indicating the charging status may vary in accordance with the charger manufacturer.

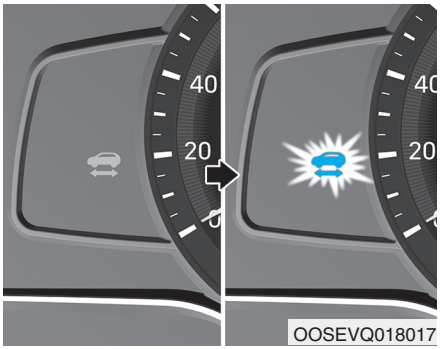
3. When the vehicle does not charge and a warning message appears on the cluster, check the corresponding message. Refer to “LCD Display Messages”, in this chapter.

4. If the vehicle is properly charged when charged with another normally working charger, contact the charger manufacturer.

5. If the vehicle does not charge when charged with another normally working charger, we recommend that you contact an authorized HYUNDAI dealer for inspection.

How to Start the Vehicle

1. Holding the smart key, sit in the driver's seat.
2. Fasten the seat belt before starting the vehicle.
3. Make sure to engage the parking brake.
4. Turn OFF all electrical devices.
5. Make sure to depress and hold the brake pedal.
6. While depressing the brake pedal, shift to P (Park).
7. Depress and hold the brake pedal while pressing the POWER button.



8. When the "" indicator is ON, you can drive the vehicle.

   When the "" indicator is OFF, you cannot drive the vehicle. Start the vehicle again.
9. Depress and hold the brake pedal and shift to the desired position.

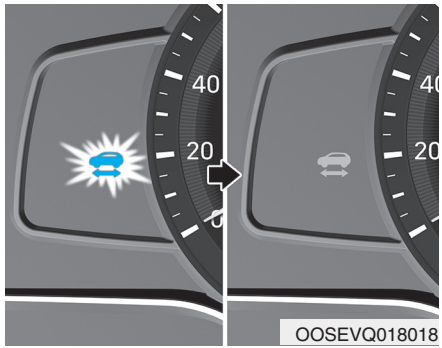
Information

While the charging cable is connected, the gear cannot be shift from P (Park) to any other gear for safety reasons.

10. Release the parking brake and slowly release the brake pedal. Check if the vehicle slowly moves forward, then depress the accelerator pedal.

How to Stop the Vehicle

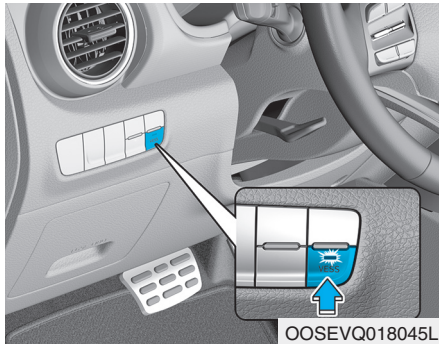
1. Hold down the brake pedal while the vehicle is parked.
2. While depressing the brake pedal, shift to P (Park).
3. While depressing the brake pedal, engage the parking brake.
4. While depressing the brake pedal, press the POWER button and turn off the vehicle.



5. Check if the "" indicator is turned OFF on the instrument cluster.

   When the "" indicator is ON and the gear is in a position other than P (Park), the driver can accidently depress the accelerator pedal, causing the vehicle to move unexpectedly.

Virtual Engine Sound System



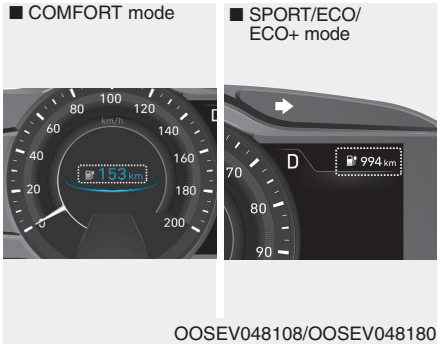
The Virtual Engine Sound System generates engine sound for pedestrians to hear vehicle sound because there is no sound while the Electric Vehicle (EV) is operating.

- The VESS may be turned ON or OFF by pressing the VESS button. (if equipped)
- If the vehicle is in the ready ( ) mode and the gear is not in P (Park),
- When the gear is shifted to R (Reverse), an additional warning sound will be heard.

⚠ CAUTION

- **The vehicle does not generate a sound. Be aware of your driving environment and drive safely.**
- **After you park the vehicle or while you are waiting at a traffic light, check whether there are children or obstacles around the vehicle.**
- **Check if there is something behind the vehicle when driving in reverse. Pedestrians may not hear the sound of the vehicle.**

Distance to Empty



OOSEV048108/OOSEV048180

The distance to empty is displayed differently according to the selected drive mode in the Drive Mode Integrated Control System.

For more information, refer to "Drive Mode Integrated Control System" in chapter 5.

When destination is not set

- On average, a vehicle can drive about 241 km (Economical type) / 400 km (Extended type) mode. Under certain circumstances where the air conditioner/heater is ON, the distance to empty is impacted, resulting in a possible distance range from 175~340 km (Economical type) / 335~500 km (Extended type). When using the heater during cold weather or driving at high speed, the high voltage battery consumes a lot more electricity. This may reduce the distance to empty significantly.
- After "---" has been displayed, the vehicle can drive an additional 3~8 km (2~5 miles) depending on driving speed, heater/air conditioner, weather, driving style, and other factors.

- Distance to empty that is displayed on the instrument cluster after completing a recharge may vary significantly depending on previous operating patterns.

  When previous driving patterns include high speed driving, resulting in the high voltage battery using more electricity than usual, the estimated distance to empty is reduced. When the high voltage battery uses little electricity in ECO mode, the estimated distance to empty increases.
- Distance to empty may depend on many factors such as the charge amount of the high voltage battery, weather, temperature, durability of the battery, geographical features, and driving style.
- Natural degradation may occur with the high voltage battery depending on the number of years the vehicle is used. This may reduce the distance to empty.

When destination is set

When the destination is set, the distance to empty may change. The distance to empty is recalculated using the information of the destination. However, the distance to empty may vary significantly based on traffic conditions, driving habits, and condition of the vehicle.

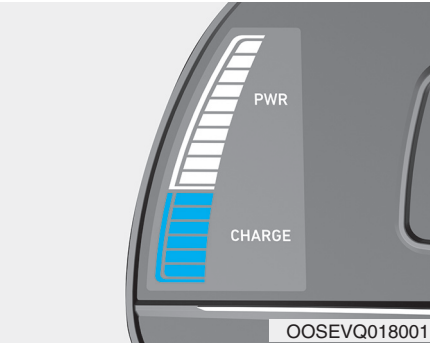
Tips for Improving Distance to Empty

- If you operate the air conditioner /heater too much, the driving battery uses too much electricity. This may reduce the distance to empty. Therefore, it is recommended that you set the cabin temperature to 22°C AUTO. This setting that has been certified by various assessment tests to maintain optimal energy consumption rates while keeping the temperature fresh.

  Turn OFF the heater and air conditioner if you do not need them.
- When the heater or air conditioning system is on the energy consumption is reduced if recirculation mode is selected instead of selecting the fresh mode. The fresh mode requires large amount of energy consumption as the outside air has to be re-heated or cooled.
- When using the heater or air conditioning system use the DRIVER ONLY or scheduled air conditioner/ heater function.

- Depress and hold the accelerator pedal to maintain speed and drive economically.
- Gradually depress and release the accelerator pedal when accelerating or decelerating.
- Always maintain specified tire pressures.
- Do not use unnecessary electrical components while driving.
- Do not load unnecessary items in the vehicle.
- Do not mount parts that may increase air resistance.

Power/Charge Gauge



The Power/Charge Gauge shows the energy consumption rate of the vehicle and the charge/discharge status of the regenerative brakes.

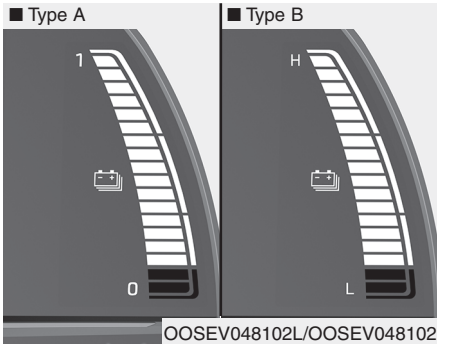
• POWER :

It shows the energy consumption rate of the vehicle when driving uphill or accelerating. The more electric energy is used, the higher the gauge level.

• CHARGE :

It shows the charging status of the battery when it is being charged by the regenerative brakes (decelerating or driving on a downhill road). The more electric energy is charged, the lower the gauge level.

State of charge (SOC) gauge for high voltage battery



- The SOC gauge shows the charging status of the high voltage battery.

  “L (Low) or 0" position on the indicator indicates that there is not enough energy in the high voltage battery. “H (High) or 1“ position indicates that the driving battery is fully charged.
- When driving on highways or motorways, make sure to check in advance if the driving battery is charged enough.

OOSEV048103

When there are 2 gauge bars (near the “L (Low) or 0" area) on the SOC gauge, the warning lamp turns ON to alert you of the battery level.

When the warning lamp turns ON, the vehicle can drive an additional 20~30 km (12~18 miles) depending on the driving speed, heater/air conditioner, weather, driving style, and other factors. Charging is required.

NOTICE

When there are 1-2 gauge bars left for the high voltage battery, the vehicle speed is limited and then eventually the vehicle will turn OFF. Charge the vehicle immediately.

Warning and Indicator Lights (related to electric vehicle)

Ready Indicator

This indicator illuminates :

When the vehicle is ready to be driven.

- ON : Normal driving is possible.
- OFF : Normal driving is not possible, or a problem has occurred.
- Blinking : Emergency driving.

When the ready indicator goes OFF or blinks, there is a problem with the system. In this case, we recommend that you have your vehicle inspected by an authorized HYUNDAI dealer.

Service Warning Light

This warning light illuminates :

- When the POWER button is in the ON position.
  - It illuminates for approximately 3 seconds and then goes off.
- When there is a problem with related parts of the electric vehicle control system, such as sensors, etc.

When the warning light illuminates while driving, or does not go OFF after starting the vehicle, we recommend that you have your vehicle inspected by an authorized HYUNDAI dealer.

Power Down Warning Light

This warning light illuminates :

- When the POWER button is in the ON position.
  - It illuminates for approximately 3 seconds and then goes off.
- When the power is limited for the safety of the electric vehicle.

  The power is limited for the following reasons.
  - The high voltage battery level is below a certain level or voltage is decreasing
  - The temperature of the motor or high voltage battery is too high or too low
  - There is a problem with the cooling system, or a failure that may interrupt normal driving

NOTICE

Do not accelerate or start the vehicle suddenly when the power down warning light is ON.

Charge the battery immediately when the high voltage battery level is not enough.

Charging Indicator Light

This warning light illuminates :

- When charging the high voltage battery.

High Voltage Battery Level Warning Light

This warning light illuminates :

- When the high voltage battery level low.

  When the warning light turns ON, charge the battery immediately.

Regenerative Brake Warning Light

This warning light illuminates :

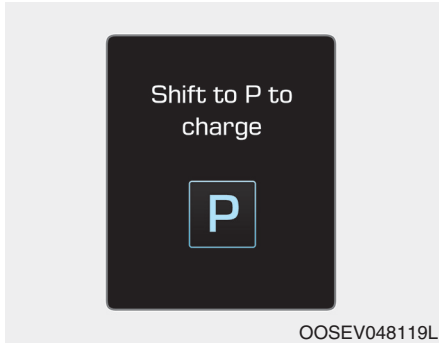
When the regenerative brake does not operate and the brake does not perform well. This causes the Brake Warning light (red) and Regenerative Brake Warning Light (yellow) to illuminate simultaneously.

In this case, drive safely and we recommend that you have your vehicle inspected by an authorized HYUNDAI dealer.

The operation of the brake pedal may be more difficult than normal and the braking distance can increase.

LCD Display Messages

Shift to P to charge

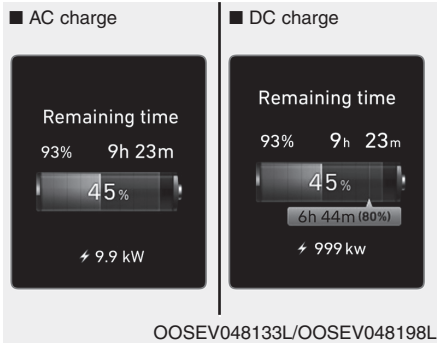


OOSEV048119L

This message is displayed if you connect the charging cable without the gear in the P (Park) position.

Shift to P (Park) before connecting the charging cable.

Remaining time



OOSEV048133L/OOSEV048198L

This message is displayed to notify the remaining time to charge the battery to the selected target battery charge level.

Unplug vehicle to start

OOSEV048129L

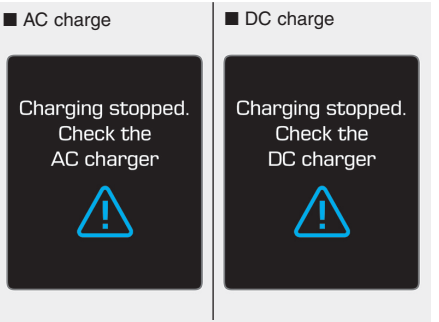
This message is displayed when you start the vehicle without unplugging the charging cable. Unplug the charging cable, and then turn on the vehicle.

Charging door open

OOSEV048130L

This message is displayed when the vehicle is driven with the charging door opened. Close the charging door and then start driving.

Charging stopped. Check the AC/DC charger



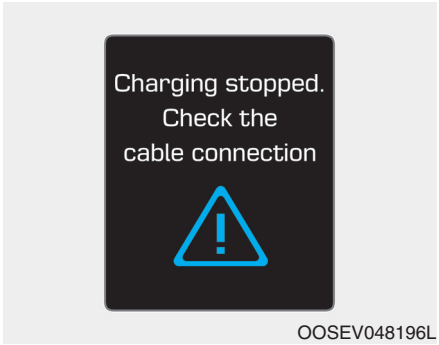
OOSEV048131L/OOSEV048132L

- This warning message is displayed when charging is stopped for the reasons below:
  - There is a problem with the external AC charger or DC charger charger
  - The external AC charger stopped charging
  - The charging cable is damaged

In this case, check whether there is any problem with the external AC or DC charger and charging cable.

If the same problem occurs when charging the vehicle with a normally operating AC charger or genuine HYUNDAI portable charger, we recommend that you have your vehicle inspected by an authorized HYUNDAI dealer.

Charging stopped. Check the cable connection



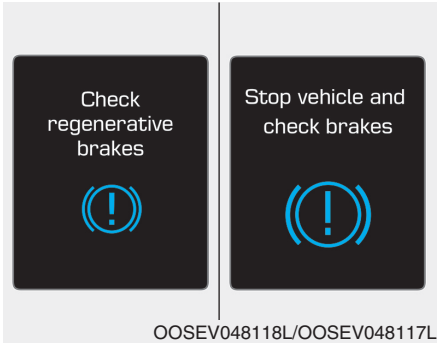
OOSEV048196L

This warning message is displayed when charging is stopped because the charging connector is not correctly connected to the charging inlet

In this case, separate the charging connector and re-connect it and check whether there is any problem (external damage, foreign substances, etc.) with the charging connector and charging inlet.

If the same problem occurs when charging the vehicle with a replaced charging cable or genuine HYUNDAI portable charger, we recommend that you have your vehicle inspected by an authorized HYUNDAI dealer.

Check regenerative brakes / Stop vehicle and check brakes

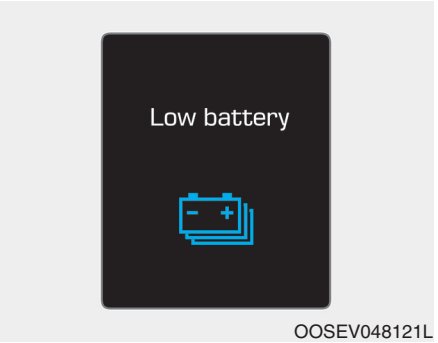


OOSEV048118L/OOSEV048117L

This warning message is displayed when the regenerative brake system does not work properly.

In this case, we recommend that you have the vehicle inspected by an authorized HYUNDAI dealer.

Low battery



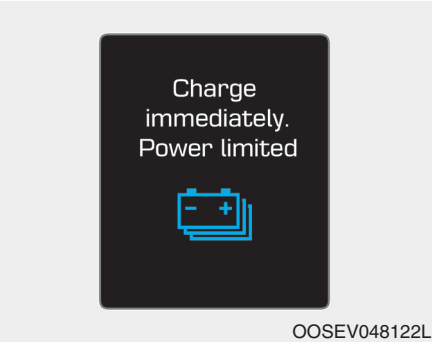
OOSEV048121L

When the high voltage battery level reaches below approximately 8%, this warning message is displayed.

The warning light on the instrument cluster (🔋) will turn ON simultaneously.

Charge the high voltage battery immediately.

Charge immediately. Power limited



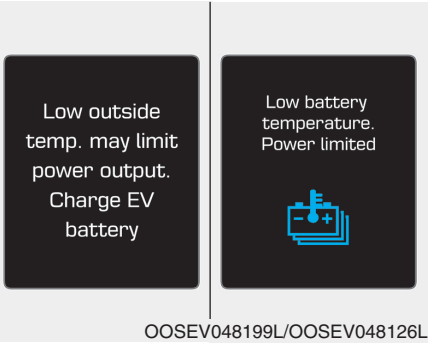
OOSEV048122L

When the high voltage battery level reaches below approximately 3%, this warning message is displayed.

The warning light on the instrument cluster (🔋) and the power down warning light ( ) will turn on simultaneously.

The vehicle's power will be reduced to minimize the energy consumption of the high voltage battery. Charge the battery immediately.

Low outside temp. may limit power output. Charge EV battery/ Low battery temperature. Power limited



OOSEV048199L/OOSEV048126L

[A] : Displays when turning off vehicle.
[B] : Displays when turning on vehicle.

Both warning messages are displayed to protect electric vehicle system when outside temperature is low. If the high voltage battery charging level is low and parked outside in low temperature for a long time, vehicle power could be limited.

Charging the battery before driving helps increase power.

NOTICE

If this warning message is still displayed even after the ambient temperature has increased, we recommend that you have the vehicle inspected by an authorized HYUNDAI dealer.

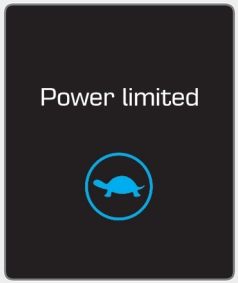
Battery overheated! Stop safely

OAEE046129L

This warning message is displayed to protect battery and electric vehicle system when the high voltage battery temperature is too high.

Turn off the POWER button and stop the vehicle so that the battery temperature decreases.

Power limited



OOSEV048125L

In the following cases, this warning message is displayed when the vehicle's power is limited for safety.

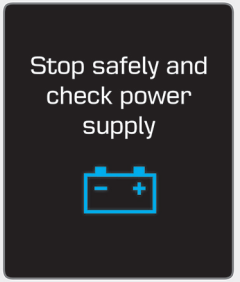
- When the high voltage battery is below a certain level, or voltage is decreasing.
- When the temperature of the motor or high voltage battery is too high or too low.
- When there is a problem with the cooling system or a failure that may interrupt normal driving.

NOTICE

When this warning message is displayed, do not accelerate or start the vehicle suddenly.

Charge the battery immediately when the high voltage battery level is not enough.

Stop safely and check power

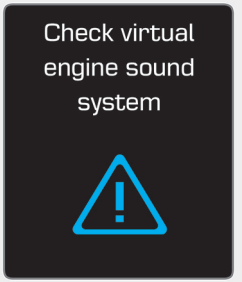


OOSEV048200L

This warning message is displayed when a failure occurs in the power supply system.

In this case, park the vehicle in a safe location and we recommend that you tow your vehicle to the nearest authorized HYUNDAI dealer and have the vehicle inspected.

Check virtual engine sound system



OOSEV048116L

This message is displayed when there is a problem with the Virtual Engine Sound System (VESS).

In this case, we recommend that you have the vehicle inspected by an authorized HYUNDAI dealer.

Check electric vehicle system

OOSEV048124L

This warning message is displayed when there is a problem with the electric vehicle control system.

Refrain from driving when the warning message is displayed.

In this case, we recommend that you have the vehicle inspected by an authorized HYUNDAI dealer.

Energy flow

The electric vehicle system informs the drivers its energy flow in various operating modes. While driving, the current energy flow is specified in 3 modes.

Vehicle Stop

OOSEV048139L

The vehicle is stopped.
(No energy flow)

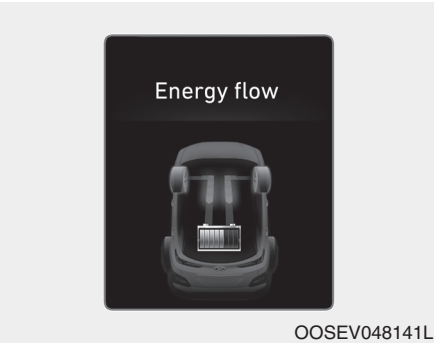
EV Propulsion

OOSEV048140L

Only the motor power is used to drive the vehicle.

(Battery → Wheel)

Regeneration



OOSEV048141L

The high-voltage battery is charged up by the regenerative brake system.

(Wheel → Battery)

Aux. Battery Saver+

The Aux. Battery Saver+ is a function that monitors the charging status of the 12 V auxiliary battery.

If the auxiliary battery level is low, the main high voltage battery charges the auxiliary battery.

Information

The Aux. Battery Saver+ function will be ON when the vehicle is delivered. If the function is not needed, you may turn it off in the Users Settings mode on the cluster. For more information, refer to the following page.

Mode

• Cycle Mode :

When the POWER button is in the OFF position with all doors, hood and tailgate closed, the Aux. Battery Saver+ periodically activates according to the auxiliary battery status.

• Automatic Mode :

When the POWER button is in the ON position with the charging connector plugged in, the function activates according to the auxiliary battery status to prevent overdischarge of the auxiliary battery.

Information

- **The Aux. Battery Saver+ activates maximum of 20 minutes. If the Aux. Battery Saver+ function activates more than 10 times consecutively, in the Automatic Mode the function will stop activating, judging that there is a problem with the auxiliary battery. In this case, drive the vehicle for some period of time. The function will start activating if the auxiliary battery returns to normal.**
- **The Aux. Battery Saver+ function cannot prevent battery discharge if the auxiliary battery is damaged, worn out, used as a power supply or unauthorized electronic devises are used.**
- **If the Aux. Battery Saver+ function was activated, a message will be displayed on the instrument cluster and the high voltage battery level may have decreased.**

System Setting

OOSEVQ018019L

The driver can activate the Aux. Battery Saver+ function by placing the POWER button to the ON position and by selecting:

'User settings → Other features → Aux. Battery Saver+'

The Aux. Battery Saver+ function deactivates, when the driver cancels the system setting.

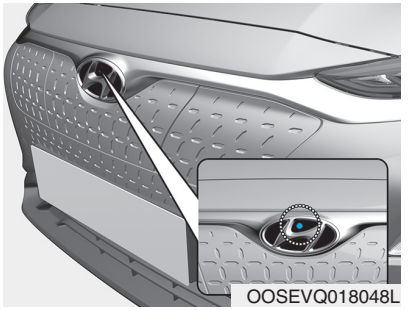
LCD Display Message

OOSEV048120L

This message is displayed when the Aux. Battery Saver+ function has been operated while the vehicle was turned off.

However, if the LCD display message pops up frequently, we recommend that your vehicle's auxiliary battery or electric/electronic components be serviced by an authorized HYUNDAI dealer.

⚠ WARNING



OOSEVQ018048L

When the function is activating the indicator lamp will illuminate and high voltage electricity will be flowing in the vehicle. Do not touch the high voltage electric wire (orange), connector, and all electric components and devices. This may cause electric shock and lead to injuries. Also, do not modify your vehicle in any way. This may affect your vehicle performance and lead to an accident.

Utility Mode

The high voltage battery is used instead of the 12V auxiliary battery for operating the convenient features of the vehicle. When driving is not necessary such as while camping or when stopping the vehicle for a long time, it is possible to use the electrical devices (audio, lights, etc.) for long hours.

System Setting and Activation

OOSEV048208L

System setting

The driver can activate the Utility Mode function when the following conditions are satisfied.

- The vehicle is in the ready ( ) mode and the gear is shifted to P (Park).
- The EPB (Electronic Parking Brake) is applied.
- 'User Settings → Utility Mode' is selected in the cluster.

System Activation

When the system is activated:

- The indicator will turn off and the UTIL indicator will illuminate on the cluster.
- All electric devices are usable but the vehicle cannot be driven.
- The EPB can be cancelled by pressing the EBP switch.
- Gear cannot be shifted out of P (Park). If a shift attempt is made, a message "Shifting conditions not met" will be displayed on the cluster.

System Deactivation

The Utility Mode can be deactivated by pressing the POWER button to the OFF position. The function cannot be deactivated from the User Settings mode.

If an Accident Occurs

⚠ WARNING

- When a vehicle accident occurs, move the vehicle to a safe place, turn OFF the vehicle and remove the auxiliary battery (12 V) terminal to prevent high voltage electricity from flowing.
- If electric wires are exposed from inside or outside the vehicle, do not touch the wires.

  Also, do not touch the high voltage electric wire (orange), connector, and all electric components and devices. This may cause electric shock and lead to injuries.

⚠ WARNING

- When a vehicle accident occurs and the high voltage battery is damaged, harmful gas and electrolytes may leak. Be careful not to touch the leaked liquid.

  When you suspect leakage of inflammable gas and other harmful gases, open the windows and evacuate to a safe place. If any leaked fluid comes in contact with your eyes or skin, immediately clean the affected area thoroughly with tap water or saline solution and have doctors inspect it as soon as possible.

⚠ WARNING

- If a small scale fire occurs, use a fire extinguisher (ABC, BC) that is meant for electrical fires. If it is impossible to extinguish the fire in the early stage, remain a safe distance from the vehicle and immediately call your local fire emergency responders. Also, advise them that an electric vehicle is involved.

  If the fire spreads to the high voltage battery, large amount of water is needed to put out the fire. Using small amount of water or fire extinguishers not meant for electrical fires could cause serious injury or death from electrical shocks.

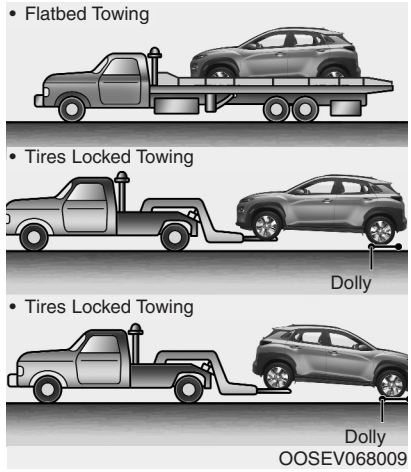
⚠ WARNING

If you cannot put out the fire immediately, the high voltage battery may explode. Evacuate to a safe place and do not let other people approach the site.

Contact the fire department and notify them of an electric vehicle fire.

- **If the vehicle is flooded with water, immediately turn OFF the vehicle and evacuate to a safe place. Contact the fire department or an authorized HYUNDAI dealer.**

⚠ WARNING



- **If towing is required, lift all four wheels off the ground and tow the vehicle. If you must tow the vehicle using only two wheels, lift the front wheels off the ground and tow the vehicle.**

⚠ WARNING

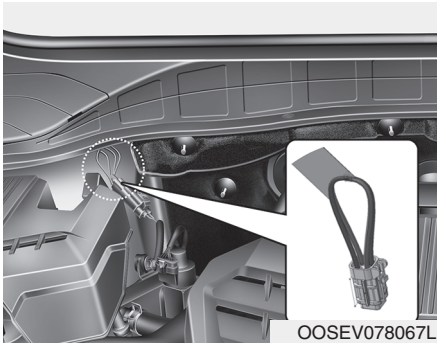
- **If you tow the vehicle while the front wheels are touching the ground, the vehicle motor may generate electricity and the motor components may be damaged or a fire may occur.**
- **When a vehicle fire occurs due to the battery, there is a risk of a second fire. Contact the fire department when towing the vehicle.**

Other Precautions for Electric Vehicle

- When you paint or apply heat treatment to the vehicle as a result of an accident, the performance of the high voltage battery can be reduced.

  If heat treatment is required, we recommend that you contact an authorized HYUNDAI dealer.
- When you clean the motor compartment, do not use high pressure water to wash. This may cause an electric shock due to a discharge in high voltage electricity, or damage the vehicle's electric system.
- Do not use, remodel, or install non-genuine parts. This may damage the electric power system.

Service Interlock Connector



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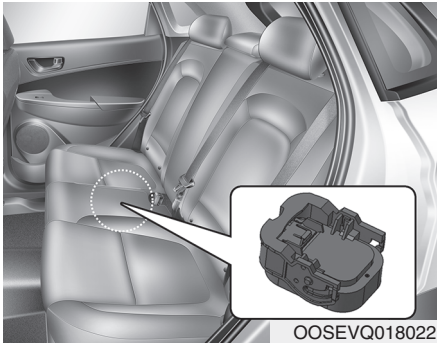
In case of emergency, cut the service interlock connector cable to isolate the high voltage of the battery.

Service Plug



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⚠ DANGER

Never touch the service plug under the rear seat.

The service plug is attached to the high voltage battery system.

Touching the service plug will result in death or serious injury.

Service personnel should follow procedures in service manual.