



SIB 61 07 24

2024-03-04

BEV/PHEV CHARGING ISSUE WORK THROUGH PROCEDURE

 THIS REPAIR IS MOBILE FRIENDLY**MODEL**

E-Series	Model Description
G05	X5 Sports Activity Vehicle (PHEV)
G09	BMW XM Sports Activity Vehicle Plug-in Hybrid Electric Vehicle (PHEV)
G26	i4 Gran Coupe (BEV)
G60	i5 Sedan Battery Electric Vehicle (BEV)
G70	i7 Sedan Battery Electric Vehicle (BEV)
G70	750e xDrive Sedan (PHEV)
i20	iX Sports Activity Vehicle (SAV)

SITUATION

This Informational Bulletin is intended as a guided work through process to address BEV/PHEV charging issues.

The step-by-step guide will help walk you through the correct “basic” steps that should be followed when addressing and diagnosing battery electric vehicles (BEV) and plug in hybrid vehicles (PHEV) charging issues.

Note: Keep in mind that every vehicle and case is different, and the process will have to be adapted depending on the direction the diagnostic flow takes you.

CAUSE

The increase in charging issues go hand and hand with the growth of electrified vehicles operating in the market today.

With more and more EVs replacing their internal combustion engine (ICE) counterparts, charging issues/errors are quickly becoming a growing concern for customers.

SOLUTION

The situation may be addressed by following the procedure outlined in this SIB.

A process has been implemented to utilize Mobile Service Technicians and (at times) BMW Roadside Assistance to help the customer with charging related complaints. Especially when it is evident that there is a need for on-site expert technical support (at home or public charger location).

On-site BMW Mobile Service Technician may be deployed:

- To assist the customer when the charger plug will not release from the vehicle.
- When the customer charger works at the dealer but not at the customer’s location
- When the customer’s charger cannot be taken into the service center to be verified
- When there is a need to verify the customers charger/infrastructure installation (to identify the vehicle is not the source of the charging complaint).

Note: These are just some suggestions of the capabilities and benefits of deploying a technician or Mobile Service Technician to the customer’s location.

Note: Review the hyperlinks below for more information regarding charging complaint related topics.

Note: For dealerships that do not have a Mobile Service Technician program in place, they can still deploy a qualified BMW technician to address the situation at the customer's location.

PROCEDURE

Follow the basic steps below to work through the charging complaint:

1. **Identify the source of the charging complaint.**
2. **Proceed to test with ISTA**
3. **Did the problem happen at home, on a Level 1 charger?**
4. **Did the problem happen at home, on a Level 2 charger?**
5. **Did the problem happen at a public Level 3 - DC fast charger?**

Download **SI B61 07 24 Attachment 1 Customer Charging Complaint Work Through Procedure.pdf** for a detailed explanation of the procedure.

SI B61 07 24 attachments below:

SI B61 07 24 Attachment 1 Customer Charging Complaint Work Through Procedure.pdf

SI B61 07 24 Attachment 2 Charging Complaint Customer Questionnaire.pdf

SI B61 07 24 Attachment 3 EV Charging Levels and Available Charging Devices for North America

SI B61 07 24 Attachment 4 GEN 5 BEV Quick Reference Guide_v2.pdf

Helpful Hyperlinks to charging related topics:

SI B61 29 23 Differences Between Flexible Fast Charger Versions 1.0 vs 2.0

SI B61 06 24 BEV/PHEV Charging Complaint Related to Charger/Infrastructure

SI B61 25 23 BEV Reasons for No/Slow DC Charging Complaint

SI B61 08 24 BEV/PHEV Charger Plug Will Not Release from the Charging Socket

CLAIM INFORMATION

This Service Information Bulletin provides technical and diagnosis-related information.

Eligible and Covered Work/Repairs

An eligible repair to address a corresponding vehicle component or assembly with a verified defect in materials and/or workmanship is covered under the terms of the BMW New Vehicle Limited Warranty for Passenger Cars and Light Trucks.

Damage and/or issues caused by outside influences are not covered under the BMW limited warranties.

To submit a claim, please following the established and applicable warranty policy and procedures (Labor/Part/Sublet) that apply to the repair being performed.

Refer to AIR to obtain and assign the RO line item's Repair Code. For the corresponding repair that was performed, obtain the flat rate labor operation codes (*including the diagnosis that applies) and their corresponding flat rate unit (FRU) allowances.

Only one Main labor operation code can be claimed per repair visit.

Based on which one applies to your center, please refer to **SI B01 01 20** or **B01 07 20** for the applicable procedure for documenting, claiming, and explaining, on the RO and in the claim comments, your diagnosis work time (WT), job/repair work time (WT), and the vehicle repairs your center performed, unless otherwise required by State law.

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BMW Group’s AIR Application Resource for Flat Rate Labor Operation Codes

To obtain the corresponding flat rate unit (FRU) allowance information from the BMW Group AIR application resource, start by entering the Chassis Number (the last seven (7) characters of the VIN, select the applicable Model if two or more vehicle choices show), or enter the full VIN (17 characters), click on the “Search” button. Next, click on the “Flat Rate Units” button and enter the flat rate labor operation code in the field to the right, click “Search” to display the Flat Rate Unit Group detail choices.

FEEDBACK REGARDING THIS BULLETIN

Technical Feedback	To submit feedback for the technical topic of this bulletin: Submit your feedback in the rating box at the top of this bulletin
Warranty Feedback	To submit feedback for the CLAIMS section of this bulletin: Submit an IDS ticket to the Warranty Department, or use the chat available in the Warranty Documentation Portal
Parts Feedback	To submit feedback for the PARTS section of this bulletin: Submit an IDS ticket to the Parts Department

Supporting Materials

[picture_as_pdf SIB61 07 24 Attachment 2 Customer Charging Complaint Questionnaire.pdf](#)

[picture_as_pdf SIB61 07 24 Attachment 4 GEN 5 BEV Quick Reference Guide_v2.pdf](#)

[picture_as_pdf SIB61 07 24 Attachment 3 EV charging levels and available charging devices for North America.pdf](#)

[picture_as_pdf SIB61 07 24 attachment 1 customer charging complaint work through procedure.pdf](#)

CHARGING COMPLAINT WORK THROUGH PROCEDURE

PROCEDURE

The step-by-step guide will walk you through the correct “basic” steps that should be followed when addressing and diagnosing customer charging complaints on plug in hybrid (PHEV) and battery electric vehicles (BEV).

Note: Every charging complaint case is different, and the process outlined below will have to be adapted depending on the direction the diagnostic flow takes you.

Charging complaints go hand and hand with the recent growth of electrified vehicles on the market today. It is obvious that as more and more EV vehicles replace their internal combustion counterparts, charging issues are quickly becoming a major concern for customers.

Follow the basic steps below to work through the charging complaint:

1. Identify the source of the charging complaint:

- This first step is crucial and should be done as the customer drops off the vehicle for service (first contact with the service advisor)
- Have the customer fill out the charging complaint questionnaire found in [SI B61 07 24 Attachment 2 Customer Charging Complaint Questionnaire.pdf](#)
- Was the charging complaint at home?
- Was the charging complaint at a public charger?
- **Do not attempt to charge the vehicle at this time to duplicate the complaint as this will erase the customer charging history data!**
- Instead perform the charging history test plan in ISTA.

Note: The system can only store up to five charging events in the charging history, any attempt to charge the vehicle will write over the events the customer has experienced and is most likely the basis of their complaint.

2. Proceed to test with ISTA

- Run” The charging history test plan” to gather valuable information regarding the charging complaint.
- Analyze all relevant fault codes stored.
- Perform a comprehensive charging check to test the vehicle with all three charging levels (depending on the vehicle) via the **ABL DIT AT6144_CHRGCHCKS Charging check** in ISTA.
- In any event, the results from the completed "ISTA Charging Check" can be printed out and given to the customer as proof that their vehicle is charging as designed or, if it the test failed, where is the source of the problem.
- If further diagnosis is required, continue below.

3. Did the problem happen at home, on a Level 1 charger?

- If the customer's Level 1 charger is suspected, it should be verified at the dealer.
- If the charger is a BMW Flexible Fast Charger (FFC), please see SI B61 29 23 for more information.
- If the customer's charger works as designed at the dealer and the complaint cannot be verified, a more thorough analysis of the home charger electrical installation (house wiring, outlet, power grid) by a certified electrician is recommended.
- If the home charger electrical installation was verified by a certified electrician, it may be necessary for mobile service technician to arrange a visit to the customer's home to inspect and test the charger they are using.
- **Mobile Service Technicians can run vehicle tests and charging test plans on site to rule out the vehicle as the source of the charging complaint.**
for more information see:
[SI B61 06 24 BEV/PHEV Charging Complaint Related to Charger/Infrastructure](#)

4. Did the problem happen at home, on a Level 2 charger?

- If the customer is using a level 2 (240V) charger, try to verify it at the dealer if the service center is equipped to do so (see note below).
- For more information regarding the Level 2 function of the BMW Flexible Fast Charger (FFC) see SI B61 29 23.
- **Note: Not all service centers have a dedicated 240V outlet near the service bays for testing Level 2 chargers (i.e., NEMA 14/50).**
- If the customer is using a "hard wired" wall box Level 2 charger at home, it cannot be verified at the dealer.
- It may be necessary for the mobile service technician to arrange a visit to the customer's house to inspect and test their home charger.
- Mobile service technician can run vehicle tests and charging test plans, on-site, while connected to the customer's hard wired wallbox, to rule out the vehicle as the source of the charging complaint.
- The results from the completed "ISTA Charging Check" can also be printed out and given to the customer as proof that their vehicle is charging as designed or, if the test failed, where is the source of the problem.
- It may be necessary to run further tests with the vehicle at the home charger, refer to [SI B61 06 24 BEV/PHEV charging complaint related to charger/infrastructure](#), for more information.
- If the charging tests reveal that there is a need for a more thorough analysis of the customer's home charger electrical installation, it is then recommended to the customer that their charger electrical installation (house wiring, outlet, power grid) be verified by a certified electrician.

5. Did the problem happen at a public Level 3 - DC fast charger?

- Regarding level 3 - DC fast charging complaints, please review SI B61 25 23 and its attachments.
- Pay close attention to the charging limitations described in SI B61 25 23 and the results of the Charging History Test Plan.
- Verify that vehicle charges on level 3 - DC fast charging as designed at the dealership.
- **If there is NO level 3 - DC fast charger available at the dealership; a trusted public DC charger must be used.**
- Verify there is **NO** relevant charging fault codes that may be causing the problem.
- Verify there is **NO** indication of an intermittent problem with the high voltage system that would cause a DC charging complaint.
- If the complaint happens at public charging stations but not at the dealer, there may be a need to verify the customer's account information.

- Test the “handshake” between the vehicle and the public charger/charging supplier/App used. (See the note below regarding DC charging check)
- **Please review SI B61 31 23 regarding the Plug & Charge functionality implementation for more information.**
- **Also see SI B61 06 24 BEV/PHEV charging complaint related to charger/infrastructure for more information regarding public chargers.**
- BMW Roadside Assistance can assist the customer remotely or suggest a Mobile Service Technician when further technical assistance is required.

On-site Mobile Service Technician can be deployed:

- when the charger plug will not release from the vehicle.
- When the customer charger works at the dealer but not at the customer’s location
- When the customer’s charger cannot be taken into the service center to be verified
- When there is a need to verify the customers charger/infrastructure installation (to identify the vehicle is not the source of the charging complaint.

Note: These are just some suggestions of the capabilities and benefits of deploying a technician or Mobile Service Technician to the customer’s location.

Note: If the customer first contact was with their preferred dealer, the dealer may assist the customer from then on. BMW Roadside is no longer required in that case. If the vehicle requires a tow to the service center, this can be arranged by the dealer using the BMW Roadside dealer portal platform.

For more information regarding Mobile Service Technician and BMW Roadside Assistance process please review SI B61 08 24 BEV/PHEV Charger Plug Will Not Release from the Charging Socket.

Tips and tricks for testing Level 3 DC Fast Charging complaints.

To verify that a vehicle charges on Level 3 DC charging as designed, try charging at a BMW Level 3 - DC fast charging station at the dealer.

In absence of a level 3 - DC fast charger in the premises, it is suggested that a shop “testing” account may be acquired for this purpose.

Most “free” Level 3 DC Fast Charging stations are not subject to certificate authentications to initialize the charging process; therefore, they cannot be used to diagnose an account information or certificate/app authentication suspected issue.

To diagnose an account information or certificate/app authentication suspected issue it is necessary that the customer verify their own account information by swiping into the suspected charging station to test the sign in/certificate/app authentication.

Note: After all the steps above have been followed and there is still a charging complaint, the TSE can further assist the customer with remaining charging related questions and concerns.

For more information regarding charging complaint diagnosis and the procedure depicted above refer to the following attachments and bulletins:

For a copy of the Charging complaint questionnaire mentioned in this document see [SI B61 07 24 Attachment 2 - Charging Complaint Customer Questionnaire.pdf](#)

Please review,

[This SI B61 07 24 Attachment 3 - EV Charging Levels and Available Chargers for North America.pdf](#)

for more information regarding AC and DC charging of EV vehicles and an overview of the charging three levels (Level 1, Level 2 and Level 3) and currently available charging devices for the US market

For more information regarding AC charging with the BMW Flexible Fast Charger (Level 1 and Level 2 function) please review,

[SI B61 29 23 Differences Between Flexible Fast Charger Versions 1.0 vs 2.0. pdf](#)

Topics includes:

- Description of the previous standard equipment Occasional Use Charger (OUC).
 - Description of the main differences between the FFC 1.0 and FFC 2.0.
 - Part numbers for both versions and available adapters for both units.
 - Description of the ISTA diagnostic capabilities of the FFC 2.0
-

Please review,

[SI B61 06 24 BEV/PHEV Charging Complaint Related to Charger/Infrastructure](#)

for more information regarding charger /infrastructure related charging complaints

For more information regarding DC charging please review

[SIB 61 25 23 Attachment BEV Reasons for No/Slow DC Charging Complaint.](#)

Helpful “Tips and Tricks” have been included on each topic within the document that can be used as reference to aid in the diagnosis or in understanding the system.

Topics included:

- Limitation of charging power by the charging station or charging app configuration
 - Decreasing charging power at a very high state of charge (SOC)
 - Too frequent DC charging attempts within a short period of time
 - The high-voltage battery is not at the ideal temperature.
 - Ageing of high-voltage battery
-

For more information regarding AC and DC charging please review

[SI B61 25 23 attachment “Gen 5 Vehicle Quick Reference Guide for the Service Drive”.](#)

Following Subjects are discussed in this guide:

- What is AC vs. DC Charging
 - Charging Socket
 - BMW Flexible Fast Charger 2.0
 - Vehicle Charging and what to expect (times, speeds)
 - Battery Preconditioning
 - Main factors affecting range
 - Quick Links to BMW’s YouTube Tutorials
-

For more information regarding the charger plug is stuck on the charging socket please review

[SI B61 08 24 BEV/PHEV Charger Plug Will Not Release from the Charging Socket.](#)

BEV/PHEV Customer Charging Complaint Questionnaire

Please answer the following questions regarding the charging complaint	VIN _____		
	RO# _____		
Date _____			
A. General questions about the charging process:	YES	NO	More Information
1. Was this a "one-time" charging error or a recurring issue?			
2. Did the charging process start and then was aborted?			
3. What charging current limitation has been set in the customer vehicle settings?			
4. Were there any Check Control messages displayed in the vehicle? If so, which one(s)?			
5. Has the customer tried charging at a different electrical outlet?			
6. Has the customer tried using a different BMW recommended charger?			
7. Was the dedicated power outlet used installed and verified by a qualified electrician?			
	YES	NO	More Information
B. Did the charging complaint occur while charging at home?			
1. Was a Level 1 BMW charging cable for household (120VAC) outlets used? If so, which?			
2. Was a Level 2 BMW Flexible Fast Charger used? Which 240VAC adapter was used?			
3. Was a Level 2 wallbox (AC 240V hard wired) used? If yes, which manufacturer/type?			
Was the home power grid installation and available voltage verified by a qualified electrician?			
	YES	NO	More Information
C. Did the charging complaint occur at a public charging station?			
1. Was a public Level 2 AC charging station used?			
2. Was a public Level 3 DC Fast Charging station used?			
	YES	NO	More Information
D. Is the charging complaint associated with a specific public charging station or location? If yes, which location?			
1. Which charging provider was used?			
2. Was Plug and Charge or another charging app used? If so, which?			
3. Is the customer's charging card activated for the charging station?			
4. Is the customer information/ log in authorization up to date in the charging app/vehicle?			
5. Were there any error messages displayed on the charging station? If so, which?			
6. Were there any Check Control messages (CCM) displayed in the vehicle? If so, which?			

Overview of the EV charging levels and currently available charging devices for North America.

The J1772 SAE standard has defined the different EV charging Levels for the US market; (Level 1, Level 2 and Level 3).

Level 1

Level 1 is AC (Alternating Current) charging on a **120VAC** typical household outlet (15A max). The BMW recommended chargers for Level 1 are listed below:

- **BMW Flexible Fast Charger 1.0 (FFC1.0 with NEMA 5-15 120VAC adapter)**
- **BMW Flexible Fast Charger 2.0 (FFC2.0 with NEMA 5-15 120VAC adapter)**
- **BMW Occasional Use Charger (Yellow OUC)**
- **TurboCord Charger**
- **Aftermarket Level1 (BMW compatible charger)**

These devices are generally used at home, at work or on vacation and provide a charging rate (on average) from 1 to 2 kW of charging power. Most PHEV customers find that Level 1 is a sufficient form of charging for their vehicle, due to the lower HV battery capacity and electric driving characteristics of the PHEV. This method of charging is the most convenient as the charger can be plugged into regular household 120VAC outlets (commonly found in homes and workplaces**).

Due to higher HV battery capacity and for optimum charging performance, it is recommended that BEV customers use Level 1 for emergency or occasional charging ONLY (when no other charger is available). Level 2 and Level 3 charging is more suited for the charging demands of the (larger) HV battery and driving characteristics of these purely electric vehicles.

Level 2

Level 2 is AC charging on a **240VAC** supply (dedicated) outlet or hardwired (50A max). The BMW recommended chargers for Level 2 are listed below:

- **Flexible Fast Charger 1.0 (NEMA 14-50 outlet adapter)**
- **Flexible Fast Charger 2.0 (NEMA 14-50 outlet adapter)**
- **BMW “Wallbox” charger (hard wired) or**
- **Aftermarket “Wallbox” charger (preferably hardwired)**

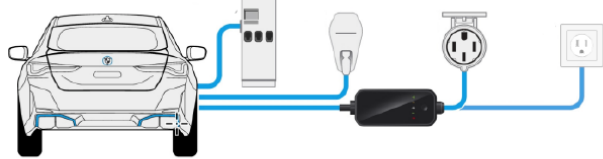
These devices provide from 3 to 22 kW of charging power and are the recommended type of charger for BEVs and PHEVs depending on the vehicle, HV battery capacity and the customer charging requirements and driving profile. They can be found at the workplace, hotels, parking lots, shopping malls, car dealerships, service stations, convenience stores and highway rest areas and there is usually a charge for the service. However due to their efficiency, usability and enhance charging rate, most loyal and dedicated EV customers also install them at home (Depending on the grid quality available for the installation).

Level 3

Level 3 is DC charging at a grid power supply as high as **480VAC**. Due to the power necessary, Level 3 is currently only available in commercial charging installations. These devices are referred to as “DC Fast Chargers” and can deliver an output from 30 to 350kW depending on the charger, the installation, and the quality of the power grid available. These high currents require a dedicated charging plug to connect to the vehicle. Although there are several DC charging plug connector types available (depending on vehicle manufacturer and country specification), BMW vehicles use the Combined Charging System (CCS1) plug connector for DC charging in the US market.

Level 3 charging is the most popular commercial form of charging EVs worldwide due, in part, to its convenience, charging speed, and efficiency. They are commonly found in commercial locations, like BMW dealerships, service stations, highway rest areas along roadways as well as in shopping centers, malls, recreational areas, and popular points of interest. DC charging (Level 3) was designed to provide the most convenient charging options for EV customers, especially on a road trip where charging needs can be planned, in advance, for example on the My BMW app or along the navigation route in the vehicle.

All BMW Generation 5 battery electric vehicles offer several charging options.



	DC Chargers: Charging speeds up to 200kW.
	Third Party Wallbox (typically 240 V): Charging speeds up to 11kW.
	At Home Charging using Flexible Fast Charger (240 V): Charging speeds up to 9.6 kW. ● NEMA 14-50 required
	Standard receptacle (120 V): With proper use of a BMW FFC charging speeds of about 1 kW.

Charging speed



Charging speeds may vary depending on several factors including but not limited to battery pre-condition, infrastructure, ambient temperature. Slower charging speeds may not indicate a vehicle malfunction. If the vehicle does not indicate a malfunction please advise the customers to try different modes of charging. This includes different types of charging or charging stations.

QUICK LINKS. BMW BEV GUIDES.

For more videos and guides please scan the Flowcodes below or visit BMW USA's YouTube site.



Trip Planning using BMW Navigation



How to use public charging



How to use the BMW Wallbox Charger

Service Drive Quick Reference Guide published by BMW Technical Service (USA). Valid at the time of publication (April 2023) for BMW Gen 5 Battery Electric Vehicles.

Note: The maximum charging settings must always be configured in the vehicle (from 6A to 48A depending on BEV or PHEV) to set the charging rate based on charging Level used, state of the electric grid and available power output from the charger. This is then verified and controlled automatically via the vehicle/charger communication.

****Note: Extension cords or ground-fault circuit interrupter (GFCI) outlets should NOT be used in combination with charging devices.**



GEN 5 BEV.

QUICK REFERENCE GUIDE²



BMW of North America, LLC.
BEV Service Drive Manual.
For dealer use ONLY.

BMW
GROUP



OVERVIEW.

CONTENT AND DISCLAIMER.

This Quick Reference Guide may be used to assist customers directly in the service drive and applies to all fully electric Generation 5.0 BMWs.

This Guide will provide some guidance to determine whether vehicle behavior is normal, as intended or caused by outside influence as well as facts about BMW's eMobility Services.

Table of contents:

Charging:

- Levels
- HV Socket
- Home Charging (including Charge Forward)
- Public Charging (including Plug & Charge)
- Instrument Cluster
- Charging times

Driving:

- Range
- Pre-Conditioning

Troubleshooting:

- Flexible Fast Charger 2.0
- Checklist Charging



- This guide is for informational and customer consultation purposes and **DOES NOT** replace diagnosis by qualified Service Personnel.
- This guide **IS NOT** intended for distribution to customers or to be used as marketing material. Its sole purpose is to support Service Advisors at BMW centers to address certain customer concerns.
- This guide **DOES NOT** serve as a substitute for any manuals or guides provided by BMW through official communication.
- Always remind customers to review their Owners Manuals including the safety information contained therein.

CHARGING. LEVELS.

All BMW Generation 5.0 battery electric vehicles offer the following charging modes.



Level 1:

AC (Alternating Current) charging on a 120VAC typical household outlet (15A max). The BMW recommended chargers for Level 1 can be found in BMW's technical documentation.



Level 2:

AC charging on a 240VAC supply (dedicated) outlet or hardwired. The BMW recommended chargers for Level 2 can be found in BMW's technical documentation.

i BMW Gen 5.0 vehicles are limited to 11kW AC.



Level 3:

DC (Direct Current) charging at a grid power supply as high as 480V. Due to the power necessary, Level 3 is currently only available in commercial charging installations. These devices can currently deliver an output from 20 up to 400kW depending on e.g., charger and infrastructure.

i BMW Gen 5.0 vehicles are limited to 205kW DC.



Charging speeds may vary depending on several factors including but not limited to battery pre-conditioning, infrastructure, ambient temperature, charger output. **Slower charging speeds may not indicate** a vehicle malfunction. If the vehicle does not indicate a malfunction, please advise the customer to try different types/levels of charging. E.g., charging station, home charger, receptacle, circuit.

CHARGING. SOCKET.

BMW Generation 5.0 Battery Electric Vehicles feature an indicator light next to the charge port which will indicate the current charging status.



White: Ready to accept charger. Charging socket unlocked.



Yellow (pulsing): Communication between charger and vehicle is established.



Blue (permanent): Ready to charge in future (Charging in Timeslot).



Blue (pulsing): Charging.



Green (permanent): Charging completed or target SoC reached.



Red (pulsing): Fault detected.

i A red pulsing light may not indicate a vehicle error.



Charger Lock

AC: Charger will be locked in port when vehicle is locked (Function “Unlock after Charge” available in Head Unit).

DC: Charger will be locked in port during communication state between charger and vehicle (prerequisite for DC charging).

CHARGING. AT HOME.

All BMW electrified vehicles possess an internal unit to rectify AC voltage (typically between 120VAC – 240VAC) to DC voltage to charge the High Voltage Battery.

BMW's Home Charging solutions include the Flexible Fast Charger 2.0 and the BMW Wallbox. BMW's Flexible Fast Charger (FFC) provides charging speeds of up to 9.6 kW.





BMW's current* offering comprises adaptors for the following receptacles:

120V		240V	
NEMA 5-15		NEMA 6-20	
		NEMA 14-50	

Alternatively, BMW offers a stationary Home Charging solution:



 It is recommended to use Home Charging as frequently as possible (e.g., charging overnight) unless high range is required in a short period of time.

 Electrical work should only be performed by a qualified electrician!
The vehicle AC current limit should not exceed the circuit breaker rating

*at the time of release of this guide

CHARGING. AT HOME: CHARGEFORWARD.

ChargeForward is now exclusively available to all BMW customers for charging at home. ChargeForward enables customers to optimize their charging when carbon emissions are lower in their local grid. In return, customers are rewarded with incentives.



*only available for select participating utilities

CHARGING. IN PUBLIC.

General public charging uses Level 2 or Level 3 charging. BMW Gen 5.0 vehicles can accept charge power of up to 205kW.

Public charging stations generally require authentication before charging can commence.





Forms of authentication include:

	Credit Card		NFC, e.g., mobile device wallet
	myBMW App: "Charge here"		Plug & Charge



If any of the above authentication methods should fail it is recommended to try another form of authentication if possible.

To find operating charge points for the customer's vehicle the **myBMW** App as well as "PlugShare" can be used. Through the **myBMW** App BMW currently (as of March 2024) offers access to these Charge Point Operators:


	With various charging plans (model dependent), BMW customers have access to more than 4,000 High Power Chargers. All chargers are seamlessly integrated for Plug & Charge and integrated into the myBMW App.	Enrollment	
	By creating a Shell Recharge account in the myBMW App, customers get automatic authentication access to over 100,000 Shell Recharge, ChargePoint, EVgo, Blink, and EV Connect charging stations. All through the myBMW App.	More Info	

CHARGING.

IN PUBLIC: PLUG & CHARGE.

Plug & Charge is a function that makes public charging even more comfortable. Only the charging cable has to be plugged into the vehicle. The vehicle and charger establish communication and automatically authenticate the user and commence charging. Unique to BMW: the customer can digitally save up to five Plug & Charge enabled contracts in his vehicle.

The following graphic will aid as a basic guideline for a proper setup of Plug & Charge.



STEP 01: DETERMINE YOUR BMW'S PLUG & CHARGE STATUS

STEP 02: SETUP YOUR BMW ID

STEP 03: ENROLL IN CHARGING PLAN

- ✓ View Your Vehicle
- ✓ Go to Electrify America
- ✓ Redeem Offer or transfer existing Offer
- ✓ Enter Code

STEP 04: ACTIVATE PLUG AND CHARGE IN IDRIVE
From the iDrive main menu, select (1) Apps, then (2) Charging, (3) Plug and Charge, (4) Available Contract, and (5) Download and Use.

STEP 05: USE PLUG AND CHARGE AT ANY ELECTRIFY AMERICA PUBLIC CHARGING STATION



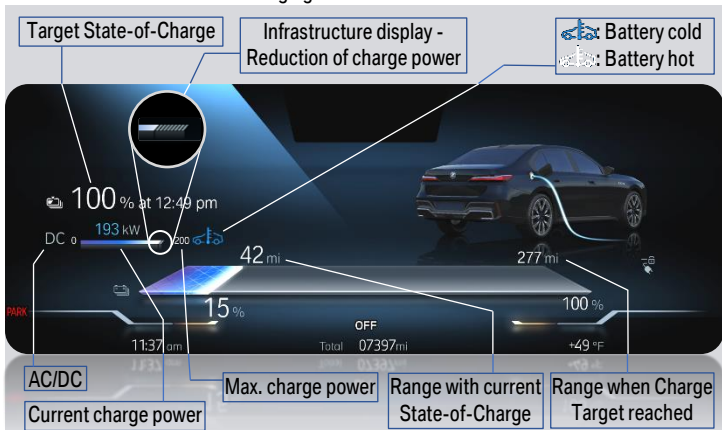
Plug & Charge availability is subject to vehicle equipment and Model Year. Please refer to the following Flow Code for more information:

- 1) As of 03/2024 following public charge point operators are supported: Electrify America
- 2) Additional CPOs will be added throughout 2024









CHARGING. INSTRUMENT CLUSTER.

BMW electrified vehicles instrument cluster display the status including all relevant information about the current charging session.

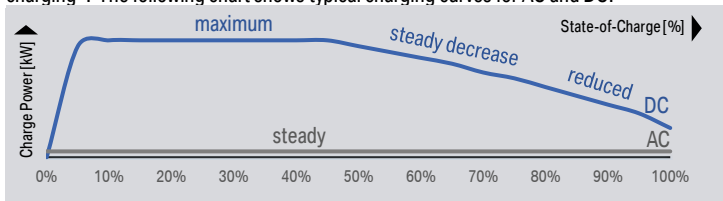


Additional important symbols on the charging screen include:

	Charging cable locked.		Charging cable unlocked.
	Departure time set.		Climate control activated at departure time. Flashing: Active.
	One-time departure time set.		Blinking: heating active.

CHARGING. CHARGING TIMES.

In general, charging power and therefore time depend on Input Voltage (V) and Current (A) which equal the charging power ($W = \text{Wattage}$). Higher power leads to potentially faster charging*. The following chart shows typical charging curves for AC and DC:



Factors reducing optimal charging times include but are not limited to:



Charging station:

Charging station output may not reach nominal values due to derating (controlled reduction of power) or infrastructure-related limitations.



Vehicle State-of-Charge:

Very low (<10%) or high (>80%) SoC at start of charging may reduce maximum charge power.



Battery Temperature:

If pre-conditioning was not completed the battery charging power may be limited due to battery temperature.



Interior Climate Pre-Conditioning:

Based on ambient conditions, the power required to operate the Climate control may affect the charging speed of the high voltage battery.



Use AC chargers (including Flexible Fast Charger) for daily charging. Use DC and High-Power DC chargers when you need to increase your electric driving range in a short period of time.





*For specific charging power and limits refer to the vehicle manual and bmwusa.com


DRIVING. RANGE.

All BMW light-duty vehicles are subject to EPA (Environmental Protection Agency) regulation and testing. "Driving Range" on the Monroney Label is based on a federally mandated EPA test cycle. Actual achieved range may vary based on various factors.

Deviations from standardized driving profiles may adversely affect range. All Gen 5.0 BMWs feature a state-of-the-art system to monitor actual driving patterns and environmental conditions. **The vehicle adapts** to a customer's driving style over time and **displays available range accordingly.**

Factors affecting range calculation include but are not limited to:

		<ul style="list-style-type: none">▪ Average speed and acceleration▪ Use of regenerative modes▪ Average environmental conditions, e.g., ambient temperature, road conditions▪ Tire size▪ Average utilization of climate control
		

	<p>Adaptations are learned values over time. The vehicle may take some time to adapt range prediction to a new driving pattern. Please allow time for adaptation after vehicle programming. Software upgrades may affect current adaptations for a short period.</p>
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Follow the Flow Codes to find recommendations on how to increase range:


 <p>Video: Range I</p>	 <p>Video: Range II</p>	 <p>Range & Route</p>
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DRIVING. RANGE.

Range can be affected by a variety of outside influences. A deviation from the officially communicated range for a vehicle may be normal and may not require a customer to visit the dealership.



Larger tires increase overall weight and the contact surface to the ground and therefore friction. Range may decrease.


 Ensure the tires are properly inflated. Refer to Label on B-Pillar.



Significantly **high or low temperatures** may affect range due to the battery's characteristics. High and low temperatures cause the battery to decrease its ability to maintain high efficiency.




Sustained high speeds lead to higher surface friction and wind drag and therefore decrease range.

 Lowering average speeds may increase range.




High payloads lead to higher overall weight. **Higher weight** requires **more energy** to move the vehicle and hence reduce range.

 Ensure that no unnecessary payload is carried (e.g., trunk).



Climate control uses electric systems to adjust temperatures. Large differences between ambient/interior temperature reduce range.


 Set temperature control to desired temperature in **Auto-Mode**.



Driving behavior such as fast acceleration or high speeds may unfavorably affect the vehicle's range. While the vehicle adapts to the driver's profile, a sustained "spirited" driving style may lead to less available range.



Steep roads and unfavorable road conditions may lead to lower range. Stop-and-Go traffic may affect range.

 Utilizing regenerative mode (**B**) may positively affect range.

DRIVING. BATTERY PRE-CONDITIONING.

Battery pre-conditioning is used to adjust the battery's temperature to enable optimal efficiency when charging at low or high ambient temperatures.



Using **BMW Navigation eRoutes** as intended will ensure automatic preconditioning of the battery and optimal high-power DC charging, especially **during hot and cold weather** conditions.

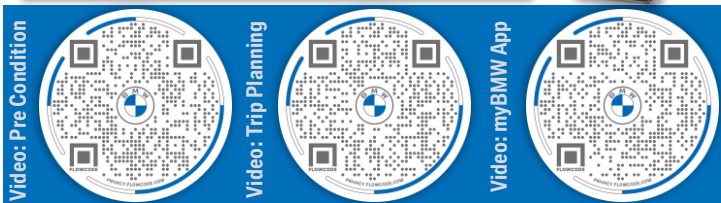
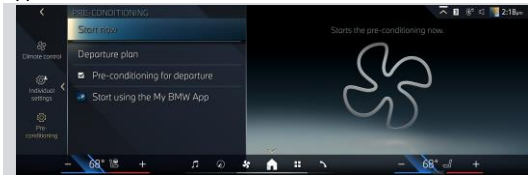


The vehicle will use the time until arrival to bring the battery into the optimal temperature range so that the vehicle can accept the highest available charging power.



Charging power of up to 205 kW is supported. Maximum actual charging power depends on factors such as vehicle State of Charge and available infrastructure (charging station).

Manual pre-conditioning is available through the vehicle's head unit or the **myBMW App** whenever it is needed. For more information scan the QR codes below:











Pre-conditioning may take up to 30 min. Please account for enough lead-time before high-power DC charging.

TROUBLESHOOTING.

FLEXIBLE FAST CHARGER.

The new BMW FFC 2.0 provides error mode detections to identify an error source. Errors are indicated on the FFC with the following symbols:

	Vehicle		Error due to overheat at main plug/socket detected.
	No error, booting		Error due to overheat at Flexible Fast Charger function box
	Infrastructure		Temporary error. Reboot FFC.
	Flexible Fast Charger		Temporary error. Reboot FFC.



To confirm possible malfunction, it is advised that a reboot of the FFC is performed, and the duplication of the error is attempted.

Manual restart:

Unplug vehicle connector → Unplug device from socket outlet → Wait for at least 5 seconds → re-plug to the socket outlet → re-plug vehicle connector



Any combination of status lights indicates different modes and errors. To verify possible errors manually restart the Charger. For further information **please see Flexible Fast Charger manual.**

TROUBLESHOOTING. CHECKLIST CHARGING.

The following checklist may be used to support service personnel in identifying potential outside factors affecting the charging experience.

General



- ✓ Was the issue a single occurrence or recurring?
- ✓ Did charging fail during initialization/start or was charging aborted?
- ✓ What was the current Limit set in the vehicles iDrive?
- ✓ Where any Check Control messages present?
- ✓ Was charging attempted at a different charger/socket?
- ✓ Was any damage on the charge plug detected?
- ✓ Was the charger/station/socket inspected by a qualified electrician?

Home Charging



- ✓ Which charger was used (manufacturer/type)?
- ✓ If the Flexible Fast Charger was used, which adaptor was installed and was a reboot attempted?
- ✓ Was the power grid/electrical installation inspected by a qualified electrician?

Public Charging



- ✓ Which charger was used (manufacturer/type) and what was the charging station identifier/name?
- ✓ What Charge Point Operator was used?
- ✓ Which authentication method was attempted (Credit Card, NFC, myBMW App, Plug & Charge)?
- ✓ Where any errors displayed on the charging station?
- ✓ Was the CPO contacted and what feedback was given?

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