

# Power Max Level 2 Charging Station





This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- -Reorient or relocate the receiving antenna.
- -Increase the separation between the equipment and receiver.
- -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- -Consult the dealer or an experienced radio/TV technician for help.

# **Table of Contents**

1	Intro	duction	2	
	1.1	Applications	2	
2	Impo	ortant Safety Warnings and Instructions	2	
3	Features and Specifications			
	3.1	Front View	3	
	3.2	Package Contents	3	
	3.3	Specifications	4	
4	Insta	Illation	5	
	4.1	Important SAFETY WARNINGS and Instructions	5	
	4.2	Grounding Instructions	5	
	4.3	Recommended Tools	5	
	4.4	Installing the Power Max Level 2 Charging Station	n 6	
5	Main	itenance	10	
6	Opei	rations and Troubleshooting	11	
	6.1	Charging	11	
	6.2	Charging Status Indicators	13	
	6.3	Troubleshooting	14	
7	Impo	ortant Notices	15	
	7.1	Limited Warranty	15	
	7.2	Disclaimer	15	
	7.3	Limitation of Liability	15	
	7.4	Copyrights, Trademarks	15	
	7.5	Technical Support	16	

569217 | REV. A | 05.22.2013 Bosch Automotive Service Solutions

#### 1 Introduction

The Bosch Power Max Level 2 Charging Station is designed for the U.S. market to charge plug-in electric vehicles (PHEV) and battery electric vehicles (BEV). It provides AC Level 2 Charging that effectively shortens charging time for typical electric vehicles (EVs) when compared to the Level 1 Cordset.

#### 1.1 Applications

- ▶ Residential
- Private and public parking facilities
- Fleet
- Shopping malls and retailers
- Workplace

Please read and follow these safety warnings and operating instructions carefully before operating the Bosch Power Max Level 2 Charging Station. Failure to follow these instructions may result in serious injury or property damage.

# 2 Important Safety Warnings and Instructions

#### IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS.



#### WARNING

Disconnect electrical power to the Power Max Level 2 Charging Station before installation. Failure to do so may cause physical injury or damage to the electrical system and charging unit.



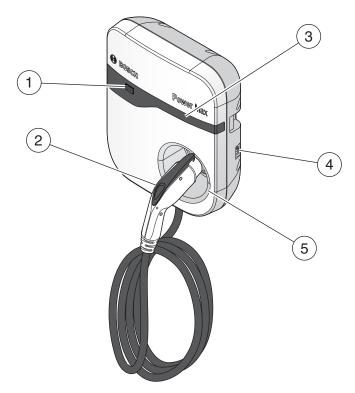
#### **CAUTION**

To reduce the risk of fire, connect only to a circuit provided with 20 amperes (EL-51245) or 40 amperes (EL-51253, EL-51254) maximum branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70.

- ▶ Read all the instructions before using this product.
- ▶ Children should be supervised when this product is used around children.
- ▶ Do not put fingers into the EV connector.
- Do not use this product if the EV cable is frayed, has broken insulation, or displays any other indication of damage.
- ▶ Do not use this product if the enclosure or the EV connector is broken, cracked, open, or show any other indication of damage.
- ▶ This product should be installed only by a qualified approved technician.
- Make sure that the materials used and the installation procedures follow local building codes and safety standards.
- ▶ The information provided in this manual in no way exempts the user of responsibility to follow all applicable codes or safety standards.
- ▶ Bosch is not responsible for physical injury, damage to property or equipment caused by the installation of this product.
- ▶ This document provides instructions for the wall-mounted Power Max Level 2 Charging Station and should not be used for any other product. Before installation or use of this product, you should review this manual carefully and consult with a licensed contractor, licensed electrician, or trained installation expert to make sure of compliance with local building codes and safety standards.

# **3 Features and Specifications**

#### 3.1 Front View



- 1. STOP button
- 2. Charging plug and cable
  - ▶ SAE J1772 compliant
- 3. Status indicator
  - ▶ Ready (green LED on)
  - ▶ Charging (green LED flashing)
  - Fault (red LED on)
  - Warning (red LED flashing)
- 4. ON/OFF switch
- 5. Plug dock

### 3.2 Package Contents

- ▶ Power Max Level 2 Charging Station
- ▶ Installation and Operating Instructions
- Mounting bracket
- ▶ Three (3) Torx T30 screws

# 3.3 Specifications

Model		EL-51245	EL-51253	EL-51254	
	Input Rating	208-240 Vac, 16 A	208-240 Vac, 30 A	208-240 Vac, 30 A	
Power Input	Connections & Wiring	L1, L2, and Ground, hardwired w/ terminal block			
	Standby Power	< 5 W			
Davis Output	Output Rating	208-240 Vac, 16 A	208-240 Vac, 30 A	208-240 Vac, 30 A	
Power Output	Cold-Load Pickup	Randomized delay before charge resume after power failure			
	Internal Residual Current Detection	20 mA CCID per UL 2			
Protection	Upstream Breaker	2-pole 20 A breaker on dedicated circuit, non-GFCI type  2-pole 40 A breaker on dedicated circuit, non-GFCI type		on dedicated circuit,	
	Output Protection	Power output is terminated upon detection of charging connector plug-out			
	Electrical Protection	Over current, short circuit, over voltage, under voltage, ground fault, surge protection, over temperature			
User Interface &	Status Indicators	Standby (solid green), charging (flashing green), fault (solid red), warning (flashing red)			
Control	Buttons/Switches	ON/OFF switch, stop button			
Environmental	Operating Temperature	-22°F to +122°F (-30°C to +50°C)			
	Humidity	95% relative humidity, non-condensing			
	Charging Cable Length	12 ft, straight cable	18 ft, straight cable	25 ft, straight cable	
	Ingress Protection	Type 3R			
Mechanical	Mounting Type	Wall-Mount			
	Dimension (W x H x D)	$13.8 \times 15.7 \times 5.0$ inch (350 x 400 x 126 mm), excluding charging cable and support bracket			
	Net Weight	15.4 lb (7 kg)			
Pogulation	Certificate	UL, cUL			
Regulation	Charging Interface	SAE J1772 compliant charging plug			

#### 4 Installation

#### 4.1 Important SAFETY WARNINGS and Instructions

#### IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS.



#### **WARNING**

Danger of electrical shock or injury. Turn OFF power at the panelboard or load center before working inside the equipment or removing any component. Do not remove circuit protective devices or any other component until the power is turned OFF.

The Power Max Level 2 Charging Station should be installed only by a licensed contractor, and/or a licensed electrician or trained installation expert in accordance with all applicable state, local and national electrical codes and standards.

Before installing the Power Max Level 2 Charging Station, review this manual carefully and consult with a licensed contractor, licensed electrician, or trained installation expert to ensure compliance with local building practices, climate conditions, safety standards, and state and local codes.

#### 4.2 Grounding Instructions

This product must be connected to a grounded, metal, permanent wiring system; or an equipment grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product.

#### 4.3 Recommended Tools

The following tools are recommended for the Power Max Level 2 Charging Station installation:

- Supplied accessories and components:
  - Level 2 Charging Station mounting bracket
  - Three (3) Torx T30 screws for securing the Level 2 Charging Station to the mounting bracket
- Installer-supplied components:
  - Conduit of appropriate trade size for power wire
  - Two (2) screws for securing the main body mounting bracket to the wall
- Recommended tools:
  - Torx T30 screwdriver

#### 4.4 Installing the Power Max Level 2 Charging Station

1. See Figure 4-1. Secure the Level 2 Charging Station mounting bracket to the wall using appropriate screws and bracket holes, as shown in Figure 4-1. Thread 1/4-in. expansion bolts through bracket offset holes into masonry walls as shown and torque to 78 lb·in (8.8 N·m). Thread 2-in., or longer, No. 8 wood screws through bracket inline holes into finished walls supported by wood studs and torque to 26 lb·in (3 N·m).

#### Note:

The Level 2 Charging Station must be mounted at a sufficient height from grade such that the height of the plug dock is located between 24–48 in. (0.6–1.2 m) from grade per NEC Article 625.

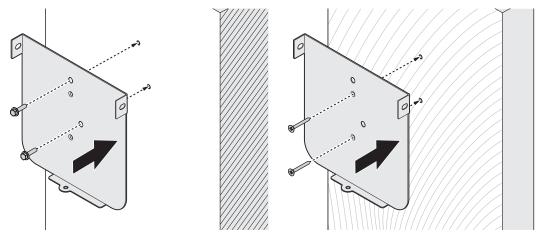
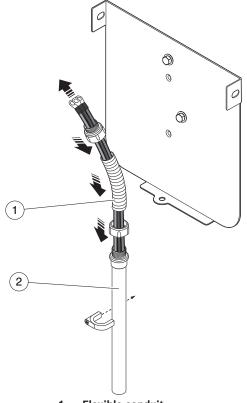


Figure 4-1. Mounting bracket use on masonry wall (left) and finished wall (right)

2. See Figure 4-2. Choose appropriate conduit in accordance with all applicable state, local, and national electrical codes and standards. Use flexible conduit when connecting to the rear of the Level 2 Charging station to faciliate rotation and installation on mounting bracket (Figure 4-4).



- 1. Flexible conduit
- 2. Rigid conduit

Figure 4-2. Conduit use

3. See Figure 4-3. Drill a hole of an appropriate size to accommodate the conduit system fitting in the bottom of the plastic housing as shown.



#### **CAUTION**

Drill the hole carefully to avoid punching through the housing and damaging internal components Place the Level 2 Charging Station on a soft surface during drilling to avoid damage.

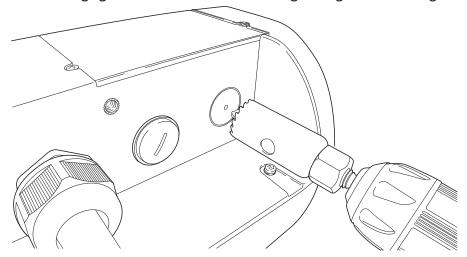


Figure 4-3. Drilling hole for conduit

4. See Figure 4-4. Install ring terminal eyelets on each wire end and connect each to the correct terminal input block connector. Use copper wire of the appropriate size to operate the EVSE at its rated amperage output. Replace the compartment cover and torque to 4.6 lb·in (0.5 N·m).

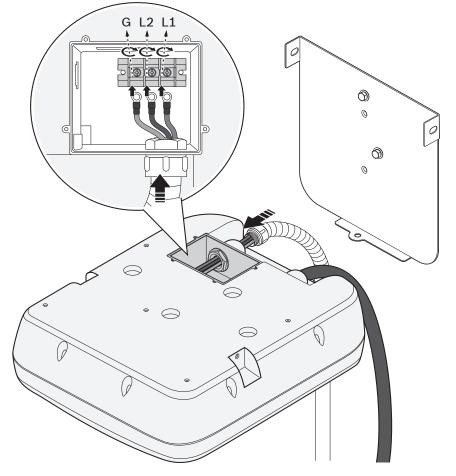


Figure 4-4. Electrical wiring with detail of input terminal block

569217 | REV. A | 05.22.2013 Bosch Automotive Service Solutions

5. See Figure 4-5. Align the screw holes of the mounting bracket with the Level 2 Charging Station.

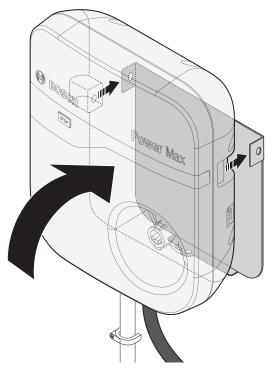


Figure 4-5. Alignment of charging station on mounting bracket

6. See Figure 4-6. Install and secure the charging station to the mounting bracket with the three (3) screws supplied.

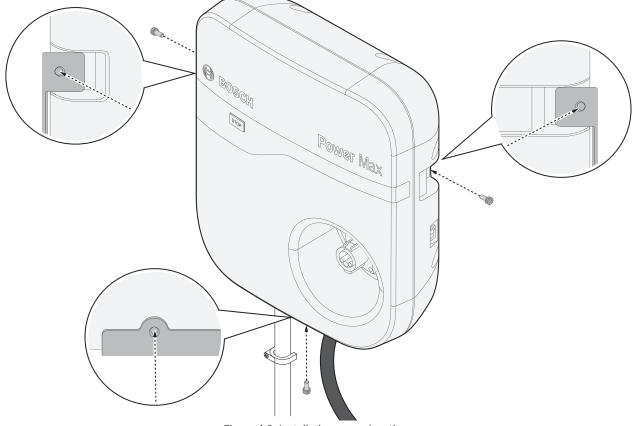


Figure 4-6. Installation screw locations

7. See Figure 4-7. Secure the charging plug to the Level 2 Charging Station.

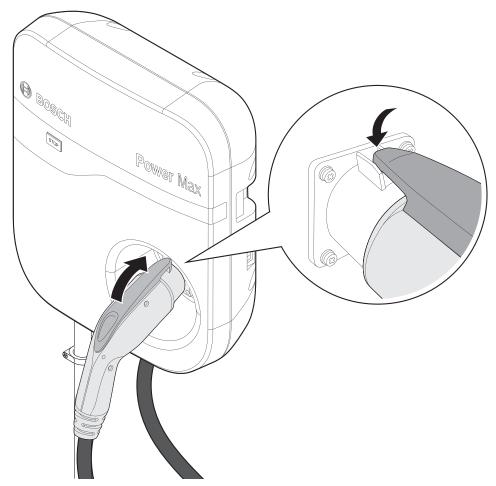


Figure 4-7. Plug attachment with detail of plug dock

569217 | REV. A | 05.22.2013 Bosch Automotive Service Solutions

# 5 Maintenance

The exterior of the Power Max Level 2 Charging Station is designed to be waterproof and dust proof with an ingress protection rating of Type 3R.

To ensure proper maintenance of the Level 2 Charging Station, follow these guidelines:

- ▶ Keep the exterior clean at all times.
- Do not spray water directly at the Level 2 Charging Station.
- ▶ Replace the charging plug in the plug dock after charging to avoid damage.
- ▶ Store the power cable on the Level 2 Charging Station after use to avoid damage.
- ▶ If the power cable or the charging plug is damaged, contact the charging station provider.

# **6 Operations and Troubleshooting**

#### 6.1 Charging

1. See Figure 6-1. Turn the Power Max Level 2 Charging Station power switch to ON. Wait 3 seconds for the green indicator light.

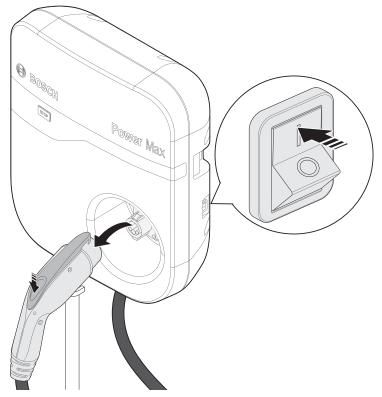


Figure 6-1. Powering on the Power Max Level 2 Charging Station and removing the charging plug

2. See Figure 6-2. Release the charging plug from the plug dock and connect it to the EV to start the charging process.

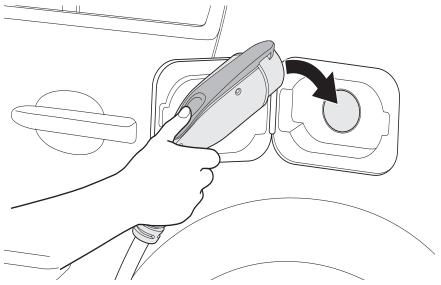


Figure 6-2. Connecting the charging plug to the EV

3. See Figure 6-3. To stop charging before charging is complete, disconnect the charging plug from the EV or press the "Stop" button. Remove and reconnect the charging plug with the EV to start charging again.

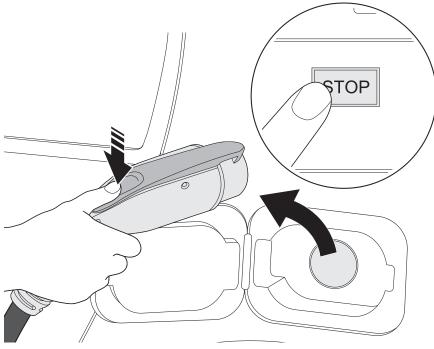


Figure 6-3. Stop charging

4. See Figure 6-4. When charging is complete, disconnect charging plug from the EV and place it in the plug dock to store the charging cable properly.

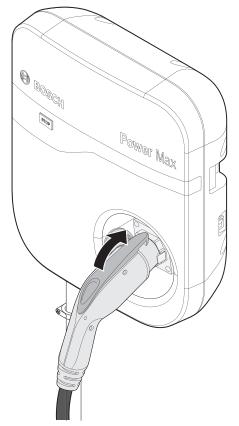


Figure 6-4. Place the charging plug in the plug dock

# **6.2** Charging Status Indicators

LED Status	Description	Definition	
	Off	Power is off.  Use the ON/OFF switch on the side of the Level 2 Charging Station to turn on	
		Level 2 Charging Station is ON; charging	
	Solid green	not in process.  Connect the charging cable to begin charging.	
<u> </u>		Charging in process.	
	Flashing green	LED status returns to solid green (above) when charging is complete.	
		Level 2 Charging Station fault.	
	Solid red	Stop using the Level 2 Charging Station and contact the Level 2 Charging Station provider.	
<u> </u>		Level 2 Charging Station is recovering from a minor fault.	
	Flashing red	Stop using the Level 2 Charging Station until the LED turns solid green.	

#### Note:

Minor clicking noises are normal during startup (powering on the Power Max Level 2 Charging Station and connecting to EV).

# 6.3 Troubleshooting

Situation	Action			
Status indicator is not green after the Level 2 Charging Station is powered on	<ol> <li>Make sure the AC power input is connected correctly.</li> <li>Turn OFF the Level 2 Charging Station and then back ON using the ON/OFF switch.</li> <li>If the problem persists, contact Technical Support.</li> </ol>			
Status indicator does not flash green when the Level 2 Charging Station is connected to the EV	<ol> <li>Unplug the charging plug and reconnect it fully to the receptacle on the EV.</li> <li>Inspect the cable and plug for damage.</li> <li>Inspect the EV and its receptacle for damage</li> <li>Try to charge with the portable cord set that came with the vehicle; contact Technical Support.</li> </ol>			
Status indicator flashes red while charging	<ol> <li>There is a temporary error.</li> <li>Wait until the temporary error is resolved and the Level 2 Charging Station returns to normal condition. It usually takes less than 10 seconds.</li> <li>If the status indicator doesn't return to green, turn OFF the Level 2 Charging Station and then back ON using the ON/OFF switch.</li> <li>If the situation persists, contact Technical Support.</li> </ol>			
Status indicator is solid red	<ol> <li>There is a critical error.</li> <li>Unplug the charging plug from the EV immediately.</li> <li>Turn OFF the Level 2 Charging Station and then back ON using the ON/OFF switch.</li> <li>If the situation persists, contact Technical Support.</li> </ol>			

### 7 Important Notices

#### 7.1 Limited Warranty

THIS WARRANTY IS EXPRESSLY LIMITED TO THE ORIGINAL PURCHASER OF THE POWER MAX LEVEL 2 CHARGING STATION ("POWER MAX").

- ▶ Power Max is warranted against defects in materials and workmanship for one year from the date of delivery.
- ▶ Power Max Cables and Connectors are warranted against defects in materials and workmanship for 90 days from the date of delivery.

This warranty is only valid to the original purchaser of the unit and is not transferable. All warranty claims must be made within the warranty period and proof of purchase must be supplied. This warranty does not cover the cost of freight to return the unit to Bosch.

The sole and exclusive remedy for any unit found to be defective is repair or replacement, at the option of Bosch. The existence of a defect shall be determined by Bosch in accordance with procedures established by Bosch. No one is authorized to make any statement or representation altering the terms of this warranty. This warranty covers only those defects that arise as a result of normal use of the unit and does not cover any other problems including those that arise as a result of abuse, neglect, improper maintenance, care or modification, operation outside of the unit's specifications or in a manner inconsistent with instructions regarding use. Bosch does not make any representation or warranty regarding the continuous availability of electrical service to the unit.

This warranty gives the original purchaser specific legal rights. The original purchaser may also have other rights which vary from state to state. To the extent that this warranty is inconsistent with applicable law, this warranty will be deemed modified to be consistent with such local law.

#### 7.2 Disclaimer

TO THE EXTENT PERMITTED BY APPLICABLE LAW AND EXCEPT AS EXPRESSLY PROVIDED IN THE LIMITED WARRANTY, BOSCH MAKES NO WARRANTY WITH RESPECT TO THE EQUIPMENT OR THE SERVICES, WHETHER EXPRESS, IMPLIED, STATUTORY OR OTHERWISE. BOSCH EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT OF THIRD PARTY RIGHTS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. BOSCH DOES NOT WARRANT UNINTERRUPTED OR ERROR FREE OPERATION OF THE EQUIPMENT.

The unit should be installed only by a licensed electrician and in accordance with all local and national codes and standards.

All information, illustrations, and specifications contained in this User Guide are based on the latest information available at the time of publication. The right is reserved to make changes at any time without obligation to notify any person or organization of such revisions or changes. Further, this User Guide is provided "as is" and BOSCH shall not be liable for errors contained herein.

#### 7.3 Limitation of Liability

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL BOSCH OR ITS SUPPLIERS BE LIABLE FOR ANY, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY EVEN IF BOSCH AND ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages for some products, so the limitations or exclusions contained herein may not apply.

#### 7.4 Copyrights, Trademarks

No part of this manual may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Bosch. Bosch is a registered trademark of Bosch Corporation. All third party trademarks are the property of their respective owners.

# 7.5 Technical Support

If technical support is required, contact Bosch at:

1-877-805-EVSE (3873)

www.pluginnow.com

Bosch

Automotive Service Solutions

28635 Mound Road Warren, MI 48092 USA Phone: (877) 805-EVSE (3873)

www.pluginnow.com