



Installation Guide

Smart EV Charger

For North America
Version 1.0

Disclaimers

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The images contained in this document are for illustrative purposes only and may vary depending on product models.

FCC Compliance

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, you are 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 the 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.

Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

Revision History

- Version 1.0 , December 2019 - first release

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HANDLING AND SAFETY INSTRUCTIONS

During installation, testing and inspection, adherence to all the handling and safety instructions is mandatory. **Failure to do so may result in injury or loss of life and damage to the equipment.**

Safety Symbols Information

The following safety symbols are used in this document. Familiarize yourself with the symbols and their meaning before installing or operating the system.

WARNING!

Denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in **injury or loss of life**. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.



AVERTISSEMENT!

Dénote un risque: il attire l'attention sur une opération qui, si elle n'est pas faite ou suivie correctement, pourrait causer des blessures ou un danger de mort. Ne pas dépasser une telle note avant que les conditions requises soient totalement comprises et accomplies.

CAUTION!

Denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in **damage or destruction of the product**. Do not proceed beyond a caution sign until the indicated conditions are fully understood and met.



ATTENTION!

Dénote un risque: il attire l'attention sur une opération qui, si elle n'est pas faite ou suivie correctement, pourrait causer un dommage ou destruction de l'équipement. Ne pas dépasser une telle note avant que les conditions requises soient totalement comprises et accomplies.

NOTE



Denotes additional information about the current subject.

IMPORTANT SAFETY FEATURE



Denotes information about safety issues.

RISK OF FIRE AND ELECTRIC SHOCK PREVENTION IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

PRÉVENTION DES RISQUES D'INCENDIE ET D'ÉLECTROCUTION CONSIGNES DE SÉCURITÉ IMPORTANTES

CONSERVEZ CES INSTRUCTIONS

Warning!

When using electric products, basic precautions should always be followed, including the following. This manual contains important instructions that shall be followed during installation, operation and maintenance of the unit.

- a. Read all the instructions before using this product.
 - b. This device should be supervised when used around children.
 - c. Do not put fingers into the electric vehicle connector.
 - d. Do not use this product if the flexible power cord or EV cable is frayed, has broken insulation, or any other signs of damage.
 - e. Do not use this product if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage.
 - f. Flexible cord use in accordance with CE code, Part I, Rule 4-012, is to be determined by the local inspection authority having jurisdiction.
1. An insulated grounding conductor that is identical in size, insulation material, and thickness to the grounded and ungrounded branch-circuit supply conductors, except that it is green with or without one or more yellow stripes, shall be installed as part of the branch circuit that supplies the device or system.
 2. The grounding conductor described in item 1 shall be grounded to earth at the service equipment or, when supplied by a separately derived system, at the supply transformer.



AVERTISSEMENT!

Des mesures de précautions de base devraient être utilisées avec tous les produits électriques, y compris les mesures indiquées ici. Ce manuel contient d'importantes instructions à suivre au moment de l'installation, de l'utilisation et de l'entretien de l'appareil.

- a. Lire toutes les instructions avant d'utiliser ce produit.

- b. Ce dispositif ne devrait pas être laissé sans surveillance s'il est utilisé près d'enfants.
 - c. Ne pas mettre les doigts dans la prise du véhicule électrique.
 - d. Ne pas utiliser ce produit si le cordon souple ou le câble VE est effiloché, si l'isolant est endommagé, ou s'il présente tout autre signe d'endommagement.
 - e. Ne pas utiliser ce produit si le boîtier ou la prise EV est endommagé, fissuré, ouvert, ou s'il présente tout autre signe d'endommagement.
 - f. L'utilisation du cordon flexible doit être conforme à la règle 4-012 de la partie I du code CE et doit être déterminée.
1. Un conducteur de mise à la terre isolé dont les dimensions, le matériau d'isolation et l'épaisseur sont identiques aux conducteurs d'alimentation de circuit de dérivation mis à la terre et non mis à la terre, sauf qu'il est vert avec ou sans une ou plusieurs bandes jaunes circuit qui alimente l'appareil ou le système.
 2. Le conducteur de mise à la terre décrit à l'article 1 doit être relié à la terre à l'équipement de service ou, lorsqu'il est alimenté par un système dérivé séparément, au transformateur d'alimentation.

WARNING!

Before operating the Smart EV Charger, ensure that the Smart EV Charger is grounded properly. 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.


AVERTISSEMENT!

Avant d'utiliser Smart EV Charger monophasé, assurez-vous que Smart EV Charger est correctement mis à la terre. Ce produit doit être raccordé à un système de câblage fixe, métallique, l'équipement-le conducteur de mise à la terre doit être exécuté avec les conducteurs de circuit et raccordé à l'équipement borne de mise à la terre ou de plomb sur le produit.

**NOTE**

Use only copper conductors rated for a minimum of 167°F.

**NOTE**

The symbol  appears at grounding points on the SolarEdge equipment. This symbol is also used in this manual.

WARNING!



The Smart EV Charger must be connected to a dedicated AC branch circuit with a maximum Overcurrent Protection Device (OCPD) of 50A.

WARNING!



Le chargeur EV intelligent doit être connecté à un circuit AC dédié avec un protecteur de surtension de 50A.

WARNING!

SolarEdge products can expose you to chemicals including antimony trioxide, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.

**AVERTISSEMENT!**

Les produits SolarEdge peut vous exposer à des agents chimiques, y compris trioxyde d'antimoine, identifiés par l'État de Californie comme pouvant causer le cancer. Pour de plus amples informations, prière de consulter www.P65Warnings.ca.gov.

CAUTION!

This unit must be operated according to the technical specification datasheet provided with the unit.

ATTENTION!

Cette unité doit être utilisée selon les spécifications de fonctionnement, comme décrit dans la dernière fiche technique des spécifications.

NOTE

This Smart EV charger s provided with an IMI (Isolation Monitor Interrupter) for ground fault protection

NOTE

Ce chargeur pour Véhicule électrique est fourni avec un interrupteur de moniteur d'isolation (IMI) pour la protection contre les défauts à la terre

NOTE

The Smart EV Charger is NEMA type 3R rated . Unused conduit entry and glands should be sealed with appropriate seals.

NOTE

The local inspection authority having jurisdiction will determine if the Smart EV Charger power cord connected to the outlet is suitable for use in accordance with CE code, part I, rule 4-012.

NOTE

C'EST À L'AUTORITÉ LOCALE COMPÉTENTE EN MATIÈRE D'INSPECTION QU'INCOMBE DE DÉTERMINER SI UN CORDON SOUPLE PEUT ÊTRE UTILISÉ CONFORMÉMENT À L'ARTICLE 4-012 DU CCÉ, PREMIÈRE PARTIE

WARNING!

Risk of electric shock. Do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

AVERTISSEMENT!

Risque de choc électrique. Ne pas retirer le couvercle. Pas de pièces sujettes à maintenance. Laissez la maintenance à du personnel qualifié.

Grounding Instructions

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

CONSIGNES DE MISE À LA TERRE

Ce produit doit être mis à la terre. En cas de mauvais fonctionnement ou de rupture, la mise à la terre offre un trajet de moindre résistance au courant électrique ce qui réduit le risque de choc électrique. Ce produit est muni d'un cordon contenant un conducteur et une fiche mise à la terre. La fiche doit être introduite dans une prise appropriée, installée correctement et mise à la terre conformément aux codes et règlements locaux

WARNING!



Improper connection of the equipment-grounding conductor might result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product – if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

AVERTISSEMENT

Une mauvaise connexion du conducteur de mise à la terre peut présenter un risque de choc électrique. Consultez un électricien ou un technicien qualifié si vous avez des doutes quant à la qualité de la mise à la terre. Ne pas modifier la fiche qui équipe le produit – si elle ne convient pas à la prise, faire installer une prise appropriée par un électricien qualifié.

Smart EV Charging Safety Instructions

WARNING!

Do not charge a vehicle indoors if it requires ventilation. Contact your EV service representative for information.

AVERTISSEMENT!

Ne pas recharger un véhicule à l'intérieur si il nécessite une ventilation. Contactez votre représentant de service pour plus d'informations.

WARNING!

Automatic CCID (charge circuit interrupting device) reset provided.

AVERTISSEMENT!

Réinitialisation CCID (charge circuit interrupting device) automatique incluse.

CAUTION!

Do not use this product if there is any damage to the unit.

ATTENTION!

Ne pas utiliser pas ce produit si l'appareil est endommagé.

CAUTION!

Do not use an extension cord between the Smart EV Charger Cable and the Smart EV Charger. You may use a conversion adapter only if it has been approved by SolarEdge.

ATTENTION!

Ne pas utiliser de rallonge entre le câble du chargeur EV SolarEdge et Smart EV Charger. Vous ne pouvez utiliser un adaptateur de conversion que s'il a été approuvé par SolarEdge

Chapter 1: Introduction to Smart EV Charger

The Smart EV Charger is designed to provide reliable and economical charging of an electric vehicle (EV). It provides Level 2 EV charging from the AC and the PV system, and is designed to work with all plug-in vehicles with J1772 (Type 1) socket.

The Smart EV Charger is also used for hanging the Smart EV Charger cable, protecting the plug from rain when not plugged into the vehicle.

The Smart EV Charger offers the following connection options to the grid:

- AC plug (NEMA 6-50) used for plugging the Smart EV Charger into the wall socket for connecting to the alternating current (AC).
- Direct AC connection to the Smart EV Charger. To be performed only by a professional installer.

Additionally, there is an option for connecting the Smart EV Charger to a Single phase inverter with HD-Wave technology at your site, enabling to use PV power as well as grid power for EV charging. This option is to be performed only by a professional installer.

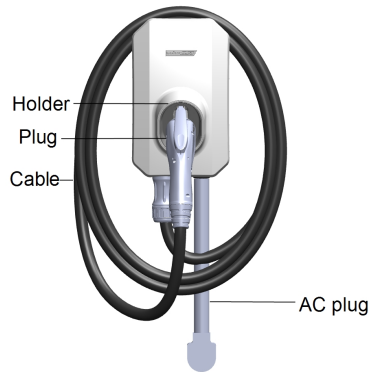


Figure 1: Smart EV Charger

Packages Contents and Required Equipment

Smart EV Charger Package

- Smart EV Charger Station
- Smart EV Charger mounting bracket and tightening screws

EV Cable Package

- EV Cable
- EV Cable Locker

Required Equipment

- Screwdriver
- Unibit Drill

Chapter 2: Connectors and Interfaces

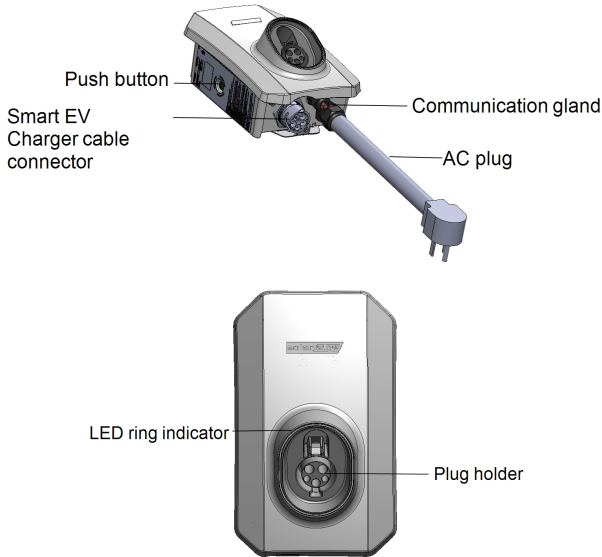


Figure 2: Smart EV Charger connectors and interfaces

- **Smart EV Charger cable connector:** Used for connecting the cable to the Smart EV Charger
- **AC plug :**Used for plugging the Smart EV Charger into the wall socket
- **Smart EV Charger push button:** Pressing the button has the following functionality:

Press	Description
Short press	<ul style="list-style-type: none"> • In case of malfunction restarts the Smart EV Charger. • In case the Smart EV Charger is on scheduling mode press to immediately start charging.
Long press	Turn on the Wi-Fi

- **Communication gland** - for professional installer:
For connection of Smart EV Charger communication options, refer to *Professional Installer - Setting Up Communication* on page 36 for more information.

- **Plug holder:** Holds the plug when not being used.
- **Smart EV Charger LED ring indicator:** Indicates the Smart EV Charger statuses as described in the following table:

Color	Description
OFF	No AC power
Red	ON - Error
Green	ON - Charging Blinking - Connected but not charging Breathing ⁽¹⁾ - Ready to charge
Orange	ON - Charging. No network connection. Blinking - Connected but not charging. No network connection Breathing -Ready to charge. No network connection.
Purple	Fast blinking - Wi-Fi is available, Smart EV Charger not connected to the network. ON - Wi-Fi is available and Smart EV Charger is connected to the network.

Buzzer

The Smart EV charger includes a buzzer with the following indications:

Event	Buzzer Indication
Connected to EV	1 short beep
Charging starts	2 short beeps + 1 long beep
Error	5 beeps

(1)The light switches on slowly and gradually increases up to maximum and then slowly decreases back to off

Main Procedures

The Smart EV Charger is supplied with a mounting bracket kit.

1. Mount the Smart EV Charger bracket
2. Mount the Smart EV Charger on the bracket
3. Connect the Smart EV Charger cable to the Smart EV Charger
4. Set the circuit breaker rating DIP switches
5. Plug in the AC plug

Follow the detailed procedures in the following sections to mount and connect the Smart EV Charger

→ To mount the Smart EV Charger bracket:

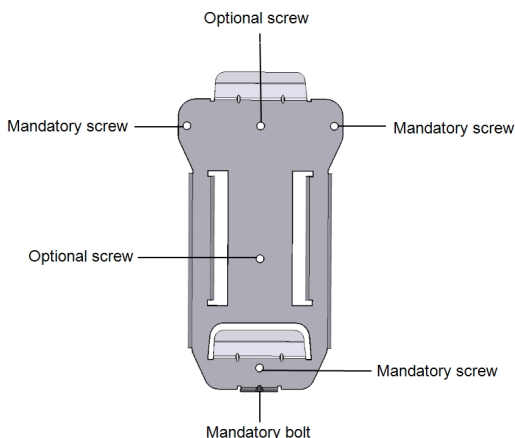


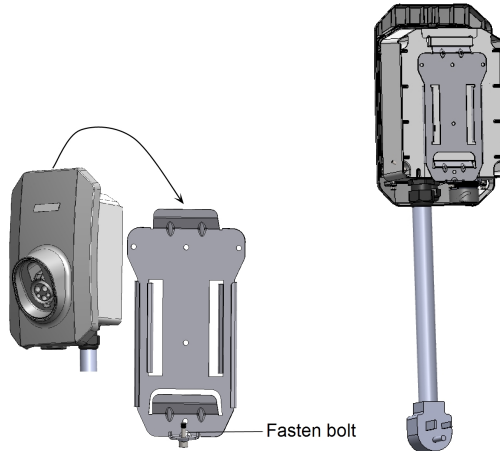
Figure 3: Mounting bracket

1. Determine the Smart EV Charger mounting location, on the mounting surface.
2. Maintain the following minimum clearance areas between the Smart EV Charger and other objects:
 - 8" from the top and sides of the Smart EV Charger
 - At least 18" from the bottom of the Smart EV Charger if installing it indoors, 24" if outdoors. If you are connecting the Smart EV Charger directly to the AC leave sufficient clearance for the conduit as well.
3. Position the mounting bracket against the mounting surface and mark at least three drilling hole locations (refer to *Mechanical Specifications* on page 52 for mounting

bracket dimensions). Drill holes in the locations you marked and mount the bracket. Verify that the bracket is firmly attached to the mounting surface.

→ To mount the Smart EV Charger on the bracket:

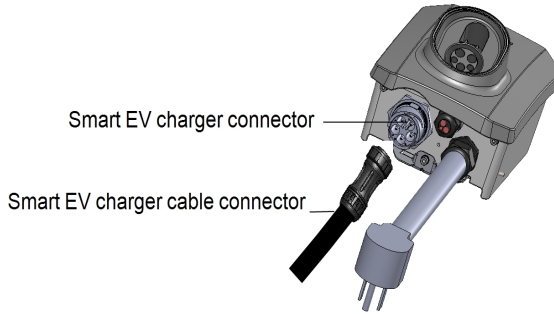
1. Lift and hang the Smart EV Charger on the mounted bracket (see the following figure).



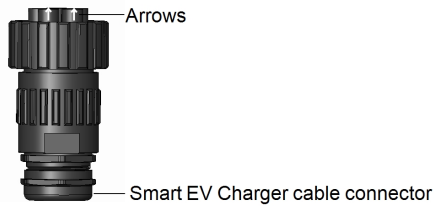
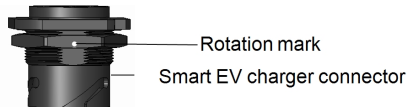
2. Fasten the supplied bolt to the Smart EV Charger.

→ To connect the Smart EV charger cable:

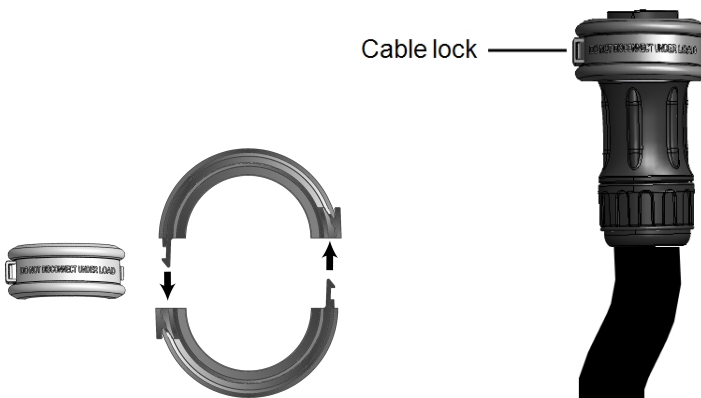
1. Align the two white arrows on the Smart EV charger cable connector with the white dot on the Smart EV Charger connector located at the bottom of the Smart EV Charger. The dot should be between the two arrows (see the following figure).
2. Plug the cable connector into the Smart EV charger connector (see the following figure).



3. Rotate the cable connector clockwise to fasten it (see the following figure).



4. Assemble the two parts of the cable lock around the cable connector. Push the parts together until they click to lock (see the following figure).



Chapter 3: Configuring and Using Smart EV Charger with mySolarEdge

After installing the Smart EV Charger configure it, then enable charging and other advanced features (e.g. scheduling, excess solar charging) with mySolarEdge.

Using mySolarEdge

The following procedure describes the main actions required for using mySolarEdge to configure and use the Smart EV Charger. You can download the app from the Apple App Store or from Google Play, then click mySolarEdge icon.



→ To sign up to mySolarEdge:

1. Tap **Sign up** then follow the on- screen instructions until you get to the **Scan the QR Barcode** screen.
2. Scan the QR barcode on the silver sticker located on the side of the device.

→ To configure and use mySolarEdge:

1. Login using your credentials.
2. Press the Smart EV Charger pushbutton (*Figure 2*) for 5 seconds to establish a local Wi-Fi connection.
3. Connect to the Smart EV Charger using the Connecting to Wi-Fi screen.
4. Once successfully connected return to mySolarEdge Welcome screen.
5. On the Welcome screen tap EV Charger, then tap the car icon to access the Smart EV Charger configuration screens.
6. Follow the on-screen instructions to configure and use mySolarEdge with Smart EV Charger.

Chapter 4: Charging Instructions

1. Verify that the green LED ring is ON indicating that the Smart EV Charger is ON and ready to charge.
2. Hold the Smart EV Charger plug and unwind the cable from the holder.
3. Connect the Smart EV Charger plug to the charging socket of the vehicle and push firmly until it clicks into the socket. The Smart EV Charger will sound 1 short beep and the green LED will change from breathing to blinking indicating a proper connection.

The charging starts automatically, indicated by 2 short beeps and 1 long beep while the green LED is steadily on.

When the charging is complete, the green LED starts blinking.

4. Press the Smart EV Charger plug latch and pull it from the vehicle's EV charging socket.
5. Wind the Smart EV Charger cable around the device and put the plug back in the holder.

Chapter 5: Professional Installer- Connecting the AC Directly to the Smart EV Charger

It is recommended to use this connection option for outdoor installations in case an AC socket is not accessible indoors. This option enables you to connect the Smart EV charger directly to a service panel.

Required Equipment

- Open ended 36 mm wrench
- Allen Key
- Screwdriver

Main Procedure

1. Set the circuit breaker rating DIP switches
2. Remove the Smart EV Charger covers
3. Disconnect the AC Plug
4. Directly connect the AC to the Smart EV Charger
5. Close the Smart EV Charger

Grid Connection Guidelines

- The conduits, hubs and fittings must be suited for field wiring systems.
- Use only copper conductors rated for a minimum of 167°F.
- Use the conduit and wiring appropriate for the installation location per the NEC. Outdoor installations must use components that are rated NEMA 3R or higher.

NOTE



For more wiring information refer to the *SolarEdge Recommended AC Wiring Application Note*, available on the SolarEdge website at

<https://www.solaredge.com/sites/default/files/application-note-recommended-wiring.pdf>



Setting the Circuit Breaker Ratings

DIP Switches

Set the circuit breaker rating DIP switches as shown in the following figure and table.

WARNING!

Before changing the DIP Switches, turn off the AC to the Smart EV Charger.



AVERTISSEMENT!

Avant de changer les commutateurs DIP, coupez l'alimentation CA du chargeur Smart EV.

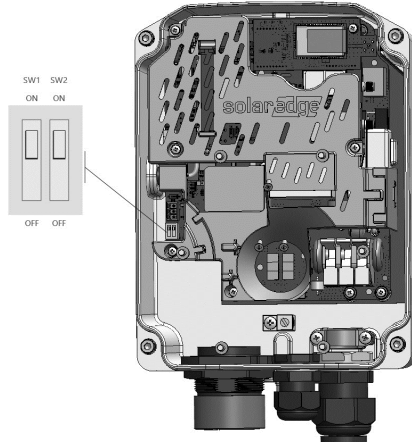


Figure 4: Smart EV Charger DIP switch interface

→ To set the circuit breaker ratings:

Adjust the Smart EV Charger DIP switches according to your circuit breaker rating to set maximum allowed AC current from the grid.

By default, the DIP switch is set to the 40A which is the maximum allowed AC current.

Circuit Breaker Rating	DIP Switch Settings		Maximum Allowed AC Current from Grid	Wire Gauge Range
	SW1	SW2		
20 A	OFF	OFF	16 A	14-6 AWG
30 A	ON	OFF	24 A	10-6 AWG
40 A	OFF	ON	32 A	8-6 AWG
50 A	ON	ON	40 A	8-6 AWG

Supported AC Grids

The following figures illustrate grids that are supported by the Smart EV Charger.

Ground connection is required for all grids, as described in *Disconnecting the AC Plug* on page 26.

Note that in some cases L1 and L2 are not interchangeable. In such cases, L1 and L2 locations appear in the following drawing.

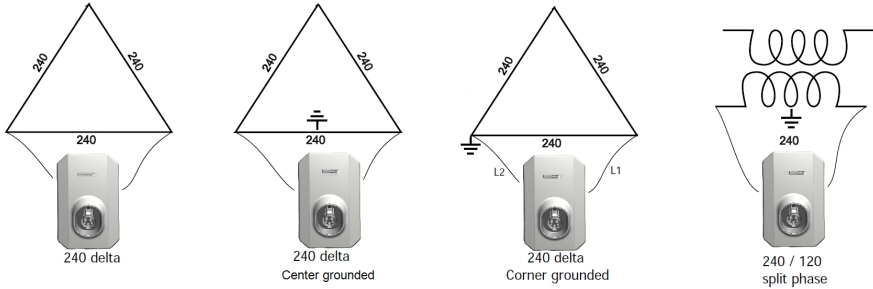


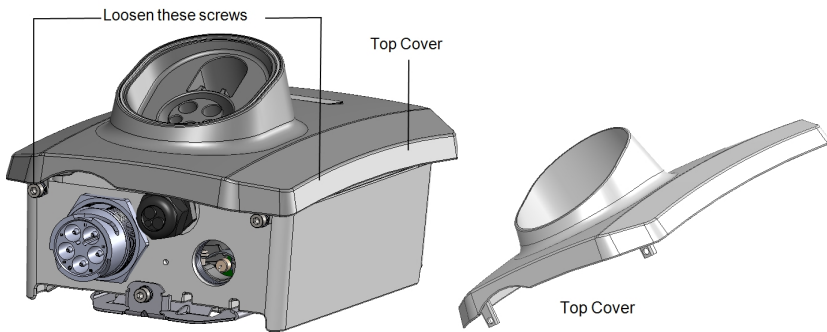
Figure 5: 240V AC grids supported by Smart EV Charger

Removing the Smart EV Charger Covers

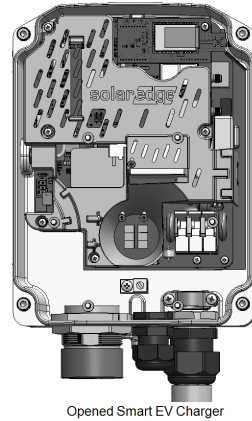
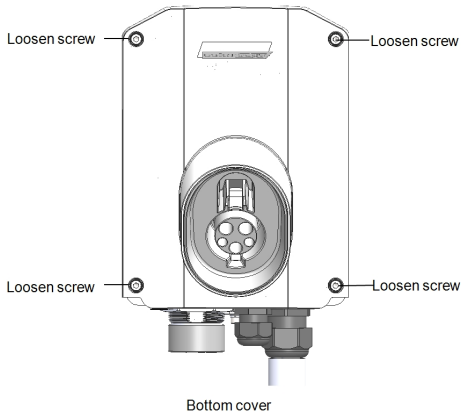
The Smart EV Charger has two covers: a top cover and a bottom cover. You must remove both covers to open the Smart EV Charger.

→ To remove the Smart EV Charger covers:

1. Loosen the screws on the top cover (see the following figure) and remove it.



2. Loosen the screws of the bottom cover (see the following figure) and remove it as well.

**CAUTION!**

When removing the covers, make sure not to damage the internal components. SolarEdge will not be held responsible for any components damaged as a result of incautious cover removal.

**ATTENTION!**

Lors du retrait du couvercle, assurez-vous de ne pas endommager les composants internes. SolarEdge ne peut être tenue pour responsable des composants endommagés à la suite d'une imprudence dans le retrait du couvercle.

Disconnecting the AC Plug

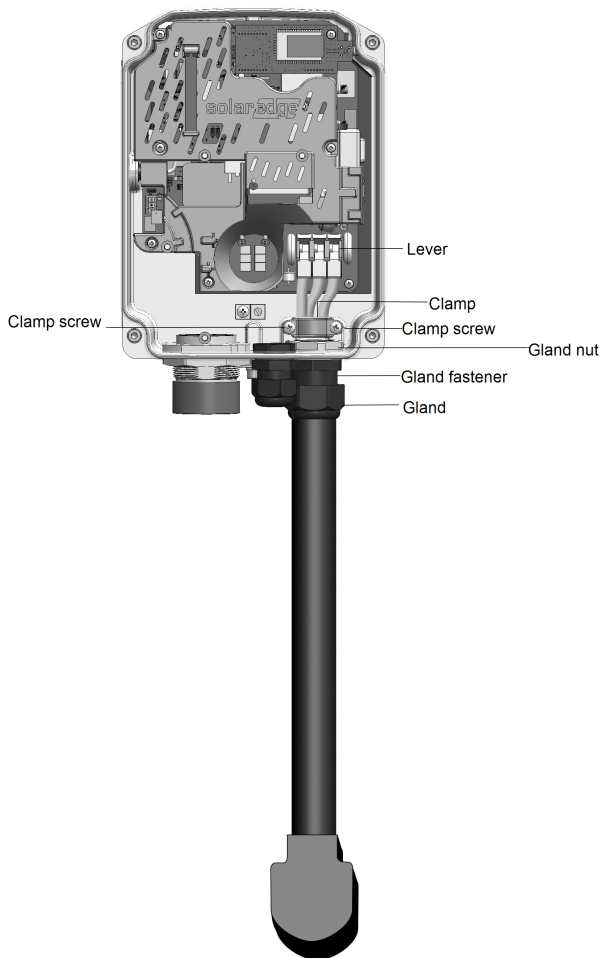


Figure 6: Inside the Smart EV Charger

→ To disconnect the AC plug:

1. Remove the Smart EV Charger covers. See *Removing the Smart EV Charger Covers* on page 24.
2. Release the two clamping screws and remove the clamp. See *Figure 6*.
3. Push the terminal blocks levers up to release the G, L1 and L2 wires. See *Figure 6*.
A neutral connection to the Smart EV Charger is not required.

4. Release the gland nut. See *Figure 6*.
5. Pull out the AC Plug cable from the conduit entry. See *Figure 6*.

Directly Connecting the AC Grid to the Smart EV Charger

→ To directly connect the AC grid to the Smart EV Charger:

1. Strip 15/32" (12mm) of the 14-6 AWG AC wire insulation.
2. Connect the conduit ground with a 14-6 AWG wire to the GND (see the figure in step 5).
3. Insert the AC conduit into the AC conduit entry.

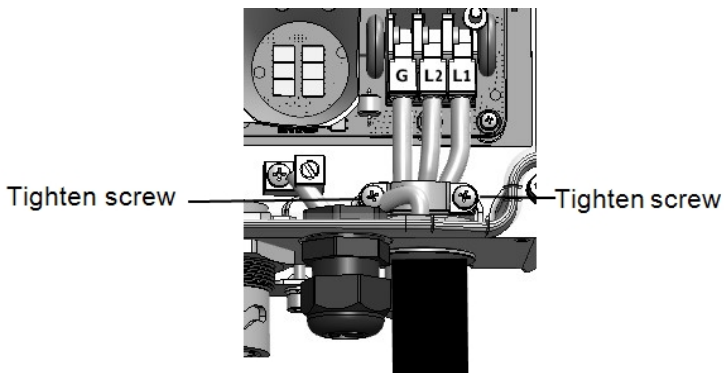
NOTE



Connect the equipment grounding before connecting the AC wires to the AC terminal block.

Veillez à relier le conducteur de PE (la terre) avant de connecter les fils CA au bornier CA.

4. Insert the AC cable through the conduit entry and tighten the screws (see the figure in step 5).
5. Insert the wires into the round openings according to the labels on the terminal blocks (G, L2 and L1) and close the levers – the wires are automatically clamped (see the following figure).



6. Verify that there are no unconnected wires.
7. Close the Smart EV Charger covers. See *Closing the Smart EV Charger Covers* on page 34.

Connecting the Smart EV Charger to the Single phase inverter with HD-Wave technology

This section describes the procedures required for connecting the Smart EV Charger to the Single phase inverter with HD-Wave technology. This option enables using PV produced by the Single phase inverter with HD-Wave technology as well as power from the grid, for Level 2 EV charging.

Prerequisites

Before connecting the Smart EV Charger to the Single phase inverter with HD-Wave technology, replace the bus bar and AC terminal blocks inside the DC Safety Unit as described in these following procedures, using the supplied kit.

Kit Contents

- 2 terminal blocks
- 9 hole bus bar

Required Equipment

- Unibit drill
- Open ended 36mm wrench
- 3.6" / 5mm flat-blade screwdriver

Main Procedure

1. Remove the DC Safety Unit Cover and open the AC conduit drill guide
2. Replace the existing AC terminal blocks, inside the DC Safety Unit
3. Replace the existing bus bar, inside the DC Safety Unit
4. Connect the AC cable between the Single phase inverter with HD-Wave technology and the Smart EV Charger
5. Connect the AC wires to the DC Safety Unit AC terminals

The following are the detailed procedures.

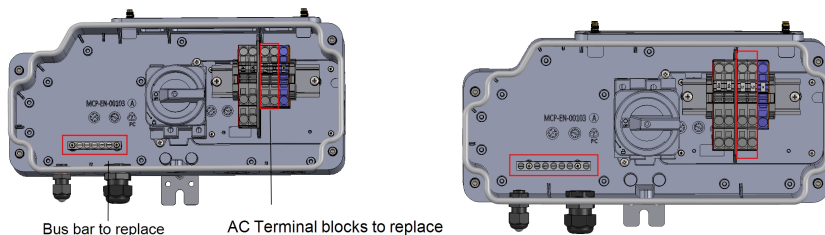


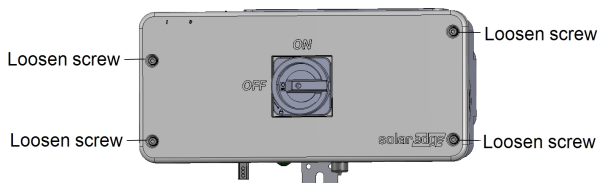
Figure 7: Inside the DC Safety Unit before (left) and after (right) replacements

Removing the DC Safety Unit Cover and Opening the AC Conduit Drill Guide

Follow this procedure to remove the DC Safety Unit and open the AC conduit drill guide.

→ To remove the DC Safety Unit cover and to open the AC conduit drill guide:

1. Turn OFF the inverter ON/OFF switch, and wait until the green LED is blinking , indicating that the DC voltage is safe (<50V), or wait five minutes before continuing to the next step.
2. Disconnect the AC to the inverter by turning OFF the circuit breakers on the service panel.
3. Open the DC Safety cover (see the following figure):
 - a. Release the four Allen screws of the cover.
 - b. Tilt the top of the cover towards you.
 - c. Slide the cover down and remove it.



CAUTION!

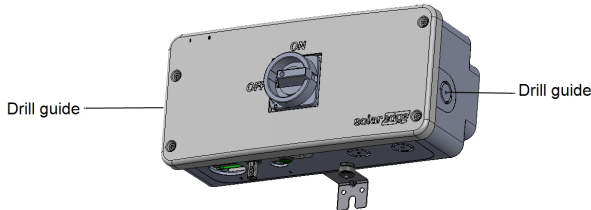
When removing the cover, make sure not to damage internal components. SolarEdge will not be held responsible for any components damaged as a result of incautious cover removal.



ATTENTION!

Lors du retrait du couvercle, assurez-vous de ne pas endommager les composants internes. SolarEdge ne peut être tenue pour responsable des composants endommagés à la suite d'une imprudence dans le retrait du couvercle.

4. Open the AC conduit drill guide either on the left or the right side (as shown in the following image), taking care not to interfere with any of the internal components (see the following figure). It is recommended to use a Unibit drill.

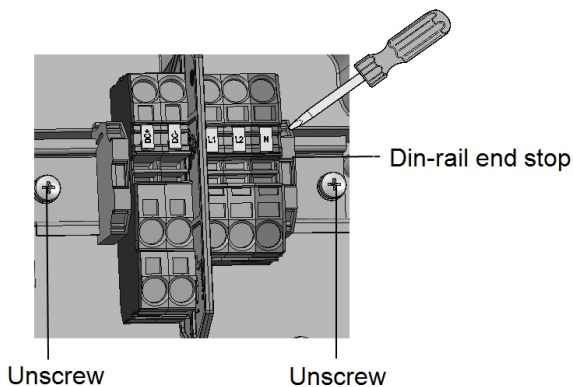


Replacing the AC terminal Blocks, Inside the DC Safety Unit

For the location of the existing and new AC terminal blocks inside the DC Safety Unit, see *Figure 7*.

→ To remove the existing AC terminal blocks:

1. Unscrew the screws on the right and left sides of the DIN-rail.
2. Using a screwdriver remove the right end-stop from the DIN-rail (see the following figure).



3. Pull out the DIN- rail.
4. Insert a screwdriver into each AC terminal block and press to remove the cables.
5. Remove the AC terminal blocks from the DIN-rail.

→ To install the new AC terminal blocks:

1. Snap the two new AC terminal blocks onto the DIN rail. Place the terminal block labeled "L1" on the left side of each pair and "L2" on the right and put back the terminal block labeled "N".
2. Snap the end-stops onto the DIN rail - one on each side of the DIN rail.
3. Insert a dedicated tool or a 3.6"/5mm flat-blade screwdriver into the opening and rotate it counter-clockwise to unlock the clamp mechanism.
4. Press the latch with your finger to hold the clamp in the unlock position.
5. Fully insert the AC cables into the cable openings and slightly rotate the screwdriver counter-clockwise to release the latch.
6. Check that all the terminal block wires are firmly and correctly connected .

Replacing the Bus Bar, inside the DC Safety Unit

For the location of the existing bus bars inside the DC Safety Unit, see *Figure 7*.

→ To replace the bus bar:

1. Unscrew the two screws connecting the bus bar to the board.
2. Replace with the new bus bar and tighten the screws with a screwdriver.
3. Reconnect the grounding wires.

Connecting the AC cable between the Single phase inverter with HD-Wave technology and the Smart EV Charger

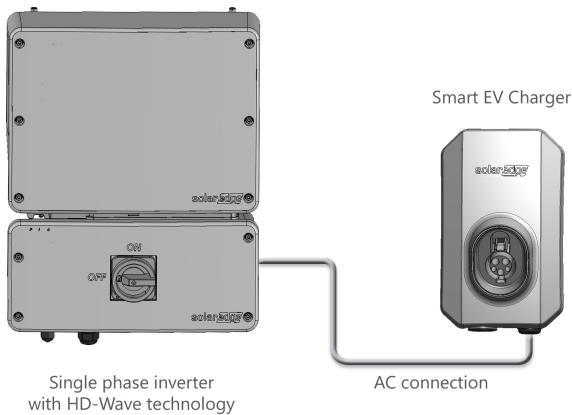
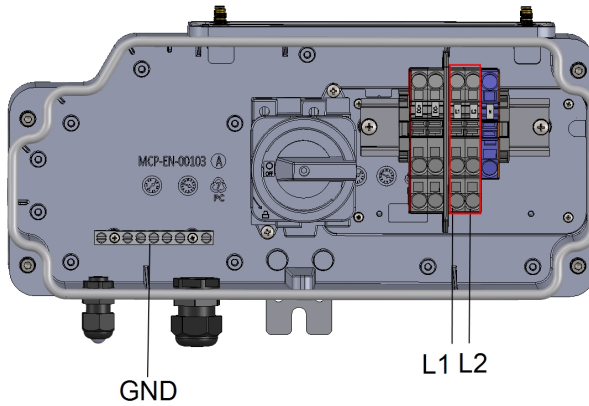


Figure 8: Single phase inverter with HD-Wave technology connected to Smart EV Charger

→ To connect the AC cable between the Single phase inverter with HD-Wave technology and the Smart EV Charger:

1. Disconnect the AC plug from the bottom of the Smart EV Charger. See *Disconnecting the AC Plug* on page 26
2. Insert the AC cable that contains the L1, L2 and grounding wires through the opened conduit on the side of the DC Safety Unit.
3. Connect the AC wires according to the labels on the terminal block (see the following figure).

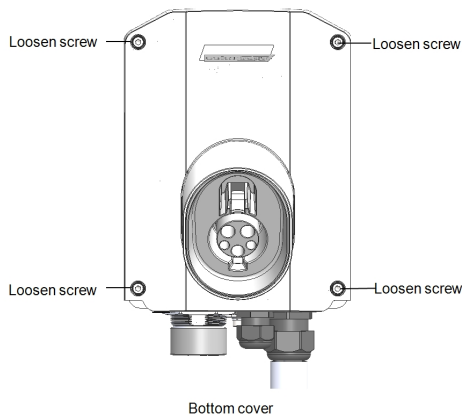


4. Close all covers and turn on the inverter and the Smart EV Charger.

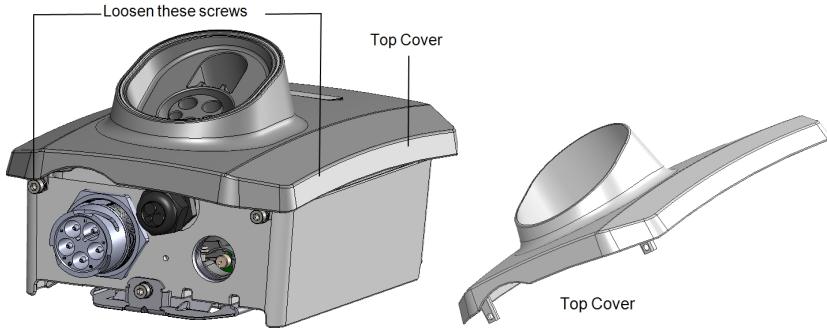
Closing the Smart EV Charger Covers

→ To close the Smart EV Charger covers:

1. Place the bottom cover on the Smart EV Charger and tighten the screws (see the following figure).



2. Place the top cover on the bottom cover, insert and tighten screws (see the following figure).



Chapter 6: Professional Installer - Setting Up Communication

This section describes how to set up communication between the Smart EV Charger and the monitoring platform through the Internet (wired/ wireless).

Communication setup is not required for charging, however it is needed for using advanced features (e.g. scheduling, excess solar charging) and for transferring EV charging related information to the monitoring platform.



NOTE

It is recommended to connect communications before connecting the AC, for easier access to the communication board.

Communication Options

The following types of communication can be used to transfer the monitored information from the Smart EV Charger to the monitoring platform.

Only communication products offered by SolarEdge are supported.

Wi-Fi

A Wi-Fi connection is provided for connecting to mySolarEdge app, SetApp and to the monitoring platform. An antenna is required and available from SolarEdge for extending the Wi-Fi range.

The Wi-Fi access point is built into the Smart EV Charger.

Ethernet

Ethernet is used for a LAN connection. For connection instructions refer to *Creating an Ethernet (LAN) Connection* on page 38.

RS485

The RS485 ports are used for communicating with:

- Single phase inverter with HD-Wave technology. For connection instructions refer to *Creating an RS485 Bus Connection to SolarEdge Inverter or Gateway* on page 42.
- Import/Export Meter. For connection instructions refer to *Professional Installer - Connecting the Smart EV Charger to an Energy Meter* on page 49.

Cellular



This wireless communication option (purchased separately) enables using a cellular network to connect to the monitoring platform.

The Cellular Plug-in is provided with a user manual, which should be reviewed prior to connection. Refer to <https://www.solaredge.com/sites/default/files/se-cellular-plug-in-for-inverters-with-setapp-installation-guide.pdf>

Communication Connectors

A communication gland with multiple openings is used for connection of the various communication options. The table below describes the functionality of each gland opening. Unused openings should remain sealed.

Opening for cable size (diameter)	Connection type
2.5 - 5 mm	RS485
4.5 - 7 mm, with cut	Ethernet (CAT5/6)
2 - 4 mm, with cut	Cable for external wireless or cellular communication

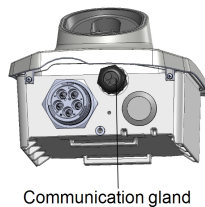


Figure 9: Communication Gland

The communication board has a standard RJ45 terminal block for Ethernet connection and a 6-pin terminal block for RS485 connection.

The Cellular Plug-in can be connected to the communication board for optional wireless connection.

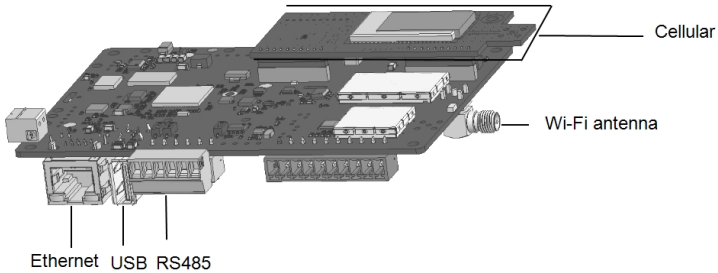


Figure 10: Communication board connectors

Creating an Ethernet (LAN) Connection

This communication option enables using an Ethernet connection to connect the Smart EV Charger to the monitoring platform through a LAN.



Figure 11: Example of Ethernet connection

Ethernet cable specifications:

- Cable type – a shielded Ethernet cable (Cat5/5E STP) may be used
- Maximum distance between the Smart EV Charger and the router –330 ft.

NOTE

If using a cable longer than 33 ft in areas where there is a risk of induced voltage surges by lightning, it is recommend to use external surge protection devices.

For details refer to:

https://www.solaredge.com/sites/default/files/overvoltage_surge_protection_na.pdf.



→ To connect the Ethernet cable:

1. Remove the Smart EV Charger covers as described in *Removing the Smart EV Charger Covers* on page 24.
2. Open the communication gland.

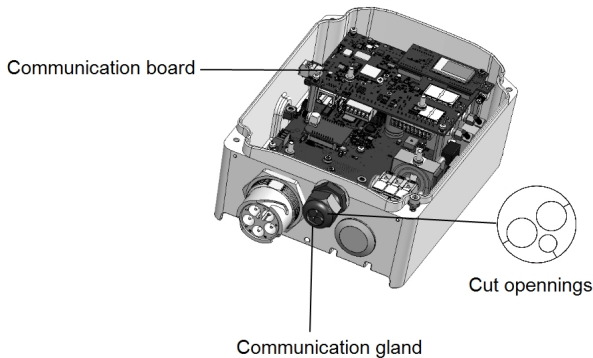
CAUTION!

The gland includes a rubber waterproof fitting, which should be used to ensure proper sealing.

**ATTENTION!**

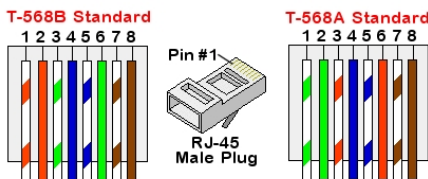
Le cote interne du gland contient une rondelle qui doit être utilisée pour une bonne étanchéité.

3. Remove the plastic seal from one of the large openings.
4. Remove the rubber fitting from the gland and insert the CAT5/6 cable through the gland and through the gland opening in the Smart EV Charger.
5. Insert the cable through the opening in the Smart EV Charger towards the communication board.
6. Push the cable into the cut opening of the rubber fitting (see the following figure).



CAT5/6 standard cables have eight wires (four twisted pairs), as shown in the diagram below. Wire colors may differ from one cable to another. You can use either wiring standard, as long as both sides of the cable have the same pin-out and color-coding.

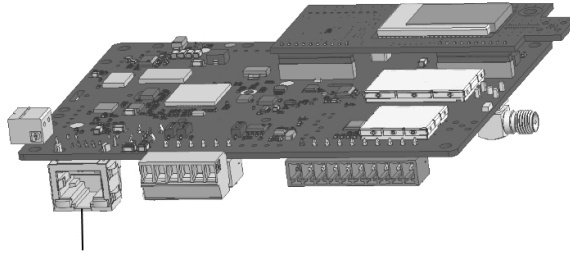
RJ45 Pin #	Wire Color ⁽¹⁾		10Base-T Signal 100Base-TX Signal
	T568B	T568A	
1	White/Orange	White/Green	Transmit+
2	Orange	Green	Transmit-
3	White/Green	White/Orange	Receive+
4	Blue	Blue	Reserved
5	White/Blue	White/Blue	Reserved
6	Green	Orange	Received-
7	White/Brown	White/Brown	Reserved
8	Brown	Brown	Reserved



Standard cable wiring

7. Use a pre-terminated cable to connect via gland #1 to the RJ45 plug on the Smart EV Charger's communication board or, if using a spool of cable, connect as follows:
 - a. Insert the cable through the gland.
 - b. Remove the cable's external insulation using a crimping tool or cable cutter and expose eight wires.
 - c. Insert the eight wires into an RJ45 connector, as described in
 - d. Use a crimping tool to crimp the connector.
 - e. Connect the Ethernet connector to the RJ45 port on the communication board (see the following figure).

⁽¹⁾The Smart EV Charger connection does not support RX/TX polarity change. Supporting crossover Ethernet cables depends on the switch capabilities.



RJ45 Ethernet port

8. For the switch/router side, use a pre-terminated cable or use a crimper to prepare an RJ45 communication connector: Insert the eight wires into the RJ45 connector in the same order as above (Figure 2).
9. Connect the cable RJ45 connector to the RJ45 port of the Ethernet switch or router. You can connect more than one Smart EV Charger to the same switch/router or to different switches/routers, as needed. Each Smart EV Charger sends its monitored data independently to the SolarEdge monitoring platform.
10. The Smart EV Charger is configured by default to LAN.
 - a. Turn ON the AC to the Smart EV Charger by turning ON the circuit breaker on the main distribution panel.

WARNING!

ELECTRICAL SHOCK HAZARD. Do not touch uninsulated wires when the SMI cover is removed.

**AVERTISSEMENT!**

RISQUE D'ÉLECTROCUTION, ne touchez pas les fils non isolés lorsque le couvercle de Smart EV Charger est retiré.

- b. Configure the connection with SetApp. Refer to *Professional Installer - Configuring and Using Smart EV Charger with SetApp* on page 44.
11. Verify the connection with SetApp. Refer to *Verifying the Connection to the Monitoring Platform* on page 43.

Creating an RS485 Bus Connection to SolarEdge Inverter or Gateway

The RS485 option enables creating a bus of connected devices, consisting of up to 31 slave devices and 1 master device. Using this option, devices are connected to each other in a bus (chain), via their RS485 connectors. The first and last device in the chain must be terminated as described in *RS485 Bus Configuration* on page 42

RS485 wiring specifications:

- Cable type: Min. 3-wire shielded twisted pair (a shielded Ethernet cable (Cat5/5E STP) may be used)
- Wire cross-section area: 0.2- 1 mm²/ 24-18 AWG (a CAT5 cable may be used)
- Maximum nodes: 32
- Maximum distance between first and last devices: 1 km /3300 ft.

NOTE

If using a cable longer than 10 m/ 33 ft in areas where there is a risk of induced voltage surges by lightning, it is recommend to use external surge protection devices. For details refer to:

https://www.solaredge.com/sites/default/files/overvoltage_surge_protection_na.pdf.



If grounded metal conduit are used for routing the communication wires, a lightning protection device is not required.

If not using surge protection, connect the grounding wire to the first inverter in the RS485 chain; make sure the grounding wire is not in contact with other wires. Connect the grounding wire to the grounding bus-bar in the Connection Unit with Safety Switch.

RS485 Bus Configuration

→ To connect to the monitoring platform:

1. Designate a single inverter as the connection point between the RS485 bus and the monitoring platform. This inverter will serve as the master inverter.
2. Connect the master to the monitoring platform via the LAN option (refer to *Creating an Ethernet (LAN) Connection* on page 38) or any of the other options.

→ To configure the RS485 bus:

All devices are configured by default as slaves. To configure the master:

1. Verify that AC is on.
2. Use SetApp to access the **Commissioning** menu
3. Select the following to configure the connection:

- Server → LAN
- RS485- → Protocol → **SolarEdge Master**
- RS485- → **Slave Detect**

The system starts automatic detection of the slave devices connected to the master inverter. The inverter should report the correct number of slaves. If it does not, verify the connections and terminations.

4. To check the slave IDs and last communication time, select RS485- → **Slave List**.
5. Verify the connection of the master to the monitoring platform, as described in the next section.

Verifying the Connection to the Monitoring Platform

After connecting and configuring a communication option, perform the following steps to check that the connection to the monitoring server has been successfully established.

→ To verify the connection to the monitoring platform:

1. Open SetApp and follow the instructions on the screen. The mobile device creates a Wi-Fi connection with the Smart EV Charger and displays the main Commissioning screen.
2. From the **Commissioning** menu select **Status**.
3. Check that **S_OK - Server Connected** status appears in the main Smart EV Charger section.
4. Scroll down to the **Communication** section and check that the communication options are as required. Refer to *Viewing Communication Status* on page 45.

Chapter 7: Professional Installer - Configuring and Using Smart EV Charger with SetApp

After installing the Smart EV Charger configure it, then enable charging and other advanced features (e.g. scheduling, excess solar charging) with SetApp.

You can connect communication options at this stage, as described in *Professional Installer - Setting Up Communication* on page 36.

You can download the SetApp from the Apple App Store and Google Play prior to reaching the site.



Internet connection is required for the download and for the one-time registration, however not required for using the SetApp.

Configuring the Smart EV Charger

1. Download and Follow the on- screen instructions to configure and use SetApp with Smart EV Charger.

Configuring Communication Options

Communication settings can be configured only after communication connections are complete. Refer to *Professional Installer - Setting Up Communication* on page 36.

→ To configure communication options:

1. Tap the **Communication** menu to define and configure the following:
 - The communication option used by the Smart EV Charger to communicate with the monitoring platform.
 - The communication option used to communicate between multiple SolarEdge devices.
2. Tap the **Server** red arrow to set the communication method to be used for

communication between the Smart EV Charger and the SolarEdge monitoring platform. The default is LAN.



NOTE

The Server menu shows only the communication options installed in the Smart EV Charger.

For detailed information about all the configuration options, refer to the *Communication Options Application Note*, available on the SolarEdge website at https://www.solaredge.com/sites/default/files/solaredge-communication_options_application_note_v2_250_and_above.pdf.



Viewing Communication Status

The Communication screen displays the status of connection option(s): LAN, RS485, Wi-Fi and cellular.

→ To view communication status:

1. From the **Commissioning** menu select **Status** then scroll down to the **Communication** section.

For each communication option, one of the following statuses is displayed:

- **Connected:** The Smart EV Charger established a successful connection and communication with the specified server port.
- **NC:** Not Connected
- **S_OK:** The connection to the monitoring platform is successful .
- **N/A :** Not Applicable
- Temporarily displayed (with a ⌚ clock sign):
 - **Initializing communication**
 - **Connecting** to a network
 - **Connecting** to SolarEdge servers
- **Error message** (with the ⚠ sign)

Chapter 8: Errors and Troubleshooting

For the following system errors, when an error occurs, the red LED ring lights ON and the buzzer beeps 10 times.

The error messages are displayed on the mobile app screen.

If the error persists- contact SolarEdge Support.

Error code	Displayed Error message	Description and Troubleshooting
3x85	EVSE Comm. Error	<p>An internal communication error. When this error occurs, the red LED ring is not lit, the buzzer does not beep and charging is not affected.</p> <p>Check that the internal connections on the communication board are properly done.</p>
1Cx1; 1Cx8	Over Current Press Charge Now	<p>Smart EV Charger AC over current.</p> <ul style="list-style-type: none"> • Press the Charge Now push button on the Smart EV Charger, see <i>Figure 2</i> -or- • Tap Charge Now on the Smart EV Charger tab of the Monitoring App
1Cx2; 1xC9	Over Voltage Press Charge Now	<p>Smart EV Charger AC voltage too high.</p> <ul style="list-style-type: none"> • Press the Charge Now push button on the Smart EV Charger, see <i>Figure 2</i> -or- • Tap Charge Now on the Smart EV Charger tab of the Monitoring App
1Cx3,Cx14; 1Cx15	Ground Fault (RCD) Press Charge Now	<p>Smart EV Charger ground fault detected.</p>

Error code	Displayed Error message	Description and Troubleshooting
		<ul style="list-style-type: none"> • Press the Charge Now push button on the Smart EV Charger , see <i>Figure 2</i> -or- • Tap Charge Now on the Smart EV Charger tab of the Monitoring App
1Cx4; 1Cx5; 1Cx12 -1Cx13	Internal Error Disconnect from EV	<p>Internal error.</p> <ul style="list-style-type: none"> • Disconnect the Smart EV Charger cable from the vehicle. • Turn the inverter AC circuit breaker OFF and ON. • Reconnect the Smart EV Charger Cable to the vehicle. • If the EV Charger is powered by the inverter, then turn the inverter AC circuit breaker OFF and ON. • If the EV Charger is standalone, then turn the EV Charger AC circuit OFF and ON.
1CxB/D; 1Cx10 - 1Cx11	Interface Error (Pilot) Press Charge Now	<ul style="list-style-type: none"> • Press the Charge Now push button on the Smart EV Charger, see <i>Figure 2</i> -or- • Tap Charge Now on the Smart EV Charger tab of the Monitoring App
1Cx6	Ground Disconnected Disconnect from EV	<p>Ground Disconnected.</p> <ul style="list-style-type: none"> • Disconnect the Smart EV Charger cable from the vehicle. • Contact SolarEdge Support.
1Cx7	Over Temperature	Smart EV Charger over temperature

Error code	Displayed Error message	Description and Troubleshooting
		<p>Verify proper clearances around the Smart EV charger Cable.</p> <p>After verification reconnect the Smart EV charger cable to the EV.</p> <p>Contact SolarEdge Support.</p>
1CxA	<p>Under Voltage</p> <p>Press Charge Now</p>	<p>Smart EV Charger AC voltage too low.</p> <ul style="list-style-type: none"> • Press the Charge Now push button on the Smart EV Charger, see <i>Figure 2</i> -or- • Tap Charge Now on the EV Smart Charger tab of the Monitoring App
1CxC	<p>Vent not supported</p> <p>Disconnect from EV</p>	<p>The SolarEdge Smart EV charger does not charge vehicles that require ventilation while charging. If this error occurs, the vehicle cannot be charged.</p>
1CxE;1CxF	<p>Charging retries ended</p> <p>Disconnect from EV</p>	<p>Charging retries ended</p> <ul style="list-style-type: none"> • Disconnect the Smart EV Charger cable from the vehicle. • Contact SolarEdge Support.

Appendix A: Professional Installer - Connecting the Smart EV Charger to an Energy Meter

This section provides instructions for connecting the Smart EV Charger to an Energy Meter. An Energy Meter is required for Smart Energy Management applications, such as controlled Excess Solar charging.

To install the Energy Meter, refer to the installation guide supplied with it:



Energy Meter DIP Switches

The following sections explain the DIP Switches IDs and termination.

Energy Meter ID DIP Switches

The ID DIP switches are used to set the Modbus address of the meter. The addressing options are listed in the table below. See the figure *ID and termination DIP switches* on page 50 for switch direction guidelines.

Table 1: Energy Meter ID DIP Switches

Modbus Address	ID 1	ID 2	ID 3
0	Down	Down	Down
1	Up	Down	Down
2	Down	Up	Down
3	Up	Up	Down
4	Down	Down	Up
5	Up	Down	Up
6	Down	Up	Up
7	Up	Up	Up

Energy Meter Termination DIP Switches

The Termination DIP switches are used to configure RS485 wiring termination. The termination options are listed in the table below. See the figure *ID and termination DIP switches* on page 50 for switch direction guidelines and refer to *Table 1*.

Table 2: Energy Meter ID DIP Switches

RS485 Termination	TERM 1	TERM 2
Terminated	Down	Down
Not Terminated (factory default)	Up	Up

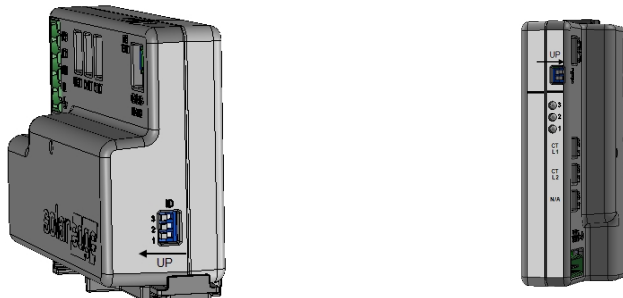


Figure 12: ID and termination DIP switches

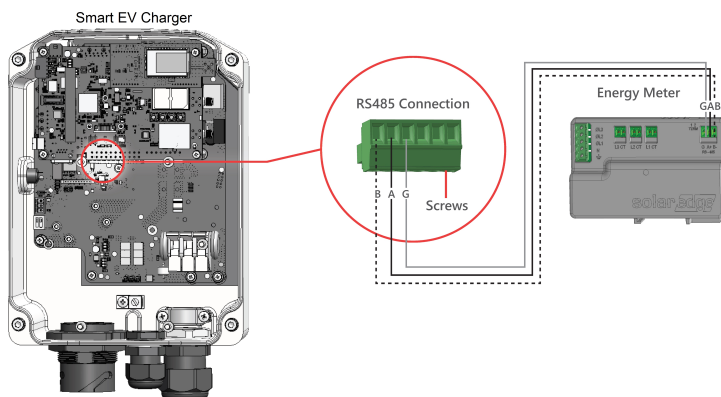


Figure 13: Meter connection

→ **To connect the Energy Meter to the Smart EV Charger:**

1. Connect one end of the communication cable to the Energy Meter, as explained in the Energy Meter's installation guide.
2. Remove the seal from one of the openings in the communication gland at the bottom of the Smart EV Charger and insert the RS485 wires from the meter through the opening (see *Figure 13*).
3. Remove the 3-pin connector from the RS485-1 port on the communication board (see *Figure 13*).

- Loosen the screws of the connector and remove the DC-to-DC unit wires. Twist the DC-to-DC unit wires together with the Energy Meter wires (B with B, A with A, G with G). (see *Figure 13*).

You can use any color wire for each of the A, B and G connections, as long as:

- The same color wire is used for all A pins the same color for all B pins and the same color for all G pins
 - The wire for G is not from the same twisted pair as A or B.
- Insert the twisted wires into the connector and tighten them with the screws.
 - Connect the connector back to the RS485-1 port.
 - In the meter, ensure the RS485-1 DIP switch is down. See *Figure 12*.
 - In the meter, set the Modbus address 1-3 of the meter according to *Table 1*

Mechanical Specifications

The following figure provides Smart EV Charger dimensions in [in].

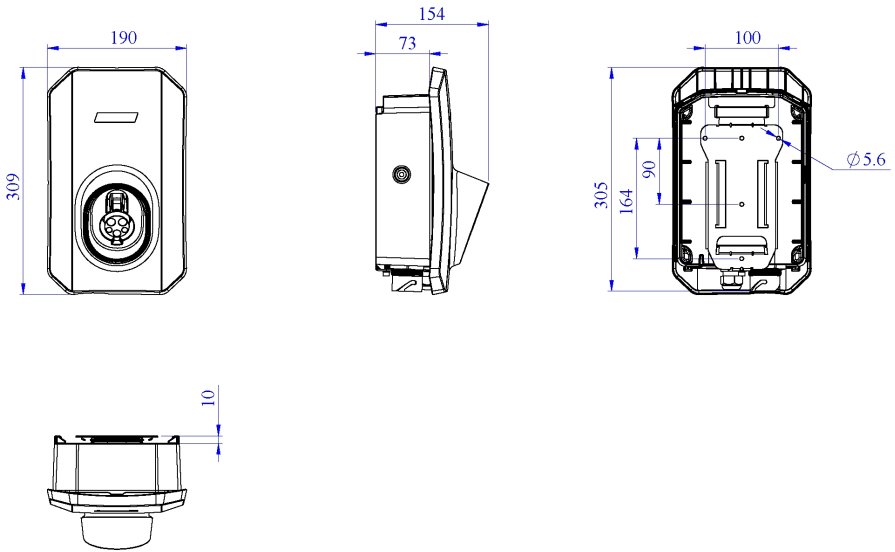


Figure 14: Smart EV Charger dimensions

Technical Specifications - Smart EV Charger (North America)

Level 2 EVSE, 40A (9.6kW), Wi-Fi enabled

EV CHARGER SPECIFICATIONS		
Charging Mode	AC Level 2	
Rated AC Power Output	9.6	kW
Maximum Continuous Output Current @240	40 ⁽¹⁾	Vac
Nominal AC Output Voltage	240 ⁽²⁾	Vac
Nominal AC Frequency	60	Hz
Ground Fault Detection Threshold	5	mA
Supported Communication Interfaces	Wi-Fi (built-in antenna included) ⁽³⁾ , Ethernet, RS485 and Cellular (optional) ⁽⁴⁾	
FEATURES SUPPORTED WITH INTEGRATED SOLAREEDGE INVERTER		
Smart Energy Management	Controlled excess solar charging ⁽⁵⁾ and solar boost mode	
ADDITIONAL FEATURES		
EV Charger Status LEDs, Fault Indicator	Yes	
EV Charger Unplugging Detection	Yes, current termination according to SAE J1772 EV Charger	
EV Charger Ground Connection Monitoring	Yes, continuous	
EV Charger Configuration	Installer commissioning via SetApp. Homeowner configuration controls and monitoring via mySolarEdge app	

(1)Can also be configured to 16A, 24A and 32A.

(2)Connected to L1, L2, G; No need for neutral.

(3)To extend Wi-Fi communication, use optional Wi-Fi antenna. For antenna specification refer to [se-wifi-zigbee-wireless-antenna-datasheet-na.pdf](#)

(4)Optional cellular kit can be ordered.

(5)When Smart EV Charger is connected to inverter, Import/Export meter is required for controlled Excess Solar charging

STANDARD COMPLIANCE		
Emissions	FCC Part 15 Class B	
Safety	UL2594, UL2231-1, UL2231-2, NEC Article 625 compliant	
EV Charger	SAE J1772	
INSTALLATION SPECIFICATIONS		
AC Connection plug	NEMA 6-50	
EV Charger Connector	SAE J1772-2009	
EV Charger Dimensions (H x W x D)	12 x 7.3 x 6 / 309 x 190 x 154	in / mm
EV Charger Cable Length	25 / 7.6	ft / m
EV Charger Cable Weight	12.5 / 5.7	lb / kg
EV Charger Cable Operating Temperature Range	-22 to +122 / -30 to +50	F / °C
Protection Rating (connected to EV or with dust cap)	NEMA 3R	

Support Contact Information

If you have technical problems concerning SolarEdge products, please contact us:



<https://www.solaredge.com/service/support>

Before contact, make sure to have the following information at hand:

- Model and serial number of the product in question.
- The error indicated on the product's mobile application.
- The communication method to the SolarEdge ,monitoring platform , if the site is connected.

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