INSTALLATION AND OPERATIONS MANUAL VERSICHARGE[™] 48 A AC & VERSICHARGE BLUE[™] 48 A AC SERIES Electric vehicle charging station

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Edition



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VersiCharge[™] AC | Installation and Operations Manual

Operating Instructions

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

ADANGER

indicates that death or severe personal injury will result if proper precautions are not taken.

WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

MWARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by [®] are registered trademarks of Siemens Aktiengesellschaft. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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General Information

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Contact Information

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Website - (https://usa.siemens.com/versicharge/)

FCC Compliance

This equipment has been tested and found to comply with the limits for class A commercial and class B residential digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protections against harmful interference in a residential installation. Residential models have 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 protections against harmful interference in a residential installation. Commercial models have been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protections against harmful interference in a residential installation. Commercial models have been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protections against harmful interference in a commercial 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, this 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 the receiver.
- Connect the equipment to 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 and the warranty on the product.

This device should be operated with a minimum distance of at least 20 cm between the 802.11 b/g/n and cellular antennas and a person's body.

ISED Compliance

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- 1. This device may not cause interference.
- 2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- 1. L'appareil ne doit pas produire de brouillage;
- 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device should be operated with a minimum distance of at least 20 cm between the 802.11 b/g/n and cellular antennas and a person's body.

Other Information

Product information is subject to change without notice. All trademarks are recognized as the property of their respective owners.

For Siemens VersiCharge[™] Warranty Terms and Conditions, see the Section Warranty (Page 66).

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2.1 Read this First

This manual contains instructions for use during the installation, operation and maintenance of the Siemens VersiCharge[™] electric vehicle charging station.

2.2 Safety Instructions (General and Specific)



DANGER

Hazardous Voltage. Will cause death or serious injury. Turn off power to this equipment before working inside.

- Read this Installation and Operations Manual in its entirety prior to installing, maintaining, servicing or replacing a Siemens VersiCharge EV Charging System.
- **Permits:** Be aware that many areas require special permits and/or utility approvals to install EV charging equipment. Contact your local electrical inspector's office and your local utility prior to beginning work to understand local requirements.
- Qualified electrician: Because of the inherent dangers of electricity, only a qualified electrician should install, maintain, service or replace electrical wiring and connected equipment. For the purpose of this manual, a qualified electrician is someone who is familiar with equipment hazards of installation, construction and operation. In addition, this electrician should meet the definition of a qualified electrician pursuant to the National Electrical Code[®] (NEC[®]). Failure to comply with this recommendation may void the VersiCharge warranty.
- Weatherproof seals: All VersiCharge units are qualified for outdoor use.

Failure to properly seat seals can result in water, debris, and other foreign objects entering the VersiCharge.

These can damage electrical components and prevent proper functioning.

2.3 Instructions Pertaining to a Risk of Fire or Electric Shock

2.3 Instructions Pertaining to a Risk of Fire or Electric Shock

When using electric products, basic precautions should always be followed.

This manual contains important instructions for units supplied with and without a NEMA 6-50 plug that shall be followed during the installation, operation and maintenance of the unit.

- Read all of the instructions before using this product.
- Failure to follow these instructions may lead to death, serious injury or property damage.
- Any electrical wiring required to install this VersiCharge shall conform to applicable codes and standards (ANSI/NFPA 70). A qualified electrician should perform any wiring, maintenance or service.
- To reduce the risk of electric shock, never service, install or uninstall this VersiCharge from service while power is flowing to the unit.
- This equipment has arcing or sparking parts that should not be exposed to flammable vapors. This equipment should be located at least 18 inches above the floor.
- The VersiCharge is equipped with an auto-reset feature.
 - If this VersiCharge is connected to a vehicle at the time that power is restored following an outage, charging may resume automatically.
 - If this VersiCharge is connected to a vehicle and a ground fault trip occurs, charging may resume automatically after a delay period.
- Do not put fingers into the electric vehicle connector plug.
- Do not use this product if the flexible power cord or EV cable is frayed, has broken insulation or has any other signs of damage.
- Do not use this product if the enclosure or the EV connector is broken, cracked, open or shows any other indication of damage.
- A torque driver shall be used to make power connections to ensure that adequate contact pressure is applied. See the section Mounting Instructions (Page 13) for additional details.
- When a VersiCharge is hardwired during installation, power connections shall be made at line terminals with a torque driver according to the gauge of the line side wire. The wire gauge required is based on local codes.
- A VersiCharge charging station includes wire connector instructions for field installed wiring. Instructions included in this manual must be followed to ensure proper installation.
- 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 VersiCharge or system.

- The grounding conductor shall be grounded to earth at the service equipment or (when supplied by a separately derived system) at the supply transformer.
- Do not attempt to operate this VersiCharge if the ambient temperature is greater than 50 °C (122 °F).
- #6 90 °C copper wire should be used for a 48 A charger and #8 90 °C copper wire should be used for a 40 A charger.

Note

Wire must have a temperature rating of 90 °C or higher.

Do not set the amp switch higher than 40 A (amp switch setting #4) unless hardwired to a dedicated 60 A branch protection circuit breaker (48 A units should be set to amp switch setting #5).

To reduce the risk of fire, connect only to a circuit provided with 50/60 ampere maximum branch circuit overcurrent protection in accordance with the ANSI/NFPA 70 National Electrical Code™.

2.4 Code and Standard References

2.4 Code and Standard References

- This VersiCharge has been designated to meet the requirements in section 625 of the National Electric Code (NEC[®]).
- UL Listing with Listing Number Siemens VersiCharge devices are listed in UL file #E348556.
- Complies with the following UL Standards: UL 1998, UL 991, UL2594/CSA C22.2 No.280/NMX-J-677-ANCE, UL 2231-1/CSA C22.2 No.281.1/NMX-J-668-1, UL 2231-2/CSA C22.2 No.281.2/NMX-J-668/2-ANCE and UL 2251/CSA C22.2 No.282/NMX-J-678-ANCE. EV interface compliant to SAE J-1772 Level II.
- The residential models have 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. The commercial models have been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and may cause harmful interference to radio communications if not installed and used in accordance with the instructions. However, there is no guarantee that 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.
- Personal Protection Equipment: Use of proper personal protection equipment, including, but not limited to, eye protection, shock protection, gloves and other appropriate protection, is recommended when installing or servicing any electrical equipment.
- Charging Circuit Interrupting Device (CCID): The Siemens VersiCharge line of EV Charging Systems includes a CCID. The CCID is required by UL Standard 2231 and is designed to detect ground faults within the system and disconnect power from the downstream conductors when a fault is detected.



Hazard of Electric Shock, Explosion, or Arc Flash. Failure to follow these instructions will result in death or serious injury.

This equipment has arcing or sparking parts that should not be exposed to flammable vapors. This equipment should be installed at least 18 inches above floor or ground level. Use extreme caution and follow instructions carefully.

 Arcing component in contactor: Siemens VersiCharge EV Charging Systems include a contactor that when opened or closed will cause a short duration arc. The contactor is enclosed in an appropriate electrical enclosure but if an arc occurs in the presence of flammable vapors, the vapors could ignite, creating an explosion. Store flammable vapors away from all electrical equipment and if vapors are present allow sufficient time for ventilation before operating this equipment.

2.5 Product Labels

The following symbols appear on the product label and are described here:



This label indicates the risk of hazardous voltage and electric shock which will cause death, serious injury or substantial damage. Turn off the power supplying this VersiCharge before working inside.

2.6 Supported grounding systems

Only center-tapped systems should be used since neither line's voltage relative to ground may shift or change. To provide the necessary voltage reference with respect to ground, Siemens EVSEs must be correctly connected to ground at the panel or transformer.

VersiCharge stations need to be wired into a permanent, grounded, metal wiring system. In addition, plugged connections are accepted. It is mandatory to connect an equipment-grounding conductor to an equipment-grounding connector on the charging station and run it alongside circuit conductors.

A grounding conductor that is in compliance with applicable codes must be grounded to earth at the supply transformer or, if provided by a different system, at the service equipment. It could also be grounded to an earth electrode as an alternative method. Exercise caution to ensure that the grounding conductor is in accordance with and meets all applicable requirements and codes.

2.6 Supported grounding systems

2.6.1 Grounding requirements

Specific system parameters must be met for proper connections with Siemens EVSEs. In wye systems, as depicted in the below images, connect the Siemens EVSE to any two lines. In delta systems, Siemens EVSEs should only be connected to L1 and L2 in a bonded, center-tapped secondary. This will permit voltages to stay consistent irrespective of other loads that may make use of the lines. The installer should attach the EVSE station to ground and the neutral should be bonded to ground. In addition, while in the provided example found in the image below L1 and L2 are the tapped leg and L3 is the high leg, this may not always be the case. Any leg may be tapped, which changes the high leg to L1 or L2, depending on which leg is tapped (this configuration may be present in older buildings).



2.6.2 Unsuitable grounding systems

Siemens EVSEs must not be connected to (1) a 120/208 VAC 3-phase ungrounded system, (2) a corner-grounded 120/240 VAC 3-phase delta system, or (3) any setup/configuration in which the center point of the AC power source is not grounded.



Mounting Instructions

3.1 Equipment List

3.1.1 Kit-Supplied Equipment

- 1 VersiCharge (with optional NEMA 6-50 infrastructure plug for 40 A residential units only)
- 1 Mounting bracket
- 1 Cable holster
- 0, 1 or 3 Ferrite core(s) (depending on the VersiCharge purchased; residential 40 A variants have no ferrite cores, commercial 40 A / 48 A variants have one ferrite core, residential 48 A variants have three ferrite cores)

Note

Plug-supplied units (40 A) will have the ferrite core factory installed. Only units to be hardwired (48 A) will install the ferrite core.

• 1 – Multi-use connector (this connector is used to connect both the Modbus and the External Remote Control Interface Connector)

Note

Supplied with commercial units only.

- RFID Cards: two admin cards and five user cards (supplied with commercial units only)
- 1 Tamper-resistant 5/32" Allen wrench (for securing the charger)
- 1 #8 x 2-1/2" flathead drywall screw (for securing the holster to the wall stud)
- 2 Lag screws, hex head screws, 1/4 x 2" (for securing the mounting bracket to the wall studs)
- 2 #10-32 x 3/8", tamper-resistant, pin-in-hex socket button head cap screw or 1 M4 x 0.7 x 10mm tamper-resistant, pin-in button head cap screw (for securing the charger)
- 1 M4 x 0.7 x 14mm, pan head Torx (T20) screw (for certain variants)
- 2 Flat #8 washers (for certain variants)

3.1 Equipment List

3.1.2 Standard Installation Equipment

- Qualified electrician
- Cordless drill (Phillips bit with extender) include 1/8" drill bit for pilot holes
- Level
- Stud finder
- 240 V AC voltmeter
- Follow local and national codes where applicable for rating supply equipment to the EVSE based on the charger's amp adjustment switch. A 40 A charger requires a 2-pole, 240 V, 50 A circuit breaker. A 48 A charger requires a 2-pole, 240 V, 60 A circuit breaker.
- NEMA 6-50 outlet (if not hardwiring charger)

Note

Only used with the 40 A residential charger.

- 7/16" socket wrench
- Flathead screwdriver
- T20 Torx screwdriver

Note

If using the wallboard mounting (alternate mounting) for the charger, a Phillips head screwdriver will also be needed.

- Tamper-resistant 5/32" hex bit with a 1/4" Allen wrench (for securing the charger)
- If hardwiring the charger #6 AWG 90 °C copper wire, three conductors #6 AWG 90 °C copper wire should be used for a 48 A charger, and #8 AWG 90 °C copper wire should be used for a 40 A charger.

Note

1. Wire must have a temperature rating of 90 °C or higher. 2. Do not set the amp switch higher than 40 A unless hardwired to a dedicated 60 A circuit according to national and local codes.

3.1.3 Alternate Installation Equipment (Screws and anchors are not included in the VersiCharge kit)

• 5 - #12 x 1-1/2 LG Phillips head Ø.375 head minimum, with five #12 wall anchors

Note

Wall anchors must be rated for 61 lbs. for 1/2" dry wall.

3.2 Mounting Using a Stud – Recommended Stud Mounting (use center-top and bottom holes)

3.2 Mounting Using a Stud – Recommended Stud Mounting (use center-top and bottom holes)

Adhere to the instructions that pertain to the VersiCharge variant purchased.



Figure 3-1 Align the mounting bracket and screw into the stud.

Note

For installation, the mounting-bracket hinges will be pointing to the ceiling and the flat side of the bracket will be against the wall.

- 1. Locate a stud within the wall that can handle the 17+ lb. load of the VersiCharge.
- 2. Place the mounting bracket no more than 12" above a 240 V outlet; level the mounting bracket and drill the center-top hole using a drill with an extender.
- 3. Mount the bracket using the top hole and the lag screws (with the hinges facing upward and with the flat side of the bracket against the wall). DO NOT tighten all the way.
- 4. Level the bracket.
- 5. Drill a 1/8" pilot hole for the center-bottom hole.
- 6. Secure with lag screws.
- 7. Tighten the top and bottom screws securely using a 7/16" socket wrench. DO NOT overtighten or the mounting bracket can be broken.
 - For concrete cinder block walls, install appropriate anchors. If using an existing outlet, ensure that the power cord will reach to the outlet. Mount in compliance with NEC[®] and local jurisdiction requirements.
 - For Siemens post installation, see the post instruction manual at (<u>http://usa.siemens.com/versichargecommercial</u>), under the Installation section.

3.3 Alternate Mounting - Wallboard Mounting (use mounting holes on four corners)

3.3 Alternate Mounting - Wallboard Mounting (use mounting holes on four corners)



Figure 3-2 Alternate installation of the VersiCharge mounting.

Note

For installation, the mounting-bracket hinges will be pointing to the ceiling and the flat side of the bracket will be against the wall.

Note

The VersiCharge can be mounted using five $#12 \times 1-\frac{1}{2}$ LG Phillips head with five #12 wall anchors.

Note

Anchor rating: five anchors must be rated as 61 lb. anchors rated for 1/2" dry wall.

- 1. Locate the mounting bracket no more than 12" above a 240 V outlet or if hardwiring, the wiring will come through the bottom of the charger.
- 2. Level the mounting bracket and drill four holes, one in each corner of the bracket.
- 3. Place the anchors into the wallboard until they are flush with the wall.
- 4. Place the mounting bracket over the holes (with the hinges facing upward and the flat side of the bracket against the wall) with the anchors and securely screw the mounting to the wall.
- 5. Add a fifth hole for mounting the holster once the unit is mounted on the wall. Place the holster on the wall and mark the correct position for the hole. See Section Secure Charger and Install Cable Holster (Page 19) and its graphic.

3.4 Install VersiCharge



Figure 3-3 Slide the VersiCharge onto the mounting hinges.

- 1. If hardwiring the unit, see the Hardwire Installation (Page 21) section of this manual.
- 2. Slide the VersiCharge onto the hinges.
- 3. Rotate to the right until the unit clicks and is closed.
- 4. Secure the enclosure with the locking mechanism or secure the enclosure with the tamperresistant screw and supplied Allen wrench. Plug the VersiCharge into the 240 V outlet.

3.4 Install VersiCharge





- 1. Secure the back cover on the top right of the charger.
- 2. Then insert the four screws and tighten them to 10 in-lbs.
- 3. Rotate the charger to the right to close the charger shut

Figure 3-4 Close the VersiCharge.

3.5 Secure Charger and Install Cable Holster



- 1. Using the kit-supplied #10-32 x 3/8", tamper resistant pin in hex screw and hex wrench to secure the charger cover with one screw on the side.
- 2. Align the holster with guides in the charger. Use the #10-32 x 3/8", tamper resistant pin-in hex screw and hex wrench to secure the holster to the charger (the hole at the top of the holster).

Standard installation: Use the $#8 \times 2-1/2''$ drywall screw to secure the holster to the wall stud.

Alternate installation: Use the additional wallboard screw with an anchor to secure holster to the wall.

Figure 3-5 Secure the charger and mount the holster.



- 1. Use the kit-supplied M4 \times 0.7 \times 10mm, tamper resistant pin-in hex screw and hex wrench, to secure the charger cover with one screw on the side.
- 2. Align the holster with guides in the charger. Use the kitsupplied M4 \times 0.7 \times 14mm screw and No. 8 flat washer to secure the holster to the charger (the hole at the top of the holster).

Standard installation: Use the #8 x 2-1/2" drywall screw and No. 8 flat washer to secure the holster to the wall stud.

Alternate installation: Use the additional wallboard screw and washer with an anchor to secure holster to the wall.

3.5 Secure Charger and Install Cable Holster

If assistance is needed, please call 1 855-950-6339, option 9, or create a support ticket at (https://emobility.usa.siemens.com/s/eMobilityCloud).

Do not force the connector into the receiver on the vehicle.

If the connection between the receiver and connector shows any resistance, inspect the pins in each. If damage is found, call a qualified service person.

When installed outdoors, cord-and-plug installations require a NEMA outdoor rated receptacle and enclosure due to the risk of moisture.

Installing outdoors without properly rated outdoor receptacles and enclosures will void the VersiCharge warranty.



Hazardous voltage. Failure to follow these instructions will result in death or serious injury.

Turn off power before working on this equipment. This indicates a situation where the present voltage could cause injury or death. Extreme caution is required when servicing or installing the equipment referenced.

For Professional Electricians

4.1

Outlet Installation Instructions (skip if using an existing outlet)



<u>/!\</u>DANGER

Hazardous voltage. Failure to follow these instructions will result in death or serious injury.

Turn off power supplying equipment before working inside the unit



ADANGER

Hazardous voltage. Failure to follow these instructions will result in death or serious injury.

Any time the interior wiring is exposed while there is power to the unit, there is danger of hazardous voltage and serious injury.

Note

Any electrical wiring required to install this VersiCharge shall conform to applicable codes and standards (ANSI/NFPA 70). A qualified electrician is recommended to perform these tasks.

Note

Please consider your planned installation location for the mounting bracket when choosing the location to which you will run the wire.

Note

Electrical outlets must be installed in accordance with appropriate NEC[®] and AHJ requirements. Please note that the outlet orientation required for proper installation of the VersiCharge product is per the illustration below.

1. A qualified electrician should install the outlet with the ground facing down (only the 40 A charger is available with a plug; the 48 A charger MUST be hardwired). See Figure Align the mounting bracket and screw into the stud (Page 15), for outlet positioning.



Orientation detail



When installed outdoors, cord-and-plug installations require a NEMA outdoor rated receptacle and enclosure due to the risk of moisture.

Installing outdoors without properly rated outdoor receptacles and enclosures will void the VersiCharge warranty.

4.1.1 Removing the Cord-and-Plug Assembly for Hardwiring

Plug removal is only for the plug-supplied 40 A units; 48 A units must be hardwired.

Note

Follow local and national codes where applicable for rating supply equipment to the EVSE based on the charger's amp adjustment switch.

Note

This enclosure has not been evaluated for rigid metallic and rigid non-metallic conduit. In order to maintain a Type 4 UL50E environmental rating, a hardwired installation should use liquid-tight flexible conduit only, with conduit glands rated UL Type 4, 4X, 6 or 6P.

Note

While installing care should be taken that tools do not hit sensitive items such as RFID antennas where installed. Damage care result in failures of certain charge functions.

Note

Failure to follow installation torque requirements can result in damage to the VersiCharge system.

Plug-supplied units only

- 1. Open the VersiCharge to expose the backside of the unit.
- 2. Remove the high voltage door by using the T15 Torx screw driver to remove the four screws.
- 3. Disconnect the attachment plug wires from the terminal block by loosening the screws in positions 1, 2 and 3, and remove the ferrite core (the core will be reinstalled when hardwired).



Figure 4-2 Remove the plug

4. Disconnect and remove the strain relief and entire cord-and-plug assembly and follow the hardwiring instructions for plug and non-plug units below.

Hardwiring for plug and non-plug units

Note

Do not adjust the two screws on the right side of the terminal block relays. These are for factory use only.

For commercial variants:

- 1. Expose the wiring terminals by opening the back of the unit and loosening the lug screws.
- 2. Route the conductors into the VersiCharge from the conductor opening with proper strain relief.
- 3. Pull 3 to 6 inches of slack through the conductor opening.
- 4. Locate the ferrite core (the ferrite core supplied in the reseatable plastic bag or reserved when the plug was removed).
- 5. Slide the ferrite core over the black and red wires ONLY and into position as shown in the next Figure (the green wire/ground should not be placed through the ferrite core).
- 6. Wire the conductors (copper only) into the VersiCharge (L1, L2 and ground) from the connected conduit as shown in the next Figure.



Figure 4-3 Hardwire the VersiCharge - Commercial Variants

Refer to Appendix Hardwire Bending Diagrams (Page 73) for more information.

- 7. Using a torque screwdriver, torque all lugs to a value dependent on wire gauge size.
 - For 6 AWG, torque to 35 in-lbs;
 - For 8 AWG, torque to 25 in-lbs;
 - For 10 AWG, torque to 20 in-lbs.
- 8. Reinstall the high voltage door and secure by inserting and torquing four screws with 10 inlbs.
- 9. Swing the unit closed until the bracket clip engages and secure the charger with the tamperresistant security screws.
- 10.Turn the circuit breaker for this circuit to the ON position.

For residential variants

- 1. Expose the wiring terminals by opening the back of the unit and loosen the lug screws.
- 2. Route conductors into the VersiCharge from the conductor opening with proper strain relief.
- 3. Pull 14 to 16 inches of slack through the conductor opening.
- 4. Locate the ferrite cores (the ones supplied in the resealable plastic bag).
 - Perform a visual check of all ferrite cores and ensure they are free from damage.
 - If the insulation of the ferrite is broken, a replacement should be requested by visiting the VersiCharge create case site, located here: (<u>https://siemens-</u> <u>smartinfrastructure.force.com/SI/s/createcase</u>) Alternatively, support can be reached by calling (855) 950-6339, option 9.
- 5. There is one ferrite core for each wire. Wrap each wire (L1, L2 and ground) two times through the ferrite core.
- 6. Wire the conductors into the VersiCharge (L1, L2 and ground) from the connected conduit as shown in the next Figure.



Figure 4-4 Hardwire the VersiCharge - Residential Variants

Refer to Appendix Hardwire Bending Diagrams (Page 73) for more information.

- 7. Insert the copper wires into the relay lugs.
- 8. Place the leads of the capacitor that is also supplied in the same bag as the ferrite cores with the EVSE into the lugs of relay for L1 and L2.
- 9. Using a torque screwdriver, torque all lugs to a value dependent on wire gauge size.
 - For 6 AWG torque to 35 in-lbs;
 - For 8 AWG, torque to 25 in-lbs;
 - For 10 AWG, torque to 20 in-lbs.

10.Reinstall the high voltage door and secure by engaging the snaps.

4.2 Amperage Adjustment

- 11.Swing the unit closed until the bracket clip engages and secure the charger with the tamperresistant security screws.
- 12.Turn the circuit breaker for this circuit to the ON position.

4.2 Amperage Adjustment

DANGER

Hazardous voltage. Failure to follow these instructions will result in death or serious injury.

Turn off the power before working on this equipment

Figure 4-5 Amperage dial setting

The VersiCharge comes set to the maximum of the model purchased. For example, a 40 A model will come with the amperage adjustment switch set to 4, and a 48 A unit amperage adjustment switch will be set to 5. Verify the required amperage adjustment switch setting based on the branch circuit protection (see the table Amperage Settings (Page 27)).

Note

The VersiCharge cannot control the power draw to the EV; it can only communicate the current capacity to the VersiCharge to the EV.

4.2.1 Dial Settings

Note

The amperage adjustment dial is for use by a qualified technician/electrician only.

This dial input shall match the installed output label on the unit.

- When changing the amperage adjustment dial, verify that the VersiCharge is disconnected from power.
- The purpose of the amperage adjustment dial is to set the maximum current that the EV is allowed to draw from the charging stations.
- The dial has 10 settings.
- Settings 0-5 are for amperage adjustments.
- Settings 6-9 are for factory use only. These settings will result in a bad switch fault if used.

Table 4-1 Amperage Settings

Switch Position	Amperage
0	12
1	16
2	24
3	32
4	40
5	48

NOTE: Do not set the switch above the 40 A unless hardwired via the dedicated 60 A branch protection.

Settings: 0 - 4 amperage adjustment settings are used for the 40 A charger (Note: the #5 position will cause a bad switch fault for the 40 A charger) and 0 - 5 amperage adjustment settings are used for the 48 A charger. Setting the amperage adjustment higher than 5 will result in a fault.

4.2.2 Circuit Requirements

• Follow local and national codes where applicable for rating supply equipment to the EVSE based on the charger's amp adjustment switch.

4.3 VersiCharge Units with a Remote Control Interface (Commercial Units)

4.3 VersiCharge Units with a Remote Control Interface (Commercial Units)

Figure 4-6 Remote control termination point

WARNING

Remote Control Interface should be low-voltage, control wiring (22AWG [0.64mm]).

Installing higher voltage on this interface can cause damage to the unit, preventing it from functioning properly. Do not hook up 120/240 V to these connections.

The Siemens VersiCharge has a Remote Control Interface that allows charging to be controlled by an external device by wiring a remote control interface to pins #7 and #9. Examples include demand response switches, building automation systems, digital sensors, and so on.

- Control Switch Input is a dry contact input from an external source.
- Status Output indicates the charging status of the VersiCharge.
- The Remote Control Interface is located inside the unit, so to connect a VersiCharge the unit has to be opened by taking the following steps:

4.3 VersiCharge Units with a Remote Control Interface (Commercial Units)

Pin	Label	Description
7	Utility_1	Utility lockout (dry contact input; locked when closed)
9	Utility_2	

1. Remove the multi-use connector from the bag and wire an additional Remote Control Interface cable to pins #7 and #9.

Note

The Remote Control Interface cable is not supplied as part of the in-box equipment.

- 2. Access the back of the unit by shifting the unit up and rotating it on the bracket hinges.
- 3. Remove the small access door by releasing snaps (use a flathead screwdriver if needed to assist) or removing the four screws (using the T15 Torx screwdriver).
- 4. Connect to the multi-use connector by gently pressing the connector on to it.
- 5. Press the Remote Control Interface cable through the rubberized gland at the back of the unit without the connector attached. This gland will self-seal.

Note

Do not press the cable with the connector attached through this gland; this will cause the loss of the NEMA 4 rating.

- 6. Attach the Remote Control Interface cable connector and attach the two cable connectors.
- 7. Gently tuck the cables into the back of the unit and close the case.

Note

When the external contact is closed, no charging will occur.

Note

The status output is a switch that indicates charging status. When the contacts are closed, the unit is in a charging state.

A DANGER

Explosion hazard.

Failure to follow these instructions will result in death or serious injury.

This equipment has arcing or sparking parts that should not be exposed to flammable vapors. This equipment should be installed at least 18 inches above the floor or ground level. Use extreme caution and follow instructions carefully.

4.4 SIM Card Installation – If Not Factory-Installed (Commercial Cellular Units Only)

4.4 SIM Card Installation – If Not Factory-Installed (Commercial Cellular Units Only)

Figure 4-7 SIM card installation

This hardware uses a micro SIM card, but will allow nano SIM cards when used with an adapter. The SIM card should NOT require a PIN and must be an IoT SIM card. Locked SIM cards are not supported by VersiCharge hardware. AT&T and T-Mobile are supported carriers for the United States. Rogers and Telus are supported carriers for Canada. Data plans should have a minimum consumption of 250 MB per month per charger.

- 1. Expose the area holding the SIM card hardware by unlatching the cover. The SIM card sits next to the Ethernet connection.
- 2. Slide the micro SIM card into the slot.
- 3. The SIM card socket is spring loaded. Slide the SIM card towards the bottom of the slot until it stays in place. To remove/replace the SIM card, press the SIM card down and it will "spring" up and out of the slot.

Note

If the SIM card is factory-installed, ensure that it is seated properly. If it is not seated properly in place, remove the SIM card, record its serial number, and then fully reinsert the SIM card.

4.5 Ethernet Connection – (Commercial and Smart Residential Units)

There is an Ethernet port standard on the VersiCharge controller module 10/100BASE-T port with an RJ45 modular connector. The Ethernet port is capable of data rates up to 100 Mbps and supports Modbus/TCP protocol. The Ethernet can be used to commission/configure chargers and monitor charger activity on a daily basis.

To configuring and monitoring the VersiCharge download the Sifinity Go mobile app at (http://usa.siemens.com/versicharge).

Figure 4-8 CAT6 Ethernet port connection

Note

The Ethernet cable connector should NOT be attached to the Ethernet cable when it is pushed through the rubberized Ethernet gland. This gland will not self-seal if the Ethernet connector is pushed through the rubberized Ethernet gland and the NEMA 4 rating will be lost.

- 1. Push the Ethernet cable through the rubberized Ethernet gland.
- 2. Snake the Ethernet cable up through the back to the opening.
- 3. Connect the Ethernet RJ45 plug to the cable.
- 4. Insert the RJ45 plug from the bottom up into the Ethernet port.

4.6 General Ethernet Network Connection Illustration

4.6 General Ethernet Network Connection Illustration

Figure 4-9 General Ethernet network connection illustration

4.7 Modbus Communications Setup

Using the Modbus RTU protocol. VersiCharge chargers can act as Modbus Children devices, making any real-time data available through the Modbus RTU protocol. Modbus Parent devices connected to the charger can access (read) this data or write data to the charger's registers, initiating control actions.

4.7.1 Modbus RTU Connection – (Commercial Units Only)

Figure 4-10 Multi-Use/Modbus connector

4.7 Modbus Communications Setup

Note

Push the RS-485 wire through the rubberized cable gland and then terminate the wires into the multi-use connector terminal block. This gland will not self-seal if the connector is pushed through the rubberized cable gland and the NEMA 4 rating will be lost.

Note

This enclosure has not been evaluated for rigid metallic and rigid non-metallic conduit. In order to maintain a Type 4 UL50E environmental rating, a hardwired installation should use liquid tight flexible conduit only, with conduit glands rated UL Type 4, 4X, 6 or 6P.

- 1. Push the external Modbus RTU cable through the rubberized cable gland at the back of the charger (this will self-seal).
- 2. Attach the external Modbus cable wires to the internal (supplied) multi-use connector.
- 3. Gently tuck the wiring into the space and secure the back of the charger.

Note

The Modbus RTU is open protocol and it is the responsibility of the installer to ensure the security of the wiring of these connections to prevent tampering.

4.7 Modbus Communications Setup

4.7.2 Modbus Termination Switch Settings – (Commercial Parent/Children Units)

Figure 4-11 Termination switch setting for Parent/Children units

SW3-1 (left side) labelled RS485 is the termination switch. This switch should be in the ON position for the Parent unit or in the OFF position for a Children unit, unless that Children unit is the last Children unit in the daisy chain, in which then it must be ON.

4.7.3 Modbus Termination Switch Settings – (Commercial Children Units Only)

Figure 4-12 Termination switch setting for Children units only

SW3-2 (right side), labelled RS485 Term, is the termination switch. For the Children units, the termination switch must be set to OFF; if the unit is the last one in the daisy chain, then the switch must be set to ON.

4.7 Modbus Communications Setup

4.7.4 General Modbus RTU RS-485 Wiring Considerations

Devices connected on the Modbus RS-485 wire, including the VersiCharge, converter(s) and other instrumentation, must be wired as follows:

- Connect the shield of each cable segment to ground at one end only.
- Isolate the cables as much as possible from sources of electrical noise.
- Install a ¼ watt termination resistor (RT) between the (+) and (-) terminals of the device at each end point of a straight-line bus. The resistor should match the nominal impedance of the RS-485 cable, which is typically 120 ohms (consult the manufacturer's documentation for the cable's impedance value).

RS-485 Connection methods to avoid

Any device connection that causes a branch in the main RS-485 Modbus cable should be avoided. This includes star and tee (T) methods. These wiring methods cause signal reflections that may result in interference. No more than two cables should be connected at any connection point on the RS-485 Modbus daisy chain. This includes connection points on instruments, converters and terminal strips. Following these guidelines ensures that both star and tee connections are avoided.

Figure 4-13 Serial Modbus network wiring example
Commissioning

5.1 Required Open Ports

Note that the following open ports are required for communication with Siemens Device Management and the logging server.

Domain name	Ports	Application layer protocol	Usage
versichargesg.com	443, 9019	HTTPS, WSS	Registration, upgrade requests, WebSocket communication
versichargesg.blob.core.windows.net	443	HTTPS	Firmware updates
data.logentries.com	443	HTTPS	Logging
us.data.logs.insight.rapid7.com	443	HTTPS	Logging
s-771b624ad7e94b258.server.transfer.us-east- 2.amazonaws.com	22	SFTP	Secondary server for firmware up- dates
siemens.com	N/A	ICMP	Determine if the Wallbox has net- work connection
pool.ntp.org	123	UDP	NTP server
siemens.pool.ntp.org	123	UDP	NTP server
Several (e.g. dns.opendns.com)	53	UDP and TCP	Accessing the Domain Name Server
dns.opendns.com	53	DNS	DNS
*.store.core.windows.net	443	HTTPS	Firmware updates

Note

If you use an OCPP server, you need additional open ports. Additional information is available in the documentation for the OCPP server.

Note

If you use an ModBus, you need port 502 open. Additional information is available in the in the ModBus Map (https://support.industry.siemens.com/cs/de/en/view/109814359).

Note

If you use an DHCP, you need port 68 open.

5.2 Commissioning with PC or mobile device

For the integrated functions of the charger, you need an Internet connection to connect to Siemens Device Management. The connection is set up during the commissioning described here.

Note

If a charger is moved to another network or if ownership is changed, the charger must be deregistered before recommissioning.

Deregistering the unit can be done through the mobile app or VersiCloud for multiple chargers.

The charger will not automatically commission to a new network, but remembers the initially commissioned network.

Note

Residential 40 A Unit Only - Before beginning to link the charger to an account, ensure the breaker powering the dedicated branch circuit is 'OFF'; plug in the VersiCharge. Turn the breaker 'ON' after plugging the unit in.

Preparing commissioning

Commission the charger with your mobile device using the Sifinity Go App or Sifinity Setup App.

The Sifinity Go App is recommended for a single charger.

To commission several devices in a network (including "Access Point Architecture"), use the Sifinity Setup App.

You can find more information in the download area of the respective tools.

Note

Always use the latest version of the commissioning tool.

Note

IP address range for an Ethernet connection

The IP address range **192.168.1.x** is not supported for an Ethernet connection.

Commissioning

5.2 Commissioning with PC or mobile device

Commissioning with the Sifinity Go App

Use the Sifinity Go App to manage and administer a maximum of 10 VersiCharge units (including commissioning).

To commission a single charger with the Sifinity Go App, follow these instructions:

 Install the Sifinity Go App from the Google Play Store (<u>https://play.google.com/store/apps/details?id=com.siemens.VersiChargeSG</u>) or the Apple App Store (<u>https://apps.apple.com/us/app/sifinity-go/id989742892</u>) on your mobile device.



- 2. Create a user account in the app.
 - Change password
 - Set notifications
 - Manage contact details
- 3. Connect your mobile device to the Wi-Fi of the charger and follow the instructions on your mobile device.
- 4. Connect the charger to the Internet via the Sifinity Go App. The following options are available for this:
 - Mobile Internet (SIM card only in the Cellular device)
 - Wi-Fi
 - Ethernet
- 5. Connect the charger to Siemens Device Management. This takes place automatically.
- 6. Assign a descriptive name for the charger.
- 7. Check the settings.

You can find detailed commissioning instructions on the Internet (https://support.industry.siemens.com/cs/ww/de/view/109814740/en).

Commissioning with the Sifinity Setup App

As a professional electrician, you can use the Sifinity Setup App for the commissioning of larger quantities of chargers.

To commission with the Sifinity Setup App, follow these instructions:

Install the Sifinity Setup App from the Google Play Store
 (<u>https://play.google.com/store/apps/details?id=com.siemens.sifinitysetup</u>) or from the Apple App Store (<u>https://apps.apple.com/us/app/sifinity-setup/id6476152331?platform=ipad</u>) on

your mobile device.



- 2. Create a user account in the app.
 - Enter the required information (email, name, company name).
 - You will then receive an email to activate the user account.
 - Open the email and follow the instructions to activate the user account.
- 3. Log in to the Sifinity Setup App.
- 4. Follow the Sifinity Setup App operating manual to start up the charger. The following settings are available:
 - Commission a single charger
 - Commissioning several chargers in succession
 - Further (optional) settings are available during commissioning: e.g. activation of RFID authentication, setting up a hotspot or assigning a charger group.
- 5. Connect the charger to the internet via the Sifinity Setup App. The following options are available for this:
 - Mobile internet (SIM card only in Cellular device)
 - Wi-Fi
 - Ethernet
- 6. Check the settings.

You can find detailed commissioning instructions on the internet (https://support.industry.siemens.com/cs/ww/en/view/109972411).

5.2 Commissioning with PC or mobile device

Changing the SSID and password

If you want to change network settings such as SSID and password after the charger has been successfully connected to Siemens Device Management, proceed as follows:

- 1. Delete the link of the charger with Siemens Device Management via the Sifinity Go App or via VersiCloud (https://www.versichargesg.com/Account).
- 2. Repeat the above steps for commissioning

If a Wi-Fi repeater is used later, we recommend using the same SSID and password that were used when registering the charger.

NOTICE

Access to VersiCloud

Only the person who performed the commissioning can access VersiCloud (<u>https://www.versichargesg.com/Account</u>) to change the SSID and password. If you do not have access to VersiCloud, contact Technical Support.

Siemens Care Remote Service

Please note: The product includes Care Remote Service during the standard warranty period. You can find more information on the SIEMENS Care Service on the Internet (https://www.siemens.com/global/en/products/energy/emobility/services.html#CareServices).

5.3 Managing and using RFID

The charger supports various authentication methods via OCPP. In addition, it is possible to save the user IDs of authorized RFID cards in a local list.

Note

The authorization list created via the Admin RFID card is different from the list created via OCPP. The OCPP authorization list can only be managed via the OCPP Backend and not via the Admin RFID card. These two lists are not synchronized.

5.3.1 Using RFID

With RFID cards, users can authenticate themselves to start or end a charging process.

Authentication via Modbus controller or OCPP server is also possible. Authentication can also be disabled in this way.

The supplied RFID User cards are not unlocked.



Figure 5-1 RFID card types

5.3 Managing and using RFID

Switching on the RFID function

You can switch the RFID function on and off as follows:

- On the device with firmware version 2.135 or higher:
 - Check if the required charging point is ready for operation:
 - The Vertical Status LEDs light up green.

- Or the three Status LEDs light up green and the top LED pulses purple (Uncommissioned Mode).

- Hold an Admin card in front of the RFID reader.
- A brief acoustic signal (a beep) is emitted.
- The two LEDs in the center of the Vertical Status LEDs light up purple. (RFID management mode)
- Press the touch button to switch the RFID function on or off.
- The Status LED Authentication lights up/extinguishes.
- Hold an Admin card in front of the RFID reader to end RFID management mode.

Note

To switch on the RFID function with the app or the OCPP backend, you need to finish commissioning.

- Sifinity Go App: Follow the instructions in the app.
- OCPP backend: Change the corresponding settings in the backend.

Supported RFID cards

For authentication, the charger has an integrated RFID reader that is deactivated at the factory.

The following table lists the supported chip types.

Note

Charger with RFID reader activated at the factory

The charger with firmware version prior to 2.135 has an RFID reader that is activated at the factory.

Card series	Memory	Security	Supported protocols
MIFARE Classic	1 K, 4 K	Crypto1	ISO14443A Part 1–3
MIFARE Plus	1 K, 2 K, 4 K	AES, Crypto1	ISO14443A Part 1–4
MIFARE DESFire	2 K, 4 K, 8 K	AES, 3DES	ISO14443A Part 1–4
MIFARE Ultralight	40, 48, 128, 144	None, 3DES	ISO14443A Part 1–3

Table 5-1 Supported chip types

5.3.2 Managing RFID

You can manage the RFID cards via the following channels:

- Local RFID list via Admin RFID cards
- Modbus controller
- OCPP-based server: Directly via the server

The management of RFID cards via Admin cards in the local list is described under the section Adding or removing RFID cards (Page 43).

For the Modbus method, see Siemens Industry Online Support (https://support.industry.siemens.com/cs/de/de/view/109814359).

For the OCPP-based method, see the OCPP Implementation Guide (https://support.industry.siemens.com/cs/ww/en/view/109814941).

5.3.3 Adding or removing RFID cards

A list containing all User cards for which approval is given is saved locally in the charger.

NOTICE

Store Admin cards carefully

The scope of delivery of the VersiCharge includes 2 Admin cards and 5 User cards. These Admin cards are uniquely assigned to the VersiCharge. Store the Admin card carefully because management of the RFID cards becomes complicated if the Admin card is lost. A different Admin card is not compatible with the VersiCharge.

5.3 Managing and using RFID

5.3.3.1 Adding/removing RFID cards prior to firmware version 2.135

Note

The acoustic and optical signals of the charger can vary depending on the firmware version. For firmware versions after 2.135, see section Adding/removing RFID cards after firmware version 2.135 (Page 45).



Figure 5-2 Adding or removing RFID cards prior to firmware version 2.135

- 1. Hold an Admin card in front of the RFID reader. A brief acoustic signal (a beep) is emitted. It is now possible to manage the RFID cards.
- 2. Adding and removing:
 - Hold a new User card in front of the RFID reader. A brief acoustic signal (a beep) is emitted.

The new User card has been added to the list.

 Hold a released User card in front of the RFID reader. A brief acoustic signal (a beep) is emitted.

The User card has been removed from the list.

3. Hold another User card in front of the RFID reader to add User cards to the list or remove them from the list.

Repeat this action as often as needed.

4. Hold an Admin card in front of the RFID reader to end management of RFID cards. A brief acoustic signal (a beep) is emitted.

5.3.3.2 Adding/removing RFID cards after firmware version 2.135

Note

The acoustic and optical signals of the charger can vary depending on the firmware version. For firmware versions prior to 2.135, see section Adding/removing RFID cards prior to firmware version 2.135 (Page 44).



Figure 5-3 Adding RFID cards after firmware version 2.135



Figure 5-4 Removing RFID cards after firmware version 2.135

You can add or remove RFID cards regardless of whether the RFID function is enabled. To do so, follow the instructions below:

- 1. Hold an Admin card in front of the RFID reader.
- 2. A brief acoustic signal (a beep) is emitted.
- 3. The two LEDs in the center of the Vertical Status LEDs light up purple.

It is now possible to manage the RFID cards.

5.3 Managing and using RFID

4. Adding a User card

- Hold a new User card in front of the RFID reader.
- A brief acoustic signal (two beeps) is emitted and the Vertical Status LEDs light up completely in green.
- The new User card has been added to the preconfigured list.

5. Removing a User card

- Hold a released User card in front of the RFID reader.
- A brief acoustic signal (a beep) is emitted and the Vertical Status LEDs light up first completely in green and then in red.
- The User card has been removed from the preconfigured list.
- 6. After this, the two LEDs in the center of the Vertical Status LEDs light up purple again.
- 7. Hold another User card in front of the RFID reader to add User cards to the preconfigured list or remove them from the list.

Repeat this action as often as needed.

- 8. Hold an Admin card in front of the RFID reader to end management of RFID cards.
- 9. A brief acoustic signal (a beep) is emitted and the Vertical Status LEDs light up green.

Operation

6.1 Operation prior to firmware version 2.135

6.1.1 Status indicators



- ① Status LED Wi-Fi
- 2 Remote control
- ③ Front panel locked
- ④ Bluetooth status (not used)
- (5) Vertical Status LEDs for charging status / RFID / time delay / error states
- 6 Touch button
- ⑦ RFID reader
- 8 Status LED Error
- Status LED Charging active
- Status LED Power
- (1) Status LED Vehicle connected



6

6.1 Operation prior to firmware version 2.135

6.1.2 HMI functions

6.1.2.1 LED displays

LED display	Description	Charger status
Ċ	Status LED Power lights up white	The charger is switched on.
Ð	Status LED Vehi- cle connected lights up white	The electric vehicle is connected.
Ð	Status LED Charg- ing active lights up white	Charging in progress.
	Status LED Error lights up red	Charger fault Follow the instructions on error diagnostics and troubleshooting in the section Faults (Page 60).
	Status LED Wi-Fi lights up red	The charger has no connection to the Internet. Follow the instructions on error diagnostics and troubleshooting in the section Faults (Page 60).
(?)	Status LED Wi-Fi lights up yellow	The charger is connected to the router, but the Wi-Fi connection is weak. Boost the Wi-Fi signal. Read the note about changing the SSID and password in the section Commissioning with PC or mobile device (Page 37).
	Status LED Wi-Fi lights up green	The charger is waiting for the connection to the Internet service provider (ISP) or router.

6.1 Operation prior to firmware version 2.135

LED display	Description	Charger status
	Status LED Wi-Fi lights up blue	The charger attempts to connect to Siemens Device Management.
	Status LED Wi-Fi lights up white	The charger is ready for operation (with successful connection and registration in Siemens Device Management)
	Press the touch button once Note: only prior to FW 2.128	Press the touch button once for a 2-hour delay, twice for a 4-hour delay, three times for a 6-hour delay, and four times for an 8-hour delay.
	Press and hold the touch button	The charger is in an error state. Eliminate the fault and then press and hold the touch button for 5 seconds to reset the device. Observe the instructions on error diagnostics and troubleshooting in the section Faults (Page 60).

6.1.2.2 Vertical Status LEDs

Vertical Status LEDs	Description	Charger status
	Vertical Status LEDs do not light up	 The vehicle is not charging. Charging pauses (such as due to load management) The vehicle pauses the charging. Charging is complete.
	First LED of the Vertical Status LEDs lights up blue	Access denied. Unlocking via RFID/OCPP/Modbus

6.1 Operation prior to firmware version 2.135

6.1.3 Charging the vehicle



Risk of electric shock and fire. Touching live parts may cause electric shock or even death. Defective connectors or cables may cause fire.

Safety instructions during the charging process

- Do not kink or squeeze the charging cable. Do not draw the charging cable over sharp edges or hot surfaces.
- Do not use the charging station if damage or tampering is visible. If damage is visible, inform the operator. Until damage is repaired, keep away from the charging station and do not attempt to charge an EV.
- Grip the power plug/connector to disconnect from the charging unit. Do not remove the connector by pulling on the cable.
- Never touch the power plug/connector with wet hands.
- Do not connect or disconnect any cables during a thunderstorm.

Charging process

Proceed as follows to start charging:



Figure 6-2 Charging the vehicle prior to firmware version 2.135

- 1. Check if the required charging point is ready for operation:
 - The Status LED Power must light up.
 - If the RFID function is active, the first LED of the Vertical Status LEDs lights up blue.
- 2. Authenticate yourself on the charger.
 - If the RFID function is activated, hold your RFID card in front of the card reader.
 - Register with a method supported by the operator (such as through an app)
- 3. A brief acoustic signal (a beep) is emitted.
- 4. This is followed by a continuous, alternating acoustic signal.
- 5. Make sure that the charging cable is not damp or dirty. Then connect the charger to your vehicle. Follow also the vehicle manufacturer's guidelines for safe operation.

Once connected, the charger establishes a link with the vehicle. This can take some time, depending on the connection and response speed.

- 6. The blue LED of the Vertical Status LEDs extinguishes. Then the charging cable is locked and the "Vehicle connected" LED lights up.
- 7. Charging starts automatically and the "Charging active" LED lights up.
- 8. The acoustic signal ends and the vehicle is charging. The lock protects the charging cable from unauthorized disconnection.
- 9. The Vertical Status LEDs light up white to show that charging is active.
- 10. The Vertical Status LEDs and the "Charging process active" LED extinguish when the charging process is completed or stopped.

6.2 Operation after firmware version 2.135

6.2.1 Status indicators



- ① Status LED Connectivity
- ② Status LED Authentication
- ③ Vertical Status LEDs (multifunction display for charging status/error states)
- ④ Touch button
- 5 Status LED Error
- 6 Status LED Charging active
- ⑦ Status LED Power
- (8) Status LED Vehicle connected



6.2.2 HMI functions

6.2.2.1 LED displays

LED display	Description	Charger status
()	Status LED Power lights up white	The charger is switched on.
æ	Status LED Vehi- cle connected lights up white	The electric vehicle is connected.
(J)	Status LED Charg- ing active lights up white	Charging in progress.
â	Status LED Au- thentication lights up white	Option 1: OFF = Authentication function disabled Option 2: ON = Authentication function enabled
	Status LED Error lights up red	Charger fault Follow the instructions on error diagnostics and troubleshooting in the section Faults (Page 60).
	Status LED Con- nectivity lights up red	The charger has no connection to VersiCloud and/or the OCPP Backend (if OCPP is configured). Note: The VersiCharge may have connection to the Internet but if it is not able to connect to VersiCloud and/or OCPP Backend then the LED lights up red. Follow the instructions on error diagnostics and troubleshooting in the section Faults (Page 60).
	Press and hold the touch button	 If the charger is in an error state, press the touch button once to reset the device. Observe the instructions on error diagnostics and troubleshooting in the section Faults (Page 60). When using an Admin card in uncommissioned mode, press the touch button to switch the RFID function on or off. You can find more information in the section Using RFID (Page 41). After the restart, press and hold the touch button for 15 seconds to reset the charger to factory settings. For more information, refer to the section Resetting the Wallbox to factory settings (Page 63)

6.2.2.2 Vertical Status LEDs

Vertical Status LEDs	Description	Charger status
	Green color Vertical Status LEDs light up	The charger is ready for operation.
	Blue color Vertical Status LEDs ascending	Charging in progress.
	Blue color Vertical Status LEDs light up	Charging has been ended or stopped by the electric vehicle.
	Red color Vertical Status LEDs light up	Charger fault Follow the instructions on error diagnostics and trou- bleshooting in the section Faults (Page 60).
	Yellow color Vertical Status LEDs light up	Charging interrupted by charger, such as by local load management, OCPP or VersiCloud.

Vertical Status LEDs	Description	Charger status
	Yellow color	Note: The electric vehicle is not ready to charge.
	Vertical Status LEDs pulse	User interaction is required (authentication or plugging of charging cable).
	Yellow color Vertical Status LEDs ascending and de- scending	The authentication process is running and the charger is waiting for charging to start.
	Orange color Vertical Status LEDs pulse, increasing in segments	Booting after the restart.
	Purple color Vertical Status LEDs ascending and de- scending	Updating the firmware.
	Purple color Vertical Status LEDs pulse, increasing in segments	After the restart, press and hold the touch button for 15 seconds to perform the reset to factory settings. For more information, refer to the section Resetting the charger to factory settings (Page 63).

Vertical Status LEDs	Description	Charger status
	Purple color Two LEDs of the Verti- cal Status LEDs light up	RFID management mode In this mode, you can switch the RFID function on or off and add or remove RFID cards. You can find more information in the section Managing RFID (Page 43).
	Green and purple color Three LEDs light up green The top LED pulses purple	Uncommissioned Mode The charger is ready for charging, but commissioning has not completed yet. For more information, see section Uncommissioned Mode (Page 59).

6.2.3 Charging the vehicle



ADANGER

Risk of electric shock and fire. Touching live parts may cause electric shock or even death. Defective connectors or cables may cause fire.

Safety instructions during the charging process

- Do not kink or squeeze the charging cable. Do not draw the charging cable over sharp edges or hot surfaces.
- Do not use the charging station if damage or tampering is visible. If damage is visible, inform the operator. Until damage is repaired, keep away from the charging station and do not attempt to charge an EV.
- Grip the power plug/connector to disconnect from the charging unit. Do not remove the connector by pulling on the cable.
- Never touch the power plug/connector with wet hands.
- Do not connect or disconnect any cables during a thunderstorm.

Charging process



Proceed as follows to start charging:

If authentication is not required the Status LED Authentication will be off and steps 2, 3, and 4 are not necessary.
 Figure 6-4 Charging the vehicle after firmware version 2.135

- 1. Check if the required charging point is ready for operation:
 - The Vertical Status LEDs light up green.
 - If authentication is required, either by the operator's OCPP backend or by the RFID function being active, then the status LED Authentication lights up.
- 2. Authenticate yourself on the charger (if required).
 - If the RFID function is activated, hold your RFID card in front of the card reader.
 - If authentication is required by the operator then register and authenticate with a method supported by the operator (such as through an app).
- 3. A brief acoustic signal (a beep) is emitted.
- 4. After this, the Vertical Status LEDs pulse yellow.

Note

If the authentication process fails, a brief acoustic signal (a beep) is emitted and the Vertical Status LEDs light up red. Observe the instructions on error diagnostics and troubleshooting in the section Faults (Page 60).

6.3 Stopping the charging process

5. Make sure that the charging cable is not damp or dirty. Then connect the charger to your vehicle. Follow also the vehicle manufacturer's guidelines for safe operation.

Once connected, the charger establishes a link with the vehicle. This can take some time, depending on the connection and response speed.

6. Then the charging cable is locked and the "Vehicle connected" LED lights up. In addition, the status LED lights up yellow ascending and descending.

Note

This process may be very brief as the wallbox checks for charging authorization.

- 7. Charging starts automatically and the "Charging active" LED lights up.
- 8. The Vertical Status LEDs light up blue ascending.
- 9. The vehicle is charging. The lock protects the charging cable from unauthorized disconnection.
- 10. The Vertical Status LEDs light up blue and the "Charging process active" LED extinguishes when the charging process is completed.

6.3 Stopping the charging process

The user or the electric vehicle can stop charging at any time.

Note

After charging, place the charging cable in the holder. Cables that are not stowed may cause the following hazards:

- Trip hazard
- Damage to the charging plug
- Damage to the cable
- Moisture may enter the charge coupling

There are three different ways to terminate charging:

- 1. Hold an activated RFID card in front of the card reader to end charging.
- 2. Tap the Stop button in the Sifinity Go App to end charging.
- 3. End the charging process on the vehicle (see the operating instructions for the vehicle).

6.4 Uncommissioned Mode

Note

Uncommissioned Mode only works if the charger has firmware version 2.135 or higher.

The charger is ready for charging, but commissioning is not completed yet. Three LEDs of the Vertical Status LEDs light up green and the top LED pulses purple.

To perform commissioning, follow the instructions in the section Commissioning (Page 36).

Note that the following functions are not available in this mode:

- Connection with Siemens backend system
- Connection with OCPP backend
- · Connection and control via network, smartphones and digital terminals
- Centralized monitoring, maintenance and evaluation
- Firmware updates

7.1 General Troubleshooting Guide

If the Status LED Error and the Vertical Status LEDs light up red, the charger has a fault and charging is not possible.

The vehicle is connected

- 1. Pull the charging cable out of the vehicle.
- 2. Wait for 10 to 15 seconds.
- 3. Connect the charger to your vehicle.
- 4. If the charger continues to light up red, pull the charging cable out of the vehicle and follow the instructions in the paragraph below.

The vehicle is not connected

- 1. Press the touch button once and then check that no more red LEDs are lighting up on the charger.
 - Then try to start charging again.
- 2. If the red LEDs persist, switch off the circuit breaker for the charger. Wait 1 to 2 minutes before turning the power back on.
- 3. Wait for up to 15 minutes and check whether the red LEDs have extinguished.
 - Prior to FW version 2.135: The status LED Wi-Fi in the top left area of the charger lights up white.
 - As of FW version 2.135: The status LED Connectivity is off.
- 4. Start a charging process. If this is successful, no further troubleshooting is required.
- 5. If the red LEDs remain lit, try the above troubleshooting steps two more times.
- If the problem is not resolved, open a service ticket on the Internet (<u>https://emobility.usa.siemens.com/s/eMobilityCloud</u>) or via the support hotline (855-950-6339, option 9).

Status LED Wi-Fi/Connectivity lights up red

The charger has no internet connection or connection to the VersiCloud

- 1. Switch off the circuit breaker for the charger. Wait 1 to 2 minutes before turning the power back on.
- 2. Wait for up to 15 minutes and check whether the charger is found in the software.
 - Prior to FW version 2.135: The status LED Wi-Fi in the top left area of the charger lights up white.
 - As of FW version 2.135: The status LED Connectivity is off.

Status LED Wi-Fi flashes blue (only prior to firmware version 2.128)

- 1. The charger is connected to the internet and is waiting to connect to the Siemens Cloud.
- 2. Please note that the charger can be connected via OCPP.

Status LED Wi-Fi flashes green (only prior to firmware version 2.128)

- 1. The charger is waiting for the connection to the internet service provider (ISP) or router.
- 2. Wait for up to 15 minutes.
- 3. If the charger continues to flash green, troubleshoot possible problems with the internet service provider or with the router (for Wi-Fi or Ethernet connection).
- 4. If you are using a cellular network, check the signal strength and make sure the SIM card is activated.

The charging cable is damaged.

- 1. Switch off the charger.
- 2. Open a service ticket on the Internet (<u>https://emobility.usa.siemens.com/s/eMobilityCloud</u>).

7.2 Troubleshooting Guide for Technical Support

7.2 **Troubleshooting Guide for Technical Support**

Follow the instructions below to clear/rectify a specific error in the charger:

- 1. Press the touch button once.
- 2. The Status LEDs light up in a specific LED combination for 20 seconds. This specific LED combination will be provided in the service ticket (https://emobility.usa.siemens.com/s/eMobilityCloud) or via the support hotline (855-950-6339, option 9).



- (2) Fault LED 2
- 3 Fault LED 3
- (4)Fault LED 4
- (5) Status LED - Error

7.3 Resetting the charger to factory settings (firmware version 2.135 or higher)

Note

Remove the charger from Siemens Device Management before performing a factory reset.

Resetting to factory settings with a touch button

After the restart (switching the power supply off and on), you have 30 minutes to reset the charger to factory settings:

Note

Make sure that booting (Vertical Status LEDs pulse orange, increasing in segments) is complete after the restart and the charger is ready for operation (Vertical Status LEDs light up green).

- 1. Press the touch button for 15 seconds.
- 2. Vertical Status LEDs pulse purple, increasing in segments.
- 3. The start of the reset process is signaled by a beep.
- 4. The factory reset is performed (this takes approximately 15 minutes).
- 5. The boot sequence starts. Vertical Status LEDs pulse orange, increasing in segments.
- 6. The charger goes into Uncommissioned Mode (Page 59).

Authentication after reset to factory settings

- The authentication settings, also when an OCPP backend is used, are retained after the VersiCharge is reset to factory settings.
- The locally configured RFID cards remain saved after the reset to factory settings.

Maintenance

While there is no maintenance required for the internal components of the VersiCharge, the exterior does require some basic maintenance. The following maintenance can be performed by the owner or user. Any additional service must be conducted by qualified personnel.

If any damage is observed on the unit, contact your supplier or Siemens immediately. General exterior maintenance is recommended to be performed every six months, depending on the environment. In harsher conditions, maintenance should be performed more frequently.

8.1 General Exterior Maintenance

Regular cleaning helps prevent the accumulation of debris, dust, and dirt around the unit:

- Wipe surfaces with a soft cloth dampened with water.
- For tougher marks, use an alcohol-based cleaner.
- Avoid high-pressure cleaning devices, abrasive chemicals, or immersing the unit in liquids.

8.2 General External Checks

Perform the following checks regularly to ensure the unit's optimal condition:

- Cable and Connector:
 - Inspect the cable for cuts, cracks, or wear.
 - Ensure the connector and plug pins are free from debris or corrosion.
 - If damage or corrosion is present, contact your supplier or Siemens.
- Charger Body and HMI:
 - Examine the charger's exterior for visible damage.
 - Check the HMI for discoloration or signs of wear.
- Surroundings:
 - Remove any debris or snow buildup around the unit, especially in areas with heavy snowfall.
 - This should be checked daily in winter conditions.

If damage is observed, contact your supplier or Siemens directly by creating a support ticket as described in the Help! section (Page 67).

8.3 Cleaning Steps for Polluted Coupler

- 1. De-energize the unit and ensure the coupler is not connected to a vehicle.
- 2. Use a dry cloth to clean the cable, connector, and plug pins.
- 3. For the inside of the pins, use a dry cotton swab to remove debris.

Do not use abrasive agents, compressed air, water jets, or steam cleaners. **Never** submerge components in liquid.

If pin(s) are burnt, deformed or have signs of burning, these units must be removed from service and replaced immediately.

Warranty

LEGAL NOTICE: Use of this product indicates acceptance of these terms and non-compliance may void the warranty.

Please access the product warranties at the following links:

Product Warranties

 VersiCharge™ - Applies to all VersiCharge™ except the VersiCharge Blue™ 48A variant. (https://assets.new.siemens.com/siemens/assets/api/uuid:aa957eb2-0e18-4983-a559-6c9a30851e1d/SIE-B40053-00-4AUS-VersiCharge-AC-Limited-Warranty.pdf)



• VersiCharge Blue™ - Applies exclusively to the VersiCharge Blue™ 48A variant. (<u>https://assets.new.siemens.com/siemens/assets/api/uuid:3861e648-9b33-4f4f-9f52-</u>73f04b8fe4b7/SIE-B40058-00-4AUS-VersiCharge-Blue-AC-Limited-Warranty.pdf)



Accessories Warranties

 VersiCharge™ Accessories - Applies to all VersiCharge™ accessories except those for VersiCharge Blue™ 48A variant.
 (https://assets.new.siemens.com/siemens/assets/api/uuid:90a9692a-5992-4b03-bea5fa30f63f324c/SIE-B40059-00-4AUS-VersiCharge-AC-Accessories-Limited-Warranty_original.pdf)



 VersiCharge Blue™ Accessories - Applies exclusively to accessories for the VersiCharge Blue™ 48A variant. (<u>https://assets.new.siemens.com/siemens/assets/api/uuid:a2947d55-</u> 34f9-499a-b994-c5ed14d06832/VersiChargeACBlueAccessoriesWarranty.pdf)



Help!

10

Call us any time, any day, at +1 (855) 950-6339, option 9, or contact us via support ticket at (https://emobility.usa.siemens.com/s/eMobilityCloud).



Technical Data

VersiCharge[™] 48 A AC & VersiCharge Blue[™] 48 A AC Series

Note

The following technical data applies only for the model numbers described in the Current Offerings table in this section. Technical data for earlier models may vary.

Features and functions	
Charging mode	Level 2
Vehicle connection	J1772 plug with 20-foot cable, (25 ft. for VersiCharge™ Blue) 40 A / 48 A / integrated cable management
AC power output	Split phase up to 9.6 kW (40 A) - requires a 50 A breaker, or 11.5 kW (48 A) - requires a 60 A breaker
Mounting options	Wall and post mounting, see accessories
Touch button	Reset faults, reconfiguration
Charging status LEDs	Power, charging state, authentication
Communication status LEDs	Connected / not connected during operation
Network Sharing	Connects to one non-cellular charger by Wi-Fi within 20 feet line of sight
Load management	Via OCPP and Modbus

Communication	
Interfaces	Wi-Fi, Ethernet, RS485 (Modbus RTU) and LTE, WCDMA with optional cellular plan
User authentication	RFID (local Whitelist, MIFARE); ISO15118-2 HW-ready
Configuration	Via Sifinity Go (Up to 10 chargers) or Sifinity Setup (Android / iOS)
Back-end protocol	OCPP 1.6, upgradeable to OCPP 2.0.1
Software upgrade	Over-the-air (OTA)

Electrical design	
Power supply voltage	Single phase: 208 V / 240 V AC, 60 Hz
Rated current settings (A)	12, 16, 24, 32, 40, 48
Wire size	8 AWG / 6 AWG (90 °C rated wire)
Network type	Split phase
Energy metering	NTEP-certified metering, 1% accuracy (Only on NTEP models)
Ground fault protection	20 mA
Over voltage protection	267 V (maximum 275 V)
Operating altitude	6,562 ft

General design	
Environmental rating	Indoor and outdoor, NEMA 4, IK 8
Dimensions (H x W x D)	16.10 in x 7.09 in x 3.78 in
Weight	22 lbs
Ambient conditions	Operating temperature: -30 °F to +122 °F, storage temperature: -40 °F to +140 °F, 98% non-condensing
Colors	Silver metallic (Pantone 10077), black holster; Dark Blue (Pantone 7700) for Ver- siCharge Blue AC

Certificates and standards	
cUL listed	According to UL 1998, UL 991, UL2594/CSA C22.2 No.280/NMX-J-677-ANCE, UL 2231-1/CSA C22.2 No.281.1/ NMX-J-668-1, UL 2231-2/CSA C22.2 No.281.2/NMX-J- 668/2-ANCE, UL 2251/CSA C22.2
	No.282/NMX-J-678-ANCE
EMC	FCC Part 15 Class A (commercial variants); FCC Part 15 Class B (residential variants)
Certifications	Energy Star 1.2 certified, NTEP certified (On certain models)
Warranty	3-year warranty for Commercial models, 5-year warranty for VersiCharge™ Blue

Table 11-1 Current Offerings

	Maximum current	Model number	Wi-Fi and Ethernet	RFID identifi- cation	LTE WCDMA	Installed SIM card	NTEP certifica- tion	Buy- American compli- ant
VersiCharge™ AC	48 A	8EM1310- 5HF14-1GA2	Х	Х	Х	Х	Х	
VersiCharge Blue™ (Buy American compliant)	48 A	8EM1315- 5HG14-1GA2	Х	Х	Х	Х	Х	X

Back-end protocol: OCPP 1.6, upgradeable to OCPP 2.0.1

Data plans for chargers: Siemens offers chargers with data plans for customer convenience. A cellular plan is required for cell activation.

See table below for data plans.

Description	Catalog number
1-Year Cell Data Plan. USA / Puerto Rico / Canada. This is an annual fee.	US2:DATAPLAN1
1 additional year of extended warranty per charger. Parts Only. No On-Site services. NOT for Buy American version. Only available at time of hardware purchase	US2:VCEXWAR1YR
2 additional years of extended warranty per charger. Parts Only. No On-Site services. NOT for Buy American version. Only available at time of hardware purchase.	US2:VCEXWAR2YR

Previous variants (discontinued part numbers)

		Maximum current	Model number
Residential version	Smart	40 A	8EM1312-4CF18-0FA3
		48 A	8EM1312-5CF18-0FA3
Commercial versions	Non-cellular	40 A	8EM1310-4CF14-0GA0
		48 A	8EM1310-5CF14-0GA0
	Cellular	40 A	8EM1310-4CF14-1GA2
		48 A	8EM1310-5CF14-1GA2
Buy American Commercial versions	Non-cellular	48 A	8EM13155CG140GF0
	Cellular	48 A	8EM13155CG141GF2

Appendix

A.1 Useful Links

Register the VersiCharge hardware at: (https://sieops.my.site.com/eMobilityCloud/s/login/)

- If you don't have an existing account, create an account in VersiCloud use the following link (<u>https://www.versichargesg.com/Account/Login?ReturnUrl=%2f</u>) and click "Register" or use the Sifinity Go mobile app to create a new account:
- Download the Sifinity Go mobile app at the following links for installations with 10 or less chargers per account.
 - Google Play Store (https://play.google.com/store/apps/details?id=com.siemens.VersiChargeSG)
 - Apple App Store (<u>https://apps.apple.com/us/app/sifinity-go/id989742892</u>)
- Download the Sifinity Setup mobile app at the following links for installations of larger quantities of chargers per account.
 - Google Play Store (https://play.google.com/store/apps/details?id=com.siemens.sifinitysetup)
 - Apple App Store (<u>https://apps.apple.com/us/app/sifinity-setup/id6476152331?platform=ipad</u>)
- Download the VersiCharge Configuration Tool (PC application). Recommended for commercial installations.
 Download available on (<u>https://support.industry.siemens.com/cs/de/en/view/109798469</u>) under the download section.
- Find the following at (<u>http://usa.siemens.com/versichargecommercial</u>):
 - Configure your VersiCharge
 - VersiCharge Frequently Asked Questions
 - Open Source Report: Product clearing report for third-party SW components
 - End User License Agreement (EULA)
 - Privacy Rights
 - Installation and commissioning videos
 - Mobile app user guide
A.2 Wiring Schematics for VersiCharge 40 A and 48 A VersiCharge Units

A.2 Wiring Schematics for VersiCharge 40 A and 48 A VersiCharge Units



VersiCharge Hardwired Models

Figure A-1 Figure 20. Hardwire installation schematic for advanced 40 A_48 A unit

Note

Follow local and national codes where applicable for rating supply equipment to the EVSE based on the charger's amp adjustment switch. 40 A requires a 50 A breaker, and 48 A requires a 60 A breaker. In addition, the wiring should not be exposed to any conditions that could potentially damage wiring or cause a potential hazard.

A.3 Hardwire Bending Diagrams

VersiCharge[™] Power Wire Bending Diagram

Applicable to hardwired units only.



A full-size wire bending diagram is supplied in the box. Locate the diagram, place the cable (22AWG [.64mm]) being wired to the unit on it, and bend the wires to match the diagram. Insert the wires into the unit and tighten the connections to required torque.

A.3 Hardwire Bending Diagrams





Residential variants



List of abbreviations

AC	Alternating current
APN	Access Point Name
DC	Direct current
ESD	Electrostatic Discharge
EV	Electric Vehicle
FAQ	Frequently Asked Questions
IEC	International Electronical Commission
IK	Impact Protection
ISO	International Organization for Standardization
IP	International Protection
MCB	Miniature circuit breaker
MID	Measurement Instruments Directive
OCPP	Open Charge Point Protocol
PC	Personal Computer
RCCB	Residual current operated circuit breaker
RFID	Radio Frequency Identification
RSS	Rich Site Summary
Wi-Fi	Wireless Fidelity

B

Legal Manufacturer

Siemens Industry, Inc. 3617 Parkway Ln. Peachtree Corners, GA 30092 United States of America

Telephone: 855-950-6339, option 9, or visit <u>emobility.usa.siemens.com/s/eMobilityCloud</u> for service questions or inquiries.

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