



**NOTE:** Plug removal is only necessary when hardwiring the VersiCharge.



**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:** Use flexible conduit only.

1. The VersiCharge will need to be mounted on the bracket to hardwire the device. Access the back of the unit by shifting the unit up and rotating it on the bracket hinges.
2. Remove the high voltage door by releasing the snaps (use a flathead screwdriver if needed to assist).

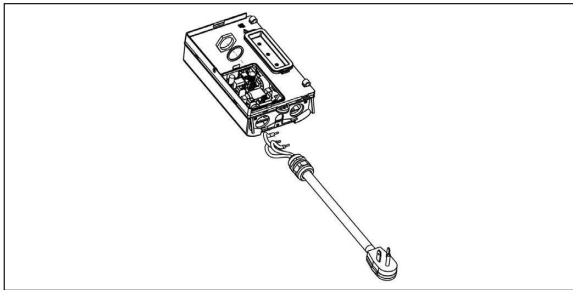


Figure 7. Remove the plug

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).
4. Do not adjust the two lugs of the pre-installed wiring. These are for factory use only.
5. Disconnect and remove the strain relief and entire cord-and-plug assembly.
6. Route the conductors into the VersiCharge from the conductor opening with proper strain relief.
7. Pull 3-6 inches of slack through the conductor opening.
8. Slide the ferrite core over the black and red wires ONLY and into position per Figure 8 (the green wire/ground should not be placed through the ferrite core).
9. Wire the conductors (copper only) into the VersiCharge (L1, L2 and Ground) from the connected conduit. Using a torque screwdriver, torque all lugs to 14.5 lb.-in. See Appendix C for the hardwire bending diagram.

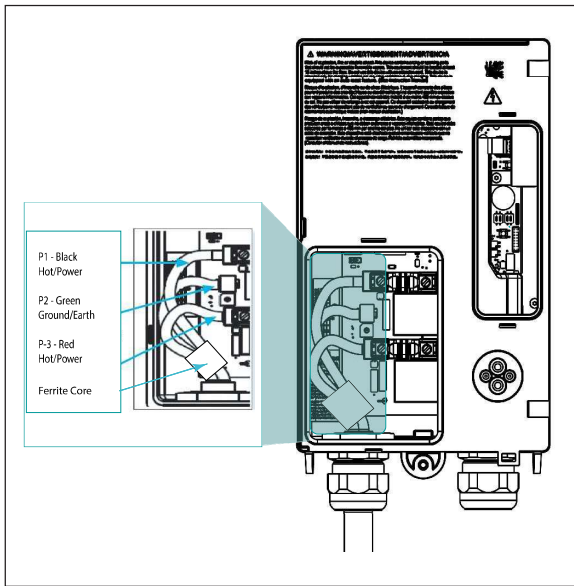


Figure 8. Hardwire the VersiCharge

11. Replace the high voltage door.
12. Swing the unit closed until the bracket clip engages and secure the charger with the tamper-resistant security screws.
13. Turn the circuit breaker for this circuit to the ON position.

### 3.2 Amperage Adjustment

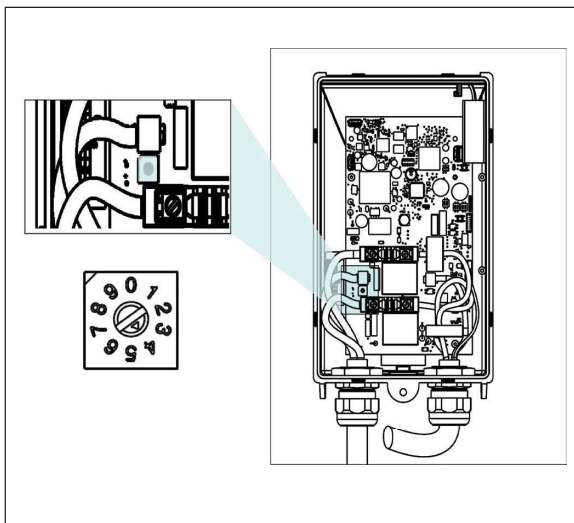
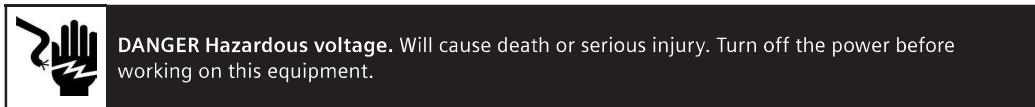


Figure 9. Amperage dial setting

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 below).



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

### 3.2.1 Dial Settings



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

- 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.

#### 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.

### 3.2.2 Circuit Requirements

- The circuit must be sized for the maximum ampere requirement. Do not derate breakers or conductors based on amperage adjustment.

### 3.3 VersiCharge Units with a Remote Control Interface (Commercial Units)

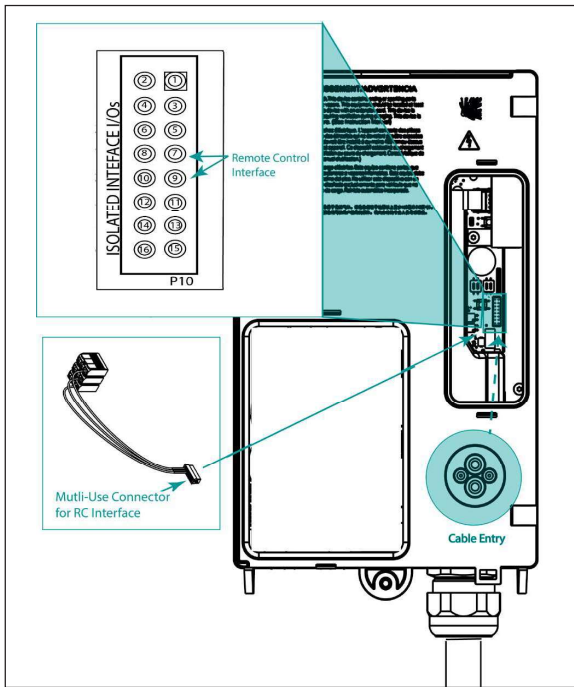


Figure 10. Remote control termination point



**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:

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

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).
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.



**Explosion hazard.** 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.

### 3.4 SIM Card Installation – If Not Factory-Installed (Commercial Parent Units Only)

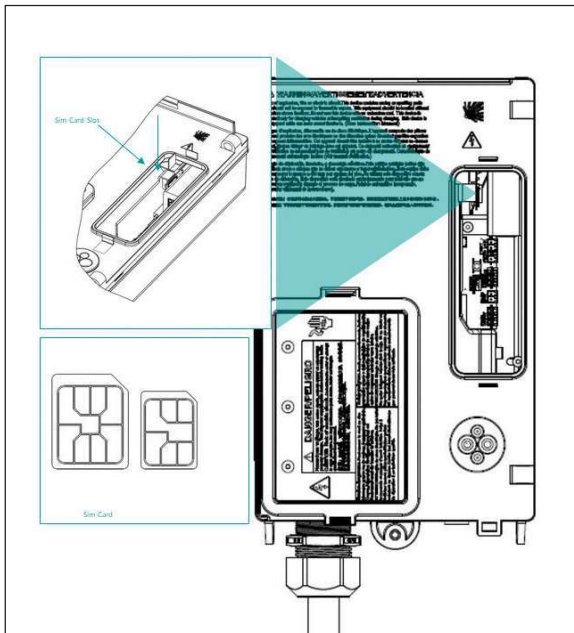


Figure 11. SIM card installation

This hardware uses a micro SIM card, but with an adapter will allow nano SIM cards.

The SIM card should NOT require a PIN and must be an IoT SIM card. Locked SIM cards are not supported by VersiCharge hardware.

The following carriers are supported: for USA: AT&T and T-Mobile; for Canada: Rogers and Telus. 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 (see Figure 11 – SIM card installation).
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.

### 3.5 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 (download the VersiCharge Configurator Tool ([PC application] or Sifinity Go mobile app at [usa.siemens.com/versicharge](http://usa.siemens.com/versicharge)). Note that the PC tool is only used for configuring - Sifinity Go mobile app is used for configuring AND monitoring.

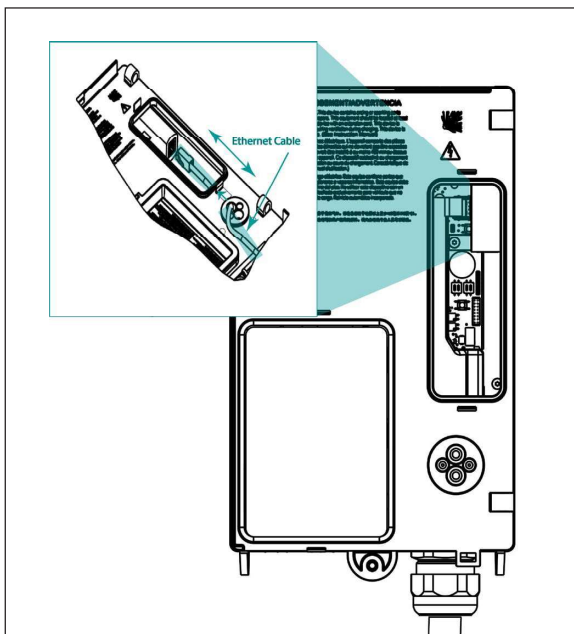


Figure 12. CAT6 Ethernet port connection



**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.

### 3.6 General Ethernet Network Connection Illustration

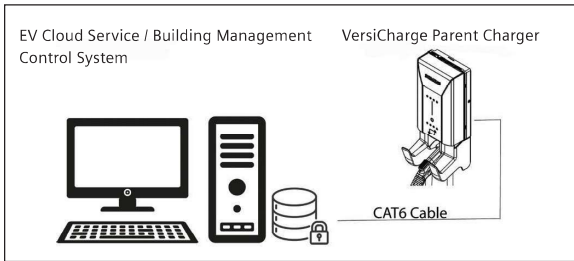


Figure 13. General Ethernet network connection illustration

### 3.7 Modbus Communications Setup

**Using the Modbus RTU protocol.** VersiCharge chargers can act as Modbus child 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.

#### 3.7.1 Modbus RTU Connection (Commercial Units Only)

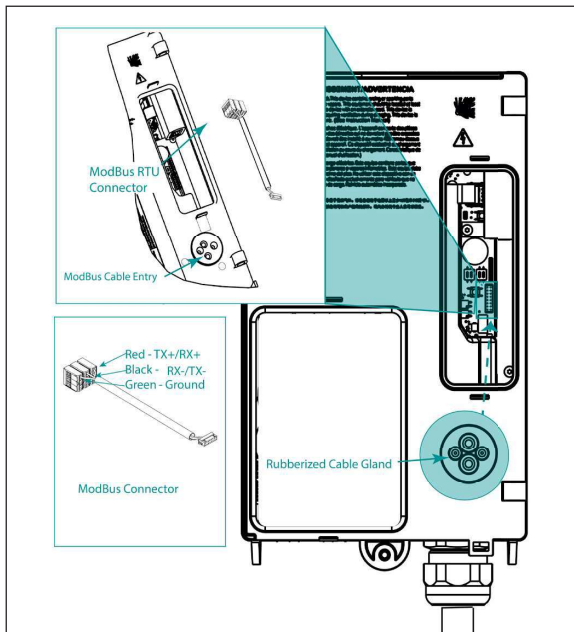


Figure 14. Multi-Use/Modbus connector



**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.

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.



**Security 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.

### 3.7.2 Modbus Termination Switch Settings – (Commercial Parent/Child Units)

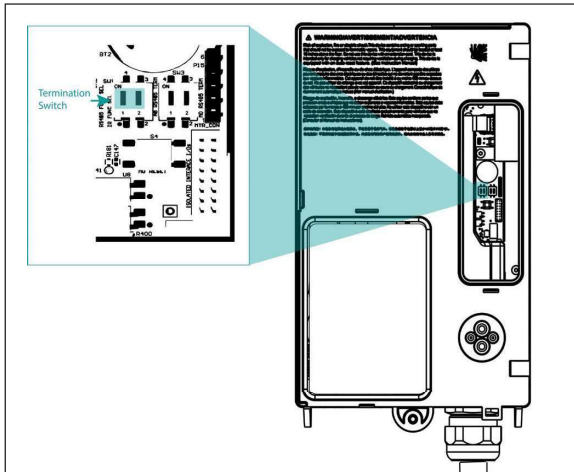


Figure 15. Termination switch setting for parent/child units

1. 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 child unit, unless that child is the last child in the daisy chain, in which then it must be ON.

### 3.7.3 Modbus Termination Switch Settings – (Commercial Child Units Only)

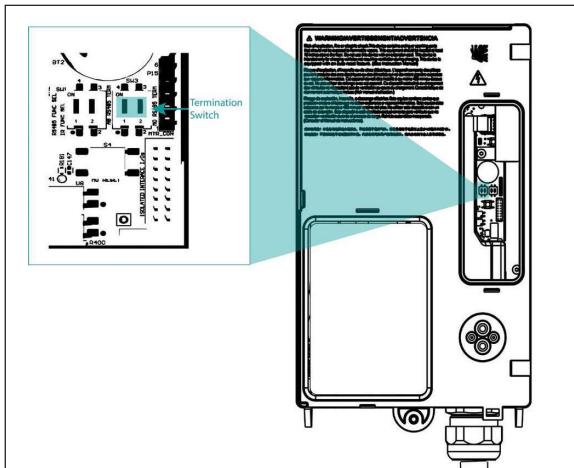


Figure 16. Termination switch setting for child units only

1. SW3-2 (right side), labelled RS485 Term, is the termination switch. For the child 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.

### 3.7.4 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 1/4 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.

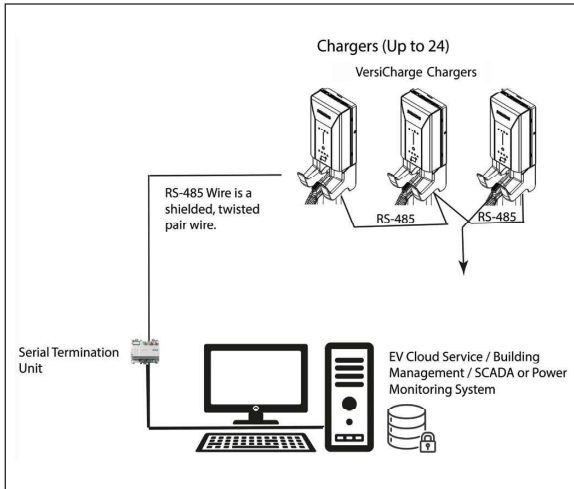


Figure 17. Serial Modbus network wiring example

## SECTION 4

# RFID Setup (Commercial Units Only)

## RFID Cards supported by VersiCharge

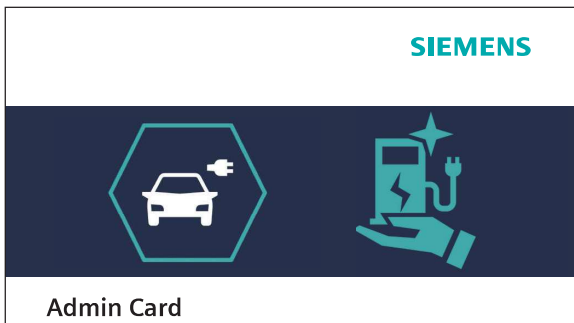
| Cards Family      | Memory        | Security     | Protocol Support   |
|-------------------|---------------|--------------|--------------------|
| MIFARE Classic    | 1K, 4K        | Crypto1      | ISO14443A Part 1-3 |
| MIFARE Plus       | 1K, 2K,4K     | AES, Crypto1 | ISO14443A Part 1-4 |
| MIFARE DESFire    | 2K, 4K, 8K    | AES, 3DES    | ISO14443A Part 1-4 |
| MIFARE Ultralight | 40,48,128,144 | None, 3DES   | ISO14443A Part 1-3 |

RFID functionality is an available feature only for commercial units. Pass the RFID card in front of the RFID and if successful the Charging Process Light will flash twice from the bottom up and there will be an audible tone. If the card swipe is not successful, the Charging Process Lights will flash for one second, decreasing to 0.25 second; this will happen two times. There will be two audible tones, decreasing if the card swipe is unsuccessful.

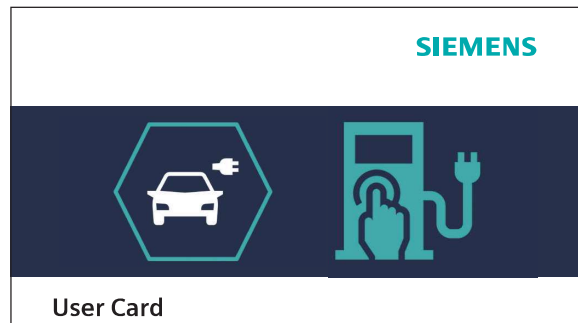
| RFID State                | Description  |
|---------------------------|--|
| RFID swipe successful     | Charging LED ON/Blinking. White #2, #4, #6 and #8 every 0.25 second in incremental patterns starting from 0.25 second, 0.50 second, 0.75 second, and 1 second. Repeat 2 times. Audible single beep tone. |
| RFID swipe not successful | Charging LED OFF. White #2, #4, #6 and #8 one second in decremental pattern, starting from 1 second, 0.75 second, 0.50 second, and 0.25 second. Repeat 2 times. Audible dual beep tone.                  |

RFID card management can be performed via the Modbus controller, OCPP-based server or by manually using Admin Cards provided with the unit (note: Admin Cards may not be used when the unit is connected to an OCPP server and RFID cards must be managed by the OCPP server through the "Local Auth List Management" profile). Please refer to the Modbus map to implement the appropriate commands to add/remove or authorize charging sessions. VersiCharge maintains a local preauthorized list that holds the list of all authorized User Cards. An authorized User Card in the preauthorized list will allow the charging session to start when tapped.

To add User Cards to pre-approved, tap Admin Card, followed by tapping the User Card(s) that are to be added to the preauthorized list. Once all User Cards are added, tap the Admin Card to finish the operation of adding User Cards to local preauthorized list. In order to remove a User Card from pre-approved, tap the Admin Card followed by the User Card already in the preauthorized list, and then tap Admin Card again to end the removal process.



NOTE: Admin Cards are **only** used to add/remove user cards to the system when RFID is enabled.



NOTE: User Cards are necessary to begin charging when RFID is enabled.