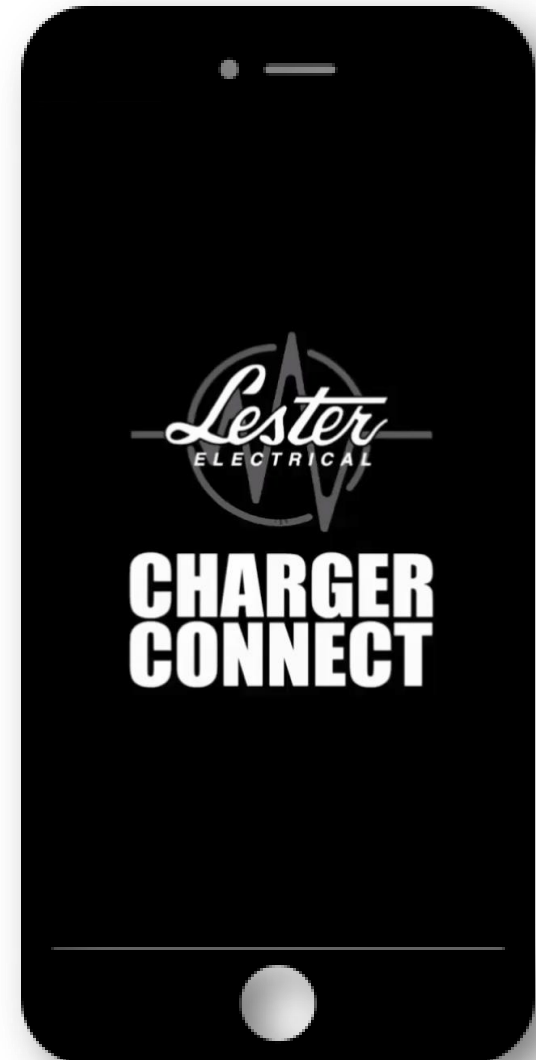




# Lester Electrical ChargerConnect™

## App Users Guide

*For use with Summit Series® II battery chargers*



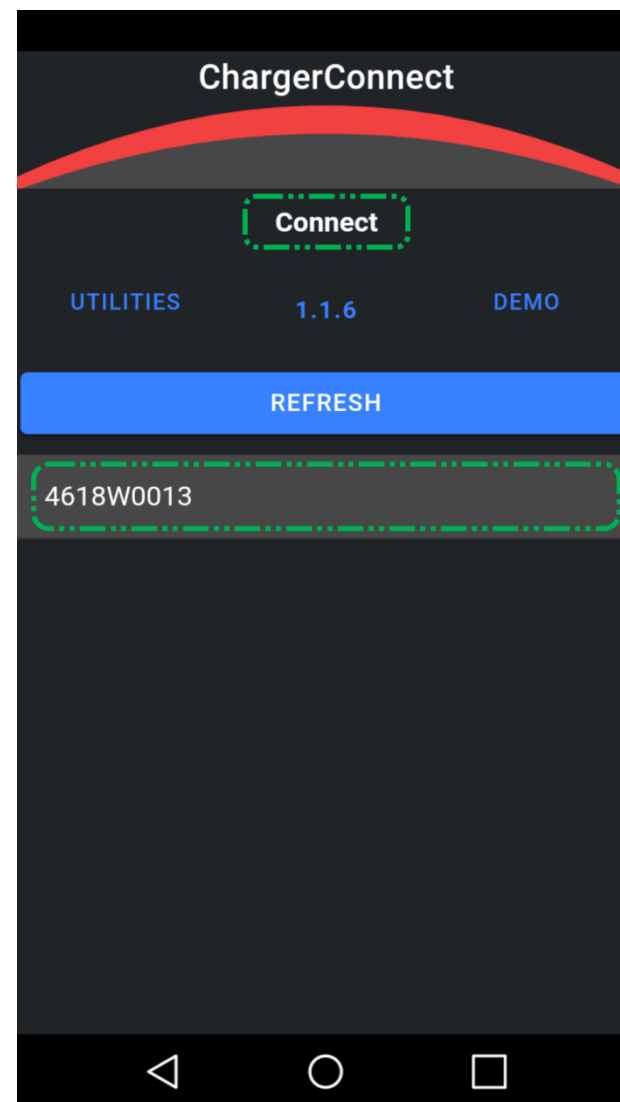
## TABLE OF CONTENTS

<i>Sections</i>	<i>Page Number</i>
Introduction	3
Dashboard	4
Navigation Menu	6
Diagnostics	7
History	8
System Information	11
System Profile	12
Auto Voltage Mode	13
Battery Profile	18
Battery Profile Selector	20
Utilities	21
Offline Mode	22

## Lester Electrical ChargerConnect™ App User's Guide

Lester Electrical Summit Series® II chargers features Bluetooth wireless communication, which can be accessed using an Apple® or Android™ smart phone, tablet, or similar device. Download the ChargerConnect app for your device by visiting the App Store® or the Google Play™ store and searching for "ChargerConnect".

The Summit Series II charger communication electronics are DC powered, so the charger must be connected to a valid battery pack in order to communicate with it via Bluetooth. The ChargerConnect application (app) requires both the Bluetooth and location services to be enabled on the mobile device for proper operation. Once the charger is connected to a valid battery pack, open the ChargerConnect app and select the charger's serial number from the list of available chargers listed. If the serial number of your charger is not listed, touch the "Refresh" bar to re-scan for available chargers. While connected, the Red, Yellow, and Green LEDs on the charger will slowly blink at the same time until the Bluetooth communication is disconnected from the charger. If the unit was actively charging before the Bluetooth connection was made, it will continue to charge while connected unless stopped via the app.



## Dashboard

The **Dashboard** is the first screen that will appear when connection to the charger is established. This display provides an overview of programmable settings and charging status of your Summit Series® II charger.

**Charger ID** – Displays the ID of the charger. This field is factory set to be blank. To customize the Charger ID, tap the open space in line with the start of the battery profile number and a cursor and keyboard will appear.

**Vehicle ID** – Displays the ID of the vehicle that is paired with the charger (if applicable). The Vehicle ID is factory set to be blank. To customize this setting, use the same procedure listed under the Charger ID section.

**Battery Profile** – Displays the profile number of the active battery profile. A description of this profile, including the compatible batteries, is available on the “Battery Profile” screen.

**System Profile** - Displays the profile number of the active system profile, the setup file used to configure the battery charger to the application.

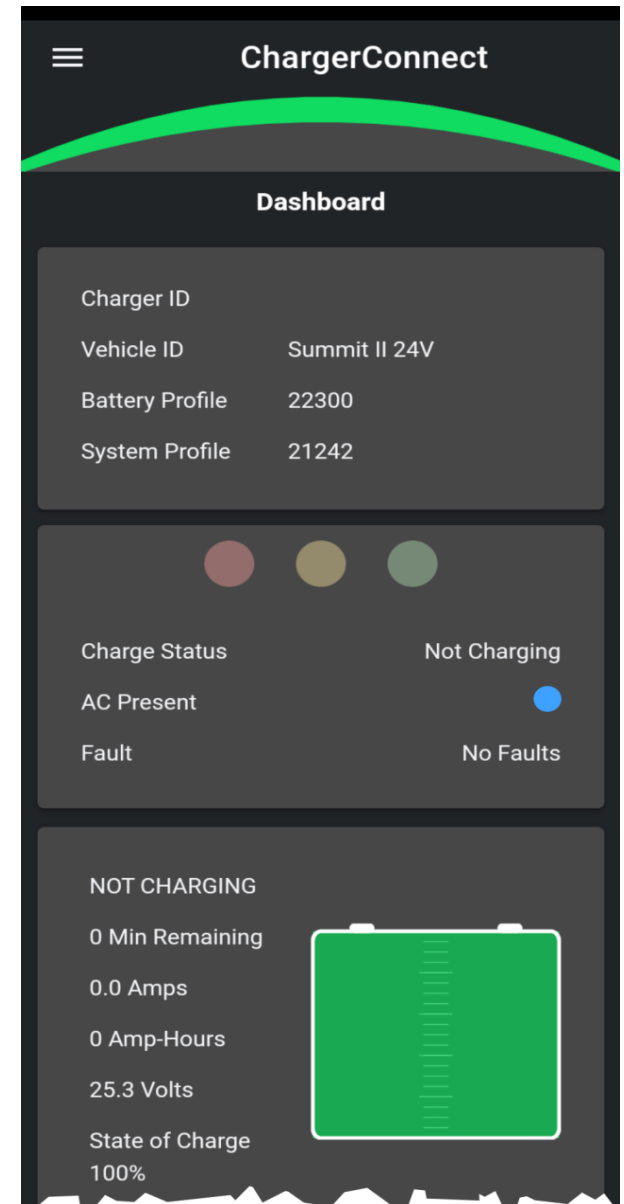
**LED Display** – Displays the same charge status LEDs that are present on the charger. Details regarding the LEDs can be found in the charger user’s manual.

**Charge Status** – Displays the active charge cycle phase.

**AC Present** – Indicates AC input power is present at the charger by illuminating the field’s blue LED, which corresponds to the blue “AC Present” LED on the charger.

**Fault** – Displays any active faults. Descriptions of the faults, as well as instructions for resolving them, are detailed in the charger user’s manual.

**NOTE: Depending on the screen size of the smart phone or tablet (device) you are using, you may need to scroll down to see all of the fields.**



**Charge Time Remaining** – Displays the estimated charge time remaining in minutes.

**Output Current** – Displays the DC output current in amps.

**Amp-Hours Charged** – Displays the number of amp-hours charged.

**Battery Voltage** – Displays the battery pack voltage in volts

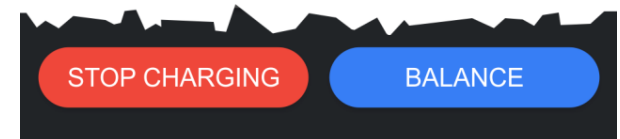
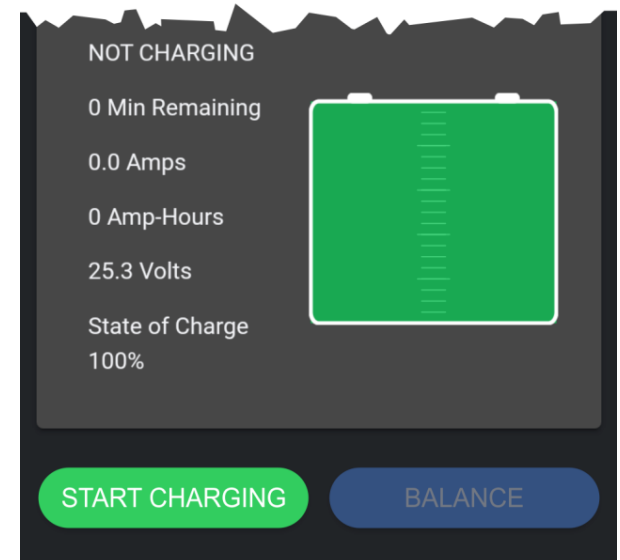
**Battery State of Charge** – Displays the estimated State of Charge (SOC) of the battery pack as a percentage and graphically.

**Auto Battery Voltage Detection (if enabled)** – When Auto Voltage Mode is active this field displays the status of the proprietary algorithm that selects the correct voltage settings for the charger. *See the “Auto Voltage Mode” section for details regarding Auto Voltage Mode.*

**Detected Battery Pack Voltage (if enabled)** – When Auto Voltage Mode is active, this field displays the detected battery pack voltage once the proprietary algorithm mentioned in the Auto Battery Voltage Detection reaches 100% completion.

**Manual Stop/Start Button** – Tapping this button will stop a charge cycle (red button) or start a charge cycle (green button).

**Manual Equalize/Balance Button** – If the active battery profile includes an Equalize or Balance phase, this button will be active, otherwise it will be grayed out. The Equalize and Balance phases of battery profiles are typically triggered based on a variety of events (a certain number of charge cycles occurring, etc). This button provides a method to manually trigger an Equalize or Balance to occur if instructed to do so by your battery manufacturer, distributor, or dealer. This button will also be grayed out if the active charge cycle already has an Equalize or Balance phase triggered.



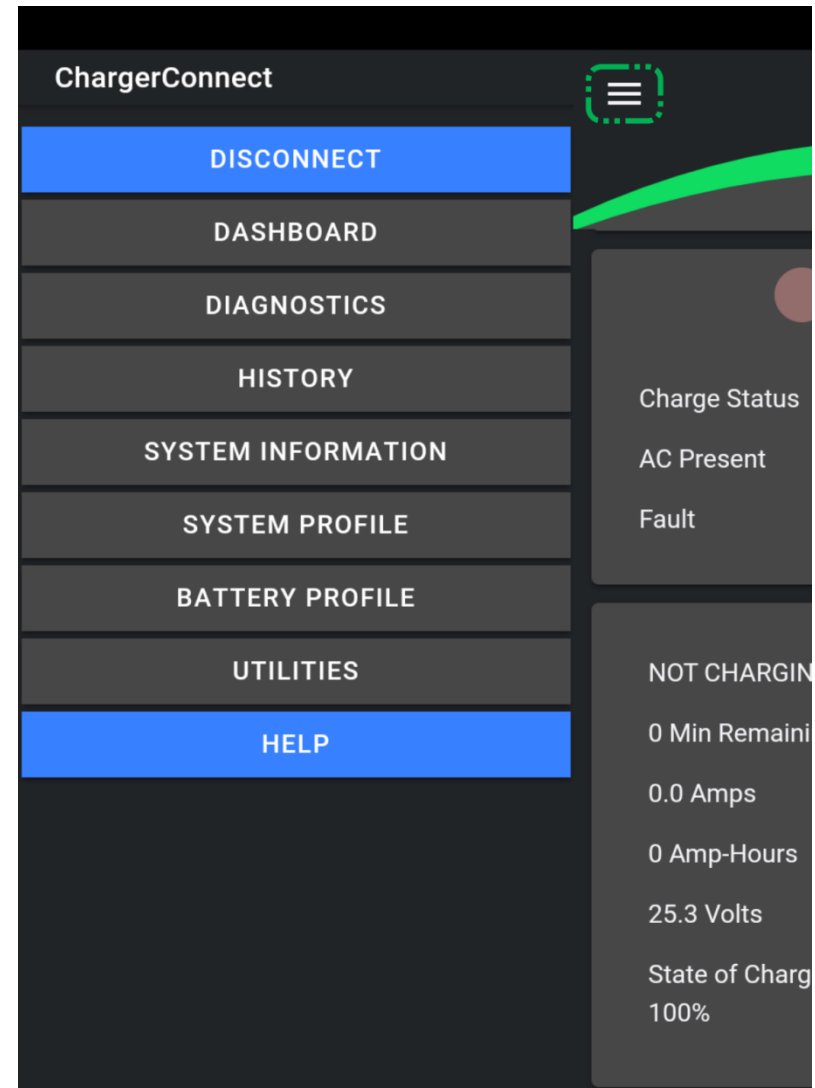
## Navigation Menu

The Navigation menu allows access to the various programming sections within the ChargerConnect app.

The Navigation Menu can be accessed by tapping the three (3) horizontal lines (Hamburger) in the upper left-hand corner of the app.

**Disconnect** – This menu item disconnects the Bluetooth connection between the charger and your smart phone or tablet (device) and returns you to the “Connect” screen.

**Note:** *If the connected charger is actively charging, the “History”, “System Profile”, “Battery Profile”, and “Utilities” menu items will be disabled. The “Manual Stop/Start Button” on the “Dashboard” screen can be used to (1) stop the active charge cycle in order to access these menu items and (2) start a new charge cycle prior to disconnecting from the charger.*



## Diagnostics

The **Diagnostics** tab displays summarized data of the charger's current status.

**Amp meter** – Displays the DC output current in amps and graphically.

**Voltmeter** – Displays the battery pack voltage in volts and graphically.

**State of Charge (SOC)** – Displays the estimated State of Charge (SOC) of the battery pack as a percentage.

**Min Remaining** – Displays the estimated charge time remaining in minutes.

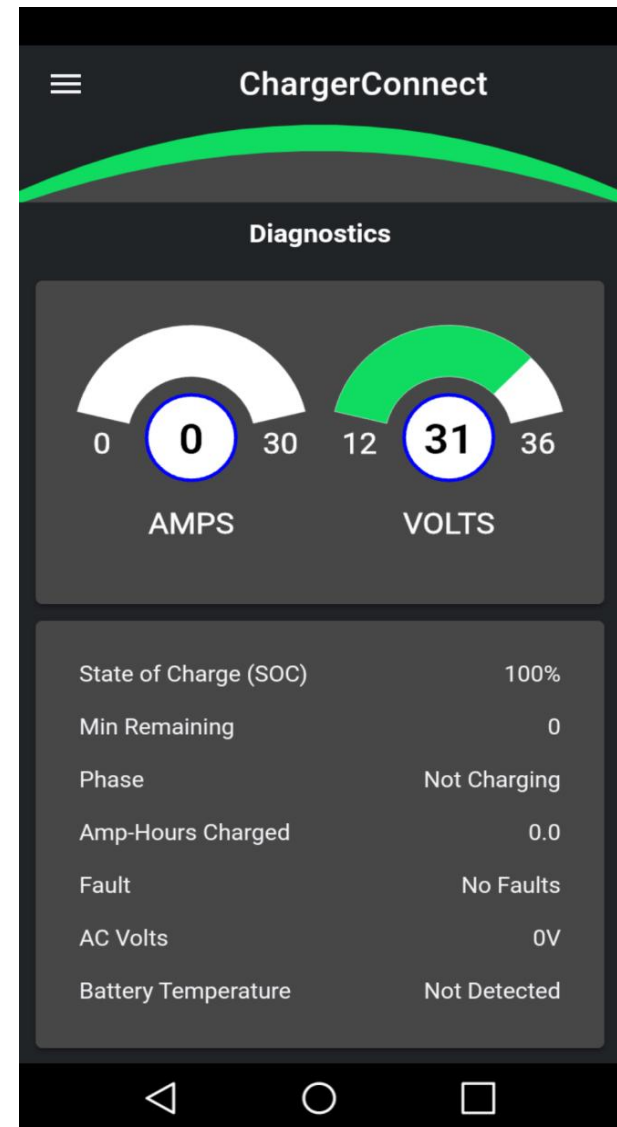
**Phase** – Displays the active charge cycle phase.

**Amp-Hours Charged** – Displays the number of amp-hours charged.

**Fault** – Displays any active faults. Descriptions of the faults, as well as instructions for resolving them, are detailed in the charger user's manual.

**AC Volts** – Displays the AC input voltage in volts.

**Battery Temperature** – Displays the battery temperature in °C if a battery temperature sensor is connected to the charger. If a battery temperature sensor is not connected to the charger, "Not Detected" is displayed in this field.

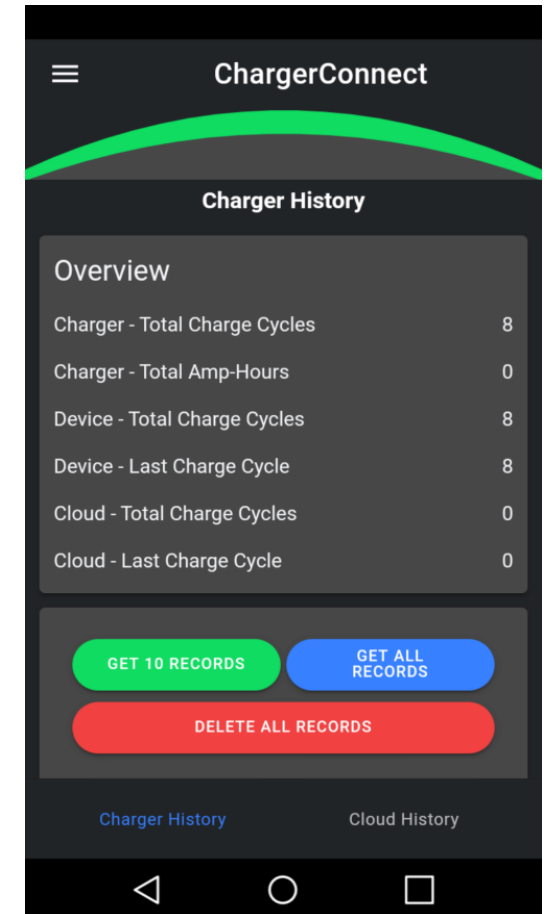


## History

The Summit II Charger stores up to 255 historical charge records that can be used to diagnose issues that may occur during normal product usage. Valuable information such as termination records and charger run times are available in this app feature.

### Charger Histories Tab

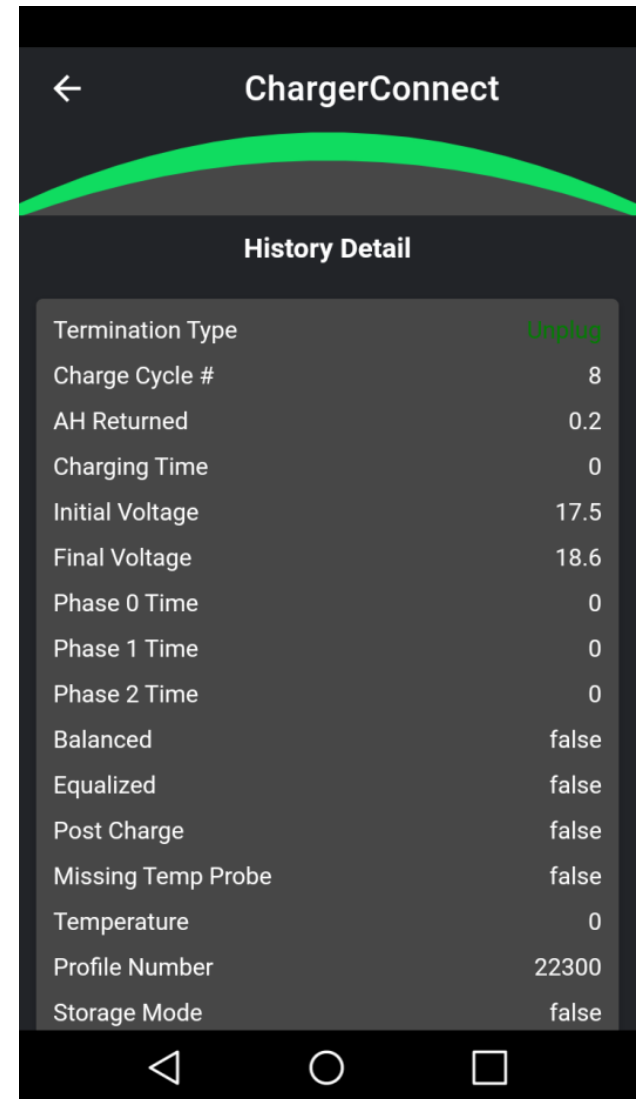
- **Overview Section**
  - **Charger**
    - **Total Charge Cycles** – Total charge cycles that the connected charger has recorded.
    - **Total Amp-Hours** – Total amp-hours that the connected charger has recorded.
  - **Device**
    - **Total Charge Cycles** – Total charge cycle history records that have been downloaded from the connected charger to your smart phone or tablet (device).
    - **Last Charge Cycle** – Number of the last charge cycle history record that has been downloaded from the connected charger to your smart phone or tablet (device).
  - **Cloud**
    - **Total Charge Cycles** – Total charge cycle history records that have been downloaded from the connected charger and uploaded to the ChargerConnect Cloud.
    - **Last Charge Cycle** – Number of the last charge cycle history record that has been downloaded from the connected charger and uploaded to the ChargerConnect Cloud.
- **Get 10 Records Button** – Tap to download the latest 10 charge cycle history records that have not been previously downloaded from the connected charger to your smart phone or tablet (device).
- **Get All Records Button** – Tap to download all charge cycle history records that have not been previously downloaded from the connected charger to your smart phone or tablet (device).
- **Delete All Records Button** – Tap to delete all charge cycle history records from your smart phone or tablet (device) that have been previously downloaded from the connected charger.
- **Records Section** – Individual charge cycle history records that have been downloaded from the connected charger are displayed in this section and can be selected to view the data (see “History Details” below).





## History Details

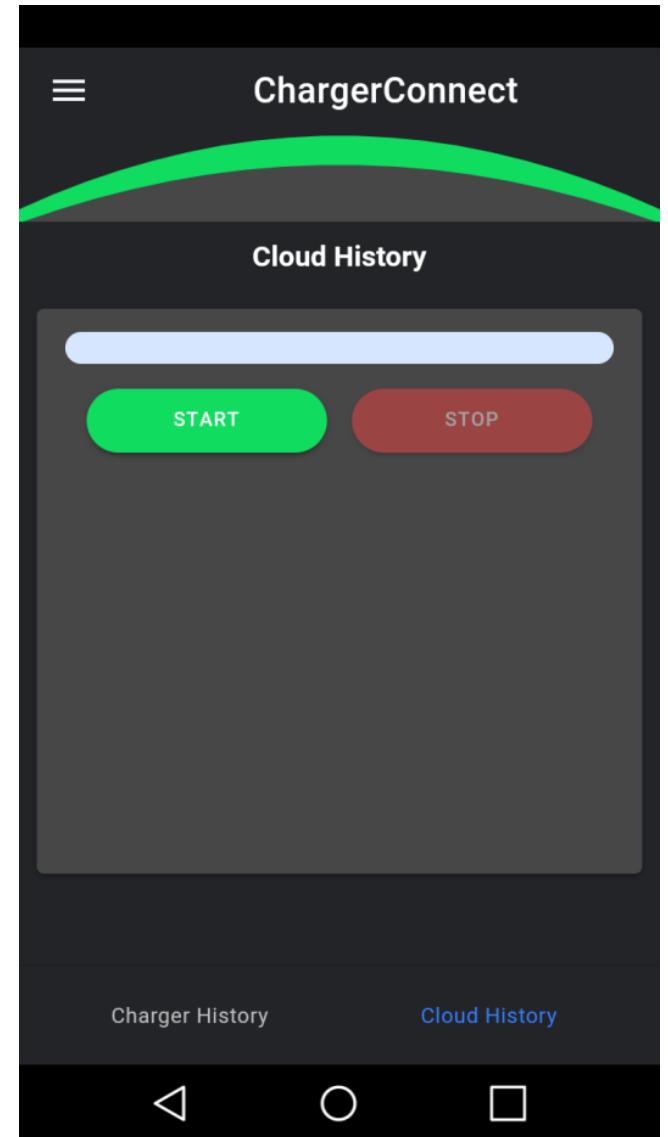
After tapping either the “GET 10 RECORDS” or “GET ALL RECORDS” the data from the charger will be displayed in a new section below the selection buttons. Press the blue arrow key to view the “History Details” screen. This area displays the data for an individual charge cycle history record. When you have finished reviewing the data, you can use the “Back” button (found at top left of history screen) in order to return to the “Charger Histories” tab.



## Cloud Histories Tab

To “push” the charge history records to a cloud server for off-line viewing, select the “Cloud History” selection in the bottom right hand corner of the “Charger History” screen. Tapping the “Start” button will upload all of the charge cycle history records that have been downloaded from the connected charger to your smart phone or tablet (device) to the ChargerConnect Cloud. Once the records have been uploaded, they can be accessed from any smart phone, tablet, laptop, or PC via ChargerConnect.net using the charger serial number.

\*ChargerConnect.net will require a user account to be setup to view the registered information. Data uploaded and registered to the cloud server can be exported to Microsoft Excel or Microsoft Notepad for offline viewing.



## System Information

The “System Information” screen is for the display of information only. No fields on this screen can be edited.

**Serial Number** – Displays the serial number of the connected charger.

**Model Number** – Displays the model number of the connected charger.

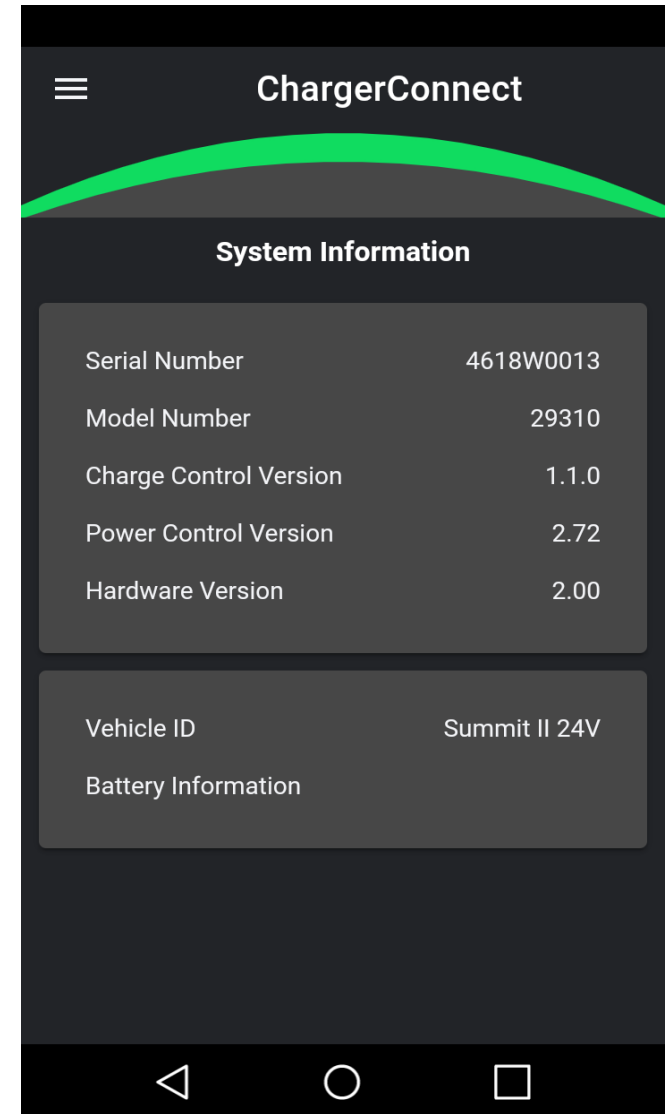
**Charge Control Version** – Displays the version of charge control firmware on the connected charger.

**Power Control Version** – Displays the version of power control firmware on the connected charger.

**Hardware Version** – Displays the hardware version of the connected charger.

**Vehicle ID** – Displays the ID of the vehicle that is paired with the charger (if applicable). The Vehicle ID is factory set to be blank. The Vehicle ID can be set/modified on the “Dashboard” and “System Profile” screens.

**Battery Information** – For future use. Not currently active.



## **Charger System Profile** (See app screenshots below)

The system profile selection identifies the settings of the charger that affect the operation. Pre-established system profiles can be changed to support functions such as onboard or shelf applications, as well as single volt and multi-volt operation.

**Charger ID** – The ID of the charger. This field is factory set to be blank. The Charger ID can be set/modified on the “System Profile” and “Dashboard” screens.



**Vehicle ID** – The ID of the vehicle that is paired with the charger (if applicable). The Vehicle ID is factory set to be blank. The Vehicle ID can be set/modified on the “System Profile” and “Dashboard” screens.

**System Profile** - Displays the profile number of the active system profile, the setup file used to configure the battery charger to the application.

**Cable Gauge (AWG)** – The gauge of the DC cable in American Wire Gauge (AWG). This field is used to correctly compensate for the voltage drop of the DC cable.

**Cable Length (feet)** – The length of the DC cable in feet [one direction only, not the sum of the length of both the positive (+) and negative (-) wires]. This field is used to correctly compensate for the voltage drop of the DC cable.



**On Board check box** – Checked  for On-Board and unchecked  for Off-Board.



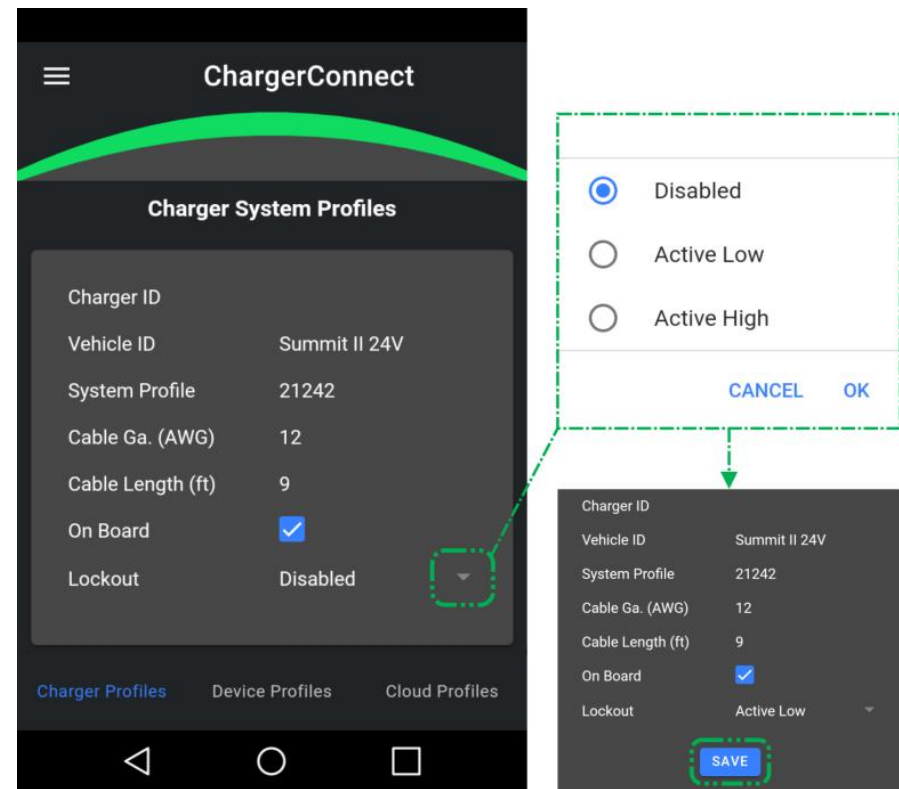
On-Board chargers are designed to be mounted on electric vehicles/equipment. While the DC output is connected to a battery pack of the proper voltage, a charge cycle automatically starts when the AC input plug is connected to AC power (unless a safety period of time has not passed since the successful completion of the previous charge cycle). Disconnecting the DC output from the battery pack IS NOT REQUIRED to automatically start a new charge cycle.

Off-Board chargers are designed to be used in shelf or portable applications. While the AC input plug is connected to live AC power, a new charge cycle automatically starts when the DC output is connected to a battery pack of the proper voltage. Disconnecting and reconnecting AC power while the DC output remains connected to a battery pack WILL NOT automatically start a new charge cycle. Disconnecting the DC output from the battery pack IS REQUIRED to automatically start a new charge cycle.

***NOTE: A charger configured as On-Board can be used in a shelf or portable application where the DC output connector/plug is connected and disconnected from the vehicle, but a charger configured as Off-Board should not be used in an application where it is mounted on a vehicle with the DC output permanently connected to the battery pack because the charger will not automatically start a new charge cycle when AC power is applied to the charger.***

**Lockout** – Vehicles with 3 or 4 wire DC connect cables may have a lockout option. This setting allow the user to custom configure the status of the lockout signal that is used to enable/disable the vehicle during charging operations.

- *Disabled – for use with EZGO 3 Pin connectors only*
- *Active Low – only active in 1050W and 1425W V2 Chargers*
- *Active High – only active in 1050W and 1425W V2 Chargers*



**Auto Voltage Profile Mode (See app screenshots on following page)**

Select Summit Series II charger models support automatic multi-voltage DC charging, referred to as Auto Voltage Mode.

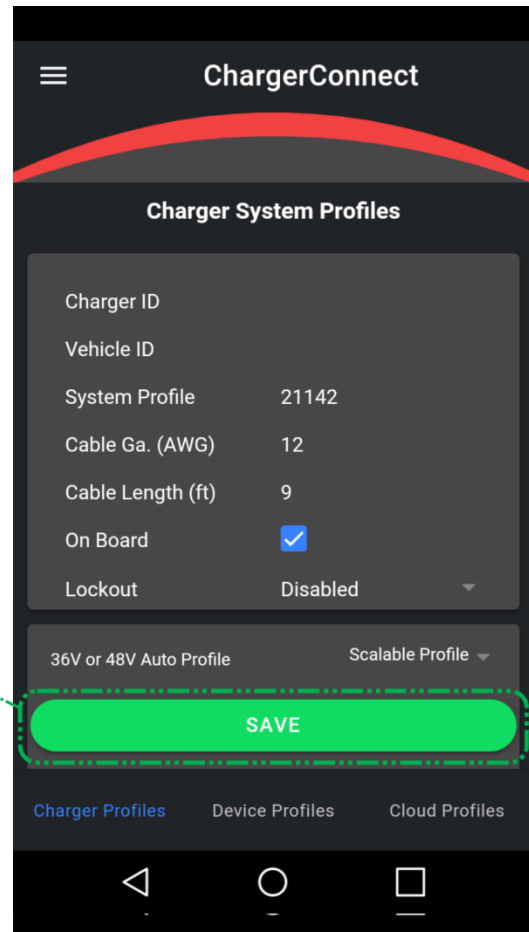
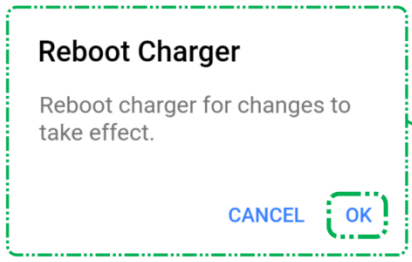
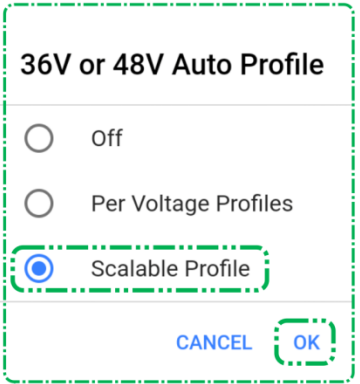
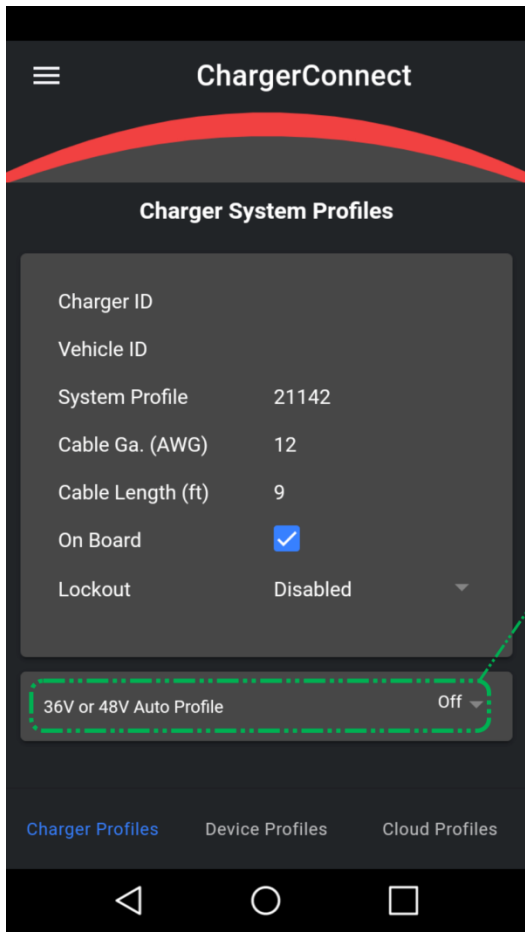
Auto Voltage Mode provides automatic DC output voltage detection and adjustment so that battery packs of nominal 48V and 36V (650W 48V, 36V, and 48-36V models) or nominal 48V, 36V, and 24V (all 1050W models) can be charged with a single charger without any configuration changes needing to be made to the charger when switching between battery packs of different nominal voltages. **Auto Voltage Mode will not detect 42V battery systems. (This change requires manual programming)**

When the connected charger model supports Auto Voltage Mode, the “System Profile” screen will include an “Auto Profile” selection box, which provides the following three (3) options:




- **OFF:** Single voltage mode – you MUST ensure that the nominal DC voltage of the “Active Battery Profile” for the charger matches the nominal DC voltage of the connected battery pack.
- **PER VOLTAGE PROFILES:**
  - **650W 48V, 36V, and 48-36V models:** A battery profile can be assigned for 48V and a different battery profile can be assigned for 36V. The proper battery profile is automatically selected based on the connected battery pack. This mode is primarily used when the charger will be charging 48V and 36V nominal battery packs where the battery packs are of different types and/or capacities so using the “Scalable Profile” mode is not appropriate. All voltage must be assigned a battery profile for this mode to be used.
  - **All 1050W models:** A battery profile can be assigned for 48V, a different battery profile can be assigned for 36V, and yet a different battery profile can be assigned for 24V. The proper battery profile is automatically selected based on the connected battery pack. This mode is primarily used when the charger will be charging 48V, 36V, and 24V nominal battery packs [or any combination of two (2) of these voltages] where the battery packs are of different types and/or capacities so using the “Scalable Profile” mode is not appropriate. All voltage must be assigned a battery profile for this mode to be used.
- **SCALABLE PROFILE:**
  - **650W 48V, 36V, and 48-36V models:** the nominal DC voltage of the “Active Battery Profile” is automatically scaled to 48V or 36V based on the connected battery pack.
  - **All 1050W models:** the nominal DC voltage of the “Active Battery Profile” is automatically scaled to 48V, 36V, or 24V based on the connected battery pack.

***NOTE: If the charger is currently set to “Per Voltage Profiles” or “Scalable Profile” mode, and you set the “Auto Profile” selection box to “Off”, you MUST ensure that the nominal DC voltage of the “Active Battery Profile” for the charger matches the nominal DC voltage of the connected battery pack via the “Battery Profiles” screen.***



When Auto Voltage Mode is active (either “Per Voltage Profiles” or “Scalable Profile”) the “Dashboard” screen provides the status of the proprietary algorithm that executes at the beginning of the charge cycle by displaying the “Auto Battery Voltage Detection” as a status percentage and the “Detected Battery Pack Voltage” (see the “Dashboard” section).



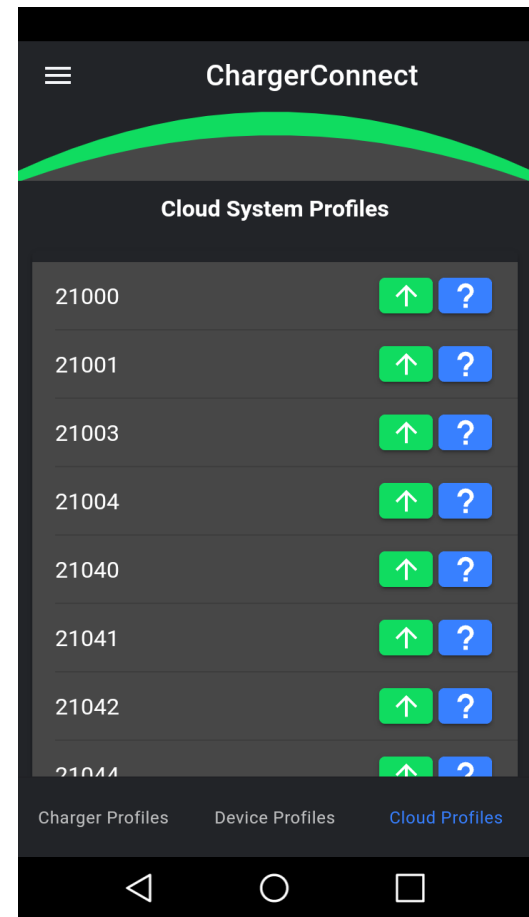
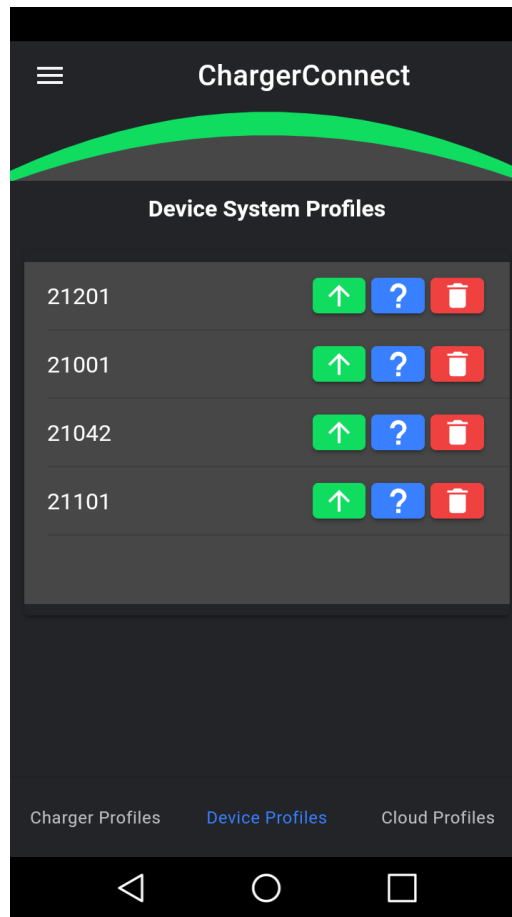
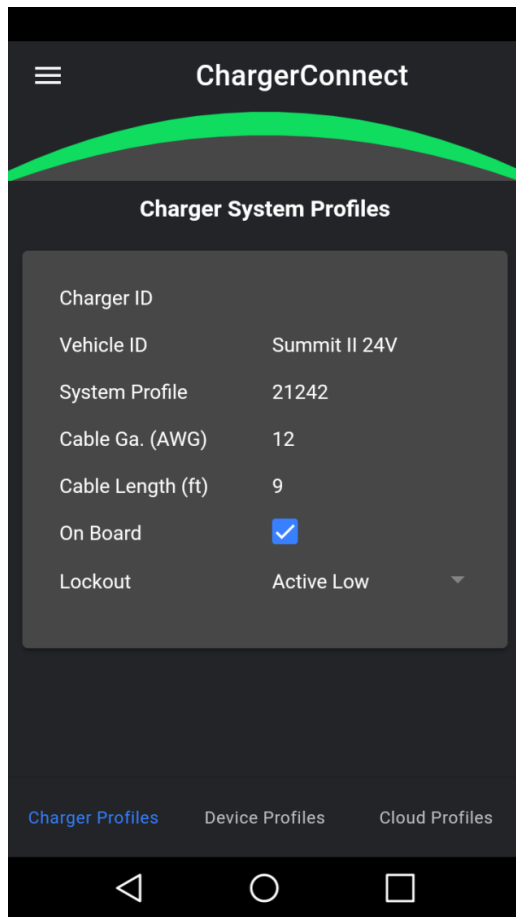
### Device Profiles Tab

- Lists all system profiles available on your smart phone or tablet (device).
- Upload a system profile that resides on your smart phone or tablet (device) to the connected charger via the green arrow button. 
- Blue question mark buttons provide detailed descriptions of the system profiles. 
- Delete system profiles that reside on your smart phone or tablet (device) via the red trash can button. 

### Cloud Profiles Tab

- Lists all system profiles available for download from the ChargerConnect Cloud.
- Download system profiles from the Cloud to your smart phone or tablet (device) via the green arrow buttons. 
- Blue question mark buttons provide detailed descriptions of the system profiles. 










## **Battery Profile** *(See app screenshots below)*

Battery Profiles are the unique battery charging algorithms that are required to fully charge various chemistries of deep cycle batteries



### **Charger Profiles Tab (10 pre-loaded profiles – can store up to 16)**

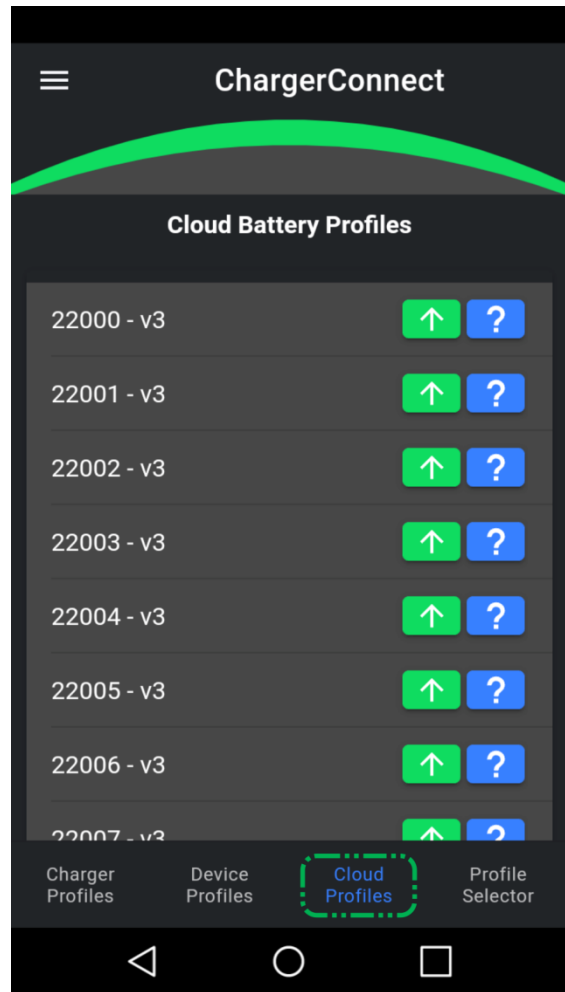
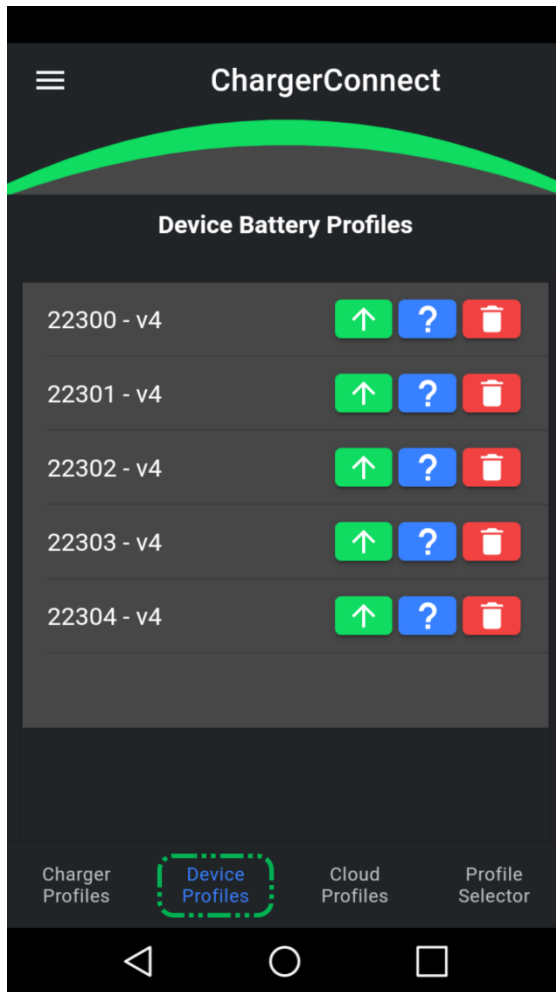
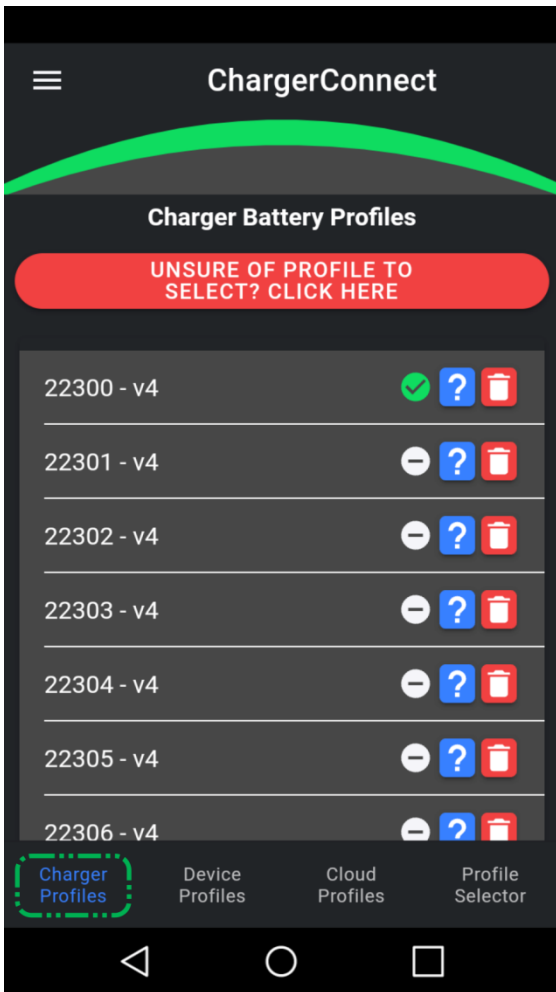
- Lists all battery profiles available on the connected charger.
- Set the “Active Battery Profile” via the green check mark. 
- Blue question mark buttons provide detailed descriptions of the battery profiles. 
  - See the “Battery Profile Quick Reference” section below for information regarding the most commonly used battery profiles.

### **Device Profiles Tab**

- Lists all battery profiles available on your smart phone or tablet (device).
- Upload battery profiles that reside on your smart phone or tablet (device) to the connected charger via the green arrow buttons 
  - You will be required to select the “Profile Slot Number”. Summit Series II chargers can store up to 20 battery profiles locally. The local battery profiles are stored in “Slots”, which are numbered 0-19. You can either select an empty Slot to store the battery profile that will be uploaded to the charger or a Slot that currently contains a battery profile, in which case the battery profile will be overwritten.
  - **NOTE: When a battery profile is uploaded to the connected charger, it automatically becomes the Active profile on the charger.**
- Blue question mark buttons provide detailed descriptions of the battery profiles. 
  - See the “Battery Profile Quick Reference” section below for information regarding the most commonly used battery profiles.
- Delete battery profiles that reside on your smart phone or tablet (device) via the red trash can button. 

### **Cloud Profiles Tab**

- Lists all battery profiles available for download from the ChargerConnect Cloud.
- Download battery profiles from the Cloud to your smart phone or tablet (device) via the green arrow buttons. 
- Blue question mark buttons provide detailed descriptions of the battery profiles. 
  - See the “Battery Profile Quick Reference” section below for information regarding the most commonly used battery profiles.



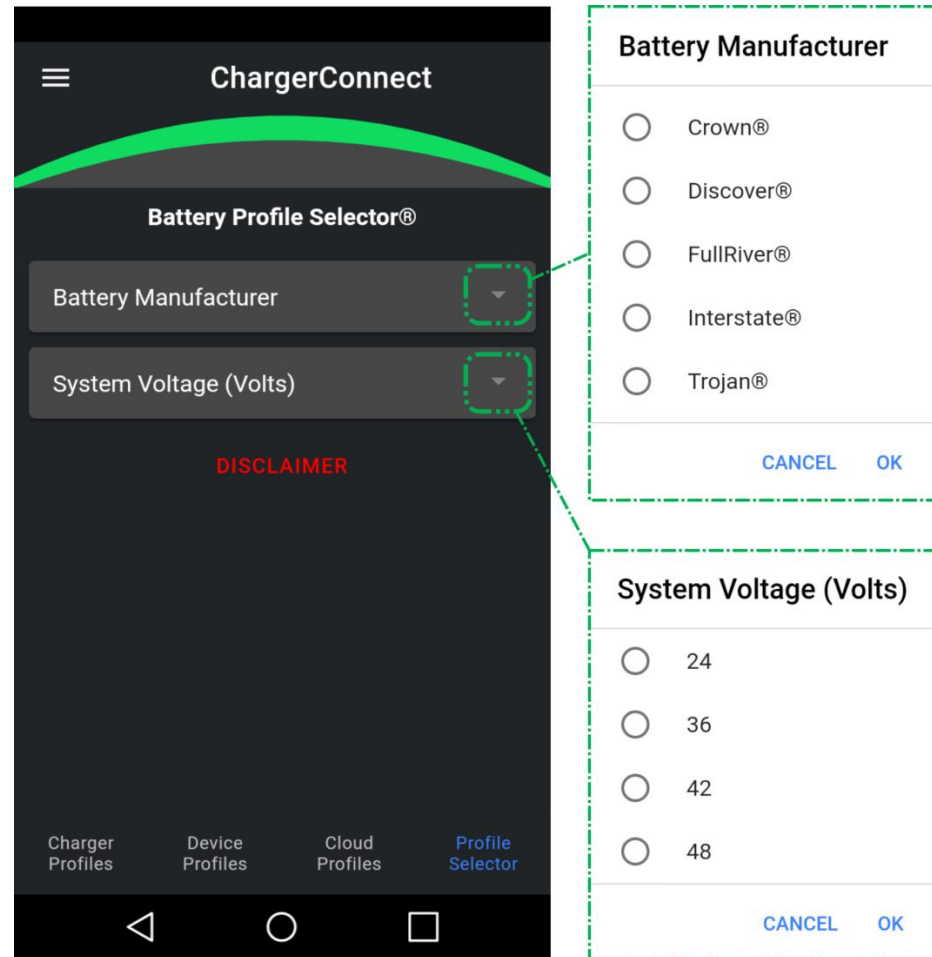
## **Battery Profile Selector®**

If you are unaware of the specific profile number required to charge your batteries. The Battery Profile Selector® will provide a recommended battery profile based on the battery manufacturer, system voltage, battery model, and charger model. This tool is accessible as a tab under “Battery Profile” menu and by clicking red “Unsure of Profile to Select? Click Here” red button on the “Charger Profiles” tab of “Battery Profile” menu.

- Touch the down arrow next to the “Battery Manufacturer” to view and select the brand of the vehicle batteries. If your brand is not listed, select “other.”
- Touch the down arrow next to the “System Voltage” and choose the voltage of the vehicle
- Touch the “Submit” button to send your battery information to the database
- Touch the down arrow next to the “Battery Model” and choose the model # of the batteries

The Charger Model # will automatically populate, touch the submit button to view the recommended profile. Details of the suggested profile will be listed, then touch the “Make Profile Active” button to send the new battery profile to the charger. A red warning box will appear, select “OK” to confirm the request.

The charger needs to reboot to make the battery profile change, select “OK” to finalize the profile change request.



## Utilities

From this page there is a tab which will allow a user to store a system or battery profile in their device (in the battery/system Device tab – same location if you downloaded a profile from the cloud) allowing a user to ultimately download a profile to the charger from e-mail.

The location of the profile text file is as follows:

### **Android**

The battery profile text file name must be **LesterElectricalBatteryProfile.txt** and located in the Download folder of the Device (phone/tablet)

The battery profile text file name must be **LesterElectricalSystemProfile.txt** and located in the Download folder of the Device (phone/tablet)

### **iOS**

The battery profile text file name must be **LesterElectricalBatteryProfile.txt** and located in the ChargerConnect/NoCloud folder in the Device's (phone/tablet) File System

The battery profile text file name must be **LesterElectricalSystemProfile.txt** and located in the ChargerConnect/NoCloud folder in the Device's (phone/tablet) File System

If a file is not found and you try to upload a profile a pop up will occur stating that the file could not be found at location specified above.

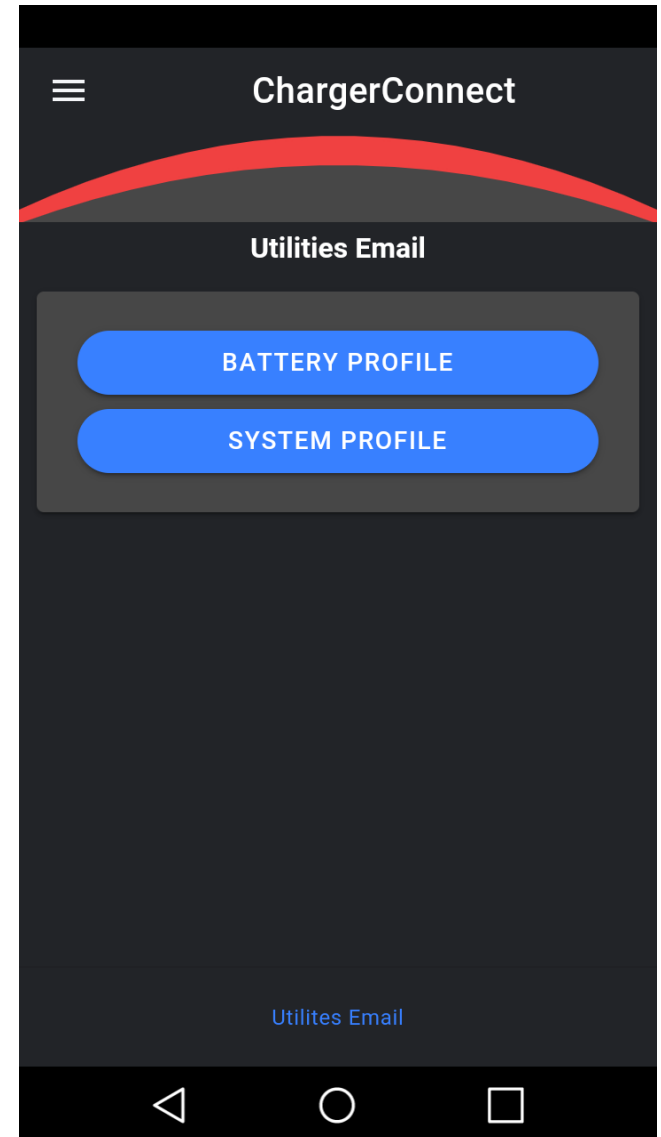
There is also a CAN functionality tab with charger's with the following firmware version (MAJOR.MINOR.BUILD):

If MAJOR >=3

Or

If (MINOR \* 10 + BUILD) >= 16

If this criteria is NOT met only the e-mail functionality tab will be visible.



## Offline Mode

The information provided in this mode is available without establishing a Bluetooth connection with the Summit II charger

### Utilities – Charger History

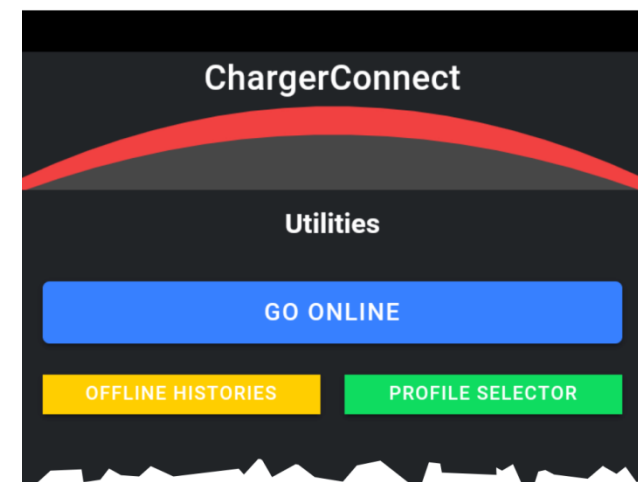
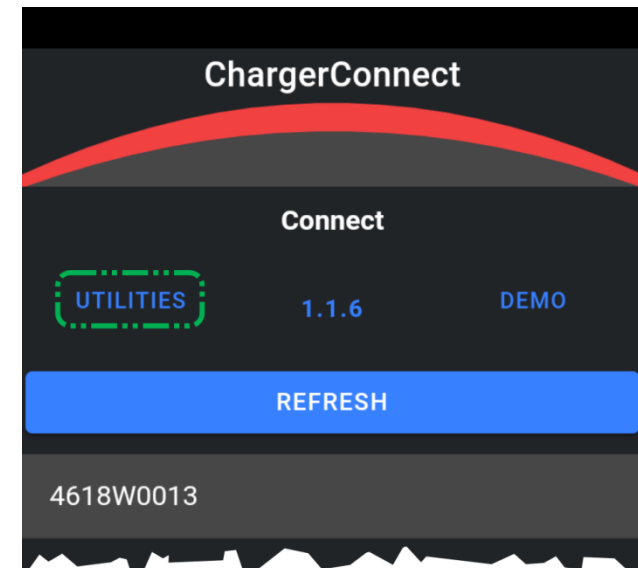
If you have previously downloaded charge cycle history records from a charger to your smart phone or tablet (device), these records can be accessed when you are not connected to the charger by using Utilities. This available by tapping the “Utilities” button on the “Connect” screen.

Once you enter Utilities, you can select the desired charger serial number from the list of all charger serial numbers that have charge cycle history records stored locally on your device. After selecting a charger serial number, you will have the option to view the charge cycle history records that are stored locally on your device for this charger serial number and upload these records to the ChargerConnect Cloud (see the “History” section for additional details).

A common use for Utilities is to transfer downloaded charge cycle history records from chargers in a location where your smart device does not have Internet access. You can use Utilities to upload these charge cycle history records to the ChargerConnect Cloud at a later time when your device does have Internet access.

“Profile Selector” is also available in Utilities by clicking on green “Profile Selector” button. Once in this option, the Offline Battery Profile Selector will appear. See “Battery Profile Selector” section for full details on this tool. Fill in answers to the questions using drop down lists provided for “Battery Manufacturer” and “System Voltage”. After answering these two questions, hit blue “Submit” button. Two additional questions will appear with drop down lists for “Battery Model” and “Charger Model Number”, based on the information submitted from the first two questions. After answering these two questions one additional blue ‘Submit’ option will appear, hitting this button will provide you the recommended battery profile based on information submitted. When finished with tool, use “Back” option listed at top left of screen to return to Utilities main screen. This

When finished with Utilities click blue “Go Online” button to return to the Connect screen.



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc., and any use of such marks by Lester Electrical is under license. Other trademarks and trade names are those of their respective owners.

Apple is a trademark of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc., registered in the U.S. and other countries.

Android is a trademark of Google Inc. Google Play and the Google Play logo are trademarks of Google Inc.



Copyright © Lester Electrical of Nebraska, Inc.  
All rights reserved.

43047 B