



# QUICK START GUIDE



# Table Of Contents

Introduction .....	1
SolarFlex Ready .....	2
SolarFlex Protect .....	2
SolarFlex Protect Chill .....	2
SolarFlex Discover .....	2
SolarFlex Discover Chill .....	2
SolarFlex Explore .....	3
SolarFlex Outlast .....	3
SolarFlex Outlast Extreme .....	3
Getting Started .....	3-5
VictronConnect App Setup .....	6
System Programming:	
Programming the SmartSolar Charge Controller (with Dealer-Installed Batteries) .....	7
Programming the SmartShunt Battery Monitor (with Dealer-Installed Batteries) .....	8-9
Recommended Battery Settings Chart .....	9
SmartSolar Charge Controller Settings (With Factory-Installed Dragonfly Lithium-Ion Batteries) .....	10-11
SmartShunt Settings (With Factory-Installed Dragonfly Lithium-Ion Batteries) .....	11-12
Understanding What The Victron Connect Is Telling You .....	12
Battery Heat Information .....	13
Dragonfly Battery Information .....	13

# WELCOME TO SOLARFLEX™

Incredibly versatile and expertly designed, SolarFlex is redefining factory-installed solar power, exceeding customer expectations. SolarFlex takes the guesswork out of the equation by offering affordable, high-quality RV solar energy systems. Each package is designed to grow with you, allowing owners to easily expand their system with approved, warrantied parts available exclusively through authorized Keystone dealers.

To further enhance performance, all SolarFlex packages can be upgraded with cutting-edge Dragonfly Energy Lithium-ion batteries—available as a factory-installed option or as an aftermarket upgrade through your dealer.

## **Security:**

Intelligently engineered by the experts at the Keystone Innovation Lab. SolarFlex uses best-in-class hardware and configuration options designed specifically for RVers. Fully integrated during the build process, SolarFlex eliminates the patchwork of an aftermarket build and is covered by Keystone's fully transferable warranties.

## **Control:**

Monitor and optimize your solar energy in real-time using the Victron app.

## **Protection:**

Every RV owner knows the sinking feeling of a dead battery. SolarFlex can provide continuous charge, ensuring the operation of 12V systems and avoiding battery depletion and replacement.

## **Flexibility:**

SolarFlex packages deliver different levels of solar energy. Each package is designed to grow with you—offering easy add-ons for more power collection and storage.

***NOTE: When installing aftermarket components you must configure the settings for the system to operate properly. Please refer to the manufacturer's instructions for the components chosen for install.***

***NOTE: Do not operate the SolarFlex system without a 12V battery installed. Operating SolarFlex without a battery may cause a variance in voltage that may cause damage to 12VDC components which is not warrantable.***

## SolarFlex Equipment:

Please find the package your RV has below for a list of components:

### SolarFlex Ready – Equipment:

- (1) 30A Solar Roof Port with MC4 Connectors & 10 AWG MPPT Solar Charging Circuit line (PV+/-) ran to future Solar Charge Controller location.
- (1) 30A Solar Charge Breaker (Will be located inside the 12V Distribution Box – If Equipped)
- (1) Inverted 120V loop prep with up to 7 outlets (inverter not included)
- (1) 20 Amp Solar Side Port

### SolarFlex Protect – Equipment:

- (1) Future Solutions 220-Watt Bifacial Solar Panel and CS2 Solar Cable Splitters
- (1) 30A Solar Roof Port with MC4 Connectors & 10 AWG MPPT Solar Charging Circuit
- (1) 30A 12V Only Victron SmartSolar MPPT Controller with Bluetooth app
- (1) Inverted 120V loop prep with up to 7 outlets (inverter not included)
- (1) 20 Amp Solar Side Port

### SolarFlex Protect Chill – Equipment:

- (1) Future Solutions 220-Watt Bifacial Solar Panel and CS2 Solar Cable Splitters
- (1) 30A Solar Roof Port with MC4 Connectors & 10 AWG MPPT Solar Charging Circuit
- (1) 30A 12V Only Victron SmartSolar MPPT Controller with Bluetooth app
- (1) Inverted 120V loop prep (inverter not included) including:
  - (1) EM-20 Energy Management System
  - (1) Inverted Variable Speed Air Conditioner or Heat Pump
- (Up to 7) 120V Outlets
- (1) 20 Amp Solar Side Port

**NOTE: SolarFlex Protect is not equipped with an inverter from the factory. However if the RV came equipped with a residential refrigerator it will have an inverter and the 120V outlets on that circuit will be powered by the inverter.**

### SolarFlex Discover – Equipment:

- (2) Future Solutions 220-Watt Bifacial Solar Panels and CS2 Solar Cable Splitters
- (2) 30A Solar Roof Ports with MC4 Connectors & 10 AWG MPPT Solar Charging Circuit
- (1) 30A 12V Only Victron SmartSolar MPPT Controller with Bluetooth app
- (1) 2000 Watt Inverter with built in transfer switch with up to 7 inverted outlets
- (1) Inverted 120V loop prep for soft-start Variable Speed air conditioner (inverter not included)
- (1) Victron SmartShunt Battery Monitor with Bluetooth app
- (1) 20 Amp Solar Side Port

### SolarFlex Discover Chill – Equipment:

- (2) Future Solutions 220-Watt Bifacial Solar Panels and CS2 Solar Cable Splitters
- (2) 30A Solar Roof Ports with MC4 Connectors & 10 AWG MPPT Solar Charging Circuits
- (1) 30A 12V Only Victron SmartSolar MPPT Controller with Bluetooth app
- (1) 2000 Watt Inverter with built in transfer switch with up to 7 inverted outlets
- (1) EM-20 Energy Management System
- (1) Inverted Variable Speed Air Conditioner
- (1) Victron SmartShunt Battery Monitor with Bluetooth app
- (1) 20 Amp Solar Side Port

**NOTE: SolarFlex Protect Chill (Inverter not included) and Discover Chill include a EM-20 (Energy Management System) and an Inverted 120V Variable Speed Air Conditioner, this feature allows you to set the priority circuit between the 7 inverted outlets and the air conditioner. Watch this video to learn more: <https://www.youtube.com/watch?v=zKzDjvtfbKw>**

### SolarFlex Explore – Equipment:

- (4) Future Solutions 220-Watt Bifacial Solar Panels and CS2 Solar Cable Splitters
- (2) 30A Solar Roof Ports with MC4 Connectors & 10 AWG MPPT Solar Charging Circuits
- (2) 30A 12V Only Victron SmartSolar MPPT Controller with Bluetooth app
- (1) 2000 Watt Inverter with built in transfer switch with up to 7 inverted outlets
- (1) Inverted 120V loop prep for soft-start air conditioner (inverter not included)
- (1) Victron SmartShunt Battery Monitor with Bluetooth app
- (1) 20 Amp Solar Side Port

### SolarFlex Outlast - Equipment:

- (3) 220-Watt Bifacial Solar Panels and CS3 Solar Cable Splitters
- (2) 30A Solar Roof Ports with MC4 Connectors & 10 AWG MPPT Solar Charging Circuit
- (1) 50A Victron SmartSolar MPPT Controller with Bluetooth app
- (1) 270AH Dragonfly Lithium Ion Battery
- (1) Victron Multi-Plus 3000 Watt Inverter/Charger with up to 7 inverted outlets
- (1) Soft-start air conditioner
- (1) Victron SmartShunt Battery Monitor with Bluetooth app
- (1) VE Bus Smart Dongle with Bluetooth app
- (1) 20 Amp Solar Side Port

### SolarFlex Outlast Extreme – Equipment:

- (6) 220-Watt Bifacial Solar Panels and CS3 Solar Cable Splitters
- (2) 30A Solar Roof Ports with MC4 Connectors & 10 AWG MPPT Solar Charging Circuit
- (2) 50A Victron Smart MPPT Controller with Bluetooth app
- (2) 270AH Dragonfly Lithium Ion Battery
- (1) Victron Multi-Plus II 2x120V 3000 Watt Inverter/Charger with all 120VAC outlets inverted
- (1) Victron SmartShunt Battery Monitor with Bluetooth app
- (1) Victron GX Touch 50 5 inch Color Display
- (1) Victron Cerbo-S GX
- (1) 20 Amp Solar Side Port

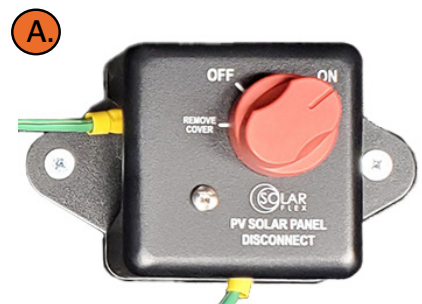
## Getting Started:

Start by ensuring you have properly installed 12V batteries and the Solar Charge Controller settings are correct. (See chart on page 9)

**NOTE: Do not operate the SolarFlex system without a 12V battery installed. Operating SolarFlex without a battery may cause a variance in voltage that may cause damage to 12VDC components which is not warrantable.**

### 1. Supply Power to the RV:

- A. Turn ON the Photovoltaic (PV) Solar Panel Disconnect (A), allowing panel voltage through to the SmartSolar Charge Controller. The PV Disconnect is located near the SmartSolar Charge Controller. Turn the PV disconnect OFF to service the 12V system, store the RV or when batteries are not installed.



**NOTE: SolarFlex Explore and SolarFlex Outlast Extreme have 2 (PV) Solar Panel Disconnects**

B. Turn ON the 12V Battery Disconnect (B). The 12V Battery Disconnect turns ON and OFF 12V battery power to the RV and is typically located in the 12V Distribution Box. The 12V Battery Disconnect can be turned off anytime you wish to shut off all 12V power to the RV.

B.



**NOTE:** In the off position SolarFlex will still charge the batteries.

For SolarFlex Protect and Protect Chill you are finished! Proceed to page 5 to download the VictronConnect App to complete your set up.

For all other packages proceed with the following:

C. Turn ON the Inverter Disconnect. The inverter disconnect turns ON and OFF 12V power from the batteries to the inverter and is located in the Battery Monitor Inverter Disconnect box (BMI) (C), at the A-frame of a travel trailer. On a fifth wheel it will be in the front bulkhead or pass through compartment (D).

D. Turn ON the Inverter. The inverter is typically located in a front bulkhead or pass through compartment and supplies power to up to 7 inverted labeled outlets.

- If equipped with the Magnum Inverter (E) turn on with the remote.
- If equipped with the Xantrex Inverter (F) push the power button on the display.

For the SolarFlex Outlast package, the Victron Multi-Plus inverter supplies power to up to 7 inverted labeled outlets.

For the SolarFlex Outlast Extreme Package. The Victron Multi-Plus II inverter, inverts all 120V outlets.

**NOTE:** Some multiplex systems may have the inverter power ON and OFF function built in.

**NOTE:** When not connected to shore power the inverter needs to be turned ON to use the in-verted outlets.

For SolarFlex Discover, Discover Chill, Explore, Outlast and Outlast Extreme you are finished, proceed to page 6 to download the VictronConnect App to complete your set up.

C.



D.



D.





Magnum User Guide



F.

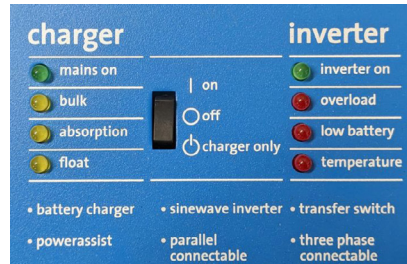


Xantrex User Guide



E.

MultiPlus Manual



Outlast Basic User Guide



E.

OUTLAST

MultiPlus-II Manual



Outlast Extreme Basic User Guide



OUTLAST EXTREME

Monitor and optimize your solar energy in real-time using the Victron app. Performance will vary based on available sunlight, battery size/type, and power usage.

You can also find these Guides at [www.keystonerv.com](http://www.keystonerv.com), our YouTube channel or by downloading the My Keystone App.

To download the app scan the QR code below to take you to the App or Play Store:



# Victron Connect App Setup:

Download the VictronConnect App and follow the steps below:



App Store



Google Play Store



Victron Connect Manual

1. Enable Bluetooth on your phone.

NOTE: If using an Apple device the “Location Services” must be turned ON.

- A. Select Settings
- B. Privacy
- C. Location Services
- D. Move the Location Services slider to on/green. Location Services are now on.

2. Open VictronConnect and scan:

- A. On a phone or tablet, pull down the screen, or tap the refresh button to initiate a scan.
- B. On a computer or laptop: click the “Scan or Refresh” button on the left.

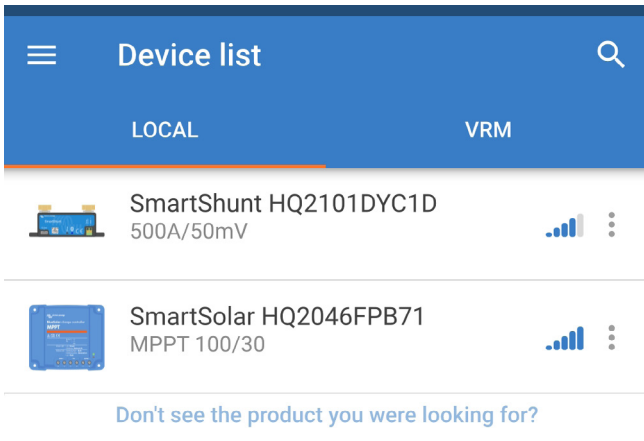
3. Tap on the component you wish to connect to. (Only one phone, tablet or computer can be connected at a time to a single device.)

- SolarFlex Protect/ Protect Chill - (1) SmartSolar Charge Controller
- SolarFlex Discover/ Discover Chill - (1) SmartSolar Charge Controller, (1) SmartShunt
- SolarFlex Explore - (2) SmartSolar Charge Controller, (1) SmartShunt
- SolarFlex Outlast - (1) SmartSolar Charge Controller, (1) SmartShunt and a Victron Inverter
- SolarFlex Outlast Extreme - (2) SmartSolar Charge Controllers and (1) SmartShunt and a Victron Inverter.

4. The first time you attempt to connect, the phone will ask to pair with the Victron product. Enter the PIN code. Usually, your device already has a random PIN code printed on a sticker attached to the device. If no PIN is printed on the sticker, then the default PIN is 000000.

5. The connection is complete.

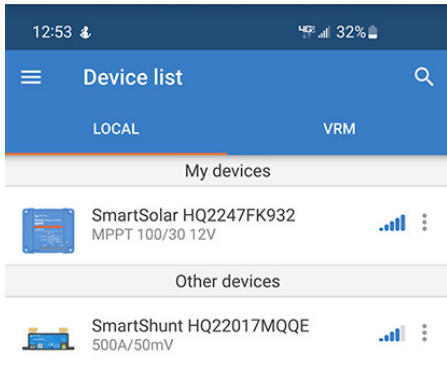
- If prompted to update, install the update. This is normal and updates to the app or firmware should always be done.
- Once paired you will be taken to the home screen.
- The settings page is accessed by tapping on the settings icon (⚙️) in the top right. This page provides access to view or change the settings and other features.



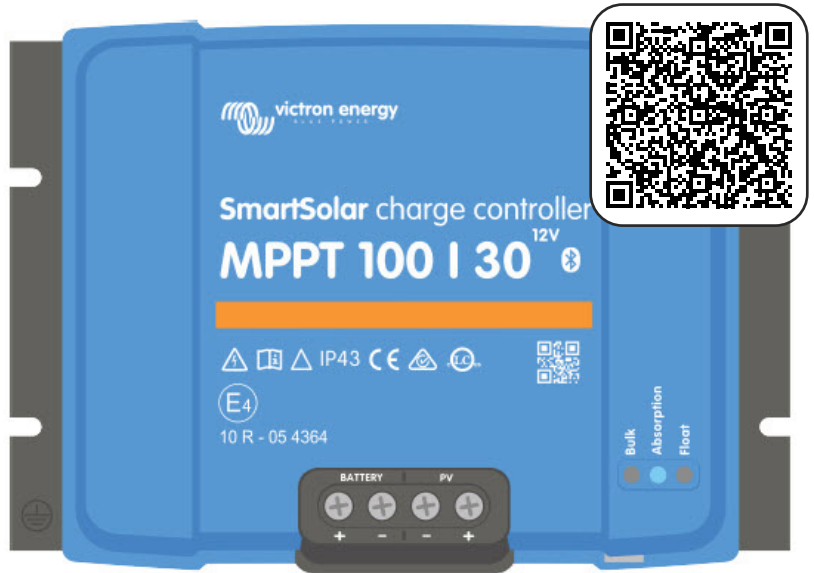
## System Programming:

### PROGRAMMING THE SMARTSOLAR CHARGE CONTROLLER WITH DEALER INSTALLED BATTERIES:

**NOTE:** SolarFlex Outlast and Outlast Extreme are preprogrammed and have Basic User Guides, see the QR codes on page 5.

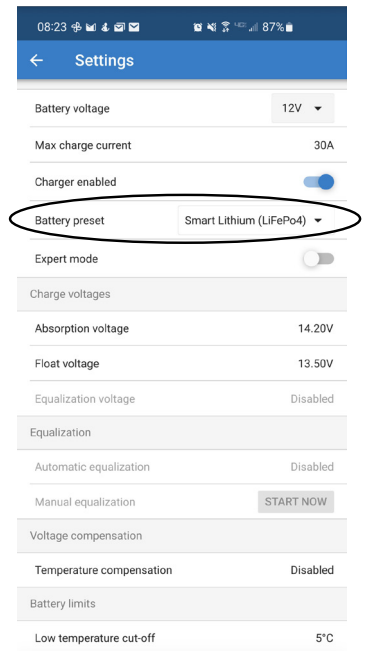
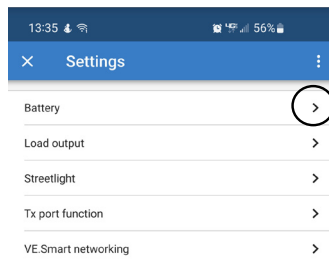
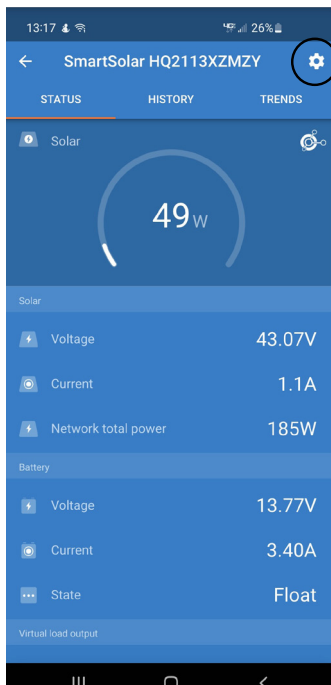


#### SmartSolar 12v Charge Controller Manual



1. Open VictronConnect and your Victron devices will appear.
2. Tap on the SmartSolar Charge Control.
3. At the home screen tap on the settings icon (⚙️) and then battery.
4. Select the down arrow to the right of Battery preset.
5. Select preset and set the appropriate battery setting for what you have installed.

**NOTE:** (Gel Victron Deep Discharge 2) battery type is the default setting and preferred for Lead Acid Batteries. Please refer to the SmartSolar Charge Controller User Manual to learn more.

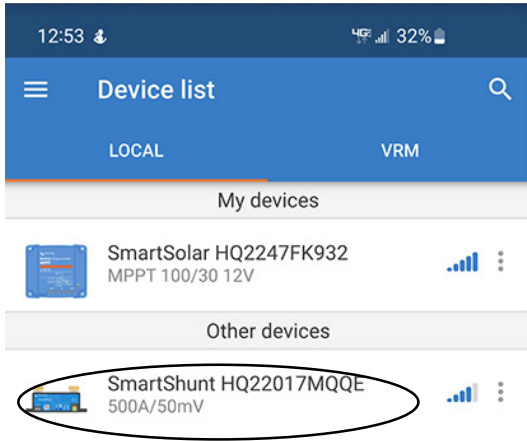


# PROGRAMMING THE SMARTSHUNT BATTERY MONITORING WITH DEALER INSTALLED BATTERIES:

**NOTE:** SolarFlex Outlast and Outlast Extreme are preprogrammed and have Basic User Guides, see the QR codes on page 5.

1. Open your VictronConnect App. On your device list, tap on the SmartShunt.

**NOTE:** If prompted to update, install the update. This is normal and updates to the app or firmware should always be done.



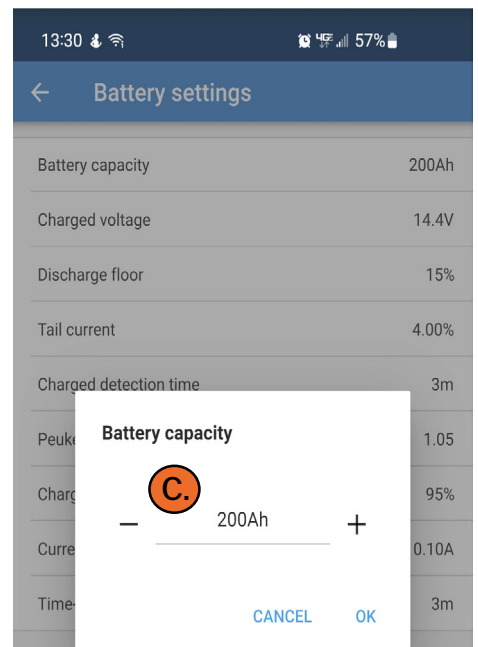
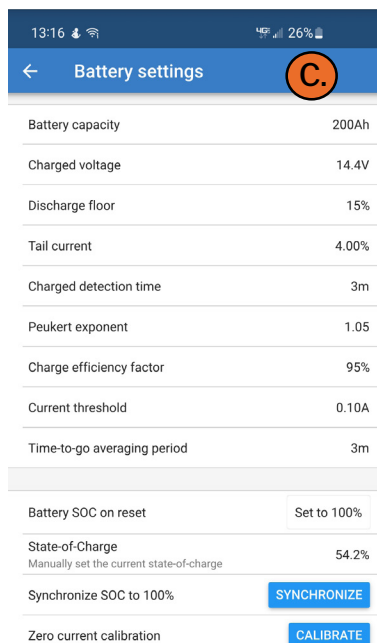
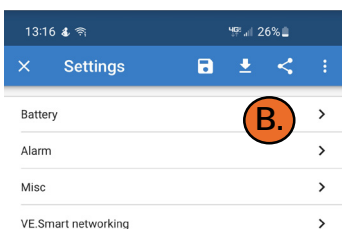
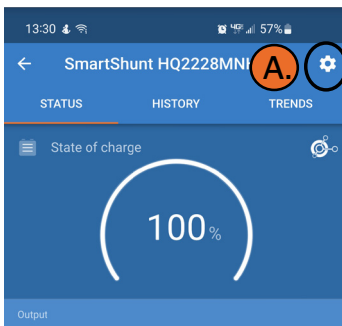
Firmware updated to: v4.14

2. Once paired to your SmartShunt, you will be taken to the home screen. (A) The settings page is accessed by tapping on the (⚙️) icon in the top right. The settings page provides access to view or change the settings of the Battery Monitor.

3. Tap on the settings icon (⚙️) in top right corner.

4. Select Battery. (B)

5. Add up total Amp hours (Ah) for the battery(s) installed and insert value into Battery Capacity Total Ah column (C). To convert Reserve Capacity (RC) to Ah: divide the total RC by 2.4 ( $Ah = RC / 2.4$ ).

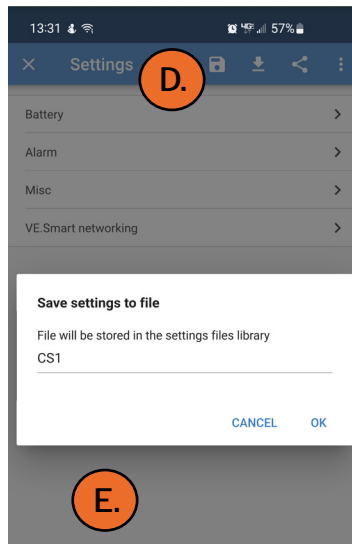


6. Use the Recommended Battery Settings Chart by inputting each variable for the type of batteries installed on your RV.

RECOMMENDED BATTERY SETTINGS	LEAD ACID	AGM	LITHIUM
BATTERY CAPACITY	TOTAL AH	TOTAL AH	TOTAL AH
CHARGED VOLTAGE	13.4	13.1	14.1
DISCHARGE FLOOR	50%	50%	0%
TAIL CURRENT	4%	2%	3.50%
PEUKERT EXPONENT	1.25	1.1	1.05
CHARGE EFFICENCY FACTOR	94%	97%	99%
BATTERY SOC ON RESET	KEEP SOC	KEEP SOC	KEEP SOC

7. After confirming or changing the values click the save disk icon (D) on the main settings page and save under any name you prefer (E).

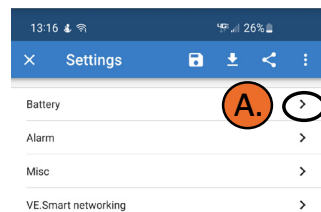
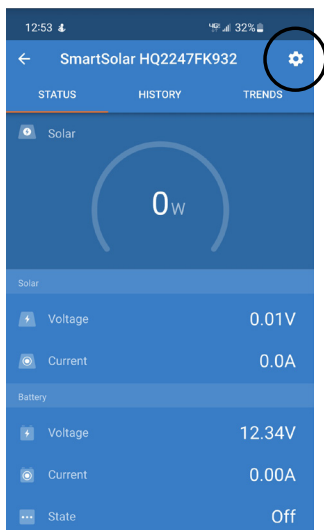
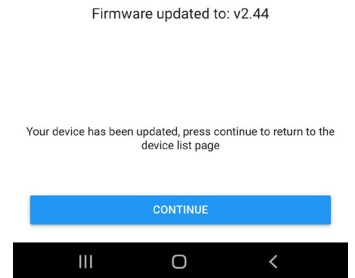
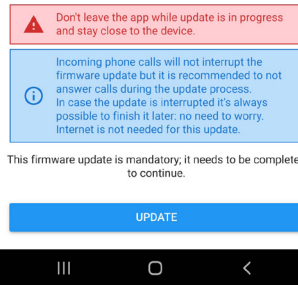
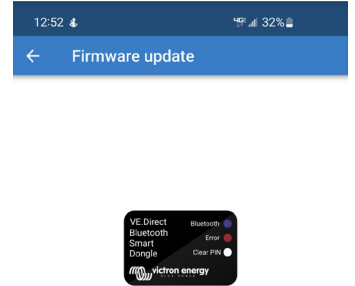
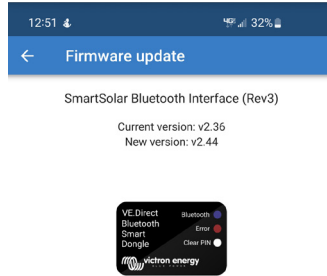
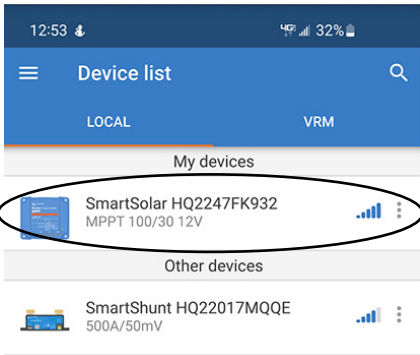
YOU ARE ALL SET

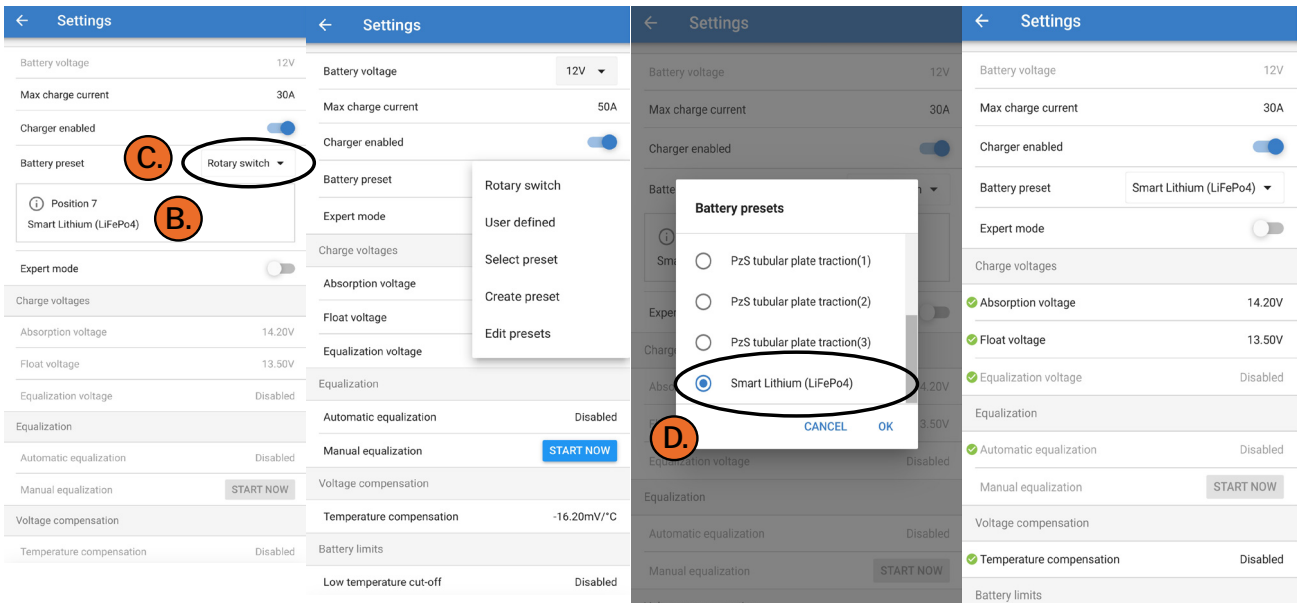


# SMARTSOLAR CHARGE CONTROLLER SETTINGS WITH FACTORY INSTALLED DRAGONFLY LITHIUM-ION BATTERIES: MAKE SURE YOUR SMARTSOLAR CHARGE CONTROLLER IS SET FOR LITHIUM

**NOTE: SolarFlex Outlast and Outlast Extreme are preprogrammed and have Basic User Guides, see the QR codes on page 5.**

1. Open your VictronConnect App.
2. On the device list, tap on your SmartSolar Charge Controller. If prompted to update, install the update. This is normal and updates to the app or firmware should always be done.
3. Tap on the settings icon (⚙️) in top right corner.
4. Tap on the battery tab (A). Verify the setting is for Smart Lithium (LiFePo4) (B)
5. If not tap the arrow to the right of battery preset (C), choose Select Preset, scroll to the bottom of the list of batteries and choose Smart Lithium (LiFePo4). (D)

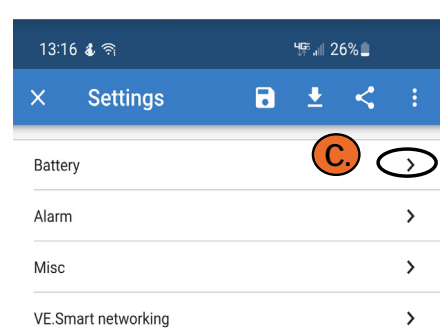
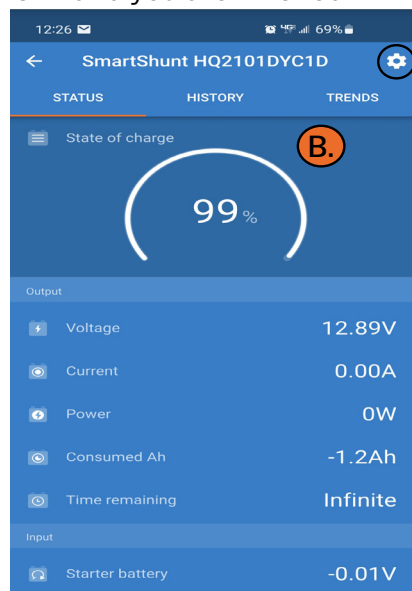
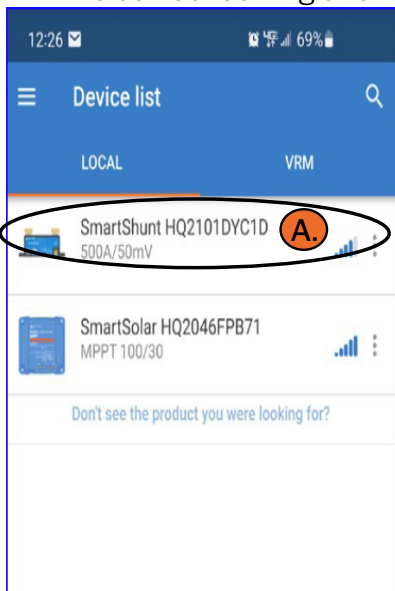




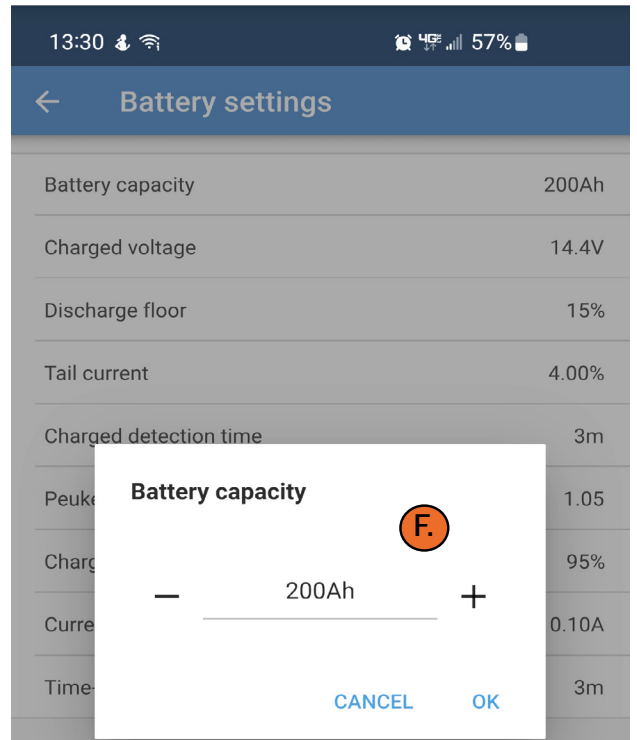
## SMARTSHUNT SETTINGS WITH FACTORY INSTALLED DRAGONFLY LITHIUM-ION BATTERIES: MAKE SURE THE SMARTSHUNT IS SET FOR THE PROPER AMP HOURS (AH)

**NOTE: SolarFlex Outlast and Outlast Extreme are preprogrammed and have Basic User Guides, see the QR codes on page 5.**

1. Open your VictronConnect App. (A)
2. On your device list, tap on SmartShunt. If prompted to update, install the update. This is normal and updates to the app or firmware should always be done.
3. Tap on settings (⚙️) icon in top right corner (B).
4. Tap on the battery tab (C).
5. Make sure the Amp Hours (Ah) are set to the correct amount (D). For one 100Ah Lithium battery it should be set to 100Ah, for two 100Ah batteries it should be set to 200Ah. If you need to change it, tap on Battery capacity (E) and use the +/- signs (F) until you reach the correct setting and tap "OK" and you are finished.



Battery settings	
Battery capacity <b>E.</b>	<b>D.</b> 200Ah
Charged voltage	14.4V
Discharge floor	15%
Tail current	4.00%
Charged detection time	3m
Peukert exponent	1.05
Charge efficiency factor	95%
Current threshold	0.10A
Time-to-go averaging period	3m



**UNDERSTANDING WHAT THE VICTRON CONNECT APP IS TELLING YOU.  
SEE THE VICTRON CONNECT APP FOR MORE INFORMATION**



**SMART SOLAR CHARGER**

**SOLAR**

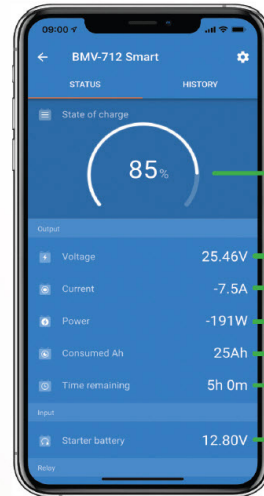
The solar app displays the Solar input values from the panels to the Solar Controller.

**BATTERY**

The next segment of the app displays the charge being delivered to the battery.

**LOAD OUTPUT**

Displays status of dedicated load output from Solar Controller. This is a feature that can be used but is not active on SolarFlex. Refer to the User Manual.



**SMART SHUNT**

**STATE OF CHARGE**

Battery state of charge in (%) percentage is displayed first.

**OUTPUT**

Output shows: Voltage, Current, Power, Consumed Ah, and Time remaining.

**N/A**

This is a feature that can be used on motorized units but is not active on this system.

For Expansion Possibilities, Troubleshooting and Frequently Asked Questions (FAQ's) please visit the Owner's page at [www.keystonerv.com](http://www.keystonerv.com)

## **BATTERY HEAT FOR FACTORY INSTALLED DRAGONFLY LITHIUM BATTERIES WHEN TO TURN THE HEAT ON AND WHY:**

The batteries will not accept a charge below an internal temperature of 25°F, so the heat should be activated when you plan to charge the batteries in a cold environment.

### **HEATING PARAMETERS:**

If the heat circuit is activated, it will maintain an internal temperature between 35°F and 45°F.

The heat circuit will trigger on at 35°F and heat up to 45°F before it shuts off.

### **WHEN TO TURN THE HEAT OFF TO CONSERVE ENERGY OR WHEN IT IS NOT NEEDED:**

Disable the heat circuit for times when you will not be charging the batteries, or for storage.

If you are not going to actively charge the batteries, there is no need for the batteries to heat themselves.



## **DRAGONFLY BATTERY ADVANTAGES**



## **DRAGONFLY LITHIUM-ION BATTERIES**

Made in the USA! Dragonfly Batteries are designed and assembled in Reno, NV.

**10-Year Warranty** - Peace of mind for your investment.

**Heated Batteries** - Ability to charge in low temperature environments when inexpensive alternatives will not.

**100% Depth of Discharge** - Greater performance by getting the full use of stored energy.

**Lightweight** - Only 29 lb per battery as compared to 70 lbs for comparably sized Lead Acid battery.

**Internal Battery Management System** - Never worry about damage to battery due to faulty charging or discharge.

**End of Life/Warranty Recycling Program** - Dragonfly batteries can be returned to Dragonfly to be recycled at the end of their life and in warranty situations.

**Quality-assured Performance** - Fully tested and UL listed, approved for use by RVIA.

**Contact your Keystone Dealer to Purchase.**

# Proven in the Wild



For more information, helpful resources, or support,  
visit [KeystoneRV.com](https://www.KeystoneRV.com) or connect with our Customer  
Care team at [\(866\) 425-4369](tel:8664254369)

REV: 4.2026

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