SolarFlex 440i Off Grid Power Solution User Guide

August 15, 2025

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QUICKSTART GUIDE

PROTECT 220

DISCOVER 440i

OUTLAST 660i-L

OUTLAST EXTREME 1320i-L

WELCOME TO SOLARFLEX

Below are the Five options SolarFlex offers. SolarFlex Ready, SolarFlex Protect, SolarFlex Discover, SolarFlex Outlast, and SolarFlex Outlast Extreme. Please find the

package your RV has below.

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

Notice: 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 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 110V loop prep with up to 7 outlets (inverter not included)
– (1) Zamp Sidewall Charge Port with 15A Solar Charging Circuit

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.

SolarFlex Protect – Equipment:

– (1) Future Solutions 220-Watt Solar Panel
– (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 110V loop prep with up to 7 outlets (inverter not included)
– (1) Zamp Sidewall Charge Port with 15A Solar Charging Circuit

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.

You are finished! Skip to page 5 to download the VictronConnect App to complete your set up.

Start by Supplying Power to the RV:

1. 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.

2. 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.

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

(A.)

(B.)

SolarFlex Discover – Equipment:

– (2) Future Solutions 220-Watt 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) 2kW Inverter with built in transfer switch with up to 7 inverted outlets

– (1) Inverted 110V loop prep for soft-start air conditioner (inverter not included)

– (1) Victron SmartShunt Battery Monitor with Bluetooth app

– (1) Zamp Sidewall Charge Port with 15A Solar Charging Circuit

Start by supplying power to the RV

1. 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 Smart Solar Charge Controller. Turn the PV disconnect OFF to service the 12V system, store the RV or when battery is not installed.

(A.)

2. 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 B. Battery Disconnect can be turned OFF anytime you wish to shut off all 12V power to the RV.

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

(B.)

3. 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)**.

(C.)   TT

(D.)   FW

4. 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.

(E.) MAGNUM

 USER MANUAL

(F.)   XANTRAX

 USER MANUAL

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 inverted outlets.

You are finished! Skip to page 5 to download the VictronConnect App to complete your set up.

SolarFlex Outlast – Equipment:

– (3) 220W 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 3kw 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) Zamp Sidewall Charge Port with 15A Solar Charging Circuit

SolarFlex Outlast Extreme – Equipment:

– (6) 220W 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 3kw 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) Zamp Sidewall Charge Port with 15A Solar Charging Circuit

1. 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 the battery is disconnected.

(A.)

2. 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.

NOTE: In the OFF position SolarFlex will still charge the batteries.

(B.)

3. 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) at the A-frame of a travel trailer **(C)**. On a fifth wheel it will be in the front bulkhead or pass through compartment **(D)**.
(See next page).

(C.)   TT

(D.)   FW

4. Turn ON the **Inverter (E)**. The inverter is typically located in a front bulkhead or pass through compartment.

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.

You are finished! Skip to page 5 to download the VictronConnect App.

SolarFlex Outlast and Outlast Extreme, scan the appropriate QR code to access the User Manual for the Victron Multi-Plus Inverter used in your package.

MultiPlus Manual

OUTLAST

Outlast Basic User Guide

(E.)

MultiPlus-II Manual

OUTLAST EXTREME

Outlast Extreme Basic User Guide

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 or download the My Keystone App.

**Download the VictronConnect App and follow the steps below:**

App Store   Google Play Store   Victron Connect Manual

1. Enable Bluetooth on your phone.
2. Open VictronConnect and your Victron devices will appear. Connect to your Victron devices through the VictronConnect App "Device list", not through your phone's Bluetooth settings.
3. If using an iPhone the "Location Services" must be turned ON.
   – Select Settings
   – Privacy

– Location Services

– Move the Location Services slider to on/green. Location Services are now on.

4. Tap on the component you wish to connect to. Only one phone or tablet can be connected at a time to a single device.

– **SolarFlex Protect** – (1) SmartSolar Charge Controller

– **SolarFlex Discover** – (1) 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.

– The first time you connect, the app will ask to pair with a Victron product. Enter your PIN code or enter the default PIN code: 000000. (See page 6).

– 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.
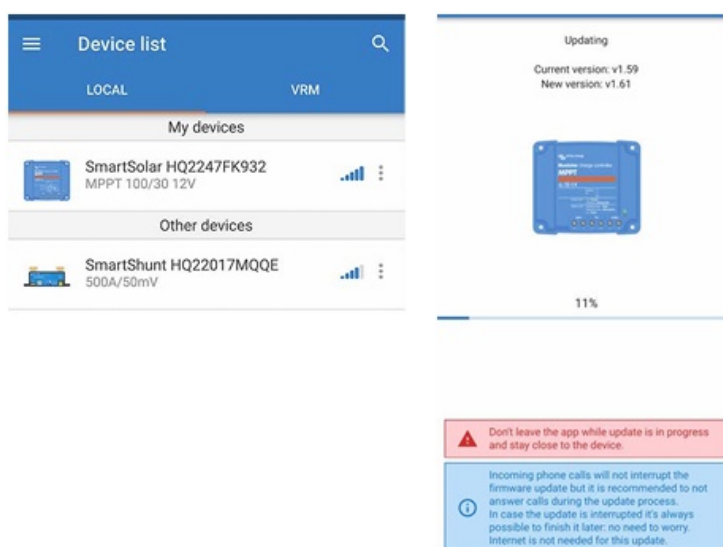
Victron PIN Code Change – Midyear of Model Year 2024 Victron made a change to the SmartSolar Charge Controllers and SmartShunt. The change is to a unique pre-programed 6-digit PIN-code instead of the default PIN code: 000000.

PIN-code location – If you have tried the default PIN code of 000000 and it does not work you may have the new version. Check the label found on the Victron Products for a

PIN code.

If it has a PIN code, enter it to connect.

If the label does not have a PIN code see our "[SolarFlex Bluetooth Troubleshooting](#)" guide in the SolarFlex section, under the Owner's Support tab at www.keystonerv.com

SmartSolar Charge Controllers

SF220 and SF440i – Label on the side. **(A)** and **(B)**.

SmartShunt

Travel Trailers – A PIN-Code label can be found on the front of the BMI box; the BMI box houses the Shunt and the Inverter disconnect. **(C)**.
Fifth Wheels – Found on the side of the shunt. **(D)**.

SF660i-L and SF1320i-L – Future Solutions label on the protective cover. **(E)**.
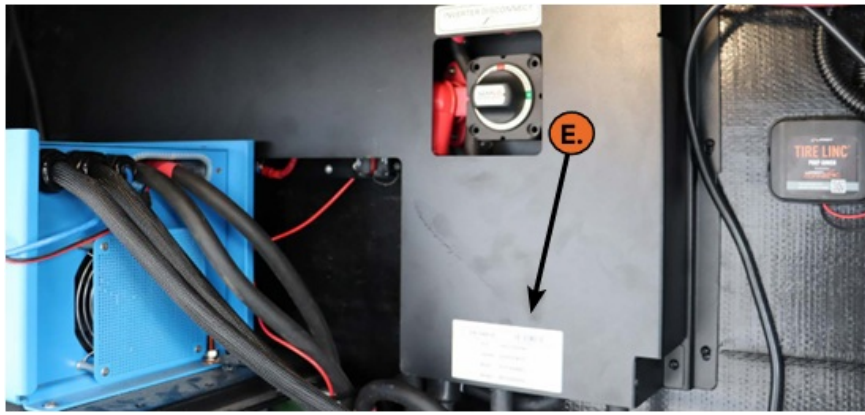
SOLARFLEX PROTECT & DISCOVER

PROGRAMMING THE SMARTSOLAR CHARGE CONTROLLER WITH DEALER INSTALLED BATTERIES:
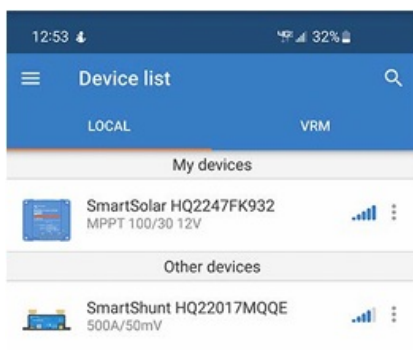

SmartSolar 12v Charge Controller Manual

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.
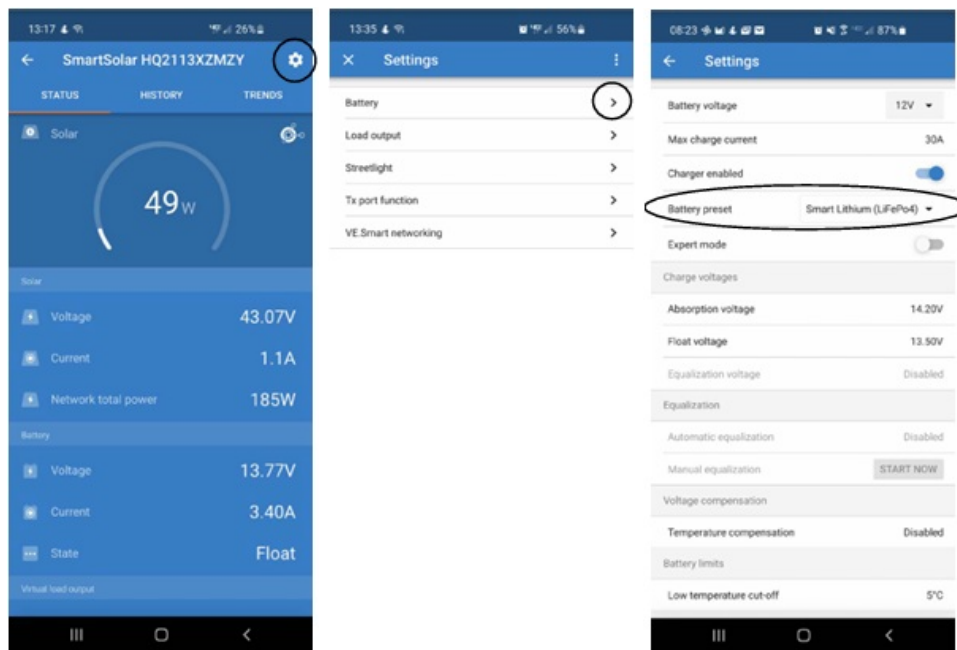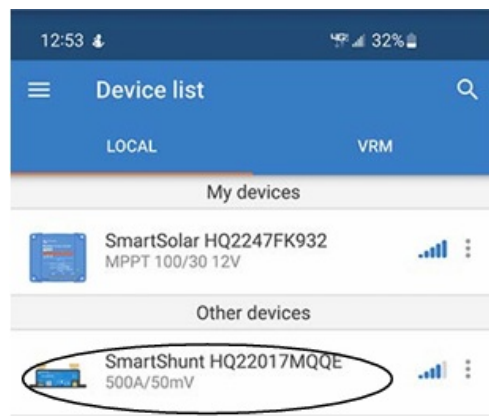

SOLARFLEX DISCOVER

PROGRAMMING THE SMARTSHUNT BATTERY MONITORING WITH DEALER INSTALLED BATTERIES:

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).
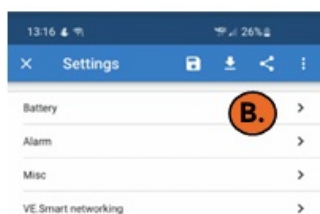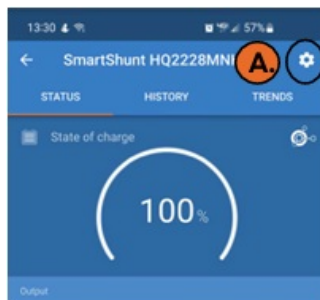

6. Use the **Recommended Battery Settings** Chart by inputting each variable for the type of batteries installed on your RV.

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 EFFICIENCY 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).
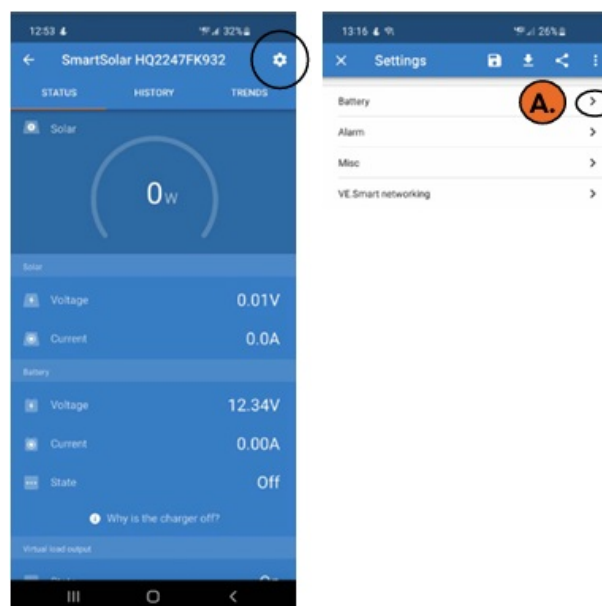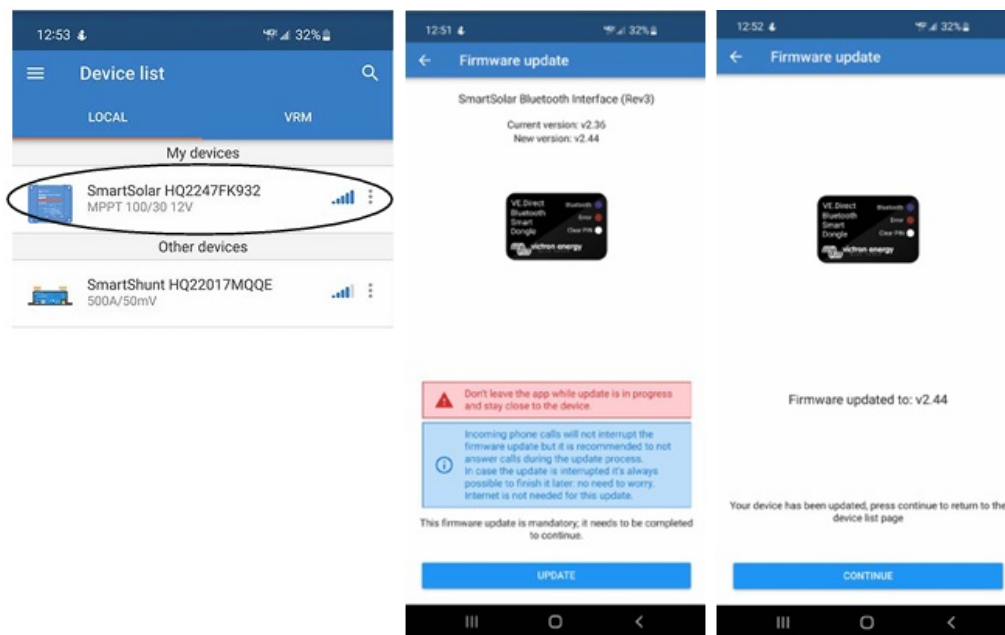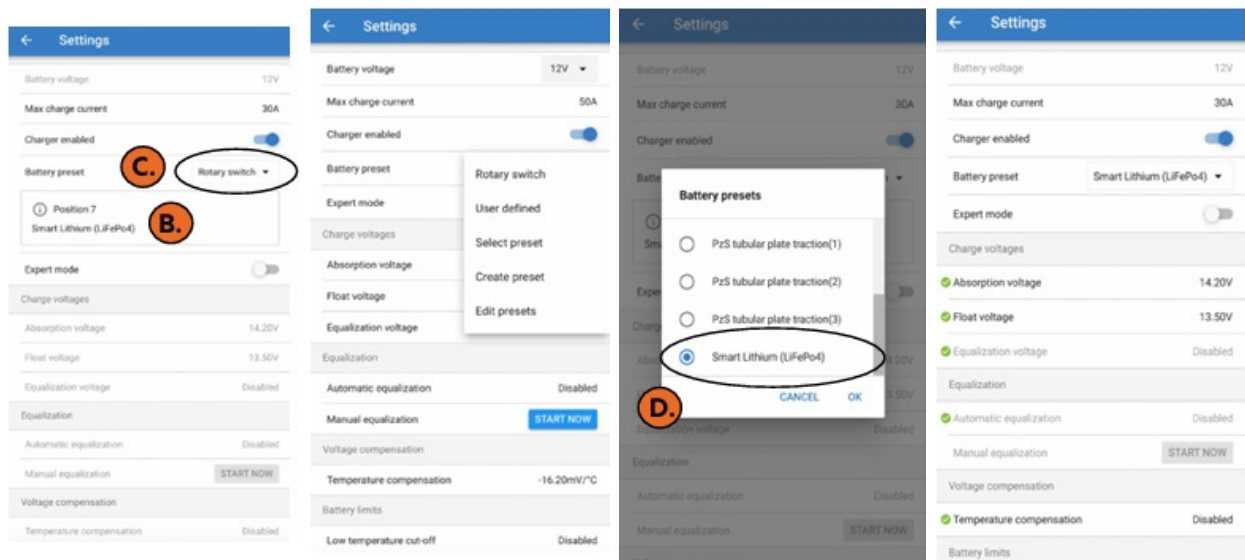
YOU ARE ALL SET
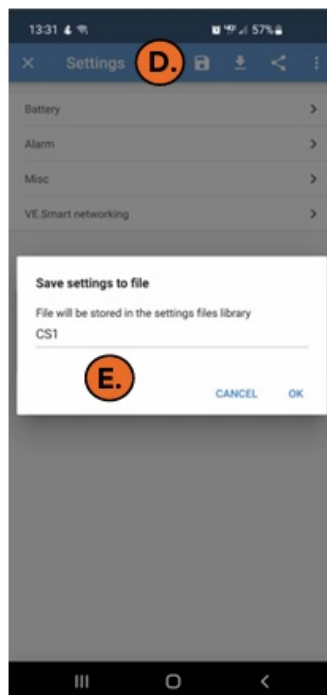
SOLARFLEX PROTECT & DISCOVER – WITH FACTORY INSTALLED DRAGONFLY LITHIUM-ION BATTERIES:

MAKE SURE YOUR SMARTSOLAR CHARGE CONTROLLER IS SET FOR LITHIUM

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)**

SOLARFLEX DISCOVER – WITH FACTORY INSTALLED DRAGONFLY LITHIUM-ION BATTERIES:

MAKE SURE THE SMARTSHUNT IS SET FOR THE PROPER AMP HOURS (AH)

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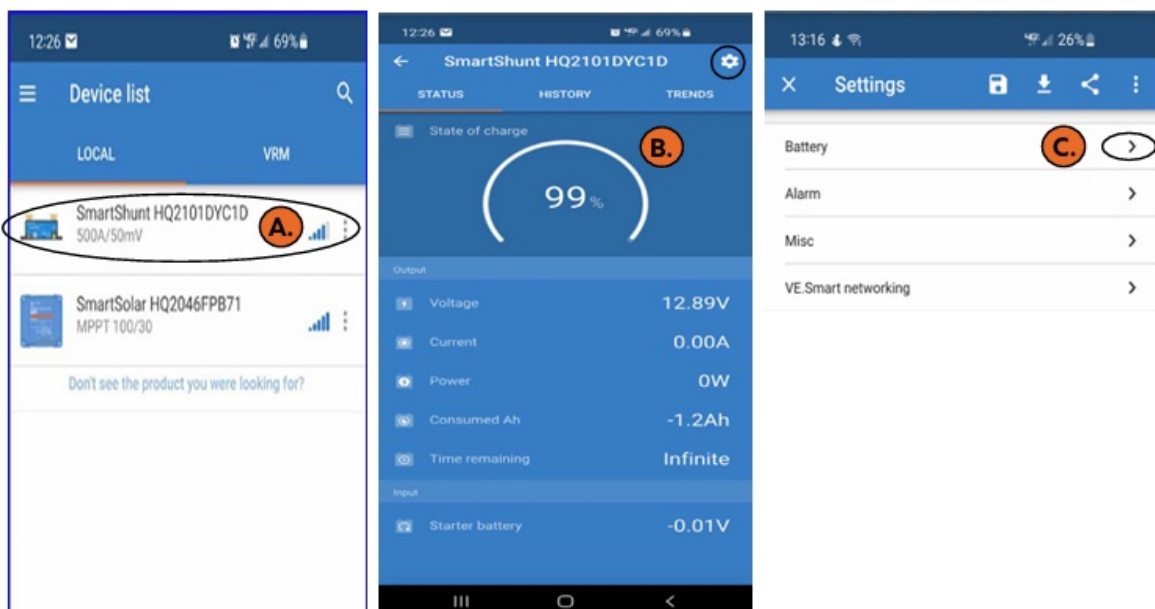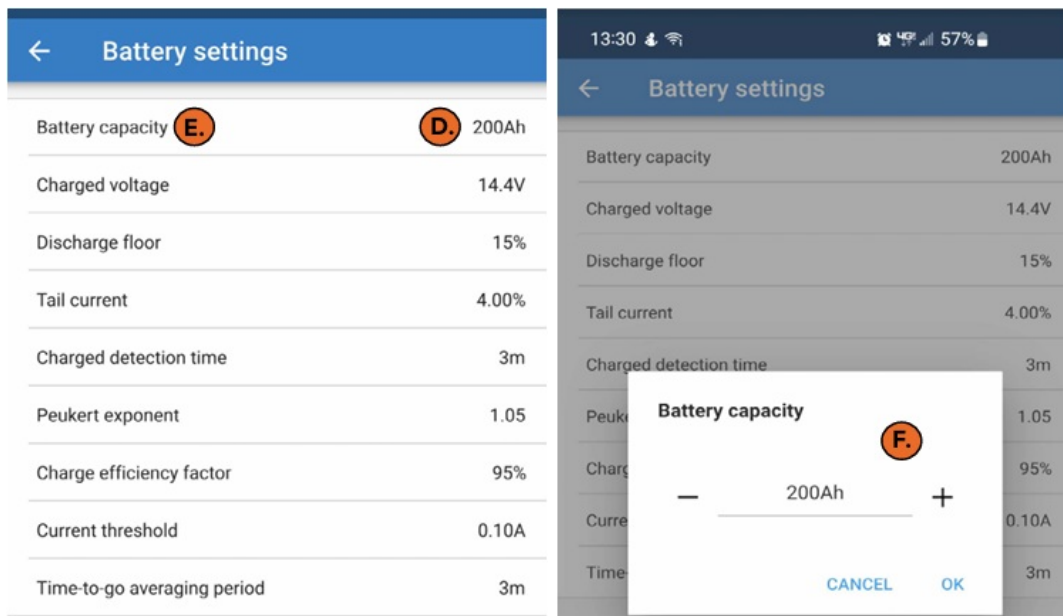
UNDERSTANDING WHAT THE VICTRON CONNECT APP IS TELLING YOU.
SEE THE VICTRON CONNECT APP FOR MORE INFORMATION
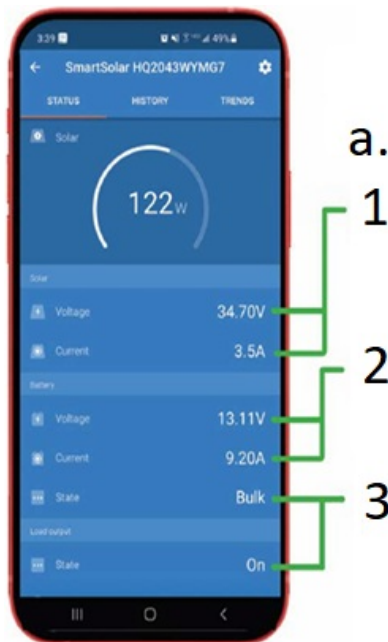

a. **SMART SOLAR CHARGER**

1. **SOLAR**

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

2. **BATTERY**

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

3. **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.
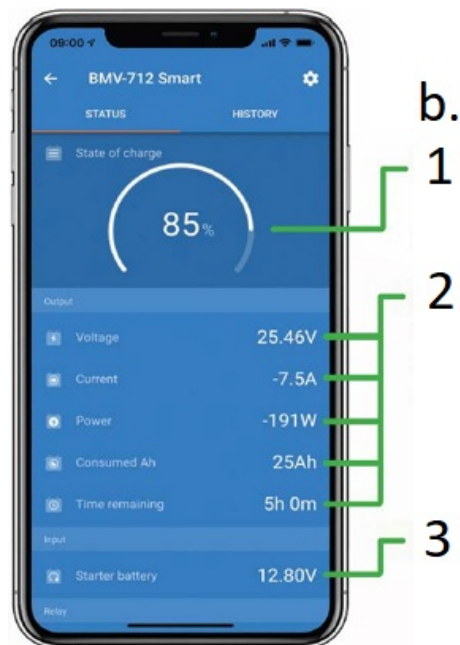
b. **SMART SHUNT**

1. **STATE OF CHARGE**

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

2. **OUTPUT**

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

3. **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

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

FACTORY-INSTALLED 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.

Enhances Keystone's Exclusive SolarFlex Experience – Take full advantage of the solar capabilities of your Keystone RV.

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

DISCLAIMER: Product information is as accurate as possible as of the date of publication of this brochure. All features, floor plans, and specifications in this brochure are subject to change without notice. Please also consult Keystone's web site at keystonerv.com for more current product information and specifications. Tow Vehicle Disclaimer. CAUTION: Owners of Keystone recreational vehicles are solely responsible for the selection and proper use of tow vehicles. All customers should consult with a motor vehicle manufacturer or their dealer concerning the purchase and use of suitable tow vehicles for Keystone products. Keystone disclaims any liability or damages suffered as a result of the selection, operation, use or misuse of a tow vehicle. KEYSTONE'S LIMITED WARRANTY DOES NOT COVER DAMAGE TO THE RECREATIONAL VEHICLE OR THE TOW VEHICLE AS A RESULT OF THE SELECTION, OPERATION,

USE OR MISUSE OF THE TOW VEHICLE. Please review owner's manual prior to purchase for more information on service warranties, extended use, towing and maintenance. Owner's manuals can be found at keystonerv.com Revised 4.8.2024

Keystone RV is proud to partner with

Dragonfly Energy to offer their legendary heated

Lithium-ion batteries exclusively on all Keystone models.

 For more Dragonfly Energy® information, please visit keystonerv.com/lithium

Documents / Resources

	[SolarFlex 440i Off Grid Power Solution](#) [[pdf](#)] User Guide 220, 440i, 660i-L, 1320i-L, 440i Off Grid Power Solution, 440i, Off Grid Power Solution, Power Solution, Solution

References

- [User Manual](#)

📁 SolarFlex

🏷 1320i-L, 220, 440i, 440i Off Grid Power Solution, 660i-L, Off Grid Power Solution, Power Solution, SolarFlex, Solution

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