

How To Set Up Fortress Power Lithium Batteries Using Sol-Ark Inverter

Introduction

This integration guide will help set up the charge/discharge parameters of Fortress Power batteries as they relate to Sol-ark inverters, as well as closed-loop communication

For additional technical support:

Datasheets / Manuals: <https://www.fortresspower.com/resources/>

Email: techsupport@fortresspower.com

Discord Support: <https://discord.gg/kxX6QMjKFw>

Phone: (877) 497-6937 x 2

Hours: 8:30AM - 6:30PM EST



Join Our Discord Chat

Warranty Submittal: <https://www.fortresspower.com/product-warranty/>

⚠ Don't forget to press OK when programming with the SolArk LCD screen!

1. Connect communication cables between each battery with canbus terminators at each end. It does not matter which communication port on the battery is used.
2. Program open loop settings before enabling closed-loop BMS control. Do not use %-state of charge controls without establishing closed loop communication. **See Exhibits C, D, and E.**
3. Make the battery-to-inverter communication cable. **See Exhibit A.**
 - a. eFlex RJ45 pins 7+8 correspond to SolArk pins 7+8. Cut into the ethernet cable jacket and snip wires 1-5 or use a keystone. **Up to 15 eFlex can be programmed closed loop with the SolArk inverters.**
 - b. eVault RJ45 pins 3+5 correspond to SolArk pins 7+8. A keystone is recommended to make the crossover. Tool-less ethernet keystones are very useful! **Up to 2 eVaults can be programmed closed loop with the SolArk inverters. Otherwise use Open Loop settings.**

Ex. <https://www.amazon.com/Tool-Less-Keystone-AMPCOM-Self-Locking-Punch-Down/dp/B07JCSPX21/>

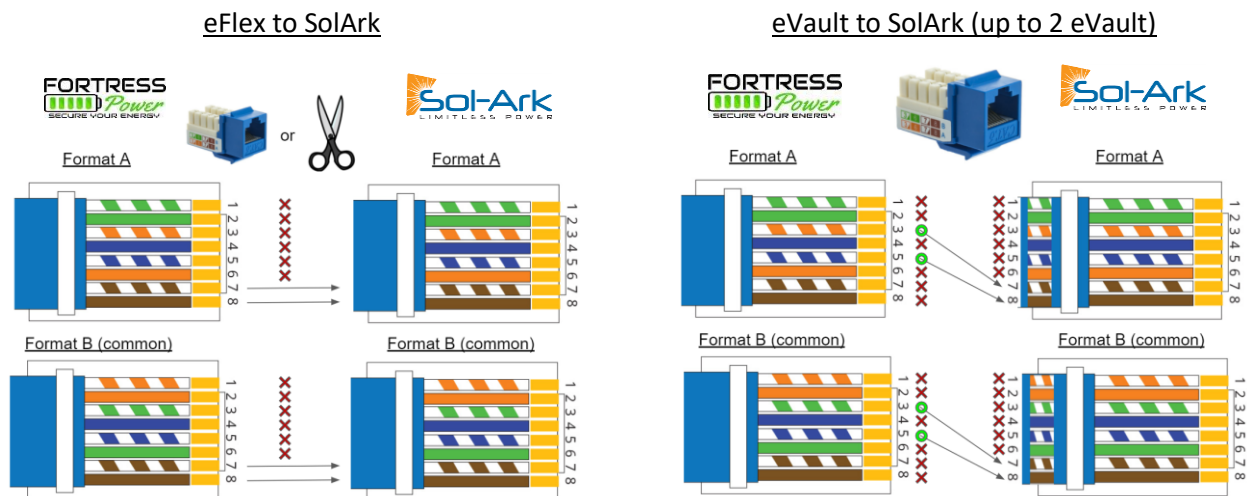
4. Plug the battery-to-inverter data cable into either side of the battery communication circuit.
See Exhibit B.
 - a. Use the RJ45 /485 port for the 8kW model.
 - b. Use the RS485/MOD port for the 12kW indoor model.
 - c. Use the CAN/batt port for the 12kW outdoor model.
5. In the battery set-up menu, select **BMS 04** and **Use %-based controls**. We do not use the activate battery setting. Disabling the BMS alarm is optional. See exhibits below.
6. Inspect the closed loop settings and make programming adjustments where necessary.
7. Program the grid parameter settings as a function of the client's electric rate structure and desired level or reserve capacity (site specific).

How To Set Up Fortress Power Lithium Batteries Using Sol-Ark Inverter

Notes:

- A. Closed-loop is successful by seeing the battery %-based state of charge on the main screen, as well as a single line of BMS information on the battery info menu. If this communication is not established, please reinspect or remake your data communication cable.
- B. Enabling the BMS communication will change Absorb, Float, and Equalization voltages. You may need to adjust other parameters, such as charge/discharge amperage.
- C. Some settings are site-specific. Grid-tied installers are welcome to adjust settings based on different use cases.

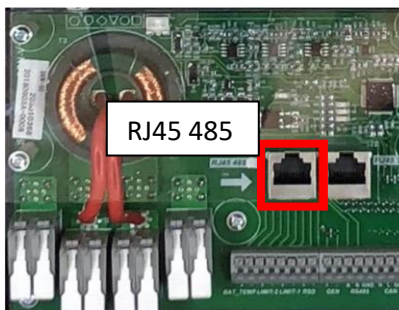
Exhibit A – Making the Cross-Over Cable (Step 3)



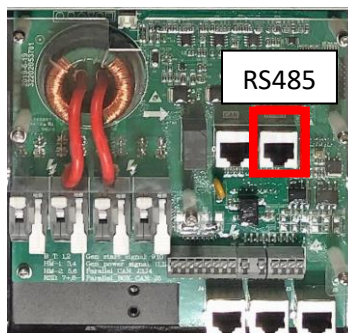
Note: eFlex + eVault modbus communication does not require a grounded communication wire.

Exhibit B – Identifying the Sol-Ark Communication Port

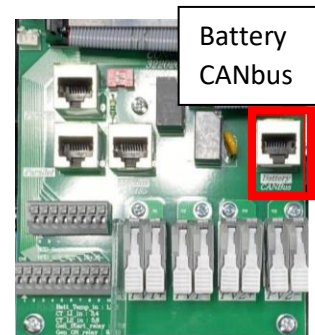
Indoor 8kW – RJ45/485 port



Indoor 12kW – RS485 port



Outdoor 8kW + 12kW
Battery / CANbus port



How To Set Up Fortress Power Lithium Batteries Using Sol-Ark Inverter

Exhibit C – Batt Setup > Batt Tab

Open Loop Settings

Batt Setup				
Batt	Charge Discharge Smart Load Wind			
Batt Capacity	105Ah per eFlex 200Ah per LFP-10 360Ah per eVault	☒ Use Batt V charged		
		☐ Use Batt % Charged		
Max A Charge	55A per eFlex 100A per LFP-10 100A per eVault	☐ No Battery		
Max A Discharge	60A per eFlex 100A per LFP-10 180A per eVault	☐ BMS Lithium Batt	04	
Tempco	-5mV/C/Cell	☐ Activate Battery		

Closed Loop Settings

Batt Setup				
Batt	Charge Discharge Smart Load Wind			
Batt Capacity	105Ah per eFlex 360Ah per eVault	☐ Use Batt V charged		
		☒ Use Batt % Charged		
Max A Charge	100A per eFlex 185A per eVault	☐ No Battery		
Max A Discharge	100A per eFlex 185A per eVault	☒ BMS Lithium Batt	04	
Tempco	-5mV/C/Cell	☐ Activate Battery		

Note: Max Charge and Discharge amperage need to be reprogrammed after enabling closed loop, but do not need to be reprogrammed back to open loop settings if troubleshooting.

Exhibit D – Batt Setup > Charge Tab

Open Loop Settings

Batt Setup					
Batt	Charge		Discharge Smart Load Wind		
Start V	50.5V	51.4V	Float V	54.4V	
Start %	10%	20%	Absorption V	54.4V	
			Equalization V	55.5V	
A	55 A per eFlex 100 A per LFP-10 170 A per eVault			30 days	
				0 hours	
☐ Gen Charge		☒ Grid Charge			

Closed Loop Settings

Batt Setup					
Batt	Charge		Discharge Smart Load Wind		
Start V	50.5V	51.4V	Float V	56V	
Start %	10%	20%	Absorption V	56V	
			Equalization V	56V	
A	100A per eFlex 185A per eVault			30 days	
				0 hours	
☐ Gen Charge		☒ Grid Charge			

Note: Start V or % can be increased to always keep the battery at a more full charge (i.e. net-metering or backup only installations). Off-grid customers usually program the generator as a grid charge. Off grid customers with very low load may elect to set grid/gen charge to 10%-15% instead of 20%.



How To Set Up Fortress Power Lithium Batteries Using Sol-Ark Inverter

Exhibit E – Batt Setup > Discharge Tab

Open Loop Settings

Batt Setup				
Batt	Charge	Discharge	Smart Load	Wind
Shutdown	50V	10%	Batt Resistance	5 mOhms
Low Batt	51.4V	20%	Batt Charge Efficiency	98%
Restart	51.8V	25%	BMS_Err_Stop	☐
Batt Empty V	49V			

Closed Loop Settings

Batt Setup				
Batt	Charge	Discharge	Smart Load	Wind
Shutdown	50V	10%	Batt Resistance	5 mOhms
Low Batt	51.4V	20%	Batt Charge Efficiency	98%
Restart	51.8V	25%	BMS_Err_Stop	☐
Batt Empty V	49V			

Note: Battery shutdown and empty voltages may be reduced by 1V-2V if site-specific conditions are causing the inverter to shut down prematurely. Current settings are conservative to prevent deep discharging of the battery.

On site? Why not register the product warranty:

Warranty Submittal: <https://www.fortresspower.com/product-warranty/>

505 Keystone Rd, Southampton, PA 18966 • (877) 497 6937 • sales@fortresspower.com • [Fortresspower.com](https://www.fortresspower.com)