

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

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

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



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⚠ Remember to press OK when programming with the Sol-Ark LCD screen!

1. Connect communication cables between each battery with CAN bus terminators at each end. It does not matter which communication port on the battery is used.
2. Program open loop settings. These settings may adjust if establishing closed loop communication.
Do not use %-state of charge controls without establishing closed loop communication.

Batt Setup	
Batt	Charge Discharge Smart Load Wind
Batt Capacity	105Ah per eFlex 200Ah per LFP-10 390Ah per eVault
Max A Charge	55A per eFlex 80A per LFP-10 100A per eVault
Max A Discharge	60A per eFlex 100A per LFP-10 180A per eVault
Tempco	-5mV/C/Cell
	<input checked="" type="checkbox"/> Use Batt V charged
	<input type="checkbox"/> Use Batt % Charged
	<input type="checkbox"/> No Battery
	<input type="checkbox"/> BMS Lithium Batt 04
	<input checked="" type="checkbox"/> Activate Battery

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
A	55 A per eFlex 80 A per LFP-10 170 A per eVault
	Equalization V 55.5V
	30 days
	0 hours
	<input type="checkbox"/> Gen Charge <input checked="" type="checkbox"/> Grid Charge

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 <input type="checkbox"/>
Batt Empty V	49V

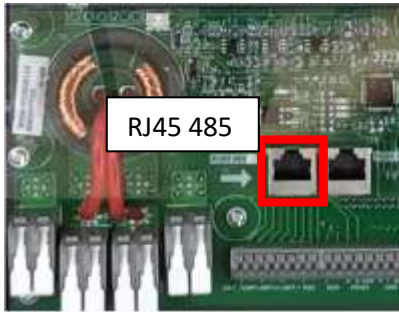
Start V will turn the generator or grid charge on. It should be lower than the lowest "sell back" setting under grid parameters to avoid nuisance tripping.

Shutdown V will disconnect the battery from the inverter – but the battery BMS will remain powered on. Program an alert to notify the end user to prevent accidental deep discharging.

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4. Plug the battery-to-inverter data cable onto either end of the battery communication daisy chain, and then into the appropriate data port on the SolArk inverter.

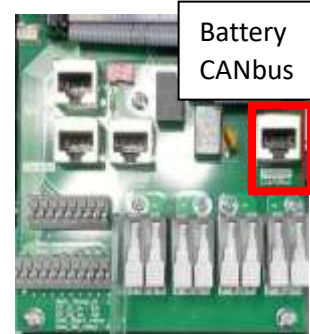
Indoor 8kW
RJ45/485 port



Indoor 12kW
RS485/MOD port



Outdoor 8kW + 12kW
Battery / CANbus port



5. Program the closed-loop inverter settings. In the battery set-up menu, select **BMS 04** and **Use %-based controls**. Disabling the BMS alarm is optional. Some settings will adjust automatically.

Batt Setup			
Batt	Charge	Discharge	Smart Load Wind
Batt Capacity	105Ah per eFlex 360Ah per eVault	<input type="checkbox"/> Use Batt V charged	
Max A Charge	100A per eFlex 185A per eVault	<input checked="" type="checkbox"/> Use Batt % Charged	
Max A Discharge	100A per eFlex 185A per eVault	<input type="checkbox"/> No Battery	
Tempco	-5mV/C/Cell	<input checked="" type="checkbox"/> BMS Lithium Batt 04	
		<input checked="" type="checkbox"/> Activate Battery	

Batt Setup			
Batt	Charge	Discharge	Smart Load Wind
Start V	50.5V	51.4V	Float V 56V
Start %	10%	20%	Absorption V 56V
A	100A per eFlex 185A per eVault		Equalization V 56V
	<input type="checkbox"/> Gen Charge	<input checked="" type="checkbox"/> Grid Charge	30 days
			0 hours

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 <input type="checkbox"/>
Batt Empty V	49V		

Some settings (such as float, absorption, and equalization voltage) will adjust automatically after enabling closed loop communication successfully.

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6. Next steps:

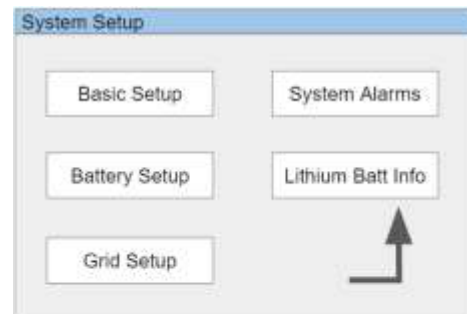
Verify the batteries are charging by looking at the eVault screen and confirming a positive charging amperage or confirming a blinking state of charge indicator light on the eFlex. Parallel batteries may show different levels of amperage when “balancing” for the first time. Parallel batteries should be within 0.5V before commissioning in parallel. It may be necessary to charge or discharge the batteries individually until they are within 0.5V of each other.



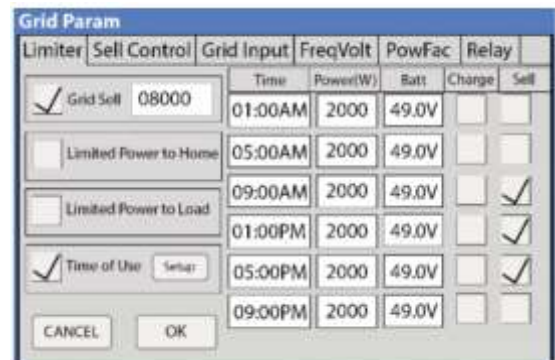
A blinking State of Charge Indicator Light confirms that the eFlex is charging.

If the batteries are resting at 54.4V or showing a 100% SoC, but the status indicator lights are not full, adjust the float and absorb voltage to 55.5V for ~30 minutes under full sun. This will reset the state of charge indicator computer.

Confirm successful closed-loop communication by clicking the lithium battery info button on the Sol-Ark screen. Line #2 will be filled in with battery information (the other fields will be zero).



Program the grid parameter settings as a function of the site-specific electric rate structure and desired level of reserve capacity. Understand how to program these settings before visiting site. A 20% state of charge is around 51.2V-51.4V. A 95% charge is around 53.7V. A 100% charge is 54.4V resting. The default settings of Sol-Ark manual show taking the battery down to 49V. This is too low for Fortress batteries. Fortress batteries should only be intentionally discharged down to 20% SoC or 51.4V and then be recharged by available charging sources.



Limiter	Sell Control	Grid Input	Freq/Volt	PowFac	Relay
<input checked="" type="checkbox"/>	08000	Time	Power(W)	Batt	Charge
		01:00AM	2000	49.0V	
<input type="checkbox"/>	Limited Power to Home	05:00AM	2000	49.0V	
<input type="checkbox"/>	Limited Power to Load	09:00AM	2000	49.0V	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Time of Use	01:00PM	2000	49.0V	<input checked="" type="checkbox"/>
	Setup	05:00PM	2000	49.0V	<input checked="" type="checkbox"/>
		09:00PM	2000	49.0V	

Graphic is not for programming purposes.