How To Set Up Fortress Power Lithium Batteries Using Outback Inverters

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/

Join Our Discord Chat

IMPORTANT! ***Fortress batteries may require disassembly if voltage drops below 40V-44V. OpticsRE, OutBack's free remote monitoring system, can be configured to send an email notification on low battery to help warn and avoid a complete discharge of the battery.***

Radian / FXR Inverter Settings (divide voltage by 2 for 24V FXR settings)

Inverter	80% DoD, 6000 cycles
Absorb Voltage and Time	54.4 Vdc / 2.0 hr
Float Voltage and Time	54.4 Vdc / 0.0 hr
Re-float Voltage	52.4 Vdc
Re-Bulk Voltage	51.2 Vdc
AC Input Mode	Grid Tied (default, adjust as needed)
AC Charger Limit in AC	LFP10: 15 Aac per battery eFlex: 15 Aac per battery eVault: 30 Aac per battery
Low Battery Cut-Out Voltage	49.6V
LBCO Delay	130 seconds
Low Battery Cut-in Voltage	51.2
High Battery Cut-Out Voltage	56.4V
HBCO Delay	10 seconds
High Battery Cut-in Voltage	55.2V
SellRE (Offset) Voltage Max	51.6V for "zero-outflow", 53.6V for selling at "100% full"
Temp Sensors	*Do not use temperature sensors / reduce any temperature coefficients to as close to zero as allowed*

How To Set Up Fortress Power Lithium Batteries Using Outback Inverters

SkyBox Inverter Settings

The settings below should be programmed into the unit under the ***Custom*** choice.

Inverter	
Maximum SOC	100%
Minimum SOC	20%
Absorb Charge	Timed
Absorb Voltage	54.4 Vdc
Absorb Time	02:00 hr
Float Charge	Disabled
Float Voltage	Can be left at default
Float Time	Can be left at default
Re-float Voltage	54.4 Vdc
Re-bulk Voltage	52.5 Vdc
Equalize Voltage	54.4 Vdc
Minimum Equalize Time	00:00
Max Charge Current (Adc)	LFP-5 & LFP-10: 50Adc eVault: 100Adc eFlex: 55Adc
Max Discharge Current (Adc)	LFP-5 & LFP-10: 90Adc eVault: 125Adc eFlex: 60Adc
Grid Charge Limit (kW)	Site specific
Low Battery Cutout	50 Vdc
LBCO Delay	15 seconds
Low Battery Cut-in	51.0 Vdc
High Battery Cutout	56.0 Vdc
HBCO Delay	10 seconds
High Battery Cut-in	55.5 Vdc
Battery Series	Custom
Battery Model Number	Custom
Battery Description	Fortress Power
Battery Total Amp-Hours	eFlex: 105Ah LFPP-10: 200Ah eVault: 360 Ah
Charge Efficiency Factor	96%
Absorb End Amps	1Adc

How To Set Up Fortress Power Lithium Batteries Using Outback Inverters

Charge Controller Settings

Charge Controller	
Absorb Voltage and Time	54.4, 2 hours
Float Voltage	54.4
Rebulk Voltage	52.5 ***note: higher than inverter***
DC Current Limit	LFP-10: 80A per battery ÷ # of controllers eVault: 170A per battery ÷ # of controllers eFlex: 55A per battery ÷ # of controllers
Absorb End Amps	1A

Communication Settings

FLEXnet DC (FN-DC)	***If FLEXNET DC display voltage is not within 0.1V of inverter terminal voltage, calibrate Outback equipment***
Battery Amp hour	eFlex :105Ah per battery LFP-10: 200Ah per battery eVault: 360Ah per battery
Charged Voltage	54.0V
Charged Time	15 minutes
Charged Return Amps	1A
Battery Charge	96%
Relay Invert Logic	No
Relay Voltage	High = 53.8 ; Low = 51.2
Relay Delay	High = 1, Low = 0
MATE3/MATE3s	
FLEXnet DC Advanced	Low SOC Warning = 15%
FLEXnet DC Advanced	Critical SOC Warning = 10%

Calibrate FlexNet DC Instructions:
https://www.outbackpower.com/downloads/documents/appnotes/fndc_field_cal_app_note.pdf