



How To Set Up Fortress Power Lithium Batteries Using Schneider Equipment

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Introduction

This integration guide will help set up the charge/discharge parameters of Fortress Power batteries as they relate to Schneider inverters, as well as the setup of closed-loop communication between the eFlex 5.4 and Schneider. For any additional help, please contact techsupport@fortresspower.com

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Open Loop Settings for Fortress Batteries with Schneider Inverters

Charger Setting > Custom Setting		
	80% DoD, 6000 cycles	90% DoD, 3000 cycles
Battery Type	Custom	
Charge Cycle	2StgNoFloat	
Bulk Voltage	54.4 V	54.6 V
Max Bulk Current	eFlex:55A per battery eVault:100A per battery LFP-10: 70A per battery	eFlex: 60A per battery eVault:150A per battery LFP-10: 80A per battery
Max Discharge Current	eFlex: 60A per battery eVault: 160A per battery LFP-10: 100A per battery	
Battery Capacity	eFlex: 105AH per battery eVault : 360AH per battery LFP-10: 200AH per battery	
Max Charge Rate Percentage	eFlex:60A per battery eVault:100A per battery LFP-10: 70A per battery Divided by Total Inverter DC Amperage	eFlex: 60A per battery eVault:150A per battery LFP-10: 80A per battery Divided by Total Inverter DC Amperage
Default Battery Temperature	Warm	
Recharge Volts	51.3	
Grid Support Volts**	53	
Absorb Volts	54.4	
Absorb Time	1 Hour	
Charge Block Start	Default	
Charge Block Stop	Default	
Advanced Settings > Inverter Settings		
Low Battery Cut Out Voltage	48V	
LBCO Hysteresis	2.0V	
LBCO Delay	5 Sec	
High Battery Cut Out Voltage	eFlex: 61V eVault: 61V LFP-10: 63V	
Search Watts	Default	
Search Delay	Default	

****The Parameter Setting for Grid-tie Sell Mode:**

In a DC coupled system, **Grid Support or Enhanced Grid Support** mode supplies PV power to the loads and sells surplus power to the grid. This mode of operation keeps the batteries as completely charged as possible. The **Enhanced Grid Support** **only works with lead acid batteries, please disable it when you use Fortress batteries.**



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Grid Support Mode is used for the systems with DC Sources not communication over Xanbus.

Advanced Setting > Inverter Settings	
Charger	Enabled
Enhanced Grid Support	N/A
Grid Support	53V
Recharge Volts	51.3 V
Sell Mode	Enabled
Max Sell Amps**	PV array size ÷ 240V ÷ total inverter output kW
Advanced Setting > Charger Setting	
Recharge Volts	51.3 V

** For example, if the system has a 10 KW PV array and 2 of XW+ 5848 inverters, the Max Sell Amps per inverter will be $10,000W/240V/2 = 21A$



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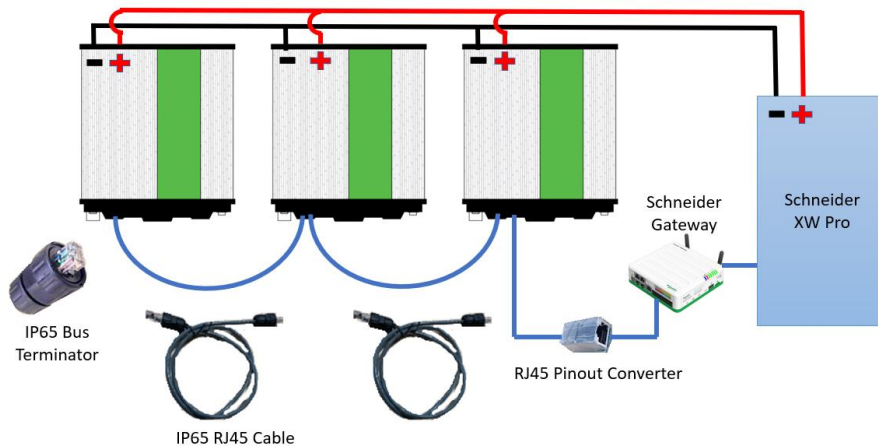
Open Loop Settings with Schneider Charge Controllers

Parameter Setting for Fortress Batteries with Schneider XW+ MPPT 60/80

Advanced Setting > Charger Setting		
Battery Type	Custom	
Custom Setting		
	80% DoD, 6000 cycles	90% DoD, 3000 cycles
Charge Mode	3 Stage	
Eqlz Support	Disabled	
Bulk Voltage	54.4 V	54.6 V
Absorb Voltage	54.4 V	54.6 V
Absorb Time	60 minutes	
Float Voltage	54.4 V	
Battery Temperature Compensation	0mV/C	
Battery Capacity	eFlex: 105AH per battery eVault : 360AH per battery LFP-10: 200AH per battery	
Max Charge Rate Percentage*	eFlex:55A per battery eVault:100A per battery LFP-10: 70A per battery Divide by total CC amp output	eFlex: 60A per battery eVault:150A per battery LFP-10: 80A per battery Divide by total CC amp output
Charge Cycle	Warm	
Recharge Volts	51.3 V	
Absorb Time	1 Hour	
Default Battery Temperature	Warm	
Battery Voltage (Auto-detected)	48V	

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Setting up Closed-Loop Communication between eFlex 5.4 and Schneider XW Pro
 All Fortress Power batteries work in open-loop communication mode—that is, with voltage detection. However, closed-loop communication between the **eFlex 5.4** and the Schneider inverter improves the efficiency of a lithium battery. The following is a guide to setting up closed-loop communication between the eFlex 5.4 and the Schneider inverter.



Connecting the eFlex to the Schneider inverter

1. Connect a CAT6 cable into the eFlex and then into the RJ46 pinout converter (Exhibit A).
2. Using another CAT6 cable, cut off one end and connect pin 7+8 (brown-white + brown) and connect the pin 7 (brown-white) to **port 18** and pin 8 (brown) to **port 20** on the Conext Gateway (Exhibit B).
3. Power on the eFlex and Schneider as usual and connect to the Conext Insight.
4. Navigate to Setup -> **Device Detection** and run detection for **RS-485-1 with range 1 to 2**. The battery BMS will then appear in the device list, as the Schneider Battery Monitor (Exhibit C).
5. Navigate to the Devices -> **Inverter\Charger** -> Configuration -> **Advanced Charger settings** should be set to **lithium ion battery** with an **charge cycle set to external BMS**. **Grid Support** settings should be set to **state of charge control**. **Battery Management System** settings should be set to **Fault on Loss of BMS Status** and **loss of State of Charge information**. (Exhibit D)
6. Navigate to the Schneider Devices -> **BMS Menu** -> Battery Bank 1 -> Apply
 Make sure the BMS is associated with Battery Bank 1 by **clicking "Apply"** (Exhibit E)

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Appendix

Exhibit A



Exhibit B

**From
Xanbus**



From eFlex Can/RJ485

Gateway Port 18 brown-white RJ45 Pin 7

Gateway Port 20 – brown RJ45 Pin 8

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Exhibit C

InsightLocal Version: v1.09 | Build number: 418 | Conext Gateway

2020/11/17 16:59 |  Admin | [Disclaimer](#) | [Logout](#) | [Life Is On](#) | 

Dashboard
Devices
Events
Setup
About

- Configuration
- Network
- Manage Passwords
- Device Detection
- Smart Energy Manager

Detect devices ▼

Port	Range
RS-485-1	<input type="text" value="1"/> to <input type="text" value="2"/>
RS-485-2	<input type="text"/> to <input type="text"/>

InsightLocal Version: v1.09 | Build number: 418 | Conext Gateway 2020/11/17 17:04 |  Admin | [Disclaimer](#) | [Logout](#) | [Life Is On](#) | 

Dashboard
Devices
Events
Setup
About


Device Overview
4 devices
Display

System Operating State

- Device Overview
- Inverter/Chargers
- Charge Controllers
- Other Devices


XW6848-21 0 Online

Operating Mode	Operating
Inverter Status	Grid Support
Charger Status	AC Good
Inverter Mode	Split Phase
	Master
AC Load Power	5834 W
AC Load	250.1 V
Voltage	
AC Load	59.98 Hz
Frequency	
AC1 Input	2490 W
Power (W)	
AC1 Voltage	251.18 V
AC1 Frequency	59.98 Hz
AC2 Power	0 W
AC2 Voltage	0 V
AC2 Frequency	0 Hz
DC Power	-3272 W



XW MPPT80 0 Online


Operating Mode	Standby
Charger Status	
Charge Mode	Stand alone
Status	
DC Input	Solar Array 1
Association	
(PV)	
PV Power	0 W
PV Voltage	0 V
Battery	House Battery
Association	Bank 1
DC Output	0 W
Power	
DC Output	0 V
Voltage	



SEMB_BMS Online

1.4

Voltage	53 V
Temperature	16.50 °C
State of Charge	90 %
State of Health	100 %
Device Number	0
Device Name	BMS
Device Association	



How To Set Up Fortress Power Lithium Batteries Using Schneider Equipment

Exhibit D

InsightLocal | Version: v1.09 | Build number: 418 | Context Gateway

Dashboard **Devices** Events Setup About

Device Overview
Inverter/Chargers
Charge Controllers
Other Devices

Inverter/Charger: XW6648-210 Change Selection

Status Performance Events Configuration Diagnostics Firmware Grid Codes

Basic Advanced

- Controls
- Inverter settings
- Charger settings
- AC settings
- Grid Support
- Generator Support
- Auxiliary Relay
- Multi-unit Configuration
- Associations
- Advanced Features
- Advanced Device Settings
- Battery Management System settings
- Device Instance
- Modbus settings

Charger Settings

Battery Type: Li-Ion

Battery Bank Capacity: 210 Ah

Maximum Charge Rate: 100 %

Charge Cycle: External BMS

Recharge Voltage: 51.5 V

Note: 105 Amp hours per EFLEX

Apply Reset

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Grid Support ▼

<p>Grid Support <input checked="" type="checkbox"/> Enabled</p> <p>Grid Support Voltage <input type="text" value="53"/> V</p> <p>Maximum Sell Scale Percentage <input type="text" value="100"/> %</p> <p>Maximum Sell Amps <input type="text" value="10"/> A</p> <p>Load Shave <input type="checkbox"/> Disabled</p> <p>Load Shave Amps <input type="text" value=""/></p>	<p>Sell Block End <input type="text" value="12:00 AM"/></p> <p>SoC Grid Forming Limit <input type="text" value="80"/> %</p> <p>EPC Enable <input type="checkbox"/> Disabled</p> <p>State of Charge Control <input checked="" type="checkbox"/> Enabled</p>
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Note: Make sure State of Charge Control is Enabled

Battery Management System Settings ▼

<p>Fault on loss of BMS status information <input checked="" type="checkbox"/> Enabled</p> <p>BMS Status Lost Fault Trip time <input type="text" value="200"/> s</p> <p>Charge Voltage Limit (BMS status lost) <input type="text" value="55"/> V</p> <p>Discharge Voltage Limit (BMS status lost) <input type="text" value="51.4"/> V</p> <p>Charge Current Limit (BMS status lost) <input type="text" value="55 Amp Per Eflex"/> A</p> <p>Discharge Current Limit (BMS status lost) <input type="text" value="60 Amp Per Eflex"/> A</p> <p>Charge Overcurrent Offset <input type="text" value="10"/> A</p> <p>Charge Overcurrent Trip Time <input type="text" value="600"/> s</p>	<p>Discharge Overcurrent Offset <input type="text" value="62.9"/> A</p> <p>Discharge Overcurrent Trip Time <input type="text" value="2"/> s</p> <p>DC Undervoltage Offset <input type="text" value="3"/> V</p> <p>DC Undervoltage Trip Time <input type="text" value="10"/> s</p> <p>DC Overvoltage Offset <input type="text" value="1"/> V</p> <p>DC Overvoltage Trip Time <input type="text" value="5"/> s</p> <p>Fault on loss of State of Charge information <input checked="" type="checkbox"/> Enabled</p>
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Note: Enable Fault on loss of BMS Status / State of Charge Information

Exhibit E

InsightLocal Connxt Gateway

Dashboard
Devices
Events
Setup
About

Other: BMS 0 [Change Selection](#)

Status [Configuration](#) Basic Advanced

BMS_DEV ▼

Device Association Note: Be sure to click apply"