LiFe Series Battery Settings for **Selectronic** SP PRO

OVERVIEW

Settings listed are only applicable to battery charge and discharge. All other settings are the responsibility of the systems integrator. It is the responsibility of the integrator to have a full understanding of Selectronic products prior to programming, and it is preferred that they have attended the manufacturers training or integration course should they be available.

If using the drop-down wizard in SP Link to load default battery settings, be advised that this does not negate the need to make or review other possible settings that effect to the operation system.

Secondary Charge Source:

If a DC Solar Charge Controller is used with a SP PRO, there can be some conflicts when charging due to cable impedances. In some instances the displayed SoC on the SP PRO may not reach 100%.

If the DC Solar Charge Controller is the main charging source, then you may need to set the DC Solar Charge Controller 0.3V higher than the SP PRO and set the SP Pro down by the same amount or wire a Float input signal from the charge controller into the SP PRO.

Lose of DC supply to SP PRO

If the SP PRO loses DC supply (DC isolator cycled or battery BMS low voltage protection), the SP PRO when turned back on will forget its SoC and may default back to 85%. It is important that either the SoC is reset via the Service setting to the actual SoC, or the system is allowed to charge to float prior to discharging the batteries.

DC Shutdown Voltage

When Selecting the DC Shut Down 0% load Voltage you need to consider what your Generator Start SoC is set to. These settings should not be the same and should be at least 10% SoC apart.

Example:

DC Shutdown 0% Load = 50.2V (20% SoC)

SoC Start = 30% SoC

Battery Sense (Pre-charge)

The SP PRO has the ability to monitor the battery voltage at the battery terminal and also performs a controlled startup of the SP PRO by current limiting the inverters inrush current during initial turn on.

Pre-Charge (Battery Sense) should be used be installed for accurate charging and reduced inrush.

SoC Drift

State of Charge drift (“SoC”) happens when the product that is calculating SoC builds up an accumulative error. This error is generally due to tolerance of components that measure voltage and current, and algorithms used to calculate the SoC. Most products will reset its accumulative error when the system gets to 100% SoC or float.

It is important that a well-designed battery storage system reaches float stage as regularly as possible, preferably every one to two days to reset SoC drift.

SoC drift can be addressed in many ways.

Examples:

1. Sufficient solar sized to charge batteries to float on the winter equinox
2. Backup source installed (grid or generator) to allow charging of batteries during extended bad weather or high load events.
3. Programmed hybrid priority (on grid applications) programmed to charge batteries from grid off peak to 100% weekly.
4. Generator only (diesel recharge system) or systems of low solar input can utilise the “For 100% SoC” function (AC Source>Generator Auto Start>For100% Stop SoC) to recharge the battery to 100% periodically. This should be ‘Enabled” and set for minimum every seven days (more frequently if possible).

Please Note: These settings are for LiFe4838P batteries with serials after L00006000 only, please contact PowerPlus Energy support for legacy settings.

LiFe4838P batteries with serials prior to L00006000 <u>are not</u> compatible with LiFe4838P batteries with serials after L00006000.

How many batteries do I need?

The table below outlines the required quantity of batteries to achieve the full performance of the SP PRO. The battery quantity is not compulsory, however recommended as a minimum to reduce possible battery trips due to over current.

For AC coupled systems, a minimum ratio of 2.5kWh (battery) to 1kW (solar inverter) applies. Please confirm battery:solar inverter ratio using the Select Wizard.

Always consult and read the manufacturer's documentation before designing, installing and programming their devices.

Recommended Minimum Battery Modules for Full Performance of the SP PRO

	LiFe2433P	LiFe4833P	LiFe4838P	LiFe12033P
SPMC240	5			
SPMC241	7			
SPMC480		3	3	
SPMC481		4	4	
SPMC482		6	6	
SPMC1201				6
SPLC1200				10
SPLC1202				12

Selectronic SP PRO Settings for SP Link

	TAB	LiFe2433P	LiFe4833P	LiFe4838P	LiFe12033P
Battery Type	Quick Start	Select Preset PPE Battery Model		Lithium $LiFePO_4$	Select Preset PPE Battery Model
Battery Capacity	Quick Start	Total Ah capacity of PowerPlus Energy battery bank installed			
Voltage DC Shut Down 0% Load	Inverter	24V 0% SoC 24.75V 10% SoC 25.10V 20% SoC	48V 0% SoC 49.50V 10% SoC 50.20V 20% SoC	48V 0% SoC 49.50V 10% SoC 50.20V 20% SoC	127V 0% SoC 128.8V 10% SoC 129.8V 20% SoC
Voltage DC Shut Down 100% Load	Inverter	23V	46V	46V	125.2V
Recovery Voltage	Inverter	26V	52V	52V	130V
Shut Down SoC % (When manual or no generator installed off grid) (Recommended)	Inverter	Recommended Only - 20%			
Shut Down SoC % (When Automatic Start Generator installed) (Recommended)	Inverter	Recommended Only 15%			
Shut Down SoC % (when grid connected and Daily Stop SoC set to 20%) (Recommended)	Inverter	Recommended Only 15%			
Max Charge Voltage	Battery	28.9V	57.8V	56.2V	142.3V
High Battery Alert Voltage	Battery	30V	60V	57.6V	144V
High Battery Alert Clear Voltage	Battery	29V	58V	56.8V	143V
Periodic Equalise	Battery	N/A Disabled			
Periodic Recharge	Battery	7 to 14 Days			7 to 14 Days
Peukert's Exponent	Battery	1.02			
Limit Charge Above °C	Battery	55°C			55°C
Limit Rate %	Battery	OA			

	TAB	LiFe2433P	LiFe4833P	LiFe4838P	LiFe12033P
Max Charge Current % or Amps	Charger	50% or C2 of Total Battery Capacity			
Initial Return Voltage	Charger	26.5V	52.9V	53V	133V
Initial Return SoC	Charger	95%			
Initial Stage Voltage	Charger	28.8V	57.6V	55V	138V
Initial Stage Current	Charger	100%			
Initial Stage Time	Charger	45 min			
Bulk Stage Voltage	Charger	28.8V	57.6V	55.7V	140V
Bulk Stage Current	Charger	50%		100%	50%
Bulk Stage Time	Charger	30min			
Absorb Stage Voltage	Charger	28.8V	57.6V	55.7V	142V
Absorb Stage Current	Charger	10%			
Absorb – Float Transition Net Charge	Charger	1%			
Absorb – Float Transition Change Time	Charger	60min			
Absorb – Float Max Time	Charger	60min			
Float Stage Voltage	Charger	28.8V	57.6V	55.7V	142V
Float Stage Current	Charger	Leave as Default			
Long Term Float Voltage	Charger	27.2V to 28V	54.4V to 56V	55.2V	142V
Equalise Stage Voltage	Charger	28.8V	57.6V	55.8V	142V
Equalise Current	Charger	10%			
Equalise Time	Charger	4hrs		2hrs	4hrs
Min Temp Compensation °C	Charger	N/A			
Max Temp Compensation °C	Charger	N/A			
Ref A Temp Compensation mV/cell/°C	Charger	N/A			
Ref B Temp Compensation mV/cell/°C	Charger	N/A			

Installers should ensure an adequate system design is carried out at all times. PPE accepts no responsibility for underperforming system designs.
As part of our continued improvement process, settings are subject to change without notice and are correct at time of publishing.