SBR Battery sizing information

Disclaimer

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Overview:

We often get asked why for example, installer cannot stack 8 x SBR modules on an SH10RS.

The reasoning is simply to do with Voltage ranges.

This is the same as when you calculate how many panels in a string – you check the inverter data sheet to see what the minimum and maximum operating voltages are.

Batteries operate in much the same way.

The modules in a battery stack are a series connection, so the more modules, the higher the voltage.

In the below screenshots from the data sheets, you can see the minimum and maximum voltage input from the battery to inverter, and the voltages per stack from the batteries.

(In the following example, we will use an SH10RS and SBR batteries. Please use the data sheets for the T series inverters and SBH batteries if that's what you are installing.)

SH10RS data sheet screenshot:

Type designation	SH8.0RS	SH10RS
Input (DC)		
Recommended max. PV input power	16000 Wp	20000 Wp
Max. PV input voltage *	600 V	
Min. PV input voltage / Startup input voltage	40 V / 50 V	
Rated PV input voltage	360 V	
MPPT operating voltage range **	40 V – 560 V	
No. of independent MPP inputs	4	
No. of PV strings per MPPT	1 / 1 / 1 / 1	
Max. PV input current	64 A (16 A / 16 A / 16 A / 16 A)	
Max. DC short-circuit current	80 A (20 A / 20 A / 20 A / 20 A)	
Max. current for input connector	20 A	
Battery data		
Battery type	Li-ion battery	
Battery voltage range	80 V – 460 V	
Max. charge / discharge current	50 A *** / 50 A ***	
Max. charge / discharge power	10000 W / 10000 W	

So you can see from the above, that the maximum input voltage from the battery is 460V.

Now lets have a look at the SBR data sheet:

Type designation	SBR064[3]	SBR096	SBR128	SBR160	SBR192	SBR224	SBR256
Technical properties	 2 modules	 3 modules	 4 modules	 5 modules	 6 modules	 7 modules	 8 modules
System Data							
Battery type	LiFePO4 Prismatic Cell						
Battery module	3.2 kWh, 33 kg						
Energy (useable)[1]	6.4 kWh	9.6 kWh	12.8 kWh	16 kWh	19.2 kWh	22.4 kWh	25.6 kWh
Nominal voltage	128 V	192 V	256 V	320 V	384 V	448 V	512 V
Operating voltage	108 V – 146 V	162 V – 219 V	216 V – 292 V	270 V – 365 V	324 V – 438 V	378 V – 511 V	432 V – 584 V
Rated DC power	3.84 kW	5.76 kW	7.68 kW	9.60 kW	11.52 kW	13.44 kW	15.36 kW
Max. charging / discharging current:							

As can be seen from the above screenshot, the 7 and 8 module stacks have too high a voltage to be connected with the single-phase Hybrids.

The maximum stack for single-phase is 6 modules.

If the issue still persists, please take photos testing on site and contact Sungrow Service Department on 1800 786 476 or email to service@sungrowpower.com.au.