

Terms and Conditions for STACK100 System Expansion

Dear Customer,

Thank you for choosing Dyness Lithium Iron Phosphate (LiFePO₄) energy storage systems. To ensure proper system operation and provide you with complete guidelines for battery system expansion, we have formulated the following terms and provisions.

1. General information

The Dyness STACK100 energy storage system adopts a passive balancing design, which imposes specific requirements on system expansion for both single-cluster and parallel system configurations.

STACK100 battery system expansion must be performed under specified conditions to ensure installation safety and reliable system operation

1. System expansion shall be completed within **3 years** after system commissioning (recommended within **2 years**). This requirement applies to capacity expansion for both single-cluster and parallel systems. The difference between the production dates of the battery modules should not exceed **3 years** (Suggested no more than **2 years**).
2. Only identical and compatible S51100 battery modules are allowed for expansion. Prior compatibility verification against the original modules is mandatory.
3. Any expansion must be discussed in advance with the Dyness technical support engineer
4. All work must be carried out by qualified technical personnel.
5. Please check the compatibility list of the inverter with the STACK100 series in advance to ensure that the expanded system can operate normally.

2. Important information – parallel system

1. All parallel connection works shall be carried out only by qualified electricians.
2. This document is a summary and does not replace the full user manual.

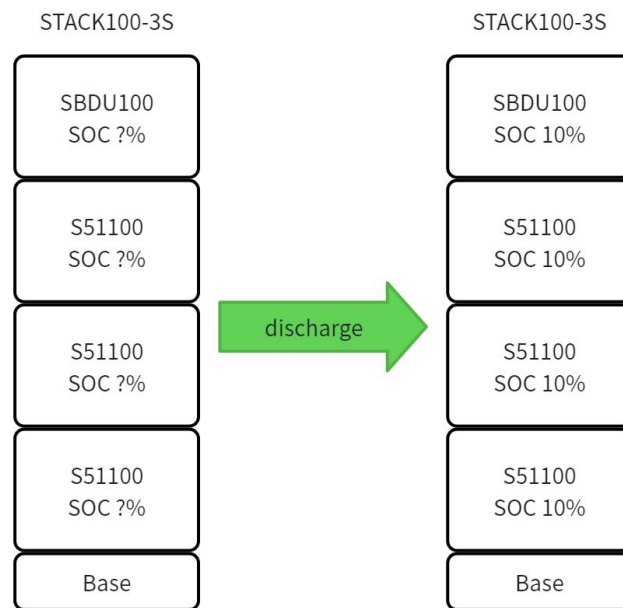
The parallel operation function is supported exclusively by the SBDU100 control units. A Combiner Box or a bus bar is required for parallel connections.

3. System capacity expansion

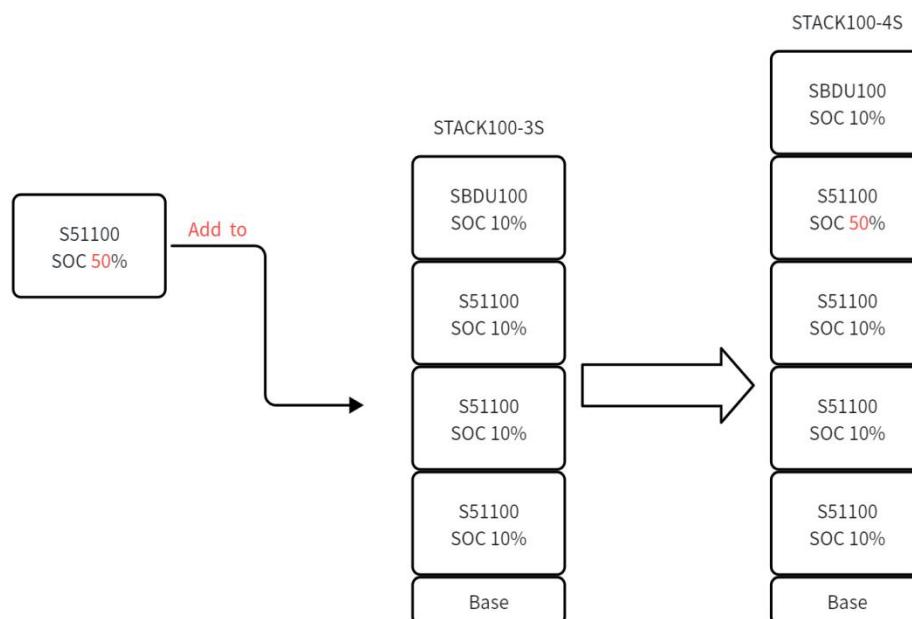
3.1 Using an inverter for module expansion.

Taking the Expansion of STACK100-3S to STACK100-4S as an Example.

- ◆ Firstly, use an inverter to discharge the original STACK100 system, ensuring that the SOC of the system $\leq 20\%$.

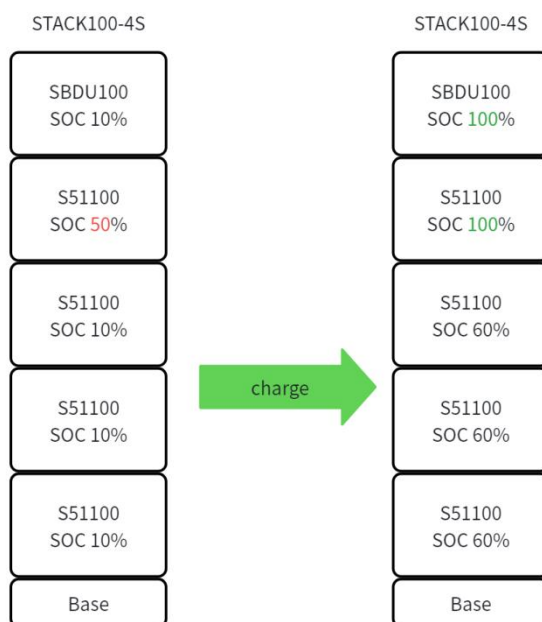


- ◆ Add the battery module to be expanded to the STACK100-3S system, making it STACK100-4S;

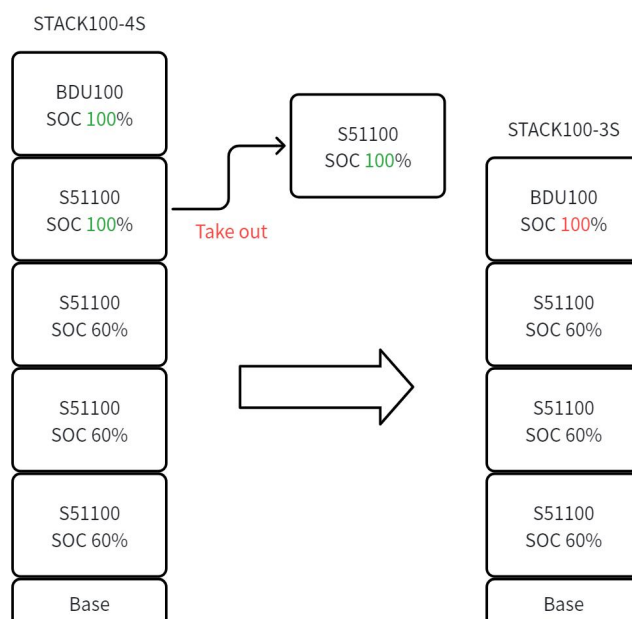


- ◆ Use the inverter to charge the STACK- 4S until the system SOC shows 100% on the inverter, ensuring

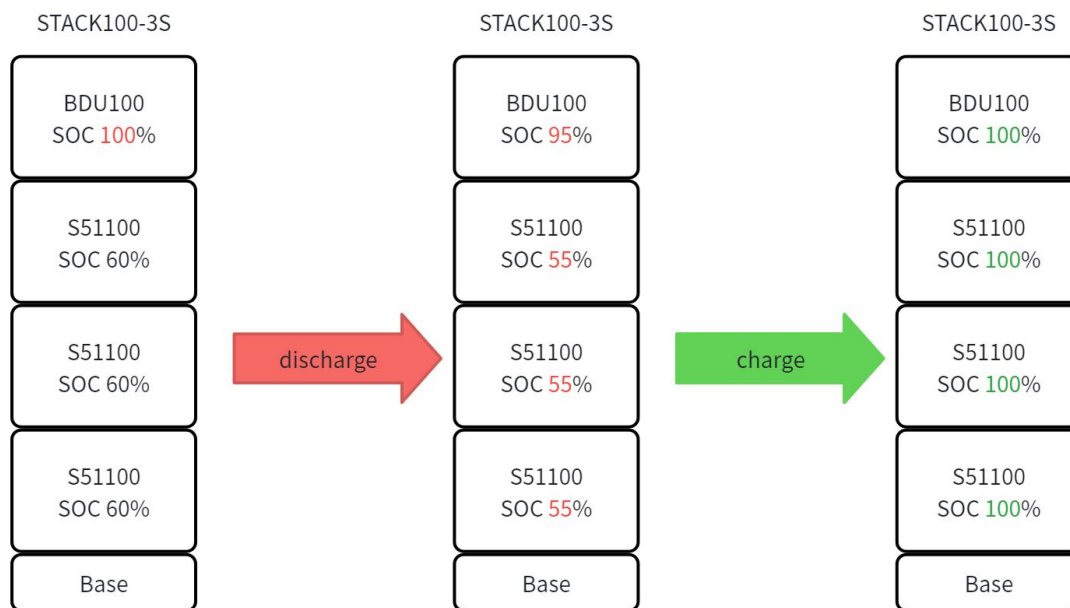
that the SOC of both the BDU and the newly added module reaches 100%.



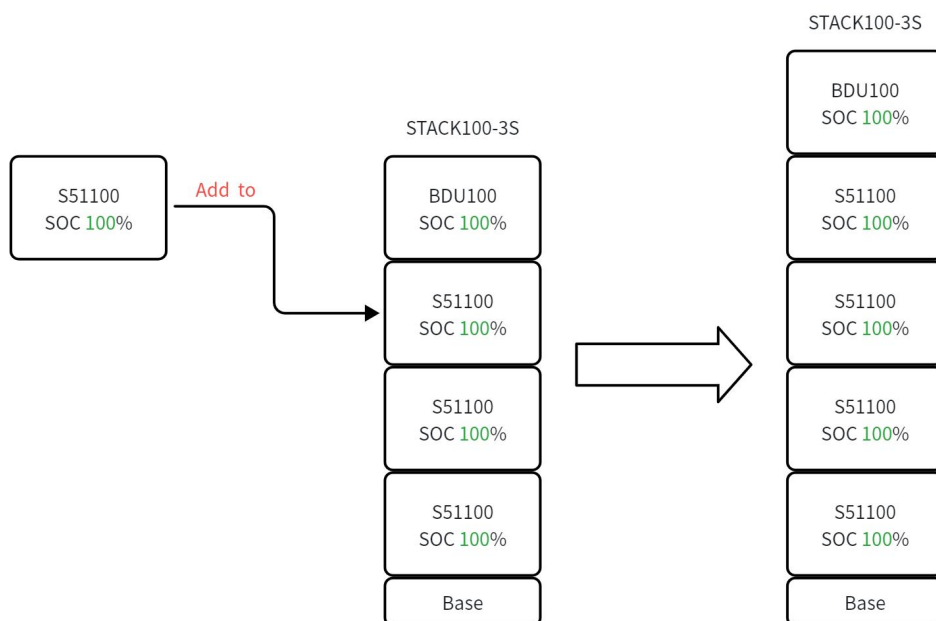
◆ Take out the new module



- ◆ Discharge the original system SOC to between 90~99%. Then continue charging until the inverter shows SOC 100%.

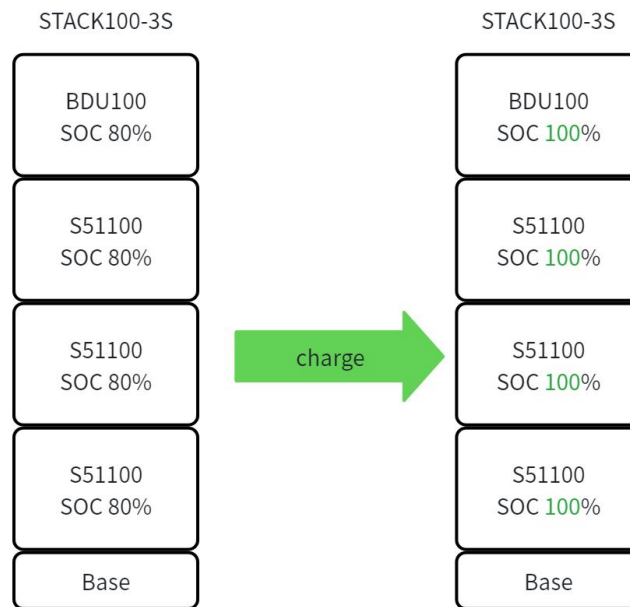


- ◆ Finally, add the new module back into the system, and the expansion is complete.

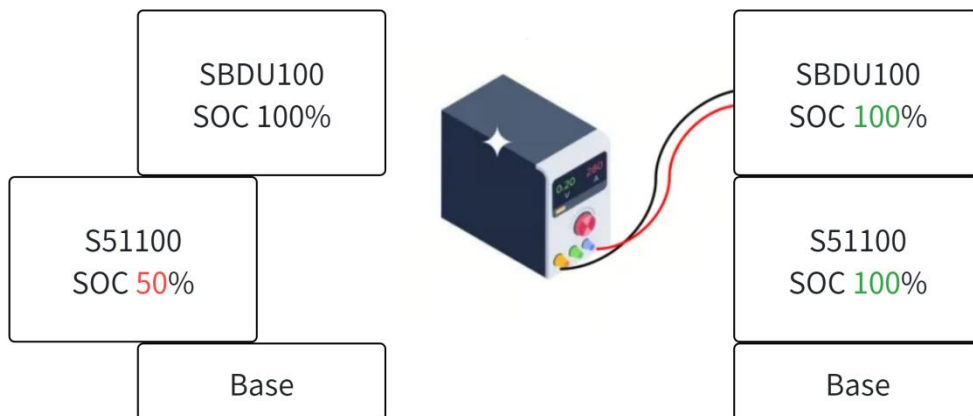


3.2 Expansion using a DC charger

Charge the existing system to 100% SOC and maintain this charge level.



1. Install the new module together with the BDU control unit and the base.



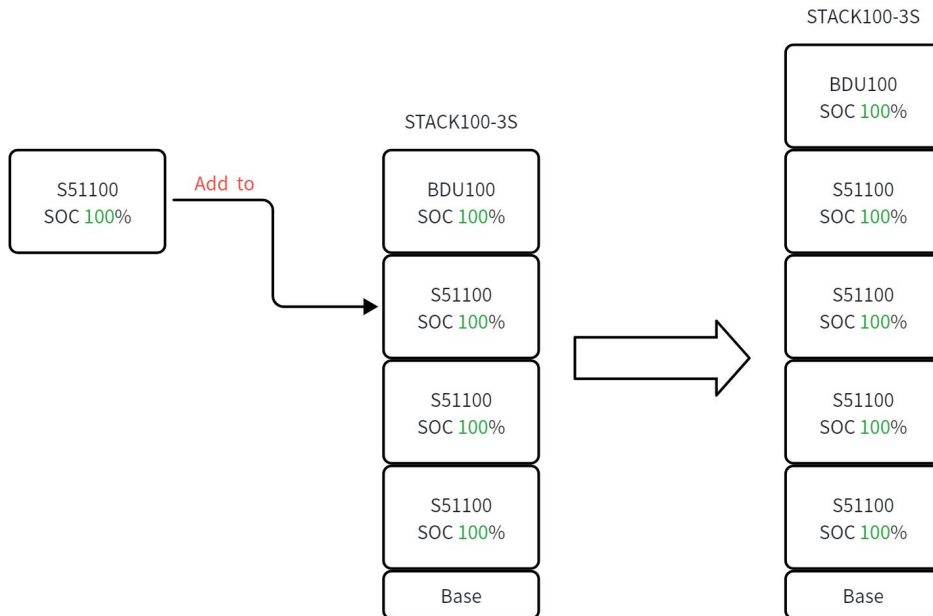
2. Charge the new module using a DC charger.

- Charging parameters:

Voltage: 57.6 V; Current: 8 A (if the charger supports a lower current, you can charge at a lower current).

- Once the SOC exceeds 90%, reduce the charging current to 5 A. The SOC level can be monitored via the Dyness app provided the Wi-Fi antenna is connected to the local Wi-Fi network.

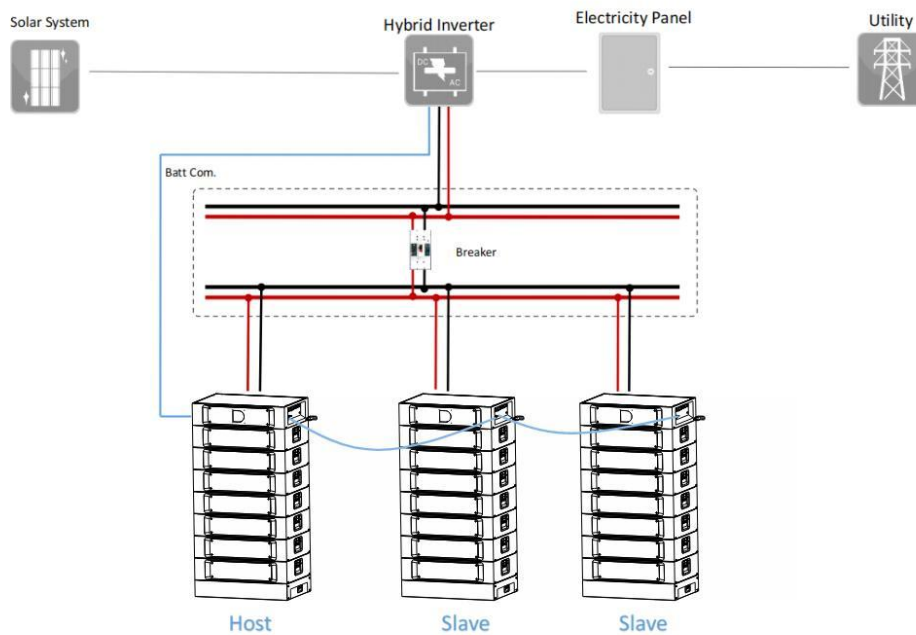
- SOC 100% is confirmed by the absence of charging current or the disengagement of the relay in the BDU (a characteristic clicking sound).
3. Add the fully charged module to the existing system.



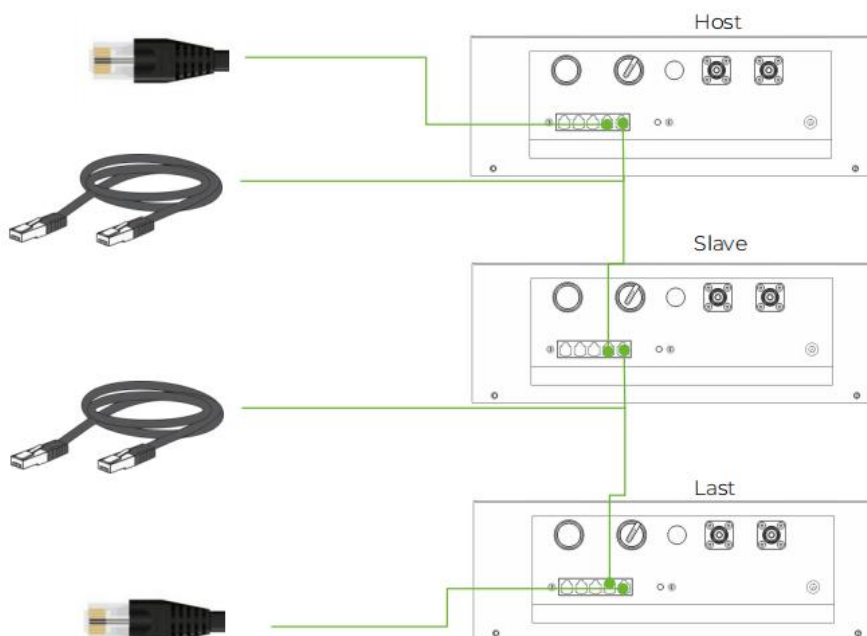
3.3 Expansion with a second cluster (parallel system)

1. Both clusters must have a SOC level of 100% and the number of modules in the two clusters should be kept the same (All modules must have the same version).
2. The voltage difference between the clusters must be less than **20 V**.
3. The difference in operating time between the clusters must be ≤ 3 years (Suggested no more than **2 years**).
4. The connection must be made using the combiner box or a bus bar.
5. A maximum of 12 clusters can be connected in parallel.
6. For parallel operation, only cables marked with CAN cable labels shall be used for communication wiring. The general configuration diagram for parallel connection of STACK100 is as follows.

Take three clusters for example:



7. For multi cluster parallel systems, the communication line connection between clusters is Host's Parallel 2 to the second cluster's(Slave) Parallel 1 and so on. Then connect a 120 Ω CAN resistor to the port of the host parallel 1 and the last slave parallel 2. Ensure the stability of CAN communication.



4. Recommended system verification after expansion

Once the expansion is complete, the following should be carried out:

1. System functional tests – 2 full operating cycles from 100% to 10%.

2. Verification of current and voltage parameters.
3. Safety inspection of the installation.

5. Risks and precautions

Incorrect expansion may lead to:

1. Overheating.
2. Short circuits.
3. System damage.
4. Fire hazards.
5. Incorrect system operating parameters.
6. Incorrect display of the state of charge (SOC) indicator.
7. Loss of energy storage capacity.
8. Loss of warranty

6. Warranty conditions

Unauthorized or incorrect modifications may result in the loss of the warranty. It is recommended that you consult Dynes support before carrying out any work.

7. Disclaimer

Dynes accepts no liability for installation failures, battery damage or safety incidents resulting from unauthorized or incorrectly performed actions. Please carry out the installation under the supervision of a qualified specialist. Upgrades must be carried out in accordance with these instructions and following mandatory consultation with the manufacturer's after-sales support team **(Please fill in your email address here)**

8. Contact

If you have any questions or require technical support, please contact our customer service department:

Email: **(Please fill in your email address here)**

Website: www.dynes.com

Thank you for your trust and support. We do our utmost to provide you with solutions and services of the highest standard.