BATTERY TESTING EQUIPMENT

A Division of Storage Battery Systems, LLC

SBS-S SERIES DC LOAD BANK
USER MANUAL

Rev. 2.0 12-14

Contents

OPERATING INSTRUCTIONS

1. Environment Requirement

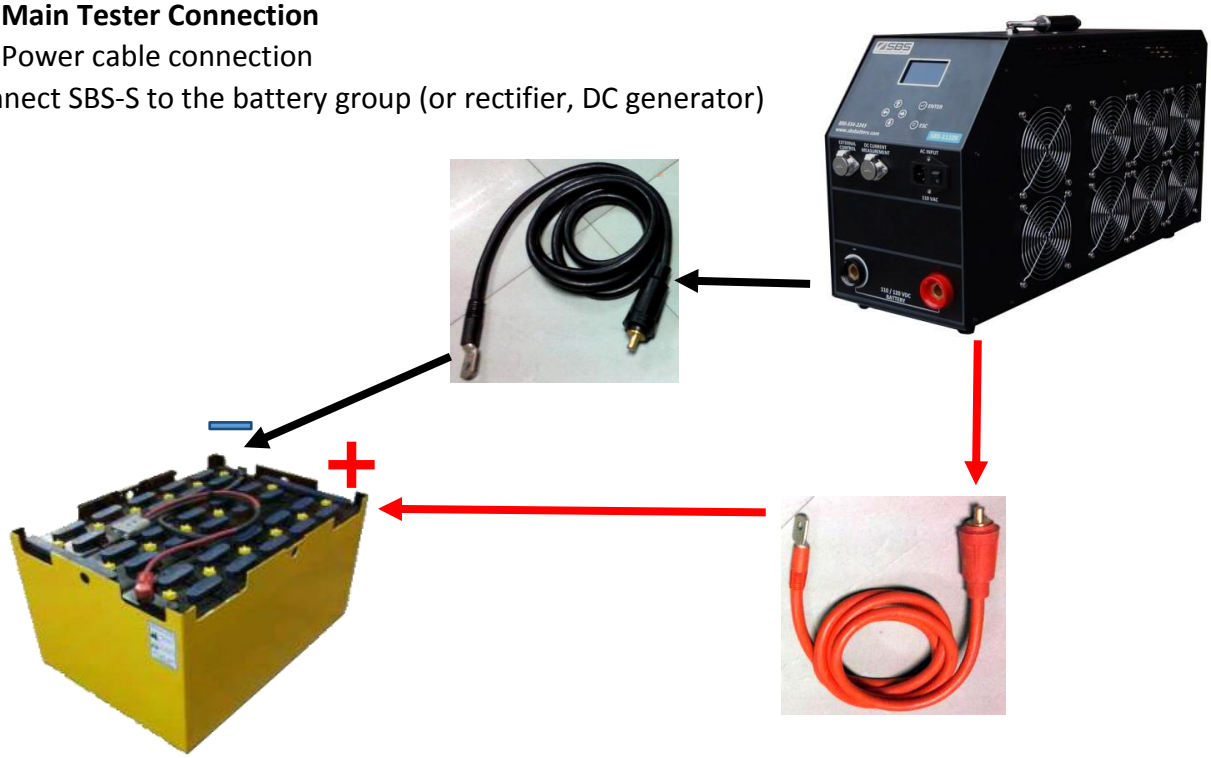
The unit should only be used in environments that are free from dust and flammable or explosive gases. The environment should be properly ventilated to dissipate heat produced.

2. Main Tester Description

3. Main Tester Connection

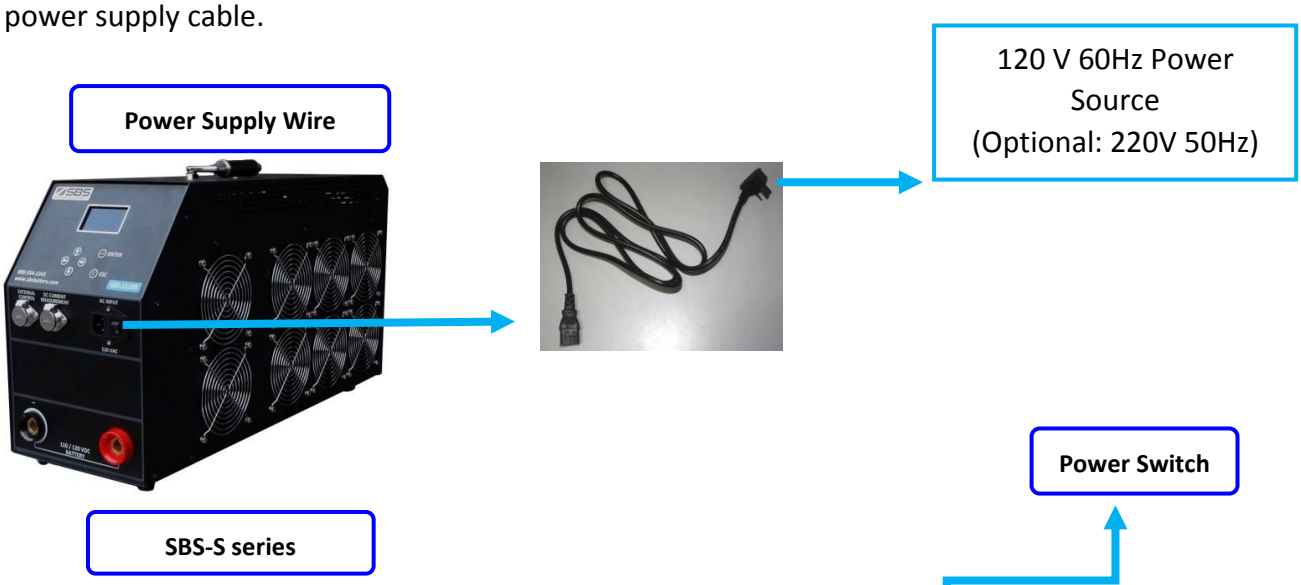
3.1 Power cable connection

Connect SBS-S to the battery group (or rectifier, DC generator)



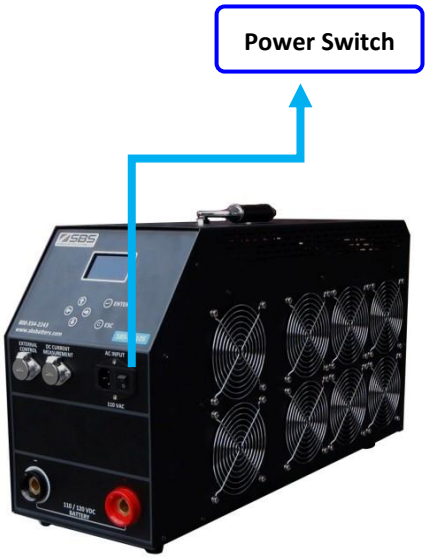
3.2 Power supply connection

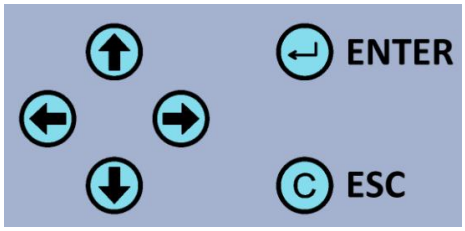
3.2.1 SBS-4815S, SBS-4830S will take DC power supply from the DC system being tested, so there is no power supply connection for these types.
3.2.2 For other SBS-S series types, connect SBS-S with AC 120V 60Hz power source by power supply cable.



4. Starting Up And Input Operation

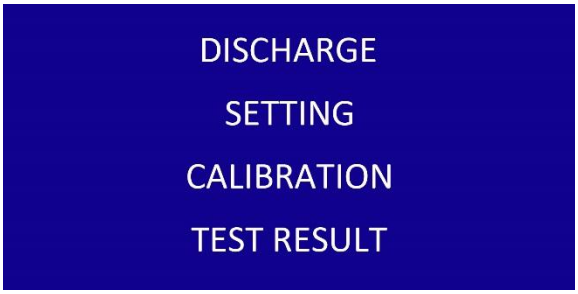
4.1 After the main tester connections are made, turn on the power switch to start up the SBS-S.
4.2 All input operation of SBS-S is based on 6 control buttons beneath the LCD screen.





4.3 The welcome screen will display the unit type and name information. Press any key to enter the main menu. After 10 seconds the system will automatically change to main menu.

Welcome Interface



Main Menu

5. Parameter setting

5.1 In main menu, please use & to choose 'Setting', press ENTER into the setting interface. There are 4 parameters which need to be set before testing.

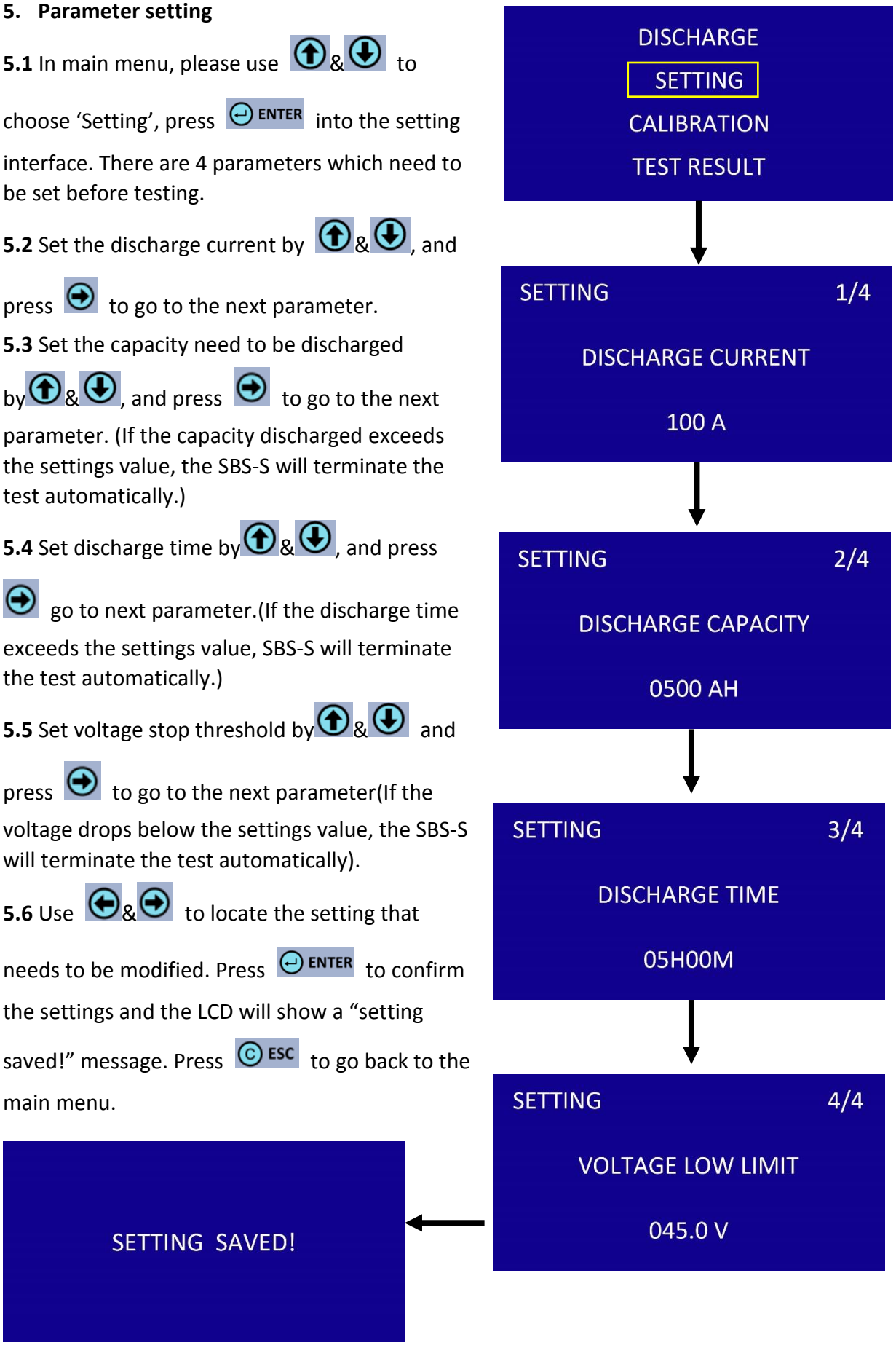
5.2 Set the discharge current by &, and press to go to the next parameter.

5.3 Set the capacity need to be discharged by & , and press to go to the next parameter. (If the capacity discharged exceeds the settings value, the SBS-S will terminate the test automatically.)

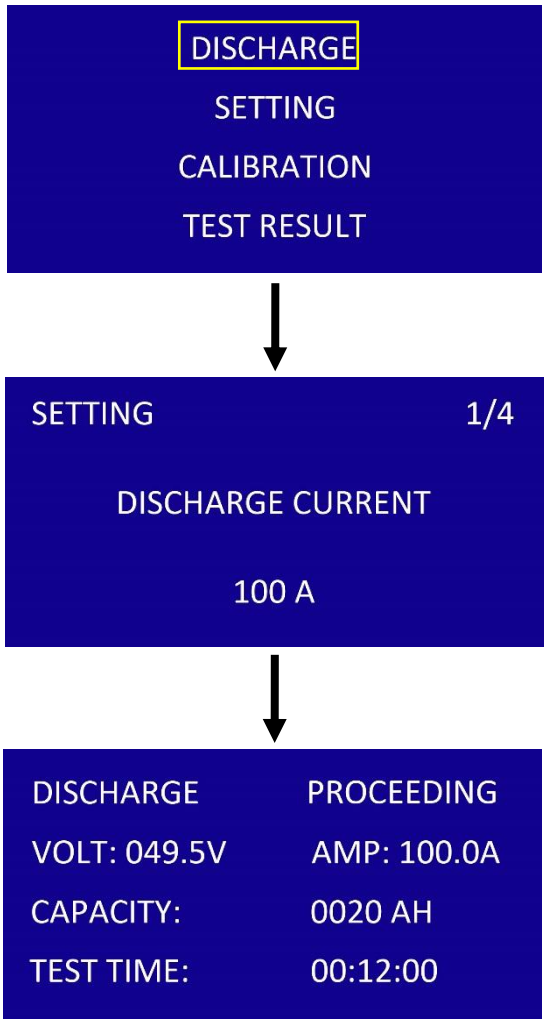
5.4 Set discharge time by & , and press go to next parameter.(If the discharge time exceeds the settings value, SBS-S will terminate the test automatically.)

5.5 Set voltage stop threshold by & and press to go to the next parameter(If the voltage drops below the settings value, the SBS-S will terminate the test automatically).

5.6 Use & to locate the setting that needs to be modified. Press ENTER to confirm the settings and the LCD will show a "setting saved!" message. Press ESC to go back to the main menu.



6. Start discharge



6.1 In main menu, please use ↑ & ↓ to select 'Discharge', then press ENTER.

6.2 SBS-S displays all the setting parameters before the discharge, use ← & → to check all settings again and press ENTER to start the discharge.

6.3 The discharge interface, LCD will show:
a) Status: 'Proceeding' or 'Stopped'
b) Voltage
c) Discharge current
d) Capacity discharged
e) Discharge time

6.4 Press ESC back to manualy stop the test, or press ENTER to manualy re-start.

6.5 During discharge, press the ← & → to go back to parameter settings, change the settings values by ↑ & ↓, then press ENTER to apply the new settings and continue the discharge.

7. Discharge Stop

7.1 Manual stop: press ESC during discharging.

7.2 Stop Threshold Reached:

Situation	LCD Message
a) Capacity discharged is over the set value	CAPACITY DISCHARGED!
b) Test time has reached the set value	TEST TIME UP!
c) Voltage drops below the set value	VOLTAGE LOW LIMIT!

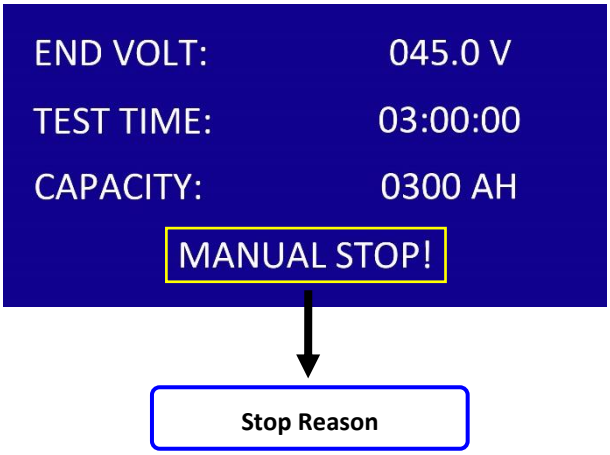
7.3 Stop By Errors:

Condition	LCD message
a) If the discharge current can't reach the set value.	CURRENT ERROR!
b) If the internal temperature of the unit exceeds the acceptable range	TEMPERATURE ERROR!
c) If DC power cable polarity is wrong	CONNECTING ERROR!

8. Test Result

SBS-S saves the last test result in Test result interface. It displays:

a) Test end voltage
b) Test time
c) Capacity discharged
d) Stop reason

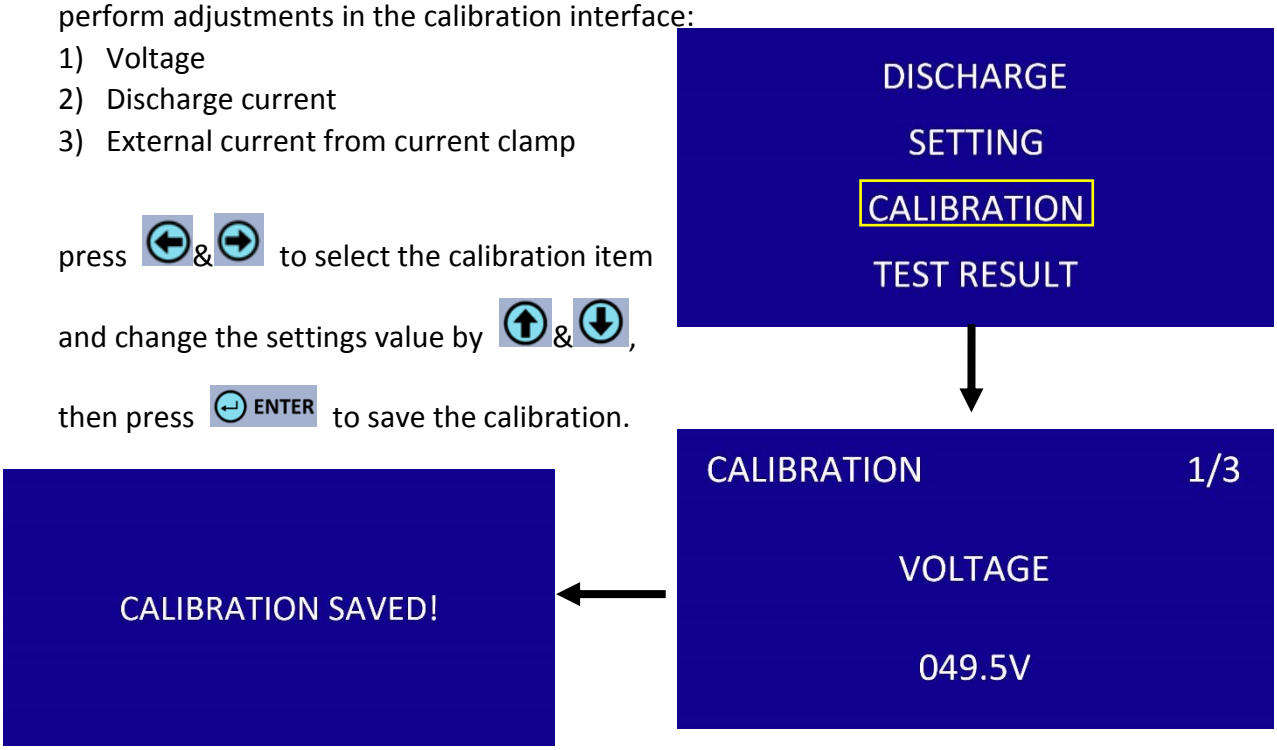


9. Calibration Interface

SBS-S supports calibration by user with high resolution digital meters. The user can perform adjustments in the calibration interface:

1) Voltage
2) Discharge current
3) External current from current clamp

press & to select the calibration item and change the settings value by &, then press ENTER to save the calibration.



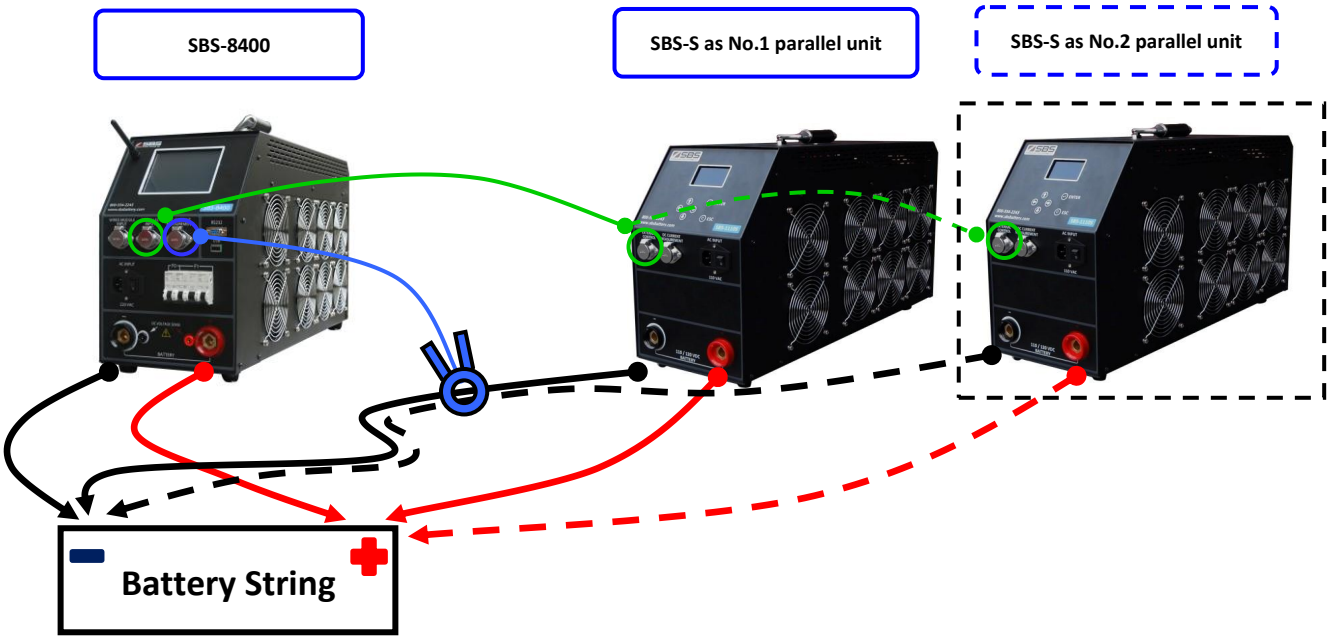
Discharge current calibration can proceed during discharge. Please press both  &  at the same time; the LCD will jump into calibration interface, then follow the above operation to finish calibration.

10. Multiple Units in Parallel

SBS-8400 + SBS-S Unit(s) in Parallel

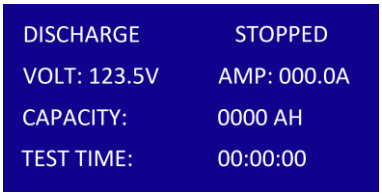
Connections

a) Connect SBS-8400 & SBS-S unit(s) to battery string with power cables.
b) Connect external current clamp to the SBS-8400 – 'DC CURRENT MEASUREMENT' port and put the clamp on the negative cable(s) from SBS-S unit(s) to battery string.
c) Connect parallel control wire from SBS-8400 – 'PARALLEL INPUT' port to SBS-S – 'EXTERNAL CONTROL' port. (If there are 2 SBS-S units, please contact SBS to order the special control wire.)



Setting

a) Select the correct 'Clamp range' in SBS-8400 Setup interface.
b) Set all 4 stop thresholds and other details in SBS-8400 parameters interface, and set the total discharge current to 'TestCurr' you need (for example: 200A in total).
c) Set all stop thresholds in SBS-S unit(s), and set current to the max value which SBS-S unit(s) is rated (example: set 100A in SBS-1110S).
d) Save all setting in SBS-S unit(s) and leave LCD on the discharge screen.



SBS-S unit discharge screen

Discharge

a) Start discharge on the SBS-8400, and when the current increases to the max value the SBS-8400 can offer, it will send out control signal to SBS-S unit(s). SBS-S unit(s) will start discharging up to the settings value for total current.

b) External clamp will add all discharge currents from SBS-S unit(s) to SBS-8400. The SBS-8400 will regulate the proper current to keep the total current set. (For example: 200A in total, if SBS-S offers 100A, SBS-8400 will offer 100A, if SBS-S offers 80A, SBS-8400 will offer 120A.)

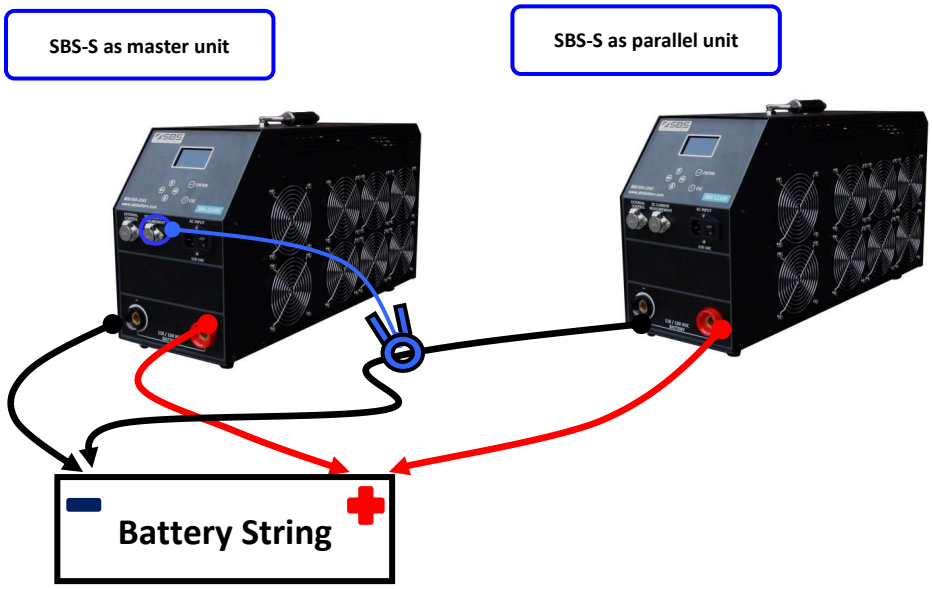
c) If any stop threshold is reached on the SBS-8400, all SBS-S unit(s) will receive a control signal to terminate the discharge at the same time.

Two SBS-S Series in Parallel

Connections

a) Connect SBS-S(s) with battery string by power cables.

b) Connect external current clamp with master SBS-S – 'DC CURRENT MEASUREMENT' port, and put clamp on the negative cable from the parallel SBS-8400 to battery string.



Setting

a) Program both SBS-S series load banks to the test you want to run.

b) Set all 4 parameters on both SBS-S parameter interfaces, and set the total discharge current to the actual total current on the master SBS-S unit.

Discharge

a) Start discharge on both SBS-S units, parallel SBS-S offers max discharge current set.
b) External clamp will add discharge current from parallel SBS-S to master SBS-S. And master SBS-S unit will regulate the proper current to keep the total current set.
(For example: 200A in total, if parallel SBS-S offers 100A, master SBS-S will offer 100A, if parallel SBS-S offers 80A, master SBS-S will offer 120A.)
c) If any stop threshold is reached in master SBS-S, the parallel SBS-S also has the same settings, so it will also terminate the discharge at the same time.

Precautions

a) For safety and ease of use, please read the entire manual before operation.
b) During testing, we suggest the operator stay in the vicinity of the testing unit.
c) If an over temperature, over current, or an equipment failure occurs during the discharge, the warning alarm will activate automatically. Please turn off the DC breaker & AC input, to avoid a further possible damage to the equipment.