Guidance for Installation and Commissioning of Hanchu high-voltage energy storage system

v1.0 Updated on 9 July 2024

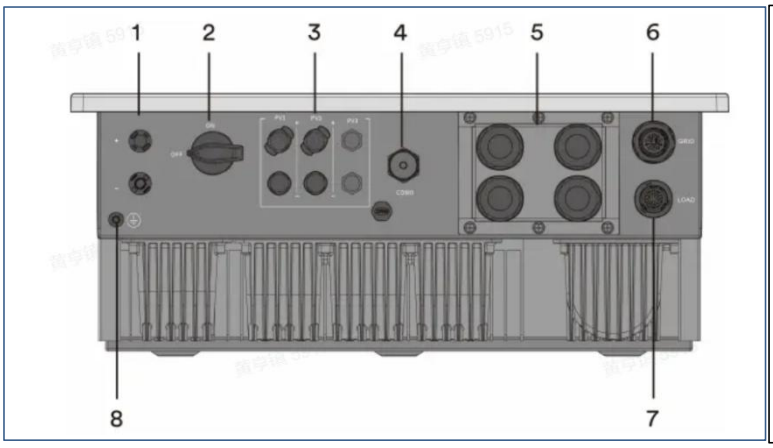
Applicable products:HESS-HY-T-05K/06K/08K/10K/12K Inverter & HOME-ESS-HV-2.7K/5.12K Battery

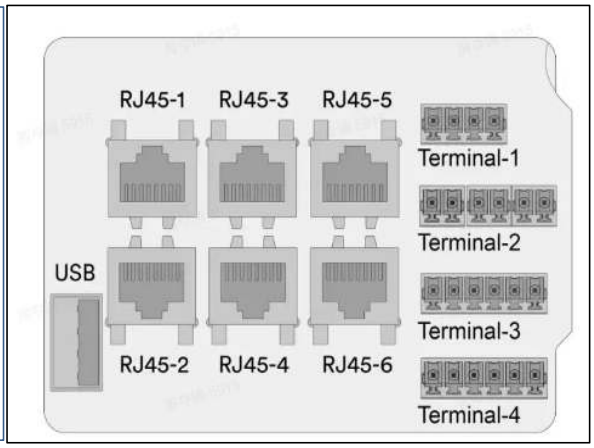
Target group: Installers

1.Confirm of the System Installation Completion

According to Quick Installation Guide'HOME-ESS-HV-2.7K【HanchuEss】Quick Installation Guide v2-20240408.pdf'、'HESS-HY-T-T1-05-12K_Quick Installation Guide-20240517.pdf', complete the installation and wiring of the inverter and battery, **ensuring the whole system in a power-off state**, and then check whether the following parts are installed correctly.

1.1 Inverter installation completed status：





Port5:communication interface

1.Battery Port： Connect with Hanchu high-voltage batteries
2.PV-Switch： Turn Off
3.PV Input： Connect with photovoltaic panels
4.Logger Port： Plug in INV-Logger A200
5.RJ45-4(BMS): Connect to the PCS port of high-voltage battery with the communication cable
Option 1：Terminal-2(Meter): Connect with one meter via pin1\pin2
Option 2：Terminal-4(CT): Connect with three CT via pin1\pin2 pin3\pin4 pin5\pin6
Note: Meter and CT should be installed in one or the other
6.Grid port： Connect with the three-phase power grid
7.Load： Connect with loads
Note：This port can also be left unconnected, and the power can be supplied to loads through the grid port.
8.Grounding screw： Ground connection

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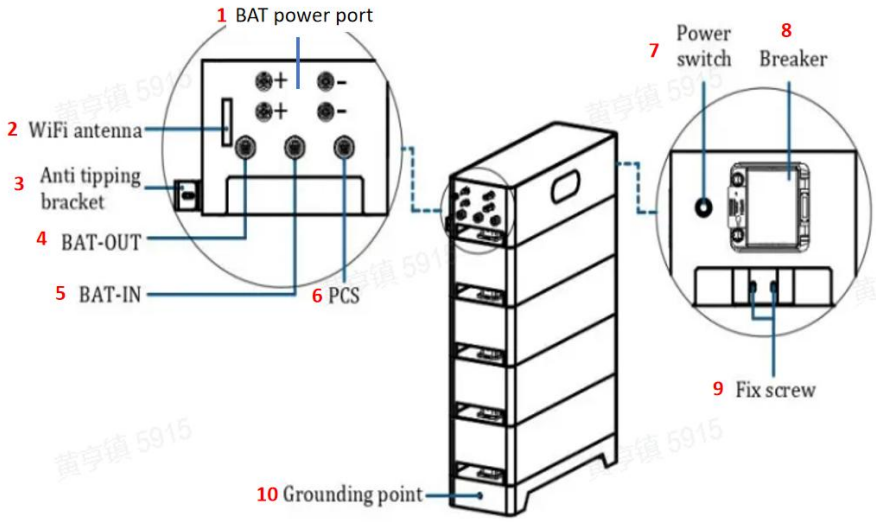
1.2 Battery installation completed status：



1.BAT power port: Connect to inverter with the Power Cables
2.Wifi antenna: Wave the antenna outwards for better signal reception
3.Anti tipping bracket: Secured with the wall to prevent the battery from inclining.
6.PCS: Connect to the inverter with a Communication Cable
7.Power switch: High-Voltage switch, keep it off
8.Breaker： Low-Voltage switch， keep it off
9.Fix screw： Fix two battery modules next to each other
10.Grounding point: Ground connection
Note: **4&5: BAT-OUT/IN:** They are only used when two clusters of HV batteries are in parallel.

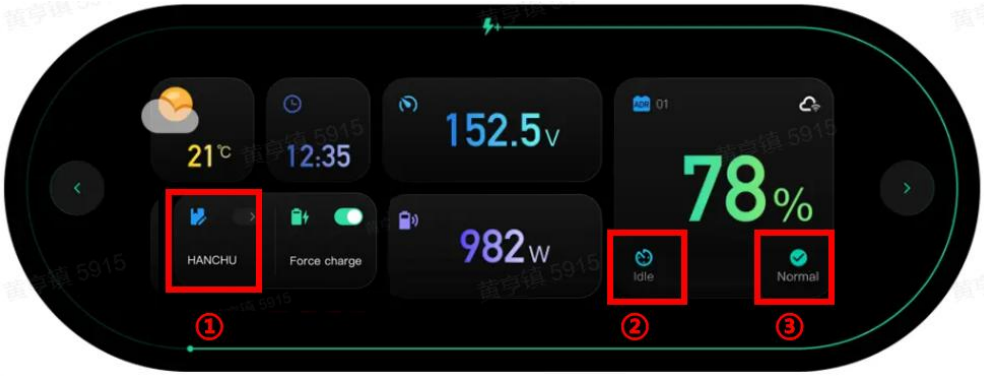
2. System power-up and parameter setting：

2.1 Supply Power to the System：

Follow the steps in turn: 1.turn on the grid switch 2.turn on the PV switch 3.turn on the battery's breaker 4.turn on the battery power switch.

Note： The order of turning off the system is reversed from powering on, turning off the battery's power switch, turning off the battery's breaker, then turning off the PV and the grid.

2.2 Comfirm the Status of the Battery is normal



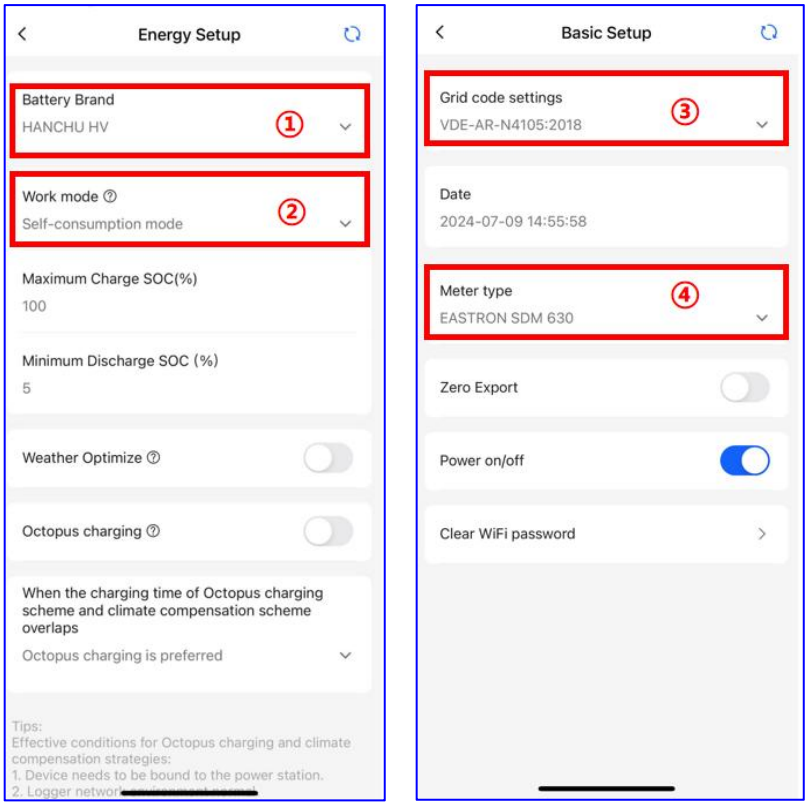
When the battery is turned on, tap the screen to check the battery status, and when displaying following icon is normal： ①HANCHU ②idle ③Normal

Note： The battery screen will automatically turn off after standing for 5min, and it can be activated by tapping the screen again.

2.3 Networking of the Device：

According to the logger networking manual, 'INV-Logger A200_Quick Guide.pdf' Networking the inverter and battery.
Networking process: Register an account→ Create a power station→ Add devices

2.4 Setting the Inverter Parameter：



1.Confirm communication protocol： Choose 'HANCHU HV'

2.Work Mode： Recommend to use the default self-consumption mode. If the customer needs to change the mode, please refer to the introduction of each mode in the user manual.

3.Choose Grid code ：

UK： Choose G98/1 for HESS-HY-T-05K/06K/08K/10K； Choose G99/1 for HESS-HY-T-12K

Germany： Choose VDE-AR-N4105:2018

Netherlands： Choose EN50549-1:2019

4.Choose meter type：

If connected with meter， choose EASTRON SDM 630 Modbus V2； if connected with CT, choose CT.

Note: Anti-islanding switch: the default mode is off. If the customer needs to limit the power of exporting to grid, turn on the 'Zero Export' switch and set the power value.

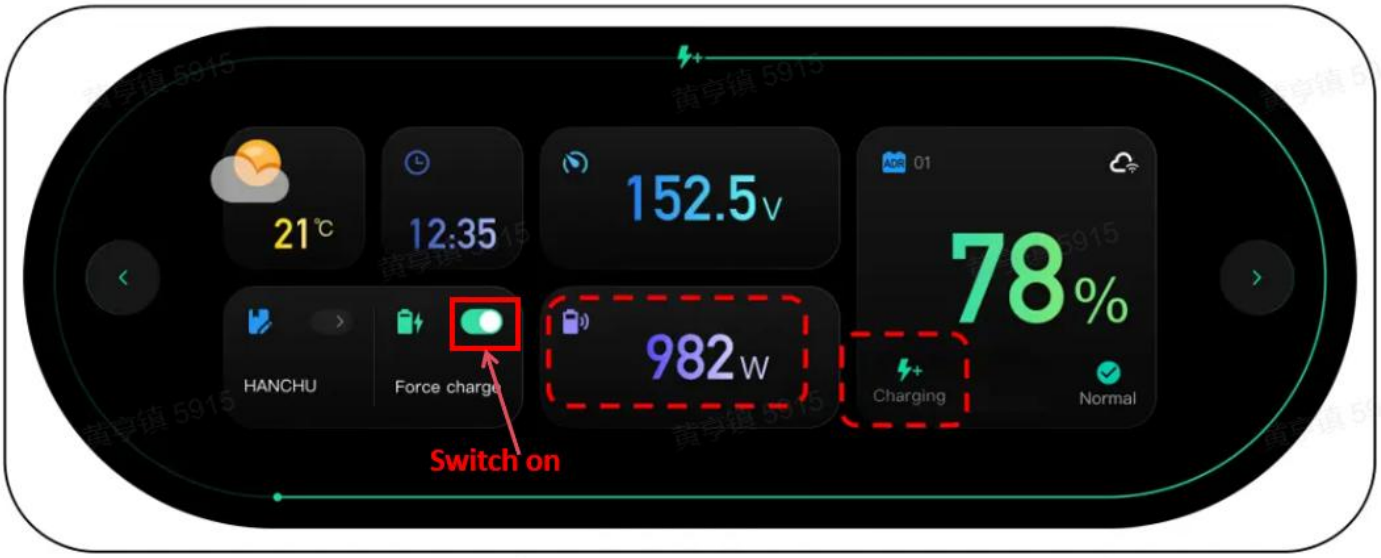
3.Confirm the operation of the system is normal

3.1 Confirm the status of the inverter's indicator is normal

Normal state： the lights of SOLAR、BAT、GRID are on， the light of ERR is off.

Note： When SOLAR and BAT are flashing at the same time, it means that the inverter is self-testing, please wait for about 1min for the inverter to complete.

3.2 Confirm the status of the Battery 'Force Charge' testing is normal：



On the battery screen, tap to switching on 'Force Charge' , then the screen will display the charging status and charging power.

Note： After the test is over, manually click to turn off the force charge.

3.3 Confirm the Diagram of the Energy Flow on the APP is normal：

The flow of energy throughout the system is logical. For example, when there is enough PV energy, it will power the load first, charge the battery second, and finally export to the grid.

Note： When the energy flow is incorrect, check whether the meter is installed in the correct direction and position.（The meter is connected to the grid side, not to the load side）

When there is no problem in the above three aspects, it means the system has been successfully installed and debugged.

4.Common Troubleshooting：

4.1 Common Troubleshooting of Battery：

Fault	Fault description	Solution
Display does not light up	After the battery modules, base and BDU stacking is completed, turn on the circuit breaker, the display does not light up	Check that the connectors between the BDU and the module are mated in place. If restacking does not work, please contact HANCHU ESS after-sales service or your dealer directly.
No DC Output	Charging and discharging are not possible when connected to a power source.	Check whether the power switch at the battery terminal is on. If it is closed and charging/discharging is still not possible, please contact HANCHU ESS after-sales service or your dealer directly.
External communication Errors	The communication interruption between BMS and inverter.	Check if the communication cable between BDU and inverter is correct and well connected.
Internal communication Errors	Communication between battery groups is interrupted.	Check that the communication cables between the parallel battery systems are correct and well connected.
Over Voltage Alarm	Battery voltage is too high .	Wait for the battery voltage to return to normal.
Lower Voltage Alarm	Battery voltage is too low.	Please click on the Forced Charging pattern on the display. If it does not work please contact HANCHU ESS after-sales service or your dealer directly.
Charge OCP	Battery charging over current protection.	Please contact HANCHU ESS after-sales service department or your dealer directly.
Discharge OCP	Battery discharge over current protection.	Please contact HANCHU ESS after-sales service department or your dealer directly.
High Temperature Protection	Battery temperature is too high.	Wait for the cell temperature to return to normal.
Low Temperature Protection	Battery temperature is too low.	Wait for the cell temperature to return to normal.

Cell Imbalance	The capacity of the battery is different.	Please contact HANCHU ESS after-sales service department or your dealer directly.
Insulation Fault	Battery insulation failure.	Stop using, Please contact HANCHU ESS after-sales service department or your dealer directly.
Volt Sensor Fault	Battery voltage sensor failure.	Please contact HANCHU ESS after-sales service department or your dealer directly.
Temp Sensor Fault	Battery temperature sensor failure.	Please contact HANCHU ESS after-sales service department or your dealer directly.
Temperature difference alarm	The temperature between cells are different.	Stop charging and discharging. Please contact HANCHU ESS after-sales service department or your dealer directly.

4.2 Common Troubleshooting of Inverter:

Error code	Message	Solution
1-68,9	Permanent Fault	Disconnect the inverter from the battery, the grid and the PV array and reconnect after 3 minutes.If this fault is still being shown, contact the service.
10	Low temp	The ambient temperature is too low to start the inverter.
32	AbnormalFrequencychange	Check if the grid is abnormal.Restart the inverter and wait until it functions normally.Contact customer service if error warning continues.
33	Grid frequency Fault	Check the grid and EPS frequency and observe how often major fluctuations occur.Contact customer service if EPS frequency abnormal.If this fault is caused by frequent fluctuations,try to modify the operating parameters after informing the grid operator first.
34	Grid voltage Fault	Check the grid voltage and grid connection on inverter.Check the grid voltage at the point of connection of inverter.If the grid voltage is outside the permissible range due to local grid conditions, try to modify the values of the monitored operational limits after informing the electric utility company first.If the grid voltage lies within the permitted range and this fault still occurs,please call service.
35	Grid loss	Check the fuse and the triggering of the circuit breaker

		in the distribution box.Check the grid voltage, grid usability.Check the AC cable, grid connection on the inverter.If this fault is still being shown,contact the service.
36	GFCI fault	Make sure the grounding connection of the inverter is reliable.Make a visual inspection of all PV cables and modules. If this fault is still shown, contact the service.
37	PV over voltage Fault	Check the open-circuit voltages of the strings and make sure it is below the maximum DC input voltage of the inverter.If the input voltage lies within the permitted range and the fault still occurs, please call service.
38	Isolation Fault	Check the PV array's insulation to ground and make sure that the insulation resistance to ground is greater than 1Mohm. Otherwise, make a visual inspection of all PV cables and modules.Make sure the grounding connection of the inverter is reliable.If this fault occurs often, contact the service.
40	Over temperature Fault	Check whether the airflow to the heat sink is obstructed.Check whether the ambient temperature around the inverter is too high.
41,42	Self-diagnosis Fault	Disconnect the inverter from the battery, the grid and the PV array and reconnect after 3 minutes.If this fault is still being shown, contact the service.
46	Bus over voltage	Check the input mode setting is correct.Restart the inverter and wait until it functions normally.Contact customer service if error warning continues.
48	10 minutesaverage overvoltage Fault	Check the grid voltage at the point of connection of inverter.If the grid voltage is outside the permissible range due to local grid conditions, try to modify the values of the monitored operational limits after informing the electric utility company first.If the grid voltage lies within the permitted range and this fault still occurs, please call service.
65	PE wire connection Fault	Check if the ground line is connected with the inverter.Make sure the grounding connection of the inverter is connected and reliable.If this fault occurs often, contact the service.
72	Parallel RS 485 Comm Fault	Check comm line and 120ohm Resistors.
73	Parallel CAN Comm Fault	Check comm line and 120ohm Resistors.
79	Parallel Multiple Host Fault	Check host quantity and set one host.