ATESS | ENERCOLLEGE

PBD SYSTEM
Commissioning Guide

Standard Operating Procedures & Best Practices

ATESS ENERCOLLEGE

Technical Support Document

ATESS EnerCollege

enercollege@atesspower.com

www.atesspower.com

1 Introduction

Our ATESS PBD series, is a solar charge controller system designed to distribute photovoltaic direct current to energy storage batteries efficiently. Currently, the PBD is predominantly utilized in conjunction with PCS energy storage systems.

This commissioning guide mainly describes how to adjust the parameters of the PBD System to apply it to the entire energy storage system better. Additionally, it demonstrates how to run PBD as well.

2 Before Power-On

Before performing any operations, please make sure all circuit breakers are closed.

2.1 Check if the PV and battery positive and negative connections are correct;

Measure the voltage of the PV circuit breakers (points 1 and 2) to ensure it matches the measurement result on the combiner box side;

Measure the voltage of the battery circuit breakers (points 5 and 6) to ensure it matches the measurement result on the battery side.

2.2 Use an insulation tester to measure the insulation value of the PV positive and negative terminals to ground;

For example, to measure the insulation value of the PV positive terminal to ground, connect the positive terminal of the insulation tester to point 1 and the negative terminal to ground (point E); Select the 1000 V voltage level.

Press the white "test" button to start the measurement, and press the "test" button again to stop the measurement.

The display will show the insulation value; greater than 1MΩ is acceptable.

2.3 Test the insulation value of the busbar positive and negative terminals to ground;

point 3 – busbar positive terminal, point 4 – busbar negative terminal; greater than 1MΩ is acceptable.

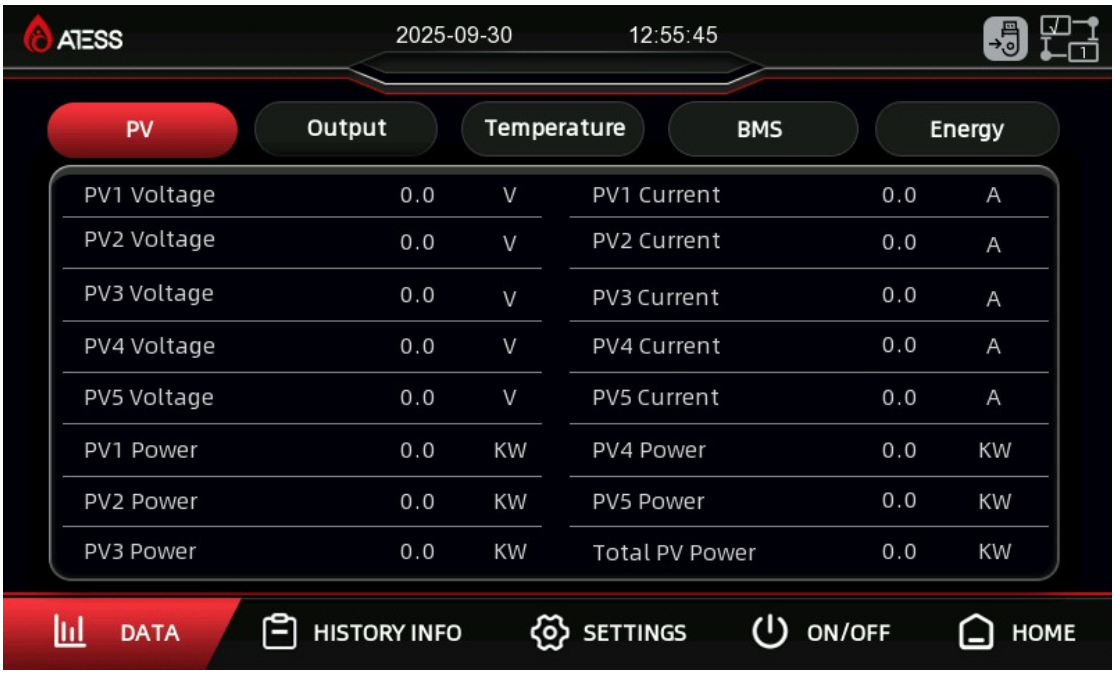
2.4 Test the insulation value of the battery positive and negative terminals to ground;

point 5 – battery positive terminal, point 6 – battery negative terminal; greater than 1MΩ is acceptable.

3 After power-on

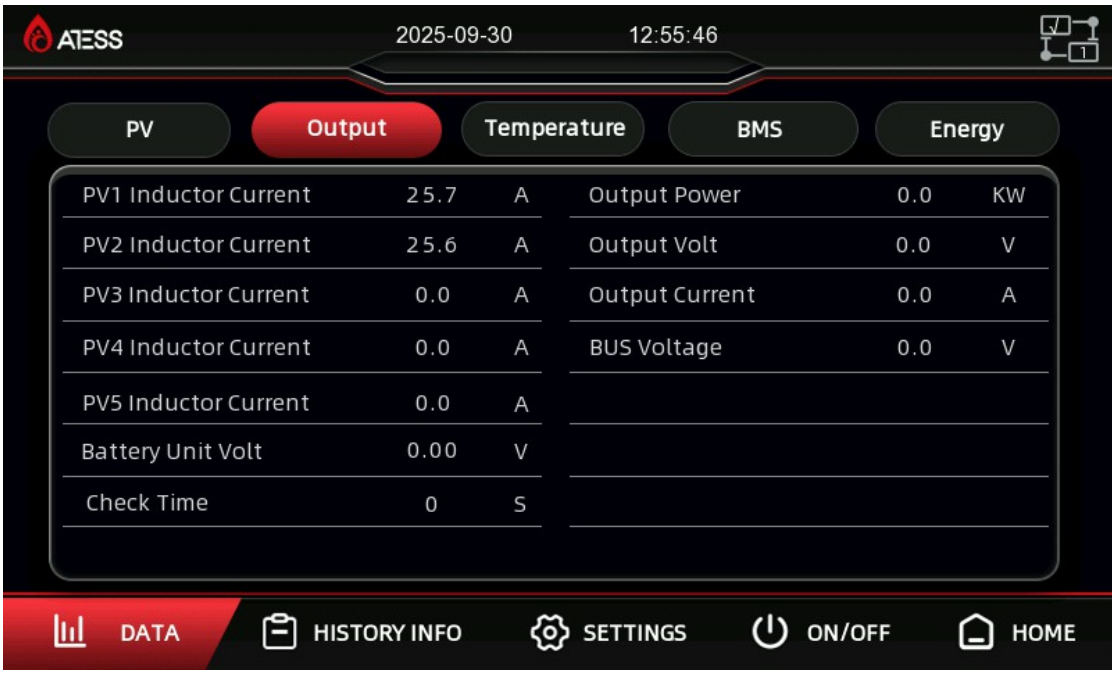
3.1 Measure whether the voltages of PV1 to PV5 match the values displayed on the screen.

If there is a significant difference, please calibrate the PV voltages (contact an ATESS after-sales support engineer).



3.2 Measure whether the output voltages (points 5 and 6) match the values displayed on the screen.

If there is a significant difference, please calibrate the output voltages (contact an ATESS after-sales support engineer).

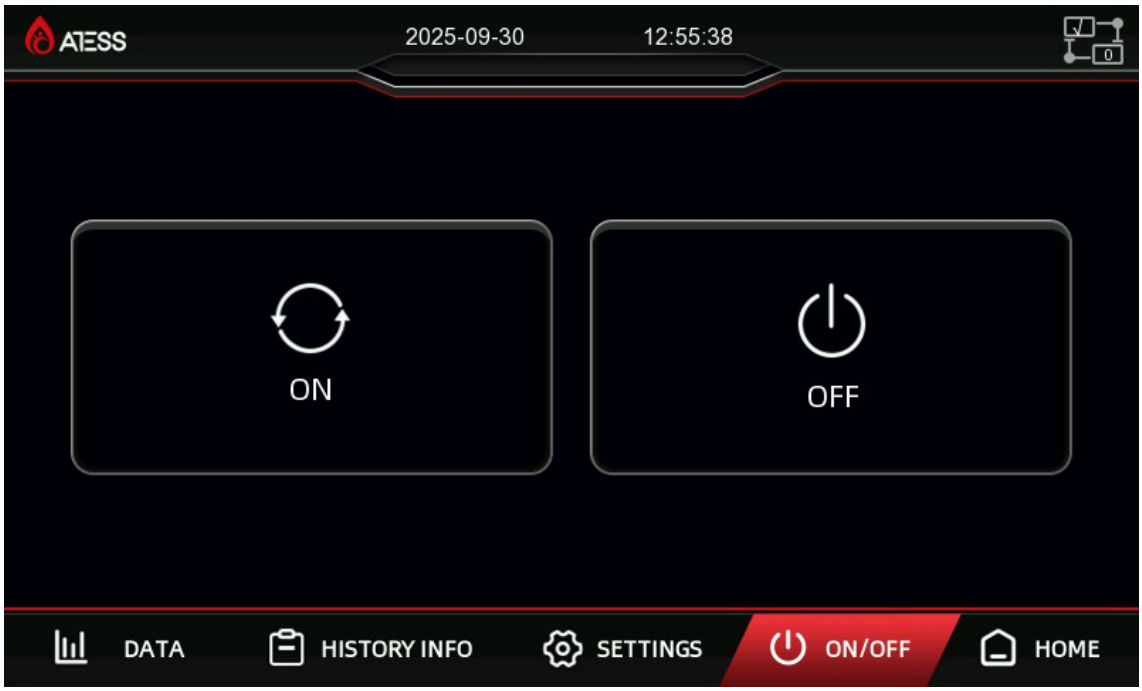


4 HOME

Click the "Home page" button to enter the page. On this page, you can get the equipment running status, input and output voltage, current, power, and other information.

5 ON/OFF

On the "On/OFF" Page, after turning the start knob to ON, click "ON" to power on successfully. And click "OFF" to shut down, or you can directly turn the start stop knob to OFF to shut down.

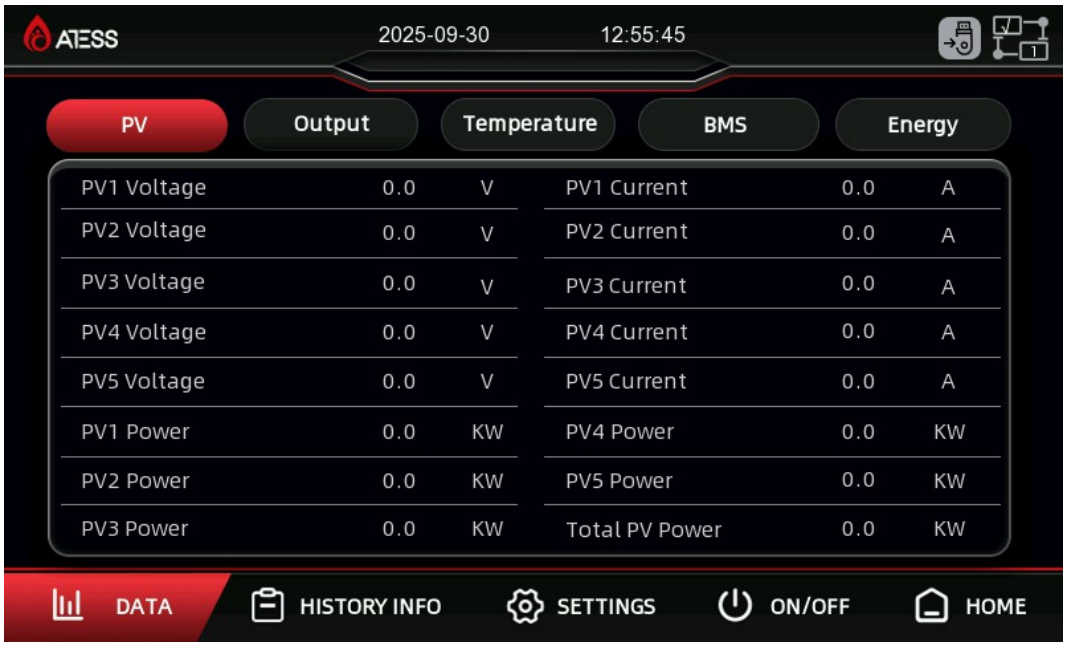


6 HISTORY INFO

Click the "HISTORY INFO" button to enter the page. On this page, you can view fault information; red notes indicate current faults, and white notes indicate historical faults.

7 DATA

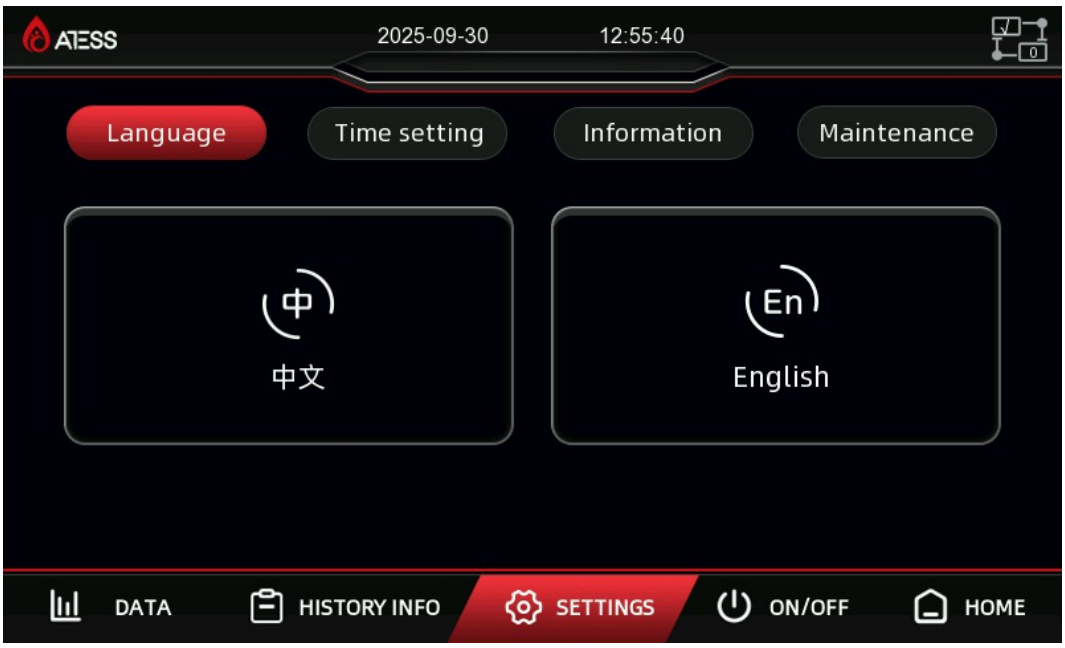
Click the "DATA" button to enter the page. On this page, you can access the corresponding information about PV, Output, Temperature, BMS, and Energy.



8 SETTINGS

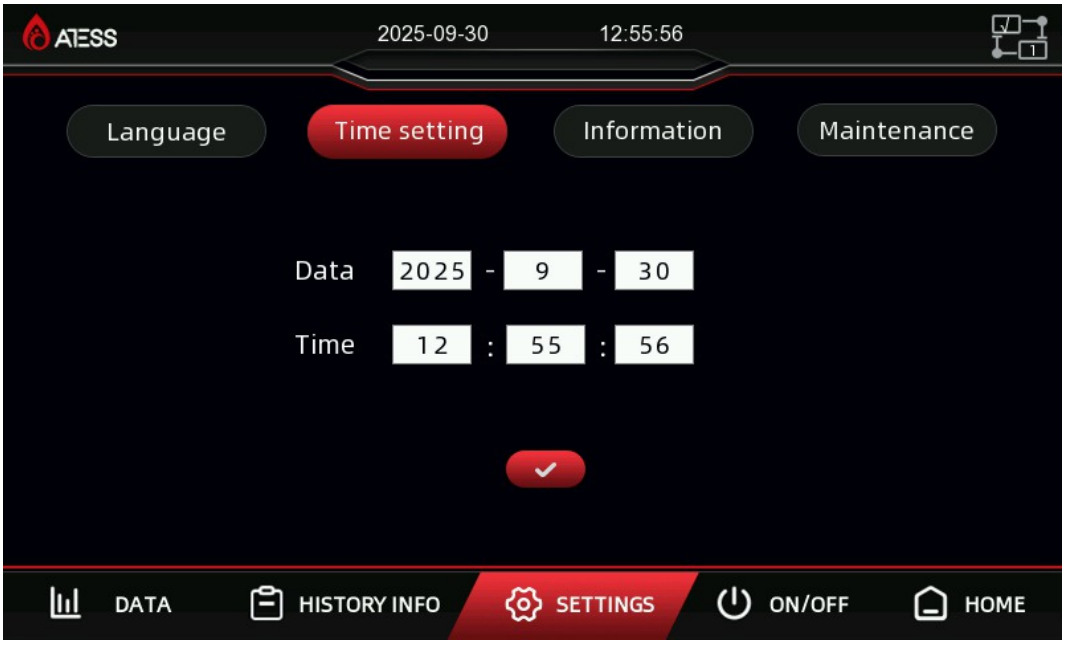
8.1 Language setting

Select the interface language under the "Settings" page. Currently, only Chinese and English are supported.



8.2 Time setting

On this page, you need to check the system time. After calibrating the screen display time, you can click the "√" to apply the settings.



8.3 Information

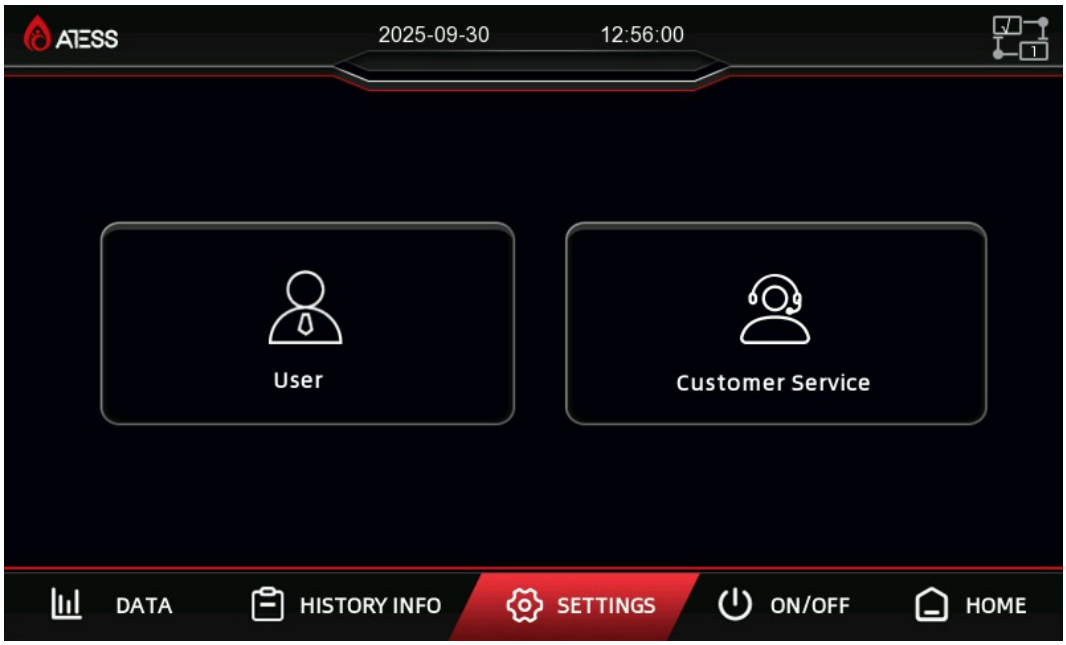
On this page, the manufacturer, serial number, software and hardware version, and delivery date are displayed. The information cannot be modified.

8.4 Maintenance

Click the "Maintenance" button to enter the page.

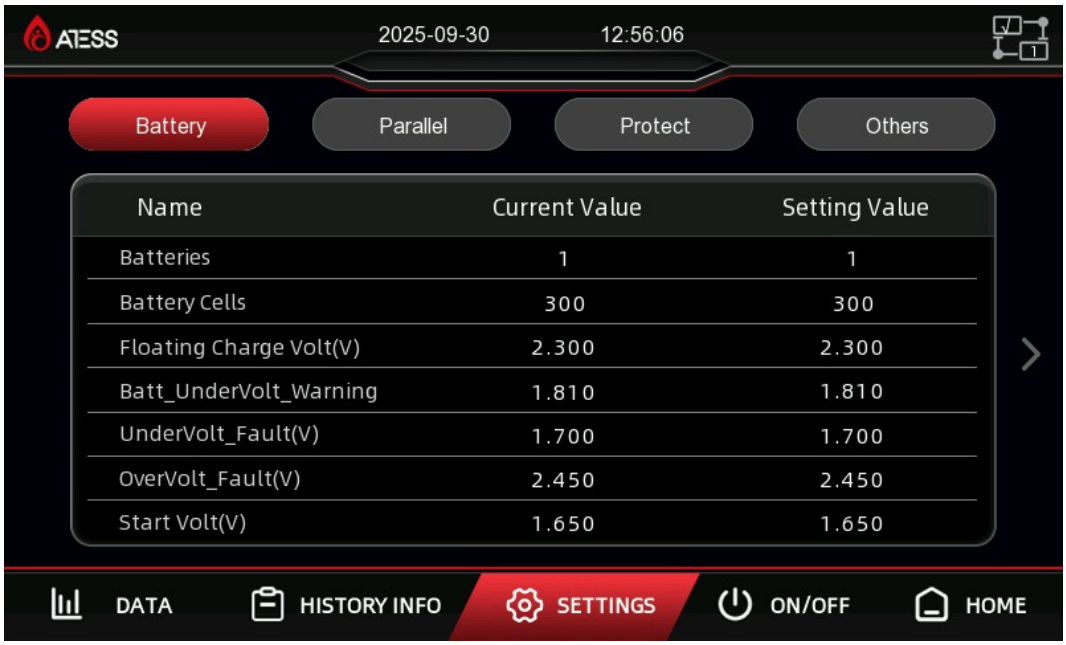
The "Customer service" button relates to R&D parameters and does not require configuration.

As an electrician or maintenance personnel, you can log in "User" interface by entering the password "1234".



8.4 Maintenance

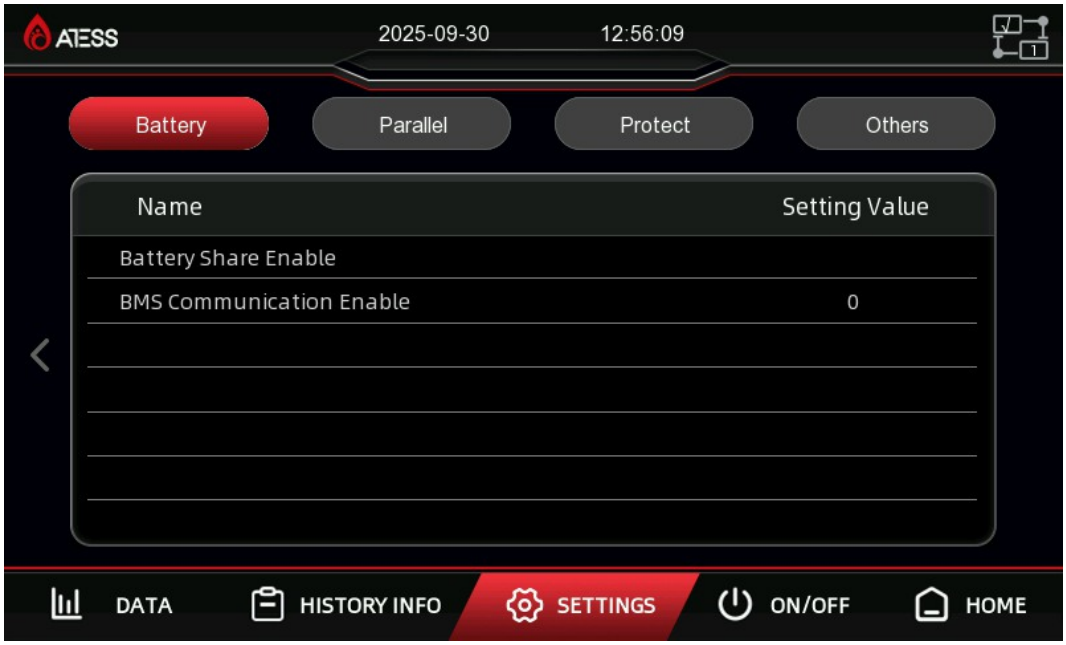
a. Battery



Item	Description
Batteries	Specifies the number of battery components in parallel. If 2V/200Ah, 240 string 2 merge, then the number of groups is 2.
Battery cells	Battery components for each bunch of the number of batteries. If 2V/200Ah, 240 string 2 parallel, then the number of cells is 240.
Floating charge voltage	The voltage of the floating charge unit of the battery. When the battery cell voltage reaches this set value, the PBD output power approaches 0.
Batt_ UnderVolt_Warning	Under-voltage warning when the cell voltage. When the battery unit voltage reaches the under-voltage alarm point, the PBD reports an under-voltage alarm.
UnderVolt_Fault	When battery under voltage protection unit of voltage, battery voltage arrived at this value, the PBD will protect and cause downtime.
OverVolt_Fault	The voltage value of the battery over-voltage unit. When the battery voltage reaches this set value, PBD will protect and stop.
Start Volt	When the PBD battery cell voltage is higher than the starting voltage, the PBD can be started.

8.4 Maintenance

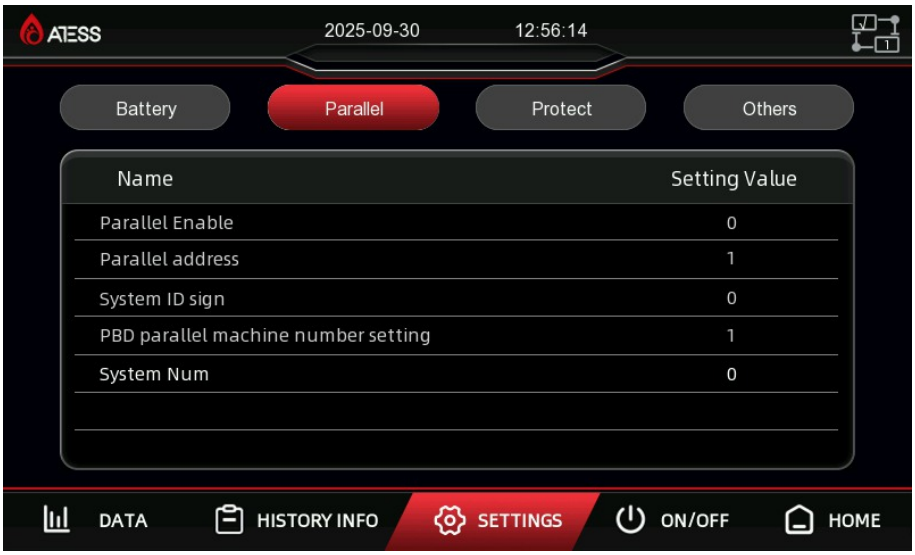
a. Battery



Item	Description	
Battery Share Enable	1, Enable	In parallel systems, set to 1 for shared batteries, 0 for separate batteries, and 1 for single-unit operation.
	0, Disable	
BMS Communication Enable	1, Enable	Set to 1 for lithium iron phosphate batteries.
	0, Disable	

8.4 Maintenance

b. Parallel



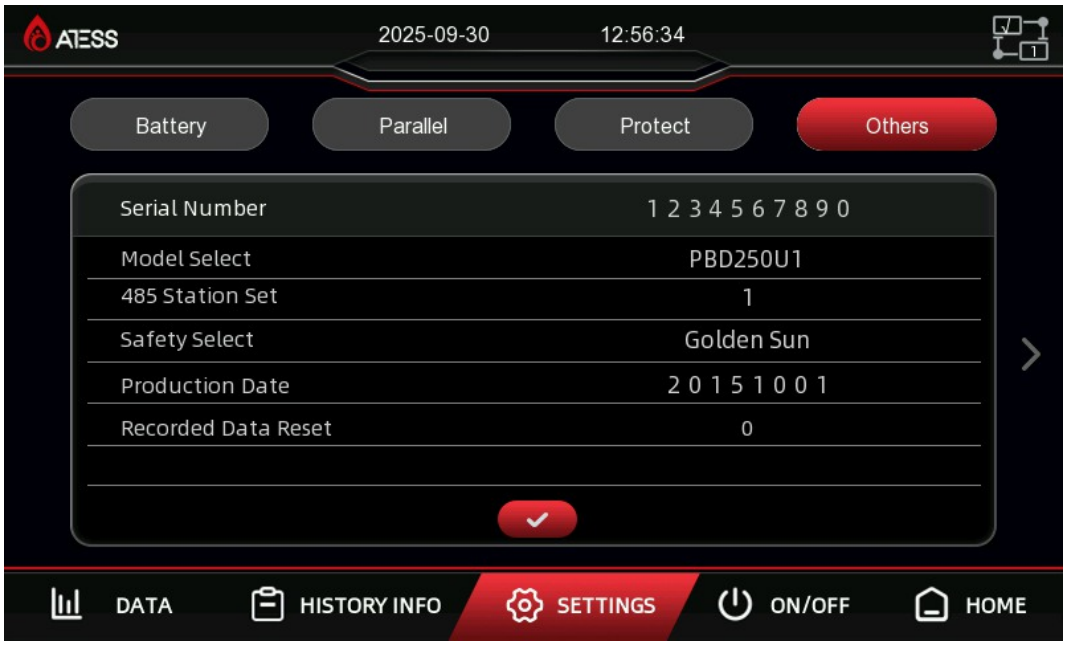
Item	Description	
Parallel Enable	1, Enable	Set to 1 for multiple PBDs
	0, Disable	
Parallel address	Default 1, set according to the number of devices in the parallel system.	
System ID sign	Default 1, devices such as Battery, PCS, PBD for this parameter should be set to 1.	
PBD parallel machine number setting	Set according to the actual number of PBDs	
System Num	No setting required.	

c. Protect

Protection parameters are set at the factory; No setting required.

8.4 Maintenance

d. Others

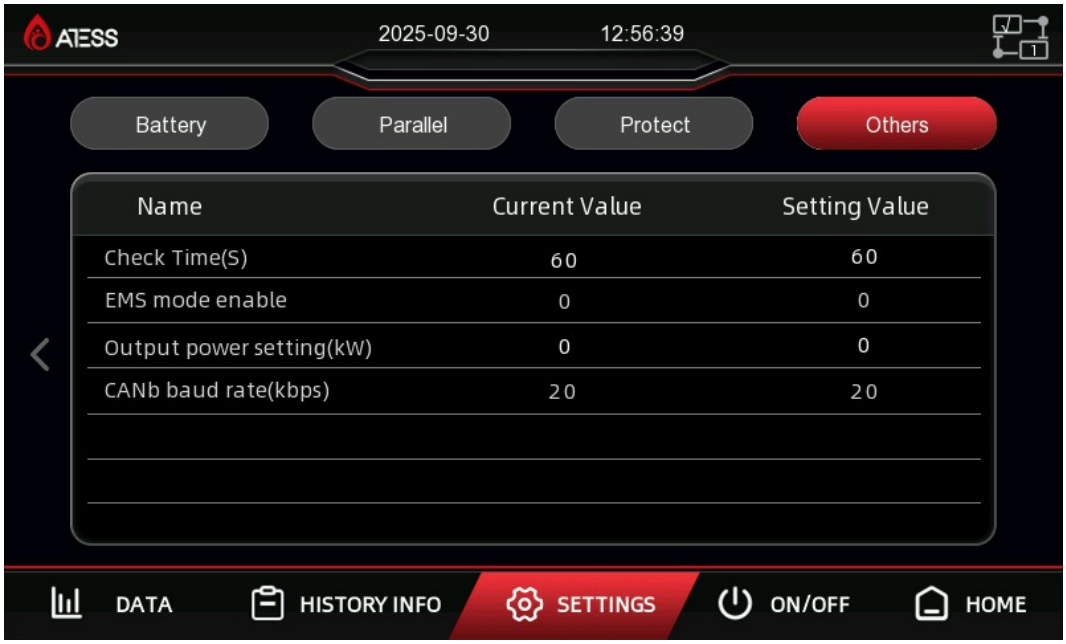


Item	Description
Serial Number	No setting required.
Model Select	No setting required.
485 Station Set	In the system, the 485 addresses of the PCS and PBD must not be duplicated; for example, if there is one PCS250 and one PBD250, the 485 address of the PCS is 1, and the address of the PBD needs to be changed to 2.
Safety Select	No setting required.
Production Data	No setting required.
Recorded Data Reset	No setting required.

After changing the parameters, click "√" to save.

8.4 Maintenance

d. Others



Item	Description
Check time	Power-on self-test time, default 60 seconds.
EMS mode enable	Used during debugging, no setting required, default 0; 0 disables; 1 enables.
Output power settings	No setting required, default 0.
CANB baud rate	Default 20.

9 Run the system

After adjusting the parameters, check the fault information. Please confirm with ATESS personnel whether the device can be powered on.

A. First run

Perform the following steps for the first run:

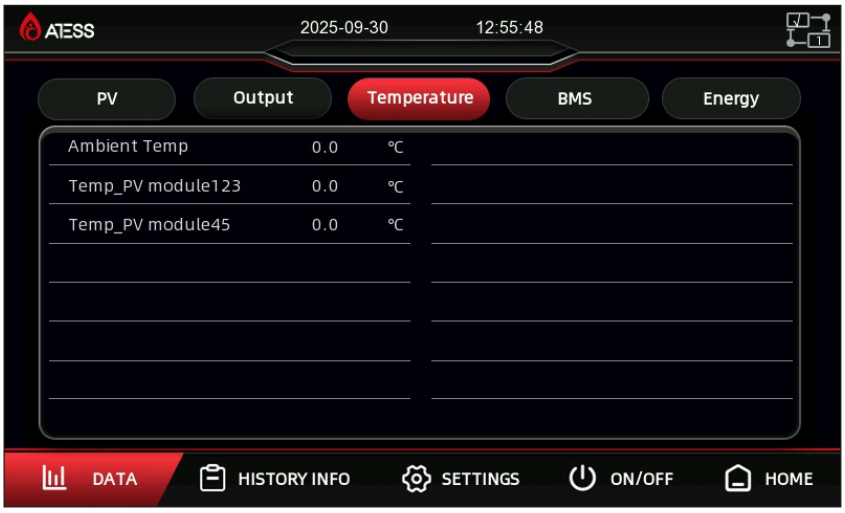
a. Turn off the PV circuit breaker..

b. Check whether the sampled data on the screen is abnormal and consistent with the actual data;

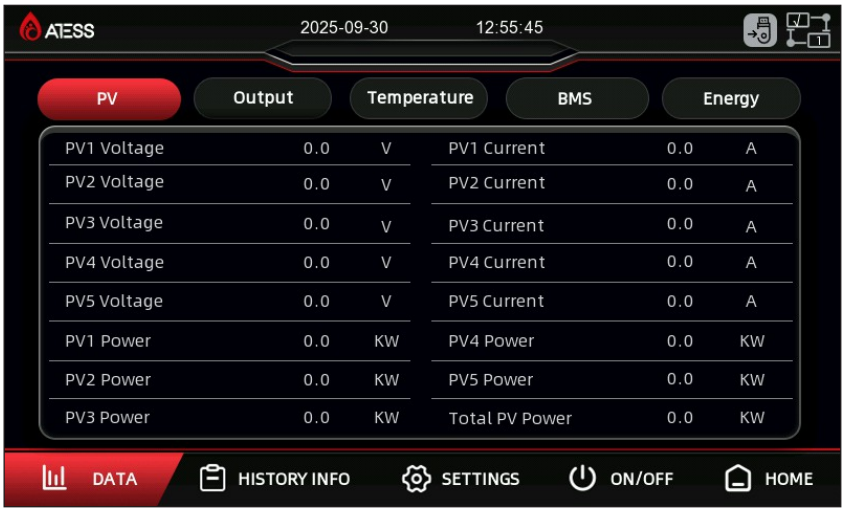
c. After the check is correct, turn the knob switch to "ON", click "Start" on the LCD "Switch on" page, and wait for the machine to enter "running mode";

d. When running, observe whether the screen display data is normal, whether there is fault information, whether the machine has abnormal sound and odor; If there is any abnormal situation, please stop the machine immediately for inspection.

9.1 Observe whether the temperature change of the PBD is normal and whether the top fan of the PBD is working properly.



9.2 Observe whether the power changes of PV1-PV5, as well as the changes in charge demand, output demand, and output power are normal.



Warnings!
When checking, it needs to be powered off to ensure the machine does not exist power supply, please be safe.

Manual shutdown

In the working process, you can click the shutdown button on the LCD, or directly turn the knob switch to "OFF", PBD stops working.

Warnings!
1. After manually shutting down the device by clicking the LCD Shutdown button, you must manually turn it ON via the Power button (ON) on the LCD; Turn OFF through the knob switch to "off", first turn the PBD knob switch to "ON", click the "on" button in the LCD "switch on" page to turn on, otherwise PBD can not automatically turn on.
2. PBD is still charged after manual shutdown.

B. Complete the test run

Perform the following test steps after PBD is running:
a: Check whether there is any abnormality in PBD, such as excessive noise, excessive heat, abnormal odor or smoke.
b: Measure whether the output voltage and current of PBD are stable.
c: Operate the LCD to check whether the working display is normal and accurate.
d: Test whether it conforms to the preset operation logic.
At this point, the PBD trial operation process is complete, and you can enter the daily operation and maintenance process.

C. Shutdown and power-off Procedure

Warnings!
After the PBD is completely powered off, the PBD will still be live, be sure to completely disconnect all external connections and wait at least 5 minutes if you need to do so.

a. Turn OFF the knob switch by turning it to "Off".
b. Disconnect the DC total input switch PV input and Battery input.
c. Disconnect the output switch output.

Warnings!
It is normal for the PBD to generate an alarm during the power-off process. You can continue with the power-off procedure.

After powering on, check the fault information and operating data. Please confirm with ATESS personnel.