ATESS | ENERCOLLEGE

PCS SYSTEM
Commissioning Guide

Standard Operating Procedures & Best Practices

ATESS ENERCOLLEGE

Technical Support Document

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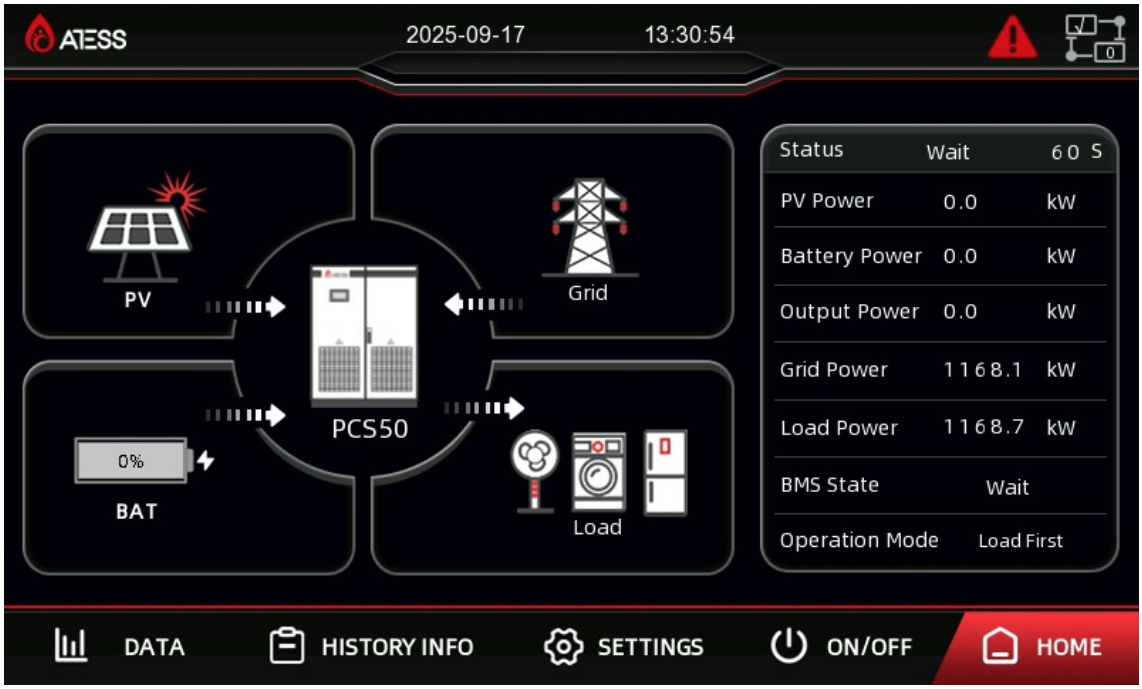
1 Introduction

To ensure correct and systematic commissioning of the ATESS PCS100-630 hybrid inverter, please follow the steps provided in this guide.

2 Parameter setting

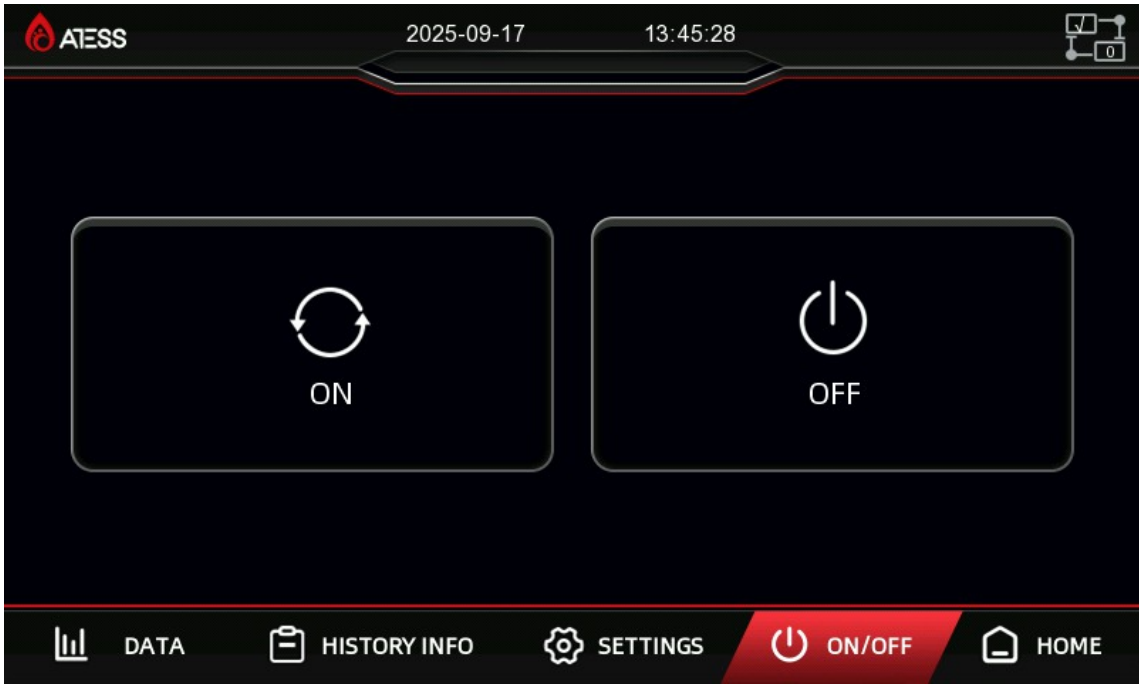
1. Home Page

Clicking the PV, BAT, Grid/GEN, Load and PCS icons on the left side of the LCD will display the PV Data, Battery Data, Grid Data, Load Data and operation data overview windows on the right side.



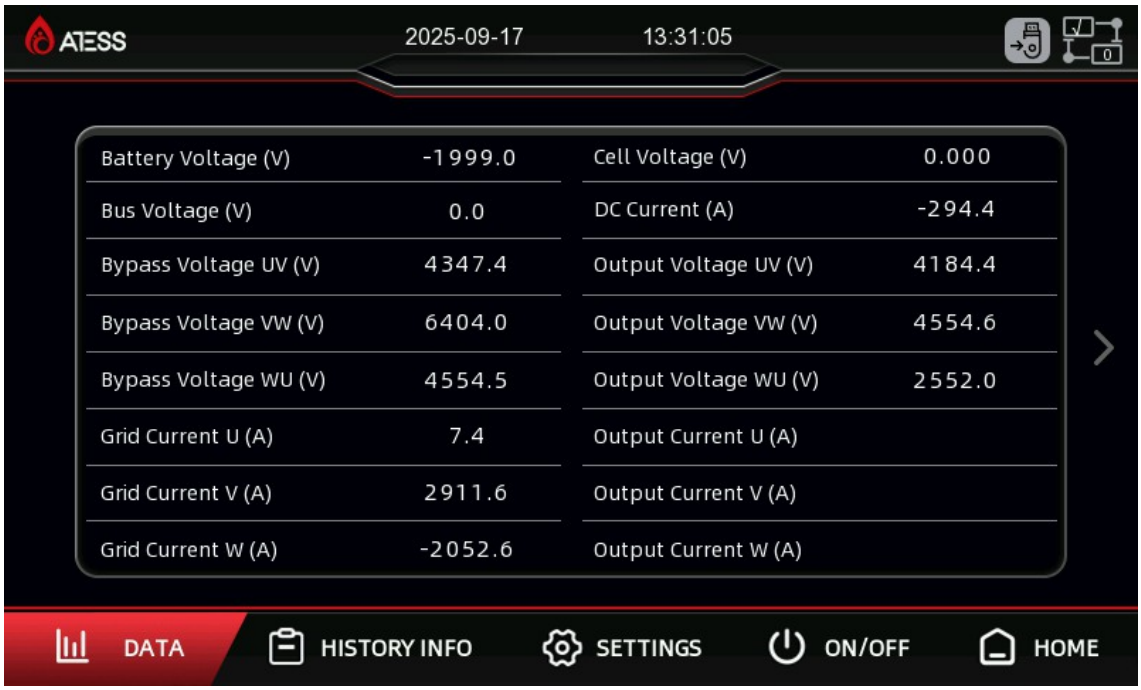
2.ON/OFF interface

There are “ON” and“OFF” button which is used to turn on and turn off the inverter.



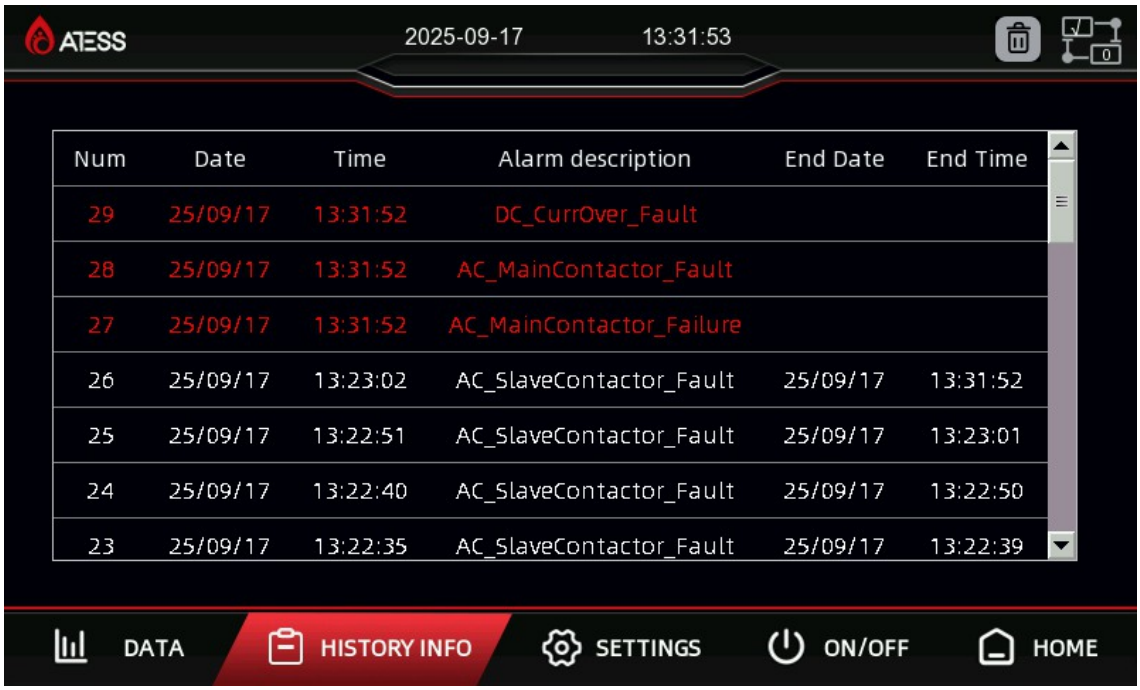
3. **Operation data**

Use the page switching arrows on this page to browse different operation data, including real-time updated information such as grid, diesel generator, battery, load, PCS, etc.



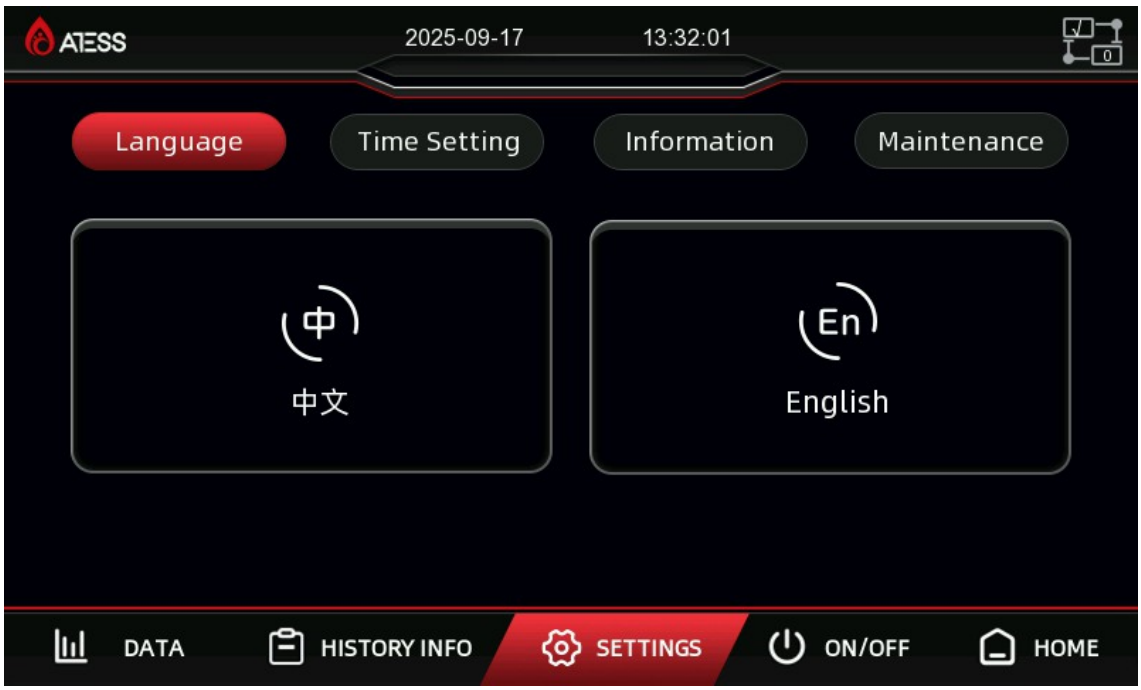
4.History Information

On this page, you can view the historical fault details. Red marks indicate current faults, and white marks indicate historical faults, you can click the delete button in the upper right corner to clear the completed faults in the table.



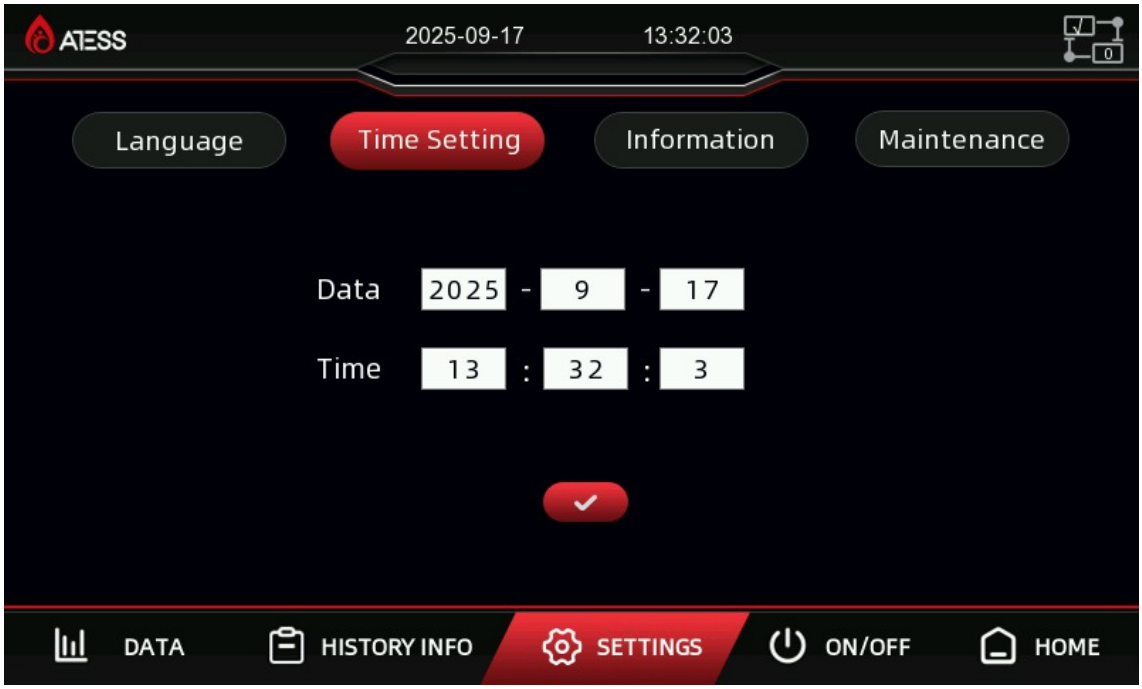
5. Language Settings

Select language, currently it only supports Chinese, English.



6.Time settings

System time setting (if the date and time displayed on the LCD is not consistent with the actual date and time; it can be modified here.) Calibrate the screen display time. Click "√" after setting to take effect.

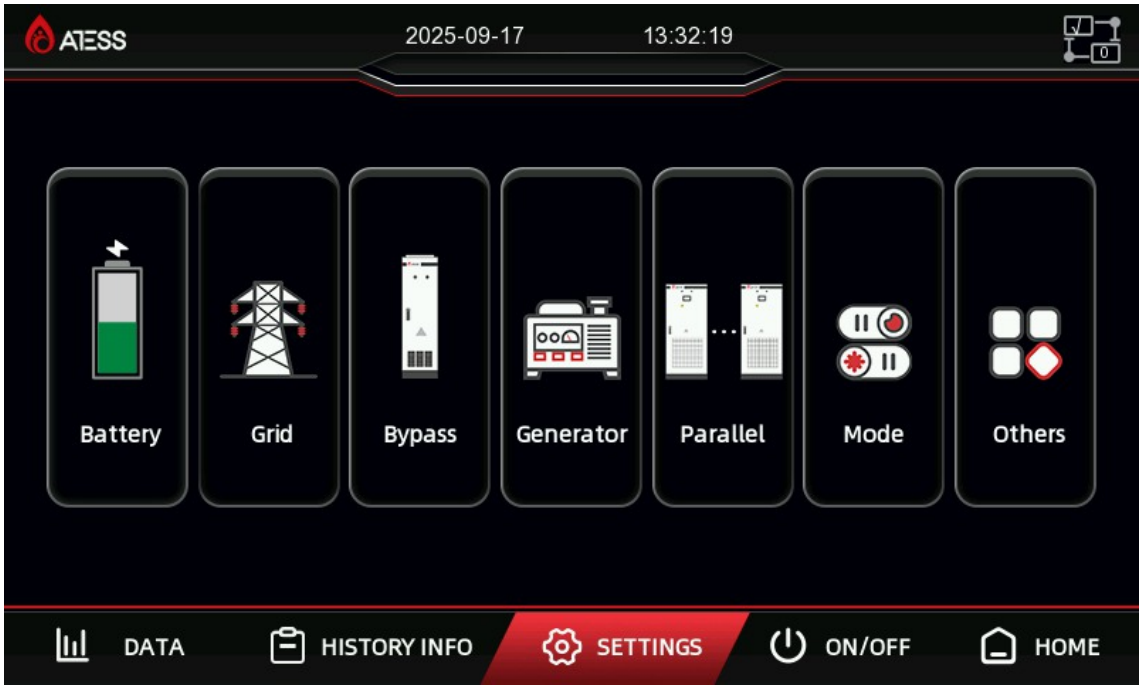


7. Version Information

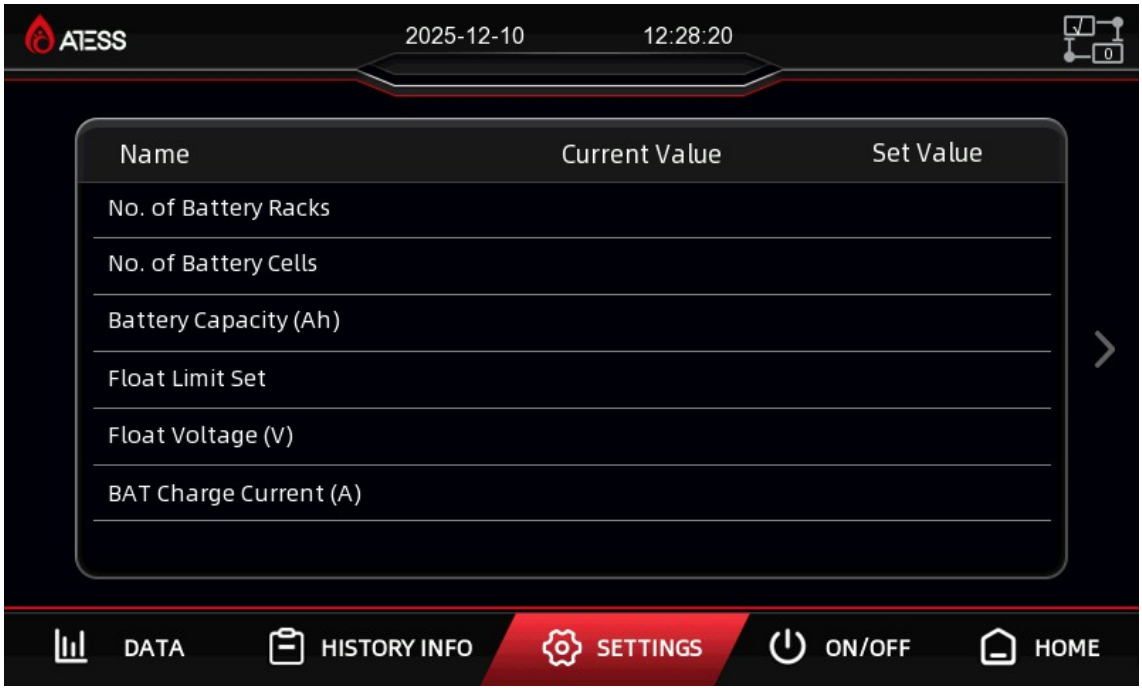
This page shows the manufacturer, inverter serial number, DSP Software Version, LCD Software Version, hardware version and Bypass Cabinet Software Version information, and the date of manufacturing.

8.Maintenace

Enter the correct password (1234) to access the "Device Maintenance" submenu. The submenus include: Battery parameters, Grid parameters, Bypass cabinet parameters, Generator parameters, Parallel parameters, Mode parameters, and others. Enter the corresponding interface according to the parameters that need to be modified. If you need to return to the "Device Maintenance" submenu and retain the authority, please click the [System Settings] button below once.



9. Battery Parameters



Item	Description
No. of Battery Racks	The number of battery racks connected in parallel. Set as needed.
No. of Battery Cells	The number of cells in each string of a battery.
Battery Capacity	Capacity of a battery group. Set as needed.
Float limit set	Set current limiting charging. Here we can set it as 0.1
Float voltage	Set the floating charge unit voltage of the battery. Here we can set it as 3.5.
BAT Charge Current(A)	You can modify the battery charging current by changing this value. Set as needed.

9. Battery Parameters

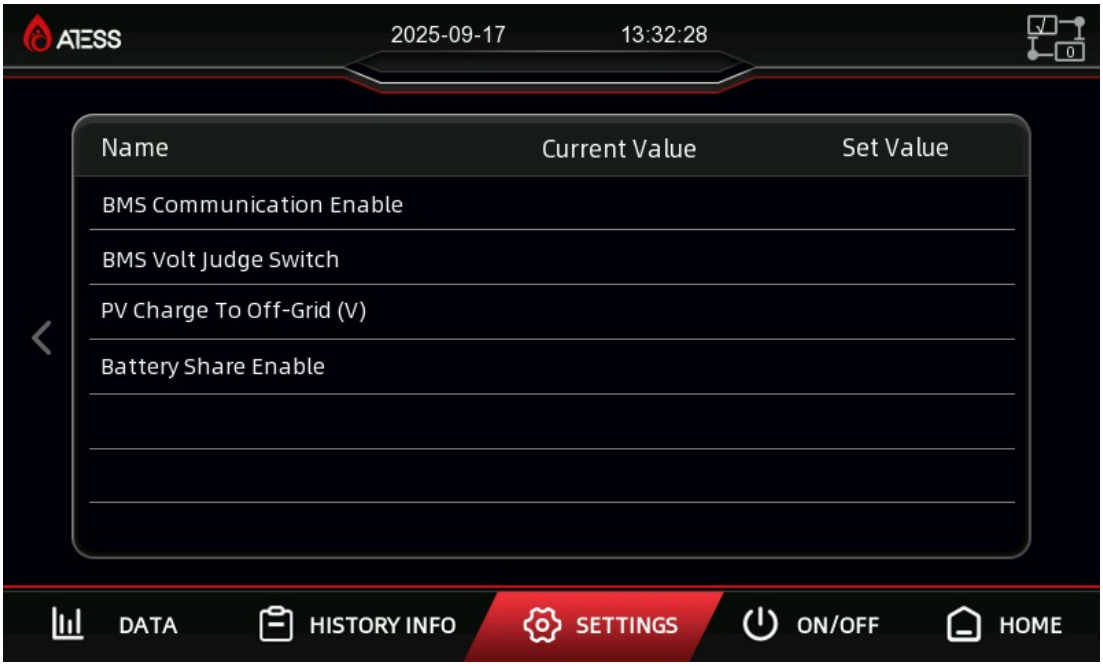
Item	Setting Number
Discharge Cut-off Volt(V)	3. 1
Discharge Cut-off SOC	20%
Re-Discharge SOC	50%
Charge Cut-off SOC	100%
BAT Saturation	1
Trickle Charge SET(kw)	1

9. Battery Parameters

Item	Description
BAT UnderVolt Warning(V)	3.0
BAT UnderVolt Protect(V)	2.9
BAT OverVolt Protect(V)	3.6
BAT OC Charge Protect(A)	Set according to battery parameters
BAT OC Discharge Protect(A)	Set according to battery parameters

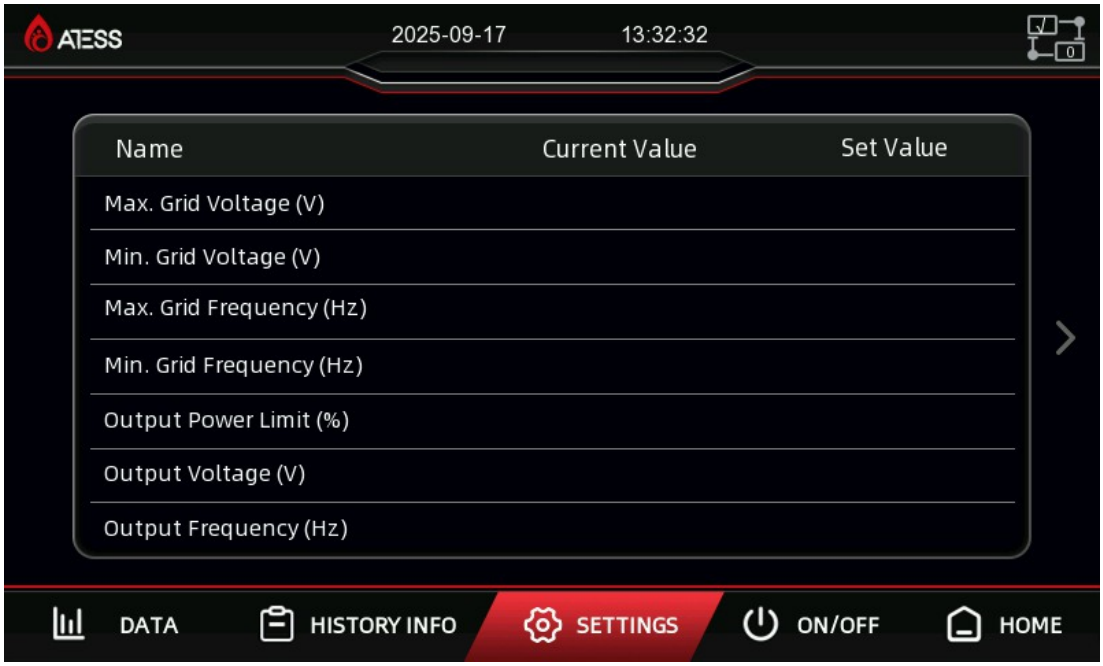
Noted:
BAT UnderVolt Protect(V) < BAT UnderVolt Warning(V) < Discharge Cut-off Volt(V);
BAT OverVolt Protect(V) > Float Voltage(V).

9. Battery Parameters



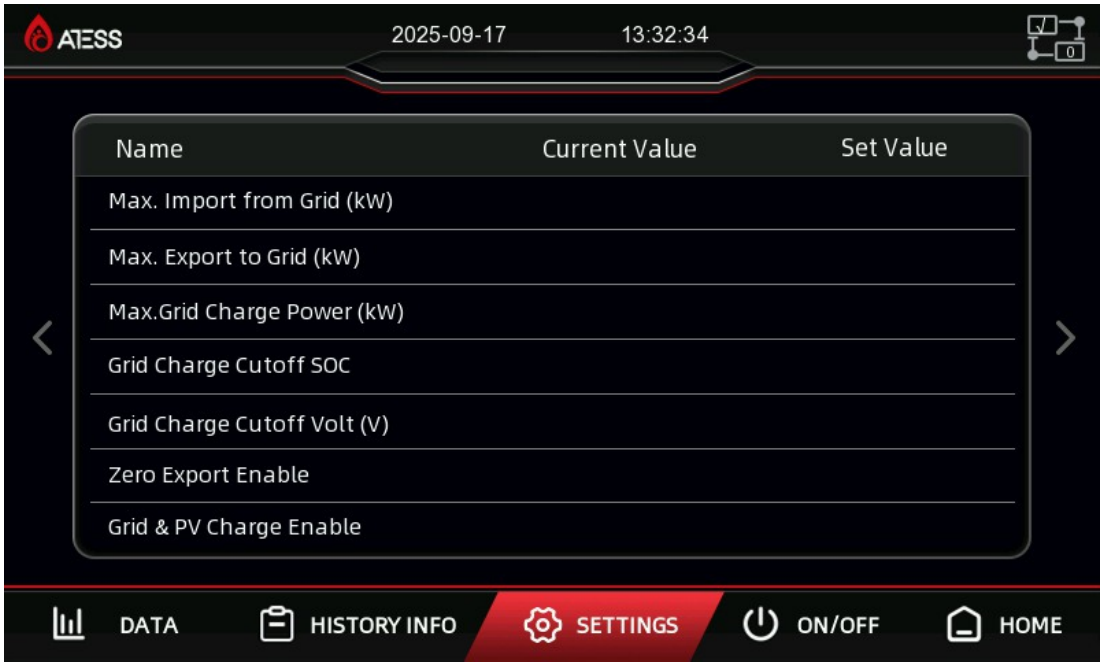
Item	Description
BMS communication enable	1,Enable; 0, Disable. Lithium iron phosphate battery needs to be set to 1.
BMS Volt Judge Switch	1, Enable; 0, Disable; default, 0.
Single PV Charge To Off-Grid(V)	3.2
Battery Share Enable	1, Enable, 0, Disable; (In a parallel system, set the battery sharing function to 1, separate batteries to 0, and single system to 1).

10. Grid Parameters



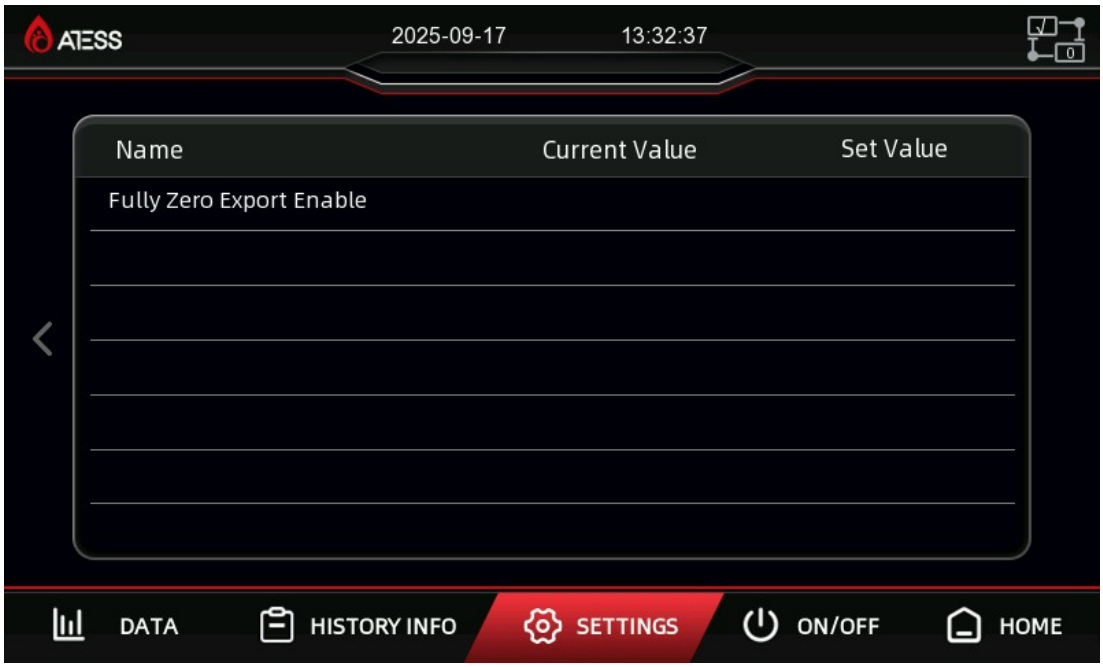
Item	Setting Number
Max. Grid Voltage (V)	110% of rated voltage, Default 440V (European standard 400V)
Min. Grid Voltage (V)	90% of rated voltage, Default 360V (European standard 400V)
Max. Grid Frequency(Hz)	Output frequency plus 2, default is 52HZ (European standard 50HZ)
Min. Grid Frequency(Hz)	Output frequency minus 2, default is 48HZ (European standard 50HZ)
Output Power limit(%)	Default value 100%
Output Voltage(V)	Default 400V (European standard 400V)
Output Frequency(Hz)	Default is 50HZ (European standard 50HZ)

10. Grid Parameters



Item	Setting Number
Max. Import from Grid(kW)	The maximum power taken from the grid is used for charging and supplying loads. The default setting is the rated output power and can be set as needed.
Max. Export from Grid(kW)	The maximum power feed to the power grid. The default setting is 0 and can be set as needed.
Max. Grid Charger Power(kW)	The maximum charging power of the grid to the battery can limit the charging power of the grid to the battery. Set as needed.
Grid Charge Cutoff SOC	Same as Charge Cut-off SOC. The default setting is 100.
Grid Charge Cutoff Volt	Same as Float Voltage. The default setting is 3.5.
Zero Export Enable	0, Disable, output to the grid; 1, Enable, do not output to the grid; Default 1.
Grid & PV Charge Enable	0, Disable; 1, Enable, grid and PV can be charged simultaneously.

10. Grid Parameters



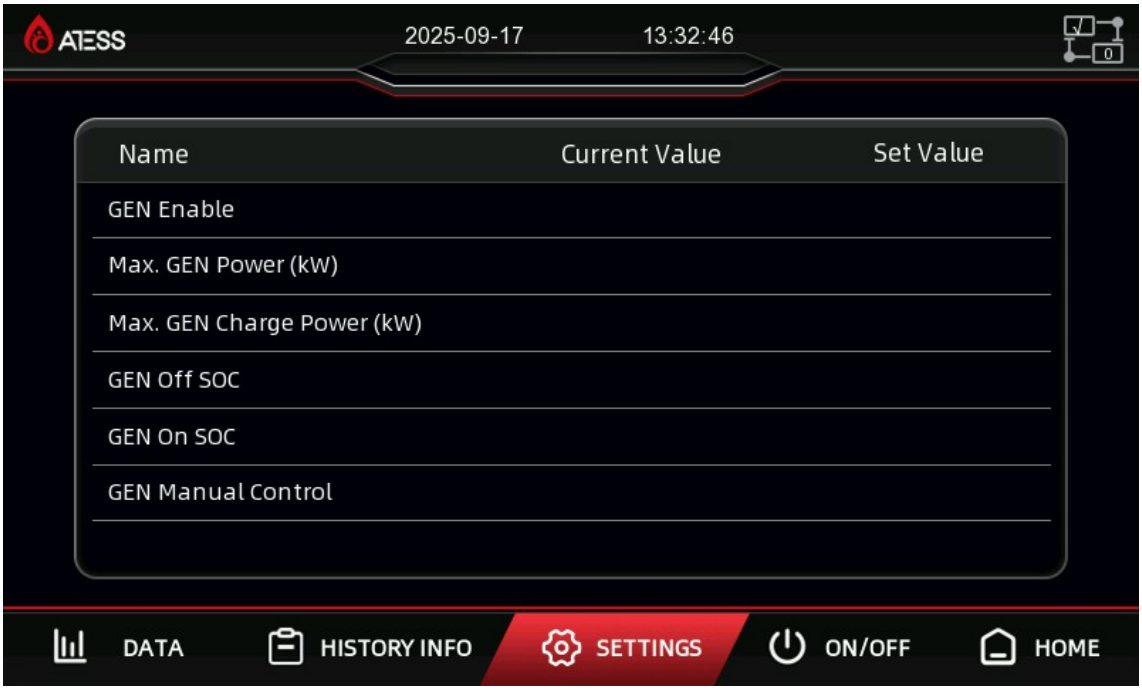
Item	Setting Number
Fully Zero Export Enable	0, disabled; 1, enabled, output based on the minimum phase current among the three-phase current, and the rest are carried by the grid. Default 0.

11. Bypass Parameters

Item	Setting Number
Bypass Cabinet Enable	0, Disabled; 1, Enabled, connected to the BYPASS cabinet of ATESS
Bypass Cabinet Share Enable	When the parallel system shares a bypass cabinet, set this to 1; otherwise, set this to 0. The default setting is 0.
Bypass Cabinet Com No.Enable	First set the enable to 1, then modify the bypass cabinet station number. After the modification is successful, you must set the enable to 0.
Bypass Cabinet Com No	The default setting is 1, and the parallel system is set in order of quantity.
Bypass Cabinet Units	Indicates the number of bypass cabinets in the system. Set according to the actual number.
Bypass Cabinet CanA Baud Rate	The default setting is 20.
Bypass Cabinet Model Select	Select the actual model.

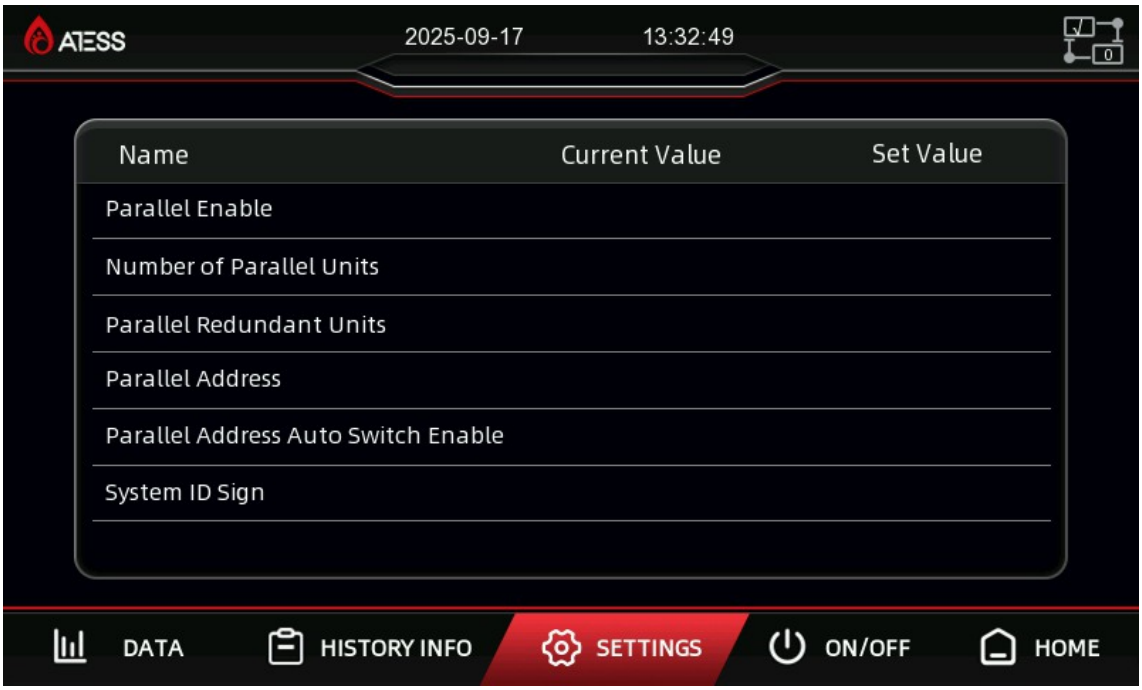
Noted:
In a parallel system, first debug the communication between a single PCS and BYPASS, then debug the parallel system (refer to the debugging method of HPS and ATS).

12. GEN Parameters



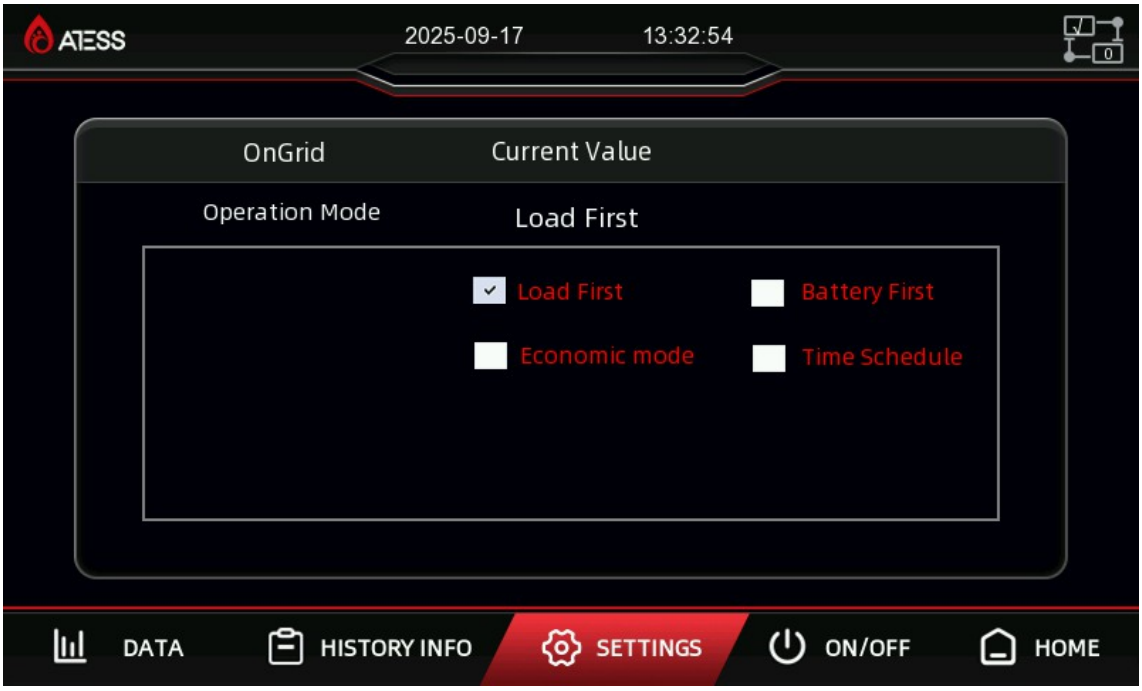
Item	Setting Number
GEN Enable	When the PCS grid input is connected to a diesel generator, the diesel generator enable needs to be set to 1, otherwise it needs to be set to 0.
Max. GEN Power(kW)	Set according to the diesel generator configuration information.
Max.GEN Charge Power	Set as needed.
GEN Off SOC	The default setting is 20. Set as needed.
GEN On SOC	The default setting is 80. Set as needed.
GEN Manual Control	Manual control of the Diesel Generator opening and closing, no need to set.

13. Parallel System Parameters



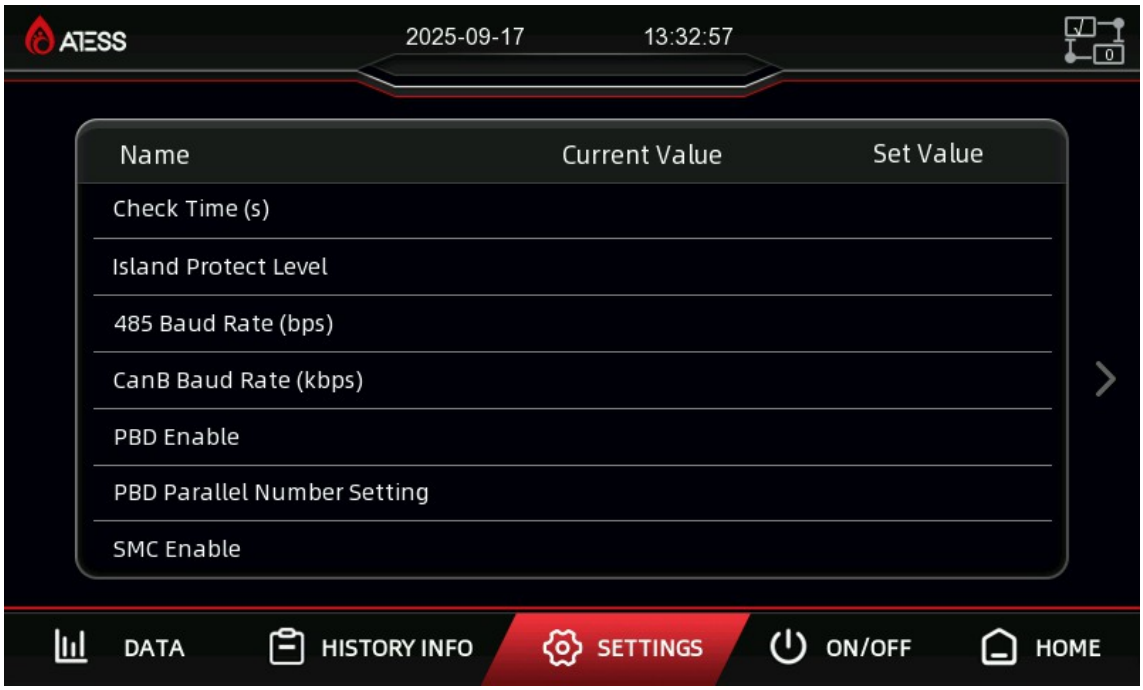
Item	Setting Number
Parallel Enable	0, Disabled; 1, enabled. All the parallel units needs to be set to 1.
Number of Parallel Units	Set according to actual quantity.
Parallel Redundant Units	No need to set.
Parallel address	The default setting is 1. Parallel system settings by quantity.
Parallel Address Auto Switch Enable	0, Disable; 1, Enable. The default setting is 0, no need to modify.
System ID sign	All devices in this system are set to 1.

14. Operation Mode Parameters



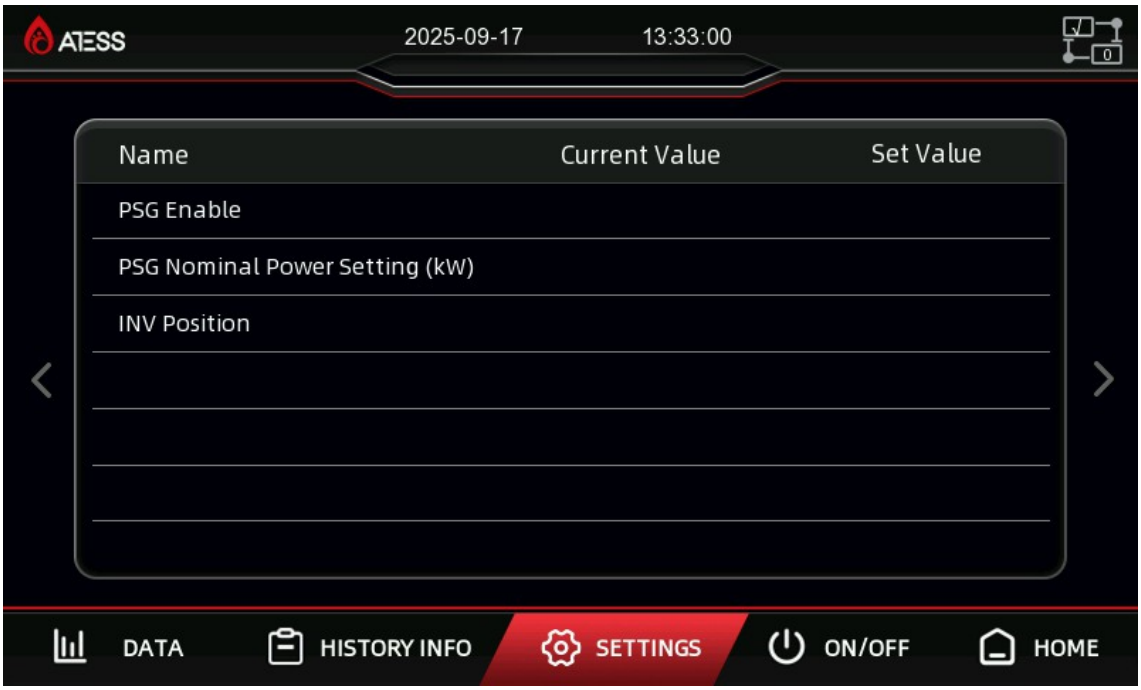
The on grid modes include: Load First, Battery First, Economic mode, and time schedule. Click the box in front of the corresponding mode to select a different on grid mode.

15. Other Parameter Settings



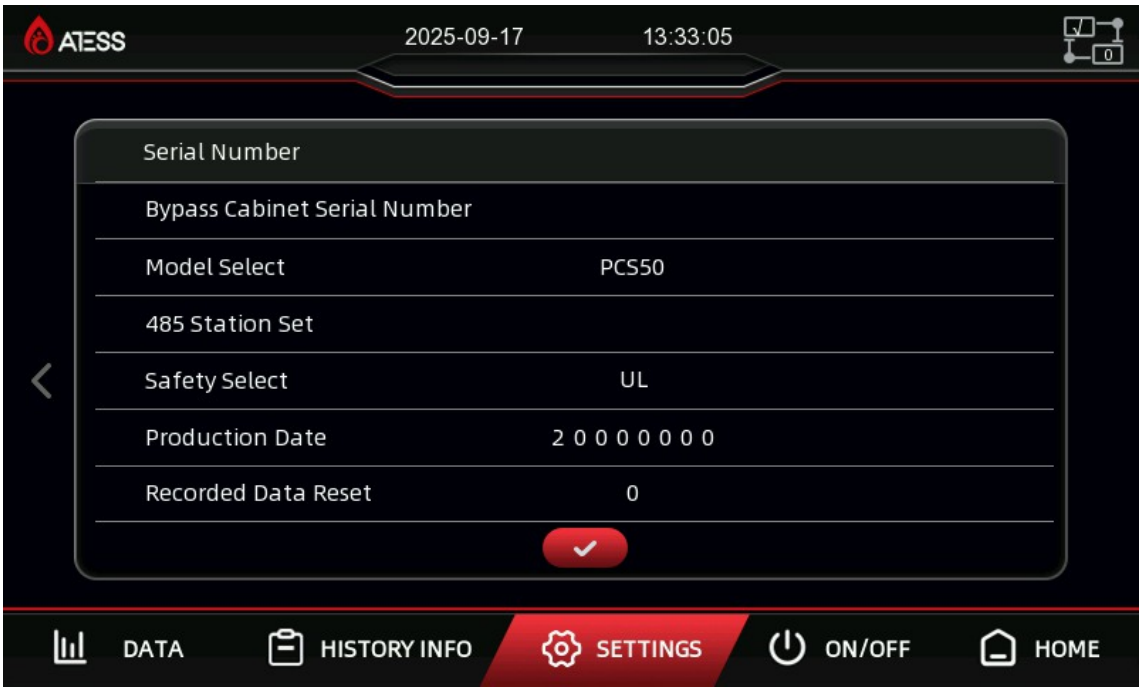
Item	Setting Number
Check Time	The default boot detection time is 60 seconds, the minimum is 10 seconds, and the maximum is 300 seconds.
Island protect Level	The value ranges from 0 to 9. 0 indicates disabled, and 1 to 9 indicates level. The default setting is 1.
485 Baud Rate	The default value is 9600.
CanB Baud Rate	The default value is 20K.
PBD Enable	Set this parameter to 1 when it is used with PBD. Otherwise, set this parameter to 0. 0, Disable; 1, Enable.
PBD Parallel Number setting	Set the actual number of PBDs connected to this machine.
SMC Enable	Set this parameter to 1 when it is used with SMC. Otherwise, set this parameter to 0. 0, Disable; 1, Enable.

15. Other Parameter Settings



Item	Setting Number
PSG Enable	If there is a grid-connected inverter and it communicates with the PCS, set to 1. The default setting is 0; 0, disabled, 1, enabled.
PSG Nominal Power Setting	Set the rated power of the grid-connected inverter.
INV Position	Select the corresponding grid-connected inverter position option according to whether it is connected to the load side or the PV side.

15. Other Parameter Settings



Item	Setting Number
Serial Number	Serial number of the PCS. No need to modify.
Bypass Cabinet Serial Number	Consistent with the nameplate, after the bypass communicates successfully with the PCS, the BYPASS SN code will be displayed.
Model Select	Consistent with the nameplate. No need to modify.
485 Station Set	The 485 address of PCS.
Safety Select	Please do not modify the PCS safety regulations at ordinary times. Please modify them under the guidance of ATESS after-sales personnel.
Production Date	The production date of the PCS.
Recorded Data Reset	Power statistics clear function.

After the parameter adjustment is completed, check the fault information and confirm with ATESS personnel whether the machine can be turned on.

3 Run the system

The PCS startup steps are as follows. After starting up, check the fault information and operating data and confirm with ATESS personnel.

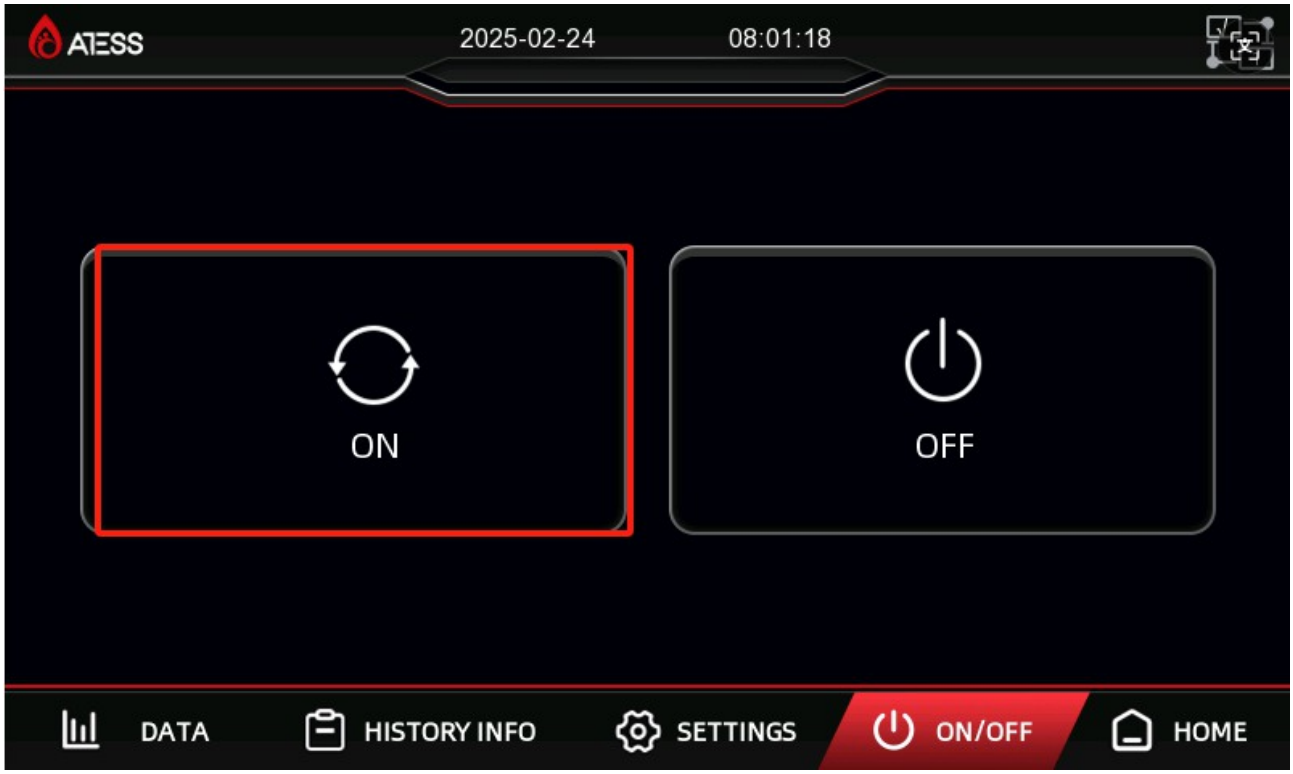
a. Turn on the system

Step1:

Turn on the Switch Konb.

Step2:

Turn on the ON button on the screen.



b. OFF Grid test: Homepage

Check if the Status and the Operation Mode are correct.

Check if the values are correct for PV, BAT, Grid, and Load.