



PV Configurator User Manual

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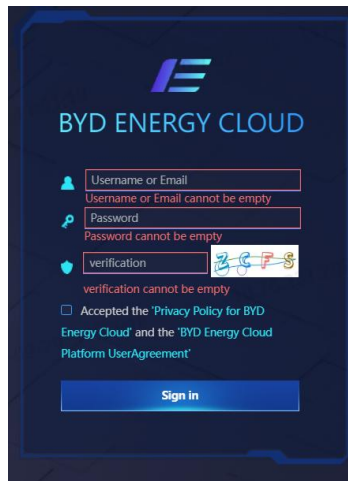
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1 Introduction

This document describes the basic functions, specific operation instructions, and notice of the PV Configurator.

The installers log in according to the following steps:

- (1) Installers enter the website address: <https://energyhousehold.bydessys.com/#/home/index>
Backup website address: <https://energyhousehold.westeurope.cloudapp.azure.com/#/login>
- (2) Enter your account and password of **BYD Energy APP**.
- (3) Click **Sign in** to access the **BYD Energy Cloud**.

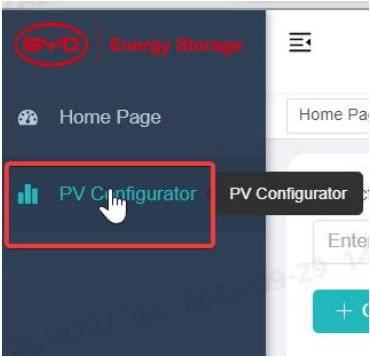


- (4) Click **After-sales service** to access the main system of **PV Configurator**.



2 Project management

Click **PV Configurator** to enter the project management page.



Enter the relevant information for project search.

Project name: Project status: Country: Address: Created time: Updated time:

Click **Project name** to view the details of the project.

Click **Project status** to change the project status to **In progress** or **Completed**.

Click **Delete** to delete the project.

Serial Number	Project name	Project status	Country	Address	Created by		Actions
1	Project 1	In progress	Germany	E****t	**	2	Delete

3 Quick design

Click **Quick design** to design the project, and fill in the project information as prompted. Then complete the new project and output the report.

The process for creating a quick design project is as follows:



- **Basic info:** enter project information, location information and home load information.

- **PV module:** design PV module, including PV model and PV array, and view PV generation..
- **Inverter:** select inverter model, then design electrical connection between PV modules and Inverters.
- **Battery:** select battery model and match it with inverters.
- **Report:** calculate the project results and download report as PDF.

3.1 Entering basic info

The basic info includes the **Project name**, **Location info** and **Load info**.

- Enter the **Project name**.
- Select the **Country** and **City**, and enter the **Longitude** and **Latitude** of the project address.
- Enter monthly **electricity consumption**. If you select **Enter annual electricity consumption only**, only the **Annual electricity consumption** is needed to enter.
- Enter the **Nighttime electricity share** based on site requirements.

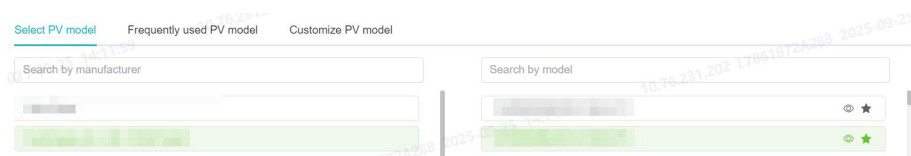
Click **Next** to save the settings.

Notice
• If the City where the PV system is to be installed is not among the options, you can choose a neighbouring one. In fact, the solar radiation energy is affected by the latitude and longitude rather than the City. • Ensure the accuracy of the Latitude and Longitude. The information of the address can be obtained by querying on Google Maps or online.

3.2 PV model design

3.2.1 Set PV model

Click **PV model** to set PV module information, such as manufacturer and model.



- Select the **manufacturer** and **model** of a PV model.
- Click **OK** to save the information.

Notice
• Click to view the details of the PV model. • Click to add this PV model to Frequently used PV model. • Click Customize PV model to add a customized PV module model to Frequently used PV

model.

- Click **Frequently used PV model** to select a frequently used PV module model.

3.2.2 Set PV array

Set PV array name and maximum panel count of PV array.

- Click **Add** to add PV array, and set PV array value.

PV array quantity:2

No.	Array name	Azimuth*	Tilt*	Energy factor	Maximum panel count	Planned panel count	Planned PV capacity	Planned annual energy production	Actions
1	PV array 1	10	38	1077	20	20	10.00 kWp	10770.00 kWh	Edit Delete
2	PV array 2	-10	38	1080	5	5	2.50 kWp	2700.00 kWh	Edit Delete

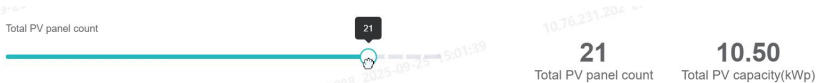
Notice

- The **Energy factor** indicates the total annual power generation of this array at 1kWp.
- You can **Add**, **edit**, and **delete** PV arrays in the PV array list. A maximum of six PV arrays can be configured.
- The default value of **Maximum panel count** is 1, and the default value of **Azimuth** and **Tilt** are 0° and 38° respectively.

Click **Next** to save the settings.

3.2.3 Reference for PV results

Slide **Total PV panel count** to change the number of **Planned panel count**, and other result information will also change accordingly.



Notice

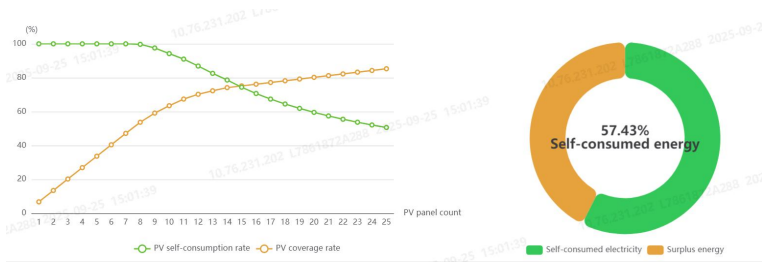
- Slide **Total PV panel count**, PV arrays with later sequence numbers take precedence in quantity changes.

The calculation results are based on the assumption that the PV power generation can be fully utilized.

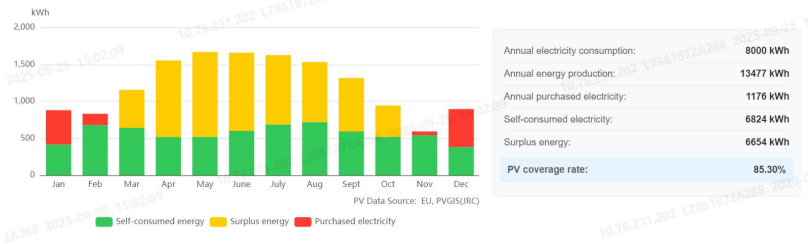
You can make an initial adjustment to planned PV panels based on these pieces of information.

- **PV self-consumption rate**: displays the ratio of **Self-consumed energy** to total PV power generation.

- **PV coverage rate:** displays the ratio of household loads to total PV power generation.
- **Self-consumed energy/electricity:** displays the energy supplied by PV system to household loads.
- **Surplus energy:** displays the electricity purchased from the power grid.



- **Purchased electricity:** displays the surplus electricity generated by PV system after supplying household loads.
- **Annual energy production:** displays annual PV power generation.



3.3 Inverter design

3.3.1 Set inverter

Click to select the **Inverter type**, **Inverter AC power** and the number of **Inverters in parallel** based on site requirements.

Notice

- Inverter types include the **high-phase low-voltage inverter** (Power-Box SL series), **Single-phase high-voltage inverter** (Power-Box SH series), and **Three-phase high-voltage inverter** (Power-Box TH series).
- The maximum of three inverters can be configured in parallel.

3.3.2 Configuration details

The details of electrical connection and configuration of inverters and PV modules.

- Click **PV array** to select the name of PV array.
- Enter **Strings** to indicate the number of PV strings per MPPT.
- Enter **Modules/String** to indicate the number of PV modules per PV string.
- Click **Calculate and check** to output calculation results and configuration details.

Click **Next** to save the settings.

PV array

PV array 1:17/20 (20) PV array 2:0/5 (5)

Configuration details

System DC/AC ratio: 106.25% Total PV panels: 17.00 Total PV capacity: 8.50kWp Annual energy production: 9154.50kWh Calculate and check

DC/AC ratio: 106.25% Nominal DC power < 12kW PV capacity: 8.50kWp

MP PT	PV array	Strings	Modules/String	PV peak power (kWp)	Startup voltage (V)	Maximum input voltage (V)	Normal PV voltage (V)	Maximum input current (A)	Maximum short-circuit current (A)
1	PV array 1	1	9	4.5	180.00	430.65	329.76	13.65	14.63
2	PV array 1	1	8	4	180.00	382.80	293.12	13.65	14.63

Notice

- When the PV and inverter configurations are incompatible, corresponding color indicators will appear (green indicates compatibility, red indicates incompatibility).
- Different MPPT controllers can be connected to the same PV array.

The significance of **PV array** and **configuration details** information:

- **DC/AC ratio:** displays ratio of PV rated DC power to the inverter AC output power.
- **Nominal DC power:** displays the maximum DC input power of this inverter.
- **PV capacity:** displays the actual DC power of the PV modules in this inverter.
- **System DC/AC ratio:** displays ratio of all PV rated DC power to inverters AC output power.
- **Annual energy production:** displays theoretical energy yield (including the actual energy yield and curtailed PV energy).
- **PV array:**

PV array

PV array 1:17/20 (20) PV array 2:0/5 (5)

The planned PV panel count in this array

The maximum PV panel count

The PV panel count connected to inverters

3.4 Battery design

Click to select the **Battery type** based on site requirements and **inverter type**.

- If you choose the **Single-phase high-voltage inverter** or **three-phase high-voltage inverter**, you can select from the following four options (HVB, HVE, HVS+, HVM+).
- Click **Single tower capacity** and **Battery towers**.

Battery type

HVB

HVE

HVS+

HVM+

Single tower capacity (kWh)

6.43

8.58

10.72

12.86

12.87

15.01

17.15

17.16

19.29

19.3

21.44

23.58

Battery towers

1

2

3

4

5

6

7

8

9

HVE 12.8-1 (12.86kWh)

Battery towers / BCUs: 1	Packs: 2
Total battery capacity: 12.86kWh	
Charge power:	5.76kW
Discharge power:	5.76kW

Notice

- Each high-voltage inverter can be configured with a maximum of three battery towers.
- The charging power and discharging power represent the regular power of a single battery tower.

- If you choose the **single-phase low-voltage inverter**, you can select **LV 5.0+**.
- Enter **Packs** to indicates the number of battery packs.

Battery type

LV5.0+

Single pack capacity

5.12 kWh

Packs

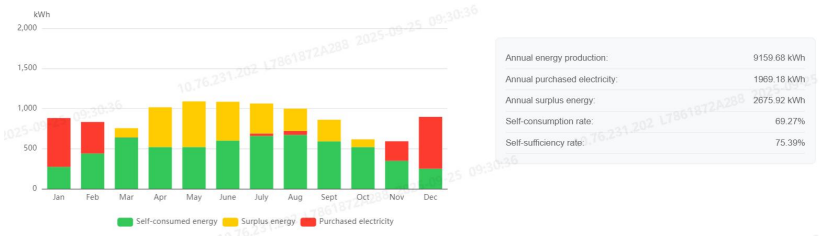
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3.5 Generating a report

The report includes project name, **Energy management**, **System configuration** and **PV connection**.

- Click **Download as PDF** and generate a report.
- Click top right corner  to return to the project management page.

3.5.1 Energy management



- **Self-consumed energy:** displays energy directly or indirectly supplied from the PV system to the household loads, including the energy from the PV system, and the energy generated by the PV system, supplied to the battery, and then discharged by the ESS to the battery.
- **Surplus energy:** displays the electricity purchased from the power grid.
- **Purchased electricity:** displays the surplus electricity generated by PV system after supplying household loads.
- **Annual energy production:** displays theoretical energy yield (including the actual energy yield and curtailed PV energy).
- **Self-consumption rate:** displays ratio of the self-consumed energy to the PV energy yield.
- **Self-sufficiency rate:** displays ratio of the self-consumed energy to the household loads.

3.5.2 System configuration

System configuration includes the information of configuration of inverter, battery and PV modules.



3.5.3 PV connection

PV connection includes the electrical connection between PV modules and Inverters.

BYD Energy Storage

System DC/AC ratio: 106.25% Total PV panels: 17 Total PV capacity: 8.50kWp Annual energy production: 9154.5kWh

DC/AC ratio: 106.25% Nominal DC power: 12kW PV capacity: 8.50kWp

MPPT	PV array	Azimuth°	Tilt°	Strings	Modules/ String	PV peak power (kWp)	Startup voltage (V)	Maximum input voltage (V)	Normal PV voltage (V)	Maximum input current (A)	Maximum short-circuit current (A)
1	PV array 1	10	38	1	9	4.5	180.00	430.65	329.76	13.65	14.63
2	PV array 1	10	38	1	8	4	180.00	382.80	293.12	13.65	14.63

Notice

- If the PDF of report is incomplete, you can reduce the proportion of the web page.
- The simulation data provided by this product is for reference only.
- PV simulation data source: EU,PVGIS(JRC).



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