

**CleverHouse**

**VPP module in App**



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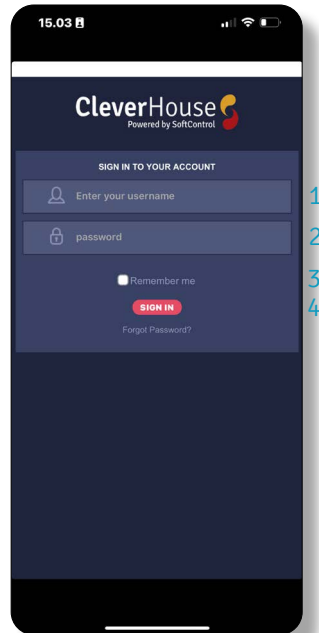
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# CleverHouse App VPP guide

## Login page

When the CleverHouse App is started you will see a login page:

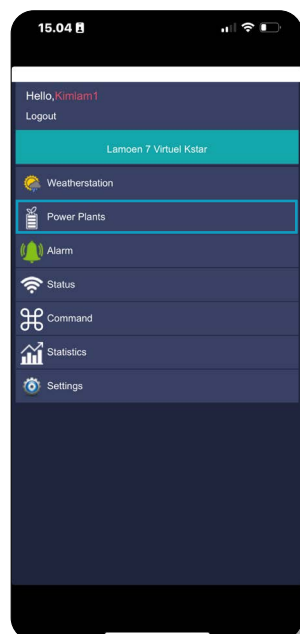
1. Type in your username
2. Type in your password
3. If you want the system to remember you for automatic login, mark this box
4. Click on sign in



Ill. 3.1 - CleverHouse login page.

## Main menu

The CleverHouse system has different features in the main menu, such as: Weather station, Meters (Water, Electricity, Energy), Temperature Sensor, On/off, Heat Control, EV Charger, Ventilation Control, Access Control, Load Balancing, Security Alarm, Shade Control, Smoke Alarm, Heat Pump, Power Plants and Clima Module. Beside the function modules some general modules are available. All the mentioned modules are being enabled during the setup of CleverHouse. In this manual all the functions belonging to VPP/Power plants are described.

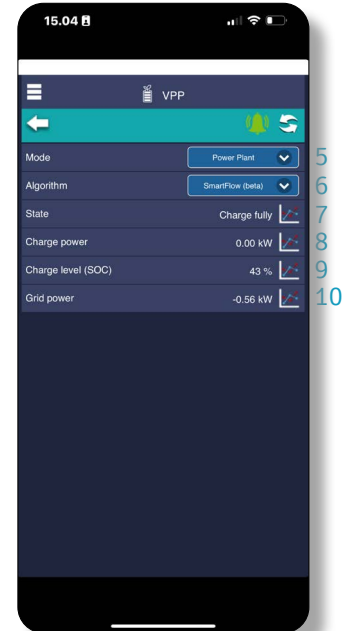


Ill. 3.2 - CleverHouse menu list.

## VPP module

The name "VPP" is set during installer programming and can only be changed by the installer.

In the light blue area, there is an arrow pointing left, which means that you go back in the menu. The green bell shows current alarms. When it turns red, there is an alarm on the installation. By clicking on the bell a new page will show a list with all alarm messages. The two arrows in the right corner are manually update of real time data. These are general in the app.



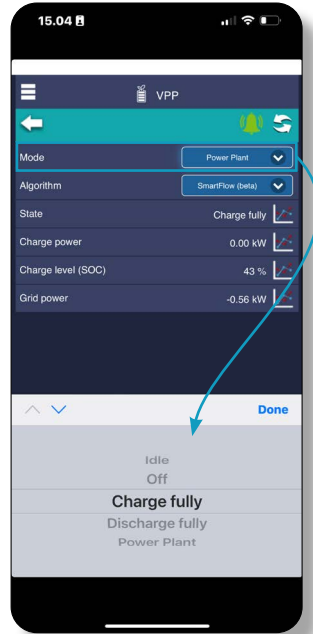
Ill. 3.3 - Settings for VPP.

5. Here the running mode of VPP is set.
6. There are different algorithms for the system which is selected here.
7. The Power Plant can run in different modes which is graphically represented by clicking on the icon.
8. The realtime charging power on the battery is shown here as a number and also as a graph, by clicking on this graph icon.
9. This shows State of charge in real time and as a graph by clicking on this graph icon.
10. Shows realtime data for grid power running in or out of building.

## Mode

In this dropdown menu, there is 5 states:

- **Idle:** CleverHouse does not control and the inverter can run its own algorithms.
- **Off:** Here CleverHouse forces the inverter not to charge or discharge.
- **Charge fully:** Here CleverHouse forces the system to fully charge battery.
- **Discharge fully:** Here CleverHouse forces the system to fully discharge battery.
- **Power Plant:** Here CleverHouse is controlling the system by the algorithms.



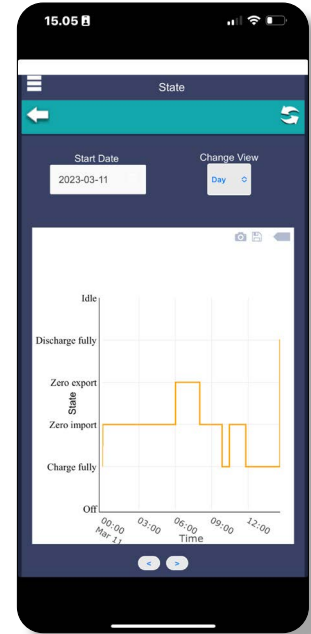
Ill. 4.1 - States for Mode.

## State

By clicking on graph icon under State, a graph will be shown.

This graph shows in which state the Power Plant is running over a chosen time period.

Each graph has 5 different timescales, 8 hours, Day, Week, Month and Year which can be selected in the dropdown to the right. The starting date can be selected in the date selector to the left.

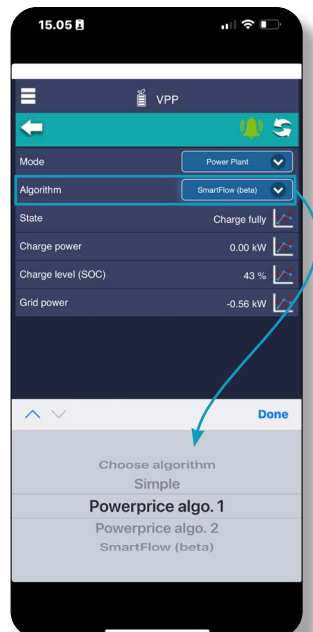


Ill. 4.3 - Graph showing state.

## Algorithm

In this dropdown menu, there is 4 states:

- **Simple:** Here the Power Plant will run as standard hybrid and optimize self-consumption. If surplus from PV it will charge battery and when consumption is higher than production, it will take energy from battery
- **Powerprice algo.1:** This algorithm is used to optimize according to electricity prices
- **Powerprice algo.2:** This algorithm is used to optimize according to electricity prices in combination with self-consumption from PV production
- **Smartflow (beta):** A full automatic algorithm, no without any input parameters from user.



Ill. 4.2 - States for Algorithm

## Change Power

By clicking on graph icon under Charge Power on battery, a graph will be shown. The graph shows when the battery is charging (negative number) and discharging (positive number).

Each graph has 5 different timescales, 8 hours, Day, Week, Month and Year which can be selected in the dropdown to the right. The starting date can be selected in the date selector to the left.



Ill. 4.4 - Graph showing how battery charging and discharging.

## Charge Level

By clicking on graph icon under Charge Level, a graph shows the level of the battery over time. The graph illustrates when your installation uses power from the battery and when the battery gets charged.

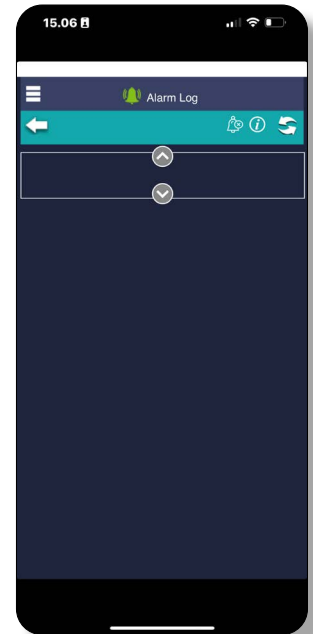
Each graph has 5 different timescales, 8 hours, Day, Week, Month and Year which can be selected in the drop-down to the right. The starting date can be selected in the date selector to the left.



Ill. 5.1 - Graph showing battery level.

## Alarm Log

All current alarm messages from the installation status are shown under Alarm. If the bell is green, there is no current alarm. If the bell is red there is an active alarm in the system.

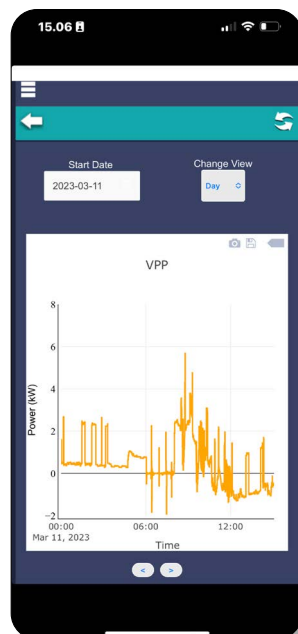


Ill. 5.3 - Alarm Log.

## Grid Power

By clicking on graph icon under Grid power, a graph shows how much power from the grid that is running in and out of the building.

A positive number means that building is buying electricity and a negative number that the PV plant, that battery is selling electricity. Each graph has 5 different timescales, 8 hours, Day, Week, Month and Year which can be selected in the drop-down to the right. The starting date can be selected in the date selector to the left.



Ill. 5.2 - Graph showing grid power.

## Status

This gives an overview of all used CleverHouse controllers. With Power Plant as described in the manual, only a Virtual CleverHouse is being used and very less information is available, as installed country and name of installation. If there were used more functions from CleverHouse more information was available. Such as:

- Last server contact
- SW-Version
- Installation name
- Country
- MAC address of CleverHouse controller
- Force controller to restart



Ill. 5.4 - Status.

## Statistics

The Power Plant is using electricity prices to optimize the hybrid system. Under Statistics the historical prices can be shown by clicking on the graph icon.



Ill. 5.4 - Statistics overview.



Ill. 6.1 - Statistics overview.

ling the flow of energy in your home. This means that you can sit back and relax, knowing that your inverter is working hard to save you money on your electricity bills.

In addition to its advanced energy optimization capabilities, SmartFlow also comes with a user-friendly interface that allows you to monitor your energy usage and savings in real-time. This means that you can track your energy consumption and adjust your energy usage accordingly, to further increase your savings.

Overall, SmartFlow is an essential tool for any KSTAR hybrid inverter customer who is looking to save money on their electricity bills, while also reducing their carbon foot-print. We are confident that you will love the advanced capabilities and ease-of-use of this innovative algorithm, and we look forward to helping you optimize your energy usage with SmartFlow.

Thank you for choosing KSTAR hybrid inverter, and we hope you enjoy the benefits of SmartFlow!

## SmartFlow - full automatic algorithm

We are excited to introduce you to our innovative algorithm, SmartFlow, which is de-signed to help you optimize your energy usage and save money on your electricity bills. SmartFlow is a cutting-edge technology that enables your KSTAR hybrid inverter to control the flow of energy in your home, while taking into account the real-time electricity prices.

At its core, SmartFlow is a sophisticated algorithm that has been developed to find as many charge/discharge cycles for the day as possible. This means that the algorithm is constantly monitoring the electricity prices and the energy consumption in your home, and it will adjust the flow of energy accordingly to ensure that you are always getting the best possible price for your energy.

The SmartFlow algorithm is designed to work seamlessly with your KSTAR hybrid inverter, and it is fully automated, so you don't need to worry about manually control-

Full manual for  
CleverHouse App



# CleverHouse facilitates intelligent management of your building.


With online control and surveillance of energy consumed - water, temperature, moisture, access control and alarms, solar cells, ventilation, and heat pumps - the more you can potentially save together with security, comfort and overview.

Be CleverHouse´d and support 5 of UN's Sustainable Development Goals with an investment in the future now. The more modules you install, the smarter your building gets and the more energy and potential energy expenses you can save.




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CVR: 34087245

 Vodskovvej 135, DK-9310 Vodskov

 salg@softcontrol.dk

 [www.softcontrol.dk](http://www.softcontrol.dk)

 +45 70 25 78 50

**SoftControl** 