



Manual english

5.5" display for HUAWEI SUN2000, SMA and FRONIUS inverters

Manual Version February 2025



The **BOPV.uno** is designed as a convenient control centre and for the output of real-time data from up to three Huawei, SMA and Fronius inverters and accessories. It retrieves the real-time data from the inverters via Modbus TCP (Huawei/SMA) or V1 API (Fronius). It's easy to configure and use

Roland B., Developer and Programmer

Requirements and Compatibility

Minimum Requirements Huawei:

1. Huawei SUN2000 Inverters
2. Huawei SDongleA-05

Minimum Fronius requirements:

3. Fronius inverters
4. Support of the V1 API (GEN24, Symio ...)

Minimum SMA requirements:

5. SMA Sunny Boy Smart Energy / Tripower

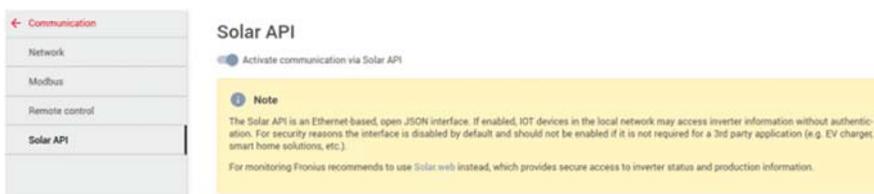


Required Prerequisites: Huawei

You will need the IP address of the SDongleA-05. Modbus TCP must be enabled on the dongle and the Modbus addresses of each device must be known. If you have admin rights, you can make these settings in the FusionSolar itself. Otherwise, you will need to request this information from your installer or electrician. All Huawei components should have up-to-date firmware versions.

Required Prerequisites: Fronius

You will need a Fronius inverter with up-to-date firmware that also supports the "API V1". API access must be activated directly in the inverter.



You can easily find out if your inverter supports this API V1.

In a web browser on a device on the same network as the inverter, enter the following URL:

http://0.0.0.0/solar_api/v1/GetPowerFlowRealtimeData.fcgi

(Replace 0.0.0.0 with the IP-address of your inverter).

If you receive feedback, similar to the one shown on the screenshot on the right side, then your inverter supports the API V1.

Prerequisites SMA

You need an SMA Sunny Boy Smart Energy, Sunny Boy or Tripower inverter with the latest firmware. SMA batteries and SMA smart meters and SMA Home Manager 2.0 are also supported. Modbus TCP must be activated in the inverter and multicast messages from the SMA Smart Meter or SMA Home Manager 2.0 must be sent to the PC (see the document "SMA Modbus and Speedwire Config for BOPV").

Packing

1. 5.5" basic unit
2. Built-in battery
3. 220V power adapter with EU plug and USB-C charging port
4. Magnetic Aluminum Stand
5. Ring adapter for the magnetic stand
6. Angled plug for concealed power supply
7. Rubber covers for all connections
8. License card with your license number



Unpacking and initial commissioning

The BOPV.uno is delivered ready for use. If you want to use the magnetic stand, attach the self-adhesive metal ring to the back of the BOPV.uno first. The instructions for this can be found in the packaging of the magnetic stand.

Connect the power adapter to the USB-C port. Use the angle adapter if the protruding cable seems bothersome to you.

The use of a USB mouse and USB keyboard is helpful for start-up, but not absolutely necessary.

The scope of delivery also includes rubber plugs for all connections. Use these optionally to prevent dust from entering.

Turn on the BOPV.uno by clicking on the power button on the bottom left side of the screen for about 3 seconds. The BOPV.uno starts the operating system (Windows 11) and automatically the startup application and then the BOPV.uno application.

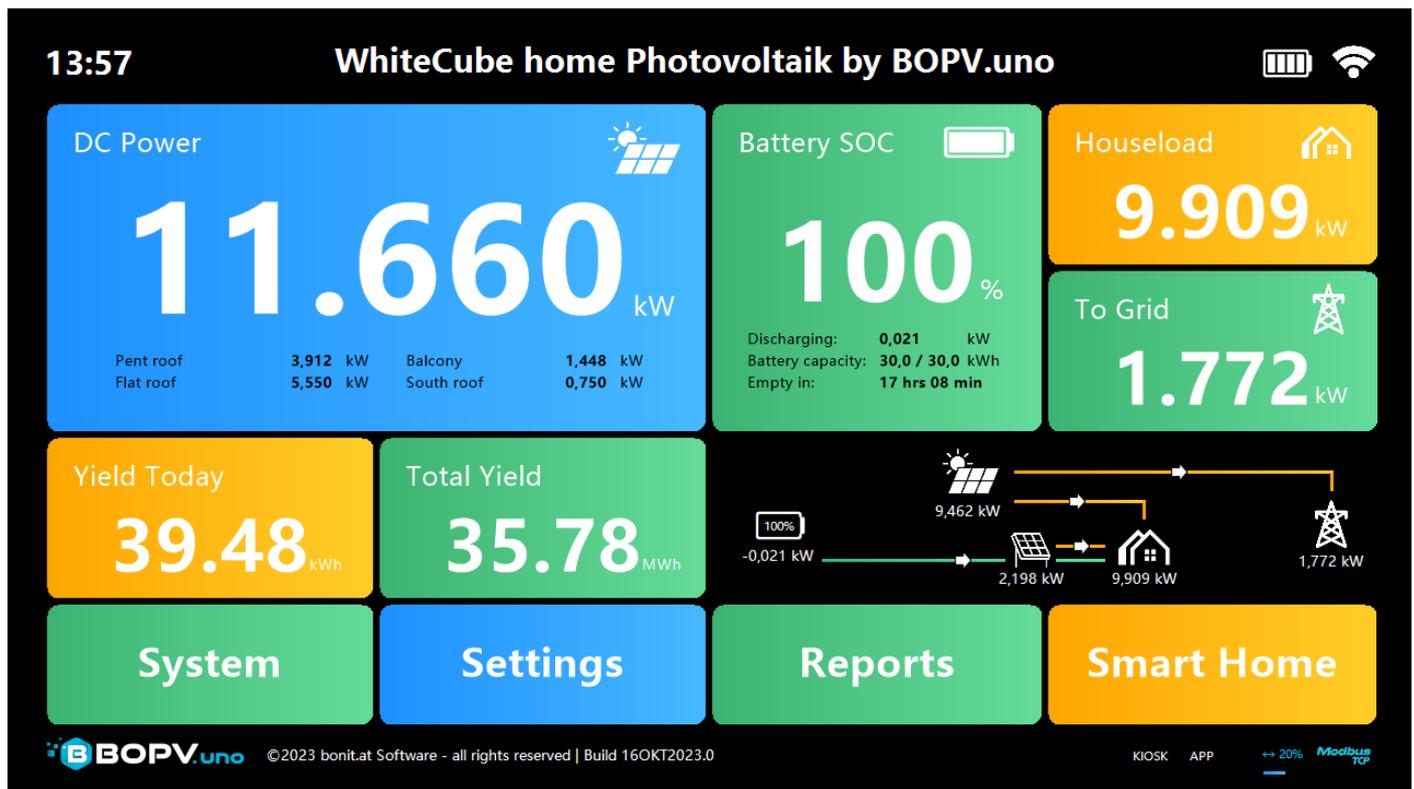
Licensing: To activate the BOPV.uno, please enter the enclosed license number. In the case of "app only", plug in the supplied USB license dongle while the app is in operation.

Before you can make any further settings, you should connect the BOPV.uno to your home network (to which your inverter is also connected). You can either use a network cable or the built-in Wi-Fi. To connect the BOPV.uno to your Wi-Fi network, click on "System" and "Exit" and then on "Close" in the top right corner of the startup application. You are now on the familiar Windows 11 interface, where you can connect the BOPV.uno to your Wi-Fi. Once this is done, we recommend restarting Windows. This will also restart the startup application, making it easier to launch the BOPV.uno application on the 5.5" screen.



The Main Interface

After launching the BOPV.uno software, the main interface will automatically appear. If no parameters have been set yet, the displays will change randomly with random values to demonstrate the function.



DC Power

This field contains the power from the solar panels. By clicking on the field, you can show or hide the inverter details or switch to power source details. If there is no energy coming from the solar panels, the display switches to "house load".

Battery SOC

Here you can find information about the battery level. With one click, you can display additional details. This field is only available if you also have a battery AND a smart meter installed.

Houseload

Here you can find the current house consumption. This field is only available if you also have a smart meter installed.

To Grid / From Grid

The energy that is fed into the public power grid or drawn from the public power grid.

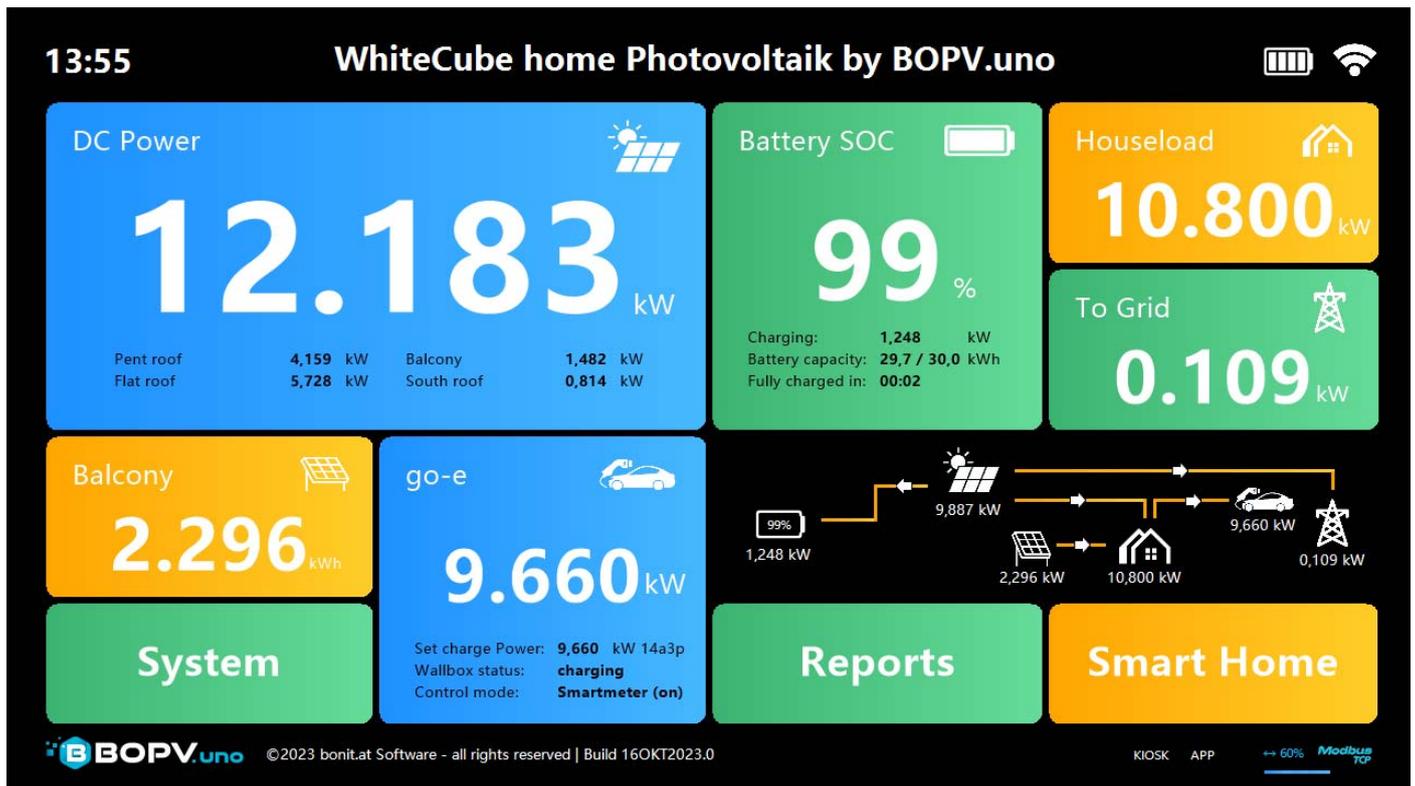
Yield Today / Total Yield / Balcony / Energy Price / DC Yield Today

These two buttons on the left can display multiple contents. By clicking on the button, you can change the content. Depending on the configuration and inverter type, the daily yield, the total yield, balcony power plant capacity, degree of autonomy, self-consumption or hourly energy price can be displayed here.

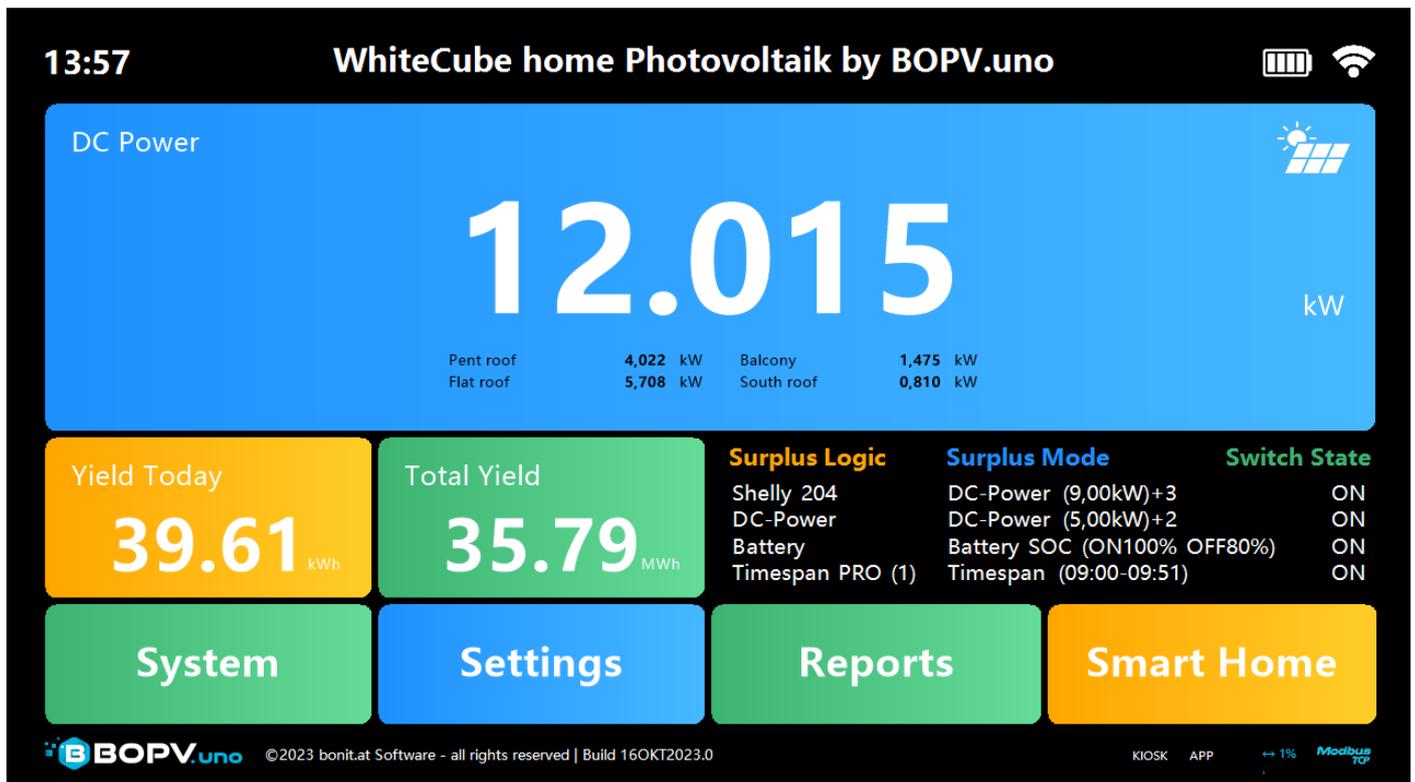
Indicator right center

This display can have three different modes. Graphical Energy Flow Display, Energy Flow Bar Graph or Surplus Control Display. See also the screenshots below:

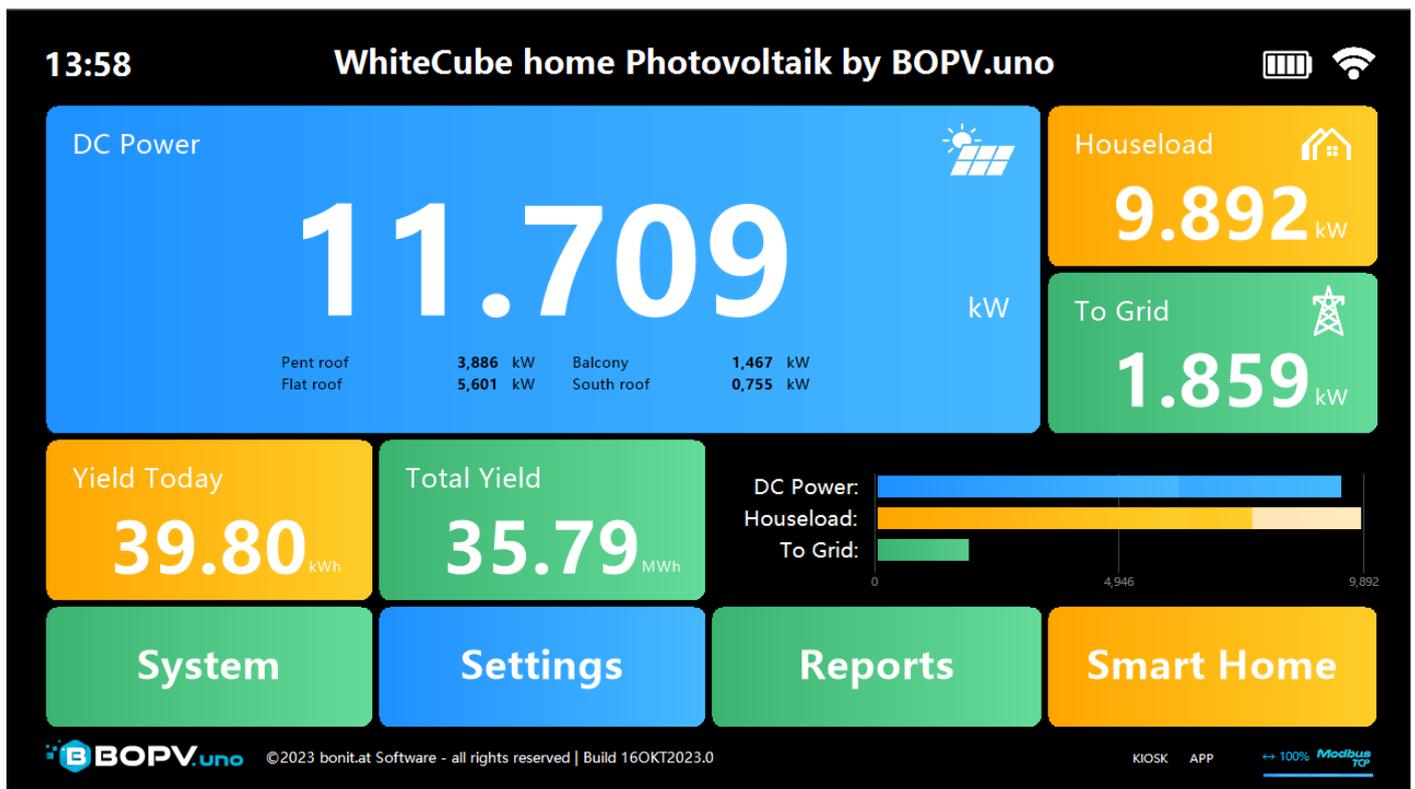
In this screenshot, the GO-E wallbox is configured and active and in addition two balcony power plants are shown in addition to the two (out of 3 possible) inverters:



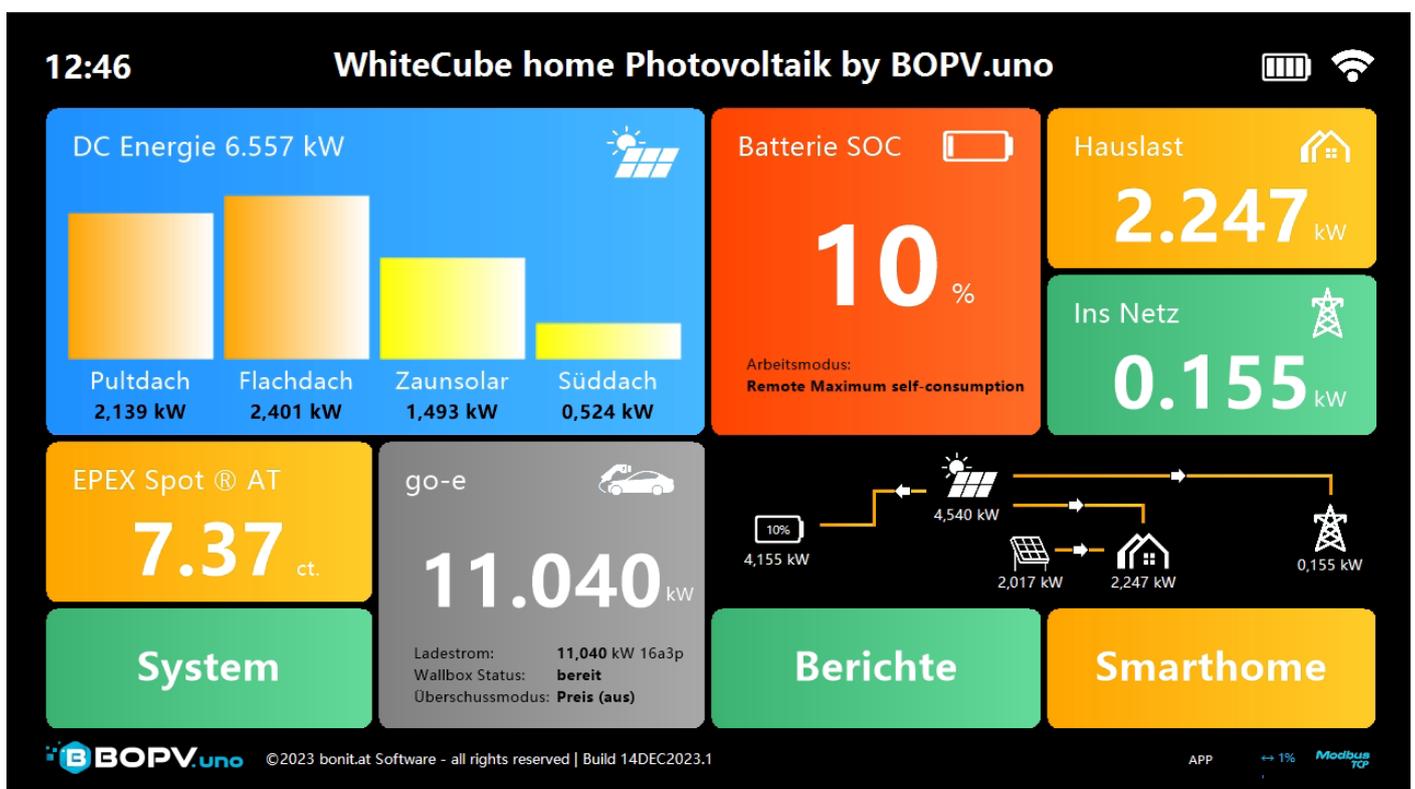
If no smart meter or battery is installed, the DC power display is extended to the entire width of the screen. Here you can also see the surplus management as an example:



If you have a smart meter installed but no battery, the main screen will look like this. Here, the energy flow indicator "Bar Chart" has been activated.



Here, for DC energy, the source view (each energy source individually) is shown. The working mode of the battery is shown (click on the tile 3 times). At the bottom left, the current hourly energy price is displayed.



Configuring Inverter Queries

Click on "Settings" (or "System" > "Settings") to go to the configuration. Here you can change the language in the upper right corner. Click "Save & Restart" to apply.

At "Main Title" you can give your BOPV.uno a name. This will appear at the top of the main screen.

"Auto Screen Brightness" reduces the screen brightness in the darker part of the day. Thus, there is no annoyingly strong glow of the screen in the evening.

"Balcony / PV2" will be explained further down in the next chapter.

Select the inverter type under "Datasource" and confirm the selection with "Set". Depending on the type of inverter, you will now need to set various parameters.

Configuration of Huawei SUN2000, LUNA2000 and smart meters

The screenshot shows the 'Settings' screen for BOPV.uno. At the top left is a back arrow and the title 'Settings'. In the top right corner, it says 'Modbus port: 502' and 'Language: english'. The main section is titled 'Datasource' and shows 'HUAWEI SUN2000' selected with a 'Set' button. Below this, there are three rows for inverter configuration: '1st Inverter', '2nd Inverter', and '3rd Inverter'. Each row has fields for 'Huawei DongleA05 IP', 'Modbus-ID', 'Strings', and 'Name(s) of your Inverter(s)'. The 1st inverter is configured with IP 192.168.0.188, Modbus-ID 1, 2 strings, and name 'Pultdach'. The 2nd inverter has IP 192.168.0.224, Modbus-ID 3, 2 strings, and name 'Flachdach'. The 3rd inverter has IP 192.168.0.240, Modbus-ID 0, 0 strings, and an empty name field. There are checkboxes for 'Battery available' and 'Smartmeter available', both checked. A 'Battery kWh Capacity' field is set to 30,00. An 'SM+BATT Modbus ID' field is set to 1. A 'Test' button is visible. Below the inverter settings is the 'Basic Settings' section with 'Main Title' set to 'WhiteCube home Photovoltaik' and 'Auto Screen Brightness' checked. At the bottom is the 'Balcony / PV2' section with three rows for balcony configuration. Each row has fields for 'IP Address', 'Shelly or myStrom Device Type', and 'Name'. The 1st balcony has IP 192.168.0.240, device type 'PRO/PLUS 1-4 PM (0)', and name 'Zaunsolar'. The 2nd balcony has IP 192.168.0.224, device type 'PLUS Plug S', and name 'Süddach'. The 3rd balcony has an empty IP, device type '-', and an empty name. A 'Test' button is also present. At the bottom left is the BOPV.uno logo, and at the bottom right is a checkbox 'Add the Balcony Yield to the Main Yield and show the real House Load' which is checked. On the right side of the screen, there are four large buttons: 'Surplus' (orange), 'GO-E Wallbox' (yellow), 'Hourly Prices' (blue), and 'Save & Restart' (green).

For "1th Inverter:", enter the IP address of the Huawei dongle. For up to three inverters, you then enter the Modbus ID, the number of strings per inverter and a name for the inverters. If you have installed a battery or smart meter, check the respective boxes. Under "SM+BATT Modbus ID" you enter the Modbus ID of the master inverter. Also specify the size of your battery in kWh. Optionally, you can activate "Record individual String Data" – this activates the query and recording of the individual strings per inverter. This may cause the query to take a few seconds longer.

You can use the "Test" button to test the settings. If everything is correct, then save with "Save & Restart".

Configuration Fronius inverter with battery and smart meter

Settings

Language:

Datasource

1st Inverter: IP of your Fronius Inverter Name(s) of your Inverter(s)

2nd Inverter:

3rd Inverter:

Battery available Battery kWh Capacity:

Smartmeter available

Basic Settings

Main Title: Auto Screen Brightness

Balcony / PV2

	<small>IP Address</small>	<small>Shelly or myStrom Device Type</small>	<small>Name</small>
1st Balcony:	<input type="text" value="192.168.0.240"/>	<input type="text" value="PRO/PLUS 1-4 PM (0)"/>	<input type="text" value="Zaunsolar"/>
2nd Balcony:	<input type="text" value="192.168.0.224"/>	<input type="text" value="PLUS Plug S"/>	<input type="text" value="Südsolar"/>
3rd Balcony:	<input type="text"/>	<input type="text"/>	<input type="text"/>

Add the Balcony Yield to the Main Yield and show the real House Load

BOPV.uno

Simply enter the IP address of the inverter and a descriptive name for each inverter you are using. If you have installed a battery or smart meter, check the respective boxes. Also, specify the size of your battery in kWh.

You can use the "Test" button to test the settings. If everything is correct, then save with "Save & Restart".

Configuration SMA

Einstellungen

Modbus port: 502
Sprache:

Datenquelle Logge String-Daten

1. Wechselr.: IP of your SMA Inverter Modbus-ID Strings Namen der Wechselrichter

2. Wechselr.:

3. Wechselr.:

Batterie verfügbar Batteriekapazität kWh:

Smartmeter verfügbar

Grundeinstellungen

Haupt Titel: Automatische Helligkeit

Balkon / PV2

	<small>IP Adresse</small>	<small>Shelly oder myStrom Gerätetype</small>	<small>Name</small>
1. Balkon:	<input type="text"/>	<input type="text" value="-"/>	<input type="text"/>
2. Balkon:	<input type="text"/>	<input type="text" value="-"/>	<input type="text"/>
3. Balkon:	<input type="text"/>	<input type="text" value="-"/>	<input type="text"/>

Addiert Balkonenertrag und Hauptertrag und zeigt echte Hauslast

BOPV.uno

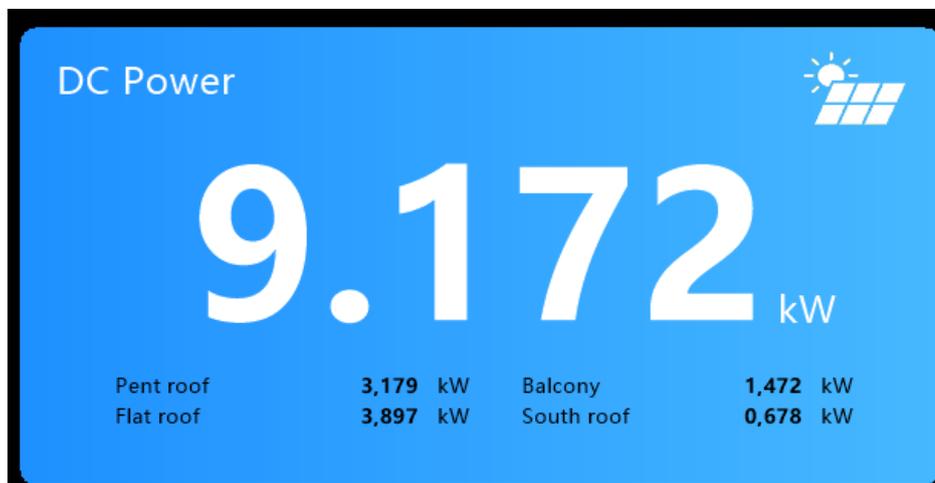
Enter the IP addresses of the SMA inverters used under "1th – 3rd Inverter:".

Then enter the Modbus ID (default is 3), the number of strings per inverter and a name for the inverters for up to three inverters. If you have a battery or smart meter installed, activate the respective check boxes. Optionally, you can activate "Record individual String Data" – this activates the query and recording of the individual strings per inverter. This may take a few seconds longer to query.

You can use the "Test" button to test the settings. If everything is correct, then save with "Save & Restart".

Balcony power plants, wind power plants or hydroelectric power plants

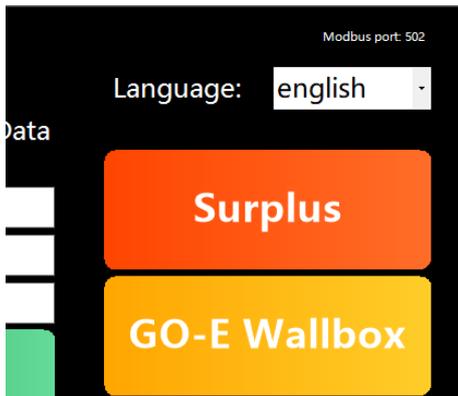
In the settings, you can add up to 3 additional energy sources at the bottom. The energy flows are transmitted via Shelly or myStrom measuring devices. To do this, simply enter the IP address of the Shelly or myStrom meter, the type of meter and a meaningful name for it. Both energy sources are fed into the house grid and thus naturally reduce the house load. With "Add the Balcony Yield to the Main Yield and show the real House Load" you can include these additional energy sources in the main display and thus get a real house load and a real DC power displayed. Here's an example:



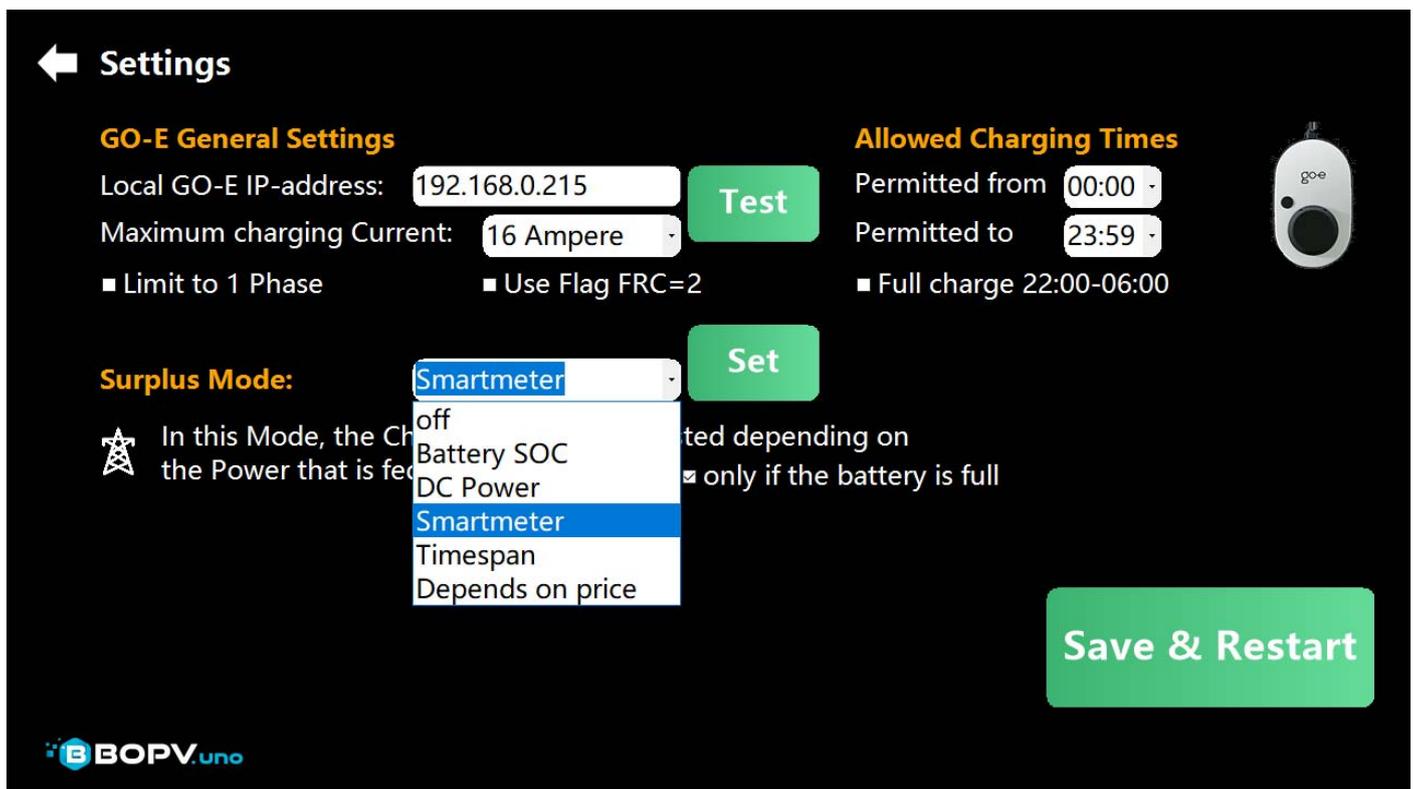
Integrate GO-E wallbox for surplus charging

If you want to use a GO-E wallbox for surplus charging of your electric vehicle, then this is very easy to set up with BOPV.uno. The local API in the GO-E must be enabled and the IP address of the GO-E must be known.

Go to "GO-E Wallbox" in the settings.



Enter the IP address of your GO-E wallbox and define whether it is an 11 or 22 kW charging station (16 or 32 amps). You can use the "Limit to 1 Phase" option to limit charging to one phase if the GO-E is only connected to a 230 volt line. Please only activate the option "Use Flag FRC=2" for a few vehicle types as instructed by the GO-E app.

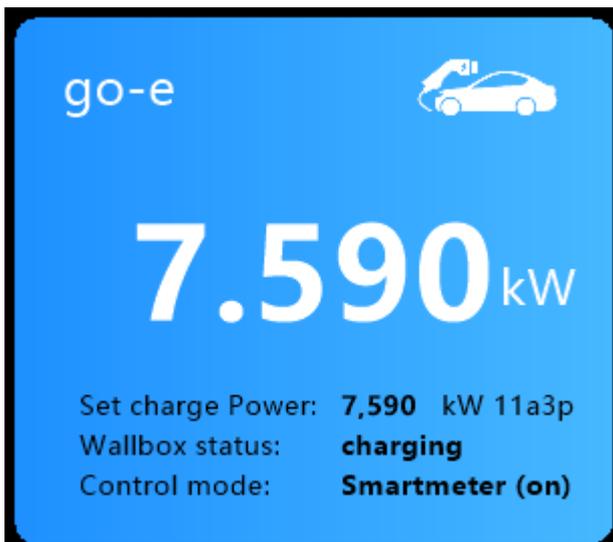


Under "Surplus Mode", specify the calculation method for the surplus loading. You will see the explanations as soon as you have selected a mode and set it with "Set".

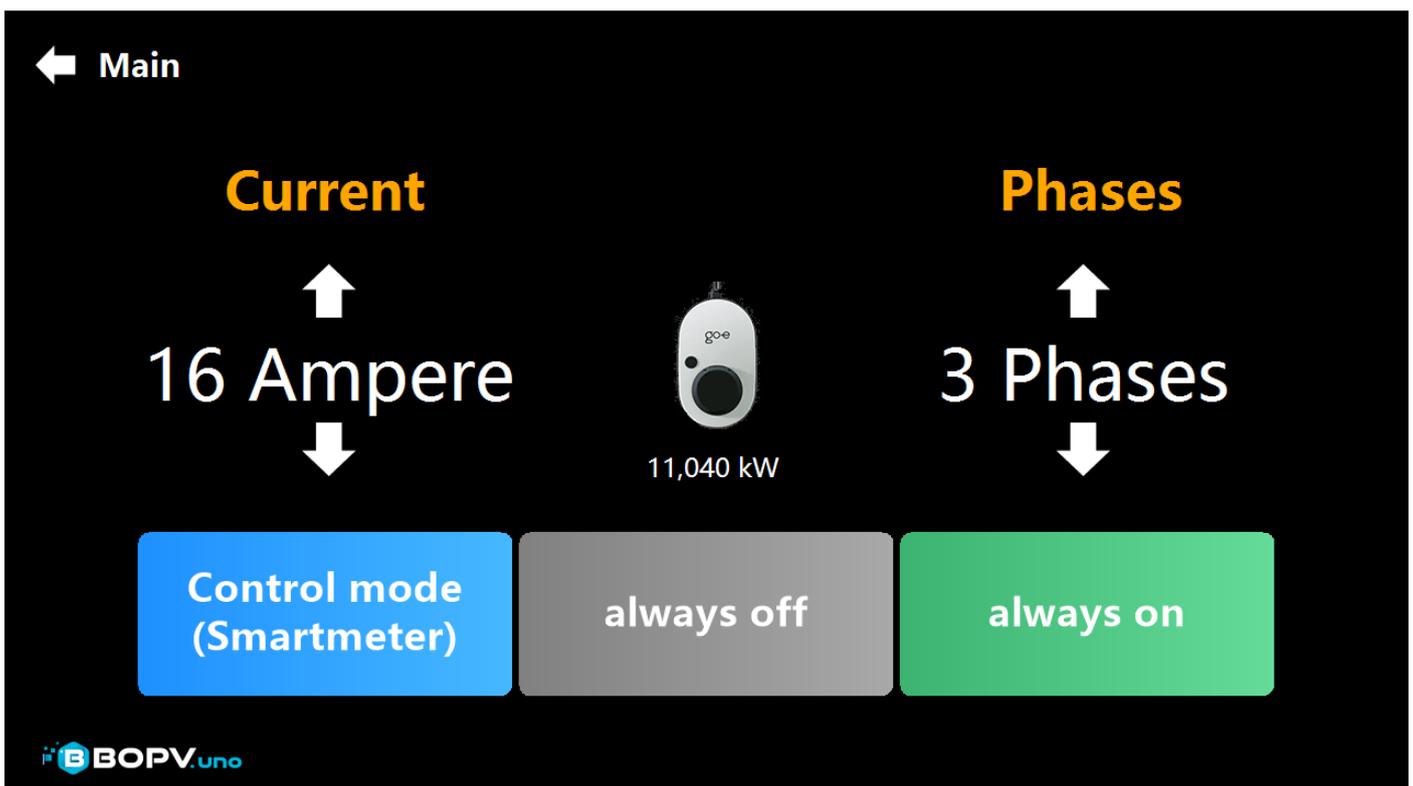
You can also set allowed charging times if you want to prevent charging at certain times. With "Save & Restart" the setting is saved and the surplus function is active.

"Full charge 22:00-06:00" starts the charging process in any case at this time (if the car could not be fully charged due to surplus, but it is needed "full" the next day).

On the main screen, you can see the current state of the GO-E wallbox. Here in the example, "smart meter" is currently used by surplus calculation (blue background) and the vehicle is charged with 11 amps and 3 phases.



If you click on this GO-E tile, a drop-down menu will appear where you can change the charging current for certain surplus modes. However, you can also stop the charging process in general (always off) or start it in general (always on).



Surplus control of other devices

For example, would you like to switch on a heating element if more than 5 kW of energy comes from the roof? Nothing could be easier. Here's an example:

To create the first logic, simply click on the first area at "Active Logics" in the upper right corner. Assign a descriptive name, select the device to be switched on (e.g. Shelly Plug S) and the IP address of the device to be switched. In "Channel" you can choose between channels 0, 1, 2 and 3 if it is a Shelly device with multiple circuits.

Select the excess mode and click on "Set" to activate it and get the explanation (and other options for it).

Set 'allowed switching times' if you want to prevent switching at certain times. The option "Minimum Runtime to prevent Device Damage" causes a "delay time". So that a device is not switched on and off too many times in a row in different productive weather.

With "Test & Save" the settings are saved and the surplus function is programmed. The 5 areas in the upper right corner also indicate whether a logic is currently active.

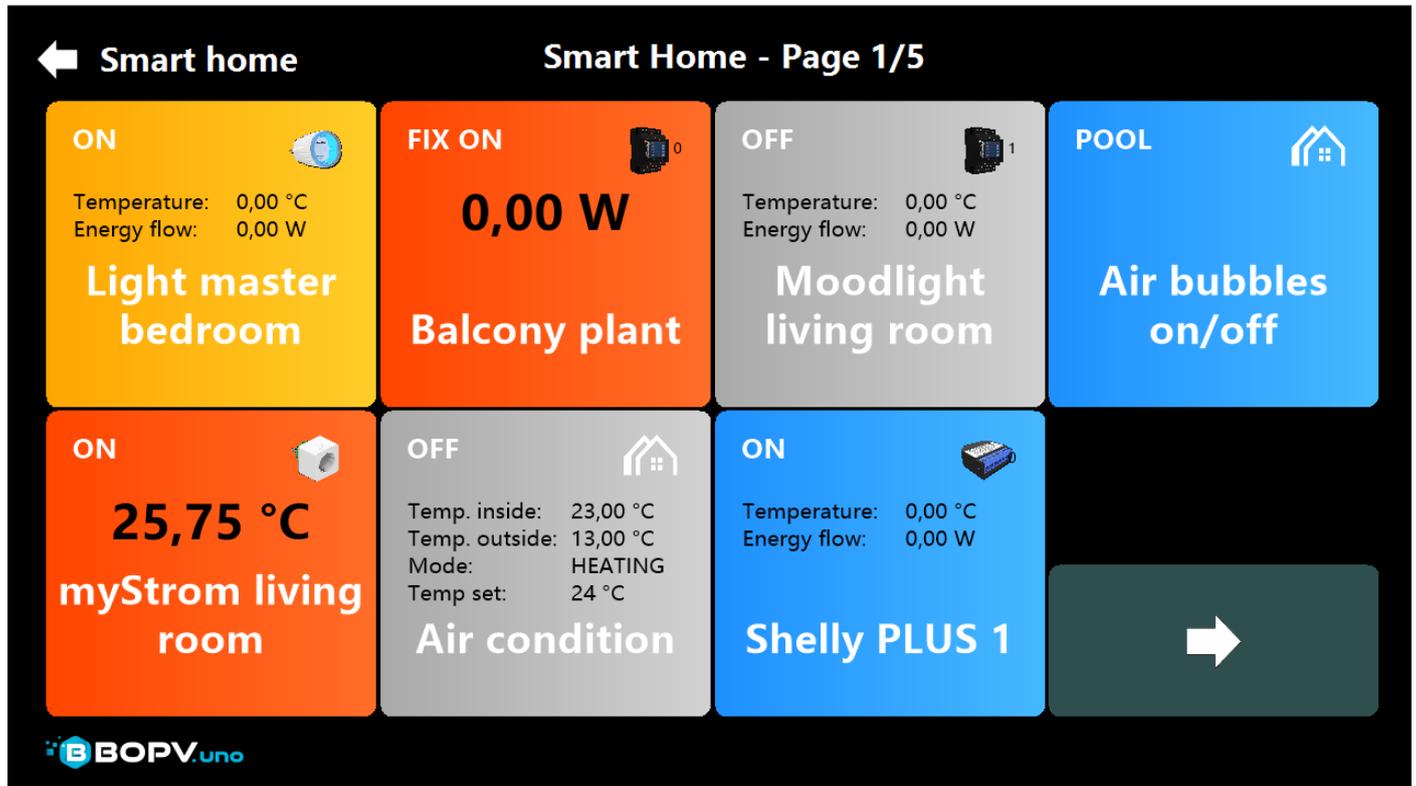
In the main screen, you can see up to 4 excess logics if you have switched the widget accordingly with one click on it.

Surplus Logic	Surplus Mode	Switch State
Shelly 204	DC-Power (9,00kW)+3	OFF
DC-Power	DC-Power (5,00kW)+2	ON
Battery	Battery SOC (ON100% OFF80%)	ON
Timespan PRO (1)	Timespan (09:00-09:51)	OFF

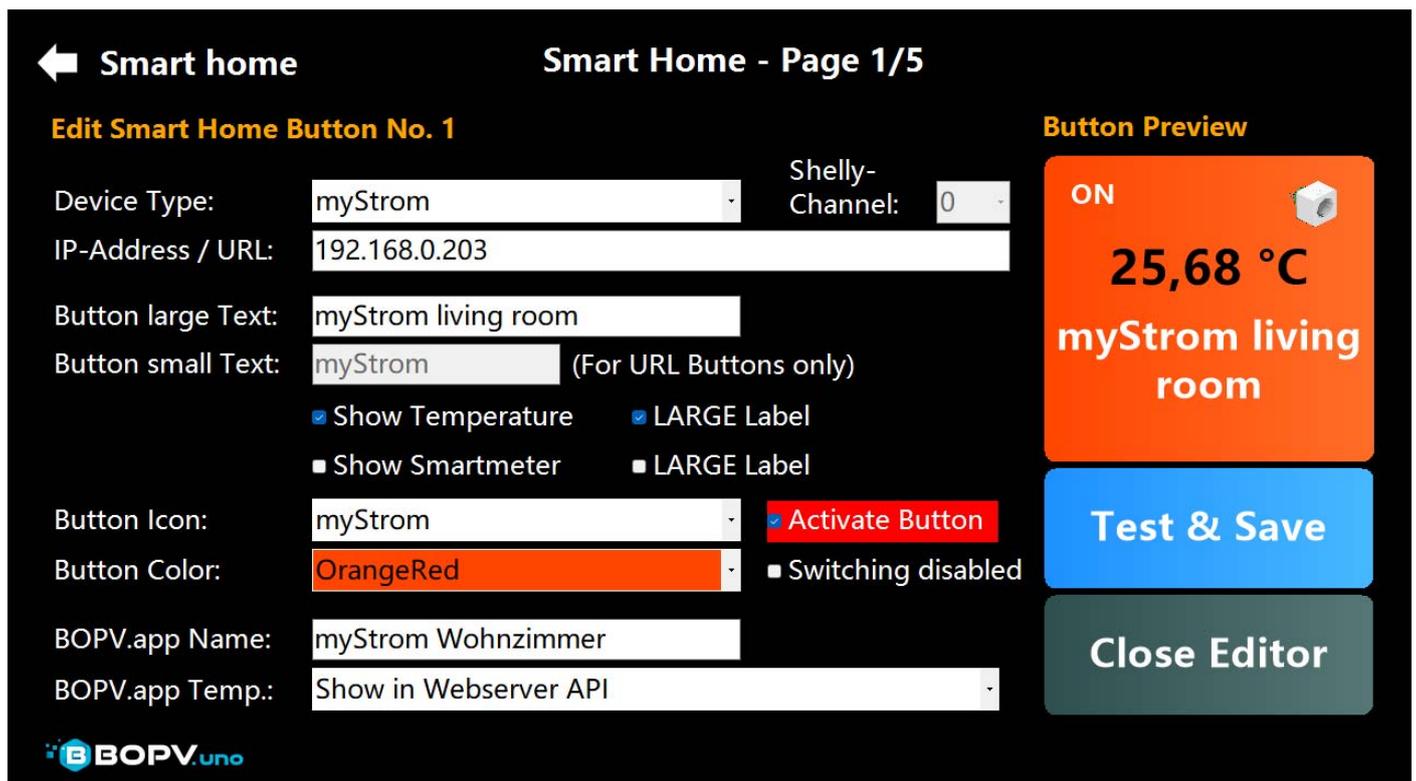
Smarthome Features

You can use the "Smarthome" to switch or read out up to 35 devices in the house. These would be, for example:

- * All Shelly devices (switching, measuring energy flow, temperature)
- * myStrom Switch (switching, measuring energy flow, temperature)
- * Daikin air conditioning (switching, displaying settings, querying 2 temperatures)
- * Home automation devices with a local http interface.



To configure a tile, simply right-click (hold down the touch):



Above: Example of Shelly device / Bottom: Example of pool control via HTTP interface

Smart Home - Page 1/5

Edit Smart Home Button No. 1

Device Type: HTTP URL Shelly-Kanal: 0

IP-Adresse / URL: https://192.168.0.233/control?dev=1&action=toggle

Button large Text: Air bubbles on/off

Button small Text: POOL (For URL Buttons only)

Show Temperature LARGE Label

Show Smartmeter LARGE Label

Button Icon: bopvunhouse Activate Button

Button Color: DodgerBlue Switching disabled

BOPV.app Name:

BOPV.app Temp.: -

Button Preview

POOL

Air bubbles on/off

Test & Save

Close Editor

BOPV.uno

"BOPV.app Name" and "BOPV.app Temp" are used for the BOPV.App (described below). The name is a descriptive name for the temperature measurement of the device. At "BOPV.app Temp" you activate the transfer to the BOPV.app.

Alexa Skills over HTTP Routines

ALL Alexa smarthome functions or skills can also be used with BOPV.uno. This is easy to do via the Alexa URL routines. Here it is explained very simply: <https://www.amazon.de/Virtual-Smart-Home-Routine-Trigger/dp/B08SHHS8JZ>

In my example, I created three buttons. With these I can start and end the TuneIn stations "Hitradio Ö3" and "Big FM Sunset Lounge" on my BOSE speaker.

This is just one of the many possibilities. You can address anything that Alexa can address. E.g. "Open venetian blinds in the upper lock". Simply connect this to a routine and start the routine with the smarthome button in BOPV.uno.

Smart home

BOSE, Alexa und TuneIn

Bearbeite Smart Home Button Nr. 1

Gerätetype: HTTP URL Shelly-Kanal: 0

IP-Adresse / URL: https://www.virtualsmarthome.xyz/url_routine_trigger/

Button großer Text: HITRADIO Ö3 auf TuneIn

Button kleiner Text: BOSE Speaker (nur für URL Buttons)

Zeige Temperatur GROSSE Beschriftung

Zeige Smartmeter GROSSE Beschriftung

Button Icon: bopvunhouse Aktiviere Button

Button Farbe: DodgerBlue Kein Schalten

BOPV.app Name:

BOPV.app Temp.:

Button Vorschau

BOSE Speaker

HITRADIO Ö3 auf TuneIn

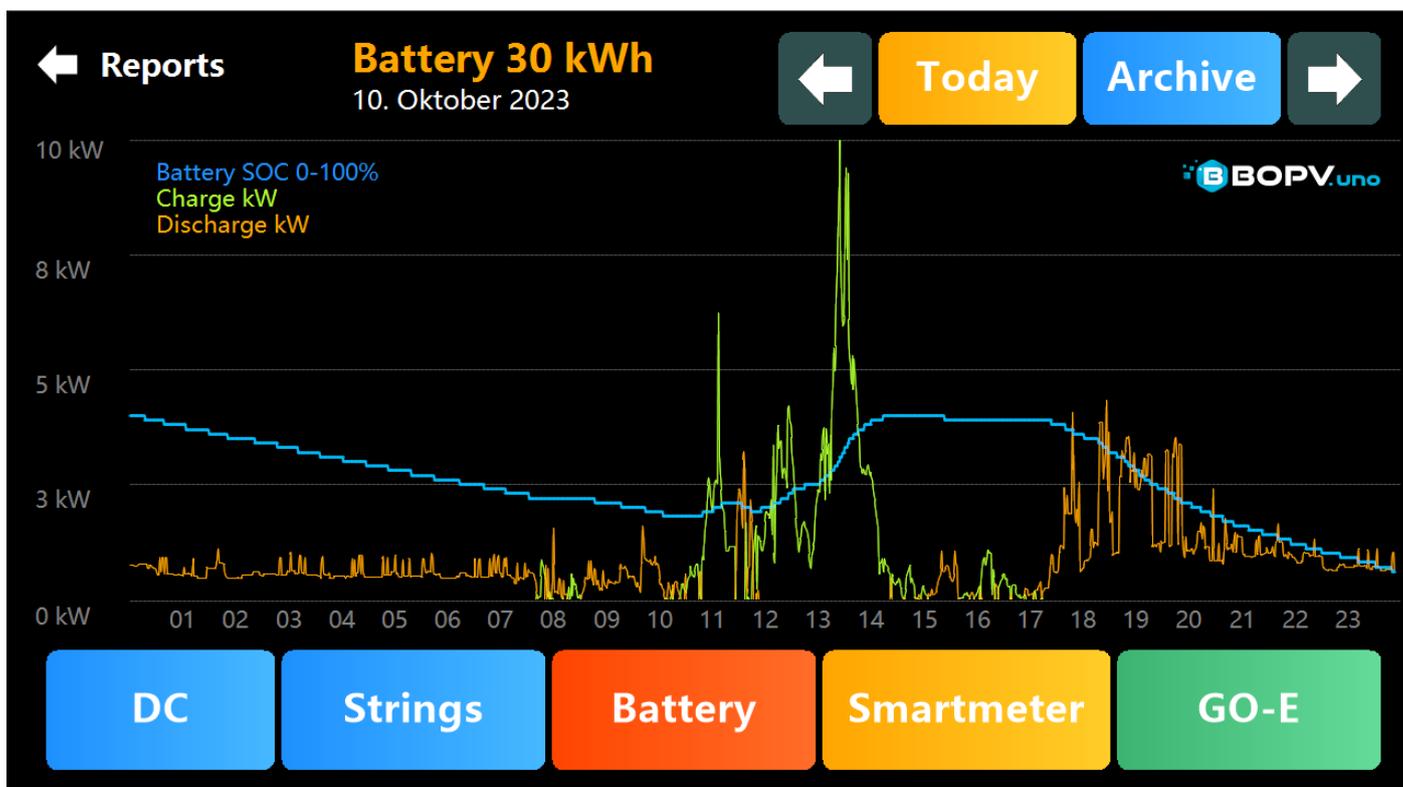
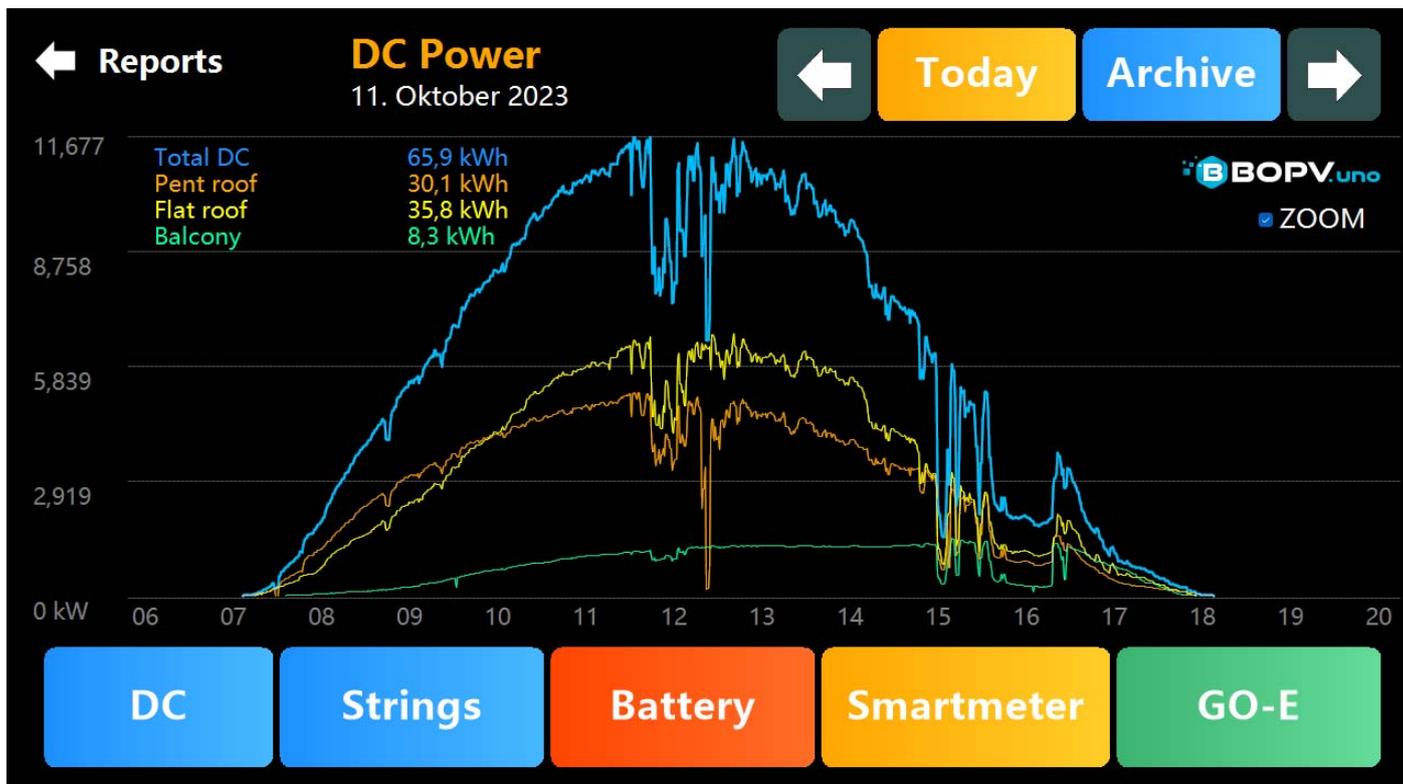
Test & Speichern

Schließe Editor

BOPV.uno

Reports

This point is actually self-explanatory. The "Strings" feature is only available on Huawei inverters. At Fronius, you will find the button for "Autonomy / Self Consumption" there.



If the SMOOTHLOGS=1 option is enabled in the uno_config.txt, "recording gaps" are automatically smoothed out up to 10% of the day. Such recording gaps could be caused by reboots or updates.

← Reports

PV String

07. Oktober 2023



Today



1100 V

Flat roof String 1 (Volt)
Flat roof String 1 (7,56 Ampere)

BOPV.uno

ZOOM

825 V

550 V

275 V

0 V

06 07 08 09 10 11 12 13 14 15 16 17 18 19 20

DC

Strings

Battery

Smartmeter

GO-E

← Reports

Smart home

12. Dezember 2023



Today



24,0 °C

18,0 °C

Temp: 20,0 - 24,0 °C
Temp1: 2,0 - 11,0 °C

BOPV.uno

12,0 °C

6,0 °C

0,00 °C

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23



GO-E

Smart home



Smart home device:

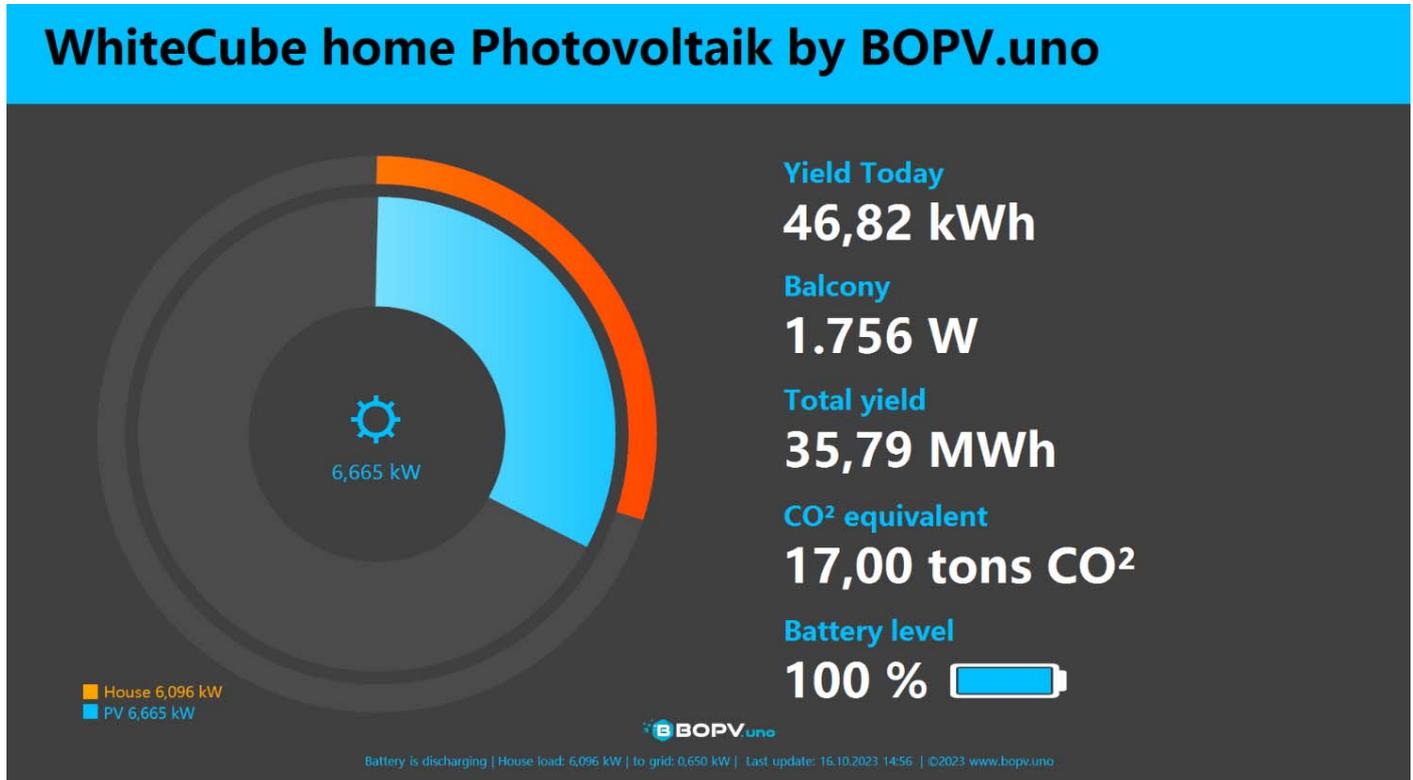
6 Klima Büro



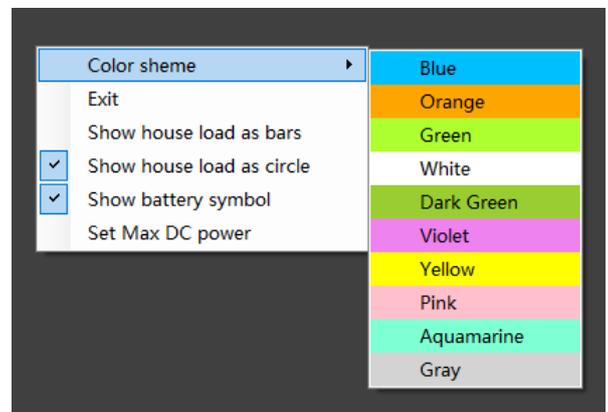
KIOSK mode via HDMI / Duplicate screen via HDMI

As soon as an external display with a resolution of 1920x1080 (or higher) is plugged in, the KIOSK display is displayed there. Alternatively, you can simply duplicate the display of the BOPV.uno. To do this, simply switch from "Extended Desktop" to "Duplicate Display" in the Windows display settings.

The KIOSK display is interesting for reception rooms, hotel lobbies or other presentations.



The colour scheme and appearance of the KIOSK display can be changed individually via the context menu (right-click or touch and hold for a long time).



Making smart use of hourly energy prices

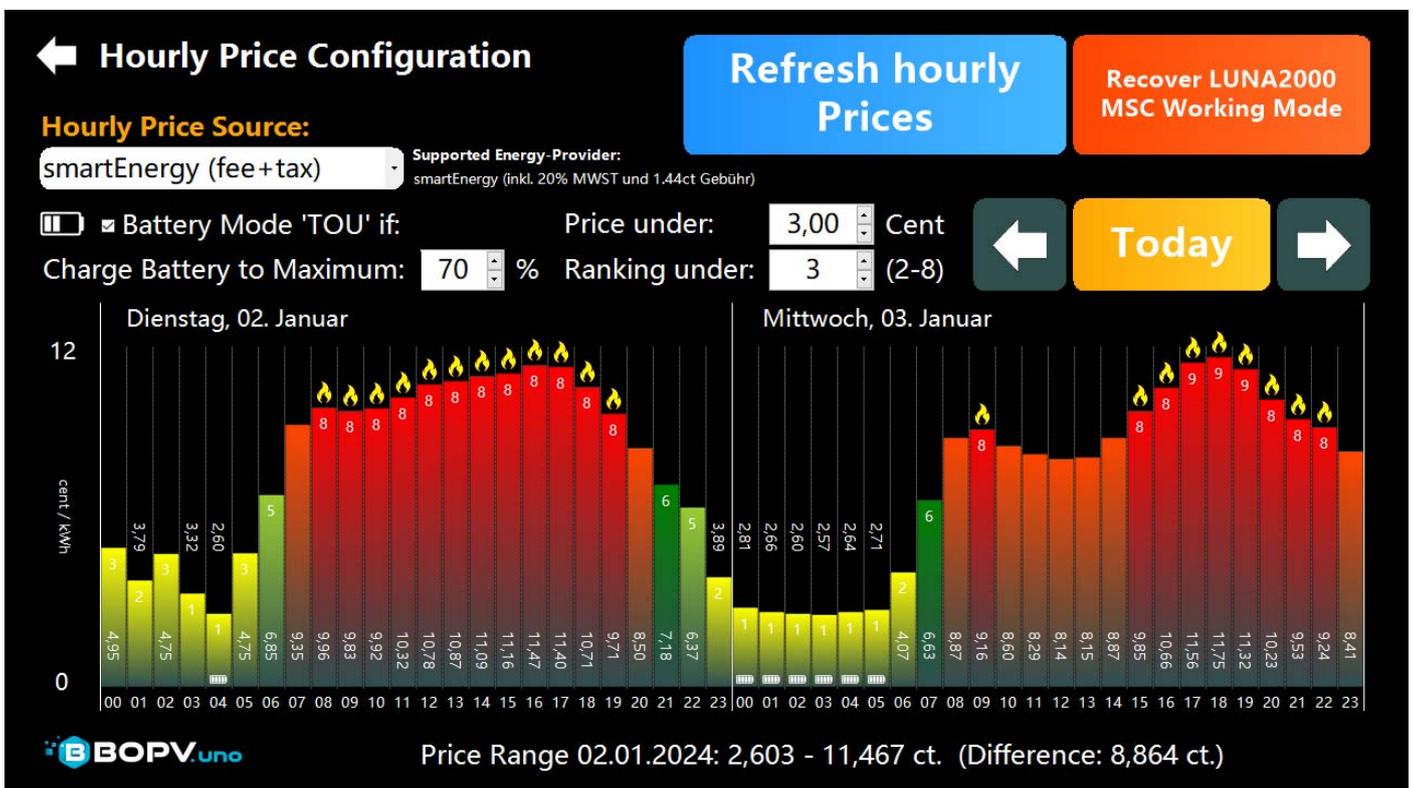
If you have an energy provider with hourly electricity prices, you can query and evaluate them with BOPV.uno and react accordingly. For example, you can start the charging process of the go-e wallbox when the electricity price is cheapest. In the same way, you can charge electricity from the grid to the house battery* when the electricity price is cheap and consume it from the battery (instead of from the mains) in expensive hours.

All electricity prices based on the exchange price "EPEX Spot" are supported. These are e.g. aWATTar, smartEnergy, Spotty and many more. In addition, "Tibber" is also supported.

Under "Settings" > "Hourly Prices" you will get to the pricing function. For EPEX Spot based prices, simply select EPEX Spot[®] AT or EPEX Spot DE, depending on the[®] country. Prices are loaded automatically. Please note that the next day's prices are usually only available in the afternoon.

If you're using Tibber, you'll need to add your Tibber token in the uno_config.txt first. To do this, create the following entry and enter your token after TIBBERTOKEN=.

```
/** If you use Tibber for hourly prices, enter your personal tibber token here and remove the //  
TIBBERTOKEN=82542845B294102572873451237234819237305189]
```



* If you have a Huawei LUNA2000 battery, you can configure BOPV.uno to charge the battery from the mains at certain hours with low energy prices. Then you can use the charged energy from the battery during the following expensive hours. This is especially interesting for many users in winter. To do this, the intelligent ranking system is used. The price of energy is divided into two categories. In RED (above the daily average) and GREEN (below the daily average). Extremely expensive hours are categorized as 8 and the most expensive as 9. The low prices are divided into categories from 1-7. Where 1 is the cheapest price and 7 is the least cheap.

Now, for example, you can set the battery to charge at an hourly price below category 3 (i.e. 1-4). In the screenshot above, the setting is chosen exactly as it is. The battery is charged on January 2nd at 04:00 via the **battery mode TOU** until it reaches 70% SOC. After that, it switches back to the standard mode **Remote Maximum Self Consumption**.

You can proceed in the same way with the go-e wallbox or with the surplus control – in both menus there is a selection for the hourly prices.

In order for charging from the mains to the battery to work, the TOU mode must first be configured in the FusionSolar. To do this, you have to log in to the FusionSolar and call up the Wi-Fi dongle on the left side of the overview and then the menu item "Configuration" at the top. Scroll down to "Work Mode". This is usually "Maximum Self-Consumption". Toggle it to "Time Control" and configure the whole thing as shown in the screenshot. "Consumption" is a mistranslation from Chinese and means "battery is charging". You can define periods of time in which this may happen. To save this setting, click on "Setting" in the bottom right. Wait 2 minutes and then go back to this menu item and reset the EMS control back to "Maximum self-consumption". So you have configured TOU (time control), but for the time being you have set normal controls.

EMS-Kontrolle

Arbeitsmodus ⓘ

Maximaler Eigenverbrauch ▾

The screenshot shows the FusionSolar web interface for EMS control. The top navigation bar includes 'Start', 'Überwachung', 'Berichte', 'Anlagen', 'Betrieb und Wartung', 'Mehrwert-Services', and 'System'. The left sidebar shows a device list with 'WLAN Dongle' selected. The main content area is titled 'EMS-Kontrolle' and contains the following settings:

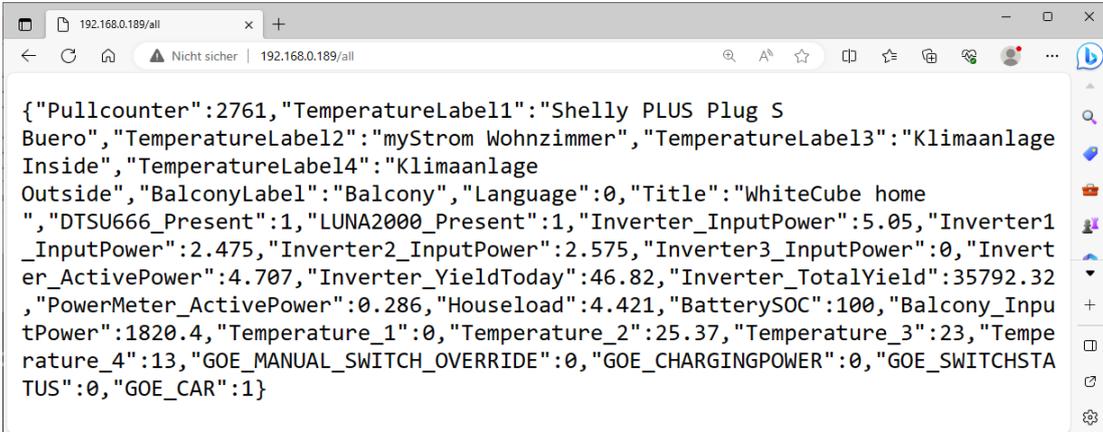
- Arbeitsmodus:** Zeitsteuerung (selected)
- Lade- und Entladezeitfenster:** Startzeit: 00:00, Endzeit: 23:59, Laden/Entladen: Verbrauch, Wiederholen: So x, Mo x, Di x, Mi x, Do x, Fr x, Sa x. A 'Hinzufügen' button is present.
- Priorität redundanter PV-Energie:** Bevorzugte Einspeisu... ▾
- Maximaler Netzbezug bei Batterieentladung (W):** 0 [0~1000]
- Regelhysterese (W):** 35 [0~100]
- Maximale Ladeleistung Netz(kW):** 30,000 [0,000~30,000]
- Zeiteinstellung:** Zeitquelle: Managementsystem ▾, NTP-Zeitsynchronisation: Deaktivieren ▾
- Futterschutz:** Abschaltung bei erhöhter Einspeiseleistung: Deaktivieren ▾
- ModBus-TCP:** Verbindung: Aktivieren (uneingesc... ▾)

Buttons for 'Einstellung' and 'Aktualisieren' are located at the bottom right of the settings panel.

If you look at the price history in the screenshot above, you would use the electricity price intelligently if you charge your car at night from 23:00 to 05:00. At the same time, you can also charge the battery. The next day, the battery is enough to cover the daily requirement. If you have additional PV yield and the battery is also charged a little during the day, then you should not fully charge the battery when charging at night. A bit of tact is required here. You also have to adjust these settings depending on the season. For example, in summer, if there is enough PV yield and daily surpluses, you are unlikely to charge anything from the grid into the battery.

Web server for downstream systems

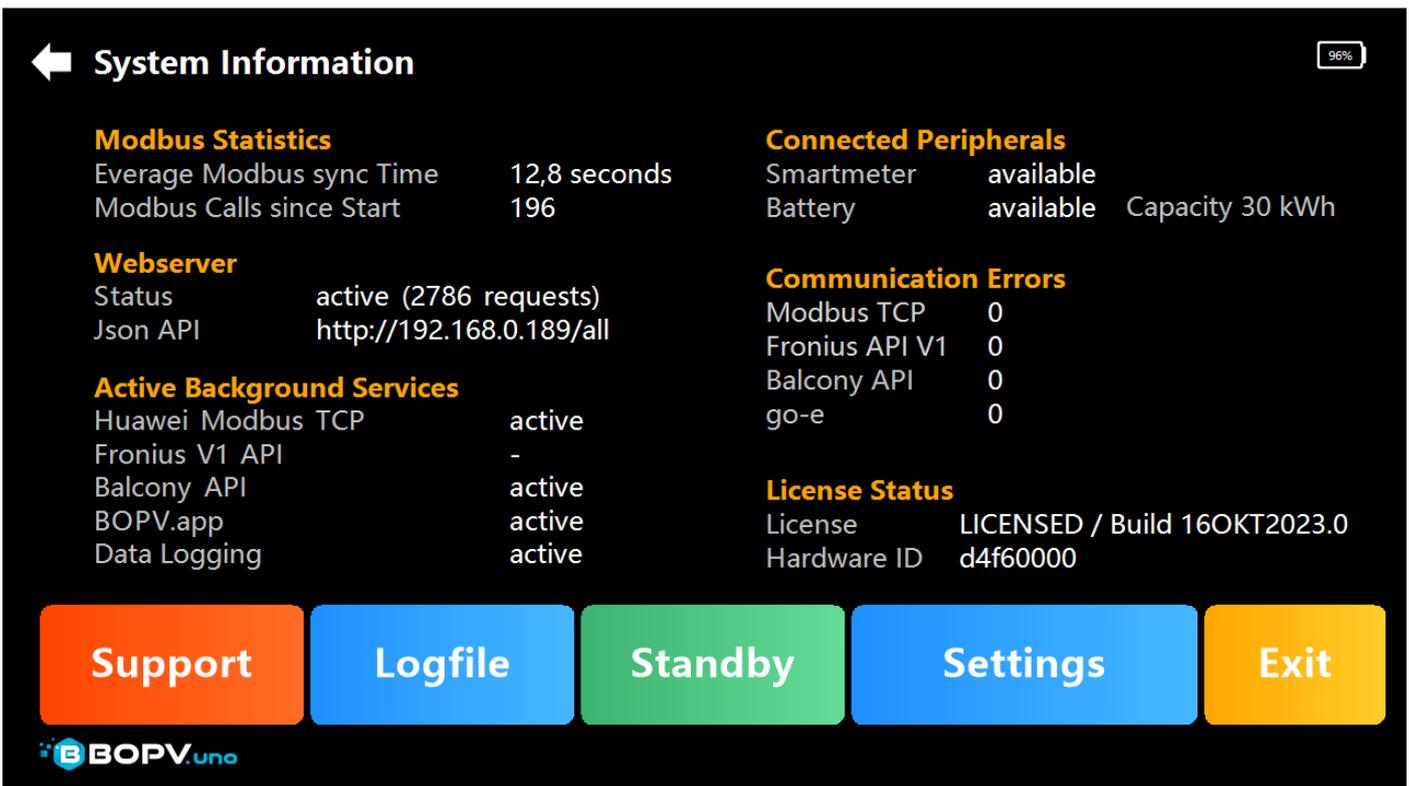
All data collected by BOPV.uno can be queried via the internal web server. Note that the firewall must be configured accordingly. This web server is also used, for example, to connect other BOPV.uno, BOPV.mini or BOPV.Info in the network.



```
{
  "Pullcounter":2761,
  "TemperatureLabel1":"Shelly PLUS Plug S Buero",
  "TemperatureLabel2":"myStrom Wohnzimmer",
  "TemperatureLabel3":"Klimaanlage Inside",
  "TemperatureLabel4":"Klimaanlage Outside",
  "BalconyLabel":"Balcony",
  "Language":0,
  "Title":"WhiteCube home",
  "DTSU666_Present":1,
  "LUNA2000_Present":1,
  "Inverter_InputPower":5.05,
  "Inverter1_InputPower":2.475,
  "Inverter2_InputPower":2.575,
  "Inverter3_InputPower":0,
  "Inverter_ActivePower":4.707,
  "Inverter_YieldToday":46.82,
  "Inverter_TotalYield":35792.32,
  "PowerMeter_ActivePower":0.286,
  "Houseload":4.421,
  "BatterySOC":100,
  "Balcony_InputPower":1820.4,
  "Temperature_1":0,
  "Temperature_2":25.37,
  "Temperature_3":23,
  "Temperature_4":13,
  "GOE_MANUAL_SWITCH_OVERRIDE":0,
  "GOE_CHARGINGPOWER":0,
  "GOE_SWITCHSTATUS":0,
  "GOE_CAR":1
}
```

System

Here you will find an overview of the entire system, possible error messages and the license status.



System Information 96%

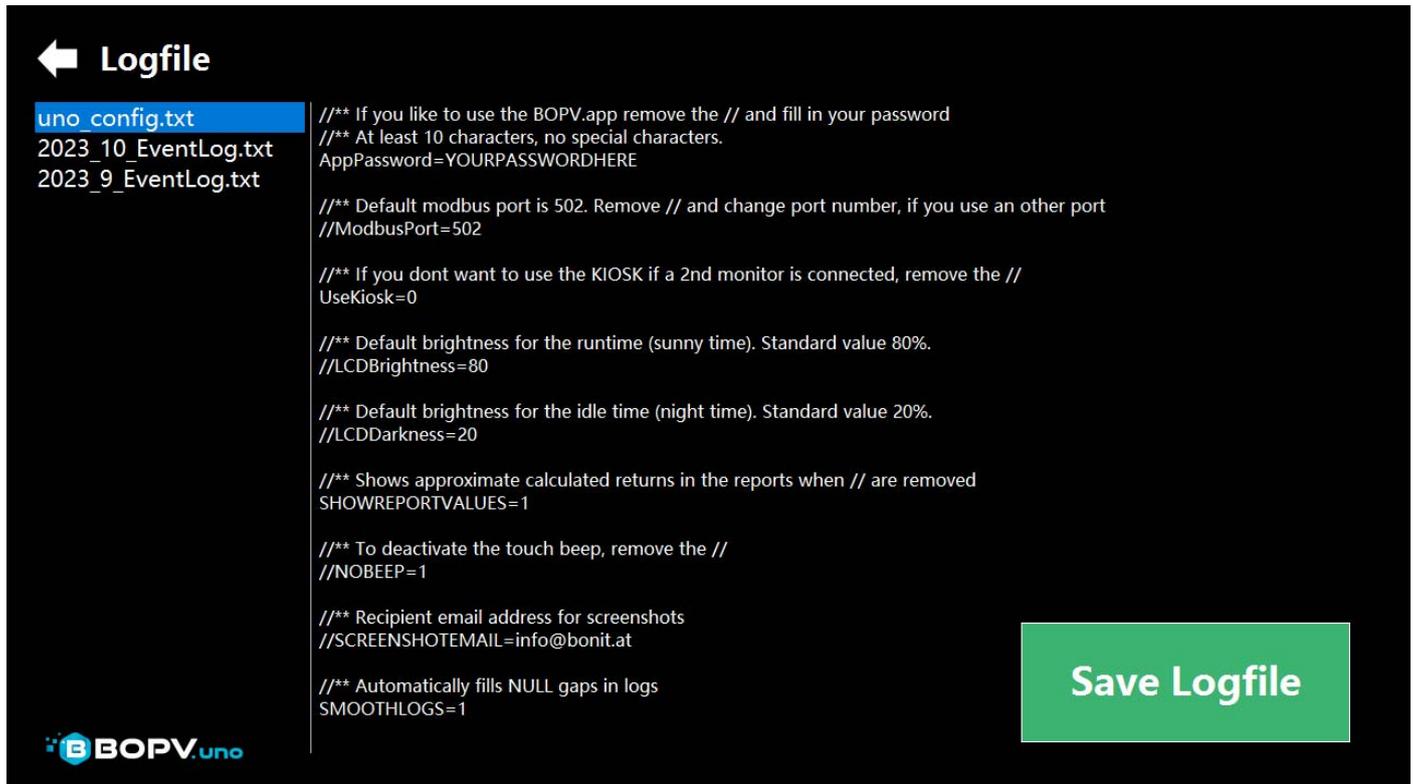
Modbus Statistics		Connected Peripherals
Everage Modbus sync Time	12,8 seconds	Smartmeter available
Modbus Calls since Start	196	Battery available Capacity 30 kWh
Webserver		Communication Errors
Status	active (2786 requests)	Modbus TCP 0
Json API	http://192.168.0.189/all	Fronius API V1 0
Active Background Services		Balcony API 0
Huawei Modbus TCP	active	go-e 0
Fronius V1 API	-	
Balcony API	active	License Status
BOPV.app	active	License LICENSED / Build 16OKT2023.0
Data Logging	active	Hardware ID d4f60000

Support **Logfile** **Standby** **Settings** **Exit**

 BOPV.uno

Logfile / uno_config.txt - Special Functions

A look at the log file can help to track down any problem that may arise. The uno_config.txt can also be viewed and edited here.



← Logfile

- uno_config.txt
- 2023_10_EventLog.txt
- 2023_9_EventLog.txt

```
/** If you like to use the BOPV.app remove the // and fill in your password
/** At least 10 characters, no special characters.
AppPassword=YOURPASSWORDHERE

/** Default modbus port is 502. Remove // and change port number, if you use an other port
//ModbusPort=502

/** If you dont want to use the KIOSK if a 2nd monitor is connected, remove the //
UseKiosk=0

/** Default brightness for the runtime (sunny time). Standard value 80%.
//LCDBrightness=80

/** Default brightness for the idle time (night time). Standard value 20%.
//LCDDarkness=20

/** Shows approximate calculated returns in the reports when // are removed
SHOWREPORTVALUES=1

/** To deactivate the touch beep, remove the //
//NOBEEP=1

/** Recipient email address for screenshots
//SCREENSHOTEMAIL=info@bonit.at

/** Automatically fills NULL gaps in logs
SMOOTHLOGS=1
```

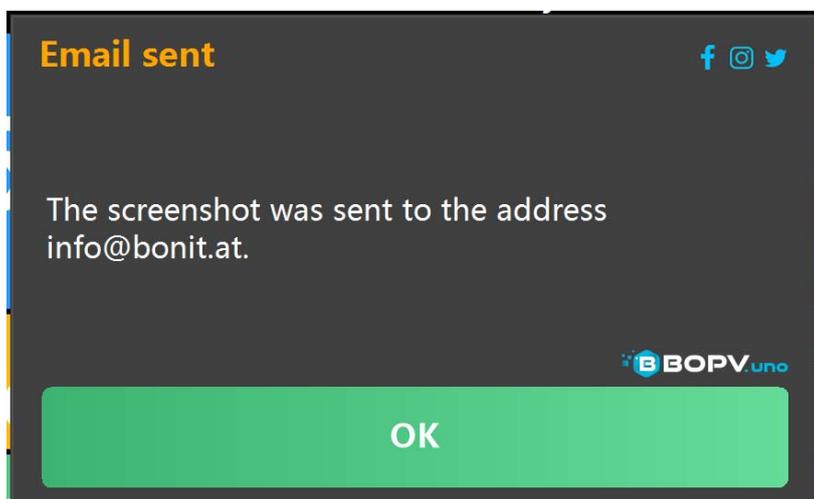
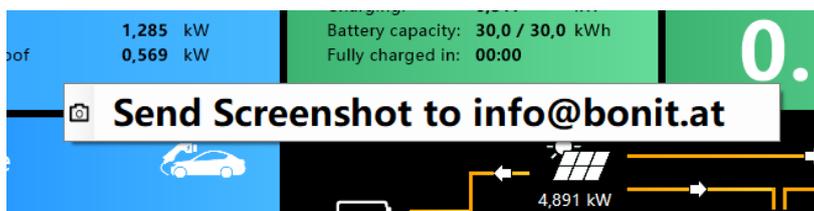
Save Logfile

BOPV.uno

Other features

Sending screenshots by email

As soon as you have entered your email address in the uno_config.txt (// before the parameter remove), you can send a screenshot of each screen mask to yourself by right-clicking (holding down the touch for a long time). No installed email client is required.



Automatic brightness control

As soon as there is no more power coming from the solar panels, the brightness of the BOPV.uno switches down. If electricity comes back from the solar panels, the brightness increases again. In the uno_config.txt, you can also adjust the brightness factors in percent individually.

Sleep Function

Under the "System" button you will find the "Sleep" button. Click once and the screen will go dark. However, the BOPV.uno continues to work in the background. Another click on the screen wakes it up again.

Battery

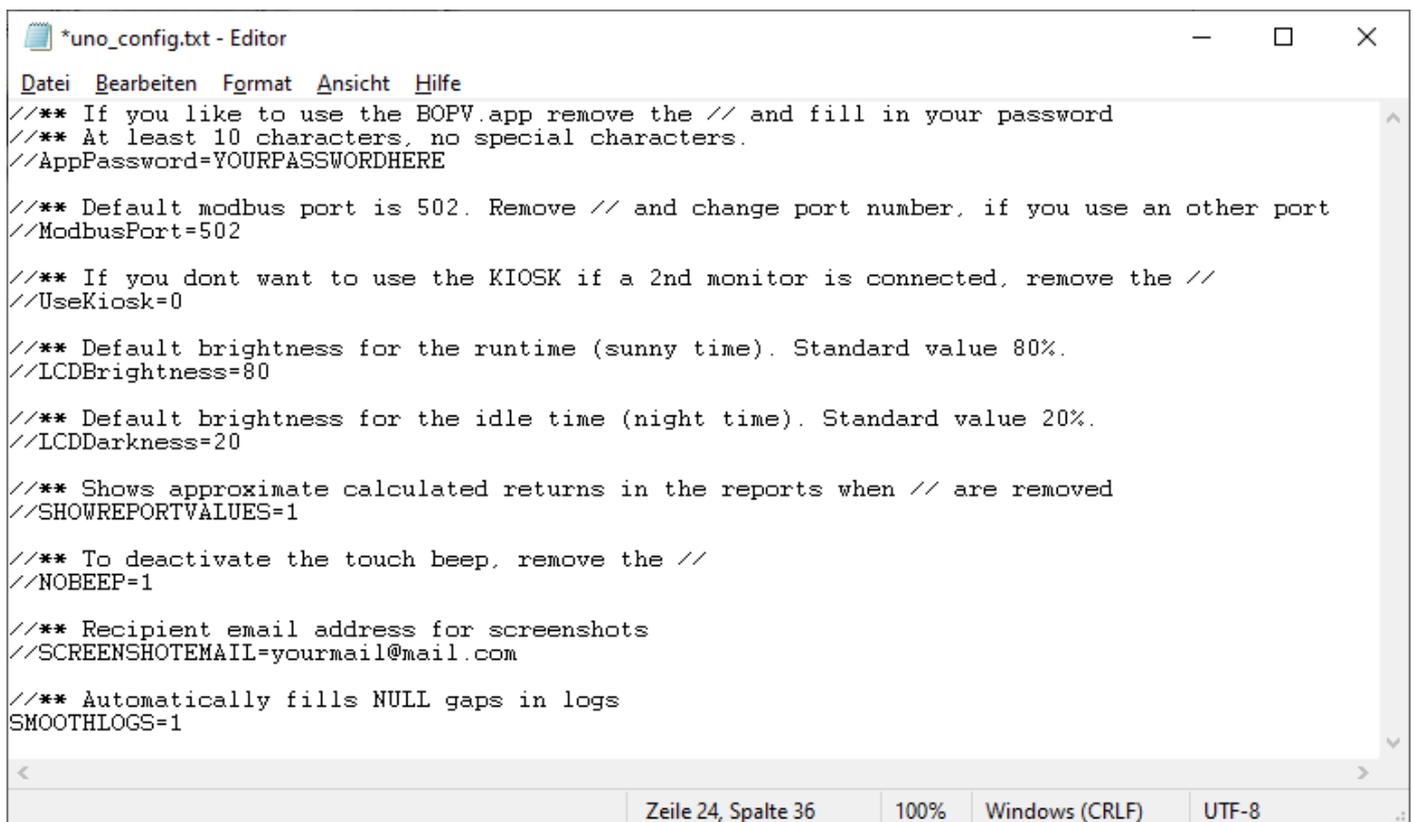
The battery life of the device is about 7 – 8 hours. So you can also carry it around the house or in the garden at any time. Optionally, there is also a spare power supply in the shop to operate the device in several locations.

uno_config.txt

This configuration file can be found at c:/bopvuno/uno_config.txt. It contains settings for special functions or special cases. They can also be referred to as "hidden functions". The explanation of the parameters can be found directly in the file.

If there is "//" in front of the respective parameter, then the parameter is inactive.

If the uno_config.txt is deleted, it will be regenerated the next time you restart.



```
*uno_config.txt - Editor
Datei Bearbeiten Format Ansicht Hilfe
//** If you like to use the BOPV.app remove the // and fill in your password
//** At least 10 characters, no special characters.
//AppPassword=YOURPASSWORDHERE

//** Default modbus port is 502. Remove // and change port number, if you use an other port
//ModbusPort=502

//** If you dont want to use the KIOSK if a 2nd monitor is connected, remove the //
//UseKiosk=0

//** Default brightness for the runtime (sunny time). Standard value 80%.
//LCDBrightness=80

//** Default brightness for the idle time (night time). Standard value 20%.
//LCDDarkness=20

//** Shows approximate calculated returns in the reports when // are removed
//SHOWREPORTVALUES=1

//** To deactivate the touch beep, remove the //
//NOBEEP=1

//** Recipient email address for screenshots
//SCREENSHOTEMAIL=yourmail@mail.com

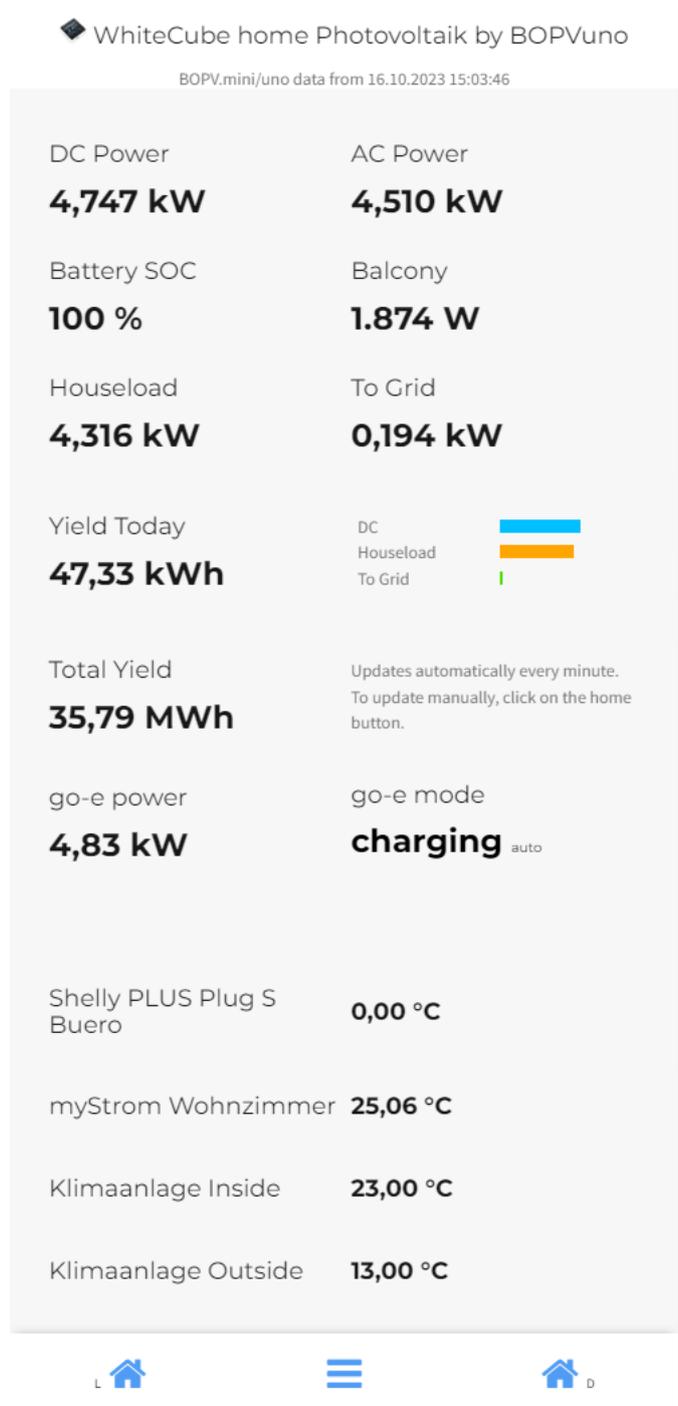
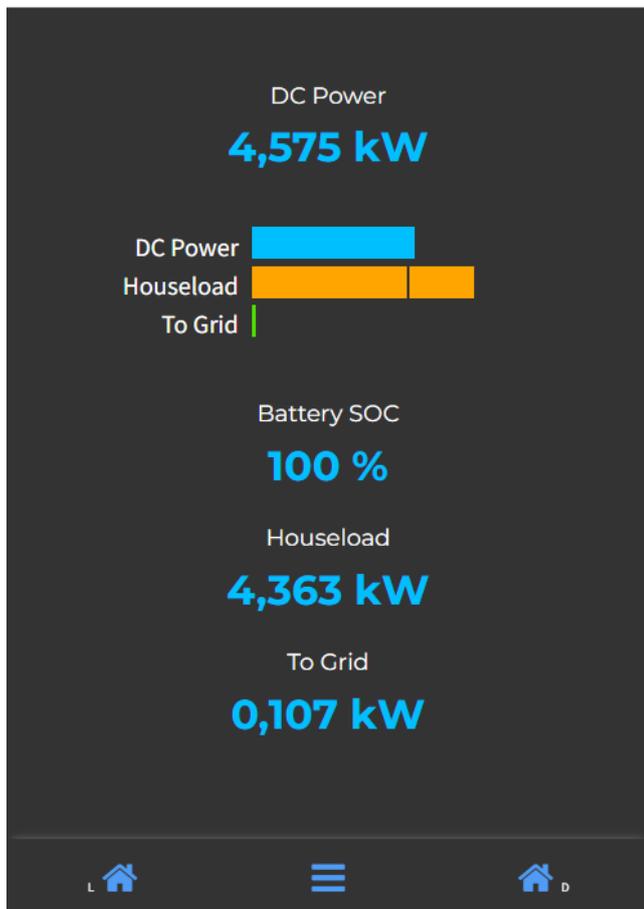
//** Automatically fills NULL gaps in logs
SMOOTHLOGS=1

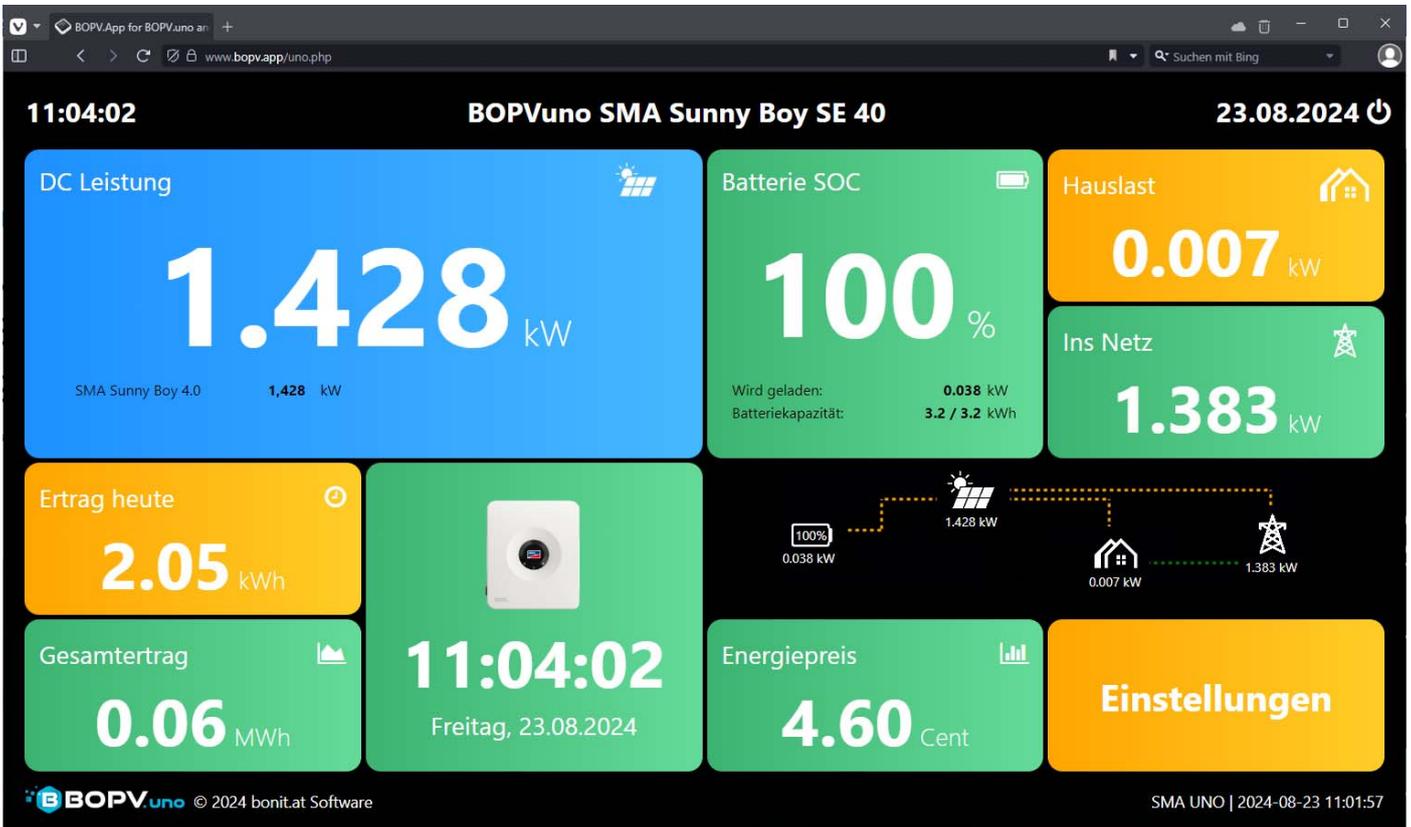
Zeile 24, Spalte 36 100% Windows (CRLF) UTF-8
```

BOPV.app (web application for iOS, Android, Polestar...)

When the

function is activated, the BOPV.uno sends its collected real-time data to the server on www.bonit.at every 40 seconds (server location IONOS Germany). The web app reads the data and displays it clearly. The address for the web app is: <https://www.bopv.app>. Simply log in to the web app with the password stored in uno_config.txt and the automatically generated login.





Configuring the BOPV.app

Define a password of at least 10 characters (without special characters or spaces) and enter this after "AppPassword=" in the uno_config.txt. Remove the // in front of the parameter to enable it.

```

*uno_config.txt - Editor
Datei Bearbeiten Format Ansicht Hilfe
/** If you like to use the BOPV.app remove the // and fill in your password
/** At least 10 characters, no special characters.
//AppPassword=YOURPASSWORDHERE

/** Default modbus port is 502. Remove // and change port number, if you use an other port
//ModbusPort=502

/** If you dont want to use the KIOSK if a 2nd monitor is connected, remove the //
//UseKiosk=0

/** Default brightness for the runtime (sunny time). Standard value 80%.
//LCDBrightness=80

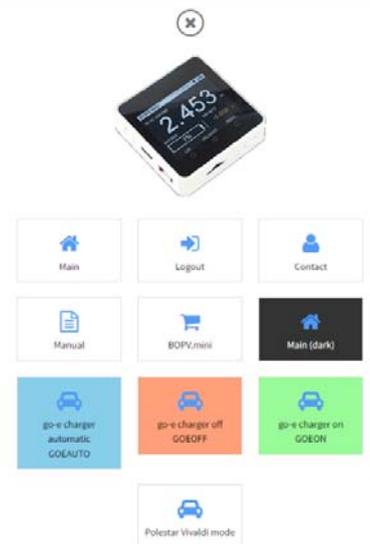
/** Default brightness for the idle time (night time). Standard value 20%.
//LCDDarkness=20

/** Shows approximate calculated returns in the reports when // are removed
//SHOWREPORTVALUES=1

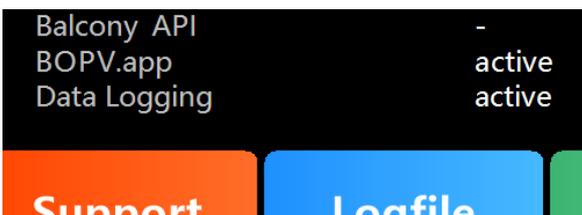
/** To deactivate the touch beep, remove the //
//NOBEEP=1

/** Recipient email address for screenshots
//SCREENSHOTEMAIL=yourmail@mail.com

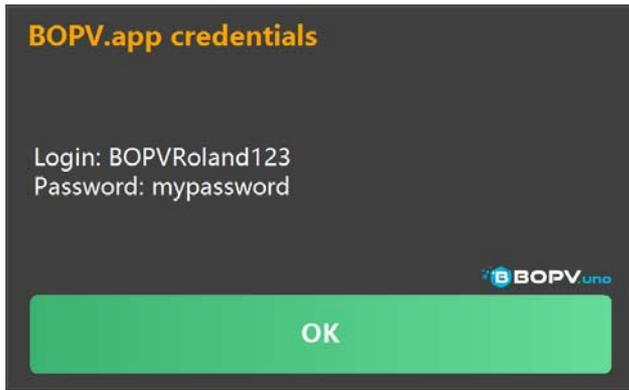
/** Automatically fills NULL gaps in logs
SMOOTHLOGS=1
  
```



The complete login data for the BOPV.app can be easily accessed by clicking on the text "BOPV.app" in the system information. You can use these login details to log in to <https://www.bopv.app>.



The web app runs on all smartphones, tablets and computers. It doesn't matter if it's Android, iOS, Apple, Linux or Windows.



New features from 2025

With the Huawei LUNA network charging function, the configuration of the parameters has been extended to a larger area, so that you can easily perform the configuration with the touch and no longer necessarily need a keyboard. In addition, the parameter "Minimum price range" has been added as a (BETA) function. This is the price range at the highest hourly price of the day.

← **Stündliche Preise Konfiguration**

Aktualisiere stündliche Preise

LUNA Standard Modus MSC wiederherstellen

Quelle für stündliche Preise: smartEnergy (fee+tax) Unterstützte Energieanbieter: smartEnergy (inkl. 20% MWST und 1.44ct Gebühr)

Batteriemodus 'TOU' wenn:

Lade Batterie bis max:

70

%

Preis unter:

18

Cent

Ranking unter:

6

(2-8)

BETA
Min. Preisspanne:

8

Cent

Schließe Preis Konfiguration

In this example, the battery is charged from the grid as soon as it has below 70% SOC, the price is below 18 cents, the ranking is below 6 and the difference to the highest daily hourly price is at least 8 cents.

← **Stündliche Preise Konfiguration**

Aktualisiere stündliche Preise

LUNA Standard Modus MSC wiederherstellen

Quelle für stündliche Preise: smartEnergy (fee+tax) Unterstützte Energieanbieter: smartEnergy (inkl. 20% MWST und 1.44ct Gebühr)

Batteriemodus 'TOU' wenn:

Lade Batterie bis max:

70

 %

Preis unter:

18

 Cent

Ranking unter:

6

 (2-8)

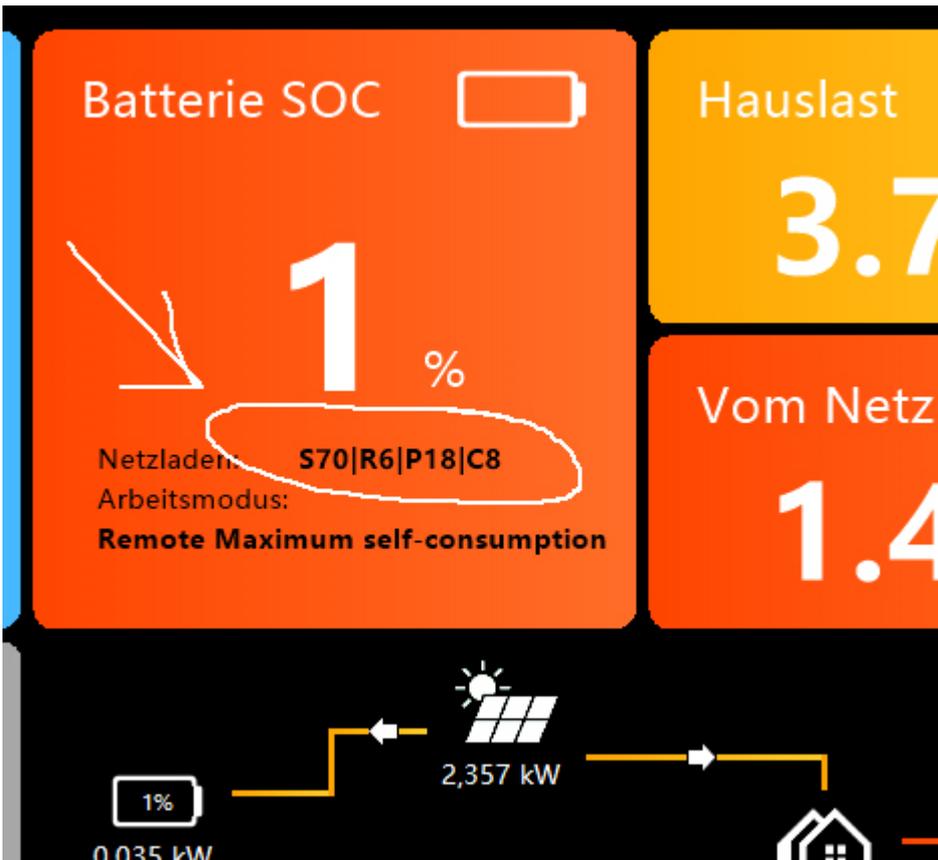
Heute

Donnerstag, 06. Februar

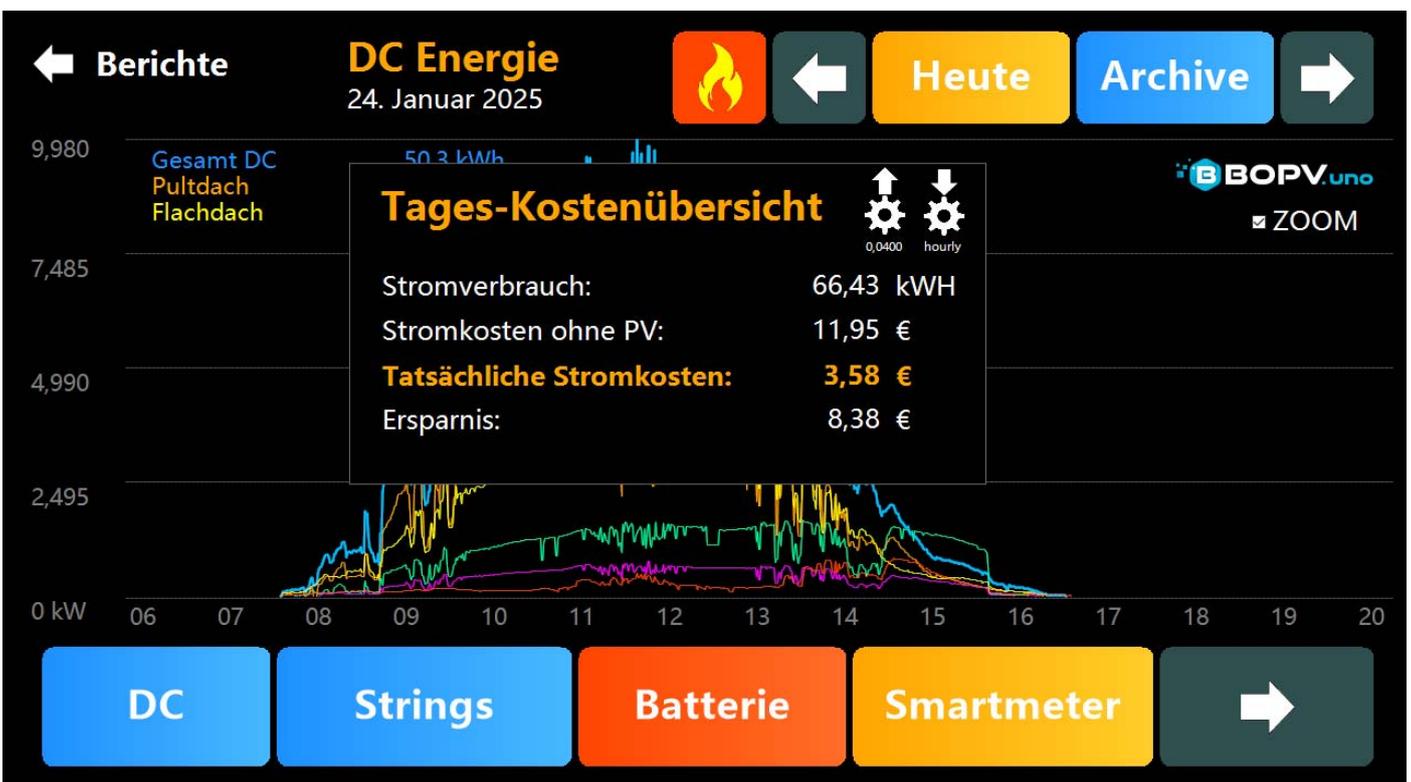
Hour	Price (cent/kWh)	Ranking
00	6	17,48
01	6	17,04
02	5	16,56
03	5	16,44
04	5	16,44
05	6	17,50
06	19,94	
07	23,05	
08	27,67	8
09	22,90	
10	20,63	
11	19,45	7
12	18,83	7
13	18,46	6
14	18,24	6
15	19,44	7
16	21,26	
17	22,68	
18	22,49	
19	21,85	
20	19,75	
21	18,14	6
22	17,88	6
23	16,07	5

Preisspanne heute: 16,074 - 27,674 ct. (Differenz: 11,600 ct.)

If you click on the battery tile a few times, you get to the work mode. If grid charging is activated, you can also see the grid charging parameters (S = SOC, R = ranking, P = price, C = minimum range) at a glance.



In addition, the "Flames" button has been added to the reports. If you click on it, you can see the energy costs of the day. With a click on the two gears, you can configure the purchase and sales prices. Whereby 0.000 takes the hourly prices as a basis. In the following example, you get 4 cents for the kWh fed into the grid and the price drawn from the grid is based on the configured hourly price.



Note to the manual

The manual is deliberately kept short and sweet so as not to bore users. BOPV.uno is self-explanatory in many respects, so there is no need for long explanations in the manual. If you have any questions, just log in to the Facebook group and exchange ideas with other users. Of course, I also answer myself. The links to the Facebook groups (Huawei and Fronius) can be found at www.bopv.uno (at the bottom).

Field of application of the hardware

The BOPV.uno is only suitable for indoor use. Do not expose the BOPV.uno to extreme heat, humidity or frost. Operating temperature 5-40 degrees, non-condensing. Avoid direct sunlight on the display. Damage caused by UV radiation is not covered by the guarantee or warranty.

Troubleshooting Modbus TCP (Huawei)

Modbus TCP is designed for exclusive access. If another system (home automation or BOPV.Info app) accesses the Modbus TCP of the SDongleA-05 at the same time, then the BOPV.uno can no longer communicate properly.

Warranty, Guarantee and Repair

If the BOPV.uno does not work to your satisfaction, please contact us directly. We will find a solution together. Please do not return the device to us without prior consultation.

Do not change the power settings

Under no circumstances should you change the power settings of the device. Do not set the maximum performance state of the processor above 65%. This could cause the device to overheat and the built-in battery to explode, or it could lead to other dangerous situations. This is not covered by the guarantee or the warranty.

Changing other Windows settings, installing software, reinstalling Windows

We recommend NOT changing the Windows settings. Any support call that is due to a change in the system must be charged at our current prices (€ 68.40 / half hour).

If you uninstall the BOPV.uno application, you can download and reinstall it at any time.

A Windows reinstallation is usually not necessary. If this is necessary, send us the device and we will install an up-to-date image with all settings (cost: half hourly rate). Please do not tinker with this yourself, as the settings for the proper operation of the BOPV.uno application are very complex.

Installation support via remote maintenance within 1 month of purchase (only set with hardware)

Up to one month after the purchase you can take advantage of our professional remote maintenance service. If you need help with installation and configuration, please call the hotline number 0043 2622 33144 (Mon-Thu 9:30-16:00). A remote maintenance call / hotline call is free of charge. Further support services would have to be charged (use our Facebook groups here). The right of revocation expires as soon as you have made use of the installation support via remote maintenance or have entered the license key into the device.

bonit.at Software OG

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