

# ECpanel

## User manual

<b>Document change log</b>	<b>2</b>
<b>Introduction</b>	<b>3</b>
<b>Getting started</b>	<b>4</b>
<b>Navigating the ECpanel</b>	<b>5</b>
<b>Control</b>	<b>6</b>
Network settings	6
Internal clock	7
Screen settings	8
Password	8
Buzzer, Brightness & Backlight	10
VNC server	11
<b>Identifiers</b>	<b>12</b>
ECpanel information	12
ECpv information	13
<b>Settings</b>	<b>14</b>
PV ramp rates	14
Grid control scheme	16
Genset control scheme	17
Genset rated powers	17
Time series data	19
Alarm and event logs	20
<b>Monitoring</b>	<b>21</b>
Sensor data	22
IO module data	23
Simulation	24
PV	24
PV meter data	27
Inverter data	29
Genset	31
Genset meter data	31
Mains	32
Mains meter data	32
Load	33
<b>Project SW update</b>	<b>34</b>

## Document change log

2019-10-29	Release 1.00.0 First version compatible with ECpv 1.12.0
2020-04-07	Release 1.01.0. Updated to support ECpv release 1.19.0.
2020-07-10	Release 1.02.0. Updated to support ECpv release 1.24.0
2020-08-18	Release 1.04.0. Updated to support ECpv release 1.41.0
2020-10-02	Release 1.05.0. Updated to support ECpv release 1.46.0
2021-01-12	Release 1.06.0 Updated to support ECpv release 1.52.0
2021-03-30	Release 1.07.0 Updated to support ECpv release 1.60.0

## Introduction

Is the ENcombi plug and play HMI operator control and monitoring interface. Connect with any of the ECpv variants out of the box. No need for customization or application design - all has been made ready for you! Just connect the ECpanel to the ECpv via ethernet and you are up and running.

In the ECpanel you have access to set control values in your ECpv directly.

You will be able to monitor your inverters, power meters and gensets in real-time values and via the builtin 24h trend curves for load, production, and consumption.

### Main Features

- Plant start/stop
- Setting control scheme
- Acknowledge of alarms
- Plant overview
- Individual overview pages for
  - Solar inverters
  - Power meters
  - Genset Controller
  - Sensors
- 24h trend curve display of
  - Power production of genset, PV and grid
  - Power references
  - Load
  - Irradiances and temperatures
- Events and alarm logs display
- 365 days of trend data logged on SD card in CSV format
- 100.000 Events and alarm logged on SD card in CSV format
- Remote access via VNC client

The hardware is a high quality, fast and cost-efficient unit which you can build into your own cabinet - or as a part of our ECcube offering.

The ECpanel is intended for the daily operation and monitoring of the ECpv.

It is not intended for commissioning of the ECpv.

This has to be done via ECweb.

## Getting started

The ECpanel communicates with the ECpv on ethernet via Modbus TCP. In order for the ECpanel to be able to change settings and give commands to the ECpv the proprietary modbus slave and the associated pages 1 & 2 need to be enabled. This is to be set up via ECweb.

The screenshot shows the ENcombi web interface. At the top left is the ENcombi logo, and at the top right is the word 'ADMIN'. Below the logo, there is a 'Pages' section with a list of settings:

SunSpec slave:	DISABLED
Proprietary slave:	ENABLED
Page 1:	ENABLED
Page 2:	ENABLED
Page 3:	DISABLED
Page 4:	ENABLED
Page 5:	DISABLED

In the center of the page, there is a 'Modbus slave page config.' section. It contains a pencil icon and a red L-shaped icon. The text in this section reads:

**Modbus slave page config.**  
 In case SunSpec slave is enabled, the device will accept references received from a SunSpec master.  
 In case Proprietary slave is enabled, the device will accept references etc. received from a Modbus master. The individual proprietary pages can be enabled here. Consult the Modbus Slave documentation to learn the content of each page.

At the bottom right of the page, the date and time '2021-03-31-10:26:26' are displayed.

After that it is just a matter of connecting the ECpanel to the ECpv via an ethernet cable and do the network settings as described latter in the Control chapter to establish the connection.

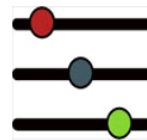
## Navigating the ECpanel

First page to be displayed after an initial welcome page when connection is established is the front page of ECpanel.

ENcombi



### Select your category



2020-07-10-08:24:04

Whenever navigating around the ECpanel you can always return to this page by clicking the ENcombi logo in the upper left corner.

In the lower left corner ECpanel will display any info and warning messages from the ECpv. Some messages will clear themselves automatically. Others demand user action to be acknowledged first. In that case a dedicated button with garbage can symbol will be presented alongside with the messages.

In the lower right corner is the internal clock of the ECpanel displayed.

In the lower center a total of five menu tiles are available. These are from the left:

1. "Identifiers" gives access to overview of the SW version installed in both the ECpanel itself as well as in the ECpv.
2. "Monitoring" provides a high level overview of the installation as well as detailed information about each individual inverter and power meter.
3. "Control" gives access to set up of ECpanel controller related parameters such as IP configuration, screen settings, VNC server, Internal clock handling etc.
4. "Settings" give access to set up of control scheme related parameters of the ECpv.
5. "Logs" give access to the 24h trend curves as well as the alarm and event logs.

In the following chapters the content of the five menu tiles are discussed in detail.

## Control

Under this tile set up of ECpanel related parameters for IP configuration, Internal clock handling etc. are found.

### Network settings

First page presented when clicking the Control tile is the below page where network settings of the ECpanel as well as the IP address of the ECpv to connect with is set up.

## ENcombi

---

### Network settings ECpanel

IP address	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="1"/>	<input type="text" value="200"/>
Net mask	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="0"/>
Gateway	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="1"/>	<input type="text" value="1"/>

A change in ECpanel network settings takes effect after a power cycling of the ECpanel.



### Network settings ECpv

IP address	<input type="text" value="192"/>	<input type="text" value="168"/>	<input type="text" value="1"/>	<input type="text" value="101"/>
------------	----------------------------------	----------------------------------	--------------------------------	----------------------------------

A change in ECpv network settings takes effect immediately.

---

2021-03-31 - 10:31:28

On the right hand side there are four submenus for.

1. Internal clock.
2. Screen settings.

## Internal clock

Clicking the clock button leads to the page below where the internal clock can be set manually or synchronized against the clock in the ECpv. Also the clock in the ECpv can be synchronized to the internal clock of the ECpanel.

## ENcombi

---

### Time in ECpanel

Year    Month    Date    Hour    Minute    Second

2020    7    10    8    27    26

Adjust the time manually  
in the ECpanel here.



### Time in ECpv

2020-07-10-09:26:37

SYNC

Sync the time in the ECpanel  
to the ECpv clock here.

SYNC

Sync the time in the ECpv  
to the ECscreen clock here.

---

2020-07-10-08:27:26



## Screen settings

Clicking the screen button leads menus for setup of various screen settings.

### Password

The first landing page is where the password for editing settings, starting/stopping the plant etc. is set up.

## ENcombi

---

### Screen settings



Password

\*\*\*\*\*

The Password for editing the various settings.  
applying the various commands etc.

The Password is a numeric number  
with a maximum of 8 digits.

Note that for example 00123 is different from 123.

The default password is 1111.

The password can be displayed in clear text by  
enabling the dedicated parameter inside ECweb.

---

2021-03-31-10:33:33

The password is hidden but can be displayed in clear text by connecting to ECweb and enable the dedicated setting for this.

Whenever the user tries to do any action that is protected by password he will be prompted for the password. Here an example when trying to change the Network setup.

## ENcombi

### Network settings ECpanel

IP address     A change in ECpanel network settings takes effect after a power cycling



Net mask

Gateway

User level login
✕

Please enter the password:



### Network settings ECpv

IP address     A change in ECpv network settings takes effect immediately.

2021-03-31-10:45:59

After successful login the setting can be adjusted.

When a user is logged in, a button will appear in the upper right corner with which the user can log out again.

## ENcombi



### Network settings ECpanel

IP address     A change in ECpanel network settings takes effect after a power cycling of the ECpanel.



Net mask

Gateway



### Network settings ECpv

IP address     A change in ECpv network settings takes effect immediately.

2021-03-31-10:52:01

## Buzzer, Brightness & Backlight

Clicking the screen button leads to the page below where the buzzer, brightness etc of the ECpanel can be set up.

### ENcombi

---

#### Screen settings

Buzzer enabled

OFF

Screen settings can be adjusted here



Backlight enabled

ON

Working brightness



Turnoff backlight after

10 Min

Lower brightness after

3 Min

---

2020-07-10-08:28:11

## VNC server

Clicking the up/down arrows will lead to the below page where the VNC server of the ECpanel can be enabled/disabled and password access can be set. Empty password as below means that there is no access required when connecting to the VNC server.

## ENcombi

---

### Screen settings

VNC server enabled

ON

VNC settings can be adjusted here



VNC password

---

2020-07-10-08:28:44

The VNC server runs on port 5900.

Any VNC client such as "VNC Viewer" can be used for connecting.

<https://www.realvnc.com/en/connect/download/viewer/windows/>

## Identifiers

Under this tile overview of SW version installed in both the ECpanel as well as in the ECpv are found.


### ECpanel information

First page presented when clicking the Identifiers is the below page where various details about the ECpanel can be found.

## ENcombi

---

### ECpanel identifiers

Model	1021	
Base SW Versions	0550 . 0510 . 0655 . 0547 . 1710 . 0150 . 2230	
Serial	0412 . 9302 . 3925	
Project SW version	1020	
ECpv SW version required	1120	Update project SW from USB USB key holding the project SW must be inserted in the ECpanel first.
<a href="#">Update SW</a>		

---

2020-07-10-08:29:19

In the lower right corner there is a button for updating the project SW in the ECpanel. How this is done is described later in this document in its own separate chapter.

On the right hand side there is one button available for submenu switching.

1. ECpv information.

## ECpv information

Clicking the ECpv button leads to the below page where ECpv details can be found.

### ENcombi

---

#### ECpv identifiers

Manufacture	ENcombi
Model	ECpv
SW version	1.24.0
Serial	201901030001



---

2020-07-10-08:29:49

On the right hand side there is one button available for submenu switching.

1. ECpanel information.

Clicking this will lead back to the page with ECpanel information.

## Settings

Under this tile the setup of key parameters for the control schemes, ramp rates etc. are found.

### PV ramp rates

First page presented when clicking the Settings button is the below page where settings related to the active and reactive power ramp rates when PV is operating with genset can be adjusted.

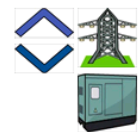
## ENcombi

---

### PV ramp rates - genset

P Ramp up	<input type="text" value="2.0"/>	%/s
P Ramp down	<input type="text" value="2.0"/>	%/s
Q Ramp up	<input type="text" value="2.0"/>	%/s
Q Ramp down	<input type="text" value="2.0"/>	%/s

Adjust the active and reactive PV power ramp gradients when operating parallel with gensets.



2020-10-02-11:51:36

Clicking up/down arrows will lead to the similar page below where the active and reactive power ramp rates when PV is operating with grid can be adjusted.

ENcombi

---

## PV ramp rates - grid

P Ramp up	<input type="text" value="2.0"/>	%/s
P Ramp down	<input type="text" value="2.0"/>	%/s
Q Ramp up	<input type="text" value="2.0"/>	%/s
Q Ramp down	<input type="text" value="2.0"/>	%/s

Adjust the active and reactive PV power ramp gradients when operating parallel with grid.



---

2020-10-02-11:55:04

On the right hand side there is one button available for submenu switching.

1. Grid settings.
2. Genset settings

These buttons will lead to setup of grid and genset relevant settings respectively.




## Grid control scheme

Clicking the grid button leads to the below page where settings related to behaviour of the ECpv when operating with grid are found.

### ENcombi

---

#### Control settings mains

P ctrl mode	<input type="text" value="FIXED P"/>	Adjust control settings relevant for active power control when parallelling PV to utility grid here.	
P reference	<input type="text" value="20.0"/> kW		
Q ctrl mode	<input type="text" value="FIXED Q"/>	Adjust control settings relevant for reactive power control when parallelling PV to utility grid here.	
Q reference	<input type="text" value="0.0"/> kVAr		
Coshi reference	<input type="text" value="1.000"/>		

---

2020-07-10-08:31:08

Consult the ECpv manual on ENcombi website for description of detailed information of the various settings.

<http://www.encombi.com/products/ecpv/>


## Genset control scheme

First page presented when clicking the Genset button is the below page where settings related to behaviour of the ECpv when operating with gensets are found.

### ENcombi

---

#### Control settings gensets

Minimum load	<input type="text" value="30.0"/> %	Adjust control settings relevant for active power control when parallelling PV to genset here.	
Q ctrl mode	<input type="text" value="ALL Q"/> ▼	Adjust control settings relevant for reactive power control when parallelling PV to genset here.	
Coshi capacitive ref.	<input type="text" value="0.800"/>		
Coshi inductive ref.	<input type="text" value="0.950"/>		

---

2020-07-10-08:30:32

Consult the ECpv manual on ENcombi website for description of detailed information of the various settings.

<http://www.encombi.com/products/ecpv/>

Clicking the up/down arrows will lead to the pages described in the following chapter.

## Genset rated powers

The Genset rated powers can be adjusted on the below page. Clicking the up/down arrows will lead to similar pages for the remaining 16 gensets supported.

## ENcombi

---

### Genset rated power settings

Genset 1	<input type="text" value="100.0"/>	kW
Genset 2	<input type="text" value="100.0"/>	kW
Genset 3	<input type="text" value="100.0"/>	kW
Genset 4	<input type="text" value="100.0"/>	kW
Genset 5	<input type="text" value="100.0"/>	kW
Genset 6	<input type="text" value="100.0"/>	kW
Genset 7	<input type="text" value="100.0"/>	kW

Adjust the rated power of the gensets present here.



---

2020-10-02-11:57:59

## Logs

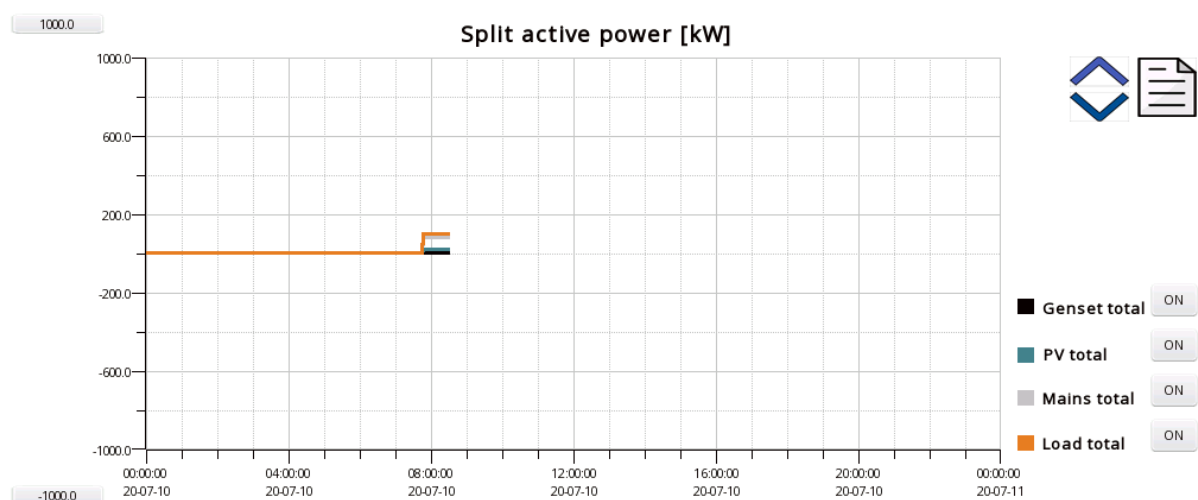
The ECpanel offers time series data as well as alarm and event logging. Both are stored locally on SD-card.

### Time series data

The ECpanel holds 365 days of data on the SD card in csv format. The time series data of the current day is displayed directly on the ECpanel. If to analyse data from previous days the SD card can be removed and the csv file extracted for the analysis.

First page presented when clicking the Logs button is the below page where a 24h trend curve of the split between genset, PV and grid is shown.

## ENcombi



2020-07-10-08:31:54

The min/max of the y-axis can be set to match the readings and the display of the individual curves on the plots can be enabled/disabled.

Clicking the up/down arrows will lead to similar pages where 24h trend curves for

- PV capacity, production and reference.
- Genset capacity, production and reference.
- Irradiances (POA and GHI).
- Temperatures (BOM and ambient).

are displayed.

On the right hand side there is one button available for submenu switching.

1. Alarm/event logs.

## Alarm and event logs

The ECpanel holds 100.000 log entries on the SD card in csv format. The logs are displayed directly on the ECpanel but the SD card can also be removed and a csv file can be extracted for analysis.

First page presented when clicking the event/alarm log button is the below page where the alarm log is displayed.

**Alarm log**

Date of Alarm	Time of Alarm	Alarm	Restore Date	Restore Time
20/07/09	11:26:54	Any inverter missing	20/07/09	11:26:58
20/07/09	11:26:50	Any inverter missing	20/07/09	11:26:52
20/07/09	11:26:44	Any inverter missing	20/07/09	11:26:46
20/07/09	11:26:37	Any inverter missing	20/07/09	11:26:41
20/07/09	11:26:33	Any inverter missing	20/07/09	11:26:35
20/07/07	13:42:17	Any inverter missing	20/07/07	13:42:56
20/06/29	09:03:04	Inverter socket connection fail	20/06/29	09:03:10
20/06/29	09:03:04	Any inverter missing	20/06/29	09:03:18
20/06/29	09:00:46	Inverter socket connection fail	20/06/29	09:00:48
20/06/29	09:00:46	Any inverter missing	20/06/29	09:00:57
20/06/22	12:35:50	Any inverter missing	20/06/22	12:37:02
20/06/22	12:22:00	Any inverter missing	20/06/22	12:33:02
20/06/21	06:47:50	Any inverter missing	20/06/21	07:37:08
20/06/21	06:09:12	Any inverter missing	20/06/21	06:10:08
20/06/18	11:23:44	Summary log mail fail	20/06/18	11:45:11
20/06/04	23:20:15	Summary log mail fail	20/06/06	09:00:46
20/06/04	23:13:12	Production log mail fail	20/06/06	09:00:46
20/06/03	23:38:35	Summary log mail fail	20/06/04	10:04:41
20/06/03	23:22:51	Production log mail fail	20/06/04	10:05:06
20/05/22	13:59:28	Any inverter missing	20/05/22	13:59:32

Ack. all alarms

2020-07-10-08:32:53

The data and time of the occurrence of the alarm as well as the clearance of the alarm is shown. Acknowledgement of all alarms can be done on the designated button in the lower right corner.

Clicking the up/down arrow will lead to a similar page holding the event log.

On the right hand side there is one button available for submenu switching.

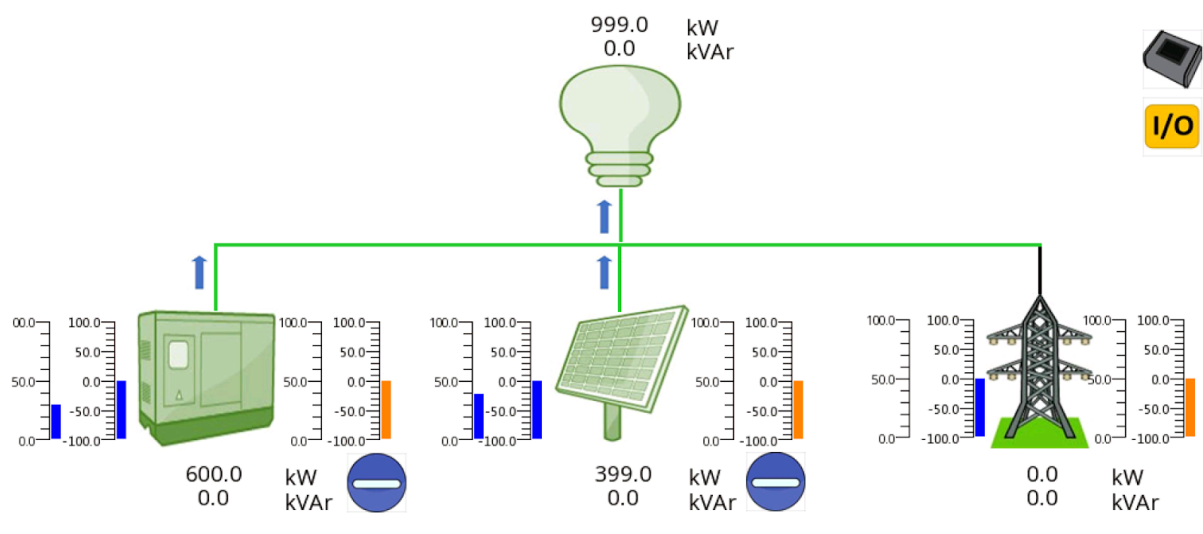
1. Time series data.

Clicking this will lead back to the 24h trend curves.

## Monitoring

The site monitoring provided by ECpanel is quite similar to what is known from ECweb. It provides a high level overview of the installation as well as detailed information about each individual inverter and power meter. Below an example of the first page presented under the Monitoring tile.

### ENcombi



2020-08-18-10:41:48

In case genset, PV or utility symbol is greyed out it means that no configuration for sensing of the associated power is made and therefore the source is interpreted as not being present by the ECpv. The accumulated powers of the three sources as well as total consumptions are displayed.

In case the genset symbol is neither green nor grey it means that all genset breakers are off. In case the genset symbol is green it means that at least one genset breaker is on.

In case the utility symbol is neither green nor grey it means that all mains breakers are off. In case the utility symbol is green it means that at least one mains breaker is on.

In case the PV symbol is neither green nor grey it means that the start signal is not present. In case the PV symbol is green it means that the start signal is present.

In case the PV start button has a vertical line it means that a stop signal is present and the button can be clicked to start the PV plant. In case the PV button has a horizontal it means that the start signal is present and the button can be clicked to stop the PV plant.

In case the genset start button has a vertical it means that a stop signal is present and the button can be clicked to start the genset plant. In case the genset button has a horizontal it means that the start signal is present and the button can be clicked to stop

the genset plant. Note that this button is only visible in case Genset management functionality is enabled.

Blue and orange arrows indicate active power and reactive power flow direction respectively.

On the left hand side of the sources two blue bar graphs are shown. The one to the left shows the active power loading of the source in percentage. The one to the right shows the deviation from the active power reference in percentage.

On the right hand side of the sources two orange bar graphs are shown. The one to the left shows the reactive power loading of the source in percentage. The one to the right shows the deviation from the reactive power reference in percentage.

In the upper right corner two buttons are shown.

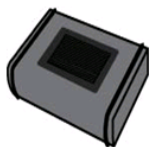
1. Sensor data.
2. IO module data.

## Sensor data

Clicking the sensor button will lead to the page below where an overview of all the meteorological readings is provided. In case a reading is not supported or communication to the sensor or inverter providing the reading is failing, the readings will be displayed as "N.A".

## ENcombi

---



### Measurements

POA	1000	W/m2
GHI	N.A.	W/m2
BOM	25.0	C
Amb. temp.	N.A.	C
RH	N.A.	%
Bar. press.	N.A.	Hpa
Wind speed	N.A.	m/s
Wnd dir.	N.A.	deg
Rain fall	N.A.	mm



2020-07-10-09:23:58

Consult the Modbus master documentation on ENcombi website for detailed information about what data is read from the various sensor and inverter models:





<http://www.encombi.com/products/ecpv/>

## IO module data

Clicking the IO module button will lead to the page below where an overview of all the IO module readings is provided. In case communication to the IO module is failing, the readings will be displayed as "N.A".

## ENcombi

---

IO modules	IO inputs	IO outputs	
IO 1:	<u>0000000000001000</u>	<u>0000000000000000</u>	Comm. state 
IO 2:	<u>0000000000010000</u>	<u>0000000000000000</u>	Comm. state 
IO 3:	<u>N.A.</u>	<u>N.A.</u>	Comm. state 
IO 4:	<u>N.A.</u>	<u>N.A.</u>	Comm. state 




---

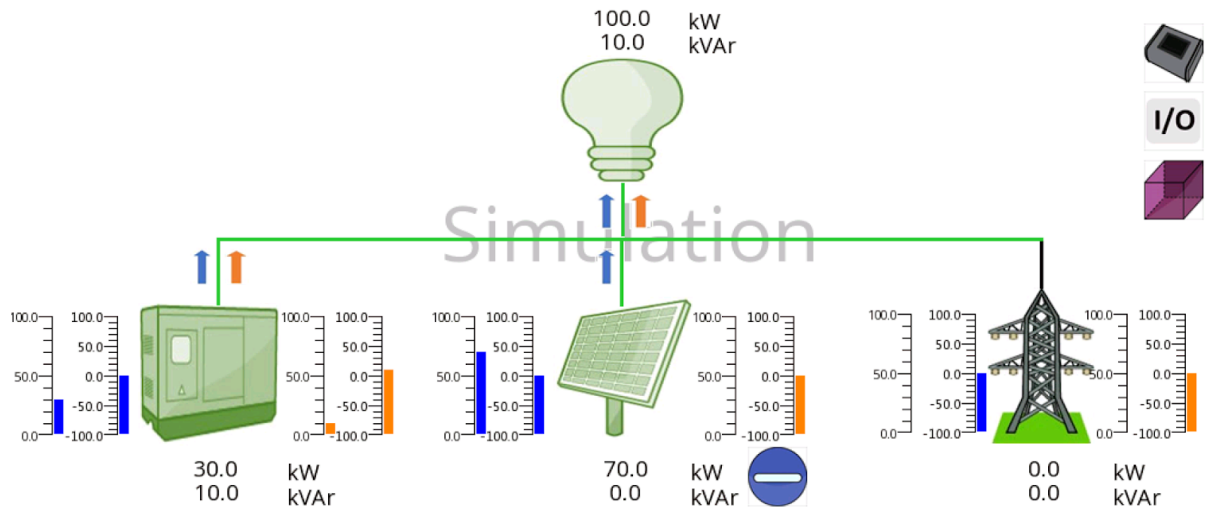
2020-08-18-10:42:27



## Simulation

In case simulation is enabled it will be indicated by a watermark.

### ENcombi



2020-08-18-10:45:32

Furthermore, an additional button will appear in the upper right corner. Clicking this will lead to the Stimuli page below.

### ENcombi

#### Simulation stimuli

Adjust the various stimuli here.

P load:  kW

Q load:  kVAr

F grid:  Hz

U grid:  v

MB on:  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16

GB on:  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16

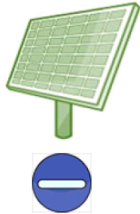
2020-07-10-08:41:13

From here various stimuli can be applied. Closing the window will lead back to the monitoring page.

## PV

Clicking the PV icon leads to the below pages where more detailed information of the PV plant can be found. Clicking the up/down arrows will browse through them.

### ENcombi



#### References

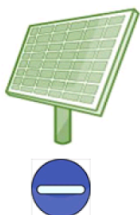
GC	20.0	kW
PTAR	20	kW
PREF	20	kW
QTAR	0	kVAr
QREF	0	kVAr

#### Production

P	30.4	kW
Q	-1.2	kVAr
S	30.4	kVA
PF	0.999	

2021-01-12 -09: 48: 37

### ENcombi



#### Produced

Total	4	kWh
Year	4	kWh
Month	4	kWh
Day	4	kWh

#### Available

Total	3	kWh
Year	3	kWh
Month	3	kWh
Day	3	kWh

#### Curtailed

Total	0	kWh
Year	0	kWh
Month	0	kWh
Day	0	kWh

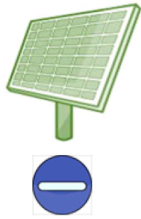
#### Penetration

Total	26.2	%
Year	26.2	%
Month	26.2	%
Day	26.2	%

#### Performance

Total	100.0	%
Year	100.0	%
Month	100.0	%
Day	100.0	%

2021-01-12 -09: 50: 42

**PV export save**

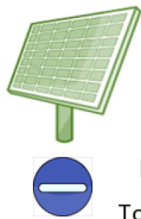
Total	500	Euro
Year	350	Euro
Month	250	Euro
Day	100	Euro

**Mains import save**

Total	100	kg
Year	80	kg
Month	60	kg
Day	40	kg



2021-01-12-10:01:31

**Fuel save**

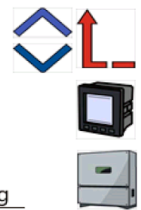
Total	1100	liter
Year	600	liter
Month	300	liter
Day	100	liter

**Fuel expense save**

Total	1500	Euro
Year	1400	Euro
Month	850	Euro
Day	200	Euro

**CO2 emission save**

Total	1000	kg
Year	500	kg
Month	75	kg
Day	5	kg



2021-01-12-10:00:55

On the right hand side of the above pages two buttons are presented that will lead to pages with more information about.

1. PV meter data.
2. Inverter data.

## PV meter data

Clicking the meter icon will lead to the below page where overview of power and reactive power readings from all PV meters is provided. In the example below, only one PV meter is present. In case communication to a PV meter is failing, the readings will be displayed as "N.A".

## ENcombi

---

PV	P	Q
Meter1	55.300 kW	-3.000 kVAr



---

2020-07-10-08:48:05

Clicking on a PV meter label, "Meter1" being the only option in the above example, will lead to pages with more detailed information about that specific PV meter. Clicking the up/down arrows will browse through them.

## ENcombi

### PV meter 1

#### Active power

P1	58.700	kW
P2	0.000	kW
P3	0.000	kW
P	58.700	kW

#### Apparant power

S1	N.A.	kVA
S2	N.A.	kVA
S3	N.A.	kVA
S	N.A.	kVA

#### Active energy

Total	1253873	kWh
Imp.	1253873	kWh
Exp.	0	kWh



#### Reactive power

Q1	-2.900	kVAr
Q2	0.000	kVAr
Q3	0.000	kVAr
Q	-2.900	kVAr

#### Power factor

PF1	0.626
PF2	0.000
PF3	0.000
PF	0.626

#### Reactive energy

Total	97948	kVArh
Imp.	0	kVArh
Exp.	97948	kVArh

#### Status

Dig. 0000000000000000

Comm. state

2020-07-10-09:04:25

## ENcombi

### PV meter 1

#### Line-neutral voltage

L1N	229.1	V
L2N	0.0	V
L3N	0.0	V

#### Current

L1	408.000	A
L2	0.000	A
L3	0.000	A
N	407.000	A



#### Line-line voltage

L1L2	229.1	V
L2L3	0.0	V
L3L1	229.1	V

#### Frequency

L1	49.98	Hz
L2	N.A.	Hz
L3	N.A.	Hz

Comm. state

2020-07-10-09:05:10

In the lower right corner communication status for the specific PV meter is shown.

Not all data shown is read/displayed from all meter models supported and will in that case show "N.A.". Consult the Modbus master documentation on ENcombi website for detailed information about what data is read from the various meter models.

<http://www.encombi.com/products/ecpv/>

## Inverter data

Clicking the inverter icon will lead to the below page where overview of power and reactive power readings from all inverters is provided. In case communication to an inverter is failing, the readings will be displayed as "N.A.". In the below example four inverters are installed.

## ENcombi

Inverter	P		Q	
Inv.1	5.000	kW	0.000	kVAr
Inv.2	5.000	kW	0.000	kVAr
Inv.3	5.000	kW	0.000	kVAr
Inv.4	5.000	kW	0.000	kVAr



2020-07-10-09:07:26

Clicking on an inverter label will lead to below pages with more detailed information about that specific inverter. Clicking the up/down arrows will browse through them.

## ENcombi

### Inverter 2

#### Identifiers

SN	246413
Model	Virtual
Version	1.00.0

#### Status

State	N.A.
Evt1	N.A.
Evt2	N.A.
Evt3	N.A.
Evt4	N.A.



#### Production

P	5.000 kW
Q	0.000 kVAr
S	5.000 kVA
PF	1.000

#### Active energy

Total	N.A.	kWh
Day	N.A.	kWh

#### Operation

Total	N.A.	hours
Day	N.A.	min
Temp.	49.8 C	

Comm. state

2020-07-10-09:08:13

## ENcombi

## Inverter 2

Line-neutral voltage			AC current			DC1			DC2		
L1N	230.9	V	L1	7.2	A	U	713.1	V	U	713.1	V
L2N	230.9	V	L2	7.2	A	I	1.6	A	I	1.6	A
L3N	230.9	V	L3	7.2	A	P	1.2	kW	P	1.2	kW

Line-line voltage			Frequency			DC3			DC4		
L1L2	400.0	V	Grid	50.00	Hz	U	713.1	V	U	713.1	V
L2L3	400.0	V				I	1.6	A	I	1.6	A
L3L1	400.0	V				P	1.2	kW	P	1.2	kW



Comm. state

2020-07-10-09:08:49

In the lower right corner communication status for the specific inverter is shown.

Not all data shown is read/displayed from all inverter models supported and will in that case show "N.A". Consult the Modbus master documentation on ENcombi website for detailed information about what data is read from the various inverter models.

<http://www.encombi.com/products/ecpv/>

## Genset

Clicking the genset icon leads to the below page where more detailed information of the genset plant can be found.

### ENcombi



#### Production

P	80.0	kW
Q	10.0	kVAr
S	80.6	kVA
PF	0.992	

#### Fuel consumption

Total	401	liter
Year	206	liter
Month	101	liter
Day	51	liter

#### Produced

Total	10003	kWh
Year	5003	kWh
Month	2003	kWh
Day	1003	kWh



#### Loading

GC	100.0	kW
LOAD	80.0	%
PTAR	30	kW

#### Fuel expense

Total	1501	Euro
Year	1001	Euro
Month	501	Euro
Day	101	Euro

#### CO2 emission

Total	10002	kg
Year	5002	kg
Month	2502	kg
Day	1002	kg

2021-01-12-10:07:38

On the right hand side of the above pages three buttons are presented that will lead to pages with more information about genset meters.

### Genset meter data

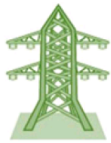
Clicking the meter icon will lead to similar pages holding genset meter data as already documented previously for PV meters. Refer to that chapter for more information.



## Mains

Clicking the utility icon leads to the below page where more detailed information of the utility can be found.

### ENcombi



#### Production

P	80.0	kW
Q	10.0	kVAr
S	80.6	kVA
PF	0.992	

#### Imported

Total	2501	kWh
Year	1201	kWh
Month	901	kWh
Day	401	kWh

#### Exported

Total	2000	kWh
Year	1500	kWh
Month	600	kWh
Day	250	kWh



#### Imported

Total	1000	Euro
Year	800	Euro
Month	500	Euro
Day	50	Euro

#### Exported

Total	2400	Euro
Year	1600	Euro
Month	700	Euro
Day	200	Euro

2021-01-12-10:11:05

On the right hand side of the above pages a button is presented that will lead to pages with more information about mains meters.

### Mains meter data

Clicking the meter icon will lead to similar pages holding mains meter data as already documented previously for PV meters. Refer to that chapter for more information.

## Load

Clicking the load icon leads to the below page where more detailed information of the load can be found.

### ENcombi

---



#### Consumption

<u>P</u>	<u>100.0</u>	<u>kW</u>
<u>Q</u>	<u>10.0</u>	<u>kVAr</u>
<u>S</u>	<u>100.5</u>	<u>kVA</u>
<u>PF</u>	<u>0.995</u>	

#### Consumed

<u>Total</u>	<u>144</u>	<u>kWh</u>
<u>Year</u>	<u>144</u>	<u>kWh</u>
<u>Month</u>	<u>144</u>	<u>kWh</u>
<u>Day</u>	<u>144</u>	<u>kWh</u>

---

2020-07-10-09:12:28

## Project SW update

The project SW in the ECpanel can be updated from a USB memory stick. The newest project file can be retrieved from the ENcombi website.

<http://www.encombi.com/products/ecpanel/>


Follow the below procedure when to update the project SW.

- 1: Download the project file from ENcombi website and put it in the root of a USB memory stick.
- 2: Insert the USB memory stick in the ECpanel.
- 3: Navigate to the Identifiers page and click the "Update SW" in the lower right corner.

## ENcombi

---

### ECpanel identifiers

Model	1021	
Base SW Versions	0550 . 0510 . 0655 . 0547 . 1710 . 0150 . 2230	
Serial	0412 . 9302 . 3925	
Project SW version	1020	
ECpv SW version required	1120	Update project SW from USB USB key holding the project SW must be inserted in the ECpanel first.

---

2020-07-10-09:14:04

This will populate the following window:

## ENcombi

### ECpanel identifiers

Model 1021



Base SW Versions 05

Serial 04

Project SW version 10

ECpv SW version required 1120



50 . 2230

update project SW from USB  
USB key holding the project SW  
must be inserted in the ECpanel first.

Update SW

2020-07-10-09:14:04

4: Click the "Update project" button.  
This will populate the following window.

## ENcombi

### ECpanel identifiers

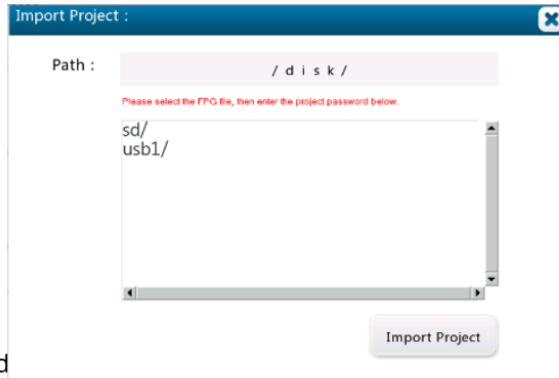
Model

Base SW Versions

Serial

Project SW version

ECpv SW version required



230

project SW from USB  
holding the project SW  
entered in the ECpanel first.

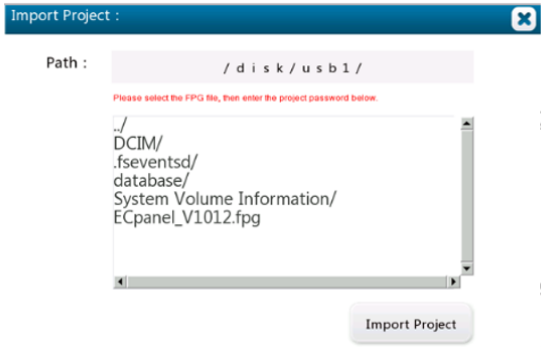

Update SW

2020-07-10-09:14:04

5: Click on the "usb1/" line.  
This will take you to the root of the USB memory stick.

## ENcombi

### ECpanel identifiers

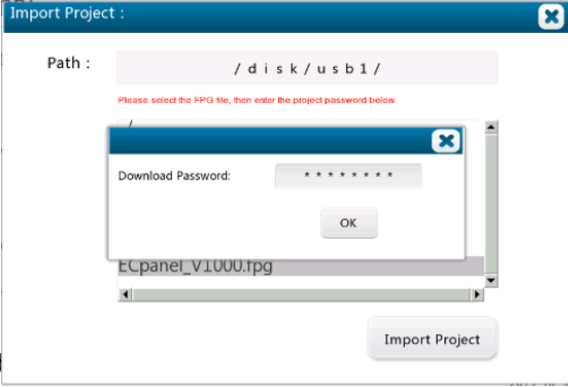

<p>Model</p> <p>Base SW Versions</p> <p>Serial</p> <p>Project SW version</p> <p>ECpv SW version required</p>		 <p>2230</p> <p>project SW from USB holding the project SW inserted in the ECpanel first.</p> <p><b>Update SW</b></p>
--	--	--

2020-07-10-09:14:04

Locate the ECpv project file and click on it. Afterwards click the "Import Project" button. This will populate the following window.

## ENcombi

### ECpanel identifiers

<p>Model</p> <p>Base SW Versions</p> <p>Serial</p> <p>Project SW version</p> <p>ECpv SW version required</p>		 <p>230</p> <p>project SW from USB holding the project SW inserted in the ECpanel first.</p> <p><b>Update SW</b></p>
--	--	---

2020-07-10-09:14:04

Enter the password (12345) for SW update and click "Import Project". The project is now being updated. When SW update is complete and ECpanel boots up and reverts to the welcome page the USB memory stick can be removed.