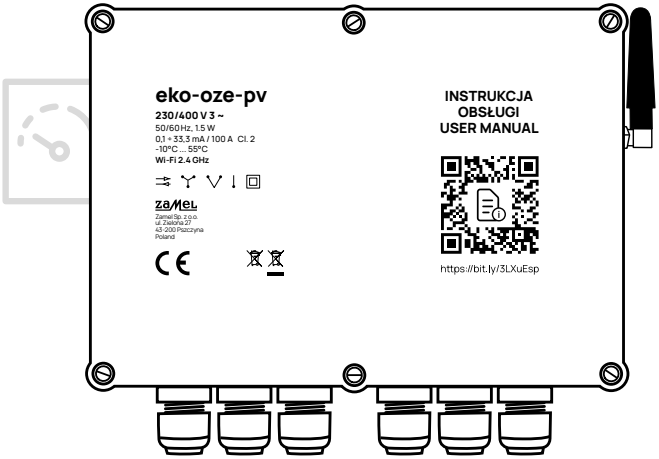
TYPE: EKO-01



Photovoltaic micro installation performance optimiser

GB COMPLETE INSTRUCTION

software version 0.7.x
software version 1.0.x

THANK YOU FOR YOUR TRUST!

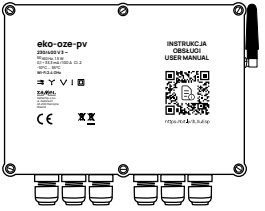
Dear Sir or Madam,

Eko-01 set product is an advanced optimiser designed to increase the performance of domestic photovoltaic micro installations. The device was designed in response to the problem of PV inverters being shut off by voltage spikes in the grid and with a view to increasing the self-consumption efficiency of energy from PV installations.

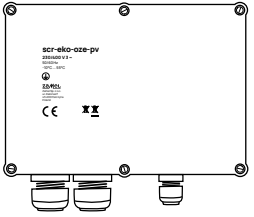
In order to perform the function of preventing shutdowns, our device uses the principle of the effect of the load generated by the consumers in the home electrical installation on the voltage reduction. To achieve the desired effect, the optimiser should be combined with loads capable of generating a modulated resistive load. Although a number of different appliances can fulfil this condition, hot water tanks with electric heaters have provided the best results in user tests. Although this is not a prerequisite, in our manual we suggest using just hot water tanks as consumers operating under eco-oze-pv control. In the majority of cases, it was the DHW tanks that gave the best results in reducing voltage and providing practical value to the users of the installation.

It should be noted that the causes of voltage spikes and the scale of the phenomenon can varyfrom one section of the power grid to another. Therefore, before installing and configuring the EKO-01 set, an analysis of the local conditions should be carried out and an appropriate value of the maximum load generated by the consumer should be selected. The installation should be carried out by a qualified person, taking all the precautions and respecting the safety regulations provided for the installation of electrical and plumbing equipment.

KIT CONTENTS

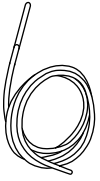


1 x eko-oze-pv



1 x scr-eko-oze-pv

3 x SC-16



1 x temperature probe

2 x angle bracket

manual

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WARNING

The device must be connected to the power supply in accordance with the applicable standards. The method of connection is specified in this manual. **Installation, connection and adjustment should be carried out by qualified electricians, who have read the user's manual and know the functions of the equipment. Before assembly, make sure that there is no voltage on connection cables!** The EKO-01 set is designed for indoor installation. When installing, ensure that the unit is not exposed to direct contact with water or operating in a high-humidity environment. When installed outdoors, the device should be placed in an additional housing of hermetic type and protected against water penetration – in particular where connection terminals are located. Disassembly of the housing voids the warranty and poses a risk of electric shock. Correct operation is affected by how the unit is transported, stored and used. It is not advisable to install the device in the following cases: lack of any components, damage to or deformation of the device.
In the event of a malfunction, contact the manufacturer.

Zamel Sp. z o.o. hereby declares that the type of the EKO-01 radio device complies with Directive 2014/53/EU. Full text of compliance declaration UE is available under the following internet address: www.zamel.com
(https://zamel.com/pl/eko-oze-pv/eko-01-deklaracja_zgodnosci.pdf)

Do not dispose of this device together with other waste! To avoid harmful effects on the environment and human health, please dispose of the used devices in designated areas. Electrical waste from households may be handed over to the waste collector established for this purpose free of change and in any amount, as well as to the store when purchasing new equipment.

THE EKO-01 SET INCLUDES:

- **measuring part** – monitors the voltage on each phase in real time,
- **actuating part** – equipped with a single-phase controller with analogue input (SCR - 25A) - manages the load of the connected consumer,
- **current transformer** – used to analyse all relevant parameters of the electrical network,
- **temperature probe** – for the DHW tank.

An overvoltage of 253 V resulting in inverters being activated

When the device recognises a rise in voltage that may cause the level to exceed the level set during configuration, it activates the connected consumer – usually a DHW tank with electric heaters. The operation of such a consumer generates a resistive load which promotes local voltage reduction. The actuating part of the EKO-01 set manages the connected consumer in such a way as to modulate the load it generates in proportion to the momentary demand. Thanks to these operating characteristics, the voltage reduction process can be distributed over time to ensure continuous operation of the PV plant over many hours of exposure to increased voltage.

Self-consumption

With our solution, the amount of energy used can be increased when produced by one's means for current needs. The eko-oze-pv unit allows the selection of an operating mode in which energy is fed to the grid only after a predetermined task has been carried out, e.g. water heated in the DHW storage container or another receiver switched on. With the eko-oze-pv, it is the user who decides how much energy is to be fed back to the grid and configures the devices that are to be activated when successive levels of energy production are reached. Specific tasks that require a significant amount of energy can thus be scheduled to avoid drawing power from the grid. Such characteristics are particularly attractive to net-billing users.

KEY FEATURES OF THE DEVICE:

- continuous analysis of the voltage and current parameters of the electrical network on the three phases,
- control of the load on selected phases to the extent necessary to carry out the function chosen by the user (voltage reduction priority or water heating priority),
- increase of the share of self-consumption in household consumption characteristics,
- reduction in the cost of domestic hot water heating,
- possibility to choose one of the operating modes,
- development of the product to include more functionality with subsequent updates.

eko-oze-pv	
Rated voltage:	230 / 400 V 3 ~
Voltage tolerance:	– 20% to 15 %
Rated power input:	1.5 W
Frequency:	50 / 60 Hz
Transmission power:	ERP < 20 mW
Measurement accuracy:	Class 2 (±2%)
Current transformer parameters:	0.1 – 33.3 mA / 100 A
Operating temperature range:	-10°C to 55°C
Maximum cable cross-section:	⌀ 2.5 mm²
Number of terminals:	25
Outputs:	• 3 x contact NO (COM1, OUT1, COM2, OUT2, COM3, OUT3) • 3 x regulated 4-20 mA (SCR1, SCR2, SCR3, +12V) • bus (1-WIRE, +3.3 V, GND) • voltage (+12 V, GND)
Housing attachment:	surface-mounted
Transmission:	Wi-Fi 2.4 GHz 802.11 b/g/n
	Bluetooth 4.2
Operating range:	Wi-Fi network range
Dimensions:	202 x 150 x 57 mm
Weight:	0.437 kg
Voltage supply terminals:	L1; L2; L3; N
Current transformer terminals:	S1 S2 – I1; S1 S2 – I2; S1 S2 – I3

scr-eko-oze-pv	
ELECTRICAL SPECIFICATIONS	
Operating voltage:	24 – 280 V ~
Control signal:	4 – 20 mA ⎓
DC Off-state leakage current:	< 12 mA
Maximum load:	17 A x 3
Insulation breakdown	> 2.500 V
MECHANICAL SPECIFICATIONS	
Operating temperature:	-20 to +80°C
Storage temperature:	-40 to +100°C
Weight:	1.226 kg
Dimensions:	92 x 177 x 154 mm

SC-16 Current transformer	
Maximum continuous primary current:	100 A
Current ratio:	3000:1
Output:	33.3 mA / 100 A
Accuracy:	Class 2
Insulation voltage:	0.66 kV
Phase angle:	less than 2 degrees at 50% of rated current
Frequency:	50 Hz to 60 Hz
Operating temperature:	-15°C to 60°C
Cable hole in the instrument transformer:	16 mm
Dimensions:	46 x 35.5 x 31 mm
Weight:	0.089 kg
Leads:	2-core cable

EKO-01 SET	
Gross weight:	2.3 kg
Net weight:	2.0 kg

TOOLS REQUIRED FOR INSTALLATION 03

screwdriver

pliers

drill

spirit level

multimeter

hammer

10 mm
ring spanner

NOTE!

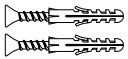
The installation should be carried out by a person qualified to carry out electrical work, taking all precautions and respecting the safety regulations provided for the installation of electrical and plumbing equipment.

It is essential that a heater with a built-in thermostat be installed or the existing heater be protected by an external thermostat.

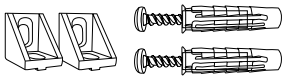
Hot water tank must have all devices and safety systems required by the manufacturer, including expansion tanks and valves.

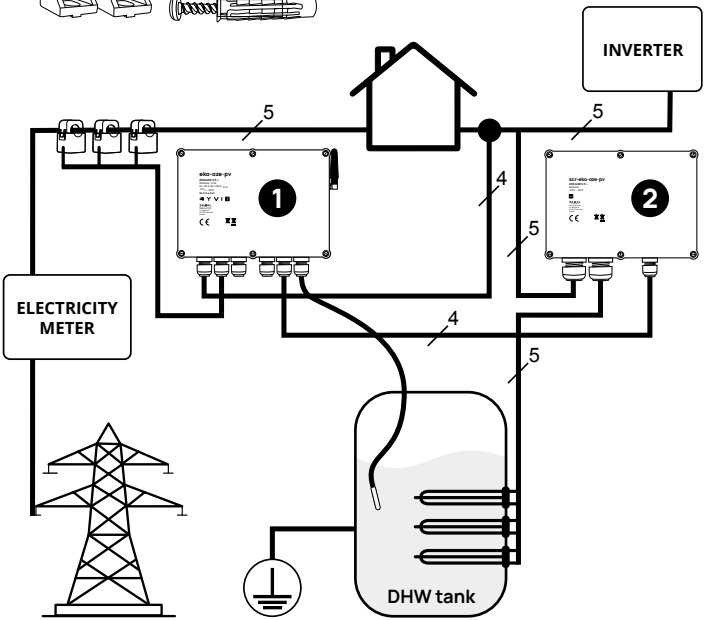
The eco-oze-pv and scr-eko-oze-pv units should be mounted on a hard and stable surface using the mounting elements supplied:

- eco-oze-pv should be installed using two 5 x 25 wall plugs,

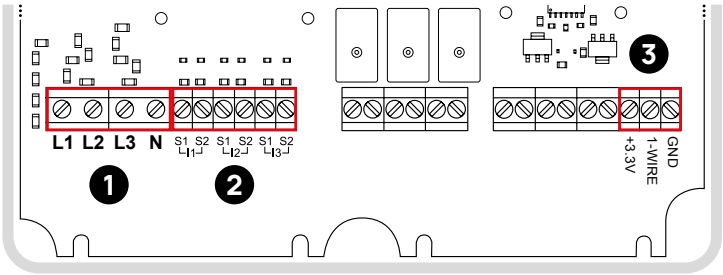
❶ 

- scr-eko-oze-pv should be mounted using two 90 degree corners and two 8 x 40 wall plugs.

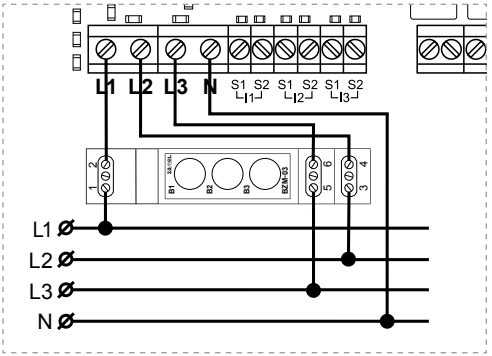
❷ 



1. **The electrical installation should be carried out by a qualified person. Errors made during connection, installation, commissioning may result in electric shock and damage to the device.**
2. It is recommended that the eco-oze-pv unit is mounted as close as possible to the inverter of the photovoltaic installation.
3. The devices must be connected to an electrical system as well as to a hot water system that has been constructed in accordance with the applicable standards.
4. Before starting work, the power supply must be disconnected at the switchboard from which the eco-oze-pv unit will be supplied.
5. Ensure that there is no voltage at the terminals in the switchboard using a suitable measuring instrument.
6. We recommend using the following building automation elements and security:
   - additional thermostat, e.g. RTM-03 from Zamel (if the heater does not have a built-in thermostat);
   - contactor, e.g. STM-25-20 or STM-25-40 from Zamel;
   - phase presence indicator, e.g. LKM-01 from Zamel;
   - voltage protection, e.g. GBM-03 or BZM-03;
   - B20 overcurrent protection – 3 pcs.;
   - digital voltage indicator LDM-11.



1. A 4-core cable with a cross-section of 0.75 mm^2 must be connected to the L1, L2, L3, N supply terminals **1**, previously protected with an overcurrent protection of not more than 6.3 A (we recommend using our GBM-03 or BZM-03 devices).

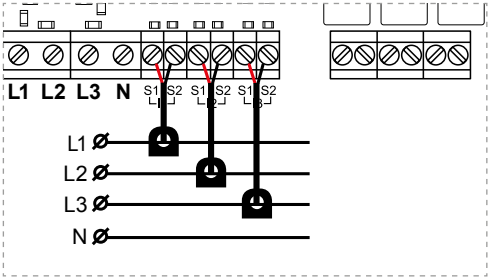


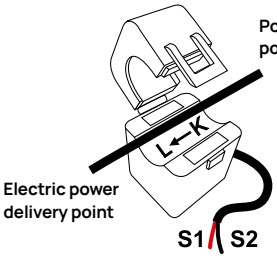
2. Connect the current transformers included in the kit to terminals I1, I2, I3 **2**.

3. Connect the red wires to terminals S1 and the black wires to terminals S2.

4. A very important element is the correct placement of current transformers on the power supply wires on which the measurement is to be conducted (these should be wires directly entering or leaving the residual current device).

   The current transformer connected to the terminals of the connector marked I1 must be placed on phase L1, the same applies to the next current transformers I2 placed on phase L2 and I3 placed on phase L3. (During installation it is assumed that phase L1 is the phase to the left of the residual current device).



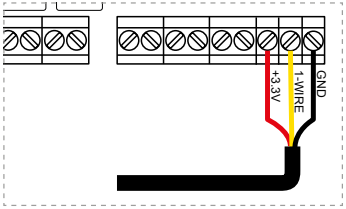


L←K

The arrow on the instrument transformers should be in line with the direction of energy consumption from the grid.

Important!
After installing the relays, turn off the inverter and check through the mobile application or the configuration page of the eko-oze-pv device that the power meassurement is positive.

5. Connect the supplied temperature sensor to the GND, 1-WIRE, +3.3V ❸ terminals.



GND – black / blue wire

1-WIRE – yellow wire

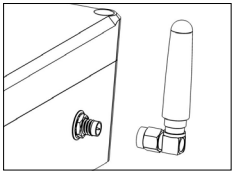
+3.3V – red wire

6. The measuring point of the sensor must be mounted in the DHW tank (boiler) in such a way that the water temperature can be monitored.

NOTE: Incorrect connection or failure to connect the sensor can result in damage to the DHW tank.

7. The supplied temperature sensor has a cable length of 3 metres. If it is necessary to extend this sensor, use an unshielded cable, e.g. UTP cat. 5e (twisted pair), or use the remaining strands of the cable used to connect the scr-eko-oze-pv control.

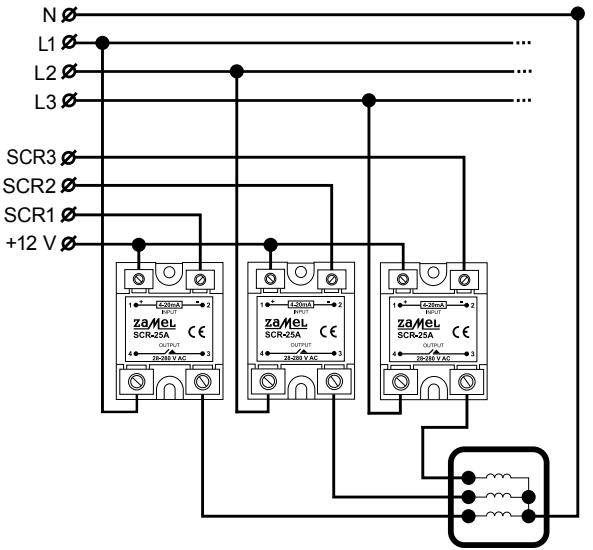
8. Screw the supplied antenna into the antenna socket on the unit.



CONNECTION OF scr-eko-oze-pv **05.2**

It is recommended that the scr-eko-oze-pv unit is installed as close as possible to the DHW exchanger. This will eliminate the need to run high-current cables, which will reduce the cost of installation and eliminate the potential risk of electromagnetic interference. The connection between the eco-oze-pv and the scr-eko-oze-pv control unit should be made with a low-current unshielded cable, e.g. UTP-cat. 5e (twisted pair).

1. The terminals ① of all actuating parts (SCR 1, SCR 2, SCR 3) must be connected (bridged).



2. Run a 4-core cable to be connected to the controllers (SCR 1, SCR 2, SCR 3) – one of the wires is a common cable which is connected to the previously bridged terminals ①. Connect the following cables to the terminals ② of the following controllers and to the eco-oze-pv unit, in the following order:

   SSR 1 terminal – SCR 1 terminal 1

   SSR 2 terminal – SCR 2 terminal 2

   SSR 3 terminal – SCR3 terminal 3

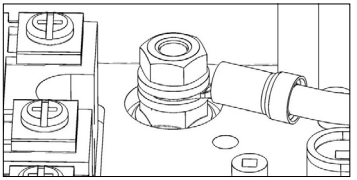
3. The controllers used in the unit are used for modulating control of resistive loads (heaters) operating in **a star system** (**N wire used to supply the heaters**).

4. To connect the heaters, depending on the heater power used and the distance between the storage tank and the scr-eko-oze-pv unit, the cross-section of the cable supplying the heaters must be selected (suggested minimum cable cross-section 4 mm^2).

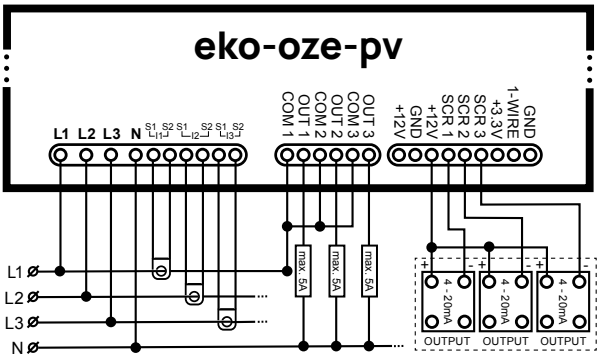
5. Power must be supplied to the terminals ④ of the controllers (SCR 1, SCR 2, SCR 3) from the inverter. You can also supply power from the nearest power supply point. Remember to protect them with an overcurrent circuit breaker selected according to the power of the supplied devices (heaters).

6. The terminals ③ of the controllers (SCR 1, SCR 2, SCR 3) should be connected to the three heaters located in the DHW tank.

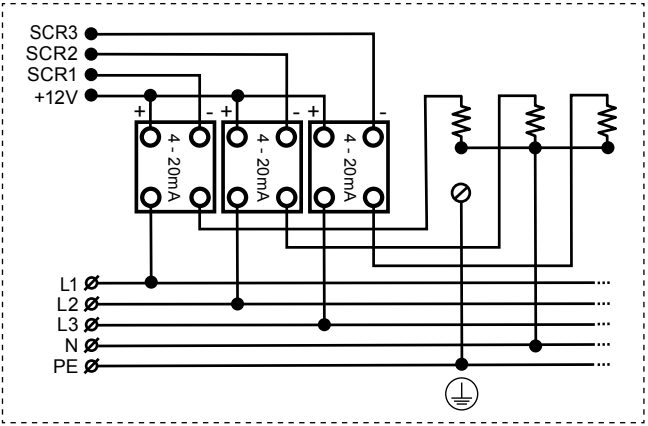
7. The device requires a PE conductor to be connected. Failure to connect this cable may result in electric shock in the event of damage or incorrect connection.



8. Fit the covers of the eco-oze-pv and scr-eko-oze-pv units and fasten with the six screws provided.



scr-eko-oze-pv



1. Switch on the main power supply to the switchgear without switching on the inverter.
2. If the unit has not been configured before - the status LED should brighten and dim smoothly, flashing green.

LED modes

1. LED lights up
- The device starts up.

2. LED lights up continuously
- The device is connected to Wi-Fi.
- The device is integrated (e.g. with Home assistant ⚪ or LAVVA 🔴).

3. LED flashes at equal intervals in a single blink
- The device has a problem connecting to Wi-Fi.

4. LED flashes at fixed intervals with double flashes
- The device is connected to Wi-Fi.
- The device is not integrated (e.g. with Home assistant ⚪ or LAVVA 🔴).

5. LED flashes with „breathing" effect
- The device is in configuration mode (exposes a Wi-Fi network ⚪ or broadcasts a Bluetooth connection 🔴).

6. LED flashes for long periods of time
- A connection with the network shared by the device has been established.

7. LED flashes very quickly
- The device enters configuration mode – network sharing mode (see chapter 08).
- Once in this mode, the LED begins to „breathe".

⚪ – devices with software 0.7.x. (without mobile application);
🔴 – devices with software 1.0.x. (with mobile application).

The following description applies to device with software 1.0.x. (with mobile application)

06.1

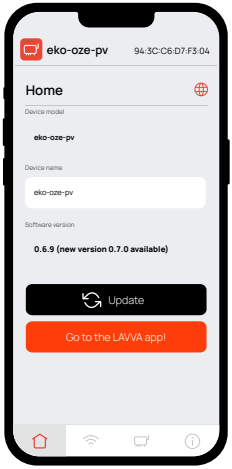
Updating to the LAVVA application means introducing your eko-oze-pv to a new platform which together with development will affect the functionality of the device.

However, with this update the existing integrations which could be controlled with previous configuration page will be lost. This is especially important for MQTT and integration with Home Assistant. If this function is crucial for you, please stop the updating.

To use the LAVVA application, you will need eko-oze-pv device software in version 1.0. or higher.

You can send your request for device software updates by filling out form at https://forms.office.com/e/r8mpybf58Z . Note that all applications are handled individually. Therefore, from filling out the form until getting the update it may take 24 to 48 hours.

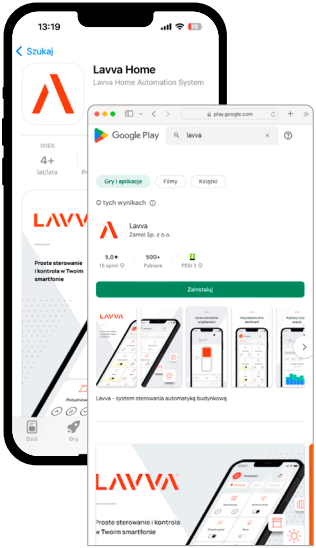
This manual covers the installation process and adding ECO-OZE-PV to application for devices with Android. If you don't have such a device you can use instead a computer with Chrome or Edge browser.
The iOS app will be available soon. If you don't use the Android application, put in the browser (Chrome or Edge): **https://lavva.cloud/**.
To perform the update it will be necessary to put the eko-oze-pv device into configuration mode. When the diode inside the housing will start to flash quickly, connect to the Wi-Fi network provided by the device and enter **192.168.4.1** in the browser (here the process continues as before).



If after entering the configuration page you will not see notifications about the possibility of updating, select the „Update" button below the field „Software version".

After clicking „Update" on the configuration page do not disconnect the device from the power supply. If the indicator light starts to shine constantly and the device stopped expose the Wi-Fi network, press the CONFIG button inside the housing.

From now on, eco-oze-pv is configurable through the LAVVA app.

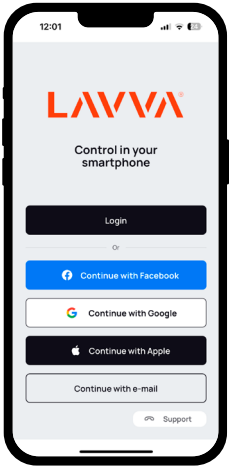


After updating your software of eko-oze-pv device download the LAVVA application from Zamel Sp. z o. o. from Google Play.
Make sure to choose the version without description „beta".

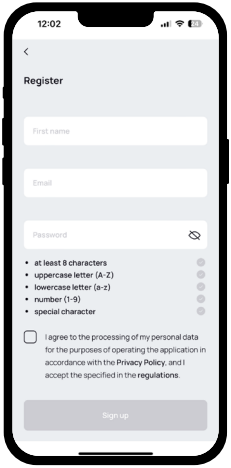
Lavva – App on Google Play

LAVVA – App on App Store

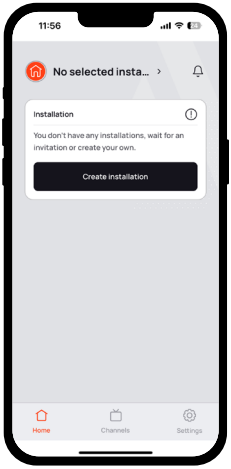
If you are not using the Android app, enter the address **https://lavva.cloud/** in the browser (Chrome or Edge).



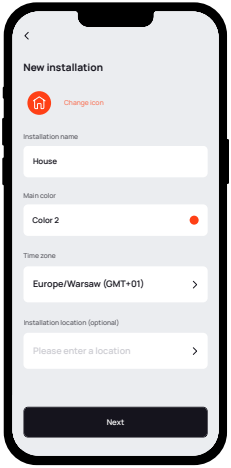
Create an account and follow the instructions on the screen.



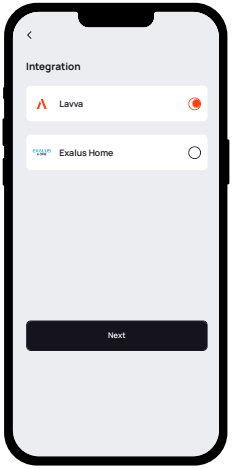
Remember to provide the address which you use usually. In case you forget your password it will be possible to recover it.



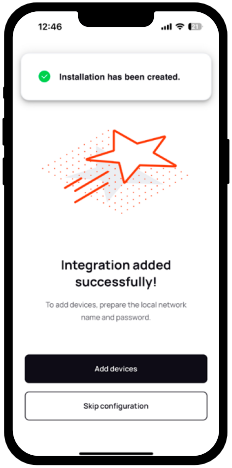
In this step, you need to create a new installation



Name and locate your installation.

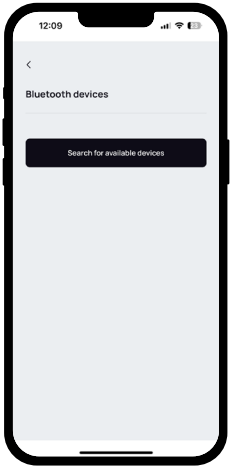


Choose LAVVA integration.



If the installation is successful you will see this message.

Now you can add your device.

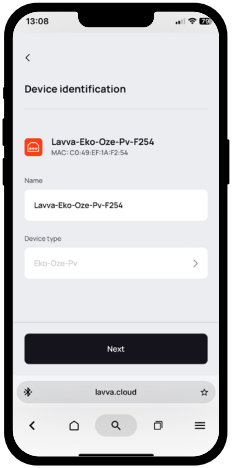


Select the search button.

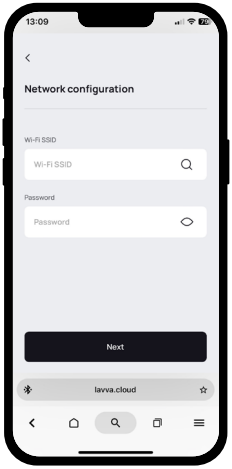
A list of devices will appear. Your device will have the note „Lavva" in its name.

Important:
If you are using a computer, use Chrome or Edge browser. To use the application via a browser it is necessary to enable Experimental Web Platform features. You will bring up this menu by entering in the address bar:

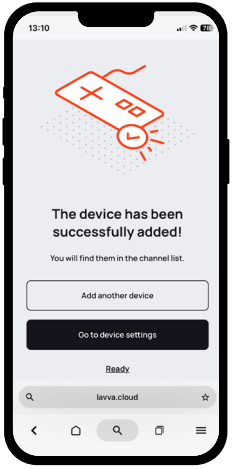
chrome://flags/#enable-experimental-web-platform-features



This is where you can personalize your device by giving a new name.

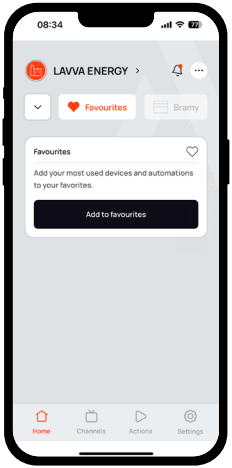


At this point enter access data to your Wi-Fi network.



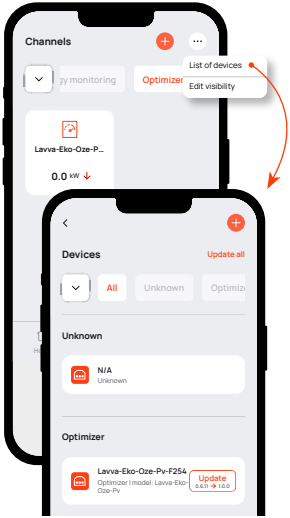
Congratulations!

Clicking “Done” will take you to the main screen.



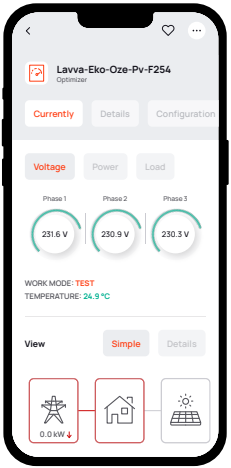
This is the main screen of your app.

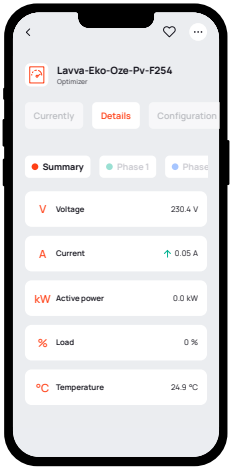
At the bottom of the screen You will find the bar with links to subsequent menu sections.



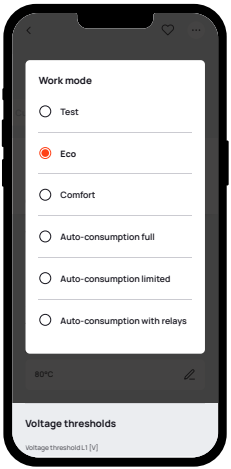
In the Channels section you will find the option to preview and control your eco-oze-pv.

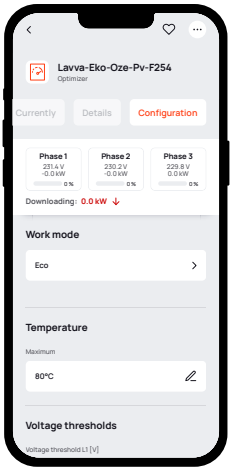
Device update:
In the „Channels" menu You can check availability of the latest software version for your device. Click on the three dots (...) on the right, top corner and select „Device List".



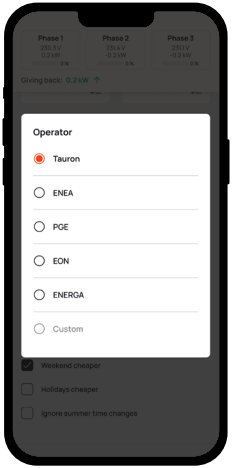


At this level you have an access to current datas. You can get more detailed data or go for configuration too.

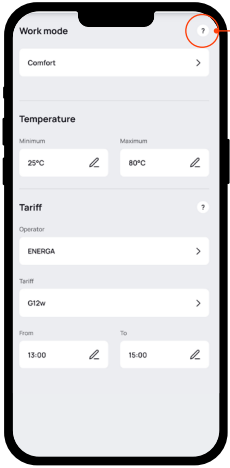




In the „Configuration" tab you can, among others: Select a mode work. Detailed description of modes you will find in the chapter: 09 DESCRIPTION OF OPERATING MODES.

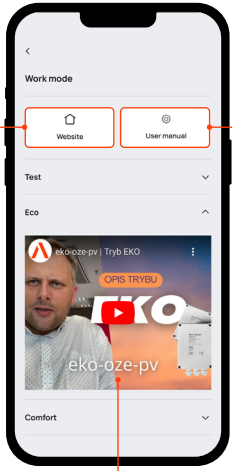


In the „Configuration" tab you can select, among other things, the device's work mode and edit parameters for each of the individual phases.



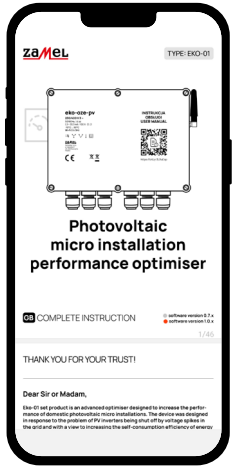
After clicking the question mark (?) when selecting the work mode, we gain **access to technical support**, the purpose of which is to explain all the parameters of the individual work modes.

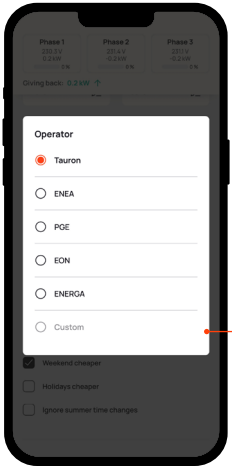
Direct link to the website dedicated to the eco-oze-pv system.



Access to User manuals.

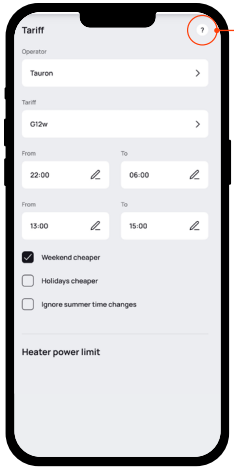
Instructional videos.

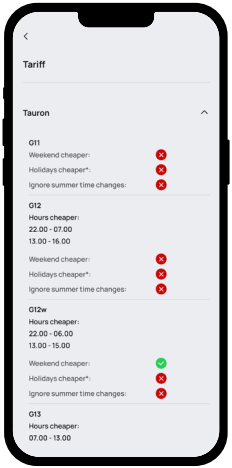




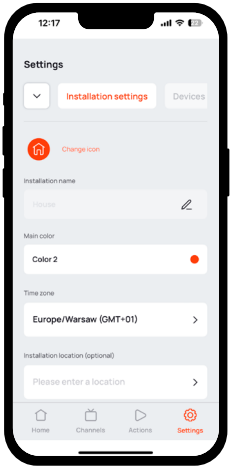
Work modes according to electricity suppliers' tariffs.
APPLIES TO THE TERRITORY OF POLAND ONLY

The device can work in the most optimal way, in accordance with the tariffs of all electricity suppliers.

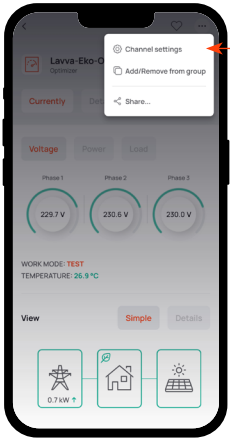




After clicking the question mark (?) we gain access to the description of the individual tariffs.



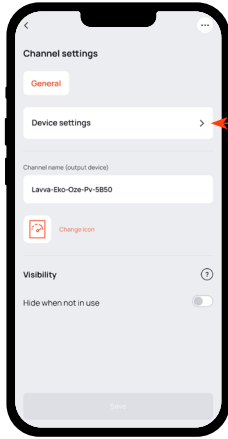
You can personalize your application in the „Installation settings" tab.

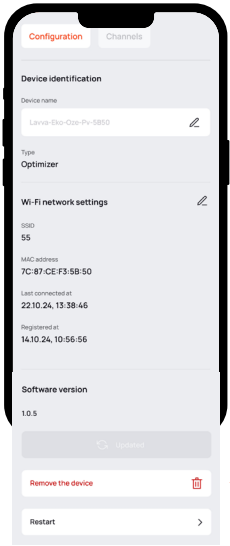


Removing eco-oze-pv from the app

If you need to remove the device from the app, go to the **Channel settings.**

Than select **Device settings.**





At the bottom of the configuration screen, there is an option to **Remove Device**.

Once you confirm, the device will be completely removed from the app.

The following description applies to the device with software 0.7.x. (without mobile application)

1. You need to connect to a Wi-Fi network with the name eco-oze-pv-xxxx (where xxxx is part of the serial number). **Password to access the device 12345678**.
2. Using a web browser, go to **http://192.168.4.1** and go to the tab marked with the device icon.

3. On the tab, check that the voltages and electric current values are displayed correctly.
4. In addition, in the tab, the direction of the electric current should be checked. **The value should be positive.** In the event of a negative value on any phase, the correctness of the installation of the current transformers must be checked.
5. If the current value on a phase is negative, switch off the power supply to the unit, reverse the direction of the current transformer and repeat the process.
6. If there is no load making it impossible to check the direction of current flow, the slider can be used to switch on the load of the phase and thus the heater connected to it.
7. Once the direction of current flow has been checked, proceed to the configuration of the unit.

1. In the first step, enable Wi-Fi network search mode by clicking on the refresh icon located in the second tab, Wi-Fi networks section.
2. When the available networks are displayed, select the target network and enter the password.
3. Once connected to the network, go to the third tab and select the operation mode of the unit.
4. Make sure that the temperature sensor is in the DHW tank.
5. Depending on whether it is necessary to maintain a minimum temperature, select the appropriate operation mode.
6. Then select the voltage and temperature threshold.
7. Confirm the selected changes.
8. To exit the configuration mode, switch off the power supply to the unit and switch it on again.
9. Switch on the inverter and wait for it to start.

NETWORK SHARING MODE – CONFIGURATION MODE

08

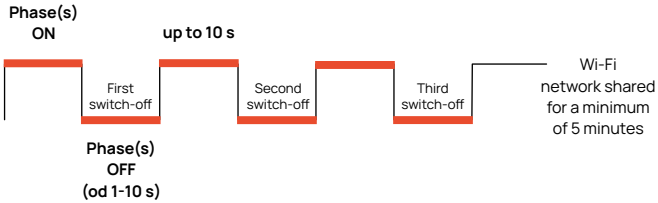
In this mode it is possible to access the configuration again, e.g. to change the device parameters.

This mode is available when any 1 phase or all 3 supply phases are switched off and on 3 times at once.

The duration of switching off 1 phase (or 3 phases) must last between 1 s and 10 s.

The intervals between a phase (or 3 phases) being disconnected must last a maximum of 10 seconds. When entered, the configuration mode is available for a period of 5 minutes or longer when configuration is carried out via the configuration page.

How to enter the network display mode is illustrated in the diagram:



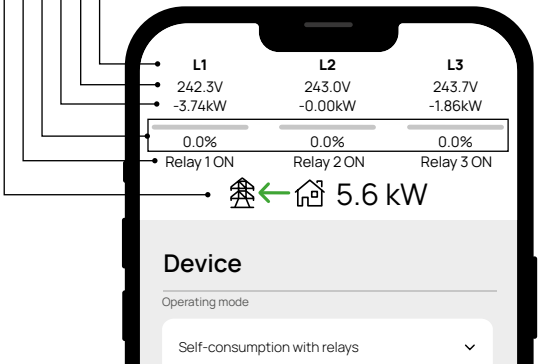
To the exit configuration mode and hide the Wi-Fi network, switch one phase off and on one time or all 3 phases at once. This mode will also be terminated after a period of 5 minutes of inactivity or when the configuration page is closed.

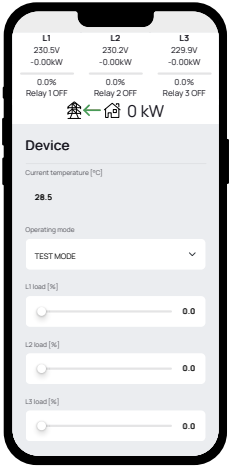
Important! The device requires current transformers to be connected in accordance with the instructions for connecting current transformers. When the eko-oze-pv is used with a DHW storage container heater, a thermostat is required.

In each mode, a bar is displayed at the top of the screen with readings of the installation's current operating parameters.

The information included is as follows:

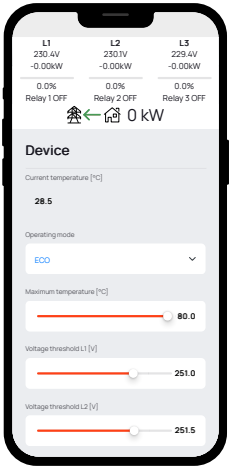
- **Line 1:** phase number
- **Line 2:** phase voltage
- **Line 3:** power consumed (+) or fed (-) by a given phase
- **Lines 4, 5:** percentage trigger level of the SCR output (smooth load) with graphical visualisation
- **Line 6:** status of relays for a given phase
- **Line 7:** phase-to-phase balance with information on whether the installation is in total consuming or feeding energy from or to the grid





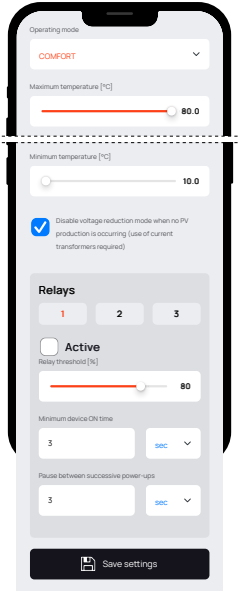
1. TEST MODE

The installer manually adjusts the value slider to carry out configuration or to activate the DHW storage container heater. In this mode, a test load can be called up for 5 seconds to check its effect on voltage reduction.



2. ECO MODE

Modulated phase loads to avoid exceed a set point 200 V to 270 V. The mode uses a temperature sensor that is part of the eko-oze-pv product and continuously monitors the temperature of the water in the storage container. Any temperature value between 40°C and 80°C can be selected.



Operating the relays

When a user-specified power level of the heater for a particular phase is exceeded, the relay assigned to that phase is tripped (the first relay corresponds to the first phase, the second to the second, and the third to the third).

The user sets the minimum duration of operation for a given relay, as well as the minimum interval before it is tripped next time. These times prevent the connected device from switching on and off frequently, which could contribute to damage.

3. COMFORT MODE

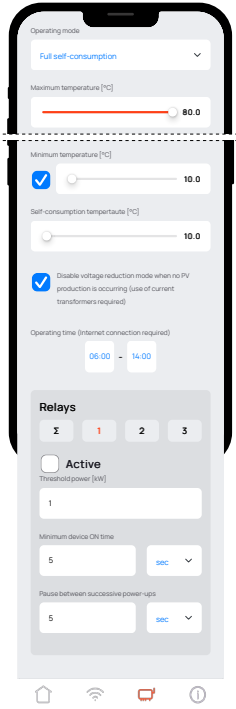
Operation is similar to that of the ECO mode, with the eco-oze-pv device starting to consume energy from the grid when the micro-installation does not produce enough energy to maintain the set temperature in the water container. In this mode, we have the option of limiting the power of the heaters used while maintaining a minimum temperature.

Operating the relays

As in the ECO mode, relay triggering can be used. When a user-specified power level of the heater for a particular phase is exceeded, the relay assigned to that phase is tripped (the first relay corresponds to the first phase, the second to the second, and the third to the third).

The user sets the minimum duration of operation for a given relay, as well as the minimum interval before it is tripped next time. These times prevent the connected device from switching on and off

frequently, which could contribute to damage.



4. Full self-consumption

All the power produced by the photovoltaic installation is supplied to domestic appliances and the heaters in the DHW container. The measuring module tracks the direction of the current flow and adjusts the load so as to heat the storage container using surplus energy. When other appliances start acting as a load, the output of the heaters is reduced so that the entire demand is met by the photovoltaic installation without drawing additional power from the grid. The mode operates until the maximum self-consumption temperature is reached.

There are three types of temperature settings in this mode:

- **Maximum temperature** is the maximum temperature of the water in the boiler. When the set threshold is reached, the operation of the heaters is stopped.
- **Minimum temperature** (activated by ticking the box). The device will aim to maintain this temperature even if no energy is produced by the photovoltaic installation.
- **Self-consumption temperature** - if the user wishes to retain the ability to reduce voltage during spikes, the temperature of the self-consumption mode can be set to be lower than the maximum permissible temperature of the storage container. For example: if the user sets 60°C in the self-consumption mode, then 20°C remains available for the voltage-reducing mode.

In the self-consumption mode, operation hours can be set. In the selected time range, the self-consumption function will be executed. The setting has no effect on voltage reduction or minimum temperature maintenance. The function requires a permanent internet connection.

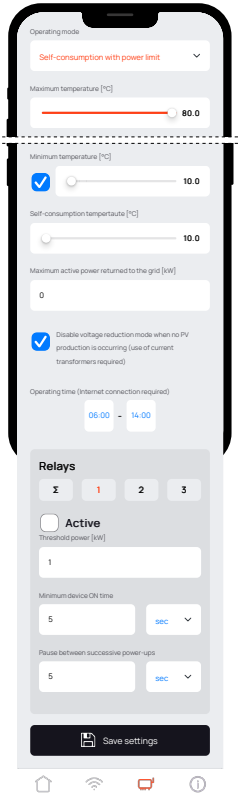
Operating the relays

In the full self-consumption mode, the relays can be tripped. When a user-defined level of power fed to the grid (threshold value) is exceeded for a particular phase, the relay assigned to that phase is tripped (the first relay corresponds to the first phase, the second to the second, the third to the third).

Σ relay

In this mode, it is possible to trigger the operation of equipment powered by three phases. To use it, select the button marked with the Σ symbol and then configure it in the same way as the operating parameters of the remaining relays. When the Σ option is used, all three relays are tripped. **Due to the low current capacity of the built-in relays (5 A), controlling via a contactor is recommended.**

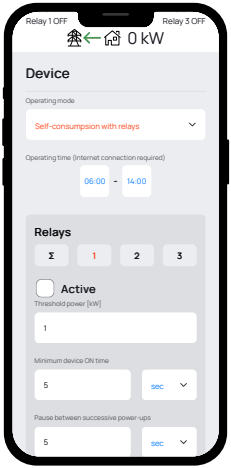
In the self-consumption mode, the relays operate in a smart manner. This means that the device determines whether the phase-to-phase balance is favourable before triggering their operation. The optimiser may not allow the relay to be tripped if the scheduled operation involves drawing power from the grid.



5. Self-consumption with a power limit

In this mode, the user sets the level of power fed to the grid, one above which the surplus is diverted to domestic appliances and the heaters in the DHW storage container. The measuring module tracks the direction of the current flow and adjusts the load so as to heat the storage container using surplus energy. When other appliances start acting as loads, the output of the heaters is reduced so that the demand is met by the energy generated by the photovoltaic installation with the parameters set by the user and without drawing additional power from the grid. The mode operates until the maximum self-consumption temperature is reached.

The power-limited self-consumption mode works analogously to the full self-consumption mode. The same parameters and operating logic are used, with the exception of the new item “Maximum active power fed to the grid [kW]”. The mode is provided for users wishing to plan the amount of energy they will feed back into the grid.

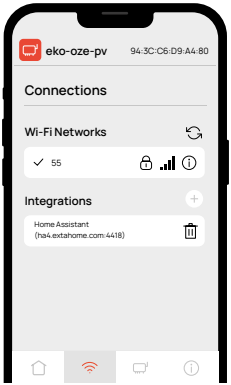


6. Self-consumption with relays

Self-consumption management is also possible in a mode using only the devices connected by the relays. This mode retains the same logic and functionality as the other self-consumption modes except that line outputs are not supported.

The mode cannot be used to work with heaters!

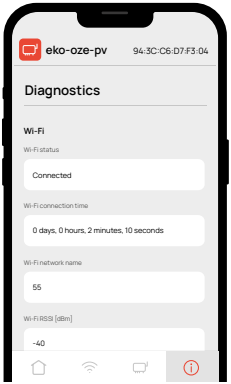
Operating hour settings and relay parameter configuration menus are available, as in the other self-consumption modes.



1

Under the **Connections** tab, the **Wi-Fi Networks** field specifies which network the device is connected to; when the refresh icon (ENTER NUMBER) is clicked, the device will search for available networks. Select a 2.4 GHz network protected by a password (the device does not support open networks).

The **Integrations** is used to establish a connection with the Home Assistant service, an option for advanced users.

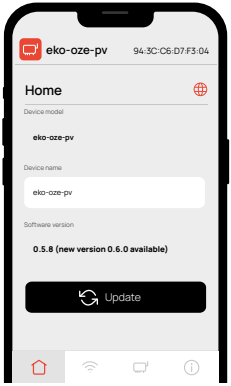


2

The **Diagnostics** tab is used to check the general status of the device.

The **Wi-Fi status** field shows the status of the network connection.

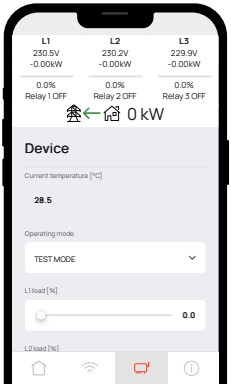
The following fields specify the network connection time, network name and the signal strength.



3

Under the **Home** tab, in the **Device name** field, users can change the default device name to the one of their choice.

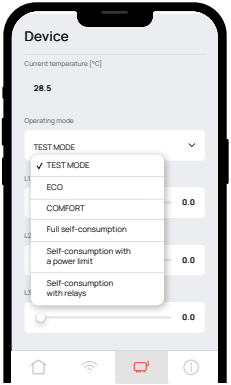
The **Software Version** field indicates the version the device is running on; if available, an update will be indicated in this field. To **update the device**, click the Update button (only available if an update is available), which will perform a stability test. Keep the Internet connection established for 5 minutes: do not switch off or reset the device.



4

The **Device** tab contains the most important measurements and settings of the device.

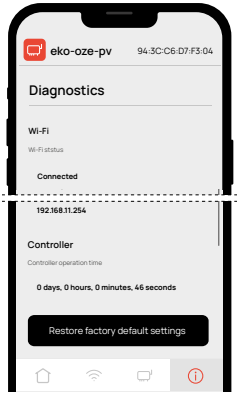
The order of the display is as follows: the temperature of the temperature sensor (or sensor error), the operating mode of the device and the voltages of the individual phases.



5

The **Operating Mode** field shows the operating mode of the device.

Detailed information on the modes is available in the OPERATING MODES DESCRIPTION section.



6

Resetting the settings to factory defaults.

WARRANTY 11

1. Zamel Sp. z o.o. offers a 24-month warranty on the products sold. 2. The warranty offered by ZAMEL Sp. z o.o. does not cover: a) mechanical damage caused during transport, loading/unloading or other circumstances, b) damage caused by faulty assembly or operation of the products provided by ZAMEL Sp. z o.o.; c) damage resulting from any changes made by the BUYER or third parties in the products sold or equipment necessary for the proper operation of the products sold; d) damage resulting from force majeure or other fortuitous events for which ZAMEL Sp. z o.o. is not responsible. 3. Any warranty claims shall be made by the BUYER at the point of sale or to ZAMEL Sp. z o.o. in writing after the identification of defects. 4. Zamel Sp. z o.o. undertakes to handle complaints in accordance with the applicable provisions of Polish law. 5. The choice regarding the form of complaint resolution, e.g. replacement of a product with a product free from defects, repair, or reimbursement, lies with ZAMEL Sp. z o.o. 6. The warranty does not exclude, limit, or suspend the BUYER's rights under the statutory warranty for defects in the item sold.

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Seller's signature, stamp and date of sale

.....

Installer's signature, licence number, stamp and date

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Zamel Sp. z o.o.
ul. Zielona 27, 43-200 Pszczyna, PL
tel.: +48 32 210 46 65, +48 32 449 15 00
fax: +48 32 210 80 04
email: marketing@zamel.pl
www.zamel.com

zamel.io/eko-oze-pv

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