



**EN**

**PHOTOVOLTAIC EXCESS MANAGEMENT SYSTEM -  
SWITCHING DEVICE**

**TECHNICAL DESCRIPTION AND INSTALLATION, OPERATING,  
AND MAINTENANCE INSTRUCTIONS,  
WARRANTY CONDITIONS**

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**IMPORTANT!**

Please read these operating instructions carefully before installing and commissioning!

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EN - Specifications	Unit	
<b>Switching device</b>		
IP protection class	-	20
Integrated reverse polarity protection	-	Yes
Digital display	-	Yes
Dimensions (length, width, height)	cm	17.9 x 7.6 x 4.1
Weight	g	400

### Photovoltaic connection

Number of connectable photovoltaic modules	-	1-4
Recommended photovoltaic power per photovoltaic module	Wp	300-450
Maximum photovoltaic power per photovoltaic module	Wp	450
Maximum open circuit voltage of a photovoltaic module	VOC	50

Important: The connected photovoltaic modules must match the electrical properties (max. Current, max voltage) of the connected consumers. The switching device switches individual (entire) photovoltaic modules. There is no regulation of power or voltage in the changeover device. If the connected load is not compatible with the photovoltaic modules, the electrical loads can be destroyed.

### Connectable electrical loads

Number of outputs for photovoltaic boiler	-	1
Maximum power - output 1	W	600
Number of outputs for Micro PV inverters	-	2
Maximum power of the connected micro PV inverter	W	800
Maximum performance - Output 2 - and - Output 3 -	W	400

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## GENERAL WARNINGS

Read the instructions and warnings in this manual carefully before installing and commissioning the switching device. The information provided here is intended to familiarize you with the installation and operation of the device. Furthermore, you are obliged to provide this manual to the competent persons who will install and possibly repair the device. These instructions should always be kept near the device for later reference. Compliance with the rules described here is one of the measures for the safe use of the product and is considered part of the warranty conditions.

## SAFETY INSTRUCTIONS

**WARNING!** This device can be used by children from 8 years of age and above as well as by people with reduced physical, sensory, or mental abilities or lack of experience and knowledge, if they have been supervised or instructed in the safe use of the equipment and understand the resulting hazards. Children are not allowed to play with the device. Cleaning and maintenance must not be carried out by children without supervision.

### OTHER IMPORTANT NOTES

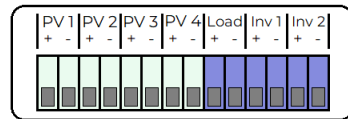
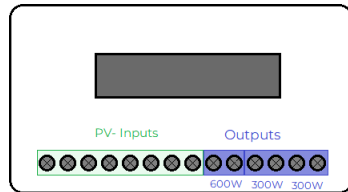
- Observe the maximum permissible voltage of the photovoltaic modules and the electrical loads to be connected.
- The connected loads must be compatible with the connected photovoltaic modules.
- The device must be installed in a dry place.
- Only one module per input may be connected to the limits specified in the specifications.
- Photovoltaic modules in parallel or series connection must not be connected to the system inputs.

## TECHNICAL DATA

The switching device distributes the power of several photovoltaic modules to different electrical loads. The product primarily serves as an energy management system. The energy generated by the photovoltaic modules can be distributed efficiently and with different priorities to the connected loads by the switching device.

Up to four photovoltaic modules can be connected to the switching device. For this purpose, the photovoltaic inputs - PV1 to PV4 - are used. The energy

generated by the photovoltaic modules is distributed to up to three electrical consumers. These are connected to the load outputs - Output 1 to Output 3 - (see graphic)



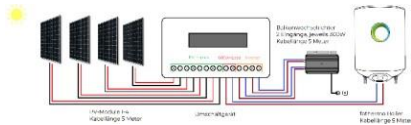
### Prioritization:

The switching device prioritizes the connected loads differently. The output - Output 1 - has first priority. This is followed by - Output 2 - and then - Output 3 -. On - Output 1 - connected loads are prioritized and supplied with energy. If the photovoltaic modules generate more power than the consumers connected under - Output 1 - can use, individual/ entire photovoltaic modules are switched to the second load output - Output 2 -. If surplus energy is also available, the - Output 3 - output is also supplied with energy. If a consumer does not consume power (anymore) (eg photovoltaic boiler has reached the maximum temperature), the existing power (photovoltaic modules) is switched to the other connected consumers with a lower priority if possible. If more power from the photovoltaic modules is available than the maximum power specified by the outputs (600W or 400W), individual photovoltaic modules are temporarily switched off.

# APPLICATION

**IMPORTANT:** Make sure that the connected consumers are compatible with the permissible system specifications of the photovoltaic modules.

## PV Boiler + Micro PV Inverter\*



The switching device allows the use of excess energy, which can no longer be stored in the photovoltaic boiler as heat.

\* For the connection of an inverter, the use of "Micro PV inverters" or "balcony power plant inverters" is provided. These are limited to a power of 400W per photovoltaic module input. It should be noted that the inverter has a separate input for each photovoltaic module. If several photovoltaic modules can be connected to one input of the inverter, the use in combination with the switching device is not possible.

# INSTALLATION

**1. Assembly:** Install the switching device in a dry room. It is mounted on a fixed wall using the four screws supplied. During installation, sufficient distance to neighboring walls and enough distance under the device for photovoltaic connections must be provided.

## 2. Connection of photovoltaic modules:

**IMPORTANT!** Operation is performed with direct current.

**IMPORTANT!** Only photovoltaic modules of the same type may be individually switched the inputs of the switching device.

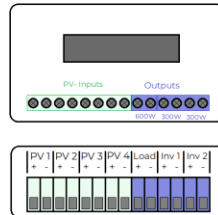
**IMPORTANT!** A series or parallel connection of the photovoltaic modules at one input leads to a defect of the device.

**IMPORTANT!** The connected photovoltaic modules must comply with the electrical limitations of the connected loads.

**IMPORTANT!** The installation of PV modules may only be carried out by a competent person and must exclude any risk to third parties. When installing the photovoltaic modules, the local rules and laws must be observed.

**IMPORTANT!** Only photovoltaic modules with a maximum open circuit voltage of 50 V specified in the data sheet may be connected. Up to four photovoltaic modules with 450Wp each may be connected to the designated connections of the system.

The photovoltaic modules and the loads are connected via the screw terminals of the switching device. The connections for the photovoltaic modules on the switching device are marked in green. Make sure that the photovoltaic modules are connected with the correct polarity.



Start by connecting the photovoltaic modules to the left of the terminal strip at the first terminal (PV1+) for the positive (+) and (PV1-) for the negative terminal (-) of a photovoltaic module. Mount further modules from left to right in ascending order of numbers according to the principle described above.

Check that the display of the switching device lights up after connecting the first photovoltaic module.

After connecting the first photovoltaic module, a timer of 5:00 minutes begins to count. You should connect all photovoltaic modules within this given time. This ensures that the switching device detects all photovoltaic modules and ensures perfect operation.

If you could not connect all photovoltaic modules to the switching device within 5:00 minutes, you should disconnect all photovoltaic modules from the switching device and restart the timer.

The device is completely disconnected from the power supply system when all supply plugs/ photovoltaic modules are disconnected.

**3. Connection of electrical consumers:** The loads are mounted on the blue terminals. At the first load output - output 1 - the photovoltaic boiler is connected. For this purpose, the terminal with the designation Out + is connected to the connector for the positive photovoltaic module voltage (+).

The terminal block Out - is connected to the negative terminal (-) of the device.

The Mirco PV inverter is connected to the load outputs - Output 1 - and/ or - Output 2. The respective terminal Out + is connected to the connector for the positive photovoltaic voltage (+). The terminal Out - is connected to the negative connector (-) of the Micro PV inverter.

You can use the supplied 6x MC4 contact plugs to connect the electrical loads. Take the MC4 plugs with the red cables for the connection of the positive + photovoltaic voltage and the MC4 plugs with the blue cables for the negative - photovoltaic voltage.

## OPERATION

### Operation:

When the device is commissioned, the number of connected photovoltaic modules is determined after the 5:00 minute timer has expired. After proper installation, the switching device automatically switches the photovoltaic modules to the connected loads. This is done depending on the incoming photovoltaic power. No operation by the user is possible. The display is used to read the current system status during operation. The display is structured as follows:



If several outputs are active, they are displayed sequentially. If only one output is active, the display is not switched.

If the display - Check Output 1 - is shown on the display, the switching device waits for the load to automatically switch to Output 1. If no power is consumed by the connected load, the switching device switches the photovoltaic modules to the second output. Switching is fully automatic and can take up to 5 minutes per output.

If an output takes up little power, the modules connected there are switched to another output after a short time. This ensures that the prioritization (see

section above, Prioritization) of the outputs is maintained and the best possible use of the photovoltaic modules is ensured. This scenario is indicated by the following image about the device, where an arrow indicates in which direction the module, or modules, will be transferred after the output is switched off. In the example shown, the module connected to output 2 is switched to the left, i.e. to the first output.



## MAINTENANCE AND REPAIR

To clean the switching device, remove all electrical connections first. The outer shell and the plastic parts of the device can only be cleaned with a slightly damp cotton cloth, without aggressive and/ or abrasive cleaning agents. The device can only be put back into operation after complete removal of moisture.

## DISTURBANCES

If a fault occurs during use of the system, please disconnect all live lines from the device and contact the manufacturer or your dealer.

Display does not light up during the day despite connected photovoltaic modules: Please contact your dealer.

Check Output X: The switching device searches for a suitable load. This can occur especially in very poor lighting conditions (eg sunrise and sunset). In this case, less power is available from the photovoltaic modules than the consumer needs to switch on/ operate.

## ENVIRONMENTAL PROTECTION

This device is marked in accordance with the Electrical and Electronic Waste Directive (WEEE). By ensuring that the device is delivered to a suitable disposal centre at the end of its service life, you contribute to protecting the environment and avoiding negative effects on the environment and human health. The symbol on the hot water tank indicates that the appliance must not be disposed of

in normal household waste at the end of its service life. It must be returned to a waste disposal centre with special facilities for electrical or electronic equipment. The end user must observe the local disposal regulations when disposing of the waste. You can obtain further information about the treatment, utilization and recycling process from your city administration, your local waste disposal centre or the specialist dealer where you purchased the product.

## WARRANTY

The warranty for the appliance shall apply only under the following conditions:

- The device is installed according to the assembly and operating instructions.
- The device is only used for its intended purpose and in accordance with the assembly and operating instructions.

The warranty covers the rectification of all manufacturing defects that may occur during the warranty period. Only the specialists authorized by the seller may carry out the repairs. The warranty does not cover damage:

- improper transport,
- improper storage,
- improper use,
- improper electrical voltage deviating from the rated voltage,
- extraordinary risks, accidents or other force majeure,
- non-compliance with the assembly and operating instructions and
- in all cases when an unauthorized person tries to repair the device.

In the aforementioned cases, the damage will be remedied against payment. The warranty of the device does not apply to parts and components of the device that are worn during its usual use, even parts that are dismantled during normal use, for lights and signal lamps, etc., for discoloration of external surfaces, for changing the shape, dimension and arrangement of parts and components that have been exposed to an effect not in accordance with the normal conditions for use of the device. The warranty of the device does not cover lost benefits, material and immaterial damage due to temporary impossibility to use the device during its repair and maintenance.

COMPLIANCE WITH THE REQUIREMENTS SPECIFIED IN THE MANUAL IS A PREREQUISITE FOR THE SAFE OPERATION OF THE PURCHASED PRODUCT AND IS PART OF THE WARRANTY CONDITIONS. ANY MODIFICATION OR MODIFICATION TO THE DESIGN OF THE PRODUCT BY THE USER OR ANY PERSON AUTHORIZED BY THE USER IS STRICTLY PROHIBITED. IF SUCH ACTIONS OR ATTEMPTS ARE DETERMINED, THEN THE WARRANTY OBLIGATIONS OF THE MANUFACTURER OR THE DEALER ARE INVALID. THE MANUFACTURER RESERVES THE RIGHT TO MAKE STRUCTURAL CHANGES WITHOUT NOTICE PROVIDED THAT THE SAFETY OF THE PRODUCT IS NOT AFFECTED. IF NECESSARY OR IF THERE ARE ANY MISUNDERSTANDINGS IN CONNECTION WITH THE TRANSLATION AND THE TERMS USED IN THIS LANGUAGE VERSION OF THE ASSEMBLY AND INSTRUCTIONS, PLEASE USE THE ENGLISH VERSION AS THE ORIGINAL AND THE PRIORITY VERSION