westech PSU-12 Delivery Scope Instruction Manual

PSU-12 Delivery Scope Instruction Manual

POWER SUPPLY UNIT FOR THE ON-GRID SUPPLY
OF THE PHOTOVOLTAIC WATER HEATER (PSU-12,PSU-18)

IMPORTANT!
Please read these operating instructions carefully before installing and commissioning the power supply unit!

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Specifications

	Unit	PSU-12	PSU-18
Input voltage range	VAC	100–240	100–240
Input frequency range	Hz	50–60	50–60
Max. input current	A	2.5	2.5
AC inlet type	–	IEC320-C14	IEC320-C14
Efficiency (Typ.)	%	≥ 90	≥ 90
Standby power consumption (Typ.)	mW	< 100	< 150
Output DC voltage (Typ.)	VDC	12	18
Max. rated current	A	7	8.4
Max. rated power	W	84	151
Heating power for photovoltaic water heater	W	62	140
Operating mode of photovoltaic water heater	–	PV HOME	PV HOME
Ambient temperature range	°C	-10–40	-10–40
Humidity range	%	20–90	20–90
Overload protection	–	yes	yes
Overvoltage protection	–	yes	yes
Short circuit protection	–	yes	yes
Thermal protection	–	yes	yes
Case	–	Plastic, fully enclose d	Plastic, fully enclosed
Dimensions (length, width, height)	cm	13.0 x 5.8 x 3.1	16.8 x 6.8 x 3.1
Weight	g	460	660
Certificates	–	UL/CUL, ETL, TUV-GS, CE, RCM, CCC , KC, PSE, FCC, RO SH	UL/CUL, ETL, TUV-GS, CE, RCM, CCC, KC, PSE, FCC, ROS H
Safety standards	–	IEC62368, IEC6155 8, IEC61347, IEC60 335, IEC60601	IEC62368, IEC61558 , IEC61347, IEC6033 5, IEC60601

Delivery scope

Figure 1: Picture of the product

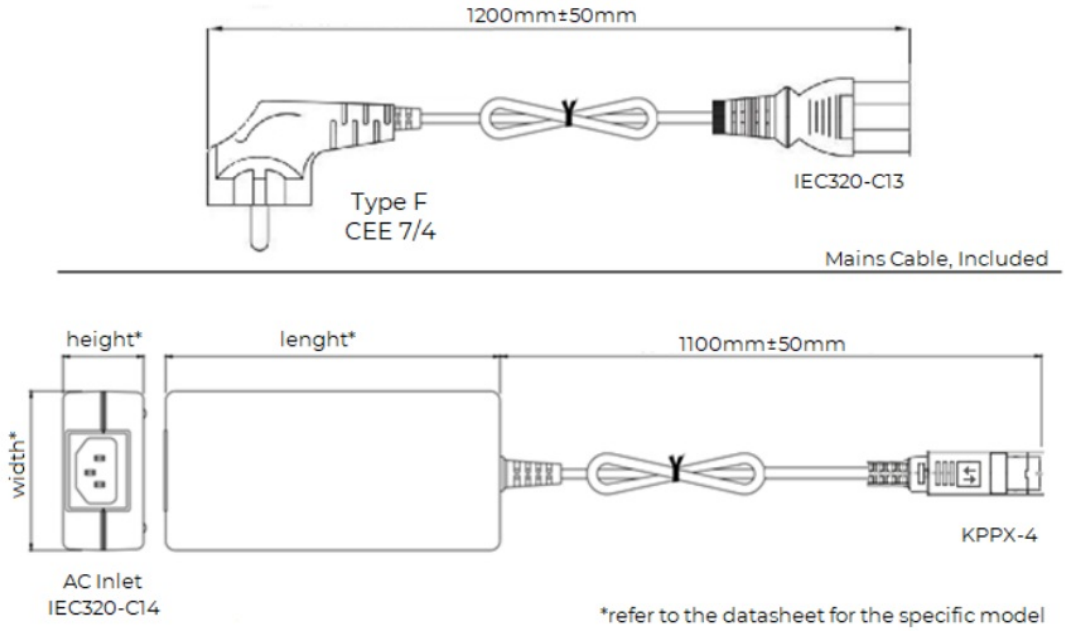


Figure 2: Dimensions and connectors of the unit

Operating instructions

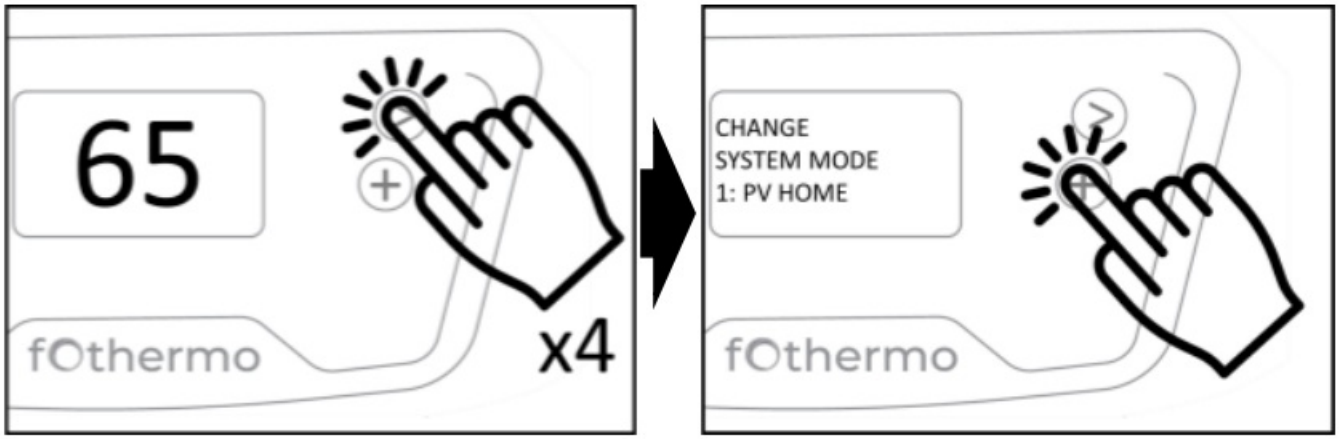
General information

When the power supply unit is connected, the set minimum water temperature ensures that the water is permanently heated to this temperature, even if there is no PV power. The PV power always has priority over power from the power supply unit, even if the water temperature falls below the minimum. The recommended minimum water temperature is about 35 °C. The lower the minimum water temperature is set, the more photovoltaic energy can typically be used.

Connecting the power supply unit

Changing the system mode of the photovoltaic water heater to PV HOME

IMPORTANT: In order to operate the photovoltaic water heater with the external power supply, the system mode must be set to mode 1 (PV HOME)!



Overview of the system modes

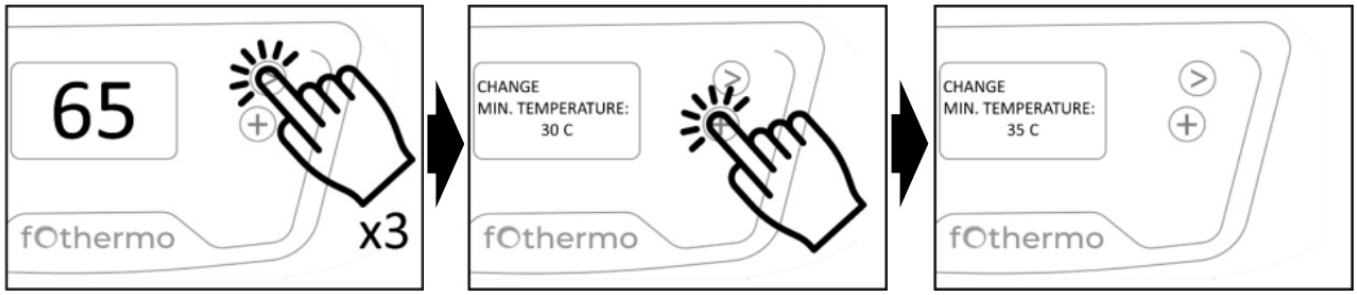
System mode	Energy supplies	Reheating function	Excess energy function
Mode 1: PV HOME	PV, ext. power supply	yes	–
Mode 2: 12V BATTERY	PV, 12V battery	–	yes VBat ≥ 13.5 V
Mode 3: 12V BATTERY REH EAT	PV, 12V battery	yes VBat ≥ 12.4 V	yes VBat ≥ 13.5 V
Mode 4: EXCESS ENERGY	PV, 12V & 24V battery	–	–
Mode 5: 24V BATTERY	PV, 24V battery	–	yes VBat ≥ 27.0 V
Mode 6: 24V BATTERY REH EAT	PV, 24V battery	yes VBat ≥ 24.8 V	yes VBat ≥ 27.0 V

Mode 1:
Reheating via an external power supply unit:
Power is supplied from the grid and the photovoltaic water heater is heated up when the water temperature falls below the set minimum temperature. Reheating is stopped after the set minimum temperature is reached. If photovoltaic power is available, it is always prioritized.
REQUIREMENTS: fothermo photovoltaic water heater + fothermo external power supply unit

Mode 2–6:
Use of the excess energy function:
Heating up the photovoltaic water heater when the specified battery voltage (VBat) is reached. At this voltage, the battery is almost fully charged. If the battery voltage falls below the specified value, the heating process is ended.

Use of the reheating function:
Discharging the battery and heating the photovoltaic water heater when the water temperature falls below the set minimum temperature. Reheating is stopped when the set minimum temperature is reached OR when the battery charge is low. The battery is discharged down to the specified voltages. This prevents deep discharge of the battery by the water heater.
REQUIREMENTS: fothermo photovoltaic water heater + fothermo battery xcable

Changing the minimal water temperature



Note: The recommended minimum water temperature is about 35 °C.
Water Heater – Heating duration of the power supply units

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Start temperature 15 °C – End temperature 35 °C
Start temperature 15 °C – End temperature 35 °C

Power Supply Unit	Heating power	101	301	801
PSU-12	– 62 W	– 4 h	– 12 h	– 31 h
PSU-18	– 140 W	– 2 h	– 5 h	– 14 h

Note: The values given in the table are intended as a guideline.

GENERAL WARNINGS

Before operating the device, please read this manual thoroughly and retain this manual for future reference! This unit may only be installed and put into operation by qualified personnel. If damage or malfunction should occur during operation, immediately turn power off. The unit does not contain serviceable parts.
Intended use: This power supply unit is designed for reheating the water heater only. Misuse of the appliance will invalidate the warranty.

SAFETY INSTRUCTIONS

WARNING! Risk of shock, fire, personal injury, or death.
WARNING! Disconnect from power, before touching
WARNING! Do not open or modify the device. Danger of high voltage!
WARNING! Use caution to prevent any foreign objects
WARNING! Do not use the device in wet locations or in areas where moisture or condensation collects.
WARNING! Do not operate the instrument in the presence of flammable gases, vapours, fumes, or finely divided particulates.
IMPORTANT! Do not place any heavy object on the unit. Also avoid severe impacts or rough handling.
IMPORTANT! The device must not be used in environmental conditions outside its specification.

TECHNICAL DATA

If necessary, the power supply unit heats the water in the photovoltaic water heater, which means that long periods of bad weather can be bridged. The device is an AC to DC converter which is grid powered to provide a regulated DC voltage to the water heater.
The heating element of the boiler has a resistance of 2.3 Ω. By applying a voltage to the DC input, a proportional power is absorbed and converted into heat. This voltage must not exceed 30 V! Any modification to the power supply unit or the water heater will void the warranty. The same applies when using power supply units that are not offered by the manufacturer.

ELECTRICAL CONNECTION

WARNING! Any electrical connection may only be performed when the water heater is filled with water.
IMPORTANT! Only use power supply units recom-mended by the manufacturer. Noncompliance will invalidate the warranty and may damage the water heater.

To install the unit correctly and safely, follow these steps:

1. Connect the mains cable connector C13 to the inlet C14 of the power supply unit (see Figure 2).
2. Attach the KPPX connector to the DC-Input of the water heater.
3. Connect the power supply unit to mains power via the Type F connector.

The electrical connection may only be carried out by qualified persons. Always proceed with caution while working with mains voltage.

OPERATION

WARNING! This device may only be operated by a person (including children over the age of 8 with reduced physical or mental capabilities if they are supervised or have been instructed in the use of the appliance by a responsible person. Children must be supervised to prevent them from playing with the appliance under any circumstances.
When the power supply unit is connected, the set minimum water temperature ensures that the water is permanently heated to this temperature, even if there is no PV power. The PV power always has PRIORITY over power from the power supply unit, even if the water temperature falls below the minimum. The recommended minimum water temperature is about 35 °C. The lower the minimum water temperature is set, the more photovoltaic energy can typically be used.
When powering the water heater with the power supply unit, the water heater must be operated in Mode 1 (PV HOME. The mode of the water heater can be configured following these steps:

Water heater configuration:

Switch On: Press the ⏻ – button for three seconds.
Display: The present water temperature is shown on the display.

- POWER IN: Input power

- VOLTAGE: Input voltage
- EXT SUPPLY: Connection of an external supply
- USED PV ENERGY: Total energy utilised

Menu Navigation: Press the > – button briefly to jump through the pages of the menu. Repeatedly press the navigation button until the active water heater mode is shown on the display. If Mode 1 is active, no further adjustments are necessary. To change modes, follow the next step.

Settings: Press the + – button repeatedly to switch through the options of the displayed configuration. This allows individual adjustments on the mode and temperature settings of the water heater to be made.
Please note: The adjustments are only active when an external energy supply is connected to the photovoltaic water heater.

CLEANING
he power supply unit may only be cleaned with a lightly moistened cotton cloth, free of aggressive cleaning and / or abrasive agents. The device must not be cleaned during operation. Commissioning may only take place after all moisture has been completely removed.

MALFUNCTION
In case of a malfunction during operation, disconnect the appliance and contact the manufacturer or your distributor.

ENVIRONMENTAL PROTECTION
This device is labelled by the Waste Electrical and Electronic Equipment (WEEE) directive. By ensuring that the appliance is taken to a suitable disposal centre at the end of its service life, you will help to protect the environment and prevent negative effects on the environment and human health. The -symbol on the water heater indicates that the appliance must not be disposed of with regular household waste at the end of its life. The product must be taken to a disposal centre with special facilities for electrical or electronic equipment. The end-user must comply with local disposal regulations when disposing of the product. For more information on treatment, recovery, and recycling procedures, contact your local city office, your local waste disposal centre, or the retailer from whom you purchased the product.

WARRANTY

The warranty of the appliance is only valid under the following conditions:

- The unit is installed in accordance with the installation and operating instructions.
- The appliance is only used for its intended purpose and in accordance with the installation and operating instructions

The manufacturer’s warranty covers the repair of all manufacturing defects that occur during the warranty period. Only professionals authorized by the seller may carry out repairs. The warranty does not cover damage resulting from:

- Improper transport,
- improper storage,
- improper use,
- improper electrical voltage which deviates from the rated voltage,
- exceptional risks, accidents, or other force majeure,
- failure to follow the installation and use instructions and

- in all cases when an unauthorized person attempts to repair the appliance.

In the aforementioned cases, the damage will be repaired against payment. The guarantee does not apply to parts and components of the device that are worn out during its normal operation, nor to parts that are dismantled, to lights and signal lamps, etc., to discoloration of external surfaces, to changes in the shape, dimensions, and arrangement of parts and components that have been subjected to an impact that does not correspond to the normal conditions of use of the device. Any missed benefits, material and immaterial damages resulting from temporary inability to use the unit during the period of its repair and maintenance, are not covered by the warranty of the unit.

COMPLIANCE WITH THE REQUIREMENTS SPECIFIED IN THE MANUAL IS A PREREQUISITE FOR THE SAFE OPERATION OF THE PURCHASED PRODUCT AND IS INCLUDED IN THE TERMS OF THE WARRANTY. ANY MODIFICATIONS OR ALTERATIONS TO THE DESIGN OF THE PRODUCT MADE BY THE USER OR PERSONS AUTHORISED BY THE USER ARE STRICTLY PROHIBITED. ANY SUCH ACTS OR ATTEMPTS SHALL VOID THE WARRANTY OBLIGATIONS OF THE ANUFACTURER OR DISTRIBUTOR. THE MANUFACTURER RESERVES THE RIGHT TO MAKE STRUCTURAL CHANGES WITHOUT NOTICE, PROVIDED THAT THE SAFETY OF THE PRODUCT IS NOT AFFECTED. WHEN NECESSARY, OR IN CASE OF MISUNDERSTANDINGS IN CONNECTION REGARDING THE TRANSLATION OR TERMS USED IN THIS LANGUAGE VERSION OF THE INSTALLATION AND OPERATING INSTRUCTIONS, PLEASE USE THE GERMAN VERSION AS THE ORIGINAL AND PRIMARY VERSION.

Robert-Bosch-Str. 11, 85748 Garching
+49 (0) 89-89545770
Westech-Solar Energy GmbH,
info@westech-energy.com,
www.westech-energy.com

Documents / Resources

	westech PSU-12 Delivery Scope [pdf] Instruction Manual PSU-12, PSU-18, PSU-12 Delivery Scope, PSU-12, Delivery Scope, Scope

References

- Energy.com – The Future of Blockchain
- Westech Solar Energy – make energy efficient