Photovoltaic

Photovoltaic-optimizer

AD-PVO 4000 GT

Description

The Photovoltaic-Optimizer AD-PVO 4000 monitors the supply of solar energy at the main connection of a building. The device has an Ethernet interface, with the aid of which the stepless controllable heater rod of my-PV ”AC ELWA-E” or the PV-Power-Manager "AC THOR"can be started. The device communicates with the devices rod via the Modbus-TCP protocol. There is also a WEB-interface available, with the aid of which the AD-PVO 4000 can be parameterized or measuring values can be read off. The device can also be integrated into the home network with an Ethernet cable, and, depending on surplus power, starts the stepless heater rod or the PV-Power-Manager "AC THOR" with exactly this and regulates the zero feed at the connection to the building. The device also has an RS485 interface, to which the compatible display AD-MM-400 can be connected, or all measuring values are also available with the Modbus-RTU protocol. With this it is possible to display the measuring values directly on site as well as at a greater distance. The device converts the energy on site optimally to immediately available warmth and is not fed back into the public low-voltage network. Through this, the PV units are optimised for own consumption and the public low-voltage network is relieved. It is recommended to mount the AD-PVO 4000 directly after the counter of the energy supply in the distributor cabinet, as measurements should be taken as close as possible to the feed point. The device requires all three outer conductor voltages and the neutral conductor for its measuring. The AD-PVO 4000 measures the current via three external fold-over current transformer, which can be mounted, space saving (without separation), directly onto the 3 phases after the counter. The Photovoltaic-Optimizer obtains the own supply energy from the measuring voltage L1.

Application

Stepless control of the heating element of my-PV "AC ELWA-E" or the PV-Power-Manager "AC THOR" via Ethernet and the Modbus-TCP protocol.

Specific characteristics

- Power supply by measuring voltages
- Ethernet interface for heating rod control
- Load regulation according to PI behavior
- Current measurement through external split current transformer
- Parameterization via WEB interface

Business data

Order number

AD-PVO 4000	Photovoltaik-Optimierer mit Ethernet-Anbindung

Accessory

AD-MM 400	TFT display in 96x96 mm mounting format
AD-VarioPass3	RS485 to USB interface converter
Alternative current transformers	also larger current transformers on request possible

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Technical specifications

Current-inputs (I1...I3)

Measuring range	0 ... 33 mA AC (0 ... 100 A AC via external current transformer)
Input resistance	ca. 10 Ohm

Voltage-inputs (L1...L3)

Measuring range	230 V AC (+/- 10 %)
Input resistance	ca. 500 kOhm

External current-transformer

Primary current	0 ... 100 A AC
Secondary current	0 ... 33 mA AC
Transformation ratio	1:3000 (Np : Ns)
Maximum wire diameter	15 mm
Max. secundary wire length	2 m
Isolation-voltage	2,5 kV / 1 min
Dimensions (WxHxD)	32x42x46 mm

Ethernet-interface

Speed	10/100 Mbit
Protocols	Modbus-TCP; HTTP
HTTP-port	80
DHCP	activated
Addressing	IP4
Standard-IP	192.168.178.99
Default subnet mask	255.255.255.0

RS485-interface

Protocol	Modbus-RTU
Baud rate	2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800
Data rate	8N1, 8E1, 8O1
Max. bus users	32
Bus termination	120 ohms both sides at the end
Max. length of bus	500 m (keine Stichleitungen)
Cable	twisted and shielded
Address	1 ... 255 (adjustable via WEB interface)

Compatible heating element

Type	my-PV "AC ELWA-E"
Protocol	Modbus-TCP
Power	0 ... 3 kW

Supply

Voltage range AC	230 V AC (+/- 10 %), 50/60 Hz
Nominal voltage AC	230 V AC
Power consumption	max. 3,8 VA

Transfer behavior - in reference to the current value

Basic accuracy	< 1 % (class 1)
Temperature influence	80 ppm/K
Response time	ca. 1 s

Housing

Dimensions (WxHxD)	71x90x58 mm
Type of protection	IP 20
Connection method	screw clamp
Terminals, wire cross section	2,5 mm² flex wire / 4 mm² one wire
Bolting torque terminals	0,6 Nm
Skinning length	6 mm
Weight	~ 175 g + 3x 75 g (current-transf.)
Manner of fastening	35 mm DIN rail 35mm

Environmental conditions

Ambient temperature	-10 ... 50 °C
Storage and transport	-10 ... 70 °C (no condensation)

EMC

Product family standard	EN 61326-1 [1)]
Emitted interference	EN 55011, CISPR11 Cl. B, Gr. 1

Electrical safety requirements

Product family standard	EN 61010-1
Overvoltage category	II
Pollution degree	2
Safety measurement	EN 61010-2-030
Measurement category	CAT III

Galvanic isolation, test voltages

Grid side to Ethernet interface	4 kV, 50 Hz (1 min.)

Protection circuits

Input	electrical surge protection
Power supply	protection against over-temperature, over-voltage and over-current

[1)] During checking, slight signal deviations are possible.

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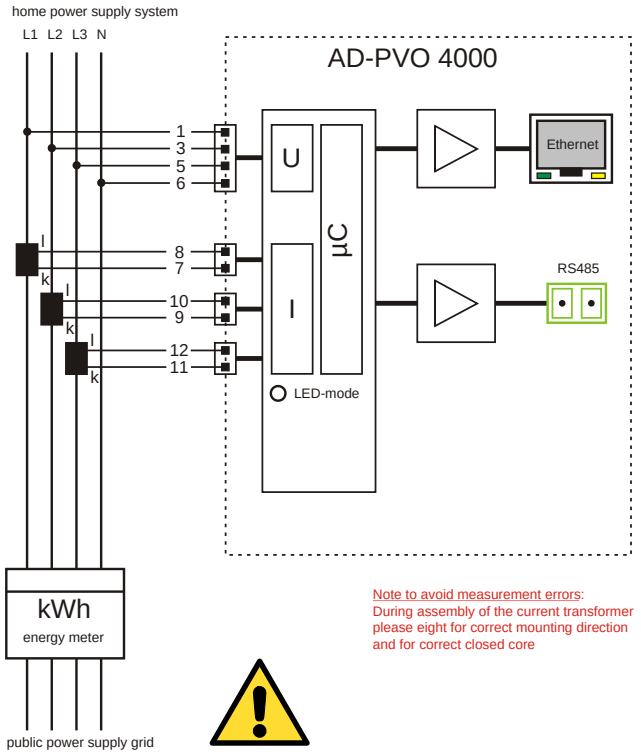
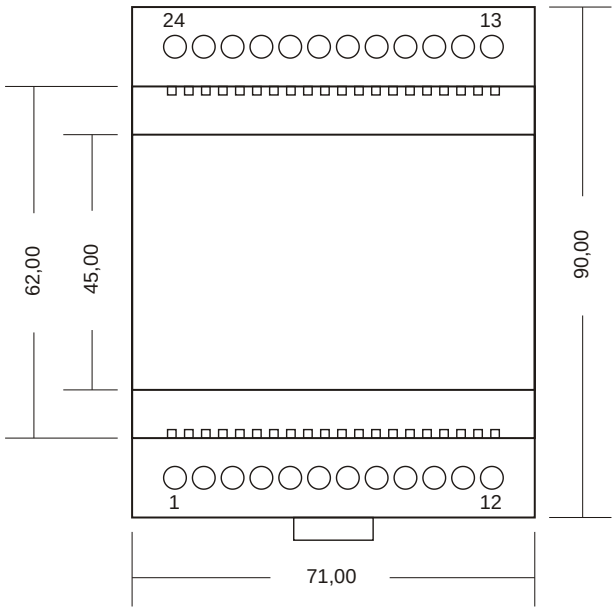
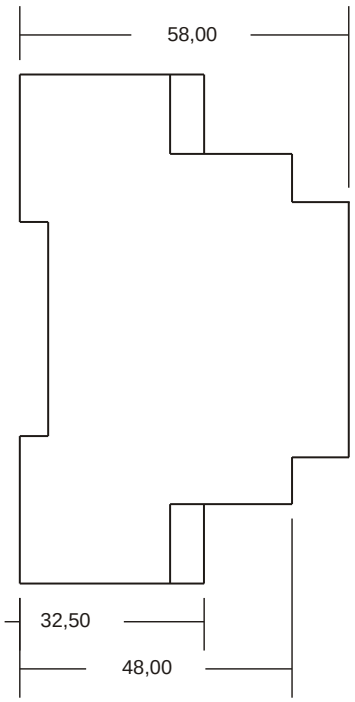
Block and wiring diagram



Dimensions





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Circuit examples