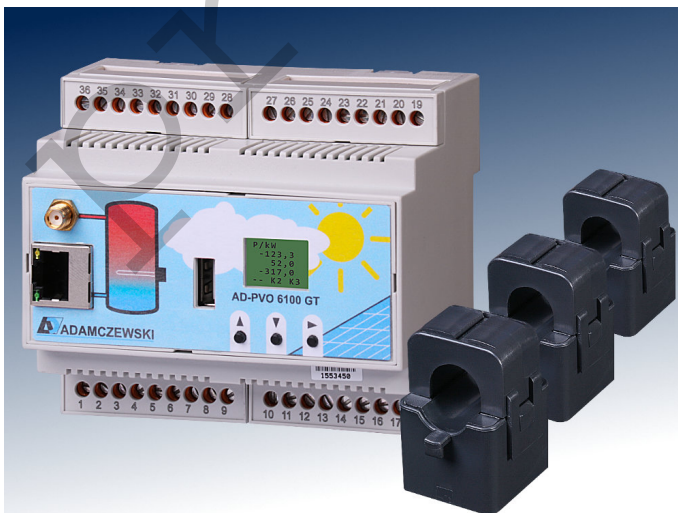


Description

The AD-PVO 6100 GT photovoltaic optimizer monitors the feed-in of any surplus PV energy at a building's main connection. If the feed-in power exceeds a limit value parameterized by the operator, up to three independent load relays can be activated. These three load relays can be individually parameterized and can therefore switch loads either in phases or in steps to the total power. These switching relays can now be used to control electrical loads (e.g. electric heating element in the domestic hot water tank of the heating system, air conditioning unit or heat pump). With the AD-PVO 6100 GT, the energy is converted on site and not fed back into the public low-voltage grid. The use of this device optimizes PV systems for self-consumption and reduces the load on the public low-voltage grid. The AD-PVO 6100 GT also has various interfaces (RS485, Ethernet, WLAN, USB) for parameterizing the device or reading out measured values. A log function can be implemented with a USB stick. The temperature input can be used, for example, to measure storage temperatures and implement switch-offs and switch-overs. The two digital inputs can be parameterized as blocking inputs, for example, to ensure correct function in connection with an electrical battery storage system. The analog standard signal output or the PWM output can be used, for example, for stepless control of heating elements or pumps. All relevant measured values can be read on the integrated LC display. The device can be parameterized via a WEB interface or via the Adamczewski parameterization software AD-Studio. It can be integrated into the local network via Ethernet cable or WLAN radio connection. It is recommended that the AD-PVO 6100 GT is installed directly behind the energy supplier's meter in the switch cabinet, because the measurement should take place as close as possible to the feed-in point. The device requires all three phase conductor voltages and the neutral conductor for the measurement. The AD-PVO 6100 GT measures the currents via three external split-core current transformers, which can be mounted directly on the 3 phases after the meter to save space (without disconnection). The photovoltaic optimizer gets its own supply voltage from the measuring voltage L3. This means that no separate supply voltage needs to be connected.

Application

To optimize energy self-consumption in photovoltaic systems



Specific characteristics

- 3 internal load relay
- Current measurement via split-core current transformer
- Supply via measuring voltage L3
- Parameterization via WEB interface or PC
- Ethernet interface
- WLAN interface
- USB interface
- RS485 interface
- PT1000 temperature input
- Digital inputs
- OptoMos switching output
- Pulse or PWM output
- Compatible with many **SG-Ready** compatible heat pumps

Business data

Basic device

PV surplus controller incl. split- AD-PVO 6100 GT
core current transformer

Accessory

Three-zone electric heating element	AD-HST 35 SO
Flow heater-set	AD-DLE

Information

Downloads

Safety instructions [ad-safety-instructions.pdf](https://www.adamczewski.com/ad-safety-instructions.pdf)

Technical specifications**Current-inputs (I1...I3)**

Measuring range	0 ... 33,33 mA AC (0 ... 100 A AC via external current transformer)
Input resistance	ca. 10 Ohm
Max. measurable harmonic	40

Voltage-inputs (L1...L3)

Measuring range	80 ... 253 V AC
Input resistance	> 900 kOhm

External current-transformer

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

Load relays (K1 to K3)

Maximum switching load AC	250 V, 9 A
Maximum switching load DC	50 V, 9 A
Contact construction	potential-free closer
Switching operations mechanical	6 000 000
At 230V/9A AC, cos(phi)=1	400 000
At 230V/9A AC, cos(phi)=0,4	150 000
At 24V/9A DC	200 000

Switching output

Type	Semiconductor switch wear-free and potential-free (OptoMos)
Max switching voltage	230 V AC/DC
Max. switching current	0,1 A AC/DC

Pulse/PWM output

Type	Transistorausgang
Max switching voltage	50 V DC
Max. switching current	30 mA DC
Max. switching frequency	5 kHz

Analogue output

Max. current load	400 Ohm
Min. Spannungsbürde	1 kOhm
Output ranges	0/4 ... 20 mA or 0/2 ... 10 V
Max. current output ripple	50 µAss
Max. voltage output ripple	20 mVss
Resolution	11 bit

Digital inputs

Type	Supply input - connection of potential-free contacts
Contact supply	3,3 V DC

Temperature input

Type	PT1000
Measuring range	0 ... 120 °C
Connection type	2-wire

Supply

Voltage range AC	80 ... 253 V AC, 50/60 Hz (see voltage-inputs)
Nominal voltage AC	230 V AC
Power consumption	max. 7 VA

Transfer behavior - in reference to the current value

Basic accuracy	< 1 % (class 1)
Temperature influence	80 ppm/K
Response time	< 2 s

Housing

Dimensions (WxHxD)	105x90x58 mm
Type of protection	IP 20
Connection method	screw clamp
Terminals, wire cross section	2,5 mm ² flex wire / 4 mm ² one wire
Bolting torque terminals	0,6 Nm
Skinning length	6 mm
Weight	~ 300 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)

LVD (2014/35/EU)

Safety- product standard	EN 61010-1
Safety- Overvoltage category	II (EN 61010-1)
Safety- Level of dirt	2 (EN 61010-1)
Safety measurement	EN 61010-2-030
Measurement category	CAT III (EN 61010-2-030)

RED (2014/53/EU)

Health and safety in electromagnetic fields (article 3.1a)	EN 62311
EMC basic standard (article 3.1b)	EN 301 489-1 ¹⁾
EMC standard, Broadband transmission systems (article 3.1b)	EN 301 489-17 ¹⁾
Radio technology aspects (article 3.2)	EN 300 328 V2
Cybersecurity (Article 3.3)	EN 18031-1 (-2 and -3 irrelevant)

Galvanic isolation, test voltages

Grid side to relay outputs	4 kV, 50 Hz (1 min.)
Mains side to interfaces	4 kV, 50 Hz (1 min.)
Mains side to controls, display	4 kV, 50 Hz (1 min.)
Mains side to extra-low voltage outputs	4 kV, 50 Hz (1 min.)
Mains side to low voltage inputs	4 kV, 50 Hz (1 min.)

Galvanic isolation, working voltage

Grid side to relay outputs	max. 300 V AC
Mains side to interfaces	max. 300 V AC
Mains side to controls, display	max. 300 V AC
Mains side to extra-low voltage outputs	max. 300 V AC
Mains side to low voltage inputs	max. 300 V AC

Protection circuits

Input	electrical surge protection
Power supply	protection against over-temperature, over-voltage and over-current
Analogue output	electrical surge protection
Digital inputs	electrical surge protection

RS485-Bus

Software protocol	Modbus-RTU
Data format	19200, 8, 1, e (other adjustable)
Bus termination	120 ohms both sides at the end
Max. length of bus	500 m (no stub lines)
Cable	twisted and shielded

Ethernet

Connection socket	RJ45
Bandwidth	10/100 Mbit
Default IP address	192.168.50.23 (is overwritten with DHCP)
Default subnet mask	255.255.255.0 (class C)
Web interface	Accessible with browser, port 80
Standard DHCP setting	DHCP on

WiFi (WLAN)

Carrier frequency	2,4 GHz
Bandwidth	10/100 Mbit
Encryption	WPA2/3 PSK
WPA2 key (changeable)	can be viewed in the device menu
SSID	AD-PVO6100GT + 1/2MAC
Default IP address	192.168.4.1
Default subnet mask	255.255.255.0 (class C)
Web interface	Accessible with browser, port 80
Standard DHCP setting	DHCP on
Antenna socket	SMA ²⁾
Antenna	Adhesive antenna, must be fitted outside of the switch cabinet ³⁾
Minimum distance	50 cm (for permanent stay in the EM field)

USB

Connection type	USB-A socket
Behavior	USB host (connection of USB sticks intended for log function)

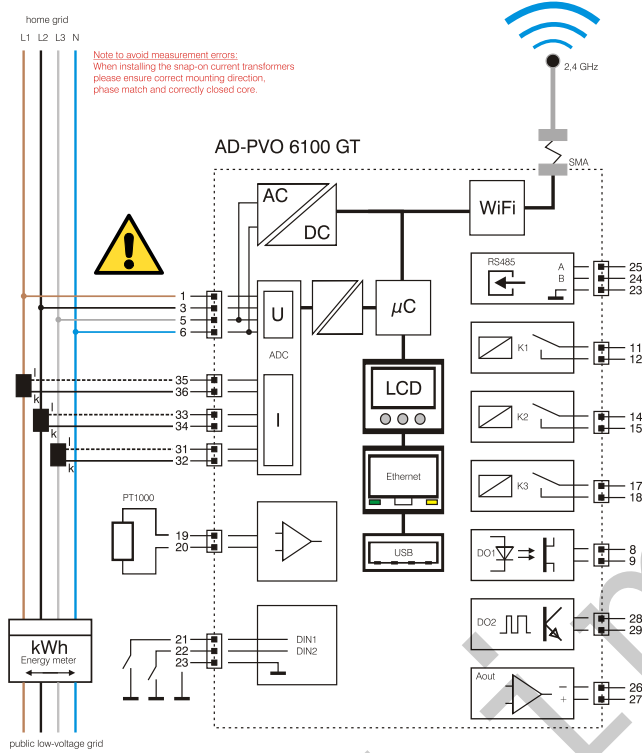
Control panels

Display resolution	56x42 Pixel
Display background colors	RGB
Display type	LCD
Control buttons for menu navigation	UP, DOWN, SET

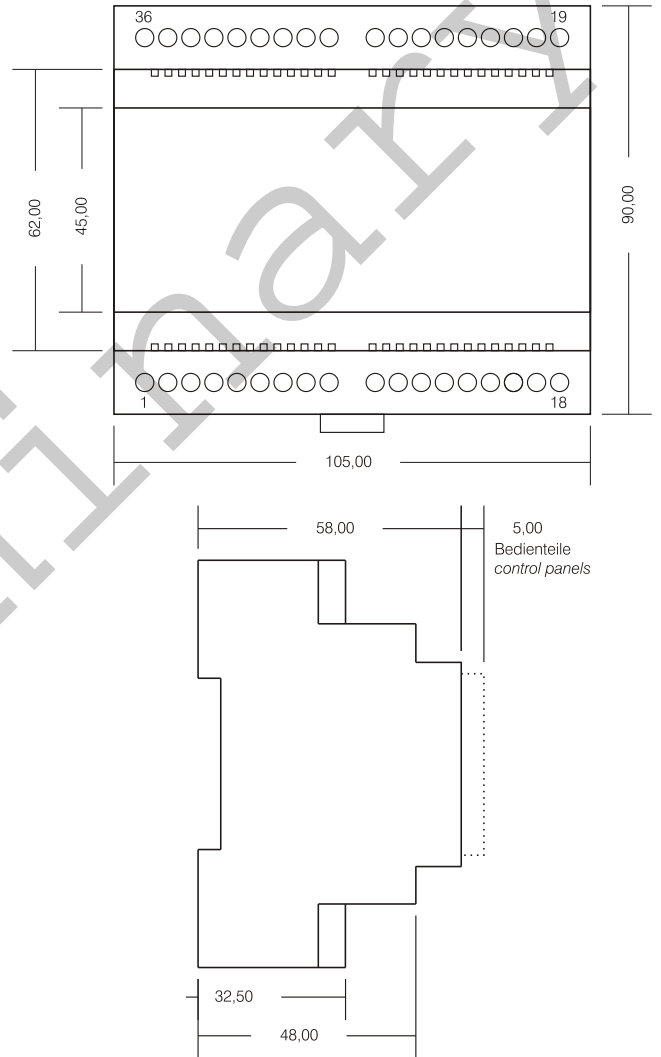
¹⁾ During checking, slight signal deviations are possible.

²⁾ The supplied WLAN antenna must be used. Alternative antennas are not permitted due to technical licensing reasons.

Block and wiring diagram



Dimensions



Circuit examples

