PRODUCT

SOLARWATT Manager:
for the optimum combination of
Battery flex AC-1 and PV system

SOLARWATT Battery flex AC-1 1.3 (6.0 kW)

A system for now and the future.

Battery flex AC-1 is a modularly expandable Lithium-ion battery storage system for increasing energy self-sufficiency. It is suitable for existing and new installations.

- 4.8 to 57.6 kWh usable energy content
- Plug-in connection of the battery modules without any cabling
- Single person installation possible (25 kg per module)
- Certified as per »Safety guidelines for Li-ion household battery systems«
- Online updateable

in cooperation with

BENEFITS

- Highest Quality
- Easy Planning and Installation
- Flexibly expandable in size and function

SINCE 1993
MADE IN GERMANY

10 YEARS GUARANTEE

SERVICE

FullCoverage insurance
included

Product warranty
10 years product warranty

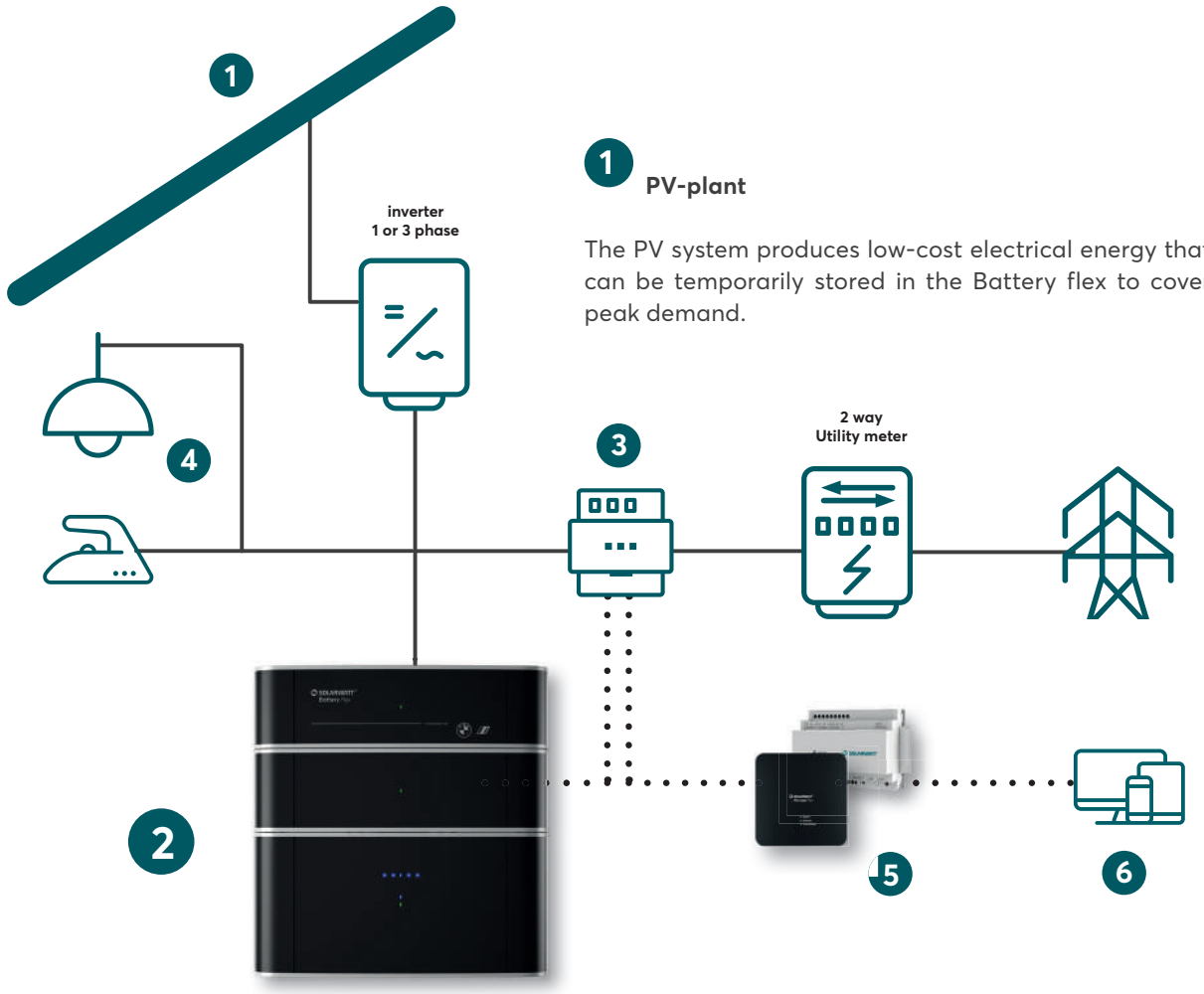
Simple return policy
as per electrical and electronic equipment legislation

Competent Consulting
Experts via Hotline or on site

Country of origin
Quality Made in Germany

SOLARWATT Manager ready
perfect system integration

SYSTEM LAYOUT



1 PV-plant

The PV system produces low-cost electrical energy that can be temporarily stored in the Battery flex to cover peak demand.

2 SOLARWATT Battery flex AC-1

Battery flex increases the energy self-sufficiency. Via the AC sensor, the system measures the energy consumption and the surplus of generated energy. When energy is purchased from the public grid, Battery flex receives the information for discharging. As soon as a surplus of produced energy is detected that cannot be consumed, the battery storage is charged (fully automatic control strategy).

3 AC-Sensor Flex

The AC sensor Flex measures the electrical power for feed-in and consumption and sends it to Battery flex, which is regulated accordingly.

4 Electrical devices in households

By linking the Battery flex and major energy consumers such as a heat pump or wallbox to the energy system, it can be ensured that they are operated as much as possible with low-cost solar power. This leads to higher self-consumption at lower cost without compromising the level of comfort and convenience.

5 SOLARWATT Manager (flex or pro)

The SOLARWATT Manager ensures optimum use of the combination of a PV system and battery – maximum independence at minimum costs.

- Monitor and analyze electricity flows
- Detect energy wasters
- Intelligent appliance control

6 Manager Portal, Home app, Pro app

Manager Portal and the SOLARWATT apps allow commissioning of the system and viewing the energy data via internet - on a computer, tablet or smartphone.

Comprehensive time series show all data on self-produced PV energy at a glance.

SYSTEM ELEMENTS

Battery flex top pack
Battery module with 2.4 kWh usable energy content

Battery flex middle pack
Battery module with 2.4 kWh usable energy content

Battery flex base AC-1
Battery inverter for connecting 2 to 8 battery modules

AC-Sensor Flex
Current sensor for measuring energy flows in the household

SOLARWATT Manager flex
optimises the utilization of PV solar generator and storage units

Optional: SOLARWATT Manager pro with further functions and applications

BATTERY FLEX AC-1 AND SOLARWATT MANAGER PERFECTLY COMBINED

Battery flex is optimally integrated into the household by the SOLARWATT Manager. The combination of the both creates new possibilities. Because the energy system can be individually designed according to the needs of each household:

- Increase self-sufficiency with PV energy up to 80 %
- Prioritize and optimize Battery flex in combination with other energy consumers (such as heat pump and/or wallbox)
- Choose between supply from special low energy tariffs or supply from storage - depending on what saves more electricity costs at what time of day

INCREASE SELF-CONSUMPTION BY INTEGRATING IMPORTANT ENERGY CONSUMERS

Heat generation with a heat pump

How does it work? With the digital extension of the EnergyManager pro, a relay and thus a signal that activates the Heat Pump is switched (SG Ready). It converts free PV energy into heat and does so considerably more efficiently than conventional heating systems.

What is the advantage?

- Reduce heating costs by converting PV energy into heat
- The Heat Pump converts power into heat with a factor of three to four – it couldn't be more efficient
- Ideal for increased own consumption

PV optimized charging of an electric vehicle

How does it work? SOLARWATT Manager can be used to define that the electric vehicle is only charged during the day when there is sufficient PV energy available. Schedules can ensure that the charging level always remains at a minimum.

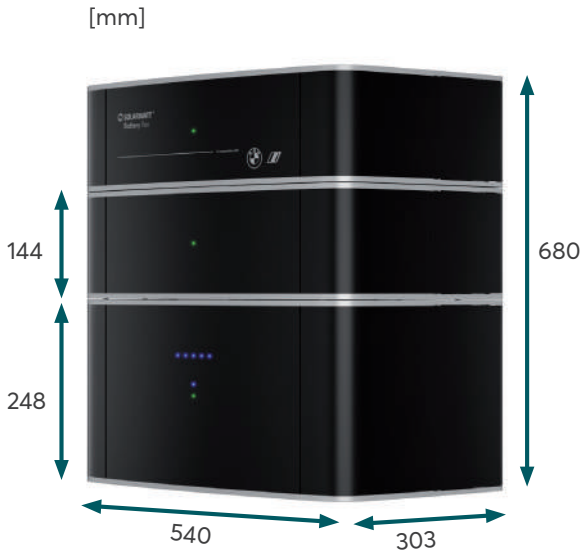
What is the advantage?

- Minimize energy cost and profit from price stability through self-generated energy
- Intelligent integration of the wallbox into the overall energy management
- Transparency of consumption and costs

THE PERFECT STORAGE FOR EVERY APPLICATION

Compact size

Battery flex can either be wall-mounted or optionally floor-standing.



For new installation and retrofitting

Regardless of whether the system is being planned from scratch or an existing photovoltaic system is being retrofitted or expanded, Battery flex fits and can be extended in 2.4 kWh steps.
Up to three Battery flex can be coupled as a cluster system (up to 57.6 kWh).

SOLARWATT HOME AND PRO APP

SOLARWATT Pro app - Battery flex AC-1 commissioning

- Run commissioning test
- Adjust Battery flex country settings
- Enable error diagnostics

Available on the App Store

GET IT ON Google Play

SOLARWATT Home app - Battery flex Monitoring

Battery flex transmits its data, such as charging, discharging and state of charge to the SOLARWATT Manager. SOLARWATT Home app visualizes this data for the current day as well as for past days. The remaining energy supply time can also be viewed via the app.

- Access all energy data from everywhere
- Conveniently measure and switch appliances
- Benefit from the highest data security (online banking standards)

SOLARWATT Battery flex AC-1 1.3 (6.0 kW)

ENVIRONMENTAL AND AMBIENT CONDITIONS

Ambient temperature range[1]	-20 °C to +45 °C
Relative humidity	≤ 100 %
IP rating	IP54
Installation location	up to 2,000 m above sea level outdoor installation (acc. to Installation Instructions)
Installation method	wall installation (optional floor mounting)

1) for detailed operating behavior depending on temperature see SOLARWATT Battery flex AC-1 installation and operating instructions
2) continuous monitoring of all cell voltages, cell temperatures, and current; shut-off of the system when parameter limits are exceeded.
3) the battery poles are voltage-free when the battery is removed
4) the corresponding warranty conditions apply

SOLARWATT Battery flex base AC-1 1.3 (6.0 kW)

GENERAL INFORMATION

Grid connection	AC (1-phase), 230 V, 50 Hz
Max. number of Battery flex AC-1 in parallel operation (cluster coupling)	3
Battery module circuitry	2 to 8 (in series)
Max. charge efficiency (AC2BAT)	93.6 %
Max. discharge efficiency (BAT2AC)	94.9 %
Internal consumption in operating mode	0 W
Internal consumption in Standby	0.5 W
Step response (time to supply a load demand)	< 1 s
Dead time (time to stop discharging)	0.1 s
DC voltage	25 bis 350 V
Max. rated real power P_{max}	6.0 kW
Max. rated apparent power S_{max}	6.0 kVA
Power factor cos phi	0.8 overexcited to 0.8 underexcited (can be smaller depending on the gridcode)
AC rated current	26 A

GENERAL INFORMATION

AC voltage	230 V
Initial symmetrical short-circuit current I_k	> 1 A
Data communication connection technology	2x RS485 (RJ11), 1x CAN (RJ45), 2x Ethernet (RJ45), Bluetooth (BTLE), LED Status display
Communication	SOLARWATT Pro app, SOLARWATT Home app; SOLARWATT Manager portal
AC-connection	Spring-type-terminal (L/N/PE) up to 6 mm
Grid and plant protection	integrated
All-pole disconnection from the grid for backup power mode	yes
Dimensions (W x H x D)	540 x 248 x 303 mm
Weight	23 kg
Housing	Aluminum
FullCoverage Insurance	5 years included (optional 10 years)
Warranty	10 years

SOLARWATT Battery flex middle and top pack

GENERAL INFORMATION

Total energy content	2.7 kWh
Usable energy content	2.4 kWh
Rated capacity	93 Ah
Nominal voltage	29.2 V
Current carrying capacity	30 A
Cell technology	Li-Ion (NMC)
Cell separator	Ceramic coating
Battery Management System (BMS)[2]	VTC Supervisor
Maximum efficiency	97.5 %
Weight	25 kg
Dimensions (W x H x D)	540 mm x 144 mm x 303 mm

GENERAL INFORMATION

Housing	Aluminum
Connectors[3]	**Battery top pack:** Power socket with integrated communication (touch-proof and reverse polarity protected) **Battery flex middle pack:** Power plug/socket with integrated- communication (touch-proof and reverse polarity protected)
Communication	iso SPI / CAN
Battery fuse	integrated
Warranty[4]	10 years (min. 80 % of the usable energy)
Cycle service life[4]	unlimited number of full cycles during the warranty period

AC-Sensor Flex

TECHNICAL DATA

Installation	DIN top hat rail TS35, suitable for installation in electrical junction boxes
Limit current	63 A per phase
Internal consumption	max. 3.0 W
Current consumption	max. 13 mA
Voltage	3/N/230 V ~
Frequency	50/60 Hz
Measurement output	balanced three-phase power
Interface	CAN-Bus, RJ45, isolated
Current ratio CT clamp measurment	75 A/1 A to 4,500 A/1 A
Technical specifications CT-clamps	secondary current = 1 A rated power = min. 0.2 VA
Cross-section area	16 mm² phase 1.5 mm² neutral
CT clamp cross-section area	1.5 mm²
Installation width	4 HP (72 mm)

TECHNICAL DATA

Weight	0.22 kg
IP rating	IP00 (IP21 when installed)
Relative humidity	≤ 85 % non condensing
Operating temperature range	-25 °C to +45 °C
Storage and transport temperature	-45 °C to +75 °C
Protection class	II
Overvoltage category	III
Measuring accuracy	offset < 3 W
Installation location	interior room up to 2,000 m asl

SOLARWATT Manager flex

GENERAL DATA

Device supply	via internal universal power supply 120–240 V; 50/60 Hz
Power input	nom. 3 W; max. 12 W
Ambient temperature range	–10 °C bis +50 °C
Housing	composite
Dimensions (W x H x D)	130x 130 x 40 mm
Installation method	wall installation
IP rating	IP20

DEVICE SOFTWARE

Security	VPN tunnel based on the IPSec standard, secure protocols (SSH/SSL, SFTP, HTTPS)
Firmware and app updates	via update server
Language	English, French, German, Spanish, Italian, Dutch, Swedish

SUPPORTED WALLBOXES

	Connection	Functions
Keba P30 (X-series, C-series)	Ethernet	measuring/switching
Webasto Live	Ethernet	measuring/switching

OTHER ELECTRICAL LOADS SUPPORTED

	Connection	Functions
Appliances without standard plug	Energy Meter (S0-pulse measurement)	measuring
EGO Smart Heater	Ethernet	measuring/switching

SUPPORTED SMART HOME COMPONENTS

	Technology	Supported plugs		Functions
myStrom Smart Home	WLAN	myStrom WiFi Switch	devices with standard plug (Typ F, Typ J)	measuring/switching (max 16 A)

Optional: SOLARWATT Manager pro with further functions and applications

Subject to change. Errors excepted.
AZ-TDB-PME-2351 | Extended data sheet
Battery flex AC-1 | REV 001 | 06/2021 | EN

Solarwatt GmbH | Maria-Reiche-Str. 2a | 01109 Dresden | Germany |
T +49-351-8895-555 | F +49-351-8895-100 | solarwatt.com
Certified acc. to DIN EN ISO 9001, 14001, 45001, 50001