

# Operate wallboxes easily with PLENTICORE plus

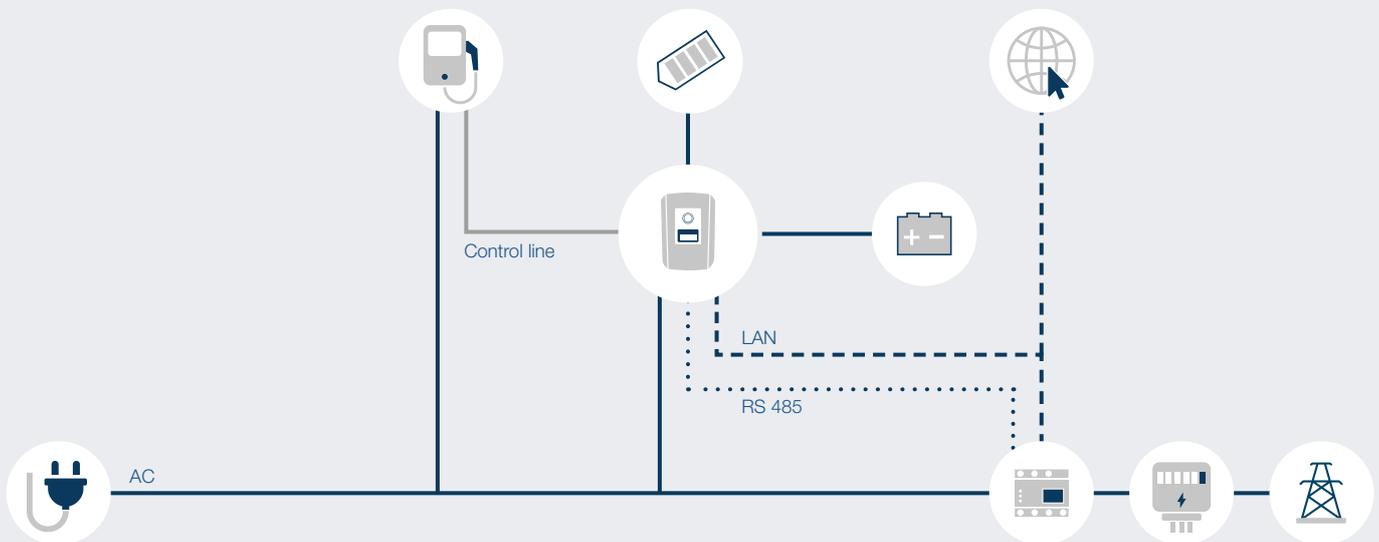
**SECTOR  
COUPLING**  
E-mobility

The ideal solution for charging your own electric vehicle with self-generated solar power.

With a growing number of electric vehicles on the road, more and more people are asking how they can be charged using as much self-generated PV electricity as possible. A distinction is made here between simple **solar charging** and optimised solar charging with **variable control** of the charging power. As a rule, electric vehicles can start to charge from a minimum switch-on limit of 6A per phase. Depending on the wallbox type and vehicle, charging therefore starts at 1.4 kW (230 V / 6 A) in single-phase or at 4.1 kW (3 x 230 V / 6 A) in three-phase charging mode.

! Alongside the PLENTICORE plus, the PIKO IQ also offers you the same options for connecting your PV system to a wallbox.

## 1. Simple solar charging with solar power: activation via self-consumption contact (switched output)



### Here's how it works:

The integrated switched output of the PLENTICORE plus can be used to directly activate wallboxes via a separate control line with a switched input. To do this, select the **"dynamic self-consumption control"** function in the PLENTICORE plus menu and configure the desired switch-on and switch-off conditions. As a normally open contact, the switched output provides the signal when sufficient PV power is available or is being fed in, and the wallbox starts charging. **This function is particularly well suited to simple solar charging with low power.**

- + Suitable from entry-level wallbox models
- + Reliable signal transmission via separate control line
- + Perfect for single-phase charging up to 3.68 kW (16 A x 230 V)
- + High proportion of solar charging possible even with small PV systems
- + Not dependent on manufacturer
- Charging with preset power only

Compatible\* with:

- KEBA a, b, c, x series
- MENNEKES Amtron

- ABL
- Heidelberg
- and many more.

\* Please observe the manufacturer's specifications.

### Function

#### Self-consumption control

Function 1 (time- and power-related)

Power limit [W]

Limit must be exceeded for [min]

Run time [min]

Frequency of activation [number/day]

Function 2 (power-related)

Switch-on limit [W]

Switch-off limit [W]

#### Other options

Leave switched output activated in event of power loss or fault

Permitted period of time for power loss or fault [min]

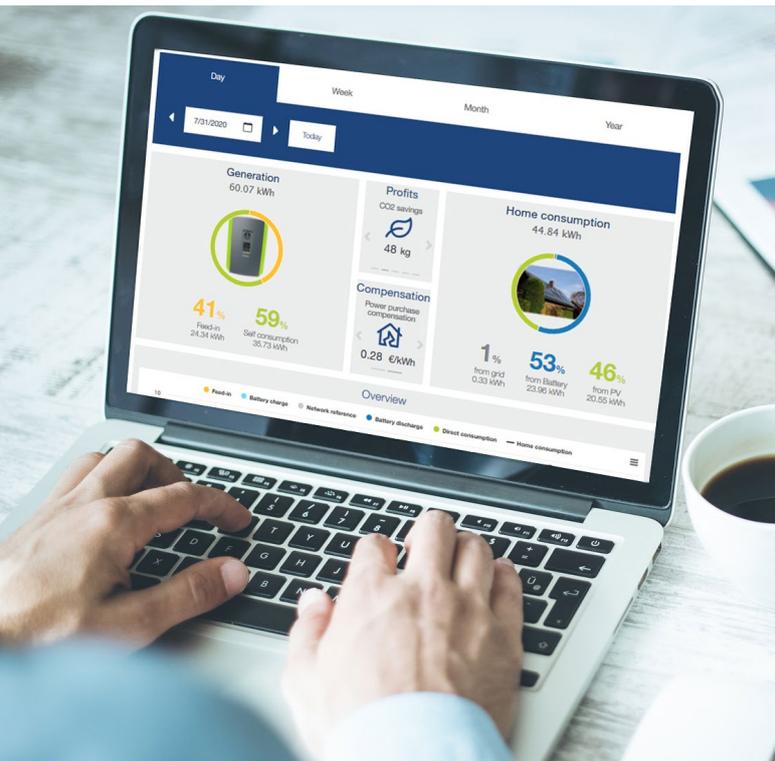
Activate the dynamic self-consumption control function in the PLENTICORE plus Webserver by going to **Service menu > Switched output**.

In the example on the left, function 2 is selected. In this case, the actual surplus into the grid at which the wallbox should switch on is taken into account.

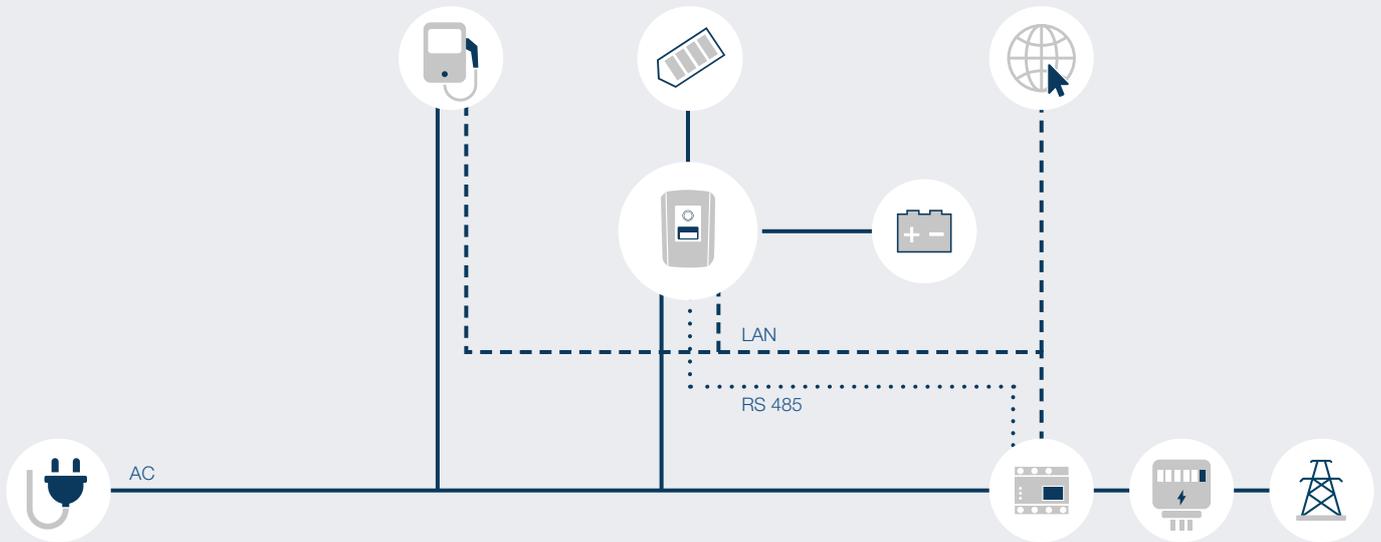
Tip: Select a switch-on limit slightly higher than the charging power of the wallbox (e.g. 3800 W for a wallbox with 3680 W charging power).

The difference between the switch-on and switch-off limit should be greater than the wallbox's power. This prevents the self-consumption contact from being unintentionally deactivated again after the additional load has been switched on. As an offset, we recommend 20 W as the switch-off limit in this example. By leaving it activated in the event of a power loss, the wallbox can continue charging for a defined amount of time. This means that the wallbox continues to charge even if a cloud briefly impairs the power output of the modules.

For further information, please refer to the "Self-consumption control" chapter in the operating manual for the PLENTICORE plus.



## 2. Optimised solar charging with connection via network



### Here's how it works:

The PLENTICORE plus provides TCP-relevant values, e.g. PV power and, if a KOSTAL Smart Energy Meter is connected, also the feed-in power, via the Ethernet network using Modbus. These values can be read out by intelligent wallboxes.

The wallbox controls the charging power, i.e. it adjusts the maximum charging power depending on how much feed-in power is currently available. This means that charging processes can be started from as little as 1.4 kW and automatically ramped up as needed for as long as solar power is available. For communication purposes, the wallbox is integrated into the same network as the PLENTICORE plus. The parameters are set in the wallbox's web interface.

The PLENTICORE plus is integrated as an information provider via its IP address.

- + User-friendly configuration in the wallbox's web interface
- + Use of the largest possible proportion of solar charging through dynamic charging adjustment
- + The house connection can be prevented from overloading by reducing the charging power at an early stage
- Quality of the connection depends on the communication stability in the home network

#### Compatible\* with:

- Hardy Barth cPH1, cPμ1 with eCB1
- openWB

\* Please observe the manufacturer's specifications.

Can be activated very easily on the PLENTICORE plus Webserver:

**Modbus/SunSpec (TCP)**

Activate Modbus

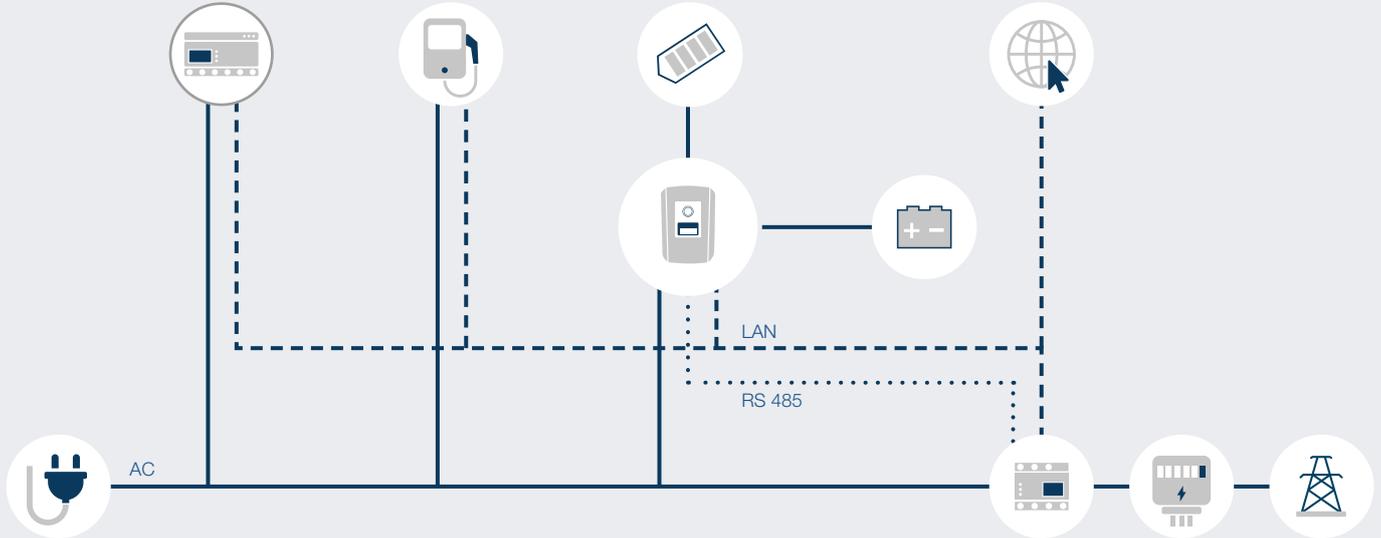
Byte order:  Little-endian (CDAB) Standard Modbus  
 Big-endian (ABCD) SunSpec

Modbus port: 1502

Unit ID: 71

The Modbus protocol can be activated in the web interface. The assigned Modbus port and the unit ID are needed to configure the wallbox.

### 3. Optimised solar charging with control via external energy manager



**Here's how it works:**

The external energy manager reads out the values of the PLENTICORE plus or the KOSTAL Smart Energy Meter via Modbus TCP. It then takes over active control and determines the maximum possible charging power for the wallbox. Additional consumers can also be connected, controlled and, if necessary, visualised using the energy manager. Configuration and parameterisation take place in the energy manager's web interface. This can therefore be undertaken very easily using a laptop or often even a tablet or smartphone. Many energy managers are already able to read the PLENTICORE plus.

- + Charging current can be controlled dynamically
- + Control of other consumers, e.g. via switchable sockets
- + Central visualisation of the energy flows
- + Integration into complex smart home systems
- + Partially compatible with energy cloud models
- + Additional service options
- Complex parameterisation and integration into the overall system
- Initial costs higher

Can be activated very easily on the PLENTICORE plus Webserver:

**Modbus/SunSpec (TCP)**

Activate Modbus

Byte order:  Little-endian (CDAB) Standard Modbus  Big-endian (ABCD) SunSpec

Modbus port: 1502

Unit ID: 71

Save

Compatible\* with:

- SolarLog with KEBA c and x series
- sonniQ with ABL, Mennekes, KEBA
- Loxone with KEBA
- gridX with ABL, Alfen, Heidelberg
- KNX via BABtec Gateway

\* For the exact scope of functions and compatible wallbox types, refer to the manufacturer's instructions and the individual energy manager.

Smart connections.