



Load management

Installation and user manual - English

Copyright and trademarks

Copyright 2024 eSystems MTG GmbH

All rights reserved.

Subject to availability and technical modifications.

All hardware and software names used are trade names and/or registered trademarks of the relevant companies.

Issued by: 07/2024

Revision: 1.0

Contents

1 Introduction	4
1.1 Intended use	4
1.2 Documentation concept and target group	4
1.3 Copyright	5
1.4 Legal notices	5
1.5 Means of representation	6
2 Safety	7
2.1 Intended use	7
3 System requirements	8
4 Commissioning load management	9
4.1 Initial configuration	9
4.2 Settings	10
4.3 Configuring the grid connection point	11
4.4 Configuring the energy meter	12
5 Pairing other Wallboxes	15
5.1 Pairing the EEBUS-compatible Wallbox found	16
5.2 Removing existing pairings	18
6 Dashboard	19
7 Technical glossary	20
8 Index	22

1 Introduction

1.1 Intended use

The load management component installed on the Wallbox enables **local** monitoring and control of the energy utilisation of one or more Wallboxes, e.g. in one household, and prevents overloading of the domestic connection point.

Future load management enhancements will enable cost-optimised charging of vehicles using the surplus energy from a photovoltaic system. These enhancements will be provided via over-the-air updates (OTA).

Online software update function

The Wallbox is equipped with an online software update function so that new functions can be added over time as well as bug fixes. This also applies to the load management component.

ⓘ Note on user roles

- Service user: For use when installing the Wallbox and making system settings.
- Standard user: For use in day-to-day operation.



For further documentation, as well as information on the web app, see <https://public.evse-manuals.com/volvo/index.html>

1.2 Documentation concept and target group

The documentation for the Wallbox includes the following instructions:

Type of instructions	Contents	Target group
Load management Installation and user manual	Describes the configuration and operation of load management.	Appointed by the user/operator to install and commission load management.

Storing the documentation

- The documentation must be securely stored and handed over to the new owner in the event of sale.

1.3 Copyright

© 2024 – This instruction contains material owned by eSystems MTG GmbH. All rights reserved.

This document may not be modified, reproduced, processed or transmitted in any form or by any means, in whole or in part, without the prior written permission of eSystems MTG GmbH.

ⓘ Note

The Wallbox software uses open source software components. Details of their names, licensing model, version number and description are also listed in the copyright information in the web app.

1.4 Legal notices

Notes on using the web app

ⓘ Note

Conditions for using the web app and for personal data processing can be found in the web app's terms of use.

1.5 Means of representation

The following means of representation are used:

Means of representation	Meaning
Bold script within running text	Texts from the web app
<i>Blue italics</i>	Link to a related topic.
▪	Instruction that you have to follow.
1.	Instructions are numbered if a series of multiple steps have to be carried out.
ⓘ Note	Useful tips and recommendations, as well as information on efficient and fault-free operation.

Screenshots

Some of the screenshots are system-specific and therefore may not match the display in your system in every detail. There may also be system-based differences in the menus and their commands.

2 Safety

2.1 Intended use

The load management installed on the Wallbox is a software component that optimises the charging of electric vehicles. Load management is only intended to be used as a comfort function; it is no substitute for the installation of a circuit breaker.

The Wallbox load management is designed for use with one or more Wallboxes at the place of use and only works in conjunction with a properly installed Wallbox.

Any other use is classed as not intended.

3 System requirements

To meet the specific requirements of load management, it may be necessary to provide the means for dynamic load balancing if this is required or desired.

Requirements for the proper functioning of load management:

- Proper technical installation of one or more Wallboxes by an electrical engineer
- Completed configuration of the Wallbox
- Enabling of the "Energy management" functionality in the Wallbox (see [Commissioning load management](#))
- Wallbox software version R01.003.034.000 or higher
- The grid connection limit is entered in amps in the load management configuration (see [Configuring the grid connection point](#))
- For dynamic load management, additional installation and connection of one of the compatible energy meters at the grid connection point (see [Configuring the energy meter](#))
- Operator devices: Laptop, PC or mobile terminal with the latest web browsers

4 Commissioning load management

In order to use load management, the energy management function must be enabled in the Wallbox, see [Initial configuration](#).

This function should only be enabled on the Wallbox if no other load or energy management system is used for the Wallbox at the place of use.

ⓘ Note

If more than one Wallbox is to be operated, a shared load management should be used.

To use a shared load management, **one** Wallbox should be selected and set up as the **controlling** Wallbox (load management). Other Wallboxes are paired to the controlling Wallbox.

The controlling Wallbox takes over the other Wallboxes in the load management.

ⓘ Note

Note that some of the settings steps in the Pairing chapter refer to the load management configuration menu and some steps refer to the web app of the controlling Wallbox.

4.1 Initial configuration

ⓘ For service user only.

ⓘ Note

Load management functions require a compatible energy meter. This must first be installed by an electrical engineer.

ⓘ Note

The energy management function is available in German and English.

1. In the web app navigation of the controlling Wallbox, select the **Energy Management** option. The **Energy Management** screen opens.

4 Commissioning load management

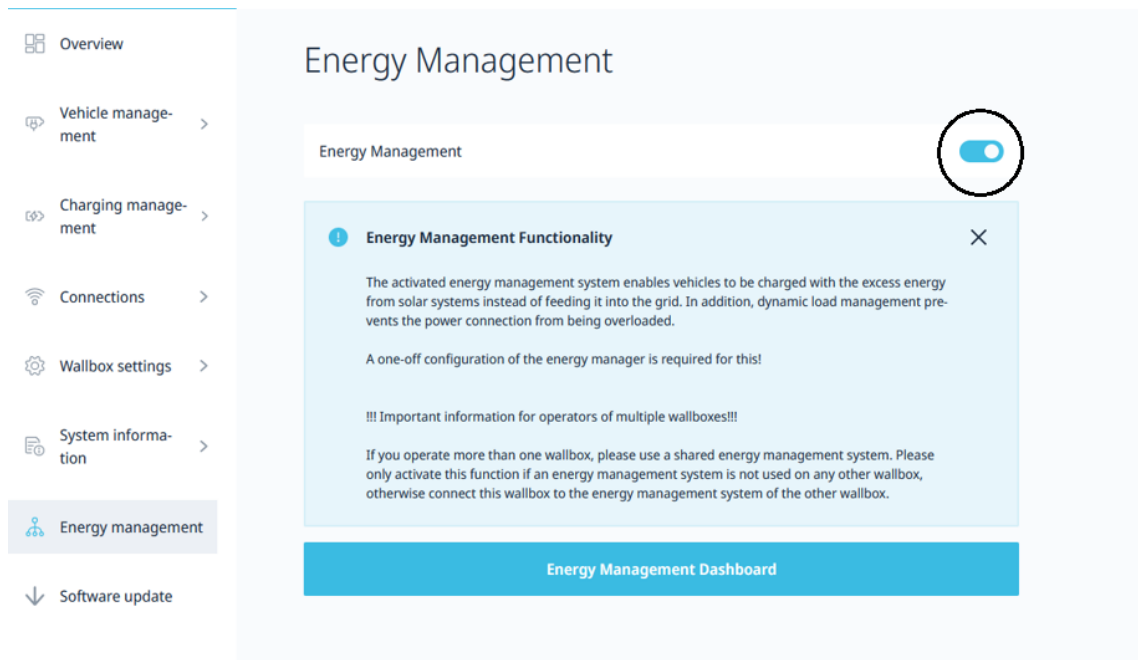


Fig. 1: Energy Management Dashboard

2. Enable the button at the top right.

Result: The **Energy Management Dashboard** is enabled. It is possible to switch to the dashboard.

3. Read and check the information before selecting **Energy Management Dashboard**.

4.2 Settings

After selecting **Energy Management Dashboard**, open the **Settings** view.

- The service user must make the following settings for the initial configuration:

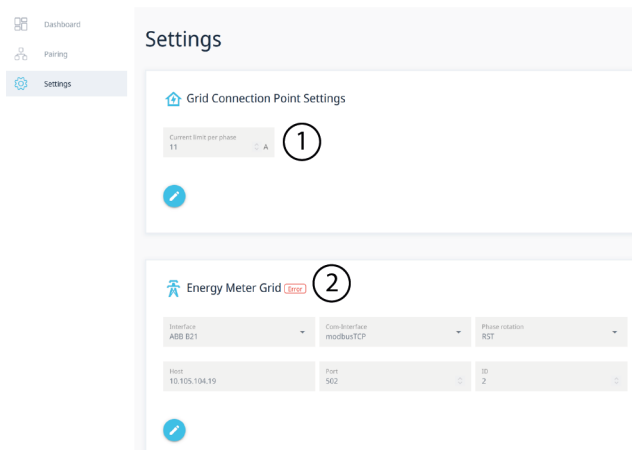


Fig. 2: Settings

Position	Meaning
1	Grid connection point (Grid Connection Point Settings)
2	Energy meter settings (Energy Meter Grid)

4.3 Configuring the grid connection point

1. In the **Grid Connection Point Settings**, see figure [Configuring the grid connection point](#), enter the maximum load capacity of the main fuse in amps (Current limit per phase). This setting is mandatory.

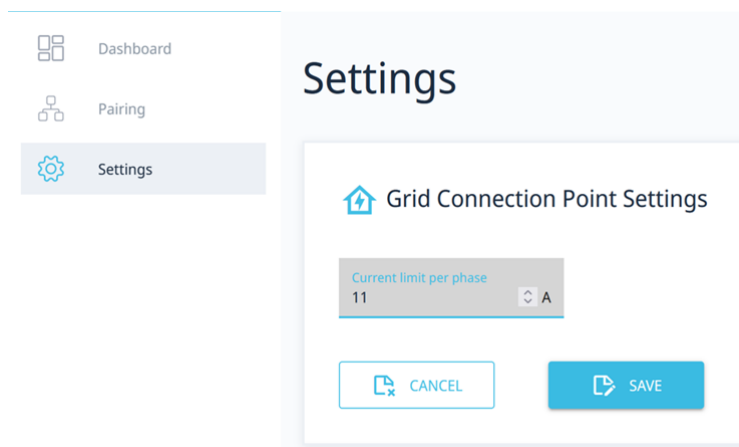


Fig. 3: Configuring the grid connection point

As long as no energy meter has been configured (see [Configuring the energy meter](#)), static load management can already be carried out. This means that the total current of all paired Wallboxes does not exceed the set current limit. Other consumers in the household, e.g. refrigerator, cooker or lighting

as well as power generators (e.g. photovoltaic system) are not included in this case.

2. If only static load management is required, no further settings are necessary apart from the configuration of the grid connection point.

4.4 Configuring the energy meter

Dynamic load management (e.g. PV system surplus charging) can also be carried out using an energy meter at the grid connection point. An energy meter of this type sends the sum of the current power values of the phases to the load management. Load management can use this data to determine available PV surpluses, for example.

1. Click the **Plus** symbol (see figure [Energy meter configuration menu](#)) to open the configuration menu (**Energy Meter Grid**) of the installed energy meter.

Note

Note that the energy meter used must match the connection type of the Wallbox (3-phase or 1-phase).

Note

Note that only one of the listed energy meters can be used.

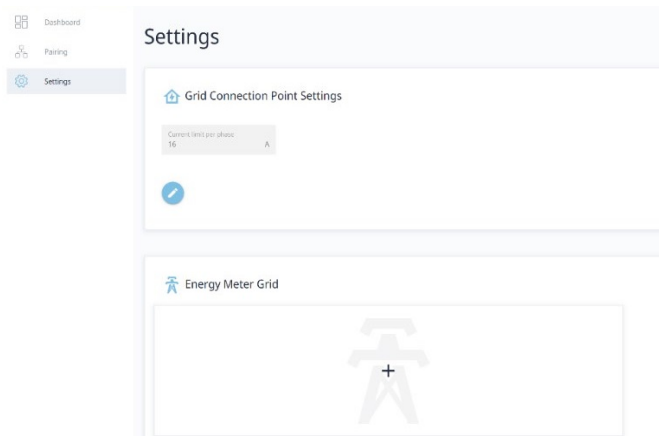


Fig. 4: Energy meter configuration menu

2. Select the energy meter and connect it to the load management.

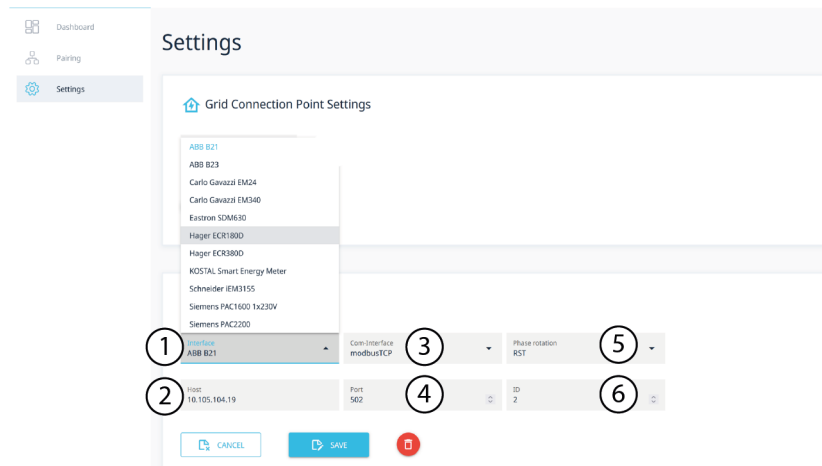


Fig. 5: Energy meter settings

The following information can be found in the manufacturer's documentation of the energy meter (e.g. you can find the documentation for the Eastron SDM630-TCP energy meter, created by Volvo Cars, by clicking the following link: <https://accessories.volvocars.com/sv-se/all/Guide/UserGuides>):

Position	Name	Meaning
1	Device	Select the installed energy meter to be connected to the load management from the drop-down list.
2	IP	Enter the IPV4 address of the Modbus TCP meter.
3	Protocol	Select Modbus TCP.
4	Port	Enter the TCP-IP under which the energy meter can be accessed. The default port for the TCP-IP port is 502.
5	Phase rotation	Select the appropriate rotation from the selection list if the phase assignment of the energy meter does not match the grid connection. If this is not known, this setting can remain set to "RST".
6	Unit ID	Enter the Unit ID of the installed energy meter. You can find this information in the manufacturer's documentation for the energy meter.

3. Confirm by clicking **Save**. The selected energy meter is assigned to the load management of the Wallbox. Load management is automatically enabled.

4 Commissioning load management

Result: The load management of the controlling Wallbox is connected to the selected energy meter and static/dynamic load management can be used for this Wallbox.

To assign other Wallboxes to the load management, see [Pairing other Wallboxes](#).

5 Pairing other Wallboxes

1. In the **Pairing** view, you can find and pair one or more EEBUS-compatible Wallboxes to the local network of the user/operator. Load management currently only supports communication with EEBUS-compatible Wallboxes.

The **Paired EEBUS Devices** list shows the Wallboxes already paired along with additional information, see figure [Overview of paired Wallboxes](#).

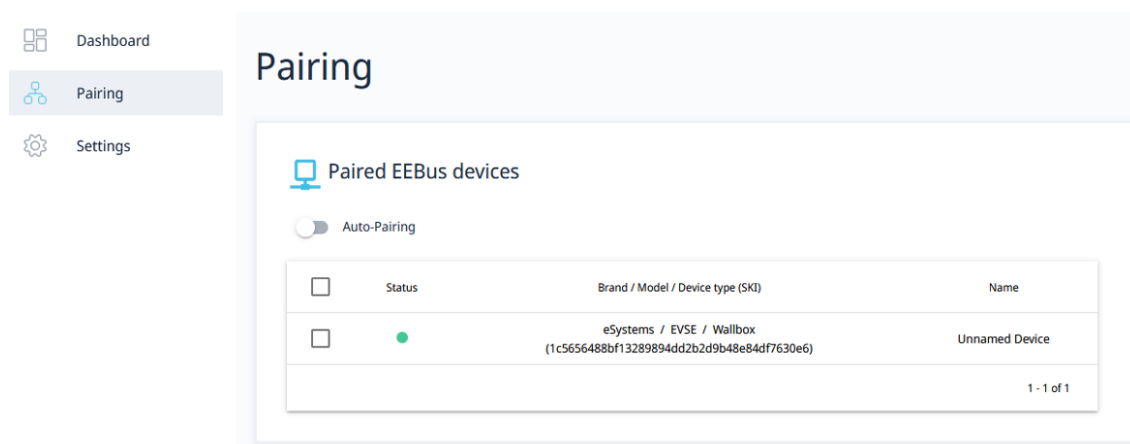


Fig. 6: Overview of paired Wallboxes

Note

The Wallbox on which load management is enabled (controlling Wallbox) is added and displayed automatically.

The status of the individual Wallbox is displayed:

Colour	Status
Red	Not connected
Orange	Establishing connection
Green	Connected

5.1 Pairing the EEBUS-compatible Wallbox found

Note

To connect another Wallbox to the load management of the controlling Wallbox, it is necessary to carry out pairing from both sides:

- On the side of the controlling Wallbox (load management)
- On the side of the Wallbox to be paired (controlled Wallbox)

The **Pairing** view in the **EEBUS Device found** list shows one or more EEBUS-compatible Wallboxes in the local network of the user/operator, provided they have not yet been paired.

For each Wallbox found, information on the brand, model, Wallbox type and SKI (unique identification of the Wallbox) is displayed.

Note

If multiple Wallboxes are paired with the load management, it is important that the SKI and the associated Wallbox are uniquely identified beforehand. You can find the Wallbox SKI information in the web app of the Wallbox to be paired in the **Connections** view under **EEBUS-HEMS**.

1. Have the SKIs of the other Wallboxes to be paired ready.
2. Under **EEBUS Device found**, tick the checkbox to select the Wallbox to be paired (compare SKI).

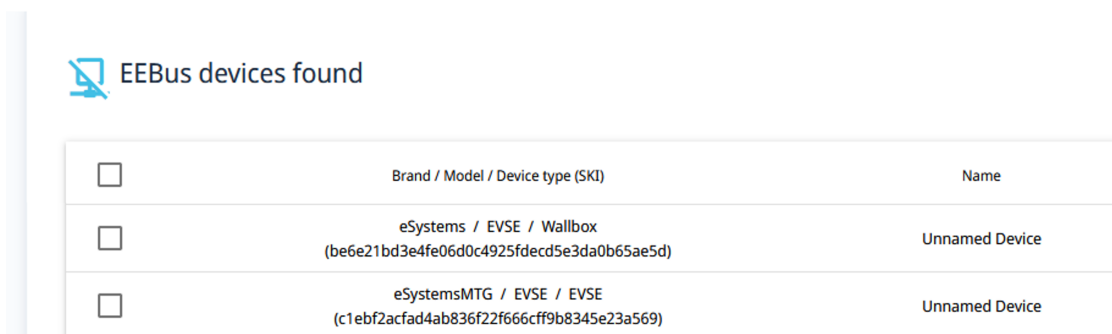


Fig. 7: List of the EEBUS-Wallboxes found in the local network

3. Confirm by clicking **Trust**.

Result: The Wallbox is displayed in **Paired EEBUS Devices** with a red dot.

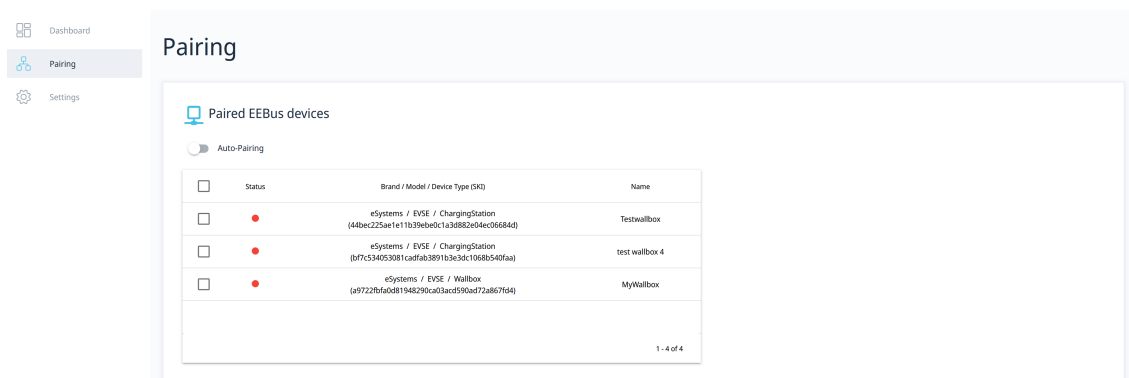


Fig. 8: List of paired Wallboxes

- In the next step, the pairing with the load management must be confirmed by the Wallbox to be paired.

Note

Switch to the web app of the Wallbox to be paired.

In the web app of the Wallbox to be paired, in the **Connections** view select **EEBUS-HEMS**.

Note

Note that this step may vary for EEBUS-Wallboxes of other manufacturers.

- In the **EEBUS-HEMS** view in **EEBUS Device found**, select the load management of the controlling Wallbox (**CEM**).
- In the **EEBUS Device Details** view, confirm by clicking **Pair**.

Note

Switch to the load management web app.

In the **Paired EEBUS Devices** view, the status of the paired Wallbox is indicated by the green dot and it is connected.

- After successful pairing, all Wallboxes in the load management of the controlling Wallbox are listed.

Any number of EEBUS-Wallboxes can be assigned to the load management.

Note

Compatibility with EEBUS-Wallboxes of *other manufacturers* cannot be guaranteed, which may result in functional restrictions in load management.

Renaming paired Wallboxes

- In the load management web app, the **Name** column shows all Wallboxes initially as **Unnamed Device**. Click on the names to assign your own names.

5.2 Removing existing pairings

To unpair a Wallbox, make the following settings:

1. In the load management web app, select a Wallbox from the **Paired EEBUS Devices** list using the checkbox on the left-hand side.

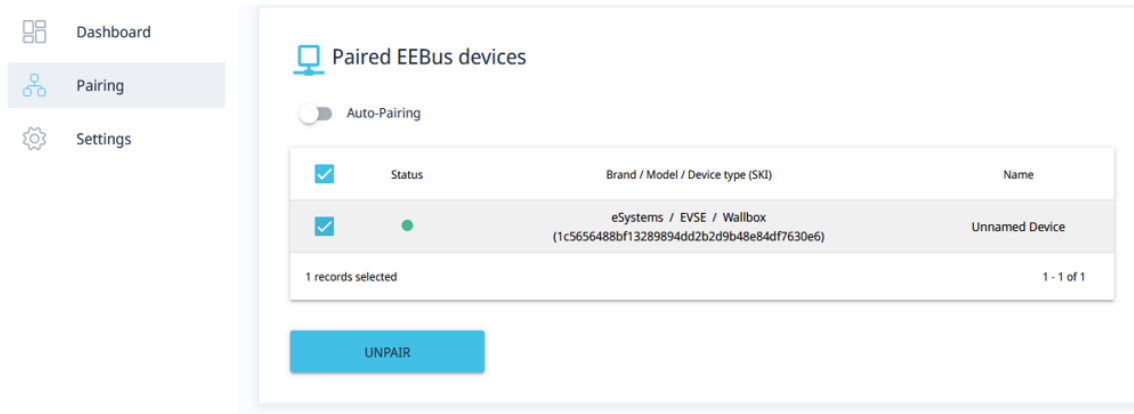


Fig. 9: Unpairing a Wallbox

2. Confirm by clicking **Unpair**.
3. In the web app of the paired Wallbox, select the load management (**CEM**) from the **Paired EEBUS Devices** list using the checkbox on the left-hand side.
4. Confirm by clicking **Unpair**.
5. If the Wallbox on which the load management is running has been accidentally unpaired, it can be paired again, see [Pairing other Wallboxes](#).

6 Dashboard

Once all settings have been made, the Dashboard displays the following information:

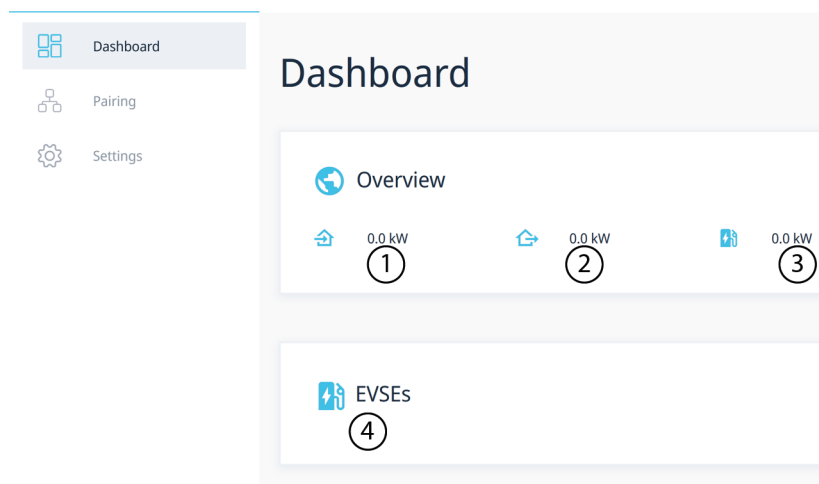


Fig. 10: Dashboard – Overview

Position	Meaning
1	Current power consumption from the grid in kW (only with dynamic load management)
2	Current feed-in to the grid in kW (only with dynamic load management)
3	Total charging capacity of all Wallboxes in kW
4	Charging devices (EVSEs): Power of each Wallbox during active charging in kW

7 Technical glossary

C

CEM

Central energy management

E

EEBUS

Communication interface for energy management in the IoT (Internet of Things)

EVSE

Electric vehicle supply equipment (charging station)

H

HEMS

Home Energy Management System

I

IP

Internet Protocol

K

kW

Kilowatt

O

OCPP

Open Charge Point Protocol

OTA

Over The Air

P

PV

Photovoltaics (technology for converting solar energy into electrical energy)

S

SKI

Subject key identifier

T

TCP

Transmission Control Protocol

8 Index

C

Commissioning 9
Copyright 5

D

Dashboard 10, 19
Documentation
 Concept 4
 Storage 5
Dynamic load management 12

E

Energy meter
 Configure 12
Energy meter grid 12
 Set 11
EVSE 19

F

Feed-in 19

G

Grid connection point
 Configure 11
 Set 11

I

Initial configuration 9
Instructions
 Concept 4
Intended use 4, 7

L

Legal notices 5
Load management
 Dynamic 12
 Static 11

M

Means of representation 6

P

Pairing 15
 Establish 16
Pairings
 Remove 18
Power consumption 19

R

Renaming 17

S

Safety 7
Screenshots 6
Service user 4
Setting
 Energy meter grid 11
 Grid connection point 11
Settings 10
Standard user 4
Static load management 11
Status 15
Storage
 Documentation 5
System requirements 8

T

Target group 4
Total charging capacity 19

U

Use
 Intended 7
 Web app 5

User roles 4

W

Wallbox

Controlling 9

