KATEK

Lead the category

ghost ONE

Operating Instructions - English

Copyright and trademarks

Subject to availability and technical modifications.

Issued by: 02/2023

Contents

1 Introduction

1.1 Intended use

The Wallbox ghost ONE is a Wallbox with network capability. It is used for charging electric vehicles that comply with the generally applicable standards and directives for electric vehicles.

It is suitable for stationary use indoors and outdoors and in private and semi-public spaces for operation within the defined electrical and environmental specifications, see Technical data on page 76.

The Wallbox may only be operated in compliance with all national regulations at the place of use.

The following versions of the Wallbox ghost ONE are available:

Version	Features
ghost ONE Basic	Basic model, with vehicle cable
ghost ONE MID	With energy meter (MID compliant), LTE module and vehicle cable
ghost ONE ERK	With energy meter (MID compliant and compliant with German calibration law), LTE module and socket

1.2 Documentation concept and target group

The documentation for the Wallbox includes the following instructions:

Type of instructions	Contents	Target group
Operating instructions	Describe configuration and operation of the Wallbox using the front panel and the web app / mobile app, as well as the entire life cycle of the Wallbox.	Users/operators. This excludes children or persons who are unable to adequately assess the hazards involved in using the Wallbox.

Type of instructions	Contents	Target group
Assembly and installation instructions	Describe the mechanical and electrical installation of the Wallbox. Work steps described in these instructions must only be performed by qualified specialist personnel.	Electrical engineers and specialist companies approved by the network operator who are responsible for installation and commissioning of the Wallbox.
Quick start guide	Describes the most frequent application situations after installation.	Users/operators. This excludes children or persons who are unable to adequately assess the hazards involved in using the Wallbox.

Storing the documentation

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

1.3 Copyright

ⓘ Note

Detailed copyright information can be found in the web app / mobile app for the Wallbox.

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 / mobile app.

1.4 Legal notices

Disclaimer / Information on personal data

ⓘ Note

Detailed legal information about the disclaimer and processing of personal data can be found in the disclaimer in the web app / mobile app. The Wallbox cannot be operated unless the disclaimer is accepted.

Official calibration conformity

The manufacturer’s seal is attached to the meter, which conforms to official calibration requirements, by the manufacturer during production. It ensures that

any manipulation to the wiring or the built-in energy meter can be detected. The manufacturer's seal must not be removed or damaged during the service life of the Wallbox.

Damage to the official calibration conformity seal or damage to or removal of the operator seal results in immediate revocation of the official calibration conformity of the Wallbox, regardless of the intervals for official calibration tests.

If the manufacturer's seal is broken, attaching a new seal without the supervision of the official calibration authority or its representative is prohibited.

- Observe the intervals for official calibration tests on energy meters.

Operator seal

The operator seal is attached to the cover with a screw by the installation engineer after installation of the wallbox is completed, see Assembly and installation instructions.

1.5 Means of representation

The following means of representation are used:

Means of representation	Meaning
Bold script	Texts from the web app / mobile app
■	Instruction that you have to follow.
1.	Instructions are numbered if a series of multiple steps have to be carried out.
Blue text	Link to a related topic.

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 Safety symbols

In these instructions, warning notices appear before sequences of actions that involve a risk of injury or damage. The measures described to prevent the hazard must be adhered to.

Layout of warning notices

⚠SIGNAL WORD

Cause of the hazard

Remedy

- Action 1
- Action 2

- Warning sign draws attention to the hazard.
- Signal word indicates the severity of the hazard.
- Cause of the hazard specifies the nature and source of the hazard.
- Remedy specifies how the hazard can be averted.

Meaning of symbols

⚠DANGER

Hazardous situation in which death or serious injury will occur if it is not prevented.

⚠WARNING

Hazardous situation in which death or serious injury could occur if it is not prevented.

⚠ CAUTION

Hazardous situation in which minor to moderate injury could occur if it is not prevented.

ATTENTION

Damage to equipment could occur.

ⓘ Note

Useful tips and recommendations, as well as information on efficient and fault-free operation.

2.2 Intended use

The Wallbox ghost ONE is a Wallbox with network capability. It is used for charging electric vehicles that comply with the generally applicable standards and directives for electric vehicles.

It is suitable for stationary use indoors and outdoors and in private and semi-public spaces for operation within the defined electrical and environmental specifications, see Technical data on page 76.

The Wallbox may only be used as a supply line, control unit and vehicle cable combination.

Any other use is classed as not intended.

Non-stationary operation of the Wallbox is prohibited.

The following are not permitted:

- Mechanical or electrical modifications to the Wallbox, excluding those described in these instructions.
- Use of additional equipment such as multiple sockets or cable reels.

2.3 Safety information for operation

- Protect against direct exposure to weather conditions.
- Do not drive over or twist the vehicle cable.
- Only operate the Wallbox in a stationary location.
- Do not use any extension leads, cable reels, multiple sockets or travel adapters during operation.
- Do not use adapters.
- Do not insert any objects into the Wallbox.
- Do not place any objects on the Wallbox.
- Avoid the Wallbox coming into contact with liquids.
- Read the instructions carefully and in full and observe and follow the warning notices.
- Observe any country-specific restrictions and regulations.

- Store the operating instructions in a location that is easily accessible to the operator/user.
- Only use the designated accessories.
- Observe the ambient and storage conditions, see Technical data on page 76.
- Do not stick anything onto the Wallbox or block it with objects.
- Do not remove, manipulate or bypass the manufacturer’s seal or lock.
- Persons with a cardiac pacemaker must maintain a distance of 60 cm and persons wearing a defibrillator a distance of 40 cm from the RFID scanner, identifiable by the symbol on the front panel.

ⓘ Note

eSystems MTG GmbH only accepts responsibility for the delivery condition of the Wallbox and for work performed by the specialist personnel approved by eSystems. The warranty term set out in the contract is applicable.

3 Product overview

3.1 Design

The Wallbox ghost ONE has the following design:

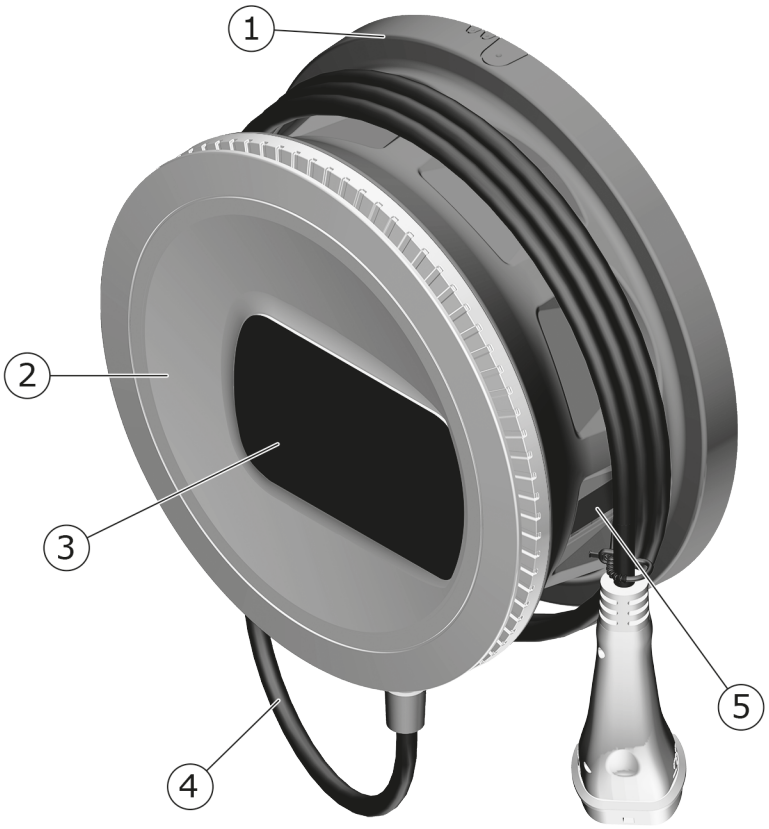

Fig. 1: Design (ghost ONE Basic and ghost ONE MID versions)

1	Housing
2	Decorative cover
3	Front panel
4	Vehicle cable
5	Energy meter (ghost ONE MID version only)

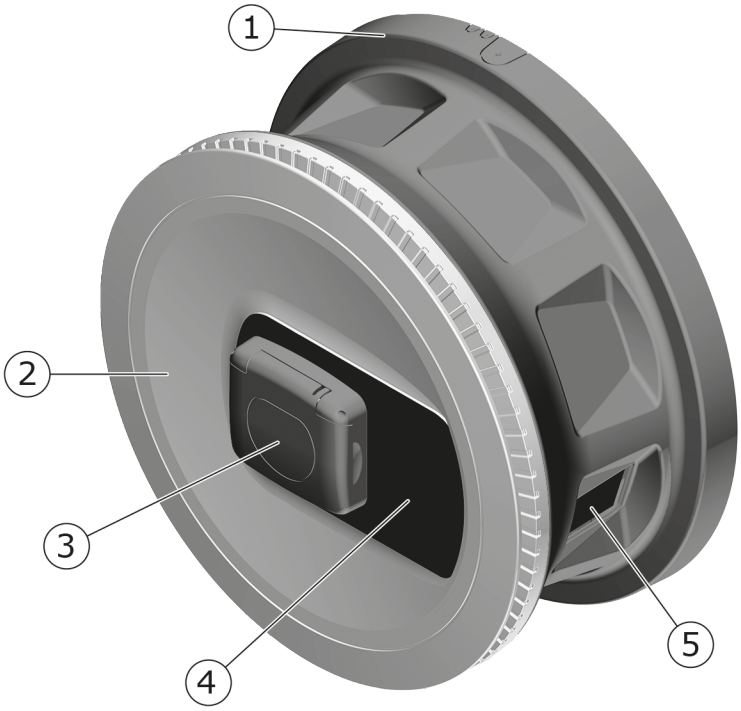

Fig. 2: Design (ghost ONE ERK version)

1	Housing
2	Decorative cover
3	Socket type 2
4	Front panel
5	Energy meter

ⓘ Note

For information about the front panel, see Front panel on page 19.

3.2 Functions

The AC Wallbox ghost ONE has network capability and provides the following functions:

Function	Description
Intelligent charging functions	• Smart charging using ISO 15118

Function	Description
Remote control interfaces	• Web app
	• Backend server via OCPP 1.6
	• Backend server via OCPP 2.0.1 (with future software update)
Authentication and authorisation	• Plug & charge
	• Auto charge
	• Free charging
	• RFID
	• Web app
	• Remote via OCPP
Connectivity	• Ethernet
	• WiFi hotspot
	• WiFi client
Fault current detection	• DC 6 mA
Software updates	• Local update from network server
	• Update via OCPP
	• Update using special download server

Rating plate

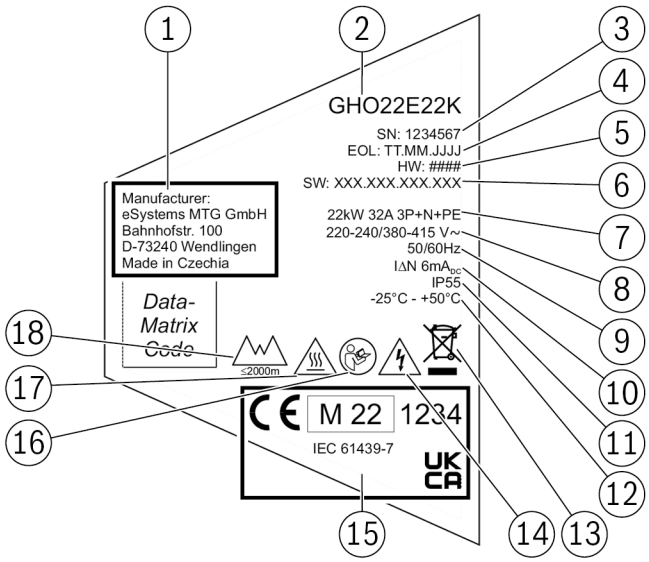

Fig. 3: Rating plate (example)

1	Manufacturer
2	Model name
3	Serial number
4	Date of manufacture
5	Hardware status
6	Software version
7	Power and nominal current
8	Mains voltage
9	Mains frequency
10	Integrated residual current operated protective device
11	Foreign body protection (IP protection type)
12	Ambient temperature
13	Disposal information, see also Disposal on page 75
14	Risk of electric shock if not used as intended
15	Certification information
16	Observe operating instructions
17	Surface of the Wallbox can become hot
18	Maximum altitude

3.3 Items supplied

ⓘ Note

More screws may be supplied than are necessary.

Component	Quantity
Wallbox (consisting of housing, cover, decorative cover)	1
Vehicle cable “Type 2 (not with ghost ONE ERK version)	1
Assembly and installation instructions	1
Quick start guide	1
Access data letter	1
Declaration of conformity	1
Drilling template	1
RFID chip	2
User seal (for ghost ONE ERK)	3
Cable entry plate KEL-SCDP 40	1
Cable entry plate KEL-DP 20-4-1	1
Hanger bolt BSCR M8/120	4
Sealing washer	4
Flat washer ISO 7089 - 8.4	4
Hexagon nut M8x9.5	4
Cable gland (not with ghost ONE ERK version)	1
Cable gland nut M25x1.5 (not with ghost ONE ERK version)	1
Strain relief	1
Screw 4x17 (not with ghost ONE ERK version)	2
Screw 5x22 (not with ghost ONE ERK version)	4
Screw 5x22 (with ghost ONE ERK version)	7
Screw 4x13	1
QR code sticker (link to operating instructions)	1

Check items supplied

1. Directly after unpacking, check that all components are included and undamaged.
2. In case of damage or missing components, contact support, see rear of these instructions.

3.4 Access data

Along with the Wallbox you will receive a letter containing the access data. It includes the following information:

Information	Meaning
OEM part number	Part number of the Wallbox
Serial number	Serial number of the Wallbox
Ethernet MAC WiFi MAC access point WiFi MAC client	Global unique identification of the components in the Wallbox with network capability (Ethernet connection, WiFi hotspot, WiFi client connection).
WiFi SSID	Wallbox SSID WiFi code As delivered, the WiFi code contains a device-specific sequence of numbers. The user can change this in the web app / mobile app.
WiFi PSK for WPA2 and WPA3	Network key (password) for access to the Wallbox WiFi hotspot (with WPA2 and WPA3)
Host name	Identification of the Wallbox in the web app, as an alternative to entering an IP address. As delivered, the host name contains a device-specific sequence of numbers. The user can change this in the web app / mobile app.
Standard user password	Password for the standard user role, for use in day-to-day operation
Service user password	Password for the service user role, for use during installation of the Wallbox and for making system settings.
PUK	Personal unblocking key if the password is no longer known.
External metering device public key	For the ghost ONE ERK version only, for electronic verification of billing data received.
QR code	For access to the Wallbox via the web app or mobile app.

ⓘ Note

- Store the access data securely.

If the access data is lost or the envelope is damaged, contact support, see rear of these instructions.

ⓘ Note

- Always store the access data letter or any access data changed at a later date in a secure location.

  When delivered, the Wallbox has individual access data such as passwords, which means that subsequent changes are not essential.

3.5 Web app / mobile app for Wallbox

The web app / mobile app has the following design:

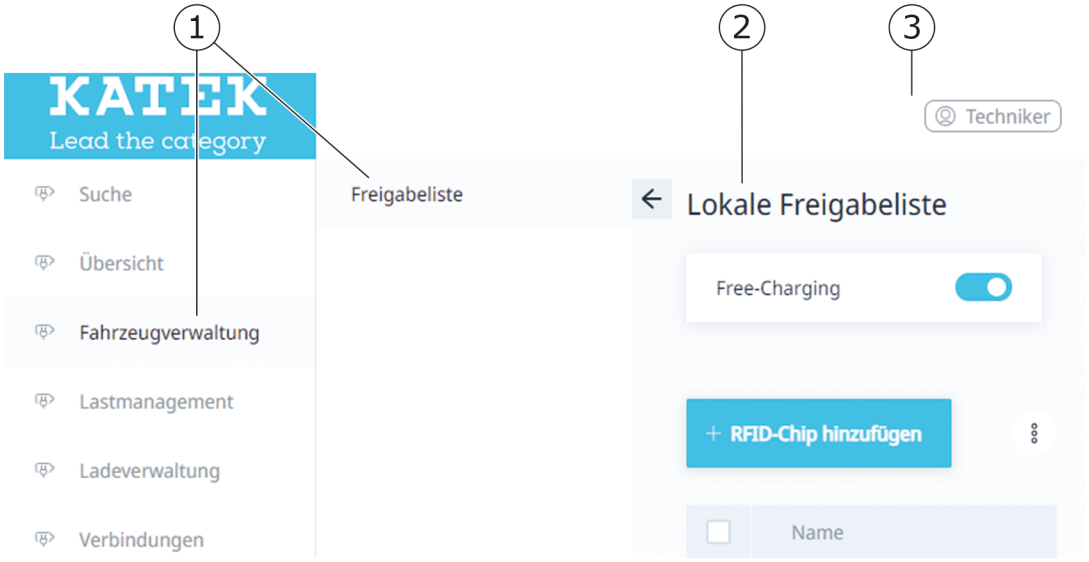

Fig. 4: Design of web app

1	2-level navigation
2	View with information or configuration options
3	Title bar with login information

ⓘ Design of mobile app

In the mobile app, either the navigation or individual screens are displayed.

- If necessary, select the menu icon in the title bar to display the navigation.

4 Front panel

4.1 Front panel

The following illustration provides an overview of the displays and controls on the front panel:

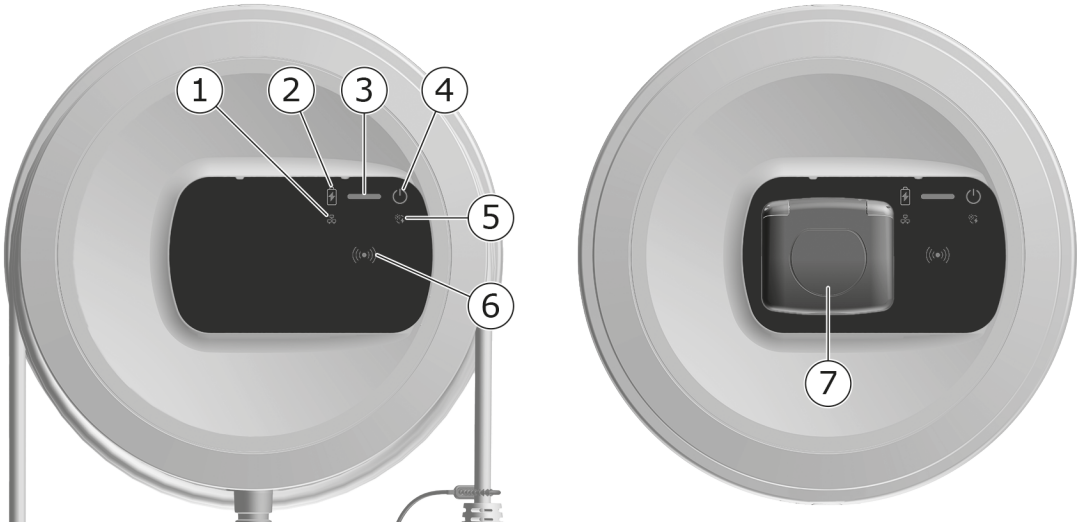

Fig. 5: Front panel overview (left: ghost ONE Basic and ghost ONE MID; right: ghost ONE ERK)

1	Network connection LED
2	Brightness sensor
3	Charge level LED
4	Operating / error condition LED with button
5	Cloud/backend/HEMS connection LED
6	RFID sensor with integrated LED
7	Socket for type 2 vehicle cable (ghost ONE ERK version only)

4.2 Displays and controls

LEDs

The following LEDs are provided on the front panel, see also Front panel on page 19. They indicate the following information:

Type of information	Colour	Meaning
Charge level	White, continuous	No vehicle connected or the vehicle has not yet been detected.
	White, pulsing	Preparing to charge.
	Yellow, pulsing	Waiting for charging approval.
	Green, pulsing	The vehicle is being charged.
	Green, continuous	Charging is complete.
	Green, flashing	Charging pause (for vehicles with advanced communication)
	Red	Charging error.

Type of information	Colour	Meaning
Operating / error condition		For further detailed information, see Error list on page 48.
	White	The Wallbox is ready for operation.
	White, flashing	Software update is available.
	White, pulsing	Software update in progress.
	Blue, pulsing	Resetting factory defaults complete.
	Blue	Error that does not interrupt or prevent charging.
	Yellow	Charging is not currently possible, or has been interrupted and can be continued after fixing the error.
	Red	Error or warning that interrupts charging and requires a restart of the Wallbox.
RFID		Default condition: Off
	White, flashing	An RFID chip is required.
	White, pulsing	An RFID chip has been detected and the read/write operation has been initiated.
	Green (5 seconds)	An RFID chip has been successfully detected.
	Red (2 seconds)	RFID chip has not been detected or is not registered for the wallbox.
Network connection	Off	No active connection.
	Green	Active connection.
	Yellow, flashing	Establishing connection.

Type of information	Colour	Meaning
Cloud/backend/HEMS connection	Green	One of the following connections is established: Backend server via OCPP or HEMS via EEBUS.
	Off	None of the following connections is established: Backend server via OCPP or HEMS via EEBUS.

Button

The button on the front panel performs the following functions:

Operation	Meaning
■ Press button for 8 seconds.	Restart Wallbox (power-on-reset)
■ Briefly press button.	Exit energy saving mode.

RFID sensor

The RFID sensor allows the following read and write operations from/to the user's RFID chips:

- Registering an RFID chip for charging
- Authorising charging using a registered RFID chip
- Registering an RFID chip for configuration of a Wallbox using the data saved on the RFID chip

Socket

ⓘ Note

The socket is only available on the ghost ONE ERK Wallbox version.

The front panel has a type 2 socket in accordance with IEC 62196. The socket can be locked and unlocked, see Locking/unlocking the socket.

- Only use the appropriate connector:

Supply type	AC
Standard	EN 62196-2
Design	Type 2
Connector type	Connector and socket
Voltage range	≤ 480 V RMS
Identification	

5 Assembly and installation

ⓘ Further information

For detailed information about assembly and installation of the Wallbox, refer to the Assembly and installation instructions.

6 Commissioning

6.1 Connecting the wallbox

6.1.1 Connecting via Ethernet

ⓘ Note

To configure the Ethernet connection for the Wallbox, you must be logged in as a service user.

ⓘPrerequisite

To connect the Wallbox via Ethernet, an Ethernet cable must be installed. See Assembly and installation instructions.

1. Connect the Wallbox to the network using an appropriate Ethernet cable.

   If necessary, check the network configuration if the switch used requires this for new network devices.
2. Open your preferred web browser and connect to the Wallbox using the host name.
3. Log in as a service user on the web app / mobile app.
4. Select the **Connections**, **Ethernet** option in the navigation. The **Ethernet** screen and the corresponding MAC address are displayed.
5. Enable/disable **Automatic address assignment (DHCP)**. The IPv4 or IPv6 address can only be entered if **Automatic address assignment (DHCP)** is disabled. Otherwise these addresses are only displayed.
6. To configure an IPv4 address, enter the following:

   IPV4 address, **IPV4 subnet mask**, **IPV4 gateway**
7. To configure an IPv6 address, enter the following:

   IPV6 address, **IPV6 prefix length**, **IPV6 gateway**
8. If necessary, change the host name of the Wallbox and the pre-assigned **DNS server address**.

No connection to web browser established using Ethernet cable

If a connection could not be established, check the following:

1. Check whether the Wallbox is connected to a network switch or an appropriately configured computer and that it is active and is not showing any errors. A direct connection between a laptop and the Wallbox is not possible.
2. In the network environment display, check whether the Wallbox is displayed.
   - If necessary, restart the switch or laptop.
   - Check the cable and unplug and plug in again if necessary.
   - If necessary, consult the network administrator.
3. If connecting using the host name, check the spelling carefully.

6.1.2 Connecting via WiFi hotspot

The Wallbox provides a WiFi hotspot.

ⓘ Note

Only WiFi channels that are permitted based on the country code are approved.

1. Log in using the web app / mobile app.
2. Select the **Connections**, **Hotspot** option in the navigation. The **Hotspot** screen is displayed.
3. Enable/disable the **Hotspot** option as required.

6.1.3 Connecting as a WiFi client

ⓘ Note

To connect the Wallbox using a WiFi client or to disconnect, you must be logged in as a service user.

ⓘ Note

The WiFi hotspot can remain active in client mode.

ⓘ Note

The Wallbox is fitted with an internal firewall and security mechanisms for IP-based network communication.

- Only install the Wallbox in private networks and use a firewall.
- Use either WPA2 (default setting) or WPA3 for a secure WiFi connection.

  Operation in WiFi mode is not possible with protocols that are unencrypted or do not meet the latest security standards, for example WEP.

Selecting a detected network

To connect the Wallbox to a different WiFi network as a client, select the network as follows:

1. Log in using the web app / mobile app.
2. Select the **Connections**, **WiFi** option in the navigation. The **WiFi connection** screen is displayed and shows all available WiFi networks.
3. Select the arrow to the right of one of the detected networks and enter the corresponding network key.
4. Confirm with **Connect WiFi**.

Alternatively, for networks that do not communicate their SSID for security reasons and therefore do not appear in the network list:

1. To add a WiFi network, select the **Add WiFi** option in the **WiFi connection** screen.
2. Enter the corresponding SSID and the network key.
3. Confirm with **Connect WiFi**.

6.2 Authentication on the Wallbox

ⓘ Prerequisites for successful standard user login

The service user has completed the onboarding process, see Assembly and installation instructions.

1. Get the password for the standard user from the access data letter, see Access data on page 17.
2. In the **Login** view select the standard user role, enter the corresponding password and confirm.

ⓘ Note

Ensure that the access data is spelt completely correctly, paying particular attention to capitalisation.

After five incorrect password entries, there is a delay before you can make another attempt.

3. The first time you log in as a standard user, read and accept the disclaimer and the information on protection of personal data.

After successful login, the **Overview** screen for the Wallbox is displayed, showing a compact view of the most important operating statuses and measured values, see also Information in the overview on page 29.

7 Operation

7.1 Login/logout

ⓘ Note

- In everyday operation, use the standard user role wherever possible to prevent system settings from being accidentally changed.

Logging in using the web app / mobile app

- In the login screen, on the **Standard** tab for a standard user or the **Technician** tab for the service user, enter the personal password from the access data letter or the password you have set yourself and confirm.

  The **Overview** is displayed, see Information in the overview on page 29.

Logging out from the web app / mobile app

- Select the user icon in the title bar. The logout screen is displayed.
- Select **Logout**.

  The login screen is displayed.

ⓘ Note

If you have not communicated with the Wallbox using the web app / mobile app or front panel for 20 minutes, you will automatically be logged out.

7.2 Information in the overview

- To display the system information, select the **Overview** option in the navigation.

The following system information is displayed:

- Information about the connected vehicle: Name and picture, if uploaded by user/operator
- Charging status:
  - **No vehicle connected**
  - **Charging approval in process**
  - **Vehicle is charging**
  - **Pause charging**
  - **Charging complete**
  - **Charging error**
  - **Charging not possible at the moment**
- **Charging energy** currently being used to charge the vehicle
- **Maximum charging current** (A)

The following actions are available:

- If the connected vehicle is not yet in the approved list, select **Add to approved list** to add it to the approved list.
- Select **Start charging** to start charging the connected vehicle once, see also Starting charging on page 30.
- Select **Stop charging** to stop charging, see also Finishing charging on page 33.

Energy consumption in the form of a charging curve:

A graphical representation of the energy consumption in kWh can be seen for the charging in progress.

7.3 Charging a vehicle

7.3.1 Starting charging

1. For ghost ONE ERK version only: Plug the vehicle cable into the socket on the Wallbox.

ⓘ Note

The connector may be automatically locked when a vehicle connection is detected, see Locking/unlocking the socket.

2. Plug in the vehicle cable on the vehicle.

The Wallbox creates a charging approval and starts charging in one of the ways described below:

ⓘ Note

If OCPP is enabled and a connection to the OCPP backend server has been established, the charging approval is always created by the OCPP backend server.

Authorisation	Description	Prerequisites
Free charging	The Wallbox creates a charging approval without any interaction by the user or the vehicle.	• The option for charging without authentication is enabled for the Wallbox.
RFID	The user holds up an RFID chip to sensor on the front panel of the Wallbox.	• The RFID chip has been registered on the Wallbox. • The RFID chip is held up to the sensor and detected by the Wallbox.
Plug & charge	Vehicles with advanced communication in accordance with ISO 15118 can authenticate themselves on the Wallbox using a certificate without the user having to perform any further actions on the Wallbox.	• Vehicle supports advanced communication and it is enabled on the vehicle. • PLC vehicle connection is enabled for the Wallbox. • Vehicle plug & charge certificate is identified as valid by the Wallbox.
Web app / mobile app	The user can create a charging approval using the web app or mobile app.	• The user has opened the web app / mobile app and selected **Overview**, **Start charging**.

Authorisation	Description	Prerequisites
Auto charge	Vehicles with advanced communication in accordance with ISO 15118 can authenticate themselves on the Wallbox using the vehicle address without the user having to perform any further actions on the Wallbox.	• Vehicle supports advanced communication and it is enabled on the vehicle. • PLC vehicle connection is enabled for the Wallbox. • Vehicle has been registered on the Wallbox with its vehicle address.
Remote	The user can create a charging approval using their network operator's app.	• The user has installed the network operator's app. • OCPP backend connection is enabled for the Wallbox and has been established. • Remote authentication option is enabled for the wallbox.

The charge level LED on the front panel lights according to the change level, see Displays and controls on page 20. The charge level is displayed in the **Overview** in the web app / mobile app, see Information in the overview on page 29.

7.3.2 Charging with RFID chip

ⓘ Prerequisites

- The RFID chip has been registered and added to the approved list for the Wallbox, see Adding an RFID chip to the approved list on page 35.
- The vehicle is connected to the Wallbox, see Starting charging on page 30.

⚠ DANGER

Risk of injury due to RFID sensor for persons with cardiac pacemaker or defibrillator

- If you use a cardiac pacemaker, maintain a distance of at least 60 cm from the RFID sensor on the front panel.
- If you use a defibrillator, maintain a distance of at least 40 cm from the RFID sensor on the front panel.

1. Hold up the RFID chip to the RFID sensor on the front panel of the Wallbox.

   If it is detected successfully, an acoustic signal sounds, the RFID sensor LED briefly lights up green and charging begins.

   ⓘ Note

   If the RFID chip has not been correctly detected, the RFID sensor LED on the front panel lights up red.

   - Hold up the RFID chip to the sensor again.
   - Check that the RFID chip is compatible with the Wallbox.

2. The charge level LED on the front panel lights up green, see Displays and controls on page 20. The charge level is displayed in the **Overview** in the web app / mobile app, see Information in the overview on page 29.

7.3.3 Pausing charging

ⓘ Note

This function is only available for vehicles with advanced communication.

Charging pauses are controlled by the ISO 15118 protocol based on a charging plan.

The charge level LED on the front panel flashes green, see also Displays and controls on page 20. The charge level is displayed in the **Overview** in the web app / mobile app, see Information in the overview on page 29.

7.3.4 Finishing charging

Charging is automatically stopped when the battery is fully charged. In addition, the user is able to interrupt charging.

- In the web app / mobile app, select **Overview**, **Stop charging** in the navigation to stop charging.

The charge level LED on the front panel lights up continuously green, see also Displays and controls on page 20. The charge level is displayed in the **Overview** in the web app / mobile app, see Information in the overview on page 29.

- Disconnect the vehicle cable on the vehicle.
- For ghost ONE Basic and ghost ONE MID versions only: Securely store the vehicle cable on the Wallbox.
- For ghost ONE ERK version only: Unplug the vehicle cable from the socket on the Wallbox and store securely.

ⓘ Note

The connector may be automatically locked when a vehicle connection is detected, see Locking/unlocking the socket.

7.3.5 Configuring the PLC connection to the vehicle

For vehicles with advanced communication, a vehicle-to-grid (V2G) connection to the Wallbox can be enabled or disabled using PLC.

ⓘ Note

If V2G is enabled and used with a vehicle that does not support advanced communication, there may be delays in starting charging or it may not be possible to start charging at all. If you are using a vehicle of this type, the PLC connection should be disabled.

- Log in using the web app / mobile app.
- Select the **Connections**, **PLC** option in the navigation. The **Vehicle with advanced charging function (PLC)** screen is displayed.
- Enable/disable **Vehicle connection via PLC**.

7.3.6 Charging information and settings

Configuring the maximum current

1. Select the **Charging management**, **Charging settings** option in the navigation.

   ⓘ Note

   Specifying the maximum charging current can be useful if no energy management system is installed.

2. On the **Charging current** screen, configure the value for the **Maximum charging current** (A).

   The maximum value that can be set is automatically limited by the current-carrying capacity of the vehicle and the mains connection.

   The current-carrying capacity of the mains connection is configured during installation of the Wallbox, see Assembly and installation instructions.

7.4 Enabling / disabling free charging (charging without authentication)

ⓘ Note

To enable/disable free charging, you must be logged in as a service user.

Free charging allows charging without local authorisation or authorisation from the backend server.

1. Select the **Vehicle management**, **Approved list** option in the navigation. The **Local approved list** screen is opened.
2. Enable/disable **Free charging**.

7.5 Managing the approved list

The web app / mobile app can managed up to 1000 individual vehicles and up to 25 vehicle groups in the approved list.

7.5.1 Adding an RFID chip to the approved list

⚠ **DANGER**

Risk of injury due to RFID sensor for persons with cardiac pacemaker or defibrillator

- If you use a cardiac pacemaker, maintain a distance of at least 60 cm from the RFID sensor on the front panel.
- If you use a defibrillator, maintain a distance of at least 40 cm from the RFID sensor on the front panel.

1. Select the **Vehicle management**, **Approved list** option in the navigation. The **Local approved list** screen is displayed.
2. Select **Add RFID chip**. The **Set up RFID chip** screen is displayed.

3. Hold up the RFID chip to the RFID sensor on the front panel of the Wallbox and select **Read RFID chip**.

   As soon as the RFID chip has been detected, the identification of the RFID chip (UUID) is displayed in the **Set up RFID chip** screen. In addition, an acoustic response tone sounds and the RFID sensor LED briefly lights up green.

   ⓘ Note

   If the RFID chip has not been correctly detected, the RFID sensor LED on the front panel lights up red.

   - Hold up the RFID chip to the sensor again.
   - Check that the RFID chip is compatible with the Wallbox.

4. Enter the name of the RFID chip in the **Name of RFID chip** field and confirm with **Save**.

   The RFID chip is displayed as a registered chip on the **Local approved list** screen.

Alternatively: Setting up the RFID chip without holding it up to the sensor

ⓘ Prerequisite

The user knows the UUID of the RFID chip.

- Select the **Vehicle management**, **Approved list** option in the navigation.
- Enter the UUID and name of the RFID chip on the **Set up RFID chip** screen.

7.5.2 Changing the RFID chip name in the approved list

1. Select the **Vehicle management**, **Approved list** option in the navigation. The **Local approved list** screen is displayed.
2. Select the RFID chip to be edited. The **Set up RFID chip** screen is displayed.
3. Change the name in the **Name of RFID chip** field and confirm with **Save**.

7.5.3 Removing an RFID chip from the approved list

1. Select the **Vehicle management**, **Approved list** option in the navigation. The **Local approved list** screen is displayed.
2. Select the RFID chip to be removed.
3. Select the menu icon and then select **Delete selected entries**.

   The RFID chip is removed from the approved list.

7.6 Managing smart charging / smart home

7.6.1 Configuring the Wallbox for a smart home EMS via EEBUS

ⓘ Note

The Wallbox ghost ONE supports home energy management systems (HEMS) that are EEBUS-compatible.

Showing EEBUS-compatible devices / HEMS

- Select the **Connections**, **EEBUS-HEMS** option in the navigation.

  The **EEBUS-HEMS** screen is displayed and shows all detected EEBUS-compatible devices / HEMS.

  ⓘ Note

  It is possible that other EEBUS-compatible devices will be available in addition to the HEMS.

  The following information is displayed:

  - Under **Paired EEBUS devices**: EEBUS devices paired with the Wallbox, if available.
  - Under **EEBUS devices found**: List of all EEBUS devices found in the network.
  - Under **Wallbox EEBUS settings**: Name of the EEBUS device found and the Subject Key Identifier (SKI)
  - Status information:
    - Status of the connection to the HEMS
    - Connection to device: **Connected**, **Not connected**
    - EEBUS connection status

Connecting an HEMS

ⓘ Note

To pair an HEMS with the Wallbox, you must be logged in as a service user.

1. Select the **Connections**, **EEBUS-HEMS** option in the navigation.
2. On the **EEBUS-HEMS** screen, under **EEBUS devices found** select the right arrow for the HEMS you want to connect.
3. To connect the HEMS, select **Pair**.
4. Hold down the corresponding button on the HEMS device for several seconds (push button pairing). Follow the instructions from the operating instructions for your HEMS.

When the connection has been established successfully, the HEMS is displayed under **Paired EEBUS devices** on the **EEBUS-HEMS** screen and the Cloud/backend/HEMS connection LED on the front panel lights up green.

Disconnecting from the HEMS

1. Select the **Connections**, **EEBUS-HEMS** option in the navigation.
2. On the **EEBUS-HEMS** screen, under **Paired EEBUS devices** select the right arrow for the HEMS you want to disconnect.
3. Select the **Unpair** button on the **EEBUS-HEMS** screen.

The HEMS is removed from the list of paired HEMS on the **EEBUS-HEMS** screen and is displayed under **EEBUS devices found**. The Cloud/backend/HEMS connection LED on the front panel is no longer lit unless there is also a backend server connection.

7.7 Configuring general settings

7.7.1 Enabling/disabling eco mode

- Select the **Wallbox settings**, **Save energy** option in the navigation.
- On the **Save energy** screen, enable (default setting) or disable the **Eco mode** option.

If eco mode is enabled, the Wallbox goes into standby mode if there has been no user interaction via the web browser for 20 minutes, the Wallbox has no active errors and no charging is in progress. In this case, the LEDs on the front panel are not lit.

7.7.2 Showing system settings

1. Select the **Wallbox settings**, **System information** option in the navigation.

   The following types of system settings are displayed on the **System information** screen:

   - **Network information**
   - **Electronic rating plate**
   - **Licenses**: License information for software components used in the web app.
   - **Privacy**

2. Select one of the setting types with the down arrow.

   The corresponding screen showing detailed information is opened.

Type of system setting	Available information	Possible values
Network information	**Normal range**	• IEC
	Mains connection	• 1-phase • 3-phase
	Maximum current-carrying capacity	
Electronic rating plate	**Make**	
	Part number	
	Serial number	
	Hardware status	
Software version	**Bundle version**	
	PWR software version: Power controller SW version	
	COM software version: Comm controller SW version	
Licenses	License information for software components	
Privacy	Privacy information	

7.7.3 Setting units

1. Select the **Wallbox settings**, **Units** option in the navigation. The **Units** screen is opened.
2. Select the relevant unit, e.g. temperature.

7.7.4 Enabling/disabling the earth monitoring system

ⓘ Note

To enable/disable the earth monitoring system, you must be logged in as a service user.

⚠ **DANGER**

Risk of death due to electric shock

Use of the Wallbox without an active earth monitoring system can cause electric shocks, short circuits, fires, explosions or burns.

- Only disable the earth monitoring system in non-earthed power networks.

1. Select the **Wallbox settings**, **Earth monitoring system** option in the navigation. The **Earth monitoring system** screen is opened.
2. Enable/disable the **earth monitoring system**.

7.8 Reset to factory defaults

ⓘ Note

To reset the Wallbox to the factory defaults, you must be logged in as a service user.

ⓘ Note

With the exception of the country code, all user settings are reset to the factory defaults, e.g. the approved lists.

1. Start the web app / mobile app.
2. Select the **Wallbox settings**, **Factory defaults** option in the navigation.
3. Select **Reset to factory defaults** and confirm.

When the reset is complete the Wallbox is restarted.

7.9 Updating the software

7.9.1 Software update information

Display on the front panel

ⓘ Note

These displays are only visible if there are no active errors in the Wallbox.

- If the error LED is flashing white, a software update is available.
- If the error LED is pulsing white, the software is currently being updated.

ⓘ Security updates

To get information about security updates and to enable them to be installed on the Wallbox, an Internet connection through your local network is required. It is also possible to install a local security update on the Wallbox if required.
You can find further information and contact addresses in the **Cyber Security** area of the eSystems website.

Information in the web app / mobile app

- Select the **Wallbox settings**, **Software update** option in the navigation.

The following information/functions are available on the **Software update** screen:

- Enable/disable **Automatically download update**.

  Enabled: Default setting. The software checks for available updates and they are downloaded automatically.

  Disabled: The software checks for available updates and displays a message. The download then has to be started manually.

- Enable/disable **Automatically install update**.

  Enabled: If a software update has been downloaded, the Wallbox installs it automatically.

  Disabled: The installation can be delayed until a later time. Installation of a software update is only started when requested by the user.

- **Local update** enables you to select a file saved locally.
- For manual software updates: Select **Install update** to manually start installation of the software update.
- The following information is displayed under **Last system update**:

- Date of the last software update, including version number
- Status: Software for update downloaded, Software update in progress, Software update complete, Software update failed
- Information on whether a new software update is available
- Version information of the last software update for each of the following software types: **Bundle version**, **COM software version**, **PWR software version**

Displaying the change log

1. Select the **Wallbox settings**, **Software update** option in the navigation.
2. Select **Change log**.

   The change log is displayed and contains information about all updated software components.

7.9.2 Manually updating the software

1. Select the **Wallbox settings**, **Software update** option in the navigation.
2. If new software is available for download, select it and confirm the download.
3. If automatic installation is not configured and a new software update has been downloaded, select it and confirm the installation.

   A bar shows the progress of the current software update.

7.9.3 Performing an automatic software update

Automatic software updates is the default setting for the Wallbox.

ⓘ Prerequisite

The automatic software update is only possible if the vehicle cable is unplugged.

Installation of a software update is displayed as follows:

- A bar shows the progress of current software updates on the **Software update** screen in the web app / mobile app.
- On the front panel of the Wallbox the operating / error condition LED pulses white, see Displays and controls on page 20.

- A corresponding message is displayed in the **Overview** in the web app / mobile app.

Restrictions on control of automatic software updates

- If there is active OCPP communication, the software update is performed exclusively via the backend server.

7.9.4 Performing a local software update

In addition to server-based software updates, a local software update is also possible.

1. Select the **Wallbox settings**, **Software update** option in the navigation.
2. Select **Local update**. A file selection dialog box is opened.
3. Select the image in the local network and confirm.

7.10 Managing OCPP settings

7.10.1 Connecting the Wallbox via OCPP

ⓘ Note

To connect a Wallbox via OCPP, you must be logged in as a service user.

1. Select the **Connections**, **OCPP** option in the navigation. The **OCPP connection** screen is opened.
2. Enable **OCPP**.
3. Make the following entries for the OCPP backend. This information is provided by your backend service provider.
   - **URL** of OCPP backend server
   - **Port** for OCPP backend
   - **OCPP version**
   - **User name**
   - **Password** of OCPP access point
   - Enable/disable **TLS encryption**. Default setting: Enabled
4. Enter the ID for the **Charging point** in the **Charging point ID/EVSE ID** field.

The operator provides the EVSE ID.

5. Select **Connect**. **Connection started** is displayed as the status.

   The connection is established and the **Disconnect** option is available.

6. Enable/configure the following optional settings:

   - **Allow charging to start remotely**: Remote authorisation of charging, e.g. using the network operator app, allowed / not allowed. Default setting: Not allowed

     For detailed information about the different types of authorisation, see Starting charging on page 30.

   - **Vehicle connection timeout** (in minutes and seconds): Time that the user has to plug the type 2 connector on the vehicle cable into the vehicle connection before charging.

     Permissible range of values: 15 - 180 seconds, default setting: 45 seconds

Disconnecting the OCPP connection

1. Select the **Connections**, **OCPP** option in the navigation. The **OCPP connection** screen is opened.
2. Select **Disconnect**.

8 Service and cleaning

8.1 Performing recurring checks

⚠WARNING

Risk of injury due to inadequately qualified personnel.

This can cause serious injuries and damage to equipment.

- Only trained and appropriately qualified personnel are to work on the Wallbox.

ⓘ Note

Some of the recurring checks may only be performed by a qualified electrical engineer, see table.

ⓘ Note

The operator is responsible for performing the recurring checks.

For detailed information about the required qualifications, see Assembly and installation instructions.

The following recurring checks are legally stipulated:

Component	Type of check	Interval	To be performed by
Wallbox	▪ Perform a visual inspection for defects.	Daily / For every charging cycle	User/operator
Wallbox	▪ Check readiness for operation.	Daily / For every charging cycle	User/operator
Vehicle cable, Wallbox	▪ Repeat measurements and checks in accordance with the local regulations, (e.g. DIN VDE 0701/702 in Germany).	Annually	Qualified electrical engineer

Component	Type of check	Interval	To be performed by
Wallbox	▪ Repeat measurements and checks in accordance with the local regulations, (e.g. DIN VDE 0105-100 in Germany)	Annually	Qualified electrical engineer
Energy meter (for ghost ONE ERK version only)	▪ Check as required by German official calibration law	Every 8 years from date of manufacture	

Check at initial startup

ⓘ Note

At initial startup, a qualified electrical engineer must check correct installation and electrical safety of the Wallbox (e.g. in accordance with DIN VDE 0100 in Germany).

Preparing for checks under official calibration law

ⓘ Note

This information is only relevant for the Wallbox ghost ONE ERK version.

- Cleaning the Wallbox for official calibration.
- Contact and make arrangements with a provider of checks under official calibration law in good time before the official calibration expires.

8.2 Cleaning the Wallbox

⚠ DANGER

Risk of death due to electric shock or fire

Water in the Wallbox can lead to life-threatening injuries due to electric shock and fire.

- Never immerse the Wallbox or connectors in water.
- Do not direct any water jets, e.g. from a garden hose or high-pressure cleaner, at the Wallbox.
- Do not place any items filled with liquid on top of the Wallbox.
- Only clean the Wallbox with a dry or slightly moistened cloth.

ATTENTION

Damage to equipment due to aggressive cleaning agents

Aggressive cleaning agents (e.g. white spirit, acetone, ethanol) can damage the surface of the housing.

- Use mild cleaning agents (e.g. washing-up liquid, neutral cleaner).
- Regularly check the Wallbox for damage to the housing and for soiling.
- If necessary, clean the outside of the Wallbox with a soft dry or slightly moistened cloth.

9 Troubleshooting

9.1 Performing a self-test

The Wallbox performs an automatic self-test of its components each time it is started. In addition, the internal residual current operated protective device is tested before every charging cycle.

If an error has been detected in the self-test, it is entered in the error list, see Error list on page 48.

9.2 Fixing errors

9.2.1 Error list

- To display the error list, select **Wallbox settings**, **Error list** in the web app / mobile app navigation.

The error list provides the following information for each error:

- Error code
- Error status

ⓘ Note

There may be multiple entries in the error list that have the same cause (error cascade).

Error categories

The following error categories exist:

Error category	Error LED colour	Repair priority
Fatal error	Red	1
Critical error	Yellow	2
Non-critical error	Blue	3
No error	White	-

If there is at least one error, the error LED lights up in the colour corresponding to the error category.

If there are multiple errors, the error LED lights up in the colour assigned to the highest error category.

Error status

The following error statuses are defined:

Error status	Meaning
Active	The error is active and the cause of the error has not yet been fixed.
Passive	The cause of the error has been fixed or the error is no longer present.

9.2.2 Identifying and fixing errors

ATTENTION

Damage to equipment when fixing errors

If an error is not fixed despite correctly following the instructions for fixing errors, the Wallbox is defective.

- Do not use the Wallbox.
- Notify technical service.

1. To identify an error, select **Wallbox settings**, **Error list** in the web app / mobile app navigation.

   The error list is displayed, see Error list on page 48.

2. Select an error in the list.

   For detailed information about the selected error, see Error codes on page 50.

3. Read the detailed description carefully and then analyse and fix the error by following the instructions in the error list.

   ⓘ Note on fatal errors

   To fix errors in this category, the Wallbox generally has to be restarted.

   If the errors can be fixed while operation is in progress, these errors are still displayed as **Active** after the cause has been fixed until the next time the Wallbox is restarted.

ⓘ Note on critical and non-critical errors

Once the cause of the error has been fixed, the status of the error immediately changes to **Passive**.

4. If multiple errors are displayed, fix the errors in order of priority, starting with fatal errors, followed by critical errors and so on.

Clearing the error list

1. As soon as the error list only contains passive errors, select the **Clear list** option in the **Error list** view in the web app / mobile app.
2. Restart the Wallbox:
   - Press and hold down the button on the front panel for at least 8 seconds.
   - Alternatively: Disconnect and reconnect the power supply to the Wallbox.

   After switching on again, the error LED should be white and the error list should be empty.
3. If the error LED is not white and the error list is not yet empty, continue fixing errors.

9.2.3 Error codes

Error code	Category	Type of error	Measures to fix error
0x100000	Fatal	Self-test error for components on the power board	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100002	Fatal	Internal communication error between power controller and board components.	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.

Error code	Category	Type of error	Measures to fix error
0x100003	Fatal	Power controller power supply self-test error	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100004	Fatal	Power board peripheral power supply self-test error	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x10000E	Fatal	Power controller has failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x10000F	Fatal	Comm controller has failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100010	Fatal	Internal software error in power controller	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100020	Fatal	Internal software error in comm controller	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100023	Fatal	Internal communication error between power board and comm board	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.

Error code	Category	Type of error	Measures to fix error
0x100025	Non-critical	Temperature compensation for LEDS failed.	Press the button on the front panel for at least 8 seconds to restart the Wallbox. Continued operation of the Wallbox is possible but the colours of the LEDs may not match those described in these instructions. If necessary, use the web app to identify the correct system status.
0x100026	Fatal	EEPROM memory on comm board faulty	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100027	Fatal	Comm controller RAM memory faulty	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100028	Fatal	eMMC memory on comm board faulty	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100100	Fatal	Incorrect reference value for fault current monitoring	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.

Error code	Category	Type of error	Measures to fix error
0x100101	Fatal	Fault current (DC) detected	During charging, fault currents can occur. The Wallbox detects these and then switches off as a precaution. This can be caused by unwanted side-effects of the domestic installation. 1. Check the domestic installation of the Wallbox, if necessary with the assistance of a qualified electrical engineer. 2. Disconnect from the vehicle or press the button on the front panel for at least 8 seconds to restart the Wallbox.
0x100102	Fatal	Internal error in fault current monitoring sensor	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100103	Fatal	Fault current monitoring self-test failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.

Error code	Category	Type of error	Measures to fix error
0x100104	Fatal	Earth monitoring system indicating errors.	Check the domestic installation to ensure the Wallbox is correctly earthed, if necessary with the assistance of a qualified electrical engineer. If the error is still displayed after checking the installation, contact support. If earth monitoring is not possible in your country for technical reasons, or does not work reliably, disable it, see Enabling/disabling the earth monitoring system on page 40.
0x100106	Fatal	Implausible load relay status	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x10010D	Non-critical	Earth monitoring system disabled	Earth monitoring system has been disabled using web app. If earth monitoring system is to be enabled, see Enabling/disabling the earth monitoring system on page 40.
0x100110	Fatal	Load relay continuously tripped	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x100120	Fatal	Vehicle connector lock on socket faulty	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.

Error code	Category	Type of error	Measures to fix error
0x100121	Fatal	Vehicle connector socket self-test failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x200200	Critical	Implausible voltage on control line to vehicle	Check that the on-board charger on your electric vehicle is functioning correctly. If you have connected your own vehicle cable to the socket, check it and if necessary use a different vehicle cable.
0x200201	Critical	Vehicle requesting ventilation.	The electric vehicle is requesting ventilation. As this is not supported by the Wallbox, the Wallbox cannot be used for charging this vehicle.
0x300000	Non-critical	WiFi module self-test failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, use the Ethernet or LTE connection as an alternative.
0x300001	Non-critical	WiFi connection error	Check whether the WiFi signal strength is sufficient for a connection and that the access data (SSID, password) has been entered correctly. If necessary, restart the WiFi access point in your network and confirm any security prompts.
0x300003	Non-critical	PLC module self-test failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, the Wallbox is unable to carry out charging using plug & charge.

Error code	Category	Type of error	Measures to fix error
0x300005	Non-critical	PLC connection to vehicle communication error	Check that the on-board charger on your electric vehicle is functioning correctly. If you have connected your own vehicle cable to the socket, check it and if necessary use a different vehicle cable.
0x300006	Fatal	Invalid combination of hardware version and software	Use the software update function to install a compatible software package on the Wallbox, see Manually updating the software on page 42. If the error is still displayed after a successful software update, contact support.
0x300008	Non-critical	No secure connection to network operator server	Contact the network operator for support in fixing the error.
0x30000F	Fatal	Invalid combination of hardware version and software	Use the software update function to install a compatible software package on the Wallbox, see Manually updating the software on page 42. If the error is still displayed after a successful software update, contact support.
0x300100	Non-critical	Ethernet module self-test failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, use the Ethernet or LTE connection as an alternative.

Error code	Category	Type of error	Measures to fix error
0x300101	Non-critical	Ethernet connection error	Check the cable, switch, network configuration and security settings on the connected computer. The wallbox is not suitable for direct connection to another computer (ad-hoc connection). A connection via WiFi or LTE is possible as an alternative.
0x300200	Non-critical	LTE module self-test failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, use the WiFi or Ethernet connection as an alternative.
0x300201	Non-critical	LTE connection or authorisation error	Check, using a smartphone for example, whether the LTE reception in the area around the Wallbox is guaranteed to have sufficient signal strength for your provider. Check that access data has been entered correctly. Alternatively, use the WiFi or Ethernet connection.
0x300202	Non-critical	LTE signal strength too low	Wait until there is a signal level with sufficient strength or if necessary switch to Ethernet or WiFi. Observe the information in the Assembly and installation instructions for selecting the location for your Wallbox. If reception conditions are difficult, use an LTE repeater if necessary.

Error code	Category	Type of error	Measures to fix error
0x300300	Non-critical	RFID module faulty	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, charging approval is only possible using one of the other authorisation options or by switching off authorisation.
0x300301	Non-critical	RFID chip invalid or cannot be read	Register an RFID chip for the Wallbox before it can be used for charging approval, see Adding an RFID chip to the approved list on page 35. Check that you are using a functioning RFID chip that meets the supported standards set out in these instructions. Hold the RFID chip sufficiently close to the marked sensor and wait for the acoustic and visual response from the Wallbox before removing the RFID chip from the sensor.
0x300400	Fatal	Malfunction in energy meter	Check whether the official calibration interval for the energy meter has elapsed and contact your operator for assistance. If the official calibration interval has not yet elapsed, press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after a successful software update, contact support.

Error code	Category	Type of error	Measures to fix error
0x300401	Fatal	Connection to energy meter interrupted	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, you must have the installation of the energy meter checked by a qualified electrical engineer or contact support.
0x40100C	Non-critical	Plug & charge (PnC): Error establishing the connection to the vehicle	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x40100D	Non-critical	Plug & charge (PnC): No secured connection to the vehicle possible	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x40100E	Non-critical	Plug & charge (PnC): Internal error (matching error)	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x40100F	Non-critical	Plug & charge (PnC): Internal error (sequence error)	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401011	Non-critical	Plug & charge (PnC): Internal error (unknown session)	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401012	Non-critical	Plug & charge (PnC): Internal error (invalid service ID)	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.

Error code	Category	Type of error	Measures to fix error
0x401013	Non-critical	Plug & charge (PnC): Invalid payment method	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401014	Non-critical	Plug & charge (PnC): Internal error (service selection invalid)	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401015	Non-critical	Plug & charge (PnC): Certificate expired	Contact network operator or check vehicle setting. Charging without PnC is possible as an alternative.
0x401016	Non-critical	Plug & charge (PnC): Certificate revoked	Contact network operator or check vehicle setting. Charging without PnC is possible as an alternative.
0x401017	Non-critical	Plug & charge (PnC): No certificate available	Contact network operator or check vehicle setting. Charging without PnC is possible as an alternative.
0x401018	Non-critical	Plug & charge (PnC): Error processing certificate	Contact network operator or check vehicle setting. Charging without PnC is possible as an alternative.
0x401019	Non-critical	Plug & charge (PnC): Certificate invalid	Contact network operator or check vehicle setting. Charging without PnC is possible as an alternative.
0x40101A	Non-critical	Plug & charge (PnC): Certificate processing error (challenge invalid)	Contact network operator or check vehicle setting. Charging without PnC is possible as an alternative.

Error code	Category	Type of error	Measures to fix error
0x40101B	Non-critical	Plug & charge (PnC): Incorrect energy transmission mode	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x40101C	Non-critical	Plug & charge (PnC): Incorrect charging parameters	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x40101D	Non-critical	Plug & charge (PnC): Charging profile invalid	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x40101E	Non-critical	Plug & charge (PnC): Invalid tariff selection	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x40101F	Non-critical	Plug & charge (PnC): Power supply not available	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401020	Non-critical	Plug & charge (PnC): No charging service selected	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401021	Non-critical	Plug & charge (PnC): Certificate is not supported on this Wallbox.	Contact network operator or check vehicle setting. Charging without PnC is possible as an alternative.
0x401023	Non-critical	Plug & charge (PnC): Internal software error (PLC connection)	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.

Error code	Category	Type of error	Measures to fix error
0x401024	Non-critical	Plug & charge (PnC): Internal software error (PLC connection)	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0x401025	Non-critical	Plug & charge (PnC): Error establishing connection (TCP port)	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401026	Non-critical	Plug & charge (PnC): Connection to vehicle cancelled	Check the vehicle cable and the PnC configuration on the vehicle. Charging without PnC is possible as an alternative.
0x401027	Non-critical	Connection to energy management system (EMS) cancelled	Check whether the EMS is switched on and connected to your network. Either an Ethernet or WiFi connection is required; a connection via LTE is not possible. If necessary, check the security setting in your network.
0x401028	Non-critical	Energy management system: Service for blackout protection is not available.	Check the configuration of your energy management system.
0x401029	Non-critical	Energy management system: Service for domestic current charging is not available.	Check the configuration of your energy management system and your photovoltaic system.

Error code	Category	Type of error	Measures to fix error
0x40102A	Non-critical	Energy management system: Service for cost-optimised charging is not available.	Check the configuration of your energy management system in terms of the tariff settings.
0x402000	Critical	OCPP configuration incorrect	Check and correct the OCPP configuration and contact the operator if the problem persists.
0x402001	Critical	Certificate for login via OCPP missing or is invalid.	Contact the operator of the OCPP backend.
0x402002	Non-critical	Connection to OCPP server cancelled	Check the server connection. Any active charging is continued.
0x402003	Critical	Wallbox not authorised for OCPP	Contact the operator.
0x402004	Non-critical	Charging authorisation via OCPP failed	Check that you have used the correct authorisation method (RFID chip) and/or that the vehicle used is approved for the Wallbox.
0x402005	Non-critical	Unsupported query from OCPP server	If necessary, notify the operator. Active charging is continued.
0x402006	Non-critical	Unknown data from OCPP server	If necessary, notify the operator. Active charging is continued.

Error code	Category	Type of error	Measures to fix error
0x500000	Non-critical	Light sensor failed	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after the restart, operation of the device can continue anyway. The light intensity of the LEDs may not be adjusted to the brightness of the surroundings. If required, set the required brightness manually, see Adjusting the brightness of the LEDs.
0x500001	Fatal	Activation of LEDs faulty	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support (no longer reliable indication using LEDs).
0x500002	Non-critical	Button malfunction	Restart the Wallbox by temporarily connecting from the mains supply. If the error is still displayed after repeated restarts, check the installation or contact support (restart or activation from eco mode then no longer function).
0xC00201	Critical	Internal communication error between power board and comm board	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0xC00304	Fatal	Incompatible power controller and comm controller software version	If necessary, repeat the last software update performed, see Manually updating the software on page 42. If the error is still displayed after a successful software update, contact support.

Error code	Category	Type of error	Measures to fix error
0xD1210A	Critical	Internal communication error on the comm controller	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0xD20001	Critical	Internal communication error between power board and comm board	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0xE10202	Critical	Overvoltage on phase L1	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.
0xE10203	Critical	Undervoltage on phase L1	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.
0xE10212	Critical	Overvoltage on phase L2	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.

Error code	Category	Type of error	Measures to fix error
0xE10213	Non-critical	Undervoltage on phase L2	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.
0xE10222	Critical	Overvoltage on phase L3	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.
0xE10223	Non-critical	Undervoltage on phase L3	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.
0xE10231	Critical	Input current on phase L1 too high	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.

Error code	Category	Type of error	Measures to fix error
0xE10241	Critical	Input current on phase L2 too high	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.
0xE10251	Critical	Input current on phase L3 too high	Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.
0xE102A0	Fatal	Error in power board peripherals	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0xE10300	Critical	Mains frequency outside the permitted range	If there is a mains fault at the domestic connection, the Wallbox cannot be operated until the fault has been fixed. Have the installation checked by a qualified electrical engineer. In particular, the mains connection has to be checked and if necessary repaired (high voltage resistance measurement, visual inspection for kinks, crushing etc.). If the installation is faulty, contact support.

Error code	Category	Type of error	Measures to fix error
0xFF000D	Fatal	Invalid encoding value for vehicle charging cable current-carrying capacity	The vehicle cable is faulty or cannot be operated with this Wallbox. If you are using your own vehicle cable, try using a different vehicle cable. If the vehicle cable is permanently connected to the Wallbox, press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support.
0xFF000E	Fatal	Infrastructure configuration error (DIP switch / rotary switch)	The installation settings for the DIP switch and/or rotary switch are not correct or have not been correctly detected. Have the installation checked by a qualified electrical engineer. If the error is still displayed after restarting and correcting the settings, contact support.
0xFF0101	Critical	No charging possible due to low temperature (sensor on power controller)	Wait until the Wallbox has heated back up to an appropriate operating temperature. For indoor installation, check the air conditioning system / heating settings.
0xFF0102	Non-critical	Charging current reduction due to high temperature (sensor on power controller)	Allow for a longer charging time. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0103	Fatal	Temperature sensor on power controller outside valid range	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support (charging no longer possible).

Error code	Category	Type of error	Measures to fix error
0xFF0104	Critical	No charging possible due to critical temperature (sensor on power controller)	Wait until the Wallbox has cooled back down to the permitted operating temperature. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0201	Critical	No charging possible due to low temperature (sensor on relay)	Wait until the Wallbox has heated back up to an appropriate operating temperature. For indoor installation, check the air conditioning system / heating settings.
0xFF0202	Non-critical	Charging current reduction due to high temperature (sensor on relay)	Allow for a longer charging time. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0203	Fatal	Temperature sensor on relay outside valid range	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support (charging no longer possible).
0xFF0204	Critical	No charging possible due to critical temperature (sensor on relay)	Wait until the Wallbox has cooled back down to the permitted operating temperature. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0301	Critical	No charging possible due to low temperature (sensor in input path)	Wait until the Wallbox has heated back up to an appropriate operating temperature. For indoor installation, check the air conditioning system / heating settings.

Error code	Category	Type of error	Measures to fix error
0xFF0302	Non-critical	Charging current reduction due to high temperature (sensor in input path)	Allow for a longer charging time. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0303	Fatal	Temperature sensor in input path outside valid range	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support (charging no longer possible).
0xFF0304	Critical	No charging possible due to critical temperature (sensor in input path)	Wait until the Wallbox has cooled back down to the permitted operating temperature. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0401	Critical	No charging possible due to low temperature (sensor in output path)	Wait until the Wallbox has heated back up to an appropriate operating temperature. For indoor installation, check the air conditioning system / heating settings.
0xFF0402	Non-critical	Charging current reduction due to high temperature (sensor in output path)	Allow for a longer charging time. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0403	Fatal	Temperature sensor in output path outside valid range	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support (charging no longer possible).

Error code	Category	Type of error	Measures to fix error
0xFF0404	Critical	No charging possible due to critical temperature (sensor in output path)	Wait until the Wallbox has cooled back down to the permitted operating temperature. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0501	Critical	No charging possible due to low temperature (sensor on socket)	Wait until the Wallbox has heated back up to an appropriate operating temperature. For indoor installation, check the air conditioning system / heating settings.
0xFF0502	Non-critical	Charging current reduction due to high temperature (sensor on socket)	Allow for a longer charging time. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0503	Fatal	Temperature sensor on socket outside valid range	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after repeated restarts, contact support (charging no longer possible).
0xFF0504	Critical	No charging possible due to critical temperature (sensor on socket)	Wait until the Wallbox has cooled back down to the permitted operating temperature. For indoor installation, check the air conditioning system / room cooling settings.
0xFF0902	Non-critical	Charging current reduction due to high temperature (sensor on comm controller)	Allow for a longer charging time. For indoor installation, check the air conditioning system / room cooling settings.

Error code	Category	Type of error	Measures to fix error
0xFF0909	Non-critical	Temperature sensor on LED outside valid range	Press the button on the front panel for at least 8 seconds to restart the Wallbox. If the error is still displayed after the restart, operation of the Wallbox can continue anyway. The colours of the LEDs may not match the description in these instructions. If necessary, use the web app to identify the correct system status.

9.3 Initiating emergency measures

⚠DANGER

Risk of death due to electric shock

Contact with live parts results in a direct risk of death due to electric shock.

- In case of emergency or when fixing errors or carrying out electrical work on the Wallbox, comply with the following **safety rules**:
  - Disconnect the Wallbox from the voltage supply.
  - Ensure that there is no voltage.
  - Secure against being switched on again.
  - Earth and short-circuit the Wallbox.
  - Cover any adjacent live parts and secure the danger area.

In an emergency, if the Wallbox or parts of the Wallbox catch fire, suffer water damage or are destroyed due to vandalism:

1. Follow all five safety rules listed in the warning notice to ensure that the voltage is disconnected.
2. Contact support, see rear of these instructions.

10 Shutdown and uninstalling

ⓘ Further information

For detailed information about shutting down and uninstalling the Wallbox, refer to the Shutdown and uninstalling instructions.

11 Storage

- Clean the Wallbox before storage, see Cleaning the Wallbox on page 47.
- Store the Wallbox in the original packaging or other suitable packaging in a clean and dry location.
- Observe the permissible storage temperature.

  For detailed information about the permissible storage temperature and other environmental specifications, see Technical data on page 76.

12 Disposal

The Wallbox is subject to the EU Directive 2012/19/EU on waste electrical and electronic equipment.

Disposal of the wallbox

ⓘ Prerequisite

Before disposal, a qualified electrical engineer must disconnect the Wallbox from the power supply and shut it down in accordance with the regulations, see Assembly and installation instructions, “Shutdown and uninstalling”.

1. At the end of its service life, dispose of the Wallbox in line with the national statutory regulations for electrical and electronic equipment, as well as any local disposal regulations.
2. Dispose of waste equipment through your specialist dealer, not with domestic or bulky waste.
3. Dispose of the packaging material using the standard local collection facilities for cardboard, paper and plastics.

13 Technical data

Electrical data

ghost ONE version	Basic		MID		ERK
	GHO11-E10K	GHO22-E10K	GHO11-E21K	GHO22-E21K	GHO22-E22K
Power [kW]	11	22	11	22	22
Mains voltage [V]	220 - 240 / 400				
Mains frequency [Hz]	50 / 60				
Rated current [A]	16	32	16	32	32
Maximum prefuse [A]					
Charging capacity, Mode 3 [kW]	11	22	11	22	22
Charging current, Mode 3 [A]	3 x 16	3 x 32	3 x 16	3 x 32	3 x 32
Mains connection	L1, L2, L3, N, PE				
Overvoltage category (IEC 60664)	III				
Integrated residual current operated protective device [mA DC]	IΔN 6				
Vehicle charging connector	Type 2				
Rated impulse voltage $U_{imp.}$ [kV]	4				
Rated insulation voltage [V]	500				

ghost ONE version	Basic		MID		ERK
	GHO11-E10K	GHO22-E10K	GHO11-E21K	GHO22-E21K	GHO22-E22K
Rated current of switchgear combination [A]	16	32	16	32	32
Rated conditional short-circuit current Icc [kA]	3				
Rated load factor RDF	1				
Mains type	TT/TN 3 and 1-phase; IT 1-phase				
Protection class	I				
EMC classification	A/B				

Mechanical data

ghost ONE version	Basic		MID		ERK
	GHO11-E10K	GHO22-E10K	GHO11-E21K	GHO22-E21K	GHO22-E22K
Dimensions (H x W x D) [mm]	383.9 x 383.9 x 180.8	383.9 x 383.9 x 180.8	383.9 x 383.9 x 180.8	383.9 x 383.9 x 180.8	383.9 x 383.9 x 201.5
Weight (excluding cable) [kg]	3.15 - 3.99 (depending on version)				
Vehicle cable length [m]	4.5 / 7	4.5 / 7	4.5 / 7	4.5 / 7	Type 2 socket

Connection

ghost ONE version	Basic		MID		ERK
	GHO11-E10K	GHO22-E10K	GHO11-E21K	GHO22-E21K	GHO22-E22K
Supply line, nominal cross-section [mm^2]	5 x 2.5/4	5 x 6/10	5 x 2.5/4	5 x 6/10	5 x 6/10

ghost ONE version	Basic		MID		ERK
	GHO11-E10K	GHO22-E10K	GHO11-E21K	GHO22-E21K	GHO22-E22K
Supply line, clamping range [mm^2]	Rigid: 0.5 - 16				
Tightening torque [Nm]	1.5 - 1.8				
Ethernet RJ45	Cat. 5/6/7				
External control cable [V]	24				
External control cable, clamping range [mm^2]	Rigid: 0.2 - 4				

Ambient and storage conditions

ghost ONE version	Basic		MID		ERK
	GHO11-E10K	GHO22-E10K	GHO11-E21K	GHO22-E21K	GHO22-E22K
Protection rating	IP55				
Shock resistance	IK10				
Degree of contamination	3				
Positioning	Open air or inside building				
Stationary / mobile	Stationary				
Use (in accordance with DIN EN 61439-7)	AEVCS				
Exterior design	Wall mounting				
Ambient temperature [° C]	-30 to +45		-25 to +45		-25 to +45
Storage temperature [° C]	-40 to +80				
Humidity for operation (non-condensing) [%]	5 - 85				
Maximum altitude	3000		3000		2000

Applicable standards

- IEC 61851-1
- IEC/TS 61439-7
- HD 60364-7-722

14 Technical glossary

A

AC
: Alternating Current

D

DC
: Direct Current

E

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

H

HEMS
: Home Energy Management System

I

ICCID
: Integrated Circuit Card IDentifier. Identifies the SIM card required for LTE.

IMEI
: International Mobile Equipment Identity. Identifies the transmission and receiving module required for LTE.

IMSI
: International Mobile Subscriber Identity. Identifies the wallbox as a subscriber in the LTE network.

IP
: Internet Protocol

L

LTE
: Long Term Evolution. 4th generation mobile wireless standard

M

MODBUS/RTU
: MODBUS/Remote Terminal Unit Communication between energy meter and wallbox connected via RS485

O

OCPP
: Open Charge Point Protocol

OTA
: Over The Air

P

PUK
: Personal Unblocking Key

PV
: Photovoltaics (technology for converting solar energy into electrical energy)

R

RFID
: Radio Frequency Identification. Contactless identification of people and objects using radio waves

S

SELV
: Safety Extra Low Voltage

SoC
: State of Charge. Charge level of the battery

T

TCP
: Transmission Control Protocol

W

WLAN
: Wireless Local Area Network. Local wireless network

15 Index

Support

Hotline: +49 7024 40 59 88 00

E-Mail: support@esystems-mtg.de

Product Security Incident Response Team

psirt@esystems-mtg.de

eSystems MTG GmbH

Bahnhofstr. 100

73240 Wendlingen

www.esystems-mtg.de

KATEK

Lead the category