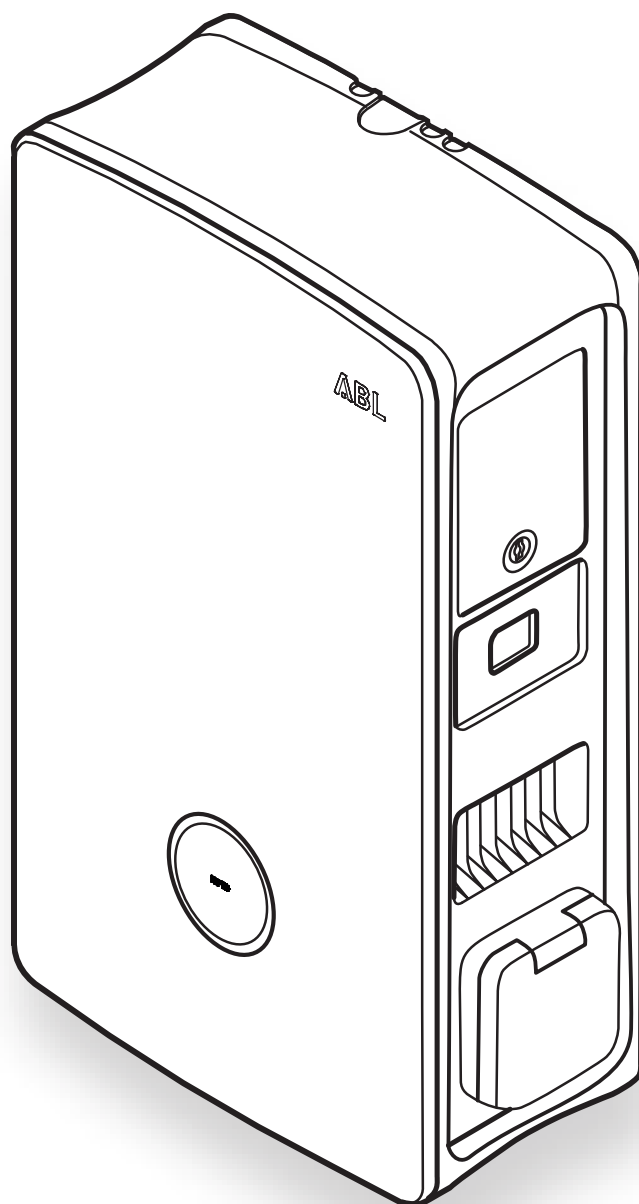


Wallbox eM4 Single


Installation manual



Contact

ABL GmbH


Albert-Büttner-Straße 11
91207 Lauf / Pegnitz
Germany

 +49 (0) 9123 188-0

 info@abl.de

 www.ablmobility.de

Customer Service

 +49 (0) 9123 188-0

 www.ablmobility.de/en/service/support/



Contents

Contact	2
Additional technical information	5
Intended use	5
Information in this document	5
Safety and user information	6
General	6
Safety instructions	6
Operating instructions	8
Introduction to the Wallbox eM4 Single	9
Identifying your wallbox	9
The Wallbox eM4 Single at a glance	10
How the HMI works	12
Information displayed in the energy meter	14
Forming charging groups and network topologies	15
External load shedding in accordance with VDE AR-N 4100	18
Components included with the wallbox	18
Accessories	19
Installation of the Wallbox eM4 Single	22
Installation site requirements	22
Tools and accessories required	23
Inserting the power and data cables	24
Preparing the installation site	25
Preparing and fixing the wallbox in place	27
Electrical connection of the wallbox	28
Phase rotation within a charging group	30
Data cable connections	30
Connecting a control cable in accordance with VDE AR-N 4100	31
Preparing and installing the LTE USB stick	32
Setup of the Wallbox eM4 Single	33
Configuring the Wallbox eM4 Single	35
Availability of the ABL Configuration App	35
Setting up communication via the ABL Configuration App	35
Onboarding – Configuration of an Extender wallbox for stand-alone operation	39
Onboarding – Configuring the Controller / Extender operating mode	39
Control Board settings and reboarding	40
Description of the charging process	42
Error resolution and maintenance	45
Support via the ABL Support page	45
Quick solution for general problems	46

Testing the RCCB	47
Taking the Wallbox eM4 Single out of operation	48
Replacing the RCCB flap	49
Replacing the lever lock in an RCCB flap	50
Replacing the charging socket flap	51
Replacing the housing cover	52
Resetting the wallbox and restoring to factory settings	54
Actions in case of internal errors, notes and warnings	55
Maintenance	57
Appendix	58
Technical specifications	58
Standards and guidelines	60
Overview of the radio modules used	61
Trademarks	61
Data cable recommendations	61
Definitions	62
Disposal advice	63
Dimensions	63
CE certification and compliance declaration	64
Drilling template illustration	65

Additional technical information

Additional technical information is required to install your Wallbox eM4 Single on one of the separately available mounting poles, as well as regarding further accessories. It is contained in separate documents.

In addition, the technical data for the wallbox are collated in product-specific data sheets. You can download these documents from the ABL website using the following link:



<https://www.ablmobility.de/en/service/downloads.php>

! NOTE

Displaying the additional information on a computer, tablet or smartphone

Additional technical information is made available in the Portable Document Format (PDF).

- To display PDF files, you need the free Adobe Acrobat Reader or comparable software.

You can find further information about our product range, as well as about separately available accessory components on our website at www.ablmobility.de/en. Please visit:



<https://www.ablmobility.de/en>

Intended use

The Wallbox eM4 Single is a charging system for exclusive charging of electric-powered vehicles (BEV or PHEV) in mode 3 as specified in the IEC 61851-1 standard. It has a single charging socket for connecting a certified charging cable in accordance with IEC 62196-2 and is suitable for stationary installation indoors as well as outdoors, taking into account local rules and regulations and within the permissible ambient conditions. The wallbox can be installed and operated as a stand-alone solution or in conjunction with identical or compatible charging stations in a charging group. The electrical installation must be carried out by a qualified specialist electrical contractor. No prior knowledge is required in practical operation after commissioning. However, the safety information and instructions for use must be taken into account and adhered to at all times.

Information in this document

This document explains how to install, configure and commission the Wallbox eM4 Single: It is recommended that all working steps described in this document are carried out by a qualified specialist electrical contractor only!

Technical information	User	Specialist electrical contractor
• Installation manual (this document)		
• Data sheets		
• Operating manual		

Safety and user information

General

This manual describes all working steps required to install and/or operate the product it concerns.

Certain sections of this manual are specially formatted for quick and easy reference.

- Descriptions listing equally valid options are indicated by bullet points.
- 1 Descriptions listing operating steps are numbered in chronological order.
- Descriptions that require an additional step are marked with an arrow.

DANGER

Indicates life-threatening electrical voltages

Sections marked with this symbol indicate electrical voltages that present a danger of loss of life or grievous bodily injury.

- Actions marked with this symbol must not be carried out under any circumstances.

ATTENTION

Indicates important actions and further hazards

Sections marked with this symbol indicate further hazards that may result in damage to the product or to other connected components.

- Actions marked with this symbol must be carried out with special care.

NOTE

Indicates important information for operation or installation

Sections marked with this symbol indicate further important information and features necessary for successful operation.

- Actions marked with this symbol should be carried out as required.
- Passages marked with this symbol contain valuable additional information.

Safety instructions

The safety notices serve to ensure the proper and safe installation, as well as subsequent safe operation of the device. Please observe the following notes:

DANGER

Dangerous electrical currents

Disregard of or actions contrary to the safety information and instructions contained in this manual may lead to electric shock, fire, severe injury and/or death.

- Please read all safety information carefully.
- Always follow all safety notices provided!

General safety information

- Please read this manual carefully.
- Heed all warnings and follow all instructions.
- Keep this manual in a safe place where it can be accessed at all times: The contents of this manual, and the safety notices in particular, must be available to all users of the product.
- The product must only be operated after final approval by a qualified specialist electrical contractor.
- The product must not be covered with stickers or other objects or materials.
- Do not under any circumstances make alterations to the product. Any disregard of this instruction represents a safety risk, fundamentally breaches the guarantee provisions and may void the warranty with immediate effect.

Qualified specialist personnel

- Mechanical installation should be carried out by qualified specialist personnel.
- Electrical installation and testing must be carried out with reference to local rules by a qualified specialist electrical contractor, who, on the basis of their specialist training and experience, as well as their knowledge of the relevant standards, is able to assess and carry out the working steps described in this manual and recognise potential hazards.
- Qualified personnel have technical training and the experience and knowledge of the relevant standards to assess and carry out the described work steps and to recognise and avoid any hazards.

Guidelines and regulations

- Electrical installation and testing must be carried out by a qualified specialist electrical contractor, taking into account local rules and regulations.
- Please note that electrical grid operators, energy suppliers or national regulations may require notification of or approval for the installation or operation of a charging station.
- Ensure that the rated voltage and rated current of the product comply with the parameters of your local electricity grid and that the rated output is not exceeded during operation.

Operating environment

- The device must not be installed in close vicinity to running water, water jets or areas subject to flooding.
- The product must not be installed in explosive atmosphere areas (EX areas).
- The product must never be installed or operated in confined spaces.

Interference sources

- Please note that operating a radio transmitter in the immediate vicinity (< 20 cm) of the product may lead to malfunctions.

Accessories

- It is advisable to only use accessories intended and sold for the product by ABL.
- Only use charging cables that comply with the IEC 62196 standard.

Operating instructions

- Local safety regulations regarding the operation of electrical devices for the country in which the product is operated always apply.
- Ensure that the product can be operated without any strain pulling on its components.
- Make sure that the product is always closed and locked when in use. All authorised users must be aware of the 'unlock' position of the key.
- To disconnect the product completely from the electricity grid, the power supply must be interrupted using the upstream safety switches and fault current protection devices (if present) in the domestic power distribution.

NOTE

Changes to functions and design features

Please note that all technical details, specifications and design characteristics of the product may be changed without prior notice for reasons of product development.

Introduction to the Wallbox eM4 Single

Thank you for choosing the Wallbox eM4 Single from ABL. The eM4 Single is the ideal solution for efficient vehicle charging in private environments, in public areas and for large group solutions in semi-public company or hotel car parks. In addition to the simple mechanical and electrical installation, the **ABL Configuration App** for mobile devices (iOS, Android) ensures a quick and straightforward setup.

The Controller and Extender variants of the Wallbox eM4 Single are available as reev ready versions for use with backend solutions by reev, which offer an intuitive interface for the administration and invoicing of all charging operations.

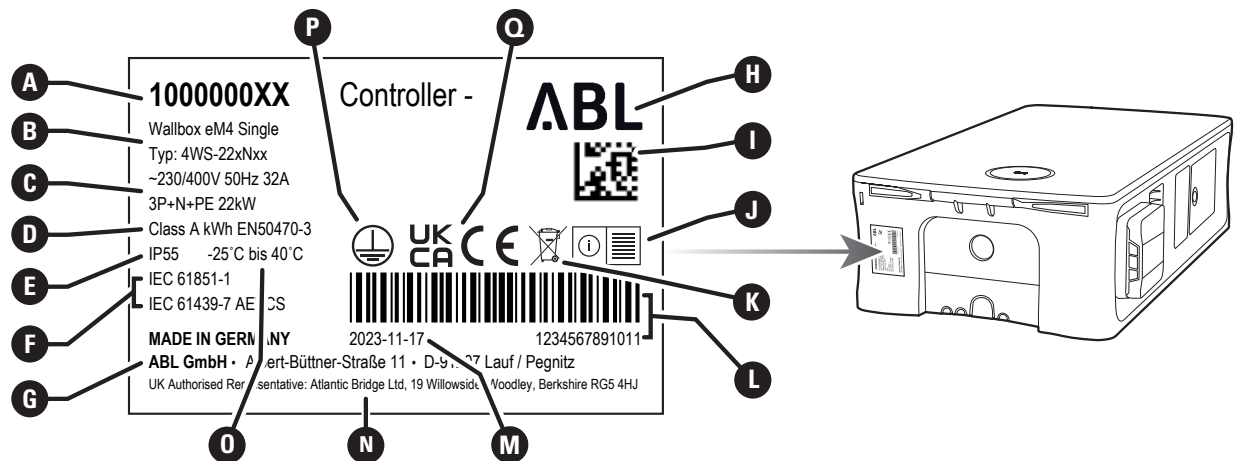
Further information on technical data is available in the appendix from page 58.

Identifying your wallbox

The model variant of the Wallbox eM4 Single can be unambiguously identified on the rating plate located on the inside of the housing cover. Please verify the information listed below on the rating plate.

The following information is especially relevant:

- Model number and indication of product category (Controller or Extender)
- External power supply



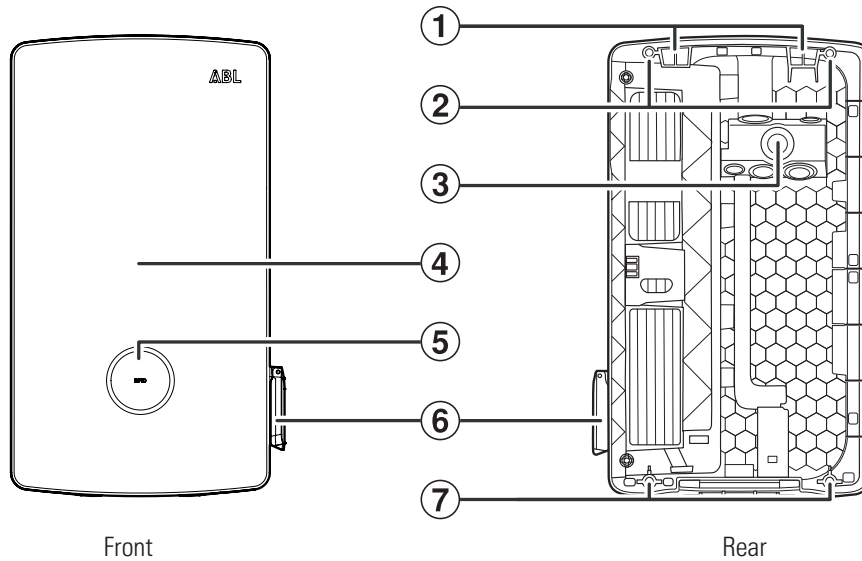
- | | | |
|---|--|---|
| A Product number and category (Controller or Extender) | G Manufacturer and manufacturer's address | M Date printed |
| B Type specification (eM4 Single) | H Manufacturer's logo | N Authorised representative (UKCA) |
| C Connection requirements | I DataMatrix code/product number | O Temperature range |
| D Class of accuracy | J 'Read instructions' advice | P Symbol protection class I |
| S Degree of protection (housing) | K Disposal advice | Q CE / UKCA marking |
| F Standards | L Barcode/serial number | |

The Wallbox eM4 Single at a glance

The Wallbox eM4 Single is designed as follows:

Front and rear view

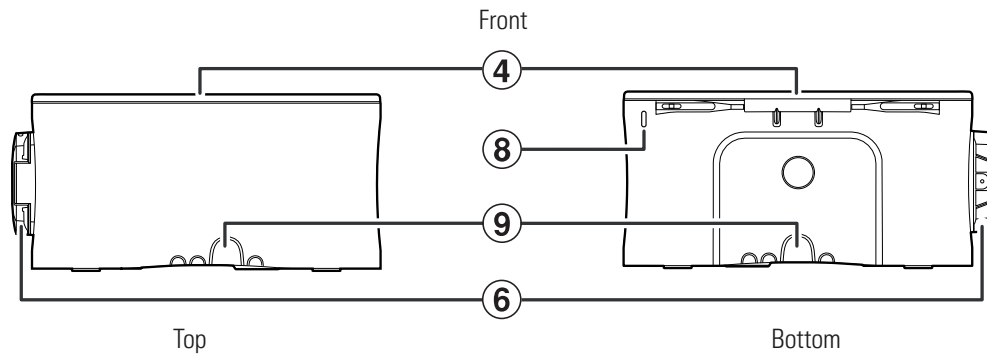
The following illustration shows the front and rear of the Wallbox eM4 Single.



- 1 Suspension points**
Use these two suspension points on the upper edge of the rear to hang the eM4 Single in the mounting rail (included in delivery) screwed to the mounting position (see "Preparing and fixing the wallbox in place" on page 27).
- 2 Attachment points for mounting rail**
The wallbox is fixed in place by screwing it into the mounting rail using the two upper attachment points (see page 28). The corresponding screws are supplied.
- 3 Supply cable area**
The supply cable area has three large grommets for inserting a power line from above, below or behind, marked **A**, **B** and **C** on the drilling template.
The two smaller grommets are used for inserting a data cable for communication within a charging group or to lay a control cable in accordance with VDE AR-N 4100. These two inlets are marked **DATA** and **EXT. CONTROL** on the drilling template.
All grommets in the supply cable area are designed as "push-out" membranes and can be pierced directly with the cable (see "Inserting the power and data cables" on page 24).
- 4 Housing cover**
The housing cover protects the internal electronic components (see next figure) from unauthorised access and must always be closed and locked during operation. The housing cover is locked/unlocked via the RCCB flap **12** of the power module **15** (right side) and the key opening **8** on the underside (left side).
- 5 Status display with RFID reader**
The circular status indicator shows the states of the charge point by means of a multi-coloured LED ring. The RFID reader module for authorising the charging process is located centrally behind the status indicator (see also point **16**).
- 6 Type 2 charging socket**
The power module **15** of the Wallbox eM4 Single has a type 2 charging socket for connecting an IEC 62196-1 and IEC 62196-2 certified charging cable, which can be purchased as an accessory from ABL (see "Accessories" on page 19).
- 7 Wall mounting point**
The wallbox is fixed in place by screwing it into the wall using the two lower attachment points (see page 28). The corresponding screws are supplied.

View from above and below

The following illustration shows the top and bottom of the Wallbox eM4 Single.



⑧ Key opening

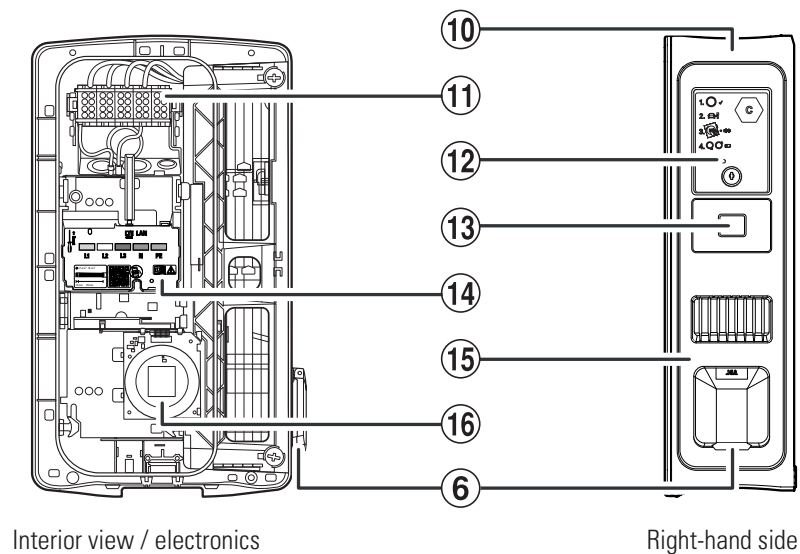
Insert the supplied key through this opening and push it upwards to open the internal lock on the left-hand side of the housing cover (see also below, RCCB flap ⑫).

⑨ Housing inlets

The inlets on the top and bottom can be opened with combination pliers or a similar tool and are used for inserting the power and data cable from above or below (see page 25).

Interior and side view

The following illustration shows the Wallbox eM4 Single with the housing cover open and from the right-hand side.



⑩ Housing

The wallbox housing integrates the power module ⑮ and the additional electronic components for communication in a group. The wallbox is securely fastened at the installation location by means of the suspension points ① and the attachment points ② and ⑦.

⑪ Terminal block

Directly in front of the supply cable area ③ is the terminal block for connecting the power line: The connection pattern is shown on the communication module ⑭. In a group installation, the connection diagram must be adapted for each wallbox to avoid a phase imbalance (see "Electrical connection of the wallbox" on page 28).

⑫ RCCB flap

The RCCB flap protects the RCCB of the power module ⑮ and is locked and unlocked using the key supplied. The locking mechanism is also used to lock/unlock the right-hand side of the housing cover ④ (see also above, Key opening ⑧).

13 MID-compliant energy meter

The MID-compliant energy meter displays various information on the charging operation. You can find further information on this topic in section "Information displayed in the energy meter" on page 14.

14 Communication module

The communication module provides a LAN interface for data cabling in a charging group and a USB port (Controller wallbox only) for the supplied LTE USB stick for wireless communication with a backend (see "Preparing and installing the LTE USB stick" on page 32).

In the upper left area of the communication module, there is access to the reset push button marked with a screwdriver and the word **Reset**, which allows the wallbox to be reset (see "Resetting the wallbox and restoring to factory settings" on page 54).

In addition, the communication module can be flipped forward, allowing access to contact **EN1** for connecting a control cable in accordance with VDE AR-N 4100 (see "Connecting a control cable in accordance with VDE AR-N 4100" on page 31).

15 Power module

The power module integrates the components for the charge point, including the RCCB, DC residual current detection, the contactor, the MID-compliant energy meter 13 and the Type 2 charging socket 6.

16 HMI module



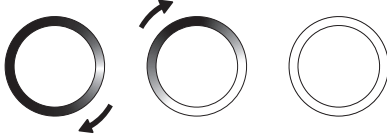


The HMI (Human Machine Interface) module of the wallbox displays the various states of the electronic components for monitoring and determining the status of the charge points via a multi-coloured LED ring and an acoustic signal generator (see next section).


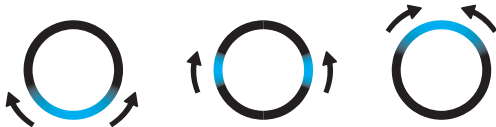




It also includes the RFID reader module for authorising the charging processes, provided that the wallbox was configured accordingly during installation or is operated with a backend. The RFID function is set up via the **ABL Configuration App** (see "Configuring the Wallbox eM4 Single" on page 35).

How the HMI works

The Human Machine Interface of the Wallbox eM4 Single informs the user about the current status of the wallbox or charge point. Visual feedback is provided by an LED ring with different colour and movement patterns. The wallbox also emits sound signals for selected functions.

The following table shows the HMI signal and its corresponding functional status:

	Boot process active When the Wallbox eM4 Single is connected to the electricity grid or restarted during setup, it starts the boot process: The LEDs light up green, blue, white and red for 5 seconds.
	Missing or active configuration If the wallbox has not yet been set up via the ABL Configuration App during first use or if the setup is currently being performed, the LED circle pulsates white.
	Completing the configuration Once the setup has been completed in the ABL Configuration App and transferred to the wallbox, the LEDs light up white one after the other in a clockwise direction until finally the entire LED ring is lit up white continuously for a short moment.
	Ready for charging In normal operation, the status indicator pulsates green to indicate readiness for charging.
	Vehicle connected and recognised When a vehicle is connected and recognised, the status indicator lights up static green.




	Authorisation required If the charging operation has to be enabled using an RFID card, a blue chase light is shown dynamically on the status indicator.
	Charging process active After a request by the vehicle, the charging operation in progress is displayed dynamically via the blue status indicator.
	Charging process interrupted or completed If the charging process has been completed or interrupted by the vehicle or the load management, the status indicator lights up static blue.
	RFID card recognised If the RFID card has been recognised by the RFID reader, the wallbox emits a short sound signal.
	RFID card authorisation successful If the RFID card has been successfully authorised, the wallbox emits two short sound signals.
	RFID card authorisation rejected If the authorisation of an RFID card has failed, the status indicator lights up orange on both sides. In addition, the wallbox emits three long sound signals.

! NOTE

Compatibility with RFID transponders

The Wallbox eM4 Single supports the following RFID transponders: Mifare Classic, Mifare mini, Mifare DESFIRE EV1, Mifare Plus S/X, Mifare Pro X, Mifare SmartMX, Mifare Ultralight, Mifare Ultralight C, SLE44R35, SLE66Rxx (my-d move), Legic Advant, Pay Pass, Pico Pass.

To ensure the compatibility of the RFID transponder, it should be tested with the Wallbox eM4 Single. Besides the RFID standard used, other factors (such as the dimensions of the transponder) also influence compatibility. If you need support with testing an RFID transponder, contact **ABL Customer Service** (see "Contact" on page 2).

	Software reset performed When you restart the wallbox using the reset button (see "Resetting the wallbox and restoring to factory settings" on page 54), selected LEDs on the status display will light up orange. In addition, the wallbox emits four long sound signals.
	Factory reset performed When you reset the wallbox to factory settings using the reset button or the help system of the ABL Configuration App (see "Resetting the wallbox and restoring to factory settings" on page 54), the status indicator will light up orange continuously. In addition, the wallbox emits six long sound signals.
	Malfunction If an error has occurred during operation, the status indicator pulses red.

Information displayed in the energy meter

The charge point of the Wallbox eM4 Single has an energy meter that shows various information about the charging operation via three display lines. In contrast to the top line, the values displayed in lines 2 and 3 are switched cyclically:

A Total electric energy consumed

The top line always shows the total electric power consumed in kWh, and therefore the sum of all the electrical charge obtained via this particular charge point. This line is not switched.

B Current or last electric energy consumed

In this state, the second line shows the electric energy in kWh during the active (display: *Run*) or completed (display: *End*) charging process.

C Charge point allocation

After switching, the second line on the left-hand side shows the identification that was assigned to the charge point during installation.

D Maximum charging current

In this state, the second line on the right-hand side shows the value for the maximum available charging current.

E Malfunction display

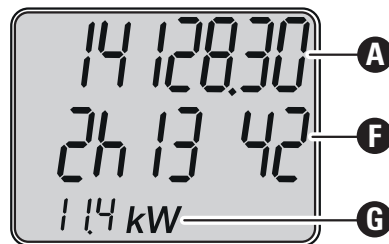
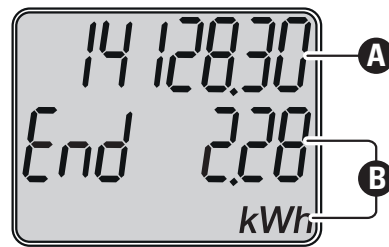
In this state, the third line shows the code for identifying a malfunction (error, note, warning) (see also "Actions in case of internal errors, notes and warnings" on page 55).

F Duration of the charging operation

After switching, the second line in this state shows the duration of the active charging operation in hours, minutes and seconds.

G Current electric power consumption

In this state, the third line shows the active power that the vehicle is currently drawing: With no vehicle connected, this value is 0.0 kW.



! ATTENTION

Display of internal meter errors

If an internal error occurs in the energy meter, the information in the second and third line of the display is replaced by a specific meter error code (example: *Err 0005*). In this case, contact **ABL Customer Service** (see "Contact" on page 2).

Forming charging groups and network topologies

The Wallbox eM4 Single offers several interfaces for internal communication in a charging group as well as for external communication with a backend. Here, a distinction is made depending on the wallbox variant:

- **Controller:** The Controller wallbox can be operated either individually or as a charging group together with one or more Extender wallboxes. Internal communication within the charging group can be set up via WLAN or LAN. For external communication with a backend, you can use the WLAN or LAN interface or the LTE USB stick and USB filter supplied with the Controller.
- **Extender:** The Extender wallboxes can be operated either individually (stand-alone) or as a charging group together with a Controller. Internal communication within the charging group can be set up via WLAN or LAN.

⚠ ATTENTION

Integration into an existing network infrastructure

If you want to use an existing network infrastructure for communication within a charging group and/or with a backend, you will need to contact an IT administrator in advance to plan the integration.

The interfaces of the Wallbox eM4 Single can be used to connect a charging group to a backend. The following combinations are possible:

Controller–backend communication			Controller–Extender communication	
WLAN	LAN	LTE	WLAN	LAN
✓			✓	
	✓		✓	
	✓			✓
		✓	✓	
		✓		✓

! NOTE

Information for network communication

- The following ports must be available for communication with the Internet (Controller–backend):
HTTP: 80 / HTTPS: 443 / NTP: 123 / OCPP: 7890
- The following ports must be available for communication within the network (Controller–Extender):
DNS: 53 / mDNS: 5353 / UDP/TCP: 68, 1024, 4332, 5432, 11010
- The network must assign each wallbox its own IP address (e.g. via DHCP).

The network interfaces are presented below in detail and illustrated with the help of illustrations in practical use. Additional information on network communication can be found in the “Network setup for the Wallbox eM4 Twin” instructions via the following link.

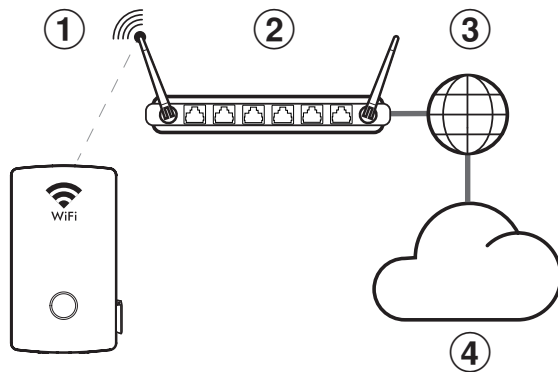


www.ablmobility.de/en > Service > All downloads > Operation manuals

Communication between a Controller and a backend via WLAN

- The Controller can communicate with an Internet-connected network via its WLAN interface.
- Communication via WLAN must be set up in the **ABL Configuration App** (see page 35 onwards).

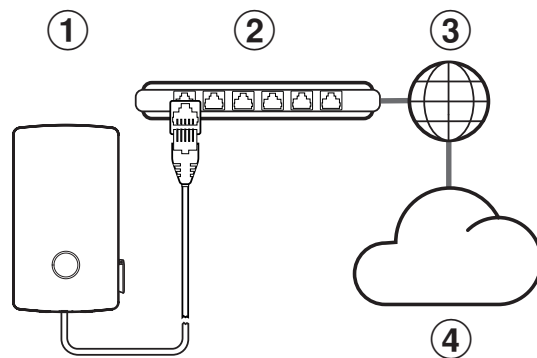
- **Figure:** The Wallbox eM4 Single Controller ① is connected wirelessly to a WLAN network ②, which establishes communication with the selected backend ④ via the Internet ③.



Communication between a Controller and a backend via LAN

- The Controller can communicate with an Internet-connected network via its LAN interface.
- The connection is made via one Ethernet cable (Cat5 or better) per wallbox, which is routed into the wallbox via the supply cable area.
- Communication via LAN must be set up in the **ABL Configuration App** (see page 35 onwards).

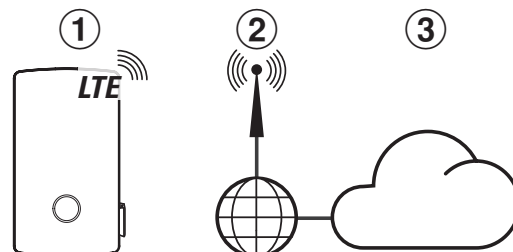
- **Figure:** The Wallbox eM4 Single Controller ① is connected by cable to a LAN network ②, which establishes communication with the selected backend ④ via the Internet ③.



Communication between a Controller and a backend via LTE

- Each Controller wallbox comes with an LTE USB stick that can be fitted with the SIM card of a backend operator and used in the wallbox. This process is described starting on page 32.
- In the reev ready variants, the SIM card for communication with the reev backend is already pre-installed in the LTE USB stick in the Controller.
- LTE communication with the backend must be set up in the **ABL Configuration App** (see page 35 onwards).

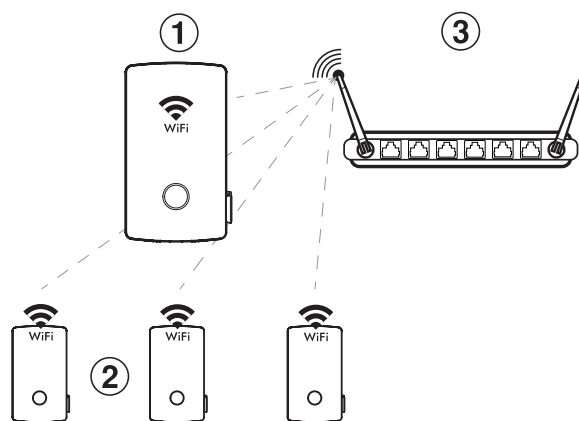
- **Figure:** The Wallbox eM4 Single Controller ① communicates via the LTE USB stick with an LTE receiver ②, which establishes the connection to the selected backend ③.



Communication between a Controller and one or more Extenders in a charging group via WLAN

- Every Wallbox eM4 Single has an integrated WLAN module.
- Direct communication with the **ABL Configuration App** installed on a smartphone/tablet (iOS, iPadOS, Android) can be established via the WLAN module.
- To form a charging group, the Controller wallbox can be connected wirelessly with one or more Extender wallboxes to a local WLAN router, which then assigns each wallbox its own IP address.
- Communication via WLAN must be set up in the **ABL Configuration App** (see page 35 onwards).

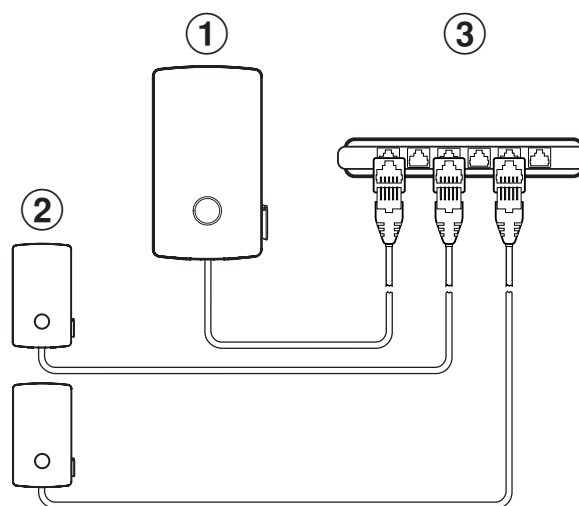
- **Figure:** The Wallbox eM4 Single Controller ① and one or more Wallboxes eM4 Single Extender ② are connected to a local WLAN router ③ via their WLAN modules.
- Each wallbox must be assigned its own IP address via the WLAN router, either automatically via DHCP or manually.



Communication between a Controller and one or more Extenders in a charging group via LAN

- The communication module of each Wallbox eM4 Single includes a LAN interface.
- The connection is made via one Ethernet cable per wallbox, which is routed into the wallbox via the supply cable area.
- To form a charging group, the Controller wallbox is wired to one or more Extender wallboxes on a local router, which assigns each wallbox its own IP address.
- The wiring of the Wallbox eM4 Single via LAN is described in the sections “Inserting the power and data cables” on page 24 and “Data cable connections” on page 30.
- Communication via LAN must be set up in the **ABL Configuration App** (see page 35 onwards).

- **Figure:** The Wallbox eM4 Single Controller ① and one or more Wallboxes eM4 Single Extender ② are connected to a local router ③ via their LAN interfaces.
- Each wallbox must be assigned its own IP address via the router, either automatically via DHCP or manually.



! NOTE

Compatibility with backend providers

The Wallbox eM4 Single is available as a reev ready product, which is specially prepared for operation with the backend solutions from reev. For more information, please visit:

<https://reev.com>

- Alternatively, the Wallbox eM4 Single is also compatible with other backends for managing the charging infrastructure. To check the compatibility, please contact the desired backend provider.

External load shedding in accordance with VDE AR-N 4100

The terminal **EN1** installed on the main module is used to connect a control cable in accordance with VDE AR-N 4100. The local energy supplier can use this control cable to remotely switch the charging function of the wallbox off or on. The cable length between the wallbox and a suitable ripple control receiver / VDE-FNN control box has been tested up to a maximum of 30 metres.

In addition to switching the two charge points on and off, there is also the option to limit the maximum current set for charging via two further, externally wired resistor values.

Position	Resistance $\pm 10\%$	Maximum set current limited to	Resulting charging current (e.g.: 32 A / 16 A)
1	min. 27 kOhm	0%	0 A / 0 A
2	4.7 kOhm	30%	9 A / 5 A*
3	1.5 kOhm	60%	19 A / 10 A
4	max. 100 Ohm	100%	32 A / 16 A

* If the resulting charging current falls below the limit of 6 A, no charging occurs!

In a charging group, the control cable is connected to the Controller, which then regulates the current for all charge points in the group. In all other configurations (multi-group, stand-alone), the control cable must be connected to the wallbox with the first charge point (assignment in line 2 of the energy meter: *CP 1*).

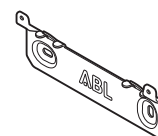
Components included with the wallbox

The product is delivered including the following components:

- Wallbox eM4 Single, 1 pc.



- Installation rail, 1 pc.



- TX30 wafer head screw, 6 × 140 mm, 2 pcs.



- TX30 plug screw, 6 × 60 mm, 2 pcs.



- TX30 half-round head screw, 6 × 60 mm, 2 pcs.



- Wall plugs 8 × 50 mm, 4 pcs.



- Key, 2 pcs.



- Insulating cap, 4 pcs.



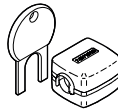
- Drilling template, 1 pc.



- Operating manual & safety information (multilingual), 1 pc.



- Folding ferrite with key, for interference suppression in the low-frequency range, 1 pc.



The Controller variants of the Wallbox eM4 Single also include:

- LTE USB stick for installing an optionally available SIM card for communication with a backend, 1 pc.



- USB filter for interference suppression of data transmission via the LTE USB stick, 1 pc.



The reev ready variants of the Wallbox eM4 Single also include:

- Envelope with reev onboarding guide, reev RFID test key, reev QR codes, 1 pc



- reev charging key (included in envelope), 2 pcs.



- **Controllers only:** LTE USB stick with SIM card for communication with the reev backend, 1 pc.



- **Controllers only:** USB filter for interference suppression of data transmission via the LTE USB stick, 1 pc.



NOTE

Checking the components included

Check immediately after unpacking whether all components are included: should any components be missing, please contact the dealer from whom you purchased the wallbox.

Accessories

The following accessories for the Wallbox eM4 Single are available separately:

• CC3225

Type 2 charging cable according to IEC 62196-2, up to 32 A 480 V AC, 3-phase, length 2.5 m

• CC3250

Type 2 charging cable according to IEC 62196-2, up to 32 A 480 V AC, 3-phase, length 5 m

• CC3275

Type 2 charging cable according to IEC 62196-2, up to 32 A 480 V AC, 3-phase, length approx. 7.5 m

• CC3210

Type 2 charging cable according to IEC 62196-2, up to 32 A 480 V AC, 3-phase, length approx. 10 m



- **LAKK2K1**

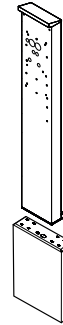
Type 2 to Type 1 adapter cable according to IEC 62196-2, up to 32 A 230 V AC, single phase, length approx. 4 m



- **100000361**

POLEM4 Single mounting pole made of galvanised sheet metal for outdoor installation of a Wallbox eM4 Single, the WPR12 weather protection roof and a CABHOLD cable holder

h = 1,647 mm, w = 285 mm, d = 180 mm



- **EMH9999**

Concrete foundation for mounting the POLEM4 Single mounting pole and other ABL mounting poles

h = 650 mm, w = 430 mm, d = 190 mm

- **100000245 / 100000246**

POLE Slim Single compact galvanised sheet metal mounting pole for the outdoor installation of one (100000245) or two Wallboxes eM4 Single (100000246) via the adapter plate(s) (100000248) supplied as well as up to two CABHOLD cable holders

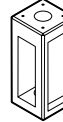
h = 1,469 mm, w = 290 mm, d = 210 mm



- **100000238**

POLE Slim concrete foundation for installing a POLE Slim mounting pole

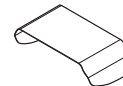
h = 600 mm, w = 260 mm, d = 260 mm



- **WPR12**

Weather protection roof for installation on an exterior wall or the mounting poles POLEMH1, POLEMH2 and POLEM4 Single

h = 142 mm, w = 395 mm, d = 225 mm



- **CABHOLD**

Cable holder with charging plug receptacle for installation on an exterior wall or the mounting poles POLEMH1/2/3, POLEM4 Single and POLE Slim

h = 187 mm, w = 76 mm, d = 105 mm



- **100000253**

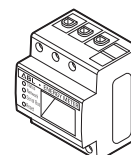
RFID key fobs for all ABL charging stations: Set of ID tag keys (5 pcs.) to extend user pool



- **100000193**

ABL Energy Meter external meter for integrating the Wallbox eM4 Single Controller(+) into a dynamic load management, top-hat rail module

h = 88 mm, w = 70 mm, d = 65 mm

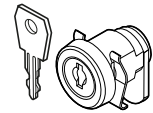


- 100000214, [...], 100000223

Pack of 10 individual locks with the same closure, without group key, 10 pcs.

- 100000224, [...], 100000230

Pack of 10 individual locks with different closures, with one group key, 7 pcs.



You can find further information on **ABL** charging stations and accessories at www.ablmobility.de/en.



Installation of the Wallbox eM4 Single

The entire installation of the Wallbox eM4 Single must be carried out by a qualified specialist electrical contractor.

DANGER

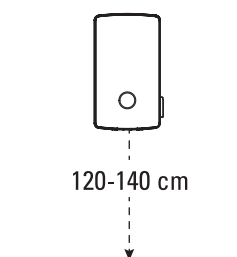
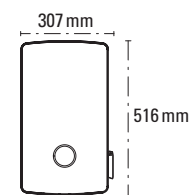
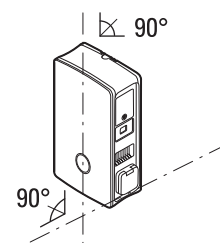
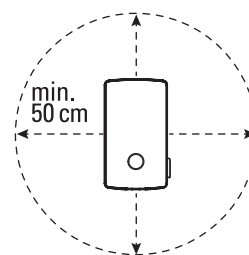
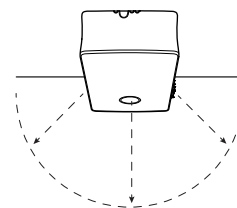
Dangerous electrical currents

Electrical installation, as well as final testing and certification for operation must be carried out by a qualified specialist electrical contractor, who, on the basis of their specialist training and experience, as well as their knowledge of the relevant standards, is able to assess and carry out the working steps described in this manual and recognise potential hazards.

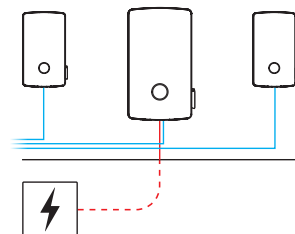
Installation site requirements

The Wallbox eM4 Single is suitable for installation in enclosed spaces such as garages as well as in outdoor areas such as company car parks. Please note, however, that the permissible ambient conditions (see "Technical specifications" on page 58) must be adhered to in order to guarantee the functionality of the wallbox at all times.

- The installation site must be freely accessible.
- Minimum distances to other technical installations must be observed. A minimum distance of 50 cm is recommended.
- The installation surface must be level and sufficiently load-bearing (minimum: weight of the wallbox plus two charging cables).
- The mounting surface must measure at least 516 × 428 mm (height x width). Also take into account the couplings of the charging cables.
- The installation height should be between 120 and 140 cm (ground to bottom edge of housing).



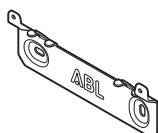
- Ideally, the installation site should provide a ready connection to the electricity grid. Otherwise, a separate power supply cable must be installed.
- In order to operate group installations, suitable data cables must also be installed in the installation site (see also "Inserting the power and data cables" on page 24 as well as "Data cable connections" on page 30).



Tools and accessories required

For mechanical installation, you will need the following components included with the wallbox:

- Installation rail, 1 pc.



- TX30 wafer head screw, 6 × 140 mm, 2 pcs.



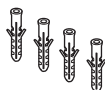
- TX30 plug screw, 6 × 60 mm, 2 pcs.



- TX30 half-round head screw, 6 × 60 mm, 2 pcs.



- Wall plugs 8 × 50 mm, 4 pcs.



- Insulating cap, 4 pcs.



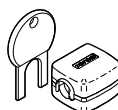
- Key, 2 pcs.



- Drilling template, 1 pc.



- Folding ferrite with key, for interference suppression in the low-frequency range, 1 pc.



If you want to operate your Controller wallbox or a group installation with a backend, you will need the following components:

- LTE USB stick included with the Controller wallbox, 1 pc.



- SIM card of the backend operator, 1 pc.



- USB filter for interference suppression of data transmission via the LTE USB stick, 1 pc.






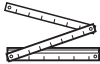




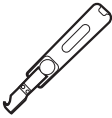

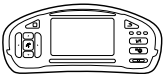
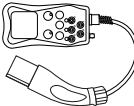



! NOTE

Communication via LTE with reev ready variants

In the reev ready Controller variants, the LTE USB stick is already pre-installed in the wallbox and fixed there. The SIM card for communication with the reev backend is inserted in the LTE USB stick ex works.

In addition, you will need the following tools and accessories:

• Electric drill		• 8 mm Ø drill bit suitable for the respective mounting surface	
• Pencil		• Hammer	
• Spirit level		• Tape measure	
• Phillips screwdriver		• Torx screwdriver (TX 30)	
• Universal pliers		• Utility knife	
• Stripping tool		• Side cutters	
• Multi-purpose installation tester		• Vehicle simulation adapter	
• Voltage tester			

Inserting the power and data cables

The Wallbox eM4 Single offers the option of inserting the supply cables from above, from below or directly through the rear wall via the supply cable area of the housing. Depending on which you choose, you may need to prepare the wallbox and break out the pre-stamped inlets at the top and bottom of the housing.

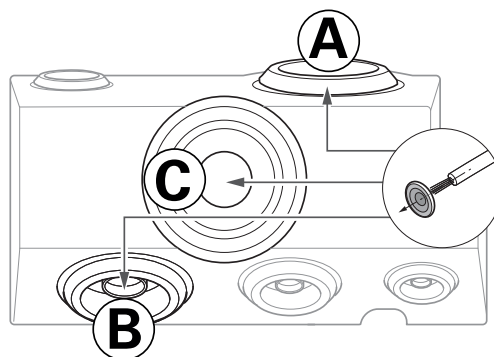
Power line in

The grommets in inlets **A**, **B** and **C**, which are designed as “push-out” membranes, can be pierced directly with the power line.

A This inlet is intended for flexibly routing the power line over the upper edge of the housing.

B This inlet is intended for flexibly routing the power line over the lower edge of the housing.

C This inlet is intended for direct insertion of the power line from a wall outlet into the wallbox.

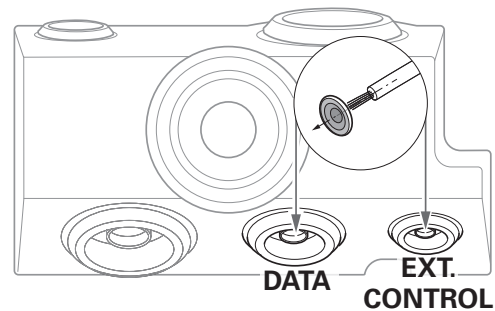


Data and control cables

The grommets in the inlets for the data cabling within a group (**DATA**) and for a control cable of the local energy supplier in accordance with VDE AR-N 4100 (**EXT. CONTROL**) are also designed as "push-out" membranes and can be pierced with the data or control cables.

DATA This inlet is intended for a data cable (CAT5 or better) with an RJ45 connector.

EXT. CONTROL This inlet is intended for a two-core control cable in accordance with VDE AR-N 4100.

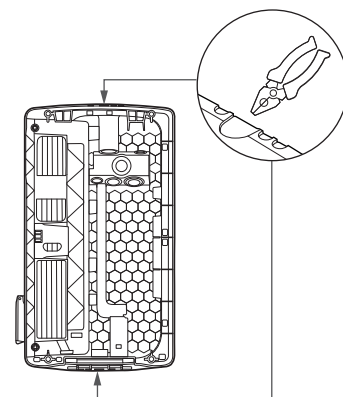


Pre-stamped inlets in the housing edge

The housing features pre-stamped inlets in the middle of the upper and lower edge, which can be opened with universal pliers or a similar tool and are used for inserting the power and data cable.

Decide before carrying out the installation how the power and data cables should be fed into the wallbox.

- Carefully remove the desired plastic tabs before starting the installation.
- You can combine the inlets as required: even if you want to feed the power line through the inlet at the top edge or directly through the rear, you can run the data and control cables via the lower inlets.



Preparing the installation site

As a matter of principle, the electrical supply cable in the domestic power distribution must be switched off for the entire duration of mechanical and electrical installation. The connection to the power grid must only be made live for the purpose of commissioning, after electrical installation is complete.

DANGER

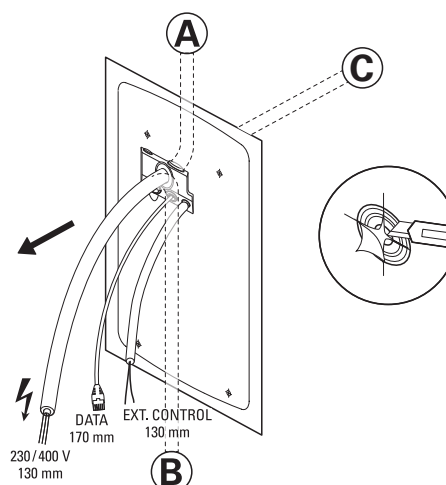
Dangerous electrical currents

Always observe the 5 safety rules:

- 1 Cut power source
- 2 Secure all cut-off devices
- 3 Verify absence of voltage
- 4 Ground and short-circuit
- 5 Cover or bar access to adjacent components under voltage

Proceed as follows:

- 1 Prepare the drilling template for insertion of the cables, if necessary.
 - If directly inserting the power line from behind, cut the grommet marked **C** on the drilling template.
 - If inserting the data and control cables, cut the grommets marked **DATA** and **EXT. CONTROL** on the drilling template.



! NOTE

Recommended cable lengths for wiring in the wallbox

ABL recommends the following cable lengths to ensure problem-free connection in the wallbox:

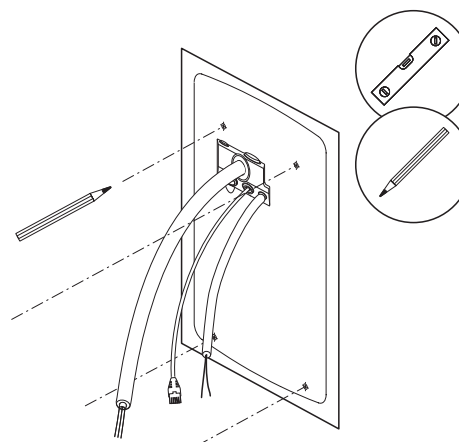
- Power line: at least 130 mm
- Data cable: at least 170 mm
- Control cable: at least 130 mm

! ATTENTION

Length of data and control cable

Please note that the length of the data and control cables from the tapping point (router, switch, ripple control receiver, VDE-FNN control box, etc.) has been tested to a maximum of 30 metres.

- 2 Using the spirit level, align the drilling template level and plumb on the installation position.

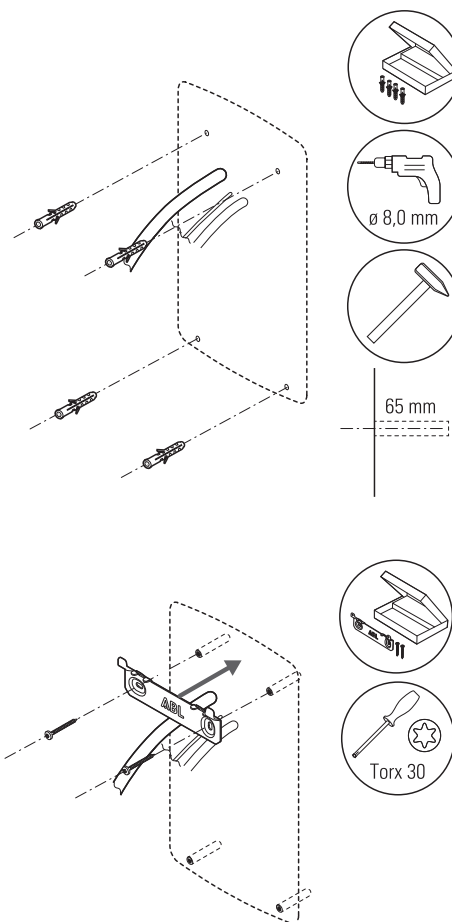


- 3 With the pencil, mark the four fixing points.

- 4 Pre-drill the four marked fixing points with the electric drill and drill bit (\varnothing 8 mm).

- 5 Drive the wall plugs into the pre-drilled fixing points with the hammer.

- 6 Screw the mounting rail into the two upper mounting points using the two TX30 plug screws and the Torx screwdriver.



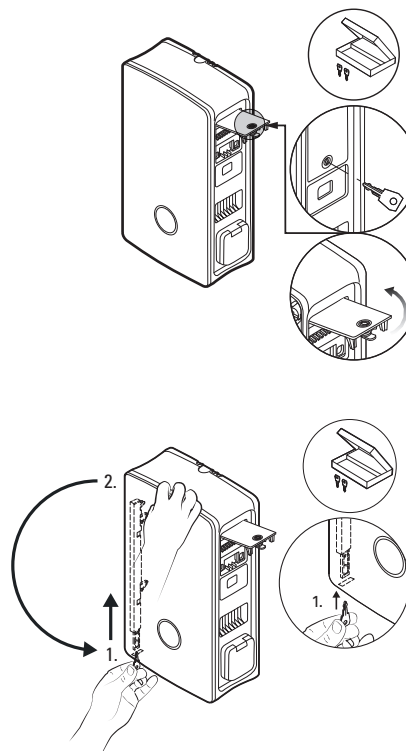
Preparing and fixing the wallbox in place

Continue to prepare the wallbox:

- 1 Unlock the side RCCB flap using the key supplied and flip it up to unlock the right-hand side of the housing cover.

- 2 Insert the key through the key opening on the bottom left-hand side and push it upwards to unlock the left-hand side of the housing cover.

→ Open the housing cover to the front.



NOTE

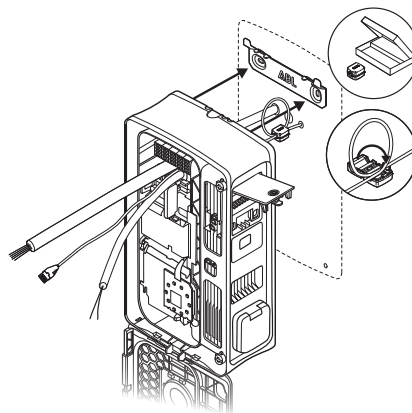
Removing the housing cover

To make installation easier, you can remove the housing cover of the wallbox mechanically at any time. This procedure is described in the section "Replacing the housing cover" on page 52.

- 3 Feed the power line and, if necessary, the data cable into the wallbox through the corresponding grommets in the supply cable area.

→ If you want to integrate the wallbox into a LAN network via a data cable, form a cable loop and enclose it with the folding ferrite before inserting it into the wallbox through the **DATA** grommet.

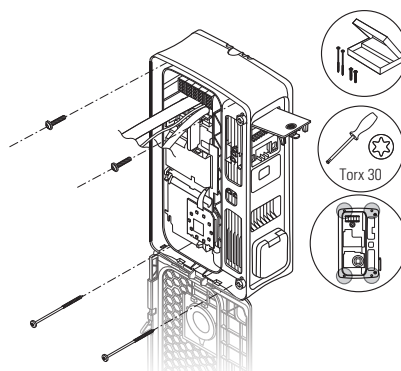
→ Lay the loop of the data cable on the rear of the wallbox and hang the wallbox in the two tongues of the mounting rail using the suspension points on the back.



- 4 Fix the wallbox in place with the remaining screws supplied.

→ Screw the two TX30 half-round head screws through the upper attachment points in the mounting rail.

→ Screw the two TX30 wafer head screws into the mounting points in the wall via the lower attachment points.



Electrical connection of the wallbox

⚠ DANGER

Dangerous electrical currents

- Electrical connection must be carried out by a qualified specialist electrical contractor!
- Ensure that the power supply cable remains disconnected from the electricity grid.
- Deactivate the upstream miniature circuit breaker / MCB in the domestic power distribution.
- Deactivate the RCCBs in the wallbox and in the domestic power supply.

⚠ ATTENTION

Information on the upstream MCB on site

To connect the Wallbox eM4 Single to the mains, a miniature circuit breaker / MCB must be installed upstream in the domestic power distribution. According to IEC 60364-4-4, this MCB must have a short-circuit resistance (I^2t value) of $\leq 75,000 \text{ A}^2\text{s}$.

Proceed as follows to connect the power line inside the wallbox:

- 1 Shorten the power line to the required length for the terminal block using a stripping tool / stripping pliers.

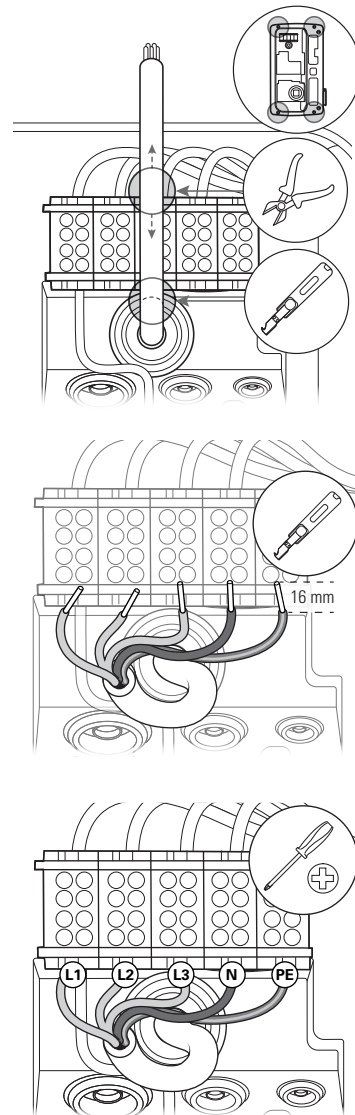
- 2 Remove the sheath from the power line with the stripping tool.

- 3 Remove the insulation of the individual conductors to a length of 16 mm.

- End ferrules must be fitted on flexible conductors.

- 4 Insert the individual conductors of the power supply cable into the respective terminals and tighten them using the Phillips screwdriver (torque: 2.5 Nm).

- Use the diagram on the communication module as a guide to allocate the individual conductors.
- End ferrules must be fitted on flexible conductors.



NOTE

1-phase connection of the Wallbox eM4 Single

If you want to operate the Wallbox eM4 Single in a 1-phase mains system, only connect the L1 supply line to the left-hand terminal block (brown). The ends of the unused conductors of the supply line must always be fitted with the supplied insulating caps.

ATTENTION

Note on phase rotation in a group installation

If you use the wallbox in a charging group, the connection diagram shown on the communication module must be adapted individually for each wallbox in order to avoid a phase imbalance within the group. The phase rotation between the individual wallboxes is described and illustrated in the next section.

ATTENTION

Checking the connection

Please ensure that the conductors that are pre-fixed to the terminals remain attached correctly after connecting the power supply cable.

DANGER

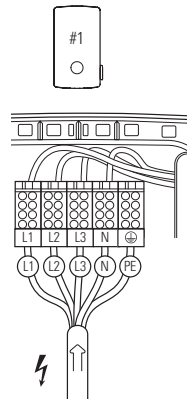
Dangerous electrical currents

The electronic components of your wallbox will be damaged if a voltage above 250 V is applied between the L1 current-carrying conductor and neutral!

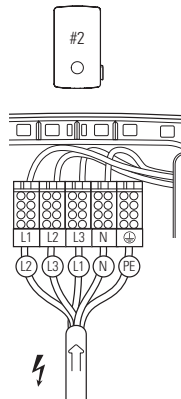
Phase rotation within a charging group

To avoid a phase imbalance, the phase rotation must be adjusted according to the following diagram during the electrical installation of the Wallbox eM4 Single:

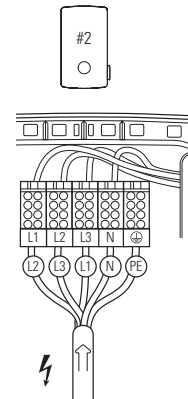
Wiring diagram
Wallbox 1, 4, 7 etc.



Wiring diagram
Wallbox 2, 5, 8 etc.



Wiring diagram
Wallbox 3, 6, 9 etc.



Wallbox	eM4 Single – 1					eM4 Single – 2					eM4 Single – 3				
Terminal block	L1	L2	L3	N	PE	L1	L2	L3	N	PE	L1	L2	L3	N	PE
Supply	L1	L2	L3	N	PE	L2	L3	L1	N	PE	L3	L1	L2	N	PE
Wallbox	eM4 Single – 4					eM4 Single – 5					eM4 Single – 6				
Terminal block	L1	L2	L3	N	PE	L1	L2	L3	N	PE	L1	L2	L3	N	PE
Supply	L1	L2	L3	N	PE	L2	L3	L1	N	PE	L3	L1	L2	N	PE
Wallbox	eM4 Single – 7					eM4 Single – 8					eM4 Single – 9				
Terminal block	L1	L2	L3	N	PE	L1	L2	L3	N	PE	L1	L2	L3	N	PE
Supply	L1	L2	L3	N	PE	L2	L3	L1	N	PE	L3	L1	L2	N	PE

NOTE

Phase rotation in a single-phase mains system

The connection diagram shown above applies to 3-phase mains systems. If you are using a single-phase mains system, the L1 supply cable must always be connected in each wallbox!

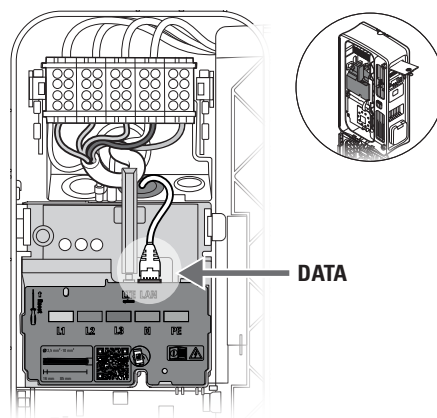
Data cable connections

In group installations, the Controller wallbox controls the Extender charge points. The Controller wallbox then centrally configures and controls all communication within the charging group, connection to a backend, charge current distribution, and many other functions.

For wiring up, the internal LAN interfaces of the Controller and Extender variants must be connected in a star configuration using data cables (see “Data cable recommendations” on page 61).

Please follow these steps to set up the data cabling in the Wallbox eM4 Single:

- 1 Connect the RJ45 plug of the data cable to the LAN interface of the communication module.



NOTE

Continuation of the wiring diagram

Connect all wallboxes in the charging group via their LAN interfaces. To bring together all wallboxes, they must be connected centrally to a router or switch in the local network infrastructure.

- For interference suppression in the low-frequency range, you must attach the supplied folding ferrite to a cable loop in the data line. It is recommended that you lay the cable loop outside the housing and lay it on the rear of the wallbox during installation.
- If the wallbox is already installed, you can also connect the cable loop with the folding ferrite inside the wallbox.

Connecting a control cable in accordance with VDE AR-N 4100

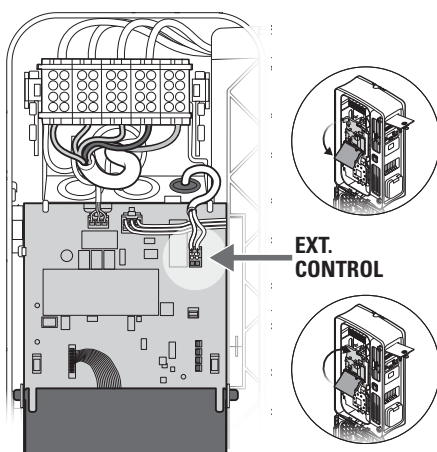
According to the Application Rule VDE AR-N 4100, a wallbox must offer the possibility of remote disconnection by the local energy supplier. The Wallbox eM4 Single offers a contact for this purpose, which is located in the right-hand area of the main module behind the communication module (see also "External load shedding in accordance with VDE AR-N 4100" on page 18).

The following requirements apply to the control cable:

- Solid conductor, 0.5 to 1.5 mm², stripping length: 9 mm
- Fine-stranded conductor, 0.5 to 1.5 mm² / 0.5 to 1.0 mm² with ferrules, stripping length: 9 mm

Proceed as follows to connect the control cable to the Wallbox eM4 Single:

- 1 Open the communication module to the front.
- 2 Connect the control cable inserted via the **EXT. CONTROL** grommet to the terminal **EN1**.
- 3 Fold the communication module back up so that it clicks into place.



After establishing the electrical connection of the control cable, the remote disconnection function must be activated via the **ABL Configuration App**. To do this, please refer to the sections starting on page 39.

Preparing and installing the LTE USB stick

The Controller variants of the Wallbox eM4 Single are supplied with an LTE USB stick for wireless communication with a backend. The SIM card is provided by the backend provider and must first be inserted in the LTE USB stick. Then plug the LTE USB stick into the USB interface of the Controller and set up the communication via the **ABL Configuration App** (see page 35 onwards).

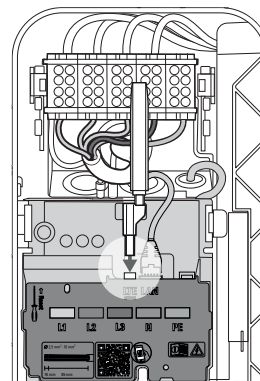
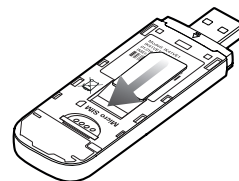
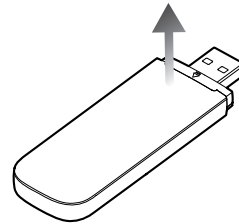
! NOTE

Pre-configuration of the reev ready variants

In the reev ready variants, the LTE USB stick including the SIM card is plugged into the Controller wallbox ex works and is pre-configured for communication with the reev dashboard.

Proceed as follows to prepare for communication with the backend via LTE:

- 1 Open the LTE USB stick supplied by removing the cover.
- 2 Insert the SIM card of the backend provider in the LTE USB stick and close the cover.
- 3 Insert the LTE USB stick into the USB filter and then both components into the USB socket of the communication module in the Wallbox eM4 Single.



! NOTE

SIM card format compatibility

The LTE USB stick supplied is designed for the micro SIM card format (12 × 15 mm). If the backend operator supplies a different card format (mini or nano), you will need a SIM card adapter.

Setup of the Wallbox eM4 Single

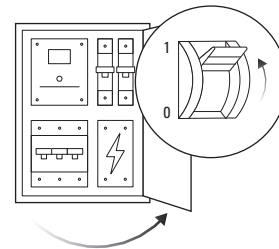
To commission the wallbox, the power supply cable must be connected to the electricity grid.

DANGER

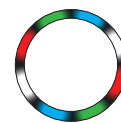
Dangerous electrical currents

The following working steps must be carried out with the utmost care: There is a risk of electric shock if conductive components are touched.

- 1 Switch on the miniature circuit breaker for the wallbox located upstream in the domestic power distribution: An MCB is required on site for the operation of the wallbox.



- During the boot phase, the LEDs of the status indicator will light up green, red, white and blue.
- The status indicator will then pulsate dynamically in white: This means the wallbox is waiting to be configured by a qualified specialist electrical contractor (see "Configuring the Wallbox eM4 Single" from page 33).

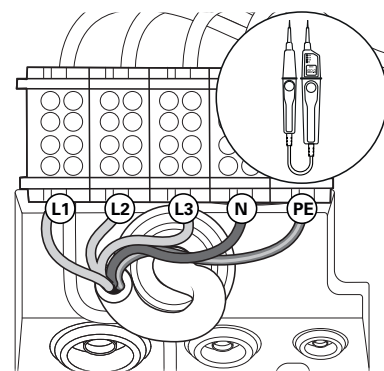


ATTENTION

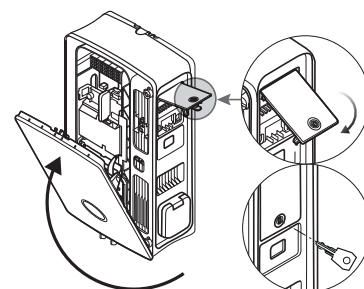
Checking the RCCB and MCB

If the status indicator does not give any visual feedback, check the upstream RCCB and MCB in the domestic power distribution as well as the internal RCCB of the Wallbox eM4 Single.

- 2 Measure the voltage at the terminals of the terminal block using the voltage tester.
- In single phase installations, the voltage is measured between the phase L1 and the neutral conductor.
 - In 3-phase systems, all phases are measured against each other (400 V) and all phases are measured against the neutral conductor (230 V).

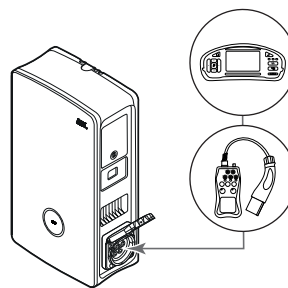


- 3 Fold the housing cover upwards so that it locks into the housing.



- 4 Fold down the side RCCB flap and lock it with the key.

- 5 Use an installation tester and a vehicle simulation adapter to conduct all other required checks.



ATTENTION

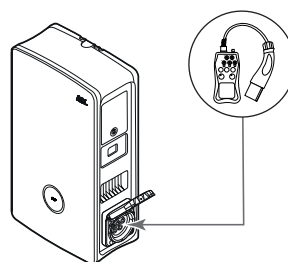
Conducting all necessary checks

Now conduct all locally required checks and testing of the wallbox and its electrical installation. These include the following tests:

- Effectiveness of protective earth conductor connections
- Insulation resistance
- Loop impedance
- Voltage drop
- RCCB tripping current and tripping time
- Rotating field testing

as well as additional tests according to local regulations.

- 6 Use a vehicle simulation adapter to conduct a functional test of the charging function.



The mechanical and electrical installation of the Wallbox eM4 Single is now complete and the wallbox can be set up via the **ABL Configuration App**.

NOTE

Removing the protective films

The housing cover and the window of the energy meter of the Wallbox eM4 Single are covered with films to protect them during transport. To allow better readability of the HMI and the meter display and to avoid microplastic, it is recommended that you remove the protective films from the housing once the installation is complete and dispose of them properly.

Configuring the Wallbox eM4 Single

The Controller and Extender variants of the Wallbox eM4 Single are prepared for use as a single wallbox (stand-alone) or for operation in a group installation. The desired operating mode is selected in the **ABL Configuration App**, which also performs the following tasks:

- Generally simple and quick configuration
- Setting up the network topologies
- Grouping Controllers/Extenders to create a charging group
- Setting technical parameters (such as maximum charging current, phase imbalance, etc.)
- Settings for the backend connection
- RFID management
- Monitoring of charging processes, operating statuses, faults, etc.
- Starting and stopping charging
- Permanent locking/unlocking of the charging cable
- Updating the software of the charging station, etc.

Availability of the ABL Configuration App

The **ABL Configuration App** is offered as an app for mobile devices such as smartphones and tablets. You can download the app for the following operating systems on a mobile device:

Platform	Operating system	Link
Apple	iOS 15 or higher / iPadOS 15 or higher	Apple Store
Android	Android 10 or higher	Google Play Store

! NOTE

Storage requirements for installation

To install the **ABL Configuration App**, free memory space of at least 200 MB is required on the mobile device.

Setting up communication via the ABL Configuration App

To configure the Controller and Extender variants of the Wallbox eM4 Single in the **ABL Configuration App**, you must first set up wireless communication between your mobile device and the WLAN network of your wallbox: This process is described below.

Once the wireless connection is set up, you can assign a specific password that allows you to access the current configuration at a later date to change it: This process is called reboarding and is described starting on page 40.

! NOTE

Displaying the setup in the app

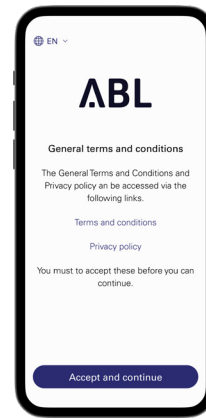
The steps in the **ABL Configuration App** are illustrated based on an Apple iPhone screen: However, the basic operation in iPadOS and Android is identical.

Proceed as follows to connect the **ABL Configuration App** to a Wallbox eM4 Single:

1 Open the **ABL Configuration App** on your mobile device.

2 After displaying the home screen, a screen on ABL's Terms and Conditions and Privacy Policy will appear.

→ Tap **Accept and continue** to start the configuration.



NOTE

Accepting the Terms and Conditions and Privacy Policy

When opening the **ABL Configuration App** for the first time, after reinstalling the app or when ABL makes changes to the stored documents, you must agree to the ABL Terms and Conditions and Privacy Policy on this screen.

- You will not be able to use the **ABL Configuration App** without actively consenting to these.
- If required, you can access, save and print the **Terms and Conditions** and **Privacy Policy** in text form (PDF) via the respective links.

NOTE

Selecting the user language

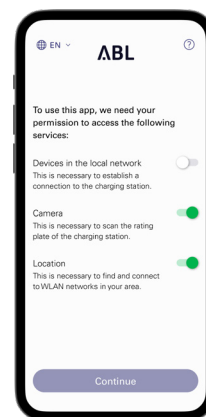
You can switch the user language of the app between **DE**, **EN**, **FR**, **IT** and **NL** at the top left of the screen for confirming the Terms and Conditions and Privacy Policy.

- For the following presentation and description of the working steps, the user language is set to **EN**.

3 After accepting the T&Cs, you must grant the app various permissions to access functions on your mobile device.

- **Devices in local network:** Grant this permission to be able to establish a wireless connection between your mobile device and the wallbox.
- **Camera:** Grant this permission to scan the barcode on the rating plate of the wallbox housing with the camera.
- **Location:** Grant this permission to find and connect to WLAN networks in your area.

→ Finally, tap **Continue**.



NOTE

Location sharing on Apple devices

On iOS 13 / iPadOS 13 and later versions, data for wireless communication can only be accessed if you allow the **ABL Configuration App** to use Location Services on the mobile device. This is a technical policy from Apple, but the location data will not be used by ABL in the app or shared with third parties.

! NOTE

Access to the app's help system

You can access the app's help system via the ? button, which is displayed in the top right of this screen.

Controller wallbox

- Use the **Reset to factory settings** option to reset all of the wallbox's parameters to the factory default. You can then start a new configuration (see below).
- The **Support** option will redirect you to the ABL support website (see "Support via the ABL Support page" on page 45).

Extender Wallbox

- The ? button will take you directly to the support website (see "Support via the ABL Support page" on page 45).

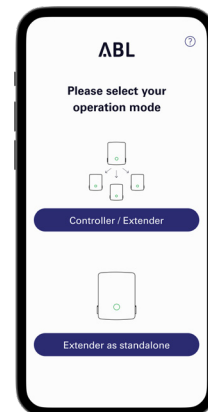
4 In the next step, select the desired mode:

- **Start new configuration:** Tap this option to perform a new configuration for the operating modes **Controller / Extender** or **Extender as standalone** (see Step 5 onwards).
- **Existing configuration:** Tap this option to change the parameters of a previously created configuration in the **Control Board**. You can find further information starting on page 40.



5 To start a new configuration, select the desired operating mode for your new configuration.

- Tap **Controller / Extender** to set up a Controller and associated Extender wallboxes to operate together in a charging group and more. You can find further information on page 39.
- Tap **Extender as standalone** to set up an Extender wallbox for standalone operation without a Controller and backend connection. You can find further information on page 39.



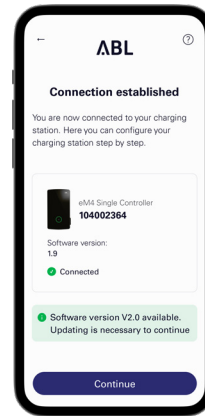
6 You can now establish a local wireless connection between the mobile device and the wallbox as follows:

- Tap **OK** to scan the serial number on the rating plate of the wallbox with the camera.
- Alternatively, tap the **Enter serial number manually** option and enter it.



- 7 After the connection has been successfully established, the wallbox is displayed along with its serial number and the status **Connected**.

→ Tap **Continue** to protect your wallbox from unauthorised access using a custom password.



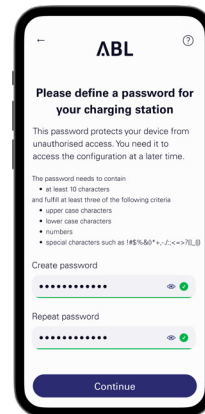
! NOTE

Updating the software version

After the connection is established and during operation, the **ABL Configuration App** regularly checks whether up-to-date software is available for the wallbox. If a message to this effect appears, you must install this update before you can continue.

- 8 Enter your password in the **Create password** field, taking into account the specified requirements, and confirm it by entering it again in the **Repeat password** field.

→ Tap **Continue** to continue configuring the wallbox.



After setting up the access password, you can now start configuring the operating mode you selected in **step 5**.

! NOTE

Access to wallbox configuration

You can use the password you have created to access the current configuration of the wallbox at any time in order to change it: This process is called **Reboarding** and is described in the section "Control Board settings and reboarding" from page 40.

- Please note that the password you have created is not stored in your mobile device's password manager or Keychain, but is output as a QR code (login credentials) during setup.
- You can also write down the password and keep it in a safe place for reboarding.

Onboarding – Configuration of an Extender wallbox for stand-alone operation

An Extender Wallbox eM4 Single can be configured to operate as a stand-alone charging station. The **Extender as standalone** operating mode is recommended for:

- Private households
- Individual parking spaces for companies and/or customers
- Applications with a limited user group for which itemised billing is not required

ATTENTION

Configuration of the wallbox by a qualified specialist electrical contractor

Before you can start configuring the wallbox, the **ABL Configuration App** displays a safety warning: The internal parameters of the wallbox may only be changed by a qualified specialist electrical contractor.

- To continue, you must confirm that are professionally trained and have knowledge of the relevant regulations of a specialist electrical contractor by tapping the radio button.

Configuration within the **ABL Configuration App** is basically self-explanatory or prescribed via the internal structure of the app. Therefore, simply follow the instructions in the app to adjust the parameters of the Extender wallbox:

Parameter	Description
Network settings	This is where you can connect the wallbox to an infrastructure network (WLAN or LAN), which the app uses to communicate with the wallbox. When operating without a connection to the infrastructure network, communication is possible in the vicinity of the wallbox via its internal WLAN interface.
Configuration parameters > Max. load per charging point	Enter the maximum charging current that is delivered at this charge point here.
Configuration parameters > Phase imbalance detection	You can switch the wallbox's phase imbalance detection on or off here. If it is active, you must preset the maximum possible current difference between the individual phases (16 A or 20 A).
Configuration parameters > Load shedding	Activate the function that allows external systems (e.g. under TAB 4100) to temporarily limit or switch off the charging infrastructure. For this function, a control cable must be connected to the EN1 connection of the wallbox (see "Connecting a control cable in accordance with VDE AR-N 4100" on page 31).
Access control	Specify whether charging processes need to be authorised via RFID or whether the wallbox can be used for free charging. If access authorisation via RFID is activated, you must also add optionally available RFID media (app, key fobs, cards).
QR code / Login credentials	To complete the configuration, you can output the access data (WLAN SSID / password) here as a QR code or write it down to make this information available to the owner and/or operator of the wallbox.

To complete the configuration, tap the **Done** button: The wallbox is now configured and offers the option to adjust the parameters just set as well as other operating parameters via the **Continue to Control Board** button.

Onboarding – Configuring the Controller / Extender operating mode

A Wallbox eM4 Single Controller can be set up to control up to 30 charge points and is then responsible for the static or (in conjunction with the ABL Energy Meter) dynamic load management within the charging group, releasing and blocking charging stations and much more.

The **Controller / Extender** operating mode is recommended for:

- Medium to large charging parks in companies, in semi-public and public spaces, and in the housing industry
- Charging groups in private and semi-public use for which central billing is required

If you selected the **Controller / Extender** option when selecting the operating mode (see **step 4** in the section “Setting up communication via the ABL Configuration App”), you must set up the parameters below for all charge points within the group.

Parameter	Description
Network settings	Connect the Controller wallbox to an existing infrastructure WLAN.
Backend integration	Specify whether you want to connect to a backend via WLAN (see above: Connection with infrastructure WiFi necessary), LAN or LTE . Then select a template, provided your backend provider is stored in the app’s database, or enter the access and communication data manually.
Network settings	Specify whether the Controller is to be connected to further Extenders via the infrastructure WiFi or via LAN.
Grouping	You can add more Extenders to the Controller here and name them as needed to create a charging group.
ABL Energy Meter	Integrate the ABL Energy Meter (see “Accessories” on page 19) to set up dynamic load management for the charging group. Please note: Without the ABL Energy Meter, static load management should be set up via the Controller (see next point).
Infrastructure settings > Static load management	Without the ABL Energy Meter, set the maximum available charging current for the Controller and each Extender wallbox in the charging group. The resulting maximum charging power is then statically distributed to all charge points in the charging group.
Infrastructure settings > Dynamic load management	Use the ABL Energy Meter to set up the dynamic adjustment of the charging currents, taking into account the building load: The available charging power is then distributed dynamically and in the selected ratio to the charge points in the charging group, depending on the consumers.
Infrastructure settings > Load shedding	Activate the function that allows external systems (e.g. under TAB 4100) to temporarily limit or switch off the charging infrastructure. For this function, a control cable must be connected to the EN1 connection of the wallbox (see “Connecting a control cable in accordance with VDE AR-N 4100” on page 31).
Login credentials	To complete the configuration, you can output the access data (WLAN SSID / password) here as a QR code or write it down to make this information available to the owner and/or operator of the wallbox.

To complete the configuration, tap the **Done** button: The charging group is now configured and offers the option to adjust the parameters just set as well as other operating parameters again via the **Continue to Control Board** button.

You can also change individual parameters at a later date by editing an existing configuration (see **Step 4 on page 37**) in the **Control Board** (see next section).

If you want to set up the entire charging group from scratch, you will need to perform a factory reset of the Controller wallbox: This function is available during onboarding (Support button in the **ABL Configuration App**), in the **Control Board** (in the **Settings** menu, see next page) and via the reset button on the main module of the wallbox (see “Resetting the wallbox and restoring to factory settings” on page 54).

Control Board settings and reboarding

To complete the configuration of the selected operating mode, you can switch to the **Control Board** of the **ABL Configuration App** on the last screen. Here you can check all the settings you have made so far and change them if necessary, as well as set up further parameters for operation.

Using the reboarding process, you can also open the **Control Board** at a later date to adjust all settings of the wallbox(es).

- If you use the same device as for the initial setup, you can open the **Control Board** without entering your login information.
- If you are using a new device or have reinstalled the app, you must re-enter your login information to open the **Control Board**. Alternatively, you can log in via the QR code generated at the end of each onboarding process.

The following parameters can be adjusted in the **Control Board**, regardless of the selected operating mode.

Parameter	Description
Only for Extender as standalone : Start / stop charging	Start or stop the charging process for the charge point, provided a vehicle is connected.
Lock / unlock charging cable	Permanently lock the connected charging cable in the charging socket of the wallbox and unlock it again at a later date. Please note: In a charging group, you can perform this function globally for all wallboxes.
Overview/Diagnostics	View various information about the charge point (such as charging current and status as well as operational readiness, etc.) as well as faults and errors in operation.
Settings > Infrastructure settings	View and change the current settings for maximum fuse protection of the charging station, phase imbalance detection and load shedding.
Settings > Network	Allows you to view and change the current network settings.
Only for Extender as standalone : Settings > Access control	Remove RFID media that have already been configured and add new media for authorisation.
Settings > Password management	Allows you to view and change the current password for the charging station.
Settings > Update	Allows you to install new software on the wallbox as soon as it is available.
Settings > Reset to factory settings	Reset all parameters and settings of the wallbox(es) to the factory settings: this automatically breaks up configured charging groups.
Settings > Language	Switch the user language of the app between DE, EN, FR, IT and NL after the initial setup.
Settings > Help & FAQ	Redirects to the ABL support website.
Settings > Download configuration report	Allows you to generate a report of all current settings (charging currents, RFID UUIDs, phase imbalance, etc.) and then send it by email.
Settings > Request diagnostic file	Request a diagnostic report and save it on your mobile device.

When you leave the **Control Board**, the connection to the Controller/Extender wallbox is terminated. When you reconnect to the Controller later, you will be redirected automatically to the mode selection screen (**Start new configuration** or **Existing configuration**).

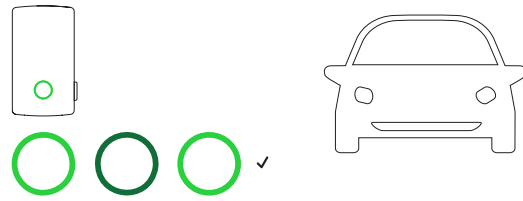
Description of the charging process

After setting up via the **ABL Configuration App**, the setup is complete and the Wallbox eM4 Single is ready for charging. We recommend carrying out an initial charging process with a vehicle during start-up to ensure the functionality of the wallbox.

Proceed as follows:

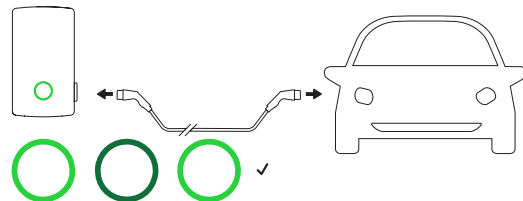
- 1 Park the vehicle so that its charging inlet can be easily reached with the charging cable's charging connector.

- When the charge point of the wallbox is ready for charging, the status indicator pulsates green (display: 1 cycle).



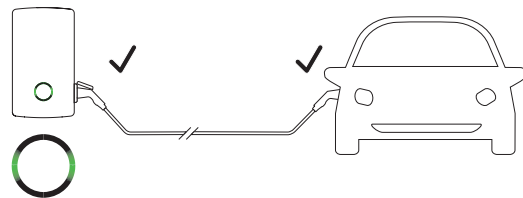
- 2 Prepare the charging cable of the wallbox and the vehicle's charging inlet.

- Open the charging inlet at the vehicle and plug in the charging connector.
- Open the charging socket lid on the wallbox and plug in the charging connector.



- 3 Check the status indicator of the wallbox.

- When the vehicle is connected and recognised, the status indicator lights up static green.



NOTE

Authentication of the Wallbox eM4 Single

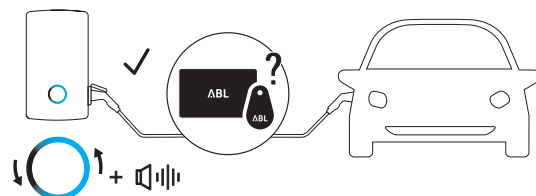
Depending on the model version, the Wallbox eM4 Single can be configured differently during installation.

- **Controller:** A Controller can be operated as a stand-alone wallbox or with a backend.
- **Controller with Extender:** A Controller can be operated with one or more Extender wallboxes as a charging group in a backend or without a backend.
- **Stand-alone Extender:** An Extender configured for stand-alone operation is operated without a backend.

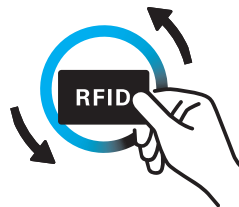
If it is necessary to authenticate the charging operation via an RFID card, carry out the following steps 4 to 6. If authentication is not required, go to step 7.

- 4 Check the status indicator of the wallbox.

- If the charging operation has to be enabled using an RFID card, a blue chase light is shown dynamically on the status indicator.

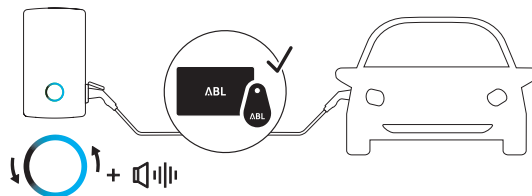


5 Hold a valid RFID card in front of the status indicator.

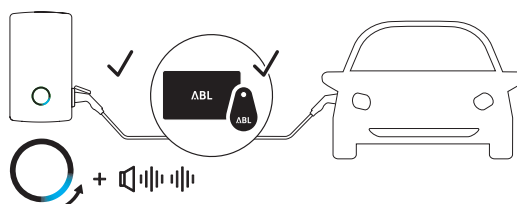


6 Check the status indicator and acoustic signals of the wallbox.

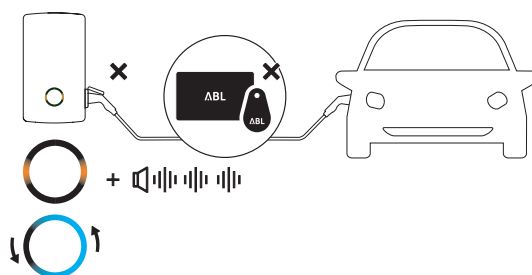
- If the RFID card has been read successfully, the wallbox emits a short sound signal and checks the authentication of the RFID card.



- After successful authentication, the wallbox emits two further short sound signals and activates the charging operation.



- If the authentication is not successful, the status indicator lights up orange and the wallbox emits three long sound signals.



! NOTE

The authentication of the RFID card is not successful

If the RFID card could not be verified, do one of the following:

- Remove the charging connector from the charging socket of the wallbox and wait until the status indicator pulsates green again. Then repeat steps 2 to 6.
- **Operating the wallbox with a backend:** Please contact the issuer of the RFID card.
- **Operating the wallbox without backend:** Make sure that the RFID card has been registered to the relevant wallbox.

⚠ ATTENTION

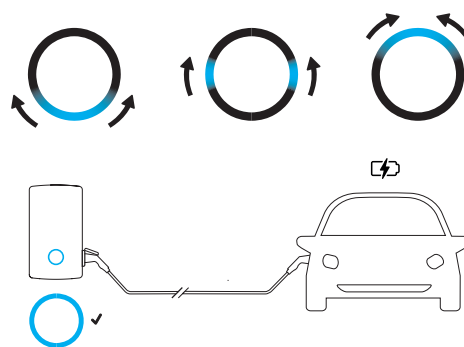
RFID card not readable

If the antenna of your RFID card is blocked or damaged, the card cannot be recognised.

- Remove the RFID card from its protective cover or card holder to register at the RFID reader.
- Do not make any modifications to the RFID card: The card must never be perforated, stamped, folded, have stickers attached, or otherwise be manipulated mechanically.
- Make sure that the RFID card corresponds to a standard that is supported by the wallbox.

7 Check the status indicator of the wallbox (display: 1 cycle).

- After a request by the vehicle, the charging operation in progress is displayed dynamically via the blue status indicator.
- When the charging operation is complete, it is automatically terminated by the vehicle, and the status indicator lights up solid blue.



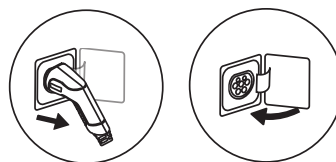
! NOTE

No charging request or interruption of the charging operation

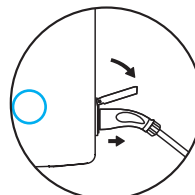
The status indicator also lights up solid blue under the following circumstances:

- The charging operation has not yet been started or has been paused by the vehicle.
- The charging operation has not yet been started or has been paused by the internal load management.

8 Unplug the charging connector from the vehicle's charging inlet and close it.



9 Unplug the charging plug from the charging socket of the wallbox and store the charging cable. The charge point lid closes automatically.



10 The wallbox is ready for operation and awaits the next charging procedure (illustration: 1 cycle).



Error resolution and maintenance

Under certain circumstances, malfunctions may occur during operation of the Wallbox eM4 Single that prevent or restrict charging. In addition, components may be damaged and must be repaired or replaced if necessary.

Support via the ABL Support page

If any problems occur, you can get help quickly and easily via the Support area on the ABL website.

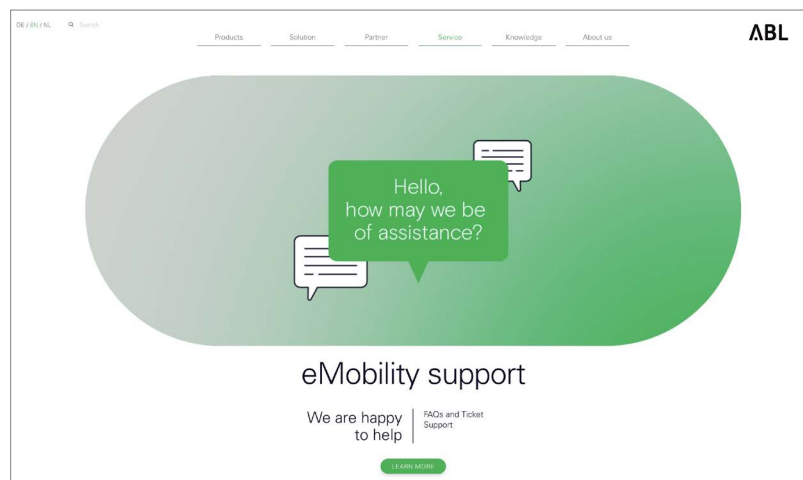
Visit the following web address:

<https://www.ablmobility.de/en/service/support/>

or



Scan this QR code



Scroll further down the web page to access the different help sections:

Quick support	In this section, you will find answers to key questions and topics such as KfW funding programmes, power adjustment of a wallbox, etc.
Ticket system	<p>You can generate a ticket here that will be processed by ABL Support as quickly as possible. Generating a ticket is self-explanatory.</p> <p>Generate a ticket if you...</p> <ul style="list-style-type: none">• ...have specific questions or your product is defective.• ...want to order spare parts for the Wallbox eM4 Single.• ...have questions about start-up.• ...want to initiate a return.
FAQs	This is where we answer frequently asked questions that our Service team receive from the HOME , WORK and PUBLIC sectors.

NOTE

Ordering spare parts

To order spare parts, you will need to create a corresponding support ticket in the **Service > Support > Spare parts** section of the ABL website. In addition to your address data, enter the product number of the spare part and the desired quantity. If you do not know the product number, you can include a product description of the spare part and, if necessary, send a file with additional information (e.g. a photo). In the even of queries, the service team will contact you.

Quick solution for general problems

In the event of a problem, you do not need to contact ABL Support immediately, as in most cases there is a simple solution. You should therefore always check the following points first before generating a ticket.

Description

The vehicle is connected to the wallbox via the charging cable, but the status indicator continues to pulsate green: The vehicle is not recognised (display: 1 cycle).



Cause and suggested solution

- The charging cable is not properly plugged in.
 - Remove the charging connector from the vehicle's charging inlet and the charging plug from the wallbox's charging socket. Then plug the charging connector back into the vehicle's charging port first and then the charging plug into the wallbox's charging socket.
- Check the charging cable and replace it if required.



DANGER

Dangerous electrical currents

Should the charging cable, the charging plug or connector show visible damage, you must under no circumstances perform another charging procedure. Take the wallbox out of operation (see page after next) and contact a qualified specialist electrical contractor.

Description

The status indicator of the wallbox pulsates red (display: 1 cycle).



Cause and suggested solution

- The wallbox has detected an error that prevents or interrupts charging operations. The charging indicator pulsates red until the fault has been cleared.
 - Remove the charging connector from the vehicle's charging inlet and the charging plug from the wallbox's charging socket. Then plug the charging connector back into the vehicle first and then the charging plug into the wallbox.
 - If the error persists, remove the charging cable from the vehicle and the wallbox. Unlock and open the charge point's RCCB flap, switch the RCCB off (position 0) and on again (position I) and lock the RCCB flap again (see also "Taking the Wallbox eM4 Single out of operation" on page 48). Then reconnect the charging cable to the vehicle and then to the wallbox.
 - If the error persists, remove the charging cable from the vehicle and the wallbox and switch off the RCCB for the charge point. Also switch off the MCB for the wallbox in the domestic power distribution (0). Next, switch on the MCB in the domestic power distribution first and then the RCCB of the wallbox (position I). Finally, reconnect the charging cable to the vehicle and then to the wallbox.
- Should the error persist, please contact a qualified specialist electrical contractor to resolve the error.
- Should the wallbox have to be repaired or replaced, please contact the dealer from whom you purchased your wallbox.

Description

The wallbox's charging indicator does not work, the energy meters do not display any information.

Cause and suggested solution

- The wallbox is not connected to the electricity grid.
 - Check the internal RCCB and switch it back on if required.
 - Check the upstream circuit breaker in your domestic power distribution and switch it back on if required.
 - Have a qualified specialist electrical contractor check the power supply cable and restore it if required.

- The wallbox is defective.
 - Please contact a qualified specialist electrical contractor to have the error resolved.
 - Should the wallbox have to be replaced, please contact the dealer from whom you have purchased your wallbox.

ATTENTION

Taking the wallbox out of operation in the event of persistent malfunction

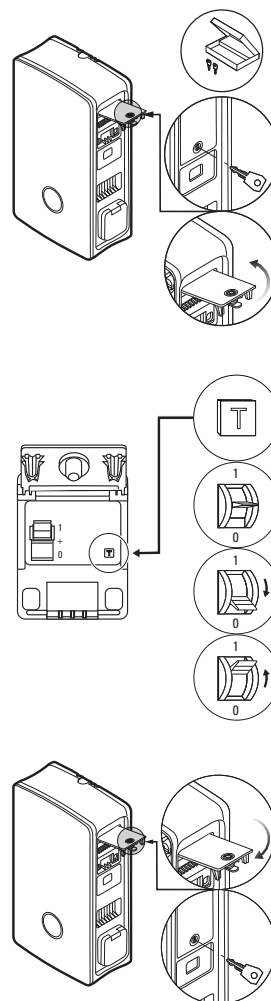
Should the wallbox keep displaying error messages, please take it out of operation (see further below) and contact a qualified specialist electrical contractor to resolve the error.

Testing the RCCB

To ensure continuing safe operation, you must test the function of the wallbox's internal RCCB according to locally applicable regulations: For this purpose, the RCCB has a push button with which to initiate the test function.

Proceed as follows to test the mechanical functionality of the RCCB:

- 1 Unlock the wallbox's side RCCB flap using the key supplied and flip it up.
 - The RCCB must now trip and flip the toggle switch into the centre position.
- 2 Locate and press the push button engraved **T**.
 - The RCCB must now trip and flip the toggle switch into the centre position.
- 3 Now flip the pivot lever first to the **0** position and then back to the **I** position.
- 4 Close the RCCB flap and lock it with the key.



DANGER

Dangerous electrical currents

Should the RCCB malfunction during testing, you must not continue to operate the wallbox under any circumstances!

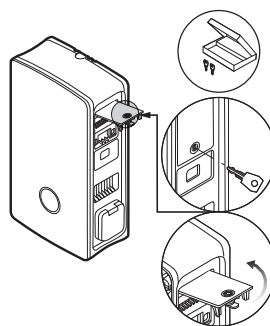
- Take the wallbox out of operation (see next section) and contact **ABL Customer Service** (see "Contact" on page 2).

Taking the Wallbox eM4 Single out of operation

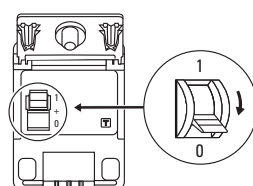
In case of severe malfunctions or damage to the device, you must take the Wallbox eM4 Single out of operation.

To do so, proceed as follows:

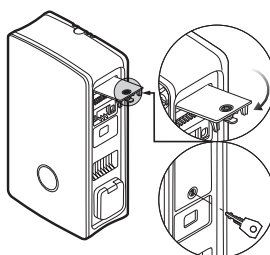
- 1 Unlock the wallbox's side RCCB flap using the key supplied and flip it up.



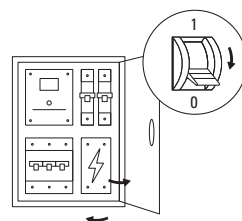
- 2 Flip the toggle switch of the RCCB to the 0 position.



- 3 Close the RCCB flap and lock it with the key.



- 4 Open your domestic power distribution box, disconnect the wallbox's power supply cable from the electricity grid via the MCB, secure the MCB against being switched on again and close the distribution box.



The Wallbox eM4 Single is no longer connected to the electricity grid and can be removed by a qualified specialist electrical contractor if required.

DANGER

Dangerous electrical currents

Note that the Wallbox eM4 Single is only powered off when the upstream MCB in the domestic power distribution is switched off (position 0). The wallbox's internal RCCB only disconnects the power module from the mains, but the internal electronic components remain connected to the mains.

DANGER

Dangerous electrical currents

Always make sure the supply cable is voltage-free before you start dismantling the wallbox.

Replacing the RCCB flap

You can replace the side RCCB flap of the power module if it is damaged or otherwise needs to be replaced.

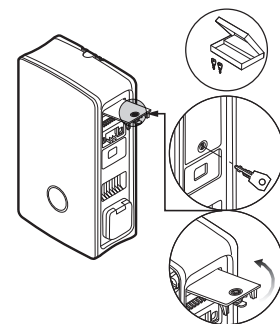
	End customer	Specialist electrical contractor
Construction	✓	✓

Required components:

Number / spare part	100000256 / Spare part eM4 RCCB flap ABL
Accessories	Key for RCCB flap, supplied with the wallbox and the spare part
Tool	—

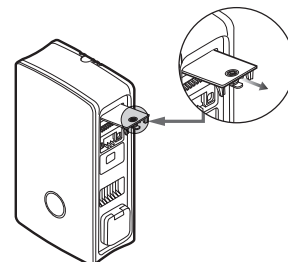
Proceed as follows to replace the RCCB flap on the Wallbox eM4 Single:

- 1 Provided that the RCCB flap is mechanically intact, unlock it with the key and fold it upwards.



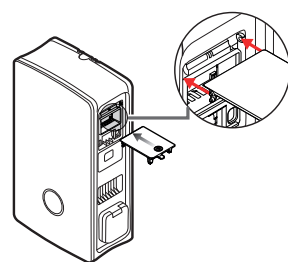
- 2 Hold the RCCB flap open at an angle of 90° and pull it off using minimal force.

- The RCCB flap will pop out of the hinge mount in the housing.

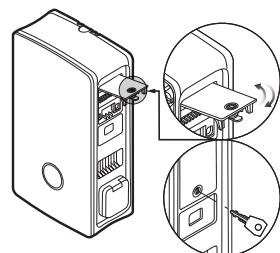


- 3 Place the two outer hinge pins of the new RCCB flap on the hinge mounts and press them into the housing using minimal force.

- The hinge pins will snap into the hinge mounts.



- 4 Check the replaced RCCB flap to ensure that it moves freely and then lock it with the key.



Replacing the lever lock in an RCCB flap

You can replace the lever lock in the side RCCB flap if the lock is defective or if, for example, you want to set up an individual locking circuit for a charging park or similar.

	End customer	Specialist electrical contractor
Construction	✓	✓

Required components:

Number / spare part	100000257 / Spare part eM4 lock 1 key
Accessories	Key for RCCB flap /lever lock, supplied with the wallbox and the spare part
Tool	Torx T 15 screwdriver

! NOTE

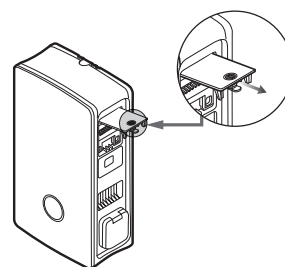
Changing the lock system

ABL offers different types of locks for the Wallbox eM4 Single, which can be ordered as accessories (see "Accessories" on page 19).

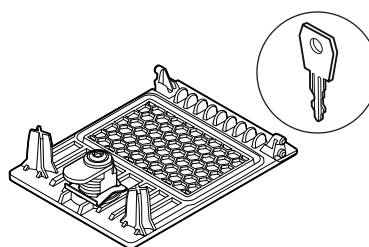
- **Locking circuit A:** In locking circuit A there are 10 packages to choose from, each with 10 individual locks with the same closure. A group key is not offered.
- **Locking circuits B to H:** In locking circuits B to H, 7 packages are offered, each with 10 individual locks with different closures. A group key is supplied for each package.

Proceed as follows to replace the lock in an RCCB flap:

- 1 Follow steps 1 and 2 in the section "Replacing the RCCB flap" to remove the RCCB flap.

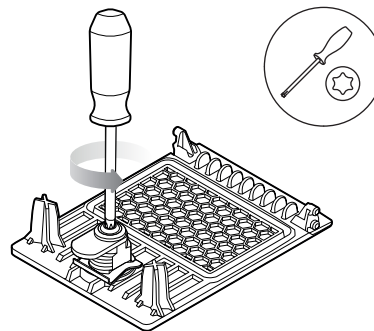


- 2 Move the locking cylinder to the locked position (tongue pointing downwards) and remove the key.

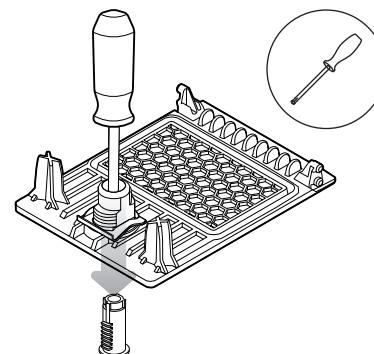


- 3 Place the RCCB flap on the front.

- 4 Loosen the screw for the locking cylinder with a Torx T15 screwdriver.





- 5 Push the locking cylinder out of the guide of the RCCB flap with the screwdriver.



Now proceed in reverse order to install the replacement lock in the RCCB flap.

Replacing the charging socket flap

You can replace the flap of the Type 2 charging socket if it is damaged or no longer closes reliably.

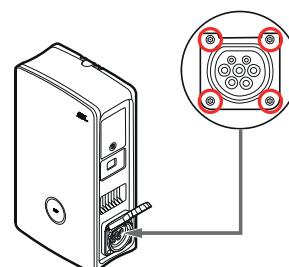
	End customer	Specialist electrical contractor
Construction		

Required components:

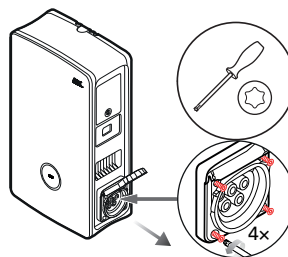
Number / spare part	100000261 / Spare part eM4 charging socket flap
Accessories	—
Tool	Torx TR 20 screwdriver, Torx 20 with hole

Proceed as follows to replace the flap of a charging socket:

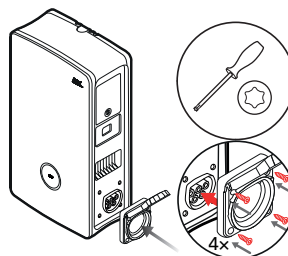
- 1 Open the charging socket flap and locate the four TR 20 screws in the frame of the charging socket flap.



- 2 Loosen the four screws with a Torx TR 20 screwdriver and pull the charging flap off the wallbox.



- 3 Place the new charging flap over the frame of the Type 2 socket on the housing and screw it in place with the four screws supplied and the screwdriver.



This completes the replacement of the charging socket flap. If necessary, repeat the procedure for the wallbox's second charging socket.



Replacing the housing cover

You can replace the housing cover of the Wallbox eM4 Single if it is damaged or no longer closes reliably.

DANGER

Removing the housing cover during installation

If necessary, you can also remove the housing cover during installation of the wallbox. Please note, however, that the wallbox must never be connected to the electricity grid when the housing cover is removed.

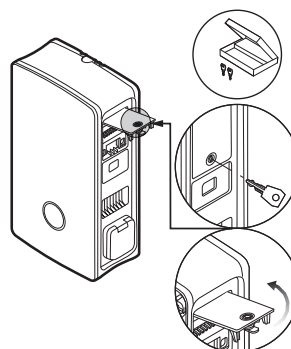
	End customer	Specialist electrical contractor
Construction		

Required components:

Number / spare part	100000260 / Spare part eM4 SG front ABL
Accessories	Key for RCCB flap, supplied with the wallbox
Tool	—

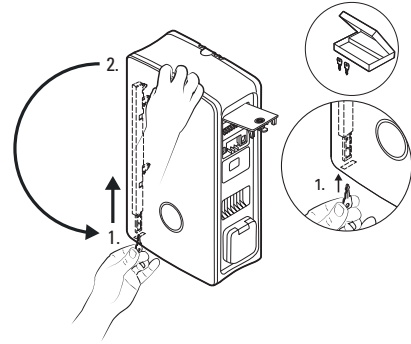
Proceed as follows to replace the wallbox housing cover:

- 1 Unlock the side RCCB flap using the key supplied and flip it up to unlock the right-hand side of the housing cover.



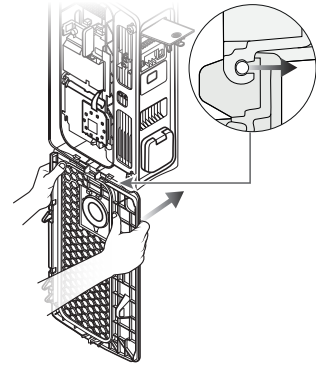
- 2 Insert the key through the key opening on the bottom left-hand side and push it upwards to unlock the left-hand side of the housing cover.

→ Open the housing cover to the front.



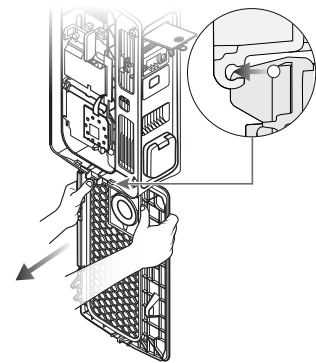
- 3 Grasp the housing cover by the two corners in the hinge area and push first one and then the other side backwards with moderate force.

- The hinge pin will pop out of the hinge alignment in the housing and the housing cover can be removed.



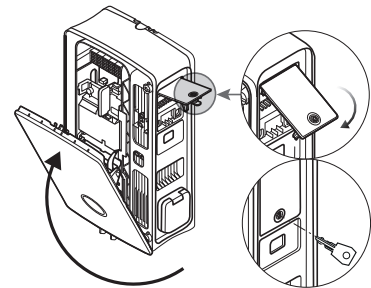
- 4 Place the hinge pin of the new door on the wallbox's hinge alignment and pull first one and then the other side forward with moderate force.

- The hinge pin will snap into the wallbox's hinge alignment.



- 5 Check that the new housing cover moves freely and fold it upwards so that it locks into the housing.

- 6 Fold down the side RCCB flap and lock it with the key.



This completes the replacement of the housing cover.


Resetting the wallbox and restoring to factory settings

If an error occurs during operation or configuration, you can reset the Wallbox eM4 Single without changing the current configuration parameters. Alternatively, you can reset the wallbox to its factory settings to set up a completely new configuration or to initialise a configured wallbox for sale.

Reset via the MCB in the domestic power distribution


For a simple reset, switch off the power to the wallbox for about 30 seconds via the MCB connected upstream in the domestic power distribution. After you have restored the power supply, the wallbox will restart without making any changes to the configuration parameters.

Resetting the wallbox via the ABL Configuration App

The **ABL Configuration App** provides access to its integrated help system via the  button. If you tap the button during onboarding, you can restart a Controller wallbox via the **Reset to factory settings** option; in the **Control Board**, you can access this option via the **Settings** menu: After restarting the wallbox, all configuration parameters are reset to the factory default and must be set up again.

NOTE

Accessing the help system on an Extender wallbox

If you tap the  button while the **ABL Configuration App** is connected to an Extender wallbox, you will be redirected directly to ABL's support website.

Resetting or restoring the wallbox via the reset pushbutton

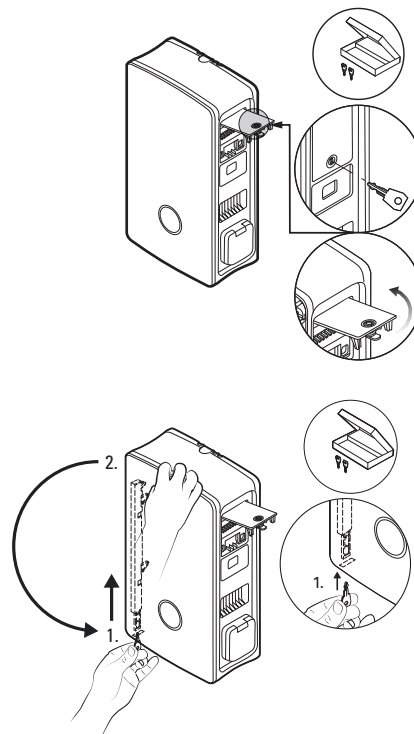
There is a reset pushbutton on the main module of the wallbox which you can use to restart the hardware or reset the wallbox to its factory settings, depending on how long you press the button.

Proceed as follows to perform a reset on the Wallbox eM4 Single:

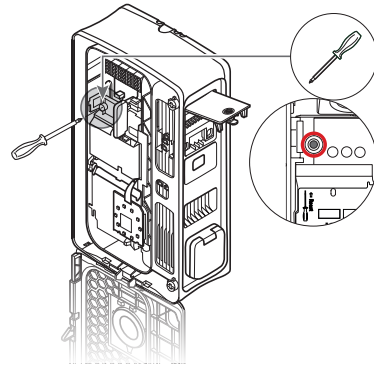
- 1 Unlock the side RCCB flap using the key supplied and flip it up to unlock the right-hand side of the housing cover.

- 2 Insert the key through the key opening on the bottom left-hand side and push it upwards to unlock the left-hand side of the housing cover.

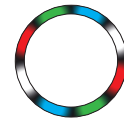
→ Open the housing cover to the front.



- 3 Locate the reset pushbutton, which is set back on the main module of the wallbox.
 - The access is marked on the communication module with a screwdriver and the word **Reset**.
- 4 Insert an insulated screwdriver and press the reset pushbutton for the desired duration.
 - **< 3 seconds:** Simple reset (no parameter change)
 - **< 10 seconds:** Restore to factory settings



- 5 The wallbox restarts after a short moment and changes to the corresponding operating mode after the boot phase:
 - **< 3 seconds:** Ready for charging
 - **< 10 seconds:** Ready for reconfiguration



Actions in case of internal errors, notes and warnings

Malfunctions may occur during configuration and operation of the Wallbox eM4 Single. While certain malfunctions have no effect on the charging operation and are only displayed in the form of notes and warnings, other errors can lead to a reduction in the charging current or prevent the charging operation.

For the Wallbox eM4 Single, malfunctions are documented as follows:

Description	Example	Description
Wallbox HMI		In the event of an error that reduces the charging current or stops charging operation, the charge point status indicator will pulsate red.
Wallbox energy meter		In the event of a malfunction (error, note and warning), the identification code is displayed in the third line of the energy meter window.
ABL Configuration App		Every malfunction (error, note and warning) is documented in detail in the app. If required, you can download a diagnostic report to the mobile device.

Below you will find a list and brief description of the errors, notes and warnings, their effect on the charging operation and measures for troubleshooting:

Code	Error description	Effect	Action
F1	Contactor/relay does not open	Charging not possible	<ul style="list-style-type: none"> • Check internal RCCB for the charge point and switch on again • Perform restart by pressing reset push button (< 3 seconds)

Code	Error description	Effect	Action
F2	Internal error	Charging not possible	<ul style="list-style-type: none"> Perform restart by pressing reset push button (< 3 seconds)
F3	DC residual current detected	Charging not possible	<ul style="list-style-type: none"> Check internal RCCB for the charge point and switch on again Disconnect the charging connector from the EV and reconnect it Perform restart by pressing reset push button (< 3 seconds) Check wallbox with vehicle simulation adapter Get EV checked by specialist workshop
F4	Internal communication error	Charging not possible	<ul style="list-style-type: none"> Perform restart by pressing reset push button (< 3 seconds)
F5	Locking error	Charging not possible	<p>Locking not possible:</p> <ul style="list-style-type: none"> Disconnect the charging plug from the charging socket of the wallbox and reconnect it Check the charging plug for dirt Use a different charging cable <p>Unlocking not possible:</p> <ul style="list-style-type: none"> Switch the wallbox off Disconnect the charging plug from the charging socket of the wallbox
F6	Proximity pilot signal out of valid range	Charging not possible	<ul style="list-style-type: none"> Disconnect the charging connector from the EV and reconnect it Use a different charging cable
F7, F8	Controller pilot signal out of valid range	Charging not possible	<ul style="list-style-type: none"> Disconnect the charging connector from the EV and reconnect it Use a different charging cable
F9	Overcurrent detected	Charging not possible	<ul style="list-style-type: none"> Disconnect the charging connector from the EV and reconnect it Get EV checked by specialist workshop
F11	Contactor / relay does not close	Charging not possible	<ul style="list-style-type: none"> Disconnect the charging connector from the EV and reconnect it Perform restart by pressing reset push button (< 3 seconds)
F13	Control by default at terminal EN1 (note)	Reduced charging current	<ul style="list-style-type: none"> Check setting for external load shedding in ABL Configuration App Check external control unit (e.g. FNN control box or similar)
F14	Overtemperature	Charging not possible or reduced charging current	<ul style="list-style-type: none"> Ensure better shading of the wallbox at the installation site
F15	Phase imbalance detected	Reduced charging current	<ul style="list-style-type: none"> Get EV checked by specialist workshop Limit the maximum charging current to 16 or 20 A in the ABL Configuration App (Extender stand-alone only).

Code	Error description	Effect	Action
F32	Internal communication error	Charging not possible	<ul style="list-style-type: none"> Perform restart by pressing reset push button (< 3 seconds)
F33 [...] F35	Update error	Charging still possible	<ul style="list-style-type: none"> Update the wallbox's software using the ABL Configuration App
F36	RFID error	Charging may not be possible	<ul style="list-style-type: none"> Perform restart by pressing reset push button (< 3 seconds)
F40, F41	Meter time-out	Charging not possible or reduced charging current	<ul style="list-style-type: none"> Check internal RCCB for the charge point and switch on again Perform restart by pressing reset push button (< 3 seconds)
F48, F49	Mains voltage error (warning)	Charging still possible	<ul style="list-style-type: none"> Check the installation and mains connection of the wallbox
F50	Internal communication error	Charging not possible	<ul style="list-style-type: none"> Perform restart by pressing reset push button (< 3 seconds)
F51	No WLAN/LAN connection available	Charging possible	<ul style="list-style-type: none"> Check WiFi coverage on site Check LAN cabling Perform restart by pressing reset push button (< 3 seconds)
F100 [...] F106	Other error	Charging may not be possible	<ul style="list-style-type: none"> Update the wallbox's software using the ABL Configuration App Check WiFi coverage on site Check LAN cabling Perform restart by pressing reset push button (< 3 seconds)
F120 [...] F123	Energy meter error	Charging may not be possible	<ul style="list-style-type: none"> Check internal RCCB for the charge point Perform restart by pressing reset push button (< 3 seconds)

- If the error or warning cannot be remedied or reset by one of the measures described above, switch off the power to the wallbox(es) for about 2 minutes via the MCB connected upstream in the domestic power distribution.
- If the error or warning still cannot be remedied or reset even after doing this, contact **ABL Customer Service** (see "Contact" on page 2).

Maintenance

Except for testing the integrated or upstream RCCBs, the Wallbox eM4 Single is basically maintenance-free. However, we still recommend the wallbox is regularly cleaned and the function of its charging sockets checked:

- Use only a dry cloth for cleaning the wallbox. Do not use aggressive cleaning agents, waxes or solvents (such as cleaning fluid or paint thinner) as they may dull the surfaces and indicators of the wallbox.
- The wallbox must under no circumstances be cleaned with a pressure cleaner or similar device.
- Check the charging socket of the wallbox at regular intervals for any defects, damage or mechanical wear.

Appendix

Technical specifications

eM4 Single Controller series

Product number	100000151
Type	4WS-22CNS2
Rated voltage	230 / 400 V
Grid frequency	50 Hz
Current	32 A
Maximum output	1 × 22 kW (3-phase)
Charging connection	Lockable Type 2 charging socket in acc. with IEC 62196-2
Phase system	3-phase (1-phase connection possible)
Terminal blocks	Direct connection to the terminal block, supply cables up to a maximum of 10 mm ² or cable diameters ≤ 25 mm
Upstream fuse	32 A (required onsite), C characteristic recommended
Rated insulation voltage (Ui)	4 kV
Rated impulse voltage (Uimp)	4 kV
Rated impulse withstand current (Ipk)	6 kA
Rated short-time withstand current (Icw)	5 kA
Conditional rated short-circuit current (Icc)	6 kA (tripping characteristic C)
Rated diversity factor (RDF)	1.0
Residual Current Devices	RCCB, Type A, 30 mA
DC fault current detection	DC-RCM, I _{Δn d.c.} ≥ 6 mA
Overcurrent protection	Integrated into firmware, disconnection above 120% after 10 seconds
Energy meter	MID compliant
Load switching	Installation contactor, 4-pole, 40 A
Weld detection	No charging possible with welded contactors
Temperature monitoring	Internal, charging current reduction or shut down
Optional ventilation function of the vehicle	Not supported
RFID standard	ISO14443, UID only (4-byte/7-byte), ISO 15693 and ISO 18092
Access control	RFID, QR code or smartphone app
Backend communication	LAN, WLAN, LTE
Supported protocols for external systems	OCPP 1.5 + 1.6, OCPP Smart Charging, Modbus TCP
Communication Controller / Extender	LAN, WLAN
Load shedding / external release contact	Terminal for connecting a control cable, e.g. in accordance with VDE-AR-N 4100
Use (in accordance with IEC 61439-7)	AEVCS
Earthing system	TN-S
Operating temperature	-25°C to 40°C
Storage temperature	-25°C to 70°C
Relative humidity	5 to 95%, no condensation
Class of protection	I
Degree of protection (housing)	IP55
Overvoltage category	III
Degree of pollution	3
Impact strength	IK10
Power dissipation	5 W
Maximum elevation	≤ 2,000 m AMSL

Product number	100000151
Dimensions (H × W × D)	516 × 306.5 × 145 mm (W: 290 mm without protrusions)
Weight per wallbox	Approx. 7.2 kg

eM4 Single Extender series

Product number	100000157
Type	4WS-22ENS2
Rated voltage	230/400 V
Grid frequency	50 Hz
Current	32 A
Maximum output	1 × 22 kW (3-phase)
Charging connection	Lockable Type 2 charging socket in acc. with IEC 62196-2
Phase system	3-phase (1-phase connection possible)
Terminal blocks	Direct connection to the terminal block, supply cables up to a maximum of 10 mm² or cable diameters ≤ 25 mm
Upstream fuse	32 A (required onsite), C characteristic recommended
Rated insulation voltage (Ui)	4 kV
Rated impulse voltage (Uimp)	4 kV
Rated impulse withstand current (Ipk)	6 kA
Rated short-time withstand current (Icw)	5 kA
Conditional rated short-circuit current (Icc)	6 kA (tripping characteristic C)
Rated diversity factor (RDF)	1.0
Residual Current Devices	RCCB, Type A, 30 mA
DC fault current detection	DC-RCM, $I_{\Delta n \text{ d.c.}} \geq 6 \text{ mA}$
Overcurrent protection	Integrated into firmware, disconnection above 120% after 10 seconds
Energy meter	MID compliant
Load switching	Installation contactor, 4-pole, 40 A
Weld detection	No charging possible with welded contactors
Temperature monitoring	Internal, charging current reduction or shut down
Optional ventilation function of the vehicle	Not supported
RFID standard	ISO14443, UID only (4-byte/7-byte), ISO 15693 and ISO 18092
Access control	RFID, QR code or smartphone app
Backend communication	Via Controller wallbox
Supported protocols for external systems	OCPP 1.5 + 1.6, OCPP Smart Charging, Modbus TCP
Communication Controller	LAN, WLAN
Load shedding / external release contact	Terminal for connecting a control cable, e.g. in accordance with VDE-AR-N 4100
Use (in accordance with IEC 61439-7)	AEVCS
Earthing system	TN-S
Operating temperature	-25°C to 40°C
Storage temperature	-25°C to 70°C
Relative humidity	5 to 95%, no condensation
Class of protection	I
Degree of protection (housing)	IP55
Overvoltage category	III
Degree of pollution	3
Impact strength	IK10
Power dissipation	5 W

Product number	100000157
Maximum elevation	≤ 2,000 m AMSL
Dimensions (H × W × D)	516 × 306.5 × 145 mm (W: 290 mm without protrusions)
Weight per wallbox	Approx. 7.2 kg

The eM4 Single Controller and eM4 Single Extender wallboxes are also available as variants with shutter charging sockets as well as reev ready versions for operation with the backend solutions from reev. The corresponding product numbers can be found in the following table:

Controller with shutter	100000153	4WS-22CNH2
Controller reev ready	100000200	4WS-22CNS2
Controller reev ready with shutter	100000204	4WS-22CNH2
Extender with shutter	100000159	4WS-22EEH2
Extender reev ready	100000201	4WS-22ENS2
Extender reev ready with shutter	100000205	4WS-22EEH2



Visit the product page of the Wallbox eM4: <https://www.ablmobility.de/en/products/em4.php>

Standards and guidelines

General standards

2014/30/EU	EMC Guideline
2011/65/EU	RoHS Guideline
2012/19/EU	WEEE Directive
2014/35/EU	Low voltage directive
2014/53/EU	Radio Equipment Directive

Standards governing electromagnetic interference (EMV)

IEC 61851-21-2	Conductive charging systems for electric vehicles – Part 21-2: EMC requirements for off board electric vehicle charging systems
----------------	---

Device safety standards

IEC 61851-1 Ed. 3	Electrical equipment for electric road vehicles - conductive charging systems for electric vehicles – Part 1: General requirements
IEC 60364-7-722 Ed. 1	Low voltage installations - Part 7-722: Requirements for special installations or locations - Supply of electric vehicles
IEC 61439-7:2020	Switchgear combinations for specific applications such as marinas, campsites, marketplaces, charging stations for electric vehicles
IEC 62955	Residual direct current detecting device (RDC-DD) to be used for mode 3 charging of electric vehicles

Overview of the radio modules used

Module		Band	Frequency	Frequency range	Subclass of Class 1 ³ according to Commission decision 2000/299/EC	Transmitting power
RFID			13.56 MHz	13.553 – 13.567 MHz	116 (Spectral mask: I.2)	< 10 mW
LTE	FDD LTE	B1	2100 MHz	1920 – 1980 MHz	9 a	< 200 mW
		B3	1800 MHz	1710 - 1785 MHz		
		B7	2600 MHz	2500 – 2570 MHz		
		B8	900 MHz	880 – 915 MHz		
		B20	800 MHz	832 – 862 MHz		
		B28	700 MHz	703 – 748 MHz		
	UMTS/HSPA/HSPA+	B1	2100 MHz	1920 – 1980 MHz		< 250 mW
		B8	900 MHz	880 – 915 MHz		
	GSM/EDGE/GPRS		900 MHz	880 – 915 MHz		< 2000 mW
			1800 MHz	1710 – 1785 MHz		
WLAN			2400 MHz	2400 – 2483.5 MHz	22	< 100 mW

Trademarks

All trademarks mentioned in this manual, including those that may be protected by third parties are, without restriction, subject to the regulations of the respectively applicable trademark law and the property rights of the respective registered owners. All trademarks, trading names or company names marked here as such are, or may be, trademarks or registered trademarks of their respective owners. All rights not explicitly granted here are reserved.

The absence of explicit identification of trademarks used in this manual must not lead to the conclusion that a name is free from the rights of third parties.

Data cable recommendations

A shielded data cable of the following type is recommended for wiring up the LAN interface in the Wallbox eM4 Single:

Designation	Cross section	Number
Cat5e S-FTP	from at least 0.14 mm ²	1 cable each for the connection between a wallbox and a LAN port on the local router or switch
Cat6 S-FTP		

ATTENTION

Selecting suitable data cables

Please note that these are recommendations only: the conductor cross-section must be adjusted according to the cable length and the ambient conditions by the specialist electrical contractor responsible for installation.

Definitions

Abbreviation	Explanation
BEV	Battery Electric Vehicle: Electric vehicle with battery
DC	Direct current: Direct current
DHCP	Dynamic Host Configuration Protocol: Protocol for network communication
eM	Electric Mobility
EMC	Electromagnetic compatibility
EV	Electric vehicle: Electric vehicle
FDD	Frequency Division Duplex: Radio communication technique
FNN	Network Technology/Network Operation Forum, committee within the VDE
GPRS	General Packet Radio Service: Service for data transmission in GSM networks
GSM	General System for Mobile Communications: Mobile communication standard
HMI	Human Machine Interface
HSPA	High Speed Packet Access: Extension of the UMTS mobile radio standard
IEC	International Electrotechnical Commission: International organisation for standards in the field of electrical engineering and electronics
ISO	International Organization for Standardization: International association of standards organisations
LED	Light Emitting Diode
LTE	Long-term evolution, digital mobile standard
MCB	Miniature Circuit Breaker: Circuit breaker
MID	Measuring Instruments Directive: Measuring Instruments Directive
OCPP	Open Charge Point Protocol: application protocol for communication between EV charging stations and a central management system
PHEV	Plug-in Hybrid Electric Vehicle: vehicle with plug-in hybrid drive
RCCB	Residual Current operated Circuit-Breaker: Residual Current Devices
RCM	Residual Current Monitor: residual current meter
RFID	Radio Frequency Identification: method for automatic identification by radio
'T' button	Testing button
UMTS	Universal Mobile Telecommunications System: Mobile communication standard
VDE	German Association for Electrical, Electronic & Information Technologies
WLAN	Wireless Local Area Network: local wireless network

Copyright and disclaimer

Copyright © 2023

Version 0301504_EN_a, Version: 27.10.23

All rights reserved.

- Any information contained in this manual may be changed without prior notice and does not represent any obligation on the part of the manufacturer.
- Illustrations in this manual may show designs different from the delivered product and do not represent any obligation on the part of the manufacturer.
- The manufacturer does not take responsibility for any loss and/or damage that occurs because of the data or possible misinformation contained in this manual.

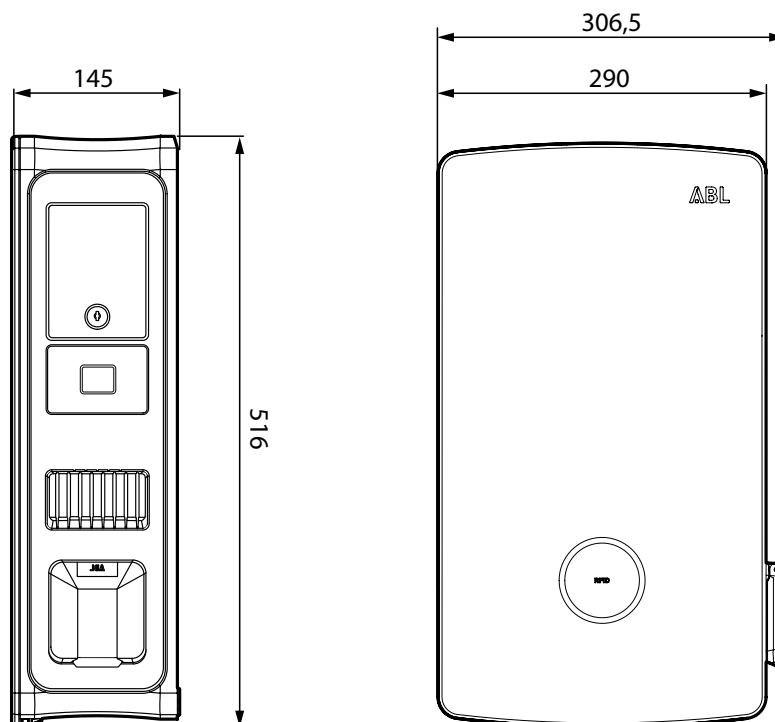
Disposal advice



The crossed out rubbish bin symbol indicates that electrical and electronic devices including accessories must be disposed of separate from household refuse.

The materials are recyclable as marked. The reuse or recycling of materials, or other forms of repurposing of old devices make an important contribution towards protecting the environment.

Dimensions



CE certification and compliance declaration



The Wallbox eM4 Single carries the CE mark. A copy of the first page of the declaration of compliance is shown below. In addition, you can find a complete digital copy of the declaration of conformity on the ABL website at www.ablmobility.de/en in the section **Service > All downloads > Compliance declarations**.

ZERTIFIKAT / CERTIFICATE		ABL	
EU – KONFORMITÄTSERKLÄRUNG EC – DECLARATION OF CONFORMITY			
Name des Herstellers Name of manufacturer		ABL GmbH Albert-Büttner-Straße 11 91207 Lauf an der Pegnitz, Germany	
erklärt, in alleiniger Verantwortung, dass das Produkt declares under sole responsibility that the product		Ladestation für Elektrofahrzeuge, Charging station for electric vehicles	
Type-Nr. Ref. No.		Wallbox eM4 Single / Home	
Varianten: variants:		siehe Seite 3 see page 3	
Die Forderungen folgender europäischer Richtlinien erfüllt: is in conformity with the following European Directives:		<input checked="" type="checkbox"/> RED-Richtlinie / Radio Equipment 2014/53/EU <input checked="" type="checkbox"/> RoHS Richtlinie / RoHS Directive 2011/65/EU <input type="checkbox"/>	
Angewendete (harmonisierte) Normen für die Konformitätsvermutung mit der Richtlinie 2011/65/EU: Applied standards for presumption of conformity with Directive 2011/65/EU: EN IEC 63000:2018			
Angewendete Normen für die Konformitätsvermutung mit der Richtlinie 2014/53/EU: Applied standards for presumption of conformity with Directive 2014/53/EU: Artikel 3, (1), a) der Richtlinie 2014/53/EU verlangt in Bezug auf die Sicherheitsanforderungen, die Einhaltung der Niederspannungsrichtlinie 2014/35/EU. Eine Konformitätsvermutung wird durch die anwendbaren Bereiche folgender Normen bestätigt: Article 3, (1), a) of Directive 2014/53/EU demands, with regards to safety requirements, compliance with the Low Voltage Directive 2014/35/EU. A presumption of conformity is confirmed by the applicable scope of the following standards: EN IEC 61851-1:2019 DIN IEC TS 61439-7:2014 EN 62311:2020 IEC 62196-2:2016			
ABL GmbH Geschäftsführung: Dr. Stefan Schlutius, Sabine Spiller-Schlutius, Ferdinand Schlutius Registergericht Nürnberg HRB 40102		Albert-Büttner-Str. 11 D-91207 Lauf / Pegnitz T +49 9123 188 0 F +49 9123 188 188 info@abl.de www.abl.de www.ablmobility.de	
		Seite/Page 1 / 3 20231027_Ladestationen_Em4_S_V1.Dx USt-IdNr. DE 350 290 458 ILN 40 11721 00000 8 WEEE-Reg.Nr. DE54480074	

The Wallbox eM4 Single comes with a drilling template (see illustration below) for marking the mounting points and illustrates the basic steps for installation. Should the supplied drilling template have been lost, you can obtain the drilling dimensions from the illustration on the front.



