Operating instructions

Compleo Charging Solutions AG
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1 About this manual

This manual contains descriptions and important information for the safe and trouble-free use of the charging system. The manual is part of the charging system and must be accessible at all times to all persons working on and with the charging system. The manual must be kept in a clearly legible condition.

The personnel must have carefully read and understood this manual before starting any work. The basic prerequisite for safe working is the observance of all specified safety and warning instructions as well as handling instructions in this manual.

In addition to the instructions in this manual, the local accident prevention regulations and the national industrial safety regulations apply.

Illustrations are for basic understanding and may differ from the actual design of the charging system.

1.1 Further requirements

A warranty with regard to function and safety is only given if this manual is observed. Compleo Charging Solutions AG is not liable for personal injury or damage to property caused by failure to observe the operating instructions.

The manufacturer of the charging system is not liable for consequential damage. The operator must ensure that the charging system is properly installed and used as intended.
During installation and start-up, the national legal requirements and regulations for accident prevention must be observed. In Germany these include the requirements according to DIN VDE 0100 and the accident prevention regulations according to DGUV V3.

Before the system is released, an appropriate test must be carried out to safeguard all safety features and proper functionality of the charging system. Furthermore, the operator must ensure the operational safety of the charging system through regular maintenance.

Compleo Charging Solutions GmbH assumes no liability for errors within these operating instructions. This document reflects the state-of-the-art of the product at the time of publication. The contents of this document are for information purposes only and are not the subject of a contract.

ATTENTION

A list of the normative references and regulations according to which the charging system was designed and constructed can be found in the declaration of conformity. When installing and commissioning a charging system from Compleo Charging Solutions, nationally applicable standards and regulations must also be observed.

NOTE

All standards, regulations, test intervals and the like mentioned in this document are valid in Germany. If a charging system is set up in another country, equivalent documents with a national reference must be used.

1.2 Manufacturer and contact address

Compleo Charging Solutions AG
Oberste-Wilms-Straße 15a
44309 Dortmund, Germany

Tel.: +49 231 534 923 - 777
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e-mail address: info@compleo-cs.com

1.3 Conventions of presentation

For easy and quick understanding, different information in this manual is presented or highlighted as follows:

- List without fixed order
- List (next item)
  - Subitem
  - Subitem

1. Handling instruction (step) 1
2. Handling instruction (step) 2
   - Additional notes for the previous step

1 Position number in figures and legends
2 Consecutive position number
3 …

☑ List/check point
☑ List/next check point

Reference (example): See "chapter 6.5, page 27"

NOTE

A note contains application tips and useful information, but no warnings of hazards.

1.4 Abbreviations

Abbreviation	Explanation
AC	Alternating Current (en: Alternating Current)
AP	Delivery point
CCS	Combined Charging System (de: kombiniertes Ladesystem)
CHA	Abbreviation for plug designation: CHAdeMO
CPO	Charge Point Operator (en: Charge Point Operator)
CRC	Cyclic Redundancy Check (en: Cyclic Redundancy Check)
DC	Direct Current (en: Direct Current)
EMC	Electromagnetic Compatibility
EVSEID	Electric Vehicle Supply Equipment ID (en: Electric Vehicle Supply Equipment ID)
HMI	Human-Machine Interface (en: Human-Machine Interface)
HW	Hardware
HRA	Hardware redundant shutdown
IMD	Insulation monitoring unit
IR	Infrared
kWh	Kilowatt hour
LCD	Liquid Crystal Display (en: Liquid Crystal Display)
LES	Charging device controller
LIEF	Energy supplier
LS	Charging system/charging station
LV	Charging process

Abbreviation	Explanation
MCB	Miniature Circuit Breaker
MessEG	Measuring and calibration law
MessEV	Measuring and calibration regulations
MSB/MDL	Metering point operators/ metering service providers
MSP/ EMSP	(Electric) Mobility Service Provider
OCPP	Open Charge Point Protocol
PSU	Power Supply Unit (en: Power Supply Unit)
RCD	Residual Current Device
RTC	Real-Time Clock (en: Real-Time Clock)
S/N	Serial number
SAM	Memory and display module
SML	Communication protocol (en: Smart Message Language)
SVHC	Substances of Very High Concern
SW	Software
VNB	Distribution system operator

2 Safety

In order to ensure operational safety of the charging equipment and to avoid serious injuries caused by flashovers or short circuits, the following information and safety instructions for operating the unit must be observed. Repair work on the unit must only be carried out by authorised specialist personnel. The housing of the unit may only be opened by persons who have been properly instructed. The following points therefore apply:

- Read and observe safety and warning instructions
- Read and follow instructions

2.1 Warnings

In this manual, warnings and notes are presented as follows.

⚠ DANGER

Indicates an imminent danger that will result in death or serious injury if not avoided. There is great danger to life.

⚠ WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

ATTENTION

Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

2.1.1 Sectional warnings

Sectional warnings refer to entire chapters, a section or several paragraphs within this manual.

Sectional warnings are presented as follows (example warning):

⚠ WARNING

Type and source of the danger.

Possible consequences if the danger is not observed.

- Measures to avoid the danger.

2.1.2 Embedded warnings

Embedded warnings are situation dependent and refer to a specific action or part within a section.

Embedded warnings are presented as follows (example warning):

⚠ **WARNING** – Type of danger. Measures to avoid the danger.

2.2 Intended use

The charging system is intended exclusively for charging electric vehicles.

The charging system is suitable for public and semi-public areas and can be used indoors and outdoors.

The charging system is intended exclusively for stationary installation.

Any use beyond this is considered improper use. The manufacturer is not liable for damages resulting from this.

2.3 Foreseeable misuse

The use of the charging system as a power source for other power consumers is not in accordance with its intended use and is considered misuse.

Only charging cables of type 2/ 20 A or only charging cables of type 2/ 32 A may be used on charging systems equipped with a charging socket type 2. Charging cables that deviate from this are not accepted by the systems.

2.4 Safety instructions for the user

This charging system may only be used in the manner described in this manual. If the charging system is used for other purposes, the operator may be endangered and the charging equipment may be damaged. This manual must always be accessible. Note the following points:

- If no charging process is active, anchor any existing charging cables on the charging system in the brackets provided or wrap them around the housing of the charging system.
- The distance between a charging system and a vehicle must not exceed 3 metres.
- The charging system may only be operated when completely closed. Do not remove covers inside the charging system.

2.5 Personnel qualification

Qualified and trained electricians meet the following requirements:

- Knowledge of general and special safety and accident prevention regulations.
- Knowledge of the relevant electrical engineering regulations.
- Product-specific knowledge through appropriate training.
- Ability to identify hazards associated with electricity.

⚠ DANGER

Danger due to electric current

Touching live parts will result in electric shock with serious injury or death.

- Work on electrical components may only be carried out by a qualified electrician and in accordance with electrical engineering rules.
- Ensure they are de-energised and take suitable protective measures.

2.6 Dangers and residual risks

NOTE

Compleo charging systems as a whole do not contain SVHCs (Substances of Very High Concern) in a concentration of more than 0.1 % (w/w), related to the individual charging station. However, individual components may contain SVHCs in concentrations > 0.1 % (w/w).

- When the charging stations are used as intended, no SVHCs are released and there are no risks to humans or the environment.

2.6.1 Electrical voltage

Dangerous electrical voltages may be present inside the housing of the charging system after the housing has been opened. There is a danger to life if contact is made with live components. Serious injury or death is the result.

- Work on electrical equipment may only be carried out by a qualified electrician and in accordance with electrical engineering rules.
- Disconnect the charging system from the power supply.
- - The system has life-threatening DC voltages, which only disappear after five minutes after switching off due to capacitor charges. A corresponding period of five minutes must elapse before working on exposed parts.

2.6.2 Incorrect handling

- Pulling on the charging cable can lead to cable breakage and damage. Only pull the charging cable out of the socket directly at the plug.
- The use of extension cables is not permitted. To avoid the risk of electric shock or cable fire, only one charging cable may be used at a time to connect the electric vehicle and charging system.
- A charging system whose charging cables are in contact with the ground involves a risk of tripping or mechanical damage if run over. The operator of the charging system must implement appropriate measures for cable routing and affix appropriate warnings.

⚠ WARNING

Risk of electric shock and fire due to the use of adapters!

Using adapters on the charging cable can cause serious injury and damage to property.

- Do not use any adapters on the charging cable!

3 Product description

The charging system described below is designed for charging electric vehicles indoors and outdoors with installation on solid ground.

3.1 Design

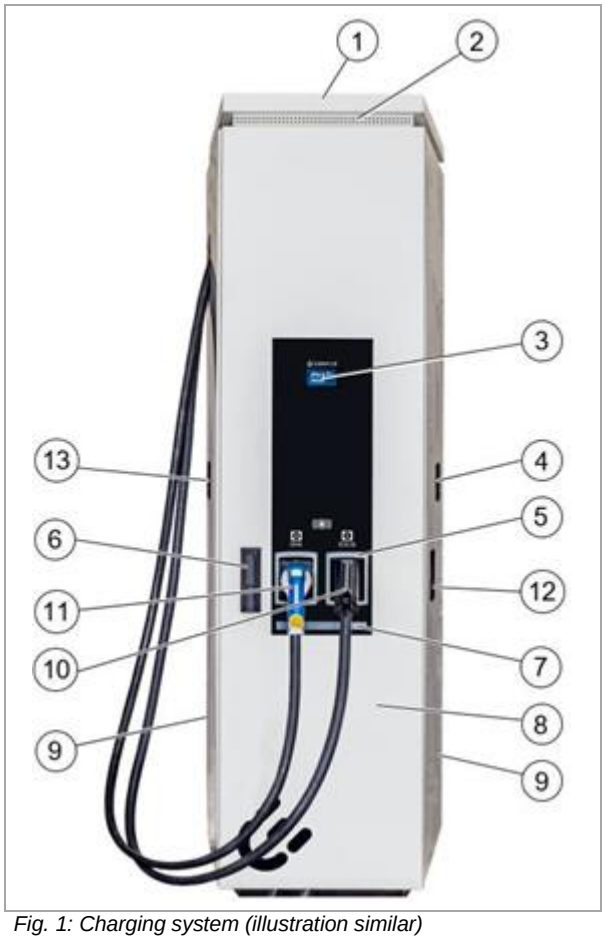


Fig. 1: Charging system (illustration similar)

1	Cover (roof)
2	Air outlet
3	Colour display
4	Counter DC (compliant with calibration law)
5	Status display of the charger interfaces
6	Door with locking mechanism
7	Near field illumination
8	Basic housing
9	Air Inlet
10	Charger interface CCS
11	Charger interface CHAdeMO
12	Charger interface, socket type 2
13	Counter AC (compliant with calibration law)

3.2 Series label

The charging systems from Compleo Charging Solutions AG can be identified by an individual serial number. A series label is attached inside the charging system. The following illustration shows an example of a series label:

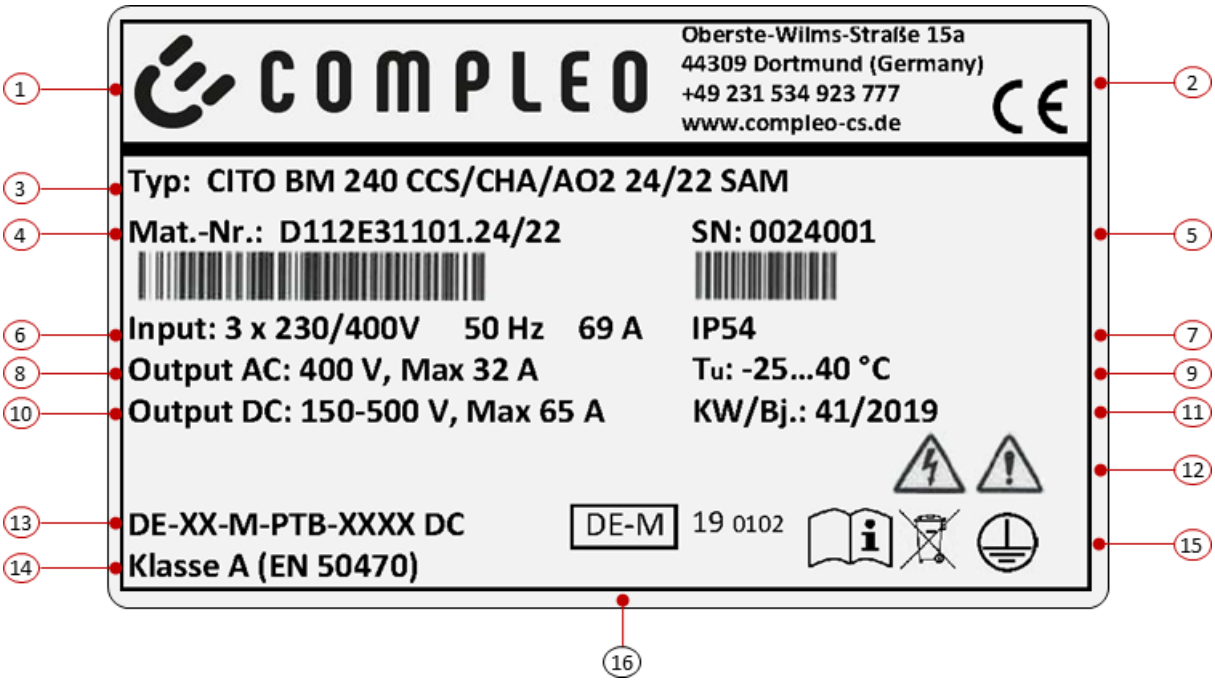


Fig. 2: Series label

The following information can be identified by means of the serial label:

1 Name of the manufacturer
2 Address/service number/website of the manufacturer
3 Type/installation type/ charger interfaces/charging capacities of the charging system
4 Material number or article number of the charging system
5 Serial number of the charging system
6 Input: Number of phases x voltage frequency input current
7 Protection type and protection class of the charging system
8 Output AC: Voltage, max. current
9 Ambient temperature
10 Output DC: Voltage range, max. current
11 Calendar week and year of manufacture
12 Pictogram (safety instructions)
13 Number of the type examination certificate
14 Accuracy class of the measuring instrument according to EN 50470
15 Pictogram (protection class, disposal, operating and maintenance instructions)
16 Metrology marking

3.3 Scope of delivery

Fig. 3: Charging system (illustration similar)

In addition to the charging station, the scope of delivery of the charging system includes the components listed on the following page.

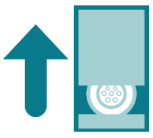
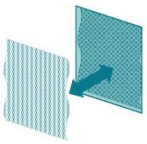
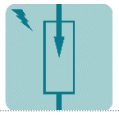
The illustration shows a fully equipped compleo® Cito BM 500 charging system. Due to special requirements and/or customer wishes, a purchased charging system of the same type may differ from this illustration.

The following table lists the technical characteristics of a charging system according to the standard portfolio.

In case of changes compared to the standard product, the changed technical characteristics are attached in a separate table in the Annex.

Any of the listed options can be included, but need not be present. For example, only the CSS or CHAdeMO charger interface may have been ordered. If several charger interfaces are available, however, only simultaneous charging at one DC and one AC interface is possible.

The scope of delivery of the compleo® Cito BM 500 includes the following features and components:

 C2 (optional)  CH (optional)  AO2 (optional)	**Charger interfaces (optional depending on version)** • C2 (smooth cable CCS) • CH (smooth cable CHAdeMO) • AO2 (socket outlet with sliding cover type 2)
  2-colour	**Status displays and/or display** • Display • Status LED
  (optional)	**Authentication** • RFID tag & RFID card (optional)
 < 60dB  Replaceable	**Ventilation and filter** • Active cooling • Changeable filter mats
	**Housing closure** • Pivoted lever
 (optional)	**Surge protection (optional)** • Surge arrester
 	**Documentation** • Circuit diagram • Manual incl. design drawings
 (alternative, optional)	**Foundation** • Asphalt & concrete (BM) alternative • Concrete base (BM); optional
  (optional)	**Installation accessories** • Base filler • Installation material (optional)
Without illustration (optional)	**Cable management system (optional)**

3.4 General Functions and Scope of Application

The compleo® Cito BM 500 charging system has the functionality for mode 3 and mode 4 charging. It is produced in different versions. The one-piece housing can be mounted on solid ground using two mounting methods. The charging system has up to three charging points at which two parallel charging processes can be carried out. The number of charger interfaces can be configured according to customer requirements and are available as attached charging cables with a CCS, CHAdeMO or type 2 charging point with sliding cover.

For "BM" type installation, the charging system is fixed directly on the ground or, by means of a concrete base, in the ground surrounding the charging system. The charging system is produced in different performance classes and is therefore able to carry out reliable and fast charging processes on vehicles in almost any existing network situation. Depending on the product class and scope, the charging systems are suitable for use in public and semi-public areas. The charging systems can be used indoors and outdoors.

The charging system has different displays which are embedded in the housing. Display options include an LCD multicolour display and status LEDs. Different states and messages, such as an ongoing charging process, can be easily output and read using the display in combination with the status LEDs.

The compleo® Cito BM 500 charging system incorporates state-of-the-art protection technology that ensures maximum safety for the charging system and persons operating it.

3.5 Cable management system (optional)

With the optionally available cable management system (CMS) it is possible to bridge longer distances between charging stations and electric vehicles. Cables on the ground between the vehicle and the charging station should be avoided.

The technology helps to make charging processes simple, safe and fast.

3.6 Technical specifications

The following table is an excerpt from the standard portfolio of Compleo Charging Solutions charging systems. A purchased charging system may deviate from this list according to customer-specific wishes and requirements. If changes have been made to a standard product, the modified charging system is identified with a separate table of technical specifications in the Annex.

3.6.1 1 x DC charger interface

General information

Charging system	Cito BM 500
Charging mode	acc. to IEC 61851/ mode 3 + mode 4
DC charger interface	1 x CCS plug with attached cable or 1 x CHAdeMO plug with attached cable

Connections

Mains connection	Main switch + PE terminal + PA rail
Connection cross-section	min 50 mm²

Data line	Cable connection
Min. connection cross-section	26 AWG
Max. length	30 m

Electrical characteristics

Max. charging capacity per loading point	50 kW
Charging voltage	200 – 480 V/ 1-
Charging current	max. 125 A
Mains voltage	400 V/ 3~
Max. rated current	80 A/ 3~

Mains frequency	50 Hz
Network form	TT/ TN
Protection class	I
Rated short-time withstand current (I_{cw})	(400 V AC) 6 kA
Overvoltage category	III
Max. pre-fuse	125 A gG/gL

Protective devices

MCB	1 x C100A, 1 x B16A

Ambient conditions

Ambient temperature	-25 °C to +40 °C
Operating temperature (Ø 24 h)	≤ 35 °C
Storage temperature	-25 °C to +50 °C
Relative humidity	≤ 95 % (non-condensing)
Altitude	≤ 2000 m above sea level

Mechanical data

Dimensions (H x W x D)	BM: 1995 x 640 x 511
Max. weight	BM: 250 kg (approx.)
Housing	Stainless steel (powder-coated)
Housing closure	Pivoted lever mechanism for locking cylinder (single lock or double lock)
Protection type	IP54
Degree of contamination	3
Type/mounting	Ground or base mounting

Communication interfaces

Data communication	TCP/IP
Data connection	LTE
Backend communication	OCPP 1.5, OCPP 1.6
RFID standard	Multireader
(frequency/ transmission power)	(13.56 MHz/ 13.9 mW,11.4 dBm) (125 kHz; 134.2 kHz/ 26 mW, 14.1 dBm)

Certification and standards

Low Voltage Directive	2014/35/EU
EMV Directive	2014/30/EU
RED Directive	2014/53/EU
RoHS Directive	2011/65/EU
GPSD Directive	2001/95/EG
WEEE Directive	2012/19/EU

3.6.2 2 x DC charger interfaces

General information

Charging system	Cito BM 500
Charging mode	Mode 3/ IEC 61851
DC charger interfaces	1 x CCS plug with attached cable and 1 x CHAdeMO plug with attached cable

Connections

Mains connection	Main switch + PE terminal + PA rail
Connection cross-section	min 50 mm²

Data line	Cable connection
Min. connection cross-section	26 AWG
Max. length	30 m

Electrical characteristics

Max. charging capacity per loading point	50 kW
Charging voltage	200 – 480 V/ 1-
Charging current	max. 125 A
Mains voltage	400 V/ 3~
Max. rated current	80 A/ 3~

Mains frequency	50 Hz
Network form	TT/ TN
Protection class	I
Rated short-time withstand current (I_{cw})	(400 V AC) 6 kA
Overvoltage category	III
Max. pre-fuse	125 A gG/gL

Protective devices

MCB	1 x C100A 1 x B16A

Ambient conditions

Ambient temperature	-25 °C to +40 °C
Operating temperature (Ø 24 h)	≤ 35 °C
Storage temperature	-25 °C to +50 °C
Relative humidity	≤ 95 % (non-condensing)
Altitude	≤ 2000 m above sea level

Mechanical data

Dimensions (H x W x D)	BM: 1995 x 640 x 511
Max. weight	BM: 250 kg (approx.)
Housing	Stainless steel (powder-coated)
Housing closure	Pivoted lever mechanism for locking cylinder (single lock or double lock)
Protection type	IP54
Degree of contamination	3
Type/mounting	Ground or base mounting

Communication interfaces

Data communication	TCP/IP
Data connection	LTE
Backend communication	OCPP 1.5, OCPP 1.6
RFID standard	Multireader
(frequency/ transmission power)	(13.56 MHz/ 13.9 mW,11.4 dBm) (125 kHz; 134.2 kHz/ 26 mW, 14.1 dBm)

Certification and standards

Low Voltage Directive	2014/35/EU
EMV Directive	2014/30/EU
RED Directive	2014/53/EU
RoHS Directive	2011/65/EU
GPSD Directive	2001/95/EG
WEEE Directive	2012/19/EU

3.6.3 1 x DC charger interface and 1 x AC charger interface (2 in 1)

General information

Charging system	Cito BM 500
Charging mode	Mode 3/ IEC 61851
DC charger interface:	1 x CCS plug with attached cable or 1 x CHAdeMO plug with attached cable
AC charger interface:	1x type 2 socket (sliding or folding)

Connections

Mains connection	Main switch + PE terminal + PA rail
Connection cross-section	min 50 mm²

Data line	Cable connection
Min. connection cross-section	26 AWG
Max. length	30 m

Electrical characteristics

Max. DC charging capacity per charging point	50 kW
Max. AC charging capacity per charging point	22 kW
DC charging voltage	200 – 480 V/ 1-
AC charging voltage	400 V/ 3~
DC charging current	max. 125 A
AC charging current	32 A
Mains voltage	400 V/ 3~
Max. rated current	112 A/ 3~

Electrical characteristics

Mains frequency	50 Hz
Network form	TT/ TN
Protection class	I
Rated short-time withstand current (I_{cw})	(400 V AC) 6 kA
Overvoltage category	III
Max. pre-fuse	125 A gG/gL

Protective devices

RCD	RCCB: 40 A/0,03 A, type A; RDC-DD: 6 mA
MCB	1 x C100A, 1 x B16A;

Ambient conditions

Ambient temperature	-25 °C to +40 °C
Operating temperature (Ø 24 h)	≤ 35 °C
Storage temperature	-25 °C to +50 °C
Relative humidity	≤ 95 % (non-condensing)
Altitude	≤ 2000 m above sea level

Mechanical data

Dimensions (H x W x D)	BM: 1995 x 640 x 511
Max. weight	BM: 250 kg (approx.)
Housing	Stainless steel (powder-coated)
Housing closure	Pivoted lever mechanism for locking cylinder (single lock or double lock)
Protection type	IP54
Degree of contamination	3
Type/mounting	Ground or base mounting

Communication interfaces

Data communication	TCP/IP
Data connection	LTE
Backend communication	OCPP 1.5, OCPP 1.6
RFID standard	Multireader
(frequency/ transmission power)	(13.56 MHz/ 13.9 mW,11.4 dBm) (125 kHz; 134.2 kHz/ 26 mW, 14.1 dBm)

Certification and standards

Low Voltage Directive	2014/35/EU
EMV Directive	2014/30/EU
RED Directive	2014/53/EU
RoHS Directive	2011/65/EU
GPSD Directive	2001/95/EG
WEEE Directive	2012/19/EU

3.6.4 2 x DC charger interfaces and 1 x AC charger interface (3 in 1)

General information

Charging system	Cito BM 500
Charging mode	Mode 3/ IEC 61851
DC charger interface:	1 x CCS plug with attached cable, 1 x CHAdeMO plug with attached cable
AC charger interface:	1x type 2 socket (sliding or folding)

Connections

Mains connection	Main switch + PE terminal + PA rail
Connection cross-section	min 50 mm²

Data line	Cable connection
Min. connection cross-section	26 AWG
Max. length	30 m

Electrical characteristics

Max. DC charging capacity per charging point	50 kW
Max. AC charging capacity per charging point	22 kW
DC charging voltage	200 – 480 V/ 1-
AC charging voltage	400 V/ 3~
DC charging current	max. 125 A
AC charging current	32 A
Mains voltage	400 V/ 3~
Max. rated current	112 A/ 3~

Electrical characteristics

Mains frequency	50 Hz
Network form	TT/ TN
Protection class	I
Rated short-time withstand current (I_{cw})	(400 V AC) 6 kA
Overvoltage category	III
Max. pre-fuse	125 A gG/gL

Protective devices

RCD	RCCB: 40 A/0,03 A, type A; RDC-DD: 6 mA
MCB	1 x C100A, 1 x B16A

Ambient conditions

Ambient temperature	-25 °C to +40 °C
Operating temperature (Ø 24 h)	≤ 35 °C
Storage temperature	-25 °C to +50 °C
Relative humidity	≤ 95 % (non-condensing)
Altitude	≤ 2000 m above sea level

Mechanical data

Dimensions (H x W x D)	BM: 1995 x 640 x 511
Max. weight	BM: 250 kg (approx.)
Housing	Stainless steel (powder-coated)
Housing closure	Pivoted lever mechanism for locking cylinder (single lock or double lock)
Protection type	IP54
Degree of contamination	3
Type/mounting	Ground or base mounting

Communication interfaces

Data communication	TCP/IP
Data connection	LTE
Backend communication	OCPP 1.5, OCPP 1.6
RFID standard	Multireader
(frequency/ transmission power)	(13.56 MHz/ 13.9 mW,11.4 dBm) (125 kHz; 134.2 kHz/ 26 mW, 14.1 dBm)

Certification and standards

Low Voltage Directive	2014/35/EU
EMV Directive	2014/30/EU
RED Directive	2014/53/EU
RoHS Directive	2011/65/EU
GPSD Directive	2001/95/EG
WEEE Directive	2012/19/EU

4 Transport, packaging and storage

4.1 Transport Inspection

Depending on the type and product scope of the charging system, it is delivered either upright or horizontally in appropriate transport and protective packaging. Depending on the type of charging system, air-cushioned protective films and/or cardboard boxes are used. The materials can also be used as underlay during subsequent assembly.

1. After unpacking, thoroughly inspect the charging system for transport damage.
2. Compare the serial number of the charging system with that of the delivery documents to exclude faulty deliveries.
3. Check delivery according to purchase and scope of delivery for completeness.
4. Proceed as follows in case of deviations or recognisable damages:
   – Do not accept delivery or only accept it conditionally.
   – Complaints must be reported immediately to the manufacturer in writing.

NOTE

We recommend to keep and reuse the original packaging for further transportation. Otherwise, the packaging material must be disposed of in accordance with the applicable local regulations.

4.2 Storage conditions

The system should be stored in the same position that it was transported in. If this is not possible for undetermined reasons, it should be stored in the installation position of the charging system.

- Ambient temperature for storage: -25 °C to +50 °C
- Permissible relative humidity: maximum 95 % (non-condensing)
- For intermediate storage, store the charging system in the original packaging

4.3 Transport with lifting gear

⚠ WARNING

Suspended loads

Falling loads can cause serious injury or death.

- Never step under suspended loads.
- Attach slings only to the designated attachment points.
- Only use approved lifting gear and slings in perfect condition with sufficient load capacity.
- Transport the load close to the ground and set it down immediately after transport to its destination.

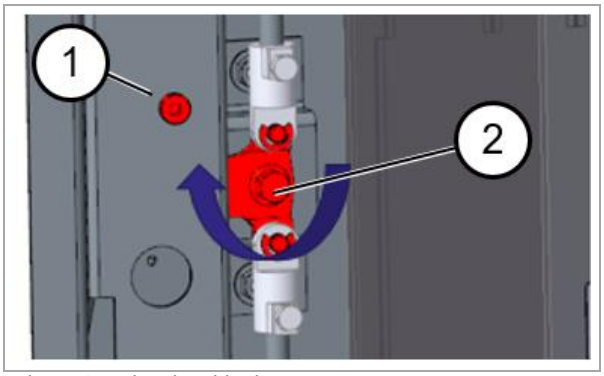


Fig. 4: Opening the side doors

1. Open the door of the charging station.
2. Unscrew the screw approx. 10 mm (1).
3. Turn the locking lever of the left door 90 ° upwards (2) and open the left side door.
   – Make sure that no cables are damaged.
   – The cover need not be removed.

   Steps 2 and 3 are to be applied analogously for the right door.

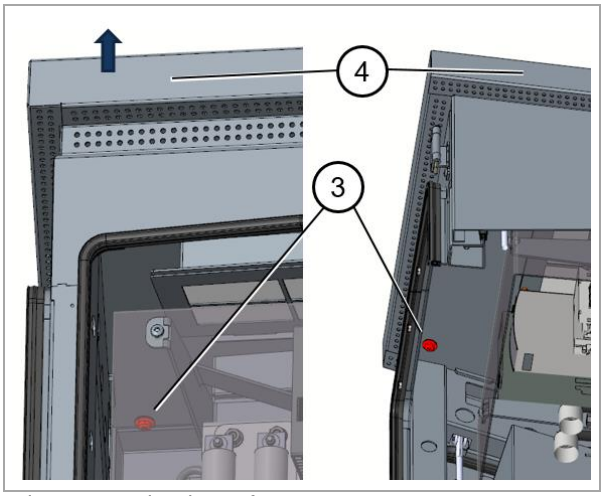


Fig. 5: Removing the roof

4. Unscrew four screws (3) under the roof.
5. Remove the roof (4) upwards.
6. Place the roof on a soft surface to avoid scratches.

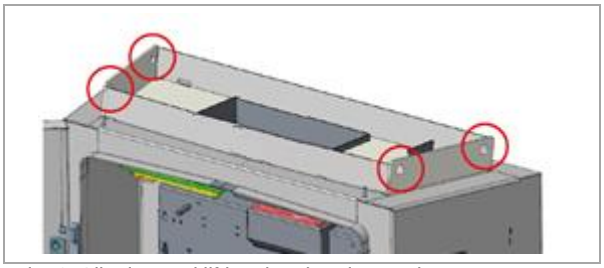


Fig. 6: Slinging and lifting the charging station

7. Bring suitable lifting gear into position.
   - The lifting gear must be designed for a transport weight of 250 kg.
8. Attach suitable ropes with shackles to the four attachment points.
9. Lift the charging station slowly and ensure that it hangs vertically.
10. Transport the charging station to its destination and set it down safely.

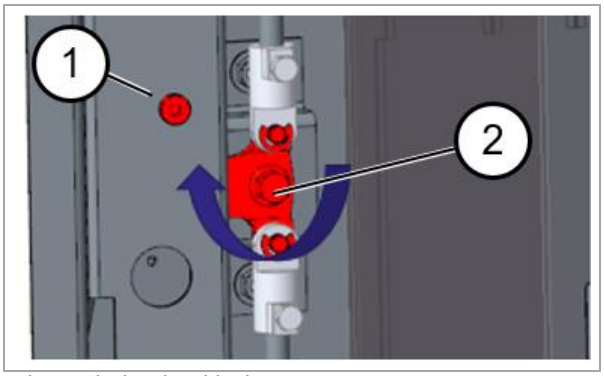


Fig. 7: Closing the side doors

11. Put the roof back on and screw it on.
12. Insert the cover.
13. Screw the cover back on.
14. Close and lock the left side door of the charging station (2) and screw the screw back in (1).

    Step 14 is to be applied analogously for the right door
15. Close and lock the door of the charging station.

5 Installation

Incorrect installation can lead to personal injury and damage to property. It must be ensured that the assembly and electrical installation are carried out professionally and that the local protective measures and the specifications of the energy supplier are observed.

The charging systems may therefore only be installed by a qualified electrician and persons who are demonstrably qualified.

5.1 Location

For professional installation, safe operation and barrier-free access to the charging system, the following points must be observed when selecting the location.

- National or local regulations.
- Do **not** install the charging system in the hazard areas of:
  - Flammable, combustible and explosive materials
  - Running or jet water
- Do **not** install the charging system in the following areas:
  - Areas that are potentially explosive (e.g. gas filling stations)
  - Areas where backwater or storm water is to be expected
  - Areas where flooding is to be expected
  - Areas where heat domes or heat accumulation can occur
- The substrate must have sufficient strength and load-bearing capacity to withstand the mechanical loads.
- Provide sufficient space to maintain the minimum distances:
  - Approx. 120 cm between two charging systems
  - 3 cm from the back of the charging system to other objects; on a concrete base in the case of a mechanical installation
- Ensure a sufficient fresh air supply for cooling the charging system and heat dissipation.
- Observe ambient conditions, see Technical Data.
- - Ensure stable LTE connection. If necessary, switch to LAN or external LTE antenna. It is recommended to install a duplex network cable (CAT 7).

NOTE

To protect the charging system, we recommend to install an approach limiter (e.g. bollard).

5.2 Parking space arrangement

For the simplest and most convenient execution of individual or parallel charging processes, a well thought-out arrangement of the parking spaces around the charging system is recommended. The principle of the parking space arrangement is shown in the following illustrations.

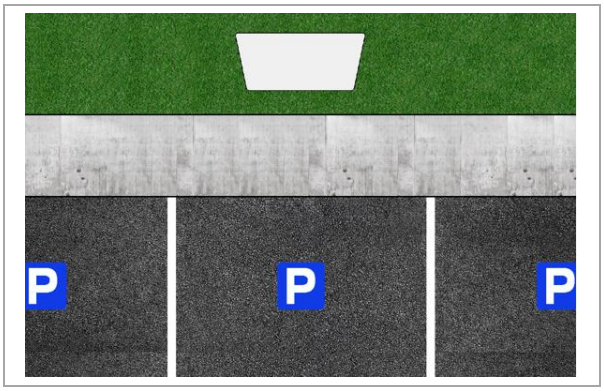


Fig. 8: Three charging points

3 charging points

Connection to AC interface:

- Park the vehicle on the right in front of the charging system

Connection to DC interface:

- Park the vehicle on the left in front of the charging system
- and/or park centrally in front of the charging system

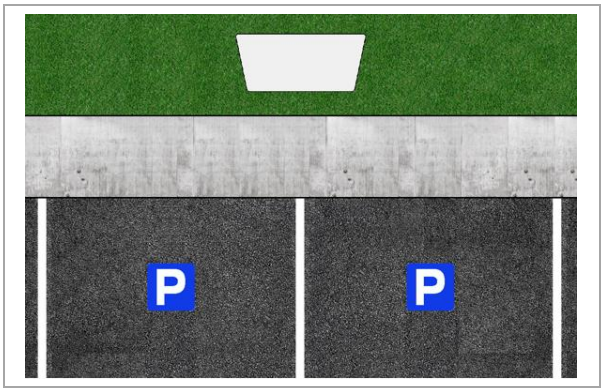


Fig. 9: Two charging points

2 charging points

Connection to AC interface:

- Park the vehicle on the right in front of the charging system

Connection to DC interface:

- Park the vehicle on the left in front of the charging system

5.3 Installation work

The assembly and installation work requires specific technical qualifications and expertise. There is a danger to life for persons who carry out work for which they have neither been qualified nor instructed. The work may only be carried out by persons who are familiar with it, have been informed about dangers and have the necessary qualifications.

Observe the national legal requirements and regulations during assembly and installation.

5.4 Mechanical installation

⚠ WARNING

Incorrect installation and start-up

Improper performance of work can lead to serious injuries and damage to property.

- Work may only be carried out by trained specialist personnel.
- Meet all safety requirements before installation.
- Only carry out mechanical installation in a de-energized state.

- Provide sufficient free space for the installation. The installation site must be sufficiently accessible so that the charging system can be installed and serviced without interference.
- Use a suitable lifting tool with sufficient load capacity during installation.

NOTE

The use of specific installation materials for the charging system may be necessary depending on the condition of the ground or special local conditions. The necessity must be considered individually at each location.

The following description of installation with specific installation material is exemplary. Local conditions are not dealt with in detail. Deviating procedures may only be initiated by competent persons.

5.4.1 Installation version BM

Installation sequence

1. Select a suitable location.
2. Check parts and installation material for completeness.
3. Check the substrate.
4. Route the power supply cable.
5. Drill mounting holes.
6. Insert screw anchors.
7. Place and align the charging system.
8. Insert the power supply cable into the charging system.
9. Fasten the charging system with installation material.
10. Prepare electrical installation.

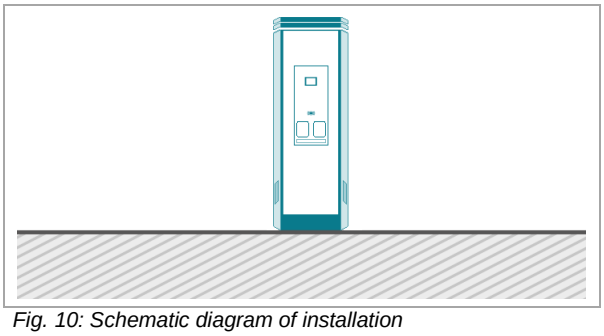


Fig. 10: Schematic diagram of installation

Installation takes place on prepared asphalt or concrete surfaces.

The charging system is then mounted and finally installed.

Refer to the design drawings in the Annex for the dimensions of the charging system.

The installation material for fixing is included in the scope of delivery.

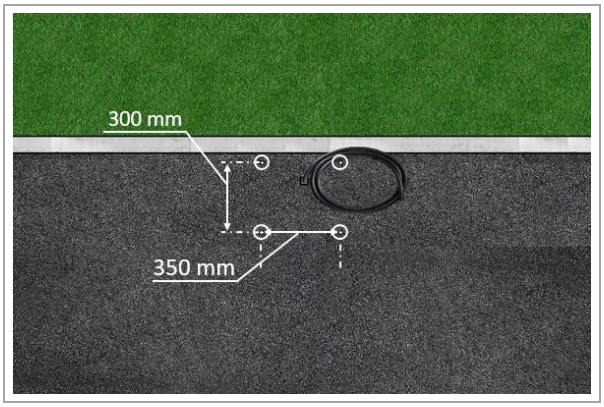


Fig. 11: Mounting holes

Installation requirements

- Substrate with sufficient layer thickness, consistency and bearing capacity
- Asphalt or concrete thickness of the substrate at least 120 mm
- Flat support surface
- Guidelines for boreholes:
  - Ø of the boreholes: 16 mm
  - Distances: 300 mm and 350 mm
  - Depth: 110 mm

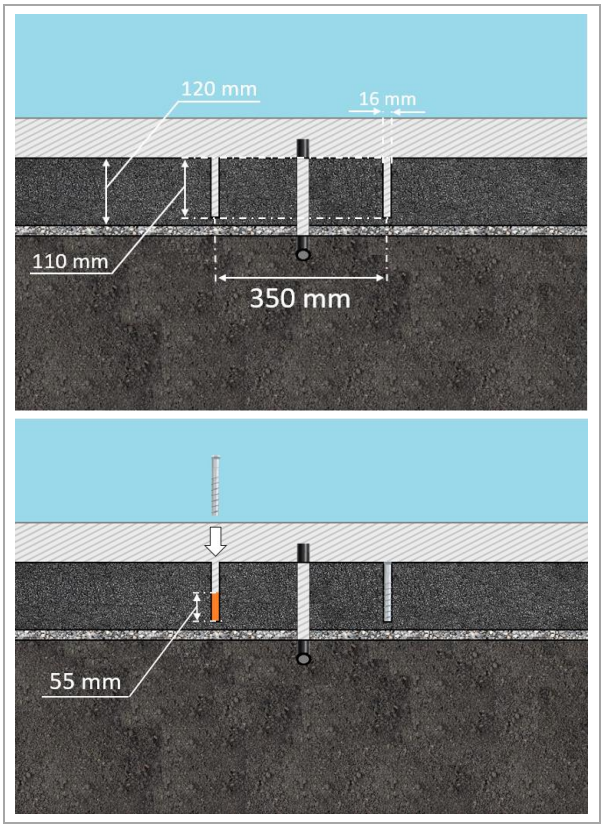


Fig. 12: Boreholes

Carrying out installation

1. Mark boreholes.
2. Drill boreholes according to instructions.
3. Fill boreholes up to a height of 55 mm with injection mortar.
4. Insert screw anchor with internal thread (M 10) and an external diameter of 16 mm.
5. Allow the injection mortar to harden.

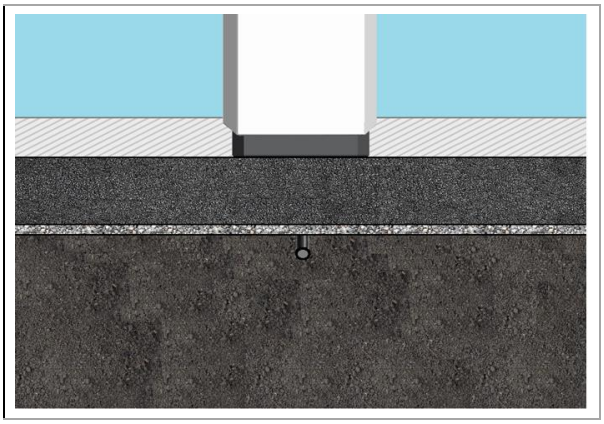


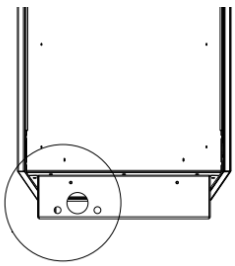
Fig. 13: Fastening the charging system

6. ⚠ **WARNING** – Crushing of body parts due to unintentional lowering. Body parts must not be under lifted load.
   Position and align the charging system over the boreholes so that the mounting holes of the charging system match the boreholes.
7. Insert the power supply cable into the charging system from below. If the power supply cables are not fed from below, the charging system must be closed with a base plate.
8. Fasten the charging system with four screws (M 10 x 50).

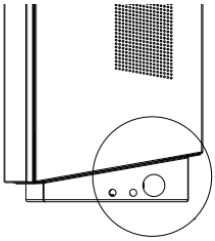
NOTE

If the power supply cables are not fed from below, it is recommended to close the lower drilled holes with a base plate. The base plate is supplied as an option. For alternative cable routings, see the following page.

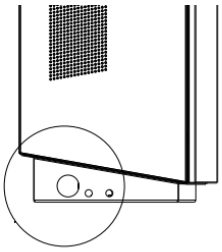
If the supply lines cannot be routed through the bottom of the charging system, they can be fed in at the rear (A), right (B) or left (C) of the unit base.



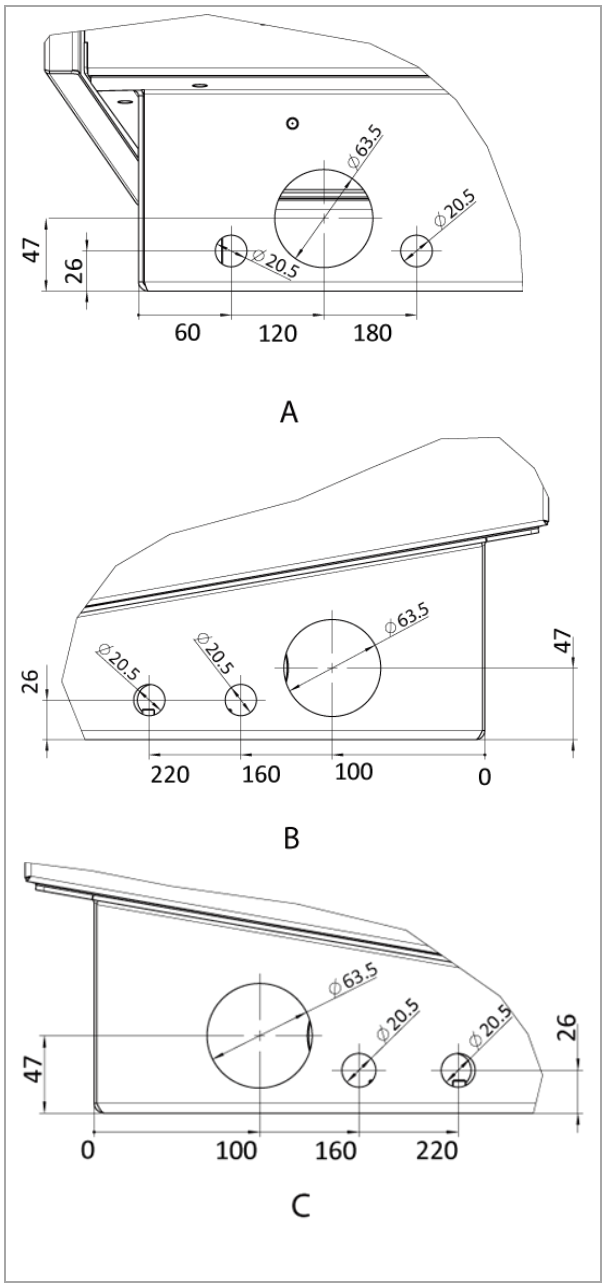
A



B



C



Holes can be drilled in the area on the corresponding sides of the unit base using a suitable tool. Drill bits can be supplied as an option.

The subsequent insertion of the gland and the feeding of the supply cables must not reduce the IP degree of protection and IK degree of protection of unit base.

The gland must therefore be selected on the basis of the place of use and the expected ambient conditions. Special attention should be paid to the temperature, humidity and UV resistance. Waterproof cable glands are recommended.

In addition, a strain relief should be installed to protect the supply lines from being torn out.

NOTE

To protect the charging system, we recommend to install an approach limiter (e.g. bollard).

5.4.2 Installation BM with concrete base

Installation sequence

1. Select a suitable location.
2. Check parts and installation material for completeness.
3. Dig the excavation pit.
4. Check the substrate.
5. Route the power supply cable.
6. Compact and level the ground.
7. Place and align the concrete base.
8. Insert the power supply cable into the concrete base.
9. Fill the excavation pit with excavated material and compact the excavated material.
10. Insert base filling material (mandatory).
11. Place and align the charging system.
12. Insert the power supply cable through the cable gland of the base plate into the charging system.
12. Fasten the charging system with installation material.
14. Prepare electrical installation.

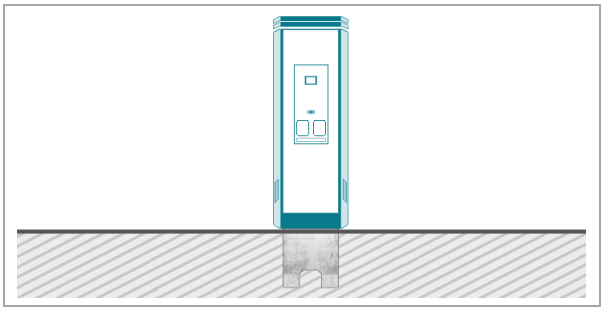


Fig. 14: Schematic diagram of installation

The concrete base is embedded in the ground.

The charging system is then mounted on the concrete base and finally installed.

Refer to the design drawings in the Annex for the dimensions of the charging system.

The installation material for fixing is included in the scope of delivery.

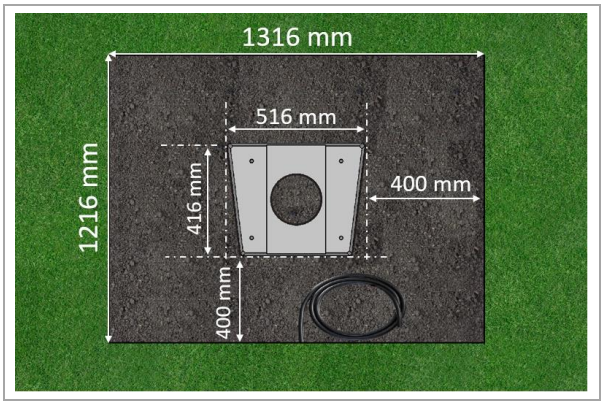


Fig. 15: Excavation pit (dimensions)

Installation requirements

- Excavation pit
  - Width: 1316 mm
  - Length: 1216 mm
  - Distance to all sides of the concrete base: 400 mm
  - Depth: 600 mm
- Flat support surface of the substrate

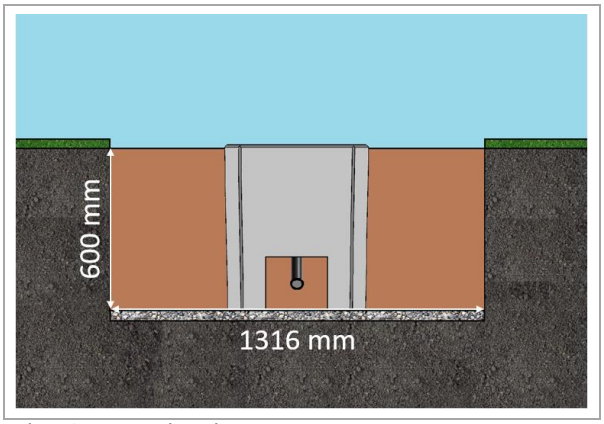


Fig. 16: Excavation pit

Carrying out installation

1. Dig an excavation pit and prepare it for the stable installation of the charging system.
2. Embed the concrete base into the excavation pit with suitable lifting gear.
   – For orientation and alignment, the upper edge of the ground level and the operating side of the charging system are marked on the concrete base
   – Concrete base protrudes 20 mm from the ground
3. Insert the power supply cable into or through the concrete base.

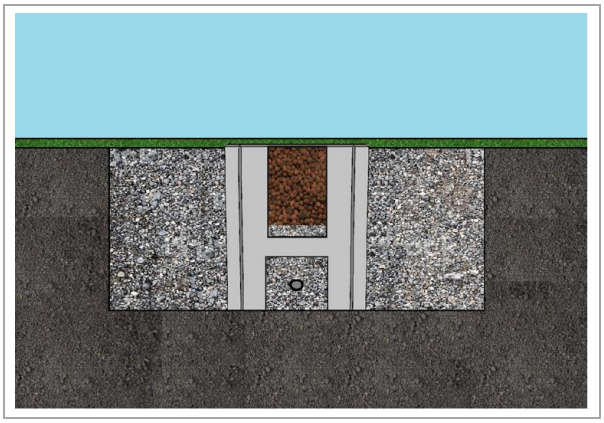


Fig. 17: Excavation pit filled with excavated material

4. Fill the excavation pit with excavated material.
   – Make sure that the filling of the pit reaches the surrounding ground level.
5. Fill the last 300 mm inside the concrete base with concrete base filling material.
   – ½ sack of filling material (Compleo)
   – The use of the filling material is mandatory as it reduces the penetration of moisture into the charging system from the ground.
6. Compress the excavation material around the charging system.

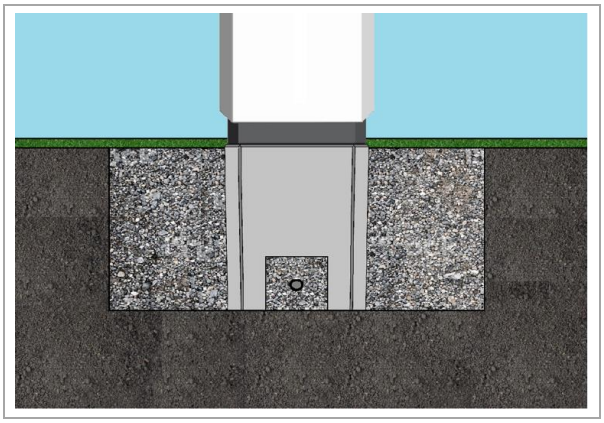


Fig. 18: Fastening the charging system

7. ⚠ **WARNING** – Crushing of body parts due to unintentional lowering. Body parts must not be under lifted load.
   Position and align the charging system over the drilled holes so that the mounting holes of the charging system match the mounting holes in the concrete base.
8. Insert the power supply cable through the cable gland of the base plate into the charging system.
9. Fasten the charging system to the concrete base with four screws (M 10 x 50).
   – The installation material is included in the scope of delivery.

5.4.3 Base plate

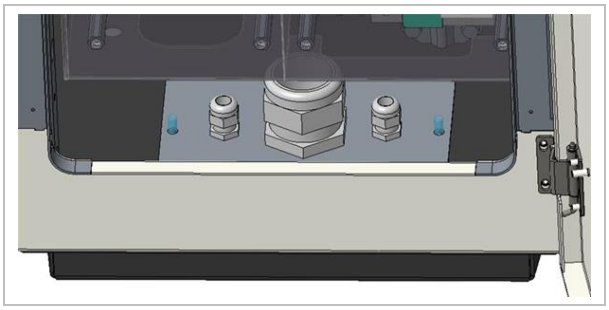


Fig. 19: Base plate

A base plate is installed inside the charging system. The base plate serves among other things as strain relief.

NOTE

The base plate must be mounted. Otherwise the operation of the charging system may be limited.

NOTE

To protect the charging system, we recommend to install an approach limiter (e.g. bollard).

5.4.4 Closing the housing

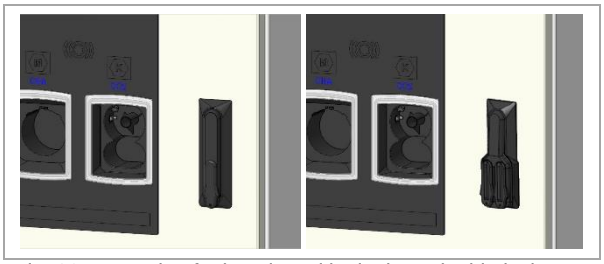


Fig. 20: Example of a housing with single or double lock

A swing lever mechanism is installed in the front door of the housing. Depending on the version, this is a single or double lock.

A lock can be installed inside the swivel lever to prevent access by unauthorised persons.

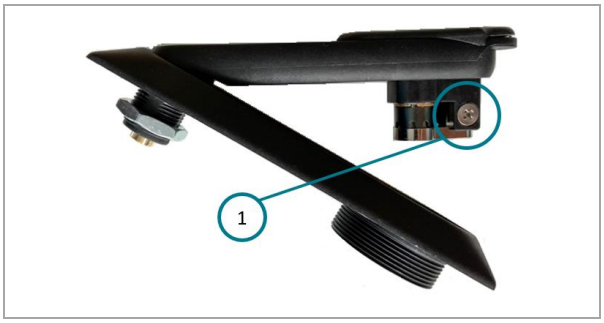


Fig. 21: Pivoted lever with lock

The profile half-cylinder lock is optionally included in the scope of delivery.

Opening the housing

1. Unlock the lock with the associated key.
2. Swing out pivoted lever and turn to the left.
3. Open door to the right.

If necessary, the profile half-cylinder lock can be replaced. For this purpose the fixing screw must be unscrewed.

After replacing the lock, it must be secured again with the fixing screw.

NOTE

If no locking cylinder is installed inside the pivoted lever, the lever can only be opened using a suitable tool. A construction key is required to reopen a closed lock.

5.5 Electrical installation

DANGER

Danger due to electric current

Touching live parts will result in electric shock with serious injury or death.

- Work on electrical components may only be carried out by a qualified electrician and in accordance with electrical engineering rules.
- Ensure they are de-energised and take suitable protective measures.

- For safe disconnection during installation work, disconnect the charging system from the power supply.
  - Switch off the circuit breaker or main switch.

Observe the national legal requirements and regulations during electrical installation. In Germany, these include the following safety requirements:

- DIN VDE 0100-100
- DGUV Regulation 1
- DGUV Regulation 3+4
- TRBS 1201

DANGER

Danger due to electric current

Touching live parts will result in electric shock with serious injury or death.

- Only carry out work on electrical components after a period of more than 5 minutes.

5.5.1 Power supply cable

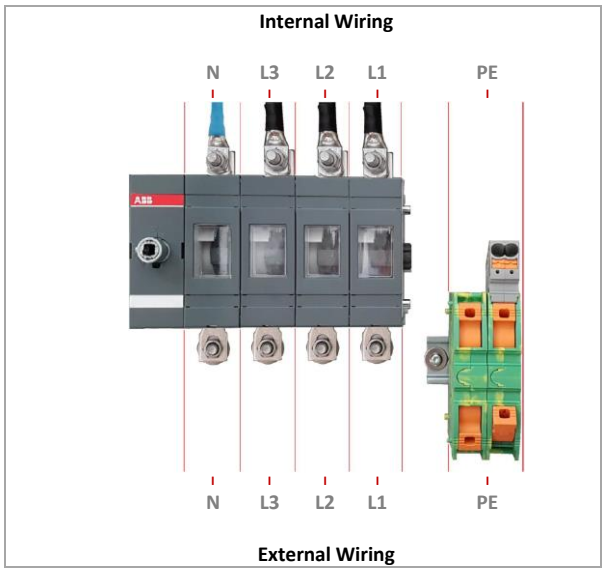


Fig. 22: Terminal strip

1. Cut the power supply cable to length so that the cables above the base plate have a length of approx. 300 mm.
2. Strip 30 mm of insulation from the individual wires or according to the cable lugs to be used.
3. Connect all conductors of the power supply cable to the external wiring side as shown in the adjacent figure.

   The cross-section of the conductor must be between 10 and 70 mm² (rigid & flexible).

   The conductor cross-section must be selected taking into account the maximum charging capacity and the length and installation method of the power supply cable.
4. Make sure that the individual wires are connected correctly and the clamping screws are tightened firmly (M = 20 Nm) or the push-in terminal is closed correctly (click).
5. Install surge and lightning protection according to the installation conditions and the resulting planning.
6. Replace all covers that may have been removed previously.

5.5.2 Equipotential bonding rail

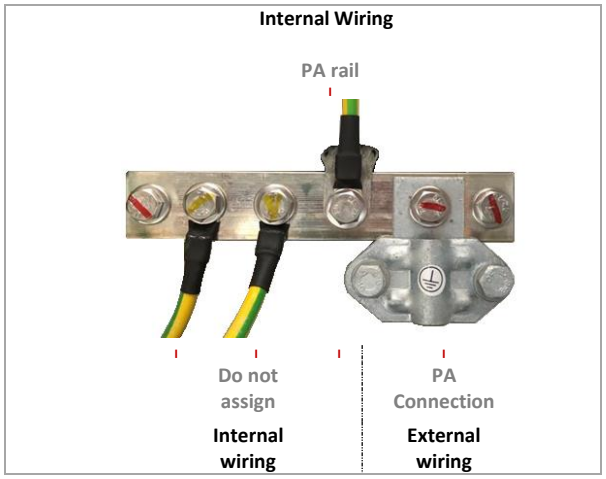


Fig. 23: PA rail

1. Cut the connecting cable of the PA connection to length so that the cable above the base plate has a length of approx. 300 mm.
2. Lead the round wire directly into the PA terminal.

   Strip 30 mm of insulation from any single wire.
3. Connect the connecting cable of any earthing to the PA rail as shown in the adjacent figure.

   Connect any single wire instead of the PA terminal using a cable lug.
4. Make sure that the cables are connected correctly and the terminal screws are tightened firmly.
5. Replace all covers that may have been removed previously.

NOTE

For electrical installation, the applicable standards for surge protection must be observed. We recommend the use of a type 1+2 surge arrester for charging stations with public mains connection in the pre-counter area. Charging stations which are supplied from distribution boards that are already protected must be equipped with at least one type 2 surge arrester. In addition, for DC charging systems with cable runs of more than 10 metres between the operating and power units, additional surge protection should be provided for both the AC and DC lines.

ATTENTION

If the charging system is installed in a TT network, an appropriate residual current protection device must be provided in the pre-installation.

NOTE

The necessary torques of the main switch or the protective conductor and neutral conductor terminals must be observed. The torques can be taken from the corresponding data sheets.

NOTE

If type 1 surge protection is installed, an additional connection to the equipotential bonding or the local earthing system is required. A separate equipotential bonding rail is provided in the charging station for this purpose.

NOTE

Any change to an adjustable current value of the charging point or charging points may only be made by a qualified electrician.

5.5.3 Data connection cable

If it is necessary to connect an individual charging station to a network by means of a cable, this must be done using a pre-installed cable connector. The cable connector is prepared on the system side and must be connected on the mains side during electrical installation. Open the cable connector on the mains side and prepare the cable according to the following figures.

ATTENTION

The minimum cross-section of the individual strands of the network cable must be below AWG 26. When using a smaller cross-section than AWG 26, it cannot be guaranteed that a connection can be established.

NOTE

As a network cable to be used on the network side, we recommend using a cable with the following designation and article number:

- Designation: HELUKAT 600E S/FTP PVC
- Article number: 802167, S/FTP 4x2xAWG23/1 PVC (S-STP)

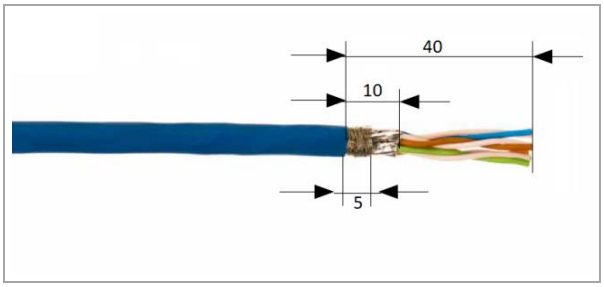


Fig. 24: Stripping the cable

1. Strip 40 mm of insulation from the cable as shown in the adjacent figure.
2. Wrap the braided shield evenly around the foil shield at the end of the jacket over a width of 5 mm.
3. Remove the foil shield so that it only protrudes 10 mm from the jacket.

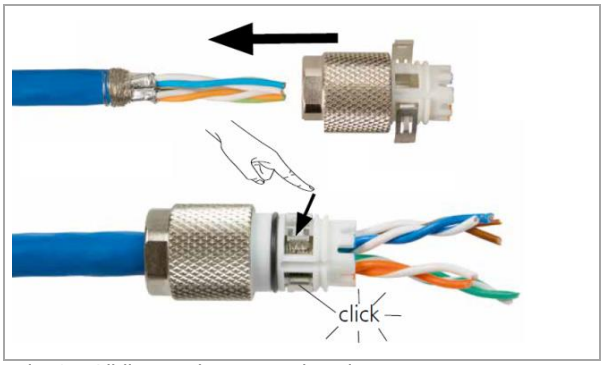


Fig. 25: Sliding on the connecting piece

4. Push the connecting piece onto the prepared cable.
5. Secure the connecting piece by locking the two shield clamps.
   - Make sure that the cables are correctly assigned to the corresponding gap (colour on colour).
   - If crossing of wire pairs is necessary, this procedure must be carried out before the connecting piece is inserted.

White plastic cap

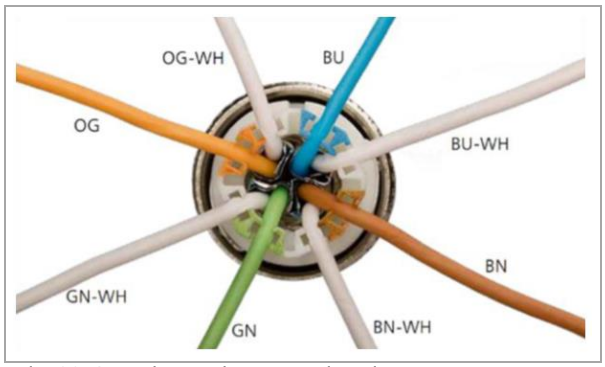


Fig. 26: Screwing on the connecting piece

6. Connect the individual wires of the cable as shown in the adjacent figure.
7. Cut the wires with an electric cutter flush with the housing.
8. Screw the connecting piece to the cable connector.
   – How far the connecting piece has to be screwed onto the cable connector depends on the diameter of the network cable used on the network side.

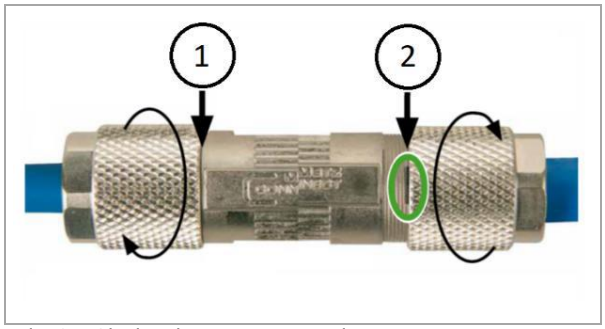


Fig. 27: Closing the screw connection

   – For diameters up to 9 mm, the cable connector must be completely closed (1).
   – - For diameters between 9.1 mm and 9.7 mm, close the screw connection up to the vertical marking of the cable connector (2).

5.5.4 RJ45 connector

If a connection to a network by means of an internally installed switch is required (depending on the equipment), this is to be realised using an RJ45 connector. The connector is enclosed and must be connected during electrical installation. The connector must be prepared according to the following illustrations.

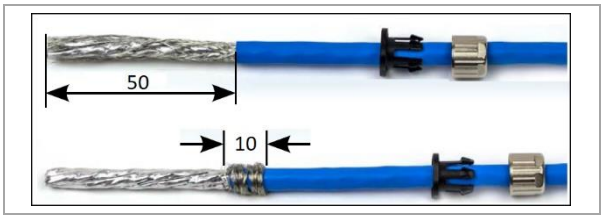


Fig. 28: Stripping the cable

1. Strip 50 mm of insulation from the cable as shown in the adjacent figure.
2. Push the cable gland over the stripped part onto the cable.
3. Wrap the braided shield evenly around the foil shield at the end of the jacket over a width of 10 mm.

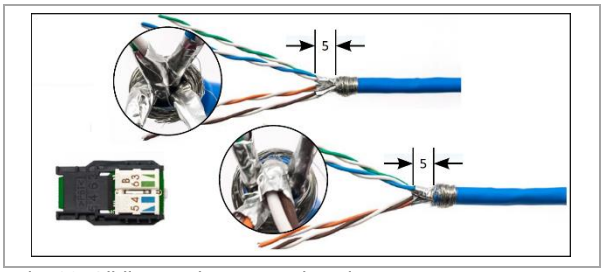
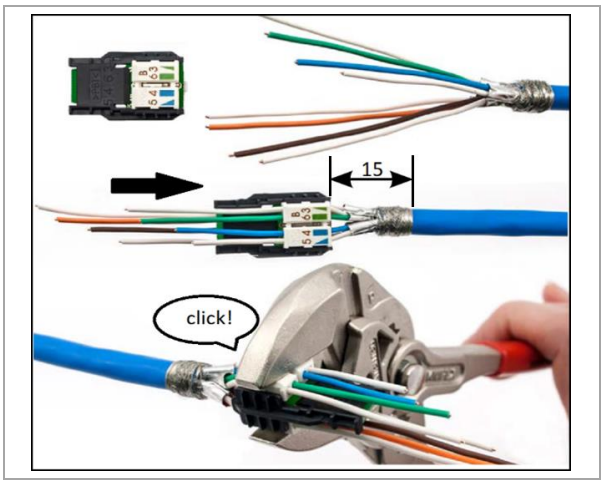
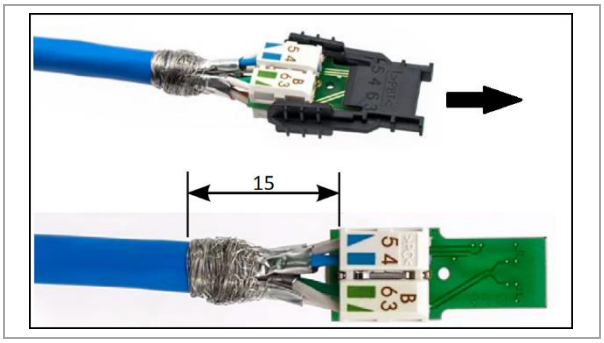


Fig. 29: Sliding on the connecting piece

4. Remove the foil shield so that it only protrudes 5 mm from the jacket.
5. Pre-sort wire pairs so that the colours of the manager and the wires match.
   This can result in the two versions shown, depending on which end of the network cable is present.



6. Untwist the wires and insert them into the wire manager according to the colour assignment.
7. Secure all wires in the wire manager with a pliers wrench. A click must be heard to indicate successful fastening.

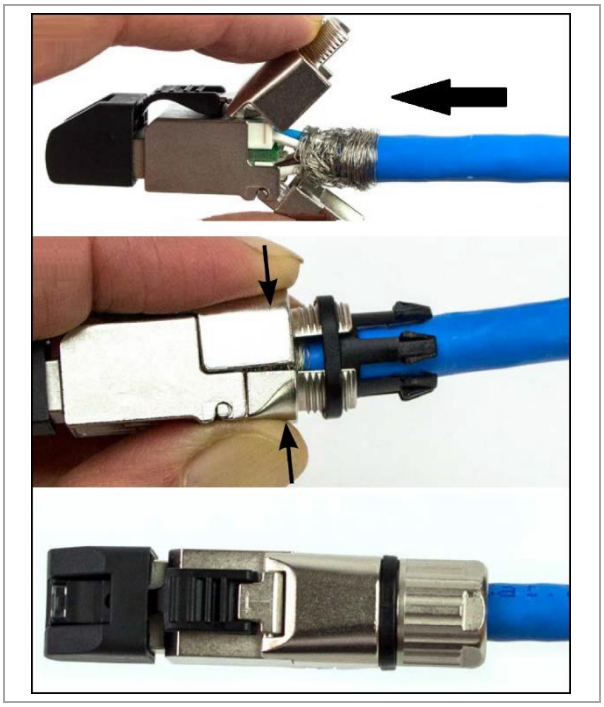


– The distance between the beginning of the wound braided shield and the wire manager must not exceed 15 mm.

8. Cut off the wires protruding from the wire manager with an electric cutter so that the ends are flush.

   The protrusion must not exceed 0.5 mm.

9. Remove the black cap from the cable manager.



10. Push the wire manager into the RJ45 connector housing.
11. Close the fastener around the wound braided shield.
    Make sure that no strands of the braided shield protrude from the connector.
12. Push the strain relief onto the fastening of the connector.
12. Attach the gland to the connector. The torque to be applied is approx. 1 Nm and can be achieved with an open-end spanner size SW13.

The electrical connection is completed and the charging system can be put into operation.

5.6 Installation of the cable management system (CMS) and the collision protection

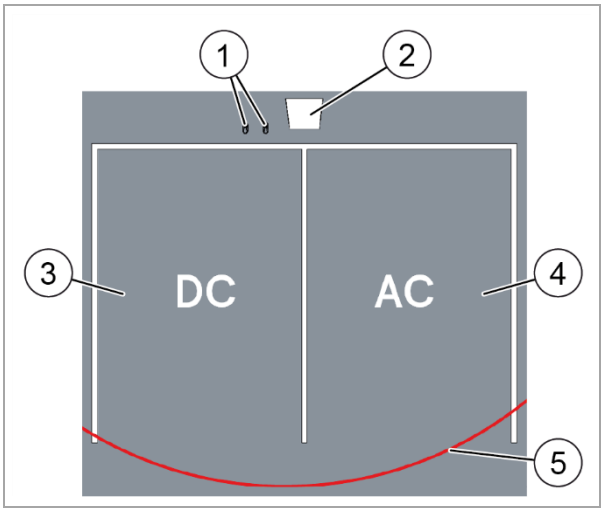


Fig. 30: CMS arrangement

Arrangement

1 CMS
2 charging station
3 DC parking space
4 AC parking space
5 Charging plug range (6 m radius)

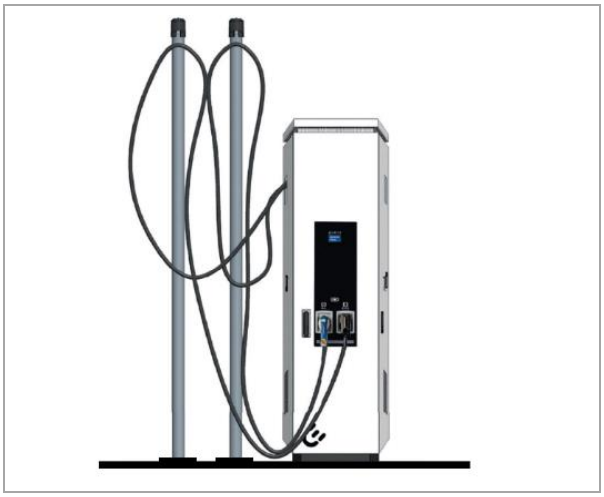


Fig. 31: Cable management system BM

- - Ground mounting; the CMS is anchored to the ground with a mounting plate.

The installation site must be chosen so that the cables do not protrude onto the road and do not come to rest between the kerb and the road.

The installation material for fixing is included in the scope of delivery.

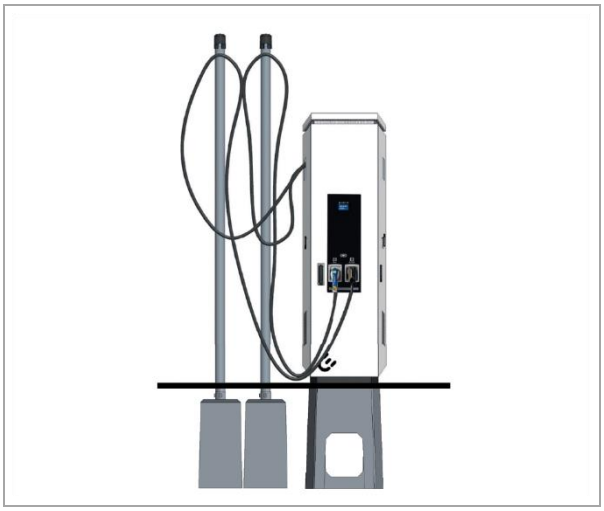


Fig.3: Cable management system with concrete base

- The concrete base is embedded in the ground. The CMS is then mounted and finally installed.

The installation site must be chosen so that the cables do not protrude onto the road and do not come to rest between the kerb and the road.

The spacing dimensions can be found in the following installation description.

The installation material for fixing is included in the scope of delivery.

5.6.1 BM installation

The installation site must be chosen so that the cables do not protrude onto the road and do not come to rest between the kerb and the road.

Installation sequence

1. Select a suitable installation site.
2. Check ground for stability.
3. Check parts and installation material for completeness.
4. Measure and drill fixing holes on the ground.
5. Insert ground anchorage.
7. Place the CMS on the ground anchorage and screw it in place.

5.6.2 Inserting the ground anchorage

NOTE

The design of the ground anchorage must be adapted to the subsoil condition and/or special local conditions.

The following description of the assembly is therefore only exemplary. Local conditions are not dealt with in detail. Deviating procedures may only be initiated by competent persons.

Installation requirements

- Ground conditions with sufficient load-bearing capacity and evenness. In case of doubt, a qualified civil engineering company must establish the ground conditions and carry out the installation

Installation material and tools

- Depending on ground conditions, 4 suitable ground anchors (e.g. expansion or injection anchors) with threaded bolt M10 or internal thread M10 (not in scope of delivery)
- Suitable drilling tool

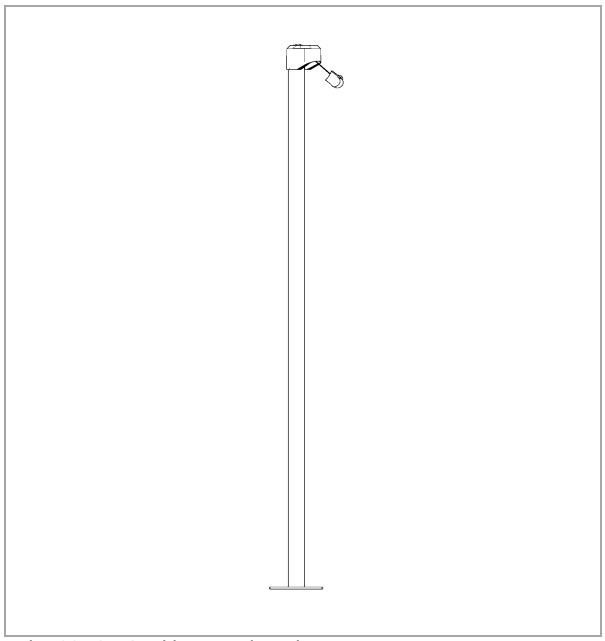


Fig. 32: CMS with mounting plate

Carrying out installation

1. Erect the CMS and place it on the selected location.

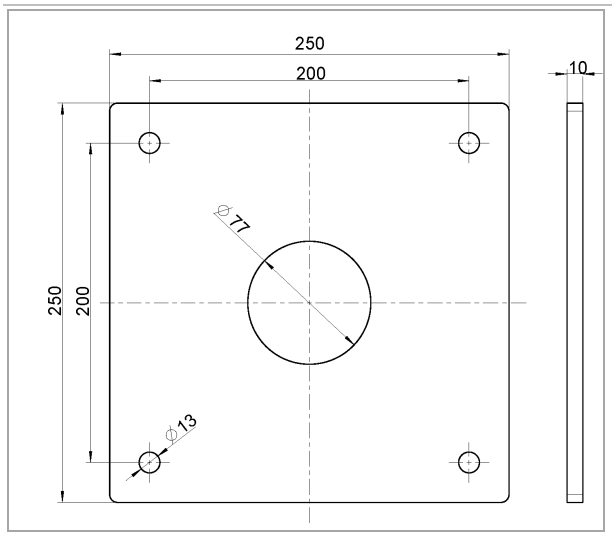


Fig. 2: Boreholes

2. Mark the hole pattern of the base plate on the ground.
3. Move the CMS to the side so that the markings on the ground are accessible.
4. Drill holes on the markings using a suitable drilling tool.
   – Drill hole diameter: according to the manufacturer's specification of the ground anchor
   – Drill hole depth: according to the manufacturer's specification of the ground anchor
5. Place the CMS over the inserted ground anchors.
6. Align the CMS so that the mounting holes correspond with the mounting points of the ground anchors.
7. Place washers over the mounting holes in the base plate, push the screw attachments through and hand-tighten them.
8. Check the correct fit and tighten the screw connections crosswise. Observe the corresponding tightening torques!

5.6.3 Installation with concrete base

The installation site must be chosen so that the cables do not protrude onto the road and do not come to rest between the kerb and the road.

Installation sequence

1. Check parts and installation material for completeness.
2. Dig the pit.
3. Insert chippings (filling height: 10 cm)
4. Create a flat support surface.
5. Place and align the concrete base.
6. Fill pipe in concrete base with fine sand.
7. Prepare CMS.
8. Insert CMS.
9. Mount the positioning aid.
10. Fill the pit with excavated material (up to 10 cm).
11. Fill fine sand between pipes of concrete base and CMS.
12. Tighten the fastening screws.
13. Align the pipes of the CMS vertically.
14. Compress the filling material.
15. Fill the pit with excavated material (up to 30 cm).
16. Align the pipes of the CMS vertically again.
17. Compress the filling material.
18. Fill the pit with excavated material (up to 60 cm).
19. Compress the filling material.
20. Check the alignment.
21. Remove positioning aid.
22. Insert paving stones (cover layer) and adapt to pipes.

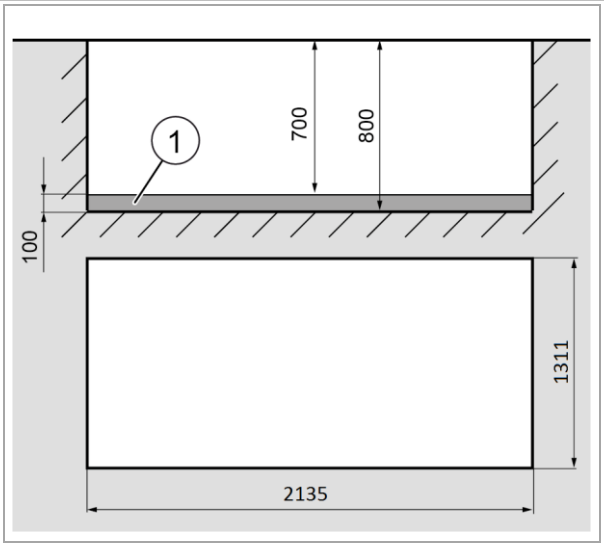


Fig. 1: Excavating the pit

Carrying out installation

1. Dig the excavation pit.
   - Width: 1311 mm
   - Length: 2135 mm
   - Depth: 800 mm
2. Prepare the substrate for a stable installation of the CMS.
   - Fill the excavation pit by 100 mm with chippings (1).
- Create a flat support surface.

3. Embed the concrete base (1) of the CMS into the excavation pit with suitable lifting gear.
4. Align the concrete base with the charging station (3).
- Distance dimensions in [mm], see figure.
5. Fill pipe (2) in base by 200 mm with fine sand.
6. Embed the concrete base (4) of the collision protection into the excavation pit with suitable lifting gear.
7. Align the concrete base with the charging station (3).
- Distance dimensions in [mm], see figure.
8. Fill pipe (5) in base by 200 mm with fine sand.

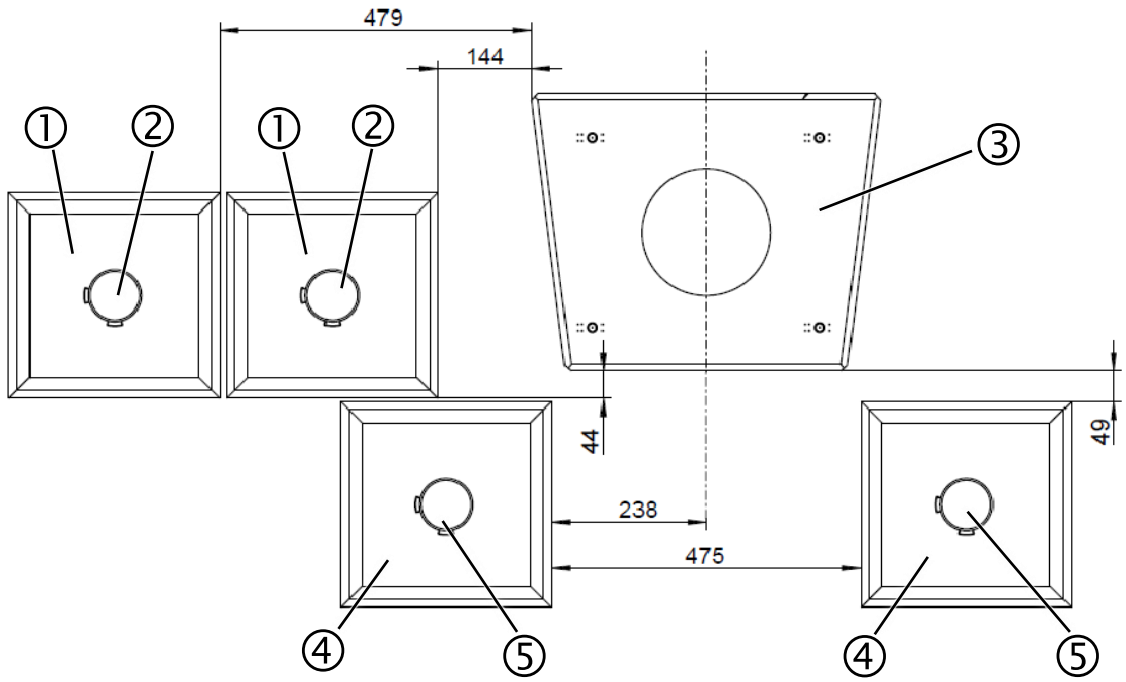


Fig. 2: Spacing dimensions

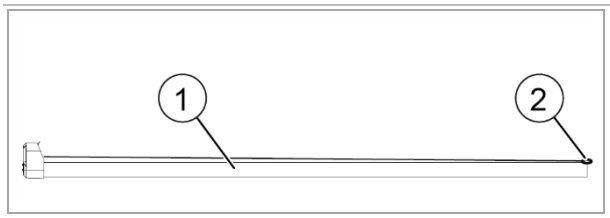


Fig. 33: Preparing the CMS

9. Carefully place CMS (1) on a suitable surface.
10. Release carabiner (2).

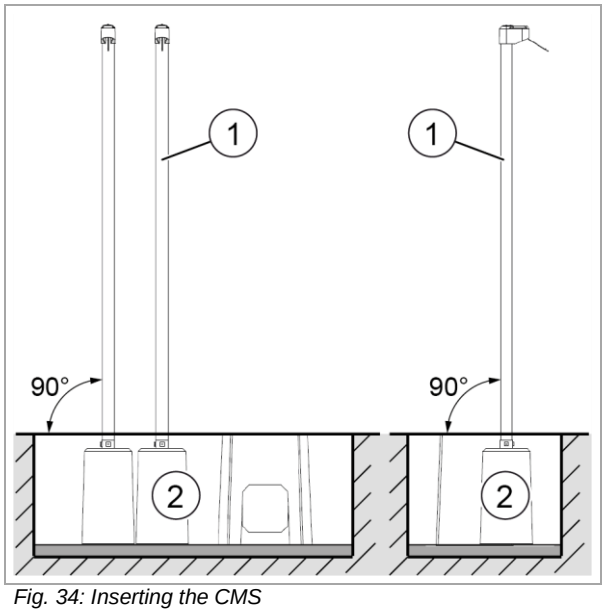


Fig. 34: Inserting the CMS

11. Set up CMS (1) vertically.
12. Insert pipe from CMS into concrete base (2).

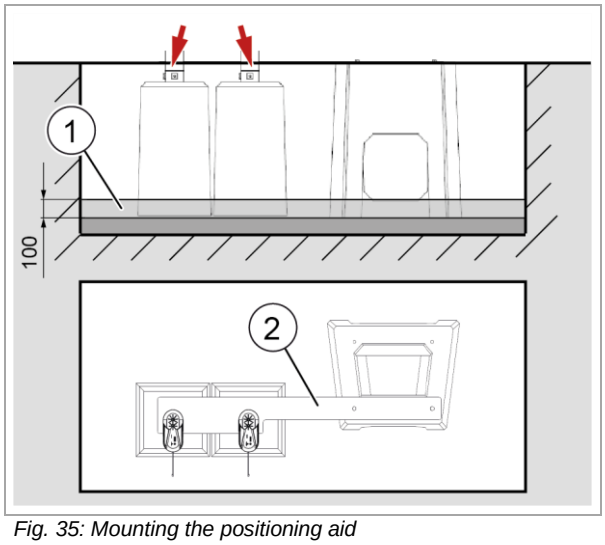


Fig. 35: Mounting the positioning aid

13. Mount the positioning aid (2).
14. Fill the excavation pit by 100 mm with excavated material (1).
15. Fill fine sand between pipes of concrete base and CMS, see arrows.

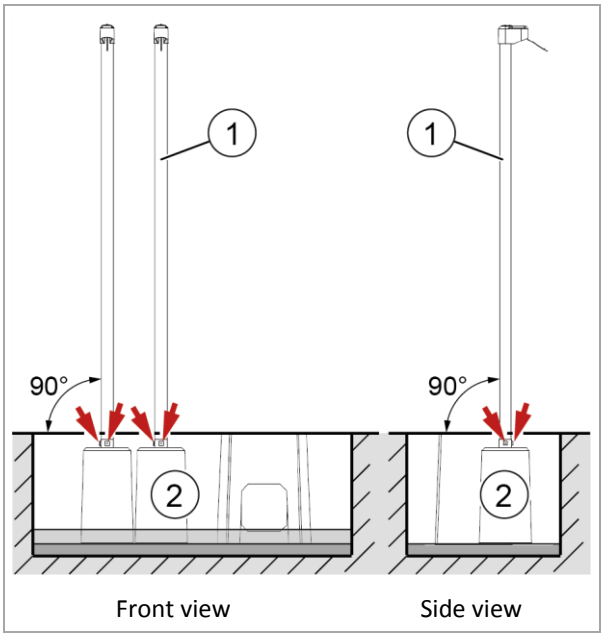


Fig. 36: Fastening the CMS

16. Tighten fastening screws, see arrows.
17. Align the pipes of the CMS vertically using a spirit level.
18. Compress the filling material.

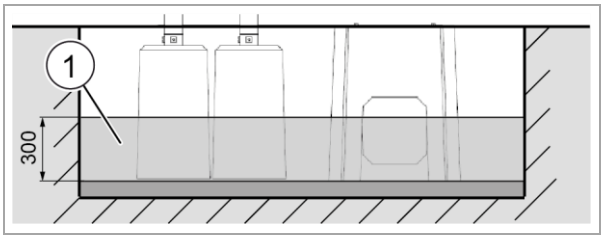


Fig. 37: Filling height 300 mm

19. Fill the excavation pit with 300 mm of excavated material.
20. Align the pipes of the CMS vertically again using a spirit level.
21. Compress the filling material.

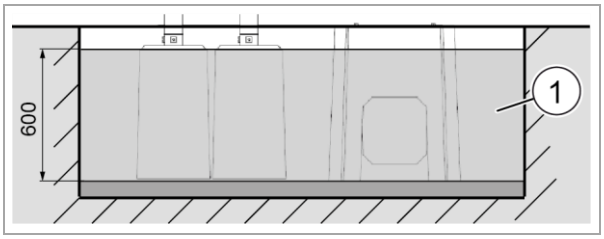


Fig. 38: Filling height 600 mm

22. Fill the excavation pit with 600 mm of excavated material.
23. Compress the filling material.
24. Check the alignment of the CMS using a spirit level.
25. Remove positioning aid.

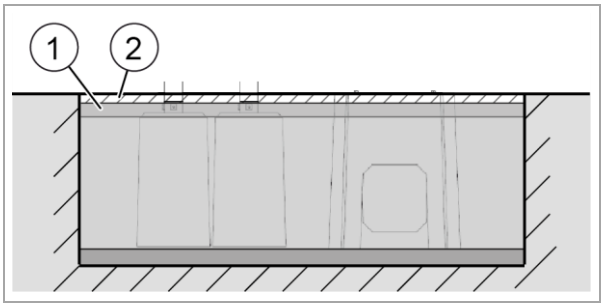


Fig. 39: Applying the top layer

26. Apply the top layer.
    - Prepare substrate (1) for top layer (e.g. paving stones).
    - Adjust the paving stones (2) on the pipe.

6 Commissioning

Commissioning must be carried out by a qualified electrician or by a person trained and instructed in electrical matters. The effectiveness of the protective measures and the correct mechanical and electrical installation must be checked by a qualified electrician.

Commissioning may only be carried out when all necessary internal covers are fitted and the housing is completely closed.

Observe the national legal requirements and regulations during commissioning.

The correct mechanical installation is checked according to the following criteria:

- ☑ The degree of protection of the housing is not reduced or removed
- ☑ The charging system has a good optical condition
- ☑ The specifications for the buried depth of the housing or the specifications for the mounting height were complied with
- ☑ The housing has a safe installation condition according to its installation version

The correct electrical installation is checked according to the following criteria:

- ☑ All electrical components are functional and not damaged
- ☑ All display elements of the charging system are functional, visible and can be read
- ☑ The function of any installed residual current circuit breakers can be verified by pressing a button
- ☑ The function of any installed counters is available and readable
- ☑ The function of the charging system can be verified by means of a charging process
- ☑ The electrical installation was carried out in compliance with all safety and warning instructions and the listed safety requirements

NOTE

The Annex of this manual contains a test protocol with which the necessary steps can be recorded, written down and archived.

6.1 Testing the charging system

Fig. 40: Function simulator

The functionality of the installed charging system can be tested either with a vehicle or with a function simulator.

With the function simulator it is possible to simulate the functions of an electric vehicle and check the functionality of a charging system or charging point.

The figure shows an example of a function simulator for testing an AC charging system or AC charging point.

Another suitable test device must be used for all metrological tests.

6.2 System start-up

After the charging system has been correctly installed, the system can be started.

1. Switch on the main switch of the charging system.
2. Switch on the line and residual current circuit breaker.

The system starts up.

The duration of the system start-up may vary depending on the type of charging system, configuration and product characteristics. The successful completion of the system start-up is indicated by the status LEDs and the display according to the configuration and product scope of the charging system. The average start-up time is approx. 60 seconds.

A successful system start-up is indicated by the LED of the respective charging point temporarily lighting up green. In the case of a charging system with display, the message "Ready for operation" also appears for the respective charging point.

In addition to the displays mentioned above, the current counter reading and the message "Ready for operation" are shown on the display of any memory and display module (SAM) installed.

NOTE

If explicitly requested by the customer, the backend connections can be configured and tested at the factory. In this case, the backend connects directly to the associated charging system after applying the operating voltage. This process may take a few minutes.

7 Operation

Before using the charging system, read the respective documents that are provided with the charging system or that are necessary for operation.

This chapter explains the general use of the charging system. The charging processes at the charging systems can be started and stopped by different authorisation methods. Depending on the charging system and product scope, the following forms of operation and authorisation are possible:

- Without authorisation ("Plug-in charge")
- RFID
- Giro-E
- Remote authorisation

"Plug-in charge"

The charging process is started at a charging system as soon as a charging cable has been connected to the vehicle. The charging process can only be terminated at the vehicle.

RFID

The charging process is started or stopped at a charging system by means of a card or a chip. The charging process is started as soon as authorisation has been successfully completed and a charging cable has been connected to the vehicle.

Giro-E

The charging process is started at a charging system using a Girocard (in Germany) and then confirmed or stopped. The charging process is started as soon as authorisation has been successfully completed and a charging cable has been connected to the vehicle.

Remote authorisation

The charging process is started or stopped at a charging system by means of an application or a web interface from the operator. Depending on the authorisation type and provider, registration may be necessary. The charging process is started as soon as the charging system, charging point and tariff have been selected. The display complying with weights and measures regulations shows an ID number assigned to the charging process. Depending on the provider, billing may be via PayPal or invoice (different payment methods are possible). The charging process is started as soon as a charging cable has been connected to the vehicle.

Information on which app is necessary and how to operate the app should be obtained from the operator of the charging system.

7.1 Charging process

The compleo® Cito BM 500 charging system is produced in different versions. Depending on the configuration of the charging system, the type and number of charger interfaces and the procedure for starting a charging process differ.

The fully equipped "3 in 1" charging system includes three charger interfaces. Depending on the product scope, the number and type of charger interfaces differ from this number and configuration.

If no charging process has been started on the charging system, any one of the three charger interfaces can be selected for a charging process.

If a charging process has been started on the AC charger interface, any other charging process can be started at one of the two DC charger interfaces. The charging processes start automatically after the existing authorisation method has been successfully completed.

If a charging process is started on one DC charger interface while a charging process is already in progress on the other DC charger interface, the new charging process is not started until the first DC charging process has been completed. During a charging process, the plug is locked in the vehicle.

If a ventilation function is requested from the vehicle, the charging system interrupts the charging process.

The charging process stops automatically after the existing authorisation method has been successfully completed.

This is followed by brief instructions on how to start and end a charging process. The brief instructions are divided into variants and differ depending on the type of charger interface and operating method.

NOTE

If the power supply is interrupted, the station is set to a safe state. This means that the charging processes are stopped and a new authorisation is required to start the charging process.

7.2 Connection versions

Overview of connection versions

Charger interface	Version	Operating method
 *Type 2 socket*	AC-1	RFID
	AC-2	Giro-E
	AC-3	Remote authorisation
 *CSS plug*	DC-1	RFID
	DC-2	Giro-E
	DC-3	Remote authorisation
 *CHAdeMO plug*	DC-4	RFID
	DC-5	Giro-E
	DC-6	Remote authorisation

Illustrations similar

In the event of an error during the charging process, this is indicated via the display and via the status LED:

Error display:	
	1. The display indicates an error: "XXXX – Out of service".

7.2.1 Version AC-1

Illustration similar

RFID | type 2 socket

The following brief instructions are intended for use with a charging system with RFID authorisation, display, status LED and sliding socket and the AC charger interface.

Start charging process:	
	1. The display indicates readiness for charging: "Type 2 - Ready for operation - Please authorise to start".
	2. Hold the RFID card or chip in front of the RFID field.
	3. The display indicates the authorisation process: "Authorisation in progress – please wait", "Authorisation successful".
 	4. The display indicates readiness for plugging in: “Plug in plug”.
	5. Plug in the charging cable in the socket of the charging system.
 	6. The display indicates readiness for plugging in: "Type 2 – Please connect vehicle".
	7. Plug in the charging cable in the socket of the vehicle.
 	8. The display indicates charging process preparation: "Vehicle connected", "Preparing for charging".
 	9. The display indicates the charging process: "Charging started".

Illustration similar

RFID | type 2 socket

End charging process:	
	1. The display indicates readiness for charging: "Type 2 – Charged: XXX – Charging duration: XXX – Charge".
	2. Hold the RFID card or chip used previously in front of the RFID field.
 	3. The display indicates the end of the charging process: "Type 2 – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "Type 2 – To end, unplug the plug from the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "Type 2 – To end, unplug the plug from the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "Type 2 – Charging process completed“. "Type 2 – Charged: XXX – Charging duration: XXX – Have a good trip."

7.2.2 Version AC-2

Illustration similar

Giro-E | type 2 socket

The following brief instructions are intended for use with a charging system with Giro-E authorisation, display, status LED and sliding socket and the AC charger interface.

Start charging process:	
	1. The display indicates readiness for charging: "Type 2 - Ready for operation - Please authorise to start".
	2. Hold the Giro card (in Germany) in front of the RFID field.
	3. The display indicates tariff conditions and collection: "Price: X.XX/Start + X.XX/kWh + X.XXX/min - Collection XXXXXXXXX - Use card to agree."
	4. Hold the Giro card again (in Germany) in front of the RFID field to agree to the conditions and the direct debit procedure.
	5. The display indicates the authorisation process: "Authorisation in progress – please wait", "Authorisation successful".
 	6. The display indicates readiness for plugging in: “Plug in plug”.
	7. Plug in the charging cable in the socket of the charging system.
 	8. The display indicates readiness for plugging in: "Type 2 – Please connect vehicle".
	9. Plug in the charging cable in the socket of the vehicle.
 	10. The display indicates charging process preparation: "Vehicle connected", "Preparing for charging".
 	11. The display indicates the charging process: "Charging started".

NOTE

Within a period of 10 minutes after completion of a charging process, it is possible to display the SEPA ID by holding the Giro card (in Germany) in front of the RFID field again. By holding the Giro card (in Germany) in front of the RFID field again, the authorisation for a new charging process takes effect.

Illustration similar

Giro-E | type 2 socket

End charging process:	
	1. The display indicates the charging process: "Type 2 – Charged: XXX – Charging duration: XXX – Charge".
	2. Hold the Giro card (in Germany) in front of the RFID field.
 	3. The display indicates the end of the charging process: "Type 2 – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "To end, unplug the plug from the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "To end, unplug the plug from the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "Type 2 – Charging process completed“. "Type 2 – Charged: XXX – Charging duration: XXX – Have a good trip."

NOTE

All charging process data can be called up permanently via an individual link in the reason for payment note of the bank account statement. The essential information of the charging process is already visible in the account statement.

7.2.3 Version AC-3

Illustration similar

Remote authorisation | Type 2 socket

The following brief instructions are intended for use with a charging system with remote authorisation, display, status LED and sliding socket and the AC charger interface.

Start charging process:	
	1. Download and install app for smartphone or tablet or start web interface.
	2. Follow the instructions of the app or web interface for the authorisation process.
 	3. The display indicates readiness for plugging in: “Plug in plug”.
	4. Plug in the charging cable in the socket of the charging system.
 	5. The display indicates readiness for plugging in: "Type 2 – Please connect vehicle".
	6. Plug in the charging cable in the socket of the vehicle.
 	7. The display indicates charging process preparation: "Vehicle connected", "Preparing for charging".
 	8. The display indicates the charging process: "Charging started".

Illustration similar

Remote authorisation | Type 2 socket

End charging process:	
	1. The display indicates the charging process: "Type 2 – Charged: XXX – Charging duration: XXX – Charge".
	2. Follow the instructions of the app or web interface for finishing the charging process.
 	3. The display indicates the end of the charging process: "Type 2 – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "Type 2 – To end, unplug the plug from the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "Type 2 – To end, unplug the plug from the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "Type 2 – Charging process completed“. "Type 2 – Charged: XXX – Charging duration: XXX – Have a good trip."

7.2.4 Version DC-1

Illustration similar

RFID | CCS plug

The following brief instructions are intended for use with a charging system with RFID authorisation, display, status LED and attached CCS cable for the DC charger interface.

Start charging process:	
	1. The display indicates readiness for charging: "CCS – Ready for operation - Please authorise to start".
	2. Hold the RFID card or chip in front of the RFID field.
	3. The display indicates the authorisation process: "Authorisation in progress – please wait", "Authorisation successful".
 	4. The display indicates readiness for plug removal: "CCS – Remove a plug".
	5. Remove the charging cable from the holder of the charging system.
 	6. The display indicates readiness for plugging in: "CCS – Please connect vehicle".
	7. Plug in the charging cable in the socket of the vehicle.
 	8. The display indicates charging process preparation: "Vehicle connected", "CCS – Preparing for charging".
 	9. The display indicates the charging process: "CCS – Charging started – Ending in approx: XXX".

Illustration similar

RFID | CCS plug

End charging process:	
	1. The display indicates readiness for charging: "CCS – Charged: XXX – Charging duration: XXX – Charge".
	2. Hold the RFID card or chip used previously in front of the RFID field.
 	3. The display indicates the end of the charging process: "CCS – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "CCS – To end, plug the plug in the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "CCS – To end, plug the plug in the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "CCS – Charging process completed". "CCS – Charged: XXX – Charging duration: XXX – Have a good trip."

7.2.5 Version DC-2

Illustration similar

Giro-E | CCS plug

The following brief instructions are intended for use with a charging system with Giro-E authorisation, display, status LED and attached CCS cable for the DC charger interface.

Start charging process:	
	1. The display indicates readiness for charging: "CCS – Ready for operation - Please authorise to start".
	2. Hold the Giro card (in Germany) in front of the RFID field.
	3. The display indicates tariff conditions and collection: "Price: X.XX/Start + X.XX/kWh + X.XXX/min - Collection XXXXXXXXX - Use card to agree."
	4. Hold the Giro card again (in Germany) in front of the RFID field to agree to the conditions and the direct debit procedure.
	5. The display indicates the authorisation process: "Authorisation in progress – please wait", "Authorisation successful".
 	6. The display indicates readiness for plug removal: "CCS – Remove a plug".
	7. Remove the charging cable from the holder of the charging system.
 	8. The display indicates readiness for plugging in: "CCS – Please connect vehicle".
	9. Plug in the charging cable in the socket of the vehicle.
 	10. The display indicates charging process preparation: "Vehicle connected", "CCS – Preparing for charging".
 	11. The display indicates the charging process: "CCS – Charging started – Ending in approx: XXX".

NOTE

Within a period of 10 minutes after completion of a charging process, it is possible to display the SEPA ID by holding the Giro card (in Germany) in front of the RFID field again. By holding the Giro card (in Germany) in front of the RFID field again, the authorisation for a new charging process takes effect.

Illustration similar

Giro-E | CCS plug

End charging process:	
	1. The display indicates the charging process: "CCS – Charged: XXX – Charging duration: XXX – Charge".
	2. Hold the Giro card (in Germany) in front of the RFID field.
 	3. The display indicates the end of the charging process: "CCS – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "CCS – To end, plug the plug in the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "CCS – To end, plug the plug in the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "CCS – Charging process completed". "CCS – Charged: XXX – Charging duration: XXX – Have a good trip."

NOTE

All charging process data can be called up permanently via an individual link in the reason for payment note of the bank account statement. The essential information of the charging process is already visible in the account statement.

7.2.6 Version DC-3

Illustration similar

Remote authorisation | CCS plug

The following brief instructions are intended for use with a charging system with remote authorisation, display, status LED and attached CCS cable for the DC charger interface.

Start charging process:	
	1. Download and install app for smartphone or tablet or start web interface.
	2. Follow the instructions of the app or web interface for the authorisation process.
 	3. The display indicates readiness for plugging in: "CCS – Remove a plug".
	4. Remove the charging cable from the holder of the charging system.
 	5. The display indicates readiness for plugging in: "CCS – Please connect vehicle".
	6. Plug in the charging cable in the socket of the vehicle.
 	7. The display indicates charging process preparation: "Vehicle connected", "CCS – Preparing for charging".
 	8. The display indicates the charging process: "CCS – Charging started".

Illustration similar

Remote authorisation | CCS plug

End charging process:	
	1. The display indicates the charging process: "CCS – Charged: XXX – Charging duration: XXX – Charge".
	2. Follow the instructions of the app or web interface for finishing the charging process.
 	3. The display indicates the end of the charging process: "CCS – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "CCS – To end, plug the plug in the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "CCS – To end, plug the plug in the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "CCS – Charging process completed". "CCS – Charged: XXX – Charging duration: XXX – Have a good trip."

7.2.7 Version DC-4

Illustration similar

RFID | CHAdeMO plug

The following brief instructions are intended for use with a charging system with RFID authorisation, display, status LED and attached CHAdeMO cable for the DC charger interface.

Start charging process:	
	1. The display indicates readiness for charging: "CHAdeMO – Ready for operation - Please authorise to start".
	2. Hold the RFID card or chip in front of the RFID field.
	3. The display indicates the authorisation process: "Authorisation in progress – please wait", "Authorisation successful".
 	4. The display indicates readiness for plug removal: "CHAdeMO – Remove a plug".
	5. Unlock the charging cable using the push button and remove it from the holder of the charging system.
 	6. The display indicates readiness for plugging in: "CHAdeMO – Please connect vehicle".
	7. Plug in the charging cable in the socket of the vehicle.
 	8. The display indicates charging process preparation: "Vehicle connected", "CHAdeMO – Preparing for charging".
 	9. The display indicates the charging process: "CHAdeMO – Charging started – Ending in approx: XXX".

Illustration similar

RFID | CHAdeMO plug

End charging process:	
	1. The display indicates readiness for charging: "CHAdeMO – Charged: XXX – Charging duration: XXX – Finished in approx: XXX".
	2. Hold the RFID card or chip used previously in front of the RFID field.
 	3. The display indicates the end of the charging process: "CHAdeMO – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "CHAdeMO – To end, plug the plug in the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "CHAdeMO – To end, plug the plug in the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "CHAdeMO – Charging process completed". "CHAdeMO – Charged: XXX – Charging duration: XXX – Have a good trip."

7.2.8 Version DC-5

Illustration similar

Giro-E | CHAdeMO plug

The following brief instructions are intended for use with a charging system with Giro-E authorisation, display, status LED and attached CHAdeMO cable for the DC charger interface.

Start charging process:	
	1. The display indicates readiness for charging: "CHAdeMO – Ready for operation - Please authorise to start".
	2. Hold the Giro card (in Germany) in front of the RFID field.
	3. The display indicates tariff conditions and collection: "Price: X.XX/Start + X.XX/kWh + X.XXX/min - Collection XXXXXXXXX - Use card to agree."
	4. Hold the Giro card again (in Germany) in front of the RFID field to agree to the conditions and the direct debit procedure.
	5. The display indicates the authorisation process: "Authorisation in progress – please wait", "Authorisation successful".
 	6. The display indicates readiness for plug removal: "CHAdeMO – Remove a plug".
	7. Unlock the charging cable using the push button and remove it from the holder of the charging system.
 	8. The display indicates readiness for plugging in: "CHAdeMO – Please connect vehicle".
	9. Plug in the charging cable in the socket of the vehicle.
 	10. The display indicates charging process preparation: "Vehicle connected", "CHAdeMO – Preparing for charging".
 	11. The display indicates the charging process: "CHAdeMO – Charging started – Ending in approx: XXX".

NOTE

Within a period of 10 minutes after completion of a charging process, it is possible to display the SEPA ID by holding the Giro card (in Germany) in front of the RFID field again. By holding the Giro card (in Germany) in front of the RFID field again, the authorisation for a new charging process takes effect.

Illustration similar

Giro-E | CHAdeMO plug

End charging process:	
	1. The display indicates the charging process: "CHAdeMO – Charged: XXX – Charging duration: XXX – Charge".
	2. Hold the Giro card (in Germany) in front of the RFID field.
 	3. The display indicates the end of the charging process: "CHAdeMO – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "CHAdeMO – To end, plug the plug in the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "CHAdeMO – To end, plug the plug in the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "CHAdeMO – Charging process completed". "CHAdeMO – Charged: XXX – Charging duration: XXX – Have a good trip."

NOTE

All charging process data can be called up permanently via an individual link in the reason for payment note of the bank account statement. The essential information of the charging process is already visible in the account statement.

7.2.9 Version DC-6

Illustration similar

Remote authorisation | CHAdeMO plug

The following brief instructions are intended for use with a charging system with remote authorisation, display, status LED and attached CCS cable for the DC charger interface.

Start charging process:	
	1. Download and install app for smartphone or tablet or start web interface.
	2. Follow the instructions of the app or web interface for the authorisation process.
 	3. The display indicates readiness for plugging in: "CHAdeMO – Remove a plug".
	4. Unlock the charging cable using the push button and remove it from the holder of the charging system.
 	5. The display indicates readiness for plugging in: "CHAdeMO – Please connect vehicle".
	6. Plug in the charging cable in the socket of the vehicle.
 	7. The display indicates charging process preparation: "Vehicle connected", "CHAdeMO – Preparing for charging".
 	8. The display indicates the charging process: "CHAdeMO – Charging started".

Illustration similar

Remote authorisation | CHAdeMO plug

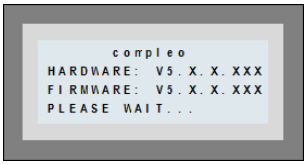
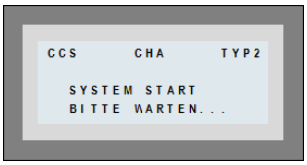
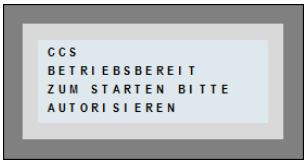
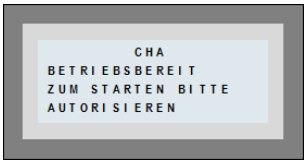
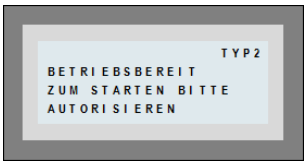
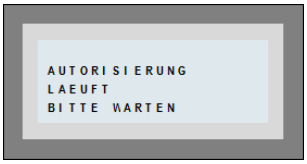
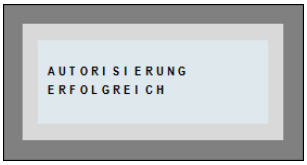
End charging process:	
	1. The display indicates the charging process: "CHAdeMO – Charged: XXX – Charging duration: XXX – Charge".
	2. Follow the instructions of the app or web interface for finishing the charging process.
 	3. The display indicates the end of the charging process: "CHAdeMO – Charged: XXX – Charging duration: XXX - Ended".
 	4. The display indicates readiness for plug removal: "CHAdeMO – To end, plug the plug in the charging station - Charging duration".
	5. Pull out the charging cable from the socket of the vehicle.
 	6. The display indicates the removal of the plug: "CHAdeMO – To end, plug the plug in the charging station - Charging duration".
	7. Plug in the charging cable in the holder of the charging system.
 	8. The display indicates the completion of the charging process: "CHAdeMO – Charging process completed". "CHAdeMO – Charged: XXX – Charging duration: XXX – Have a good trip."

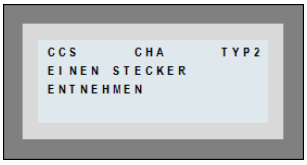
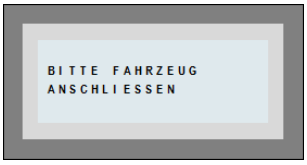
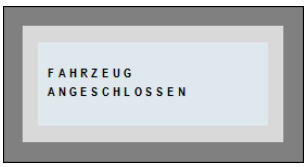
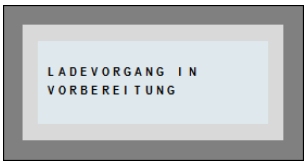
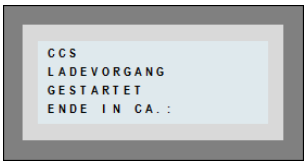
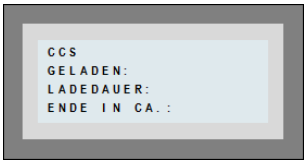
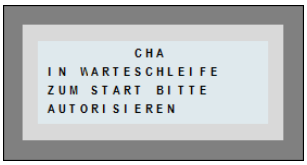
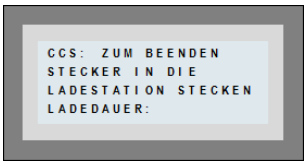
7.3 Operating Signals and Displays

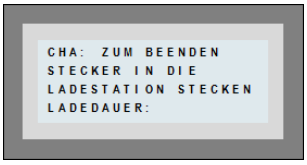
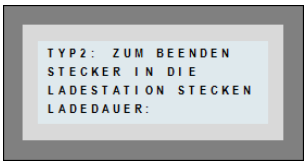
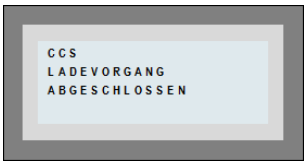
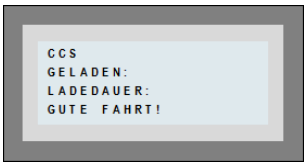
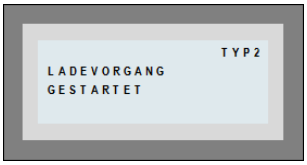
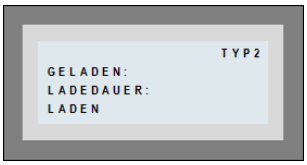
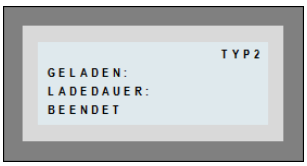
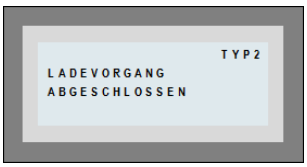
Depending on type and configuration, the charging systems have the ability to output states, processes or errors via a display and/or LEDs. Depending on the type, configuration and the number of charger interfaces of the charging system, the type of representations on the display and/or the colour of the LEDs may differ.

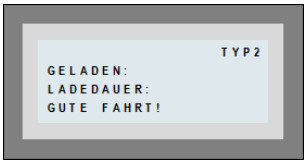
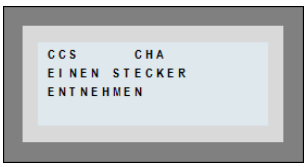
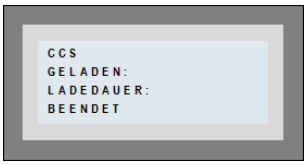
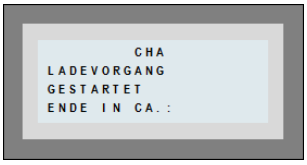
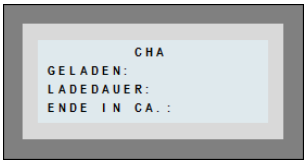
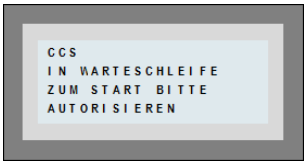
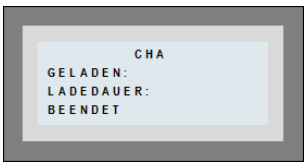
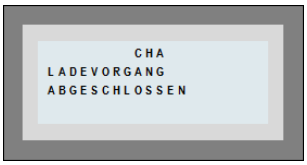
7.3.1 Message display

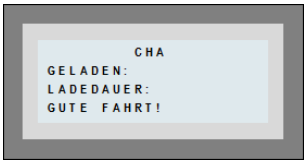
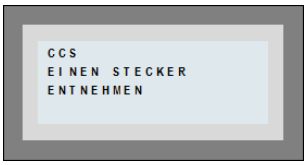
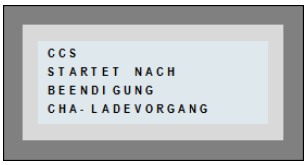
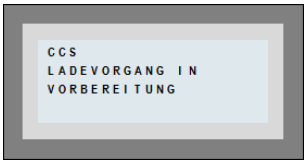
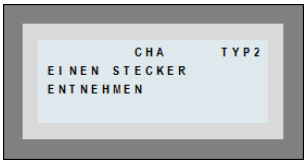
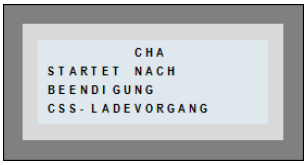
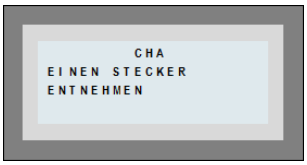
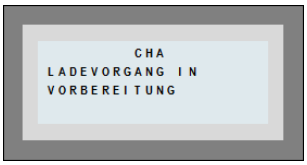
The following message display explains the displays for the left side of a charging system with display:

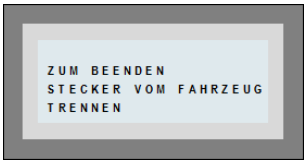
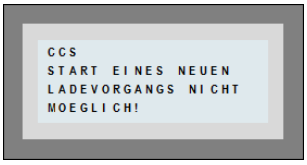
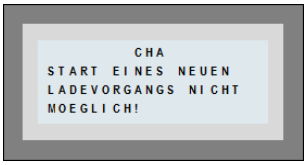
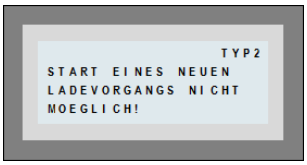
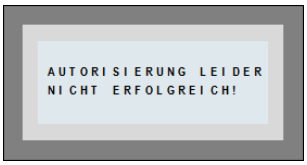
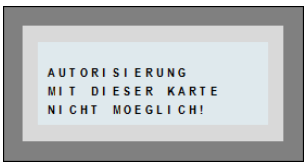
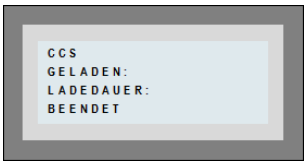
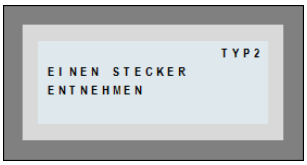
Message display		
	01	The charging system indicates the “compleo + hardware: + Firmware + Please wait” state. • The hardware version is displayed. The firmware version is displayed. Initialisation is being prepared.
	02	The charging system indicates the "CCS - CHA - Type 2+ + System start + Please wait" state. • The available charger interfaces are displayed. The charging system processes data. It takes time to start an action, e.g. an authorisation process.
	1	The charging system indicates the "CCS - Ready for operation + Please authorise to start" state. • The charger interface is ready for operation. A charging process can be started. Authorisation is required.
	2	The charging system indicates the "CHA - Ready for operation + Please authorise to start" state. • The charger interface is ready for operation. A charging process can be started. Authorisation is required.
	3	The charging system indicates the "Type 2 - Ready for operation + Please authorise to start" state. • The charger interface is ready for operation. A charging process can be started. Authorisation is required.
	4	The charging system indicates the “Authorisation in progress + Please wait” state. • Authorisation is in progress. The charger interface is prepared for a charging process.
	5	The charging system indicates the "Authorisation successful" state. • The authorisation process has been successfully completed. The charging process can be performed.

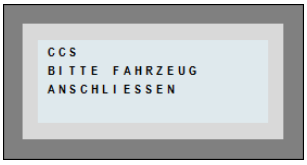
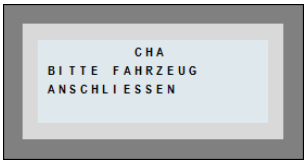
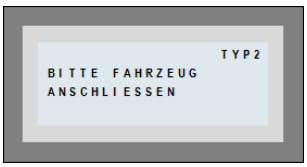
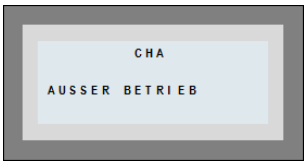
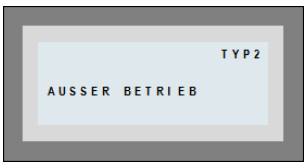
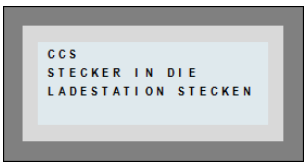
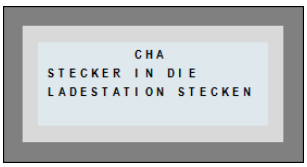
	6	The charging system indicates the "CCS - CHA - Type 2 + Remove a plug" state. • A plug of any charger interface can be removed.
	7	The charging system indicates the "Please connect vehicle" state. • The plug of the corresponding charger interface should be connected to the vehicle.
	8	The charging system indicates the "Vehicle connected" state. • The vehicle has been correctly connected to the charger interface.
	9	The charging system indicates the “Preparing charging process" state. • The vehicle and the charging system start communication and parameters of the charging process are exchanged.
	10	The charging system indicates the "CCS - Charging process started + Ending in approx:" state. • The charging process has been started at the corresponding charger interface. The expected end is displayed.
	11	The charging system indicates the "CCS – Charged: + Charging duration + Ending in approx:“. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. The expected end is displayed.
	12	The charging system indicates the "CHA – In queue + Please authorise to start" state. • The charging process at the corresponding charger interface can be started after the parallel DC charging process is completed. Authorisation is required.
	13	The charging system indicates the "CCS - Plug the plug in the charging station to end + Charging duration:" state. • The charging process can be stopped at the corresponding charger interface. The plug must be plugged into the charging station. The charging duration is displayed.

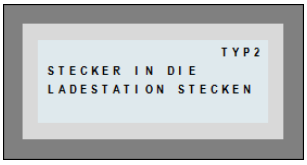
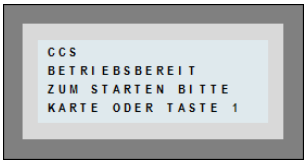
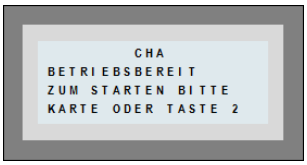
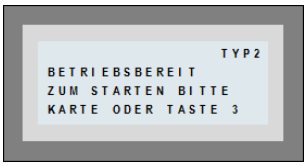
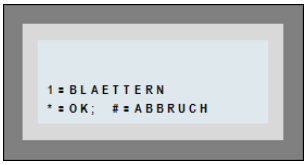
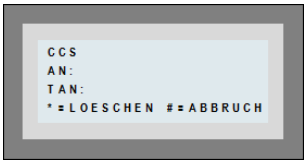
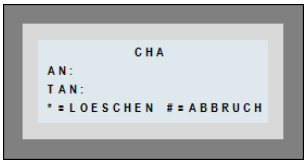
	14 The charging system indicates the "CHA - Plug the plug in the charging station to end + Charging duration:" state. • The charging process can be stopped at the corresponding charger interface. The plug must be plugged into the charging station. The charging duration is displayed.
	15 The charging system indicates the "Type 2 – Plug the plug in the charging station to end + Charging duration:". • The charging process can be stopped at the corresponding charger interface. The plug must be plugged into the charging station. The charging duration is displayed.
	16 The charging system indicates the "CCS – Charging process completed" state. • The charging process has been correctly completed at the corresponding charger interface.
	17 The charging system indicates the "CCS – Charged: + Charging duration + Have a good trip" state. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. Have a good trip.
	18 The charging system indicates the "Type 2 – Charging process started" state. • The charging process has been started at the corresponding charger interface.
	19 The charging system indicates the "Type 2 – Charged: + Charging duration + Charge" state. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed.
	20 The charging system indicates the "Type 2 – Charged: + Charging duration + Finished" state. • The charging process has finished at the corresponding charger interface. The charged capacity is displayed. The charging duration is displayed.
	21 The charging system indicates the "Type 2 – Charging process completed" state. • The charging process has been correctly completed at the corresponding charger interface.

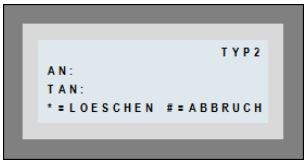
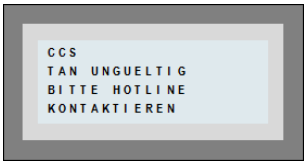
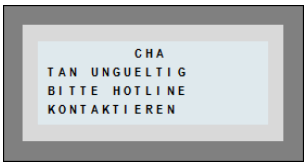
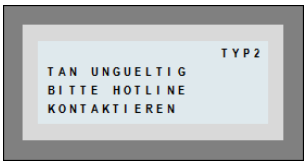
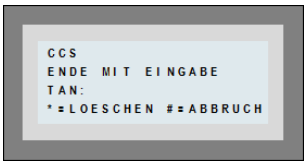
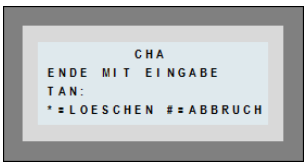
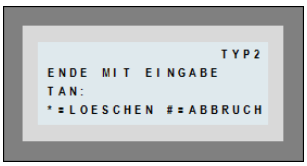
	22 The charging system indicates the "Type 2 – Charged: + Charging duration + Have a good trip" state. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. Have a good trip.
	23 The charging system indicates the "CCS – CHA + Remove a plug" state. • A plug of any charger interface can be removed.
	24 The charging system indicates the "CCS – Charged: + Charging duration + Finished" state. • The charging process has finished at the corresponding charger interface. The charged capacity is displayed. The charging duration is displayed.
	25 The charging system indicates the "CHA - Charging process started + Ending in approx:" state. • The charging process has been started at the corresponding charger interface. The expected end is displayed.
	26 The charging system indicates the "CHA – Charged: + Charging duration + Ending in approx:“. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. The expected end is displayed.
	27 The charging system indicates the "CCS – In queue + Please authorise to start" state. • The charging process at the corresponding charger interface can be started after the parallel DC charging process is completed. Authorisation is required.
	28 The charging system indicates the "CHA – Charged: + Charging duration + Finished" state. • The charging process has finished at the corresponding charger interface. The charged capacity is displayed. The charging duration is displayed.
	29 The charging system indicates the "CHA – Charging process completed" state. • The charging process has been correctly completed at the corresponding charger interface.

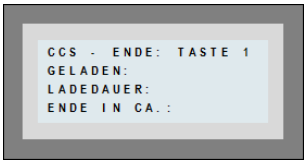
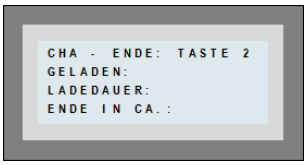
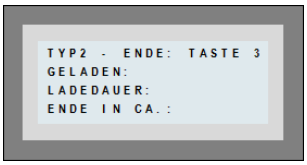
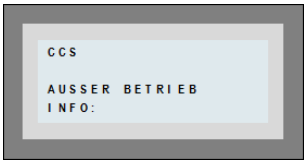
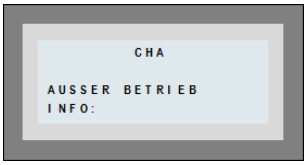
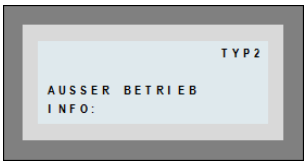
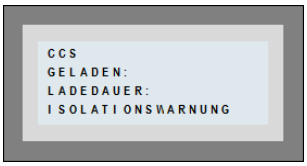
	30 The charging system indicates the "CHA – Charged: + Charging duration + Have a good trip" state. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. Have a good trip.
	31 The charging system indicates the "CCS + Remove a plug" state. • A plug of the corresponding charger interface can be removed.
	32 The charging system indicates the "CCS + Starts after CHA completed - Charging process" state. • The charging process at the corresponding charger interface starts after the parallel DC charging process is completed.
	33 The charging system indicates the "CCS – Preparing charging process" state. • The charging process is in preparation and will start soon.
	34 The charging system indicates the "CHA - Type 2 + Remove a plug" state. • A plug of any charger interface can be removed.
	35 The charging system indicates the "CHA + Starts after CSS completed - Charging process" state. • The charging process at the corresponding charger interface starts after the parallel DC charging process is completed.
	36 The charging system indicates the "CHA + Remove a plug" state. • A plug of the corresponding charger interface can be removed.
	37 The charging system indicates the "CHA – Preparing charging process" state. • The charging process is in preparation and will start soon.

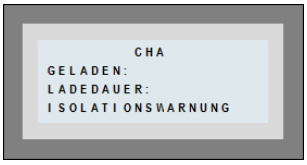
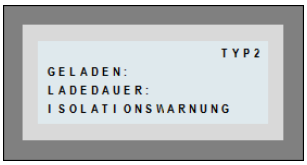
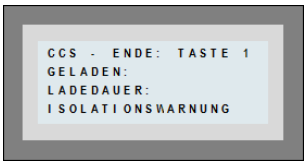
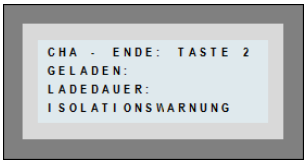
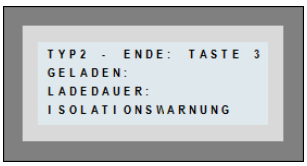
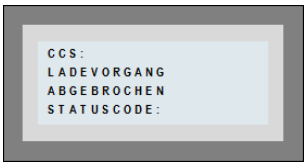
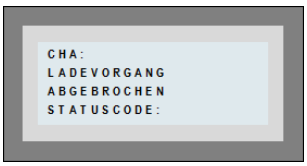
	38	The charging system indicates the "Disconnect plug from vehicle to end" state. • The charging process can be stopped at the corresponding charger interface. The plug must be disconnected from the vehicle.
	39	The charging system indicates the "CCS + Starting a new charging process not possible!" state. • The charger interface is not ready for operation. A charging process cannot be started.
	40	The charging system indicates the "CHA + Starting a new charging process not possible!" state. • The charger interface is not ready for operation. A charging process cannot be started.
	41	The charging system indicates the "Type 2 + Starting a new charging process not possible!" state. • The charger interface is not ready for operation. A charging process cannot be started.
	42	The charging system indicates the "Authorisation unsuccessful" state. • The authorisation process has not been successfully completed. The charging process cannot be performed.
	43	The charging system indicates the "Authorisation not possible with this card" state. • The authorisation process has not been successfully completed. The charging process cannot be performed with the corresponding RFID card or chip.
	44	The charging system indicates the "CCS – Charged: + Charging duration + Finished" state. • The charging process has finished at the corresponding charger interface. The charged capacity is displayed. The charging duration is displayed.
	45	The charging system indicates the "Type 2 + Remove a plug" state. • A plug of the corresponding charger interface can be removed.

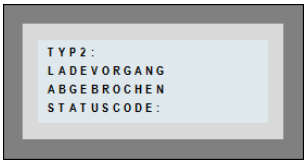
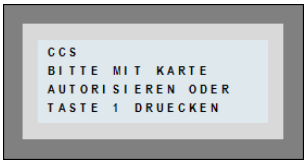
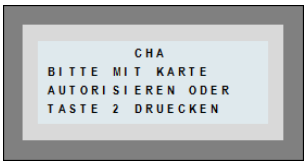
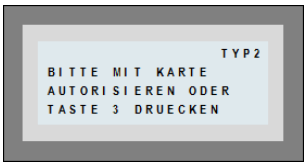
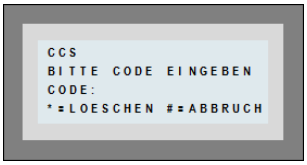
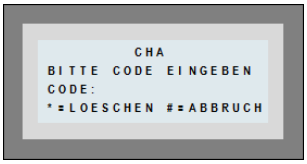
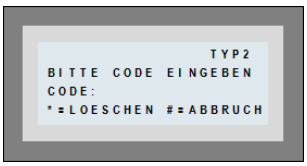
	46 The charging system indicates the "CCS + Please connect vehicle" state. • The plug of the corresponding charger interface should be connected to the vehicle.
	47 The charging system indicates the "CHA + Please connect vehicle" state. • The plug of the corresponding charger interface should be connected to the vehicle.
	48 The charging system indicates the "Type 2 + Please connect vehicle" state. • The plug of the corresponding charger interface should be connected to the vehicle.
	49 The charging system indicates the "CCS – Out of service" state. • The charger interface is not ready for operation. A charging process cannot be started.
	50 The charging system indicates the "CHA – Out of service" state. • The charger interface is not ready for operation. A charging process cannot be started.
	51 The charging system indicates the "Type 2 – Out of service" state. • The charger interface is not ready for operation. A charging process cannot be started.
	52 The charging system indicates the "CCS - Plug the plug in the charging station" state. • The plug of the corresponding charger interface must be plugged into the charging station.
	53 The charging system indicates the "CHA - Plug the plug in the charging station" state. • The plug of the corresponding charger interface must be plugged into the charging station.

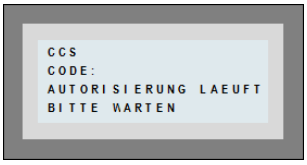
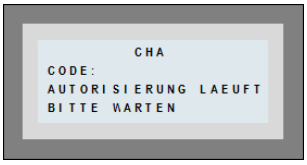
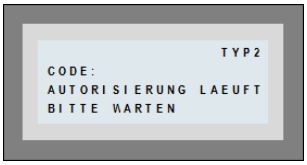
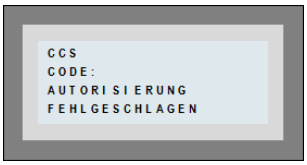
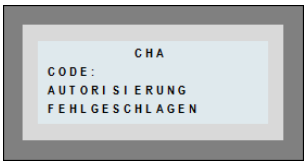
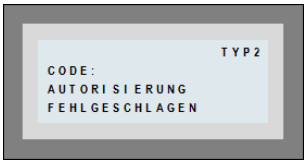
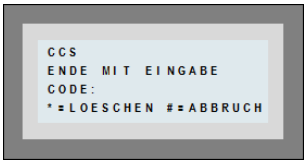
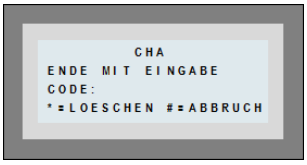
	54 The charging system indicates the "Type 2 - Plug the plug in the charging station" state. • The plug of the corresponding charger interface must be plugged into the charging station.
	55 The charging system indicates the "CCS - Ready for operation + Please use card or key 1 to start" state. • The charger interface is ready for operation. A charging process can be started. Authorisation using a RFID card or chips is required, alternatively key 1 can be used.
	56 The charging system indicates the "CHA - Ready for operation + Please use card or key 2 to start" state. • The charger interface is ready for operation. A charging process can be started. Authorisation using a RFID card or chips is required, alternatively key 2 can be used.
	57 The charging system indicates the "Type 2 - Ready for operation + Please use card or key 3 to start" state. • The charger interface is ready for operation. A charging process can be started. Authorisation using a RFID card or chips is required, alternatively key 3 can be used.
	58 The charging system indicates the “1 = Scroll + * = OK; +.# = Cancel" state. • The displayed menu can be operated using the icons displayed. Scrolling is possible. Confirmation or cancellation is possible.
	59 The charging system indicates the "CCS + AN: + TAN: * = Delete + # = Cancel" state. • The charger interface is ready for operation. A charging process can be started. A request number is required. A transaction number is required. The entry can be deleted or completely cancelled.
	60 The charging system indicates the "CHA + AN: + TAN: * = Delete + # = Cancel" state. • The charger interface is ready for operation. A charging process can be started. A request number is required. A transaction number is required. The entry can be deleted or completely cancelled.

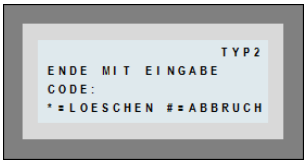
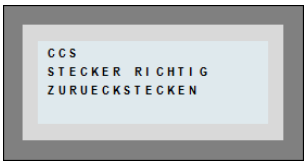
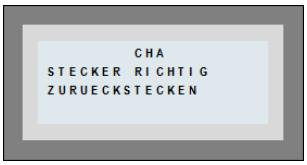
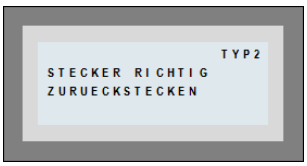
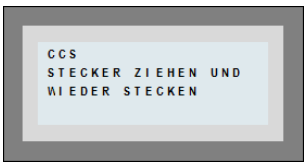
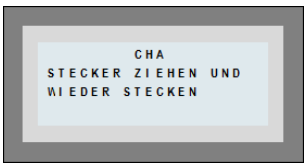
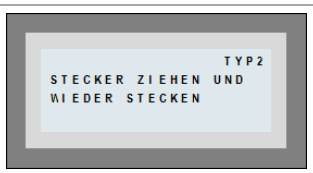
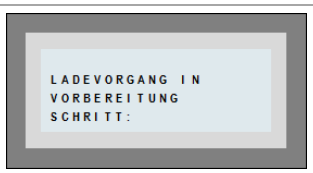
	61 The charging system indicates the "Type 2 + AN: + TAN: * = Delete + # = Cancel" state. • The charger interface is ready for operation. A charging process can be started. A request number is required. A transaction number is required. The entry can be deleted or completely cancelled.
	62 The charging system indicates the "CCS + TAN invalid + Please contact hotline" state. • The charger interface is ready for operation. A charging process cannot be started. An invalid transaction number was entered. Information can be obtained via the hotline.
	63 The charging system indicates the "CHA + TAN invalid + Please contact hotline" state. • The charger interface is ready for operation. A charging process cannot be started. An invalid transaction number was entered. Information can be obtained via the hotline.
	64 The charging system indicates the "Type 2 + TAN invalid + Please contact hotline" state. • The charger interface is ready for operation. A charging process cannot be started. An invalid transaction number was entered. Information can be obtained via the hotline.
	65 The charging system indicates the "CCS – Finish with entry + TAN: + * = Delete + # = Cancel" state. • The charging process at the corresponding charger interface is in progress. The charging process can be finished by entering the transaction number.
	66 The charging system indicates the "CHA – Finish with entry + TAN: + * = Delete + # = Cancel" state. • The charging process at the corresponding charger interface is in progress. The charging process can be finished by entering the transaction number.
	67 The charging system indicates the "Type 2 – Finish with entry + TAN: + * = Delete + # = Cancel" state. • The charging process at the corresponding charger interface is in progress. The charging process can be finished by entering the transaction number.

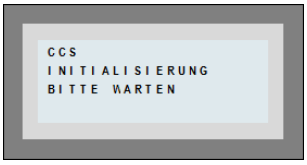
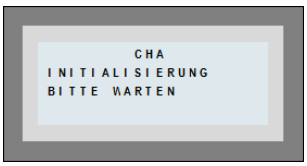
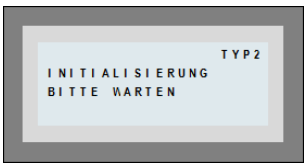
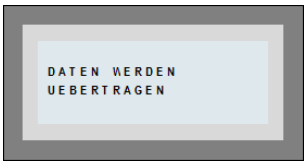
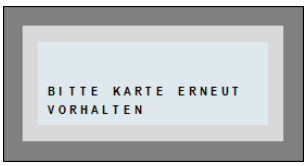
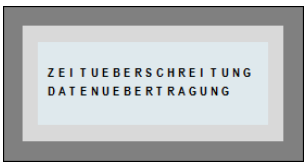
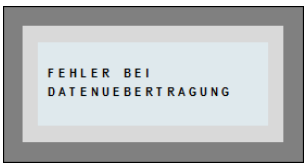
	68 The charging system indicates the "CCS + Finish: Key 1+ Charged + Charging duration + Ending in approx.:" state. • The charging process can be stopped at the corresponding charger interface using key 1. The charged capacity is displayed. The charging duration is displayed. The expected end is displayed.
	69 The charging system indicates the "CHA + Finish: Key 2+ Charged + Charging duration + Ending in approx.:" state. • The charging process can be stopped at the corresponding charger interface using key 2. The charged capacity is displayed. The charging duration is displayed. The expected end is displayed.
	70 The charging system indicates the "Type 2 + Finish: Key 3+ Charged + Charging duration + Ending in approx.:" state. • The charging process can be stopped at the corresponding charger interface using key 3. The charged capacity is displayed. The charging duration is displayed. The expected end is displayed.
	71 The charging system indicates the "CCS – Out of service + Info" state. • The charger interface is not ready for operation. A charging process cannot be started. Information is given.
	72 The charging system indicates the "CHA – Out of service + Info" state. • The charger interface is not ready for operation. A charging process cannot be started. Information is given.
	73 The charging system indicates the "Type 2 – Out of service + Info" state. • The charger interface is not ready for operation. A charging process cannot be started. Information is given.
	74 The charging system indicates the "CCS + Charged: + Charging duration: + Isolation warning" state. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. An isolation warning is displayed.

	75	The charging system indicates the "CHA + Charged: + Charging duration: + Isolation warning" state. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. An isolation warning is displayed.
	76	The charging system indicates the "Type 2 + Charged: + Charging duration: + Isolation warning" state. • The charging process at the corresponding charger interface is in progress. The charged capacity is displayed. The charging duration is displayed. An isolation warning is displayed.
	77	The charging system indicates the "CCS + Finish: Key 1+ Charged + Charging duration + Isolation warning" state. • The charging process can be stopped at the corresponding charger interface using key 1. The charged capacity is displayed. The charging duration is displayed. An isolation warning is displayed.
	78	The charging system indicates the "CHA + Finish: Key 2+ Charged + Charging duration + Isolation warning" state. • The charging process can be stopped at the corresponding charger interface using key 2. The charged capacity is displayed. The charging duration is displayed. An isolation warning is displayed.
	79	The charging system indicates the "Type 2 + Finish: Key 3+ Charged + Charging duration + Isolation warning" state. • The charging process can be stopped at the corresponding charger interface using key 3. The charged capacity is displayed. The charging duration is displayed. An isolation warning is displayed.
	80	The charging system indicates the "CCS: + Charging process cancelled + Status code:" state. • The charging process has been cancelled at the corresponding charger interface. A status code is displayed.
	81	The charging system indicates the "CHA: + Charging process cancelled + Status code:" state. • The charging process has been cancelled at the corresponding charger interface. A status code is displayed.

	82 The charging system indicates the "Type 2: + Charging process cancelled + Status code:" state. • The charging process has been cancelled at the corresponding charger interface. A status code is displayed.
	83 The charging system indicates the "CCS - Please authorise with card or press key 1" state. • The charger interface is ready for operation. A charging process can be started. Authorisation using a RFID card or chips is required, alternatively key 1 can be used.
	84 The charging system indicates the "CHA - Please authorise with card or press key 2" state. • The charger interface is ready for operation. A charging process can be started. Authorisation using a RFID card or chips is required, alternatively key 2 can be used.
	85 The charging system indicates the "Type 2 - Please authorise with card or press key 3" state. • The charger interface is ready for operation. A charging process can be started. Authorisation using a RFID card or chips is required, alternatively key 3 can be used.
	86 The charging system indicates the "CCS + Please enter code: + Code: + * = Delete + # = Cancel" state. • The charger interface is ready for operation. A charging process can be started. A code is required. The entry can be deleted or completely cancelled.
	87 The charging system indicates the "CHA + Please enter code: + Code: + * = Delete + # = Cancel" state. • The charger interface is ready for operation. A charging process can be started. A code is required. The entry can be deleted or completely cancelled.
	88 The charging system indicates the "Type 2 + Please enter code: + Code: + * = Delete + # = Cancel" state. • The charger interface is ready for operation. A charging process can be started. A code is required. The entry can be deleted or completely cancelled.

	89 The charging system indicates the "CCS + Code: "Authorisation in progress – Please wait" state. • Authorisation is in progress. The charger interface is prepared for a charging process.
	90 The charging system indicates the "CHA + Code: "Authorisation in progress – Please wait" state. • Authorisation is in progress. The charger interface is prepared for a charging process.
	91 The charging system indicates the "Type 2 + Code: "Authorisation in progress – Please wait" state. • Authorisation is in progress. The charger interface is prepared for a charging process.
	92 The charging system indicates the "CCS + Code: + Authorisation failed". • The authorisation process has not been successfully completed. The charging process cannot be performed.
	93 The charging system indicates the "CHA + Code: + Authorisation failed". • The authorisation process has not been successfully completed. The charging process cannot be performed.
	94 The charging system indicates the "Type 2 + Code: + Authorisation failed". • The authorisation process has not been successfully completed. The charging process cannot be performed.
	95 The charging system indicates the "CCS – Finish with entry + Code: + * = Delete + # = Cancel" state. • The charging process at the corresponding charger interface is in progress. The charging process can be finished by entering the code.
	96 The charging system indicates the "CHA – Finish with entry + Code: + * = Delete + # = Cancel" state. • The charging process at the corresponding charger interface is in progress. The charging process can be finished by entering the code.

	97 The charging system indicates the "Type 2 – Finish with entry + Code: + * = Delete + # = Cancel" state. • The charging process at the corresponding charger interface is in progress. The charging process can be finished by entering the code.
	98 The charging system indicates the "CCS – Plug in plug correctly" state. • The plug of the corresponding charger interface should be correctly plugged into the charging system.
	99 The charging system indicates the "CHA – Plug in plug correctly" state. • The plug of the corresponding charger interface should be correctly plugged into the charging system.
	100 The charging system indicates the "Type 2 – Plug in plug correctly" state. • The plug of the corresponding charger interface should be correctly plugged into the charging system.
	101 The charging system indicates the "CCS - Unplug the plug and plug in again" state. • The plug of the corresponding charger interface should be unplugged from the charging system and plugged in again.
	102 The charging system indicates the "CHA - Unplug the plug and plug in again" state. • The plug of the corresponding charger interface should be unplugged from the charging system and plugged in again.
	103 The charging system indicates the "Type 2 - Unplug the plug and plug in again" state. • The plug of the corresponding charger interface should be unplugged from the charging system and plugged in again.
	104 The charging system indicates the “Preparing charging process + Stage:" state. • The charging process is in preparation and will start soon.

	105 The charging system indicates the "CCS - Initialisation + Please wait" state. • The charging process is being initialised and will start soon.
	106 The charging system indicates the "CHA - Initialisation + Please wait" state. • The charging process is being initialised and will start soon.
	107 The charging system indicates the "Type 2 - Initialisation + Please wait" state. • The charging process is being initialised and will start soon.
	108 The charging system indicates the "Data is being transmitted" state. • The data of the charging process is being transmitted.
	109 The charging system indicates the "Data is being checked" state. • The data of the charging process is being checked.
	110 The charging system indicates the “Please show card again” state. • The RFID card or chip must again be held in front of the corresponding field.
	111 The charging system indicates the “Data transfer timeout” state. • The data of the charging process could not be transmitted. A timeout occurs.
	112 The charging system indicates the "Error during data transfer" state. • An error has occurred during the data transfer of the charging process.

7.3.2 Charging state display

The following charging state display explains the colour states and the possible colour changes of a charging system with status LEDs:

Charging state display: LED colour state			
	LED: "grey"	1	The charging system indicates the standby state. • Authorisation can be carried out.
	LED: "green"	2	The charging system indicates readiness for operation. • A charging process can be started.
	LED: "blue"	3	The charging system indicates a charging process. • The charging process can be maintained or finished.

Charging state display: LED colour change			
	LED: "grey-green"	4	The charging system indicates an authorisation process.
	LED: "green-grey"	5	The charging system indicates an unsuccessful authorisation.
	LED: "green-blue"	6	The charging system indicates the start of a charging process.
	LED: "blue-grey"	7	The charging system indicates a voltage drop after starting a charging process.
	LED: "blue-green"	8	The charging system indicates an unsuccessful authorisation.

7.3.3 Acoustic signals

In the following table the possible acoustic signals are listed and explained:

Acoustic signals	
1 x short	Sounds when the RFID card is presented and indicates "Card read".
2 x short	This signal requires user interaction: • - Present card for authorisation or • Plug the charging cable into the charging system and car
1 x long	Authorisation timeout: Sounds if user interaction has not occurred within a certain time.
2 x long	The charging system is in an error state. • - If there is a display, note the error message.

8 Maintenance

Careful and regular maintenance ensures that the functional condition of the charging system is maintained. Only a regularly checked and maintained charging system is able to guarantee maximum availability and reliable charging processes.

The maintenance intervals depend on the prevailing operating conditions, such as the frequency of use and environmental influences such as the degree of contamination.

We recommend a cyclically recurring inspection according to the maintenance plan. In special cases, the cycles can be shorter.

⚠ DANGER

Danger due to electric current

Touching live parts will result in electric shock with serious injury or death.

- Work on electrical components may only be carried out by a qualified electrician and in accordance with electrical engineering rules.
- Ensure they are de-energised and take suitable protective measures.

⚠ WARNING

Danger due to improper maintenance

Improper performance of work can lead to serious injuries and damage to property.

- Work may only be carried out by trained specialist personnel.
- Meet all safety requirements before maintenance.

8.1 Maintenance plan

Interval	Component/location	Maintenance work
Every 6 months	Residual current circuit breaker	Check with test button.
	Surge arrester	Visual inspection or check with test button.
Yearly	Location	Visual inspection, e.g. for distances to objects (bushes, electrical installations ,etc.), attachment.
	Electrical components	Visual inspection, e.g. cables, lines, screw connections, plugs, RCD, MCB, display, LED, display, surge protection.
		Metrological verification according to test report, see Annex.
		Check for function, e.g. RCD (test button), MCB, IMD.
	Mechanical components	Visual inspection, e.g. housing, paint, foils, covers.
		Check for function, e.g. door and closing mechanism; check parking position.
	Charging system	Check for function, e.g. start and stop of a charging process at all charger interfaces.
	Wear parts	Replace, e.g. filter mats (only for active cooling).
As required	Charging system	Clean the inside and outside of the housing.

NOTE

A test report is included in the Annex of this manual and/or can be obtained from us on request.

8.2 Maintenance work

8.2.1 Replacing the filter mat at the air outlet

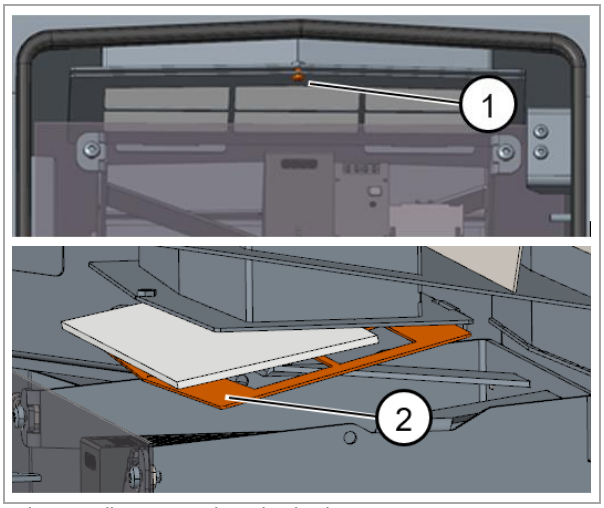


Fig. 41: Filter mat - Air outlet (top)

1. Open the door of the charging station.
2. Unscrew the screw on the filter holder (1).
3. Tilt down the filter clamping plate (2) and replace the filter mat.
4. Fold up the filter clamping plate again and screw it tight.
5. Note: The cover need not be removed.

8.2.2 Replacing the filter mat at the air inlet

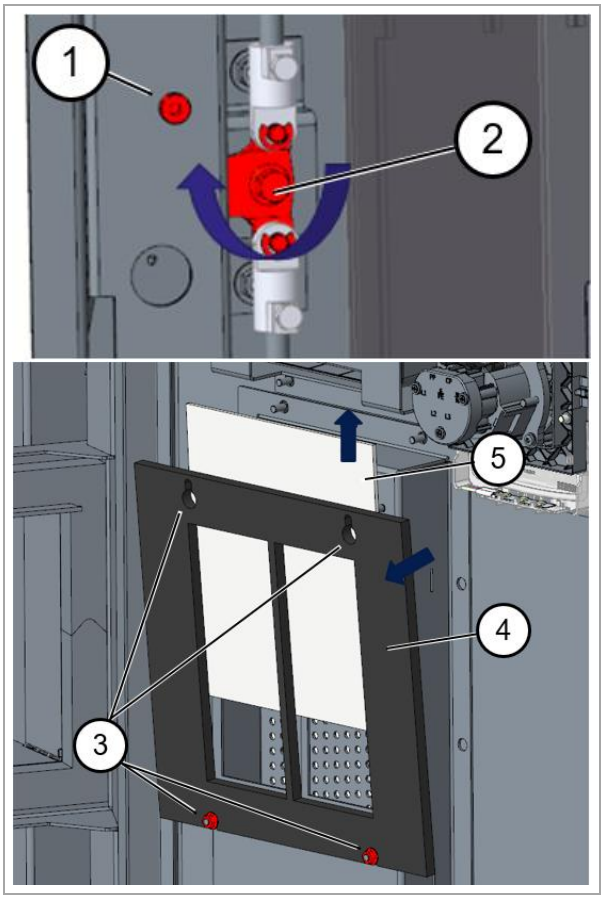


Fig. 42: Filter mat - Air inlet (bottom)

1. Open the door of the charging station.
2. Unscrew the screw approx. 10 mm (1).
3. Turn the locking lever of the door 90 ° upwards (2) and open the side door.
4. Loosen the nuts (3), push the filter holder upwards and fold it out (4).
5. Pull out filter mat (5).
6. Replace filter holder together with new filter mat and tighten nuts.
7. Turn the locking lever of the door 90° downwards (2) and close the side door.
8. Screw the screw back in (1) and close the door.

8.3 Cleaning

The components inside the charging system need to be cleaned according to the assessment of an expert but this is not always necessary. Any necessary cleaning of the interior must only be carried out after consultation with the operator of the charging system. Cleaning may only be carried out by a properly and professionally instructed person and must never be carried out by a user.

Only materials and dry cleaning agents which are antistatic and do not damage the electrical or mechanical components may be used as cleaning agents for the interior. Only materials and agents that do not attack or damage the surface of the housing or any applied foiling or paintwork should be used as cleaning agents for the external housing. If chemical agents are used during cleaning, the work must be carried out outdoors or, if this is not possible, only in well-ventilated rooms.

DANGER

Danger due to electric current

Touching live parts will result in electric shock with serious injury or death.

- Only clean the charging system when it is switched off.
- Do not clean the outer housing with water jets, e.g. with a hose or a high-pressure cleaner.
- Do not clean the interior of the charging system with liquid cleaning agents.
- Do not clean any plugs in the charging system.

9 Decommissioning, dismantling and disposal

The decommissioning and dismantling of the charging system may only be carried out by a qualified electrician.

The national legal requirements and regulations must be observed.

DANGER

Danger due to electric current

Touching live parts will result in electric shock with serious injury or death.

- Work on electrical components may only be carried out by a qualified electrician and in accordance with electrical engineering rules.
- Ensure they are de-energised and take suitable protective measures.

1. Finish charging processes properly.
2. Disconnect the charging system from the power supply.
   - Activate using the internally installed safety elements such as MCB, RCD and any installed main switch.
   - Release the upstream fuse element of the charging system.

Dismantling may only be carried out after it has been established that no voltage is present and suitable protective measures have been taken.

A loading system contains materials that can be recycled. In order to protect the environment and human health, disposal must be carried out in accordance with local laws and ecological considerations.

- Observe the requirements of the WEEE Directive 2012/19/EU.
- Dispose of the charging system in accordance with the applicable local environmental regulations.
- Send dismantled components for recycling.

NOTE

Incorrect or negligent disposal causes environmental pollution.

- If you have any questions about environmentally friendly disposal, ask your specialist dealer or the manufacturer for information.

10 Index

11 Annexes

Declaration of conformity:

COMPLEO

CE

EU-Konformitätserklärung

EU Declaration of Conformity

Hersteller, Anbieter: *Producer, Supplier:*	**Compleo Charging Solutions GmbH** **An der Wethmarheide 17** **D-44536 Lünen**
Produkt: *Product:*	Konduktives Ladesystem für Elektrofahrzeuge (Wechsel- & Gleichspannung), Produktfamilie: Cito *Electric vehicle conductive charging system (Alternating & Direct Voltage), product family: Cito*
Typbezeichnung / Produktnummer: *Type reference / Product number:*	Cito BM 500 SAM D111X3****.50/** Cito BM 500 D011X3****.50/** X= E oder / or F; E = Mini RFID Reader + LTE; F = Multi RFID Reader + LTE * = ohne Einfluss auf Konformitätserklärung / * = *character with no impact on declaration of conformity*

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
Das Produkt, auf das sich diese Erklärung bezieht, entspricht den Bestimmungen der jeweiligen Richtlinien.
The manufacturer bears sole responsibility for issuing this declaration of conformity.
The product to which this declaration relates to is in accordance with the provisions of the relevant specific regulations.

Niederspannungsrichtlinie	2014/35/EU	*(Low-voltage-directive 2014/35/EU)*
EMV-Richtlinie	2014/30/EU	*(EMC-directive 2014/30/EU)*
RED-Richtlinie	2014/53/EU	*(RED-directive 2014/53/EU)*
RoHS-Richtlinie	2011/65/EU	*(RoHS-directive 2011/65/EU)*

Das Produkt stimmt mit folgenden Normen oder normativen Dokumenten überein:
The product is in conformity with the following standards or normative documents:

DIN EN 61851-1:2019-12 (VDE 0122-1)
DIN EN 61851-23:2014-11 (VDE 0122-2-3)
DIN IEC/TS 61439-7:2014-10 (VDE V 0660-600-7)

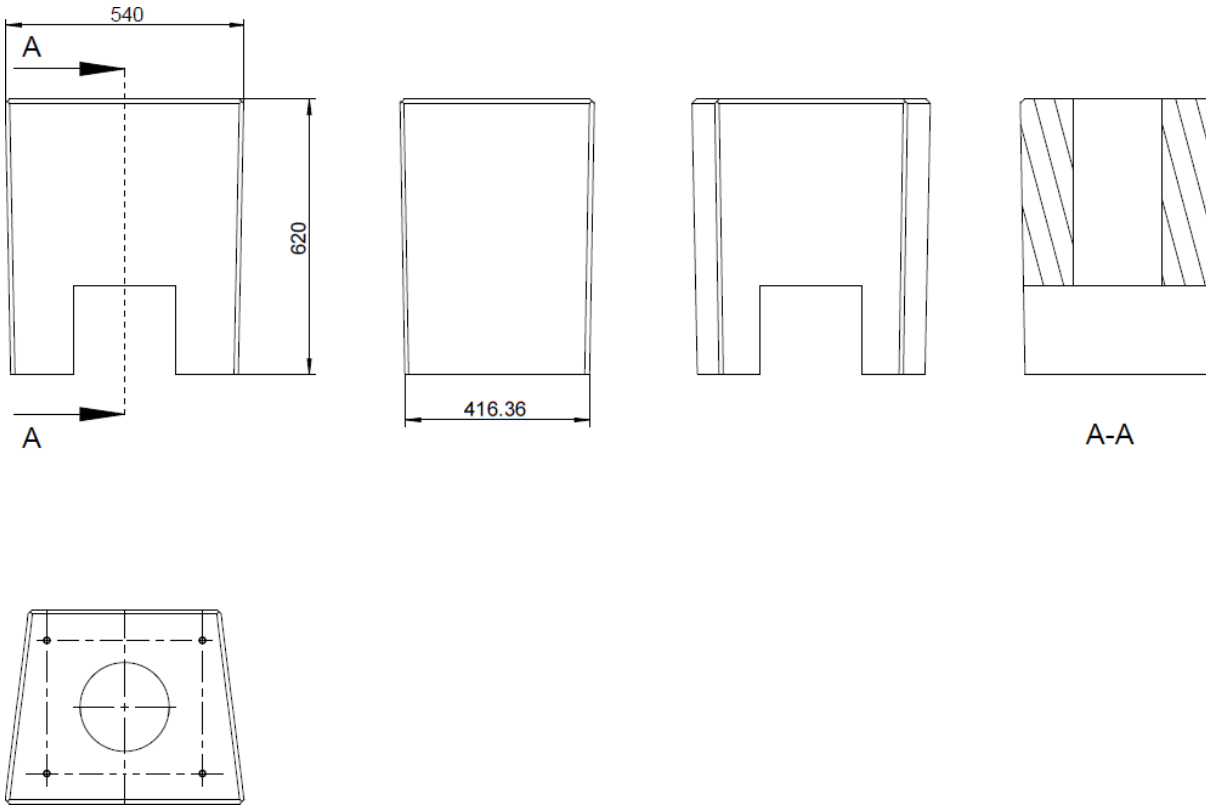
Diese Konformitätserklärung wird für die Ladesysteme nach internen Prüfungen bzw. nach Prüfungen in externen Prüflaboratorien ausgestellt. Diese Erklärung gilt weltweit als Erklärung des Herstellers zur Übereinstimmung mit den oben genannten internationalen und nationalen Normen.
This declaration of conformity was issued for the charging systems after internal tests and tests in external test laboratories. The declaration is world-wide valid as the manufacturer's declaration of compliance with the requirements of the a.m. national and international standards.

Ort / Datum der Ausstellung:
Place / date of issue:
Dortmund, 23.06.2020

Name, Funktion und rechtsverbindliche Unterschrift: *Name, function and signature of the autorised person:*	i.A. i Stahl Ingo Stahl Leiter Entwicklung Elektrotechnik *Head of R&D Electrical Engineering*	23.06.2020 Checrallah Kachouh Geschäftsführer *Managing Director*

Declaration of conformity of the compleo® Cito BM 500 charging system

Base design:



Design drawing of the concrete base of the Cito BM 500