



Transport, Installation, Start-Up
DC-Charger with integrated
AC/DC converters and direct payment
ECC 320 Single/Dual

4/2023
Rev. 08



About this Document

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Please retain this manual for future use.

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1. General

This document contains all important information on the transport, installation and initialization of the ECC 320 charging station. It is an original component of the complete product provided by the manufacturer and is intended to provide assistance.

This manual serves as an aid for trouble-free and safe installation. For information on the operation, maintenance & care of the ECC 320 charging station, (referred to as ECC 320 in the following) please refer to the operating manual.

Read the manual carefully before you start the installation.

This manual will help you:

- > avert user hazards
- > to install the device in the optimal way
- > to detect defects
- > to avoid malfunctions
- > to increase reliability and service life

Keep this manual on transport, assembly and commissioning for later use and pass on the documents if the ECC 320 is dismantled and, if necessary, reinstalled by another person.

Any procedure for installing the charging station that deviates from this manual is not permitted and will result in the exclusion of warranty, guarantee and liability.

All notices that are important for the safety of the user are marked with a corresponding symbol. This is important information which, if ignored, may have health consequences for the user and cause damage to the charging station, the e-vehicle or the building.



1.1 Structure of this Manual

> **General:**

Contains all important information for the installation of the ECC 320.

> **Safety Notices:**

Contains important information on handling the ECC 320.

> **Preparation for Installation:**

Contains all information about transport, site selection and connection technology.

> **Installation:**

Contains information and safety instructions for mounting the ECC 320 on the foundation and important information for creating the foundation.

> **Electrical Installation:**

Contains important information on electrical installation.

> **Inbetriebnahme:**

Contains important information for commissioning the ECC 320.

> **Attachments:**

Includes dimensions, technical data, customer service and the legal notice.

1.2 Safety Notices

The following safety symbols must be observed:

 **DANGER** **Nature, Source**

This symbol in conjunction with the signal word "DANGER" signifies an immediate danger. Disregarding this safety notice can lead to serious injury or death.

- *This is a warning text with a known remedial action*

 **WARNING** **Nature, Source**

This symbol in conjunction with the signal word "WARNING" signifies a possibly dangerous situation. Disregarding this safety notice can lead to serious injury or death.

- *This is a warning text with a known remedial action*

 **CAUTION** **Nature, Source**

This symbol in conjunction with the signal word "CAUTION" signifies a possibly dangerous situation. Disregarding this safety notice can lead to minor or slight injuries.

- *This is a warning text with a known remedial action*

 **ATTENTION**

Passages marked with this symbol contain important notices or particular information necessary for successful operation. Actions marked with this symbol should be carried out as required.

1.3 Notes on Text Design

in the ① text body Identifies or describes a specific component in the text body with numbered icons.



Numbered icons: Identify or describe a specific component.



Numbering: Identifies the action steps in the charging process.

„Quotation marks“

Indicates text parts set off from the text body.

> **List**

Indicates lists assigned to a specific section.

 **INFORMATION**

Indicates information for special attention.

1.4 Contact Information

If technical faults cannot be rectified by the customer's own means, EnerCharge specialists can be contacted:

 **EnerCharge**

> **Contact / Manufacturer:**

EnerCharge GmbH | Kötschach 66 | 9649 Kötschach-Mauthen | Austria |
Phone: +43 4715 22901 | E-Mail: info@enercharge.at | www.enercharge.at

2. General Information

After the foundation has been laid, the ECC 320 can be mechanically mounted, electrically installed and put into operation. The installation must be carried out by qualified personnel. See: [„3.2 Qualification of Staff“ on page 7](#).

The technical acceptance according to the system book before the initial commissioning must be carried out by a qualified electrical specialist company.

The ECC 320 is an electrotechnical device and is therefore subject to certain specifications for installation indoors and outdoors: Although the housing of the ECC 320 meets the IP44 protection

class specified by the standard, various environmental conditions must be taken into account, especially outdoors. More information on this can be found in the technical data ([9.2 on page 47](#)).

For safe operation of the ECC 320, minimum distances to other technical installations must be taken into account: Your electrical installation company or Sales Partner can provide further information.

The ECC 320 must be mounted so that it is freely accessible to the persons authorized to operate it.



2.1 List of Abbreviations

| | |
|------------------------|---|
| AC | > Alternating current |
| A | > Ampere |
| DC | > Direct current |
| CCS/CCS Combo-2 | > Combined Charging System |
| LAN | > Local Area Network |
| LRM | > Load regulation management (proprietary technology by EnerCharge to control up to 40 external AC and DC charge points) |
| NFC | > Near Field Communication |
| OCPP | > Open Charge Point Protocol - Communication standard for the communication between the charging station and the vehicle. |
| PVC | > Polyvinylchlorid (thermoplastic polymer) |
| RFID | > Radio Frequency Identification (identification through electromagnetic waves) |
| WAN | > Wide Area Network (A computer network that, unlike LAN, extends over a very large geographical area.) |

3. Safety Notices

3.1 Important Safety Notices

Important safety instructions for handling the ECC 320.

- > Read this manual as well as the operating manual completely and carefully before initial start-up. If you have any questions, contact the manufacturer.
- > Keep the instructions in a way that they are at hand in case of need.
- > The ECC 320 may only be installed on a suitable foundation as specified.
- > Observe and follow the warnings and notes contained in this manual.
- > Apply the 5 safety rules when handling the ECC 320.
- > Any modification and/or addition to the ECC 320 is only permitted after consultation with the manufacturer and only using parts authorized by the manufacturer.
- > Unauthorized conversions and/or modifications to the equipment will result in the immediate loss of all warranty and guarantee claims.
- > The equipment must be operated without exception within the specified operating temperature range. See „[9.2 Technical Data](#)“ on page [47](#) for permissible temperature ranges.
- > Do not install the ECC 320 in a potentially explosive environment (EX area) under any circumstances.
- > The ECC 320 can develop a higher surface heat on hot days and with a large workload. Therefore, pay attention to the surface temperature.
- > The ECC 320 is protected against spray and splash water according to IP44. Do not install the ECC 320 in the immediate vicinity of running water or water jets.
- > Never install the ECC 320 in areas subject to flooding.
- > Personal protective equipment must be worn when working on the ECC 320: Adapt your personal protective equipment to local regulations and conditions.

3.2 Qualification of Staff

The activities for installation and initialization/commissioning may only be carried out by persons who have the necessary qualifications. These include: Qualified electrician and qualified personnel for installation and initialization/commissioning.

- > **Qualified Electrician:** Based on their training, knowledge and experience, is able to independently perform work on electrical components for installation, commissioning and maintenance in a professional and safe manner. The electrician knows the relevant standards and regulations.
- > **Specialized personnel for installation and commissioning:** Based on their training, knowledge and experience, they are able to carry out installation and commissioning activities independently in a professional and safe manner.

4. Preparation for Installation

For the installation of the ECC 320, various specifications regarding the location and connection technology must be met in order to ensure safe operation.

- > Observe all local regulations for electrical installations, fire prevention and accident prevention.
- > All specifications for the installation of low-voltage systems according to IEC 60364-1 and IEC 60364-5-52 apply.
- > For Austria, all specifications for the installation of electrical systems up to AC 1000V according to ÖVE/ÖNORM E 8001-1 apply.
- > For Germany, all specifications for the installation of low-voltage systems according to DIN VDE 0100 apply.
- > In general, the International Standard IEC 60364 "Low-voltage electrical installations" applies.
- > The specifications conductive charging systems for electric vehicles - Part 23: DC power supply systems for electric vehicles according to DIN EN 61851-23:2018 apply.
- > The installation surface must have sufficient strength to withstand the mechanical loads. Dimension the foundation according to the standard specifications DIN EN 61851-22:2002 - see: [„5.4 Foundation Strength Testing“ on page 13](#).
- > A sufficiently dimensioned supply line for the power supply must be provided at the installation site. The supply line must be laid in the ground in coordination with the pipe opening on the concrete foundation. If necessary, the supply line must be protected against mechanical effects in the area in front of the foundation (by a suitable hose or pipe).
- > For mechanical protection, a suitable collision protection can be implemented on site to protect the electric car from a possible collision with the ECC 320.
- > Select the location of the ECC 320 so that the charge points are easily accessible and the cable lengths are sufficient to comfortably perform charging operations.
- > In principle, the ECC 320 is designed for operation in high ambient temperatures. In any case, it must be ensured that the maximum permissible operating temperature is not exceeded by external influences.
- > Do not set up the ECC 320 in the immediate vicinity of potentially explosive areas (e.g. gas filling stations, etc.).
- > Ventilation systems are installed in the side areas of the ECC 320. Always ensure that the ventilation slots are free to ensure optimum cooling of the interior.
- > Do not install the ECC 320 in areas subject to flooding and protect it from direct jets of water.

- > The installation environment must meet the following environmental specifications:
 - At least 0.5 kilometers (500 meters) away from salt water such as the sea.
 - At least 3 kilometers away from heavy pollution sources, such as metallurgical plants, coal mines, and thermal power plants.
 - At least 2 kilometers away from medium pollution sources, such as chemical factories, rubber factories and electroplating plants.
 - At least 1 kilometer away from light pollution sources, such as food factories, tanneries, and boilers.
- > Acclimatization:
 - If there is a temperature difference of more than 15°C between transport and installation site, the ECC320 should be acclimatized unopened for at least two hours. Immediate opening of the ECC320 can lead to water formation inside and cause damage when the device is switched on. Such damage may become apparent only at a later time under certain circumstances.
 - Ideally, the charging station should be stored at the installation site a few hours beforehand. If this is not possible, the ECC320 should not be stored outdoors or in a vehicle overnight at cold temperatures (< 5°C).

5. Installation

DANGER Danger to life due to improper installation

There is a danger to life for persons who carry out work for which they have not been qualified and instructed.

- *The ECC 320 may only be installed by persons who are familiar with it, have been informed about hazards and have the necessary qualifications.*
- *Before installation, fulfill all safety-related conditions.*

DANGER Danger to life in case of thunderstorm, rain, storm and/or hail

In the event of thunderstorms, rain, storms and/or hail, there is a danger to life for persons performing work on the ECC 320.

- *Observe regional weather forecast. Installation work on the ECC 320 is not permitted during thunderstorms, rain, storms and/or hail. Pay attention to snow conditions.*

- > The installation company selected by the operator is responsible and liable for the proper installation. EnerCharge does not assume any liability or warranty in case of improper installation of the equipment.

5.1 Site Selection

The selection of a correct site guarantees an unrestricted and long-lasting function of the ECC 320. The following site specifications must be observed:

WARNING Danger due to unsuitable locations

Unsuitable ambient conditions and installation locations can lead to dangerous situations when handling electrical current.

- *All points in section 5.1 must be observed when selecting the installation site.*
- > Do not set up in areas subject to explosion hazards (e.g. gas filling stations).
- > Do not mount in places where it is exposed to ammonia or ammonia gases (e.g. in or near stables).
- > Do not install in areas subject to flooding and protect from direct jets of water.
- > If possible, the device should be mounted protected from direct rain to avoid e.g. icing, damage by hail or the like.
- > If possible, the device should be mounted away from direct sunlight to avoid increased temperatures on charging station components.
- > Observe local technical connection conditions and safety regulations.
- > Adhere to the environmental specifications according to sections „[9.2 Technical Data](#)“ on page 47 and „[4. Preparation for Installation](#)“ on page 8.
- > During operating hours, the operator shall provide adequate lighting around the ECC 320 (if publicly accessible).
- > Sufficient space to maintain „[5.2 Minimum Spacing](#)“ on page 11.

5.2 Minimum Spacing

The specified minimum distances ensure barrier-free access for operation and for maintenance and repair work. Furthermore, this ensures optimum ventilation of the ECC 320 and free access to the side service door.

- The distance to the rear must be at least 500 mm.
- The lateral distance must be at least 800 mm.
- The distance to the front must be at least 1,250 mm.

 **CAUTION** **Damage due to insufficient ventilation**

If the minimum distances are not observed, the ECC 320 may overheat due to insufficient ventilation. This will result in damage to the device.

- *The specified minimum distances to other objects (e.g. walls) must be observed.*

 **ATTENTION**

When installing the ECC 320, observe the required position of the operating display. According to the product standard, the display must be located at a height of approximately 1.5 meters from the floor to ensure accessible operation.

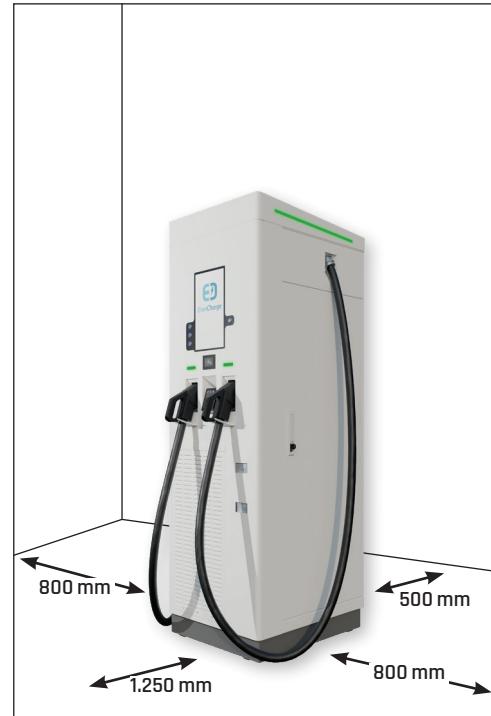


Fig. 1: Minimum spacing (mm).

5.2.1 Ventilation ECC 320

The ECC 320 has an air outlet (back) and air inlets (front and left side, viewing direction display-front).

For proper function:

- the specified minimum distances must be adhered to - see „[5.2 Minimum Spacing“ on page 11](#).
- the ventilation grids must be clean and free of foreign bodies such as leaves.

 **CAUTION** **overheating due to contamination**

Contamination of the air inlets and/or the air outlets can lead to insufficient ventilation. As a result, the ECC 320 may overheat. This leads to damage to the device.

- *Keep air inlets and outlets clean and make sure they are free of snow and leaves and other materials.*

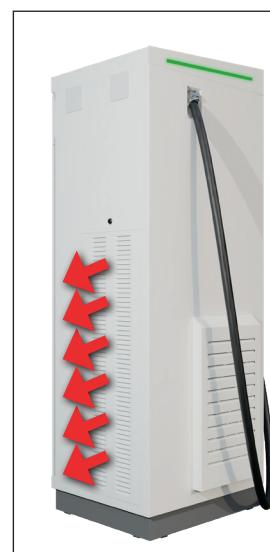


Fig. 2: Air inlet



Fig. 3: Air outlet

5.3 Foundation Dimensions

EnerCharge offers a prefabricated foundation with threaded bolts for mounting the ECC 320. The foundation must be installed by a specialist company.

INFORMATION

For a dimension drawing of the foundation see: „[9.3 Dimension Drawing of Prefab Foundation](#)“ on page 48.

CAUTION Self-installed prefabricated foundation

The installation of the prefabricated foundation is the sole responsibility of the operator or the company carrying out the installation on behalf of the operator. EnerCharge does not provide any warranty on an improperly installed prefabricated foundation.

- *Installation of the prefabricated foundation to be carried out by a specialist company.*
- *For a dimension drawing of the foundation see: „[9.3 Dimension Drawing of Prefab Foundation](#)“ on page 48.*

Foundation Provisions:

- > Horizontal, level and load-bearing ground is required for installation.
- > The substrate must allow for the drainage of any water that may enter the base.
- > Care should be taken to ensure adequate frost resistance.
- > Lightning protection and grounding must be dimensioned by a specialist electrical company.
- > All cables must be led out of the ground exactly in the middle of the concrete foundation and have an excess length of approx. 1.5 m for further installation.
- > Installation on asphalt is not permitted!

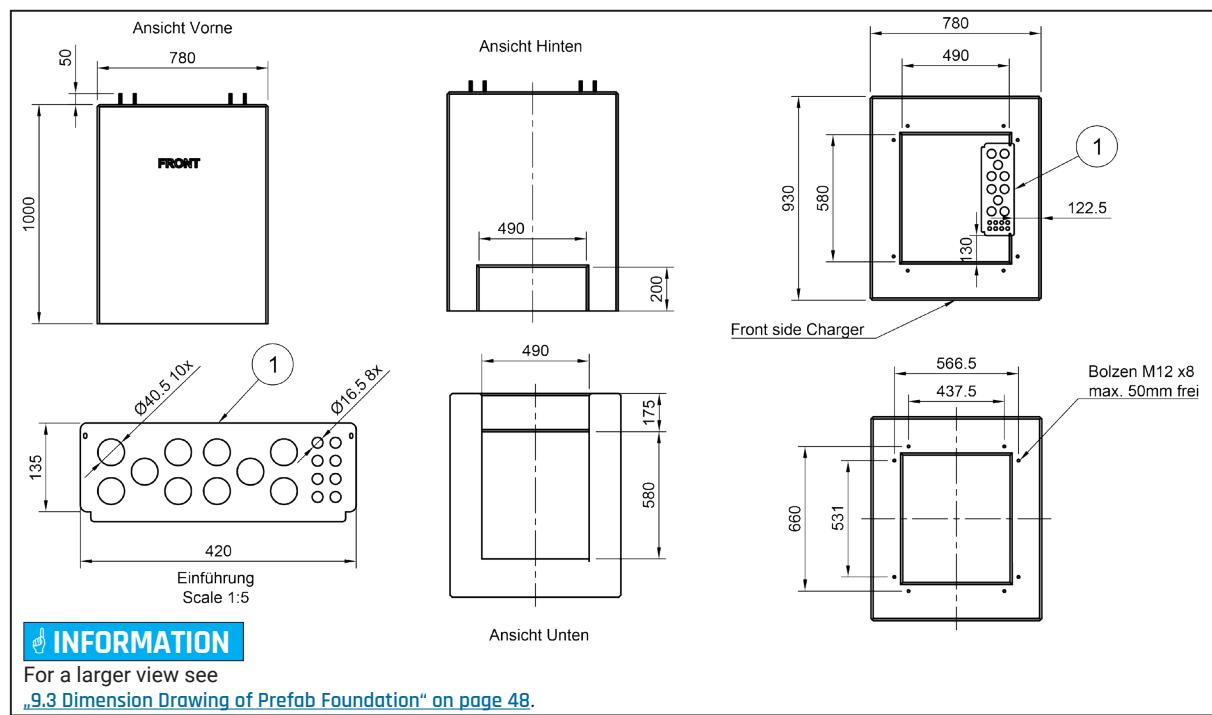


Fig. 4: Details of prefab foundation for ECC 320

5.4 Foundation Strength Testing

Regarding the dimensioning of the foundation, the standard EN 61851-23:2014 provides specifications for the strength:

- > A force of 500 Newtons (about 51 kilograms) acts on the top of the charging station for 5 minutes in a horizontal direction.
- > This is done either in each of the four directions or in the horizontal direction, which is the least favorable.
- > There shall be no deterioration or deformation on the top of the charging station greater than:
 - 50 mm during load application
 - 10 mm after load application



Danger from tipping charging station

When mounting the ECC 320, there is a risk of tipping if the lifting device is inadequate or the charging station is attached incorrectly. There is also a risk of tipping if the foundation is too weak. This can result in crushing or fatal injuries to persons in the vicinity of the charging station.

- Dimension the foundation according to the EN 61851-23:2014 standard.
- Dimension the lifting device and slings according to the maximum weight of the ECC 320.

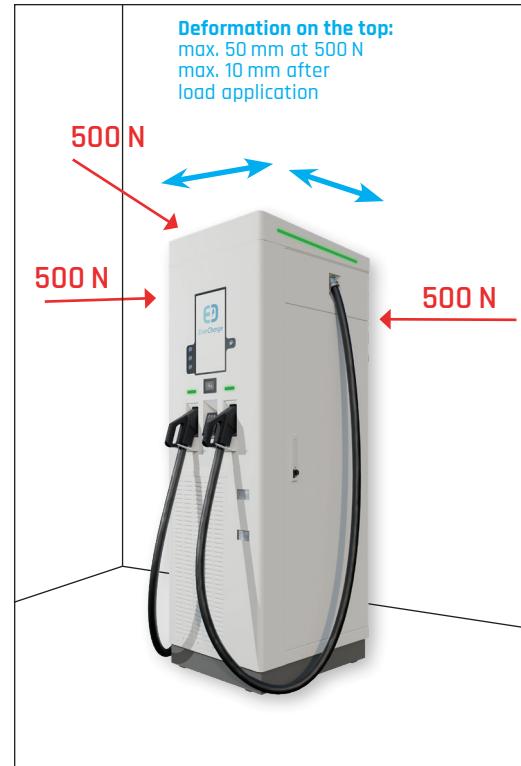


Fig. 5: Festigkeitsprüfung der Fundamente

5.5 Check the Scope of Delivery

The ECC 320 is shipped with various components for assembly and proper operation. Immediately after unpacking, check that the following basic components are included:

INFORMATION

If one or more of the above components are missing, contact your local distributor immediately or contact EnerCharge: The necessary contact details can be found in the section: [9.8 Customer Service" on page 50.](#)

| Component | Qty. | Description |
|---|------|--|
| ECC 320 | 1 | Charging station with integrated AC/DC power electronics and direct payment |
| Manual "Transport, Installation and Start-up" | 1 | Manual for mechanical and electrical assembly of the ECC 320. |
| Operating Manual | 1 | Manual for commissioning and operating the ECC 320. |
| Maintenance Manual | 1 | Manual for maintenance of the ECC320. |
| Inspection Protocol | 1 | Inspection report for maintenance work performed |
| Installation Materials | 1 | Necessary installation materials: Stainless-steel nutz M12 8 pcs Washers 8 pcs |

Table 1: Scope of delivery

5.6 Transport Regulations

⚠ CAUTION **Damage due to improper handling**

Collisions and impacts during handling, transportation and unpacking of the package may damage the charging station.

- Do not use sharp-edged tools for removal from the wooden box.
- Move the ECC 320 charging station with the greatest possible care.
- Do not tilt the wooden box during transport.
- Use a soft base for setting up the ECC 320.
- Do not tilt the equipment during transport - always transport in an upright position.
- Protect the packaging from moisture and humidity.
- The transport packaging is suitable for any type of belt securing.



Fig. 6: Opened wooden box ECC 320

Open the wooden box of the ECC 320 with the greatest possible care and remove the side panels. Then lift the charging station from the pallet and place it on a soft surface. (See: „[5.7 Lifting and Lowering the ECC 320](#)“ on page 16).

Transport label and delivery note/invoice are on the outside of the wooden box.

Weight: approx. 400 kg

| | |
|--|---|
| Transportation Box of „_____“ | |
| Serial-Nr.: | <input type="text"/> |
| Date of packaging: | <input type="text"/> |
| Dimensions/Weight: (Transportation Box) | <input type="text"/> (WxHxD)cm / <input type="text"/> kg |
| Cable-Configuration: | CCS 500A <input type="checkbox"/> <input type="checkbox"/> CCS 200A <input type="checkbox"/> CHAdeMO <input type="checkbox"/> |
| Producer: | EnerCharge GmbH Kötschach-Mauthen 66 9640 Kötschach-Mauthen Austria |
| (!!) Attention: The charging column inside the box faces this information plate. Move box and unbox carefully! | |

Fig. 8: Transport label ECC 320



Fig. 7: Closed wooden box ECC 320

5.7 Lifting and Lowering the ECC 320

At a weight of approx. 400 kilograms, the ECC 320 must be lifted onto the foundation using a lifting device. Eyebolts are mounted in the head area for this purpose. Please note the following:

DANGER Danger to life due to unsuitable or improper use of eyebolts!

Improper use of eyebolts or use of unsuitable eyebolts can cause loads to swing out and fall down. This can cause serious injuries or even death.

- The eyebolt must be fully screwed in with sufficient thread depth!
- The eyebolt must lie flat and fully on the contact surface!
- The working load limit (WLL) of the eyebolt must be observed!
- Before use, check the eyebolts for tight fit and obvious damage (deformation, corrosion)!
- Do not use deformed and damaged eyebolts!
- Side drafts must not be used!

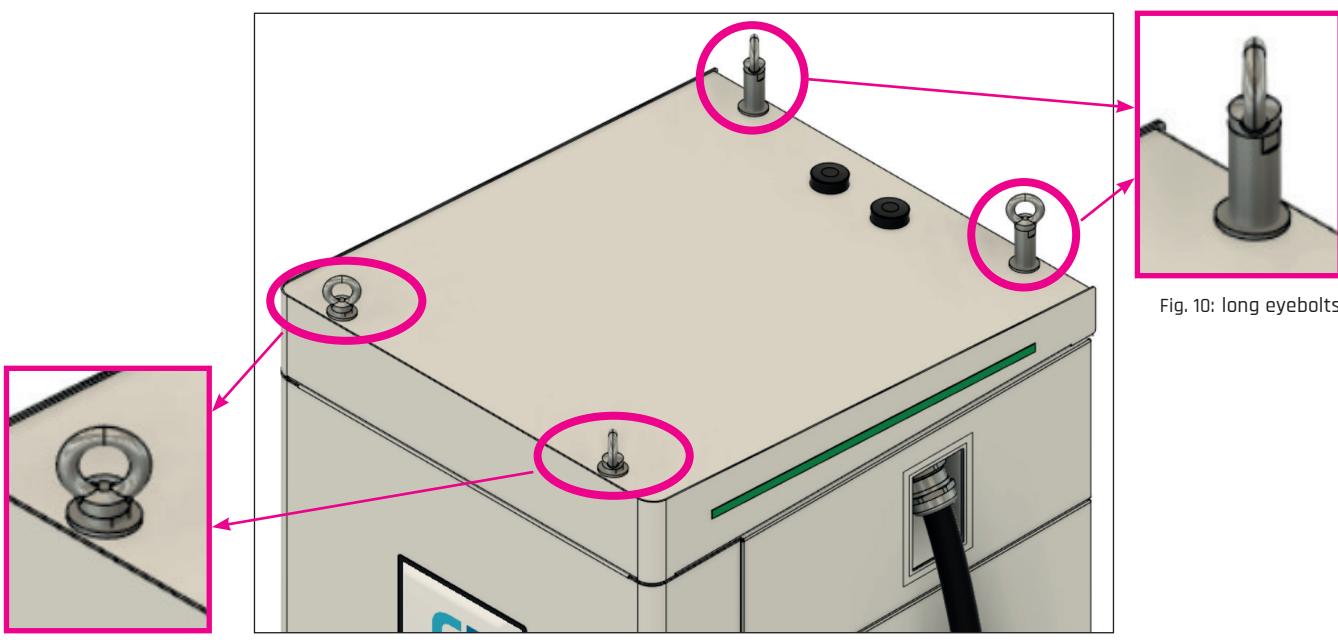
1 Remove all 4 screws in the head area of the ECC 320.

- Service-Türe öffnen: „[5.8 Opening and Closing the ECC 320](#)“ on page 18.
- Loosen nut and remove sealing plug including seal; see [Fig. 14](#).
- Save the sealing plug, gasket and nut for later use.
- Repeat the procedure for all 4 screw connections.

2 Screw the eyebolts into the threaded holes provided in the head area of the ECC 320.

See [Fig. 9](#).

- Make sure that the extension bolts are screwed in at the rear; see [Fig. 10](#).
- Tighten extension bolts and eyebolts.
- Ensure that the eyebolts are aligned:
- Side-pull must not be used; see [Fig. 12](#) and [Fig. 13](#).



- 3** Lift and lower the ECC 320 by the eyelets of the eyebolts using a suitable lifting device.

⚠️ WARNING Unsuitable lifting device

The lifting device is the responsibility of the operator or the company that carries out the installation on behalf of the operator. EnerCharge does not provide any warranty in case of damage or injury caused by an unsuitable lifting device.

- Dimension the lifting device according to the maximum weight of the ECC 320.
- Use a suitable sling with 4 strands.
- No persons are allowed to be below the lifted load.
- Make sure that the extension bolts are mounted correctly.

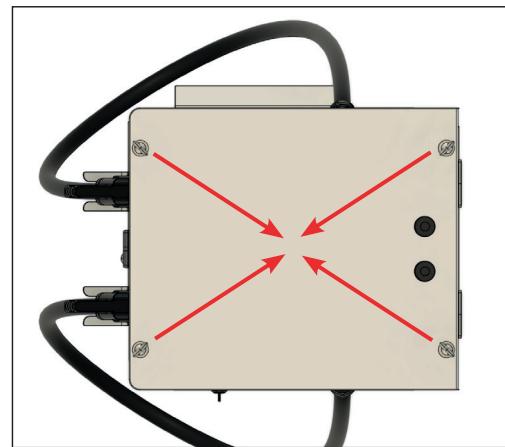


Fig. 12: alignment of eyebolts

- 4** Remove eyebolts and extension bolts.

⚠️ DANGER Sealing in Head Area

The screw fittings in the head area prevent water and liquids from entering. Penetrating liquids can trigger a short circuit. The consequences can be fatal electric shocks.

- Install the screw connections properly.
- Take care not to damage the gasket when tightening the nut.
- Replace a damaged gasket immediately.
- If water has penetrated: Do not operate the ECC 320 charging station under any circumstances. Contact your local sales partner from whom you purchased the charging station. This partner will ensure that the interior of the ECC 320 is cleaned and that it is put into operation.

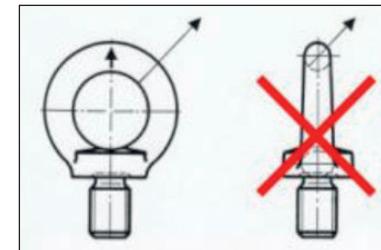


Fig. 13: side-pull of eyebolts

- 5** Mount all four screw fittings in the head area.

- Attach sealing plug with gasket and mount with nut: see [FigAbb. 14](#).
- Observe the correct position of the gasket: see [Fig. 15](#)
- Tighten the nut hand-tight: Make sure not to damage the gasket.
- Replace a damaged gasket immediately - do not reuse!
- Repeat the process for all 4 screw fittings.

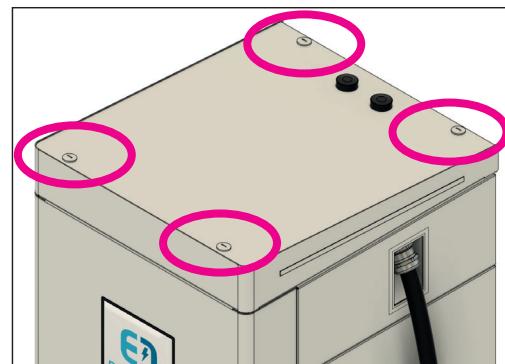


Fig. 14: Screws in head area

- > ECC 320 successfully lifted and lowered.**

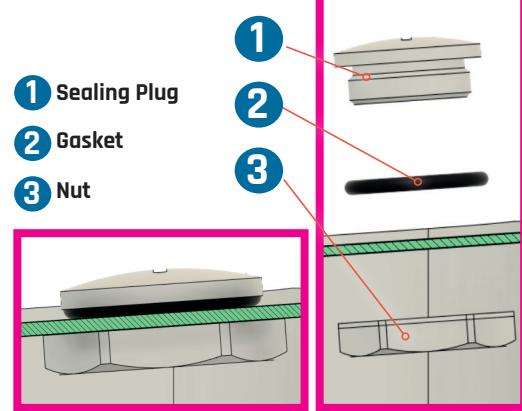


Fig. 15: Structure of screw fitting

5.8 Opening and Closing the ECC 320

⚠ CAUTION Unversperrte Service-Türe

The service door has a 3-way lock. An unlocked service door represents a high safety risk, as unauthorized persons have access to the inside of the ECC 320. The consequences in the event of an unlocked service door could be life-threatening.

- Always lock the service door of the ECC 320.
- The key must be accessible only to authorized persons.

The ECC 320 has a PHZ multi-point lock on the right side (viewing direction of the operating display). For opening and closing, please note:

- > Locate the key opening (see [FigFig. 16](#)).
 - Slide the cover of the lock upwards.
 - Insert the key.
- > Pull the charging cable in front of the service door to the side.
- > To open the service door, turn the key 45 degrees clockwise.
 - Turn the lever counterclockwise.
- > To close the service door, turn the key counter-clockwise.
 - Press the lever into the holder.
- > If the service door is opened by more than 90 degrees, the door locking rail is activated. This blocks the service door and prevents it from closing unintentionally.
- > To release the lock, press the locking rail upwards. This can be done by hand or also by foot.
- > After releasing the locking rail, the service door can be closed (see [FigFig. 19](#)).

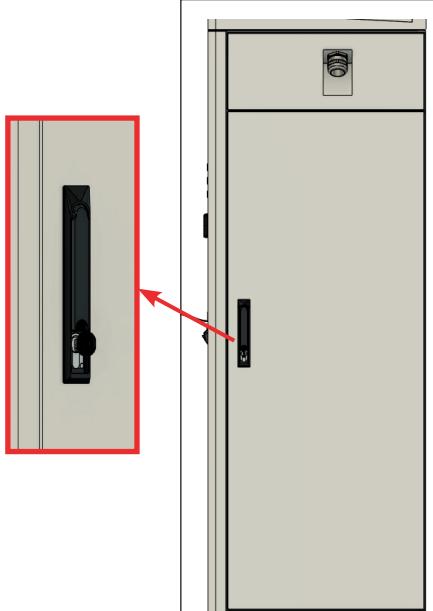


Fig. 16: Service door lock

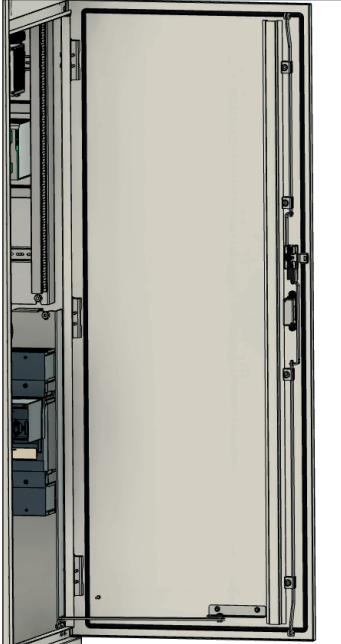


Fig. 17: Opened service door



Fig. 18: releasing the locking rail



Fig. 19: released locking rail

5.9 Installation on the Foundation

To fix the ECC 320 to the foundation, proceed as follows:

DANGER Danger to life from electric shock

During the entire installation, the line and residual current circuit breakers for all supply lines to the ECC 320 must be deactivated: The supply lines must be de-energized in all cases and may only be reconnected to the mains for the final electrical commissioning.

- *Disconnect all supply lines to the ECC 320 from the power supply.*
- *Apply the 5 safety rules for working on electrical equipment.*

- 1** Lead the power supply line through the opening in the foundation. The supply line must protrude from the top edge of the foundation by a sufficient length (greater than 50 centimeters).
- 2** Place the ECC 320 on the threaded rods of the prefab foundation using the lifting device (see „[5.7 Lifting and Lowering the ECC 320](#)“ [on page 16](#)) and align it accordingly.
- 3** Open the ECC 320:
[„5.8 Opening and Closing the ECC 320“ on page 18](#)
- 4** Screw the ECC 320 onto the prefabricated foundation using the nuts and washers supplied.
- 5** Make sure that all eight nuts are tightened evenly.

VORSICHT Anzugsmoment der Fundament-Verschraubung

Das geeignete Drehmoment liegt im Verantwortungsbereich des Betreibers oder der Firma, welche die Montage im Auftrag des Betreibers durchführt.

- *Fundament-Verschraubung mit dem geeigneten Drehmoment anziehen.*

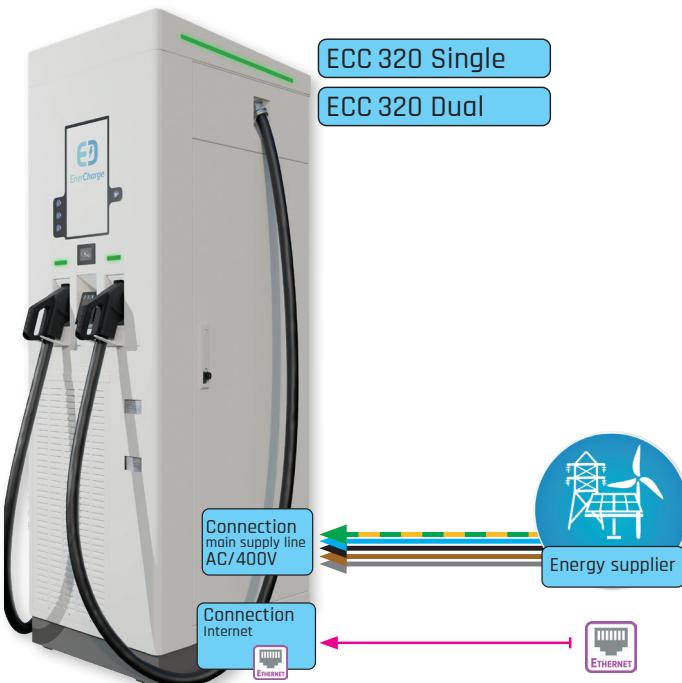
-  ECC 320 successfully mounted on the foundation.

6. Wiring Diagrams ECC 320

The connection diagram shows the necessary wiring to the ECC 320 for proper electrical installation. The ECC 320 is connected to the main supply line (400 VAC). In addition, an Internet connection via Ethernet (RJ45) is possible.

💡 INFORMATION

The ECC 320 has an integrated LTE modem. This LTE modem establishes the Internet connection. Optionally, the connection via Ethernet (RJ45) is possible.

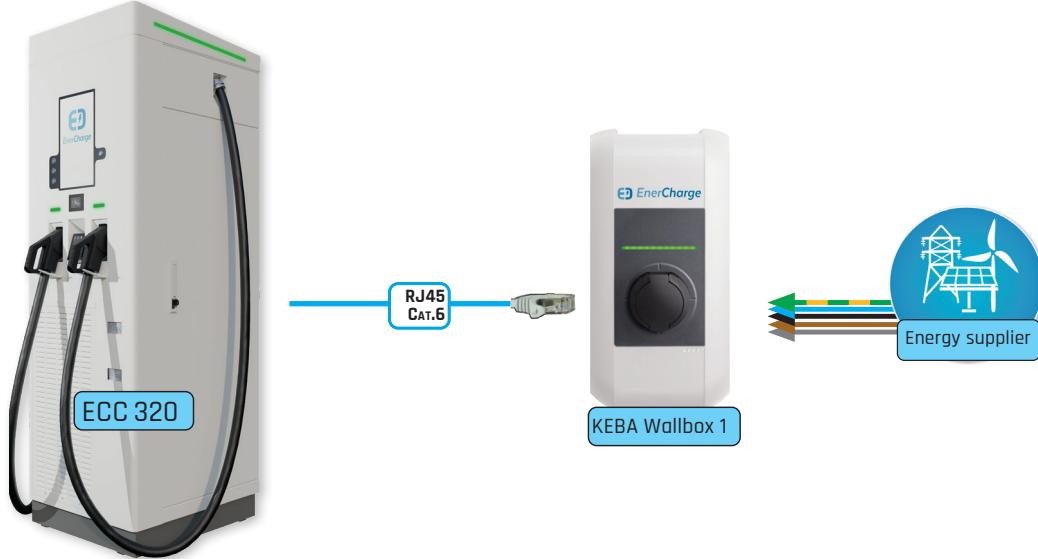


6.1 Connection of KEBA Wallbox

As an option (optional equipment) you can connect AC wallboxes of the type **KEBA** to the **ECC 320**.

INFORMATION

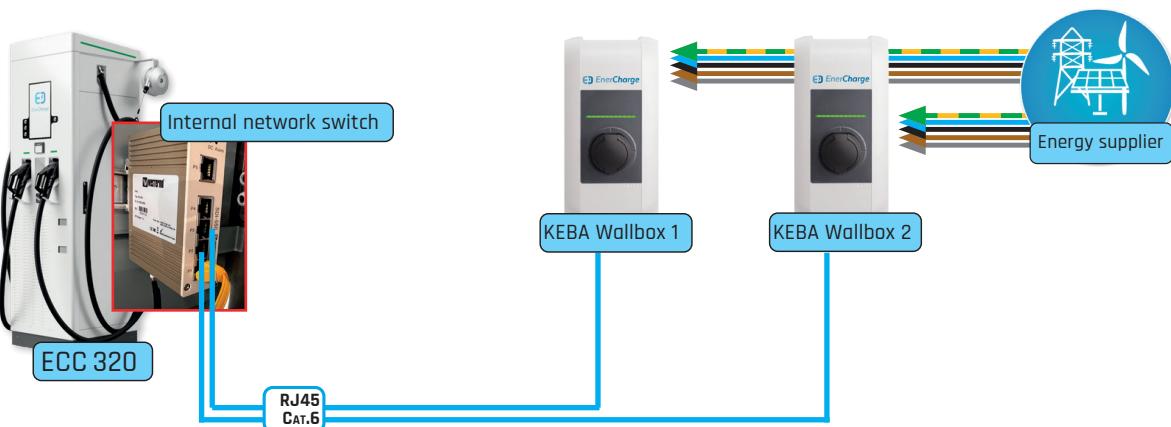
For the detailed connection, see „[7.8 Optional: Connecting a Wallbox via Ethernet](#)“ on page 31.



6.1.1 Connection of multiple KEBA Wallboxes

INFORMATION

When connecting several eBike chargers or KEBA wallboxes, an internal network switch is installed at the factory (special equipment). See: „[7.8 Optional: Connecting a Wallbox via Ethernet](#)“ on page 31.



7. Electrical Installation ECC 320

This section deals with the electrical installation (AC/Ethernet) of the ECC 320.

DANGER Danger to life due to electric shock

Components are electrically live. Touching live parts will result in electric shock, burns or death. Observe the following points before working on the electrical system:

- *Apply the 5 safety rules when carrying out installation work in the ECC 320.*
- *Before carrying out installation work, completely de-energize the entire system.*

WARNING Danger due to faulty connection

There is an increased risk of injury to persons performing work for which they are neither qualified nor instructed.

- *The ECC 320 may only be installed by persons who are familiar with it, have been informed about hazards, and have the necessary qualifications.*
- *Before installation, fulfill all safety-related conditions.*

7.1 De-Energizing the Supply Line

Deactivate all circuit breakers in the main supply line (400 V_{AC}).

7.2 Specifications for the Electrical Installation

The supply line must be installed hard-wired into the existing electrical installation and comply with the nationally applicable legal regulations.

7.3 Connection of Main Supply Line 400 V

INFORMATION | Connection AC supply line (400 V) according to TN-S or TN-C system

Depending on the national regulations of the country of installation, the AC supply line (400 V) is connected according to the TN-S or TN-C system.

In the TN-C system, the connection of the 400 V supply cable is 4-pole: L1/L2/L3/PEN.

In the TN-S system, the connection of the 400 V supply cable is 5-pole: L1/L2/L3/N/PE.

If the connection is made in accordance with the TN-C system, the ECC 320 has an additional copper bar (connection PE with N) for the connection of the PEN conductor. This additional copper bar is installed ex works.

INFORMATION

For the connection of the AC supply line to the switch disconnector, observe the installation instructions of the manufacturer Siemens:

- Manual switch disconnector: „[9.4 Installation of Manual Switch Disconnector](#)“ on page 49.
or
- Motorized switch disconnector: „[9.5 Montageanleitung Motorbetriebener Lasttrennschalter](#)“ on page 49.

7.3.1 Connection of AC Supply line (400V) with 2 Conductors per Phase

INFORMATION

When connecting the AC supply line to the switch-disconnector with two conductors per phase, the following equipment is required (Allows connection of two conductors per phase to one terminal of the switch-disconnector).

- The optional equipment is not included in the scope of delivery and must be obtained via Siemens:
Round conductor terminal for 2 cables: Siemens 3VA9403-0JJ23 - see [Fig. 20](#)
LINK: <https://mall.industry.siemens.com/mall/de/de/Catalog/Product/3VA9403-0JJ23>



Fig. 20: Round conductor terminal
Siemens 3VA9403-0JJ23

7.4 Cable Cross-Sections AC Supply Line

The dimensioning of the cable cross-sections for the AC supply line (400 V) depends on the type of AC/DC modules installed. EnerCharge offers two different AC/DC modules with a module power of 20 kW or 40 kW.

INFORMATION

Use the sales order to check which AC/DC module type is installed: 20 kW or 40 kW:

- For dimensioning with AC/DC module type 20 kW see: „[7.4.1 Cable Cross-Sections AC Main Supply Line - AC/DC Module Type 20 kW](#)“ on page 24.
or
- For dimensioning with AC/DC module type 40 kW see: „[7.4.2 Cable Cross-Sections AC Main Supply Line - AC/DC Module Type 40 kW](#)“ on page 24.

CAUTION | Dimensioning of AC Supply Line

The cable cross-section has a direct influence on the voltage of the cable used, as each cable has a certain resistance. Thus, depending on the cable length, there is a voltage loss, which can be compensated by increasing the cable cross-section. An incorrectly dimensioned supply cable can lead to limited functioning of the charging station.

- *Have the design and calculation of the cable cross-section in coordination with the actual cable length carried out by a specialist electrical company.*

7.4.1 Cable Cross-Sections AC Main Supply Line - AC/DC Module Type 20 kW

INFORMATION

Multi-stranded or fine-stranded cables must be used for the AC main supply line (400 V). Furthermore, the L1/L2/L3, PE and N conductors must be designed individually. Multi-conductor power cables cannot be routed into the housing of the ECC 320.

When using aluminum cable, special cable lugs must be used.
EnerCharge recommends the use of copper conductors.

For the dimensioning of the AC supply line, please observe the following formula:

- > Current AC (A) - Specifications apply per phase:
 $32 \text{ A} \times (\text{number of power modules}) = \text{XX Ampere}$.
Ex.: $32 \times 12 \text{ (no. of modules at 20 kW each, 12 = 240 kW)} = 384 \text{ Ampere}$
- > Active Power: $21 \text{ kW} \times (\text{no. of modules}) = \text{XX kW}$.
Ex.: $21 \times 12 \text{ (no. of modules at 20 kW each, 12 = 240 kW)} = 252 \text{ kW}$
- > Apparent Power: $22 \text{ kVA} \times (\text{no. of modules}) = \text{XX kVA}$.
Ex.: $22 \times 12 \text{ (no. of modules at 20 kW each, 12 = 240 kW)} = 264 \text{ kVA}$

7.4.2 Cable Cross-Sections AC Main Supply Line - AC/DC Module Type 40 kW

INFORMATION

Multi-stranded or fine-stranded cables must be used for the AC main supply line (400 V). Furthermore, the L1/L2/L3, PE and N conductors must be designed individually. Multi-conductor power cables cannot be routed into the housing of the ECC 320.

When using aluminum cable, special cable lugs must be used.
EnerCharge recommends the use of copper conductors.

For the dimensioning of the AC supply line, please observe the following formula:

- > Current AC (A) - Specifications apply per phase:
 $61 \text{ A} \times (\text{number of power modules}) = \text{XX Ampere}$.
Ex.: $61 \times 8 \text{ (no. of modules at 40 kW each, 8 = 320 kW)} = 486 \text{ Ampere}$
- > Active Power: $43 \text{ kW} \times (\text{no. of modules}) = \text{XX kW}$.
Ex.: $43 \times 8 \text{ (no. of modules at 40 kW each, 8 = 320 kW)} = 344 \text{ kW}$
- > Apparent Power: $44 \text{ kVA} \times (\text{no. of modules}) = \text{XX kVA}$.
Ex.: $44 \times 8 \text{ (no. of modules at 40 kW each, 8 = 320 kW)} = 352 \text{ kVA}$

7.4.3 Cable Lugs for Connection

The selection of the correct cable lug critically depends on the type of cable to be processed:

- Crimping cable lugs according to DIN 46235 for the crimping of solid, stranded, fine and superfine stranded copper conductors. For processing, the standard recommends crimping dies in accordance with DIN 48083 Parts 1, 3 and 4 for solid, fine and superfine stranded conductors.
- Crimp cable lugs according to DIN 46234 are suitable for stranded, fine-stranded and fine-stranded conductors up to 240 mm². Important: Crimping cable lugs are not suitable for solid stranded conductors. There are no normative specifications with regard to crimping tools.
- The international standard IEC 1238 Part 1 applies to the electrical and mechanical properties of cable lugs.

7.4.4 Screw Connection of PE-N-AC

The section shows the correct screw connection of the AC-PE-N terminal block

 **CAUTION** Damage due to incorrect screw connection

An incorrect or incomplete screw connection of the AC-PE-N terminal between the cable lug of the AC-PE-N supply line and the copper bars inside the ECC 320 can lead to a fire hazard and subsequently to damage to the ECC 320.

- Observe the correct structure of the screw connection according to [Fig. 21](#)
- Tighten the nut to the specified torque = 38 Nm.

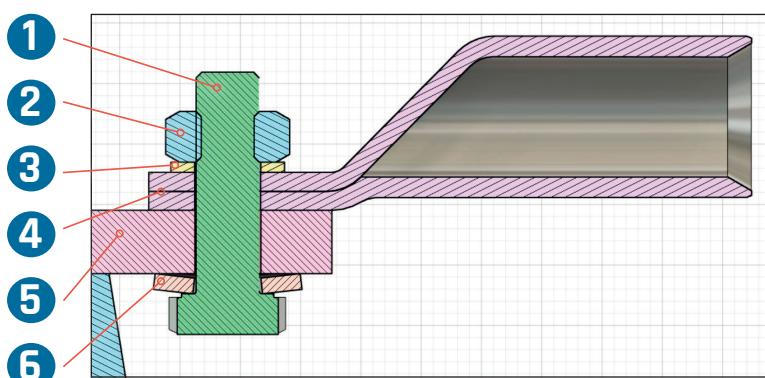


Fig. 21: Screw connection of AC-PE-N-connection clamp

- | |
|---|
|  1 Screw  2 Nut  3 Wahser (DIN EN ISO 7089)  4 Cable Lug  5 Copper Bar  6 Clamping Washer (DIN 6796) |
|---|

7.4.5 Bolt Size of Cable Lugs for PE-N-AC

 **INFORMATION**

The cable lugs for connecting PE-N-AC must be designed for bolt size M10.

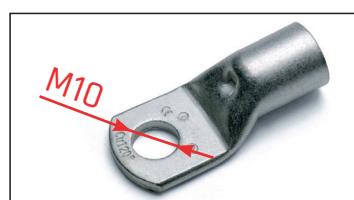


Fig. 22: Bolt size for cable lug

7.5 Disconnect the ECC 320 from the Power Supply

Before electrical installation, make sure that all line/earth leakage circuit breakers inside the ECC 320 are in the "OFF" position. Move the lever of the fuse switch disconnector to the "OFF" position. To do this, observe the following procedure:

- 1** Open the service door:
[„5.8 Opening and Closing the ECC 320“ on page 18.](#)
- 2** Locate all line/ground fault circuit breakers inside the ECC 320.
- 3** Switch all toggle levers of the line/earth leakage circuit breakers to the "OFF" position.

DANGER Danger to life due to electric shock!

If the fuse switch-disconnector is not deactivated, the inside of the ECC 320 may be live. This can result in electric shock, burns or death.

- Make sure that the lever of the fuse switch disconnector is in the "OFF" position.
- After switching off the fuse switch disconnector, wait at least 10 minutes until there is no more residual charge.

- 4** Turn off the fuse-switch disconnector:
 - Move the lever of the switch disconnector to the "OFF" position: see [Fig. 22](#).
 - For motor-driven switch disconnector option, proceed to step "5".
- 5** For motorized fuse-switch disconnector ([Fig. 26](#) and [Fig. 27](#)):
 - Green viewing window with writing "0-OFF" = load-break switch deactivated
 - Red window with "1-ON" = load-break switch activated:
Contact customer service immediately!

> ECC 320 successfully de-energized.

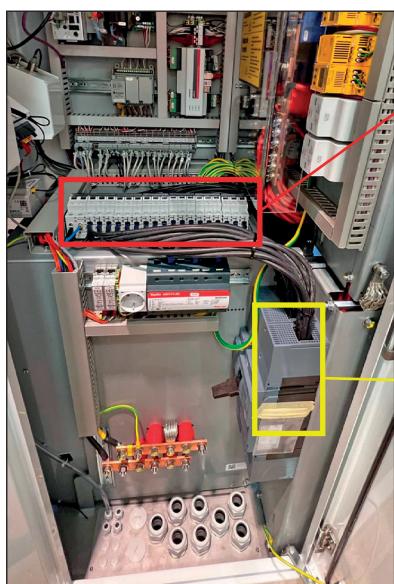


Fig. 25: Opened service door



Fig. 23: Line/fault-current circuit breakers

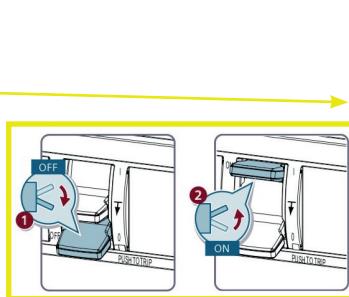


Fig. 24: fuse-switch disconnector



Fig. 27:OFF/ON viewing window



Fig. 26: Motorized fuse-switch disconnector

7.6 Cable Entry

7.6.1 Cable Entry Plate

The cables used must be inserted into the housing through the cable entry plate as shown in the illustration. Section „[7.7.1 Overview of the Electrical Connection for the ECC 320](#)“ on page [28](#) gives an overview of the electrical installation.

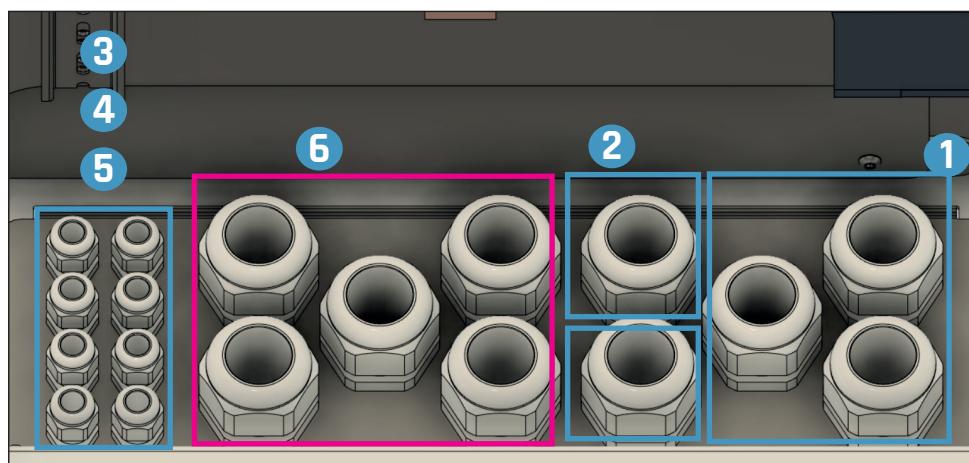


Fig. 28: Cable assignment on cable entry plate

- 1** Entry for **AC (400 V) supply line**
- 2** Entry for **PE-N: conductor AC**
- 3** Entry for **LAN Control (WAN)**
- 4** Optional: **Modbus RTU**
(connection AC-Charger)
- 5** Optional: **LAN** (for load management or connection of AC wallboxes e.g. KEBA)
- 6** Optional: **When using aluminum conductors**

7.6.2 Connection Data for Cable Entry Plate

ATTENTION

The cable types listed are examples. The cable types used in the installation must be adapted to the requirements of the particular installation site. See additionally: „[7.4 Cable Cross-Sections of AC-Supply](#)“ on page [23](#).

Connection Data of Cable Entry Plate Single

| No. | Connection | Cable Type | ! ATTENTION | Outer Cable Diameter: |
|----------|---|--|--------------------|-----------------------|
| 1 | AC (400 VAC) | Dimensioning see: „ 7.4.1 Cable Cross-Sections of Main AC Supply Line “ on page 23 | | approx. 27 to 35 mm |
| 2 | PE-N: Conductor AC | Dimensioning see: „ 7.4.1 Cable Cross-Sections of Main AC Supply Line “ on page 23 | | approx. 27 to 35 mm |
| 3 | LAN Control (WAN) | Ex.: UNITRONIC LAN 1000 S/FTP Cat.7 (L)PE 4x2xAWG23/1 | | 5 to 10 mm |
| 4 | Optional: Modbus RTU | Ex.: UNITRONIC BUS LD 2x 0,22 mm ² | | 8 to 13 mm |
| 5 | Optional: LAN (Load management, external wallboxes) | Ex.: UNITRONIC LAN 1000 S/FTP Cat.7 (L)PE 4x2xAWG23/1 | | 5 to 10 mm |

Table 2: Connection data cable entry plate

7.7 Electrical Connection of ECC 320

7.7.1 Overview of the Electrical Connection for the ECC 320

Overview of the electrical connections to be made when installing the ECC 320. The procedure is explained in detail in the following sections.

 **INFORMATION**

Depending on the national regulations of the country of installation, the AC supply line (400 V) is connected according to TN-S (5-pole) or TN-C system (4-pole). See additionally: [7.3 on page 23](#).

1 AC main supply line: L1/L2/L3

2 AC main supply line: PEN
Connection 4-pole (TN-C)

2a AC main supply line: PE and N
Connection 5-pole (TN-S)

3 LAN connection (WAN)

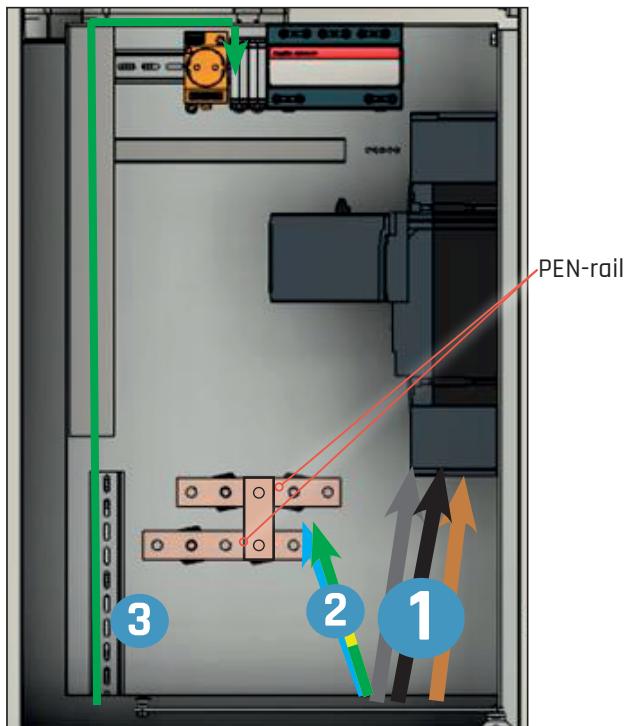


Fig. 29: overview of electrical installation ECC 320 - TN-C (4-pole)

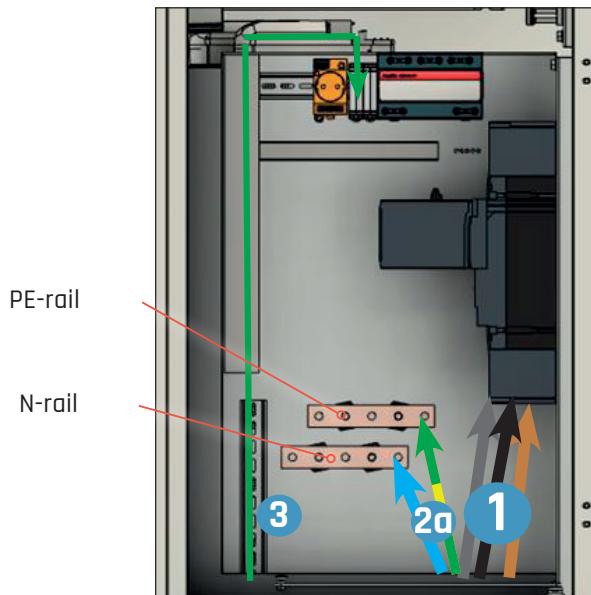


Fig. 30: overview of electrical installation ECC 320 - TN-S (5-pole)

7.7.2 Connection of the Communication (WAN)

Observe the following points when connecting communications (WAN):

- 1** The ECC 320 may only be installed, started up and serviced by qualified electricians in accordance with the applicable national regulations. See: „[3.2 Qualification of Staff](#)“ on page 7.
 - 2** Before connecting the ECC 320, ensure that no voltage is present or take suitable protective measures (see „[7.1 De-Energizing the Supply Line](#)“ on page 22 and „[7.5 Disconnect the ECC 320 from the Power Supply](#)“).
 - 3** See section „[7.6.2 Connection Data for Cable Entry Plate](#)“ for available outer cable diameters.
 - 4** Connect the RJ45 connectors of the communication (WAN) as pictured.
 - 5** Check whether the RJ45 plugs are correctly engaged in the plug sockets.
- >** Communication (WAN) successfully connected.

| Connection Communication (WAN) | Terminal Labeling |
|---|---|
| WAN  | COM ECC  |

Table 3: Communication (WAN)

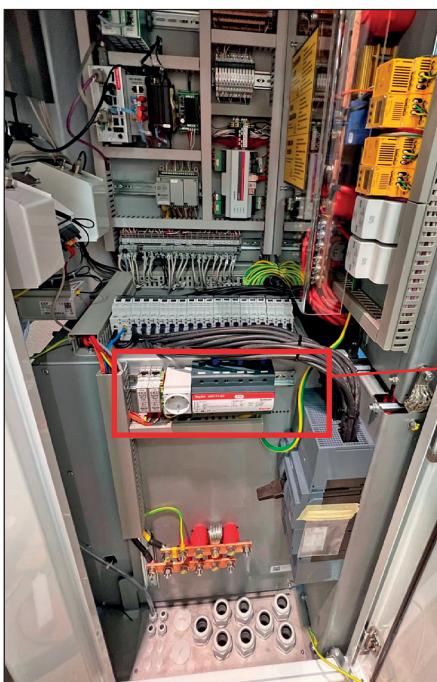


Fig. 31: Connection of communication ECC 320

7.7.3 Connection of Main AC Supply Line (400 V)

Observe the following points when connecting the AC main supply line (400 V) for the ECC 320:

- 1** The ECC 320 may only be installed, started up and serviced by qualified electricians in accordance with the applicable national regulations. See: „[3.2 Qualifikation des Personals“ auf Seite 7.](#)
 - 2** Before connecting the ECC 320, ensure that no voltage is present or take suitable protective measures (see „[7.1 De-Energizing the Supply Line“ on page 22](#) and „[7.5 Disconnect the ECC 320 from the Power Supply](#)“).
 - 3** For the correct dimensioning of the AC supply line, see:
„[7.4.1 Cable Cross-Sections of Main AC Supply Line“ on page 23.](#)
 - 4** See section „[7.6.2 Connection Data for Cable Entry Plate](#)“ for the available outer cable diameters.
 - 5** Connect L1/L2/L3 according to the terminal labeling.
 - Tighten screws with tightening torque = 28 Nm.
 - Additionally observe the manual of the manufacturer Siemens:
see „[7.4.2 Installation Manual for Fuse Switch Disconnector“ on page 23.](#)
 - For maximum cable cross section see [7.7.2 on page 28](#).
 - 6** The dimensioning of the protective conductor of the AC supply line (PEN) is based on ÖVE/ÖNORM E8001-1:2010, Table 20-2. When using a copper strip, a minimum cross-section of 50 mm² is prescribed.
 - See section [7.3 on page 22](#) for 4- or 5-pole connection.
 - Observe the specifications in sections [7.4.4 on page 25](#) and [7.4.5 on page 25](#).
 - 7** Check that L1/L2/L3/PE-N are tightened to the correct torque.
- >** AC main supply line (400 V) successfully connected.

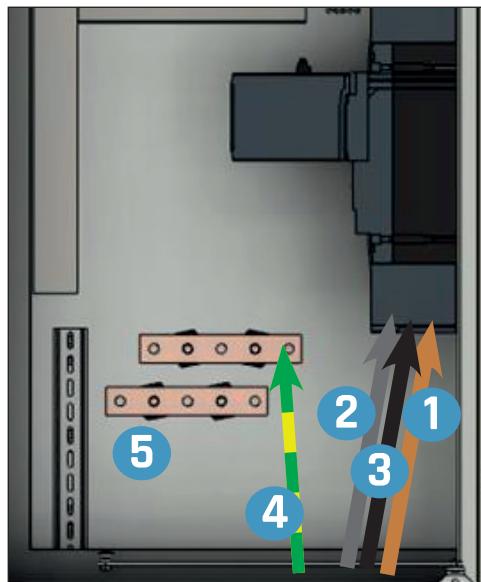


Fig. 32: Connection of main AC supply (400 V)

| Connection AC Supply Line | Tightening Torque (Nm) |
|---|------------------------|
| AC main supply line: L1 max. 240 mm ² | 1 28 Nm |
| AC main supply line: L2 max. 240 mm ² | 2 28 Nm |
| AC main supply line: L3 max. 240 mm ² | 3 28 Nm |
| AC main supply line: PE-N max. 240 mm ² | 4 32 Nm |
| AC main supply line: N* max. 240 mm ² | 5 32 Nm |

*Only for 5-pole connection (TN-S-system see [7.3 on page 23](#) and [7.7.1 on page 28](#))

Table 4: AC main supply line (400 V)

7.8 Optional: Connecting a Wallbox via Ethernet

On request (special equipment), external charge points such as wallboxes (e.g. KEBA) can be connected via Ethernet (RJ45).

The following points must be observed when connecting:

- > The ECC320 may only be installed, started up and serviced by qualified electricians in accordance with the applicable national regulations. See: „[3.2 Qualification of Staff](#)“ on page 7.
- > A category 6 (Cat.6) Ethernet (RJ45) cable leads from the wallboxes (e.g. KEBA) to the internal network switch (optional equipment): see „[Fig. 33: Ethernet wiring diagram KEBA](#)“ on page 31.
 - A Cat.6 Ethernet cable (RJ45) must be used for proper communication.
 - The wiring is executed "star-shaped" - see [Fig. 33](#).
 - A maximum of 12 external wallboxes can be connected with the internal network switch (special equipment).
 - An external network switch is required to connect more than 12 external charge points (12+).

INFORMATION

KEBA wallboxes require a category 6 (Cat.6) Ethernet (RJ45) cable.

Up to 12 external charge points (≤12): connection via internal network switch (special equipment: option must be included in the order).

More than 12 external charge points (+12): an external network switch is required.

Contact EnerCharge for this purpose: „[9.8 Customer Service](#)“ on page 50.

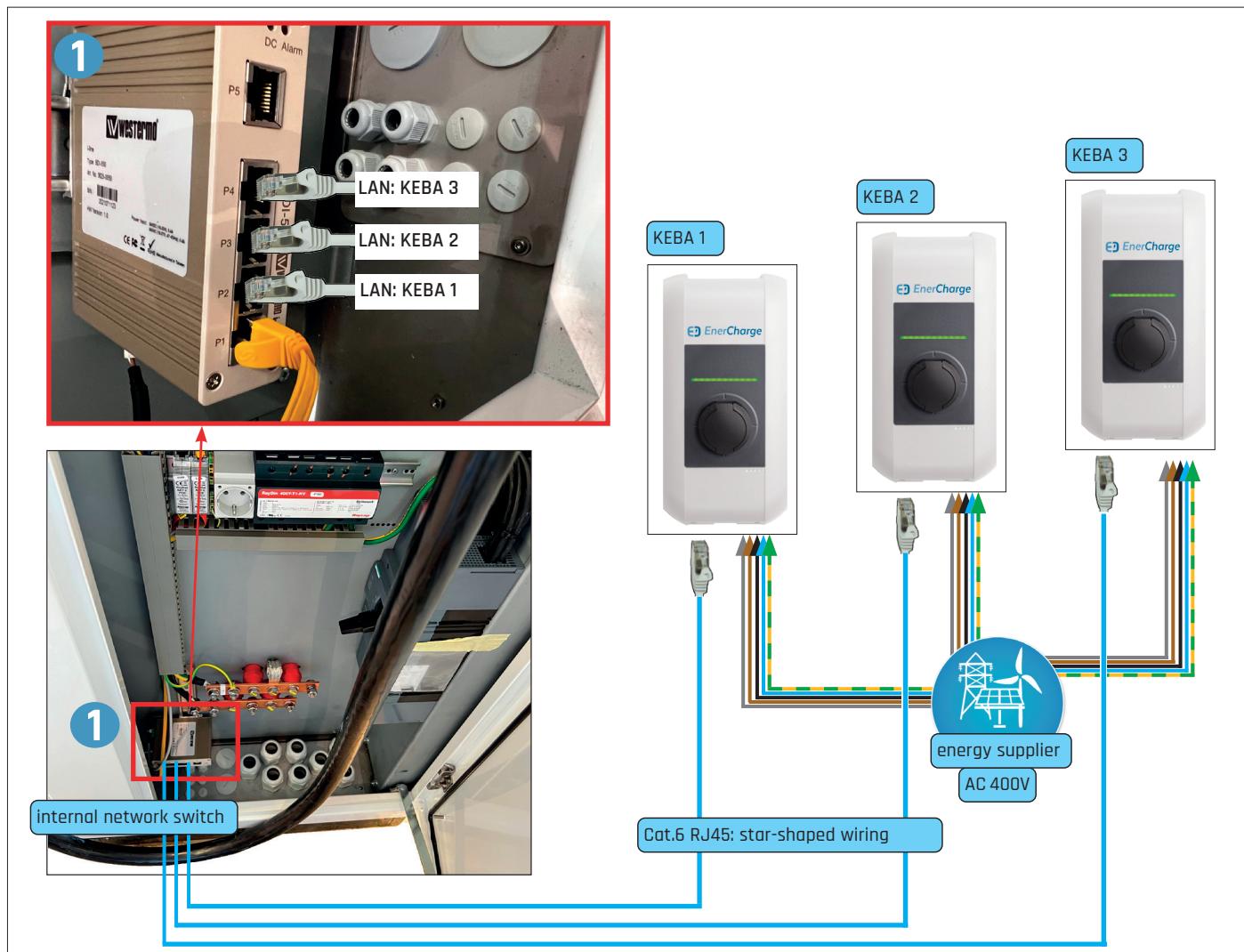


Fig. 33: Ethernet wiring diagram KEBA

7.9 Optional: Konfiguration KEBA

After electrical installation, the KEBA wallbox must be configured for use. Observe the following points during configuration:

INFORMATION

For the electrical connection of the KEBA wallbox, observe the installation instructions of the manufacturer KEBA: www.keba.com.

- 1** The KEBA Wallbox may only be installed, commissioned and maintained by qualified electricians in compliance with the applicable national regulations. See: [„3.2 Qualification of Staff“ on page 7](#).
 - 2** For correct handling of the DIP switches, be sure to observe [Fig. 37](#).
 - 3** Set DIP switch "3" to the "ON" position. See: [Fig. 34](#).
 - Additionally see [Fig. 35](#) for more information on DIP-Switch "3".
 - 4** Set the maximum charging current (amperes) via DIP switches "6/7/8": see [Fig. 37](#).
 - Set the maximum charging current (amps) of the KEBA Wallbox so that it is less than or equal to the operating current according to the type plate.
 - 5** Changes to settings on the DIP switches only take effect after the charging station has been restarted.
 - To restart, press the "Service key" until the first signal tone (approx. 1 second). Alternatively, the charging station can also be switched off briefly using the circuit breaker.
- >** Configuration of KEBA wallbox performed successfully.

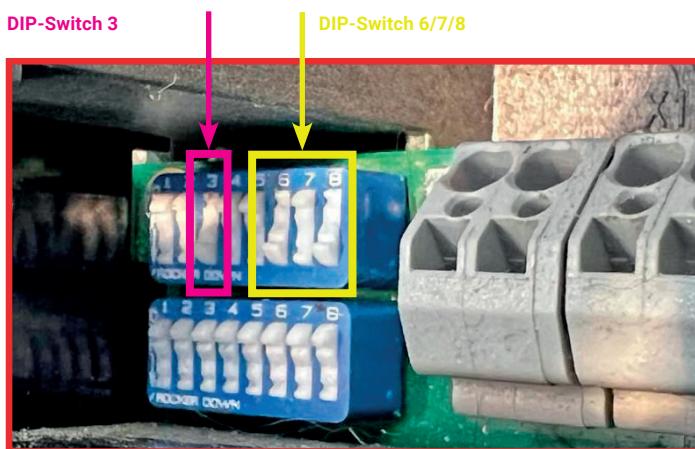


Fig. 34: Example of DIP-Switch setting for 32 Ampere (22kW)

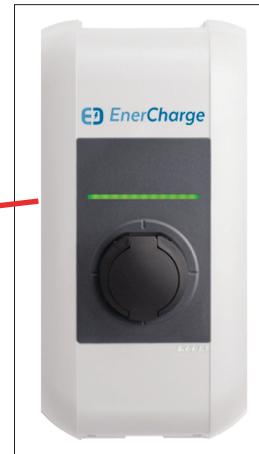


Fig. 36: KEBA-Wallbox

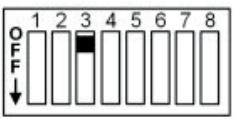
| | | |
|--------|---|--|
| DSW1.3 | Activate UDP or Modbus TCP as communication protocol. Only available for P30 c-series and x-series. For details see "UDP Programmers Guide" or "Modbus TCP Programmers Guide". |  |
|--------|---|--|

Fig. 35: Description of DIP-Switch 3

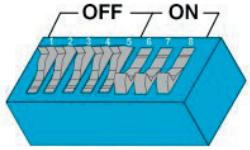
Attention

Possible damage to the DIP switches!

The DIP switches are rockers and not sliders. The DIP switches must be pressed and must never be pushed.

ON/OFF position of rockers

The illustration shows the position of the rockers for the ON and OFF setting.



OFF

ON



OFF

ON

Information

Changes to the DIP switch settings only take effect after a restart of the charging station!

For a restart, press the "Service button" until the first signal tone is heard (approx. 1 second) or briefly disconnect the charging station from the power supply via the circuit breaker.

Fig. 37: instructions for DIP-Switches

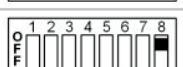
| Set current strength - DSW1.6 to DSW1.8 | | |
|--|------------------|--|
| Information | | |
| <i>The DIP switches can only be used to set a maximum value that is less than or equal to the operating current according to the type label.</i> | | |
| DIP-Switch | Current Strength | Illustration |
| DSW1.6 DSW1.7 DSW1.8 | 10 A |  |
| DSW1.6 DSW1.7 DSW1.8 | 13 A |  |
| DSW1.6 DSW1.7 DSW1.8 | 16 A |  |
| DSW1.6 DSW1.7 DSW1.8 | 20 A |  |
| DSW1.6 DSW1.7 DSW1.8 | 25 A |  |
| DSW1.6 DSW1.7 DSW1.8 | 32 A |  |

Fig. 38: setting the max. current strength

7.10 Make the Network Settings

The **ECC 320** offers two options for local customization of network settings:

- > Local access via LAN (see „[7.7.2 Connection of the Communication \(WAN\)](#)“ on page 29)
- > Local access via Router over WiFi (see „[7.10.1 Network Settings](#)“ on page 34)

7.10.1 Network Settings

⚠ CAUTION Configuration of Network

The configuration of the network requires specialist knowledge. Changed network settings can restrict the functionality of the charging station or, in the worst case, cause damage to the charging station.

- Make settings only with appropriate network knowledge.
- Do not update the router firmware.

1 Establish Internet connection via WiFi or Ethernet:

- Connection WiFi:
WiFi Name = "SNO00XXXX" (XXXX = serial number of charger)
WiFi Password = "Admin382976"

⚠ CAUTION Default WiFi Password

The default WiFi password "Admin382976" does not provide comprehensive protection against unauthorized access. This can restrict the functionality or, in the worst case, lead to damage of the charging station.

- Change the WiFi WPA2 standard password "Admin382976" immediately after your first log-in in the subsection WLAN.
- A secure password should consist of at least 8 characters and contain upper and lower case letters as well as special characters.

2 Enter IP address in browser (see [Fig. 38](#)): "[192.168.111.1](#)"

- Log in (see [Fig. 38](#)):
User: "admin"
Passwort: "Admin382976"

! Make settings only with appropriate network knowledge!

- Adjustments and changes are not the responsibility of EnerCharge GmbH!
- Do not upgrade the router firmware!

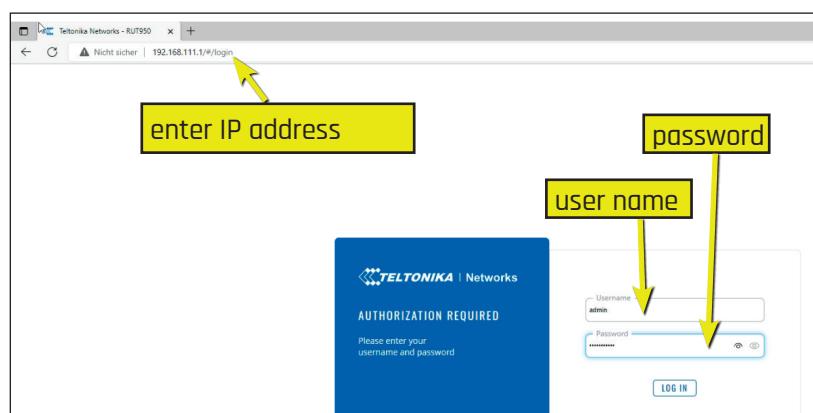


Fig. 39: access to router via WiFi

7.10.2 Network Settings

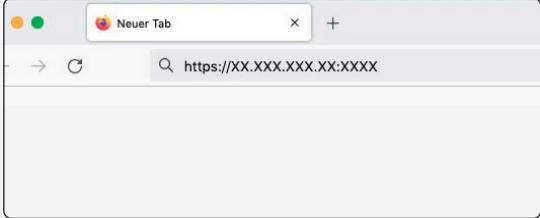
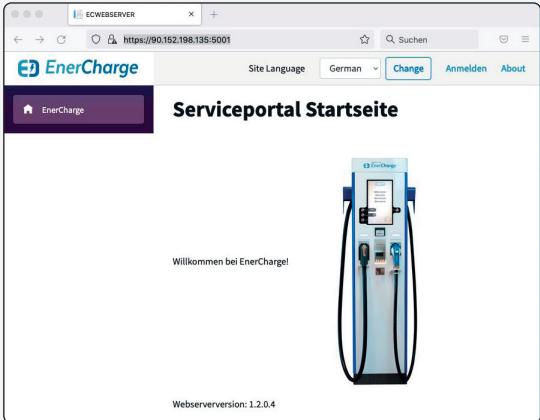
When connected locally to the ECC320 via LAN or WiFi, settings can be made via the web interface. The web interface is accessed by entering an IP address directly in the web browser. Keep the IP address in a safe place and only pass on this information to persons who are authorized to access the web interface.

Observe the following steps for opening the web interface in the browser:

! ATTENTION

EnerCharge recommends using the Microsoft Edge or Mozilla Firefox browser.
For information about installing a web browser on a computer or other interface, see the browser provider's installation instructions.

Action Steps: Open the Web Interface with local access

| | | |
|--|---|--|
| ! | The charging system and the Computer/Smartphone/Interface are connected to the internet via LAN or WiFi. | |
| 1 | IP-address for the EnerCharge Web Service Tool : https://192.168.111.10:5001 | |
| 2 | Open a web browser on your computer/smartphone/interface and enter the IP address from step 1 in the browser's address window (see image on the right). | ! INFORMATION Accept the certificate when you open the Web Service Tool for the first time. |
| > | The web interface of the charger opens. |   |

7.11 Activate the Line Fault Current Circuit Breaker

- > See section: „[7.5 Disconnect the ECC 320 from the Power Supply](#)“

7.12 Attach the Base Panels

The base panels are not mounted when delivered and are part of the scope of delivery. The base panels of the ECC 320 charging station are mounted on the foundation after installation.

Please observe the following:

- > Carefully remove the base panels from the packaging. The ECC 320 has a total of 4 base panels:
 - 2 short base panels
 - 2 long base panels with corner parts.
- > Install the screw fittings according to [Fig. 40](#).
Install a total of 8 screws.
 - tighten screws



Fig. 40: mounted base panels on ECC 320



Fig. 43: screw for base panels

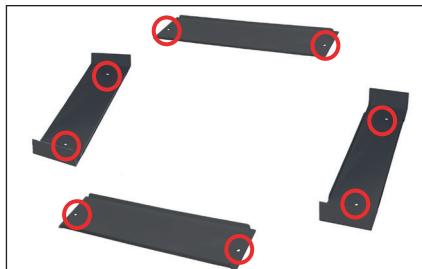


Fig. 42: base panels for ECC 320



Fig. 41: removed base panels for ECC 320

7.13 Close and Lock the Service Door

- > See section: „[5.8 Opening and Closing the ECC 320](#)“ on page 18.

7.14 Install AD/DC Module Upgrade

- > See the document "**Maintenance Manual ECC320**"

8. Initialization

8.1 Charging Connectors

After mechanical and electrical installation, the ECC 320 is ready for operation. The ECC 320 has two fast charging systems with charging cables: CCS and CHAdeMO. The ECC 320 is available with 2x CCS (Dual) or 1x CCS and 1x CHAdeMO (Single).

- > Combined Charging System (CCS) is an international charging standard for electric vehicles. The connector variants and charging procedures are standardized in part 3 of IEC 62196 (DIN EN 62196).
- > CHAdeMO is a standard developed in Japan. The CHAdeMO protocol is compatible with Japanese charging connectors from the power company Tepco. It is not compatible with other charging connectors (e.g. IEC 62196 Type2 or CCS), as CHAdeMO charging communication requires a CAN bus as well as separate signal lines.
- > Position monitoring CCS and CHAdeMO:
The position of the charging connectors is monitored by a sensor system.
 - Before operating, make sure that the charging connectors are correctly located in the holder.



Fig. 44: CCS connector



Fig. 46: CHAdeMO connector



Fig. 45: ECC 320 front view

8.2 Charge Plug CCS

The CCS charging cable of the ECC 320 has the following contacts:

- 1** Signal contact: Control Pilot »CP«
- 2** Signal contact: Proximity Pilot »PP«
 - »CP« and »PP« ensure secure connection and safe use.
- 3** PE protective earth »PE«
- 4** Live contact: »DC+«
- 5** Live contact: »DC-«

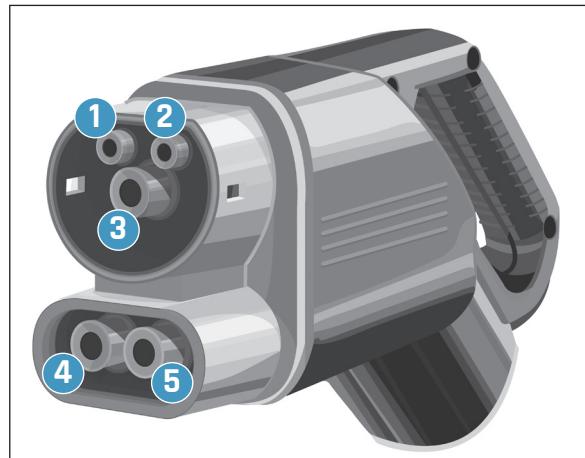


Fig. 47: CCS charging connector

8.3 Charge Plug CHAdeMO

The CHAdeMO charging cable of the ECC 320 has the following contacts:

- 1** Signal contacts: 3 pcs
- 2** Signal contacts: 4 pcs
 - The signal contacts ensure secure connection and safe use.
- 3** PE protective earth »PE«
- 4** Live contact: »DC+«
- 5** Live contact: »DC-«

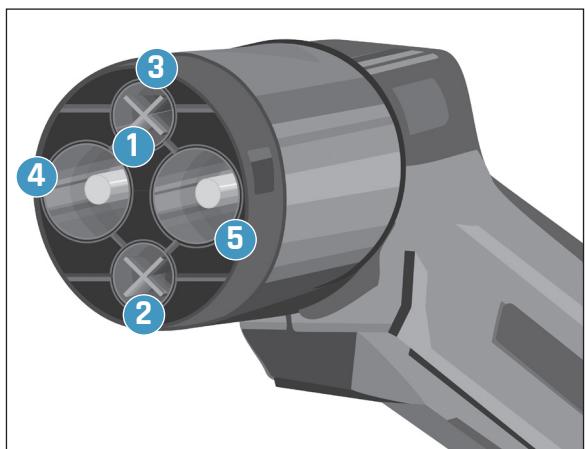


Fig. 48: CHAdeMO charging connector

8.4 Payment System (Direct Payment)

INFORMATION

The activation and commissioning of the payment system is carried out by EnerCharge by means of remote maintenance. Commissioning is possible if all necessary information from the document "Configuration and parameterization" is available. In case of open questions, contact the customer service: [„9.8 Customer Service“ on page 50](#).

8.5 Load Management

If necessary, EnerCharge can limit the maximum charging power of the ECC 320. This is advantageous, for example, when integrating regenerative energy systems or when the connected load is limited, in order to use it specifically for charging processes.

The charging power is thus adaptively adjusted to the currently available power at the connection point. In addition, the operator can read out the power currently being consumed. The load management values can be adjusted at any time.

INFORMATION

Please contact EnerCharge if you wish to activate load management for the charging power: „[9.8 Customer Service](#)“ on page 50.

> **Without management of charging power:**

Max. mains connection power: 100 kW
→ Max. charging power: 100 kW

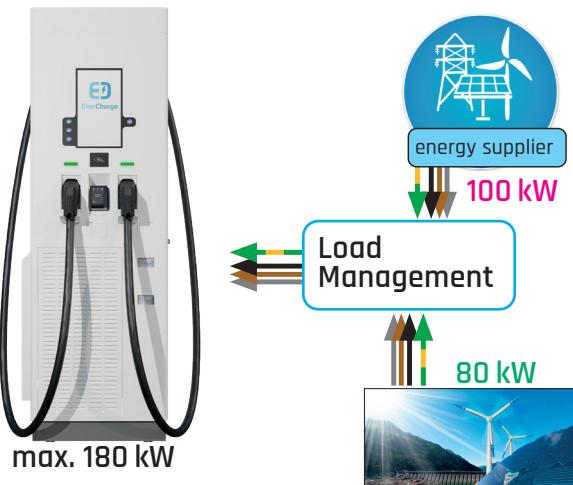


> **With load management of charging power:**

Max. mains connection power: 100 kW
Max. power from renewable energy sources: 80 kW
→ Max. charging power: variable from 100 to 180 kW

INFORMATION

Metering module needed: see [8.5.1 on page 40](#).
Metering module with master control already available: see [8.5.2 on page 42](#).



8.5.1 Load Management with Measuring Module

A load management module from the manufacturer Phoenix-Contact type EEM-MA370-R is optionally available for the ECC 320. The required measuring module (included in the scope of delivery, if ordered) is installed at the feeder at the metering point and then configured.

The measuring module permanently measures the current power consumption and compares it with the maximum connected load.

With optional load management, the maximum available power can be called up at the charging station at any time. Installation is carried out by a qualified electrician in accordance with the manufacturer's manual (see **INFORMATION**).

INFORMATION

Installation and commissioning of the load management module is carried out according to the manual of the manufacturer Phoenix Contact, model: EEM-MA370-R. The manual can be found at: <http://www.phoenixcontact.com>

The Modbus TCP cable must be a CAT6 cable with an RJ45 connector.



Fig. 49: Load management module-Phoenix-Contact EEM-MA370-R

INFORMATION

When ordering this option, the measuring module is included in the scope of delivery. The current transformers are not part of the scope of delivery, as these must be selected on site according to the transformer ratio. EnerCharge has no influence on this.

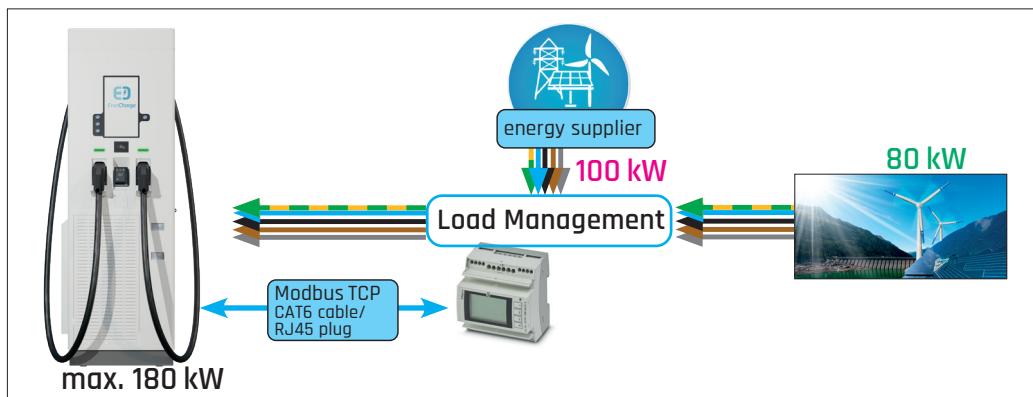


Fig. 50: Overview of load management structure

8.5.1.1 Configuration of Load Management Module

INFORMATION

In order to make all necessary settings, section 8 in the document "Form F50" must be filled out.

- > For correct communication some parameters are set at the measuring module. Information about the procedure can be found in the manual of the model EEM-MA370-R by the manufacturer Phoenix-Contact under the following link <http://www.phoenixcontact.com>
 - Connect the load management module and the charger via Ethernet-RJ45 (CAT6).
 - To change the IP address enter the PIN code "0100"
 - Set the IP address statically to 192.168.111.90
 - Activate the setting "Modbus TCP" under System in the measuring module's settings
 - Set the transformer type and ratio:
to do this, see the manual of the measuring module EEM-MA370-R
 - Check the currently recorded, displayed power on the display of the measuring module.
- > All further settings are made by EnerCharge.

8.5.2 Load Management via Modbus Interface

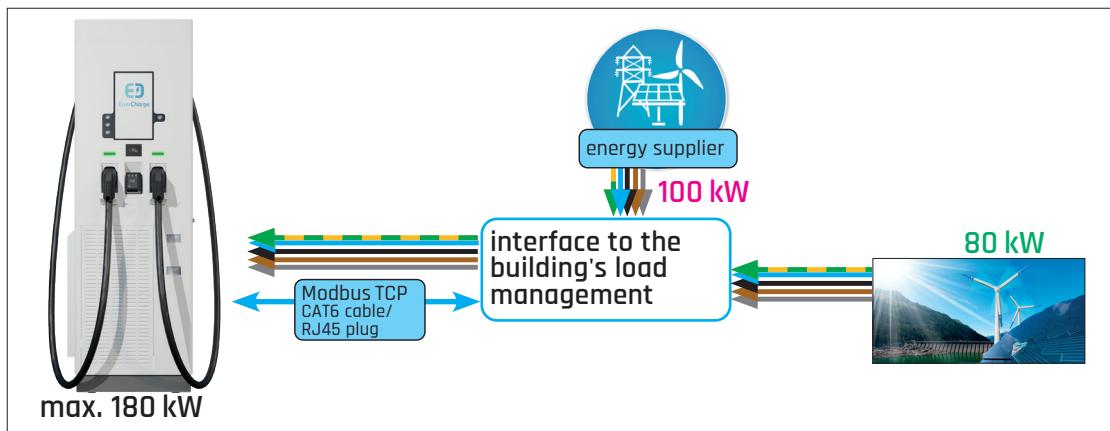


Fig. 51: Overview of load management Modbus interface

Requirements for activation:

- > The configuration and setup of a ModBus TCP (LAN) interface and the activation of the load management of the charging power is done by EnerCharge during commissioning.
- > The ECC 320 can be configured as ModBus Server or as ModBus Client.
- > The ECC 320 must be connected to the customer server/client via LAN cable.
 - If the ECC 320 is connected to the Internet via a SIM card, an additional LAN cable is required.
 - In case of Internet connection via LAN cable, the existing line can be used for the ModBus LAN interface.
- > Port 515 of the ModBus TCP connection is used for the connection.
- > Die IP-Adresse entspricht jener des Routers (der ECC 320) im lokalen Netz des Betreibers.

! ACHTUNG

Die IP-Adresse muss statisch vergeben werden. Das verhindert die Änderung der IP-Adresse durch DHCP.

- > The register list (see [Table 6](#) and [Table 7](#)) defines the data exchange.
The registers are defined as "holding registers".
- > The operator sets the maximum charging power in register "200" (siehe [Table 7](#)):
 - Example: 180 (column factor) = 180 kW maximum charging power.
- > The operator defines the maximum charging power in the event of a system failure or network problem in register "201" (see [Table 7](#)):
 - Example: 100 (column factor) = 100 kW emergency power limitation.
- > Registers "100" and "101" (see [Table 6](#)) define the upper and lower limit of the adjustable power limitation. If the value defined in register "200" (see [Table 7](#)) is not within these boundary values, the value set in register "200" is ignored.
- > In register "103" (see [Table 6](#)) the applied value of the emergency power limitation is returned as a control.

> **Example Configuration (Fig. 50):**

Max. mains connection power: 100 kW
 Max. power from renewable energy sources: 80 kW.
 → Max. charging power: variable 100 to 180 kW

Settings (Table 7): Register "200": 180
 Register "201": 100

ECC 320 "writes"

| Register | Bit Address | Variable Name | Data Type | Factor | Example | Description |
|----------|-------------|-------------------------------------|-----------|--------|---------------------|--|
| 100 | | Max. system power | Word | 1 | [kW] e.g. 1 = 1,0kW | Maximum power provided by the ECC 320 |
| 101 | | Min. system power | Word | 1 | [kW] e.g. 1 = 1,0kW | Minimum power to which the ECC 320 can be limited. |
| 102 | | Actual_Total_Power | Word | 1 | [kW] e.g. 1 = 1,0kW | Current power output |
| 103 | | Readback value for power limitation | Word | 1 | [kW] e.g. 1 = 1,0kW | Value which was set as power limitation. |

Table 6: ECC 320 writes

ECC 320 "reads"

| Register | Bit Address | Variable Name | Data Type | Factor | Example | Description |
|----------|-------------|------------------------------------|-----------|--------|---------------------|---|
| 200 | | Power Limitation ECC 320 | Word | 1 | [kW] e.g. 1 = 1,0kW | Value of the power limitation, which is set on the basis of the available mains power. |
| 201 | | Emergency Power Limitation ECC 320 | Word | 1 | [kW] e.g. 1 = 1,0kW | Value of the power limitation, if the connection to the ModBus LAN slave breaks down (connection problems). |

Table 7: ECC 320 reads

8.6 Measures after Performed Installation

After the installation has been completed, the following activities must be performed:

DANGER Fatal electric shocks inside the housing

In case of improper work inside the ECC 320 and improper behavior by the operator or technician, there are dangers due to live parts inside the housing. This can result in fatal electric shocks when coming into contact with live parts.

- Any work on the electrical system may only be carried out by qualified electricians.
- Check and maintain ECC 320 according to the maintenance specifications (see maintenance manual).

DANGER Fatal electric shocks due to leakage current

If protective conductor connections are not properly executed and connected, leakage currents can flow through the human body. This can result in fatal electric shocks.

- Before connecting to the supply circuit, all ground connections must be properly made and connected.

- > Verify that the ECC 320 has been properly connected to the AC supply line.
- > Check whether the supply lines to the ECC 320 are electrically fused.
- > The protective devices inside the ECC 320s must be tested by a qualified electrician in accordance with standard VDE 0100-600 or ÖVE/ÖNORM E8001-1:2010 (initial testing of electrical systems).
- > Verify that the charging system has been installed according to the specifications in this manual:
 - The charge points must be freely accessible to vehicles.
 - The connected charging cables must not be under tension.
 - Mechanical or other loads on the charging cables are not permitted.
- > Seal installation pipes and empty conduits with suitable means.

CAUTION Moisture in the Interior

The installation pipes and empty conduits of the cabling must be sealed after installation has been completed. If this is not done, moisture can enter the interior of the ECC 320 through the negative pressure of the ventilation. This can result in damage to the device.

- Seal installation pipes and empty conduits with suitable means inside the ECC 320.
- > Check whether the base panels are mounted.

CAUTION Insects and dirt particles

No gap is permitted between the foundation and base panels. Unused PA screw connections must be closed. Insects and/or other dirt particles can get inside the DC Power-Unit V2 through a gap or other openings. Non-observance may result in damage to the device.

- Check contact surfaces between foundation and base panels for gaps.
- If necessary, seal contact surfaces between foundation and base panels with suitable means.
- Close unused PA screw connections with blank screw connections, for example.

- > Check that the service door of the ECC 320 is closed and locked during operation.
- > Visual inspection of external parts such as plugs and cables.
- > Visual inspection of the display functionality. Check the functionality of the operating keys if possible.
- > Check that the socket or housing of the connected vehicle are undamaged and that the connected charging cable is not twisted or live.
- > Observe the document "*ECC 320 Operating Manual*" for the correct procedure of a charging process.

9. Attachments

9.1 Dimensions ECC 320

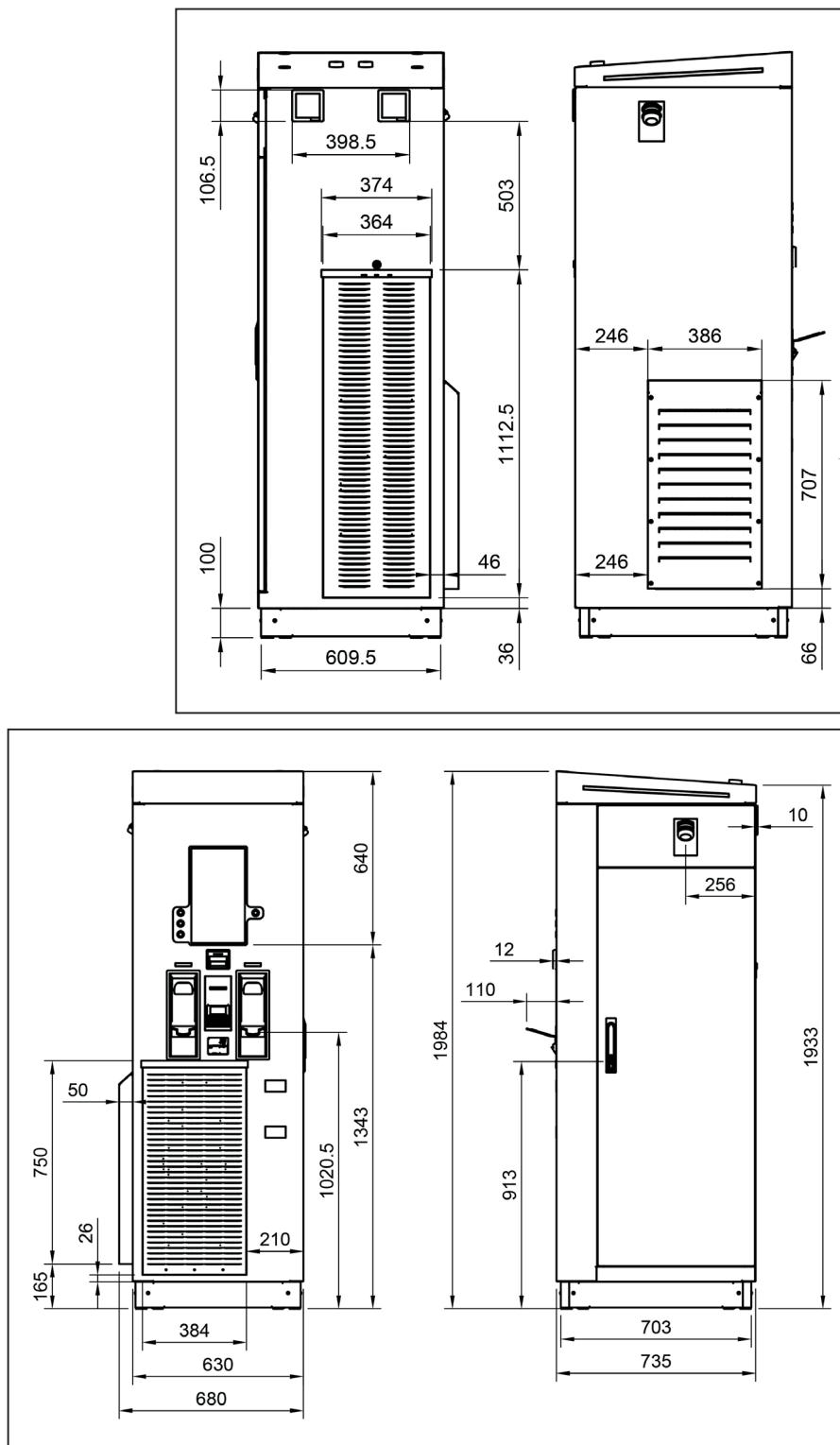


Fig. 52: Dimensions

9.2 Technical Data

| Charger ECC 320 | 20 to 240 kW Single | 40 to 240 kW Dual | 40 to 320 kW Single | 80 to 320 kW Dual |
|--|--|--|---|----------------------------|
| Function | DC Ladepunkt mit integrierter AC/DC-Leistungselektronik für E-Fahrzeuge mit CCS-Ladesteckdose | | | |
| Housing | Robustes Design (IP54/IK10) | | | |
| Status Display | Am 15,6 Zoll Display, via Online-Zugriff | | | |
| Connection Type | 1x CCS Combo-2 and/or 1x CHAdeMO | 2x CCS Combo-2 | 1x CCS Combo-2 and/or 1x CHAdeMO | 2x CCS Combo-2 |
| Charging Voltage | DC | DC | DC | DC |
| Max. Current*** | max. 450 A (CCS) max. 200 A(CHAdeMO) | max. 450 A (CCS) | max. 450 A (CCS) max. 200 A(CHAdeMO) | max. 450 A (CCS) |
| VDC max. | 150 - 1000 V _{DC} | 150 - 1000 V _{DC} | 150 - 1000 V _{DC} | 150 - 1000 V _{DC} |
| Integrated AC/DC Power Modules | 1 to 12 modules Type1 | 2 to 12 modules Type1 | 1 to 8 modules Type2 | 2 to 8 modules Type2 |
| Charge Points | 1 (Single*) | 2 (Dual**) | 1 (Single*) | 2 (Dual**) |
| No. of Charging Cables | 1 | 2 | 1 | 2 |
| Usability | Einfach, barrierefrei | | | |
| Payment Methods for Direct Payment | Debit and credit cards, Girocard, via PIN pad, contactless payment with RFID, NFC for GooglePay and ApplePay, membership cards, discount cards, loyalty cards, mobile Payment. | | | |
| Display | Easy and intuitive user guidance, display of rates and ads as well as provision of invoices | | | |
| Charging Cable CCS Combo-2 without fluid-cooling: | Yes | | | |
| User-friendliness | ★★★★★ | | | |
| Communication Standard | OCPP V1.6 (Open Charge Point Protocol) | | | |
| Cable Length | Fixed (3.5 meters) or cable pull (4.8 meters) | | | |
| Temperature Ranges | Environment/Storage/Interior Temp.: - 25 to +45 degrees Celsius | | | |
| Dimensions | H/W/D: 1984 / 680 / 735 mm | | | |
| Weight | approx. 400 kilograms | | | |
| AC/DC Power Modules | Type1: charge power per module = 20 kW | Type2: charge power per module = 40 kW | | |
| Commissioning | Activation of the charger online by EnerCharge (no on-site appointment necessary) | | | |
| Operator Portal | Location-independent self-management via online access | | | |

* S = Single: Charging of one e-vehicle at a time per charging station is possible.

Table 8: Technical Data

** D = Dual: Simultaneous charging of two e-vehicles is possible (parallel charging). The power electronics adjust the charging power automatically. Ex: 1 vehicle = 320 kW/1000 V_{DC}, 2 vehicles = 2x 160 kW/1000 V_{DC}.

*** EnerCharge offers uncooled charging cables, which ensure charging currents of up to 500 A for short periods (9 min @30 degrees Celsius/20 min @0 degrees Celsius).

| Protection Class/Type | Description |
|---|--|
|  | Protection class I: All electrically conductive parts of the equipment are connected with low resistance to the protective conductor system of the fixed installation. |

Table 9: Protection Class

| Charging Mode | Description according to DIN 61851-1 |
|---------------|---|
| "Mode 4" | Charging mode 4 is intended for charging with direct current (DC charging) at permanently installed charging stations. The charging cable is always permanently connected to the charging stations. The safety functionalities are integrated in the charging station. Communication between the charging station and the vehicle takes place via the charging cable. In addition, the interlocking of the connector takes place. |

Table 10: Charging Mode

9.3 Dimension Drawing of Prefab Foundation

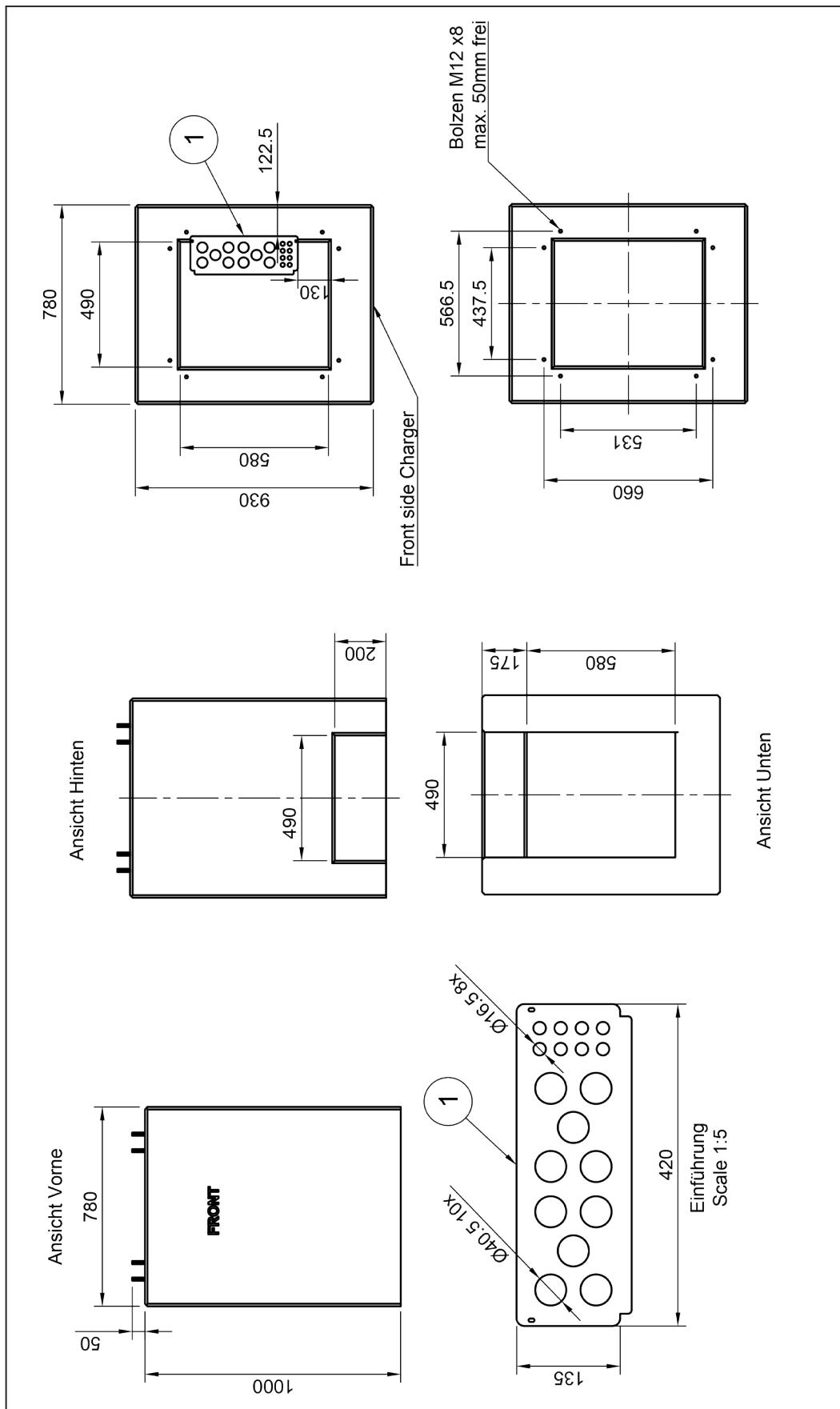


Fig. 53: Dimension Drawing of Prefab Foundation

9.4 Installation of Manual Switch Disconnector

INFORMATION

LINK to installation manual: <https://support.industry.siemens.com>
Model: Siemens 3VA1463-1AA32-0AA0

ATTENTION

Tightening torque for mounting AC supply line = 28 Nm.



Fig. 54: Manual switch disconnector

9.5 Installation of Motorized Switch Disconnector

INFORMATION

LINK to installation manual: <https://support.industry.siemens.com>
Model: Siemens 3VA9467-0HA20 MO320

ATTENTION

Tightening torque for mounting AC supply line = 28 Nm.



Fig. 55: Motorized switch disconnector

9.6 National Usage Restrictions

National usage restrictions according to DIN 61851-1 do not apply.

9.7 Copyright

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9.8 Customer Service

The EnerCharge GmbH customer service is available during the regular opening times from **Monday to Thursday between 9am and 5pm (Fridays until 12 noon)**. Please note, that this service number is not meant for use by the end customers.

You can reach our customer service under the following number: **+43(0)4715 22901 3339000**.

9.9 Legal Notice

The manufacturer and distributor of the ECC320 as well as the author of this user manual is:

EnerCharge GmbH

Kötschach 66 | 9640 Kötschach-Mauthen | Austria |

Phone: +43 (0) 4715 22901 | E-Mail: info@enercharge.at

| www.enercharge.at | www.e-charging.at

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#BeEnerCharged



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