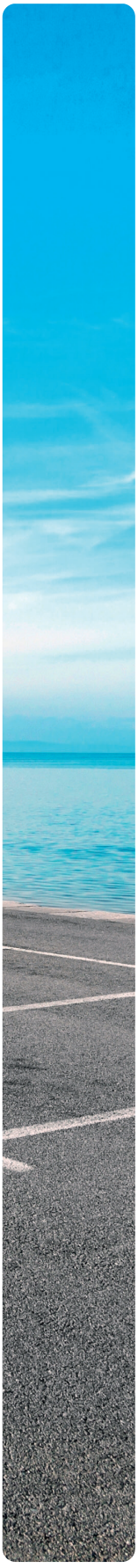
EnerCharge

ECC 320 Single ECC 320 Dual

Operating Manual

DC Charging Station with Integrated AC/DC Modules and Direct Payment

ECC 320 Single/Dual



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About this Document

Please retain this operating manual for future use.

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

Inhaltsverzeichnis

List of Abbreviations

AC	>	Alternating current
A	>	Ampere
DC	>	Direct current
CCS/CCS Combo-2	>	Combined Charging System
CHAdeMO	>	Trade name for a Japanese charging standard
LAN	>	Local Area Network
LRM	>	Load Regulation Management (technology by EnerCharge for the control of up to 40 external AC and DC charge points)
NFC	>	Near Field Communication
OCPP	>	Open Charge Point Protocol - Communication standard for communication between charging station and e-vehicle.
PVC	>	Polyvinylchlorid (thermoplastic Polymer)
RFID	>	Radio-Frequency Identification (Identification with electromagnetic waves)
Type 2	>	European plug type for charging e-vehicles with alternating current (AC).
WAN	>	Wide Area Network (A computer network that, unlike LAN, extends over a very large geographical area.)

1. General

This document contains all important information on the operation, cleaning & care of the charging station with integrated AC/DC power unit and direct payment ECC 320. It is an original component of the complete product provided by the manufacturer and serves to assist in the operation of the product.

This manual is an essential operating aid for trouble-free and safe operation. It contains important information on product overview, operation, care and safe handling.

Read this manual carefully before operating the device for the first time.

This manual will help you:

- to avert user hazards
- to get to know the device
- in the optimal handling of the device
- to detect defects
- to avoid malfunctions
- to increase reliability and durability

Please retain these operating instructions for later use and pass on the documents if the ECC 320 charging station is used by other persons.

Any use of the ECC 320 charging station that deviates from these operating instructions is not permitted and will result in the exclusion of warranty, guarantee and liability.

All information important for the safety of the user is marked with a corresponding symbol. This is important information which, if ignored, may cause health consequences for the user and damage to the ECC 320 charging station, the vehicle or the building.

1.1 Structure of this Manual

- **Product Overview:**
  Brief description and overview diagram of the overall system, its function and components.
- **Technical Data:** Contains the technical data and type plate of the ECC 320.
- **Safety Instructions:**
  Contains the safety instructions, provisions on liability and warranty and information on the intended use.
- **Layout and Function:**
  Detailed description of the components and all controls of the ECC 320.
- **Transport:** Contains transport information for the charging station.
- **Installation und Initialization:**
  Provides information on set-up, complete installation, and initialization.
- **Operation:**
  Contains the operating instructions: These include the charging process, terminating the charging process prematurely and instructions for action in the event of a fault.
- **Cleaning:**
  Contains instructions on cleaning the ECC 320 charging station.
- **Trouble Shooting:**
  Contains instructions for troubleshooting and a list of error messages and simple remedies.
- **Decommissioning, Disassembly and Disposal:**
  Contains information on the proper disassembly and disposal of the device.

1.2 Safety Symbols

Please take note of the following safety symbols:

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 "Careful!" 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	dentifies or describes a specific component in the text body with numbered icons.
1 2 3	Numbered icons: Identify or describe a specific component.
1.1 1.2 1.3	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. Product Overview

The ECC 320 charging station by EnerCharge is an innovative and future-proof solution for the public and industrial charging sector, which enables the charging of e-vehicles using the DC fast charging method.

The charging station with direct payment ECC 320 is a charging station with integrated AC/DC power units and a payment system with direct billing for EC, giro, ATM, credit or debit cards. The ECC 320 charging station allows fast charging of e-vehicles using CCS Combo-2 and CHAdeMO.

The maximum charging power of the CCS Combo-2 plug is 320 kW. Operation is intuitive and customer-friendly via a high-resolution display with a 15.6-inch diagonal.

EnerCharge offers the ECC 320 in several power levels from 20 to 240 and from 40 to 320 kilowatts. Additionally, the ECC 320 is available in single or dual versions. Dual allows simultaneous charging of two e-vehicles.

EnerCharge products are subject to continuous further development and comply with all regulations and standards applicable throughout Europe for charging e-vehicles in accordance with the IEC 61851-1, Mode 4 standard: Please also refer to section „11.1 Standards and Regulations“ on page 46.

Visit our website at www.e-charging.at

Fig. 01: Charger ECC 320

2.1 Product Varieties of the ECC 320

The ECC 320 charging station can be configured individually. The maximum charging power, the number of charging cables, the type of charging cable, the cable management, the charging standard (CCS and/or CHAdeMO), single or dual version and the desired payment methods can be customized. The configuration is done by means of an intuitive online tool. (This tool is available exclusively to EnerCharge sales partners).

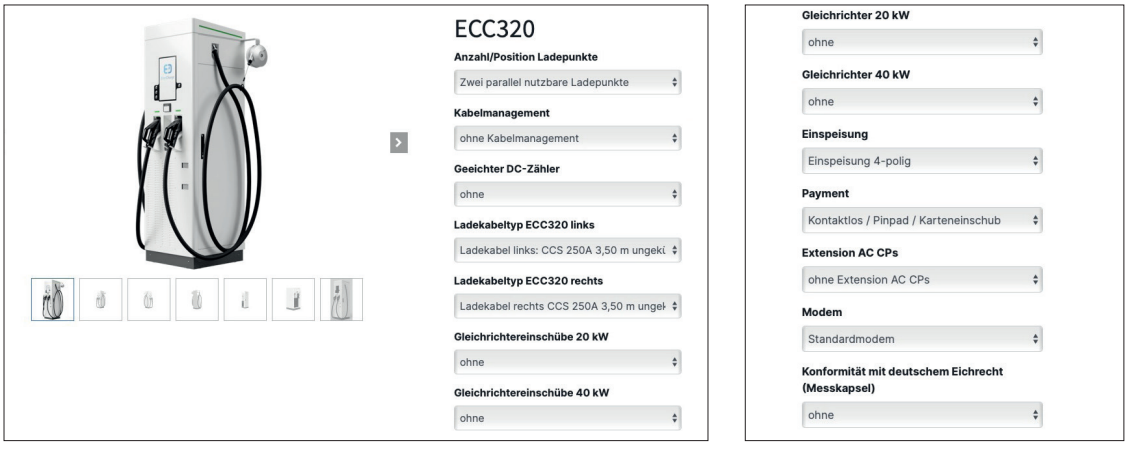


Fig. 02: Configuration ECC 320

3. Technical Data

Charger ECC	20 to 240 kW Single	40 to 240 kW Dual	40 to 320 kW Single	80 to 320 kW Dual
Function	DC charge point with integrated AC/DC power electronics for e-vehicles with CCS charging socket			
Housing	Robust design (IP54/IK10)			
Status Info	Via 15.6 inch display, via online access			
Connection Type	1x CCS Combo-2 or 1x CHAdeMO	2x CCS Combo-2 or 2x CHAdeMO	1x CCS Combo-2 or 1x CHAdeMO	2x CCS Combo-2 or 2x CHAdeMO
Charging Voltage	DC	DC	DC	DC
Max. Charging Current***	max. 450 A (CCS) max. 200 A(CHAdeMO)	max. 450 A (CCS) max. 200 A(CHAdeMO)	max. 450 A (CCS) max. 200 A(CHAdeMO)	max. 450 A (CCS) max. 200 A(CHAdeMO)
VDC max.	150 - 920 V_{DC}	150 - 920 V_{DC}	150 - 920 V_{DC}	150 - 920 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	Easy, accessible			
Payment Types for Direct Payment	Debit and credit cards, Girocard via PIN pad, contactless payment with RFID, NFC for GooglePay and ApplePay, memebership cards, discount cards, fleet cards, Bluetooth via EnerCharge app, mobile payment			
Display	Simple, intuitive user interface, rate display, advertising insertions and provision of receipts			
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: 1954 / 600 / 620 mm			
Weight	approx. 250 kilograms + (25 kg per 20 kW power module or 40 kg per 40 kW power module)			
AC/DC Power Units	Type1: charge power per power module = 20 kW		Type2: charge power per power module = 40 kW	
Commissioning	Remote activation by EnerCharge (no on-site appointment necessary)			
Operator Portal	Location-independent self-management via online access			

Table 01: Technical Data

* S = Single: Das Laden von einem E-Fahrzeug pro Ladesäule ist möglich.

** D = Dual: Das gleichzeitige Laden von zwei E-Fahrzeugen ist möglich (Parallelladung). Die Leistungselektronik passt die Ladeleistung automatisch an. Bsp: 1 Fahrzeug = 320 kW/1000 V_{DC}, 2 Fahrzeuge = 2x 160 kW/1000 V_{DC}.

*** EnerCharge bietet ungekühlte Ladekabel, welche kurzzeitig (9 min @30 Grad Celsius/20 min @0 Grad Celsius) Ladeströme bis zu 500 A gewährleisten.

Communication Payment Module	Landline, 2x GSM
Interface	Modbus TCP, TCP/IP
Custom Layout	Optional
Billing	freely configurable pricing models: kilowatt hours (compliant with calibration law), billing by the minute, flatrate billing, with or without a base fee
Temperature Ranges TFT LED Display: (1.920 x 1.080 Pixels)	Operating Temperature: -30 to +75 degrees Celsius, Storage: - 30 to +80 degrees Celsius
Luftfeuchtigkeit (relativ):	5 to 95% (non-condensing)
Montageort /-art:	interior/exterior, floor mounting on concrete foundation

3.1 Type Plate ECC 320

1. Manufacturer, address
2. Item- / serial number
3. Year of manufacture, weight, protection class
4. Operating voltage
5. Rated power
6. Protection class
7. Web-address, disposal note

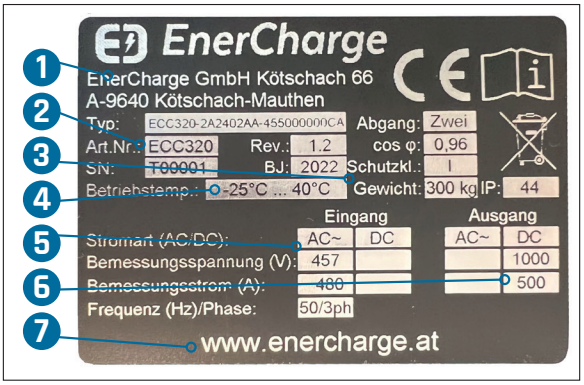


Fig. 03: ECC 320 type plate

4. Safety Notices

4.1 General Safety Notices

The charging station ECC 320 is state of the art and is operationally safe. All existing directives, standards and all necessary safety requirements are met. The hazard and safety notes in these operating instructions are intended to ensure safe and accident-free operation. Non-observance or violation of the instructions can lead to residual dangers under the following circumstances:

- The device is used contrary to its intended use.
- The device is maintained and cleaned by untrained or uninstructed personnel.
- The safety instructions in this manual are not observed.
- The device is modified or converted improperly.
- Maintenance work is not carried out in due time.

wThe Installation of the device may only be performed by the operator or authorized specialist personnel. Acceptance must be carried out by a qualified electrical contractor. Malfunctions of any kind that could affect the safety of the device, connected consumers or persons may only be rectified by qualified companies or specialist personnel. Refer to the instructions: "Transport, Installation and Start-Up".

Instructions for action in the event of faulty assembly or malfunctions caused by faulty assembly: Contact the company that carried out the assembly. If the fault cannot be rectified, contact EnerCharge GmbH:

Siehe: „1.4 Contact Information“ on page 6.

4.2 Intended Use

The ECC 320 charging station may only be used for the intended purpose described below. The ECC 320 charging station is used to charge the batteries of electrically powered vehicles (e-vehicles) using the DC fast charging method (according to DIN EN 61851-23:2014-11). The charging of e-vehicles is possible with CCS Combo-2 and CHAdeMO charge plugs. Failure to comply will result in an exclusion of liability.

⚠WARNING **Danger due to misuse of the charging station**

Misuse of the ECC 320 charging station can lead to dangerous situations. T
he consequence could be dangerous injuries.

- *Refrain from any use beyond the intended use as specified.*
- *Strictly observe all information in these operating instructions and, if applicable, in associated documents.*
- *Have maintenance and servicing performed exclusively by trained maintenance personnel.*
- *Refrain from any modification, conversion or alteration of the design or of individual parts of the equipment with the aim of with the aim of changing the field of application or usability.*
- *Children or persons who cannot assess the dangers involved in handling the product, are prohibited from using the charging station.*
- *Use at ambient temperatures lower than -25 °C or higher than 40 °C is prohibited.*
- *Use in the vicinity of explosive or highly flammable substances is prohibited.*
- *Use in a flood hazard area is prohibited.*
- *Use with visible damage to cables, connectors or other parts is prohibited.*
- *Only use adapters which comply with the standard 62196-1/3. The use of adapters that do not comply with the 62196-1/3 standard, or misuse according to the adapter manufacturer, will void the warranty.*
- *The service door of the charging station may only be opened for maintenance and repair work. The key may only be accessible to authorized persons.*

! ATTENTION **Maintainance and Repair**

Maintenance and repair work are part of the intended use and must be performed in compliance with the maintenance intervals. Refer to the document "ECC 320 Maintenance Manual".

4.3 Operator Responsibilities

ATTENTION

As a rule, the system is used commercially. Therefore, the operator is subject to the statutory provisions on occupational safety.

4.3.1 Responsibilities of the Operator

Proper Condition:

The operator is responsible for the proper condition of the equipment.

- The operator must regularly check all safety devices for functionality and completeness. and completeness.
- The operator must ensure that the scheduled maintenance is carried out as planned.
- The operator must inform the manufacturer immediately of any damage detected.
- The operator must provide the personnel with the required protective equipment and must and inspect, maintain and replace defective parts in accordance with applicable regulations.
- The operator must request a new copy of the operating manual if it is in poor condition or parts are missing.
- The operator must immediately replace all lettering, signs, or decals that are in poorly readable condition or have been lost.
- The operator must keep the work areas and escape routes free and in perfect condition.
- The operator must regularly check the charge plugs and charging cables of the charging stations for damage, shut off the affected charging station if necessary and inform the manufacturer immediately of any damage found.
- During operating hours, the operator must ensure sufficient lighting in the vicinity of the charging station.

Operating instructions:

The operator must inform themselves about the occupational health and safety regulations applicable at the place of use and, in a risk assessment, identify hazards arising from the working conditions at the place of use. They must implement the knowledge gained from this in the form of operating instructions.

- In principle, the ECC 320 is designed for operation in extreme ambient temperatures. In any case, it must be ensured that the maximum permissible operating temperature is not exceeded.

4.3.2 Briefing of the personnel

The personnel are to be instructed in accordance with the locally applicable legal provisions and accident prevention regulations. The operator is responsible for carrying out this instruction.

4.4 Qualification of Staff

Operating Instructions:

- Only persons who can be expected to observe the safety regulations and perform their work reliably may open the charging station.
- Persons whose ability to act is influenced by drugs, alcohol, medication or similar are not permitted.
- The personnel must comply with the occupational and activity-specific regulations in force at the place of employment.

Qualification: As a rule, persons may only perform activities for which they have the necessary qualifications.

Facility Manager: Is charged with the direct responsibility for the safe operation of the electrical installation at the work site while work is being carried out. The facility manager must assess the possible effects of the work on the electrical installation or the parts of it for which he is responsible, as well as the effects of the electrical installation on the workplace and the people working there. This includes the safe performance of work on or in the vicinity of this electrical system and the related safety instructions to own employees and employees of outside companies. If necessary, some of the obligations associated with this responsibility may be delegated to other persons.

Operator: Is responsible for the operation of the equipment after it has been handed over by the manufacturer, usually the owner.

Instructor supporting the operating personnel: Based on their training, knowledge and experience, is able to instruct operating personnel in the required activities and to recognize and correct operating errors made by the operating personnel.

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, is able to independently perform installation and commissioning activities in a professional and safe manner.

Layperson: Does not have any of the above qualifications. Laypersons are permitted to operate the charging station when charging e-vehicles if they have a valid driver's license.

Expert for inspections: Has in-depth technical knowledge due to their training and experience and is familiar with the relevant occupational health and safety regulations, accident prevention regulations and generally accepted rules of technology (e.g. BG rules, DIN standards, VDE regulations, technical rules of other countries) to such an extent that they can assess the safe working condition of equipment and workplaces.

Service personnel for maintainance and commissioning: Based on their training, knowledge and experience, is able to independently perform maintenance and commissioning activities in a professional and safe manner.

Designated electrician: Is the electrician who assumes technical and supervisory responsibility and is assigned to do so by the contractor or operator.

4.5 Unauthorized Persons

⚠WARNING **Danger to unauthorized persons**

There are dangers that unauthorized persons cannot know about.

- *Keep unauthorized persons away from the inside of the charging station.*

An unauthorized person does not meet the specified personnel requirements (see section „4.4 Qualification of Staff“ on page 12).

4.6 Danger Zone

⚠ DANGER **Danger to life in the danger zone**

Staying in the danger zone is associated with risks that cannot be assessed by unauthorized persons. There is a danger to life.

- *Keep the service door of the charging station closed during operation.*
- *Always lock the service door so that no unauthorized persons can be there.*
- *If an unauthorized person is in the danger zone, warn the person and stop operation immediately.*

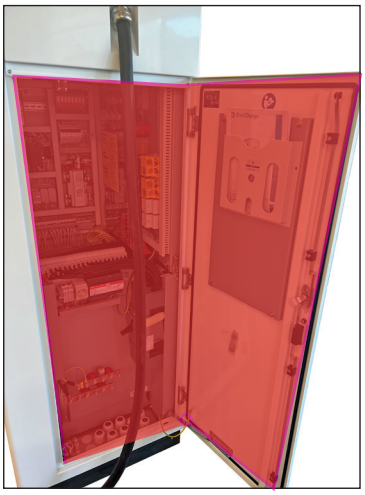


Fig. 04: Danger zone

> The danger zone corresponds to the interior of the charging station, provided the service door is open.

> There is no danger zone in the area of the locked charging station.

Element	Description
	Immediate danger zone: • *the interior of the charging station*

Table 02: Danger zone

4.7 Basic Safety Instructions

4.7.1 Hazard due to electrical components

Danger to life due to electric current!

Touching live parts can result in serious injury or death:

> Only qualified electricians may carry out work on electrical systems.

> Observe five safety rules according to the DIN VDE 0105 series of standards.

> Before carrying out maintenance, cleaning and repair work, switch off the power supply, check that it is de-energized and secure it against being switched on again.

> Never bridge fuse switches or put them out of operation.

> If the insulation is damaged, switch off the power supply immediately and arrange for repair.

> Keep moisture away from live parts.

Danger due to electric arc!

Inside the charging station, voltage flashovers can cause an electric arc and hot arc gases and result in life-threatening injury or death.

> Never remove arc-resistant covers from live parts.

> Keep moisture away from live parts.

Danger of short circuit in case of flooding!

If the system is flooded, short circuits may occur. There is a risk of property damage.

> Stop operations when severe weather with a risk of flooding is imminent.

> Before returning to service after flooding, have all components checked by EnerCharge Service technicians.

4.7.2 Thermal Hazards

Fire hazard!

Work waste lying around, unremoved residues of oils and greases, etc. can promote the development and spread of fire:

> Keep the surroundings of the charging station ECC 320 tidy and clean.

> Do not store flammable materials in the vicinity.

> Keep the intake and exhaust openings of the ECC 320 charging station free of objects (e.g. small objects, plants, snow) so that the air flow is not impaired.

> If there are visible defects in the wiring, have them repaired or replaced immediately by a qualified electrician due to the risk of overheating.

4.7.3 Other Hazards

Danger due to missing safety decals!

The absence of safety decals can lead to hazards.

> Check the safety decals for damage and completeness.

> Do not remove the safety decals.

> Replace damaged or lost safety decals.

Danger due to faulty spare parts and accessories!

Faulty spare parts can lead to hazards.

> Only use original spare parts and accessories approved by the manufacturer.

Danger due to blocked escape routes!

The accessible areas in the vicinity of the charging station serve as escape routes. If escape routes are blocked, serious injuries can occur in hazardous situations.

> Keep the areas in the vicinity of the charging station free of objects.

> Always keep the doors of the ECC 320 charging station closed and locked.

Danger due to improper operation!

Improper operation of the controls inside the charging station by insufficiently qualified personnel can lead to hazardous situations and property damage.

> Switching operations inside the ECC 320 charging station may only be performed by trained personnel.

> In case of insufficient qualification of the personnel to perform the activities, contact the manufacturer.

4.8 Personal Protective Equipment

Recommended Protective Equipment

The personal protective equipment (PPE) is not part of the scope of delivery. The operator is responsible for the presence, inspection and correct use of the PPE.

EnerCharge recommends the following protective equipment when performing maintenance work inside the ECC 320 charging station:

> Safety glasses: When performing maintenance inside the ECC 320 charging station, ejected dirt particles from spinning fan wheels can injure the eyes.

4.9 Safety Devices

Risk of injury when working inside the charging station

Safety for persons working inside the ECC 320 charging station is only guaranteed when the safety devices are functioning.

> Before starting work, check safety equipment for signs of malfunctions or defects.

> In case of malfunctions or defects of safety devices, inform the service personnel.

> Never override safety equipment.

4.9.1 Line/Fault-Current Circuit Breaker AC Supply

Switching the supply voltage (AC) on and off

The circuit breaker is used to switch the supply voltage of the ECC 320 charging station (AC) on or off.

Location

The circuit breaker is located in the center of the ECC 320 charging station. For the exact location, see the "Maintenance instructions" document.

Fig. 05: Line/fault-current circuit breaker and load-break switch

4.9.2 Contact Hazard Protection

Protection against direct contact with live parts

Live parts inside the ECC 320 charging station are shut off by means of screwed PVC contact protection. This prevents contact with the live parts.

> Contact hazard protection in the ECC 320 charging station corresponds to IP1x.

4.9.3 Smoke Detector

Smoke detector with automatic shutdown

The charging station has a smoke detector. If smoke develops, the charging station is automatically switched off. At the same time, the ventilation is switched off.

Location

The smoke detector is located in the upper area inside the charging station. For the exact location, see the "Maintenance instructions" document.

4.9.4 Lighting

Exterior lighting

The operator is responsible for ensuring adequate lighting of the vehicle parking areas in front of the ECC 320 charging station and the area surrounding the system.

Charging Station

At the charging station, the display lighting ensures sufficient ambient brightness. The control elements have LED lighting.

4.9.5 Service Door

Side service door of charging station

The side service door serves to protect against hazards inside the charging station and prevents access by unauthorized persons. The service door is secured by a lock and can only be unlocked with the appropriate key.

Contact-switch at service door

The service door of the ECC 320 charging station has a safety door limit switch. The AC supply remains live when the service door is open. For deactivation of the AC supply, see the "Maintenance instructions" document.

Location

See: „8.1 Opening and Closing the ECC 320“ on page 40.

4.9.6 Overload and Overtemperature Protection

Overload/ Overtemp. protection of charging station

The charging current is limited in order to exclude overheating of the charging cable due to overload.

The charge plugs and charging cables of the CCS Combo-2 type have a temperature monitor that reduces the charging current if there is a risk of overheating.

The simultaneous use of both charging cables of a charging station, which could lead to an overload, is excluded by an electromechanical fuse.

The number of plug-in cycles of the charge plug is counted by a sensor (CCS Combo 2 500 A) or by a software (CCS Combo 2 200 A and CHAdeMO). If the number of plug-in cycles specified by the manufacturer of the charge plug is reached, the contacts of the charge plug or the charge plug must be replaced to prevent overheating.

4.9.7 Mains Safety Circuit

Interruption of the charging current in the event of a malfunction or danger

The mains safety circuit is used to put the ECC320 charging station into a safe state in the event of danger or malfunction. The grid safety circuit is routed from the low-voltage container to the ECC320 charging station. If a fault occurs in one of these components, the grid safety circuit opens and interrupts the voltage supply to the ECC320 charging station.

The following circumstances lead to an interruption of the grid safety circuit:

> A smoke switch in the charging station or low-voltage container reports smoke development.

> There is a fault in the controller or the charge controller in the ECC320 charging station.

4.9.8 Locking system of the charge plugs (CCS Combo-2 and CHAdeMO)

Locking system of charge plug CCS Combo-2

The CCS Combo-2 charge plug has a locking system to prevent the plug connection between the ECC 320 charging station and the electric vehicle from being pulled under voltage. The charge plug is locked by the vehicle before charging begins. Unlocking after the charging process also takes place on the vehicle side.

At the end of the charging process, the CCS Combo-2 charge plug must be correctly placed in the holder on the ECC 320 charging station to complete the charging process.

Locking system of charge plug CHAdeMO

The CHAdeMO charge plug has a locking system to prevent the plug connection between the charging station and the electric vehicle from being pulled under voltage. The charge plug is locked by the charging station before charging begins. At the end of the charging process, the CHAdeMO charge plug is unlocked by pressing the Eject button (siehe „5.3 Operation and Display Elements“ on page 23).

At the end of the charging process, the CHAdeMO charge plug must be correctly placed in the holder on the DC FastCharger charging station to complete the charging process.

4.10 Behavior in the Event of Danger or Accidents

Preventive Measures

- Always be prepared for accidents or fire!
- Material für Erste-Hilfe-Maßnahmen (Verbandskasten, Decken usw.) und Feuerlöscher griffbereit aufbewahren und Aufbewahrungsort deutlich kennzeichnen.
- Keep first aid materials (first aid kit, blankets, etc.) and fire extinguishers within easy reach and clearly mark where they are kept.
- Train personnel in how to behave in accidents and hazardous situations and familiarize them with accident reporting, first aid and rescue equipment.
- Keep access routes clear for emergency vehicles.

In Case of Fire

- Alert fire department.
- Rescue injured persons from danger zone and provide first aid.
- Fight the fire with a suitable fire extinguisher; follow the operating instructions for the fire extinguisher. Only attempt to extinguish the fire if your own safety and a safe escape route are guaranteed.
- If the fire cannot be extinguished immediately, do not make any further attempts to extinguish it. Evacuate the danger area.
- Clear access routes for emergency vehicles.

In Case of Accidents

- Make sure that all supply lines are de-energized.
- Rescue persons from the danger zone.
- Initiate first-aid measures.
- Alert emergency services.
- Inform the person responsible at the place of use.
- Clear access routes for emergency vehicles.

4.11 Hazard Signs and Signage

In the interior of the charging station

This section provides an overview of hazard signs and signage and their location.

Signage	Description	Location
	5 Safety Rules	On the protective cover inside the charging station
	Attention electrical voltage	Inside of the service door
	Observe operating instructions	Inside of the service door

Table 03: Signage inside the charger

4.12 Environmental Protection

Operating fluids

Operating fluids such as hydraulic fluids and lubricants (greases and oils) contain toxic substances. These must not be released into the environment. Disposal must be carried out by a specialist disposal company.

Wash water

Contain contaminated wash water and have it disposed of by a specialist disposal company.

Electrical components

Electrical components (e.g. circuit boards, cables, switches, lamps) can contain both valuable recyclable raw materials and toxic substances. They must be separated from other waste materials and handed in at authorized collection points.

5. Layout and Function

5.1 Charging Station with Direct Payment ECC 320

The ECC 320 charging station has integrated AC/DC modules and a payment system with direct settlement for EC, giro, ATM, credit or debit cards. In addition, mobile payment is possible via mobile app via Bluetooth. The charging station ECC 320 allows fast charging of e-vehicles via CCS Combo-2 and CHAdeMO.

With the "Single" version, one vehicle can be charged with CCS-Combo2 or CHAdeMO per ECC 320 charger. The "Dual" version allows the simultaneous charging of two e-vehicles.

The maximum charging current of the CCS Combo-2 connector is 450 A. The maximum charging current of the CHAdeMO plug is 200 A. Operation is intuitive and customer-friendly via a high-resolution display with a 15.6-inch diagonal.

The charging processes can be controlled and managed via the ECC 320 charging station. An integrated, calibrated energy meter ensures exact consumption measurement. This data can be retrieved online in real time for external applications. This is possible after completion of the charging process.

5.2 Component Description

The explanation of the components can be found on page 22.

Fig. 07: CCS Combo-2 charging connector

Fig. 08: CHAdeMO charging connector

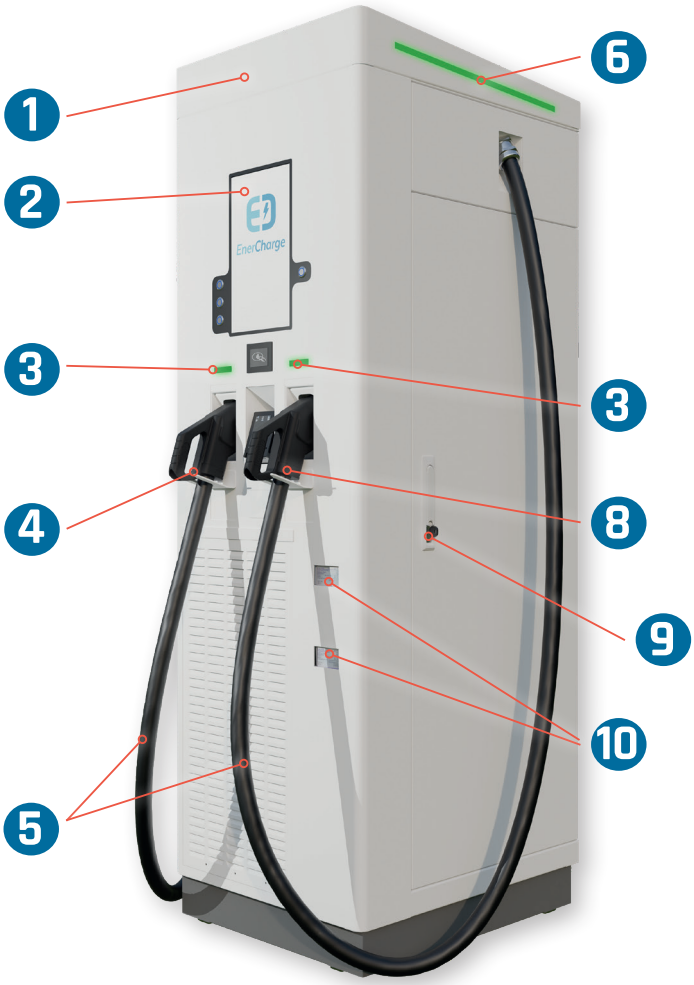


Fig. 06: Component description ECC 320

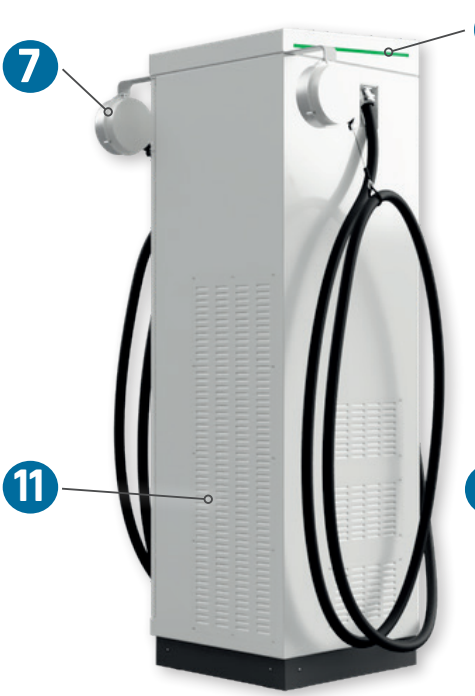


Fig. 09: Rear view ECC 320

Fig. 10: Front view ECC 320

Fig. 11: Side view ECC 320

1 Housing — The housing of the charging station ECC 320 is made of high-quality stainless steel.

2 15.6 Inch Display — The 15.6-inch diagonal operating display offers a resolution of 1,920x1,080 pixels.

3 LED-Status of Connector — The LED lights for the charge plug (CCS/CCS or CCS/CHAdeMO) inform about the operating status of the respective charging point of the charging station. See: „8.3 Status LEDs of the Charger“ on page 41.

4 CCS Combo-2 Connector — The CCS Combo-2 charge plug can be used for DC fast charging of e-vehicles with a CCS Combo-2 type charging port.

5 Charging Cables CCS Combo-2 and CHAdeMO — The charging cable is not cooled and allows different charging currents depending on the version. The length of the charging cable is designed to prevent the risk of tripping when plugging in and unplugging.

6 LED-Status for Charger — The LED lights in the head area of the ECC 320 charging station (left and right side) provide information about the operating status of the ECC 320. See: „8.3 Status LEDs of the Charger“ on page 41.

7 Cable Management — The optional cable management extends the usable cable length to 4.8 meters and allows a more flexible use of the charging park.

8 CCS Combo-2 or CHAdeMO-Connector — The CHAdeMO charging connector can be used for fast DC charging of e-vehicles with a CHAdeMO type charge plug. (CHAdeMO is optional, standard: 2x CCS Combo-2)

9 Service Door Key Opening — The service door on the side of the charging station ECC 320 is locked and may only be opened by authorized persons.

10 Calibrated Energy Meter — The calibrated energy meter ensures accurate billing of the purchased power.

11 Air Vents — The air vents allow air circulation inside the ECC 320 charging station and for optimal cooling of the AC/DC modules.

5.3 Operation and Display Elements

The ECC 320 charging station features the following operation and display elements:

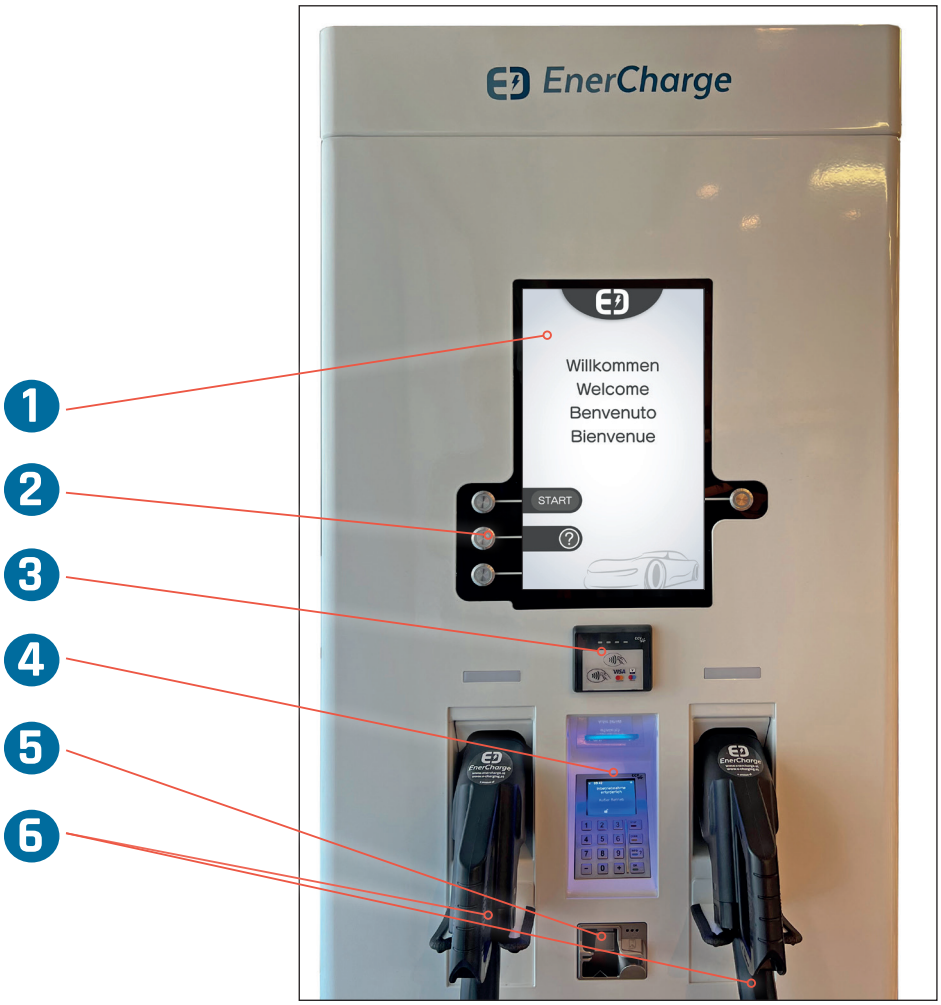


Fig. 12: Operation and display elements of ECC 320

1 15.6 Inch Display — The 15.6-inch diagonal operating display offers a resolution of 1,920x1,080 pixels.

2 Illuminated Buttons — The operating display is operated via illuminated operating keys. The function of the operating keys is explained in section „5.3.1 15.6 Inch Operating Display“ on page 24.

3 NFC- and RFID Module — Near Field Communication (NFC) and Radio Frequency Identification (RFID) are used for contactless payment via RFID, EC, giro, ATM and credit cards.

4 PIN Input Field — The PIN input field is used to enter the PIN code when paying by EC, giro, credit or ATM card, which is inserted via the card slot.

5 Card Slot — The EC, giro, credit or ATM card is inserted via the card slot.

6 CCS Combo-2 Charge Plug — The charging connectors have a handle for safe operation of the charging connector and charging cable during the charging process.

5.3.1 15.6 Inch Operating Display

The operating display of the ECC 320 charging station is controlled by four illuminated operating keys. The keys 1 , 3 and 4 have a dual function. The brightness of the display is automatically regulated. For cleaning the display see document *"Maintenance Manual ECC 320"*.

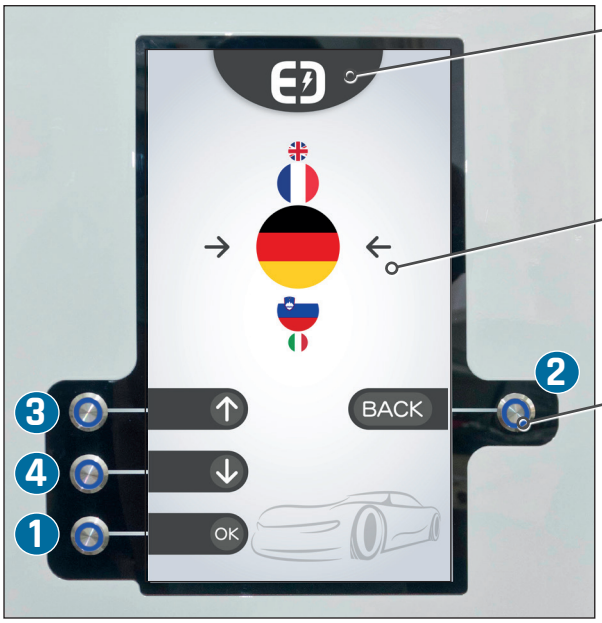


Fig. 13: Functions of the operating keys

> **Status Bar:**
Display of EnerCharge Logo.

> **User Interface:**
Display of the intuitive user guidance through the charging process

> **Illuminated Operating Buttons:**
The device is operated via four operating keys with the following functions:

1 **OK:** Confirmation of menu item
2 **BACK:** Back to previous menu item
3 4 **SELECT:** Select a menu item

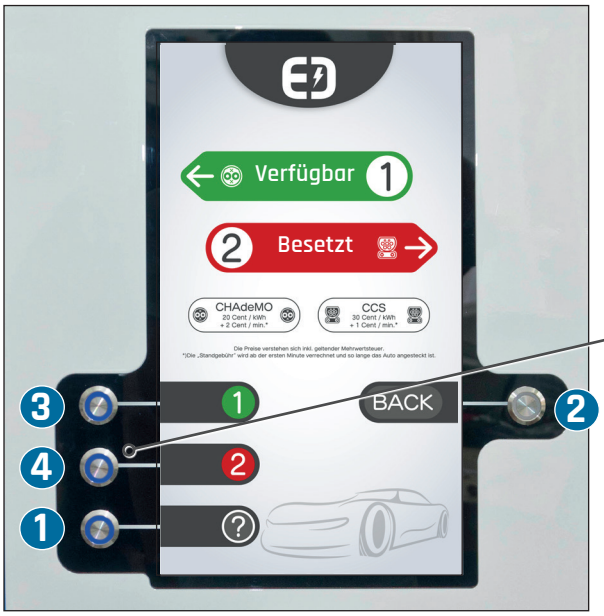


Fig. 14: Second functions of operating keys 1, 3 and 4

> **Second function of operating keys 1, 3 and 4:**
The operating keys 1, 3 and 4 have a second function:
(see **Fig. 12**).

3 4 **SELECT:** Select the desired charge point (CCS oder CHAdeMO).
1 **?:** Leads to the charging instructions video.
2 **BACK:** Back to previous menu item

5.3.2 Functions of the 15.6 Inch Display

The display on the charging station's operating display guides the user through the charging process.

Screen ***Screensaver***

The operating display shows a screen saver during longer periods of inactivity. It is also possible to play advertising videos here. Pressing the operating key 1 starts the charging process. The operating key 2 leads to the video tutorial.

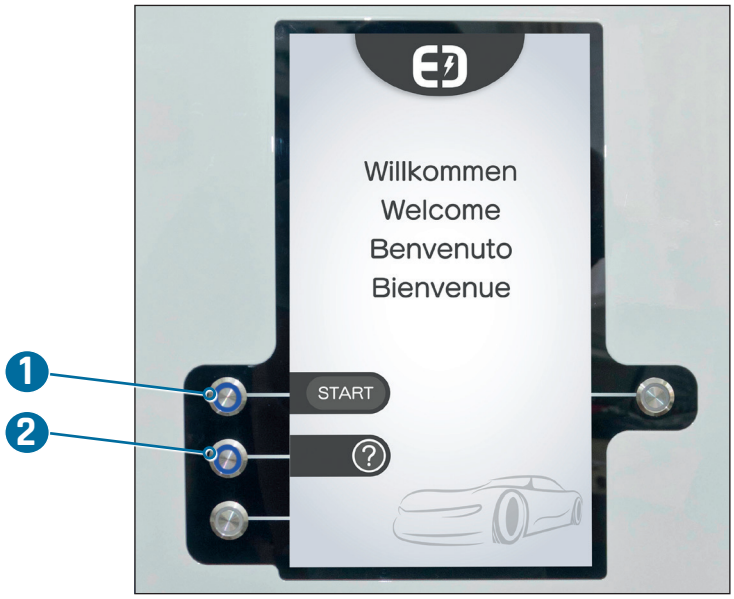


Fig. 15: Screensaver

Screen ***Language Selection***

The active display ***„Language Selection"*** shows the following functions:

- > **SELECT** the desired language with the operating keys 3 and 4.
- > **OK: Confirmation of the desired language with the operating key 1.**
- > **BACK:** Operating key 2 switches to the previous screen.
- > **Auto-TimeOut: After 20 seconds without activity, the display will change to the previous screen.**

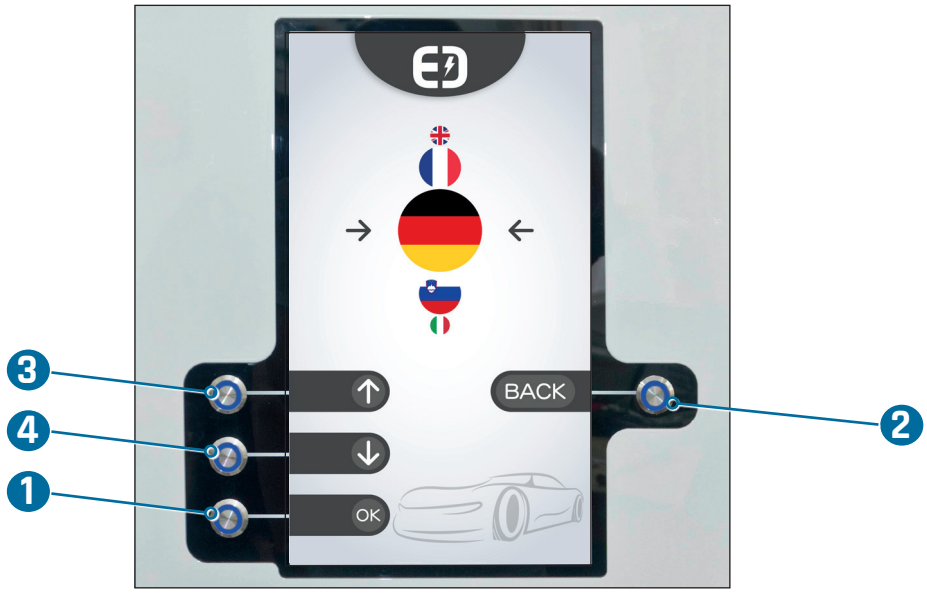


Fig. 16: Language Selection

Screen *Rates and Charging Cables "Available / Not Available"*

The Screen ***„Rates and Charging Cables - Available / Not Available"*** shows the following functions:

- Green highlighted selection window "Available": The charge point(s) is/are ready for use.
- Selection window with gray background "Not available": The charge point(s) is/are not ready for use.
- The display shows the charging standards CCS Combo-2 or CHAdeMO and the charging rates 7:
  - Consumer price: The charging fee in cents per kilowatt hour (cents/kWh).
  - Base fee: Parking fee during the charging time in e.g. 2 cents per minute (cents/min).
- The selection is made automatically by removing the desired charging cable from the holder: 5 CCS Combo-2 and 6 CHAdeMO. onfirmation by pressing the operating buttons 1 or 2.
- **?:** Pressing the operating key 3 leads to the video tutorial.
- **BACK:** Operating key 4 switches to the previous screen.

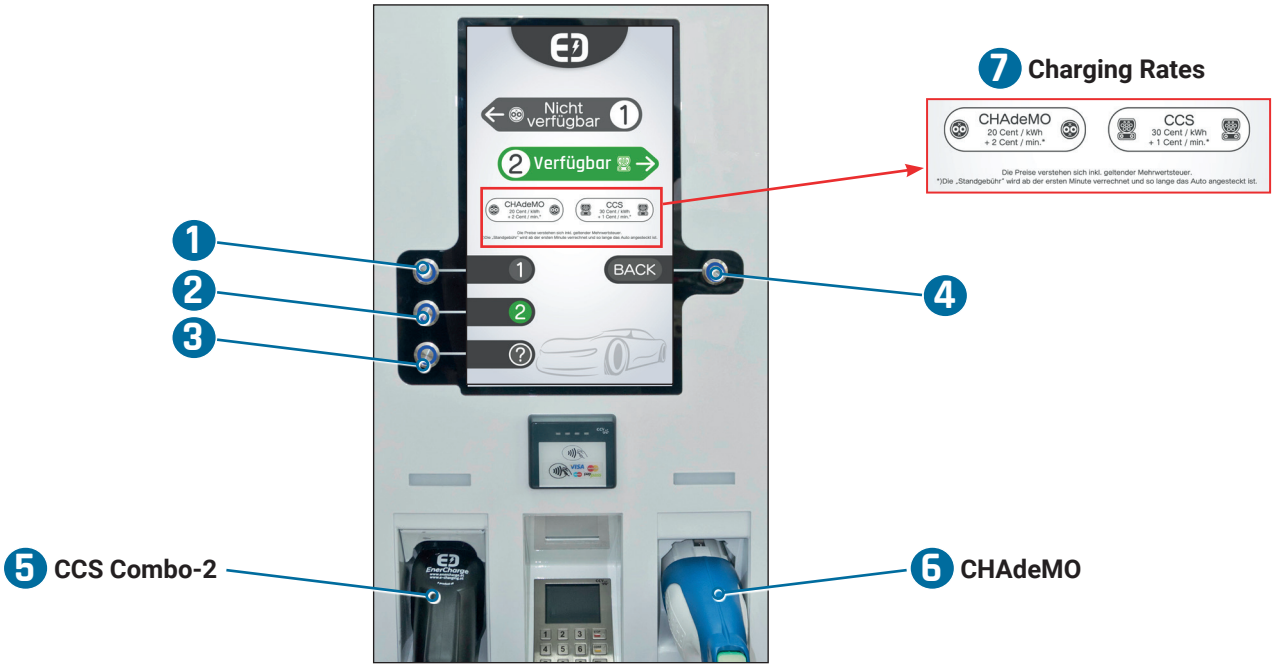


Fig. 17: Charging rates and connectors available/not available

Screen *Rates and Charging Cables "In Use / Reserved"*

"Reserved": The respective charge point is reserved for a charging process and is only available to the person who made the reservation. In addition, the selection fields are highlighted in blue.
"In Use": An electric vehicle is currently charging at the respective charge point. The selection fields are highlighted in red.

- **SELECT 1:** Charge point 1 "Reserved". Operating key 1 available only for clients of the reservation.
- **SELECT 2:** Charge point 2 "In Use". Operating key 2 is without function in this case.

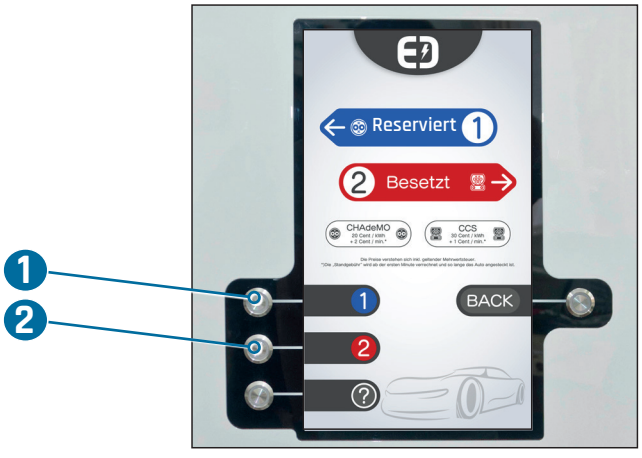


Fig. 18: Charging rates and connectors in use/reserved

Screen *Payment Method*

The ***„Payment Method"*** screen shows the following functions:

- **SELECT** of the desired payment method with the operating keys 3 and 4.
- **OK: Confirm the desired payment method with the operating key 1.**
- **BACK:** Pressing operating key 2 returns to the previous screen.
- **Auto-TimeOut: After 20 seconds without activity, the display will change to the previous screen.**

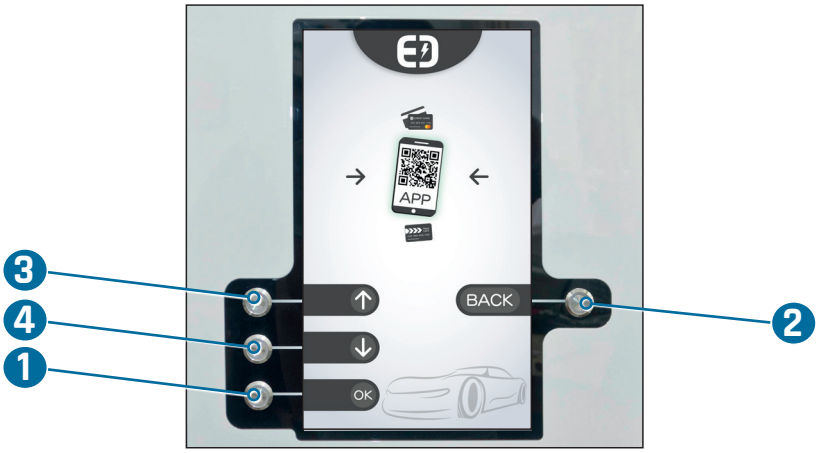


Fig. 19: Payment method

Screen *Payment*

Depending on the selected payment method, the ***„Payment"*** screen shows different illustrations for payment by smartphone App, ATM/Giro/EC/credit card or customer/discount card.

- **BACK:** Pressing the operating key 1 returns to the previous screen.
- **?:** Pressing the operating key 2 leads to the video tutorial of the payment transactions.
- **Auto-TimeOut: After 200 seconds without activity, the display will change to the previous screen.**

Fig. 20: Payment via smartphone app

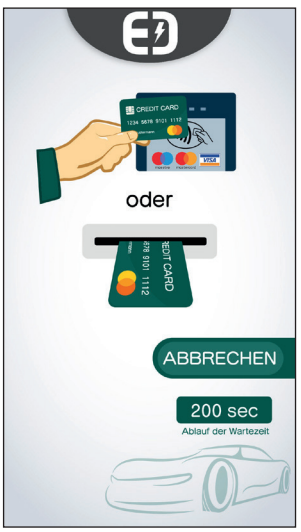


Fig. 21: Payment via bank or credit card

Fig. 22: Payment via customer or discount card

Screen
Video tutorial Charging and Payment

The "Video Tutorial" screen shows a video explaining the payment and charging process of an e-vehicle with the DC FastCharger charging station.

> **BACK:** Pressing the operating key 1 returns to the previous screen.

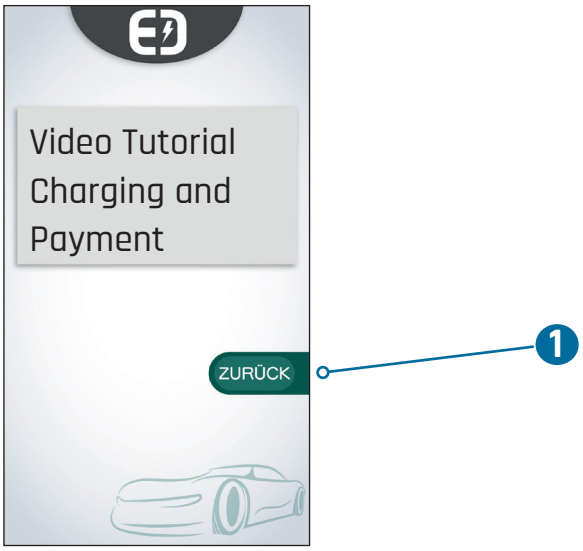


Fig. 23: Video tutorial

Screen
Video tutorial Payment via App

The ***„Video tutorial"*** screen shows a video explaining the payment process via smartphone app for charging an e-vehicle with the DC FastCharger charging station.

> **BACK:** Pressing the operating key 1 returns to the previous screen.

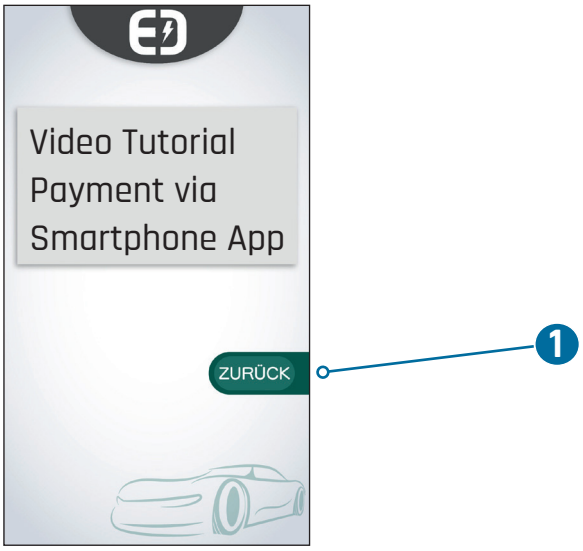


Fig. 24: Video tutorial - app payment

Screen *Payment NOT successful*

The screen ***„Payment NOT successful“*** shows the following function:

> Payment with debit/EC/Giro/credit card was unsuccessful.

> Follow the instructions on the operator display and repeat the payment process

Fig. 25: Payment with bank or credit card NOT successful

Screen *Card not accepted*

The screen ***„Card not accepted“*** shows the following function:

> Payment with customer/discount card was not successful because the customer/discount card was not accepted.

> Follow the instructions on the operating display and repeat the procedure.

Fig. 26: Payment with customer or discount card not successful

Screen *Payment successful*

The screen ***„Payment successful“*** shows the following function:

> After successful payment by debit/Giro/EC/credit card, the operating display shows the invoice information. This information can be downloaded from the homepage "www.echarging.info" using the access code provided. In addition, the receipt can be retrieved via QR code.

> **CONTINUE:** Pressing 1 leads to the next screen.

> **Auto-TimeOut:** After 200 seconds without activity, the display will change to the previous screen.

Fig. 27: Payment successful

Screen *Customer card accepted*

The screen ***„Customer card accepted“*** shows the following function:

> After successful payment with customer/discount card, the operating display shows the invoice information. This information can be downloaded from the homepage "www.echarging.info" using the access code provided. In addition, the receipt can also be loaded via QR code.

> **CONTINUE:** Pressing 1 leads to the next screen.

> **Auto-TimeOut:** After 200 seconds without activity, the display will change to the previous screen.

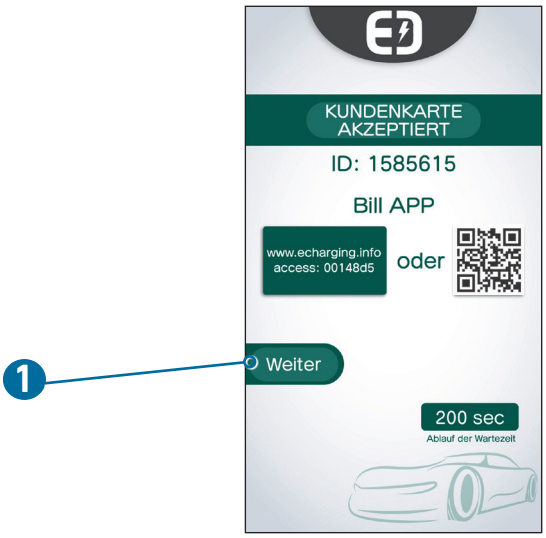


Fig. 28: Customer/discount card accepted

Screen *Customer Card X% Discount*

The screen ***„Customer Card X% Discount“*** shows the following function:

- After successful payment with customer/discount card, the operating display shows the amount of the discount in percent. Example: At 30%, the charge rate is reduced by 30%.
- **CANCEL:** Pressing 1 returns to the previous screen.
- **Auto-TimeOut: After 200 seconds without activity, the display will change to the previous screen.**

Fig. 29: Anzeige Kundenkarte XX-Prozent

Screen *Free Charging*

The screen ***„Free Charging“*** shows the following function:

- In the case of a free charge, the operating display shows the billing information. This information can be downloaded from the homepage "www.echarging.info" using the access code provided. In addition, the receipt can be retrieved via QR code.
- **CONTINUE:** Pressing 1 leads to the next screen.
- **Auto-TimeOut:** After 200 seconds without activity, the display will change to the previous screen.

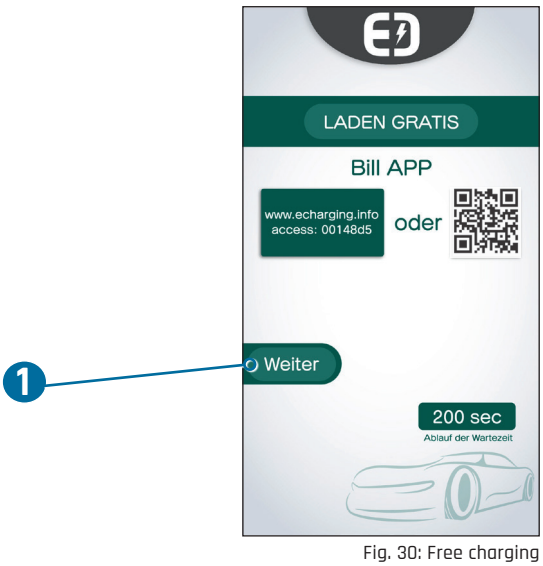


Fig. 30: Free charging

Screen *Release Charge*

The screen ***„Release Charge“*** shows the following function:

- > After successful payment, the selected charging cable is released. The charging process starts automatically as soon as the charging cable and the e-vehicle are connected.
- > **CANCEL:** Pressing 1 prematurely terminates the charging process.
- > **AUTO TimeOut:** After 200 seconds without activity, the display will change to the previous screen.

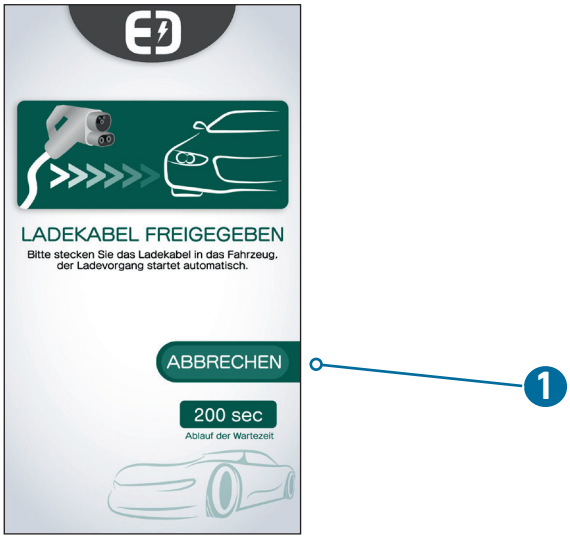


Fig. 31: Charge authorized

Screen *Thank You*

The screen ***„Thank You“*** shows the operating display after the charging process is completed.

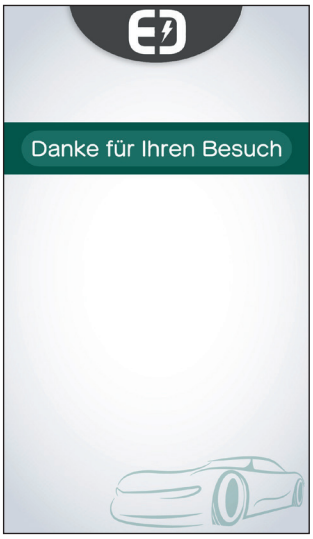


Fig. 32: Thank You

Screen *Vehicle Charging*

The screen ***„Vehicle Charging"*** shows the following functions:

> The battery of the connected vehicle is being charged.
The **Charging Status** 2 dialog shows the current status of the charging process

> The **„Vehicle Charging"** shows the following information:

1. **Battery:** Shows the current battery level of the connected battery.
2. **Charging Status:** Shows the current state of charge of the connected e-vehicle.
3. **Session-ID:** Shows the session ID valid for the charging process.
4. **Charge Plug Type:** Shows the selected charge plug (CCS/CHAdeMO)
6. **Charging Power:** Shows the current charging power with which the battery is charged.
7. **Start Time:** Shows the start time of the charging process.
8. **Charging and Parking Minute:** Shows the current charging and parking minutes of the charge.
9. **Meter Reading:** Shows the charged energy amount of the charging process in kWh.
10. **Price:** Shows the current total cost of the charging process in Euro (Sum of consumption price and basic fee).
5. **Key CANCEL:** Pressing the operating key ends the charging process. The charging process is ended safely. The e-vehicle is no longer charged. Further information: See "Terminate Charging Process" screen.
11. **Key BACK:** Pressing the control button returns from the advertising screen to the "Vehicle Charging" display.

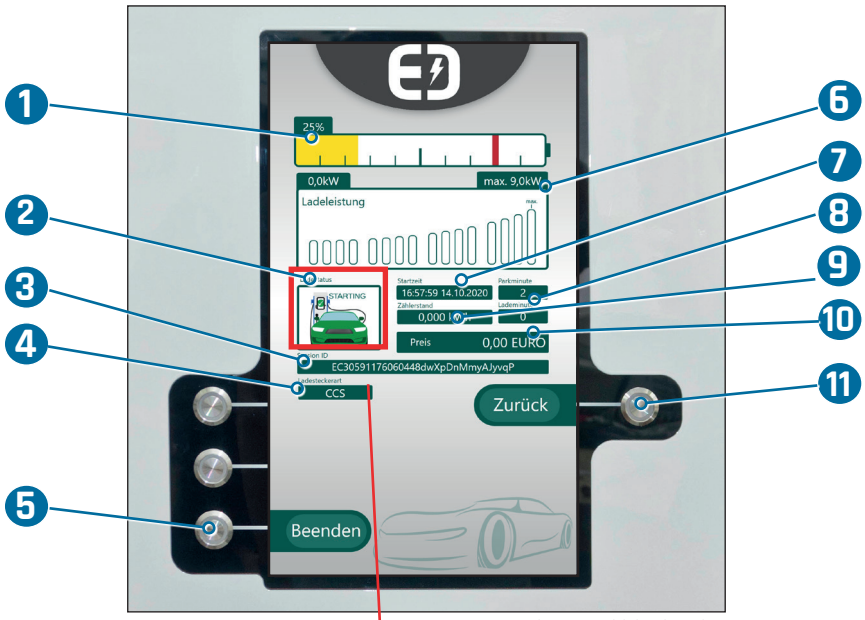


Fig. 33: Vehicle charging

2 Charging State

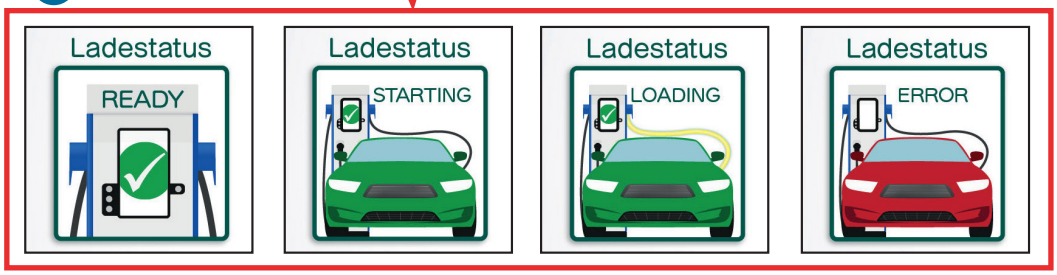


Fig. 34: State of the charging process

Screen *Terminate Charging Process*

The screen *„Terminate Charging Process“* shows the following functions:

> When the e-vehicle battery is fully charged or if the customer wants to end the charging process prematurely, the charging process is terminated.

> To stop the billing: Re-insert the debit/Giro/EC/credit card 3 or customer/discount card 4 used for payment or hold it in front of the NFC field. When paying via smartphone app 5, end the charging process using the app.

> Furthermore, the CCS Combo-2 or CHAdeMO charging connector must be correctly hooked into the parking position of the charging station.

- If the charge plug is not correctly inserted into the parking position, the ECC 320 charging station will continue to charge the basic fee.
- See FigFig. 40 auf Seite 36 1 and 2 for correctly hooked charging connectors.

Fig. 37: Terminate Charging Process via Customer/ Discount Card

Fig. 36: Terminate Charging Process via App

Fig. 35: Terminate Charging Process

Screen *Error - defect with CCS or CHAdeMO*

The screen *„Error - defect with CCS or CHAdeMO“* shows the defective charge point in the display window of the operator display. The defective charge point is marked on the operating display with a gray selection window with the information "Not available".

- > **SELECT 1:** Charge point 2 is defective. The operating key 1 has no function in this case.
- > **SELECT 2:** Charge point 2 is defective. The operating key 2 has no function in this case.
- > **?:** Pressing 3 opens the video tutorial.
- > **BACK:** Pressing 4 returns to the previous screen.

Fig. 38: Error - Defect with CCS or CHAdeMO

Screen *Out of Service*

The screen *„Out of Service“* indicates that the DC FastCharger charging station is currently out of service and not available for charging processes.

Fig. 39: Out of Service.

Screen *ATTENTION! Parking Position of Charge Plug*

The screen ***„ATTENTION! Parking Position of Charge Plug“*** indicates that the CCS and/or CHAdeMO charge plugs are not in the correct parking position.

> **SOLUTION:** Place the CCS and/or CHAdeMO charge plug in the parking position.
> 1 shows the correct parking position of the charge plug CCS.
> 2 shows the correct parking position of the charge plug CHAdeMO.

Fig. 40: ATTENTION! Parking Positon of Charge Plug

5.4 Conformity with Calibration Law

To meet the requirements of the German Metrology and Calibration Act and the German Metrology and Calibration Ordinance, the ECC 320 has an accounting system that conforms to calibration law.

The metrology and calibration law creates the basis that provided quantities of electrical energy are correctly displayed and billed. The energy meter is a measuring device subject to calibration, and the display of the energy meter is also subject to calibration law as an additional device within the meaning of §3 No. 24b MessEG.

Once the charging process has been completed, the e-mobility user must be able to use the displayed measurement result to check how much electrical energy he or she has drawn or how much time the charging process has taken and how the price is calculated on the basis of the measured kilowatt-hours or time value.

In addition, the transmission of the measured values from the charging station to the backend must be evidence-proof. This means that a calibration-compliant system requires a metering capsule that handles data processing, storage and transmission.

INFORMATION **Operating Manual Metering Capsule V1**

For more information see the document "Operating Manual Metering Capsule V1".

Function overview of the EC Metering Capsule V1:

- Fulfillment of the requirements of the German Metrology and Calibration Act and the German Metrology and Calibration Ordinance for calibration-conformant billing.
- Communication via Ethernet switch with EC Control Station for EnerCharge direct payment system.
- Storage of session IDs with all required and relevant charging data on a sealed and encrypted microSD card. Storage capacity for data value sets and logging data sufficient for the legal duration of at least 8.5 years.
- Display of the relevant metrological data on the EC Metering Capsule display V1. In addition, the data is also displayed as a copy on the main display of the charging station.
- Retrieval of stored data value sets by means of session ID disclosure.
- Independent check of the data value set by means of S.A.F.E. For a description of the procedure, see the document "**Operating Manual Metering Capsule V1**".
- Invoice document generation and provision for the charging customer. For a description of the procedure, see the document "**Operating Manual Metering Capsule V1**".
- Metrological identification:
- DE-M JJ 0366 (1 2 3)
  1. Metrological identification
  2. Year of registration: Ex. 22 = 2022
  3. Named body: 4 digits
- For the display elements of the Metering Capsule display see: „5.4.1 Display Elements on Metering Capsule Display“ on page 38.

5.4.1 Display Elements on Metering Capsule Display

For the best possible readability for the charging customer, the contents of the metering capsule display are divided between two windows. The display of the respective window changes automatically every 5 seconds. The following information is displayed:

- Date and Time
- Initial meter reading in kWh
- Current meter reading in kWh
- Consumption in kWh
- Start of charging session: Date and Time
- Duration of charging session in HH:MM:SS
- Transaction ID
- Serial number EVSE
- Serial number Gateway

INFORMATION

The main display shows part of the contents of the metering capsule as a copy. To prevent confusion, the main display also shows a notice that the charging information is displayed as a "copy" of the contents of the metering capsule.

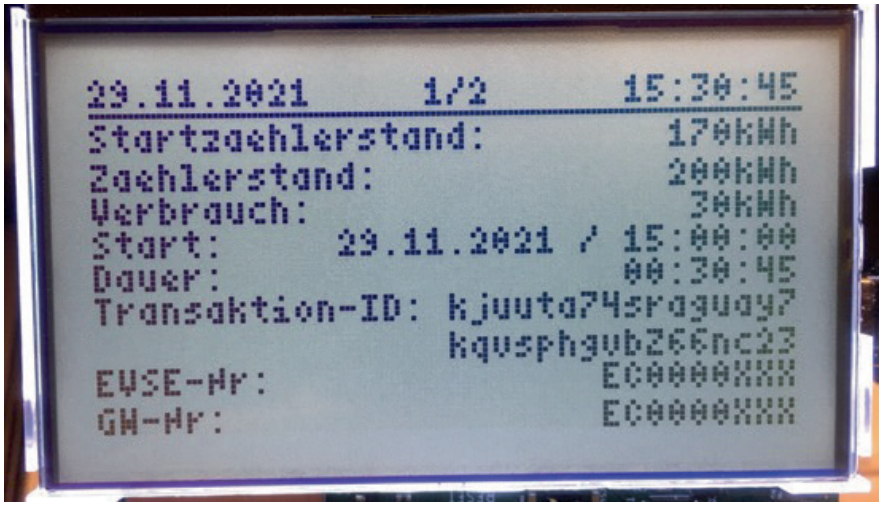


Fig. 41: Metering capsule display window 1

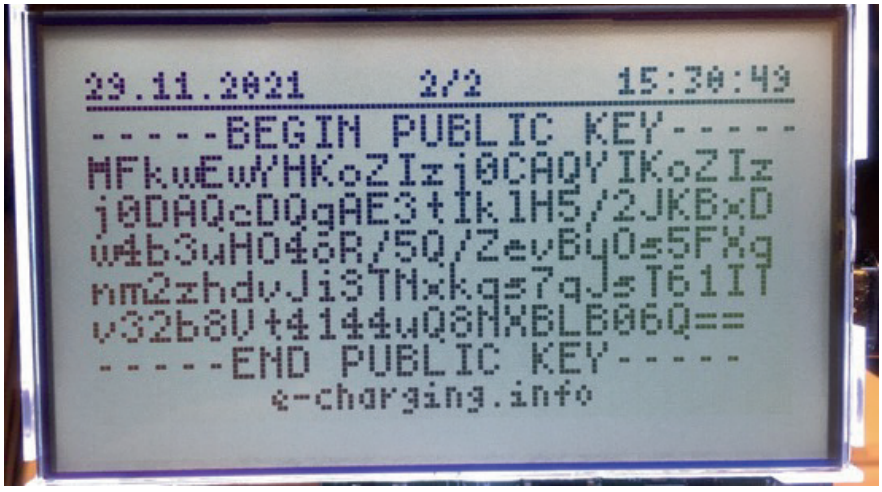


Fig. 42: Metering capsule display window 2

6. Transport

The equipment shown in this document is fixed to the site after initial commissioning by EnerCharge and should not be moved as a matter of principle. If transport is nevertheless necessary, the manufacturer must be contacted in any case. The manufacturer accepts no liability for damage of any kind caused by improper execution of transport work.

For the initial transport to the installation site, observe the document ***„Transport, Installation and Start-Up ECC 320"***.

7. Installation and Initialization

The Set-Up, complete installation and initial start-up are carried out by the manufacturer. Thereafter, the intended operation by the operator is permissible under strict observance of the information in these operating instructions.

Installation and initialization are done according to the manual ***„Transport, Installation and Start-Up ECC 320"***.

8. Operation

8.1 Opening and Closing the ECC 320

⚠ CAUTION Unlocked Service Door

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 charging station. The consequences in the event of an unlocked service door could be life-threatening.

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

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

> Locate the key opening of the lock (see Fig. 42).

> Pull the charging cable blocking the service door to the side.

> To open the service door, turn the key clockwise 180 degrees.

> To lock the service door, turn the key 180 degrees counterclockwise.

> If the service door opens more than 90 degrees, the door lock 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 with one's foot.

> After releasing the lock, the service door can be closed (see Fig. 43).

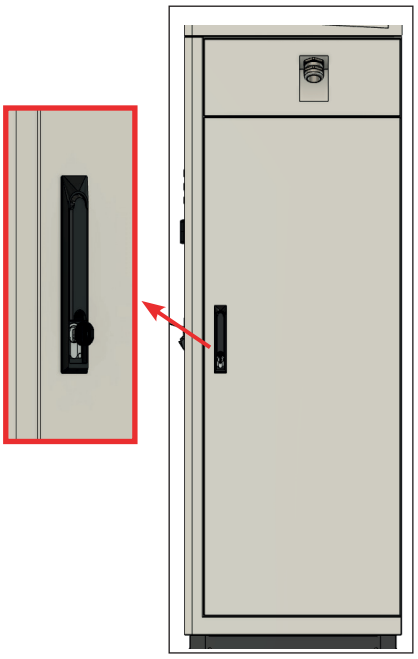


Fig. 44: Lock on Service Door

Fig. 43: Opened Service Door

Fig. 45: Releasing the Lock

Fig. 46: Opening Service Door

8.2 ECC 320 CompactCharger

The ECC 320 CompactCharger is designed for fast charging of e-vehicles according to the IEC 61851-1 Mode 4 standard. In addition, the ECC 320 has a customer-friendly payment system for EC/Giro/Bankomat/credit card or customer/discount cards (RFID). Furthermore, payment via cell phone APP is possible via Bluetooth.

The effective charge time of an e-vehicle depends on several factors:

- Vehicle battery capacity and type
- Current residual energy of the vehicle battery
- Connected vehicle type
- Ambient temperature and system temperature of the e-vehicle

It is not possible to make a binding statement on the charging time of an e-vehicle.
This value is determined in practice.

The charging and payment process at the ECC 320 follows an intuitive scheme. It is possible to cancel the selection process at any time by pressing the **"BACK"** button and return to the start.
Siehe: „8.4 Charging an e-Vehicle“ on page 42.

8.3 Status LEDs of the Charger

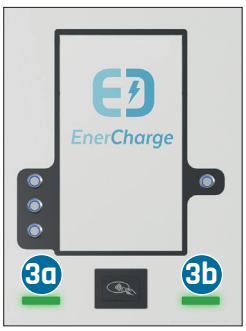
Status LEDs in the header and below the operating display provide information about the charging station's operating status. All status LEDs show the operating status for CCS or CHAdeMO charging simultaneously.

1 2 3 Status-LEDs for the charging connectors.

Functions of the LED colors and associated operating status:

- **GREEN**: The charging station is operational and ready for the charging process.
- **BLUE**: The charging station is busy - a charging process is active.
- **PURPLE**: The charging process is active - the vehicle is being charged.
- **RED**: Charger malfunction („9. Troubleshooting“ on page 47)

Fig. 47: Status-LEDs Charging Process



1 Status-LED: left head area
2 Status-LED: right head area
3a Status-LED: charge plug CCS
3b Status-LED: charge plug CHAdeMO (optional, standard: CCS)

8.4 Charging an e-Vehicle

⚠WARNING **Danger due to damaged or unsuitable charging connections!**

Charging e-vehicles with unsuitable charging ports
can lead to dangerous situations.

- *Connect the charge plug only to compatible charging ports.*
- *Do not connect the charge plug to charging ports that are damaged, dirty or have become damp.*
- *Charging connections on the vehicle must be protected from moisture.*

⚠WARNING **Danger due to damaged charge plugs and charging cables**

Damaged charge plugs and charging cables
can cause serious injuries.

- *Check charge plugs, charging cables and plug contacts for damage before use.*
- *Never use damaged charge plugs and charging cables for charging.*
- *Never use plug contacts that have become dirty or damp for charging.*
- *Stop the charging process immediately in case of smoke development, unusual odor or heat development.*

⚠WARNING **Danger due to improper handling of charge plugs and charging cables!**

Improper handling of charge plugs and charge cables can result in death
or serious injury from electrical voltage or arcing.

- *Never remove the charge plug from the charging port by force.*
  The charge plug lock must be released before the charge plug can be removed.
- *Only hold the charge plug by the handle when pulling and plugging it in.*
- *Never damage, bend, twist or crush the charging cable.*
- *Do not immerse the charge plug in water or splash it with water.*
- *Do not drive over the charge cable and charge plug with the vehicle.*
- *Do not step on the charge plugs and charging cables or place a heavy object on them.*
- *Do not drop, hurl or hit the charge plug on the floor.*
- *Do not lean against the side of the plug when the plug is plugged into the holder on the vehicle or charger.*
- *Do not rub charging cable on rough surfaces and sharp edges.*
- *Never use the charge plug with an extension cord.*
- *Only use adapters that comply with standard 62196-1/2/3. In addition, observe the operating instructions of the adapter.*
- *Keep charge plugs and charging cables away from heat sources.*
- *Do not insert fingers or objects into the openings of the charge plug.*
- *Charge plugs and charging cables may only be operated by persons who have a valid driver's license for a motor vehicle.*
- *Keep charge plugs and charging cables out of the reach of children.*

⚠ CAUTION **Danger of collision due to unsecured e-vehicles!**

E-vehicles rolling away or driving away in an uncontrolled manner
can cause injuries and property damage.

- *Park the vehicle for charging only in the marked parking areas.*
- *Switch off the travel drive of the vehicle.*
- *Secure the vehicle against rolling away.*

8.4.1 Übersicht Ladeablauf als Flussdiagramm

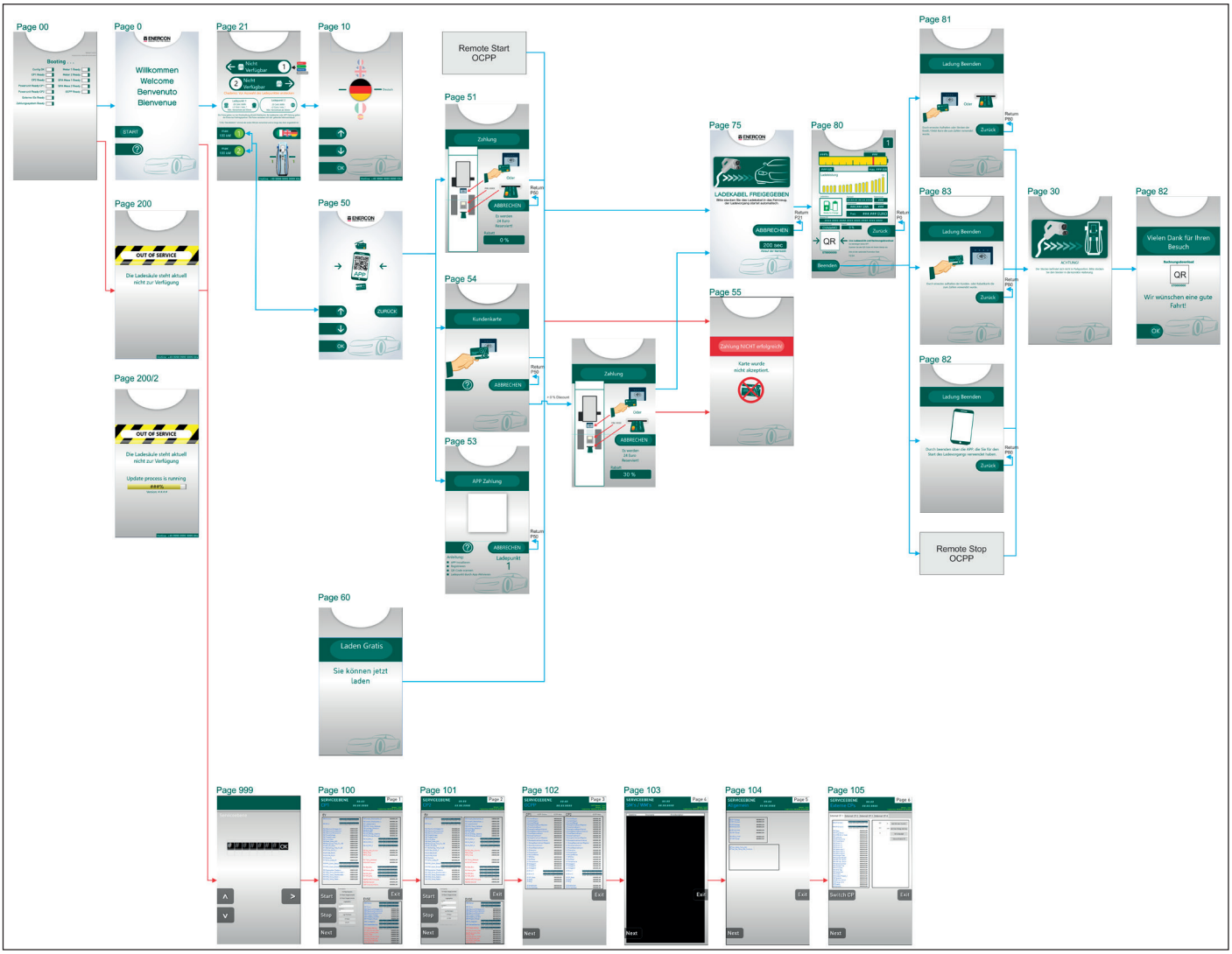
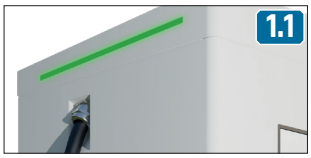


Abb. 48: Übersicht Ladeablauf



LED-Status: GREEN

1.1 Check whether the charging system is in operation.
(LEDs glow GREEN)

1.2 Check that the charge plugs are correctly located in the parking position of the ECC 320 charging station.

1.3 Set the e-vehicle to a chargeable state.
(Observe the user manual of the e-vehicle).

LED-Status: GREEN

2.1 Press **"OK"**. The screen changes to the language selection.

2.2 With the keys ↑ and ↓ select the desired language

2.3 Confirm the desired language with the **"OK"** operating key.

2.4 The operating key **"BACK"** takes you to the previous screen.

LED-Status: GREEN

3.1 The display leads to the selection of the charge point. (After 200 seconds of waiting without confirmation, the process is canceled and the menu returns to the start screen).

3.2 The selection is made automatically when the desired charging connector is removed from the parking position.

3.3 Insert the charging connector into the charging socket of the e-vehicle.

LED-Status: GREEN

4.1 The display continues to the payment method (after 200 seconds of waiting without confirmation, the menu automatically goes to the payment methods screen).

4.2 With the operating keys ↑ and ↓ select the desired payment method.

4.3 Confirm the desired payment method with the **"OK"** operating key.

4.4 The operating key **"BACK"** takes you to the previous screen.

4.5 The menu will take you to the payment instructions (after 200 seconds of waiting without confirmation, the operation will be canceled and the menu will return to the home screen).

LED-Status/payment sucessful: PURPLE

5.1 Insert the debit/Giro/EC/credit card or customer/discount card into the card slot and follow the payment instructions. Alternative: Payment with V-Pay. To do this, hold the card in front of the NFC field.

5.2 When paying with app, use the QR code and download the app to your smartphone. Then follow the instructions of the app.

5.3 If the payment is successful, the menu leads to the billing screen. This shows a web address including an access code and a QR code. This can be used to download the invoice for the charging process. (LEDs glow **GREEN**)

5.4 If payment is **NOT** successful, this is indicated on the display. The menu returns to the start screen. Solution: Repeat the charging process.

LED-Status:
PURPLE

6.1 After accepting the information about the invoice, press the "**NEXT/OK**" key.

LED-Status:
PURPLE

7.1 The charging process starts automatically as soon as the vehicle is correctly connected with the charging cable.

7.2 The operating key "**CANCEL**" switches to the previous screen. (After 200 seconds of waiting without confirmation, the operation is canceled and the menu returns to the start screen).

LED-Status:
glows or blinks RED

! ATTENTION ERROR

In the event of a voltage failure (power cut), the charging process is aborted. In the event of another fault during or after the charging process, this is indicated on the display.

See section „9. Troubleshooting“ on page 44.

8.1 The operating display shows the information "charging status, charging power, charged energy, charging minute, parking minute and price" during the active charging process.

INFORMATION Duration of Charging Process

The duration of the charging process may vary. The state of charge and capacity of the vehicle battery, the power control of the system and very high or low temperatures influence the charging time.

9.1 To terminate the charging process prematurely, proceed as follows:

- Press "**CANCEL**" drücken. The charging process is terminated prematurely. For more information see „8.5 Terminating the Charging Process“ on page 43.

10.1 Remove the charging cable from the vehicle:

- **CCS Combo-2:** The vehicle automatically releases the charge plug lock.

INFORMATION Verriegelung Ladestecker

Die Verriegelung fahrzeugseitig lösen, wenn die Verriegelung des Ladesteckers nicht automatisch gelöst wird. Dieser Vorgang hängt vom Fahrzeugtyp ab. Weitere Informationen liefert das Benutzerhandbuch des Fahrzeugs.

- **CHAdeMO:** Press the Eject button on the charge plug until it locks in the pressed position. See: „5.3 Operation and Display Elements“ on page 23.

11.1 Correctly hook the charging cable into the parking position.

INFORMATION Parking Position of Charging Connector

If the charging cable is not correctly hooked into the parking position of the DC Fast-Charger charging station, the system will continue to charge the base fee.

> Charging process complete.

8.5 Terminating the Charging Process

The active charging process can be terminated prematurely at any time.
To do this, observe the following steps:

1.1 Press the operating key "CANCEL" during the active charging process. The charging process is ended safely. The e-vehicle is no longer charged.

1.2 To end the billing process: Re-insert the debit/Giro/EC/credit card or customer/discount card that was used for payment or hold it in front of the NFC field. When paying via app, end the charging process using the app.

1.3 Hang the CCS Combo-2 or CHAdeMO charging cable correctly in the parking position of the charging station.

1.4 **INFORMATION**

If the charging cable is not correctly hooked into the parking position of the DC FastCharger charging station, the system will continue to charge the base fee. The operating display indicates this condition.

> Charging process terminated successfully.

9. Troubleshooting

The charging station is designed for maximum operational safety and reliable charging processes. Internal test routines immediately detect any malfunction of the charging station and switch it off. The charging station's display shows any malfunction. In addition, a **red** status LED signals a malfunction.

Screen ***Error***

An error is indicated in the following way:

> The charging station operating display shows an error message.

> The status LEDs light up in RED (see „8.3 Status LEDs of the Charger“ on page 41).

INFORMATION

To identify the error codes, refer to the document
"Maintenance Manual ECC 320" Section: "Maintenance Mode of ECC 320").

Error	Possible Cause	Suggested Solution
Error message	An error occurred at the start of the charging process.	Re-start the charging process. see: „8.4 Charging an e-Vehicle“ on page 40
System error	The charging process was aborted due to a system error.	
The system display shows no message	The charging station is not being supplied with voltage.	The external power supply to the charging station is interrupted: Check the supply line at the low-voltage container.
		The charging station's internal protection device has been triggered: Check the status of the protection system and switch it back on via the toggle lever if necessary.
	The charging station display is defective.	A defective charging station display must be replaced. In this case, contact the manufacturer.
The e-vehicle is not recognized	The charging cable is not plugged correctly into the vehicle.	Remove the charge plug from the vehicle and plug it in again: make sure that the plug is correctly inserted in the vehicle socket.
	The charging cable is not plugged in correctly at the connection socket.	Jiggle the connector slightly so that the locking bolt loosens and engages. Then plug in the vehicle connector again.
		Check the charging socket for foreign objects.
	The vehicle is configured incorrectly.	Check the vehicle settings and reset them to the default settings if necessary.
The charging cable cannot be removed from the connection socket.	Locking mechanism damaged by force.	The locking bolt can be bent by the application of force. Jiggle the cable a little and release the connection on the car. Then try again.
	No unlock command from the electric vehicle.	Press the unlock button in the vehicle.
		Reconnect the charging cable to the vehicle. Press the unlock button in the vehicle again.
Payment not possible	Contactless payment not possible.	Most EC and bank cards are limited to 3x contactless payment: To pay, insert the card into the card slot and enter your PIN.

Table 04: Troubleshooting

10. Decommissioning, Disassembly and Disposal

10.1 Decommissioning

In case of longer downtimes, preservation measures may have to be taken to prevent corrosion and other damage. If necessary, also observe the notes on preservation in the supplier documentation.

10.2 Storage

The charging station must be stored in a dry location:

> See temperature ranges in section „3. Technical Data“ on page 8.

⚠ CAUTION **Damage to the operating display due to improper storage**

Store the TFT LED operating display by the manufacturer Ampire within the specified temperature range. Failure to observe these instructions will result in damage to the operating display.

- *Maintain the specified temperature range for storage.*

10.3 Disassembly and Disposal

! ATTENTION **Danger of Environmental Pollution**

Improper disassembly and disposal can lead to environmental pollution:

- *During disassembly and disposal, ensure that no unnecessary environmental pollution occurs.*
- *Collect leaking operating fluids (e.g. coolant).*
- *Properly handle and dispose of environmentally hazardous hydraulic fluids, lubricants or cleaning agents.*
- *Observe the disposal instructions of the suppliers.*

The disposal of old devices must be carried out in accordance with the customary national and regional laws and guidelines. Ecological aspects must be observed. Old devices and batteries must not be disposed of with household waste!

> Dispose of the device in accordance with the environmental regulations applicable in the respective country.

> Dispose of old devices via the seller.

> Dispose of packaging material in collection containers for cardboard, paper and plastics.

> The symbol of the crossed-out wheeled garbage can means that electrical and electronic equipment including accessories must be disposed of separately from general household waste.

> The materials are recyclable according to their labeling. With the reuse, material recycling or other forms of recycling of old equipment, you make an important contribution to the protection of our environment.

11. Attachments

11.1 Standards and Regulations

The charging system complies with the following standards and protection classes:

11.1.1 General Standards

Standard	Description
2014/30/EU	EU Directive on Electromagnetic Compatibility.
2014/35/EU	EU directive for electrical equipment for use within certain voltage limits.
2011/65/EU	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

11.1.2 Equipment Safety Standards

Standard	Description
EN 60529:2014	Protection classes housing (IP code)
EN 61000-6-2:2005	Electromagnetic compatibility - Immunity for industrial environments.
EN 61000-6-3:2007	Electromagnetic compatibility - Emission for residential, commercial and small business environments.
EN 61851-1:2012	Electrical equipment of electric road vehicles - conductive charging systems for electric vehicles.
EN 61851-23:2017	Conductive charging systems for electric vehicles - Part 23: DC charging columns for electric vehicles.
EN 61439-1:2012	Low voltage switchgear combination.
EN 61439-7:2016	Low-voltage switchgear and controlgear assemblies - Part 7: Switchgear and controlgear assemblies for specific applications such as marinas, campsites, market places, charging stations for electric vehicles.
EN 50581:2012	Technical documentation for the assessment of electrical and electronic equipment with regard to the restriction of hazardous substances.

11.1.3 Protection Class and Type

Protection Class/Type	Description
	Protection class I: All electrically conductive parts of the equipment are connected with low resistanc
IP54	Protection class of the device (protection against penetration of solid foreign bodies with a diameter greater than 1mm and against splashing water).
IP54	Protection type of the meter (protection against contact, dust in harmful quantity and splash water).

11.2.1 Charging Mode

Charging Mode	Explanation 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.

11.2.2 National Usage Restriction

National restrictions of use according to DIN 61851-1 are not applicable.

11.2 Trademark

11.3 Copyright

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11.4 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 333 9000.**

11.5 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

12. Index

#BeEnerCharged

EnerCharge

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