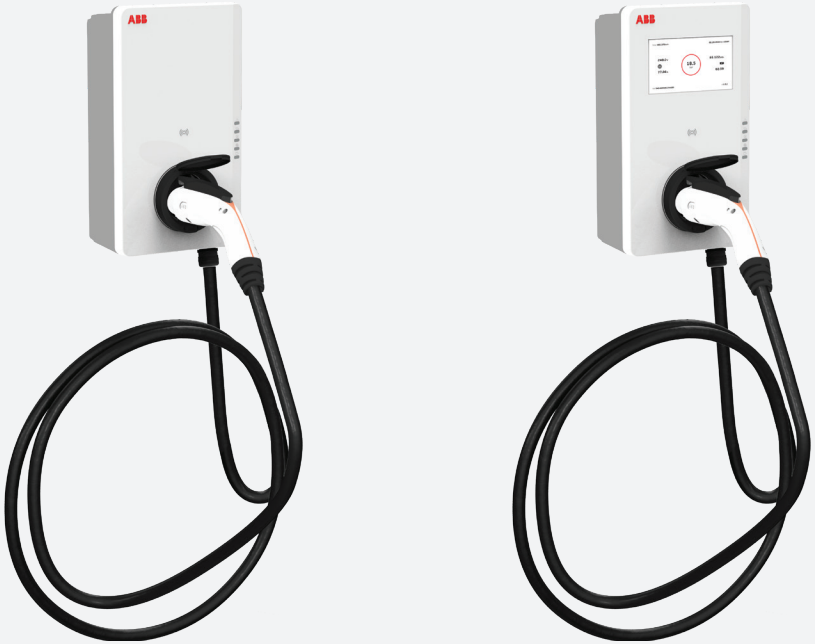
USER MANUAL

Terra AC wallbox UL

40/80 A



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About this document

Function of this document
The document is only applicable for this Terra AC 40/80 A (EVSE). The document gives the information that is necessary to do these tasks:
- Use the EVSE
- Do basic maintenance tasks

Target group
The document is intended for the owner of the Terra AC 40/80 A (EVSE). For a description of the responsibilities of the owner, refer to section Responsibilities for the owner, page 6.

How to use this document
1. Make sure that you know the structure and contents of this document.
2. Read the safety chapter and make sure that you know all the instructions.
3. Do the steps in the procedures fully and in the correct sequence.
4. Keep the document in a safe location that you can easily access. This document is a part of the Terra AC 40/80 A (EVSE).

Table 1: General symbols and signal words

Signal word	Description	Symbol
Danger	If you do not obey the instruction, this can cause injury or death	Refer to Table 7, page 8
Warning	If you do not obey the instruction, this can cause injury	Refer to Table 7, page 8
Caution	If you do not obey the instruction, this can cause damage to the EVSE or to property	
Note	A note gives more data, to make it easier to do the steps, for example	
-	Information about the condition of the EVSE before you start the procedure	
-	Requirements for personnel for a procedure	
-	General safety instructions for a procedure	
-	Information about spare parts that are necessary for a procedure	
-	Information about support equipment that is necessary for a procedure	
-	Information about supplies (consumables) that are necessary for a procedure	
-	Make sure that the power supply to the EVSE is disconnected	
-	Electrotechnical expertise is required, according to the local rules	
-	Alternating current supply	

Note: It is possible that not all symbols or signal words are present in this document.

Table 2: Related documents

Document name	Target group
Product data sheet	All target groups
Installation manual	Qualified installation engineer
User manual	Owner
Declaration of conformity (CE)	All target groups

Table 3: Abbreviations

Abbreviation	Definition
AC	Alternating current
CAN	Controller area network
CPU	Central processing unit
DC	Direct current
EMC	Electromagnetic compatibility
EV	Electric vehicle
EVSE	Electric vehicle supply equipment
MID	Measuring Instruments Directive
NFC	Near field communication
NoBo	Notified body
OCPP	Open charge point protocol
PE	Protective earth
PPE	Personal protective equipment
RFID	Radio-frequency identification

Note: It is possible that not all abbreviations are present in this document.

Table 4: Terminology

Term	Definition
Network operating center of the manufacturer	Facility of the manufacturer to do a remote check on the correct operation of the EVSE
Cabinet	Enclosure of the EVSE, including the components on the inside
Contractor	Third party that the owner or site operator hires to do engineering, civil and electrical installation work
Grid provider	Company that is responsible for the transport and distribution of electricity
Local rules	All rules that apply to the EVSE during the entire lifecycle of the EVSE. The local rules also include the national laws and regulations
Open charge point protocol	Open standard for communication with charge stations
Owner	Legal owner of the EVSE
Site operator	Entity that is responsible for the day-to-day control of the EVSE. The site operator does not have to be the owner
User	Owner of an EV, who uses the EVSE to charge the EV

Note: It is possible that not all terms are present in this document.

Safety

Liability
The manufacturer is not liable to the purchaser of the EVSE (Terra AC) or to third parties for damages, losses, costs or expenses incurred by the purchaser or third parties if any target group mentioned in the related documents does not obey the rules below:

- Obey the instructions in the related documents
- Do not misuse or abuse the EVSE (Terra AC)
- Only make changes to the EVSE (Terra AC), if the manufacturer approves in writing of the changes

This EVSE (Terra AC) is designed to be connected to and to communicate information and data via a network interface. It is the sole responsibility of the owner to provide and continuously ensure a secure connection between the EVSE (Terra AC) and the network of the owner or any other network.

The owner shall establish and maintain any appropriate measures (such as - but not limited to - the installation of firewalls, application of authentication measures, encryption of data and installation of anti-virus programs) to protect the EVSE (Terra AC), the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information.

The manufacturer is not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

Responsibilities for the owner

The owner is the person who runs the EVSE (Terra AC) for commercial or business purposes for itself or leaves it to a third party for use. During operation the owner bears legal responsibility for the protection of the user, other employees or third parties. The owner has the responsibilities that follow:

- To know and implement the local rules
- To identify the hazards (in terms of a risk assessment), resulting from the working conditions on the site
- To operate the EVSE (Terra AC) with the protective devices installed
- To make sure that all protective devices are installed after installation or maintenance work
- To make an emergency plan that instructs people what to do in case of an emergency
- To make sure that all employees and third parties are qualified according to the applicable local rules to do the work
- To make sure that there is sufficient space around the EVSE (Terra AC) to safely do maintenance and installation work
- To identify a site operator who is responsible for the safe operation of the EVSE (Terra AC) and for the coordination of all work, if the owner does not do these tasks

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Table 6: Personal protective equipment

Symbol	Description
	Protective clothing
	Safety gloves
	Safety shoes
	Safety glasses

FCC compliance statement

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/ TV technician for help

Industry Canada compliance statement

This device contains licence-exempt transmitter(s)/ receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference
- This device must accept any interference, including interference that may cause undesired operation of the device

RF exposure statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

General safety instructions

- This document, the related documents and the warnings included do not replace your responsibility to use your common sense when you do work on the EVSE (Terra AC)
- Only do the procedures that the related documents show and that you are qualified for
- Obey the local rules and the instructions in this manual. If the local rules contradict the instructions in this manual, the local rules will apply

If and to the extent permitted by law, in case of inconsistency or contradiction, between any requirements or procedure contained in this document and any such local rules, obey the stricter between the requirements and procedures specified in this document and the local rules.

Safety instructions for use

- In these situations, do not use the EVSE (Terra AC) and immediately contact the manufacturer:
  - An enclosure has damage
  - An EV charge cable or connector has damage
  - Lightning struck the EVSE (Terra AC)
  - There was an accident or a fire at or near the EVSE (Terra AC)
  - Water has entered the EVSE (Terra AC)

Safety instructions during cleaning or maintenance

- Keep unauthorized personnel at a safe distance during cleaning or maintenance
- If for cleaning or maintenance it is necessary to remove safety devices, immediately install the safety devices after the work
- Put on the correct personal protective equipment

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Table 7: Signs on the EVSE (Terra AC)

Symbol	Risk type
	General risk
	Hazardous voltage that gives risk of electrocution
	Risk of pinching or crushing of body parts
	Rotating parts cat can cause a risk of entrapment
	PE
	Sign that means that you must read the manual before you install the EVSE (Terra AC)
	Waste from electrical and electronic equipment

Note: It is possible that not all symbols are present on the EVSE.

Discard the EVSE or parts of the EVSE (Terra AC)

Incorrect waste handling can have a negative effect on the environment and human health due to potential hazardous substances. With the correct disposal of this product, you contribute to reuse and recycling of materials and protection of the environment.

- Obey the local rules to discard parts, packaging material or the EVSE (Terra AC)
- Discard electrical and electronic equipment separately in compliance with the WEEE - 2012/19/EU Directive on waste of electrical and electronic equipment
- As the symbol of the crossed out wheeled-bin on your EVSE (Terra AC) indicates, do not mix or dispose the EVSE (Terra AC) with your household waste, at the end of use. Instead, hand the EVSE (Terra AC) over to your local community waste collection point for recycling
- For more information, contact the Government Waste-Disposal department in your country

Special safety instructions

Important safety instructions

Warning: Obey the basic precautions for electric products, including the instructions in this section.

Caution: To reduce the risk of fire, connect this EVSE only to a circuit provided with, see Table Circuit breaker rating, page 29, maximum branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70.

- Read all the instructions befor you use this EVSE
- Make sure that adults supervise this EVSE is when it is used around children
- Do not put fingers into the EV connector
- Do not use this product if the flexible power cord or EV charge cable is frayed, has broken insulation, or any other signs of damage
- Do not use this EVSE if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage
- Install an insulated grounding conductor that is identical in size, insulation material, and thickness to the grounded and ungrounded branch-circuit supply conductors, except that it is green with or without one or more yellow stripes, as part of the branch circuit that supplies the EVSE
- Connect the grounding connector of the previous bullet point to earth at the EVSE or, when supplied by a separately derived system, at the supply transformer

Closing requirements

1. SAVE THESE INSTRUCTIONS

Description

Short description
The Terra AC is an AC charging station that you can use to supply electricity to an EV. The Terra AC offers tailor-made, intelligent and network charging solutions for your company or home. The Terra AC can connect to the internet via GSM, WiFi or LAN.

Intended use
- The Terra AC is intended for the AC charging of EVs
- The Terra AC is intended for indoor or outdoor use

The technical data of the Terra AC must comply with the properties of the electrical grid, the ambient conditions and the EV. Refer to chapter Technical data. Only use the Terra AC with accessories that the manufacturer provides or that obey the local rules.

The Terra AC input is intended for a hardwired installation that complies with the applicable national regulations.

Danger: General risk
- If you use the Terra AC in any other way than described in the related documents, you can cause death, injury and damage to property
- Use the Terra AC only as intended

Overview of the system

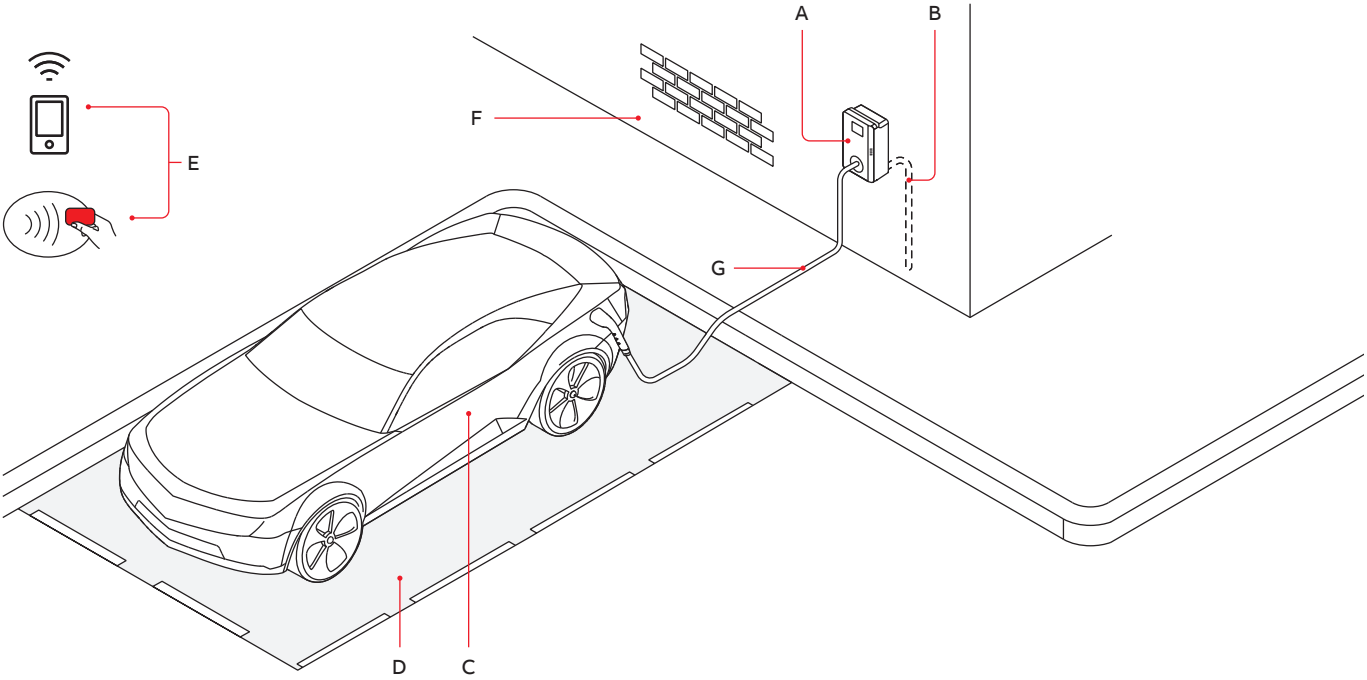


Table 8: Parts and function of the charging process

Label	Part	Function
A	EVSE	Refer to section Intended use, page 10
B	AC grid input	To supply the electricity to the EVSE
C	EV	The EV of which the batteries need to be charged
D	Parking space	Location for the EV during the charge session
E	RFID card or smartphone	To authorize the user to use the EVSE
F	Structure	To install the EVSE on and to keep the EVSE in position
G	EV charge cable	To conduct the charge from the EVSE to the EV

Overview of the Terra AC, outside

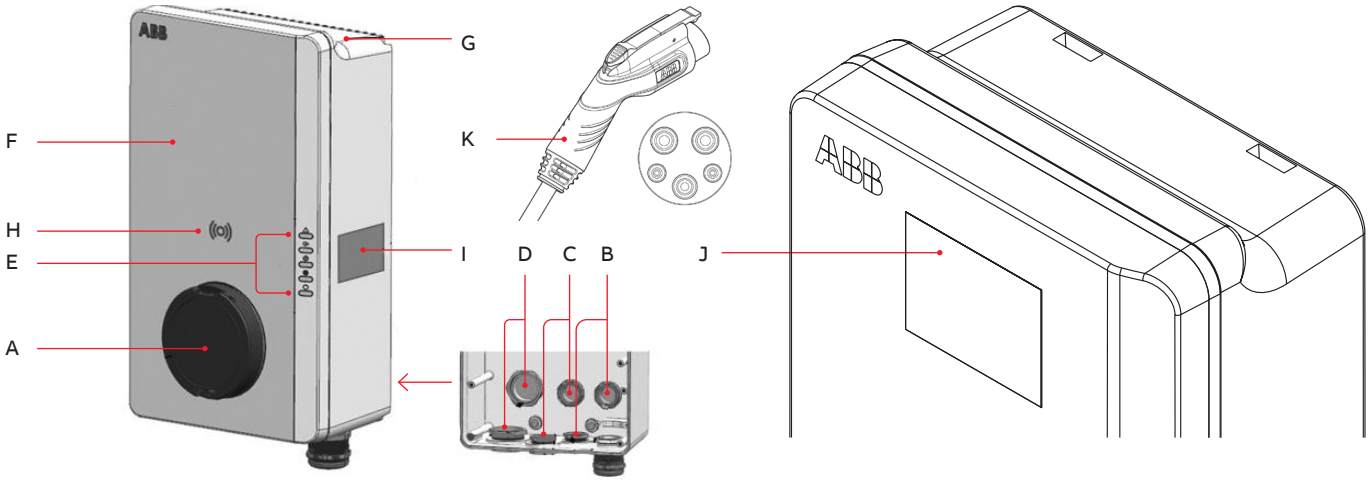


Table 9: Outside parts of the Terra AC and function

Legend	Part	Function
A	Holster inlet	To store the charge connector
B, C and D	Openings	Openings for the cables that go into the Terra AC
E	LED indicators	To show the status of the Terra AC and the charge session. Refer to section LED indicators on the next page
F	Cabinet cover	To prevent a user to access the installation and maintenance parts of the Terra AC
G	Enclosure	To reduce the accessibility of unqualified persons to the inside of the Terra AC
H	RFID reader	To authorize the start or stop of a charging session with an RFID card
I	Product label	To show the identification data of the Terra AC
J	Display	
K	SAE J1772, type 1 charge connector	

Load management

Load management makes sure that the available electrical capacity of the building or home is not exceeded. A number of devices share a grid connection, that has a maximum capacity. The total power demand of the devices that use the grid connection must not exceed the grid capacity.

The load management feature prevents that the system exceeds the grid capacity and prevents damage of the fuses. At times when the current demand is high, the EVSE decreases the output of current. The current will increase again when there is availability on the grid. Also, the load management feature makes sure that the available load is optimally shared.

LED indicators

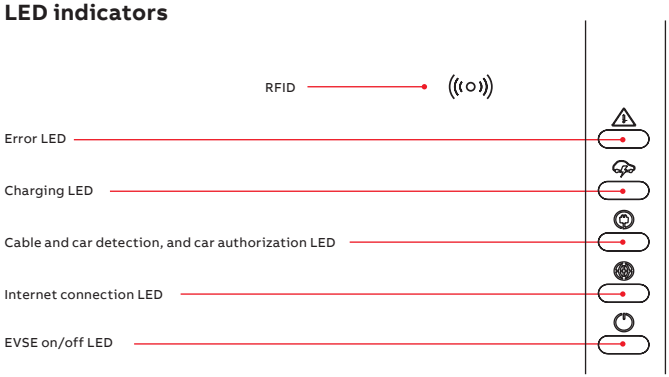
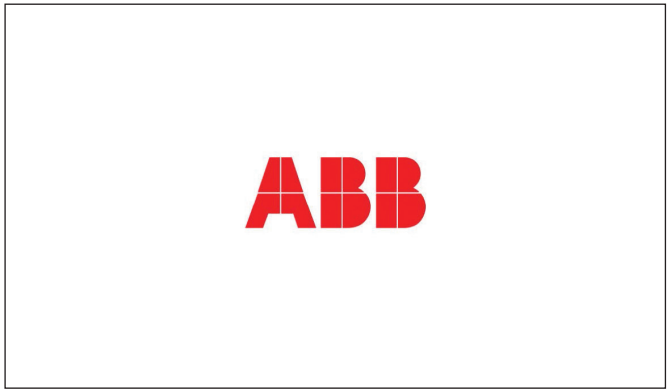


Table 10: LED lights and their statuses

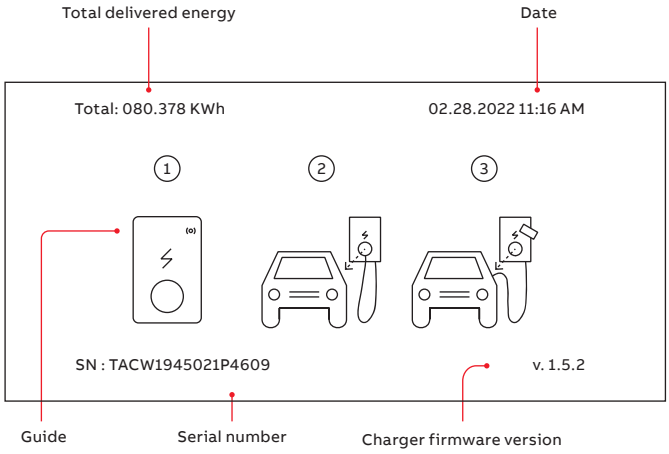
	Status of the LED	Status of the Terra AC
Error LED	On	Error
	Off	No Error
Charging LED	On	EV is fully charged or has stopped charging
	Off	Not charging
	Flashing	Charging
Cable and car detection, and car authorization LED	On	A car is connected. The connection is authorized
	Off	No car connected
	Flashing	A car is connected, waiting for authorization
Internet connection LED	On	Connected to the internet
	Off	Not connected to the internet
	Flashing	The internet connection is set up
Terra AC on/off LED	On	The Terra AC is on
	Off	The Terra AC is off
	Flashing	The Terra AC is in setup

Display (for display models only)

Display wakeup functionality via touch or when changing charge status, connect or disconnect cable to EV, preparing to charge and charging.

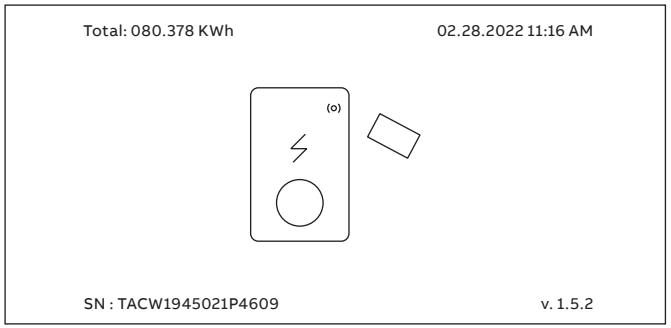


Boot screen

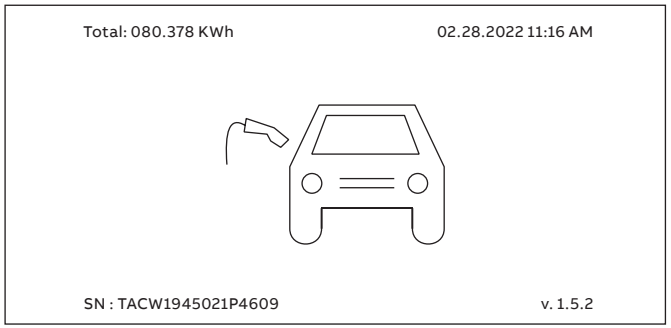


Standby/idle screen

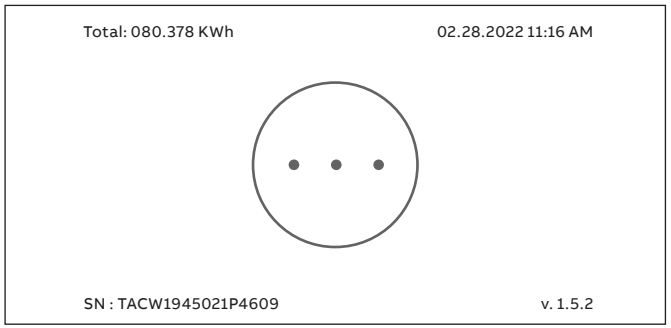
The display shows the Standby/Idle screen when the Terra AC is in idle status. Then, the Terra AC is available for a charge session.



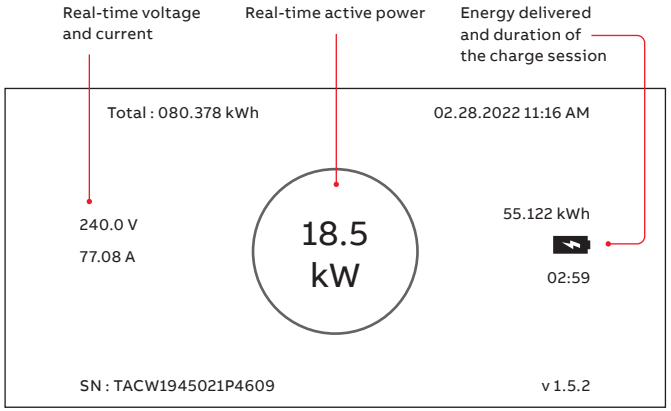
Authorization screen
The display shows different Authorization screens, dependent on the situation. The display shows this Authorization screen when the EV charge cable is connected to the EV but the charge session is not authorized.



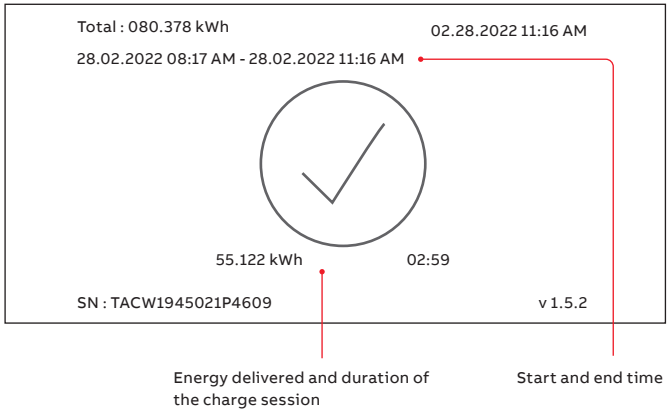
The display shows this Authorization screen when the charge session is authorized but the EV charge cable is not connected to the EV.



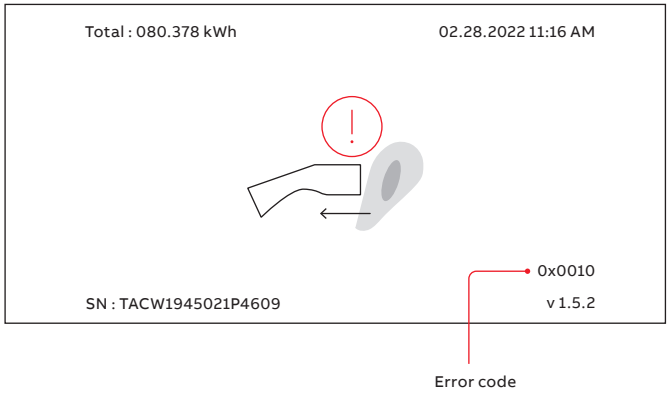
Preparing to charge screen



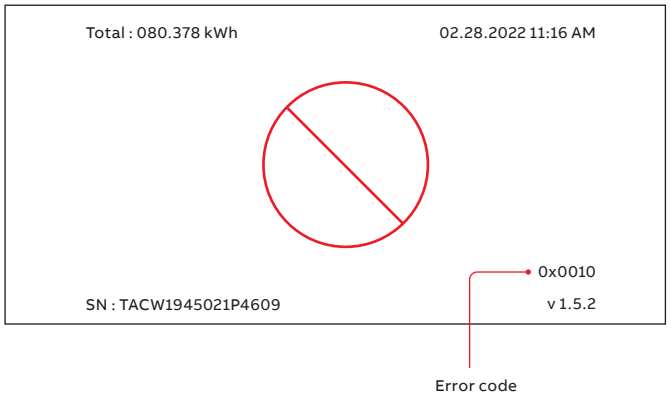
Charging screen
The display shows the Charging screen during the charge session, for a single phase Terra AC.



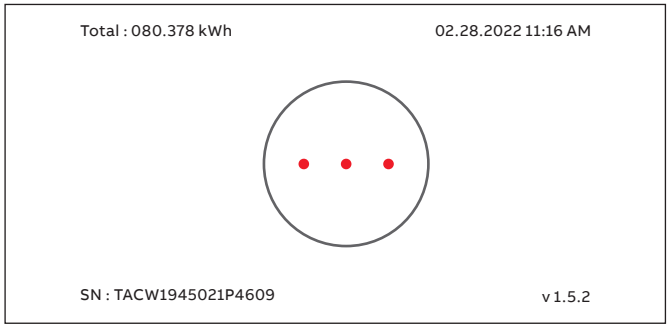
Charging completed screen



Disconnect the charge cable and connect it again



Contact your service provider



The EV is not ready for the charge session

ChargerSync app for the Terra AC

The ChargerSync app is available on the Apple Store and on the Google Play Store.

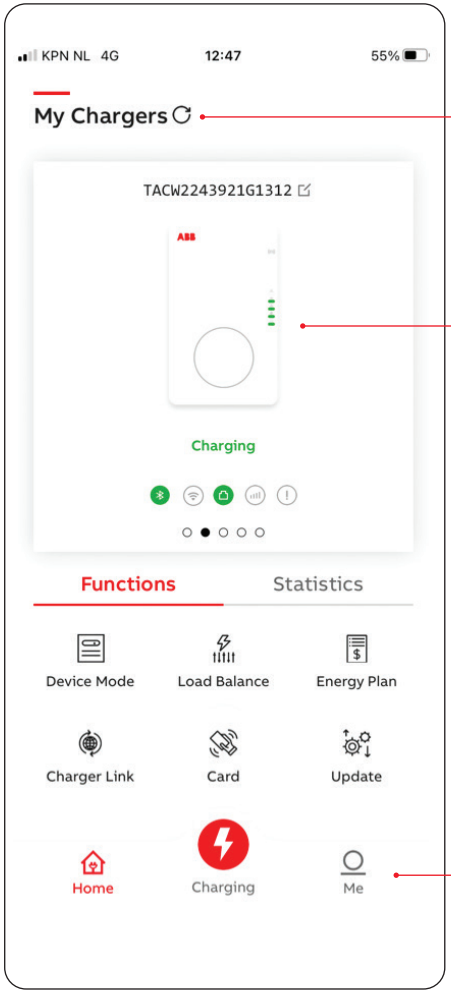


Table 11: Description of the app interface

Sceen part	Function
Menu title	This area shows the current menu
Main screen area	This area shows information about the status of the Terra AC, the charge sessions and the available menus
Navigation bars	To navigate through the menus of the app and to use the functions. For a description of the buttons, refer to Table 12: General description of buttons, colors and menus, page 19

Table 12: General description of buttons, colors and menus

Button	Menu	Description
	Home	To go to the main menu
	Start button	To start the charge session
	Account button	To go to the account menu, that has the personal preferences and settings
	Device mode	To go to the schedule and free vending menu
	Energy plan	To go to the energy plan menu
	Load balance	To go to the load balance menu
	Update	To go to the firmware upgrade menu
	Charger link	To go to the charger link connectivity menu
	Previous	To go to a previous page
	Card	To add or delete RFID cards
	Next	To go to a next page

[1] It can be necessary to update in multiple steps, until the app does not detect newer firmware. The app updates one firmware version at a time.

Errors

If the Terra AC detects a problem, the error LED comes on. The ChargerSync app shows the error description. For the possible causes and the possible solutions, refer to chapter Troubleshooting, page 23.

Operation

Prepare before use

1. Appoint a site operator and an installation engineer, if these are other persons than you.
2. Make sure that the equipment is installed and commissioned according to the instructions in the installation manual.
3. Make an emergency plan that instructs people what to do in case of an emergency.
4. Make sure that the space around the equipment cannot get blocked. Think of snow or other objects. Refer to the space requirements.
5. Make sure that maintenance is done on the equipment. Refer to chapter Maintenance and cleaning, page 22.

Energize the Terra AC

1. Close the breaker that supplies the power to the Terra AC

Warning: Hazardous voltage
Be careful when you work with electricity.

- The power supply comes on
- A series of self-checks start, to make sure that the Terra AC works correctly and safely
- If the Terra AC detects a problem, the error LED comes on. The ChargerSync app shows the description of the error

Connect the Terra AC with the ChargerSync app

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Table 13: Preliminary requirements

	Mobile device with the ChargerSync app

Procedure

1. Find your pin code in the package with the RFID card.
   - The pin code has 8 characters
   - The letters are case-sensitive
2. Download the ChargerSync App from the Google Play Store or App Store.
3. Start the ChargerSync app.
4. Do the instructions that the ChargerSync app shows.

Scan QR code to download app

Start a charge session

Caution: During the charge session, do not disconnect the EV charge cable from the connection on the EV. There is a risk of damage of the connector of the EV.

Note: The LEDs show the status of the charge session.

1. Take the EV charge cable from the enclosure.
2. Use your RFID card or ChargerSyncapp to authorize the use of the Terra AC. The authorization of the connection to the EV starts.
3. Connect the EV charge cable to connector of the EV. The Terra AC charges the EV.

Wake up the EV when unavailable - Terra AC non display

Procedure
1. Disconnect the EV charge cable from the EV.
2. Connect the EV charge cable to the EV again.

Wake up the EV when unavailable - Terra AC with display

Procedure
1. Disconnect the EV charge cable from the EV.
2. Connect the EV charge cable to the EV again.

Stop a charge session

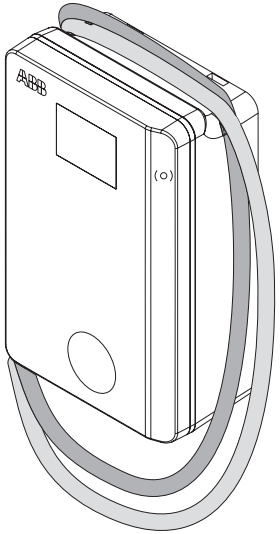
Note: If you disconnect the EV charge cable during the charge session, the Terra AC automatically disconnects the power supply. This stops all charging operations.

1. Select one of the two ways to end the charge session.
- Wait until the charge session is completed
  - The ChargerSync app shows that the charge session is completed
  - The charging LED is on
  - If your Terra AC has a display, the display shows that the charge session is completed

When the charge session is completed, the Terra AC disconnects the power supply automatically.

- Authorize the ending of the use of the Terra AC with your RFID card or the ChargerSync app. The authorization of the disconnection to the EV starts
2. Disconnect the EV charge cable from the EV.
3. Wrap the EV charge cable around the enclosure.

Wrap the EV charge cable around the enclosure



Maintenance and cleaning

Table 14: Maintenance schedule

Task	Frequency	Procedure
Clean the cabinet cover and the enclosure of the EVSE	4 months	Refer to Table 15: Cleaning specifications on this page
Do a visual check for damage on the cabinet	Before each use	Refer to section Do a check on the cabinet on this page
Do a visual check for damage on the EV charge cables or outlet and the connectors	Before each use	Refer to section Do a check on the cabinet on this page

Table 15: Cleaning specifications

Parameter	Specification
Cleaning agent	pH value between 6 and 8
Non-abrasive tool	Non-woven nylon hand pad

Clean the cabinet

Table 16: Preliminary requirements

	Cleaning agent. Refer to table above
	Non-abrasive tool. Refer to table above

Danger: Hazardous voltage
Do not apply high-pressure water jets. Water can leak into the cabinet.

Note: When the EVSE is put in a corrosion sensitive environment, superficial rust is possible on welding points. This rust is only visual. There is no risk for the integrity of the cabinet. The procedure below removes the rust.

Procedure
1. Rinse with low-pressure tap water to remove rough dirt.
2. Apply a a solution of cleaning agent to the cabinet and let it soak.
3. Manually remove dirt. Use the non-abrasive tool.

Caution: Do not use abrasive tools.

4. Rinse with low-pressure tap water.
5. If necessary, apply wax on the front for extra protection and gloss.
6. If there was rust and you want it not to appear again, apply a rust-preventive primer. Ask the manufacturer for specifications and instructions.

Do a check on the cabinet

1. Do a check for damage on these parts:

Part	Damage
Charge cables, outlets and connectors	Cracks or ruptures
	Internal wires of the cable are visible
Display	Cracks
Coating of the cabinet	Cracks or ruptures

2. If you see damage, contact the manufacturer. Refer to end of this document.

Troubleshooting

Troubleshooting procedure

1. Try to find a solution for the problem with the aid of the information in this document.
2. If you cannot find a solution for the problem, contact your local representative of the manufacturer. Refer to the last page.

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Table 17: Troubleshooting table

Problem (error code)	Possible cause	Possible solution
Residual current detected (0x0002)	There is residual current (20 mA AC) in the charge circuit. Current leaks into the ground	De-energize the EVSE Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
PE missing or swap neutral and phase (0x0004)	The EVSE is not earthed correctly or neutral and phase wires are swapped	Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Over voltage (0x0008)	The maximum voltage on the power input is too high	Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Under voltage (0x0010)	The voltage on the power input is not sufficient	Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Over current (0x0020)	There is an overload on the EV side	Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Severe over current (0x0040)	There is an overload on the EV side	Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Over temperature (0x0080)	The internal temperature is too high	Do a check of the operation temperature on the product label. If the ambient temperature is too high, the EVSE will decrease the output current automatically If it is necessary, install the EVSE in an environment with a lower ambient temperature Do the procedure that is described for the problem 'the AC input voltage is too high' If you can not solve the problem, do not use the EVSE. Contact your local company representative or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document

Table 17: Troubleshooting table (continued)

Problem (error code)	Possible cause	Possible solution
Power relay fault (0x0400)	The relay contact is detected in wrong state or has damage	Examine the relay contact
		If necessary, contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Internal communication failure (0x0800)	The internal boards of the Terra AC fail to communicate with each other	Connect the Terra AC to the internet
		Do a check of the WiFi signal at the site
		Do a check of the Nano-SIM card connection and the 4G signal strength at the site
E-Lock failure (0x1000)	Error to lock / unlock the charge connector	Examine the connection of the EV charge cable
		If necessary, contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Missing phase (0x2000)	B and C phase are missing or one of these phases is missing	Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Modbus communication lost (0x4000)	The Modus communication is lost	Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
Offline charging record reaches memory limit (0x8000)	Lost internet connection or incorrect configuration	Re-conncect or re-establish internet connection
		When EVSE is used offline, select offline in ChargerLink menu, ChagerSync app
The display shows that the EV is not ready for the charge session or the ChargerSync app shows 'waiting for EV'	The EV is in unavailable	Wake up the EV
The EV is not charged	There is a problem with the Terra AC	Make sure that the power supply to the Terra AC is on
		Examine the Terra AC to find if is working correctly
		Examine the ChargerSync app and the charge LED to make sure that the charging session is authorized
		Start the charging session
	The EV charge cable is defective	Examine the EV charge cable
		If the EV charge cable is defective, contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document

Table 17: Troubleshooting table (continued)

Problem (error code)	Possible cause	Possible solution
The EV connection or authorization process fails	The EV charge cable is defective	Examine the EV charge cable
		If the EV charge cable is defective, contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
	The EV charge cable is not connected correctly	Examine the connection of the EV charge cable
		If necessary, contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section Manufacturer and contact data at the end of the document
	There is a problem with the ChargerSync app or the RFID card	Make sure that you have registered in the ChargerSync app
		Make sure that you use a RFID card that the manufacturer provided
		Make sure that the RFID card is added on the ChargerSync app
		Start the ChargerSync app
		Start the authorization process

De-energize the EVSE

1. Open the breaker that supplies the power to the EVSE.
2. Wait for minimum 1 minute.

Technical data

AC input	
Charging type	Mode 3 charging, level 2
Input/output power rating and current	9.6 kW / 40 A, 19.2 kW / 80 A
Input/ouput voltage, frequency	208 / 240 Vac, 50 / 60 Hz
Network type	TT, TN
Cable type / Cable storage	SAE J1772, type 1 cable, 25 ft (7.6 m). Cable is wrapped around charger and front holster inlet
Protections	Overcurrent, overvoltage, undervoltage, integrated surge protection
Ground fault circuit interrupter	Integrated 20 mA AC CCID, no addiontal required
Overvoltage category	III
Energy metering	Revenue grade energy meter Class B (±2%)
Rotary switch set current limit options 80 A model	10 A / 16 A / 24 A / 32 A / 40 A / 48 A / 56 A / 64 A / 80 A
Rotary switch set current limit options 40 A model	10 A / 16 A / 24 A / 32 A / 40 A
Stand-by mode power consumption	3 W / 5.6 W with display
Power-down backup capacitor	Able to store charge transaction during power down
Noise level	Less than 40 dB (A)
Connectivity	
Communication protocols	OCPP 1.6J, Modbus RTU RS485 (primary and secondary), Modbus TCP/IP (secondary)
Mobile communication	Nano-SIM socket type M2M (Machine To Machine): 4G (LTE), WCDMA
Ethernet	1x 1/100 BaseT, RJ45 Socket
Extra ethernet (daisy chain)	1x 1/100 BaseT, RJ45 Socket
Ethernet Cable type	Category 5 (Cat 5)
WiFi (WAN)	IEEE 802.11 b/g/n, 2.4 GHz
External meter communication	Primary mode: Modbus RTU (RS485)
Local controller communication	Secondary mode: Modbus RTU (RS485), Modbus TCP/IP
Modbus RTU (RS485) cable type	Twisted pair, shielded cable (recommended)
ModBus RTU baud rate	9600 bps standard, with TerraConfig app configurable to 4800, 9600, 19200, 38400, 57600 and 115200 bps
ModBus RTU bus primary/secondary	EVSE is Modulus primary/secondary configurable via TerraConfig app
Bluetooth	BLE 5.0
Compatible mobile device operating systems	Android 4.4 or higher / iOS8 or higher
RFID	ISO/IEC 14443A, MIFARE™ Classic, 1K and 4K memory
Available configurable contacts	1 input, 1 output
Configurable output contact rated load	250 VAC or 30 VDC, max current 1 A

User interface		
User authentification		ABB RFID card (1 included) or ChargerSync™ app or portal
User interface / Installer interface		ChargerSyncTM app or portal / TerraConfig app and portal for setup
Status indication		5 LEDs
Display		Wakeup functionality via touch
Configuration		
Software update		OCPP 1.6J, ChargerSyncTM app or portal, Terraconfig app
Control and configuration		OCPP 1.6J, ChargerSyncTM app or portal, Terraconfig app and portal
Ambient		
NEMA enclosure type		Type 4
IP		IP65
IK rating according to IEC 62262 (enclosure and display)		IK10 (IK8+ for an operation temperature between -35 and -30 °C)
Operation altitude		13123 ft. (4000 m) (maximum)
Operating temperature range		–30...+55 °C (derating may apply)
Storage temperature range		–40...+85 °C
Storage conditions		Indoor, dry
Relative humidity		<95%, non-condensing
Mechanical		
Mounting		Wall or floor using a pedestal
Dimensions	H × W × D	15.75 × 9.06 × 4.92 inches (400 × 230 × 125 mm)
Weight 40/80 A		23,80 lb / 26,01 lb (10.8 kg / 11.8 kg)
Torque specifications		
Cabinet cover screws		0.9 Nm / 7,96 lb-in
Inner cabinet/ maintainance cover screws		0.9 Nm / 7,96 lb-in
Display board screws		0.6 Nm / 5,31 lb-in
AC input screws		2.5 Nm / 22,12 lb-in
AC input mechnical lug		2.0 Nm / 17,70 lb-in
EV charge cable screws		2.5 Nm / 22,12 lb-in
holster inlet screw		0.7 Nm / 6,19 lb-in
Terminal block, external meter, input and output		0.5 Nm / 4,42 lb-in
Mounting screws		4.4 Nm / 38,94 lb-in

Wire specifications	
AC input mechnical lug	Strip length 0.55 in (14 mm), supported range 8 - 2 AWG (8.36 - 35 mm²)
AC input cold pressed ring terminal 80 A	Strip length 0.55 in (14 mm), 2 AWG (35 mm²)
AC input cold pressed ring terminal 40 A	Strip length 0.55 in (14 mm), 6 AWG (13 mm²)
PE cold pressed ring terminal	Strip length 0.33 in (8.5 mm), 8 AWG (8,36 mm²)
Terminal block, external meter, input and output	Strip length 0.19 in (5 mm), supported AWG range 24 - 12 (0.20 - 3,3 mm²)
Certification and standards	
Safety standards	UL 2594, UL 2231-1, UL 2231-2, UL 1998, CSA C22.2. NO.280, NMX-J-667-ANCE
Codes and standards	FCC Part 15 Class B, ENERGY STAR
Certification	SGS
Warranty	24 months
AC input cable	
Cable shielding (optional)	The local rules require shielded cables. The cable shielding must be connected to the PE rail at the two ends of the cable
Diameter of the phase conductors	Refer to the local rules
Diameter of the PE conductor	The same as the diameter of the phase conductors

- Consult your local electrical codes for the correct wire size, based on the environment, the conductor type and the rating of the EVSE
- The wire AWG is based on the copper wire type

Circuit breaker rating

Max output (charging) current (A)	Typical circuit breaker (A)	Typical line wire specifications (AWG)	Supported by included mechanical lug	Supported by included cold pressed ring terminal	Typical PE wire specifications (AWG)	Supported by included cold pressed ring terminal
10	13	12			12	
16	20	10			12	
24	30	8	8-2		10	
32	40	8	8-2		10	
40	50	6	8-2	6	8	x
48	60	6	8-2		8	x
56	70	4	8-2		8	x
64	80	4	8-2		8	x
80	100	2	8-2	2	8	x

Note: Consult with a licensed contractor, licensed electrician, or trained installation expert to ensure compliance with local building and safety standards.

Requirements	Specifications
Dedicated upstream protection device(s)	Breaker
EVSE internal Ground Fault Protection	20 mA AC
Upstream overcurrent protection breaker	Breaker rating see table above Tripping characteristics: type C

Note: The breaker value depends on the diameter and the length of the cable, the EVSE rating, and the environmental parameters (for the electrician to decide).

The breaker serves as the main disconnect switch to the EVSE.

Terra AC 40/80 A models					
Rated power (kW)	**Max. current (A)**	**Connector type**	**Other features**	**Type**	**Order code**
9.6	40	Cable 25 ft (7.6 m), type 1	RFID, daisy-chain ethernet	Terra AC W9-P8-R-D-0	ABB6AGC105905
		Cable 25 ft (7.6 m), type 1	RFID, 4G, daisy-chain ethernet	Terra AC W9-P8-R-CD-0	ABB6AGC105902
		Cable 25 ft (7.6 m), type 1	RFID, 4G, daisy-chain ethernet, display	Terra AC W9-P8-RD-MCD-0	ABB6AGC082553
19.2	80	Cable 25 ft (7.6 m), type 1	RFID, daisy-chain ethernet	Terra AC W19-P8-R-D-0	ABB6AGC105904
		Cable 25 ft (7.6 m), type 1	RFID, 4G, daisy-chain ethernet	Terra AC W19-P8-R-CD-0	ABB6AGC105903
		Cable 25 ft (7.6 m), type 1	RFID, 4G, daisy-chain ethernet, display	Terra AC W19-P8-RD-MCD-0	ABB6AGC081291
Spare parts					
Charger assembly kit 9.6/19.2 kW UL				SER-Assembly kit 9.6/19.2 kW UL	ABB6AGC107748
Aluminum conduit closure plugs, including 1 * 1 inch and 2 * 3/4 inch				SER-Grommet	ABB6AGC109685
Front cover (non-display, no ABB logo, UL 40/80 A), 2 screws included				SER-Front cover(non-display models, no ABB logo, UL 40/80 A)	ABB6AGC109709
Front cover (display, no ABB logo, UL 40/80 A), 2 screws included				SER-Front cover(display models, no ABB logo, UL 40/80 A)	ABB6AGC109714
Front cover (non-display, UL 40/80 A), 2 screws included				SER-Front cover(non-display, UL 40/80 A)	ABB6AGC109717
Front cover (display models, UL 40/80 A), 2 screws included				SER-Front cover(display models, UL 40/80 A)	ABB6AGC109720
Maintenance cover, internal (non-display, UL 40/80 A), 11 screws included				SER-Maintenance cover (non-display, UL 40/80 A)	ABB6AGC109724
Maintenance cover, internal (display, UL 40/80 A), 11 screws included				SER-Maintenance cover(display, UL 40/80 A)	ABB6AGC109725
Gasket for SAE J1772, type 1 charge connector				SER-TAC-Gasket for SAE J1772, T1	ABB6AGC109902
Holster inlet cover				SER-TAC Holster inlet cover	ABB6AGC109726
SAE J1772, type 1, single phase, 7.6 m, 40 A				SER-TAC-cable T1 7.6m1P40A	ABB6AGC109258
SAE J1772, type 1, single phase, 7.6 m, 80 A				SER-TAC-cable T1 7.6m1P80A	ABB6AGC109256

ABB E-mobility
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2629 JG Delft
The Netherlands

Contact data
The local representative of the manufacturer can give you support on the EVSE. You can find the contact data here: https://emobility.abb.com

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