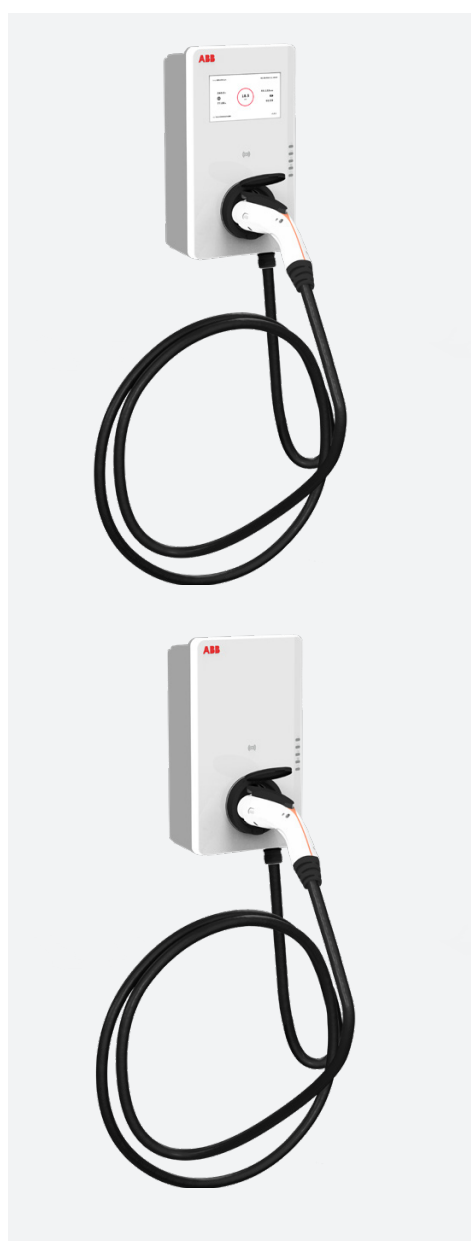


PRODUCT DATA SHEET

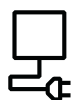
# Terra AC Wallbox UL

## 40/80 A Level 2 EV charger



Terra AC Wallbox chargers can be configured with or without a screen display, depending on the needs of the site and its users.

The Terra AC Wallbox is the smartest, quickest and safest Level 2 destination charging solution for fleets, public operators, commercial facilities, workplaces, and multifamily residences. The Terra AC Wallbox delivers future-proof flexibility as well as advanced safety and protection. With connectivity and digital functionality, the Terra AC Wallbox is built to deliver optimized charging today and well into the future.



### Flexible, high quality design

- 40/80 A model for commercial and fleet demands
- Universal PHEV and BEV charging
- UL safety certified with the highest protection
- Built in revenue grade meter supporting load management



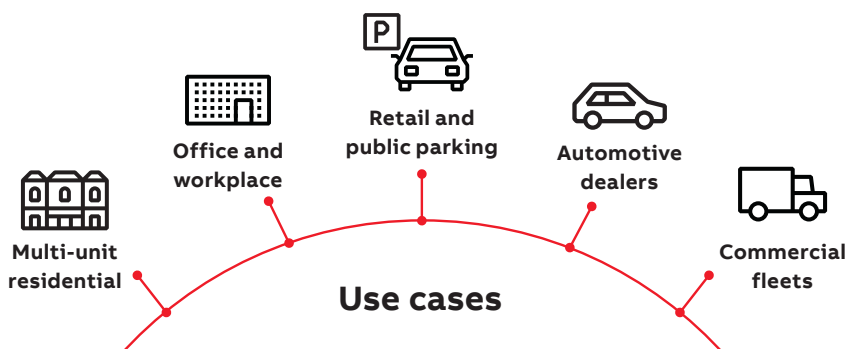
### Easy siting and installation

- Designed for installation in less than 30 min
- Fastest remote commissioning for multi-charger sites
- Tailored pedestal option available
- Rugged NEMA Type 4 enclosure for any indoor or outdoor location



### Smart business integration

- OCPP integration with any charging network
- Multiple connectivity and authentication options
- Intuitive app for managing charging sessions and usage
- Dedicated web portal for charger and data management, ideal for large installations



Link to the Terra AC Wallbox Product Manuals



—  
Terra AC Wallbox chargers are easy to install at any site, with an optional pedestal solution that enables flexible siting.

—  
**ABB E-mobility Inc.**  
950 W Elliott Rd. Suite 101  
Tempe, AZ, 85284  
United States  
Phone: 800-435-7365  
E-mail: US-evci@abb.com

**e-mobility.abb.com**

—  
**ABB E-mobility Inc.**  
800 Hymus Boulevard  
Saint-Laurent, QC H4S 0B5  
Canada  
Phone: 800-435-7365  
E-mail: CA-evci@abb.com

## Product information

|   |   |
|---|---|
| Charging type                             | Level 2 (mode 3)  |
| AC input / output power and current       | 9.6 kW / 40 A, 19.2 kW / 80 A   |
| Recommended breaker                       | 50 A (for 40 A unit); 100 A (for 80 A unit)   |
| Input / output voltage                    | 208/240 VAC, 50/60 Hz   |
| Network type                              | Single phase / split phase (TT, TN)   |
| Cable type / Cable storage                | SAE J1772, type 1 cable, 7.6 m (25 ft)<br>Cable is wrapped around charger and front holster inlet |
| Protection                                | Overcurrent, overvoltage, undervoltage, CCID20, integrated surge protection                       |
| Ground fault protection                   | Integrated 20 mA AC   |
| Overvoltage category                      | III   |
| Energy metering                           | Revenue grade energy meter Class B ( $\pm 2\%$ )  |
| Mobile communication with nano SIM socket | 4G, LTE, WCDMA  |
| Available configurable contacts           | 1 input, 1 output   |

## User interface

|                                      |  |
|--------------------------------------|--|
| Connectivity                         | Ethernet (RJ45) with daisy-chain Ethernet option, Wifi, Bluetooth, Modbus RTU RS485, Modbus TCP/IP, 4G                 |
| User authentication                  | ABB RFID card (1 card included) or ChargerSync™ app or portal  |
| User interface / Installer interface | ChargerSync™ app or portal / TerraConfig app and portal for setup  |
| Communication protocols              | OCPP 1.6J, Modbus RTU RS485 (energy meter or local controller connection), Modbus TCP/IP (local controller connection) |
| Status indication                    | 5 LED's (power / connectivity / authorization / charging / error)  |

## Configuration

|                           |  |
|---------------------------|--|
| Software update           | OCPP 1.6J, ChargerSync™ portal or app, Terraconfig app   |
| Control and configuration | OCPP 1.6J, ChargerSync™ portal or app, Terraconfig app, display wakeup functionality via touch, current limit by rotary switch |

## General characteristics

|                             |  |
|-----------------------------|--|
| Enclosure rating            | Indoor and Outdoor, NEMA 4; IP65, IK10                   |
| Operating altitude (max)    | 4000 m (13,123 ft)                                       |
| Operating temperature range | -30 °C to +55 °C (-22 °F to +131 °F); derating may apply |
| Storage temperature range   | -40 °C to +85 °C (-40 °F to +185 °F)                     |
| Mounting                    | Wall or floor using a pedestal                           |
| Dimensions H x W x D        | 400 x 230 x 125 mm (15.75 x 9.06 x 4.92 inches)          |
| Weight 40 / 80A             | 10.8 kg / 11.8 kg (23.80 lb / 26.01 lb)                  |

## 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   |

## Model configurations

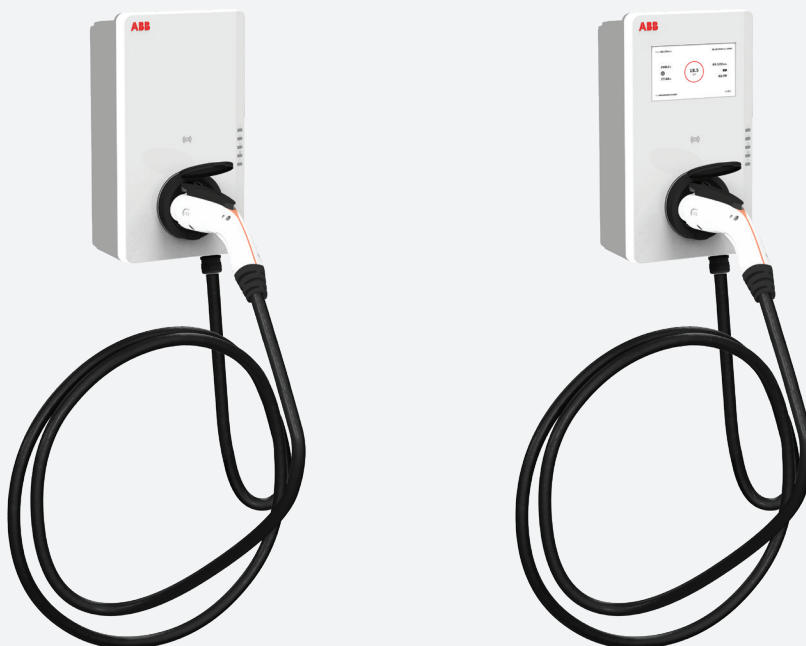
| Part Number | Rated power (kW) | Max current (A) | RFID | Daisy-chain ethernet | 4G | Screen display |
|-------------|------------------|-----------------|------|----------------------|----|----------------|
| 6AGC105905  | 9.6              | 40              | ✓    | ✓                    |    |                |
| 6AGC105902  |                  |                 | ✓    | ✓                    | ✓  |                |
| 6AGC082553  |                  |                 | ✓    | ✓                    | ✓  | ✓              |
| 6AGC105904  | 19.2             | 80              | ✓    | ✓                    |    |                |
| 6AGC105903  |                  |                 | ✓    | ✓                    | ✓  |                |
| 6AGC081291  |                  |                 | ✓    | ✓                    | ✓  | ✓              |

—  
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—  
USER MANUAL

# Terra AC wallbox UL

## 40/80 A





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|                |   | <b>23 – 25</b> | <b>Troubleshooting</b> <ul style="list-style-type: none"><li>- Troubleshooting procedure</li><li>- Troubleshooting table</li><li>- De-energize the EVSE</li></ul>   |
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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



**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



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 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 before you use this EVSE
- Make sure that adults supervise this EVSE 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.

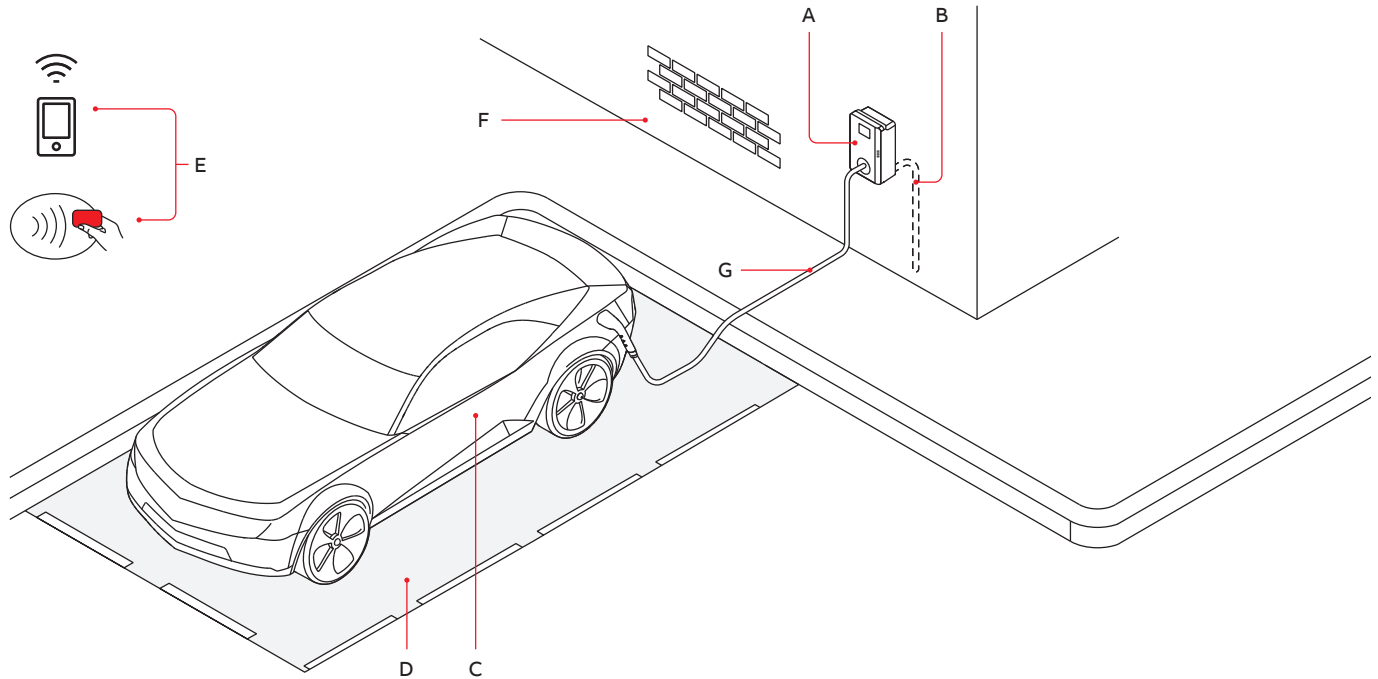


### Danger: General risk

- 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 <a href="#">Intended use</a> , 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

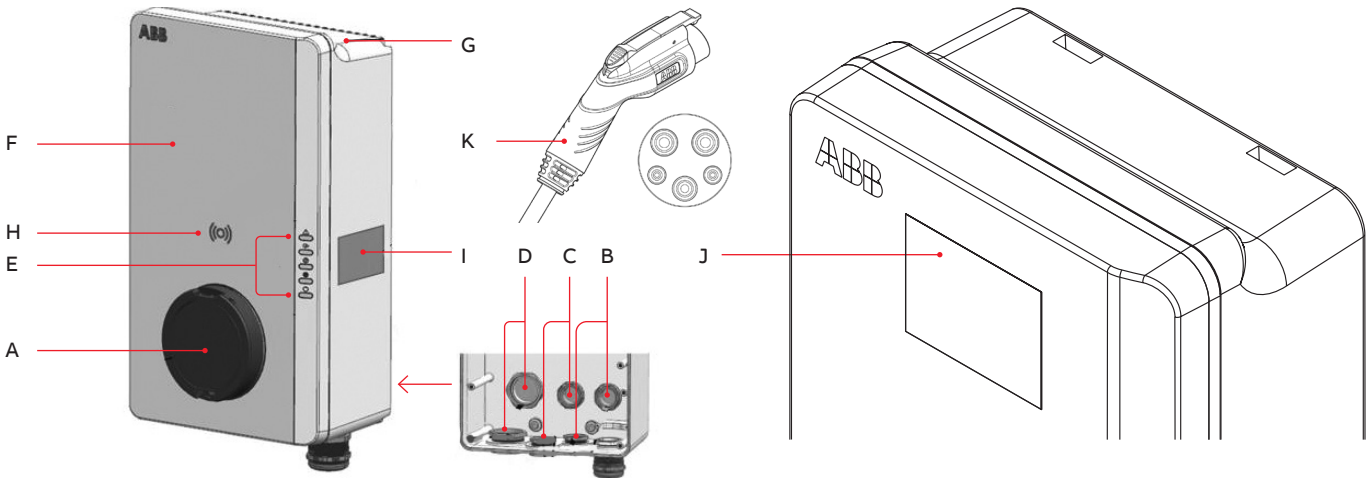


Table 9: Outside parts of the Terra AC and function

| 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 <a href="#">LED indicators on the next page</a> |
| 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

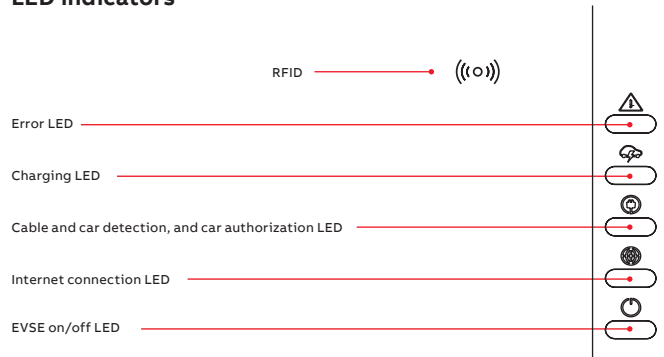


Table 10: LED lights and their statuses

|  | 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                         |



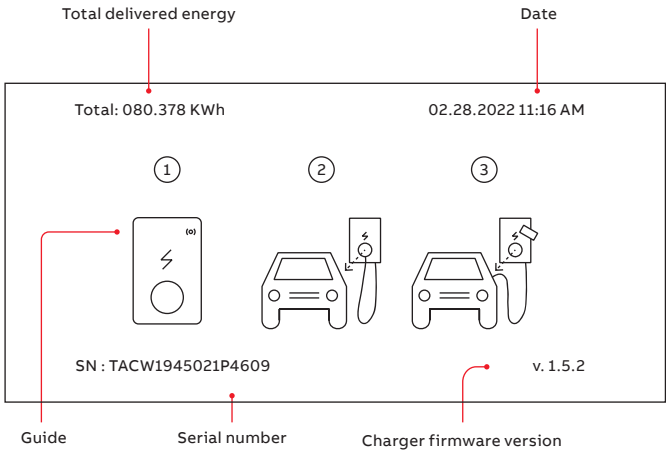


## Display (for display models only)

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

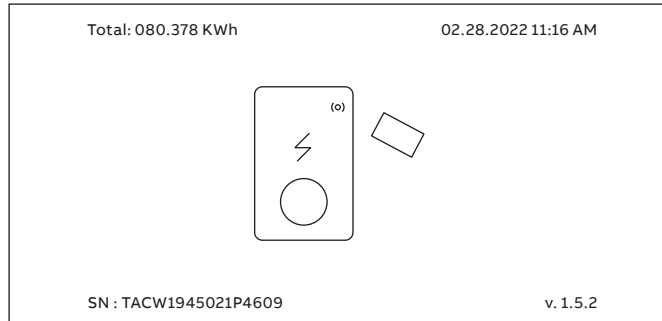


Boot screen



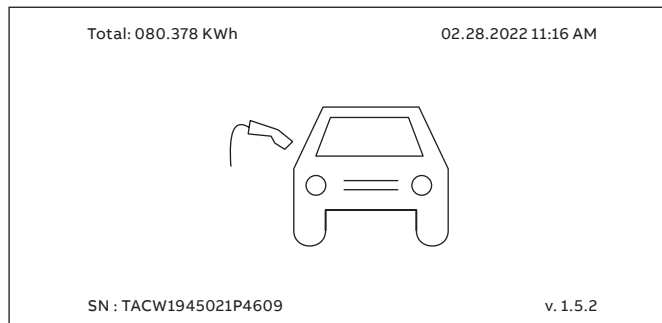
### Standby/idle screen

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.

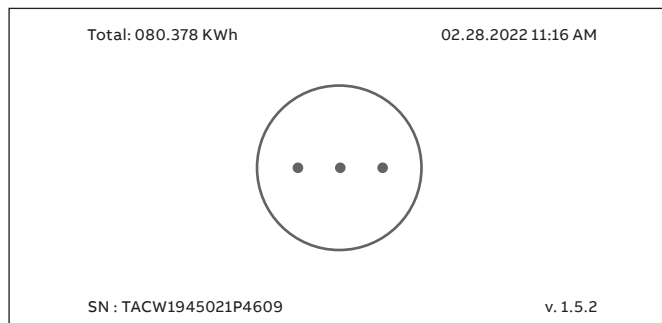


### Authorization screen

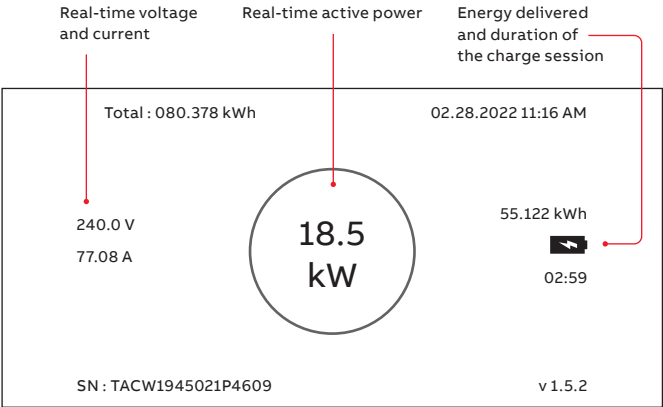
The display shows different Authorization screens, dependent on the situation. The display shows this Authorization screen when the EV charge cable is connected to the EV but the charge session is not authorized.



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

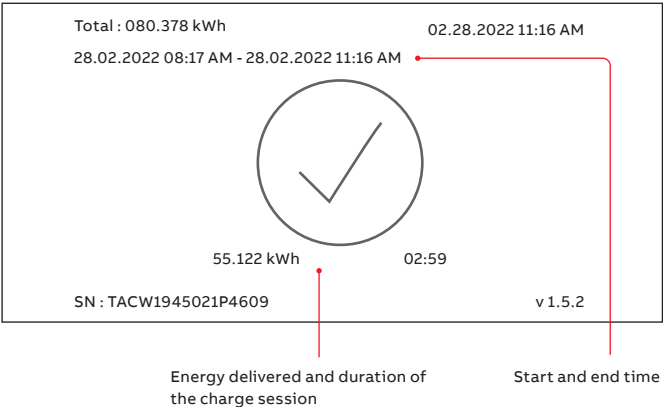


### Preparing to charge screen

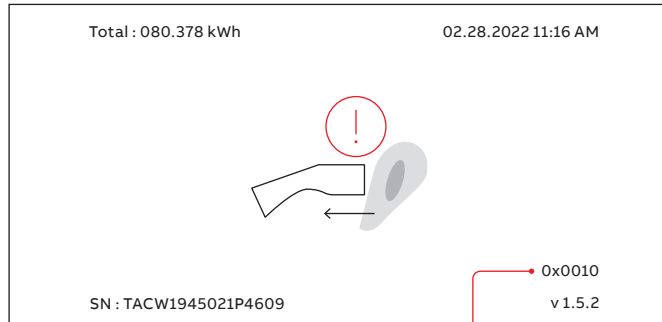


**Charging screen**

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

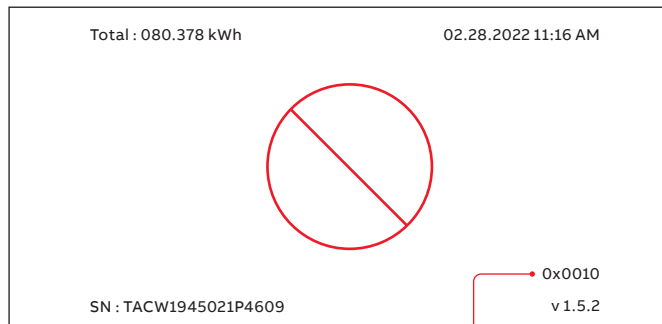


**Charging completed screen**



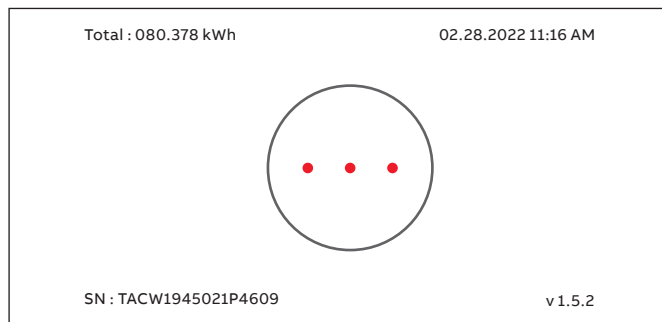
Error code

**Disconnect the charge cable and connect it again**



Error code

**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.

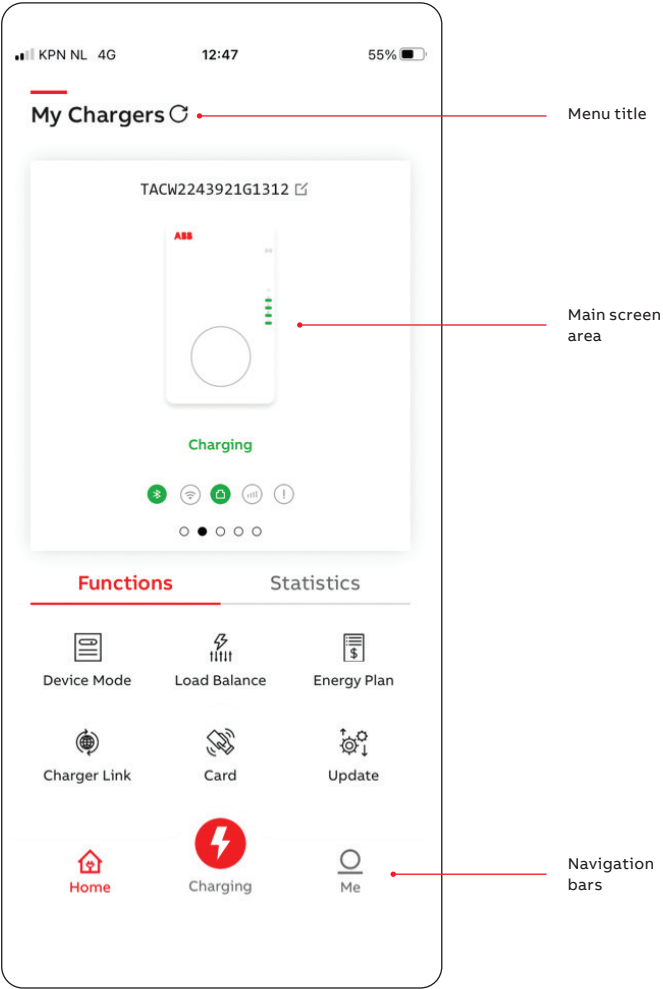













Table 11: Description of the app interface

| Screen 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  |

<sup>1</sup> 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

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 ChargerSync app 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



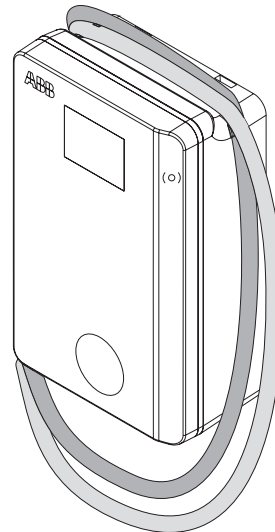
**Note:** If you disconnect the EV charge cable during the charge session, the Terra AC automatically disconnects the power supply. This stops all charging operations.

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 <a href="#">Table 15: Cleaning specifications on this page</a> |
| Do a visual check for damage on the cabinet                                       | Before each use | Refer to section <a href="#">Do a check on the cabinet on this page</a> |
| Do a visual check for damage on the EV charge cables or outlet and the connectors | Before each use | Refer to section <a href="#">Do a check on the cabinet on this page</a> |

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<br>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.](#)

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 <a href="#">Manufacturer and contact data at the end of the document</a>  |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a>  |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a>  |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a>  |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a>  |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a>  |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a> |

**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 <a href="#">Manufacturer and contact data at the end of the document</a>                        |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a>                        |
| 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 <a href="#">Manufacturer and contact data at the end of the document</a>                                      |
| Modbus communication lost (0x4000)  | The Modbus communication is lost  | Contact your local representative of the manufacturer or a qualified electrical contractor. Refer to section <a href="#">Manufacturer and contact data at the end of the document</a>                                      |
| Offline charging record reaches memory limit (0x8000)   | Lost internet connection or incorrect configuration                     | Re-connect or re-establish internet connection   |
| 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   |   | 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  |
|   | There is a problem with the Terra AC                                    | 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 <a href="#">Manufacturer and contact data at the end of the document</a> |



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 <a href="#">Manufacturer and contact data at the end of the document</a> |
|  | 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 <a href="#">Manufacturer and contact data at the end of the document</a>                        |
|  |  | Make sure that you have registered in the ChargerSync app  |
|  | There is a problem with the ChargerSync app or the RFID card | 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

|  |  |
|--|--|
| <b>AC input</b>                                    |  |
| 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 addional 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)  |
| <b>Connectivity</b>                                |  |
| 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   |

|  |           |   |
|--|-----------|---|
| <b>User interface</b>                                    |           |   |
| User authentication                                      |           | ABB RFID card (1 included) or ChargerSync™ app or portal          |
| User interface / Installer interface                     |           | ChargerSync™ app or portal / TerraConfig app and portal for setup |
| Status indication  |           | 5 LEDs  |
| Display  |           | Wakeup functionality via touch                                    |
| <b>Configuration</b>                                     |           |   |
| Software update  |           | OCPP 1.6J, ChargerSync™ app or portal, Terraconfig app            |
| Control and configuration                                |           | OCPP 1.6J, ChargerSync™ app or portal, Terraconfig app and portal |
| <b>Ambient</b>   |           |   |
| 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  |
| <b>Mechanical</b>  |           |   |
| 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)                           |
| <b>Torque specifications</b>                             |           |   |
| Cabinet cover screws                                     |           | 0.9 Nm / 7,96 lb-in   |
| Inner cabinet/ maintenance 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 mechanical 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  |

|  |   |
|--|---|
| <b>Wire specifications</b>                       |   |
| AC input mechanical 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)   |
| <b>Certification and standards</b>               |   |
| 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   |
| <b>Warranty</b>                                  | 24 months   |
| <b>AC input cable</b>                            |   |
| Cable shielding (optional)                       | The local rules require shielded cables.<br>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<br>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 |
|   |                  | 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 |
| 19.2  | 80               |                             |   |  |               |
| 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 |





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**ABB E-mobility**

Heertjeslaan 6  
2629 JG Delft  
The Netherlands

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**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>