

MANUAL

# **Terra DC wallbox** Installation Manual

Version 1.8



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### **Version Control**

Version	Date	Remarks
1.0	27-01-2021	Added "Appedix C – Use with Mobile Cart"
1.1	06-05-2021	Added Fuel Indication Labels
1.2	14-06-2021	Added Service part about mobile Cart.
1.3	07-07-2021	Added "Recommended periodic Mainteinance" paragraph
1.4	07-07-2021	Added Meter Box paragraph
1.5	09-17-2021	Added notes to "install cable glands" paragraph
1.6	12-10-2021	Minor adjustment – removed Meter Box paragraph
1.7	04-05-2022	Added instructions for mounting gun holder
1.8	16-05-2022	Added DE Fuel Indication Labels



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## Glossary

#### AC

Alternating Current.

#### CCS

Combined Charging System. This is the name of the charging protocol of European and North-American car makers.

#### CHAdeMO

DC fast charging method for electric vehicles.

#### Contractor

Entity hired by the owner / site operator to do engineering, civil and electrical installation work.

#### DC

Direct Current.

EV Electric Vehicle.

#### Grid provider

Company responsible for the transportation and distribution of electricity.

#### HMI

Human Machine Interface; the display/screen on the charger.

#### NOC

ABB Network Operating Centre; remotely checks the correct functioning of the charger.

#### Owner

The legal owner of the charger.

#### OCPP

Open Charge Point Protocol. Open standard for communication with charge stations.

#### PE

Protective Earth.

PPE Personal Protective Equipment. Equipment such as safety shoes, helmet, glasses, gloves.

#### RCD

Residual Current Device. Breaks the connection if a residual current is detected.

#### RFID

Radio-Frequency IDentification. RFID is acommunication technology by means of radio waves to transfer data over a very short distance between a reader and an electronic tag or card.

#### Site operator

This entity is responsible for the day to day control of the charger. The site operator can be the owner, but not necessarily.

#### User

The owner of an electric vehicle, who uses the Charge Station to charge that vehicle.





## 1 Introduction

## 1.1 Preface

This guide describes and physical installation of the Terra DC Wallbox at its location.

The Terra DC Wallbox Charge Stations are easy to install DC fast chargers for electric vehicles. Fast chargers are electrical installations with high electric currents. Therefore, the installation must be planned carefully, and must be done by certified personnel only (according to local standards). Local regulations shall take precedence if they list different installation requirements than prescribed in this Installation Manual.

The Terra DC Wallbox European and NAM version is physically the same charger. The main difference is the input power they can be supplied by (three-phase for the first, single phase for the second). The differences Terra DC Wallbox EU and NAM, and the consequences for the installation are described in a separate section 1.3.

As the physical installation of both types is equal, they will be referred to hereafter as Terra DC Wallbox only and this will account for both types, unless specifically stated otherwise.

Both types come in different versions, depending on the outlet types. The different versions are described in a separate paragraph.

Before installing the DC WALLBOX CHARGER, read this Installation Guide carefully and attentively. Follow the instructions in this Installation Guide. ABB is not responsible for any damage that has been caused by not or incorrectly following and executing the instruction described in this manual.

### 1.2 Intended document users

This document is intended to be used by:

- Customers who purchased a Terra DC Wallbox, or are in the process of ordering and want to know in more detail how it has to be installed.
- Contractors who are responsible for site preparation and/or installation of a Terra DC Wallbox (EU or NAM).

## 1.3 Similarities and differences between Terra DC Wallbox EU and NAM

The Terra DC Wallbox EU and NAM chargers are identical in their outer appearance and physical dimensions. The physical installation of the Terra DC Wallbox EU and NAM can thus be handled in a very similar way.

On the inside of the system there are some differences. The Terra DC Wallbox EU version has a AC input board provided with contact blocks for main connection that are designed to be connected with a three phase + neutral power grid. On the other hand the

NAM version has a different AC input board designed to be connected with a one phase+ neutral power grid.

## 1.4 Terra DC Wallbox version description

The Terra DC Wallbox is available in different versions depending on the available outlets.

The versions are:

Version	CCS2	CCS 1	CHAdeMO EU	CHAdeMO UL
Terra DC Wallbox C EU	Х			
Terra DC Wallbox J EU			Х	
Terra DC Wallbox CJ EU	Х		Х	
	XX			
			XX	
Terra DC Wallbox C UL		Х		
Terra DC Wallbox J UL				Х
Terra DC Wallbox CJ UL		Х		Х
		XX		
				XX

C CCS (Combo) standard

J CHAdeMO standard

### 1.5 Signs

The following signs are used on the equipment and in this manual:



#### DANGER

Hazardous voltage

Identifies a hazard that could result in severe injury or death through electrocution.



WARNING Various Identifies a hazard that could result in severe injury or death.



WARNING Rotating parts Identifies a hazard that could result in injury due to the presence of rotating or moving parts.



#### WARNING

**Pinch Hazard** Identifies a hazard that could result in injuries, in which some body parts are pinched or crushed.



#### CAUTION Various

Identifies a hazard that could result in damage to the machine, other equipment, and/or environmental pollution.



#### CAUTION

**Environmental damage** Identifies a hazard that could result in environmental damage and/or environmental pollution.



#### **NOTICE** Contains remarks, suggestions or advice.

#### 1.5.1 Owner responsibilities

The owner and site operator are required:

- To operate the charge station with the protective devices installed and to make sure all protective devices are correctly installed after carrying out installation or maintenance.
- To write an emergency plan that instructs people what to do in case of emergency.
- To prepare the site where the wall box charge station will be installed, according to the requirements described in this guide.
- To make sure that there is enough space around the charger to carry out maintenance work.
- To appoint a person responsible for the safe operation of the charge station and for the coordination of all work.
- The owner is cautioned that changes or modifications not expressly approved by ABB could void the owner's authority to operate the equipment and ABB's warranty policy
- Neither ABB nor its affiliates shall be liable to the purchaser of this product or third parties for damages, losses, costs or expenses incurred by purchaser or third parties as a result of: an accident, misuse or abuse of this product or unauthorized modifications, repairs or alterations to this product, or failure to strictly comply ABB operating and maintenance instructions.

#### 1.5.2 Tilting and handling



#### WARNING

Heavy equipment

The Terra DC Wallbox weighs about 70 kg. Handling Instructions:

1. Consider always two people to install and hang to wall a Terra DC Wallbox.

2. Do not drop the Terra DC Wallbox.

#### 1.5.3 Sharp edges



## WARNING

#### Sharp metal edges

There could be sharp metal edges inside the Terra DC Wallbox. It is recommended to wear mash protecting gloves when working inside the charger.

#### 1.5.4 Electric hazards



#### DANGER

#### Hazardous voltage

The Terra DC Wallbox contains conductors under hazardous electrical voltages. The grid terminals on the internal DIN rail may carry hazardous voltages, even if all circuit breakers are switched off.

#### 1.5.5 Installation safety



#### DANGER

#### Hazardous voltage

Instructions:

1. Always switch off the external group switch upstream (Main breaker, RCD and disconnect or) before performing any installation, disassembly, repair or replacement of components.

2. Do a voltage check and make sure that the electrical power is disconnected from the system.

3. Only ABB certified technicians are permitted to commission the Terra DC Wallbox.

4. When the system is in an open or dangerous condition, do not allow unqualified persons to go near it. Instruct and warn people about the potential harmful high voltages.

5. The installation and maintenance personnel must supply their own lighting equipment, since the Terra DC Wallbox has no lights inside the cabinet.

6. Always connect the Protective Earth (PE) first, before connecting the neutral (N) and Phase (P) wiring.

7. Correctly lock the door after installation or service operations.

## 1.6 1.6 Environment and disposal of waste



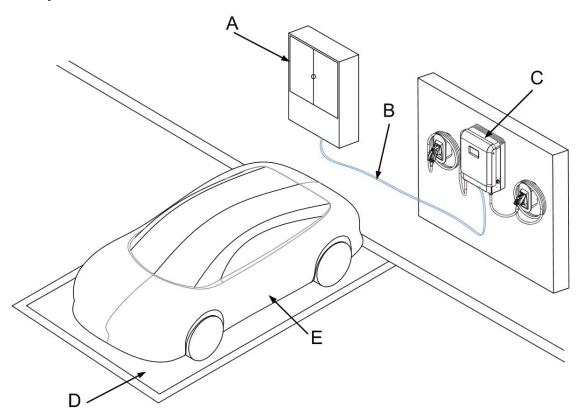
#### NOTICE

Always observe the local rules and regulations with respect to processing (non-reusable) parts of the Terra DC Wallbox.

## 2 Description of the product

## 2.1 Overview of the system

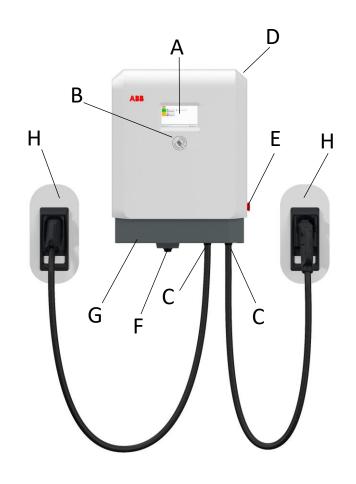
#### 2.1.1 Complete overview



Example of a complete installation

- A Power distribution board of the owner
- B Cables in cable conduit (if required)
- C Terra DC Wallbox
- D Parking space for charging
- E Electric vehicle

#### 2.1.2 Outside view



Е

F

G

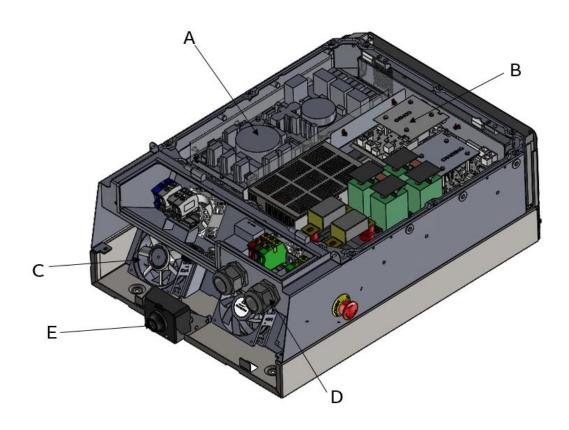
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A	Display / HMI	
---	---------------	--

- B RFID card reader
- C Charge outlets DC
- D Air outlet

- Emergency button
- AC input cable
- Air inlet
- Gunholder (optional)

#### 2.1.3 Inside view



- A AC input board
- B CPI and IMI boards
- C External Fan (2x)

D Cable gland for DC output(2x) E Cable gland for AC input

## 2.2 Geometry of infrastructure

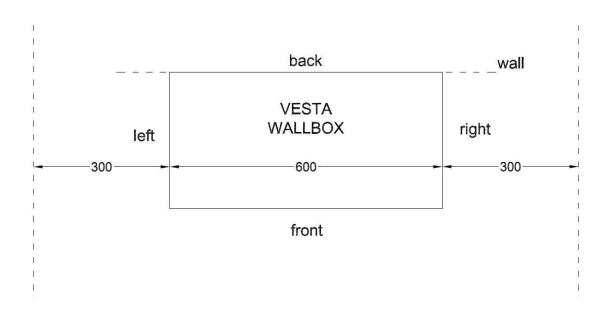
# 2.2.1 Required space for placing and maintaining the Terra DC Wallbox wallbox

The Terra DC Wallbox requires a minimum space of 900 x 1200 mm. This space is calculated as follows:

- Size Charger W x D x H: 304.5 x 512 x 770 mm.

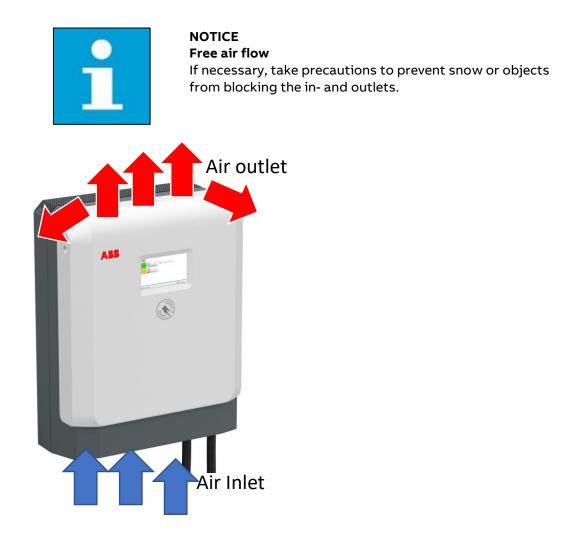
- Bottom side 600 mm (400 mm from the Terra DC Wallbox in order to avoid obstacles for the electrical connection).

- Left and right side 300 mm, in order to operate without obstacles on the lateral side of the Terra DC Wallbox.



#### 2.2.2 Ventilation and airflow of the Terra DC Wallbox

The Terra DC Wallbox has an air inlet on the bottom side and outlet on the top side.



## 2.3 Electrical engineering

The electrical installation must be completed according to the local safety and electrical regulations and laws.

In general, the installer should follow the following prescriptions for the electrical installation of the devices upstream the installation.

#### IEC prescription:

- Installation of charging stations must be according to IEC 60364-7-722 and/or any applicable national rules
- Each charging station must be individually protected via a separate upstream RCD (Residual Current Device) at least of type A with a rated residual operating current not exceeding 30 mA.
- As all variant have an internal a DC fault current monitoring function, a DC fault current over 6 mA does NOT occur on the AC-input side of the TERRA DC WALLBOX, and thus an upstream RCD of type B is not required, nevertheless local regulation could require a RCD of Type B independent of internal DC fault current limitation NOTE. According to the standard for RCDs, type A RCDs are able to tolerate 6 mA of DC fault current while still maintaining their correct functionality.
- Fuses or equivalent circuit breaker rated to respect the charger specifications must be used (ref. cfr 16.1, IEC 61851-1:2017)

#### North American prescriptions:

- Each charging station must be connected via a separate GFCI (Ground Fault Circuit Interrupter /or equivalent RCD device) for the personal protection from the hazard of electric shock
- Fuses or equivalent circuit breaker rated to respect the charger specifications must be used

#### 2.3.1 Requirements External RCD/GFCI



#### NOTICE

#### External RCD/GFCI not included in delivery scope

Upstream RCD/GFCI's are explicitly excluded from ABB's delivery scope and belong to the scope of the installation company. The locally certified installation company can base the RCD/GFCI device type, amongst other external factors, on below charger characteristics.

#### DC-charging side requires immunity for short current peaks over PE

When the charger engages the DC charging (at the beginning of every charger session in the pre-charge phase) a relay switches and turns on the input to the power modules. A synchronic engagement of the phases in the relay in combination with the electrical capacity in the input power part, can cause incidental very short (25 microseconds) current peaks of up to 60A over the Protective Earth. The amplitude of the Ampere peaks can vary with the location and is dependent on grid and earth impedance. Given the switching characteristics of the DC section of the charger we give you the advice to select an RCD/GFCI that has proven to be able to withstand these short current peaks (high immunity).



**CAUTION Responsibility to comply with local regulations** The installation company is responsibly to design and install the electrical installation according the local regulations.

#### 2.3.2 Conductor and cable diameter

The diameter of the electrical conductor of the ground cables depends on the length, method of installation, etc. This must be determined by your contractor.

The maximum cross section is 35 mm<sup>2</sup>.

The maximum diameter of the (grid) cable entering the cabinet is 32 mm. The minimum diameter with the standard fitted cable gland insert is 22 mm.

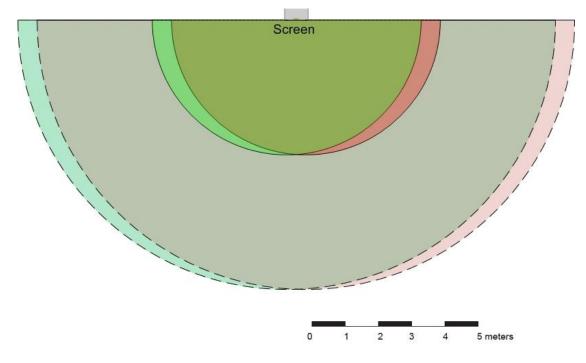
## 3 Site design

A site for EV charging can be designed in many different setups. This section is intended to give some useful information on the placement of a charger with respect to parking spaces and the vehicle inlets for the charging cable.

## 3.1 Cable reach

The charge cables of the Terra DC Wallbox charger can reach from 3.5 to 7 meters long. The DC cables leave the charger on both right and left sides. The cables and the connectors mounted on the cables are different for each charging standard and make them more or less flexible to reach out.

The figure below shows an example the charger in the center with each type of connector and how far it can reach out. The green circle with continuous line describes the CHAdeMO cable 3.5m, the red circle with continuous line the CCS cable 3.5m. The broken lines describe the previous cables with a length of 7m.

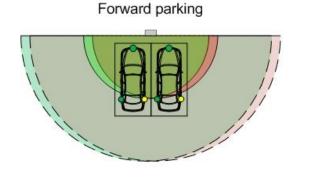


## 3.2 Different alignment possibilities

The charge inlets on a car can be located at different positions. The most common cars have their inlets located either on the front of the car, or on the left or right back side.

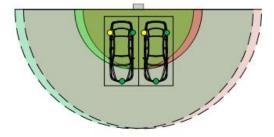


This makes some positions of the charger with respect to the parking space more favorable than others. Please keep this in mind when designing a site. Some possible situations are showed below:

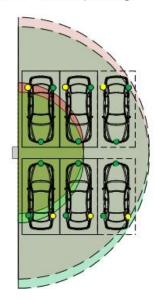


Lateral Backward parking

Backward parking



Lateral Forward parking



## 4 Site construction

## 4.1 About construction

The construction phase includes all work required to prepare the location and make it ready for the placement and connection of the Terra DC Wallbox charger. The construction phase can start when:

- The wall preparation work is done.
- All necessary permits are granted.
- The grid connection is available.

### 4.2 Power feed

The power cable enters the charger from below. Use foam or proper cable lugs/glands to prevent the entrance of animals from the AC inlet/Ethernet cable.

## 4.3 Instruction for a wall bearing

- 1. Drill and tap 4 holes and insert the plug for fixation (M8 with 40mm minimum length) in the wall at the indicated positions, refer to technical drawing in the Appendix A par. 11.1.
- 2. Doing the four holes above, make sure that the free spaces for the cables of the Terra DC Wall Box are respected, refer to par. 2.2.1.

### 4.4 Power cable

- Cable type: two different cables
  - $\circ$  3P+N+PE, shielded cables are optional if required by local law.
  - P+N+PE (or 2P+PE), shielded cables are optional if required by local law.
- Optional cable shielding must be attached to the PE Rail at both ends of the cable.
- The diameter of the cable conductor must be determined by your contractor / electrician.
- The maximum diameter surface of the cable conductor is 35 mm<sup>2</sup>.
- The PE conductor of the power cable must have the same diameter as the phase conductors.

### 4.5 Internet connection

The preferred method of communication is to use the wireless 2/3G modem that is integrated into the Charger. A customer SIM card is not required, a subscription for the SIM card is provided by ABB for selected countries.

If there is no wireless signal available, a standard wired internet connection is required. This connection must meet the following requirements:

- Ethernet, RJ45. Cable type: 8P+PE, shielded.
- Recommendations: For distances of 75 meters or less; HELUKAT 600E.
  Distances over 75 meters require a custom engineered project.
- Recommended minimum bandwidth: upload: 128 kb/s download: 4 Mmb/s.
- Recommended availability: 99,9%.
- The connection must be available for the ABB service engineer and the NOC (Network Operation Center).
- Please contact ABB for a specific configuration.

In case the separate internet connection is not used, please assure the cable entry hole is closed, to assure the IP54 grade of the cabinet, and prevent insects and small animals to enter the cabinet.

## 5 Receiving, Placing and connecting

## 5.1 Receiving the IP BOX

The product is delivered by a transport company to a warehouse where it will be handed over.

Transporting the Terra DC Wallbox to its final location (last mile service) is not standard included in the order.



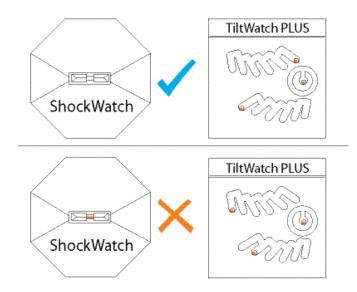
#### NOTICE

The delivery truck unloads the pallet carrying the Terra DC Wallbox.

The movement of the Terra DC Wallbox to its final location is the responsibility of the customer / contractor.

Check whether the Terra DC Wallbox has not been shaken or tilted.

• The cabinet is equipped with Shock Watch and Tilt Watch indicators.



Checking the Shock Watch and Tilt Watch PLUS sensors:

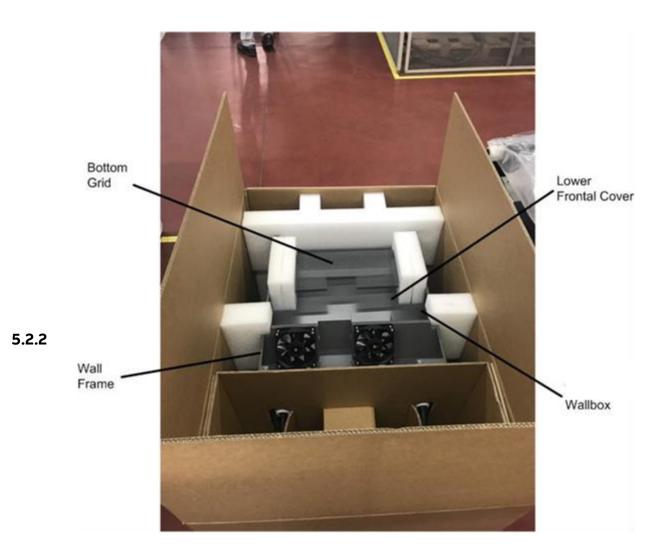
If the Shock Watch indicator is red, or the Tilt Watch PLUS indicator is tilted over 30°:

- 1. Do not refuse the delivery / receipt.
- 2. Make a notation on the delivery receipt and inspect cabinet for damage.
- 3. If damage is discovered, leave cabinet in original package and request immediate inspection from carrier within 3 days of delivery.
- 4. Contact your local ABB office..

## 5.2 Unpacking IP Box, mounting preparations

### 5.2.1 Unpacking

The packaging of the Terra DC Wallbox can be removed without the use of tools and be careful because it could pollute of the environment.



## 5.3 Move cabinet to position

### 5.3.1 Options

The only option to move the Terra DC Wallbox from the delivery truck to the location is through a forklift truck (refer to Page 25).



### DANGER

#### Hazardous voltage

Make sure the main switch of the power supply group for the product is set to the OFF position. Do a voltage check to make sure there is no electrical power on the cables or on the system and secure against resetting.



#### NOTICE Warranty Damage due to moving the cabinet

Damage due to moving the cabinet to its position is not considered a warranty issue.

## 5.4 Mounting the Terra DC Wallbox

**Preconditions:** 

- Tools: Spanners size 17.
- Guide the power cable through the central cable gland and if required the Ethernet cable through the smaller gland.

#### 5.4.1 Mounting the Terra DC Wallbox



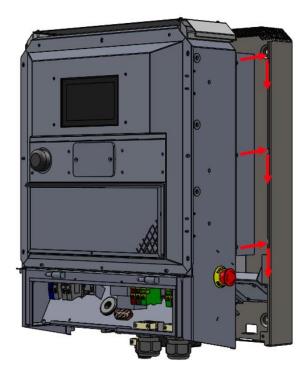
#### NOTICE

The number of people that can lift a Terra DC Wallbox during installation is a minimum of two. In general local regulations should be followed as the maximum weight to be lifted may vary country by country.

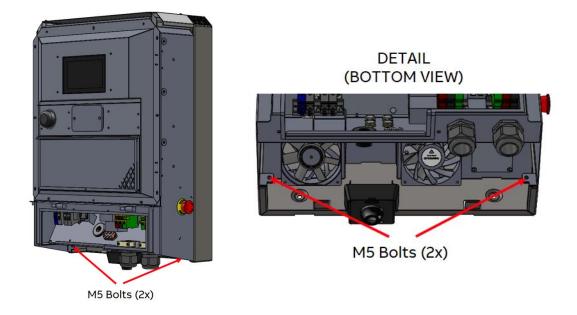
- 1. Carefully lower the Terra DC Wallbox onto its location.
- 2. Make sure not to entrap the cable(s).
- 3. Put the cabinet in the correct position on the wall bearing aligning the four holes of the cabinet with the correspondent ones on the wall bearing.
- 4. Tighten the four M8 screws with 8.8 hexagonal bolts.



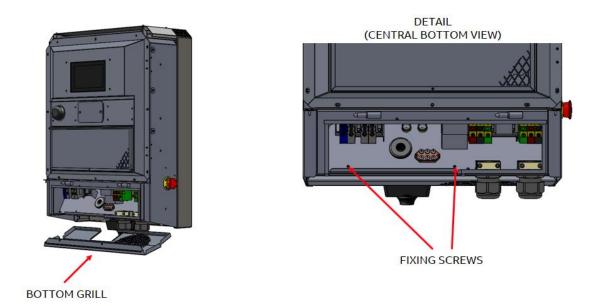
5. Put the unit on the cabinet correctly aligning the 6 bolts (3 for each lateral side) between them.



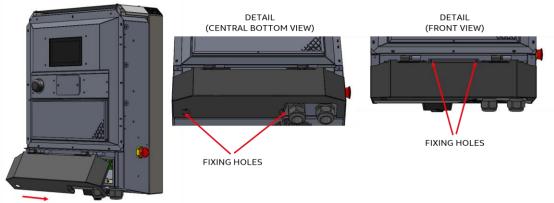
6. Tighten the two M5 bolts on the lower side of the unit. Pay attention to the internal fan power supply cable.



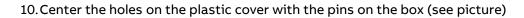
- 7. Let the power supply cable pass through the central gland and tight it.
- 8. **AFTER** the cable connection (refer to para 5.4.2 and 5.5), take the bottom grid and put it on the lower side of the unit and fix it tightening two screws as showed in the following picture.

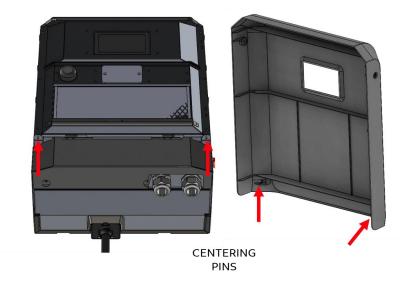


9. Take the lower frontal cover and put it on the lower side of the unit and fix it tightening two screws as showed in the following picture.



SWIPE THE LOWER FRONTAL COVER





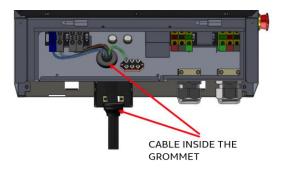
11. Put the central cover on the unit and fix it tightening two screws located on the left and right side of the cover and (see detail on the following picture). Center the bottom pins and then rotate the cover and tight the 2 lateral screws.



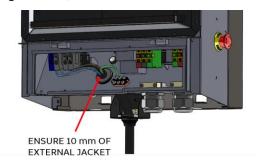
#### 5.4.2 Install cable gland(s)

The maximum diameter of the grid cable is 32 mm.

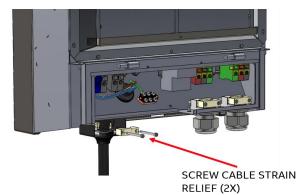
The minimum diameter of the grid cable is 22 mm with the standard fitted cable gland insert.



1. Slide the cable inside the grommets, ensure at least 10mm of cable external jacket inside the box (see notes at the end of this §, Before sliding the cable inside the grommet).



2. Push the cables back through the gland plate, until sufficient cable length is left to reach the cable terminals, make sure the PE cable is longer than the other cables.



3. Tighten the strain relief.

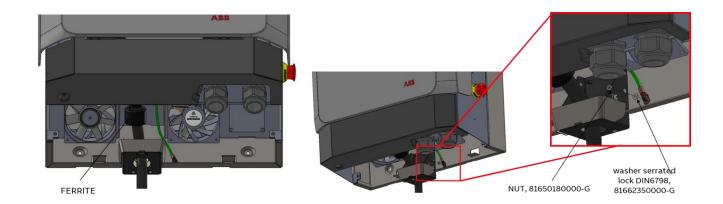


4. Slide the cable cover and screw the two screws

In case the separate internet connection is not used, please assure the cable entry hole is closed, to assure the IP54 grade of the cabinet, and prevent insects and small animals to enter the cabinet.

**NOTE 1**: a ferrite core is provided with the wallbox (plastic tie wrap with outlet cable) and needs to be installed in commissioning phase. The Ferrite needs to be inserted in the AC in cable and located in the screw cable cover (see picture below, left).

**NOTE 2**: a floating grounding cable is provided that is connected to the ground node. The mentioned cable has to be connected to the wall frame PEM in order to guarantee equal ground potential (see picture below, right).



## 5.5 Connect cables

#### 5.5.1 Connect PE of power cable

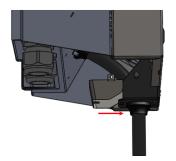
**Preconditions:** 

• Tools: Wire stripper pliers; wire-end lug pliers; wire-end lug.



#### DANGER Hazardous voltage

Make sure that the main switch of the power supply group for the product is set to the OFF position. Perform a voltage check and make sure that the electrical power is disconnected from the system.





1. Cut the PE wire of the power cable to the correct length to reach the PE connector.



#### NOTICE

For safety, it is recommended to make the PE wire longer than the phase wires. This makes sure that the PE wire stays connected as longest, if the Terra DC Wallbox is moved by a collision.

- 2. Use wire stripper pliers to remove 20 mm of the insulation from the end of the PE wire and attach the cable lugs.
- 3. Pull the covers a way from the connectors and remove them.
- 4. Loosen the bolts of the PE connector.
- 5. Attach the PE wire on to the PE connector.
- 6. Tighten the bolts. The advised torque value is 1.3Nm.

#### 5.5.2 Connect power cable

Preconditions:

• Tools: Wire stripper pliers; wire-end lug pliers; wire-end lugs.



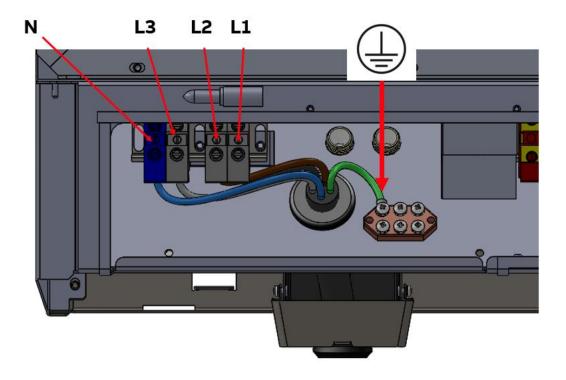
#### DANGER Hazardous voltage

Make sure that the main switch of the power supply group for the product is set to the OFF position. Perform a voltage check and make sure that the electrical power is disconnected from the system.

1. Cut the 3 phase and neutral wires of the power cable to the correct lengths to reach the connectors.

- 2. Use wire stripper pliers to remove 20 mm of the insulation from the ends of the wires and attach the cable lugs.
- 3. Pull the covers a way from the connectors and remove them.
- 4. Loosen the bolts of the connectors.
- 5. Attach the four wires on to their connectors as indicated on the label on the relative terminal block (see the following picture as example).
  - From left to right (as showed in the following picture):
    - N terminal block blue
    - L1 terminal block grey
    - L2 terminal block grey
    - L3 terminal block grey

NOTE: if there is a NAM connection, only "N" and "L1" terminal blocks are present.



- 6. Tighten the bolts. The advised torque value is 1.3Nm.
- 7. Connect the Fan connector to the mating one located on the lateral cable-gland

#### 5.5.3 Connect network cable



#### WARNING

Leave the main switch switched off. The Terra DC Wallbox is not ready for use yet. Please contact the ABB Service department at least one week in advance to make an appointment for commissioning.



#### NOTICE

Only connect the network cable if a wireless 2G/3G connection is not possible.

Preconditions:

• Tools: Network cable pliers, RJ45 connector; network cable straight,

1.Cut the network cable to the correct length to reach the Ethernet connector. The connector is located behind the right side door, near the bottom of the charger.

2.Use network cable pliers to install an RJ45 connector on to the network cable. Using the Ethernet colour standard EIA/TIA T568A

3.Insert the RJ45 connector in to the Ethernet connector.

## 5.6 Instruction for Mounting the DC Wallbox Gun Holders

#### 5.6.1 General

This document is intended to provide an instruction for service team / installers in order to be able to properly install the terra DC wallbox gun holders.

#### 5.6.2 General description

The Terra DC wallbox is provided with two types of gun holders. A standard gun holder is provided with all the DC wallboxes. The standard Terra DC wallbox gun holder is illustrated in Fig.1 and 2**Error! Reference source not found.** An optional gun holder is also available as an optional / spare part and can be ordered as external kit. The optional gun holder is illustrated in Fig. 3 and 4. All the above described gun holders include adapters for CCS or Chademo charging guns.

#### 5.6.3 Mounting instructions

The gun holders described above are intended for a very simple installation. Standard gun holder is provided with 3 holes for wall hooking while optional one is provided with a wall mounted hooking bar (10 in Fig.3) to be mounted to wall. The recommended dowels to be used are of 10 size for both cases.

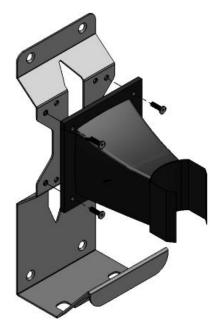


Figure 1: Series production Terra DC wallbox gun holder (Chademo model).

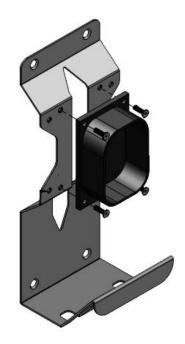


Figure 2: Series production Terra DC wallbox gun holder (CCS model).

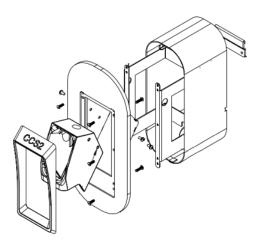


Figure 3: Terra DC wallbox optional gun holder.

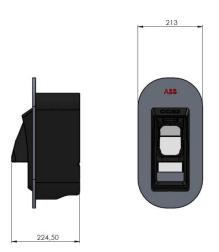
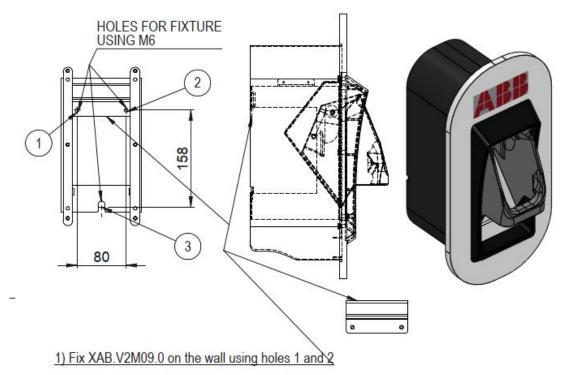


Figure 4: Terra DC wallbox optional Gun holder; front and side view.



- 2) Fix the system on the bracket (XAP.V2M09.0)
- 3) Fix Screw on hole number 3

## 6 Commissioning

## 6.1 Commissioning preparation

Commissioning is the last phase necessary to get the Terra DC Wallbox operational. The purpose is to check the safe functioning of the charger for its operational purpose.

A certified service engineer from the ABB Service department or a trained engineer by ABB is required to perform the commissioning. During this commissioning, the safety and the functioning of the charger will be tested.

Before the service engineer can start, the following conditions must be met:

- All work described in Preparation (starting page TBD), Construction (starting page TBD) and Placement and connection (Starting page TBD) is done.
- Power is available.
- A local technician is present for assistance and to switch on the power.
- Internet access must be available in case 2/3G is not functional.
- A Combo compliant electric vehicle must be available for testing CCS charging.
- A CHAdeMO compliant electric vehicle must be available for testing the CHAdeMO charging.
- Any electric vehicle for instructing the site operator.



#### NOTICE

#### Warranty

It is not allowed to move the Terra DC Wallbox, after it is commissioned. In case the Terra DC Wallbox is moved without approval from ABB, the warranty will be considered void. In case of

relocation please contact the local ABB Service department.

Commissioning is executed according to the Check list, this check list can be found in the Helios Suite Service tool that is available to the certified commissioning engineers or their supervising ABB organization. Also the following data is required for input:

- End-user Contact person (Create a contact if it doesn't exist).
- Charger address (Check the mentioned address, it will be the address the charger was shipped to).
- Coordinates longitude and latitude for plots on the maps. If there are more chargers on 1 location, make sure the coordinates are slightly different (at least 0,0001 degrees) to prevent being displayed on the same location.
- Site name if this is useful for better recognition (eg Shell petrol station Amsterdam).
- External fuse of the charger.

- SAT (Site Acceptance Test) date.
- Location remarks (any special remarks about the site, eg behind a gate, no photo cameras allowed etc.)
- Add a picture of the surrounding of the charger, upload the local CAF document A4 on the page of the charger in PDF
- Change Deliver status to<SAT>.

After completing the Site Acceptance Test, ABB's Network Operation Center will be triggered to perform a final check on the connection and configuration of the charger.

Upon approval the charger will be operational and initialized for use.

## 7 Identification of infrastructures compatibility labels

To facilitate the charging of electric cars all around Europe, according to *EN 17186:2019 'Identification of vehicles and infrastructures compatibility - Graphical expression for consumer information on EV power supply'*, labels to indicate power supply for electric road vehicles are introduced in the Terra DC Wallbox.

These identification labels are provided inside with a bag in the packaging and include two kind of labels, for European countries and for Germany. During commissioning, dependent of country of DCWB installation, must be apply labels as explained below.

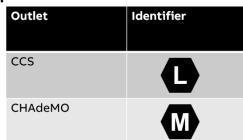
## 7.1 Installation in EU country (except Germany)

In EU country, except that for Germany, it must be install during commissioning the labels from set below.



Code XLP.02865.0 (spare code YVD.01282.0 - 6AGC103241)

#### 7.1.1 Label for charger type



7.1.2 Labels to be use and position single outlet



7.1.3 Labels Position dual outlet

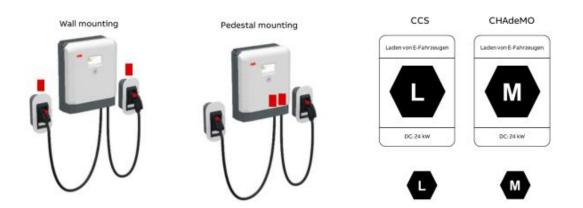


## 7.2 Installation in Germany

In Germany, the label that must be used during commissioning are the labels below.



Code XLP.02874.0 (spare code YAS.V2M03.0 - 6AGC108688)



## 8 Maintenance and Cleaning of the cabinet

## 8.1 Recommended Preventive maintenance

The charger must be inspected and serviced yearly by an ABB trained/certified technician.

#### NOTES

Air Filter: The air filters must be inspected every 12 months and replaced if required.

Environment characteristic and number of charging sessions may increase or decrease the number of replacements during the lifetime of the charger.

- A. De-energize unit, make sure that unit is de-energized with appropriated instruments (multimeter), open cover, inspect air filter, clean or replace as needed.
- B. Check input connections and terminations for proper toque values
- C. Check Grounding resistance
- D. Exercise input breaker and output DC breakers
- E. Open HMI cover, inspect capacitors and fuse connections.
- F. Clean interior with a HEPA vacuum.
- G. Blow out rear cooling fins and remove any debris
- H. Reassemble unit, energize verify input voltage, perform a charging session.
- I. Using the connected network verify charging session details.

## 8.2 Cleaning of the cabinet

The Terra DC Wallbox Charger is powder coated. This coating must be kept in good condition.

Clean the Terra DC Wallbox Charger three times a year in the following way:

- Remove rough dirt by spraying with low-pressure tap water.
- Apply a neutral or weak alkaline cleaning solution and let it soak.
- Remove dirt by hand with a non-woven nylon hand pad.
- Rinse thoroughly with tap water.
- Do a check on the coating and on the front cover for damage.



#### NOTICE

When the Terra DC Wallbox Charger is exposed to rain, it is sufficient to clean it twice a year.



#### CAUTION

Do not apply high-pressure water jets. Water may leak into the Terra DC Wallbox Charger. If a high-pressure water jet has been used, make sure that the inside of the Terra DC Wallbox Charger is dry.

- Only use cleaning agents with a pH value between 6 and 8.
- Do not use cleaning agents with abrasive components.
- Do not use abrasive tools.

# 9 Technical Data

## 9.1 Electrical data

Input	
Supply voltage	3 phase, 400 V AC: PE, N, L1, L2, L3 (EU)
Input voltage range	400 V AC +10%, -15%(50 Hz)
Maximum rated input current& power	40A, 24kVA
Power factor	> 96%
Efficiency	95% at nominal output power
DC output (C)	
Maximum output power	22,5 kW (peak 24kW)
Output voltage range	150-950 V DC (CCS 2)
Maximum output current	60 A DC +/- 5% (CCS 2)
DC output (J)	
Maximum output power	22,5 kW (peak 24kW)
Output voltage range	150-500 V DC (CHAdeMO)
Maximum output current	60 A DC (CHAdeMO)

General	
DC connection standard	EN61851-23 / DIN 70121 CCS 2 CHAdeMO 1.0
DC cable length	3,5 or 7 meters +/- 10%
DC plug type	CCS 2 / JEVS G105 CHAdeMO
RFID data	
RFID system	FeliCa™1, NFC reader mode
Network connection	GSM / CDMA modem
	10/100 Base-T Ethernet

## 9.2 Mechanical data

Mechanical data	
Dimensions (H x W x D)	770 mm x 585 mm x 300 mm
Weight	70 kg
Volume	0,135 m <sup>3</sup>
Dimensions including packaging (H X W x D)	650 mm x 1200 mm x 800 mm
Weight including packaging	80 kg
Mechanical impact protection	IK10

## 9.3 Environment

Environmental data	
Ingression protection	IP54
Temperature range – Operation	-35°C to + 55°C
	(derating applies between 45°C and 55°C)
Temperature range - Storage	-40 °C to +70 °C
Humidity	20% - 95% RH - non-condensing
Operational noise level	55 dBA @25°C
Altitude	2500 m max.

## 9.4 Certifications

**CE** Certification

EMC: EN 61000-6-4 Class A emission; EN 61000-6-3 Class B emission (pending); EN 61000-6-2 immunity.

LVD: IEC 61851-23, IEC 61851-1, IEC 62196, IEC 60950, EN 61010, EN 60335 (see certificate)

RFID: ISO/IEC 14443 A/B, ISO/IEC15693, ISO 18902 NFC

# **10 Contact information**



#### NOTICE In case of problems

Please contact your local ABB Service organization or Service partner for first line problem analysis and solving. In case they cannot solve the problem, they will contact the second line Service organization.

#### ABB in your country

Please contact ABB in your country for sales, delivery and service information.

#### ABB EV Infrastructure global

ABB EV Infrastructure

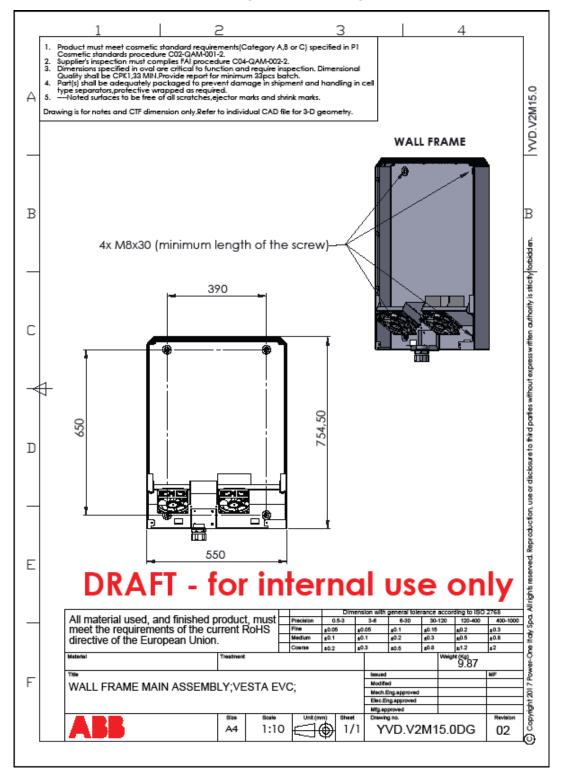
Address: Heertjeslaan 6, 2629JG, 2629 JD Delft, Netherlands

Telephone +31 800 9103

Mail info.evi@nl.abb.com

## **11** Appendix A – Concrete foundation

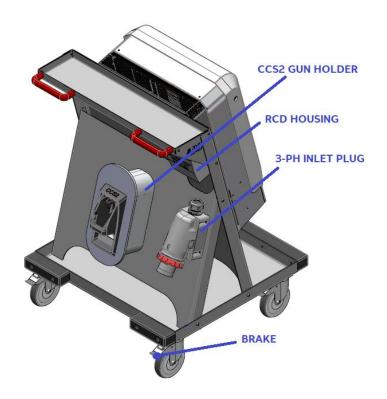
## 11.1 Terra DC Wallbox Charger drawing



# 12 Appendix C – Use with Mobile Cart

## 12.1 DC WALLBOX mobile Cart





Terra DC WALLBOX Charger is provided and assembled with a stainless steel trolley for DC WALLBOX

DC Wallbox mobile cart include:

- stainless steel material AISI grade 304 (1.4301) material thickness 4.0 mm
- 2 push handles made from plastic (color: red RAL 3000)
- gun-holder CCS type 2 gold version
- CEE inlet connector 63A 5P IP 67
- base plate design with rubber fenders and 4 150 mm diameter wheels
- castors made from non-marking and electrically conductive material, with locking brakes
- 40 A, A type, 30 mA Residual Current Circuit Breaker

dimensions (W x D x H): 800 x 820 x 1125/1202,5 mm

Available only with:

- ABB6AGC077815 TERRA DC WALLBOX CE 24 C 0-7M-0-0
- ABB6AGC077816 TERRA DC WALLBOX CE 24 C 7-7M-0-0

## 12.2 Recommendations for use

• Using between temperature range of -20°C to +45°C

- To supply the mobile cart is recommended the using of the type **H07RN-F with 5 cores** as AC supply cable (not provided). Section of cores 6 mm<sup>2</sup> (5G6).
- Ensure that earth connection is provided to the cart from AC cable
- Do not storage AC supply cable (not provided) on the mobile cart
- Remote serviceability operations may be performed only during turn on of the DC Wallbox mobile cart.
- Do not leave the product exposed to weather conditions (rain, sun, frost, etc) for long time OR we need to advise proper storage instructions
- Do not use DC Wallbox Mobile Cart outdoor uncovered in heavy rainy or extreme weather conditions



#### NOTICE

The DC Wallbox Mobile Cart is equipped with A-Type 40 A RCD. Is recommended to use in the upstream power line protection devices with equal or greater rated current. Protection of power line upstream of DC Wallbox Mobile Cart is up to customer in order to respect local regulations.



#### NOTICE

The DC Wallbox Mobile Cart is designed to works only in flat areas. It is recommended to not incline the cart taking by handles in order to overcome steps. To rise or fall to a different level please use ramps (for small difference) or pallet truck (in case of greater differences). Ramps have to be able to support the 160 kg of the product plus the operator weight.

#### 12.2.1 Steps to use the Mobile Cart

1. Remove the brakes from the wheels of the cart before trying to move it



2. Move the cart to desired location



7. When desired location is reached, put the brakes of each castor, this will keep the cart from rolling away when you want it to stay put.



8. Connect the AC inlet with AC 3-phase power supply cable when NOT POWERED by disconnecting the upstream switch (We need to show what is the upstream switch and the location of it, i think it sounds confusing and we need to rephrase). I assume that also clients will read this



5. Locking securely the plug with screw locking system and turn on the upstream switch

6. Open the door of the RCD housing installed in the cart and turn on the RCD and wait and verify about DCWB is turned on. Close the door of the housing



7. Remove the connector CCS2 from gun holder and connect with vehicle



8. Now it is allowed to start the charging session. Press "start" button in the screen



9. At the end of charging session remove the connector from the vehicle and can be possible to start another charging session in other vehicles that can be reached, otherwise put in the gun holder

10. Cable have to be wrapped around gun holder



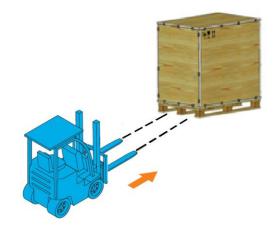
- 11. Open the door of the RCD housing and turn off the RCD, then close the door
- 12. Turn off the switch upstream the AC 3-phase supply cable
- 13. Remove AC 3-phase cable socket
- 14. Release the castors brakes and move the cart in the parking position.
- 15. Put in the brakes until next use

## 12.3 Mobile cart certification

- CE
- LVD: EN61851-1:2019 EN 61851-23:2014
- Mechanical test: EN 13150:2001 (point A.3.7), EK5/AK5 14-04.0: 2014-09, EK5/AK5 14-04.0: 2014-09, ASTM D4169-16

## 12.4 Handling and unpackaging

### 12.4.1 Move Package with a forklift truck



#### Preconditions:

- A minimum of two persons is required: one person to operate the forklift truck, the other person to guide the Mobile Cart to its location.
- 1. Place forks width like as pallet size
- 2. Inlet the forks of the forklift truck between
- 3. Lift and move the cart with the forklift truck.

### 12.4.2 Unpackaging

Preconditions

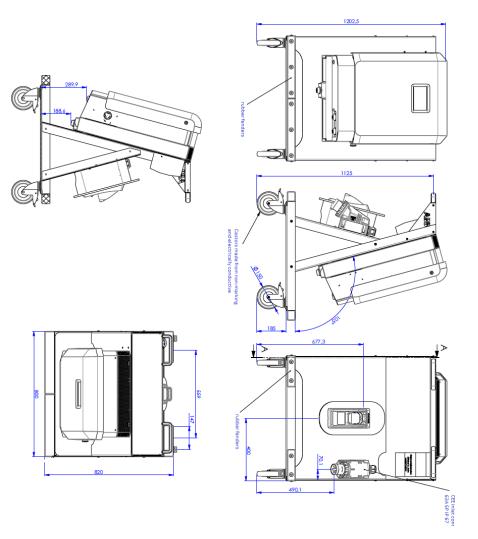
• Tools: screwdriver PH

A minimum of two persons is required to handle Mobile cart get off from packaging



- 1. Remove the packaging material from the mobile cart
- 2. Remove locking axes that lock mobile cart
- 3. Unblock castors brakers
- 4. Get off the mobile cart from pallet

# 12.5 Mechanical drawings



## **13** Appendix B - Disposal instruction

ESPAÑOL

#### 13.1 **Directive on Waste Electrical and Electronic** Equipment (WEEE – 2012/19/EU)

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## ABB

#### ENGLISH

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SLOVENČINA

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entos Eléctrio lativa resíduos de equipam s (WEEE - 2012/19/EU)

O símbolo (caixote de lixo de rodas com uma l cruzada) em seu produto indica que o produto, no da sua vida útil, não deve ser misturado ou elimin com o lixo doméstico comum Este produto deverá ser entregue a uma recolha de lixo da comunidade local para a

do produto Para mais informações, entre em contacto Departamento de Tratamento de Lixo do Gor seu país.

O tratamento de lixo incorrecto por tâncias potencialmente e sadue numana tâncias potencialmente perigosas. Com ação para a eliminação correcta deste ibuirá para a reutilização, reciclagem e

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Nepravilno rukovanje otpadom može nega utiče na životnu sredinu i zdravlje ljudi, zbog p no opasnih supstanci. Vašom saradnjom na p odlaganju ovog proizvoda, Vi doprinosite p koriščenju, recikiranju i sakupljanju proizvoc matetiti uniči fuotnu proditu

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z elektrických a elektronických zari 2012/19/EU)

nosításra le kell adnia a kijelölt

Výrobok je nutné odovzdať do zberne odpadu vo vašej tokatile, kde důjde k jeho recyktikáli. Braneň intormánie Jvám ovativna úrať štriha strvány. Presné informácie Vám poskytne úrad štátnej správy zodpovedný za zber a likvidáciu odpadu. állami hulladékelhelyezési szervhez. 5 hulladékkezelésnek potenciálisan ve-ok miatt negatív hatása lehet a kömye-Nesprávna likvidácia odpadu môže mať negativný dopad na životné prostredie a ohroziť ľudské zdravie nebezpečnými látkami. Naopak správnym postupom pri likvidácii odpadu umožnite jeho

k helyes elhelyezésében való közre

rny i Elektroniczny podlegający rce zgodnie z Dyrektywą (WEEE

opelnice na kolečkách) na Symbol (przekreślony kosz) na Twoim produkcie ozna-0, že výrobek se po ukončeni cz, że produkt nie pownien być mieszany lub usuwa-ickat a vyhazovat společně s na zakon stanik stranov stanik stranov stanik stranov st

Produkt ten powinien zostać dostarczony do lokalnego komunalnego punktu zbiórki odpadów, w celu recyklin-

anie się z krajowym Wydziałen Iarką Odpadami w Twoim kraju.

symou (preclariknutý odpadkový kôš) na výrobku znamená, že daný výrobok nie je možné po skončení používania zmiešať a vyhodiť spolu s bežným domácim odpadom.

opätovné použitie, recykláciu a obnovenie výrobku, čím prispejete k ochrane životného prostrudia

Niewłaściwe manipulowanie orbadami może negatyw-nie oddziaływać na środowisko i zdrowie ludzi, wsku-tek potencjalnych substancji niebezpiecznych. Współ-pracując przy prawidlowym usunięciu tego produktu, przyczyniasz się do ponownego użycia, recyklingu i

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-ole می o odpade م dení (WEEE -

cji, prosimy o m Zarządza-

LIETUVIU

Daugiau vyriausybė

Laikantis Direk

elektros ir elektroninės įrango ir elektroninė įranga turi būti su

Simbolis (perbraukta šiukšlių dėžė : esantis ant jūsų įsigytos įrangos, reiškia pasibaigus jos naudojimui, negali būti šalinama kartu su buitin ėmis atliekomis.

informacijos galite gauti jūsų šalies is atliekų tvarkymo departamente

SLOVENŠČINA

Električna in elektronska oprema se v skladu z Direktivo o odpadni elektronski opremi (WEEE - 2012/19/

odpadki negativne posiedice na o zdravje ljudi. Z vašim sodelova odstranievanju tega izdelka, prip

Ta izdelek je potrebno oddati vaši lokalni deponiji z odpadki za predelavo takšnih izdelkov.

Zaradi nevarnih snovi ima lahko napačno upravljanje z odpadki negativne posledice na okolje in

Käesolev toode on ümber halikku prügikogumis- või

em pri pravilnem norete k ponovni

Ø

### I ATVIEŠU

zīmē, ka produktu nedrīkst ermiņa beigām, kopā ar para dukta, noz derīguma t atkritumien kad įranga, maišoma ar

Šis produkts tiks nodots vietējā k savākšanas punktā tā pārstrādāšanai vietējā kaitīgo atkritumu

## Lai iegūtu plašāku informāciju, lūdzu, sazinieties ar jūsu Valsts atkritumu pārstrādes nodaļu.

Nepareiza atbrīvošanas no šī produktavar atstāt negatīvu ietekmi uz apkārtējo vidi un cilvēku Veselību potenciātā katītīgā sastāva dēĻ Ar jūsu sadarbību šī produkta pareizā pārstrādē, jūs palīdzat aizsargāt (MTatSyDBS ätteretti Viditayrino verpanamente. Netinkamas attilekų šalnimas gali neigiamai veikti patojinką ir žmonių sveiktat, nes attiekose gali būti pavojingų medžiagų. Teisingai šalindami šią įrangą jūs prisdedate prie pakartotinio įrangos panaudojimo, partirbimo ir receneracijos ir titai pasaugote aplinką.

# Za podrobnejše podatke se obmite na državni urad za odstranjevanje odpadkov v vaši državi. Sranje soznik proslav i podatkov v vasi državi. Sranje soznik proslav i podatkov poda Tele ir iligis, mis tegeleb prúgi-majandu sep putkuvate regulatiskonicijega. Registrices productive registration registrictions Kasoleva toote vale kästlemine selle kõrvaldar võib põhjustada võimalikest riskainetest tuter negatiivset mõju nii keskkonnale kui ka Teie ter le. Toote korrektne kästlsemine ka peale selle k tuskõltmatuks muutumist ja Teie kaasabi käes toote korduvkasutusse või ümberitöötusesse sa

Elektri- ja elektroonikaseaune eraldi kooskõlas elektri- ja elek direktiiviga (WEEE - 2012/19/EU)

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PORTUGUÊS

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*Caution:* This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

DC Wallbox CE= EMC CLASS B.

CE DC Wallbox are all EMC CLASS B.

UL Single phase are EMC Class A