Terra AC wallbox UL
40/80 A

Table of contents

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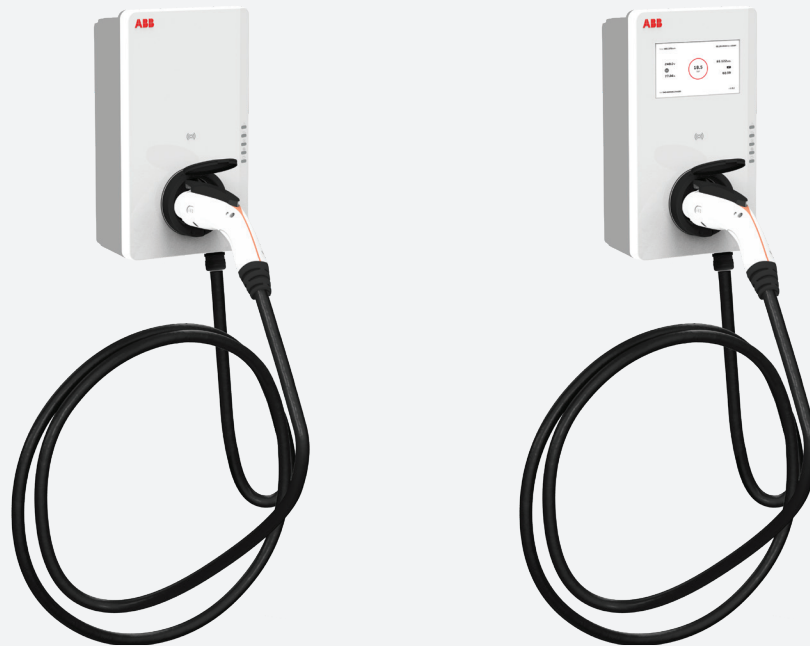
About this document

Function of this document

The document is only applicable for this EVSE (Terra AC), including the variants and options listed in chapter Technical data, page 32. The EVSE from here on in the document is referred to as the EVSE. The document gives the information that is necessary to do these tasks:

- Installation
- Commissioning

Target group

The document is intended for qualified installation engineers. For a description of the required qualifications, refer to section Required qualifications for the installation engineer, 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 EVSE.

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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 6, page 7
Warning	If you do not obey the instruction, this can cause injury	Refer to Table 6, page 7
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	ℹ️
-	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	

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

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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 by UL / cUL	All target groups

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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

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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.

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Safety

Liability
The manufacturer is not liable to the purchaser of the EVSE 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
- Do not misuse or abuse the EVSE
- Only make changes to the EVSE, if the manufacturer approves in writing of the changes

This EVSE 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 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, 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.

Required qualifications for the installation engineer

- The qualified installation engineer fully knows the EVSE and its safe installation
- The installation engineer is qualified according to the applicable local rules to do the work
- The qualified installation engineer obeys all local rules and the instructions in the installation manual
- It is the responsibility of the owner of the EVSE to make sure that all qualified installation engineers obey the local rules, the installation instructions, and the specifications of the EVSE

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Table 5: 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
- 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.

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Table 6: Signs on the EVSE

Symbol	Risk type
⚠	General risk
⚡	Hazardous voltage that gives risk of electrocution
✋	Risk of pinching or crushing of body parts
⚙	Rotating parts cat can cause a risk of entrapment
⏚	PE
📖	Sign that means that you must read the manual before you install the EVSE
🗑	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

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
- 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 indicates, do not mix or dispose the EVSE with your household waste, at the end of use. Instead, hand the EVSE over to your local community waste collection point for recycling
- For more information, contact the Government Waste-Disposal department in your country

Safety instructions for earthing

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Table 7: Preliminary requirements

- Make sure that the EVSE is connected to a grounded, metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product
- Make sure that the connections to the EVSE comply with all applicable local rules

Special safety instructions (North America)

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 35, 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 is when it is used around children
- Do not put fingers into the EV connector
- Do not use this product if the flexible power cord or EV charge cable is frayed, has broken insulation, or any other signs of damage
- Do not use this EVSE if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage
- Install an insulated grounding conductor that is identical in size, insulation material, and thickness to the grounded and ungrounded branch-circuit supply conductors, except that it is green with or without one or more yellow stripes, as part of the branch circuit that supplies the EVSE
- Connect the grounding connector of the previous bullet point to earth at the EVSE or, when supplied by a separately derived system, at the supply transformer
- For the AC power input wiring installation, refer to section Insert the AC input conduit, page 22
- For the torque requirements for the screws of the terminal block for the AC power, refer to chapter Technical data, page 34

SAVE THESE INSTRUCTIONS

Description

Intended use

The EVSE is intended for the AC charging of EVs. The EVSE is intended for indoor or outdoor use.

The technical data of the EVSE must comply with the properties of the electrical grid, the ambient conditions and the EV. Refer to chapter Technical data, page 32. Only use the EVSE with accessories that the manufacturer provides or that obey the local rules.

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

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

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External components
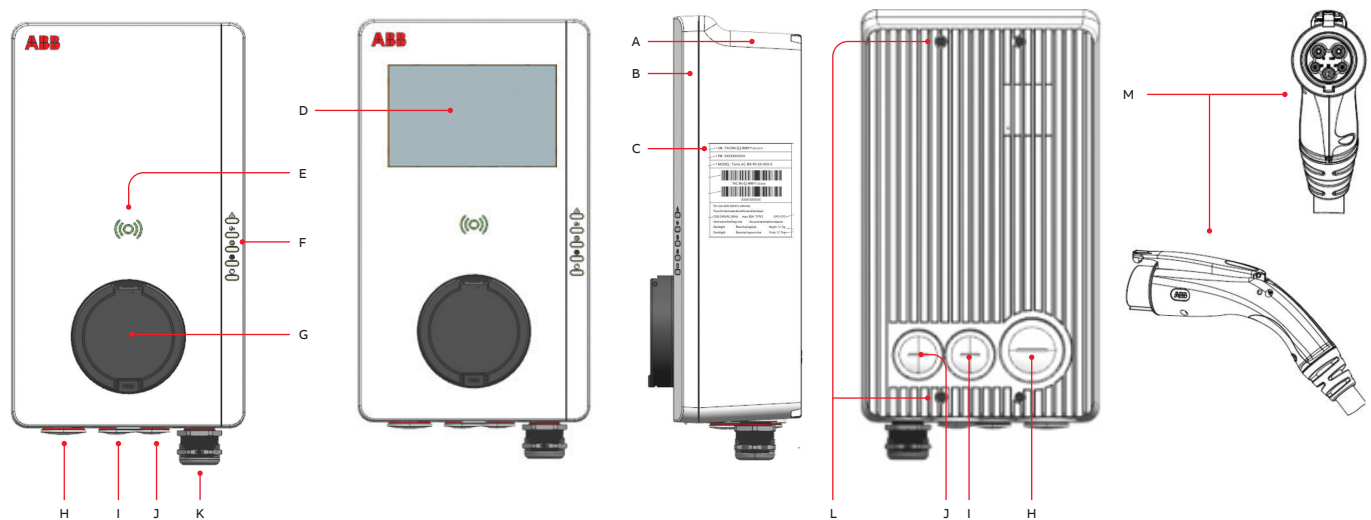
Overview of the EVSE, outside

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Table 8: Overview of the parts and their function

Label	Part	Function
A	Enclosure	To reduce the accessibility of unqualified persons to the inside of the EVSE
B	Front cover	To prevent a user to access the installation and maintenance parts of the EVSE
C	Product label	To show the identification data of the EVSE. Refer to section Product label, page 11
D	Display (optional)	To show the status of the EVSE and the charge session
E	RFID reader	To authorize the start or stop of a charging session with an RFID card
F	LED indicators	To show the status of the EVSE and the charge session
G	Holster inlet	To store the charge connector
H	Conduit enclosure plug	For the AC input cable
I	Conduit enclosure plug	For the Ethernet cable
J	Conduit enclosure plug	For the smart meter connections
K	Charge cable	Cable connection to EV
L	Mounting points	To mount EVSE
M	Charge connector	Cable connection to EV, SAE J1772, type 1

ℹ️ **Note:** The illustration shows the EVSE model with and without a display. For more data about the display, refer to section Display (for display models only), page 13.

Product label

ABB

SN: TACW19-4-5021-P4609

PN: 6AGC081291

MODEL: Terra AC W19-P8-RD-MCD-0

TACW19-4-5021-P4609

6AGC081291

For use with electric vehicles
Pour utilisation avec des véhicules électriques
208/240VAC, 50/60Hz   max. 80A   TYPE 4/IP65   -30°C~55 °C
Ventilation Not Required   Aucune ventilation requise
Raintight   Étanche à la pluie   Weight: 11.8 kg
Dusttight   Étanche à la poussière   Poids: 11.8 kg

Heertjeslaan 6
2629 JG Delft
The Netherlands

Made in China
Fabriqué en Chine

www.abb.com

SGS

Label	Part
A	Brand
B	Serial number
C	Part number of the EVSE
D	Product model number
E	Barcode with the serial number of the EVSE
F	Barcode with the part number of the EVSE
G	Power rating of the EVSE / NEMA enclosure type / ambient temperature
H	Mass of the EVSE
I	Address of the manufacturer
J	Reference to the manual
K	Certification

LED indicators

RFID

Error LED

Charging LED

Cable and car detection, and car authorization LED

Internet connection LED

EVSE on/off LED

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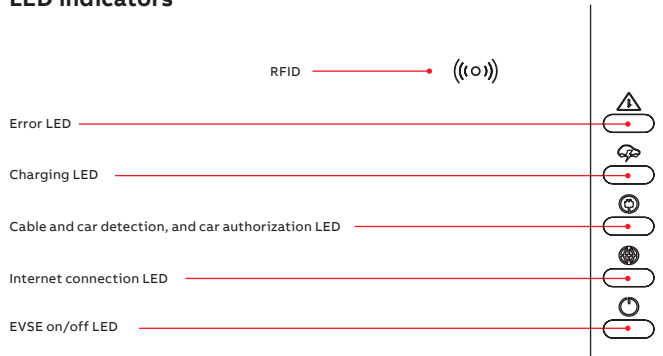
Table 9: LED indicators and statuses

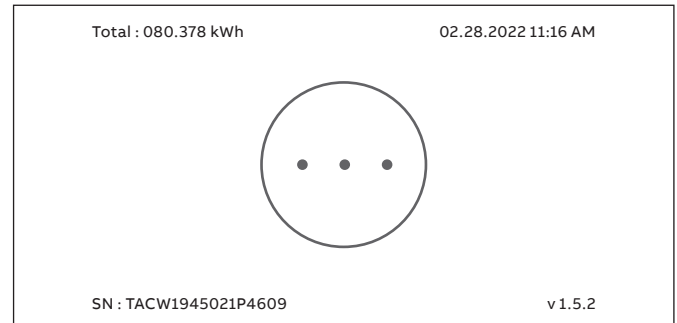|	Status of the LED	Status of the EVSE
Error LED	On	Error
	Off	No Error
Charging LED	On	EV is fully charged or has stopped charging
	Off	Not charging
	Flashing	Charging
Cable and car detection, and car authorization LED	On	A car is connected. The connection is authorized
	Off	No car connected
	Flashing	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
EVSE on/off LED	On	The EVSE is on
	Off	The EVSE is off
	Flashing	The EVSE is in setup

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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.

- Screen dim time = 2 minutes (default value)
- Screen dim time range = 10-300 seconds
- Screen brightness = 100% (default value)
- Screen brightness range = 10-100
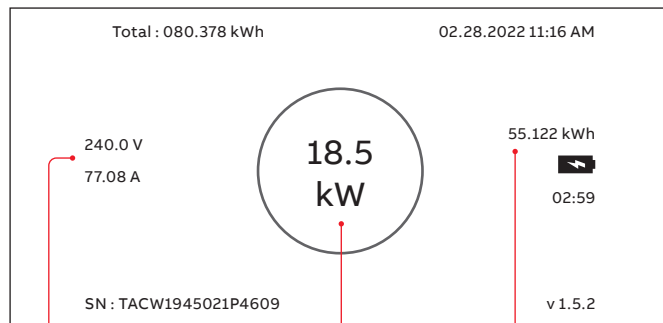- Dime time and brightness are configurable via OCPP 1.6 J

Boot screen

Preparing to charge screen

Total : 080.378 kWh   02.28.2022 11:16 AM

SN : TACW1945021P4609   v 1.5.2

Charging screen

Total : 080.378 kWh   02.28.2022 11:16 AM

240.0 V
77.08 A

18.5 kW

55.122 kWh

02:59

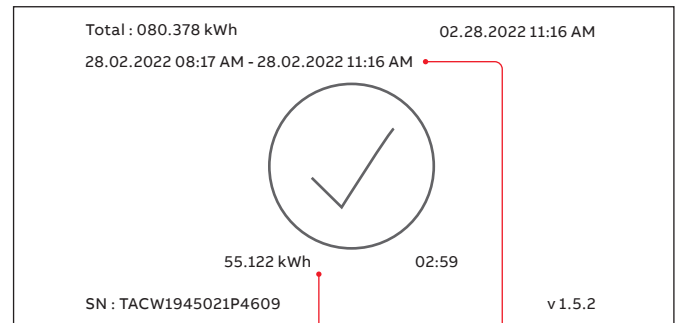SN : TACW1945021P4609   v 1.5.2

Real-time voltage and current

Real-time active power

Energy delivered and duration of the charge session

Charging completed screen

Total : 080.378 kWh   02.28.2022 11:16 AM

28.02.2022 08:17 AM - 28.02.2022 11:16 AM

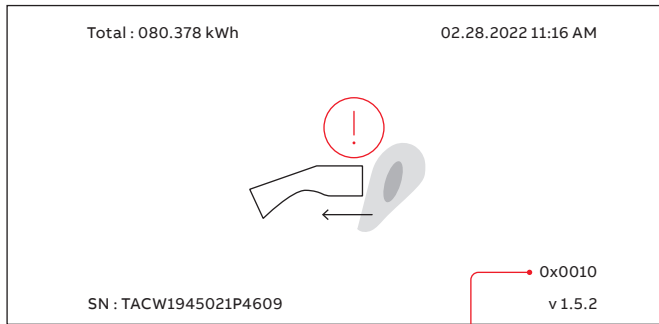55.122 kWh   02:59
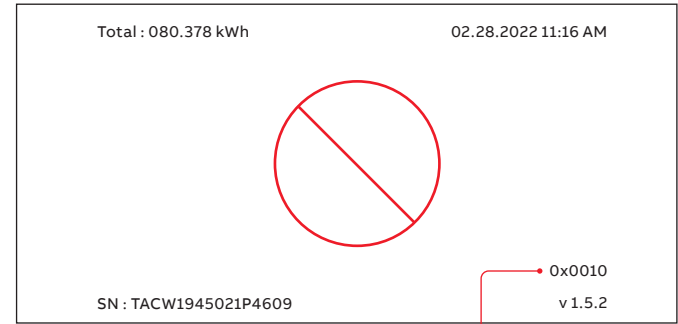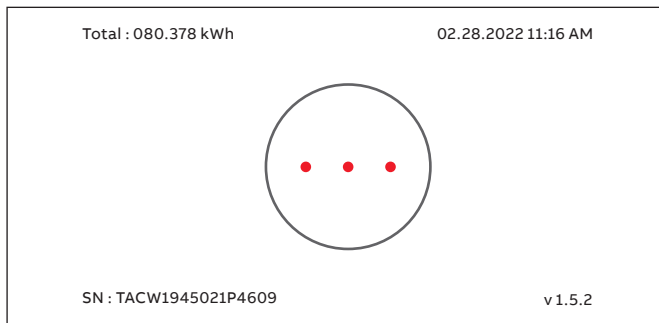
SN : TACW1945021P4609   v 1.5.2
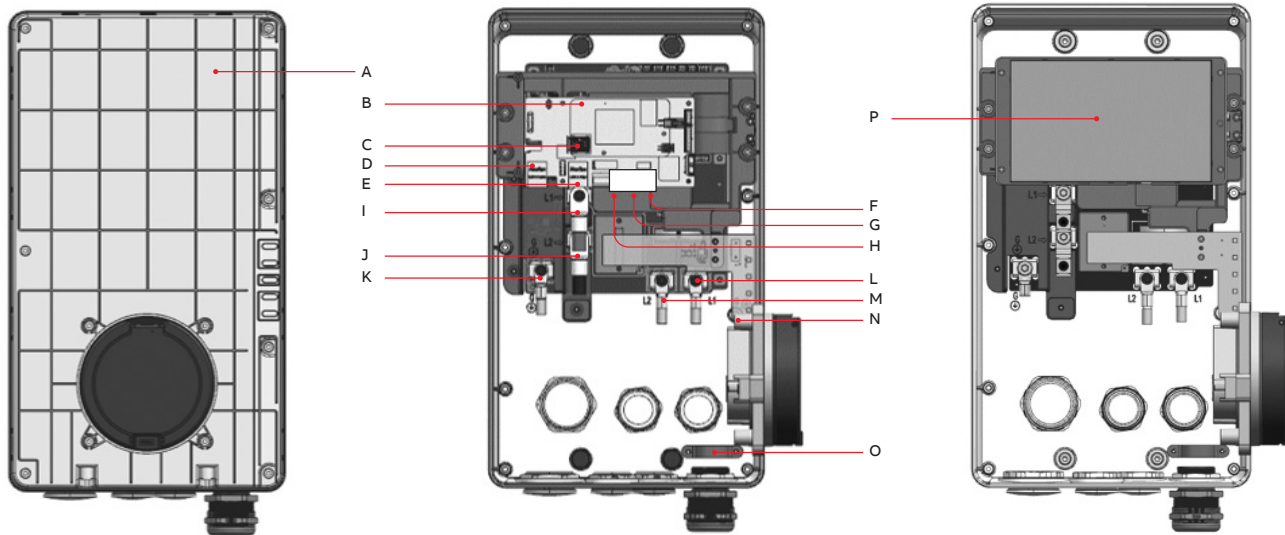
Energy delivered and duration of the charge session

Start and end time

Fault detected display messages

Disconnect the charge cable and connect it again

Total : 080.378 kWh	02.28.2022 11:16 AM

0x0010

SN : TACW1945021P4609   v 1.5.2

Error code

Contact your service provider:

Total : 080.378 kWh	02.28.2022 11:16 AM

0x0010

SN : TACW1945021P4609   v 1.5.2

Error code

The EV is not ready for the charge session

Total : 080.378 kWh	02.28.2022 11:16 AM

SN : TACW1945021P4609   v 1.5.2

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Internal components

Label	Part	Label	Part
A	Maintenance cover	I	AC input L1
B	Rotary switch set current limit	J	AC input L2
C	Nano-M2M SIM card slot	K	AC input PE
D	Primary Ethernet port RJ45	L	Charge cable L1
E	Secondary Ethernet port RJ45	M	Charge cable L2
F	Configurable output contact	N	Charge cable PE
G	Configurable input contact	O	Charge cable with strain relief
H	Modbus RTU (RS-485)	P	Display

Load management

Load management makes sure that the available 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.

Installation

In the box

Elements	Number of copies
EVSE	1
QSG, ABB Terra AC Wallbox, Ready. Set. Charge	1
RFID card	1
Installation template	1
Anchors 0.39 x 3.14 in (10 x 80 mm)	4
Screws 0.23 x 2.95 in (6 x 75 mm) with silicone washer	4
Mechanical lug	2
Cold pressed ring terminal, L1/L2	2
Cold pressed ring terminal, PE	1
0.23 x 0.314 in (6x8 mm) screw	3
L1-L2 cover	1

Required tools for installation

T20 security pin Torx driver

Allen wrench set

Tape measure

Power drill

Drill bit, 25/64 in. (10 mm)

Wire cutter

Wire stripper

Crimp tool

Torque driver (50 lbf. in, 5.7. Nm)

Optional Smartphone with Bluetooth

Hamer

Spirit level

Slotted screwdriver

Philips P3 screwdriver

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General installation procedure

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Table 10: Preliminary requirements

☑▤ ☑▤ ☐▤	All required permits to agree with the local rules are granted
	The AC input cable is available
✕	Tools for installation
⚠▣	There is no voltage on the AC input cable during the complete installation procedure

Procedure
1. Unpack the EVSE
2. Prepare the site. Refer to chapter Site preparation, page 18.
3. Do the mechanical installation. Refer to section General mechanical installation procedure, page 19.
4. Do the electrical installation. Refer to section General electrical installation procedure, page 21.
5. Install the cabinet cover.
6. Do the commissioning procedure. Refer to chapter General commissioning procedure, page 28.

Unpack the EVSE
1. Open the box.
2. Take out the EVSE and including parts like QSG from the box.
3. Remove all packaging material from the EVSE.
4. Discard the packaging material.
5. Make sure that all parts are delivered according to the order. Refer to the order and section In the box on the previous page.
6. Do an inspection of the EVSE and the parts for installation for damage.
7. If you find damage or the parts are not according to the order, contact the local representative of the manufacturer (ABB E-mobility B.V.) refer to section Manufacturer and contact data at the end of the document.

Site preparation

Select the site

1. Find a suitable site on a wall. For the specifications of the wall, refer to on this page.
2. Make sure that the correct power supply is available. For the power supply specifications, refer to chapter
3. Obey the space requirements. Refer to on this page.

Prepare the site

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Table 11: Preliminary requirements

☑ ≡	
☑ ≡	The site must be suitable to install the EVSE
☐ ≡	

Procedure

1. Make sure that the space and the airflow around the EVSE are sufficient. Refer to on this page.
2. Make sure that the correct cables are available at the site:
• AC input cable. Refer to chapter
• RS485 cable. Refer to chapter
• Ethernet cable. Refer to chapter

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Table 12: Space requirements for installation

Parameter	Specification	
	[in]	[mm]
Z1	> 8	> 200
Z2 (indoor use)	18 to 48	450 to 1200
Z2 (outdoor use)	24 to 48	600 to 1200

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Table 13: Requirements for the wall

| Parameter	Specifications
Wall thickness	Minimum 4.72 in (120 mm)
Wall strength	The wall must be serviceable for the items listed below: 1. The weight of the EVSE. Refer to chapter Technical data, page 32 2. The torque for the mounting screws. Refer to chapter Technical data, page 32
Wall material	The mounting surface must be flat and stable, for example a finished, brick or concrete wall

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Mechanical installation

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Table 16: Preliminary requirements

	Spirit level
	Drill
	Installation template
	Anchors for the mounting holes
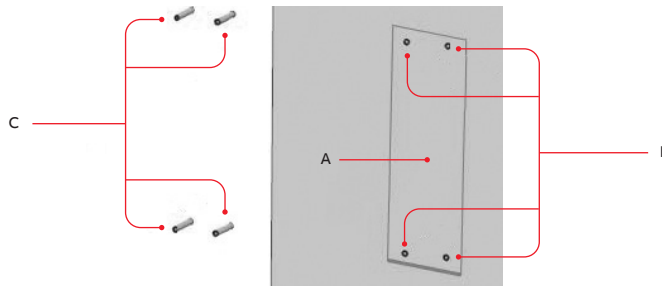
General mechanical installation procedure

Note: The mounting screws and Anchors that are included in the delivery are serviceable for a brick wall. If you want to mount the EVSE on a different type of wall, contact your local representative of the manufacturer, refer to section Manufacturer and contact data at the end of the document.

**Prepare the holes for the mounting screws**

Procedure
1. Hold the installation template (A) against the wall.
2. Make sure that the installation is level. Use the spirit level.
3. Mark the location for the mounting holes (B).
4. Drill the mounting holes (B).

Note: For the diameter of the holes, refer to chapter and section

5. Insert the anchores for the mounting holes (C) in the mounting holes.

Step 1

Step 2

A
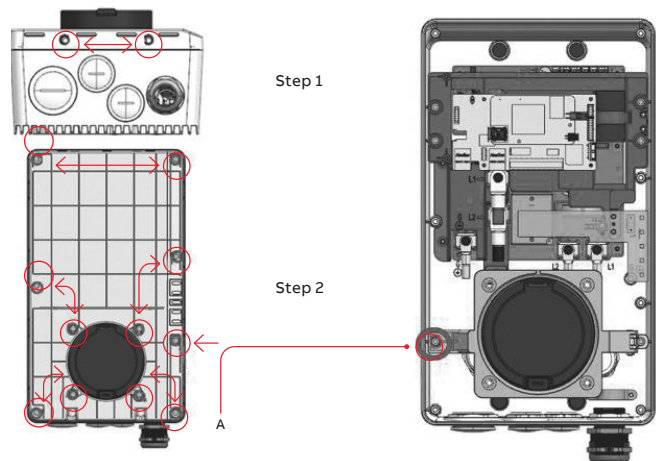
Move the holster inlet

Procedure
1. Remove 2 screws and remove the front cover.
2. Remove 11 screws and remove the maintenance door.
3. Remove the screw (A) on the left side of socket.
4. Move the holster inlet away.

A

B
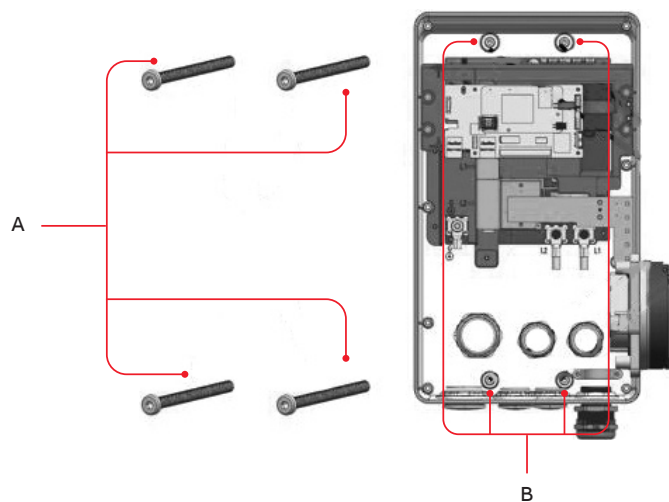
Install the mounting screws

Procedure
1. Install the mounting screws (A) through the holes (B) in the charger.
2. Lock the screws in the anchors. For the specification, refer to chapter Technical data, page 32.

Electrical installation

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Table 21: Preliminary requirements

⚠ ☑☐☐	⚡	
	The front cover is removed	
	The maintenance cover is removed	
	The holster inlet is moved away	
	The anchors for the mounting screws are installed	
	A Nano-M2M SIM card from the provider of the mobile network	
	Crimping Tool	
	Torque screwdriver	
	Screwdriver	
	Slotted screwdriver	
	Crimping Tool (2AWG)	
	Cold-pressed terminal for PE	
	Mechanical lugs. Refer to section In the box, page 16	
	Cold-pressed terminal for L1, L2. Refer to section In the box, page 16	
	Mounting screws	
	Smart meter with ModBus RTU interface	
	Wire for RS485	
	Ethernet cable	
	AC input cable (1 phase)	
	AC input conduit	

General electrical installation procedure

Procedure
1. Install the AC input conduit and cable by inserting and connecting them.
2. Install the Ethernet conduit and cable by inserting and connecting them.
3. If necessary, install for the smart meter communication conduit and cable by inserting and connecting them.
4. If you want to use the internet via mobile networks, insert the Nano-M2M SIM card.

A

A

B
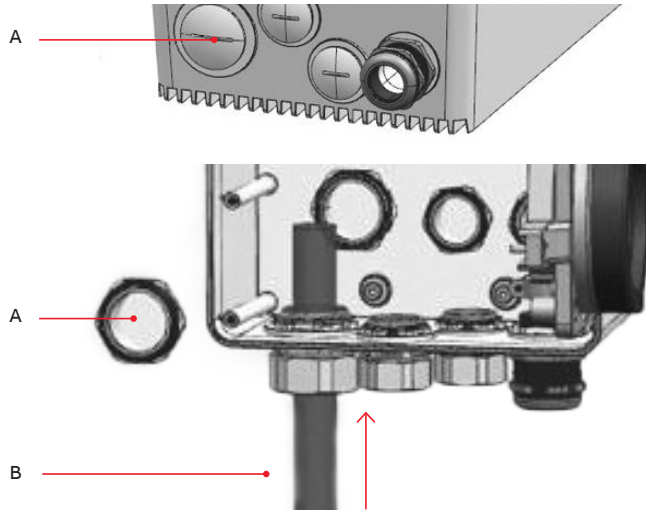
Insert the AC input conduit

Procedure
1. Remove the conduit enclosure plug (A) from the EVSE.
2. Put the AC input conduit (B) through the inlet hole.
3. Install the AC input conduit.
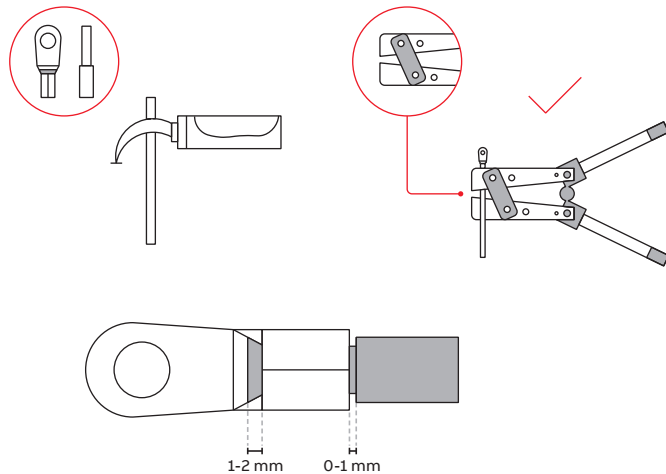
Insert the AC input cable and install the cold-pressed terminal for PE

Procedure
1. Strip the PE wire. For the specification, refer to chapter Technical data, page 32.
2. Insert the PE wire into the cold-pressed terminal to its full insertion length. Crimp the cold-pressed terminal with the correct jaws.
3. Finished.

1-2 mm   0-1 mm
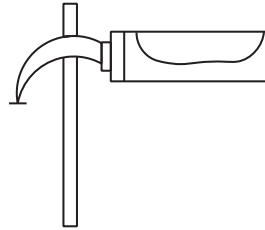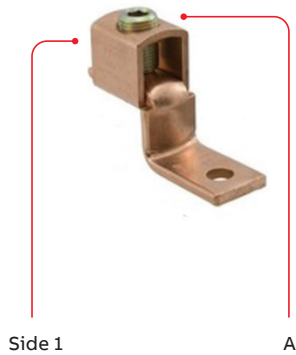
Side 1   A

Install the mechanical lugs for L1, L2, option 1

Procedure
1. Loosen the screws (A)
2. Strip the wires. For the specification, refer to chapter Technical data, page 32.
3. Insert the wire into side 1 of the mechanical lug to its full insertion length.
4. Tighten the screws (A) to the correct torque. For the specification, refer to chapter Technical data, page 32.

1-2 mm   0-1 mm
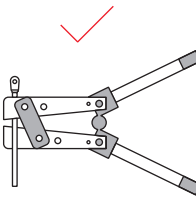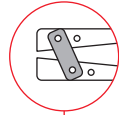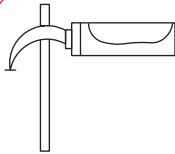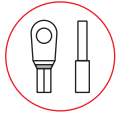
Install the cold-pressed terminal for L1, L2, option 2

Procedure
1. Strip the wires. For the specification, refer to chapter Technical data, page 32.
2. Insert the wire into the cold-pressed terminal to its full insertion length. Crimp the cold-pressed terminal with the correct jaws.
3. Finished.
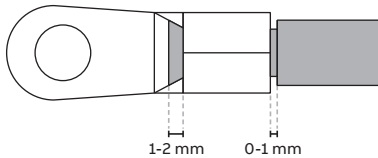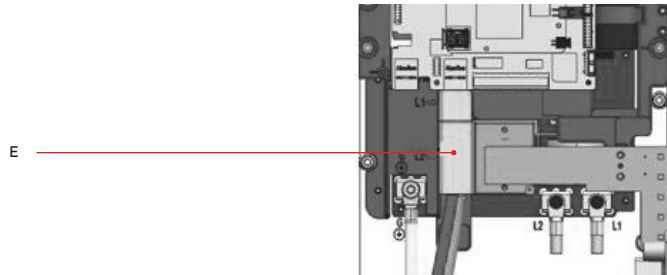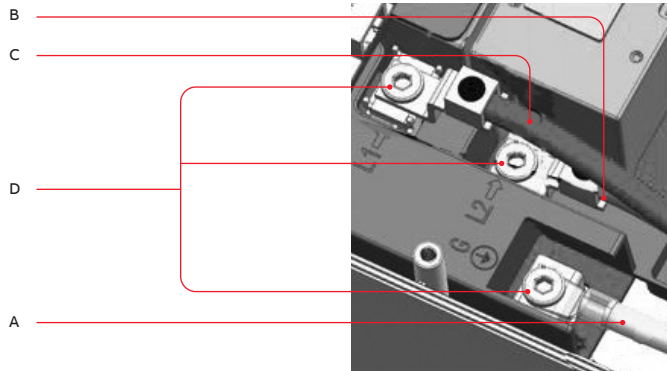
A	Earthing wire
B	L2 AC input wire
C	L1 AC input wire
D	Screws
E	Protect cover

Connect the AC input wires

Procedure

1. Connect the below wires:
   - Protective Earth (grounding) wire (A)
   - L2 AC input wire (B)
   - L1 AC input wire (C)
2. Tighten the screws (D) to the correct torque. For the specification, refer to chapter
3. Install the protect cover (E).
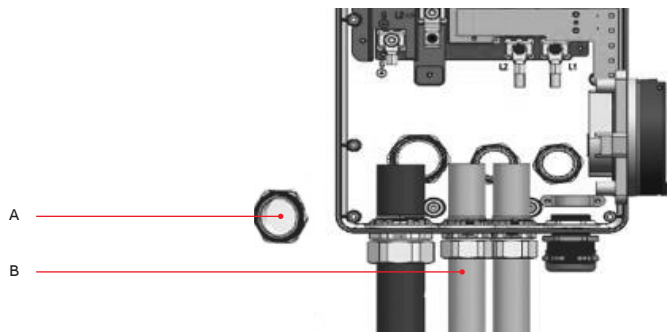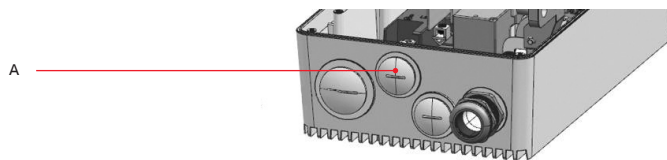
Insert the Ethernet conduit

Procedure

1. Remove the conduit enclosure plug (A) from the EVSE.
2. Put the Ethernet conduit (B) through the cable inlet hole.
3. Install the Ethernet conduit.
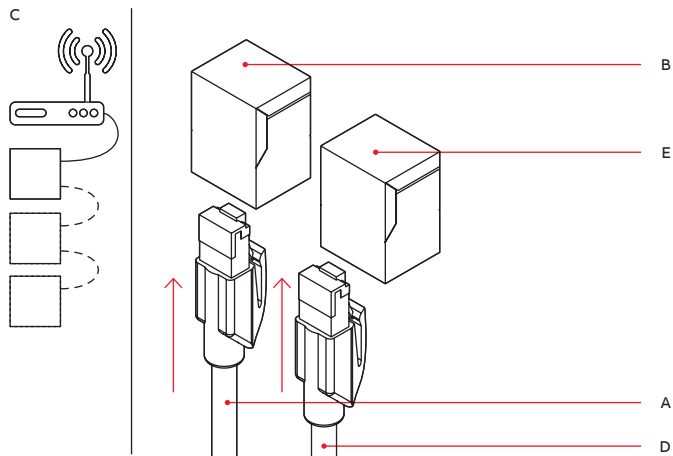
Insert and connect the Ethernet cable

If your EVSE has two Ethernet connections, it is possible to connect multiple EVSEs in a chain. Only the first EVSE is connected to the PC, router or gateway. Only the Ethernet connection is shared, there is no communication between the EVSEs.

Procedure
1. Put the RJ45 plug (A) of the Ethernet cable in the primary Ethernet RJ45 socket (B). Refer to section Internal components, page 15.
2. Connect the Ethernet cable either to a PC, router, or gateway or to the previous EVSE in a chain (C).
3. If you connect EVSEs in a daisy chain, put the RJ45 plug of Ethernet cable to the next EVSE (D) in the secondary Ethernet RJ45 socket (E).
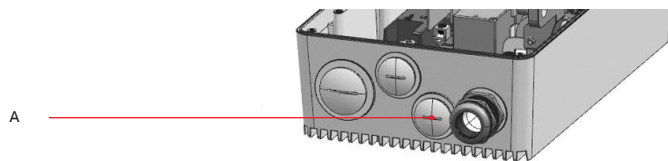
Insert the smart meter communication conduit
1. Remove the conduit enclosure plug (A) from the EVSE.
2. Put the smart meter communication conduit (B) through the inlet hole.
3. Install the smart meter communication conduit.

A

B

C
D
E

Vcc < 250 VAC or 30
VDC max current 1 A
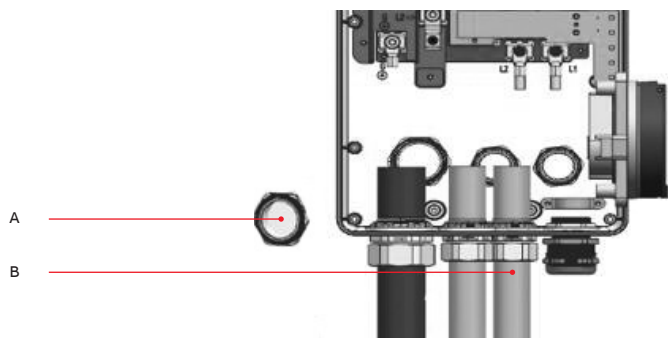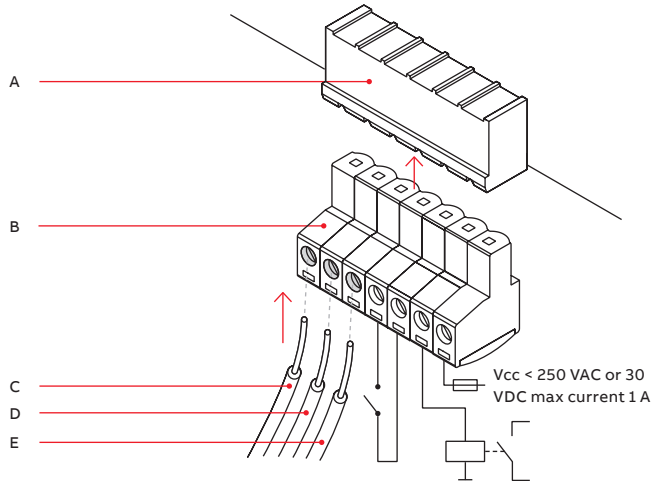
Insert and connect the wires for the smart meter communication

Connect the smart meter with ModBus RTU (RS485) to the EVSE.

Procedure
1. Remove the terminal block connector (B) from the connector (A) of the smart meter connection.
2. Connect the wires:
    a. Connect the positive wire (C).
    b. Connect the negative wire (D).
    c. If the smart meter has a common isolated ground for shielded wire, connect the wire (E).
3. Tighten the screws to the correct torque. For the specification, refer to chapter
4. Install the terminal block connector (B) on the connector (A).

B

A
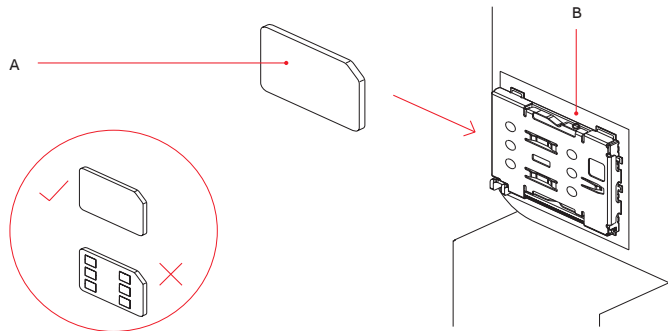
Insert the Nano-M2M SIM card

Procedure
1. Insert the Nano-M2M SIM card (A) into the socket (B). Make sure that the position of the connection points is correct. Refer to section

Rotary switch set current limit

Procedure
1. Use the screwdriver to rotate the dip switch (A) to make the arrow (B) point to different number for different current limit.

Position of switch	Current limit
0	80 A
1	64 A
2	56 A
3	48 A
4	40 A
5	32 A
6	24 A
7	16 A
8	10 A
9	Not used, switch limit will be invalid

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Commissioning

General commissioning procedure

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Table 29: Preliminary requirements

⚒	Mobile device with the TerraConfig app
🛒	Label with PIN. Refer to section In the box, page 16

TerraConfig app to do the commissioning
The TerraConfig app is available on the Apple Store and on the Google Play Store. The app is necessary to do the commissioning.

Procedure
1. Download the TerraConfig app.
   • For an Android OS mobile device, go to Google Play Store
   • For an iOS mobile device, go to Apple Store
2. Energize the EVSE. Close the breaker that supplies the power to the EVSE.
3. Set up the EVSE.

⚠ **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 EVSE works correctly and safely
   • If the EVSE detects a problem, the error LED comes on

4. Open the TerraConfig app.
5. Enter the PIN.
6. Do these steps, on the TerraConfig app:
   a. Update the product firmware. Do this step again until the TerraConfig app does not detect newer firmware.
   b. Adjust the parameter settings for your EVSE configuration.

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 section Manufacturer and contact data at the end of this document.

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Table 31: 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
	The EVSE is not earthed correctly	Do a check of the protective earth line of the connector of the AC input
		Install the protective earth conductor
	The neutral and phase wires are swapped	Examine the electrical connections
		Make sure that the connection of the phase and line and neutral wires is correct
PE missing or swap neutral and phase (0x0004)		If necessary, adjust the electrical connections. Refer to chapter Electrical installation, page 21
Over voltage (0x0008)	The maximum voltage on the power input is too high	Make sure that the voltage from the grid is not more than specified
Under voltage (0x0010)	The voltage on the power input is not sufficient	Make sure that the voltage from the grid is not less than specified
Over current (0x0020)	There is an overload on the EV side	Examine the EV charge cable connection
		Connect the EV charge cable correctly
Severe over current (0x0040)	There is an overload on the EV side	Examine the EV charge cable connection
		Connect the EV charge cable correctly
		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
		Make sure that the voltage from the grid is not more than specified
Over temperature (0x0080)	The internal temperature 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

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Table 31: 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, adjust the current
		If necessary, replace the relay contact
Internal communication failure (0x0800)	The printed circuit boards of the EVSE fail to communicate with each other	Connect the EVSE 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, connect the EV charge cable
Missing phase (0x2000)	B or C phase are missing or one of these phases is missing	Examine the electrical connections
		Make sure that the connection of the phase and line and neutral wires is correct
		If necessary, adjust the electrical connections. Refer to chapter Electrical installation, page 21
Modbus communication lost (0x4000)	The Modus communication is lost	Do a check on the connection of the wires and the polarity
		Do a check if all addresses are unique
		Do a check if the baud rate is the same as the other device or meter
		Do a check if the parity value of the other device or meter agrees with the EVSE 'None'
		Do a check if the stop bit and data bit are the same on the other device or meter
Offline charging record reaches memory limit (0x8000)	Lost internet connection or incorrect configuration	Re-connect or re-establish internet connection
		When EVSE is used offline, select offline in ChargerLink menu, TerraConfig app
The display shows that the EV is not ready for the charge session or the ChargerSync app shows 'waiting for EV'	The EV is unavailable	Wake up the EV. Refer to the user manual
The EV is not charged	There is a problem with the EVSE	Make sure that the power supply to the EVSE is on
		Examine the EVSE to find if is working correctly
		Examine the ChargerSync app and the charge LED to make sure that the charging session is authorized
		Start the charging session
	The EV charge cable is defective	Examine the EV charge cable
		If the standard supplied EV charge cable is defective, replace the EV charge cable

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Table 31: Troubleshooting table (continued)

Problem (error code)	Possible cause	Possible solution
		Examine the EV charge cable
		If the standard supplied EV charge cable is defective, replace the EV charge cable
		Examine the connection of the EV charge cable
	The EV charge cable is defective	If necessary, connect the EV charge cable
		Make sure that the user has registered in the ChargerSync app
		Make sure that you use a RFID card that the manufacturer provided
		Make sure that the RFID card is added on the ChargerSync app
The EV connection or authorization process fails	There is a problem with the ChargerSync app or the RFID card	Start the ChargerSync app
		Start the authorization process

De-energize the EVSE

1. Open the breaker that supplies the power to the EVSE.

2. Wait for minimum 1 minute.

Technical data

AC input	
Charging type	Mode 3 charging, level 2
Input/output power rating and current	9.6 kW / 40 A, 19.2 kW / 80 A
Input/ouput voltage, frequency	208 / 240 Vac, 50 / 60 Hz
Network type	TT, TN
Cable type / Cable storage	SAE J1772, type 1 cable, 25 ft (7.6 m). Cable is wrapped around charger and front holster inlet
Protections	Overcurrent, overvoltage, undervoltage, integrated surge protection
Ground fault circuit interrupter	Integrated 20 mA AC CCID, no addiontal required
Overvoltage category	III
Energy metering	Revenue grade energy meter Class B (±2%)
Rotary switch set current limit options 80 A model	10 A / 16 A / 24 A / 32 A / 40 A / 48 A / 56 A / 64 A / 80 A
Rotary switch set current limit options 40 A model	10 A / 16 A / 24 A / 32 A / 40 A
Stand-by mode power consumption	3 W / 5.6 W with display
Power-down backup capacitor	Able to store charge transaction during power down
Noise level	Less than 40 dB (A)

Connectivity	
Communication protocols	OCPP 1.6J, Modbus RTU RS485 (primary and secondary), Modbus TCP/IP (secondary)
Mobile communication	Nano-SIM socket type M2M (Machine To Machine): 4G (LTE), WCDMA
Ethernet	1x 1/100 BaseT, RJ45 Socket
Extra ethernet (daisy chain)	1x 1/100 BaseT, RJ45 Socket
Ethernet Cable type	Category 5 (Cat 5)
WiFi (WAN)	IEEE 802.11 b/g/n, 2.4 GHz
External meter communication	Primary mode: Modbus RTU (RS485)
Local controller communication	Secondary mode: Modbus RTU (RS485), Modbus TCP/IP
Modbus RTU (RS485) cable type	Twisted pair, shielded cable (recommended)
ModBus RTU baud rate	9600 bps standard, with TerraConfig app configurable to 4800, 9600, 19200, 38400, 57600 and 115200 bps
ModBus RTU bus primary/secondary	EVSE is Modulus primary/secondary configurable via TerraConfig app
Bluetooth	BLE 5.0
Compatible mobile device operating systems	Android 4.4 or higher / iOS8 or higher
RFID	ISO/IEC 14443A, MIFARE™ Classic, 1K and 4K memory
Available configurable contacts	1 input, 1 output
Configurable output contact rated load	250 VAC or 30 VDC, max current 1 A
User interface	
User authentification	ABB RFID card (1 included) or ChargerSync™ app or portal
User interface / Installer interface	ChargerSyncTM app or portal / TerraConfig app and portal for setup
Status indication	5 LEDs
Display	Wakeup functionality via touch
Configuration	
Software update	OCPP 1.6J, ChargerSyncTM app or portal, Terraconfig app
Control and configuration	OCPP 1.6J, ChargerSyncTM app or portal, Terraconfig app and portal
Ambient	
NEMA enclosure type	Type 4
IP	IP65
IK rating according to IEC 62262 (enclosure and display)	IK10 (IK8+ for an operation temperature between -35 and -30 °C)
Operation altitude	13123 ft. (4000 m) (maximum)
Operating temperature range	−30...+55 °C (derating may apply)
Storage temperature range	−40...+85 °C
Storage conditions	Indoor, dry
Relative humidity	<95%, non-condensing

Mechanical	
Mounting	Wall or floor using a pedestal
Dimensions H × W × D	15.75 × 9.06 × 4.92 in (400 × 230 × 125 mm)
Weight 40/80 A	23,80 lb / 26,01 lb (10.8 kg / 11.8 kg)
Torque specifications	
Cabinet cover screws	0.9 Nm / 7,96 lb-in
Inner cabinet/ 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
Wire specifications	
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 80A	Strip length 0.55 in (14 mm), 2 AWG (35 mm²)
AC input cold pressed ring terminal 40A	Strip length 0.55 in (14 mm), 6 AWG (13 mm²)
PE cold pressed ring terminal	Strip length 0.33 in (8.5 mm), 8 AWG (8,36 mm²)
Terminal block, external meter, input and output	Strip length 0.19 in (5 mm), supported AWG range 24 - 12 (0.20 - 3,3 mm²)
Certification and standards	
Safety standards	UL 2594, UL 2231-1, UL 2231-2, UL 1998, CSA C22.2. NO.280, NMX-J-667-ANCE
Codes and standards	FCC Part 15 Class B, ENERGY STAR
Certification	SGS
Warranty	24 months
AC input cable	
Cable shielding (optional)	The local rules require shielded cables. The cable shielding must be connected to the PE rail at the two ends of the cable
Diameter of the phase conductors	Refer to the local rules
Diameter of the PE conductor	The same as the diameter of the phase conductors

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

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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	8
48	60	6	8-2		8	8
56	70	4	8-2		8	8
64	80	4	8-2		8	8
80	100	2	8-2	2	8	8

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

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

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

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

Terra AC 40/80 A models

Rated power (kW)	Max. current (A)	Connector type	Other features	Type	Order code
		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
9.6	40	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
19.2	80	Cable 25 ft (7.6 m), type 1	RFID, 4G, daisy-chain ethernet, display	Terra AC W19-P8-RD-MCD-0	ABB6AGC081291

Spare parts

	Type	Order code
Charger assembly kit 9.6/19.2 kW UL 40/80 A	SER-Assembly kit 9.6/19.2 kW UL 40/80 A	ABB6AGC107748
Aluminum conduit closure plugs, including 1 * 1 inch and 2 * 3/4 inch	SER-Grommet	ABB6AGC109685
Front cover (non-display, no ABB logo, UL 40/80 A), 2 screws included	SER-Front cover(non-display models, no ABB logo, UL 40/80 A)	ABB6AGC109709
Front cover (display, no ABB logo, UL 40/80 A), 2 screws included	SER-Front cover(display models, no ABB logo, UL 40/80 A)	ABB6AGC109714
Front cover (non-display, UL 40/80 A), 2 screws included	SER-Front cover(non-display, UL 40/80 A)	ABB6AGC109717
Front cover (display models, UL 40/80 A), 2 screws included	SER-Front cover(display models, UL 40/80 A)	ABB6AGC109720
Maintenance cover, internal (non-display, UL 40/80 A), 11 screws included	SER-Maintenance cover (non-display, UL 40/80 A)	ABB6AGC109724
Maintenance cover, internal (display, UL 40/80 A), 11 screws included	SER-Maintenance cover(display, UL 40/80 A)	ABB6AGC109725
Gasket for SAE J1772, type 1 charge connector	SER-TAC-Gasket for SAE J1772, T1	ABB6AGC109902
Holster inlet cover	SER-TAC Holster inlet cover	ABB6AGC109726
SAE J1772, type 1, single phase, 7.6 m, 40 A	SER-TAC-cable T1 7.6m1P40A	ABB6AGC109258
SAE J1772, type 1, single phase, 7.6 m, 80 A	SER-TAC-cable T1 7.6m1P80A	ABB6AGC109256

ABB

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Manufacturer
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