TECHNIVOLT

Operating instructions

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TECHNIVOLT 100 (Plug socket model)
TECHNIVOLT 101 (Cable model)

Charging station for charging electric vehicles

Table of contents

1 Introduction

These instructions describe operation of the charging station **TECHNIVOLT 100** and **TECHNIVOLT 101** and is addressed to persons who wish to operate a **TECHNIVOLT** charging station.

The following text explains how the charging station is connected to the electric vehicle to charge it.

These operating instructions are an integral part of the product and must be kept safely for its entire service life.

Please read these instructions in full before installation or commissioning.

2 Intended use

The charging station is designed exclusively for charging electric vehicles using charging mode 3 (Mode 3) in accordance with the standard IEC 61851-1. Connecting other devices is not permitted.

Intended use of this device always includes compliance with the operating instructions.

3 Safety instructions in this manual

The following symbols and warning signs are used in this manual and must be observed.

DANGER

Indicates a danger that can lead to death or severe injury if it is not avoided.

WARNING

Indicates a dangerous situation that can lead to death or severe injury if it is not avoided.

CAUTION

Indicates dangers that can lead to damage to the device itself or to other electrical consumers.

NOTE

Indicates important information and special features.

Warns about electric danger

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4 Safety signs on the device

Safety signs are mounted on the charging station and must be complied with.

Read the installation instructions before you open the charging station or start installation of the charging station.

A dangerous electrical voltage may be present inside the charging station after opening the housing.

5 General safety information

DANGER

Danger to life from electrical power.

All assembly and installation work should be carried out by an expert electrician. A skilled person is someone who, on account of their technical training and experience, has adequate knowledge in the field of the installation to be tested, and who is acquainted with the applicable governmental safety at work regulations, accident prevention regulations, guidelines and the generally-accepted rules of technology (e.g. DIN standards, VDE stipulations), to an extent that he can assess the safe working status of the installation. Skilled persons can be persons such as works engineers, master craftsmen, technical staff and fitters.

The person carrying out the installation must be fit for the work involved in accordance with DGUV Regulation 103-011 “Working on live electrical systems and operating material”.

WARNING

Never permit persons (including children) with limited physical, sensoral or mental capacities, or with a lack of experience and / or knowledge to use the electrical equipment unsupervised!

Non-observance of these warnings can lead to death and severe injury.

NOTE

The alternating current mains connection and the charging plan for the charging station for electric vehicles must be checked and approved by the authorities in accordance with the applicable regional or national regulations and standards for electric vehicles. The charging plan must be created accordingly for installations with several charging stations for electric vehicles. The manufacturer is not liable, either directly or for any other reason, for damage and risks arising from faults caused by the mains connection or load planning.

For your own protection, please read through the safety instructions carefully prior to installation.

- These operating instructions must be kept in safe keeping for consultation at a later date.

- Check the voltage stated on the type plate and use the charging station only with a suitable power supply voltage.
- Do not continue to use the device if you are unsure whether it is functioning correctly, or may be damaged – switch it off and set the main power circuit breaker and residual current device to OFF. Contact your local dealer.
- The ambient temperature must be between –35 °C and +55 °C, without direct sunlight, and there the relative humidity must be between 5 % and 95 %. The charging station must only be used within these operating conditions.
- The device must be located in a position that avoids excessive heating up of the charging station. High operating temperatures, caused by direct sunlight or sources of heat, can reduce the charging current or can temporarily interrupt the charging process.
- The charging station is designed for both outdoor and indoor use.
- In order to reduce the danger of fire and the danger of electrocution or product damage, do not expose the device to rain, snow, thunderstorms or other severe weather events. In addition, the charging station must not be exposed to spillages or sprayed fluids.
- Do not touch the connection terminals, the electric vehicle plug and all other live parts on the charging station with sharp metal objects.
- Avoid contact with sources of heat and locate the device at a safe distance from flammable, potentially explosive, reactive, and combustible materials, chemicals and vapours.
- Explosion risk. This device has parts within it that may cause electric sparks and discharges and which should never come into contact with flammable vapours. It must not be installed in recesses or cellar rooms.
- The device is intended only for the charging of electric vehicles whose charging can be carried out without ventilation.
- In order to prevent the danger of an explosion or electrocution, make sure that the stipulated line protection switch and the ground fault circuit interrupter are correctly connected to the electric mains in the building.
- The bottom of the charging plug socket (TECHNIVOLT 100) should be located at a height of 1 m to 1.5 m above floor level.
- One must not use adapters or conversion adapters. Cable extension leads must not be used.
- The charging station must not be installed in areas where there is a danger of high water.

5.1 Safety instructions for the earthing system

- The charging station must be connected to a centrally earthed system. The earth line that goes into the charging station must be connected to the grounding lug of the device. This must be carried out with power circuit conductors while connected to the earthing rail of the device or on the charging station. Connection to the charging station is the responsibility of the installer and the purchaser. In order to reduce the danger of electrocution, connect the device using only properly earthed plug sockets.
- WARNING! Make sure that the charging station is constantly and properly earthed during installation and use.

5.2 Safety instructions for the mains cable, mains plug and charging cable

- Make sure that the charging cable at the side is compatible with the charging station.
- A damaged charging cable can cause fires or electrocution. Do not use this product if the flexible charging cable or the vehicle cable is frayed, has damaged insulation, or displays other indications of damage.
- Make sure that the charging cable is positioned in such a way that nobody can step on it or trip over it, and that it is neither damaged nor over-stretched.
- Never forcefully pull on the charging cable and do not damage it with sharp objects.
- Never touch the mains cable or the plugs with wet hands since this may cause a short-circuit or electrocution.
- In order to avoid the danger of fire or electrocution, the device must not be used with extension cables. If the mains cable or the vehicle charging cable are damaged, they must be replaced by the manufacturer, his customer service engineers or a similarly qualified person, in order to avoid hazards.

5.3 Safety instructions for wall mounting

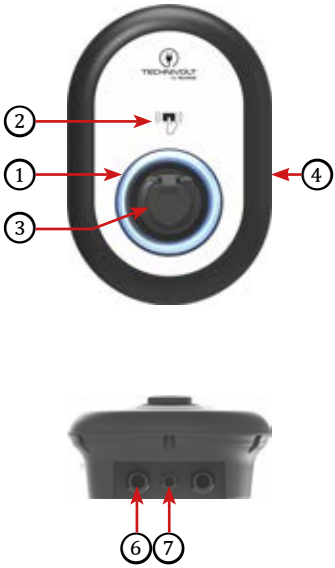
- Do not install the charging station on the ceiling or an inclined wall.
- The charging station must only be operated when mounted vertically.
- The charging station must not be installed in enclosed cabinets.
- Use only the screws and accessories provided for wall mounting.
- The device is designed for use indoors and outdoors. If the device is to be installed outdoors, all the connection devices for outdoor operation must be designed and properly installed so as to ensure that the prescribed IP protection rating is retained.

6 Information about the charging station

6.1 Operating elements and connections

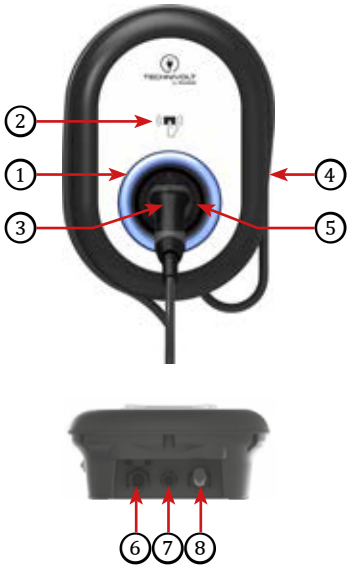
TECHNIVOLT 100

With an integrated charging plug socket



TECHNIVOLT 101

With a firmly connected charging cable



❶	LED status indicator
❷	RFID reader
❸	Charging plug socket type 2
❹	Type plate
❺	-
❻	Input AC infeed, M32
❼	Input communication cable, M20

❶	LED status indicator
❷	RFID reader
❸	Charging plug type 2
❹	Type plate
❺	Blind socket for the charging plug
❻	Input AC infeed, M32
❼	Input communication cable, M20
❽	Charging cable

6.2 Plug socket or cable model

6.2.1 TECHNIVOLT 100 (plug socket model)

Open the front cover on the plug socket and insert the charging cable into the plug socket.

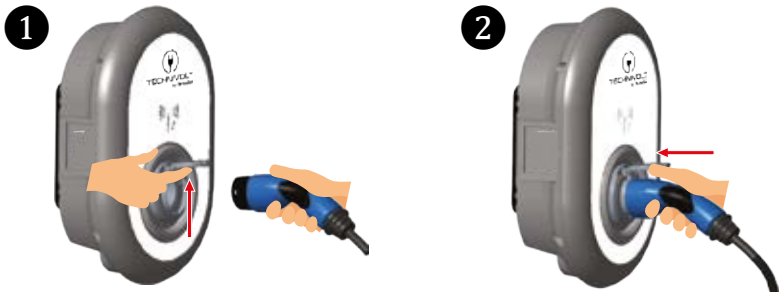


Illustration 1: TECHNIVOLT 100

6.2.2 TECHNIVOLT 101 (cable model)

Press the button on the top of the blind socket to release the charging plug from the charging unit, and unplug the charging plug. Then insert the charging plug into the vehicle to start the charging process.

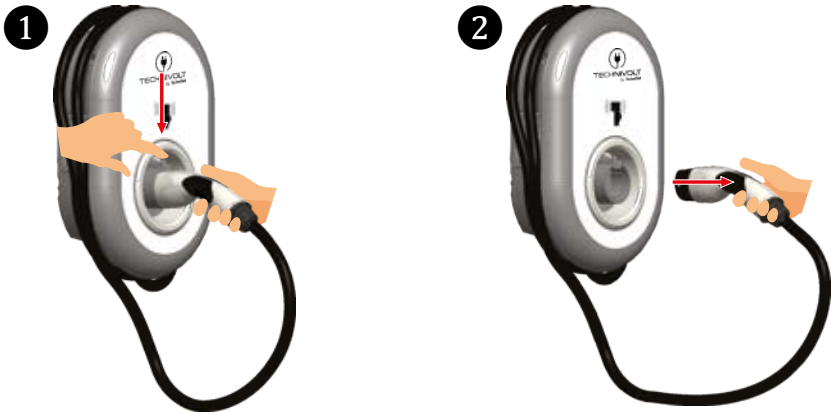
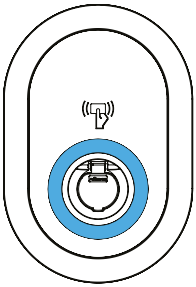
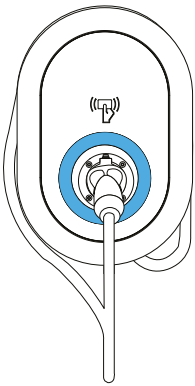


Illustration 2: TECHNIVOLT 101

Note: The colour of the charging plug may be different.

6.3 Behaviour of the status information display





Status of the LED		Status of the charging station
	No LED display	Charging device is ready for charging.
4 sec	Flashes blue once every 4 seconds	Electric vehicle is connected. The charging station waits for authorisation of the RFID card.
	Green light	Charging has started.
	Blue light	Charging process running.
	Constant blue	Charging stopped or ended.
	Constant red	Error condition.
4 sec	Flashes red once every 4 seconds	Ventilation required! Vehicle cannot be charged.
4 sec	Flashes violet once every 4 seconds	Charging with limited current because of an over-temperature.
	Constant violet	Charging is not possible because the temperature too high or the current limiter of the power optimiser has been reached or the charging device is deactivated.
1 sec / 20 sec	Flashes RED once per second for 20 seconds	RFID config.

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7 TECHNIVOLT 100 charging process

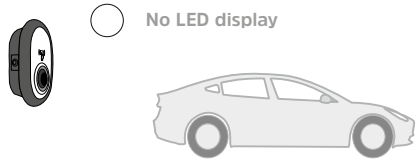
The product works in Autostart charging mode as standard.

7.1 Autostart charging mode

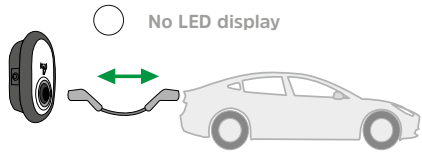
The Autostart charging mode functions without an RFID card. Charging takes place without authorisation.

7.1.1 Vehicle connection and charging

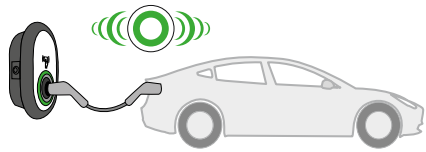
1. Make sure that your vehicle and the station are ready for charging.



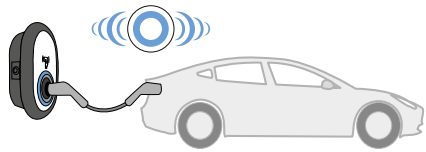
2. Connect the charging station and the vehicle with the charging cable. To do this, insert the charging plug into the vehicle plug socket and the charging station.



3. The LED status indicator lights up green when the charging station and the vehicle are connected.

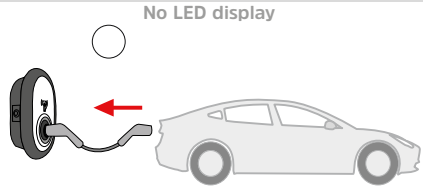


4. The charging process starts automatically and the LED status indicator lights up blue.

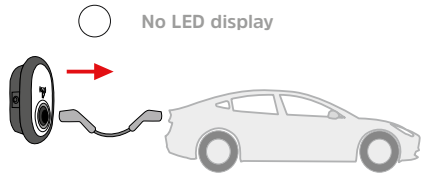


7.1.2 Stopping the charging process

1. First disconnect the charging cable from the vehicle in order to interrupt the charging process. Do not attempt to pull the plug out of the station before you have disconnected it from the vehicle. Otherwise the locking mechanism could be damaged.



2. Disconnect the charging cable from the station.

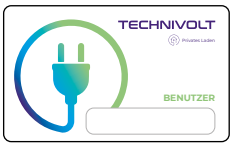


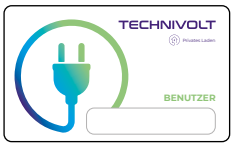
7.2 Authorised charging mode (RFID mode)

In the authorised charging mode, you release the charging station to start the charging process with a USER RFID card. To do this, a user RFID card must be registered on the charging station, see „7.2.1 User RFID card registration“.

The USER RFID cards are marked with the text "USER".

The scope of delivery of the charging station includes 2 USER RFID cards.





Before using for the first time, register the USER RFID card on the charging station. The process of registration is described in the following chapter.

7.2.1 USER RFID card registration

If you wish to use your charging station in authorised charging mode, you need to perform the following steps.

NOTE

The charging station must not be connected to the electric vehicle during registration!

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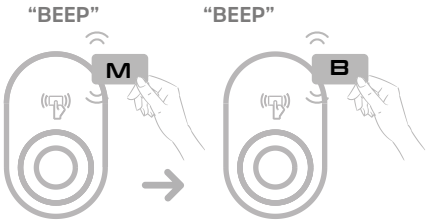
Registering the user RFID card

1. Hold the MASTER RFID card against the RFID reader.
2. After the “BEEP”, hold a USER RFID card against the RFID reader for a period of 10 seconds. Only one USER RFID card at a time can be registered.



Repeat steps 1 and 2 if you wish to register additional USER RFID cards.

In this way you can register the USER RFID cards on the charging station, one after the other. A maximum of 20 user cards can be registered on one charging station.

Removing the USER RFID card

Removal of a user card is similar to the registration of a USER RFID card.

If you wish to remove an authorised USER RFID card from the station, you first need to hold the MASTER RFID card against the RFID reader and then hold the USER RFID card to be removed against the RFID reader for a period of 10 seconds.

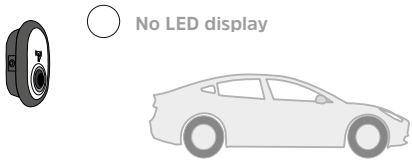
7.2.2 Vehicle connection and authorised charging

NOTE

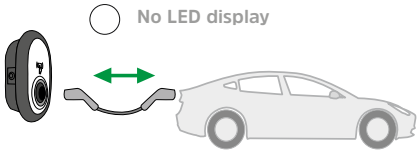
You will need a registered USER RFID card to use the authorised charging mode.

The charging process will be rejected by the charging station if you use an unregistered USER RFID card.

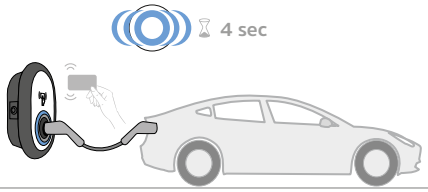
1. Make sure that your vehicle and the station are ready for charging.



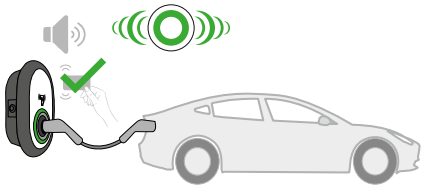
2. Insert the charging plug into the vehicle plug socket and the charging station.



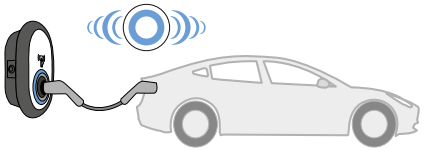
3. Hold the USER RFID card against the RFID reader.



4. The authorised USER RFID card is recognised and charging is approved.



5. The charging process starts automatically and the LED status indicator lights up blue.

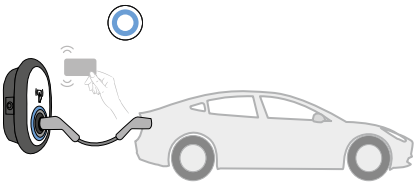


7.2.3 Stopping the charging process

1. You can use the following alternative methods of stopping the charging process. Do not attempt to remove the charging cable from the charging station before ending the charging process. Otherwise the locking mechanism could be damaged.

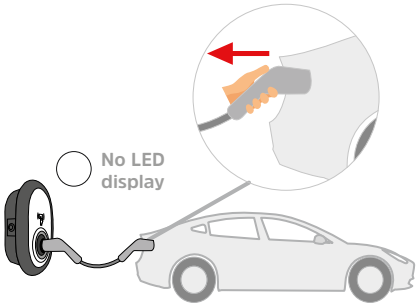
Method 1

You can end the charging process by holding the USER RFID card that you used to start the charging process against the RFID reader.

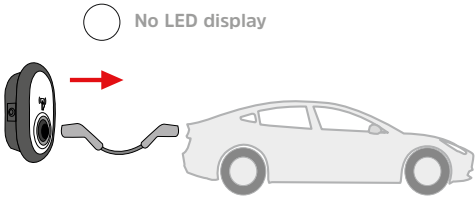


Method 2

You can end the charging process by first disconnecting the charging cable from the vehicle.



2. Disconnect the charging cable from the station.



8 TECHNIVOLT 101 charging process

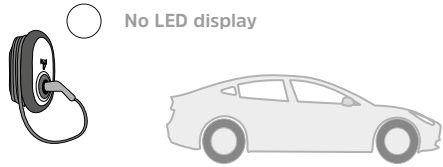
The product works in Autostart charging mode as standard.

8.1 Autostart charging mode

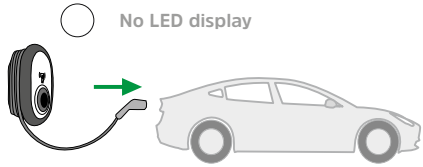
The Autostart charging mode functions without an RFID card. Charging takes place without authorisation.

8.1.1 Vehicle connection and charging

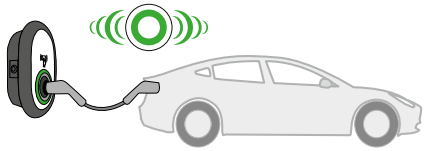
1. Make sure that your vehicle and the station are ready for charging.



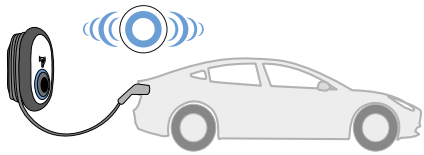
2. Connect the charging station to the vehicle. To do this, insert the charging plug into the vehicle plug socket.



3. The LED status indicator lights up green when the charging station and the vehicle are connected.

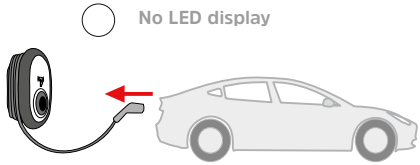


4. The charging process starts automatically and the LED status indicator lights up blue.

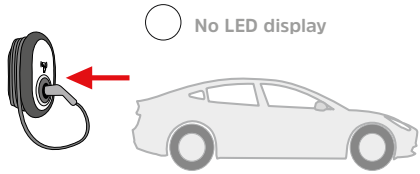


8.1.2 Stopping the charging process

1. First disconnect the charging cable from the vehicle in order to interrupt the charging process.



2. To do this, insert the charging plug into the blind socket on the charging station.

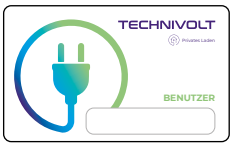


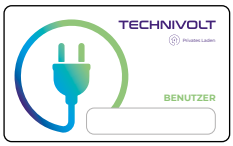
8.2 Authorised charging mode (RFID mode)

In the authorised charging mode, you release the charging station to start the charging process with a USER RFID card. To do this, a user RFID card must be registered on the charging station, see „8.2.1 User RFID card registration“.

The USER RFID cards are marked with the text "USER".

The scope of delivery of the charging station includes 2 USER RFID cards.





Before using for the first time, register the USER RFID card on the charging station. The process of registration is described in the following chapter.

8.2.1 USER RFID card registration

If you wish to use your charging station in authorised charging mode, you need to perform the following steps.

NOTE

The charging station must not be connected to the electric vehicle during registration!

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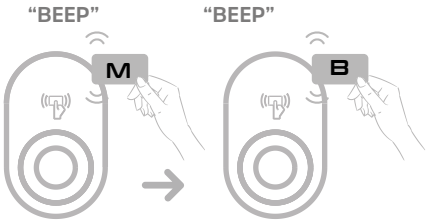
Registering the user RFID card

1. Hold the MASTER RFID card against the RFID reader.
2. After the “BEEP”, hold a USER RFID card against the RFID reader for a time period of 10 seconds. Only one USER RFID card at a time can be registered.



Repeat Steps 1 and 2 if you wish to register additional USER RFID cards.

In this way you can register the USER RFID card on the charging station, one after the other. A maximum of 20 user cards can be registered on one charging station.

Removing the USER RFID card

The removal of a user card is similar to the registration of a USER RFID card.

If you wish to remove an authorised USER RFID card from the station, you first need to hold the MASTER RFID card against the RFID reader and then hold the USER RFID card to be removed against the RFID reader for a period of 10 seconds.

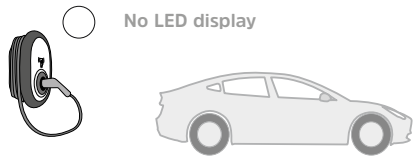
8.2.2 Vehicle connection and authorised charging

NOTE

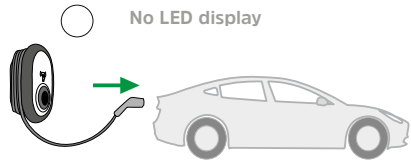
You will need a registered USER RFID card to use the authorised charging mode.

The charging process will be rejected by the charging station if you use an unregistered USER RFID card.

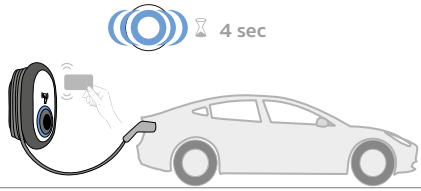
1. Make sure that your vehicle and the station are ready for charging.



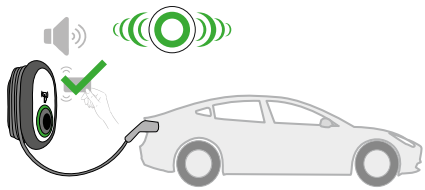
2. Insert the charging plug into the vehicle plug socket.



3. Hold the USER RFID card against the RFID reader.



4. The authorised user RFID card is recognised and charging is approved.



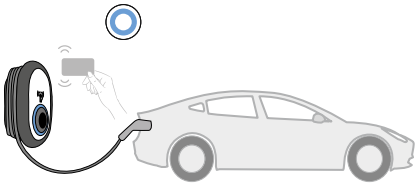
5. The charging process starts automatically and the LED status indicator lights up blue.

8.2.3 Stopping the charging process

1. You can use the following alternative methods of stopping the charging process.

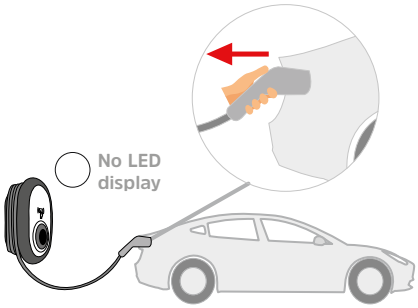
Method 1

You can end the charging process by holding the USER RFID card that you used to start the charging process against the RFID reader.

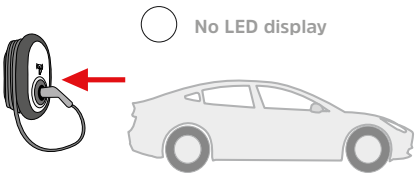


Method 2

You can end the charging process by disconnecting the charging cable from the vehicle.



2. Insert the charging plug into the blind socket on the station.



9 Loss of the MASTER RFID card

If you have lost the registered Master RFID card, you can register a new Master RFID card on the charging station.

You need to open up the charging station for registration.

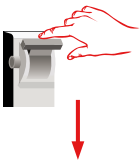
DANGER

Danger to life from electrical power.

There is an immediate danger to life by electrocution if you touch live parts.

The charging station must be opened only by a skilled electrician.

1. Switch the charging station off at the line protection switch.

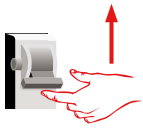


2. Open the charging station as described in the installation instructions.

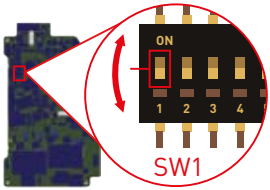
4. Open the charging station as described in the installation instructions.

5. Switch the charging station on.

The previously stored Master and user RFID cards are deleted.



3. Switch DIP switch no. 1 over to the other position using a pointed plastic tool. The position of the DIP switches is shown in the following illustration.



6. The status information LED must flash red for 20 seconds when a new Master RFID card is registered. You can register a new Master RFID card in 20 seconds by holding it against the RFID reader. (If you do not hold a card against it for this period of time, you will not be able to register user cards and your station will remain in the Autostart charging mode.) After you have registered a new Master RFID card, you can carry out the steps in the “Authorised Charging Mode” section to add user RFID cards.

10 Locked cable function (only TECHNIVOLT 100)

The charging plug socket on the charging station is equipped with a locking function.
If the charging plug on the charging cable is in the charging plug socket, and the function is activated,
it is no longer possible to remove the charging plug from the charging plug socket. Anti-theft protection!

The charging station needs to be opened up to activate the function.

DANGER

Danger to life from electrical power.

There is an immediate danger to life by electrocution if you touch live parts.

The charging station must be opened only by a skilled electrician.

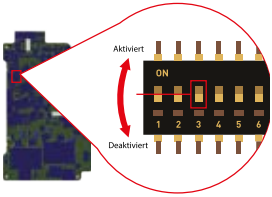
1. Switch the charging station off at the line protection switch.

2. Open the charging station as described in the installation instructions.

4. Open the charging station as described in the installation instructions.

5. Open the front cover on the plug socket and insert the charging cable into the plug socket.

3. Switch DIP switch no. 3 to ON using a pointed plastic tool to activate the cable locking function. The position of the DIP switches is shown in the following illustration.



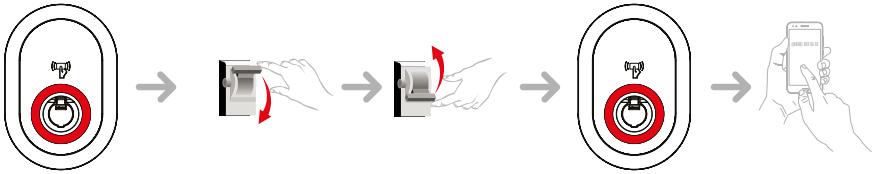
6. Switch the charging station on.
   The charging cable is locked and the charging station behaves like a cable model.

11 Faults and fault conditions

11.1 General fault conditions

If the status information LED lights up red constantly, switch the charging station off and on again.

If the LED still shows red, contact an authorised customer service provider.



11.2 Other fault conditions

Status indicator	Problem	Possible cause	Recommended solution
	Constant DISPLAY.	The AC power supply voltage may not be within the prescribed range. It is possible that earthing has not been carried out, and/or the phase/neutral connections have been made incorrectly, or the charging station may have a fault.	Make sure that the voltage is within the target range and that the earthing has been carried out in accordance with the regulations. If the display still shows red, contact customer services.
	Even if the status information LED flashes blue every four seconds, it is not possible to charge the electric vehicle or to lock the plug in the charging station.	It is possible that the charging plug is not correctly connected to the charging device or the electric vehicle.	Make sure that the charging plug is correctly connected at both ends. Please check that the electric vehicle is in charge mode.
	The status information LED flashes red.	This error message is displayed if your vehicle is fitted with a type of battery that requires ventilation.	This loading station is not designed for charging this type of vehicle.

11.3 Behaviour of the DC 6 mA direct current leakage sensor

The charging station is fitted with a DC leakage current sensor which reacts to a DC leakage current of more than 6 mA.

If the charging station switches into an error state on account of a DC leakage current, you need to switch off the AC power supply to the charging station to reset the charging station from the error state.

12 Shutdown and re-starting the charging station

The charging station does not have its own mains switch.

The charging station can be taken out of service temporarily or for the long-term if required. Carry out the following steps:

1. Switch off the upstream line protection switch.
2. Switch off the upstream residual current device.

The charging station is now not able to carry out any charging processes.

Carry out the following steps to put the charging station back into service:

1. Switch on the upstream line protection switch.
2. Switch on the upstream residual current device.

The charging station is now being supplied with power. The charging station can again be used for charging electric vehicles after the internal charging controller has booted up.

13 Maintenance and cleaning

The charging station does not need any periodic maintenance.

In the event of contamination, the charging station can be wiped down using a soft damp cloth.

WARNING

- Do not clean your charging device for electric vehicles when you are charging your vehicle!
- Do not wash the device with water!
- Do not use abrasive cloths and cleaning agents!
  We recommend using a micro-fibre cloth.

Non-observance of these warnings can lead to death and severe injury. It can also lead to damage to your device.

14 Disposal

Electronic devices do not belong in the household waste and must be disposed of properly in accordance with Directive 2002/96/EC OF THE EUROPEAN PARLIAMENT AND COUNCIL dated January 27, 2003 concerning waste electrical and electronic equipment. Please return this device to the designated public collection point for disposal at the end of its service life.

The symbol on the device indicates this requirement.

15 CE mark and Declaration of Conformity

The TechniVolt charging station has the CE mark.

TechniSat hereby declares that the TECHNIVOLT 100 and TECHNIVOLT 101 equipment complies with Directive 2014/53/EU. The full text of the EU conformity declaration is available at the following Internet address:

TECHNIVOLT 100: http://konf.tsat.de/?ID=23267

TECHNIVOLT 101: http://konf.tsat.de/?ID=23266

16 Contact address

TechniSat Digital GmbH

Julius-Saxler-Str.

D-54550 Daun, Germany

Web www.technisat.de

17 Service instructions

This product is quality-tested and furnished with the legally-specified warranty period of 24 months from the date of purchase. Please keep your receipt as proof of purchase. In the event of warranty claims, please contact the product dealer.

For questions relating to the operation of the device, please contact our

TechniVolt End User Hotline

Tel. 0049-3925 9229 1272

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