



TECHNIVOLT

Operating instructions



TECHNIVOLT 1100
1100 SMART
2200 SMART

Charging station for charging electric vehicles



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Feedback on this manual

If you have any suggestions for a better design or if you are missing information in the instructions, please send your suggestions to:

techdoc@technivolt.de

CE mark and declaration of conformity

The **TECHNIVOLT** charging station has the CE mark.



TechniSat hereby declares that the **TECHNIVOLT 1100**, **TECHNIVOLT 1100 SMART** and **TECHNIVOLT 2200 SMART** equipment complies with Directive 2014/53/EU. The full text of the EU conformity declaration is available at the following Internet address:

TECHNIVOLT 1100: <http://konf.tsat.de/?ID=23268>

TECHNIVOLT 1100 SMART: <http://konf.tsat.de/?ID=23268>

TECHNIVOLT 2200 SMART: <http://konf.tsat.de/?ID=23268>

Contact address

TechniSat Digital GmbH
Julius-Saxler-Straße3
D-54550 Daun, Germany
Web www.technisat.de

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 Customer Hotline
Tel. 0049-3925 9220 1272

Introduction

This manual describes the operation of the following charging station models:

TECHNIVOLT 1100

TECHNIVOLT 1100 SMART

TECHNIVOLT 2200 SMART

and is aimed at people who want to use 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.

Intended use

The **TECHNIVOLT** charging station is a power supply unit for electric vehicles, intended for connection to an AC mains supply. The charging station is designed exclusively for charging electric vehicles using charging mode 3 (Mode 3 in accordance with standard IEC 61851-1. Connecting other devices is not permitted.




The connection to the electric vehicle is established using a permanently attached type 2 vehicle connector charging cable according to standard IEC 62196-2.

The **TECHNIVOLT** charging station is a piece of equipment that is permanently installed (surface-mounted) and intended for installation at locations with restricted access (e.g. private properties, company car parks, depots).

The intended use of this device always includes compliance with the operating instructions (see "Operating conditions" on page 74).




Any use of the **TECHNIVOLT** charging station that is not in accordance with its intended use is not permitted and will result in the exclusion of warranty, guarantee, and liability.

Symbols used in this manual

Symbol	Meaning
	General warning symbol
	Warns about electrical danger
	Indicates tips and recommendations
•	Bullet point/List entry
<input checked="" type="checkbox"/>	A condition has been met.
➤	Step
1, 2, 3...n	Steps with a fixed sequence
↪	Result of a step

Symbols used on the unit

Safety signs are affixed to the charging station and must be complied with.

Symbol	Meaning
	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.
	The device bears the CE mark - on Page 3.

Warning signs in this manual

The following symbols and warning signs are used in this manual and must be observed. Warnings prevent life-threatening or fatal injuries. Observe all notes and follow all instructions.



DANGER

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



WARNING

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



CAUTION

Indicates a hazardous situation with low risk which, if not avoided, may result in minor or moderate injury or damage to property.

NOTE

Indicates an important piece of information and/or special feature relating to specific steps and circumstances.

Safety information

**DANGER****Danger to life from electrical power.**

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

- For your own protection, please read through the safety instructions carefully prior to installation.
- Follow all safety instructions.
- **Failure to follow the safety instructions may result in death or serious injury.**

**WARNING**

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

- **Failure to observe this warning may result in death or serious injury.**

These operating instructions must be safely retained for consultation at a later date.

The manufacturer accepts no liability for damage caused by inappropriate handling or by failure to comply with the safety precautions.

- Do not continue using the device if you are unsure whether it is functioning correctly, or if you suspect it may be damaged. In this case, switch it off! Switch the line and residual current circuit breaker to OFF. Contact your local distributor.

- The ambient temperature must be between $-25\text{ }^{\circ}\text{C}$ and $+50\text{ }^{\circ}\text{C}$, out of direct sunlight, and the relative humidity must be between 5% and 95%. The charging station may only be used within these operating conditions.
- Do not expose the charging station to direct jets of water, such as that from a garden hose or high-pressure cleaner.
- Do not store any objects above the charging station. Falling objects can damage the charging station.
- The device is intended only for charging electric vehicles that can be charged without ventilation.
- Observe vehicle-specific features during the charging process. This information can be found in your vehicle's manual.
- The electric vehicle must be parked in such a way that the charging cable can be connected to the electric vehicle without any difficulty. The charging cable must not be under mechanical strain, and must rest on the floor.
- Wind the charging cable around the charging station when charging is complete. Do not leave it on the floor. There is a risk that you might drive over the charging cable and/or the charging plug with the vehicle, thus causing damage.
- The charging station must not be used with a cable extension, thus avoiding the risk of fire or electric shock.
- Vehicle adapters must not be used to connect a vehicle coupling to a vehicle connector.
- A damaged charging station must be immediately taken out of service.
- A damaged charging cable or charging plug must be replaced immediately by a qualified electrician.
- The charging station may only be repaired by a qualified electrician.

- When repairing the charging station, only system parts approved by the manufacturer may be used.
- Signs and markings affixed by the manufacturer must not be altered, removed, or made unrecognisable.
- It is forbidden to make any changes to the housing, the charging cable, or the internal circuitry. In the event of non-compliance, any liability or warranty claims shall be void.

Safety instructions for people with pacemakers

Electromagnetic fields can influence and interfere with a pacemaker or an implantable defibrillator (ICD).

We recommend that people fitted with a pacemaker or defibrillator consult their doctor before using this product.

Identification of the product variants

The **TECHNIVOLT** charging station is available in different versions, which differ electrically and are equipped with different functions.

Identify your product using the item no. on the type plate.

Variants TECHNIVOLT	Charging cable Length	Item no.	Charging power	MID
1100	5 m	0000/6300	11 kW	No
	7.5 m	0007/6300	11 kW	No
1100 SMART	5 m	0000/6301	11 kW	Yes
	7.5 m	0007/6301	11 kW	Yes
2200 SMART	5 m	0000/6302	22 kW	Yes
	7.5 m	0007/6302	22 kW	Yes

The type plate is located on the front of the charging station, below the front glass panel. The following image shows all the details on the type plate.



①	Manufacturer	④	CE marking
②	Item no. and model designation	⑤	Disposal instructions
③	Serial number (bar code)		

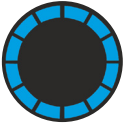



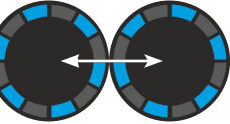
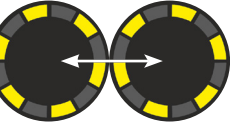

Operating elements and connections Device overview


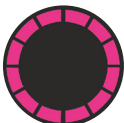


①	Light ring, LED status indicator
②	RFID reader and brightness sensor
③	MID energy meter (SMART only)
④	Front glass panel
⑤	Charging cable
⑥	Charging plug type 2
⑦	Type plate
⑧	Mains supply input, M32
⑨	Charging cable input
⑩	Network/Ethernet input, M25

LED status indicator

The **TECHNIVOLT** charging station is equipped with a multi-coloured, animated LED display that informs you of the status of the charging station. The meanings of the light statuses are described in this chapter.

Status of the LED	Status of the LED	Status of the charging station
	Constant blue	Charging device is ready for charging.
	Bottom two LEDs constant blue	The charging station has been locked via OCPP and cannot be used in this state.
	Flashing blue every 2 seconds	Electric vehicle is connected. The charging station is waiting for authorisation of the RFID card.
	Rotating blue	RFID card has been held in front of the RFID reader.
	Flashing blue every 0.5 seconds	RFID card has been recognised.
	Flashing yellow every 0.5 seconds	RFID card was not recognised and has been rejected.
	Constant green	Electric vehicle is connected. The charging station is waiting for authorisation of the RFID card.

Status of the LED		Status of the charging station
	Rotating green	Charging process under way
	Flashing green every 2 seconds	Charging process is complete
	Rotating yellow	The charging current was reduced during the charging process, e.g. due to the charging station overheating.
	Constant red	Error condition <ul style="list-style-type: none"> ► See error entry under Dashboard/System Status > Error
	Bottom two LEDs constant red	The PE monitoring has detected a fault at the protective earth. The charging process is nevertheless carried out.
	Flashing red every 2 seconds	DC residual current device has tripped.
	Constant purple	Rotating field detection. Outer conductor of the supply line reversed or "Number of phases connected to the charging point" not configured correctly.

RFID reader and brightness sensor



The charging station is equipped with an RFID reader. This is marked NFC and is located below the LED status display. If the charging station is configured for authorised charging, briefly hold the RFID card against the reader to start the charging process.

The RFID reader has a brightness sensor that controls the brightness of the LED status display. The adjustment is time-delayed.

MID energy meter



The **TECHNIVOLT 1100 SMART** and **TECHNIVOLT 2200 SMART** charging stations are equipped with an energy meter. The energy meter shows the total consumption at the charging station in kWh on its display.

You can export an overview of the individual charging processes from the charging station as a CSV file using a web browser.

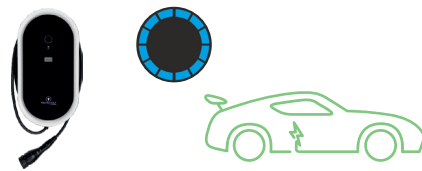
Relevant information this can be found in chapter "Export charging processes" on Page 20.

Charging process

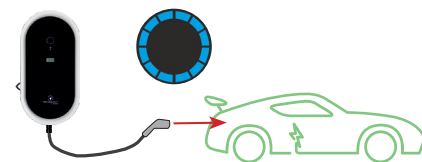
The **TECHNIVOLT** charging station works in Autostart charging mode by default.

Autostart charging mode

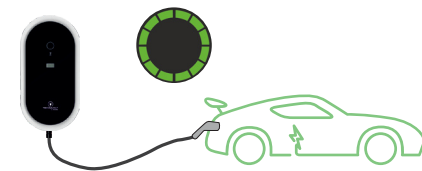
The Autostart charging mode functions without an RFID card. Charging takes place without authorisation.



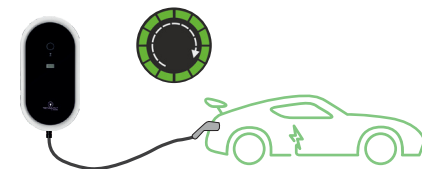
The charging station is ready for charging when the LED status indicator is constantly **blue**. Make sure that your vehicle and the station are ready for charging.



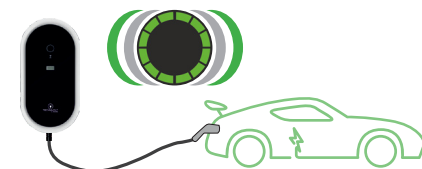
Connect the charging station to the vehicle. To do this, insert the charging plug into the vehicle plug socket.



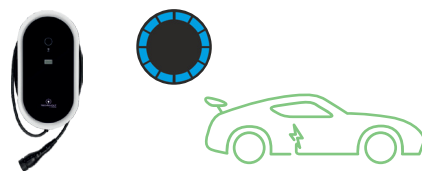
The LED status indicator lights up **green** when the charging station and the vehicle are connected.



The charging process starts automatically and the LED status indicator lights up **rotating green**.



When charging is complete, the LED status indicator flashes **green**.



Disconnect the charging cable from the vehicle and wind it around the charging station.

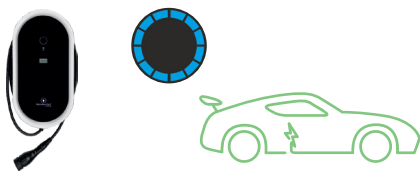
Authorised charging mode

In authorised charging mode, you use a user RFID card to release the charging station and start the charging process. To this end, a user RFID card must be registered at the charging station (see "User RFID card registration" on Page 21) and authorised charging must be activated (see "Activate authorised charging" on Page 22).

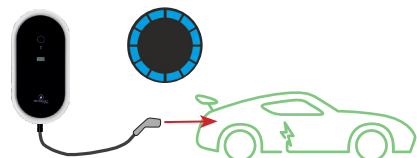
The scope of delivery of the charging station includes 2 user RFID cards.



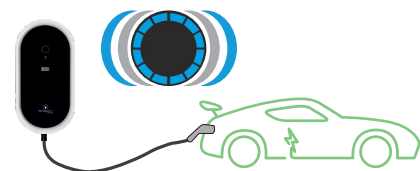
The charging process will be rejected by the charging station if you use an unregistered user RFID card.



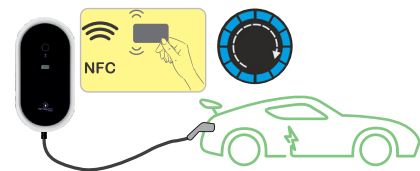
The charging station is ready for charging when the LED status indicator is constantly **blue**. Make sure that your vehicle and the station are ready for charging.



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



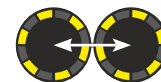
The LED status indicator **flashes blue**.
The charging station waits for authorisation of the RFID card.



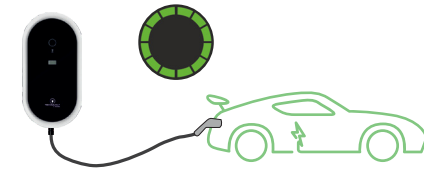
Hold the user RFID card against the RFID reader.
The LED status indicator lights up **rotating blue** if the RFID card is authorised.

NOTE

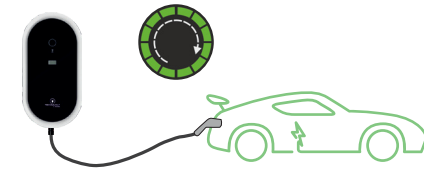
The LED status indicator **flashes yellow**.



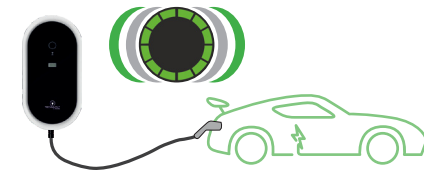
RFID card was rejected by the charging station because it was not recognised as authorised or because it was defective.



The LED status indicator lights up **green**.
The vehicle and charging station are communicating with one another.



The LED status indicator lights up **rotating green**.
The charging process is running and the vehicle is being charged.



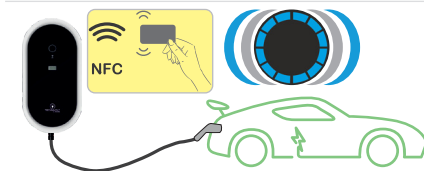
The LED status indicator **flashes green**.
The charging process is complete.



Disconnect the charging cable from the vehicle and wind it around the charging station.

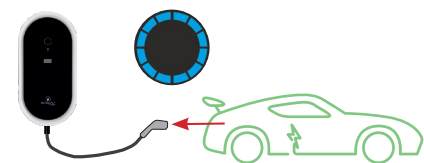
Stopping the charging process

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



Method 1

Hold the user RFID card that you used to start the charging process against the RFID reader.
The LED status indicator **flashes blue** when charging is stopped.



Method 2

Disconnect the charging cable from the vehicle.
Observe vehicle-specific features when cancelling the charging process. This information can be found in your vehicle's manual.

Settings on the charging station



CAUTION

Do not make any changes to the charging station settings other than those described here. Other configuration settings may only be applied by a qualified electrician.

➤ **Failure to observe this warning may result in a fire hazard under certain circumstances.**

To configure settings on the charging station, the web-based configuration interface must be accessed.

In principle, the web interface of the charging station can be accessed via WLAN or LAN



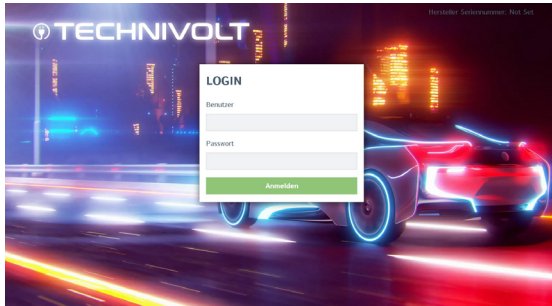
Use the WLAN configuration hotspot as described below.

You will need the following access data, which you will receive from the installer who commissioned the system.

- Password for the WLAN configuration hotspot
- User name for the configuration interface
- Password for the configuration interface

Access via WLAN hotspot

1. Switch to the WLAN settings on your mobile device or PC.
 - The charging station appears under the network name (SSID) *TechniVolt [serial number]*. Please take the serial number from the type plate.
2. Select the network name *TechniVolt [serial number]*.
 - The connection between the charging station and the mobile device or Windows PC is established.
3. Open a web browser and enter the IP address of the charging station. The configuration interface is then accessed with the URL <http://172.20.0.1>.
 - The LOGIN access to the configuration interface opens.



- Enter the user name and password in the LOGIN window and confirm by clicking on 'Log in'.



The password was set by the installer when the charging station was set up. You can make a note of it here.

User: operator

Password:

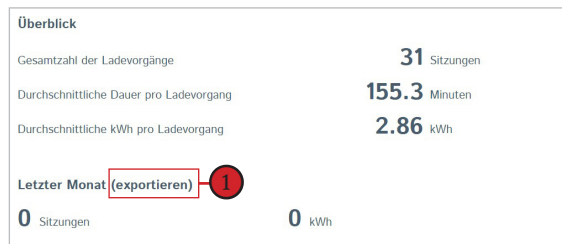
- Access the configuration interface - the main menu and dashboard are displayed.

The dashboard displays current information about the **TECHNIVOLT** charging station.



- ① Main menu (left menu bar)

Export charging processes



You can export an overview of the individual charging processes from the charging station as a CSV file using a web browser.

You are in the dashboard and can export the charging processes as follows.

- Click on **export** 1.
- Export the **ChargeReport.csv** file.

You can open a CSV file type using a spreadsheet program such as 'Excel' or 'LibreOffice Calc'.

The file gives you an overview of the charging processes in the current and previous month, with the charged **energy [Wh]** (only **TECHNIVOLT SMART** with MID).

Session Number	Start Date	Start Time	Duration	Energy [Wh]	RFID-Tag
1	03.11.2021	07:49:23	04:14:59	10379	1432640e
3	04.11.2021	16:51:45	00:01:27	0	8cbbaca6
4	04.11.2021	17:12:00	00:58:17	9547	0488426aa15880
5	05.11.2021	10:20:44	05:11:45	6239	0488426aa15880
6	08.11.2021	12:41:31	04:03:37	43491	0488426aa15880

- Session Number: Charging process serial number.
- Start Date: Date of the charging process.
- Start Time: Start time of the charging process.
- Duration: Duration of the charging process.
- Energy [Wh]: charged energy in watt-hours.



Converting watt-hours [Wh] to kilowatt-hours [kWh]:

1000 Wh = 1 kWh

9547 Wh/1000 = 9.547 kWh

- RFID tag: If multiple users with one RFID card are registered for authorised charging at the charging station, the UID of the RFID card is displayed here.

User RFID card registration



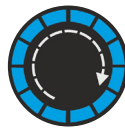
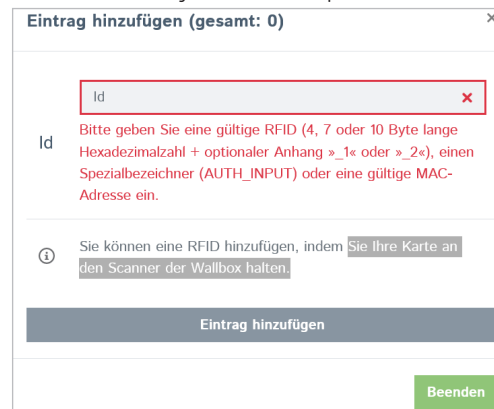
For authorised charging mode, a user RFID card is required to start the charging process. Read on to find out how to register user RFID cards at the charging station.

- You have access to the configuration interface and are in the dashboard.

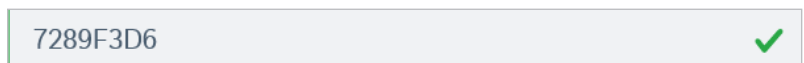
1. Click on "WHITELISTS" in the main menu (left menu bar).
 ➔ The WHITELISTS menu interface opens.



2. Click on "Add entry" **1** under *Local whitelist*.
 ➔ The "Add entry" window opens.

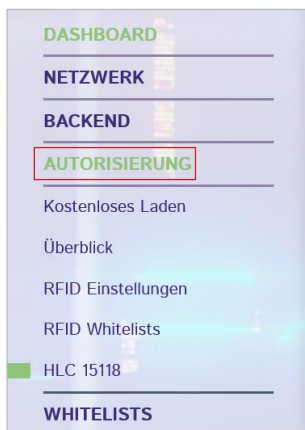


3. Hold the Master RFID card against the RFID reader. When the card is recognised, the illuminated ring rotates 1 x to the right.
 ➔ The UID of the RFID card is displayed and stored in the local whitelist



- Repeat step 3 if you wish to register additional user RFID cards (Limit: > 1,000 UIDs).
- To exit, click on "Exit".

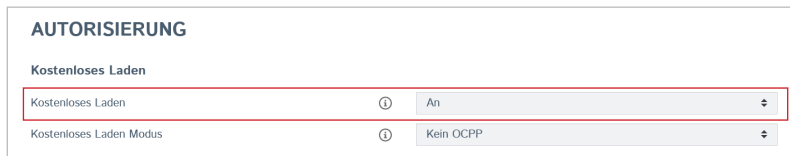
Activate authorised charging



To use authorised charging, authorisation must be enabled.

- You have access to the configuration interface and are in the dashboard

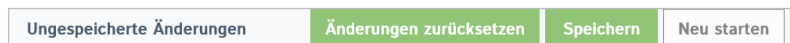
1. Click on "AUTHORISATION" in the main menu (left menu bar).
➔ The AUTHORISATION menu interface opens.



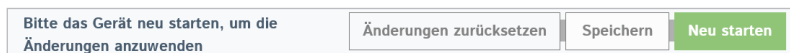
Under "Free charging" you can specify whether charging with authorisation is allowed.

- **Off:** Charging is carried out by means of authorisation via RFID card.
- **On:** Charging takes place without authorisation and starts immediately when an electric vehicle is connected.

2. Set Free Charging to **Off**.
➔ The lower menu bar is displayed and the control panels are activated as required.



3. Click on "Save".
➔ The lower menu bar is displayed and the control panels are activated as required.




4. Click on "Restart".
➔ The charging station is restarted. This process takes about 30 seconds. After this, your charging station is ready for operation again.



Your charging station is now configured for authorised charging and the charging process can only be started with a registered user RFID card.


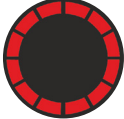

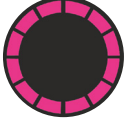
Faults and fault conditions

The **TECHNIVOLT** charging station has internal protection devices and function monitors. If discrepancies or errors are detected by the protective devices, this is signalled and charging is prevented.

Status of the LED		Status of the charging station
	Rotating yellow	The charging current was reduced during the charging process, e.g. due to the charging station overheating.

NOTE

If one of the following statuses is displayed on the LED status indicator, discontinue use of the charging station and contact your responsible electrical engineer.

Status of the LED		Status of the charging station
	Flashes red every 2 seconds	DC residual current device has tripped. ► The integrated protective device is reset by unplugging the charging cable and plugging it in again after 1 minute.
	Constant red	Fault condition detected. ► Fault description can be read from the system status of the charge controller.
	Bottom two LEDs constant red	The PE monitoring has detected a fault at the protective earth. The charging process is nevertheless carried out. ► PE connection in the installation must be checked.
	Constant purple	Rotating field detection has tripped. The outer conductors of the infeed line are reversed or the "Number of phases connected to the charging point" is not configured correctly.

Shutting down and restarting 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 be used for charging electric vehicles again once the internal charging controller has booted up.

Maintenance and cleaning

The **TECHNIVOLT** charging station does not require any periodic maintenance.

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

Do not use any solvent-based, aggressive or abrasive cleaning agents.

Do not use abrasive cloths and cleaning agents! We recommend using a micro-fibre 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 direct jets of water (e.g. garden hose, high-pressure cleaner) to clean the charging station.

➤ **Failure to observe this warning may result in death or serious injury. It can also cause damage to your device.**

Disposal



Electronic devices do not belong in the household waste and must be disposed of properly in accordance with Directive 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL dated 04 July 2012 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.



TECHNIVOLT



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