

T2Max

**Electric vehicle
charging station**



**Installation, use and
maintenance guide**

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SAFETY



DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



WARNING indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



CAUTION indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



WARNING Before you deploy the charging station, a trained electrician who has received instructions from Parking Energy must have completed the cabling work required for the charging readiness.

GLOSSARY

Term	Meaning
2G, 4G	The second and fourth generation of wireless mobile telecommunications technology.
ABS	Acrylonitrile butadiene styrene. A common thermoplastic polymer.
AC	Alternating current. An electric current which periodically reverses direction and changes its magnitude continuously with time.
ALS	Ambient light sensor. A photodetector that is used to sense the amount of ambient light present, and appropriately dim the device's screen to match it.
Ethernet	A group of wired computer networking technologies commonly used in local area networks (LAN), metropolitan area networks (MAN) and wide area networks (WAN).
GF	Glass fibre. A material consisting of numerous extremely fine fibres of glass.
LTE	Long-term evolution. In telecommunications, a standard for wireless broadband communication for mobile devices and data terminals.
MID	Measuring Instruments Directive
OCPP	Open Charge Point Protocol. An application protocol for communication between Electric vehicle (EV) charging stations and a central management system, also known as a charging station network.
PC	Polycarbonates. A group of thermoplastic polymers that contain carbonate groups in their chemical structures.
RAL	RAL is a colour management system used in Europe, created and administrated by the German RAL GmbH.
RCBO	Residual Current Breaker with Over-Current. Protects against two types of fault and combines the functionality of a miniature circuit breaker and a residual current device.
RFID	Radio-frequency identification. Uses electromagnetic fields to automatically identify and track tags attached to objects.
RJ45	A type of connector commonly used for Ethernet networking. Ethernet cables have an RJ45 connector on each end.
SIM	Subscriber Identity Module or Subscriber Identification Module. An integrated circuit (IC) intended to securely store the international mobile subscriber identity (IMSI) number and its related key, which are used to identify and authenticate subscribers on mobile telephony devices.
TFT	Thin-film transistor. A type of display that has a transistor for each pixel.
V2G	Vehicle-to-grid. Describes a system in which plug-in electric vehicles (PEV) sell demand response services to the grid.
Wi-Fi	Wireless Fidelity. A group of wireless network protocols, which are commonly used for local area networking of devices and Internet access, allowing nearby digital devices to exchange data by radio waves.

TECHNICAL DESCRIPTION

T2Max is an electric vehicle charging station with four charging ports, enabling flexible charging power adjustment. This 22kW Type 2 electric vehicle charging station has two 3-phase 22kW charging units for electric vehicles, and it is available either with Type 2 cables or Type 2 sockets.

Both units are capable of 1-, 2- or 3-phase charging, or alternatively, charging or heating with a Schuko plug. Therefore, charging is possible with separate power settings on each side, between 3.7 and 22 kW for Type2 and between 0 and 1.8 kW for a Schuko plug.

Charging can be started and stopped, for example, using a radio frequency identification (RFID) tag, or the Parking Energy mobile application (available for the Android and iOS operating systems). A detailed, event-specific metering for invoicing purposes is done by two energy meters which have been approved to meet the requirements of Measuring Instruments Directive (MID) 2014/32/EU. The data is automatically transmitted to the backend of the Parking Energy system, using ei-

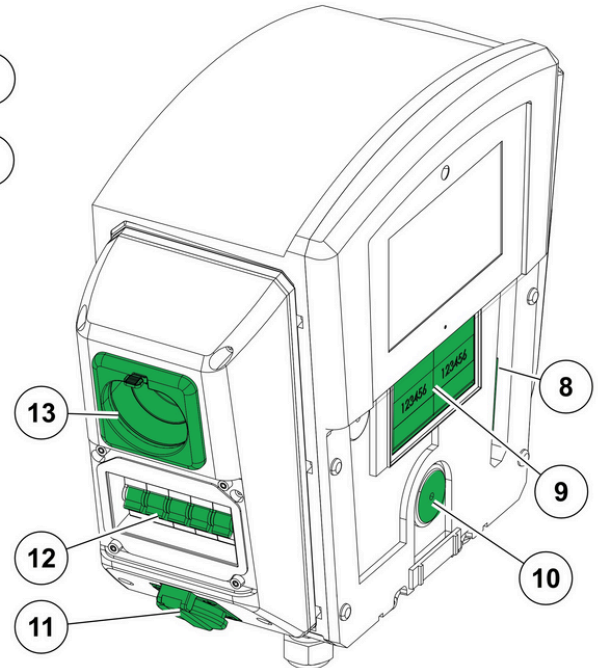
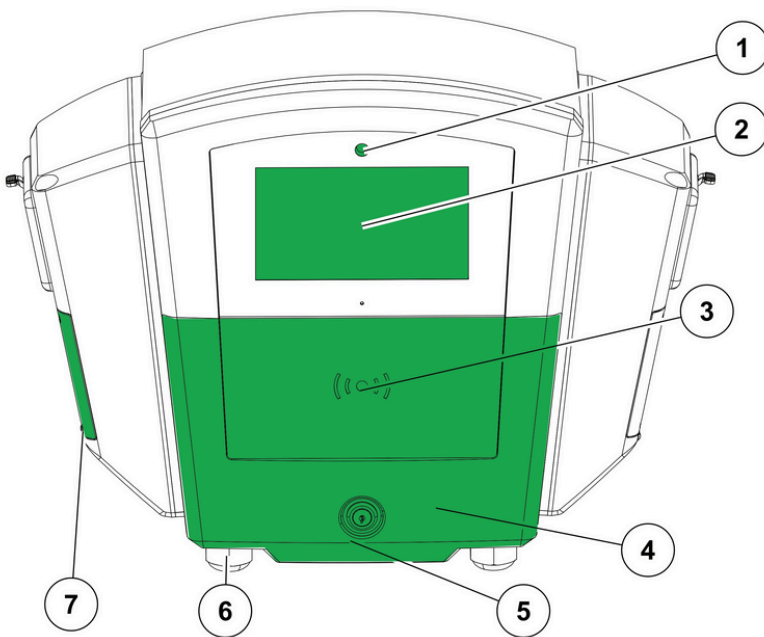
ther Wireless Fidelity (Wi-Fi) + 2G/4G, Long Term Evolution (LTE), or Ethernet data connections. For providing maximum charging power to all the users, the charging stations also have dynamic load management through the Parking Energy cloud service.

The charging station has a touch screen display made of tempered glass, and a camera module enables offering customer-specific services in the future, such as vehicle recognition by the registration number, guidance, and parking space reservation. For improved user experience, the display has ambient light sensor (ALS), which adapts the display brightness to the ambient light, for example, dimming the display at night.

The Residual Current Breaker with Over-Current (RCBO) which consists of a circuit breaker and type A residual current device (for alternating current), as well as the and the type B residual current device (for direct current) inside the charging station ensure that the charging station is safe as well as easy to use and install.



Main parts



1	Camera
2	Touch screen display
3	RFID reading area
4	Service panel
5	Service panel lock
6	Charging cable connector
7	RCBO type A devices protective panel
8	Opening for the USB SIM module

9	MID-certified energy meter displays
10	Main switch axle (NOTE: Here only the location is shown, not the actual switch.)
11	Schuko sockets approved for electric vehicle charging
12	RCBO type A devices
13	Holder for Type 2 charging cable



NOTE: In the pictures above, the left one shows all the panels still attached, whereas in the right one, the service panel and RCBO protective panel have been detached and removed

INSTALLATION

The cabling is connected from the switchboard to the charging station as three-phase power and, in a network of several T2Max charging stations, daisy-chained between the quick connectors. Each quick connector provides charging readiness for feeding electric current to two vehicles.

In the case of a network of several T2Max charging stations (for example, in a parking hall), installation and configuring is already done for the user, so you can just start using T2Max. See chapter "USE" on page 11.

In the case of a single T2Max installation for private use, it takes only a few minutes to install T2Max to a quick connector located either on a wall or on a pole – with layman skills, no electrician needed at that point.

Before you start

Make sure you have the following tools available:

- A flathead screwdriver of, for example, 5 mm (for more easily opening the hinged lids which cover the locking safety screws between the charging station and the quick connector)
- The special tool delivered in the product package (for adjusting the safety screws)
- Torx screwdriver T20 (for opening the screws of the quick connector lid)

Installing T2Max using a quick connector



CAUTION The T2Max charging station weighs 10 kg.

If you accidentally drop the charging station, you may hurt yourself or anyone else standing close.

Use non-slip grip safety gloves.

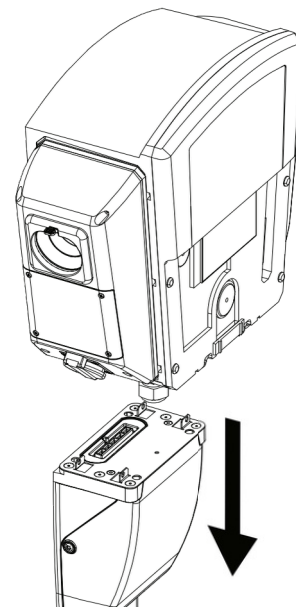
Handle the charging station with care, particularly when it is not attached to the quick connector.

To install a T2Max charging station:

1. When a trained electrician has completed the cabling work required for the charging readiness, the quick connector is usually covered with a lid. The lid is fastened with two screws. To remove the lid, open the screws with a Torx screwdriver.

Lift the charging station above the quick connector and carefully place the charging station on the quick connector.

Make sure that the square slots on the bottom of T2Max are placed on the tabs of the quick connector.



NOTE: The springs in the electric current connector are rigid. When the charging station is positioned correctly on the connector, press the charging station properly downwards. The charging station is in the right position when it is

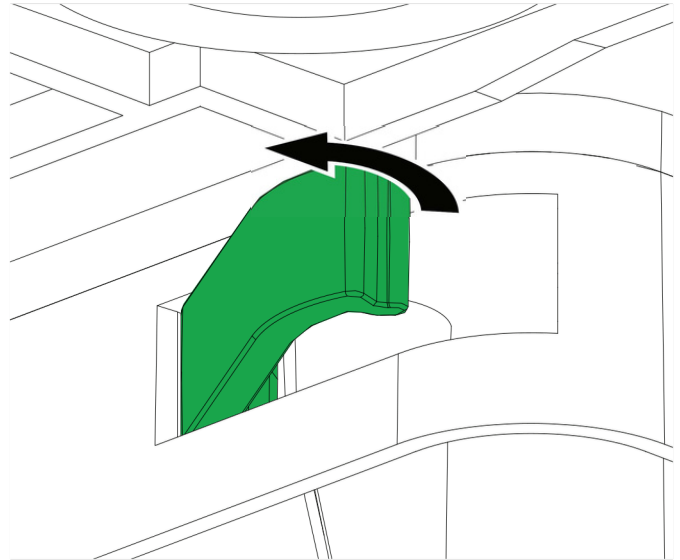
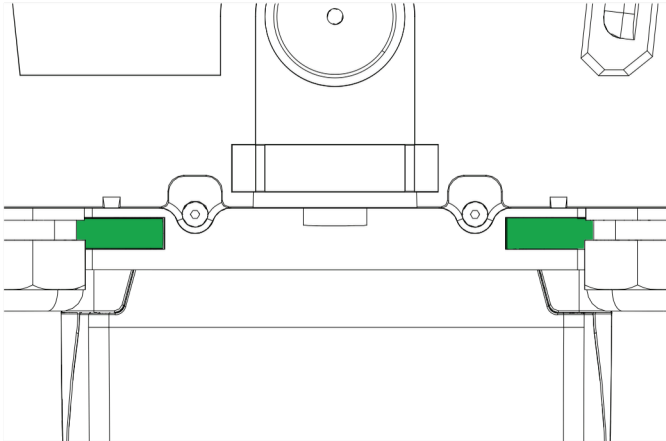
PARKING ENERGY

T2Max electric vehicle charging station

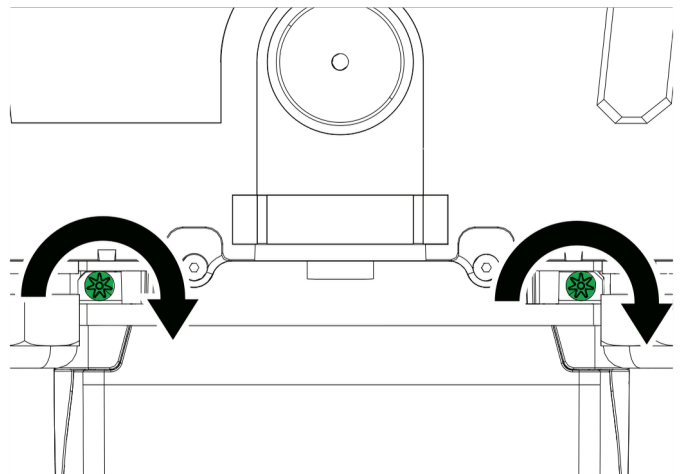
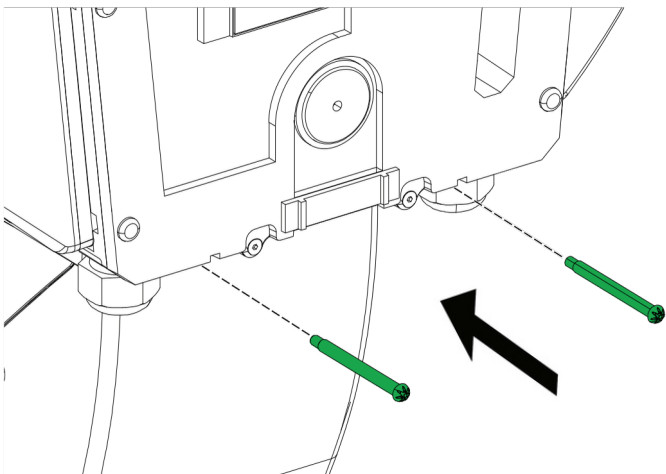
Installation, use and maintenance guide

2. To lock the device to the quick connector:

a) Using a flathead screwdriver, open the hinged lids which cover the locking safety screw holes between the charging station and the quick connector.



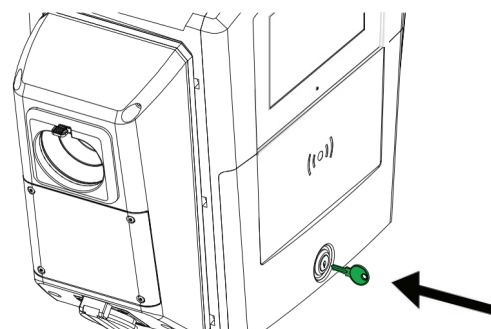
b) Put the threaded safety screws in the holes at the base of the charging station, and tighten them with the special tool delivered in the product package.



NOTE: The special tool for adjusting the safety screws is only available from Parking Energy. If you lose the original tool included in the product package, contact Parking Energy to order a new one as a spare part (subject to a charge).

3. To power the T2Max charging station:

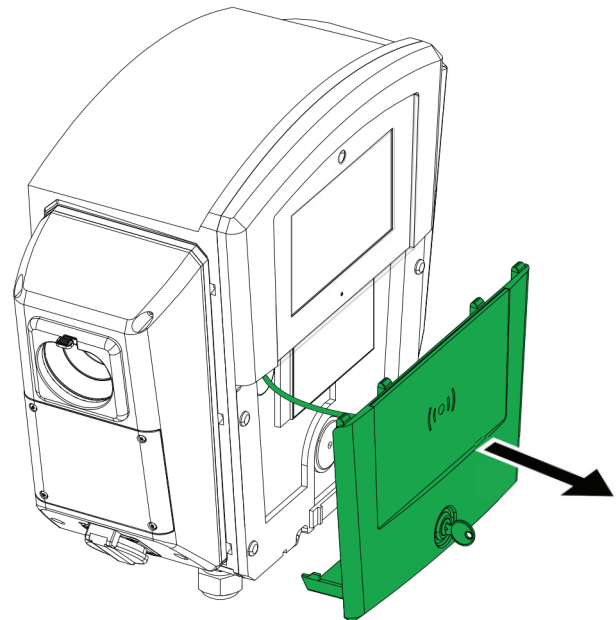
a) Open the service panel lock with the key provided in the product package.



- b) To remove the service panel, bend the bottom edge of the service panel slightly, so that the panel is detached from the notches: With the flathead screwdriver, take support from the opening for the RJ45 socket (located in the middle of the bottom of the service panel).
 - c) Pull the service panel away from the charging station.
 - d) Turn the main switch, located in the middle, to the right.
4. If you want to use a SIM card for the charging station communications, proceed to section “Setting up T2Max data connection” on page 9.

Otherwise, put the service panel carefully back in its place. The position is correct when you hear a click.

5. Lock the service panel with the key provided in the product package.



The T2Max charging station is now installed and powered.

Next, to make the charging station fully functional, set up its data connection.

Setting up T2Max data connection

When the charging station is installed and powered, to finalize the deployment, set up the data connections needed for transferring the data between the Parking Energy cloud service and the charging station.

You have the following data connection options:

- LTE
- Wi-Fi (communication through a base station)
- Ethernet (communication through an Ethernet cable)



NOTE: In the case of a network of several T2Max devices (for example, in a parking hall), not all the T2Max devices within the same network need a SIM card. Typically, every third or fifth one has a SIM card, depending on the setup.



NOTE: In the case of a network of several T2Max devices (for example, in a parking hall), installation and configuring is already done for the user, so you can just start using T2Max.



NOTE: If you use either a USB SIM module or an Ethernet cable for the data connection, leave the module or the cable connected after you have completed the initial setup.

Setup using LTE

Before you start

Make sure you have a USB SIM module at hand. A USB SIM module is not included in the product package. To make sure that the USB SIM module is of the correct type, order it separately from Parking Energy (subject to a charge).

To set up the data connection for LTE:

1. Make sure that the service panel is removed, so that you can see the sheath of the USB SIM module, located on the right side of the energy meter displays.
2. Remove the sheath from the opening.
3. Take the USB SIM module, remove its cover and place the LTE SIM card in the slot reserved for it.
4. Put the USB SIM module cover back in its place.
5. Put the USB SIM module in the sheath.
6. Put the sheath back in the opening.
7. Put the service panel carefully back on its place. The position is correct when you hear a click.
8. Lock the service panel with the key provided in the product package.

Setup using Wi-Fi

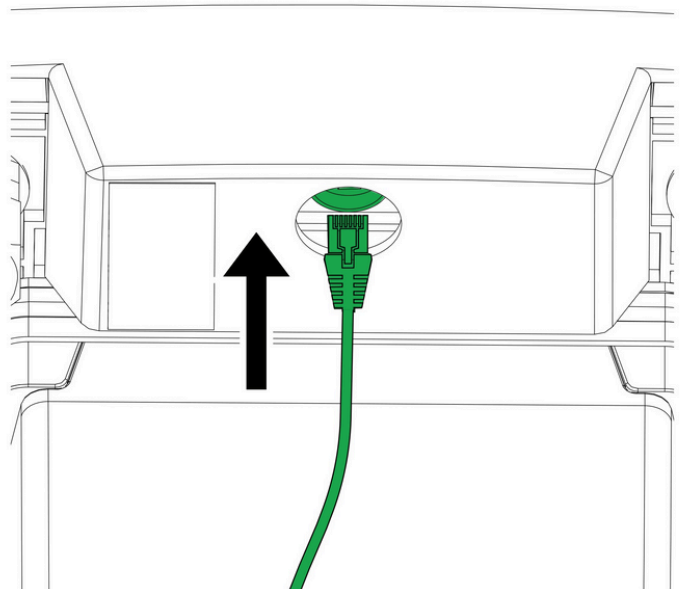
In the case of a network of several T2Max charging stations (for example, in a parking hall), the T2Max charging stations will automatically form a Wi-Fi mesh network between them. If there is poor LTE coverage and no Ethernet is available, an external Wi-Fi base station is required. In that case, order the base stations separately from Parking Energy.

In the case of a single T2Max installation, LTE is the primary data connection type.

Setup using Ethernet

To set up the data connection for Ethernet:

1. Plug the type RJ45 connector of the Ethernet cable in the black Ethernet socket at the bottom of the device (between the charging cables).
2. Plug the other end of the cable to the cross-connection with an Internet access provided at the installation site.



USE

Before you start

If you have installed a single T2Max charging station, to make sure that the load management is correctly done, contact Parking Energy. This is necessary for optimizing the maximum charging power output in every use case.

If you have bought a T2Max charging station for the use of one electric vehicle only, Parking Energy can remotely disable both the charging point and the Schuko socket on the other side, or just the charging point, depending on your needs.

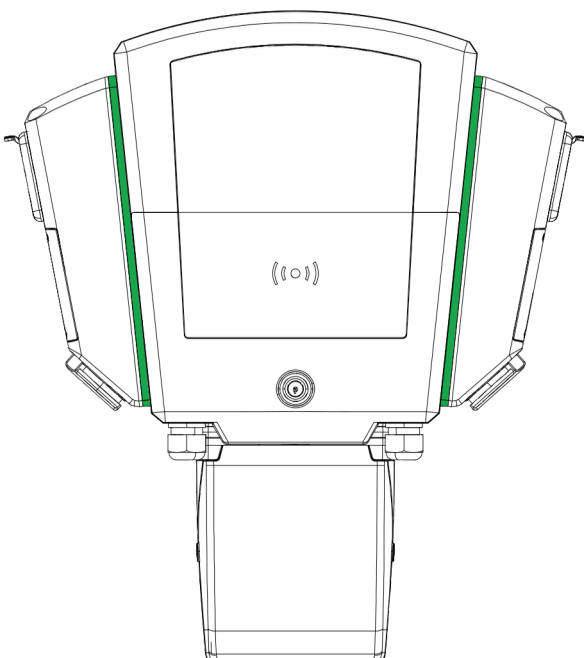
There is a Schuko socket on each side of the device, below the charging cable and its holder. To enable the software to recognize when a Schuko plug is connected to the socket, there is a switch at the bottom of the socket. Thanks to the switch, you can also switch off the electricity faster, because the software recognizes when the plug is disconnected.



TIP: In the Schuko socket, you can plug in the cable of, for example, a car heater. For instructions on using a car heater with the T2Max charging station, see section “Heating a vehicle using a Schuko socket” on page 14.

Statuses of T2Max

The status of the T2Max charging station can be seen by coloured indicator lights shown, for example, at the sides of T2Max, as shown here.



T2Max indicates its status using the colours listed in the table below.

Colour	Status	When?
Red	Unavailable	For example, the charging station is booting, or if there is fault current.
Light blue	Vehicle detected	For example, the charging station has completed charging the vehicle but the charging cable is still connected.
Dark blue	Charging	The charging station is connected to an electric vehicle and is charging the vehicle.

MAINTENANCE

Due to its durability, the charging station does not require much maintenance:

- The charging station is classified as IP54, which means “Protected against dust limited ingress, no harmful deposits. Protected against water splashed from all directions, limited ingress permitted.” This classification is valid even when the service panel is opened, but not if other panels of the charging station are opened.
- The charging station withstands varying weather conditions, and it has been tested to stay operational in the temperature range of -25...+55 °C.
- The display of the charging station is made of tempered glass which is stronger than normal glass.

Cleaning

Simply wipe the display of the charging station clean from waterdrops or snow if those prevent you from seeing the text on the display. Parking Energy recommends that you use a lint-free cloth for wiping the display clean.

TROUBLESHOOTING

Issue	Potential cause	Solution
The charging station light is red.	The charging station is restarting, or there has been fault current.	See the charging station display for instructions, or call the Parking Energy customer service.
RCBO type A devices gone to the Off position.	Short circuit or overload.	In the case of a network of charging stations, the user for the charging stations can open the panel covering the circuit breaker as well as the residual current devices and switch them back to the On position. User can open panel with torx T10. The cable must be disconnect from car. Note: If the panel is attached with safety screws that can only be opened with the special tool delivered in the product package.

Parking Energy Ltd. Customer Service

If you need to contact Parking Energy Ltd. customer service, you can either send email to info@parkingenergy.com or call +358 400 528 166.

PRODUCT SPECIFICATIONS

Design and manufacture by Parking Energy Ltd.

Property	Value
Measurements	
Height	348 mm
Width	475 mm without charging cables
Depth	181 mm
Weight	10 kg without charging cables
Measurements of the display	
Width	178 mm
Measurements	
Type	Type 2 electric vehicle charger
Product number	14040
Technical name	Parking Energy Type 2 Dual port 22 kW
Product series	3-phase electric vehicle charging station
Power	<ul style="list-style-type: none"> • 2 x 22 kW Type 2 • 2 x 1.8 kW Schuko
Electric current	<ul style="list-style-type: none"> • 32 A, or • 16 A
Voltage	230 V AC 50 Hz
IP code	54
IK code	08
Material	ABS, PC + GF, and aluminium alloy
Colour	RAL 7035 grey with customized front
Operating temperature / ambient temperature	-25...+55 °C
Energy metering	MID-approved energy metering
Bi-directional charging	V2G capability without an AC inverter
Communication towards the network	OCPP 2.0.1 , LTE/2G/4G, Wi-Fi 2.4GHz, and RJ45 Ethernet
Communication with the electric vehicle	Type 2 (IEC 61851) protocol, ISO/IEC 15118 readiness
Technical data of the display	
Resolution	1024 x 600
Type	TFT