KOSTAD

Operating instructions

Unity 20 | 50/60 -120 | 150 | 180 -360

SW Release 2023

01/2024

Legal Notices

Warning notice concept

This manual contains instructions that you must observe for your personal safety and to prevent damage to property. The instructions for your personal safety are highlighted with a warning triangle, instructions for damage to property alone are without a warning triangle. Depending on the hazard level, the warnings are displayed in decreasing order as follows.

⚠ **DANGER**
means that death or serious injury will occur if the appropriate precautions are not taken.

⚠ **WARNING**
means that death or serious injury can occur if the appropriate precautions are not taken.

⚠ **CAUTION**
means that minor personal injury can occur if the appropriate precautions are not taken.

ATTENTION
means that material damage can occur if the appropriate precautions are not taken.

If several hazard levels occur, the warning notice for the highest level is always used. If a warning notice with a warning triangle warns of personal injury, a warning of property damage may also be included in the same warning notice.

Qualified staff

The product/system associated with this documentation may only be handled by personnel qualified for the respective task, taking into account the documentation associated with the respective task, in particular the safety instructions and warnings contained therein. Qualified personnel are able to recognize risks and avoid potential hazards when handling these products/systems due to their training and experience.

Intended use

Please note the following:

⚠ **WARNING**
Kostad products and systems may only be used for the applications specified in the associated technical documentation. If third-party products and components are used, they must be recommended or approved by Kostad. Proper and safe operation of the products requires proper transportation, storage, assembly, installation, commissioning, operation and maintenance. The permissible ambient conditions must be observed. Instructions in the associated documentation must be observed.

Disclaimer

We have checked the contents of the document for conformity with the hardware and software described. Nevertheless, deviations cannot be ruled out, so that we cannot guarantee complete conformity. The information in this document is checked regularly and any necessary corrections are included in subsequent editions.

Kostad Steuerungsbau GmbH
Parkallee 20
2483 Ebreichsdorf
Austria

Table of contents

1 Introduction

These operating instructions are valid for all Unity models except Unity Multipoint of the software version specified on the cover page. The identifier for the software version is derived from the time of issue (YYYYMM) and the extension/fix/patch identifier ("_i", where i is a sequential number). These instructions remain valid for all software versions of the release version. If software functions are added by a patch, this is announced in a change list.

When visualizing the charging station, a basic distinction is made between the user area and the service area. The user area is presented in the chapter “User area” (page 9). The service area is explained in detail in the chapter “Service area” (page 33) and illustrated with pictures of the control panel.

The visualization is displayed on a Siemens touchscreen (HMI - Human Machine Interface). Commands are entered/operated by the user or service employee touching the corresponding areas of the screen.

The screenshots in this document are from a Unity 50 visualization and differ at most in the size and/or arrangement of the individual components on the screen from other Unity models.

1.1 Text features

The warning concept is explained on the back of the inside cover. Observe all safety-related information in these instructions and on the product.

You will also find the following text features in these instructions:

1. Instructions for action are shown as a numbered list. Observe the sequence of action steps.

- Enumerations use the list item.

(1) References in images use bracketed numbers.

Note

A note gives you further information about the product, the handling of the product or the relevant documentation.

User area

2

2.1 Start screen

When the charging station is restarted, the start screen appears after the operating system has booted up. It can take up to 5 minutes for the charging station to start up. The start screen is displayed during this time. All LED strips change colors together. It is not possible to operate the charging station during this starting period.

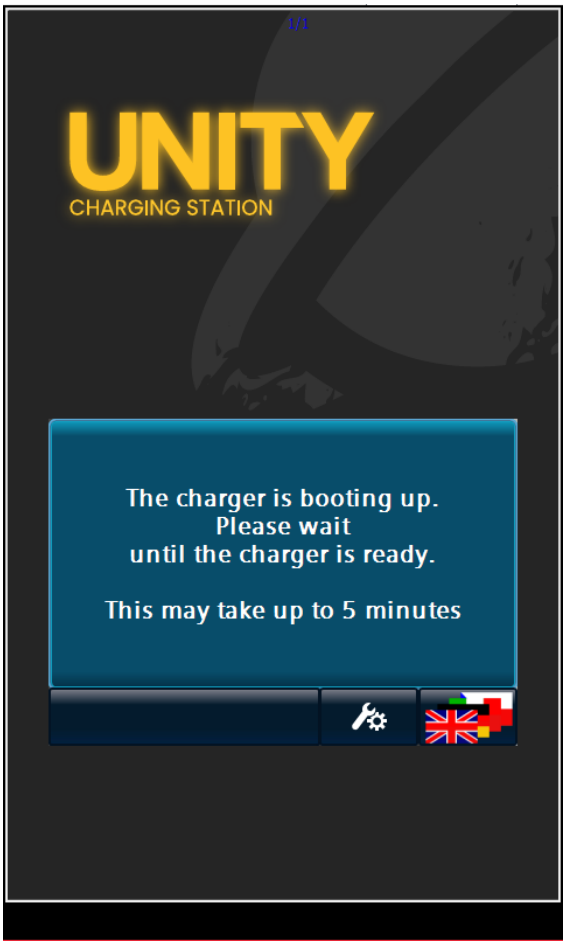


Figure 2-1 Image display during start-up

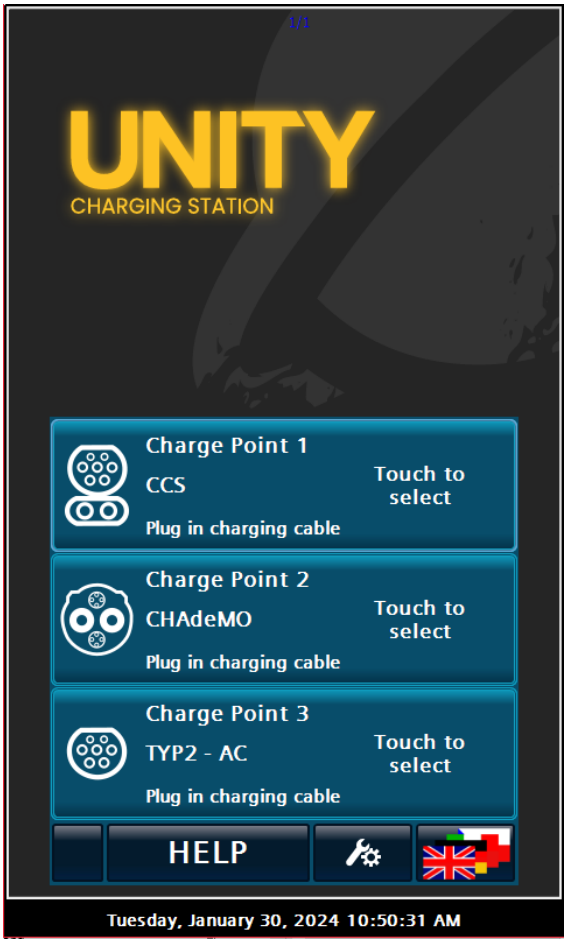


Figure 2-2 Image display after successful start

Note

After a restart, the time display (in the user screen below) is only shown after the first successful synchronization.

2.2 Main view

2.2.1 Main view

Once the charging station has been started up properly, the main view appears for the user with the status overview of the available charging points.

Depending on the configuration of the charging station, 1, 2 or 3 areas with charging points are displayed in the main view.

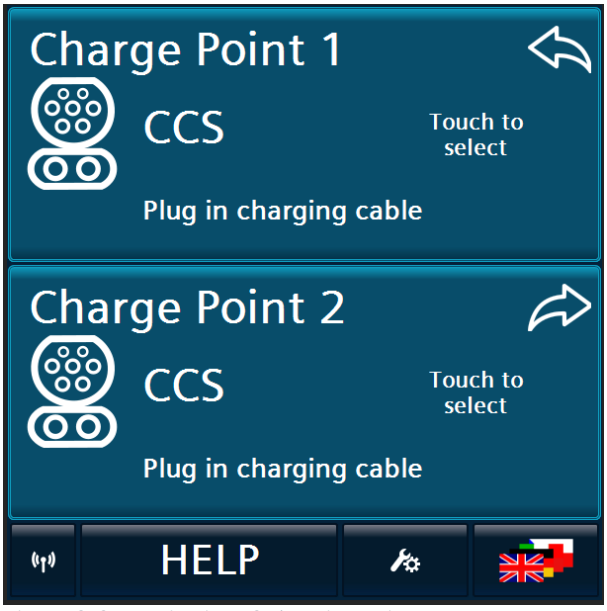


Figure 2-3 Main view: 2 charging points

Figure 2-4 Main view: 3 charging points

The illustration on the left shows you the main view with 2 charging points with CCS2 charging characteristics.

The illustration on the right shows you the main view with 3 charging points with CCS2, CHAdeMO and AC charging characteristics.

The displays correspond to the variant you have ordered with all options.

2.2.2 Menu bar

The menu bar is located at the bottom of the HMI of the charging station.

Figure 2-5 Menu bar

(1) Display: Antenna for ONLINE (OCPP)

(2) Call for context-sensitive help texts

(3) Service menu for authorized personnel

(4) Language switching

Status OCPP

No connection

Animated antenna: Connection is established. The charging station is logged into the backend

OCPP is not activated.

Help

Pressing Help displays a help page in a pop-up window.

Service

Pressing the service symbol starts a password query. If authentication is successful, the service menu opens. When using it for the first time and after successful authentication, you will be prompted to change the set password.

After successfully logging in, you will be taken to the „Service area“ (page 33).

Language

Pressing the flag symbol opens a pop-up menu in which you can set the display language. This language selection is retained even after the system is restarted. The user guidance is only implemented for the user of the charging station in different language versions. The service menus are installed in German and English.

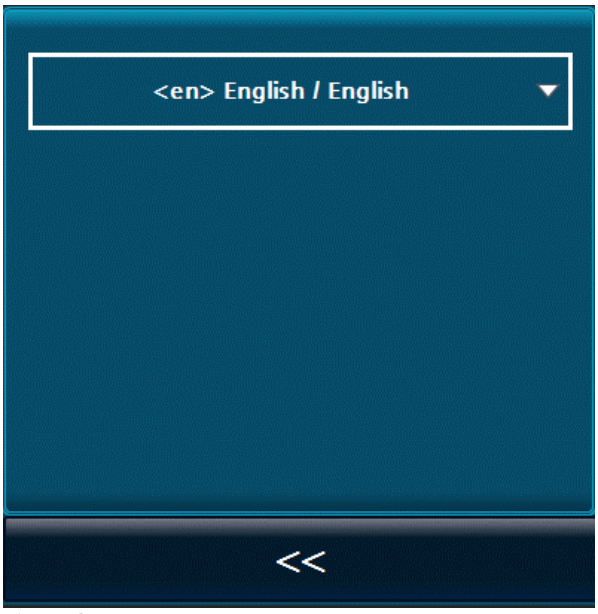


Figure 2-6 Language menu

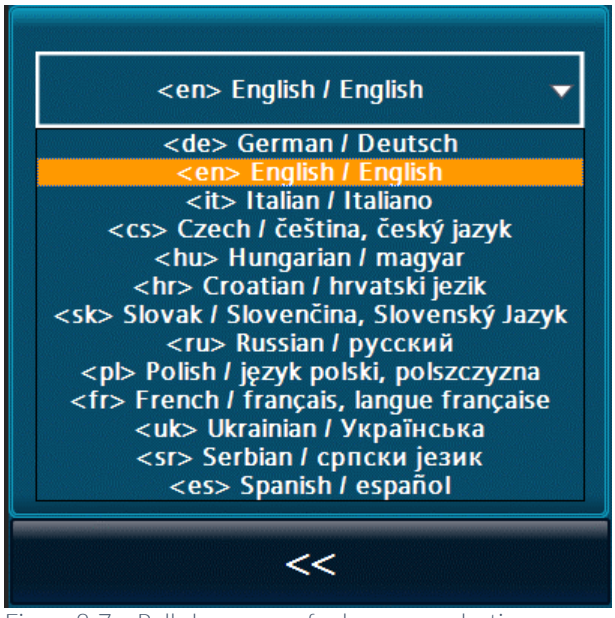


Figure 2-7 Pull-down menu for language selection

Note

After restarting the charging station, the English language is shown on the display until the visualization has established the connection to the control unit. The texts are then displayed in the previously set language.

2.2.3 Charging point view

The status of the charging point is displayed in separate buttons. The type of charging point (CCS, CHAdeMO or Type 2 AC) and its current status are displayed directly here.

In the "Charging cable inserted" state, the charging point is ready for a new charging process.

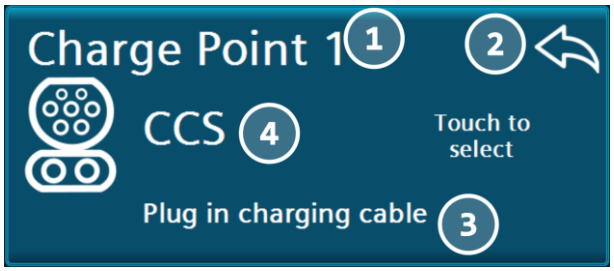


Figure 2-8 Charging point view - overview

(1) Charging point with index

(2) Arrow indicates position (left/right) of the charging point (only for charging points of the same type)

(3) Status of the charging point

(4) Symbol and text of the charging point type

Detailed view of a charging point

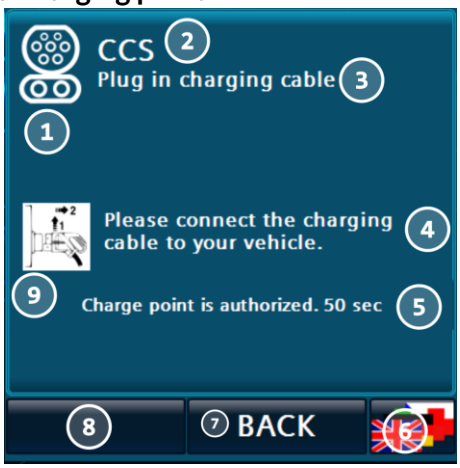


Figure 2-9 DC charging point view details using the example for CCS charging point

(1) Charging point type

(2) Symbol Charging point type

(3) Text Status of the charging point

(4) Text on the status / expected user action

(5) Additional information

(6) Menu bar: Language selection

(7) menu bar: Back to the main menu

(8) Menu bar: <START>/<STOP>-Button if required

(9) Symbol for the status / expected user action

2.3 Automatic picture change

If the screen is not used for a longer period of time, the view switches back to the main view. If a screen saver is set on the charging station (see chapter „Operator settings (S/O)“, Page 45), this will be displayed after the parameterized time.

2.4 User functions

2.4.1 Starting the charging process

There are 3 ways to start a charging process. The preferred procedure for this visualization is to first connect the vehicle to the charging station and then authorize it.

Alternatively, you can select the charging point manually by tapping on the respective charging point on the main screen. Carry out the authorization before connecting the vehicle to the station.

If a payment terminal is integrated into the charging station, the images of variant 3 are displayed. For further information, please refer to chapter „Payment terminal (S/O)“ on page 84.

Variant 1

1. To start a charging process, connect the vehicle to the charging station using a free, suitable plug. The corresponding menu of the charging point opens automatically.
   In older vehicles with a CHAdeMO charging system, it is possible that the plugged-in connector cannot be detected correctly. In this case, select the charging point manually by tapping on it.
2. Press the <START> button at the bottom left of the charge point menu. (Only for CHAdeMO)
3. After a detailed screen of the charging point in use has opened on the display, you will be asked to authorize yourself. The procedure may vary depending on the method selected. For more information, please also refer to the chapter „Authorization procedure” (page 17).
4. Most methods require authorization using an RFID card. If this is the case, the RFID card reader flashes (white flashing) to alert you that a user action is

required. A corresponding prompt appears on the display next to an RFID symbol.

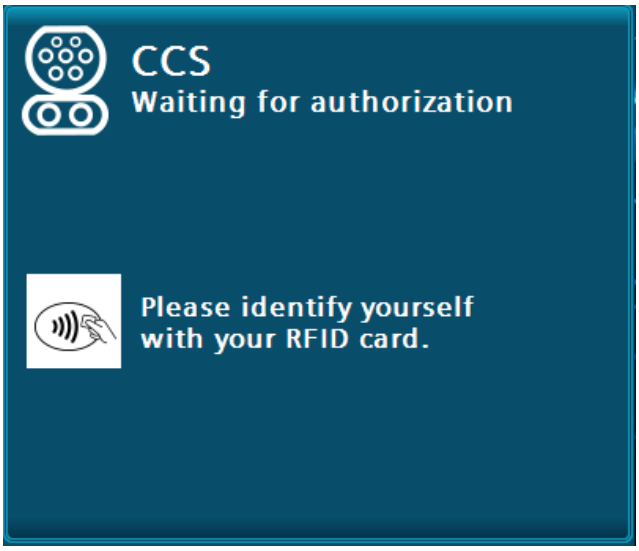


Figure 2-10 Starting the charging process - variant 1 with RFID card

If the RFID card has been successfully read and accepted by the authorization point, the charging process starts automatically.

Variant 2

1. To start a charging process, select a free, suitable charging point by tapping on it.
   A menu for this charging point opens.
2. You can now authorize yourself directly, depending on the set authorization method.
3. After successful authorization, a time is displayed by which the starting process, plugging the charging cable into the vehicle, must be completed.Um einen Ladevorgang zu beginnen, wählen Sie einen freien, geeigneten Ladepunkt aus, indem Sie darauf tippen.
   Es öffnet sich ein Menü zu diesem Ladepunkt.

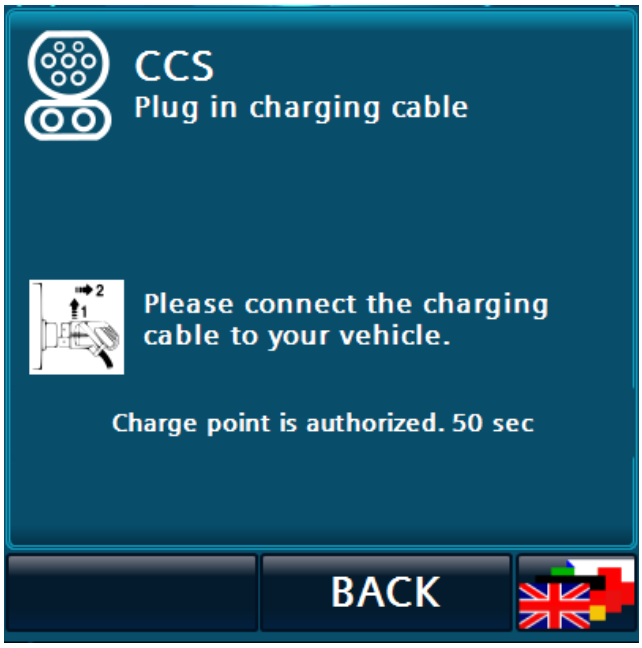


Figure 2-11 Starting the charging process - variant 2 - Selecting the charging point on the HMI

4. Connect the vehicle to the charging station with the cable assigned to this charging point.
   If the charging station recognizes the plugged-in cable, the charging process starts automatically.
   If no plugged-in cable is detected within the displayed time, the charging point is no longer authorized and you must re-authorize.
5. In older vehicles with a CHAdeMO charging system, it is possible that the plugged-in connector cannot be detected correctly. In this case, press the <START> button displayed at the bottom left of the charge point menu.

Variant 3

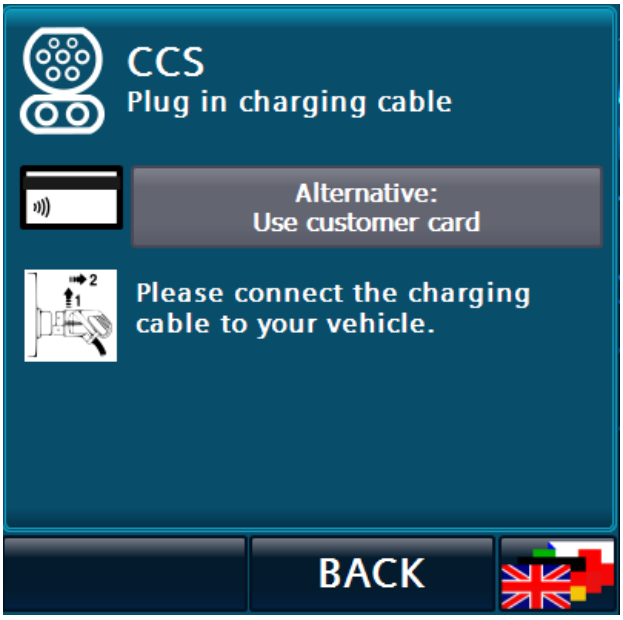


Figure 2-12 Starting the charging process - display of the optional alternatives 1

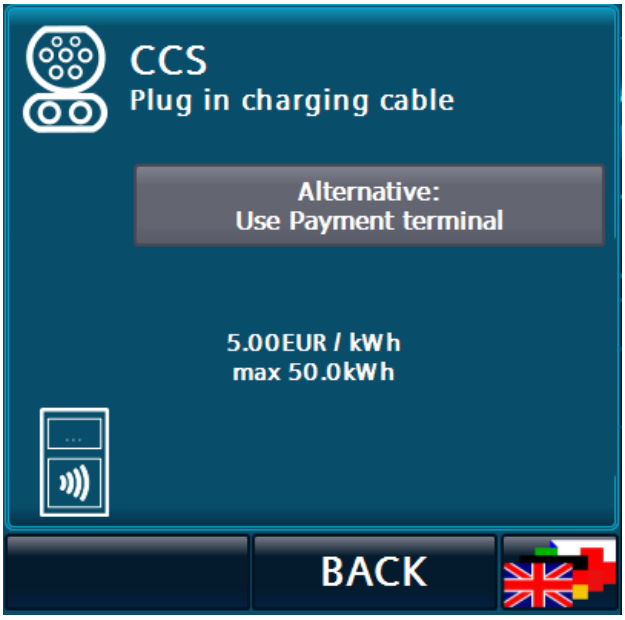


Figure 2-13 Starting the charging process - display of the optional alternatives 2

Pressing the button starts the payment process at the payment terminal. The user must now follow the instructions on the payment terminal or can cancel the payment process by pressing the

<Use customer card> button to cancel the payment process. A flashing terminal symbol at the bottom right indicates to the user that an operation at the payment terminal is necessary or in progress. Pressing the <Back> button would also cancel the payment process.

Note

As long as a payment terminal requires user actions, automatic screen switching is deactivated.

2.4.2 Ending the charging process

Hold the RFID card with which you started the charging process in front of the card reader to end the charging process. This works from any view of the display. The system automatically switches to the corresponding menu of the charging point.

Depending on the set authorization procedure (page 17) you can also end the charging process via the <STOP> button at the bottom left of the menu bar or via a partner card.

If you want to end the charging process while preparatory steps for the charging process are already being initiated, the preparatory steps are completed first before the process is ended.

If you start a charging process in "Free operation" mode, the <STOP> button is displayed in the charging point menu. Tap the <STOP> button to end the current charge.

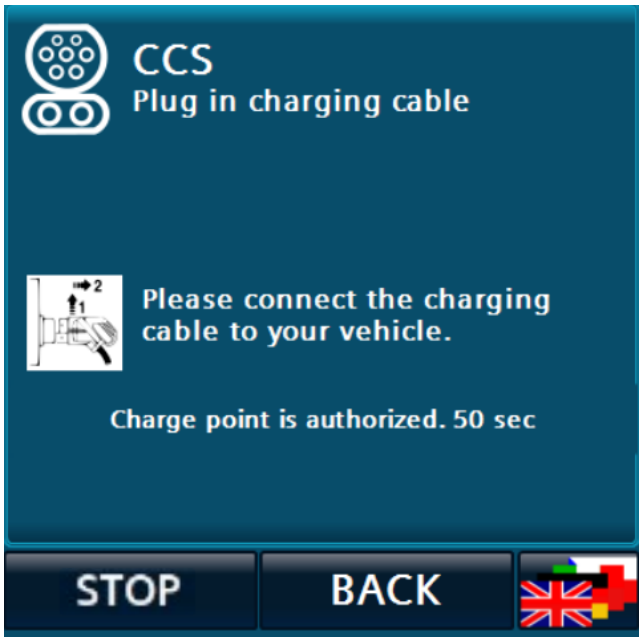


Figure 2-14 End charging process via HMI (<Stop> button)

If an error occurs on the RFID card reader after charging has started, this button is also displayed for charging processes with other authorization methods, e.g. RFID or via OCPP.

2.4.3 Ending the charging process with a master card

If local master cards have been defined by the operator of the charging station, you can use these to end a charging process. You cannot start a charging process with these cards (see chapter „RFID Reader (S/O)“, page 52).

To use this function, you must manually switch to the detailed view of the corresponding charging point and then hold the MasterCard in front of the RFID card reader. The charging process is then terminated.

Note

This function is only available in the detailed view of a charge point. If you hold a master card to the RFID card reader in the main menu, this has no effect.

2.4.4 Authorization procedure

The following authorization procedures are supported by the charging station:

Free charging / no authorization

Charging does not require authorization. A charging process is started automatically when a plugged-in cable is detected. The charging process is ended by pressing the <STOP> button.

Free charging with an RFID card

Charging requires any RFID card that can be read by the system for authorization. Further information can also be found in the chapter „RFID Reader (S/O)“ on page 52.

The charging process is ended by holding the same RFID card in front of the card reader.

Local authorization list (whitelist) with an RFID card

Charging requires a locally stored RFID card for authorization.

The charging process is ended by holding the same RFID card in front of the card reader.

Note

This authorization list is not the OCPP whitelist, but a list created locally on the charging station.

Payment terminals

Charging requires authorization.

For further information, please refer to the chapter "Payment terminal (S/O)" (page 84).

OCPP (online / offline)

Charging requires authorization. In offline mode, an RFID card is required to compare it with a whitelist or the cache.

If the connection to the server is interrupted, the OCPP whitelist and/or the OCPP cache is used to synchronize RFID cards locally, depending on the configuration.

In the online state, it can also be started by a remote command. It is terminated by holding up the same RFID card, an RFID card from the same group or by a remote command (online only).

Note

If you activate authorization via VID (only for CCS), the vehicle must be able to end the charging process itself. If it does not, the charging process can only be stopped properly via a RemoteStop command/master card.

For more information, please refer to the chapter “OCPP settings (S/O)“ (page 57).

Release via key switch

With this option, you can release a charging point using a key switch. In principle, this switches the availability of the charging point between "available" and "not available". The authorization methods mentioned above also work. A key switch acts on a charging point.

If the release is withdrawn during an ongoing charging process, charging is terminated immediately as normal and the charging point is set to unavailable.

For example, if you want to start charging automatically when you have released the station via the key switch and plugged in the vehicle, select "Free charging / no authorization" as the authorization method.

Note

This option is not available for all station types.

Further information

Ending the charging process using one of the defined master cards is possible for all authorization methods.

The authorization method to be used can be set with operator rights on the HMI.

For more information, please also refer to chapter “RFID Reader (S/O)“ on page 52.

2.4.5 Charging point view

Charging point view (detailed view)

The charging process is visualized on the control panel (HMI) of the charging station and by LED strips that indicate the status of the charging point.

Selecting a charge point in the main view opens the corresponding menu for the charge point. This view shows the charging process. This view opens automatically when the corresponding cable is connected to the vehicle.

For better identification of the selected charging point, only its LED bar lights up. When the main view is activated, all LED strips are activated again.

Meaning of the LED colors (for standard assignments):

- Green: Ready to charge / charging outlet available
- Blue: Charging outlet charges
- Magenta: Charging outlet is reserved.
- Red: Malfunction
- Switched off: Charging point is not available/not present/shut down.

Use the <Back> button to switch to the main menu. If no user interaction is detected, the display automatically switches back to the main view after 120 seconds.

Note

The automatic opening of the detailed view is prevented if an authorization is currently being carried out at another charging point in order to avoid incorrect assignments of the RFID card.

Plug in charging cable

This is the "Ready" status of the charge point.

If "Free charging" is activated at the charging point, the charging process starts immediately after connection to the vehicle.

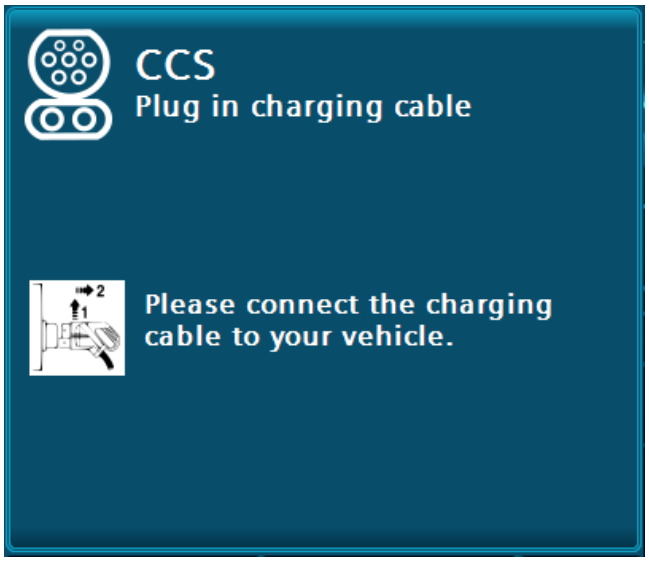


Figure 2-15 "Ready for operation" status

Depending on the configuration of the charging station, an indicator pointing to the left or right charging outlet (as in the main view) is displayed in the top right-hand corner.

Waiting for authorization

Depending on the authorization method. Hold your RFID card in front of the card reader or press the <START> button displayed.

If "Free charging" is activated, this step is skipped.

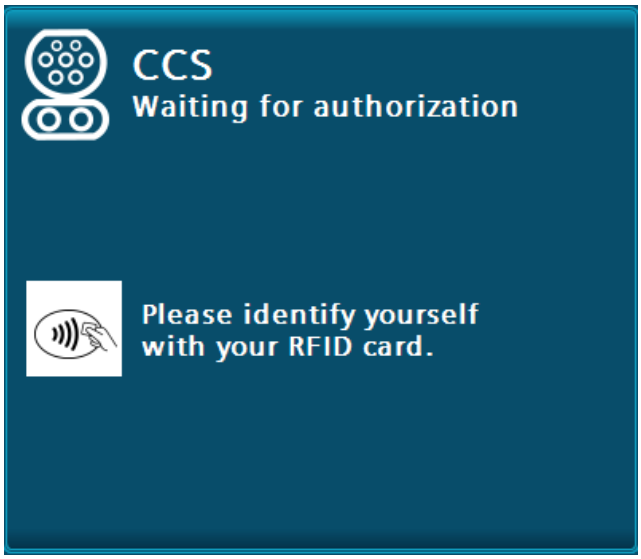


Figure 2-16 Waiting for valid authorization

Preparation

A waiting symbol is displayed for the duration until the energy transfer (e.g. cable check). This state is only maintained long enough to be displayed during DC charging. This can take up to 75 seconds (typically 30 seconds).

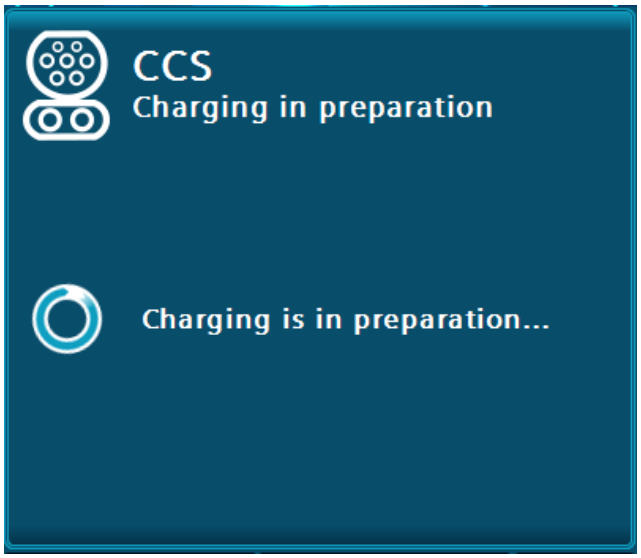


Figure 2-17 Example of the waiting time when starting the DC charging process

Charging in progress

After starting a charging process, the system automatically switches to the main menu or screensaver mode after 120 seconds.

The screen saver mode can be ended by tapping the screen. Reading an RFID card again automatically ends the assigned charge and switches to the corresponding charging point.

The following data is displayed for each ongoing charging process, depending on availability:

- The state of charge of the vehicle battery (SOC) in percent
- The current voltage, current and/or power values
- The charged energy (in kWh)
- In certain configurations, the maximum released energy (in kWh)
- Charging time/~end time up to 80 % SOC and charging time/~end time up to 100 % SOC.
- The current duration of the charging processDer Ladezustand der Fahrzeugbatterie (SOC) in Prozent

The information reported by the vehicle itself (e.g. SOC or charging time) is displayed depending on availability. When AC charging, only the power is displayed but no voltage or current.

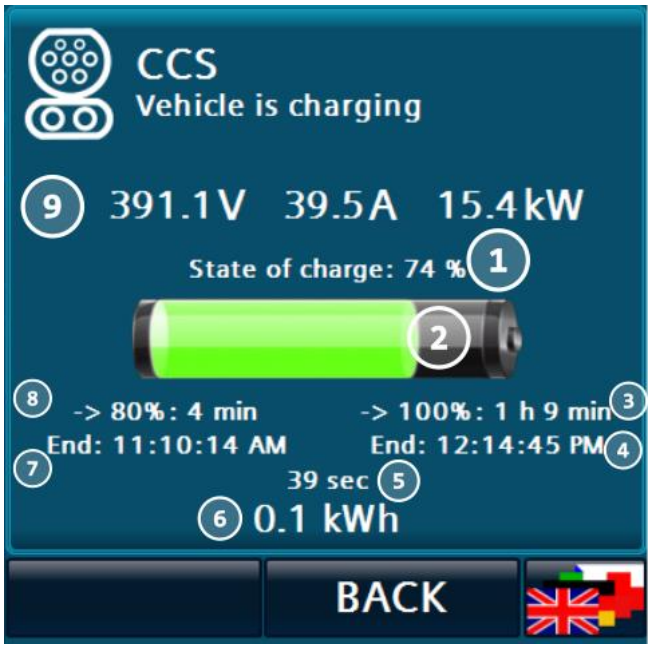


Figure 2-18 DC-Ladevorgang "Fahrzeug lädt"

(1) State of charge (textual)

(2) State of charge (graphic)

(3) Time until 100% state of charge is reached

(4) End time

(5) Current charging time (39 s)

(6) Charged energy [/max. available energy by operator]

(7) End time for 80% charge (fast charging completed)

(8) Time until 80% charge level is reached (quick charge completed)

(9) Actual values: Voltage, current and power value

Charging process interrupted (by the vehicle)

If an ongoing charging process is interrupted by the vehicle (without ending the transaction), the energy charged so far is displayed.

You can stop charging from this state (AC only) by disconnecting the plug from the vehicle.

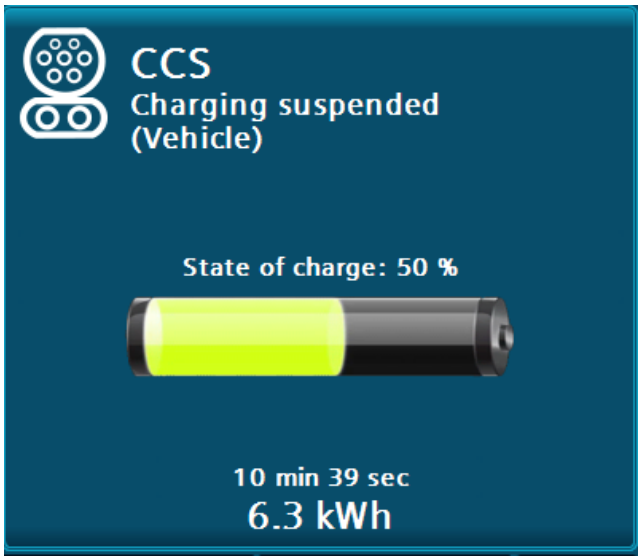


Figure 2-19 DC charging process "Charging process interrupted by vehicle"

Charging process interrupted (by the station or the operator)

If an ongoing charging process is interrupted by the station or by you, the available power is reduced to 0 kW.

Possible causes may be, for example, temperature influence on the station or the operator's supply contracts.

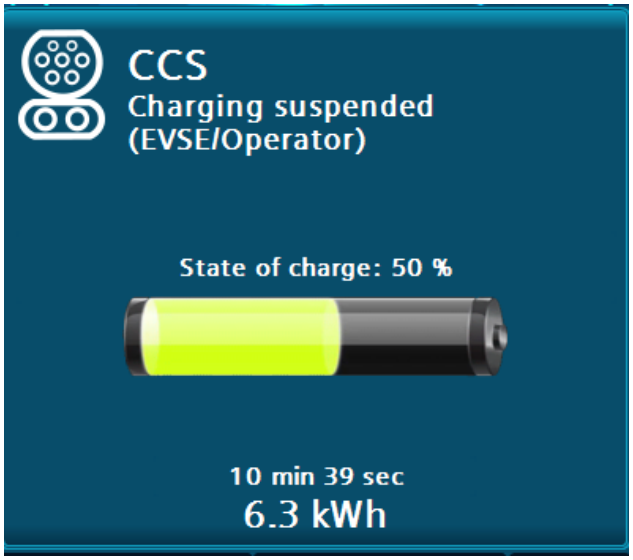


Figure 2-20 DC charging process "Charging process interrupted by charging station / operator"

Charging process completed

When charging is complete, you will be prompted to disconnect from the vehicle. The duration of the charging process and the charged energy (in kWh) are displayed. In certain configurations, the configured maximum energy per charging process is also displayed.

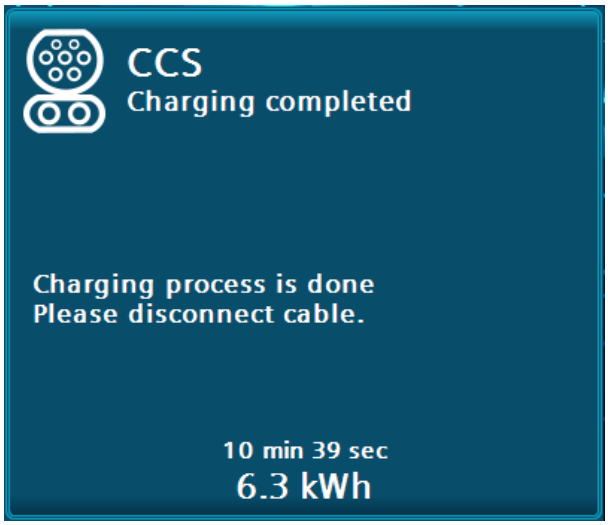


Figure 2-21 Charging process completed using the AC charging output as an example

This menu is displayed until the charging point is recognized as free, i.e. the plug is no longer plugged in. For older CHAdeMO models (< CHAdeMO V 1.1), the displayed duration may vary.

Charging process completed (only with AC socket option and customer cable)

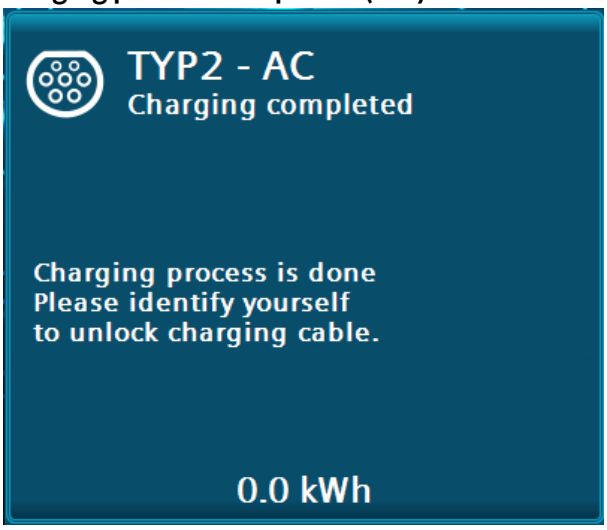


Figure 2-22 Charging process ended during AC charging
Request to identify yourself

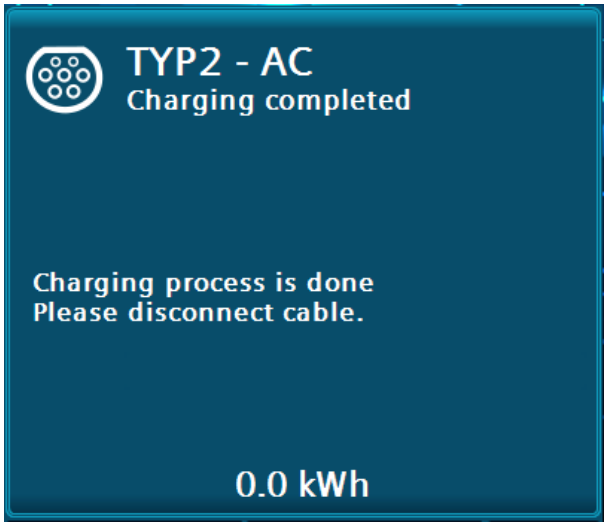


Figure 2-23 Charging process ended during AC charging
Request to unplug the charging cable

Only with "AC socket type 2" option and customer-supplied charging cable:

As soon as the charging process at an AC charging point is complete, you must first disconnect the charging cable from the vehicle. The cable then unlocks at the charging station socket.

Authentication after charging process (only with AC socket option and customer-side cable

If charging is not ended with the RFID card or with an RFID card from the same group with which charging was started, the charging cable remains locked to the station (e.g. via a remote stop via OCPP after a local start with an RFID card). Then hold the RFID card in front of the card reader that was used to start the charging process or have the charge point operator (CPO) unlock the charge point remotely (with OCPP).

If the master card functionality is used, you can also use these cards to release the charging station lock.

The group function is a function of the OCPP protocol and is administered and managed by the operator (CPO).

There is an OCPP user parameter that causes the charging station lock to be released automatically after a charging process as soon as the customer cable is disconnected from the vehicle.

Charging point reserved

If the charging station is connected to a backend, the individual charging points can be reserved for specific users. As soon as a reservation is pending, this charging point is no longer available.

For more information on the color display of the LED light strips, see “Charging point view (detailed view)” (page 19).

The reservation expires as soon as the expiry time has passed, the corresponding user has authorized themselves at this charging point or the backend has cancelled the reservation.Wenn die Ladestation an ein Backend angebunden ist, können die einzelnen Ladepunkte für bestimmte Nutzer reserviert werden. Sobald eine Reservierung ansteht, ist dieser Ladepunkt nicht mehr verfügbar.

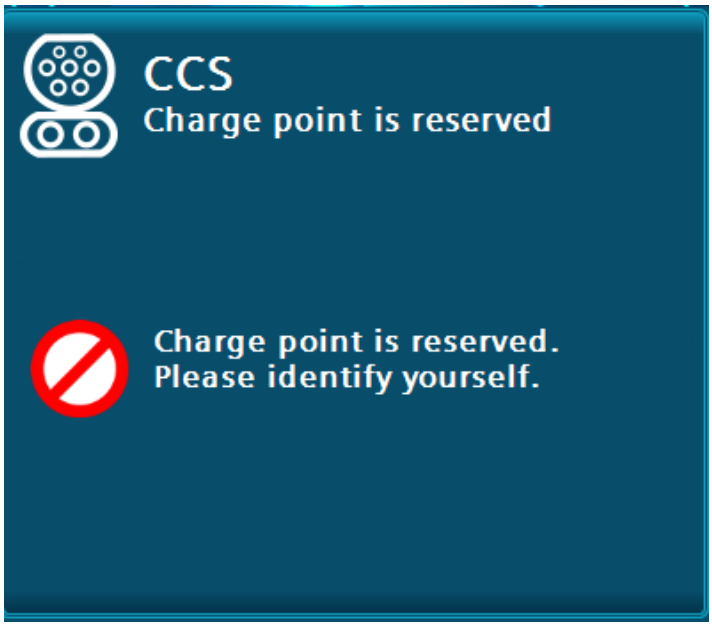


Figure 2-24 Charging point reservation using the example of the DC charging output "CCS"

Charging point not available

The availability can be determined by the backend depending on the configuration.

For more information on the color display of the LED light strips, see also “Charging point view (detailed view)” (page 19).

If the charging station is not connected to a backend, the charging points are always available in an error-free state.

Figure 2-25 Charging point not available using the example of the "CCS" DC charging output

Error

If an error occurs at this charging point, the "Not available" menu is displayed with error information. Each error is displayed for at least 10 seconds. An error is only reset automatically if an existing connection with the vehicle is disconnected. If the error could be acknowledged automatically, this charging point can be used again. After acknowledgement, it automatically switches to its operational state "Plug in charging cable" and switches the color display of the LED light strip.

Figure 2-26 Charging point not available with error code

Help display for the user

Short help texts are available in the main menu to explain how to operate the system. You can call up the displays by pressing the <Help> button. Press the <Back> button in the menu bar to close the displays again. You will be redirected back to the previously opened menu.

Navigation through the help text (scrolling) is made possible by the touch functionality of the display.

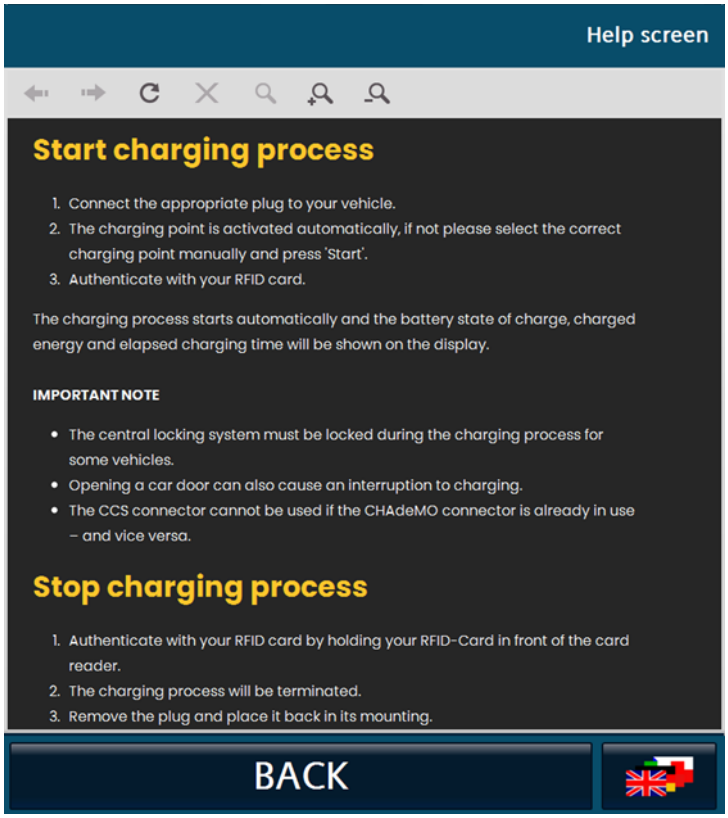


Figure 2-27 Example of help

2.5 Changing the display language

Clicking the button to change the display language opens a pop-up for selecting the display language.

Figure 2-28 Button for changing the display language

All available display languages are displayed in the selection field with the respective language abbreviation, ISO designation and language abbreviations (endonyms).

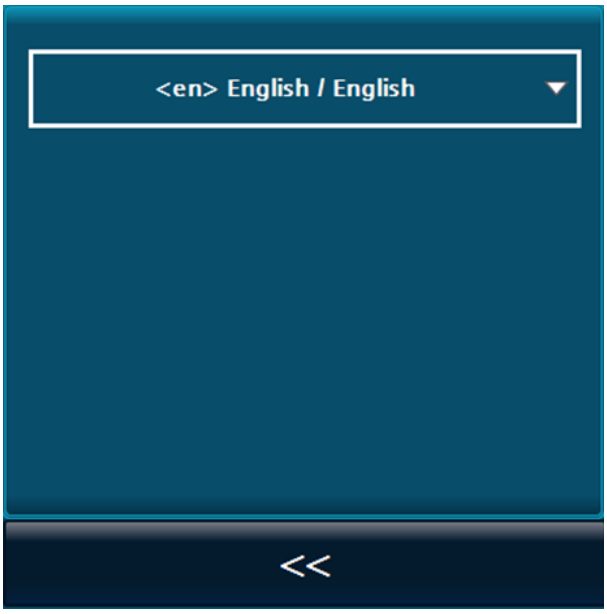


Figure 2-29 Pull-down menu for language selection

Figure 2-30 Continue via endonyms

You can select the desired display language.

After making your selection, click the <Back> button to return to the previous screen. The display language is changed to the language you have selected.

You can change the display language from any view.

2.6 Customer adjustments to the visualization

The customer can make some changes to the appearance of the visualization.

The following positions can be adjusted using the plug-in SD card:

- Background image (main view)HintergrundFigure (Hauptansicht)
- Screensaver
- Help texts

Figure 2-31 (1) Position of the slot for the customer SD card

A 2GB memory card with the Siemens article number 6AV2181-8XP00-0AX0 is recommended as an SD memory card.

2.6.1 Wallpaper and screensaver

The background image and the screen saver must be in PDF format from PDF version 1.7 in accordance with ISO 32000-1: 2008) are available. To achieve an optimal display result, the aspect ratio of the pages in the PDF must correspond to the display ratio on the display (ideally 1:1 pixels).

Table 2-1 Data 7 inch display

7“-HMI (landscape)	Unity20-30
Display resolution:	800 x 480 Pixel
Background image:	796 x 446 Pixel
Screensaver:	796 x 476 Pixel

Table 2-2 Data 9 inch display

9“-HMI (portrait)	Unity50-Unity120
Display resolution:	480 x 800 Pixel

Background image:	476 x 766 Pixel (im unteren Bereich wird die Zeit angezeigt)
Screensaver:	476 x 796 Pixel

Table 2-3 Data 15 inch display

15“-HMI (portrait)	Ab Unity150
Display resolution:	800 x 1280 Pixel (Porträt)
Background image:	796 x 1226 (im unteren Bereich wird die Zeit angezeigt)
Screensaver:	796 x 1276

Only one page is expected in the background image file. Several pages can be created in the screensaver file.

Observe the following naming scheme for file names on the SD card:

- Background image: /Customer/Background.pdf
- Screen saver: /Customer/Screensaver.pdf
- Screen saver (alternative): /Customer/NonOperatingHours.pdf

You can activate and configure the background image, the screensaver behavior and the use of the alternative screensaver in the “Operator settings (S/O)” (page 45) of the service menu.

If you have created your own PDF files, you should check that the PDF file is displayed correctly at a charging station before downloading it or rolling it out to a number of charging stations. Dynamic loading / changing via remote function is not possible.

Note

When designing, note that the main and detailed view is displayed in the lower half of the screen above the background image (from 350 pixels above). On request, you can receive templates for your support (support@kostad.at).

From software release 2023, existing pdf files are first loaded locally onto the display. The SD card therefore no longer needs to remain inserted for operation. The files are transferred after starting the charging station or when exiting the service menu. The card can then be removed. If the function is deactivated, the files are deleted locally at this time.

2.6.2 Help pages

You can customize the text according to the customer's wishes. The loaded help files are XHTML files that are opened via the respective extension depending on the language (e.g. "_de" for German help). Externally referenced content (outside the charging station) is not resolved, i.e. all displayed data must be available on the SD card and be relatively referenced.

Adhere to the following naming scheme for file names on the SD card:

- /Customer/Help_en.htm

- /Customer/Help_de.htm, usw.

If no help files are found on the SD card or no SD card is inserted, the internal help pages are displayed.

If no help file is available for the corresponding language abbreviation of the display language, the English help file is displayed as the default.

From software version 2023, the help files can be saved locally. Adhere to the following naming scheme for file names on the SD card:

- /Customer/Help/Help_en.htm
- /Customer/Help/Help_de.htm, etc.

All files in the help directory are transferred when the charging station is started or when the service menu is exited. The card can then be removed. If the help directory is empty, all files are deleted locally.

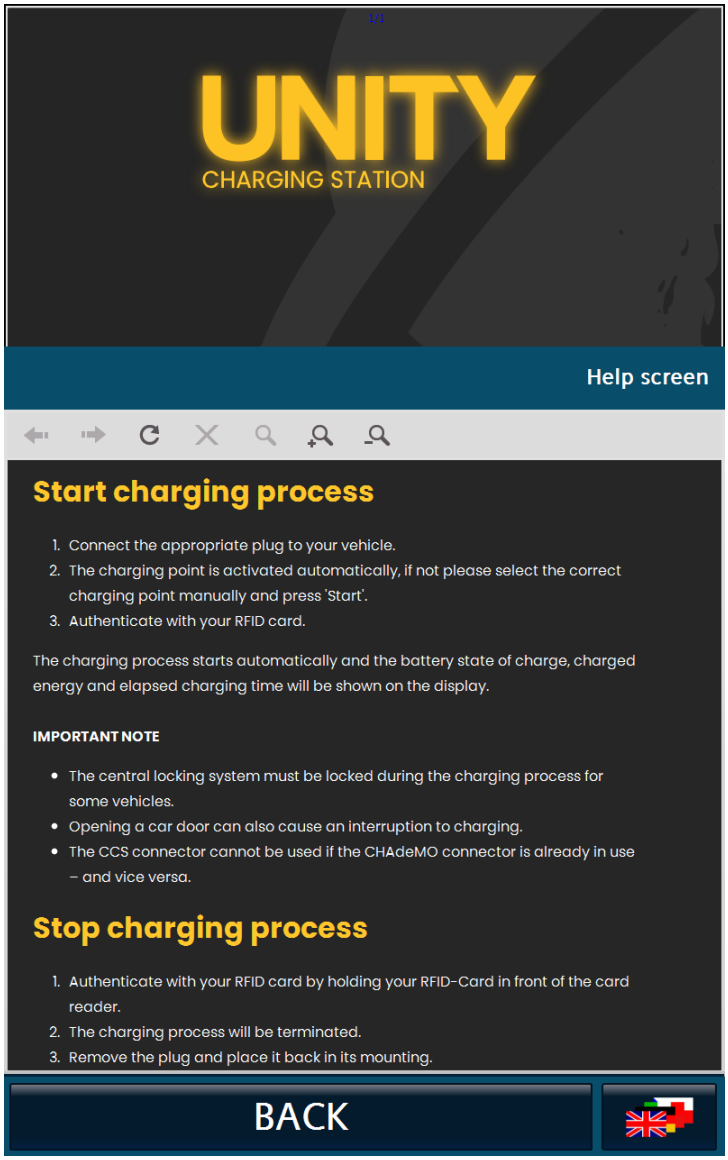


Figure 2-32 Example for Help text

If there are several help text pages, you can scroll using the touch function of the HMI.

2.7 Alternative design (experimental)

From this version onwards, an alternative design can be selected that is based on the design of the WebUI. This design (german language only) is currently still experimental and can be activated in the operator settings on a test basis depending on the type.

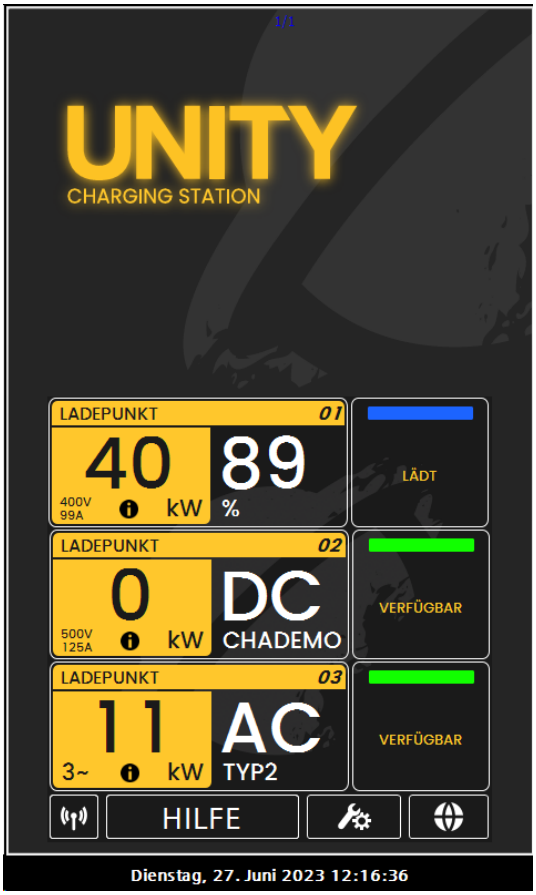


Figure 2-33 Example of charging station overview

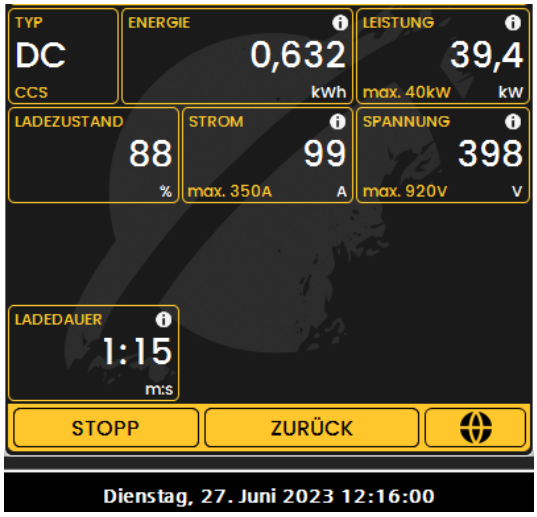


Figure 2-34 Example of charging point detail view

Service area

3

3.1 Service menu

The access button to enter the service area can be found on the menu bar of the main view, the dedicated error pages (e.g. EMERGENCY STOP active) or the start screen.

Figure 3-1 Access button for the service area

Selecting the access button opens a login dialog box.

3.2 Access2UNITY

Figure 3-2 Login dialog on charging station

From this software version onwards, access to the service and operator functions is only possible via 2-factor authorization. For this access you need an end device with an active internet connection, such as a smartphone. The charger itself does not need an Internet connection.

For this purpose, you will receive a user certificate prior to delivery or upon registration, with which you identify yourself to the authorization server.

The user group and the charger serial number are stored for this certificate. It is possible to register several chargers for one certificate. A certificate can only be assigned to one user group. However, access codes with a lower authorization level can be requested (e.g. an operator code can be created by a user with registered service rights).

It is possible to use/register your own certificates as long as they can be fully verified by the authorization server. If you prefer this, please discuss this in advance (Access2UNITY@kostad.at).

Use the QR code or navigate manually to https://Access2UNITY.kostad.at. Your browser will ask you to select a user certificate at least the first time you visit the site. If you have installed several user certificates, select the certificate that is registered with the manufacturer. If you select the wrong one, an error message will appear.

Note

If you have connected to the WebUI or HMI with your end device directly in the charging station, you may not be able to access https://Access2UNITY.kostad.at directly from the same device. In this case, use a second device (e.g. a cell phone with Internet access.

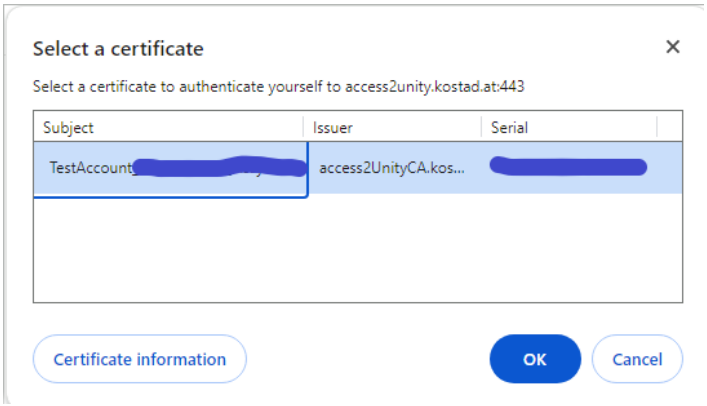


Figure 3-3 Certificate selection

Figure 3-4 Access denied due to unregistered user certificate

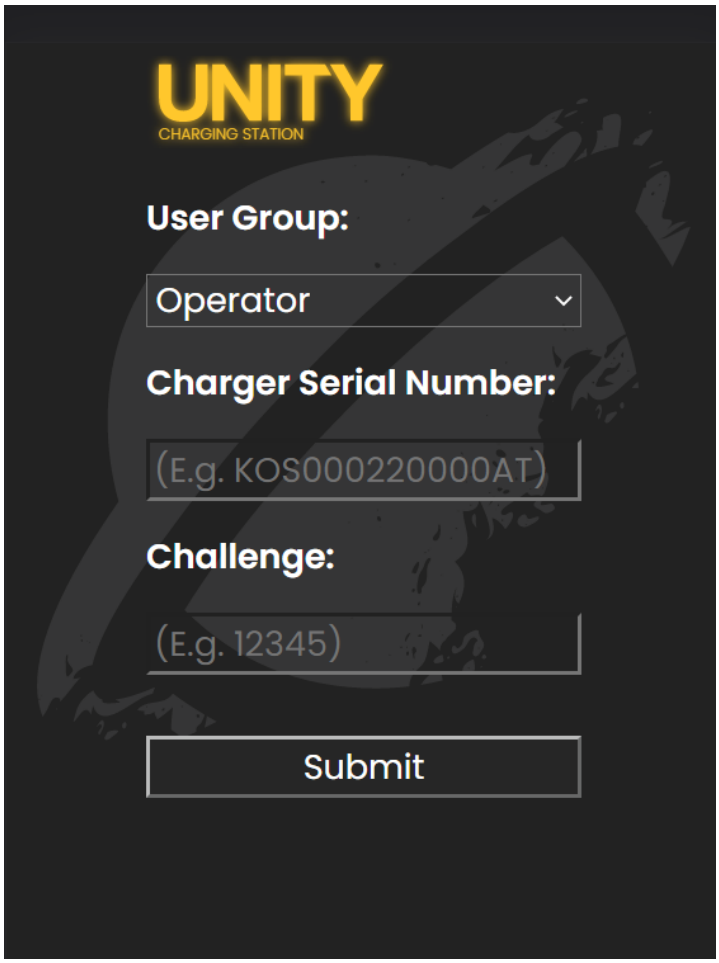


Figure 3-5 Access request to Access2UNITY.kostad.at

Then select the user group released for you and enter the serial number of the device and the generated charger code (challenge). The generated charger code is always a 5-digit number.

After pressing the <Submit> button, the authorization server checks whether the corresponding approval for the user group and charger is available and generates an access code.

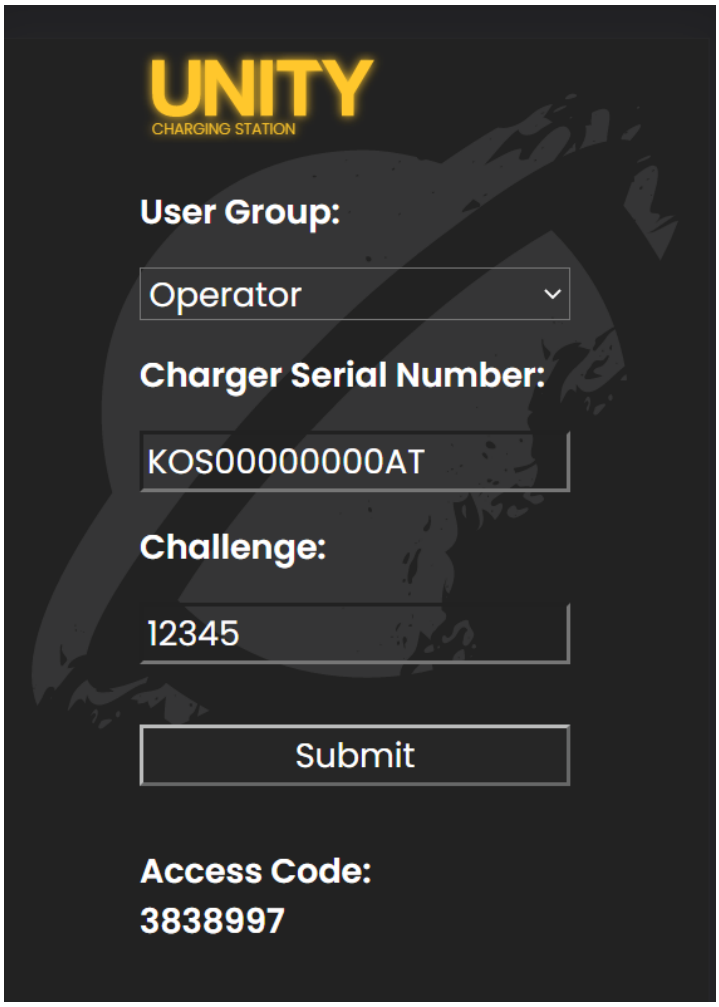


Figure 3-6 Successful access request to Access2UNITY.kostad.at

Then select the user group on the charger and enter the access code (the access code must be confirmed with Enter after it has been entered). If the access code matches the other data, you will be taken directly to the service area. Otherwise, an error message appears.

Note

This access code is always a 7-digit number. If you are not registered for the Charger or do not have the corresponding group authorizations, a message is displayed instead of the access code.

If the access code is repeatedly entered incorrectly or the wrong user group is selected, a new charger code is generated after the fourth attempt.

The charger code (challenge) is also regenerated after each restart of the system and every 2 hours as well as by selecting the charger code field. As long as the charger code remains the same, you can log in with the same access code and user group even without a new request. If the charger code has changed, you must submit a new access request to the authorization server.

There are currently four user:

1. Operator
2. Service/Maintenance
3. Manufacturer (Kostad)
4. CAL Manufacturer (Kostad ERK authorized)

Note

Only one user can be logged in at a time! A user who is currently logged in is automatically logged out after a successful login.

3.2.1 Data protection

The charging station is not aware of personal access requests. The charging station only recognizes user groups. The log files of the charging station show the login of a user group (e.g. 'Operator') and not the identification of the individual user. The combination of client certificate and access code request for a specific charging station is stored on the Access2Unity server for diagnostic purposes only. This data is not evaluated automatically and is used by the manufacturer purely for troubleshooting the authorization function. If the manufacturer has a corresponding reason, or if this is presented to him, these logs can be used to investigate access.

3.2.2 Installing the manufacturer-generated user certificate

First you will receive a link to an encrypted password to the registered email address. This password is the export password for the private key in the certificate, which you should protect accordingly (e.g. with a password manager). The link is valid for exactly one query.

You then confirm receipt of the password and the certificate is sent to the registered e-mail address (as a pfx file).

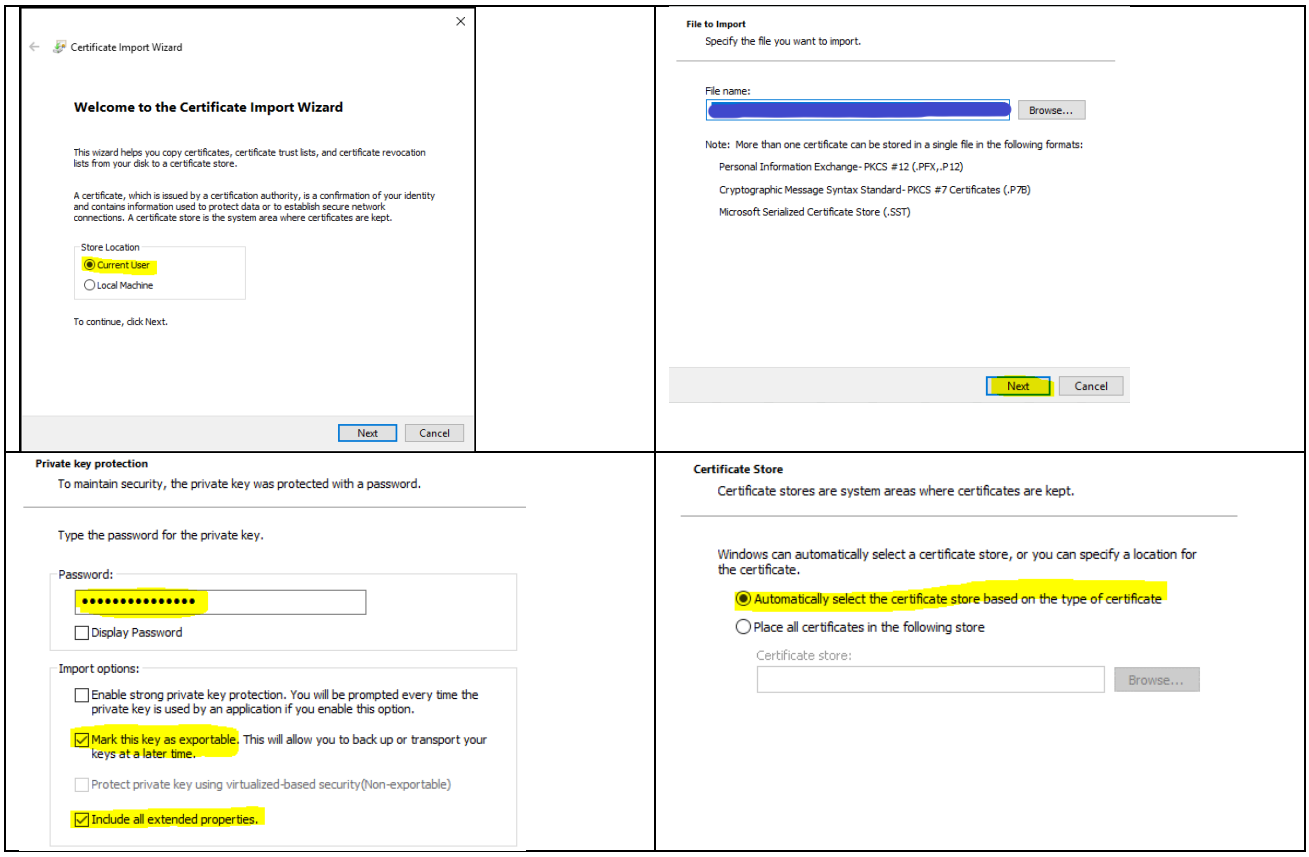
Depending on the operating system and version, you will need to follow slightly different procedures to install the certificate.

In Windows and older Android versions, it is usually sufficient to open the file with the standard programs. You will be prompted to enter the password and you may be able to assign your own name for this certificate.

Below you will find three installation examples. There may be differences depending on the version, so you must refer to the operating system documentation.

Windows 10

1. Right-click on the pfx file and select "Install certificate"
2. Install the certificate for the "current user" (no administration rights required)
3. Enter the certificate password received
4. Mark as exportable and select Include all extensions.
5. Install the certificate in the "automatic certificate store".



Android

1. Double-click on pfx file
2. Enter the certificate password received
3. Follow the on-screen instructions

The procedure may vary depending on the operating system version. Please consult its documentation.

iOS

1. Double-click on pfx file (profile is loaded)
2. In the menu Settings / General / VPN devices...
3. Confirm installation
4. Prompt to enter the device pin
5. Enter the certificate password received

The procedure may vary depending on the operating system version. Please consult its documentation.

Note

With iOS (less frequently with Android), a forced restart of the browser application or the entire device is often necessary so that the browser recognizes the newly installed certificate.

3.2.3 Registering additional chargers to an existing certificate

Notify us during checkout or send an email to Access2Unity@kostad.at with the serial number and the original certificate name.

3.3 Display language in the service area

Two display languages are currently offered in the service area. They are set automatically when you enter the service area. If the display language in the user area is set to German, German is selected as the service language. If another language is selected, English is selected as the service language.

You can select the desired display language by pressing the button to change the display language.

When exiting the service menus, the display language set before entering the service menu is automatically set.

3.4 Base menu

Once you have successfully logged in, the basic menu opens.

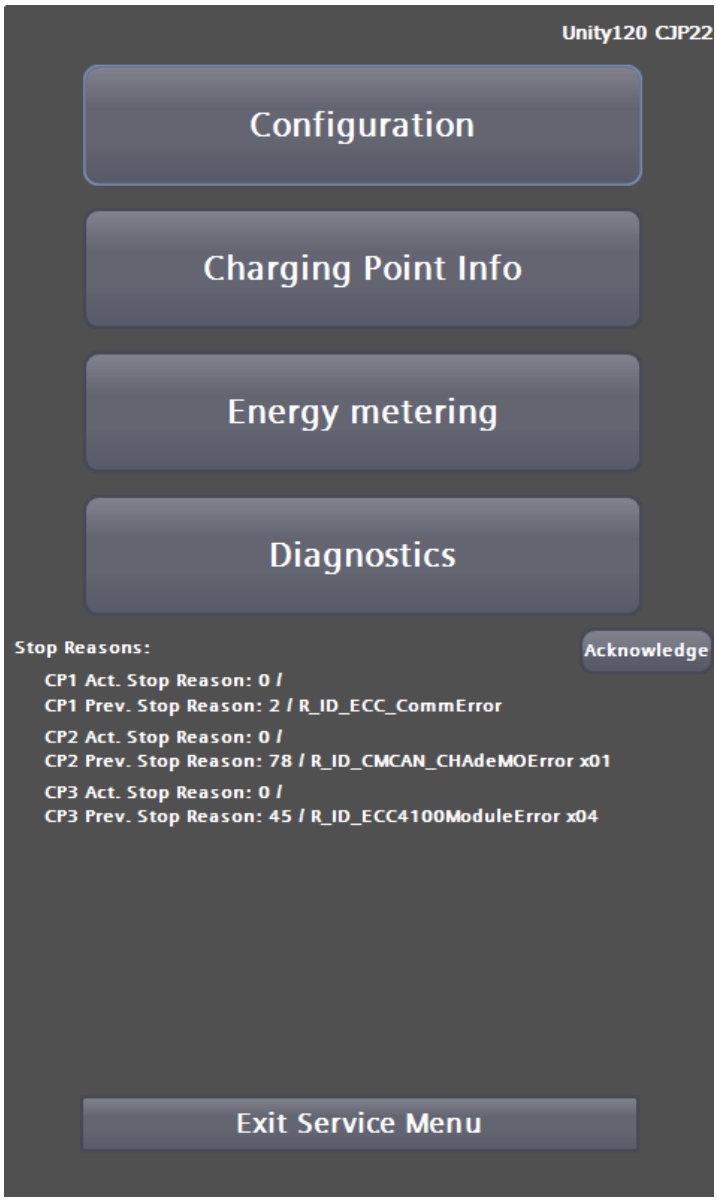


Figure 3-7 Base service menu with stop reasons

The top four buttons lead to deeper menu structures, which are described in more detail in the following chapters.

Click the <Exit Service Menu> button to return to the main view. The current user is automatically logged out. Re-entering the service area requires a new login.

3.4.1 Stop reasons (Causes of termination)

In the display area under Stop reasons, the last recorded causes for the termination of a charging process are displayed, see charging point 1 and 2 in the image section. Only internally detected errors are displayed. An error-free charging process does not change these values.

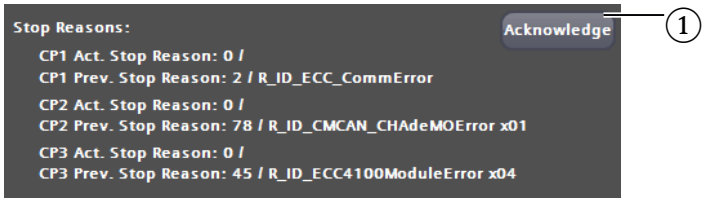


Figure 3-8 Exemplary illustration of causes for termination of the charging process

① Acknowledge button for acknowledging causes of abort

If the charging point has not previously returned to an operational state, e.g. through automatic acknowledgement, errors that occur later, so-called subsequent errors, will not be displayed in this view.

This behavior should enable you to carry out targeted troubleshooting, as triggering errors often result in many other subsequent errors.

Errors can be acknowledged by the charging station both automatically and manually. Automatic acknowledgement takes place when a fault reason is recognized by the software as no longer present.

If a pending error could be reset automatically after the cable is no longer connected to the vehicle, the current stop reason is copied to the last stop reason, see charging point 3 in the image section.

A more detailed view is available for you in the service area under Stop causes. By pressing the <Acknowledge> button, you can force a reset of the first stop reason in the list of abort causes without an error-free status.

If one or more errors are still pending as stop reasons, a next pending error from the internal error list will be displayed.

3.4.2 Configuration changes

If you make changes to the configuration, this will be displayed in the Base menu in the display area. The <Exit Service Menu> button is only displayed again once you have either accepted or rejected the changes using the corresponding buttons.

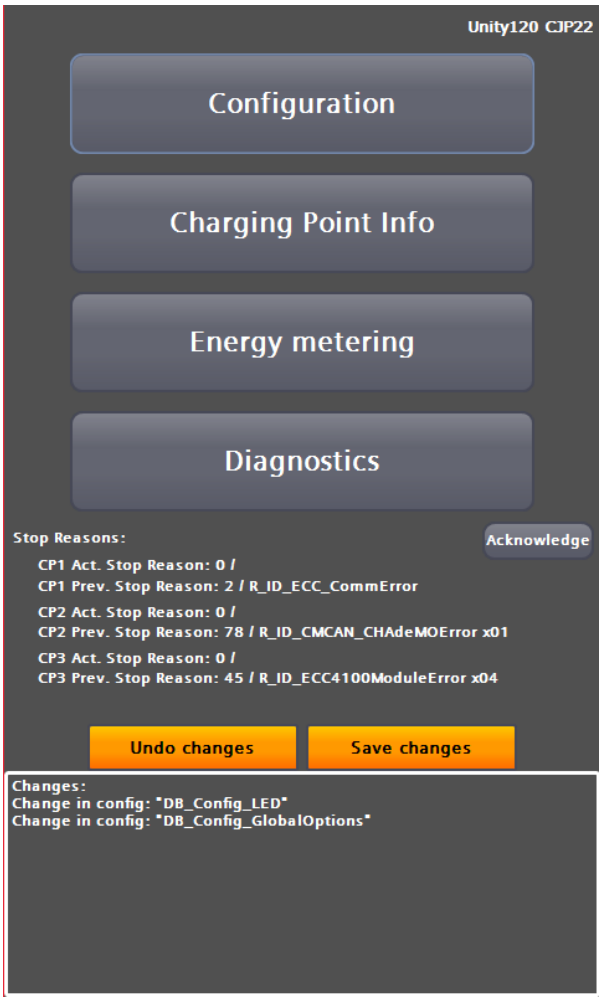


Figure 3-9 View with unsaved changes

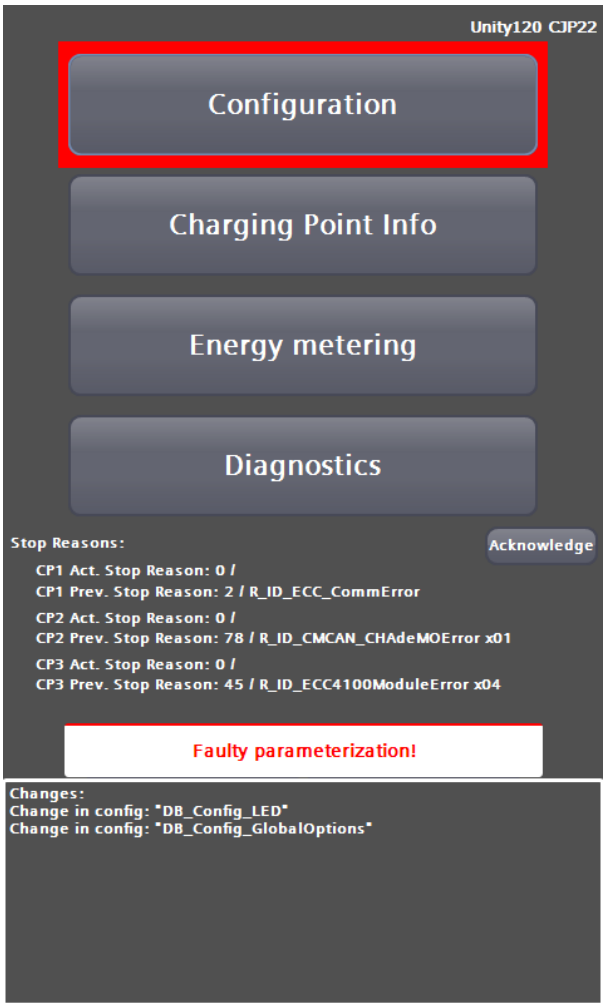


Figure 3-10 View with incorrect or inconsistent changes

Incorrect changes cannot be saved. All charging points are not available in this state.

In this state, you cannot exit the service menu using the usual button.

This change detection does not affect the OCPP settings and the local lists (whitelist and master list). These changes are applied or discarded in their respective submenus.

Note

Some changes require the system to be restarted. Restart the system after saving using the corresponding button in the configuration menu. If changes require a restart, this is marked accordingly in the respective sub-chapter.

3.5 Configuration menu

You can change settings on the charging station in the "Configuration" service menu. Depending on your user group, the setting options are more or less detailed.

The Service (S) user group has access to all setting options.

The user group Operator (O) has access to all setting options required to operate the charging station.

Operator view (O)

If you are logged in with operator rights, the service menu looks like this:

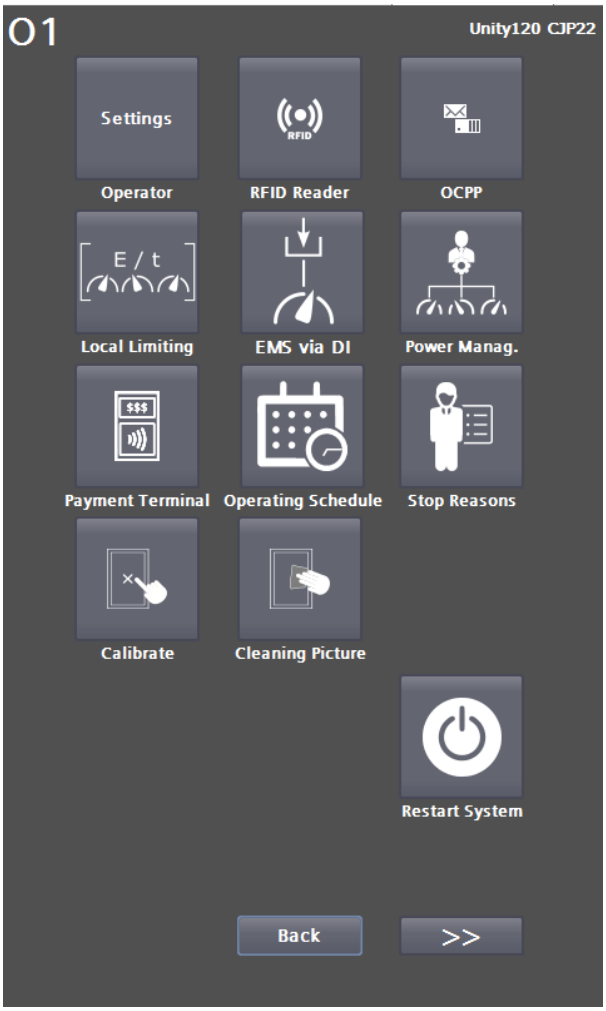


Figure 3-11 Service menu of the operator/operator view (menu page 1)

Figure 3-12 Service menu of the operator/operator view (menu page 2)

You can use the arrow buttons to switch between the two menu pages. Press the <Back> button to return to the Base menu.

Note

The <User Administration> button is hidden for stations with Access2Unity (software version >= 2023).

Service View (S)

If you are logged in with service rights, the service menu looks like this:

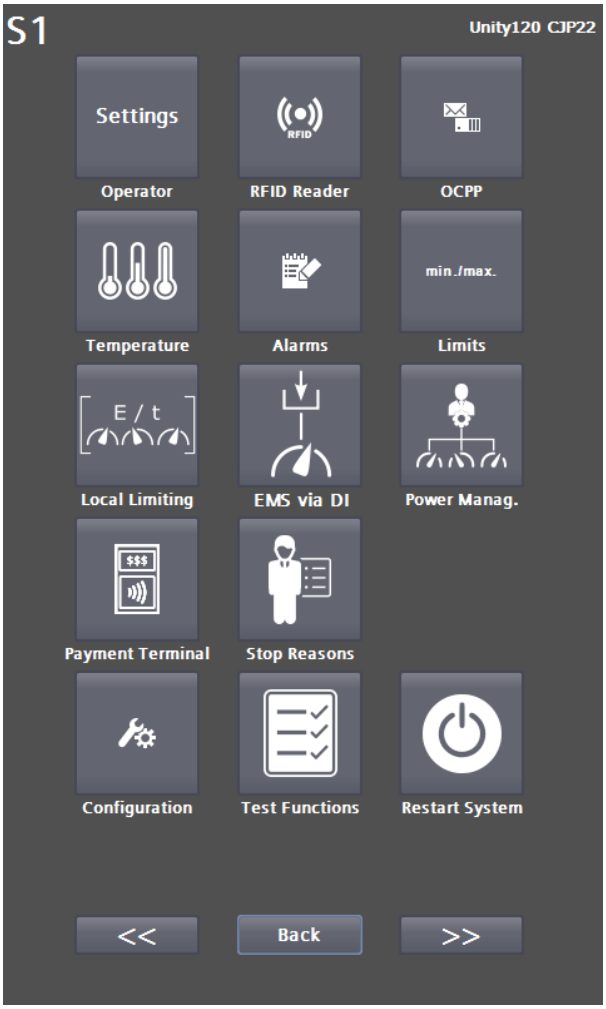


Figure 3-13 Service menu of the service view page 1

Figure 3-14 Service menu of the service view page 2

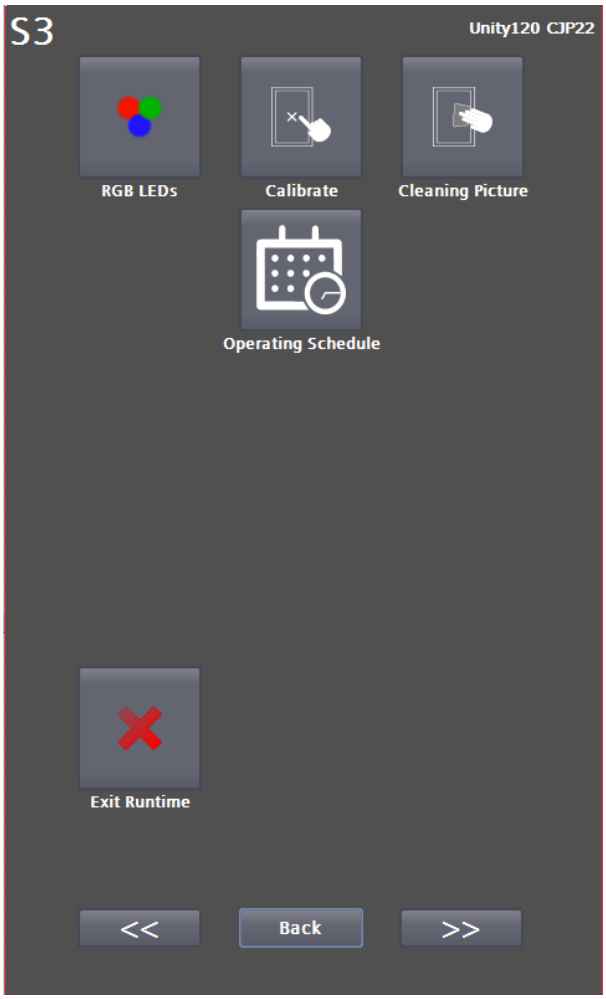


Figure 3-15 Service menu of the service view Page 3

You can use the arrow buttons to switch between the menu pages. Press the <Back> button to return to the Base menu.

Note

The <User Administration> button is hidden for stations with Access2Unity (software version >= 2023).

3.5.1 Operator settings (S/O)

You can configure the behavior of the charging station in the "Operator settings" service area.

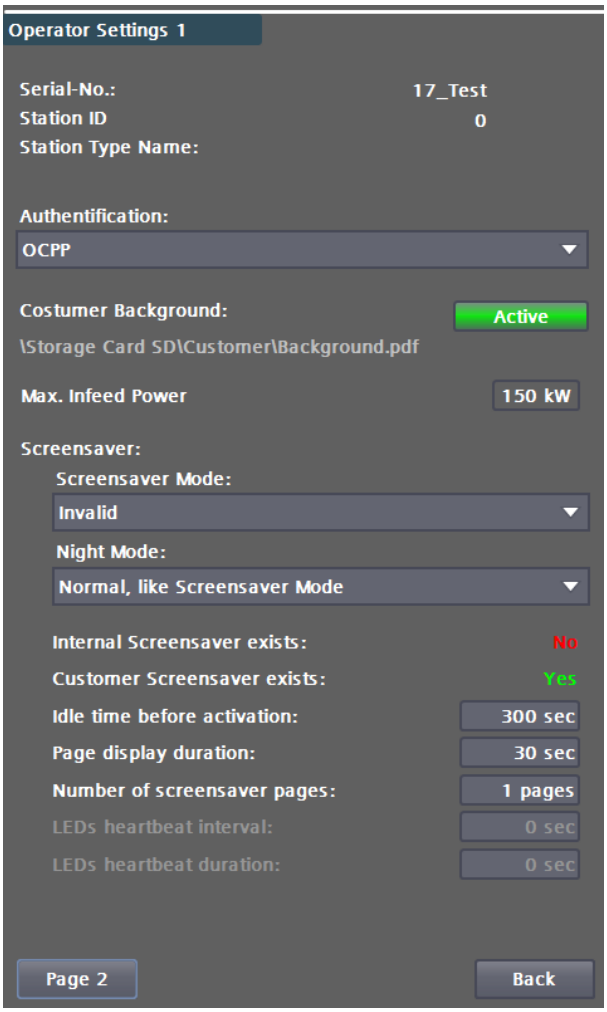


Figure 3-16 Menu for operator settings page 1

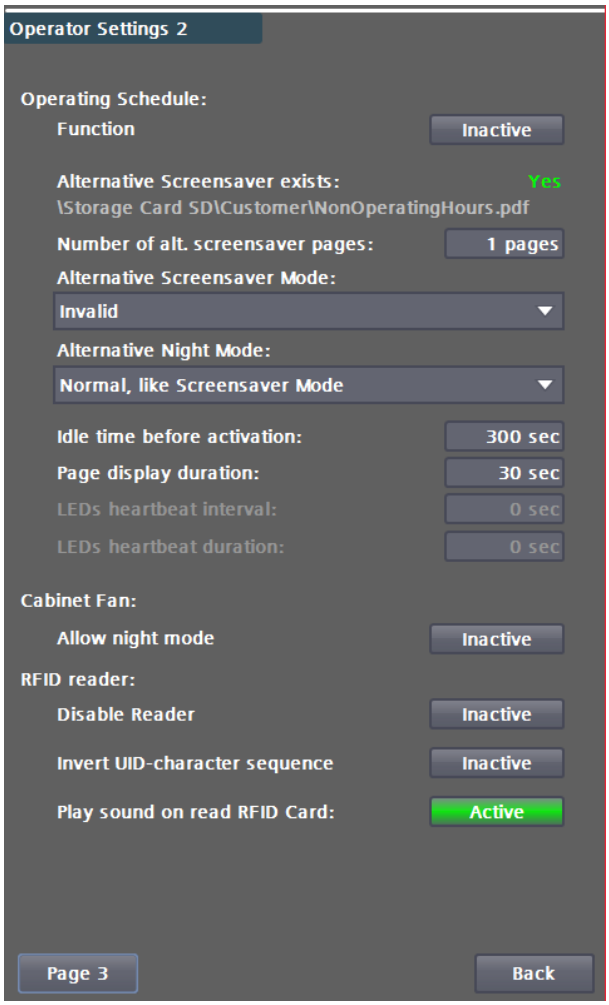


Figure 3-17 Menu for operator settings page 2

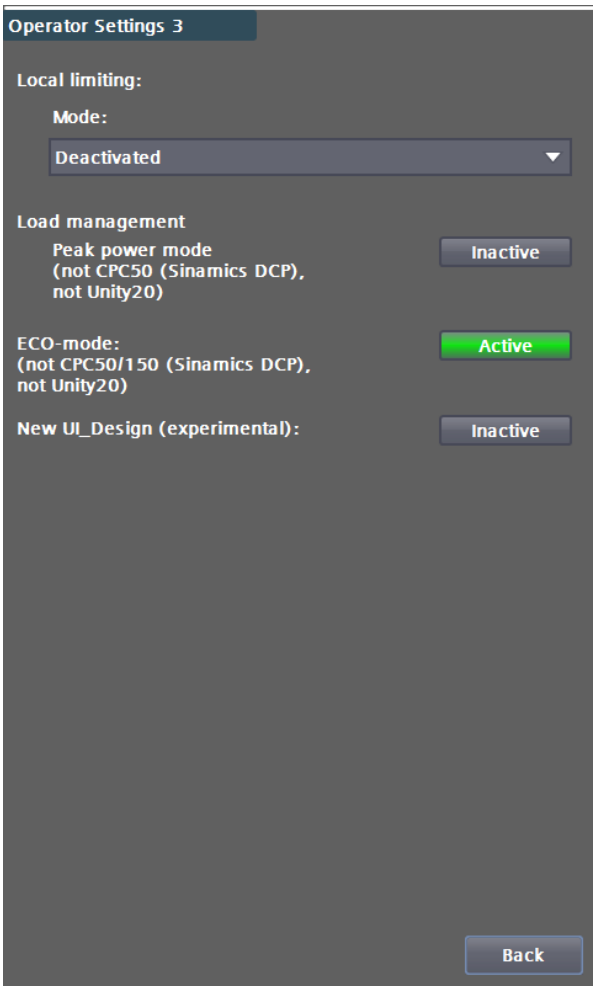


Figure 3-18 Menu for operator settings Page 3

Authentication

Here you can set how a user is authorized for charging. The following selection options can be set:

- Out of service: Charging is not possible at this station.
- Free operation / free charging: Start by inserting the charging plug. Exit using the <STOP> button on the display.
- Free operation / free charging with RFID: Any RFID card that can be read by the system is accepted.
- Internal whitelist with RFID: every readable RFID that was previously stored locally is accepted.
- OCPP: Depending on the configuration, a combination of RFID cards, RemoteStart/~Stop and VID Autocharge)

For more information on the readable RFID cards, please refer to the chapter "RFID Reader (S/O)" (page 52).

A payment terminal can be used in parallel with the selection "Internal whitelist with RFID" or "OCPP". Further information can be found in the chapter “Payment terminal (S/O)“ (page 84).

For more information on OCPP, please refer to the chapter "OCPP settings (S/O)" (page 57).

In addition, charging can be enabled in parallel to the above options via external power management. For more information, please refer to the chapter "External power management (S/O)" (page 77).

Customer-specific Background image

You can activate your own background image here. Further information on this can be found in the chapter "Customer adjustments to the visualization" (page 28).

Figure 3-19 Example background image

Maximum feed-in power

Set the maximum infeed power for the actual grid connection. The power is divided between the charging points. If you specify a higher power than available, the fuses in the supply branch may blow.

Screensaver mode

You can select the following screensaver modes:

- Off

- PDF (also multi-page, SD card/Customer/Screensaver.pdf)
- Display backlight off

Night mode

You can select the following night modes:

- Normal (like screensaver mode)
- Display lighting off
- Display lighting off, LEDs off

Screensaver available

This is a response as to whether the screensavers were found in the file system.

Rest period before display

Specifies the time after which the screensaver is switched to if no user action is detected.

Page display time

If several pages are parameterized for the screensaver, the next page is called up every x seconds.

Number of pages Screensaver

The number of pages in the pdf.

LEDs Life sign interval / duration (LEDs off in night mode only)

If the LEDs of the charging station are deactivated in night mode, a 'life sign' can be set here. This means that the LEDs for the life sign duration flash every interval seconds.

Operating schedule - Function

This can be used to activate/deactivate the set operating schedule Further information in chapter "Operating schedule (S/O)" (page 93).

Operating schedule - Alternative screensaver mode

This mode is intended for displaying special information from the operator, for example. For example, to display the operating times or indications of the causes of charging restrictions based on them. These settings become active if the operating time schedule currently is operating time of the charging station.

All settings are analogous to the standard screensaver.

If the function is activated, the screensaver must be saved under the path "/Customer/NonOperatingHours.pdf" on the SD card.

Figure 3-20 Example of alternative screen saver

Cabinet ventilator Night setback

The night setback uses the day/night switchover from the time settings menu (chapter “Time settings (S/O)” on page 99).

At night, the maximum current of all DC charging points is limited and the maximum noise pollution in the vicinity of the installation site is reduced.

The fan setpoint is throttled as a percentage of the standard value.

The operator can only activate / deactivate the function. This function is deactivated by default.

The technical service can set the fan ratio and the maximum DC charging current setpoint.

Deactivate RFID card reader

You can completely deactivate the RFID card reader here if required.

Reverse RFID UID character sequence

This switch allows you to reverse proprietary RFID reader inversions and thus keep the charging stations updateable with RFID readers converted by the customer (operator)/hardware.

Example: The UID "abcde123" read by the RFID reader is reversed to "321edcba".

Sound when RFID card is read

If this option is activated, acoustic feedback is activated in addition to the visual feedback when an RFID card is read.

Mode local limitations

- Globally deactivated, no influence on charging processes
- Only if OCPP is deactivated (e.g. local RFID cards)
- Also terminates OCPP authorizations

More information in the chapter “Local Limiting (S/O)” (page 72).

Load sharing - peak power mode

This parameter has no meaning for the CPC50 with Sinamics DCP power section or for the Unity20 or charging stations without DC parallel charging function and is not used.

For charging stations with activated DC parallel charging function, the switching behavior of the power units can be changed when activated in the event of a charging request from a second vehicle. In the standard configuration, the second vehicle can charge directly, i.e. the corresponding power components are immediately withdrawn from the vehicle charging first and it may only be able to continue charging with lower power.

In peak power mode, the second charging point is blocked for as long as ("Not available") until the requested power from the first charging vehicle has fallen below a type-dependent limit. The first vehicle can therefore charge 'undisturbed' at high power. If the value falls below the limit, the status of the second DC charging point changes to "Available" and the second vehicle can be charged.

ECO mode

This parameter has no meaning for the CPC50 / 150 with Sinamics DCP power units and is not used.

For all other charging stations, the power units can be set to sleep mode, which saves energy when charging is not in progress. Waking up from this sleep mode takes approx. 15 seconds and begins when the vehicle is plugged in.

Note

Changing the ECO mode requires the charger to be restarted after saving.s

Neues UI-Design (Experimentell)

Here you can try out a still experimental design based on the WebUI. No restart is necessary for the change.

Use external release contact (BMS) (Unity20/30 only)

The monitoring of an external release contact for Unity wallboxes can be activated here. This is usually used for fire alarm systems and the charging station interrupts all charging when the release is withdrawn.

For all other charging station types, this contact is hard-wired on delivery (enabled).

Note

Please contact the manufacturer to obtain the wiring specifications if you want to activate the function retrospectively (support@kostad.at).

3.5.2 RFID Reader (S/O)

With the RFID functionality, you can limit user access to the charging functionality of the charging station. Users identify themselves using an RFID card on the RFID card reader at the charging station. If the selected authorization method releases the user, a charging process can be started.

In the "RFID Reader" area, you can add RFID cards to an internal (local) whitelist or remove them from this list. This is an OCPP-independent list. For further information, please refer to the chapter “Authorization procedure” (page 17).

You can also delete the entire internal (local) whitelist.

It is also possible to use a master list. RFID cards assigned to this list can end a charging process at any time. To do this, you must select the corresponding charging point for display in charging mode. If you then hold a master card in front of the reader, the charge is terminated. This works regardless of the authorization method, i.e. also for authorization by the CPO via OCPP. This functionality is intended for filling station operators, for example, who are given the option of canceling charging processes. RFID cards in the master list generally cannot start a charging process.

Figure 3-21 RFID reader menu

In the RFID reader menu, the UID of the card currently being read is displayed in hexadecimal format. If the currently read card is contained in the internal (local) whitelist, this output field is highlighted in green with the UID.

If you want to check whether and in which list a specific RFID card is present, hold this RFID card in front of the RFID card reader. After the RFID card has been read, you will be shown next to the list heading whether the UID is available in this list. If the RFID card is not in this list, nothing will be displayed.

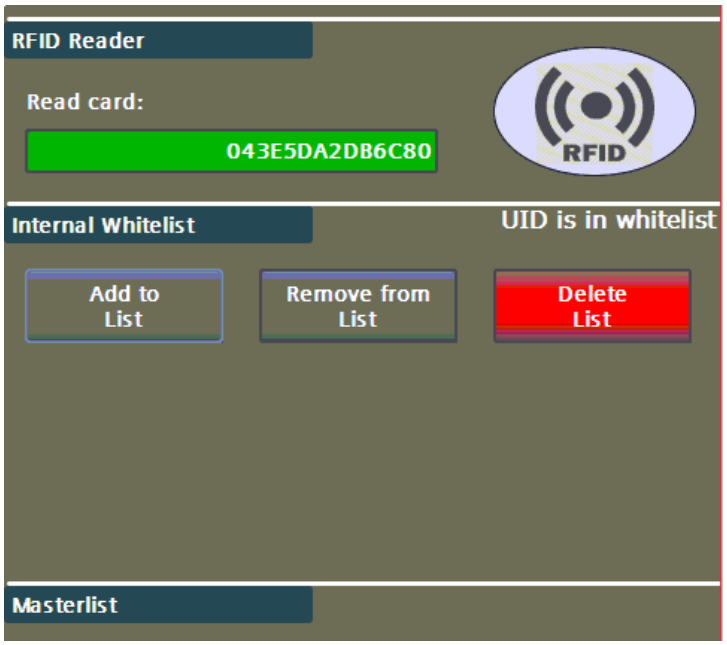


Figure 3-22 Administration of RFID cards via whitelist

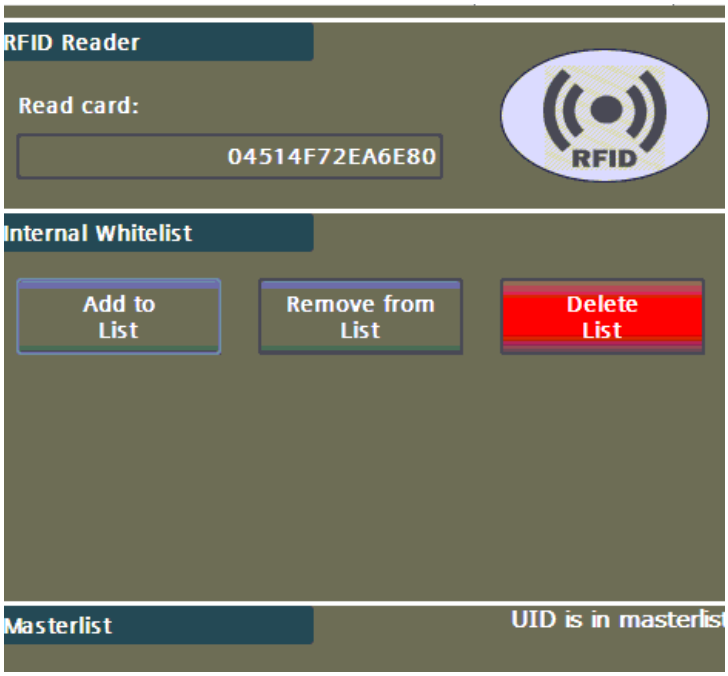


Figure 3-23 Administration of RFID cards via master list

Administering the lists

You can administer the whitelist and the master list in the same way as follows.

Procedure for adding RFID cards to a list

1. Select <Add to List>. The button starts to flash. If you want to cancel the function, press this button again. The button will then no longer flash.
2. Hold the desired RFID card in front of the RFID card reader.
3. The UID of the card read is displayed in hexadecimal format under "Card read". <Add to List> is automatically deselected.

4. If you want to add more cards, repeat this procedure.

Procedure for deleting RFID cards from a list

1. Select <Remoce from List>. The button starts to flash. If you want to cancel the function, press this button again. The button will then no longer flash.
2. Hold the desired RFID card in front of the RFID card reader.
3. The UID of the card read is displayed in hexadecimal format under "Card read". <Remoce from List> is automatically deselected.
4. If you want to remove more cards, repeat this procedure.

Procedure for deleting an entire list

1. Select <Delete List>.
2. Select <Yes> in the pop-up with the query.
   If you want to cancel the function, press <No> to confirm the query.
3. If you have confirmed with <Yes>, the entire list is deleted.

Accept or discard changes

If you have made changes to the lists, these are displayed in the lower third of the screen. You can apply or discard the changes using the corresponding buttons. If the data is not accepted, it is only valid until the next restart.

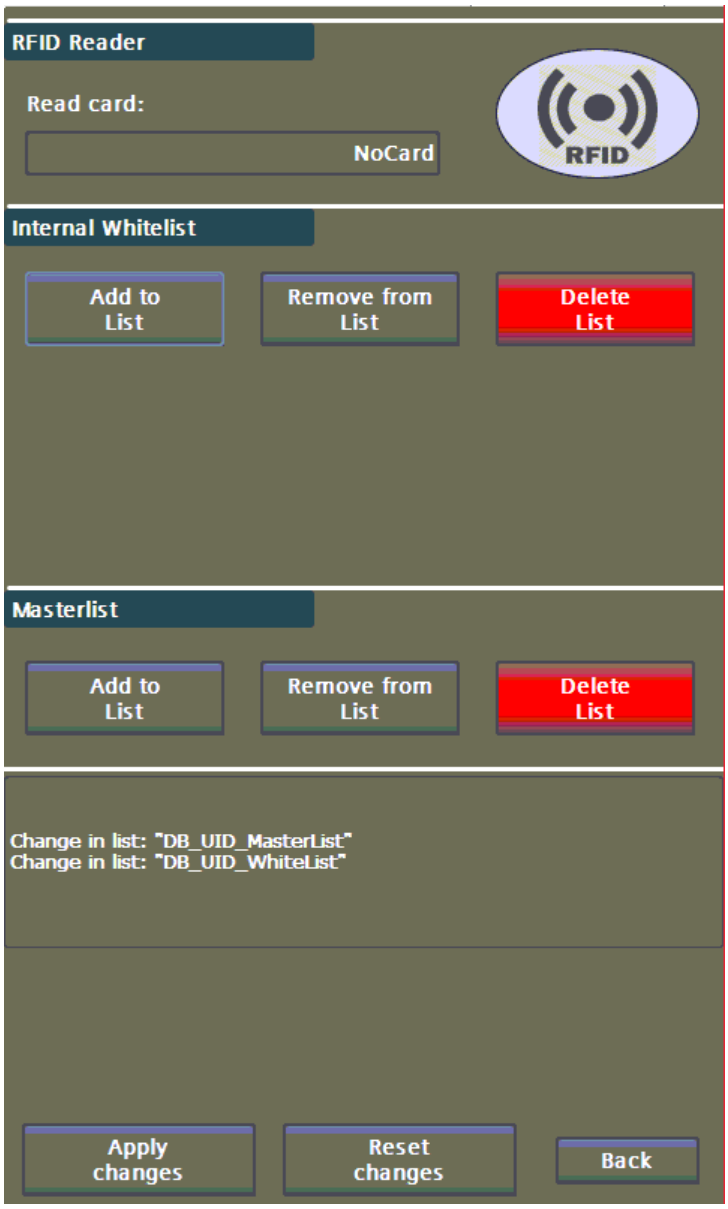


Figure 3-24 Accepting / rejecting the list changes made

If you have received service rights and separate login information from the manufacturer, you can also import the two lists as a file.

Standard RFID cards or RFID systems

Only the UID of the card is read/used.

Standard device used: Elatec TWN4 Multitech 2 HF

The following card systems are supported:

ISO14443A:

LEGIC Advant, MIFARE Classic EV1, MIFARE Classic, MIFARE Mini, MIFARE DESFire EV1, MIFARE DESFire EV2, MIFARE DESFire Light, MIFARE Plus S, X, MIFARE Pro X, MIFARE Smart MX, MIFARE Ultralight, MIFARE Ultralight C, MIFARE Ultralight EV1, NTAG2xx, SLE44R35, SLE66Rxx (my-d move), Topaz

ISO18092 ECMA-340:

NFC Forum Tag 1-5, NFC Peer-to-Peer, Sony FeliCa, NFC Active and passive communication mode

ISO14443B:

Calypso, Calypso Innovatron protocol, CEPAS, HID iCLASS, Moneo, Pico Pass, SRI4K, SRIX4K, SRI512, SRT512

ISO15693:

EM4x33, EM4x35, HID iCLASS, HID iCLASS SE/SR, ICODE SLI, LEGIC Advant, M24LR16/64, MB89R118/119, SRF55Vxx (my-d vicinity), Tag-it, PicoPass

3.5.3 OCPP settings (S/O)

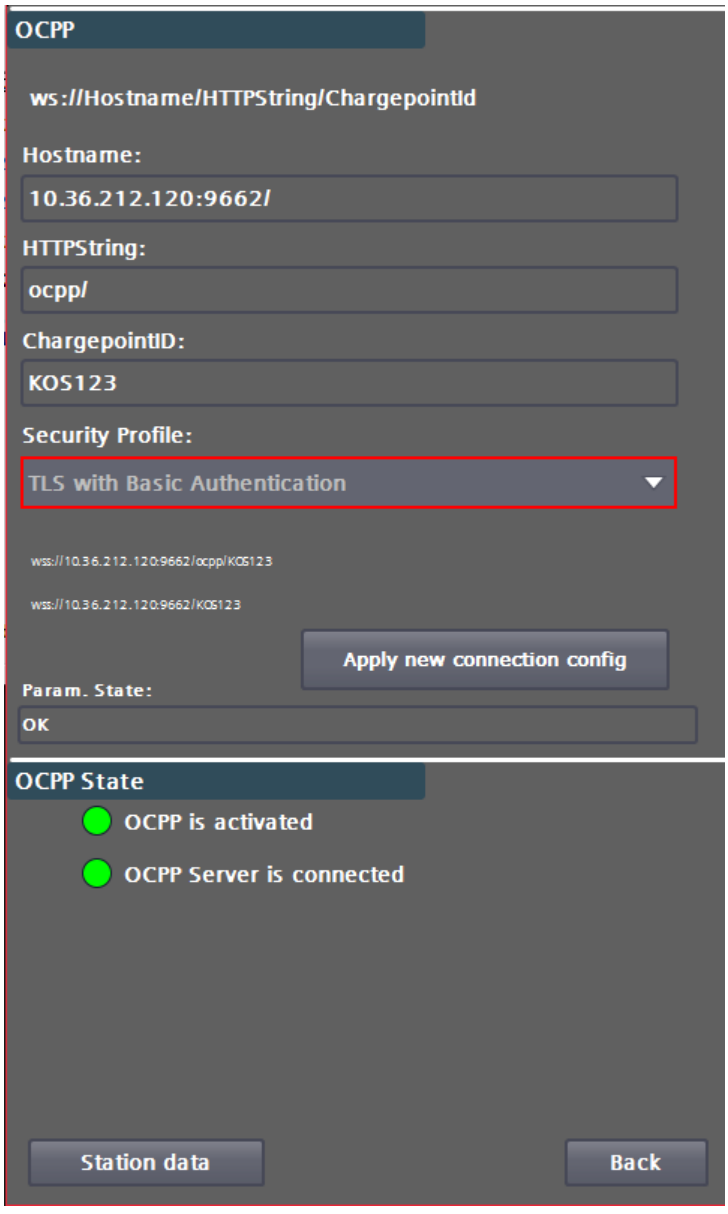


Figure 3-25 OCPP connection settings

To parameterize a backend connection, proceed as follows:

1. Enter the IP address or the name to be resolved in the "Hostname" field. If necessary, enter a port after a preceding ':'.
   The final slash is added automatically.
2. Enter the server path under "HTTPString". The final slash is added automatically.
3. Enter the name intended for this charging point under ChargepointID. This name is automatically appended to the "HTTPString".
4. Check the compound address displayed, pay attention to upper and lower case.
5. Set the correct security profile. In principle, this should be set from the backend, as different preconditions must be met for the different profiles. (The AuthorizationKey required depending on the profile can be set/changed via the OCPP parameters (no. 47)).
6. By pressing <Apply new connection config>, the entered data is accepted and all OCPP parameters are automatically saved.
7. If the authorization mode in the operator settings is set to OCPP, a connection to the backend is established immediately.

Note

If you press the <Apply new connection config> button while you are already connected to a server, this existing connection will be terminated immediately. Immediately afterwards, an attempt is made to establish a connection with the accepted settings.

In the display field <Param. State>, indications of incorrect parameterization of the safety profiles may be displayed.

Note

Only change and accept these connection parameters if no transaction and/or reservation is active, as this can lead to unwanted behavior.

If you click on the <Apply new connection config> button, the connection data entered will be accepted. An already active connection would be disconnected. Regardless of the following connection status (connected/not connected), all OCPP parameters are saved in a fail-safe manner.

Only OCPP 1.6J is currently supported. You can use the following OCPP profiles:

- Core
- Local Auth List Management
- Reservation
- Smart Charging
- Remote Trigger
- Firmware Management (partial)
- User (backend customizations))
- Security Add-On (WSS)

Note

The "Smart Charging" profile requires the phase voltage to be specified in the menu "Configuration (S)" (page 113).to parameterize the available power using current via OCPP.

If the current in Smart Charging messages is used for the DC charging points, this is interpreted as AC current for the limits (feed-in current).

OCPP power = OCPP current * (OCPP number of phases * phase voltage), see also https://www.openchargealliance.org.

Security profiles

- No connection security (default setting)
  - No encrypted connection and no authentication
- Unencrypted with HTTP Base Authentication
  - No encrypted connection, authentication with ChargepointID / AuthorizationKey as user name / password
- TLS with HTTP Base Authentication
  - Encrypted connection, authentication with ChargepointID / AuthorizationKey parameter as user name / password
- TLS with client certificates
  - Encrypted connection, authentication with client certificates

Note

Please note that the security profiles can only be changed upwards. You cannot switch back from a higher security profile to a lower security profile.

For more information, please refer to the documentation "Improved security for OCPP 1.6-J" (https://www.openchargealliance.org).

Note

You can view the initial "AuthorizationKey" parameter in the parameter list on the HMI or take it from the Base licence file supplied (under "BaseAuthStartKey"). This initial key is generated on a hardware basis and is automatically written to the parameter when the charging station is restarted if it is empty.

If changes are made to the parameters on the following pages, this will be displayed in the lower third of this screen. You must accept or discard these changes using the corresponding buttons so that they are saved in a fail-safe manner. Some parameters require a restart of the charging station in order to be activated.

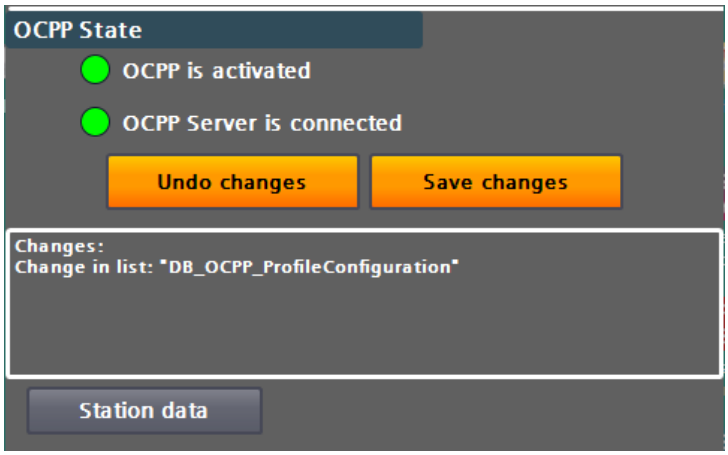


Figure 3-26 Accepting/rejecting parameter changes

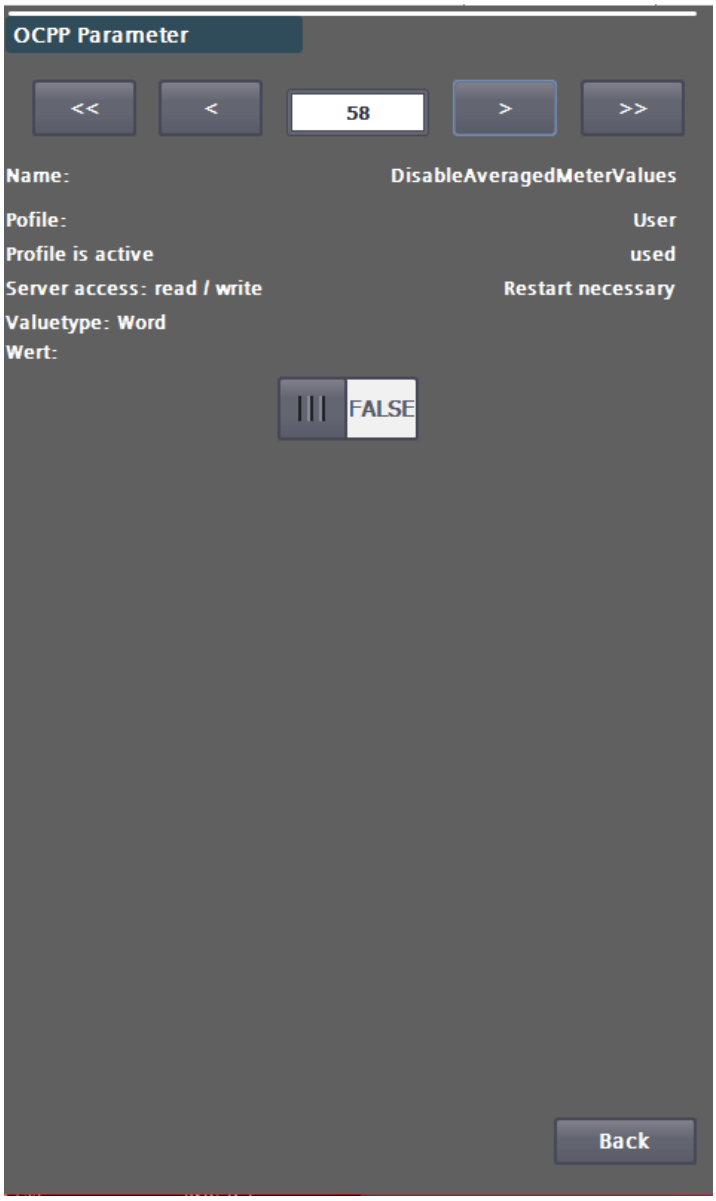


Figure 3-27 Note on restart

Pressing the <Station data> button takes you to the next menu. Use the <Back> button to return to the menu.

Here you can add data for the BootNotification telegram. Some data is fixed and cannot be changed, e.g. the serial number and FW version.

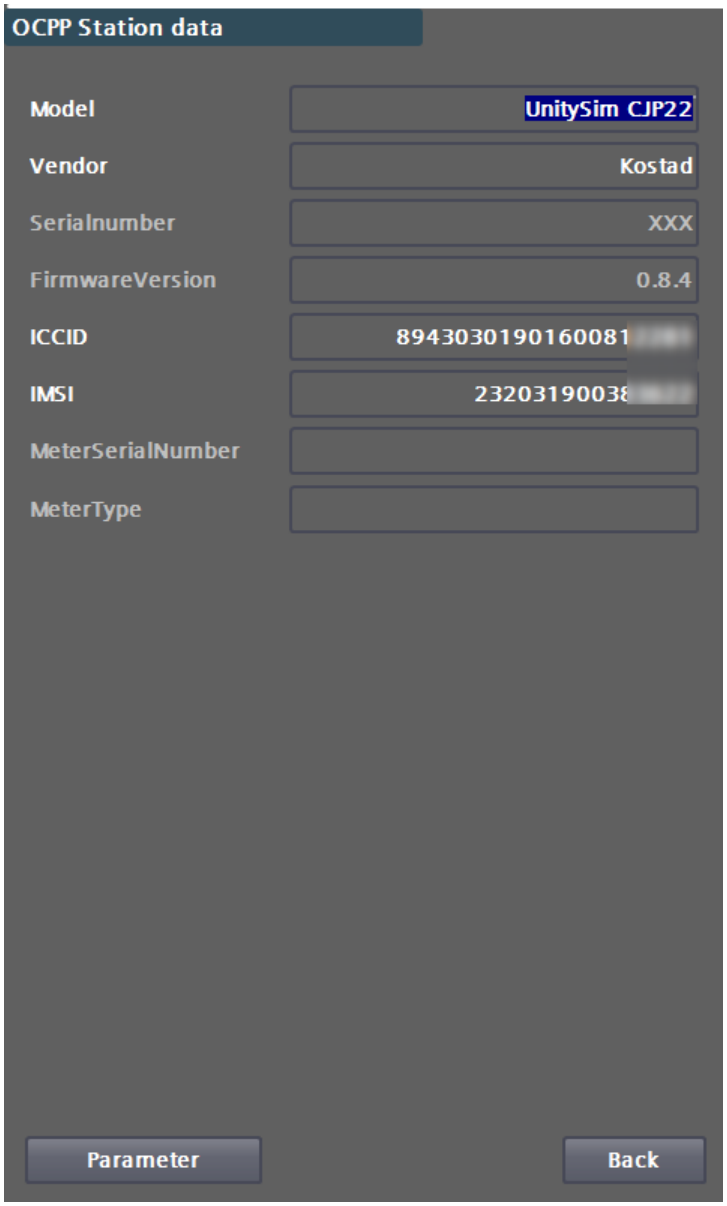


Figure 3-28 OCPP boot notification data

Values that are not entered are also not transferred to the backend.

Note

ICCID and IMSI are filled in automatically if the standard router (Teltonika) is used.

Pressing the <Parameter> button takes you to the OCPP parameter menu.

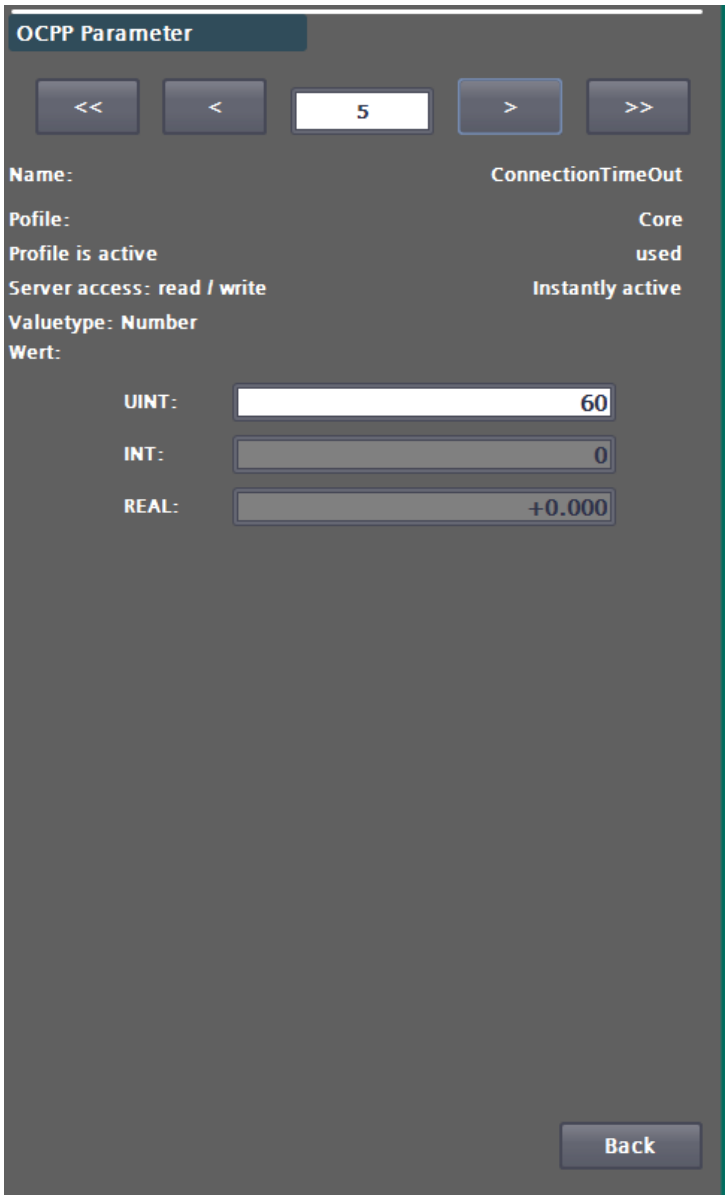


Figure 3-29 OCPP parameter page(s)

On this page you can check all defined OCPP parameters and change them if necessary. All parameters listed here can be read out by the backend via a GetConfiguration command. Depending on the write access to the parameter, they can be adjusted from the backend using a ChangeConfiguration command.

You can navigate through this list using the forward and back buttons (in steps of 1 and 5). The user parameters are available from index 43.

Some value changes require a restart of the charging station for activation. If defined in the parameter, all values can be written by the backend.

Figure 3-30 StartStopMeterValueIsRegisterValue

The function and dependencies between the parameters can be found in the OCPP documentation (https://www.openchargealliance.org/protocols/ocpp-16/)

It is strongly recommended that the default settings are only made if necessary and only with comprehensive knowledge of the function of the parameter to be changed, if necessary, together with the backend operator.

Note

The manufacturer rejects any warranty claims for functional restrictions or failure of the charging station due to improper or incorrect parameterization of the backend.

ATTENTION
Damage to the charging station In some menus, the otherwise read-only parameters can also be changed. Only change these parameters if you are familiar with the system's reaction to this change.

Restrictions on standard parameters

Standard parameter	Restrictions / Comments
StopTransactionOnEVSideDisconnect	To avoid incorrect billing, this value is always active (true) regardless of the backend settings.
BlinkRepeat	Currently not used and without function.
LightIntensity	Currently not used and without function.
ResetRetries	Currently not used and without function. Hard and soft resets are treated equally. This briefly interrupts the entire electronic power supply.
WebSocketPingInterval	Currently set to 11 seconds and cannot be changed.
CertificateSignedMaxChain	Deviating from the Security AddOn: The maximum number of certificates in the certificate chain (not the number of bytes in the overall chain).

Restrictions on standard profiles

Profil	Restrictions / Comments
Core	None
Firmware Management	Firmware status notification and update firmware are currently without function.

Profil	Restrictions / Comments
Local Authlist Management	None
Remote Trigger	None
Reservation	Reservations on connector 0 are not supported. (ReserveConnectorZeroSupported = false)
SmartCharging	GetCompositeSchedule is currently not supported
Security-Addon	None

List of user parameters

Table 3-1 User parameter list for settings outside the standard at the backend

User-Parameter	Value	Description
ClearCacheAlsoClearsLocalAuthList	True	The "ClearCache" backend command not only deletes the cache, but also the Local Auth List (whitelist)
	False (default)	The backend command "ClearCache" only deletes the cache, but not the Local Auth List (whitelist).
DoUnlockIfNoLockPresent	True	The "UnlockConnector" backend command can also be executed for AC charging points that do not have a charging cable lock on the charging station (fixed charging cable). This does **not** affect the locking system on the vehicle.
	False (default)	The "UnlockConnector" backend command is not executed for AC charging points that do not have a charging cable lock on the charging station (permanently installed charging cables).

User-Parameter	Value	Description
StartStopMeterValueIsRegisterValue	**True** (default)	In the "StartTransaction" and "StopTransaction" telegrams, register values are used as meter start and meter stop values and not values relative to the start of the charging process.
	False	In the "StartTransaction" and "StopTransaction" telegrams, meter start and meter stop values are used relative to the start of the charging process.
IgnoreWrongServerData	True	Invalid server data is sometimes answered with "Rejected" instead of a websocket error telegram.
	False (default)	Invalid server data is answered with a web socket error telegram.
DisablePaymentDataTransfer	True	No extra DataTransfer telegrams are sent to the backend (e.g. payment terminal status)
	False (default)	All defined DataTransfer telegrams are sent to the backend (e.g. payment terminal status)
ImmediateCHAdeMORemoteStart	True	Charging process is started directly even if no connected vehicle is detected (e.g. old Tesla adapters)
	False (default)	Charging process is started with the Start button or recognized vehicle.
ActivatePnCviaVID	True	Only for CCS: After plugging in, an "Authorize" request with the VID of the vehicle is automatically sent to the backend.
	False (default)	Only for CCS: The VID of the vehicle is not used.
AlwaysUnlockACSocket	True	For AC sockets: the cable is unlocked on the charging station side even without final customer authorization (if it has been removed from the vehicle).
	False (default)	For AC sockets: the customer must once again present the RFID card to unlock the cable at the charging station.
DisableAveragedMeterValues	True	MeterValues: Power.Offered, Power.Active.Import and Current.import are read in discretely and without averaging.

User-Parameter	Value	Description
		Timestamp contains the sample timestamp.
	False (default)	MeterValues: Power.Offered, Power.Active.Import and Current.Import are treated as interval values, i.e. they are averaged over the sample period. The time stamp contains the start
StopTransactionSignatureFormat	**[string]** **„MR“ oder „SR“**	As soon as a meter with single data set transmission is available (Bauer BSM AC-ERK meter), the value is "SR". Otherwise the value is "MR"
StopTransactionSignatureContexts	**[cslist]** **Default =** **"Transaction.Begin,** **Transaction.End"**	Signed measured values for the specified contexts are sent in the StopTransaction telegrams (if available)
MeterValuesSignatureContexts	**[cslist]** **Default=“Transaction.Begin** **”**	Signed measured values for the specified contexts are sent in the MeterValues telegrams (if available)
ShowAuthorizeReqBeforePlugInReq	True	HMI: User is prompted to authorize. (no further effect)
	False (default)	HMI: The user is prompted to plug in the cable.
NeverHideStopButton	True	The stop button is always displayed (anyone can end the charging process).
	False (default)	The stop button is only displayed during free operation or if, for example, the RFID reader is defective.
preAuthorizedMessage	**[string]** **(default “”)**	Alternative text when using an external payment terminal (alternative to DataTransfer)
afterTransactionMessage	**“”** **(default)**	Alternative text when using an external payment terminal (alternative to DataTransfer)
LEDSignalDefinitions	**[cslist]** **(default „“)**	Only available for special charging stations (see extra documentation).
MaxInfeedPower_kW	**[uint]** **(default = 1000)**	Assigned power for the entire charging station available for charging processes, without power loss, fan heating etc.).
TricklePowerBoundary_kW	**[real]** **(default = 0,0)**	Comparative power for switching to EV Suspended
TricklePower_Delay_s	**[uint]**	Switch-on delay if the current power is less than

User-Parameter	Value	Description
		TricklePowerBoundary_kW. EV Suspended is displayed after expiry. If the value is "0", the function is deactivated This is purely for evaluation purposes for the backend. The charging transaction remains unaffected.
SuspendedEV_Timeout_s	**[uint]** **(default = 0)**	If the charging point is in the SuspendedEV state for longer than this parameter specifies, the charging process is ended automatically. If the value is "0", the function is deactivated
TiltSensorWarnLevel_deg	**[uint]**	Only available at special charging stations. Warning limit for the tilt sensor. Absolute angle in degrees.
TiltSensorWarnLevel_Delay_s	**[uint]**	Only available at special charging stations. Switch-on delay of the message when the warning limit of the tilt sensor is exceeded.
TiltSensorAlarmLevel_deg	**[uint]**	Only available at special charging stations. Error limit for the tilt sensor. Absolute angle in degrees. If this is reported, the station release is withdrawn until the system has been restarted. All charging processes are canceled.
DisableDoorSensorReaction_1h	**[bool]**	Only available at special charging stations. Changing this value from false -> true suppresses the reaction to door sensors as long as this value is true or 1 hour has elapsed or the entire system is disabled (e.g. due to a fatal error). This value is not automatically reset to false.
MaxUnbalancedLoad_A	**[uint]** **(default = 20)**	Specifies the maximum phase unbalance in amperes. Only for software-based asymmetry detection. Hardware detection remains unaffected by this. If a charging point (AC) is unbalanced, the allocated power is reduced accordingly.
EMS_EnableRootControl	True	Only available at special charging stations. Activates local root measurement and control if available.

User-Parameter	Value	Description
	False (default)	No root measurement and control
EMS_MaxAvailablePowerAtRoot_kW	**[uint]** **(default = 0)**	Only for local root measurement. The available power at the measuring point. This power is used for power control with regard to root measurement.
EMS_FallbackPower_kW	**[uint]** **(default = 0)**	Only for local root measurement; This power is used if communication for root measurement is disrupted.
EMS_RootDeviceType	**[uint]** **(default = 0)**	Only for local root measurement; 6 = PAC4200 or PAC3200, PAC3220
EMS_RootDevice_IPPort	**[string]**	Only for local root measurement; Modbus/TCP IPv4 address:Port of the measuring device. E.G. "10.36.213.110 :502" If no port is specified, port 502 is used as the default.
SendDisplayChangeLanguageEvent	True	Only available at special charging stations. A data transfer is sent when the display language is switched.
	False (default)	No data transfer is sent when the display language is switched.
DelayStopTransactionUntilUnplug	True	The StopTransaction message is delayed until either it is recognized that the vehicle has been unplugged, a restart of the charging station or an error was detected at the charging point. *This currently has no influence on the conclusion of a payment with an integrated payment terminal.* *Value is adopted with the next charging transaction.*
	False (default)	The StopTransaction is sent (as before) in accordance with the OCPP standard if no more energy flow is possible.
AllowAnyIdToken_FairMode	True	1. The entire station is set to the 'Operational' status 2. All readable RFID cards are accepted unchecked

User-Parameter	Value	Description
		(without Authorize.req if the backend is connected) 3. RegistrationStatus = Accepted is implicitly set, i.e. all messages are sent to the backend (buffered if not connected). If a backend is connected, it must accept the IDTags in the StartTransaction accordingly so that the charging process is not aborted. If a backend is connected later, the transaction messages are forwarded accordingly.
	False (default)	
AutoStartCharging_FairMode	True	1. The entire station is set to the 'Operational' status 2. The charging process starts immediately when the vehicle is plugged in. 3. RegistrationStatus = Accepted is implicitly set, i.e. all messages are sent to the backend (buffered if not connected). 4. If a backend is connected, it must accept the IDTags in the StartTransaction accordingly so that the charging process is not aborted. If a backend is connected, it must accept the IDTags in the StartTransaction accordingly so that the charging process is not aborted. If a backend is connected later, the transaction messages are forwarded accordingly.
	False (default)	
AutoStartCharging_IDTag_FairMode	**[string]** (default = “FairMode_CP”)	In trade fair mode, this value is used for the ID token. If this value is <= 18 characters long, the connectorId is appended. A maximum of 20 characters are used.
PreChargeParkWarnOnDelay_s	**[uint]** (default = 300)	Only available at special charging stations.

User-Parameter	Value	Description
		If a vehicle is plugged in, the PreChargeParkWarnTimer runs. If this timer expires, a data transfer message is issued (preChargeWarnEnabled) and a parking warning light is activated. If the vehicle is unplugged again, a data transfer message is issued (preChargeWarnDisabled) and the parking warning light is deactivated. In combination with the ConnectionTimeout (standard parameter), the following behaviors can be set: (ConnectionTimeout = PreChargeParkWarnOnDelay_s) As soon as the ConnectionTimeout makes unplugging mandatory, the DataTransfer message is output and the parking warning light is activated. (ConnectionTimeout > PreChargeParkWarnOnDelay_s) The charging process can be started until the connection timeout expires. This means that the parking warning status can be reset by starting a charge. (ConnectionTimeout PreChargeParkWarnOnDelay_s) As soon as the ConnectionTimeout makes unplugging mandatory, the charge point switches to Finishing. After expiry of the PreChargeParkWarnTimer, the DataTransfer message is issued and the parking warning light is activated.
PostChargeParkWarnOnDelay_s	**[uint]** **(default = 300)**	Only available at special charging stations. If the charge point is in the Finishing state (charge completed without errors, waiting for unplugging) and remains there longer than specified in PostChargeParkWarnOnDelay_s , a DataTransfer message is issued (parkWarnEnabled) and a parking warning light is activated.

User-Parameter	Value	Description
		After unplugging the vehicle, a data transfer message (parkWarnDisabled) is displayed and the parking warning light goes out.

Use the <Back> button in the respective parameter menu to return to the previous menu.

Note

To prevent a service employee on site and the backend from making parameter changes remotely at the same time, backend parameter changes are not saved when a local user is logged in.

3.5.4 Local Limiting (S/O)

This menu item contains settings for limiting the energy and charging time of individual or all charging points. This function must first be activated in the operator settings (Local limitating mode).

Mode

- Globally deactivated, no influence on charging processes
- Only if OCPP is deactivated (e.g. local RFID cards)
- Also terminates OCPP authorizations

Note

Authorizations by a local payment system (payment terminal) are not affected.

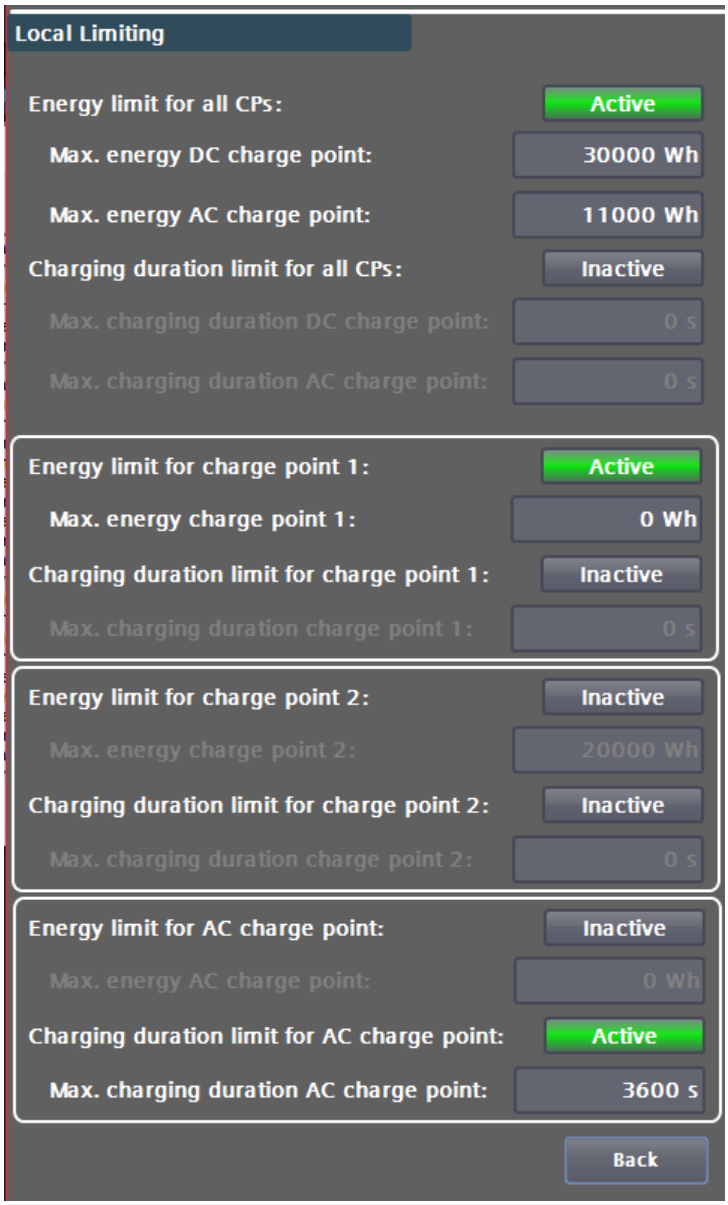


Figure 3-31 Local limiting

Global limits

Energy limit for all charging points	Activates the energy limit for all charging points
Max energy limit DC charging points	Energy limit in [Wh] for DC charging points
Max energy limit AC charging points	Energy limit in [Wh] for AC charging points
Charging time limit for all charging points	Activates the charging time limit for all charging points
Max. Charging time DC charging point	Max. Charging time in [sec] for DC charging points
Max. Charging time AC charging point	Max. Charging time in [sec] for AC charging points

Charging point limits

Energy limit for charging point n	Activates the energy limit for this charging point
Max. energy charging point n	Energy limit in [Wh], if = 0 -> excluded from limitation

Charging time limit charging point n	Activates the charging time limit for this charging point
Max. charging time charging point n	Max. charging time in [sec], if = 0 -> excluded from limitation

Prioritization

Prioritization is carried out as follows:

First charge point limits then global limits, i.e. as soon as a limit is activated for a specific charge point, the respective global limit is no longer observed.

Note

If a limit is reached/exceeded, the charging process is automatically terminated. The reason in the OCPP-StopTransaction message would be 'Other' in this case.

Example 1

Global energy limit: activated, 30000Wh
Charging point 1 energy limit: activated, value = 50000Wh
Charging point 2 energy limit: activated, value = 20000Wh
Charging point 3 energy limit: not activated
Charging point 4 Energy limit: activated, but value = 0

> Charging point 1 charges up to 50kWh (charging point limit)

> Charging point 2 charges up to 20kWh (charging point limit)

> Charging point 3 charges up to 30kWh (global limit)

> Charge point 4 charges indefinitely, as the charge point limit has a higher priority.

This also applies to the charging time limit.

Example 2

(Inputs such as in Figure 3-31 Local limiting, 3 charging points, DC/DC/AC)

Global energy limit: activated, DC 30000Wh, AC 11000Wh
Charging point 1 energy limit: activated, value = 0
Charging point 2 energy limit: not activated
Charging point 3 energy limit: not activated, but value = 0
Charging point 3 charging time limit : activated, value = 3600s (1h)

> Charging point 1 charges indefinitely, as the charging point limit has a higher priority.

> Charging point 2 charges up to 30kWh (charging point limit)

> Charging point 3 charges up to 11kWh (global limit), or
Charging point 3 charges for max. one hour

3.5.5 EMS interface via control inputs (e.g. for group control line, ripple control receiver) (S/O)

All relative power values / ramps refer to the maximum available power for the charging station entered on the display (see chapter “Operator settings (S/O)“ (page 45).

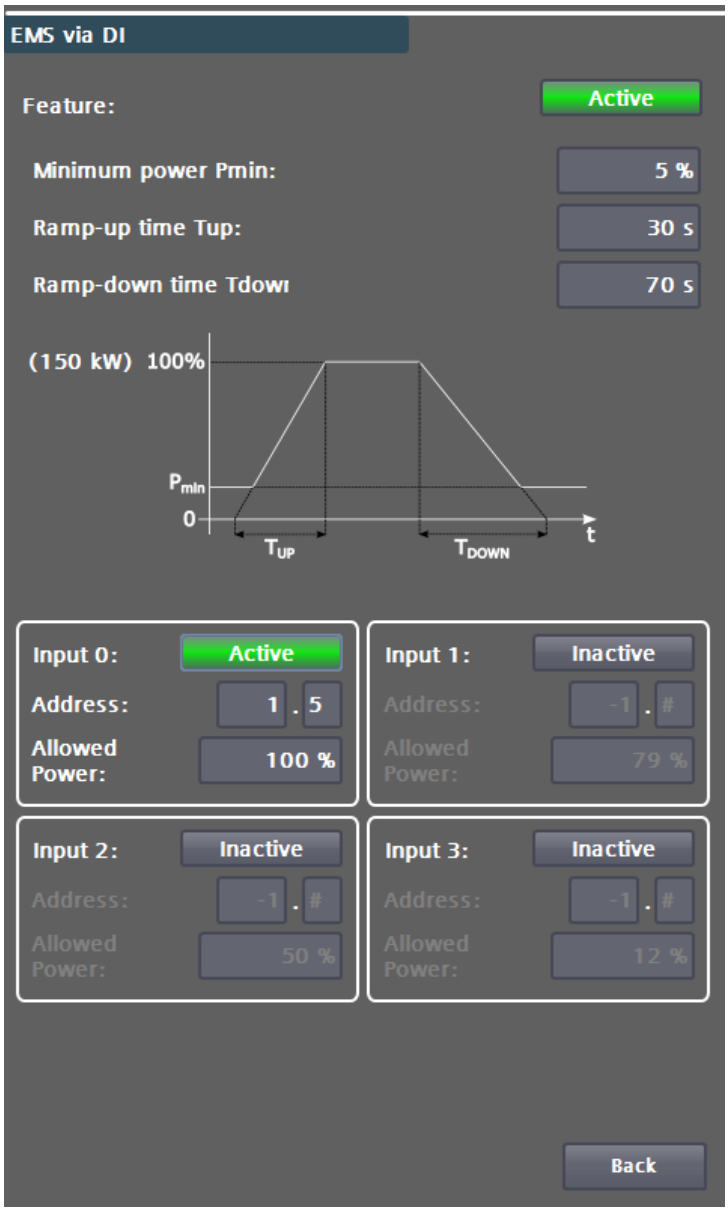


Figure 3-32 EMS via control inputs

Instructions for use

There are vehicles on the market that do not support zero-current charging or only partially support it (for a short time). If the available power of the station is reduced below certain limits or to 0%, certain vehicle types may terminate the charging process immediately or after a certain time with an error. It is then not possible to continue charging after the available power has been released. This problem can be mitigated, if the local conditions permit, by setting a minimum output. For example, by specifying a minimum power of 6% (9kW, with a maximum power of 150kW and three charging points), you can allow 3kW per charging point.

Activation

If the analog EMS interface is deactivated, 100% of the available power is passed on.

Inputs

A maximum of 4 digital inputs can be used. Please contact the manufacturer to discuss the possible options (support@kostad.at).

Hardware requirements

24V Dedicated CAT7 cable, one twisted wire pair for each channel. A potential-free contact is required by the customer. For cable lengths over 50m, please contact the manufacturer (support@kostad.at).

230V Contact the manufacturer (support@kostad.at).

Priority

Input 0 (highest priority) -> Input 1 -> Input 2 -> Input 3 (lowest priority)

If an input n is active (high signal), the available power parameterized for this input is used.

Example parameterization:

Parameterized maximum power = 150kW.

For single-channel evaluation:

Input	Available power
0	100%

If input 0 is active (high level), 100% (150kW) is passed on, otherwise 0% (see also minimum power).

For four-channel evaluation:

Input	Available power
0	100%
1	70%
2	50%
3	30%

If input 0 is active (high level), 100% (150kW) is passed on.

If input 1 is active (high level), 70% (105kW) is passed on.

If input 2 is active (high level), 50% (75kW) is passed on.

If input 3 is active (high level), 30% (45kW) is passed on, otherwise 0% (see also minimum power).

The available power is specified as a percentage of the parameterized maximum power of the charging station (see chapter “Operator settings (S/O)“ on page 45.

All combinations that can be entered are valid if they are in the range [0;100].

Minimum power (default value 0%)

If all parameterized inputs are not active (low level), the transmitted power is 0%.

A minimum power can be specified so that the charging station continues to operate in "emergency mode". Like the available power, the minimum power is specified as a

percentage of the parameterized maximum power. No value less than this minimum power is then passed on. (MAX(available power, minimum power))

Note

The station power can still be reduced to 0% by derating, an external EMS or OCPP.

Note

The available benefits are an upper limit. This means that less power can be provided depending on the requirements of the vehicles / other EMS.

Ramps (default values 60s, 60s)

The result can be smoothed using two different ramps (linear).

The specified ramp time refers to the time from 0% to 100% (or 100% to 0%) of the parameterized maximum power. The minimum value is 1s.

Example

Parameterized maximum power = 150kW.

Ramp up time	60s
Ramp down time	10s

If the power is changed from 50% (75kW) to 100% (150kW), it takes 30s to reach 100%.

If the power is changed from 100% (150kW) to 50% (75kW), it takes 5s to reach 50%.

Note

The available power of the individual charging points is not ramped if they are below the level of the station's available power that has already been reached. If, for example, 50% (75kW) is enabled and the connected vehicles have fluctuating setpoints below this 50%, the ramps specified here are NOT active.

Allocation of the station boundaries to the charging points

This interface can only be used to limit the maximum power of the entire charging station. It is therefore not possible to limit individual charging points. Unless specified by other systems such as OCPP, the available power is allocated to the individual charging points based on demand using the procedures described in the manual

3.5.6 External power management (S/O)

In this menu, you configure the settings required for external power management via Modbus/TCP.

External power management is independent of the operator's power management via OCPP (SmartCharging) or power limitation via the digital control inputs. If several EMS (energy management systems) are in use at the same time, the minimum of all released outputs is always used.

This power management can be carried out by the operator using a proprietary software control system. The data is exchanged via Modbus/TCP and the charging station can act as a Modbus server and client. The server variant is to be preferred, as no firewall settings need to be changed here.

As the operator, you can activate and deactivate the function, but you cannot make any further settings. Further interventions in the system may be necessary, e.g. firewall or routing settings.

You can use this interface to limit the power of the entire station or individual charging points. If the station power is limited, the power distribution between simultaneously active charging points is regulated within the station.

In terms of hardware, the lowest (fourth) port of the SCALANCE router is used.

Figure 3-33 SCALANCE router with marked port for the ext. EMS

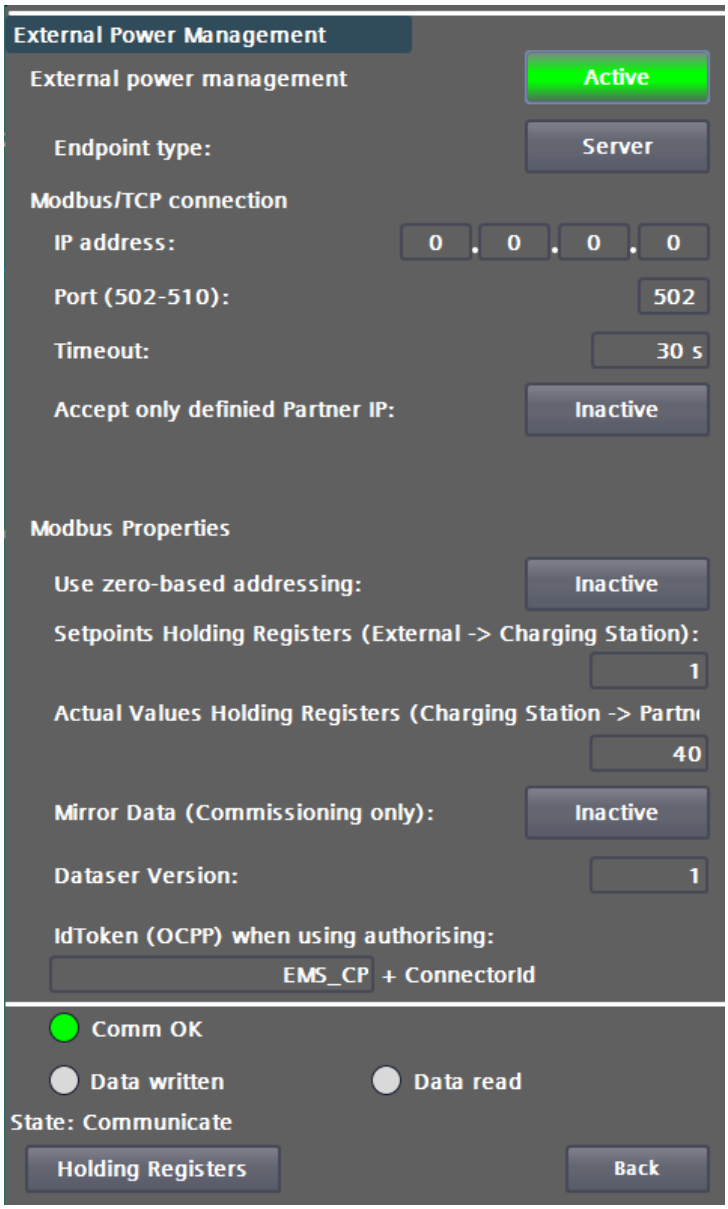


Figure 3-34 External power management menu

Active / Inactive

- Inactive: An existing connection is removed. The function is no longer used. Services are no longer limited by this function.
- Active: A connection is established with the set parameters. Performance management is activated.

Note

The following parameters can only be changed if the function is deactivated.

Endpoint type

- Server:
  The charging station acts as a Modbus/TCP server. Holding registers are used. If excessively fast query cycles of a client are detected, a RESET of the master

functionality is carried out. The cycle must be >= 1 second. Only one client is accepted at a time. The data may only be retrieved in its entirety.

- Client:
  The charging station acts as a Modbus/TCP client. The client uses the MODBUS functions 03 for reading holding registers and 16 for writing holding registers. The data is always read/written as a whole. This is the preferred option, as ideally no further firewall and routing settings need to be made.

Partner IP-Adresse

- “Charging station as server”: This IP is used if "Only accept defined partner IP" is activated. (access protection)
- “Charging station as client”: This IP specifies the Modbus/TCP server. This must be accessible in the subnet.

Port

- “Charging station as server”: Requests are responded to on this port.
- “Charging station as client”: Requests are made to this port. Permitted ports: 502-510

Timeout

- "Charging station as server":
  If no data traffic is detected within this time, communication is considered interrupted. A RESET of the server functionality is carried out. If data has been received correctly, it will continue to be used.
- "Charging station as client":
  If no request telegrams can be sent successfully for this time, communication is considered interrupted. A RESET of the client functionality is carried out. If data has been received correctly, it will continue to be used. The timeout must be greater than the polling interval.

Adjustable values: 2-43200 seconds (12 h)

Only accept defined partner IP

If the charging station works as a server, you can activate this function to filter the requests. If this function is activated, only requests from the partner IP are accepted (recommended setting). If the function is deactivated, requests from any IP are accepted.

Client poll interval

With this cycle you initiate writing and reading assignments. The poll interval must be greater than or equal to one second and less than the timeout value.

Adjustable values 1-43199 seconds (1s-12h)

Use zero-based addressing

If the remote station uses zero-based addressing ("address offset"), (register shifted by 1), you can activate this here.

Start holding register setpoints (partner -> charging station)

The holding registers for setpoints and actual data must not overlap. This value may only be set if the connection is deactivated.

Permitted values: 1-9873 (9998 - 125)

This value only applies in conjunction with data record types 1 and 2.

Start holder register actual data (charging station -> partner)

The holding registers for setpoints and actual data must not overlap. This value may only be set if the connection is deactivated.

Permitted values: 1-9873 (9998 - 125)

This value only applies in conjunction with data record types 1 and 2.

Data mirroring (only for commissioning purposes)

To make commissioning easier, you can set here that the setpoint holding registers are copied to the actual data registers. The data is not transferred to the data structures on the charging station. Data mirroring only works for versions 1 and 2 of the data structure.

This value may only be set if the connection is deactivated.

Version of the data structure

The version number of the data interface must always be specified at the start holding registers so that the data can be transferred. The currently set version is also output in the start holding register of the actual data.

IdToken (OCPP) when using the EMS for authorization (only version #3 of the data structure)

This IdToken is used in parallel operation with OCPP in the start/stop transaction messages to indicate to the operator that this charging transaction has been authorized by the EMS. The OCPP-ConnectorId is automatically appended to this IdToken.

Example of charging at charging point 2: "EMS_CP" + 2 = "EMS_CP2"

The IdToken text is free (1-18 characters) and should be meaningful for operators and backend providers. Only capital letters are allowed

Note

This IdToken must be accepted by the backend. Otherwise, the charging process would be terminated immediately after the negatively acknowledged StartTransaction.

Then allow (in the example) at the backend when using the function and three charging points: "EMS_CP1", "EMS_CP2" and "EMS_CP3"

Specifications for the data structure

- Only whole words are read and written, i.e. a word must also be defined for a bit (true := 1, false := 0).
- The data length of the data structure for target values and actual data must be the same.
- A maximum of 125 words may be exchanged.

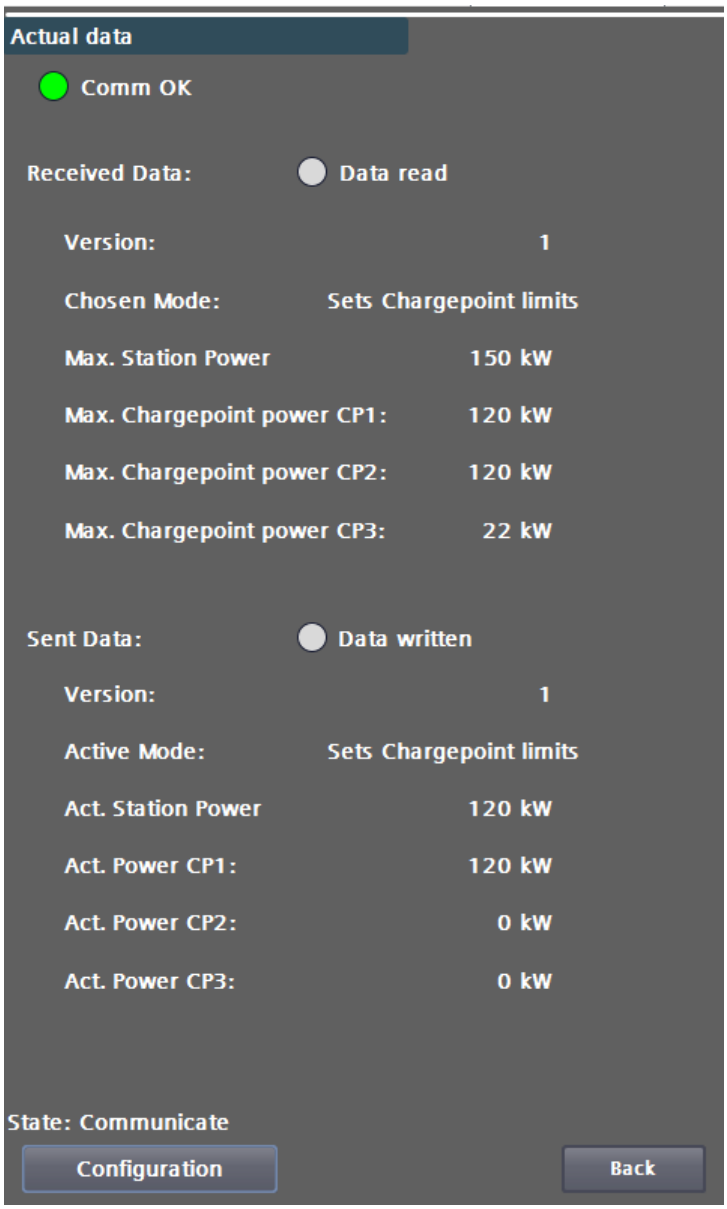


Figure 3-35 Example of the actual data for external performance management

The individual elements of data sets #1 and #2 are shown in the following tables.

Note

Only two data records are currently described here. Further data sets are available on request from Kostad Customer Support Service (support@kostad.at).

Table 3-2 Data set #1 (ID1)

EMS->Charging station (start address = "Start holding register setpoints")			
	Reg.Offset	**Datentyp**	**Beschreibung**
	+0	Int	Telegram version (=ID=1)
	+1	UInt	Mode 0 = Off, 1 = Station limitation, 2 = Charging point limitation
	+2	UInt	Maximum station power in kW

	+3	UInt	Charging point 1 maximum power in kW
	+4	UInt	Charging point 2 maximum power in kW
	+5	UInt	Charging point 3 maximum power in kW
Charging station -> EMS (start address = "Start holding register actual values")			
	Reg.Offset	**Datentyp**	**Beschreibung**
	+0	Int	Telegram version (=ID=1)
	+1	UInt	Active mode 0 = Off, 1 = Station limitation, 2 = Charging point limitation
	+2	UInt	Current station output in kW
	+3	UInt	Charging point 1 current power in kW
	+4	UInt	Charging point 2 current power in kW
	+5	UInt	Charging point 3 current power in kW

Table 3-3 Data set #2 (ID2)

EMS->Charging station (start address = "Start holding register setpoints")			
	Reg.Offset	**Datentyp**	**Beschreibung**
	+0	Int	Telegram version (=ID=2)
	+1	UInt	Mode 0 = Off, 1 = Station limitation, 2 = Charging point limitation
	+2	UInt	Maximum station power in kW
	+3	UInt	Charging point 1 maximum power in kW
	+4	UInt	Charging point 2 maximum power in kW
	+5	UInt	Charging point 3 maximum power in kW
	+6	UInt	Station power in case of communication failure in kW (fallback)
	+7	UInt	Charging point 1 max power in case of communication failure in kW (fallback)
	+8	UInt	Charging point 2 max power in case of communication failure in kW (fallback)
	+9	UInt	Charging point 3 max power in case of communication failure in kW (fallback)
Charging station -> EMS (start address = "Start holding register actual values")			
	Reg.Offset	**Datentyp**	**Beschreibung**
	+0	Int	Telegram version (=ID=2)
	+1	UInt	Active mode 0 = Off, 1 = Station limitation, 2 = Charging point limitation
	+2	UInt	Current station output in kW
	+3	UInt	Charging point 1 current power in kW
	+4	UInt	Charging point 2 current power in kW

	+5	UInt	Charging point 3 current power in kW
	+6	Word	Station is active or requested[1] (<>0)
	+7	Word	Charge point 1 is active or requested[1] (<>0)
	+8	Word	Charge point 2 is active or requested[1] (<>0)
	+9	Word	Charge point 3 is active or requestedt[1] (<>0)

Note

Version #1 and #2 use permanently assigned charging points, i.e. the charging point index does not necessarily correspond to the OCPP-ConnectorId.

Charging point 1 is always a DC charging point

Charging point 2 is always a DC charging point, if available

Charging point 3 is always an AC charging point, if available

3.5.7 Payment terminal (S/O)

This menu allows you to make the settings for an OCPP-independent payment terminal (credit and debit cards, NFC, smartphone app, etc.).

ATTENTION
The operator acknowledges that it is responsible for operating the charging station in accordance with the applicable legal provisions. The manufacturer accepts no responsibility in this regard.

If this option is available and activated, the images change to start the charging process. You will be offered an alternative option in addition to the selected identification option.

Note also the information in the chapter “Starting the charging process“ (page 13) section “Variant 3“.

The underlying hardware and software is operator-dependent and can be specified via the article number. You can request paid hardware that is not listed from the manufacturer.

The credit card reader can be installed in two variants:

- without numeric keypad keyboard
- with numeric keypad keyboard (physical or touchscreen keyboard)

The communication connection is made via Ethernet cable. Both communication with the charging station and communication with the payment service providers takes place via this connection. The maintenance router is used for outgoing connections.

[1] Requested means plugged in and ready for charging

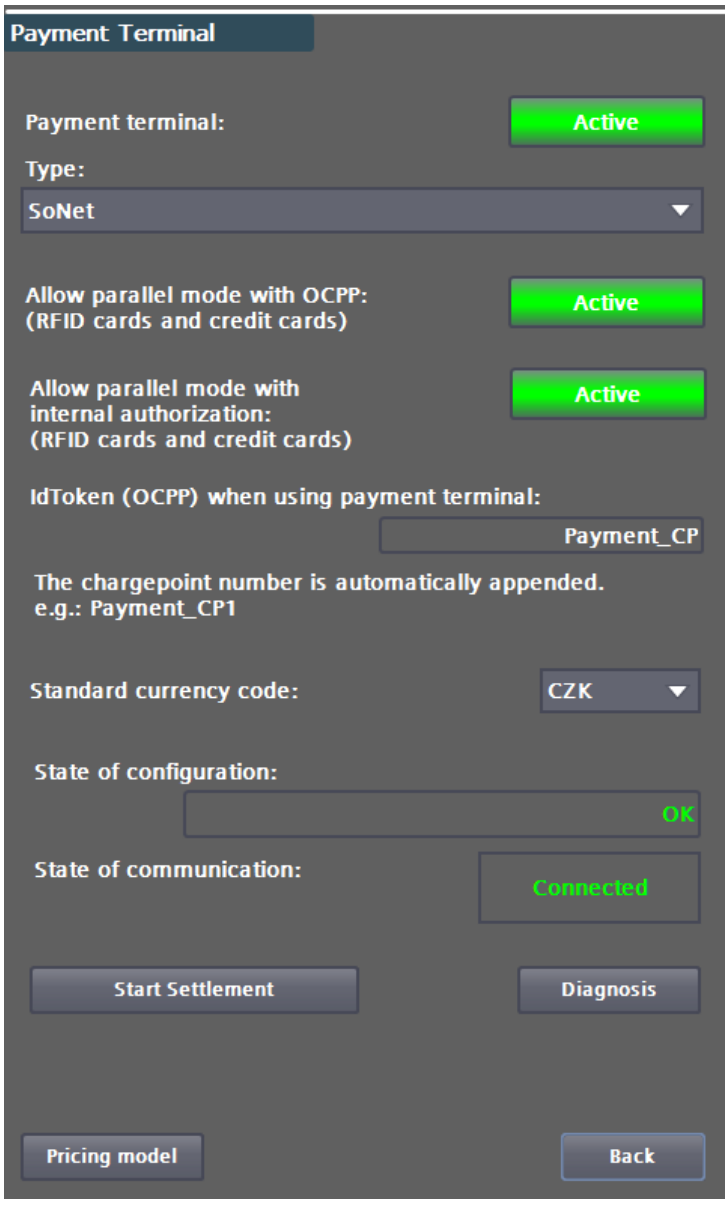


Figure 3-36 Bezahlterminal Einstellungen

Payment method

Only pre-authorization is used as a payment method, i.e. a maximum amount to be determined by the operator is reserved in full at the beginning and the corresponding accumulated amount is debited at the end of charging.

Procedure

If this payment option is selected, the amount parameterized by the operator is transferred to the payment terminal and displayed there. Additional information is displayed on the HMI of the charging station (e.g. price / kWh). The payment terminal then requests the user to make the payment. Depending on the type, interfaces and configuration of the payment terminal, this can be achieved by

- Holding the card or smartphone (contactless, NFC) in front of it,
- inserting it into the card reader (chip),
- Swiping (magnetic strip) or

- Reading a QR code held in front of it.

Once the amount has been successfully reserved, the charging point is authorized and, if the vehicle is already plugged in, charging begins immediately. Otherwise, the user is prompted to plug in the vehicle.

If authorization fails, an error message is displayed on the HMI and on the payment terminal.

If charging is to be terminated, the same payment card must be presented again. To do this, the user selects the charging point (detailed view). The payment terminal is given the command to read the card. This read action is not a transaction and serves solely to identify the user. For this purpose, only hashes of the card numbers or masked card numbers are transmitted from the payment terminal to the charging controller.

Charging is terminated upon successful identification. Charging can still be terminated by all other permitted methods, e.g. RemoteStop (OCPP), stop button (no connection to the payment terminal), stopping from the vehicle, a card from the master list or any other error that leads to charging being aborted.

The corresponding accumulated amount (<= reservation amount) is now transferred to the payment terminal for booking. If the payment terminal does not have an online connection to the payment service provider, it will try to book the amount again and again depending on the type (the terminal is blocked for this time and no card payment is possible) or it saves the completion of the transaction in a transaction list, which is then booked collectively as soon as the payment terminal has an online connection again. If the booking is successful, this will be displayed on the payment terminal and on the HMI of the charging station.

If a power failure occurs during a transaction and the charging station is restarted, the transaction will be finalized automatically after the restart.

Receipts

The user will **NOT** receive a printed receipt after pre-authorization, cancellation or successful completion of the transaction. If local laws require this, the operator must find a way to deliver the receipt with the payment service provider (usually online retrieval by the user).

In addition, with Wordline payment terminals, the receipts of the payment terminal can be sent to the operator via OCPP (informative, without tax statement).

Note on the languages of the payment terminal

If a transaction is transferred to the payment terminal, the language selected on the HMI of the charging station is also transferred (if available, the default value is English language). As soon as a card has been read, the payment terminal automatically switches the language according to internal conditions (presumably to the issuing country of the card). This is a function of the payment terminals and cannot be customized.

Type

Select the installed terminal type here. Worldline and SoNet payment terminals can currently be selected. Furthermore, an external payment terminal can be selected as the type. This allows certain message texts to be adapted on the customer display (preAuthorizedMessage / afterTransactionMessage as OCPP parameters and via DataTransfer).

Note

The information texts on the external payment terminal are not translated into the language selected on the HMI. Ideally, enter the text in two languages or switch dynamically via the backend.

Allow parallel operation with OCPP

If this function is activated, both customers of the operator (authorization e.g. via RFID card, RemoteTransaction) and anyone with an accepted means of payment can be served.

Allow parallel operation with internal whitelist

If this function is activated, both customers of the operator (authorization via RFID card with internal whitelist) and anyone with an accepted means of payment can be served.

IdToken (OCPP) when using the payment terminal

This IdToken is used in parallel operation with OCPP in the Start/StopTransaction messages to indicate to the operator that this charging transaction has been authorized by the payment terminal. The OCPP-ConnectorId is automatically appended to this IdToken.

Example of charging at charging point 2:

"PAYMENT_CP" + 2 = "PAYMENT_CP2"

The IdToken text is free (1-18 characters) and should be meaningful for operators and backend providers. Only capital letters are allowed.

Note

This IdToken must be accepted by the backend. Otherwise, the charging process would be terminated immediately after the negatively acknowledged StartTransaction.

Allow them on the backend when using the function and three charging points: "PAYMENT_CP1", "PAYMENT _CP2" and "PAYMENT _CP3".

With the 2023 release, it is now possible to have an IdToken generated by the control system. This tag is also sent in the DataTransfer message with the successful reservation of the amount (see external description). This makes it possible to link the data transfer messages of the payment terminal directly with the OCPP transaction messages on the backend side.

This behavior can be activated with a final '@' in this field. E.G. "PAY@". A 12-digit UID is generated, which replaces the last '@'. The total length of the token is limited to 20 characters (OCPP 1.6)

The UID consists of the character set a-z, A-Z and 0-9, ! and &. If there are still enough free characters, the ConnectorId of the charging point is appended.

Examples:

'PAY' -> 'PAY2' ('PAY' + ConnectorId (as before))

'PAY@' -> 'PAYB2sl!gckiS4Q_2' (17 characters: 'PAY' + UID + ' _' + ConnectorId 2)

'EXT_@' -> 'EXT_Mxk!G5I&&xok_12' (19 characters: 'EXT_' + UID + ' _' + ConnectorId 12)

'PAYMENT@' -> 'PAYMENTvv1JV85IH5ep' (19 characters: 'PAYMENT' + UID)

Note

This IdToken must be accepted by the backend. Otherwise, the load would be terminated immediately after the negatively acknowledged StartTransaction.

Allow at the backend when using the function in the example above: 'PAY*', 'EXT_*', or 'PAYMENT*' with '*' as placeholder.

Currency code

The currency to be set by the operator on the HMI of the charging station during commissioning must be enabled on the payment terminal. In the following, the set currency code is generally represented by [CUR] (Currency).

Note

All currency-specific fields in the price model configuration are reset when currency changes are made on the screen.

Note

Do not change the currency while transactions have not yet been completed.

State of configuration

As soon as a valid configuration has been recognized, i.e. the corresponding fields have been filled in correctly, "OK" is displayed here in green. If any fields are still incomplete / inconsistent, a note is displayed here in red indicating the corresponding entry.

Figure 3-37 Example of configuration error display

Communication status

If the payment terminal is successfully connected to the charging controller, this is indicated by "Connected". Otherwise, a "Not connected" indicates that the payment terminal is not yet ready for operation.

Start settlement

Depending on the payment terminal type, this button can be used to initiate settlement of the saved transaction. In normal operation, this is triggered automatically after every restart and once a day. Use this function, for example, before replacing the payment terminal or during maintenance to complete all transactions.

Diagnosis

The <Diagnosis> button takes you to a type-dependent info area. Selected statuses of the payment terminal are displayed here. These are automatically requested and

compiled by the payment terminal after the charging station is activated or restarted. You can start a new query of the parameters via the <Retrieve Diagnostic data> button.

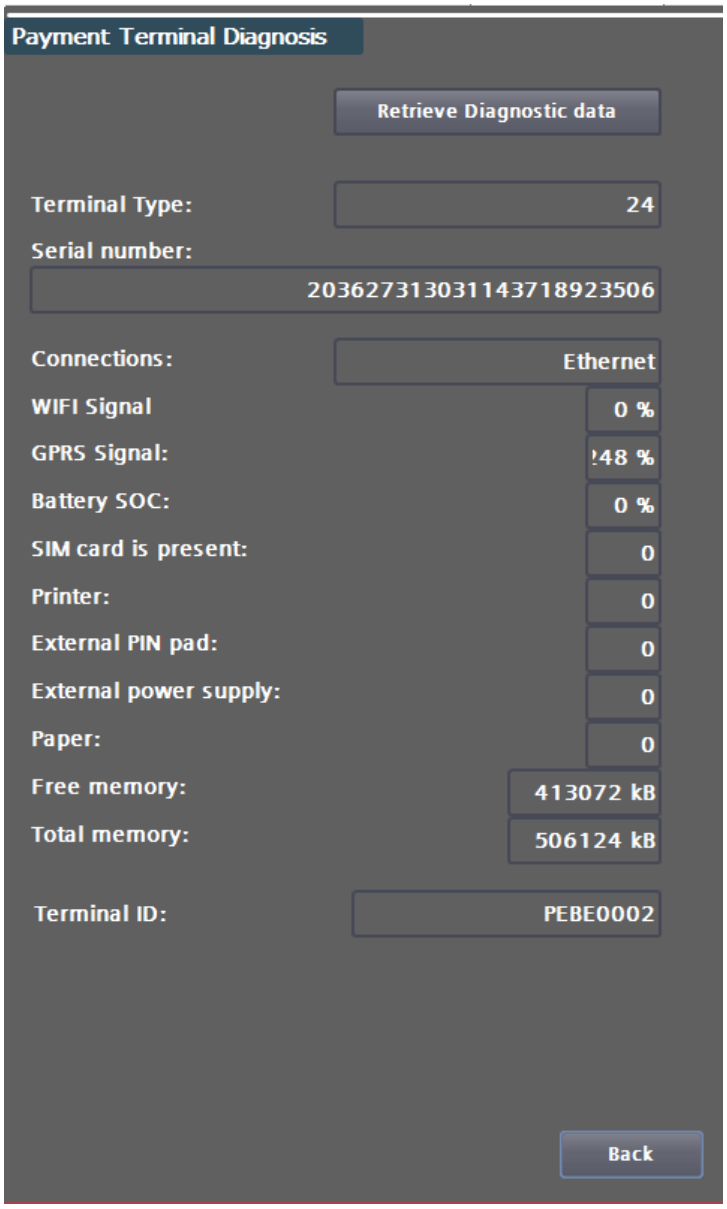


Figure 3-38 Diagnostic data using the example of a SoNet payment terminal

Note

The "Terminal ID" (TID) displayed here is important for service requests to your payment service provider and is used to identify the payment terminal.

Pricing model

The <Pricing model> button takes you to the input screen for the charging tariffs.

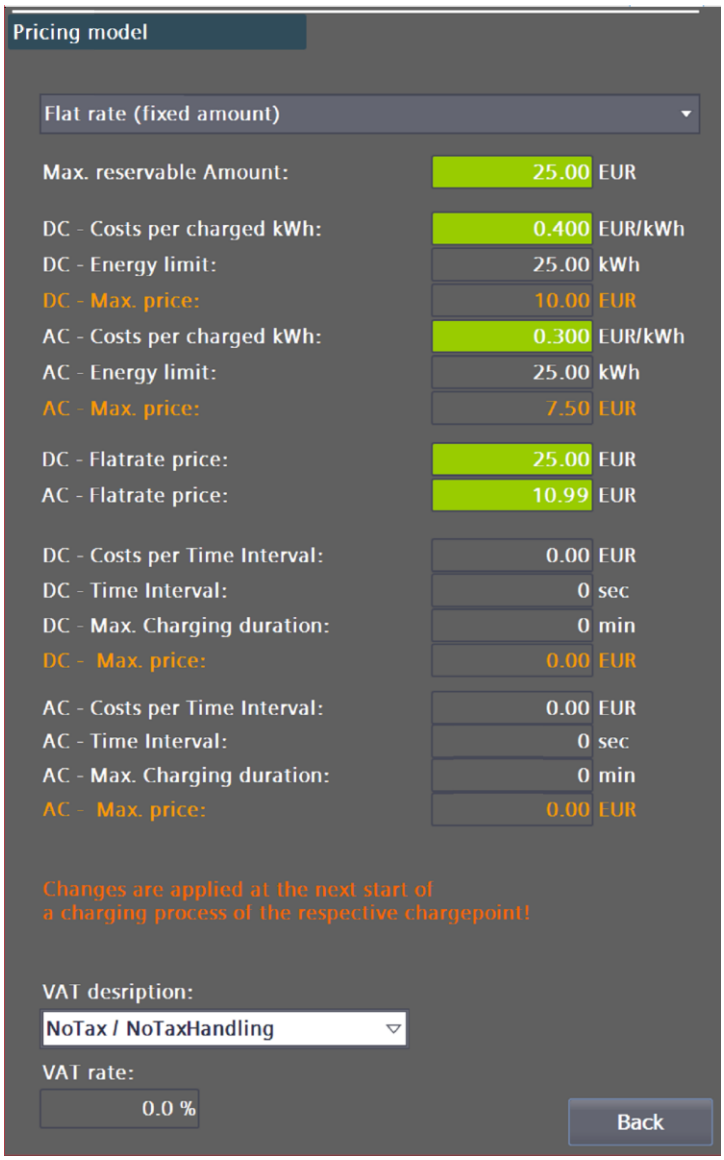


Figure 3-39 Example price model with flat rate tariff

Note

All changes in this screen are saved for this charging process when a charging process is started. This means that changes to this data only become active the next time a charging process is started.

The following data is entered locally on the HMI of the charging station.

Alternatively, you can read and write this data via an OCPP backend using a DataTransfer message. The data in the DataTransfer message is only transferred if the consistency check is successful.

Note

If required, you can obtain the documentation for the corresponding DataTransfer messages from Kostad Customer Support Service (support@kostad.at).

First select the desired billing mode (flat rate, energy-based or time-based). The fields used for this mode are then highlighted in green. These fields must be filled in. The unchecked fields are not used.

Max. reservable amount

If this amount is higher than the amount specified by the (country-specific) payment service provider/credit card issuing bank for an amount exempt from a security check, a security check will be requested via the payment terminal's keypad (physical keypad or touchscreen keypad). This is normally a PIN and depends on the card-issuing bank.

i.e. for charging stations with built-in card readers **WITHOUT** keypad, the maximum amount that can be reserved by the operator must not exceed that of the payment service provider (country-specific).

Note

If you want to allow amounts with PIN request, you must affix a clearly visible sticker near the payment terminal reminding the user to enter the PIN.

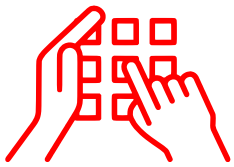


Figure 3-40 Example (from Wordline) of an information sticker for concealed PIN entry

Note

All fields entered with currency symbols are **gross prices**, which are displayed to the user at the start of the payment process. The entry of net prices is **NOT** supported.

Flat rate billing

If the operator chooses flat-rate billing, the flat-rate amount is reserved. The user can charge indefinitely. The flat rate tariff is entered separately for DC and AC charging.

Note (special feature):

If the operator has entered a "price per charged kWh" (>0), a calculation is made after charging starts in flat rate mode using this amount as the basis until the set flat rate amount is reached ("ramping up" to AC / DC flat rate). If the calculated value is less than the flat rate amount when charging is interrupted, only the calculated value is sent to the payment terminal for booking. If a termination occurs with a calculated value greater than the flat rate amount, the specified flat rate is charged. This ensures that no full flat rate amount is debited if charging is interrupted and the vehicle has not been charged or has not been charged sufficiently.

$$Total\ [CUR] = \min\left(charged\ Energy\ [kWh] \times \text{price per charged } kWh\ \left[\frac{CUR}{kWh}\right], \text{price flate rate } [CUR]\right)$$

Energy-based billing

If the operator chooses billing according to the energy purchased, the maximum amount that can be reserved or (if lower) the maximum price of the tariff is reserved.

The user can charge until the maximum amount that can be reserved is reached or until a parameterized energy limit has been reached. At the end of charging, the energy actually used is offset against the entered "price per kWh" and booked.

$$Total\ [CUR] = charged\ Energy\ [kWh] \times price\ per\ charged\ kWh\ \left[\frac{CUR}{kWh}\right]$$

Note

From SW version 202301, a different price can be specified for AC and DC. AC and DC fields must be filled in for the test, even if there is no AC charging point. In this case, write the same values as for DC in the AC fields.

Time-based billing

If the operator chooses time-based billing, the maximum amount that can be reserved or (if lower) the maximum price of the tariff is reserved. The user can charge until the maximum amount that can be reserved is reached or until the time limit has been reached. At the end of charging, the following will be debited:

$$Total\ [CUR] = \frac{Charging\ duration\ [sec]}{Duration\ of\ a\ time\ unit\ [sec]} \times price\ per\ time\ unit[CUR]$$

Fractions of time units are therefore also billed. It is not possible to bill according to time units started.

Tax disclosure

Tax reporting is currently only supported by SoNet. For all other payment terminal types, "without processing" and "0%" must be specified as the VAT rate (all prices specified are always gross prices / end customer prices).

For SoNet terminals (with DOKLAD service), the correct VAT description ("Tax-free", "Standard tax rate", "Reduced tax rate") and the corresponding valid VAT rate must be entered here. The fields are **NOT** checked for integrity and consistency. The tax statement is calculated on the basis of this data and transferred to the payment terminal. The net price is therefore calculated from the gross prices entered.

ATTENTION
The operator acknowledges that it is responsible for operating the charging station in accordance with the applicable legal provisions. The manufacturer accepts no responsibility in this regard. The operator is therefore obliged in particular, but not exclusively, to ensure that the data entered in the input screen of the charging station, including the specified tax rates and their amount, are correct and complete at all times and that they are applied in accordance with the law.

Note

The DOKLAD service is a service provided by the payment service provider SoNet.

Contact SoNet for information on the correct parameterization of the payment terminal and the DOKLAD service.

Remarks

Variable pricing (tariffing), e.g. for the charged power and/or charging time, is not possible from a defined excess of power and/or time.

A combination of charging energy/charging process and costs/energy unit is possible using the settings above.

It is not possible to calculate parking fees after the end of charging or after the charging energy at the charging station falls below a certain parameterized charging energy.

Aborting the connection between the charging station and the payment terminal during charging

In this case, a <STOP> button is displayed in the charging point detail view.button is displayed, so that the charging process can be ended by the user.

Billing takes place automatically at the end of the charging process when the connection is re-established. As long as this process has not been completed, no further charging process can be authorized via the payment terminal at this charging point.

Cancellation of the online connection of the payment terminal during a charging process

In this case, no re-authentication/authorization for a next charging process at this charging station is possible via the credit card terminal, neither by the original user nor by a next (further) user at another charging point. The started transaction must be completed before a new transaction at this charging point. If several charging processes at different charging points have been authorized via the payment terminal, this applies accordingly to all open transactions.

Abort/terminate charging without the user being present

Once the charging process is complete, the charging status is displayed WITHOUT authorization / authentication features until the vehicle is detected as unplugged (only the final price and no user-related data is displayed). If the charging plug is recognized as "free" (not plugged in), this display is deleted and is not available to the user again.

Billing or information about this charging process is then only possible via the billing system connected to the payment terminal, the intermediary payment service provider or a receipt service.

Error when starting a charging process via the payment terminal without online connection

The payment terminal must be online at the start of the transaction due to the pre-authorization payment method. It is not possible to start a charging process via the payment terminal without an online connection.

3.5.8 Operating schedule (S/O)

You can use the operating schedule to specify operating times for the charging station.

These times are treated with the highest priority, i.e. these times also apply when OCPP is activated and any backend commands are therefore ignored or rejected.

If a time threshold is exceeded during a charging process, the charging process is ended with the reason code "R_ID_StoppedByOperationSchedule". The status of the charging station is set to "Not available". Charging is only possible again when the operating schedule releases the charging station again.

The operating schedule has no influence on the services provided by other functions, e.g. OCPP SmartCharging or external energy management.

All times in the screen refer to the local time set.

To use the schedule, you must have set the correct time zone. You can find information on this in the chapter “Time settings (S/O)” (page 99). The time must be correctly synchronized.

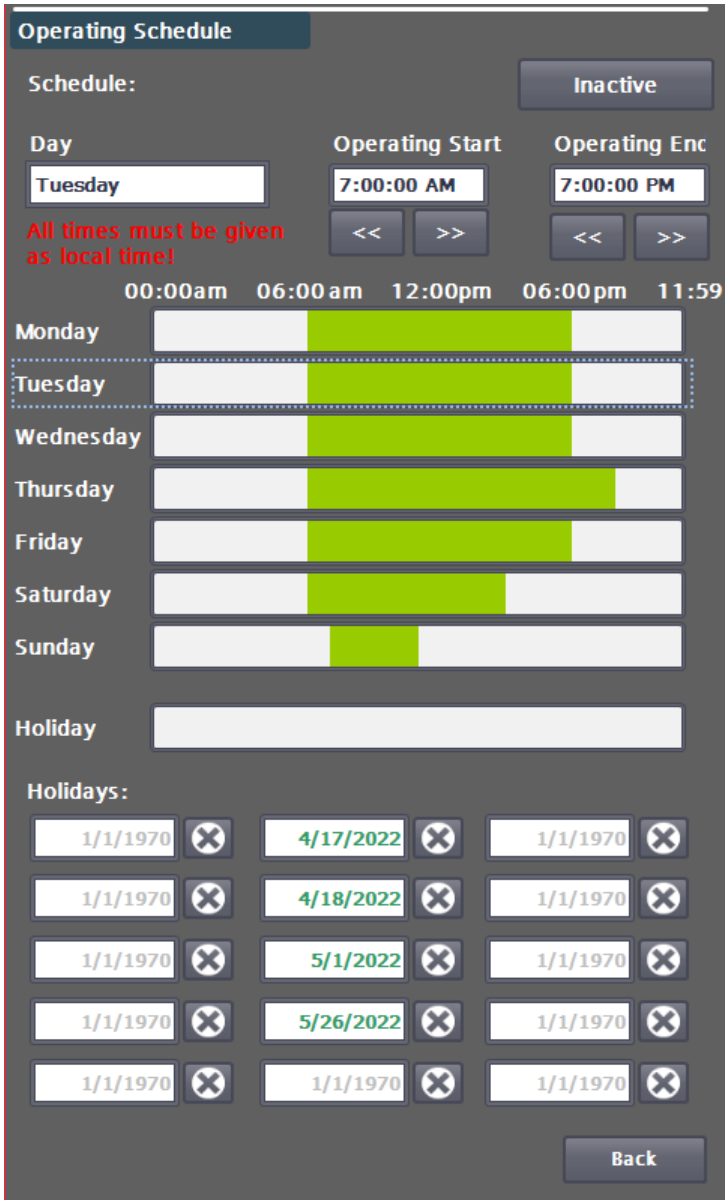


Figure 3-41 Operation schedule

You can only edit the operating schedule if it has previously been deactivated. To edit, select the day (by selecting it in the table) and either enter the start and end times in the input fields or change the values using the arrow buttons (in 15-minute increments).

The seconds are generally ignored by the software. The seconds are set to 0 for the start of operation and 59 seconds for the end of operation.

If the start time is later than the end time, the release is inverted. For example, it is possible to enable operation at night and block it during the day.

Public holidays (exceptions)

You can use the public holiday entry to specify how a specified public holiday or exception day is to be handled (including a complete release or blocking of the ward).

In the public holiday table, you can now enter the public holidays or exception days that are to be handled separately. Public holidays in the future or public holidays that are still active are shown in green and days that are already in the past are shown in gray. You can delete the respective tag using the <X> button. The order in which the data is entered has no influence on the function.

Once activated, the editing process is complete and the operating times are set.

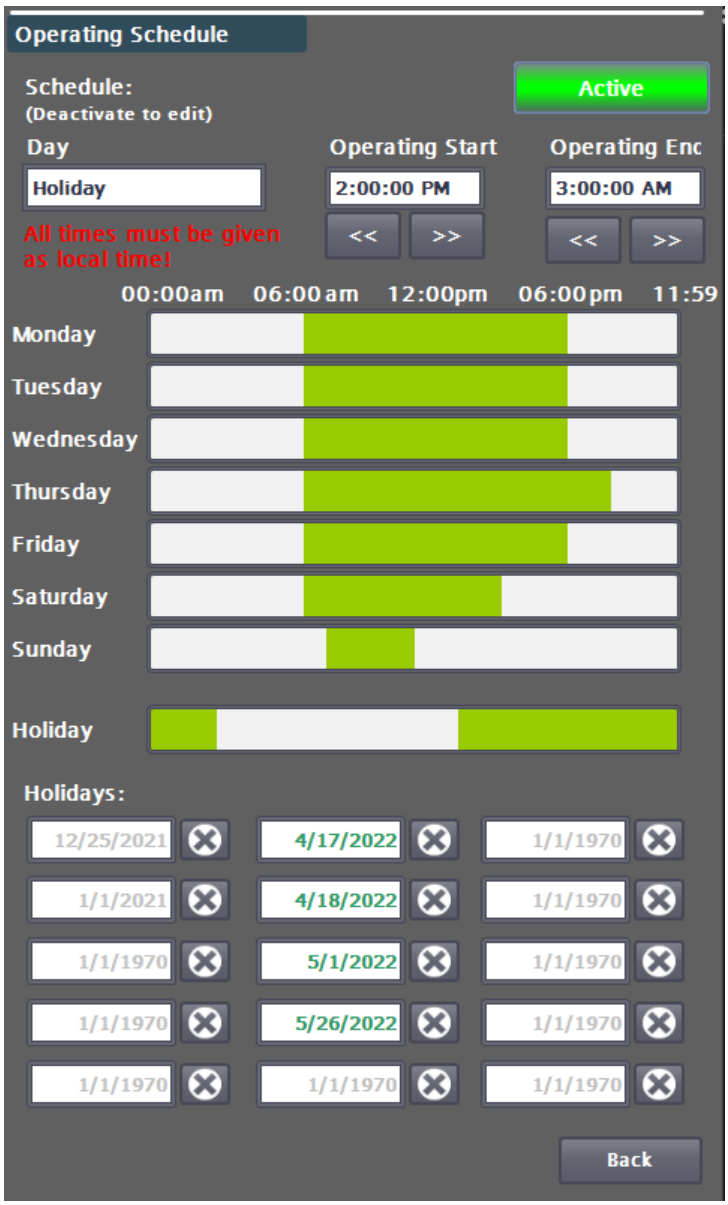


Figure 3-42 Activated operation schedule

3.5.9 Stop Reasons (S/O)

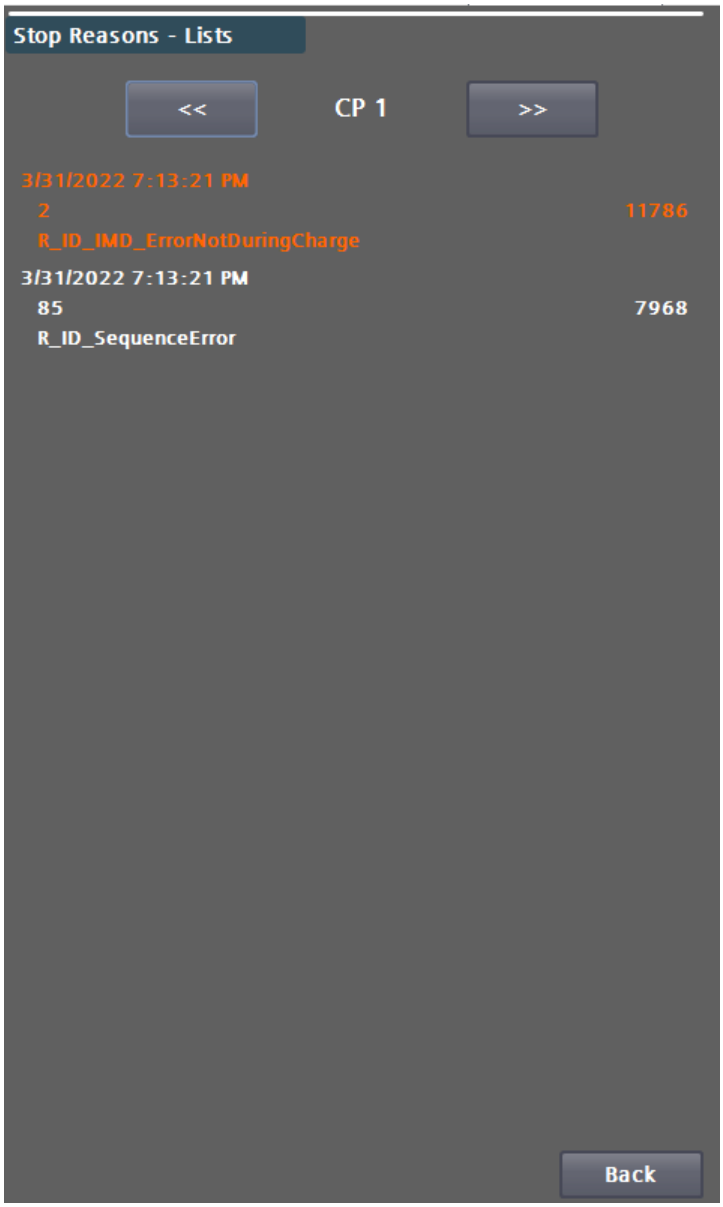


Figure 3-43 Stop reasons of charging point 1

In the “Stop reasons” menu, you can view the triggered and pending errors of the individual charging points or the charging station itself (charging point 0). You can navigate through the charging points using the arrow buttons at the top.

The reason that triggered the error or was recognized first is always at the top (orange) and is usually the cause as well. This error variable is also displayed in the Base menu of the service area. The name of the error variable is also displayed as plain text on the error screen at user level.

In addition to the text for the cause of the stop, you can also read the time stamp of the first occurrence, the error code as a number and an occurrence counter (cycle). If the appearance counter no longer moves, this error is no longer pending. However, it will be displayed as the first (triggering) error until all errors have been acknowledged.

This behavior enables you to carry out detailed troubleshooting, because triggering errors often generate many other subsequent errors.

3.5.10 Calibration (S/O)

This page helps you to calibrate the touch functionality of the screen. You will usually need this after replacing the display. Follow the instructions on the display.

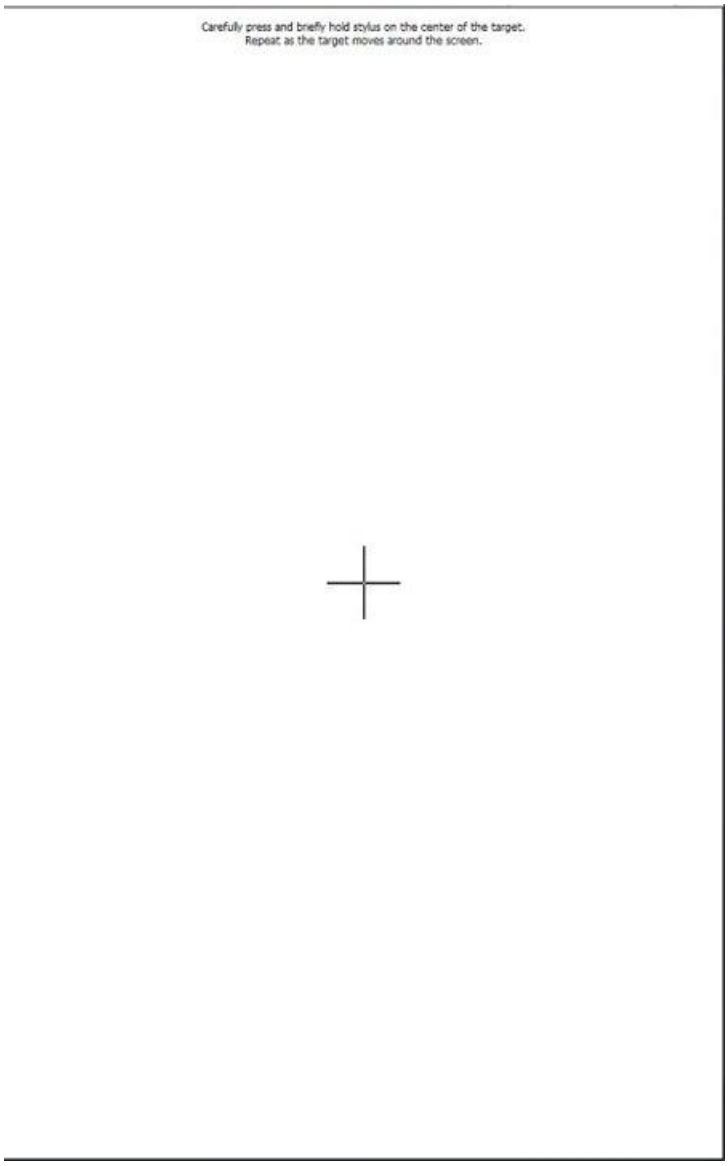


Figure 3-44 Calibration screen for the touchscreen of the HMI

3.5.11 Cleaning picture (S/O)

If you have activated the cleaning screen, you can clean the surface of the screen during the set time without making any unwanted settings.

The progress bar shows you the remaining time available for cleaning the screen. After the time period has elapsed, the menu is displayed again.

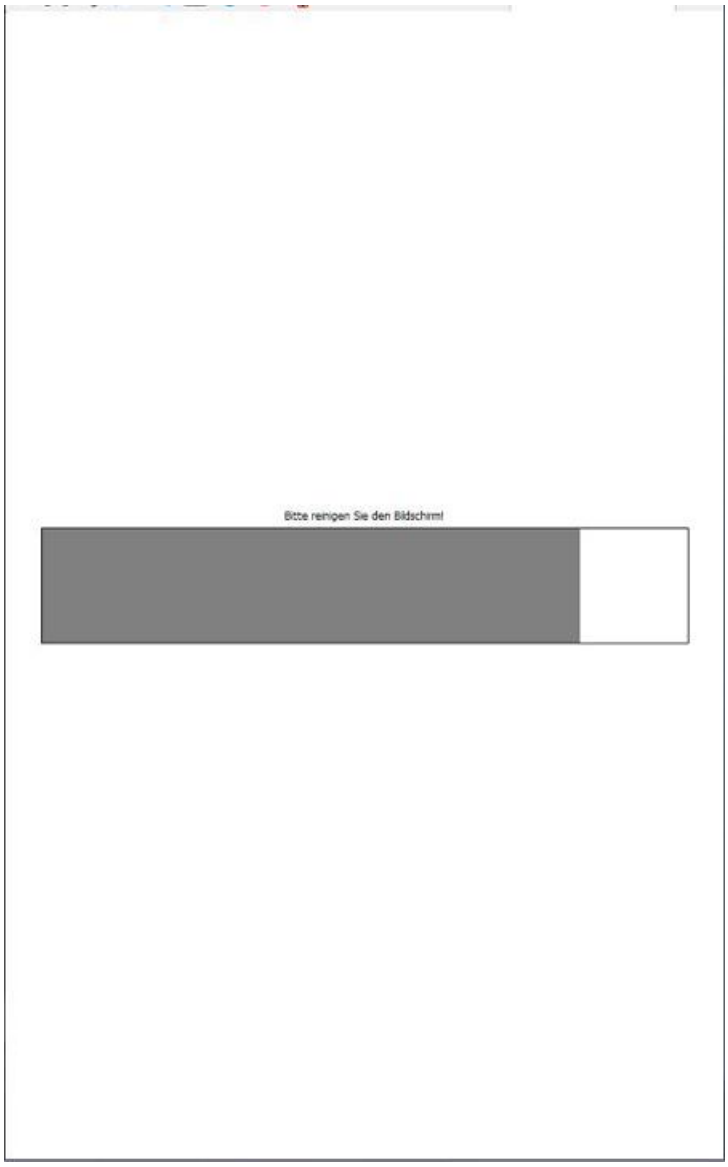


Figure 3-45 Cleaning picture

3.5.12 Restart System (S/O)

You can use the “Restart System” command to perform a power-on-reset of the charging station. All ongoing charging processes are terminated.

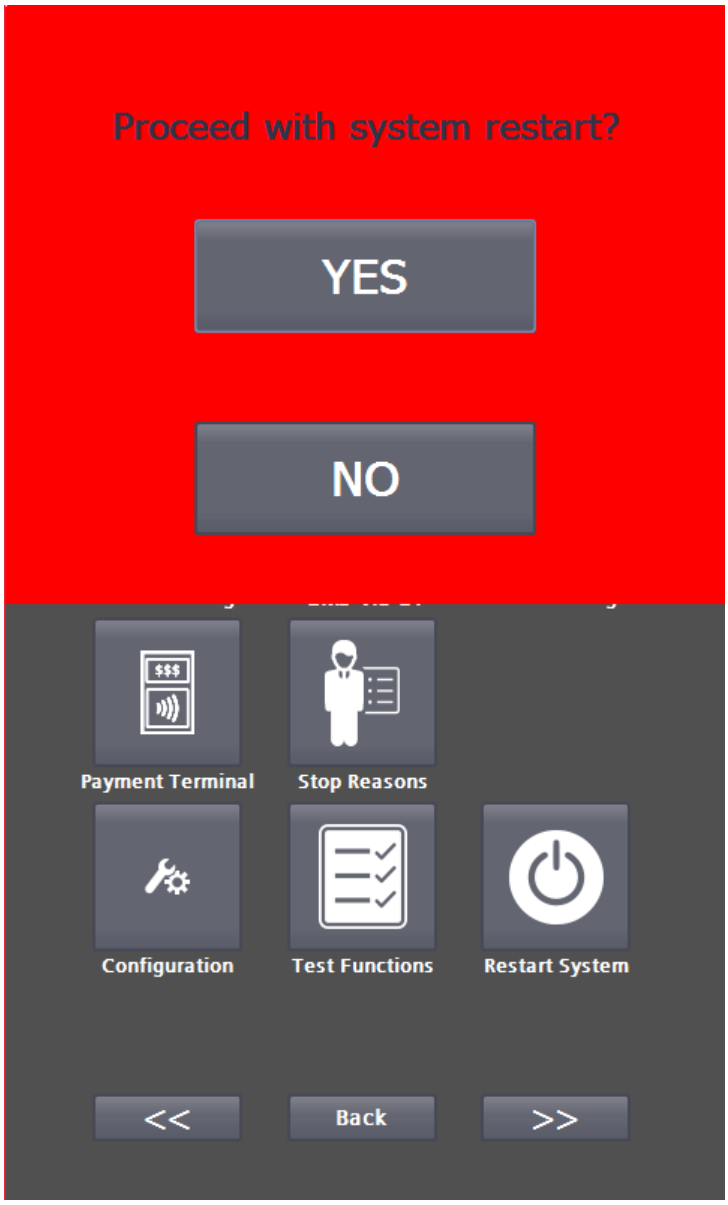


Figure 3-46 System restart prompt

Note

If the button flashes, the system must be restarted. For example, parameters have been changed that only become active after a restart.

3.5.13 Time settings (S/O)

In the “Time settings” menu you can enter the position and time zone of the charging station.

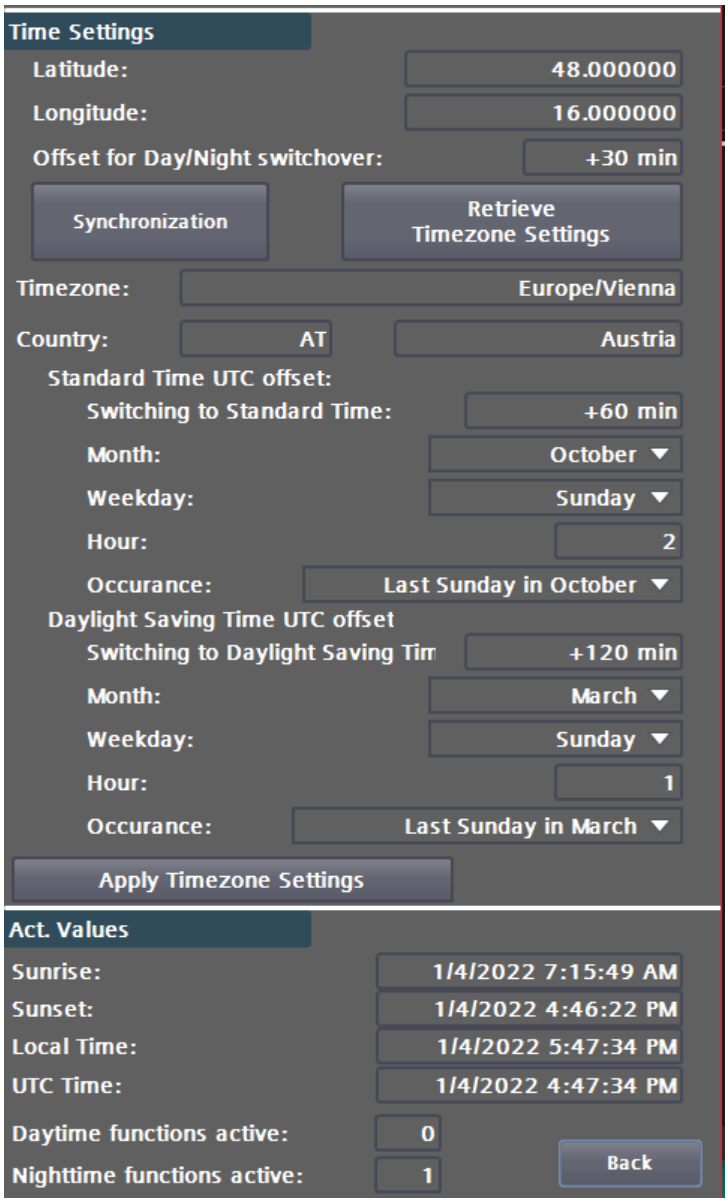


Figure 3-47 Input menu for the time zone parameters

The time is generally synchronized via SNTP. The connection is used via the maintenance router.

Note

After a restart, the time display at the bottom of the user screen is only shown after the first successful synchronization.

If you want to enter the time zone via the position, you can enter the latitude and longitude.

By pressing <Retrieve Timezone Settings>, this coordination is used to determine the correct time zone on the Internet. If coordination is set here, the time zone settings are queried, checked and, if necessary, adjusted each time the system is restarted.

The changeable offset for the day/night switchover is used as follows:

- Day mode = Local time > Sunrise - Offset
- Night mode = local time > sunset + offset

For more information, please refer to the chapter “Operator settings (S/O)“ (page 45).

You can adjust the time zone settings in the corresponding fields. Press <Apply Timezone Settings> to adopt the time zone settings. After a change, check the times in the section "Act. Values“.

Manual time setting is not provided. By setting the time zone and entering the summer/winter time changeover, the time in the network is set automatically via NTP.

Synchronization

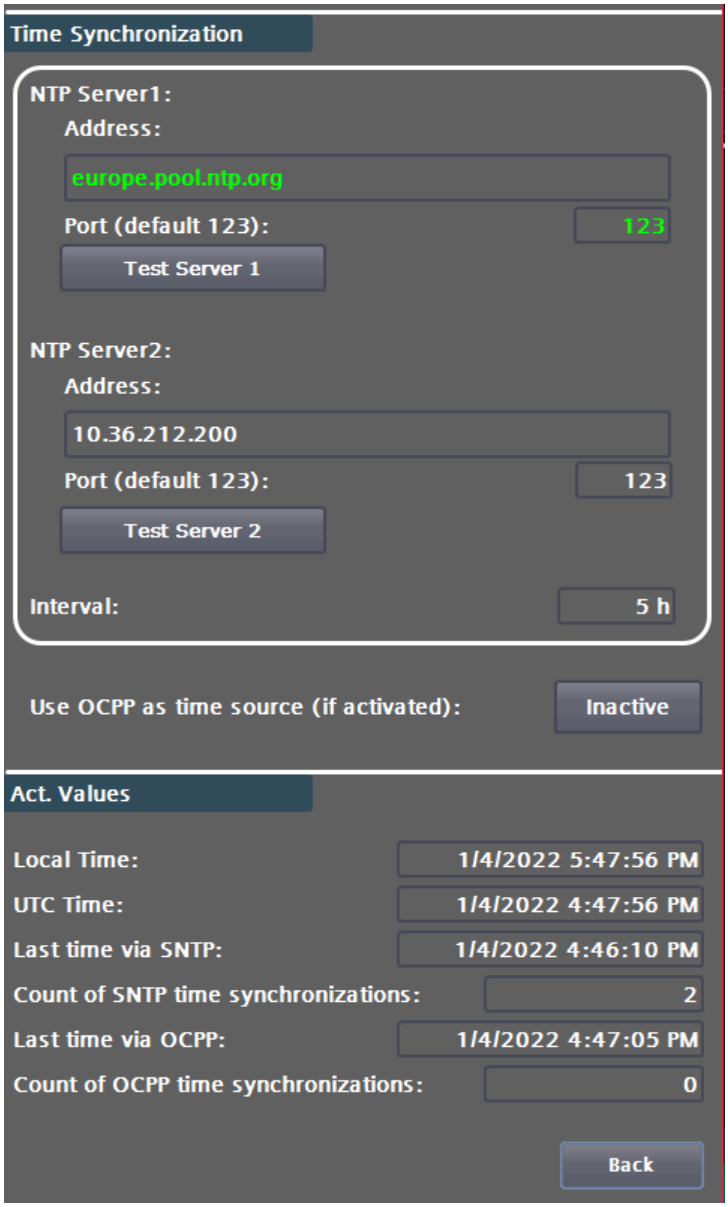


Figure 3-48 SNTP-Einstellungen

Pressing <Synchronization> takes you to the SNTP settings. You can also test the connection to the time server here. You can define up to two time servers.

Address

Enter a time server in your region here. (host name or IP address)

Port

Enter the port here (default is 123).

Test Server

Click this button to test the server connection. If the server can be reached, the font is colored green.

Interval

Default value 5h. Enter the time interval for queries to the time server here. The first query always takes place after a restart of the system. After that, the system always polls at intervals.

Use OCPP as time source

If you want to use the OCPP time stamps from the heartbeat response telegrams for synchronization, activate this function.

Current values

You can check the current time here.

Note

Communication with the time server is established via the remote maintenance router.

This functionality is only available with the selected “Remote maintenance” option and the corresponding maintenance contract with the manufacturer for at least one year.

3.5.14 RGB LED (S/O)

Each charging station has 4-5 RGB LED displays, depending on the type.

- 1x for each charging point
- 1x for the charging station
- 1x RFID card reader

A distinction is made between 5 different operating states. 4 of these states can be edited:

- Standby: No charging is active, charging point is available.
- Charge: Charging process has been started or is running.
- Reservation: Charging point was/is reserved.
- Malfunction: Charging point or charging station has a fault.
- LED off: Charging point is not available (OCPP) or is shut down.

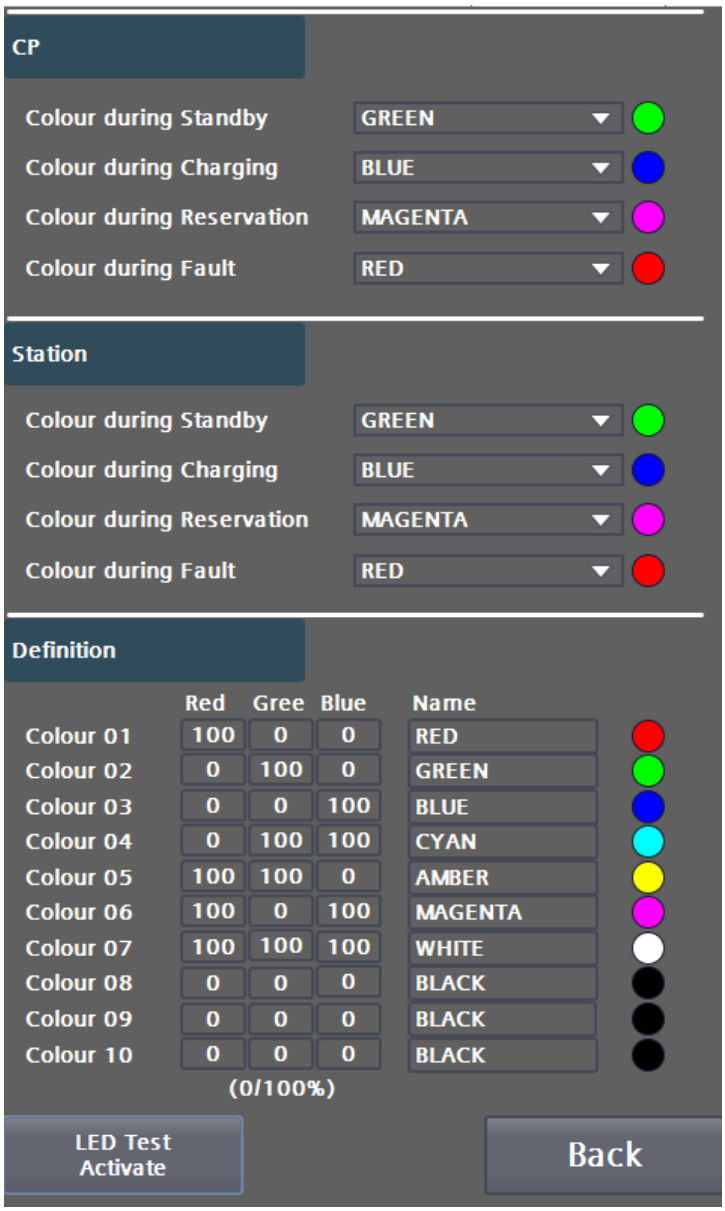


Figure 3-49 Color selection of the LED light strips

In the lower part, you can define different colors for the corresponding hardware equipment, which you can then select in the upper assignment.

The following color definitions are currently fixed:

- Red (0 or 100%, no intermediate values)
- Green (0 or 100%, no intermediate values)
- Blue (0 or 100%, no intermediate values)

Pressing the <LED Test Activate> button activates all LEDs cyclically with the same target colors. Press again to end the LED test.

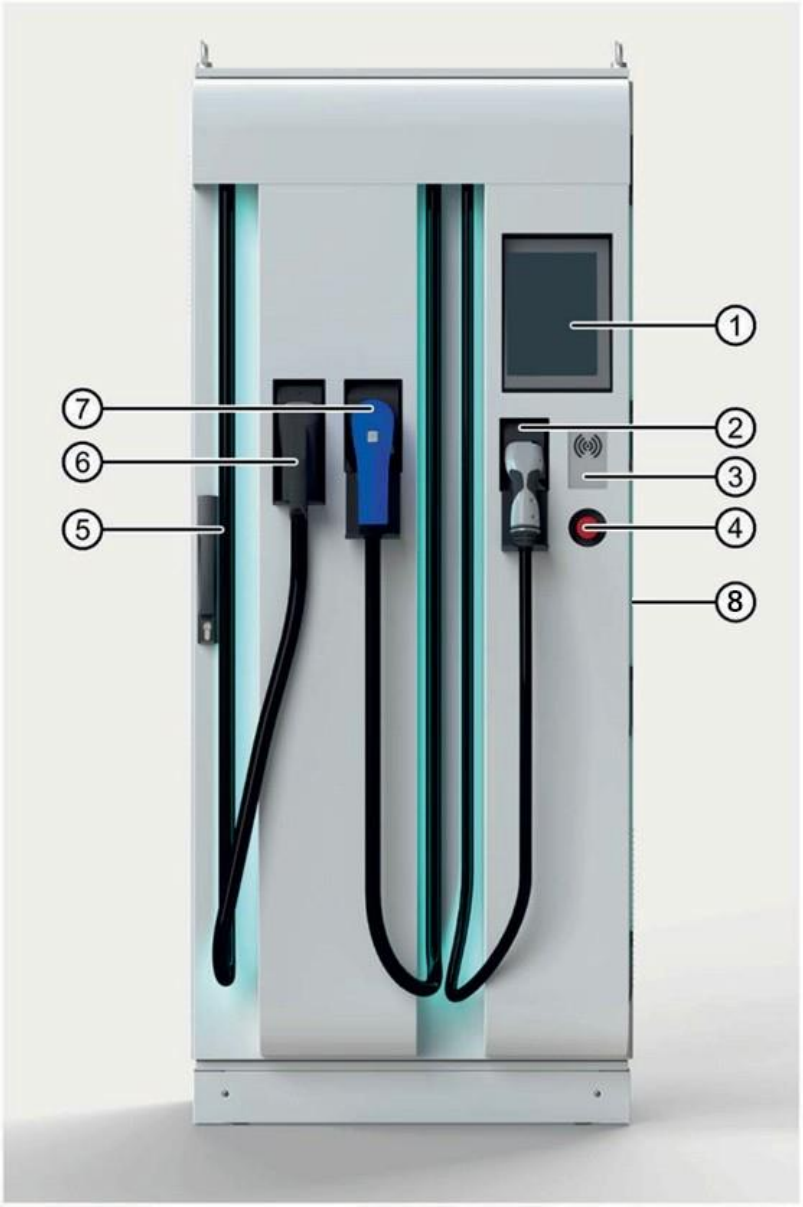


Figure 3-50 LED light strips on the charging station (Unity 60-120)

(1) Control panel / HMI
(2) Plug for the AC Type 2 charging standard
(3) RFID reader
(4) EMERGENCY STOP button
(5) Latch, lever for opening the charging station
(6) Plug for the CCS2 charging standard
(7) Plug for the CHAdeMO charging standard
(8) LED lighting (also on each cable outlet)Bedienfeld / HMI

3.5.15 Licenses (S/O)

The function of the charging station is linked to licenses that must be registered on the charging station. This is usually done for you during the final examination at the factory.

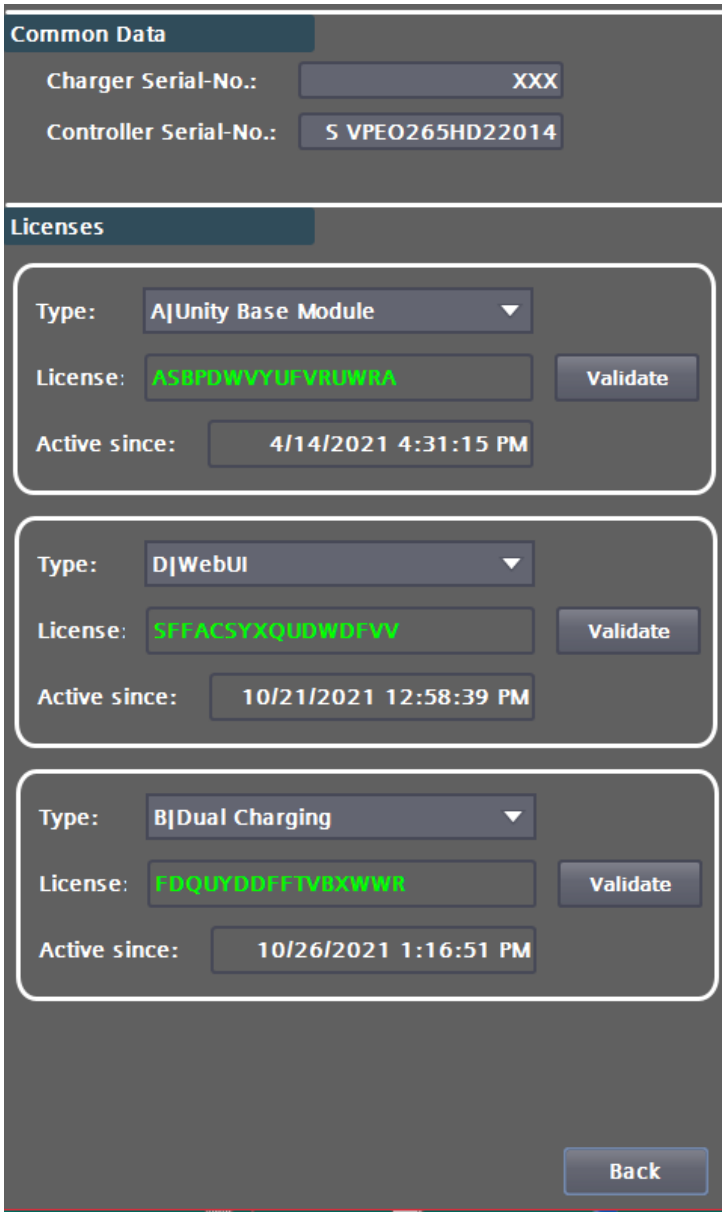


Figure 3-51 License input

If you would like to activate a license at a later date, please contact the manufacturer at support@kostad.at. Please provide the two values under general data (serial numbers of the charging station and the control unit) and which license you want to renew or purchase additionally.

Note

The licenses must be regenerated after a controller replacement.

The following licenses are currently in use:

Unity Basismodul	This license is required for each charging station. Without this license, 60kWh per charging point can be charged on a trial basis.
Dual Charging	This license is required for Unity50 to Unity90 if you want to use two DC charging points at the same time. This is implicitly enabled for larger Unity stations.
Powerboost Unity20	This license is required for Unity20 to unlock a power of 30kW.
WebUI	This license is required if you want to access the charging station via a web browser in parallel to the HMI. Access is exclusively via the Teltonika router installed as standard.

If you click on the <Validate> button after selecting and entering the license, the license will be validated. It is colored green if it has been successfully validated, otherwise it remains white. The order in which the licenses are entered does not matter.

Note

After entering the configuration, save it and restart the system using the <Restart System> button.

3.5.16 Software Information (S/O)

Under this menu item you will find information on the currently installed hardware/software status of the charging station with the serial number displayed.

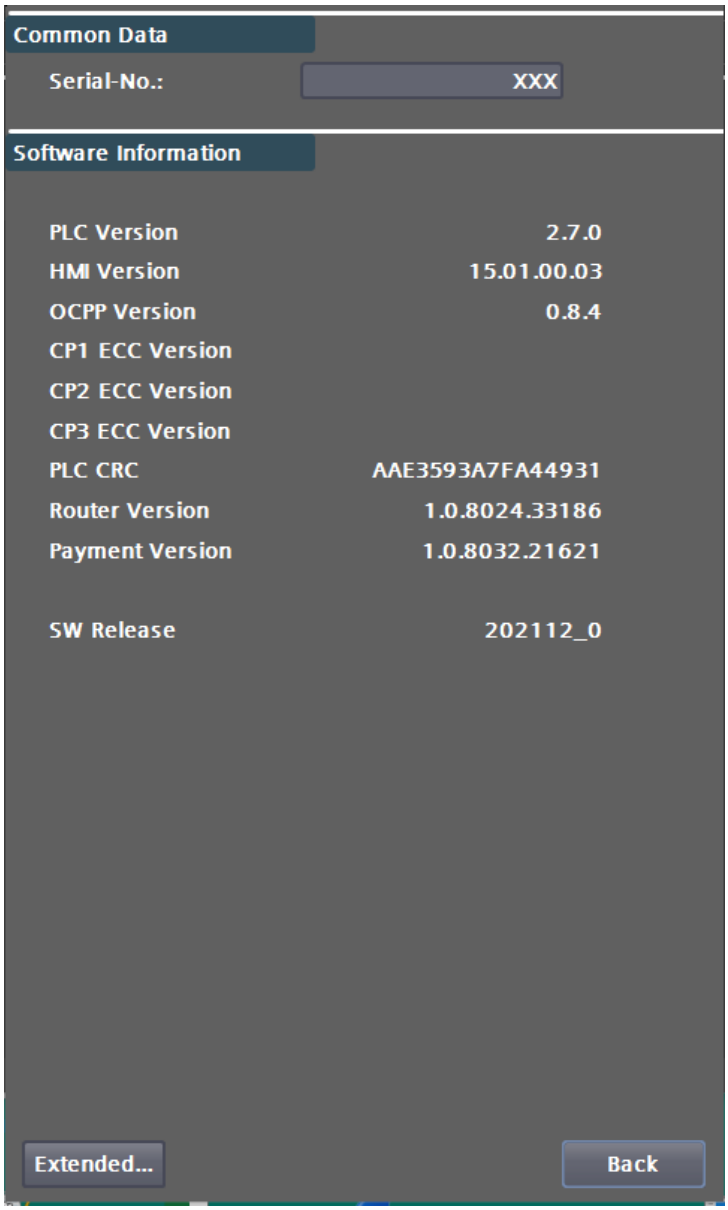


Figure 3-52 Software information menu

The individual entries may differ depending on the configuration of the charging station. The extended information via the <Extended…> button is only accessible as a service user.

3.5.17 WAN (S/O)

The current status information can be checked in this view when using the standard modem (Teltonika RUT240 / RUT241). The data update time is approximately 10 seconds.

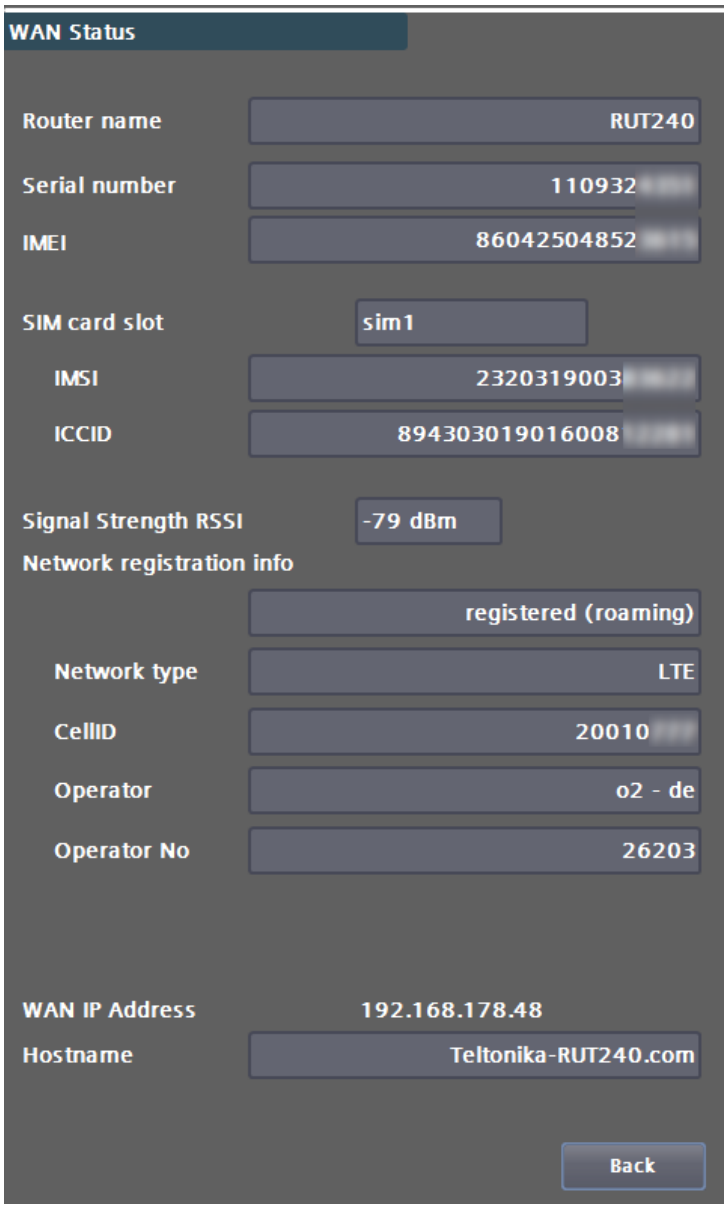


Figure 3-53 WAN-Status

3.5.18 Temperatures (S)

This menu shows you an overview of the most important actual temperature values for the charging station. All temperature measurements located both outside and inside the charging station are displayed (transformer, rectifier diodes, plugs, etc.). Depending on the type of power unit installed, a corresponding view is displayed.

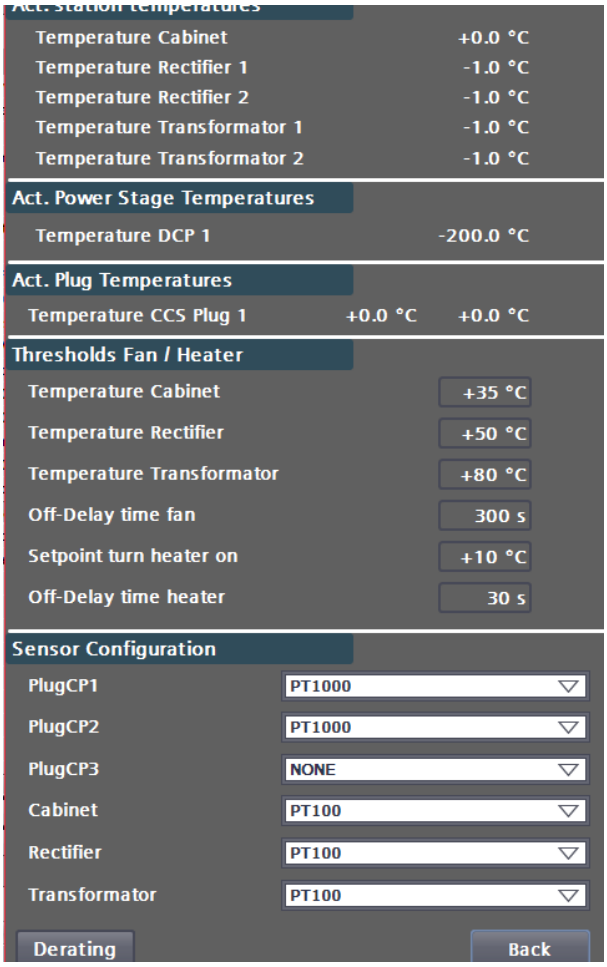


Figure 3-54 Display of the actual temperature values of the charging station (Sinamics DCP)

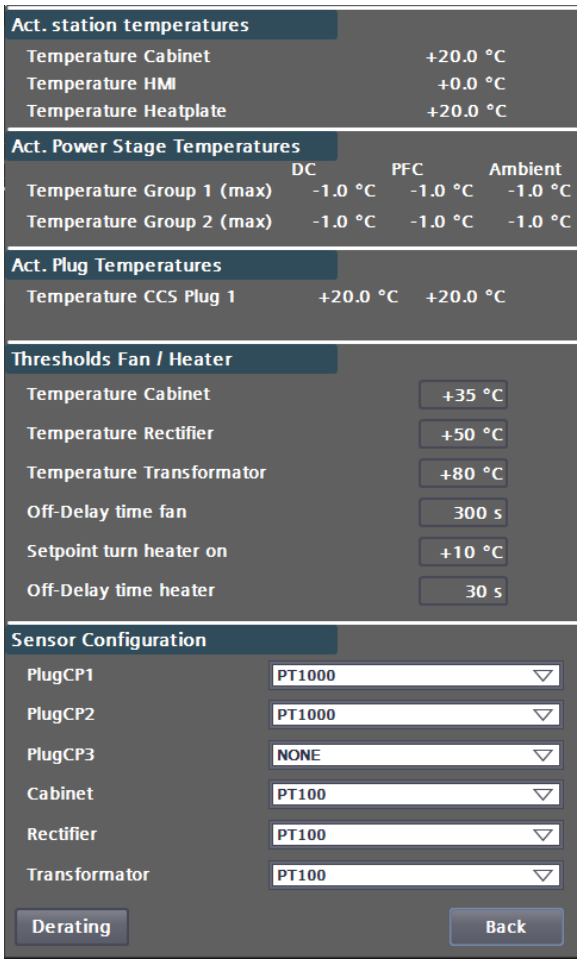


Figure 3-55 Display of the actual temperature values of the charging station (other power units)

You can set the switch-on and switch-off temperatures and delays for the heating and fan in the threshold value area. Only change the values after consulting the manufacturer.

Use the <Back> button to return to the menu.

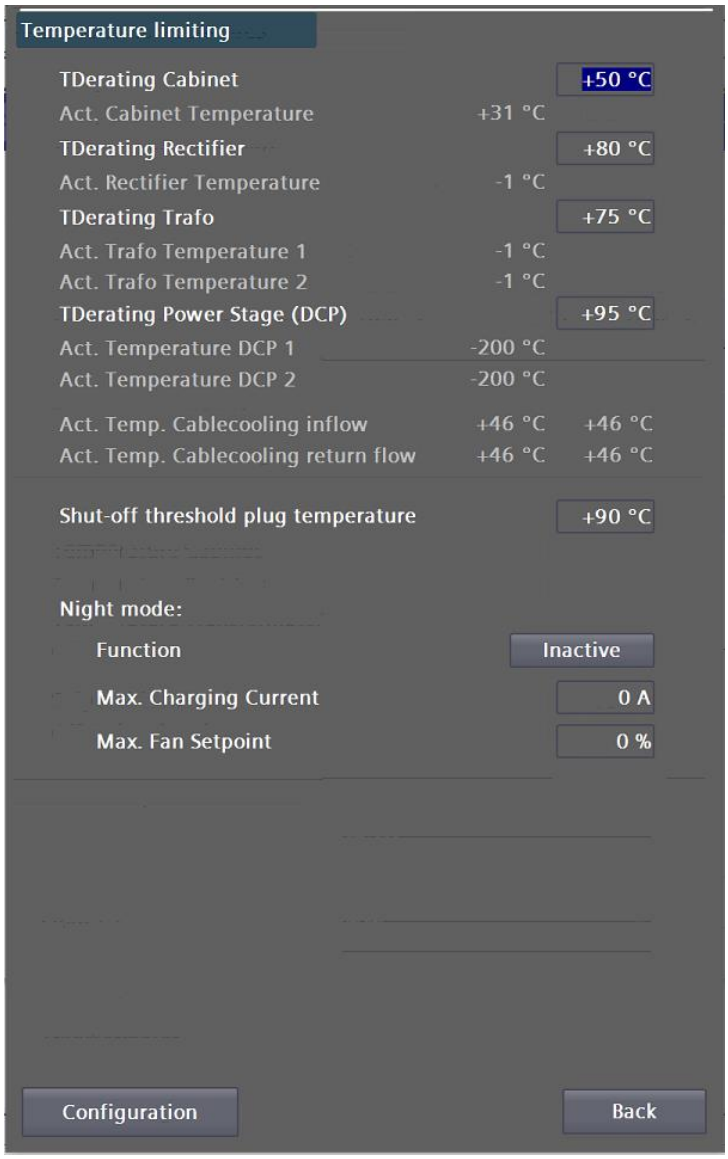


Figure 3-56 Setting the temperature limits

Press the <Derating> button to configure temperature thresholds for the power adjustment of the charge controller. You can set temperature thresholds for individual components (input rectifier, transformer, etc.). Exceeding the set thresholds reduces the power of the charging station and protects the charging station against overload.

Achtung
Damage to the charging station The charging station may be damaged if the settings are incorrect. The temperature thresholds may therefore only be set by trained and certified personnel.

Press the <Configuration> button to return to the temperature overview.

The <Back> button takes you back to the respective "Service" menu for the service or operator view.

3.5.19 Alarms (S)

System and hardware-related messages are displayed in the "Alarms" menu. Pending errors and warnings are listed in the upper area. Existing messages from an error buffer are listed in the lower area.

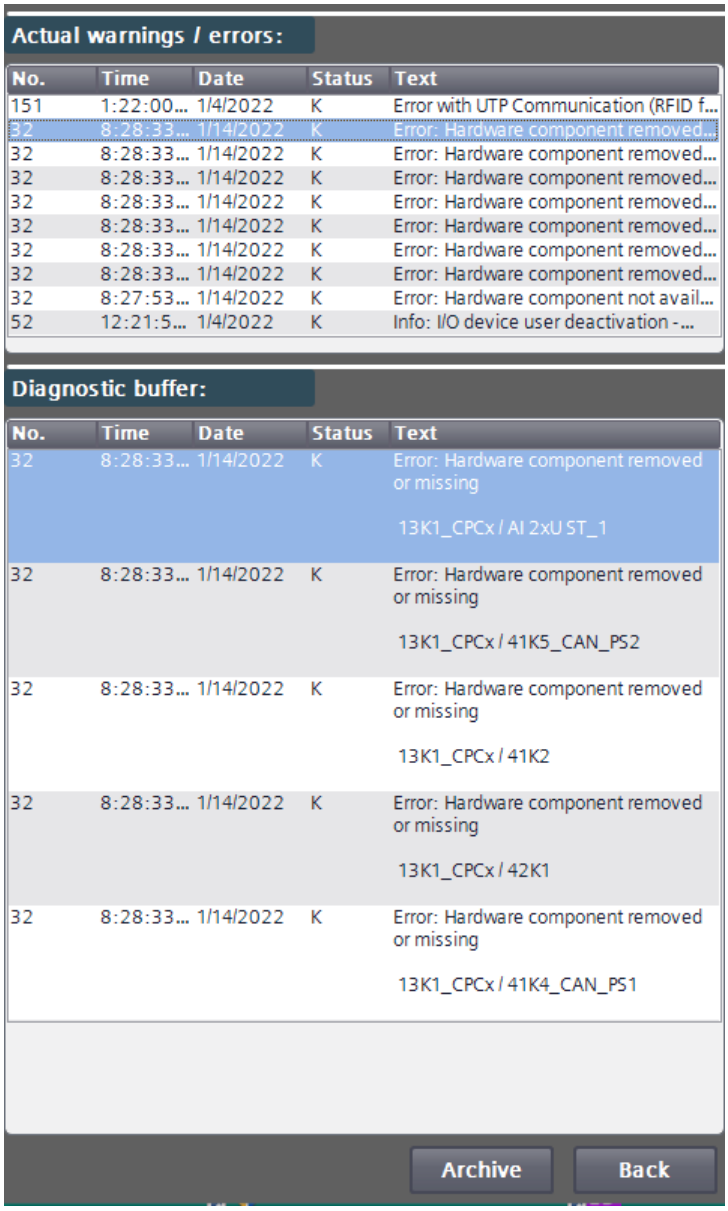


Figure 3-57 Aktuelle Fehler, Warnungen und Fehlermeldungen aus Fehlerspeicher

If a customer SD card is inserted, you can open a message archive on the SD card via the <Archive> button. This archive is also available after a restart or after a software update of the display. This is a circular archive that is saved in csv format.

The message archive is primarily intended for support by the manufacturer. Press the <Back> button to return to the service.

3.5.20 Limits (S)

In the "Limits" service area, you can set the maximum power data for the charging station's charging points. Unused charging points are hidden.

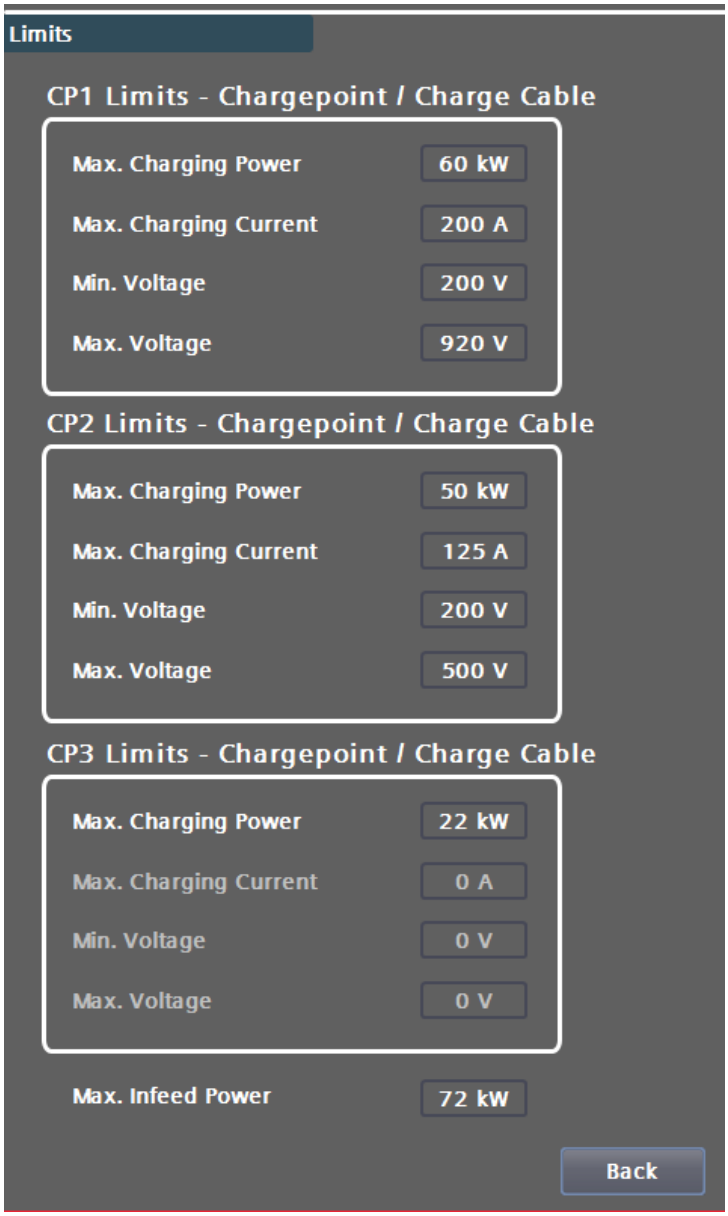


Figure 3-58 Limits of the charging points

Grenzen DC-Ladepunkte

Max. Charging power	Minimum of assignable power units incl. parallel switching function
Max. Charging current	Minimum of assignable power components and built-in charging cable
Min. voltage	200V for all installed power components
Max. voltage	920V for CCS2 (1000V possible, but some vehicles cancel the process)

Grenzen AC-Ladepunkte

Max. charging power	Wert von angeschlossenem Kabel oder Auslegung Ladesteckdose
Max. charging current	Not used
Min. voltage	Not used
Max. voltage	Not used

For AC charging points with a charging socket for on-site (customer) cables, the power of the connected cable is determined automatically. Higher parameterized power values of the charging station are not taken into account and the power is adapted to the cable used.

For AC charging points, only the power is used. The other details are greyed out and therefore cannot be parameterized.

Max. Infeed power

The operator can change this value of the infeed power in the menu for operator settings. The adjustable value refers exclusively to the distributed active charging power and not to secondary consumers such as fans and heaters.

Note

Do not set this value above the fused power available on the mains side. Otherwise, the consequences of an overload can be a fuse failure in the low-voltage distribution board or a brief local grid failure.

3.5.21 Configuration (S)

In this area, you parameterize the hardware options of the charging stations.

This area is only required for initial commissioning by the manufacturer and is only listed in these instructions for the sake of completeness.

If you have the authorization to display / change parameters in this submenu, this menu appears.

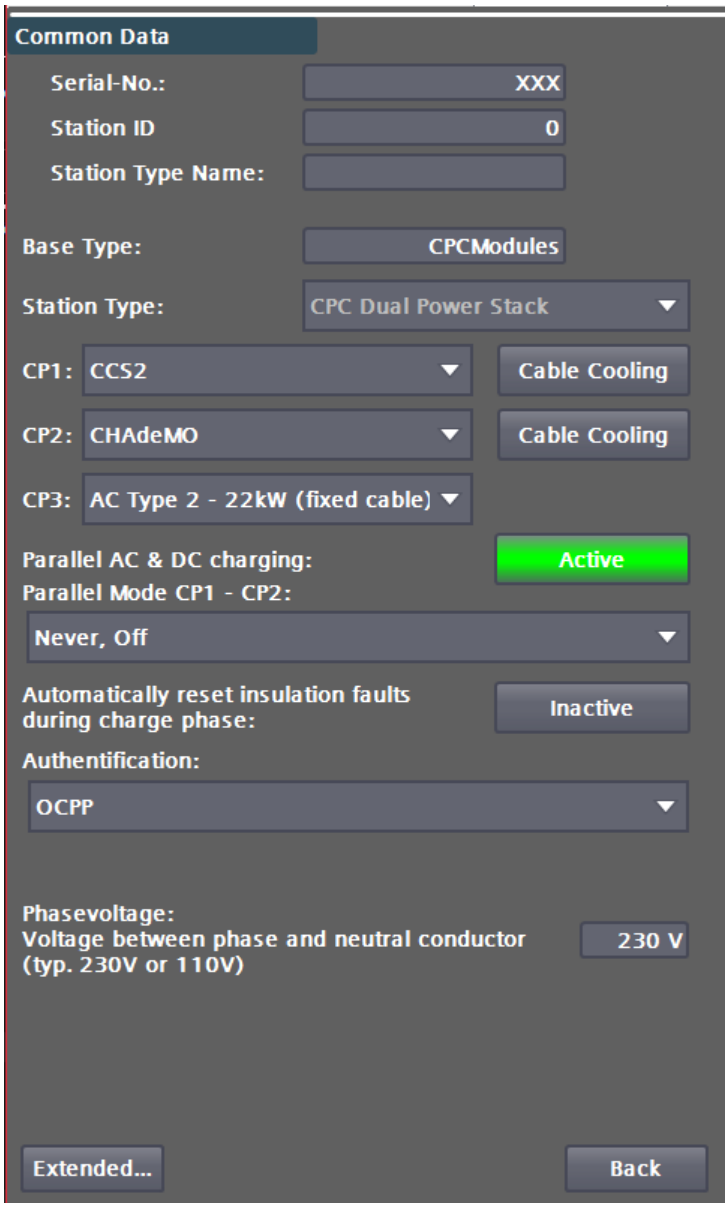


Figure 3-59 General configuration data

The value to be specified for the phase voltage in the 3(4) wire network is required for the "Smart Charging" OCPP profile, see also the note in the chapter “OCPP settings (S/O)” (page 57).

The value of the phase-neutral conductor voltage of the connected network applies.

This value is necessary for calculating power adjustments via OCPP (SmartCharging) when setting the current. The phase voltage (Y) of one phase to the neutral conductor must be specified here, even if no neutral conductor is connected to the station (without AC charging point).

An additional input mask can be accessed via the <Extended...> button.

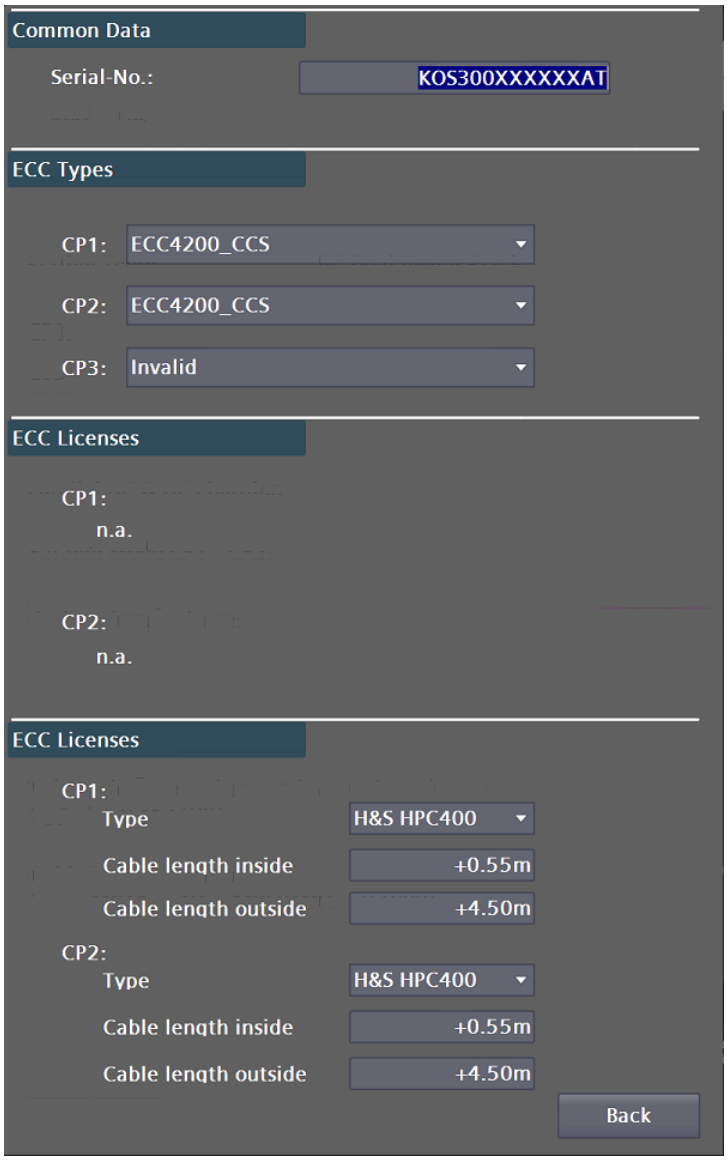


Figure 3-60 Erweiterte Konfigurationsdaten

ECC types

The installed ECC types can be selected here.

ECC licenses

Additional license data for the ECC can be entered here (CHAdeMO only).

Cable cooling

If available, the cable cooling is specified here in order to achieve optimum derating behavior.

3.5.22 Exit Runtime (S)

Press the <Exit Runtime> button to exit the HMI control panel application. You can parameterize and configure the display at operating system level, e.g. manage external storage media.

It is not possible to use the charging station when Runtime is closed. All ongoing charging processes are terminated.

Figure 3-61 Runtime after exit

Pressing the <Start> button restarts the runtime. You will need another password for all other actions.

Figure 3-62 Password query to enable the locked functions in the operating system

The password for this function level is held exclusively by the manufacturer and is not passed on to customers and/or operators.

3.5.23 PLC-Diagnosis (S)

In the PLC diagnostics menu, you can carry out a diagnosis of the control unit and the field bus system.

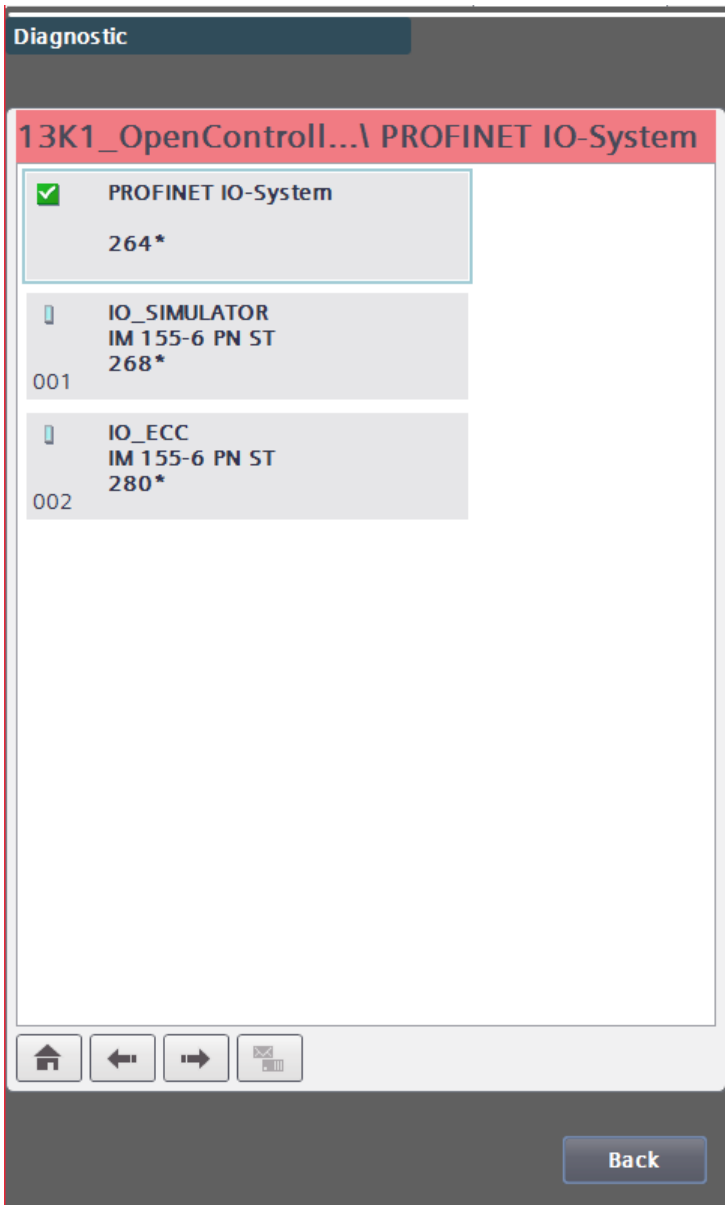


Figure 3-63 Diagnostics menu for control and fieldbus configurations

3.5.24 Maintenance data (S)

The charging station has meters that are used to plan maintenance and service work. The number of charges at each charging point is counted. This allows the manufacturer to derive the remaining service life of the contactors. The operating hours of the fans provide information about the cleaning and replacement times.

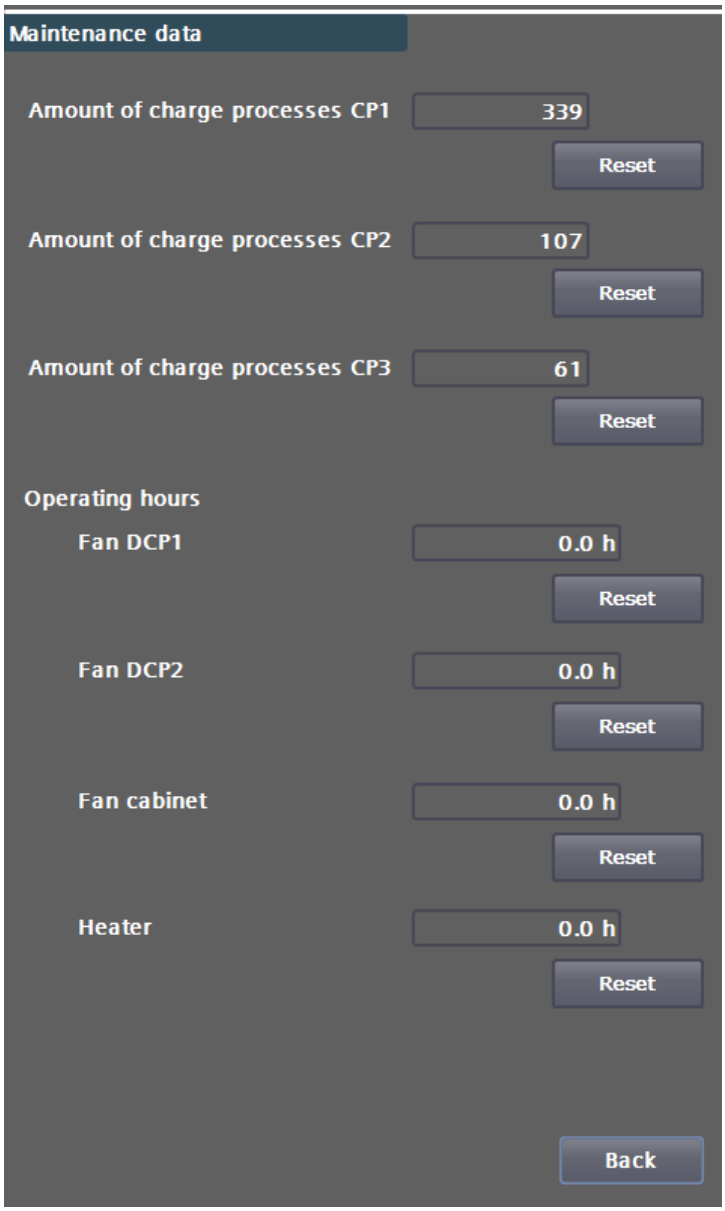


Figure 3-64 Maintenance data

By pressing the <RESET> buttons, you can reset the respective counter, e.g. after replacing the hardware.

These values are retained when the software is updated and are stored in the control unit. When replacing the control unit, you must document these values.

Press the <Back> button to return to the menu

3.5.25 Ext. Metering (S)

In this menu you can define and set energy meters with S0 interface (x pulses / kWh). This applies to AC energy meters that have been selected in accordance with the order option in the article number list for the non-calibration-compliant recording of the energy consumed on both the AC and DC sides.

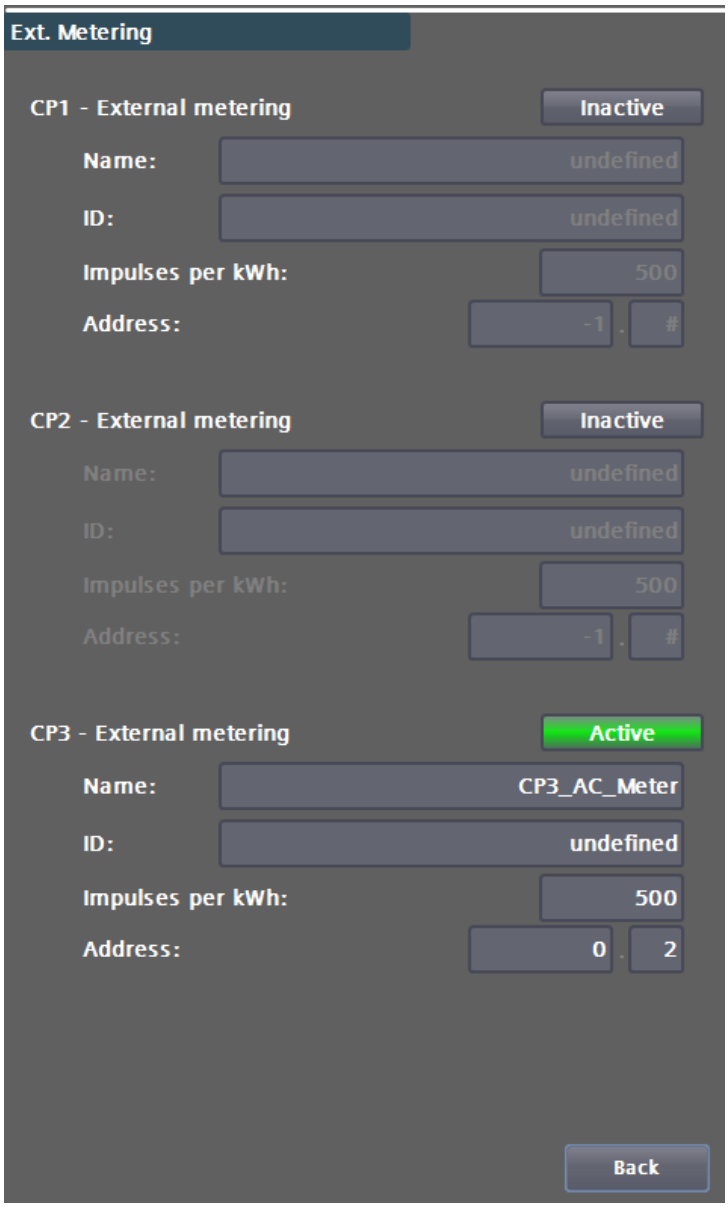


Figure 3-65 External AC measuring point configuration

You only need this area for initial commissioning and when making hardware changes to the charging station.

Only change these settings if you have been trained accordingly. Press the <Back> button to return to the menu.

3.5.26 Web management (S)

In the "Web management" menu, you can load or save all configuration files in the control unit.

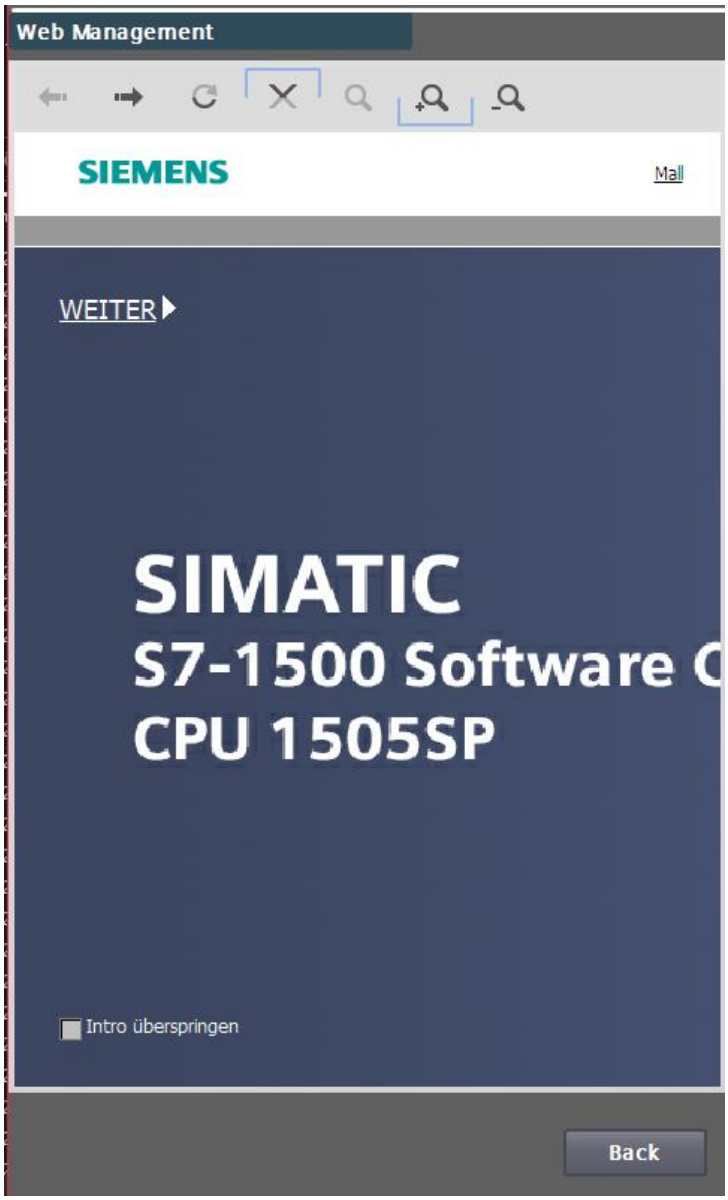


Figure 3-66 Web management

Web management is used solely for maintenance purposes. Additional login information is required. With appropriate access, additional information can be called up via the control unit.

3.5.27 Configuration management (S)

In the "Configuration management" menu, you can examine the saving and discarding of settings in more detail than in the Base menu. Functionally, there is no difference to the functions in the Base menu (page 39)

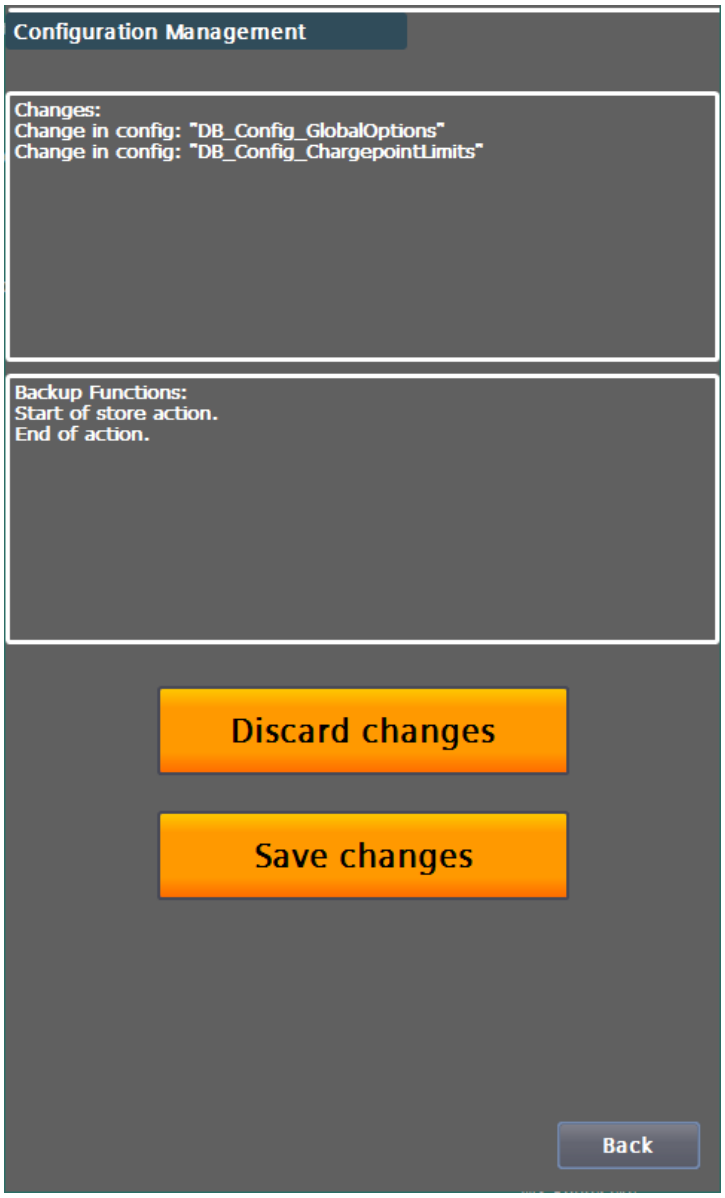


Figure 3-67 Configuration management

3.5.28 Test functions (S)

In the "Test functions" menu, you can check the proper functioning of some auxiliary systems.

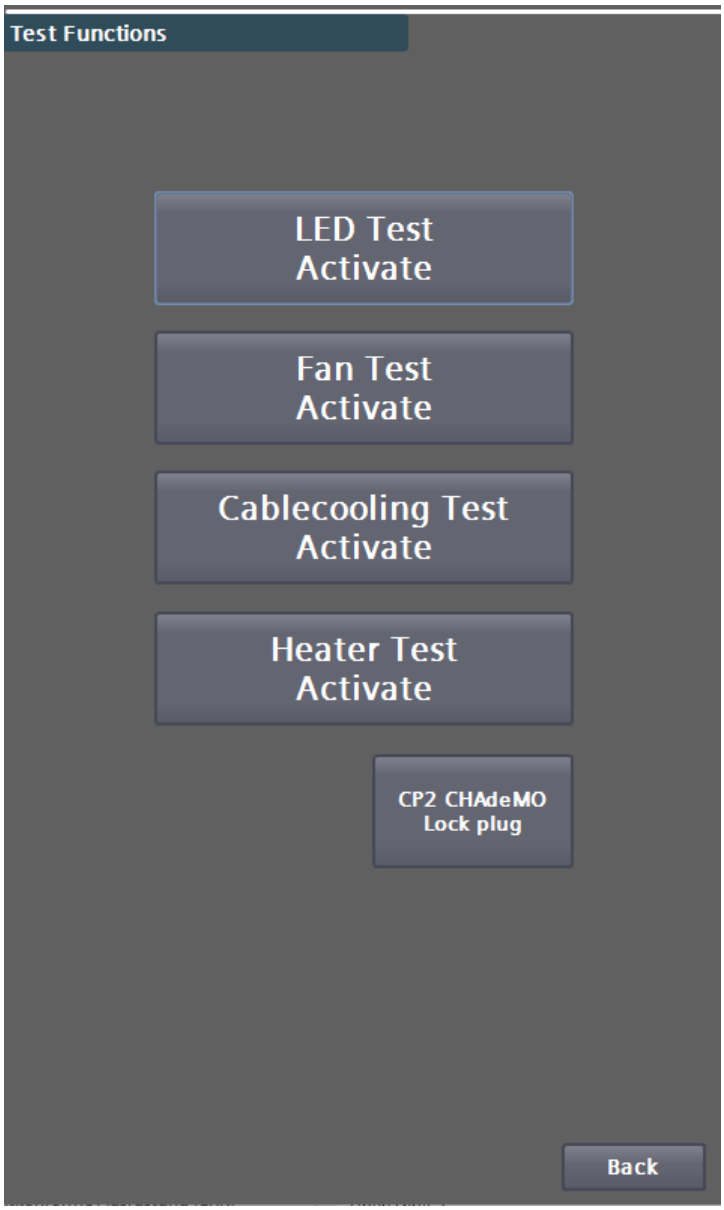


Figure 3-68 Selection of possible test functions

Depending on the configuration of the charging station, buttons can be shown or hidden here.

Activate the test by pressing the respective buttons. Press again to deactivate the test. All tests are deactivated when the user logs out or leaves the screen.

Some tests require a closed safety circuit (emergency stop, switch cabinet door) in order to be carried out.

This function supports the recurring maintenance work and is described in more detail in the respective operating manual in the Maintenance chapter.

Test	**Beschreibung**
LED test	All LEDs are controlled alternately with the same color: If not all LEDs light up in the same color, there is a wiring error. If individual LEDs do not light up, there is a defect in the light source or the control unit.

Test	Beschreibung
Fan test	All fans controlled by the control unit are controlled with 100% setpoint. All controlled fans must rotate in the correct direction.
Cable cooling test	The cable cooling is switched on. If cable cooling is present, the current temperatures are also displayed next to the button. The upper temperature line shows inflow temperatures, the lower line shows return flow temperatures.
Heating test	The switch cabinet heating is switched on. The current temperature is displayed next to the button if the heater has temperature detection on the heating element.
CHAdeMO plug locking test	The plug interlock is activated.

3.5.29 Simulation (S)

In the "Simulation" menu, you can simulate a charging process without a connected vehicle or with a defined test system. To be able to use the simulation, the authorization must be set to "Free charging without RFID".

The aim of the simulation is to check the charging process, i.e. all installed components work together correctly.

Only DC charging points (CCS and CHAdeMO) can be simulated. Only use the simulation if you have been instructed accordingly. The simulation can only be activated if the charging point is in an operational state, i.e. there are no pending faults.

⚠ **DANGER**
Danger due to high voltage Depending on the parameters set, high voltages of up to 1000 V can occur at the plug.

ATTENTION
Damage to the charging station and vehicles Never activate the simulation when a vehicle is connected to the charging station. Regardless of whether this is the charging output that is to be simulated or another charging output! Never activate the simulation if you cannot ensure that the charging plugs are not properly attached to the holders of the charging station

1. Set the simulation parameters correctly using the <Simulation Parameter> button.

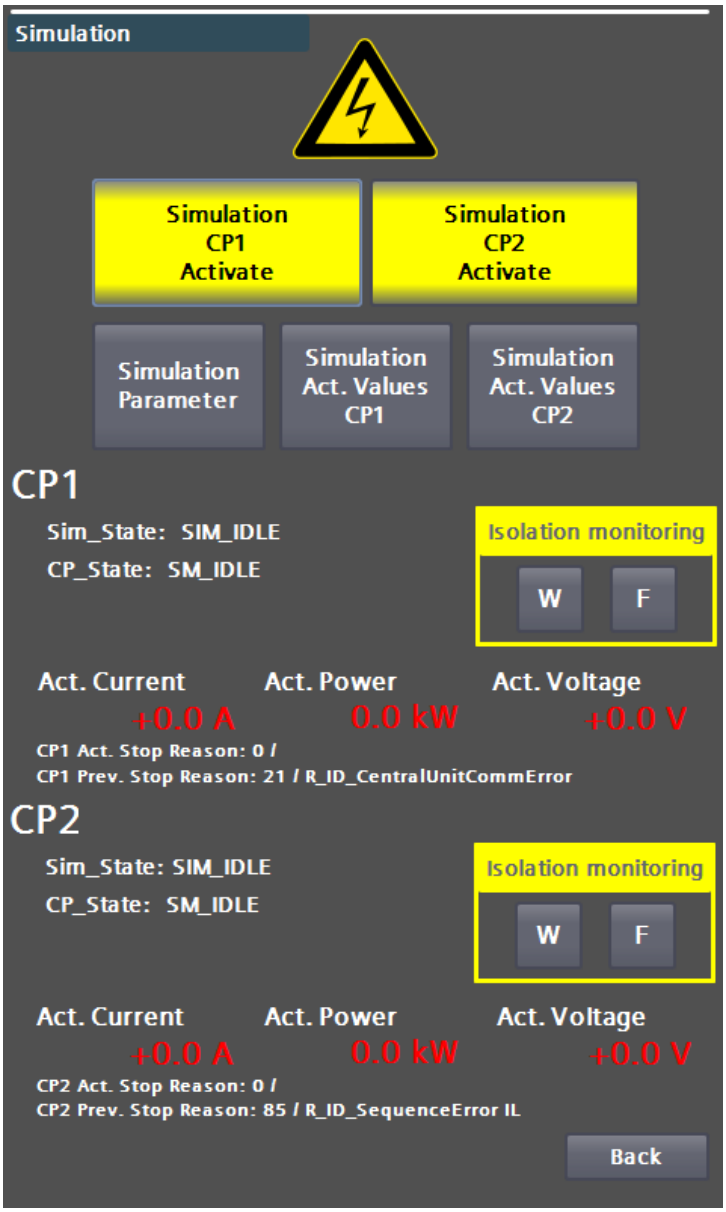


Figure 3-69 Main page of the simulation menu

2. Activate the simulation of the desired charging point via the respective button, e.g. for charging point 1 by pressing the <Simulation CP1 activate>-button. If all conditions for the simulation are fulfilled, this is indicated by a color change.

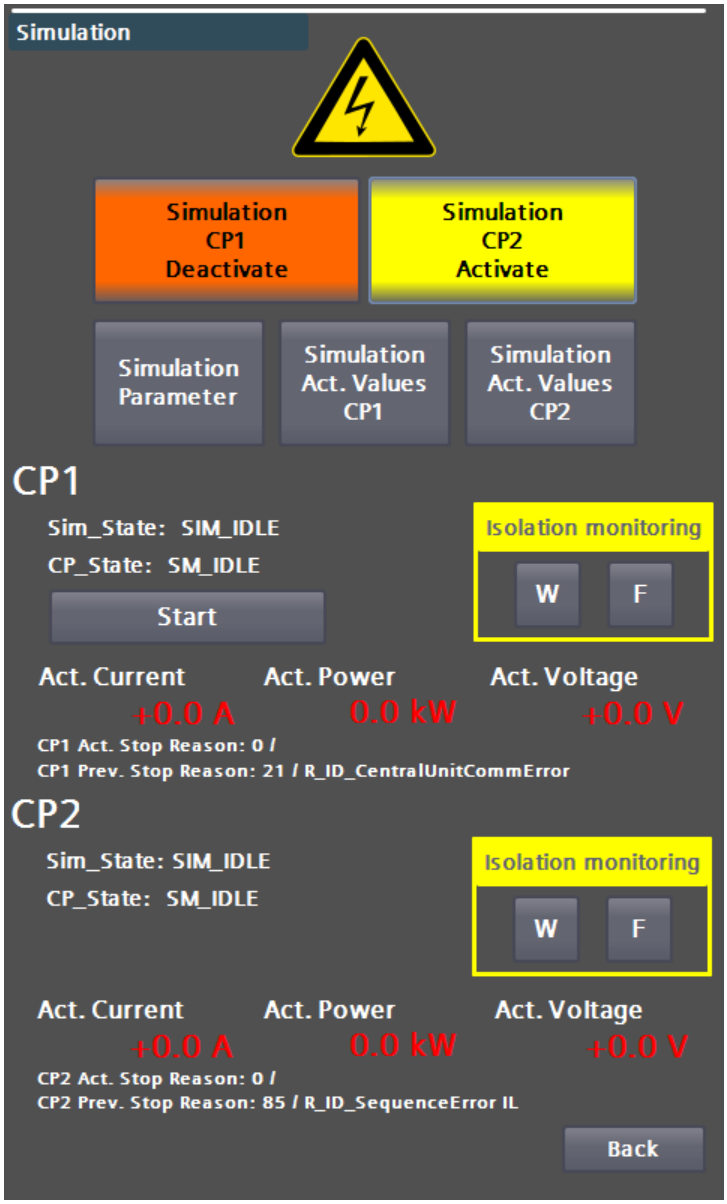


Figure 3-70 Color change for charging point 1 (CP1) - all conditions fulfilled

3. The <Start> and <Stop> buttons are displayed at the charging points that are now activated. Press the <Start> button to start the simulation. Press the <Stop> button to end the simulation.

Simulation mode is automatically deactivated after a simulation run has ended. If an error occurs during a simulation run, the simulation is aborted and the simulation mode is also deactivated. All safety devices are active during a simulation.

On the main page of the simulation you can also see some actual values and states during the simulation.

Simulation actual values

You can use the <Simulation Act. Values CP1,2> buttons to display all relevant actual values for this charging point.

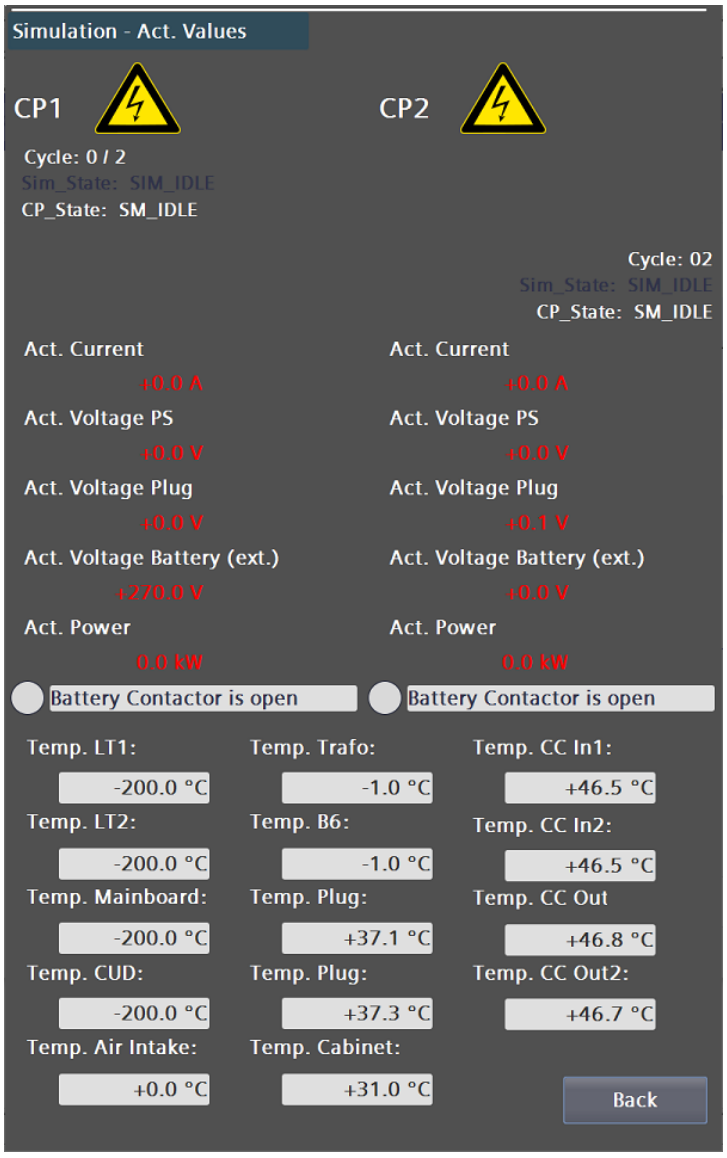


Figure 3-71 Display of the simulation actual values for charging point 1 and 2

Simulation parameters

In this menu, you can enter the simulation parameters according to your test objectives.

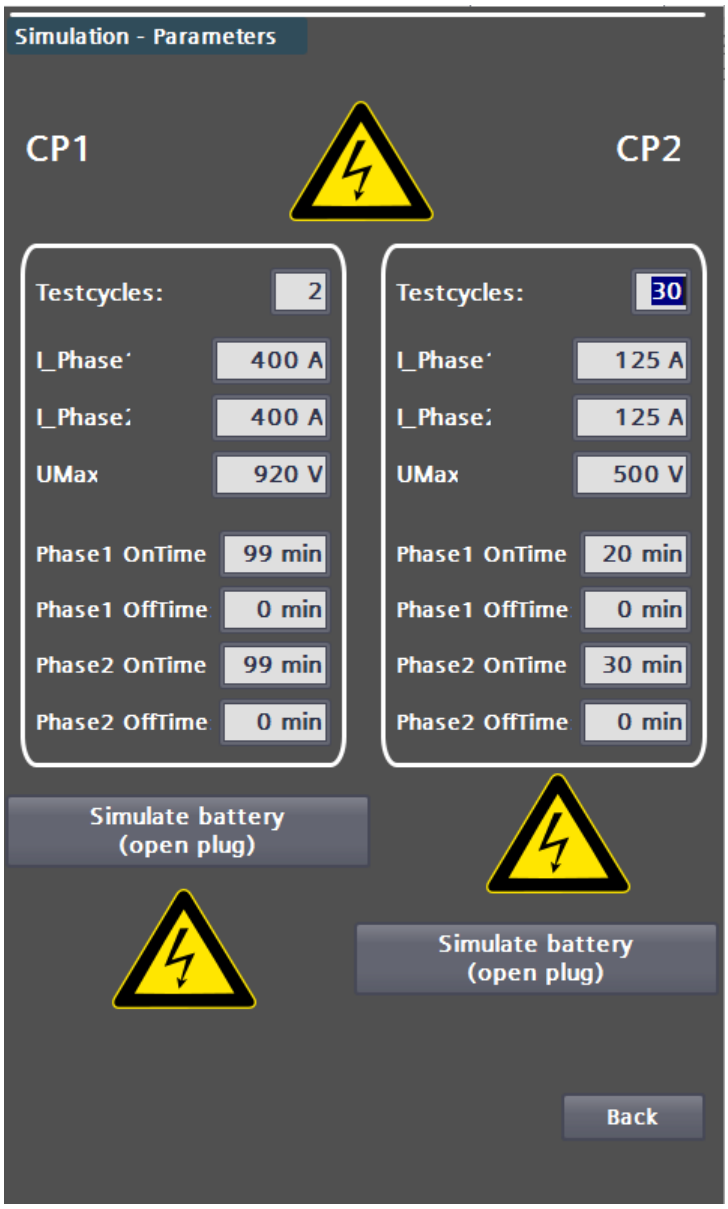


Figure 3-72 Parameter page of the simulation menu

1. You can use the <Use external battery> and <Simulate Battery> buttons to change the way the simulation works. If you only want to carry out a sequence test without transferring power, i.e. without a connected test system and with an open plug, select <Simulate Battery>.
2. If a defined simulation system is connected that draws power and the interfaces are supplied accordingly, select <Use external battery>.

Note

The <Use external battery> function cannot be used without a simulation system (external hardware).

3. Now define your test cycle.

4. The current under "I_Phase1" is specified as the target value for "Phase1_OnTime" in minutes (TargetCurrent). A "Time" in minutes is then waited for "Phase1_Off". The current under "I_Phase2" for "Phase2_OnTime" is then specified as the target value in minutes (TargetCurrent). If more than one cycle is entered under Number of test cycles, the system then waits for "Phase2_OffTime" and starts again with "Phase1". Otherwise the simulation run is terminated.
5. Under "UMax" you can set the maximum voltage (EV_MaxVoltage).
6. The values entered must not violate the limits.

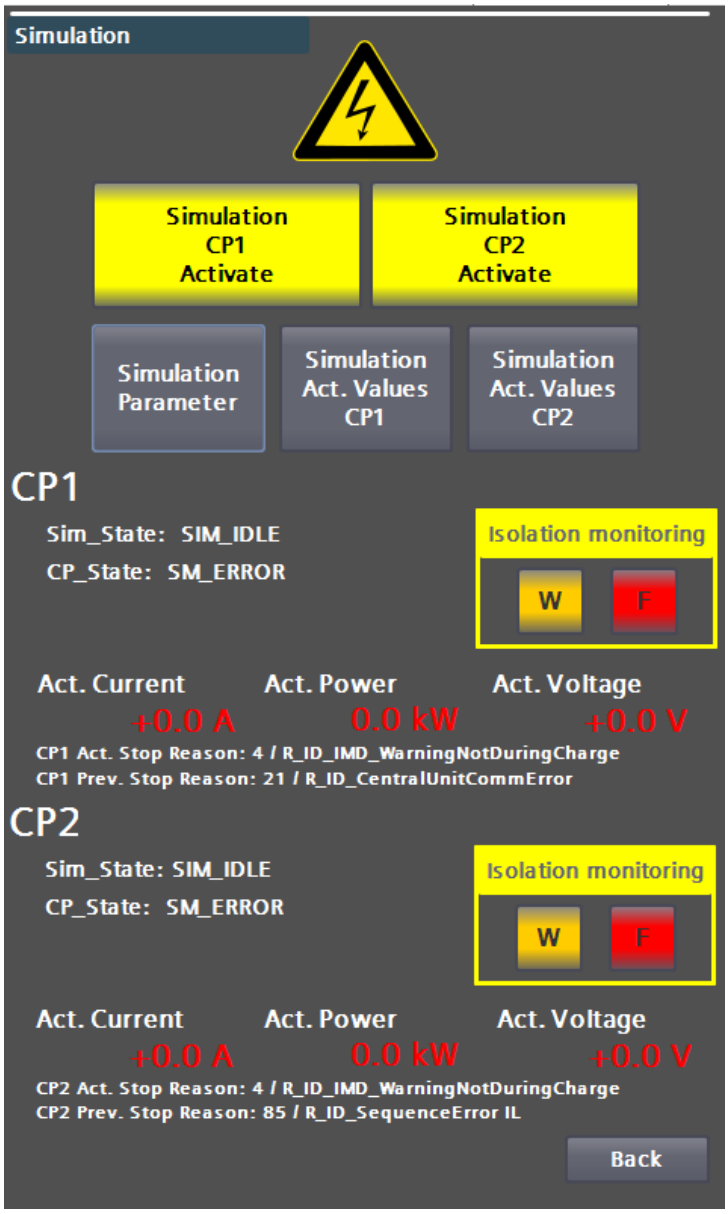


Figure 3-73 Display of a warning (W) or an error (F) in the insulation measurement

This warning or error message appears during the simulation if the leakage resistance limit (warning limit) set by the manufacturer is not reached and/or if the error limit, also set by the manufacturer, is not reached.

These set limit values are compliant with IEC 60479-1 (2018).

Note

If charging is interrupted and/or an insulation monitoring error message "R_ID_IMD_ErrorDuringCharge" is displayed on the HMI, there is a high probability that there is a warning or an error from the insulation monitoring for the corresponding charge point (CP). This can be confirmed using the simulation function and the warning and / or error message shown above.

In the “Simulation Actual Values” menu, you can check all relevant values during a simulation run.

3.6 Charging point info (S/O)

In this menu, you can obtain information on ongoing charging processes. Pressing the respective charge point button takes you to a diagnostic view. There is currently no detailed diagnostic view for type 2 AC charging points.

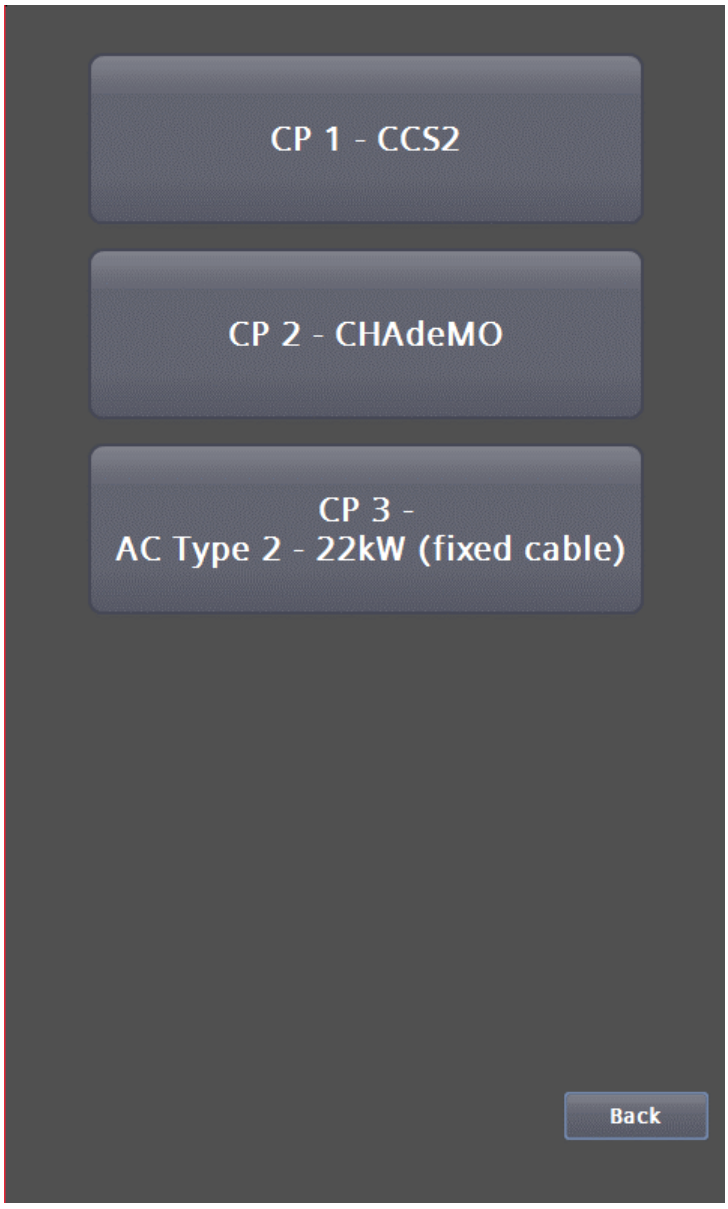


Figure 3-74 Selection of charging points for diagnostics

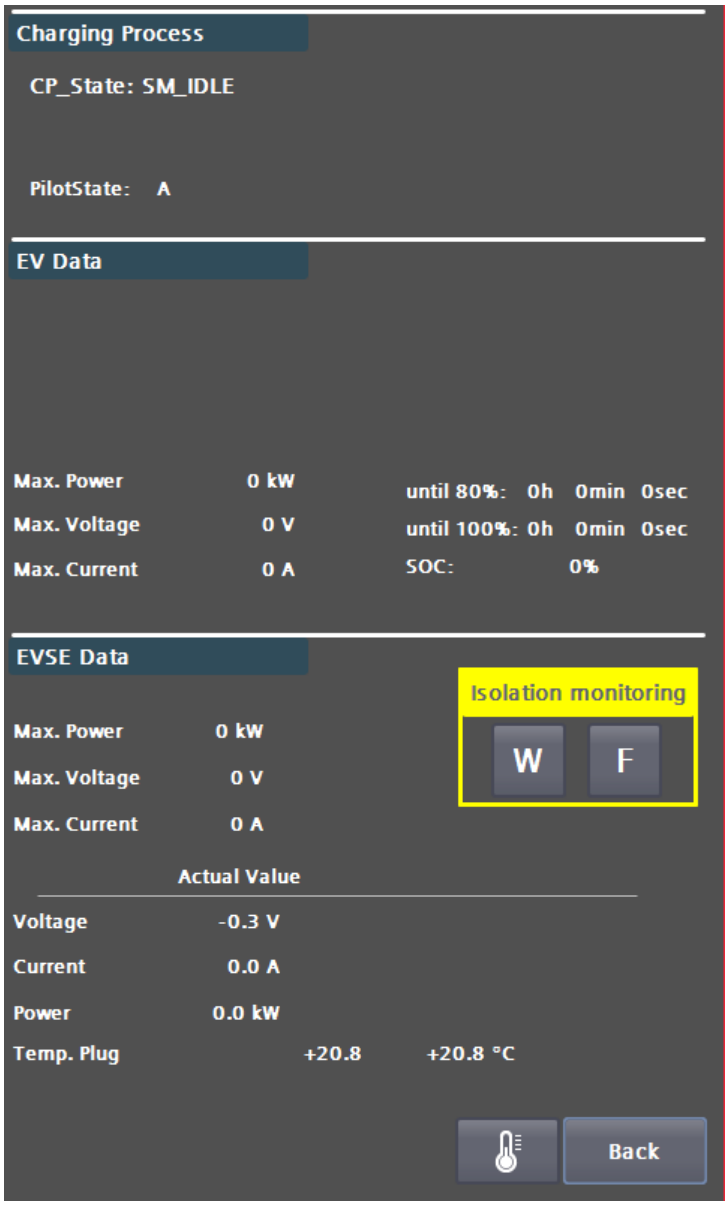


Figure 3-75 Ladung CCS/CHAdeMO

The "CCS/CHAdeMO charging" menu shows you the current parameters of the charging process.

3.7 Energy measurement (S/O)

The "Energy measurement" menu shows you the current power and the amount of energy transferred per charging point and in total since the charging station was commissioned.

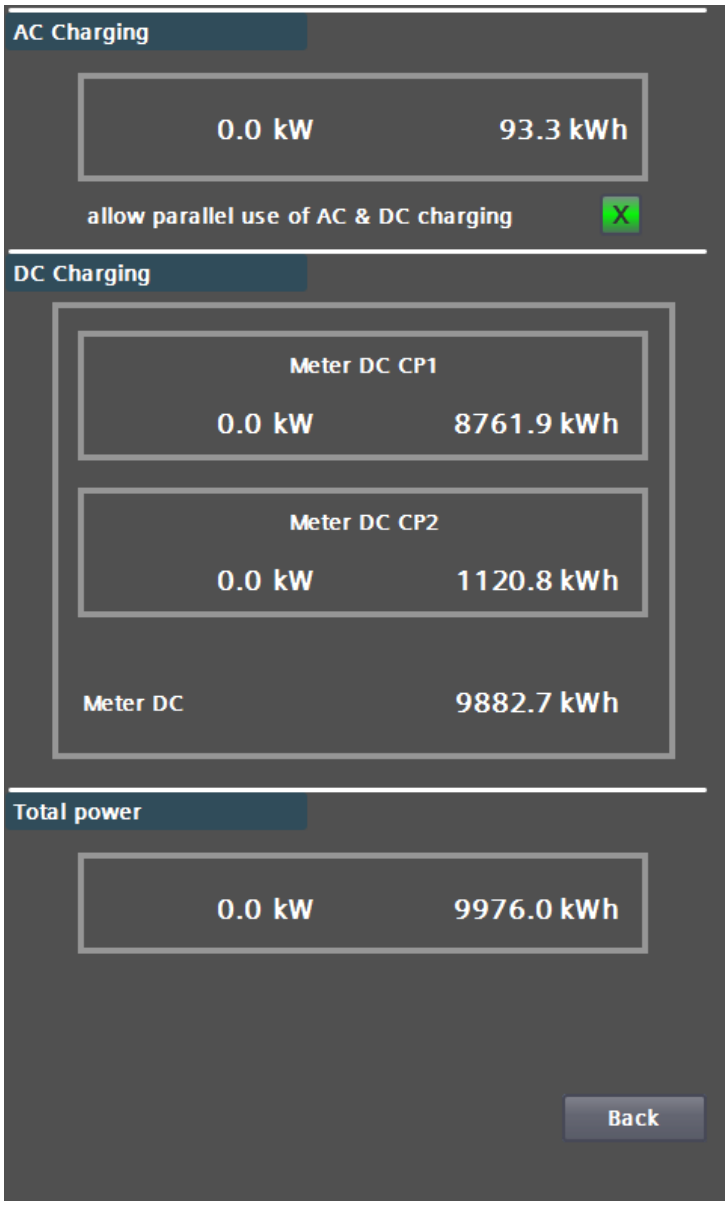


Figure 3-76 Energy measurement menu

3.8 Diagnosis (S/O)

System and hardware-related messages are displayed in the "Messages" menu. Pending errors and warnings are listed at the top of the menu, while previous messages from a buffer are listed at the bottom.

If a customer SD card is inserted, you can open a message archive on the SD card using the <Archive> button. This archive is also available after a restart or after a software update of the display. This is a circular archive that is saved in csv format.

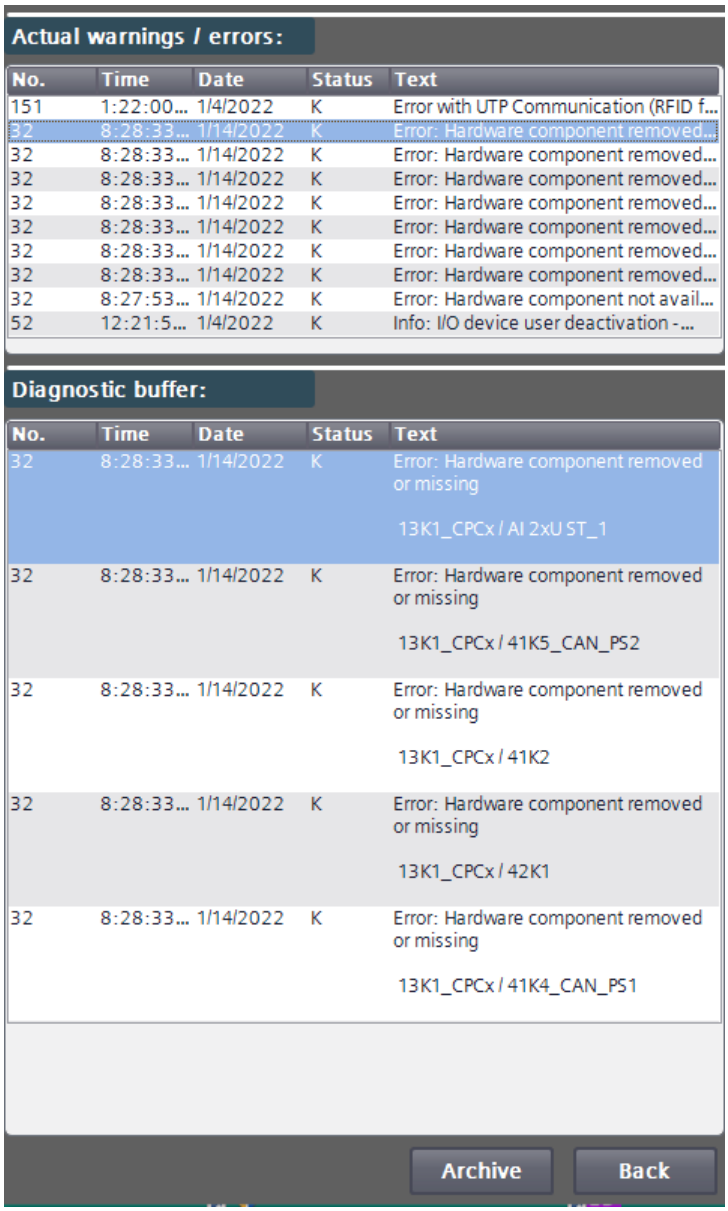


Figure 3-77 Display of diagnostic data / message archive data

The message archive is primarily intended for support by the manufacturer. Press the <Back> button to return to the Base menu.

3.9 Alarm, error and system messages

3.9.1 Access with Sinema Remote and Smart Server

Sinema Remote

With Sinema remote access, it is possible for the manufacturer or an authorized body to access the charging station or its components located in the charging station network via a secure VPN tunnel. The required parameters must be set on the integrated Siemens Scalance router by the manufacturer or an authorized body so that it can establish a connection to the Siemens Sinema Remote Server.

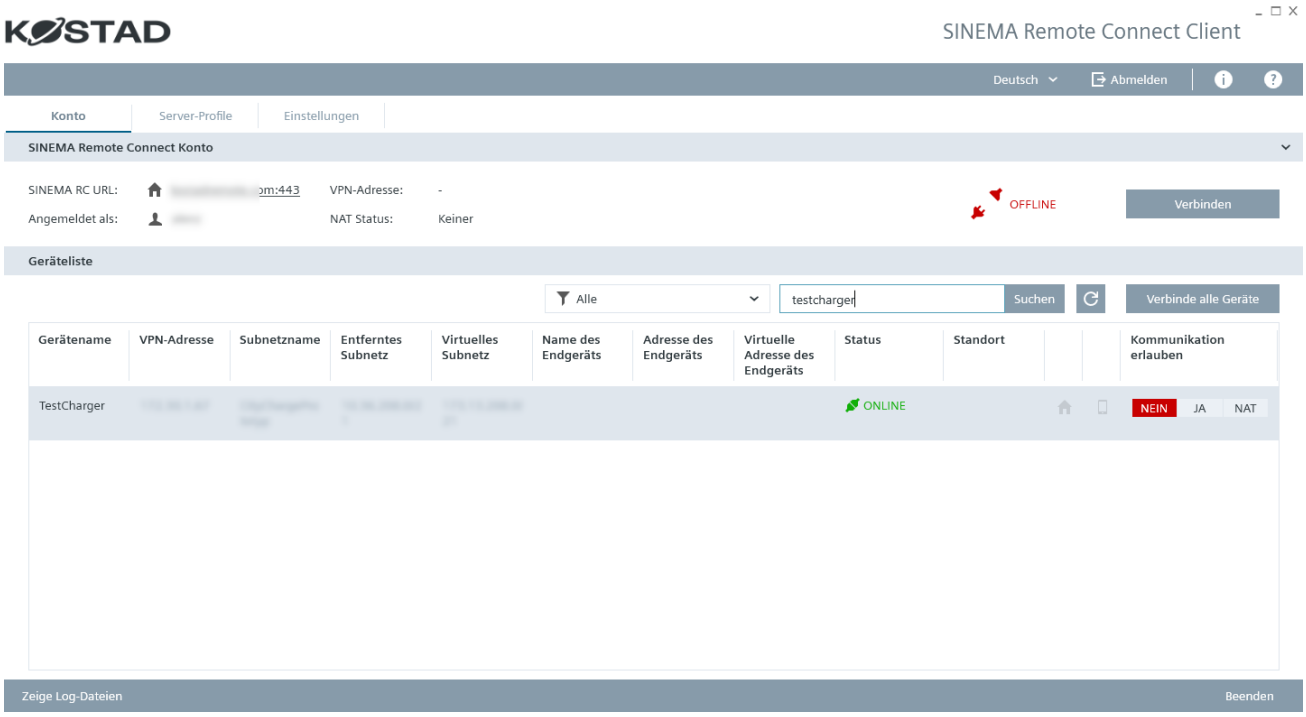


Figure 3-78 Access to Siemens Sinema Remote

The illustration shows the view of the Sinema RC Client after logging in. All created charging stations are displayed. The lettering offline indicates that the charging station is not connected to the server. When the charging station is connected to the server, the lettering changes to online. As soon as the charging station is online, a VPN tunnel can be set up.

This functionality is only available with the selected "Remote maintenance" option and the corresponding maintenance contract with the manufacturer for at least one year.

Sm@rtserver

You can control and/or monitor the control panel remotely via the Sm@rtserver client. All functions of the control panel are available. Sm@rtserver access is activated on request when the charging station is delivered. This access is only possible if a backend is used or an operator modem is installed.

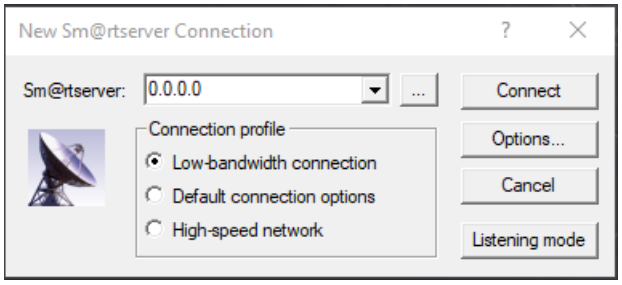


Figure 3-79 Sm@rtserver

Enter the IP address of the partner in the input field. Press the CONNECT button. An attempt is then made to establish a connection with the partner. If a connection can be established, the password is entered next. After entering the password, the control panel is displayed.

Ask Kostad Customer Support (support@kostad.at) for access. This function is country-specific and is not built into all versions of the charging station.

As soon as you are online via remote access, all local entries are blocked, i.e. a local user cannot make any entries or select a charging point.

Note

If the control panel is overloaded with remote requests, this is detected by the charging station. Charging processes in progress are canceled.

3.9.2 Charging point is not available

If you see the message "Charging point is not available" and an error text is displayed below the accompanying text (in the image: "R_ID_ECC_CommError"), then there is an error at the charging point.

A complete description of all messages that occur can be found in chapter “Troubleshooting and remedy“ (page 139).

If no error text is displayed below the accompanying text, the charging point is not available for other reasons, e.g. because the charging point has not yet been released via OCPP.

Figure 3-80 Charging point not available with error text

3.9.3 EMERGENCY STOP button

An EMERGENCY STOP button is located on each charging station directly under the RFID card reader to enable charging processes to be terminated in dangerous situations. Pressing the EMERGENCY STOP button stops all charging processes immediately. The energy flow from the charging station to all connected vehicles is interrupted. The EMERGENCY STOP button is recessed to prevent a user from accidentally triggering the EMERGENCY STOP button.

Only press the EMERGENCY STOP button in dangerous situations. The EMERGENCY STOP button affects the entire charging station, including all charging points.

If an EMERGENCY STOP button is pressed, operation of the charging station including all charging points is no longer possible. Proceed as follows to restore the charging station to an operational state.

1. Eliminate the dangerous situation.
2. Disconnect the connection to all connected vehicles.
3. Unlock the EMERGENCY STOP button.

The display of the charging station shows you the main menu again after a short time. You can continue to operate the charging station.

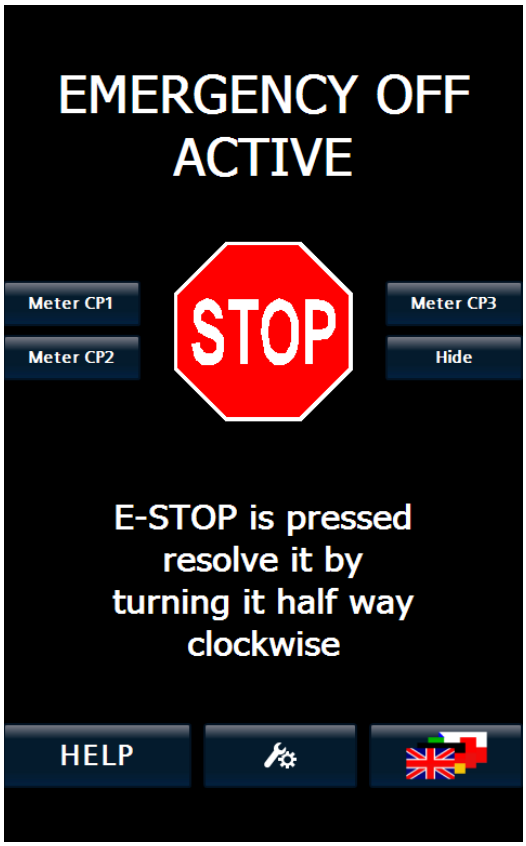


Figure 3-81 Screen "EMERGENCY OFF active"

For charging stations with signing energy meters (e.g. in compliance with calibration law), the corresponding meter reading can be retrieved via the <Meter CP> buttons (if it can still be retrieved despite errors).

3.9.4 General error

If a general error is displayed, the entire charging station/all charging points are no longer operational.

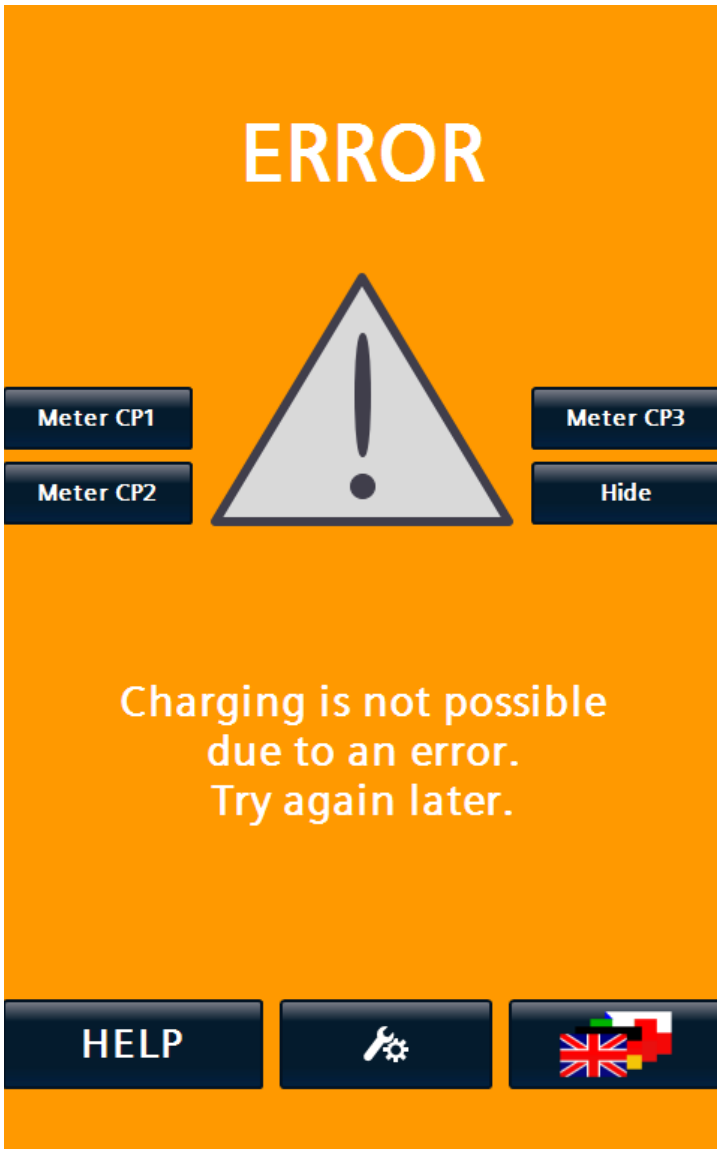


Figure 3-82 General error

At the same time as this notification:

- Sending an error message to the backend
- Setting an error code for troubleshooting via Sinema Remote
- Creating a log file entry

For charging stations with signing energy meters (e.g. in compliance with calibration law), the corresponding meter reading can be retrieved via the <Meter CP> buttons (if it can still be retrieved despite errors).

3.9.5 Cabinet door open

If the error message "Control cabinet door open" is displayed, the door contact indicates that the charging station may not be operated.

The charging station is only ready for operation again when the control cabinet door is properly closed. Even if the control cabinet door is closed and the error message "Control cabinet door open" or "Control cabinet door not closed properly" is

displayed, check whether the safety latch mounted on the control cabinet door is correctly engaged in the contact counterpart in the control cabinet.

Figure 3-83 Control cabinet door open or not fully closed

For charging stations with signing energy meters (e.g. in compliance with calibration law), the corresponding meter reading can be retrieved via the <Meter CP> buttons (if it can still be retrieved despite errors).

3.9.6 Behavior of the charging station after a power outage

3.9.6.1 Behavior when idling

When the power supply is restored, the charging station starts automatically as when it is switched on again and sends a boot notification to an existing operator backend via OCPP once it has started up.

3.9.6.2 Behavior during ongoing charging processes

When the power supply is restored, the charging station starts automatically as when it is switched on again and sends a boot notification to an existing operator backend via OCPP once it has started up.

Charging processes interrupted during the power failure with charging cables still plugged in do not automatically lead to the interrupted battery charge of the EV(s) continuing to charge. For each connected EV, you must unplug the charging cable from the vehicle or from the AC charging socket (if available) and then plug it in again and authorize it if you wish to continue charging.

3.9.7 Behavior of the charging station after RCD tripping (AC charging output side)

In the event of an RCD tripping in the AC charging circuit, an error message with the code "R_ID_RCDTripped" is displayed as standard, see table “Error codes“ (page 141). An on-site service call is then necessary to analyze and rectify the fault.

If the charging station is equipped with an RCD with automatic reclosing (country-specific), reclosing is a hardware-parameterized device function. If this option is installed, the RCD switches on again automatically after a parameterized time x following an appropriate safety check. The pending and reported error is then automatically reset. If the error persists, the error message “R_ID_RCDTripped" remains and an on-site service call is necessary.

See also

Error codes (page 141)

3.9.8 Troubleshooting and remedy

The table below will help you to promptly identify and rectify the cause of a charging station malfunction. The list does not claim to be exhaustive.

Table 3-4 Possible errors that can occur during commissioning and operation and how to rectify them

Problem	Ursache	Abhilfe
No display Display dark	The charging station has not yet started up. The display is defective. Power failure at the charging station. Screen saver is active.	Wait until the charging station has fully booted up. This can take several minutes. Tap on the display. Check the power supply. Contact customer service.
Display shows "Kostad logo" on a black background.	The charging station is not yet fully powered up. The screen saver is active.	Wait until the charging station has fully booted up. This can take several minutes. Touch the display
Display shows "NOT-AUS-Taster wurde betätigt!" The LED indicators light up red. test	The EMERGENCY STOP button has been pressed.	Eliminate the dangerous situation. Unlock the EMERGENCY STOP button and wait 30 seconds.
Display shows "Cupboard door open!" The LED indicators light up red.	The front door of the charging station is not closed correctly.	Make sure that the front door of the charging station is fully closed.
Display shows "Erdschlussüberwachung wurde ausgelöst!" The LED indicators flash red.	The earth fault monitoring has responded. There is a technical problem.	You can activate the automatic reset of an insulation fault in the service settings. TODO

Problem	Ursache	Abhilfe
The charging power is reduced.	The charging power is reduced linearly in the event of strong heating, e.g. due to charging processes at high ambient temperatures.	Check the air inlet openings. Observe the maintenance intervals for fans and filter mats.
The RFID card is not read.	The RFID card was not held against the RFID reader for long enough. Too many authorization attempts in too short a time. The RFID reader or the RFID card is defective. The RFID card is not supported. Information can be found in the chapter “RFID Reader (S/O)” (page 52)	Hold the RFID card against the RFID reader for 5 seconds. Wait at least 30 s before the next authorization. Contact customer service.
The RFID card is rejected.	The customer is not authorized for cargo.	Check the backend / whitelist. Contact customer service.
CCS charging point is not available.	There is a technical error.	Contact customer service.
CHAdeMO charging point is not available.	There is a technical error.	Contact customer service.
AC charging point is not available.	There is a technical error.	Contact customer service.

3.9.9 Error codes

The table below will help you to promptly identify and rectify the cause of a charging station malfunction. The list does not claim to be exhaustive.

Tabelle 3-5 Display of all occurring messages

VendorId Reason Code Nr	**VendorErrorCode / info Reason code Text** R_ID_...	**Cause**	**Troubleshooting**
1	IMD_ErrorDuringCharge	Isolation monitoring device has detected an error during charge state. (After precharge - until end of charge)	It is highly possible that the EV has an isolation error. If not on site-maintenance is necessary. Depending on the configuration this fault has to be reset with a power-on reset which can be triggered via OCPP. If the error persists with other vehicles on- site maintenance is necessary.
2	IMD_ErrorNotDuringCharge	Isolation monitoring device has detected an error.	On-site maintenance is necessary.
3	IMD_WarningDuringCharge	Isolation monitoring device has detected a warning during charge state. (After precharge - until end of charge)	It is highly possible that the EV has an (just small) isolation error. If not on site-maintenance is necessary. Depending on the configuration this fault has to be reset with a power-on reset which can be triggered via OCPP. If the error persists with other vehicles on-site maintenance is necessary. This triggers usually when the vehicle does not react to the signaled warning.
4	IMD_WarningNotDuring-Charge	Isolation monitoring device has detected a warning.	On-site maintenance might be necessary.
5	SwitchingError	nA	
6	PlugTemperature	Plug temperature has exceeded its maximum temperature for operation (despite derating).	Contact the manufacturer.
7	TrafoTemperature	Transformator temperature has exceeded its maximum temperature for operation (despite derating).	Contact the manufacturer.
8	HeatsinkTemperature	Heatsink temperature has exceeded its maximum temperature for operation (despite derating).	Contact the manufacturer.
9	StoppedByVehicle	na	
10	StoppedByUser	Charge process has been stopped by the user via the HMI button.	Informative
11	StoppedByVehicleDuring-Cablecheck	Charge process has been stopped during cablecheck.	Usually the process is interrupted by the vehicle through withdrawing the control clearance (e.g. State C)
12	StoppedByVehicleDuring-Precharge	Charge process has been stopped during precharge.	Usually the process is interrupted by the vehicle

VendorId Reason Code Nr	VendorErrorCode / info Reason code Text R_ID_...	Cause	Troubleshooting
			through withdrawing the control clearance (e.g. State C)
13	StoppedByVehicleDuring-Charge	Charge process has been stopped during charge.	Usually the process is interrupted by the vehicle through withdrawing the control clearance (e.g. State C)
14	StoppedByVehicleDuring-Authorisation	Charge process has been stopped during authorization.	Authorization timeout occurred. Vehicle has been plugged in but no authorization action has been performed by the user.
15	ErrorDuringParameterDiscovery	An error during parameter discovery occurred. The vehicle and the charging station are not compatible.	Contact the manufacturer.
16	ESTOP_User	nA	
17	ESTOP_Other	The e-stop button has been pressed.	User has to disengage the e- stop button on-site.
18	ShortCircuit	A short circuit has been detected on the secondary side of the power stages.	On-site maintenance might be necessary if this occurs with another vehicle. Either a short circuit on EV or EVSE side has occurred.
19	InitialVoltageTestFailed	Either one: After connecting the vehicle a none safe voltage has been detected on the DC side. HIGH VOLTAGE! HANDLE WITH CARE! Without connecting a vehicle (State A, unplugged) an error in the charging system has occurred.	At least on battery contactor on the vehicle is presumably not working correctly. In State A: On-Site maintenance is necessary.
20	Overvoltage	An plug voltage higher than the vehicle maximum or charger maximum voltage has been detected.	Contact the manufacturer if this error reoccurs. Usually this may only happen when the vehicle opens its battery contactors during charge with high currents (load shedding).
21	CentralUnitCommError	Internal connection to central unit is lost.	If this is persistent, please contact the manufacturer.
22	SlaveInterlock	nA	
23	UI_ConnectionLost	If neither HMI or WebUI is present.	If this is persistent, please contact the manufacturer.
24	HW1_Interlock	nA	
25	HW2_Interlock	nA	
26	HW3_Interlock	nA	
27	StateC_Lost	nA	
28	PanelCommIsLost	Lost connection to user interface (HMI).	On-site maintenance is necessary if this is persistent. This may also occur during remote connection to the HMI with bad mobile connectivity.

VendorId Reason Code Nr	VendorErrorCode / info Reason code Text R_ID_...	Cause	Troubleshooting
29	RFID_ConnectionLost	Connection to RFID reader is lost. Defect in RFID card reader or in the connection to application.	For running charge processes a stop button is shown. New charging processes cannot be started via RFID. On-site maintenance is necessary if this is persistent.
30	CabinetTemperature	Cabinet temperature exceeds its maximum operation temperature (despite derating).	Contact the manufacturer.
31	DCP_Temperature	Power stage temperature has exceeded its maximum temperature for operation (despite derating).	Contact the manufacturer.
32	MasterSlaveEvaluation	On Master-Slave-Mode of power stages. An error during validation of the power stages occurred.	On-site maintenance maybe necessary. Contact the manufacturer.
33	SwitchCommandError	On Master-Slave-Mode of power stages. A feedback error during power switching occurred.	On-site maintenance is necessary.
34	OvervoltageProtection	Grid overvoltage protection has an error.	On-site maintenance is necessary.
35	ControlVoltage	Error in control supply infeed.	On-site maintenance is necessary. Contact the manufacturer.
36	SupplyVoltage	Phase monitoring device signals supply voltage failure.	Local or general grid error. On- site maintenance may be necessary if this is persistent.
37	EStop_CabinetDoor	Cabinet door is open.	Close the cabinet door properly for operation.
38	CircuitBreakerTrafo	nA	
39	24VDC	Power stage control voltage supply error.	On-site maintenance is usually necessary.
40	ECC_CommError	Communication error to vehicle communication device.	On-site maintenance may be necessary if this is persistent.
41	ADCDMainsError	Infeed error to power stage. Between primary side of transformator and power stage.	On-site maintenance is necessary.
42	DCP_PrechargeErrorS1	Power stage precharge error on primary side (rectified grid side). Infeed-contactor, rectifier or precharge contactor malfunction.	On-site maintenance is necessary.
43	VoltageElimination	An Error in the voltage elimination circuit has occurred. Voltage could not be reduced below a safe limit in time. Either contactor or resistor might be defect. HIGH VOLTAGES MAY BE PRESENT AT PLUG! HANDLE WITH CARE!	On-site maintenance is necessary.
44	ECC4100Error	AC only: AC PWM device detected an error. Cause may be charging station or vehicle.	Check error codes in log if persistent. On-site maintenance might be necessary when this occurs with another vehicle.
45	ECC4100ModuleError	AC only: A module error for the AC	On-site maintenance is usually necessary. Contact

VendorId Reason Code Nr	VendorErrorCode / info Reason code Text R_ID_...	Cause	Troubleshooting
		PWM device has been detected.	the manufacturer.
46	RCDTripped	AC only: Residual current device tripped for AC-chargepoint.	On-site maintenance is necessary.
47	CHAdeMO_PlugUnlocked	CHAdeMO plug locked has been detected as not locked when it should have been locked. HANDLE WITH CARE! HIGH VOLTAGES MAY BE PRESENT AT PLUG!	On-site maintenance is necessary. Plug lock supply, contactor or detection circuit may have to be changed.
48	DefectInMeasurementChannel	A defect in a measurement channel of the plug voltage measurement has occurred. Either the plug voltage measurement device or the power stage is defect.	On-site maintenance is necessary.
49	CableCoolingFluidEmpty	Cable cooling fluid is empty.	On-site maintenance is necessary.
50	CableCoolingFluidOvertemperature	Cable cooling device signals overtemperature on flow or return flow channel.	On-site maintenance is necessary if persistent.
51	CableCoolingBreakerNotOk	The breaker for the cable cooling device has tripped or is not in an operational state.	On-site maintenance is necessary.
52	HW_BreakerTrafo	Circuit breaker for transformator has tripped or is not switched on.	On-site maintenance is necessary.
53	DCP1_Error	Power stage 1 has signaled an error.	Check error code in log. On-site maintenance might be necessary.
54	ChangeManagement	Parameter changes have been detected which have to be explicitly approved (and saved).	Either safe them or discard them via the HMI.
55	MasterSlaveSwitching	On Master-Slave-Mode of power stages. A switching error occured.	On-site maintenance is necessary. Contact the manufacturer.
56	ShutdownEVSECommand	Charging station has received the command to hard reset. Either via OCPP or by HMI.	For information.
57	PLC_HWError	A module error of the PLC occurred.	On-site maintenance is usually necessary. Contact the manufacturer.
58	ConfigError	A fault in the configuration has been detected. Usually occurs during or after a maintenance.	Reset changes or Contact the manufacturer.
59	Contactor1FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Outgoing positive chargepoint 1. (CCS/CHAdeMO)	On-site maintenance is necessary. Contact the manufacturer.
60	Contactor2FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Outgoing positiv2 chargepoint 2. (CCS/CHAdeMO)	On-site maintenance is necessary. Contact the manufacturer.
61	Contactor3FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Outgoing negative chargepoint 1. (CCS/CHAdeMO)	On-site maintenance is necessary. Contact the manufacturer.

VendorId Reason Code Nr	VendorErrorCode / info Reason code Text R_ID_...	Cause	Troubleshooting
62	Contactor4FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Outgoing negative chargepoint 2. (CCS/CHAdeMO)	On-site maintenance is necessary. Contact the manufacturer.
63	Contactor5FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Incoming chargepoint 1. (CCS/CHAdeMO)	On-site maintenance is necessary. Contact the manufacturer.
64	Contactor6FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Incoming chargepoint 2. (CCS/CHAdeMO)	On-site maintenance is necessary. Contact the manufacturer.
65	AuthorizationTimedOut	The OCPP authorization timeout has elapsed (connection timeout). The user did not authorize a certain time after connecting the vehicle or the user did not connect the vehicle a certain time after authorization.	Increase the connection timeout parameter via OCPP if users have consistently problems with the starting of a charge process.
66	CanceledByUser	nA	
67	DCP2_Error	Power stage 2 has signaled an error.	Check error code in log. On-site maintenance might be necessary.
68	CHAdeMO_PlugLockError	CHAdeMO only: Error trying to lock the plug. Either handling error by user or an error in the detection circuit occured.	On-site maintenance is necessary if this reoccurs with other vehicles.
69	StoppedByOperationSchedule	Charging was stopped by operating time schedule	Wait till the operating time is valid again (controlled by operator)
70	PaymentTerminalError	The installed payment terminal has an error.	On-site maintenance is necessary if this persists. Contact the manufacturer.
71	Contactor7FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Coupling powerstage 1 and powerstage 2 positiv.	On-site maintenance is necessary. Contact the manufacturer.
72	Contactor8FeedbackError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected. Coupling powerstage 1 and powerstage 2 negativ.	On-site maintenance is necessary. Contact the manufacturer.
73	IMD_SwitchingError	A contactor was found to be not operating correctly. The device is either defect or wrongly connected.IMD monitorting switch on chargepoint 2. (CCS/CHAdeMO)	On-site maintenance is necessary. Contact the manufacturer.
75	ERK_Error	There is an error, related to the ERK Metering.	On-site maintenance is necessary. Contact the manufacturer.
76	ERK_RestartNeeded	Comissioning only; may occur when a display is being replaced.	On-site maintenance is necessary. Contact the manufacturer.
74	ECC4200Error	CCS Communication module error	If this persists, contact the manufacturer.

VendorId Reason Code Nr	VendorErrorCode / info Reason code Text R_ID_...	Cause	Troubleshooting
78	CMCAN_CHAdeMOError	CHAdeMO CAN-Module error	On-site maintenance is usually necessary. Contact the manufacturer.
79	ECCConfigError	Configuration error.	Reset changes or Contact the manufacturer.
80	SimError	nA	nA
81	FrontOvertemperature	The temperature sensor in the front of the charger detected overtemperature.	Contact the manufacturer if here is no corresponding increased ambient temperature.
82	PowerstageInitError	A difference between the saved and the actual status of the powerstages was detected.	Contact the manufacturer.
83	MissingLicense	A necessary license is missing.	Enter the missing license.
84	Updating_DO_NOT_RESTART	An update is ongoing.	Charging is not possible. Do not power cycle the station.
85	SequenceError	An error in the charging sequence occured.	Contact the manufacturer if this is persistent.
86	FireAlarmSystem_NoClearance	A low signal was detected on the fire alarm system.	Contact the manufacturer if there is no actual fire alarm.
87	CabinetHeatingError	Cabinet heating error. may runaway detected.	On-site maintenance is necessary. Check heating system (Sensors and Actors). Contact the manufacturer.
88	MeterError	Communication error / Metering Device	On-site maintenance maybe necessary. Contact the manufacturer if this persists.
89	TiltSensor	Tilt sensor evaluation triggered shut-off.	On-site maintenance is necessary (at least visual inspection).

General explanations

4

This chapter is intended to provide space for functional explanations that cannot be clearly assigned to the other chapters.

4.1 Station-internal charging power distribution between the charging points

The value of the maximum feed-in power from the settings “Limits (S)“ (page 112) or from the “"Operator settings (S/O)” (page 45) serves as the basis for the available charging power.

This value can be further reduced by the following functions alone or in combination:

- External energy management system (EMS)
- SmartCharging (OCPP)
- EMS interface via control inputs

Furthermore, charging point-specific limits can be set alone or in combination:

- External energy management system (EMS)
- SmartCharging (OCPP)
- Temperature Derating

If the available total output changes, the value is ramped in an increasing direction (fixed 1MW / min) and processed in a stepwise manner in a descending direction.

The resulting total power is distributed to the active charging points as follows.

- If AC charging is active at the same time, 11kW is reserved for AC if at least 22kW is available. Below this, AC and DC are treated equally (50%).
- If DC is not charging, AC can charge indefinitely
- AC can be limited to 4.6kW depending on the asymmetrical limitation order option - power already allocated is redistributed.
- The maximum possible and available DC charging power is then calculated.
- If two DC charging points are active, they are initially divided fairly (50%/50%)
- If a DC charging point requires less power than has been allocated or is otherwise limited, the remaining power is distributed to the other DC charging point (if the power unit combination permits this).
- If unallocated power is still available, it will be allocated to the AC charging point.

4.1.1 Distribution of the available power with asymmetrical power levels (e.g. Unity90)

If both DC charging points are active, the available power is distributed evenly up to the lower nominal value of the power levels (50%/50%).

If the available power is greater than the smaller nominal power, the power exceeding this is allocated to the larger of the power stages.

Example Unity90:

Power stage 1 has a rated output of 60kW
Power stage 2 has a rated output of 30kW

Available power [kW]	Allocated power CP1 [kW]	Allocated power CP2 [kW]
20	10	10
46	23	23
60	30	30
65	35	30
90	60	30

If a DC charging point requires less power than has been allocated or is otherwise limited, the remaining power is distributed to the other DC charging point (provided the power section limits permit this).

4.2 Allocation behavior of the power units

The connection of power units to ongoing charging processes is prevented. (up to SW version 202201_8). From SW release 202300, reconnection is enabled (in blue).

Time	Available power [kW]	CP1 active	Allocated power CP1 [kW]	CP2 active	Allocated power CP2 [kW]
T_0	90	X	90		-
T_1	90	X	60	X	30
T_2	90	X	60/90		-
T_3	90		-		-
T_4	90	X	90		-
T_0	90		-	X	90
T_1	90	X	60	X	30
T_2	90		-	X	30/90
T_3	90		-		-
T_4	90		-	X	90

Service & Support

A

Contact address

Kostad Steuerungsbau GmbH

Parkallee 20

2483 Ebreichsdorf

Austria

office@kostad.at

Kostad Customer Support

If you have any technical questions or require further information, please contact the Kostad Customer Support Center.

Tel.: +43 (0) 2234 72402 - 0

E-Mail: support@kostad.at

Please have the following information ready when you call or note it in your e-mail:

- Type
- Serial number

This information can be found on the type plate.

Access2Unity access management

For access requests (certificate generation, adding chargers to existing access.

E-Mail: access2unity@kostad.at

Include the following data in your e-mail:

- Serial number(s)
- General contact information for initial access

The serial number can be found on the type plate. Please use the same e-mail address as for the initial registration.

Documents

B

This is a general and type-independent operating manual. The following type-dependent documents can be made available to you on request from the Kostad Customer Support Center (support@kostad.at).

Operating manual

CE Declaration of Conformity

All other additional documentation mentioned in this document

Notes