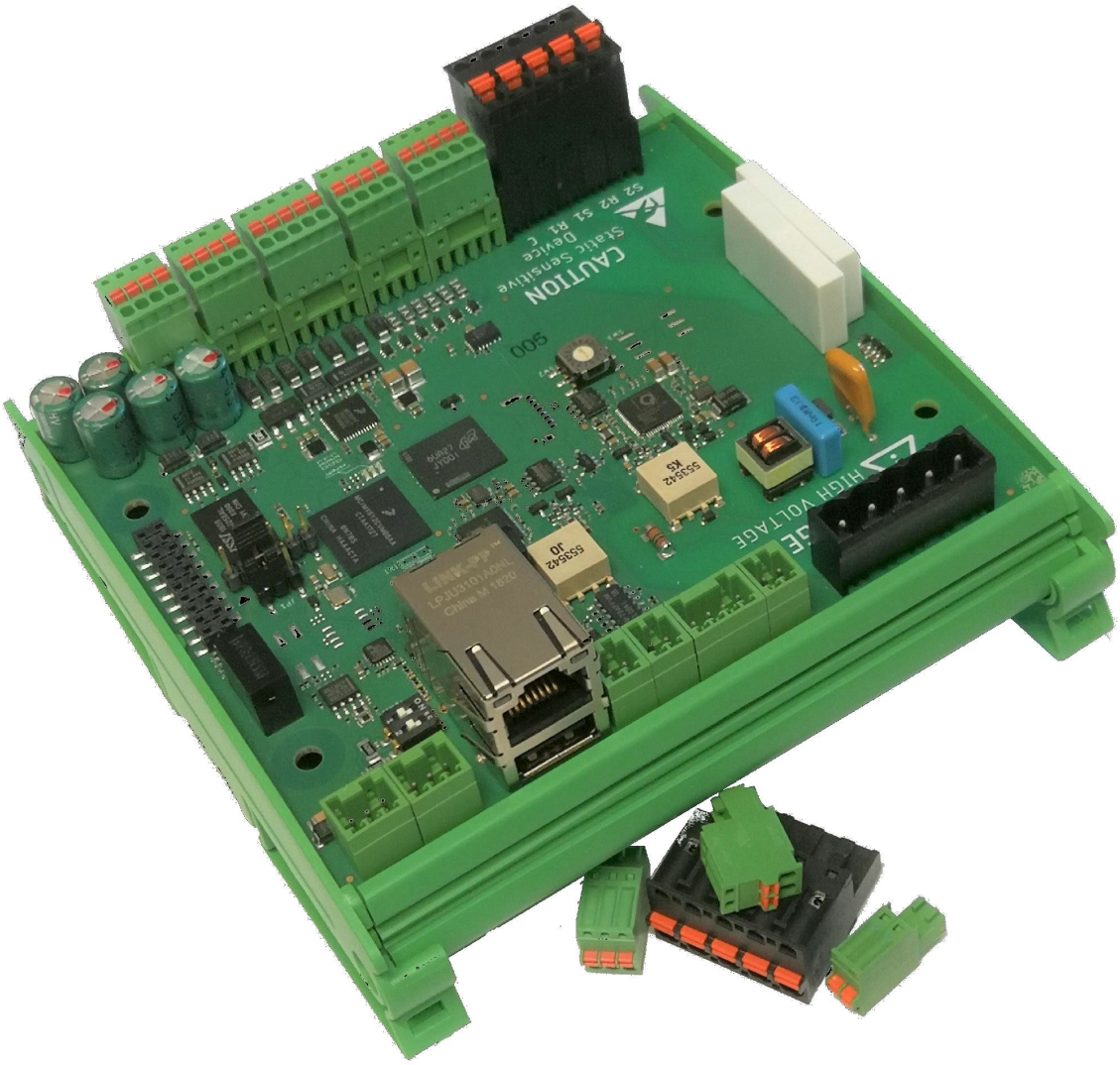
HARDY BARTH
emobilität

Configuration guide

Salia board



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Contact details

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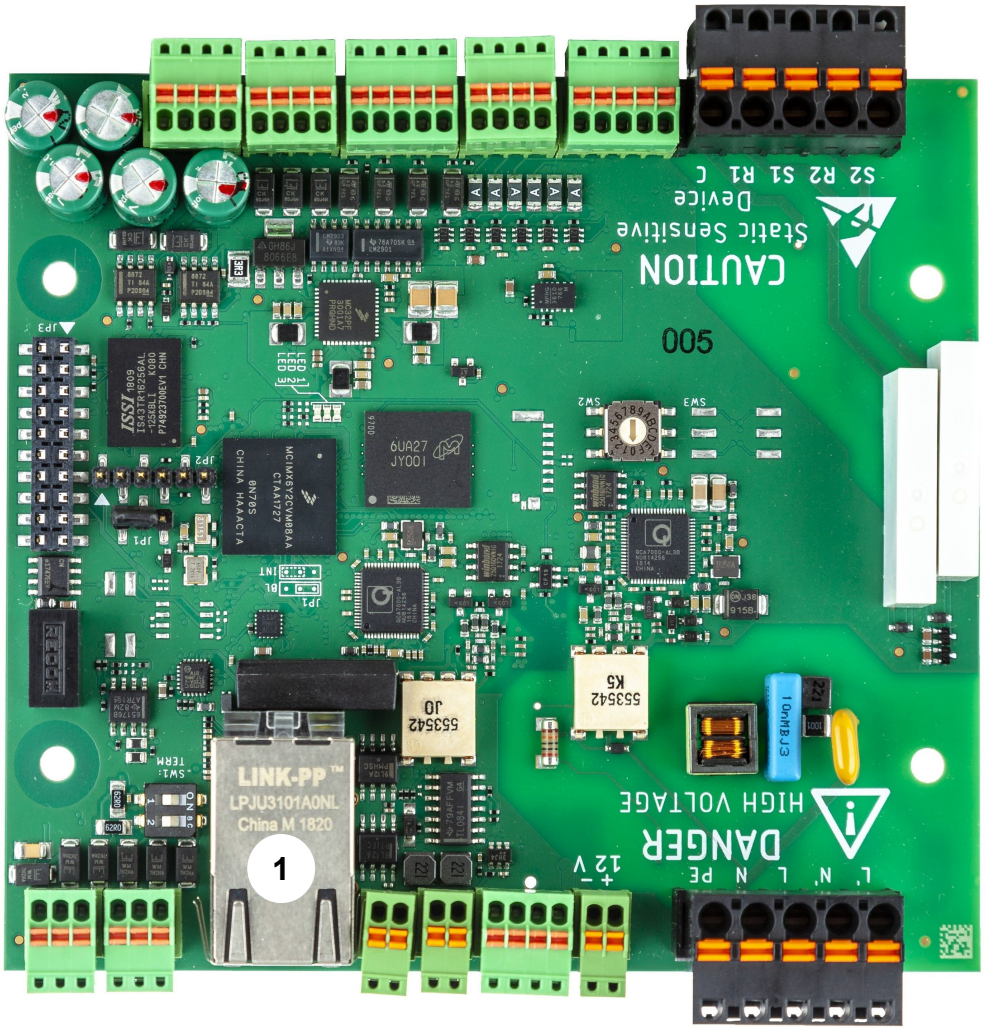
	Mail: **support@echarge.de**

SALIA board

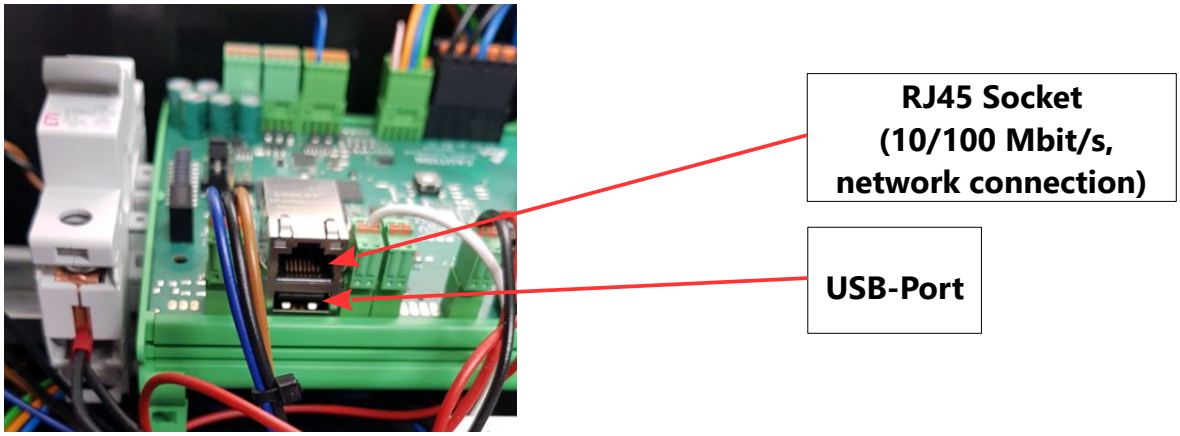
Explanation of the connections



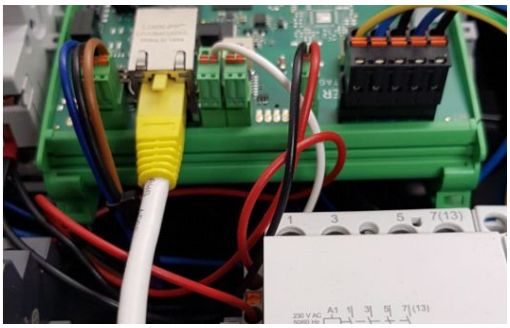
1	Network port and USB port
2	RS485 BUS terminals
3	CP-contact
4	230 V Power supply
5	Status LED lights (in operation left: flashing red, middle: off, right: green)

Technical connection of the Salia board

To configure the Salia board you need a CAT 7 network cable with RJ-45 connector.



1. Plug the network cable into the network port of the Salia board.
2. Plug the other end into the network port on your laptop.

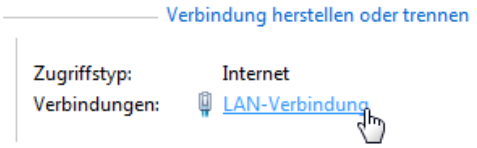


3. Open your web browser to access the web interface. To do this, enter the following IP address. For charging stations with one charging point, the IP address applies to charging point 1.

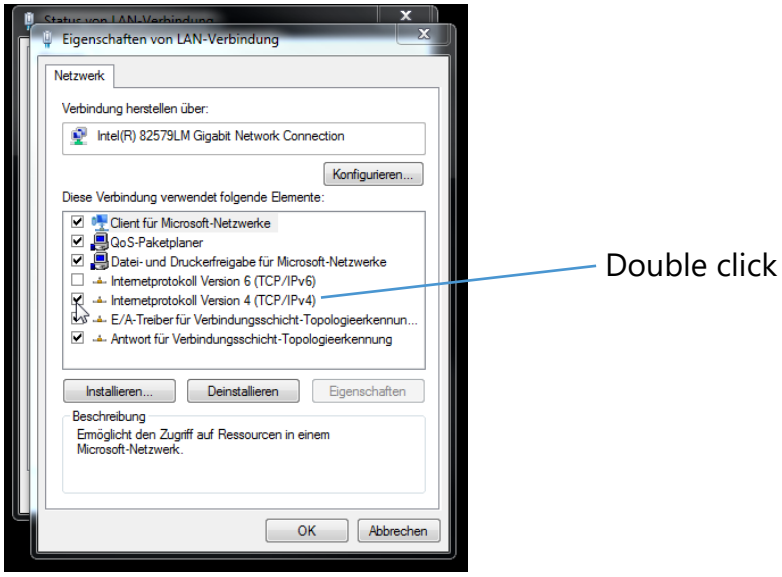
Charging point 1 (left):	**169.254.12.53**
Charging point 2 (right):	**169.254.12.54**
Charging point 3 (bottom left):	**169.254.12.55**
Charging point4 (bottom right):	**169.254.12.56**

If you encounter problems at step 3, proceed as follows:

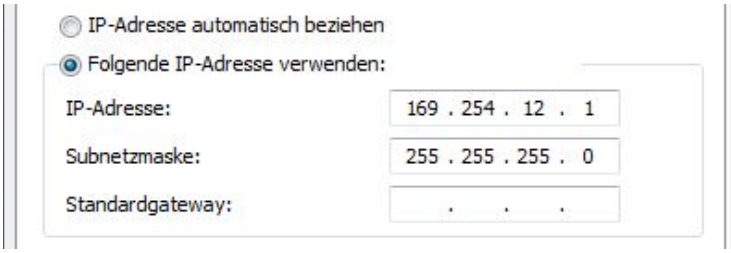
1. Open Control Panel on your PC and then "Network and Sharing Center".
2. Click LAN Connection or Ethernet.



3. in the newly opened window click Properties
4. In the new window, double-click on "Internet Protocol Version 4 (TCP/IPv4)" (see graphic). Alternatively, select "Internet Protocol Version 4 (TCP/IPv4)" in the open window and then click "Properties".



5. In the next window, select the "Use the following IP address" item to enter the IP address IP address: **169.254.12.1** and the subnet mask: **255.255.255.0** as shown in the picture below.



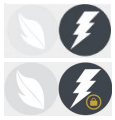
6. Confirm the entries. Then switch the charging station off once, wait a few seconds and let the charging station reboot.

SALIA User interface

Home

Overview user interface

Status bar

Charging mode:	
	Fast Charging active Manual Charging active (click again)
	ECO Mode active ECO^{PLUS} Mode active (click again)
Charge status:	
	Vehicle not charging / Vehicle charging
	Vehicle not connected / Vehicle connected
Charging activation:	
	„Free Charging“ active[1)]
	Charging activation via RFID-cards active[1)]
	Charging activation via OCPP active[1)]
	Charging activation via key switch active[1)]
Charging station components:	
	RFID module not detected / RFID module detected
	MID meter not detected / MID meter detected
Features:	
	Charging lock times: Charging possible / no charging possible / lock times deactivated
	1-phase charging active / 3-phase charging active

[1)] **Note:** Only one “charging activation” mode can be active at a time!

Performance diagram

The power diagram shows three power curves in watt. The prerequisite for this is that you install a compatible energy meter in your house connection, which communicates the measurement data with the charging station. In addition, your charging station requires an internal or external MID meter installed in the supply line.

Blue curve: Charging power with which the connected vehicle is charged.
Green curve: PV surplus that is fed into the grid.
Red curve: Power drawn from the grid connection.

EVSE status

The EVSE status provides information about the current charging cycle.

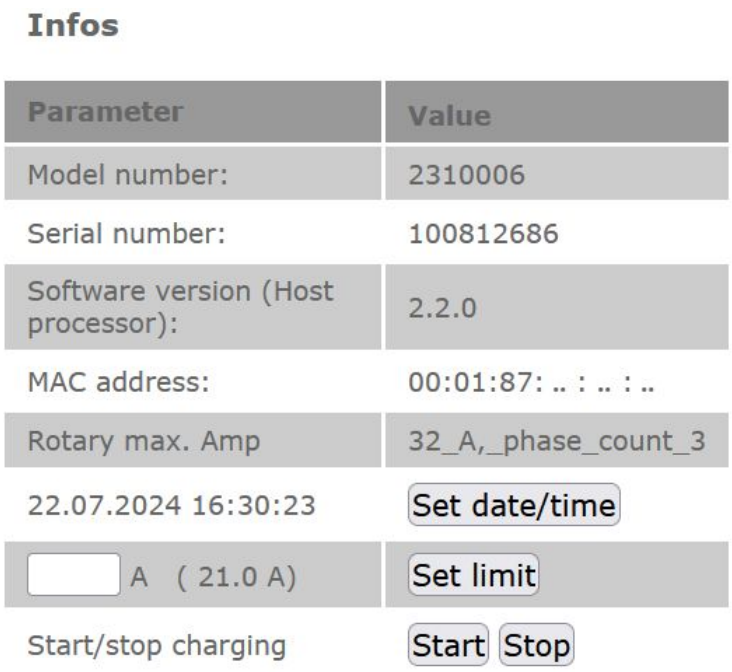
EVSE Status

Parameter	Value
Control Pilot State	C
Control Pilot Duty Cycle	35.00% (21 A)
Cable Current Limit	No cable detected.
EV current	16.0/16.1/16.2 A
Total meter reading	12994.325 kWh
Charging time	20 min.
Charging power	10992 W
Charging energy	3.61 kWh
Charging uid	

Control Pilot State (Charging status)	**A** = Standby **B** = Vehicle detected (Vehicle was detected, no charging process) **C** = Ready (charging is taking place) **D** = With ventilation (Charging process with ventilation is active) **E** = No power **F** = Error (Error state)
Control Pilot Duty Cycle (Default charging power)	Percentage of PWM = maximum ampere value that can be transferred to the load e.g 25 % PWM = 16 A und 50% PWM = 32 A Charging current
Cable Current Limit	Maximum permissible charging power of the connected charging cable (for charging socket)
EV current	Current per phase
Total meter reading	Total measured energy consumption at the charging point
Charging time	Duration of the current charging process
Charging power	Energy already charged during the current charging session
Charging energy	Already charged amount of the current charging process
Charging UID	UID of the RFID card used for charging activation (displayed only if "RFID" charging activation is active)

Infos

The “Infos” section provides information about the installed charge controller. You can also start/stop charging as desired.



Model number:	Specification of the model number of the charge controller (SECC)
Serial number:	Specification of the serial number of the charge controller (SECC)
Software version (Host processor):	Indication of the installed firmware version on the charge controller (SECC).
MAC address:	Specification of the MAC address of the charge controller (SECC)
<Date> <Time>	Specification of the date/time on the board. Updated by clicking on "Set date/time" via NTP.
__ A (32 A)	Set manual charging current. Activate with Manual Charging (p.12)
start/stop charging	Start / stop current charging process

Charging process

Fast Charging

In "Fast Charging" mode, the current drawn is controlled by the connected vehicle. The limitation is primarily determined by the grid connection, the maximum charging capacity of the vehicle, and the charging station. Typical power ratings are 11 kW (16 A, 3-phase) or 22 kW (32 A, 3-phase). As the battery level increases, the vehicle's charging power often decreases.

Manual Charging

By clicking on the lightning bolt icon again, the "Manual Charging" mode is activated. In this mode, the charging station charges with the current that can be set under "Info" (p.11), provided that the current is not further limited by the vehicle or the grid connection.

ECO Mode & ECO^{PLUS} Mode

In "ECO Mode," the charging power is dynamically regulated based on the available PV surplus. Since the PV surplus can fluctuate significantly due to weather and other consumers, there is no constant power value. Charging electric vehicles requires a short response time to react to changes. Therefore, during short-term power drops, power is drawn from the battery storage or grid connection to maintain the charging power.

Under Configuration > Mains "options," an "ECO reference" value can be set in watts. This determines how much power should be drawn from or fed into the grid connection during charging. If a value of 0 watts is set, in an ideal scenario, the charging station would use the entire PV surplus to charge the vehicle without drawing from or feeding into the grid connection. If you do not want to draw power from the grid connection, you should set a higher ECO reference value (e.g., 250 watts), so the charging station does not immediately resort to the battery storage or power connection when there are small PV surplus fluctuations. Conversely, if you want to ensure that the entire PV surplus is used for charging and not fed into the grid, you should set a negative value (e.g., -250 watts).

Please note that the charging process is always limited by a minimum and maximum charging current. For most electric vehicles, the minimum current is 6 A. Depending on the number of phases used, this results in a minimum charging power of approximately 1.4 kW (1-phase), 2.8 kW (2-phase), or 4.1 kW (3-phase). Please consult your vehicle manufacturer for the minimum charging current specifications.

If the minimum current is undershot, the charging station must rely on the battery storage or grid connection to maintain the charging process.

In ECO^{PLUS} mode, the charging station pauses the charging process instead and only resumes when sufficient surplus is available for a few seconds. This mode can be activated by clicking on the leaf icon again.

Phase Switching

With the "Phase Switching" feature, vehicles can be charged either in single-phase or three-phase mode as needed, in order to better utilize the PV surplus and reduce the need for battery storage or grid connection. For regular vehicles, the minimum required charging power in single-phase operation is reduced to 1.4 kW instead of the standard 4.1 kW (three-phase). This allows charging with pure PV surplus even in smaller systems or under unfavorable weather conditions.

Warning!
In some cases, internal vehicle settings are required before phase switching can be used. Not all vehicles are capable of implementing this feature. In certain circumstances, it could cause damage to the vehicle if it is not suitable for phase switching. Therefore, be sure to consult your vehicle dealer or manufacturer to determine if your vehicle can use this feature. As different vehicles behave differently, the charging station cannot guarantee error-free operation of the function. Use is therefore at your own risk! XYZ GmbH is not liable for any damage that may occur to the vehicle due to the use of phase switching.

In our tests and research, we found that the following vehicles might experience complications, possibly requiring internal vehicle settings to reliably use the feature:

- Kia e-Soul
- Renault ZOE / Twingo
- Mitsubishi i-MiEV
- Citroën C-Zero
- Peugeot iOn
- Opel Corsa-e
- VW ID.3 / ID.4

Using Phase Switching

Charging stations equipped with this feature have a "P" at the end of their article number, which is noted on the type plate (e.g., 3M524000P). For our charging stations without an internal power meter (cPµ2), an external meter must be connected to use phase switching. This power meter is included in the delivery.

Phase Switching in Fast Charging (p.12)

In "Fast Charging" mode, you can **MANUALLY** switch between single-phase and three-phase charging by clicking on the icon (S.7). The maximum charging power is often limited by the current (e.g., 16 A). In this case, the charging power would be reduced from 11 kW (three-phase) to 3.7 kW (single-phase).

Phase Switching in ECO Mode (p.12)

When phase switching is activated in "ECO Mode," the charging station **AUTOMATICLLY** determines how the vehicle is charged based on the available PV surplus.

For regular vehicles, the minimum current for AC charging is 6 amps. This results in a minimum charging power of 4.1 kW (three-phase). If the PV surplus is less than 4.1 kW, the additional required energy must be supplied from another source, such as grid connection or battery storage. With phase switching, regular vehicles can be charged with a surplus as low as 1.4 kW (single-phase, 6 A) without additional grid power.

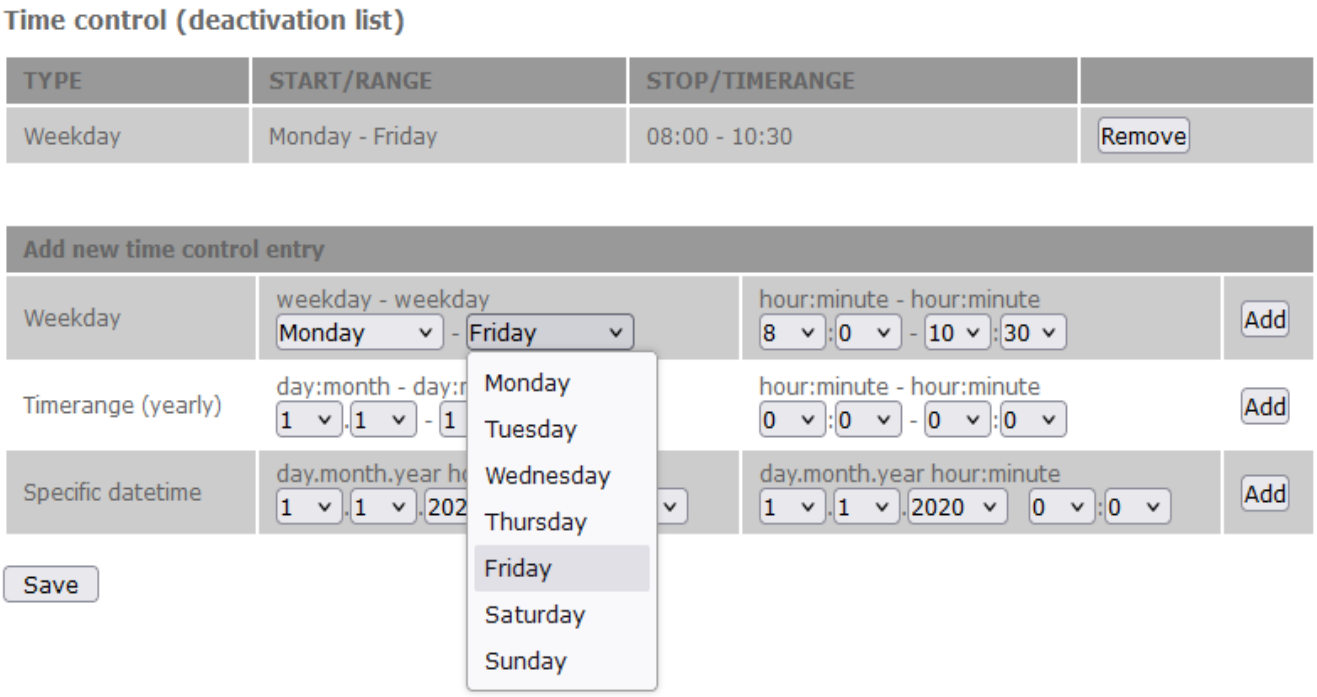
When switching between single-phase and three-phase operation, the vehicle is placed in status E (p.9), and charging is paused for a short moment. To prevent excessive switching, which could lead to increased wear on the charging station and vehicle, the charging station allows switching only once per minute (adaptive).

Note:
Phase switching is not optimized for operation with external load management systems. When using systems like Smart1 or a Fenecon system, phase switching may not always work reliably.

Ladesperrzeiten

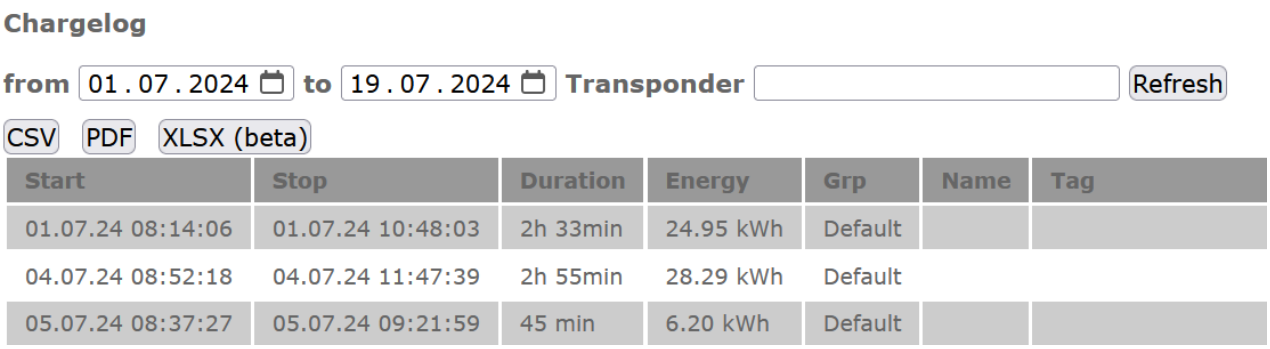
The "Charging Lock Times" feature allows you to lock a charging point for specific time intervals. During these lock times, charging is not possible.

You can access this feature through the status bar (p.8). Simply press the icon, and a new tab will open automatically, where you can configure your lock times. It's possible to lock charging points for specific times on weekdays or specific dates. To set this up, specify the start and end times of the lock period, add the lock time by clicking "Add," and save the settings with "Save." If a lock time is no longer needed, it can be removed by clicking "Remove" and then "Save."



Chargelog

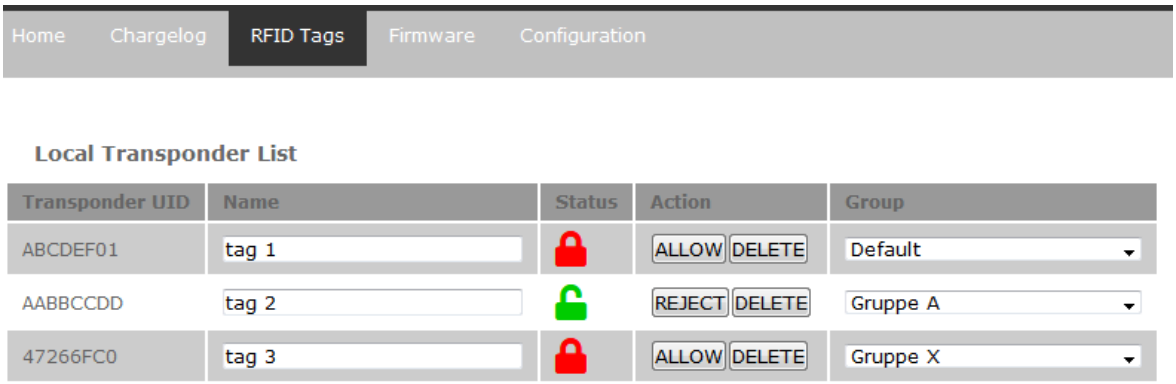
All charging processes that have taken place are stored in the charge log and can be displayed and filtered for a specific period of time.



Start	Start time of the charging process
Stop	End time of the charging process
Duration	Charging time = period from plugging in to unplugging the vehicle
Energy	Amount of energy charged in kWh during the charging process
Name	*If RFID authorization is active:* Name of the RFID card used to authorize the charging process (p.18)
Tag	*If RFID enable is active:* UID of the RFID card with which the load was enabled (p.18)
CSV / PDF	Export the charging log as a CSV, PDF, or XLSX file
From … to …	Display charging entries within a specific time period
Transponder …	Display charging entries within a specific time period, filtered by a specific UID

RFID Tags

Under the RFID tags tab, the taught-in RFID cards are displayed. In addition, certain rights can be assigned to or revoked from the cards and they can be divided into groups. New RFID cards can be taught-in in this tab.



Transponder UID	Specification of UID tags with UID number
Name	Naming of the RFID card
Status	Visibility whether the RFID card is deactivated or activated
Action	Possibilities to delete, activate or deactivate the cards
Group	Possibility to assign the RFID cards to a group.

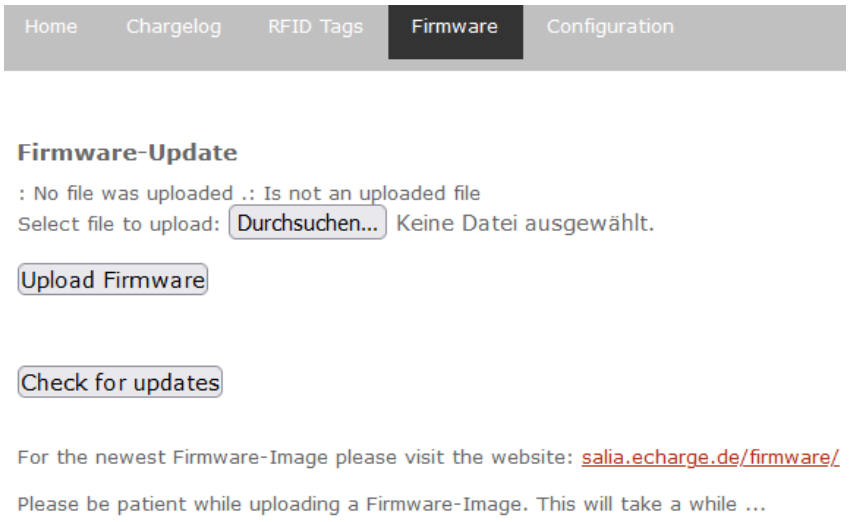
Adding new RFID cards

Open the RFID Tags tab on the Salia interface. Then hold the RFID card you wish to program in front of the RFID module. The module will blink red briefly. The new RFID card will now automatically be added to the list of existing RFID cards. Select "Allow" if the card should be authorized to unlock the charging process. Select "Reject" to remove the ability to unlock the charging process from existing RFID cards. Select "Delete" to remove entries from the list.

For charging stations with multiple charging points, RFID tags must be added individually for each charging point. To do this, connect a vehicle to the charging station. The RFID tag or card can now be added at the connected charging point.

Firmware

Under the "Firmware" tab, you can update the Charge Controller to the latest firmware version. There are 2 ways to do this.



Variant 1: Install firmware update via the Internet

1. Check your current firmware version under the "Home" tab → Infos (p.11).
2. Select the "Firmware" tab and follow the link

   → http://salia.echarge.de/firmware/
3. If your current firmware is version 1.50 or higher, download the latest update and save it in a folder of your choice. If your firmware version is lower than 1.50, you will need to first update to version 1.50.
4. Ensure that the date and time zone are current (Global options > "Timezone" p.21 and Network options > "NTP" p.23). Outdated time zones and dates can cause an update failure.
5. Use the "Browse" function to select the downloaded file and upload it to the web interface. If necessary, upload version 1.50 first. This process can take up to 10 minutes.
6. The installation and overwriting process may take some time. **Do not** disconnect the charging station from the power supply or turn it off during the update process.
7. Once the update is complete, press Ctrl+F5 to fully reload the page and ensure that all changes are applied in the browser.

Variant 2: Install firmware update via USB stick

1. Check your current firmware version under the "Home" tab → Infos (p.11).
2. Download the latest firmware update from the following link. If your current firmware version is lower than 1.50, you must first update to version 1.50 and then to the latest version.

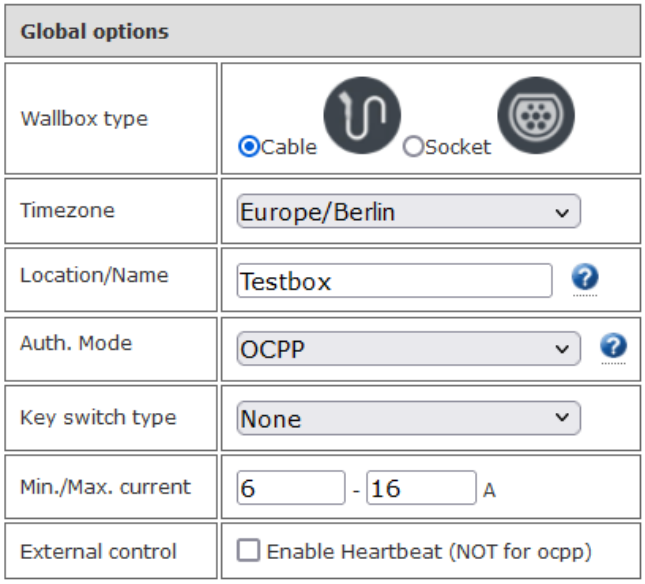
   → http://salia.echarge.de/firmware/
3. Save the file onto a USB stick. Please ensure that there are no other documents of the same file format on the USB stick. We recommend using an empty USB stick for this process.
4. Important: Ensure that the date and time zone are current (Global options > "Timezone" p.21 and Network options > "NTP" p.23). Outdated time zones and dates can cause an update failure.
5. Carefully insert the USB stick into the USB port on the Salia board. Use an extension cable if necessary. The middle LED will light up yellow continuously, and the update will run automatically. **Do not** disconnect the charging station from the power supply during the update. The process may take about 5-10 minutes.
6. After the update is complete, the charging station will restart, and the yellow LED will turn off.

Configuration

In the "Configuration" tab, you can make settings for the operation of the charging station.

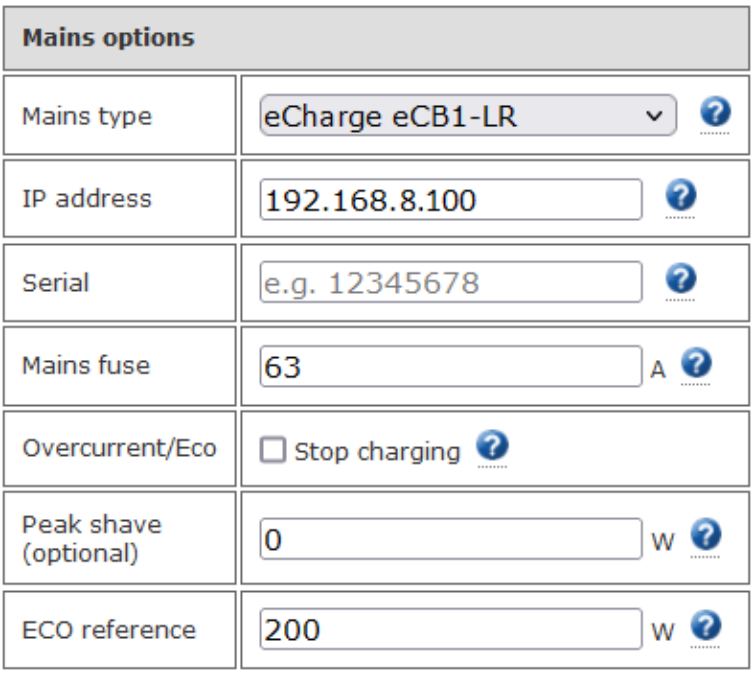
Attention! Incorrect settings in the “Configuration” tab can impair the function of the charging station and lead to malfunctions.

Global Options



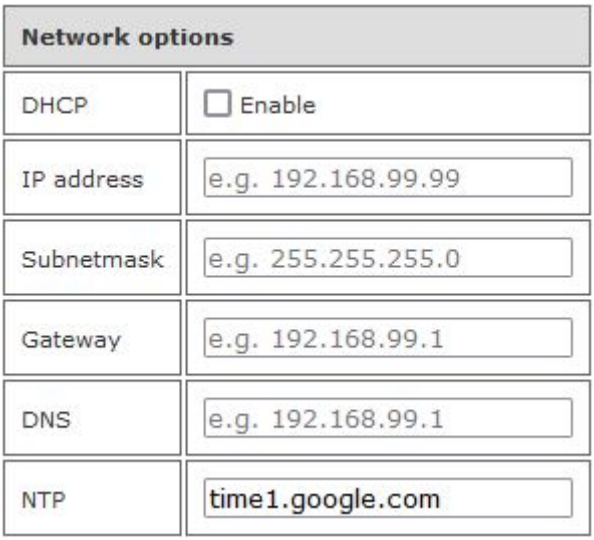
Wallbox Type	Indicates whether the charging station is equipped with a fixed cable or a socket
Timezone	Time zone
Location/Name	Name of the charging station *(customizable)*
Auth. Mode	Setting how charge release should be done (Free Charging, RFID, OCPP or key switch).
Key switch type	Setting for the physically installed key switch
Min./Max. Current	Indicates the adjustment range of the charging station (Minimum/Maximum charging current in amps) **Note:** The minimum charging current must not be less than 6A (legal requirement)
External control	Activate control of the charging station via an external controller

Mains options



Mains type	Select the measuring device at the feed point or house connection.
IP adress	Enter IP address of the device at the feed point
Serial	Enter the serial number of the device at the feed point
Mains fuse	Maximum permissible current of the back-up fuse at the feed point
Overcurrent/ Eco	**Enabled:** The charging station stops charging if the current or power limit set for the house connection is exceeded (**blackout protection**). If during ECO mode, power is drawn from the grid connection for 10 seconds to meet the minimum charging current, the charging process pauses and resumes as soon as there is sufficient PV surplus for 10 seconds. **Disabled**: The charging station reduces the charging current to the set minimum, typically 6A, if the current or power limit is exceeded.
Peak shave	Power limit at the feed-in point
ECO reference	Reference value ECO Mode

Network options



DHCP	If enabled: Automatic assignment of an IP address via DHCP
IP adress	Assignment of a static IP address *(only if DHCP is deactivated)*
Subnetzmask	Specification of the corresponding subnet mask *(only if DHCP is deactivated)*
Gateway	Specification of the corresponding gateway *(only if DHCP is deactivated)*
DNS	Specification of the corresponding DNS server *(only if DHCP is deactivated)*
NTP	Specification of an NTP time server

Special case: Changing the IP address / DHCP

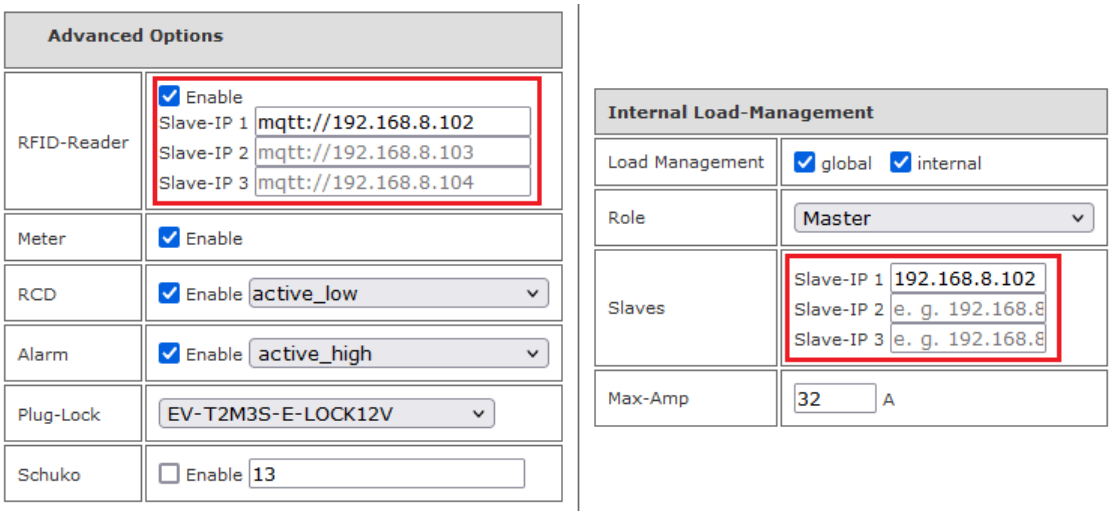
In the case that you have a charging station with two or more charging points, you must follow the steps below when changing the factory-set IP address:

To offer you the greatest flexibility in the configuration of the charging station, each charging point has its own Salia board, which has its own completely independent setting options. A charging station with multiple charging ports therefore always has one master and one to three slave boards.

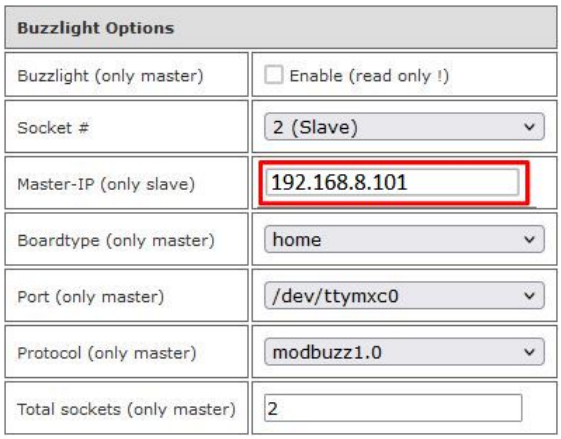
The master board communicates with the slave boards via Ethernet. For this reason, the IP addresses of the slave and master board must **always** be stored. If the IP address is changed, e.g. by activating DHCP or manually entering a new IP address, the IP addresses must be adjusted subsequently.
To change the necessary data of the master board, you have to open the advanced settings. To do this, click on the gearwheel in front of "System configuration" under the Configuration tab.

Adjust the IP address in the "Internal Load Management" area accordingly in the "Slave IP 1" input field.
If you are using an RFID module, also enter the IP address of the slave in the "Advanced Options" area under RFID reader. For a charging station with several slave boards, all IP addresses must be entered accordingly. The "global" and "internal" checkboxes under Load Management must be activated. Save the settings by clicking "Save and reboot". **Other settings must not be changed**!

Important: These settings are to be made only on the **master board**.

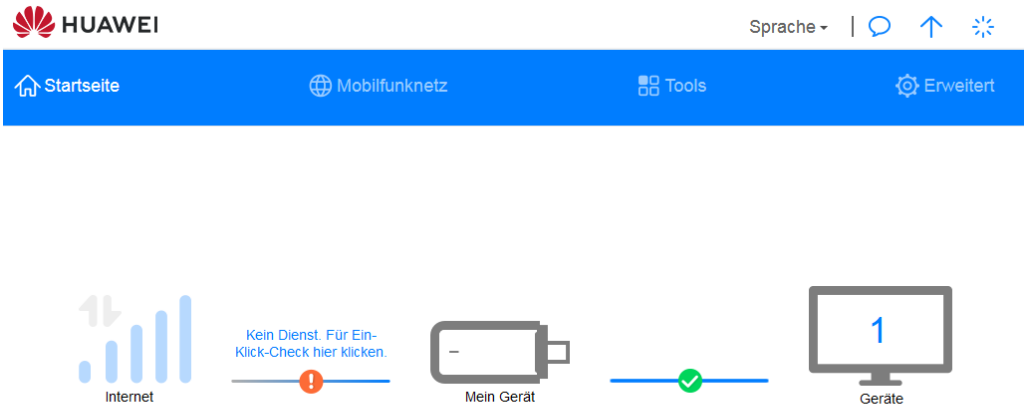


Proceed as follows to adjust the slave boards: Open the interface of the respective slave, click on the gearwheel in front of "System configuration" under the Configuration tab and then on the gearwheel in front of "Advanced Options".
Now enter the master IP address.

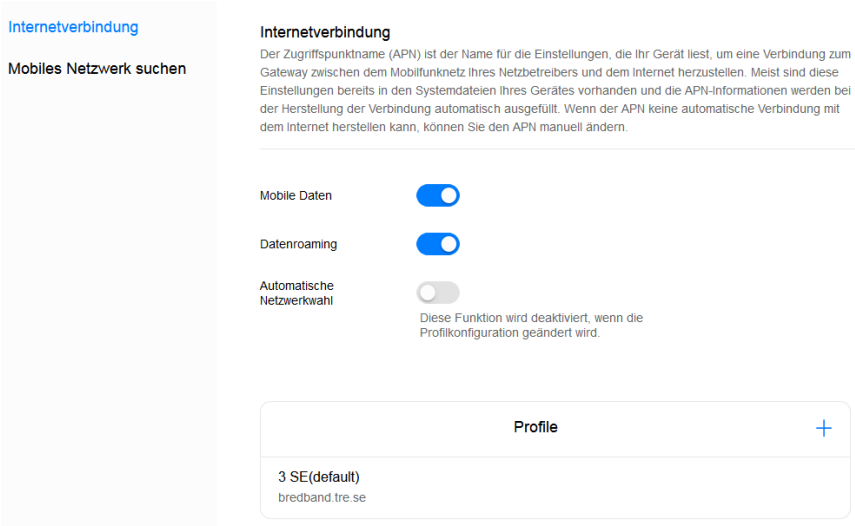


OCPP

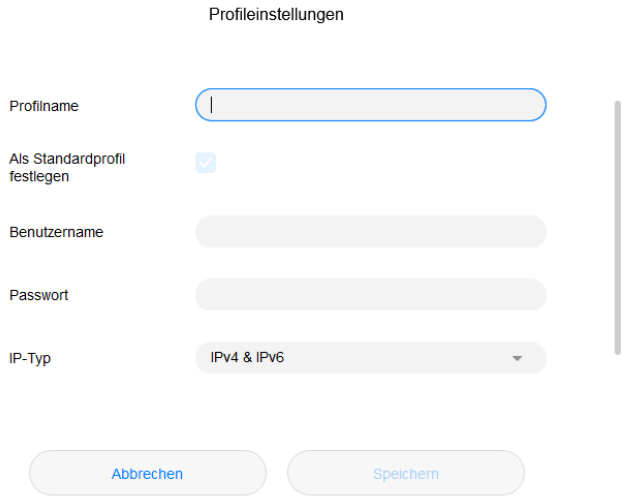
To connect the charging station to a backend via OCPP, the supplied Huawei LTE surfstick must first be configured. To do this, insert the SIM card into the Huawei surfstick (see p.4). You can obtain the SIM card either from your back-end operator or alternatively from a telephone service provider of your choice.
Now connect the LTE surfstick to your PC. As soon as the surfstick is connected to the PC, it starts to flash green. The login page of the surfstick will now open automatically in a browser window.
If this is not the case, try to access the surfstick via the IP address 192.168.8.1. For the access you need the **device password "echarge1"**.



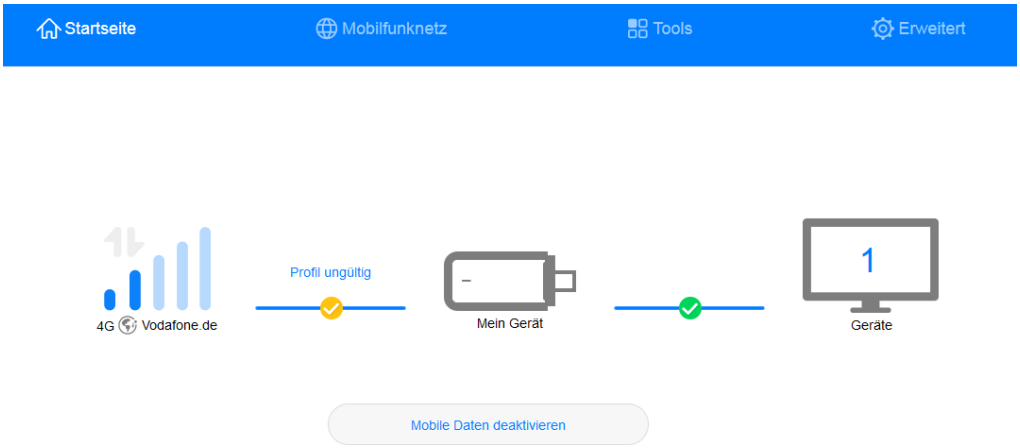
Homepage Huawei Surfstick



Now click on "Mobile network" and then on the "+" symbol next to "Profiles" to create a new profile.



Enter "Charge Control" as the profile name. You can obtain the information for "Username", "Password" and "APN" from your SIM card provider. The LTE surfstick should now have established a connection.



Now remove the LTE surfstick and return to the Salia's user interface.

OCPP options	
OCPP	☐ Enable
URI/CPID	ws://
Verify CERT	☐ Enable
APN Name	e.g. egv2.a1.net
APN User	ppp@A1plus.at
APN Pass	PPP

OCPP	Activate if OCPP is used
URI/CPID	Specification of URI and chargepoint ID *(to be requested from backend operator)*
Verify CERT	
APN Name	*Leave field blank, since information has already been entered for surf stick*
APN User	*Leave field blank, since information has already been entered for surf stick*
APN Pass	*Leave field blank, since information has already been entered for surf stick*

Set Password

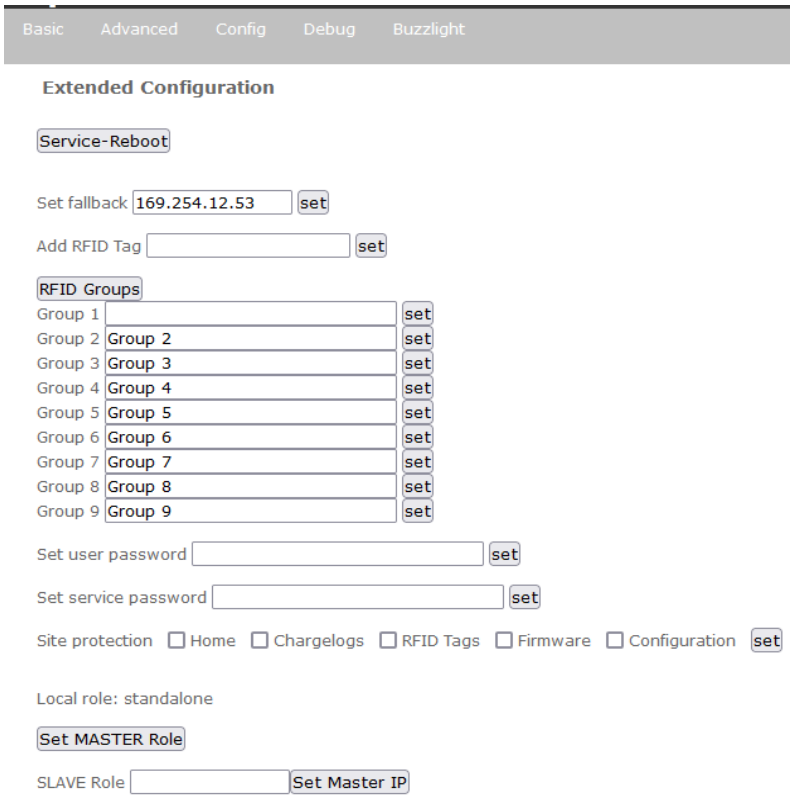
Note: For legally compliant use, it is mandatory to set a unique and secure password for the control interfaces of the charging controllers to protect against tampering attempts. Please follow these steps:

Access the controllers via the following IP addresses: **192.168.8.101** (Master board)
192.168.8.102 (Slave board)
192.168.8.103 (Master board)
192.168.8.104 (Slave board)

Then go to the service menu: **192.168.8.101/service**
192.168.8.102/service
...

You will then be prompted to log in.

The username is: **service**
The default password is: **matudipesa**



Please proceed in this order:

1. Create a **secure** user and service password.
2. Confirm both passwords with "set."
3. Check all registers (Home, Chargelogs, RFID Tags, Firmware, Configuration) and confirm by clicking "set."
4. Now click on "Service Reboot."
5. The web interface will then restart, and your password will be set.
6. If you are still not prompted for a password despite enabling it, you may need to clear your browser's cookies.

CAUTION: WRITE DOWN YOUR PASSWORDS!!