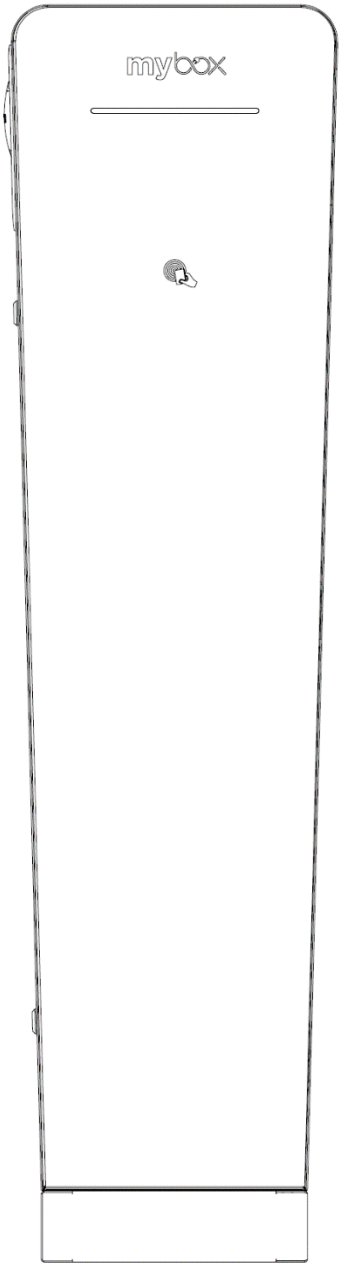
CHARGING STATIONS



MyBox Post

Users guide | Installation manual

Content

IMPORTANT:

Read the manual carefully before use and keep it for future reference.

Introduction

This product is designed exclusively for charging electric vehicles. The product must only be used with a charging cable according to IEC 62196.

The product must be firmly mounted on the wall according to the instructions in the installation section of the manual. The structure for placing the product must have sufficient load-bearing capacity. Alternatively, the MyBox stand designed for the PROFI station can be used for mounting. The product may only be operated with the approved operating parameters and under the specified environmental conditions.

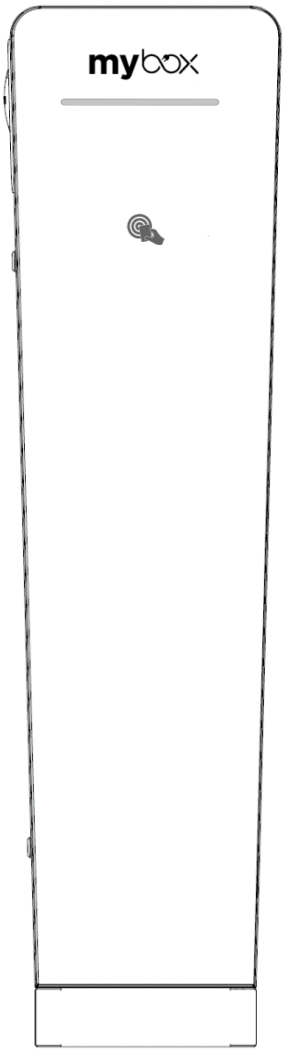
Usage other than that specified here is not permitted.

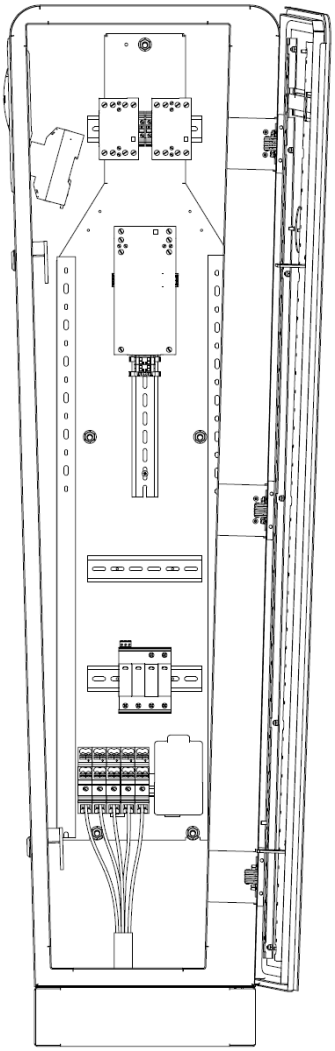
Used symbols:

ELECTRICAL RISK
When carrying out electrical installation inside the equipment, take appropriate precautions. During installation, the equipment must be disconnected from all power sources.

ATTENTION
It signals that property damage can occur if adequate precautions are not taken.

Product overview





Front panel - door

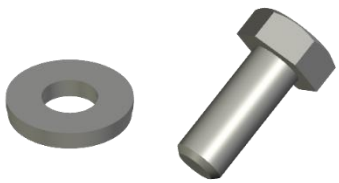
Provides signalling, identification and also protection of the electrical part of the equipment against environmental influences.

Body + base

For mounting on a solid base and connection to the mains. Includes all electronic components needed for vehicle charging.

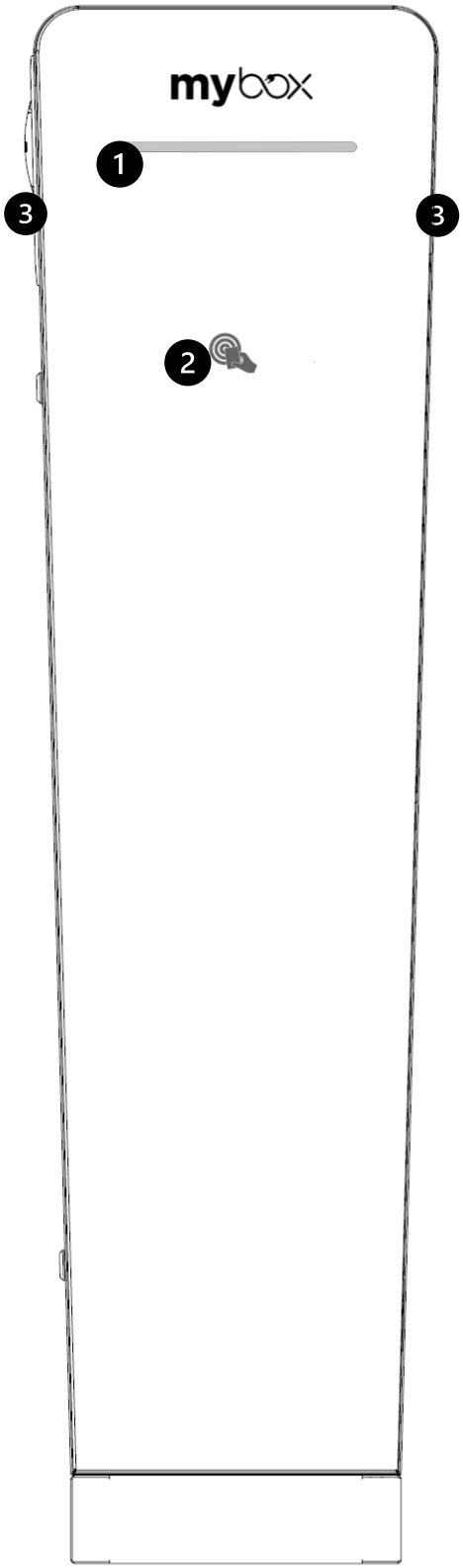
Installation kit

Screw M8x20	4 ks
Insulation pad	4 ks



Screw washer (left), Screw M8x25 (right)

Functions



1. Smart **LED signalling**: a light bar informs about the status of the charging station during the charging process and also in service mode for installation purposes. For more information on the colour signaling, see "Light signaling" on page 17.

2. Area RFID: The charging station can be equipped with an RFID reader, which allows the identification of users and the secure start or end of the charging process using an RFID tag (card, chip, key fob, etc.). For more information, please visit our website at www.mybox.eco/support.

3. Type 2 sockets or integrated charging cables: Type 2 sockets or universal charging cables allow you to charge any type of electric vehicle equipped with a Type 2 (Mennekes) input socket. The sockets or charging cables are tightly integrated into the charging station.

Technical specification

	Model	Post 2x 22 kW
	Coverage	IP54 (unplugged) IP44 (plugged)
	Impact rezistance	IK10 (whole station)
	Surface material	tempered glass, painted or stainless steel
	Status indication	RGB LED color indicator
	Operating temperature	-30°C to +50°C
	Dimensions (W x H x D)	370 x 1420 x 200 mm
	Weight	52 kg
	Communication	Ethernet (TCP-IP), Micro-USB Typ C
	Protocol	OCPP 1.6J, Modbus/TCP, MQTT
	RFID reader	ISO-14443 A&B, NFC, Mifare, Legic, Frequency: 125 kHz, 134.2 kHz, 13.56 MHz
	Electricity meter	MID class 1 – EN50470-1, EN50470-3
	Power control	mode 3 PWM according to ISO/EIC 61851-1
	Multi-station connection	Master/slave connection (up to 12 charging points) including dynamic charging power control
	Combination circuit breaker/ current protector	Protector with overcurrent protection char. B 32 2x Type A, (30 mA), 2x sensor RCM 6 mA DC leakage detector - equivalent to type B surge protector
	AC power supply	3P + N + PE
	AC voltage	400 V (±10%)
	Maximum input current	3x 64 A
	Maximum input power	44 kW
	Number of connectors	2
	Number of simultaneous charges	2
A	Maximum output current	32 A
	Maximum output power	22 kW
	AC output voltage	400 V (3P + N + PE)
B	Maximum output current	32 A
	Maximum output power	22 kW
	AC output voltage	400 V (3P + N + PE)
	Connector	Typ 2 - zásuvka nebo integrovaný kabel
	Protection of socket Type 2	zámek konektoru
	Surge category	III

A B

Important safety instrucions

Before use, carefully read all instructions to ensure proper installation of the charging station.

This charging station is designed for indoor and outdoor installation. The device must be installed safely. Adequate protection must be provided during the installation process, in accordance with all installation conditions.

- The charging station must not be installed in places with explosion hazard.
- Do not handle or repair the unit when the unit is energized.
- Do not install the charging station where it could be damaged by falling objects.
- Only trained and qualified personnel should handle low-voltage electrical components inside the unit.
- The surface on which the charging station is placed must be able to withstand mechanical forces.
- The installation must be inspected annually by a qualified technician.
- Remove from service and have serviced any defective part that poses a danger to the user (broken plugs, caps that cannot be closed...).
- Only use the unit for charging electric vehicles according to IEC 61851.
- In case of unauthorized modification of the control unit, ELEXIM, a.s. will not be liable for the charging station and the warranty will be void.
- Only use spare parts supplied by ELEXIM, a.s. for service.
- Strictly observe the electrical safety regulations applicable in your country.
- Do not use this product if the EV cover or connector is broken, cracked, open or shows any other sign of damage.
- The equipment must be disconnected from any power source during commissioning.
- The charging station may only be connected by a person qualified in electrical engineering in accordance with Decree No. 194/2022 and following, who is thoroughly familiar with these instructions and the function of the device.
- After wiring, the internal part of the device is an area that is accessible only to maintenance/ service or to a person qualified in electrical engineering according to Decree No. 194/2022 Coll. and following.
- The device is intended for permanent connection.

Preparation for installation

Place of installation

The station must be mounted in a solid, level substrate (concrete) where minimum distances from obstacles must be observed, see picture below.

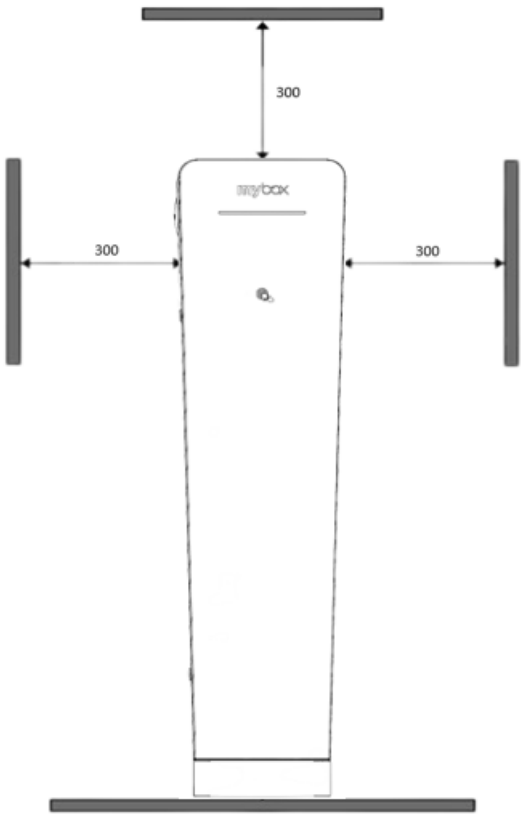
Select a suitable location for mounting the charging station that meets the specified requirements.

For standard mounting of the charging station, use screws and dowels or threaded rods (in case of non-standard mounting, appropriate mounting material must be used).

Minimum distances from obstacles

Space must be available for the installation of the equipment to facilitate use, maintenance and compliance with safety regulations. When installing the equipment, observe the specified minimum distances for maintenance and safety.

All dimensions in the drawings are given in millimetres.



Switchboard equipment

Circuit breaker	3-pole, characteristic B, 80 A
Supply cable	CYKY 5x 16-25 mm2 The cable supply to the station can be fed from the rear or from the bottom
Datové připojení Datový kabel	CYKY UTP data cable category 5 (max. 100 m) Do not terminate the cable with a connector. It must extend at least 1.5 m at the point of installation

Tools and aids

Drill	drill 12 mm
Crimping pliers	RJ45
Socket wrench	17 mm
Socket wrench	13 mm

Consumables	**(not included)**
Dowel pins	4pcs, 10 mm
Screws	4pcs, 6x60 mm

Consumables	**(not included)**
Insulating pads	4ks
Screw M8x20	4 ks

Installation guide

ATTENTION! This product may only be installed, repaired or serviced by an authorized electrician. All relevant local, regional and national regulations for electrical installations must be observed andrespected.

WARNING! Turn off the power before starting the installation. Use extreme caution and follow the instructions carefully.

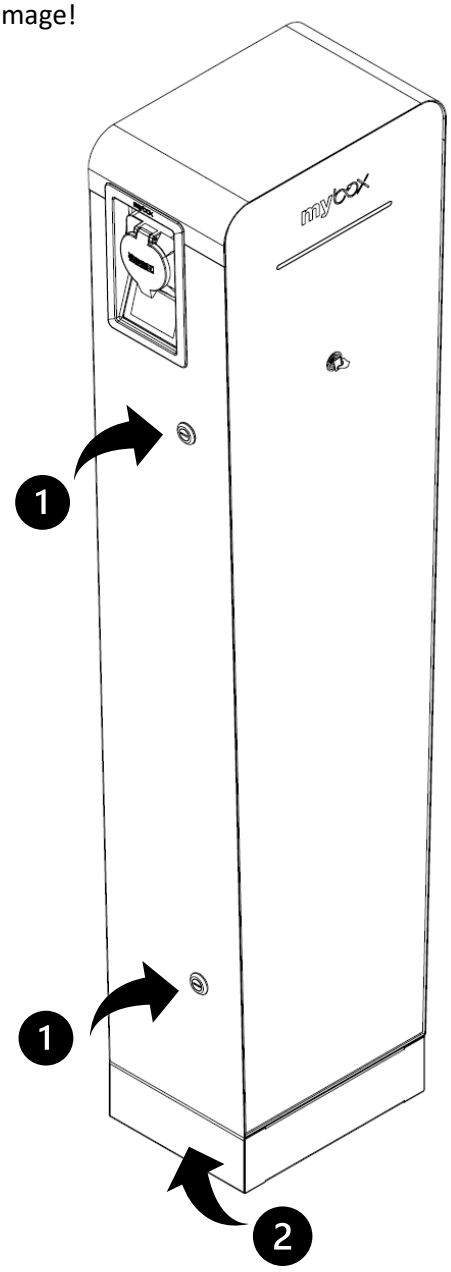
www.mybox.eco/support.

In addition to the instructions in the installation manual, we recommend watching the installation videos available on our website mybox.eco

1 Opening

1. Use the included key to unlock the station
2. Remove the station base from inside the station which is used to attach the station to the base.

ATTENTION! The front panel is made of tempered glass, careless handling can cause damage!

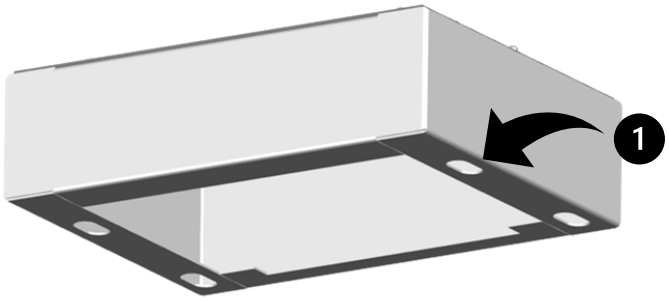


2 Preparation

1. The base of the station serves directly as a drilling template. So first mark and drill holes for dowels and possibly for the supply cable.
2. Use suitable dowels and fasteners for installation.
3. After atttaching the base, check that all screws are tightened
4. Movable parts with EPDM sealing are prepared for the power and communication cable supply to the station

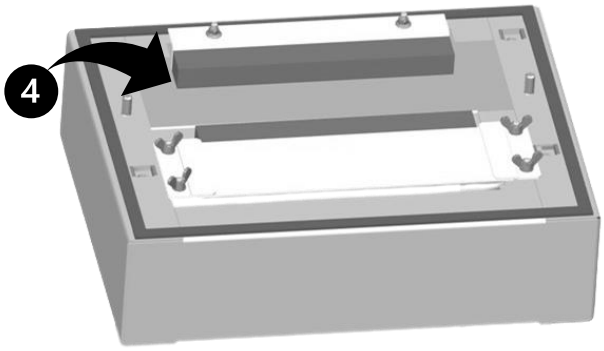
   ***TIP**: For now, leave the connecting cable in the bottom of the base*

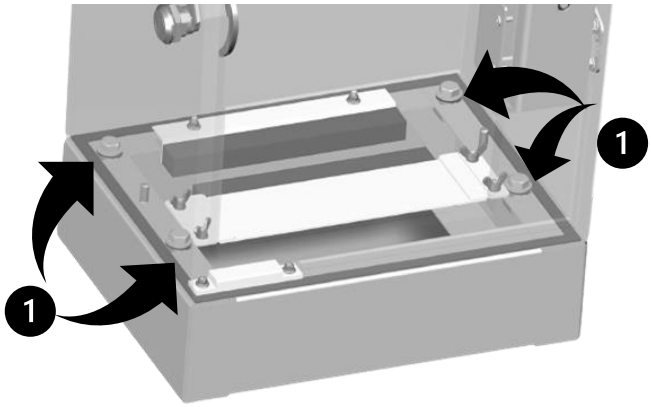
ATTENTION! The use of other anchoring material due to the building structure must be assessed by the engineer due to the weight of the charging station and the future handling of the cable. It is always necessary to use all 4 holes for installation!



3 Installation

1. Place the station on the base and secure with the screws and washer with rubber gasket.
2. Tighten the screws with a torque wrench to 14.5 Nm.

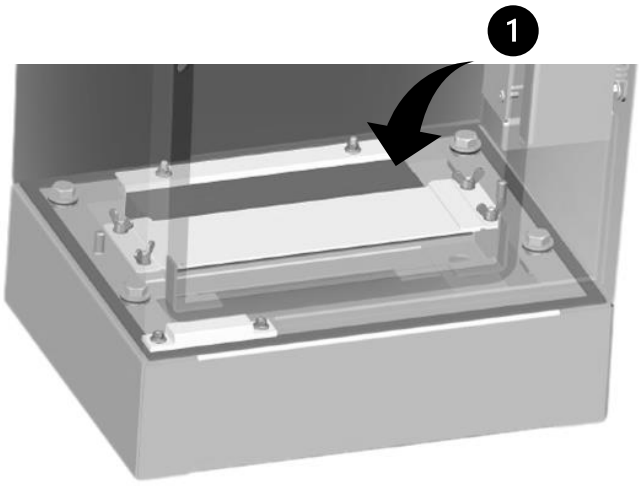


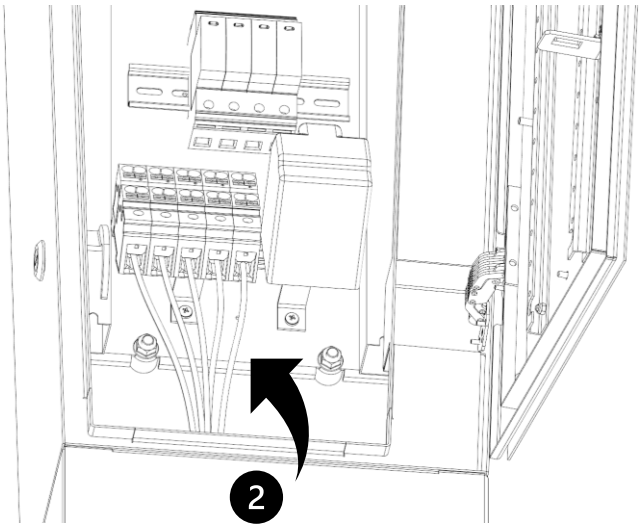


4 Assembly

1. After stretching the power and communication cable, the sliding part must be pressed against the cables and secured by tightening the wing nuts.
2. Then proceed by connecting the charging station to the supply terminals.

ATTENTION! Check the M8 nuts for correct tightening.



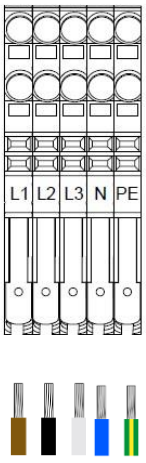


5 Wiring

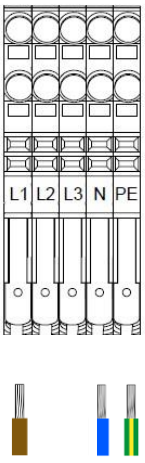
1. Strip the individual wires by 13 - 15 mm. If the cable has salted conductors, it is recommended to use sleeves. Use the correct tools to crimp them.
2. Connect the supply wires to the appropriate terminals. And connect the data cable to the control unit.
3. After the internal part of the station is connected, close the station with the key.

ATTENTION! Before turning on the power, check that all wires are properly connected and that the glands and plugs are tightened.

TN/TT 3 phase
230/400 V



TN 1 phase
230 V



NOTICE! It is recommended to follow the existing colour marking of the conductors used in the installation.
Depending on national standards, cable colours may differ from those shown. The illustrations in this manual follow the Czech national standards.

Operating Instructions charging station

(users guide)

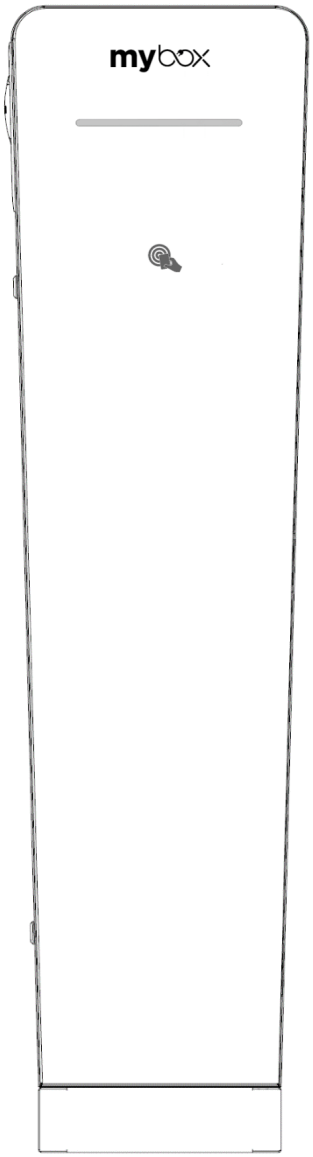
1 START OF CHARGING

1. The first step is to connect the charging cable to the car, select an available socket and connect the cable to the charging point.
2. When the charging cable is plugged in, the LED signal lights up blue in the mid-view.
3. It is then necessary to perform the identification - attaching a contactless RFID card to the reader, and this will start the charging process.
   If the proximity card reader is deactivated, the charging process starts automatically when the vehicle is detected.
4. During the charging process, the LED signalling lights intermittently in blue - see charging station status indication.

2 END OF CHARGING

1. The first step to complete the charging process is to unlock the car's charging socket - according to the specification of each electric car (e.g. on the car panel, with the keys, etc.)
2. Disconnect the cable on both sides - the LED signalling is green.
3. After completion, the connector is available.

Note: The described state corresponds to RFID identification not to other forms of identification such as backend / OCPP protocol / application etc.



RFID AUTHORIZATION

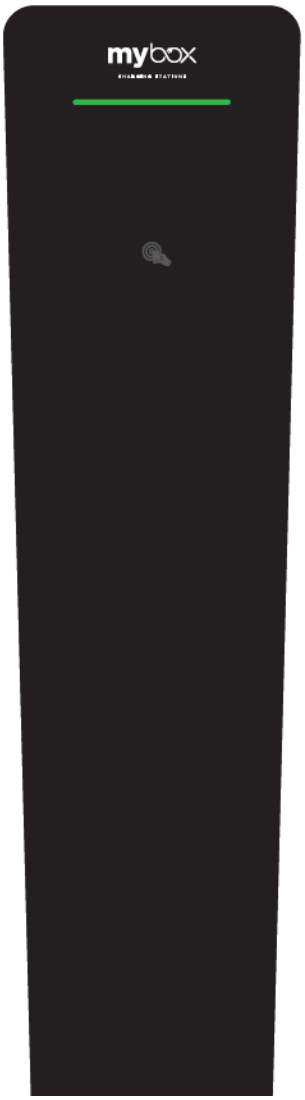
The charging station can be operated in two modes.

Charging process without RFID identification – the charging connector is freely available and can be used by simply connecting the charging connector (socket/cable) in conjunction with the electric vehicle designed for charging.

Charging process including RFID identification - the charging connector is not freely available and it is necessary to make an identification with the RFID card/ chip to start the charging process.

Charging station status indication

Indication of the station status is provided by a view on the front panel of the station.



Indication of the station status is provided by a view on the front panel of the station.

After each charging point, the signalling is divided into two halves.

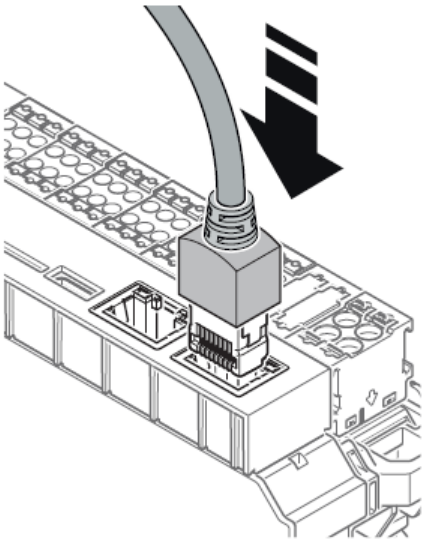
NOTICE! If the red light is still on, disconnect the charging cable, switch off the circuit breaker for the charging station and contact technical support.

Description of the traffic lights	Status
Green (permanently luminous)	The station is ready for charging
Blue	Charging cable is connected
Blue (lights intermittently)	Charging process is underway
Red	Charging station error. Disconnect the station from the power supply by switching off the circuit breaker and contact a service technician.

For building a charging station control unit

1 PC and charging station connection for setting up the control unit

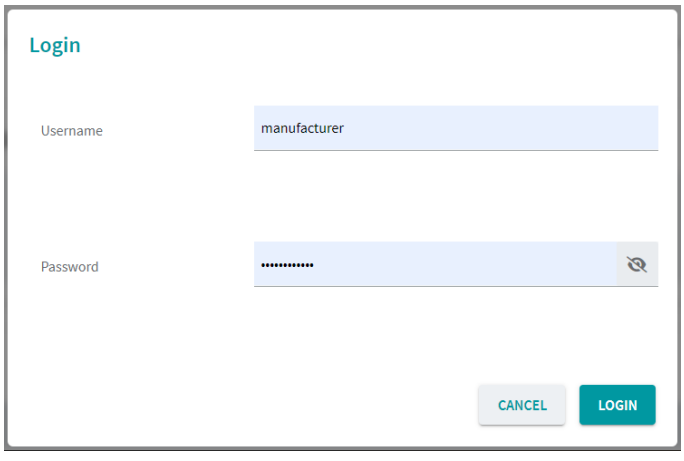
- To connect, use the ETH0 port on the control unit
- Set up PCs within the same IP address range - see the Charge Controller Setup and Installation documentation
- The IP address of the control unit is factory set to 192.168.1.100



2 Opening the WBM web interface

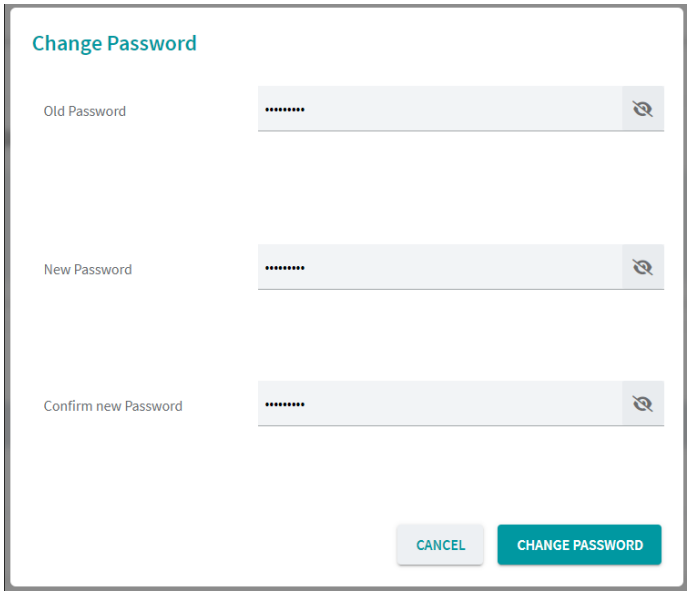
- Entering the IP address of the control unit 192.168.1.100 into the web browser
- **Login to the WBM control unit**

  user: manufacturer
  pass: manufacturer



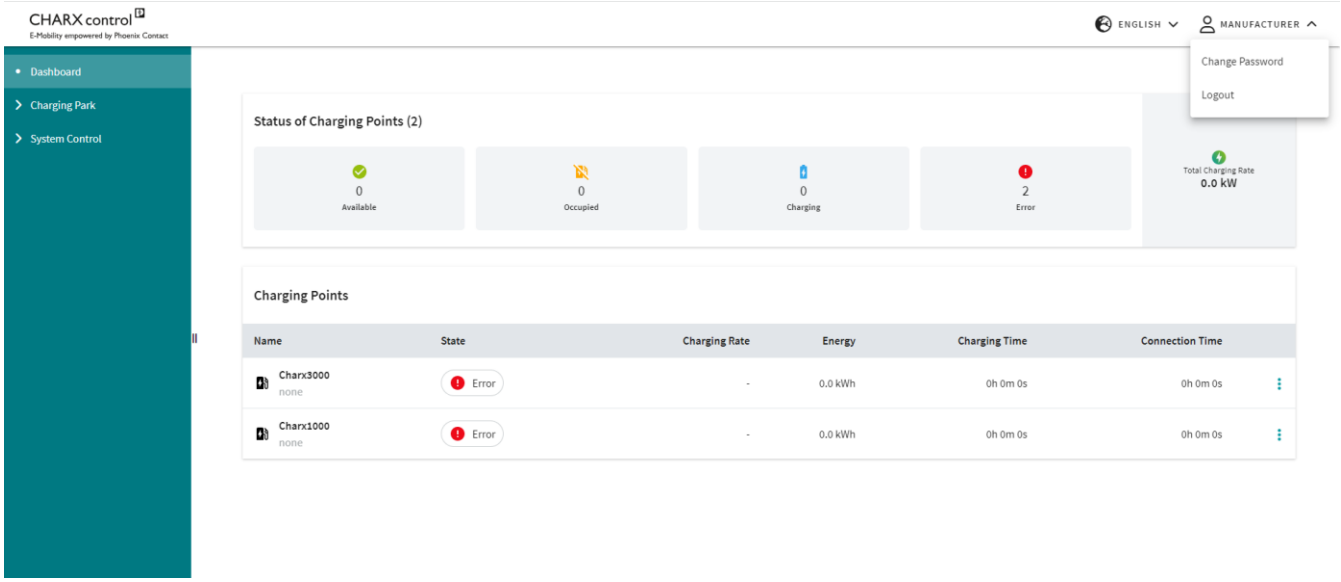
3 Change password

Change your password regularly to prevent misuse and invalid device settings, change passwords at startup. At the latest at the point of installation. Assign a new password for your user role by clicking on the " Profile" button.



If you do not use WBM, to prevent misuse and invalid device settings within your user profile, log out by clicking the button.

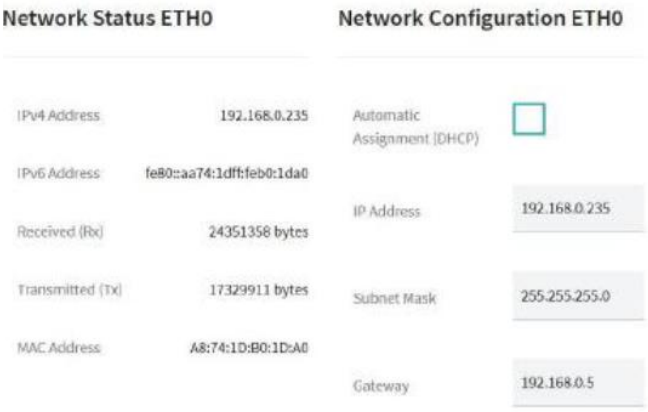
If you are temporarily not using WBM, press the "Logout" button.



4 IP address reconfiguration

Reconfiguring the IP address of the station - Automatic Assignm ent (DHCP) is not enabled

- From the menu, select System Control > Network
- Change IP Address and Subnet Mask
- Save



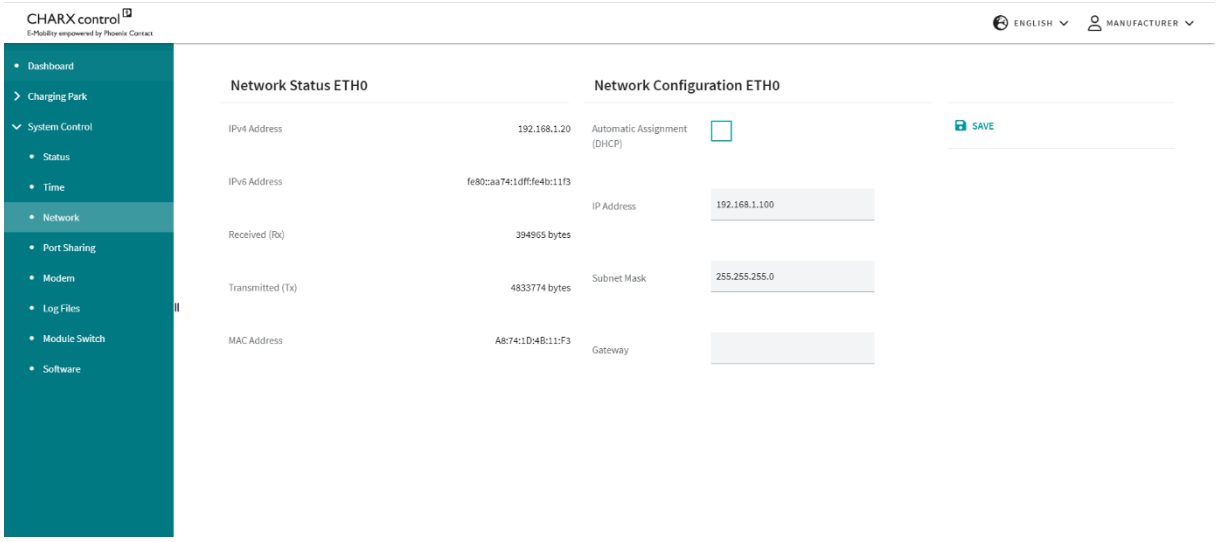
Enter IP address - if the IP address is not known

When connecting to the control unit, a cable connection between the PC and the control unit can be used using a **USB C cable**. A **virtual network interface is created**.

- access to the station always under **IP 192.168.5.1**
- regardless of the Ethernet network settings (both drive and PC)

The driver must be installed for proper functionality:

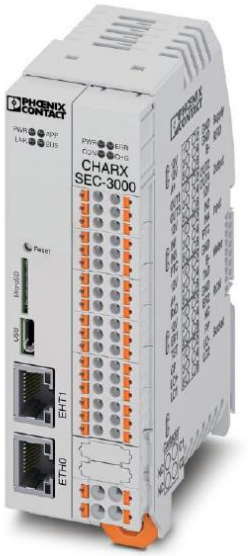
- unpack the drivers (2 files)
- open Device Manager
- connect the PC to the control unit using a USB C cable
- find the appropriate interface and select the option to update the driver from the PC
- select the folder with drivers
- the virtual network of the station is now available at **IP address 192.168.5.1**



Control unit configuration

Charging current setting

- The charging current settings can be changed in Charging park > Control view
  - zvolení nabíjecího bodu např. Ch arx3000 > Configuration > **Energy**



Energy

Charge Currents

Charge Current Minimum	6	A
Charge Current Maximum	32	A
Fallback Charge Current	6	A
Fallback Time	0	s

Charging current

Charging Current Mnimum – 6 A

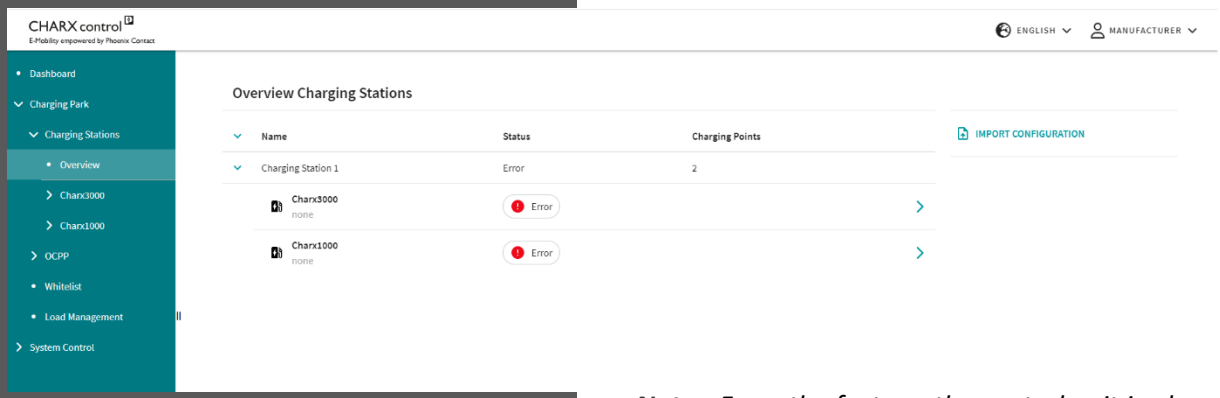
Charging Current Maximum – 32 A

Fallback Charge Current – 6 A

(settings for offline mode)

Fallback Time (s)

(during communication failure = time to go offline)



Note: *From the factory, the control unit is already set to values corresponding to charging 22 kW / charging point, i.e. Min 6 A, Max 32 A.*

1 Power division settings (Load Management)

- **Charging Park > Load Management -** The top of the page shows the current status of load management. Underneath, you can define configurations and add charging sites to load management.

- **Load circuit fuse (A)** – here it is possible to set the value of the preset circuit breaker, which must not be exceeded by the station.
    - The circuit breaker value applies to all charging points connected to the supply
    - This value determines the maximum amount of current that all connected charging points can receive

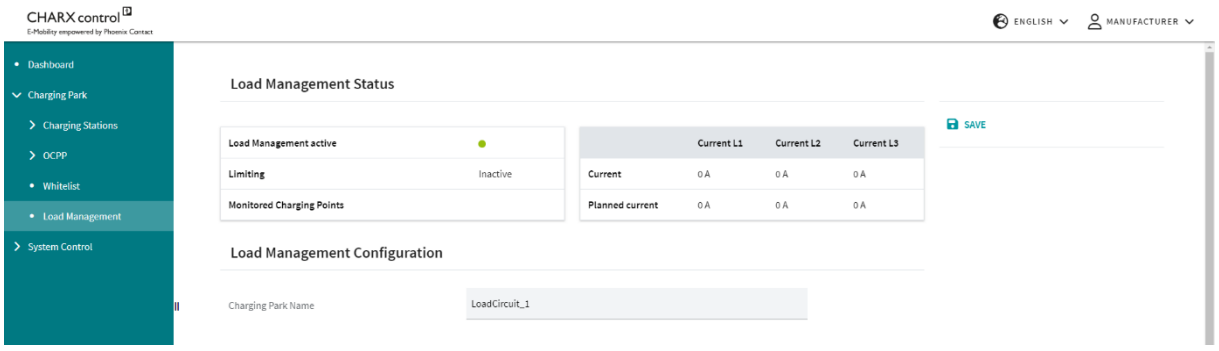
- **High Level Measuring Device** (High-level measuring device) - the measuring device is configured by connection type. If other loads are connected to the same fuse as the charging park, the total current can be recorded by the higher level measuring device. This ensures that the load circuit fuse value is maintained even if the charge points are well below this current value.

The measuring device is configured by connection type:

- **None:** No master measuring device is connected.

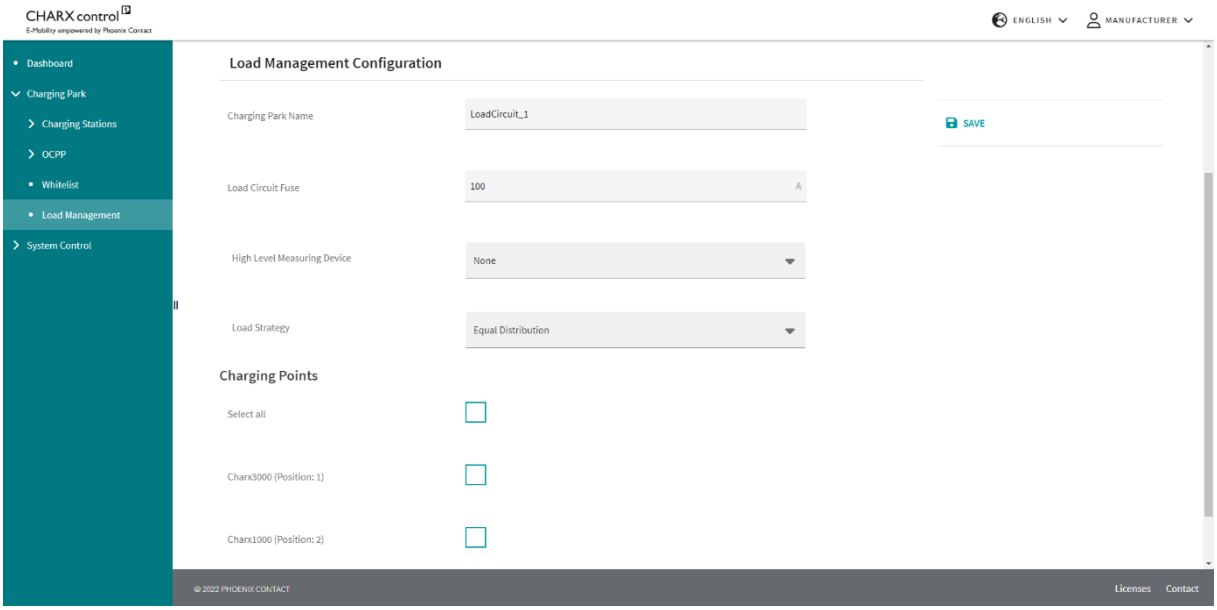
- **IP Address:** The parent measuring instrument is connected via a network connection.
    - **IP Address:** The IP address of the parent measuring device is entered here.
    - **Measuring Device Type:** Here you can select the type of energy measuring device for measuring devices configured with an IP address.
    - – Phoenix Contact EEM377
        - EEM-EM377, 2908590
    - – Phoenix Contact MA370
        - EEM-MA370-R, 2907980
        - EEM-MA370-24DC, 1127059
        - EEM-MA370, 290798

- **RS-485 Modbus:** The master meter is connected to the charging interface of the charge controller via an RS-485 connection. When using a DLM with RS-485, the master meter must also be RS485. The Modbus address of the parent meter must be set to an address 1 greater than the meter in the station.
    - **Configured RS485 Controller**: Here, the charging point to which the measuring device is connected is selected.

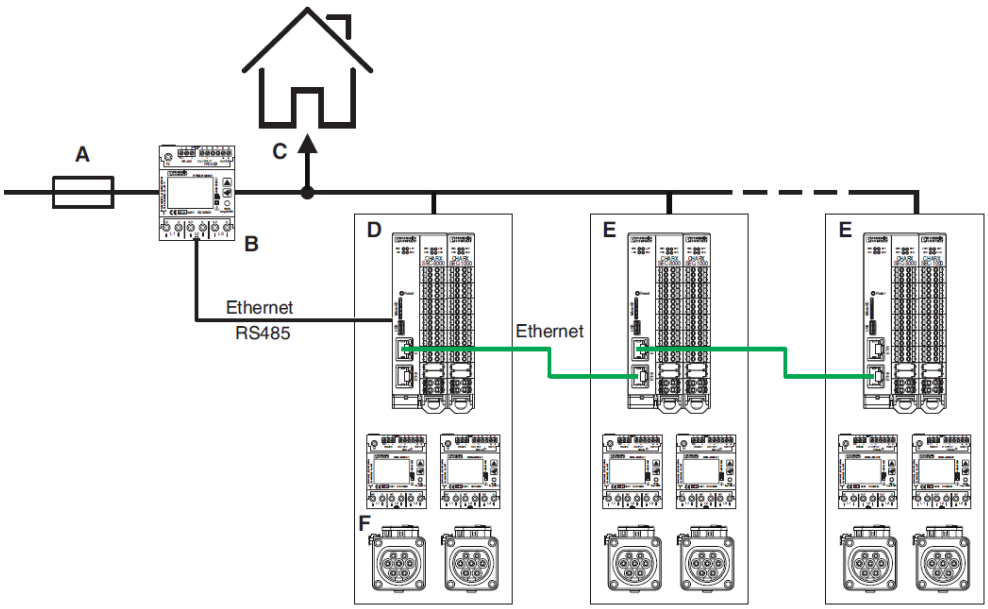


- **Load Strategy:** Even distribution: all charging points receive an even distribution of energy. Charging points do not have priority.

- **Charging points:** It is always necessary to select and tick which charge points the DLM applies to.



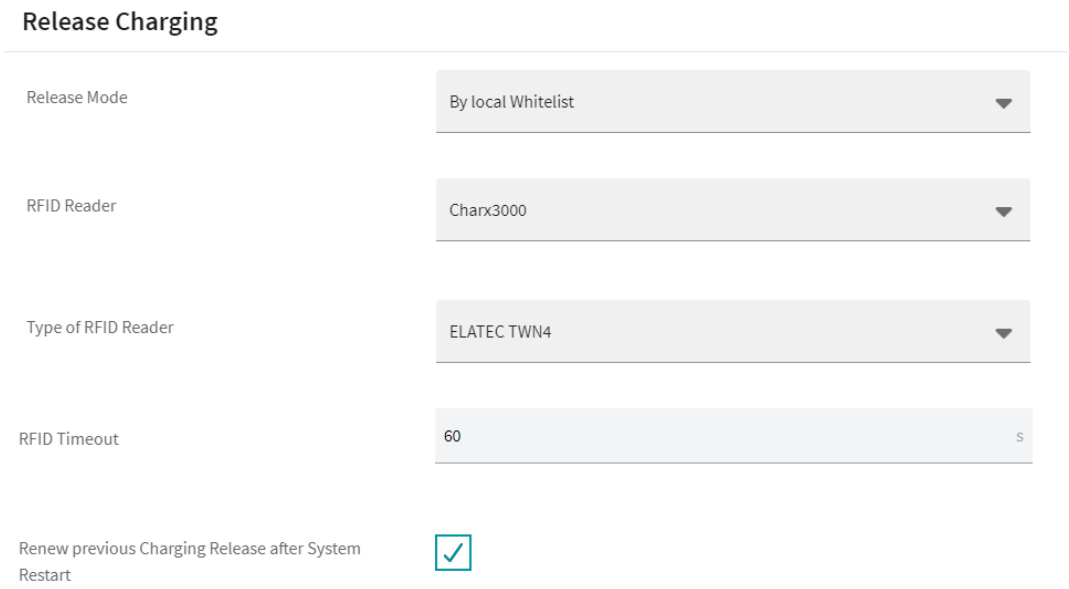
Example of connecting multiple control units to each other - always from port ETH 1 to port ETH0



2 Charging authorization settings:

Here are the main authorisations used

Charging authorisation settings can be changed in Charging park > Charging point selection, e.g. Charx3000 > Configuration > **Release charging**
Each charging point must be set individually (e.g. Charx3000 and then Charx1000).



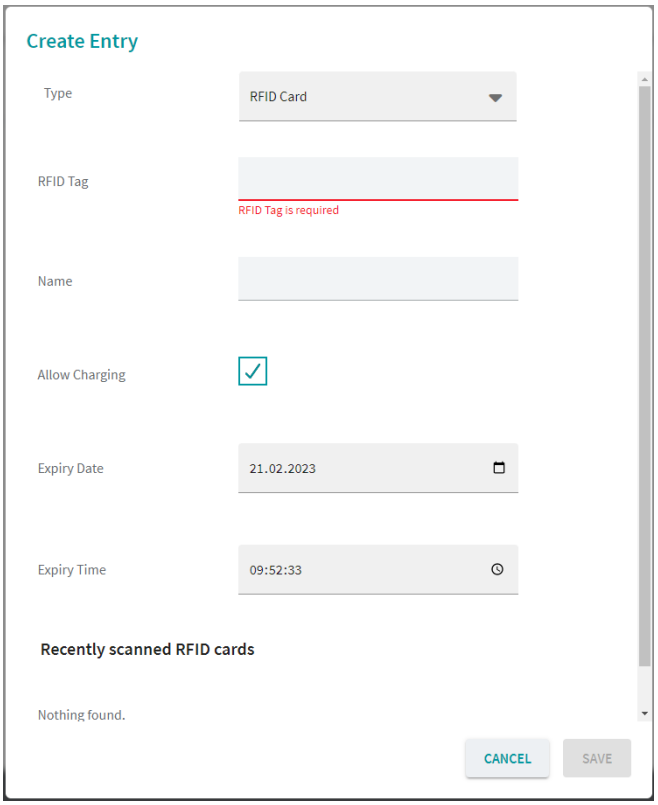
- **Always release Charging:** Charging starts automatically when the car is connected.
- **By local Whitelist:** Charging is initiated via RFID card authorisation. The RFID card list is stored locally in the unit. The following must be selected in the fields:
- **RFID Reader -** setting which unit the RFID card reader is connected to (always connected to the Charx3000 from the factory)
- **Type of the RFID Reader:** MyBox uses Elatec TWN4
- **RFID Timeout:** The time after which the release of charging via RFID is cancelled if no vehicle is connected. The time is given in seconds.
- **Renew previous Charging Release after Systém Restart:** When checked, resumes previous charging after restarting the unit.
- **By OCPP:** Authorization via OCPP. NOTE: If you change settings or switch from OCPP to local Whitelist, you must restart the OCPP agent in System Control > Status. For OCPP 1.6, click the arrow (restart and wait for recovery).
  Compared to the RFID option, there is a new window in By OCPP:
- **OCPP ID:** The default value is "-1". You must enter an ID here; this ID must be unique in the charging park. You must enter an ID starting with 1. The ID represents the ID in the OCPP backend. NOTE: The ID is required on the OCPP backend for OCPP operation. You must set each charge point individually, e.g., you must enter the OCPP ID value into the Charx1000: 2).

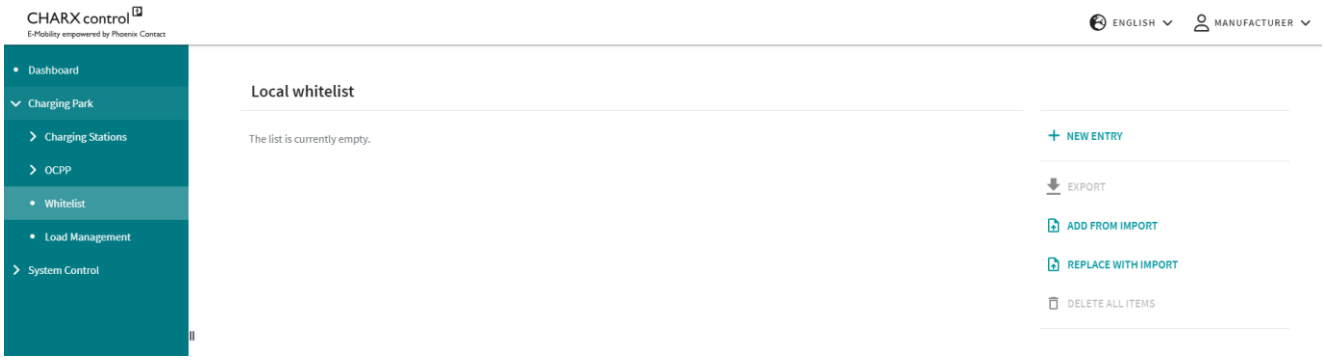
3 Nastavení local Whitelistu (RFID karet)

Whitelist settings can be done in Charging park > Whitelist - add / remove RFID cards one at a time. Also available im port and export RFID cards in bulk.

NEW ENTRY – adding a new RFID card

- **RFID Tag:** Card number - manual input or by attaching it to an active RFID reader (Elatec TWN4 - audible signalling when the card is attached), the loaded card will appear at the bottom, then click on it and give Import, which will automatically fill in the RFID Tag.
- **Allow charging –** setting whether the card should allow charging
- **Expiry date –** it is **necessary** to enter the date when the card stops working
- **Expiry time – as well** as Expiry date





4 OCPP settings

OCPP settings can be done in Charging park > OCPP > Configuration.

Charging authorisation must be set to OCPP, see. Point 3.

Charging authorization settings. The station must be connected to the internet - the Connection status should be green in the OCPP > Status field.

- **Backend URL -** setting the endpoint of the station that is specified in the backend There is also a station identifier in the backend, which must also be written at the end of this endpoint after the slash in this Backend URL field.

Example: backend identifier - station1 URL of endpoint - .../station1 wss://uuapp-dev.plus4u.net:443/uu-chargeupcpo mockg01/941100150ac84b2c99e98a22070398c4/json/stanice1

Optional OCPP settings

These parameter values are not mandatory - they are set according to the backend requirement

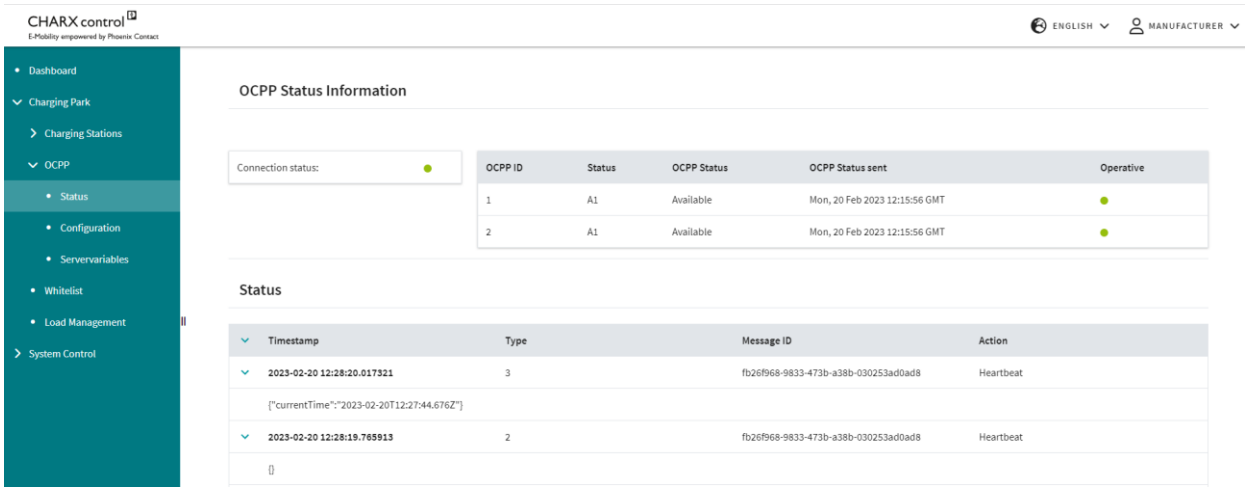
- Setting variable values - Charging park > OCPP > SERVERVARIABLES

The parameters must be set according to the requirements of the backend supplier.

Possibility to set station parameters:

- WebSocketPingInterval = 50
  - if not set - status notification is repeatedly sent to the backend
- ConnectionTimeOut = 90
- MeterValueSampleInterval = 60

- The values listed are recommended.
- NAt the end of the setup it is necessary to restart OCPP
- System Control > Status - OCPP 1.6 click on the refresh icon



Complete settings of the control unit can be found in the manual – **MyBoxProfi_2x22kW_nastavení_RJ** *https://elexim.net/elektromobilita/wp-content/uploads/sites/2/2022/10/MyBoxProfi_2x22kW_nastaveni_RJ.pdf*

Manufacturer's declaration

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