circontrol

Master-Satellite

User manual

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Master-Satellite
User Manual

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0 Here's your guide to use and configure your Master-Satellite solution

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1 So, hello!

This manual provides information about the usability and configuration of the Master-Satellite solution, which has been designed and tested to allow electric vehicle charging, specified in IEC 61851.

It contains all the necessary information for safe use and help to get the best performance from it with step-by-step configuration instructions.

THE FOLLOWING SYMBOLS ARE USED FOR IMPORTANT SAFETY INFORMATION IN THIS DOCUMENT

ELECTRICAL RISK

Necessary precautions shall be taken to prevent any electrical risk while the operations are carried out within the unit.

Unit must be disconnected from any power source during commissioning.

ATTENTION!

Indicates that the damage to property can occur if appropriate precautions are not taken.

IMPORTANT SAFETY INSTRUCTIONS

Read carefully all the instructions before starting in order to ensure properly installation of the Charge Point.

- Do not use the Charge Point for anything other than electric vehicle charging modes which are defined in IEC 61851-23.
- Do not modify the Charge Point. If modified, CIRCONTROL will reject all responsibility and the warranty will be void.
- Comply strictly with electrical safety regulations according to your country.
- Do not make repairs or manipulations with the unit energised.
- Only trained and qualified personnel should have access to the electrical parts inside the Charge Point.
- Check the installation annually by qualified technician.
- Remove from service any item that has a fault that could be dangerous for users (broken connectors, caps that don't close...).
- Use only Circontrol supplied spare parts.
- Do not use this product if the enclosure or the EV connector is broken, cracked, open, or shows any other indication of damage.
- Adaptors or conversion adapters and cord extensions set are NOT allowed to be used.
- The device does not emit noise, ultrasounds, electromagnetic fields and does not produce harmful substances, thanks to which it can be operated in the environment.
- Pay attention to traffic in busy streets.
- Waste generated after the disassembly of a waste device or a device taken out of service is handed over to a person conducting activity in the field of recycling or conducting activity in the field of recovery processes.

Refer to TECHNICAL DATA section for more information about environmental installation conditions.

2 Features

Master

Able to be configured for multi-point solutions.

- **HMI:** 8" colour touch screen as the interface between the Charge Point and the user. Provides detailed information about ongoing charge transactions and the instructions of how to interact with the Charge Point.
- **Connector Lock:** To avoid disconnection of EV meanwhile is charging.
- **Light beacon:** Three LED colour indicate all connector status (free, error, charging or completed) at a glance.
- **RFID Reader:** User authentication.
- **Ethernet:** TCP/IP communication for remote supervision and configuration.
- **4G Modem (optional):** For those places where wired communications are not enough.
- **Energy metering:** Integrated meter built is measuring power and energy consumed by the EV during a charge transaction.
- **Remote access:** For supervision and control from everywhere.
- **Charge transaction historics:** Charge Point is capable of storing information about the charge transactions.
- **OCPP:** Open standard communication protocol, allows communication between the Charge Point and the Central System.
- **Key lock access:** Security that does not enable access to the inside of the charger.
- **Built-in courtesy light*:** Facilitates locating the charge point in dark areas and reading the operator instructions.
- **Integrated payment system (optional):** Availability for contactless card payment.

(*) Availability depending on the model

Satellite

- **Connector Lock:** Available lock system to avoid disconnection of EV meanwhile is charging.
- **Light beacon:** Three LED colour indicate all connector status (free, error, charging or completed) at a glance.
- **Energy metering:** Integrated meter built is measuring power and energy consumed by the EV during a charge transaction.
- **Remote access:** For supervision and control from everywhere.
- **Charge transaction historics:** Charge Point is capable of storing information about the charge transactions.
- **Key lock access:** Security that does not enable access to the inside of the charger.

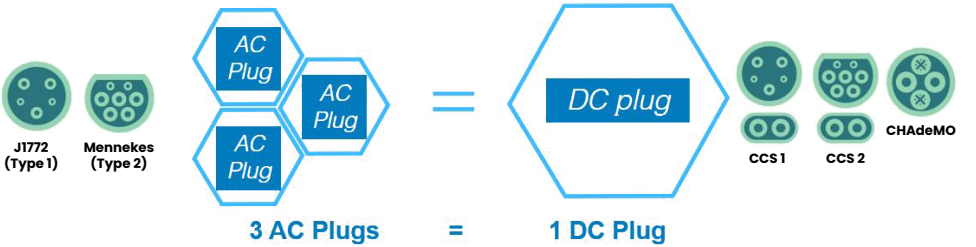
Master-Satellite combination

The following table shows the possible combinations of Charge Point that can work as masters or as satellites:

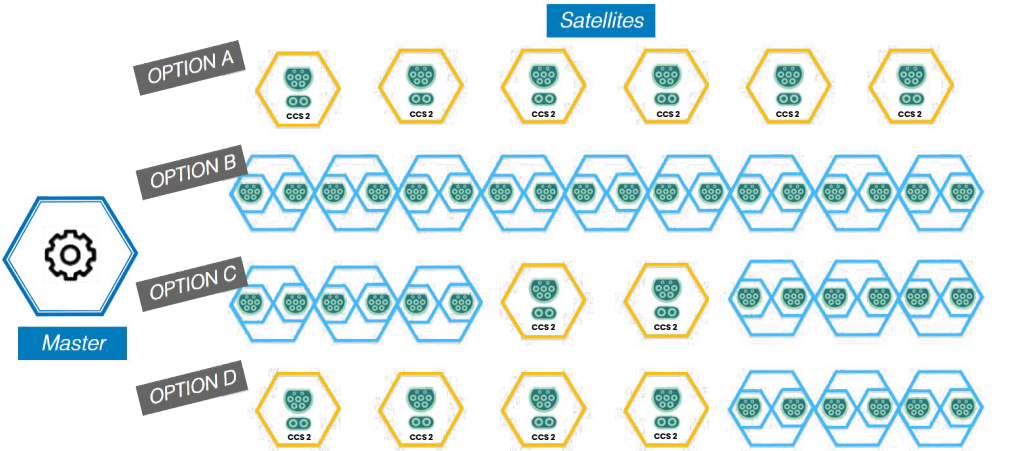
MASTERS	SATELLITES	TYPE OF CHARGE
	Post/Wallbox eVolve Smart S	AC
	Post/Wallbox eVolve Smart T	AC
	Post/Wallbox eVolve Smart TM4	AC
	Post eVolve Smart C63 One	AC
Post eVolve Master S		AC
Post eVolve Master T		AC
Post eVolve Master C63 One		AC
Wallbox eVolve Master Zero		AC
Wallbox eVolve Master S		AC
Wallbox eVolve MasterT		AC
	Post eVolve Satellite S	AC
	Post eVolve Satellite T	AC
	Post eVolve Satellite C63 One	AC
	Wallbox eVolve Satellite S/T	AC
Raption 50		DC
Raption HV		DC
Raption HV EVO		DC
Raption 100		DC
Raption 150		DC
Raption 150 Compact		DC
Raption 200		DC
Raption 400		DC
Post eVolve Rapid Master		DC
	Wallbox eVolve Rapid Satellite	DC
	Post eVolve Rapid Satellite	DC

Outlets for each Master

We have different possibilities to be part of the Master-Satellite solution, with a maximum of 18 outlets, taking into account that 1 DC outlet equals to a 3 AC outlets.



The following picture shows some of the many possible combinations that can be part of the Master-Satellite solution*:



(*) Number of Satellite outlets up to 18 AC.

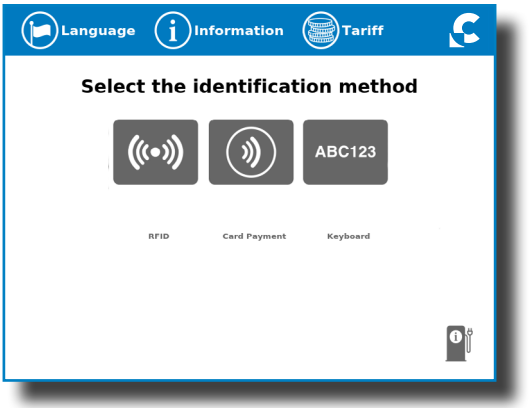
3 How to use it?

A) General

The first time the Charge Point is powered on, the system will take around 10 seconds to start up, the screen will show next image:

In the lower right corner, the firmware version is shown. After 10 seconds, the first screen that appears is the screensaver.

When tapping on the screen, the HMI will skip to the next one:*



At this new screen, the Charge Point is asking for showing the identification method the user is going to use in order to start a charge transaction, as you can see there are four possible options.

- Choosing RFID or keyboard options, are the options that will let to initiate a 'Charging session' to the user that has the identification card, has been registered in advance or a code has been given to type it manually in the screen.

- Paying by a debit or credit card, that will let to initiate a 'Charging session' to the user without been registered in advance.

In the lower right corner, it shows the connectors status and the charging process so as to know the Charge Point availability.

(*) Depending on the optionals chosen, the identification methods available can vary.

Note: If some Charge Point do not have the latest firmware update, the term "slave" may appear instead of "satellite".

B) Language

During all the process is possible to change the language, pressing on the top of the screen over the **'Flag'** touch symbol:

The language can be chosen by tapping on the corresponding flag.

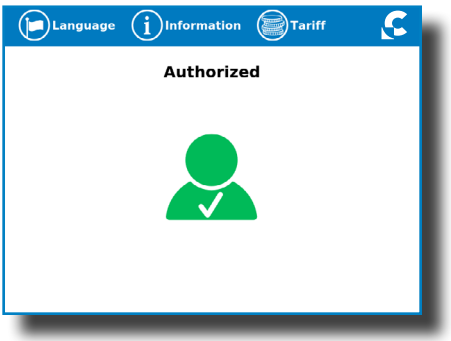
This option will allow user to change the language ONLY for the current Charge Transaction. When Charge Point returns to main or standby screen, it will return the default language, which is configured in the Setup Webpage.

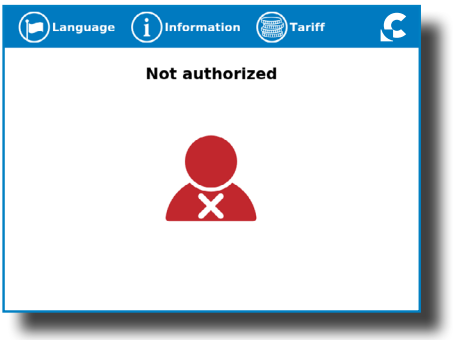
The availability of the different languages is subject to the firmware version.
In case of doubt, please ask your local supplier.

C) Starting a charging session

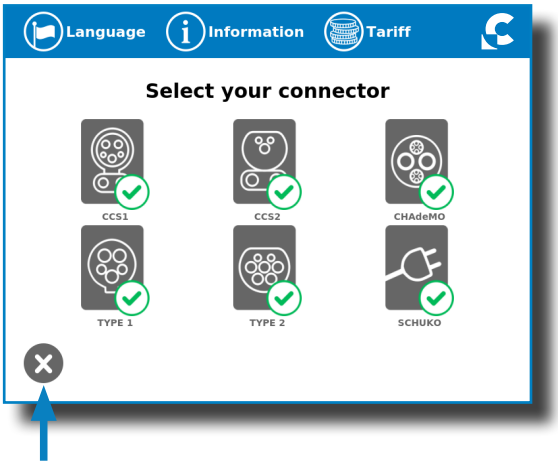
Once the identification card is shown, it may take a few seconds to authorize the access.

The HMI informs if the access is granted or not.





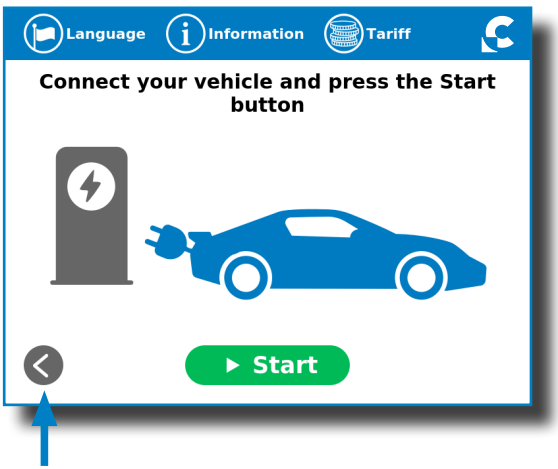
If the user is authorized, the connector can be chosen.



At any time it is possible to tap this button in order to go back to the "identification screen".

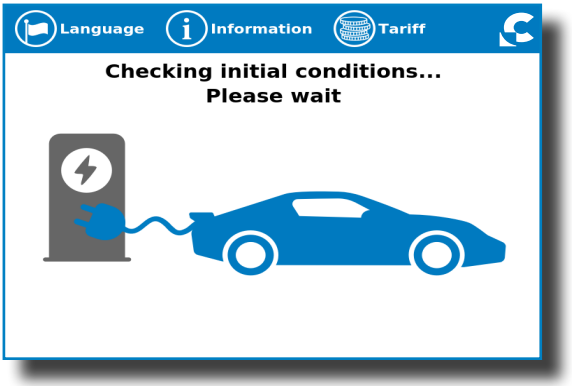
Once the connector is chosen, instruction screens will appear successively.

1- Connect your vehicle and press the 'Start' button

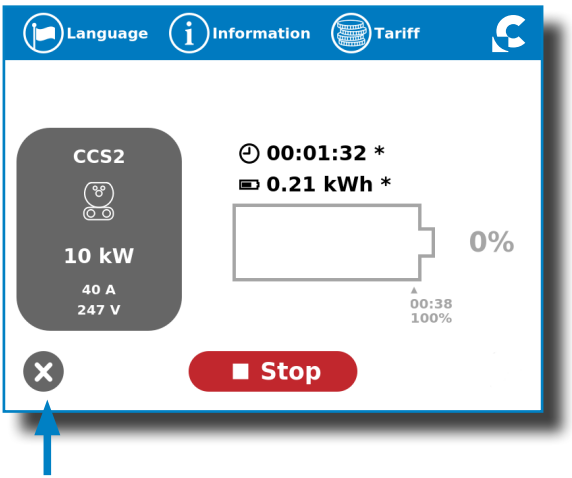


At any time is possible to tap this button in order to go back to the previous screen.

2- Checking vehicle connection... Please wait



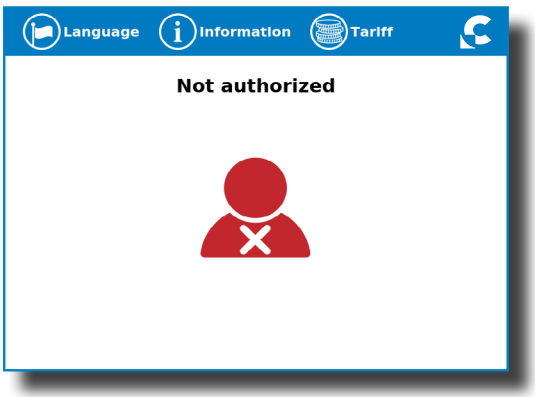
In a few seconds, the charging session will start and the HMI will show the charging process.



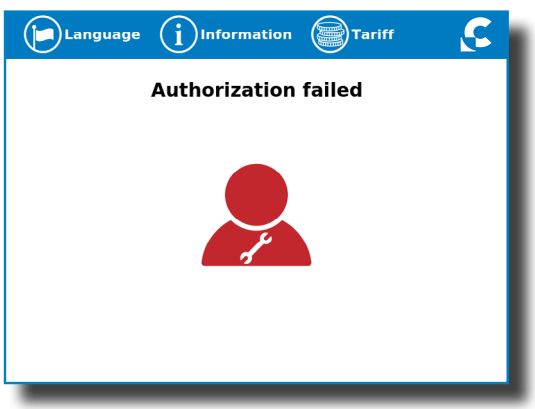
Tap this button in order to go back to the "identification screen".

D) Special events starting a charge

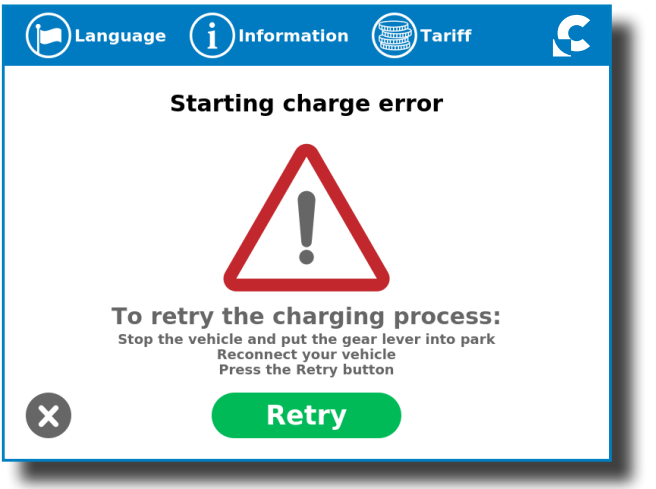
“Not authorized”: some Charge Points could be working under the supervision of a main management system. If the user is not authorized, the HMI will show the following message:



“Authorization failed”: the authorization could not be completed due to some communication problem with the Back Office.

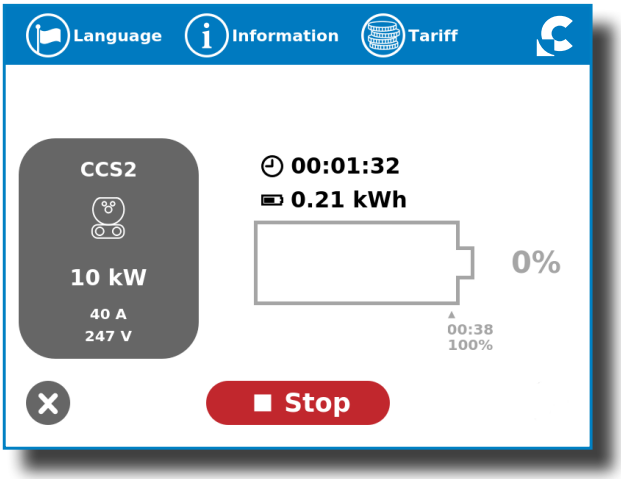


It is possible that the Charge Session could not be started due to some unexpected reason. The HMI will show next screen, press **'Retry'** button and try again.



E) Stopping a charging session

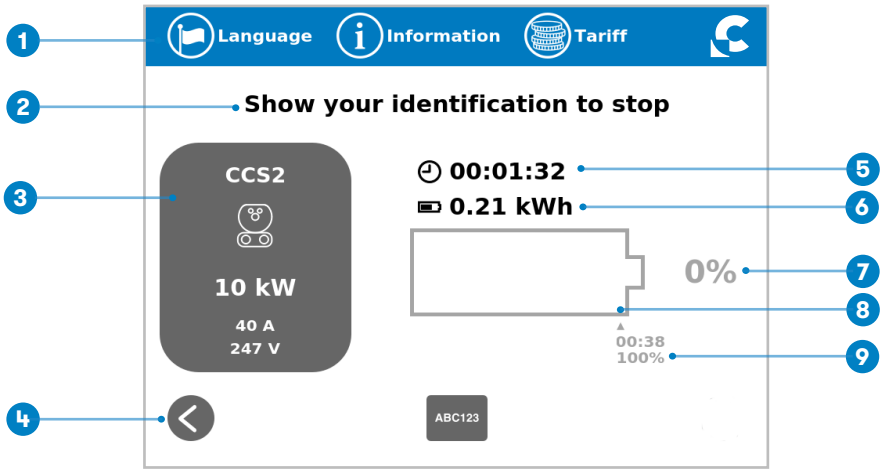
After showing the same identification card that started the Charging Session, the Charge Point will automatically allow to stop the charging session, press over the **'Stop'** button:



Once the charging session is stopped, the HMI shows the summary screen.

F) Charge information

Depending on the connector used, the HMI screen can show different process information. The information is almost the same except for few details.



1- Language button: possibility to change the HMI language.

2- Additional information: current status, errors, battery status, etc.

3- Connector information: type and identificator of connector, power of charge, etc.

4- House touch button: it goes back to the "identification screen".

5- Charge time with status bar: charging time elapsed so far.

6- Energy charged: energy supplied to the vehicle so far.

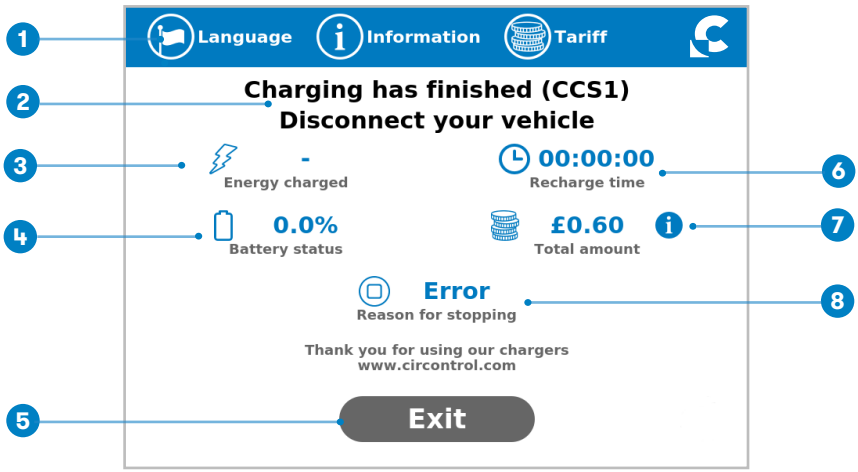
7- Battery SOC*: it indicates the current battery state of charge.

8- Process indicator: at first moment it is red, as the vehicle is charging it will change to orange, changing after 75% of battery charged to green.

9- Remaining time until 100 %*: remaining time until 100 % of the SOC.

(*) This information is only available in Raption and evolve Rapid series models.

G) Charge summary



1- Language button: possibility to change the HMI language.

2- Process instructions: different instructions can be displayed.

3- Energy charged: total energy charged at the end of the charging session.

4- Battery SOC*: It indicates the final battery state of charge at the end of the charging session.

5- Exit button: It has to be pressed in order to finish the charging session. After pressing, the HMI screen will go back to the "identification screen".

6- Recharge time: total recharging time at the end of the charging session.

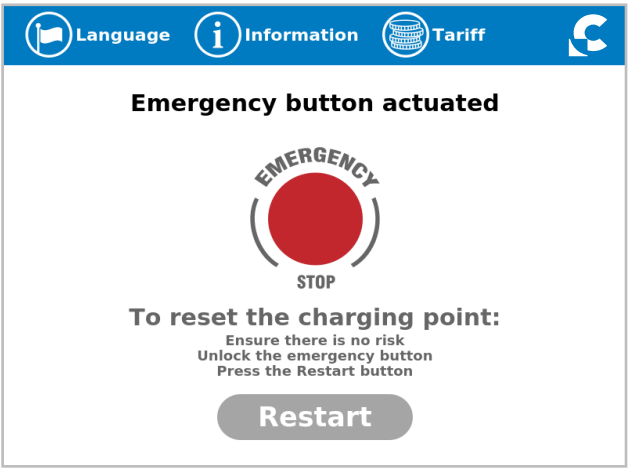
7- Information button: pressing over this button you can get information about the charging session tariff applied.

8- Stop reason: It shows why the charging session has been stopped.

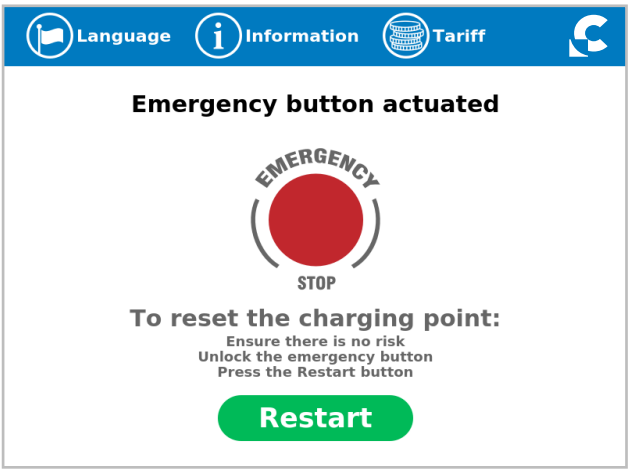
(*) This information is only available in Raption and evolve Rapid series models.

H) Emergency button

If for any reason the Emergency button is pressed, all in progress charge transactions will be stopped, the beacon lights will turn red and it will not be possible to start new charge transaction until the recovery process is completed successfully. All the power modules will shut down in order to protect the user and the own Charge Point. The HMI screen will remain powered up in order to show the instructions.

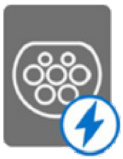
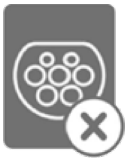


At first moment, the **'Restart'** touch button will be in light grey and it will not be able for pressing. Once emergency button has been unlocked, the **'Restart'** touch button will be in green and able to use.



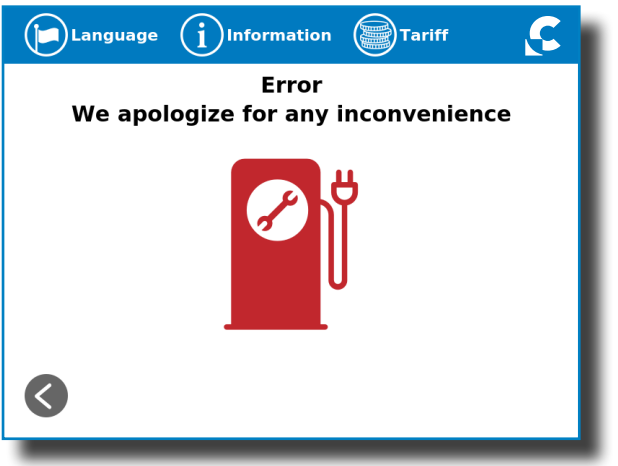
I) Connector status

The HMI screen shows different symbols, as you can see below:

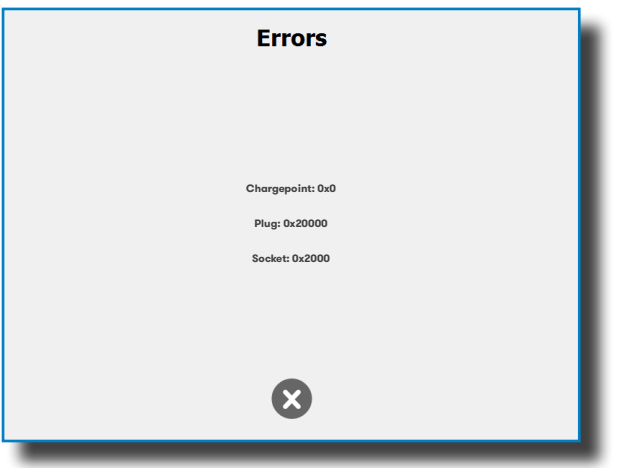
	Connector available, a Charging Session can be started.
	Connector charging, a Charging Session cannot be started because it is already in use.
	Connector disabled, a Charging Session cannot be started because it is under maintenance or because the Back office has decided to stop it.
	Connector out of service, a Charging Session cannot be started due to some error. Tap on the '**Information**' button in order to get more information about it.
	Connector reserved, a Charging Session can only be started using the IdTag assigned to the reservation.
	The Charge Point is out of service because the emergency button has been pressed. This fact affects all the connectors at the same time.
	Applies when simultaneous charge is not available. In case, one connector is booked or already in use.

J) Errors

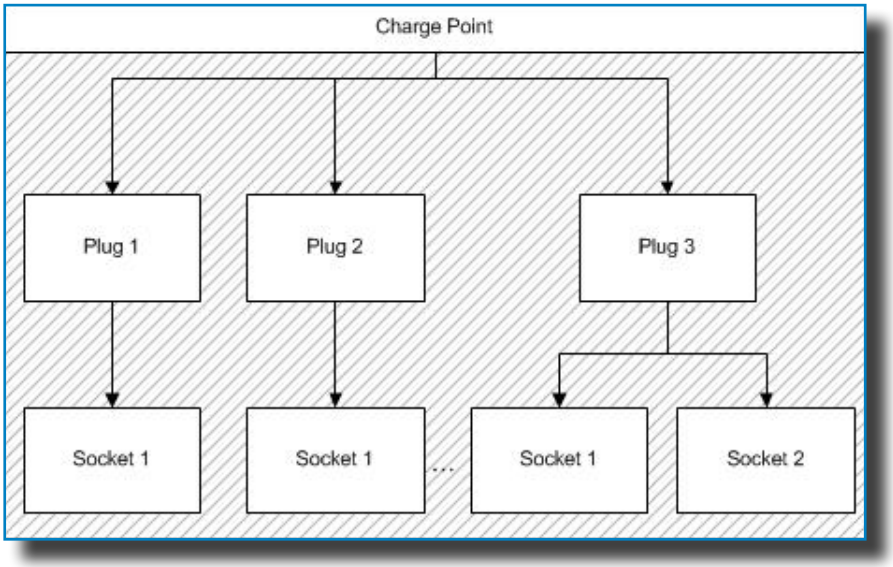
The Charge Point can report about different sort of errors, it can be from different parts or devices from it.



When the **'Error screen'** appears, the **'Information'** touch button has to be pressed in order to see the error message, as you can see below:



Logical levels:



Charge point: General errors affecting the whole charge Point (E.g.: RFID error).

Plug: Error affecting one plug. All sockets are in error state. Plug is inoperative.

Socket: One plug may have more than one socket. Error can affect one socket and plug still being available.

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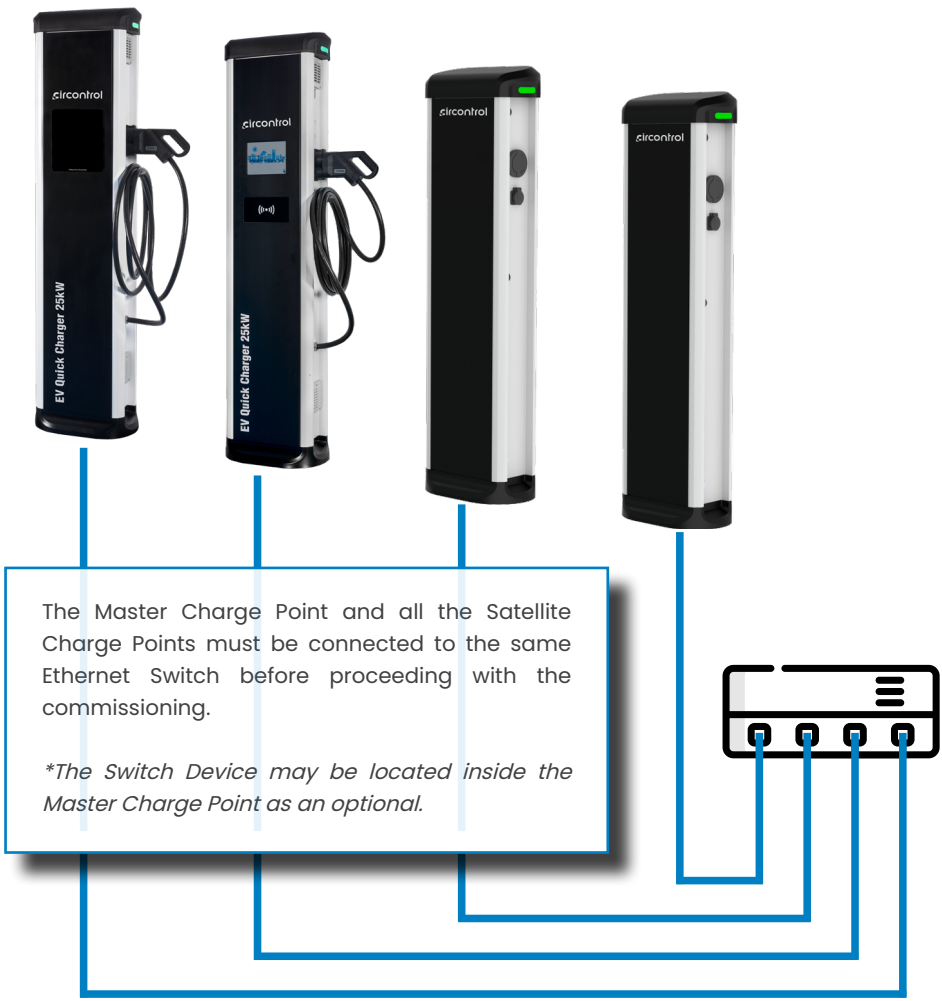
4 How to connect it?

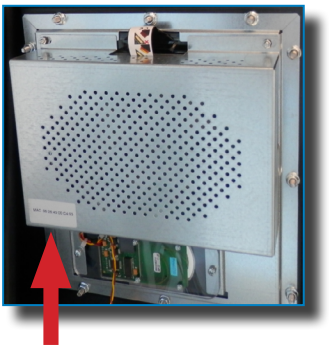
A) Network topology



The Master Charge Point and all the Satellite Charge Points must be connected to the same Ethernet Switch before proceeding with the commissioning.

**The Switch Device may be located inside the Master Charge Point as an optional.*

B) Introduction



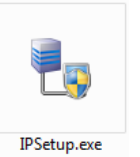
The Ethernet port of the Master Charge Point is located at the bottom left side of the rear part of the HMI screen.

There is only one Ethernet port on the Satellite Charge Point and it is located on the TCP1RS. The location of this device may vary depending on the model, for more information please contact Circontrol Post-Sales Department.

Before proceeding , make sure all the following is ready:

Computer running at least Microsoft Windows XP.

UTP Cable (at least one for each Charge Point)

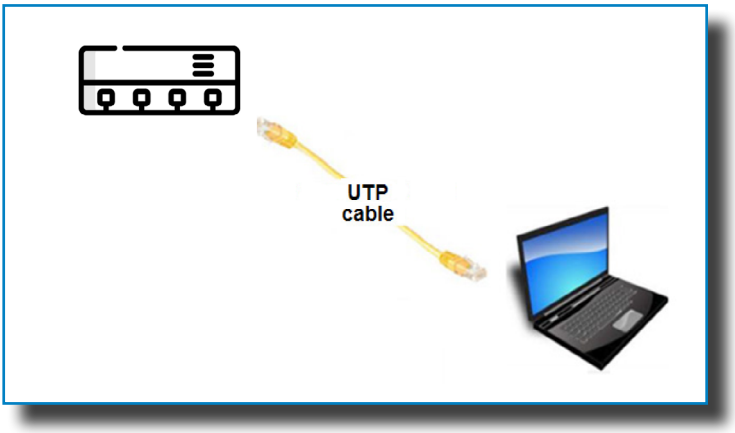


IPSetup.exe (*Can be downloaded for free from Circontrol Expert Area)*

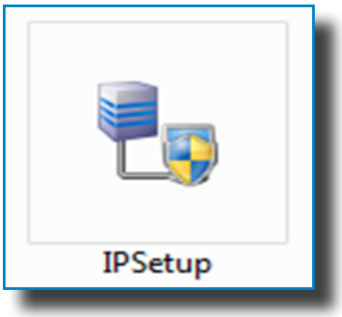
C) IPSetup

1 - Connect the UTP Cable to the Computer (running Microsoft Windows, at least Windows XP) and the Ethernet Switch.

The Computer and the Charge Point must be in the same network and in the same range.



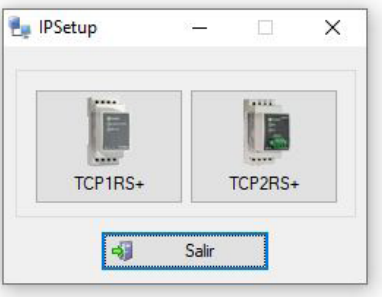
2 - Execute **IPSetup_v21.exe** on the Computer.



3 - Choose between TCP1RS+ and TCP2RS+ depending on the type of Charge Point are you working with:

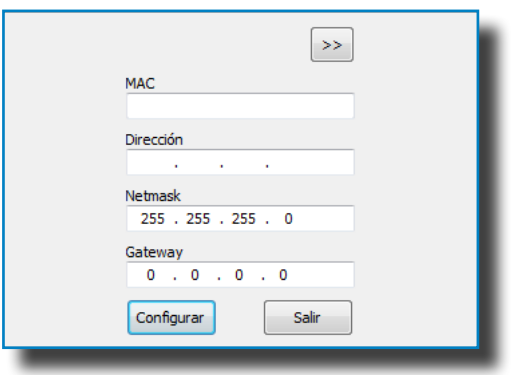
TCP1RS+: Charge Point working as a Satellite

TCP2RS+: Charge Point working as a Master

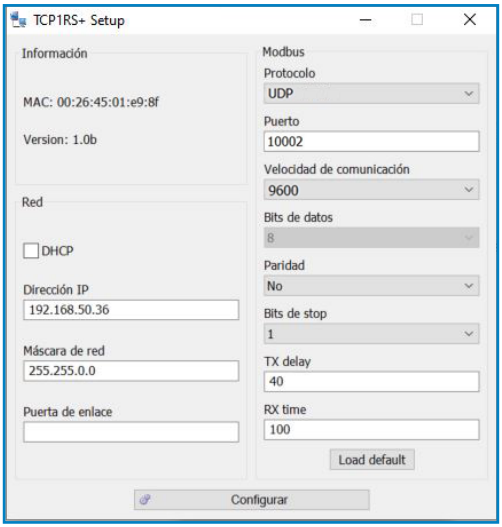


4 - Enter the following parameters and click on **'Configure'**

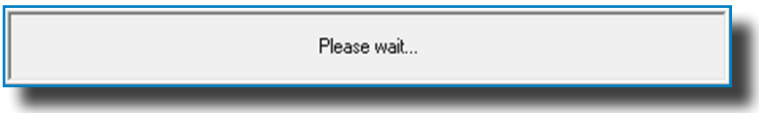
- MAC of the Charge Point (see label on the side of the Charge Point)
- IP address
- Netmask
- Gateway: leave default settings



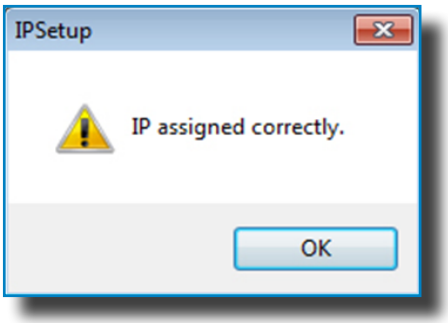
5 - In case of TCP1RS+ please select Protocol “UDP”, Port “10002” and Communication Speed “9600”:



6 - Wait 30 seconds approximately until the process is complete.



7 - The process will complete when the following message appears, by clicking on ‘**OK**’ the setup web-page will open.



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5 Communications

A) Introduction

This section describes how to install the SIM card and setting up the modem.

Modem location

The modem is installed inside the unit. Depending on the model, the modem is located in different place.

Step 1- Open Charge Point's door and locate the modem.

Step 2- Check that the Charge Point is provided with the antenna on the cover top.

Modem is fully configurated by default in Circontrol.
Only in case it is needed to configure it, remain in this section.

B) Modem configuration

1 — MODEM OVERVIEW

The 4G modem installed from factory in the Charge Point is one of the **RUT24X series from Teltonika.**

This device allows to the Charge Point connects over 4G networks to remotely view or manage the Charge Point status. RUT24X series are compact mobile routers with high speed wireless and Ethernet connections.

1	LAN Ethernet port
2	WAN Ethernet port*
3	LAN Led indicator
4	WAN Led indicator
5	Power connector
6	Power LED
7	Signal strength indication LEDs
8	SIM card holder
9	WiFi antenna connector
10	Reset button
11	LTE antenna connectors

(*) WAN Ethernet port is set up as a LAN Ethernet port in order not to disconnect modem from Charge Point during service issues.

2 — CONNECTION STATUS LED

Explanation of connection status LED indication:

- Signal strength status LED's turned on: router is turning on
- 2G, 3G and 4G LED's blinking every 1 sec: no SIM or bad PIN
- 2G/3G/4G LED's blinking every 1 sec: connected 2G/3G/4G, but no data session established
- Blinking from 2G LED to 4G LED repeatedly: SIM holder not inserted or access to network denied
- 2G/3G/4G LED turned on: connected 2G/3G/4G with data session
- 2G/3G/4G LED blinking rapidly: connected 2G/3G/4G with data session and data is being transferred.

3 — SIM CARD INSTALLATION

Insert SIM card which was given by your ISP (Internet Service Provider). Correct SIM card orientation is shown in the picture.

1. Push the SIM holder extract button

2. Pull out the SIM holder

3. Insert the SIM card

4. Push in the SIM holder

After installing the SIM card, check out that the 4G antenna (mobile), WiFi antenna and the power connector are properly attached.

NOTE: SIM card is not provided with equipment.

4 — LOGGING IN

After you're complete with the setting up as described in the section above, you are ready to start logging into your router and start configuring it.

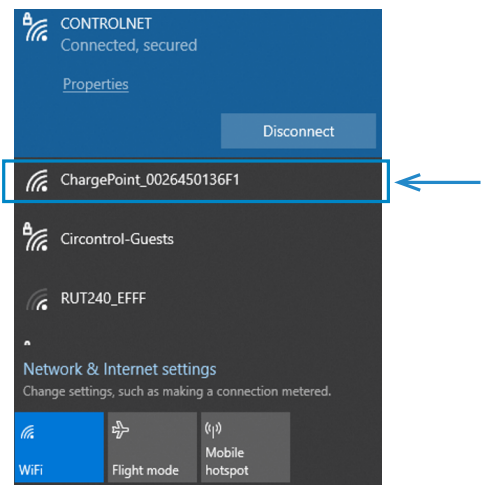
This example shows how to connect through WiFi:

For cibersecurity reasons, modem's WiFi connection is disabled by default.

In order to enable it, remember to adjust it in Charge Point side, as explained in section 6.

4.1 Connect your ethernet cable in the LAN port and do all the settings being locally connected (it can also be done from the WAN port when WAN port is configured as a LAN).

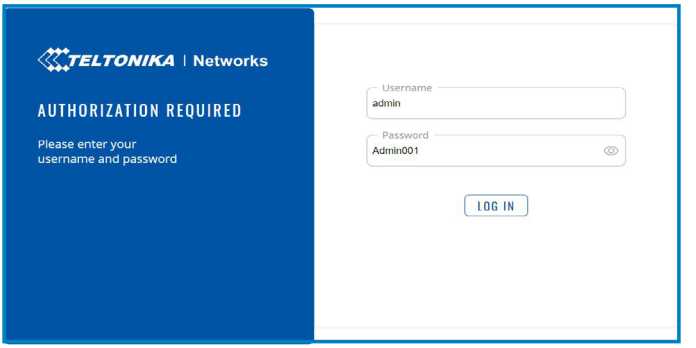
4.2 At your service computer, look for access point named ChargePoint_xxxxxxxxxxx (where "x" means the serial number), and connect on it.



4.3 Open a web browser and type **http://192.168.1.1**, as shown in the front part of the modem.

Use the following parameters when prompted for authentication, and then either click Log in.

User name: **admin;** Password: **Admin001**

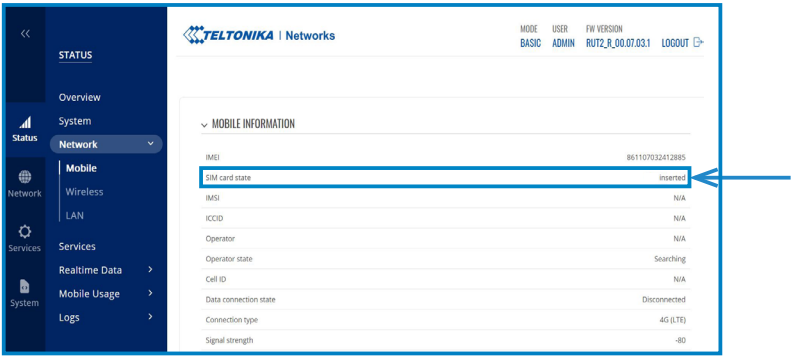


In order to change the password, remember to adjust it in Charge Point side, as explained in section 6.

You have now successfully logged, from here on you can configure almost any aspect of your router.

4.4 **Configuration Wizard** will start after logging in. It is necessary to complete Configuration Wizard to setup modem to the correct mode.

Go to **Status** > **Network** > **Mobile** and pay attention to 'Sim card state' field, it has to be **Inserted**.



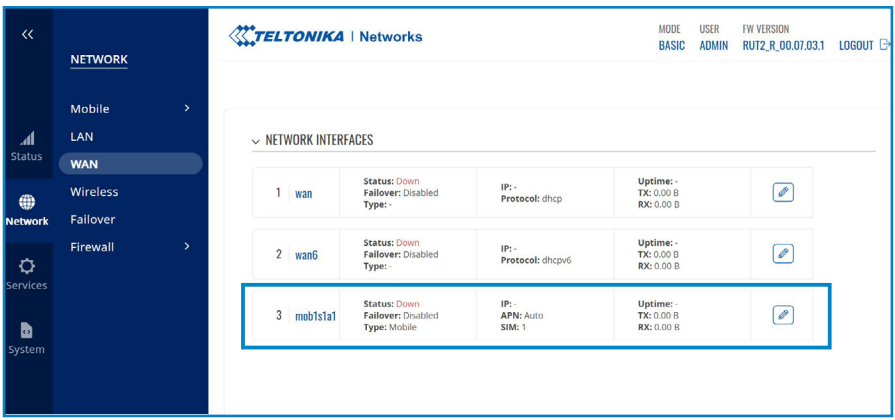
Through the chapter, it is indicated when some features are able to be modified only in basic or standard mode.

4.5 **Network Mobile configuration.** Here you can configure mobile settings which are used when connecting to your local network.

Depending on the mode you are logged in, the screw flow is different:

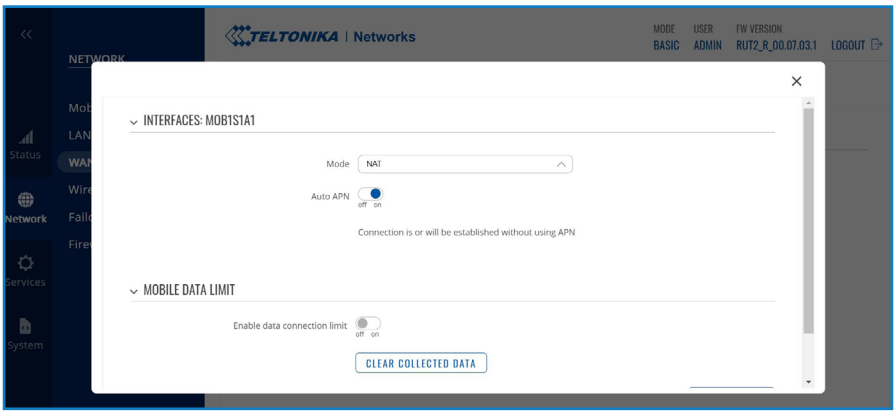
- Basic mode:

Go to **Network > WAN > mob1s1a1 >**



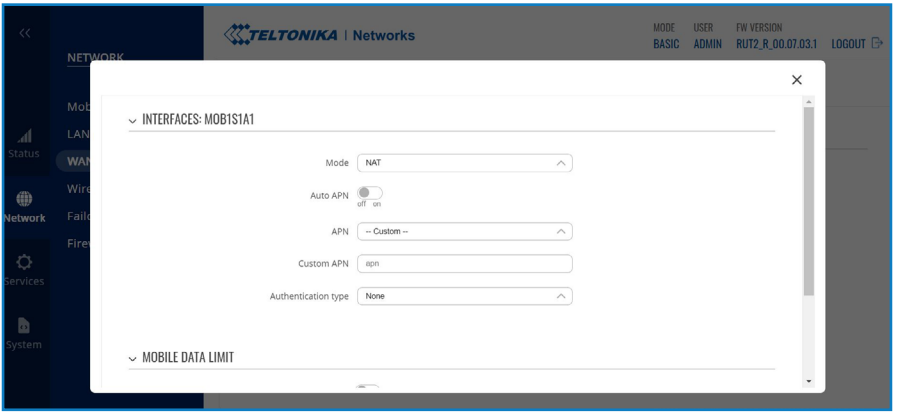
Auto APN (on) > save & apply

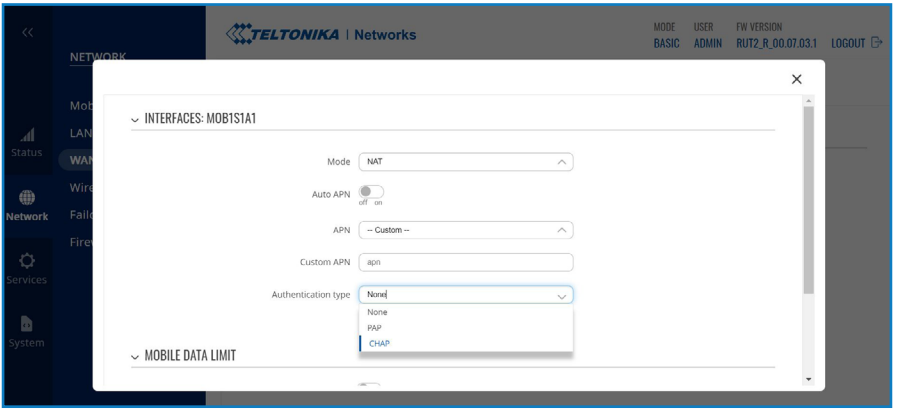
Not necessary to type an APN.



Auto APN (off) > save & apply

Type the APN from your SIM provider in **Custom APN** field.





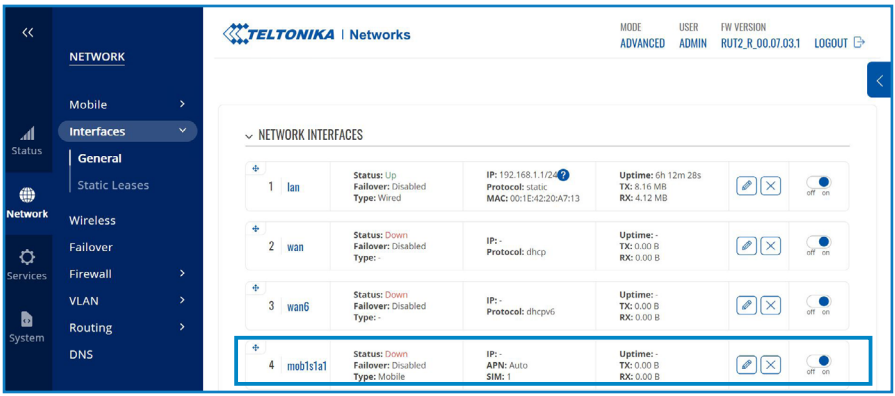
NOTES:

1. If your SIM provider require any authentication ask them about what type, PAP or CHAP, select it on **Authentication method** field and introduce a password and username.

2. If you need to do some custom over the modem configuration, ask the Circontrol Support staff in order to get the Teltonika modem manual.

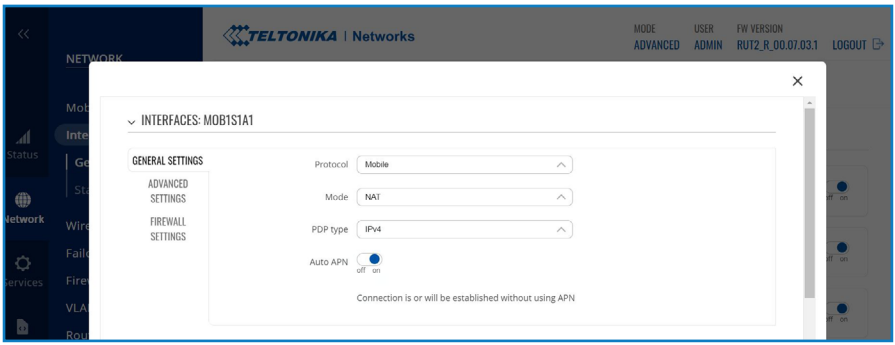
- Advanced mode:

Go to **Network > Interfaces > General > mob1s1a1 >**



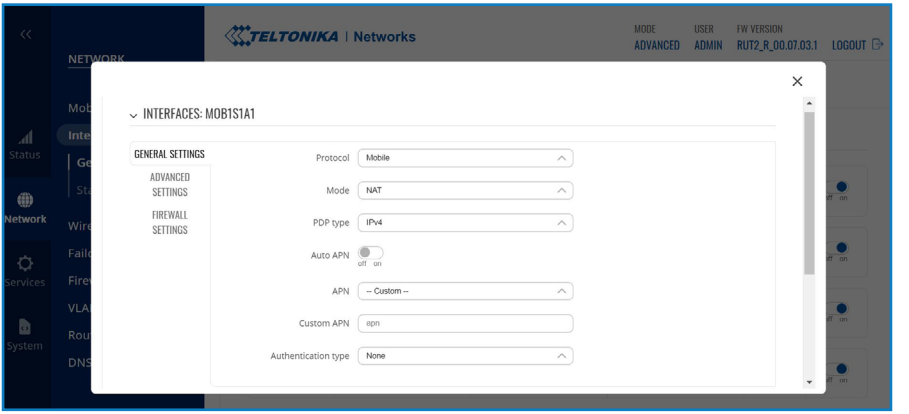
Auto APN (on) > save & apply

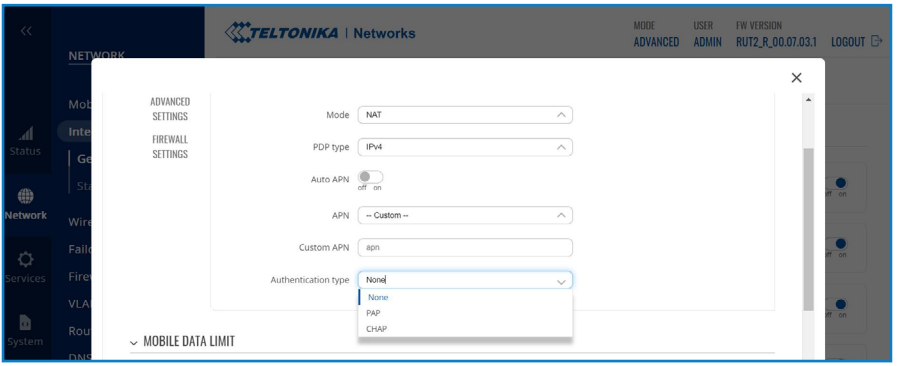
Not necessary to type an APN.



Auto APN (off) > save & apply

Type the APN from your SIM provider in **Custom APN** field.





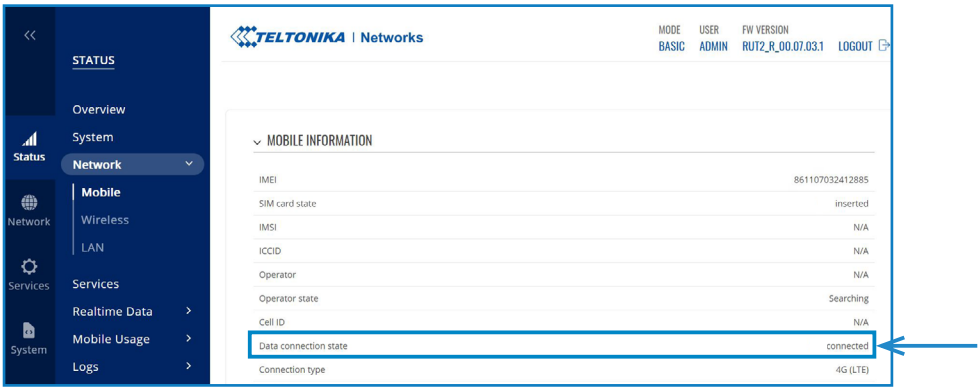
NOTES:

1. If your SIM provider require any authentication ask them about what type, PAP or CHAP, select it on **Authentication method** field and introduce a password and username.

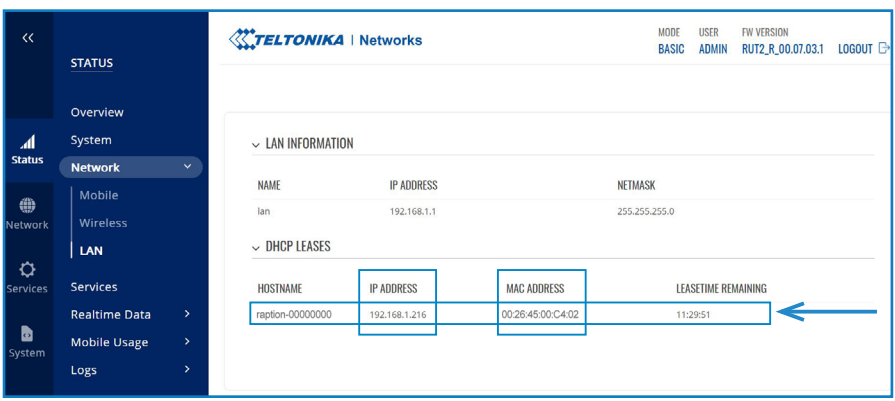
2. If you need to do some custom over the modem configuration, ask the Circontrol Support staff in order to get the Teltonika modem manual.

4.6 In order to know if the connection has been done properly, check next steps:

Go to **Status** > **Network** > **Mobile** and pay attention to **Data connection state**, it has to be "**Connected**"



Go to **Status** > **Network** > **LAN** > **LAN information** and pay attention to IP addresses

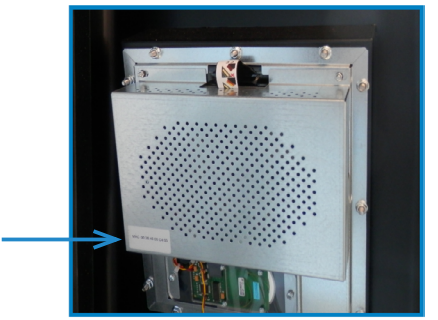


At **'DHCP Leases'** check that the modem has detected the automatic IP address and MAC number for both, your Service PC and the Charge Point.

NOTES:

1. If the modem has not detected the automatic IP address, switch off the circuit breaker, wait for 10 seconds and switch on again. Connect again your Service PC to the access point named ChargePoint_xxxxxxxxxxx, and repeat the steps 4.3 y 4.6.

2. To make sure that the Charge Point' s MAC number is correct, it can be seen in one label behind the HMI screen.



4.7 Go to **Network** > **Interfaces > Static Leases** (only in Advanced mode)

Complete the fields with next information:

Description - It can be written the name that you want for your Charge Point. It is highly recommended to name it keeping this structure: ChargePoint_xxxxxxxxxxx, to identify it easier.

MAC address - It will be the MAC number found behind the HMI screen, on the label

IP address - **192.168.1.50**

After filling the fields, push over **'Save & Apply'** button.

4.8 Disconnect the MCB inside the Charge Point in order to do a hard reset over the modem and the HMI screen, after 10 seconds switch ON again the MCB.

4.9 Repeat again the points 4.2 and 4.3 explained above:

4.2 - look for modem access point and connect on it.

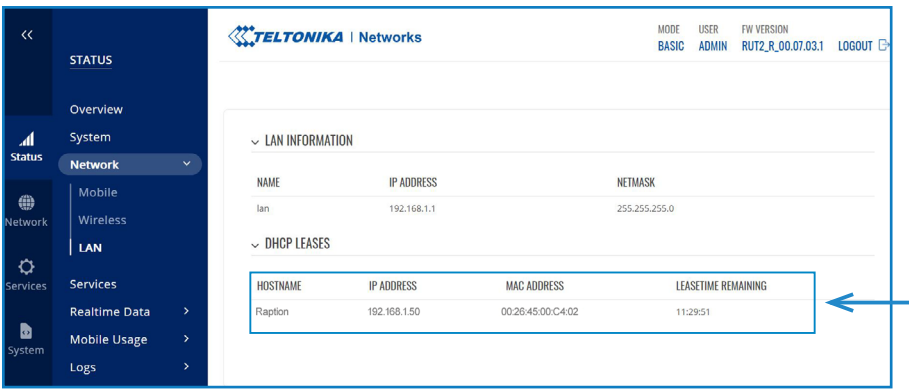
4.3 - log on modem webpage with authentication.

4.10 Now, go again to **Status** > **Network** > **LAN** > **DHCP Leases** and confirm that the information written at the point 4.7 has been successfully recorded:

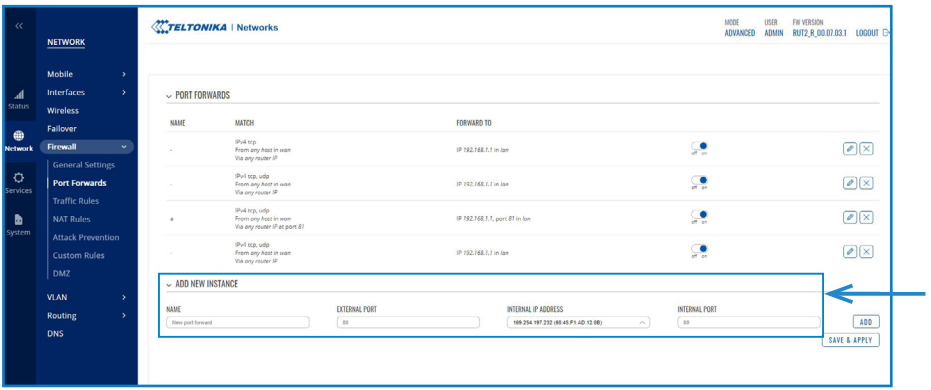
Description - the name given for Charge Point

MAC address - the MAC of the Charge Point

IP address - **192.168.1.50**



4.11 Go to **Network > Firewall > Port Forwards > Add new instance**



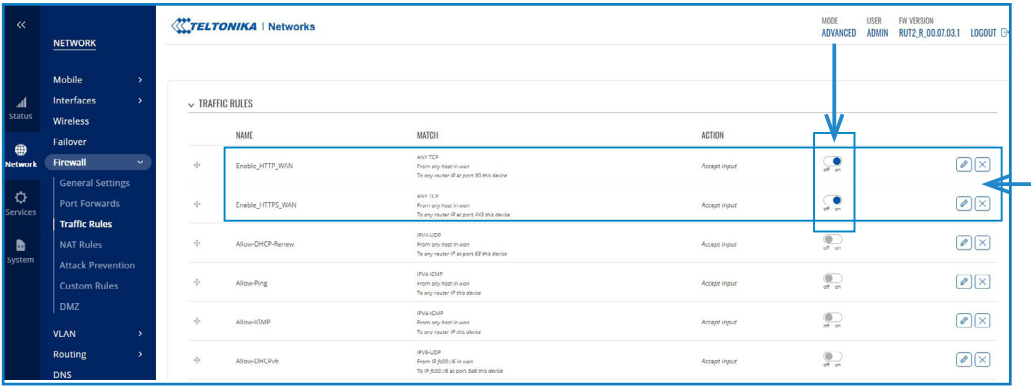
The ports that you can see in the table below are introduced in the modem by default, although only the named 50000 and 9191 are enabled:

Name	Protocol	External port (S)	Internal IP	Internal port (S)
80	TCP	80	192.168.1.50	80
8080	TCP	8080	192.168.1.50	8080
50000	TCP	50000	192.168.1.50	50000
9191	TCP	9191	192.168.1.1	80

If necessary, it is possible to enable the other ports or introduce them following the table listed above.

Push over **'Save & Apply'** button after any modification.

4.12 Go to **Network > Firewall > Traffic Rules** (only in Advanced mode)

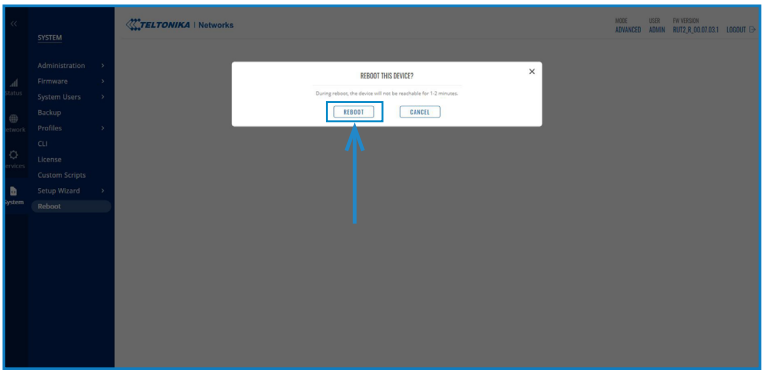


Roll down and look for 'Enable_HTTP_WAN' and 'Enable_HTTPS_WAN' fields and enable these.

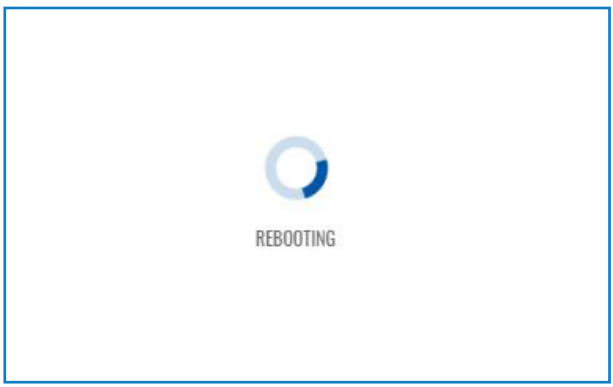
Roll down again and push over **'Save & Apply'** button.

4.13 For ending with the modem logging is necessary to do a reboot:

Go to **System** > **Reboot** and push over the **'Reboot'** tab



During the process, the system will show the progress, do not switch off the modem.



4.14 Repeat again the points 4.2 and 4.3 explained above:

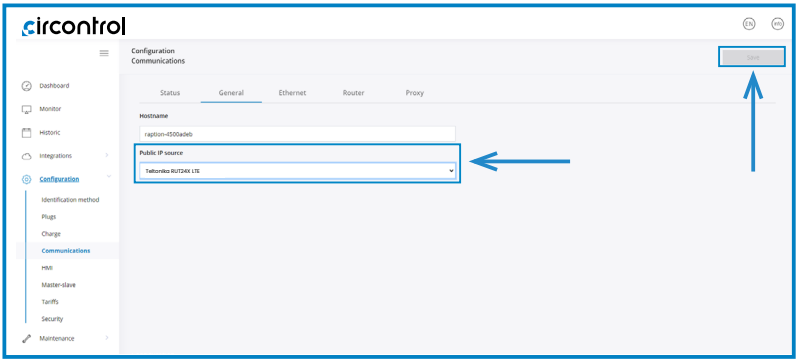
4.2 - look for modem access point and connect on it.

4.3 - log on modem webpage with authentication.

4.15 It is necessary to check that the Teltonika RUT24X LTE modem option is chosen at Charge Point's setup webpage:

Make sure that your Service PC is still connected with the Charge Point through wifi, open a web browser and type 192.168.1.50.

Go to **Configuration > Communications > General**



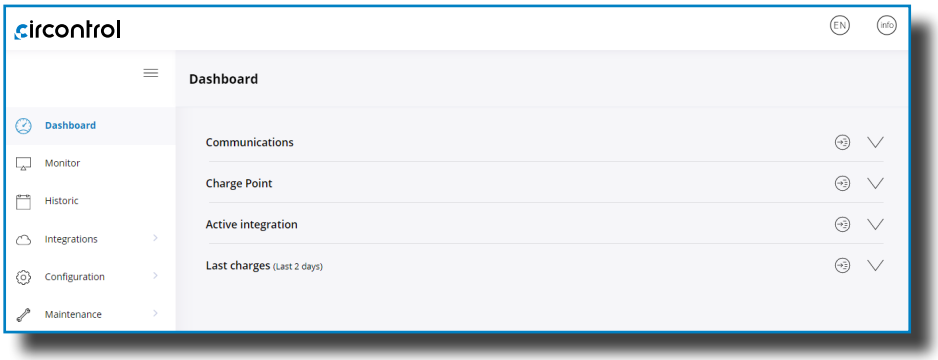
Click over the **'Save' button** located at the top right corner.

6 Setup webpage

Option only available to access in case of Master Charge Point.

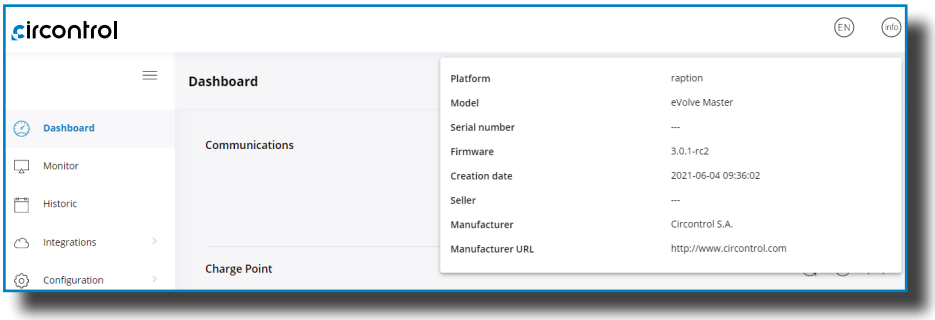
Setup webpage allows managing networking setup, upgrading devices and other options.

Once the Service PC is already connected to Charge Point, it is possible to open Setup Webpage through the IP entered. Open a web browser on the service PC and enter this IP, next image will appear.



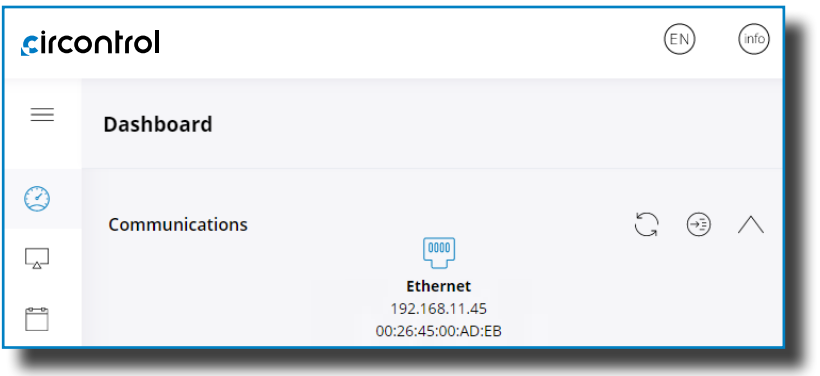
The web-page opened shows the 'Dashboard' Overview' as a main screen, but there are many more options. In the next points, they will be explained.

A) Dashboard



In the right top corner it is shown the search engine icon, the language list and information about the Charge Point. Once the info button is pressed, it appears the screen displayed above, with model and firmware version information, among others.

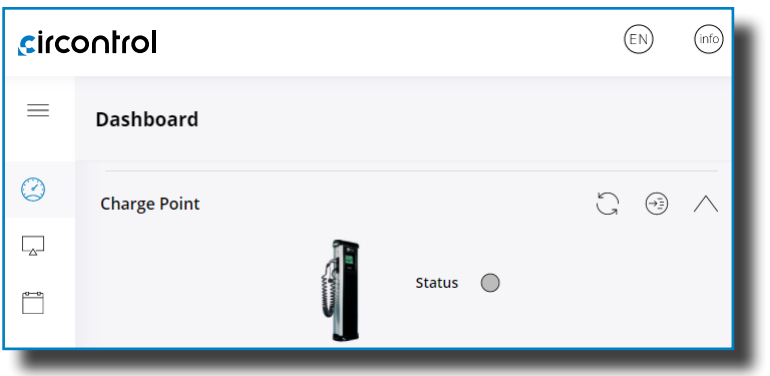
COMMUNICATIONS



As a relevant information, it shows:

Value	Description
IP	Short for Internet Protocol. Identifier that allows information to be sent between devices on a network.
MAC Address	Identifier of the network card of the Charge Point

CHARGE POINT

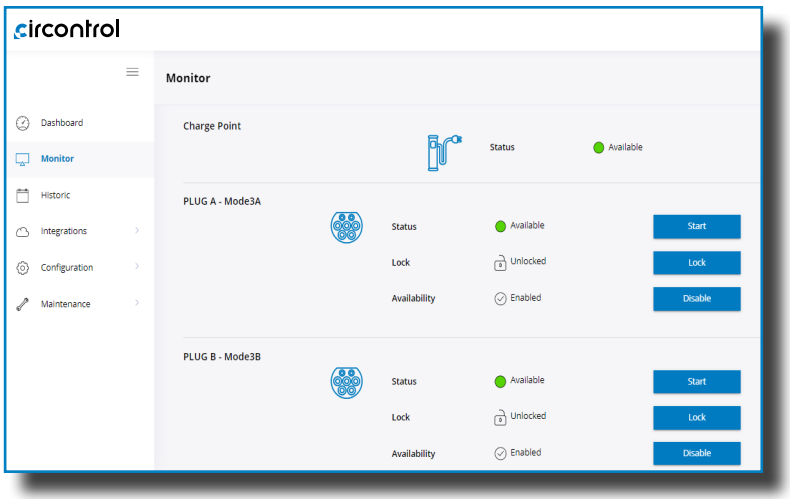


It is displayed if the Charge Point is available to be used or not.

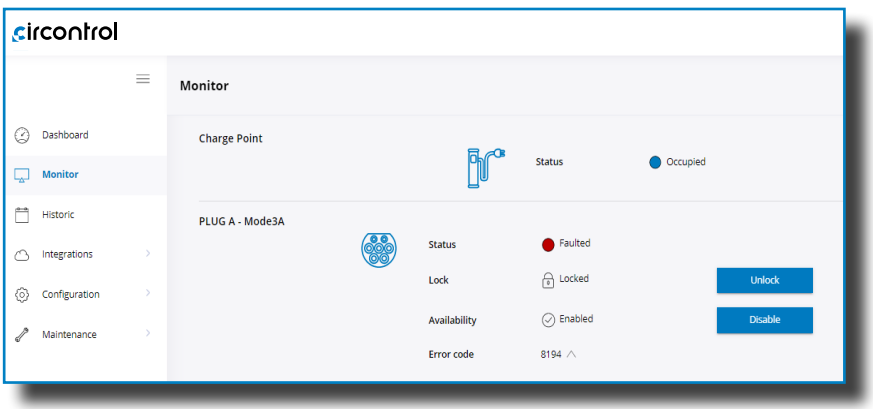
B) Monitor

In this section, it can be consulted the status of the Charge Point, the type of connectors it has and the availability of them.

It is possible to start or stop a charging session, able or disable a connector or lock or unlock it remotely.



It is also shown when connector individually has an internal error, and an error code, in order to look for the type of fault.

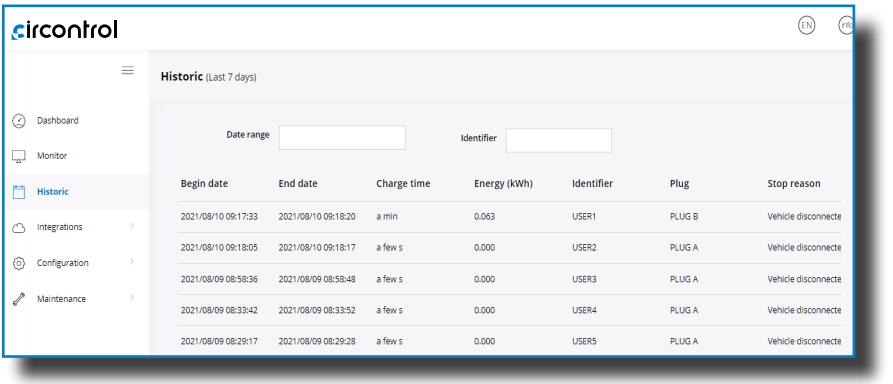


C) Historic

This section provides information of every charge transaction started in the Charge Point.

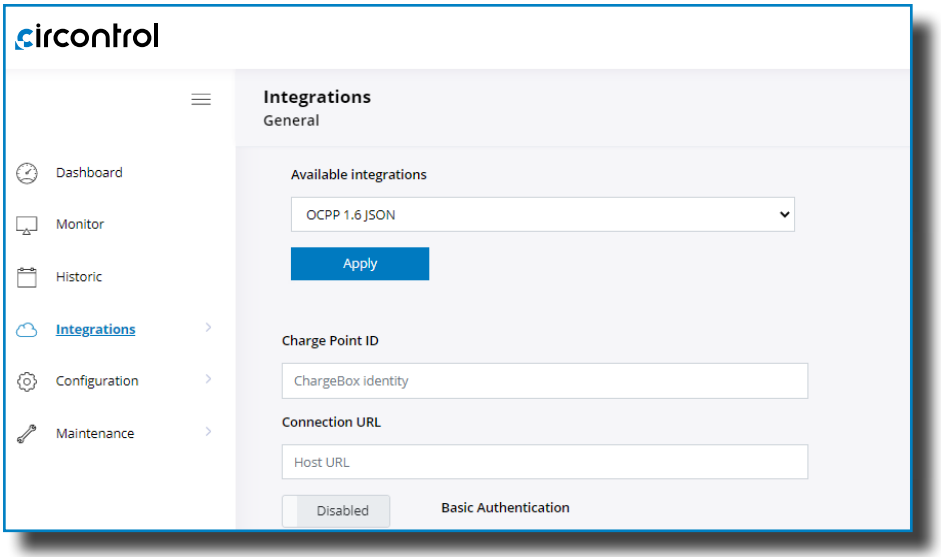
It can be checked date and hour of begin and end of a charge transaction, energy charged, alias of the user and type of charge used.

All of this elements have the chance to be organized depending on the user needs.



D) Integrations

Clicking over the **'Integrations'** tab, user will be able to activate OCPP integrations.



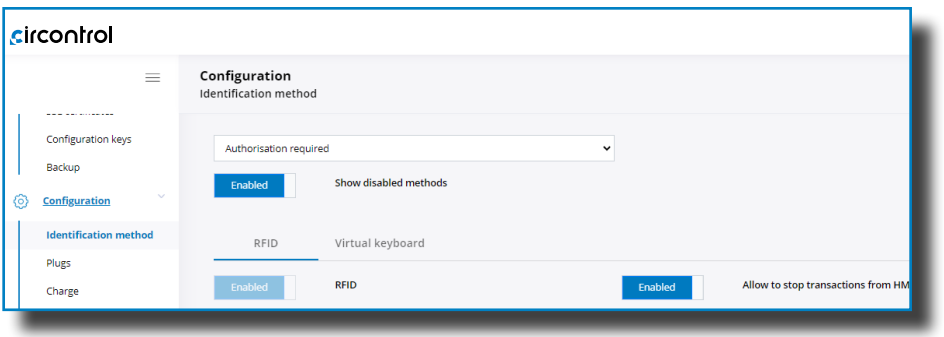
NOTE: the integration of the Charge Point needs a separate chapter. In the next chapters number 6 and 7 it is explained how to integrate OCPP.

E) Configuration

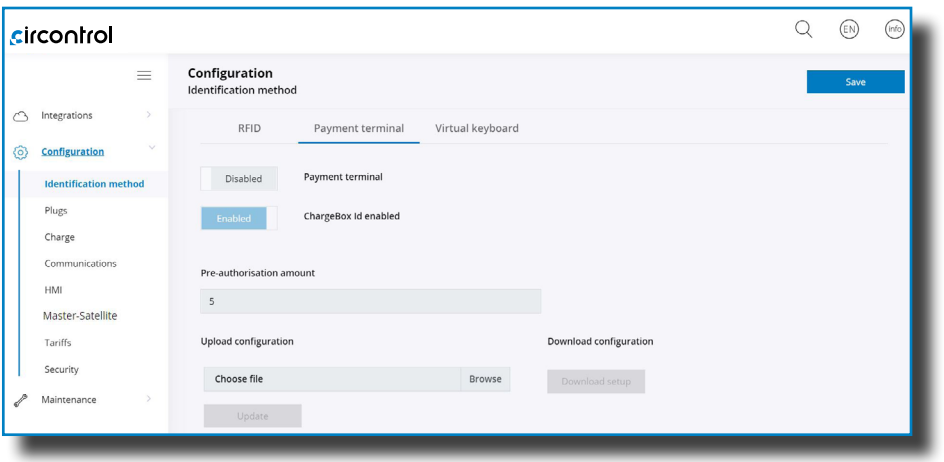
In this section, there can be adjusted many different settings related with the Charge Point, depending on the elements it has and level of security it is desirable to have.

IDENTIFICATION METHOD

It is possible to enable or disable the option in order to use the Charge Point with or without identification, and also, if the user is capable to stop charge transaction.



When the Charge Point includes payment terminal, it is necessary to enable the option to let the user pay with this method.

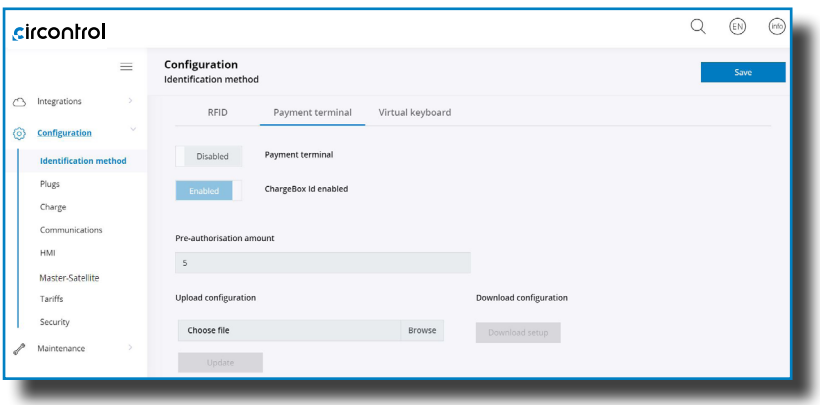


Enable ChargeBox Id option allows the system to differentiate every single charge point separately, in order to use this data by the back end system.

As a Pre-authorisation amount, it can be configured the amount of money that the bank blocks to the user once the charge transaction starts. When the charge transaction is finished, the blocked fee is returned and only charge to the user according to the tariff described below.

Upload configuration allows to upload the configuration file with the payment gateway keys supplied by the specific financial service or bank. It can be downloaded the existing file whenever it is necessary.

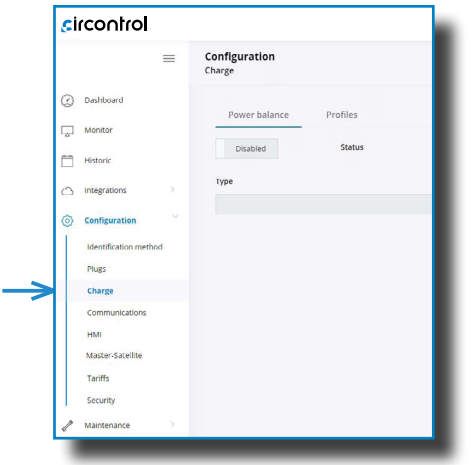
PLUGS



It is possible to choose charging with quick charging, slow charging or both, depending on the needs of the Charge Point.

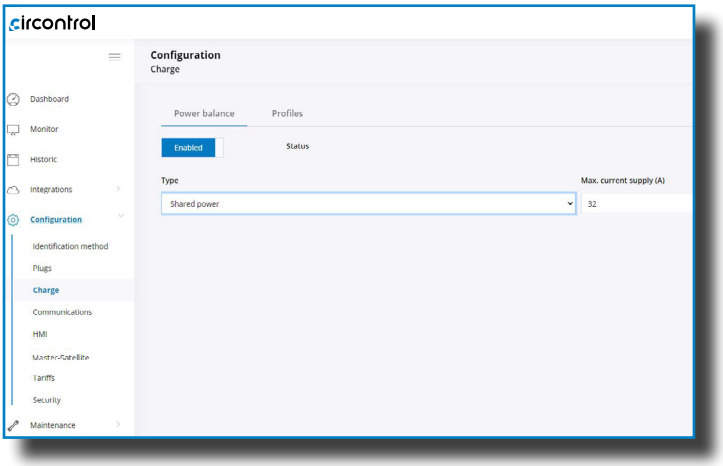
CHARGE:

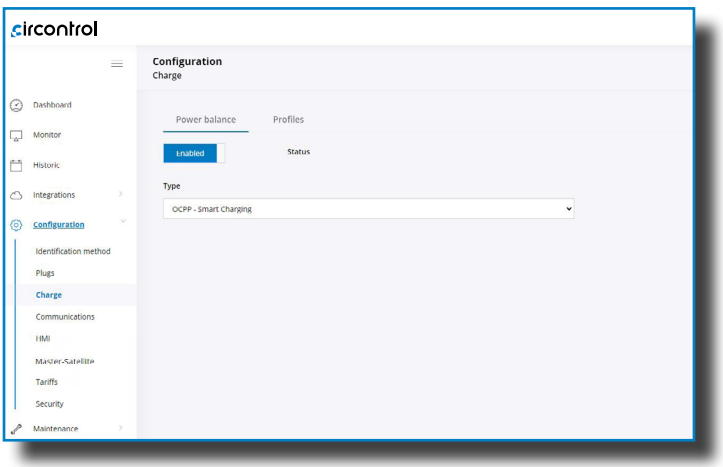
The Charge Point is capable of balancing the available power based on the number of outlets in use.



Value	Description
Power Balance	**ENABLE:** the Charge Point shares equally the power delivered to each ongoing Charge Transaction without exceeding the limit configured. **DISABLED:** the Charge Point does not take in consideration any limit, giving the maximum power for each connector.
Profiles	It lets to choose whether from the EV transaction and lock should be disconnected or not and choose the charging cable connection timeout in seconds. idTag option enabled adds a prefix indicating the method of identification chosen by the user, as shown in the table below:

Method of identification	Prefix
RFID	RF
Contactless Payment	CC
PIN-code	KC
Plug&Charge	NA

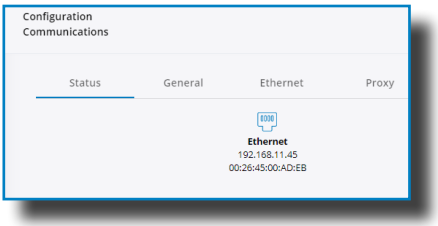


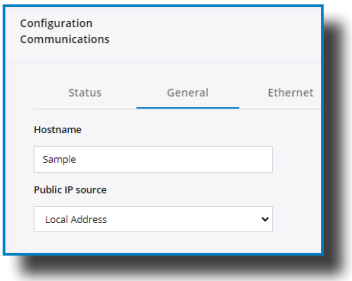


Value	Description
Shared power	It indicates the power available to divide between the connected vehicles. The *Max.current supply (A)* is the available power **ONLY** for AC outlets.
OCPP-Smart Charging	The power balance is made via OCPP.

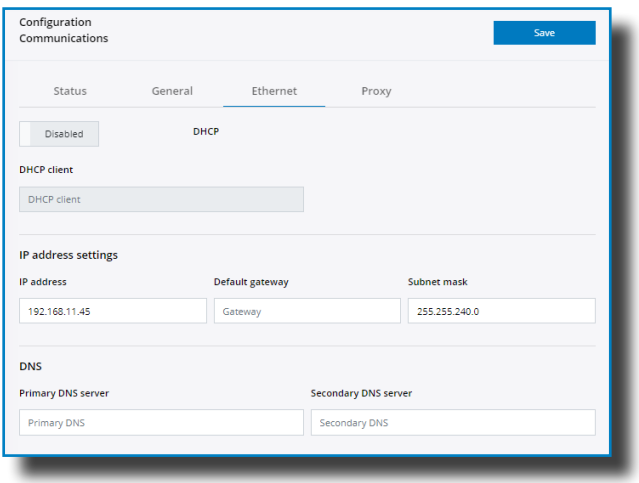
COMMUNICATIONS

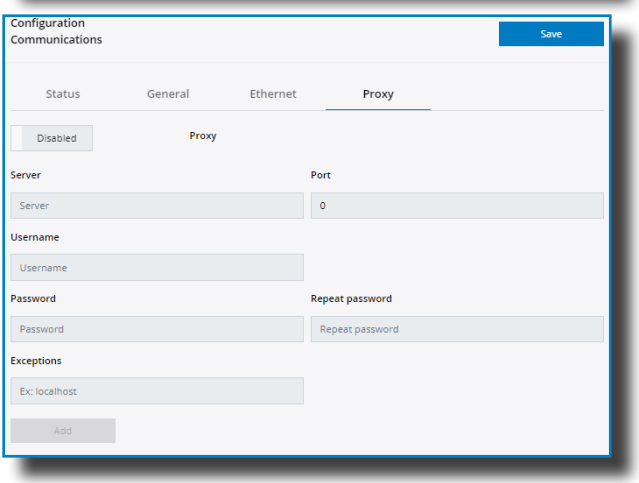
This section provides basic configuration of the network parameters.





DHCP server (router) means to enable or disable the IP address assignment. To be enabled when working with the integrated modems.

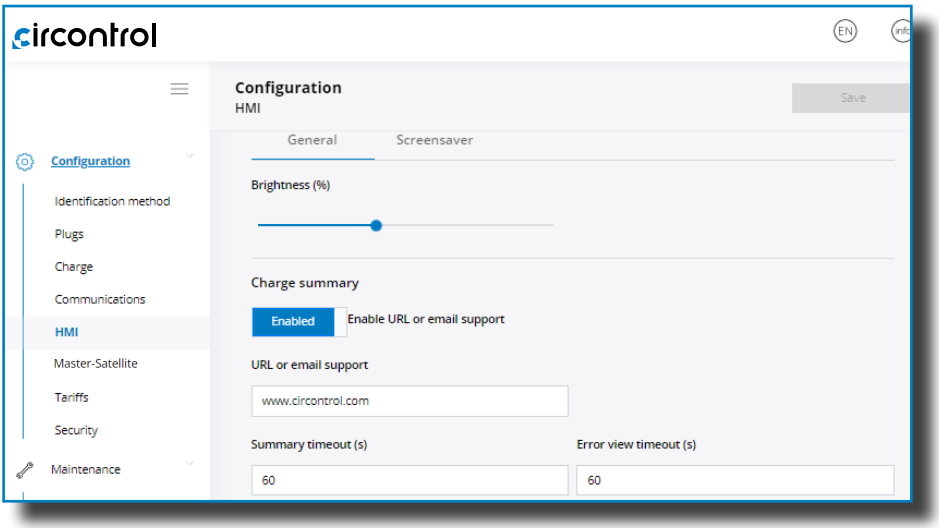




HMI

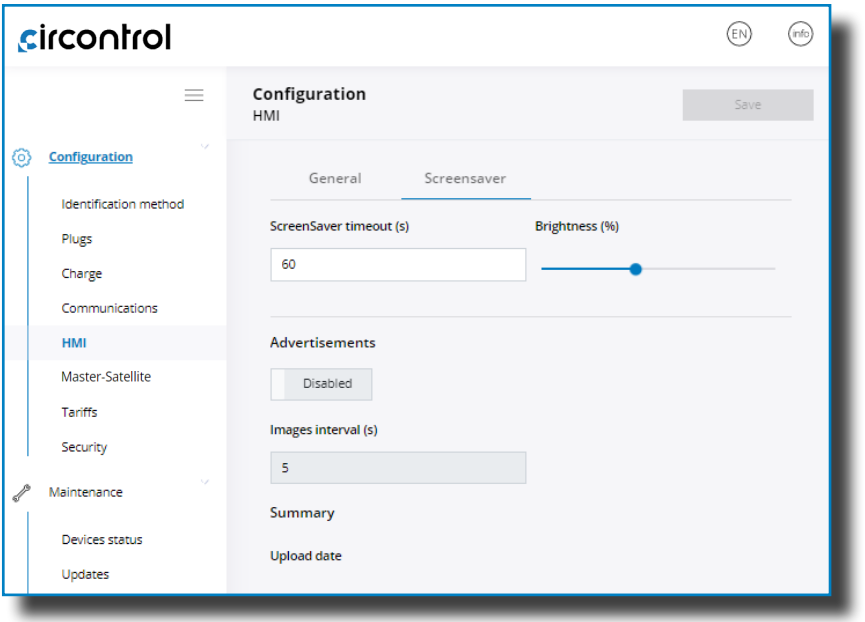
Short for Human Machine Interface.
In this section, there can be adjusted many settings related with the Display.

In General tab it is possible to adjust screen brightness and enable or disable the email support and timeout. Also, in the Charge Point can be uploaded up to 20 languages between the wide variety able to choose.



Also, it is possible to customize the languages in the Charge Point. In the left column are all the available languages between the wide variety able to choose. On the other hand, in the right column are the ones chosen to be displayed in the Charge Point, organized as shown on screen.

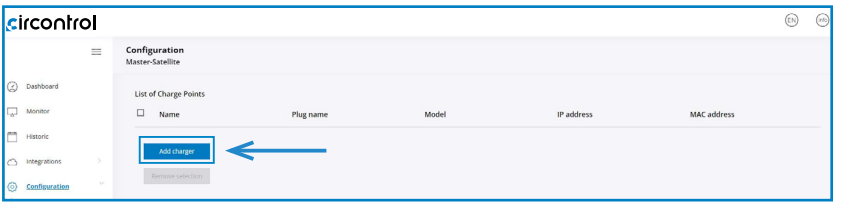
In Screensaver tab it is possible to adjust timeout and brightness and enable or disable advertisements, what lets customize the Screensaver image by uploading a file.



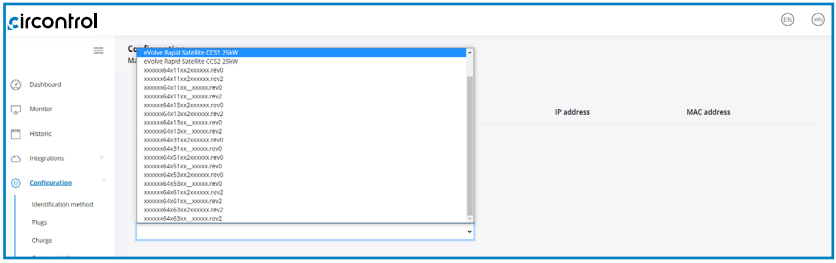
MASTER-SATELLITE

In this section, it is possible to synchronize new satellite Charging Points, that are linked to the one used as a Master.

To start the configuration, “Add charger” button should be clicked.



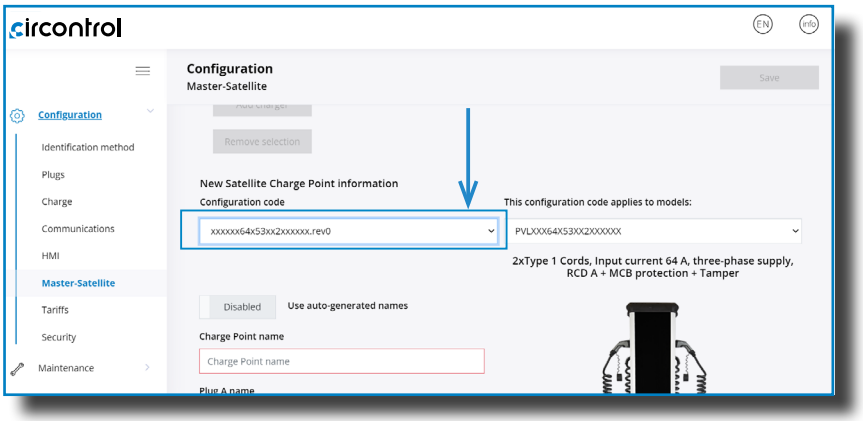
Then, a new field appears and the Charging Point you want to configure as a satellite should be chosen among the whole options in the table.



Depending on whether the model is DC or AC, it is shown in different way in the list above:

- DC: Only chance to choose eVolve Rapid Satellite model.

-AC: It consists in a 25-digit configuration code. There are **5 parameters that can change**, depending on the model specifications.



Using the code in the image as an example, there are these exchangeable parameters.

xxxxxx**64**x**53**xx**2x**xxxxx.**rev0**
xxxxxx**AA**x**BC**xx**DD**xxxxx.**EEEE**

The multiple options for each parameters are described in the following table:

Value	Options	Description
AC Current (AA)	64	AC input current. (32A + 32A)
AC inputs (B)	1	T2S32 version.
	3	T1C32 version.
	5	T2C32 version.
	6	T2S32 version. (With shutter)
Phases (C)	1	Single-phase charging point.
	3	Three-phase charging point.
Tamper (DD)	__	Without tamper.
	2x	With tamper.
Connector (EEEE)	rev0	Cable or one of the following covers
	rev2	

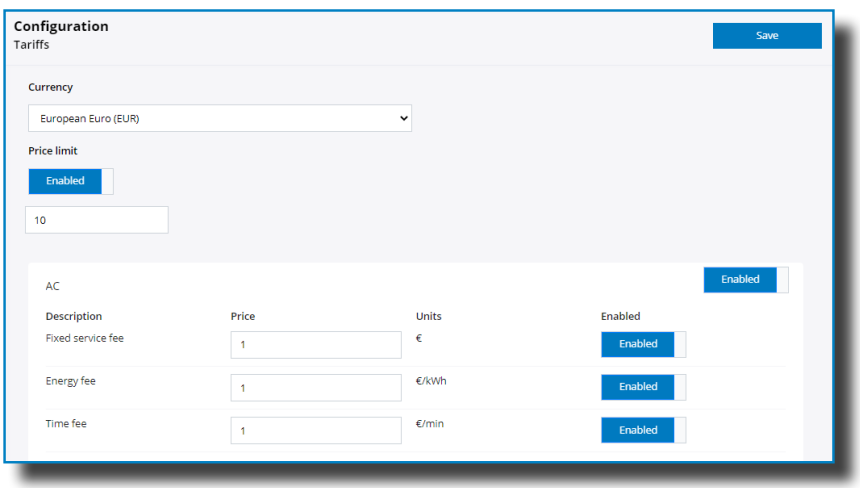
TARIFFS

In this section, it can be adjusted the cost of a charge transaction. These settings are just displayed to inform the customer.

It is necessary to work with an integrated system for the payment, such as contactless payment kit or OCPP Integrations. The payment will be done through one of these platforms.

When adjusting these settings, they will be displayed in the charger screen even if there is not a platform in charge of the receipt. Make sure that values are set according to the final price from these platforms.

Remember to press 'Save button to apply the settings.

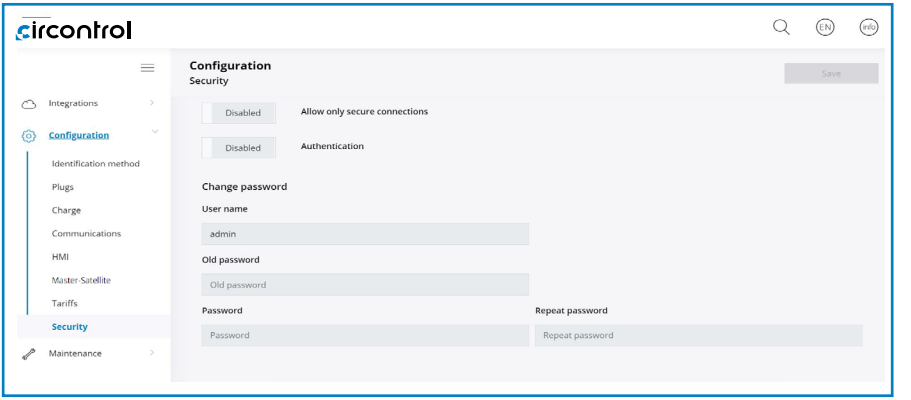


There are few parameters that can be adjusted:

Value	Description
Currency	Choose the proper currency according to the area the Charge Point is installed.
Price Limit	Maximum cost of the charge transaction.
Fixed service fee	Price of a new charge transaction.
Energy fee	Amount of money to be payed based on the energy delivered to the EV.
Time fee	Amount of money to be payed based on the duration of charge transaction.

All these settings can be combined according to the customer preferences.

SECURITY



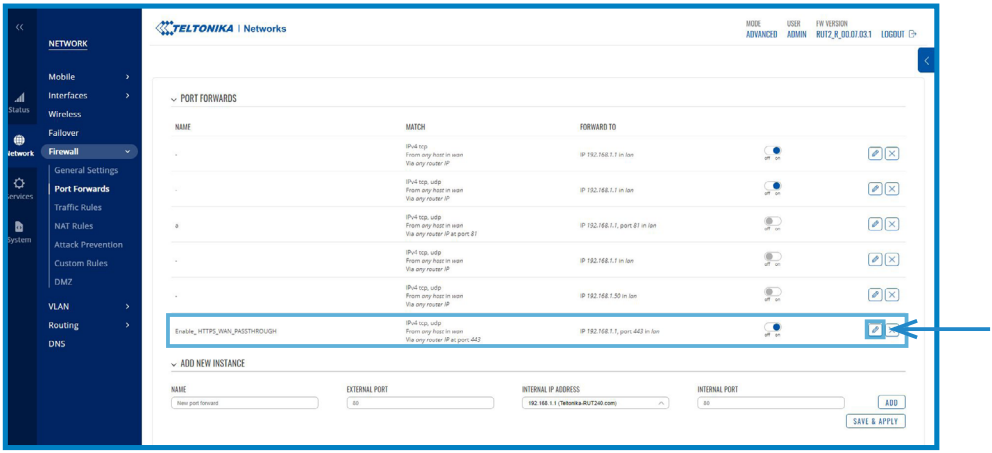
Value	Description
Allow only secure connections	**ENABLE:** Information transferred between Charge Point and laptop is strictly encrypted. Once enabled, it must be done some modifications in modem configuration, as explained below. **DISABLED:** not possible to assure secure connections between Charge Point and laptop.
Authentication	**ENABLE:** Introduce a user and a password in order to enter in the web setup. NOTE: Old password is 1234 by default. **DISABLED:** not password required to enter in the websetup. It is possible this option to be changed whenever is desired.

Configure modem to allow secure connections:

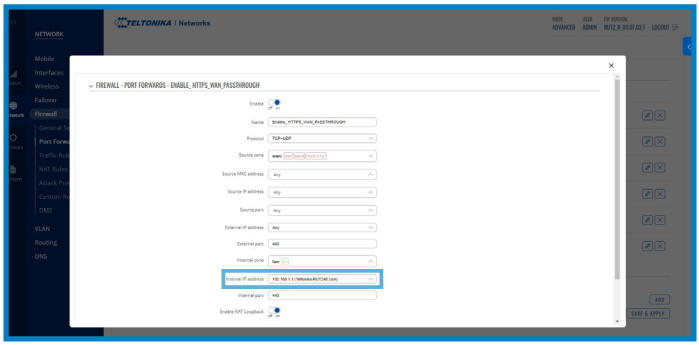
After you're complete with the setting up as described in the section 5, you are ready to start logging into your router and start configuring it.

1. Go to **Network > Firewall > Port Forwards**

Locate the port named "Enable_ HTTPS_WAN_PASSTHROUGH" and click button.



Once in Edit screen, insert 192.168.1.50 in "Internal IP address" field and click Save & Apply button.

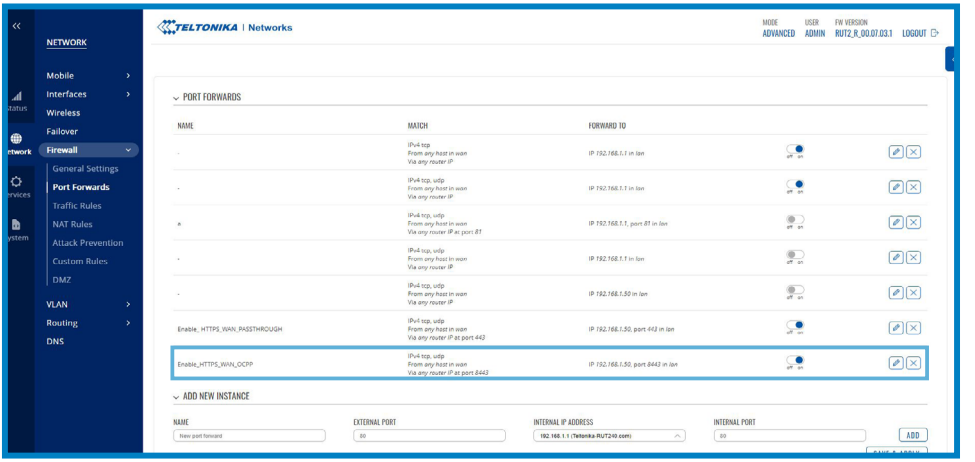


2. Go to **Network > Firewall > Port Forwards**

At the bottom part of the screen, add a new port forward rule with the following parameters and once introduced click Add button:

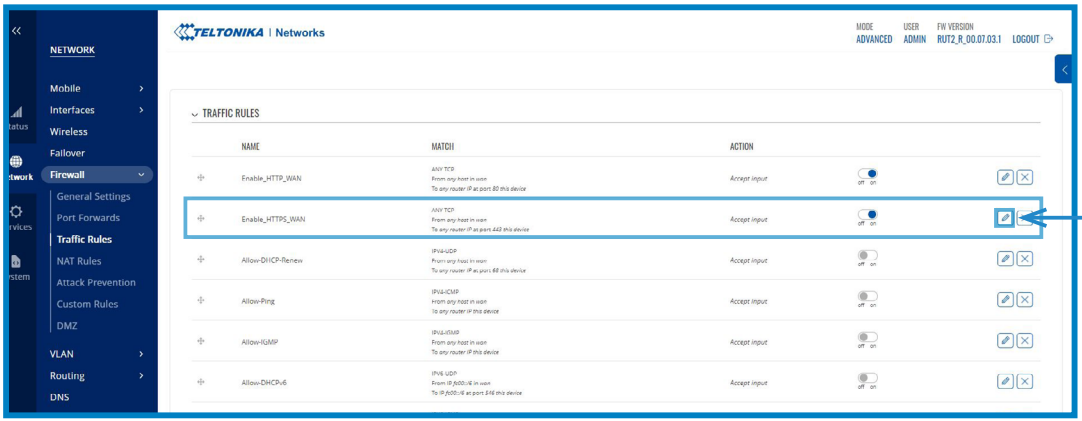
Name: Enable_HTTPS_WAN_OCPP
External port: 8443
Internal IP Address: 192.168.1.50
Internal port: 8443

Check that the new line appears and switch to **ON** position to enable it.

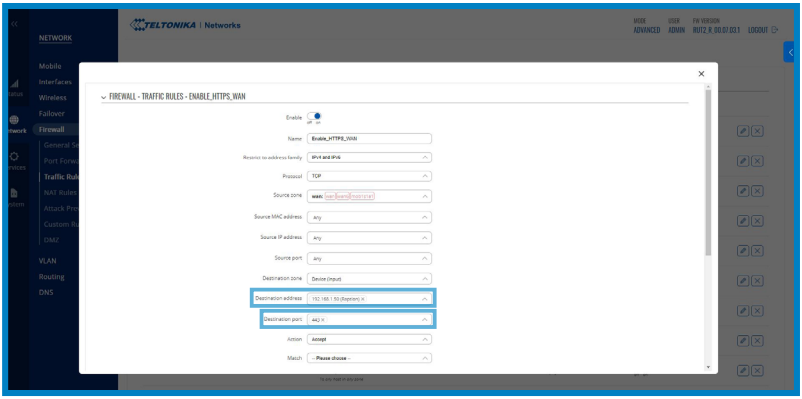


3. Go to **Network > Firewall > Traffic Rules** (only in Advanced mode)

Locate the rule named “Enable_ HTTPS_WAN” and click button.



Once in Edit screen, insert 192.168.1.50 in "Destination address" field and 443 in "Destination port" field; then click Save & Apply button.



4. Go to **Network > Firewall > Traffic Rules** (only in Advanced mode)

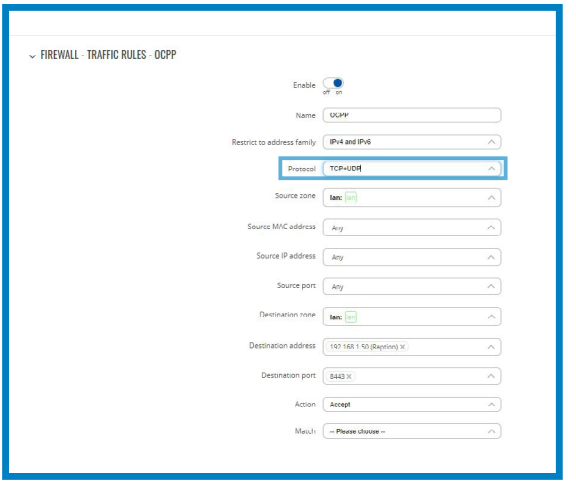
At the bottom part of the screen, add a new traffic rule with the following parameters and once introduced click Add button:

Name: OCPP
Protocol: All
Destination address: 192.168.1.50
Destination port: 8443

Check that the new line appears and switch to **ON** position to enable it.

Then click button.

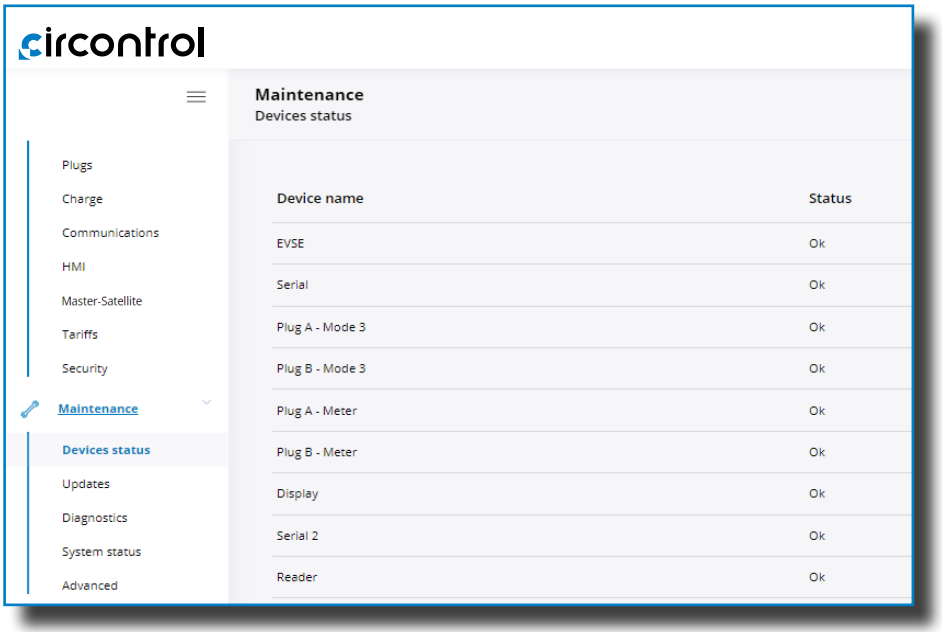
Once in Edit screen, insert TCP+UDP in "Protocol" field and then click Save & Apply button.



F) Maintenance

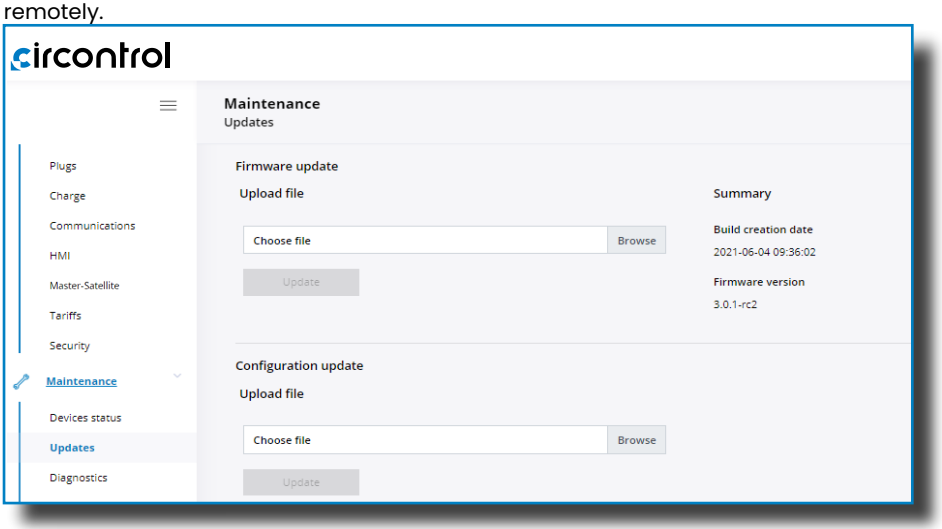
DEVICES STATUS

In this section, it can be consulted the status of the devices which are communicating via RS-485.



UPDATES

Through this tab, the Charge Point firmware and the application can be upgraded remotely.

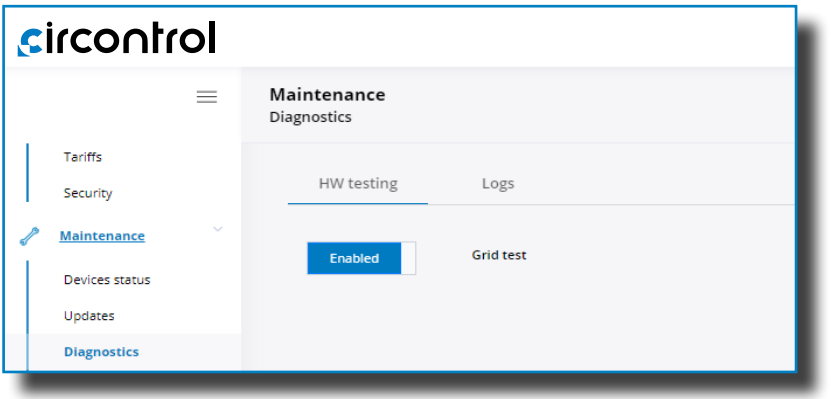


To obtain the latest firmware version or need any special configuration update, please contact CIRCONTROL Support Department.

DIAGNOSTICS

Clicking over the **'HW Testing'** tab, it appears to enable or disable Grid test option.

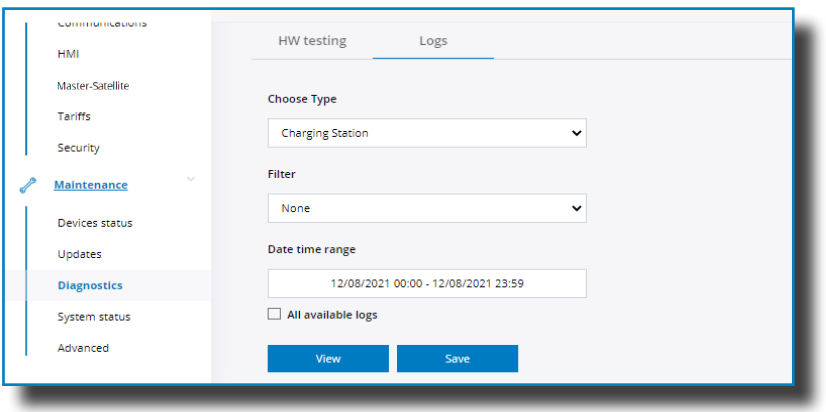
That means HMI shows a test screen to check that touch function works properly.



The logs shown in this section are automatically produced by the Charge Point. It is a detailed list of the charging sessions, system performance or user activities.

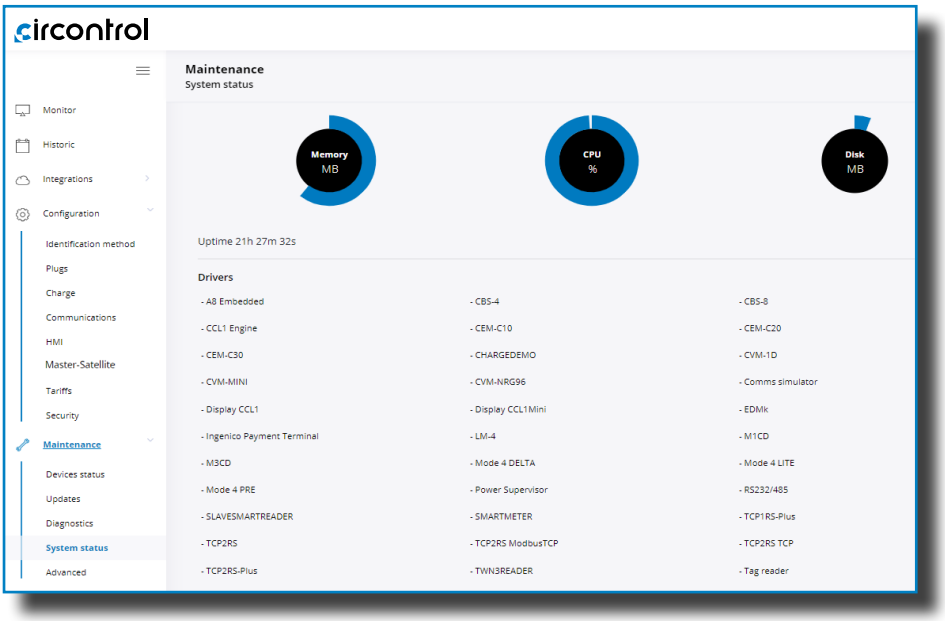
When Charge Point is powered ON, system begins to register log files. If the Charge Point is restarted these logs are lost and immediately are created new ones.

However, it is highly recommended to check log files in the next URL: http://IPADDRESS/services/cpi/log



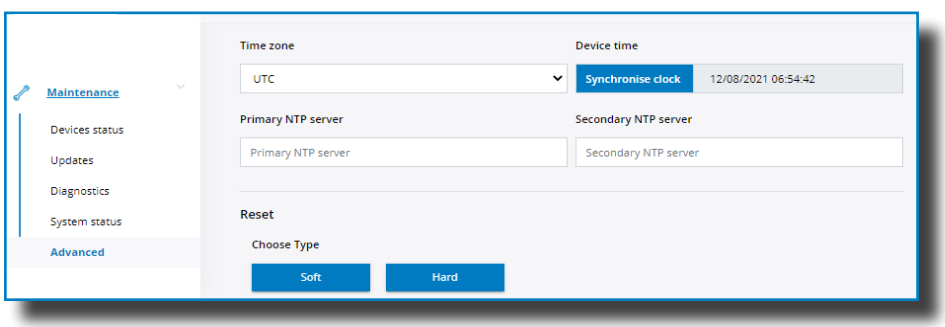
SYSTEM STATUS

The information shown in this section is basically relative to the state of the PC of the Charge Point. It is necessary for the technical service staff but does not show any information regarding to the external connection of the Charge Point or to the charging session.



ADVANCED

This section allows setting the time and region time for the Charge Point. Also, it offers the possibility to reset the Charge Point.



Next, we will explain the different sections of the **'Date and time'** and **'Reset'**

Value	Description
Time Zone	Select the regional time for the Charge Point according to the location.
Time	Current date and time of the Charge Point.
Primary NTP Server	Synchronize the time through internet automatically.
Secondary NTP Server	
Soft Reset	Restart of the Charge Point, closing applications and clearing any data in RAM. Unsaved data in current use may be lost but data stored on the hard drive, applications and settings are not affected.
Hard Reset	Also known as a factory reset or master reset, is the restoration of the Charge Point to the state it was in when it left the factory.

7 OCPP 1.6J

A) Introduction

The goal of the Open Charge Point Protocol (OCPP) is to offer a uniform solution for the communication between Charge Point and a Central System. With this open protocol it is possible to connect any Central System with any Charge Point, regardless of the vendor.

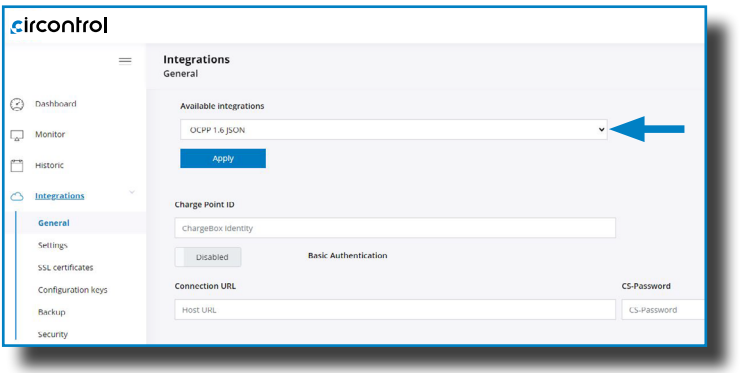
Follow next steps in order to configure OCPP 1.6 in the Circontrol Charge Points.

B) Before starting

Check following steps in order to ensure the correct function of OCPP 1.6:

Go to the **Setup Web-page** > **'Integrations'** tab > **'General'** tab

Once in **'General'** section, Public IP source establishes where the Charge Point must obtain the public IP address in order to send it later to the back-end. Different values can be selected:



Choose the option selected under **'Public IP source'** according to your network topology.

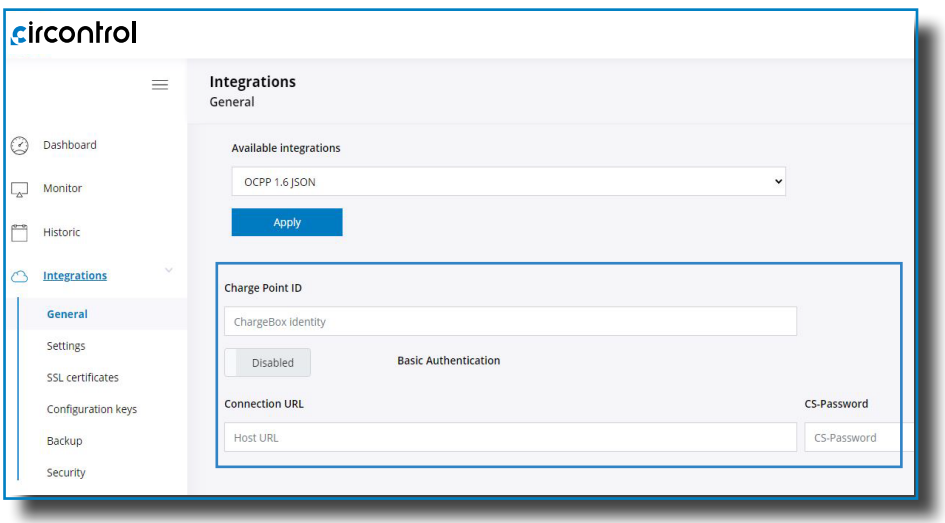
When done, please do not forget to save changes using **'Apply'** button just below the option selected.

C) Configuration

Go to the **Setup Webpage** > **'Integrations'** tab > **'General'** tab

Charge Point supports different versions of OCPP but only one can be enabled at the same time.

Go back to setup web page and click on the **'Integrations'** tab, choose the option selected under **'Available integrations'** according to your back-end policies as shown in the picture:



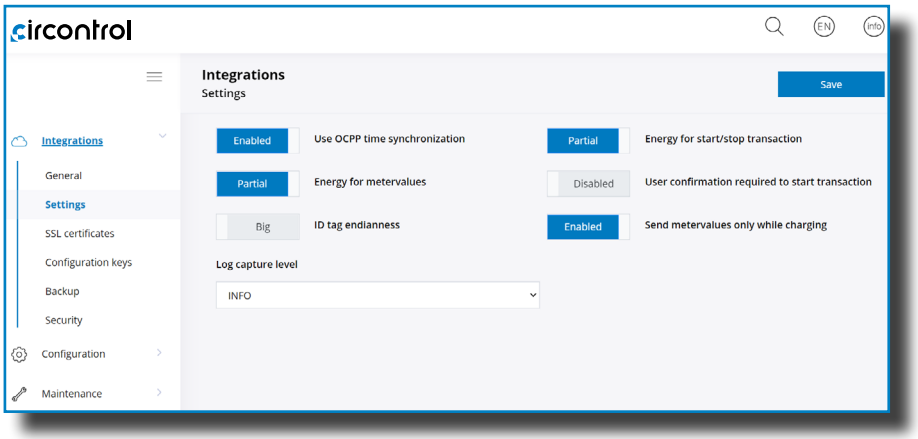
NOTE: Charge Point is working as stand-alone if **'none'** option is selected. All ID cards are authorized to start/stop a new charge transaction and no requests are sent to the back-end.

Value	Description
Charge Point ID	Charge Point identifier.
Basic Authentication	Set an authentication if required, being the options 'Enabled' and 'Disabled'.
Connection URL	URL address of the central system.
CS-Password	Introduce CS-Password if required.

Go to the **Setup Web-page** > **Integrations** > **'Settings'** tab

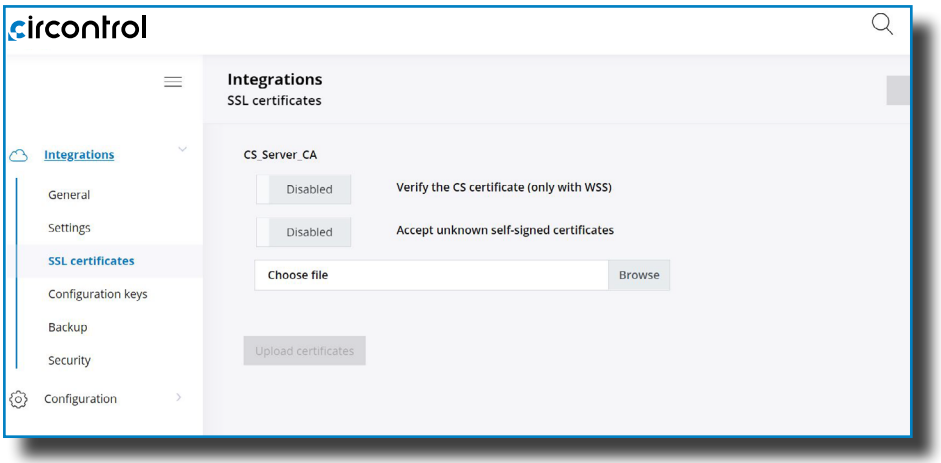
Once OCPP 1.6 option is selected, a link appears allowing access to the OCPP configuration.

Please, click on the link button as shown in the picture:



Value	Description
Use OCPP time synchronization	**ENABLED:** Synchronization of date and time. **DISABLED:** Synchronization of date and time. ***NOTE:** Date and Time is sent from backend on each heartbeat response.
Energy for metervalues	**PARTIAL:** Sends partial energy consumption while vehicle is charging. **TOTAL:** sends the actual count of the total accumulated energy meter.
ID tag endianness	Storage type for system data (**BIG** or **LITTLE**).
Energy for Start/ Stop transaction	**PARTIAL:** Consumed value of energy by the vehicle sent between start and stop. **TOTAL:** Actual count of the total accumulated energy meter sent between start and stop.
User confirmation required to start transaction	**ENABLED:** user confirmation needed to proceed with a remote start (i.e. touch the screen). **DISABLED:** user confirmation NOT needed to proceed with a remote start.
Send metervalues only while charging	Choose between (**ENABLED** or **DISABLED**).
Log capture level	Level of information detailed (**DEBUG**>**INFO**>**ERROR**>**NONE**).

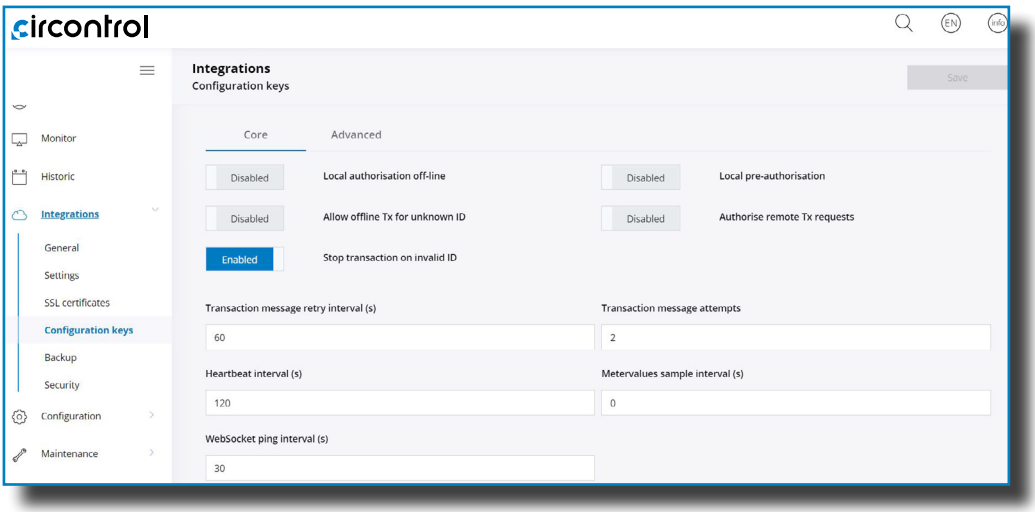
Go to the **Setup Web-page** > **Integrations** > **'SSL certificates'** tab

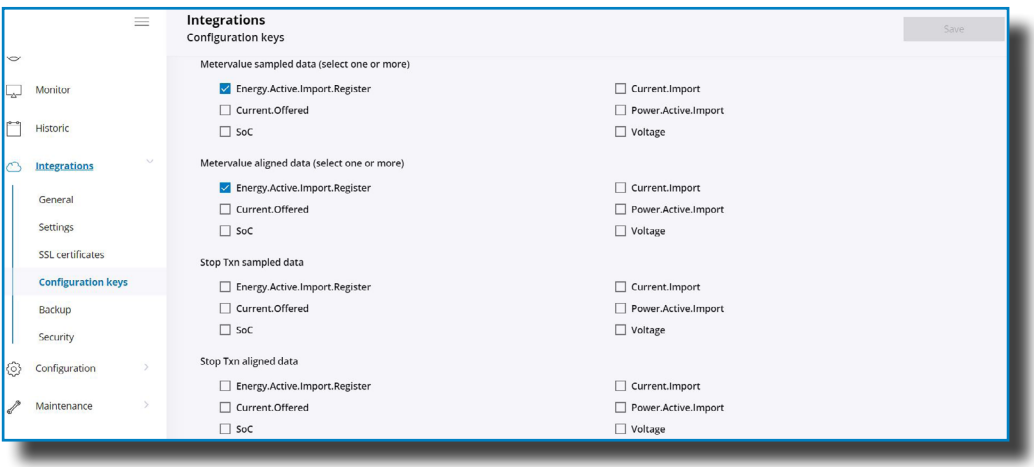


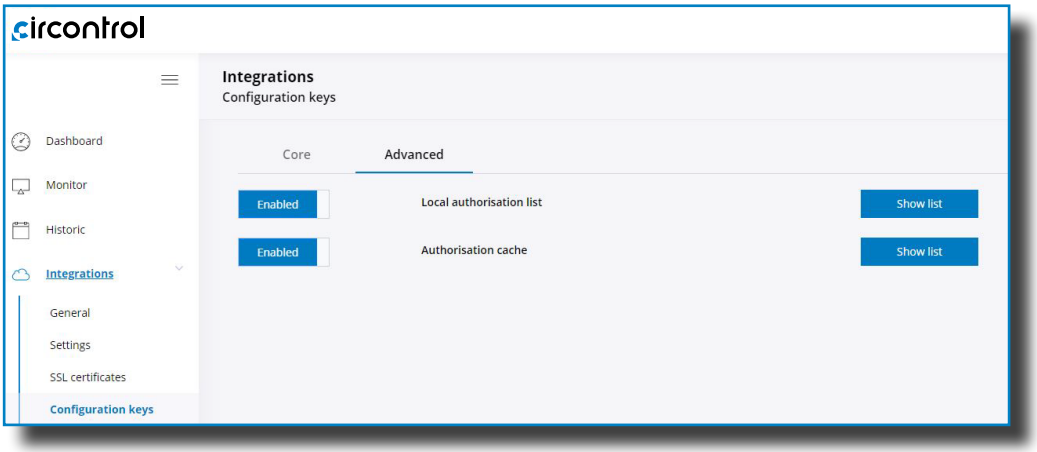
For WSS connections is needed a Central System certificate. Upload it in this section.

To obtain the latest certificates, please contact Central System you are working with.

Go to the **Setup Web-page** > **Integrations** > **'Configuration keys'** tab



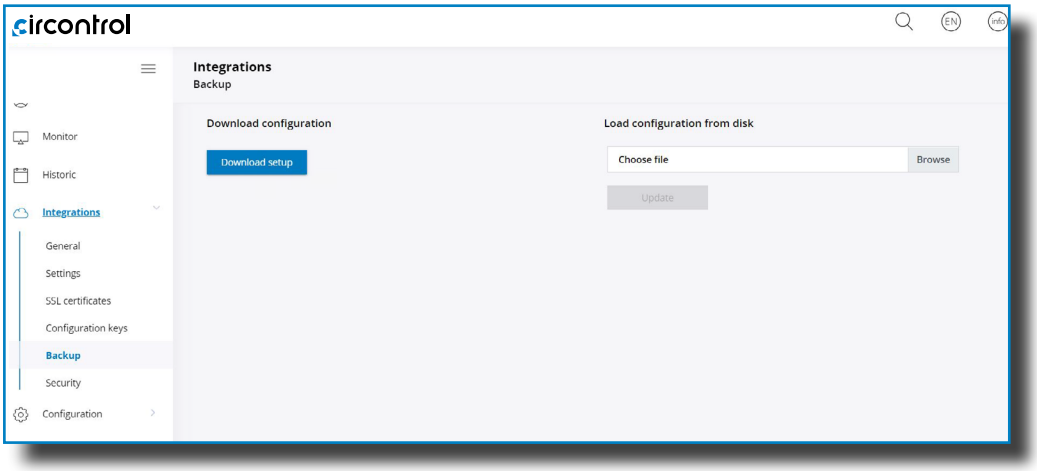




Value	Description
Authorisation cache	**ENABLED:** maintain a local list of all presented identifiers that have been successfully authorized by the Central System. **DISABLED:** authorization for presented identifiers is requested directly to the Central System.
Authorise remote Tx requests	**ENABLED:** the Charge Point asks for authorization when the Central System sends a remote start. **DISABLED:** the Charge Point starts the Charge Transaction when the Central System sends a remote start.
Local pre-authorisation	**ENABLED:** Charge Point looks for locally-authorized identifiers without waiting for the Central System authorization. **DISABLED:** Charge Point requests authorization for presented identifiers to the Central System.
Allow offline Tx for unknown ID	**ENABLED:** during offline period unknown identifiers are allowed to start charging. **DISABLED:** during offline period unknown identifiers are NOT allowed to start charging.

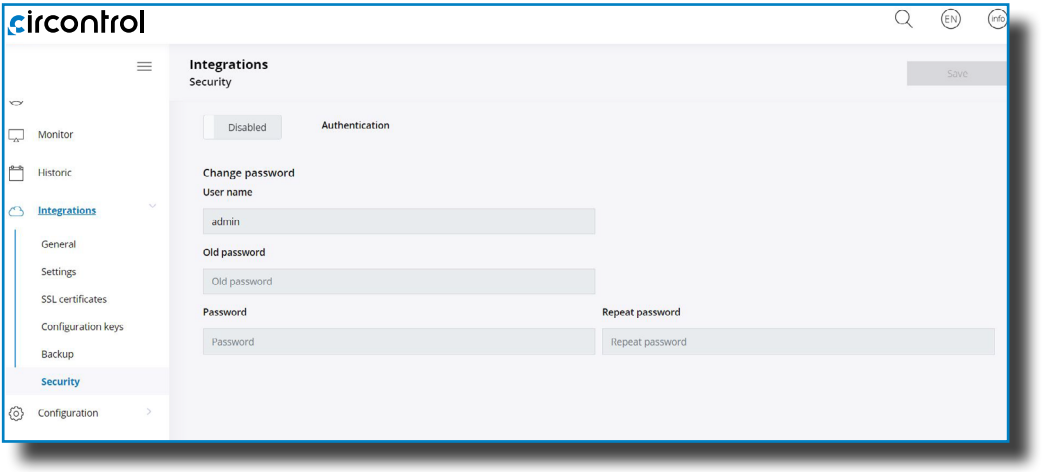
Value	Description
Local authorisation off-line	**ENABLED:** during offline period locally-authorized identifiers are allowed to start charging. **DISABLED:** during offline period locally-authorized identifiers are NOT allowed to start charging.
Stop transaction on invalid ID	**ENABLED:** stop existing Charge Transaction after response from Central System when user is blocked, expired or invalid. **DISABLED**: Charge Transaction does not stop even if backend rejects the user.
Metervalue (select one or more)	List of supported values used in the MeterValue.
Transaction message retry interval	Number of seconds between transaction message attempts. ***NOTE:** setting this value to 0 disables the attempts.
Transaction message attempts	How many times the Charge Point should try to send a request to the Central System.
Heartbeat interval	Number of seconds between Heartbeats. ***NOTE:** setting this value to 0 disables the Heartbeat.
Metervalues sample interval	Number of seconds between MeterValue during an ongoing Charge Transaction. ***NOTE:** setting this value to 0 disables the MeterValue.
WebSocket ping interval	Number of seconds between Pings. ***NOTE:** setting this value to 0 disables the Websocket Ping/ Pong.

Go to the **Setup Web-page** > **Integrations** > **'Backup'** tab



It is possible to download a backup of the Charge Point pressing 'Download setup' button. On the other hand, it can also be uploaded a backup previously downloaded from another Charge Point.

Go to the **Setup Web-page** > **Integrations** > **'Security'** tab



In this chapter could be introduced a user and password in order to enter in this section. It is possible this option to be changed whenever is desired.

NOTE: Old password is 1234 by default.

8 Monitoring

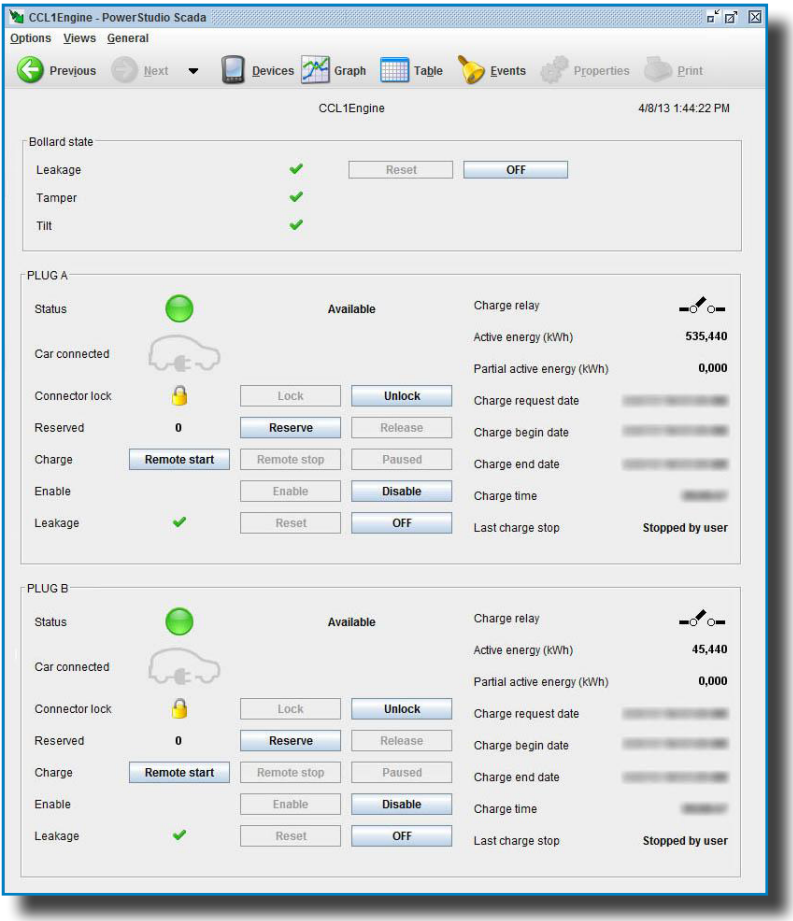
SCADA Client

The IP address assigned previously, is useful to connect with the Charge Point in order to monitor the real-time status.

The main way to connect is using the **CirCarLife client software** (Supplied by Circontrol Support staff) or you can download it from Circontrol Expert Area Webpage.

NOTE: Java software needs to be installed on your computer in order to run the client software, please, download last version from: www.java.com

In remote connections, where is required communicate via 3G/4G data with the Charge point in order to monitor its parameters, it should be noted that there will be a HIGH consumption of data.


CCL1Engine - PowerStudio Scada
Options Views General
Previous Next Devices Graph Table Events Properties Print
CCL1Engine
4/8/13 1:44:22 PM
Bollard state
Leakage
Tamper
Tilt
Reset
OFF
PLUG A
Status
Available
Car connected
Connector lock
Lock
Unlock
Reserved
0
Reserve
Release
Charge
Remote start
Remote stop
Paused
Enable
Enable
Disable
Leakage
Reset
OFF
Charge relay
Active energy (kWh)
535,440
Partial active energy (kWh)
0,000
Charge request date
Charge begin date
Charge end date
Charge time
Last charge stop
Stopped by user
PLUG B
Status
Available
Car connected
Connector lock
Lock
Unlock
Reserved
0
Reserve
Release
Charge
Remote start
Remote stop
Paused
Enable
Enable
Disable
Leakage
Reset
OFF
Charge relay
Active energy (kWh)
45,440
Partial active energy (kWh)
0,000
Charge request date
Charge begin date
Charge end date
Charge time
Last charge stop
Stopped by user

9 Technical data

A) AC Charge

General Specifications

Enclosure rating	IP54 / IK10
Enclosure material	Aluminium & ABS
Enclosure door lock	Anti-vandal key
Enclosure access	Frontal door
Operating temperature	-5 °C to + 45 °C
Ambient temperature storage	-20 °C to + 60 °C
Operating humidity	5% to 95% Non-condensing
Meter	MID Class 1 - EN50470-3
Light beacon	RGB colour indicator
Power limit control	Mode 3 PWM control according to ISO/IEC 61851-1
Dimensions	450 x 290 x 1550 mm
Weight	55 kg
Power Output Management	Integrated Load Management
Overcurrent protection	MCB (Curve C)
Safety protection	RCD Type A (30mA)
Type 2 socket protection	Locking System

Master	
Network connection	10/100TX (TCP-IP)
Interface protocol	OCPP 1.6J / 2.0 HW Ready
Display HMI	8" anti-vandal touchscreen
RFID Reader	ISO/IEC 14443 A/B MIFARE Classic/DESFire EV1 ISO 18092 ECMA-340 NFC 16.53MHz

Satellite	
Master Communication	Ethernet UTP

Optional devices	
Low Temperature Kit	-30 °C to +45 °C
Safety Protection	RCD Type A + 6mA DC RCD Type B (30mA)
Surge Protection	Four pole transient surge protector IEC 61643-1 (class II)
Type 2 socket protection	Shutter
Wireless communication (only available in Master)	EMEA - 4G LTE/WiFi Hotspot/GPRS/GSM LATAM/APAC - 4G LTE/GPRS/GSM
Tethered cable (spring) (cable length: 4m)	Type 1 + Type 1
	Type 2 + Type 2
Network hub (only available in Master)	Switch TCP ethernet 8 ports
	Switch TCP ethernet 12 ports
RFID Extension	Legic Advant / Legic Prime ISO 15693 / ISO 18092, Sony FeliCa
Customisation	Frontal Labelling
Contactless payment*	Integrated credit card payment terminal

* As an optional

Models	Master or Satellite S	Master or Satellite T
AC power supply	1P + N + PE	3P + N + PE
AC input voltage	230 VAC +/-10%	400 VAC +/-10%
Maximum input current	64 A	64 A
Maximum input power	14.8 kW	44 kW
Number of plugs	2	2
Maximum output current	32 A	32 A
Maximum output power	7.4 kW	22 kW
AC output voltage	230 VAC (1P + N + PE)	400 VAC (3P + N + PE)
Maximum output current	32 A	32 A
Maximum output power	7.4 kW	22 kW
AC output voltage	230 VAC (1P + N + PE)	400 VAC (3P + N + PE)
Master	2x Type 2 Socket (lock system)	2x Type 2 Socket (lock system)
Satellite	2x Type 2 Socket (lock system)	2x Type 2 Socket (lock system)

B) DC Charge

General Specifications

AC Power Supply	3P + N + PE
AC Input Voltage	400V +/- 10% three-phase
Power Factor	> 0.98
Efficiency	94% at nominal output power
Frequency	50 / 60Hz
Required power supply capacity	27 kVA
Maximum AC input current	39 A
Maximum output power	25 kW
Maximum output current	70 A
Output voltage	150-920 Vdc
Compliance	CE / Combo-2 (DIN 70121; ISO15118) IEC61851-1; IEC61851-23 IEC61851-21-2
Enclosure material	Aluminium & ABS
Enclosure rating	IP54 & IK10
Operating Humidity	Up to 95%
Ambient temperature storage	-40 °C to +60 °C
Lights for status indication	RGB colour indicator
Enclosure door lock	Security key lock
Enclosure access	Frontal door
Charge cable length	5.5 meters
MID	Class 1 - EN50470-3

Master	
Network connection	10/100TX (TCP-IP)
Interface protocol	OCPP 1.6J / 2.0 HW Ready
Display HMI	8" anti-vandal touchscreen
RFID Reader	ISO/IEC 14443 A/B MIFARE Classic/DESFire EV1 ISO 18092 ECMA-340 NFC 16.53MHz
Wireless communication (only available in Master)	EMEA - 4G LTE/WiFi Hotspot/GPRS/GSM
Network hub RFID Extension (only available in Master)	Switch TCP ethernet 8 ports

Satellite	
Master Communication	Ethernet UTP

Optional devices	
Wireless communication (only available in Master)	LATAM/APAC - 4G LTE/GPRS/GSM
Network hub RFID Extension (only available in Master)	Switch TCP ethernet 16 ports
RFID Extension	Legic Advant / Legic Prime ISO 15693 / ISO 18092, Sony FeliCa
Contactless payment*	Integrated credit card payment terminal
Safety Protections**	RCD type B 30mA MCB curve C

* Ask for availability

** Only in Wallbox model

Model Specifications

Models	Post Master/ Satellite	Wallbox Satellite
Safety Protections	RCD type B 30mA MCB curve C	-
Operating Temperature	-25ºC to +45ºC (Low Temp. Kit)	-5ºC to +45ºC
Environment	Outdoor / Indoor	Indoor
Dimensions (W x H x D)	479 x 1750 x 288 mm	382 x 984 x 236 mm
Weight	77 kg	56 kg
Cable support	Integrated connector holder and cable roller	Cable roller
Connection	CCS2 	CCS2

10 Need help?

In case of any query or need further information, please contact our **Support Department**

support@circontrol.com

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CIRCONTROL
Master-Satellite
USER MANUAL

A comprehensive guide on
how to use and configure your
Master-Satellite solution.

V5.0, May edition 2023

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