# KeContact C10
# Communication Hub
## Installation manual

KEBA®
Automation by innovation.

## Comments to this manual

In this manual you will find warnings against possible dangerous situations. The used symbols apply to the following meanings:

**WARNING!**

- **Indicates a potentially hazardous situation which, if not avoided could result in death or serious injury.**

**CAUTION!**

- **Indicates a potentially hazardous situation which, if not avoided may result in minor or moderate injury.**

**CAUTION**

- **Indicates a situation which, if not avoided could result in property damage.**

***Notes***

*Notes on use of equipment and useful practical tips. Notices do not contain any information that draws attention to potentially dangerous or harmful functions.*

*Important information.*

▶ Step of a sequence of operations.



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The device is designed in accordance with CE-rules.
The declaration of conformity is being held by KEBA AG.

**Information on disposal**
The symbol with the crossed-out garbage can points out that electrical and electronic devices including their accessories should not be disposed of in the household garbage. Information on correct disposal can be found on the product itself, in the instructions for use or on the packaging.
Depending on their coding, the raw materials are recyclable. By disposing of such used devices correctly, you can ensure that they can be reused, their raw materials recycled or put to another use, and you will be making an important contribution to the protection of our environment.

**Disposal of batteries**
Batteries or rechargeable batteries are hazardous waste and must be disposed of in the correct manner.
Although batteries have a low voltage, in the event of a short-circuit, they can still emit a charge sufficient to ignite flammable materials. Batteries should therefore not be disposed of together with conductive materials (such as iron filings, wire wool contaminated with oil etc.).

# Contents

# 1 Important information

## 1.1 Safety instructions

**WARNING!**

**Not observing the safety instructions can result in risk of death, injuries and damage to the device! KEBA AG assumes no liability for claims resulting from this!**

- **Electrical hazard!**
  **The installation, commissioning and maintenance shall only be performed by correctly trained, qualified and authorized electricians who are fully responsible for the compliance with existing standards and installation regulations.**

  **For assembly and installation of the individual components (KeContact P20, Power supply unit), please follow the instructions and safety instructions in the corresponding manuals.**

- **Do not remove any notices on the device, such as safety symbols, warning notices, rating plates, nameplates or cable markings!**

- **The KeContact C10 does not have its own power switch! The plug of the power supply unit serves as disconnector.**

- **Observe the instructions given for selecting the location and the constructional requirements!**
  **If the specifications for the location are not observed, this can result in death, serious physical injury or equipment damage if the corresponding precautionary measures are not met!**

## 1.2 Intended use

KeContact C10 is a communication hub (called C10) that converts the communication protocol of a KeContact P20 Wallbox (called P20) to the OCPP protocol (e.g. metering values, status information) in order to communicate with an external OCPP host system.
Only the KEBA KeContact P20 Wallbox (c-series with Ethernet port) will work in conjunction with the KeContact C10 communication hub. Your C10 is suitable for top hat rail mounting or screw mounting on a wall.

The correct use of the devices in all cases includes observing the ambient conditions for which the devices are developed.

The instructions contained in this manual must be precisely followed in all circumstances. Failure to do so could result in the creation of potential sources of danger or the disabling of safety features.

Apart from the safety instructions given in this manual, the safety precautions and accident prevention measures appropriate to the situation in question must also be observed.

## 1.3 About this manual

**This manual is valid for**

- KEBA KeContact C10 Communication Hub

**For whom is this manual?**
This manual is intended for use by qualified personnel[1]. These are persons with the relevant technical knowledge appropriate to the operations they are required to perform.

- Project engineer
- Skilled personnel and architects, who look for and select sites
- Electrical installation company for the provision of electricity connection
- Start-up technician
- Operator of the device
- Service technician

**Documentation for further reading**
The following documents are to be observed depending on the system solution used:

- KeContact P20 Installation manual (for the specialist)
- KeContact P20 User manual

## 1.4 Scope of delivery

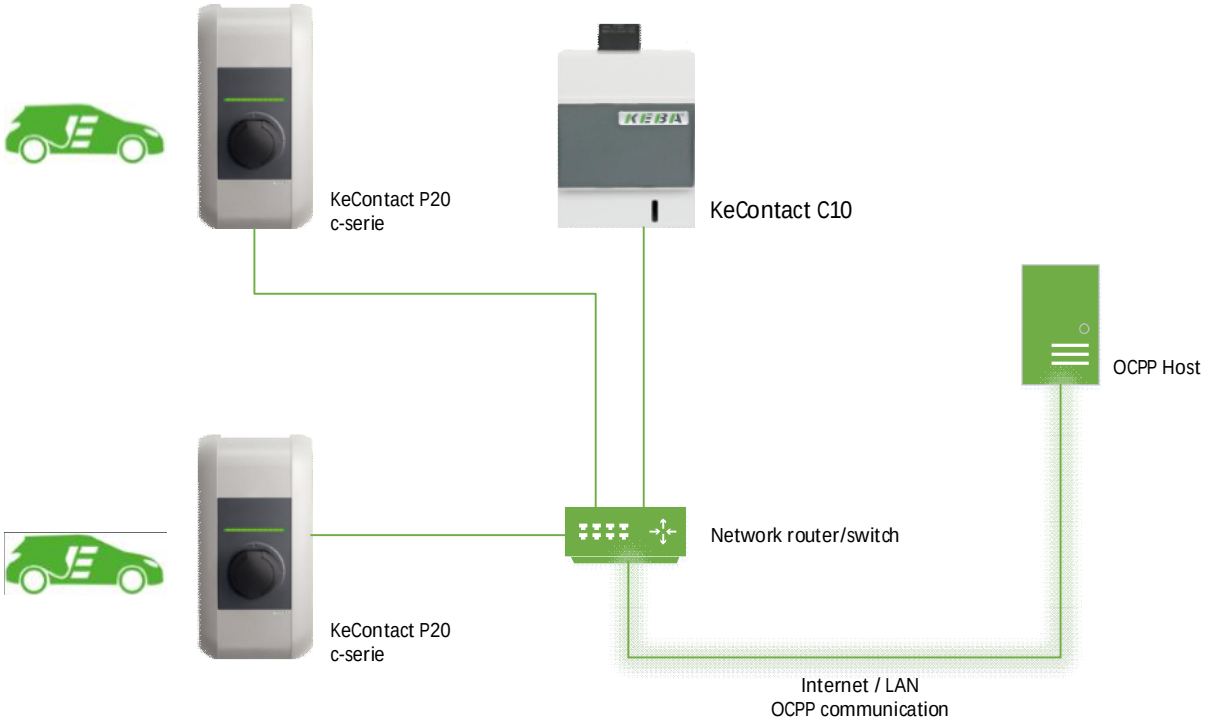
- 1x KeContact C10 main unit including pre-configured SD card
- 1x Power supply unit (5VDC / 1,8A)
- 2x Power supply unit adapter (for Europe and UK)

[1] Persons who due to specialist training, expertise and experience as well as knowledge of current standards who are able to assess work carried out and possible hazards.

# 2 Overview

KeContact C10 is a communication hub that converts the communication protocol of a KeContact P20 Wallbox into the OCPP protocol (e.g. metering values, status information). OCPP v1.5 and OCPP v2.0 protocols can be processed. Only the KEBA KeContact P20 Wallbox (c-series with Ethernet port) will work in conjunction with the KeContact C10 communication hub.

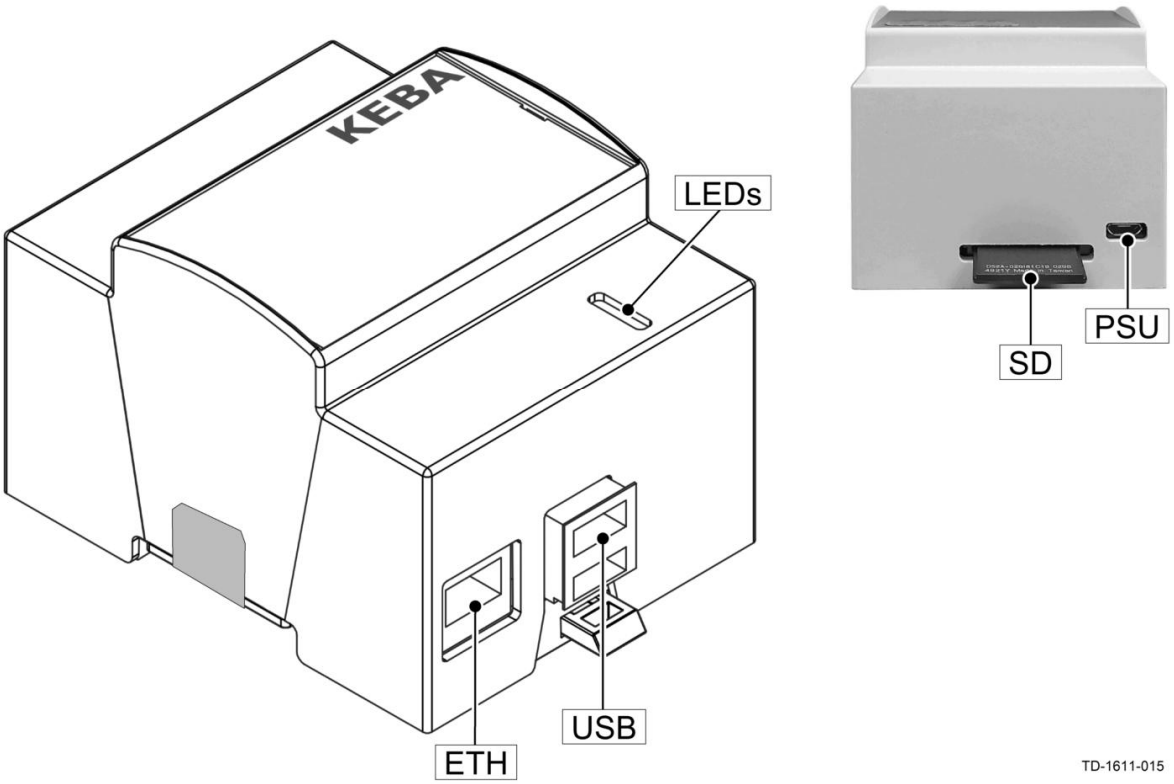
**Schematic overview**




***Note***

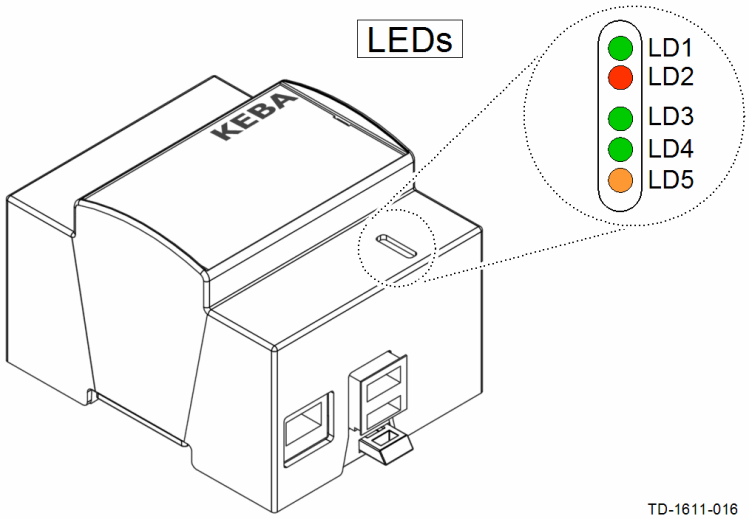
*C10 automatically detects all connected P20 within the Ethernet network. All P20 within the network are updated to the P20 firmware version that is stored in the C10.*

## 2.1 Connection overview




| Connections | |
|---|---|
| **ETH** | Ethernet port for the connection to your LAN. |
| **USB** | USB ports for the connection of an USB stick (configuration). |
| **LED's** | Status and operation LED's. |
| **SD** | SD card with operating system. |
| **PSU** | USB micro connector for power supply unit. |

## 2.2 Status and operation LEDs




| LED description | |
|---|---|
| **LD1 [ACT] – green** | Status LED |
| **LD2 [PWR] – red** | 5V input power is present |
| **LD3 [FDX] – green** | Ethernet Full duplex connection |
| **LD4 [LNK] – green** | Ethernet connection present |
| **LD5 [100] – orange** | Ethernet speed (orange=100 Mbit/s, dark=10 Mbit/s) |

### 2.2.1 LD1 status LED

The green LED **LD1** shows the current status of the C10.

| Display | Status |
|---|---|
| **LD1 lights green** | Charging is possible. All systems are connected together. |
| **LD1 flashes green** | Update or configuration is in progress. |
| **LD1 is dark** | No connection to the KeContact P20 and/or OCPP Central System Service. At the first startup a configuration of the C10 is necessary. |

## 2.3 SD Card

The operating system of the C10 is stored on the inserted SD card.

*- Do not remove the SD card inserted at the top of the device!*
*- The SD card works only with the delivered C10 device (paired system).*
*- In case of a SD card error, the complete C10 must be replaced.*

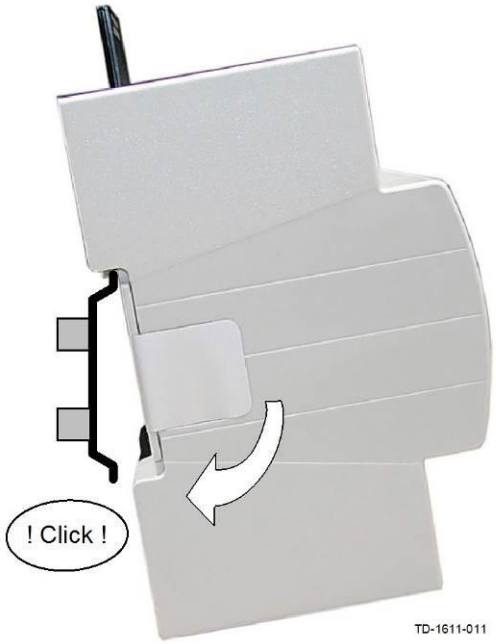
# 3 Installation

## 3.1 Installation preparations

### KeContact C10

For a successful commissioning of your C10 you need the following accessories and data:

- KeContact C10
- KeContact P20
- Mounting materials (not included)
- USB stick (not included)
- Network connection (at least CAT5)
- Internet connection (router, modem etc.)
- OCPP Central System Service (address + port).
- PC for configuration.




**Top hat rail mounting**

The housing of the C10 is suitable for rail mounting (35mm rail).

▶ Attach the housing to the rail as shown on the picture.

**Screw mounting**

As an alternative the housing (with key hole) can be mounted with one screw to a wall.


### KeContact P20

▶ Please perform the installation of the P20 according the P20 Installation manual (see chapter ***Installation preparations*** and ***Installation***).

## 3.2 Configuration of the network

***Note***
*- It is recommended to assign the KeContact P20 charging station and the KeContact C10 static network IP addresses based on the MAC addresses of the devices.*
*- If the OCPP host is not operated within the same network, the C10 needs a "Public IP address" which is routed to the internal IP address (NAT).*
*- Your firewall must be configured in a way, that a communication between C10 and the OCPP host is possible.*

The following ports must be shared on the network:

| Definition | Port | Protocol | Description |
|---|---|---|---|
| Externally accessible (incoming) | XXXX | TCP | - OCPP Charge Point Service: This service runs on the C10 and is in connection with OCPP Central System Service.<br>- The port can be chosen freely, or it is specified by the OCPP Central System Service. However, the port must be in the range of 1025 to 65535.<br>- The selected port must be configured on the C10 (see chapter „3.4.1 Configuration file”) |
| External access (outgoing) | XXXX | TCP | Port of the OCPP-Host (Central System Service). |
| Within the network | 49153 | TCP | Wallbox socket (connection C10 to P20) |
| Within the network | 15118 | TCP | SDP (connection establishment between C10 and P20) |
| Within the network | 15118 | UDP | SDP (connection establishment between C10 and P20) |
| Within the network | 67 | TCP | Bootps (for P20 firmware update) |
| Within the network | 68 | TCP | Bootps (for P20 firmware update) |
| Within the network | 67 | UDP | Bootps (for P20 firmware update) |
| Within the network | 68 | UDP | Bootps (for P20 firmware update) |
| Incoming and outgoing | 123 | UDP | Port for the C10 time server |

A configuration example can be found in chapter “8.2 Configuration example for a C10 with a router“.

### 3.2.1 Using more KeContact C10 within the same network

If multiple KeContact C10 are installed within the same network, each C10–P20 group must be commissioned one after the other. For each C10 with up to two P20, the commissioning must be carried out as described in chapter 3.3 Connection establishment.

## 3.3 Connection establishment

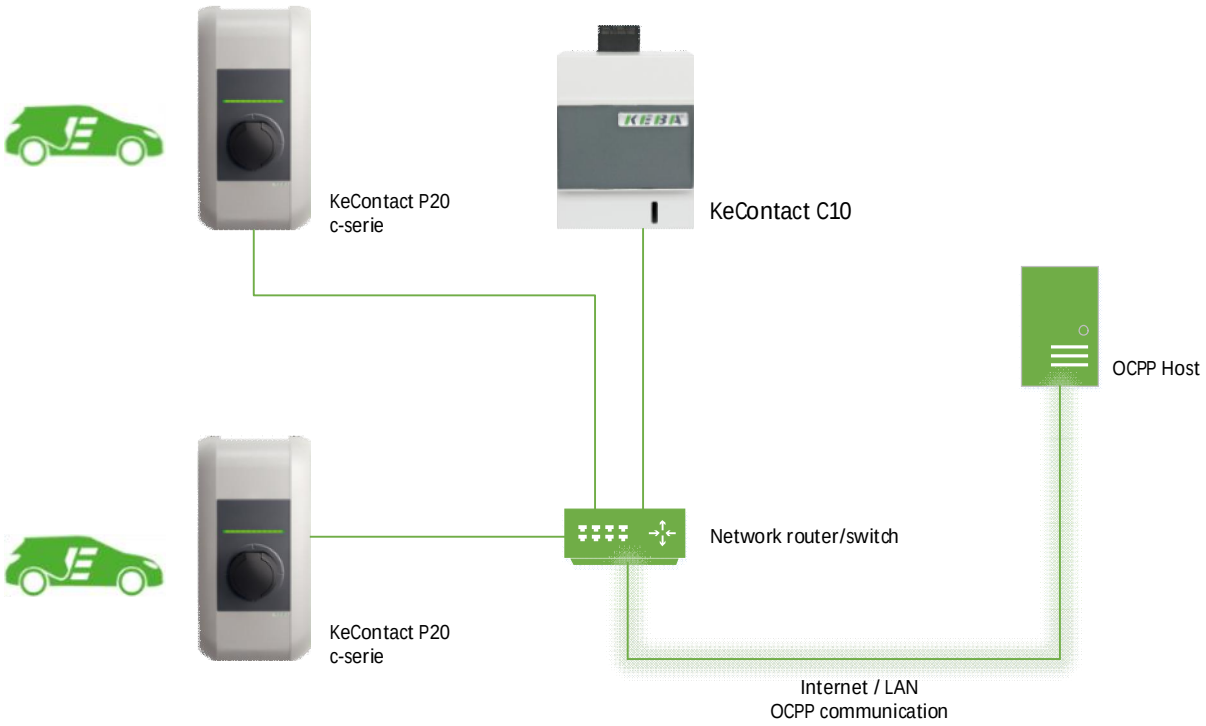
### 3.3.1 KeContact C10 installation


**Power supply unit**

C10 is supplied with an external 5VDC power supply unit.

**Preparing the power supply unit**

- ▶ Slide the correct outlet adapter for your location into the power supply unit.
- ▶ Prepare the necessary 230V power outlet for the power supply unit in the near of the C10.



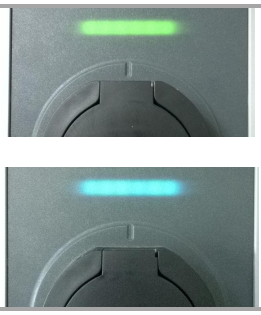

**WARNING!**

**Ensure a safe separation from dangerous voltages for Ethernet cable and Power supply cable (e.g. when installing in a switch box / fuse box).**

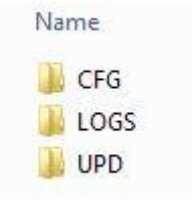
## 3.3.2 Commissioning procedure

### 3.3.2.1 Commissioning the C10 with KeContact P20

***Note***
*If necessary, note the P20 serial number before closing the housing cover of the charging station. The serial number is located on the type plate on the bottom right of the charging station.*

| | Device | Description | |
|---|---|---|---|
| **1** | **Router** | Take the router/modem/switch into operation. | |
| **2** | **P20** | Take the P20 into operation (see P20 Installation manual in chapter ***Installation***).<br>**After** commissioning, set the DIP-switch **DSW2.5** to **ON**.<br>With this setting, the P20 is capable to communicate with a superior system (C10).<br>Press the Reset button of the P20 and keep it pressed for about 1 second. Release the button. The P20 reboots and recognizes the new DIP-switch settings. |  |
| **3** | **P20** | The LED indicator flashes green if no RFID function is available. Otherwise it flashes blue (for configuration see chapter “3.3.2.3 Deactivating RFID”). |  |
| **4** | **Router** | If you have not established a network connection of the P20 during commissioning, install it now between router and P20. | |
| **5** | **Router** | Make a network connection between router and C10. | |
| **6** | **C10** | Take the C10 into operation by inserting the voltage supply plug (power supply unit) in the PSU socket of the C10. This may take 15 minutes the first time. The P20 can autono-mously reboot in this period. | |

### 3.3.2.2 Configuration of the C10

| | Device | Description | |
|---|---|---|---|
| **1** | **C10** | Connect an empty USB stick to one of the USB ports of the C10. |  |
| **2** | | On the C10 the LED LD1 starts to blink green. The process can be processed quickly, so you might not perceive the flashing. | |
| **3** | | After the process is complete, LD1 will not light if the configuration of the C10 was not completed and no connection to the Central System OCPP service is established. Otherwise, the LD1 will light up again. | |
| **4** | **PC** | Disconnect the USB stick and connect it to the PC. | |
| **5** | | Now on the USB stick the following folders are available:<br>**CFG**<br>**LOGS**<br>**UPD**<br>The configuration file is in folder **CFG**. The log files are located in folder **LOGS** and the folder **UPD** is used for the update of the C10.<br>Open the file ***C10_Seriennummer.conf*** in folder **CFG**.<br>Adjust the configuration as described in chapter “3.4.1 Configuration file”. |  |
| **6** | | After adapting the configuration file, save the file and eject the USB stick properly. | |
| **7** | **C10** | Connect the USB stick again to one of the USB port of the C10. | |
| **8** | | The LED LD1 starts to blink green again. | |
| **9** | | Wait until the LD1 either lights continuously or goes out. This may take up to 20 minutes for the first time. | |
| **10** | | If the LD1 lights continuously, the configuration was successful and a connection to the OCPP Central System could be established.<br>In addition, you can read the status of the C10 on the number of illuminated segments on the P20 wallbox (see chapter 3.3.2.1 Commissioning the C10 with KeContact P20). |  |
| **11** | | If the LD1 is dark, the connection to the OCPP host could not be established. Check the configuration (pay attention to the note) or see chapter „**5 Troubleshooting**“. | |

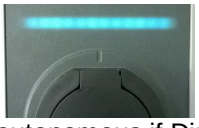
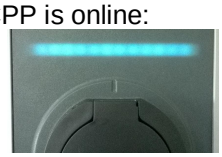
***Note***

*If you want to transfer the current configuration again onto the USB stick, remove at least the CFG folder and follow the steps 1, 2, and 3 again. So you can check whether the configuration has been adopted.*

### 3.3.2.3 Deactivating RFID

***Note***
*If you have a P20, which has no RFID symbol on the front, the RFID functionality is not available!*

***IMPORTANT!***
*Make sure that during this configuration, no vehicle is plugged into the P20. Active charging sessions will be interrupted.*

| | Device | Description | |
|---|---|---|---|
| **1** | **P20** | Take the P20 autonomously in operation:<br>Deactivate Dip-switch 2.5 (**Off**) or disconnect the network connection between C10 and P20. Alternatively, you can turn off the C10, but this requires later a reboot of the C10 which can take 10-15 minutes.<br>Press the Reset button of the P20 and keep it pressed for about 1 second. Release the button in order to reboot the P20.<br>The P20 lights blue if the RFID functionality is enabled or green if the RFID functionality is already deactivated. | Autonomous if Dip-switch 2.5=OFF:<br>  <br>Or autonomous if Dip-switch 2.5=ON but no connection to C10:<br>  |
| **2** | | Press the Reset button of the P20 and keep it pressed for about 5 seconds.<br>The P20 should play two acoustic signals during this time. Release the button. Now the P20 flashes green and the RFID functionality is deactivated. | Autonomous if Dip-switch 2.5=OFF:<br>  <br>Or autonomous if Dip-switch 2.5=ON but no connection to C10:<br>  |
| **3** | **C10** | Connect the C10 with the network again or activate Dip-switch 2.5 (**ON**) again.<br>Press the Reset button of the P20 and keep it pressed for about 1 second. Release the button in order to reboot the P20.<br>Your P20 connects after a short time with the C10. The LED bar of P20 flashes according to the status of C10 either continuous or separated. | Connected with C10 if Dip-switch 2.5=ON and OCPP is online:<br>  <br>Connected with C10 if Dip-switch 2.5=ON and OCPP is offline:<br>  |

#### 3.3.2.4 Activating RFID

***Note***
*If you have a P20, which has no RFID symbol on the front, the RFID functionality is not available! The RFID functionality cannot be activated.*

***IMPORTANT!***
*Make sure that during this configuration, no vehicle is plugged into the P20. Active charging sessions will be interrupted.*

| | Device | Description | |
|---|---|---|---|
| **1** | **P20** | Follow steps 1 and 2 of chapter „3.3.2.3 Deactivating RFID“. |  |
| **2** | | Hold the RFID card within 60 seconds after the reset and restart of the P20 over the RFID symbol. You will hear a double signal. The RFID card is now the Master RFID card. |  |
| **3** | | After another 60 seconds, the authorization of the Master RFID card expires and the P20 will flash blue. The authorization by the RFID functionality is now enabled. | |
| **4** | **C10** | Follow step 3 of chapter “3.3.2.3 Deactivating RFID“. | |

## 3.4 Software installation

The C10 can be configured and used for up to **two** P20 charging stations. To guarantee a flawless function please configure the C10 as described in the following chapters. To avoid failure during the configuration always eject USB devices properly.

### 3.4.1 Configuration file

- Start with the configuration as described in chapter „**3.3.2.2 Configuration of the C10”**.
- Open the folder **\CFG** in the root directory of the USB stick.
- Open the file C10_*serialnumber*.conf with an editor (e.g. Notepad++, WordPad).
  Adapt this file according to the configuration.

**File name**
According to the file name, the configuration file is valid for one or more C10 units.

| File name | Purpose |
|---|---|
| *C10_Serialnumber.conf* | This configuration file is read only by those C10 which has the serial number which is in the file name. Several configuration files can be stored in the CFG folder and it is thus possible to configure multiple C10's with the same USB stick. |
| *C10.conf* | With this configuration file each C10 can be configured (without limitation by the serial number).<br>Note: Change the filename of *C10_Serialnumber.conf* into *C10.conf*, to use the configuration file. Leave only the configuration file *C10.conf* in the /CFG folder, then several C10s are successively provided with the same configuration. |

**Configuration values**

▶ Edit the configuration file with a standard text editor according to the following information.

| Parameter description | |
|---|---|
| `[/opt/KemoveCPM/etc/modules/hostconnector.properties]` | Header for configuration of important OCPP messages parameters. |
| `chargeBoxIdentity=` | With this parameter you assign a name for the C10, that is shown in the header of each OCPP message in field „chargeBoxIdentity“. |
| `hostconnector.clockSynchMethod=` | This parameter defines the time synchronization of the C10. The following entries are possible:<br>• OCPP<br>• Timeserver<br>• None<br>OCPP: The time information which is transmitted in the OCPP message „bootNotificationResponse“ in field „currentTime“ is used in the C10. Pay attention to the following format: e.g. 2015-06-13T12:02:19.000+01:00<br>Timeserver: The time is synchronized via the standard time server for Unix-based operating systems.<br>None: There is no time synchronization. |
| | |
| `[/opt/KemoveCPM/etc/modules/ocpp.properties]` | Header for the configuration of the OCPP Central Systems. |
| `full.useTLS=` | This parameter specifies whether the connection of OCPP Central System Service (client) to the C10 (OCPP ChargePoint Service, Server) should be encrypted.<br>Possible values are:<br>• true<br>• false |

| Parameter description | |
|---|---|
| `full.addressHost=` | This parameter specifies the address of the OCPP Central System. The URL must be assembled as follows.<br><br>Example: https://keba.host.solutions:80/ocpp15<br>1. http:// or https://<br>2. IP- address or domain of the Central System Service.<br>3. The port at which the Central System Service can be reached (with a colon as the first character).<br>4. The path under which the Central System Service is hosted on the server. |
| `full.addressCP=` | This parameter specifies the IP address under which the OCPP Central System can reach the C10.<br>• If the OCPP Central System is located in the same network as the C10 and the P20, then the local IP address of the C10 is used. Make sure that this is a static IP address.<br>• If the OCPP Central System and the C10 are not in the same network, a public IP address must be specified under which the C10 is externally accessible. On the network router a port forwarding of this Public IP address to the local IP address must be configured.<br><br>Examples:<br>• localhost<br>„localhost“ is replaced after the start of the C10 with the local IP address, which was assigned to the C10 in the LAN network.<br>• 173.194.40.148<br>• solutions.dyndns.com |
| `full.portCP=` | This parameter specifies the port under which the C10 (OCPP Charge Point Service) can be reached.<br>As described in chapter „**3.3.2.2 Configuration of the** C10“. |
| | |
| `[/opt/KemoveCPM/etc/pdcs_connection_policy.conf]` | Header for the P20’s configuration. |
| `max_connected_pdcs =` | This parameter specifies the number of P20 that should be connected to the C10. Possible values are:<br>• 1<br>• 2 |
| `pdc_serial_number_0 =` | This parameter defines the serial number of a certain P20 within the network, with which the C10 shall connect. If this parameter is left blank, it is automatically filled after the startup of the C10 with the serial number of the P20, that connects to the C10.<br>**Note:** When replacing a P20, this configuration value must be deleted to ensure that the exchanged P20 can be connected to the C10 again. |
| `pdc_serial_number_1 =` | See definition of the previous item. |

### 3.4.2 Changing the OCPP version

In the delivery state the C10 supports OCPP protocol version 1.5. To change from version 1.5 to 2.0, perform the following steps:

- Perform the steps as described in chapter „**4 Software update procedure**“.

  You need the file „**KemoveCPM-OCPP20-setup.keb**“ from the internet under **www.kecontact.com/de/downloads** .

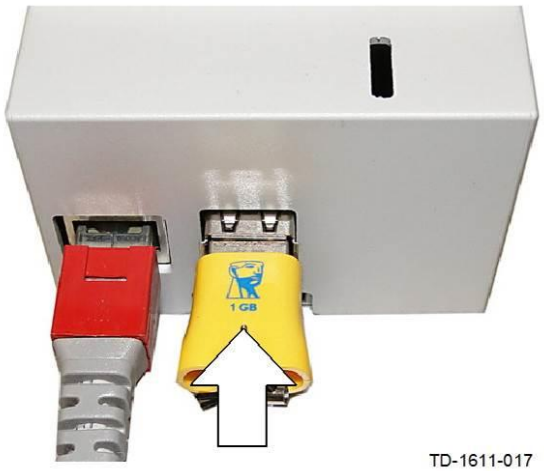
- After the setup is complete, please check the configuration of the OCPP Central System as described in chapter „**3.3.2.2 Configuration of the C10**“ by carrying out the steps to point 5.

***Note***
To change the version of the OCPP protocol again from 2.0 to 1.5, please follow the same procedure as described above. However, use the file *„**KemoveCPM-OCPP15-setup.keb**“ under **www.kecontact.com/de/downloads**.*

# 4 Software update procedure

In order to bring the C10 communication hub or the P20 charging station to the latest software version, you need the following:

1x USB stick
1x “keb- file” (as download available under www.kecontact.com/de/downloads ).




- Create a new folder with the name “**UPD**” on your USB stick or use the UPD folder that was created during the first commissioning. In addition, when there is a configuration file in the CFG folder, the C10 is configured before the update. The configuration is maintained by the software update.
- Copy the „keb- file“ into the „UPD“ folder.
- Connect the USB stick to a free USB port of the C10.
- The LED LD1 blinks green as described in chapter „**3.3.2.2 Configuration of the C10**”:
  - Wait until the LED LD1 lights up continuously.
  - If LD1 does not blink or is dark, please see chapter „**5 Troubleshooting**“.
- After a successful update, you can immediately continue with the operation of your charging station.

# 5 Troubleshooting

| PROBLEM | Possible cause - remedy |
|---|---|
| **Status LED does not light up** | • No voltage supply → Check RCD circuit breaker and line circuit breaker and switch on if necessary.<br>• Thus, the status LED lights up, a connection to the P20 and to the OCPP Central system must be established (successful bootNotificationResponse). → Check the network connections, or contact your network administrator to ensure that the necessary firewall settings have been carried out correctly.<br>Connection C10 – Router<br>Connection Router – P20<br>Connection Router – Internet (OCPP)<br>• Defective → please contact your service partner. |
| **Status LED LD1 flashes though no USB stick is connected.** | • The USB stick was disconnected too early from the C10: Check the configuration by connecting an empty USB stick to the C10. Thereafter LD1 will stop flashing. |
| **Status LED LD1 does not stop to flash.** | • If the LED LD1 is still flashing after 30 minutes, restart the C10 by disconnecting the power supply and reconnecting it again. |
| **Updating the configuration is not possible** | • Was the USB stick properly ejected?<br>• Format the USB stick and repeat the configuration procedure (**3.3.2.2 Configuration of the C10**).<br>• Errors in the configuration file → Check the settings and the syntax. Check the last entry in the Log file *configuration.log* in the folder **LOGS** on the USB stick.<br>• Wrong update procedure → Follow the exact procedure steps given in chapter **4 Software update procedure**. |
| **For further information, please see our FAQ list under** http://www.kecontact.com/de/downloads/ | QR code to FAQs |

# 6 Maintenance

## 6.1 Cleaning

*Do not open the KeContact C10 main unit or the Power supply unit!*
*The devices are maintenance free and have no parts inside that require cleaning or regular maintenance.*

▶ If necessary, carefully clean the housing parts using a moist cloth.

## 6.2 Service partner

For questions or problems please contact your service partner (e.g. the executive electrical installation company).

***Before contacting your service partner:***

- Check the troubleshooting measures in chapter „**5 Troubleshooting**“.
- Make note of model version and serial number (type plate at the left side of the C10).

# 7 Further technical information

## 7.1 Technical data

| Electrical data (C10 main unit) | |
|---|---|
| Nominal current: | <1A |
| Mains voltage (Europe): | 5VDC |
| IP protection rating for device: | IP20 (for indoor use only!) |

| Connectors | |
|---|---|
| Ethernet port: | RJ45 |
| USB ports: | 2x Type A |
| Power supply: | USB micro |

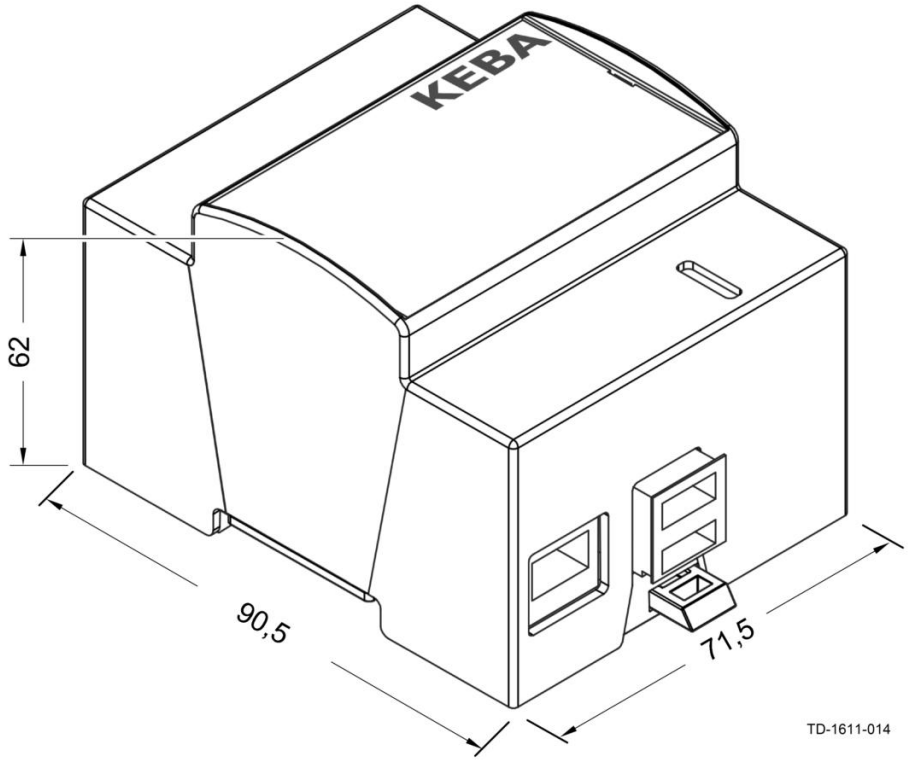
| Mechanical data | |
|---|---|
| Dimensions (W x H x D): | 71,5 x 104,5 x 62 mm |

| Environmental conditions | |
|---|---|
| Operating temperature: | 5°C to +40°C |
| Storage temperature range: | -25°C to +70°C |
| Speed of temperature change: | max. 0.5°C /min |
| Permitted relative air humidity: | 5% to 95% non-condensing |
| Altitude: | max. 2000 m above sea level |

| Standards and regulations | |
|---|---|
| 2004/108/EC | Electromagnetic Compatibility Directive |
| EN 55022:2010 | Information technology equipment - Radio disturbance characteristics – Limits and methods of measurement |
| EN 55024:2010 | Information technology equipment - Immunity characteristics – Limits and methods of measurement |

***Note***
*For detailed technical information about the power supply unit please see the data sheet in chapter „**8** **Appendix**“.*

## 7.2 Dimensions




Housing dimensions in millimeters

*The inserted SD card and the USB plug increase the height to approximately **110mm**.*
*Additional free space for the USB stick is required at the bottom side.*

# 8 Appendix

## 8.1 Data sheet power supply unit

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**9W Interchangeable Plug Series with Micro-USB Connector**
**PSAC09R Adapter Meets EISA and Ecodesign Requirements**

EISA

VI

cN136

c UL us

CE

**Features**

- Double Insulated
- Field Changeable AC Plugs
- Efficiency Level V Compliance
- Ecodesign ErP Directive Compliant
- Low Leakage Current
- Micro-USB Connector
- Class B EMI
- CC/CV for Battery Charging

**Applications**

- Wireless Communications
- Networking
- Portable Equipment
- Peripherals

**Safety Approvals**

- cUL/UL
- SAA
- CE
- C-Tick

**Mechanical Characteristics**

- Length: 71.7mm (2.82in)
- Width: 45mm (1.77in)
- Height: 29.79mm (1.17in)
- Weight: 120g (4.23oz)

**Output Specifications**

| Model | DC Output Voltage | Load | | Ripple (1) P-P (max.) | Output Power | Efficiency Level |
|---|---|---|---|---|---|---|
| | | Min. | Max. | | | |
| PSAC09R-050 | 5V | 0A | 1.8A | 100mV | 9W | V |

(1) Measured with by-pass capacitors 0.1uF/10uF at output connector terminal and oscilloscope set at 20MHz.

- Interchangeable clips sold separately.

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## PSAC09R Characteristics WWW.PHIHONG.COM

**Input:**

**AC Input Voltage Rating**
100 to 240V AC

**AC Input Voltage Range**
90 to 264V AC

**AC Input Frequency**
50 to 60Hz

**Input Current**
0.3A (RMS) maximum at 115V AC

**Leakage Current**
0.25mA maximum at 240V AC

**Inrush Current**
60A maximum at 230VAC and maximum load
(cold start at ambient 25°C)

**Input Power Saving**
<0.3W at 115/230V AC and no load

**Output:**

**Efficiency**
Meets Level V Efficiency Requirements

**Hold-up Time**
10mS minimum at 120V AC and maximum load

**Over-Voltage Protection**
Zener Clamping

**Over Current Protection**
125%, auto restart

**Environmental:**

**Temperature**

| | |
|---|---|
| Operation | 0 to 40°C |
| Non-operation | -40 to 85°C |
| Humidity | 5 to 90% |

**Emissions**
FCC Class B
EN55022 Class B

**Immunity**

| | |
|---|---|
| EN50082-1: | |
| EN61000-4-2 | Level 4 |
| EN61000-4-5 | |

**Insulation Resistance**
Primary to Secondary: 100M ohm, 500V DC

**MTBF**
100K hours minimum at maximum load, 240V AC

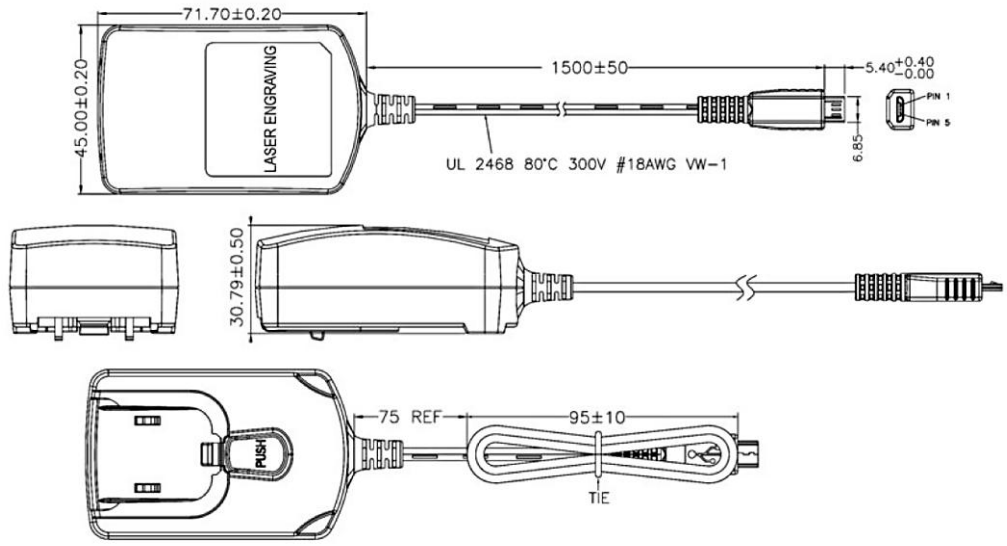
**Dielectric Withstand (Hi-pot) Test**
Primary to Secondary: 3000V AC for 1 min., 10mA

**DC Output Connector**
Micro USB

**Interchangeable Clips**

| | |
|---|---|
| RPE: Europe | RPK: UK |

## Dimension Diagram Unit: mm

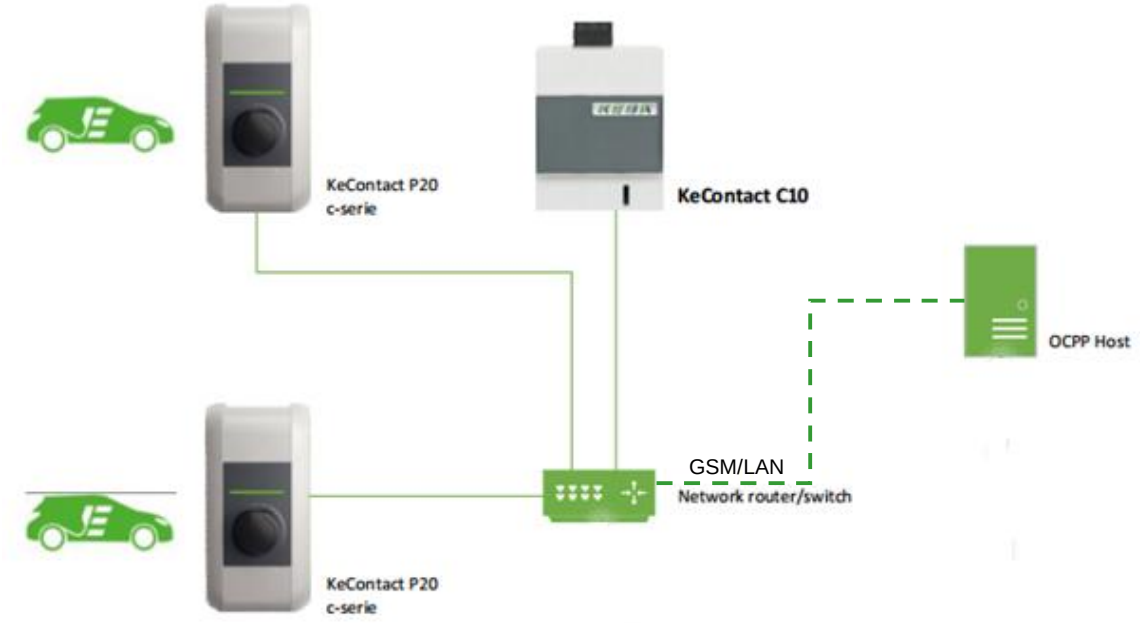


## 8.2 Configuration example for a C10 with a router

For the operation of a KeContact C10 connected with up to 2 KeContact P20 (c-series) wallboxes you need:

- Router
- USB stick
- Authorization to connect to a OCPP host and the URL of OCPP hosts.

**Overview of the required components**




The C10 will automatically detect all connected P20 within the Ethernet network. All P20 within the network are updated to the P20 firmware version that is stored in the C10.

*It is not possible to establish a connection between C10 and OCPP-host if no P20 is connected.*

▶ Before you begin with configuring the C10 and the network, please update the C10 to the latest available software version (details see chapter “4 Software update procedure”).

### 8.2.1 Configuration of the network

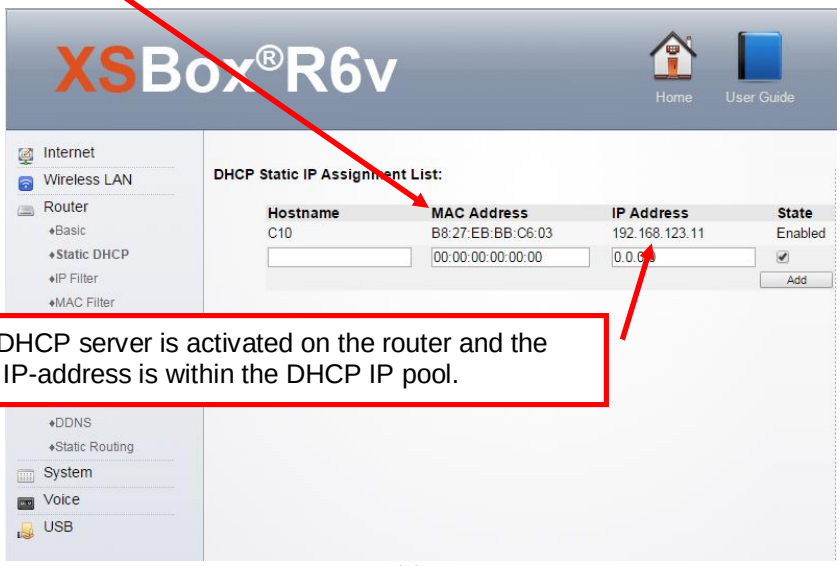
**a. <u>Configuration of the router</u>**

For this example the router ***XSBox®R6ve*** was used.
The connection of the router to the Internet (GSM or DSL) is not described in this manual and is a pre-requisite. Please use the manual of the router for the corresponding information.

The C10 has to be assigned a static network IP address based on the MAC address. This is necessary for port forwarding.


KeContact C10

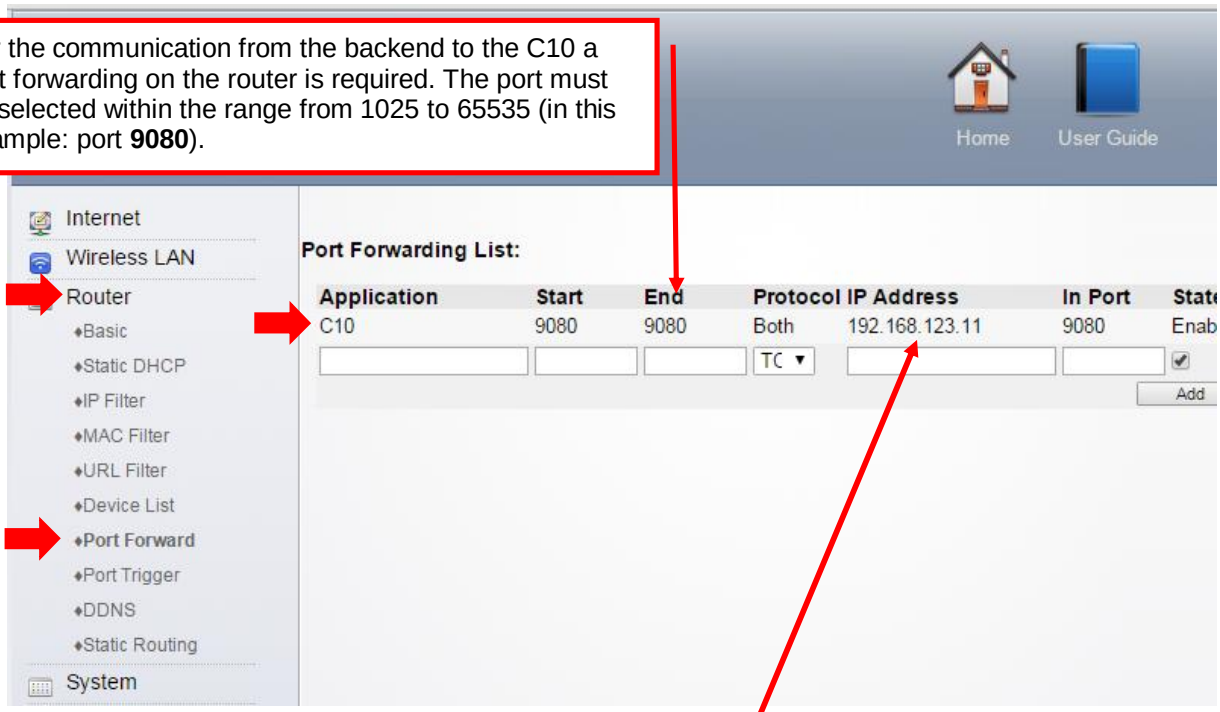
MAC address C10



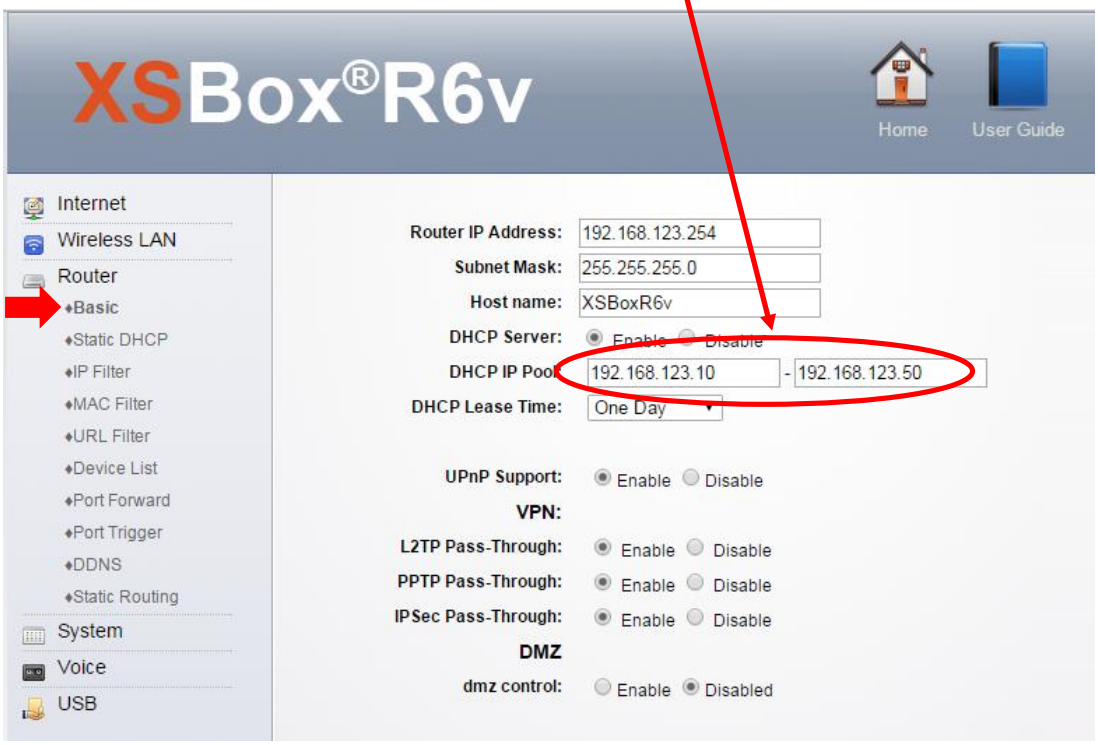

Ensure that the DHCP server is activated on the router and the selected IP-address is within the DHCP IP pool.

GUI of the router

For the communication from the backend to the C10 a port forwarding on the router is required. The port must be selected within the range from 1025 to 65535 (in this example: port **9080**).




From the DHCP IP pool 192.168.123.10 to 192.168.123.50 the IP address **192.168.123.11** was selected in this example.




The selected port (9080) must be configured on the C10 too. This configuration example is described on the following pages.

## b. Commissioning the C10 with the KeContact P20

▶ Write down if necessary the P20 serial number before closing the housing cover of your charging station. The serial number is printed on the type plate at the bottom right of the charging station. In this example **15025563**.

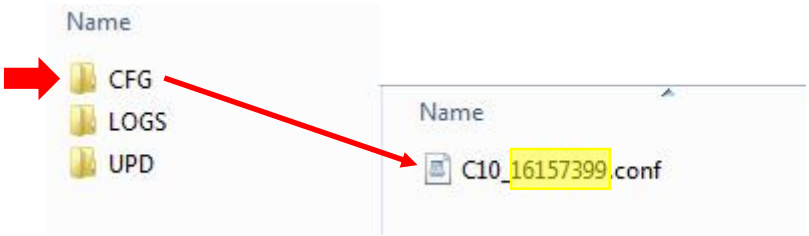

▶ Take the P20 into operation (see P20 Installation manual).

- **After** commissioning, set the DIP-switch **DSW2.5** to **ON**.
  With this setting, the P20 is capable to communicate with a superior system (C10).
- Press the Reset button of the P20 and keep it pressed for about 1 second (until signal tone).
- Release the button.
- The P20 reboots and recognizes the new DIP-switch settings.

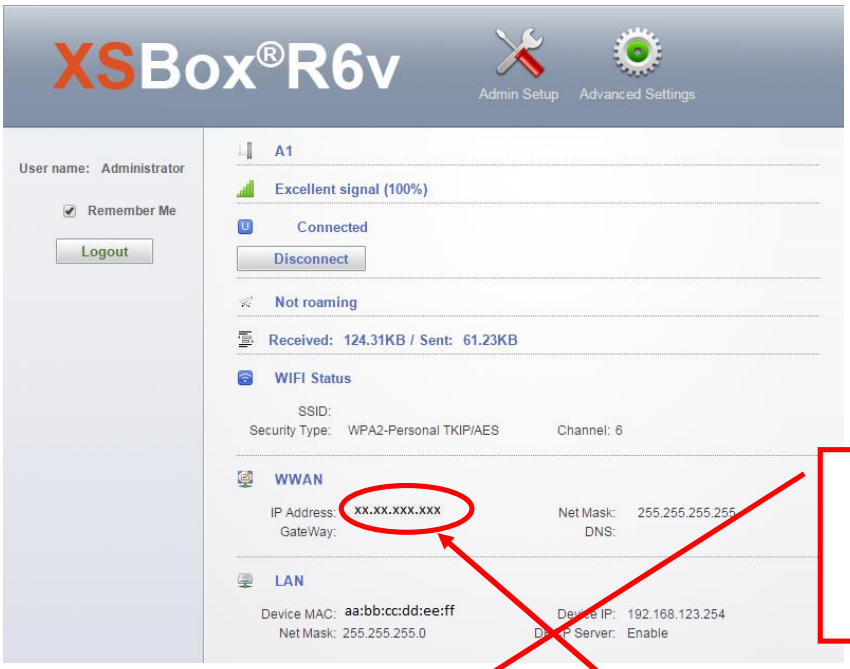
## c. Configuration of the C10

▶ Follow the instructions in chapter “3.3.2.2 Configuration of the C10”.

After completing the configuration procedure there is a configuration file in the folder "CFG", which contains the C10 serial number in its file name.



▶ Adapt the configuration file as described in the following example.




```
[/opt/KemoveCPM/etc/modules/hostconnector.properties]
chargeBoxIdentity=wallbox9

[/opt/KemoveCPM/etc/modules/ocpp.properties]
full.useTLS=false²
full.addressHost=http://ocpp.host.url/ocpp15
full.addressCP=xx.xx.xxx.xxx
full.portCP=9080

[/opt/KemoveCPM/etc/pdcs_connection_policy.conf]
max_connected_pdcs= 1
pdc_serial_number_0= 15025563
```

Pay attention that special characters are not always supported by all OCPP hosts.

URL of the OCPP host (end point)

Public IP address of the router.

The selected port.

P20 serial number.

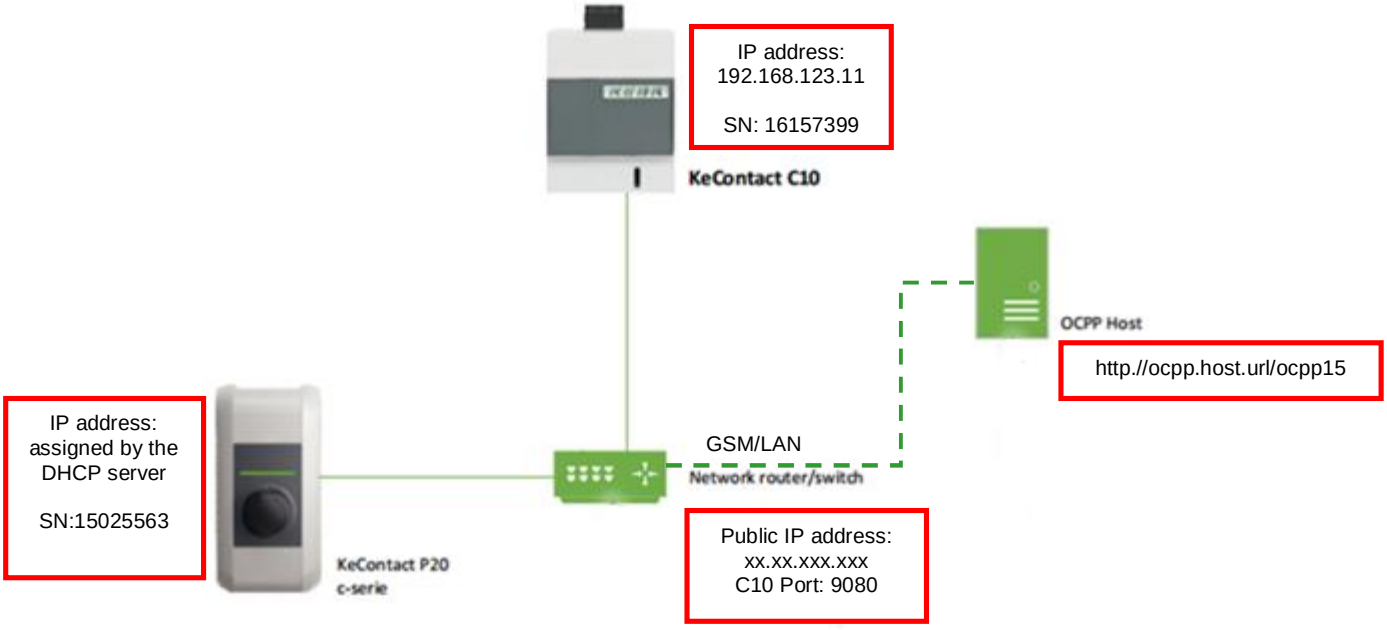
▶ After adapting the configuration file, please plug the USB stick into the C10. The configuration of the C10 is performed automatically (this can take up to 20 minutes).

After the configuration of C10 was carried out successfully, the LD1 lights up continuously and the C10 will automatically establish a connection to the OCPP host and the P20.

The P20 LED bar also indicates whether the commissioning was performed successfully. The connection is established when all 4 LED segments are blinking blue.

[2] If this parameter is specified with the value "false", the connection of the C10 to OCPP host is not encrypted (http).

**Final configuration example:**




- If the C10 does not connect to the OCPP server, please check the configuration on any errors in the settings.
- You can check via the following Internet address if the C10 has established a connection to the Internet.

  www.CanYouSeeMe.org

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www.kecontact.com