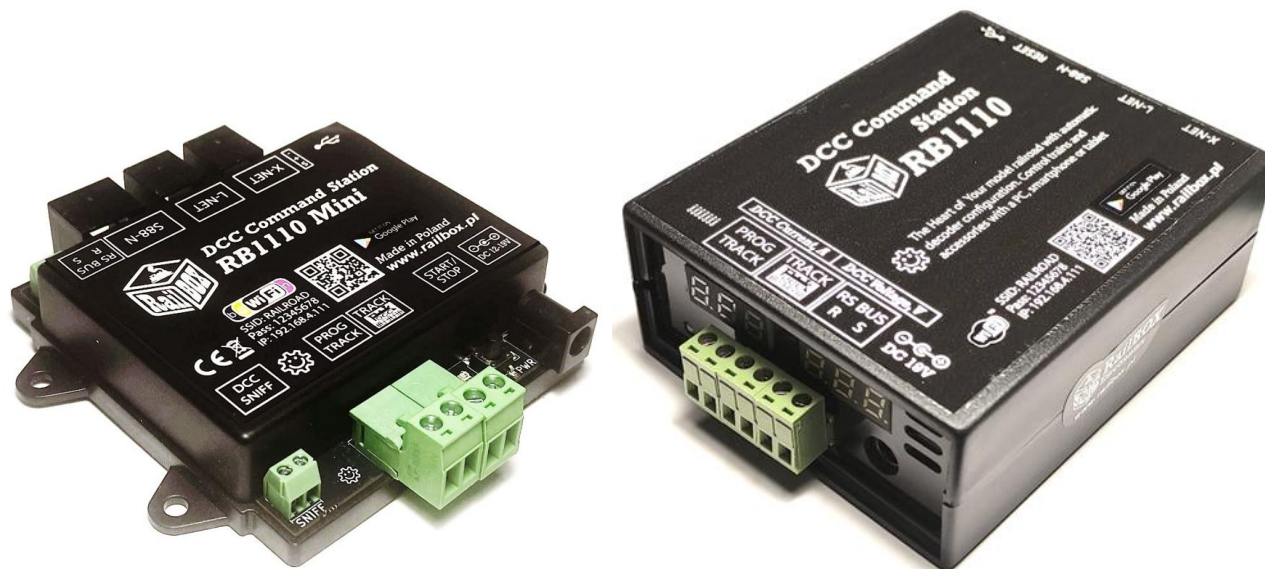




## DCC Wi-Fi Command Station RB1110-Mini and RB1110



### Content

DCC Wi-Fi Command Station RB1110-Mini and RB1110 .....	1
Application.....	2
Key Features:.....	2
Technical Specifications: .....	2
Maximum load on the Command station: .....	3
Connection .....	3
Command station RB 1110 connection to the track .....	3
Devices connection to the Command station RB 1110.....	4
Feedback modules connection to the Command station RB 1110.....	4
Controlling via tablet (smartphone) .....	4
Tablet (smartphone) connection directly to the Command station RB 1110.....	5
Tablet (smartphone) connection to the home Wi-Fi network.....	6
RailBOX: Railroad Control application connection .....	7
Connecting a new device in dynamic address mode: .....	8
Connecting software to control the Railroad model via PC .....	11
GBBKolejka.....	11
JMRI .....	11
Configuration of the Command station RB 1110 (RB 1110 – Mini) parameters .....	12





## Application

The RB1110 command station and its newer version, the RB1110-Mini, are designed to control model trains equipped with DCC decoders, as well as to operate accessory decoders, such as turnout or signal decoders. The devices comply with the NMRA DCC standard and support the following protocols: XpressNet® version 4.0, LocoNet® (including LocoNet-TCP/IP), LenzLAN, Z21®, WiThrottle, and feedback modules via the S88, LocoNet®, and RS-Bus protocols.

Control can be performed using mobile applications such as RailBOX: Railroad Control, Roco Z21®, Engine Driver, or others, as well as using controllers compatible with XpressNet®, LocoNet®, or WiThrottle protocols. It is also possible to control the system from a computer using software like GBBkolejka, iTrain, RocRail, and TrainController.

Automatic detection of modern DCC decoders is possible thanks to support for the RailCom and DCCA protocols.

The RB1110-Mini model additionally allows connection of an external command station via a DCC-Sniff input.

The command station is equipped with single ports: XpressNet®, s88-N, RS-Bus, LocoNet®, USB-C and includes a built-in Wi-Fi module.

## Key Features:

- **Support for up to 60 active locomotives (addresses 1–10239)**
- **Unlimited number of locomotives in the RailBOX: Railroad Control application**
- **Support for controllers via XpressNet® (e.g., Lokmouse, Multimaus, Rocomouse, Lenz LH01/LH90/LH100)**
- **Support for controllers via LocoNet® (e.g., FRED, Piko SmartControl®)**
- **Support for controllers via the wireless WiThrottle protocol**
- **Control via external command station using DCC-Sniff input (RB1110-Mini)**
- **Easy configuration and control of accessories using an interactive map in the RailBOX: Railroad Control application**
- **Automatic decoder detection system (RailCom, DCCA)**
- **Support for accessory addresses 1–2044**
- **CV read and write in programming track, PoM, and PoM ACC modes**
- **Support for 28 and 128 speed steps and functions from F0 to F63**
- **Feedback support via S88, LocoNet®, RS-Bus**
- **Additional expansion port for connecting external modules (e.g., IR receiver for Märklin "MyWorld" controllers) – only in RB1110-Mini**
- **Voltage and current draw indicator (LED displays – only in RB1110)**
- **Automatic DCC voltage restoration after a short circuit**
- **Built-in Wi-Fi module**
- **Firmware updates via the RailBOX application**

## Technical Specifications:

- **Command station dimensions:**
  - **RB1110: 90 x 110 x 45mm**
  - **RB1110-Mini: 100 x 104 x 22mm**
- **Power supply – DC 12–19V / min 3.4A**
- **DCC output – voltage depends on the power supply used, max 3A**



## Maximum load on the Command station:

**Important:** *The maximum instant load on the Command station is 3A, which means that a **limited number of trains can run on the model railroad at the same time, and a limited number of accessory decoders can be operated without using an additional booster.** Example numbers of current consumption:*

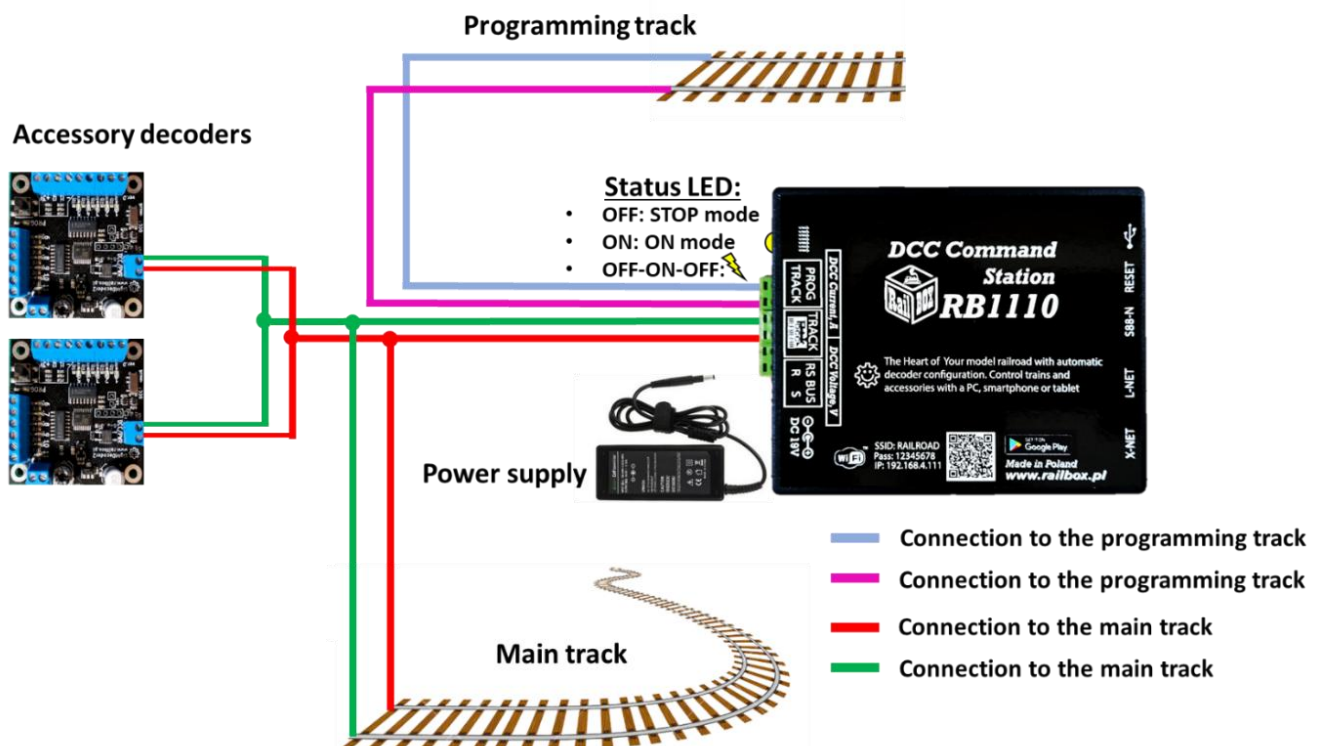
- driving decoder: - approx. 0,2 A
- drive and sound decoder: - approx. 0,3 A
- wagon lighting decoder (strip): - approx. 0,05 A

## Connection

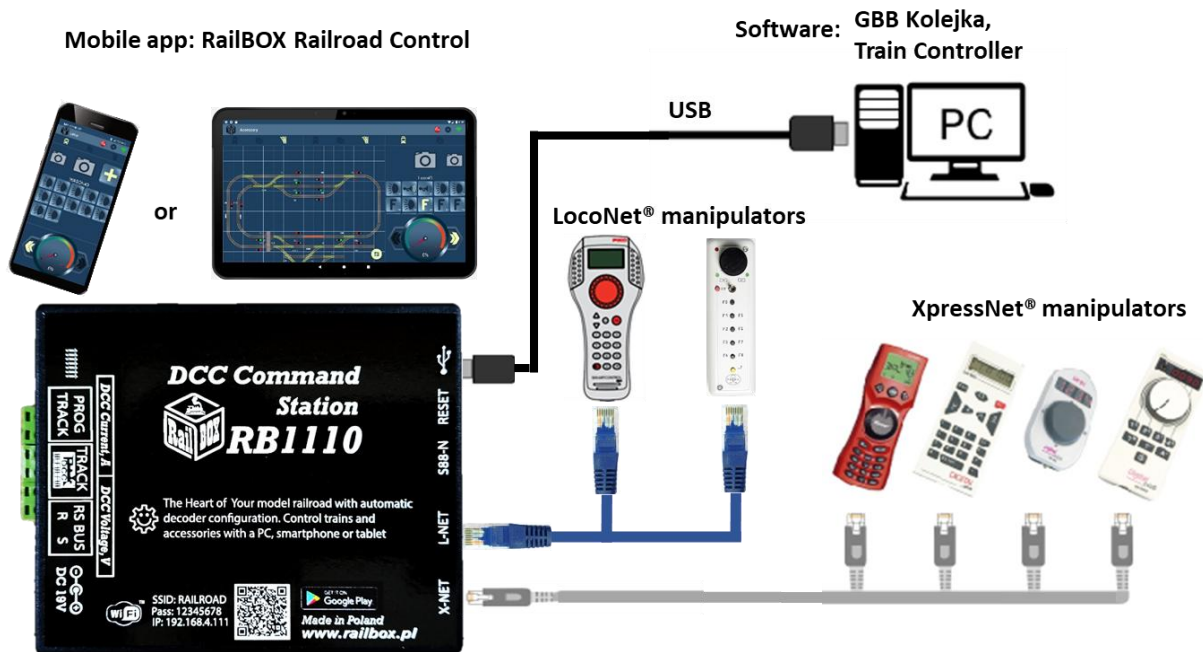
**Note:** Do not use power clips for tracks with a built-in capacitor (e.g. Piko 55270) or similar to work with DCC Command station. They are applicable for DC power supply of tracks and are not suitable for DCC impulse power supply. The use of such clips may cause damage to the DCC Command station, which will not be a subject to the repair service of the Command station as part of the customer complaint.



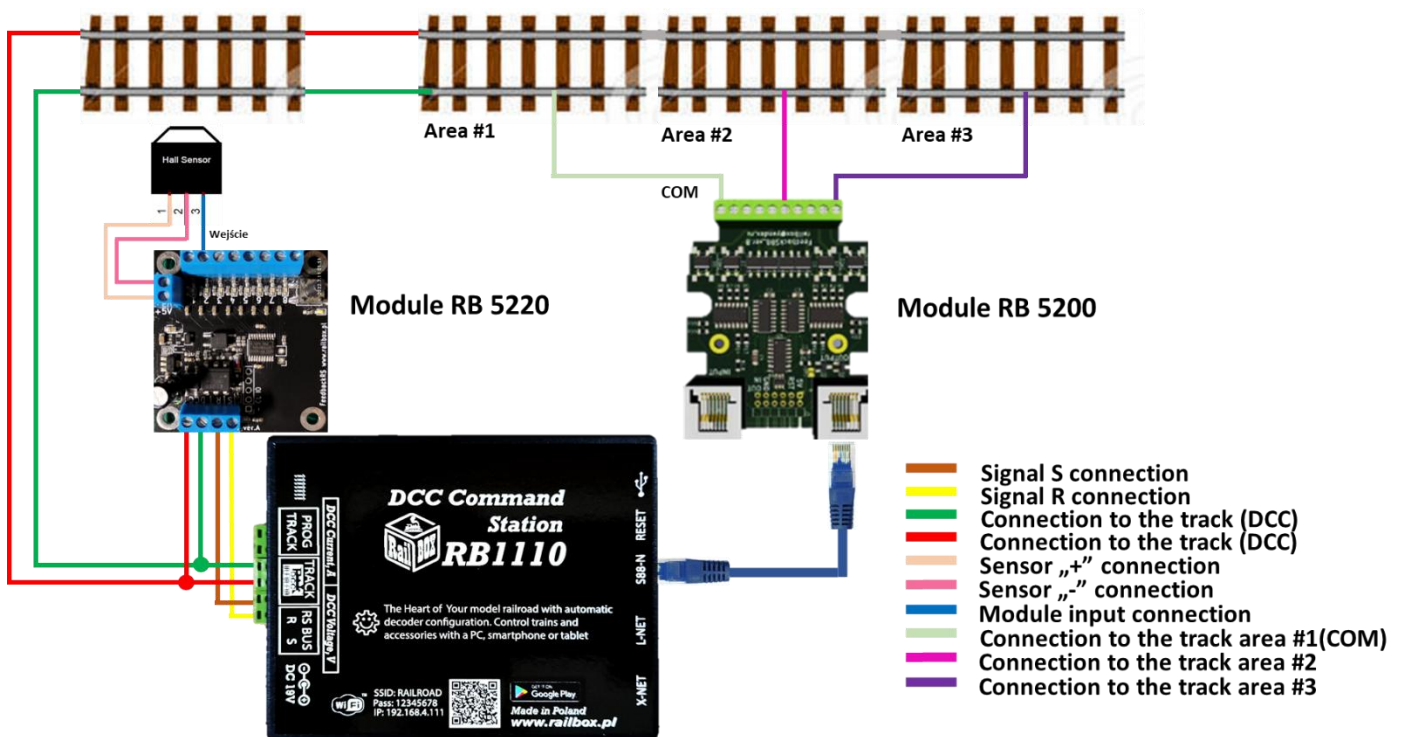
## Command station RB 1110 connection to the track



## Devices connection to the Command station RB 1110



## Feedback modules connection to the Command station RB 1110



## Controlling via tablet (smartphone)

You can connect your tablet (smartphone) to the WiFi Adapter RB 1310 in two ways:







- **Directly to the Wi-Fi Command station RB 1110.** This is the easiest way, but some types of tablets and smartphones may lose connection to the PBX because they are "looking for" an Internet connection. (more [here](#))
- **Using your home Wi-Fi network.** A slightly more advanced way, however, allows you wirelessly control the Railroad model from a PC using the appropriate software, e.g. Traincontroller, GBBkolejka using the LenzLAN protocol. (more [here](#))

### Tablet (smartphone) connection directly to the Command station RB 1110

This is the easiest way to set up your smartphone to control the Railroad model. Follow next configuration steps:

<ul style="list-style-type: none"> <li>• Install the application " RailBOX: Railroad Control " from Google Play</li> <li>• Turn on Wi-Fi Command station RB 1110, and open the App</li> </ul>	
<ul style="list-style-type: none"> <li>• Click on the Wi-Fi icon in the upper right corner of the screen</li> <li>• Connect your smartphone to the Wi-Fi network of the Command Station RB 1110 named "RAILROAD" by entering the password "12345678".</li> </ul>	
<ul style="list-style-type: none"> <li>• Go back and continue by entering the "Configuration" tab</li> <li>• Type the value "192.168.4.111" in the "IP address" field and click "RECONNECT" button.</li> <li>• Now the Wi-Fi icon should be green indicating that the connection to Wi-Fi Command station RB 1110 is active. You can try to press "Stop" button and check whether Wi-Fi Command station RB 1110 will respond to this command.</li> </ul>	





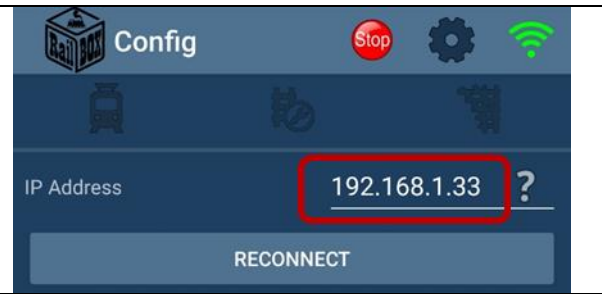
## Tablet (smartphone) connection to the home Wi-Fi network

<p>Connect PC or laptop to Wi-Fi Command station RB 1110 (Name: RAILROAD, Password: 12345678)</p> <ul style="list-style-type: none"> <li>• Open your browser and type 192.168.4.111. If the PC connected to the RAILROAD network, the Railbox Wi-Fi configuration page should open.</li> <li>• Type the name and password of your home Wi-Fi network in the SSID and password field</li> </ul>	<h3>RailBOX Device Configurator</h3> <h4>WiFi Direct AP</h4> <p>IP: <input type="text" value="192.168.4.111"/></p> <p>SSID: <input type="text" value="RAILROAD"/></p> <p>Password: <input type="text" value="12345678"/></p> <p>Channel: <input type="text" value="6"/></p> <h4>WiFi client</h4> <p>Status: Disconnected</p> <p><input checked="" type="checkbox"/> DHCP</p> <p>IP: <input type="text" value="192.168.0.111"/></p> <p>Gateway: <input type="text" value="192.168.0.1"/></p> <p>Netmask: <input type="text" value="255.255.255.0"/></p> <p>SSID: <input type="text"/></p> <p>Password: <input type="text"/></p>
<ul style="list-style-type: none"> <li>• Press "Send" and wait for the page to refresh. When connected to a home Wi-Fi network:</li> <li>• The "Status" field will display "Connected" and the "IP" field will indicate the current Wi-Fi IP address of Command station RB 1110 on your home Wi-Fi network.</li> <li>• In case of "Disconnected" status, check the connection status and press "Send" again or check if the network name and password are correct.</li> </ul>	<p><input type="button" value="Submit"/></p> <p>Settings saved.</p> <hr/> <p>RailBOX Electronics <a href="http://www.railbox.pl">www.railbox.pl</a></p> <h4>WiFi client</h4> <p>Status: <input type="text" value="Connected"/></p> <p><input checked="" type="checkbox"/> DHCP</p> <p>IP: <input type="text" value="192.168.1.33"/></p> <p>Gateway: <input type="text" value="192.168.1.1"/></p> <p>Netmask: <input type="text" value="255.255.255.0"/></p> <p>SSID: <input type="text" value="Railbox"/></p> <p>Password: <input type="text" value="....."/></p>
<p><b>Important:</b> The IP address of Wi-Fi Command station RB 1110 is generated automatically by the home network router and can be changed the next time you connect Wi-fi Command station RB 1110 to your home network. To avoid this, add Wi-Fi Command station RB 1110 to the static IP address pool in your Wi-Fi home router configuration. You can try to continue using the IP that was generated automatically, so turn off DHCP mode and press "Send" again</p>	<h4>WiFi client</h4> <p>Status: Connected</p> <p><input type="checkbox"/> DHCP</p> <p>IP: <input type="text" value="192.168.1.33"/></p>







- Now connect your smartphone or tablet to your home Wi-Fi network and type the current IP address of RB1110 in the RailBOX: Railroad Control mobile application (see „[Connect your tablet/smartphone directly to Wi-Fi Command station RB 1110](#)“).




### RailBOX: Railroad Control application connection



This symbol means “Easy configuration”. All RailBOX products with this  symbol on the board or sticker on the case allows two-way communication (Railcom<sup>®</sup> protocol) with command stations with a Railcom<sup>®</sup> receiver:

- Automatic detection of new decoders connected to the tracks and the ability to automatically assign the address to the decoder (only with  Command station, e.g., WiFi Command Station RB 1110)
- Ability to read and write configuration variables (CV) at any time on the main track (PoM)

Owners of RailBOX decoders with the symbol  and the RB 1110 Command station no longer have to worry about manual address programming for RailBOX accessory, wagons and loco decoders, just connect a new device to the tracks and the system itself will automatically find the next free address and assign it to the decoder. After that, in the mobile app RailBOX: Railroad Control will automatically appear a new loco, or accessory already with the specified address. In the case of semaphore will only need to move them to the appropriate place on the map in the mobile app RailBOX: Railroad Control. More information about this system [see here](#)

The new DCC standard S-9.2.1.1 defines a dynamic address that allows the address of a decoder to be automatically assigned depending on the control panel to which the decoder is connected. Each decoder that supports this standard has a unique serial number, with which the Command station can send commands only to this decoder, even if there is already a decoder with the same base address.

In addition, this standard defines the process of identifying DCC-connected decoders by sending special DCC commands to which the decoder should send a response via a feedback channel (Railcom<sup>®</sup>) and transmit this unique serial number.

Everything described above allows automatic detection of new devices connected to the DCC bus and dynamic address transmission without the need for manual configuration of the decoder on the programming track or by any other programming method provided by the manufacturer of this decoder. In addition, the same decoder can have different addresses for other DCC Command stations, which is very useful at railway events. After all, the process of adding a new device looks similar to adding new devices to the USB bus on personal computers.

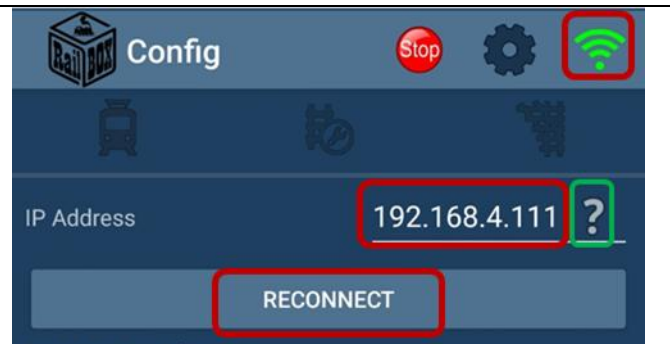
It is important that in the absence of a support for the new standard or the absence of a stored dynamic address for a given decoder in the Command station memory, this decoder will respond only to the static address that is stored in CV1 (applies to "short" addresses)




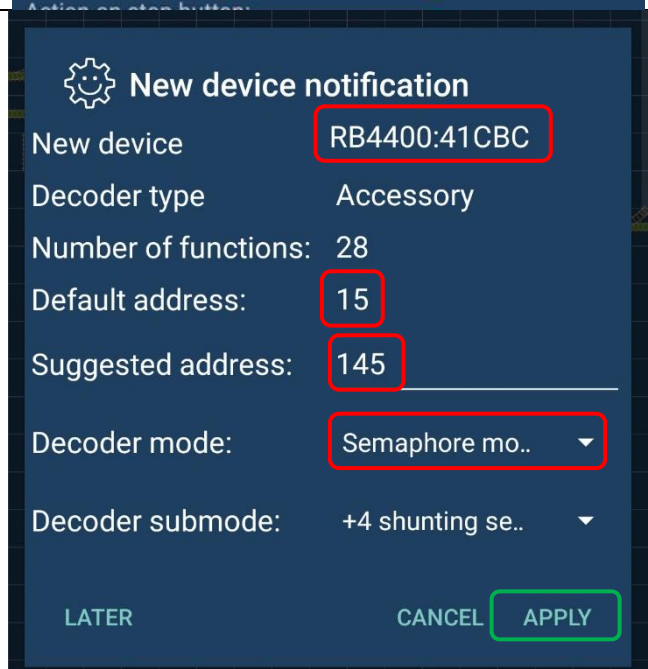


### Connecting a new device in dynamic address mode:

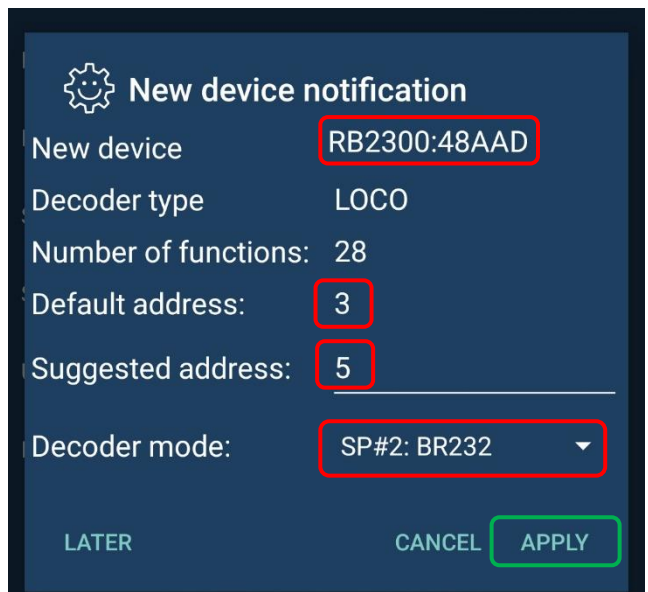
- Turn ON RB 1110 Command station
- Connect any device (smartphone or tablet) with RailBOX Railroad Control App to the Command station via Wi-Fi
- Wi-Fi connection Status in the app should be light up green



- Connect any decoder with the automatic address assignment  to the tracks ("TRACK" connector)
  - After a few seconds, a new device window should open in the application, which will indicate the following information about the device:
    - the name and unique ID of the decoder
    - Outputs number of the decoder functions
    - the default (base) address of the decoder
    - suggested (dynamic) address of the decoder



- Click "Apply" and pre-change, if necessary, suggested address of the new device and select the appropriate decoder's mode

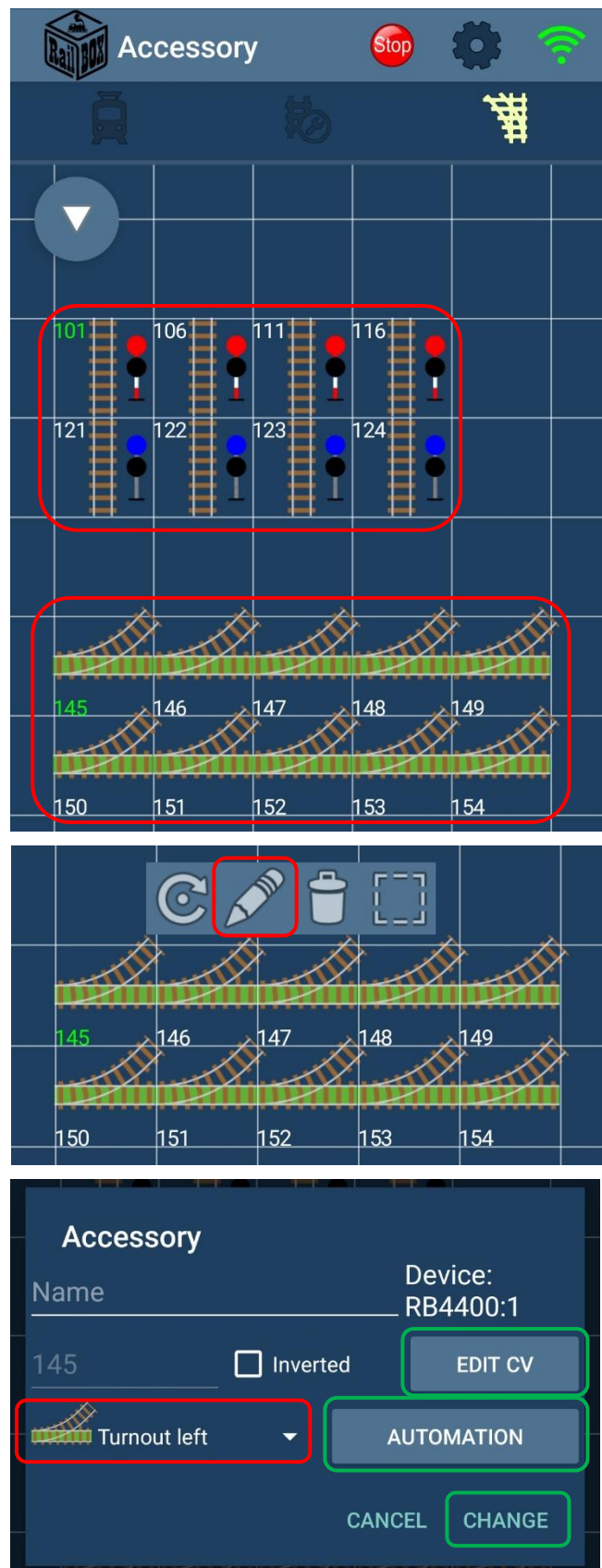






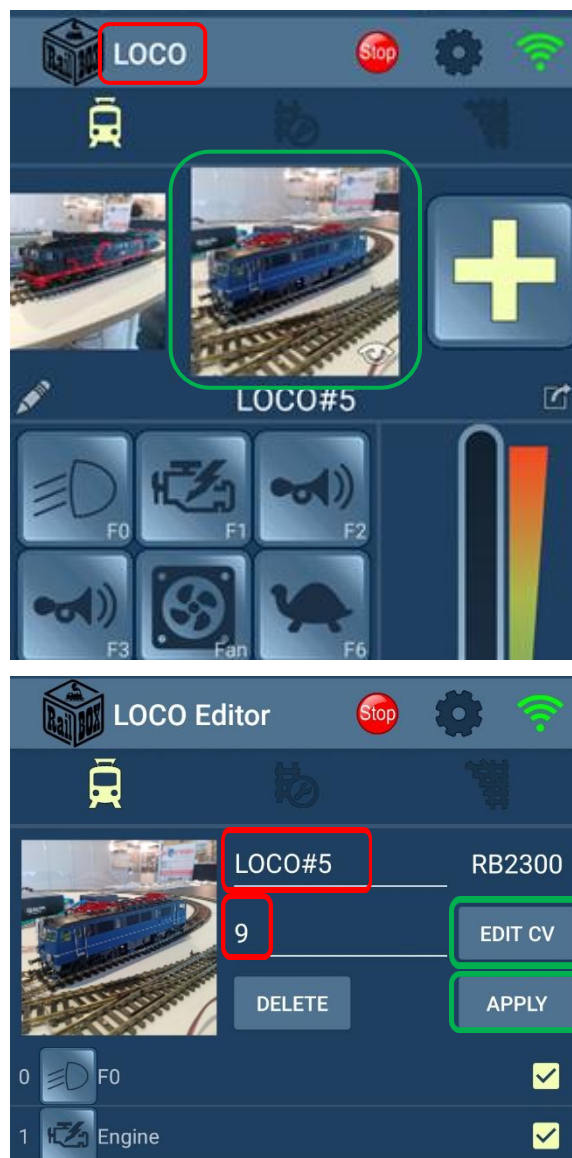
- The new device will be added to the map in the form of graphic elements (e.g. turnouts or semaphores)

- a press on an item allows you to move it to the appropriate location on the map
- Long press on an item to edit or delete it
- in the Edit menu, you can change the item type, item name, and dynamic address
- use the "automation" button to set the state of other elements on the map to depend on the state of the selected element





- Or to the locomotive tab depending on the type of decoder
- By clicking on the locomotive picture allows you to go to the list of all locomotives
- Long press - to edit the selected wagon / locomotive, where you can change the number and type of functions shown, name, upload a photo, etc..





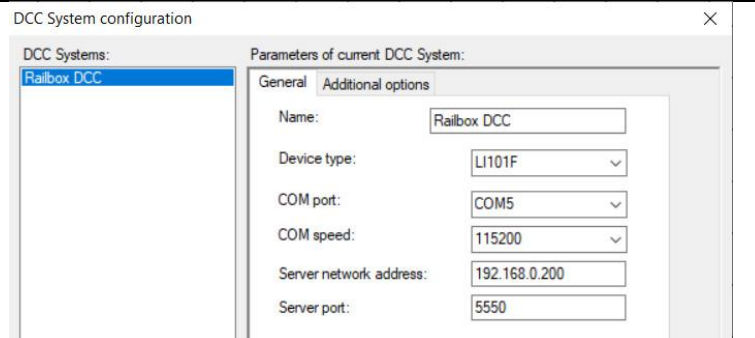
## Connecting software to control the Railroad model via PC

Command station RB 1110 and RB 1110-Mini can control model railroad through various software, for example, TrainController, JMRI, Rocrail, GBBKolejka, etc.

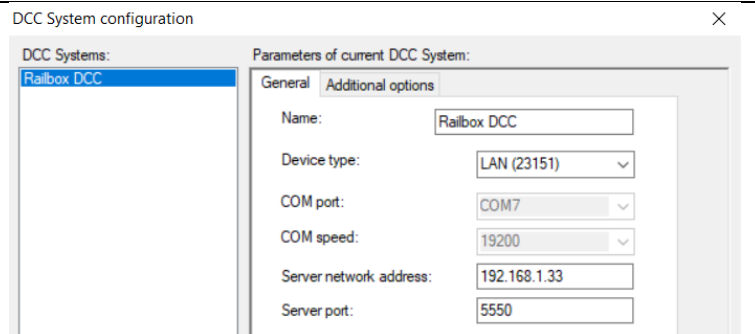
There are two ways to connect RB 1110 and RB 1110-Mini to a PC (see the GBBkolejka and JMRI example below):

### GBBKolejka

Using a USB cable (Lenz LI100F Protocol). Before connecting you need to install the device drivers located [here](#):

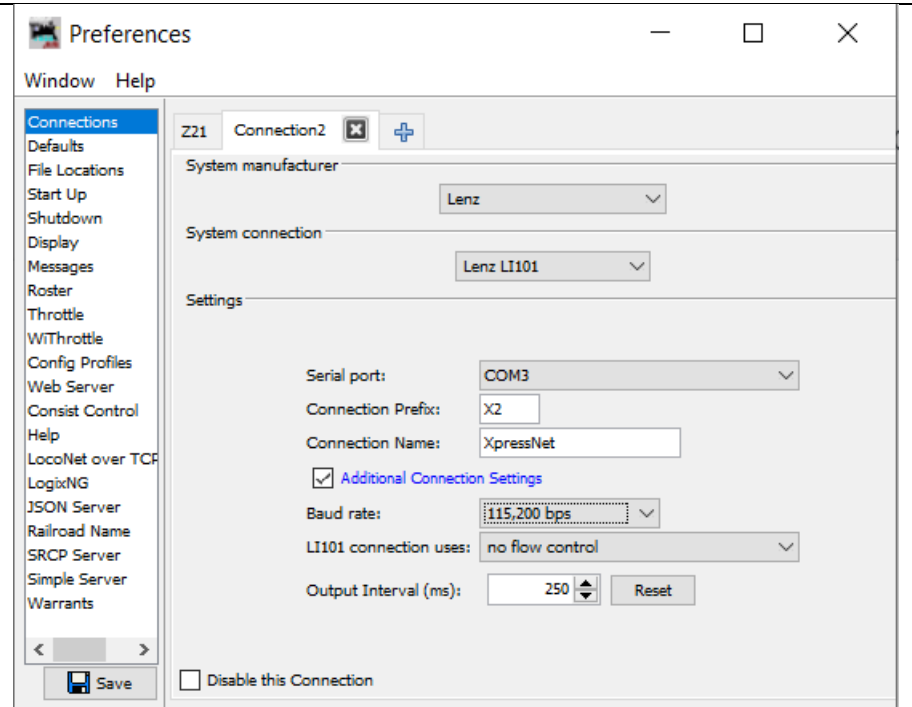


Using Lenz LAN Protocol: Wi-Fi Command station RB1110 or RB1110-Mini should be on the local network of the PC.



### JMRI

Using a USB cable (Lenz LI101 Protocol)





Using Roco Z21 Protocol:  
Wi-Fi Command station RB1110 or RB1110-Mini should be on the local network of the PC.

### Configuration of the Command station RB 1110 (RB 1110 – Mini) parameters

By default, the RB 1110 and RB 1110-Mini Command station is configured for 40 inputs (5 modules), but it is possible to increase the number of inputs up to 128 using the configuration page. To open the configuration page:

<p>Connect your PC or laptop directly to the Wi-Fi network (name: RAILROAD, Password: 12345678)</p>	
<ul style="list-style-type: none"> <li>• Open your browser and type 192.168.4.111. If your PC is connected to the RAILROAD network, the RailBOX configuration page should be shown.</li> <li>• Enter the name and password of Your Home Wi-Fi network in the SSID and Password fields accordingly.</li> </ul>	<div style="border: 1px solid black; padding: 10px;"> <h3 style="text-align: center; margin: 0;">RailBOX Device Configurator</h3> <hr/> <h4 style="margin: 10px 0;">WiFi Direct AP</h4> <p>IP: <input type="text" value="192.168.4.111"/></p> <p>SSID: <input type="text" value="RAILROAD"/></p> <p>Password: <input type="text" value="12345678"/></p> <p>Channel: <input type="text" value="6"/></p>   <h4 style="margin: 10px 0;">WiFi client</h4> <p>Status: Disconnected</p> <p><input checked="" type="checkbox"/> DHCP</p> <p>IP: <input type="text" value="192.168.0.111"/></p> <p>Gateway: <input type="text" value="192.168.0.1"/></p> <p>Netmask: <input type="text" value="255.255.255.0"/></p> <p>SSID: <input style="border: 2px solid red;" type="text"/></p> <p>Password: <input style="border: 2px solid red;" type="password"/></p> </div>

