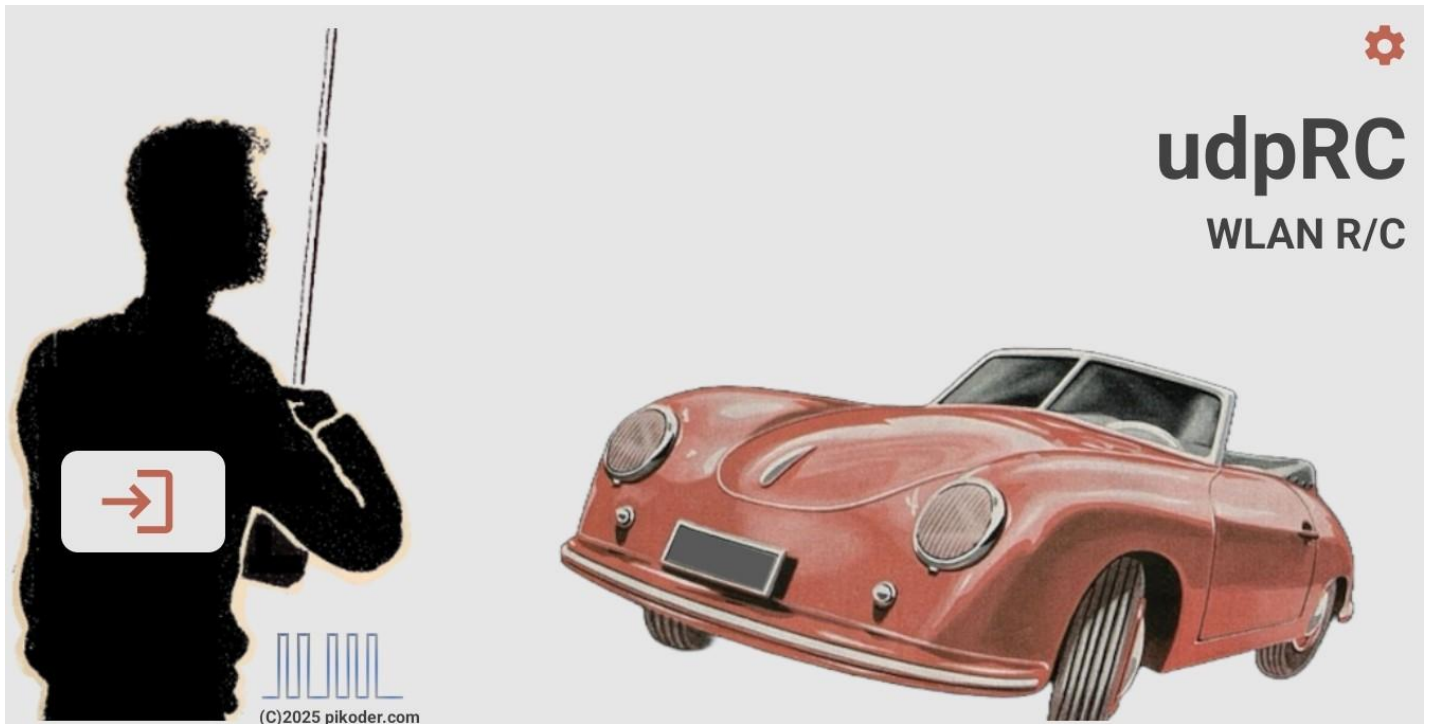




User's Guide

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Table of Contents

Overview	3
Commissioning	5
udpRC Operation	9
Touch Control.....	Fehler! Textmarke nicht definiert.
Controls.....	10
Settings	15
APP Settings.....	15
Switch Settings	16
Other Settings.....	17
Receiver Channel Reference	18
Transmitter Layout.....	20

1

Overview

The *udpRC* Android app offers in conjunction with a PiKoder/SSC wRX Wi-Fi receiver module the possibility to implement a remote control with up to eight channels divided into four or six digital-proportional channels and an additional two or four switching channels with an attractive user interface for an Android™ smartphone or tablet. Thanks to functions such as:

- Flexible assignment of receiver channels to transmitter controls,
- trim for the servo channels,
- the possibility of reversing the direction of the control channels (*reverse* function),
- Setting a safe position after a connection interruption (*fail-safe function*) and
- *Mixing*

the app offers a big variety of applications.

For wireless transmission, the Android device logs on to the access point offered by the receiver module. Depending on the WLAN module of the Android device and the ambient conditions, ranges of a few hundred meters can be achieved.

The commissioning of the remote control takes place in two steps:

- Installation of the app via the Google Play Store and
- Establishing a Wi-Fi connection between the smartphone or tablet and the receiver PiKoder/SSC wRX by logging in to the receiver access point

Both steps are described in section 2; after the one-time commissioning, the app can then be easily accessed. Section 3 describes the user interface and chapter 4 is dedicated to the settings of the app.

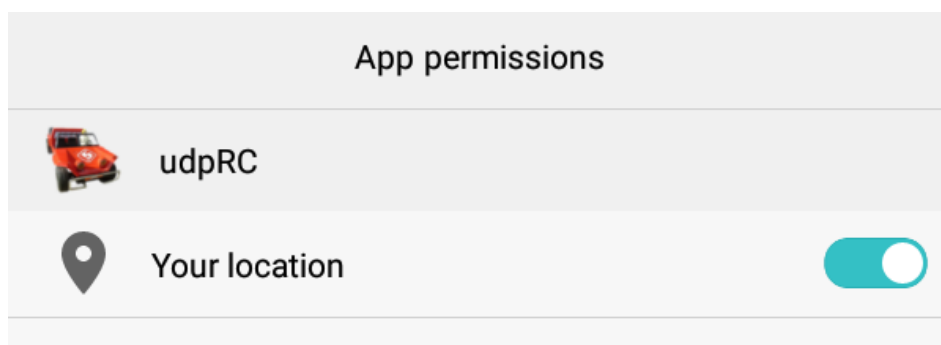
2

Commissioning

The free *udpRC* APP is distributed via the [Play Store](#) ; the installation has no special features. Regarding the required permissions, access to the various WLAN settings must be allowed.

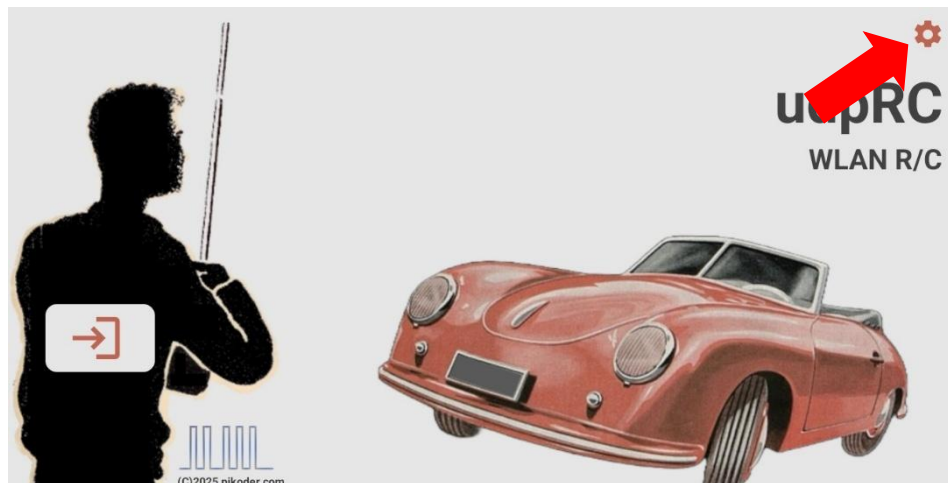
Please note that from Android version 6 ("Marshmallow") onwards, access to the Wi-Fi network also requires access to the position due to the changed permission concept. You can grant this permission before starting the app under Settings/Apps/udpRC (see image on the next page) or interactively before establishing the first connection with the receiver.

Without these system-required permissions, the app will not function properly.



When using a PiKoder/SSC wRX, no further settings need to be made, as the default values of the app have been adjusted to this configuration.

Otherwise, the access point name of the recipient may have to be adjusted in the app settings. The start screen of the app offers the possibility to make these settings.



Home screen

Selecting the settings leads to the following submenu.



After calling up the "App Settings", the following screen is displayed (see the following page). In the sub-item "Receiver SSID" the changed name of the access point can then be entered. (Note: The other settings are described in the Settings section).

Access Point settings

SSID and password

Receiver SSID

Set receiver's SSID

Receiver password

Set password

Application Specific Settings

Switch settings, mixing and timeout

Switch Settings

PWM or Static Output

Other Settings

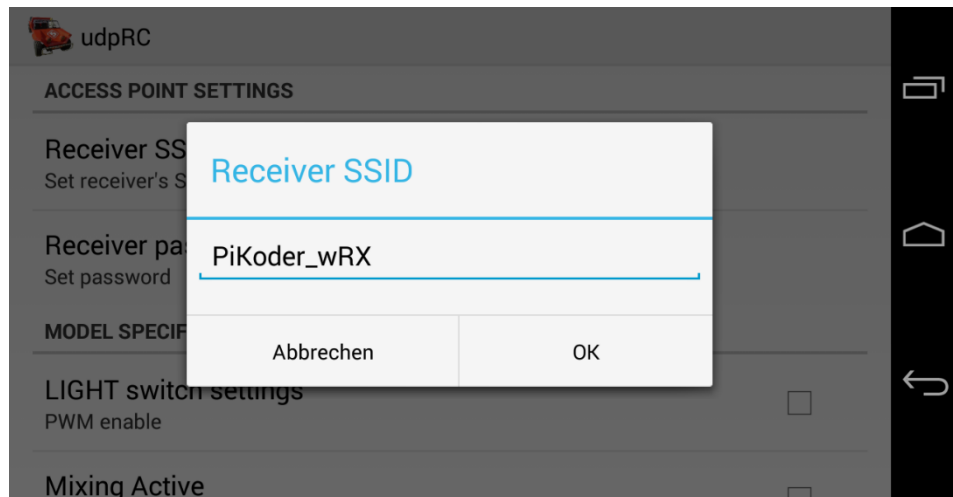
Mixing, Time Out and Neutralization of Sticks

Receiver Channel Reference

for Eight Channel Standard UI

Transmitter Layout

Select transmitter layout



After successful installation of the app and the optional adjustment of the receiver SSID, a connection to the receiver must be established once on the Android level.

To do this, turn on the receiver, select the menu item "Settings" on the Android device, then "WLAN". Now the receiver should be visible, for example "PiKoder_wRX" should appear as an active network in the list. The default password is "password".

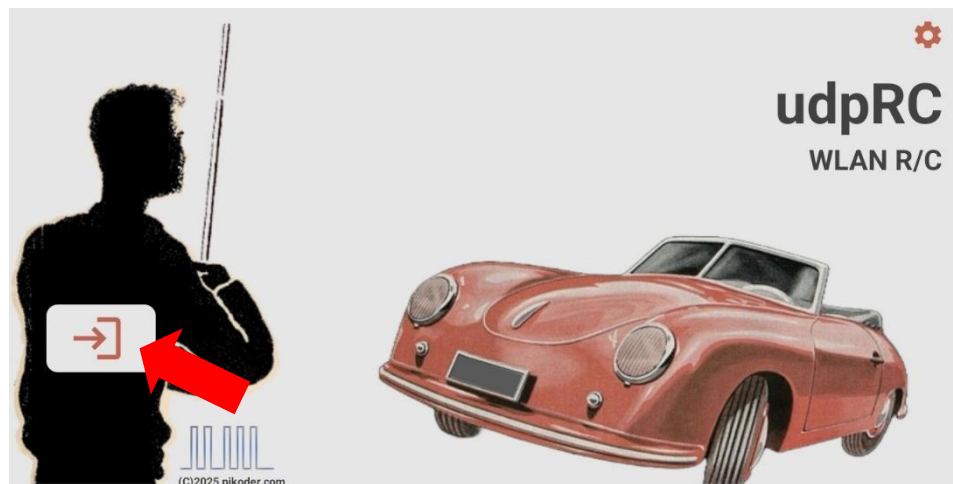
Select this network and connect to the receiver. After that, the access point is fully available and *udpRC* is now able to connect to the receiver on its own after the call.

Note: after a software update of the app, the existing Android network settings should be removed to the previous program version to ensure consistent data.

3

udpRC Operation

After starting, *udpRC* offers a main screen from which the various user interfaces can be started or settings can be made. The user interfaces for remote control are always presented in landscape format to ensure easy operation.



The Connect button takes you to the standard user interface for the eight-channel remote control.

If the required permissions are not available when the user interface is accessed, one or more dialog boxes (depending on the Android version) will appear with the option of release. Please note that the requested permissions are necessary for the program to run properly. After the authorization has been granted, the app will switch to the desired user interface.

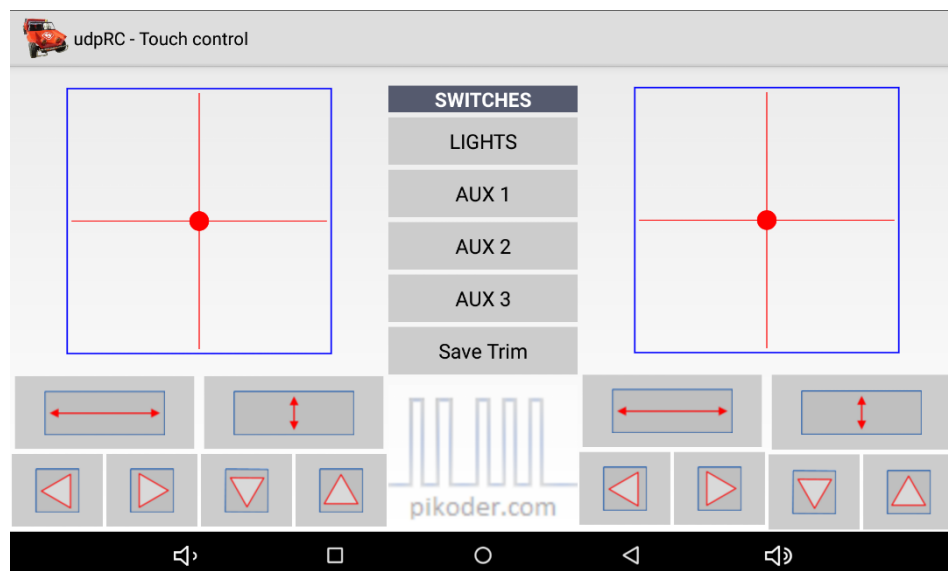
Establishing a connection

After you have initiated the connection, the connection to the receiver is established; this activity is indicated by a corresponding message "Connecting to receiver..." . The connection may take a few seconds to establish. The successful connection is indicated by "Connected to receiver." (this message disappears automatically after a few seconds).

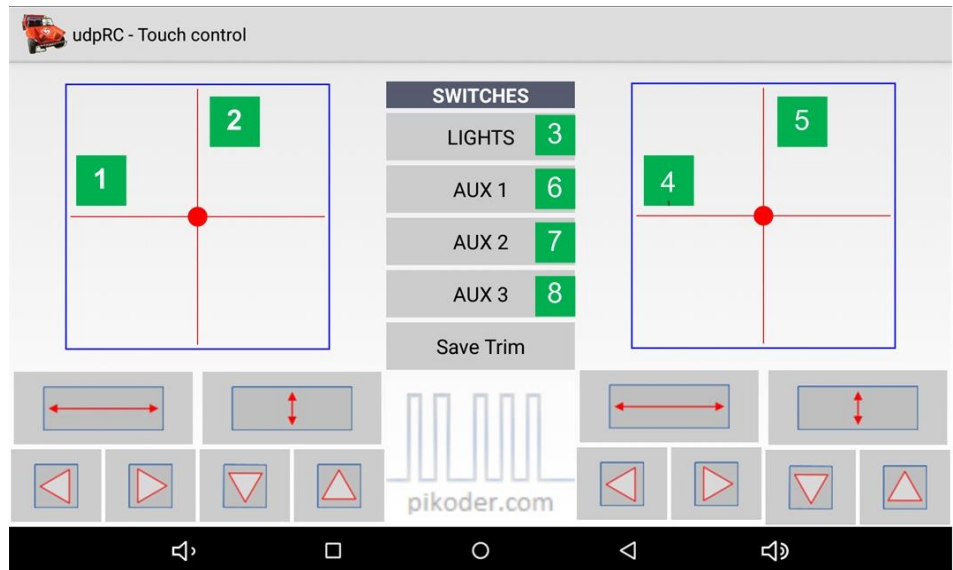
The return from the submenu Button Control to the main menu is always done via the home button (see red arrow in the picture on the following page).

Controls

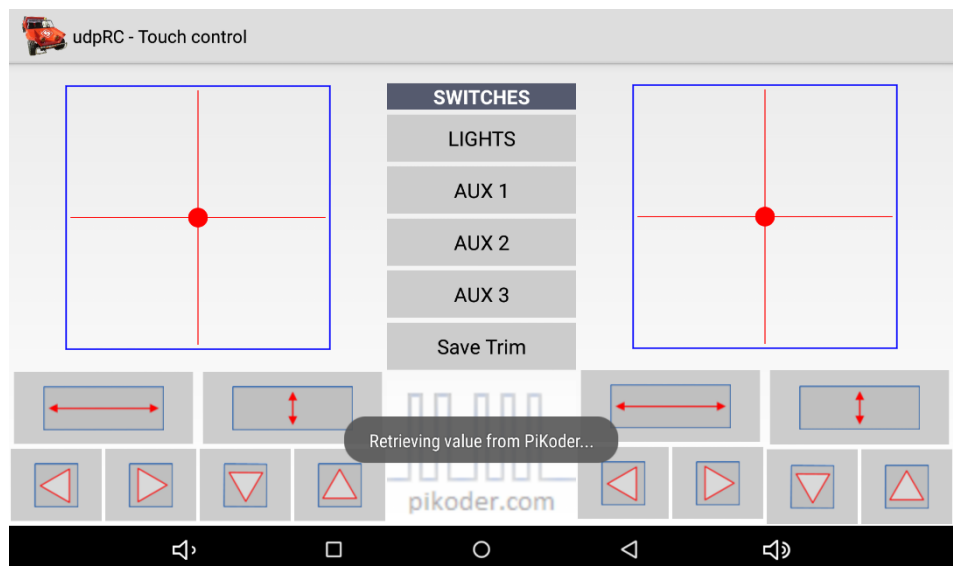
udpRC provides you with two virtual cross sticks that are used to control the model by touching and moving the red dot. All axes can be individually trimmed and reversed in their direction. In addition, you have a total of four switching channels (LIGHTS, AUX1 – AUX3) at your disposal, which output either PWM or static levels.



The default assignment of the individual channels of the PiKoder/SSC wRX receiver to the controls is shown in the following image (the number in the green field indicates the channel number of the receiver). If you need a different assignment, you can set it in Settings.

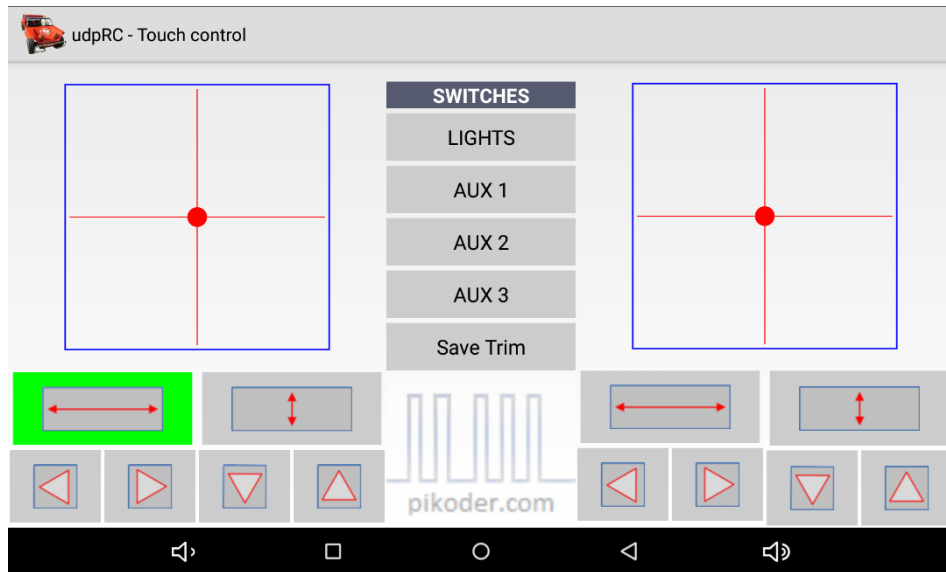


The trim function is used to set the home position for each channel. When one of the arrow keys for one of the corresponding channels is pressed for the first time, the channel parameters of the PiKoder/SSC are uploaded and used for further adjustment.

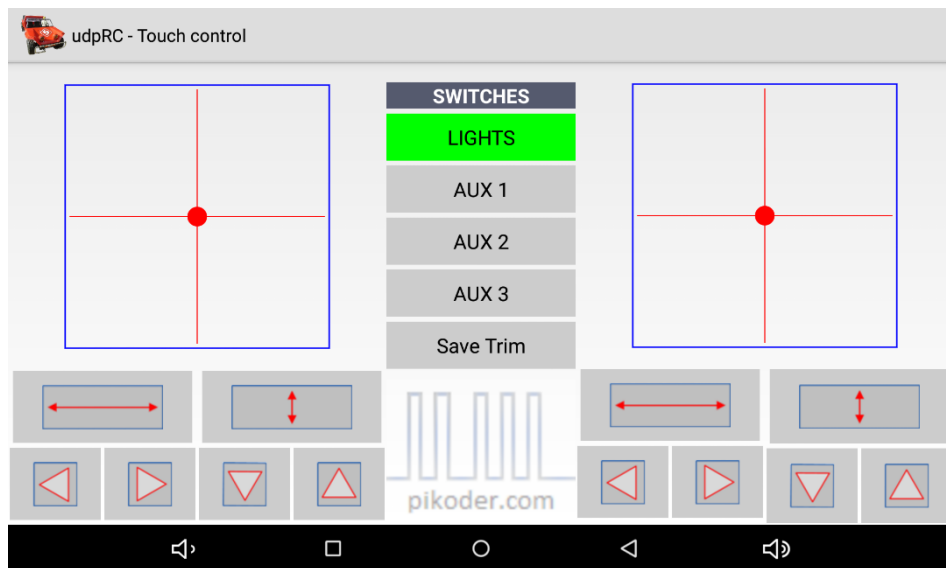


Each time the arrow key is pressed again, the basic position of the channel is adjusted accordingly until the maximum or minimum values are reached. The trim values can be saved by pressing the *Save Trim* button in the PiKoder/SSC wRX. This means that you do not have to make the basic trim every time you turn it on.

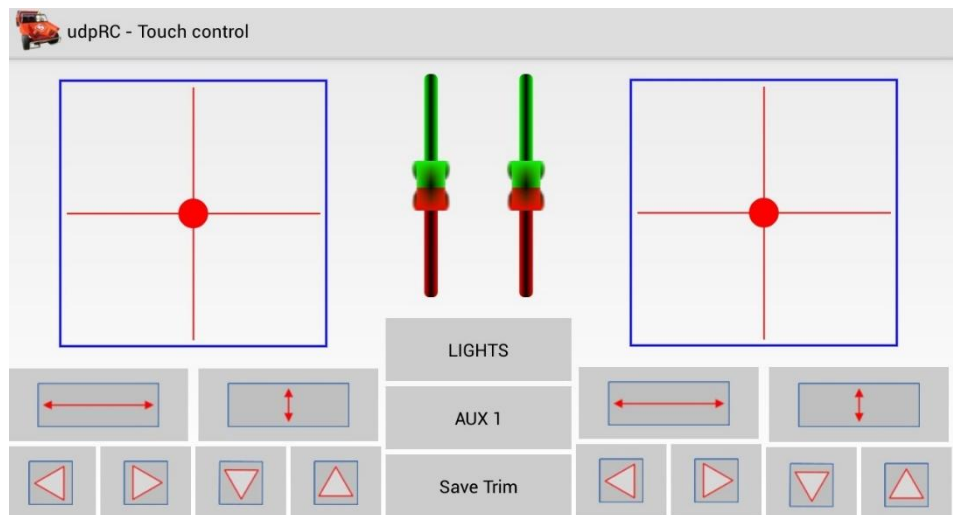
The reversal of the direction of the control sticks is turned on or off by pressing the buttons. The switched on state is indicated by a green background color of the button.



The switching channels are also switched on and off by pressing the buttons. The switched-on state is indicated by a green background coloring.



If six servo channels are required, then a modified user interface with two sliders can be activated; the activation is described in the Settings section.



The middle sliders are mapped to channels 7 and 8.

4

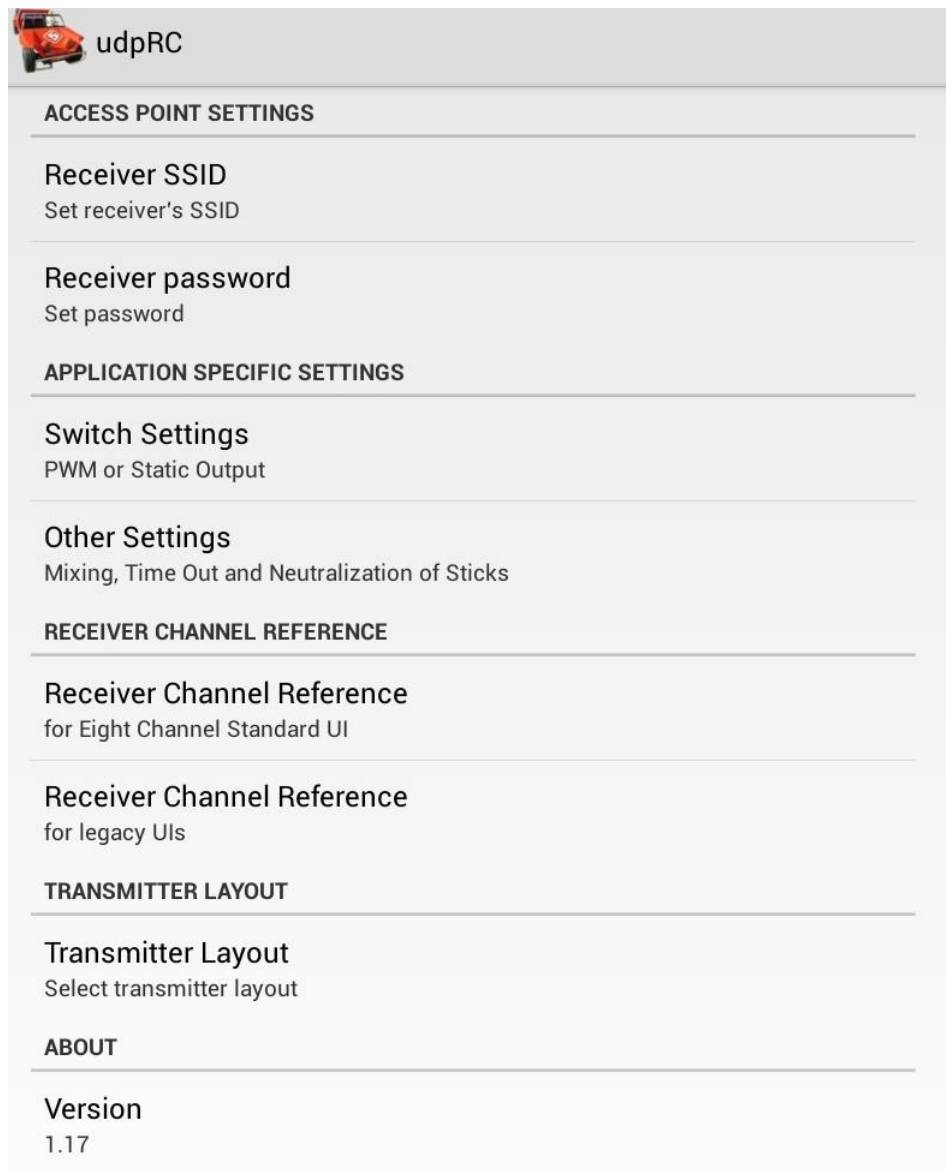
Settings

The settings are called up from the start screen in the main menu. (see "Commissioning"). After activating the preferences, a selection menu appears with APP Settings, SSC Settings and the general help information with the reference to the PiKoder homepage (see also image on the following page).



APP Settings

In this area, you can make the general settings for the app. These include the connection settings such as the hotspot SSID (see section "Commissioning"), the setting of the switching functions, timeout and mixing, as well as the assignment of the receiver channels to the controls. The *back* button takes you to the higher-level menu.



Switch Settings

With the switch settings, you determine whether the four switching channels output a static on/off signal or a PWM signal.



Switch Settings

LIGHT switch settings

PWM enable

☐

AUX1 switch settings

AUX1 PWM enable

☐

AUX2 switch settings

AUX2 PWM enable

☐

AUX3 switch settings

AUX 3 PWM enable

☐

In the default setting (box not activated), the switching channels are configured as IO pins, i.e. statically switched on or off. If the box is checked, a PWM signal is generated (On state is mapped by $\text{PWM} > 1800 \mu\text{s}$).

Other Settings

The mixing function is activated independently of each control stick and allows you to control a model with two motors (*Mixing Active*); in the traditional setup with a speed controller and a rudder machine, the check mark must be removed. To activate the mixing function on the legacy UIs, the box *mixing left stick* is evaluated.

In conjunction with the PiKoder/SSC wRX, the udpRC app has a "Fail Safe" function: if no control commands are received within an adjustable period of 0.1 – 99.9 s, the receiver outputs the neutral value on all servo channels. If this neutral value is programmed in advance for the specific model (see [PiKoder/SSC User's Manual](#)), then it is ensured that the model switches to a defined state (e.g. switch off the motor or similar) if the connection is lost.

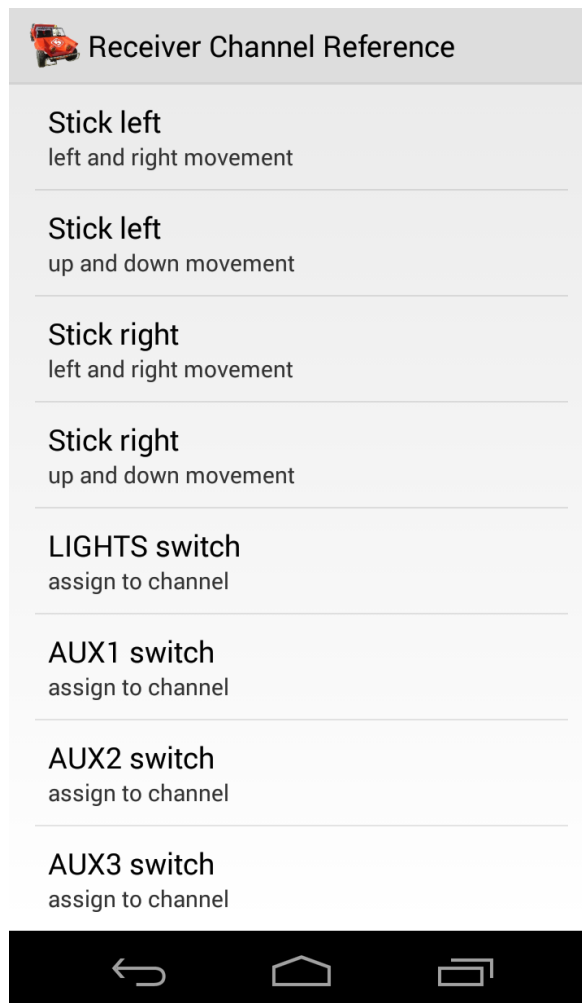

Other Settings

Mixing left stick and legacy UI Mixing left stick	☐
Mixing right stick Mixing right stick	☐
Timeout until fail safe given in multiples of 0.1 s	
Neutralize left direction stick unchecked to disable for Standard UI	☒
Neutralize left throttle stick unchecked to disable for Standard UI	☒
Neutralize right direction stick unchecked to disable for Standard UI	☒
Neutralize right throttle stick unchecked to disable for Standard UI	☒

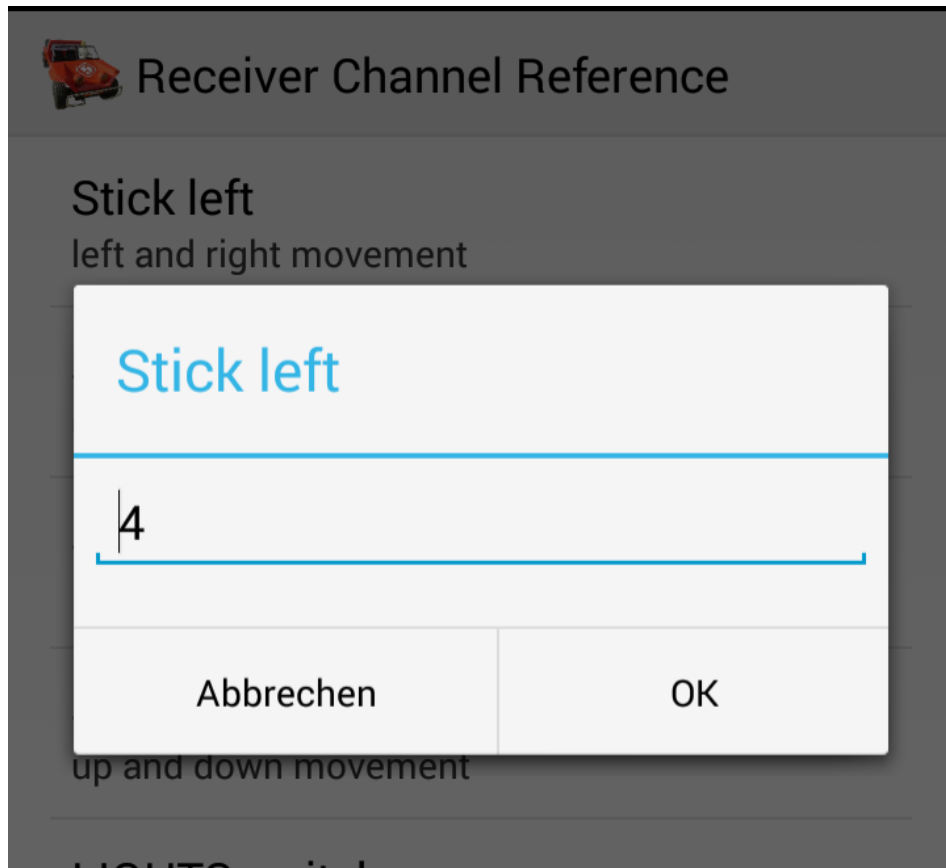
In the default configuration, all sticks are automatically set to neutral when 'released' (equivalent to the mechanical spring in a traditional remote control). By removing the checkmark, the spring is unhooked and the control stick remains in its last position. This function is useful for sailboat models, for example, so that you don't have to hold the control stick for sail adjustment all the time.

Receiver Channel Reference

In this menu, the receiver channels are assigned to the control elements of the user interface.



Selecting a control element opens an input option for the assigned receiver channel number.



Transmitter Layout

This menu item allows switching channels 7 and 8 to a slider for servo control. Activation is done via a checkbox.

