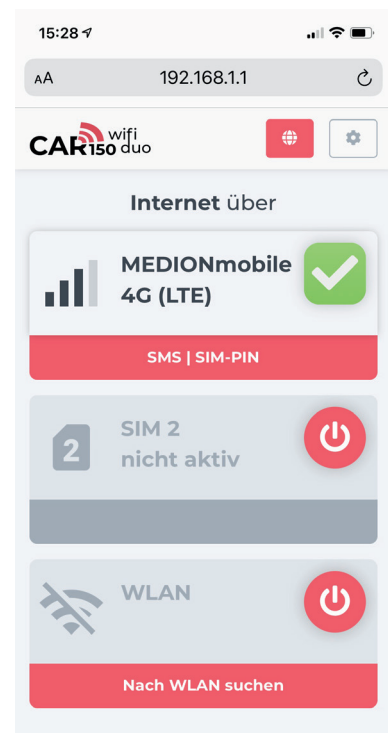


# LTE/4G Dual-SIM WiFi Router Set



# Instruction Manual

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## About This Manual

This document is part of the product.

- ▶ Read the instruction manual before using the **CAR 150 WiFi Duo** router set for the first time.
- ▶ Perform all operating steps described in the manual in the specified sequence.
- ▶ Keep this manual in a safe place for future reference and include it with the unit when passing it on to the next user.

For the most up-to-date version of this document, go to [www.kathrein-ds.com](http://www.kathrein-ds.com).

## Intended Use

The **CAR 150 WiFi Duo** LTE/4G dual-SIM WiFi router set enables the connection of mobile devices (mobile phone, tablet, notebook) to the Internet via a WiFi network or the mobile data of an inserted SIM card.

**Any other use will invalidate the warranty or guarantee.**

**The following circumstances will result in the loss of all warranty and liability claims towards the manufacturer:**

- Improper installation
- Use of non-specified mounting materials which cannot guarantee the mechanical safety of the router
- Structural changes or interference with the components and mounting accessories of the set, which may endanger both the mechanical and functional safety
- Opening the components improperly or by force
- Use of solvent-containing cleaners such as acetone, nitro-thinner, petrol or similar
- Non-observance of installation and safety instructions in this manual



A suitable data SIM card (not included in the scope of supply) is required to establish an Internet connection to the **CAR 150 WiFi Duo**. You are free to choose a provider. The choice of the most suitable provider for you depends on several factors, for example:

- How much you want to spend
- What kind of data you want to stream (surfing, audio, video)
- The data volume required
- Where you are travelling

## Features

- WiFi/LTE router for caravans and campers
- Internet via mobile (LTE) or WiFi network
- Two SIM card slots for use of various networks, e.g. D1 and Vodafone, or local providers abroad
- 12 V or 230 V power supply possible
- Connections: 5x antenna, 4x Ethernet, 1x USB and many more
- MIMO external antenna for perfect LTE/WiFi reception
- Use of existing WiFi networks, e.g. at campsites/restaurants/...
- English-speaking service hotline, Made in the EC
- Low energy consumption
- Easy to operate
- Future-proof due to update option via the Internet
- Internet also available while driving and internationally

## Scope of Supply



- ① Router
- ② Internal WiFi antenna
- ③ 230 V power supply unit
- ④ Ethernet cable 1.5 m
- ⑤ Roof antenna
- ⑥ Roof duct including fastening screw and knurled nut
- ⑦ 12 V connection cable

Scope of supply CAR 150 WiFi Duo

## Notes

### Legal notes

KATHREIN Digital Systems GmbH herewith declare that the **CAR 150 WiFi Duo** (order no. 204500013) is in conformity with Directive 2014/53/EC. The full text of the EC Declaration of Conformity is available at [www.kathrein-ds.com](http://www.kathrein-ds.com).

KATHREIN Digital Systems GmbH are not liable for product damage due to external influences, wear or improper handling, unauthorised repair, modifications or accidents.

### Safety instructions and general notes



#### **Danger to life from electric shock when touching electrical installations!**

- ▶ Maintain a minimum clearance of 1 m from all electrical devices.
- ▶ When mounting/repairing/dismantling the router set, disconnect all devices from the mains.
- ▶ Make sure that modifications to the electrical installations in the vehicle are only carried out by a specialist. Never make any unauthorised changes to the electrical installation!



### Risk of severe injuries during installation/repairs/dismantling on the vehicle roof!

- ▶ Position the vehicle horizontally.
- ▶ Wear stable shoes with non-slip soles.



- ▶ Use a working platform.
- ▶ Make sure that the person carrying out the installation or repair has a secure position to stand and hold on whilst working.



- ▶ Make sure that the person carrying out the installation or repair does not suffer from vertigo and can move around safely on the roof of the caravan or motor home.



- ▶ Make sure that the vehicle roof is sufficiently strong and stable. If in doubt, contact a qualified specialist dealer or the manufacturer of your vehicle.
- ▶ Make sure that the roof and climbing aid are dry, clean and non-slip.

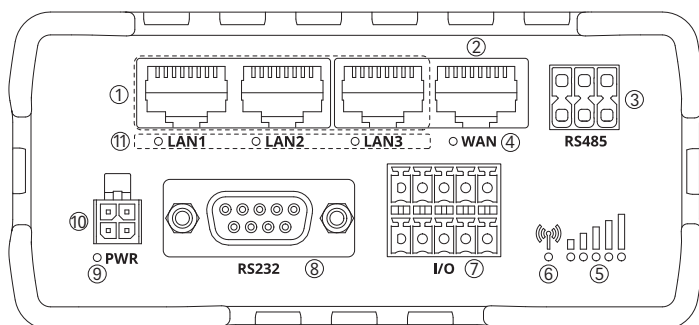


### Risk of damage to the router set!

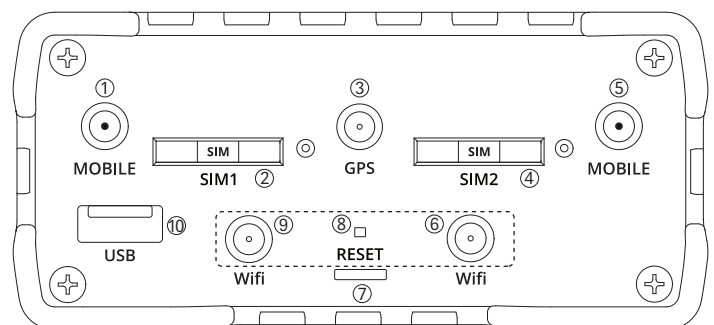
- ▶ Risk of collision of the external antenna with objects due to the increase in vehicle height.
- ▶ Do not clean the vehicle in a car wash or with a high-pressure cleaner when the **CAR 150 WiFi Duo** is mounted.

## Connections and Displays

### Front view



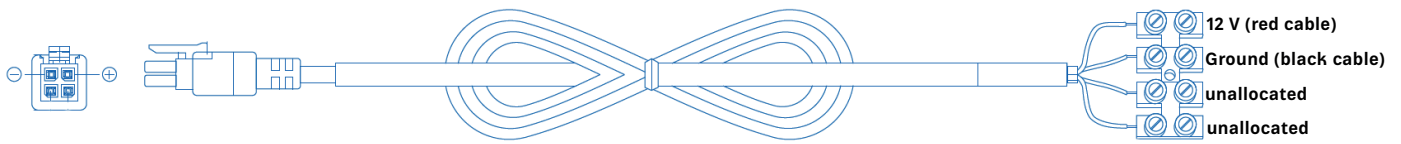
### Back view



- ① LAN ports
- ② WAN port
- ③ RS485 interface
- ④ WAN LED
- ⑤ LED display: signal strength
- ⑥ LED display: mobile connection
- ⑦ Connections: input/output
- ⑧ RS232 interface
- ⑨ Power LED
- ⑩ Connection for power supply
- ⑪ LAN LEDs

- ① Connection LTE Aux
- ② Card holder SIM1
- ③ Connection GPS antenna
- ④ Card holder SIM2
- ⑤ Connection LTE main
- ⑥ Connection WiFi main (external antenna)
- ⑦ Tool for opening the card holders and for pressing the reset button (SIM needle)
- ⑧ Reset button
- ⑨ Connection WiFi Aux (internal antenna)
- ⑩ USB port

## Connection description: power supply plug



## Installation and Connection

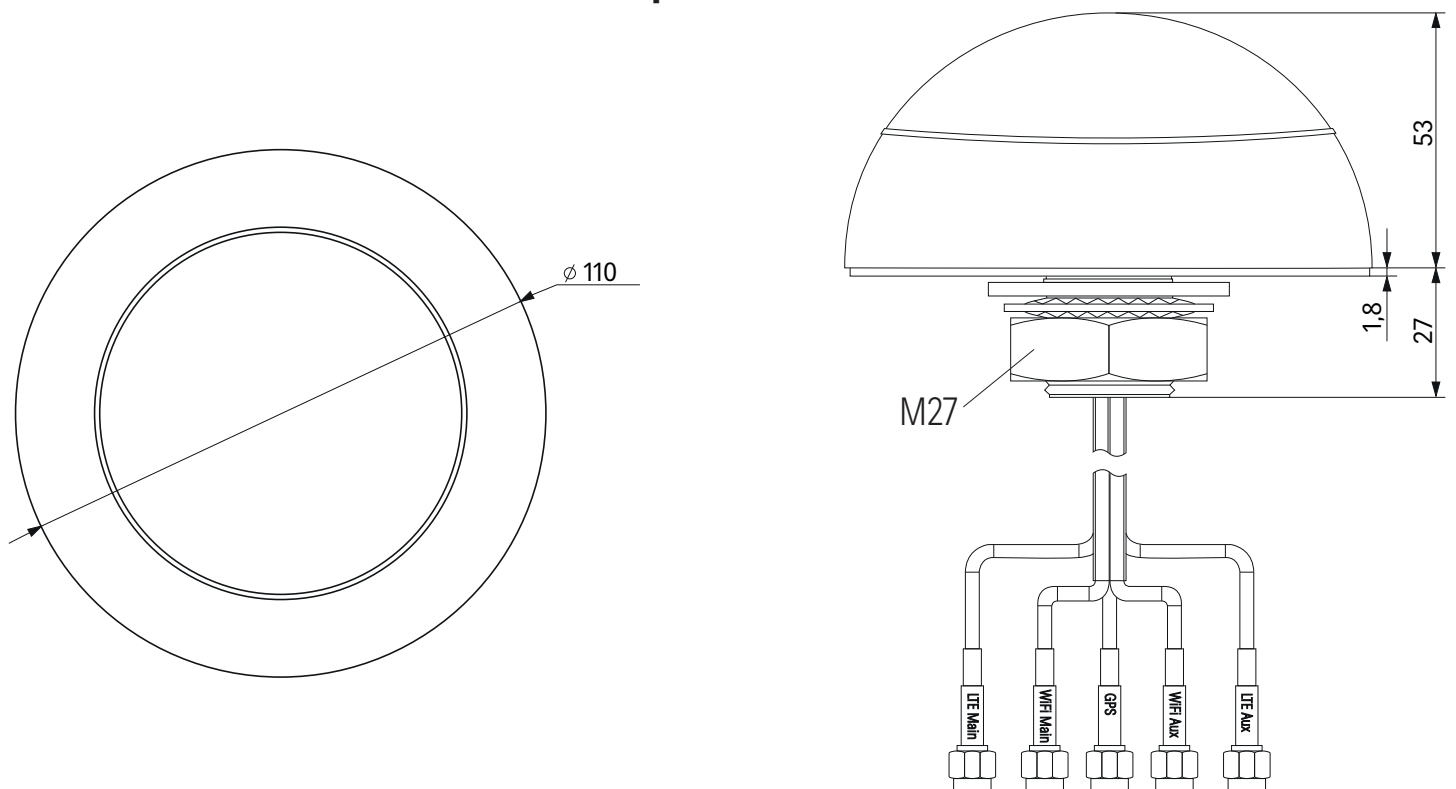
### Tools required

- Power drill
- Open-end or ring spanner (SW41)
- Circular drill,  $\varnothing$  38 or 27 mm
- Round file and/or sandpaper
- Cleaning agents



When positioning the external antenna and the router, make sure that they are no further than 2.8 m apart, as it is not possible to extend the cables of the external antenna.

## Dimensions external antenna, cable specification



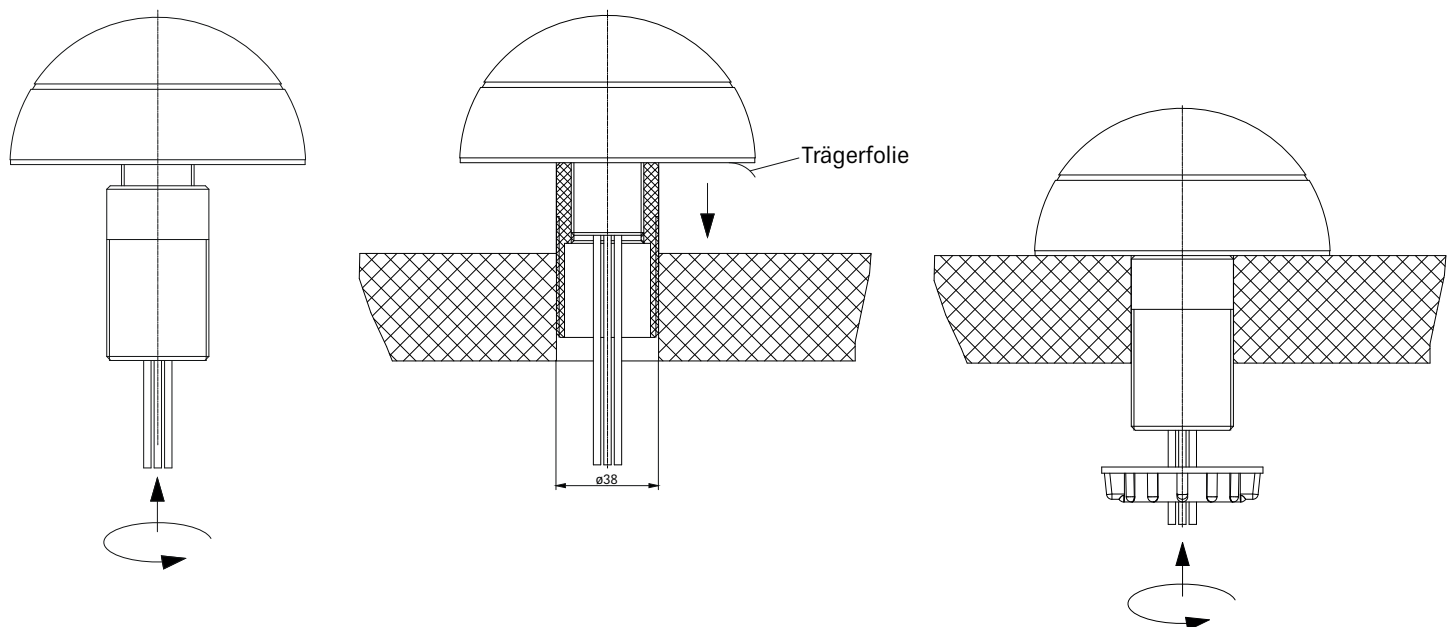
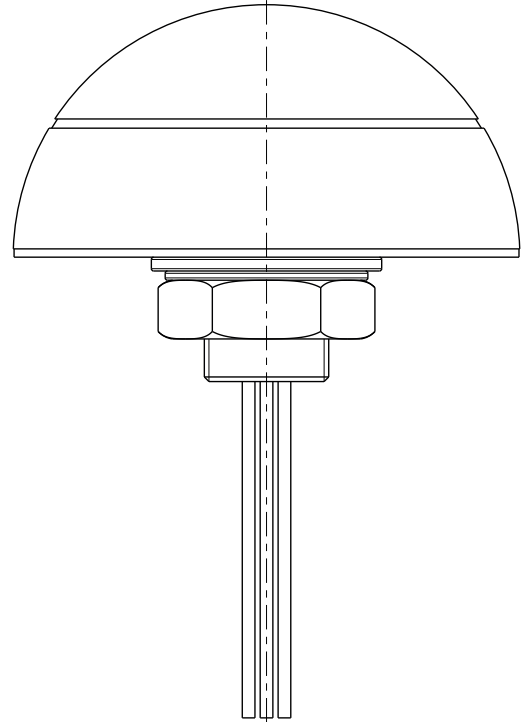
WiFi Main/Aux = black  
 LTE Main/Aux = purple  
 GPS = blue

## Mounting the external antenna ...

### ... using the Kathrein roof gland

1. Remove the pre-assembled nut (M27) and the two washers.
1. Clean and mark the installation site.
2. Drill a  $\varnothing 38$  mm hole in the roof according to the marking.
3. Deburr and clean the drill hole.
4. Feed the antenna cables through the roof gland supplied (observe the correct position!) and screw them onto the antenna thread until just before the stop. Screwing on the roof duct first makes it easier to centre it in the roof hole.
5. Run the cables from the outside through the roof hole to the inside.
6. Remove the backing from the adhesive pad of the antenna.
7. Now screw the roof gland onto the thread of the antenna as far as it will go.
8. Position the antenna correctly and press it down well (the entire surface must have contact).
9. Run the antenna cable into the interior through the knurled nut provided.
10. Screw the knurled nut onto the roof gland (hand-tighten) to secure the antenna.

Auslieferungszustand:  
Mutter und Scheiben vormontiert

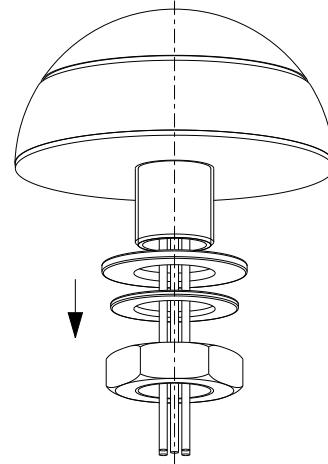




### ... with nut and washers

If the motorhome or caravan has a very thin roof structure, the two washers and the M27 nut may be used for mounting. In this case, a  $\varnothing$  27 mm hole must be drilled. All further mounting steps can be seen at „Außenantenne montieren ...“ „... mit Kathrein-Dachdurchführung“ auf Seite 8. The only difference to the installation with the  $\varnothing$  38 mm roof gland is that the cables must be run from the inside to the outside before the washers and the nut are screwed on.

Montage Dachantenne:  
Mutter und Scheiben müssen  
erst demontiert werden



## Getting Started

### Connecting the router

1. Connect the cables coming from the external antenna to the router as indicated.
1. We recommend connecting the indoor antenna to the WiFi aux input of the router (not the corresponding cable from the external antenna).
2. Connect the power supply input of the router either to the on-board power supply using the 12 V connection cable or to a socket using the 230 V plug-in power supply unit.
3. Connect your end device either wirelessly to the router (see „Connecting the end device to the router ...“ on page 9) or by connecting it to the LAN port using a network cable.

### QR codes on the housing



Use the QR code on the left side or the access data below it to connect your end device to the router

Use the QR code on the right side or the access data below it to open the web interface of the router

### Connecting the end device to the router ...

#### ... via the QR code

- Use the camera or an app for scanning QR codes on your end device
- Scan the left QR code
- A connection between your end device and the router's WiFi network is automatically established

#### ... manually by entering the access data

- Open the WiFi settings on your mobile device and select the "Kathrein\_XXX" WiFi network
- Enter the password indicated under the left QR code
- The mobile device will be connected to the router

## Open the router's web interface ...

### ... via the QR code

- Use the camera or an app for scanning QR codes on your end device
- Scan the QR code on the right
- Open the scanned link in the browser and register

### ... manually by entering the access data

- Open the browser in your mobile device
- Enter "http://192.168.1.1" and register

## Insert the SIM card(s)

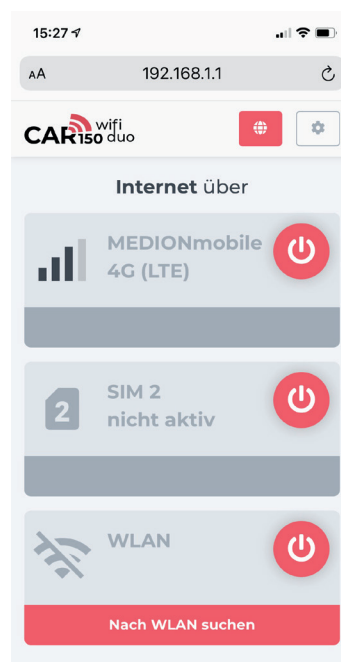
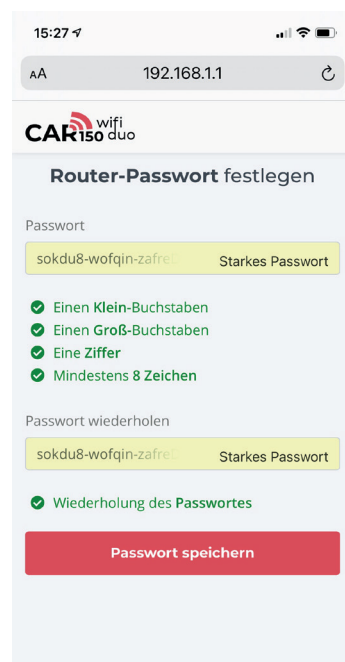
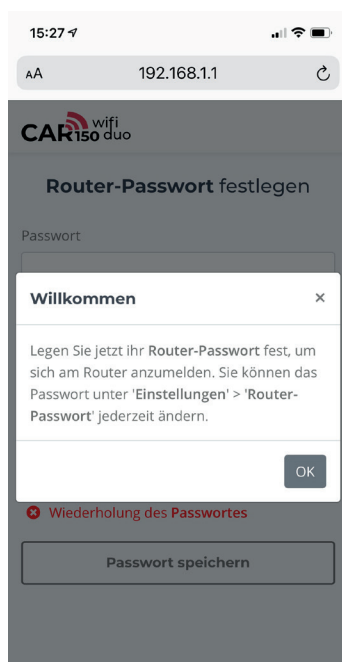


As connection prices vary greatly from country to country, choosing the right SIM card is often difficult. Another aspect is that the network coverage of the mobile phone providers also varies greatly. To solve this problem, the router of the **CAR 150 WiFi Duo** has two SIM card slots. This gives you the option of using the second card of your existing mobile phone contract and additionally a prepaid SIM card of your holiday destination.

When inserting your SIM card into the router, proceed as follows:

1. Start the router without SIM card.
2. In the settings menu of the desired SIM card, enter the corresponding SIM PIN and save it.
3. Switch off the router.
4. Press the SIM needle into the hole next to the desired card holder (SIM1 or SIM2).
5. After pressing lightly, the card holder snaps open and you can take it out.
6. Place your SIM card (full-size) in the card holder.
7. Then push the card holder back into the router and start it.

## Initial login to the router



After successful login, you will see this window.

When accessing the web interface of the router for the first time, a new access password must be assigned. You will need this newly created password every time you access the web interface of the router in the future.

## After Successful Start-up

### Icons used in the web interface



Click on this icon to select the transmission path (SIM1, SIM2, WiFi) for establishing an Internet connection.



Transmission path selected, no connection to the Internet yet.



Internet connection established without restriction.



Registration is required for Internet use. Click on this icon to register with the provider.



Homepage of the web interface



Click on this icon to make settings for the router (see „General Router Settings“ on page 15).

### Connecting to the Internet ...

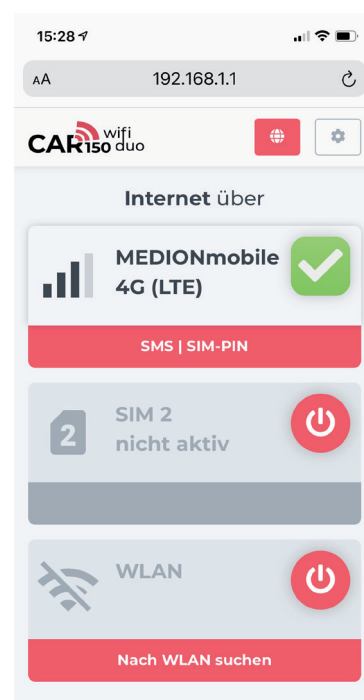


If connections (mobile or WiFi) have already been successfully set up on the router, the active connection is displayed with a tick after login.

### ... via SIM1 or SIM2

Click on the red icon to establish the Internet connection via SIM1 or SIM2. Successful connection is indicated by a green tick.

After activation, you can read SMS messages or make settings on the SIM card, see „SIM settings“ on page 14.

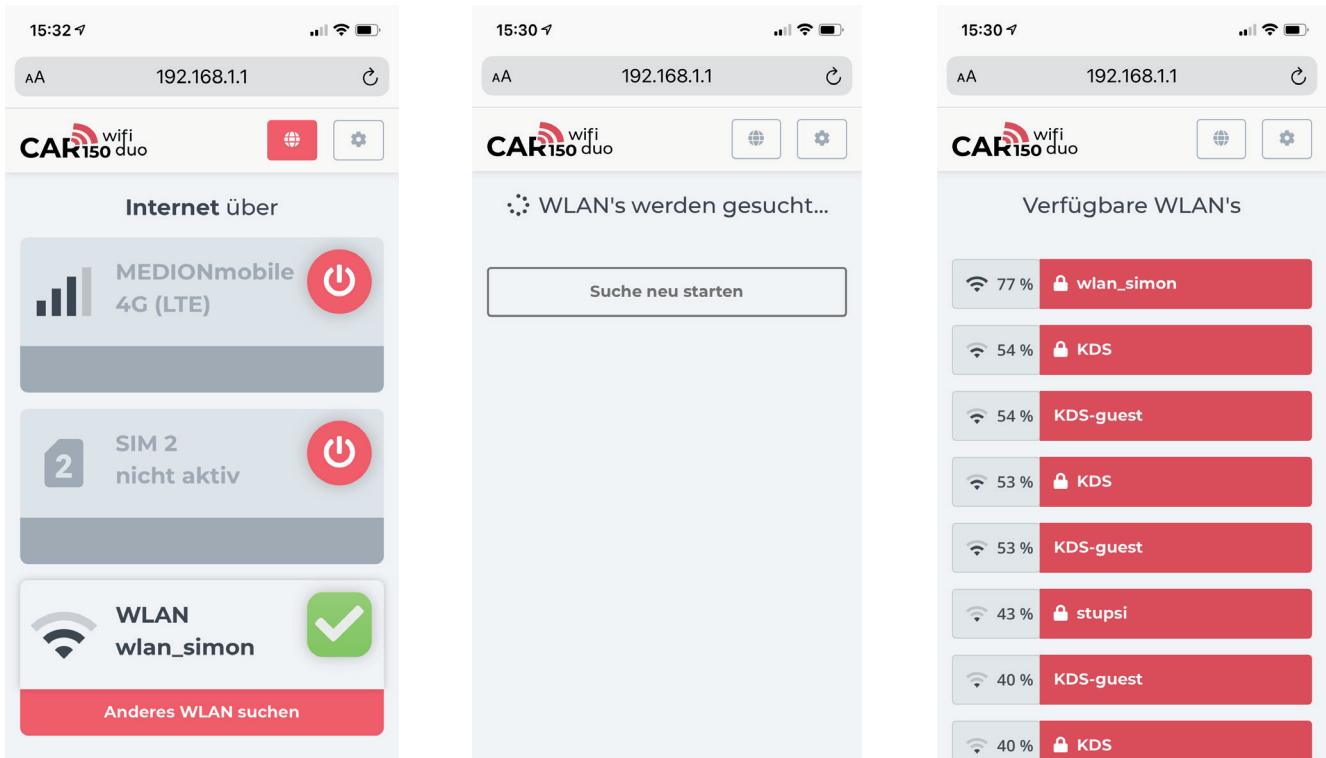


## ... via WiFi

If a WiFi network has already been selected, it can be accessed.

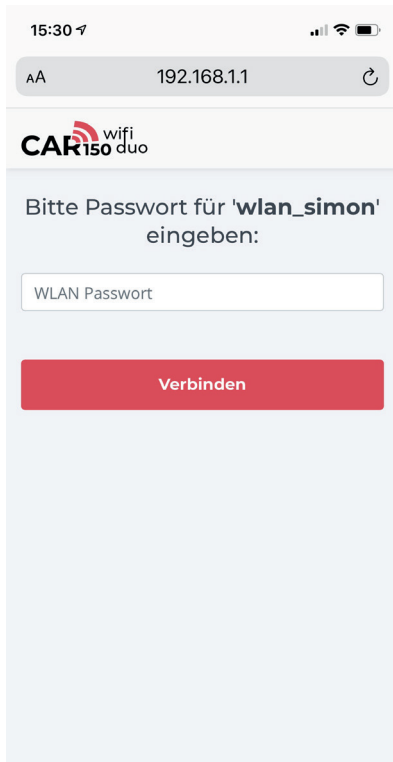
If you want to use a new or different WiFi network for your Internet connection, select "Search for WiFi" or "Search for other WiFi" on the home screen.


After the successful search, all available WiFi networks are displayed with the respective signal strengths.

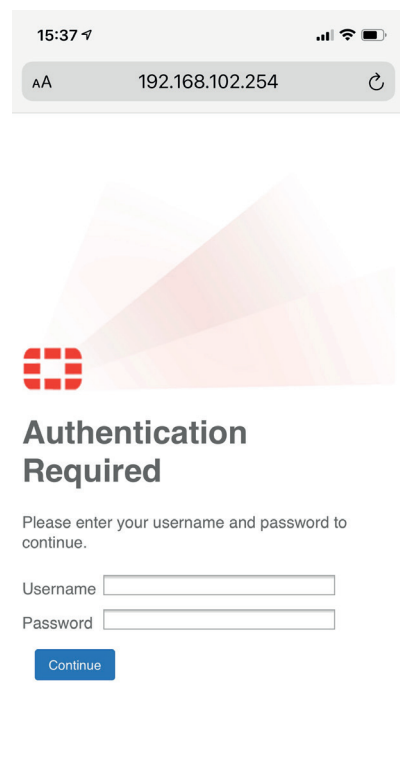
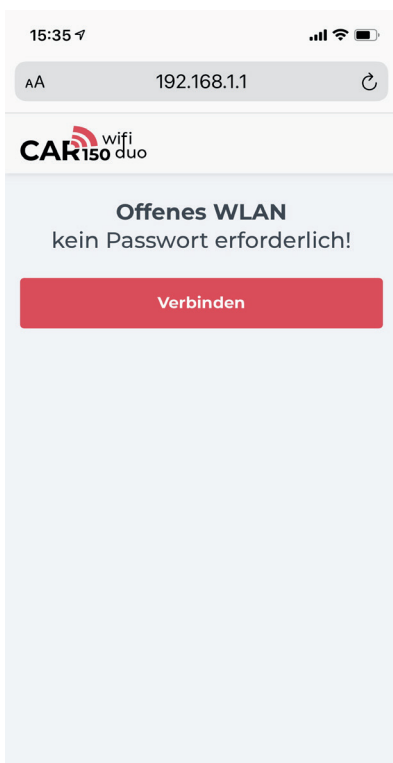


Even with an existing mobile phone connection (SIM1/SIM2), you can always check whether WiFi networks are available by clicking on the "Search for other WiFi" button.

After selecting the desired WiFi network, enter the corresponding password or network key. The router will connect to the selected WiFi network.

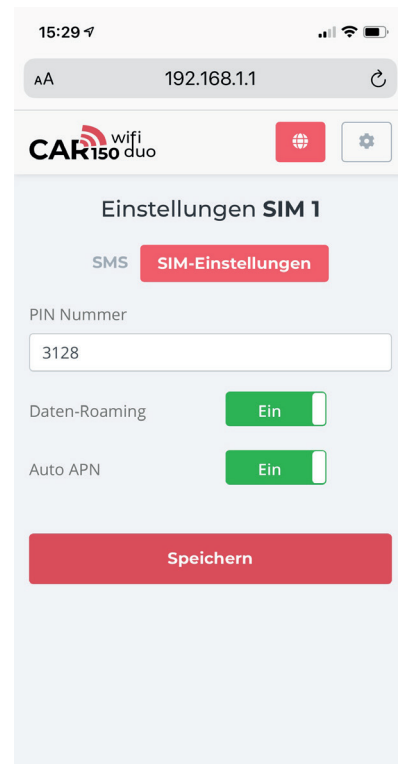


There are open WiFi networks where you do not need a password to connect. And there are WiFi networks where authentication is required to log on to the network. In this case, the following icon will pop up . You will get the user name and password from your WiFi provider on site.



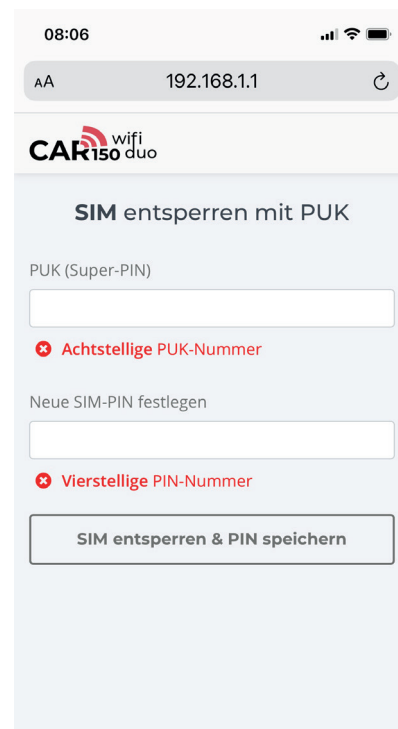
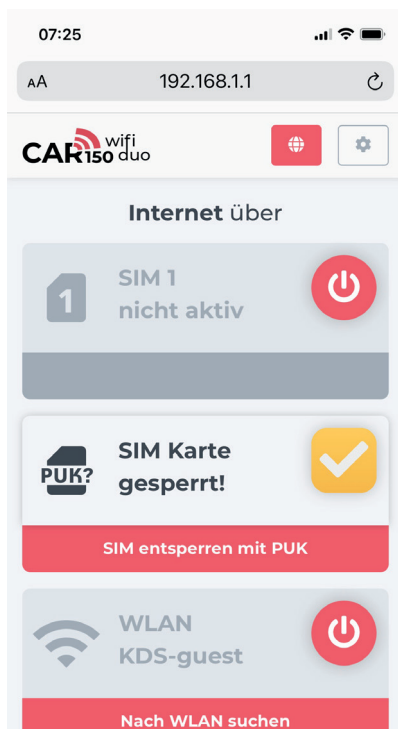
## SIM settings

In the SIM settings, you have the option of reading received SMS messages. This is important, for example, if your mobile phone provider informs you that your data volume is almost used up or the download speed has been reduced. You can also enter the PIN number of your SIM card, activate or deactivate data roaming and auto APN.

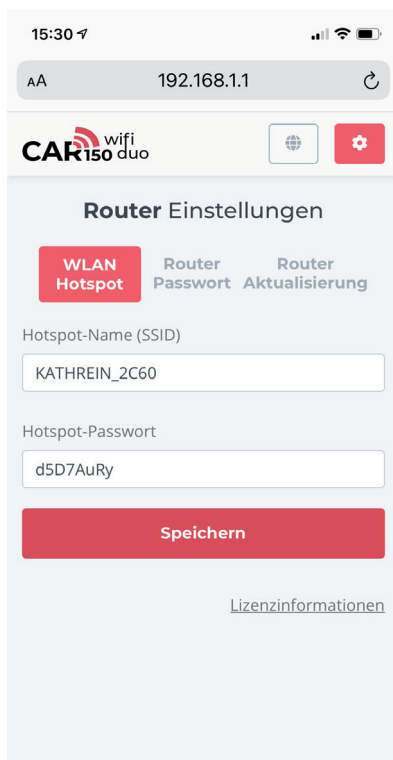


## PUK code

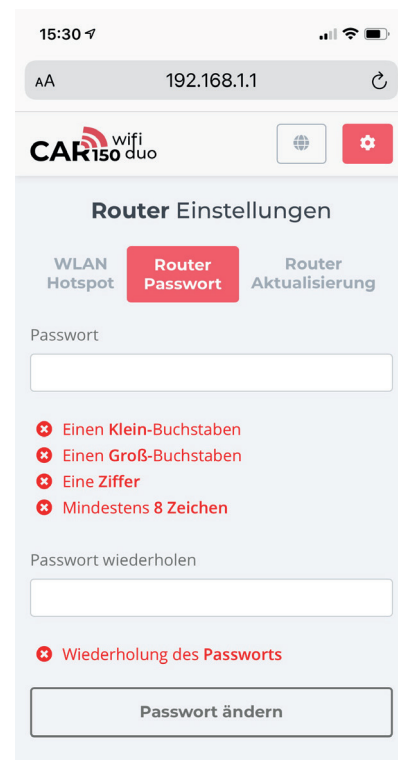
If the wrong SIM PIN is entered three times in a row, the SIM card is blocked. It can only be unlocked again by entering the PUK (Personal Unblocking Key). You will find the PUK in the documentation of your SIM card.



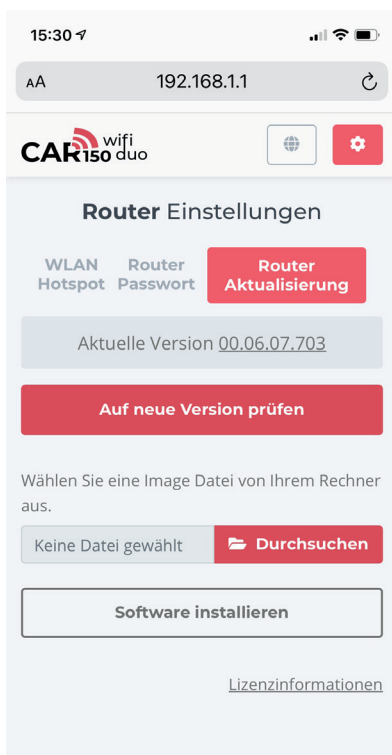
## General Router Settings



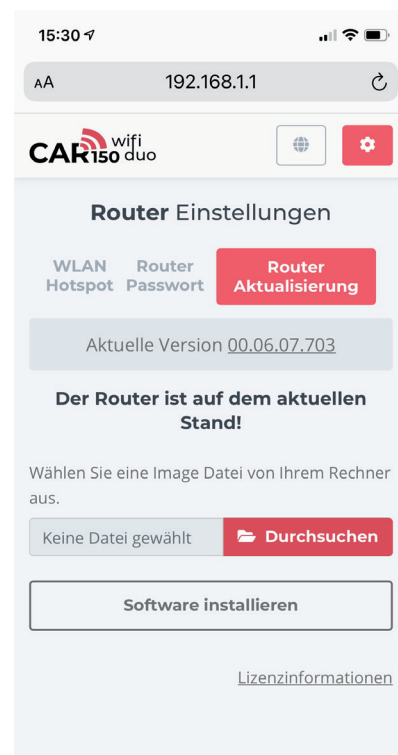
Use this page to change the router's WiFi network name and the corresponding password. If you make changes here, the information on the left QR code of the sticker on the router is no longer valid!



Use this page to change the router password required for opening the web interface.



Use this page to check whether the router software is up-to-date. If not, the most up-to-date software can be installed.



## Troubleshooting

### **Error: No Internet with SIM1/SIM2 (tick remains yellow)**

Reasons:

- Data volume is used up (check SMS)
- Contract expired (check SMS)
- Network coverage poor/not available -> check signal level on home page
- Check APN settings. Ask provider for APN settings

### **Error: No Internet with WiFi (tick remains yellow)**

Reasons:

- Wrong WiFi password
- Selected WiFi network has no Internet access
- Signal level too low

### **Error: Login to the web interface not possible**

- If you have forgotten the password, perform a factory reset (SIM PINs are not deleted)



In case of other errors, it is recommended to perform a factory reset

## Reset to Factory Settings

Use the SIM needle to press and hold the reset button for 6 seconds. The five LEDs for signal strength will all come on one by one. When all are off again, the reset button can be released. The SIM PINs will not be deleted.



## Technical Data

Type   Order No.		CAR 150 WiFi Duo   20110032
<b>Router</b>		
Antenna connections		2 x SMA for LTE/2 x RP-SMA for WiFi/1 x SMA for GPS
Ethernet connections		3 x LAN 1 x WAN
Other connections		1 x USB host, 1 x MicroSD
Mobile communication standards		4G/LTE (Cat 4), 3G, 2G
WiFi standard		IEEE 802.11b/g/n
WiFi security		WPA2-PSK
Input voltage range	V	9–30
Current drain, typ.	mA	170
Power consumption, typ.	W	2
Permissible ambient temperature	°C	-40 to +75
Dimensions (W x H x D)	mm	109 x 50 x 103
Weight	kg	0.295
<b>Antenna</b>		
<b>GNSS</b>		
Frequency range	MHz	1575.42–1610
Polarisation		RHCP
LNA gain	dB	28 ±2
Impedance	Ω	50
Connections		SMA connector
<b>LTE</b>		
Frequency range	MHz	698–960/1710–2690
Polarisation		Linear
Gain	dBi	3
Impedance	Ω	50
Connections		2 x SMA connector
<b>WiFi</b>		
Frequency range	MHz	2400–2483.5/4900–5825
Polarisation		Linear
Gain	dBi	2
Impedance	Ω	50
Connections		2 x RP-SMA connector
<b>Mechanical data</b>		
Protection class		IP67
Weight	g	approx. 550
Dimensions	mm	∅ 110 x 55

## Open Source

The **CAR 150 WiFi Duo** contains open source software. Details can be found at "Router settings" -> "Licensing information".

## Addresses

### Service and support

Customer support  
Eiselauer Weg 13  
89081 Ulm, Germany

Phone: +49 731 270 909 70  
Email: support@kathrein-ds.com

Business hours:  
Mon to Thu 8am to 12pm and 12:45 to 5pm | Fri 8am to 1pm (CET)

### Factory repair centre

CSS Caravan-Sat-Service GmbH  
Bahnhofstr. 110  
83224 Grassau, Germany

Phone: +49 8641 699 84 27  
Email: service@css-grassau.de

### Service partners

Service partners can be found at:  
<https://www.kathrein-ds.com/support/servicestellen/>

## Disposal



### Electronic equipment

Electronic equipment is not domestic waste – in accordance with directive 2012/19/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL dated 04th July 2012 concerning used electrical and electronic appliances, it must be disposed of properly. At the end of its service life, take this unit to a designated public collection point for disposal.



