Remote access to the PQ-Box

This document explains how you can access your PQ-Box remotely via the internet - with the help of the mobile LTE router and the USB key. In addition to the required accessories, it also shows the configuration of all components. All PQ-Box models can be accessed remotely.

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1 Basic setup- scheme



1) PQ-Box (all models)
2) Ethernet cable (or Wi-fi)
3) Mobile LTE router
4) SIM card
5) PC / Laptop
6) USB Key

Requred Accessories



Mobile LTE router (111.9030.80)
TOSIBOX® Lock router, pre-configured for communicating with PQ-Boxes



USB Key (111.9030.70)
Plug and play TOSIBOX® Key to access the PQ-Box via an encrypted VPN tunnel



SIM card with sufficient data volume (to be obtained from local cellphone provider)



Ethernet cable (included with the PQ-Box)

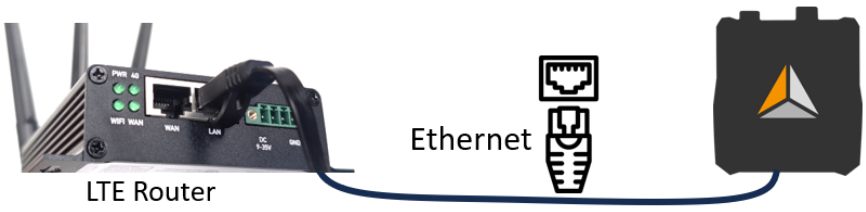


Optional: Outdoor antenna with 8 m cable (111.9030.59)

2 Set up the PQ-Box

The PQ-Box can be connected to the mobile router via LAN or WLAN(Wi-Fi). Depending on the desired connection, please follow the points below:

2.1 LAN connection



LAN connection can be configured via the PQ-Box itself (chapter 2.1.1) or the WinPQ mobil software (chapter 2.1.2).

2.1.1 Configuration via PQ-Box display and push buttons

1. Use the button to navigate to *Setup > Network* and change the network mode to 'LAN' (PQ-Box restart is required if this setting was changed)
2. The PQ-Box has the following network parameters as factory settings:

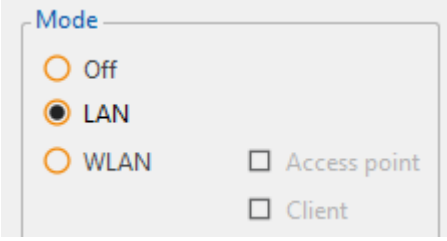
IP address:	172.168.2.4
Subnet mask:	255.255.255.0
Gateway:	172.168.2.1 (corresponds to the IP address of the router)

Attention: With the set parameters above the PQ-Box can automatically establish a connection to the LTE router. Please only change these if you are connecting several PQ-Boxes to the router at the same time. To do this, it is sufficient to assign different IP addresses within the range of 172.168.2.[4…255].

2.1.2 Configuration via WinPQ mobil

Open WinPQ mobile software and connect your PQ-Box to the PC (e.g. with the USB cable). Navigate to *Measurement device configuration > Network configuration* and make the following settings:

1. Network mode: LAN
2. IP address and subnet mask as in chapter 2.1.1

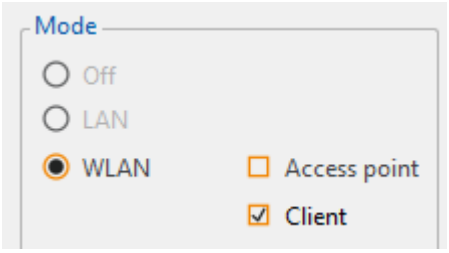


2.2 Wi-Fi connection



Open WinPQ mobil and connect your PQ-Box to the PC (e.g. with the USB cable). Navigate to *Measurement device configuration > Network configuration* and make the following settings:

1. Network mode: WLAN – client
2. Select the Wi-Fi SSID of the LTE router (Wi-Fi needs to be configured within the router, for login please see chapter 3.1)
3. IP address and subnet mask as in chapter 2.1.1



3 Set up the Mobile LTE router

3.1 Connection between router and PC

1. Plug in the AC adapter to the router and wait for approx. 2 min
2. Connect the PC via ethernet cable with the LAN port of the router
3. Access the webserver of the LTE router at http://10.10.10.254 via the browser (e.g. Firefox, Chrome, Edge,…) of the PC.
   If that does not work, configure your PC's network interface so that it can find the above-mentioned IP address. (e.g. PC IP address 10.10.10.10 and subnet mask 255.255.255.0 or automatic IP address via DHCP)[1]
4. Click on 'Login' at the top right corner and enter the following login details:

   Username: admin

   Password: please see the bottom of the router

3.2 Activate the LTE connection

1. Navigate to NETWORK > Internal Modem on the webserver
2. Under the section SIM select 'Automatic (3G/4G)' and enter the PIN code for the SIM card below. Confirm with 'Save'



Click on STATUS in the menu and check whether the Internet connection is OK at the top left. If it is not OK, use the advanced settings for the SIM card by unchecking 'APN autoconfiguration' below the field for the SIM card PIN. Please enter the data provided by your SIM card provider here.

3.3 Create Remote Matching Key

1. Navigate to SETTINGS > 'Keys and Locks' on the webserver
2. Click on '*Generate*' in the lower area 'Remote matching'. Make a note of the remote matching code and / or copy it to the clipboard

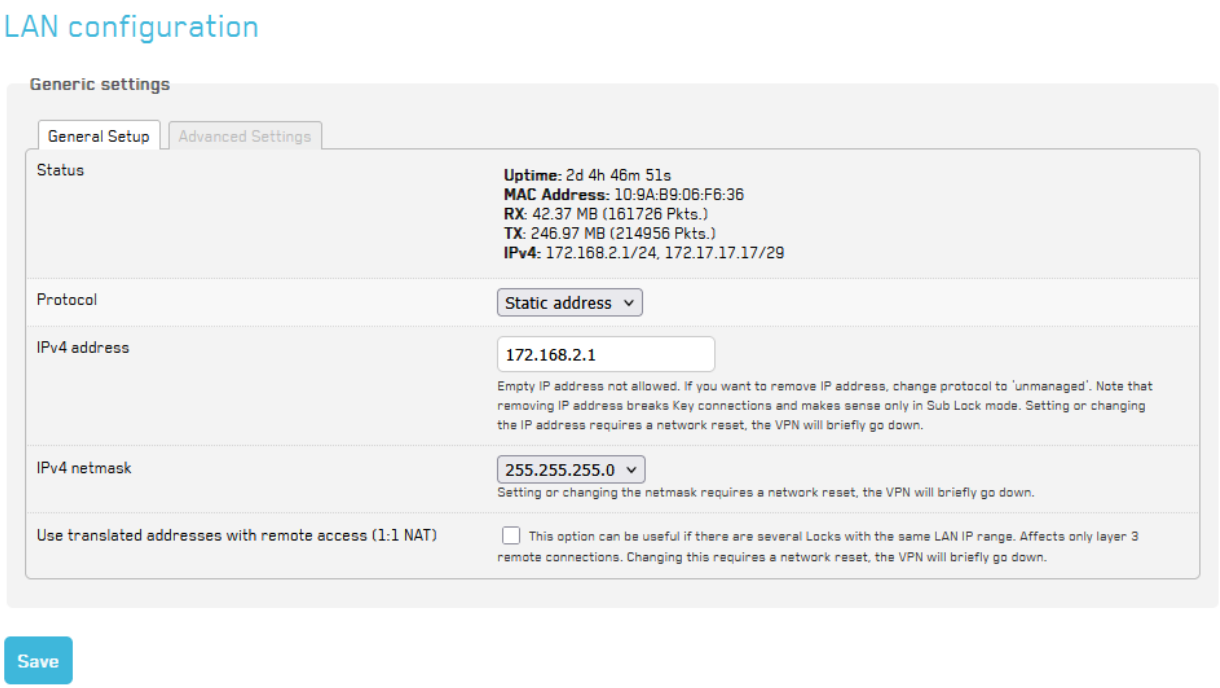


[1] Instructions for changing the network interface of the PC can be found in chapter 5

3.4 Adjust the IP address of the LTE router

The easiest way to establish communication between the LTE router and the PQ-Box in its default setting is to change the LTE router`s IP address to 172.168.2.1. This means that no further network settings need to be made on the PQ-Box.

1. Navigate to NETWORK > LAN on the webserver
2. Change the IP address to 172.168.2.1 and confim with „save“
3. Setup complete. The router will restart, terminating the network connection to the PC



To make further settings on the LTE router, you can now acces the webserver at http://**172.168.2.1**. Please follow the description in chapter 3.1**Error! Reference source not found.**, but use a suitable IP address for the PC (e.g. 172.168.2.2).

4 Get started

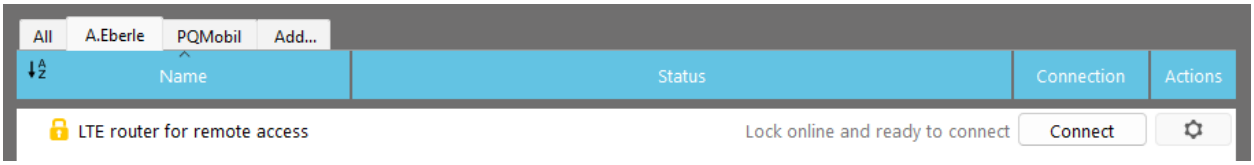
Your PC must have a stable internet connection for remote access to be possible. Please ensure this. If you are already using a VPN connection, an external firewall may block the connection. Please contact your IT department or system administrator.

4.1 Starting the Key Software

1. Insert the USB flash drive *Key* into the laptop
2. Start the file *Setup_Tosibox.exe* from the recognized USB data storage device 'TOSIBOX Key'
3. Start the software after successful installation

4.2 Remote Matching

1. Navigate to *Devices* > *Remote Matching*
2. Enter the Remote Matching Key in the free field (from chapter 3.3 step 2) and click on 'Start'
3. The previously configured router appears in the list. Click on 'Connect' to connect to the router



4.3 WinPQ mobil

1. Open WinPQ mobil and navigate to *Setup* > *Connection Manager*
2. Click + and add the PQ-Box with the following connection details:

   Host: IP address of the PQ-Box (see chapter 2, default: 172.168.2.4)

   Port: 5001

   Description: Name for the PQ-Box connection (optional)

3. Click 'Connect'. After successfully connecting to the PQ-Box the connection status shows the PQ-Box information and status.
4. You are now connected to the PQ-Box and can use WinPQ mobil to configure the PQ-Box, read measurement data or view online data.

5 Help

5.1 Network settings on the PC

For PCs running Windows 11, please follow these steps:

1. Right-click on START > Network connections
2. Edit Ethernet IP assignment
3. Edit IP settings: Automatic (DHCP) or Manual

5.2 Automatic (DHCP) or Manual

For the connection between the LTE router and PC mentioned in section 3.1, automatic IP address assignment via DHCP is the simplest option.

Alternatively, you can also set the IP address manually, which is necessary, for example, for a direct connection between the PC and PQ-Box. To do this, open the TCP/IPv4 settings option and enter the IP address.

5.3 Weitere Netzwerkeinstellungen

Subnet mask: 255.255.255.0 means that the PC with IP can communicate with all network participants that have the same values in the first three fields of their IP address.

Example: A PC with the IP address 172.168.2.1 and subnet mask 255.255.255.0 finds IP addresses within the range of 172.168.2.[1…255]

(Default) gateway: Not necessary for communication with the PQ-Box in the same subnet. However, the IP address of the router can be entered here if desired.

DNS: Not necessary for communication with the PQ-Box. Only relevant for free communication with the Internet in order to be able to access websites with a URL.

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