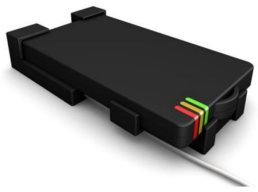

TERATRON krp0320 Mobile Vehicle Key Reader User Manual

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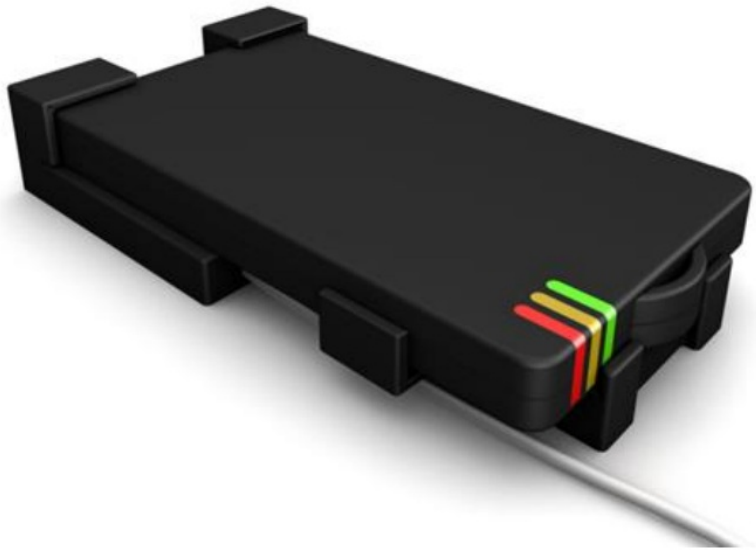


Product Information

Specifications

- Mobile device for reading out vehicle data saved in the vehicle key
- Data transmission to a target system (KAI server) via USB or RF interface (WLAN)
- System configuration: USB connected to WLAN router, connected to Desktop PC, connected to KAI server
- Scope of delivery: Mobile KeyReader Plus 2 hand-held with belt clip, charging station with USB connection, USB power adaptor with 4 adaptor plugs, USB cable, carrier strap

Display and Operating Elements
The Mobile KeyReader Plus 2 is equipped with 3 multi-colored LEDs that provide information about the current operating status. Each LED has its own corresponding symbol. There is an LED for the key reading function (symbol: key), one for the connection status to the server (symbol: waves), and one for the battery status(symbol: battery). For a detailed description of these LEDs, please refer to Section 3 in the user manual.

Introduction

The Mobile KeyReader Plus 2 is a mobile device for reading out the vehicle data saved in the vehicle key. After successful reading, the data is transmitted to a target system (KAI server). Data can be transmitted via USB or via an RF interface (WLAN).

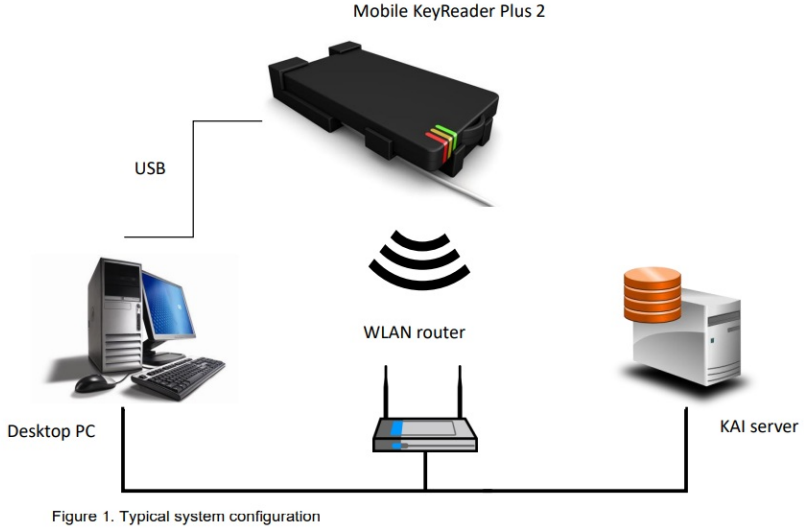


Figure 1. Typical system configuration

Scope of delivery

- Mobile KeyReader Plus 2 hand-held wit belt clip
- Mobile KeyReader Plus 2 charging station with USB connection
- USB power adaptor with 4 adaptor plugs
- USB cable
- Carrier strap

Commissioning

To configure the Mobile KeyReader Plus 2 on a PC, a driver must be installed on the PC. Please fol-low the instructions in the ISPI manual to do so. Please note that you need local administrator rights for the installation of the driver.

Before commissioning, the Mobile KeyReader Plus 2 should be completely charged for at least 8 hours. To do so, connect the USB power pack with the power supply via the matching connection plug. Afterward, the Mobile KeyReader Plus 2 can either be charged with the provided USB cable or with the charging station. To use the USB cable, open the slider on the side of the housing.

As soon as the Mobile KeyReader Plus 2 is connected with the power supply, the device turns on automatically and the charging process starts. The LED with the battery icon informs the user about the charge state of the battery. (Once the battery is fully charged, the LED turns green if the cable is connected.)

Please note that a fully charged battery keeps the device ready for operation for approximately 10 hours. The USB port of a PC might not provide permanent power to charge the Mobile KeyReader Plus 2. To make sure that the device is ready for operation in the morning, it should be charged over-night with the provided power pack. Connection to a PC is only recommended for configuration of the Mobile KeyReader Plus 2.

If the Mobile KeyReader Plus 2 is not used over longer periods, it should be switched off. Please note that the Mobile KeyReader Plus 2 turns on by itself if the USB cable is connected and cannot be turned off. Therefore, the device should not be connected to a USB port in case of longer interruptions of operation to prevent unintended reactivation.

If the Mobile KeyReader Plus 2 should be completely discharged, it may happen that the device can-not complete its boot process (indicated by the blue flashing LED. In this case, the device has to be charged completely with the provided power pack for approximately 8 hours.

Display and operating elements
The Mobile KeyReader Plus 2 features 3 multi-coloured LEDs that inform the user about the current operating status. The LEDs all have an underlying symbol. There is an LED for the key reading func-tion (symbol: key), one for the connection status to the server (symbol: waves), and one for the battery status (symbol: battery). Section 3 contains a detailed description.

The contacts for the charging cradle are located on the opposite end, and a micro USB connection as well as a switch are safely located beneath a slider. The switch can be operated with a pointed object. The Mobile KeyReader Plus 2 can be turned on and off with the switch. For turning the device off, the switch must be actuated for at least 2 seconds. Once you let go of the switch, the Mobile KeyReader Plus 2 switches into standby mode. This is signalled by a flashing blue LED.

If you want to return the Mobile KeyReader Plus 2 to the factory settings, press the switch for at least 10 seconds while the device is turned on. A so-called “factory reset” takes place. With this reset, all key data and settings are deleted.

The micro USB port is redundant for connecting the Mobile KeyReader Plus 2 via the charging station. The Mobile KeyReader Plus 2 can be charged and configured via this port.

Mechanical layout

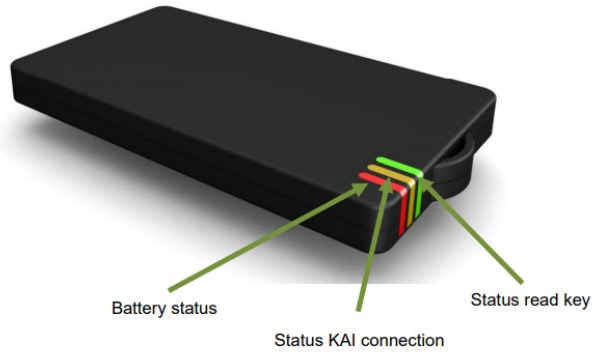


Figure 2: Housing

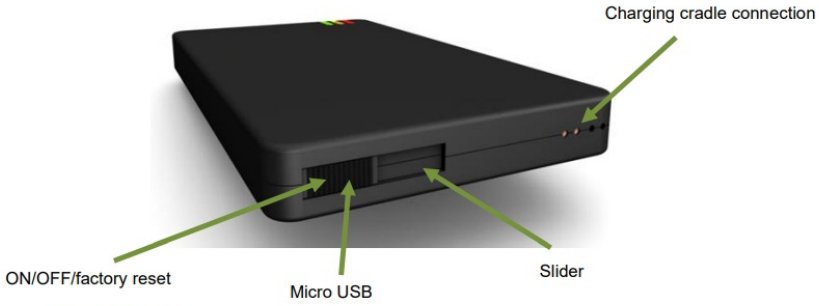


Figure 3: Housing

Overview of the LED status displays

Battery LED	**Green**	**Yellow**	**Red**
Right LED (bat- te ry)	Battery is charged	Battery is partially charged	Battery is almost empty
	Flashing = battery opera- ti on	Flashing = battery opera- ti on	Flashing = battery operation
	Permanently lit = charged	Permanently lit = charg- in g	Permanently lit = battery de- fect ive

Status LE D	**Green**	**Yellow**	**Red**
Centre LE D (LAN)	Flashing = attempt to trans mit key data to server Server confirms transmis- si on, meaning successful high confirmation signal ton e	Flashing = attempt to transmit ke y data to server Server does not confirm transmi ssion, meaning unsuccessful Transmission attempt will be rep eated in approx. 15 sec- onds	Flashing = attempt to transmit ke y data to server No network connection Transmission attempt will be rep eated in approx. 15 sec- onds

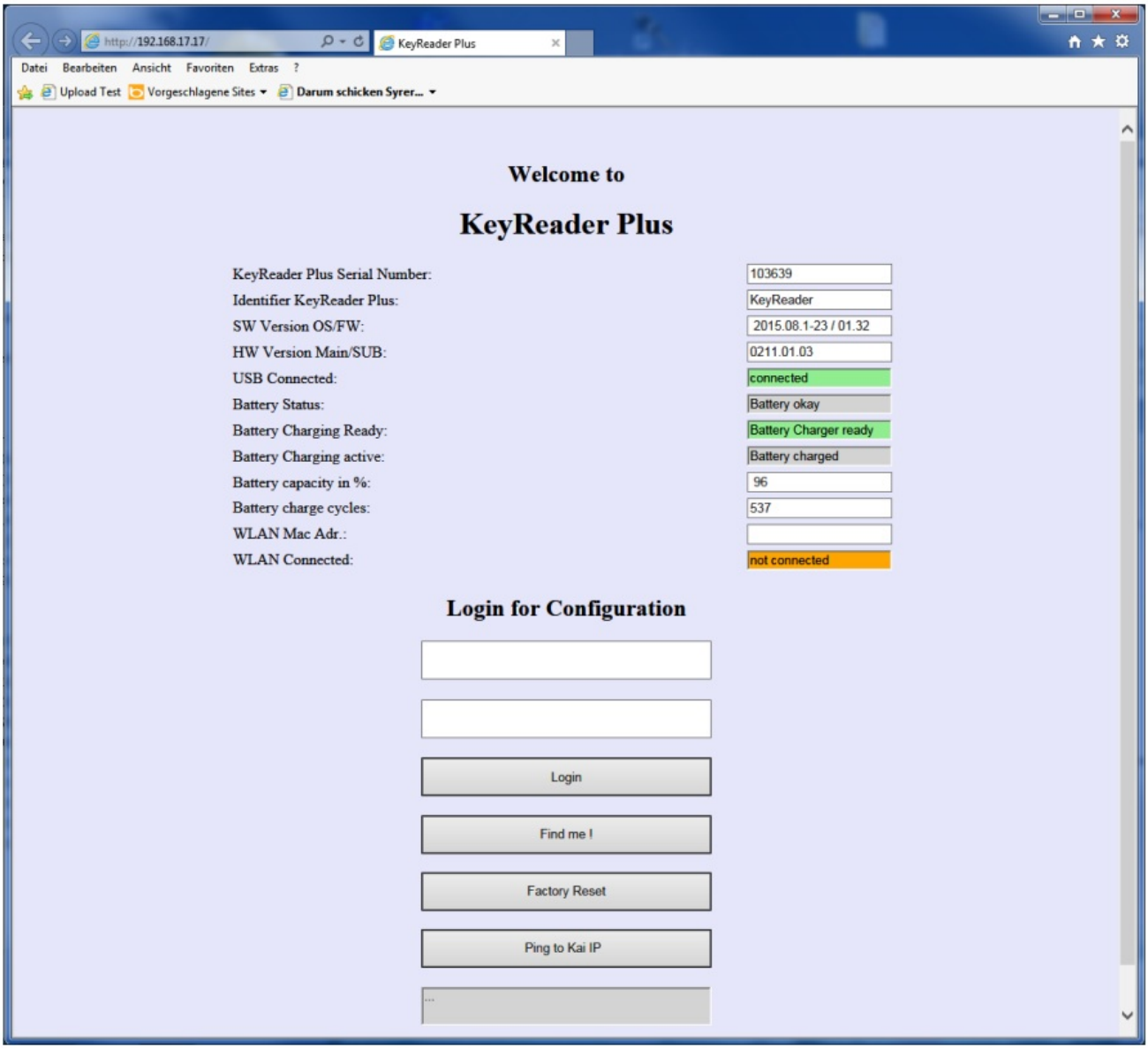
Key LED	Green	Yellow	Blue
Left LED (key)	Key reading finished, suc- cessful semi-high confirmation sig- nal tone	Start key reading low confirmation signal tone	Flashing = Mobile KeyReader Plus 2 is booting

Blue signals on the display are a special case. They indicate a situation in which normal operation is not possible. This includes booting and shutting down the device which is indicated by a blue flashing key LED.

Furthermore, a blue running light indicates an update of the operating system (OS).

Configuration of the Mobile KeyReader Plus 2

- First, connect the Mobile KeyReader Plus 2 to an unused USB interface on your PC. If the Mobile KeyReader Plus 2 is off when connected, the device will now switch on. This is indicated by the red, yellow or green displays above the battery symbol (depending on the charge state of the device). In addition, the display above the key symbol might flash blue during booting. The Mobile KeyReader Plus 2 is ready for operation as soon as the blue flash has gone off.
- Use Internet Explorer (or a browser of your choice) to configure the Mobile KeyReader Plus 2.
- Connect with the Mobile KeyReader Plus 2 by entering the following address in the address bar of your browser: **http://192.168.17.17**
- Now you can access the start page of the Mobile KeyReader Plus 2.

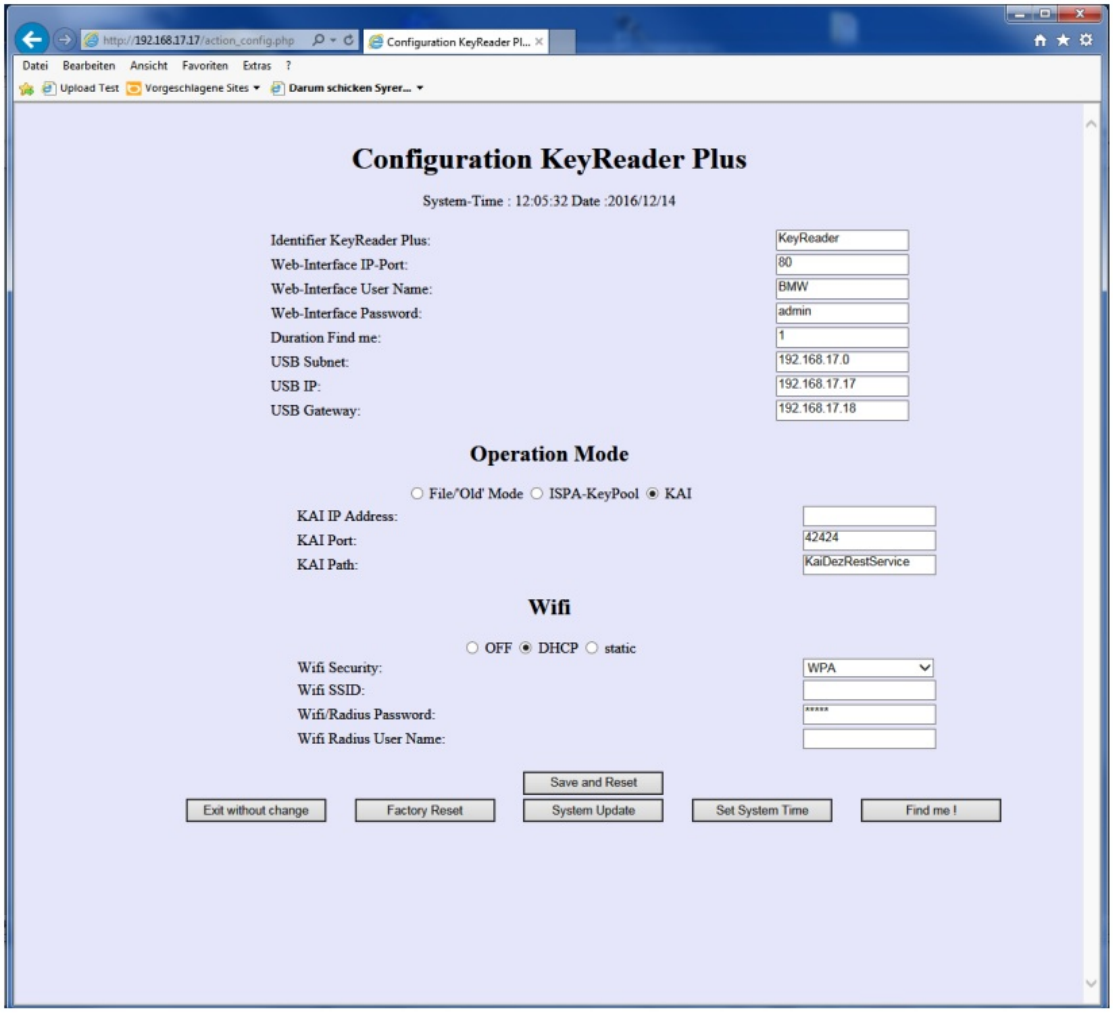


You will obtain the following system information:

- **KeyReader Plus Serial Number:** Serial number of the device
- **Identifier KeyReader Plus**: Name of the device (can be defined at wish on the configuration page)
- **Software Version OS/FW**: Version of the installed operating system and the firmware
- **HW Version Main/SUB**: Hardware version of the Mobile KeyReader Plus 2
- **USB-Connected:** Status of the connection to USB
- **Battery Status**: Battery status
- **Battery Charging Active:** Shows whether the battery is being charged at the moment,
- **Battery Capacity in %:** Shows the current charge state in percent.
- **Battery Charge Cycles:** Shows the number of previous battery charge cycles.
- **WLAN Mac Address:** Shows the MAC address of the WLAN interface
- **WLAN Connected:** Shows the current connection status of the WLAN interface.
- **Login Button:** By entering a “username” and “password”, you can access the configuration mask via the login button.
- **Default username/password:** BMW/admin.
- **Find Me!:** An optical and acoustical sequence is output by clicking the button “Find me!”.
- **Factory Reset**: Returns the device to the factory-set state.

- **Ping to KAI IP**: Via the button “Ping to KAI IP”, you can check whether a connection with the KAI server can be established with the current configuration.

Configuration Mask (via Login Button)



The system time of the Mobile KeyReader Plus 2 is displayed on the configuration page. This can be changed with “Set System Time”. As soon as the Mobile KeyReader Plus 2 is connected with a net- work with internet connection, the system time is set automatically.

- **Identifier KeyReader Plus:** Here you can enter the name of your choice for the device. Blank spaces are not admissible.
- **Web Interface IP Port**: If the web interface is accessible via a different port than port 80 (default), you can make the corresponding changes here. Note! It might happen that the device can no longer addressed via the normal browser in this case. Changes should only be made here if the opera- tional environment mandates this.
- **Web Interface User Name:** The name for the login to this configuration page is defined here.
- **Web Interface Password:** The password for the login to this configuration page is defined here.
- **Duration Find Me:** The number of automatic repetitions of the acoustic signal can be set here.
- **USB Subnet:** The subnet for the TCPIP connection via USB is defined here. This setting should only be changed if the conditions in the network require this.
- **USB IP:** The address of the Mobile KeyReader Plus 2 is set via USB here. This setting should only be changed if the conditions in the network require this.

- **USB Gateway:** The address of the connected computer is set here. This setting should only be changed if the conditions in the network require this.
- **Operation Mode:** The operation mode is set here. You can select between:
- **File/"Old" Mode:** In this operation mode, WI-FI is turned off and no data is sent to the KAI server or the ISPA hub. The key data is only saved on the network drive. This enables operation as a sub- stitute for the old Mobile KeyReader Plus 2 in an unchanged software environment. Depending on the used operating system, delays may occur when updating the data in the network drive if the keys are read in short sequence.
- **ISPA Key Pool:** This operation mode is used in system that have not been switched to ISPAnext and KAI server. The following entries are required for configuration. If necessary, request these from your local network administrator:
- **ISPA Hub IP Address:** Address of the ISPA hub in the network (without "http://")
    - **warrantyDealerNumber (BMW BuNo):** Local setting for the ISPA message
    - **distributionPartnerNumber:** Local setting for the ISPA message
    - **outletNumber:** Local setting for the ISPA message
    - **km/miles:** Local setting for the ISPA message
- **Country/Language :** Local language setting for the ISPA message
- **local time vs. UTC**: Deviation of the local time from Universal Standard Time
- **KAI server:** This operation mode is used in systems that support the KAI server. The following entries are necessary for the configuration. These might have to be obtained from the local network ad- ministrator.
- **KAI IP Address**: The address of the KAI server is entered here.
- **KAI Port:** The communication port of the KAI server is entered here.
- **KAI Path:** The communication path of the KAI server is entered here.
- **Wi-Fi:** You can select between "OFF" (is set automatically of the operation mode File/"Old" mode is set), DHCP and static. With DHCP, the Mobile KeyReader Plus 2 Plus obtains its IP settings au- tomatically from the network. With "static", these must be entered manually
- **Wi-Fi Security:** Ask your network administrator about the encryption used in your network. "WPA" or "IEEE802.1x" (radius server) is available for selection. When using a hidden SSID in the WI-FI network, select the option "hidden SSID".
- **Wi-Fi SSID:** The SSID of your network
- **Radius/Radius Password:** Password for access to your network
- **Wi-Fi Radius User Name:** User name for your radius server (only required when selecting IEEE802.x) The following four IP addresses are only displayed if the operation mode "static" has been select- ed. In this case, please request the necessary settings from your network administrator.
- **Save and Reset:** The changes are applied via the button "Save and Reset" and are available after a restart of the Mobile KeyReader Plus 2.
- **Exit without Change:** If you do not want to apply the changes, you can exit the mask with "Exit with- out change".
- **Factory Reset**: Returns the device to the factory-set state.
- **System Update:** Here you can upgrade the Mobile KeyReader Plus 2 with a new software to the lat- est version. This requires a file with the name "KeyReaderUpdatexx.tar" (xx corresponds to the ver- sion number of the software). If an update is performed, the necessary settings must be entered again in the configuration page after the update. Please note down your settings beforehand, if necessary. The upload of the file may take a few minutes. Please be patient until the update is completed. The update is completed when only the

battery light is still on on the Mobile KeyReader Plus 2.

- **Set System Time:** Under normal circumstances, the system time of the Mobile KeyReader Plus 2 is automatically loaded from the internet and synchronised. If there is no internet connection, it may be necessary to enter the system time manually. Here, the Mobile KeyReader Plus 2 can be set with the current time. Please note that the stated time is always UTC time, which may possibly deviate from your local time. By simply clicking on “Sync”, the Mobile KeyReader Plus 2 is synchronised with the time of the connected PC. If necessary, the time can also be edited manually.
- **Find Me:** An optical and acoustical sequence is output by clicking the button “Find me!”.

Operating the Mobile KeyReader Plus 2

After the synchronisation, the device is ready for operation. On the login page, you can check whether the device is ready for operation with the button “Ping to KAI IP”/”Ping to ISPA hub”.

If a key is placed on the symbol, the data of the key is read out and transmitted to the KAI server. Po- sition the key as shown in the illustrations. As the Mobile KeyReader Plus 2 is constantly searching for different key models, the start of the reading process may possibly be delayed for a moment. A confirmation signal sounds as soon as a key has been detected. Do not move the key for the duration of the reading process.

The start of the reading process is indicated by a brief acoustic signal and the yellow LED above the key symbol lights up. You should not move the key during the reading process. Once the key read-out has been completed, a second confirmation signal sounds and the colour of the LED changes from yellow to green. (The time of the reading process depends on the key to be read and the saved data volume and may range from one to four seconds.)

Due to the large number of supported key types, it is difficult to draw up binding handling instructions. The operation scenarios displayed in the illustrations therefore only represent general recommenda- tions.

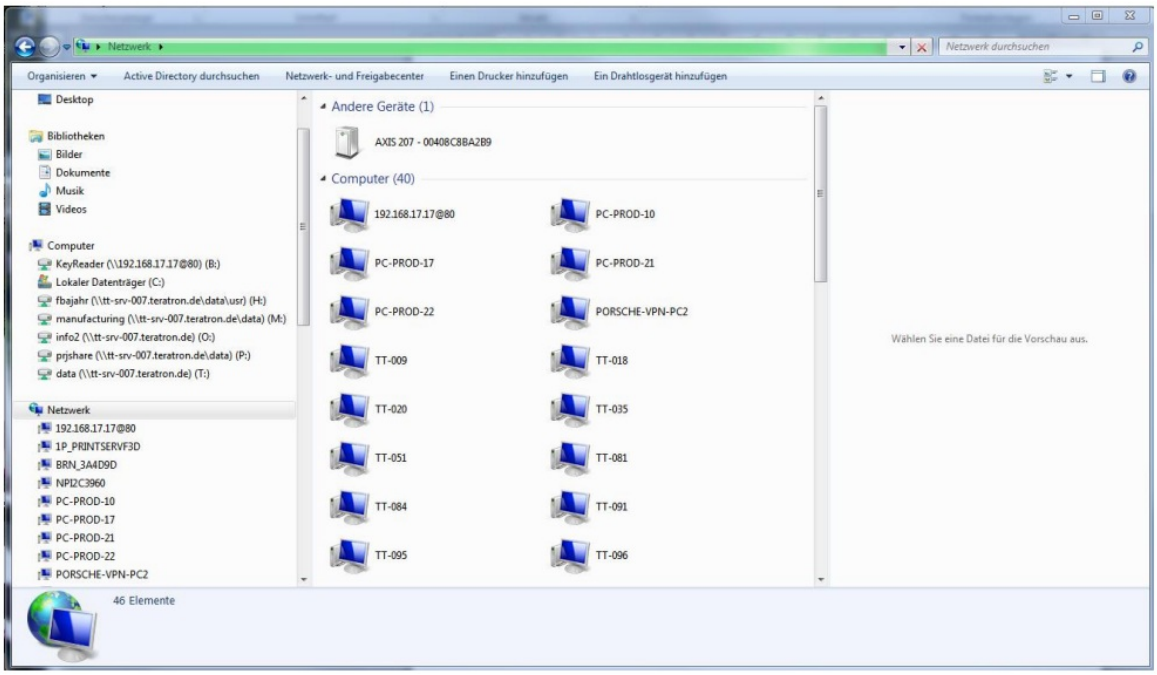
Transmission in this case takes place via RF data transmission. Other devices operating on the same frequency

may interfere with transmission. Please make sure that there is no other device with the same frequency as the Mobile KeyReader Plus 2 within the working range. This applies especially for a second Mobile KeyReader Plus 2. A distance of 1 m between the devices is recommended.

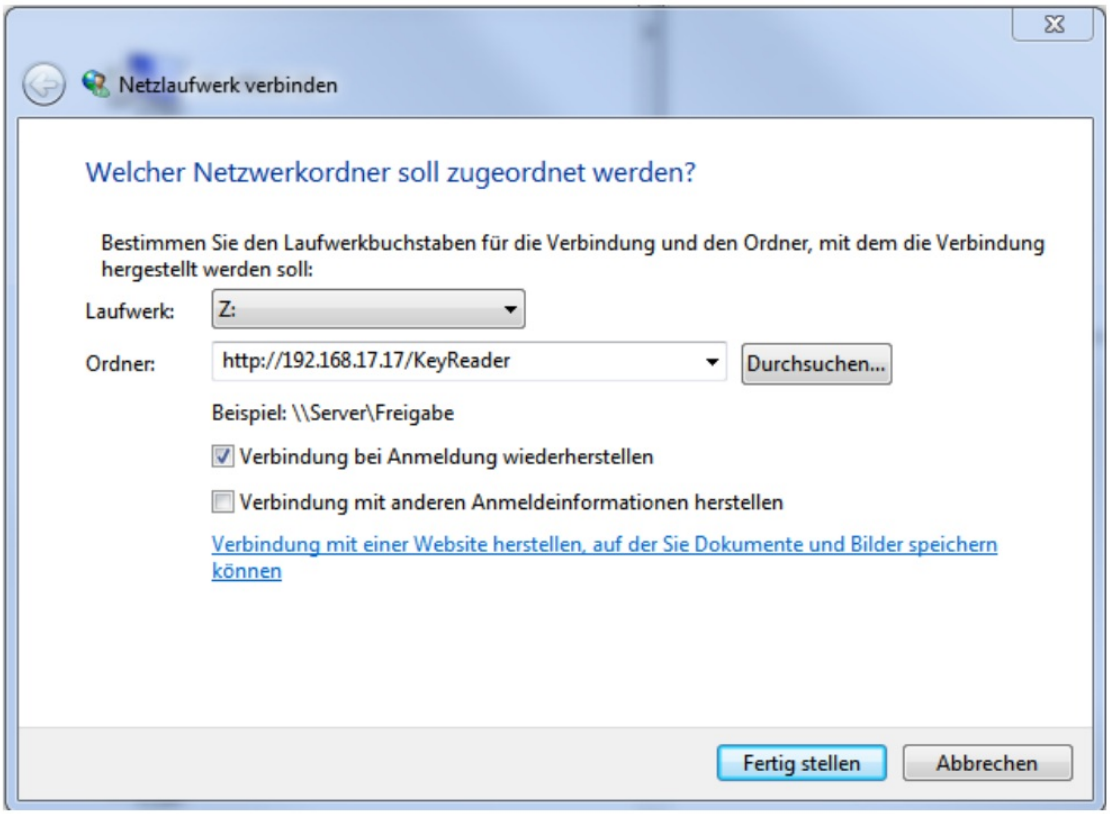
Once the data has been read out, it is transmitted to KAI. A third confirmation signal sounds if the transmission was successful. The centre LED with the wave symbol flashes green four times to indi- cate successful transmission. If the transmission is interrupted, the LED turns red (no WLAN connec- tion) or yellow (no connection to the server). The key data is preserved and transmitted as soon as it has been possible to establish a connection. Up to 1,000 keys can be saved.

Setting up the Connection for Operation as Spare Device for the Huf KeyReader

- Open Windows Explorer and navigate to the “Network” menu item

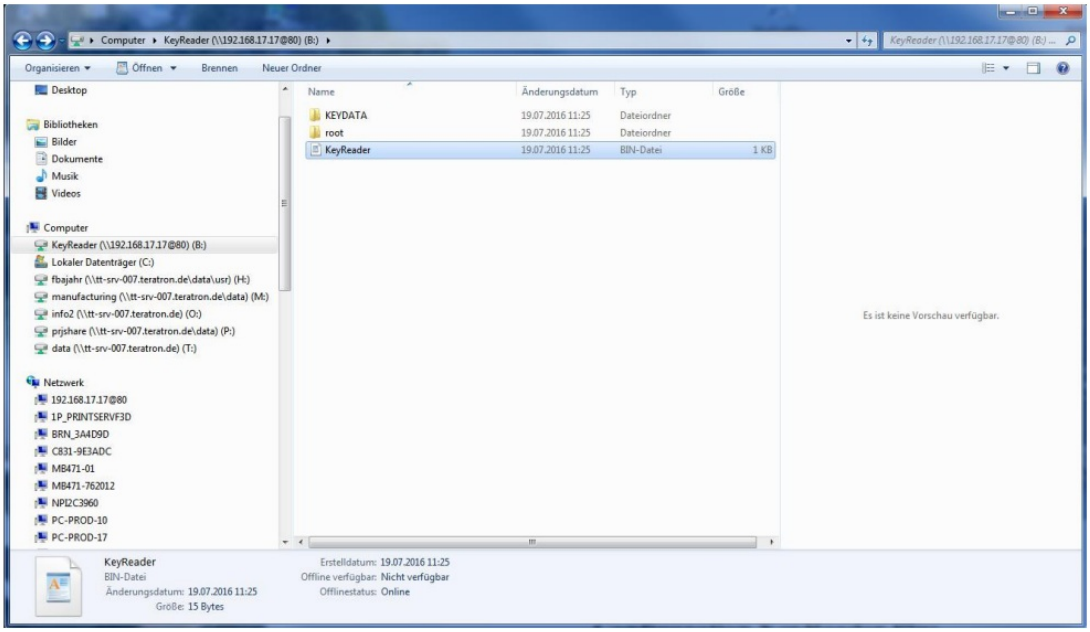


- Right-click on “Network” and click on “Connect network drive” in the context menu. This takes you to the following entry mask:



- Here you can allocate the KeyReader an unused drive letter. For the folder, enter the USB IP address of your Mobile KeyReader Plus 2 in the following format: **http://192.168.17.17/KeyReader**
- As soon as you confirm this procedure, you will see the new drive in Windows Explorer.

The content should look as follows:



The file “KeyReader.bin” contains the last key that was read in. The memory of the last 1,000 keys read in is located in the subdirectory KEYDATA.

Operating the Mobile KeyReader Plus 2
Once the Mobile KeyReader Plus 2 has been successfully configured and registered in the WLAN, it is ready for operation.

Battery Status Display
The battery display indicates the current charge state of the batteries. Here, we distinguish between a continuous

and a flashing display. In the case of a continuous display, the power is supplied via the USB port. Here, the display can switch from green (battery is charged), yellow (battery is currently charging) and red (battery cannot be charged).

The battery display flashes if a power supply via USB is not connected. The colours red (charge below 20%), yellow (charge between 20% and 40%) and green (charge above 40%) display the current bat- tery status.

Status Read Key
To transfer vehicle data to the server (KAI) for further processing, a vehicle key must be placed on the Mobile KeyReader Plus 2 as shown in the following illustration. Now the Mobile KeyReader Plus 2 detects that a key has been placed and confirms this with a brief acoustic signal. Additionally, the read key status display changes from “off” to yellow. A second acoustic signal sounds as soon as the com- plete data content has been read. Now the status display changes from yellow to green. The data is now saved in the Mobile KeyReader Plus 2 and is transmitted to the server in the next step.

Depending on the amount of data saved in the vehicle key, the reading process may take fractions of a second up to several seconds. During this time the key should not be moved on the Mobile Key- Reader Plus 2. If a read process cannot be successfully completed, the Mobile KeyReader Plus 2 independently repeats this process. In this case, it might be useful to slightly change the position of the key to obtain a better coupling between the key and the Mobile KeyReader Plus 2.

Regulatory notes
The Mobile KeyReader Plus 2 meets the approval regulations of the following countries:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interfer-ence received, including interference that may cause undesired operation.

FAQ’s

My Mobile KeyReader Plus 2 does not log in to my PC if I connect it with a USB port:

- Check whether the Mobile KeyReader Plus 2 has booted and that none of the LEDs are blue.

To remedy an error, switch the device off on the ON/OFF switch. Please wait at least 10 sec-onds before turning the device on again. (All LEDs must be off.)

- Check whether the device is detected as a network device in the Windows device manager. You might have to reinstall the driver with set-up.
- Use a different USB port.
- Change USB cable.
- Use a different PC.

My Mobile KeyReader Plus 2 does not read any keys:

- Make sure that the key is positioned with its tip above the marking of the Mobile KeyReader Plus 2. Try to initiate the read process by slightly shifting the position of the key
- During the entire communication with the key, the data read-out from the key may not be dis-rupted. If

communication breakdowns occur repeatedly, check the read position and adapt it

- Use a different key The centre LED flashes constantly on my Mobile KeyReader Plus 2
- The Mobile KeyReader Plus 2 is not able to establish a connection to the KAI server and send saved key data. First, check whether you are within range of the WLAN network. Then check the configuration data for the connection to the KAI server.

I cannot establish a network connection to my KAI server

- If after the configuration of WLAN and KAI the transmission of the key data to KAI does not work immediately (the WLAN LED flashes green if KAI positively confirms the transmission of the key data), the network settings can be checked as follows:
- In the case that the Mobile KeyReader Plus 2 cannot be contacted via WLAN: Re-establish the connection via USB, and then call up the start page of the Mobile KeyReader Plus 2 using the IP address stated in the previous chapter.
- **WLAN**: The status of the WLAN connection is displayed on the start page of the GUI of the Mobile KeyReader Plus 2. A field highlighted in orange indicates that the Mobile KeyReader Plus 2 is not connected. A field highlighted in green indicates a functioning WLAN connection. You may have to reload this page if the Mobile KeyReader Plus 2 has been moved and is now within the reception range of the WLAN.
- **KAI**: To check whether the IP address of the device on which the KAI is installed (normally the ISPA hub) has been correctly configured, and whether the network traffic is routed there, you can trigger a “ping” command to the configured IP address of the KAI server. If a positive re-sponse is returned to the “ping” command, the field is highlighted in green(e.g. the blue LED flashes in a circle after an update)
  - Unplug the USB plug and keep button depressed for 4 seconds. Wait until blue RFID goes off
  - Switching on with USB or button
- WLAN not properly configured, but red WLAN LED always lights up although KAI is running and can be pinged. Check whether the reader is still configured in OLD Operation MODE.

How long does it take to fully charge the Mobile KeyReader Plus 2?

The Mobile KeyReader Plus 2 should be charged for at least 8 hours to ensure a full charge.

Can I connect the Mobile KeyReader Plus 2 to a PC for charging?

While it is possible to charge the device using a PC's USB port, it is recommended to use the provided power pack for consistent power supply.

Can the Mobile KeyReader Plus 2 be turned off?

If the USB cable is connected, the device will turn on automatically and cannot be turned off. It is advised not to connect the device to a USB port during longer periods of non-use to prevent unintended reactivation.

What should I do if the Mobile KeyReader Plus 2 does not complete its boot process?

If the device does not complete its boot process indicated by a blue flashing LED, it needs to be fully charged

using the provided power pack for approximately 8 hours.

Documents / Resources

	TERATRON krp0320 Mobile Vehicle Key Reader [pdf] User Manual krp0320 Mobile Vehicle Key Reader, krp0320, Mobile Vehicle Key Reader, Vehicle Key Reader, Key Reader

References

- User Manual