Your Global Automation Partner

TURCK

PD20-UHF
RFID Handheld

Instructions for Use

Contents

1 About these Instructions

These operating instructions describe the structure, functions and the use of the product and will help you to operate the product as intended. Read these instructions carefully before using the product. This is to avoid possible damage to persons, property or the device. Retain the instructions for future use during the service life of the product. If the product is passed on, pass on these instructions as well.

1.1 Target groups

This document is written for specially trained personnel , and must be read carefully by anyone who is responsible for the mounting, commissioning, operation, maintenance, disassembly or disposal of the device.

1.2 Explanation of Symbols Used

The following symbols are used in these instructions:

	**DANGER** DANGER indicates a dangerous situation with high risk of death or severe injury if not avoided.
	**WARNING** WARNING indicates a dangerous situation with medium risk of death or severe injury if not avoided.
	**CAUTION** CAUTION indicates a dangerous situation of medium risk which may result in minor or moderate injury if not avoided.
	**NOTICE** NOTICE indicates a situation which may lead to property damage if not avoided.
	**NOTE** NOTE indicates tips, recommendations and useful information on specific actions and facts. The notes simplify your work and help you to avoid additional work.
▶	**CALL TO ACTION** This symbol denotes actions that the user must carry out.
⇨	**RESULTS OF ACTION** This symbol denotes relevant results of actions.

1.3 Other documents

Besides this document the following material can be found on the Internet at www.turck.com:

- Operating instructions
- Data sheet
- Approvals
- Configuration manual

1.4 Naming convention

Common synonyms for "data carriers" include "tag", "transponder", and "mobile storage device". Read/write heads are also described as "transceivers" or "readers".

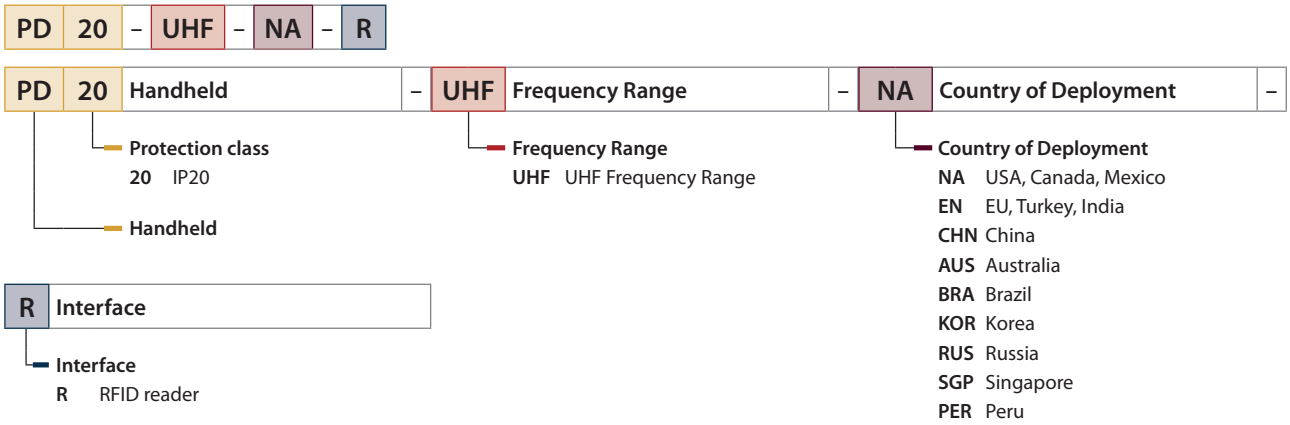
1.5 Feedback about these instructions

We make every effort to ensure that these instructions are as informative and as clear as possible. If you have any suggestions for improving the design or if some information is missing in the document, please send your suggestions to techdoc@turck.com.

2 Notes on the Product

2.1 Product Identification

These instructions apply to the following UHF handhelds:



The device versions for Australia, Brazil, Korea, Russia, Singapore, and Peru are available on request.

2.2 Scope of Delivery

The scope of delivery includes:

- Handheld
- USB charging cable
- Power supply unit
- Quick start guide

2.3 Legal Requirements

The devices are subject to the following directives:

Device	Region	Directives
PD20-UHF-EU-R	Europe	■ 2014/30/EU (electromagnetic compatibility) ■ 2014/35/EC (low voltage) ■ 2014/53/EU (RED Directive)
PD20-UHF-NA-R	USA	■ FCC Rules Part 15
	Canada	■ Industry Canada RSS-210
PD20-UHF-CHN-R	China	■ SRRC

More information on other variants is available on request.

2.4 Manufacturer and Service

Hans Turck GmbH & Co. KG
Witzlebenstraße 7
45472 Muelheim an der Ruhr
Germany

Turck supports you with your projects, from initial analysis to the commissioning of your application. The Turck product database contains software tools for programming, configuration or commissioning, data sheets and CAD files in numerous export formats. You can access the product database at the following address: **www.turck.de/products**
For further inquiries in Germany contact the Sales and Service Team on:

- Sales: +49 208 4952-380
- Technology: +49 208 4952-390

Outside Germany, please contact your local Turck representative.

3 For Your Safety

The product is designed according to state-of-the-art technology. However, residual risks still exist. Observe the following warnings and safety notices to prevent damage to persons and property. Turck accepts no liability for damage caused by failure to observe these warning and safety notices.

3.1 Intended Use

These devices are designed solely for use in industrial areas.
The PD20 UHF handhelds are used for contactless data exchange with RFID UHF tags. Tags can be read and written with the handhelds.

The following table shows the operating frequency of the devices:

Type code	Operating frequency
PD20-UHF-EU-R	865.7…867.5 MHz
PD20-UHF-NA-R	902.75…927.25 MHz
PD20-UHF-CHN-R	920.25…924.75 MHz
PD20-UHF-AUS-R	920.25…925.75 MHz
PD20-UHF-BRA-R	902…907.5 MHz and 915…928 MHz
PD20-UHF-KOR-R	917…920.5 MHz
PD20-UHF-RUS-R	916…921 MHz
PD20-UHF-SGP-R	920…925 MHz
PD20-UHF-PER-R	916…928 MHz

The devices must only be operated in countries in which the particular frequency range is permissible for the use of UHF RFID.
The devices may only be used as described in these instructions. Any other use is not in accordance with the intended use; Turck accepts no liability for any resulting damage.

3.2 Obvious Misuse

The device works only in conjunction with the Turck RFID app. It is not possible to connect it to the audio input of PCs, radios, etc.

3.3 General Safety Instructions

- The device only meets the EMC requirements for industrial areas and is not suitable for use in residential areas.
- The device may only be assembled, installed, operated, parameterized and maintained by professionally-trained personnel.
- The device may only be used in accordance with applicable national and international regulations, standards and laws.
- Any extended stay within the area of radiation of UHF devices may be harmful to health. Maintain a minimum distance from the actively radiating surface of the UHF read/write head:

Region	Max. permissible total radiant output power	Safety distance
Europe, Russia, China	2 W ERP (according to ETSI)	0.24 m
USA, Canada, Mexico	30 dBm ERP	> 0.22 m

The minimum distances for other regions can be obtained from Turck on request.

- The radiation of UHF devices may impair the operation of electrically controlled medical equipment. Maintain an additional distance from active radiation sources up to the maximum transmission distance.

4 Product Description

The UHF-RFID handhelds in the PD20-UHF series have protection class IP20 and are contained in a plastic housing. A mobile device with the Turck RFID app is required for operation. The devices are equipped with a cable with a jack plug to connect to the audio port of mobile devices.

Handhelds are available for use in the following regions:

- Europe
- North America (USA, Canada, Mexico)
- China

Other country variants are available on request.
The Turck RFID app is free of charge for the iOS (from the App Store) and Android (from the Play Store) operating systems.

4.1 Device Overview

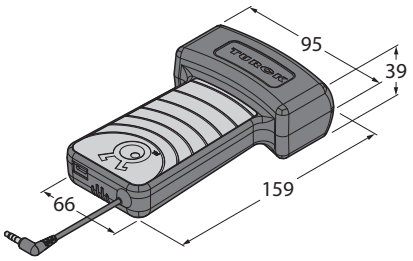


Fig. 1: Dimensions

4.2 Properties and Characteristics

- Mobile reading and writing of data of RIFD tags
- Handheld with UHF antenna
- Connection to the host device via audio port
- incl. Turck RFID app (iOS, Android) for reading and writing of tags
- Custom application software on request
- Wifi 802.11a/b/g/n and wireless interface via connected host device
- Degree of protection IP20
- Withstands several drops from a height of 1.5 m on smooth concrete
- Permanent lithium ion battery (1800 mAh), approx. 2 hours of active scanning
- Incl. Micro-B USB cable and power supply unit

4.3 Functional Principle

RFID (radio frequency identification) is a contactless process for the automatic identification of static or moving objects by means of alternating electromagnetic fields. It uses, for example, the serial number of the object, which is saved on a mobile tag (transponder/TAG) and is read without contact by a read/write device over a distance of up to several meters. The RFID technology also enables multiple objects to be identified simultaneously. A direct line of sight connection between the tag and the read/write head is not necessary.

4.4 Functions and Operating Modes

The devices can be used to read and write passive UHF storage media in any location. To do this, the devices form a transmission zone. The size and expansion of this zone may vary on account of several conditions, for example the tags used and the application conditions. The devices can only be operated with the Turck RFID app.

4.4.1 Transmission Frequency

The Turck BL ident® UHF system works with country-specific transmission frequencies between the tags and the read/write heads. These country-specific UHF transmission frequencies are derived from the individual allocation of frequency ranges by the respective national regulatory bodies.

For example, the operating frequencies of the devices in the UHF band are 865…868 MHz for Europe and 902…928 MHZ for the USA. Before use, make sure that the BL ident® handhelds comply with the region's specific UHF band. Any application in regions other than the accredited ones is not permitted. Since BL ident® UHF tags do not emit their own radio waves, they may be used worldwide.

In order to achieve the biggest possible communication range, Turck offers tags which are optimally tuned to country-specific frequency bands. Alternatively, broadband multi-area tags are also available for international use.

The different Turck handhelds support the following transmission frequencies:

- 865.7…867.5 MHz (Europe)
- 902.75…927.25 MHz (USA, Canada and Mexico)
- 920.25…924.75 MHz (China)
- 920.25…925.75 MHz (Australia)
- 902…907.5 MHz and 915…928 MHz (Brazil)
- 917…920.5 MHz (Korea)
- 916…921 MHz (Russia)
- 920…925 MHz (Singapore)
- 916…928 MHz (Peru)

All the country-specific details concerning UHF, such as frequency band, power supply, and any national regulations are available at:
http://www.gs1.org/docs/epcglobal/UHF_Regulations.pdf
For more information, please contact the corresponding national authorities of the country in which you want to deploy the UHF RFID system.

HF RFID systems can be operated in parallel with UHF RFID systems in a single system.

5 Connection

5.1 Battery Charging

NOTE
The charging time depends on the selected charging method. Turck recommends that the device should be charged for at least 2 hours before initial commissioning.

- ▶ Connect the Micro-USB plug connector to the handheld.
- ▶ Connect the USB plug connector to the USB port of a PC or a laptop.

or

- ▶ Connect a USB plug connector to the network adapter.
- ▶ Connect the network adapter to the power supply.

5.2 Connect the handheld to the mobile device

- ▶ Connect the jack plug on the handheld to the audio port of the mobile device.

6 Commissioning

The devices can be operated only with the Turck RFID app. The Turck RFID app is available free-of-charge for Android and iOS devices in the Play Store or the App Store. Search for "Turck RFID".

- Android devices: Download the Turck RFID app from the Play Store and install it on your mobile device.
- IOS devices: Download the Turck RFID app from the App Store and install it on your mobile device.

Fig. 2: Icon for the Turck RFID app in the App Store

7 Operation

The handheld can be operated only with the Turck RFID app.

- ▶ Never leave the audio cable plugged in to the mobile device when not in use as it will deplete the battery of the handheld.
- ▶ To operate the handheld while charging, you must use a charger that supplies 600 mA or less.

7.1 Start the Turck RFID app

- ▶ Open the Turck RFID app on your mobile device.
- ▶ Set the volume of the mobile device to maximum.
- ⇨ The handheld can be operated via the Turck RFID app.

7.2 Home Screen — Overview

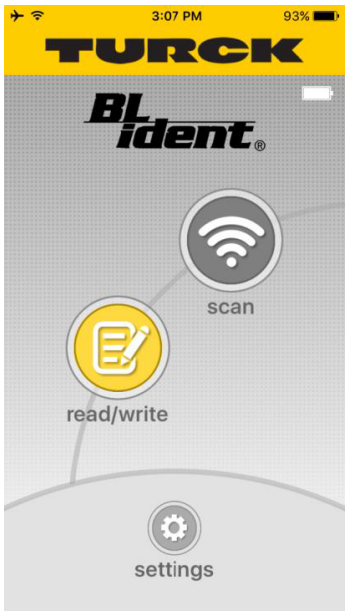


Fig. 3: Turck RFID app: Start screen

The start screen provides access to the following elements:

- Battery and power supply indication
- **Scan** button for starting the scan
- **Read/Write** button for reading and writing data
- **Settings** button for setting and configuring the handheld

7.3 Perform Scan

- ▶ Press the **Scan** button on the start screen.
- ⇨ The handheld starts the search for UHF tags in the detection range. The Turck RFID app opens the **Scan** screen.
- ⇨ The handheld indicates each detected tag with an audible signal.
- ⇨ The EPCs of the detected tags are displayed and can be edited. Further information on this is provided in the section “Reading and writing data”.

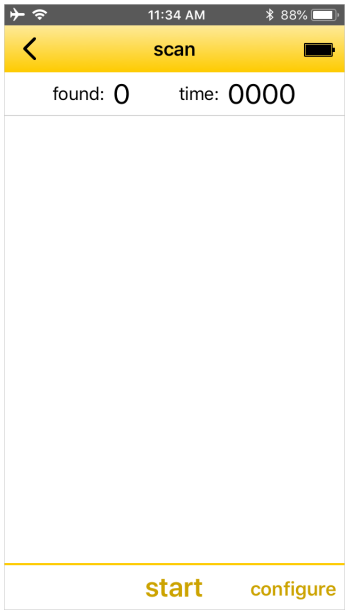


Fig. 4: Turck RFID app: Scan screen

Interrupting a scan

- ▶ Press **Pause**.
- ⇨ The scan is interrupted and can be continued at a later time. The displayed time continues running.

Aborting a scan

- ▶ Press the **Stop** button.
- ⇨ The scan is aborted. The displayed time is reset with the next scan. The read EPCs can be sent by email.

7.4 Reading and Writing Tags

The **Read/Write** window is used for reading, writing, protecting or permanently deactivating (killing) tags.

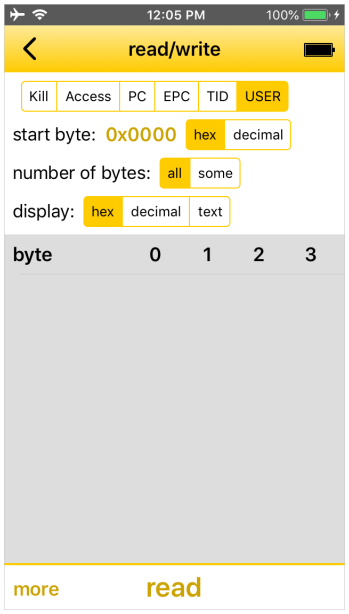


Fig. 5: Turck RFID app – Screen: Read/Write

The **Read/Write** screen provides access to the following elements:

- EPC: Displays the EPC of the selected tag.
- Selection of the memory bank on the tag
- Start byte for the required action (hexadecimal and decimal formats selectable)
- Number of bytes: If **All** is selected, as many bytes are read as are available in the particular memory bank of the tag. If **Some** is selected, a specific number of bytes must be entered.
- Display of user data (hexadecimal, decimal and ASCII data formats selectable)
- User data: The read data is displayed and can be edited.
- **More** button: Opens the menu for additional functions
- **Read** button: Starts the read operation
- **Write** button: Starts the write operation

7.4.1 Reading and Writing Tags — Advanced Features

The following advanced functions are available:

- Tag access password to use: Uses the access password when accessing the tag
- Change lock/unlock state: Locks or unlocks the selected memory area. The following states can be selected:

State	Description
writable	Tag can be written with and without access password (default setting: without access password)
permanently writable	Tag can be written with and without access password. The **permanently writable** state cannot be changed.
Write restricted	Tag can only be written with the access password
permanently unwritable	Tag cannot be written (status cannot be changed)

- Send data by email: Send read data by email
- Load data: Load previously saved data from the memory of the handheld
- Save data: Save data for later use on the handheld
- Kill tag: Permanently deactivate tag

▶ Open advanced functions: On the **Read/Write** screen press the **More** button.

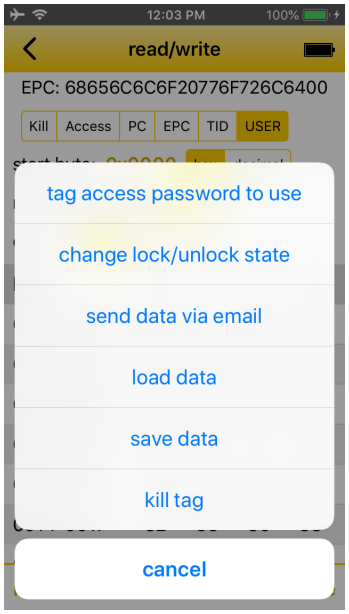


Fig. 6: Turck RFID app: Advanced functions

7.4.2 Example: Read Data

A read operation can either be started from the start screen or from the **Scan** screen.

Starting the read operation from the start screen

If no EPC is selected, the device reads the first tag found. This will usually be the closest tag, but this is not guaranteed. This mode should only be used when there is only one tag in the vicinity.

▶ Press **Read/Write** on the start screen.

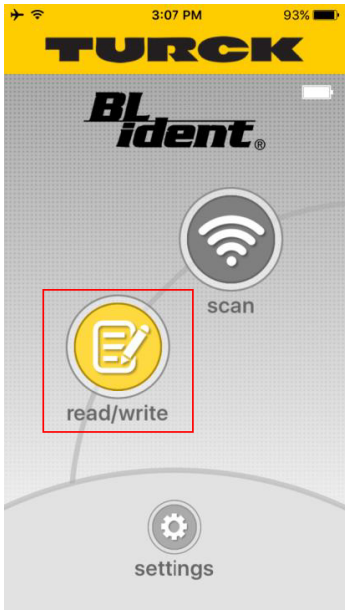


Fig. 7: Start screen

▶ Select the memory bank to be read.

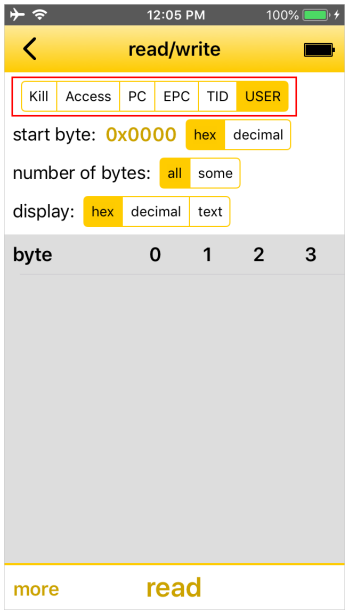


Fig. 8: Selecting the memory bank

▶ Select the required format for displaying the start byte.

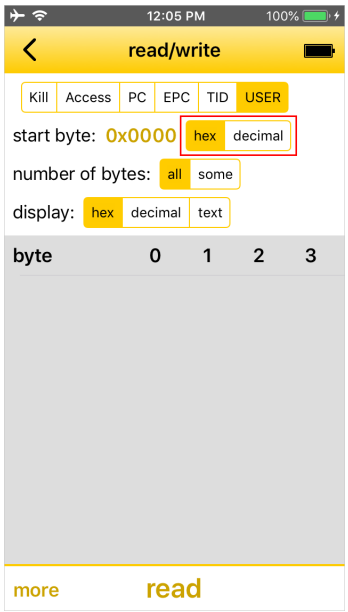


Fig. 9: Selecting the format

- Specify the start byte for the read operation: Press the current start byte and enter a new start byte in the following window.

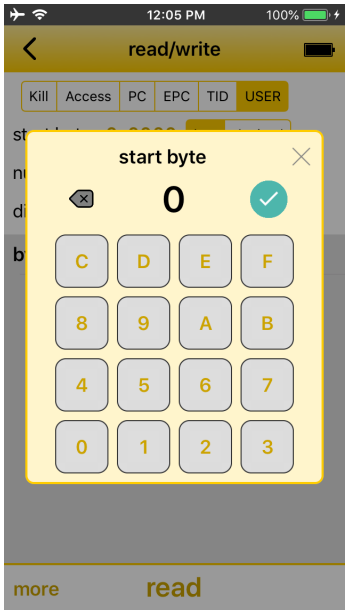


Fig. 10: Selecting the start byte

- Select the number of bytes to be read. If **Some** is selected, enter the number in the following window. If **All** is selected, as many bytes are written as are available in the particular memory bank of the tag.

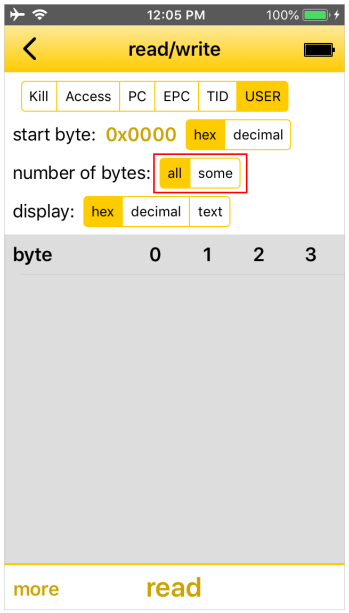


Fig. 11: Selecting the number of bytes

▶ Selecting the display format for the read data.

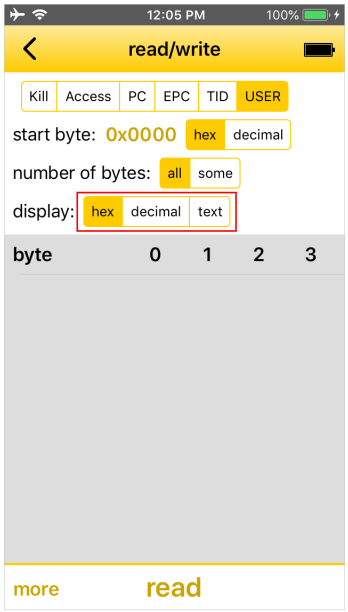


Fig. 12: Selecting the display format

▶ Press **Read**.

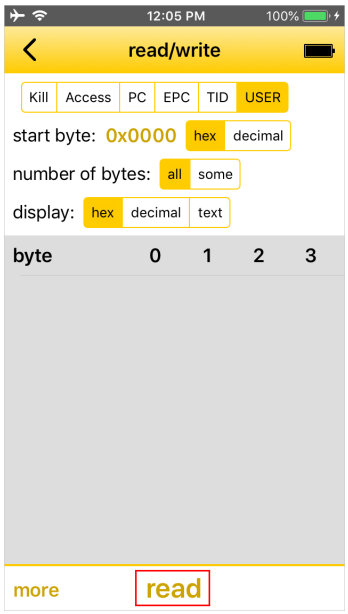


Fig. 13: Button: Read

⇨ The handheld starts the read operation. The read data is displayed on the screen.

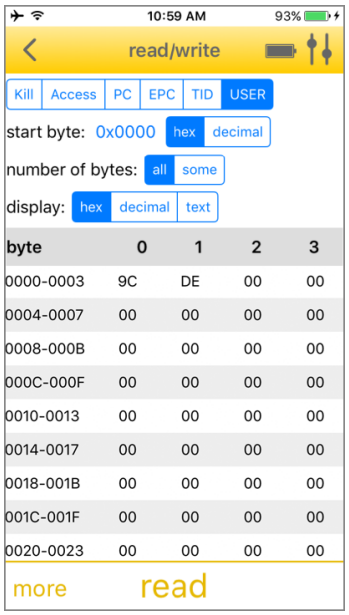


Fig. 14: Read data

Starting the read operation from the scan screen

If the read operation is started from the **Scan** screen, a tag with a specific EPC is read.

- ▶ Start the scan on the Scan screen.
- ▶ Select the tags to be read from the EPC list.
- ⇨ The **Read/Write** screen is opened.

- ▶ Select the memory bank to be read.
- ▶ Select the required format for displaying the start byte.
- ▶ Specify the start byte for the read operation: Press the current start byte and enter a new start byte in the subsequent window.
- ▶ Select the number of bytes to be read. If **Some** is selected, enter the number in the following window. If **All** is selected, as many bytes are written as are available in the particular memory bank of the tag.
- ▶ Selecting the display format for the read data.
- ▶ Press **Read**.
- ⇨ The handheld starts the read operation. The read data is displayed on the screen.

7.4.3 Example: Write Data

A write operation can either be started from the start screen or from the **Scan** screen.

Starting the write operation from the start screen

If no EPC is selected, the device writes to the first tag found. This will usually be the closest tag, but this is not guaranteed. This mode should only be used when there is only one tag in the vicinity.

▶ Press **Read/Write** on the start screen.

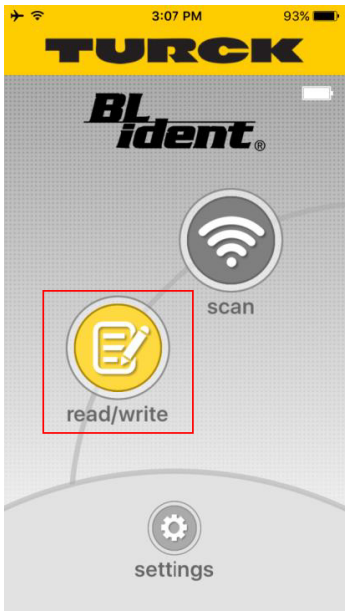


Fig. 15: Start screen

▶ Select the memory bank to be written

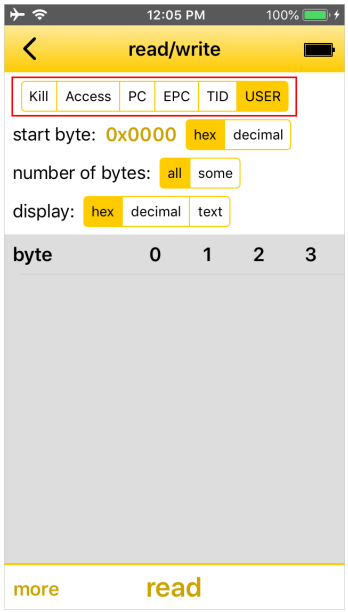


Fig. 16: Selecting the memory bank

▶ Select the required format for displaying the start byte.

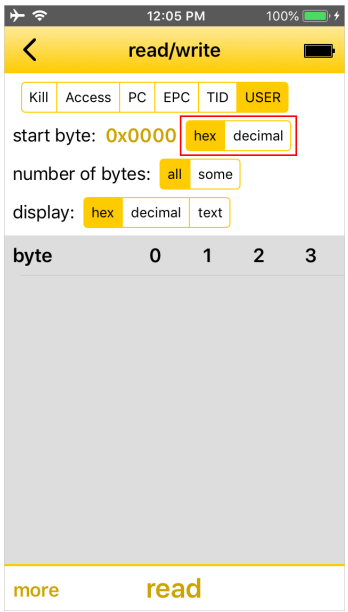


Fig. 17: Selecting the format

- Specify the start byte for the write operation: Press the current start byte and enter a new start byte in the subsequent window.

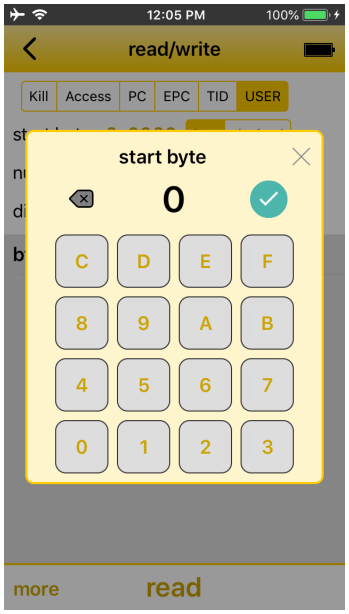


Fig. 18: Selecting the start byte

- Select the number of bytes to be written. If **Some** is selected, enter the number in the following window. If **All** is selected, as many bytes are written as are available in the particular memory bank of the tag.

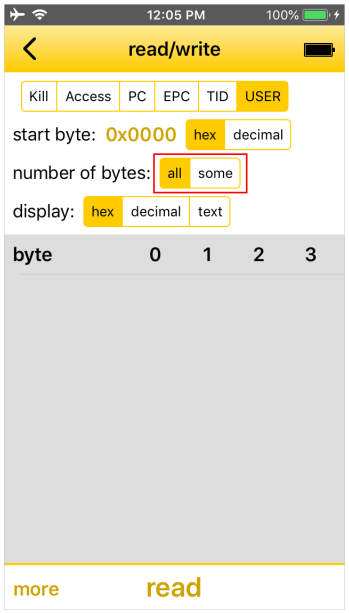


Fig. 19: Selecting the number of bytes

▶ Select the display format for the write data.

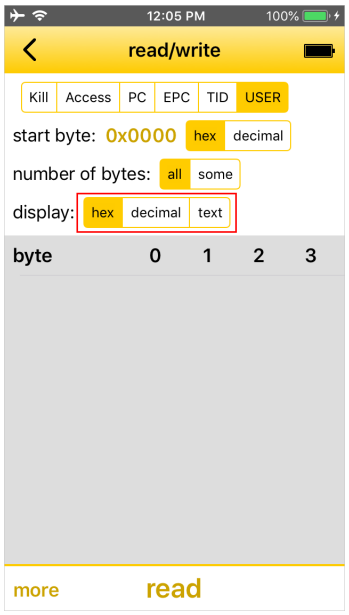


Fig. 20: Selecting the display format

▶ Press **Read**.

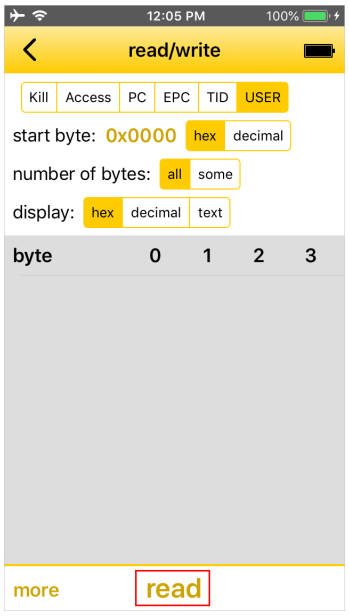


Fig. 21: Button: Read

▶ Adjust the data in the table.

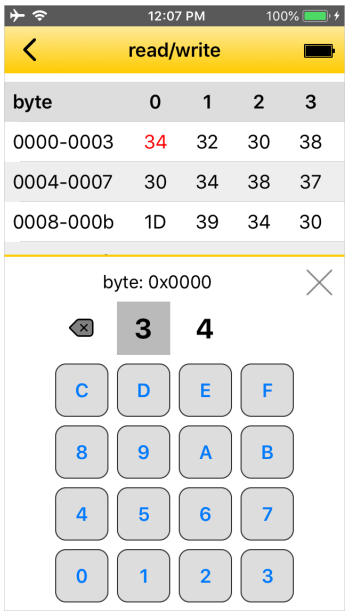


Fig. 22: Write data

▶ Press **Write.**

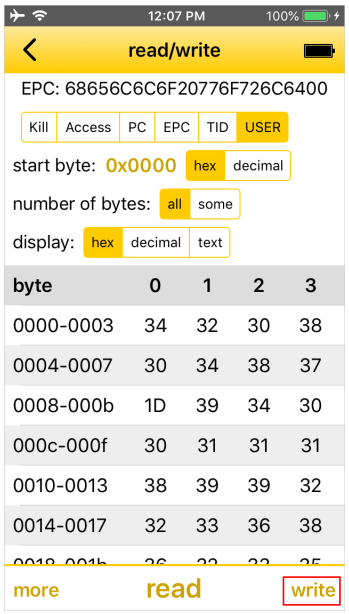


Fig. 23: Write

⇨ The handheld starts the write operation. The written data is displayed on the screen.

Starting the write operation from the scan screen

If the write operation is started from the **Scan** screen, a tag with a specific EPC is written.

- ▶ Start the scan on the Scan screen.
- ▶ Select the tags to be written from the EPC list.
- ⇨ The **Read/Write** screen is opened.
- ▶ Press **Read/Write** on the start screen.
- ▶ Select the memory bank to be written
- ▶ Select the required format for displaying the start byte.
- ▶ Specify the start byte for the write operation: Press the current start byte and enter a new start byte in the subsequent window.
- ▶ Select the number of bytes to be written. If **Some** is selected, enter the number in the following window. If **All** is selected, as many bytes are written as are available in the particular memory bank of the tag.
- ▶ Select the display format for the write data.
- ▶ Press **Read**.
- ▶ Adjust the data in the table.
- ▶ Press **Write**.
- ⇨ The handheld starts the write operation. The written data is displayed on the screen.

7.5 Battery and Connection Display

The battery and connection display supplies information on the charge status of the battery, on the connection of the handheld and mobile terminal device as well as temperature diagnostics.

Icon	Description
	No handheld connected to mobile terminal device
	Connection establishment to the handheld
	Handheld connected, battery status of the handheld is displayed
	Handheld connected, battery is charged
	Handheld connected to mobile terminal device and power supply, battery fully charged

Icon	Description
	Temperature warning: Handheld hot
	Temperature warning: Handheld overheated, no communication with tag possible.

8 Setting

- ▶ Call up the start page of the Turck RFID app.
- ▶ Press the **Settings** button.
- ⇨ The Settings screen is opened.

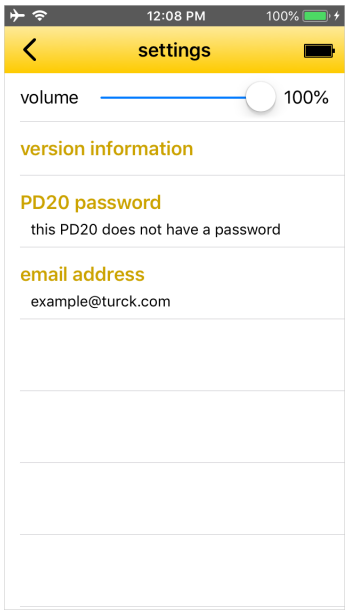


Fig. 24: Turck RFID app: settings

The settings screen provides access to the following elements:

- Volume for audible signals
- Version information: Shows the version of the Turck RFID app, type, serial number, firmware and battery status of the handheld.
- PD20 password: Password for the handheld
- Email address for using the send function in Scan mode

8.1 Assign password

NOTE
With each restart of the application or connection of the PD20, the password must be entered before the first write, lock or kill operation.

- ▶ Open the Settings screen.
- ▶ **Select the PD20 password.**
- ▶ Enter the password.
- ⇨ The password is saved on the handheld.

8.2 Setting the scan screen

The menu for the configuration of the Scan screen is divided into 4 areas:

- Send data
- Scan
- Display
- Security

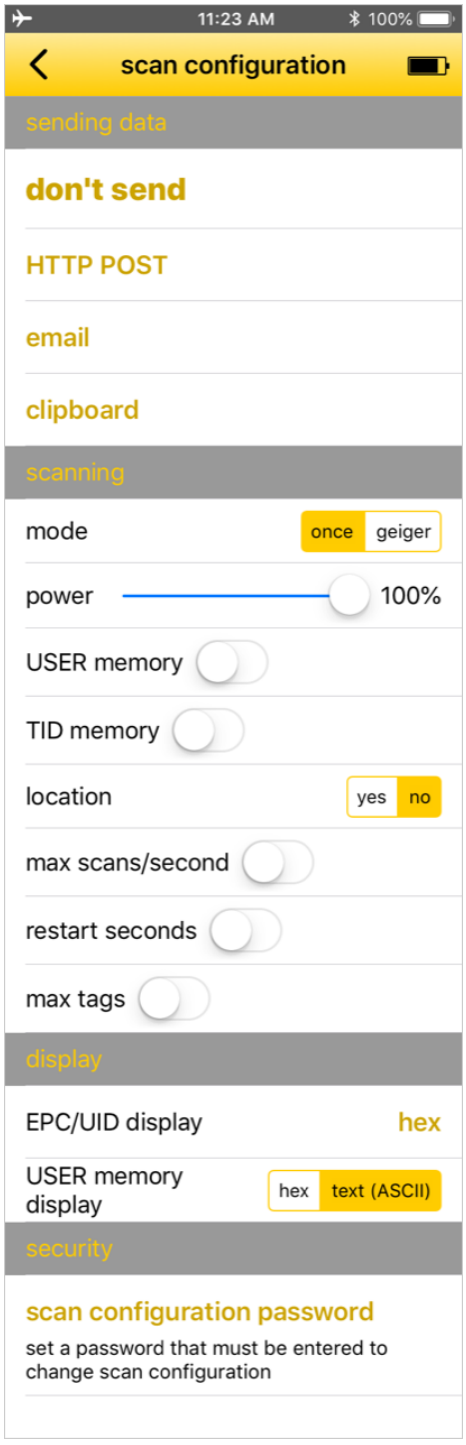


Fig. 25: Configuration menu

8.2.1 Area: Send data – Parameters

Data can be sent if required by HTTP-POST, email or via the Clipboard. The **Send data** area is set by default to **Don't send**.

Send data by HTTP-POST – Settings

The HTTP-POST method enables large data volumes to be sent to a server for further processing.

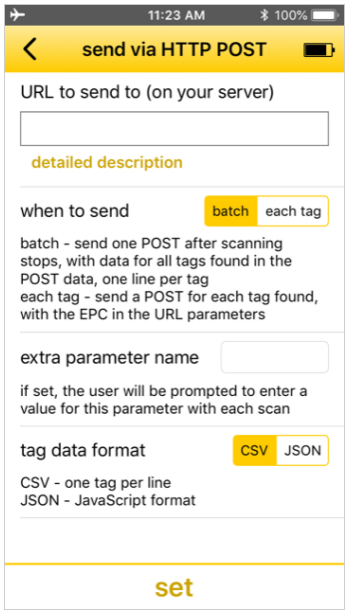


Fig. 26: Send data by HTTP-POST – Settings

- ▶ Open the Scan screen.
- ▶ Open HTTP-POST in the configuration screen.
- ▶ Set the data transmission via HTTP-POST as per the following table:

Default values are shown in **bold** type.

Parameter	Selection	Description
URL for sending	–	URL on a server to which the read data is to be sent. The URL can contain a placeholder. Refer to the “HTTP-POST – Placeholders” table.
Time for sending	**Batch** Each tag	Batch: Sends after the scan a POST with the data of all tags located in the POST data of the handheld, one line per tag. A batch can contain any number of tags. Each tag: Sends a POST for each tag found. The EPC is contained in the URL parameters.
Additional parameter name (optional)	–	When set, the user is requested to enter a value for this parameter with each scan. The parameter can be set for a specific application in the name| prompt format (see also parameter table in the section “Integrating the Turck RFID app in the web application”).
Data format	**CSV** JSON	CSV: Read data in CSV format, one tag per line. The individual data items are separated by a comma. The following order is used: EPC/UID, TID, USER data, location JSON: Read data as JSON array

HTTP-POST – Placeholders

The available placeholders depend on the time selected for sending.

Placeholder	Meaning	Time for sending	
		Batch	Each tag
GROKKER_ID	Serial number of the handheld	x	x
LOCALTIME	Time and date (local), Format: 2015-12-02-21:26:53	x	x
GMTTIME	Time and date (UTC), Format: 2015-12-02-21:26:53	x	x
EPC	EPC or UID of the tag found	–	x
USER	USER data of the found tag (only available if USER memory is activated under **Scanning**)	–	x
TID	USER data of the found tag (only available if TID is activated under **Scanning**)	–	x
LOCATION	Location at which the tag was found, Format: Latitude, longitude (only available if "Location" is activated under **Scanning**)	–	x

HTTP-POST – Examples

Read individual tag – EPC	
URL	http://myserver.com/findOne?grokkerId=GROKKER_ID&timestamp=TIMESTAMP&epc=EPC
Serial number of the handheld	140112345
Time	2015-12-02-21:26:53
Found tag	FC02030405060708091011
Sent HTTP-POST	http://myserver.com/findOne?grokkerId=140112345&timestamp=2015-12-02-21:26:53&epc= FC02030405060708091011

Read individual tag – EPC and TID	
URL	http://myserver.com/findOne?grokkerId=GROKKER_ID&timestamp=TIMESTAMP&epc=EPC&tid=TID
Serial number of the handheld	140112345
Time	2015-12-02-21:26:53
Found tag	FC02030405060708091011
Sent HTTP-POST	http://myserver.com/findOne?grokkerId=140112345&timestamp=2015-12-02-21:26:53&epc= FC02030405060708091011&tid=1122343445566778899AABB

Read batch – EPC	
URL	http://myserver.com/findBatch?grokkerId=GROKKER_ID&timestamp=TIMESTAMP
Serial number of the handheld	140112345
Time	2015-12-02-21:26:53
Found tags	FC02030405060708091011 FC02030405060708091012 FC02030405060708091013
Sent HTTP-POST	http://myserver.com/findOne?grokkerId=140112345&timestamp=2015-12-02-21:26:53 FC02030405060708091011 FC02030405060708091012 FC02030405060708091013

Read batch – EPC and TID	
URL	http://myserver.com/findBatch?grokkerId=GROK-KER_ID&timestamp=TIMESTAMP&epc=EPC&tid=TID
Serial number of the handheld	140112345
Time	2015-12-02-21:26:53
Found tags	FC02030405060708091011, TID = 1122343445566778899AABB FC02030405060708091012, TID = 1122343445566778899AACC FC02030405060708091013, TID = 1122343445566778899AADD
Sent HTTP-POST	http://myserver.com/findOne?grokkerId=140112345&timestamp=2015-12-02-21:26:53 FC02030405060708091011,1122343445566778899AABB FC02030405060708091012,1122343445566778899AACC FC02030405060708091013,1122343445566778899AADD

HTTP-POST – Return data

If required, data can be output via HTTP-POST. All data must be present as text in UTF-8 coding and in JSON format.
The following example shows the source text in **Each tag** mode. All entries are optional.

```
{
  name: "text to replace EPC",
  details: "text for smaller second line below EPC",
  url: "URL to display in a browser page if user touches the tag",
  html: "HTML to display in a browser page if user touches the
tag",
  text: "text to display in a dialog if user touches the tag"
}
```

The following example shows the source text in **Batch** mode. All entries are optional.

```
{
  url: "URL to display in a browser page",
  html: "HTML to display in a browser page",
  text: "text to display in a dialog"
}
```

If the server returns an HTTP error, a standard error message is indicated to the user. If text is returned with the HTTP error, this text is displayed instead of the standard error message. This enables your server to return a user-defined error message.

Sending data by email – Parameters

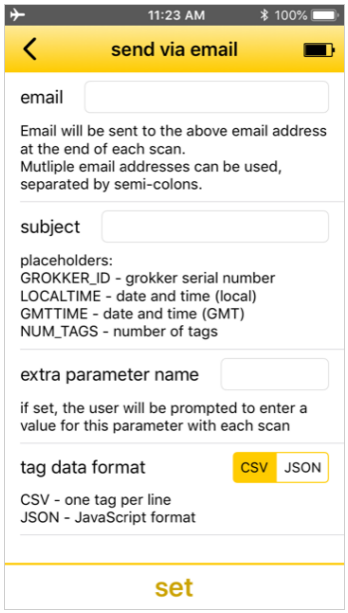


Fig. 27: Sending data by email – Parameters

- ▶ Open the Scan screen.
- ▶ Open email in the configuration screen.
- ▶ Set the data transmission via email according to the following table:

Default values are shown in **bold** type.

Parameters	Selection	Description
Email	–	After a scan the data is sent to the specified email address. Several addresses can be separated by semicolons.
Subject	–	Subject of the email. The subject can contain the following placeholders: ■ GROKKER_ID: Serial number of the handheld ■ LOCALTIME: Date and time (local) ■ GMTTIME: Date and time (GMT) ■ NUM_TAGS: Number of tags
Additional parameter name (optional)	–	When set, the user is requested to enter a value for this parameter with each scan. The parameter can be set for a specific application in the name|prompt format (see also parameter table in the section “Integrating the Turck RFID app in the web application”).
Data format	**CSV** JSON	CSV: Read data in CSV format, one tag per line. The individual data items are separated by commas. The following order is used: EPC/UID, TID, USER data, location JSON: Read data as JSON array

Sending data via the Clipboard – Parameters

Fig. 28: Sending data via the Clipboard – Parameters

- Open the Scan screen.
- Open email in the configuration screen.
- Set the data transmission via the Clipboard according to the following table:

Default values are shown in **bold** type.

Parameters	Selection	Description
Data format	**CSV** JSON	CSV: Read data in CSV format, one tag per line. The individual data items are separated by commas. The following order is used: EPC/UID, TID, USER data, location JSON: Read data as JSON array

8.2.2 Area: Scanning – Parameters

The following parameters can be set in the Scan area to detect data:
Default values are shown in **bold** type.

Parameters	Selection	Description
Mode	**Once**	Once: Each detected tag is indicated with an audible signal. The **Once** mode is suitable for tasks such as Inventory commands if several tags are inside the detection range.
	Geiger	Geiger: In **Geiger** mode, the handheld outputs a signal each time a tag is detected. In Geiger mode, the handheld outputs a permanently audible signal each time a tag is read, even if only one tag is in the detection range. The tag list graphically indicates how often a tag was already read. The **Geiger** mode is suitable for tasks such as searching for tags.
Power	0…**100** %	Changes the transmission output.
USER memory	–	Opens the user interface for setting the number of bytes to be read from the USER memory. The data is read without an offset. If the set number of bytes cannot be read, the tag is not reported.
TID memory	–	Opens the user interface for setting the number of bytes to be read from the TID memory. The data is read without an offset. If the set number of bytes cannot be read, the tag is not reported.
Location	Yes	The location of each tag read is recorded. The location depends on GPS, WiFi and mobile wireless stations (if available).
	No	The location of the read tags is not recorded.
Max. scans/second	–	Opens the user interface for setting the max. number of Inventory requests per second. Restricting the Inventory requests increases battery life.
Seconds to restart	–	Opens the user interface for setting the time after which a data record is to be sent.
Maximum number of tags	–	Opens the user interface for setting the max. number of tags after which an Inventory operation is ended.

8.2.3 Area: Display – Parameters

The following parameters for displaying the data can be set in the Display area.
Default values are shown in **bold** type.

Parameters	Selection	Description
EPC/UID display	Default: Hexa-decimal	Format for the display of UID and EPC
USER memory	Hexa-decimal	Display of the data from the USER memory in hexadecimal format
	TEXT (ASCII)	Display of the data from the USER memory in ASCII format

8.2.4 Area: Security – Parameters

The **Security** area enables a password to be specified for the configuration of the Scan command.

8.3 Integrating the Turck RFID App in the Web Application

URLs makes it possible to start the Turck RFID app and configure the Scan screen. In this way, the RFID app can be started, configured and controlled via a web page. The URL can contain, for example, configuration information or a web page that automatically opens after a scan operation has been completed. Configuration via URLs enables the integration of the app in existing web applications.

8.3.1 Transferring configuration parameters – URL format

The configuration parameters are transferred by means of URLs. For this the URLs must be present in the following data format:

```
turckrfid://scan?param1=value1&param2
```

8.3.2 Overview of the configuration parameters

NOTE
The parameters must be URL-escaped.

Parameters	value	Description
resetConfiguration	true false	**true** resets the existing scan configuration before a new configuration is transferred.
startScanning	true false	**true** starts the scan operation.
Method for sending data		
destination	http	Send data via HTTP-POST
	email	Send data by email
	clipboard	Send data via the Clipboard
	none	Do not send data
HTTP configuration (if destination=http)		
httpUrl	URL on a server to which the read data is to be sent.	
whenToSend	batch	Batch: Sends after the scan a POST with the data of all tags located in the POST data of the handheld, one line per tag. A batch can contain any number of tags.
	each	Sends a POST for each tag found. The EPC is contained in the URL parameters.
extraParameter (optional)	[Parameter name]	When set, the user is requested to enter a value for this parameter with each scan.
tagDataFormat	CSV	Read data in CSV format, one tag per line. The individual data items are separated by commas. The following order is used: EPC/UID, TID, USER data, location
	JSON	JSON: Read data as JSON array
Email configuration (if destination=email)		

Parameters	value	Description
emailAddress	After a scan the data is sent to the specified email address. Several addresses can be separated by semicolons.	
emailSubject	Subject of the email.	
tagDataFormat	CSV	Read data in CSV format, one tag per line. The individual data items are separated by a comma. The following order is used: EPC/UID, TID, USER data, location.
	JSON	JSON: Read data as JSON array
Configuration of the Clipboard (if destination=clipboard)		
tagDataFormat	CSV	Read data in CSV format, one tag per line. The individual data items are separated by a comma. The following order is used: EPC/UID, TID, USER data, location
	JSON	JSON: Read data as JSON array
Scan parameters		
volume	0…100	Volume: ■ 0: silent ■ 100: Maximum volume
tagType	uhf	UHF tags
	hf	HF tag (not available for PD20-UHF)
geigerMode	yes	Geiger: In **Geiger** mode, the handheld outputs a signal each time a tag is detected. In Geiger mode, the handheld outputs a permanently audible signal each time a tag is read, even if only one tag is in the detection range. The tag list graphically indicates how often a tag was already read. The **Geiger** mode is suitable for tasks such as searching for tags.
	no	Once: Each detected tag is indicated with an audible signal. The **Once** mode is suitable for tasks such as Inventory commands if several tags are inside the detection range.
power	0…100	Transmission output
readUserMemoryMin	Min. number of bytes to be read in the USER memory	
readUserMemoryMax	Max. number of bytes to be read in the USER memory	
readTidMemoryMin	Min. number of bytes to be read in the TID memory	
readTidMemoryMax	Max. number of bytes to be read in the TID memory	

Parameters	value	Description
location	yes	The location of each tag read is recorded. The location depends on GPS, WiFi and mobile wireless stations (if available)
	no	The location of the read tags is not recorded.
maxRoundsPerSecond	Max. number of Inventory requests per second (default: 0, no limit)	
restartSeconds	Time after which a data set is to be sent (default: 0, no restart)	
maxTagsToFind	Max. number of EPCs to be read (default: 0, no limit)	
epcDisplay	Epc	Hexadecimal display (default)
	Ascii	ASCII
	AsciiLeadingZeros	ASCII with leading zeros
	Icar15	Icar15
	Icar16	Icar16
userDisplay	Epc	Hexadecimal display (default)
	Ascii	ASCII
Security parameters		
password	Password for the configuration of the scan command	
setPassword	Set password for the configuration of the scan command	
Other parameters		
doneUrl	URL to be called up after the scan operation	
titleText	Title for the Scan page	
titleImage	URL for loading an image for the title page	

9 Eliminating Interference

If the device does not function as expected, first check whether ambient interference is present. If there is no ambient interference present, check the connections of the handheld and the mobile terminal device for faults.

If there are no faults, there is a device malfunction. Device faults may be caused by several factors:

- The handheld is not charged. If the charge state is too low, communication faults can occur between the handheld and mobile terminal device. Charge the handheld.
- The firmware of the handheld is obsolete. Carry out a firmware update.
- The audio port of the mobile terminal device is dirty. Clean the audio port.

10 Maintenance

10.1 Carrying out a Firmware Update

The Turck RFID app automatically reports an outdated firmware version.

- ▶ Confirm the message.
- ⇨ The update will start automatically.

11 Repair

The device must not be repaired by the user. The device must be decommissioned if it is faulty. Observe our return acceptance conditions when returning the device to Turck.

11.1 Returning Devices

If a device has to be returned, bear in mind that only devices with a decontamination declaration will be accepted. The decontamination declaration can be downloaded from
http://www.turck.de/de/produkt-retoure-6079.php
and must be completely filled in, and affixed securely and weather-proof to the outside of the packaging.

12 Disposal

The devices must be disposed of correctly and must not be included in normal household garbage.

13 Technical Data

Technical Data	
Ambient temperature	-10…+55 °C
Storage temperature	-20…+60 °C
Output power	5… 30 dBm, adjustable
Antenna polarization	simulates circular
Memory	depending on the connected host device
Display	depending on the connected host device
Battery capacity	1800 mAh
Communication	via 3.5 mm phone jack
Supplied software	Turck RFID app, free of charge
Operating system	iOS, Android
Dimensions	159 × 95 × 39 mm
Weight	170 g
Housing material	Plastic, black
Degree of protection	IP20

14 EU declaration of conformity

Hans Turck GmbH & Co. KG hereby declares that the radio equipment type PD20-UHF-EU-R corresponds to Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available on the Internet at the following address: **www.turck.com**

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