Your Global Automation Partner

TURCK

PD67-UNI-...
RFID Handheld

Instructions for Use

Table of 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

These instructions are aimed a qualified personal and must be carefully read by anyone mounting, commissioning, operating, maintaining, dismantling or disposing 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:

- 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".

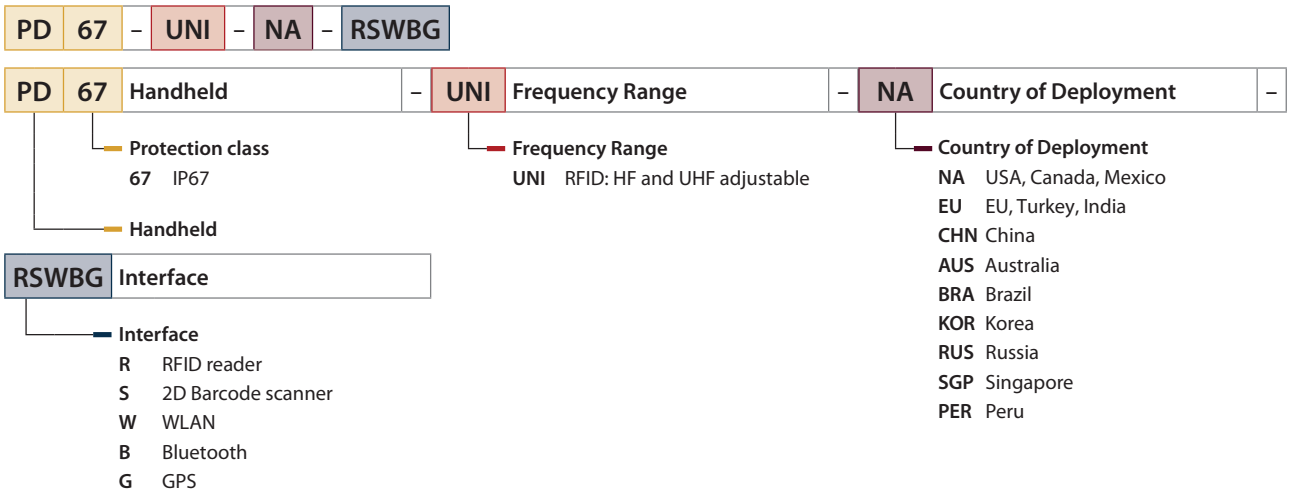
1.5 Feedback about these instructions

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 handhelds:



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

2.2 Scope of delivery

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

2.3 Legal requirements

The devices comply with the following regulations:

Device	Region of use	Regulations
PD67-UNI-EU-…	Europe	■ 2014/30/EU (electromagnetic compatibility) ■ 2014/53/EU (RED Directive)
PD67-UNI-NA-…	USA	■ FCC Rules Part 15
	Canada	■ Industry Canada RSS-210
PD67-UNI-CHN-…	China	■ SRRC

Notes on other variants are available on request.

2.4 Manufacturer and service

Hans Turck GmbH & Co. KG
Witzlebenstraße 7
45472 Mülheim 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.

Passive RFID tags can be written and read with the handheld. The device can be set to HF or UHF operation. In HF operation, the device operates at a frequency of 13.56 MHz.

The following table shows the operating frequency of the device in the UHF range:

Type code	Operating frequency	Region
PD67-UHF-EU-…	865.7…867.5 MHz	Europe, Turkey, India
PD67-UHF-NA-…	902.75…927.25 MHz	North America (USA, Canada, Mexico)
PD67-UHF-CHN-…	920.25…924.75 MHz	China
PD67-UHF-AUS-…	920.25…925.75 MHz	Australia, New Zealand
PD67-UHF-BRA-…	902…907.5 MHz and 915…928 MHz	Brazil
PD67-UHF-KOR-…	917…920.5 MHz	Korea
PD67-UHF-RUS-…	916…921 MHz	Russia
PD67-UHF-SGP-…	920…925 MHz	Singapore
PD67-UHF-PER-…	916…928 MHz	Peru

The device must only be operated in countries in which the particular frequency range is permissible for the use of UHF RFID.

Barcodes can also be read with the PD67-…RSWBG handheld.

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 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. Observe minimum distances from the actively radiating surface of the UHF device:

Region	Max. permissible total radiant output power	Safety distance
Europe, Russia, China, Turkey, India	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.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

4 Product Description

The PD67 series handheld comes with protection to IP67 and is contained in a plastic housing with a front display. The device can be operated in the HF and in the UHF frequency range. A Wifi and a Bluetooth interface are also provided. 2D barcodes can be read and processed with the PD67-…RSWBG device variants.

4.1 Device overview

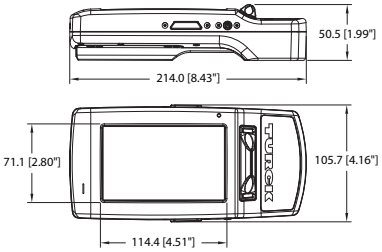


Fig. 1: Scale drawing – Device without grip handle

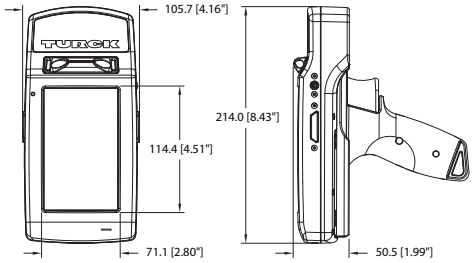


Fig. 2: Scale drawing– Device with grip handle

4.1.1 Operating elements

The handheld is provided with four buttons:

- Power button for on/off switching (A)
- Two programmable buttons on the sides of the housing (B)
- Trigger button for operating via an additional pistol grip handle (C)

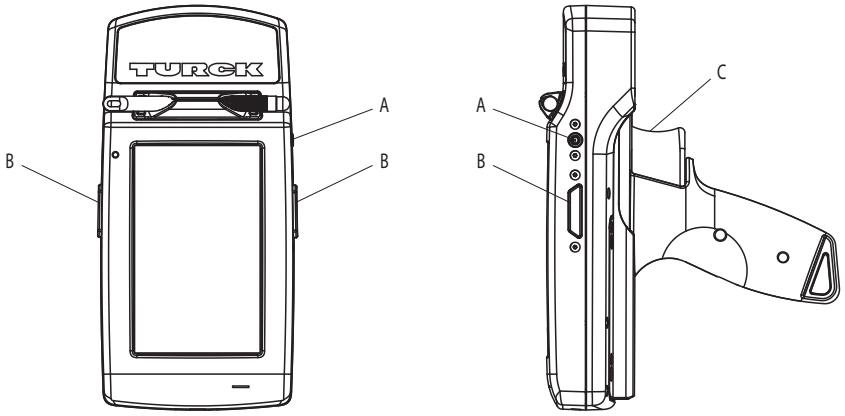


Fig. 3: Position of the buttons

4.1.2 Display elements

The device is provided with a 5" LCD display with an 800 × 480 px resolution and a capacitive touch screen.

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4.2 Properties and features

- Mobile reading and writing of RFID tags
- Handheld with HF and UHF antenna
- Custom Android ROM
- Incl. Turck RFID app for reading and writing tags
- Custom software solution on request
- WIFI 802.11 b/g/n and Bluetooth Low Energy V4.0
- Removable lithium ion battery (2400 mAh)
- Incl. PD67-BATTERY, PD67-DOCK docking station with power supply unit and USB C cable, PD67-STYLUS stylus
- Protection class IP67
- Withstands several drops from a height of 1.5 m on smooth concrete

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

Passive RFID tags can be written and read anywhere with the device. For this the devices form a transmission zone that varies in size and range according to the tags used and the operating conditions of the application.

4.4.1 HF operation

The Turck HF system operates at a frequency of 13.56 MHz. Tags in compliance with ISO 15693 (NFC Type 5) can be written and read with the handheld.

4.4.2 UHF operation

The Turck UHF system uses nationally specified operating frequencies for the communication between the tags and read/write heads. These national frequencies for UHF are required due to the frequency ranges specified by the national regulation bodies.

The operating frequency of the devices in the UHF band is for example 865…868 MHz for Europe and 902…928 MHz for the USA. The BL ident handhelds in the UHF band can therefore only be used in the countries they are intended for and must not be put into operation outside of these regions. As the BL ident UHF tags are passive, and therefore do not radiate their own radio waves, these are suitable for use worldwide.

Turck offers different tag variants that are specially designed and optimized for national frequency bands in order to achieve as large a communication range as possible. Wide-band multi-range tags for international use are also available as an alternative.

The various Turck handhelds support the following transmission frequencies:

- 865.7…867.5 MHz (Europe, Turkey, India)
- 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)

The relevant national specifications for UHF such as frequency range, output and the status of any national regulations can be obtained from the Internet at:
http://www.gs1.org/docs/epcglobal/UHF_Regulations.pdf

For more detailed information please contact the regulation authorities of the country where you wish to use the UHF RFID system.

HF RFID systems can be run parallel to UHF RFID systems in an installation.

4.4.3 Barcode scanner

The PD67-UNI-…-RSWBG handhelds are provided with an integrated barcode scanner for processing 2D barcodes. The handhelds can be used to read the following barcode formats:

- UPC
- Code 39
- Code 128
- Code 93
- Composite code
- Interleaved 2 of 5

The following code formats can be read in addition to barcodes:

- Aztec code
- QR code
- Data matrix
- PDF-417

5 Connecting

5.1 Battery charging

NOTE
Turck recommends that the device should be charged for at least two hours before initial commissioning.

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

6 Commissioning

- Charge the handheld with the power supply unit provided.
- Keep the Power button depressed until the display appears.
- Start the Turck RFID app.
- Select the operating mode via the display (HF or UHF).
- Press **Scan**, **Read/Write** or **Barcode** on the display.
- Position the tag within the detection range of the handheld.

7 Operation

7.1 Aligning the handheld

To perform a write or read operation the handheld must be aligned to the required tag or barcode.

- Reading or writing an HF tag: Place the tag on the yellow area of the handheld.
- Reading or writing a UHF tag: Hold the handheld over the required tag.
- Reading a barcode: Align the barcode reader of the handheld to the barcode.

7.2 Switching the display on and off

The display can be switched on and off during operation in order to save power in the battery.

- With the display switched on: Press the Power button momentarily to switch off the display.
- With the display switched off: Press the Power button momentarily to switch on the display.

7.3 Start screen – Overview

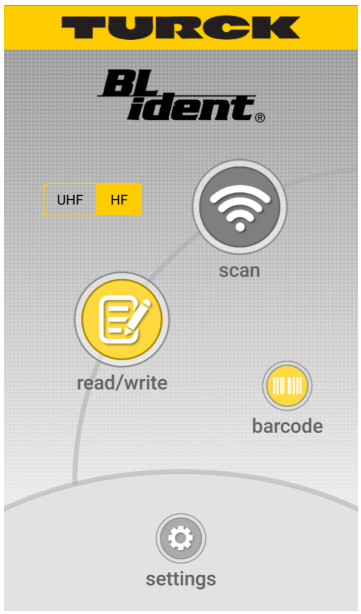

Fig. 4: Start screen

The start screen provides access to the following elements:

- Battery and power supply indication
- Select **HF/UHF** in order to set the operating mode
- **Scan** button for starting the scan
- **Read/Write** button for reading and writing RFID tags
- **Barcode** for reading 2D barcodes
- **Settings** button for setting and configuring the handheld

7.4 Performing a scan operation

7.4.1 Performing a scan operation with the Turck RFID app

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

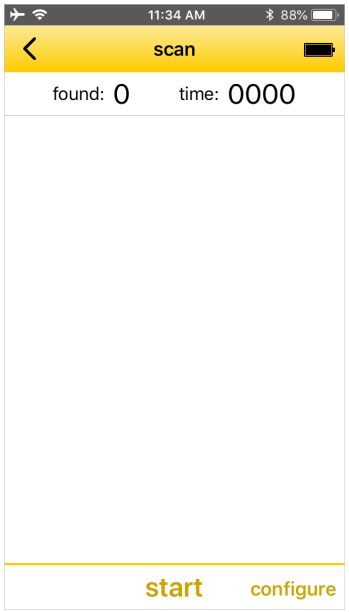

Fig. 5: Turck RFID app: Scan screen

Interrupting a scan

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

Aborting a scan

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

7.4.2 Performing a scan operation via buttons on the device

- ▶ Starting a scan operation via buttons on the device: Press the left programmable button.
- ▶ Starting the scan operation via the trigger button: Press the trigger button on the handle.
- ⇨ The handheld starts to search for tags in the detection range.
- ⇨ The handheld indicates each detected tag with an audible signal.
- ⇨ The EPCs or UIDs of the detected tags are displayed and can be edited. Further information on this is provided in the section “Reading and writing data”.

Interrupting a scan

- ▶ Press the right programmable button.
- ⇨ The scan is interrupted and can be continued at a later time. The displayed time is stopped until the scan is continued.

Aborting a scan

- ▶ Aborting a scan operation via the buttons on the device: Press the left programmable button.
- ▶ Aborting the scan operation via the trigger button: Press the trigger button on the handle.
- ⇨ The scan is aborted. The displayed time is reset with the next scan. The read EPCs or UIDs can be sent by email.

7.5 Reading and writing tags

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

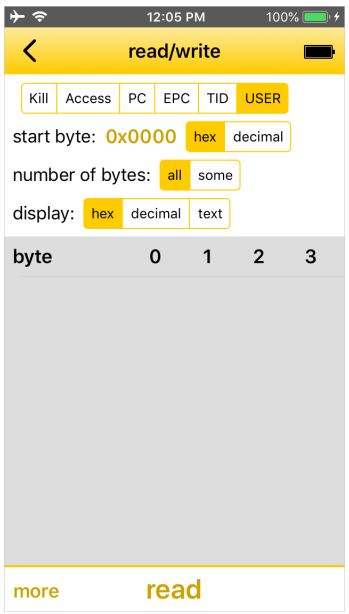

Fig. 6: Turck RFID app – Screen: Read/Write

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

- EPC (UHF) or UID (HF): Displays the EPC or UID of the selected tag.
- UHF applications: Selection of the memory bank on the tag (Kill, Access, PC, EPC, TID and USER selectable)
- 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 other functions.
- **Read** button: Starts the read operation.
- **Write** button: Starts the write operation.

7.5.1 Reading and writing tags - Extended functions

NOTE
The extended functions are only available for UHF applications.

The following extended functions are available:

- Tag access password to use: Uses the access password when accessing tags.
- 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 (status 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 via email: Send read data via 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 extended functions: On the **Read/Write** screen press the **More** button.

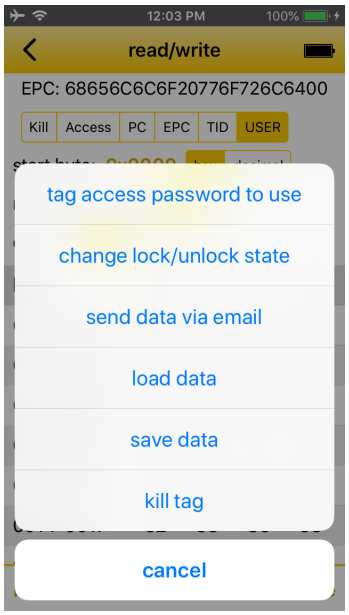

Fig. 7: Read/write – Extended functions

7.5.2 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 or UID was selected, the device normally reads the first tag found. The nearest tag is normally found first of all. However, this is not guaranteed. The mode without EPC or UID selection should be used if only one tag is located in the vicinity of the handheld.

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

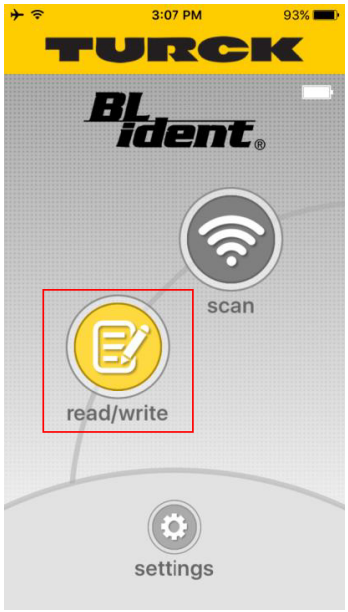

Fig. 8: Start screen

- ▶ UHF applications: Select the memory bank to be read.

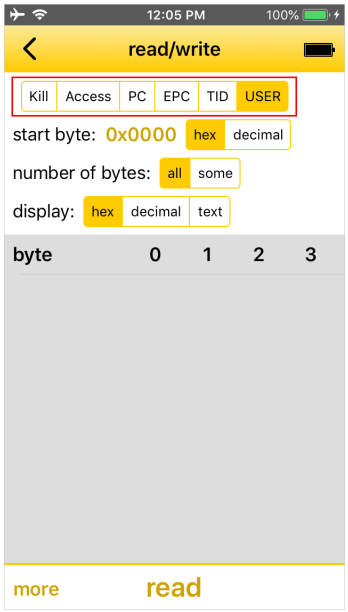

Fig. 9: Selecting the memory bank

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- Select the required format for displaying the start byte.

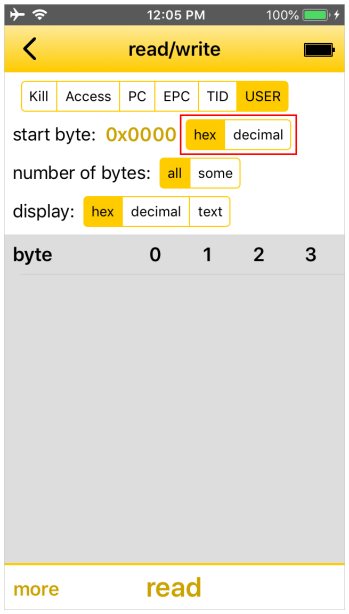

Fig. 10: Selecting the format

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

Fig. 11: 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 read as are available in the particular memory bank of the tag.

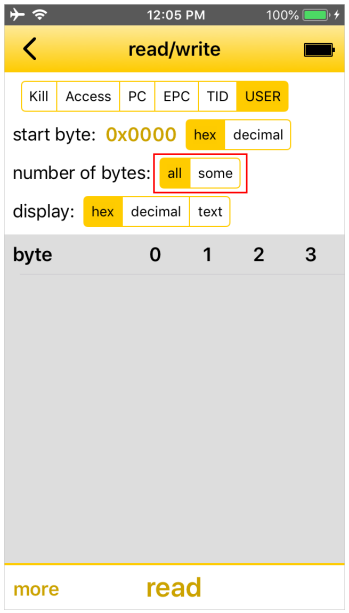

Fig. 12: Selecting the number of bytes

- Selecting the display format for the read data.

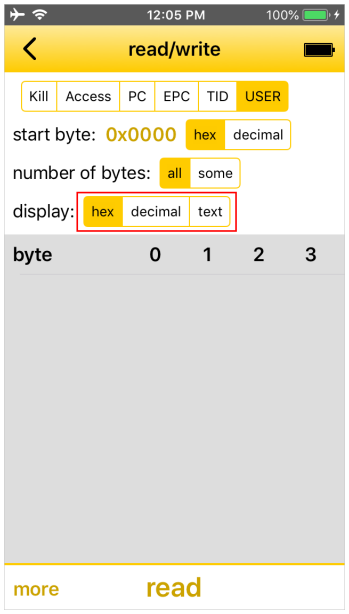

Fig. 13: Selecting the display format

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▶ Press **Read**.

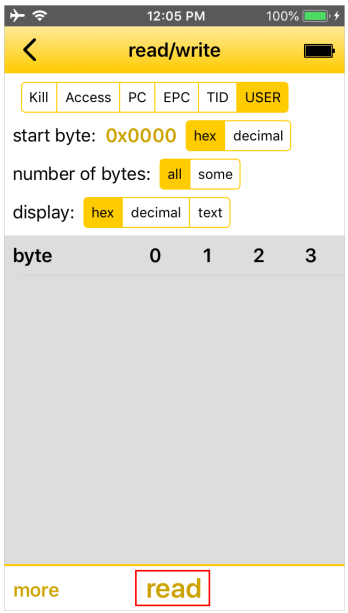

Fig. 14: Button: Read

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

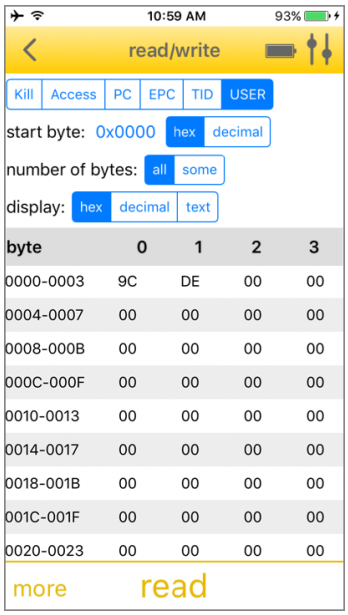

Fig. 15: Read data

Starting the read operation from the scan screen

If the read operation is started from the **Scan** screen, a tag with a specific EPC or UID is read. For this the tag that has the required EPC or UID must be selected from the EPC or UID list on the **Scan** screen.

- ▶ Start the scan on the Scan screen.
- ▶ Select the tag to be read from the list.
- ⇨ The **Read/Write** screen opens.
- ▶ UHF: 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 read 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.

7.5.3 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 or UID was selected, the device normally writes the first tag found. The nearest tag is normally found first of all. However, this is not guaranteed. The mode without EPC or UID selection should be used if only one tag is located in the vicinity of the handheld.

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

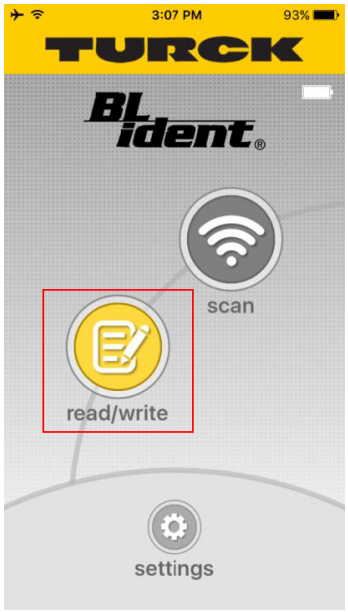

Fig. 16: Start screen

- ▶ UHF: Select the memory bank to be written

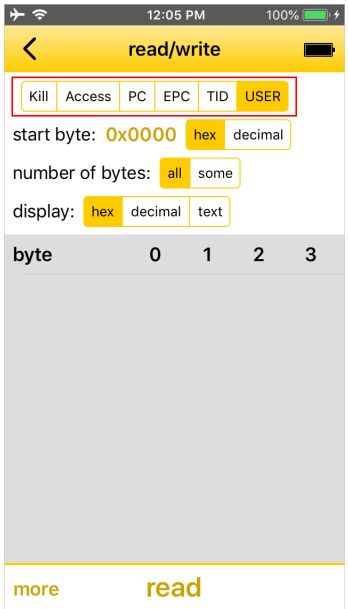

Fig. 17: Selecting the memory bank

- Select the required format for displaying the start byte.

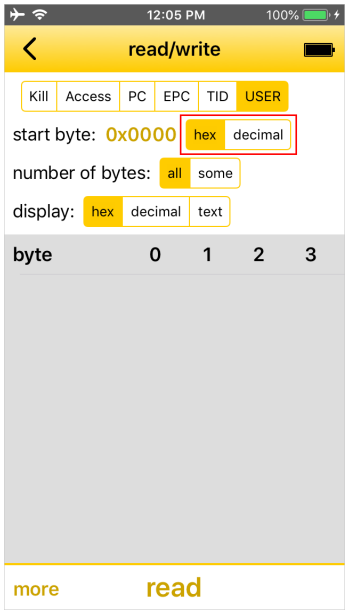

Fig. 18: Selecting the format

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

Fig. 19: Selecting the start byte

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- 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.

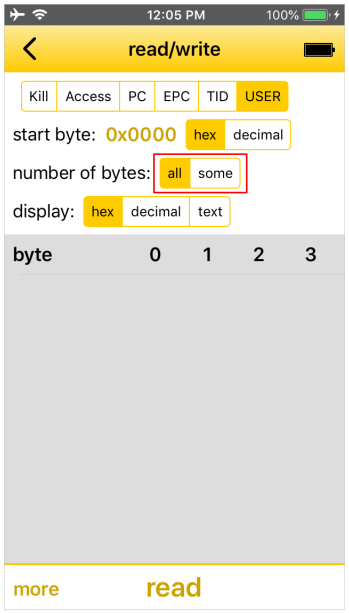

Fig. 20: Selecting the number of bytes

- Select the display format for the write data.

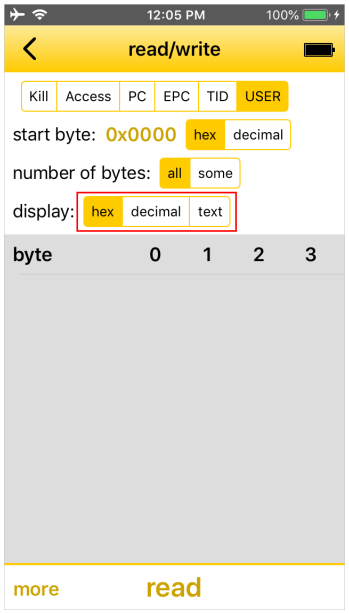

Fig. 21: Selecting the display format

▶ Press **Read**.

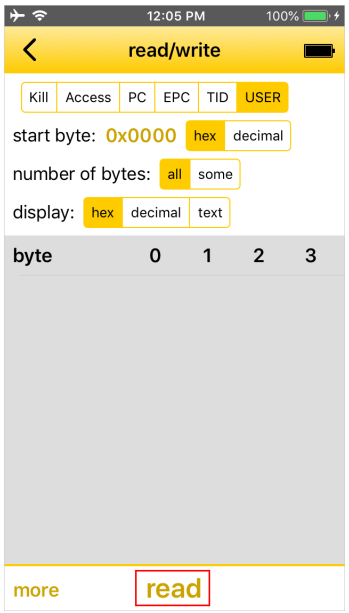

Fig. 22: Button: Read

▶ Adjust the data in the table.

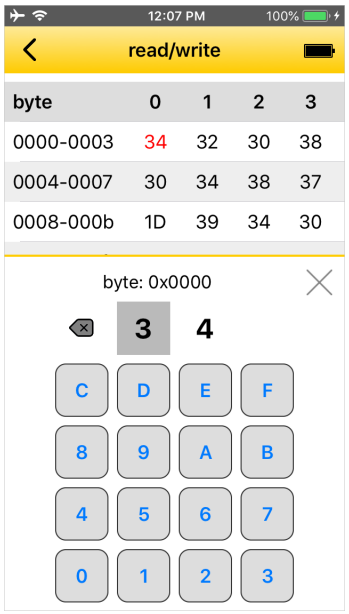

Fig. 23: Write data

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▶ Press **Write**.

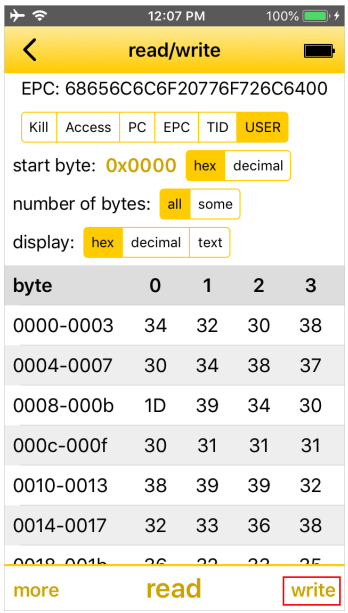

Fig. 24: Write

⇨ 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 or UID is written.

▶ Start the scan on the Scan screen.
▶ Select the tag to be written from the list.
⇨ The **Read/Write** screen opens.

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

7.6 Reading a barcode

- ▶ Starting a read operation: Press the **Barcode** button on the start screen, press any programmable button or trigger on the handle.
- ⇨ The display switches to the **Barcode** screen.

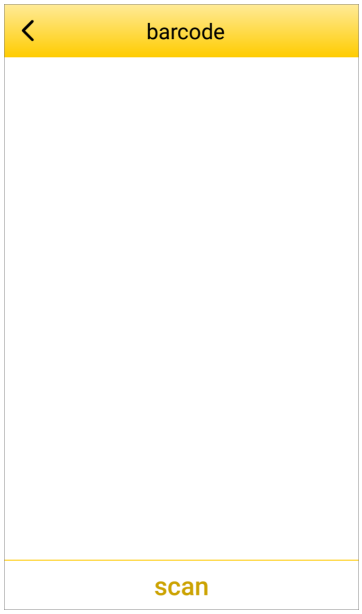

Fig. 25: Barcode screen

- ▶ On the **Barcode** screen press **Scan**.
- ⇨ The handheld confirms each read barcode with an audible signal.
- ⇨ The content of the barcode is displayed and can be processed further.

7.7 Exchanging data with a PC

Data can be exchanged between the handheld and a PC via the USB interface. The handheld is processed by the PC like a USB mass storage device.

- ▶ Connect the handheld via a USB cable to the USB port of a PC.
- ▶ Transfer data via the tag of the PC (e.g. Windows Explorer).

8 Setting

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

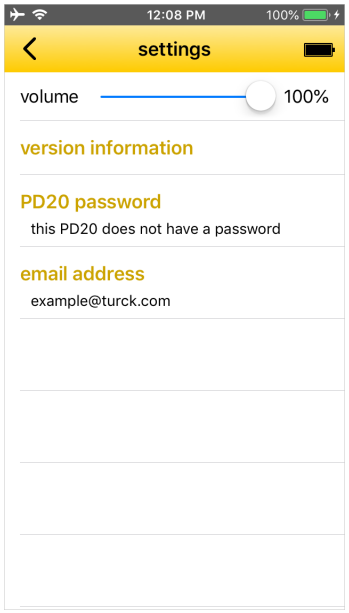

Fig. 26: Turck RFID app: Settings

The **Settings** screen provides access to the following elements:

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

8.1 Operating mode setting

HF operating mode is set by default. The handheld operates at a frequency of 13.56 MHz.

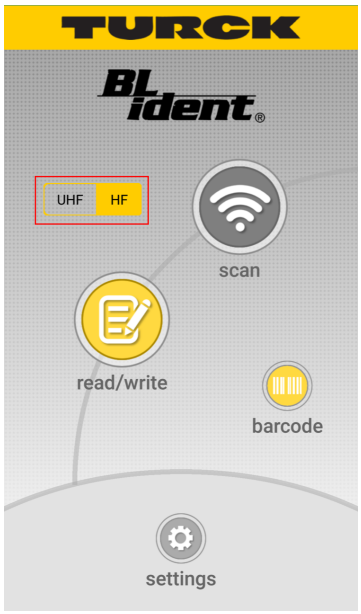

Fig. 27: Operating mode setting

- ▶ Select **HF** or **UHF** on the start screen.

8.2 Assign password

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

- ▶ Open the Settings screen.
- ▶ Select **PD… password**.
- ▶ Enter the password.
- ⇨ The password is stored on the handheld.

8.3 Setting the scan screen

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

- Sending data
- Scanning
- Display
- Security

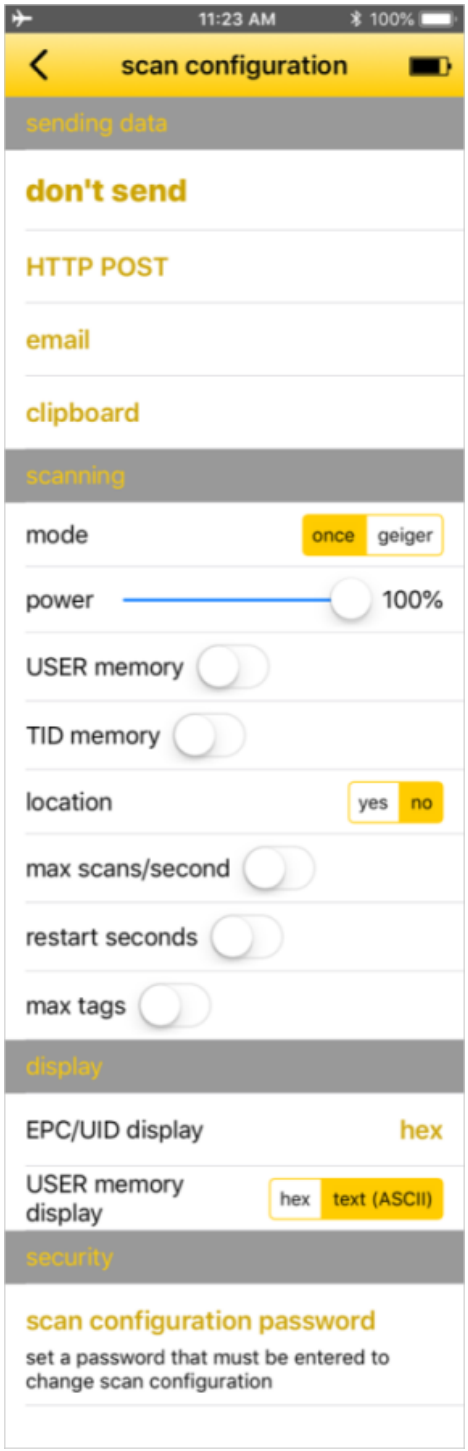

Fig. 28: Configuration menu

8.3.1 Area: Sending data – Parameters

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

Send via HTTP-POST – Settings

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

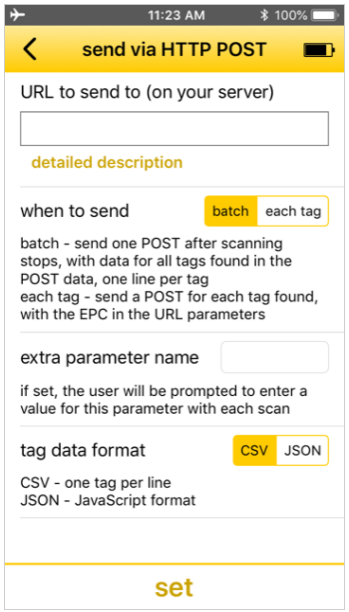

Fig. 29: Send data by HTTP-POST – Settings

- ▶ 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 to send to	–	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.
When to send	**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.
Extra 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”).
Tag data format	**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

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=112234344556677889AABB

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

Read batch – EPC and TID	
URL	http://myserver.com/findBatch?grokkerId=GROKKER_ID&timestamp=TIME-STAMP&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/findBatch?grok-kerId=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 a server to return a user-defined error message.

Sending data by email – Parameters

NOTE
To send data by email, the handheld must be connected to the Internet by Wifi.

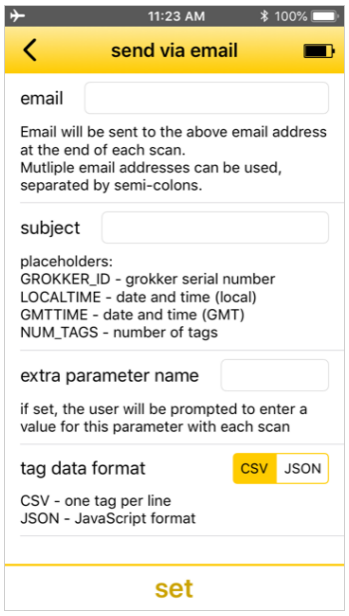

Fig. 30: Sending data by email – Parameters

- ▶ 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.

Parameter	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
Extra 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”).
Tag data format	**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

- ▶ Press Start
- ⇨ The start operation starts.
- ▶ After the Scan operation has ended press Stop.
- ⇨ The data is sent by email.

The data is not sent by email if a tag is selected for reading or writing during the scan operation.

Sending data via Clipboard – Parameters

Fig. 31: Sending data via 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.

Parameter	Selection	Description
Tag data format	**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

8.3.2 Area: Scanning – Parameters

The following parameters can be set in the Scan area to detect data:

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

Parameter	Selection	Description
Mode	**Once**	Each detected tag is indicated with an audible signal. The **Once** mode is suitable, for example, for Inventory commands if several tags are inside the detection range.
	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.

8.3.3 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: Hexadecimal	Format for the display of UID and EPC
USER memory	Hexadecimal	Display of the data from the USER memory in hexadecimal format
	TEXT (ASCII)	Display of the data from the USER memory in ASCII format

8.3.4 Area: Security – Parameters

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

8.4 Integrating the 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.

8.4.1 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
```

8.4.2 Overview of the configuration parameters

NOTE
The parameters must be URL-escaped.

Parameter	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 by HTTP-POST.
	email	Send data by email.
	clipboard	Send data via the Clipboard.
	none	Send no data.
HTTP configuration (if destination=http)		
httpUrl	[URL]	URL on a server to which the read data is to be sent
whenToSend	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	Read data as JSON array
Email configuration (if destination=email)		
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 commas. The following order is used: EPC/UID, TID, USER data, location.
	JSON	Read data as JSON array

Parameter	Value	Description
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 commas. The following order is used: EPC/UID, TID, USER data, location
	JSON	Read data as JSON array
Scan parameters		
volume	0…100	Volume: ■ 0: silent ■ 100: Maximum volume
tagType	uhf	UHF tags
	hf	HF tags
geigerMode	yes	In **Geiger** mode, the handheld outputs a signal each time a tag is detected. If a tag is read multiple times, the handheld outputs a permanently audible, 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	Each detected tag is indicated with an audible signal. The **Once** mode is suitable, for example, for Inventory commands if several tags are inside the detection range.
power	0…100	Transmission output
readUserMemoryMin	[Number of bytes]	Min. number of bytes to be read in the USER memory
readUserMemoryMax	[Number of bytes]	Max. number of bytes to be read in the USER memory
readTidMemoryMin	[Number of bytes]	Min. number of bytes to be read in the TID memory
readTidMemoryMax	[Number of bytes]	Max. number of bytes to be read in the TID memory
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	[Number of requests]	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]	Password for the configuration of the scan command
setPassword	true false	**true** sets the password for the configuration of the scan command.
Other parameters		
doneUrl	[URL]	URL to be called up after the scan operation
titleText	[Titel]	Title for the Scan page
titleImage	[URL]	URL for loading an image for the title page

8.5 Adapting the RFID app

The Turck RFID app can be adapted using JavaScript. The following features of the Turck RFID app can be changed with JavaScript:

- Color scheme
- Position of the buttons on the user interface
- Behavior of the programmable buttons on the housing

8.5.1 RFID app – Source code

```
// always do this first:
'use strict';

// declare a new subclass of turck.App, called DefaultApp.
turck.DefaultApp = class extends turck.App {
  // create a constructor for your class. We will call this constructor at the
  // end of the script to create your instance of the app.
  constructor() {
    super(); // don't forget to call super!
    // the names of these variables are pretty self-explanatory. When assigning
    // colors, you can either use a hexadecimal code (e.g. "#FF0000" is red), or
    // one of the built-in colors like those being used below. A full list of
    // built-in colors is shown in section 8.5.1
    this.themeColor = "@color/turck_yellow";
    this.textColorOnThemeColor = "@color/black";
    this.buttonColor = "@color/turck_yellow_darker";
    this.buttonPressedColor = "@color/black";
    this.textColorOnBackground = "@color/black";
    this.titleViewUseBackgroundBasedOnThemeColor = true;
  }

  // onLaunch gets called when the app first starts up. This function should
  // define the things to be shown on the gadget page ("gadget page" is the
  // in-code name for the app's home screen).
  onLaunch(launchAction, launchPath, launchParameters) {

    // showPage() tells the app to show a page. In this case, we define an
    // instance of the GadgetPage class. Other Page class instances are shown
    // further down in the code.
    app.showPage(new turck.ui.GadgetPage({
      // Show dotted background and curves
      backgroundImage: "@drawable/bg_dots",
      backgroundImageMode: "tile",

      // Some more color variables with self-explanatory names
      underStatusBarColor: "@color/turck_yellow",
      gradientTopColor: "@color/home_gradient_top",
      gradientBottomColor: "@color/home_gradient_bottom",
      curveColor: "@color/home_circles_stroke",
      belowBottomCircleColor: "@color/bottom_circle_fill",

      // Since this is a gadget page, we must provide a list of "gadgets."
      gadgets:[
        // The first gadget is a turck.ui.Image. This is the Turck logo that
        // appears at the top of the app when it first starts up.
        new turck.ui.Image({
          position: [{type: "parent", ratio: 0.5, at: "center"},
                     {type: "parent", offset: 0, at: "top"}],
          image: "@drawable/logo_turck",
          backgroundColor: "@color/turck_yellow",
          padding: [-1, 10, -1, 10]
        }),
        // The next gadget is the BL Ident logo, which shows up at the top,
        // offset just a little bit below the Turck logo defined above.
        new turck.ui.Image({
          position: [{type: "parent", ratio: 0.5, at: "center"},
                     {type: "parent", offset: 65, at: "top"}],
          image: "@drawable/logo_blident"
        }),
        // This gadget is a StatusImage. This doesn't do anything for a PD67,
        // but on a phone connected to a PD20, it will show the status of the
        // connection.
        new turck.ui.StatusImage({
          position: [{type: "parent", ratio: 1.0, offset: -10, at: "right"},
                     {type: "parent", offset: 48, at: "top"}],
          displayVersionInfoOnTouch: true
        }),
        // This gadget is a TextAndImageButton. The variables that define
        // its appearance should be pretty straightforward.
        new turck.ui.TextAndImageButton({
```

```
      position: "curve",
      text: "@string/HomePageScanButton",
      buttonColor: "@color/home_button_text",
      buttonPressedColor: "@color/turck_yellow",
      image: "@drawable/scan_button",
      // when the user taps the button, this function will run. The function
      // defined here will call the function called showScanPage.
      click: function() { app.showScanPage(false); }
    }),
    // Another button like the one above. This one is for the read/write
    // page of the app.
    new turck.ui.TextAndImageButton({
      position: "curve",
      text: "@string/HomePageReadWriteButton",
      buttonColor: "@color/home_button_text",
      buttonPressedColor: "@color/turck_yellow",
      image: "@drawable/read_write_button",
      // When this button is pressed, the below function is called. the
      // function calls another function: showReadWritePage.
      click: function() { app.showReadWritePage(); }
    }),
    // Settings button (long press displays additional setings)
    new turck.ui.TextAndImageButton({
      position: "bottom.center",
      text: "@string/HomePageSettingsButton",
      buttonColor: "@color/home_button_text",
      buttonPressedColor: "@color/turck_yellow",
      image: "@drawable/settings_button",
      // the click function works the same as the other two buttons above.
      // in this case, when the button is clicked, the showSettingsPage
      // function is called.
      click: function() { app.showSettingsPage(false); },
      // if you define a longClick function for a button gadget, it will be
      // called if the user presses and holds the button for a couple
      // seconds. the two buttons above could also have longClick functions,
      // if you wanted them.
      longClick: function() { app.showSettingsPage(true); }
    }),
    // Yet another button gadget. This one is for the barcode scanner page.
    new turck.ui.TextAndImageButton({
      // the visibility parameter allows a gadget to only be shown under
      // a certain condition. In this case, the button is only shown if
      // the PDxx has a barcode reader. Using 'visibility: "hasHf"' will
      // make a gadget appear only if the PDxx has an HF reader. You can
      // also pass a JS boolean into the visibility parameter.
      visibility: "hasBarcode",
      position: [{type: "parent", ratio: 0.8, at: "center"},
                 {type: "parent", ratio: 0.65, at: "center"}],
      text: "@string/HomePageBarcodeButton",
      buttonColor: "@color/home_button_text",
      buttonPressedColor: "@color/turck_yellow",
      image: "@drawable/barcode_button",
      click: function() { app.showBarcodePage(); }
    }),
    // The UhfHfSegmentedControl gadget allows the user to switch the PDxx
    // between UHF and HF modes. You can use that 'visibility' parameter
    // on any gadget except this one- the UhfHfSegmentedControl gadget
    // ignores the 'visibility' parameter, and will automatically hide
    // itself if the PDxx doesn't have HF capabilities.
    new turck.ui.UhfHfSegmentedControl({
      position: [{type: "parent", ratio: 0.25, at: "center"},
                 {type: "parent", ratio: 0.32, at: "center"}]
    })
  ]}));
  // always put this at the end of the onLaunch function!
  app.handleLaunchParameters(launchAction, launchPath, launchParameters);
}

// showSettingsPage was called by some of the 'click' functions on the gadget
// page. There is not much to customize with the settings page. It is set up
```

```
// for you.
showSettingsPage(showAdvancedSettings) {
  app.showPage(new turck.ui.SettingsPage({
    titleText: "@string/HomePageSettingsButton",
    showAdvancedSettings: showAdvancedSettings
  }));
}

// showScanPage shows the scan page.
showScanPage(startScanning, launchAction, launchPath, launchParameters) {
  app.showPage(new turck.ui.ScanPage({
    startScanning: startScanning,
    launchAction: launchAction,
    launchPath: launchPath,
    launchParameters: launchParameters,
    titleText: "@string/HomePageScanButton",

    // these define what each footer button DOES, not the text they display.
    // here, we set the left footer button to pause and resume RFID scans,
    // the center footer button stops and starts RFID scans, and the right
    // footer button opens the scan configuration menu. You can set any
    // of the 3 footer buttons to any of these 3 options.
    footerLeft: "pauseResume",
    footerCenter: "startStop",
    footerRight: "configure",

    // this function is expected to return the scan configuration, which is
    // set up by the scan configuration menu. Don't touch this.
    getScanConfiguration: function() {
      return turck.settings.scanConfiguration;
    },

    // this function is expected to return the destination for scanned data.
    // destination is configured in the scan configuration menu.
    // Don't touch this.
    getDestination: function() {
      return turck.settings.destination;
    },

    // the tagFound() function gets called when a tag is found during a scan.
    // if the function returns true, the tag will be added to the list of
    // found tags on the screen. If the function returns false, the tag
    // will not be added to that list.
    tagFound: function(tag) {
      // calling this will cause the tag data to be sent to the destination
      // defined in the scan configuration menu.
      this.sendTag(tag);
      return true;
    },

    // afterScan gets called when a scan has finished.
    afterScan: function(tags, displayResultToUser, completion) {
      // sendTags sends all the tags as a group.
      this.sendTags(tags, displayResultToUser, completion);
    },

    // tagTouched gets called when the user taps a tag in the scan page.
    tagTouched: function(tag) {
      if (!turck.settings.destination) {
        // shows the read-write page, loading it with this tag's epc. Then,
        // finishes this page.
        app.showReadWritePage(tag.epc);
        this.finish();
      }
    },

    // this function is called when the PD67's left programmable button is
    // pressed. Change this function to change the left programmable button's
    // behavior. Any page (this scan page, the read/write page, the gadget
    // page from before, etc) can have a function like this.
```

```
    onPD67LeftButtonPress() {
      this.toggleScan(); // toggle scanning
    },

    // this function is called when the PD67's right programmable button is
    // pressed. Change this function to change the right programmable button's
    // behavior. Any page (this scan page, the read/write page, the gadget
    // page from before, etc) can have a function like this.
    onPD67RightButtonPress() {
      if (this.isPaused) {
        // if the scan is paused, show a "resuming scan" message, and resume
        // the scan.
        app.showTimedToast(
          app.getLocalizedAppString("@string/ScanPageFooterResume"), "", 0.8);
        this.resumeScan();
      } else if (this.isScanning) {
        // otherwise, if we are currently scanning, show a "pausing scan"
        // message, and pause the scan.
        app.showTimedToast(
          app.getLocalizedAppString("@string/ScanPageFooterPause"), "", 0.8);
        this.pauseScan();
      }
    },

    // if the app is running on a PD67, and that PD67 has the trigger
    // accessory, this function will get called when the trigger is pulled.
    // Any page (this scan page, the read/write page, the gadget page from
    // before, etc) can have a function like this.
    onPD67TriggerButtonPress() {
      this.toggleScan();
    }
  }));
}

// the showReadWritePage function shows the read write page. If an epc is
// passed into the function, it will load that tag automatically.
showReadWritePage(epc) {
  app.showPage(new turck.ui.ReadWritePage({
    epc: epc,
    titleText: "@string/HomePageReadWriteButton",

    // runs when a tag is found. if this is a tag we want to read/write,
    // return true. if we want to ignore this tag, return false.
    tagFound: function(tag) {
      return true;
    },

    // onPD67RightButtonPress works the same way it did above.
    onPD67RightButtonPress: function() {
      if (!this.isScanning) {
        this.writeTag();
      }
    },

    // onPD67LeftButtonPress works the same way it did above.
    onPD67LeftButtonPress: function() {
      if (!this.isScanning) {
        this.readTag();
      }
    },

    // onPD67TriggerButtonPress works the same way it did above.
    onPD67TriggerButtonPress: function() {
      if (!this.isScanning) {
        this.readTag();
      }
    }

  }));
}
```

```
  // showBarcodePage shows the barcode page.
  showBarcodePage() {
    app.showPage(new turck.ui.BarcodePage({
      titleText: "@string/HomePageBarcodeButton",

      // these define what each footer button DOES, not the text they display.
      // setting one to "scan" makes that footer button start or stop a barcode
      // scan. setting it to "copy" makes that button copy the scanned barcode
      // to the Android clipboard.
      footerCenter: "scan",
      footerRight: "copy",

      // this function gets called when a barcode is found.
      barcodeScanned: function(barcode) {
        // displayBarcode() makes the barcode value appear on the screen.
        this.displayBarcode(barcode);
      },

      // onPD67RightButtonPress works the same way it did above.
      onPD67TriggerButtonPress: function() {
        if (!this.isScanning) {
          this.startBarcodeScan();
        } else {
          this.cancelBarcodeScan();
        }
      },

      // onPD67LeftButtonPress works the same way it did above.
      onPD67LeftButtonPress: function() {
        if (!this.isScanning) {
          this.startBarcodeScan();
        } else {
          this.cancelBarcodeScan();
        }
      },

      // onPD67RightButtonPress works the same way it did above.
      onPD67RightButtonPress: function() {
        if (!this.isScanning) {
          this.startBarcodeScan();
        } else {
          this.cancelBarcodeScan();
        }
      }
    }));
  }

}

// Create the app object. very important!
var app = new turck.DefaultApp();
```

9 Troubleshooting

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 device for faults.

If there are no faults, there is a device malfunction. In this case, decommission the device and replace it with a new device of the same type.

10 Maintenance

10.1 Battery replacement

- ▶ Undo the DZUS® quarter turn fasteners on the battery compartment with a slot-head screwdriver.
- ▶ Open the battery compartment.
- ▶ Replace the battery with PD67-BATTERY (Ident No. 100008123).

10.2 Carrying out a Firmware Update

The Turck RFID app automatically indicates an outdated firmware version when the device is connected to the Internet.

- ▶ Confirm the message.
- ⇨ The update starts 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

Returns to Turck can only be accepted if the device has been equipped with a Decontamination declaration enclosed. The decontamination declaration can be downloaded from
https://www.turck.de/en/retoure-service-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	-20…+55 °C -20…+45 °C (while charging)
Storage temperature	-20…+40 °C -30…+70 °C (battery removed)
Charging temperature	-20…+45 °C
Relative humidity	90 %, non-condensing at 40 °C
Electrical data	
Technology	HF (13.56 MHz) UHF (860…960 MHz)
Wireless communication and protocol standards	ISO 15693 (NFC Type 5) ISO 18000-6C
Output power	5… 30 dBm, adjustable
Antenna polarization	Simulates circular
Device properties	NXP i.MX6 Solo ARM Cortex-A9, 800 MHz
Memory	4 GB Flash ROM, 1 GB DDR RAM
Memory expansion	1× SD card slot
Display	5.5", 800 × 480 pixels, touch screen
Battery capacity	2400 mAh
Communication	Bluetooth Low Energy V4.0, WLAN 802.11 b/g/n
Supplied software	Turck RFID app, SDK free of charge
Operating system	User-defined Android ROM
Barcode (only for PD67…RSWBG)	2D Imager (reads 1D and 2D barcodes)
Docking station connection type	USB 3.1 Type C
Mechanical data	
Dimensions	214 × 105.7 × 50.5 mm
Weight	PD67…RWBG: 625 g PD67…RSWBG: 650 g
Housing material	Plastic, polycarbonate/ABS, black
Type of protection	IP67

14 Appendix: Conformity Declarations and Approvals

14.1 EU declaration of conformity

Hans Turck GmbH & Co. KG hereby declares that the PD67-UNI-EU-… wireless system complies with directive 2014/53/EU. The complete text of the EU declaration of conformity can be obtained from the following Internet address: **www.turck.com**

14.2 FCC/IC Digital Device Limitations (PD67-UNI-NA…)

FCC Class A Notice:

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.

2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada Statement:

Per RSS-Gen, Section 8.4 This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Par RSS - Gen, Section 8.4 Cet appareil est conforme à Industrie Canada exempts de licence standards RSS. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This digital apparatus complies with Canadian ICES-001 (A).

Cet appareil numérique est conforme à la norme NMB-001 (A) du Canada.

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