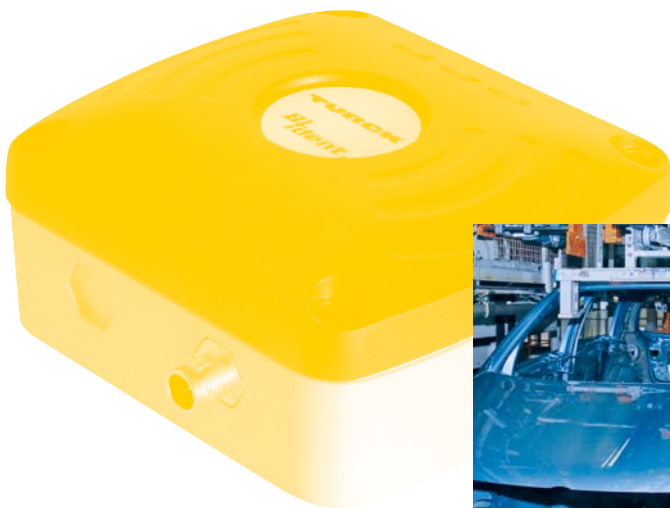


TURCK

**Industrial
Automation**

USER MANUAL

**BL IDENT® SOFTWARE
RDEMO FOR
UHF READ/WRITE
HEADS**



Sense it! Connect it! Bus it! Solve it!

BL ident® Software RDemo for UHF read/write heads

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BL ident® Software RDemo for UHF read/write heads

1 About this manual

These instructions describe the setup, the functions and use of the product and help you to operate the device for its intended use. Read these instructions carefully prior to using the product, and keep them safe during the service life of the device. If the product is passed on, pass on these instructions as well.

1.1 Target groups

The manual must be read and followed by anyone entrusted with any of the following tasks:

- Commissioning
- Setting
- Testing and maintenance
- Troubleshooting

1.2 Explanation of symbols

The following symbols are used in these instructions:



NOTE

NOTE indicates tips, recommendations and important information. The notes contain information, particular operating steps that facilitate work and possibly help to avoid additional work resulting from incorrect procedures.



MANDATORY ACTION

This symbol denotes actions that the user must carry out.



RESULT OF ACTION

This symbol denotes the relevant results of actions and procedures.

1.3 Associated documents

Besides this document the following material can be found in the TURCK product database:

- BL ident® Software WebConfig (D500010)
- "RFID System User Manual – Installation of the BL ident® UHF System" (D101830)

1.4 Naming convention

The RDemo software uses the terms "tag" and "transponder" for "data carrier" and the term "reader" for "read/write head".

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 the techdoc@turck.com.

BL ident® Software RDemo for UHF read/write heads

2 Notes on the product

This manual describes version 1.80.0014 of the RDemo software. The manual is designed for qualified personnel.

2.1 Manufacturer and service

TURCK supports you in your projects – from the initial analysis right through to the commissioning of your application. The TURCK product database offers you several software tools for programming, configuring or commissioning, as well as data sheets and CAD files in many export formats. You can access the Product Database directly via the following address: www.turck.de/produkte

For further inquiries in Germany contact the Sales and Service Team on:

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

For overseas inquiries contact your national TURCK representative.

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

3 For your safety

The product is designed according to the latest state-of-the-art technology. Residual hazards, however, still exist. Observe the following safety instructions in order to avoid hazards. TURCK accepts no liability for damage caused by failure to observe these safety instructions.

3.1 Intended use

The RDemo software is used for testing TURCK read/write heads for the UHF range. UHF tags can be written and read with RDemo.

RDemo is compatible with the following TURCK read/write heads

- TN...-Q240L280-H1147
- TN...-Q175L200-H1147
- TN...-Q120L130-H1147

4 Software description

The TURCK read/write heads for the UHF range communicate via the “deBus” protocol.

A detailed description of all commands is provided in the respective protocol and can be requested from TURCK (see chapter “Manufacturer and service”).

The individual read/write heads are provided with different features. When a connection is made to a connected read/write head, RDemo automatically detects the relevant device and deactivates menu items that are not supported. These are then highlighted in light gray and can no longer be selected. A new device identification is carried out each time the device version is requested.

4.1 Setup and functions

- Display of read tag data
- Display of a log of the communication between host or PC and read/write head
- Logging of the interface communication between host or PC and read/write head
- Sending of user-specific deBus commands
- Visual display of read tags
- Writing of tags with a consecutive number
- Sending of tag specific commands

4.2 Start menu

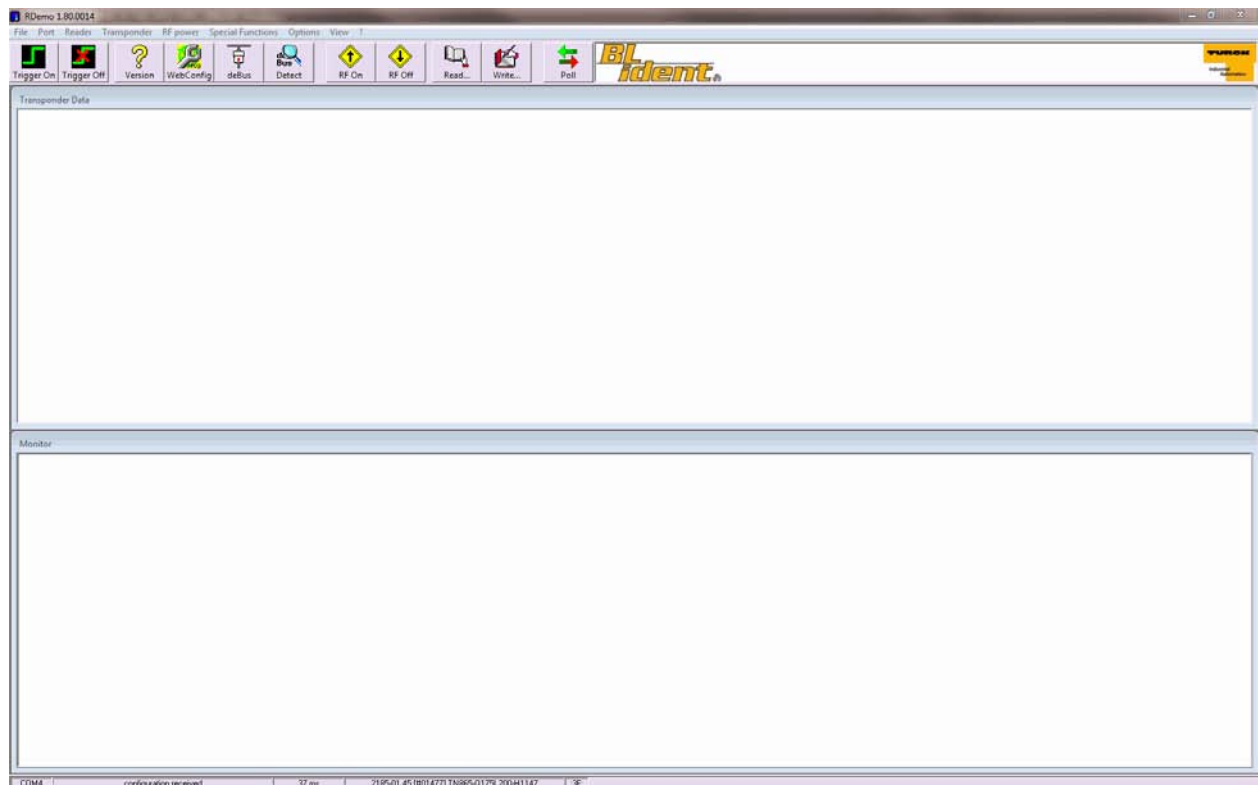


Fig. 1: Start menu

The Start menu provides access to the following elements:

- Main menu (see chap. 4.3)
- Menu bar: Used for sending short commands to the read/write head. Additional buttons can be shown or hidden via "View" > "Buttons" in the main menu (see chap. 4.4).
- "Transponder data" window: Shows read tag data (e.g. tag ID or block data).
- "Monitor" window: Display of the interface communication between host or PC and read/write head. Commands from the host or PC to the read/write head are shown in green, responses from the read/write head to the host or PC are shown in red.
- "deBus address" status display: Displays the deBus address that RDemo uses as a destination address for communicating with the read/write head.
- "Version number" status display: Displays the version number of the connected read/write head
- "xx ms" status display: Displays the time between the sent command of the host or PC and the response of the read/write head in ms (approximate).
- "Communication" status display: Displays the response of the read/write head.
- "COMX" status display: Displays the COM port or the interface that RDemo is currently using.

4.3 Main menu

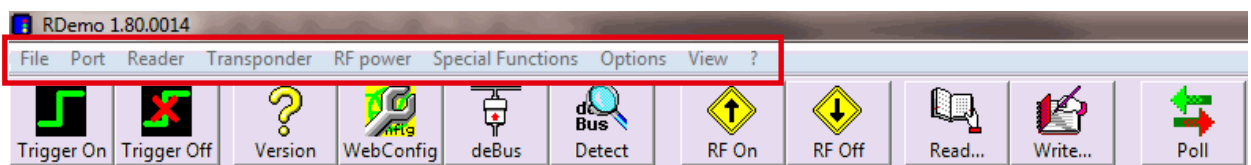


Fig. 2: Main menu

The main menu provides access to the different functions of RDemo. The available RDemo functions are activated or deactivated depending on the type of device connected. Function groups and functions that are not available are highlighted in gray.

BL ident® Software RDemo for UHF read/write heads

The main menu contains the following submenus:

- File
- Port
- Reader
- Transponder
- RF Power
- Special Functions
- Options
- View
- ?

4.3.1 "File" submenu

The "File" menu is used to log the communication between the host or PC and the read/write head and save it in a logfile (*.txt).

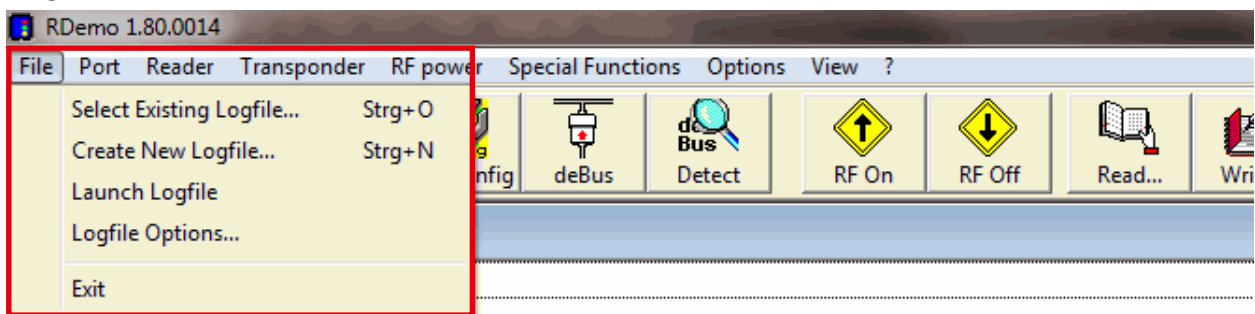


Fig. 3: "File" menu

Select Existing Logfile... (Ctrl+O)

You can select an existing logfile via "Select Existing Logfile..." or the shortcut Ctrl+O.

Create New Logfile... (Ctrl+N)

You can create a new logfile via "Create New Logfile..." or the shortcut Ctrl+N.

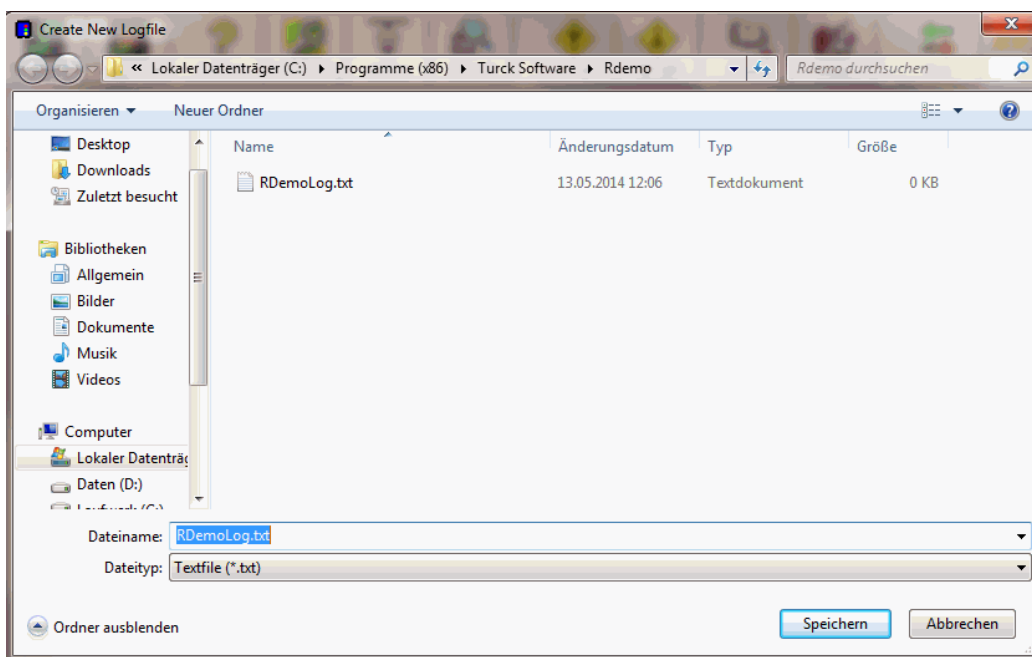


Fig. 4: "Create New Logfile" window

Click the "Save" button in the "Create New Logfile" window to open the command window for activating the log function.

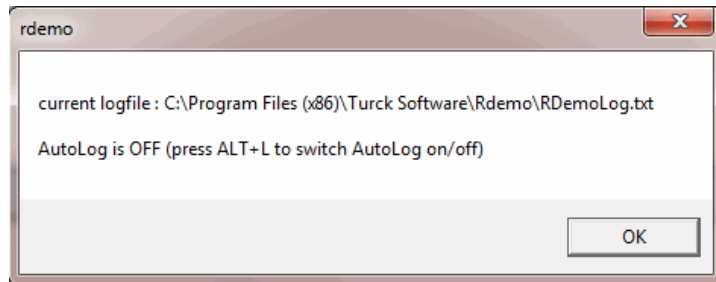


Fig. 5: Command window for activating the log function

The log process can be switched on and off via the shortcut “Alt+L”. If the Log function is activated, the actual status of the logfile is displayed in the header line of the “Transponder Data” window.

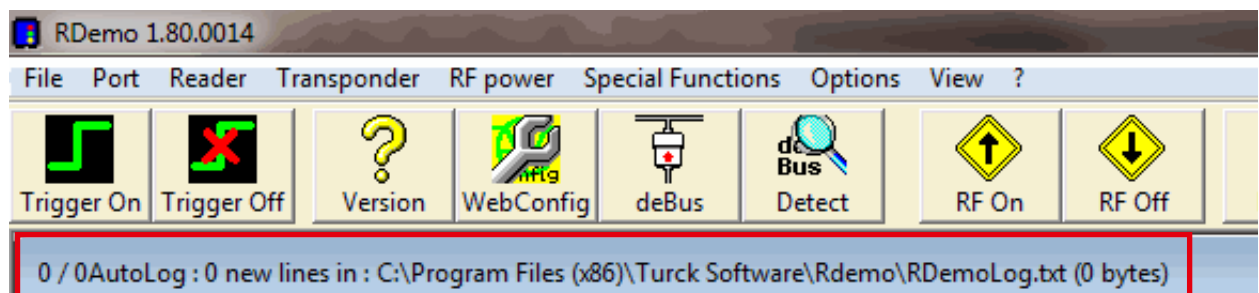


Fig. 6: Display of actual logfile status

Launch Logfile

Click "Launch Logfile" to access the view of the last logfile created.

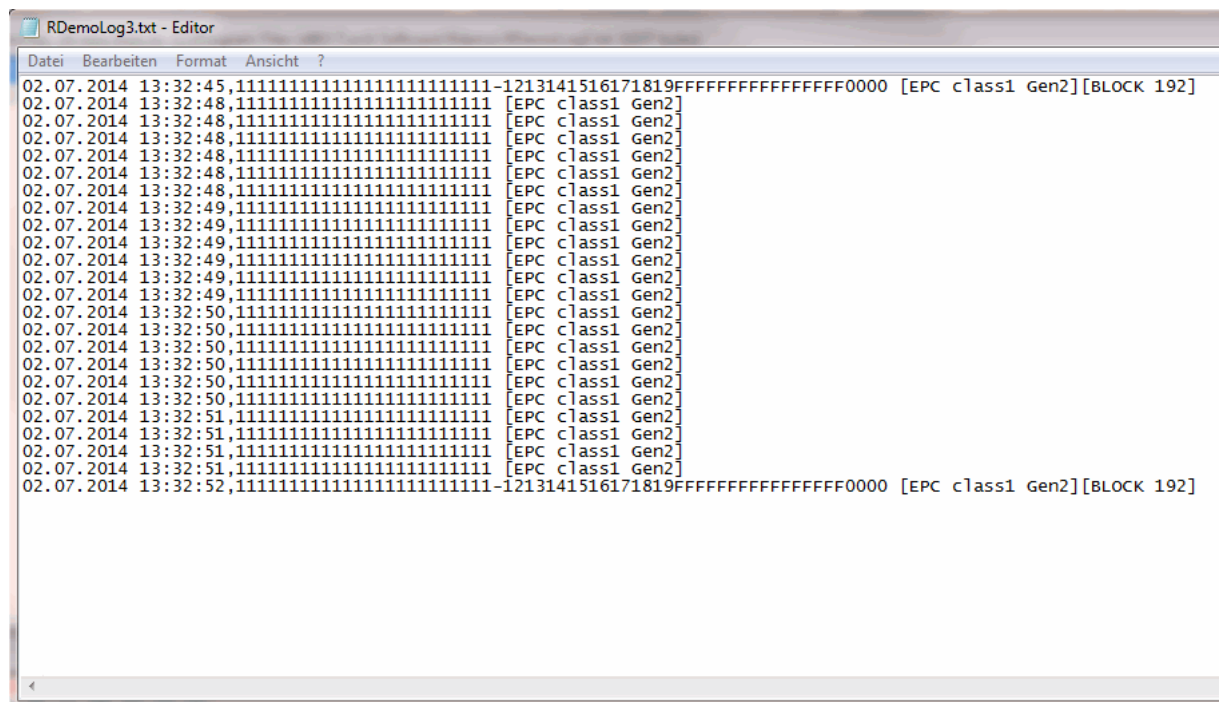


Fig. 7: Example view of a logfile

BL ident® Software RDEMO for UHF read/write heads

Logfile Options...

Click "Logfile Options..." to set which data is to be saved in the logfile. The "Logfile Options" window is divided into four areas.

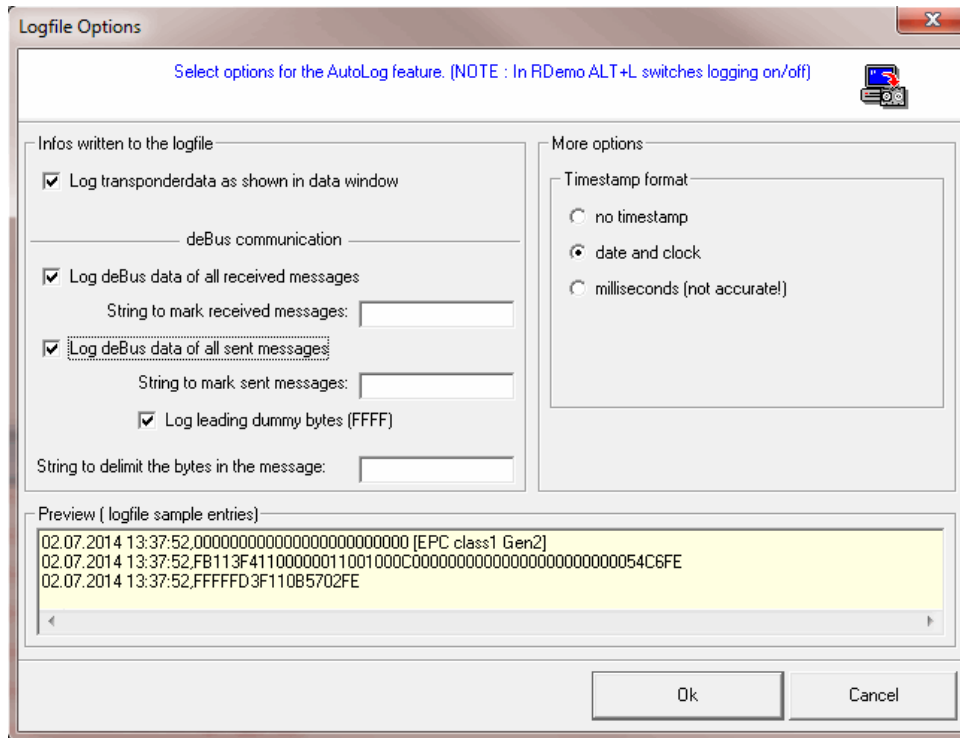


Fig. 8: "Logfile Options" window

- **Infos written to the logfile:** If the "Log transponder data as shown in data window" checkbox is activated, the data is stored in the logfile in the same way as it is displayed in the "Transponder Data" window.
- **deBus Communication:** Displays the log parameters of the deBus communication. The following checkboxes can be activated:
 - "Log deBus data of all received messages": All deBus data received by the host or PC is stored. The "String to mark received messages" entry field is used to write an additional user-specific data string in front of the received deBus message in the logfile.
 - "Log deBus data of all sent messages": All data sent by the host/PC to the read/write head is stored. The "String to mark sent messages" entry field is used to write an additional user-specific data string in front of the sent deBus message in the logfile.
 - Log leading dummy bytes (FFFF): Logs the dummy bytes FFFF. The "String to delimit the bytes in the message" entry field is used to write an additional user-specific data string.
- **More options:** The "Timestamp format" area is used to provide each message with a time stamp. The time and date can therefore also be logged. Alternatively, the time can be saved in milliseconds.
- **Preview:** Shows a preview of the data strings to be logged.

Exit

Closes the program.

4.3.2 "Port" menu

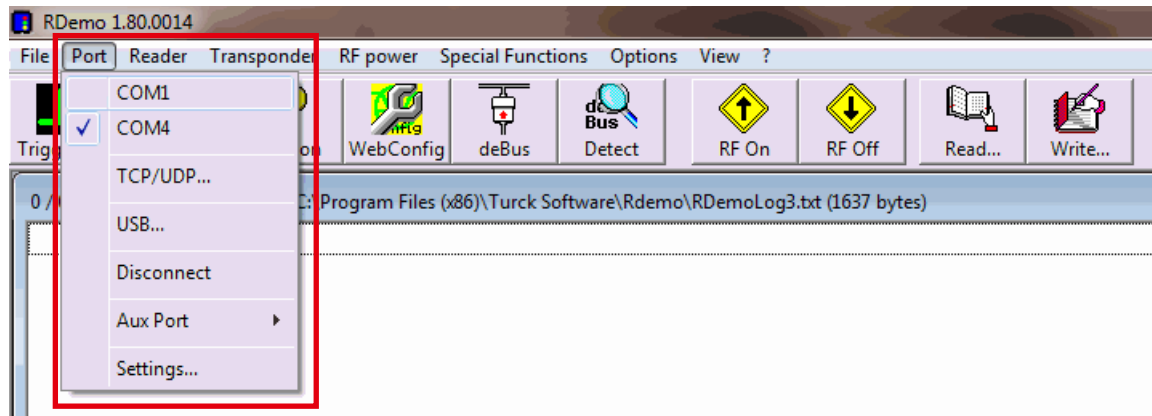


Fig. 9: "Port" menu

COM

Selects the COM port via which RDemo communicates with the read/write head.

TCP/UDP...

Establishes communication with a read/write head via TCP/UDP

- "remote host" entry field: Enter here the IP address of the read/write head
- "remote port" entry field: Enter here the port number

Confirming by clicking the "Connect" button establishes a connection to the read/write head.

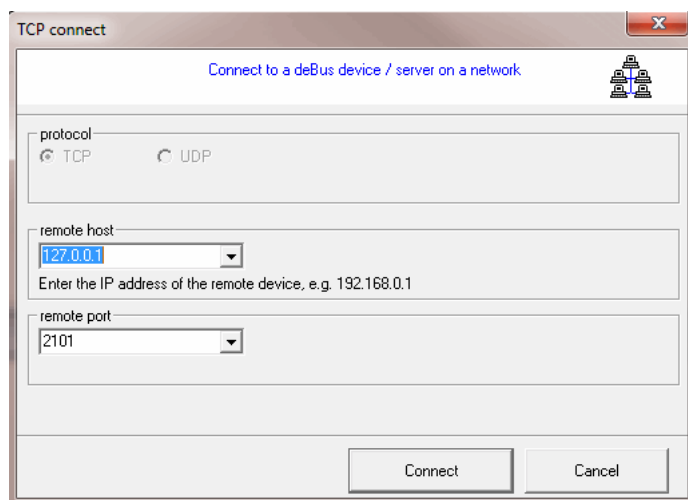


Fig. 10: "TCP Connect" window

USB...

Enables the activation of a read/write head via the USB interface.

Connect or Disconnect

Establishes or closes the existing connection.

Aux port

Enables the selection of a COM port for the Service interface.

BL ident® Software RDemo for UHF read/write heads

Settings...:

For changing deBus settings used by RDemo

- Baud rate: Transfer rate used by RDemo
- bus addresses: deBus address used by RDemo to communicate with the connected read/write head

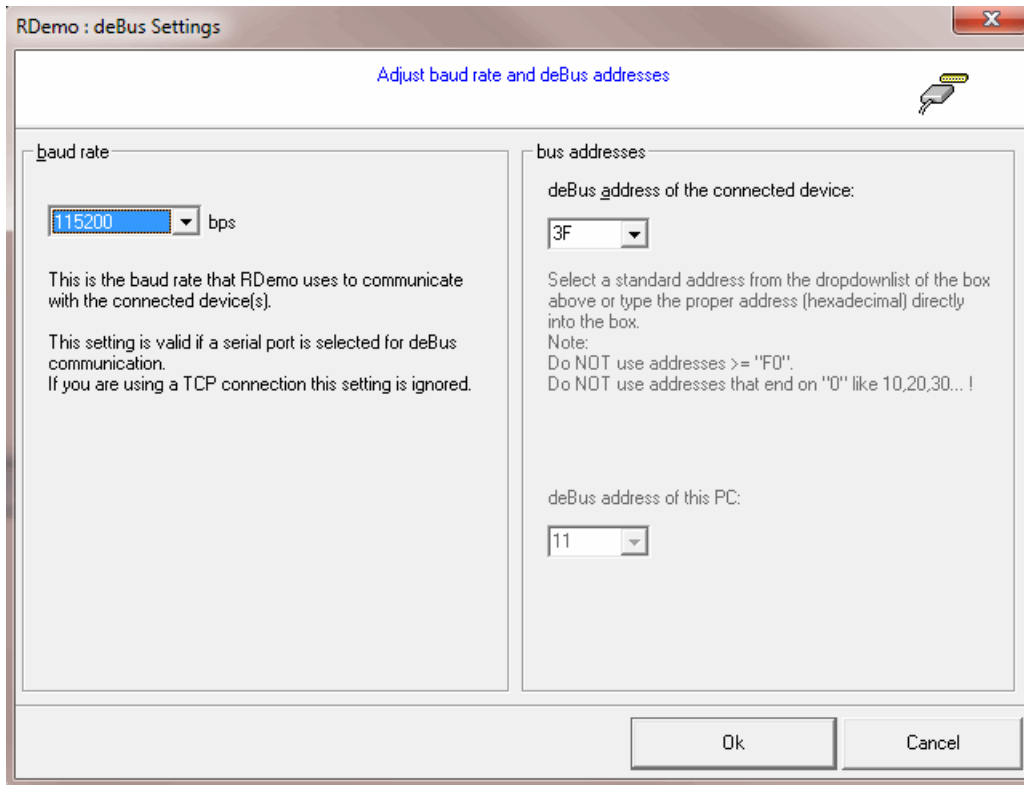


Fig. 11: "deBus Settings" window



NOTE

It is only possible to connect successfully to the read/write head if the parameters of the host or PC and the read/write head that are set under "Settings" are the same.

4.3.3 “Reader” menu

The “Reader” menu is used to send deBus commands to the read/write head. Selecting a command causes a single action of the read/write head.

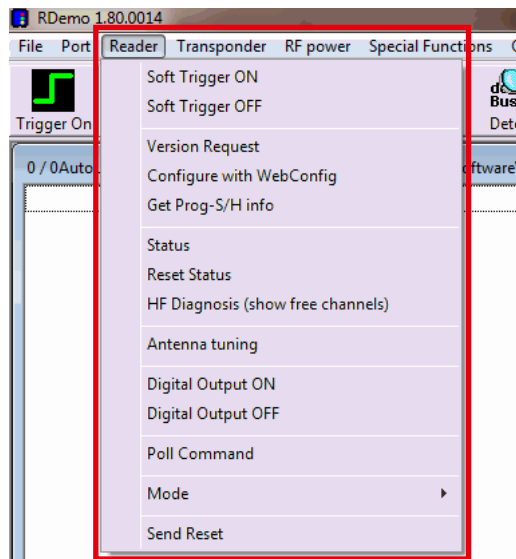


Fig. 12: “Reader” menu

Soft Trigger ON

If the read/write head is in Trigger mode, the “Soft Trigger ON” command can be used to activate the transfer field by software trigger.

Soft Trigger OFF

If the read/write head is in Trigger mode, the “Soft Trigger OFF” command can be used to deactivate the transfer field by software trigger.

Version Request

The “Version Request” command queries the version number of the read/write head and activates the device specific functions of RDemo. The following device-specific information is displayed:

- Device number
- Firmware version
- Hardware version
- Serial number
- Device designation and frequency range

Configure with WebConfig

The RDemo test software is automatically closed and the WebConfig software is started. Refer to the user manual “WebConfig configuration tool for UHF read/write heads” (D500010) for information on how to set read/write head parameters with WebConfig.

BL ident® Software RDemo for UHF read/write heads

Status (Shift+D)

Use the “Status” command or the shortcut Shift+D to query the status of the read/write head. The parameters transferred (e.g. internal temperature of the device or errors) are displayed in the “reader status” window. The actual status is queried by pressing the “D” key.

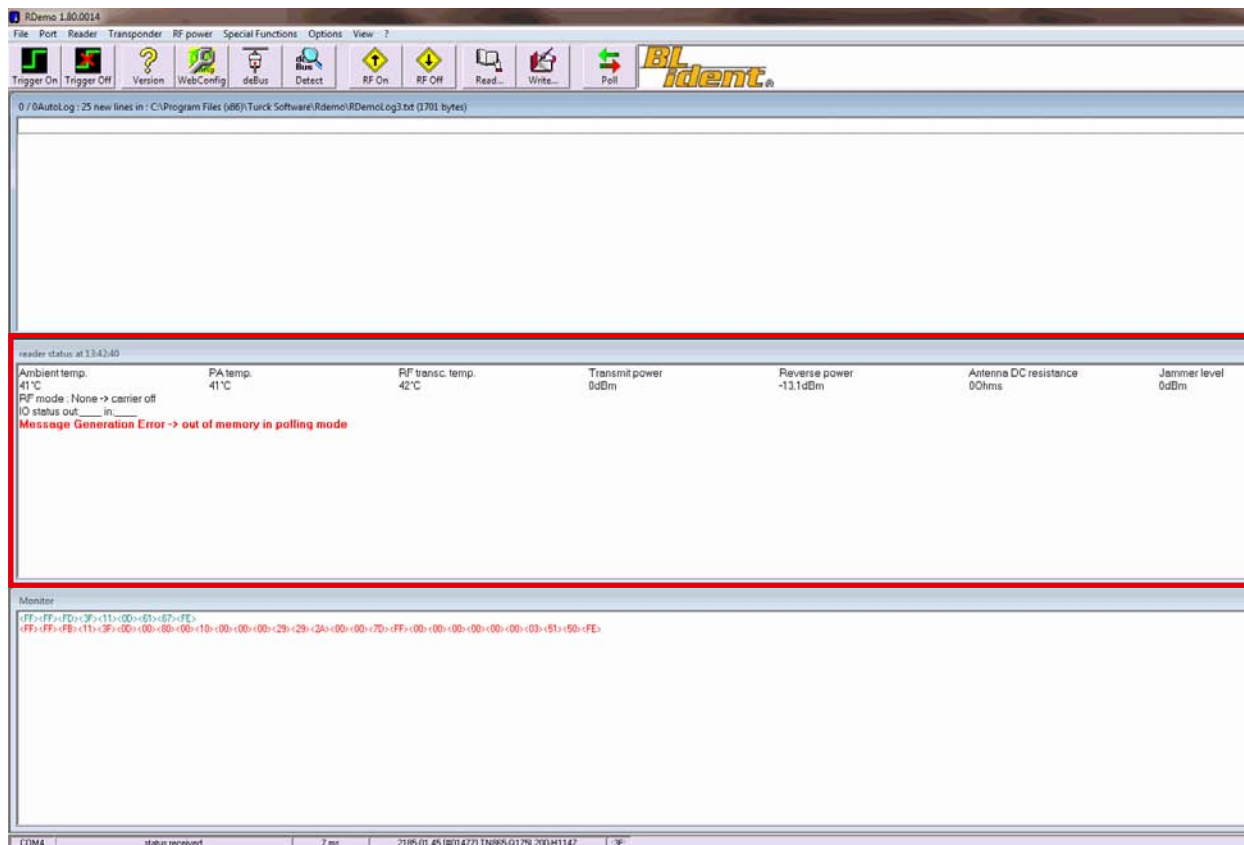


Fig. 13: “reader status” window

Reset Status

Use the “Reset Status” command to reset the status window.

HF Diagnosis (show free channels)

The “HF Diagnosis” function displays the actual power level.

Antenna tuning

Use the “Antenna Tuning” command to adapt the read/write head to the ambient conditions.

Digital Output ON

Use the “Digital Output ON” command to switch on the digital output of the read/write head.

Digital Output OFF

Use the “Digital Output OFF” command to switch off the digital output of the read/write head.

Poll command

If the read/write head is run in Polling mode (see “Mode”), the read data is transferred from the internal memory of the read/write head to the host or PC. Only one unit of tag information is transferred with each command.

Mode

“Mode” is used to select the operating mode of the read/write head:

- Switch to polling mode: Activates Polling mode. In Polling mode the data read is stored in the read/write head and only output after a polling command has been received.
- Switch to report mode: Activates Report mode. In Report mode the read data is output immediately.

Send reset

The “Send Reset” command causes the read/write head to be restarted.

4.3.4 “Transponder” menu – read and write data

The “Transponder” menu enables tag commands to be sent from the read/write head. This function is used to read and write tags.

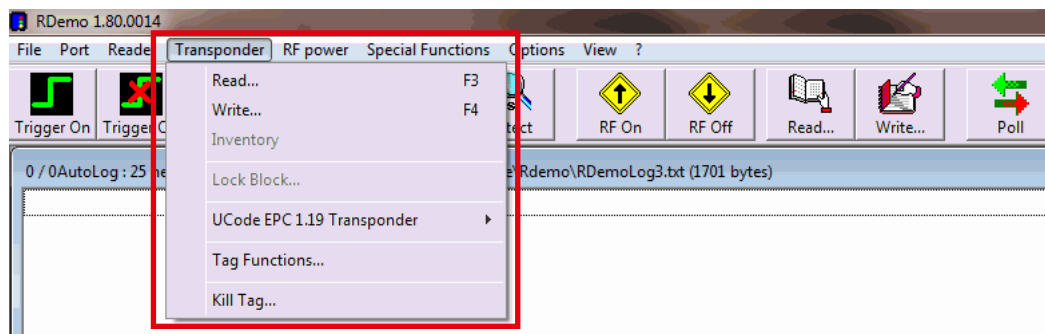


Fig. 14: “Transponder” menu

Read... (F3)

Opens the “READ Command” window. The “Read...” command is used to read out specific memory blocks of a tag (see Fig. 15).

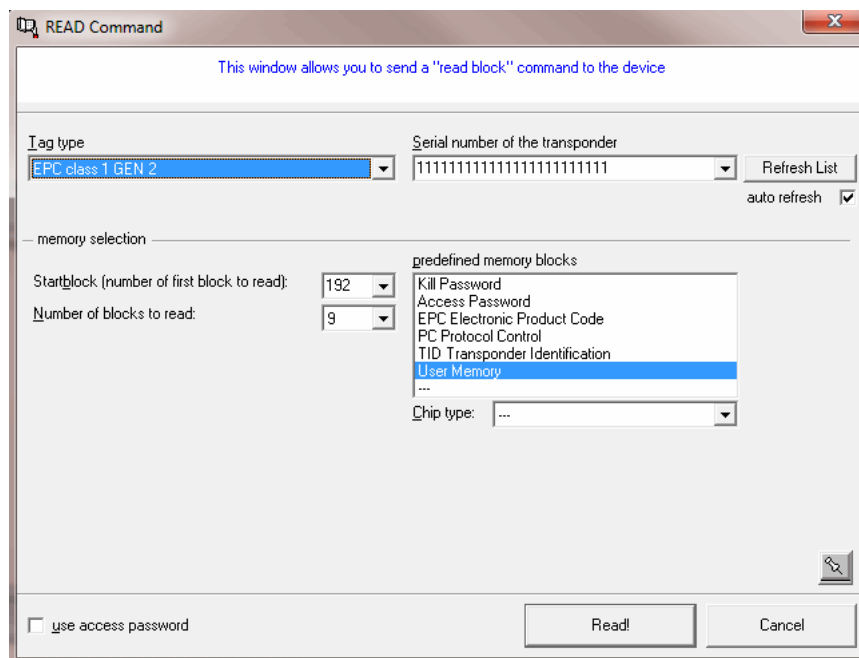


Fig. 15: “READ Command” window

The “READ Command” contains the following elements:

- “Tag Type” drop-down menu: The tag type to be read must be set here and must match the tag type configured in the read/write head. The tag can be selected from the “Chip type” drop-down menu.
- “Serial number of the transponder” drop-down menu: The serial number of the tag (UII/EPC) should be entered in order to execute a read command. The serial number of the tag can be entered manually or selected from the drop-down list if the tag has already been read. If the field is empty, the next tag in the field is read.

BL ident® Software RDemo for UHF read/write heads

- “Refresh List” button: If the “Refresh List” button is clicked, the “Serial number of the transponder” drop-down menu will show the serial number of the last tag read.
- “Startblock (number of first block to read)” drop-down menu: Displays the block from where the tag is to be read. The parameter is automatically adapted to the predefined memory blocks in the “predefined memory blocks” list.
- “Number of blocks to read” drop-down menu: Shows the number of data blocks to be read. The parameter is automatically adapted to the predefined memory blocks in the “predefined memory blocks” list.
- “predefined memory blocks” list: Pre-selection of memory blocks available for reading. The possible memory blocks selection depends on the type of tag chip selected at “Chip Type”. If the list entry “---” is selected, the user can carry out his own settings such as “Startblock” and “Number of Blocks to read”.



NOTE

The following applies to type EPC Class1 Gen2: When the TID memory bank is read, it is possible to determine the type of chip present, provided that this chip type is known to RDemo.

- “Chip type” drop-down menu: Selection of the chip type for EPC Class1 Gen2 tags. The chip types differ in functionality and memory size according to the particular manufacturer. It is possible to select “---” if the chip type is unknown.
- “Pin” icon: When activated, the window stays open after the read command is sent.
- “Read!” button: Starts the read operation. Read commands are sent to the tag at short intervals.
- “Cancel” button: Aborts the “Read” function. The window is closed.

Write (F4)

Opens the “WRITE Command” window. The “Write...” command is used to write specific memory blocks of a tag.

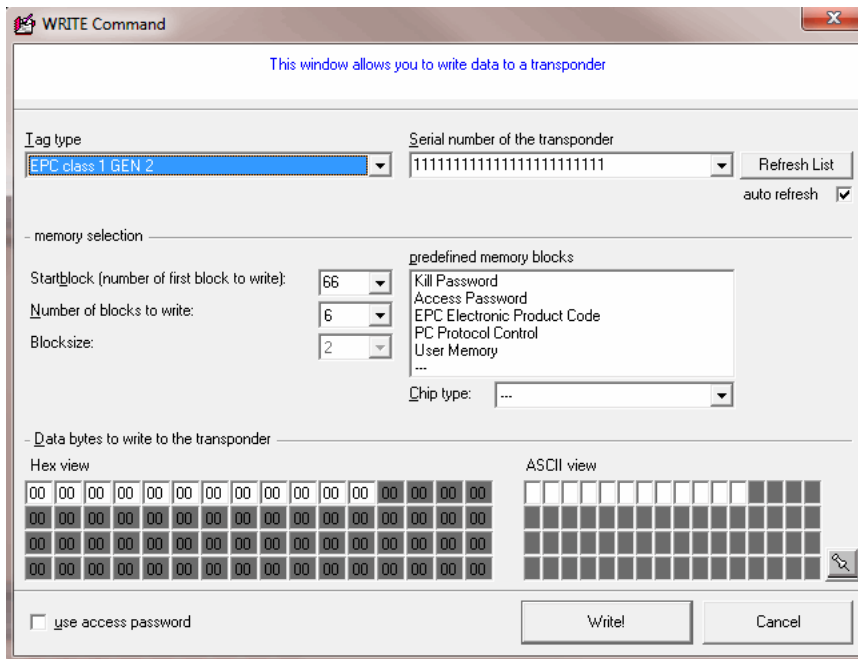


Fig. 16: “WRITE Command” window

The “WRITE Command” window contains the following elements:

- “Tag Type” drop-down menu: The tag type to be written must be set here and must match the tag type configured in the read/write head. The tag can be selected from the “Chip type” drop-down menu.
- “Serial number of the transponder” drop-down menu: The serial number of the tag (UHF/EPC) should be entered in order to execute a write command. The serial number of the tag can be entered manually or selected from the drop-down list if the tag has already been detected. If the field is empty, the next tag in the field is read.
- “Refresh List” button: If the “Refresh List” button is clicked, the “Serial number of the transponder” drop-down menu will show the serial number of the last tag read.
- “Startblock (number of first block to write)” drop-down menu: Displays the start block from where the tag is

to be written. The parameter is automatically adapted to the predefined memory blocks in the “predefined memory blocks” list.

- “Number of blocks to read” drop-down menu: Shows the number of data blocks to be written. The parameter is automatically adapted to the predefined memory blocks in the “predefined memory blocks” list.
- “predefined memory blocks” list: Pre-selection of memory blocks available for writing. The possible memory blocks selection depends on the type of tag chip selected at “Chip Type”. If the list entry “---” is selected, the user can carry out his own settings such as “Startblock” and “Number of Blocks to read”.
- “Chip type” drop-down menu: Selection of the chip type for EPC Class1 Gen2 tags. The chip types differ in functionality and memory size according to the particular manufacturer. It is possible to select “---” if the chip type is unknown.
- “Data bytes to write to the transponder” entry field (Hex view): Possibility to enter the data to be written to the tag (hexadecimal format).
- “Data bytes to write to the transponder” entry field (ASCII view): Possibility to enter the data to be written to the tag (ASCII format).
- “Pin” icon: When activated, the window stays open after the write command is sent.
- “use access password” checkbox: If the “use access password” checkbox is activated, it is possible to add an “Access” password in order, for example, to write blocks that are write-protected.
- “Write!” button: Starts the write operation. Different write commands can be sent to the tag. The tag can only be brought into the transmission field after the write command has been sent.
- “Cancel” button: Aborts the “Write” function. The window is closed.



NOTE

The following applies to type EPC Class1 Gen2: The “Transponder Personalization Function” can be used to write a large number of tags (e.g. with a consecutive number). For this read chap. 7.3.

Inventory

The “Inventory” command is used to read out the serial number of all tags that are located in the detection range of the read/write head.



NOTE

A “Lock” command can be executed for EPC Class1 Gen2 tags via “Tag Functions” (see chap. 7.4).

Tag functions

The read/write heads can send tag-specific commands. A detailed description of these functions is provided in chapter 7.4.



NOTE

The “Tag Functions” command is only available for EPC Class1 Gen2 tags.

BL ident® Software RDemo for UHF read/write heads

Kill Tag

The “Kill Tag” command sends a “Kill” command to an EPC Class1 Gen2 tag. After the “Kill” command has been executed, the tag can no longer be detected by a read/write head.



NOTE

An executed “Kill” command cannot be undone.

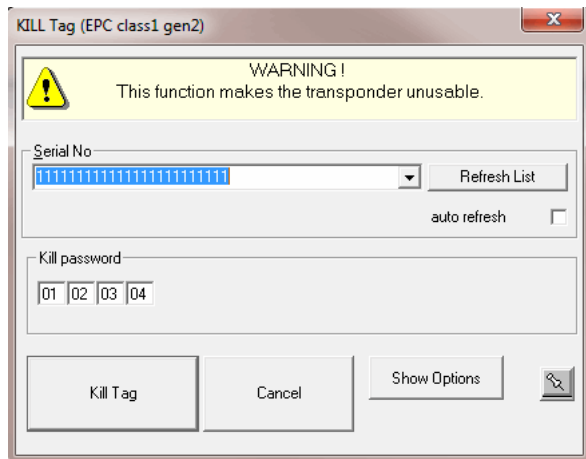


Fig. 17: “KILL Tag” window

- “Serial No” drop-down list: The serial number of the tag should be entered in order to execute a “Kill” command. The number of the tag can be entered manually or selected from the drop-down list if the tag has previously been detected.
- “Refresh List” button: If the “Refresh List” button is clicked, the “Serial No” drop-down menu shows the serial number of the last tag read.
- “auto refresh” checkbox: If the “auto refresh” checkbox is activated, the last tag ID read is displayed in the drop-down list.
- “Show Options” button: The “ask for confirmation” and “show operation success” checkboxes are shown.
- “ask for confirmation” checkbox: If the “ask for confirmation” checkbox is activated, RDemo asks whether the “Kill” command is to be sent before it is executed.
- “show operation success” checkbox: If the “show operation success” checkbox is activated, RDemo indicates the successful execution of a “Kill” command.
- “Kill password” entry screen: This enables the entry of a “Kill” password.
- “Kill Tag” button: Executes the “Kill Tag” command.
- “Cancel” button: Aborts “Kill Tag”. The window is closed.
- “Pin” icon: When activated, the window stays open after the command is sent.

4.3.5 “RF power” menu

The “RF power” menu is used to switch the transmission field of the read/write head on and off.

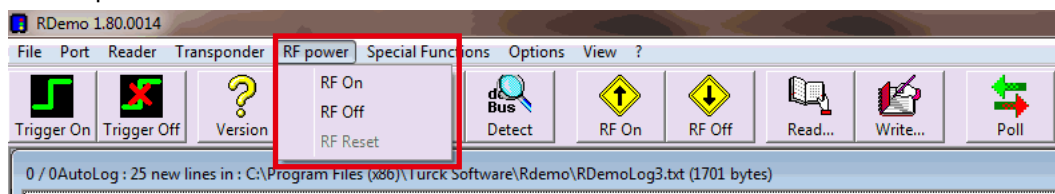


Fig. 18: “RF power” menu

RF on

The transmission field of the read/write head is switched on.

RF off

The transmission field of the read/write head is switched off.

RF Reset

The transmission field of the read/write head is switched off for 100 ms.

4.3.6 “Special Functions” menu

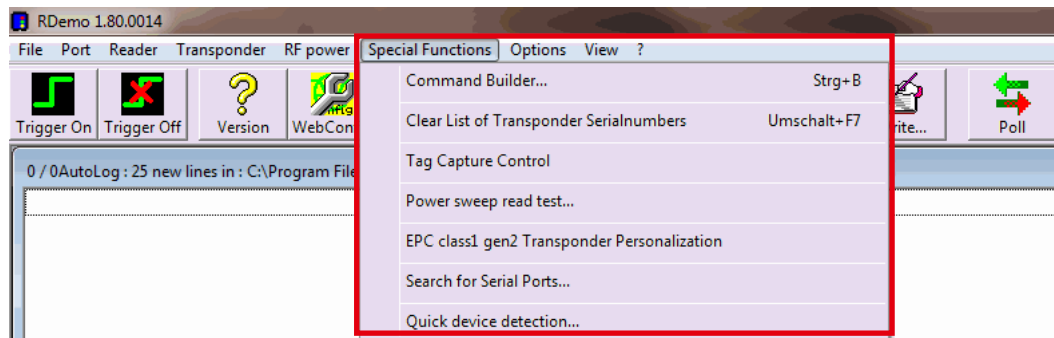


Fig. 19: “Special Functions” menu

Command Builder... (Ctrl+B)

The “Command Builder” is used as support when integrating the deBus protocol in an application software. deBus commands can be sent to the read/write head as a data string and the response of the read/write head tested.

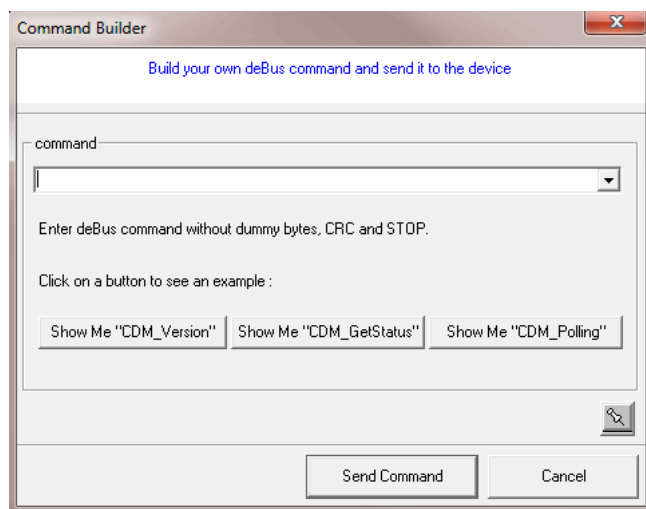


Fig. 20: “Command Builder” window

- “Command” entry field: This is used for entering user-specific deBus commands. The header (“dummy bytes”) and the telegram end (CRC+Stop) are fixed elements of the telegram and do not have to be entered as well. RDemo adds these elements automatically.



NOTE

A detailed description of the deBus commands is provided in the device-specific deBus protocol.

- “Show Me CDM_Version”, “Show Me CDM_GetStatus” and “Show Me CDM_Polling” buttons: Example commands for testing the Command Builder.
- “Pin” icon: When activated, the window stays open after the command is sent.
- “Send command” button: Executes “Command Builder”.
- “Cancel” button: Aborts “Command Builder”. The window is closed.

BL ident® Software RDemo for UHF read/write heads

Clear List of Transponder Serial Numbers

Deletes all tag serial numbers read so far. The serial numbers known to RDemo are provided in the appropriate drop-down lists.

Tag Capture Control

Starts a visual display of read tags. A detailed description of this is provided in chap. 7.5.

EPC Class1 Gen2 Transponder Personalization

The “EPC Class1 Gen2 Transponder Personalization” function makes it possible for example to write tags with a consecutive number or protect selected memory blocks from read or write accesses. A detailed description of this function is provided in chap. 7.3.

Search for Serial Ports...

Starts the search for COM ports. After the search operation is completed, the COM ports can be selected that RDemo makes available in the “Port” function.

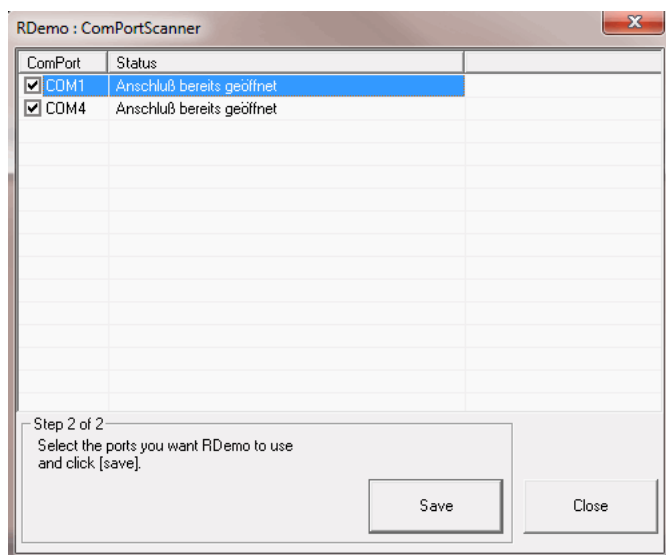


Fig. 21: “RDemo : ComPortScanner” window

- “ComPort” table column: displays the available COM ports. If the corresponding checkbox is activated, the COM port can be used by RDemo.
- “ComPort Status” column: shows the actual status of the COM port as follows:

Status	Meaning
ok	The COM port can be used.
error	Error message, the COM port cannot be used
Connection already opened	The COM port is being used by another program.

- “Save” button: saves the current settings. The settings made are then available after RDemo is restarted.
- “Close” button: closes the window.

Quick device connection

Starts the quick search for a single connected device. A quick search is only possible if only one device is connected on the active COM port.

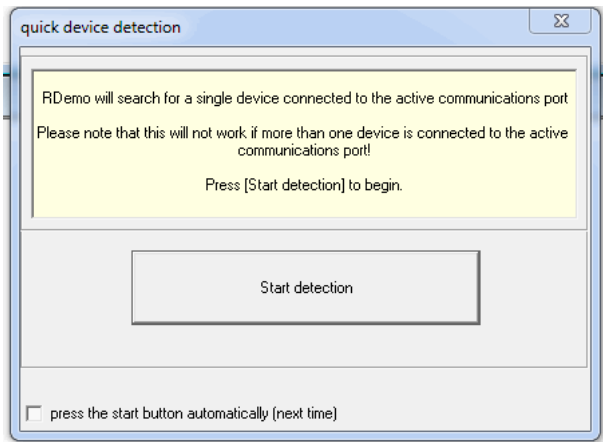


Fig. 22: "Quick device connection" window

4.3.7 "Options" menu

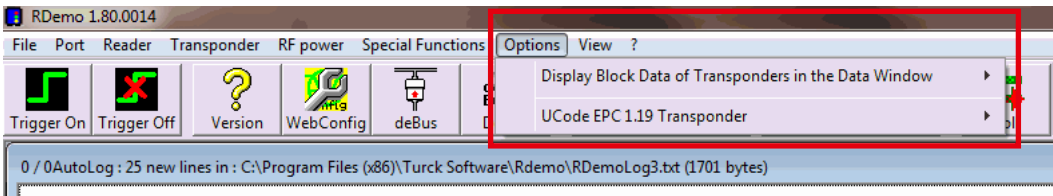


Fig. 23: "Options" menu

Display Block Data of Transponder in the Data Window

This is used to set whether the block data of the tags is to be shown in hexadecimal or ASCII format.



NOTE

The settings made here do not affect the display of the tag ID and the serial number.

BL ident® Software RDemo for UHF read/write heads

4.3.8 “View” menu

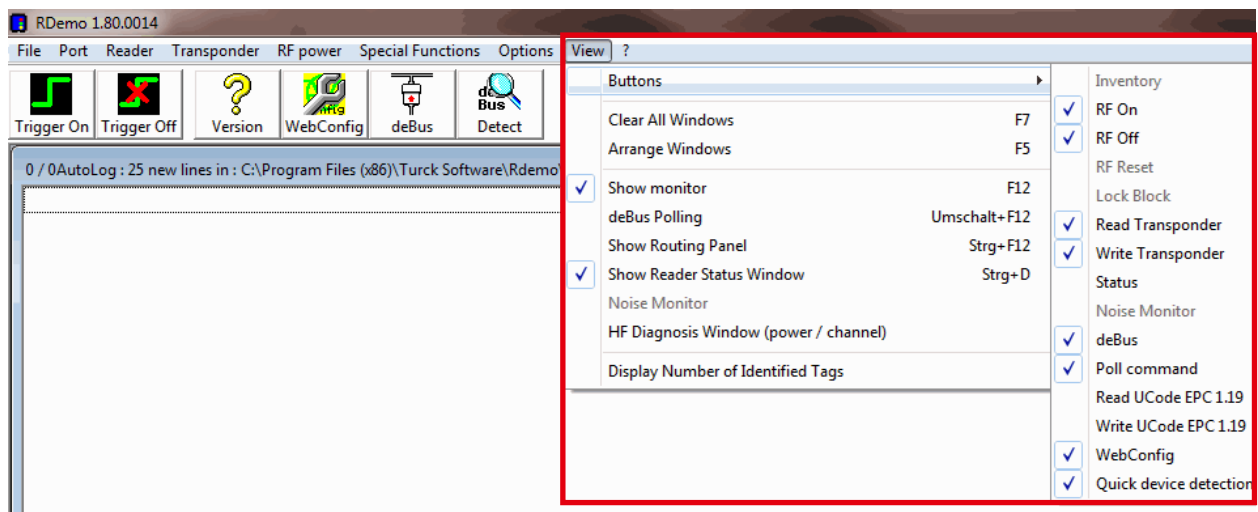


Fig. 24: “View” menu

Buttons

This menu is used to activate the buttons that are to appear in the menu bar. Activated buttons are marked with a tick. The following buttons can be selected:

- Inventory
- RF On
- RF Off
- RF Reset
- Lock Block
- Read Transponder
- Write Transponder
- Status
- Noise Monitor
- deBus
- Poll Command
- Read UCode EPC 1.19
- Write UCode EPC 1.19
- WebConfig

Clear All Windows (F7)

Clears all data in the activated windows.

Arrange Windows (F5)

Arranges all activated windows automatically and uniformly.

Show monitor (F12)

Shows the communication between host or PC and read/write head on the selected interface.

deBus Polling (Shift+F12)

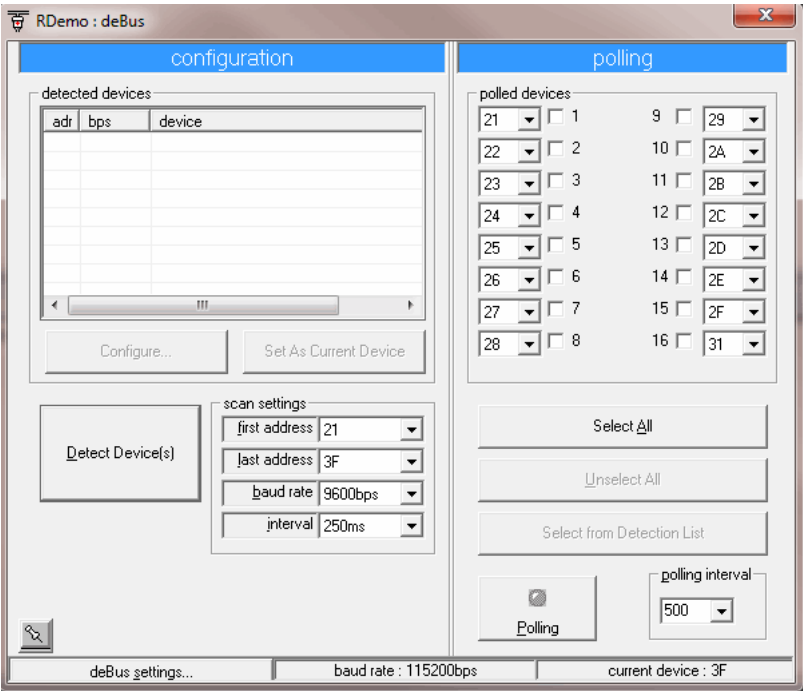


Fig. 25: deBus Polling

- configuration: This enables unknown devices to be searched for and the associated deBus device settings (address and baud rate) to be changed.
- polling: Polling commands can be sent to up to 16 different deBus addresses.



NOTE

In order to use “deBus Polling”, the read/write heads must be configured in Polling mode. (Reader > Mode > Switch to Polling Mode)

- “Detected devices”: shows a list of deBus devices found in the search operation. The columns have the following meanings:

Column	Meaning
adr	deBus address
bps	Baud rate
device	Device type

- “Configure...” button: starts the configuration of the deBus address and baud rate of the device selected in the list
- “Set As Current Device” button: The device selected in the “detected devices” table for which the baud rate and deBus address are used by RDemo.
- “Detect Device(s)” button: Starts the search for connected devices.
- “scan settings” area: It is possible to set here the address range (“first address” and “last address” drop-down menus), the baud rate (“baud rate” drop-down menu) and interval (“interval” drop-down menu) for the scanning of read/write heads.
- “Most Recent Used” button: selects the last “scan settings” used.
- “deBus settings” button: shows the deBus settings currently used by RDemo.
- “polled devices” area: The bus addresses to which a polling command is to be sent can be set here.
- “Select All” button: All the addresses under “polled devices” are used.
- “Unselect All” button: None of the addresses under “polled devices” are used.
- “Select from Detection List” button: The addresses of the devices shown under “detected devices” are selected.

BL ident® Software RDemo for UHF read/write heads

- “Polling” button: Starts the polling operation.
- “polling interval” drop-down menu: Selection of the time interval between the individual polling commands in ms.

Show Routing Panel (Ctrl+F12)

Shows the routing panel.

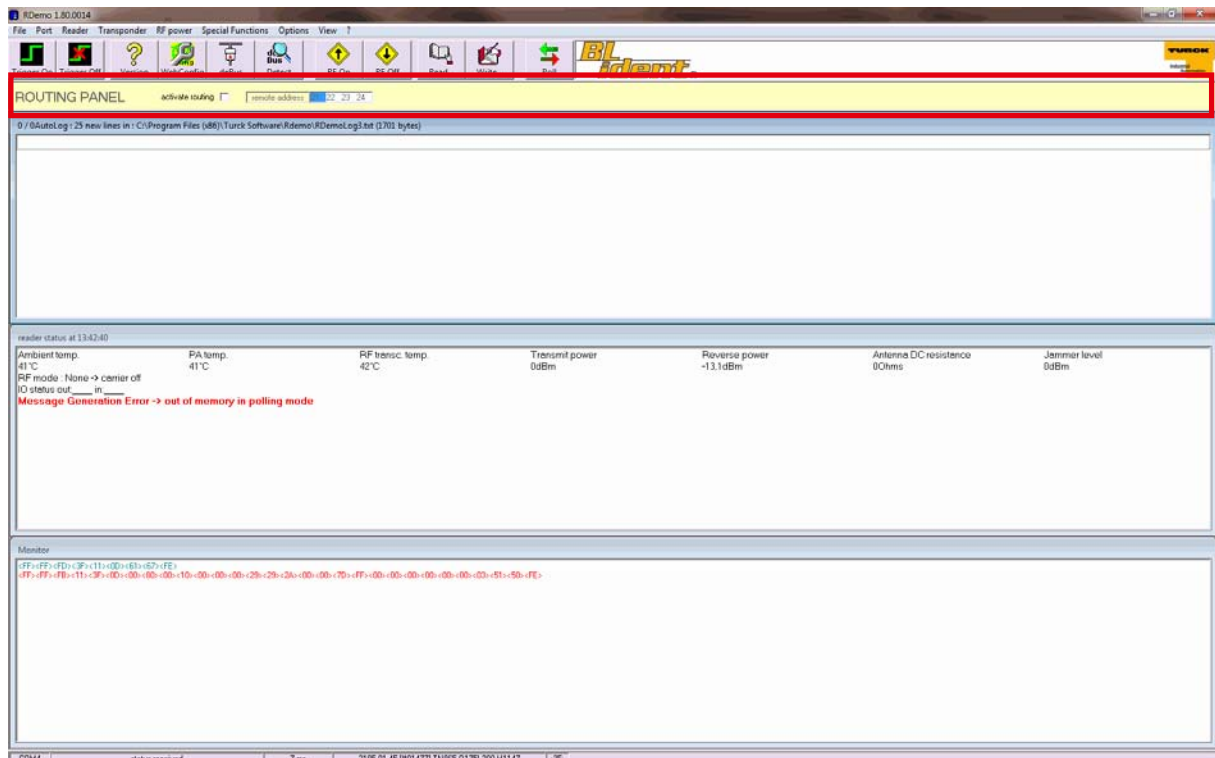


Fig. 26: Routing panel

Commands can be routed via a data concentration unit (DCU 1.4) to the read/write heads. The “activate routing” checkbox must be selected to activate the routing function. The relevant interface for the read/write head on the DCU is accessed via “remote address”. The following assignment applies here:

Remote address	Interface on DCU
21	1
22	2
23	3
34	4

The read/write head connected to the interface sends a response to a version request. The command is transferred to the read/write heads via the DCU 1.4.

Show Reader Status window (Ctrl+D)

Shows the status parameters of the read/write head. The displayed parameters depend on the device type and are updated with each status request. A status request is started by pressing the "D" key.

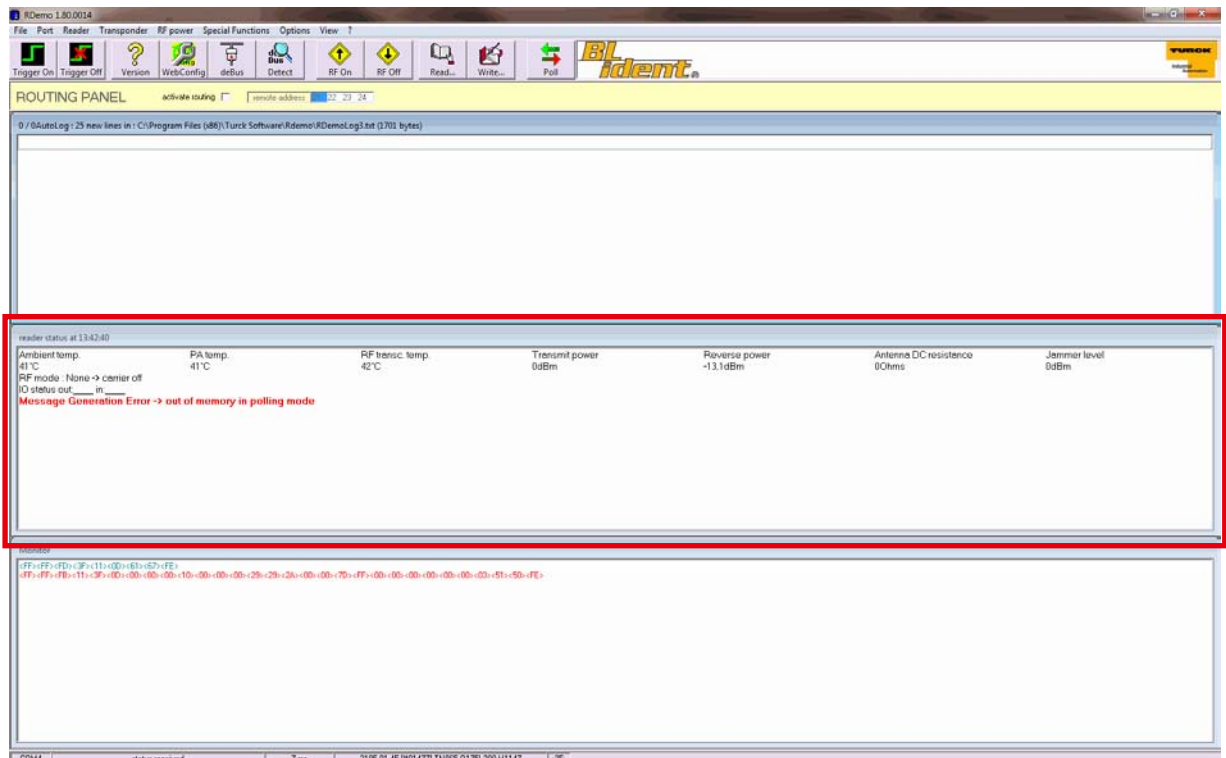


Fig. 27: "reader status" window

HF diagnosis window (power / channel)

Shows the power level at each channel and the free channels.

Display Number of Identified Tags

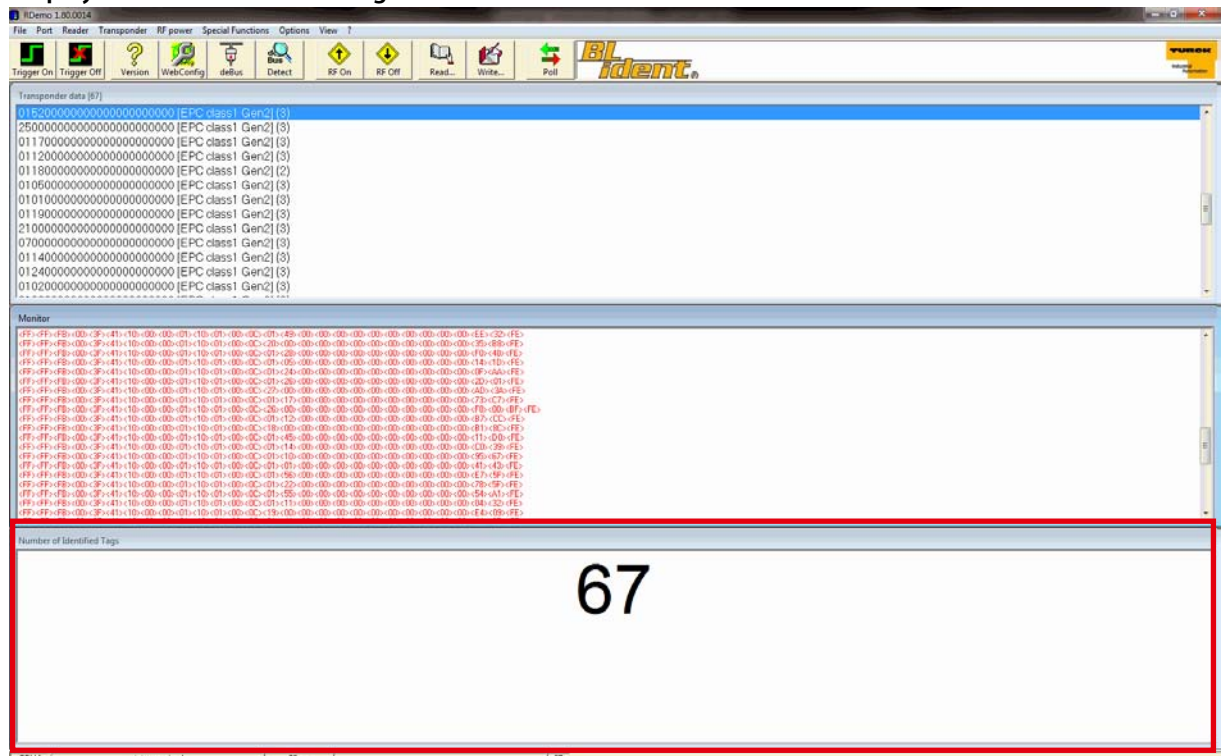


Fig. 28: Display "Number of Identified Tags" window

BL ident® Software RDemo for UHF read/write heads

The total number of read tags is shown in the “Display Number of Identified Tags” window. Right-clicking the display opens a context menu containing the options “Font...” and “Hide Big Counter Window”. Use the “Font...” option to set the font size and type.

4.3.9 “?” menu

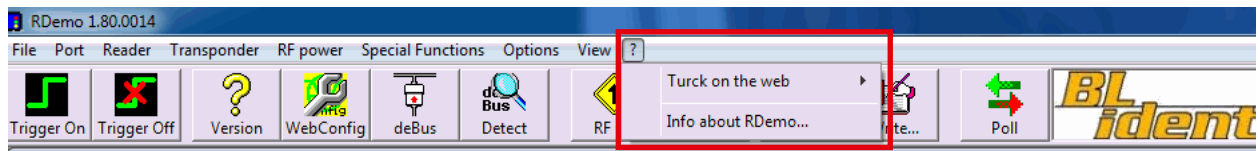


Fig. 29: “?” menu

TURCK on the web

Link to the TURCK website www.turck.com.

Info about RDemo

Shows the version number of RDemo and all additional components that are related to RDemo.

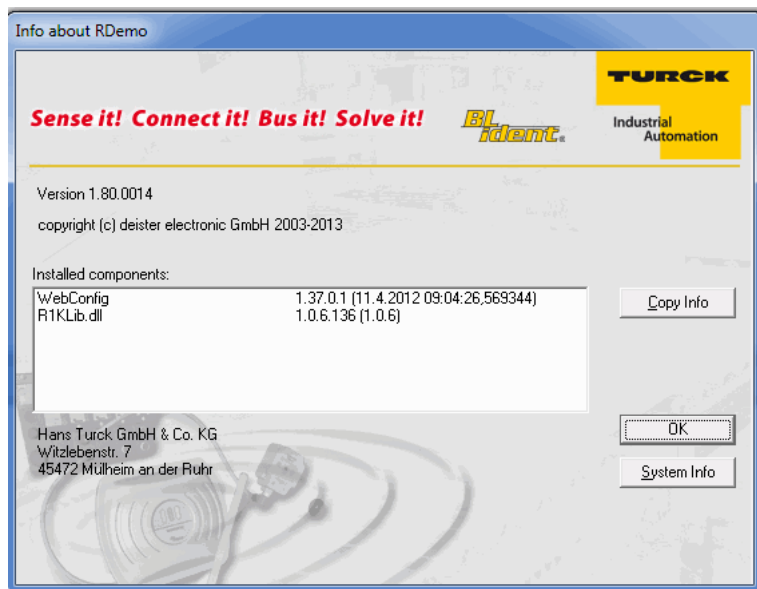


Fig. 30: Info about RDemo

- “Version” display: Shows the currently installed version of RDemo.
- “Installed components” display: Shows the additionally installed components.

4.4 Menu bar

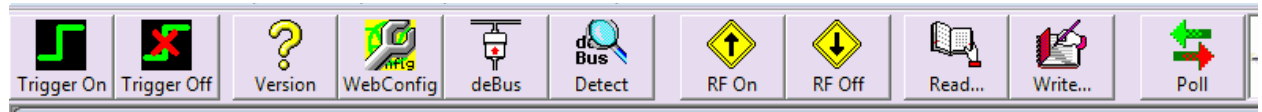


Fig. 31: Menu bar

Used for sending short commands to the read/write head. The following buttons are displayed by default in RDemo. Additional buttons can be shown or hidden via "View" > "Buttons" in the main menu (see chap. 4.4).

- Trigger On: Activates the trigger in the read/write head if the read/write head is operating in Triggered mode.
- Trigger Off: Deactivates the trigger in the read/write head if the read/write head is operating in Triggered mode.
- Version: Queries the version information of the read/write head
- WebConfig Starts the "WebConfig" software. "WebConfig" enables you to set additional parameters for read/write heads. The functions of the software are described in the user manual "BL ident® Software WebConfig for UHF Read/write heads" (D500010).
- deBus Opens the "deBus" menu (see chap. 6.2).
- Detect: Checks whether a read/write head is connected with RDemo.
- RF on Switches on the transmission field of the read/write head.
- RF off Switches off the transmission field of the read/write head.
- Read...: Parameter setting and sending of a read command to the read/write head.
- Write...: Sends a write command to the read/write head.
- Poll: Starts a polling request.

5 Installing the software

5.1 System requirements

The following system requirements must be fulfilled in order to run RDemo:

- 1 GHz processor or higher
- 256 MB working memory
- 30 MB free hard disk memory
- Windows XP or higher

5.2 Installing

You can receive the latest version the RDemo software from TURCK on request.

- Start the installation by double-clicking the following icon:



Fig. 32: Installing the RDemo desktop icon

BL ident® Software RDemo for UHF read/write heads

- Confirm the subsequent prompt with “Yes”

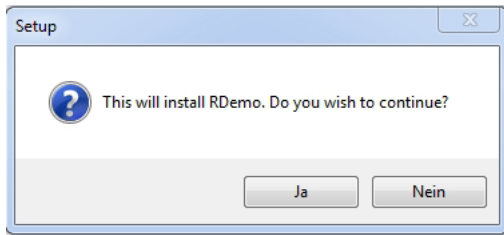


Fig. 33: Installation confirmation prompt

- Click “Next >”
- ➡ The Rdemo Setup Wizard will guide you through the installation.

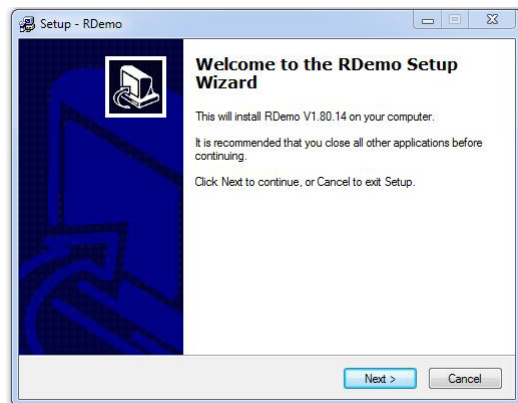


Fig. 34: RDemo Setup Wizard

6 Launching the software

- Launch RDemo by double-clicking the following icon:



Fig. 35: Starting the RDemo desktop icon

- This starts RDemo.

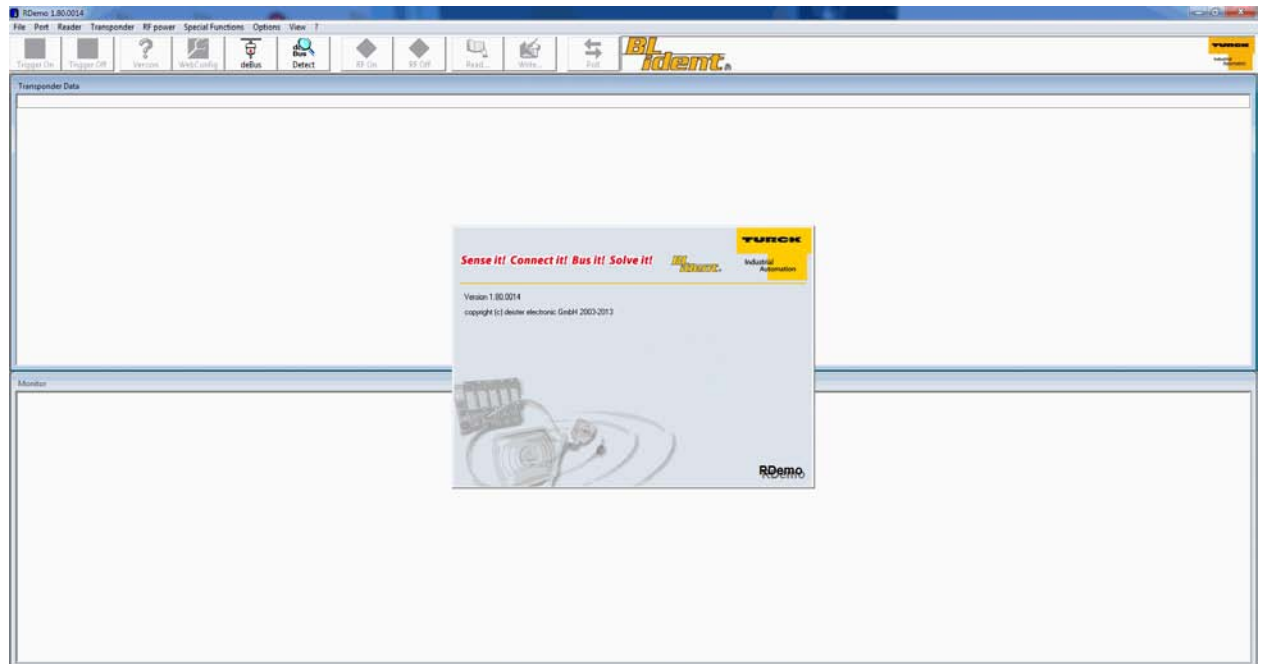


Fig. 36: RDemo start screen

BL ident® Software RDemo for UHF read/write heads

6.1 Connecting read/write heads with the PC

In order to connect read/write heads to a PC you need the STW-RS485-USB interface converter (accessory ordered separately – Ident no. 7030354) and the STW-RS485-USB-PS power supply unit (accessory ordered separately – Ident no. 7030355).

- Connect the read/write head to the interface converter using a suitable connection cable (e.g. RK4.5T-2/S2500) according to the following color coding.

STW-RS485-USB	Male connector .../S2500	Male connector .../S2501	Male connector .../S2503
VCC	Brown (BN)	Brown (BN)	Red (RD)
GND	Blue (BU)	Blue (BU)	Black (BK)
RS485-A	White (WH)	Black (BK)	White (WH)
RS485-B	Black (BK)	White (WH)	Blue (BU)

- Connect a USB cable to the interface converter (USB1.1 type B).
- Connect the open end of the USB cable to a free USB port on the PC (USB1.1 type A).
- Set the switches on the side of interface converter for the termination to "ON".
- Connect the interface converter with a power supply via the STW power supply unit.

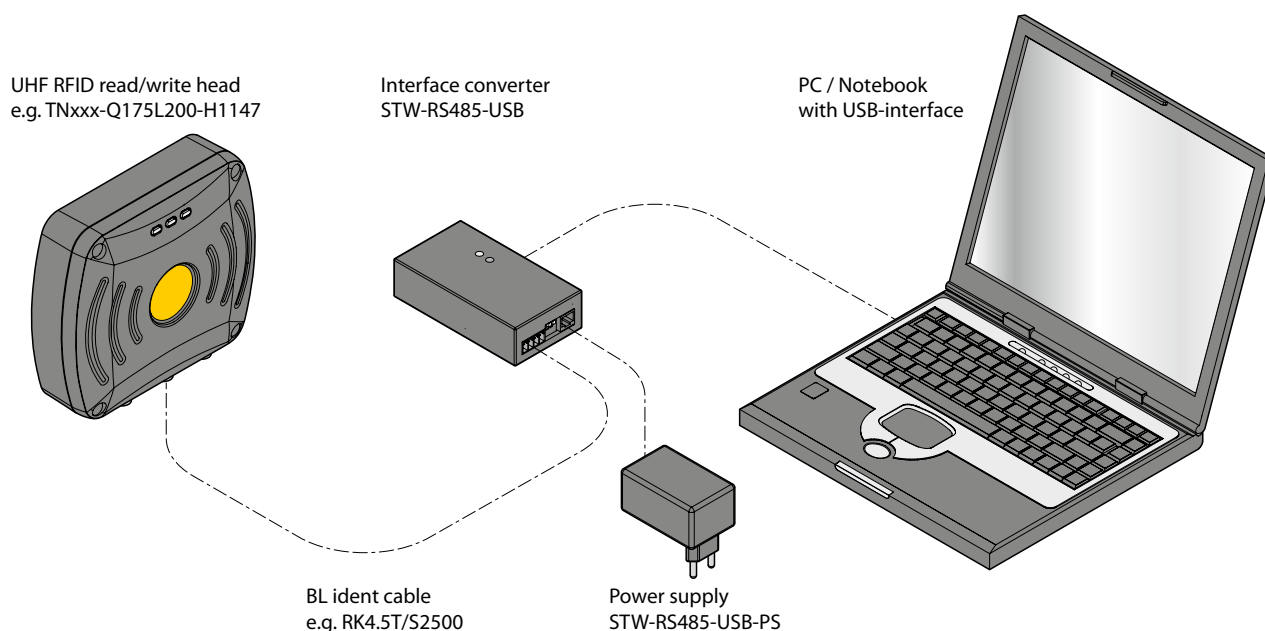


Fig. 37: Connecting the read/write head with a PC (example)



NOTE

The STW-RS485-USB interface converter must only be used with the STW-RS485-USB-PS power supply unit.

6.2 Establishing the connection between RDemo and the read/write head

- Using the "Port" function in the main menu bar, select the COM port by which the read/write head is connected with the host or PC.

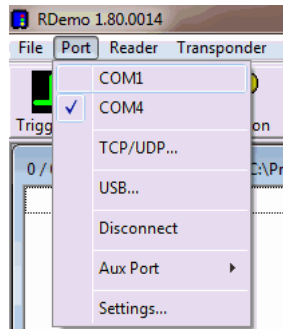


Fig. 38: Selecting the COM port

- If the correct COM port has been selected, RDemo automatically establishes the connection to the connected read/write head.
- If the deBus address of the read/write head and the baud rate matches the default settings of RDemo, the "version information received" message is displayed.

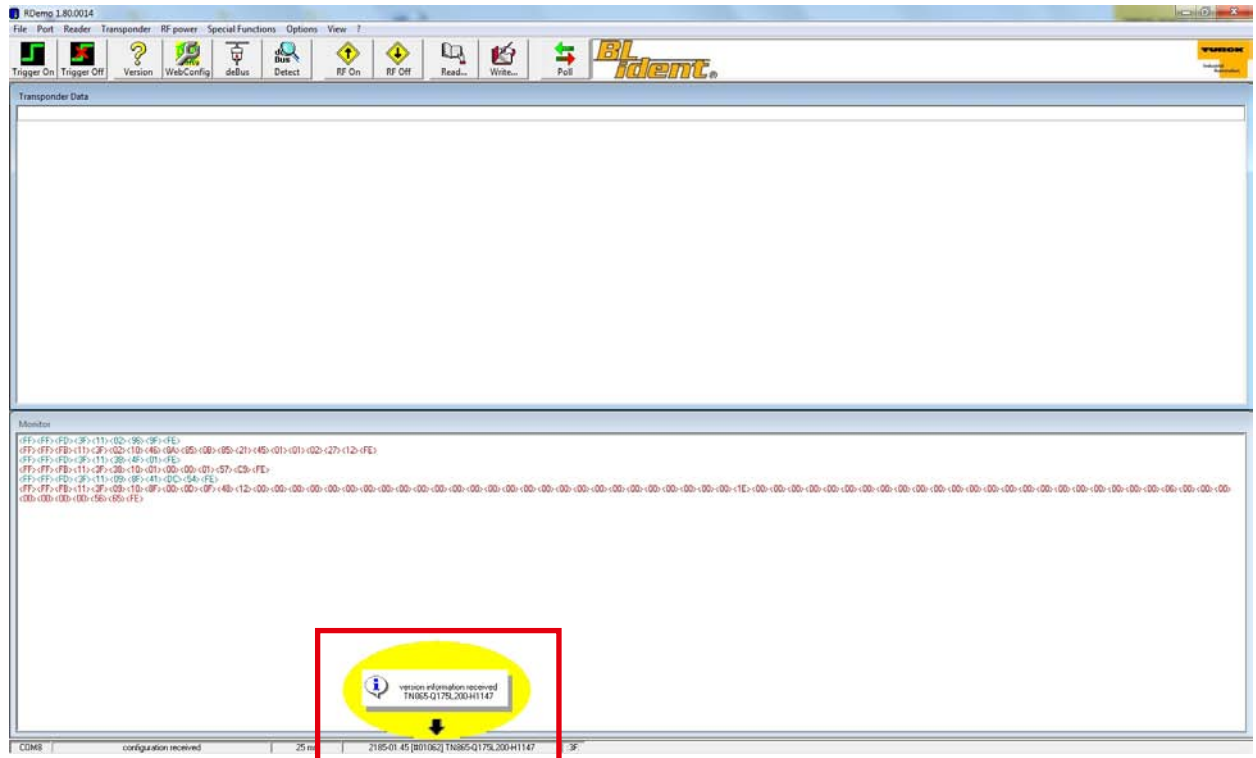


Fig. 39: "version information received" message

- RDemo is operational.

BL ident® Software RDemo for UHF read/write heads

If the “version information received” message is not displayed, the device must be searched for. Proceed as follows:
➤ Click the “deBus” button.

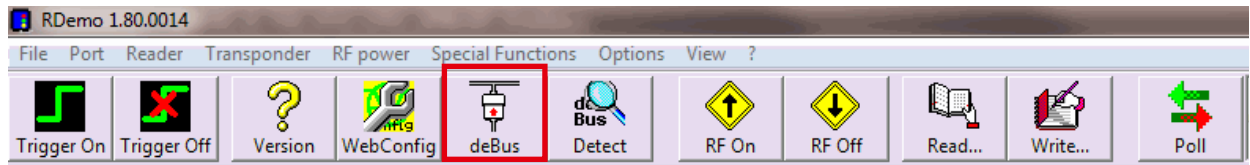


Fig. 40: “deBus” button

- The “deBus” menu is opened.
- Set the “baud rate” parameter to the value “all”.
- Click the “Detect Devices” button.

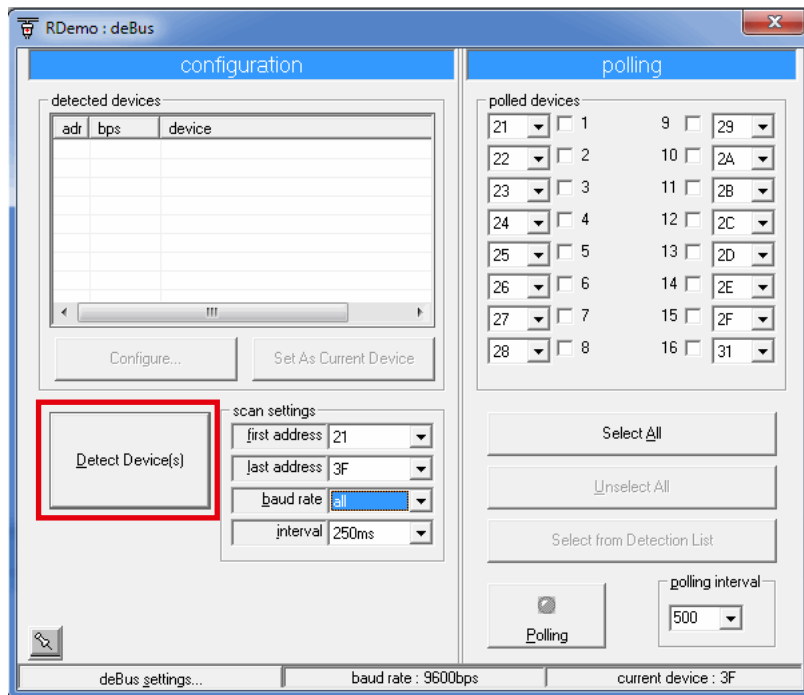


Fig. 41: “deBus” menu

- RDemo starts the search operation. The following window opens:

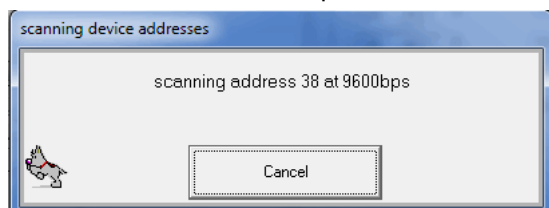


Fig. 42: “scanning device addresses”

➔ If a read/write head is detected, the device is displayed in the “detected devices” list in the “deBus” menu.

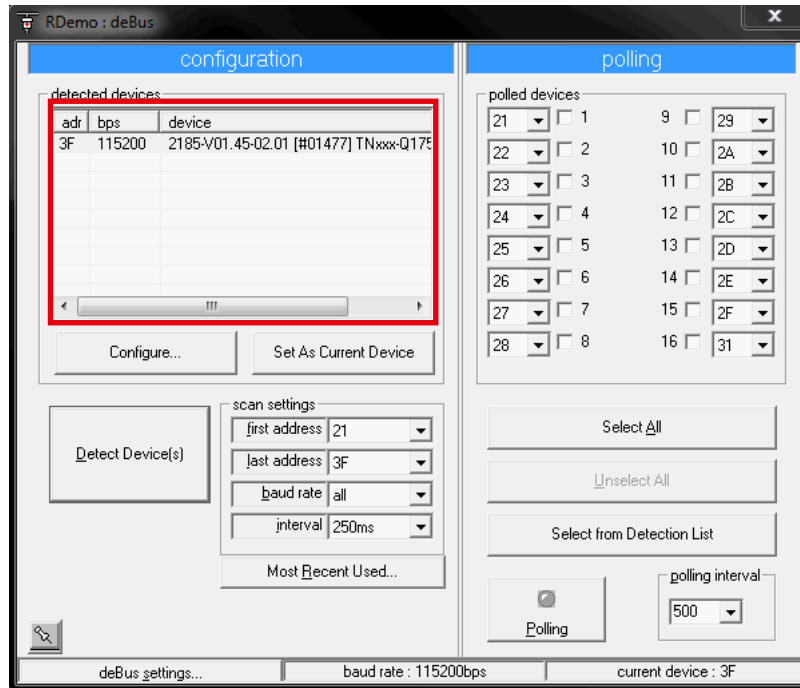


Fig. 43: “detected devices” list

- Click the “Set As Current Device” button.
- ➔ If the baud rate of the read/write head does not match the baud rate set in RDemo, the “baudrate conflict” prompt appears.
- Click “yes” to adjust the baud rate of RDemo to the baud rate of the read/write head.
- Close the deBus window.
- Click the “deBus” button.
- ➔ The “version information received” message is displayed (see Fig. 39).
- ➔ RDemo is operational.

6.3 Integrating WebConfig and additional software

If other files (such as the WebConfig configuration tool or driver) are located in the same directory as the RDemo installation file, these files are automatically copied to the RDemo installation directory.

Additional programs can also be copied to the RDemo installation folder at a later time. The applications are then available after RDemo is restarted.

You can receive the latest version the WebConfig configuration tool from TURCK on request. Further information on WebConfig is provided in the user manual “WebConfig configuration tool for UHF read/write heads” (D500010).

BL ident® Software RDemo for UHF read/write heads

6.3.1 Viewing information on additional software in RDemo

- Choose the "Info about RDemo..." menu item via the "?" menu in the main menu bar.
- ➡ All additionally installed programs and drivers are displayed in the "Installed components" window.

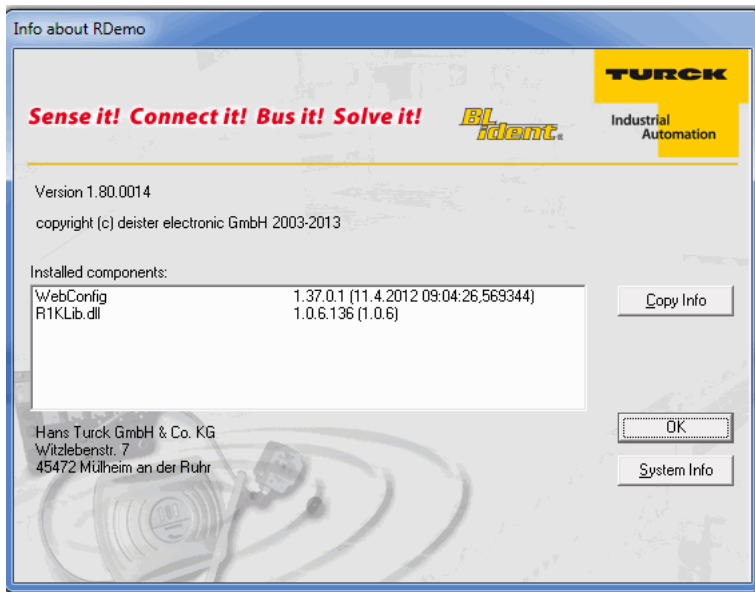


Fig. 44: "Info about RDemo" menu

7 Using the software

7.1 Testing the read/write heads

7.2 Configuring the read/write heads with WebConfig

The WebConfig software tool is used for configuring the read/write heads. Proceed as follows to start WebConfig:

- Click the “WebConfig” button in the menu bar.

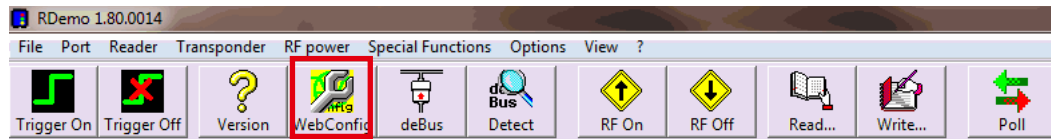


Fig. 45: “WebConfig” button

- RDemo is closed automatically.
- WebConfig is opened.

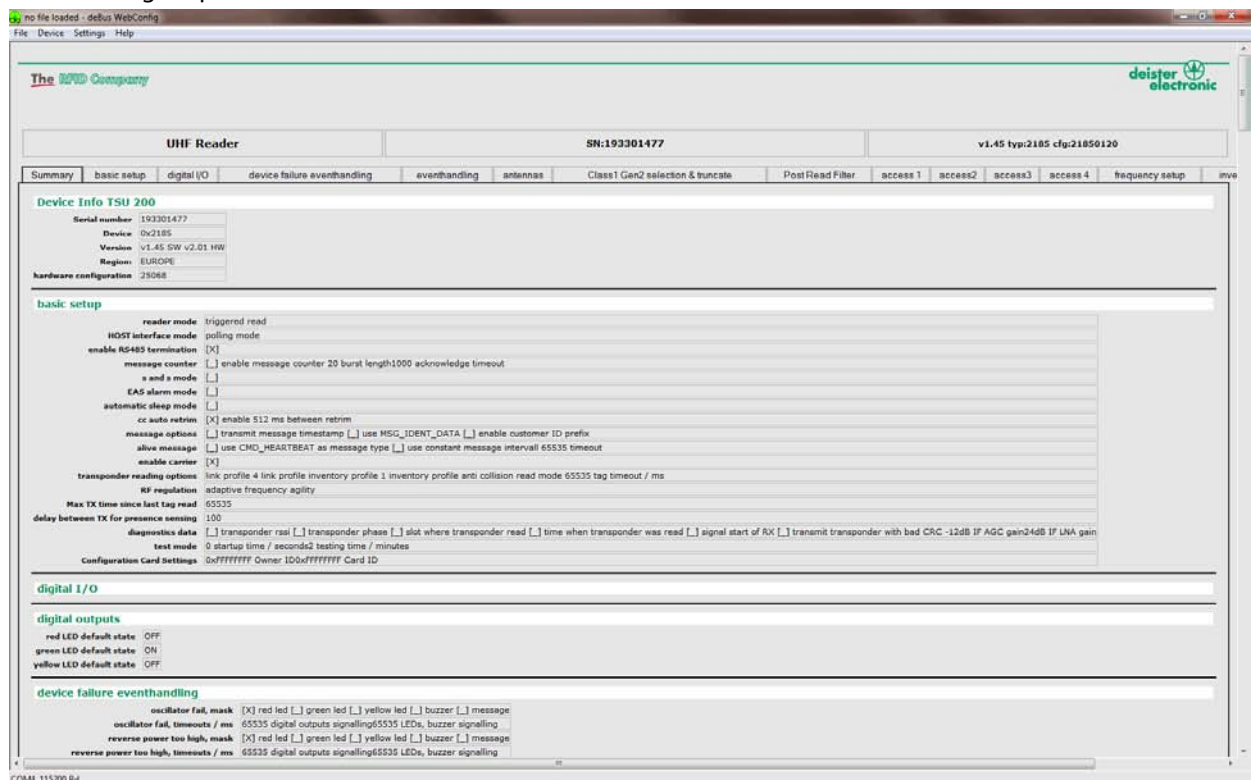


Fig. 46: WebConfig start menu

The parameterization of the read/write heads with WebConfig is described in the manual “WebConfig configuration tool for UHF read/write heads” (D500010).

BL ident® Software RDemo for UHF read/write heads

7.3 Personalizing EPC Class1 Gen2 tags

► In the main menu choose “Special Functions” > “EPC Class1 Gen2-Transponder Personalization”.

► The following window opens:

Fig. 47: “EPC class1 gen2 Transponder Personalization” window

The personalization function enables you to assign UHF tags of type EPC Class1 Gen2 with a consecutive number and change the “Lock” status.

The “EPC class1 gen2 Transponder Personalization” window contains the following elements:

- “EPC/PC” area: Entry screen for the EPC or PC to be written. The “after successful write” drop-down menu can be used to define whether the EPC of the tag is to be changed after the write operation (counter ± 1). If the “change lock status” checkbox is selected, the button above it can be used to change the “Lock” status.
- “access password” area: Entry screen for the “Access” password to be written to the tag. If the “change lock status” checkbox is selected, the button above it can be used to change the “Lock” status.
- “kill password” area: Entry screen for the “Kill” password to be written to the tag. If the “change lock status” checkbox is selected, the button above it can be used to change the “Lock” status.
- “TID” (Transponder Identification) area: If the “change lock status” checkbox is selected, the button above it can be used to change the “Lock” status.
- “user memory” area: Entry screen for the user data block to be written. The “after successful write” drop-down menu can be used to define whether the EPC of the tag is to be changed after the write operation (counter ± 1). If the “change lock status” checkbox is selected, the button above it can be used to change the “Lock” status.
- “Continue >>” button: Confirms the entry.
- “Cancel” button: Aborts the operation.

► Enter the required values in the “EPC class1 gen2 Transponder Personalization” window.

► Confirm the entries in the window with “Continue >>”

➔ This will open the following window:

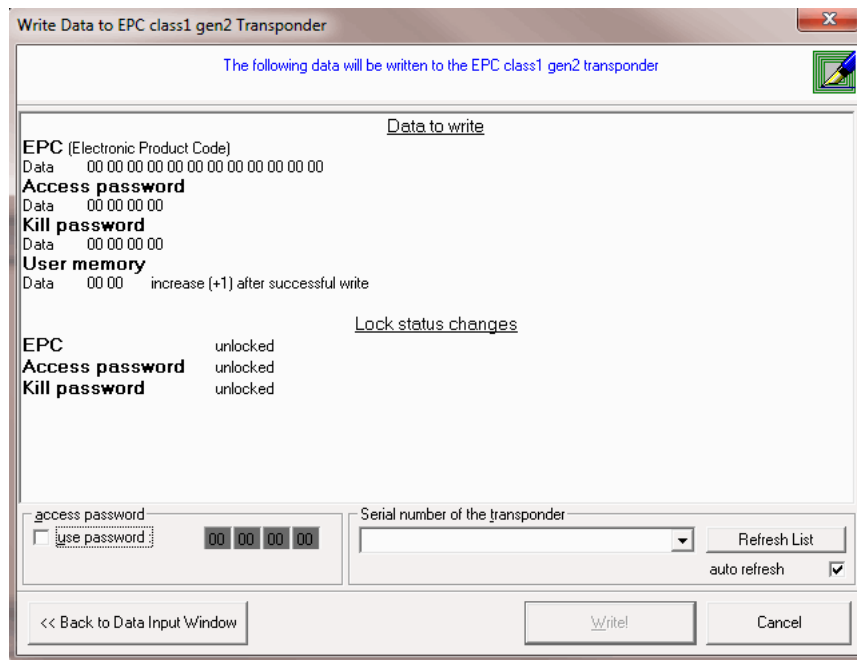


Fig. 48: "Write Data to EPC class1 gen2 Transponder" window

The "Write Data EPC class1 gen2 Transponder" window contains the following elements:

- "Data to write" area: displays the memory blocks of the tag and the content to be written there.
- "Lock status changes" area: Shows if the "Lock" status was changed in the "EPC class1 gen2 Transponder Personalization" window.
- "access password" area: If the tag is already password protected, the appropriate password can be entered here.
- "Serial number of the transponder" area: The tag ID of the tag to be written must be entered in the EPC entry window. If the "auto refresh" checkbox is activated, the tag ID of the last tag read is used automatically. The tag ID of the last tag read is used via the "Refresh List" button.
- "<<Back to Data Input Window" button: Switches back to the "EPC class1 gen2 Transponder Personalization" window.
- "Write!" button: Starts the write operation.
- "Cancel" button: Aborts the operation.

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- Check the data to be written.
- Start the write operation via the “Write!” button
- If the tag has been written successfully, the “write successful” message appears in the status bar at the bottom of the screen.



Fig. 49: “write successful” message

7.4 Executing EPC Class1 Gen2 tags functions

- Choose “Transponder” > “Tag Functions”.
- The following window opens:

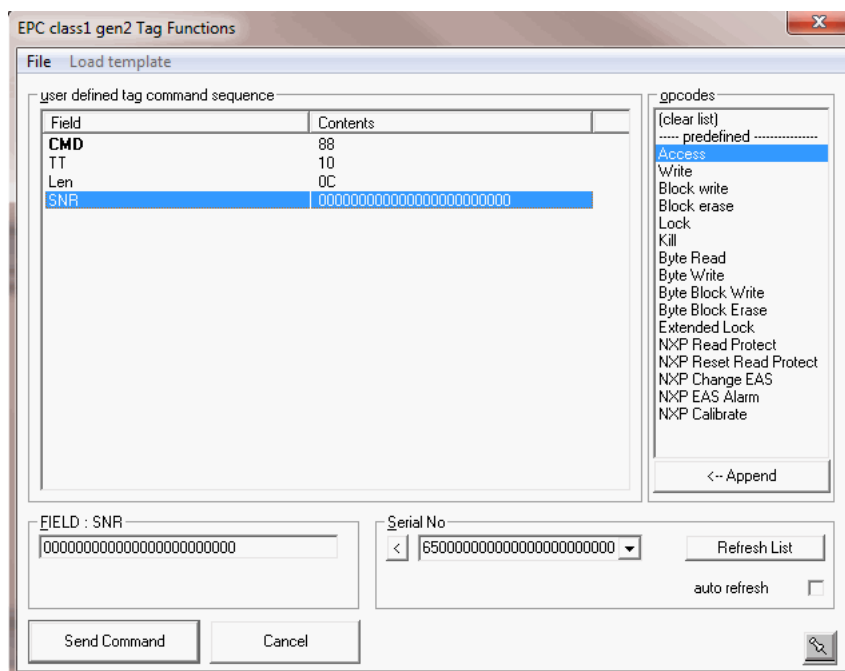


Fig. 50: “EPC class1 gen2 Tag Functions” window

The “EPC class1 gen2 Tag Functions” window can be used to send command sequences specially supported by EPC Class1 Gen2 tags to the tag. Detailed information on the command sequences is provided in the EPCglobal™ specification. Manufacturer-specific command sequences of NXP™ can also be sent to EPC Class1 Gen2 tags.

The “EPC class1 gen2 Transponder Personalization” window contains the following elements:

- “user defined tag command sequence” table: Shows the entire command sequence sent to the tag.
- “opcodes” selection list: Shows the “Tag Functions” supported by RDemo. If a function is used, this is accepted by confirming with the “Append” button.

- "FIELD : " entry field: Entry field for the data to be displayed in the "user defined tag command sequence" table.
- "Serial No" drop-down menu
- "Refresh List" button: If the "Refresh List" button is clicked, the "Serial No" drop-down menu shows the serial number of the last tag read.
- "Serial No" drop-down menu: Shows the serial number of the tag.
- "auto refresh" checkbox: If the "auto refresh" checkbox is activated, the last tag ID read is displayed in the drop-down list.
- "Send Command" button: Starts the function.
- "Cancel" button: Aborts the function.
- "Pin" icon: When activated, the window stays open after the command is sent.

7.4.1 Example: Sending an "Access" command

The following example describes the sending of an "Access command".

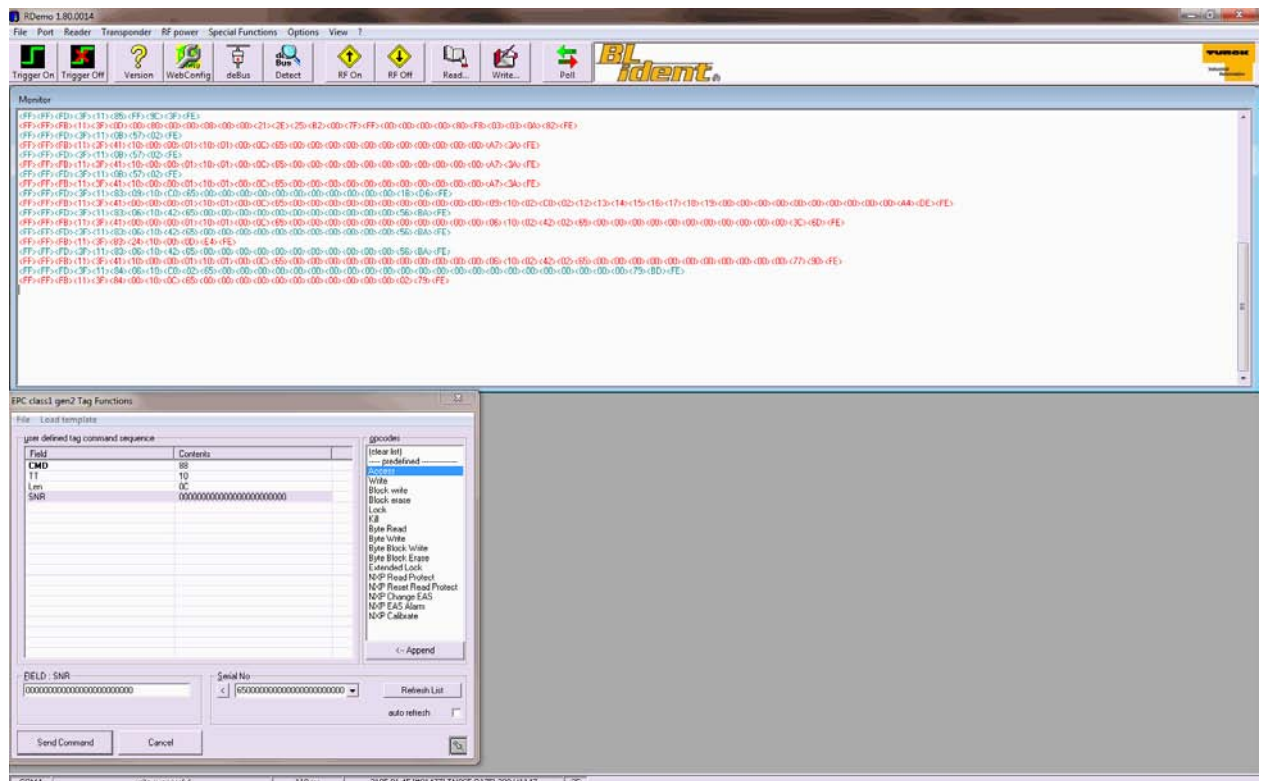


Fig. 51: Example: Executing the Access command

- Select the line "SNR" in the "EPC class1 gen2 Tag Functions" window.
- Enter the EPC of the tag in the "Serial No" field. Alternatively, you can click the "Refresh List" button to select the serial number of the last tag read.
- Click the "<" button.
- The "FIELD: SNR" shows the EPC of the tag.
- The EPC is accepted in the sequence.
- In the "opcodes" selection list choose the "Access" command.
- Confirm the command selected with the "<--Append" button.
- The "Access" command is accepted in the sequence.

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- Choose in the “user defined tag command sequence” table the line with the “Pwd” parameter.
- Enter the value of the “Pwd” parameter in the “FIELD : Pwd” entry field.
- Bring the tag into the transmission field.
- Click the “Send Command” button.
- ➡ The “tag functions successful” message appears in the status bar at the bottom of the screen.

7.4.2 “Tag Functions”

Access

An “Access” command enables the write or read access to password protected memory blocks. This command sends a 32 bit long “Access” password with it. The “Access” password is stored in the “RESERVED” memory bank of EPC Class1 Gen2 tags under the block address 2 and 3 (total length: 4 bytes).

The “Access” command consists of the following parameters:

Parameter	Meaning
OPC=Access	deBus command code
Len	Length of the “Access” password in bytes (always 4)
Pwd	32 bit “Access” password (MSB first)

The figure below shows an example of an “Access” command:

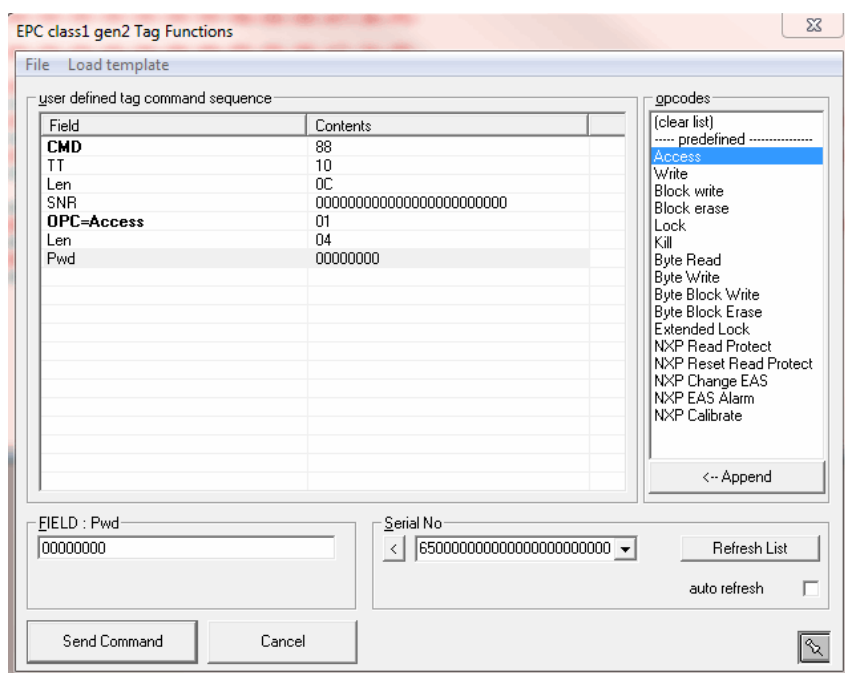


Fig. 52: “Access” command in the “EPC class1 gen2 Tag Functions” window

Write

A “Write” command enables the writing of data blocks on a tag. An “Access” command can be sent before the “Write” command, to enable, for example, the writing of password-protected memory blocks. A “Write” command is sent for each data block.

The “Write” command consists of the following parameters:

Parameter	Meaning
OPC=Write	deBus command code
Adr	Address (hex) from where the write operation is to start
NOB	Number of data blocks to be written
Size	Size of a data block (always 2)
Data	Data (hex) to be written



NOTE

The number of data bytes for the “Data” parameter must be the data size resulting from “NOB” × “Size”.

The figure below shows an example of a “Write” command. This writes two data blocks of an EPC Class1 Gen2 tag. The write operation starts from block address 00_{hex} (memory block of the “Kill” password. The data content is 11112222_{hex}..

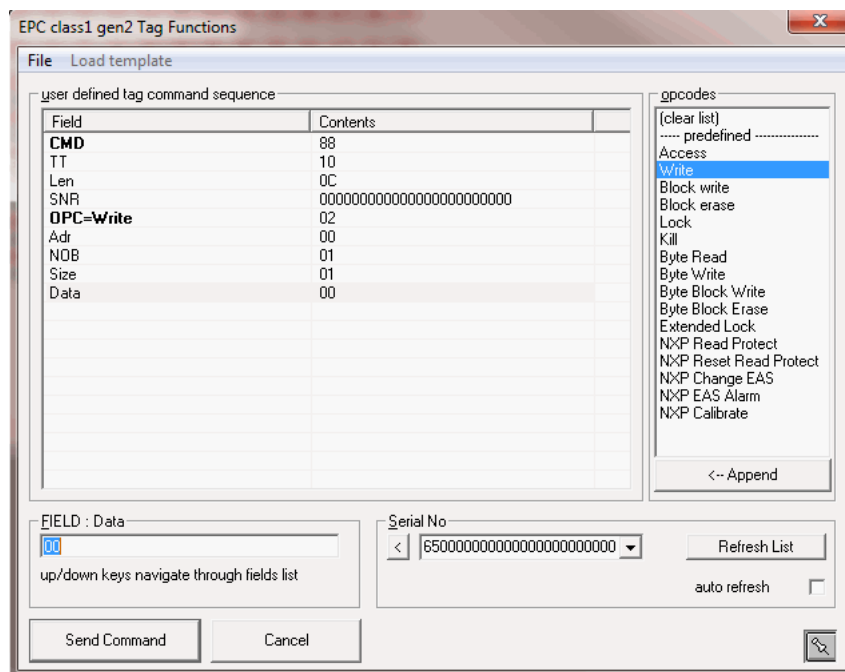


Fig. 53: “Write” command in the “EPC class1 gen2 Tag Functions” window

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Block Write

A “Block Write” command sends a “Write” command for writing up to 8 data blocks.

The “Block Write” command consists of the following parameters:

Parameter	Meaning
OPC=Block Write	deBus command code
Adr	Address (hex) from where the write operation is to start
NOB	Number of data blocks to be written
Size	Size of a data block (always 2)
Data	Data (hex) to be written



NOTE

The number of data bytes for the “Data” parameter must be the data size resulting from “NOB” × “Size”.

The figure below shows an example of a “Block Write” command. This writes one data block of an EPC Class1 Gen2 tag. The write operation starts from block address 42_{hex}. The data content is 1122_{hex}.

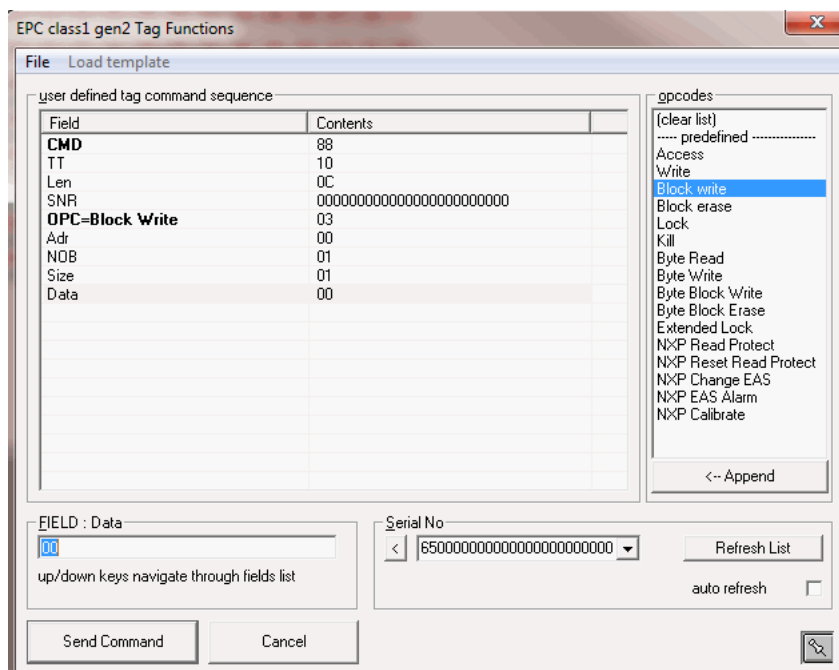


Fig. 54: “Block Write” command in the “EPC class1 gen2 Tag Functions” window

Block Erase

A “Block Erase” command enables memory blocks of an EPC Class1 Gen2 tag to be erased.

The “Block Erase” command consists of the following parameters:

Parameter	Meaning
OPC=Block Erase	deBus command code
Adr	Address (hex) from where the erase operation is to start
NOB	Number of tags to be written
Size	Size of a data block (always 2)

The figure below is an example of a “Block Erase” command. In this example a block (2 bytes) is erased starting from the block address C0_{hex}.

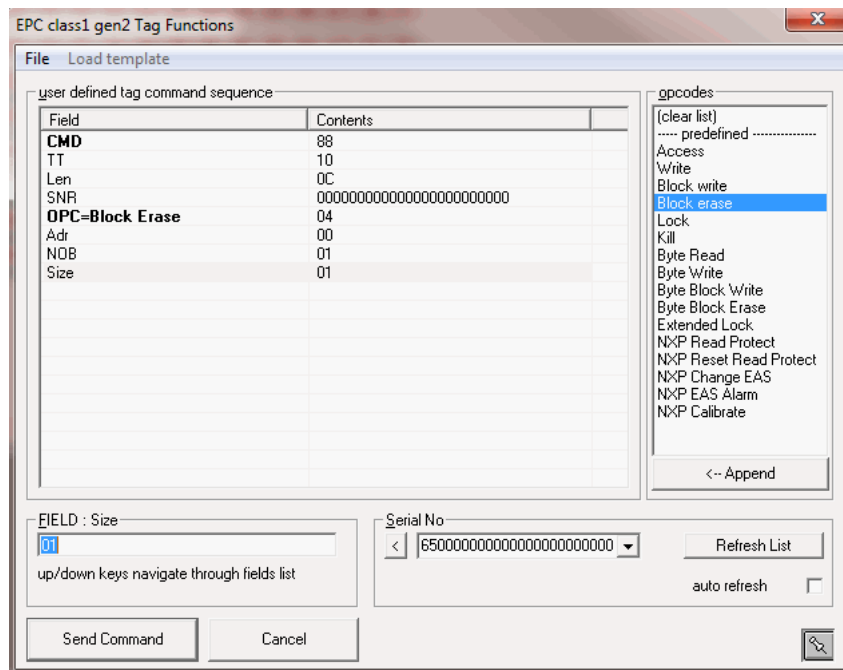


Fig. 55: “Block Erase” command in the “EPC class1 gen2 Tag Functions” window

BL ident® Software RDemo for UHF read/write heads

Lock

A “Lock” command enables memory blocks of an EPC Class1 Gen2 tag to be protected from being rewritten or read. The “Lock” command changes the “Lock” status of the tag.

The “Lock” command consists of the following parameters:

Parameter	Meaning
OPC=Lock	deBus command code
Len	Length of the Lock Payload in bytes (always 3)
Payload	Payload Lock command (MSB first) The last byte is filled with 0.

The figure below shows an example of a “Lock” command. The entry in the “FIELD : PAYLOAD” field causes the permanent protection of the “Access” password from write and read accesses (“Permalock” status)



NOTE

The “Permalock” state can only be established once and cannot be changed afterwards.

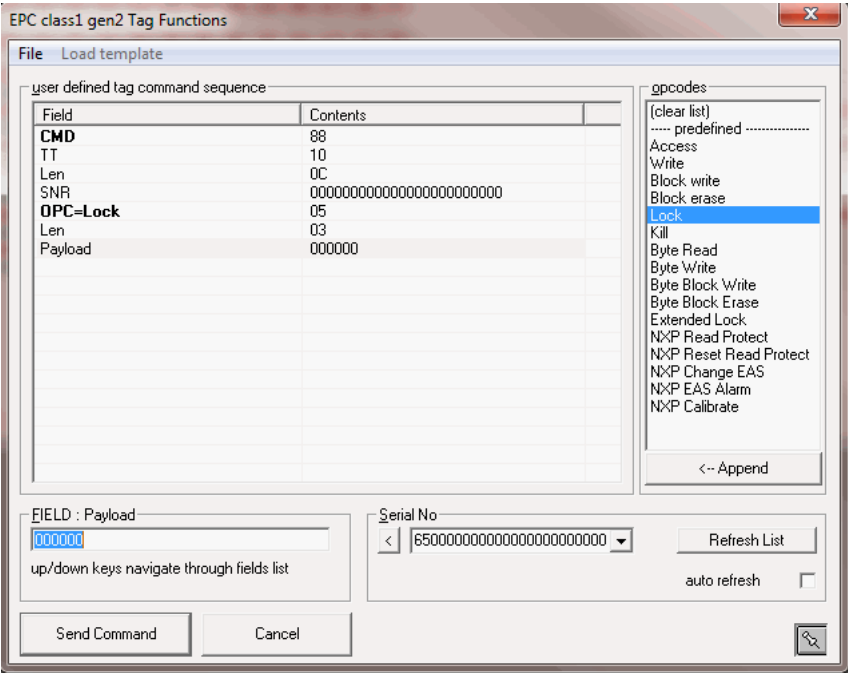


Fig. 56: “Lock” command in the “EPC class1 gen2 Tag Functions” window

The following table shows examples of “Lock Command Payload” settings:

Payload	Effect
300C00 _{hex}	access password permalocked, not readable or writable from any state
C03000 _{hex}	kill password permalocked, not readable or writable from any state
0C0200 _{hex}	EPC password protection against write, only writable from secure state
0C0300 _{hex}	EPC permalocked, not writable from any state
00C020 _{hex}	USER memory protection against write, only writable from secure state
00C030 _{hex}	USER memory permalocked, not writable from any state

A detailed description of the “Lock Payload” structure is contained in the EPCglobal™ specification.

Kill

A “Kill” command enables a tag to be permanently deactivated.



NOTE

A “Kill” command cannot be undone. After the execution of a “Kill” command the tag can no longer be used.

Tags for which the “Kill” password is set to the value 00000000 do not perform a “Kill” command. The “Kill” password is a 32 bit long value. It is stored in the “RESERVED” memory bank at block address 0 and 1.

The “Kill” command consists of the following parameters:

Parameter	Meaning
OPC=Kill	deBus command code
Len	Length of the “Kill” password in bytes (always 8)
Password	32 bit “Kill” password (MSB first)

The figure below shows an example of a “Kill” command. A “Kill” command is sent here to an EPC Class1 Gen2 tag. The “Kill” password used is 01020304_{hex}.

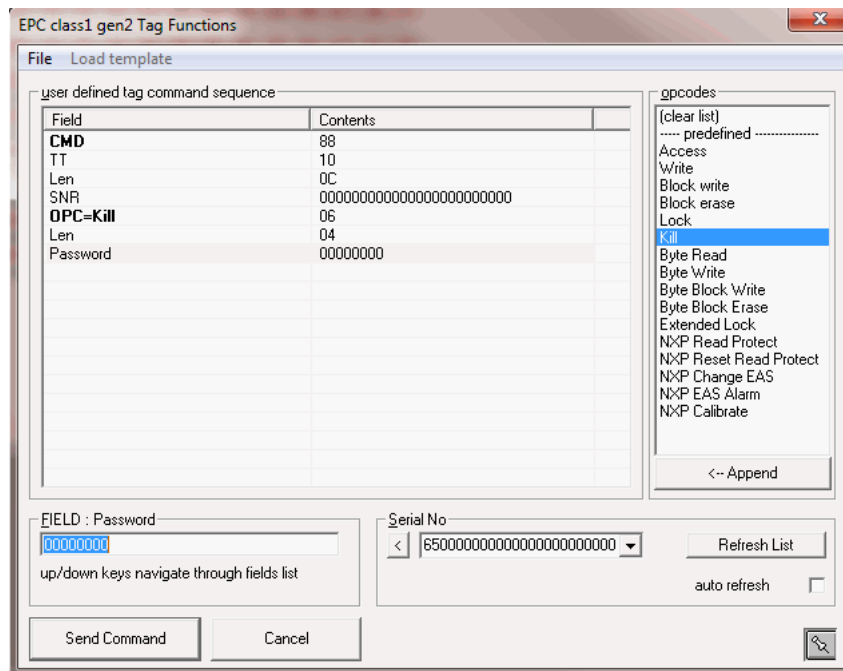


Fig. 57: “Kill” command in the “EPC class1 gen2 Tag Functions” window

Byte Read

The “Byte Read” command enables the reading of data on a tag. Unlike the usual read command, this command allows a larger address range (0...65535_{dec}). An “Access” password can be sent beforehand.

The “Byte Read” command consists of the following parameters:

Parameter	Meaning
OPC=Byte Read	deBus command code
Adr	2 byte address range (LSB first): Address (hex) from where the read operation is to start. The value must always produce a multiple of 2.
Bank select	Selection of the memory bank
Len	Number of bytes to be read (hexadecimal). The value must always produce a multiple of 2.

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The figure below shows an example of a “Byte Read” command. The EPC (12 bytes) is read here in the EPC memory bank from byte address 04_{hex}.

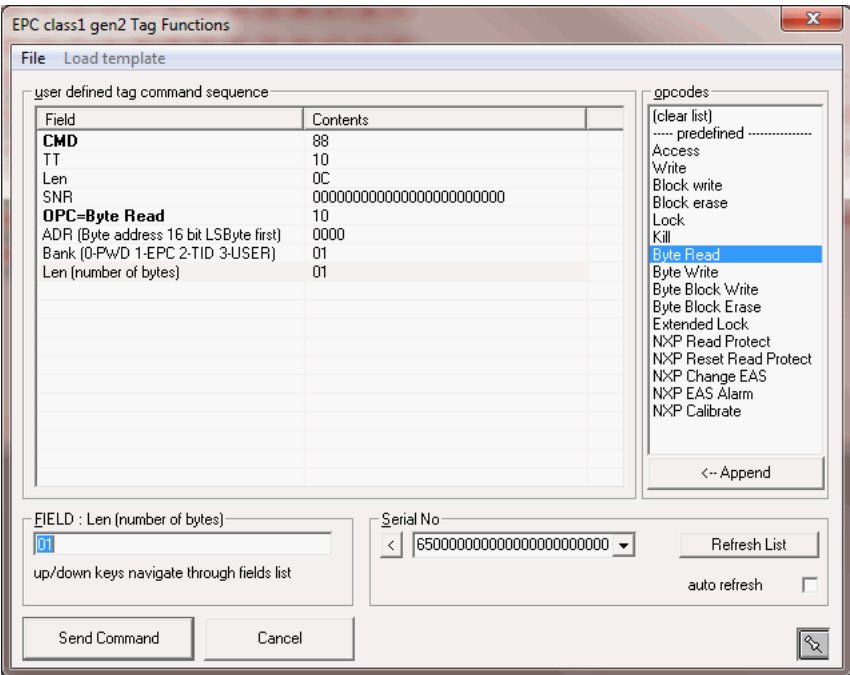


Fig. 58: “Byte Read” command in the “EPC class1 gen2 Tag Functions” window

Byte Write

The “Byte Write” command enables the writing of data on a tag. Unlike the usual write command, this command enables a larger address range (0...65535_{dec}). An “Access” password can be sent beforehand. A “Write” command is sent for each data block to be written.

The “Byte Write” command consists of the following parameters:

Parameter	Meaning
OPC=Byte Read	deBus command code
Adr	2 byte address range (LSB first): Address (hexadecimal) from where the write operation is to start. The value must always produce a multiple of 2.
Bank select	Selection of the memory bank
Len	Number of bytes to be written (hexadecimal). The value must always produce a multiple of 2 (max. 32 bytes)
Data	Data to be written (max. 32 bytes)

The figure below shows an example of a “Byte Write” command. The EPC (12 bytes) of a tag is written here to the EPC memory bank from byte address 04_{hex}.

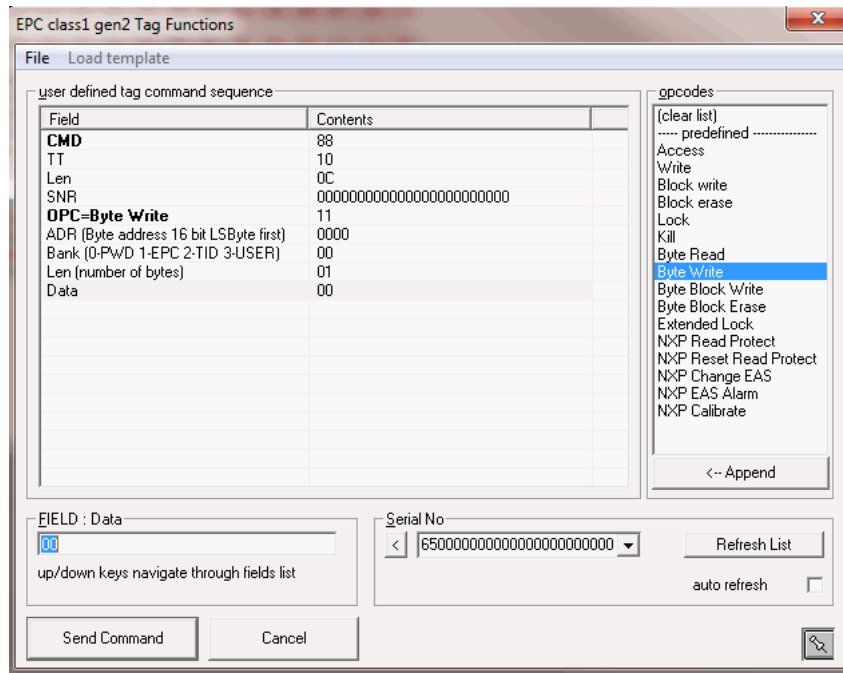


Fig. 59: “Byte Write” command in the “EPC class1 gen2 Tag Functions” window

Byte Block Write

The “Byte Block Write” command enables the writing of data on a tag. Unlike a “Block Write” command, this command allows a larger address range (0...65535_{dec}). An “Access” password can be sent beforehand.

The “Byte Block Write” command consists of the following parameters:

Parameter	Meaning
OPC=Block Byte Write	deBus command code
Adr	2 byte address range (LSB first): Address (hexadecimal) from where the write operation is to start. The value must always produce a multiple of 2.
Bank select	Selection of the memory bank
Len	Number of bytes to be written (hexadecimal). The value must always produce a multiple of 2 (max. 32 bytes)
Bytes Block	Number of bytes per block (with EPC Class1 Gen2 tags always 2)
Data	Data to be written (max. 64 bytes)

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The figure below shows an example of a “Byte Block Write” command. This writes Block “0” in the memory bank “RESERVED” from byte address 00_{hex}.

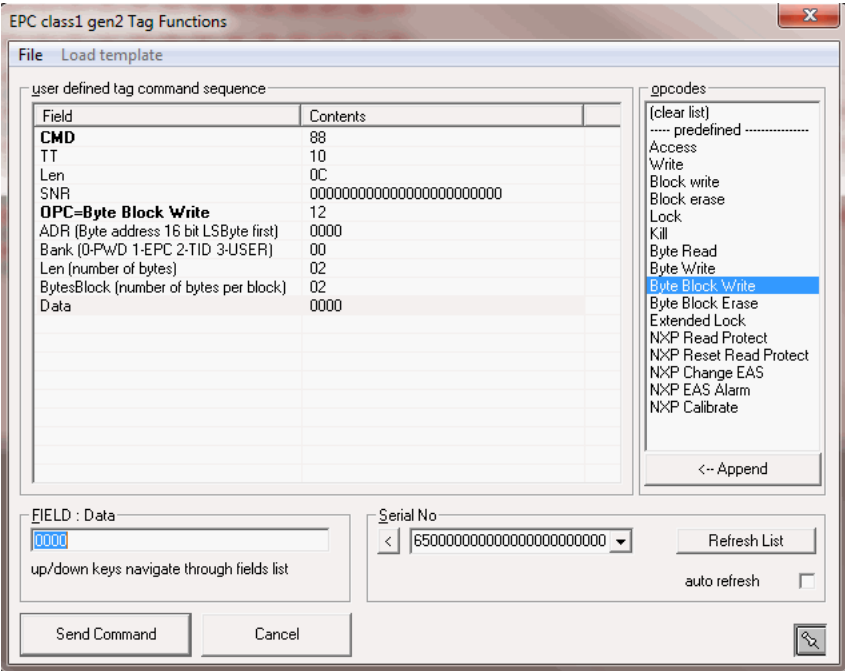


Fig. 60: “Byte Block Write” command in the “EPC class1 gen2 Tag Functions” window

Byte Block Erase

The “Byte Block Erase” command enables the erasing of data on a tag. Unlike a “Byte Block Erase” command, this command allows a larger address range (0...65535_{dec}).

The “Byte Block Erase” command consists of the following parameters:

Parameter	Meaning
OPC=Block Byte Erase	deBus command code
Adr	2 byte address range (LSB first): Address (hex) from where the erase operation is to start. The value must always produce a multiple of 2.
Bank	Selection of the memory bank
Len	Number of bytes to be erased (hexadecimal). The value must always produce a multiple of 2 (max. 32 bytes). The value “Len” must always correspond to the maximum number of bytes that can be deleted with an “Erase” command. This parameter depends on the manufacturer.

The figure below shows an example of a “Byte Block Erase” command. This erases a block (2 bytes) with the block address “00” in the “USER” memory bank.

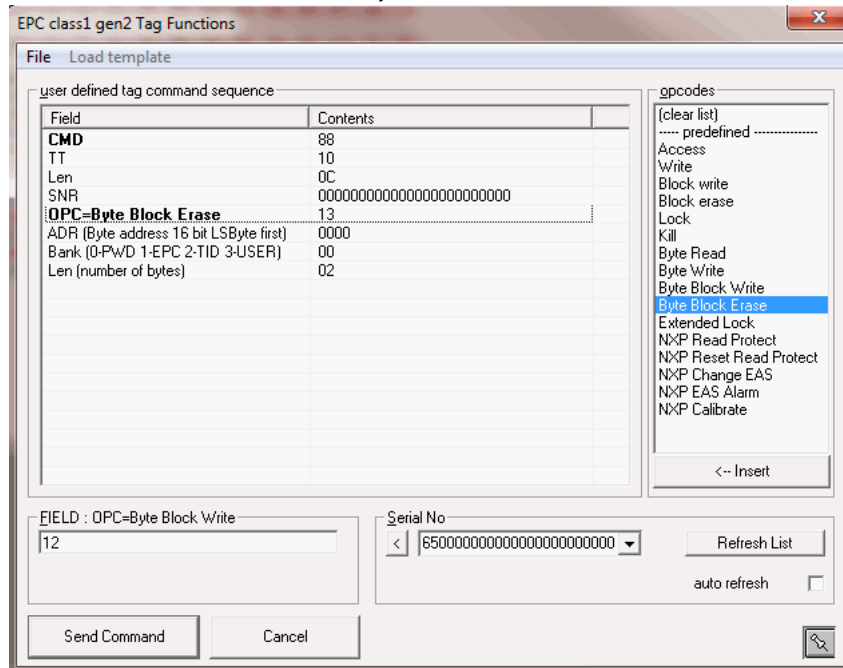


Fig. 61: “Byte Block Erase” command in the “EPC class1 gen2 Tag Functions” window

Extended Lock

The “Extended Lock” command enables the “Lock” status for one or multiple memory banks to be changed. Unlike the “Lock” command, the “Extended Lock” command uses an extended parameter set. If desired, “Lock” mechanisms can be used that are not contained in the EPCglobal™ specification.

The “Extended Lock” command consists of the following parameters:

Parameter	Meaning
OPC=Extended Lock	deBus command code
ADR Mask	Definition of the bit mask that changes the “Lock” status of the memory banks (2 byte value, LSB first)
Bank	Selection of the memory bank: The default “Lock” mechanism is activated by using FF _{hex} .
LockStatus	Definition of the bit mask that changes the “Lock” status (2 byte value, LSB first)

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The figure below shows an example of an “Extended Lock” command for the “Access” password and the “Kill” password.

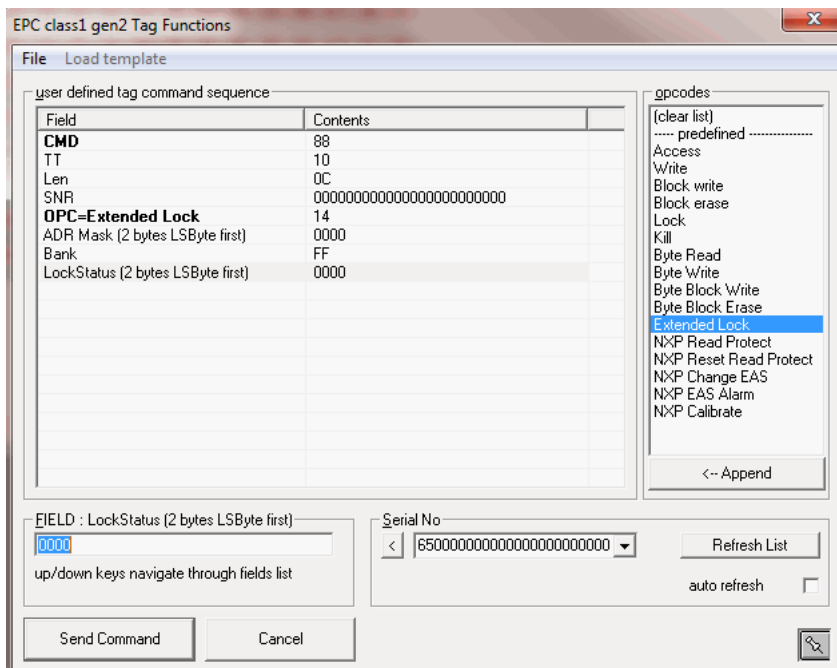


Fig. 62: “Extended Lock” command in the “EPC class1 gen2 Tag Functions” window

Structure of the bit mask (ADR mask) and “Lock” status

Bit	Change/set value
0	User memory perma lock
1	User memory pwd write
2	TID memory perma lock
3	TID memory pwd write
4	EPC memory perma lock
5	EPC memory pwd write
6	Access PWD perma lock
7	Access PWD pwd write
8	Kill PWD perma lock
9	Kill PWD pwd write
10...15	0

Manufacturer-specific command “NXP Read Protect”

The “NXP Read Protect” command enables the protection of the tag from read accesses. EPC and CRC16 are output as “0”.

The “NXP Read Protect” command can only be executed if an “Access” command was sent beforehand.

The “NXP Read Protect” command consists of the following parameters:

Parameter	Meaning
OPC=NXP Read	deBus command code

The figure below shows an example of an “NXP Read Protect” command. A tag with the EPC “35353535353535727A727A” will respond with EPC “000000000000000000000000” after the command is sent.

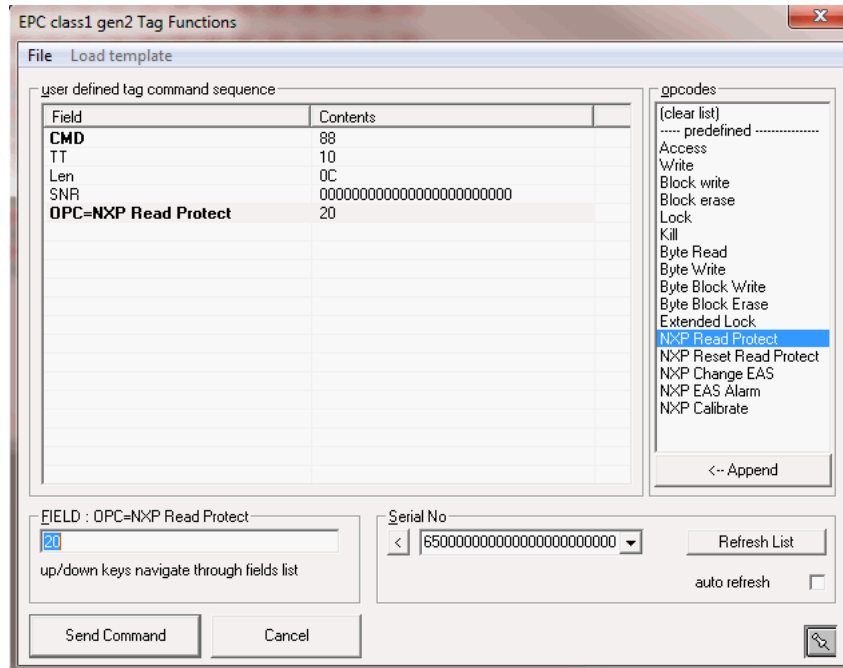


Fig. 63: "NXP Read Protect" command in the "EPC class1 gen2 Tag Functions" window

Manufacturer-specific “NXP Change EAS” command

The “NXP Change EAS” command activates or deactivates the EAS function of the tag (EAS = electronic article surveillance).

The "NXP Change EAS" command can only be executed if an "Access" command was sent beforehand.

The “NXP Change EAS” command consists of the following parameters:

Parameter	Meaning
OPC=NXP Change EAS	deBus command code
Enable	Deactivate the EAS function: 00 _{hex} Activate the EAS function: 01 _{hex}

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The figure below shows an example of an “NXP Change EAS” command.

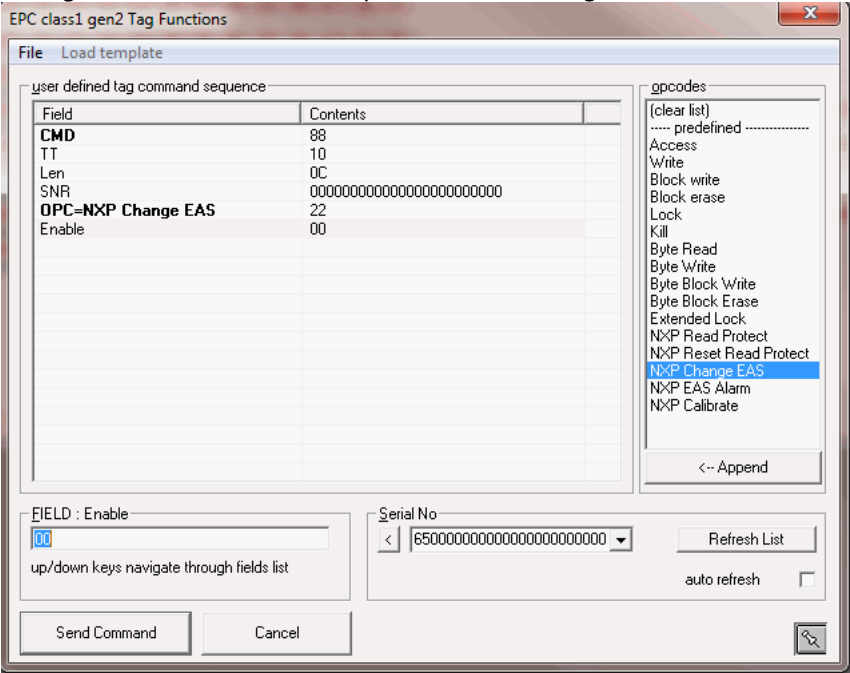


Fig. 64: “NXP Change EAS” command in the “EPC class1 gen2 Tag Functions” window

Manufacturer-specific “NXP EAS Alarm” command

The “NXP EAS Alarm” command enables the EAS alarm code of an NXP-EPC Class1 Gen2 tag to be received. The tag sends an EAS alarm code if the EAS function is activated (see manufacturer specific “NXP Change EAS” command). The EAS alarm code has a length of 64 bits.

The “NXP EAS Alarm” command consists of the following parameters:

Parameter	Meaning
OPC=NXP EAS Alarm	deBus command code

The figure below shows an example of an “NXP EAS Alarm” command. RDemo shows the EAS alarm code 690AE-C7CD215D8F9 in the “Transponder Data” window.

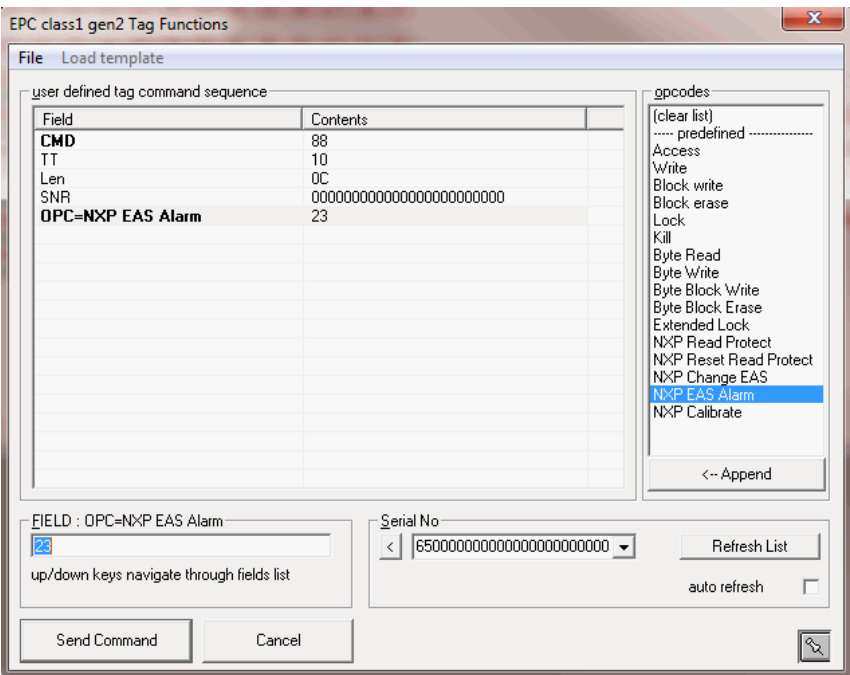


Fig. 65: “NXP EAS Alarm” command in the “EPC class1 gen2 Tag Functions” window

The “NXP Calibrate” manufacturer-specific command enables the display of the 512 bit user data range of an NXP-EPC Class1 Gen2 tag.

The “NXP Calibrate” command consists of the following parameters:

Parameter	Meaning
OPC=NXP Calibrate	deBus command code

The figure below shows an example of an “NXP Calibrate” command. RDemo shows the following content of the user data range in the “Transponder Data” window: 776572747A75696F70FC61736464666767686A6A6B6B6B-6B6768676A676A676A00.

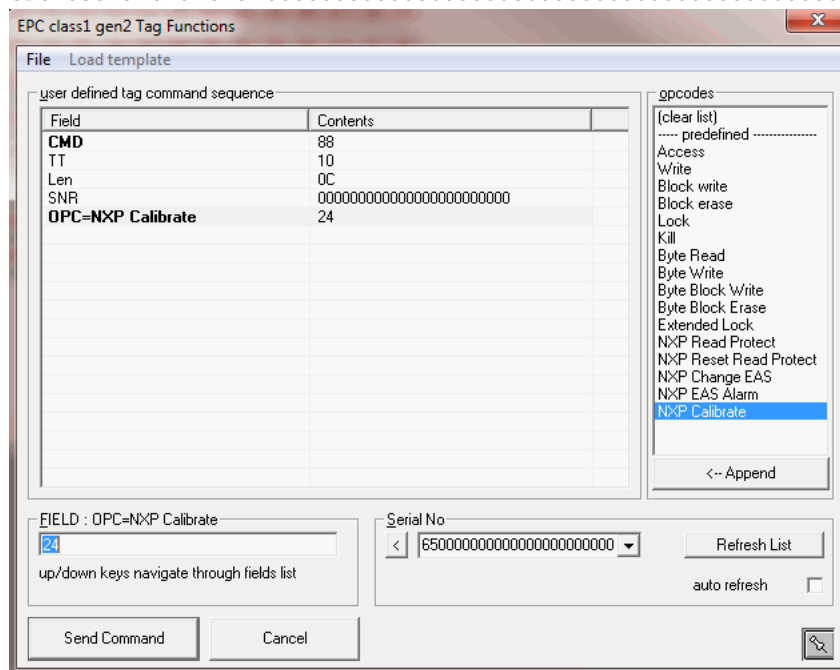


Fig. 66: "NXP Calibrate" command in the "EPC class1 gen2 Tag Functions" window

7.5 Using the “Tag Capture Control” function

The “Tag Capture Control” function enables the visual display of read tags. RDemo shows a field for each tag detected. The field displays whether and how often a tag was read.
If the read/write heads are connected to a DCU, it is possible to visually display the read/write head read that read a particular tag and how often.

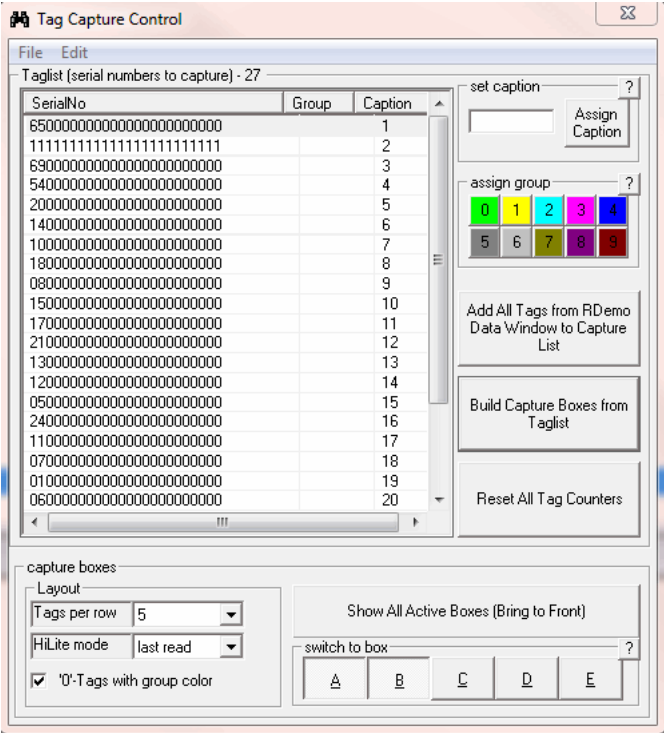


Fig. 67: “Tag Capture Control” window

Basic functions of “Tag Capture Control”

- Menu: Enables the displayed tag table to be saved as a file. Previously saved tag tables can be loaded from a file.
- “Taglist (serial numbers to capture)” table: Displays the tags that are to be used for a “Tag Capture Control” function. The table can be sorted by clicking the appropriate column header.

Feature	Meaning
SerialNo	Displays the IDs of the tags that are to be used for the “Tag Capture Control” function.
Group	Displays the assignment of a tag to a group. If a tag is assigned to a group, it is displayed in a specific group color.
Caption	Shows the caption of the field that was assigned to the tag.

- “set caption” area: Enables the writing of the “Caption” attribute (e.g. with product name). Proceed as follows:
 - Select the tag to be marked with the caption in the “Taglist” table.
 - Enter the required caption in the entry field.
 - Confirm the entry by clicking the “Assign Caption” button.
 - ➔ The entered value appears in the “Caption” attribute of the required tag.
- “Assign group” area: The colored buttons can be used to assign the tags to groups. Proceed as follows:
 - Select the tags to be assigned to a group in the “Taglist” table.
 - Click one of the colored buttons.
 - ➔ The tags are assigned to a group.
 - optional: Right-click to change the group color.

- “Add All Tags from RDemo Data Window to Capture List” button: All the tags displayed in RDemo are added to the “Taglist” table. The “Caption” feature is automatically displayed as a consecutive number.
- “Build Capture Boxes from Taglist” button: Updates the tags in the capture boxes if the “Taglist” table was changed.
- “Reset All Tag Counters” button: Sets the counters for all tags in the capture boxes to 0.
- “capture boxes” area: Defines the structure of the capture boxes. The parameters have the following meanings.

Parameter	Meaning
“Tags per row” drop-down menu	Number of fields in the capture boxes. A field represents a tag ID.
“HiLite mode” drop-down menu	None: Read tags are only highlighted as read last read: The last tag read is highlighted with the HiLite color for 2 s. each read: All tags read are highlighted with the HiLite color for 2 s.
Checkbox “0 tags with group color”	If the checkbox is activated, the displayed counter is highlighted with the group color for tags that are unread.

- “Show All Active Boxes (Bring to Front): Brings all active capture boxes to the foreground.
- “switch to box” area: Clicking the buttons “A”, “B”, “C”, “D” or “E” enables you to navigate between up to 5 capture boxes.

Capture boxes – Elements

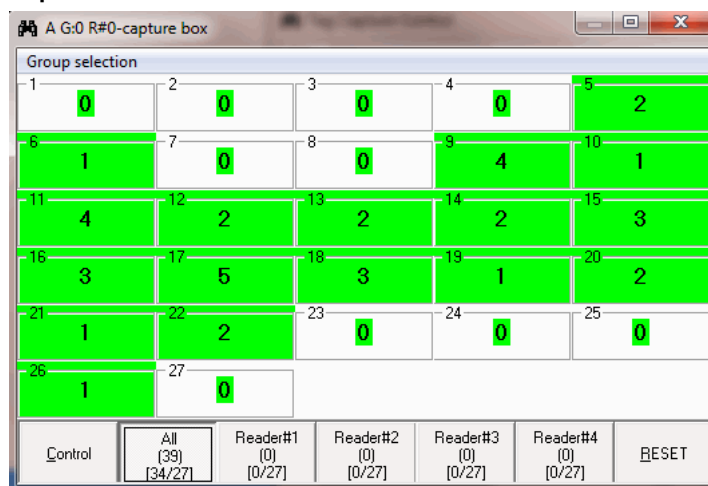


Fig. 68: Capture box (example)

A capture box consists of the following elements:

- Title line: The title line consists of 4 parameters.

Parameter	Meaning
“A”...“E”	Name of the capture box.
G:n	Number of groups from which tags are displayed
R:n	Number of read tags that are highlighted in color.
capture box n	Tag ID of the field on which the cursor is moved.

- Tag capture overview: A field is displayed for each tag. The caption is shown at the top edge of the field. In the middle of the field is a counter that displays the number of read operations for the tag. After a successful read operation, the field of the tag is marked in the color of the associated group.
- “Control” button: back to the main menu
- “All” button: All read tags are displayed.
- “Reader#1” button (only valid if the read/write heads are connected to a DCU): All of the tags read by the read/write head connected to Port 1 of the DCU are displayed.

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- “Reader#2” button (only valid if the read/write heads are connected to a DCU): All of the tags read by the read/write head connected to Port 2 of the DCU are displayed.
- “Reader#3” button (only valid if the read/write heads are connected to a DCU): All of the tags read by the read/write head connected to Port 3 of the DCU are displayed.
- “Reader#4” button (only valid if the read/write heads are connected to a DCU): All of the tags read by the read/write head connected to Port 4 of the DCU are displayed.



NOTE

The “Antenna info” configuration parameter must be activated in the DCU in order to use the buttons “Reader#1”... “Reader#4”. Detailed information on the configuration of the DCU is provided in the deBus protocol for the DCU.

- Reset: Resets the capture box.

Group Selection

If the tags are divided into groups, the capture box in the output state shows all tags from the “Taglist” table. The division into groups is indicated by the colored background of the fields. The “Group Selection” function enables the selective display of read tags for a specific group.

A G:0 R#0-capture box

Group selection

1 0	2 0	3 0	4 0	5 3
6 3	7 2	8 2	9 4	10 4
11 5	12 4	13 3	14 5	15 3
16 6	17 4	18 5	19 6	20 4
21 2	22 4	23 0	24 2	25 1
26 1	27 4	28 1	29 1	30 2
31 2	32 1	33 3	34 2	35 0
36 0	37 1	38 0	39 4	40 0
41 0	42 1	43 2	44 0	45 0
46 0	47 1	48 0	49 2	50 1
51 2	52 3			

Control

All
(106)
[76/52]

Reader#1
(0)
[0/52]

Reader#2
(0)
[0/52]

Reader#3
(0)
[0/52]

Reader#4
(0)
[0/52]

RESET

Fig. 69: Capture box (all tags are displayed)

The following example shows only the readings of tags assigned to group 1 in the capture box. "[G:1]" for group 1 is displayed as the last parameter in the title bar.

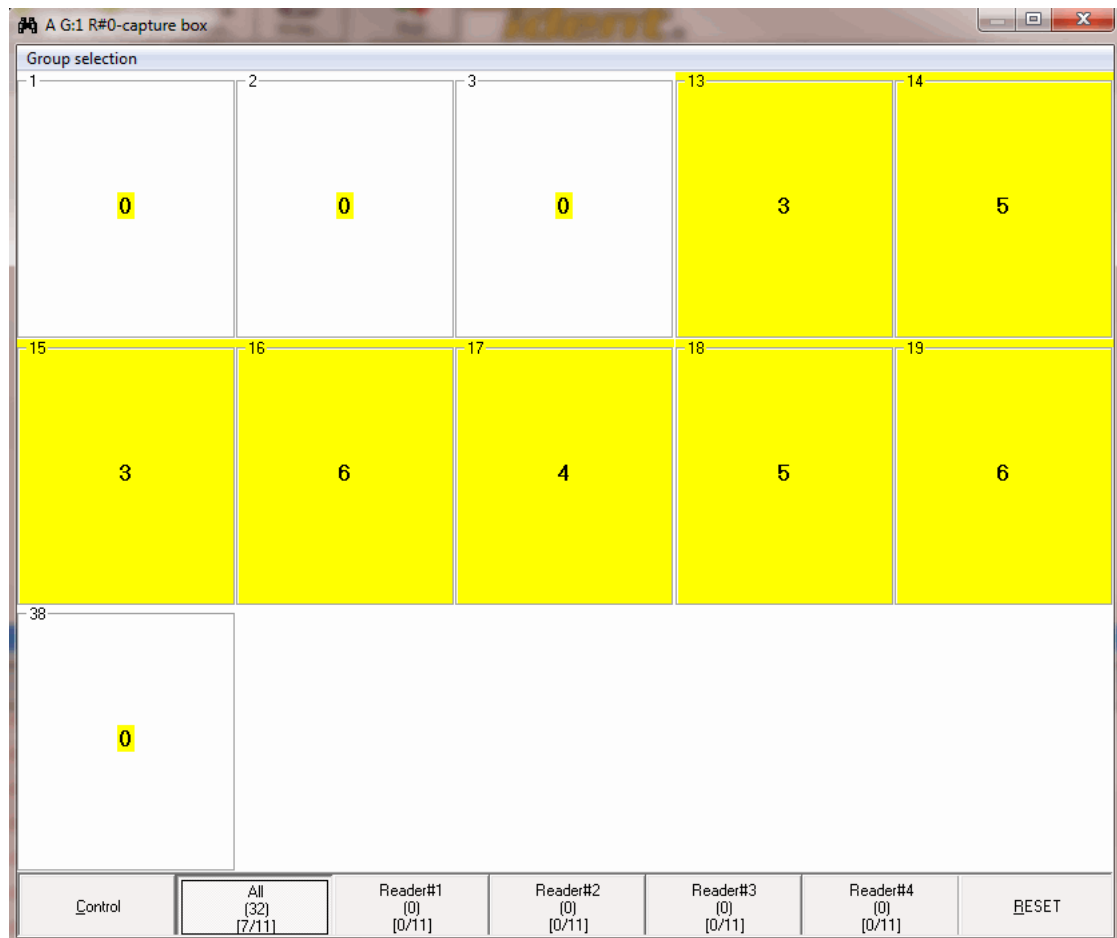


Fig. 70: Example of the "Group Selection" function

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The “Group Selection” menu makes it possible to select which groups of read tags are to be displayed in the capture box.

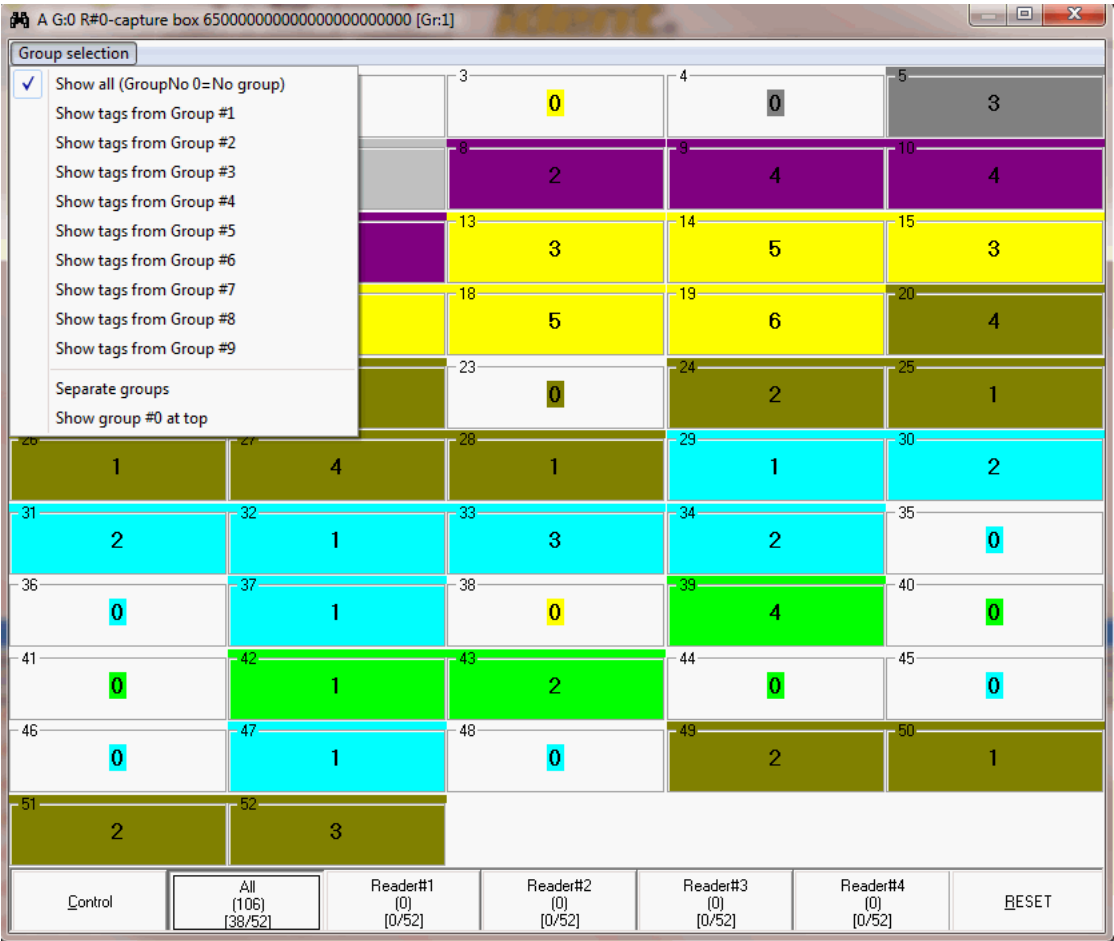


Fig. 71: “Group Selection” menu

If the “Show all” function is selected, the “Separate Groups” option can also be activated in the “Group Selection” menu. “Separate Groups” enables a view of the capture box separated by groups.

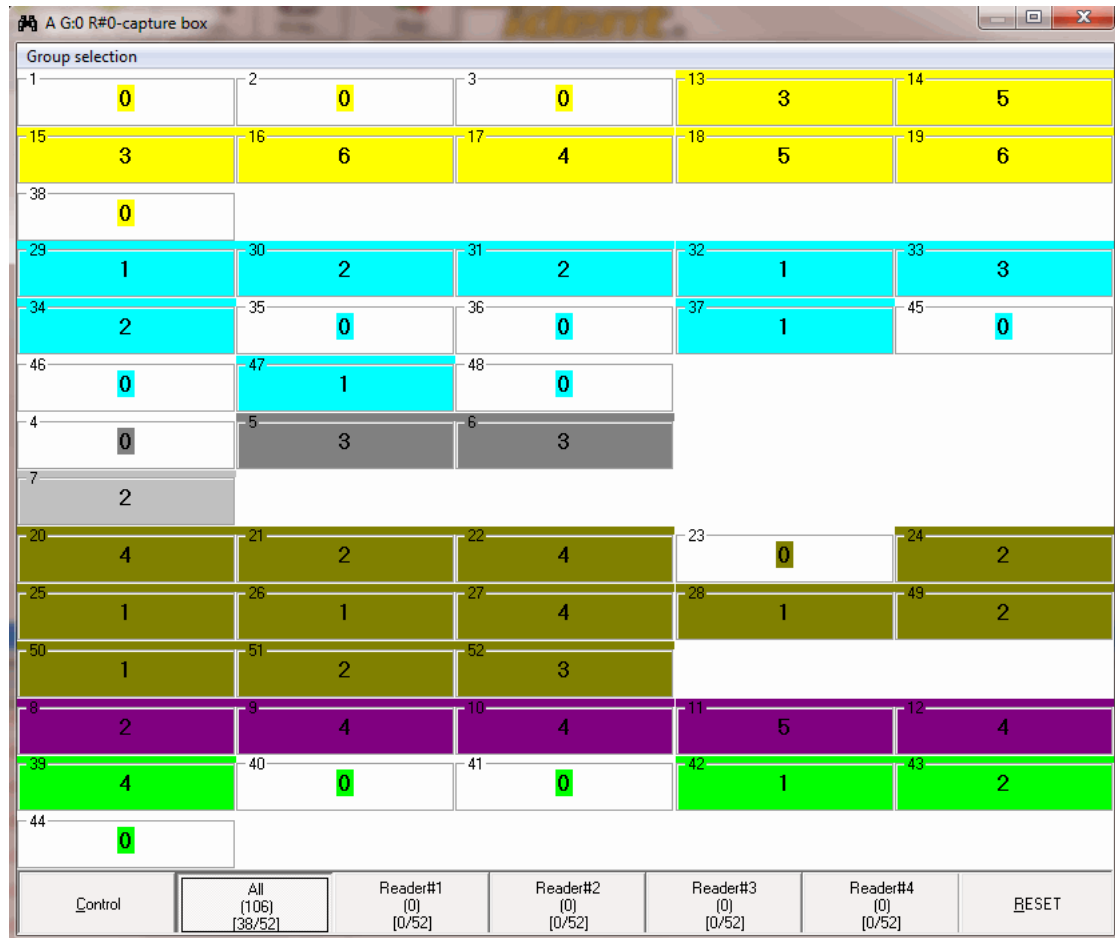


Fig. 72: Capture box with activated “Show group #0 at top” option

If the “Show all” function has been selected, the “Show group #0 at top” option can also be activated in the “Group Selection”. “Show group #0 at top” causes the display in the top row of the capture box of tags that are not assigned to a group.

7.6 Example: Building a capture box

- Read in all the required tags with RDemo.



NOTE

Only those tag IDs can be used for the “Tag Capture function” that are displayed in the “Transponder data” window.

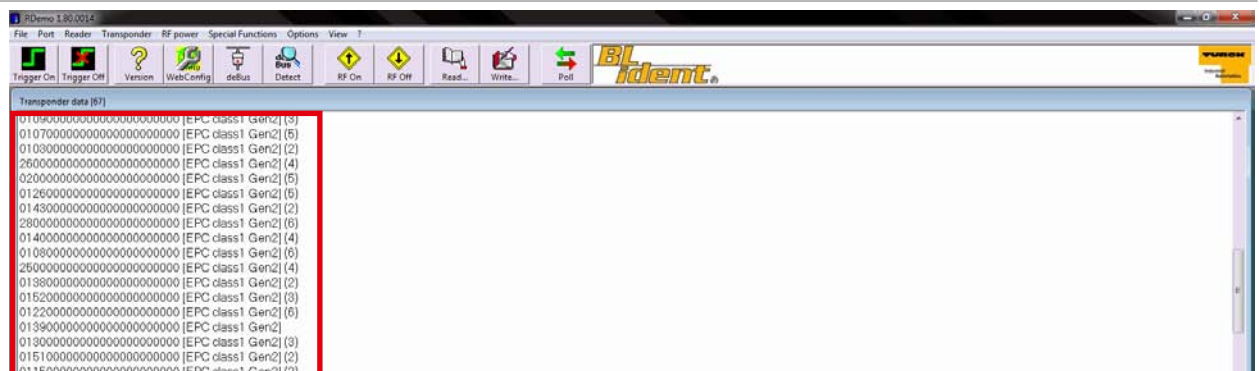


Fig. 73: Tags in the “Transponder data” window

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- Start the “Tag Capture Control” function via the “Special Functions” menu.
- Click the “Add All Tags from RDemo Data Window to Capture List” button.
- Click the “Build Capture Boxes from Taglist” button.

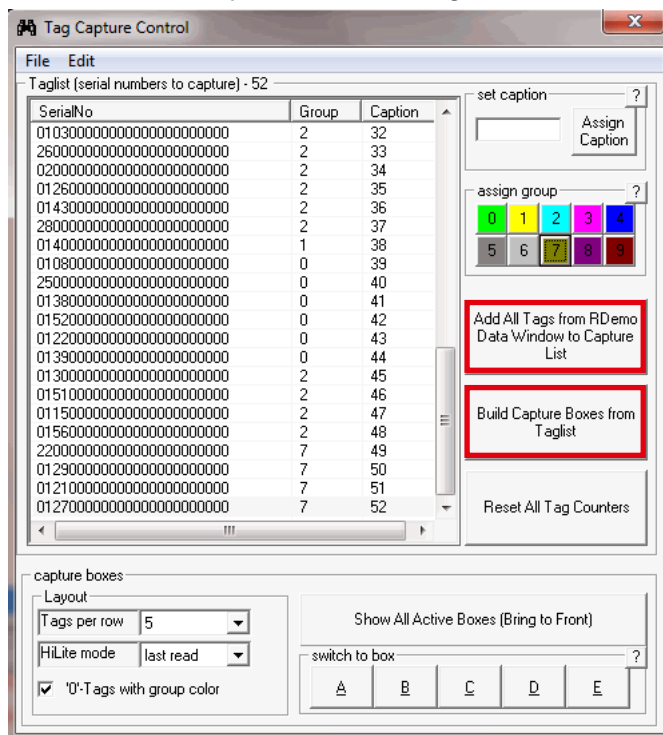


Fig. 74: “Tag Capture Control” function

- This opens the capture box. A field appears for each tag.

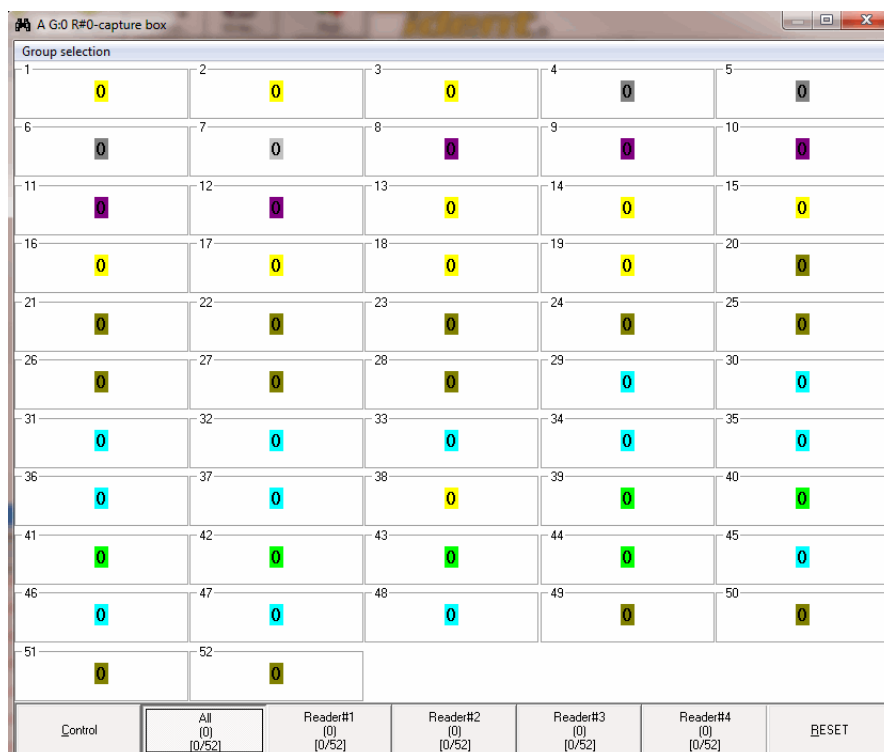


Fig. 75: Capture box

- Place the tags in the transmission field of the read/write head.
- The read fields are displayed as follows:

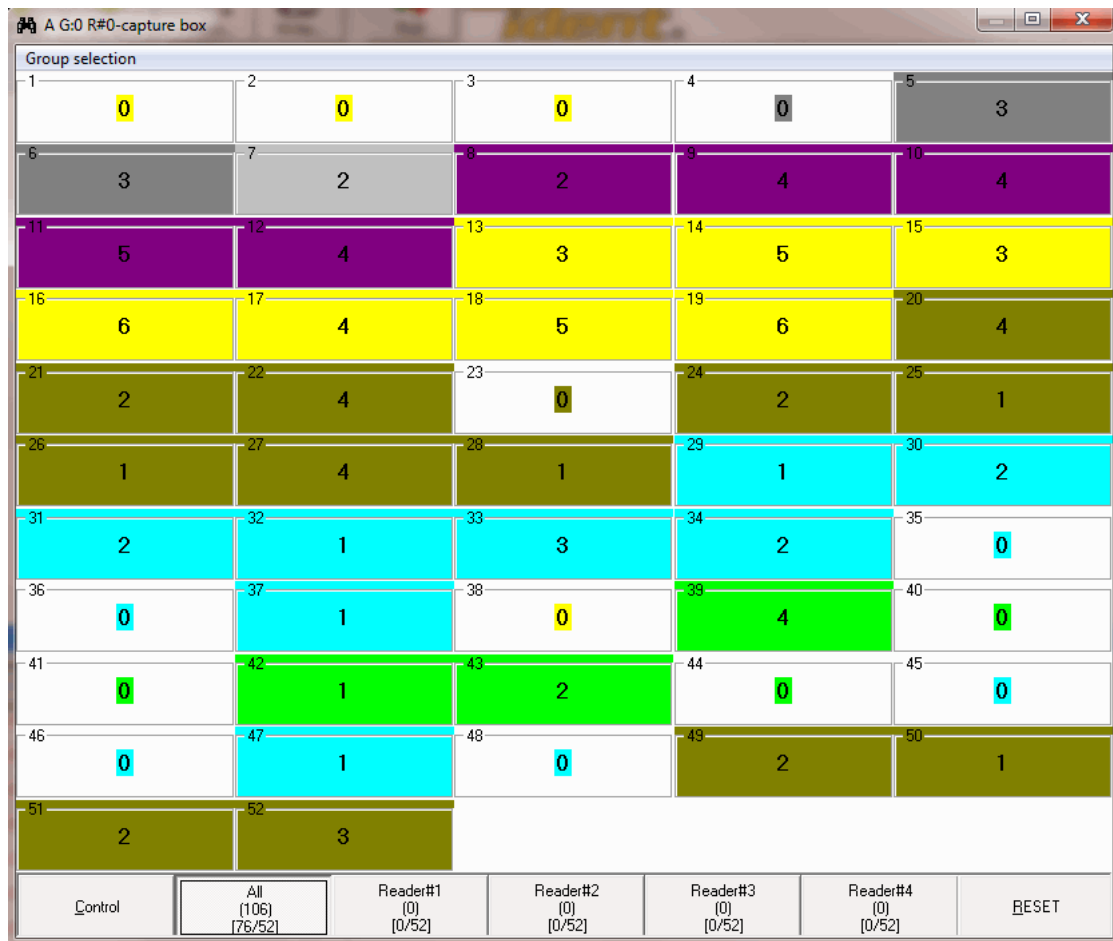


Fig. 76: Capture box (read tags)

8 Troubleshooting

Problem	Solution
The COM port is not displayed in the RDemo Port menu.	➤ Search for the COM port in RDemo via "Special Functions" > "Search for Serial Ports" and activate it. ➤ Restart RDemo. ➤ The COM port will be made available.
COM port unknown (e.g. when using an interface converter)	➤ Determine the COM port created by the system via > "Control Panel" > "Hardware and Sound" > "Device Manager" > "Ports (COM and LPT)".
Error message 8005 (Port already open): The COM port is already being used by another program.	➤ Close all other programs. ➤ If necessary, restart RDemo. ➤ If the error message still appears, choose the COM port number ("Control Panel" > "Hardware and Sound" > "Device Manager" > "Ports (COM and LPT)" > "Properties" > "Port Settings" > "Advanced" > "COM Port Number"
Error message 1001 ("A break was received")	➤ Remove all tags from the detection range of the read/write head. ➤ Ensure that data is not being sent from the read/write head to the host or PC. ➤ Set the correct baud rate in RDemo.
Error message 1004 ("Framing Error")	➤ Remove all tags from the detection range of the read/write head. ➤ Ensure that data is not being sent from the read/write head to the host or PC. ➤ Set the correct baud rate in RDemo.

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Hans Turck GmbH & Co. KG
Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany
Tel. +49 208 4952-0
Fax +49 208 4952-264
E-Mail more@turck.com
Internet www.turck.com

D500008 2014/10

