



# **UDL5 – UHF mouse**

## **Quick start manual**

V27/09/07

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September 2007 SK

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## Content

<b>1. UDL5 description.....</b>	<b>4</b>
1.1 Components.....	4
<b>2. Mechanical Dimensions.....</b>	<b>4</b>
2.1 LEDs and Beeper.....	5
<b>3. Configuration and setting.....</b>	<b>5</b>
3.1 Transmission protocol.....	5
<b>4. Getting started.....</b>	<b>6</b>
4.1 Installing USB driver.....	6
4.2 Installing RDemo.....	10
4.3 Get connection.....	10
4.4 Reading block data.....	14
4.5 Writing block data.....	15
4.6 EPC class1 gen2 tag functions.....	16
4.7 RDemo command builder.....	16
<b>5. EPC class1 gen2 memory organisation.....</b>	<b>17</b>

## 1. UDL5 description

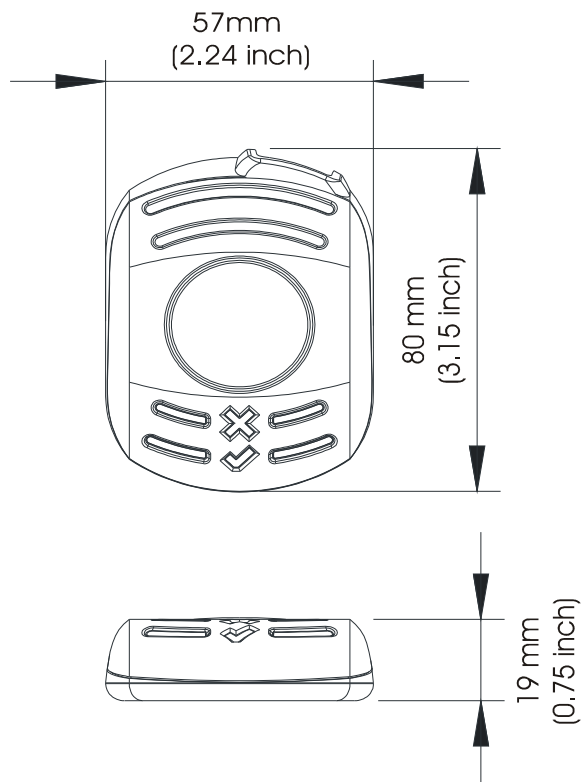
### 1.1 Components

The UDL5 delivery contains:

- 1x UDL5 – UHF mouse
- 1x USB cable
- 1x CD with technical information and software

## 2. Mechanical Dimensions

All dimensions in mm (inch).



Symbol	LED color	Status
<b>X</b>	red	RF-field on/off
√	green	reading/writing tags
	blue	power

Further explanation see next section 2.1 „LEDs and Beeper“.

## 2.1 LEDs and Beeper

The device is equipped with three LEDs and one beeper to indicate the reader status. The following table refers to the standard settings (device set in trigger mode).

LEDs	Status UDL5
blue and red: on green: off	reader is ready to operate, RF-field is switched off
blue: on red and green: off	reader is ready to operate, RF-field is switched on, reader is ready to read or write to transponder
blue and green: on red: off beeper: on	reader is ready to operate, communication between reader and tag (reading/writing)
blue, green and red: on	reader carries out a reset, RF-field is switched off, reader is not ready to operate

## 3. Configuration and setting

**Please note: This manual is considered to be preliminary.**

In the standard configuration the device is set in "Trigger Mode". This means the device waits for a "Trigger On" command to switch the RF-field on and a „Trigger Off" command to switch the RF-field off. These software commands can be sent to the device using RDemo software (to be found on the CD which is part of the UDL5 package).

The UDL5 in its current version is EPC class1 gen2 complicant only.

### 3.1 Transmission protocol

The communication of the UDL5 is based on the "deBus" protocol. For integration into user-defined applications please contact your local sales and service center (see end of document).

## 4. Getting started

### 4.1 Installing USB driver

First the USB driver has to be installed. The following steps show how to install the driver under Windows XP (Windows Vista is supported as well):

- Connect the UDL5 via USB cable to a spare USB Port at your Host/PC (USB cable as part of delivery of UDL5).
- Windows XP indicates the new hardware with the message "Found New Hardware: HARVEMAC".

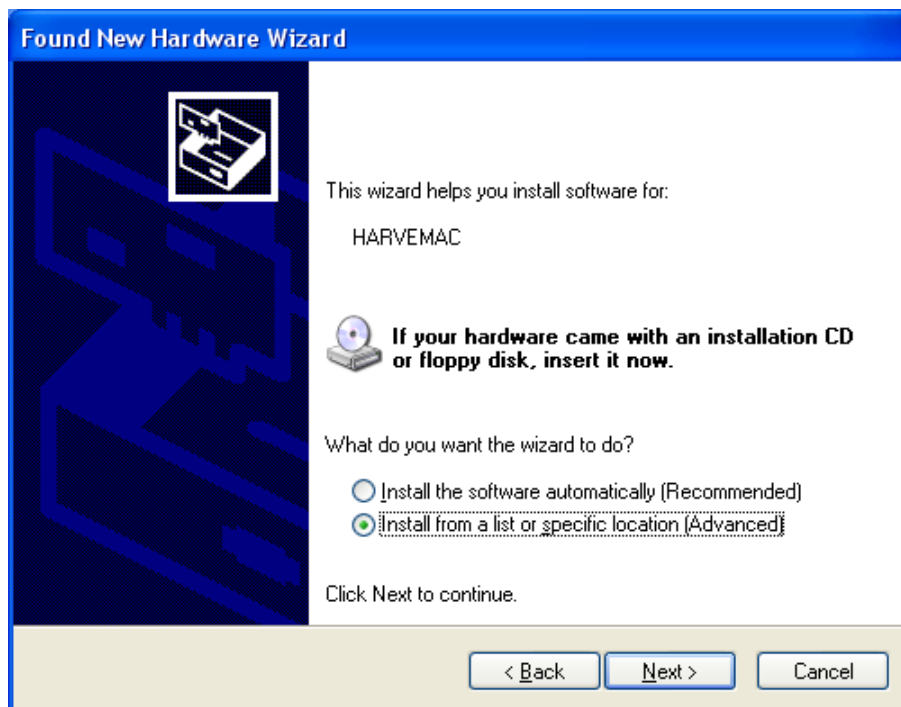


- The "Found New Hardware Wizard" will now be started automatically. Select "No, not this time" and click "Next".

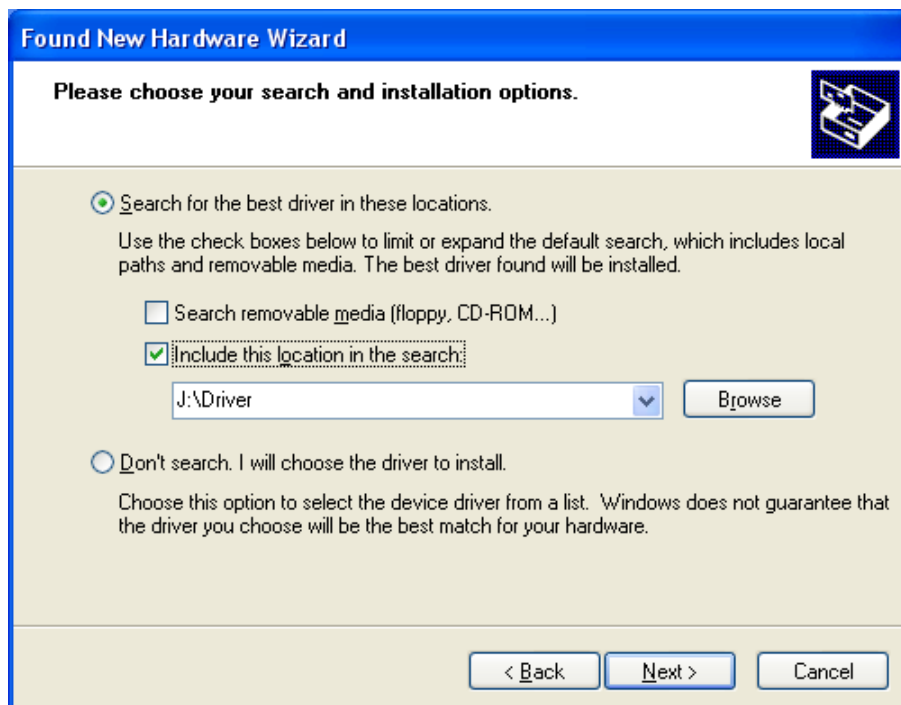


If this procedure failed, the search for new hardware can be started manually by click on: "Start" -> "Settings" -> "Control Panel" -> "System" -> "Hardware" -> "Device Manager". Select the USB device, marked by a yellow question mark.

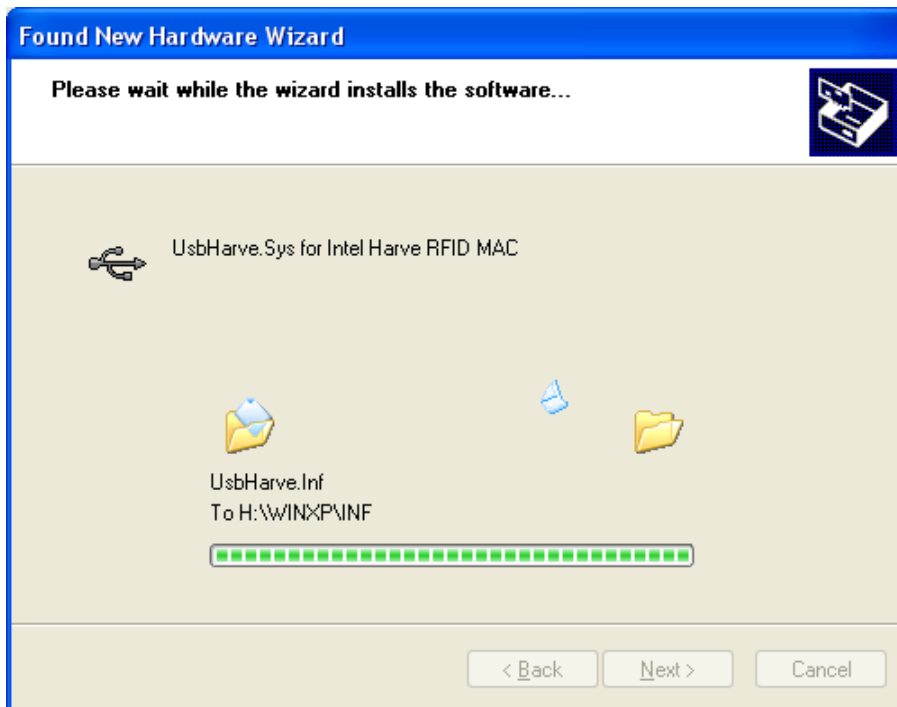
- Select “Install from a list or specific location (Advanced)” and click “Next”.



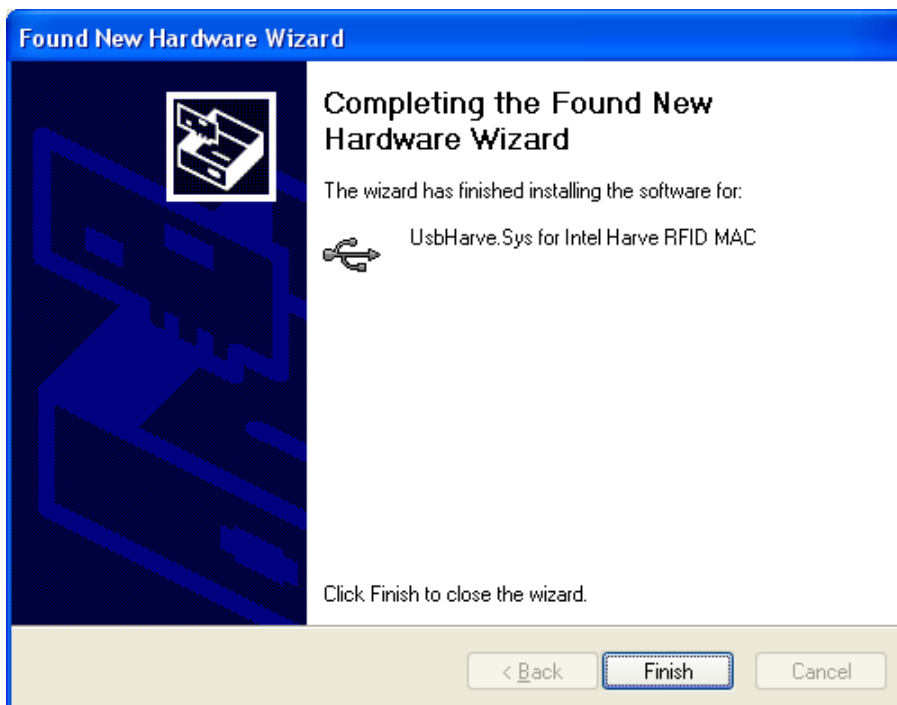
- Select “Search for the best driver in these locations”. Enter path name into the combo-box or browse to path using the “Browse” button.



- The screen below will be shown while Windows XP copies the required files.

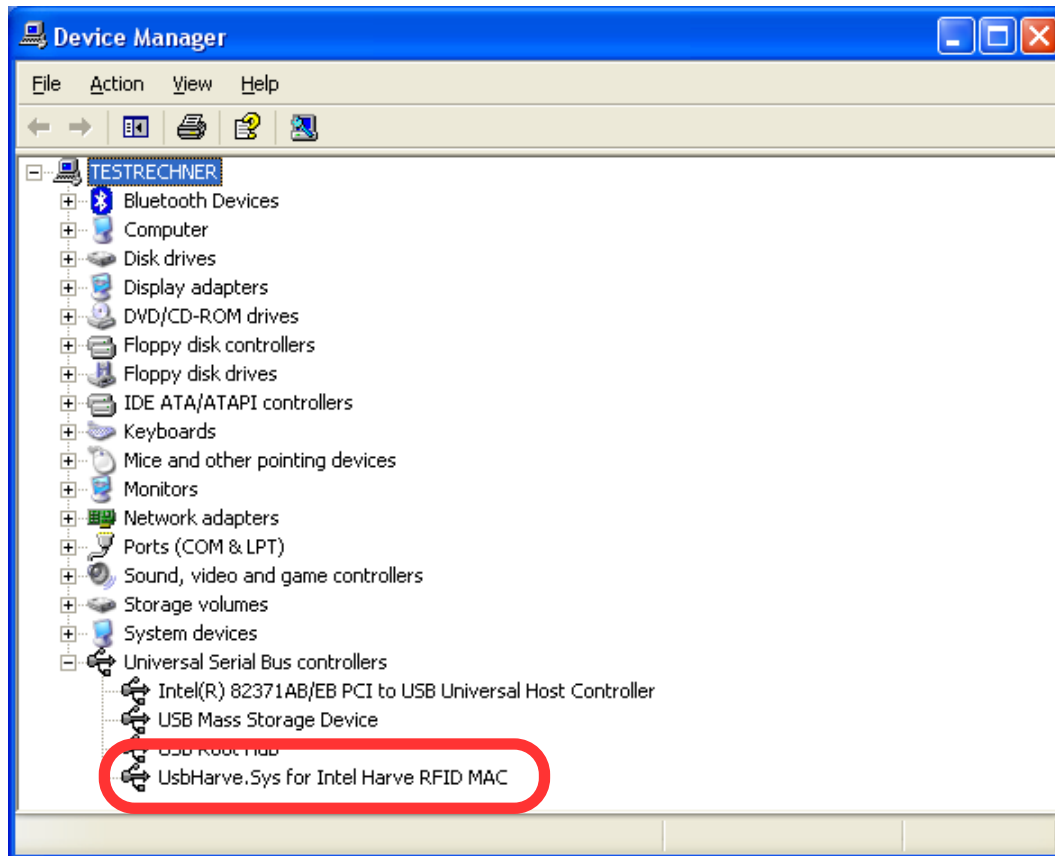


- The following message indicates a successful installation process. Click "Finish" to close the wizard. Now the UDL5 is successfully installed.





- After successful installation of the USB driver, the UDL5 is ready for use. The “Device Manager” indicates the UDL5 as an additional device named “UsbHarve.Sys for Intel Harve RFID MAC”.



## 4.2 Installing RDemo

The RDemo program can be found on the CD as part of the UDL5 package. For installation proceed as follows:

- Start installing RDemo with double click on file or icon:

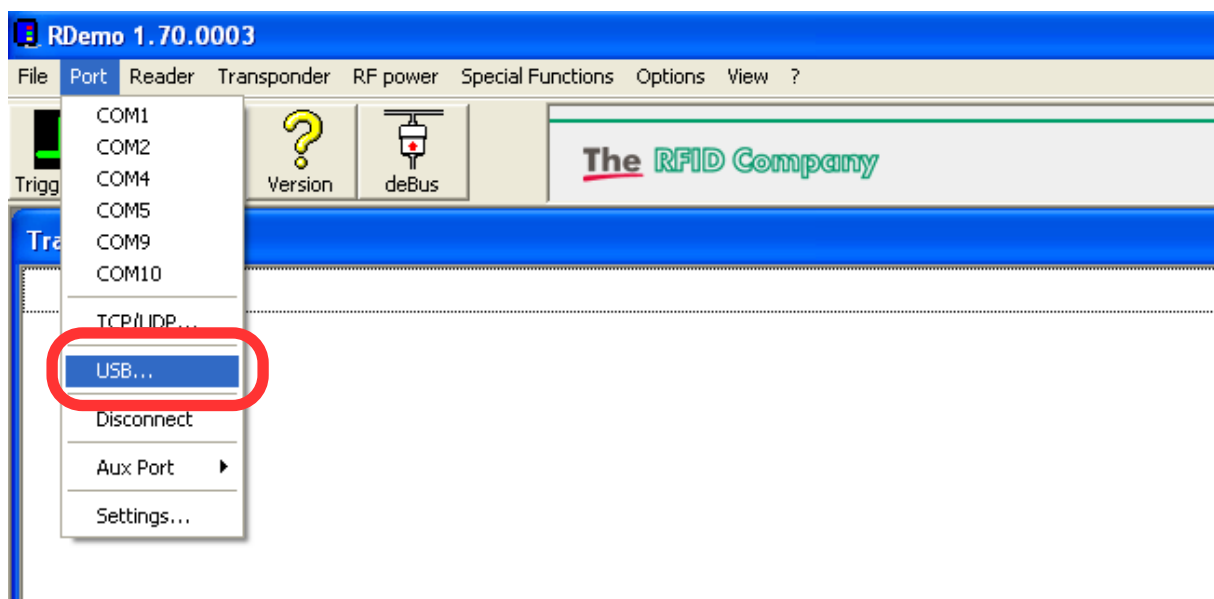


## 4.3 Get connection

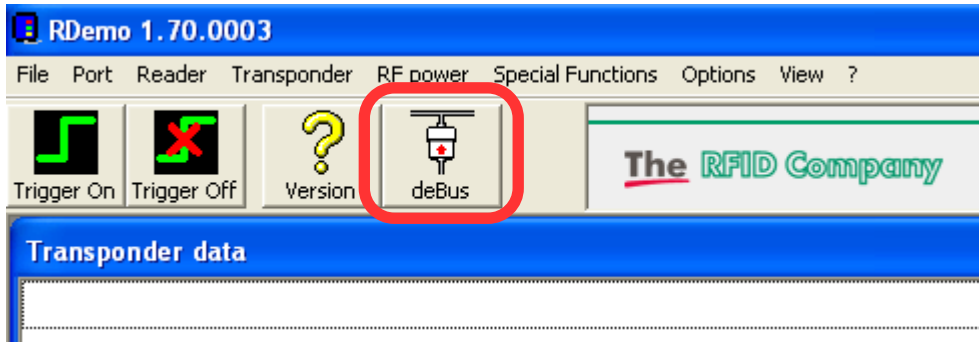
- After successful installation of RDemo start the program with double click on file or icon:



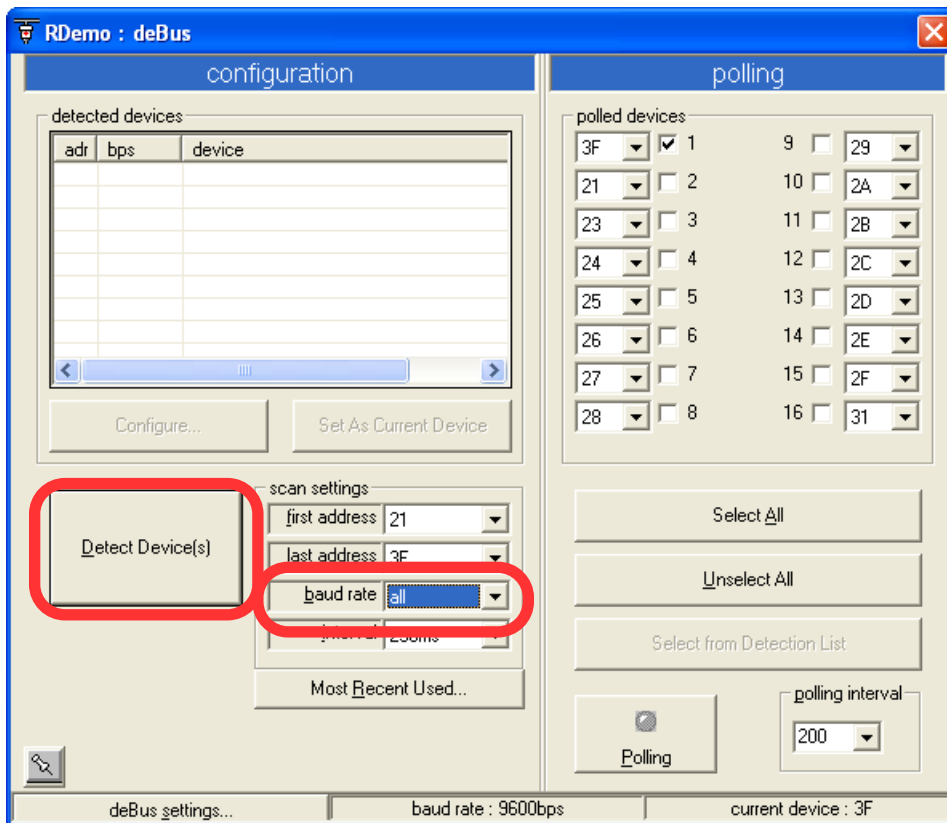
- Select "Port" -> "USB".



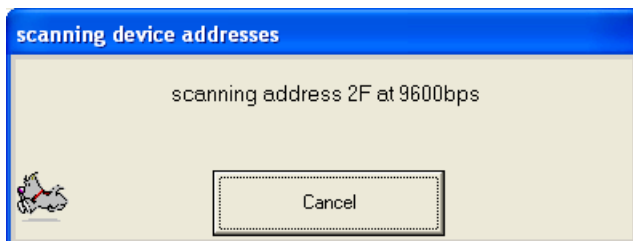
- Click on button “deBus”.



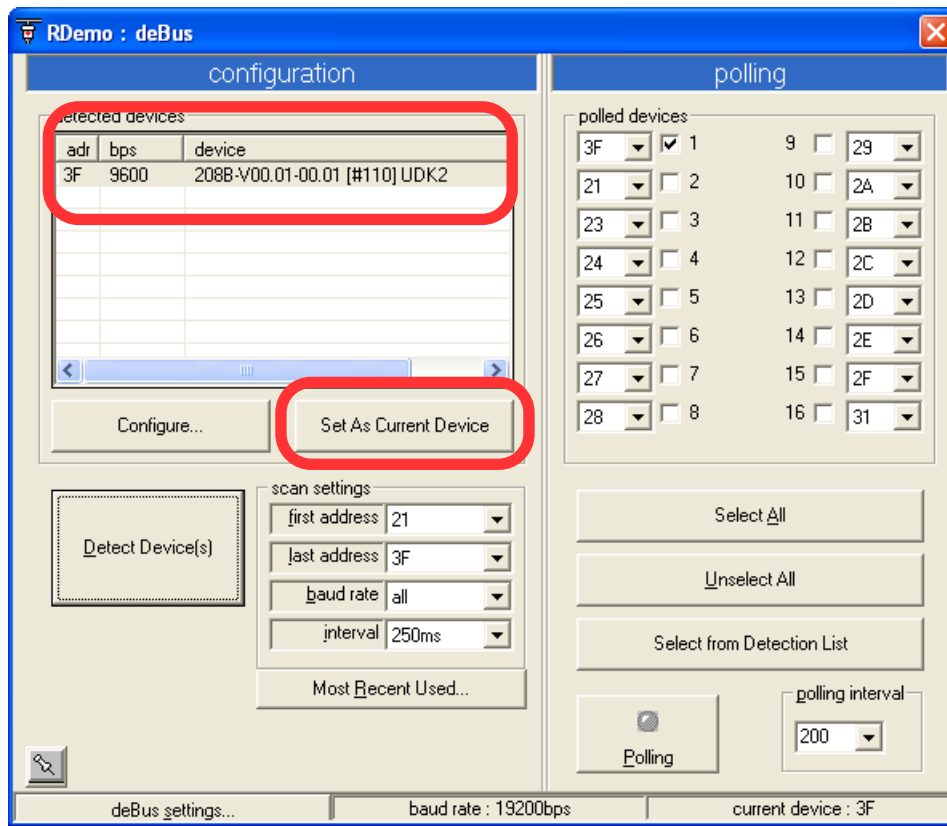
- Select “baud rate: all” and click “Detect Device(s)”.



- RDemo starts scanning for connected deBus devices.



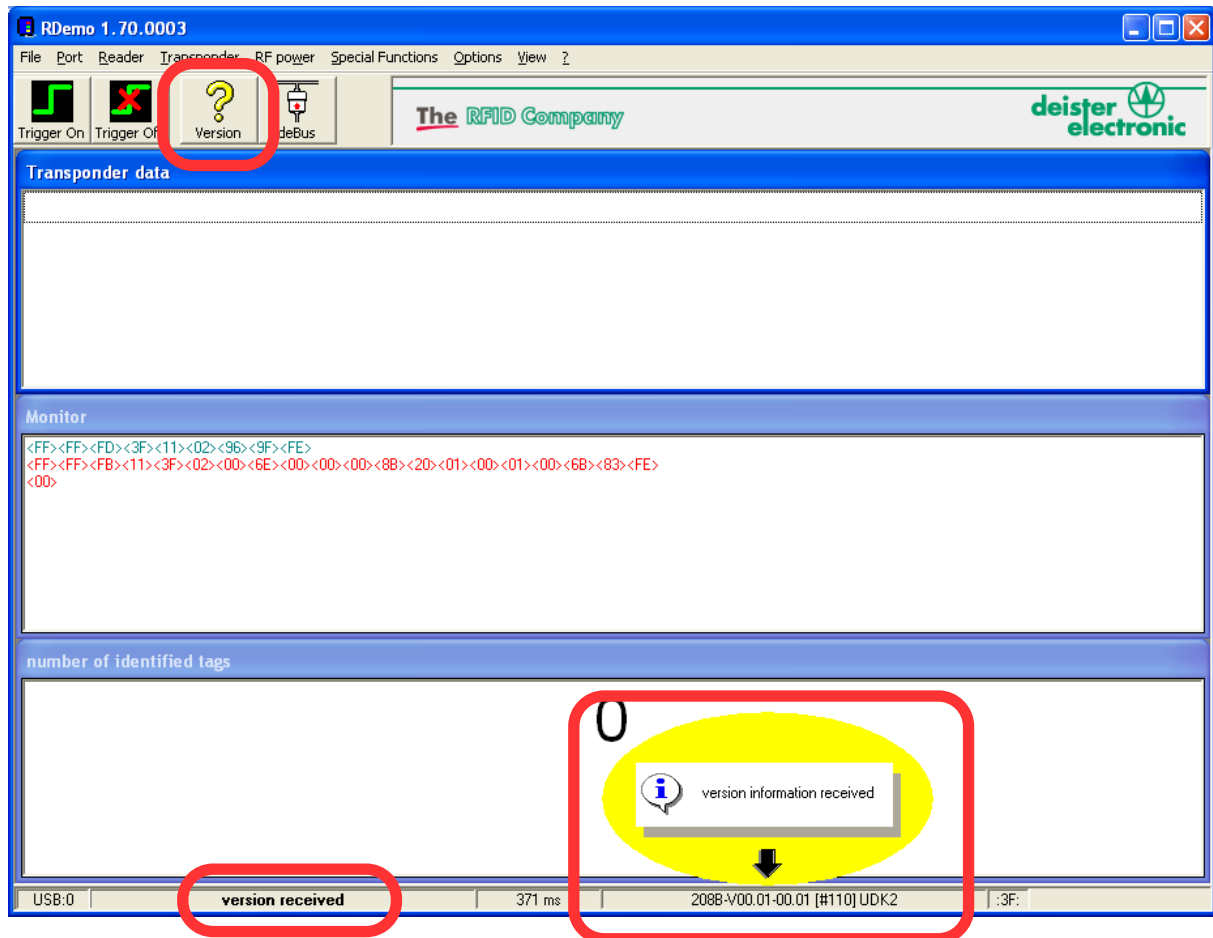
- After successful search the UDL5 will be shown as a detected device.



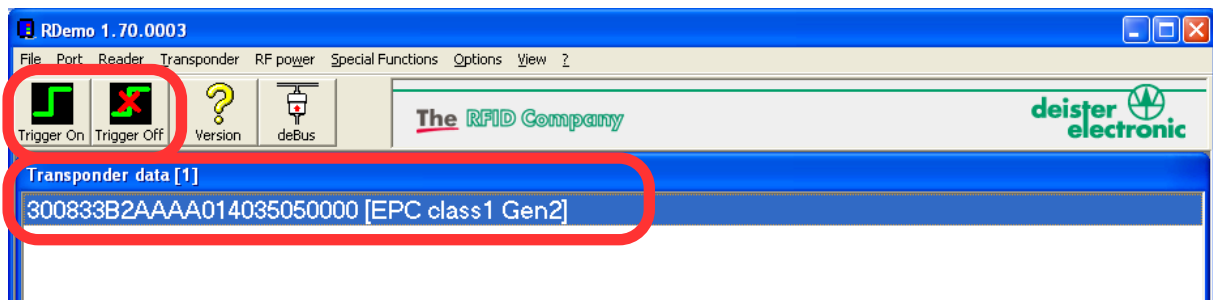
- Select the UDL5 with click on the left mouse button, then click "Set As Current Device" and close the window.

## UDL5 - UHF mouse • Quick start manual

- Click on the "Version" button. A "version received" message in the bottom state bar indicates a successful version request of the UDL5.



- Click on the "Trigger On" button in order to switch on the RF-field. Present an EPC class1 gen2 tag in front of the reader and RDemo will display the tag read.

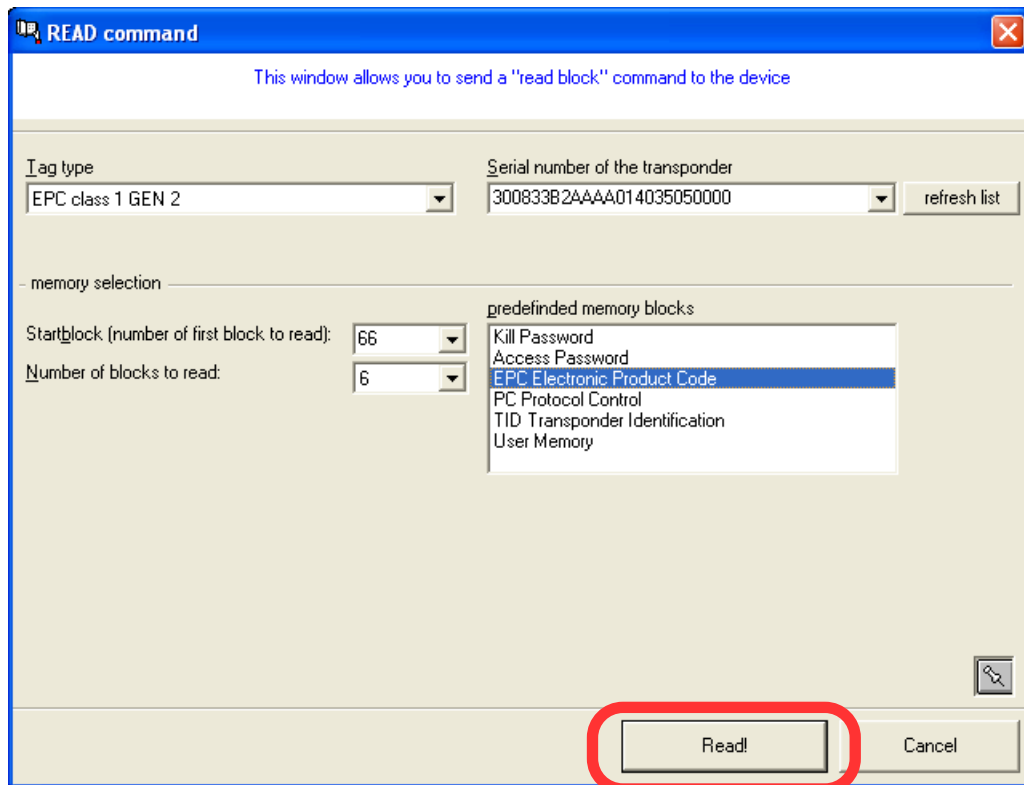


- Click on the „Trigger Off“ button in order to switch off the RF-field.

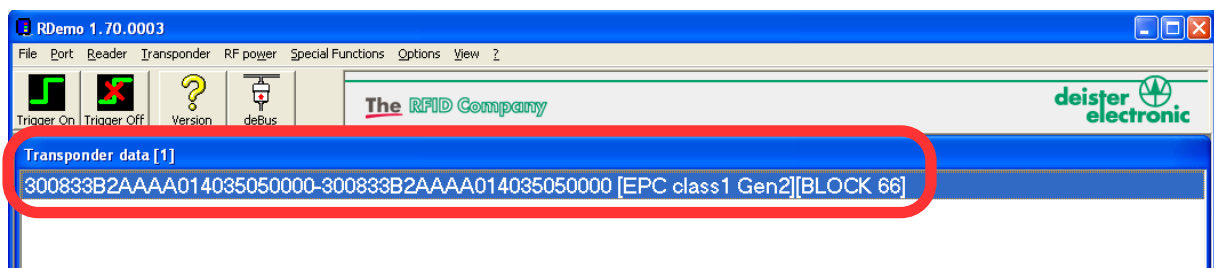
## 4.4 Reading block data

The reading function “Transponder” -> “Read” can be used to read block data of an EPC class1 gen2 transponder. To do so proceed as follows:

- Choose the tag type (please note: The current UDL5 version supports EPC class1 gen2 tags only), the serial number (EPC) of the tag to be read and one of the predefined memory blocks.



- Click on the “Read!” button and present the EPC class1 gen2 tag within the RF-field. The block data will be shown in the „Transponder data” window (see below).

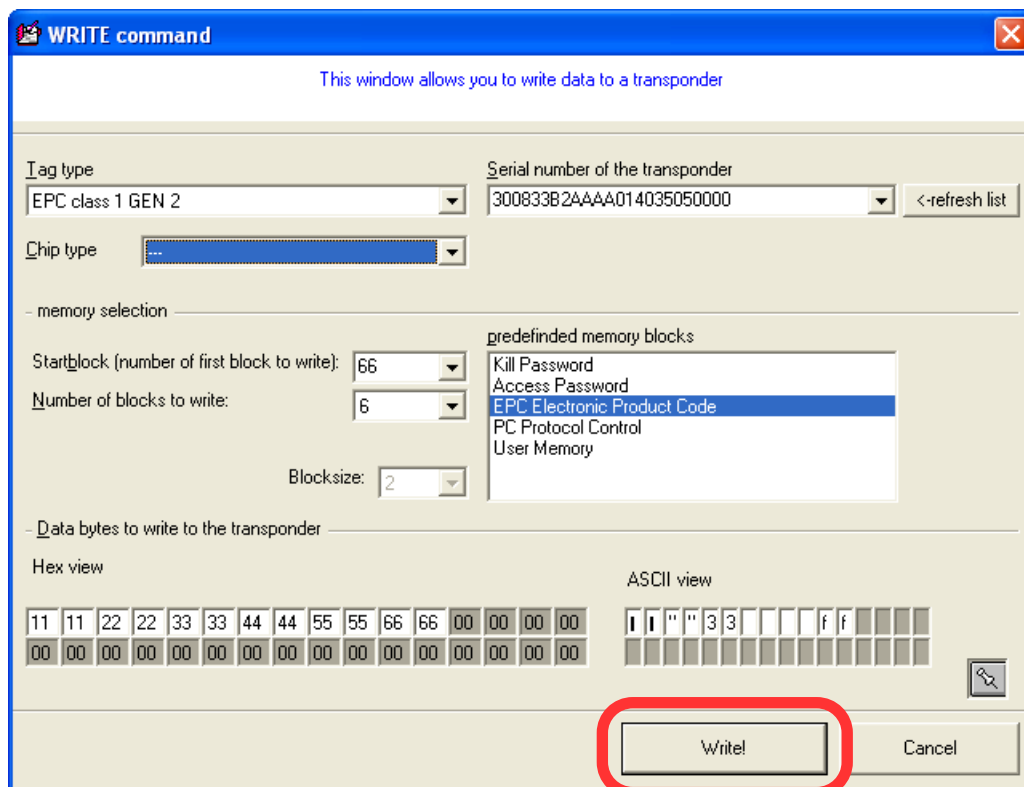


For more details concerning EPC class1 gen2 tag memory organisation see section 5. “EPC class1 gen2 memory organisation”.

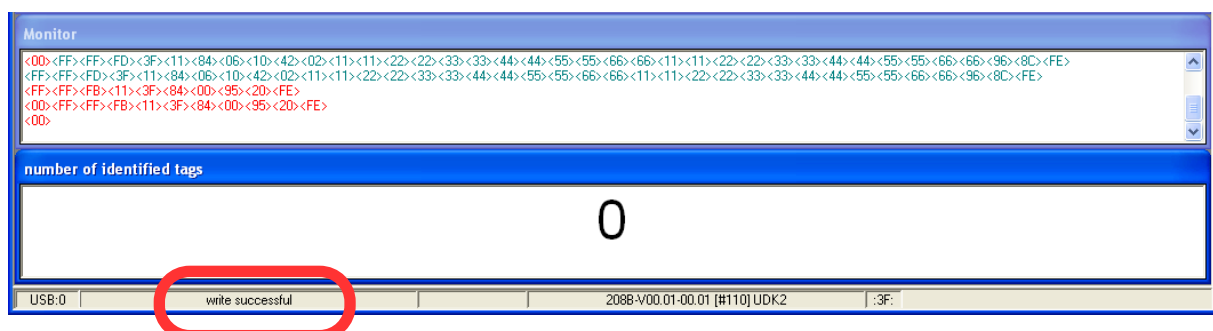
## 4.5 Writing block data

The writing function “Transponder” -> “Write” can be used to write block data to an EPC class1 gen2 transponder. To do so proceed as follows:

- Choose a tag type (please note: The current UDL5 version supports EPC class1 gen2 tags only), the serial number (EPC) of the tag, a predefined memory section and the data to be written.



- Click on the “Write!” button and present the EPC class1 gen2 tag within the RF-field. The block data will be shown in the “Monitor” window. RDemo indicates successful writing with a “write successful” message (in the “Monitor” bottom state bar, see below).



For more details concerning EPC class1 gen2 tag memory organisation see section 5. “EPC class1 gen2 memory organisation”.

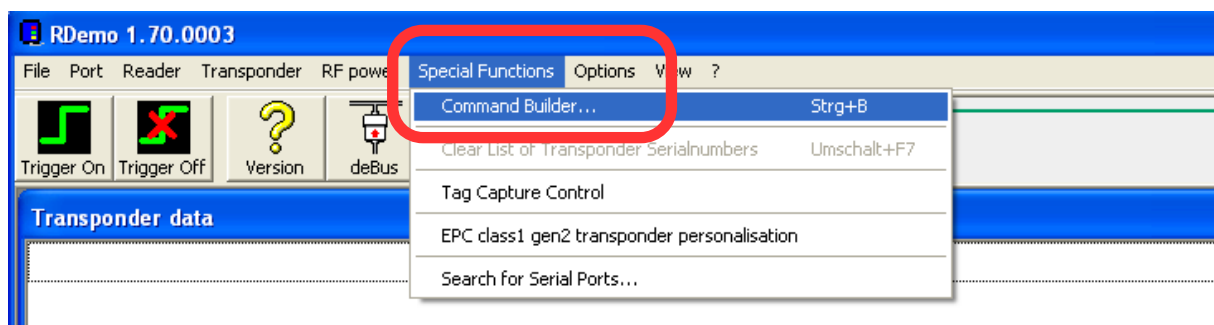
## 4.6 EPC class1 gen2 tag functions

Additional tag functions like “Kill command” and all others are not supported by the current version of UDL5. Please consult the next sales and service center for details.

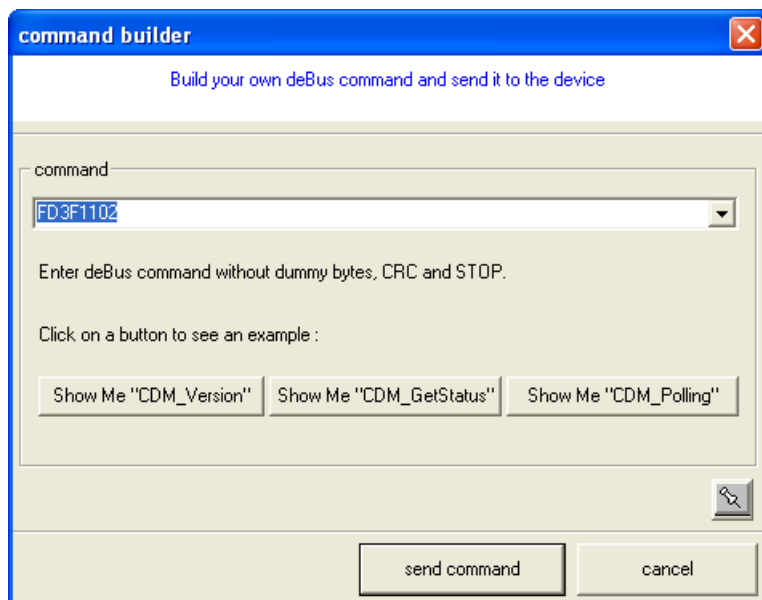
## 4.7 RDemo command builder

For sending a user-defined deBus command to the UDL5, the “Command Builder” is a useful tool.

- Go to “Special Functions” and select “Command Builder”.



- Enter a user-defined deBus command string without dummy bytes, CRC and STOP bytes and then click “send command”.





## 5. EPC class1 gen2 memory organisation

This paragraph refers to the document “EPCglobal™, Specification for RFID Air Interface”, Version 1.0.9.

The tag memory is divided into four memory banks. Each memory bank consists of several blocks, each block has the size of 2 bytes. The banks RESERVED, EPC and TID must always be available, the USER bank is optional.

- **RESERVED:** Non-Volatile-Memory, this memory contains a 32 bit Kill Password and a 32 bit Access Password.
- **EPC (Electronic Product Code):** This bank contains the CRC-16 (cyclic redundancy check), PC (Protocol Control) and EPC. The PC bits contain information about the tag, e.g. length of the EPC. The EPC begins at block address 66 (dec), MSB first. In case of a 96 bit EPC it has the size of 6 blocks.
- **TID (Transponder Identification):** The TID memory contains data about the manufacturer. Tags may contain specific data within the TID memory, beginning at block address 130 (dec), e.g. a tag serial number.
- **USER:** allows user specific data storage. The memory organisation is user-defined.

Bank No. (decimal form)	Bank Name	Block Memory Content [MSB:LSB] (decimal form)	Memory Bank Addresses [MSB:LSB] (decimal form)	Block Address (decimal form)		
3	USER	[15:0]	...	...		
		...				
		[N:N-15]			[0:15]	192
2	TID	...	...	...		
		TID [15:0]	[16:31]	129		
		TID [31:16]	[0:15]	128		
1	EPC	EPC [15:0]	...	...		
		...				
		EPC [N:N-15]			[32:47]	66
		PC [15:0]			[16:31]	65
		CRC-16 [15:0]			[0:15]	64
0	RESERVED	...	...	...		
		Access Password [15:0]	[48:63]	3		
		Access Password [31:16]	[32:47]	2		
		Kill Password [15:0]	[16:31]	1		
		Kill Password [31:16]	[0:15]	0		

## 6. Regulatory notices

### 6.1 Europe

Hereby, deister electronic GmbH declares, that this equipment - if used according to the instructions - is in compliance with the essential requirements and other relevant provisions of the RTTE Directive 1999/5/EC.

**A full declaration of conformity can be requested at:**

**[info@deister-gmbh.de](mailto:info@deister-gmbh.de)**



**Approved for use in all European countries.**

### 6.2 FCC Digital Device Limitations

#### Radio and Television Interference

This equipment has been tested and found to comply with the limits for 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.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and television reception.

Caution! Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.







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