

**Installation Instructions – Translation of the original**

**Software SDK and Demo RFID Option  
for MC 92N0<sup>ex</sup>**

MC 92N0 <sup>ex</sup> – IS	Type 17-A1A2-R*** /*****
MC 92N0 <sup>ex</sup> – IS	Type 17-A1A3-R*** /*****
MC 92N0 <sup>ex</sup> – NI	Type B7-A2A4-R*** /*****

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Reservation: We reserve the right to make technical modifications. Changes, errors  
and misprints shall not justify any claim for damages.

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# 1. Information about this Manual

## Read carefully before commissioning devices.



The Installation Instructions are an integral part of the product.

The Installation Instructions contain important information that is required for the perfect functioning of the device during operation.

The Installation Instructions are directed at all persons who are involved in the programming, commissioning, handling and maintenance of the product.

The illustrations in this Manual are intended to clarify the information and descriptions. They cannot necessarily be used unaltered and may differ slightly from the actual version of the device.

Safety signs and warnings are specially highlighted in these Installation Instructions and indicated by symbols.

### ATTENTION

**ATTENTION** designates a potentially harmful situation which, if not avoided, could damage the plant or something close to it.



Important advice and information for effective, efficient and environmentally sound use.

#### 1.1.1 Languages

The original Installation Instructions were drawn up in German. All other available languages are translations of the original Installation Instructions.

The Installation Instructions are available in German and English. If other languages are required, these should be requested from BARTEC or specified when placing the order.

#### 1.1.2 Changes to the document

BARTEC reserves the right to change the contents of this document without notice. No guarantee is assumed regarding the accuracy of information. In case of doubt, the German safety instructions apply because it is not possible to rule out errors during translation or printing. The "Terms and Conditions" of the BARTEC Group shall also apply in the event of legal disputes.

The current versions of data sheets, manuals, certificates and EC declarations of conformity can be downloaded from [www.bartec.de](http://www.bartec.de) under Products & solutions in the "Automation technology" product area or can be requested directly from BARTEC GmbH.

### 1.1.3 Information about the document

The images used in the Installation Instructions are based on software version 2.0.3. The version currently available may differ from version 2.0.3, but this has no influence on the descriptions in this document.

## 1.2 Reference documents – set of documents

### BARTEC

- The User Manual (Document No. 11-A1A2-7D0001) for the MC 92N0<sup>ex</sup> series of Mobile Computers – user manual for the explosion protected version of the MC 92N0<sup>ex</sup> series of Mobile Computers.
- Technical data sheet (Document No. 03-0330-\*\*\*\*) for the explosion protected version of the MC 92N0<sup>ex</sup> series of Mobile Computers – data sheet with the most important explosion-related technical and general data.
- Compatibility\_Matrix.pdf  
Document for further basic information and compatibility.
- Firmware Loader v1.2.pdf  
Description of how the firmware loader works.  
Is only required when using the RFID LF option.

### Tectus

Description of the data protocol for the LF and HF (internal) reader.

- LF protocol description  
"LF Commands.pdf" - Scotty Reader User Manual Version 1.4
- HF protocol description  
"Dataprotocol TLF-50.pdf" – description of the data protocol

### Feig Electronics

Description of the data protocol of the HF (external) and UHF reader.

- ID FEISC-LIB Manual - (Document No. H9391-43d-ID-B.pdf and H9391-43e-ID-B.pdf)  
Software support for OBID i-scan<sup>®</sup> and OBID<sup>®</sup> classic-pro
- ID FECOM-LIB Manual – (Document No. H80592-28d-ID-B.pdf and H80592-28e-ID-B.pdf)  
Software support for serial interface
- ID FEUSB-LIB Manual – (Document No. H00501-17d-ID-B.pdf and H00501-17e-ID-B.pdf)  
Software support for USB (Universal Serial Bus)
- Tutorial Manual  
(Document name: Tutorial.pdf)  
The art of programming for OBID i-scan<sup>®</sup> and OBID<sup>®</sup> classic-pro

## 2. Software description

A Software Development Kit (SDK) is available for software development. The kit includes all documents needed to implement the RFID reader in an application.

A demo application in Open Source is also included which can be used for demonstration purposes. The demo can also be used as a model for application development.

The SDK contains descriptions for the supported data protocols and commands of the companies Tectus and Feig for the available versions.

See the "Compatibility\_Matrix.pdf" for further basic information and compatibility.

### ATTENTION

**The RFID demo application will only function once it has been correctly installed.**

- Use of the RFID reader option on the Mobile Computer is only possible outside of a docking station.



The demo software automatically detects the RFID reader.

The SDK and use of the demo are described in the Installation Instructions.

### Features of the demo

- Supports many common RFID standards
- Simple implementation to test/demonstrate the read/write process
- Simulation of keyboard entries  
(reading transponder data into Word, Excel or other applications)
- Saves transponder data in a database
- Adjusts the power (only possible with UHF)
- Programs in Open Source to demonstrate basic functionality

## 2.1 Operating systems supported

The SDK supports the following operating systems.

SDK v1.2.3	SDK v2.0.3
Supported operating systems:	
Windows® Embedded Handheld 6.5.3	Windows® Embedded Handheld 6.5.3
Windows® Embedded Compact 7 (CE 7.0)	-
The following operating systems are not supported:	
Android 4.4.4 (Kit Kat)	Android 4.4.4 (Kit Kat)
-	Windows® Embedded Compact 7 (CE 7.0)

## 2.2 Supported RFID standards

The SDK software supports the RFID standards set out below in the frequency ranges specified.

LF reader			
Frequency range:	125 / 134 KHz		
Supported standards		Firmware version:	
		<ul style="list-style-type: none"> <li>BARTEC-btrw-rw.[bartec].v1.40</li> </ul>	
Firmware loader available:		Yes	
HITAG S (RW)	HITAG 1 (RW)	HITAG 2 (RW)	Q5 (RW)
AT5557 (RW)	AT5567 (RW)	EM4305 (RW)	
Supported standards		Firmware version:	
		<ul style="list-style-type: none"> <li>BARTEC-btrw-hdx.[bartec].v1.40</li> </ul>	
Firmware loader available:		Yes	
FDX-B (RO)	EM41xx (Unique) (RO)	ISO 11784/5 (RO)	HDX Transponder (TI) (RW)
Supported standards		Firmware version:	
		<ul style="list-style-type: none"> <li>BARTEC-btrw-ti.[bartec].v1.40</li> </ul>	
Firmware loader available:		Yes	
FDX-B (RO)	EM41xx (UNIQUE) (RO)	ISO 11784/5 (RO)	EM 4450/4550 (TITAN) (RW)
Supported standards		Firmware version:	
		<ul style="list-style-type: none"> <li>Tectus MC92V1.91</li> </ul>	
Firmware loader available:		No	
HITAG S256 (RW)	HITAG S 2 kbit (RW)	HITAG 1 (RW)	HITAG 2 (RW)
Q5 (RW)	AT5567 (RW)	AT5557 (RW)	HDX (RO)
HDX (Multipage) (RO)	EM4305 (RW)	EM 4450/4550 (RW)	EM41xx (UNIQUE) (RO)
FDX-B (RO)	BDE	ISO 11784/5 (RO)	ISO Animal

HF reader	
Frequency range:	13.56 MHz
Supported standards	<b>Firmware version:</b> <ul style="list-style-type: none"> <li>Reader type:80 / ID CPR.M02</li> <li>[SNR]:000001 (TECTUS MC92-HF v1.0)</li> </ul>
<u>HF ISO 15693</u> e.g. I-Code SLI, Tag-IT HFI, my-d vicinity, STM LRI512	
<u>HF ISO 14443</u> e.g. Mifare, Mifare Ultra Light, my-d proximity, I-Code 1 (optional)	

UHF reader	
Frequency range:	EU: 865.6 - 867.5 MHz US: 902 - 928 MHz
Supported standards	<b>Firmware version:</b> <ul style="list-style-type: none"> <li>Reader type: 50 / ID ISC.MU02</li> <li>Reader Type:52 / ID ISC.MU92</li> </ul>
EPC Class 1 Gen 2 tag	

## 2.3 Definition of terms

RFID	Radio Frequency Identification
LF	Low Frequency
HF	High Frequency
UHF	Ultra High Frequency
UHF (EU)	UHF Frequency range for Europe
UHF (US)	UHF Frequency range for North America
SDK	Software Development Kit
WM	Windows Mobile
ISO ...	Series of international standards for contactless chip cards
EPC Gen 2	Second generation of the EPC standard
C#	C Sharp programming language
Tag / transponder	RFID tag/transponder for product identification on which data are or will be stored.
RW	Read/Write – read/write transponder
RO	Read Only – read only transponder



## 3. System requirements

### 3.1 Requirements

A Mobile Computer from the MC 92N0<sup>ex</sup> series with an RFID module is required:

#### Mobile Computer

Device	Type	Manufacturer
MC 92N0 <sup>ex</sup> -NI	B7-A2A4-R**x/*****	BARTEC
MC 92N0 <sup>ex</sup> -IS	17-A1A2-R**x/*****	BARTEC
MC 92N0 <sup>ex</sup> -IS	17-A1A3-R**x/*****	BARTEC



The Mobile Computers are referred to as MC 92N0<sup>ex</sup> series in the Installation Instructions.

#### 3.1.1 Supported RFID version/option

One of the RFID options listed below is required:

Reader Version	BARTEC type	Frequency range
Internal RFID LF	17-A1Ax-Rxx1/xxxQxxxx B7-A2A4-Rxx1/xxxQxxxx	125 kHz / 134 kHz
Extended RFID LF	17-A1Ax-Rxx2/xxxQxxxx B7-A2A4-Rxx2/xxxQxxxx	
Internal RFID HF	17-A1Ax-Rxx3/xxxQxxxx B7-A2A4-Rxx3/xxxQxxxx	13.56 MHz
Extended RFID HF	17-A1Ax-Rxx4/xxxQxxxx B7-A2A4-Rxx4/xxxQxxxx	
Internal RFID UHF (US)	17-A1Ax-RxxA/xxxQxxxx B7-A2A4-RxxA/xxxQxxxx	902 - 928 MHz
Internal RFID UHF (US) + attached antenna	17-A1Ax-RxxC/xxxQxxxx B7-A2A4-RxxC/xxxQxxxx	
Extended RFID UHF (US)	17-A1Ax-Rxx5/xxxQxxxx B7-A2A4-Rxx5/xxxQxxxx	
Extended RFID UHF (US) + attached antenna	17-A1Ax-Rxx7/xxxQxxxx B7-A2A4-Rxx7/xxxQxxxx	
Internal RFID UHF (EU)	17-A1Ax-RxxB/xxxQxxxx B7-A2A4-RxxB/xxxQxxxx	865.6 - 867.5 MHz
Internal RFID UHF (EU) + attached antenna	17-A1Ax-RxxD/xxxQxxxx B7-A2A4-RxxD/xxxQxxxx	
Extended RFID UHF (EU)	17-A1Ax-Rxx6/xxxQxxxx B7-A2A4-Rxx6/xxxQxxxx	
Extended RFID UHF (EU) + attached antenna	17-A1Ax-Rxx8/xxxQxxxx B7-A2A4-Rxx8/xxxQxxxx	

### 3.1.2 Operating system on PC

All standard operating systems on which an application development for C# runs. The PC must similarly support data communication with the Mobile Computer.

### 3.1.3 Synchronisation software

"Windows Mobile Device Center" or "Active Sync"

Both versions are from Microsoft and can be downloaded free of charge at [www.microsoft.com](http://www.microsoft.com).

## 3.2 Connection to the PC

The requisite synchronisation software is available free of charge as a download from Microsoft. The synchronisation software is required to connect mobile terminal equipment on which a Microsoft operating system such as Windows® Embedded Handheld 6.5.3 runs to a PC in order to synchronise data, install programs or exchange data.

### 3.2.1 Windows Mobile Device Center



The installation of Windows Mobile Device Center on the host computer is recommended for communication with different host computers (running Windows Vista, Windows 7, Windows 8.x or Windows 10 operating systems).

The Windows Mobile Device Center synchronises the data between the Mobile Computer and the host computer. Any changes made on the Mobile Computer or the host computer are present on both devices following synchronisation.

The Windows Mobile Device Center is available to download as freeware at [www.microsoft.com](http://www.microsoft.com).

Supported operating systems: Windows Vista, Windows 7, Windows 8.x or Windows 10.

Further information about the Windows Mobile Device Center can be found on the Microsoft website.

In the event of problems with Windows 10 connections:

- If no USB connection comes about, please use an external USB hub with external power supply.
- Please also note the following article by Zebra with further possible approaches.  
<https://www.zebra.com/us/en/support-downloads/knowledge-articles/evm/windows-ce-device-does-not-connect-with-windows-10-with-creators-upgrade-via-wmdc.html>

### 3.2.2 Active Sync



The installation of ActiveSync. (Version 4.5 or higher) is recommended for communication with different computers running Windows XP or earlier operating systems.

ActiveSync synchronises the information between the Mobile Computer and the host computer. Any changes made on the Mobile Computer or the host computer are present on both devices following synchronisation.

ActiveSync is available to download as freeware at [www.microsoft.com](http://www.microsoft.com).

Supported operating systems: Windows XP or earlier operating systems.

Further information about ActiveSync can be found on the Microsoft website.

## 4. SDK – Software Development Kit

### 4.1 SDK

#### 4.1.1 Programming language

The programming language used is C# (C Sharp).

All available SDK files/sources are in C#.

#### 4.1.2 Development environment

The demo application is programmed with Visual Studio 2008.

#### 4.1.3 LF protocol (for internal and extended RFID reader)

Based on Command Basis LL (Low Level) from Tectus

#### 4.1.4 HF protocol (for internal RFID reader)

Based on Command Basis LL (Low Level) from Tectus

#### 4.1.5 HF protocol (for external RFID reader)

Source code based on Library from Feig for CPR.M02

(function is compatible with CPR)

#### 4.1.6 UHF protocol (for internal RFID reader)

Source code based on Library from Feig for ISC.MU92

(function is compatible with ISC.M02)

#### 4.1.7 UHF protocol (for external RFID reader)

Source code based on Library from Feig for ISC.M02

#### 4.1.8 SDK structure

The SDK comprises the following parts:

- **Documentation**
- **Firmware Loader v1.2**  
Only available for RFID LF reader for installing different versions of firmware.
- **Additional tools and sample codes**
- **RFID demo application in open source code**  
Contains the source codes from SDK v1.2.3 and SDK v2.0.3.
- **RFID demo application**  
Demo version v2.0.3 supports the Windows® Embedded Handheld 6.5.3 operating system  
Demo version v1.2.3 supports the Windows® Embedded Handheld 6.5.3 and Windows® Embedded Compact 7 (CE 7.0) operating systems
- **RFID SDK**  
Contains the protocols and the source code of the companies Tectus and Feig

#### 4.1.9 SDK download

The SDK can be downloaded free from the BARTEC download page

<http://automation.bartec.de/>

which is to be found under the product category:

- Mobile Computing
- MC 92N0<sup>ex</sup> series
- RFID SDK

## 5. Demo application

### 5.1 Installing the demo

#### ATTENTION

The RFID demo application will only function once it has been correctly installed.

- Use of the RFID reader option on the Mobile Computer is only possible outside of a docking station.



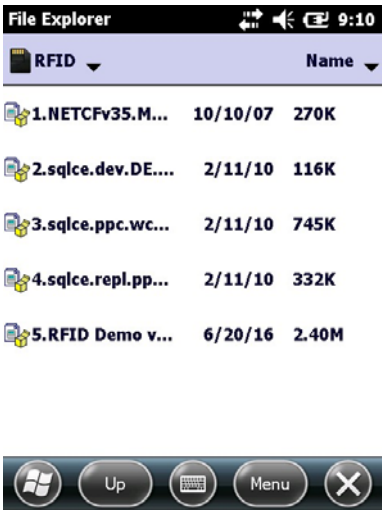
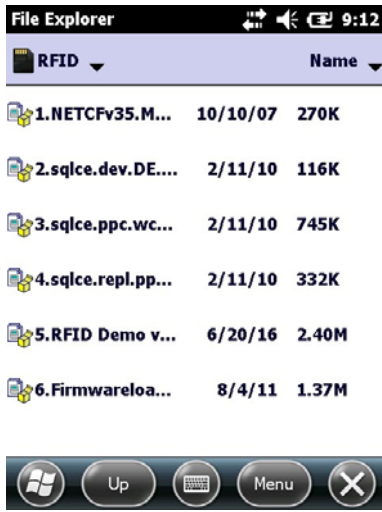
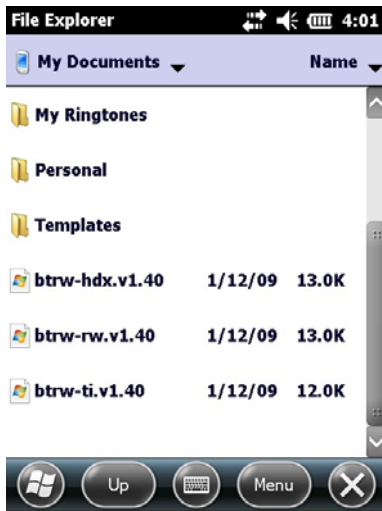
The demo application automatically detects the RFID reader installed.

The SDK and use of the demo application are described in the Installation Instructions.

#### 5.1.1 Copy of the required programs on the Mobile Computer

The required programs can be copied onto the Mobile Computer with the help of synchronisation software (e.g. Windows Device Center) or using an SD card.

We recommend creating an RFID folder in the "Application" directory on the Mobile Computer and copying all programs to this directory.

For RFID HF and UHF reader	For RFID LF reader
Copy e.g. to Application/RFID	Copy e.g. to Application/RFID
	
	Copy to My Documents
	



#### Firmware loader

The firmware loader is only required when using the RFID LF option. The firmware can be changed using the firmware loader. A separate description is included with the firmware loader.



#### Firmware for RFID LF

Since 2017, all devices have been supplied with the "Tectus MC92V1.91" firmware by way of standard. All supported RFID-LF standards are stored in this firmware. In the case of older devices, the memory for the firmware on the LF reader board was not suitable for storing/saving all supported standards. For this reason, there are 3 different types of firmware for older devices. A list of which firmware supports which standards can be found in Chapter 2.1

The firmware must be copied to the "My Documents" folder, so that the firmware can be loaded and installed again using the firmware loader.



#### Firmware for RFID HF and RFID UHF

The firmware for HF and UHF are stored in the memory of the RFID board and do not need to be installed separately.

### 5.1.2 Installation of the requisite programs on the Mobile Computer


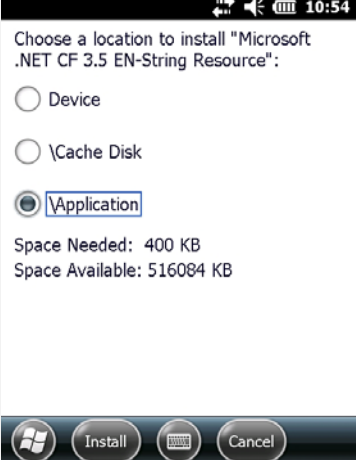

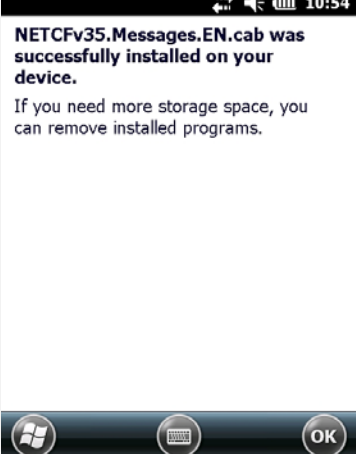


It is important to install the programs in the correct order.

We recommend installing all programs in the "Application" directory.

For Windows® Embedded Handheld 6.5.3	
For RFID-HF and UHF reader	For RFID-LF reader
1.NETCFv35.Messages.DE.wm.cab	1.NETCFv35.Messages.DE.wm.cab
2.sqlce.dev.DE.ppc.wce5.armv4i.CAB	2.sqlce.dev.DE.ppc.wce5.armv4i.CAB
3.sqlce.ppc.wce5.armv4i.CAB	3.sqlce.ppc.wce5.armv4i.CAB
4.sqlce.repl.ppc.wce5.armv4i.CAB	4.sqlce.repl.ppc.wce5.armv4i.CAB
5.RFID Demo v2.0.3.CAB	5.RFID Demo v2.0.3.CAB
	Only necessary if other firmware needs to be loaded!
	6.Firmware Loader LF v1.2.CAB

## Installation procedure

	<ul style="list-style-type: none"> <li>► First go to "File Explorer" on the Mobile Computer.</li> <li>► Install the individual programs in the correct order by tapping on them in "File Explorer".</li> </ul> <p>The installation process is illustrated using the following example of the "1.NETCFv35.Messages.EN.wm.cab" program.</p> <p>The procedure is identical for all programs.</p>
	<p>After selecting, a menu appears to specify the installation path.</p> <ul style="list-style-type: none"> <li>► The recommended directory is "Application".</li> <li>► Tap "Install" and continue with the installation process.</li> </ul>
	<p>The installation progress is displayed by a progress bar.</p>
	<ul style="list-style-type: none"> <li>► After successful installation, a message appears showing that installation has been completed.</li> <li>► Tap "OK". The "File Explorer" opens to install the remaining programs.</li> </ul>





The icon for the RFID demo Vx.x.x appears in the start menu once all programs have been installed.

The firmware loader can also be found in the start menu if required.

## 5.2 Function of the demo application



The RFID reader can only be used outside of the cradle. The RFID reader uses the same COM interface internally as that required for communication with the cradle.

### 5.2.1 Starting the demo application

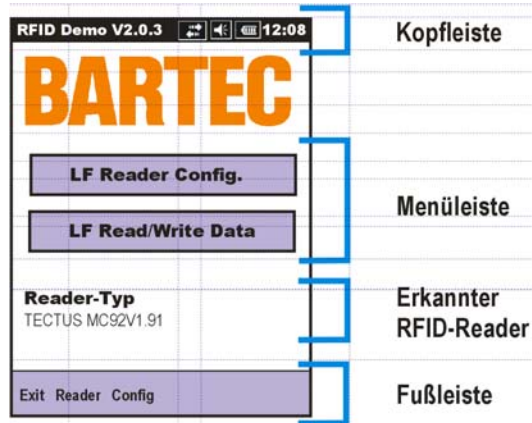


- ▶ Tap the "Start" button on the "Today" screen to move to the start menu.
- ▶ Scroll down the start menu and tap the "RFID demo Vx.x.x" button to start the program.

The RFID demo application start screen consists of several menus which will be described in greater detail in the following chapters.

## 5.2.2 Start screen

The start screen is displayed after starting the RFID demo application. The start screen consists of several menus (for example the RFID LF reader).



### Header

<b>RFID Demo V2.0.3</b>	Name of the application and version
	Status display for connections
	Adjustment of volume
	Battery charge status
<b>12:08</b>	Changing the date and time, setting the alarm function etc.


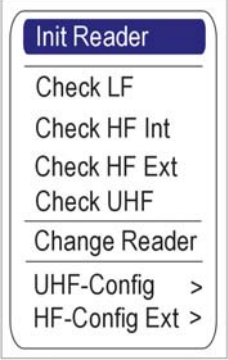

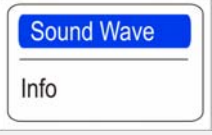
### Menu

RFID LF reader menu	
<b>LF Reader Config.</b>	Configuration and settings for the different RFID standards
<b>LF Read/Write Data</b>	Reading/writing of transponders to a database
RFID HF reader menu	
<b>HF Reader Config.</b>	Configuration and settings for the different RFID standards
<b>HF Read/Write Data</b>	Reading/writing of transponders to a database
RFID UHF reader menu	
<b>UHF Reader Config.</b>	Configuration and settings for the different RFID standards
<b>UHF Read/Write Data</b>	Reading/writing of transponders to a database

## Detected RFID reader

<b>LF Reader</b> TECTUS MC92V1.91	<b>RFID LF reader version (without firmware loader)</b> LF reader with details of the reader version and the version of firmware installed. TECTUS MC92V1.91
<b>LF Reader</b> BARTEC-btrw-rw.[bartec].v1.40	<b>RFID LF reader version (firmware loader available)</b> LF reader with details of the reader version and the version of firmware installed. BARTEC-btrw-rw.[bartec].v1.40 BARTEC-btrw-hdx.[bartec].v1.40 BARTEC-btrw-ti.[bartec].v1.40
<b>LF Reader</b> BARTEC-btrw-hdx.[bartec].v1.40	
<b>LF Reader</b> BARTEC-btrw-ti.[bartec].v1.40	
<b>HF Reader</b> [SNR]:000001 (Tectus MC92-HF v1.0)	<b>Internal RFID HF reader with board from Tectus</b> HF reader with details of the reader version [SNR]:000001 (TECTUS MC92-HF v1.0)
<b>HF Reader</b> Reader Type:80 / ID CPR.M02	<b>Extended RFID HF reader with board from Feig</b> HF reader with details of the reader version Reader type:80 / ID CPR.M02
<b>UHF Reader</b> Reader Type:52 / ID ISC.MU92	<b>Internal RFID UHF reader</b> UHF reader with details of the reader version Reader type:52 / ID ISC.MU92
<b>UHF Reader</b> Reader Type:50 / ID ISC.MU02	<b>Extended RFID UHF reader</b> UHF reader with details of the reader version Reader type: 50 / ID ISC.MU02

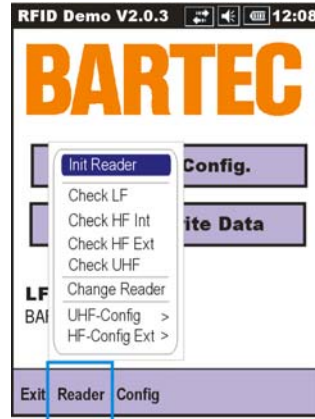
## Footer

	Exit the RFID demo application
	<p>Menu to manually detect/initialise the RFID reader.</p> <p><b>Init Reader:</b> The type of RFID reader concerned is not known.</p> <p><b>Check LF / HF Int / HF Ext / UHF:</b> The RFID reader used is known and can be directly selected for initialisation.</p> <p><b>Change Reader:</b> Function is not available because the RFID reader has been permanently mounted.</p> <p><b>UHF-Config:</b> Permits 3 levels of power to be set on the UHF reader.</p>
	<p>Submenu for <b>UHF-Config</b>:</p> <p>3 power settings. Can only be selected with the RFID UHF reader.</p>
	Menu to enquire about version info or to switch the sound on the read/write process ON or OFF.

### 5.2.3 Initialising/detecting the RFID snap-on module



The installed RFID reader is automatically detected on starting the RFID demo.



Initialisation/detection can be conducted manually if there is no automatic recognition.

► Tap the "Reader" menu item.

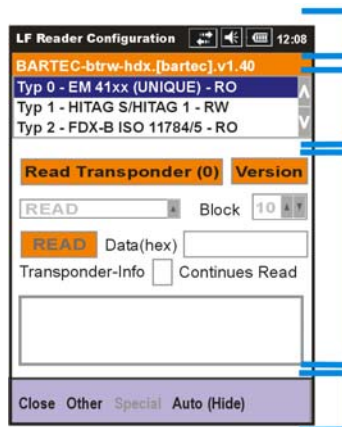
A search for all types can be started in the menu using "Init Reader". The RFID reader type can also be selected directly if it is known.

### 5.2.4 Reader Config. / reader configuration



Configuration and settings for the different RFID standards.

The user interface on the "Reader Config." menu distinguishes between the different RFID readers only in the selection of the supported standards. Other functions are identical. The menu is used to set the standard of the RFID transponder. A simple read/write test can be performed in the menu whereby no data are stored on the Mobile Computer.



Kopfleiste

Unterstützte Standards

Menü  
Lesen/Schreiben

Fußleiste









## Supported standards

<div> <div>Typ 0 - EM 41xx (UNIQUE) - RO</div> <div>Typ 1 - HITAG S/HITAG 1 - RW</div> <div>Typ 2 - FDX-B ISO 11784/5 - RO</div> </div>	Selection menu: for supported LF standards
<div> <div>ISO 15693 -RW</div> <div>ISO 14443 (Mifare) - RW</div> </div>	Selection menu: for supported HF standards
<div> <div>EPC Gen 2</div> </div>	Selection menu: for supported UHF standards


















## Read/write menu

The HITAG S/HITAG 1 RW RFID transponder is used as an example.


<div>Read Transponder (0)</div>	<p>"Read Transponder" for reading out the transponder ID.</p> <p>► The "Read Transponder" function is started by tapping the button when a transponder is simultaneously in the read/write area of the antenna.</p>
<div>TAG-Nr. 723C231D</div>	<p>The ID number of the transponder that has been read is displayed in the "Transponder Info" field.</p> <p>Example: TAG No.: 723C231D</p>

	<p>The function for selecting a memory stack is not possible with all standards.</p> <p>The example of the HITAG S/Hitag1 RW Transponder used concerns a read/write transponder. The memory area for these transponders is divided into various memory stacks which can be read out by selecting the stack (block) number.</p>
	<p>"READ" for reading out the transponder ID and the data.</p> <ul style="list-style-type: none"> <li>▶ The "Read Transponder" function is started by tapping the button when a transponder is simultaneously in the read/write area of the antenna.</li> </ul>
	<p>The ID number and the data of the transponder that has been read are displayed in the "Transponder Info" field.</p> <p>Example      TAG No.: 723C231D                   Tag data: 31313131</p>
	<p>The data for the selected transponder (block) are also displayed in the "Data (hex)" field.</p> <p>Example              Data(hex): 31313131</p>
	<ul style="list-style-type: none"> <li>▶ Save data on transponder.</li> </ul>
 	<ul style="list-style-type: none"> <li>▶ To save data on a R/W transponder, an entry must first be made in the "Data(hex)" field. A maximum of 8 hex characters are possible in the demo.</li> <li>▶ It is then possible to switch between the "READ" and "WRITE" function in the drop-down menu. The "READ" button then changes to the "WRITE" button.</li> <li>▶ The data in the "Data(hex)" field are written onto the transponder by tapping the "WRITE" button.</li> </ul>
	<ul style="list-style-type: none"> <li>▶ If the checkbox has been activated, the read function of the reader is moved to "Continuous Read" mode by starting once.</li> <li>▶ The process is ended by removing the tick in the checkbox.</li> </ul>

## Footer

	Close – return to the start screen
	Other – open the drop-down menu
	<b>Clear Listbox</b> – all data in the "Transponder Info" field are deleted.
	<b>Show Events</b> – displays detailed information in the "Transponder Info" field.
	<b>Change LF Reader</b> – enables the RFID reader used to be changed.
	
	
	
	Auto (Hide Form) – this puts the RFID demo application in the background where it continues to run. This function enables the program to be used as a keyboard wedge, for example, to read data into Excel, Word or another application.
	
	
	
	
	
	
	This is only available for certain standards where other settings can be made. e.g. Password with EM4450/4550 or HITAG 2 standard.
	

### 5.2.5 Read/Write Data / reading/writing tag data

	Reading/writing data from a transponder to a database on the Mobile Computer.
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The user interface on the "Read/Write Data" menu does not distinguish between the different RFID readers.

The data in this menu are saved in a database on the Mobile Computer.

**Read-Only Transponder** – data are only saved in the database on the Mobile Computer.

**Read-Write Transponder** – the data are saved on the transponder and in the database on the Mobile Computer.

The size of the data that can be saved in this demo software is limited to 8 hex characters per field. The size of the available memory also depends on the transponder used.



The screenshot shows a menu titled "Typ 1 - HITAG S/HITAG 1 - RW". It contains several fields and buttons:

- 723C31D**: A field displaying the transponder ID.
- Field 2/Save on TAG and PDA**: A section containing three input fields:
  - 1111**: The first input field.
  - Field 3/Save on PDA**: The second input field.
  - Field 4/Save on PDA**: The third input field.
- Date/Time (DBField 5)**: A field displaying "1/18/09".
- Bartec\_MC95\_V1.88**: A footer field.
- Buttons**: "Read TAG", "Cancel", and "Write" are positioned to the right of the input fields.
- Footer**: "Close" and "Data" buttons at the bottom.

Annotations on the right side of the image:

- Unterstützte Standards**: Points to the top header area.
- Menü Lesen/Schreiben**: Points to the central menu area.
- Fußleiste**: Points to the bottom footer area.

## Selected standard

A close-up of the field labeled "Typ 1 - HITAG S/HITAG 1 - RW", which is the selected standard.

The standard that has been set in the "Reader Config." menu is displayed in the field



## Read/Write menu

The HITAG S/HITAG 1 RW RFID transponder is used as an example.


It consists of several fields for data and permits the reading out and description of data from a transponder.

	Display of the transponder ID.
	<p>The "Read Transponder" function is started by tapping the button when a transponder is simultaneously in the read/write area of the antenna. 3 fields can be used to enter data. The data input is limited to 8 hex characters per field.</p> <p><b>Field 2:</b> data are saved on the transponder (only RW) and on the Mobile Computer.</p> <p><b>Field 3:</b> data are only saved on the Mobile Computer.</p> <p><b>Field 4:</b> data are only saved on the Mobile Computer.</p>
	<p>Display of date and time.</p> <p>The data are saved in a database in the "DBField 5" field.</p>

Footer

 Data	Close – back to the start screen
Close 	Data – open the database on the Mobile Computer.

5.2.6 Database

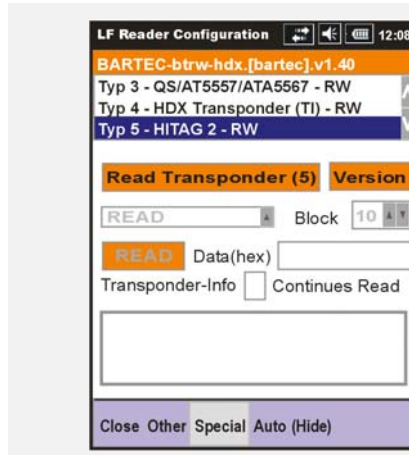
	User interface of the database. Each line represents a data set. In the case of standards such as HITAG S, the different memory stacks (blocks) can be selected.
Count of dataset = 1	Number of datasets in the database.
Delete data	To delete all datasets in the database.
Close	Exit the database to return to the "Read/Write Data" menu interface.

## 6. Further options

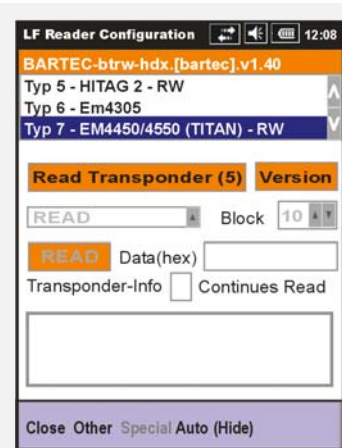
### 6.1.1 Changing the password for EM4450/4550 and HITAG 2

After selecting EM4450/4550 or HITAG 2, the password can be changed using "Change password" under the "Special" option in the "Reader Config." menu -

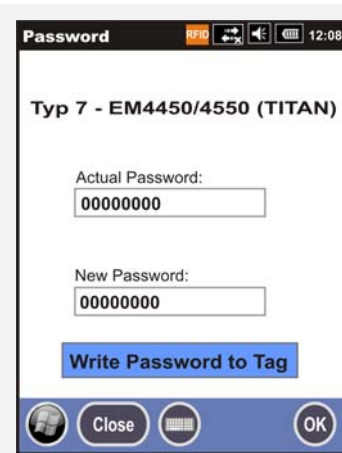
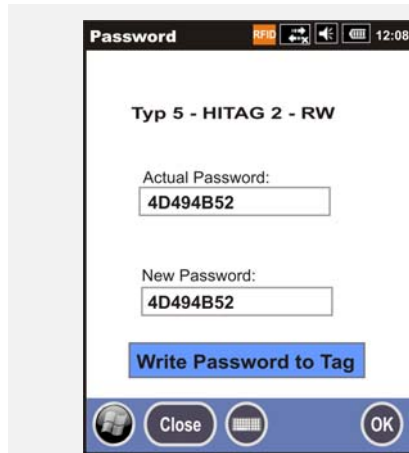
HITAG 2



EM4450/4550



The following menu appears depending on the type of transponder selected:



Changing password:

- Enter the current password in the "Actual Password" field.
- Enter the new password in the "New Password" field.
- Confirm the change using the "Write Password to Tag" button.

The standard passwords are as follows:

HITAG 2: 4D494B52

EM4450: 00000000.

For a transponder that has no standard password, the standard password must be entered in the "Actual Password" field once the transponder has been read in. The process is then ended by tapping "Write Password to Tag".

Tap "Close" or "OK" to close the form.

## 7. Additional information

### 7.1 Links

German: <https://www.bartec.de/>

English: <https://www.bartec.de/en/>

BARTEC website

For downloading technical data sheets and certificates.

German: <http://automation.bartec.de/index.htm>

English: <http://automation.bartec.de/indexE.htm>

BARTEC download page

Product-specific downloads for the MC 92N0<sup>ex</sup> series are available in the Mobile Computer product category.

- SDK RFID option for the MC 92N0<sup>ex</sup> series
- Documentation
- Original Motorola software

<http://www.Microsoft.com>

Microsoft website for downloading:

- Active Sync
- Windows Mobile Device Center