**RFID
INTERFACES**

microSensys
RFID in motion

Documentation

iID® **POCKETwork**

*RFID read write unit HF or UHF
with Bluetooth(TM) interface*

Contact/Copyright

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Table of contents

Introduction

The *iID*® **POCKETwork** is a wireless RFID reading / writing device, which can be connected via its integrated Bluetooth™-Interface to a phone, tablet computer or PC without an integrated RFID support, thus extending this device to RFID functionality. Alternatively, the *iID*® **POCKETwork** be connected via the USB interface.

In addition to use with a host device, the POCKETwork can be used as a data collector without additional device due to its internal clock and memory.

This document briefly describes the basic operation and handling of the *iID*® **POCKETwork** (Hereinafter referred to as POCKET). Please read this document carefully to avoid mistakes or problems with the product.

With the new *iID*® **POCKETwork** microsensys extends the range of POCKET RFID readers with Bluetooth™-Interface to an advanced and smart device.

Compared to the *iID*® **Pocket Mini**, *iID*® **POCKETwork** is waiting with some technical and user-friendly extensions:

- ➢ RFID communication: use an advanced RFID front end with all the features for current HF and UHF communications
- ➢ Sensors and safety: POCKETwork provides access to interesting TELID sensor transponders and LEGIC
- ➢ human interface: You will learn the clear user information on the integrated matrix display regarding the acoustic signals, and the big SCAN button
- ➢ Parameterization: configure your POCKET according to your wishes
- ➢ Host-connection: You can use the latest energy-saving Bluetooth™ Technology with clean connection management
- ➢ Drivers and tools: You can still work with your usual microsensys software environment
- ➢ Battery: use a lithium-ion battery of the latest technology and optionally upload your POCKET directly via the USB port of your PC or handheld

> ➤ Industrial performance: operate your RFID applications in industrial environments

Device alternatives

	HF standard	HF LEGIC	UHF EU-Band	UHF closed coupling
Antenna	P07 or K3		P07U	P07U
ISO-Standard	ISO 15693 ISO 14443 ISO 18000-3	ISO 15693 ISO 14443 RF LEGIC	ISO18000-6 Type 3 (EPC C1 G2)	
Operation Distance	1…5 cm		3…50 cm	0…1 cm
Typical tags	D14-TAG LABEL1836sp QUIN-TAGsp TELID-Sensors TELID-Logger	LEGIC chip card	Q70 U-TAG Q50 U-TAG TELID412	MINI-TAGsp U8.5 MAGICSTRAP^{TM}
Application	Maintenance Servicing Inventory Sensors	Security-Applications with LEGIC	Logistic Transport Bulk capture	Reading of miniaturized UHF-tags

Method of operation

The **iID® POCKETwork** is connected to a host device (phone, tablet computer, PC) via Bluetooth™Interface. Please make sure that your used host device supports the "Serial Port Profile" (SPP). This emulates a serial connection between POCKET and HOST device and is used for subsequent communication.

For a more detailed description, at this point the Bluetooth™-Standard documents is referred to.

Your POCKET is a battery-powered device with lithium-ion battery. The POCKET is charged via the micro-USB cable which is delivered. The charging process is shown in the status bar on the display.
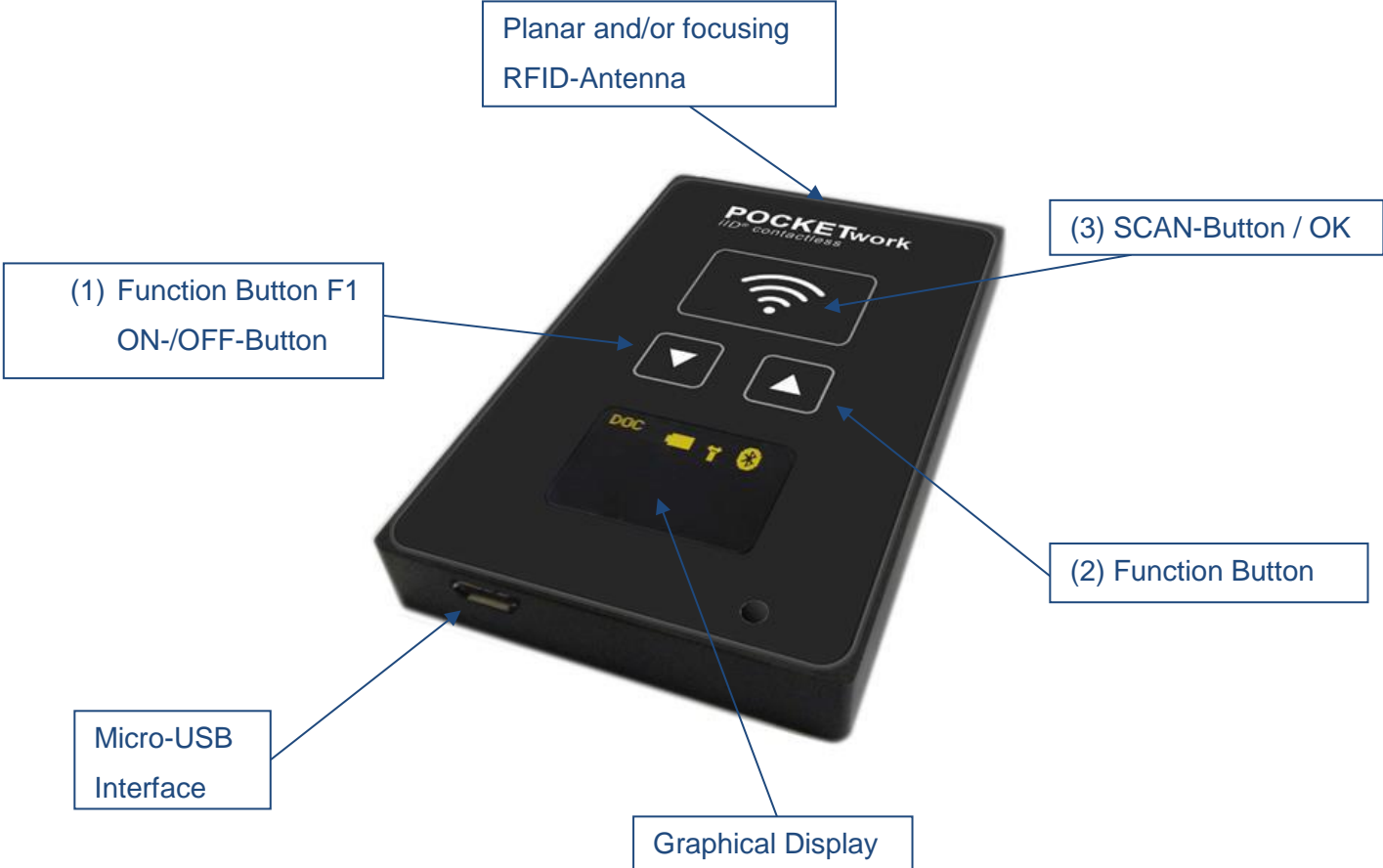
The wireless connection between the host and POCKET shall be set up and parameterised only once. The default mode "server mode" needs no further parameterisation. The so-called "Client mode" for the automatic connection set-up through the POCKET requires some settings via the separately available iID® INTERFACE Config Tool.

Your POCKET serves as the read or write communication with HF transponders of the standards ISO14443 and ISO15693 or UHF transponders in accordance with ISO 18000-6c. In addition, sensor-transponder and data logger of the type TELID® are supported for detecting physical quantities, for example, for reading the temperature. To operate LEGIC transponders, a special device version is available.

For the actual transponder communication, microsensys offers its RFID driver iID® engine driver, and demo applications, keyboard-emulation and other tools. Installation of these components is described in the software CD-ROM which can be found in the delivery package.

Handling

Before the POCKET can be used, it must be ensured that the battery is sufficiently charged. Below the controls and other components of the device are shown:

Planar and/or focusing RFID-Antenna

(3) SCAN-Button / OK

(1) Function Button F1 ON-/OFF-Button

(2) Function Button

Micro-USB Interface

Graphical Display

If your PC does not have an integrated Bluetooth™ module, we recommend establishing the following Bluetooth™ expansion modules for Bluetooth-connection:

Manufacture	Device
GIGABYTE	GN-BTD02
GIGABYTE	BTD01
Edimax	EBDGC183MD01800
Delock	USB Bluetooth Adapter EDR

Display

The *iID*® **POCKETwork** equipped has a graphic display. You get status information about the device itself in the top line of display.

Structure of the status bar (left to right):

Operation mode	State of charge	Antenna icon	Bluetooth icon

Description of symbols:

Symbol	Description
DOC	Operation mode DOC
DOC USB	Operation mode DOC, USB-charging process
SPC	Operation mode SPC
SPC USB	Operation mode SPC, USB-charging process
▭ ▯ ◧ ▮	Different state of charge
⯈	Antenna symbol without active RF-communication
((⯈))	Antenna symbol with active RF-communication
✸	Bluetooth-symbol without active Bluetooth-connection
✸·))	Bluetooth-symbol with active Bluetooth-connection

Furthermore, the display shows information on the read transponder. In DOC mode, the successful reading of a transponder with symbol "✓" is acknowledged. In the SPC mode you can display various information which has been read by a transponder. For example, you can indicate the UID of the transponder or other memory contents important for you directly on the display. Using the configuration tool, you can specify which information should be displayed. A description of the configuration tools can be found in the documentation.

In addition to the display, specific actions of the POCKET are also acoustically confirmed to you.

The actions being executed by the POCKET are signalled on the display of the POCKET. The following table shows the possible actions with the corresponding indications on the display according to the factory setting:

Action	Indications on the display
Press the button (1) to turn on the POCKET	microsensys-logo Mode (DOC or SPC) Frequency (HF or UHF) Serial number Version number of the firmware
Releasing the button (1) of the POCKET	Display status bar
Bluetooth connection should be established	Bluetooth icon without lines
Bluetooth connection is established	Bluetooth icon with lines
Executing a host command without TAG communication	No further indication
Executing a host command with tag communication	Status display "Success" or "Fail", In addition, the antenna symbol indicates the status of the antenna.
Battery strength	The battery icon shows the current charge status
Charging via USB	The battery icon continues to be visible in the status bar
Separating the Bluetooth connection through the host device	Display "Bluetooth disconnected"
Press the button (1) to turn off the POCKET	Display "device off"

Modes of operation

The *iID*® **POCKETwork** can be operated in two modes DOC and SPC. The DOC mode generally requires a host device; this can be a PC, tablet PC, laptop or even a mobile phone. The POCKET is connected to the host here via Bluetooth™ or USB cable. Instructions on how to establish a Bluetooth TM connection with the POCKET are given in the section "Bluetooth™ connection ". If you have connected the POCKET to a host, the control takes place directly in DOC mode through the host. This means, for example, that you control the reading of the UID of a transponder through the software in the host. Successful reading the UID will appear briefly on the display of the POCKET. The read UID can be seen, however, only on the host device. The "SCAN button'' (3) has no function in this mode.

In the SPC mode, however, you can operate the Pocket Work, either with or without host device. You have the choice whether to store the data directly in the internal memory of the POCKET, display it on the screen or send it via Bluetooth to a host. The difference to the DOC mode is that you now control the actions from the POCKET. You can trigger the reading of a transponder by pressing the "SCAN" button (3), and the read data will be transmitted to the host. Another option is to store the data directly to the internal memory of the POCKET. That way you can use the device completely independently. Then you can transfer the collected data via USB or Bluetooth™ connection to a host. There is also the option in the SPC mode to display the transponder data directly on the display of the POCKET. So you can choose whether you want to see, for example, the UID of the transponder, another memory content or the sensor data of a TELID, for example the temperature.

The functions in the SPC mode are based on a script. In a script, one or more functions are described, which are ultimately performed by the device. This means to make the functions available on your Pocket Work, a

script on the device must be loaded. The script files are provided by microsensys and can be downloaded to the device by the customer using the iID® INTERFACE Config Tool. Details on how the script files are downloaded to the device are given in the section "iID® INTERFACE Config Tool".

Scripts can, in the simplest case, consist of a single command, for example, displaying the UID of the transponder. It can also connect multiple commands in a script. If this is the case, the various commands are displayed in a menu on the POCKETwork. In the menu, using the arrow buttons (1,2) you can navigate and the selection is confirmed by pressing the SCAN button (3). A script can solve complex tasks. Below you will find the most important actions that a script contains:

Example of scripts:

Script	Description
HF UID	- after pressing the SCAN button, the POCKET is in read mode - the machine scans until a transponder is read successfully or the SCAN button was pressed again - If a transponder has been read successfully, then this will be confirmed by a beep sound - Indication of the UID of the transponder on the display - by pressing the SCAN button, the indication is cleared and the POCKET is again in read mode
HF temperature + pressure + TAG Number	- Indication of pressure and temperature value, TAG number and placing the values with time stamp in the memory
UHF EPC	Indication of EPC codes on the display and stored with time stamp in memory

For individual advice on the subject of script and POCKETwork contact the microsensys support team.

Operation mode

The POCKET has essentially three modes, which are described below:

- Flight mode: The POCKET is switched off by pressing the button (1), the device is currentless
- Standby mode: the POCKET was turned on, it now waits for an incoming Bluetooth connection, or establishes it itself. If no Bluetooth connection is established within a time of about two minutes, the POCKET goes into flight mode
- Scan mode: the RF antenna of the POCKET is turned on, the POCKET can communicate with a transponder

The activation of POCKET from the flight mode is done by pressing the button (1) and is signalled through the indication of the microsensys - Logo on the display. After releasing the button, the logo goes away and on the top half of the screen, the status bar is displayed.

Depending on the fixed Bluetooth operation mode, POCKET now waits for a connection from a host device (server mode) or automatically attempts to establish one (client mode).

The establishment of the connection to a POCKET in the server mode is described below. The optional configuration of the client mode can be found within the description of the configuration tool.

In delivered condition, the POCKET in server mode is configured for incoming connections from any other Bluetooth^{TM} device such as PC, PDA, tablet or phone. An external device can connect to the POCKET; the procedure required for this is explained below using the example of a laptop with built-in Bluetooth module and Windows 8 operating system.

Note: The search for bluetooth devices is different depending on the platforms (Android, Windows, Windows Mobile) and partly depending on the bluetooth components, but include basically always identical steps.
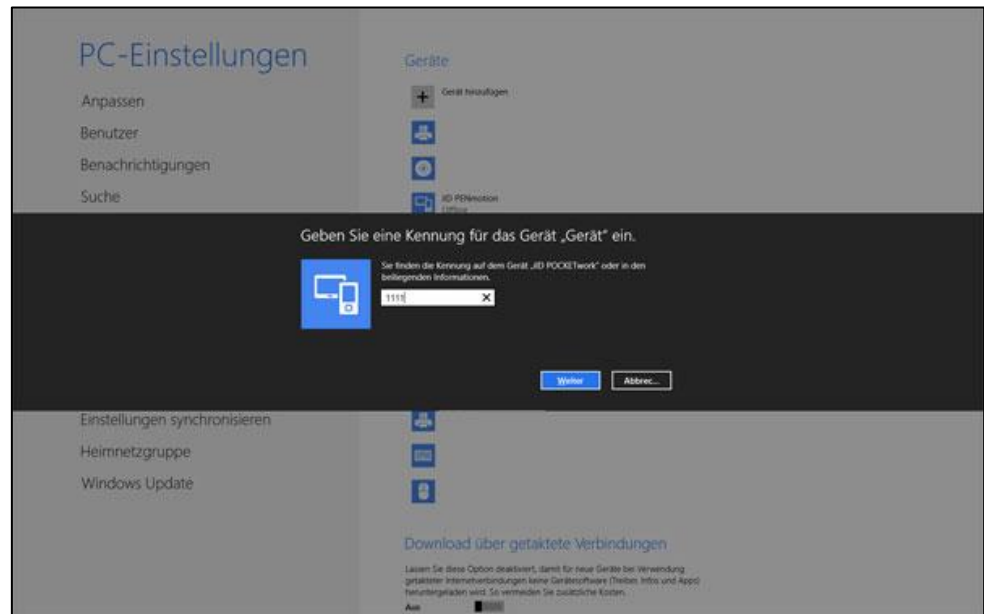
Setting up a Bluetooth connection
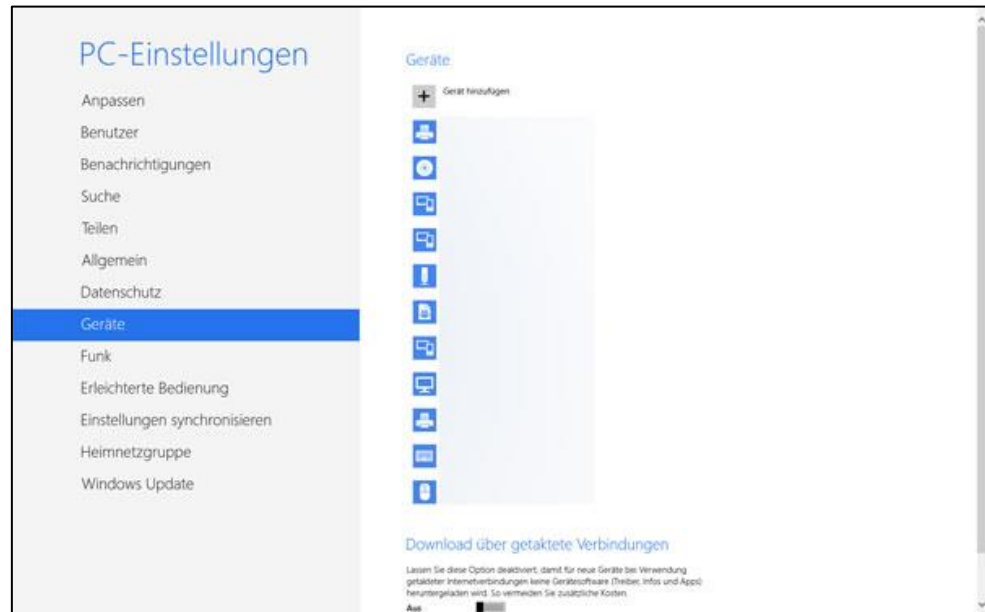
In PC settings, select "Devices". Turn the POCKET on and start searching for Bluetooth devices by clicking on "Add Device".
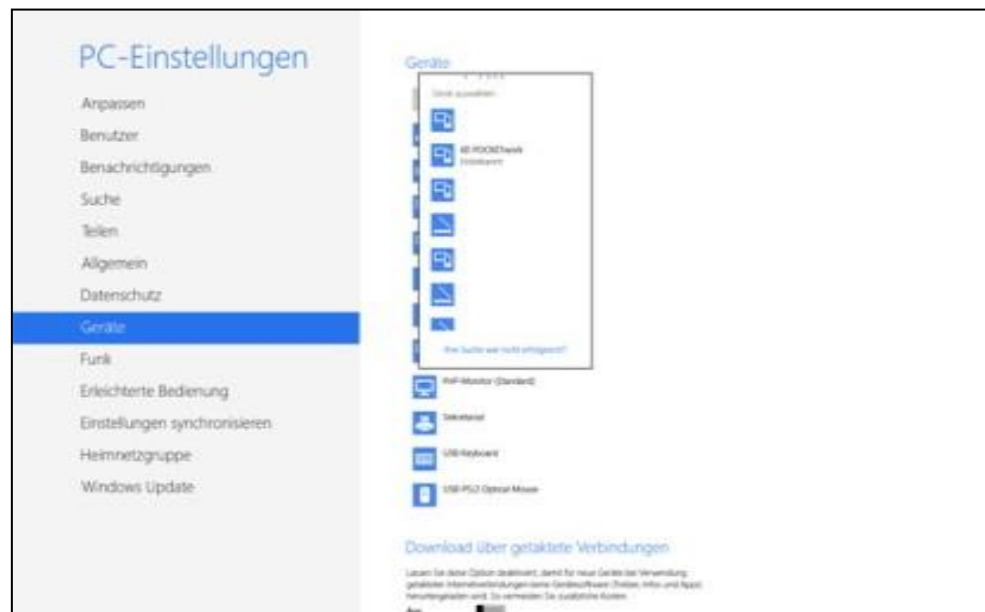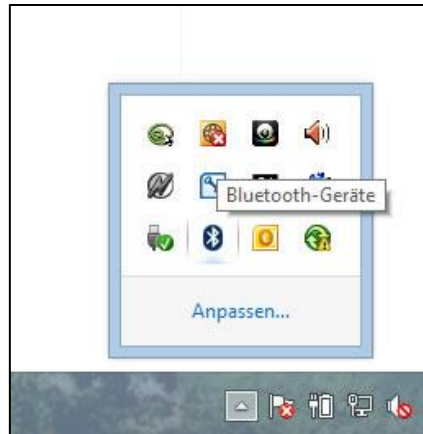

Choose from the list of available Bluetooth devices, the entry "*iID*® POCKETwork".

You will now be prompted to enter the Bluetooth PIN. It reads in the delivered condition of POCKET "*1111*". Confirm this with "Continue". The Bluetooth connection with the POCKET is now established.

Reading the COM port

The COM port is the interface through which you can communicate with the POCKET from the software side in some cases, you need to know which COM port has been occupied by the POCKET. To find out which port has the POCKET occupied, select on the desktop "Bluetooth-device" and in the context menu "Open settings".
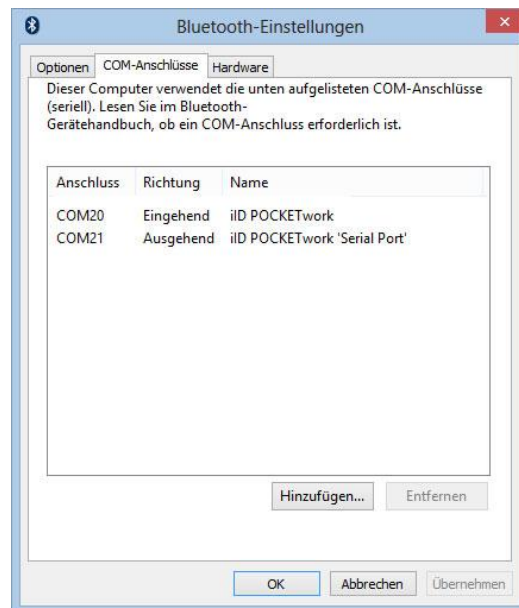
In the Bluetooth settings, please switch to the tab "COM ports". Here you will be shown which incoming and outgoing COM port is being used by the POCKET.

Software

DEMOsoft

In order to try the extensive functions of the POCKETwork in live mode, you can use our DEMOsoft application. Please note that you can use the POCKET together with the DEMOsoft only in DOC mode and via Bluetooth connection.

TELID®soft

If you want to use the POCKETwork in connection with our TELID® products, we recommend you our TELID®soft software. This software is specially designed for our TELID® products and allows you to evaluate the different physical quantities. A detailed description can be found in the documentation which is also available separately.

CAUTION: Please note that the POCKETwork must be activated accordingly for use with the TELID®soft. For this purpose, you can contact the microsensys support.

iID® CONNECTIONtool

With this program, you can easily set up the connection from microsensys read / write devices to your PC. Once the connection is established, you can use any other software.

iID® INTERFACE config tool

The configuration tool is used to adapt your POCKET to your individual needs. This parameterisation includes the following parameter groups:
- Visualisation
    - o Setting the display brightness and display duration of the TAG operation
- Switching on / off
    - o Setting times and parameters that affect the power management of POCKET

- Connection management
  - Configuring the Bluetooth connection mode and MAC address, profile numbers etc. for client mode

To configure the POCKETwork please connect it via Bluetooth or USB cable to your PC, using Reader Connection Tool. Now start the iID® Interface config tool.

Note: If the POCKET was already switched from server mode to client mode, the serial communication interface valid now is the incoming serial port of your operating system. This can be seen in the previous section under "Reading the COM ports".

The page with the main menu of the configuration tools now opens. In addition, there is a status bar on the main page, where you can see the battery status and the ID number (Reader-ID).


Now select the desired menu item. The current parameters are read from the POCKET, which is indicated by a status bar in the menu button. Based on your selection, the appropriate configuration dialog now opens. Below the individual dialogues are briefly described:

**Configuration of the visualisation and the one-off procedure:**
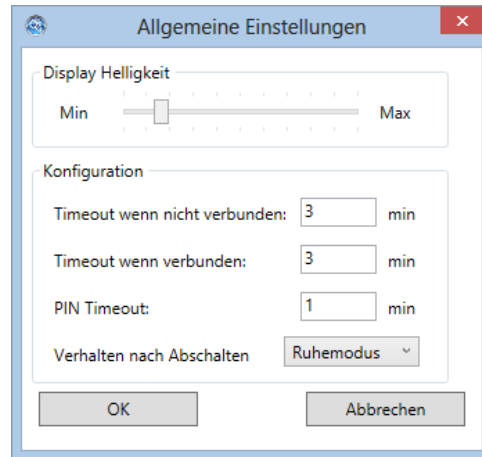
In this dialog you can set the display brightness, the display time of the status of the TAG-operation and various timeouts. "Response after Shutdown" determines whether the POCKET enters standby mode or flight mode after disconnecting the Bluetooth connection.

Configuration of the connection management:
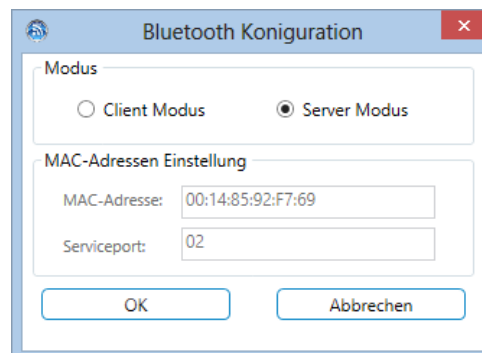
This dialog is used to set the Bluetooth-specific parameters. So you can switch between the operating modes "server mode" and "client mode" which are already mentioned.

To use the client mode, the POCKET requires the MAC address of the associated hosts and the number of service ports for correct addressing (this depends on the services activated on the Host, mostly the service number of the SPP profile is 1). The MAC address is also located in the Bluetooth Manager (see the following figure).
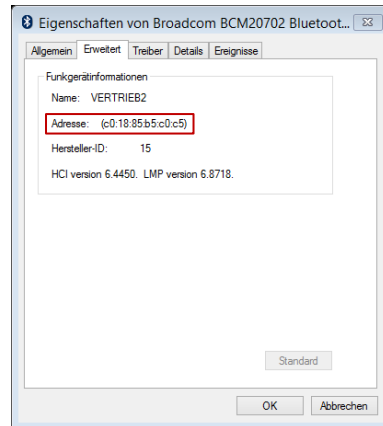
By confirming the parameter selection in the current dialog, the parameter set is transferred to the POCKET and you return to the home page of the application.

Configuration of the script management:
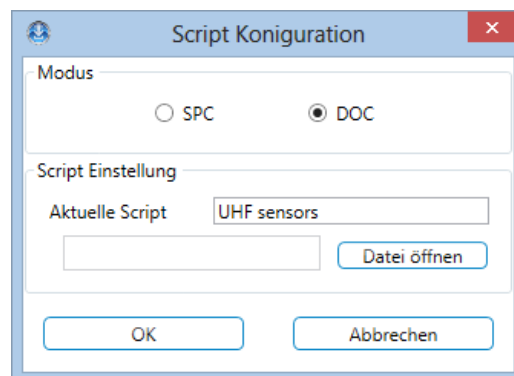
In the script configuration menu you can switch between the modes DOC and SPC mode. You can also, if you have selected the SPC mode, download here the pre-made scripts in your POCKETwork. In "Current Script" the currently active script of the device is shown to you. To load a new script on the device, select "open file".
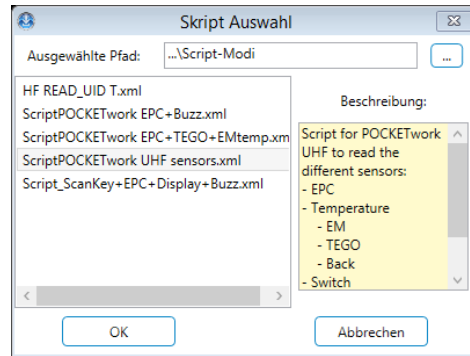
In the next window you can specify the directory in which you saved your scripts. Then all available scripts are displayed. In the description field a brief description of the selected script is displayed. Select the desired script and confirm the selection with "OK". This takes you back to the window script configuration. Please confirm this with "OK" to load the script to the device.

When you have completed the above steps, please switch off the POCKETwork and turn it back on so that the script works properly.

Close the application when the configuration is complete and use from now on the POCKET with your customised settings.

For further information on the program, see the documentation "iID® INTERFACE config tool " which is separately available. There it is also described how the firmware update can be performed.

iID® MPCdataload

With the software MPCdataload you can read the stored data from your POCKETwork which you have collected in MPC mode.

After starting the software, the main window appears. Here in the communication window you can see a summary of the general information about the device. Displayed information includes the Reader ID, the number of data sets stored on the device and the time of the last reading.

Read data

If you press the button "Load DataSets" in the main window, the reading process starts. In the bottom status bar, the progress of the operation is displayed. Once the reading is completed, the data sets are displayed. By pressing the save button the data sets are stored as an XML file. In the subsequent confirmation, the file path is displayed in which the file is saved.

Resetting the settings

If the POCKET is configured for the client mode, it may be necessary to reset it back into the server mode. This is the case when the POCKET should be assigned to a new host device.

Resetting the Bluetooth mode may also be required if the internal memory for "trusted devices" is already full and thus no other host devices with the POCKET can be connected. If you want to bring back the POCKET into the factory settings, you can do this after a successful Bluetooth reset. To reset the settings of the POCKET, proceed as follows:

1. Turn off the POCKET.
2. Press the keys (1) and (2) simultaneously for at least one second, then release both buttons. In the middle area of the display "Reset Bluetooth configuration" appears. If you want to perform the Bluetooth reset, confirm with "Yes" (1), in the other case with "No" (2).
3. In the case of "Yes", "Success" appears for two seconds on the display after a short time. Thus, the Bluetooth reset has been successfully completed. In the case of "No", the device is restarted immediately and the reset operation is aborted.
4. After successful Bluetooth-Reset, the "Reset to factory setting" appears on the display. If you select "Yes" (1), the POCKET will reset to its factory settings. In case you do not want to do this, press the "No" (2) and the factory settings are not set, but the Bluetooth reset still takes place. In this case "Reset now" appears and the POCKET restarts.
5. If the previous point was completed with "Yes", after a short time "Success" and "Reset now" appears on the display and the POCKET is restarted.

Note: If the POCKET is set in the reset mode, it doesn't turn off itself after the set timeout. If during the reset operation "Fail" appears, close all other processes with "No" and start again from point 1.

![microSensys logo]

Order information

Below you will find order information of *iID*®

POCKETwork.

Product	Product Code	Note
POCKETwork standard Pocket Read/Write Unit with RTC, MEM, BT, USB, Li accu Display: OLED Matrix 96 x 64 Buttons: SCAN, F1, F2 System: iID3000, ISO 15693, 14443, all customized Antenna: P1333 Operation Mode: SPC (DOC,MPC) Package: 54x86x10 mm³	72.62.710.00	
POCKETwork LEGIC Pocket Read/Write Unit with RTC, MEM, BT, USB, Li accu Display: OLED Matrix 96 x 64 Buttons: SCAN, F1, F2 System: iID3000, ISO 15693, 14443, LEGIC, all customized Antenna: P1333 Operation Mode: DOC Package: 54x86x10 mm³	72.62.505.00	
POCKETwork cc Pocket Read/Write Unit with RTC, MEM, BT, USB, Li accu Display: OLED Matrix 96 x 64 Buttons: SCAN, F1, F2 System: iID3000, ISO 15693, 14443, all customized Antenna: (K3) Operation Mode: SPC (DOC,MPC) Package: 54x86x10 mm³	72.72.710.00	

Product	Product Code	Note
POCKETwork UHF Pocket Read/Write Unit with RTC, MEM, BT, USB, Li accu Display: OLED Matrix 96 x 64 Buttons: SCAN, F1, F2 System: iID4000, ISO 18000-6c, all customized Antenna: CA1015 Operation Mode: DOC Package: 54x86x10 mm³	41.22.800.00	
POCKETwork UHFcc Pocket Read/Write Unit with RTC, MEM, BT, USB, Li accu Display: OLED Matrix 96 x 64 Buttons: SCAN, F1, F2 System: iID4000, ISO 18000-6c, all customized Antenna: PA3 Operation Mode: DOC Package: 54x86x10 mm³	41.12.800.00	

Starter Kits

Product	Product Code	Note
"iID® POCKETwork Starter & Development Kit HF Mobile HF RFID Starter Kit Contains of: 1 x iID® POCKETwork HF 1 x Hand Strap 1 x USB Cable 1 x iID® Transponder Sample Package HF 1 x QuickstartGuide iID®POCKETwork 1 x CD-ROM (RFID-DEMOsoftware, iID driver engine, source code samples, documentation) 1 x Cardboard Packaging		
"iID® POCKETwork Starter & Development Kit UHF Mobile UHF RFID Starter Kit Bestehend aus: 1 x iID® POCKETwork UHF 1 x Hand Strap 1 x USB Cable 1 x iID® Transponder Sample Package UHF 1 x QuickstartGuide iID®POCKETwork 1 x CD-ROM (RFID-DEMOsoftware, iID driver engine, source code samples, documentation) 1 x Cardboard Packaging		

Your Notes

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