microSensys
RFID in motion

QuickStartGuide

Maja IV – iID® Network/iID® HOST

RFID small animal identification solution
13.56 MHz closed coupling RFID

Contact/Copyright

microsensys GmbH
Office Park im GVZ
In der Hochstedter Ecke 2
99098 Erfurt
Deutschland

Tel.: +49 (0) 3 61/5 98 74-0
Fax: +49 (0) 3 61/5 98 74-17
E-mail: info@microsensys.de
Homepage: www.microsensys.de

Introduction

This document describes in a short form the principle handling and use of the new MICROSENSYS Maja IV system, which is made for identification of small animals, especially bees and bumble bees on the way from and to the bee hive.

To do this, the system uses the RFID technology. MICROSENSYS can offer really small RFID transponders with dimension of 1.0mm x 1.6mm, so that a bee can be signed with this type of transponder.

To read these transponders which are fixed on the animal the system uses RFID reading units which are mounted on the entrance of a bee hive, so that the bee has to walk through this RFID reader. During this short time the RFID reader can identify the bee and logs the serial number of the transponder together with a time stamp, so that the bee is clearly identified.

With this system it is possible to connect up to 8 RFID Readers, which could be used simultaneously.

To store the identified bees the system has a third component which is called the iID®HOST. This host provides the interface for the RFID reading units, so that they can be connected to the host. Additionally the host gives some state information via 3 LEDs and stores the read UID data on a removable SD card storage memory.

Please read this document carefully to prevent damage and unwanted results.

Component overview

General

The Maja IV small animal identification consists of the following components described in short form:

iID®HOST designed for Maja IV system running iID data capture software this device is the main component controlling the readers and storing the data

power supply 12V with appropriate connector the whole system can run using battery power or 220V~

optional: 12V battery power supply the whole system can run using battery power or 220V~


at least one maja IV reader module

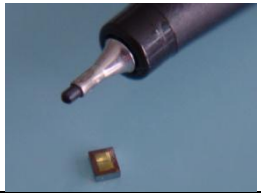
this is the RFID reading component equipped with a special high performance antenna system optimized for mic3 transponders

optional: bus cable, length 0,5m, 1,5m or 3m

cable to connect iID host, reader modules and reader modules among each other

a few well working mic3®-64bit ReadOnly RFID transponders

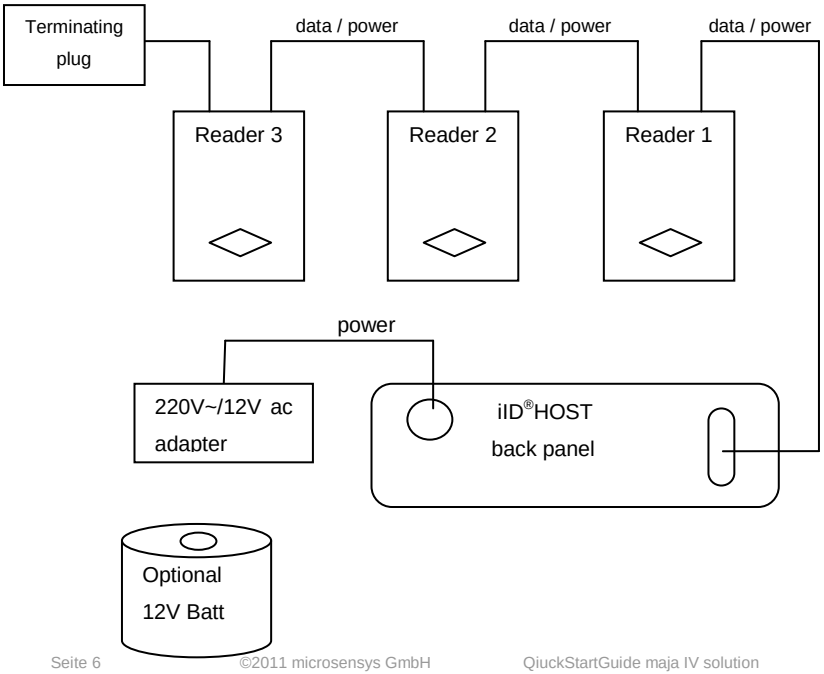
miniaturized RFID transponder to tag the animal for detection when passing the reader module



Handling

System setup

To start working with the Maja IV system, please connect all components as illustrated and described below. Please pay attention to additional remarks shown at the components as well as labels, which are used to identify the correct plugin of different connectors.



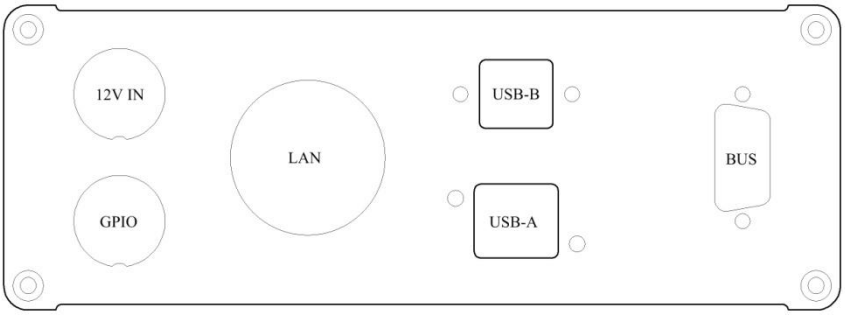
Installation procedure

The following chapter describes in text form the installation steps necessary the If all above described components for the Maja IV system are available, then connect all in the following order:

If you extend a previous system with additional maja reader modules, you possibly have to adapt the reader's bus addresses. Therefore you have to open the reader module and modify a control setting.

Remove the 4 Screws. Press with care a flat screwdriver between case and cover. Adapt the reader's bus addresses with a flat screwdriver. In this special case please contact Microsensys for further instructions.

Connect the Maja IV reader modules among each other. Therefore connect the SUB-D9 female from reader 1 to the SUB-D9 male from reader 2 and so on. If you use only one reader, than you can skip this step.



Connect the SUB-D9 male from reader 1 to the SUB-D9 female connector "BUS" of the iID®HOST. The SUB-D9 male from last reader in the line could be open.

If you connect more than 2 readers the usage of the terminating plug is necessary. Please plug it on the last SUB-D9 in line the close the Bus-System. The system now works in an optimal way and the last plug is protected against dirt etc.

Connect the AC power adapter **OR** the battery with the delivered cable to the iID®HOST connector named "12V IN". The system shall switch on all LEDs (red/green/yellow).

If you did not use the system for a longer time, please connect it by USB-cable to your PC running Microsoft® ActiveSync and establish a partnership. This is necessary to transfer the PC time to iID® host.

In case the components are connected in the correct way, the system is booting up. You can see this if all LEDs are glowing constant. After 30 – 40 seconds the booting operation is ready and the system is in scan mode. This is indicated by switching off the red and green LED, only the yellow LED is glowing constant. You are able to read RFID transponders with the RFID reading units (Reader).

If you bring a transponder near the RFID Reader the green LED flashes, so you can see that the transponder was read. If red LED is flashing, it indicates that an SD operation is in progress, this is normally the storing of a new UID dataset. Please do not remove SD storage memory in this moment, otherwise data will be lost!

A complete LED state description you will find in the next table.

Yellow	Green	Red	Description
off	off	off	- no battery power - check battery and power connection
on	…	…	- battery connected, see previous description
on	on	on	- initialization process is running - red and green shall switch off after about 30 seconds - occurs normally direct after power connection
on	off	on	- error detected, reasons: a) no readers detected (only a few seconds after power connection): check wire connection to reading interfaces b) no SD storage memory detected or SD storage error: check SD card in SD slot, SD memory full, optionally use another SD card, check write protection, c) an internal error occurred: contact manufacturer
on	flashing	…	- UID data read from one connected reading interface
on	…	flashing	- storing UID data in SD card, so not remove SD card when red light is flashing!

Getting the data

The UID data is stored in xml-files. Every time the iID®HOST is powered on or every time the SD card is removed and plugged again a new xml-file will be created. The UTC timestamp of creation time is encrypted in the filename of these xml-files.

To get the stored UID Data you need these xml-files. Therefore 3 ways are offered:

You can remove the front cover of the iID®HOST and then take out the SD card you see in the upper right corner.

You can connect a PC via the USB-B connector on the back side and Microsoft ActiveSync. After this you can access the SD Card via the Windows Explorer.

You can connect a LAN cable via the RJ45 connector on the back side of the iID®HOST. After this the iID®HOST allocates a IP-Address via the DHCP protocol. With this IP-Address you can access the iID®HOST. This option will be not described further, because it is not officially supported at this time.

If you used one of the first two methods you are able to copy the xml-files now. You can open these files by a simple editor, e.g. Windows Editor or also Microsoft Internet Explorer, additionally you can import them into office applications like Microsoft Excel.

A sample of an xml-file you see below:

```
<?xml version="1.0" encoding="utf-8" standalone="no"?>
<Datasets>
  <Information>
    <UTCTime_Creation>4/27/2010 2:41:27 PM</UTCTime_Creation>
    <Company>MICROSENSYS</Company>
    <Program_Version>MAJA IV v0.1</Program_Version>
  </Information>
  <Dataset>
    <UTCTime>4/27/2010 2:41:26 PM</UTCTime>
    <ReaderID>32568</ReaderID>
    <Address>3</Address>
    <UID>A0 01 03 C0 00 20 80 DD</UID>
    <ScanCount>1</ScanCount>
    <Type>16</Type>
  </Dataset>
```

```
<Dataset>
   <UTCTime>4/27/2010 2:41:27 PM</UTCTime>
   <ReaderID>32567</ReaderID>
   <Address>3</Address>
   <UID>A0 01 03 C0 00 20 80 DD</UID>
   <ScanCount>1</ScanCount>
   <Type>16</Type>
  </Dataset>
</Datasets>
```

All xml-file have one main element which is named “Datasets“. Encapsulated in this element are one “Information”-Tag and many “Dataset”-Tags. The “Information”-Tag includes the following data:

“UTCTime_Creation”: The creation time of the actual xml-file.

“Company”: The Company which created this file. Normally MICROSENSYS.

“Program_Version”: The internal name and version of the actual control software for the iID®HOST.

The “Information”-Tag is followed by many “Dataset”-Tags in case that UID data was registered. One “Dataset”-Tag represents one successful reading operation of a transponder.

A “Dataset”-Tag includes the following information:

“UTCTime”: The UTC time of the successful reading operation.

“ReaderID”:The ID number of the maja reader module, which scanned the transponder.

“Address”: The bus address of the maja reader module, which scanned the transponder.

“UID”: The hexadecimal Unique Identification number of the transponder

“ScanCount”: Number of one after another same UID’s

“Type”: Internal usage

Important notes

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1. If you do not use your system for a longer time, please unplug the optional accu from iID® host.

2. If you did not use the system for a longer time, please connect it by USB-cable to your PC running Microsoft® ActiveSync and establish a partnership. This is necessary to transfer the PC time to iID® host, otherwise you will have no valid time stamp.

3. Please make sure your SD card is well formatted before usage within iID® host.

4. Although iID® host connectors are particularly protected against water and dust, please make sure to prevent harsh environmental conditions from the device.

5. If you connect readers in raw or side by side please assure a minimum distance of 40 millimeters between each.

All components shall be used like specified in the respective datasheet. Please be careful that the components are protected against rain and dirt or other bad environmental influences. Please keep the readers away from any metal surroundings during operation mode!

Questions? Contact us:
microsensys GmbH
Office Park im GVZ
In der Hochstedter Ecke 2
D-99098 Erfurt
Germany

e-mail: info@microsensys.de
tel: +49 361 59874 0
fax: +49 361 59874 17