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AWR 100 Stick Reader

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1. Preparing for Use



Figure 1: AWR100 Stick Reader

The AWR100 Stick Reader is shipped with one rechargeable battery pack, one RS232 cable (1,5m), one power supply for trickle charging, two eartag transponders (one FDX-B and one HDX) and AWR100 demo software.

Before starting it is recommended to charge the battery pack completely. This can be done by using the power supply for trickle charging (takes min. 16 hours) or the external fast-charging station (see chapter 1.1).

1.1 Accessories

- Bluetooth end cap
- Bluetooth USB dongle (CD with drivers included)
- External fast-charging station plus one battery pack
- Battery pack
- RS232 end cap
- RS232 cable (1.5m)
- RS232 cable (3m)
- Power supply for trickle charging
- Cigarette lighter charging cable (for trickle charging only, 12V with voltage limiter)

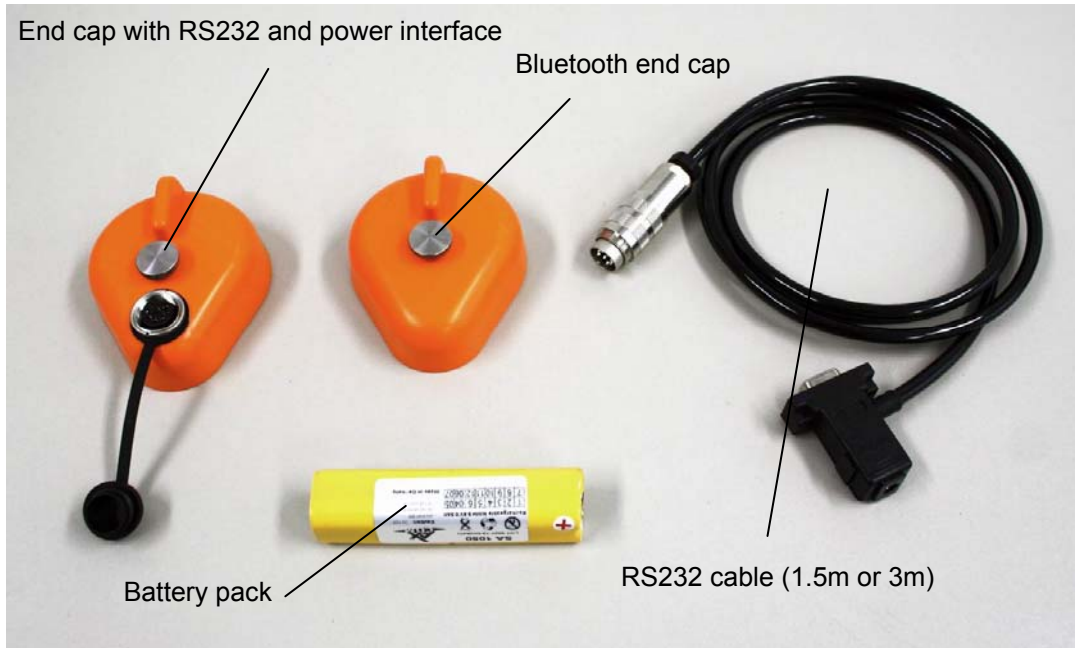


Figure 2: Accessories



Figure 3: External charging station plus one battery pack

1.2 Stick Reader Interface and signalling

Parameter	Setting
Red LED	The red LED is flashing during the Stick Reader tries to read transponders. This behaviour can be disabled or enabled by AWR100 demo software.
Green LED	The Green LED is flashing after a transponder was read. This behaviour can be disabled or enabled by AWR100 demo software.
Beeper	The Beeper is beeping after a transponder was read. This behaviour can be disabled or enabled by AWR100 demo software.
Blue LED	The blue LED is used for several events (e.g. transponder was read, low battery warning).
LCD display	On the LCD display all necessary information's are displayed (e.g. data of read transponder, ready to work, menu items).
Read button	Switches the reader on Starts reading Enters the menu by a double clicking after press key appears on the LCD display.
Screw on end cap	Changing battery pack and or end cap
Cable connector	Interface for transferring data between Stick Reader and PC and for trickle charging via RS232 cable

1.3 Installing or changing the battery pack

If using the Stick Reader for the first time, the battery pack has to be installed first.

Turn screw of end cap anti clockwise.



Remove end cap.

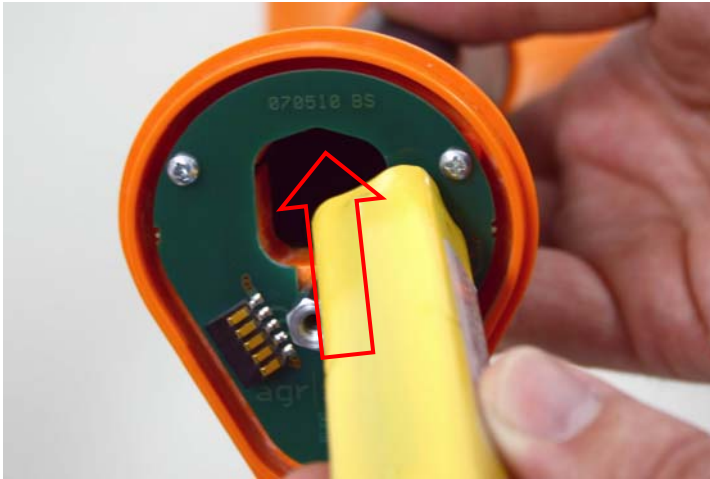


Remove old battery pack.



AWR100

Install new battery pack.



Mount end cap and turn screw of end cap clockwise.



Important!
The screw has to be fastened completely, otherwise contact problems can occur.

2. Trickle charging the battery pack

Full charging takes at least 16 hours up to 20 hours (longer charge time is allowed).
Connect RS232 cable to RS232 end cap.



Figure 4: RS232 connection RS232 cable to end cap

Plug in RS232 connector into RS232 jack of RS232 end cap and turn connector clockwise.

Connect the power jack of the RS232 cable to the power supply for trickle charging.



Figure 5: Connections and accessories for trickle charging

3. Battery pack fast charger

For faster battery charging an external charging station is available.



Figure 6: Battery pack fast charger



Figure 7: Battery pack fast charger with battery pack

4. Controlling the Stick Reader

4.1 Switching on the Stick Reader

In the off state, the Stick Reader is separated from the battery. Only a few parts (e.g. the internal real time clock) are supplied by the battery.

Nothing is displayed on the LCD display in this case.

In order to activate the Stick Reader, the Read button must be pressed for a short time.



Figure 8: Activate Stick Reader by pressing the read button


If Bluetooth is activated, the internal Bluetooth adapter is initialised first. In this case the following dialog appears on the LCD display:

Init Bluetooth

After Stick Reader is ready to work, the following text appears on the top left side of the LCD display:

Press key

If Bluetooth is activated and connected, a Bluetooth symbol appears on the right side of the second line.

Press key 

The backlight of the LCD display is off. If no actions take place, the Stick Reader will be deactivated after a certain time (5s...600s configurable).

4.2 Reading transponders

4.2.1 Reading transponders after Stick Reader is ready

Wait until

Press key

appears on the LCD display.

Press key until

Read tag

appears on the LCD display. Release key.

Now the Stick Reader starts to read transponders for a certain time (configurable).

The reading procedure is signalled by a red flashing LED. Furthermore a progress bar appears in the second line of the LCD display.

The flashing of the red LED can be enabled and disabled by configuration software.

If no transponder has been read, the following message appears on the first line of the LCD display:

No transponder

During displaying this message the backlight of the LCD display is on.

If a transponder has been read, the reading procedure is aborted immediately.

A successful reading is signalled by a green flashing LED at the top of the Stick Reader, a flashing blue LED above the LCD display, and the beeper.

The flashing of the green LED and the BEEPER can be enabled and disabled by configuration software.

On the first Line of the LCD display, the transponder number is displayed in decimal format.
On the second Line of the LCD display, time and transponder type are displayed.

```
984 010900316360
12:41:26 F
```

If an event is assigned to the read transponder (at this time only 30 transponders can be assigned to an event), the event and the time are displayed alternating in the second line of the LCD display.

```
984 010900316360
12:41:26 F
```

```
984 010900316360
Selection
```

Transponder data plus time and event will be transmitted to the PC via serial interface or Bluetooth and can be displayed there.

Simultaneously transponder ID and time are stored in the internal database of the Stick Reader (without event).

If the key is pressed, while an event is detected, the string "ok" appears after the event string. Data will be transmitted to the PC again.

```
984 010900316360
Selection ok
```

If no event is assigned, the data are displayed for approximately seven seconds if the key is not pressed.

After displaying transponder data the ready to work text appears again:

```
Press key
```

4.2.2 Reading transponder immediately

Press key until text

```
Read tag
```

appears on the LCD display.

Reading procedure is similar to chapter 4.2.1.

4.3 Using the function menu

After message

```
Press key
```

appears on the LCD display, the menu of the Stick Reader can be entered by double pressing the read button. At first the status information's of the Stick Reader are displayed.

4.3.1 Version

On the first line of the LCD display the current software version of the Stick Reader appears:

```
Agrident V1.04
```

4.3.2 Date/Time

On the second line of the LCD display the current date and time is displayed first:

```
Agrident V1.04  
13.11.06 12:30
```

If the time does not correspond with the current time, the real time clock has to be synchronised (see chapter 5.1.1).

4.3.3 Battery

Now the status of the battery is displayed in the second line of the LCD display. The status of the battery is not an absolute value.

```
Agrident V1.04  
Battery ...
```

The amount of displayed points is an information about the status of the battery. One point up to six points are possible. If only one point is displayed, the battery is almost empty. This information means, that the battery should be replaced soon or has to be recharged.

4.3.4 Stored datasets

Now the number of read transponders is displayed:

```
Stored datasets  
5/ 138/5000
```

The first number represents the animal counter of the current group (in this example 5). The second number represents the sum of all stored datasets including group separators (in this example 138). The last number represents the amount of datasets which can be stored on the Stick Reader (5000).

Hind!!!

5000 datasets are possible. If 5000 transponders and separators were stored, the datasets must be cleared before new transponders can be read.

If 5000 datasets already stored, and a new transponder is read, the following information appears on the LCD display:

```
Database  
Out of memory
```

Any transponder number, which is read after this message appeared, will not be stored. Before the work can be continued, the dataset has to be downloaded to the computer and to be cleared on the AWR100 afterwards.

4.3.5 Bluetooth

This option is only available, if the corresponding Bluetooth adapter is connected to the Stick Reader.

The status of the Bluetooth interface appears on the second line of the LCD interface (on or off):

```
Agrident V1.04  
->Bluetooth on
```

The arrow in front of the status is a hind, that this status can be changed by pressing the key. In this case the Bluetooth interface is deactivated by pressing the key and the following message appears:

```
Agrident V1.04  
->Bluetooth off
```

If the key is pressed again, the Bluetooth interface is activated again.

Switching off the Bluetooth module minimizes power consumption and increases life time of the used battery.

This option is useful if the Stick Reader is only used for sampling transponders, and the stored datasets will be read out later in the office.

4.3.6 Pairing

This option is only available, if the corresponding Bluetooth adapter is connected to the Stick Reader and Bluetooth is activated (see chapter 4.3.5).

The following text appears on the second line of the LCD interface:

```
Agrident V1.04  
->Start pairing
```

Before the Stick Reader is able to communicate via Bluetooth, both Bluetooth devices have to be paired.

Press the read button if `->Start pairing` appears on the LCD display, to start the pairing process.

After pairing process was started some information's appear on the LCD display:

```
Pairing mode  
Enter cmd mode
```

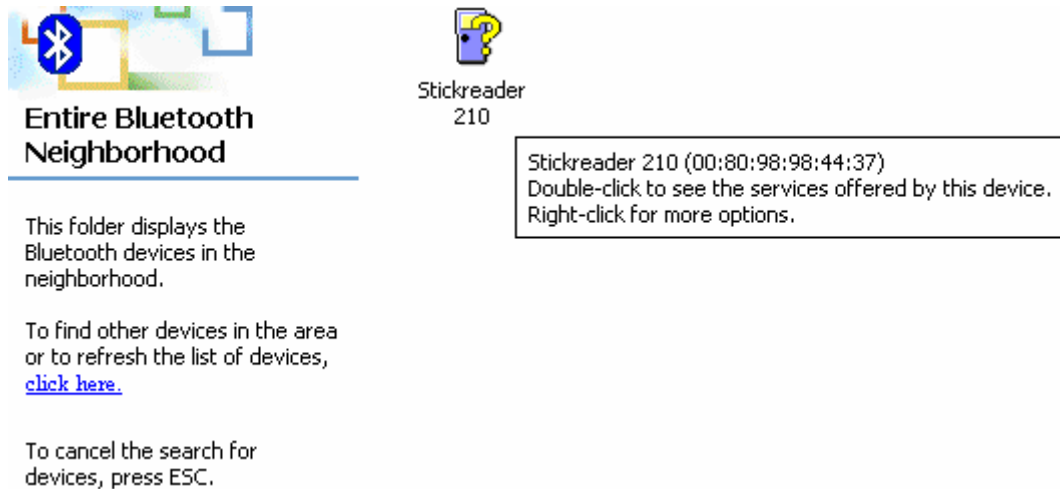
```
Pairing mode  
Drop connection
```

```
Pairing mode  
Reset device
```

These informations are only status informations of the Bluetooth module.

After starting the pairing process on the Stick Reader, the Bluetooth environment of the PC has to be used to scan for Bluetooth modules in range.

After a certain time the symbol of the Bluetooth module appears on the screen of the Bluetooth manager.



The representation of the symbol depends on the Bluetooth environment that is used. The description of the Bluetooth module consists of the name Stickreader and the serial number of the Stick Reader (in this example 210).

Now the Bluetooth module of the Stick Reader is waiting for incoming data of the opposite Bluetooth module.

On first line of the LCD display the following string is displayed:

```
Wait for data
..
```

On second line a changing number of dots shows that the pairing process is still in progress. To start the pairing process on the PC click on the found Bluetooth module with the right mouse button. The appearing dialog normally offers an option to start the pairing process. After a certain time the Bluetooth module of the Stick Reader will ask for a password.

Type in four zeros (0000) and press OK.

If pairing was successful, the address of the opposite Bluetooth module is displayed on the second line of the LCD display.

Shortly after displaying the address of the opposite Bluetooth module, the following information is displayed on the first line of the LCD display:

```
Pairing success
```

The Stick Reader is now available to communicate via Bluetooth.

If the pairing failed, the following information is displayed on the second line of the LCD display:

```
Pairing failed
```

4.3.7 Reset Config

The following text appears on the second line of the LCD display:

```
Agrident V1.04
-> Reset config
```

The configuration of the Stick Reader can be reset to the factory settings by pressing the read button.

After a successful resetting of the configuration

```
Agrident V1.04
Done
```

appears on the second line of the LCD display for a certain time.

4.3.8 Online / offline

The Stick Reader provides an online- and an offline mode. In online mode transponder data are transmitted immediately via RS232 interface or Bluetooth. In offline mode transponder data are only stored in the database of the Stick Reader but not transmitted.

If the Stick Reader is in online mode, the following text appears on the second line of the LCD display:

```
Agrident V1.04
->Online mode
```

If the Stick Reader is in offline mode, the following text appears on the second line of the LCD display:

```
Agrident V1.04
->Offline mode
```

The mode could be changed by pressing the read button.

4.3.9 Next Group

It is possible to separate groups of transponders by inserting a new group pattern in the database of the Stick Reader. In this case the Stick Reader stores a zero transponder at the current position of the database and the animal counter is automatically reset to zero.

For this option the following text appears on the second line of the LCD display:

```
Agrident V1.04
->Next group
```

A new group is inserted by pressing the read button.

4.3.10 Show last IDs

With this option it is possible to show up to three last read transponders after Stick Reader was switched on.

For this option the following text appears on the second line of the LCD display:

```
Agrident V1.04
-> Show last IDs
```

The feature is started by pressing the read button.

If no transponders were read after switching on the Stick Reader the following text appears on the second line of the LCD display:

```
Agrident V1.04
No IDs available
```

Otherwise the last read transponders are displayed in the same format described in chapter 4.2.1:

984 010900316360 12:41:26 F

4.4 Permanent Read


If lots of transponders have to be read in a short distance or time, the Stick reader offers the permanent read mode. In this mode the reading of transponders goes on for a certain time independent of the successful reading of transponders. This mode is configurable by using the configuration software.

4.5 Switch off time

The Stick Reader is switched off automatically a certain time after last action (e.g. transponder read or menu access). The switch off time is configurable between 5 and 600 seconds by using the configuration software.

4.6 Battery management

If the battery is running low, a warning symbol (battery) appears after reading, right from the string.

Press key 

This symbol is telling the user, that it is time to replace or recharge the battery soon.

If the Stick Reader detects a low battery directly after power on, the following information appears on the LCD display directly after power on:

Low battery

After displaying the information the Stick Reader is switched off automatically.

The Stick Reader offers internal trickle charging for chargeable batteries. That means a complete charging cycle takes min. 16 hours up to 20 hours (longer charging time is allowed). If the battery is charged completely, the charging will be stopped automatically.

For faster charging cycles an external battery charger is available.

For normal operation and internal trickle charge only the delivered 12V power supply has to be used.

If the voltage of the used power supply is too high, the following information appears on the LCD display directly after start:

Warning High voltage!

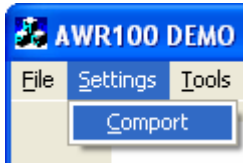
After displaying the information the Stick Reader is switched off automatically.

5. Configuration

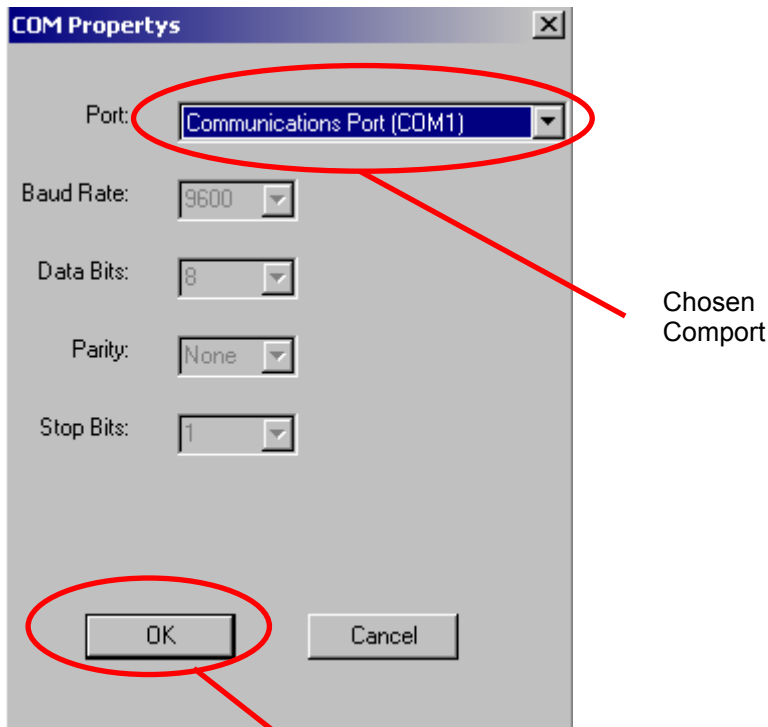
For configure the Stick Reader, the program Stickreader.exe is available.

5.1 Comport settings

After first start of the program a comport has to be set. Therefore chose Comport in the menu Settings:

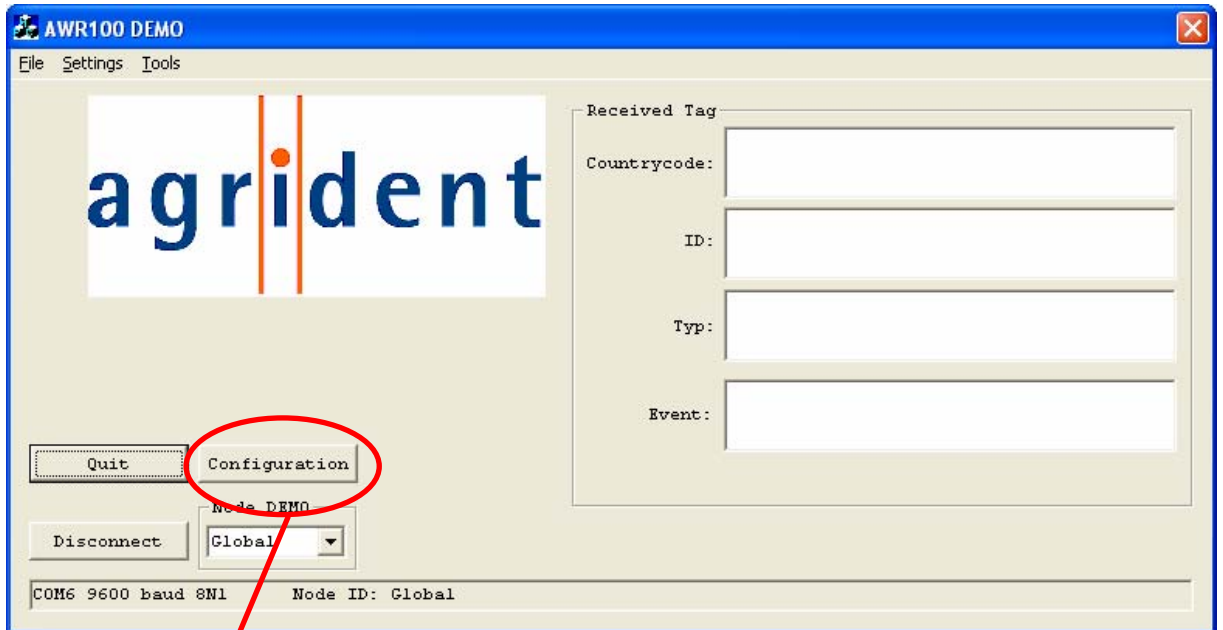


The following dialog appears:



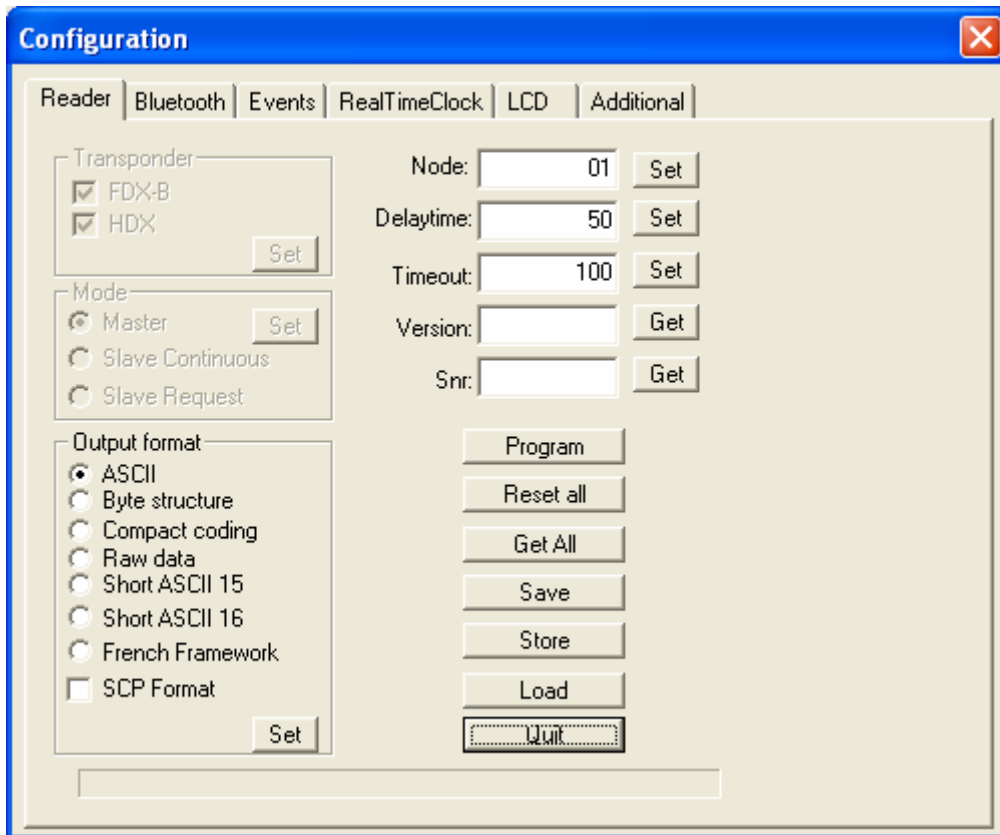
Select Comport and press OK.

In order to configure the Stick Reader, the AWR100 demo software has to be activated first. The following start screen appears:

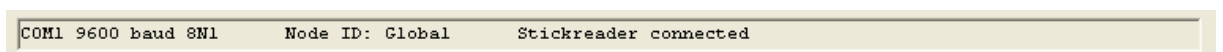


Press Pushbutton Configuration:

The following dialog appears:

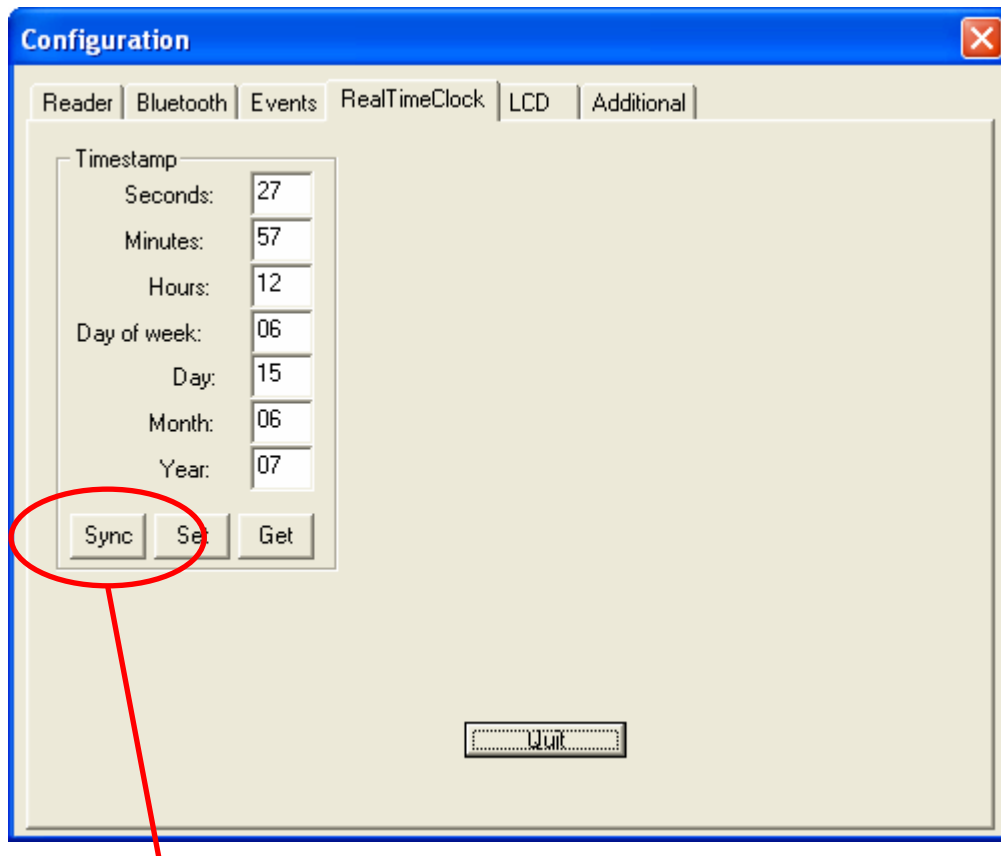


Activate Stick Reader and wait until message "Stick Reader connected" appears in the status line of the main dialog.



5.1.1 Synchronising the real time clock

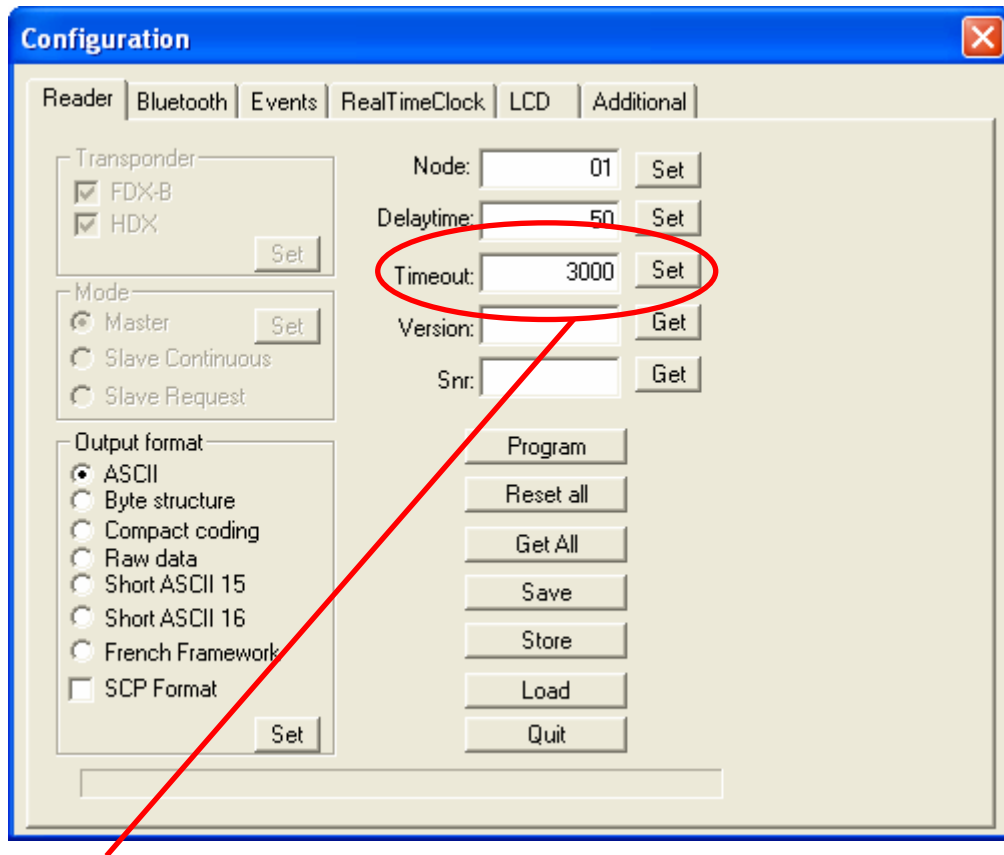
Chose register RealTimeClock:



Press pushbutton Sync. The current PC time is transmitted to the Stick Reader.
The current time of the Stick Reader can be requested by pressing the pushbutton Get.

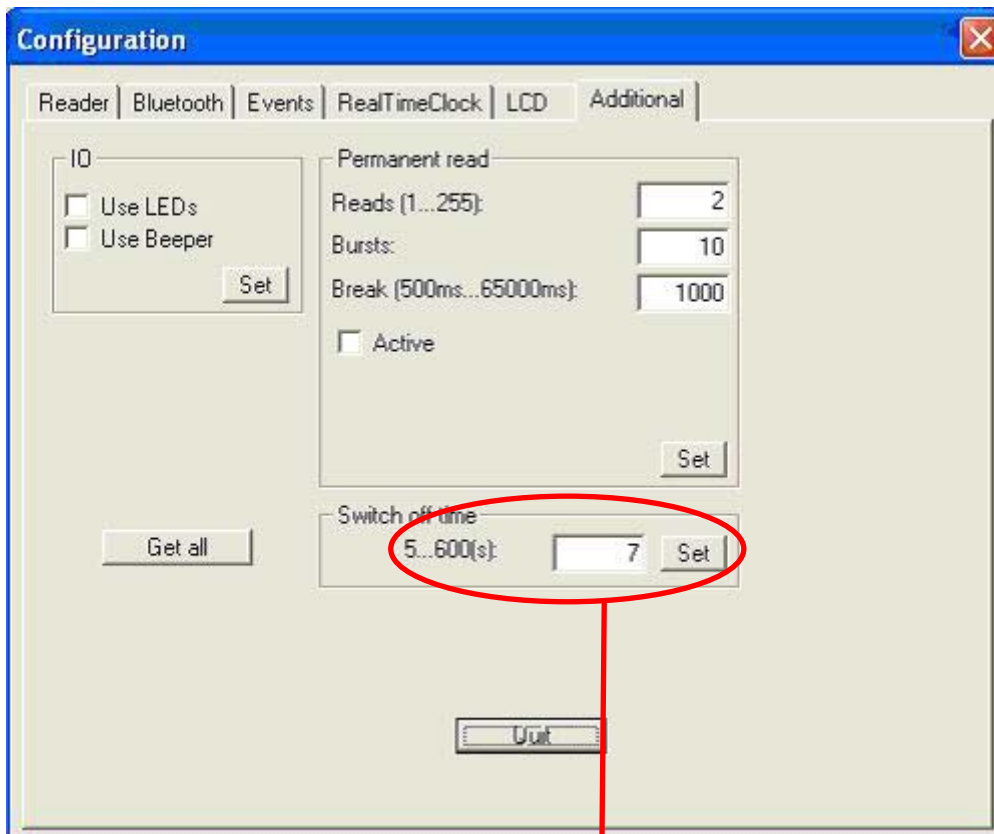
5.1.2 Configuring the reading time

The amount off read cycles is configurable.
Therefore choose the index Reader:



Set Timeout in ms (only 100ms Steps possible), press pushbutton Set.
In order to store new timeout value permanently press pushbutton Save.
In this example a timeout value of 3000ms is set.

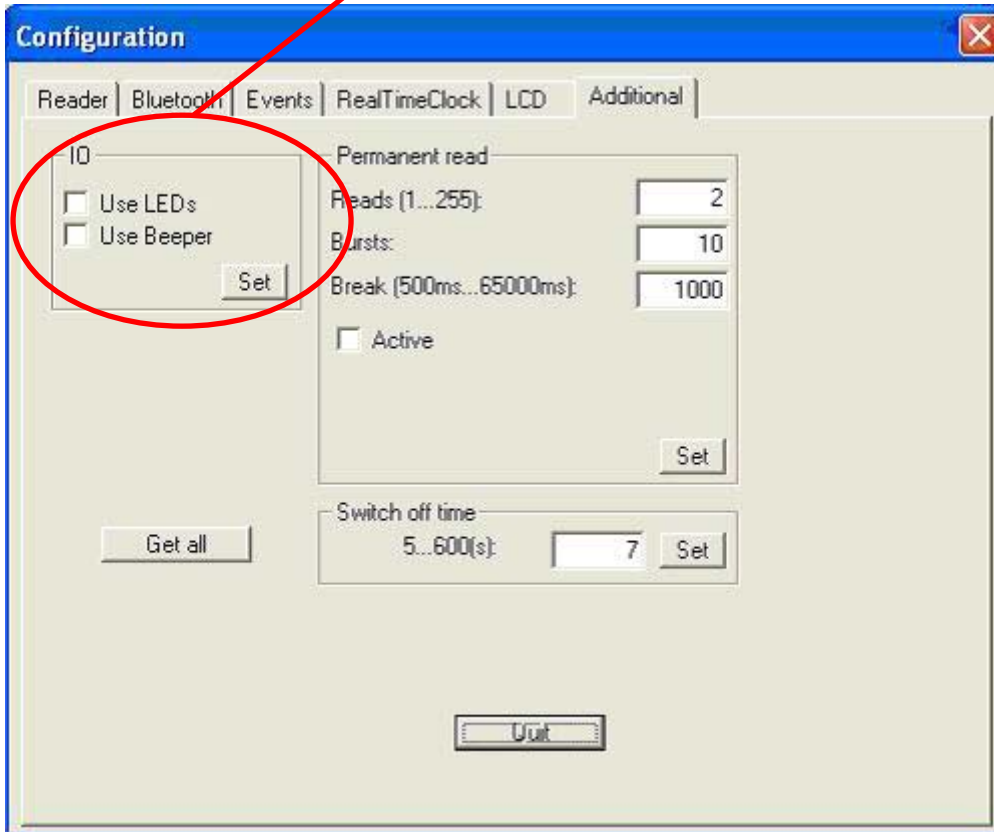
5.1.3 Configuring the switch off time



The Stick Reader is switched off automatically a certain time after last action (e.g. transponder read or menu access). The switch off time is configurable between 5 and 600 seconds. Type in the number of seconds in the corresponding input field and press the Set pushbutton. Current switch off time can be read out by pressing the Get all pushbutton. In this example switch off time is set to seven seconds.

5.1.4 Configuring IO

During the RF field is on, the red LED in front of the Stick Reader is flashing. After a successful reading the green LED in front of the Stick Reader is flashing and the beeper is beeping. Both can be enabled or disabled by marking or unmarking the corresponding checkboxes and pressing the corresponding Set pushbutton. Current IO configuration can be read out by pressing the Get all pushbutton. In this example beeper and LED's are disabled.



5.1.5 Configuring Permanent read

If lots of transponders have to be read in a short time, permanent read mode is a useful tool. In this mode reading transponders takes place until timeout reached or read button is pressed. After successful read of a transponder, timeout will be reset.

To prevent parts of the Stick Reader from overheating break time must be greater than 450 times number of reads.

Reads is the number of reads in one burst. The number of bursts is the timeout before permanent reading stops. Break is the break time in ms between two burst.

In this example two reads are in one burst. That means a minimum break time of 900 ms is necessary (in this example 1000 ms is chosen).

The number of burst is 10.

Timeout is calculated as follows:

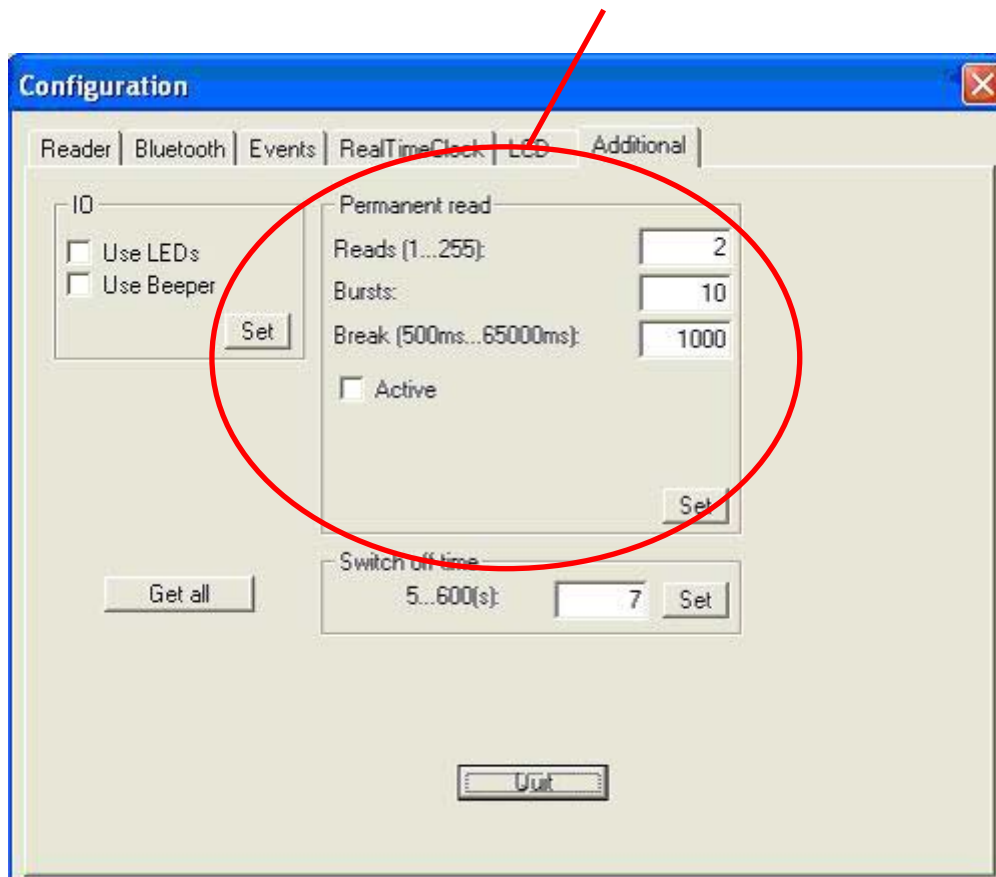
$$\text{Timeout} = (\text{Number of reads} * \text{reading time} + \text{break time}) * \text{number of bursts}$$

One read takes approximately 90ms.

$$\text{Timeout} = (2 * 90\text{ms} + 1000\text{ms}) * 10 = 11800 \text{ ms}$$

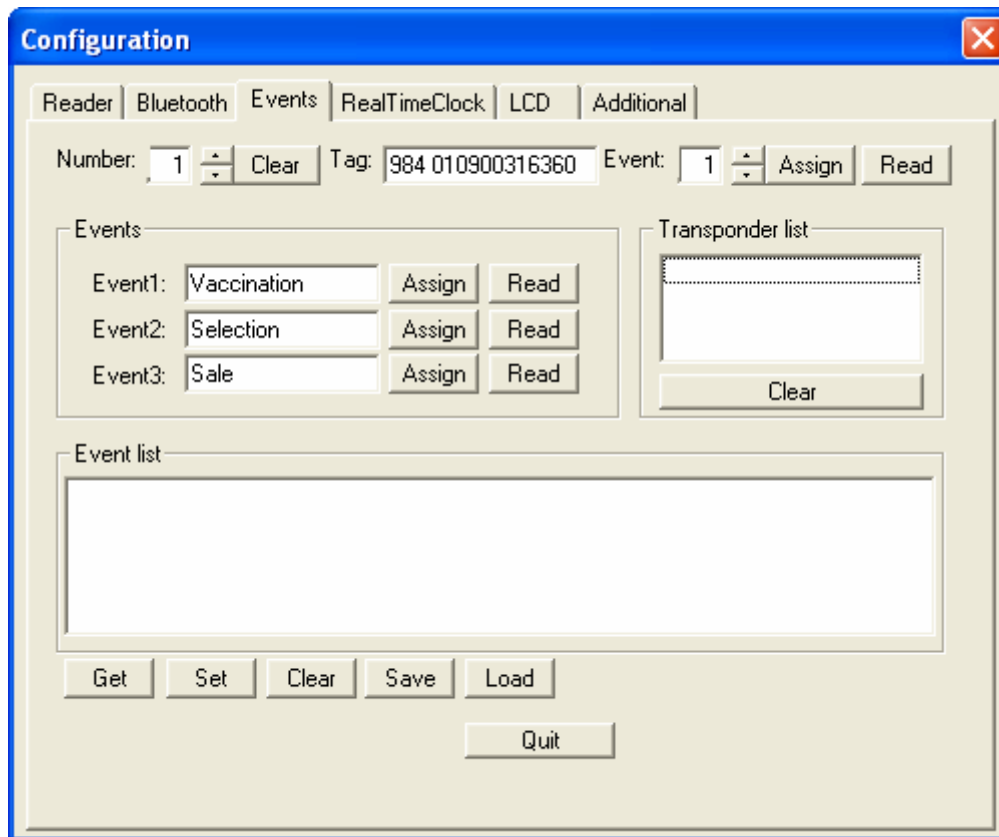
In this case timeout is approximately 12 seconds.

To configure and enable permanent reading mode fill in the values into the corresponding input fields, mark the checkbox Active and press the corresponding Set pushbutton.



5.2 Events

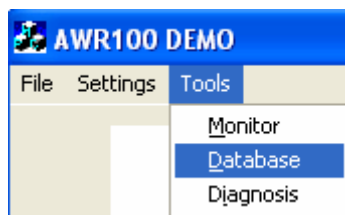
In a second database up to 30 transponders can be assigned to one of three possible events. The text of an event can be set to any value, but the length of the text must not exceed 13 characters.



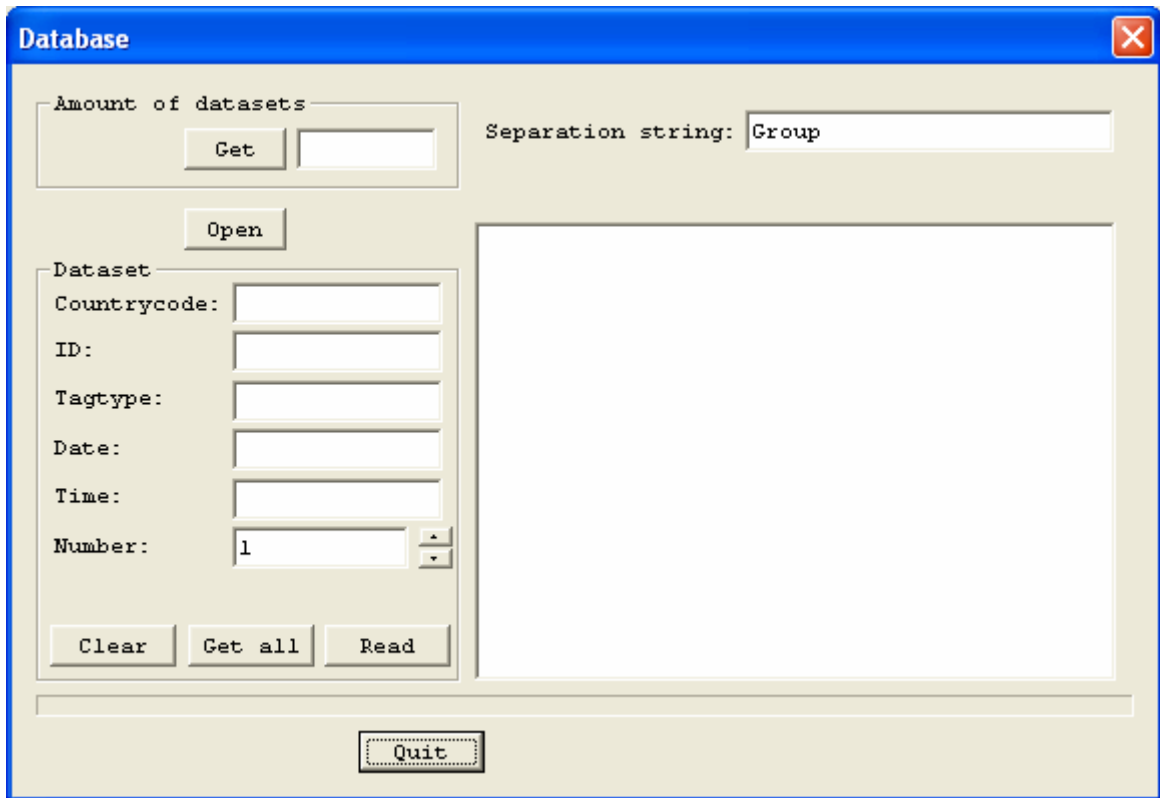
By pressing the pushbutton Get a list of all assigned transponders is generated. In order to assign a transponder to an event, a free entry must be chosen in field Number (1...30). In the field tag the complete transponder ID inclusive country code must be filled in. In field event one of the possible events has to be chosen. If all parameters were set, the input will be set by pressing the pushbutton Assign. The text of the events can be read by pressing the corresponding pushbutton Read and can be assigned by pressing the corresponding pushbutton assign. By pressing the pushbutton Clear, all assigned events will be cleared.

6. Database

The Stick Reader consists of a database, in which up to 5000 transponder reads can be stored. In order to work with the database chose Database from the menu Tools:



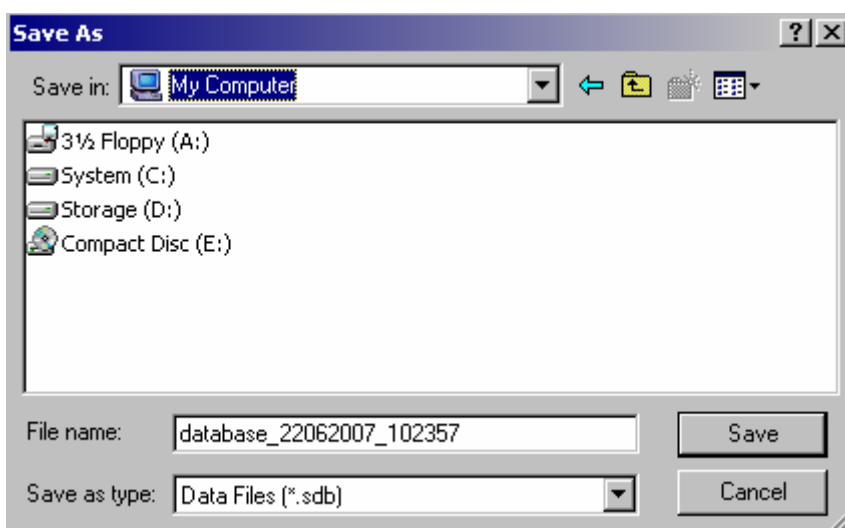
The following dialog appears:



The amount of currently stored entries can be requested by pressing the pushbutton Get. A certain dataset can be read by setting the number of the dataset in field Number and pressing the pushbutton Read. A stored database file can be read by pressing the pushbutton Open.

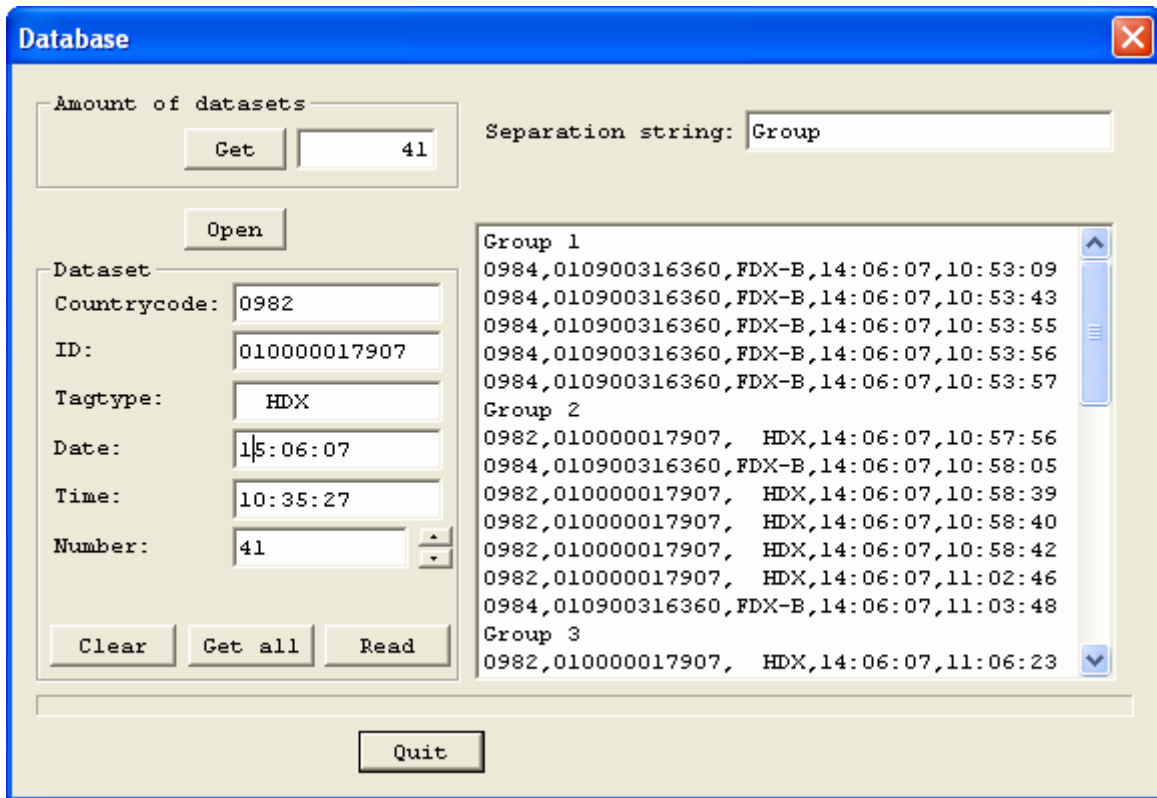
6.1 Reading the database

By pressing the pushbutton Get all, all stored datasets will be downloaded and displayed in the list box. Before the datasets are transferred, a dialog appears which is asking for a file where all datasets should be stored on the PC:



If pushbutton Cancel is pressed, the datasets are only displayed in the list box but not stored on the PC.

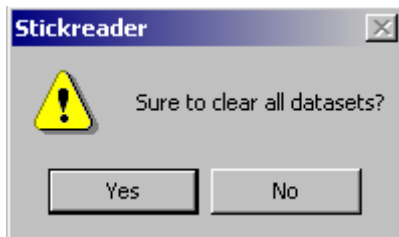
In this example the database consists of 41 datasets:



The first separator (Group 1) is automatically set by the PC.
 All other separators are part of the database of the Stick Reader.
 By pressing the pushbutton Open, stored datasets can be watched in the list box.

6.2 Clearing the database

By pressing the pushbutton Clear, the complete contents of the database will be erased if the following dialog is answered with Yes.



The clearing procedure is also displayed on the LCD display of the Stick Reader

7. Safety and care

The manufacturer accepts no liability for damage resulting from improper use or use not consistent with that described in these operating instructions.

- The AWR100 Reader contains no parts that can be repaired by the user. For this reason the Reader Electronic may only be repaired by authorised customer service personnel.
- In both operation and storage of the reader please secure to comply with the environment conditions specified in the technical data.
- Clean the AWR100 Reader only with a damp cloth. Use only water and any commercially available cleaning agent.
- If the stickreader is not used for a longer time, the battery should be taken out of the Stick-reader. The battery should be stored dry and cool separately.

Any modification to the AWR100 Reader will render the warranty null and void.

8. Warranty

The manufacturer of the AWR100 Reader will provide a warranty of

12 months

from the day the device is shipped and subject to the following conditions:

- a. Without submission of proof of purchase no warranty can be given.
- b. In the event that defects are detected the manufacturer is entitled to choose between up to two attempts at repair or supplying a replacement device on one occasion. The warranty period for the repaired item or for a replacement item is 3 months but will always extend to the end of the original warranty period. No further claims can be entertained, especially claims for compensation for consequential losses. This exclusion of liability does not apply to claims made on the basis of the Product Liability Act.
- c. Warranty claims cannot be entertained unless the Agrident system was installed properly and used properly and for the purpose intended.

No warranty obligations exist in particular when:

1. Damage is attributable to improper use of the device, to a incorrect connection or incorrect operator action;
2. The device was not cared for and maintained in accordance with the manufacturer's recommendations and this is the cause of the damage;
3. The damage is due to any modification to the device;
4. The damage is due to force majeure, for example, lightning strike;
5. The damage is due to wear resulting from overstressing mechanical parts.

9. FCC digital device limitations

Radio and Television Interference

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

10. CE MARKING

Hereby, Agrident BV 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. For use in all countries of the EU.

To obtain a copy, contact Agrident BV and request the "Declaration of Conformity" document for Multi-technology readers.

Agrident BV
mail@agrident.com

In case of alteration of the product, not agreed to by us, this declaration will lose its validity.

This symbol indicates proof of conformity to applicable European Economic Community Council directives and harmonized standards published in the official journal of the European Communities.



11. Trouble shooting

For any problem please contact us:

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