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APR500 - Classic Mode Operational Manual



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1. Introduction

This manual describes the basic functions, the advanced features and the menu structure of the Agrident Portable Reader APR500.

Please read the manual carefully in order to get access to all features of the reader.

1.1 Features

- Fully compatible with ISO standards 11784/11785
- Reads FDX-B and HDX transponders
- Up to 6000 datasets including transponder ID, time stamp, ALIAS, ACTION CODE and ACTION CODE PLUS can be stored. The non-volatile memory of the reader ensures that the data are protected from getting lost if the batteries run empty.
- The two Hotkeys do not only initiate a reading process, they can be configured to start several different operations, e.g. to record actions for read animal IDs.
- The electronic ID can be linked to an alphanumeric string with up to 14 characters. These strings are called ALIAS (please see chapter 5.1).
 - A preassembled list of ALIASES (Tag List) can be linked to scanned IDs with the APR in the field.
 - The ALIASES can be assigned to IDs on the PC and the APR can display the ALIAS instead of the ID in the field.
 - ALIASES can be entered manually after reading a transponder in the field using the “Assign Ask” mode.
 - In combination with the SEARCH MODE feature the ALIAS allows to find individual animals in a larger group of animals.
- ACTION CODES allow assigning events to animals like sale, movement, disease, treatment etc. (see chapter 5.2).
- The ACTION CODES are free editable in the ACTION CODE LIST on the PC and have to be uploaded before they are available in the APR.
- The ACTION CODE PLUS offers the possibility to assign a numeric value in addition to an ACTION CODE – e.g. the weight, pen number, etc. (see chapter 5.2.2).
- The WEIGHT FROM SCALE feature enables the APR500 to import the weight from electronic scales via RS232 or Bluetooth (see chapter 5.3).
- Missing or defective transponder can be stored manually as an ALIAS using the NO TAG MODE (see chapter 6.1.3)
- GROUP separators allow the user to distinguish between groups of collected datasets – e.g. operator, location, buyer or seller (please see chapter 5.4)

- In the SPEED MODE the APR500 reads continuously without pressing the according Hotkey again after a tag was read. This allows the fast reading of larger groups of animals within a short time (see chapter 5.5).
- The RACE MODE enables the APR to operate as a data collector for **A**grident **S**tationary **R**eaders (see chapter 5.6). The EIDs from the stationary readers are received via RS232 or Bluetooth, displayed and stored in the APRs memory.
- Up to 5 different configurations can be uploaded into the Handheld. These custom defined PRESETS allow the user to switch between different operation modes (see chapter 6.1.2) easily.
- The APR500 is equipped with an internal BLUETOOTH Class 1 module, configurable as Bluetooth Master or Slave (see chapter 4.5.2)
- The APR500 comes with the APR PC-Demo Software. This program can be used for configuring the reader and for demonstrating all features – it is not suitable for replacing comprehensive management software.

1.2 APR500 Kit

The APR500 is usually part of a kit. The kit consists of an APR500 reader, an APC500 USB cable, an APS500 USB power supply, a Quick Start Guide and a CD containing the manuals, the APR demo software and an APR500 USB driver.

1.2.1 APC500 USB cable

The APC500 is an USB cable for the APR500 reader. It has to be connected to the top-mounted plug on the APR side and to an USB-A port on the PC side. It allows data transfer between reader and PC and the internal charging of the batteries, if the Agrident supplied rechargeable batteries are used.

You can fast charge the batteries in less than 6 hours from a computers USB port (if Agrident supplied rechargeable batteries are used). The APS500 USB power supply or the ACC500 car charger might also be used as power source. In this case you can charge the batteries in 5 hours maximum.

1.2.2 APS500 USB power supply

The APS500 is a power supply with wide input voltage range (100-240V AC) and interchangeable plugs. This allows using the power supply in most countries of the world without the need for additional mains adaptors. The power supply contains an USB-A plug for connecting to the APR500 via the APC500 USB cable.

2. Optional accessories

The APR500 reader can be purchased with a wide range of optional accessories:

2.1 APC510 RS232 cable

The APC510 is an RS232 interface cable for the APR500 reader. It has to be connected to the top-mounted plug on the APR side and to an RS232 port with a male 9pin D-Sub connector on the other side. It allows the communication between the reader and other devices with RS232 interface like computers or electronic weighing scales.

2.2 ACC500 car charger

The ACC500 offers the possibility to charge your APRs batteries from a cigarette lighter in your car. The input voltage can be either 12V or 24V and thus it also might be used in trucks with 24V battery voltage. The APC500 cable has to be used for connecting the APR500 to the car charger.

2.3 AEA580 external antenna

The very robust AEA580 external stick antenna gives the user an extended physical read range in order to obtain a transponder signal even from harder accessible tags. The electrical reading distance is the same as for the internal antenna.

The APR automatically detects an external antenna. While using the AEA580, the internal APR antenna will be deactivated. If the external antenna plug is removed, the reader will automatically use the internal antenna again.

2.4 AMA060 and AMA090 mountable antennas

The AEA060/090 mountable antennas give the user an extended physical read range of 60 respectively 90cm. They are mounted directly to the APR500 housing and allow a one-hand operation. The electrical reading distance is the same as for the internal antenna.

The APR automatically detects an external antenna. While using the AMA, the internal APR antenna will be deactivated. If the external antenna plug is removed, the reader will automatically use the internal antenna again.

3. Security Advice



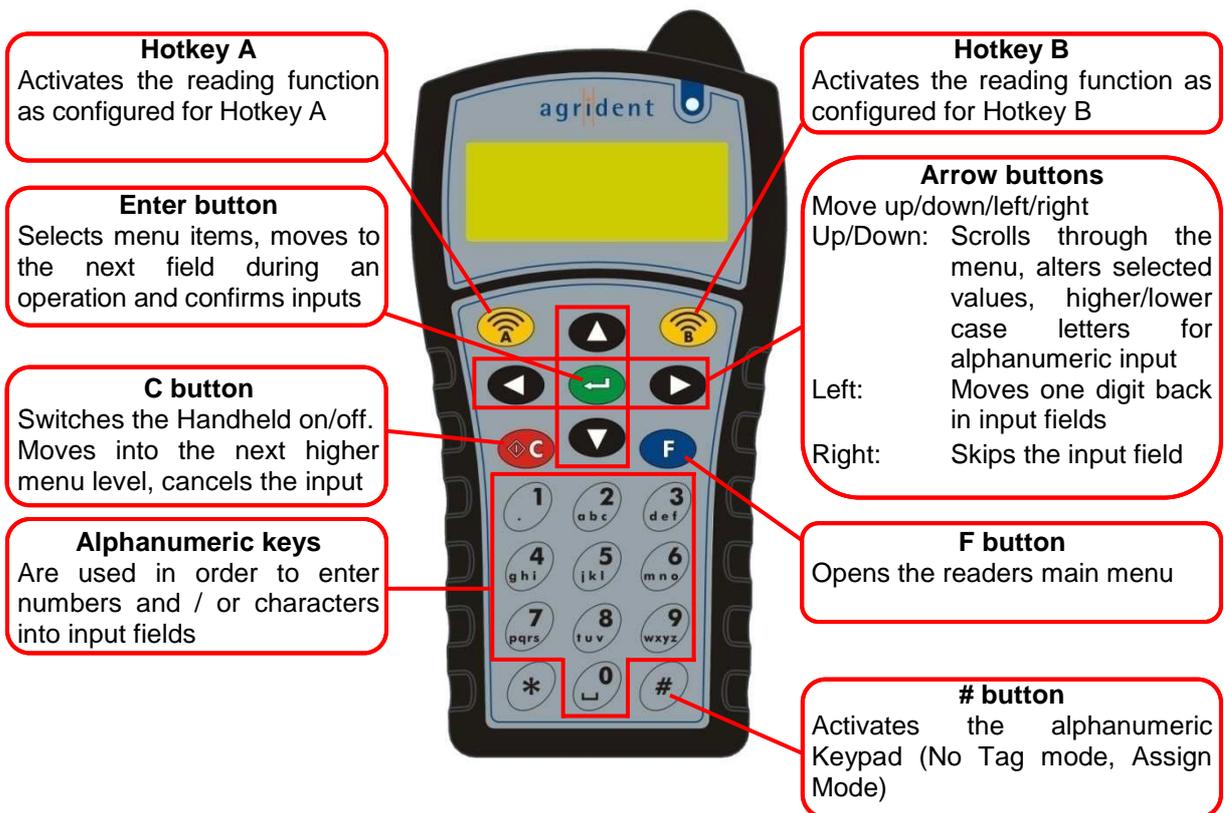
Caution! Dispose of exhausted rechargeable and non-rechargeable batteries must be compliant with your local laws. To ensure proper compliance is entirely the responsibility of the owner and / or user of the reader.

4. Basic Operations of the APR500

This chapter introduces the basic operations of the APR500.

4.1 Keys of Operation

The APR500 has an ergonomic mobile phone style alphanumeric keyboard with 21 buttons for easy operation. The function of the buttons is described below.



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4.2 Getting Started

Press the  button in order to activate the APR500. The display will show the APR firmware version briefly...



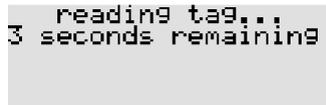
...before the main screen appears.



In order to save battery capacity, the APR will switch off after a certain time – this is called “Switch off time”. The default setting is 10 seconds but you can change this value in the “Switch off time” submenu (please see chapter 6.5.1).

4.2.1 Reading a Transponder

After switching on your reader with the  button, a reading attempt can be started pressing  or , per default the APR will try to read a transponder for 7 seconds.



You may also start reading directly without using the  button. If the reader is switched off and you press the Hotkey  or , the reader is switched on and reading will be started in one step.

A successful reading attempt shows...



...the EID (999 000000002796), the note “stored”, the number of stored data sets (here 12) and the memory space which is left (here 5988).

If no transponder could be read the display will show the following status message:



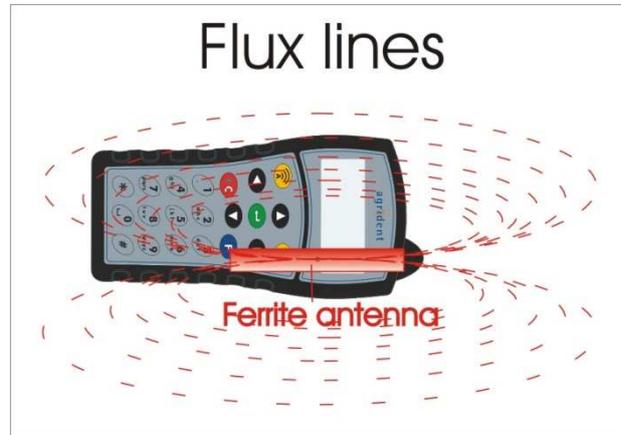
Reasons might be that there was no transponder in range or the transponder could be damaged. The “No Tag Mode” (see chapter 6.1.3) allows the user to enter an Alias (see chapter 5.1) manually, if the reading attempt failed.

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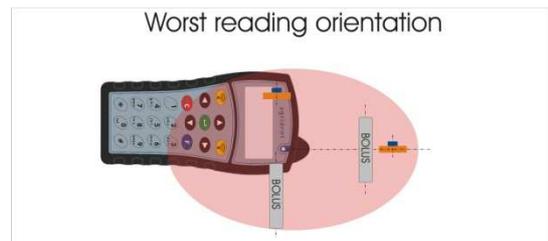
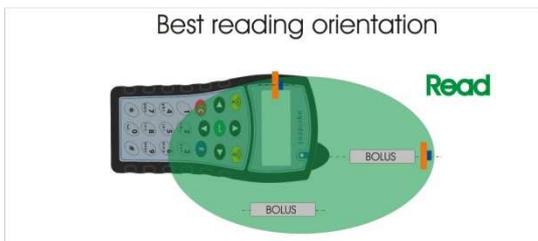


4.2.2 Transponder Orientation

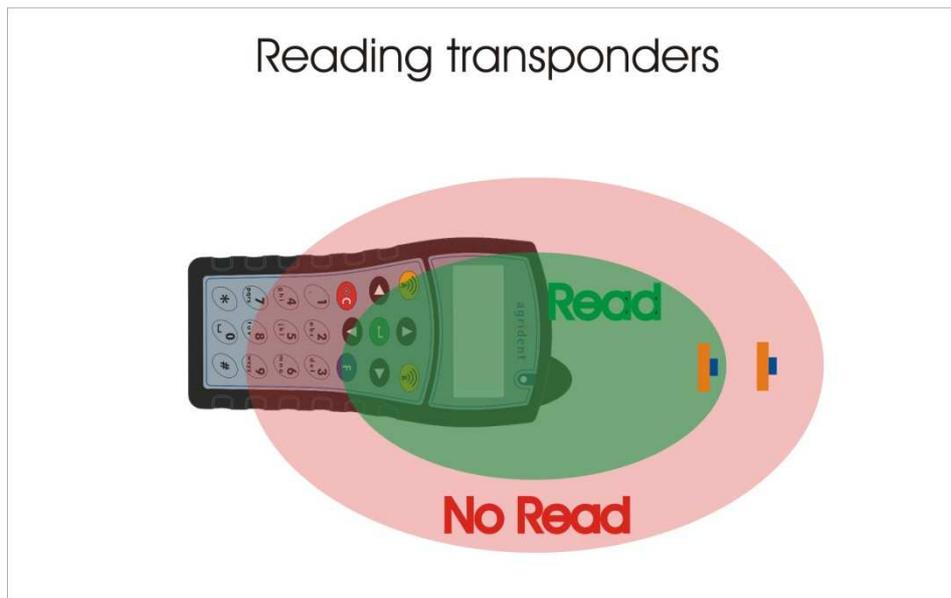
The APR is using a ferrite antenna. Accordingly the flux lines of the electromagnetic field have the following characteristics:



As a result of the flux line characteristics, there is a best reading orientation and a worst reading orientation:



The reading range does not only depend on the transponder orientation but also on the type of transponder. Transponders with a good performance have a better reading distance than low performance tags.



Generally HDX transponders can be read up to 25cm, FDX-B up to 20cm.

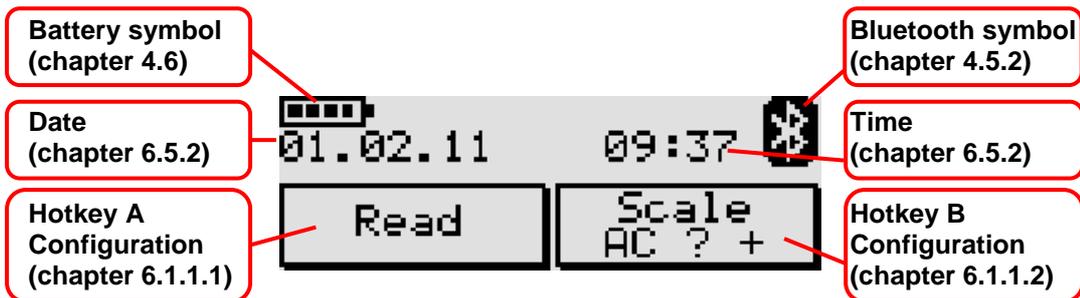
4.3 Main Screen and Acoustic Signals

The APR500 has a large backlit graphic display and a buzzer for acoustical signals which can give a multitude of different information.

4.3.1 Main Screen

If you switch on the APR500 by pushing the  button, the display will switch to the main screen automatically. It displays the current date, time and the configuration of the Hotkeys. It also informs the user about the battery status and the Bluetooth status.

Chapter 6.5.1 explains how to change the contrast level of the LCD.



4.3.2 Acoustic Signals

The buzzer of the APR500 emits different acoustic signals to state different reader conditions. For changing the volume of the beeper, please read chapter 6.5.3.

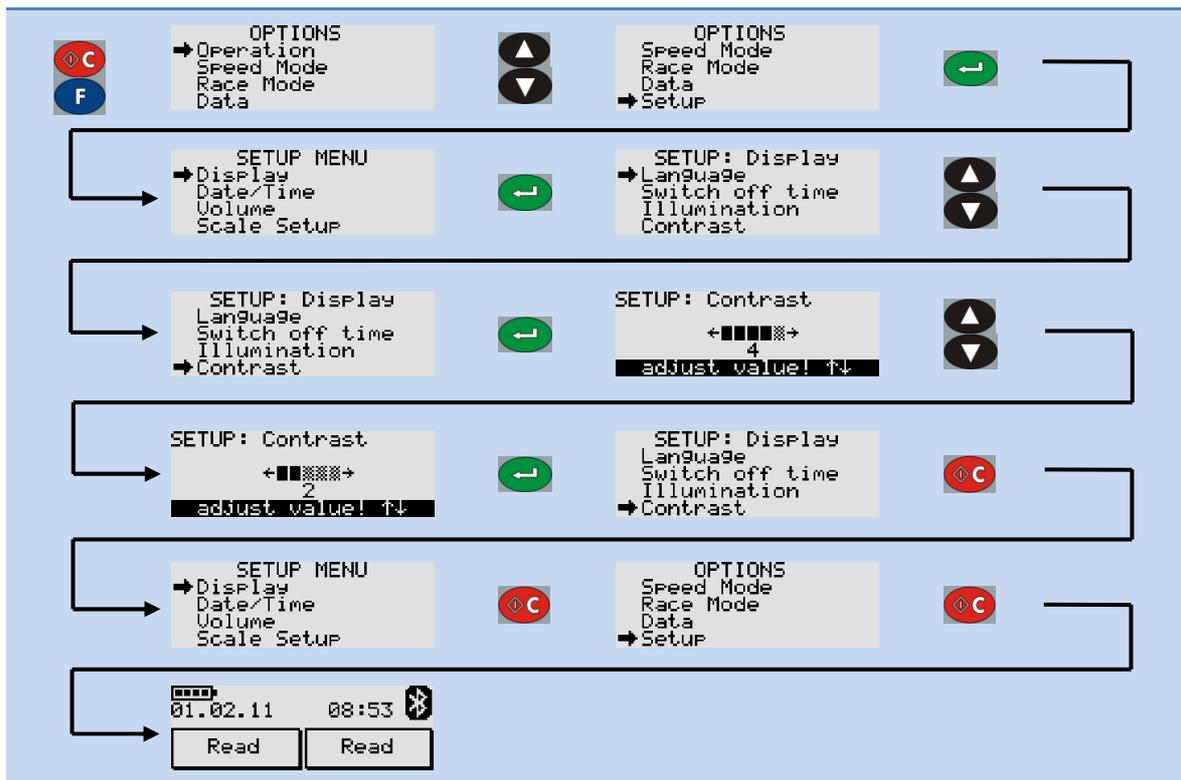
Acoustic signal			Description
Number	Length	Tone	
1	short	high	by pressing any button the keyboard a single short BEEP is emitted
4	short	high	good ID read
1	long	high	no ID read
1	short	low/high	double read in an configured time (see chapter 6.5.8.1)
2	short	high/low	Transponder in the Tag List was found in search mode (see chapter 6.1.1) The ID has to be assigned to an Alias

4.4 Navigating through the menus

Button	Description
	Switches the APR500 on and off, changes from a submenu to the next higher menu item and leaves settings in the lowest menu level unaltered.
	Enters the APRs menu.
	Scrolls up in the menu, increases numeric values in particular submenus. Changes to capital letters in text input fields.
	Scrolls down in the menu, decreases numeric values in particular submenus. Changes to lower case letters in text input fields.
	Enters a submenu, confirms changes in the lowest menu level and leaves this submenu to the next higher menu item.
	Deletes the last character in text input fields.

Example:

You want to change the contrast level of the APRs display.



Chapter 6.7 provides an overview of the menu structure and the factory default settings.

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4.5 Communication interfaces of the APR500

If you want to download collected data from the APR to your PC or upload lists to the reader, you have to connect the APR to the PC via an interface.

The APR500 has an USB and an RS232 interface at the top plug, available via the APC500 USB cable or the APC510 RS232 cable. At the bottom of the APR there are contact pins for connecting via the ADS500 docking station. The APR500 is also equipped with a Bluetooth class 1 module for wireless communication.

Beside the physical connection you need appropriate software on your PC which is able to communicate with the APR. This can be either your management software or the APR PC-Demo-Software.

4.5.1 Connecting the APC cable

Before you can connect your APC interface cable, you have to remove the protection cap from the APRs top plug first.

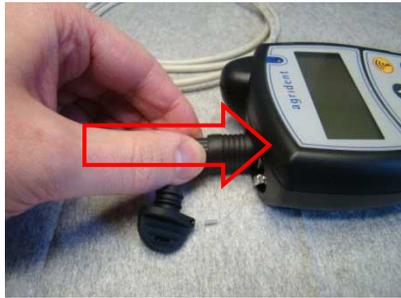


Please be aware that the male APC connector has two noses and the plug in the reader has two notches, the position of both has to match.



If the connector of the APC and the plug in the APR are mated correctly, push the connector until it snaps into place noticeably. Now connect the USB-A connector resp. the 9-pin RS232 connector into the corresponding plug of the device you want to communicate with in order to complete the connection.

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If you want to disconnect the APC from the reader, please do **not** pull the cable.

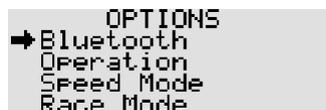
Take hold of the outer ring of the connector and you can remove the APC cable easily. In order to ensure the readers protection class in the field, push the protection-cap back into place.



When you connect the APR500 to a particular PC via USB the first time, Windows will detect the new device automatically and ask for a driver. Please choose to install the device manually and use the APR500.inf file from the APR product CD. For a more detailed description please read the separate driver installation guide.

4.5.2 Bluetooth

The APR500 has an optional Class 1 Bluetooth module, for wireless communication with other Bluetooth devices over a distance of up to 100m.



If the APR has established a Bluetooth connection to another Bluetooth device, a Bluetooth icon will be shown in the upper right corner of the displays main screen and the green LED of the APR will flash with regular intervals, as long as the connection remains active.



For further information regarding the Bluetooth option of the APR, please read the separate *APR500 – Bluetooth Manual*.

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4.6 Battery management



When charging for the first time after long-term storage, the battery capacity might be decreased. Restore such batteries to original performance by repeated cycles of charging and discharging.

When the APR is connected to a power source via USB (e.g. a PC, APS500, ACC500), the Agrident supplied rechargeable batteries are charged automatically internally. Fast charging will take up to 6h. The external power options of the display backlight and the Bluetooth module can shorten the fast charging period (see chapters 6.5.1 and 6.6).

If you want to exchange the batteries of the APR500, please follow the instructions below:



Turn the screw of the battery cover 90° counter clockwise. You might use a screwdriver or a small coin for that. Lift the lid by using your fingernail or an appropriate tool.



Remove the battery cover and then the batteries. Please pay attention on the imprinted battery symbols in order to insert the batteries in the correct direction. Use only AA standard or rechargeable NiMH cells, but note that only Agrident supplied rechargeable batteries can be charged internally.



Put the battery cover back in place and turn the screw 90° clockwise. Be aware, that the APR500 housing will only retain its protection class when the battery cover is properly attached.

5. Advanced Features of the APR500

The APR500 can do much more than just simply reading transponders and saving the ID. This chapter explains the additional information that can be linked to the electronic ID.

With the Hotkeys A and B you can access functions like Alias, Action Code and Weight from Scale fast and easy. The configuration of the Hotkeys can be changed in the APRs menu (see chapter 6.1.1) or using the APR PC-Demo Software. Presets (see chapter 6.1.2) can be used to switch between different operation modes easily.

5.1 Alias

An Alias is an alphanumeric string of up to 14 characters. It can be linked to one ID. A list of Aliases is called "Tag List".

The Alias function can be used for multiple different operations, for example:

- Assignment of the visual ID or management number to the electronic ID.
- In combination with the *Search Mode*, particular animals can be identified in a larger group of animals.
- Irregular conditions of animals can be recorded with the Alias function using the *Assign Ask mode* or the *Assign Ask Save mode*.

5.1.1 Using a preassembled Tag List

A Tag List containing Aliases linked to transponder IDs can be created on the PC using appropriate software. Instead of displaying the electronic ID after reading, the APR can be set up to show the Alias on the display (see also chapter 6.5.8.5 "Alias if available").

In this case, the assignment has already been made. So there is no additional Alias assignment possible in the field and thus the *Assign Ask mode* or the *Assign Ask Save mode* cannot be used here, at least for IDs which already have an Alias. If an ID is already assigned and you are using the *Assign Ask mode* or the *Assign Ask Save mode*, the APR will display "already assigned".

5.1.2 The Search Mode with preassembled Tag List

In combination with the *Search Mode* (see chapter 6.1.1), particular animals can be identified in a larger group of animals. If one of the searched animals was found in the Tag List, the APR will indicate that using a different acoustic and visual signal.

An example: You want to sell some animals and you have to find them in a large flock. Just create a Tag List with all animals you want to sell and add the corresponding Alias in the list, e.g. "Sale". Now upload the Tag List to the APR. Set up your APR in the following way:

- Alias if available = On
- Mode Hotkey A (or B) = *No Actioncode*
- Search Mode Hotkey A (or B) = On

Now the APR will indicate an assigned ID using a different acoustic signal and the LED will flash green and red. Additionally your Alias will be displayed instead of the ID, for example "Sale".

5.1.3 Assignment with the APR using Null-Tags

You can also assign the Alias in the field after reading a transponder with the APR using the *Assign Ask mode* or the *Assign Ask Save mode*. For this application you also have to create a Tag List on the PC first but you have to leave the ID blank, this is done by creating a Tag List with so called “Null-Tags”. Please see the APR PC-Demo Software manual or your management software manual for information about how to create a Tag List with Null-Tags. In such a Tag List you only create the Alias entries; the corresponding IDs are left blank and are assigned in the field. After uploading the Tag List you can start to assign the IDs using the APR.

Set up the APR like below for this operation mode:

- Mode Hotkey A (or B) = *Assign Ask* or *Assign Ask Save*

After you read a transponder with the corresponding Hotkey, the APR will open the list with Aliases which are not assigned yet:

```
982 000051633011
→ 3210001010
  3210001011
  3210001012
select alias!
```

Choose the correct Alias using the / buttons. Confirm your choice with  or cancel the assignment with .

If you still have unassigned Aliases in the Tag List, but you want to use an Alias that is not in the preassembled list, you can also enter it manually via the alphanumeric keys pressing  after reading the transponder. The  deletes the last character of the input.

```
982 000051633011
enter alias!
```

5.1.4 Assignment with the APR using the keypad

Another possibility to assign an Alias in the field is to enter the string using the alphanumeric keys. In this case it is not necessary to upload a preassembled Tag List to the APR first, the APR will always ask for a manual input. One of the Hotkeys has to be configured to *Assign Ask* or *Assign Ask Save mode*. After reading the transponder, the APR will always display:

```
982 000051633011
enter alias!
```

Type in the Alias and confirm with  or cancel the assignment with . With this mode you could record irregular conditions or any other remark. If you always want to type in the Alias manually, make sure that there are no unassigned Aliases in the tag list.

Assignments which have been made like in the above described chapters 5.1.3 and 5.1.4 are visible in the *User tag list* of the *Data* menu:

```
DATA: User tag list
→ 3210001010
  3210001011
  3210001012
taglist info ↑↓
```

If you select a specific assigned Alias within the User Tag list by pressing , you can undo the user assignment by pressing . This Alias can be reassigned to any unassigned transponder again as described in chapter 5.1.3.

5.2 Action Codes

Action Codes are used to link a predefined action (e.g. weight, fed, sick, examined) to a scanned transponder and thus to the animal.

An Action Code is an alphanumeric string of up to 14 characters. It can be linked to all transponders that are scanned. Compared to the Alias, the Action Code list always has to be sent to the APR before you can work with Action Codes. If you do not upload the list first, you can only link numbers of Actions to the ID, not the name of the Action.

The Action Code list has to be created and uploaded using the appropriate PC software like your management program or the APR PC-Demo software. Up to 90 different Action Codes can be uploaded to the APR.

In order to use the Action Code function with the APR, you have set one of the Hotkeys into the desired mode first (see *Hotkey Mode* menu chapter 6.1.1).

5.2.1 AC Ask mode

In the AC Ask mode, the reader will always open the Action Code List and you have to select an action manually using the / buttons for scrolling. Confirm your choice with . The APR will always display the Action Code selected in the *Action Code list* menu item first. If you want to have last linked Action after every reading, select “last used” in the *Action Code list* menu – so if you have multiple animals with the same action in series, you just need to confirm the Action Code with enter and you do not need to scroll to the same action every time.

```
Hotkey A Actioncode
→last used
select action code!
```

Initiate the operation using the corresponding Hotkey. The APR will start a reading cycle:

```
reading tag...
5 seconds remaining
```

If a transponder was read successfully, you can see the ID in the first line of the display. The second line shows the Action Code:

```
980 000001025035
→sold to
flock
enter action code!
```

Choose the desired Action Code from the list using the / buttons. Link the Action Code to the ID with . The APR will confirm that the dataset has been saved:

```
980 000001025035
stored
39 / 5961 free
```


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5.2.5 Cancelling the data record

If you have read the transponder and you do not want to link an Action Code or Action Code Plus to this ID, you can cancel this record by pressing . The APR displays:

```
INPUT OPTIONS
+continue input
cancel operation
skip input
choose option
```

If you select *continue input*, you skip back to the according Action Code Ask or Action Code Auto Mode. *Cancel operation* will abort the entire process and discard the read EID. *Skip input* will store the EID normally but without an Action Code.

5.3 Weight from Scale

The Weight from Scale feature offers the great opportunity to combine the EID with the electronic weight, even if non EID-ready scales are used. The APR500 can import the weight from a scale and save it together with a scanned EID.

The APR500 needs a serial connection to the scale, either RS232 (see APC510 chapter 2.1) or via Bluetooth.

The APR500 has to be set up for the correct scale and interface (see chapter 6.5.4) and the appropriate Hotkey needs to be configured accordingly (see chapter 6.1.1.1).

```
02.02.11 15:39
Assign Scale
? Save Read
```

Pressing the corresponding Hotkey, the APR500 will first try to scan the EID and then import the weight from the scale.

```
980 000001005714
TELL Bluetooth
[+] to read weight

Weight from Scale
810
[+]OK [+]Retry
```

EID: 980 000001005714 **Weight:** 81.0 kg
Scale Type: Tell
Interface: Bluetooth

The weight will be stored into the Alias field of the data set.

```
980 000001005714
810
AC=0
AC+=0
[0]-delete record
```

Weight from Scale can be combined with any Action Code feature (see chapter 5.2) and the Search Mode (see chapter 5.1.2), but is incompatible with the Assign Mode (see chapter 5.1).

For more details, please read the separate *APR500 – Weight from Scale Manual*.

5.4 Group Separator

In order to divide stored transponder data sets into groups, you may insert separators. This can help you to distinguish between different herds of animals, e.g. for different locations.

The group separator can also be used as a comment field if you want to add one and the same remark for several animals.

Per default the first group will be named *Group 1*, the next *Group 2* etc., but the user can rename it with an alphanumeric string of up to 14 characters.



You can enter a group separator via the *New Group* menu item in the operation menu (see chapter 6.1.4).

The group separator feature is also available in Speed Mode and Race Mode.

5.5 Speed Mode

If lots of animals have to be read within a short time, the APR500 *Speed Mode* is a useful feature. If this mode is activated, the reader will initiate continuous reading, whereby continuous means – until the timeout has elapsed or the *Speed Mode* is left manually.

- The timeout can have a value between 1 and up to 90 minutes.
- In order to save battery capacity, the reading speed can be decreased.
- The *Speed Mode* has an ID counter and thus also eliminates double reads.
- Additional data like an Action Code Auto and a fixed AC Plus value can be linked to the ID.
- A group separator of up to 14 characters can be inserted, e.g. to distinguish between different locations.

For more details, please read the separate *APR500 – Speed Mode Manual*.

5.6 Race Mode

The APR500 can be used as a data collector for an **AgriRent Stationary Reader**. This is especially valuable, when you need to capture lots of IDs within a short time period. IDs which have been read with an ASR are sent to the APR500 via a Bluetooth or RS232 interface. The *Race Mode* has an ID counter and thus also eliminates double reads. Additional data like an Action Code Auto and a fixed Action Code Plus value can be linked to the ID. The collected IDs are stored in the APR500 memory including timestamp. A group separator of up to 14 characters can be inserted, e.g. to distinguish between different locations.

For further details, please read the separate *APR500 – Race Mode Manual*.

6. The APR500 main menu

Press the **F** button in order to enter the APRs main menu. Scroll through the menu using the **▲** / **▼** buttons. The main menu is divided into the categories Operation, Speed Mode, Race Mode, Data, Setup and Bluetooth.

```
      OPTIONS
  → Operation
    Speed Mode
    Race Mode
    Data
```

The *Operation* menu provides access to some of the advanced features as described in chapter 5.

```
      OPTIONS
    Operation
  → Speed Mode
    Race Mode
    Data
```

The *Speed Mode* menu enters the APR500 continuous reading mode.

```
      OPTIONS
    Operation
    Speed Mode
  → Race Mode
    Data
```

The *Race Mode* menu item allows to use your Handheld as a data collector for an **Agrident Stationary Reader**. This feature can only be used if you have an ASR connected to the APR500 via RS232 or Bluetooth.

```
      OPTIONS
    Operation
    Speed Mode
    Race Mode
  → Data
```

The *Data* menu gives you access to the stored data and lists.

```
      OPTIONS
    Speed Mode
    Race Mode
    Data
  → Setup
```

In the *Setup* menu you can change the APRs settings concerning the hardware, display and interface.

```
      OPTIONS
    Race Mode
    Data
    Setup
  → Bluetooth
```

The *Bluetooth* menu contains all options related to the optional internal Bluetooth module.

In order to enter the submenus, press the **←** button. You can now scroll through the menu items of the next deeper menu level and access the settings you want to change. Press **Ⓢ** to leave a submenu and to return to the next higher menu level.

For a complete overview of the menu structure and the factory default settings see chapter 6.7.

6.1 Operation menu

The *Operation* menu is mainly used for the configuration of the two Hotkeys. The Hotkeys can be programmed for performing more complex operations than just reading the EID. You can assign Aliases, Action Codes and weights from a scale to the EID after reading if the Hotkeys are set up correspondingly.

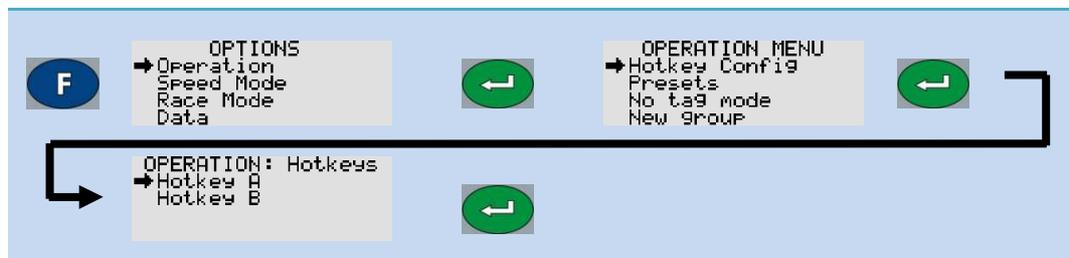
Move through the operation menu with the  /  buttons. Press  in order to enter a submenu, press  in order to leave a submenu and return to the operation menu.

6.1.1 Hotkey Configuration

This is the submenu wherein you can configure the Hotkeys A and B.

6.1.1.1 Hotkey A

This menu item is used to set up the functionality of Hotkey A.



- **Hotkey mode:** The mode assigns the different operational options regarding Alias or Action Code to the Hotkey.

```
OPERATION: Hotkey A
→ Hotkey mode
Action code list
Search mode
Weight from scale
```

- **No Action Code:** No additional assignment, just the ID will be recorded. If this operation mode is chosen, **“Read”** will be displayed in the main screen above the according Hotkey.
- **Assign ask:** Aliases in the previously uploaded Tag List, which are not already assigned can be linked to the scanned EIDs. You can also enter the Alias manually using the APRs alphanumeric keys, if there is no assignment in the Tag List or no Tag List has been uploaded. In the *Assign Ask* mode the record is not saved in the data memory, just the assignment between EID and Alias is saved in the Tag List. If the *Assign ask* mode is selected, **“Assign ?”** will be displayed above the corresponding Hotkey in the main screen.
- **Assign ask save:** The same like the *Assign Ask* mode but the IDs are saved in the data memory as well. The information in the main screen for the configured Hotkey is **“Assign ? Save”** in this case.

- **AC ask:** After reading a transponder, the APR will ask for an Action Code that can be selected from a previously uploaded list. If no Action Code List has been uploaded, you can only select an Action Code number. In the AC Ask mode, the reader will always open the Action Code List and you have to select an action manually using the ▲ / ▼ buttons for scrolling. Confirm your choice with →. The corresponding Hotkey configuration info in the main screen is “AC ?”.
- **AC ask plus:** The same like AC Ask but additionally to the Action Code, you have to enter a numeric value. If this mode is chosen, “AC ? +” will be displayed in the main screen above the Hotkey.
- **AC auto:** The APR will always assign the Action Code that is selected in the *Action Code list* menu automatically. If you want to change the Action Code, you have to change it in the *Action Code list* submenu. “AC auto” plus the first 10 characters of the selected Action Code will be displayed in the main screen above the Hotkey in this operation mode.
- **AC auto plus:** The same like AC Auto but additionally to the Action Code, you have to enter a numeric value. The info text above the Hotkey in the APR500 main screen is “AC auto +” and the first 10 characters of the selected Action Code in this case.
- **Action Code list:** For the AC Auto modes you have to select the intended Action Code from this list. It will be linked to the ID automatically. For the AC Ask modes you can set this value to “last used”. The result will be that the APR opens the list of Action Codes with the last used Action Code at the top always. So if you want to link the same action to multiple IDs in a row, you just need to confirm the Action Code with enter and you do not need to scroll to the same action each and every time.

```
OPERATION: Hotkey A
Hotkey mode
→ Action code list
Search mode
Weight from scale
```

- **Search mode:** In combination with a Tag List, this option allows to find individual animals in a larger group of animals. If the reader recognizes a valid assignment in a previously uploaded Tag List, it will indicate that using a different acoustic signal and a different LED signal. Select “On” in order to activate the Search mode, “Off” in order to deactivate it.

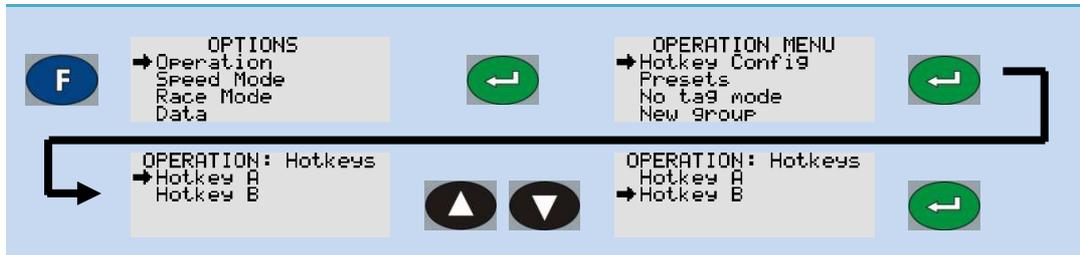
```
OPERATION: Hotkey A
Hotkey mode
Action code list
→ Search mode
Weight from scale
```

- **Weight from Scale:** This mode enables the Handheld to import weighing data from a scale. If activated, the corresponding Hotkey will first initiate an EID scan and then request the weight from the scale. The weight will be displayed without comma separation and saved to the Alias field of the data set. *Weight from Scale* is incompatible to any *Assign Ask* mode, i.e. a Hotkey cannot be configured for *Assign Ask* mode and *Weight from Scale* at the same time. If *Weight from Scale* is activated, “Scale” will be displayed in addition to any selected AC mode in the main screen above the according Hotkey. Please note that the APR500 has to be connected to the scale via RS232 or Bluetooth – otherwise the Handheld will not be able to receive the weight!

```
OPERATION: Hotkey A
Hotkey mode
Action code list
Search mode
→ Weight from scale
```

6.1.1.2 Hotkey B

The Hotkey B menu works according to Hotkey A but the settings apply to Hotkey B.

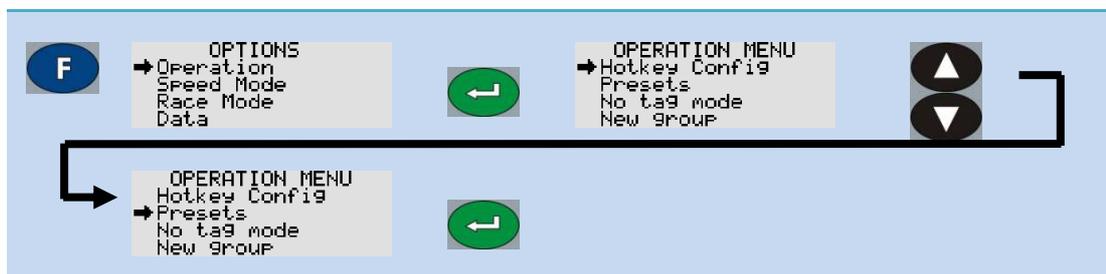


6.1.2 Presets

Presets offer the possibility to change multiple settings in one step according to previously defined setups. These presets should be defined by the corresponding distributor depending on the needs of his customers. They also offer a kind of fallback plan in case of unintended change of single settings.

Up to 10 different custom defined presets can be defined in APR500 at the same time. These are assembled and uploaded with the APR PC-Demo Software.

Once uploaded, you may select the desired Preset and the APR500 will be configured accordingly.



```

Preset
→ Weighing
  Counting Animals
  Searching Animals
  select preset↓
    
```

The above list shows an example of possible Presets. Select the desired Preset using the / buttons and confirm your choice with . The APR will ask for a confirmation - please press the button in order to continue. Now the reader should display:

```

Preset
Weighing
applied
successfully 
    
```

6.1.3 No Tag Mode menu

```
OPERATION MENU
Hotkey Conf19
Presets
➔ No tag mode
New group
```

If the *No Tag mode* is activated, it is possible to enter data manually if a reading attempt failed, e.g. in case of a lost or broken transponder or a transponder being out of reading range. The *No Tag mode* has the following options:

- **Off:** The “Off” setting does not allow any data input after a failed reading attempt.
- **Auto:** The APR asks immediately for data input via keypad after a failed read attempt.
- **Key input:** You have to press  in order to enter data manually after the reading failed.

6.1.4 New Group

```
OPERATION MENU
Hotkey Conf19
Presets
No tag mode
➔ New group
```

Here you can enter a new group separator in order to distinguish between different groups of collected IDs which can represent different locations, sellers, buyers etc.

Per default the groups are named *Group 1*, *Group 2*, *Group 3* etc., but you can enter any alphanumeric string of up to 14 characters via the keypad. Delete the entire default string at once by pressing  or character by character with . Type the desired separator string. Confirm the name and set the group separator by pressing .

Group Separators are also available in the *Speed Mode* and *Race Mode*, but have to be set by the *New Group* options in their corresponding submenus.

6.1.5 ID counter menu

```
OPERATION MENU
Presets
No tag mode
New group
➔ ID counter
```

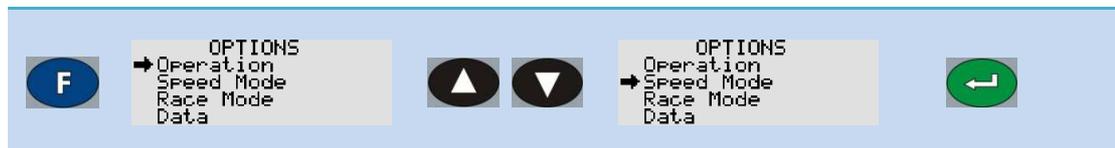
If the ID Counter is activated, it counts the amount of read IDs since the last reset of the counter. In this case no ID is saved in the memory twice or more often. If a transponder is read more than once, the APR will display “Double Read” and won’t save the ID again.

If you choose “*Counter reset*” in this submenu, the counter is reset to zero.

6.2 Speed Mode menu

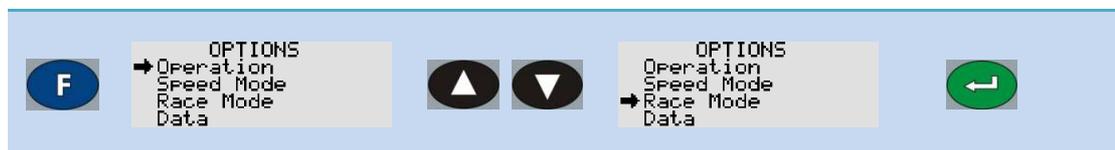
- **Start Speed Mode:** The *Speed Mode* will be started and the *Speed Mode* window will be displayed automatically. You can return to the *Speed Mode* menu by pressing the **F** button.
- **New Group:** Inserts a new group separator into the current *Speed Mode session*. You can either confirm the default name by pressing **↵** or enter your own name via the APRs keypad and confirm. By pressing the **ⓈC** button twice, you cancel the group entry and skip back to the *Speed Mode*.
- **Action Code:** With this menu item you can select an *Action Code* from a previously uploaded list. This *Action Code* is linked to all scanned EIDs automatically. It works like the *Action Code Auto* feature of the Hotkeys.
- **Action Code Plus:** Here you can enter a **fixed** numeric value that is added to the chosen *Action Code*. It is also linked to all scanned IDs automatically.
- **Reading Speed:** The reading speed defines the break time between each 'reading burst' of 300 milliseconds. The break time can be varied between 0ms (value 10) and 500ms (value 0). The shorter the break time, the more reading attempts are made per second. The longer the break time, the lower the energy consumption and thus the operating time.
- **Reading Timeout:** This setting defines timeout for continuous reading. Every time you read a transponder successfully, the countdown will be reset. You can choose a value between 1 minute and 90 minutes from a non-linear list.

If you want to exit the *Speed Mode*, press **ⓈC** and follow the instructions.



For more detailed information regarding the Speed Mode, please read the separate Speed Mode manual.

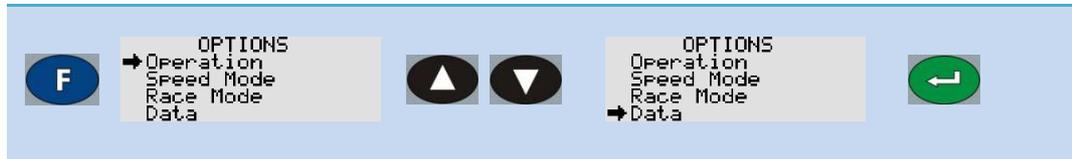
6.3 Race Mode menu



As already mentioned in this manual you require an Agrident Stationary Reader for using this feature. Please read the separate Race Mode Manual for further details.

6.4 Data menu

The *Data* menu gives you access to the stored data and lists. You can watch the collected data and the Tag List, clear single lists or the complete memory, send the memory content directly to another device via the serial port and look for the remaining memory capacity.



6.4.1 Memory space menu



The *Memory space* menu shows the current amount of used memory and still available memory in the different categories: Data, Action Codes and Tag Lists. Enter the menu item *Memory space* and scroll through the different memory areas using the  /  buttons.

6.4.2 Show data menu



This submenu allows you to review the collected data in the data memory. If you enter the *Show data* menu you will see a list of data sets. These entries contain the dataset number and the EID. You can scroll through the list using the  /  buttons. When you choose a particular dataset with the  button, you can watch the dataset details. You can move through the entire content of the dataset step by step. Beside the ID you can have a look at the Alias, Action Code, Action Code Plus, timestamp and transponder type. You may also delete the latest dataset here pressing the  button.

6.4.3 Show tag list menu



In the *Show tag list* menu you can scroll through the uploaded Tag List using the  /  buttons.

```
DATA: Show tag list
→0.3210001010
 1.3210001011
 2.3210001012
taglist info ↑↓
```

When you select an entry via the  button you can see the number within the list, the Alias, the assigned EID (unassigned Alias will display 000000000000000) and whether the assignment of Alias and EID was made prior to the Tag List upload ('PC assigned'), assigned via the Hotkeys ('User assigned') or if it is still unassigned.

```
1
3210001011
980 000000550881
PC assigned
```

You can exit the information window for the *Show tag list* menu by pressing any button, except the Hotkeys which would activate the configured Hotkey function.

6.4.4 User tag list menu

```
DATA MENU
Memory space
Show data
Show tag list
→User tag list
```

The *User tag list* menu shows all Tag List entries that have been user assigned with the APR in the *Assign Ask* or the *Assign Ask Save* mode. That means the assignments were not made on the PC previously. They could either have been typed in via the APRs alphanumeric keypad or the assignment could have been made linking previously uploaded "Null Tags" with the APR. For instructions how to create Tag Lists which contain "Null Tags", please see the APR PC-Demo Software manual or the manual of your management software.

```
DATA: User tag list
→3210001018
 3210001019
taglist info ↑↓
```

```
0
3210001018
982 000080867514
User assigned
[0]-erase assignment
```

You can erase an assignment of an Alias to an EID by pressing the  button. The EID is discarded and the Alias will become a "Null Tag" in the Tag List.

When no assignments have been made with the APR yet, "no assign list" will be displayed.

6.4.5 Clear lists menu

```
DATA MENU
Show data
Show tag list
User tag list
→Clear lists
```

This menu item deletes the Tag List and the Action Codes List.

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6.4.6 Clear data sets menu

```
DATA MENU
Show tag list
User tag list
Clear lists
➔Clear data sets
```

The *Clear data sets* menu deletes the complete content of the data memory; this means all collected transponder data.

6.4.7 Clear all menu

```
DATA MENU
User tag list
Clear lists
Clear data sets
➔Clear all
```

This item deletes all lists and collected data in the APRs memory.

6.4.8 Send data sets menu

```
DATA MENU
Clear lists
Clear data sets
Clear all
➔Send data sets
```

The *Send data sets* menu instructs the APR to send the complete content of the data memory, the collected IDs, to an interface. Therefore the reader has to be connected to the desired target device and the correct comport has to be opened on that device. Such a device might be a computer and the software for receiving the datasets could be any customized software or a terminal program like Windows HyperTerminal.

If several different interfaces are available you have to select one before the datasets are being sent. It is possible to send the data via RS232 (always available), via USB (only available if the APR500 is connected via USB) or via Bluetooth (only available if there is an active Bluetooth connection).

The format which is selected in the *Online mode* menu is also used for the data transmission in the *Send data sets* function. If the *Online mode* is configured to "OFF", the datasets will be sent using the "*Data long*" format. Please see also chapter 6.5.8.3 "Online mode menu" for the available formats.

6.4.9 Send tag list menu

```
DATA MENU
Clear data sets
Clear all
Send data sets
➔Send tag list
```

This function is similar to "*Send data sets*" but instead of the collected data the Tag List is sent to the selected interface.

6.5 Setup Menu

The Setup menu basically contains all settings concerning hardware. Here you will find configuration options for interface, display, time and date and the RFID module.



6.5.1 Display menu



In this submenu various display settings can be adjusted.

- **Language:** This menu shows which character set (Latin, Greek, Cyrillic) is active. You can also see which language file is uploaded into the APR and reset the language to English here.
- **Switch off time:** In order to save battery capacity, the APR is switching off after a certain time, if no action has taken place. The *Switch off time* can be configured between 5 and 250 seconds.
- **Illumination:** In this submenu you can select different settings for the display backlight.
 - **Backlight off Time:** In order to save battery capacity, the APR will switch off its display backlight after a certain time, if no button on the keyboard is pushed. The *Backlight off Time* can be configured between 2 and 20 seconds.
 - **Ext. power options:** With this option enabled the display will be illuminated when the APR is powered externally. Please be aware that this will increase the time for battery charging.
- **Contrast:** Select between five different display contrast levels.

6.5.2 Date/Time menu

```
SETUP MENU
Display
→Date/Time
Volume
Scale Setup
```

In this submenu you can change time, time format, date and date format. This affects the time and date on the display and the timestamp that is added to the EID.

- **Set date and time:** Change the date and the time value via the numeric keys.
- **Set time format:** Decide whether you want an AM/PM or a 24 hour format.
- **Set date format:** Selects between European (dd.mm.yy) or US (mm.dd.yy) date standard.

6.5.3 Volume menu

```
SETUP MENU
Display
Date/Time
→Volume
Scale Setup
```

The APR emits acoustical signals. In this submenu you can change the volume of these signals within a range from 0 to 15.

6.5.4 Scale Setup

```
SETUP MENU
Display
Date/Time
Volume
→Scale Setup
```

If you want to use the *Weight from Scale* feature (see chapter 5.3) you need to configure the APR500 to the corresponding scale type and interface.

- **Scale Type:** Here you can choose the scale type that you want to connect to for weighing data import. Three scales are supported at the moment Iconix FX15, TruTest XR3000 and TELL.
- **Interface:** Choose the intended interface for the data transfer, RS232 or Bluetooth.
- **Baud Rate:** Depending on the interface parameters of the scale, select the same baud rate. Values from 300 to 115200 bits/second are available.
- **RS232 format:** Some of the earlier Iconix FX15 scales expect different RS232 properties. For these scales choose *E, 7, 1*, all other scales use the *N, 8, 1*.

6.5.5 Battery info menu

```
SETUP MENU
Date/Time
Volume
Scale Setup
➔Battery info
```

The *Battery info* menu displays the status of the APRs battery. You can see the batteries voltage, the charge current (only while charging) and the batteries temperature. You can also see the batteries charge status: fast charge, trickle charge or no charge.

All batteries are called “*disposable*”, except Agrident supplied NiMH batteries. Only these can be charged internally (see chapter 4.6).

6.5.6 Software version menu

```
SETUP MENU
Volume
Scale Setup
Battery info
➔Software Version
```

In the *Software version* menu you can find information about the APR500 Firmware version, its serial number, boot loader version, the hardware revision and the version information for the internal RFID and BT modules. Scroll from one information to the next using the  /  buttons.

6.5.7 Factory Default menu

```
SETUP MENU
Scale Setup
Battery info
Software Version
➔Factory default
```

Here you can reset the APR to its factory default configuration (see chapter 6.7). Confirm the reset with  or cancel with .

6.5.8 Advanced Setup Menu

```
SETUP MENU
➔Advanced Setup
Display
Date/Time
Volume
```

The following submenus concern advanced reader settings.



Please do not change any of those settings without deeper knowledge of their meaning. They refer to RFID module settings, the data format and/or data transfer settings.

6.5.8.1 RFID settings

```
ADVANCED SETUP
→RFID settings
  Baud rate
  Online mode
  Display format
```

In the RFID submenu you can adjust all functions for reading a transponder.

- **Read length:** The read length determines the time for one reading attempt in seconds. The values range from 1 to 10 seconds.
- **Transponder types:** With the transponder type setting, you can choose which type of transponders the APR can read. If you enable *H4002 only*, no ISO tags can be read. H4002 is a non ISO format and is incompatible with Wireless Sync.
- **Wireless Sync:** It activates or deactivates the wireless synchronization concerning ISO11785 and thus improves the reading performance in an environment with other activated ISO 11785 readers. H4002 is a non ISO format and is incompatible with Wireless Sync.
- **Sync level:** The synchronization level determines the level for the detection of other readers in the environment. This level can be adjusted because the correct operation of wireless synchronization depends on the noise level in the environment – so the reader needs a threshold.



We recommend not to change that setting without previous contact to Agrident in order to prevent reading problems.

- **Double read:** With the Double Read function you define, that the same transponder cannot be saved twice or more within a certain time. You can select values between OFF (disabled), 15, 30, 45 and 60 seconds.

6.5.8.2 Baud Rate menu

```
ADVANCED SETUP
RFID settings
→Baud rate
  Online mode
  Display format
```

The menu item *Baud rate* defines the communication speed of the RS232 interface. The setting can be selected from a list of standardized rates between 9600 and 115200 bits/second. Please pay attention that the baud rate of the APR has to have the same speed as the communication partner device in order to allow a successful communication.

6.5.8.3 Online Mode menu

```
ADVANCED SETUP
RFID settings
Baud rate
➔ Online mode
Display format
```

The Online mode allows sending an ID to other devices (e.g. a PC, PDA, scale) over the serial port immediately after it was saved. A PC or PDA requires corresponding software which is able to collect incoming data on the serial port. The “*Online window*” of the APR PC-Demo Software can be used for testing purposes.

There are several formats available, the ID can be sent in:

- **Off:** The APR will not send the ID after reading a transponder.
- **SCP format:** Only the last 10 digits of the ID will be sent.
- **Data long:** The Data long-mode transmits the complete dataset including time, date, Alias, Action Code and Action Code Plus value.
- **Data short:** The 3-digit Country Code and the 12-digit ID will be transmitted.
- **ISO 24631:** The data are sent according to the *ISO 24631* format. If the *ISO 24631* format is selected, the online mode menu will get an additional item “*ISO 24631 options*”. Here you can define the start character of the format and whether the timestamp shall be included or not.

For detailed descriptions of the formats see Annex A: “Online mode output formats”.



If you want to send the EID to EID-ready scales you have to select the correct Online format. Most scales accept the “Data short” format. Please also ensure that you scale is configured correctly for receiving the EID via Bluetooth or RS232. The manual of your scale should contain further details.

6.5.8.4 Display format menu

```
ADVANCED SETUP
RFID settings
Baud rate
Online mode
→ Display format
```

In this submenu you can choose how the EID is displayed and saved.

- **ID Format:** Here you can determine how the transponder ID is displayed, either in ISO-mode, which decodes the EID according to ISO 11784 or in HEX-mode where the ID is displayed as a hexadecimal string.
- **Country Code:** Decides whether the country code will be displayed numeric or alphanumeric according to ISO3166. A manufacturer's code will always be displayed numeric.
- **Animal Tag Flag:** If this option is enabled, "NO ANIMAL TAG" will be displayed in case of reading a transponder, which is not intended to be used for animals (Animal Bit =0). The EID will be saved nevertheless. You can watch the ID scrolling through the display after reading using ▲ / ▼. If the option is disabled, the animal flag of the transponder will not be taken into account for displaying the ID.
- **ISO Mode:** If set to "advanced", you can watch additional information *Species code* and *Retagging code* after reading, if you scroll through the display with the ▲ / ▼ buttons. If the ISO mode option is set to standard, this is not possible.
- **Action Code format:** The *Action Code format*-setting decides whether to display Action Codes numeric or alphanumeric. Alphanumeric does only work, if a list of alphanumeric Action Codes has been uploaded to the APR.

6.5.8.5 Tag list options menu

```
ADVANCED SETUP
Baud rate
Online mode
Display format
→ Tag list options
```

This menu item contains options that influence the notification of Aliases.

- **Display Alias:** If this option set to "Show Alias", the APR will show the Alias, if one is assigned, in the upper line of the display in a larger font size, instead of the EID. When this option is set to "Show Tag ID" the electronic ID will always be shown and not the Alias – independently of a possible assignment.
- **Ignore advanced ISO:** This option decides about how the APR should proceed when searching for assigned Aliases in the Tag List. "On" means, the reader will only compare the 15-digit ISO number of the read transponder and the IDs in the Tag List. Additional bits like retagging counter will be ignored. When set to "Off" the APR will only recognize a valid assignment, if the complete content of the transponder is identical – including the advanced ISO information.

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6.5.8.6 AC Plus Format menu

```
ADVANCED SETUP
Online mode
Display format
Tag list options
→AC Plus format
```

In the *AC Plus Format* menu you can enable the extended format (16 bit) for the Action Code Plus which allows using values of up to 65535. If it is turned off (8 bit), the dataset will be compatible to the APR300 and the APR400 with Action Code Plus values of up to 255 only.

6.6 Bluetooth Menu



The Bluetooth menu contains all options concerning the internal Bluetooth module of the APR500.

- **Bluetooth Mode:** This option configures the Bluetooth operation mode.
 - **Bluetooth disabled:** BT module is switched off.
 - **Slave Mode:** Another BT device that is able to be a BT master can detect the APR500 and initiate a BT connection. If the Handheld is turned off, the connection is lost - even if the Handheld is turned on again. The BT master has to reinitialize the connection.
 - **Master Mode:** With the *Master Mode* enabled the APR500 can connect to other BT devices. If either the APR or its communication partner is turned off and on again the APR500 will try to re-establish the connection automatically.
- **Ext. Power Options:** If this option is turned on, the BT module is still enabled even, if the APR is powered externally (e.g. through the APC500 USB cable). Be aware that this will increase the battery charging time.
- **Start BT Inquiry:** Starts scanning for other BT devices. The discovered devices can be selected as the remote device for the APR500 – this is called “Pairing”. In Master Mode the APR500 will established the connection to the remote device automatically.
- **BT Device History:** Shows a list of all former remote devices and allows to set a particular device as new remote device. This saves you new inquiries if you switch between several remote devices very often.
- **Baud Rate:** Selects the BT Baud rate (9600 up to 115200 bits/second)
- **Set Pass Key:** Sets a Bluetooth Pass Key in case the remote device requires one. The APR500 does not require a Pass Key

For any further information regarding the APR500 Bluetooth options please read the separate *APR500 – Bluetooth Manual*.

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6.7 Menu Structure and Factory Defaults

For a detailed description of the menus, see the corresponding chapters 6.1 - 6.6.

				Factory Default
Operation	Hotkey Configuration	Hotkey A	Hotkey mode	No Action Code
			Action Code list	0
	Hotkey B	Search mode	Off	
		Weight from Scale	Off	
Speed Mode	Presets		Like Hotkey A	
	No Tag mode		Off	
	New Group			
	ID Counter		Off	
Race Mode	Start Speed Mode			
	New Group			
	Action Code		No Action Code	
	Action Code Plus			
Data	Reading Speed		5	
	Reading Timeout		1 minutes	
	Start Race Mode			
	New Group			
Setup	Action Code		No Action Code	
	Action Code Plus			
	Memory Space			
	Show Data			
Setup	Show Tag List			
	User Tag List			
	Clear Lists			
	Clear Data Sets			
	Clear All			
	Send Data Sets			
	Send Tag Lists			
	Display	Language		English*
		Switch off Time		10 seconds
	Illumination	Backlight off Time		3 seconds
		Ext. Power Options		Off while charging
	Contrast			4
Date/Time				
Date/Time	Set Date and Time		0-24	
	Set Time Format		EUR (dd.mm.yy)	
	Set Date Format		7	
Volume				
	Scale Setup			
Scale Setup	Scale Type		Tell	
	Interface		RS232	
	Baud Rate		9600	
	RS232 format		N,8,1	
Battery Info				
	Software Version			
	Factory Default			

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				Factory Default
	↳ Advanced Setup			
		↳ RFID Settings		
			↳ Read Length	<i>7 seconds</i>
			↳ Transponder Types	<i>FDX+HDX</i>
			↳ Wireless Sync	<i>Off</i>
			↳ Sync Level	<i>1600 mV</i>
			↳ Double Read	<i>No double check</i>
		↳ Baud Rate		<i>9600</i>
		↳ Online Mode		<i>Data short</i>
		↳ Display format		
			↳ ID Format	<i>ISO</i>
			↳ Country Code	<i>Show numeric</i>
			↳ Animal Tag Flag	<i>Warn if not set</i>
			↳ ISO Mode	<i>Standard</i>
			↳ Action Code Format	<i>Show alphanumeric</i>
		↳ Taglist Options		
			↳ Display Alias	<i>Show Alias</i>
			↳ Ignore adv. ISO	<i>On</i>
		↳ AC Plus Format		<i>Off (AC+=8Bit)</i>
Bluetooth	↳ Bluetooth Mode			<i>Bluetooth disabled</i>
	↳ Ext. Power Options			<i>Off while charging</i>
	↳ Start BT Inquiry			
	↳ BT Device History			
	↳ Baud Rate			<i>115200</i>
	↳ Set Pass Key			<i>1234 *</i>

* ... These settings are not affected by a reset to factory defaults.

APR500 – Classic Mode



7. Technical Data

Frequency	134.2 kHz
Transponder types	HDX (ISO 11784/5) FDX-B (ISO 11784/5) Optional H4002 and compatible
Reading range	Approx. 25 cm with HDX transponder of a Ø30 mm Up to 20 cm with FDX-B transponder Ø30 mm
Interfaces	USB with the APC500 or the optional docking station ADS500 RS232 using the optional APC510 cable Plug for external antenna Bluetooth Class 1 module, according to Bluetooth standard 2.0, configurable as Bluetooth Master or Slave
Memory	Nonvolatile Flash for 6000 data sets
Power supply	2 x 1.2V AA Batteries Internal charging of supplied NiMH batteries via USB in 6 hours maximum
Protection	IP 64
Temperature range	-10° to 60°C
Dimensions	L x W x H 175 x 92 x 40 mm
Weight	approx. 350g

8. 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 APR500 Reader contains no parts that can be repaired by the user. For this reason the Reader Electronic may only be repaired by authorized 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 APR500 Reader only with a damp cloth. Use only water and any commercially available cleaning agent.

Any modification to the APR500 Reader Electronic will render the warranty null and void.

9. Warranty

The manufacturer of the APR500 Reader Electronic will provide a warranty of

12 months

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

1. Without submission of proof of purchase no warranty can be given.
2. 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.
3. 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;
The damage is due to force majeure, for example lightning strike;
The damage is due to wear, resulting from overstressing mechanical parts.

10. International approvals

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.

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.



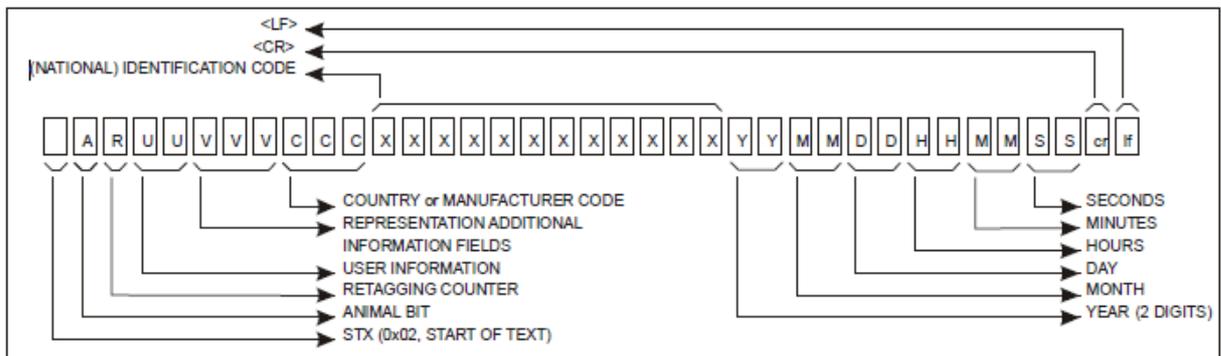
The APR500 is also successfully rated for the ICAR approval.

11. Annex A – Online mode output formats

This annex shows the *Online mode* output formats in detail.

Data short	3-digit country code followed by <space> the 12-digit ID and <CR><LF> Example: 980 123456789012
Data long	<ul style="list-style-type: none"> • Number of the dataset in the memory • Date • Time • Transponder type • Action Code (numeric=alphanumeric) • Action Code Plus value • 3-digit country code and 12-digit ID • Alias <p>Example: 20 ,03.09.09 ,15:15:26 ,FDXB , 1=Trreat ,545 ,942 000000598917 ,No Alias</p>
SCP-Format	Last 10 digits of the ID followed by <CR><LF> Example: 3456789012
ISO 24631 format	The ISO 24631 format contains additional information, like animal flag, retagging counter, time stamp and so on. The last characters of the telegram will be <CR> (0x0D) <LF> (0x0A). This format is similar to the former “French format”.

The structure of the ISO 24631 format:



The ISO 24631 uses “0x02” as the start character of the telegram. That’s why the APR500 is using this start character as factory default. Anyway you might also change for another start character.

12. Glossary

- **Action Code (AC)**

An Action Code is a string of up to 14 alphanumeric characters. Action Codes allow to assign events like sale, movement, disease or treatment to animal IDs. An Action Code can be combined with the transponder ID after reading. It can only be assembled and uploaded to the APR using appropriate software. The Action Code Plus allows assigning a numeric value in addition to the Action Code, e.g. the weight of an animal.
- **Alias**

An Alias is a string of up to 14 alphanumeric characters, e.g. a visual ID, the management number or just a remark. It can be assigned to an EID. A list of Aliases is called Tag List. It can either be uploaded into the APR or it can be created manually in the field using the APRs keypad.
- **FDX-B**

Transponder type (full duplex), which transmits its data while the RF field is active using Amplitude Modulation (AM). FDX transponders contain 128 bits of raw data; the ID notation is in compliance with ISO 11784/11785.
- **HDX**

Transponder type (half duplex), which transmits its data directly after RF field is deactivated using Frequency Shift Keying (FSK). HDX transponders have 104 bits of raw data; the ID notation is in compliance with ISO 11784/11785.
- **EID/ID**

Electronic **ID**entification number of a transponder
- **ISO 11784/11785**

International standard concerning the use of RFID technology in the identification of animals; it defines the transponder types to be supported and the ID notation.
- **Reader**

A device which is able to communicate with transponders via an internal or external antenna. The reader generates a radio frequency field (RF) in order to supply the transponder with energy and to receive the data of a transponder. The received data can either be stored in an internal memory or it is transmitted to an external controller via an interface.
- **RFID**

Radio **F**requency **ID**entification. Method to transmit identification data contactless using transponders.
- **Tag List**

List containing Aliases
- **Transponder or Tag**

Data carrier for RFID applications, available in various models and types.

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