



**Agrident GmbH, Steinklappenstr. 10, D-30890 Barsinghausen
Phone +49 5105 582573-10 - Fax +49 5105 582573-17**

AWR300 User Manual



Firmware v1.31 and higher

V03/02/20

© Copyright 2020 by Agrident GmbH

TB

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of Agrident GmbH.

Agrident GmbH reserves the right to make changes to any and all parts of this documentation without obligation to notify any person or entity of such changes.

February 2020

Agrident GmbH
Steinklippenstr. 10
30890 Barsinghausen
Germany
Phone +49 (0) 51 05 582573-10
Fax +49 (0) 51 05 582573-17
E-Mail: mail@agrident.com
www.agrident.com

Content

- 1 Introduction..... 6
- 2 Before you start 6
- 3 Reader Hardware 7
 - 3.1 Parts of the AWR300..... 7
 - 3.2 Accessories..... 7
 - 3.3 Connecting a serial cable (USB or RS232) 8
 - 3.4 Exchanging the battery pack 8
- 4 Controlling the AWR300 9
 - 4.1 AWR300 Display 9
 - 4.1.1 Home Screen 9
 - 4.1.2 The status symbols at the top of the display 10
 - 4.1.2.1 Battery status..... 10
 - 4.1.2.2 WLAN status..... 11
 - 4.1.2.3 Bluetooth status..... 11
 - 4.1.2.4 USB status..... 11
 - 4.1.2.5 RS232 status 11
 - 4.2 The status LEDs above the display 12
 - 4.3 The multicolor LEDs at the tip 12
 - 4.4 Using the keyboard 13
- 5 Operating states 14
- 6 Reading Transponders 15
- 7 Menu items..... 18
 - 7.1 Menu structure 19
 - 7.2 New Group 22
 - 7.3 Tasks..... 23
 - 7.4 Data..... 25
 - 7.4.1 Show Data..... 25
 - 7.4.2 Clear data..... 27
 - 7.4.2.1 Clear Groups 27
 - 7.4.2.2 Clear Task Data..... 27
 - 7.4.3 Memory Info 28
 - 7.4.4 Search VID in DB..... 28
 - 7.4.5 Search EID in DB..... 29

- 7.5 Print..... 30
 - 7.5.1 Print Last Group 31
 - 7.5.2 Select Group 31
 - 7.5.3 Print All Groups 31
 - 7.5.4 Print Barcode 31
 - 7.5.5 Setup Printer 32
 - 7.5.5.1 Set Printer Type..... 32
 - 7.5.5.2 Set Printer Interface..... 32
 - 7.5.5.3 Set Printer Baudrate 32
 - 7.5.5.4 Search BT Printer 33
- 7.6 Setup..... 34
 - 7.6.1 Reader Settings 34
 - 7.6.1.1 Animal Counter On/Off 34
 - 7.6.1.2 Set Read Mode..... 35
 - 7.6.1.3 Set Online Mode..... 35
 - 7.6.1.4 Wireless Sync On/Off 36
 - 7.6.1.5 Volume & Vibrator 37
 - 7.6.2 Display 37
 - 7.6.2.1 Set Date/Time..... 38
 - 7.6.2.2 Set Switch Off Time..... 38
 - 7.6.2.3 Set Display Colors 38
 - 7.6.2.4 Set Language 39
 - 7.6.3 Interface Setup..... 39
 - 7.6.3.1 Set RS232 Baudrate..... 39
 - 7.6.3.2 Setup Scale 39
 - 7.6.3.3 Setup Printer..... 41
 - 7.6.3.4 Bluetooth 41
 - 7.6.3.5 WLAN 45
 - 7.6.4 Configuration..... 48
 - 7.6.4.1 Set Factory Configuration..... 48
 - 7.6.5 Device Info 48
 - 7.6.5.1 Show Battery Info 48
 - 7.6.5.2 Show Firmware Info..... 49
 - 7.6.5.3 Show Hardware Info 49

- 8 Battery precautions 50
- 9 Safety and care 51
- 10 Warranty 52
- 11 International approvals..... 52
 - 11.1 CE marking 52
 - 11.2 FCC and IC digital device limitations..... 53
- 12 Trouble shooting 53

1 Introduction

The AWR300 is a high quality, ruggedized portable RFID reader for tags complying with the ISO11784 / 11785 standard. It can read transponders with FDX-B and HDX technology. In addition to the reading functions, the device can store up to 1.000.000 records in several groups in the large internal memory. Each record also contains a timestamp plus a Visual ID and an Alert, if available. The data are transmitted via the several available interfaces (USB, RS232, Bluetooth and WLAN) directly after reading.


The AWR300 also supports the *Task-Mode* and the *DataBaseFunction (DBF)* if the appropriate definitions or data have been uploaded. This is usually done by 3rd-party Management Software.

The reader has a large color display which can show many information at one glance. Together with the seven keys it allows the easy and convenient navigation through menus and data. In addition, the device has status LEDs above the display for indicating the charging- and interface status and multicolor LEDs at the tip which indicate the current reading state. The integrated speaker provides acoustical feedback to the user and the vibrating handle is very useful in noisy environments.

2 Before you start

The internal high-capacity lithium-ion battery should be fully charged before the first use. The battery can be charged by using the provided Y-Cable and power adapter. Please connect the Y-Cable to the bayonet connector at the bottom of the reader (1) and the power supply to the circular connector (2) of the Y-Cable. The plug-in power supply (3) should be fitted with the correct mains adapter. Then you can plug in the power supply into a mains outlet and the AWR300 should start charging the battery. Please see chapters 4.1.2.1 and 4.2 for details about the battery status.



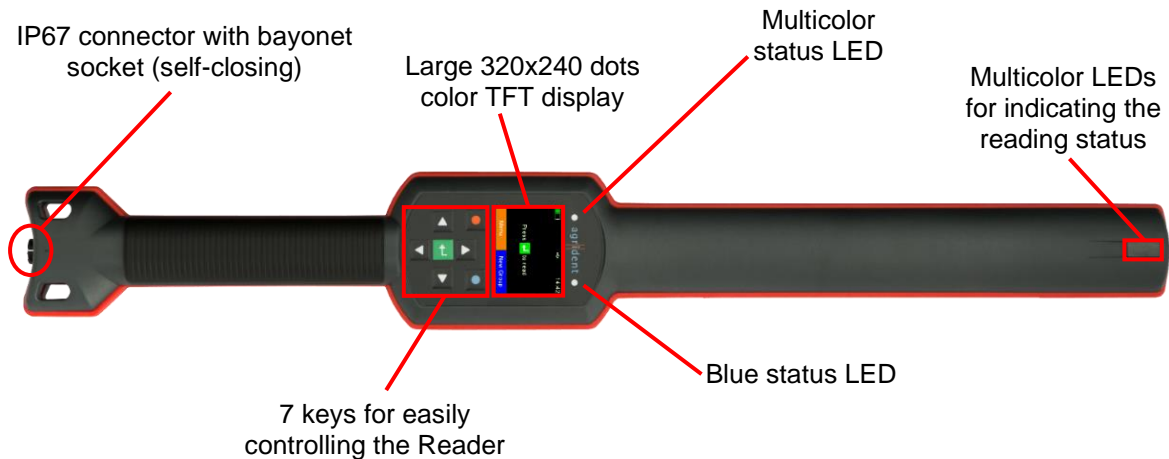
 The internal fast charging takes 3.5 hours maximum in case the battery was empty completely. Please note that the battery will only be charged within a temperature range of 0°C to 45°C (+32 to 113°F).

3 Reader Hardware

This chapter describes the AWR300 hardware including all accessories.

3.1 Parts of the AWR300

The AWR300 stick reader is 65 centimeters long and has a weight of only 750 grams including the battery. It provides an excellent reading performance, a large 2.4 inch color TFT display, a multicolor LED indicator at the tip, two status LEDs above the display, a speaker and a vibrating handle. The Reader can be controlled with seven ergonomic keys below the display.



The AWR300 is using a 7.4V Lithium-Ion battery with a capacity of 2.600mAh, which is located in the handle. This battery could be replaced but normally it is not necessary because of the very long operating time.

3.2 Accessories

The AWR300 comes with some standard accessories that are shown below.



ARB300 – Battery Pack



Y-Cable (USB / Charge)



Power adapter

The Battery Pack is already installed in the AWR300. The USB plug of the Y-Cable can be connected to any USB-port of a computer. Please note that the appropriate USB driver has to be installed first. When it is necessary to use a USB extension, this should only be high quality cable and it should not be longer than two meter. The maximum cable length for USB is five meter and this can already lead to problems in practice (USB failures).

The power adapter has interchangeable plugs for most power outlets used all over the world.

The following optional accessories are available:



RS232 cable 'APC310'



Transport box ,ATB300'

The RS232 cable 'APC310' (p/n 4061) allows the wired serial RS232 connection to other devices in case these devices do not support Bluetooth. When it is required to take the AWR300 to different sites very often, it makes sense to purchase the robust transport box ATB300 (p/n 4063). It can accommodate the reader and its accessories plus additional devices like a mobile printer (not included, has to be purchased via local distributors).

3.3 Connecting a serial cable (USB or RS232)

The AWR300 uses a bayonet connector system that is IP67 without an additional cap. Attach the connector of the serial cable to the socket at the bottom of the reader. Please pay attention on the correct orientations (see marking). Push the connector against the socket and turn it clockwise until it is locked.



Turn the connector counterclockwise in order to unlock the connector. The socket closes itself automatically after removing the plug.

3.4 Exchanging the battery pack

Although normally not required due to the long operating time of the battery pack, it is possible to change it. This might be necessary if the pack has reached the end of its life cycle.



Remove the flat-head-screws by using a suitable slot screwdriver. Lift the battery cover and take out the battery. After the new battery pack has been inserted, close the battery cover again and tighten the two flat-head-screws.

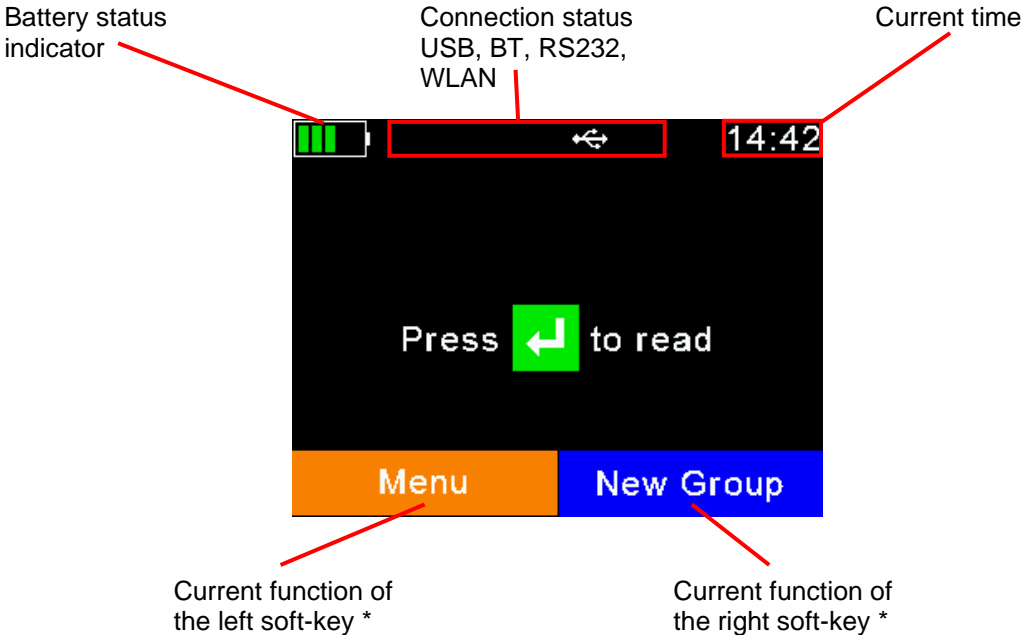
4 Controlling the AWR300

The AWR300 has a large color display and seven keys which are used for controlling the device. The Reader is activated by pressing the [enter] key in the middle of the directional pad.

4.1 AWR300 Display

4.1.1 Home Screen

After the reader is switched on, the following home screen appears:



* A 'Softkey' is a key that performs different functions depending on the associated screen display.

The battery status indicator shows the approximate battery level. In this example the battery is fully charged. It would also display possible faults concerning the battery, like high-temperature.

In the screenshot above the only active connection is USB (symbol on the right side). The reader would also indicate an active RS232 connection or the status of Bluetooth or WLAN.

The soft keys have different meanings depending on the current operation. In the home screen, the left soft key would be used for entering the menu and the right one for creating a new group separator. The 'new group' function is only the default action triggered by pressing the right soft key. Other 'quick menus' might be configured and uploaded to the reader from the PC and the action to be started can be changed on the reader by long pressing the right soft key.

4.1.2 The status symbols at the top of the display

There is a status bar in the first display line. Beside the time (on the right side) it provides information about the battery status and the different interfaces.



The blue symbol is for WLAN and the orange one for Bluetooth. The color of the symbols depends on the current connection status.

4.1.2.1 Battery status

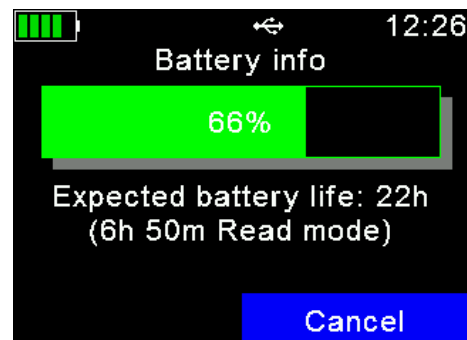
The battery symbol on the left side indicates the approximate battery capacity.

Status	Meaning
	Battery capacity is higher than 80 percent.
	Capacity is between 60 and 80 percent.
	Capacity is between 40 and 60 percent.
	Capacity is between 20 and 40 percent (no charger connected -> discharging)
	Capacity is between 10 and 20 percent (no charger connected -> discharging) When flashing, capacity is lower than 11 percent.
	Capacity is between 20 and 40 percent (only green when charging).
	Capacity is between 10 and 20 percent (only green when charging).
	General charging error. There is a condition that prevents charging. Please check the external power supply. If this error is shown repeatedly, the battery might not work correctly any longer and should be replaced.
	Charging not allowed because the battery temperature is outside the allowed range of 0°C to 45°C.

During charging the battery symbol is constantly filling from the point of the remaining capacity. Charging is complete if no bars are flashing anymore. The charger can be disconnected in this case.

The menu item 'Show Battery Info' in the 'Setup' menu (chapter 7.6.5.1) shows an estimate of the remaining battery capacity in percent as well as the estimated remaining operating time in idle mode and in continuous read mode.

Navigation from the home screen:



4.1.2.2 WLAN status

Status	Meaning
	WLAN is switched on but not connected to an Access Point.
	Connected to an Access Point and waiting for connection (listening).
	Connection is established (TCP or UDP – port is open)
	WLAN init: This symbol is displayed when the WLAN module is currently booting, being configured or a Firmware update is in progress.

4.1.2.3 Bluetooth status

Status	Meaning
	Slave Mode – AWR300 can be connected from other devices
	Master Mode – AWR300 is trying to connect to remote device.
	Connected (in either Bluetooth Mode)
	Bluetooth init: This symbol is displayed when the Bluetooth module is currently booting, being configured or a Firmware update is in progress.

4.1.2.4 USB status

When the AWR300 is connected to the USB port of a computer, the USB symbol is shown:



4.1.2.5 RS232 status

If the AWR300 is connected to an RS232 interface, the following symbol appears:



4.2 The status LEDs above the display

The AWR300 has two status LEDs above the display.



The left LED is a multicolor type and the color changes depending on the charging status when the display is switched off.

The LED on the right is blue and it is used for indicating the connection status with the display is switched off.

The RGB LED on the left side indicates the charging status of the battery pack as follows:

Color	Interval	Meaning
	Flashing, every seconds for 10ms	Battery is being charged
	Solid	Battery is fully charged

The multicolor LEDs are only used when the display is turned off. When switched on, the battery symbol in the display indicates the charging status.

The blue LED on the right side is only used when the display is turned off. Then it indicates the following operating modes:

Color	Interval	Meaning
	Flashing every 3 seconds	AWR300 is in <i>SD-Card-Mode</i>
	Flashing once a second	AWR300 is in <i>Suspend-Mode (CDC)</i>

4.3 The multicolor LEDs at the tip

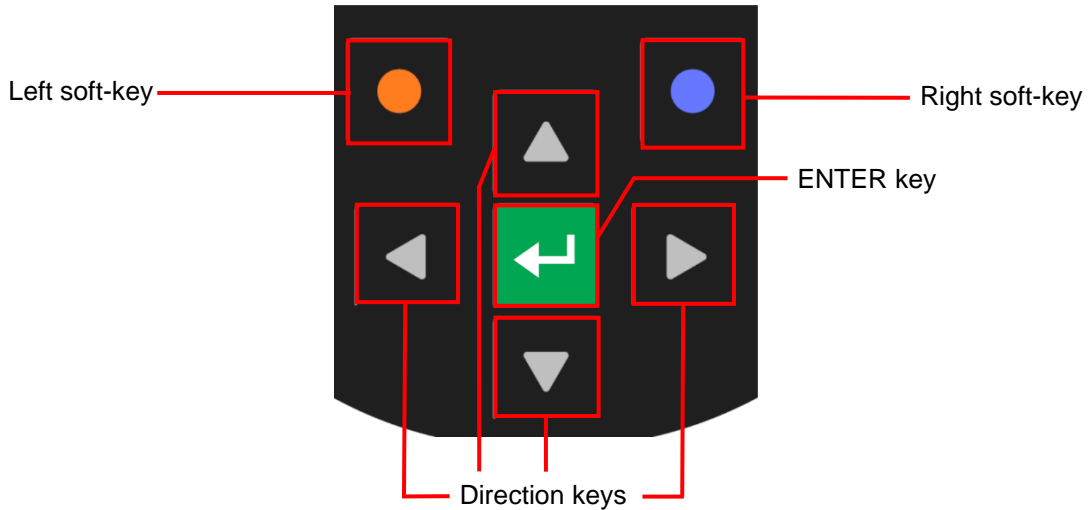
The AWR300 has multicolor LEDs at the end of the reader. They allow to indicate the reading status when the device is pointing into the direction of the transponder and where it might not be possible to look at the readers display.

Color	Interval	Meaning
	Flashing slowly	RF is activated, ready to scan tags
	Flashing fast	Tag has been read the first time (new tag)
	Flashing fast *	Tag has been read repeatedly (duplicate) *

* only for continuous reading mode and activated Animal Counter (see chapters 7.6.1.1 & 7.6.1.2)

4.4 Using the keyboard

The AWR300 has 7 keys in order to allow the easy and convenient operation of the reader. There is a directional pad with an ENTER key in the middle and there are two additional soft-keys below the display which change their function depending on the current action.

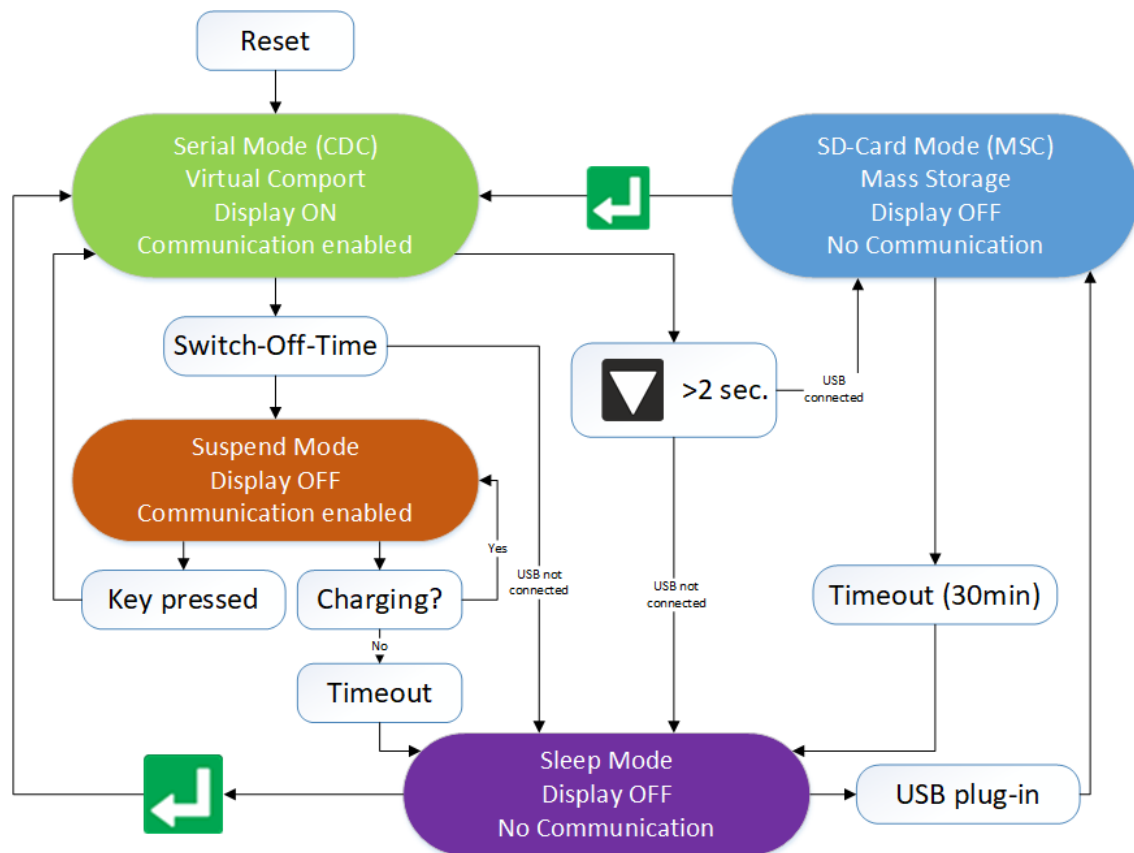


Key	Operation
	Enters the menu in the home screen. Moves up one menu level ('Back'), other functions depend on current operation – the current function is always displayed on the left side in the last display line (above the key).
	When in the home screen, the configured 'quick action' will be executed. Exits the menu completely and moves back to the home screen. Other functions depending on the actual operation are shown in the display on the lower right side.
	Switches on the AWR300. Starts a reading attempt from the home screen. Enters menu items and confirms selections there. Moves to the next field in <i>Task-Mode</i> .
	No function in home screen *
	Switches off the AWR300 on a long press (>2 seconds) *
	No function in home screen *
	No function in home screen *

* The directional keys are also used to navigate within menus (up, down, left and right), for scrolling through Database fields and selection lists and for selecting characters in numeric or text input fields.

5 Operating states

The AWR300 has several operating states concerning display status and communication possibilities over USB. The following chart shows the different states.

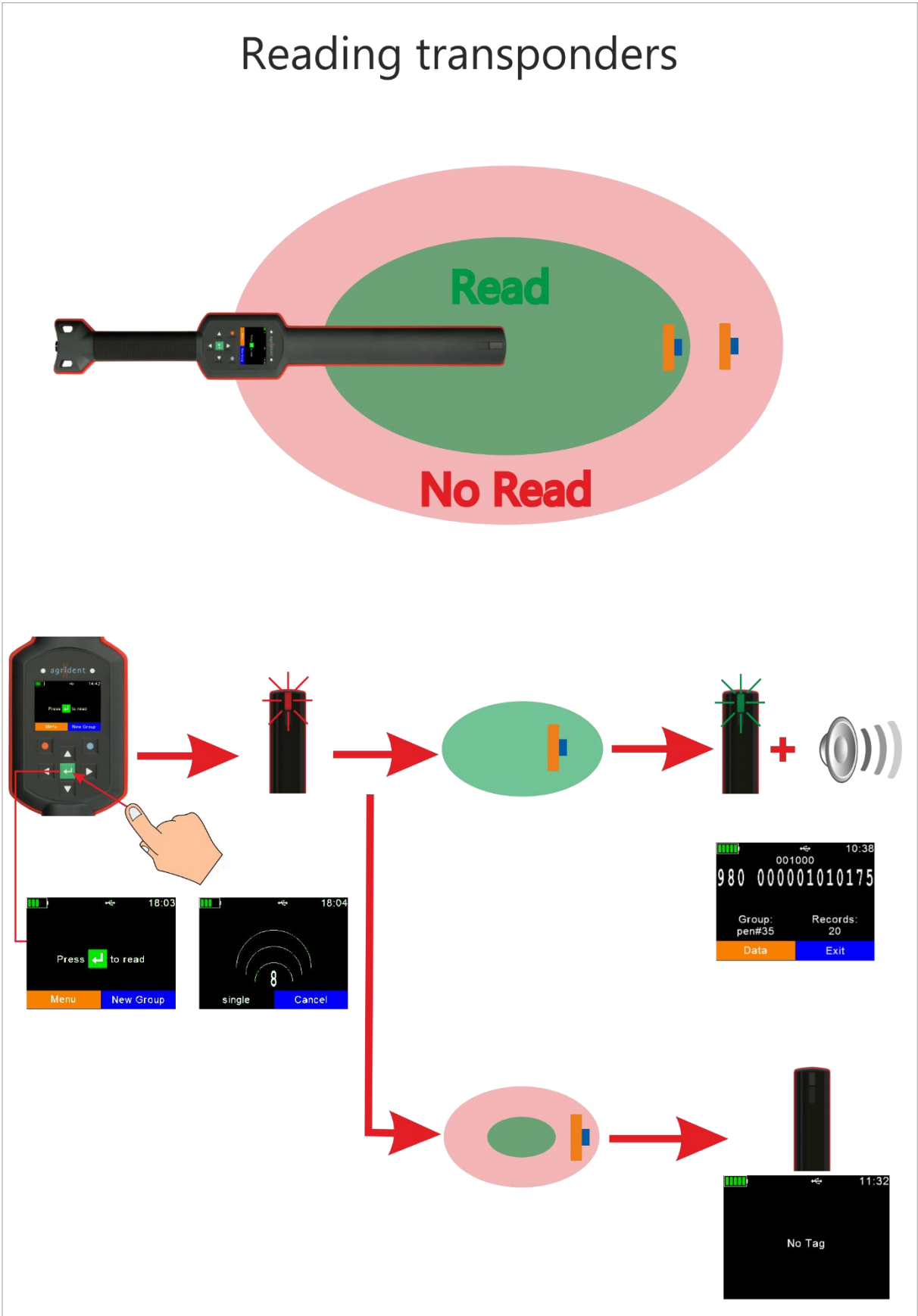


When the reader is switched on and it is connected via USB, it works in *CDC-Mode*. That means a virtual comport is created on the computer and it is possible to send commands to the device via a serial port connection.

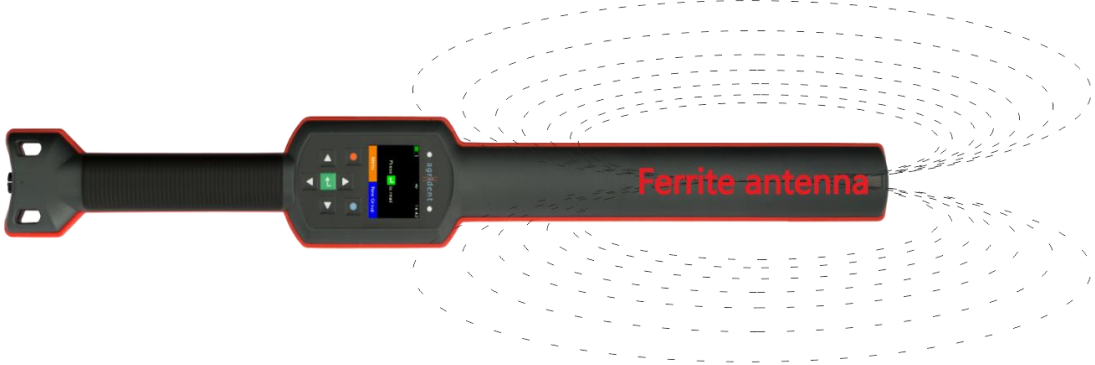
After the configurable switch-off-time (default = 60 seconds) has elapsed, the reader enters *Suspend-Mode*. The display is switched off but communication is still possible. In this state the blue LED on the right above the display is flashing in cycles of one second. After a timeout of 60 seconds, the device enters *Sleep Mode* and communication is not possible anymore. When the external power adapter is connected (charging, multicolor LED is flashing red), the AWR300 will stay in *Suspend-Mode* and will not enter *Sleep Mode* at all until the battery has been fully charged. After the battery has been charged completely, the reader enters sleep mode after a timeout of 60 seconds.

If the AWR300 is connected to USB while it is switched off, the *SD-Card Mode* is activated. Then the reader is attached to the computer as a mass storage device and file transfer is possible. Once the key is pressed, the device will switch on and use *CDC-Mode* right away. When pressing for at least two seconds while USB is connected, the AWR300 will enter *SD-Card Mode* as well.

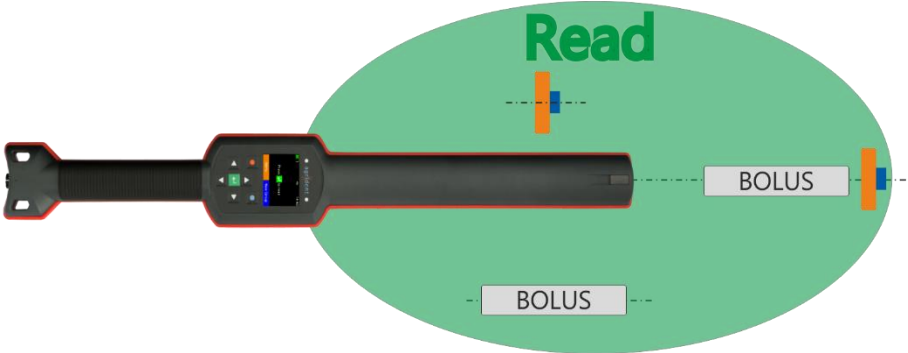
6 Reading Transponders



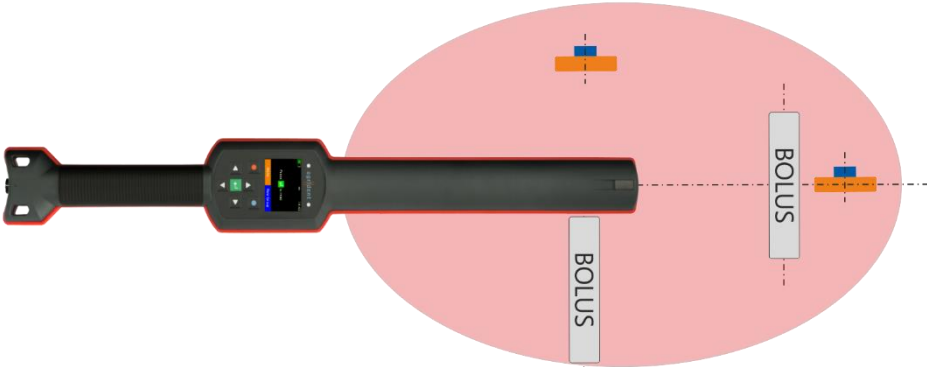
Flux lines



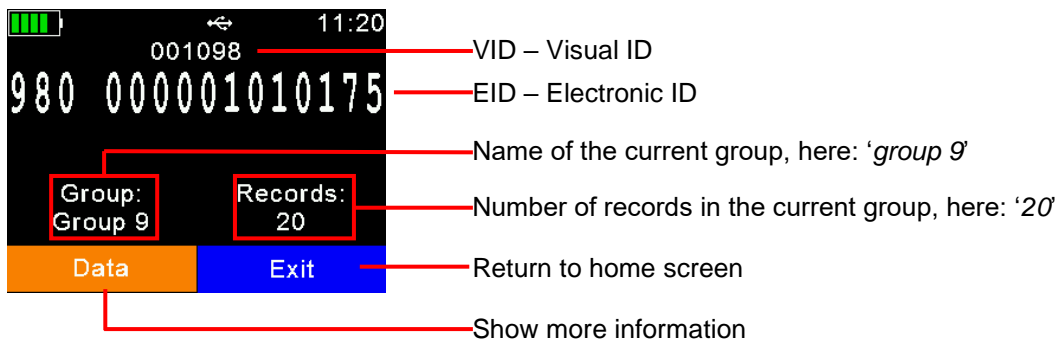
Best reading orientation



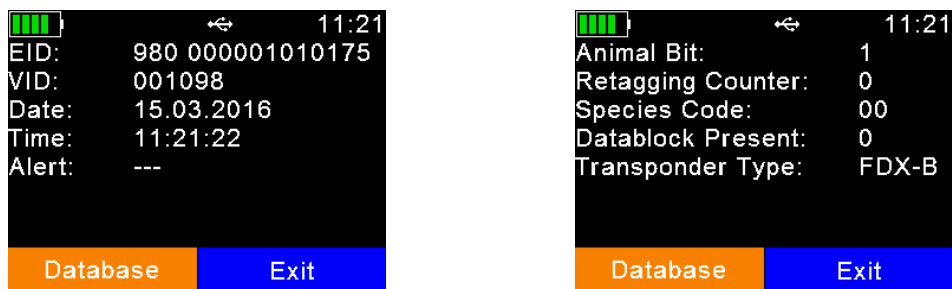
Worst reading orientation



After a tag has been read, the display will show the information as in the following screenshot:

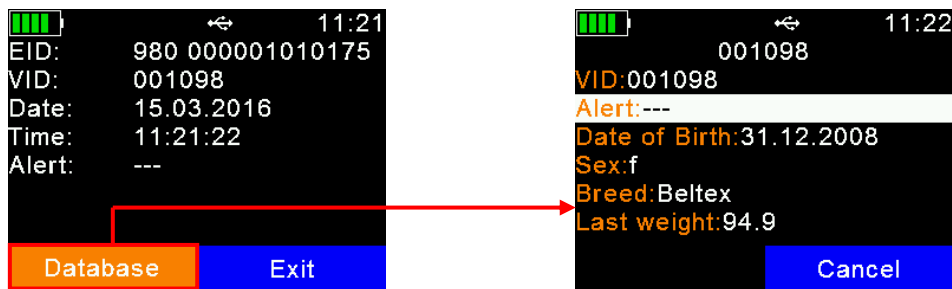


If 'Data' was pressed, the screen on the left side is shown. It provides information about the EID, VID (if available), Date and Time of reading and the Alert text (if there is one for this tag)



If ∇ or \blacktriangle is pressed, the screen on the right side is shown. It indicates the tag type (FDX or HDX) and displays the so called 'advanced ISO information'. You can move from one screen to the other by pressing any of these keys.

If a Database-Record is available for this transponder, you have the option to view the Database information by pressing the left soft key here as shown in the left screenshot.



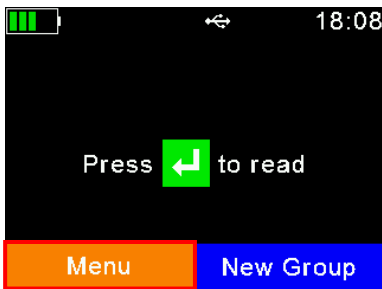
The right picture shows the Database entries. The fields depend on the definition of the Database. You may also edit fields by selecting them and pressing \square if there are allowed to be editable in the Database definition. All other fields are not selectable at all.



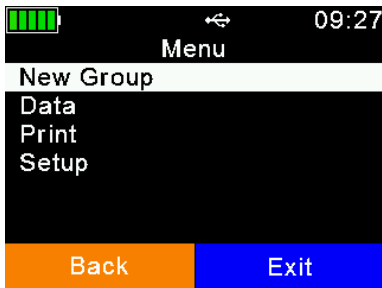
If an Alert is present for the transponder just read, the alert text is displayed continuously inverting and an alert sound is played. The alert can be disarmed (don't shown again after next reading of this tag) or it can be just skipped.

The Alert can be 'disarmed' and would then not be shown again if the tag is read the next time. When selecting 'Skip', the Alert remains activated.

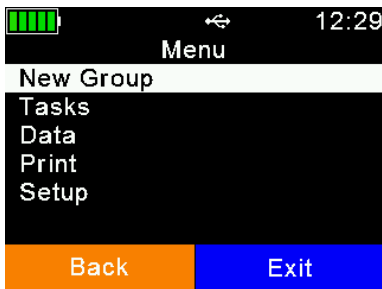
7 Menu items



In order to enter the AWR300 menu, please press while in the home screen. In the lower left corner of the display you can also see the information that a press of the left soft key will force the device to enter the menu.



This screenshot shows the highest menu level. It only contains the items 'New Group', 'Data', 'Print' and 'Setup'. If another language than the default one has been selected, the menu items will look different.



The entry 'Tasks' does only appear, if Tasks have been uploaded to the device – otherwise this item will be hidden. The *Task-Mode* is another operating mode of the AWR300 that allows the collection of comprehensive data. For further information about this operating mode please contact your local distributor.

For the navigation through the AWR300 menus, all seven keys might be used. The directional keys have the following functions here:

Key	Operation
	Enters the next submenu or performs particular actions in the lowest menu level
	Moves up one menu item
	Moves down one item
	Jumps to first entry in the current menu
	Jumps to last item in the actual list

With exception of the lowest menu levels, the left (orange) soft key will force the device to move one menu level upwards and the right one (blue) will let the reader return to the home screen. In the lowest submenu the right soft key will cancel the action.

7.1 Menu structure

The following table shows the menu structure of the AWR300 including submenus and options. Options or actions are shown in *italic* and the default values for options are marked with ‘ * ’.

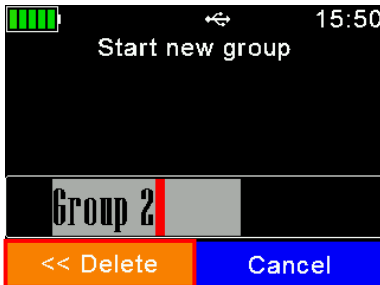
Main Menu	1 st sub menu	2 nd sub menu	3 rd sub menu	4 th sub menu	
New Group	<i>Start new group</i>				
Tasks	<i>Start New Control</i>				
	<i>Show Memory Info</i>				
	<i>Choose Another Task</i>				
Data	Show Data	<i>Select Group To Show</i>			
	Clear Data	Clear Groups	<i>Clear Last Group</i>		
			<i>Select Group</i>		
		<i>Clear All Groups</i>			
		Clear Task Data	<i>Select Task</i>	<i>Clear All Task Data</i>	
	<i>Memory Info</i>				
	<i>Search VID in DB</i>				
<i>Search EID in DB</i>					
Print	<i>Print Last Group</i>				
	<i>Select Group</i>				
	<i>Print All Groups</i>				
	<i>Print Barcode</i>				
	Setup Printer	Set Printer Type		<i>1 - Generic Line Printer</i>	
				<i>2- Able Systems AP 1300 *</i>	
				<i>3 - Extech APEX 2</i>	
				<i>4 - Extech APEX 3</i>	
				<i>5 - Extech APEX 4</i>	
				<i>6 - Zebra QL220</i>	
				<i>7 - Zebra QL320</i>	
				<i>8 - Zebra QL420</i>	
				<i>9 - Zebra QLn220</i>	
				<i>10 - Zebra QLn320</i>	
				<i>11 - Zebra QLn420</i>	
			<i>12 - Martel MCP 1880/7880</i>		
			<i>13 - MTP-3</i>		
			Set Printer Interface	<i>Bluetooth *</i>	
		<i>RS232</i>			
	Set Printer Baudrate	<i>115200</i>			
		<i>57600</i>			
		<i>38400</i>			
		<i>28800</i>			
		<i>19200</i>			
		<i>9600 *</i>			
		<i>4800</i>			
		<i>2400</i>			
		<i>1200</i>			
		<i>600</i>			
	<i>300</i>				
	<i>Search BT printer</i>				
Setup	Reader Settings	Animal Counter On/Off	<i>Animal Counter ON</i>		
			<i>Animal Counter OFF *</i>		
		Set Read Mode	<i>Single Read *</i>		
		<i>Continuous Read</i>			
		<i>Auto</i>			
		Set Online Mode	Online Mode On/off	<i>Online Mode ON *</i>	
				<i>Online Mode OFF</i>	
			Set Output Format	<i>ASCII</i>	
				<i>Byte Structure</i>	
				<i>Compact Coding</i>	
		<i>Custom Format</i>			
		<i>ISO24631</i>			
		<i>NLIS</i>			
		<i>Raw data</i>			
		<i>Short ASCII 15 *</i>			
		<i>Short ASCII 16</i>			
		<i>ASCII + SCP</i>			

Main Menu	1st sub menu	2nd submenu	3^d submenu	4th submenu	
Setup	Reader Settings	Set Online Mode	Read If Connected	<i>Read always *</i> <i>If buffer not full</i>	
		Wireless Sync On/Off	<i>Wireless Sync. ON</i>		
			<i>No Sync. *</i>		
		Volume & Vibrator	Set Volume	<i>0% (OFF)</i>	
				<i>20%</i>	
				<i>40%</i>	
				<i>60% *</i>	
				<i>80%</i>	
			<i>100%</i>		
			Vibrator On/Off	<i>Vibrator ON *</i> <i>Vibrator OFF</i>	
	Display	Set Date/Time	[set values manually]		
		Set Switch Off Time	<i>60 min</i>		
			<i>30 min</i>		
			<i>20 min</i>		
			<i>10 min</i>		
			<i>5 min</i>		
			<i>3 min</i>		
			<i>2 min</i>		
			<i>90 sec</i>		
			<i>60 sec *</i>		
			<i>30 sec</i>		
			<i>20 sec</i>		
			<i>10 sec</i>		
	<i>5 sec</i>				
	Set Display Colors	<i>Black *</i> <i>White</i>			
	Set language	[depends on uploaded languages]			
	Interface Setup	Set RS232 Baudrate	<i>115200</i>		
			<i>57600</i>		
			<i>38400</i>		
			<i>19200</i>		
			<i>9600 *</i>		
		Setup Scale	Set Scale Type	<i>1 - Tell *</i>	
				<i>2 - Iconix FX15</i>	
<i>3 - TruTest XR3000</i>					
<i>4 - BWT BW(S) & JD-II</i>					
<i>5 - Gallagher</i>					
<i>6 - Dini Argeo DFVLB</i>					
<i>7 - Te Pari Scale</i>					
Set Scale Interface			<i>Bluetooth *</i> <i>RS232</i>		
Set Scale Baudrate			<i>115200</i>		
			<i>57600</i>		
		<i>38400</i>			
		<i>28800</i>			
	<i>19200</i>				
	<i>9600 *</i>				
	<i>4800</i>				
	<i>2400</i>				
	<i>1200</i>				
	<i>600</i>				
	<i>300</i>				
Setup Printer	[same as printer setup on the previous page]				

Main Menu	1st sub menu	2nd submenu	3rd submenu	4th submenu	
Setup	Interface Setup	Bluetooth	Set Bluetooth Mode	Master Mode	
				Slave Mode	
				Bluetooth OFF *	
			Start BT Inquiry		
			BT Device History		
			Set BT Profile	SPP *	
				HID	
				BLE	
				HID Smart	
			Set BT Passkey	[default = '1234']	
		Show Bluetooth Info			
			WLAN	Set WLAN Mode	Station
					Access Point
					WLAN OFF *
			Set WLAN Protocol	UDP *	
				TCP Server	
				TCP Client	
			Show Access Points		
			Show WLAN Info		
		Configuration	Set Factory Configuration		
	Device Info	Show Battery Info			
		Show Firmware Info			
		Show Hardware Info			

7.2 New Group

In the memory of the AWR300, records are organized in groups. One group can contain up to 10.000 records maximum. A new record is created for every transponder which has been read. If you do not wish to create new records for duplicate reads, please enable the 'Animal Counter' – then duplicates will not be saved again within one group (see chapter 7.6.1.1)



After 'New Group' was selected, the user will be prompted to insert a group name. At this stage the suggested name can be accepted by pressing or it can be deleted by pressing the left soft key character by character. A long press removes all digits in one step. By pressing or the device will open a soft keyboard which is shown in the display.



The user can navigate to letters, numbers or symbols and paste the desired character into the group name by using the key. By pressing the left soft key the keyboard content can be switched (capitals & special characters).



After the new group name has been entered completely, press the right soft key (here: 'close') in order to exit the soft keyboard. Now the name can be checked again and it will be confirmed by pressing . All transponders read from now on will be saved in this group (max. 10.000).

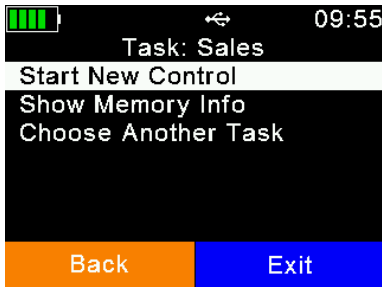
After 10.000 records within one group the device will force the user to create a new group – even if groups are not required for a particular application. But this only means one press of one key in the simplest case (confirm suggested group name by pressing).

If no group has been created manually before the first transponder was read, the device will insert a group with the default name 'Group 1' automatically. If the name of the first group should be different, the user must insert a group **before** scanning for transponders.

7.3 Tasks

This submenu is only visible if Task-Definitions have been uploaded. Such definitions are usually very much dependent on the application and thus Agrident cannot provide them. They are normally provided by distributors who also offer Management-Software that supports Agrident Handheld readers. If no Task-Definitions have been uploaded, this menu item will not be shown at all. Please contact your local distributor for further details about *Task-Mode*.

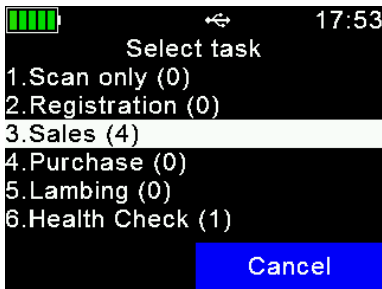
If Task-Definitions are present on the AWR300, this menu item will be visible automatically. When entering the submenu 'Tasks', the following entries are shown:



Start New Control: Create a new record for the currently selected Task

Show Memory Info: Shows the amount of records for the currently selected Task and the number of possible remaining records (maximum 10.000 per Task)

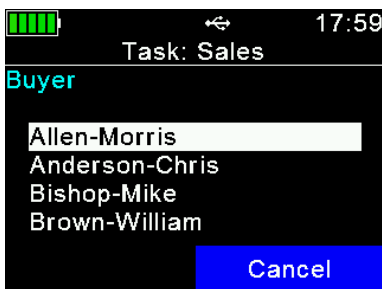
Choose another Task: Select a different Task definition



If 'Choose Another Task' was selected, the reader is listing all available Tasks plus the amount of records in brackets for each Task.

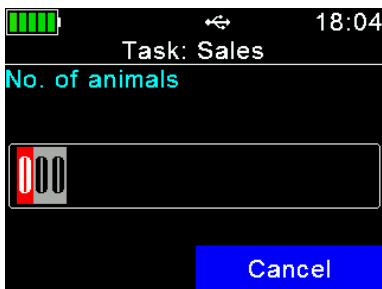
Navigate to the desired Task by using the \uparrow / \downarrow keys and select the Task to use by pressing \rightarrow .

A new Task is started via 'Start New Control'. Basically the user can switch from one data field to the next one by simply pressing \rightarrow after the correct data have been inserted. The method for inserting data depends on the field types which are used in the Task-Definition. This manual will just show some examples. For further details please contact you distributor, who provided the Task-Definitions.



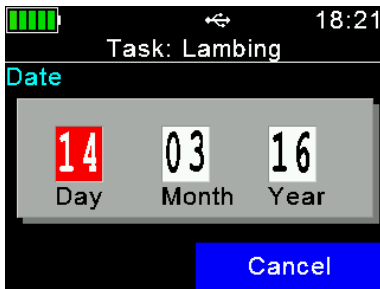
This is a List-Field.

- \downarrow ... One item down
- \uparrow ... One item up
- \rightarrow ... Next page
- \leftarrow ... Previous page
- \rightarrow ... Select item



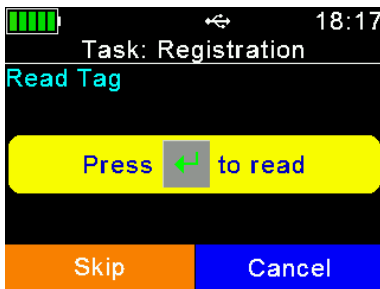
Here is a Numeric-Input-Field.

- \uparrow ... Increase number
- \downarrow ... Decrease number
- \rightarrow ... Next digit
- \leftarrow ... Previous Digit
- \rightarrow ... Confirm input

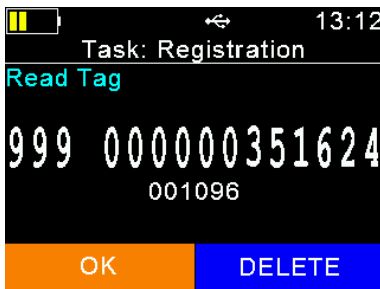


That is a Date-Field. The device suggests the current date but the user has the chance to edit it.

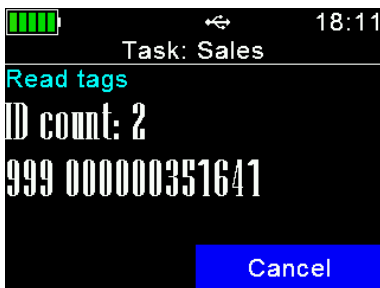
- ... Increase number
- ... Decrease number
- ... Next field
- ... Previous field
- ... Confirm input



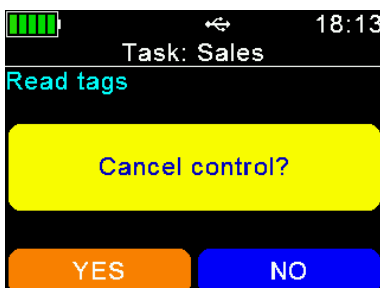
When this field is shown, the AWR300 will start scanning for a transponder after has been pressed.



After a tag has been read successfully, the display will show the EID and ask for a confirmation. By pressing 'OK' (left soft key) the EID will be stored and the Task is continued. If the EID was the wrong one it can be deleted by pressing the right soft key ('DELETE') and the reading process can be started again.



This example shows a 'Speed-Loop'. In this case there is nothing to enter but the RFID reader is activated and tags are read continuously until the right soft key ('Cancel') is pressed twice...

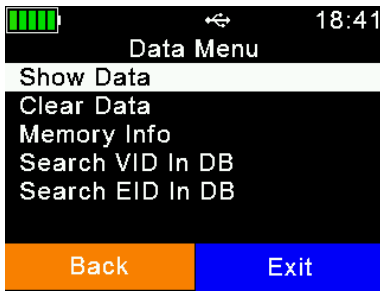


...then the device will ask for another confirmation. If the left soft key (here: 'YES') is pressed, the records made until now will be saved and the 'Control' is finished. By pressing the right soft key ('Cancel') the AWR300 will return to the reading loop and more transponders can be read.



The sequence of a Task depends on the Task-Definition. In case there are 'logical' problems with the sequence or the collected data, please contact your local distributor. Agrident is not responsible for such definitions.

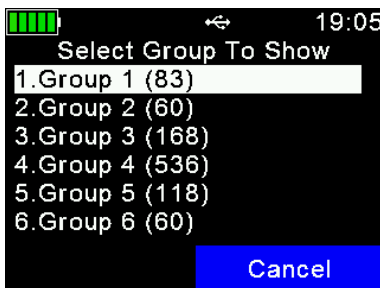
7.4 Data



The 'Data' menu contains items for showing and deleting data. It is also possible to search an uploaded Database for a particular entry based on either the input of the VID or an EID (read transponder), but only if a Database has been uploaded. If this is not the case, these menu items are not shown.

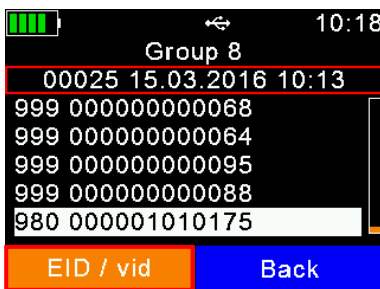
7.4.1 Show Data

When the item 'Show Data' was selected, the device will show a list of all groups which are present in the memory at the moment. Each entry shows the group name and the number of records within the group in brackets.



- ▼ ... One group down
- ▲ ... One group up
- ▶ ... Scroll down 6 groups
- ◀ ... Scroll up 6 groups
- ⏏ ... Select group

After a group has been selected, it will be opened and all records within this group are shown. The first display line shows the group name, here: 'Group 8'. The second line shows the record number (within the current group) plus date and time of reading for the selected record. A scroll bar on the right side shows the approximate position of the selected record in this group (here it is the last record).



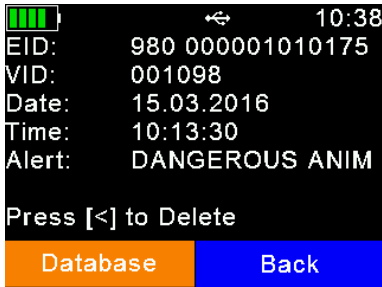
- ▼ ... One record down
- ▲ ... One record up
- ▶ ... Scroll down 50 records
- ◀ ... Scroll up 50 records
- ⏏ ... Select record
- ⊜ ... Switch between EID and VID view

If you press ◀ + ▶ simultaneously, the reader will directly switch to the last record within this group and when ▶ + ◀ are pressed again at the same time, you can switch back to the first record.



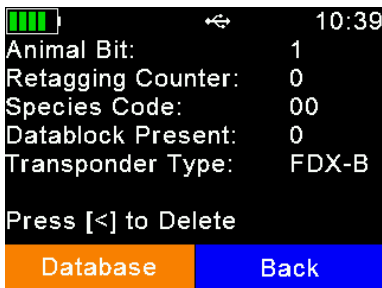
This screenshot shows the same list but instead of the EID, the VID is shown. Of course, VIDs must be available on the device, i.e. a Linklist or a Database has to be uploaded. If there is no VID available for particular records, the EIDs will be shown instead.

In order to show detailed information for a particular record, select an entry from the list and confirm with . The details of the record are shown on two pages.



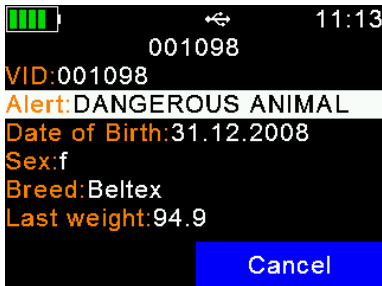
The first page shows the EID, the VID, date and time of reading and the alert string, if there is one assigned.

- / / ... Switch to next page
- ... Delete record (only last record in last group)
- ... Check Database (only if DB entry available)
- / ... Return to list of records



Page two shows the so called 'advanced ISO information' like Animal Bit, Retagging Counter or Species Code. The transponder type (FDX-B or HDX) is shown as well.

Please press in order to open the appropriate Database record. If there is no Database entry available for this record, the AWR300 will not show in the display.



You may also edit fields by selecting them and pressing , if they are allowed to be editable in the Database definition. Non-editable fields are not selectable at all.

- / ... Switch to next page
- / ... Select next / previous (editable) Database field
- ... open Database field (if defined to be editable)



Example for a 2nd Database page

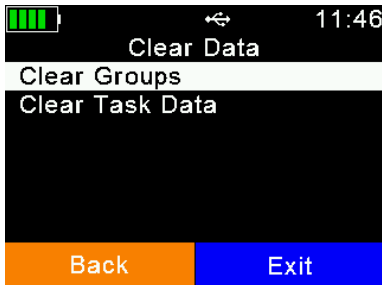
- / ... Switch to next page
- / ... Select next / previous (editable) Database field
- ... open Database field (if defined to be editable)



How to edit Database fields depends on the field type (list, numeric, alphanumeric, etc.). This works similar to the different fields in *Task-Mode*.

7.4.2 Clear data

It is possible to delete collected data on the AWR300. There are different options for erasing data, also depending on the way they have been collected in. As already explained earlier in this manual, the standard records are saved in groups. These are the records which have been saved upon transponder reading started from the home screen. If *Task-Mode* is used on the device, it is also possible to delete collected Task-Data from the 'Clear-Data' menu – if not, this menu is hidden.



After selecting 'Clear Data', two submenus are shown.

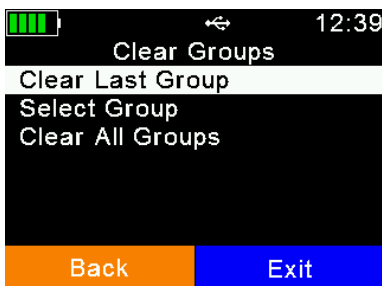
Clear Groups: refers to records made in groups

Clear Task Data: only applies for data collected in *Task-Mode*



Please note that deleted data are lost irreversibly. It is not possible to undo this action at all. In case of doubt, you should backup the data first.

7.4.2.1 Clear Groups

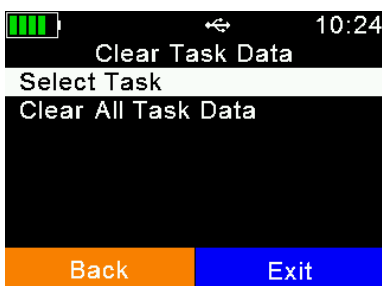


Clear Last Groups: Erases the last group completely

Select Group: opens the list of groups in order to select a particular group to delete

Clear All Groups: Erases ALL groups from the device memory (no Task-Data and no Database)

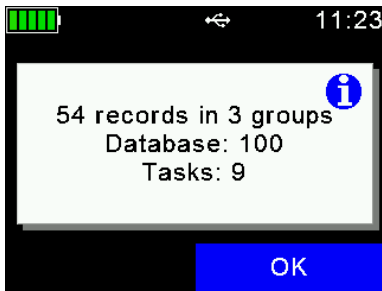
7.4.2.2 Clear Task Data



Select Task: only the data of one particular Task will be erased

Clear All Task Data: erases the Task data of ALL Tasks which are present on the device

7.4.3 Memory Info

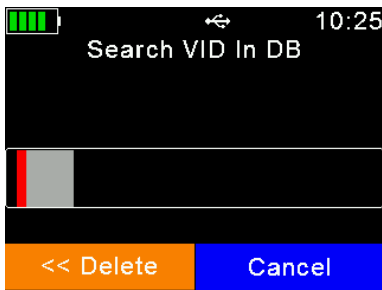


This menu item shows information concerning the amount of collected data (how many records in how many groups), the number of entries in the currently uploaded Linklist or Database and how many Task definitions have been uploaded.

It does not show how many records are present for each Task definition. Therefore please enter the Task menu, select a Task and use 'Show Memory Info' (7.3)

7.4.4 Search VID in DB

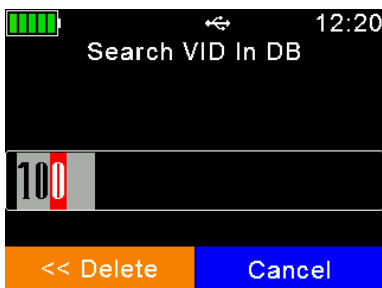
It is possible to search entries in the uploaded Database by entering the VID. This can make sense if the transponder is lost or defective. But usually scanning the transponder is the faster way and more convenient. Please note that this menu item is only shown, if a Database has been uploaded to the device.



Use the / keys in order to change the character and the / keys to move to the previous / next digit.

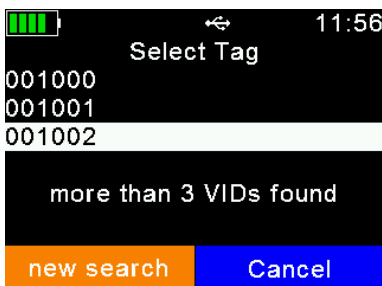
When browsing through the list of characters, you can hold the or key in order to increase the scrolling speed.

Press in order to leave the VID search.

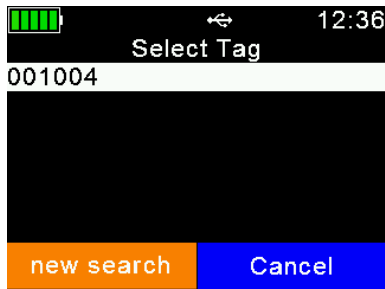


Press the key when enough digits have been entered.

The key deletes the last digit, if you hold it for one second, all digits will be erased.



In this example the device has found more than three matching Database entries. Please press in order to narrow the search by entering more digits.



Now there is only one matching item left. Press the key in order to access the Database for this entry.



The Database entry for the selected VID will be shown as usually.

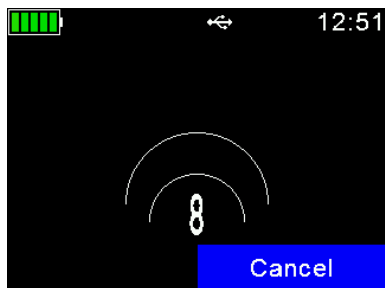
You may move to the previous / next (editable) field by using the / keys and switch between the different pages via or .

The key allows to modify data, if the field is configured to be editable.

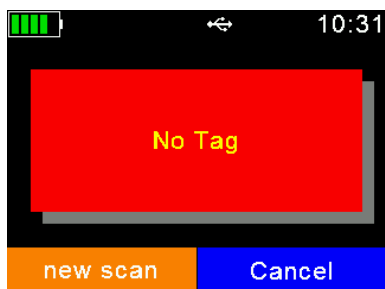
Non-editable fields are only shown but can neither be selected nor modified. In this case the Database 'creator' did not want to allow editing this information.

7.4.5 Search EID in DB

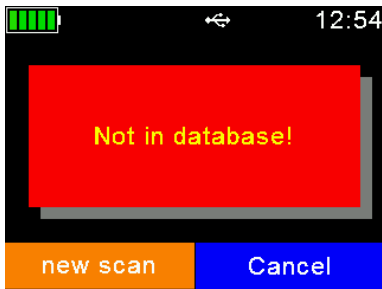
This menu item searches the Database for a matching entry on the basis of the electronic ID. As soon as the transponder was read, the AWR300 will start looking up this number in the Database. Please note that this menu item is only visible, if a Database has been uploaded.



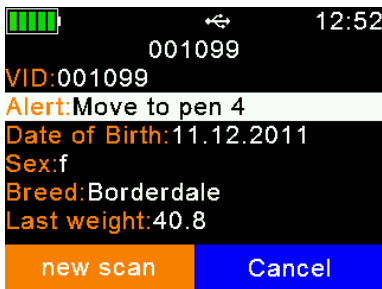
The AWR300 starts scanning for a transponder for a maximum of 10 seconds. The remaining scanning time in seconds is shown.



If the timeout has elapsed without a successful detection of a tag, the message 'No Tag' will be displayed. The key allows to start a new scan and will abort the EID search.



In case the transponder was read but there is no match in the Database, 'Not in database' is shown.



As soon as a tag has been read AND there is a match in the Database, the entry will be shown.

You may move to the previous / next (editable) field by using the / keys and switch between the different pages via or .

The key allows to modify data, if the field is configured to be editable.



Non-editable fields are only shown but can neither be selected nor modified. In this case the Database 'creator' did not want to allow editing this information.



The difference to scanning for tags from the home screen is that no record will be created here – this is really just a 'Database lookup'.

7.5 Print

The AWR300 allows to send the collected records to a mobile Bluetooth printer. There are different options available for the printing procedure, like only printing the last group, printing a particular group or printing all groups. It is also possible to change basic printer settings here.



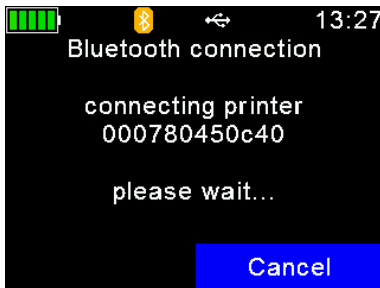
Please ensure that your printer is set up correctly before you try printing records.

The AWR300 stores the printers Bluetooth address as a secondary address only. When no print jobs should be done, the AWR300 would always try to connect to its primary Bluetooth partner, like a computer, smartphone, PDA or weighing indicator in Master Mode. When one of the printing actions is started, the reader drops the connection to the primary device and tries to connect to the configured Bluetooth printer.

After the 'Print' menu was left, the connection to the printer will be dropped and the AWR300 tries to re-connect to the configured primary Bluetooth partner again (if in Master Mode). The huge advantage is that the user does not need to select a different Bluetooth device just for printing.

7.5.1 Print Last Group

Once selected, the AWR300 tries to connect to the configured printer. If connected, this connection remains active until the 'Print' menu was left.



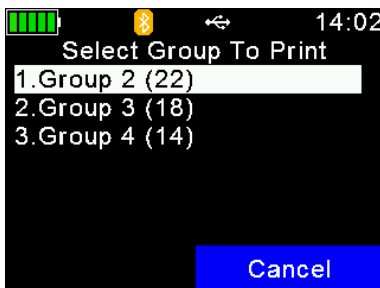
The reader is trying to connect to the Bluetooth printer. When the connection was established, printing will be started immediately.

If lots of data have to be printed, a progress bar is visible. When only a few datasets are sent to the printer, you might not see it at all.

The AWR300 returns to the printer menu afterwards.

7.5.2 Select Group

This menu item allows to print a particular group instead of the last one or all groups.



Select the group to be sent to the printer using the \blacktriangledown / \blacktriangle keys and confirm with \blackrarr .

If the Bluetooth connection has not been established yet, the AWR300 will try to connect to the mobile printer now as explained in the previous chapter.

If the connection to the printer is established, printing will start right away.

After printing was finished, the reader returns to the screen shown above.

7.5.3 Print All Groups

This option should be used if the complete memory content, resp. all groups, should be printed. The procedure is similar to 'Print Last Group', there are no further selections required.

7.5.4 Print Barcode

It is also possible to print a barcode of a particular EID. This can be useful if you want to label blood samples, for example. In order to be able to print the EID as a barcode, the AWR300 has to read the transponder first. When you select 'Print Barcode', the device will activate the RFID engine. After the tag has been read, the AWR300 is sending an appropriate command to the mobile printer.



The barcode type is '2of5 interleaved'. Other barcode types are not supported at the moment.

7.5.5 Setup Printer

Before you can use the printer, it has to be set up correctly. This includes printer type, the interface and the baud rate. If any of these settings is incorrect, the printer feature will not work properly. There are much more options and configurations available, but this would be too much for including it into the AWR300 menu. So all the additional options are only software configurable. For example, *AgriLink* can be used for configuring all possible printer options.

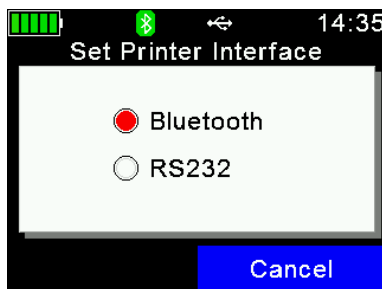
7.5.5.1 Set Printer Type

The AWR300 Firmware supports several different printer types, like the Able Systems 'AP1300', the Datamax-O'Neil 'Apex' series (former Extech Apex), the Zebra QL-series and QLn-series, the Martel 'MCP 1880/7880' and the 'MTP-3' (GOOJPRT). The type 'Generic Line Printer' might work for particular printers as well, but there are no special control codes send for this printer type – so it can only work for simple ASCII printers.

Select the correct printer type from the list by using the directional keys and confirm by pressing the key.

7.5.5.2 Set Printer Interface

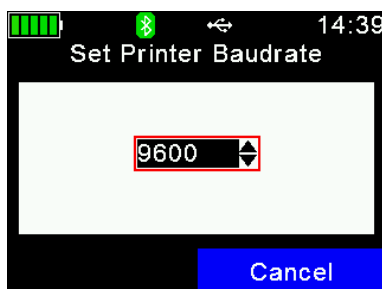
Although the AWR300 always incorporates the Bluetooth interface, it would also be possible to use an RS232 cable for connecting to the printer. However, this cable is not an off-the-shelf one since every printer has a different RS232 connector and the AWR300s connector is also a special one. If this option is required anyway, please contact your local distributor for details.



Select the interface using the / / / keys and confirm with .

7.5.5.3 Set Printer Baudrate

If the baud rate, the printer is using, differs from the configured printer baud rate on the AWR300, this might cause communication issues in case of using Bluetooth as the printer interface. In case of an RS232 connection, the communication will not work at all, if the baud rates do not match. So they always should be configured to the same values on both devices.

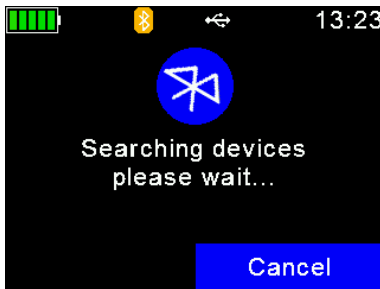


Select the correct baud rate using the / keys and confirm with .

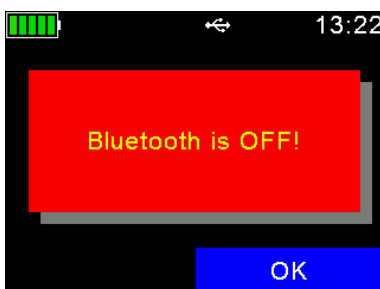
Baud rates from 300bps to 115200bps are possible in particular steps.

7.5.5.4 Search BT Printer

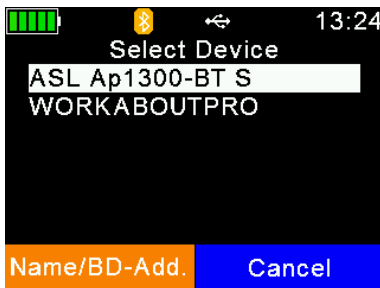
Before you can start printing via Bluetooth, the AWR300 has to be paired with a printer. Therefore, the reader has to scan for available Bluetooth devices first. Once this menu item has been selected, the AWR300 will start the scan.



Depending on how many devices are present, the scan can take a while, but at least 10 seconds.

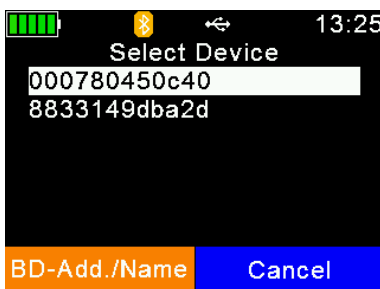


If Bluetooth is switched off, the AWR300 shows the corresponding error message. In this case please activate Bluetooth first (see chapter 7.6.3.4)



After the scan has been completed, the available devices are listed. Please note that not only printers are listed here, but also other Bluetooth devices. So ideally you should know the device name of your Bluetooth printer.

Sometimes it might be useful to see the BD-address of the found devices instead of the names. You may switch between both views by using the key.



Now you can see the list of discovered devices with their BD-addresses instead of the device names. Very often, the BD-address can be found somewhere on a label of a Bluetooth device. Since this address is unique, it can quickly help to identify the correct device.

Choose a device from the list and select it by pressing . The AWR300 will store this device as the Bluetooth printer and will try to connect to it for all coming print jobs until a different device has been selected.

7.6 Setup

The AWR300 is very flexible concerning its configuration. Several settings can be adjusted directly in the device menu. However, it does not make sense to allow the adjustment of all possible reader settings on the device itself – this would make the menu structure far too complicated. Settings which cannot be modified on the AWR300 itself, are software-adjustable.

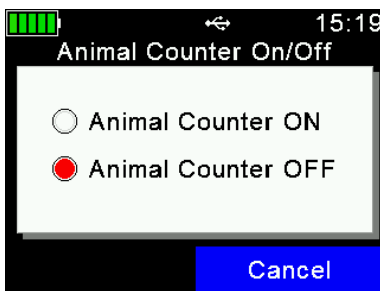
A possible software for altering all possible AWR300 settings is *AgriLink*. A setup of this program is located on the internal memory card.

The setup menu is divided into several other menus and submenus, which will be explained in this chapter. The overview of the complete menu structure is explained in chapter 7.1.

7.6.1 Reader Settings

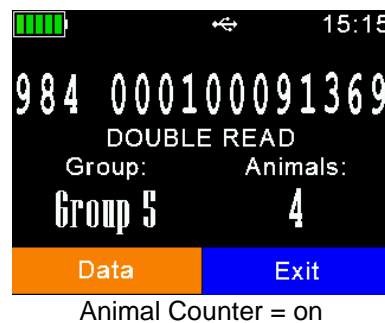
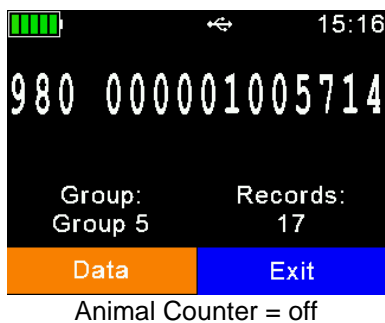
7.6.1.1 Animal Counter On/Off

The animal counter decides about the question, if double reads are saved or not. A double read occurs if a tag with one and the same EID is read within the same group again. When the animal counter is activated, it is not possible to store the same EID within the same group again. If not activated, it is possible to do that - the AWR300 does not check for double reads then.



Decide whether the Animal Counter should be activated or not using the \downarrow / \uparrow / \leftarrow / \rightarrow keys and confirm with \checkmark .

The display also looks different after reading a transponder depending on how this settings is configured:

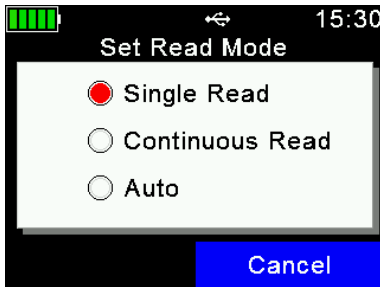


When the Animal Counter is not activated, the current group and the number of records in this group is shown but the records can also include duplicate EIDs. When the Animal Counter is activated, the displays shows '*Animals*' instead of '*Records*' – duplicates are not possible here.

7.6.1.2 Set Read Mode

Per factory defaults, the AWR300 is configured to 'Single Read'. This means that RFID is activated until a transponder has been detected or the 'Single Read Time' (default = 10 seconds) has elapsed. The key has to be pressed in order to scan for tags again.

The AWR300 also allows to use the 'Continuous Read' mode. The RFID engine will not be deactivated after a tag has been read. It will continue scanning until the 'Continuous Read Time' (default = 60 seconds) has elapsed. Every new tag read resets this timeout.

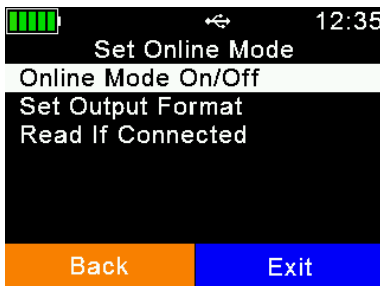


Select the Read Mode using the / / / keys and confirm with .

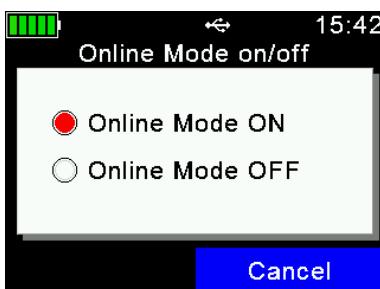
The setting 'Auto' will start a Single Read on a short press of and Continuous Reading on a long press (> one second).

7.6.1.3 Set Online Mode

The Online Mode deals with the format used for sending the EID to the interfaces directly after a tag has been read. The interface can be USB, RS232, Bluetooth or WLAN. Usually the EID is further processed on a third party device then, like a weighing indicator or a smartphone. It is important to know which format is expected by this other device and to configure the correct one.

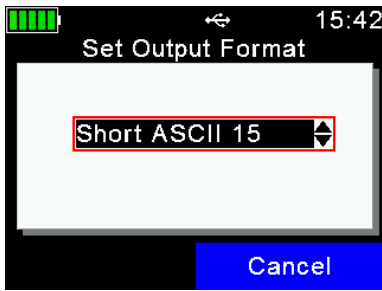


After selecting 'Set Online Mode' a new menu appears. The first menu item allows to activate or deactivate the Online Mode completely, the second decides about the format used for sending the EID.



The Online Mode is switched on per default. When switched off, the AWR300 will not send the EID to the several interfaces after reading a tag! So it is not recommended to disable it unless absolutely required.

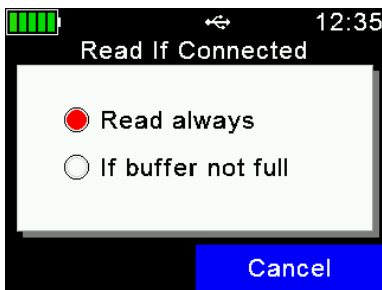
Select the desired setting using the / / / keys and confirm with .



Select the correct output format via \blacktriangledown or \blacktriangle and confirm with \blacktriangledown .

The default output format is 'Short ASCII 15'. This is sending the 3-digit country code directly followed by the 12-digit national ID (no space in between), terminated with <CR><LF>. This format is quite common and also accepted by most weighing indicators on the market.

There is a buffer of 20 IDs for sending the transponder number over Bluetooth or WLAN. This buffer is used for bridging short-term interruptions of the wireless connection. If the connection drops, the IDs will be written into this buffer and sent in one go as soon as the connection has been established again.



You can select not to allow further readings if the buffer is full. Per factory defaults this setting is not activated and reading is always possible. In case the buffer is full, the oldest records in the buffer will be overwritten.

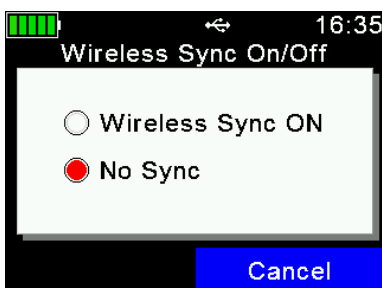
Select the desired setting using the \blacktriangledown / \blacktriangle / \blacktriangleleft / \blacktriangleright keys and confirm with \blacktriangledown .

7.6.1.4 Wireless Sync On/Off

RFID readers according to ISO11784/11785 have activation and listening periods. If two or more readers operate in close vicinity, they should be synchronized in order to prevent interference and hence a reduction of reading performance, especially for HDX transponders.

Since it is not possible to synchronize mobile readers wired in the field, Agrident readers offer a feature called 'Wireless Synchronization'. This function was mainly invented in order to allow mobile devices the operation close to stationary readers without interfering with them. But also several mobile readers can synchronize wirelessly.

If you have other ISO11784/11785 readers operating close to the AWR300, it is highly recommended to activate this function.



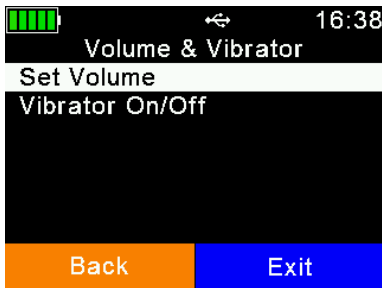
Select the desired setting using the \blacktriangledown / \blacktriangle / \blacktriangleleft / \blacktriangleright keys and confirm with \blacktriangledown .



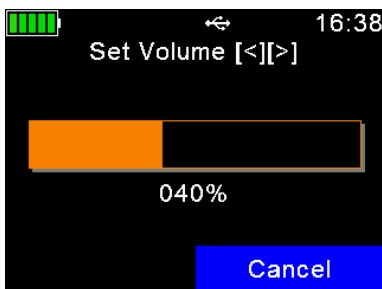
If stationary readers are used, the Wireless Synchronization works best if everything is Agrident equipment because Agrident Stationary Readers (ASR) also offer Wireless Synchronization and hence fixed timings which also allow best possible performance for wirelessly synchronized mobile readers.

7.6.1.5 Volume & Vibrator

The AWR300 provides a speaker and a vibrating handle for signalization in addition to the LEDs and the display. These can be configured in this menu.

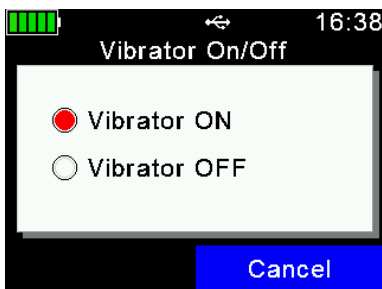


After selecting 'Volume & Vibrator', a new menu is shown. The first menu item allows to set the speaker volume, the second is used to activate the vibrating motor in the handle or to deactivate it.



Select the desired volume by using the / keys. Each time a key is pressed a sound is played in order to indicate the currently selected volume.

Confirm the selected volume with .



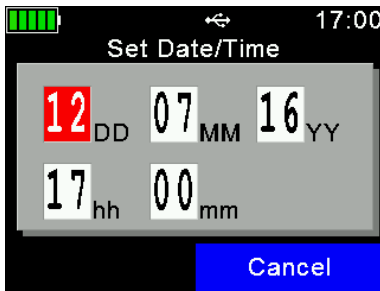
Select the desired setting via or and confirm with .

7.6.2 Display



The Display menu contains the items shown on the left side. Use the / / / keys to select a setting and enter the item via .

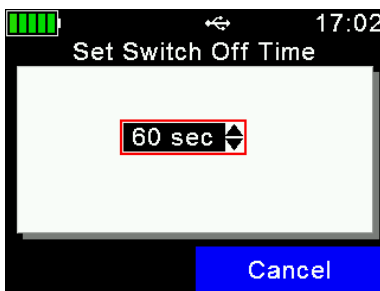
7.6.2.1 Set Date/Time



DD ... Date - Day
 MM ... Date - Month
 YY ... Date - Year
 hh ... Time - Hour
 mm ... Time - Minute

- / ... Modify value in the current field
- / ... Switch to previous / next field
- ... Apply the new settings

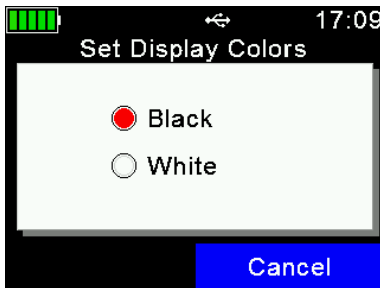
7.6.2.2 Set Switch Off Time



The 'Switch Off Time' determines after which period (of no action) the AWR300 enters *Suspend-Mode*. Any action, like a key press, will reset this timer. Please also see chapter 5 for further details. The maximum possible time is 60 minutes, but please keep in mind that this reduces the operating time.

- / ... Modify the *Switch Off Time*
- ... Apply the new setting

7.6.2.3 Set Display Colors



Depending on the light conditions it can make sense to invert the background color. It can also be a question of the users personal preference. That can be done within this menu item.

- / / / ... Change the setting
- ... Apply the setting



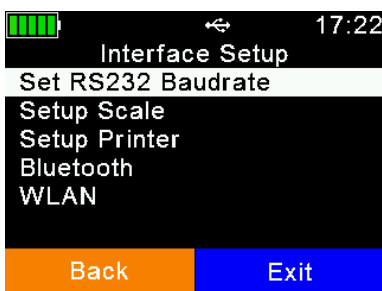
7.6.2.4 Set Language



The default display language is always English. It is possible to upload up to 9 custom languages. If the language you want to use is not available, please contact your local distributor for further details.

- ▼ / ▲ ... Select the desired language
- ⏎ ... Set the selected language

7.6.3 Interface Setup



The Interface Setup contains settings for configuring the AWR300s several interfaces like RS232, Bluetooth or WLAN. The scale and printer settings can be configured here as well.

7.6.3.1 Set RS232 Baudrate

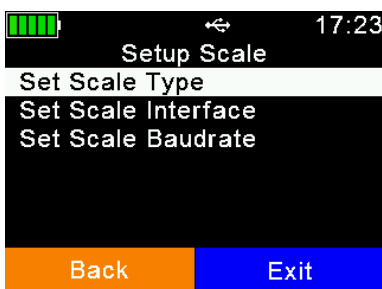


In order to allow devices the communication via RS232, the connection speed (→ baud rate) needs to be the same on both devices – otherwise the communication will not work. The default value of '9600' is common, but quite slow. Values of up to '115200' are possible.

- ▼ / ▲ ... Change the baud rate
- ⏎ ... Set the new value

7.6.3.2 Setup Scale

The AWR300 is able to receive the weight from indicators which can send it either via Bluetooth, or via RS232. There are different scale types supported, also from the major brands on the market. This function can only be used for *Task-Mode* and the *Data-Base-Function*, where the so called 'Weight-from-Scale' field is available.



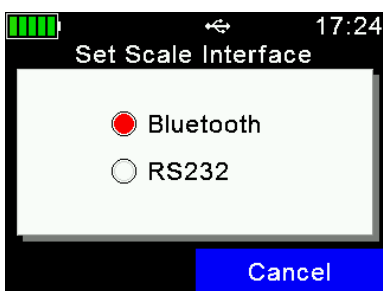
The scale type, the interface and the scale baud rate have to be configured correctly in order to allow this feature to work.



Choose the correct type depending on the model you have.

▼ / ▲ / ◀ / ▶ ... Select the scale type
 ↵ ... Apply the setting

The AWR300 always includes a Bluetooth module and if the scale has Bluetooth built in as well, it makes no sense to use RS232, a cable connection. Scales without integrated Bluetooth might be upgraded by using an external adapter. Please contact your local distributor for further details. However, RS232 is also supported by the AWR300 but in this case you require the optional RS232 cable 'APC310' (p/n 4061). An adapter might be necessary additionally, depending on your weighing indicator.



Select the interface using the ▼ / ▲ / ◀ / ▶ keys and confirm with ↵.

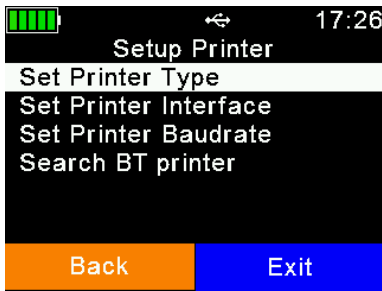
If the baud rate of the scale differs from the configured scale baud rate on the AWR300, this might cause communication issues in case of using Bluetooth as the scale interface. In case of an RS232 connection, the communication will not work at all, if the baud rates do not match. So they always should be configured to the same values on both devices.



Select the correct baud rate using the ▼ / ▲ keys and confirm with ↵.

Baud rates from 300bps to 115200bps are possible in particular steps.

7.6.3.3 Setup Printer

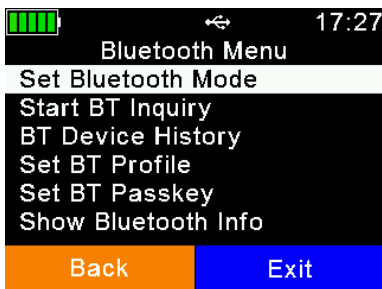


The printer setup is the same as described in chapter 7.5.5, here is just another menu entry for configuring the same settings.

7.6.3.4 Bluetooth

The AWR300 always incorporates a Class1 Bluetooth module. The range is up to 80 meters in 'line of sight'. Inside buildings or when any other obstacles are present, it will be less. Please note that the range also depends on the Bluetooth partner. If the other device is only Class2, the range is much lower. This especially applies to devices like smart phones.

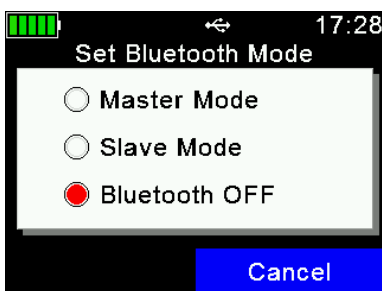
There are several menu items for Bluetooth, which will be explained in this chapter.



The Bluetooth menu contains the items shown on the left side.

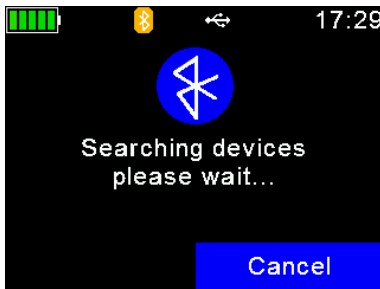
- ▼ / ▲ ... One item down / up
- ◀ / ▶ ... Switch to first / last item
- ⏎ ... Enter submenu resp. start action (*BT Inquiry*)

The Bluetooth Mode determines if the AWR300 should initiate the connection to another device (Master Mode) or if other devices should be able to connect to the AWR300. Per default, Bluetooth is not activated (OFF), so it must be switched on first. Then you have to decide whether the AWR300 should be the device initiating the connection (Master) or the other device (Slave).

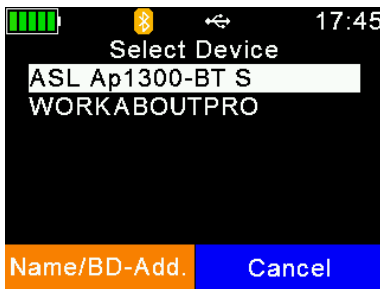


Select the desired Bluetooth Mode using the ▼ / ▲ / ▶ / ◀ keys and confirm with ⏎.

When the AWR300 is in Master Mode, it needs to 'know' the address of the intended Bluetooth partner, also called 'remote device'. An easy way to find out this address is to scan for Bluetooth devices in range. Make sure the other device has Bluetooth activated, that it is 'discoverable' and 'connectable' and that it is in range. For smart phones, for example, it is normally required to make them discoverable first, usually for a particular time. This can be done in the phones Bluetooth settings. If this has been done, select 'Start BT Inquiry' and press ⏎.

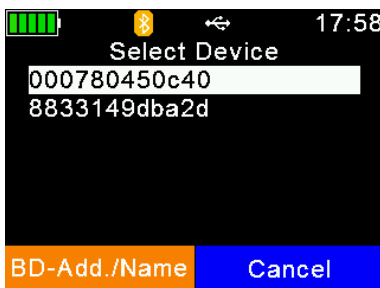


The AWR300 starts scanning for other Bluetooth devices in range. This can take quite a long time, also depending on how many devices are found, but at least 10 seconds.



The discovered devices are listed after the scan, sorted according to their names.

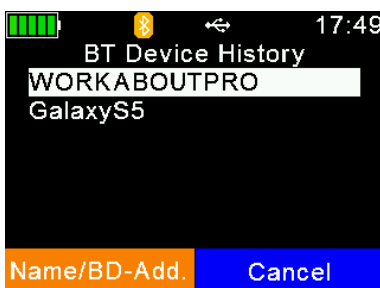
Sometimes it might be useful to see the BD-address of the found devices instead of the names. You may switch between both views by using the key.



Now you can see the list of discovered devices with their BD-addresses instead of the device names. Very often, the BD-address is somewhere on a label of a Bluetooth device. Since this address is unique, it can help to identify the correct device quickly.

Choose a device from the list and select it by pressing . The AWR300 will store this device as the Bluetooth partner and will try to connect to it automatically and permanently, if the reader is configured to Master Mode.

Usually there should not be too many Bluetooth devices in use with the AWR300. In order to prevent unnecessary scans when switching from one Bluetooth partner to another one, the reader stores a 'Bluetooth Device History'. This list includes the devices, which were selected as Bluetooth partner in the past. So scanning for already known devices is not required.



Choose a device from the history in order to change the Bluetooth partner. The AWR300 will then use this device as remote device until further changes.

- ... Select a device from the history
- ... Set the device as the new remote device

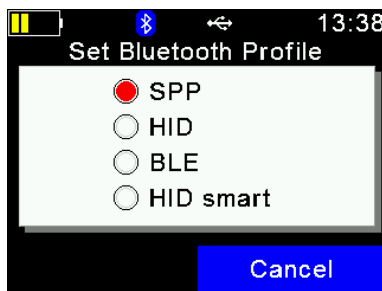
The AWR300 supports four different Bluetooth profiles: Serial Port Profile (SPP), Human Interface Device (HID) (+ HID smart) and Bluetooth Low Energy (BLE), where BLE is more or less another technology rather than a profile.

SPP emulates a serial cable to provide a simple replacement for RS232 connections. Commands can be sent into both directions – it uses virtual serial ports.

HID is used for ‘typing in’ the EID sent via Bluetooth into text fields of applications running on the host device. This removes the need to develop a serial interface for the reader. The AWL200 is connected to the host as a ‘virtual keyboard’. When the cursor is in a text field in the app running on the host, the EID is filled into this field after a transponder has been read. Please note that it is not possible to send commands to the AWL200 in HID mode – communication only works into one direction here.

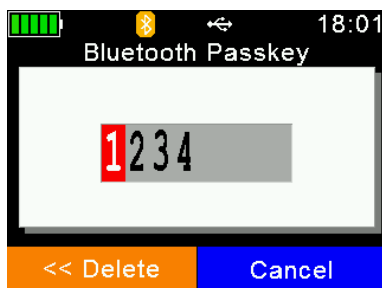
HID smart. Same as HID but the connection to the other device is only established after a transponder has been read. This is required for the use with Apple devices because as long as a Bluetooth device is connected as HID keyboard, the on-screen keyboard will not be available at all.

BLE is reserved for special applications at the moment.



Choose the desired Profile using the **▼** / **▲** / **◀** / **▶** keys and confirm with **↵**.

The AWR300 itself does not need a passkey. However, if other Bluetooth devices are using a higher security level and they require one, the passkeys on both devices have to match, otherwise the connection cannot be established.

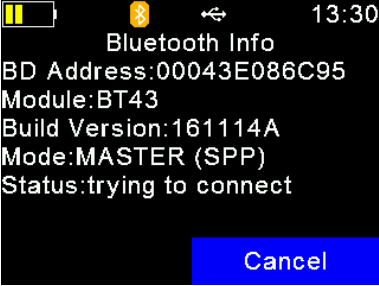


Use the **▼** / **▲** keys in order to change the character and the **◀** / **▶** keys to move to the previous / next digit. When browsing through the list of characters, you can hold down the **▼** or **▲** key in order to increase the scrolling speed.

The **⌫** key deletes the last digit. If you hold it for at least one second, all digits will be erased.

Press the **↵** key in order to set the passkey.

The menu item 'Bluetooth Info' shows some Bluetooth hardware and firmware related information, the configured Bluetooth Mode & Profile and the connection status. Details concerning the color of the Bluetooth symbol depending on the connection status are explained in chapter 4.1.2.3.



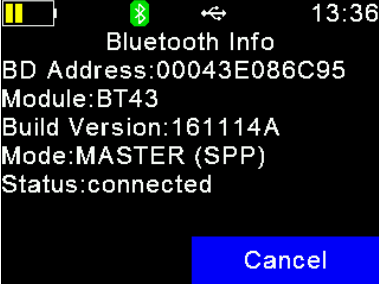
BD Address: Bluetooth Device Address of the AWR300s Bluetooth module, unique worldwide

Module: Bluetooth model, built into the reader; here: 'BT43'

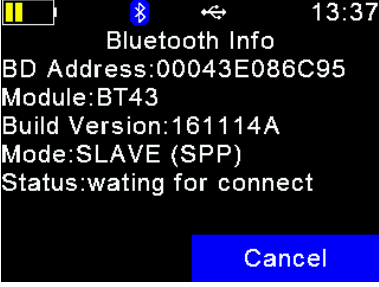
Build Version: AWR300s Bluetooth module Firmware version

Mode: Bluetooth Mode plus Bluetooth Profile in brackets

Status: Connection Status, here: tries to connect to remote device



In this case the AWR300 is connected to the remote device. When the connection would drop, the reader would try to reconnect to the configured Bluetooth partner until successful. This is done automatically.

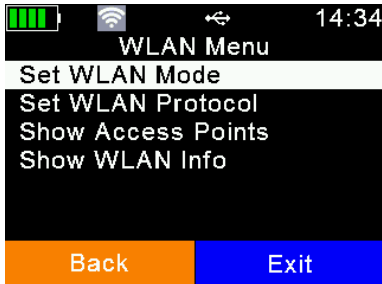


Here the AWR300 is configured to be the Bluetooth Slave. It is discoverable by other device and it is connectable. The reader will not try to connect to a remote device in this configuration but it will just wait for incoming connections.

7.6.3.5 WLAN



The WLAN function on the AWR300 requires basic knowledge about networks and WLAN. It is recommended to let an IT specialist configure the required settings.



The WLAN settings available on the device itself are only basic ones. Showing all possible settings would make the menu too complex, hence the advanced settings are only software configurable – e.g. via *AgriLink*.

But usually it is not required to modify these settings again and again – an initial configuration is normally enough if the IT infrastructure remains the same.

WLAN is not activated per factory default settings. Before it can be used, it has to be switched on. There are two possible operating modes available, ‘*Station*’ and ‘*Access Point*’.

Station:

This operating mode for WLAN is probably the most common scenario. There is an existing WLAN infrastructure containing an Access Point and the reader should join it.

The Access Point has an **SSID (Service Set Identifier)** which makes it discoverable and connectable – one could also call it ‘network name’. The SSID has to be configured correctly via software (like *AgriLink*), it has to match with the SSID used by the Access Point.

Usually WLAN connections use security mechanisms like ‘**authentication**’. The AWR300s WLAN module supports ‘*no authentication*’ or ‘*WPA2*’. Authentication methods different from WPA2 (like WEP or WPA) turned out to be insecure and hence are not supported.

If *WPA2* is selected as authentication method, the ‘*passphrase*’ configured for the Access Point has to match with the one set for the AWR300. Please note that the passphrase is also case-sensitive!

The easiest way for allowing the AWR300 to join the Access Point is to let the Access Point work as a DHCP server. This means that IP addresses are assigned automatically.

If all those settings are configured correctly, the AWR300 should be able to join the Access Point.

Access Point:

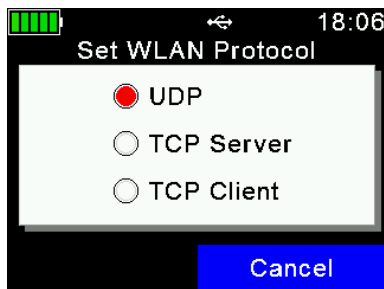
When the AWR300 is configured to ‘*Access Point*’ it will not try to join another Access Point but it will create an own. This is comparable with the ‘mobile hotspot’ function on smartphones even though the AWR300 has no internet access, of course.



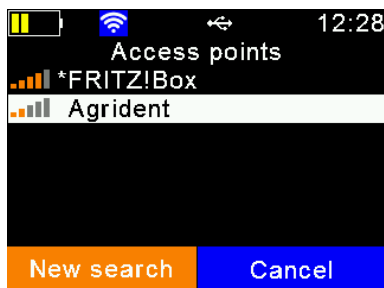
Select the desired WLAN Mode using the \blacktriangledown / \blacktriangle / \blacktriangleleft / \blacktriangleright keys and confirm with \blacktriangledown .

When the AWR300 joined an Access Point or another device has joined the AWR300 (in case the reader creates the Access Point), this does not mean that communication is possible already. In addition, a UDP or TCP connection must be opened, before data can be exchanged!

Depending on the application, a UDP or TCP connection must be established and an appropriate port must be opened. It is not part of this manual to explain those things – information about such items can be found in commonly available literature.

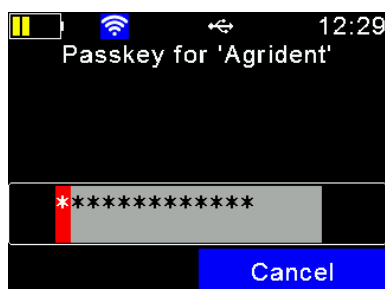


Choose the correct WLAN Protocol (depending on your application) using the \blacktriangledown / \blacktriangle / \blacktriangleleft / \blacktriangleright keys and confirm with \blacktriangledown .

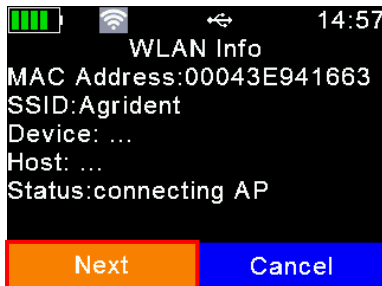



The menu item 'Show Access Points' is only visible if WLAN is enabled and set to Station Mode. It is listing the currently available Access Points plus a signal strength indication. You may also connect to an Access Point from here by pressing \blacktriangledown .

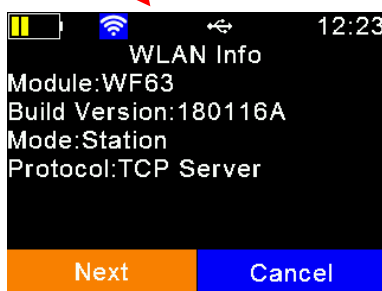
In case the Access Point uses WPA2 security, you are prompted to enter the passphrase. In order to change it, press any of the \blacktriangledown / \blacktriangle / \blacktriangleleft / \blacktriangleright keys. A virtual keyboard opens where the passphrase can be typed in.



The menu item 'Show WLAN Info' displays hardware and firmware information of the WLAN module, a summary of the currently configured basic settings and the connection status. Information about the color of the WLAN symbol depending on the connection status are explained in chapter 4.1.2.2.



The **MAC Address** is a unique 12-digit number which clearly identifies each network adapter worldwide. The **SSID** can be understood as the network name. **Device** and **Host** do not show anything yet because there is no connection. The **Status** 'connecting AP' means that the AWR300 is trying to connect to the configured Access Point but this was not successful yet. By pressing , the display switches to the next screen.

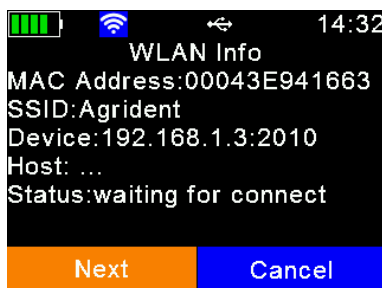


In the first line, the WLAN module type is shown. The older version is 'WF43' and the newer one 'WF63'.

The **Build Version** shows the firmware version of the WLAN module.

The configured WLAN **Mode** is 'Station' which means that the AWR300 will try to join the configured Access Point.

The WLAN **Protocol** is 'TCP Server', so the Host is the TCP Client and has to open the correct port for the correct IP address.



Now the AWR300 has joined the configured Access Point (WLAN symbol turned into blue) and the **Status** has changed to 'waiting for connect'.

Device shows the IP address (192.168.1.3) of the AWR300 plus the configured port (2010).

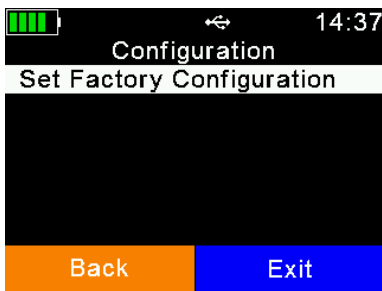
Now the host can open a connection by using this IP address and this port.



Here the host has opened the connection (WLAN symbol turned into green) and the devices can communicate.

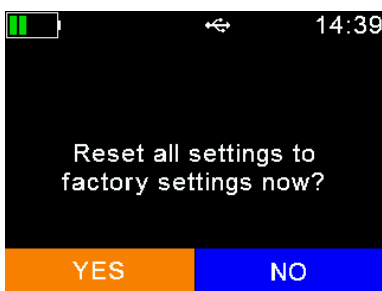
The **Host** has the IP address '192.168.1.2' and it has connected to the AWR300 using IP address '192.168.1.3' and port '2010'.

7.6.4 Configuration



After selecting 'Configuration', the menu shown on the left side will be displayed.

7.6.4.1 Set Factory Configuration



'Set Factory Configuration' puts all settings back to the factory default values. This might be useful if particular settings have been changed and the AWR300 is not operating as intended anymore. Please note that this action cannot be undone. Settings different from the factory defaults have to be made again.

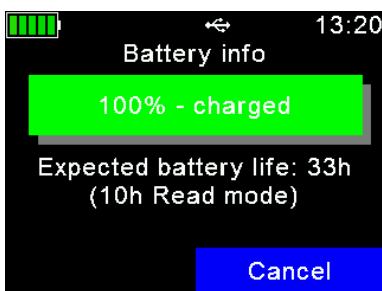
- ...confirm reset
- ... abort reset

7.6.5 Device Info



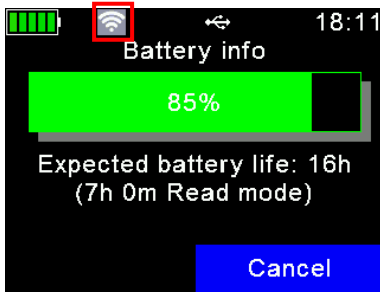
The menu 'Device Info' includes items showing information about the current battery status, the AWR300 firmware and some information on the hardware.

7.6.5.1 Show Battery Info



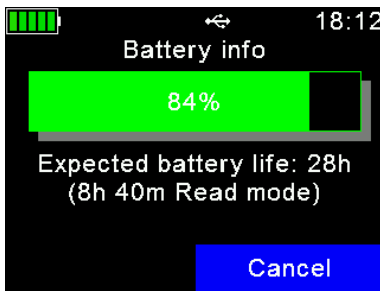
When fully charged, the battery info shows '100%'.

Below the charging indication, the display shows rough estimates concerning the remaining operating time in standby mode (AWR300 running but RFID engine is off), here 33hours, and in continuous read mode, here 10 hours.



In this example the battery capacity is still 85 percent, but the expected battery life is 'only' 16 hours. This has to do with the activated WLAN (see gray WLAN symbol → WLAN is activated).

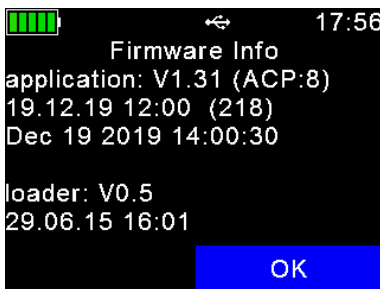
So, the shown expected battery life considers all electric consumers that are currently active.



The main difference to the previous case is that WLAN is switched off. As you can see, the expected battery life has increased to 28 hours again.

Details concerning the battery symbol in status bar are explained in chapter 4.1.2.1.

7.6.5.2 Show Firmware Info



The item 'Show Firmware Info' displays the readers firmware version plus some additional information like build date and bootloader version. You should have those information available in case of a support request.

7.6.5.3 Show Hardware Info



The 'Hardware Info' shows the readers serial number and revisions of printed circuit boards that are built into the device. You should have those information available as well in case of a support request.

8 Battery precautions

There are some important things to consider concerning the rechargeable battery pack. The allowed charge temperature is between 0°C to +45°C (32°F to 113°F). Discharging is allowed within the range of -20°C to +60°C (-4°F to 140°F) – this is the allowed operating temperature for the battery.

Storage instructions:

- It shall be kept in shipping condition (70% discharge) or over than 70% discharge condition to storage for long period.
- It shall be kept in dry condition of low humidity, especially be free from high temperature (45°C / 113°F or more). (Recommended Temperature 23°C / 73°F, Humidity 65±20% or less.)
- Do not storage the battery near heat sources, nor in a place subject to direct sunlight to storage in warehouse.

When using the battery:

- Misusing the battery may cause the battery to get hot, explode, or ignite and cause serious injury. Be sure to follow the safety rules listed below:
 - Do not place the battery in fire or heat the battery.
 - Do not install the battery backwards so that the polarity is reversed.
 - Do not connect the positive terminal and the negative terminal of the battery to each other with any metal object (such as wire).
 - Do not carry or store the batteries together with necklaces, hairpins, or other metal objects.
 - Do not penetrate the battery with nails, strike the battery with a hammer, step on the battery, or otherwise subject it to strong impacts or shocks.
 - Do not solder directly onto the battery.
 - Do not expose the battery to water or salt water, or allow the battery to get wet.
- Do not disassemble or modify the battery. The battery contains safety and protection devices which, if damaged, may cause the battery to generate heat, explode or ignite.
- Do not place the battery on or near fires, stoves, or other high-temperature locations. Do not place the battery in direct sunshine, or use or store the battery inside cars in hot weather. Doing so may cause the battery to generate heat, explode, or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.
- Do not insert the battery into equipment designed to be hermetically sealed. In some cases hydrogen or oxygen may be discharged from the cell which may result in rupture, fire or explosion.
- Immediately discontinue use of the battery if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes color, changes shape, or appears abnormal in any other way. Contact your distributor if any of these problems are observed.
- Do not place the batteries in microwave ovens, high-pressure containers, or on induction cookware.
- In the event that the battery leaks and the fluid gets into one's eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated the battery fluid could cause damage to the eye.
- When the battery is worn out, insulate the terminals with adhesive tape or similar materials before disposal.

While charging:

- Be sure to follow the rules listed below while charging the battery. Failure to do so may cause the battery to become hot, explode, or ignite and cause serious injury.
 - When charging the battery, only use chargers supplied by Agrident.
 - Do not attach the batteries to a power supply plug or directly to a car's cigarette lighter.
 - Do not place the batteries in or near fire, or into direct sunlight. When the battery becomes hot, the built in safety equipment is activated, preventing the battery from charging further, and heating the battery can destroy the safety equipment and can cause additional heating, breaking, or ignition of the battery.
- Do not continue charging the battery if it does not recharge within the specified charging time. Doing so may cause the battery to become hot, explode, or ignite.
- The temperature range over which the battery can be charged is 0°C to 45°C. Charging the battery at temperatures outside of this range may cause the battery to become hot or to break. Charging the battery outside of this temperature range may also harm the performance of the battery or reduce the battery's expectancy.

When discharging the battery:

- Do not discharge the battery using any device except for the specified device. When the battery is used in devices aside from the specified device it may damage the performance of the battery or reduce its life expectancy, and if the device causes an abnormal current to flow, it may cause the battery to become hot, explode, or ignite and cause serious injury.
- The temperature range over which the battery can be discharged is -20°C to 60°C. Use of the battery outside of this temperature range may damage the performance of the battery or may reduce its life expectancy.

Disposal considerations:

- Observe local, state and federal laws and regulations concerning battery disposal.
- Do not disassemble the battery!

9 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 AWR300 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 AWR300 Reader only with a damp cloth. Use only water and any commercially available cleaning agent.

Any modification to the AWR300 Reader Electronic will render the warranty null and void.

10 Warranty

The manufacturer of the AWR300 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 an 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.

11 International approvals

11.1 CE marking

Hereby, Agrident GmbH declares that the AWR300, if used according to the instructions, is in compliance with the essential requirements and other relevant provisions of the Radio Equipment Directive (RED) 2014/53/EU. For use in all countries of the EU.

You can download the '*AWR300 Declaration of Conformity*' here: <https://agrident.com/eu-docs>

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.



11.2 FCC and IC digital device limitations

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement (Part 15.105 (b))

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 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.

FCC Part 15 Clause 15.21

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

12 Trouble shooting

For any problem please contact us:

Agrident GmbH
Steinklippenstr. 10
30890 Barsinghausen
Germany

Telephone +49 5105 582573-10
FAX +49 5105 582573-17

Mail: support@agrident.com