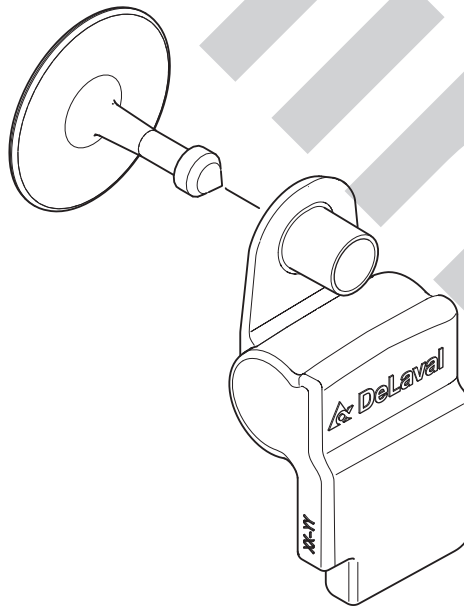


DeLaval BioSensors ear tag BAT1

Instruction Book



Preliminary

DeLaval BioSensors ear tag BAT1

Table of contents

EU Declaration of Conformity - DeLaval BioSensors ear tag BAT1	5
Safety precautions	7
■ DeLaval BioSensors ear tag BAT1	
1 Foreword	7
2 Disclaimer	7
3 Precautionary statements	7
4 Safety regulations	8
4.1 Safety regulations - General	8
4.2 Safety regulations - Operating the equipment	9
5 Safe and healthy work routines	9
6 Compliance with national regulations for the ear tag BAT1	10
7 Regulatory compliance	13
8 Warranty	13
9 Disposal	13
General description	15
■ DeLaval BioSensors ear tag BAT1	
1 Introduction of the BioSensors ear tag BAT1	15
2 Overview of the BioSensors ear tag BAT1	16
3 Technical data for the BioSensors ear tag	17
Planning	20
■ DeLaval BioSensors ear tag BAT1	
1 Requirements for the BioSensors ear tag BAT1	20
Installation	21
■ DeLaval BioSensors ear tag BAT1	
1 Connecting the BioSensors ear tag to the cow ID in DelPro Companion	21
2 Attaching the BioSensors ear tag to the animal's ear	27
3 Removing the BioSensors ear tag from the animal's ear	30

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EU Declaration of Conformity

Name of product: **DeLaval BioSensors ear tag BAT1**
Type/model: **BAT1**
Report No. **D0000117103**

The product complies with requirements of the following directives:

Radio equipment directive RED 2014/53/EU
Restriction of the use of certain hazardous substances (RoHS) - 2011/65/EU

Harmonized standards which have been used or parts thereof:

ETSI EN 301 489-1 V2.2.3
ETSI EN 301 489-3 V2.1.1
ETSI EN 301 489-33 V2.2.1
EN IEC 63000:2018

Other technical standards and specifications used:

EN 62368-1:2014

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Tumba 2021-09-08

Signed:

Name: **Magnus Berg**
Position: **Executive Vice President**
Department: **Product Management & Development**

Person authorised to compile the technical file:

Product Manager
P.O. Box 39
SE 147 21 TUMBA
Sweden



Name and address of manufacturer:

DeLaval International AB
P.O. Box 39
SE 147 21 TUMBA
Sweden

Safety precautions

DeLaval BioSensors ear tag BAT1

1 Foreword

The safety and operating instructions must be observed by any person involved with the use or operation of this equipment.

Under no circumstances must the equipment be used if it is damaged or if the operation of the equipment is not completely understood.

2 Disclaimer

The information, instructions and parts listed are applicable and up-to-date when issued. DeLaval reserves the right to make changes without notice.

3 Precautionary statements

Precautionary statements are safety-related warning messages intended to prevent the incorrect or hazardous use of equipment, machinery or software.

The following list defines the different types of precautionary statements used in DeLaval documentation:

Danger: Refers to an imminent and severe risk. Failure to comply with the instruction will result in serious injury or death.

Warning: Refers to a potential but severe risk. Failure to comply with the instruction may result in injury or death.

Caution: Refers to a limited risk. Failure to comply with the instruction may result in minor injury.

Mandatory: Refers to an action or behaviour that is essential to a safe and proper use of the equipment.

Prohibited: Refers to an action or behaviour that is incompatible with a safe and proper use of the equipment.

DeLaval BioSensors ear tag BAT1

Safety precautions

Note! Indicates important information related to a situation or behaviour where a non-immediate or potential hazard presents a risk of damage to property or equipment.

 This symbol indicates risk of injury.

 This symbol indicates risk of electric shock.

Refer to ISO 7010 for other symbol definitions.

4 Safety regulations

4.1 Safety regulations - General



Warning!

Intended use

Do not use the equipment for any other purposes than the intended use.



Warning!

Risk of injury

The system must only be operated by an instructed or skilled person. Ordinary persons must keep out of the working area.



Mandatory!

Read the instructions carefully before using the equipment. Contact a DeLaval representative if the instructions are not understood. Compliance with these instructions ensures the correct and safe use of the equipment. Keep the instructions for future reference.

DeLaval BioSensors ear tag BAT1

Safety precautions



Prohibited!

Do not use inadequate parts or consumables

Using products that do not meet the specified requirements, such as spare parts or consumables, may result in damage or injury and may void or limit the warranty.

4.2 Safety regulations - Operating the equipment



Caution!

Risk of infection

Bacterias and viruses may give the animal infections.

Before inserting the ear tag: Always disinfect the animal ear, the "DeLaval BioSensors ear tag BAT1", its backplate and any tool used.

Contact the veterinary if the animal shows signs of infection.

5 Safe and healthy work routines

- Ensure that the area is well lit.
- Keep the floor dry to avoid slipping.
- Wear protective clothing and appropriate shoes or boots.

DeLaval BioSensors ear tag BAT1

Safety precautions

6 Compliance with national regulations for the ear tag BAT1



Fig. 1: The packaging of the "Ear tag BAT1" and its regulatory compliance marking.

- | | |
|--|------------------------|
| A: CE - "conformité européenne". The CE-mark on the type plate indicates that the parlour fulfils the European regulations for products. The declaration by the manufacturer states the directives that are fulfilled. | E: FCC ID: UCSBAT1. |
| B: The Waste Electrical and Electronic Equipment Directive (WEEE Directive). | F: IC: 6576A-BAT1. |
| C: UK Conformity Assessed (UKCA) mark. | G: The DeLaval adress. |
| D: Requirement to read the instruction book before use of the ear tag. | H: China RoHS. |

FCC Compliance Statement

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.

DeLaval BioSensors ear tag BAT1

Safety precautions



Caution!

Changes and modifications not expressly approved by DeLaval can void your authority to operate this equipment under Federal Communications Commission rules.

Note! *This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. 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 radiocommunications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

Radiation Exposure Statement: The device complies with the requirements set forth in CFR 47 Sections 2.1093 for an uncontrolled environment.

ISED Compliance Statement

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.



Caution!

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

Radiation Exposure Statement: This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled

DeLaval BioSensors ear tag BAT1

Safety precautions

environment. This equipment should be installed and operated with minimum distance 5 mm between the radiator and your body.

CE Compliance Statement

The manufacturer, Delaval (Gustaf de Lavals väg 15, 147 41 Tumba, Sweden), declares that the product **DeLaval BioSensors ear tag BAT1** is conform to the following Directives and standards:

- 2014/53/EU (Radio Equipment Directive) Article 3.1a: Safety and Health.
- IEC 62368-1: 2020
- EN 50566: 2017
- EN 62479: 2010
- IEC/IEEE 62209-1528:2020 Article 3.1b: EMC
- CISPR 32:2015+AMD1:2019
- EN 301 489-1 V2.2.3: 2019-11
- EN 301 489-33 V2.2.1: 2019-04
- EN 61000-4-3: 2020
- EN 61000-4-4: 2012
- EN 61000-4-6: 2014
- Article 3.2: RF spectrum efficiency EN 302 065-2 V2.1.1: 2016-11 2011/65/EU (RoHS)
- IEC 63000:2016

This declaration of conformity is issued under the exclusive responsibility of the manufacturer.

China SRRC Compliance Statement

Manufacturer: DeLaval

Product number: BAT1

CMIIT ID: XXXXYZZZZ

The use of ultra-wideband (UWB) equipment on aircraft is prohibited.

The use of ultra-wideband (UWB) radio transmitting equipment is prohibited within 1 km around the radio astronomy station site listed in the footnote "CHN12" of the "Regulations on Radio Frequency Allocation of the People's Republic of China".

When the ultra-wideband (UWB) radio transmitting equipment is used, it shall not cause radio interference to the stations of other radio services, and shall not propose interference protection requirements to the stations of other radio services.

7 Regulatory compliance

For more information on regulatory compliance, see

<https://corporate.delaval.com/product-and-material-compliance/>.

8 Warranty

Note! DeLaval will not take any responsibility for damage resulting from faulty installation, operation, or for improper or inadequate care and maintenance.

Note! DeLaval will not take any responsibility for any damage resulting from frost. The owner/user must take the necessary measurements to prevent the ambient temperature around the equipment from dropping to or below freezing point.

Note! Modification may create risks not covered by the original construction. Do not make any modifications which has not been approved by DeLaval.

9 Disposal

When the product reaches end of life, dispose it properly in accordance with local laws and regulations.

Disposal of the packaging material

(EU directive 94/62/EC) This symbol indicates that the product's packaging material can be recycled.

Disposal of electrical and electronic equipment with or without battery

WEEE European Directive 2012/19/EU

European Battery Directiv 2006/66/EC

The symbol with a crossed-out wheellie bin on the product or its packaging indicates that the equipment is electric waste, with or without a battery. The product shall not be disposed with household waste.

DeLaval BioSensors ear tag BAT1

Safety precautions

A horizontal bar beneath the bin means that the product is manufactured after August 13, 2005. To prevent inappropriate waste handling of this product, and its negative consequences on the environment and human health, all products shall be disposed of accordance with local laws and regulations.

Hand it over to an official recycling facility, or use a battery disposal facility when available.

Please contact the local municipal office for information on the nearest recycling station.

DeLaval BioSensors ear tag BAT1

General description

General description

DeLaval BioSensors ear tag BAT1

1 Introduction of the BioSensors ear tag BAT1

The ear tag is part of the DeLaval BioSensors behaviour analysis system.

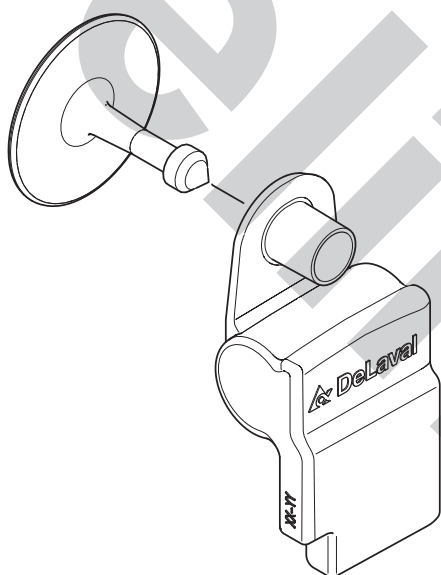


Fig. 2: The ear tag and its backplate.

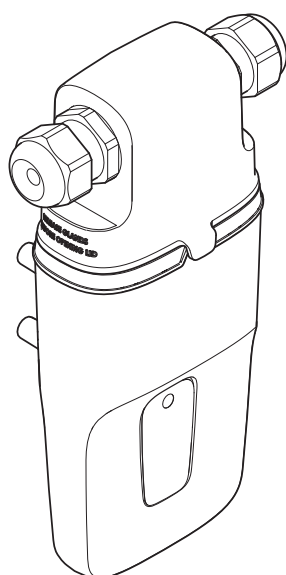


Fig. 3: "Pozyx Anchor PoE+".

The ear tag is attached to an animal's ear and communicates with "Pozyx Anchor PoE+".

DeLaval BioSensors ear tag BAT1

General description

2 Overview of the BioSensors ear tag BAT1

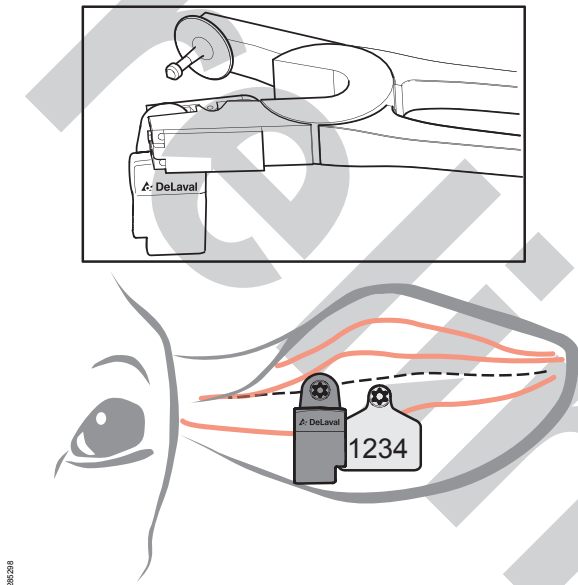


Fig. 4: The BAT1 (the tag with the DeLaval logo) on the animal's ear. The top framed illustration shows the plier used to attach the BAT1 and its backplate to the ear.

DeLaval BioSensors ear tag BAT1

General description

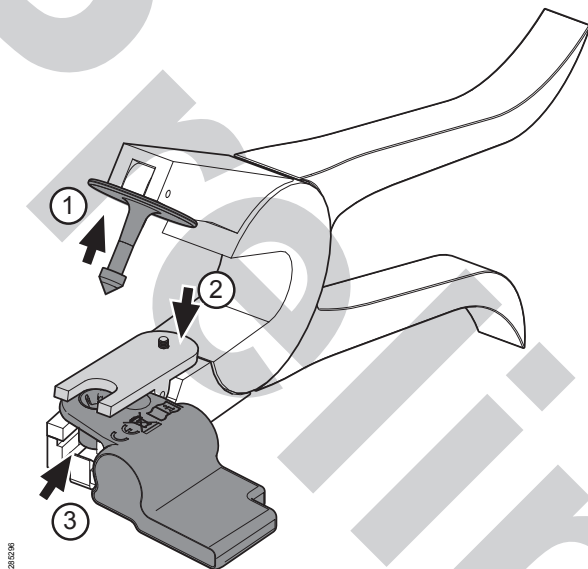


Fig. 5: The plier with the BAT1 and its backplate. The backplate is fastened on the plier's nib (1). The plier's springing piece shall be tilted (2) and the BAT1 inserted under the springing piece (3).

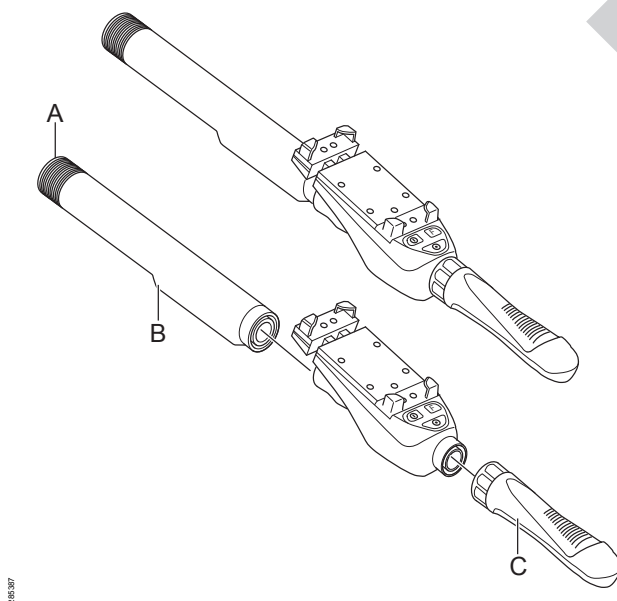


Fig. 6: The DeLaval handheld reader HHR5000.

The HHR5000 is used when connecting the BAT1 to the cow card in the app DeLaval DelPro Companion.

From part **A** of the HHR, the animal's ISO/B transponder is read, which opens the cow card in the app DelPro Companion.

From part **B** of the HHR the BAT1 is read and is connected to the cow card in the app DelPro Companion.

The handheld reader's battery (**C**) is rechargeable and is within its handle.

3 Technical data for the BioSensors ear tag

DeLaval BioSensors ear tag BAT1

General description

A digital accelerometer within the ear tag provides data to the anchors every 2.2 seconds. The ear tag can be out of range of an anchor for up to 15 hours, but sends all its collected data to the anchor when it is within the anchor's range again.

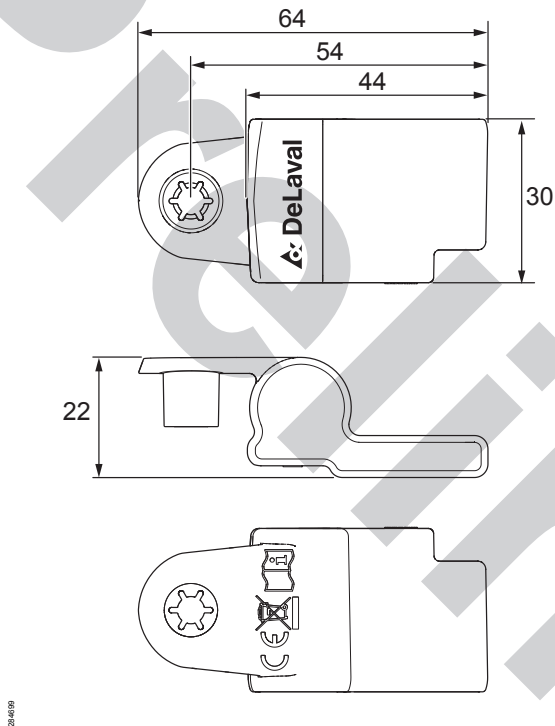


Fig. 7: The dimensions of the ear tag (in millimeter).

DeLaval BioSensors ear tag BAT1

General description

The lithium battery within the ear tag is non-chargeable and it is not possible to replace it. An ear tag should be replaced after the battery life-time which is five years.

Battery power	3.6 volt and 1.2 ampere-hour (internal non-replaceable, non rechargeable battery).
Battery type	ER14250
Power consumption	The average power consumption is 20 microampere.
Environment	The ear tag is positioned on an animal's ear. The animal can be walking outdoors or inside a barn.
Weight	< 30 gram
Operating temperature	0 to +55 °C
Recommended storage temperature	+5 to +35 °C
Relative humidity	10-100 % relative humidity (RH)
Ear tag lifetime	5 years

Radio technical data of the ear tag

Supported UWB Channels	5
Center frequency	6489.6 MHz
Bandwith	≥ 500 MHz
Frequency band	6240-6739.2 MHz
Data Rate	6.81 Mbps
Transmit power density	≤ -41.3 dBm / MHz

DeLaval BioSensors ear tag BAT1

Planning

Planning

DeLaval BioSensors ear tag BAT1

1 Requirements for the BioSensors ear tag BAT1

- The minimum age of the animal at the time of tagging should be 12 months.
- Examine the barn environment for objects that could rip an ear tag from an animal. Take note of sharp edges or hooks, especially on the headlocks.

DeLaval BioSensors ear tag BAT1

Installation

Installation

DeLaval BioSensors ear tag BAT1

- 1 **Connecting the BioSensors ear tag to the cow ID in DelPro Companion**

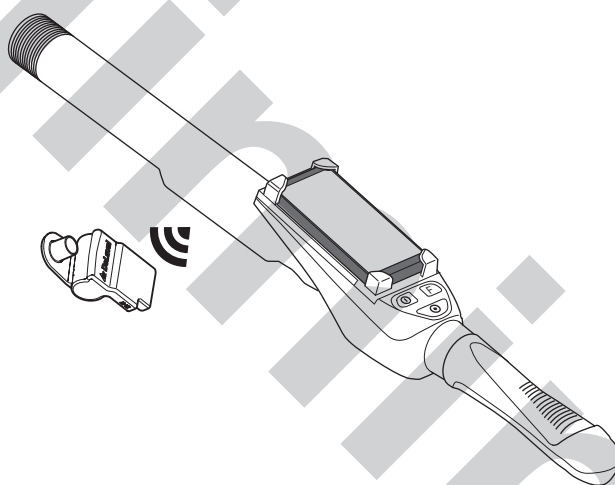



Fig. 8: Connection of the BioSensors ear tag to the cow ID in DelPro Companion.

DeLaval BioSensors ear tag BAT1

Installation

1. Attach the mobile phone to the handheld reader.
2. Power on the handheld reader by pressing its power button .

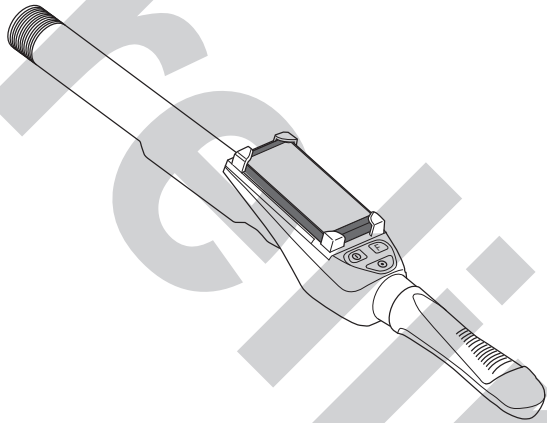


Fig. 9: The handheld reader with the mobile phone.

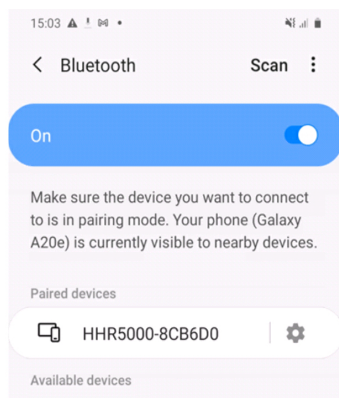


Fig. 10: The window for Bluetooth activation and pairing in a mobile phone.

3. Open the Bluetooth settings on the mobile phone and pair the mobile phone with the handheld reader.
4. Register and log into DelPro Companion.
If you don't have DelPro Companion on your mobile phone then follow step 5 or 6. Otherwise, continue with step 7.

Android mobile phone

5. Download DelPro Companion for Android from <https://play.google.com/store/apps/developer?id=DeLaval+International+AB>.



Fig. 11: QR code to the DeLaval apps.

DeLaval BioSensors ear tag BAT1

Installation



Fig. 12: QR code to DelPro Companion.

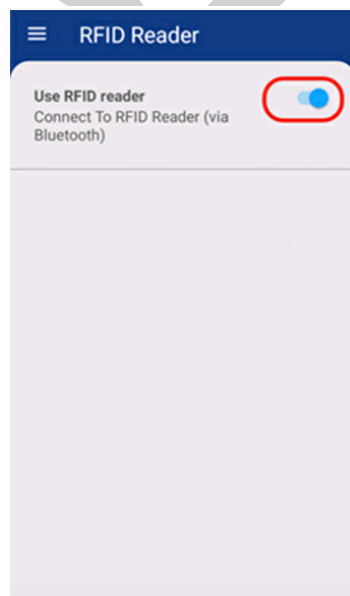


Fig. 13: The window for RFID reader in a mobile phone.

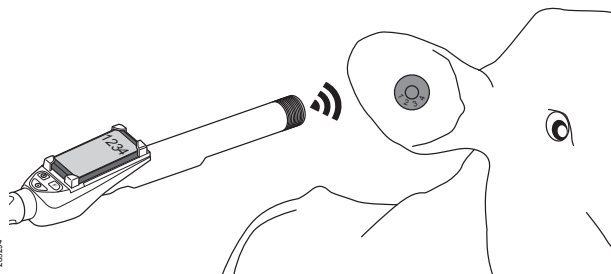



Fig. 14: Reading of a transponder.

Apple iOS mobile phone

6. Download DelPro Companion for Apple iOS from <https://itunes.apple.com/app/id1440785421>.

7. In DelPro Companion, go to "Settings → RFID Reader" and then activate the usage of RFID reader.

Choose the handheld reader HHR5000.

8. Point the handheld reader towards the animal's transponder and press the handheld's main button .
⇒ When the transponder is read, the animal's cow card is automatically shown in "DelPro Companion".

DeLaval BioSensors ear tag BAT1

Installation

9. Swipe to the last page of the cow card.

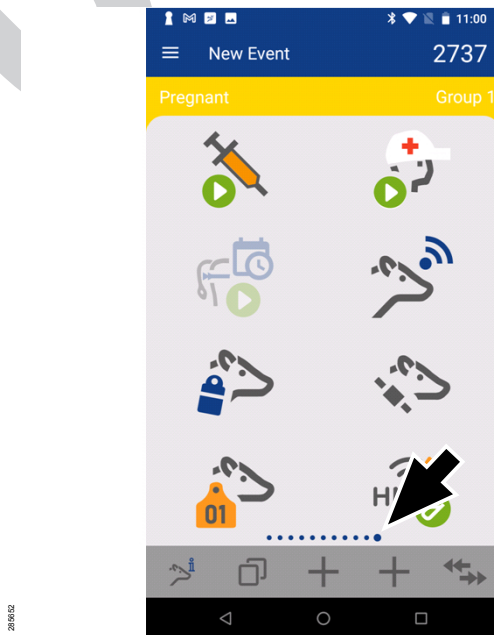


Fig. 15: DelPro Companion.

10. Tap the ear tag symbol.



Fig. 16: DelPro Companion.

DeLaval BioSensors ear tag BAT1

Installation

11. Tap the "+" symbol.

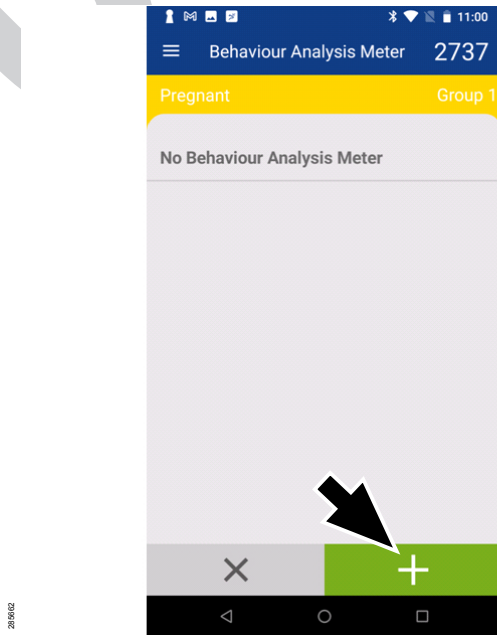


Fig. 17: DelPro Companion.

12. The DelPro Companion software asks to scan the ear tag.

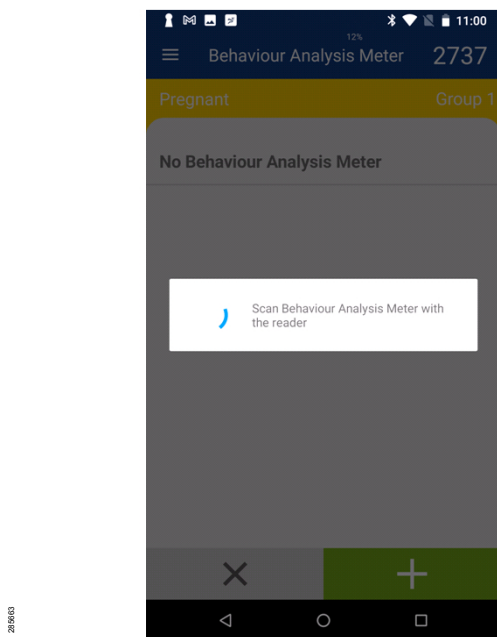


Fig. 18: DelPro Companion.

DeLaval BioSensors ear tag BAT1

Installation

13. Hold the ear tag close to the handheld reader as shown in the illustration.

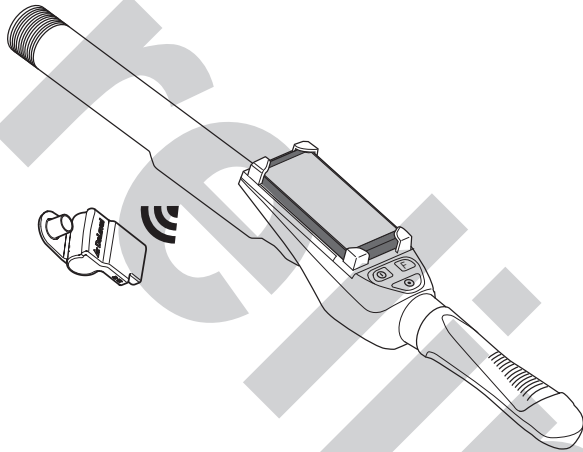


Fig. 19: Holding the ear tag close to the handheld reader.

14. A message is displayed when the ear tag has been connected to the cow card and the ear tag is activated.

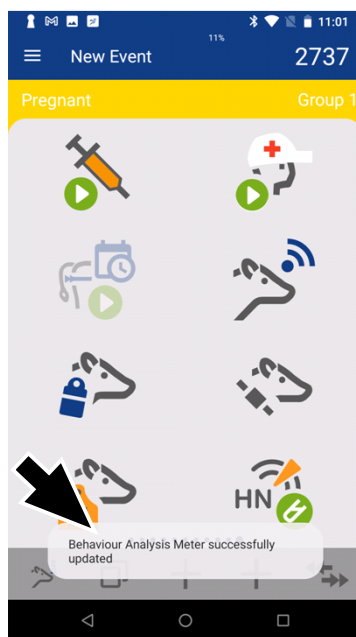


Fig. 20: DelPro Companion.

2 Attaching the BioSensors ear tag to the animal's ear

General



Danger!

To avoid injuries: protect yourself during the entire tagging process

Wear protective clothing, shoes or boots.

Make sure that the animal is calm and that it is surrounded by calm people.

Make sure never to stand in a position so that you or anyone else can be squeezed or harmed if the animal moves.

Note! Protection from animal injuries

Keep the animal still during tagging to avoid that the ear is wounded.

To reduce the risk for infection, tag when the weather is cool and disinfect the ear as follows:

- *Clean it with 0.015% Chlorine solution, 1-2% Chlorhexidine solution or 5% Iodine solution.*

If the tag was used on another animal or is contaminated with organic material, then do the following:

- *Clean the tag with water and detergent.*
- *Dry the tag.*

Cleaned and new tags and backplates shall be disinfected before use with 0.015% Chlorine solution, 1-2% Chlorhexidine solution or 5% Iodine solution.

Daily check the tagged ear for signs of infection during the first week after tagging.

Then check the tagged ear during normal animal care, for as long as the animal wears the ear tag.

Consult a veterinarian directly if pain, redness or swelling appears on the animal's ear.

Do not attach the ear tag to animals younger than 12 months.

Let the ear tag be at barn temperature one hour before the attachment to the animal's ear. The ear tag material might break during the attachment if it is too cold.

DeLaval BioSensors ear tag BAT1

Installation

Deciding on which ear and where on the ear to place the ear tag

The ear tag can be placed in either the left or the right ear.

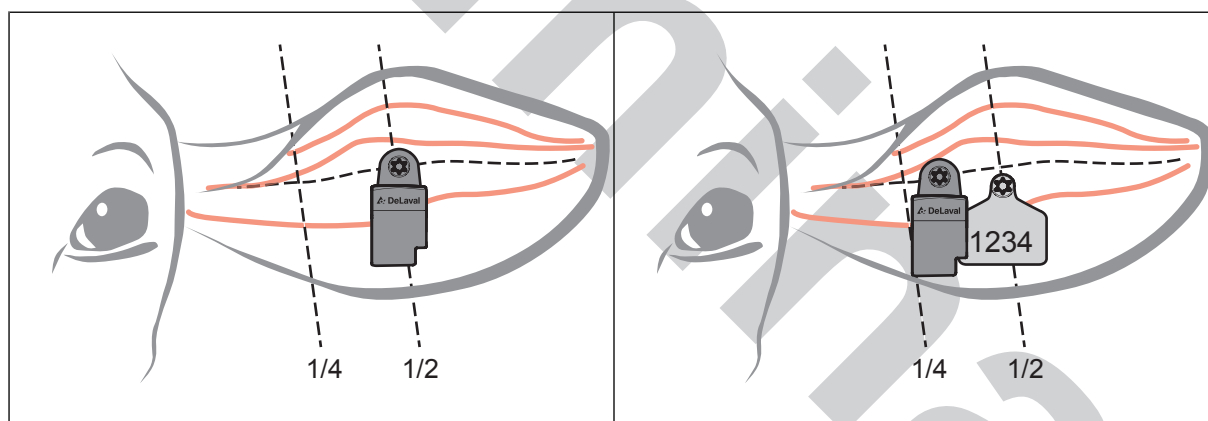
Keep the number of tags per ear as low as possible, for the animal's wellbeing.

The ear tag will not interfere with an RFID tag, but for weight reasons, it is recommended to place it together with the number tag.

Place the ear tag on the inner side of other tags but not at the inner $\frac{1}{4}$ of the ear.

Leave at least 0.5 cm of space between tags, for ventilation and proper wound healing.

The ear tag shall be attached where there is no blood vessel or cartilage tissue (red in the illustrations below).



DeLaval BioSensors ear tag BAT1

Installation

Special tool:

■ Ear tagger

Materials:

■ Disinfectant such as 0.015% Chlorine solution, 1-2% Chlorhexidine solution or 5% Iodine solution

1. Clean the site by removing debris and wiping the site with the disinfectant.
2. Clean both sides of the animal's ear with the disinfectant and let the ear dry.
3. **Note!** In order not to injure the animal, ensure that the ear tagger is functioning correctly.

The ear tagger's pin must not be bent. In that case, the pin has to be exchanged.

Tilt the ear tagger's spring clip (2) and fasten the ear tag (3) under the clip.

Fasten the backplate (1) and make sure that the ear tagger's pin goes all the way into the bottom of the backplate.

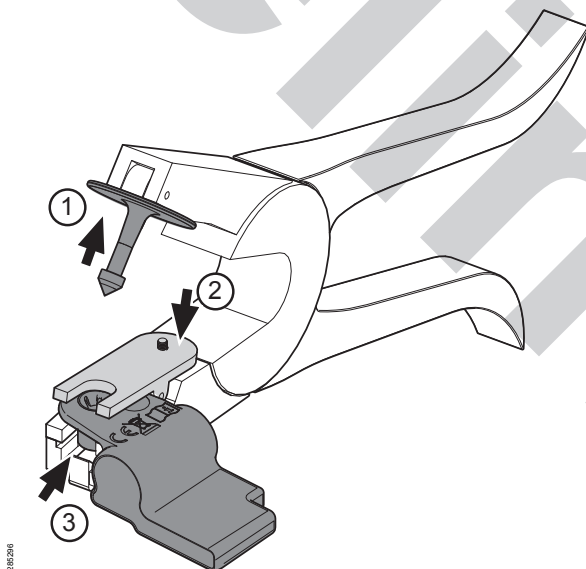


Fig. 21: The ear tagger's spring clip (2) with the ear tag (3) and its backplate (2).

DeLaval BioSensors ear tag BAT1

Installation

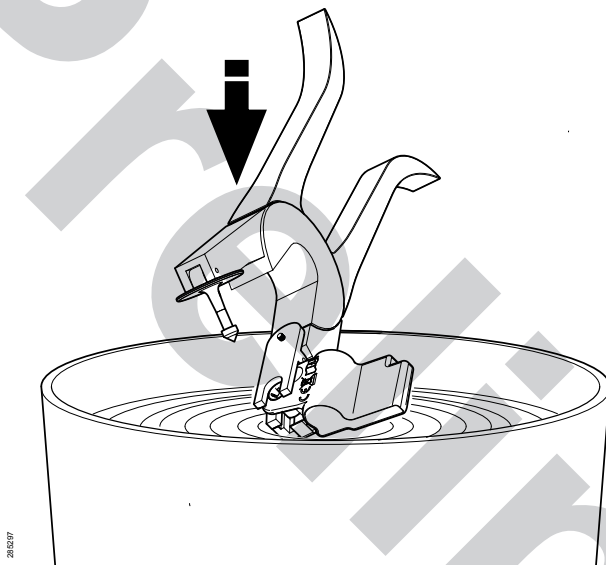


Fig. 22: Dipping the ear tagger with the attached ear tag and backplate into disinfectant.

4. Dip the ear tagger with the ear tag and its backplate into a disinfectant such as 0.015% Chlorine solution, 1-2% Chlorhexidine solution or 5% Iodine solution.

Note! If the ear tagger, the ear tag or its backplate gets in contact with organic material you have to do the following:

- Clean them with water and detergent.
- Dry them.
- Repeat the dipping in 0.015% Chlorine solution, 1-2% Chlorhexidine solution or 5% Iodine solution.

5. Place the ear tagger over the ear from the ears bottom side.
6. When the animal holds still: Squeeze the ear tagger quick and firm until you hear a click.

There will be a click when the ear tag and backplate are connected.

7. Take the ear tagger away from the cow.
8. Check the tagged ear for signs of infection daily during the first week.

Consult a veterinarian directly if pain, redness or swelling appears on the tagged ear.

3 Removing the BioSensors ear tag from the animal's ear

Remove the ear tag from the animal's ear with a pair of scissors, wire cutters or a detagging tool (e.g. NEW Z Tags Multi-Cutter, article number 2150018671).

Cut the backplate of the ear tag from the back of the ear.

The ear tag can be reused. Before reuse, it must be disinfected with 0.015% Chlorine solution, 1-2% Chlorhexidine solution or 5% Iodine solution. This to avoid the spread of bacteria or viruses.

Preliminary

Preliminary