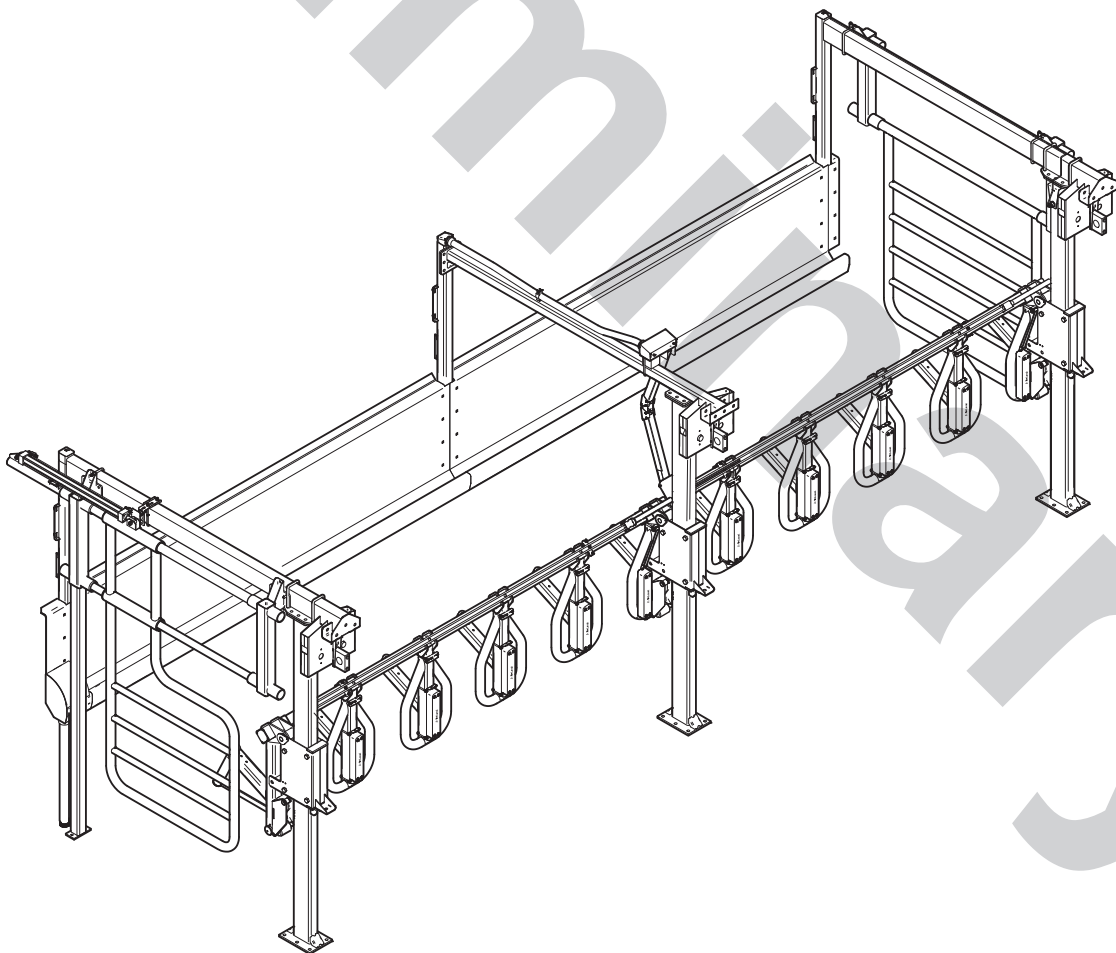


# DeLaval Champion ID

## Instruction Book



Preliminary

# DeLaval Champion ID

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# EC Declaration of Conformity

Name of product: **DeLaval Champion ID**  
Report No. 80005145

The product complies with requirements of the following directives:

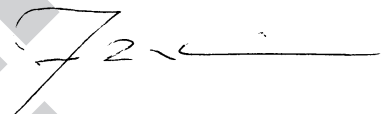
Radio and Telecommunication Terminal Equipment Directive - 99/5/EEC  
Electro magnetic compatibility directive - 2004/108/EC

Harmonized standards which have been used or parts thereof:

EN 61000-6-3:2007  
EN 61000-6-2:2005  
EN 55022:2006  
ETSI EN 301 489-3 V1.4.1  
ETSI EN 301 489-1 V1.8.1  
ETSI EN 300 330-2 V1.3.1

Tumba 2013-02-28

Signed:



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Preliminary

### Safety precautions

#### DeLaval Champion ID

## 1 Warnings and cautions

### Definitions of Admonishments

Admonishments are safety related warning messages.

Admonishments provide important information that is intended to prevent incorrect or hazardous use of equipment, machinery or software, and support risk assessment.

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

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

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

**Caution:** Refers to a limited risk. Failure to comply with instruction could result in minor injury or product damage.

**Mandatory:** Refers to an action or behaviour which is essential to safe and successful use of the equipment.

**Prohibited:** Refers to an action or behaviour which is incompatible to safe and successful use of the equipment.

**Note!** Is intended to draw attention to specific points of importance in the text.



#### Warning!

Do not touch the indicated areas - as they are charged and could give you an electric shock.

Don't touch:

- Heat sinks
- Connector X20

# DeLaval Champion ID

## Safety precautions



### Caution!

Never clean the equipment with a high pressure cleaner or any other jet of water. The equipment is sensitive and can be destroyed by the high pressure.



### Mandatory!

Disconnect the electrical supply before removing shields, covers or guards

## 2 Compliance with national regulations

This device complies with part 15 of the Federal Communications Commission (FCC) rules and RSS-210 of the Industry Canada (ICC) rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interferences that may cause undesired operation.



### General description

#### DeLaval Champion ID

### 1 Very important issues regarding electronic ID

Identification of animals with ISO tags or B transponders are sensitive to noise. Noise in this case is radio waves that interfere with the wave length of the RF transponders. The transponders are sending in the kHz range.

Variable speed drives (VSD) for electric motors and electronic ballasts for florescent lights create noise with a broad wavelength spectrum which interferes with the reading capabilities of the RF transponders.

Electric motors that may be driven by VSD can be found on vacuum pumps, milk pumps, water pumps, manure pumps, refrigeration pumps, fans, voluntary milking systems (VMS), as well as other products that require electric motors

Effects on ID can be very short reading distance to the readers or transponders or can not be read at all is the result of this kind of noise.

Acceptable ID performance may not be achieved if the guidelines below are not followed:

#### 1.1 EU markets

- According to EMC standards, filters on all VSD units driving motors and shielded cables between the VSD and motor is a demand.

#### 1.2 North American market

- To help reduce the risk of both noise and stray voltage, we recommend installing DeLaval SVF filters on all variable speed drives, following recommendations in the DeLaval installation manual, paying close attention to wire type and conduit type.
- DeLaval SVF filters cannot be used in combination with other filters, such as EMI, RFI, other internal or external filters.
- Filters must be installed on all florescent lights having electronic ballasts.

# DeLaval Champion ID

## General description

- No electric wires with more than 30 V running close to the ID readers. Separation distance at least 1.5 meter and 2-3 meters is preferred.
- Electric fence type cow trainers must not be used in the parlor and holding area.

## 2 Introduction

An advanced technical system used for cow identification requires three components:

- Transponders
- Walk-by antenna
- Cow place antennas

### 2.1 Transponders



Fig. 1: B-transponder carried on the neckband

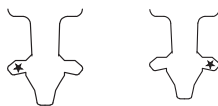


Fig. 2: ISO HDX/FDX transponder in the cow's ear (left or right)

DeLaval multi ID system support cow identification by means of B-transponder and ISO HDX/FDX transponder.

**Note!** If no other considerations need to be taken, United States Animal Identification Plan (USAIP) and National Cattlemen's Beef Association (NCBA) are recommending left ear, as the first hand choice, for ISO HDX/FDX transponder location.

### 2.2 Walk-by antennas

The walk-by antenna is located in the entrance gate. DeLaval multi ID system support the ID reader walk by (IRW). The IRW replaced Blue Curtain and Multi reader in July 2014.

# DeLaval Champion ID

## General description

### 2.2.1 ID reader walk by (IRW)

#### 2.2.1.1 Introduction

The IRW is used to identify cows with B-transponders or ISO HDX/FDX transponders.

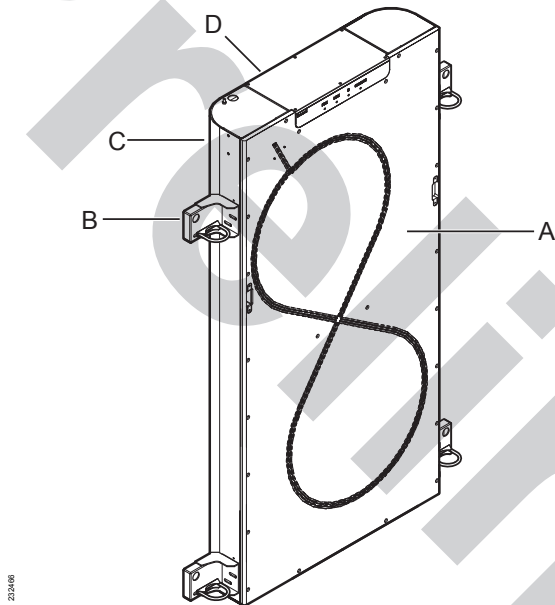


Fig. 3: IRW.

- A: Antenna panel
- B: Support brackets with lifting eyes
- C: Galvanized steel stand
- D: Electronic box

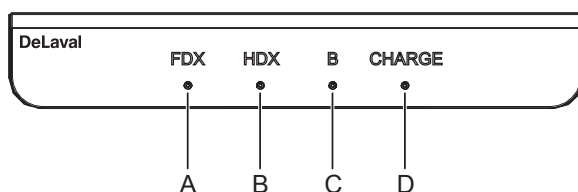


Fig. 4: LEDs of the IRW electronic box.

- A ("FDX"): Light when an FDX transponder is read
- B ("HDX"): Light when an HDX transponder is read
- C ("B"): Light when a B transponder is read
- D ("Charge"): Flashing when sending information

# DeLaval Champion ID

## General description

### 2.2.2 IRW function

#### 6:3:8 Multi Reader

The IRW can read B-transponders and ISO transponders. It can not read both B and ISO at the same time.

- Working Mode
  - Reduced Number: reads B-transponders
  - HDX Numbers: reads ISO transponders
- ID Synchronization Mode
  - ALCOM Sync: The processor will synchronize all units connected to the processor
  - Wire Sync: One reader synchronizes all IRWs connected to the IRW that is the master in the system, connected with a wire between the units. This option can be used when more than one processor is used
- Charge Frequency
  - 131 KhZ: for B-transponders
  - 134 kHz: for ISO transponders
- ID Switch Cycle
  - 10 S: for B-transponders
  - 10 S: for ISO transponders

| Multi Reader             |            |
|--------------------------|------------|
| Working Mode:            | HDX Number |
| ID Synchronization Mode: | ALCOM Sync |
| Charge Frequency:        | 134 kHz    |
| ID Switch Cycle:         | 10 S       |

| Multi Reader             |            |
|--------------------------|------------|
| Working Mode:            | RED Number |
| ID Synchronization Mode: | ALCOM Sync |
| Charge Frequency:        | 131 kHz    |
| ID Switch Cycle:         | 10 S       |

Fig. 5

## 2.3 Cow place antennas

### 2.3.1 In Place Reader

The cow place antenna, the IPR is located inside the parlour.

The IPR is an electronic unit that is used to identify animals wearing ISO ear or B-transponders.

This type of identification is used in parlour applications where the animals identity determines the action that should be carried out by the system.

When an ear or B-transponder is within the scanning area of the reader, the reader will send the scanned date to a receiver unit for example station controller. The data is processed by the receiving unit and the programmed action.

### 2.3.2 Positioning of readers

- ISO transponders: Position the readers in the high position as described
- B-transponders: Position the readers as low as possible, but avoid positioning the bracket so low that it sticks out, causing injuries to the cow

### 2.3.3 ID information processing

When a cow is identified by the IRW, her transponder number is compared with her cow number, kept in the memory.

All transponder numbers are stored in a buffer as an array. From the buffer the processor send out the cow numbers to the MPCs according to the order in which they were identified.

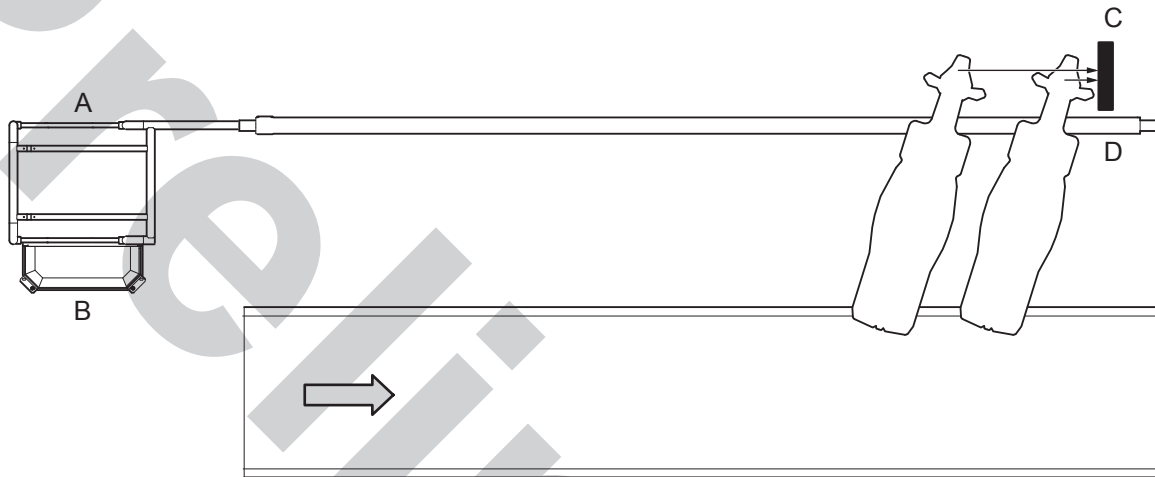
#### 2.3.3.1 Function of in place reader on the first place

Sometimes the entrance gate opens and the information (regarding ID numbers made by the IRW) is erased from the buffer. For this purpose, DeLaval offers the solution "Identification and Correction", giving the second chance to identify the first cow in the batch, with help of the in place reader, positioned on the first place (FPR= First place reader).

**Note!** The in place reader must be installed in a place where 100% accuracy can be ensured about which cow is rated as the "first" cow.

# DeLaval Champion ID

## General description



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Fig. 6: In place reader on the first place

A: Entrance  
B: IRW

C: FPR  
D: Exit

### 2.3.3.2 Function of in place reader on the last place

The accuracy of readings can be improved with the in place reader located on the last place (LPR = last place reader). This solution is known as ID verification.

With the first cow identified by the IRW or by the FPR, the ID verification of the entire batch (row or gang of cows), can be completed due to the way the information is handled by the software. The batch is represented in the software as an array containing ID numbers. In this array the FPR is considered to be equivalent with "START reading", while the LPR is considered to be "STOP reading". All other readings will be sorted in-between these two determinations.

# DeLaval Champion ID

## General description

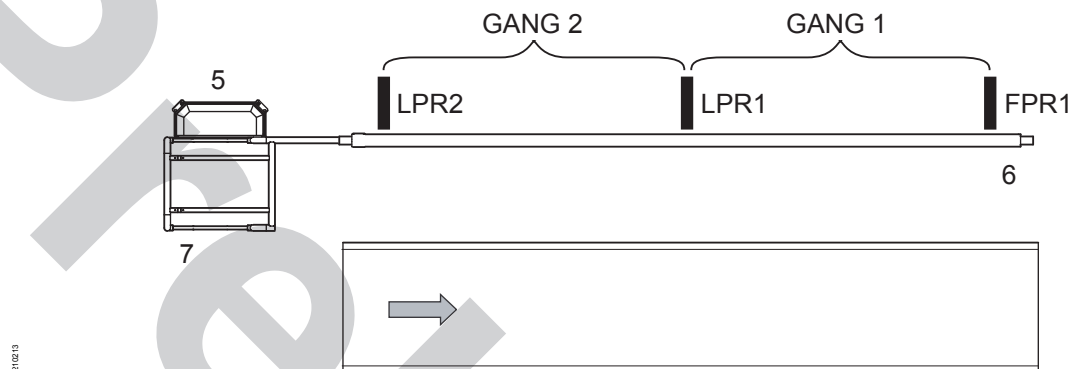


Fig. 7: In place reader on the last place

- 5: IRW
- 6: Exit
- 7: Entrance

### 2.3.3.3 Function of in place reader for in-place ID

The accuracy of readings can be improved even more with in-place ID. This means that a in place reader is located on each cow place. Each cow is specifically identified on each place. This solution makes the IRW redundant.

### 2.3.3.4 Function of in place reader for in place ID Parallel parlours

When the entrance gate opens, the readers on the first and third stall are activated. When the first reader has read a transponder, the second and the fourth readers are activated. When the second cow is identified, the third and the fifth readers are activated and the first cow is verified and so on. When a cow is verified the reader is turned off.

If there is a cow without transponder or missed, the MPC will show -----.

A cow can be identified by more than one reader and then the ALPRO logic finds out where she is.

When the exit gate or gang fronts are opened, the milk weight is confirmed to the processor. When the first cow in the next batch of cows is identified, the milk meters are reset and the old cow numbers disappears.

# DeLaval Champion ID

## General description

### 3 Parlour applications

The DeLaval multi ID system is applicable for both parallel and herringbone parlours. The ID components are the same for all applications.

### 4 Main parts

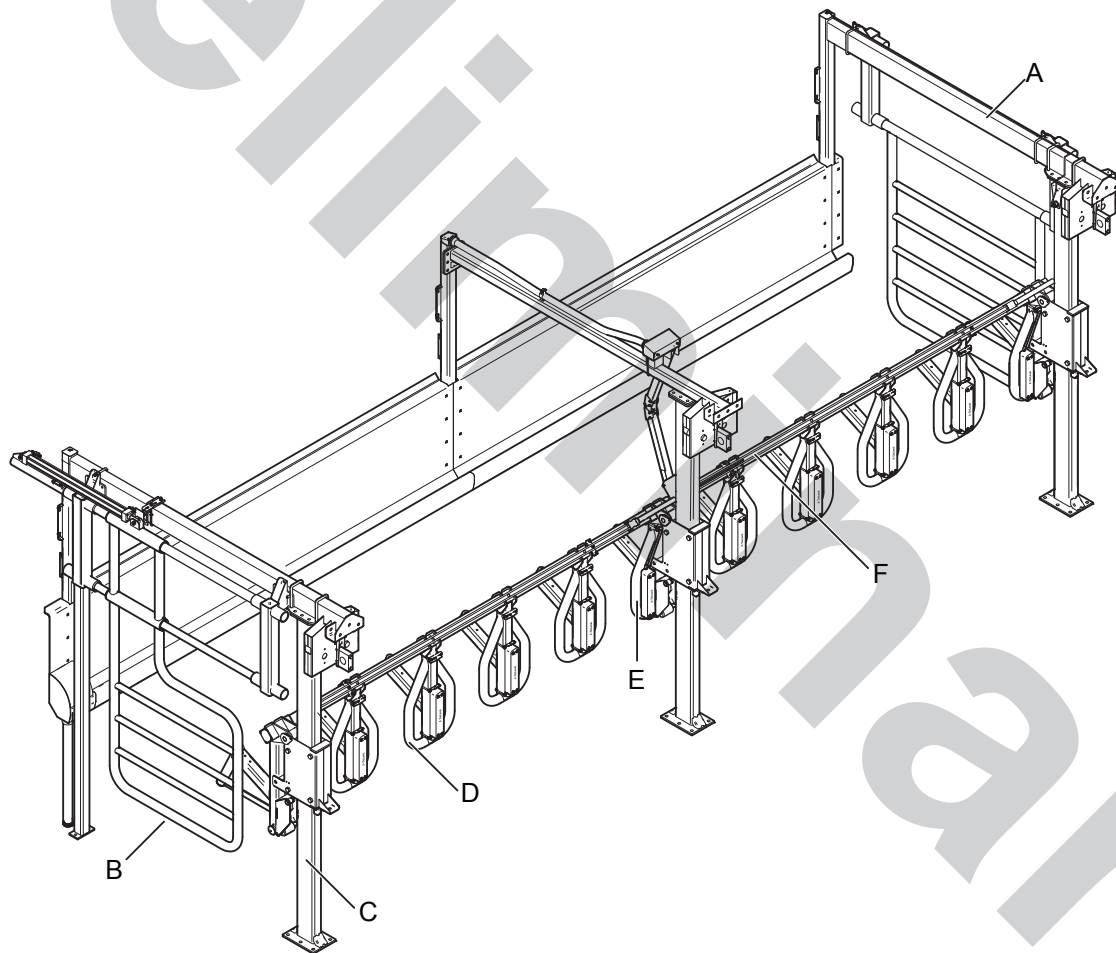


Fig. 8

- A: Arch
- B: Entrance gate
- C: Column

- D: Milk bottle
- E: Intermediate milk bottle and blocker
- F: Neck rail



## Operator's maintenance

### DeLaval Champion ID

#### 1 Daily maintenance

The IRW antenna should be kept clean using only water.

Check that the cable routings from the reader to the MPC are intact. Correct if necessary.

#### 2 Yearly maintenance

Check that all screws and bolts are tightened.

# DeLaval Champion ID

## Troubleshooting

### Troubleshooting

#### DeLaval Champion ID

#### 1 Troubleshooting

| No. | Symptom                             | Cause  | Action  |
|-----|-------------------------------------|--|---|
| 1   | Wrong ID or missed ID. Low hit rate | More than one cow in front of the antenna  | Narrow and/or extend the lane in front of the antenna<br><br>Use archway to prevent cows from riding in the lane<br><br>Check that no steelwork is missing or deformed            |
|     |                                     | Transponders not functioning   | Exchange broken or weak transponders  |
|     |                                     | Transponder in the wrong side  | Move the transponder to the correct side  |
|     |                                     | Wrongly connected switch   | Connect the switch correctly. It is important to get a correct signal, "open" when open and "closed" when closed  |
|     |                                     | The cables to the IRW (12 VAC, ALCOM and Gate switch wire) should not be inside the antenna            | The cables should go through the grommets and then follow steelworks or frameworks in the parlour   |
|     |                                     | Problems with ALCOM communication  | Check ALCOM settings<br><br>Check that the ALCOM bus is connected   |
|     |                                     | Antenna terminals should always be properly connected and have a clean surface against board terminals |   |
|     |                                     | Broken antenna   | Contact the local dealer or service man   |
|     |                                     | Problems with the IRW software   | Contact the local dealer or service man for service or replacement  |
| 2   | Missed ID when cows are entering    | Interference from frequency converter (especially in Rotary)   | Follow the assembly instructions for frequency converter. Use shielded wires<br><br>Check with the frequency converter supplier how to achieve efficient interference suppression |

» Continue next page

# DeLaval Champion ID

## Troubleshooting

| No. | Symptom | Cause  | Action   |
|-----|---------|--|--|
|     |         |  | <p>Use a filter on the cable</p> <p>Place the frequency converter as far away as possible from the antenna</p> <p>Do not install the frequency converter in the same cable duct as the antenna</p> |
|     |         | Input voltage below 12 VAC -10%  | Make sure the input voltage is within tolerance, 12 VAC +20%, -10%   |
|     |         | Disturbance from: <ul style="list-style-type: none"> <li>– computer screens</li> <li>– mobile telephone charger, or</li> <li>– other electronics</li> </ul>  | (See actions above.) Use filters, keep long distance between the antenna and the noise source, do not install on the same cable and use shielded wiring  |
|     |         | Antenna mounted too close to: <ul style="list-style-type: none"> <li>– calf feeder (minimum 30 m)</li> <li>– any non-synchronized ID equipment, or</li> <li>– long wave radio transmitter</li> </ul> | Increase the distance between noise source and antenna   |

| No. | Symptom                       | Cause  | Action  |
|-----|-------------------------------|--|---|
| 3   | IRW is not connected to ALPRO | <p>Check ALPRO menu 6.8.1 to see node status</p> <p>The symbol * shows that a node is connected to the bus and correctly configured in ALPRO</p> <p>x shows that the IRW is not connected to the bus but correctly configured in ALPRO</p> <p>+ shows that the IRW is connected to the bus but not correctly configured in ALPRO</p> | <p>Check node address settings on the IRW</p> <p>Check that the ALCOM bus wire is connected to pin 1 and 2 or 3 and 4</p> <p>Check that the ALCOM bus wire has proper connection to ALPRO</p> <p>Make sure that the Power LED on the IRW is on.</p> |
|     |                               | ALPRO menu 6.8.1, node status, indicates that the IRW is not connected to ALPRO at all times. The symbols are changing between * and x   | <p>All nodes on the network must have correct ALCOM address</p> <p>Check that all other nodes are working properly. If another node is broken, this might cause communication problems on the bus</p>   |
| 4   | Power LED on the IRW is off   | Power supply off   | Check that 12 VAC is connected between pin 27 and 28  |

# DeLaval Champion ID

## Troubleshooting

| No. | Symptom   | Cause   | Action  |
|-----|---|---|---|
| 5   | Cow ID does not appear on MPC at all when cows are entering the parlour | Communication problem   | <p>Check the ALCOM bus connection on IRW</p> <p>Make sure the Power LED is on</p> <p>Make sure that the transponder activation LED on the IRW is flashing when cows are passing</p> <p>Check that the IRW is correctly configured in ALPRO</p> <p>Check that the Gate switch connects pin 22 and 23 on the IRW connections when the entrance gate is open</p> <p>Pin 22 is ground and pin 23 should be between 12 to 15 VDC when the gate is closed. When the gate is open, the Gate switch should short circuit pin 22 and 23. Voltage on pin 23 should then be 0 V</p> <p>If no Gate switch is installed, pin 22 and 23 should be short circuit with a wire</p> |
| 6   | Cow ID is erased from MPC before the parlour is full                    |   | Check that the Exit gate switch is operating correctly  |
| 7   | Antenna tuning indicates a problem                                      | The antenna has too low inductance. The three lowest LEDs will flash for 10 seconds | <p>If steelwork are assembled onto the antenna after installation, this might reduce performance</p> <p>Check that the steelworks is not deformed and is of galvanized steel</p> <p>The width should be 800 mm and depth 300 mm. If this is changed during installation, problems will occur</p>  |
|     |   | Antenna has too high inductance. The centre LED will flash for 10 seconds           | Make sure the antenna back cover is on  |

### Disposal

DeLaval Champion ID

#### 1 Disposal and recycling information

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

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

##### 1.1 Disposal of packaging material

(Packaging EU Directive 94/62/EC)



This symbol indicates that the product's packaging material can be recycled.

##### 1.2 Disposal of electrical and electronic equipment with or without battery.

(WEEE European Directive 2012/19/EU)

(European Battery Directive 2006/66/EC)



These symbols with a crossed-out wheellie bin on the product or its packaging indicates that the equipment is electrical waste, with or without battery, and shall not be disposed of with household waste.



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 in 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 Champion ID

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Disposal

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