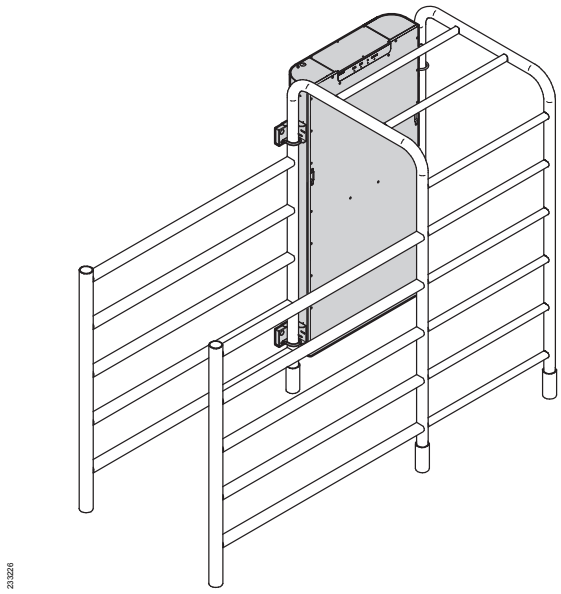


Fig. 1

Planning

DeLaval ID reader walk by IRW

1 General

General points to consider before ordering and installing the IRW:

- DeLaval ID reader walk by IRW is used to identify cows with B-transponders or ISO transponders.
- The IRW will be set to read either B or ISO transponders, meaning that the entire herd must have the same type of transponder.
- ISO transponders must be attached to the same ear for the entire herd. If new cows are introduced, always check that their transponders are placed on the same ear as the rest of the herd.
- The IRW is mostly installed on the framework of the parlour entrance or a sort gate. An alley must always be provided so the cows pass the IRW one by one. An arch above the IRW is recommended.
- If the IRW should read ISO transponders, it must be placed on the left side of the parlour entrance or sort gate for herds having the transponders attached to the left ear, and vice versa.

2 Article numbers

Article number	Description
94066381	DeLaval ID reader walk by IRW (does not include photocell and bracket)
94066334	Photocell and bracket (only used in HB30/50)

3 Technical data

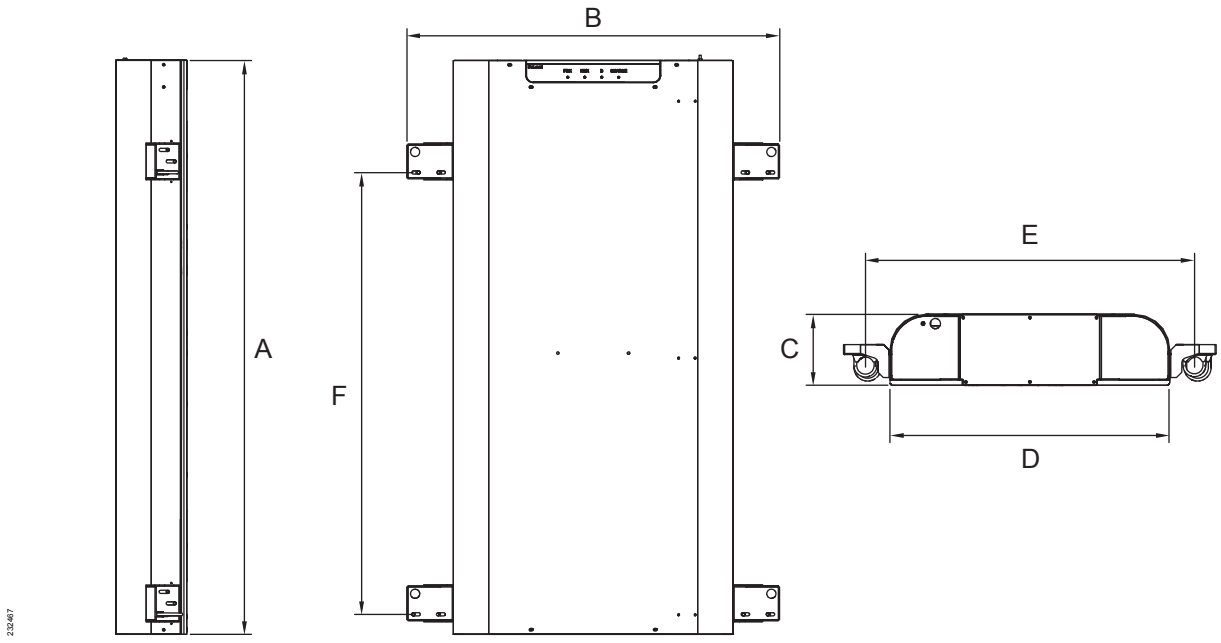


Fig. 2

A (height)	1.64 m
B (width)	1.06 m
C (depth)	0.2 m
D	0.8 m
E_1 (pipe, Ø60.3 mm)	920-945 mm
Option E_2 (pipe, Ø48.3 mm)	929 mm
F	1.25 m
Weight	70 kg
Input voltage	12 VAC +20%, -10%
Power	30 VA

Current consumption

IRW		1.5 A rms
	IRW including photocell and control valve	2.4 A rms (ALPRO ID sync)
Portal reader (Blue curtain), for comparison		
	ID portal	0.6 A rms
	ID portal including photocell and control valve	1.3 A rms

Note! *The IRW has a bigger current consumption than the old portal reader.*

Note! *IRW must has its own power supply, can not share a transformer with some of the MPC's.*

4 Reading range

The reading range is the area in which the IRW can read a transponder. An electromagnetic field is used to read the transponders.

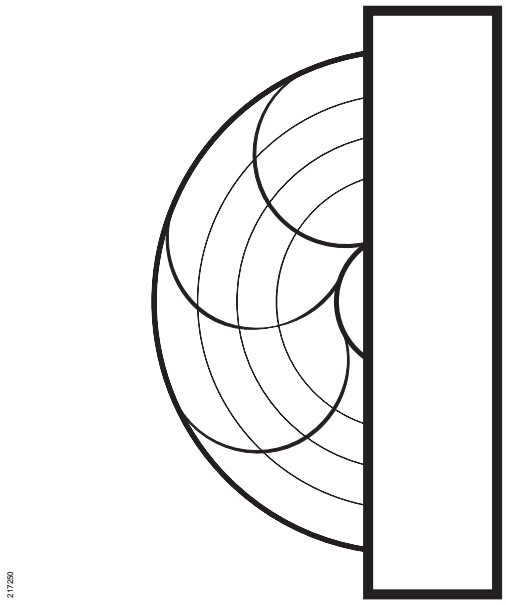


Fig. 3: Electromagnetic field from the IRW.

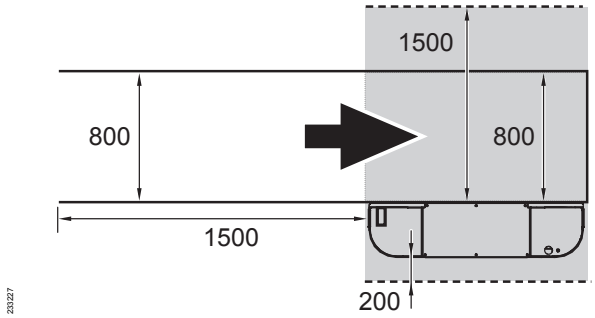


Fig. 4: Safety area around the IRW.

To get a good reading range, a "safety area" must be used around the IRW. Inside this area it is not allowed to have metal-reinforced building structures or other metal equipment that might short circuit the electromagnetic field of the IRW.

Recommended dimensions of this safety area:

- Single cow walkway width: 800 mm.
- Single cow walkway length from the IRW: Minimum 1500 mm.
- Safety distance from the IRW front: Minimum 1500 mm.
- Safety distance from the IRW back: Minimum 200 mm.

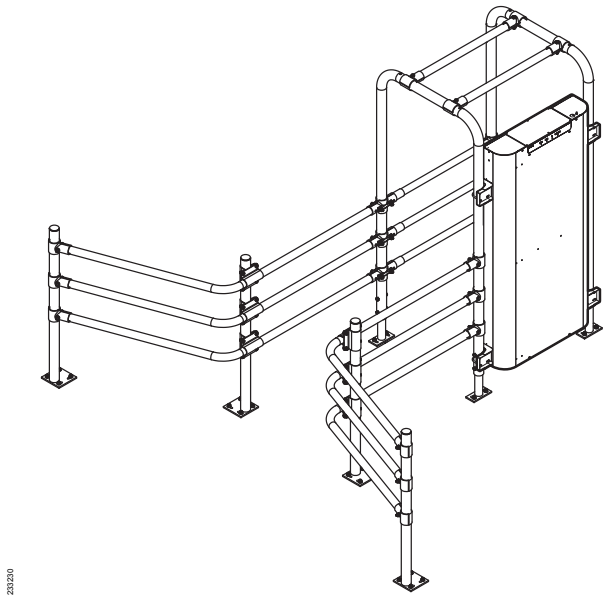


Fig. 5: Parlour entrance with an IRW.

5 Placing the IRW at a parlour or rotary entrance

Note! *It is important to plan the entrance correctly so that only one cow at a time is picked up by the IRW.*

- The IRW should be located directly in front of, or as close as possible to, the parlour entrance gate.
- Separate the return cow traffic from the single cow walkway close to the IRW so that no unwanted transponders are read by the IRW.
  - A regular steel fence is recommended. This will interfere as little as possible with the electromagnetic field of the IRW.
  - A solid wall or steel wall is less favourable.
- Never place a fence directly in front of the IRW.

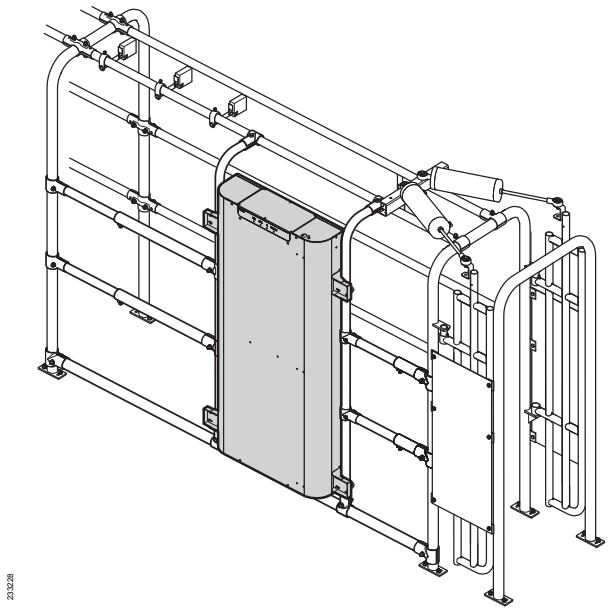


Fig. 6: DeLaval sort gate DSG3 with an IRW.

6 Placing the IRW at a sort gate

DeLaval sort gates are designed for mounting an IRW.

Installation

DeLaval ID reader walk by IRW

1 General

Warning!
The equipment is heavy and could cause serious crushing injury if dropped.

Note! *It is recommended to have two fitters available when lifting and installing the IRW.*

Note! *Working transponders are needed.*

Note! *Take care when installing the IRW. Incorrect installation will result in poor system performance with unacceptable levels of missed identification. Follow the tasks in this chapter in the given order.*

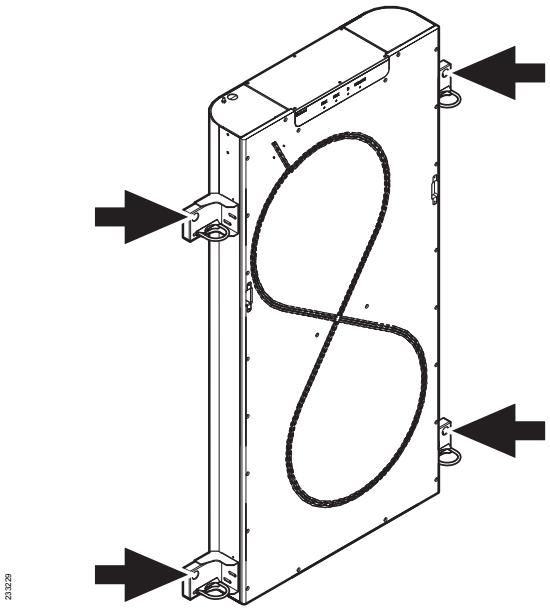


Fig. 7

2 Installing the IRW

To install the IRW:

1. Lift the IRW into place, using the lifting eyes on the mounting brackets.
2. Place the IRW at the desired location. For more information, see chapter *"Planning"* for product *"DeLaval ID reader walk by IRW"*.

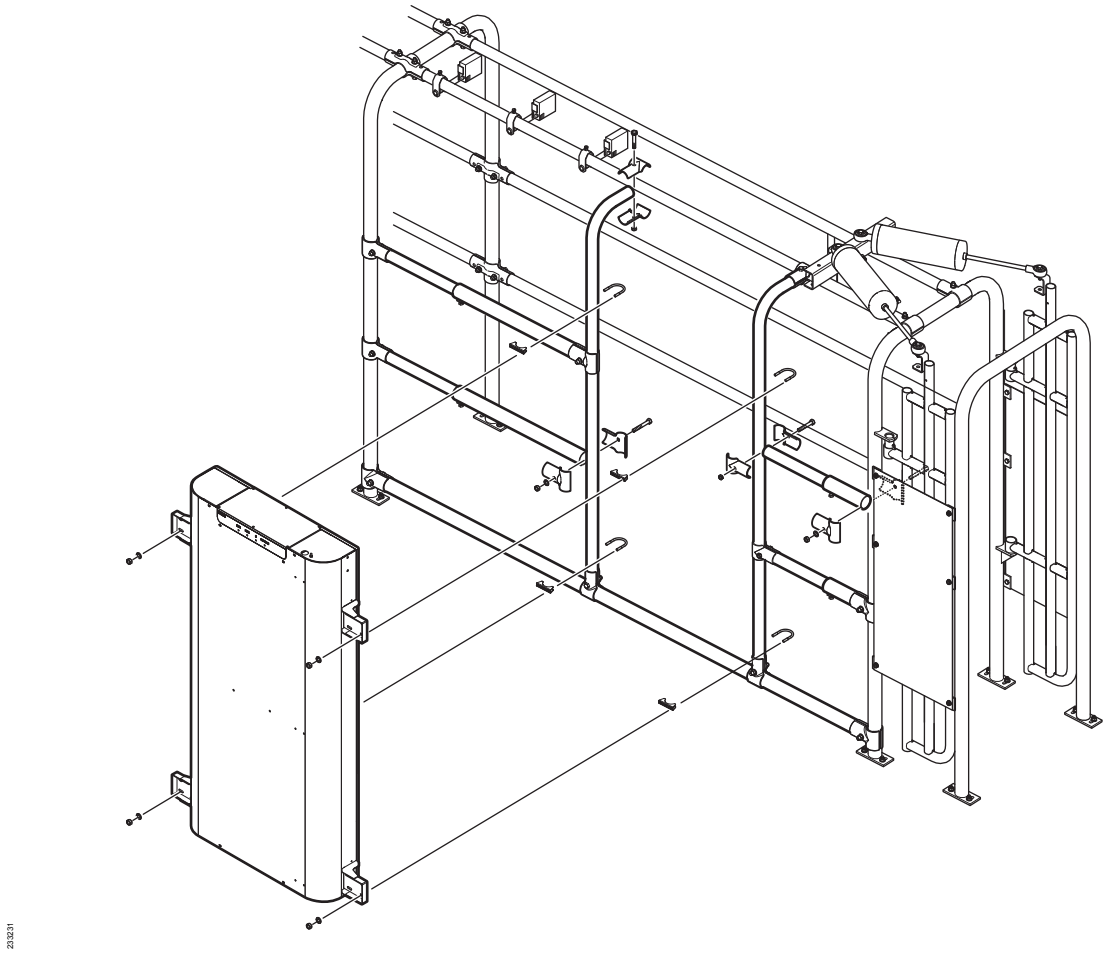


Fig. 8: IRW mounted to a DeLaval sort gate DSG2/3.

3. Mount the IRW to the pipes, using clamps to fasten it. Recommended pipe dimension is 60.3 mm or 48 mm.

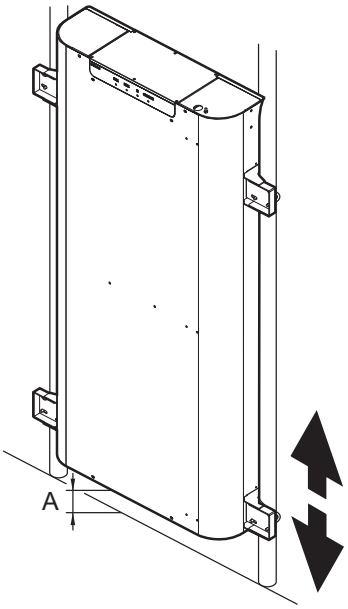


Fig. 9

A: 175 mm

4. Place the IRW at the correct height, see Fig. 9.

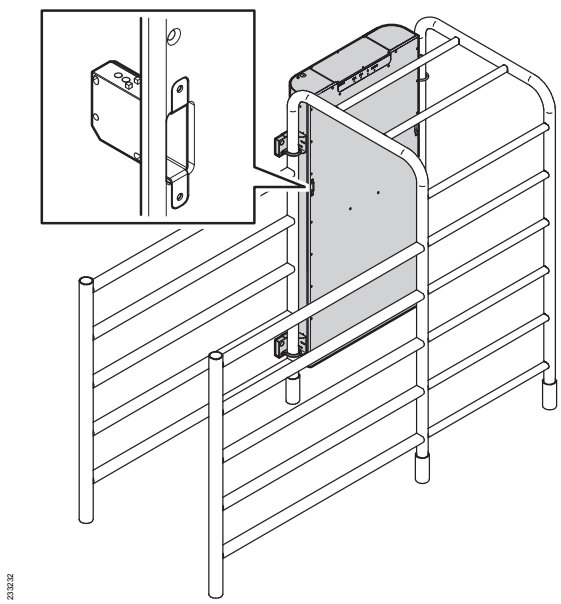


Fig. 10: Photocell installation slot.

3 Installing the photocell

To install the photocell:

1. Determine which slot the photocell should be installed in. In general the photocell should be installed in the slot closest to the parlour. If the entrance gate is close to the antenna and if there is a possibility for the cows head to be outside the reading range, the photocell should be install in the first slot.

   Note! *Only for HB30/50.*

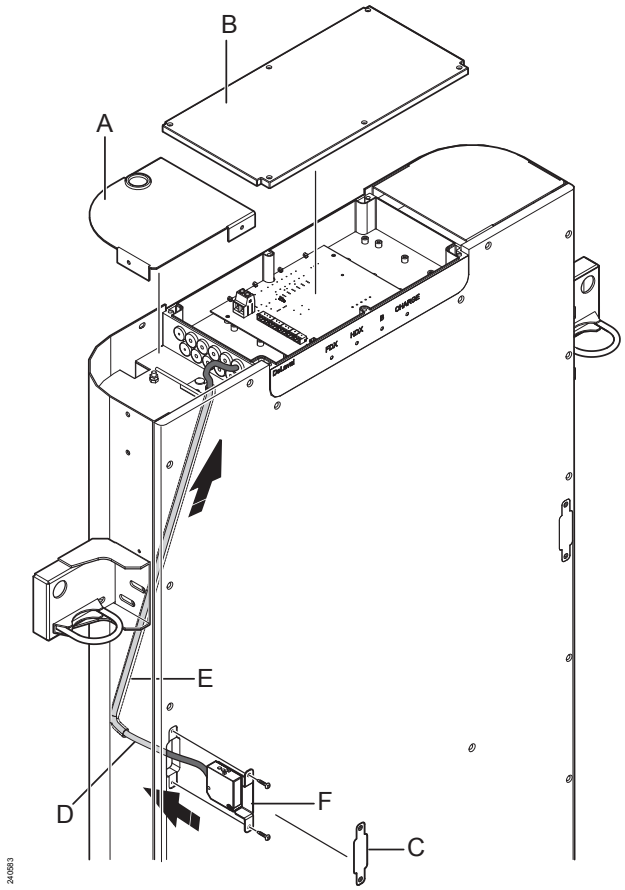


Fig. 11: Photocell installation.

2. Remove the top-left cover of the IRW (A).
3. Remove the cover (B) at the top of the IRW and disconnect power.
4. Remove the cover from the installation slot (C).
5. Pull the photocell cables (D) through the cable channel (E), using a cable puller.
6. Fasten the photocell and the bracket to the IRW with two screws (F).
7. Connect the cables according to *Chapter 4.3 "Connecting the cables" on page 14*.
8. Put back the top-left cover and the cover to the electronic box.

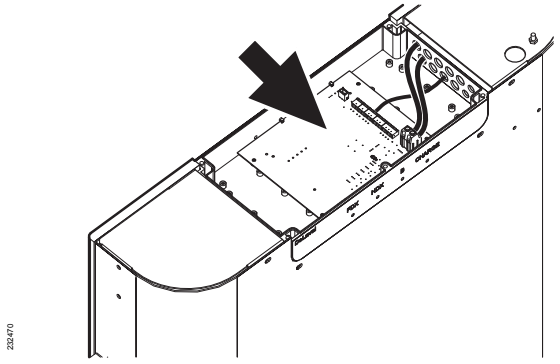


Fig. 12: Do not touch indicated electronic box.

4 Performing the electrical connections

4.1 Overview

Mandatory!
Disconnect the electrical supply before removing shields, covers or guards

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

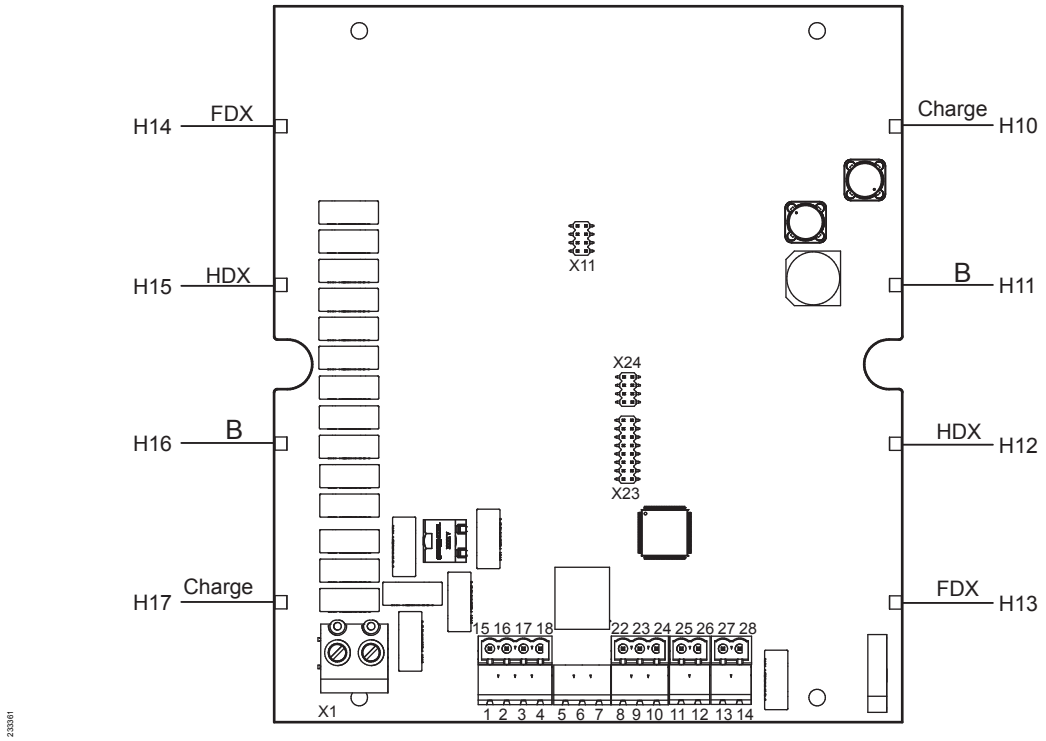


Fig. 13: IRW connection board.

Note! *Do not touch any other part of the board except for the connectors.*

Position	Description
X1	Antenna terminal
X23	Used to set the ALCOM bus node address of the IRW, see ↳ *Chapter 4.2 "Setting the ALCOM bus node address" on page 13*
H10 - H17	LEDs
1-28	Terminals described in ↳ *Chapter 4.3 "Connecting the cables" on page 14*

4.2 Setting the ALCOM bus node address

The IRW node address on the ALCOM bus is set by means of jumpers on terminal X23.

There are eight jumper positions on X23, but only position 1-5 are used to set the node address:

- If no jumpers are placed in position 1-5, the node address is 4.
- If there is a jumper in position 5, but not in 1-4, the node address is 112.
- Adding a jumper to position 1-4 means adding its value (1, 2, 4 or 8) to 4 or 112.
- Sort gates use node addresses 112-126. If the IRW is mounted on a sort gate, use this address range.

Note! *The last available node address is 126, not 127. To set address 126, place jumpers in position 2-5 (2+4+8+112=126).*

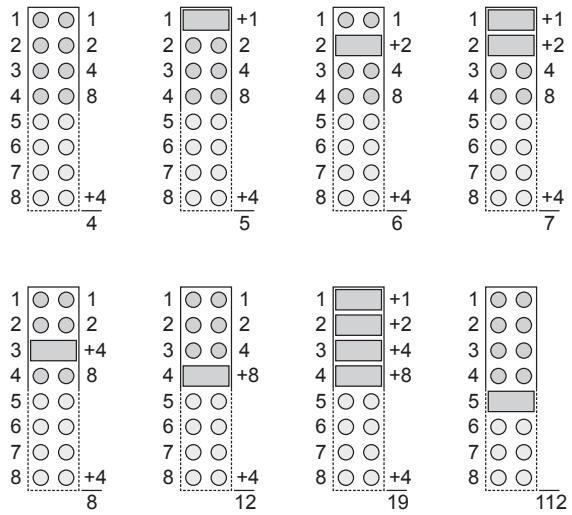


Fig. 14: Node address examples (4-8, 12, 19 and 112).

To set the ALCOM bus node address:

1. Check menu 6:8:1 *"Node status"* in ALPRO Browser to see which node is free to use.
2. Set the node address via jumpers according to Fig. 14.
   - Recommended node adress is 4 - for ID on milking parlour
   - Recommended node address is 112 - for sortgates

4.3 Connecting the cables

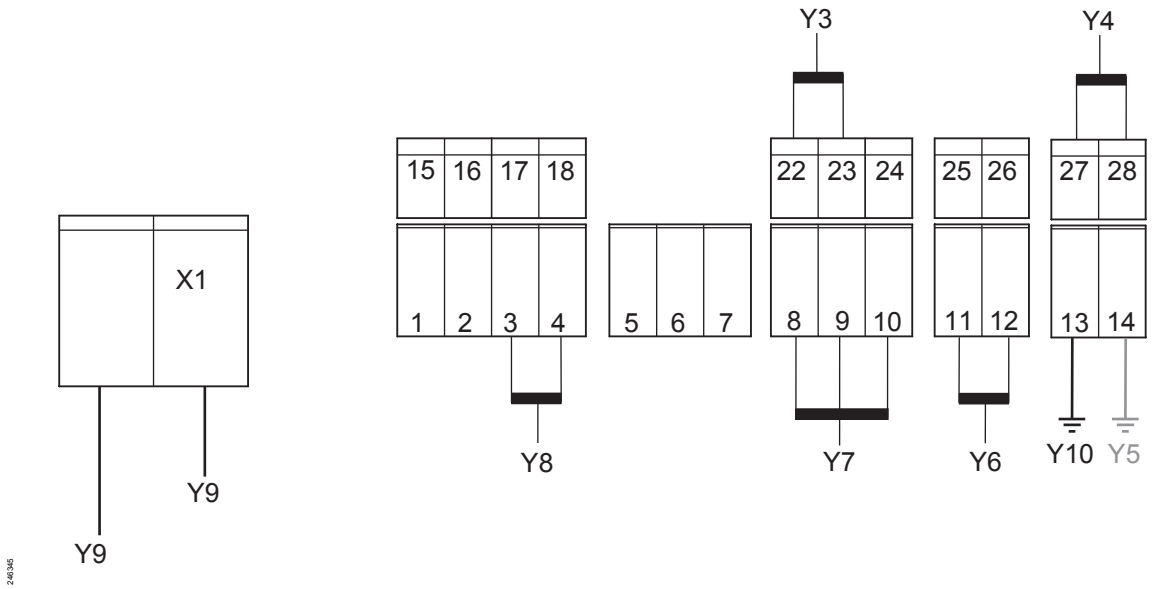


Fig. 15

Position	Description
Y3	Gate switch (if no gate switch, short-circuit pins 22-23, preconnected)
Y4	12 VAC +20%,-10%
Y5	Protective earth ***Note!*** *Connect it to mains ground as long as local regualtions allow it.*
Y6	Sort gate magnetic valve
Y7	Photocell (8 = blue, 9 = black, 10 = brown)
Y8	ALCOM bus
Y9	Antenna cable
Y10	Premounted IRW chassis ground connection

Note! *The two cables connected to terminal X1 (the antenna coil) must never be cut or clamped by end sleeves. The wires inside these two cables are soldered together at the factory, and the soldered ends must be connected to terminal X1. If the cables are cut or clamped, the antenna performance will decrease.*

Note! *Use separate transformer for each IRW unit. Do not share transformer with other equipment like milking point controllers, etc.*

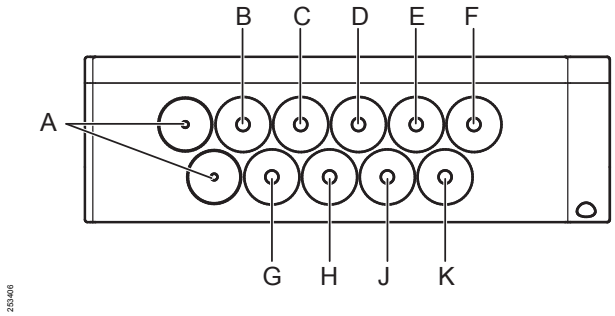


Fig. 16

A: Antennawire
B: Wiresync In
C: Wiresync Out
D: Gateswitch
E: Output 1
F: 12V AC In
G: Alcom In
H: Alcom Out
J: Photocell
K: Chassis GND

Note! *The input voltage must never be outside the stated 12 VAC +20%, -10%. Input voltage outside the tolerance could cause problems. With lower voltage the IRW will not read any transponders.*

To connect the cables:

1. Pull the cables through the grommets according to the diagram.
2. Pull the cables through the slotted hole in the top.
3. Connect the cables to the correct pins.

4.4 Connecting to protective earth

Grounding cable is preconnected to pin 13.

Make sure that:

- The galvanized steel stand is connected to the other stalling to make equal potential between all stalling construction.
- The stalling is grounded according to local electrical rules.
- The whole metal construction should be grounded in one place.

Note! *Do not ground the center point of the transformer, as this can destroy the IRW.*

Note! *The protective ground should be connected to pin 14 as long as local regulations allow it.*

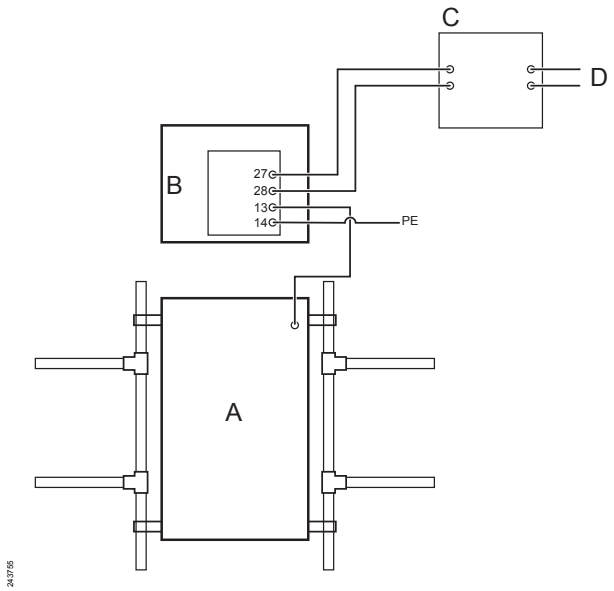
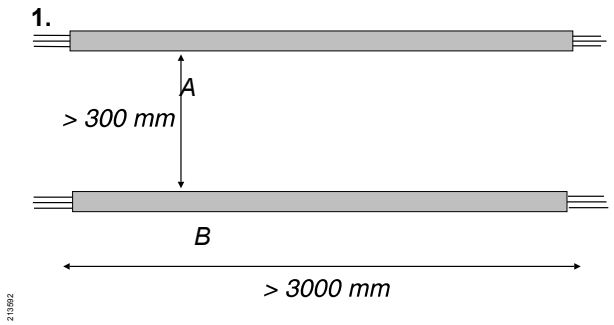


Fig. 17

A: IRW
B: PCB
C: Transformer
D: AC in

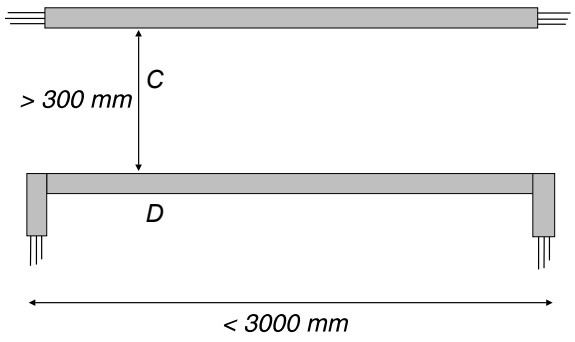
4.5 Bus cable installation

- If the bus cable runs parallel to a 230/115 V AC low power supply cable (for lamps etc), the minimum distance between cables is 300 mm, see picture 1.

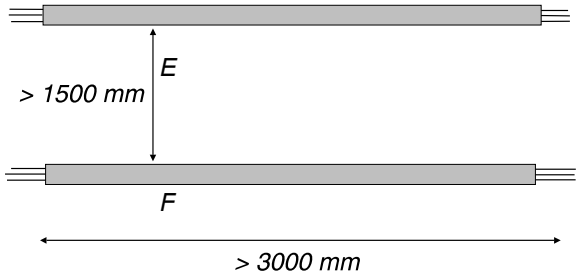


: Low power ≤ 10 A
: High power > 10 A
:
A =: 230/115 V cables - low power
B =: Data cables

2.



3.



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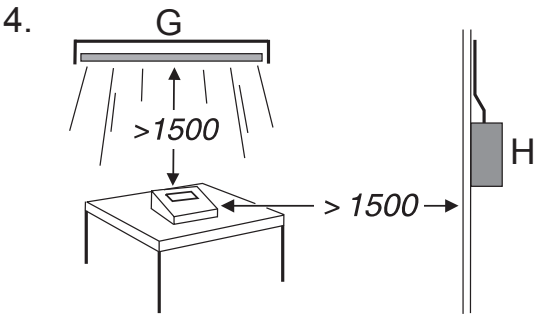
C =: 220 - 500 V cables - high power
D =: Data cables
E =: 220 - 500 V cables - high power
F =: Data cables

4.



213603

G =: Fluorescent lamp
H =: Contactors, fuses etc.

- If the bus cable runs parallel to a 230-500 V AC high power supply cable (for motors, heaters etc) for less than 3000 mm, the minimum distance between cables is 300 mm, see picture 2. If they run parallel for more than 3000 mm, the minimum distance is 1500 mm, see picture 3.
- Maximum bus cable length is 1000 metres.
  Type of cable: only DeLaval approved Alcom cable may be used.
- To prevent mice from entering the cable ducts, tighten the duct ends and install cable glands.
- Keep a minimum distance of 1500 mm between system controller and fluorescent lamps, contactors and other interference sources, see picture 4.
- The feeding stations shall be connected and earthed according to current local regulations.
- Contactors and transformers shall be installed according to current local regulations.
- Install system controller, printer and other control units in a warm office.

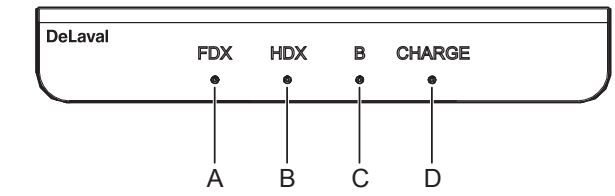


Fig. 18: LEDs of the IRW electronic box.

Start up

DeLaval ID reader walk by IRW

1 Starting up the IRW

To start up the IRW:

1. Connect the IRW to power.
   ⇨ The IRW enters antenna auto tuning mode. The "Charge" LED (D) at the top of the IRW is flashing and the other LEDs (A-C) are lit.
2. Wait until the antenna auto tuning is done.
   ⇨ If the auto tuning is OK, the "Charge" LED (D) is flashing and the other LEDs (A-C) are unlit.
3. Correct any issues if necessary. For more information, see chapter *"Troubleshooting"* for DeLaval ID reader walk by IRW.
4. Configure the IRW via menu 6:3:8 *"Multireader"* in ALPRO Browser.
   - For B-transponders:
     – *"WORKING MODE:"* set for *"REDUCED NUMBER"*
     – *"ID SYNCHRONIZATION MODE:"* set for *"ALCOM SYNC"*
     – *"CHARGE FREQUENCY:"* set for *"131 kHz"*
     – *"ID SYNCH CYCLE:"* set for *"10 s"*
   - For ISO transponders:
     – *"WORKING MODE:"* set for *"HDX NUMBER"*
     – *"ID SYNCHRONIZATION MODE:"* set for *"ALCOM SYNC"*
     – *"CHARGE FREQUENCY:"* set for *"134 kHz"*
     – *"ID SYNCH CYCLE:"* set for *"10 s"*

   For more information, see section *"Menu 6:3:8 MULTIREADER"* in chapter *"Function"* in the Instruction Book for ALPRO WE 3.1, document number 861392.
5. Test the photocell via ALPRO Browser. See more in ALPRO/DelPro manuals.

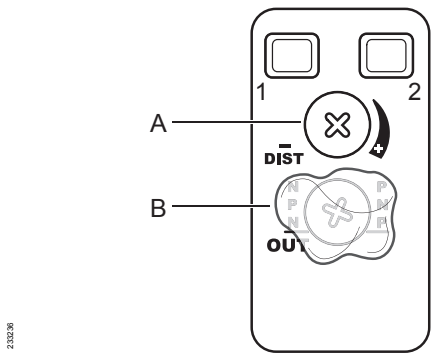


Fig. 19: Adjusting the photocell sensitivity.

A: Adjust photocell sensitivity.
B: Do not touch (sealed). It should always stay in the pre-set NPN mode.
1: Green light when power on.
2: Yellow light when the photocell is activated.

6. If necessary, adjust the photocell sensitivity (A) by means of a screwdriver. General points of advice:

- If the farm has black cows, it might be necessary to increase the sensitivity since black reflects light poorly.
- If the wall or area opposite to the photocell is bright, it might be necessary to decrease the sensitivity.

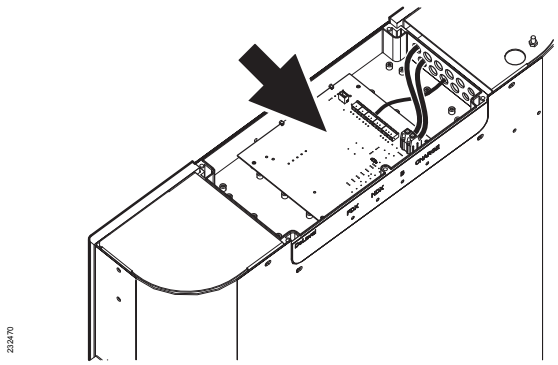


Fig. 20: Do not touch indicated electronic box.

Replace and Repair

DeLaval ID reader walk by IRW

1 Safety precautions when replacing parts

Mandatory!
Disconnect the electrical supply before removing shields, covers or guards

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

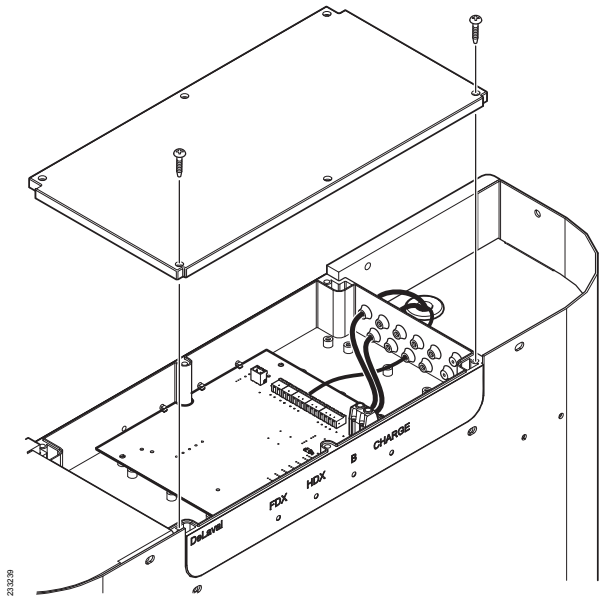


Fig. 21

2 Replacing the circuit board

To replace the circuit board:

1. Remove the cover at the top of the IRW and disconnect power.
2. Disconnect the cables from the circuit board. The antenna wire is screwed into place; all other connections are regular ones.
3. Replace the circuit board.
4. Connect the cables to the new circuit board. For more information, see *Chapter 4 "Performing the electrical connections" on page 11*.
5. Verify that the new card has the same strapping as the old one. This is important for addresses, installation setups, etc.
6. Attach the cover at the top of the IRW.

3 Replacing the antenna

The antenna panel with the antenna wire is screwed into the galvanized steel stand of the IRW.

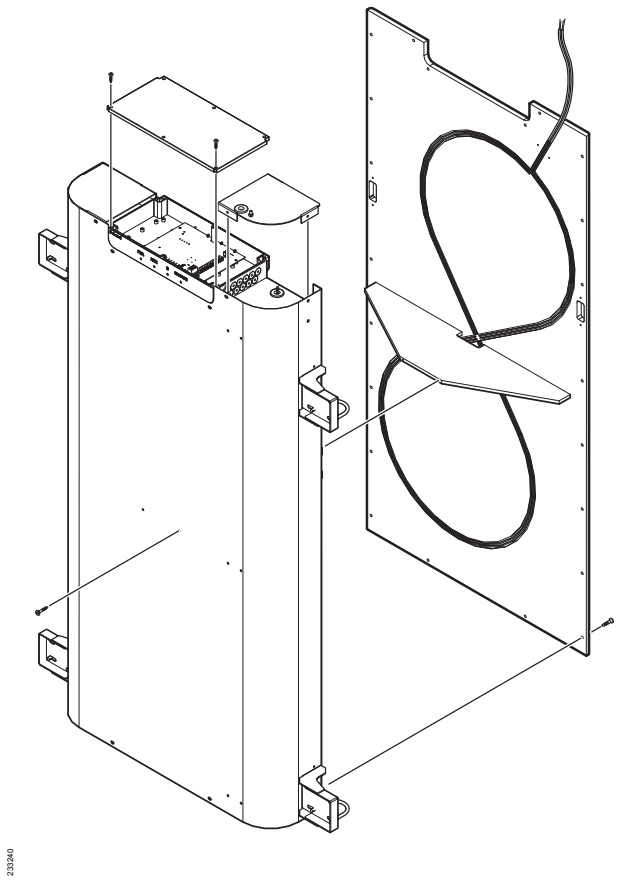


Fig. 22

To replace the antenna:

1. Remove the cover at the top of the IRW and disconnect power.
2. Disconnect the antenna and photocell cables.
3. Unscrew the screws that hold the antenna panel in place.
4. Loosen the bolts holding the antenna panel support on the steel stand side.
5. Mount the new antenna panel. Make sure it is mounted in the same direction as before.
6. Reconnect all cables in the electronic box.
7. Reassemble all bolts and screws, and put back the cover on the electronic box.

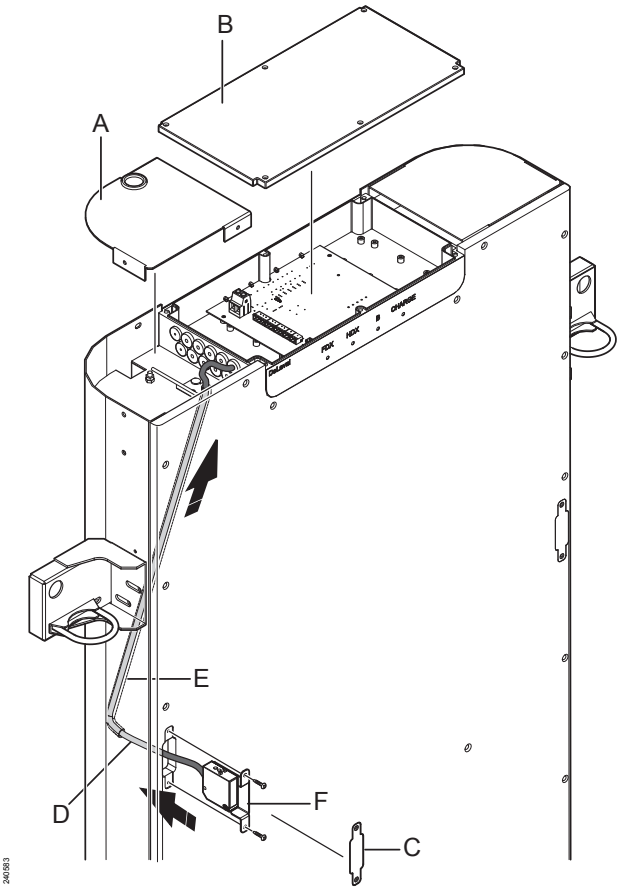


Fig. 23: Photocell installation.

4 Replacing the photocell

To replace the photocell:

1. Remove the cover (B) at the top of the IRW and disconnect power.
2. Remove the cover to the electronic box at the top of the IRW (B).
3. Remove the cover from the installation slot (C).
4. Disconnect the photocell cables from the circuit board.
5. Remove the photocell and the cables.
6. Pull the cables (D) of the new photocell through the cable channel (E), using a cable puller.
7. Fasten the photocell and the bracket to the IRW with two screws (F).
8. Connect the photocell cables to the circuit board. For more information, see *Chapter 4 "Performing the electrical connections" on page 11*.
9. Put back the top-left cover and the cover to the electronic box.

Troubleshooting

DeLaval ID reader walk by IRW

1 General

No.	Symptom	Cause	Action
1	Wrong ID or missed ID. Low hit rate.	More than one cow in front of the antenna.	■ Narrow or extend the lane in front of the antenna. ■ Use an archway to prevent cows from mounting each other in the lane.
		Dirty or broken photocell.	■ Check the function of the photocell in ALPRO Browser menu 6:3:4 *"Portal ID"*. For more information, see section *"Menu 6:3:4 PORTAL ID"* in chapter *"Function"* in the instruction book for ALPRO WE 3.1, document number 861392. ■ Verify that the photocell is installed on the correct side of the IRW. ■ Replace the photocell.
		Gate switch wrongly connected .	Connect the switch correctly. It is important to get a correct signal, "open" when open and "closed" when closed.
		Cables wrongly connected to the IRW.	■ The cables connected to the IRW (12 VAC, ALCOM and gate switch wire) should run through the cable duct inside the antenna. ■ The cables should go through the grommets and then follow steelworks or frameworks in the parlour.
		Problems with ALCOM bus communication.	Verify that all node addresses have been configured correctly.
		ALCOM bus not connected.	Connect the ALCOM bus.
		Antenna terminals wrongly connected.	Check that antenna terminals are properly connected and have a clean surface against the board terminals.

» Continue next page

No.	Symptom	Cause	Action
		Broken antenna.	Change the complete front plate (including antenna).
		Problems with the IRW software.	Check the IRW software version in ALPRO Browser menu 6:4:3 *"Portal ID"*. If needed, update to the latest version via Configuration Tool.
2	Missed ID when cows are entering.	Interference from frequency converter (especially in rotary).	■ Follow the assembly instructions for the frequency converter. ■ Use shielded wires. ■ Check with the frequency converter supplier how to achieve efficient interference suppression. ■ Use a filter on the cable. ■ Place the frequency converter as far away as possible from the antenna. ■ Do not install the frequency converter in the same cable duct as the antenna.
		Input voltage below 12 VAC -10%.	Verify that the input voltage is within the tolerance, 12 VAC +20%, -10%.
		Disturbance from: - Computer screens - Mobile phone charger - Lights - Other electronics	■ Use filters. ■ Keep long distance between the antenna and the noise source ■ Do not install the any electronics in the same cable duct as the antenna. ■ Use shielded wiring.
		Antenna mounted too close to: - Calf feeder (minimum 30 m) - Any non-synchronised ID equipment - Long-wave radio transmitter (e.g. calf feeder or sort gate from competitors)	Increase the distance between the noise source and the antenna.
		The IRW is not connected to the system.	■ Check connection status in ALPRO Browser menu 6:8:1 *"Node status"*:

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No.	Symptom	Cause	Action
			– " * " means that a node is connected to the bus and configured correctly. – " x " means that a node is not connected to the bus, but configured correctly. – " + " means that a node is connected to the bus, but not configured correctly. ■ Verify that all node addresses have been configured correctly. ■ Check that the ALCOM bus wire is connected to pin 3 and 4. ■ Check that the ALCOM bus is connected properly to the system controller.
		ALPRO Browser menu 6:8:1 *"Node status"* indicates that the IRW is not connected at all times. The symbols are changing between " * " and " x ".	■ Verify that all node addresses have been configured correctly. ■ Check that all other nodes are working properly. If another node is broken, it might cause communication problems on the bus.
3	Cow ID does not appear on the MPC at all when cows are entering the parlour.	Communication problem.	■ Check the ALCOM bus connection on the IRW. ■ Verify that the transponder activation LED ("B" or "HDX") on the IRW is flashing when cows are passing. ■ Check that the IRW is configured correctly in ALPRO Browser. ■ Rotary: verify that the cow is detected by the photocell before the switch (sensor) is activated by the "shoe".
4	Cow ID is erased from the MPC before the parlour is full.	Exit gate switch in not operation correctly.	Check if the led at the back of the switch flashes when opening the exit gate. If not adjust the switch or exchange for new one.

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No.	Symptom	Cause	Action
5	Antenna auto tuning during IRW power up indicates a problem.	The antenna has too low inductance. The "B", "HDX" and "FDX" LEDs will flash for ten seconds.	■ If steelwork is mounted on the IRW after installation, it might reduce performance. ■ Check that the steelwork is not deformed and is of galvanized steel. The width should be 800 mm and depth 300 mm. If this is changed during installation, problems will occur.
		The IRW is waiting for a software installation from the system controller. The "B", "HDX" and "FDX" LEDs will flash constantly.	Use menu 6:7:3:4 *"Multireader"* in ALPRO Browser to load the software from the system controller to the IRW.