



Nedap Velos

RealTime Heat detection



Version overview

Manual version 1.0 / 06 - 2011	First release.
Manual version 1.1 / 10 - 2011	RealTime FCC and IC warning.
Manual version 1.2 / 01 - 2012	Manual updated for Velos 3.00
Manual version 1.3 / 07 - 2012	Updated safety warning, service and user information.
Manual version 1.4 / 08 - 2012	Updated VPU LAN connection
Manual version 1.5 / 01 - 2013	Updated mounting instructions
Manual version 1.6 / 01 - 2013	Updated service password
Manual version 1.7 / 06 - 2013	Update for Eating monitoring

FCC ID: CGDRTLACT / CGDRTLACTN
IC: 1444A-RTLACT / 1444A-RTLACTN

Compliance statements (part15.19)

This device complies with part 15 of the FCC Rules and to RSS210 of Industry Canada.

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.

Cet appareil se conforme aux normes RSS210 exemptés de license du Industry Canada. L'opération est soumis aux deux conditions suivantes:

- (1) cet appareil ne doit causer aucune interférence, et
- (2) cet appareil doit accepter n'importe quelle interférence, y inclus interférence qui peut causer une opération non pas voulu de cet appareil.

Warning (part15.21)

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

This in particular is applicable for the antenna which can be delivered with the System.

This information is furnished for guidance, and with no guarantee as to its accuracy or completeness; its publication conveys no license under any patent or other right, nor does the publisher assume liability for any consequence of its use; specifications and availability of goods mentioned in it are subject to change without notice; it is not to be reproduced in any way, in whole or in part, without the written consent of the publisher.

© Nedap N.V., AGRI P.O. Box 104 NL-7140 AC GROENLO The Netherlands

Preface

This manual describes the installation, operation, troubleshooting and maintenance of the RealTime Heat detection system. Read this manual entirely and when installing, carefully follow the instructions step by step as described in the manual.

Conventions

Abbreviations used in this manual:

RT RealTime (used for motion sensor type)

VP V-pack

Pictograms



Please pay extra attention here. This pictogram indicates an important subject.

More information

- Later versions of this document will be posted to the Nedap Agri Website, as required. Please visit our website (<http://www.nedap-agri.com>) for more information or to find related manuals.

Table of contents

Preface and Version overview

Table of contents

1. Introduction and description	1
2. Working/Functioning	2
3. Safety.....	3
3.1. Safety warnings.....	3
3.2. Safety precautions during installation.....	3
3.3. Animal welfare and safety	3
4. Installation	4
4.1. Mounting the V-box 1 and the V-box 2 on the wall.....	4
4.2. Mounting the antenna.....	4
5. Starting up operation.....	5
5.1. Connecting the process unit.....	5
5.2. Connecting the antenna	7
5.3. Connecting the PC or network	7
5.4. Connecting the power	8
5.5. Setting up the VPU network configuration	8
5.6. Setting up the VPU software	8
6. Start up operation VPU program	9
6.1. First settings.....	9
6.2. Entering new animal numbers (and groups)	11
6.2.1. Entering new groups	11
6.2.2. Entering new animal numbers in the system.....	11
6.2.3. Changing the responder number and/or basic data	12
6.3. Heat detection attention settings.....	13
6.4. Eating monitor attention settings (neck sensors only).....	14
7. Operation VPU program	15
7.1. Viewing animals in heat.....	15
7.2. Viewing eating monitor attentions (neck sensors only)	19
7.3. Viewing label attentions (neck sensors only)	20
7.4. Using e-mail notification	21
7.5. Using a mobile phone with Internet connection	21
7.6. Setting up the calendar attentions.....	22
7.7. Viewing calendar attentions	23
7.8. Entering calendar data	24
8. Maintenance	26
9. Malfunctions	27

10. Disposal	28
Appendix A Technical specifications.....	29
Appendix B Restore factory defaults	30
Appendix C Setting the VP4101 address	31
Appendix D VP4101 Display	32
Appendix E Mounting the V-box.....	33
Appendix F Installing more than one antenna.....	35
Appendix G Mobile access	38
Appendix H Setting up the VPU network configuration	40
Appendix I Using synchronisation with a Nedap server	42
Appendix J Declaration.....	43

1. Introduction and description

The behaviour of an animal in heat is quite different from her normal behaviour. The activity measurement monitors the changes in the behaviour of the individual animals day and night and it will detect animals that are in heat.

The activity of the animals can be with measured with **RealTime** motion sensors. The antenna in the barn receives the activity information from the RealTime motion sensor of the individual animals. The Velos program determines the activity increase of an animal. If an animal is a lot more active than usual it will get an activity attention. The red light on the process unit will indicate this attention. The Velos program displays overviews of animals with a clear increased activity on a PC screen or on a mobile phone.

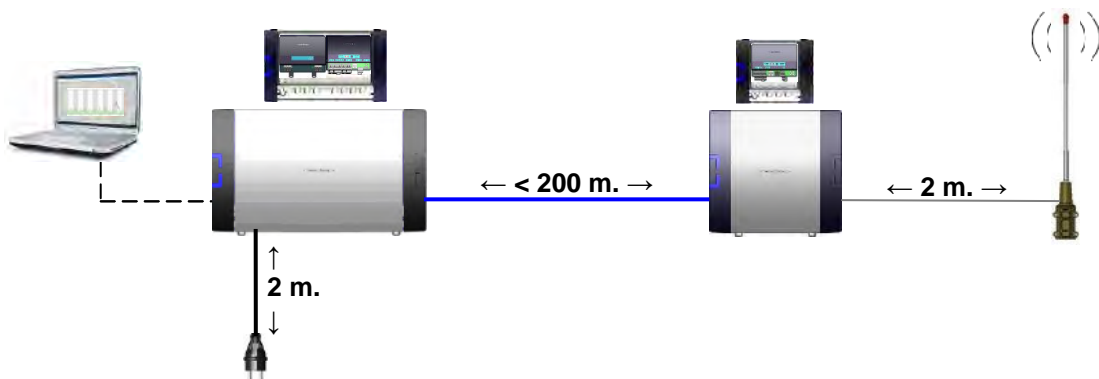


Figure 1. Overview RealTime system with cable distances

The RealTime system consists of one or more antennas and a process unit connected to a PC or network. This system works with RealTime motion sensors only.

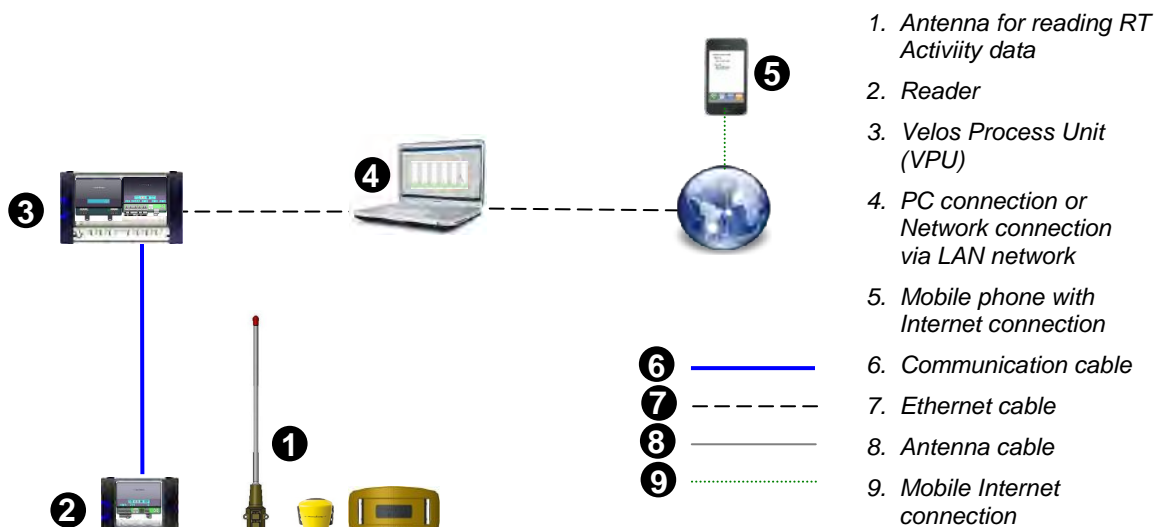
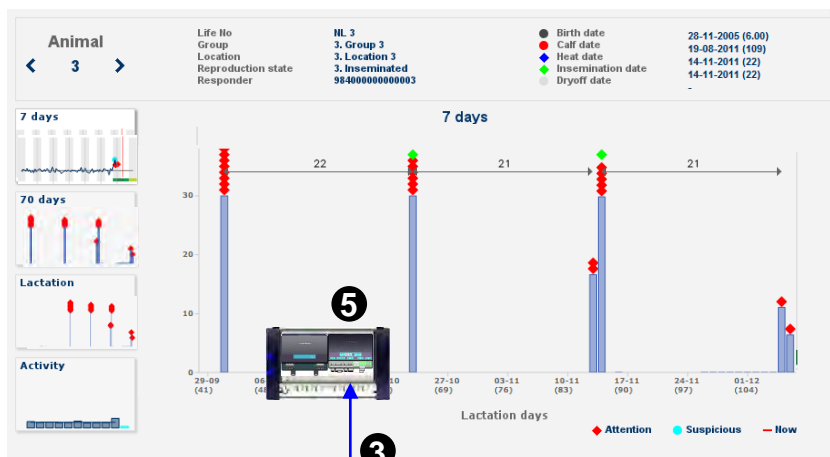


Figure 2. Overview RealTime system with cable types used

2. Working/Functioning

The VP4101 antenna reader collects the activity information and the animal responder number from every RealTime motion sensor in the antenna reception field and sends it to the Velos VPU controller program. The RT sensor should be in range of the antenna field at least once every 24 hours to collect all the activity data but more frequent is advisable for accurate attentions. The reception range of the antenna field is at least 50 meters depending on the housing environment materials. More than one antenna can be used to reach a larger reception area.



1. Leg / Neck RT motion sensor
2. Antenna
3. Motion sensor info with responder number and activity data
4. Reader
5. VPU controller with Velos program

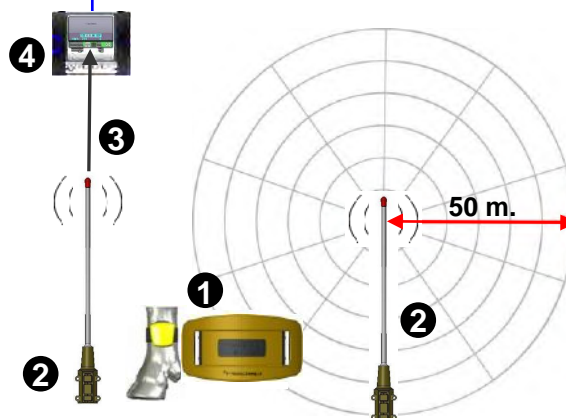


Figure 3. Connection between Velos program and RealTime antenna

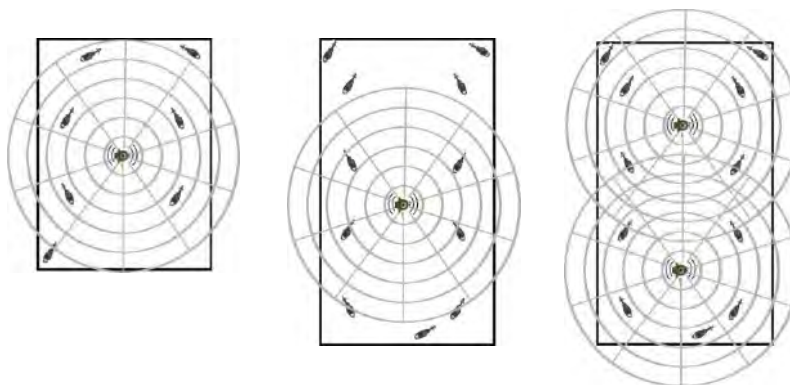


Figure 4. Examples of possible detection areas of 1 or 2 antennas

3. Safety

For safety reasons the equipment is provided with safety measurements like mounted protection shields. Possible dangerous places or situations are marked with safety warning stickers.

- Pay attention to all safety warnings.
- Make sure all safety warnings remain visible.

3.1. Safety warnings

- Beware of all moving parts, like turning doors, gates and motors.
- Pay attention to all safety warnings on the devices.



Danger due to electromagnetic fields.

People with pacemakers, metallic implants or hearing aids may experience complications. Such people should consult their doctor before entering a site with inverters.



Make sure all safety warnings remain visible.

3.2. Safety precautions during installation

- Always turn off the main power when working on the electrical installation.
- The installation area must be free from any obstacles, including animals.
- When installing, carefully follow the instructions in this manual step by step.
- Make sure all items are installed out of reach of animals.

3.3. Animal welfare and safety

The automated actions of the Nedap Velos Livestock Management System do never discharge the user of the system from his/her responsibility to assure **and** to take care of the well-being of the animals.

4. Installation

See chapter 4 and 5 for the installation of one antenna. For installing more than one antenna see also Appendix F. See chapter 3.1 for safety precautions during installation and Appendix A for technical specifications.

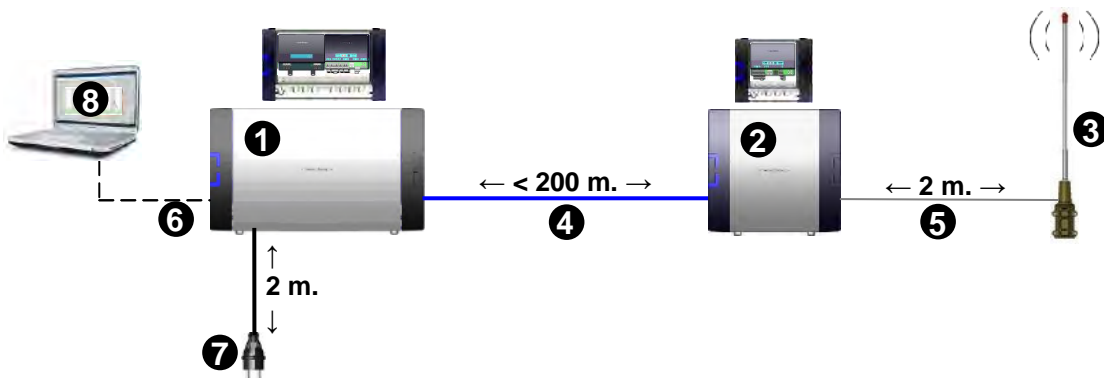


Figure 5. Overview Heat detection system items with numbers range of order of installation

4.1. Mounting the V-box 1 and the V-box 2 on the wall

Mount the V-box 1 (with the antenna reader) and the V-box 2 (process unit with the power supply and the VPU controller) on a wall. Pay attention to the maximum cable length. See Appendix E for more information about mounting the V-boxes.



The maximum distance between the VPU and the VP4101 is 200 meter.



Figure 6. Maximum cable length

4.2. Mounting the antenna

Mount the antenna firmly on a bar. Use the supplied mounting brackets, bolts and nuts. Keep enough distance from the floor, the walls and the ceiling.

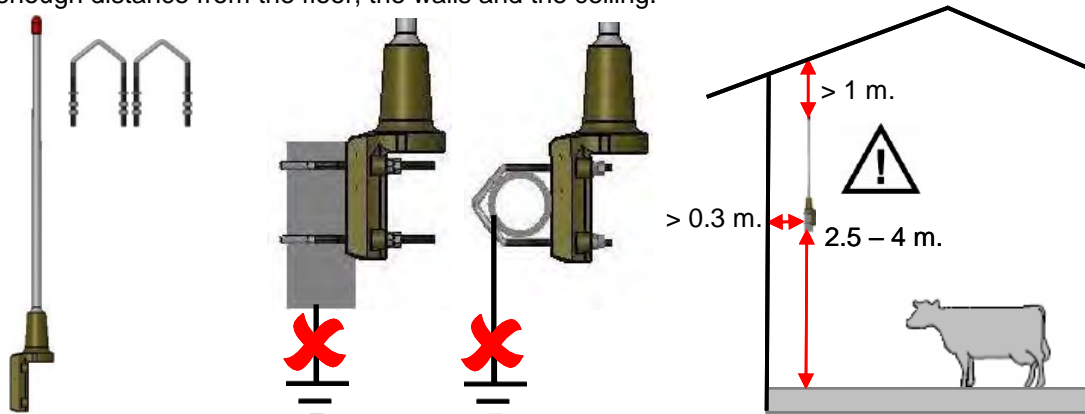


Figure 7. Mounting the antenna on a horizontal or vertical bar with two mounting brackets

5. Starting up operation

5.1. Connecting the process unit

Connect the VPU controller to the VP4101 antenna reader and to a PC.

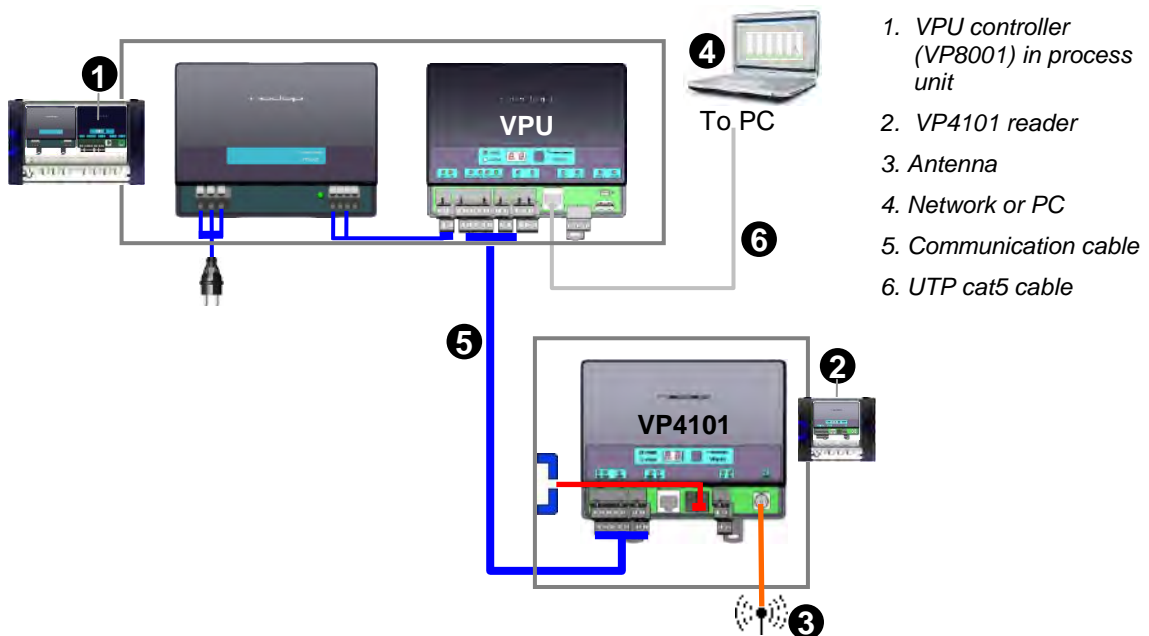


Figure 8. Overview process unit connected to one or more VP4101 readers

1. Prepare the length of the blue communication cable for the distance between the VPU and the VP4101. Pay attention to the maximum cable length of 200 meter



Figure 9. Maximum cable length

2. Take the connectors from the VPU controller and the VP4101 reader that need to be wired. Put the communication cables through the cable glands, connect the communication cable to the connectors and plug the connectors in the VPU controller and the VP4101. See the next page for a detailed wiring scheme for the cable between the VPU and the VP4101.

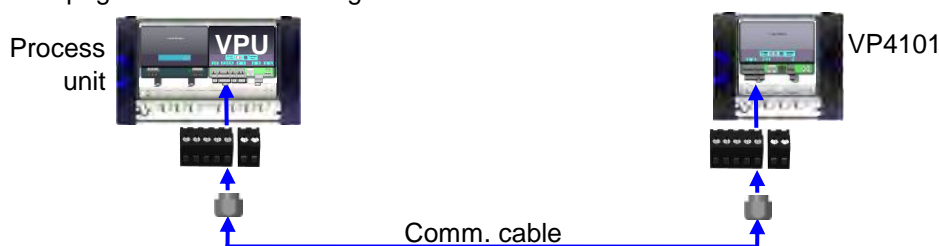
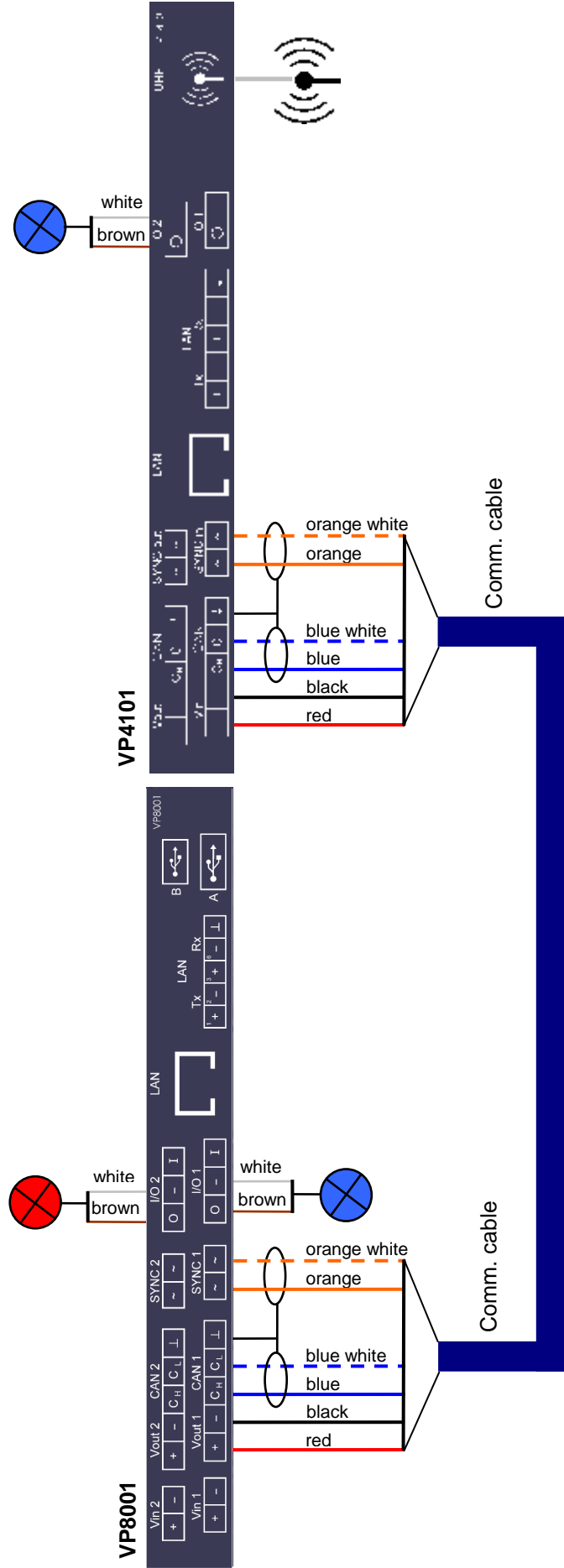


Figure 10. Connecting the VPU and the reader

Heat detection wiring communication cable from VPU (VP8001) to the first VP4101



The default position of the red heat detection attention light is on the VP8001 (VPU) as shown. The red light can optionally be connected to O 1 on the VP4101.

5.2. Connecting the antenna

Connect the antenna to the VP4101 reader.

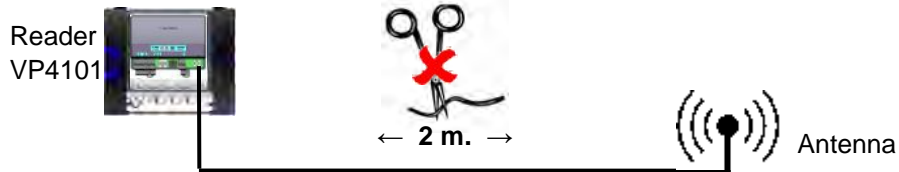
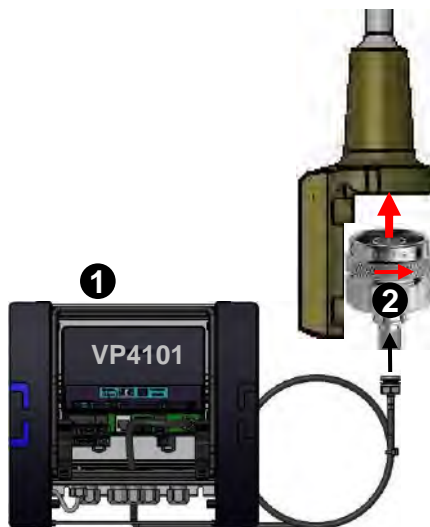


Figure 11. Distance between reader and antenna



Do NOT shorten or lengthen the cable. The antenna cable length must stay 2.5 meters.



1. V-box 1 housing with VP4101 Reader
2. Antenna cable

Figure 12. Antenna connection to VP4101

5.3. Connecting the PC or network

Connect the process unit UTP cat5 cable to a network or PC.

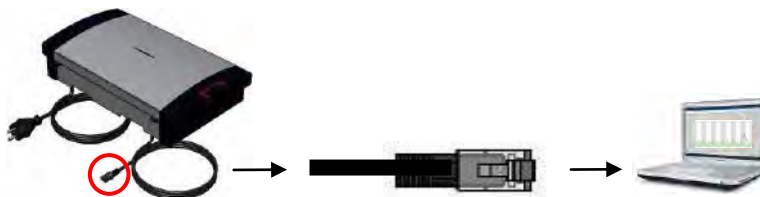


Figure 13. Connecting the process unit to a PC or network

5.4. Connecting the power

Connect the Process unit power supply (VP2002) plug to a main electricity source.

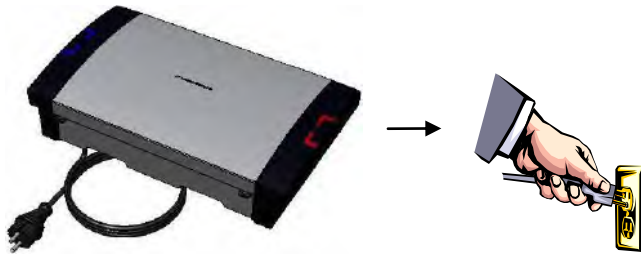
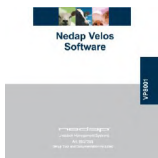


Figure 14. Connecting the power

5.5. Setting up the VPU network configuration



To set up the network configuration make sure the VPU is operational and connected to the network. Take the **VPU Setup CD** and run it on the connected PC to set the IP address correctly automatically. See Appendix H for more information about this.



5.6. Setting up the VPU software

The VPU software is pre-installed. Start up the VPU program to adjust some general program settings.

1. Click on the VPU program shortcut on the desktop to start the program on the VPU controller. Enter the **service password** in the login page and press login. The default service password is *service* and the default user password is *1234*.



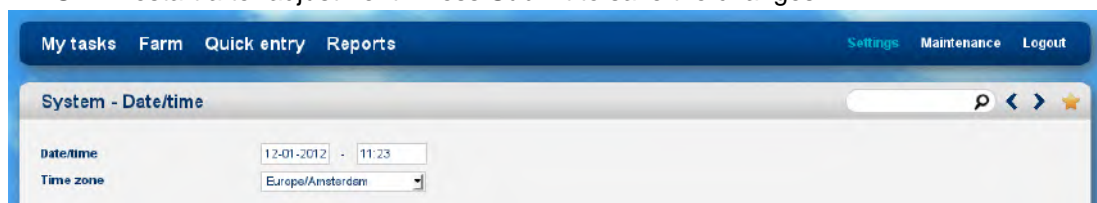
Username:

Password:

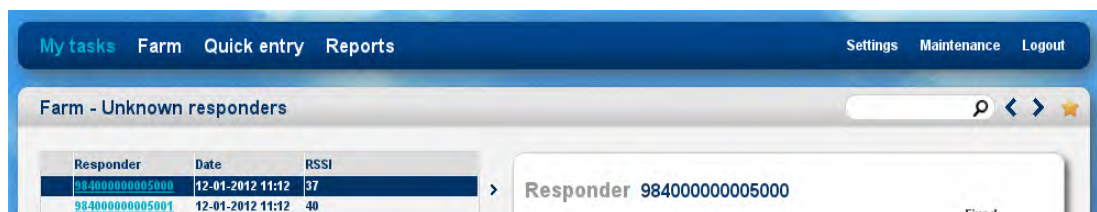
Remember me:

service password = service

2. Check the date (format) and time (zone) in the page *Settings > System – Date/time*. The VPU will restart after adjustment. Press Submit to save the changes.



From now on the antenna will function.



Responder	Date	RSSI
98400000005000	12-01-2012 11:12	37
98400000005001	12-01-2012 11:12	40

Responder 98400000005000 Fixed

The responder number identified at the antenna and the signal strength at the detecting location will now be shown in the page *My tasks > Farm – Unknown responders-realtime*.

6. Start up operation VPU program

Enter the animal and responder numbers and the heat detection settings.

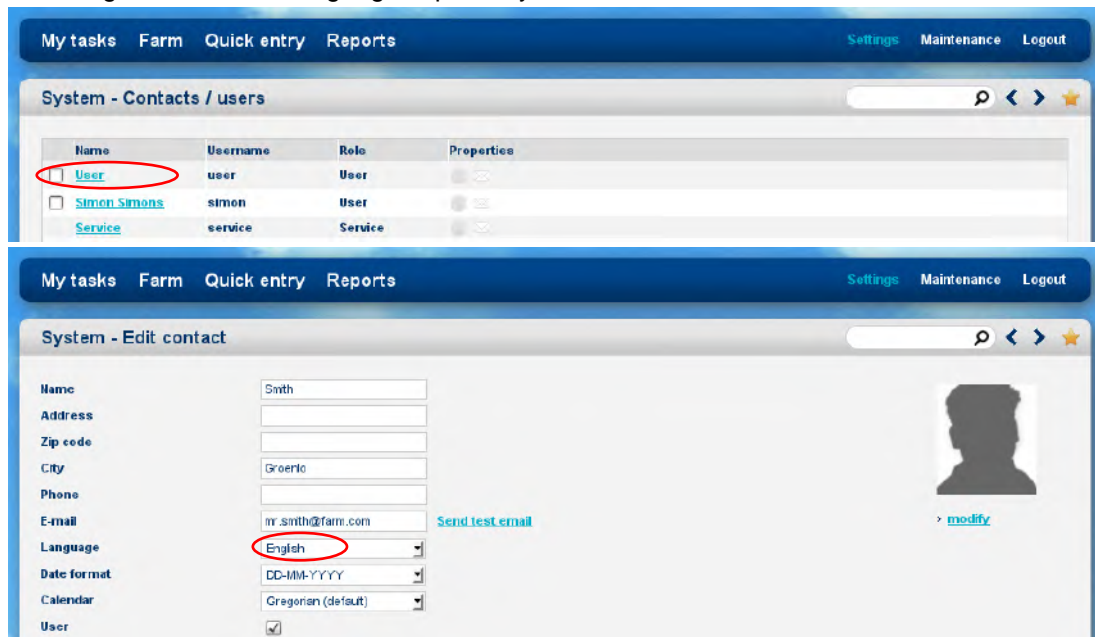
6.1. First settings

Enter the password and make the first settings.

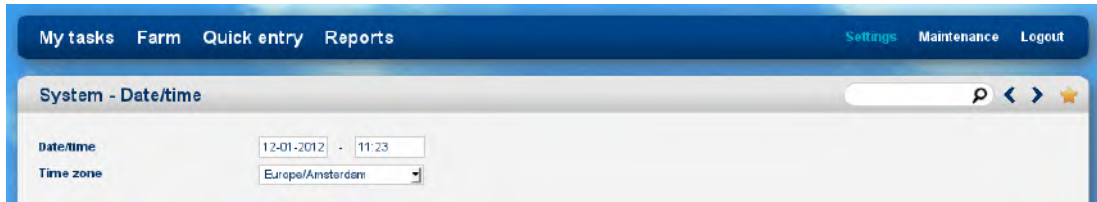
1. Click on the VPU program shortcut on the desktop to start the program on the VPU controller. Enter the user password in the login page and press *Login*. The default *User* password is 1234.



2. Enter a unique user password in the English page *Settings > System – Users*. Click on the left hand side of the page on *Settings* and then on *Users* (under the *System* heading). Click on **User** to change the default password in a new password and to change the language from English to another language. Optionally add more users.

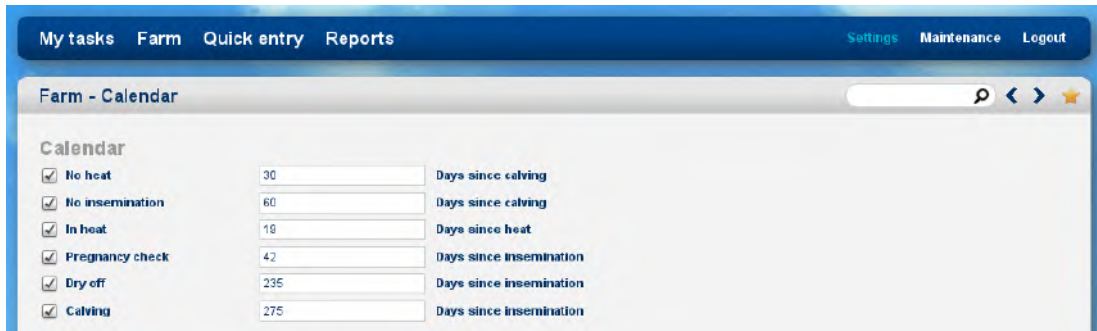


3. Check the date and time (zone) in the page *Settings > System – Date/time*. The VPU will restart after adjustment. Press *Submit* to save the changes.



The screenshot shows the 'System - Date/time' settings page. At the top, there is a navigation bar with 'My tasks', 'Farm', 'Quick entry', and 'Reports'. On the right, there are links for 'Settings', 'Maintenance', and 'Logout'. Below the navigation bar, the page title is 'System - Date/time'. There are two input fields: 'Date/time' with the value '12-01-2012' and '11:23', and 'Time zone' with a dropdown menu showing 'Europe/Amsterdam'.

4. Optionally adjust the calendar attention settings in the page *Settings > Farm – Calendar*. See chapter 7.4, 7.5 and 7.6 for more information about the calendar.



The screenshot shows the 'Farm - Calendar' settings page. At the top, there is a navigation bar with 'My tasks', 'Farm', 'Quick entry', and 'Reports'. On the right, there are links for 'Settings', 'Maintenance', and 'Logout'. Below the navigation bar, the page title is 'Farm - Calendar'. There is a section titled 'Calendar' with a table of settings:

Calendar	Value	Label
<input checked="" type="checkbox"/> No heat	30	Days since calving
<input checked="" type="checkbox"/> No insemination	60	Days since calving
<input checked="" type="checkbox"/> In heat	19	Days since heat
<input checked="" type="checkbox"/> Pregnancy check	42	Days since insemination
<input checked="" type="checkbox"/> Dry off	235	Days since insemination
<input checked="" type="checkbox"/> Calving	275	Days since insemination

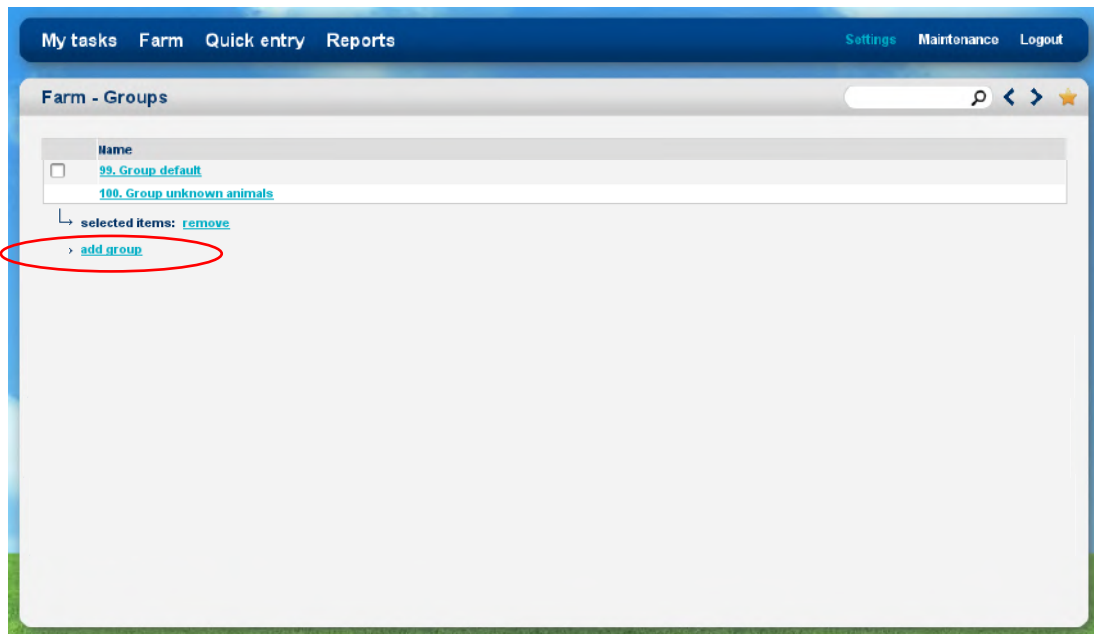
6.2. Entering new animal numbers (and groups)

6.2.1. Entering new groups

There is one default group: group number 99.

Name
99. Default group

Optionally add one or more new group(s) in the page *Settings > Farm - Groups* to be able to put animals in different groups.

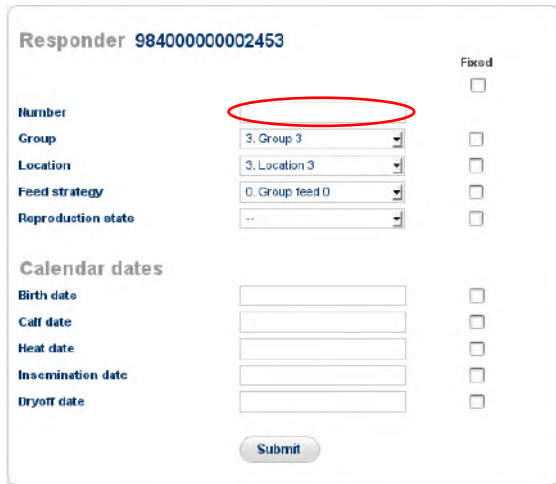


6.2.2. Entering new animal numbers in the system

Add the animal numbers and the other animal data in the VPU program after the responders from the animals were identified at an antenna. The responder number of animals with a motion sensor, identified at the antenna for the first time, will appear in the page *My tasks > Farm - Unknown responders*.



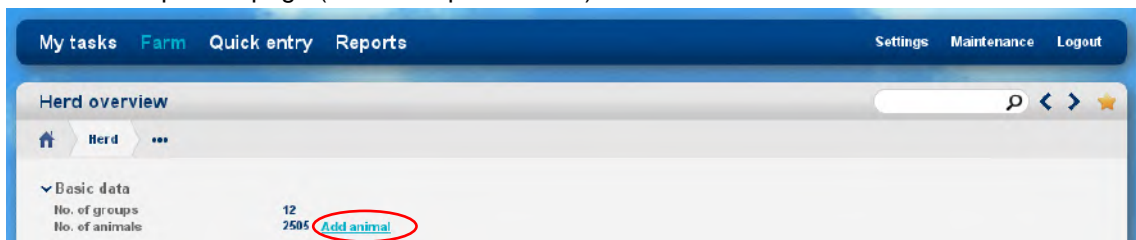
Click on a responder number to enter the animal number from this sensor in the program.




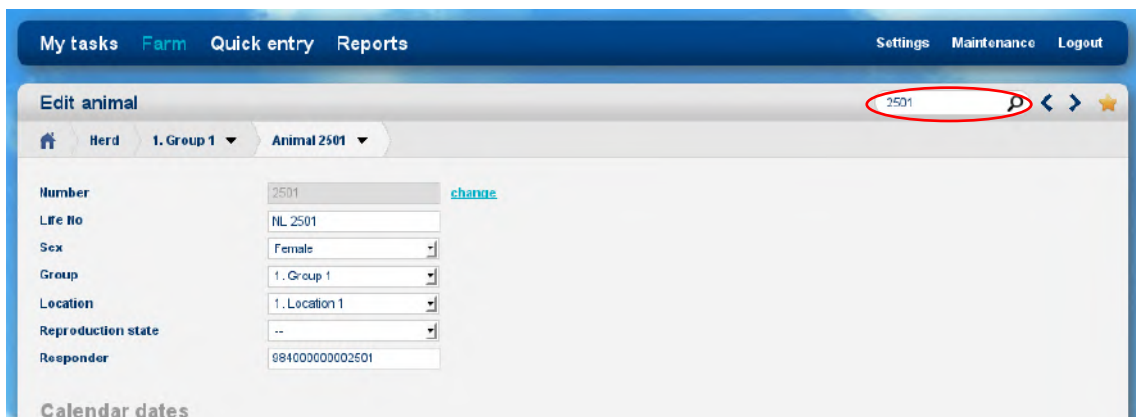
Enter the animal number from the animals with the unknown responder numbers and optionally adjust the group number and the other data. Click on Submit to store the data. Use the option Fixed to keep this same value for the data of the next motion sensor.

6.2.3. Changing the responder number and/or basic data

Adding a responder number and data from new animals manually is possible in the page *Farm > Herd or Group overview* (see screenshot below) but not advisable. It is easier to identify the responder number at the antenna first and enter the animal data via the Unknown responder page (see description above).



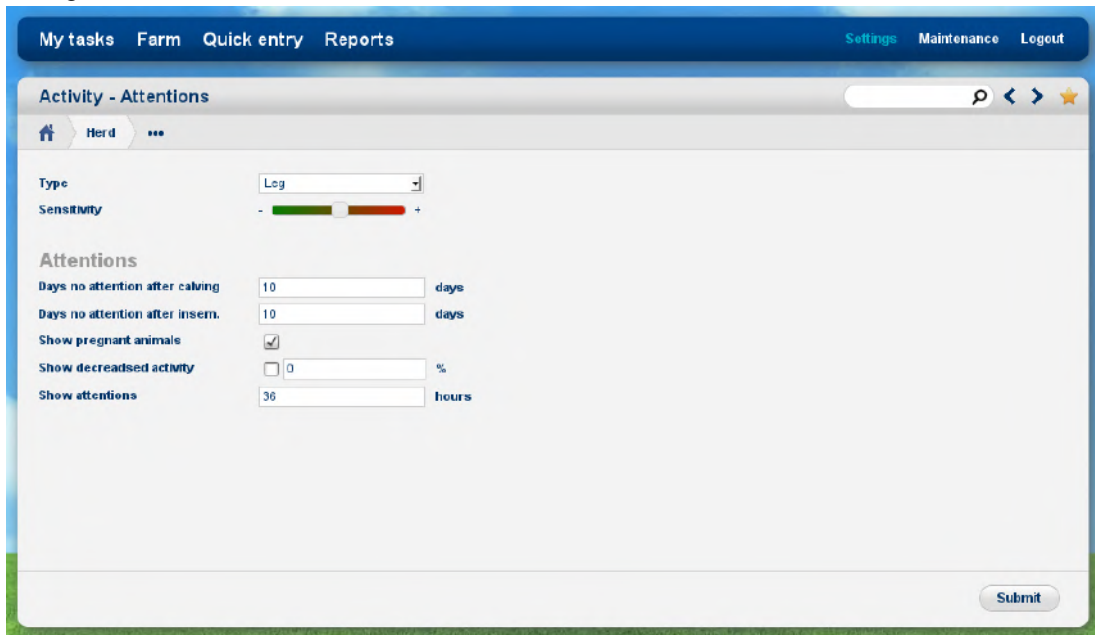
To change the responder number or to add or change other basic data after an animal was entered for the first time, select the link Basic data in the page *Farm > Animal* (enter the number behind the magnifying glass  at the bottom of the page and press enter). The responder number can not be changed when using synchronisation with a Nedap server (see Appendix I for more information about this).



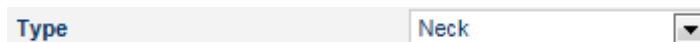
Enter the heat dates and calving dates in this page later on also or use the *Quick entry* page.

6.3. Heat detection attention settings

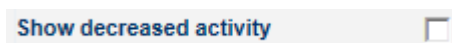
Optionally adjust the activity settings in the page *Settings > Activity - Attentions*. The first days after calving and insemination NO attentions will be given because the averages are not reliable yet. This first period of no attentions will only work if the calving date and the last insemination date of an animal is always entered. Turn off the *Show pregnant animals* check box to ignore the activity attentions of animals with state pregnant. In case of leg sensors only: turn on the *Show decreased activity* check box to see the animals with a decreased activity attention. The activity attentions will disappear after the *Show attentions* set hours. Press *Submit* to save any changes.



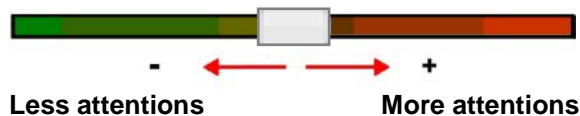
Enter the type of sensor (Leg or Neck) used. In case of both neck and leg sensors on one farm, create separate groups for the different types of sensors.



In case of neck sensors: turn off the field *Show decreased activity*.

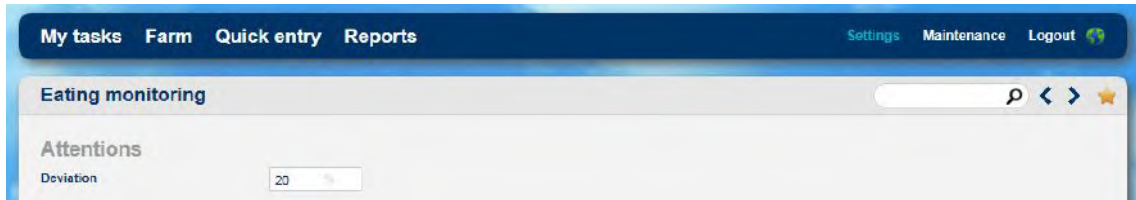


Adjust the sensitivity of the activity attentions if necessary. Animals will get an attention when the activity is higher than the level set for several following 2-hour periods. In case of a lower sensitivity less animals will get an attention.



6.4. Eating monitor attention settings (neck sensors only)

Adjust the threshold (default 20%) of the eating monitor attention settings if necessary in the page *Settings > Eating monitoring - Attentions*. Animals will get an attention when the feed eating time is lower than the average level of this animal of the past 10 days.



7. Operation VPU program

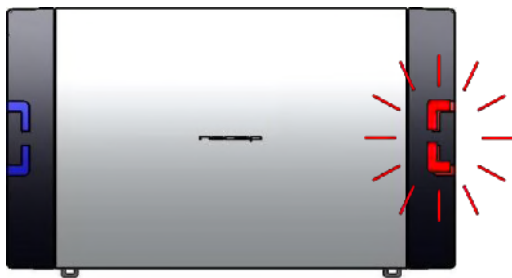
7.1. Viewing animals in heat

The behaviour of an animal in heat is quite different from her normal behaviour. She is restless, tries to mount other animals, gets mounted by other animals and shows a standing reflex.



The antenna will often receive the activity information and the animal responder number from every RT motion sensor in the antenna field. The antenna reader collects these data and sends them to the Velos program every 2 hours. An animal does not need to be in the antenna field all the time, at least once every 24 hours is the minimum to store the complete 24 hour activity data but more frequent readings is necessary for accurate attentions.

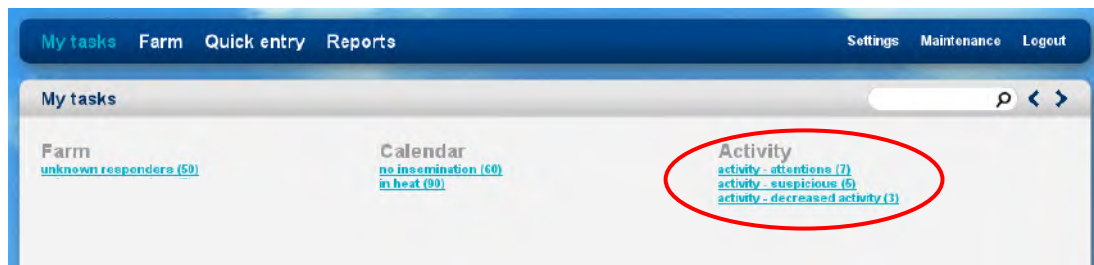
The activity measurement monitors the changes in the active behaviour of the individual animals because the activity in a period is compared to the activity in the same period on the previous days. An activity attention is generated if necessary. The program displays overviews of animals with an activity attention on a PC screen or on a mobile phone.



The red attention light of the process unit will warn if there is an activity attention.

There are 2 types of activity attentions: **Activity attention animals** that are most likely in heat and **Suspicious animals** that may be in heat but do not have an attention (yet).

Highly increased activity	Suspicious	Attention
Nr. of following 2-hour periods	2	3 or more
In Heat	Maybe	Probably



View animals with an activity attention in the page *My tasks* > *Activity - attentions*. View suspicious animals in the page *My tasks* > *Activity - suspicious*.

View animals with a decreased 24h activity in the page *My tasks* > *Activity - decreased activity*. Optionally check other data from these animals (e.g. decreased activity details, milk yield and feed balance) and check the animals for e.g. lameness if necessary.

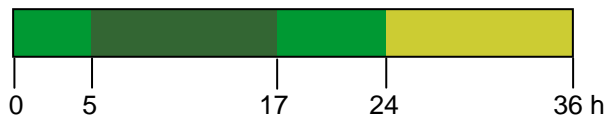
Check animals with a clear activity attention in the page *My Tasks > Activity – attentions*. Check the optimum insemination moment, the number of days in lactation, the number of days since the last heat and the number of days since the last insemination. The dark green colour in the coloured bar indicates the optimum insemination moment.

Click on an animal number to view the activity details from the past days.



Tick off the checkbox for the attention animals that were seen or checked and press **Seen** to mark them as seen on the attention list. The red attention light of the process unit will now be off.

The green coloured bar is shown for animals with an activity attention. The dark green optimum insemination moment is based on the first attention. The real ovulation moment will vary per animal, breed and herd.



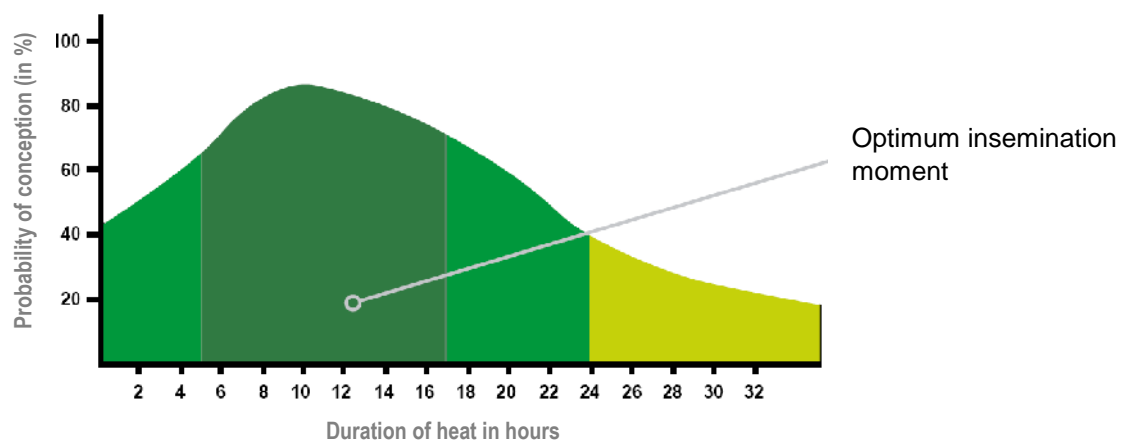
0 = first 2h period attention for a clear increased activity

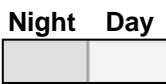
An insemination should occur 5 – 17 hours after the first activity attention or 0 – 12 hours after the first standing heat.



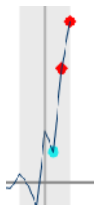
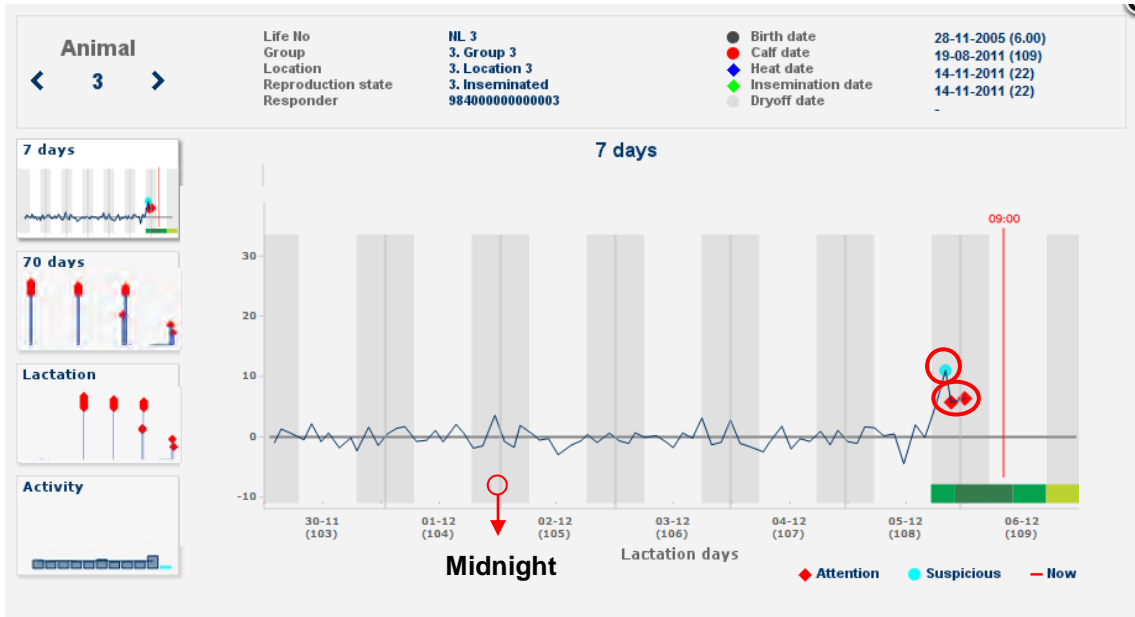
Inseminate directly after the first activity attention or the first standing heat.

It may generally be assumed that, if an animal is actually in heat, she should be inseminated directly after the first activity attention. This gives the best chance of conception as the injected sperm cells are then able to reach the egg at the optimum moment.



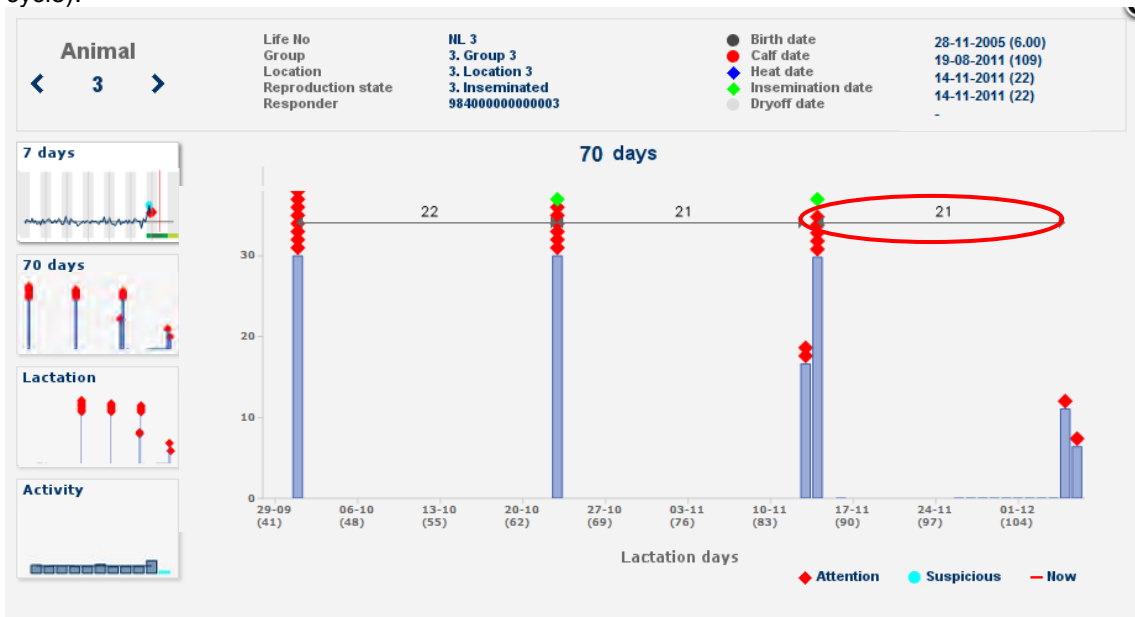


View the animal activity details from the past days (light column with noon in the centre) and nights (dark column with midnight in the centre). The diamonds in the activity line indicate the activity attentions.



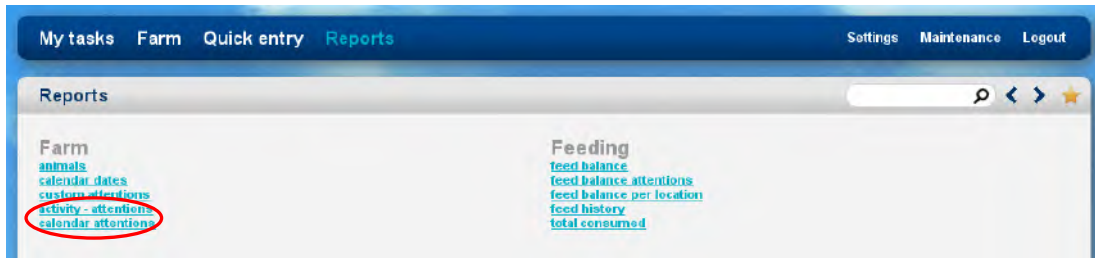
A light blue dot ● is a suspicious high 4 hour activity and a red colour diamond ◆ is a clear 6 hour activity attention. The activity line shows the measured activity compared to the activity in the same period on the previous days.

Select the 70 day graph to view the interval since last activity attention(s) (e.g. 21 day heat cycle).



Put the mouse cursor on ● ◆ ◆◆ to view the exact calendar date entered by the farmer.

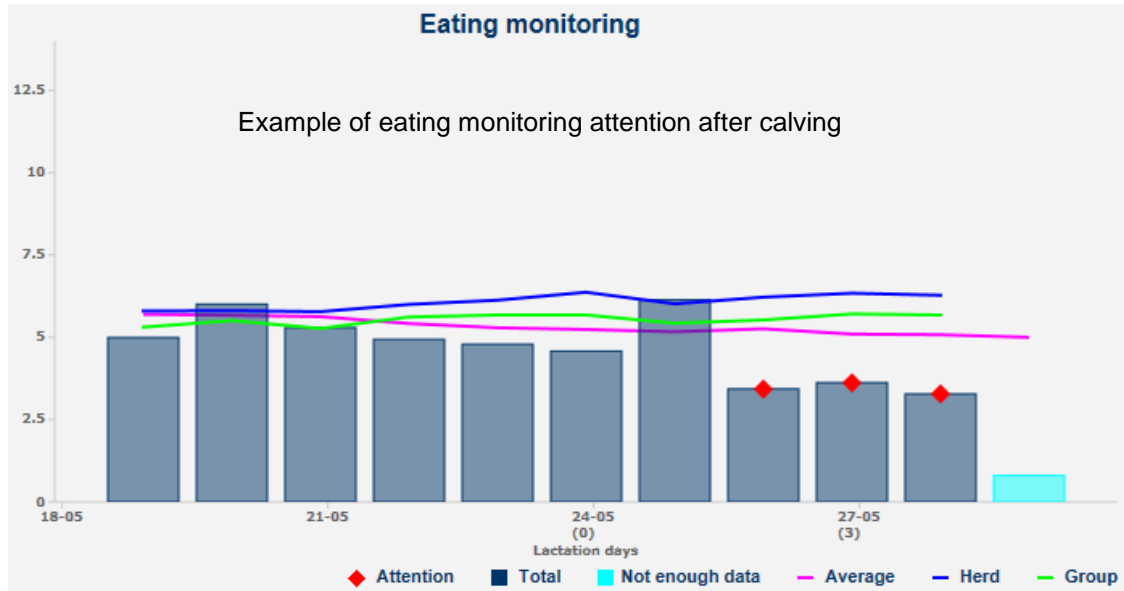
It is also possible to view animals with an activity attention in the Heat detection attentions report in the page *Reports > Activity - attentions*.



Activity - attentions							
Number	Group	Lact. days	Pregnant	Heat days	Insem. days	Date	

7.2. Viewing eating monitor attentions (neck sensors only)

The eating monitor registers the changes in the eating behaviour of the individual animals because the eating time of the past day is compared to the eating time of the previous days. An eating monitor attention is based on the data from the past day and it is valid for 24 hours.



View animals with an eating monitor attention in the page *My tasks > Eating monitor - Attentions*. The % shows how much percent the eating time has decreased.

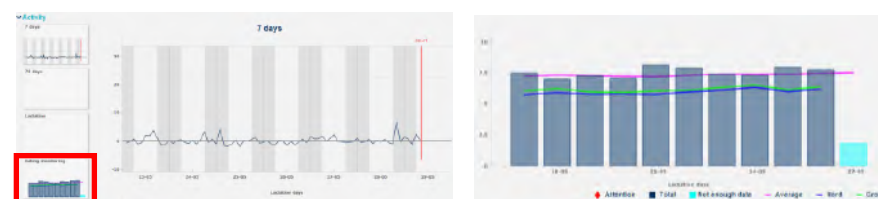


Eating monitoring

Animal	Group	Lact. days	Heat days	Insem. days	Pregnant	%
9105	5	5				36
9117	5					26
9080	5					21
9059	4					19
9042	1					43
9091	1					16
9101	5					19

Example % > 15 % decreased eating time

Click on an animal number and then on the eating monitor graph to view the monitor details.



The last day is the current day. This graph increases during the day. It has a blue colour because there are not enough data to be used as a reference. The average of the herd and the group is shown to compare to.

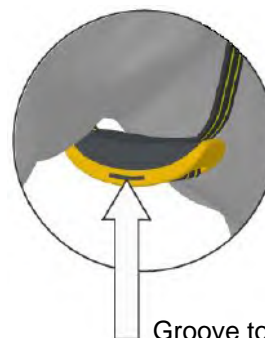
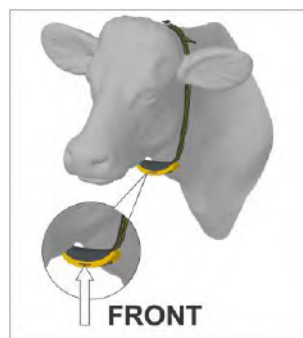
7.3. Viewing label attentions (neck sensors only)

The label can only monitor the behaviour of the animals if the label is on the cows neck in the right position. The label attentions are used to detect labels that are in a wrong position on the neck or turned sideways on the neck.

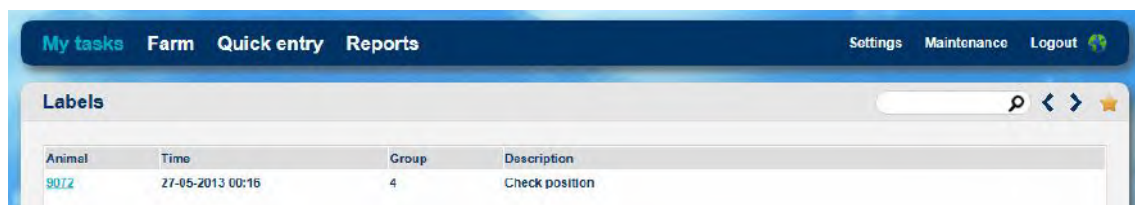
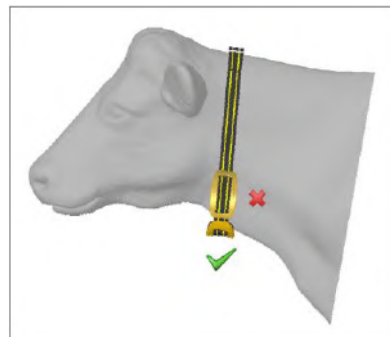
Check the labels of animals with a label attention as shown in the page *My tasks > Labels – Attentions*. Put the label on the neck in the correct position.

The label can be attached backwards or the label can be in a wrong position.

Back to front Label attached backwards, the groove (and the arrow on the back of the label) is pointing towards the cows body instead of the cows head.



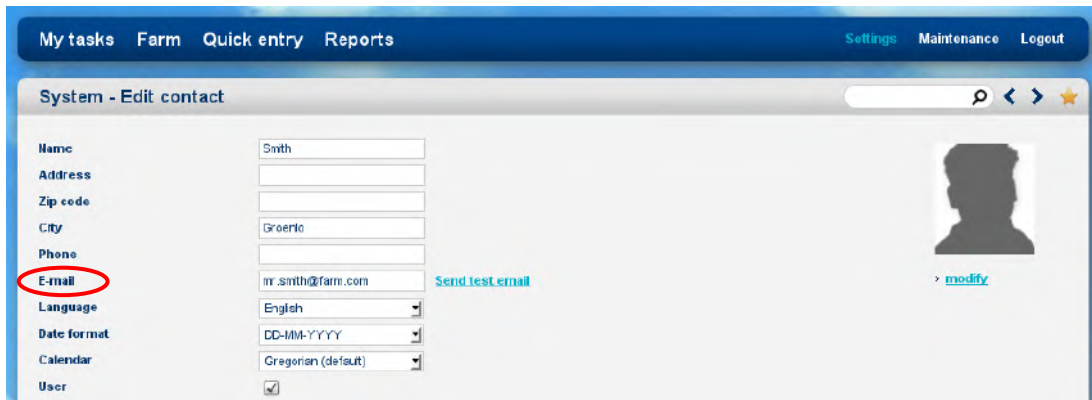
Check position Label in a wrong position. Turned sideways on the neck or twisted on the collar.



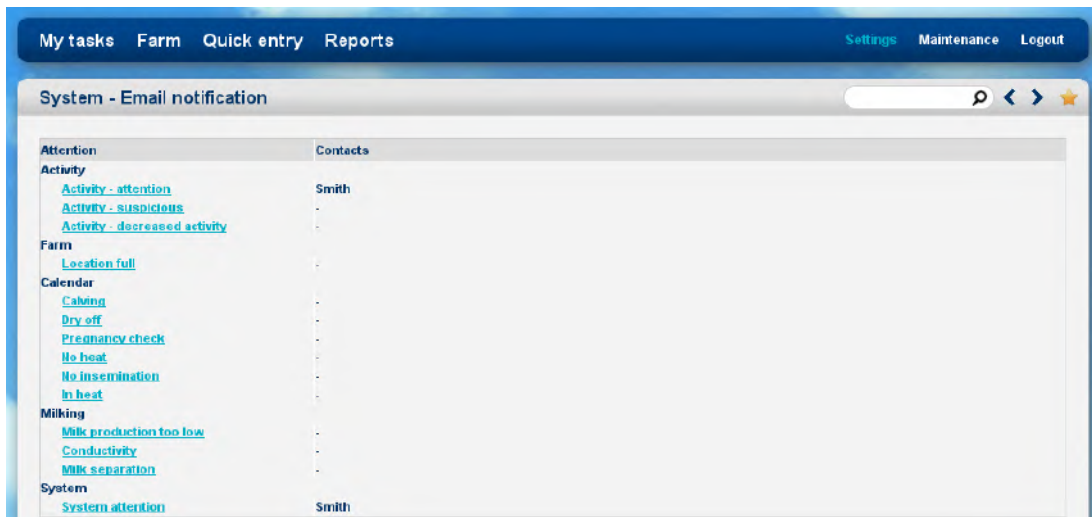
If a label position is incorrect, it can take up to a day for the attention to appear. If a label is put back in the correct position, it can take up to a day for the attention to disappear.

7.4. Using e-mail notification

Enter the e-mail address in the page *Settings > System – contact/users (edit contact)*.



Enter what type of attentions should be send in the page *Settings > System – email notification*.



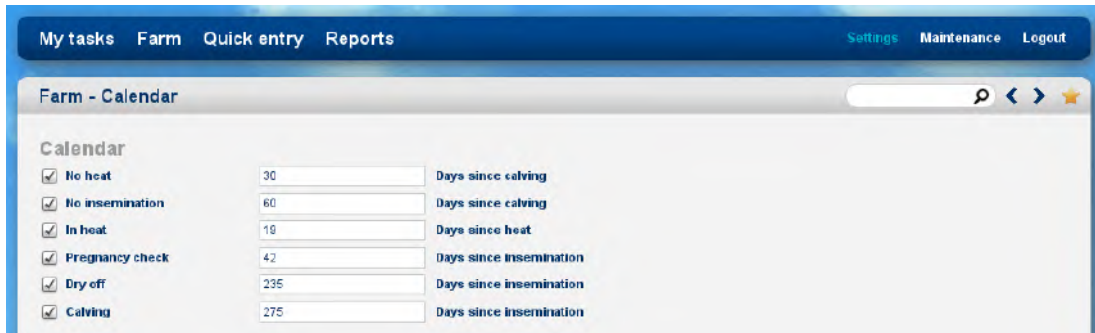
Attention	Contacts
Activity	Smith
Activity - attention	.
Activity - suspicious	.
Activity - decreased activity	.
Farm	.
Location full	.
Calendar	.
Calving	.
Dry off	.
Pregnancy check	.
No heat	.
No insemination	.
In heat	.
Milking	.
Milk production too low	.
Conductivity	.
Milk separation	.
System	.
System attention	Smith

7.5. Using a mobile phone with Internet connection

The Velos mobile program is available in the Heat detection system. It can display an overview of animals with an activity attention on a mobile phone. See Appendix G for more information.

7.6. Setting up the calendar attentions

- Optionally adjust the calendar attention settings in the page *Settings > Farm – Calendar*. A calendar attention will be given a certain number of days after a calendar event (a calving, heat or insemination). Optionally adjust the number of days of a first attention or switch off a check box to turn off an attention.



Calendar	Days since	Days since
<input checked="" type="checkbox"/> No heat	30	Days since calving
<input checked="" type="checkbox"/> No insemination	60	Days since calving
<input checked="" type="checkbox"/> In heat	19	Days since heat
<input checked="" type="checkbox"/> Pregnancy check	42	Days since insemination
<input checked="" type="checkbox"/> Dry off	235	Days since insemination
<input checked="" type="checkbox"/> Calving	275	Days since insemination

Attention	BEGIN	Days since	+ Reprod. State	- END
No Heat	30 - 60	Calving	Open	- Ins date + state Ins.
No Insemination	≥ 60	Calving	Open	- Ins date + state Ins.
In Heat*	19 -23	Heat or Insem.	Open/Insemination	- State pregnant
Pregnancy check	≥ 42	Insemination	Insemination	- State pregnant
Dry off	235 - 275	Insemination	Pregnant	- Dry off date
Calving	≥ 275	Insemination	Pregnant	- Calving date

* The In Heat attention will be given for five days and for five 21 day cycles starting on the set number of days after the last heat or insemination.

- Optionally create one or more additional new calendar attentions in the page *Settings > Farm - Custom attentions*. Such custom attentions can be given a certain number of days after a calendar event (a birth, calving, heat, insemination or dry off date).



Attention	Calendar date	No of days after calendar date	upto and including
selected items: remove			
add attention			

Click on *Add attention* to enter one or more custom attentions.

A few examples:

Custom attention	BEGIN	-	END	Days since
Insemination yearling	395	-	500	Birth date
Separate for calving	265	-	275	Insemination date
Colostrum	0	-	5	Calving date

7.7. Viewing calendar attentions

1. View the calendar attentions in the page *My tasks > Calendar*. Click on a type of calendar attention to view the animals with an attention and click on an animal number to view the basic animal data.



2. View the custom attentions in the page *Reports > Farm – Custom attentions* e.g the *Separate for calving* report.



7.8. Entering calendar data

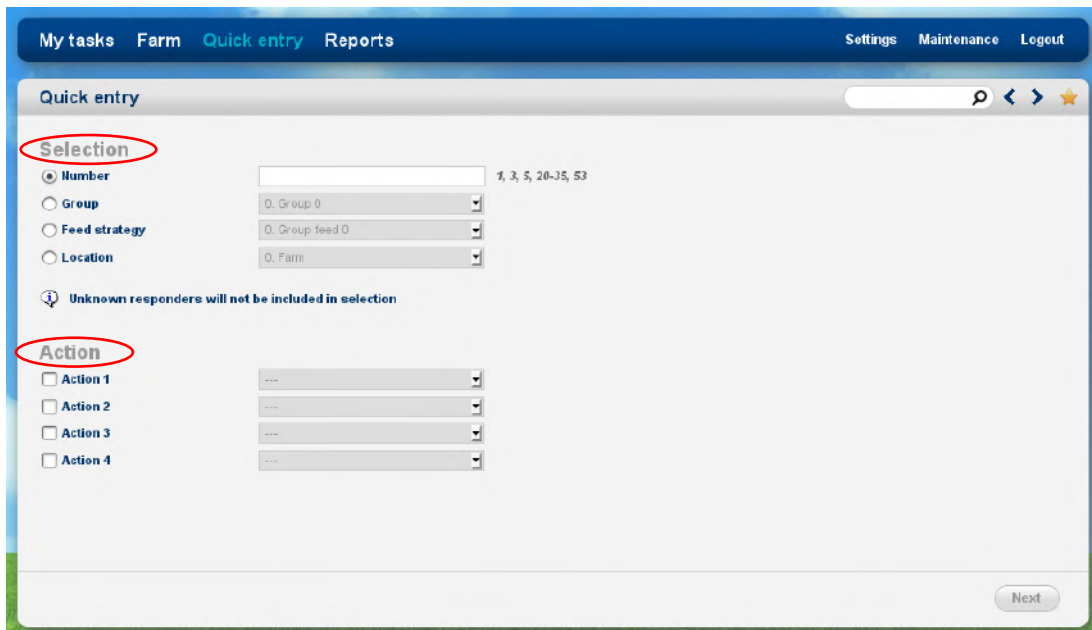
Enter new calendar events in the page *Quick Entry* or in the page *Farm > Edit animal* and adjust the reproduction status if necessary.


Event	Enter calendar data	Adjust reproduction state
Calving today	New lactation (= calving date today)	- (automatically adjusted to Open)
Calving before	New lactation + correct calving date	- (automatically adjusted to Open)
Heat	Heat date	-
Insemination	Insemination date (+ Sire data)	Insemination
Pregnancy check	-	Pregnant
Dry off	Dry off date	-
Keep Open	-	Keep Open
Birth	Birth date	-

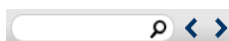
Method 1 to enter calendar data is via the page *Quick Entry*. Enter the Animal number(s) under *Selection* and select an *action* (e.g. an calendar date or reproduction state).

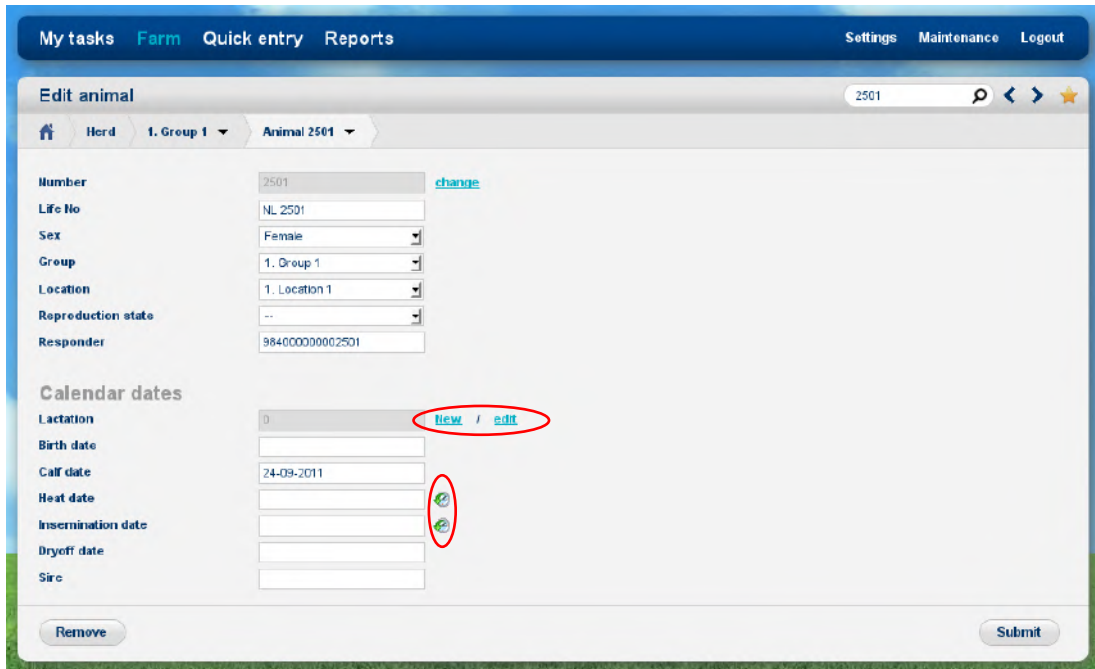


When a new lactation is started all totals and calendar data from the previous lactation will be deleted.



Method 2 to enter calendar data is in the page *Farm > Edit animal* via the page *Farm > Animal overview*. Enter an animal number behind the magnifying glass  at the bottom of the page or click on an animal number in the page *My tasks > Calendar* to view the Basic data in the page *Farm > Animal overview*. Select the link *Basic data* in this page to view more details or to enter calendar data.





My tasks Farm Quick entry Reports Settings Maintenance Logout

Edit animal 2501

Herd 1. Group 1 Animal 2501

Number 2501 [change](#)

Life No NL 2501

Sex Female

Group 1. Group 1

Location 1. Location 1

Reproduction state --


Responder 98400000002501


Calendar dates

Lactation 0 [New / edit](#)

Birth date

Calving date 24-09-2011


Heat date 

Insemination date 

Dryoff date

Sire

Remove Submit

Click on the image  behind the heat or insemination date to view the previous heat and insemination dates. Click on *New* to start a new lactation with the calving date today.



When a new lactation is started all totals and calendar data from the previous lactation will be deleted.

8. Maintenance

Check the operation of the antennas regularly by testing the identification with a motion sensor that is not used on an animal and by checking the registered activity data.

Carry out maintenance of the antennas according to the table below.

<u>Item to check</u>	<u>After 1st week</u>	<u>Every week</u>	<u>Every month</u>	<u>Every 6 months</u>	<u>What/How to check</u>	
Motion sensors			X		Check the attachment at the animal's leg.	

9. Malfunctions

The webpage **My tasks > System - System attentions** will show if there are any malfunctions. If the system is not working correctly, an alarm will occur. The blue light on the VPU will blink. Check the cause of the alarm, solve it and remove the alarm.

<u>Problem with</u>	<u>What/How to check or re-install</u>	<u>See §</u>
The hardware components	See manual chapter 4 Assembling.	Ch. 4
The wiring and connections	See manual chapter 5 Starting up operation. Turn off the power before starting wiring.	Ch. 5
The V-pack addresses	See manual Appendix C Setting the VP4101 address.	App. C
The network configuration	See manual chapter 5.5 Setting up the VPU network configuration and Appendix H.	§ 5.5
The VPU software	See manual chapter 5.7 Setting up the VPU software.	§ 5.7
Mobile access	See manual Appendix G Mobile access	App. G

10. Disposal

At discard dispose of materials from the Heat detection system in accordance with the current environmental rules of the state or local governing authorities.

Appendix A Technical specifications

Specifications for transport / installation

Electrical supply	
Main supply	100V - 240V
Frequency	50 – 60 Hz
Input voltage (use Nedap power supply)	24-28V DC
Environmental	
Operating temperatures	0°C / +45°C
Transport / storage temperatures	-25°C / +70°C
Humidity (rh)	45°C / 85%
Enclosure protection class (when cover and cables installed correctly)	IP65
Enclosures of electronics may not be exposed to direct sunlight.	

The identification of the Nedap Velos system is compatible with the ISO standard (ISO 11784 and 11785).



Check if electronic equipment from manufacturers other than Nedap is used on the farm. If the other system is not compatible to the ISO system this can have a negative influence on the ID performance of the Nedap Velos system. Please contact your Nedap Velos dealer.

Appendix B Restore factory defaults

The default VPU (VP8001) address is 01. Restore the VPU factory defaults if necessary in the page *Maintenance > System – Backup/Restore* or in the VPU (VP8001) V-pack menu.

Method 1.



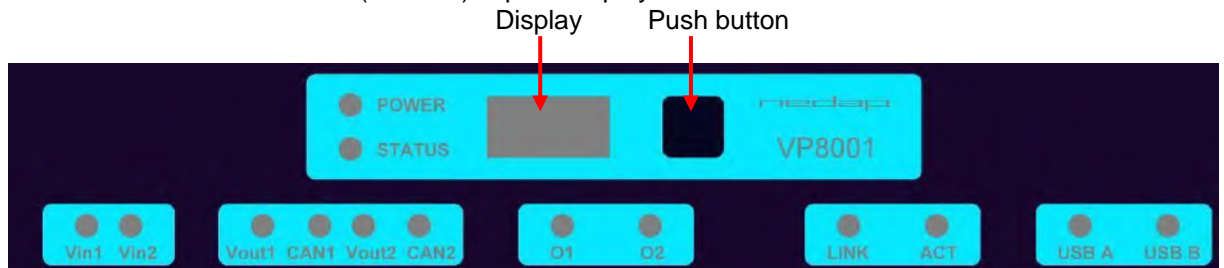
Choose *Restore factory defaults* in the page *Maintenance > System – Backup/Restore*.



All information will be lost! This action will delete all animal data and changed settings.

Method 2.

Enter dF value 99 in the VPU (VP8001) V-pack display menu.

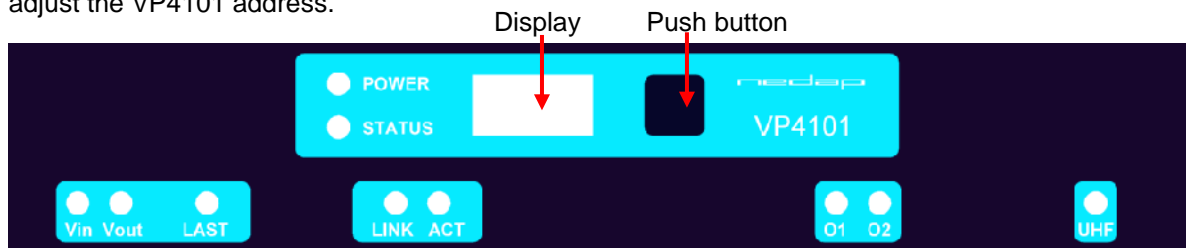


	↓	Press button short to start menu.
A d		Press button short.
	↓	
I t		Press button short.
	↓	
d F →		Press button long to start menu
0		Press button 9 times short to change the first digit from 0 to 9.
	→	Press button long until blinking to save the first 9 and go to the second digit.
9 0		Press button 9 times short to change the second digit from 0 to 9.
	→	Press button long until blinking to save the number.
9 9		The factory defaults will be restored now.

See chapter 5.6 and 5.7 to set up the VPU network configuration and the VPU software anew.

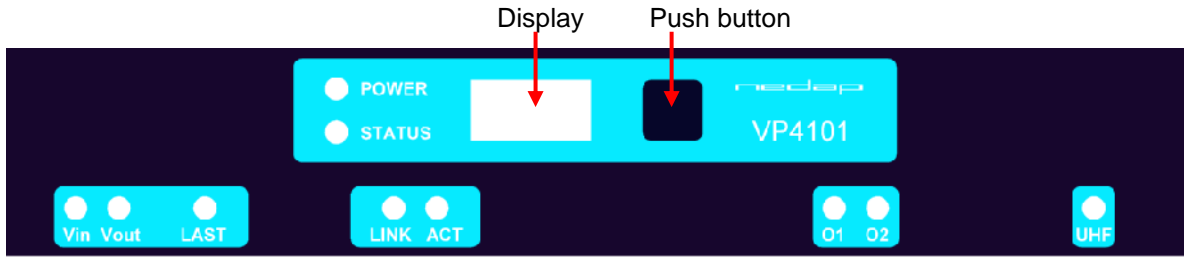
Appendix C Setting the VP4101 address

The standard address is 01. In case of more than one antenna use the instructions below to adjust the VP4101 address.



	↓	Press button short to start menu.
A d →		Press button long until blinking.
d A		DISPLAY ADDRESS: Shows the actual address when pressed long.
	↓	Press button short.
S A		SET ADDRESS: Set the second address to 02 (first address is 01).
	→	Press button long until blinking.
0		The first digit is showing. The 0 does not always need to be changed.
	↓	Option: Press button short to change the number.
	→	Press button long until blinking to move on to the next digit.
0 0		The second digit is showing.
	↓	Press button short to change the number to e.g. 2.
	→	Press button long until blinking to save the number and go to the next menu.
 		To leave menu:
		Press button until display is clear.

Appendix D VP4101 Display



LED indicators

POWER	● ○	Green on off	Power on No power
STATUS	●	Blue Slow blinking Fast blinking 1 short flash 2 short flashes 3 short flashes	Operating ok Downloading or error during download V-pack not connected Firmware present but not active No firmware present
Display	on off	Address indicated	No communication Communication status ok
V in	● ○ ● ●	Green on off Orange Orange blinking	Input power applied No power Low power, less than 20V Wrong CAN-bus connection, Vin and Vout swapped
V out	● ● ○ ● ●	Red blinking Green on off Orange blinking Red blinking	Error, plus and minus swapped Output power No power Low power warning Error, plus and minus swapped
LAST	● ○ ● ●	Green on off Orange blinking Red	V-pack is last one on the CAN-bus V-pack is not last one on the CAN-bus CAN-bus error and last V-pack on CAN-bus CAN-bus error
LINK	● ● ● ●	Red blinking Orange Green Red	CAN-bus warning / connected wrong LAN 100 Mbps LAN 10 Mbps Error
ACT	● ○	Green flashing off	Network activity No network activity
O1 / O2	● ○ ●	Green on off Red blinking	Output on Output off Output error
UHF	● ○	Green on off	Data receive No data

Appendix E Mounting the V-box

Mount the V-box 1 (with the antenna reader) and the V-box 2 (process unit with the power supply and the VPU controller) on a wall. In case of two or more antennas mount two or more V-boxes 1 with an antenna reader. Pay attention to the Maximum cable length.



Mount the process unit not too far from the last VP1001, The maximum cable length between the VPU controller and the last VP1001 is 80 m. See also figure 11.



Mount the VP1001 close to the antenna, the maximum cable length is 10 m. See also figure 11.

1. Remove the cover from the V-box.

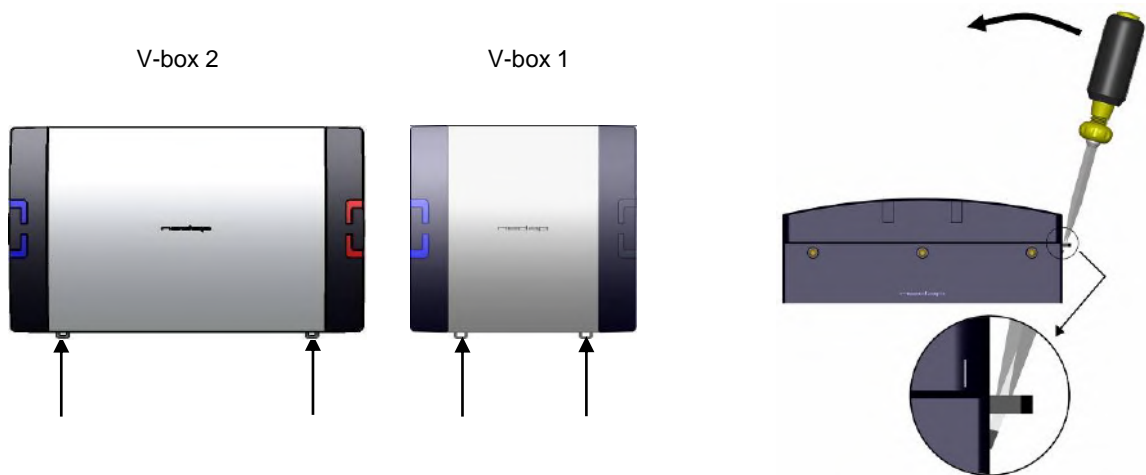


Figure 15. Opening the V-box

2. Mount the DIN rail on the wall using positions and the distance in the picture below. Use the supplied plug, screw, plain washer and spring lock washer.

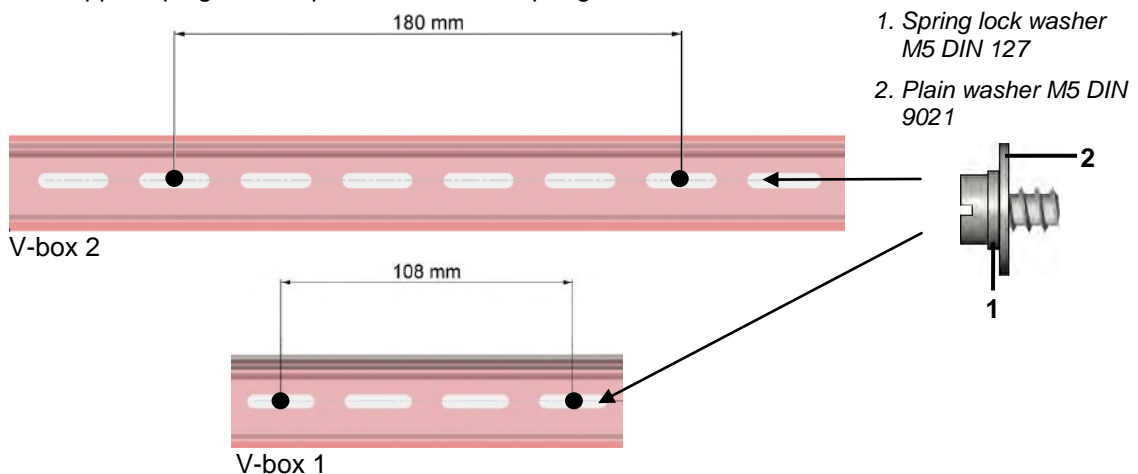
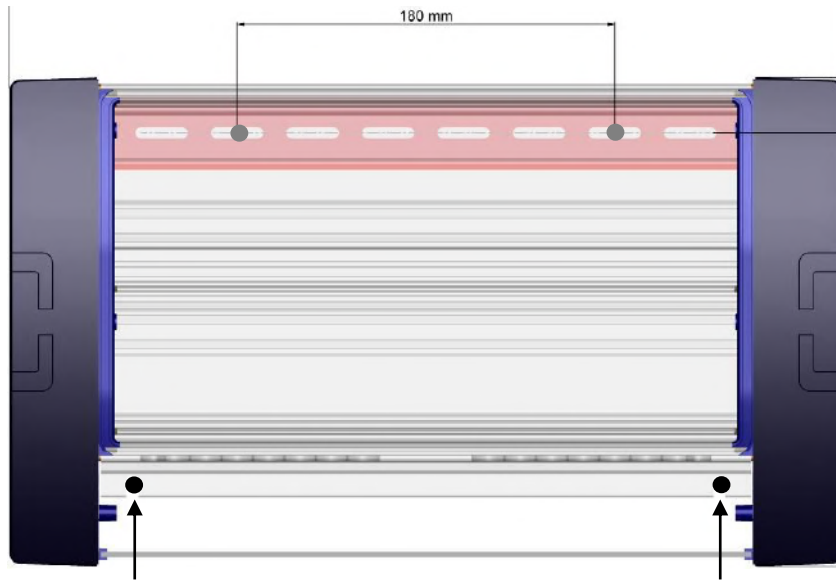
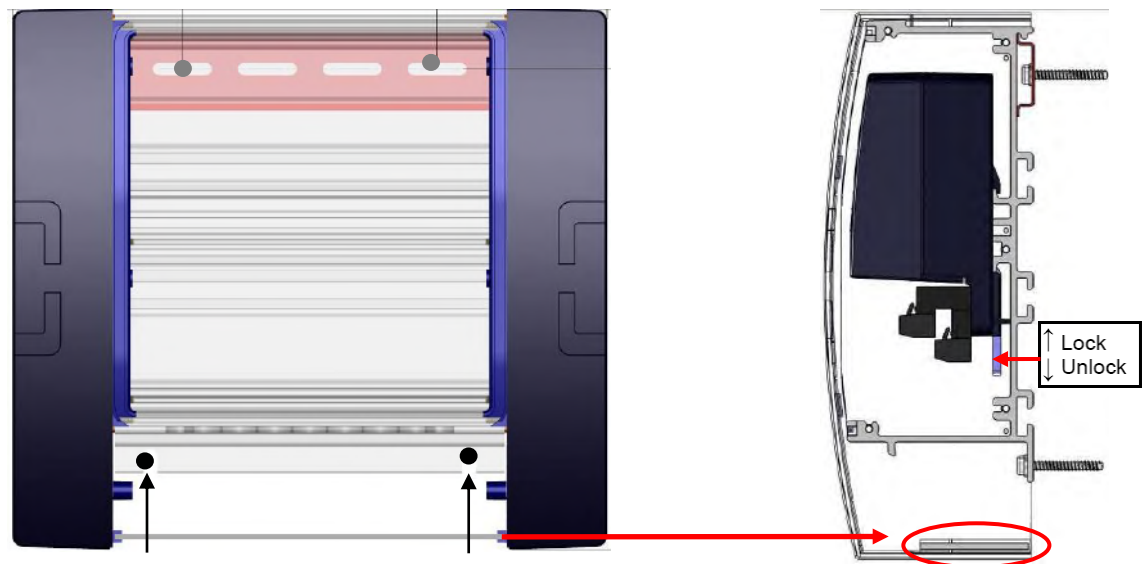


Figure 16. Mounting the DIN rail on the wall with washers on screw detail

3. Put the V-box on the rail. Mount the bottom of the V-box on the wall using the positions in the picture below. Use the supplied plug, screw, plain washer and spring lock washer.



V-box 2



V-box 1

Figure 17. Mounting the V-box

4. Click the V-pack on the rail inside the V-box and lock it.
5. Mount the cable protection sheet at the bottom of the V-box.
6. Close the cover of the V-box.

Appendix F Installing more than one antenna

1. Mount the V-boxes 1 (with the antenna reader) and the V-box 2 (process unit with the power supply and the VPU controller) on a wall. Pay attention to the maximum distance. See Appendix E for more information about mounting the V-boxes.



The maximum cable length between the VPU and the last VP4101 is 200 meter if only VP4101 readers are connected. Connect maximum 4 VP4101 readers.

2. Connect the VPU controller to the VP4101 antenna readers and to a PC.

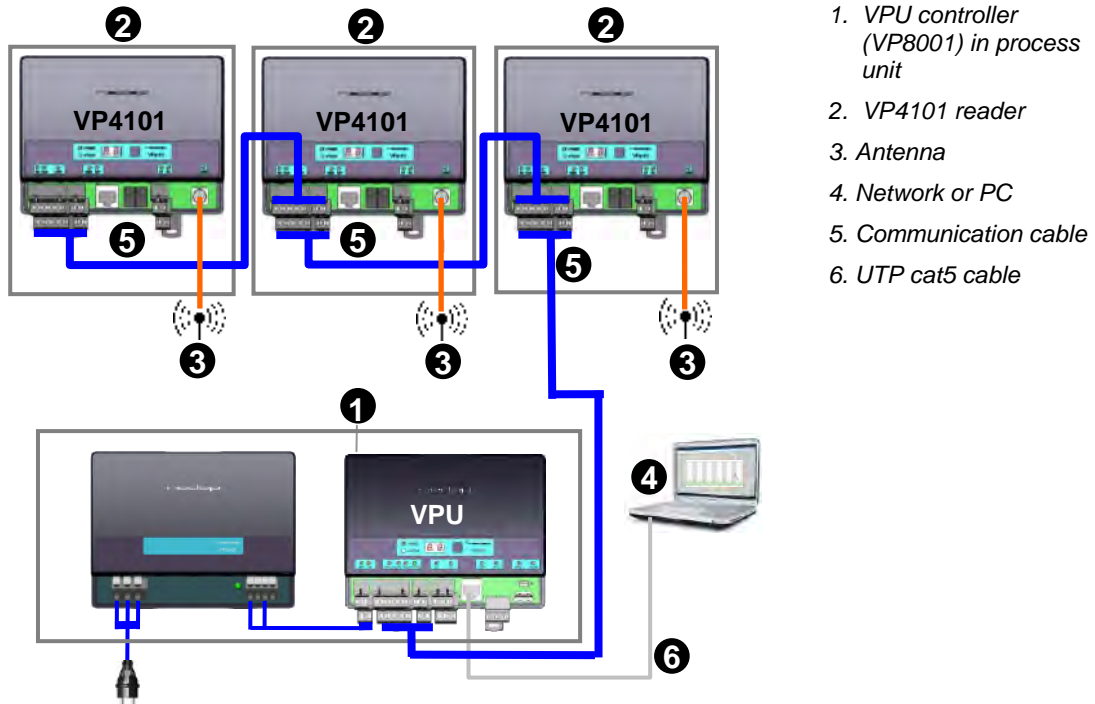


Figure 18. Overview process unit connected to one or more VP4101 readers

Prepare the length of the blue communication cable for the distance between the VPU and the first VP4101 and prepare more cable for the distance between the VP4101 readers.



The maximum cable length between the VPU and the last VP4101 is 200 meter.

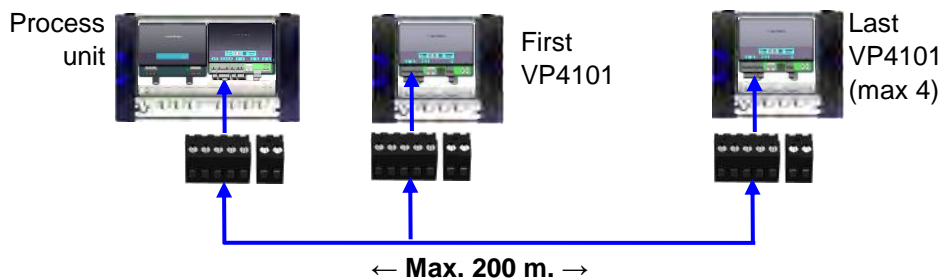
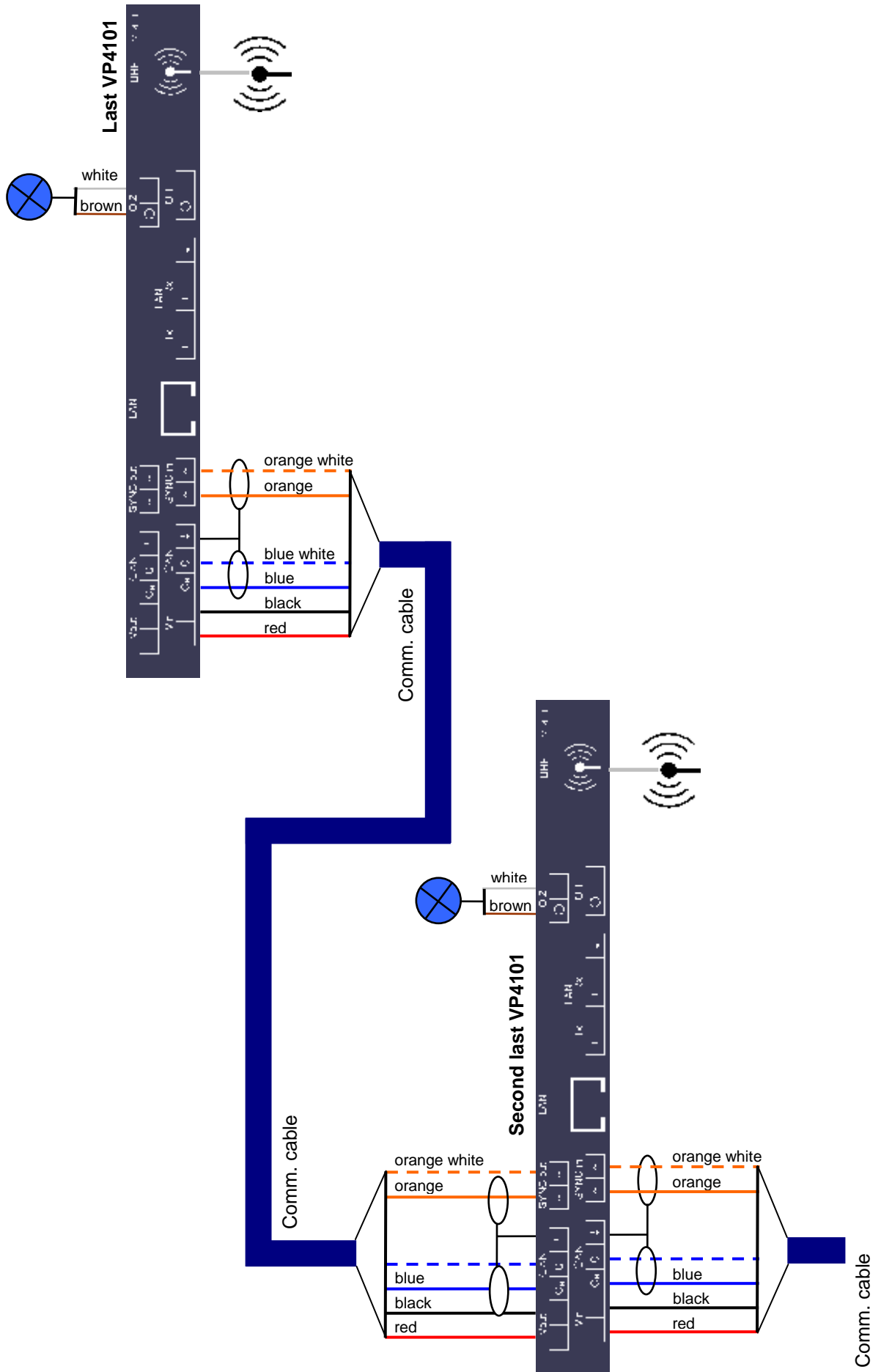


Figure 19. Connecting VPU and reader and the maximum cable length

Put the communication cables through the cable glands, connect the communication cable to the connectors and plug the connectors in the VPU controller and the VP4101. See chapter 5 for more information and see the next page for a detailed wiring scheme for the communication cable between the last two VP4101 readers.

Heat detection VP4101 wiring in case of two or more antennas



3. Mount the antennas. See chapter 4.2 for more information about this.
4. Connect the antennas to the VP4101 readers. See chapter 5.2 for more information about this.
5. Connect the process unit UTP cat5 cable to a network or PC.
6. Connect the power. Plug the Process unit power supply (VP2002) plug into an electricity source.
7. **Set the VP4101 address.** The standard address is 01. In case of more than one antenna use the instructions from appendix C to set the second address to e.g. 02, the third to 03 etc..
8. Set up the VPU network configuration. To set up the network configuration make sure the VPU is operational and connected to the network. Take the **VPU Setup CD** and run it on the connected PC to set the IP address correctly automatically. See Appendix H for more information about this.
9. Set up the VPU software. The VPU software is pre-installed. Start up the VPU program to adjust some general program settings. See chapter 5.6 for more information about this.



Appendix G Mobile access

System - Network

Local network

IP Address

Subnet mask

Gateway

DNS

Primary DNS server

Secondary DNS server

Internet

Connection

VPU-online [Register vpu-online.com account](#)

Default network settings of the VPU (without an Internet connection) in page Settings – System – Network.

System - Network

Local network

IP Address 1

Subnet mask

Gateway 2

DNS

Primary DNS server 2

Secondary DNS server

Internet

Connection

VPU-online 3

Network settings of the VPU for mobile access (with an Internet connection and domain name registration) in page Settings – System – Network.

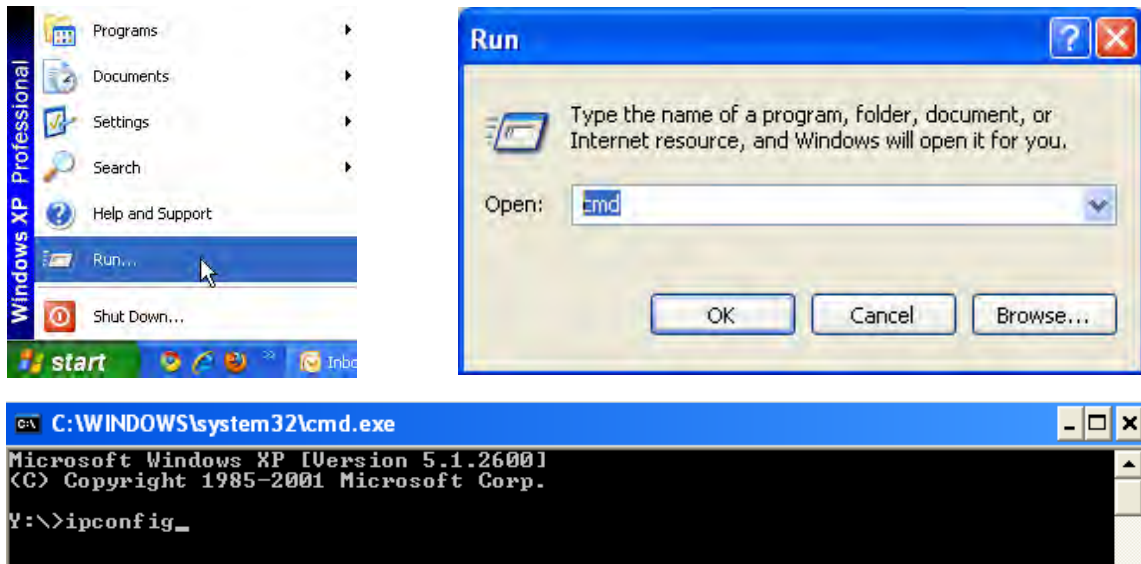
1. Change the IP address of the VPU so it is in the same range as the local network.*
2. Fill in the default gateway, normally this is the IP address of the router. Normally the default gateway = primary DNS server.*
3. Enter any domain name. This is a free choice.*
4. Fill in the URL on the mobile phone to get mobile access to the Velos system.

* See the next page for more information about this.

The Ref. numbers on this page refer to the numbers of the instructions on the previous page.

Ref. 1 and 2.

The IP address of the pc can be found by typing using the command “ipconfig” in the commander, see the screenshots below:



Press enter to get the IP address, the subnet mask and the default gateway of the pc from the commander. The same range means that the VPU can communicate with the router. When using subnet mask 255.255.255.0 than the first three numbers of the IP address of the VPU must be the same. The last number is a free choice, but the IP address must be a unique number.

Ref. 3.

Enter any domain name. This is a free choice e.g. the name of the farm.

The mobile access will be operational if the domain name is registered and if the settings are made correctly. **If the network settings can not be set correctly, please pass on the information from this attachment to an IT-specialist.**

Appendix H Setting up the VPU network configuration

To set up the network configuration make sure the VPU is operational and connected to the network. Take the IP Utility wizard CD and run it on the connected PC to set the IP address correctly automatically.

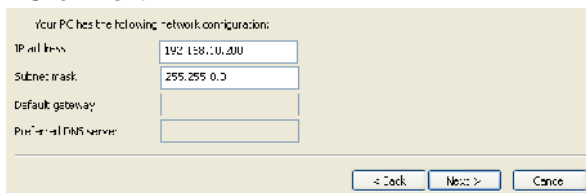
1. Click on the IP utility wizard icon from the IP wizard CD.



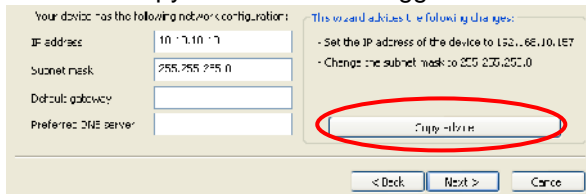
2. Turn off the fire wall (in the Control panel - Security centre) and click Next.



3. Click Next.

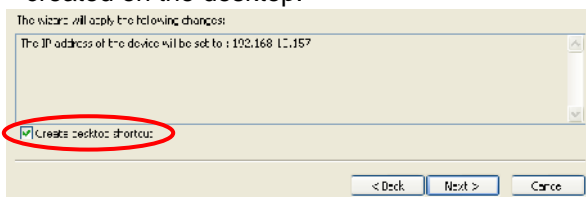


4. Click on copy advice if this is suggested and click Next.



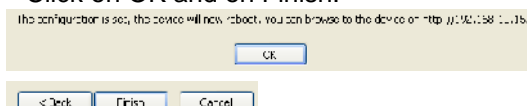
If the VPU is not found check if the VPU is running and if the network is connected correctly. Click Back and try again. Contact a network specialist if necessary.

5. Click Next. The IP address will now be changed and a VPU desktop shortcut will be created on the desktop.



Click OK.

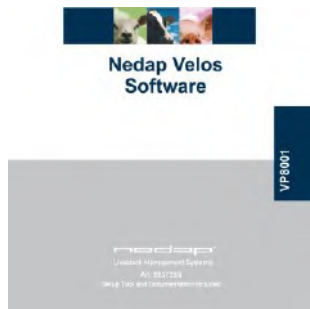
6. Click on OK and on Finish.



7. The VPU desktop shortcut is now on the desktop. Click on it to start the program.



If necessary see the VP8001 VPU manual on the Nedap Velos Software VP8001 CD (art. nr. 9937269) that is supplied with the Heat detection system for more information about adjustment of the VPU settings in the LAN network.



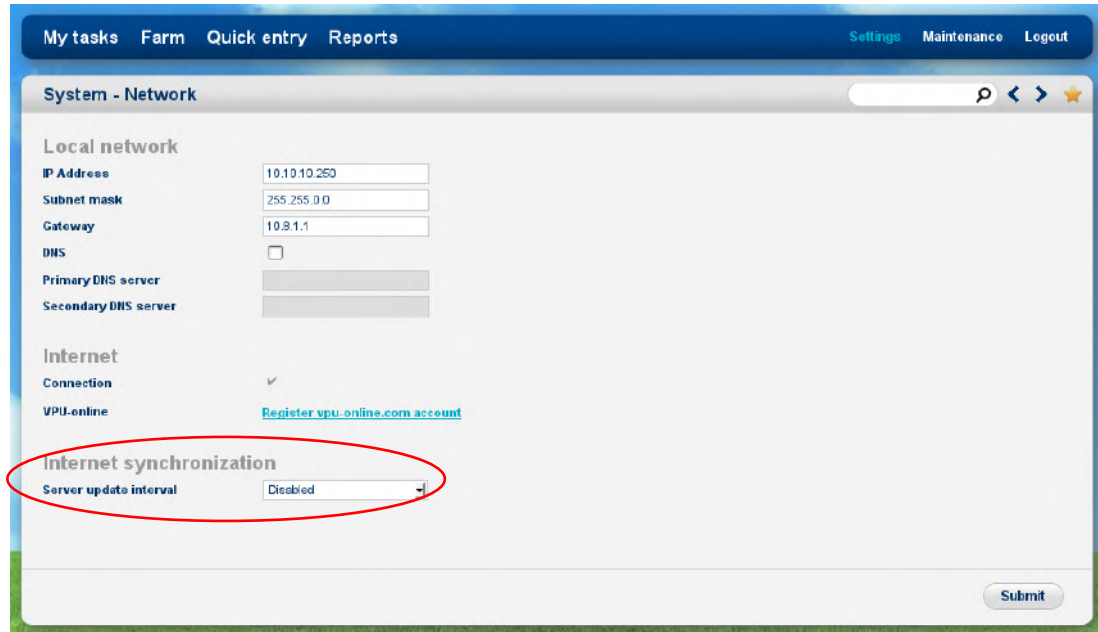
VP8001 Software Setup Tool and Documentation CD cover



VP8001 VPU manual on CD

Appendix I Using synchronisation with a Nedap server

Optionally adjust the Server settings in the page *Settings > System - Network* e.g. when using synchronisation with a Nedap server. Press *Submit* to save the changes.




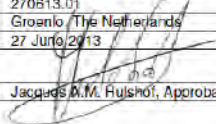
The screenshot shows the 'System - Network' configuration page. The 'Internet synchronization' section is highlighted with a red circle. The 'Server update interval' dropdown menu is set to 'Disabled'.

Section	Field	Value
Local network	IP Address	10.10.10.250
	Subnet mask	255.255.0.0
	Gateway	10.8.1.1
	DNS	<input type="checkbox"/>
	Primary DNS server	
Secondary DNS server		
Internet	Connection	<input checked="" type="checkbox"/>
	VPU-online	Register vpu-online.com account
	Internet synchronization	
Server update interval		Disabled

Appendix J Declaration

Declaration of Conformity

We, the undersigned,

Company	N.V. Nederlandsche Apparatenfabriek "Nedap"
Address, City, Country	Parallelweg 2, 7141 DC Groenlo, The Netherlands
Phone number / Fax number	+31 544 471 162 / +31 544 463 475
certify and declare under our sole responsibility that the following equipment:	
Product description / Intended use	Heat detection system operating on 433 MHz
Manufacturer and Brand	N.V. Nederlandsche Apparatenfabriek "Nedap" and Nedap
Type: LACTIVATOR REALTIME and NECK (TAG ACT RT)	
is tested to and conforms with the essential requirements for protection of health and the safety of the user and any other person and Electromagnetic Compatibility, as included in following standards:	
Standard	Issue date
EN 60950-1 and A11 + A1	2006 and 2009 + 2010
EN 62369-1 and EN 50364	Both 2009
EN 301 489-1 V1.8.1 and EN 301 489-3 V1.4.1	2008 and 2002
EN 61000-6-2 and EN 61000-6-3. (NOTE: Immunity tested at industrial levels)	2005 and 2007
and is tested to and conforms with the essential radio test suites so that it effectively uses the frequency spectrum allocated to terrestrial/space radio communication and orbital resources so to as to avoid harmful interference, as included in following standard:	
Standard	Issue date
EN 300 220-1 V2.3.1 and EN 300 220-2V2.3.1 ERC REC 70-03	2010 and 2009, 2010
and therefore complies with the essential requirements and provisions of the Directive 1999/5/EC of the European Parliament and of the council of March 9, 1999 on Radio equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity and with the provisions of Annex III (Conformity Assessment procedure referred to in article 10). The following laboratories and institutions performed the tests and issued the relevant reports:	
Report numbers	Issued by
11051602.001, 11060901.p03, 11060901.r01, 11060901.s01, 11060901.p02, 11060901.r02, 13022501 (revised unit (19 Jun 2013)) 11102011.02 HE, E135130-A13-UL-1, 270613.02 ed	TUV Rheinland EPS B.V., Eiberkamp 10, 9351 VT Leek, (was: Smidstomerweg 18, 9822 TL Nickark), The Netherlands Nedap, Parallelweg 2, 7141 DC Groenlo, The Netherlands
The technical documentation as required by the Conformity Assessment procedure is kept at the following address:	
Company	N.V. Nederlandsche Apparatenfabriek "Nedap"
Address, City, Country	Parallelweg 2, 7141 DC Groenlo, The Netherlands
Phone number / Fax number / Email	+31 544 471 162 / +31 544 463 475 / jacques.hulshof@nedap.com
	TF reference nr. 270613.01
	Drawn up in Groenlo, The Netherlands
	Date 27 Jun 2013
	
	Name and position Jacques M.M. Hulshof, Approbation Officer



Nedap Agri - P.O. Box 104 - 7140 AC Groenlo - The Netherlands - T (+31) 544 471 444
F (+31) 544 466 839 - info@nedap-agri.com - www.nedap-agri.com