



INSTALLATION MANUAL

Manual for installation of the CowManager System

FCC and IC Declarations

Compliance statement (part 15.19)

This device complies with part 15 of the FCC Rules and with the Industry Canada license-exempt RSS standard(s).

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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Warning (part 15.21)

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

This in particular is applicable for the antenna which has been delivered with starterpackage.

RF Exposure (OET Bulletin 65)

To comply with FCC RF exposure requirements for mobile transmitting devices, this transmitter should only be used or installed at locations where there is at least 20cm separation distance between the antenna and all persons

Introduction

In front of you, you have the installation manual for the CowManager system. In most cases your sales representative will install CowManager. In this installation manual, you will get more information about the CowManager system including the Sensors, coordinator, router and the different interfaces. It is important to follow the installation manual in order to install CowManager as good as possible.

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1 Conditions before installation

For the optimal use of the CowManager system, the following is required:

- Availability of adequate internet access (Min. 5mp/s downloadspeed)
- Availability of a PC with Windows 7 or higher
- Eartags recommended by CowManager
- 5 GB space on the C drive. Go to 'This PC' → C: → Here you can see how much disk space is left.

Note: The communication software cannot be installed on any other drive except the C- drive. If there is not enough space, CowManager can not be installed.

2 Installation CowManager system

The installation of the CowManager system contains different steps. First, we will explain the installation of CowManager on the PC. The next step is the installation in the barn. The third step is to link the Sensor to the right cow and the last, and additional step, is to install CowManager on your smartphone.

2.1 Installation CowManager on the PC

The installation of CowManager on your PC contains the installation of the software, interface with the management system, coordinator, router and activating the Sensors.

1. Software CowManager

If the computer meets the conditions mentioned in chapter one, you can go ahead with the installation of the CowManager software. Go to:

www.CowManager.com/download

- Click download CowManager Installation
 - Click run
 - Click open

The installation wizard opens (see picture on the right)

- Choose the language for the installation
- Accept the 'terms in the License Agreement'
- The installation wizard will automatically pick the following locations for installation:
C:\Program Files (x86)\Agis Automatisering\Sensor Coordinator\
 - Click next
 - Click install Agis Automatisering Sensor Coordinator
 - Click finish to finish the CowManager software installation and your CowManager system is now successfully installed. The 'SensOor Configuration Wizard' starts automatically.



After completing the installation of CowManager, two CowManager shortcuts will appear on your desktop. The 2 new shortcuts are: 'SensOor Configuration Wizard' and 'CowManager Website'. You can configure the coordinator, router(s) and activate Sensors in the PC-application by double clicking on 'SensOor Configuration Wizard' and you can open the CowManager web-application by clicking on 'CowManager Website'.

2. Register and activate

Now that the communication software is now installed on the PC, you have to register and activate the system. You can do this by following the instructions below: Open the 'SensOors Configuration Wizard'. You can find it on your desktop and you can recognize it with this icon.



Sensor Configuration Wizard

- Click on the button 'Register'.

The login name master user is the email-address that is given to us during the purchase. When the CowManager account is created, a confirmation will be sent to this email-address.

The account number is mentioned on the quote and invoice. You can use the test button to test if your account can connect to the server on this PC. This will not have any other effect than just testing it. Click the 'login' button confirm your account and login to CowManager.



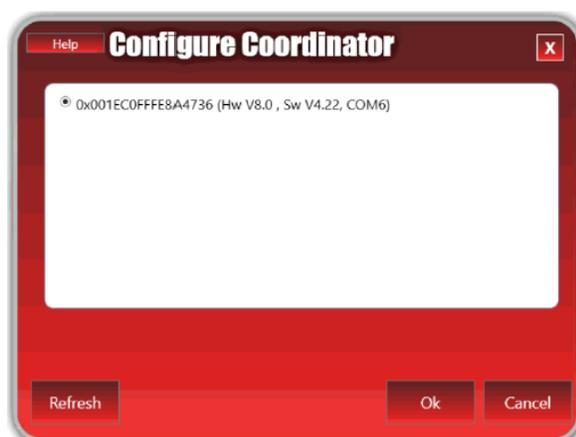
3. Interface with management system

In order to get all cow data into CowManager, CowManager can make an exchange with most management programs. For information about other available connections, please contact your sales representative or CowManager support.

4. Configure the coordinator

After registering the system, you are ready to configure the coordinator. To configure the coordinator, it should be connected to the USB port of the PC. Connect the coordinator by using the 4,5 meter USB cable (with the blue screw cap). Screw the antenna firmly on the device with pointed pliers. CowManager recommends the antenna that was delivered at the starterpackage for an optimal working system. On the coordinator five lights are visible. A red light on the coordinator will turn on. See the function of the other lights below.

Click the button 'coordinator' on the PC-application. The coordinator ID, hardware version, software version and number of the COM port should appear. Select the coordinator by clicking on the coordinator ID and confirm with clicking 'OK'. During each configuration, the software will be flashed in conformity with the country regulation law. No user is able to modify or adjust the transmitting power of the router/coordinator device. You will automatically return back to the 'SensOor Configuration Wizard' and the red and orange light on the device are turned on.



<u>Lights on coordinator</u>	<u>Function</u>
Red	On = Power
Blue	On = Registering of Sensors
Green	On = Active connection with a Router
Orange	On = Active connection with a PC Blinking = connection is lost
White	On = Coordinator activated, but no active connection blinking = sending through data



5. Configure the router

If necessary, connect the other device to a free USB port of the PC with the 3 meter USB cable. Also screw the antenna firmly on the device. You have to use antenna of CowManager, for an optimal working system. On the router, the same five lights are used as on the coordinator. See the function of the other lights below. When you link the router to the computer a red light on the router will turn on. Click the button 'router' in the PC-application and the router ID should appear on screen. Select the ID and click 'OK'. You will automatically return back to the 'SensOor Configuration Wizard'. If there are no more routers to register, the USB cable can be removed from the PC.

<u>Lights on router</u>	<u>Function</u>
Red	On = Power
Blue	Blinking = Trying to find another router or coordinator Fast blinking = to much data received, possible data loss
Green	On = Another router is connected to this one
Orange	On = Active connection with a coordinator or other router Blinking = connected to other router but not to coordinator yet (via this router) Fast blinking = connection lost, trying to reconnect
White	On = No active connection Blinking = sending through data



After configuring the router, connect the antenna to the 3m cable. Connect the adapter to an electrical outlet. Put tape around the adapter and USB connection to protect it against water damage.



6. Activate Sensors

By clicking the button 'SensOors' in the PC-application the blue light on the coordinator will turn on. Now the coordinator is active and Sensors can be registered. Place the magnet, which is also delivered, under the Sensors to activate it. Move the magnet behind the Sensor like shown in the image below.



The Sensor IDs of the activated Sensors will appear on the screen. It is important that the Sensor ID appears, if it doesn't appear, the activation hasn't been successful. If the ID appears, confirm with OK; You will automatically return back to the 'SensOor Configuration Wizard'. To activate more Sensors at once, you can add more Sensors before clicking OK.

The following situations can occur:

- Green light on the Sensors -> registration successful
- Red light on the Sensors -> registration unsuccessful, check if the blue light on the coordinator is on and try again with the magnet.

When registered, the Sensor IDs will appear on screen. When this does not happen the registration was not successful. For Sensors with software version V6.35 or lower you can get a warning that it is not activated right. If this happens, the Sensor is not active yet, you should activate it again.



2.2 Installation CowManager in the barn

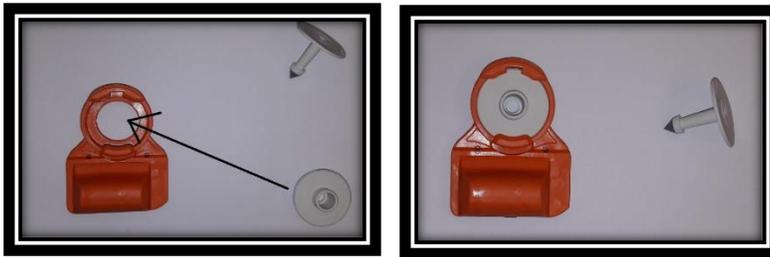
Coordinator and router(s)

If you have a network plan, please make sure you will place the coordinator and router(s) on the marked location on the networkplan. The coordinator and router(s) should be placed around 4 meters high, with the antenna up. The position of the antenna can be fixed with a small red tie-rip. You can use the lights to see whether the antennas are in range of each other. Tighten the antenna with pliers and make sure it is tightened. The coordinator and router can connect with each other within a range of 800 meters free line of sight. Please be aware that this range is less when there are buildings or (metal) objects in between.

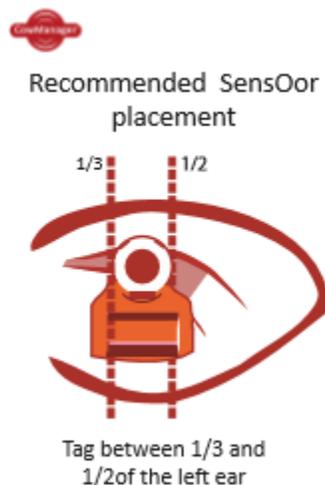
Sensors

Before placing the Sensors in the ear it is important to know the perfect placement of the Sensors. We recommend the following:

- Place the new EID or blanktag as you see in the picture below.



- Write the number of the cow next to the number of the Sensor. This is important for linking the cow to the Sensor.
Place the Sensor in the left ear of the cow, in the middle of the ear, between the two cartilage ribs. Note that this is a thicker part of the ear. Application may be more difficult than when applying a normal tag. See the picture below for the perfect location. If there are more (other) eartags in the ear, please make sure the Sensor is placed in the right spot and that the other eartags are placed somewhere else in the ear. The Sensor should not be obstructed by other ear tags.



Below you can see some examples of the correct and incorrect placing of the Sensor



Image: Sensor EID in the ear of a cow

2.3 Linking cows to CowManager system

Linking

The last step is to link the Sensor to the right cows. You can do this in the CowManager web-application.

- Open CowManager by double clicking on the icon 'CowManager Web site' on the desktop
- In your mailbox you should have received an email with a link to make a password for the CowManager webpage.
- Log in with your username (e-mail address) and the password you have created. If you want the computer to remember the password, check the box 'Remember me next time'. In your internet browser you should also indicate that you want to remember the username and password.
- Go to "input" and click 'linking' in CowManager (on the left side menu).
- A screen appears where you can search for animals and Sensors
- In the first list are cows with registration numbers and animal numbers.



Image: Linking of cows with Sensors.

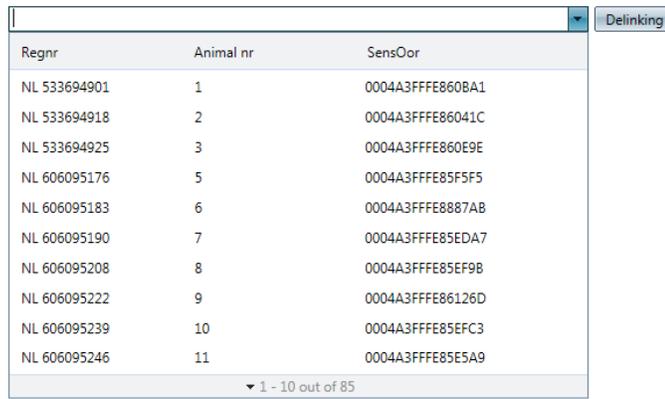
- In the second list are the activated Sensor ID's.
- In the bar above the lists you can type in which animal or Sensor you are looking for. In the first bar you can type the cow number you are looking for and in the second bar you can type the Sensor-ID. Then click on linking.
- You will see confirmation of the link between the cow and the Sensor.

If you want to change a cow's Sensor, you must delink it first. See how to do this on the next page.

Delinken

- Press the button delinking in CowManager.

Delinking



Regnr	Animal nr	SensOor
NL 533694901	1	0004A3FFFE860BA1
NL 533694918	2	0004A3FFFE86041C
NL 533694925	3	0004A3FFFE860E9E
NL 606095176	5	0004A3FFFE85F5F5
NL 606095183	6	0004A3FFFE8887A8
NL 606095190	7	0004A3FFFE85EDA7
NL 606095208	8	0004A3FFFE85EF9B
NL 606095222	9	0004A3FFFE86126D
NL 606095239	10	0004A3FFFE85EFC3
NL 606095246	11	0004A3FFFE85E5A9

Image: Delinking of Sensors

- A list of linked animals and Sensors will appear (Registration number, animal number and Sensor ID).
- You can search on Sensor ID, animal number or registration number.
- Click delink to delink a cow from a Sensor.
- The Sensor and the cow are now successfully delinked.
- The Sensor is available again and returns to the list of available Sensors to link. When you go to linking you can link the Sensor again.

Note: For the First 7 days after installation of the system, the attentions are not reliable. This is because a reference period per animal should be established first.

When the Sensors are attached to the cows, the installation process is finished. For the best use of the CowManager program we refer to the 'User manual CowManager'. This user manual can be found in your own CowManager program when you click on 'instructions' in the left menu.

2.4 Activate new Sensors

You can order new or additional Sensors. These must be activated in the 'SensOor Configuration Wizard'. You need to open the 'SensOor Configuration Wizard' again. You can find the icon 'SensOor Configuration Wizard' on your desktop or you can find this at:

Click:

- Start
 - All programs
 - Agis Automatisering
 - Sensor
 - SensOor Configuration Wizard

To activate the new sensors, follow the same steps as explained in paragraph 2.1, step 6: Activate Sensors.

2.5 Installation CowManager on Smartphone

Besides using CowManager on the computer, you can also use CowManager on your smartphone. This is a free tool which is available for both iOS and Android smartphones.

You can install the CowManager application to do the following:

- Click on your Google PlayStore (Android) or app store (iOS)
- Search for 'CowManager'
- Click on 'Download'

You can login with the same email address and password you use for the CowManager website.

3 Additional information working devices

System

You can check if the devices are running by going to the web-application of CowManager by double clicking on the 'CowManager Website'

In the left menu in CowManager you will find the system status. The system status shows whether the entire system or the coordinator, router(s) and Sensors are still working. You will also see whether the synchronization of the Sensor data to CowManager still works properly.

- In front of the header 'System information' in the left menu there is a red cross **X** or a green tick **✓**. The red cross **X** means that there is a fault in the system. The green tick **✓** means that everything is working properly.
- There is only a red cross for the heading 'System status' when either the synchronization of the Sensor data to CowManager, or the coordinator and/or router(s) are not working.

Sensors

You can also check if the Sensors are working on two ways:

- Click on System Status -> SensOors

You can check status of the Sensors in the tab 'all' and the tab 'not communicating'.

Behind the column 'Last measurement' is a green checkmark  , a clock  or a grey cross mark .

The green checkmark  means that the Sensor forwarded information to the coordinator/router(s) within the last 24 hours.

The clock sign  shows that this Sensors has a latency in the data (last transmit date less than 24 hours ago and last measurement more than 24 hours ago).

The grey cross mark  shows that this Sensor needs attention, because it didn't communicate for more than 24 hours (last transmit and last measurement are more than 24 hours ago).

4 Additional information CowManager system

Here you will find some general information about the CowManager system. For more information about the CowManager program we refer to the user manual of CowManager.

Local PC:

- If there is no communication with the server at Agis, the PC saves the data from the Sensors for 14 days.
- CowManager needs 7 days to build up a reference period per cow. For these first 7 days there will be no attentions calculated on activity.
- The PC connects with a central server at Agis Automatisering via the internet, every five minutes.
- The attentions will be calculated every hour.

Coordinator:

- With a free line of sight, the coordinator has a range of 800 meters to the router
- The coordinator receives data from the Sensors every 15 minutes, and every 15 seconds from other routers.
- The coordinator sends the data directly to the PC.

Router:

- With a free line of sight, the router has a range to the coordinator or the next router of 800 meters.
- The router receives data from the Sensors every 15 minutes, or every 15 seconds from any other router.

Sensors:

- The Sensors have a range of 100 meters to the coordinator or router.
- The Sensors send data to the coordinator or router every 15 minutes.
- When a Sensor is activated it takes 15 to 30 minutes until the Sensor is shown in CowManager.
- The Sensors can store the data for 7 days if the data cannot be forwarded to a router or coordinator.