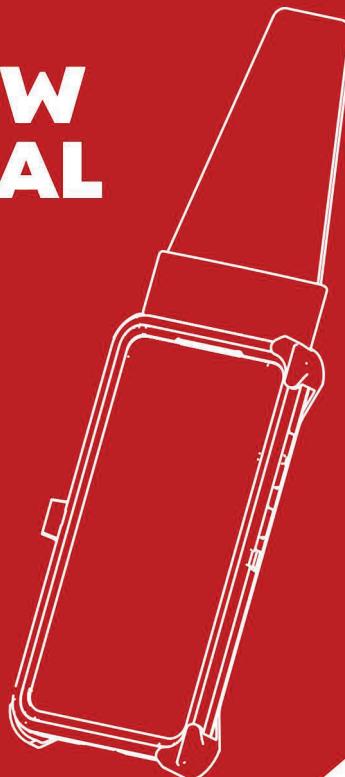


FIND MY COW USER MANUAL

Model FMC-300

User Manual

English (UK)



AHEAD OF THE HERD TOGETHER

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1 CONCEPT OF FIND MY COW

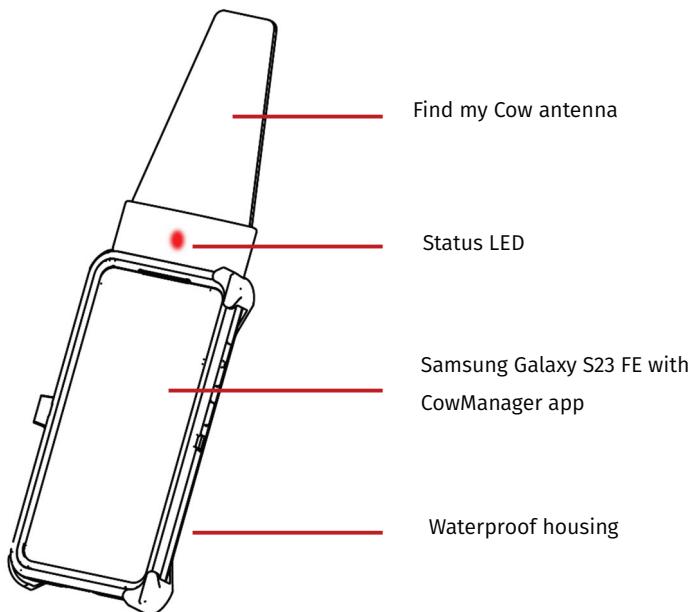
This user manual gives information about the use of the *Find my Cow Locator*, how to activate *Find my Cow* and frequently asked questions. Typical use cases are finding cows for insemination, health checks and pregnancy checks. Also, communicating lost sensors can be found using *Find my Cow*. To use the *Find my Cow* feature, you need the following:

- An installed CowManager system on your farm
- Provided *Find my Cow Locator* with build-in antenna
- Provided wireless charger
- Proper internet connection facility wide (mobile data subscription is strongly recommended)
- List of cows or sensors to find

2 FIND MY COW LOCATOR

The *Find my Cow Locator* consists of the provided smartphone, acting as a data processing unit and display. Attached is a directional antenna and strong waterproof housing that may not be removed.

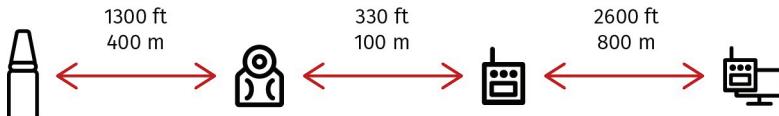
Note: The smartphone can only be used with a data subscription using an eSIM or Wi-Fi. It is strongly forbidden to use the smartphone for private use. This device is sold as one unit and the smartphone may not be removed or replaced.



2.1 Technical Specifications

Parameter	Value	Unit
Power		
Supply voltage	3.6	V
Battery capacity (@ 20 °C / 68 °F)	4500	mAh
Battery chemistry	Li-Ion	
Antenna - ZigBee		
Standard	IEEE802.15.4a	-
Operational frequency	2405 / 2480	MHz
Operating channel (default)	16	-
Modulation	QPSK	-
Antenna polarization	Directional	-
Range locator - sensor	400	m
<i>Outdoor, free line of sight</i>	1300	ft
Range sensor - router	100	m
<i>Outdoor, free line of sight</i>	330	ft
Physical		
Dimensions	300 x 95 x 35 (l x b x h)	mm
Weight	336	g
Environmental		
Operating temperature	-20 - + 40	°C
	-4 - + 104	°F
Operating relative humidity	10 - 95	% RH
Storage temperature	0 - 40	°C
	32 - 104	°F

Distances in direct line of sight



2.2 Charging

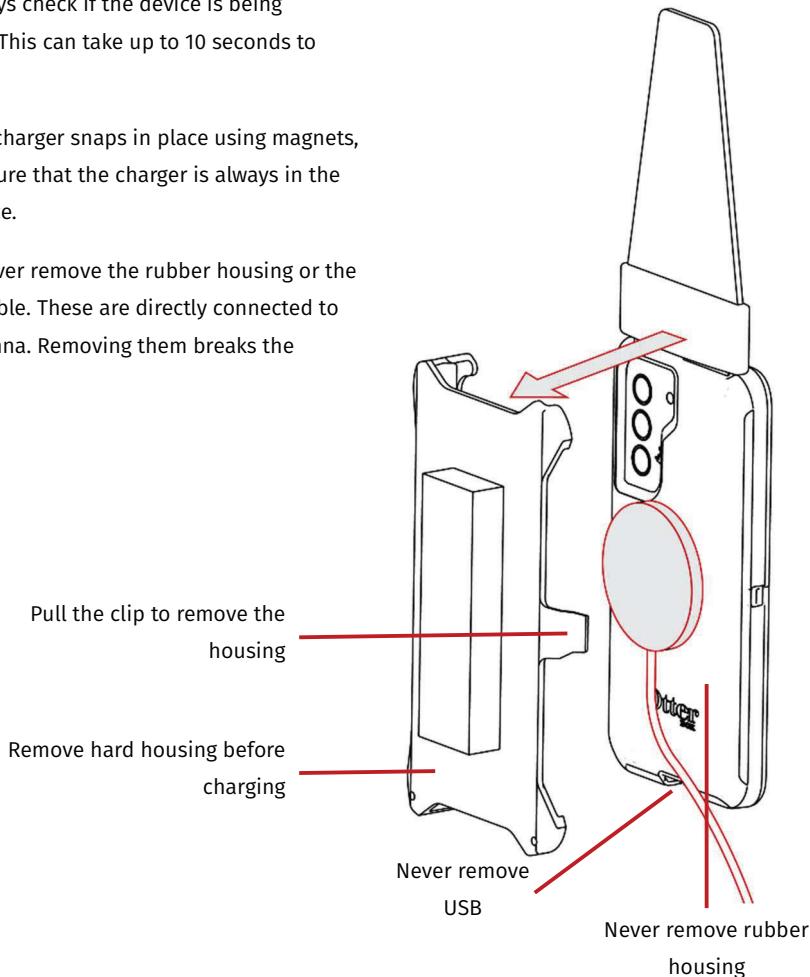
The *Find my Cow Locator* can only be charged using the provided wireless charger. Make sure the device is at least 20% charged when using *Find my Cow*.

To charge the device, first remove the hard casing by pulling the clip on the side. Then place the magnetic wireless charger on the back of the rubber housing.

Tip: Always check if the device is being charged. This can take up to 10 seconds to show up.

Tip: The charger snaps in place using magnets, making sure that the charger is always in the right place.

Note: Never remove the rubber housing or the USB-C cable. These are directly connected to the antenna. Removing them breaks the device.



3 HOW TO USE FIND MY COW

Before you start searching for cows, it is necessary to activate *Find my Cow* for a sensor. To do this, a command for a sensor must be created in the CowManager web-application or mobile app. The commands are passed from the PC or mobile app to the sensor through the coordinator and router(s). In short, the following must be done:

- Create a command (possible cow numbers and lost sensors) with start time, duration, and reason to find a certain cow.
- Wait 10-15 minutes for *Find my Cow* to activate once a command is created.
- Start the app and start finding your cows using the *Find my Cow* feature in the app on the *Find my Cow Locator*.

3.1 Activate Find my Cow – PC Cow List

Using the dashboard, cows can be selected by clicking the checkbox in front of the animal number. If the checkbox above the table is ticked, all cows on the page are selected. Using this, it is possible to create a quick selection of cows to find. After selecting the cows to find, click on *Action* and *Activate Find my Cow*.

Note: Activating *Find my Cow* can only be done with the selected cows from the current active page. Moving to another page deselects the cows.



After clicking *Activate Find my Cow*, you have to add the reason, start date and time, and duration in hours and click *OK* to finalise the activation.

Note: You can set commands for a maximum of 200 cows or sensors per time.

Activate Find my Cow

Number of animals selected: 1

Reason	In heat	Delete
	Add new reason	Add
Start date	25/10/2022	10:52
Duration (hours)	8	

OK Cancel

3.2 Activate Find my Cow – PC Menu

Find my Cow can also be activated from the menu. Selecting cows can be done using the search bar, inserting the animal number or sensor ID. Clicking on a cow adds them to the list of selected cows to activate *Find my cow* for. Click on *Activate Find my Cow* and add the reason, start date and time, and duration in hours, and click *OK*.

Note: When a sensor has not communicated for more than 1 day, you cannot send a *Find my Cow* command.

The screenshot shows the 'Activate Find my Cow' dialog box within a larger application interface. The dialog box is titled 'Activate Find my Cow' and contains the following fields:

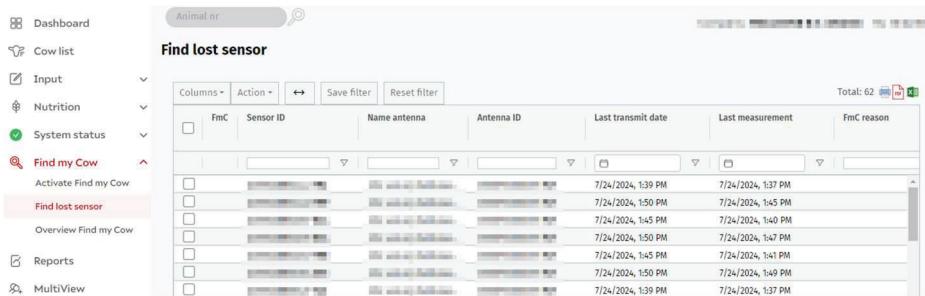
- Reason: In heat (selected)
- Add new reason (button)
- Start date: 25/10/2022
- 10:52 (start time)
- Duration (hours): 8

At the bottom are 'OK' and 'Cancel' buttons. The background shows a sidebar with various menu items like Dashboard, Cow list, Input, Nutrition, System status, Find my Cow (selected), Reports, MultiView, Company settings, and Knowledge Base. The 'Find my Cow' section is expanded, showing 'Activate Find my Cow' and 'Find lost sensor'.

3.3 Find Lost Sensors

When sensors get lost around the farm, you can find them using the *Find my Cow locator*.

Click on *Find lost sensor* in the menu to start this feature. Here you can set commands to find the lost sensors and see which router they last communicated with, and the timestamp of doing so. Activating *Find my Cow* for lost sensors is the same as in section 3.1.



The screenshot shows the 'Find lost sensor' interface. On the left, a sidebar menu includes 'Dashboard', 'Cow list', 'Input', 'Nutrition', 'System status', 'Find my Cow' (which is selected and expanded, showing 'Activate Find my Cow' and 'Find lost sensor' options), 'Overview Find my Cow', 'Reports', and 'MultiView'. The main area has a header 'Find lost sensor' with buttons for 'Columns', 'Action', 'Save filter', and 'Reset filter'. A table below shows sensor data with columns: FmC, Sensor ID, Name antenna, Antenna ID, Last transmit date, Last measurement, and FmC reason. The table contains 10 rows of data, with the last row showing a timestamp of 7/24/2024, 1:37 PM. A total count of 62 is displayed at the top right.

FmC	Sensor ID	Name antenna	Antenna ID	Last transmit date	Last measurement	FmC reason
<input type="checkbox"/>	[REDACTED]	[REDACTED]	[REDACTED]	7/24/2024, 1:39 PM	7/24/2024, 1:37 PM	
<input type="checkbox"/>	[REDACTED]	[REDACTED]	[REDACTED]	7/24/2024, 1:50 PM	7/24/2024, 1:45 PM	
<input type="checkbox"/>	[REDACTED]	[REDACTED]	[REDACTED]	7/24/2024, 1:45 PM	7/24/2024, 1:40 PM	
<input type="checkbox"/>	[REDACTED]	[REDACTED]	[REDACTED]	7/24/2024, 1:50 PM	7/24/2024, 1:47 PM	
<input type="checkbox"/>	[REDACTED]	[REDACTED]	[REDACTED]	7/24/2024, 1:45 PM	7/24/2024, 1:41 PM	
<input type="checkbox"/>	[REDACTED]	[REDACTED]	[REDACTED]	7/24/2024, 1:50 PM	7/24/2024, 1:49 PM	
<input type="checkbox"/>	[REDACTED]	[REDACTED]	[REDACTED]	7/24/2024, 1:39 PM	7/24/2024, 1:37 PM	

3.4 Overview of Find my Cow

The last feature in the *Find my Cow menu* is the *Overview*. Here you can see an overview of cows and sensors of which *Find my Cow* is activated or are planned to be activated. The *FMC* column shows one of two icons:



The hour glass symbol is visible when a command is send, but not yet received by a sensor. This can take between 10-15 minutes.



The cow symbol shows that the command is received by the sensor, and that *Find my Cow* is activated.

4 USING THE FIND MY COW LOCATOR

All users with permission to *Find my Cow* (in MultiView), can use all *Find my Cow* functionalities within the web-app and mobile app.

4.1 Using Find my Cow for the First Time

When using *Find my Cow* for the first time, the app asks for USB permissions. Always allow these permissions for the *Find my Cow locator* to become active.

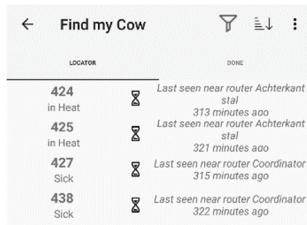
Tip: If the *Find my Cow locator* shows the message *locator disconnected*, restart the application.

Tip: The *Find my Cow locator* is activated when the LED on the antenna is turned on.

4.2 Home View

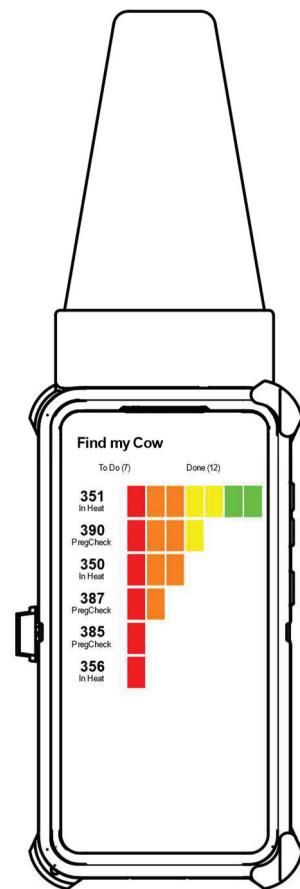
In the *Find my Cow* tab in the app on the *Find my Cow locator*, you can see the commands that are sent to the sensors. This overview also shows the hourglass or cow symbol, showing if the sensor is activated after 10-15 minutes.

Note: This info is only updated when the *Find my Cow locator* has an active internet connection. Farm wide Wi-Fi or a data subscription is advised.



LOCATOR		DONE
424	>Last seen near router Achterkant stal	
in Heat	313 minutes ago	
425	Last seen near router Achterkant stal	
in Heat	321 minutes ago	
427	Last seen near router Coordinator	
Sick	315 minutes ago	
438	Last seen near router Coordinator	
Sick	322 minutes ago	

When a sensor is activated, and the user is in range of the cow, the *Find my Cow locator* shows the cow number, reason and a distance indicator. The distance indicator consists of four colours; red, orange, yellow, and green. By clicking on a cow in the list, the information about the cow shows up including activity and behaviour graphs. When a cow is found, the user must click and hold the cow from the list, and press *Done*. The cow now moves to the *Done list* which can be accessed to undo a found action, bringing the cow back to the *To-do list*.



4.3 Filtering and Sorting

It might be more helpful to filter the cows you are trying to find, showing a better overview of a pen for instance. In the top right corner, there are several options to do so. The funnel button can be pressed to filter the cows to show on the *Find my Cow locator*. The second, sorting button, gives to option to sort cows on the *Find my Cow locator* based on cow number, group number, or signal strength.

Tip: Sorting cows on signal strength means that the cows that are nearest, show up top.

4.4 Settings

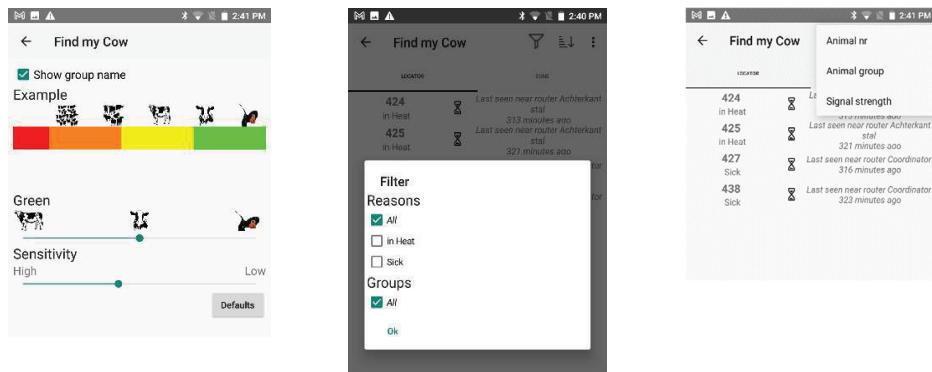
Clicking the most right button (three dots) opens the settings menu. Here the following can be changed:

By activating *Show group name* the group name is shown on the *Find my Cow locator* screen.

The *green* slider function makes is possible to change the range of the colours. When the slider is moved to the right, the user has to be closer to the cow for the signal to become green.

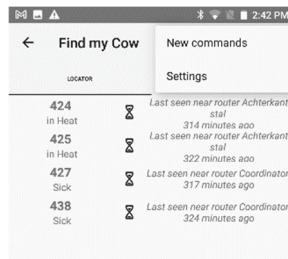
The *sensitivity* slider changes the sensitivity of the antenna. When moving the slider to the right, the sensors become less sensitive, and will show up later on the *Find my Cow locator*.

Tip: CowManager always recommends using the *Default* settings to get the best experience.



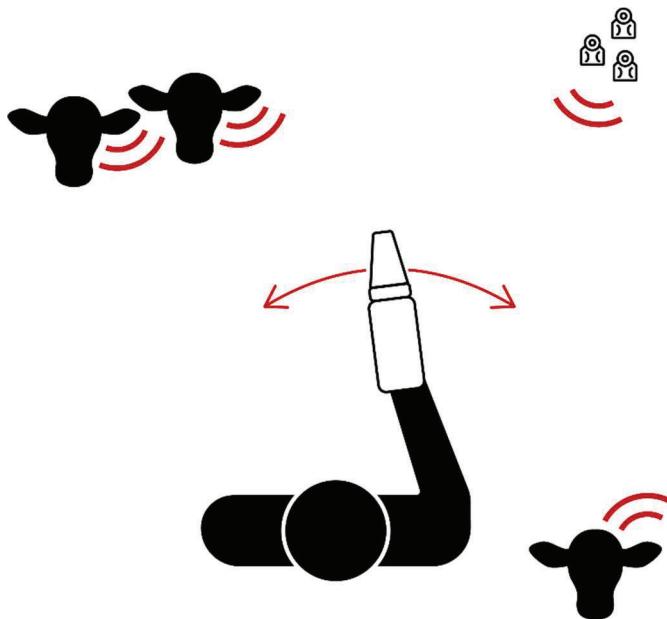
4.5 Activate Find my Cow – Mobile App

When using the *Find my Cow locator*, it is possible to set commands for new sensors. This can be done by selecting the *New commands* feature. Here, the cow numbers can be added after which *Find my Cow* can be activated by adding the reason, start date and time, and duration.



4.6 Walking Around with the Find my Cow Locator

As the *Find my Cow locator* uses a directional antenna, it is important to walk slow and move the *Find my Cow locator* from left to right horizontally to uncover in which direction the signal is coming from. When you are close to a cow, in addition to the green bar, the *Find my Cow locator* also gives audible and vibrating cues.



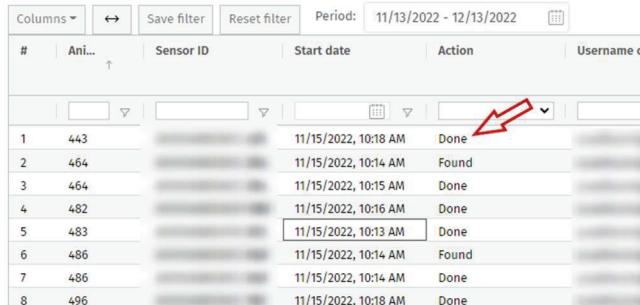
It is possible to use *Find my Cow* in front, behind and in between cows up to 1200 feet/400 metres in direct line of sight. *Find my Cow* works best in clear line of sight and under good weather conditions. However, the *Find my Cow locator* is waterproof, so it can be used in wet environments.

5 FIND MY COW REPORT

Under reports in the CowManager web application, you can find the *Find my cow Report*. In this report, you can see an overview of cows that are found, including their timestamp. The reports logs three activities:

- **Found:** The *Find my Cow locator* showed green bars and you pressed *done*. Indicating that you were very close to the cow when you pressed *done*.
- **Done:** You pressed *done* but was not near the cow.
- **Undo:** The cow was moved back to the *to-do list* from the *done list*.

Find my Cow report



The screenshot shows a table titled 'Find my Cow report' with the following data:

#	Anim...	Sensor ID	Start date	Action	Username
1	443		11/15/2022, 10:18 AM	Done	
2	464		11/15/2022, 10:14 AM	Found	
3	464		11/15/2022, 10:15 AM	Done	
4	482		11/15/2022, 10:16 AM	Done	
5	483		11/15/2022, 10:13 AM	Done	
6	486		11/15/2022, 10:14 AM	Found	
7	486		11/15/2022, 10:14 AM	Done	
8	496		11/15/2022, 10:18 AM	Done	

6 FREQUENTLY ASKED QUESTIONS

Can I take the smartphone out of the *Find my Cow locator*?

No, the smartphone in the *Find my Cow locator* cannot be removed or replaced. The *Find my Cow locator* is sold as one device and the warranty applies to the product as a whole. If you remove the smartphone, remove the rubber housing or remove the USB-C cable, the warranty is void.

What if the message *locator disconnected* appears?

Force close the application, and restart it.

Does the *Find my Cow locator* work out of the box?

No, when starting the application for the first time, you need to allow USB permissions. Without these permissions, the antenna cannot be used and the *Find my Cow locator* does not work. An additional check to know if the *Find my Cow locator* is working, is checking if the LED on the *Find my Cow locator* is turned on.

What is the effect of *Find my Cow* on the sensor battery lifetime?

Using *find my Cow* 12 times per year, 10 hours per day in a 5-year period will reduce the battery lifetime of the sensor with 1 week. Also make sure that the battery of the *Find my Cow locator* is charged before starting the task.

How many sensors can be activated at once?

A maximum of 200 cows or sensors can be activated at once.

Can I use the *Find my Cow locator* for other things than *Find my Cow*?

Yes, you can use the *Find my Cow locator* for other farm related tasks. It is not allowed to use the *Find my Cow locator* for personal use. Additionally, it is advised to mainly use the *Find my Cow locator* for *Find my Cow* as this uses a lot of the processing capabilities.

Can I use the *Find my Cow locator* to link and delink sensors?

Yes, *Find my Cow* is part of the CowManager app which means that you can use all the features like linking and delinking sensors, checking alerts and graphs, and finding cow information. Keep in mind that these functions require an active internet connection.

Can I use *Find my Cow* without an internet connection?

Yes, you can use *Find my Cow* without an active internet connection, however we strongly recommend using *Find my Cow* with internet, as this sends updates to the *Find my Cow locator* and enables you to get cow information. We recommend working with an eSIM with a data plan of at least 500 mb/month (for *Find my Cow* only).

7 WARRANTY

CowManager gives twelve (12) months warranty in the country where the *Find my Cow locator* is sold. The warranty of the locator confirms the warranty as described in the terms & conditions and starts at the moment the product is shipped. The *Find my Cow locator* is one device and consists of a Samsung Galaxy S23 mobile phone, the *Find my Cow* antenna and the housing.

In the event of failure of the *Find my Cow locator*, the following steps need to be taken:

- Make use of the *Find my Cow* user manual in order to identify and possibly solve the problem yourself (see chapter 2 “The Find my Cow locator” and chapter 6 “Frequently asked questions”).
- In case you cannot solve the issue yourself, contact your local CowManager specialist or CowManager Support. Your request will be handled as soon as possible.
- Before contacting CowManager, make sure the following information is at hand: the model number of the device (grey sticker at the inside of the hard casing attached to the keycord), full address and contact information, and clearly state the issue.
- CowManager shall pay costs, when a product needs to be returned and repaired. Only when covered under warranty.

The warranty shall not apply if the defect was caused through any of the following:

- When the *Find my Cow locator* has been opened or smartphone has been removed from the device and the rubber housing is damaged or removed; or
- Deterioration of the product due to normal wear and tear, and defects caused by using the *Find my Cow locator* in other than its intended use; or
- Use other than in accordance with the user manual, prolonged exposure to moisture, dampness or extreme thermal or environmental conditions, corrosion, oxidation, unauthorized modifications or connections, opening or repair by any other party than CowManager; or
- Any defects at the wireless charger and cable after tampering or when phone charger is used in equipment other than those for which it is specified; or

- The defect was caused by the fact that the *Find my Cow locator* was used with or connected to another device, not provided by CowManager; or
- Throughout the warranty period of twelve (12) months, CowManager will repair or replace a defective product. This is only done by CowManager. After repairing or replacing the *Find my Cow locator* shall continue to be warranted for the remaining time of the original warranty period; or
- If CowManager repairs or replaces the product, the repaired or replaced product shall continue to be warranted for the remaining time of the original Warranty Period or for three (3) months from the date of repair or replacement, whichever is longer; or
- Before returning any unit for service, be sure to back up data and remove any confidential, propriety or personal information from the device. CowManager is not responsible for the damage to or loss of any programs, data or removable storage media where you do not back up data.

8 COMPLIANCE

8.1 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 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 the package.

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 20 cm separation distance between the antenna and all persons.

Cet équipement est conforme a RSS-102 limites énoncées pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

8.2 EU Regulatory Conformance

Hereby, the manufacturer declares the device is compliant with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Note: Observe the national local regulations in the location where the device is to be used. This device may be restricted for use in some or all member states of the European Union (EU).

Note: This device may be operated in all member states of the EU.

Only valid for the Find my Cow FMC-300 locator

This equipment has been tested and found to comply with the limits for Class B digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequent energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does not cause harmful interference to radio or television reception, which can be determine by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. To ensure compliance with FCC regulations, use only the shielded interface cables provided with the product, or additional specified components or accessories that can be used with the installation of the product. Find my Cow FMC-300 user manual version 3.0.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de Classe B est conforme à la norme Canadienne ICES-003.



CowManager B.V.

Gerverscop 9, 3481 LT

Harmelen The Netherlands

+31 (0)348 443 840

support@cowmanager.com sales@cowmanager.com

www.cowmanager.com



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