Operating instructions

CRG Vision10

AGRA-GPS LTD

26.08.2024

Copyright © 2024 AGRA-GPS Ltd. All rights reserved.

AGRA-GPS Ltd

Box 2585, Stony Plain, Alberta, T7Z1X9, Canada

Editorial content

Copyright © 2024 AGRA-GPS Ltd. All rights reserved.

No part of this document may be reprinted or translated without the express permission of AGRA-GPS Ltd. This document may not be distributed in whole or in part or used for competitive purposes without authorization. We reserve the right to make changes for reasons of further development.

AGRA-GPS Ltd.

Box 2585, Stony Plain, Alberta, T7Z1X9, Canada

All product names are used without guarantee of free usability and may be registered trademarks.

Table of Content

1 Before you start

Read the instructions carefully, especially the safety instructions, before using the product.
Keep the instructions in a safe place for future use.
When passing on the product, supply the instructions in full.

1.1 About this guide

This manual contains information and instructions necessary for the safe and efficient use of the CRG Vision10 (hereinafter referred to as "product" or "software").

- Persons carrying out work on the product must have carefully read and understood these instructions before starting work.
- The basic prerequisite for safe working is compliance with all safety-related information and instructions in this manual.
- Keep these instructions in an easily accessible place so that they are always available for reference.
- If you have any questions or problems handling the product, contact the manufacturer.

1.2 Symbols and notes

Safety-related information is used in these instructions to warn the user of residual risks in connection with personal injury or damage to property.

Safety instructions are listed in the "Safety" section of this manual. In order to warn of specific hazards in the context of an action or phase of life, warnings are used in the text, which are identified by a warning symbol in conjunction with a signal word. The signal words indicate the extent of the hazard.

DANGER
Failure to observe hazards will result in death or serious injury.

WARNING
Failure to observe warnings may result in death or serious injury.

CAUTION
Failure to observe these instructions may result in injury or damage to property.

NOTE
Failure to observe these instructions can lead to faults in the product or in the environment or to data loss.

TIP
This information makes it possible to make optimum use of all functions.

1.3 Presentation conventions

Emphasis in the text

To improve readability and clarity within the instructions, individual types of information are highlighted.

1. Carry out the instructions in the sequence described.
   Intermediate results show the result after an action step.
   ⓘ Intermediate result notes show important information about the action step.

2. Carry out the instructions in the sequence described.
   Final results show the result according to an instruction.

   - Unnumbered lists show enumerations.

Further emphasis

To improve readability and clarity within the instructions, important terms, key words or references are also highlighted.

Formatting example	Meaning
Activate **settings**	Control elements
fundamental connection	Important terms or keywords
this text is *highlighted*	Emphasis
Malfunction detected. Continue?	System messages
Note the README.TXT file.	File names / paths
see Security on page 1	Reference within the instructions
www.agra-gps.com	Reference outside the instructions (e.g. website)

Illustrations

The illustrations contained in these operating instructions are schematic diagrams and are for demonstration purposes only. The illustrations may differ from the actual delivery state.

Item and illustration numbers

Where necessary, texts are illustrated with images. A caption is provided below the illustration.

The reference between text and image is established by a position and illustration number after the text described.

Example:

1. Actuate the main switch (1 in illustration).

1.4 Terms and abbreviations

Abbreviation	Meaning
UT	Universal terminal or virtual terminal
TC	Task Controller
GNSS	Global Navigation Satellite System
FMIS	Farm Management Information System

1.5 Intended use

- CRG Vision10 is an operating device with pre-installed software for use in agricultural machinery, such as tractors or self-propelled vehicles.
- The product and its software provide functions that control connected agricultural machinery and subsystems using the ISOBUS communication protocol (ISO 11783).
- The software may only be installed, set up and run on operating devices intended by the manufacturer.
- The software may only be installed, set up or maintained by the manufacturer or by specialist companies recognized by the manufacturer.
- Only the pre-installed software may be used.
- Only accessories approved by the manufacturer may be used.

Foreseeable misuse

- Independent maintenance/repair or disposal.
- Use of the product on public roads.
- Use of the product as a driver assistance system.
- Non-compliance with the applicable documents.
- Creating unsafe states on connected devices.
- Disassembling or modifying the product.
- Use of the product if it is damaged or faulty.
- Operating the product without contact protection on the opposite side.
- Use of the product if the power supply or other connections are damaged or faulty.
- Use of the product with a power supply not intended for this purpose or other connections.
- Use of the product outside the specified ambient conditions.
- Removing the pre-installed software. Unauthorized addition of additional software (system updates provided by the dealer are not affected).

Operator obligations

- The owner must ensure that all operators have read and understood the instructions, in particular the safety notes and instructions - including "Other applicable documents".
- The operator must ensure that the product can be operated safely and is regularly maintained (including software updates).
- In the event of faults, the operator must inform the dealer.

Applicable documents

The following documents must be observed before and during use of the product:

- "Service and installation instructions CRG Vision10" from AGRA-GPS Ltd.

WARNING
Contact the manufacturer or dealer for applicable documents in your language.

1.6 Range of functions and features

The functional scope of the software depends on the activated license and its features.

Sections in these instructions generally describe functions of the basic or standard license. Extended functions that are included in other licenses are highlighted accordingly in this documentation.

The overview of available or activated licenses is displayed in the software.
See 9.5 License overview~~License overview~~ on page 99~~100~~.

Formatted: Font: 11 pt, Underline

1.7 Contact details

Manufacturer

Service / maintenance / repair / disposal

Address	AGRA-GPS Ltd. Box 2585 Stony Plain, Alberta T7Z 1X9, Canada
Phone	+1 (825) 247-2477
e-mail	sales@agragps.com
Web	www.agra-gps.com

2 Safety

The following safety-related information describes possible hazards and residual risks that may occur when using the product. To avoid personal injury and damage to property, read the instructions listed here carefully and observe them when using the product. Contact the manufacturer if anything is unclear.

Hazards during operation / assembly / maintenance / disassembly / transportation / storage

- The product, its accessories and packaging material are not toys. Do not allow small children to play with it, as small children can injure themselves or others or damage the product. Keep

the product with all its parts and accessories and its packaging material out of the reach of small children.

- Parts of the product can reach temperatures of >65 °C during operation. Allow the product to cool down before touching it.
- Only install the product at a sufficient distance from the intended operating position (especially the head). Observe the applicable national laws.
- Only operates the product at a minimum distance of 20 cm from other radio equipment. Observe the applicable national laws.
- Only operates the product at a sufficient distance from the body (especially the head). Observe the applicable national laws. A minimum distance of 40 cm from the head is recommended.

Electrical hazards

- Unauthorized opening and/or repair of the product or accessories can lead to electric shock, product damage, fire, personal injury and other hazards.
- Observe the instructions on plugs and the operator-side power supply, including all connection cables (e.g. phase, polarity).
- Always keep the product and its accessories dry. Do not immerse in liquids or touch with damp or wet hands.

Hazards due to electromagnetic radiation / radio radiation

- Do not use in the vicinity of people with pacemakers or other medically necessary electrical devices.
- Do not use near small children or babies.
- Do not use in the vicinity of strong electromagnetic fields.

Hazards due to acoustic signals

- ~~To avoid hearing damage, do not use the product continuously at full volume.~~
- ~~To avoid hearing damage, use the product at medium volume.~~To prevent hearing damage, avoid prolonged use at high volume. Use medium volume whenever possible.

Mechanical hazards

- Unauthorized opening and/or repair of the product or accessories can lead to electric shock, product damage, fire, personal injury and other hazards.

2.1 Markings and instructions on the product

The product and its accessories are marked with labels and information plates that provide further information on handling and use.

WARNING
The markings and plates must be clearly legible for the entire service life of the product and must be replaced immediately if damaged or permanently soiled (contact service).

Labeling	Meaning
Type plate	See 3.33.3 Type plate~~Type plate~~ on page 10

2.2 Alarms and messages

Warnings and alarm messages

The product displays warning and alarm messages.
An acoustic signal can also be switched on/off and the volume can be set for defined messages.
Confirm all messages and follow the instructions.

TIP
Avoid data loss
Data loss can have an impact on your collected data - for example, field data and meter values.

Follow the instructions for software actions that cannot be undone.

Guided operation in the software
The software guides you with input assistants (so-called wizards) or draws your attention to incorrect entries with warnings and alarms.
The software uses a warning symbol to indicate that action is required.

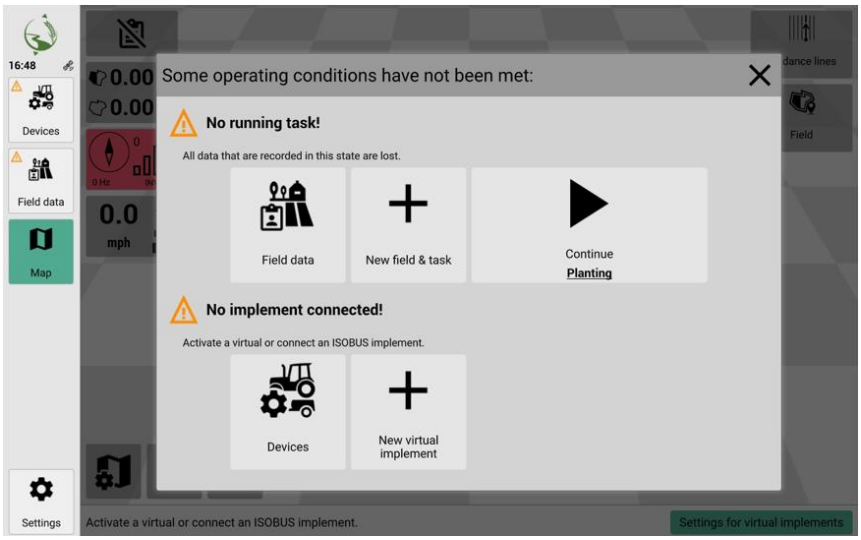
Warning symbol

For example:

- System faults
- Correct the input data
- Enter data
- Perform action (e.g. see 6.8 Start/Stop Job - Edit a field~~Start/Stop Job - Edit a field~~ on page 41~~42~~)

Formatted: Font: Not Bold, Underline, German (Germany)

Formatted: Heading 2 Char, Underline, German (Germany)



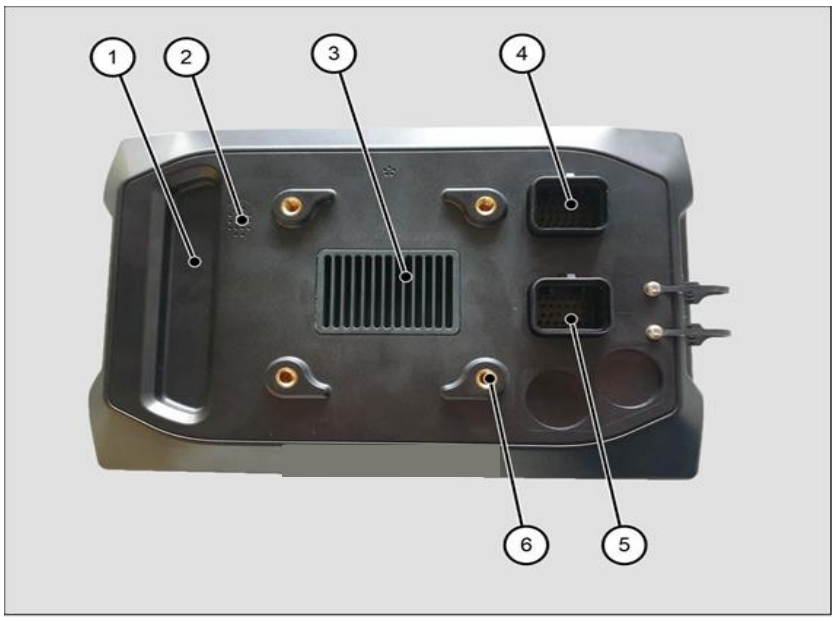
Warning indicating user action

3 Technical data

3.1 Product overview

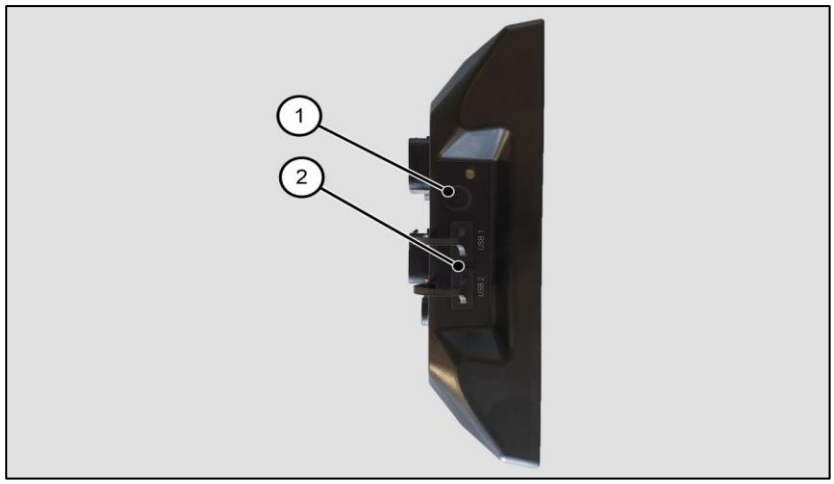
Top View

1 Touchscreen (operating side)



View of the rear (opposite operating side)

1 Recessed grip
2 Loudspeaker
3 Heatsink
4 Universal plug connector A
5 Universal plug connector B
6 4 x threaded bushes (M6)



Side view (right)

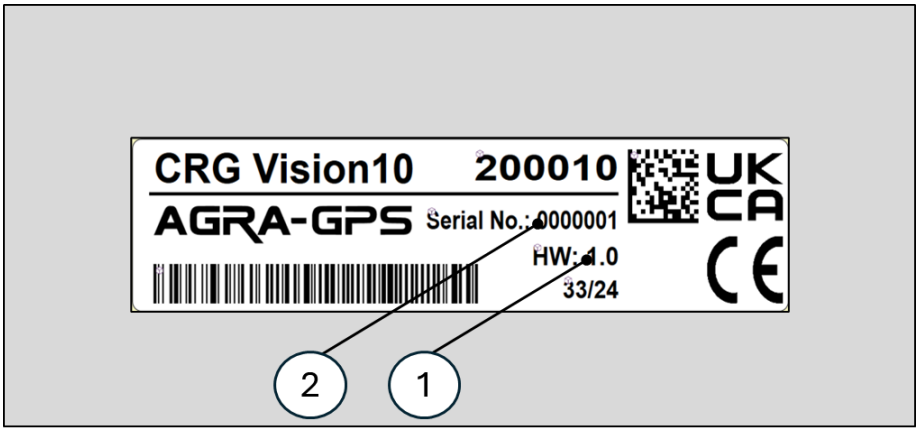
1 On/off button
2 2x USB type A socket, with protective caps

3.2 Product data

Dimensions and mechanics	
Dimensions	251 x 170 x 79 mm
Weight	1020 g
Touch screen	1280 x 800 pixels, projected capacitive
Material / Housing type	PC-ABS plastic housing RAL 9005
Fastening	4x M6 threaded bushes (VESA75)
Protection class	IP6K5 according to ISO 20653
Radio radiation	
WLAN 2.4 GHz:	
Standard	IEEE 802.11 b/g/n
Output power 802.11(b)	16 dBm
Output power 802.11(g)	13 dBm
Output power 802.11(n)	11 dBm
WLAN 5 GHz:	
Standard	IEEE 802.11 n/a/ac
Output power 802.11(a)	15 dBm
Output power 802.11(n/ac)	13 dBm
Output power 802.11(ac)	9.5 dBm
WLAN-Antenna	2.4 GHz and 5 GHz; maximum gain 2 dBi; impedance 50 Ω
Power supply	
Nominal voltage	12 V DC
Operating voltage	8 - 36 V DC
Reverse polarity protection	-36 V MAX
Power consumption:	0.8 A at 13.8 V DC
External fuse	Attach external 5 A fuse
Ambient conditions	
Operating environment	-20 °C ... +70 °C, rel. humidity: 10 % ... 90 %
Storage environment	-30 °C ... +80 °C, rel. humidity: 10 % ... 90 %

Interface Connecter USB	**Function**
2 x USB	USB 2.0 Type-A
Interface Connector A	**Function**
CAN1	CAN2.0B (max. 1 Mbit/s)
RS232	Serial Interface (4800-115200 baud
Interface Connector B	**Function**
CAN2	CAN2.0B (max. 1 Mbit/s)

3.3 Type plate



Example – Type plate

1 Product hardware version **2** Product serial number

3.4 Scope of delivery

- CRG Vision10 display
- Quick guide

4 Installation and commissioning

Carry out installation and commissioning in this order:

1. Unpacking and transport inspection~~Unpacking and transport inspection~~
2. Fitting contact protection~~Fitting contact protection~~
3. Attach to bracket~~Attach to bracket~~
4. Electrical connection~~Electrical connection~~
5. Switching on and off~~Switching on and off~~

During installation, the product must be attached to a secure bracket.

Formatted: Font: 11 pt

Formatted: Font: 11 pt

Formatted: Font: 11 pt

Formatted: Font: 11 pt

Formatted: Font: 11 pt

4.1 Unpacking and transport inspection

WARNING

Choking hazard

The product, its accessories and packaging material are not toys.
Do not allow small children to play with it, as small children can injure themselves or others or damage the product.
Keep the product with all its parts and accessories and its packaging material out of the reach of small children.

NOTE

Intended use

The product and the accessories supplied may only be stored, transported or disposed of in the original packaging.
Do not damage or dispose of the original packaging.

NOTE
Check the delivery for completeness and visible damage.
Contact the manufacturer or dealer in the event of incomplete delivery or damage due to inadequate packaging or transportation. Do not put the product into operation

1. To unpack the product, remove it from the outer packaging.
2. Then remove the packaging film and packaging inserts.

4.2 Fitting contact protection

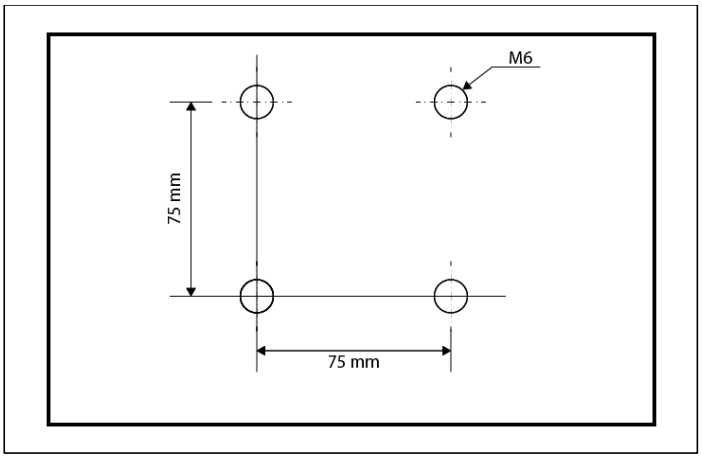
The contact protection can be installed using various methods. The methods depend on the mounting conditions. The use of a suitable VESA adapter is recommended for easy installation.

4.2.1 Mounting variants

Installation conditions / prerequisites	Remark	Assembly
▪ Only if VESA adapter is in Bracket is available and compatible with C-ball connection.	▪ Only if VESA adapter is included in the scope of delivery. ▪ Requires bracket with Cball connection (1.5 inch / 38 mm).	▪ Mount VESA adapter as contact protection
▪ The Bracket is available with matching VESA adapter.	▪ Requires bracket with VESA adapter (75 x 75 mm hole pattern).	▪ Mount VESA adapter as contact protection
▪ Individual contact protection		▪ Installing individual contact protection

Missing accessories or tools can be obtained from the dealer.

4.2.2 Mount VESA adapter as contact protection



Drill hole sketch with hole pattern 75 x 75 mm

- 4 x M6 fastening screws, maximum tightening torque 3 Nm
- VESA adapter (75 x 75 mm hole pattern)

1. Attach the VESA adapter to the back of the product.
2. Fasten the VESA adapter to the threaded sockets provided using the four fastening screws on the back of the product.
3. Do not exceed the maximum tightening torque of 3 Nm.
4. The maximum screw-in length must not exceed 7 mm.
5. If necessary, use suitable washers (only suitable for M6 threads).
6. Ensure that all connections are tight and that the product or the fastening screws do not come loose by themselves.
7. If necessary, use screw locking varnish.

4.2.3 Installing individual contact protection

CAUTION
Hazard due to combustion, hazard due to parts coming loose on their own

The heat sink can reach temperatures of >65 °C during operation.
Ensure that the material and composition of the individual contact protection provides sufficient protection against heat.
Ensure that the material and composition of the individual contact protection can withstand the conditions of daily work and that it cannot come loose on its own (e.g. due to vibrations, heat).

NOTE
The air supply to the heat sink must be ensured for operation.
The individual contact protection must not completely cover the heat sink.

- Individual contact protection is prepared by means of a drill hole sketch for attaching the fastening screws

1. Attach the touch guard to the back of the product.
2. The touch guard must not cover the speaker (see Product overview on page13).
3. Fasten the contact protection to the threaded bushes provided using four fastening screws on the back of the product.
    - Do not exceed the maximum tightening torque of 3 Nm.
    - The maximum screw-in length must not exceed 7 mm.
    - If necessary, use suitable washers (only suitable for M6 threads).
4. Ensure that all connections are tight and that the product or the fastening screws do not come loose by themselves.
    - If necessary, use screw locking varnish.

4.3 Attach to bracket

CAUTION
Hazards due to electromagnetic radiation

The product transmits and receives electromagnetic radiation (e.g. WLAN).
Insufficient distance can lead to damage to the health of persons or property in the vicinity.

Always install and operate the product at a sufficient distance from the subsequent operating position (especially the head). A minimum distance of 40 cm is recommended.

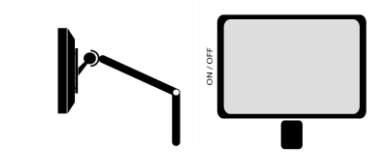
Always install and operate the product at a minimum distance of 20 cm from other radio equipment.

TIP

If the device is incorrectly aligned during installation, the information on the display will be incorrect.

Observe the orientation of the product during installation.
The on/off button must be located on the **right-hand side of the product** (lefthand side when viewed from above from the operator's perspective)

The product with contact protection must be attached to a secure holder.
Observe the product information for the bracket (e.g. operating instructions).



Attach to bracket *Align*

4.4 Electrical connection

WARNING

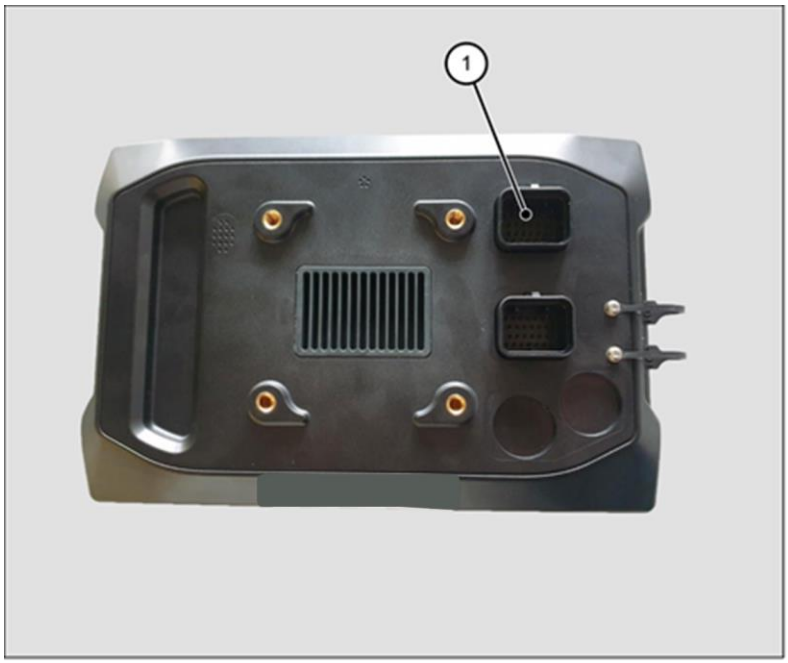
Electric shock, reverse polarity

Connecting the power supply incorrectly or reversing the polarity can lead to fire, electric shock or damage to property.
Only use the specified power supply and observe the assignment of the connection (see 3 Product data on page 7).
Observe the polarity and phases of the electrical connections

NOTE
Intended use

Before making the electrical connection, the operator must ensure that all pin assignments of the connections allow the product to be used as intended. This includes, for example the assignment for CAN ISOBUS (ISO 11783) and GNSS sources.
Observe the intended pin assignment and configuration of the product.

- Configured connection cable (type TE Connectivity 3-1437290-8)
  Connect the cable to the plug connector A (see illustration).



View of the rear (opposite operating side)

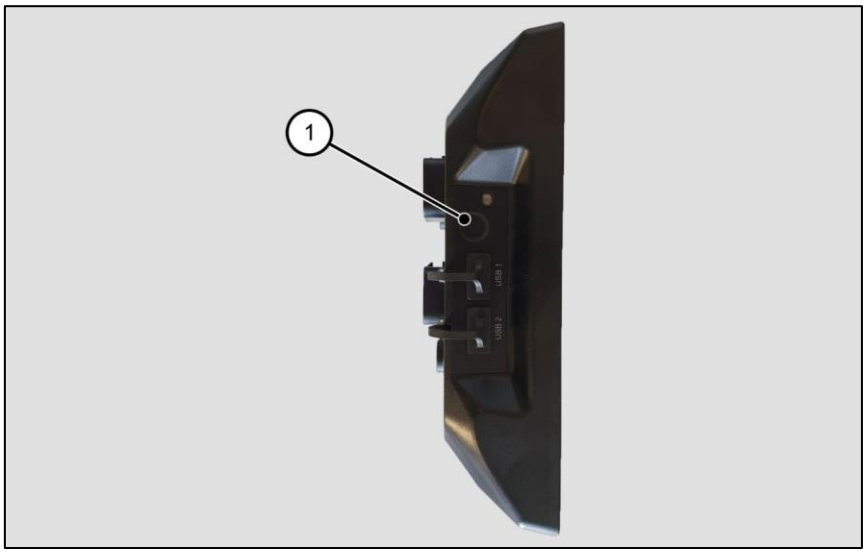
1 Universal plug connector A

4.5 Switching on and off

NOTE
Data loss

To ensure trouble-free operation, stop all ongoing work. Only then switch off.

1. To switch the product on or off, press and hold the on/off button until an acoustic signal sounds.



Side view (right)

1 On/off button

5 First steps

In this chapter, you will learn how to use the software and how to prepare for your first work assignment.

5.1 Overview of the ISOBUS

The ISOBUS (ISO 11783) is a standardized communication system that enables the networking of agricultural machinery and equipment.
It is an internationally recognized standard that makes it possible to connect agricultural machinery and equipment from different manufacturers and exchange data between them.
This standard was developed to improve interoperability and increase efficiency in agriculture.
The ISOBUS uses a uniform hardware interface and a standardized protocol for communication between different agricultural implements.

Functions of the ISOBUS in agriculture

- **Implement networking** - With ISOBUS, farmers can connect different machines such as tractors, combine harvesters, planters, fertilizer spreaders and more. This allows them to work more efficiently as the devices can exchange information and commands.
- **Data management** - The ISOBUS enables the collection, storage and exchange of data generated during agricultural work. This includes information on field yields, fertilizer consumption, soil quality and more. This data can be used for decision-making and the optimization of agricultural processes.
- **Automation** - ISOBUS allows the automation of agricultural tasks. This means that machines can work, for example, to plow in a specific pattern or spread seed in predefined quantities.

5.2 How does CRG Vision10 work?

Inside the CRG Vision10 is software for use in agricultural machinery, such as tractors or self-propelled vehicles. The software provides functions that control connected agricultural machinery and subsystems using the ISOBUS communication protocol (ISO 11783).

The software is usually run on a terminal or display that is permanently installed in the tractor. The external devices are connected to the display via ISOBUS or other interfaces (e.g. GNSS devices, ISOBUS connectors).

Typical setup and use

A typical procedure for setting up CRG Vision10 is as follows:

- Familiarize yourself with the operation (see 5.4 *Operating the software* on page 19).
- Carry out the initial setup using the wizard (see 5.5 *Starting the software for the first time* on page 21).
- Set up and adjust a tractor:
    - Select the GNSS device (GNSS source) and set it up for the tractor (see 5.6.1 *Setting up the tractor's GNSS module* on page 22).
    - Set all necessary connectors (see 5.6.2 *Create connectors* on page 24).
      Connectors are the physical coupling points of the connected agricultural devices.
- Then add the devices and assign them to the connectors (see 5.6.2 *Create connectors* on page 24)

- Create and import master data (see 6.2 *Managing master data* on page 30) and create suitable fields (see 5.6.4 *Create field* on page 25).
  It is possible to import
  - field boundaries (e.g. as shape files or ISOXML)
  - guidance lines
  - prescription maps.
- Create guidance lines for parallel driving (see 8.5 Use of guidance lines on page 68).

5.3 Touch screen

NOTE
Only touch the touchscreen with a clean finger.

The product is operated using touch gestures.

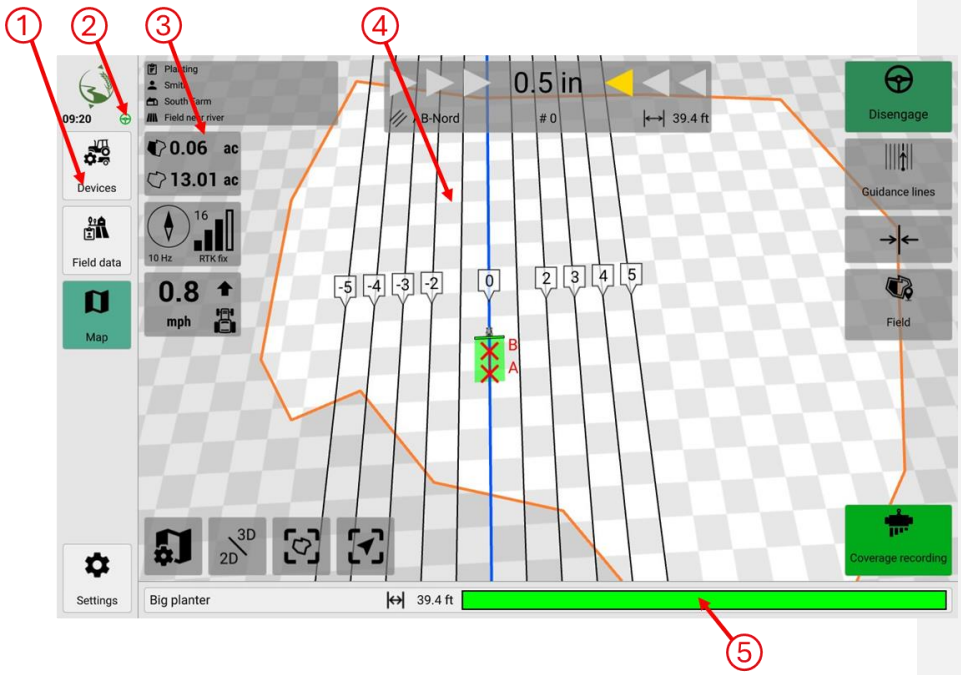
Touch gesture	Function
	Tap ▪ for triggering buttons ▪ for selection in lists ▪ to operate the virtual keyboard and other input fields
	Wipe ▪ to scroll ▪ to change the display in the map view, e.g. scrolling, switching between 2D or 3D display
	Swipe ▪ with two fingers to change the display in the map view, e.g. zoom, rotate

5.4 Operating software

5.4.1 User interface

The user interface of the software is clearly divided into two parts:

- Menu - Navigation to all functions to make settings. Contains the status display.
- Main view - Shows the map view or settings dialogs.



1 Menu

2 Status display, e.g. time, WLAN

3 Quick buttons, e.g. for changing the display in map view

4 Main view, e.g. map view with field boundaries, active guidance lines

5 Display for sections and booms

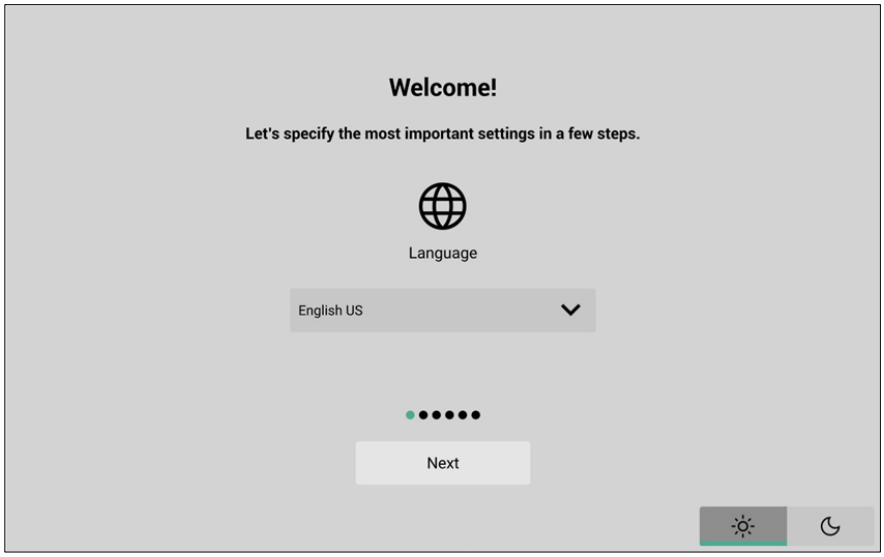
5.4.2 Input options

In the software, you can enter names / values and open additional editing windows or information. The following input options are available:

Icon	Function
	View / edit settings
	Edit / Rename
	Edit Opens a settings or information view
	Edit Starts a guided assistant
	Input via virtual keyboard
	View information
	Confirm input / action
	Close view or window End / cancel action
	Abandon Interrupts a connection (e.g. cloud service)
	Delete
	Start
	Pause
	Stop

5.5 Starting the software for the first time

When you start the software for the first time, you are automatically guided through some system settings.



Setting the system

1. Select a language
2. Select a date format
3. Select a time format
4. Select a time zone

TIP
UTC is the Coordinated Universal Time and serves as a global reference time standard.
All time zones are defined in relation to UTC.
The reference point for UTC 0 is the prime meridian.

5. Select a GNSS source.

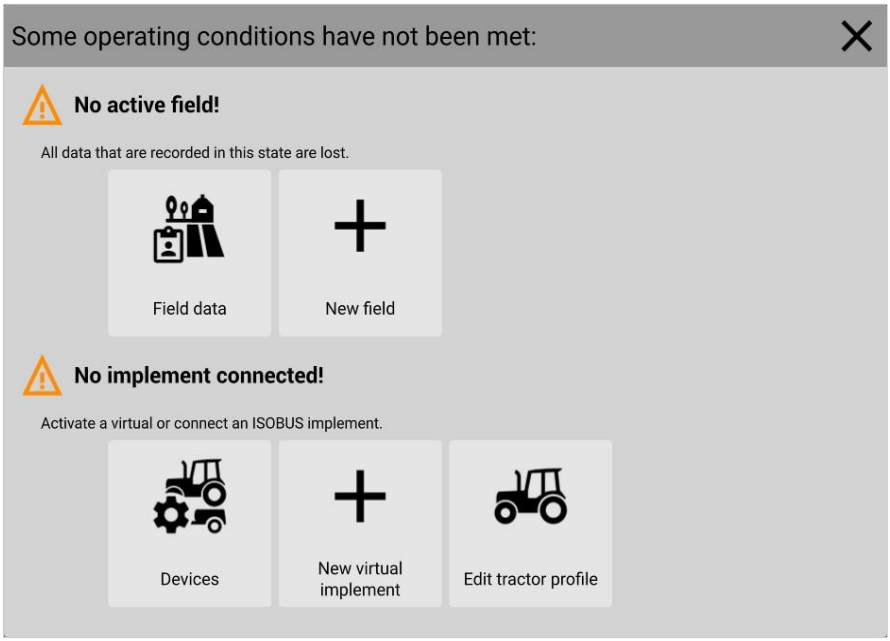
As soon as the setup wizard has been successfully completed, the **map view is** displayed.

5.6 Prepare work assignment

In order to prepare and correctly record the work assignment, the following devices must be set up as standard after starting the software:

- Tractor
- GNSS source
- Implement

The following window provides an up-to-date overview of what needs to be set up:



TIP

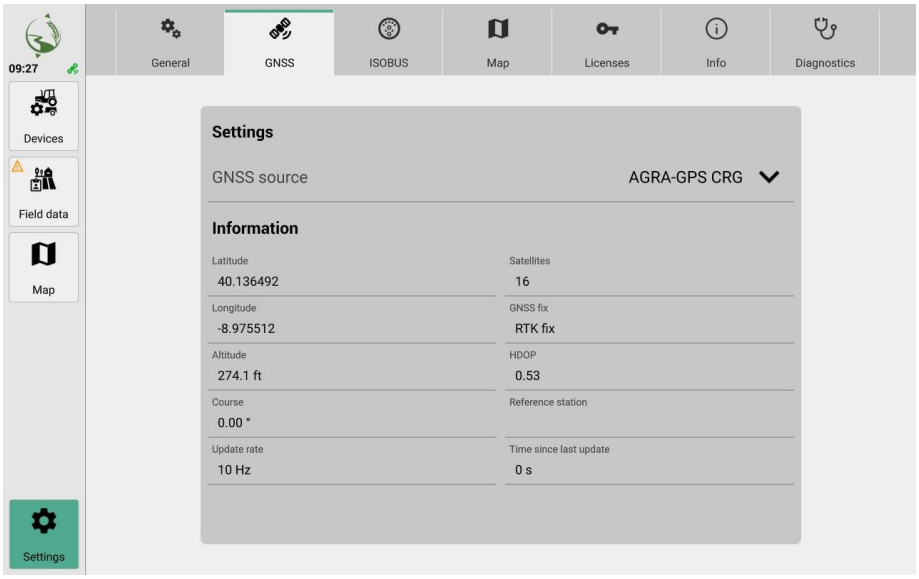
If the overview window is not displayed while the setup is still being carried out, it can be called up again via **Map> Field data > Field**

5.6.1 Setting up the tractor GNSS module

It is important to specify the position of the GNSS receiver so that the positions of the tractor and the implement can be calculated correctly. The GNSS speed can optionally be provided via the ISOBUS if an implement requires this information, and it is not already provided by another system on the ISOBUS.

First, the appropriate GNSS receiver (GNSS source) must be selected in **Settings** > **GNSS source.**

See also 9.2 *GNSS settings* on page 90.



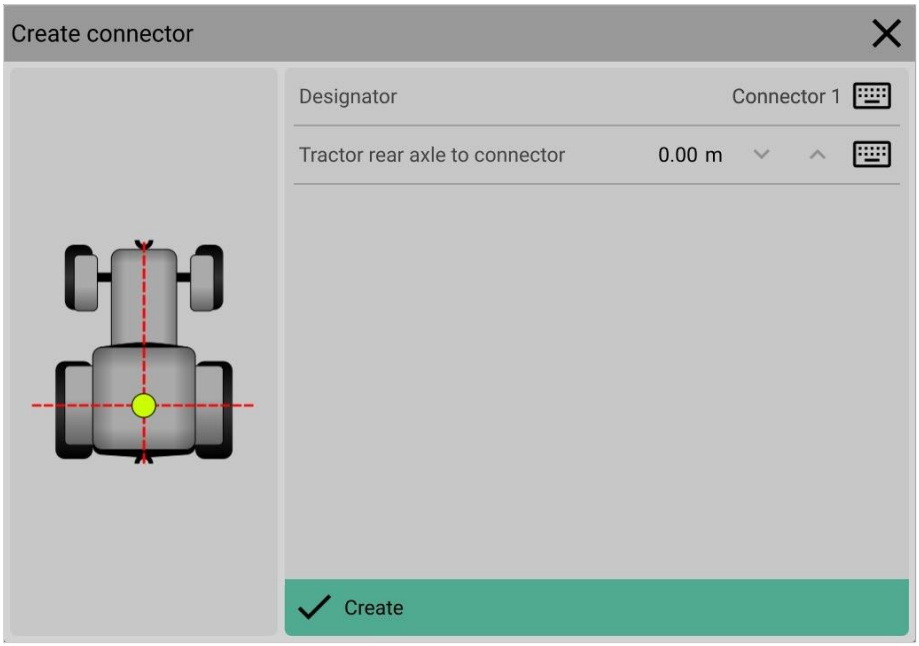
Select always as GNSS source: "***AGRA-GPS CRG***"

5.6.2 Create connector

All connectors must be created and set up for each tractor on which implements are to be mounted. A connector is the physical coupling point via which the implement is mounted. The position of a connector is specified in relation to the tractor rear axle.

TIP
When setting up for the first time, it can be helpful to create and set up all connectors straight away

See also 7.1 *Manage tractors* on page 44.

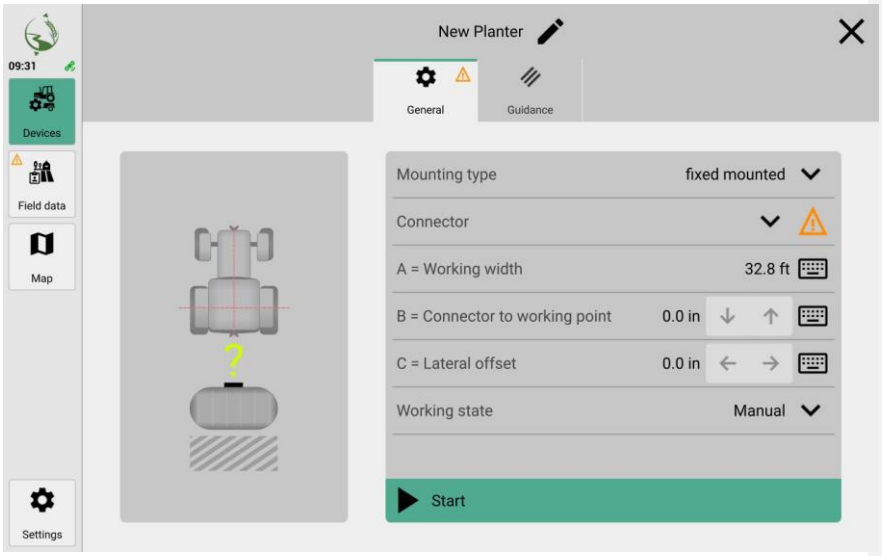


5.6.3 Add implement

ISOBUS-capable and non-ISOBUS-capable implements can be connected to the tractor. To be able to record data for a non-ISOBUS-capable implement, its geometry must be set independently.

The following applies:

- **ISOBUS-enabled implements** are automatically recognized by the software after connection and displayed in the **Active implements** list.
- **Non-ISOBUS-capable implements** are not automatically recognized. A so-called virtual implement must first be created for such implements.



Schematic aids (left) during setup

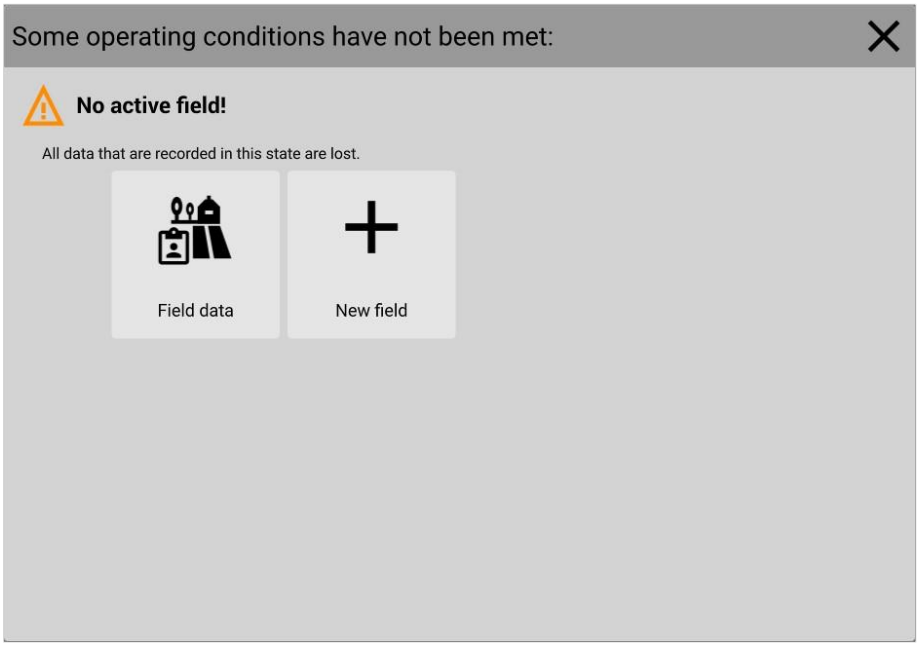
See also 7.3 Manage implements on page 47.

5.6.4 Create field

NOTE
Data loss
If no field or job is started during the work operation, no data is recorded.
Make sure that a field or task has been started.

In the last step, a new field must be created that is to be used. The data for the field boundaries can then be imported.

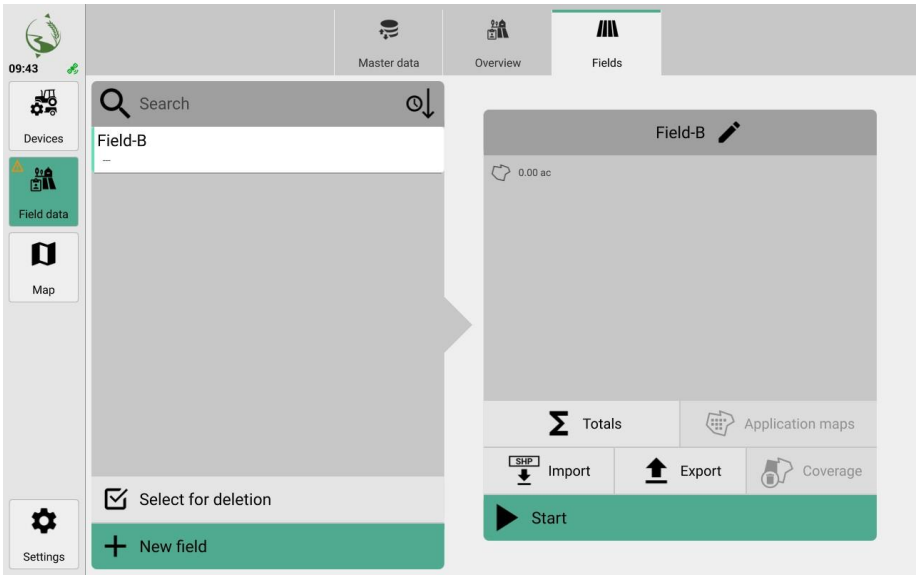
Before creating the field, master data can optionally be created and imported (e.g. from a Farm Management Information System). The master data can be linked to fields and contain additional data such as information on customers and farms (see Managing master data on page38).



The following data can be uploaded using the import function via **Field data** > **Fields:**

- Field boundaries
- Guidance lines

The rough outline of the field or field boundaries are displayed on the right.



Recording starts as soon as the field is created in field mode.

See also 6 *Tasks, fields and farms* on page 29.

5.7 Map view and work assignment

The map view displays 3D representations of the tractor, the active field and the connected implements. Depending on the settings made, additional information (e.g. field boundaries, application rates) or driving aids (e.g. guidance lines, light bars) are displayed.

The map view is helpful for navigating and correctly processing the field during the work assignment.

To display the map view, press **Map** in the menu.

The map view can be rotated, panned and moved using **touch gestures.** It offers additional options, such as automatic following of the tractor.

NOTE
Incorrect data recording

If the direction of travel of the tractor in the map view does not correspond to the direction of travel of the real tractor, the data will be recorded incorrectly. Before starting work, always check that the directions of travel match.

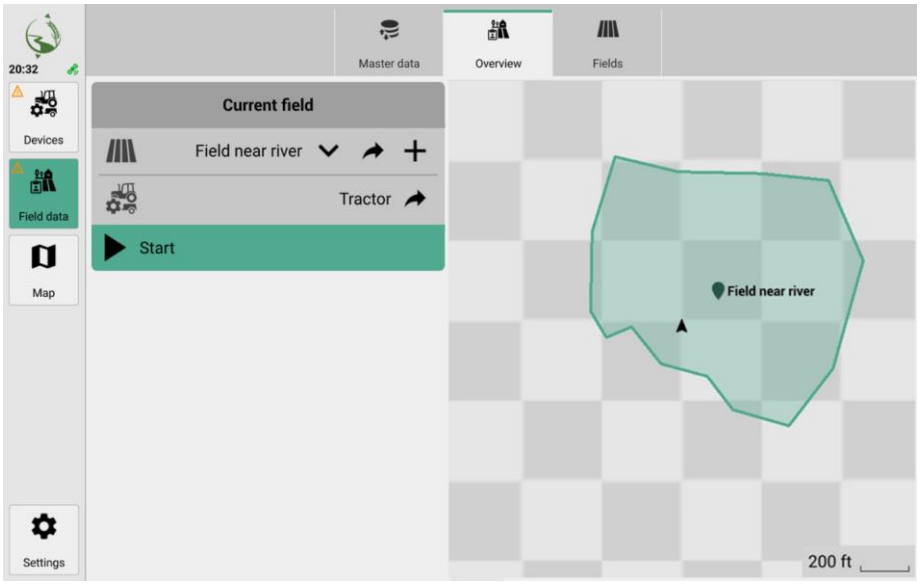
6 Tasks, fields and farms

6.1 Overview

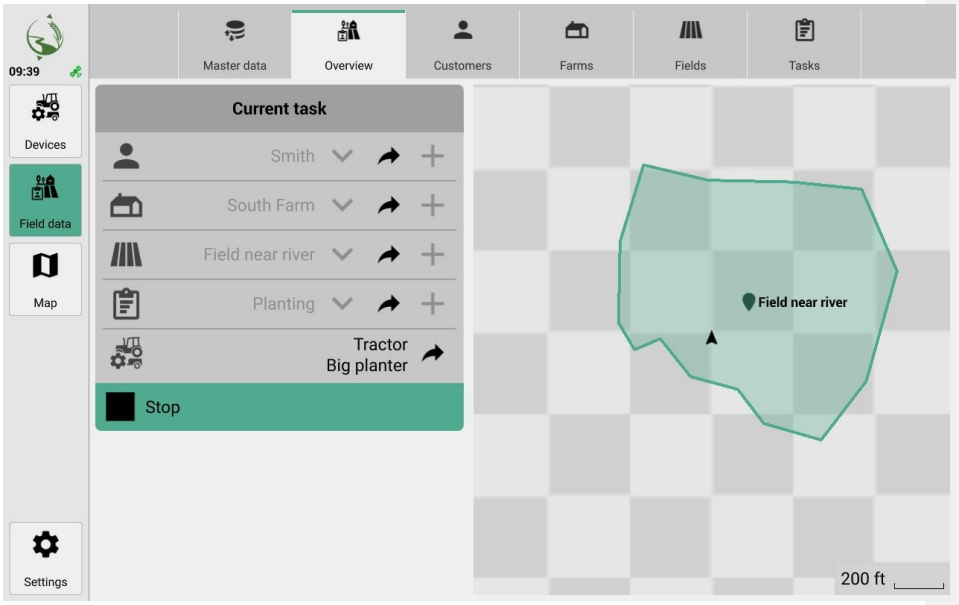
In the field data there are the options field mode and extended field mode.

- Individual fields can be managed in **field mode.**
- The **extended field mode** offers additional options for task, customer and farm management. This data can also be imported from FMIS data records.

Field mode:



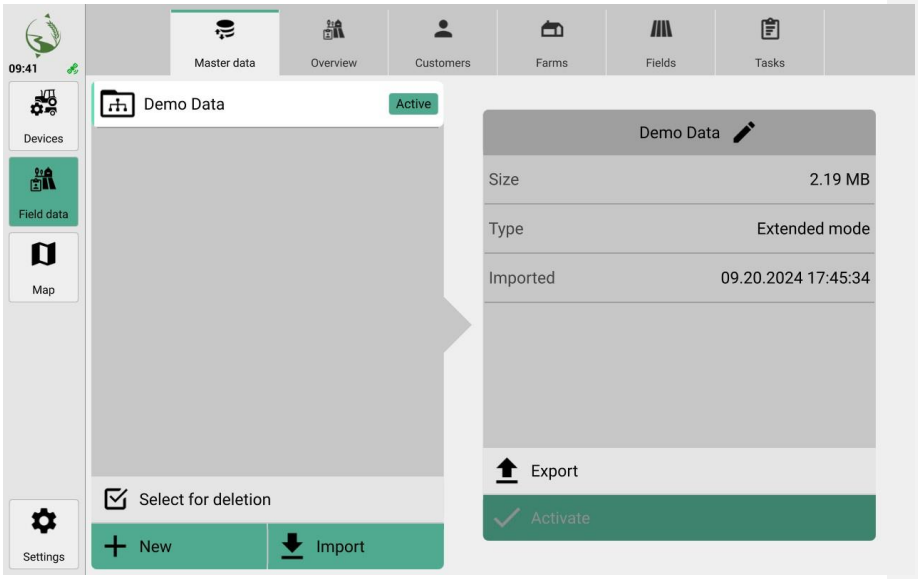
Extended field mode



6.2 Managing master data

A master data record is an individual set of customer, farm, field or task data that can either be imported or newly created in the software.
The application can manage any number of master data records.
The following formats can be imported:

- ISOXML (TASKDATA.XML, standard ISO 11783)
  e.g. from a Farm Management Information System (FMIS)
- Complete backup (ZIP archive)
  e.g. all data from another CRG Vision10 system



6.2.1 Create master data

1. Navigate to Field data > Master data
2. Press **New**.
3. You have the following options:
   - Field mode
   - Extended mode
4. Assign a name by opening the keyboard.
5. Create the master data record

6.2.2 Import master data

1. Navigate to **Field data** > **Master data**.
2. Press **Import**.
3. Select the import file.
4. Assign a name by opening the keyboard.
5. Import the master data record.

NOTE
Restoring via backup import only works on the "CRG Vision10" operating devices of the same type.

6.2.3 Convert master data to extended mode

TIP
If you realize during your work that you also need options for customer, farm or task management in addition to field management, you can also convert a master data record to extended mode. The conversion cannot be undone. However, you can create a new, empty data record at any time.

- The data record is available in field mode.
  1. Navigate to **Field data** > **Master data**.

2. Select a data record for conversion.
3. Convert the data record

You now have access to customer, farm and task management.

6.2.4 Export master data

1. Navigate to **Field data** > **Master data**.
2. Select a master data record to export.
3. Press **Export**.
4. You have the following options:
   - **Backup:** All data is exported and can be restored 1:1 on a CRG Vision10 by importing.
   - **ISOXML:** Only ISOXML data is exported, including guidance lines of type "Straight AB" or "Curve". Other data is lost, such as coverage, marker points, headlands, guidance lines (if not of type "Straight AB" or "Curve").
5. Select a storage location.
6. Export the master data record.

NOTE
Restoring via backup import only works on the " CRG Vision10" operating devices of the same type

6.2.5 Delete master data

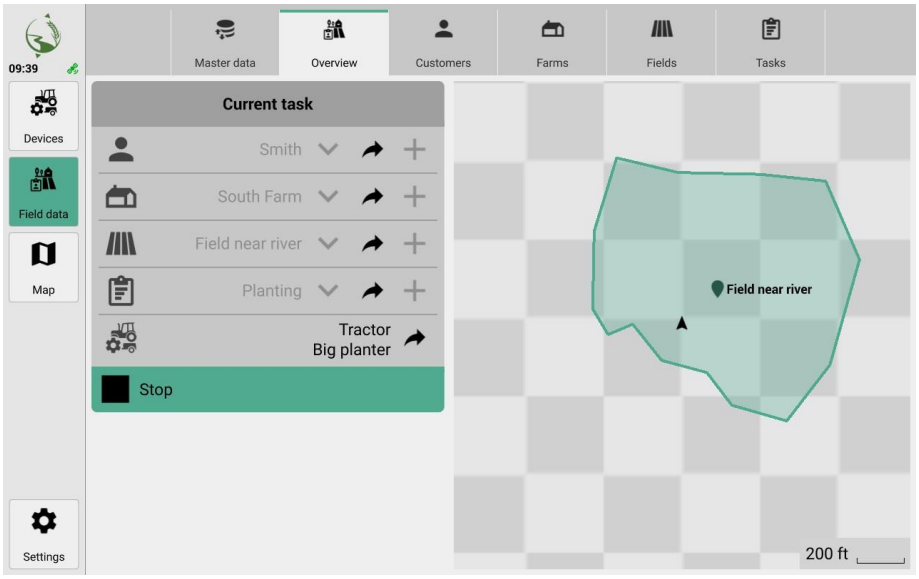
Active master data cannot be deleted.

1. Navigate to **Field data** > **Master data**.
2. Press **Select to delete**.
3. Select one or more data records.
4. Press **Delete**.
5. Confirm the process.

6.3 Field data overview

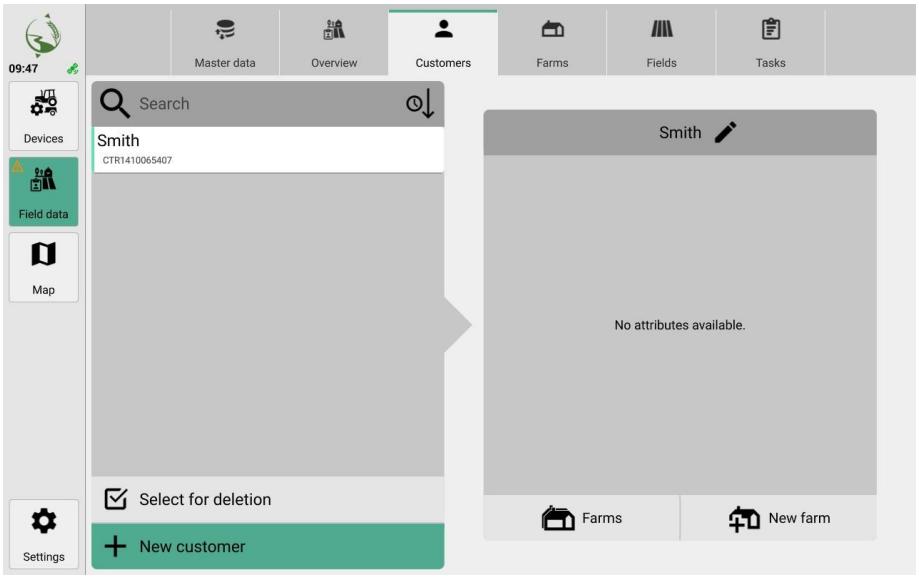
In the field data overview, you can create new fields or activate existing fields and start the field.
In **extended field mode,** the work assignment can be compiled with the following selection options:

- Customer
- Farm
- Field
- Task



6.4 Managing customers

In customer management, you can create new customers, delete customers and assign farms.
If you have imported customers using FMIS, you can view additional information, such as telephone number or address.



6.4.1 Create customer

- You are in extended field mode.

1. Navigate to **Field data** > **Customers**
2. Click on **New customer**

3. Assign a name.
4. Confirm the entry.

6.4.2 Assign a customer to a farm

- You are in extended field mode.
- A customer has been created.

1. Navigate to **Field data** > **Customers**.
2. Select a customer.
3. Press **New farm**.
4. Assign a name.
5. Confirm the entry.

The newly created business is assigned to the selected customer.

6.4.3 Delete customers

- You are in extended field mode.

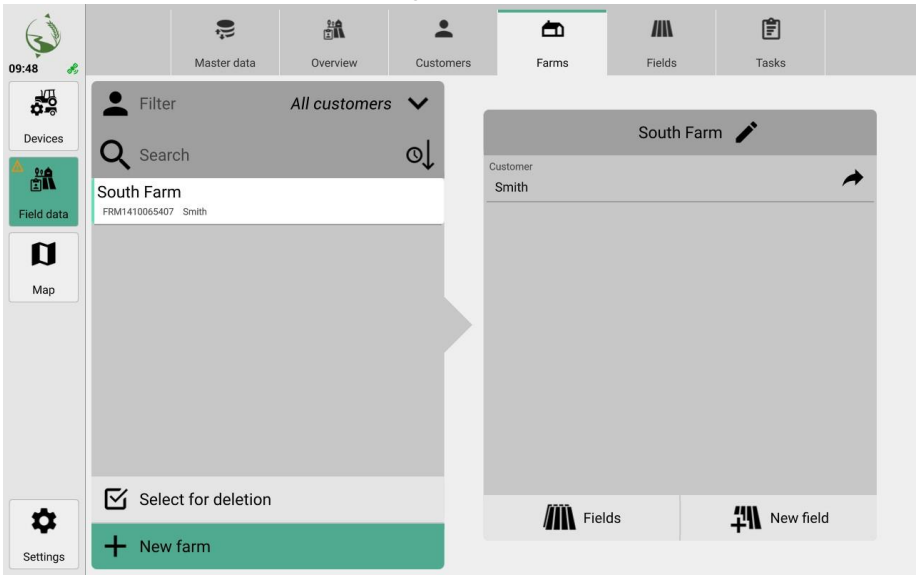
1. Navigate to **Field data** > **Customers**.
2. Press **Select to delete**.
3. Select one or more customers.
4. Press Delete

TIP
If sites have already been assigned to the customer, these are also deleted.

5. Confirm the process.

6.5 Managing farms

You can create and delete new farms and assign fields in the farm administration.



6.5.1 Create farm

- You are in extended field mode.

1. Navigate to **Field data** > **Farms**.
2. Press **New farm**.
3. Assign a name.
4. Confirm the entry.

6.5.2 Assign a field to a farm

- You are in extended field mode.
- A farm was created.

1. Navigate to **Field data** > **Farms**.
2. Select a farm.
3. Press **New field**.
4. Assign a name.
5. Confirm the entry.

The newly created field is assigned to the selected farm.

6.5.3 Delete farms

NOTE
Data loss
If fields have already been assigned to the farm, these are also deleted. This process cannot be reversed. Create backup copies before deleting. For example, by exporting data.

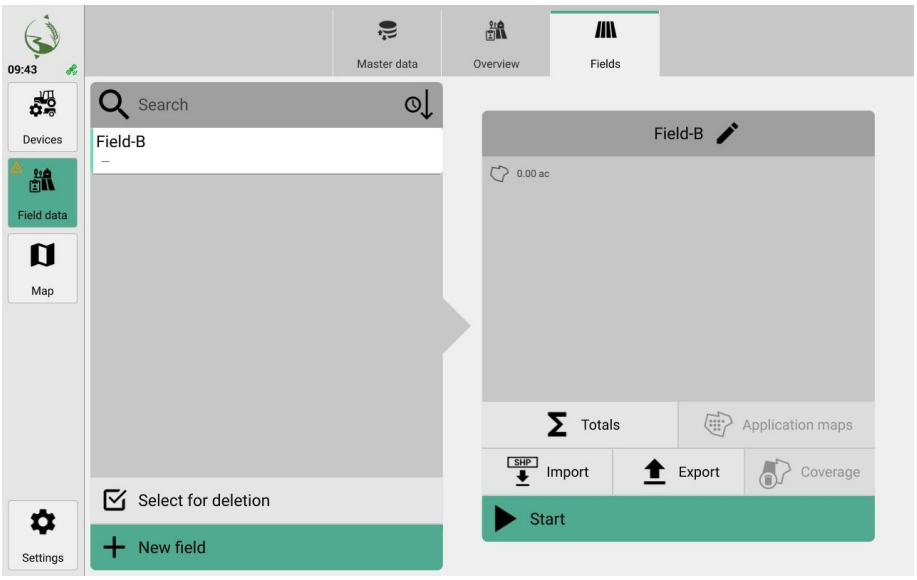
- You are in extended field mode.

1. Navigate to **Field data** > **Farms**.
2. Press **Select to delete**.
3. Select one or more farms.
4. Press **Delete**.
5. Confirm the process.

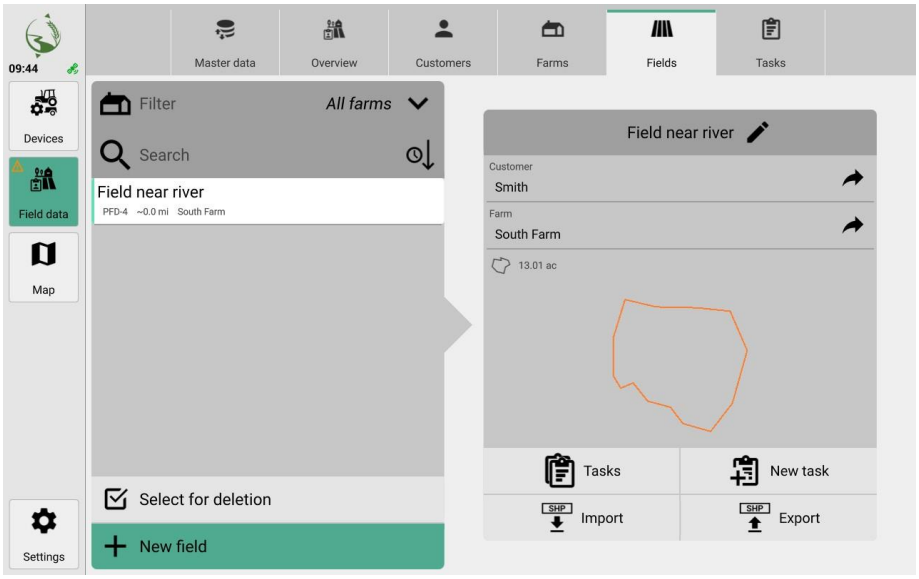
6.6 Managing fields

All fields can be managed in the field overview. As an additional option in extended field mode, you can assign tasks directly to fields.

Field mode


09:43
Master data
Overview
Fields
Devices
Field data
Map
Settings
Search
Field-B
Select for deletion
New field
Field-B
0.00 ac
Totals
Application maps
Import
Export
Coverage
Start

Extended field mode



6.6.1 Create field

1. Navigate to **Field data** > **Fields**.
2. Press **New field**.
3. Assign a name.
4. Confirm the entry.

6.6.2 Import field or field boundaries

1. Navigate to **Field data** > **Fields**.
2. Press **Import**.
3. Select **Field** ~~**boundaries**~~**boundary**.
4. Select a file.
5. Select the object to import.
6. Import the field boundary.

6.6.3 Assign a task to a field

- You are in extended field mode.
- A field has been created.
  1. Navigate to **Field data** > **Fields**
  2. Select a field.
  3. Click on **New Task**
  4. Assign a name.
  5. Confirm the entry.

The newly created task is assigned to the selected field.

6.6.4 Export field

Make sure a flash drive is formatted correctly and plugged into the monitor beforehand

1. Navigate to **Field data** > **Fields**
2. Select a field to export.
3. Press **Export**.
   - **Shapefile** and **PDF** options are available in **field mode**.
   - In **extended field mode**, the data is exported directly as a **shapefile**.
4. Select a storage location.
5. Export the field data.

6.6.5 Delete coverage / coverage map of a field

The coverage map documents where in the field the implement has already been working.

- The field is stopped.

1. Navigate to **Field data** > **Fields**.

TIP

In extended field mode, you will find this option under **Field data** > **Tasks**.

2. Press **Coverage**.
3. Confirm **Delete**.

6.6.6 Delete fields

1. Navigate to **Field data** > **Fields**
2. Press **Select to ~~delete~~deletion**
3. Select one or more fields.
4. Press **Delete**

TIP

If tasks have already been assigned to the field, these are also deleted.

5. Confirm the process.

6.6.7 Importing guidance lines

Make sure a flash drive is formatted correctly and plugged into the monitor beforehand

Formatted: Indent: Left: 0 cm, Hanging: 2.5 cm

1. Navigate to **Field data** > **Fields**
2. Press **Import**
3. Select **Gguidance line~~s~~**
4. Select a file.
5. You have the following options for the import:
   - **Guidance line(s) with propagation:** A base track is imported that can be used for the calculation of parallel tracks.
   - **Guidance line set without propagation:** Only one track set is imported for travel.
6. Select the objects to import.
7. Import the guidance lines

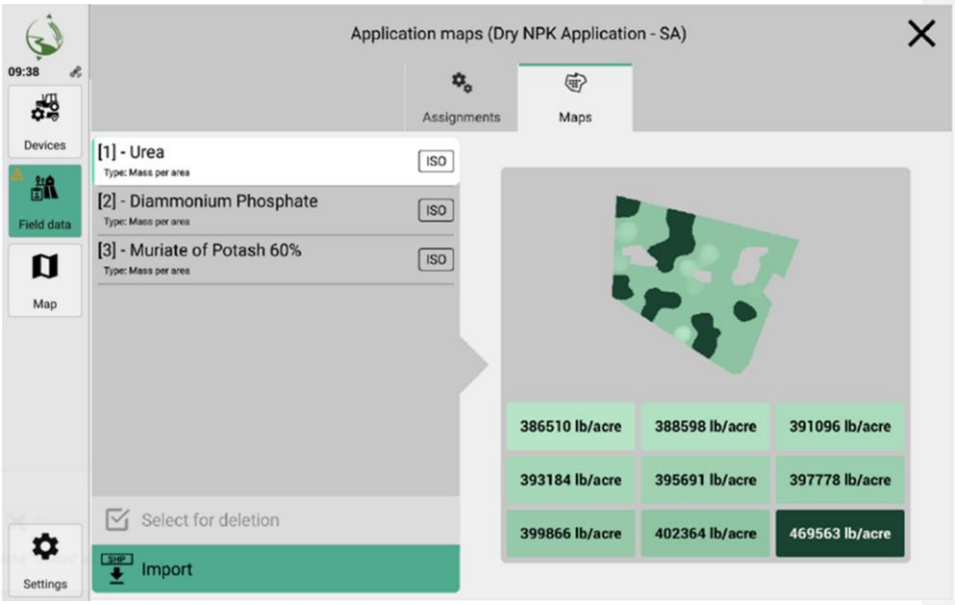
6.6.8 Importing prescription maps

1. Navigate to **Field data** > **Fields**.

TIP
In extended field mode, you will find this option under **Field data** > **Tasks**.

2. Press **Import**.
3. Select ~~Application~~ Prescription **maps**.
4. Select a file.
5. Select a column.
6. Select a unit.
7. You can adjust the following values in the overview:
   - Default value
   - Not-in-the-field value
   - GNSS lost value
8. Import the prescription maps.

6.6.9 Editing prescription maps



1. Navigate to **Field data** > **Fields**

TIP
In extended field mode, you will find this option under **Field data** > **Tasks**.

2. Select a field or a task.
3. Activate **Application maps**.
4. Under Assignments, you can assign set values to the booms of an ISOBUS-enabled implement.
5. You can import **maps** under **Maps.**

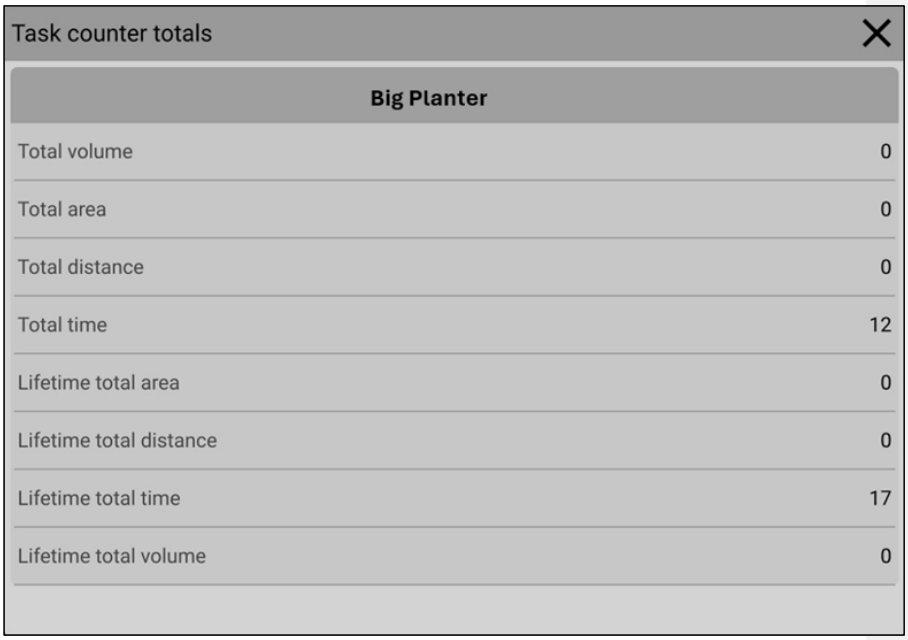
6.6.10 Display counter values

- A field has been created and started.

1. Navigate to **Field data** > **Fields**

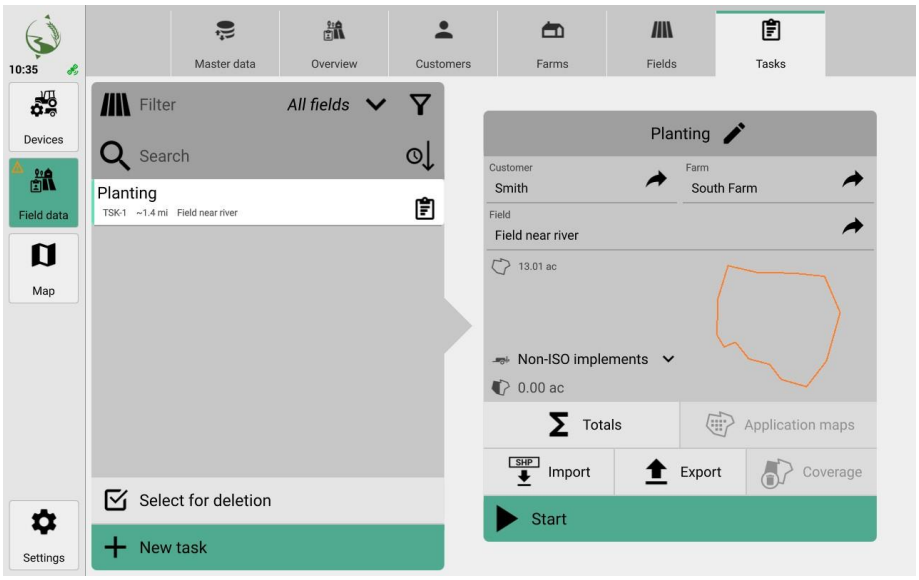
TIP
In extended field mode, you will find this option under **Field data** > **Tasks**.

2. Press **Counter values**



6.7 Managing tasks

In extended field mode, various recurring tasks can be defined for a field.



6.7.1 Create task

- You are in extended field mode.

1. Navigate to **Field data** > **Tasks**.
2. Click on **New task**.
3. Assign a name.
4. Confirm the entry.

6.7.2 Assign a task to a field

- You are in extended field mode.
- A task has been created.
- A field has been created.

1. Navigate to **Field data** > **Tasks**.
2. Select a task.
3. Click in the task details **field**.
4. In the dialog, select the field that you want to assign.
5. Click on **Apply**.

The task has been assigned to the newly created field.

6.7.3 Delete tasks

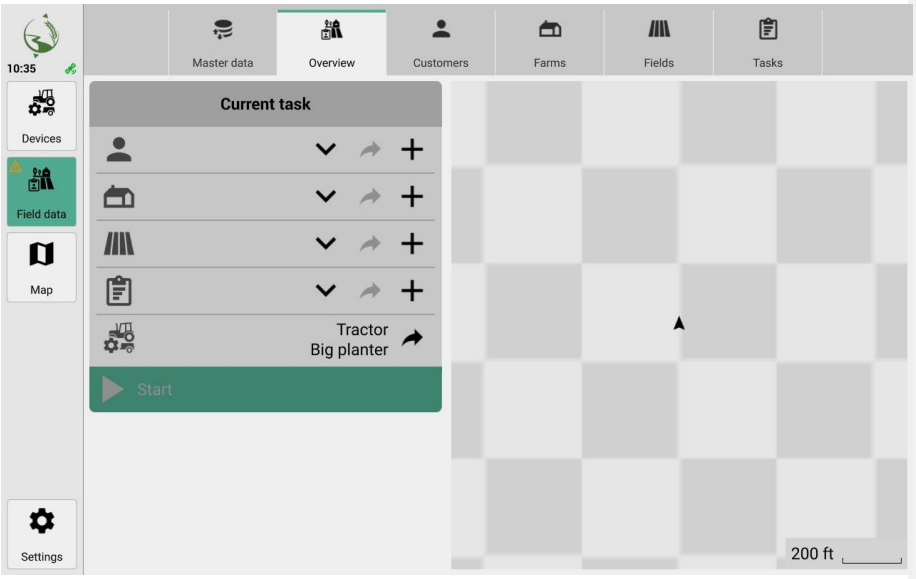
- You are in extended field mode.

1. Navigate to **Field data** > **Tasks**.
2. Press **Select to ~~delete~~deletion**.
3. Select one or more tasks.
4. Press **Delete**.
5. Confirm the process.

6.8 Start/Stop Job - Edit a field

NOTE
The field is processed incorrectly
If the field is being worked incorrectly, the implement is set up incorrectly.
Before starting, make sure that all implements are correctly connected and set up in the software.
Before starting, make sure that all implements can actually carry out all the desired field tasks.

As soon as a task is started, field recording also begins.
All set parameters are taken into account. For example, the set field or the work to be carried out (e.g. fertilizing with a fertilizer implement). This enables precise connection work.



6.8.1 Start field recording in field mode

1. Navigate to **Field data** > **Overview**
2. In the **Current field** list, select the field for which you want to record data.
3. Press **Start**

6.8.2 Start field recording in extended field mode (perform task)

1. Navigate to **Field data** > **Overview**
2. In the **Current task** list, select the task you want to carry out.
3. Press **Start**

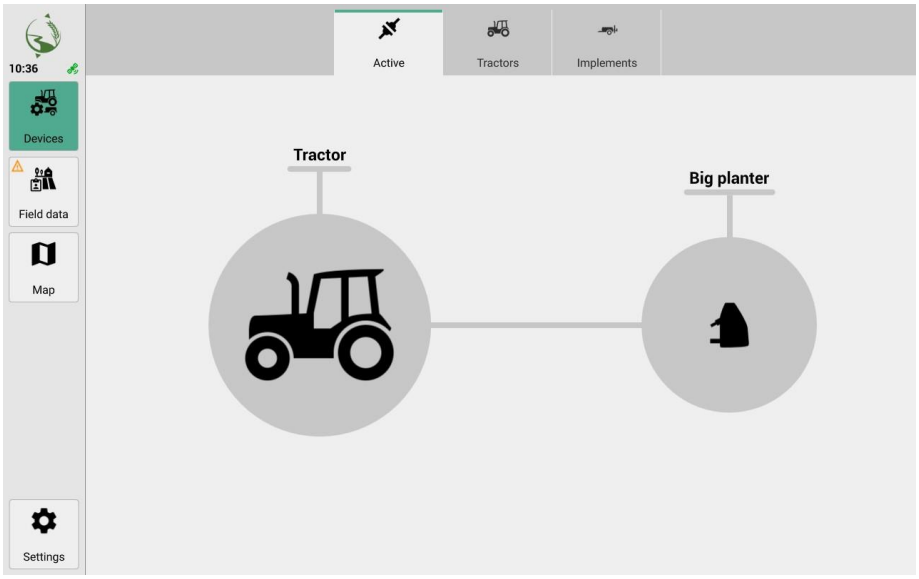
6.8.3 Stop field recording

1. Navigate to **Field data** > **Overview**
2. Press **Stop**

7 Manage devices

You can see all active implements in the implement management. New tractors and implements can also be configured.

The **Active** tab displays an overview of the active tractor and the connected, active implements.



Additional settings for ISOBUS-capable implements are made in the Universal Terminal (UT) (see Setting ISOBUS implements using the Universal Terminal (UT) on page54).

7.1 Manage tractors

7.1.1 Add tractors

TIP
Not only tractors, but also other agricultural machinery can be managed.

TIP
If possible, use meaningful names for self-created devices.

1. Navigate to **Devices** > **Tractor**.
2. Activate **New tractor**.
3. Assign a name.

~~4. Enter a value for **GNSS Offset (lateral).**~~

~~5. Enter a value for **GNSS Offset (frontal).**~~

~~6.~~4. You have the following options for **sending GNSS speed to ISOBUS:**

- **Wheel-based speed:** Is measured at the wheel (e.g. with a magnetic sensor). Is less accurate due to slippage.

- **Ground speed:** Is usually measured using a radar sensor.
  It is more accurate, as slippage has no influence

7. Assign a connector or create a new connector.
8. Activate the tractor.

7.1.2 Delete tractors

Active tractors cannot be deleted.

1. Navigate to **Devices** > **Tractors**.
2. Press **Select to ~~delete~~deletion**.
3. Select one or more tractors.
4. Press **Delete**.

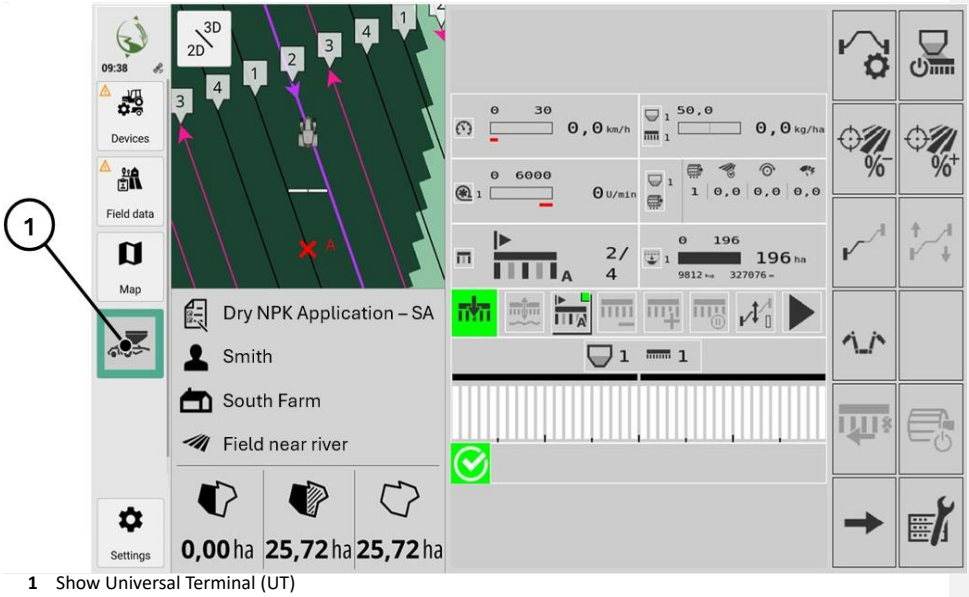
NOTE
Restoring is not possible.

7.2 Setting ISOBUS devices using the Universal Terminal (UT)

NOTE
Settings and parameterization of the ISOBUS-compatible devices using the Universal Terminal (UT) are product-specific.
Observe the relevant device information and instructions (e.g. operating instructions).

1. Switch on the Universal Terminal (UT).
2. To display the **Universal Terminal (UT)**, click on the corresponding symbol (1 in illustration) in the menu below **Map.**

TIP
The symbol used depends on the device used. The appearance may change accordingly.

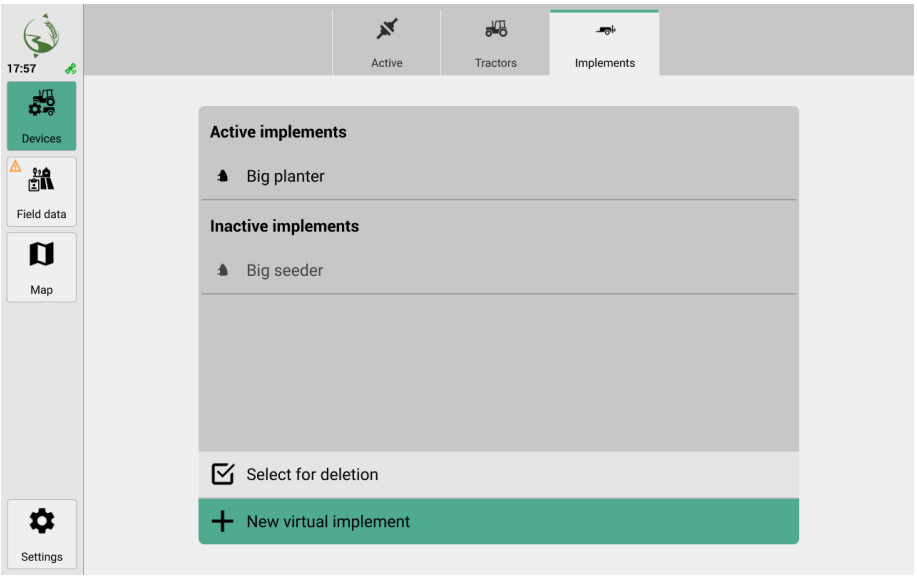


1 Show Universal Terminal (UT)

7.3 Manage implements

All configured implements are displayed in the list.
ISOBUS-enabled implements are automatically recognized after connection and automatically displayed in the **Active implements** list.

Non-ISOBUS-capable implements are not automatically recognized. Such implements must be added and set up as so-called **virtual implements.**



Adding a virtual implement

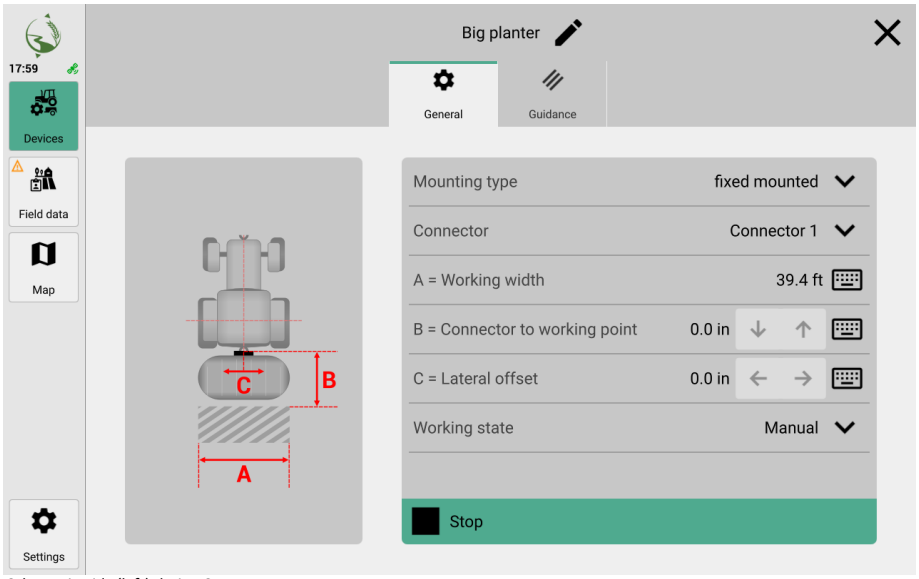
TIP

Virtual implements and their purposes are not automatically recognized.
If possible, use meaningful names for self-created devices.

TIP

Guided setup

When setting up the virtual implement, the meanings of the individual settings are shown schematically on the left.



Schematic aids (left) during Setup

1. Navigate to **Devices** > **Implements.**
2. Activate **New virtual implement**.
3. Assign a name.
4. Select an **attachment type.** You have the following options:
   - Worn
   - pulled / attached
   - pulled and steered
   - self-propelled (see Settings for virtual implements on page58)
5. Depending on the type of attachment selected, you can make additional settings.
6. In the **Guidance** tab, you can set the behavior when guidance **lines** are activated:
   - **Individual minimum curve radius**
     This parameter defines the smallest curve radius for this individual implement that the combination cannot fall below. Curved guidance lines are corrected on the basis of this.
   - **Individual guideline spacing**
     By default, the guideline spacing corresponds to the total working width of the implement. This parameter can be used to individually define the distance between the guidance lines for this implement, e.g. if overlapping processing is required
7. Press **Start**.

Delete implement

You can delete non-ISOBUS-capable implements (so-called virtual implements) and ISOBUS capable implements if they are no longer used.

1. Navigate to **Devices** > **Implements.**
2. Press **Select to ~~delete~~**deletion.
3. Select one or more implements.
4. Press Delete

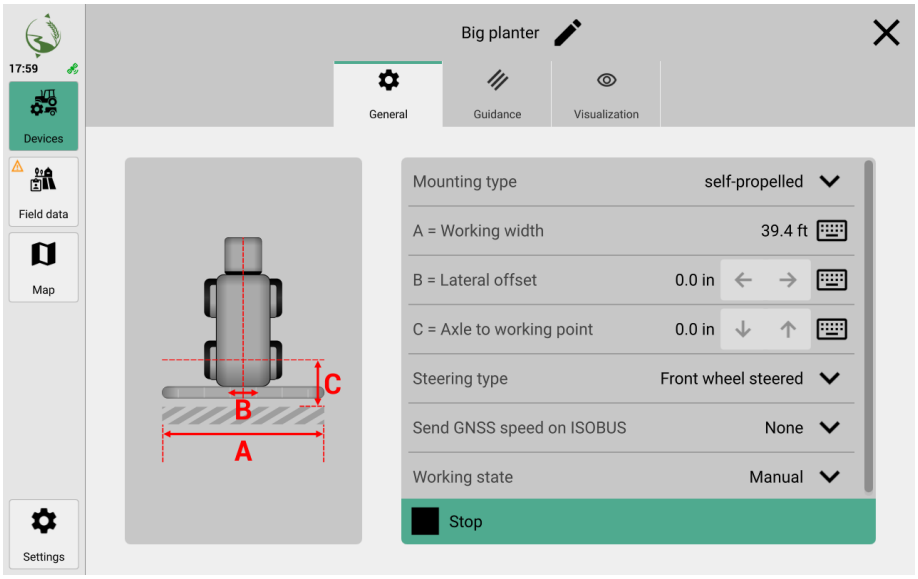
Settings for virtual implements

NOTE
Omitted or double-tracked field areas
If the offset value is not set correctly, this will result in an incorrect map display. Parts of the field could be covered twice or omitted.
The offset value must always be set correctly

TIP
The offset value is always in relation to the center of the rear axle of the implement.

Settings for self-propelled implements

Additional settings can be made when setting up self-propelled implements.



Setting	Function
GNSS speed on ISOBUS	**Wheel-based speed:** Is measured at the wheel. Is less accurate due to slippage. **Ground speed:** Is usually measured using a radar sensor. It is more accurate, as slippage has no influence.

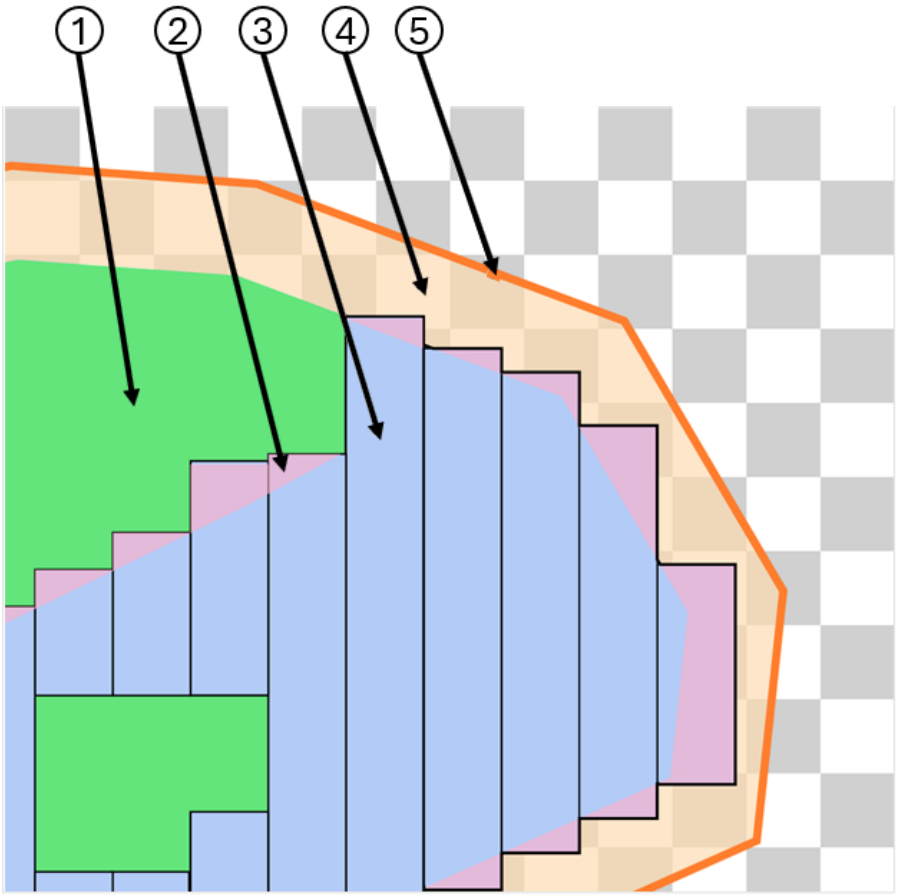
7.4 Section control for implements

Section Control (automatic section control) is a specific application of the ISOBUS standard and refers to the precise control of sections of agricultural implements such as seed drills, crop protection sprayers or fertilizer spreaders. The aim is to use resources such as seed, fertilizer or crop protection products more efficiently by controlling the application in specific sections instead of continuously across the entire field.

Section Control can be used to automate the switching on and off different sections of the implements. This enables precise application of resources, for example by preventing areas that have already been worked from being treated again. This reduces costs, lowers the environmental impact and improves the overall efficiency of agricultural processes. The terms sections and booms are used in connection with section control.

- A section is the smallest unit of application elements such as spray nozzles or sowing rows that can be controlled independently via Section Control.
- A boom is the part of the implement that carries the spreading elements.

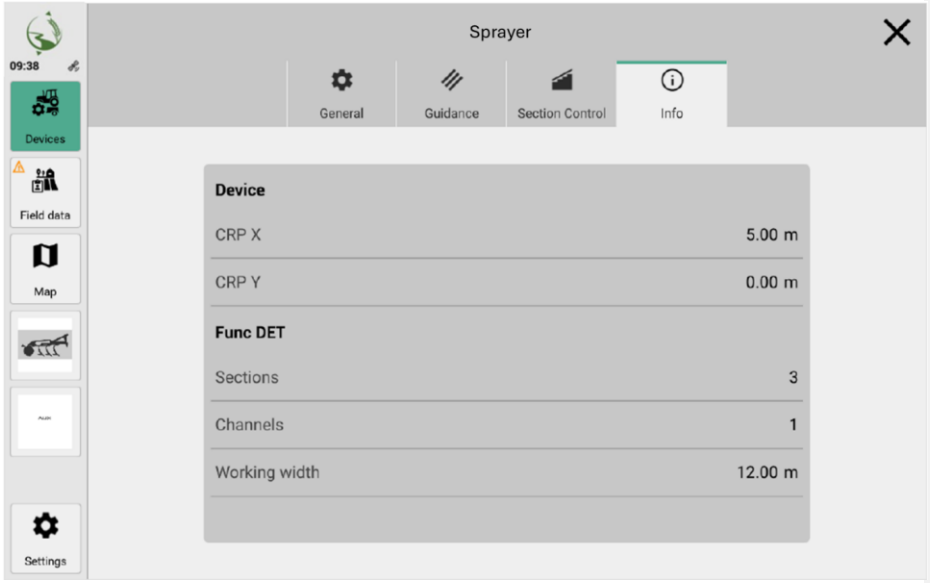
In addition to implements with only one boom, there are also implements with several booms. A modern ISOBUS seed drill can, for example, contain booms for spreading the seed and booms for spreading fertilizer.



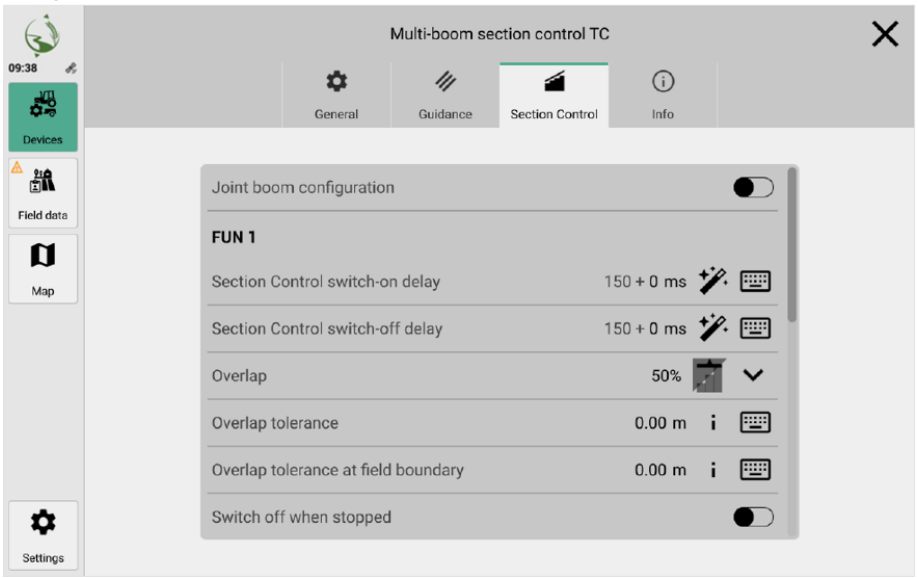
Schematic representation of Section Control

1 Already processed area
2 Overlap
3 Tramline with width of the boom, area still to be processed
4 Headland
5 Field boundary

You can display information on the booms under **Devices** > **Implements** > **Info:**



Configure section control



1. Navigate to **Devices** > **Implements.**
2. Select an implement with one or more booms.
3. Select whether you want to configure the booms together or separately.
   You have the following configuration options:
   - **Section Control switch-on delay**
     - Edit (Magic wand)
       Opens a guided wizard to calculate the switch-on delay.
     - Edit (keypad)
       Enter and confirm the switch-on delay manually.
   - **Section Control switch-off delay**
     - Edit (Magic wand) - Opens a guided wizard to automatically calculate the switch-off delay.
     - Edit (keypad) - Enter and confirm the switch-off delay manually.
   - **Overlap**
     0% / 50% / 100%
   - **Set overlap tolerances**
     Depending on the selected overlap, information can be displayed, or values can be set for:
     a) Overlap tolerance
     b) Overlap tolerance in the direction of travel
     c) Overlap tolerance at field boundary
   - **Switch off at standstill**
     on / off
   - **Switch off when reversing:**
     on / off
   - **Avoid overdosing on bends**
     - Show info
     - Switch on / off

8 Map view and work assignment

The map view displays 3D representations of the tractor, the active field and the connected implements. Depending on the settings made, additional information (e.g. field boundaries, application rates) or driving aids (e.g. guidance lines, light bars) are displayed.

The map view is helpful for navigating and correctly processing the field during the work assignment.

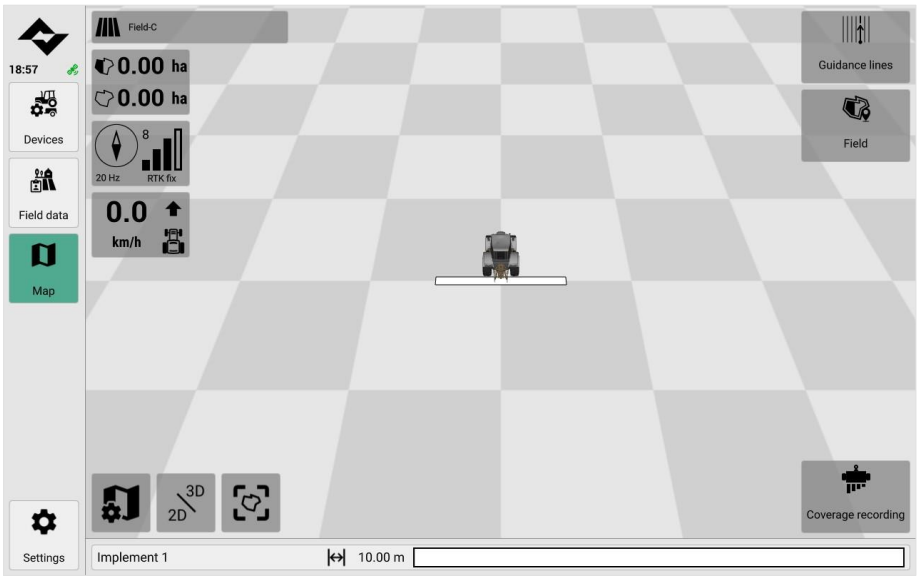
To display the map view, press **Map** in the menu.

The map view can be rotated, panned and moved using **touch gestures.** It offers additional options, such as automatic following of the tractor.

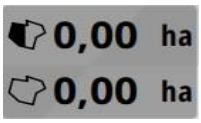
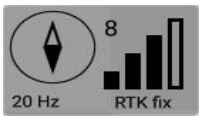
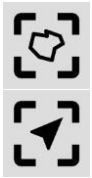
NOTE

Incorrect data recording

If the direction of travel of the tractor in the map view does not correspond to the direction of travel of the real tractor, the data will be recorded incorrectly. Before starting work, always check that the directions of travel match.



You have the following functions on the map:

Icon	Function
	Displays the current field. Pressing opens the field data (see Field data overview on page41)
	Displays additional information on the current field. Press to display the following information in succession: ▪ **Total area** ▪ **Processed area** ▪ **Area still to be processed**
	Displays the status and quality of the GNSS position. Press to open detailed information on the GNSS source.
	Shows the driving speed and the determined direction of travel.
	Displays the map frontally from above 2D or in 3D
	Press to change the options: ▪ **Arrow active:** Tractor track is being followed ▪ **Map active:** Field is displayed from above After free movement on the map, the focus returns to the tractor when the arrow is pressed.

Icon	Function
	▪ Provides the option of showing and hiding individual display and control elements above the map view and changing their position. ▪ Provides the option of individually adjusting the map focus position to the vehicle (implement). In order to set the map focus position on the tractor-trailer combination, the tractor must first be focused (**arrow active**). This setting is helpful if the 3D view of the tractor/trailer combination obscures important map information (e.g. guidance lines, field boundaries).
	Press to open the following options for guidance lines: ▪ Add ▪ edit ▪ shift ▪ select
	Press to open the following options: ▪ Edit field boundaries ▪ Tilling the headland ▪ Edit marker points
	Press to change the options: ▪ **For ISOBUS-capable implements:** Switches the Section Control automatic mode on/off. ▪ **For non-ISOBUS-capable implements:** Starts/stops the coverage recording. This allows you to visually display the field areas that have already been driven over.
 	Displays the status of the headland. Press to open the following options: ▪ Locking the headland ▪ Unlocking the headland

Icon	Function

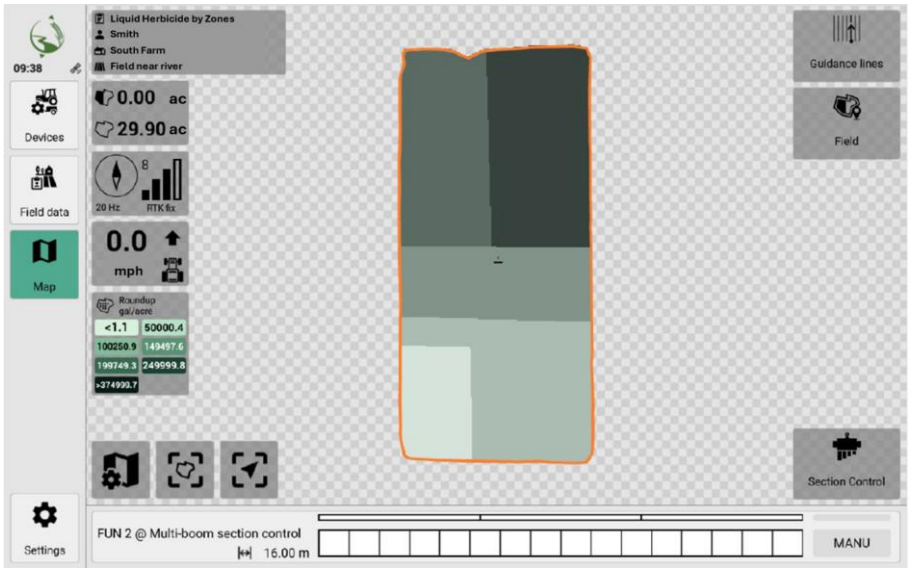
  	Only available when the prescription map is active. Press to switch between the map views: ▪ Coverage: Highlights the total coverage or the already processed area ▪ Application: Shows the quantitative application rates (see Use of map layers on page66)

8.1 Use of map layers

Different levels can be displayed in the map view using map levels.
For example:

- Coverage
- Prescription map
- Prescription map and covering

Prescription map display
If a prescription map is applied to the active field and a suitable implement is active, this prescription map is displayed in color in the map view.
The legend shows the application rates depending on the coloring.



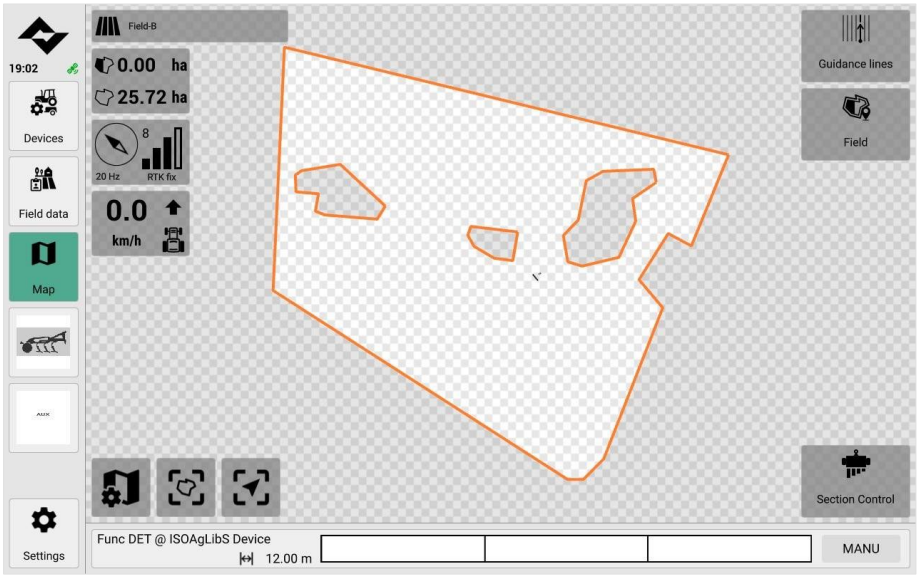
8.2 Use of field boundaries

As soon as a field with field boundaries is activated, its field boundaries are displayed on the map as a thick outline.

Fields can have several **outer field boundaries** and several **inner field boundaries.**

The following options are available for creating field boundaries for a field:

- Create field boundaries manually in the software.
  To do this, drive the tractor along the planned field boundary and "record" it in the software
  (see Creating a field boundary by driving along on page68).
- Automatically calculate field boundaries in the software based on the current coverage.
  To do this, a field boundary is automatically calculated and created around the existing coverage
  (see Creating a field boundary using coverage on page70).
- Import field boundaries as an ISOXML or shape file
  (see Importing field or field boundaries on page46).


19:02
Devices
Field data
Map
Settings
Field-B
0.00 ha
25.72 ha
8
20 Hz
RTK fix
0.0
km/h
Guidance lines
Field
Section Control
Func DET @ ISOAgLibS Device
12.00 m
MANU

8.2.1 Create field boundary by driving along it

When creating field boundaries manually, the planned field boundary is recorded in the software by driving along the field with the tractor. The software is used to set whether it is to be created as an outer or inner field boundary.

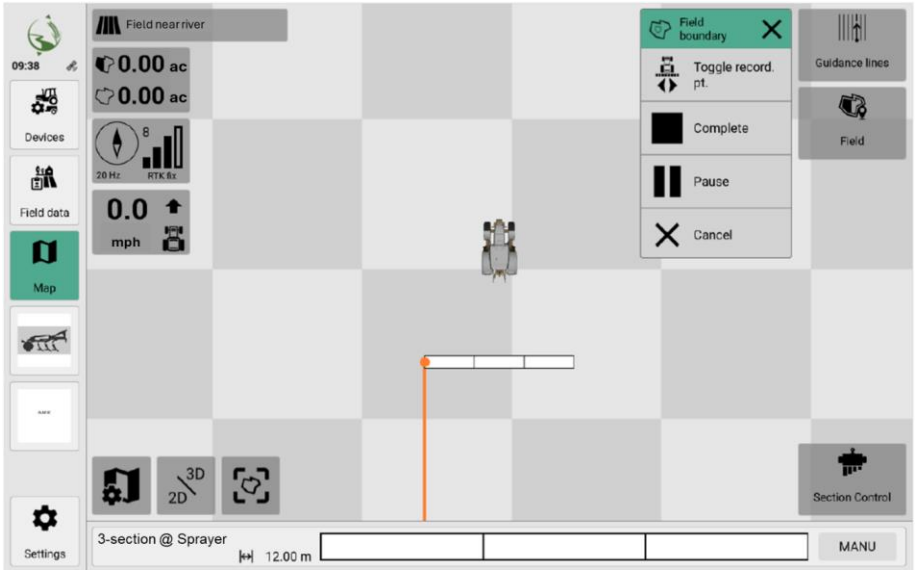
NOTE
Recording accuracy and GNSS
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Ensure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible.

TIP
Start recording with the outer field boundaries. You can then record the inner field boundaries.

- A field is active. The field may already have field boundaries.

1. Drive the tractor to the point in the field where you want to start recording the field boundary.
2. Navigate to **Map** > **Field** > **Field boundaries**
3. Press **Record**.
4. Press **Inner** or **Outer to** specify the type of field boundary.
5. Check on the map whether the correct recording point is set for the recording.
   The pick-up point is displayed flashing on the map on the implement.
6. To switch between different recording points, press **Switch recording point**.
7. Press **Start**.
   The recording begins.
8. Drive the tractor on the field along the planned field boundary.
   The planned field boundary is displayed in color on the map.
9. Regularly check the planned field boundary on the map.
10. As soon as the planned field boundary is finished, stop the tractor.
11. Press **Finish**.
    The software generates the field boundary.

In the event of faults during or after installation, messages are displayed in the software.
Follow the instructions.



View during recording

8.2.2 Create field boundary using coverage

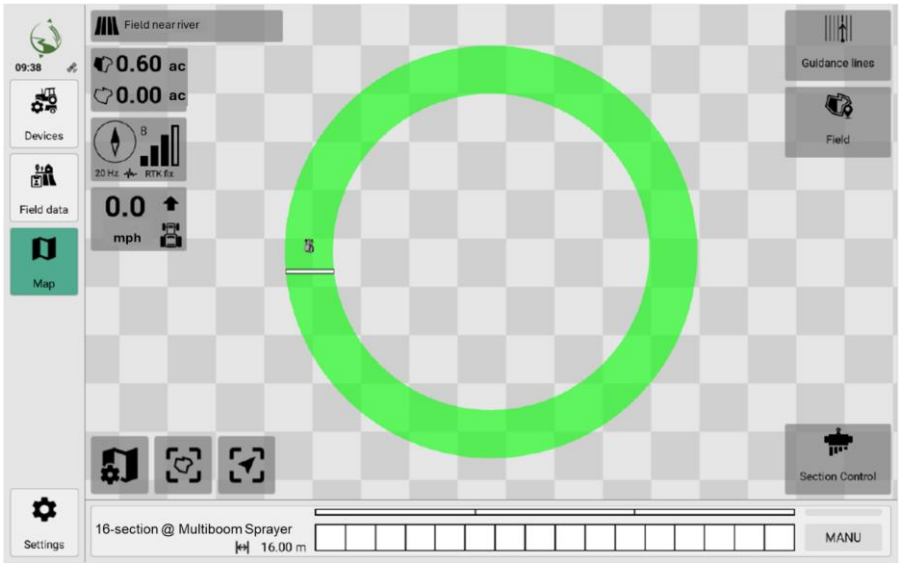
When automatically calculating the field boundary using coverage, the outermost edges of the current coverage are created as the field boundary. The software automatically recognizes gaps in the coverage and indicates them.

This action only creates outer field boundaries.

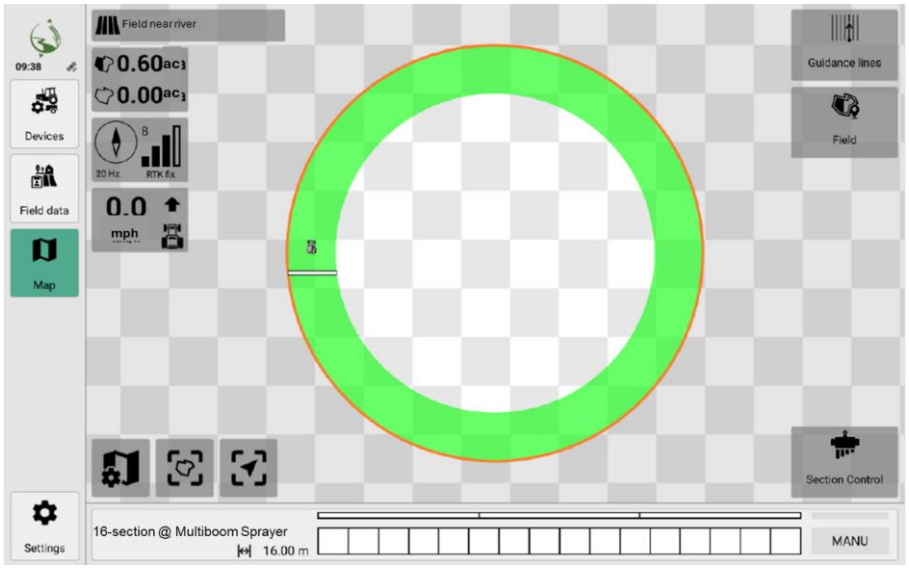
- A field is active.
- There are no field boundaries (e.g. Delete field boundaries on page71).
- There is at least one cover.

1. Navigate to **Map** > **Field** > **Field boundaries**.
2. Press **Calculate**.

The software automatically detects gaps in the coverage. Confirm the security prompt.
The software generates the field boundary.
In the event of faults during or after installation, messages are displayed in the software.
Follow the instructions.



Field with coverage without field boundaries



Calculated field boundary along the coverage

8.2.3 Delete field boundaries

Delete all field boundaries

NOTE
Data loss
This process cannot be reversed.

- A field is active with field boundaries

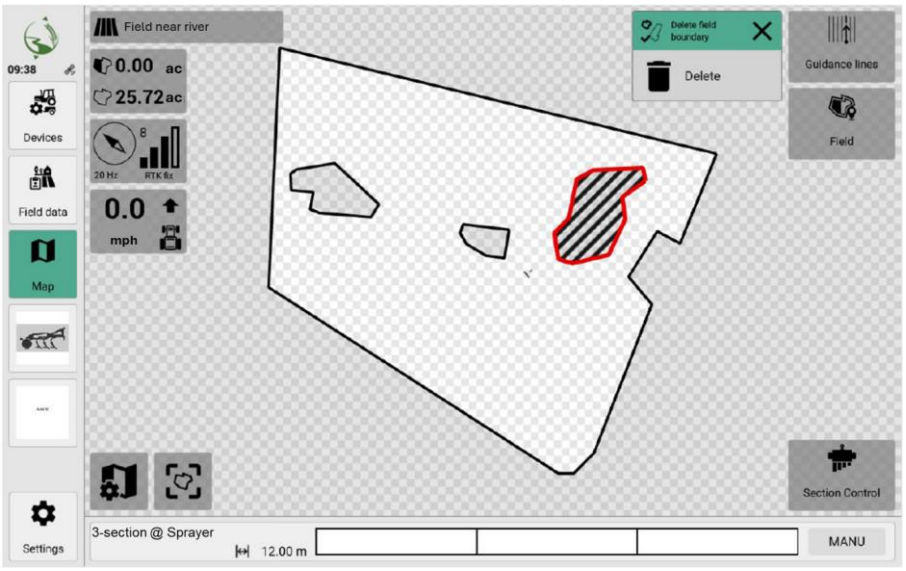
1. Navigate to **Map** > **Field** > **Field boundaries**.
2. Activate **Delete all**
3. Confirm the security prompt.

Delete an individual field boundary

NOTE
Data loss
This process cannot be reversed.

- A field is active with field boundaries

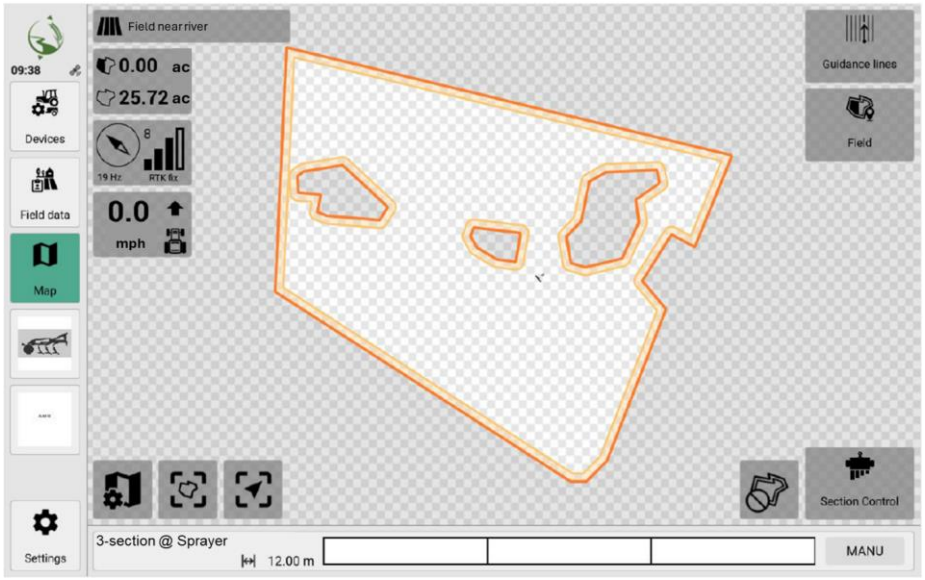
1. Navigate to **Map** > **Field** > **Field boundaries**.
2. Select the field boundary to be deleted on the map.
   Then press **Delete** on the field boundary.
3. Confirm the security prompt.



Selecting a field boundary

8.3 Use of headlands

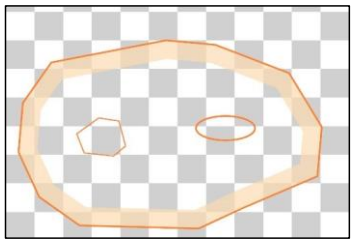
Headlands are areas at the edge of a field or field that are used in agriculture to carry out turning maneuvers with agricultural machinery such as tractors or combine harvesters.
When working, headlands are only included automatically if Section Control is switched on and headlands are locked at the same time.
Headlands are displayed as a semi-transparent, colored area in the map view.



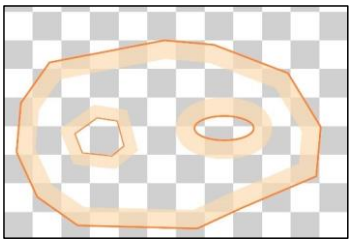
Field with locked headland

8.3.1 Creating a circular headland

Circumferential headlands have the same width at every position.



Headlands around outer field boundaries

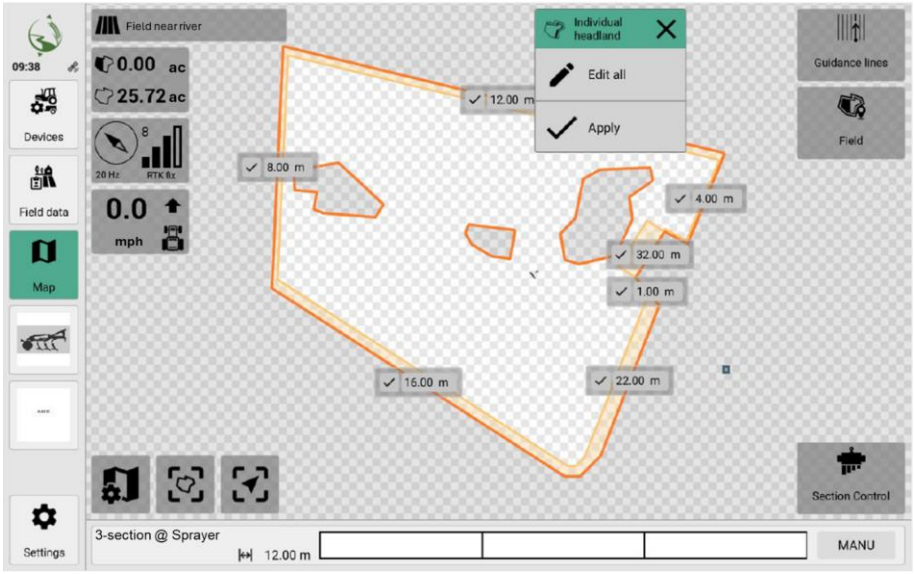


Headlands around outer and inner field boundaries

- A field is active with field boundaries.
  1. Navigate to Map > Field > Headland.
  2. Press **New (all around)**.
  3. Edit the width of the headland in the dialog.
  4. In addition, the headland around inner field boundaries option can be switched on/off.
     - Switched on:
       Headlands are created along the outer field boundaries and outside the inner field boundaries
     - Switched off:
       A headland is created along the outer field boundaries.
  5. Press **Create**.

8.3.2 Creating individual headlands

With individual headlands, specific widths can be set for each segment of the headland.



- A field is active with field boundaries
  1. Navigate to **Map** > **Field** > **Headland**.
  2. Press **New (individual)**.
     The headland is displayed in editor mode in the map view.
  3. Edit the individual widths and confirm the entry.
  4. Alternatively, you can also use the **Edit all** function.
  5. Click on **Apply**.

8.3.3 Unlock or lock headlands

If Section Control is switched on during operation, headlands are included:

- Locked headlands are not processed. The headland area is highlighted in color in the map view.
- Unlocked headlands are processed. In the map view, only the headland contour is highlighted in color.

Icon	Function
	Headland is locked. Pressing unlocks headland.
	Headland is unlocked. Pressing locks headland.

8.3.4 Delete headland

NOTE
Data loss
This process cannot be reversed.

- A field is active with field boundaries
  1. Navigate to **Map** > **Field** > **Headland**
  2. Press **Delete all**.
  3. Confirm the security prompt

8.4 Use of marking points

Marker points are useful for highlighting prominent or important locations in a field. Marker points are highlighted on the map with small symbols.

8.4.1 Create marker point

To create a marker point, the tractor must drive to the desired location where a marker point is located. You can create the marked location as a marker point in the software.

NOTE

Recording accuracy and GNSS
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Ensure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible.

- A field is active.
  1. Take the tractor to the striking location.
  2. Navigate to **Map** > **Field** > **Marker point**.
  3. Press **New**

The marker point is displayed as an icon on the map.

8.4.2 Edit marker point

- A field is active with marker dots.
  1. Navigate to **Map**.
  2. To rename a marking point, click on the marking point.
     Then enter a suitable name and confirm.

8.4.3 Delete marker points

Delete a selection point

NOTE

Data loss
This process cannot be reversed.

1. Navigate to **Map**.
2. Click on the marker point on the map that you want to delete.
3. Press **Delete**.

Delete all marker points

NOTE
Data loss
This process cannot be reversed.

1. Navigate to **Map** > **Field** > **Marker point**.
2. Press **Delete all**.
3. Confirm the security prompt.

8.5 Use of guidance lines

Guidance lines, also known as tracks, are special lines in the map view that are generated by the software. They provide guidance for working in the field.

The tractor can be navigated very precisely using guidance lines. This enables optimum utilization of the field, as overlaps and gaps can be minimized during cultivation.

Furthermore, guidance lines enable more efficient use of fertilizers and pesticides, as they can be applied with pinpoint accuracy.

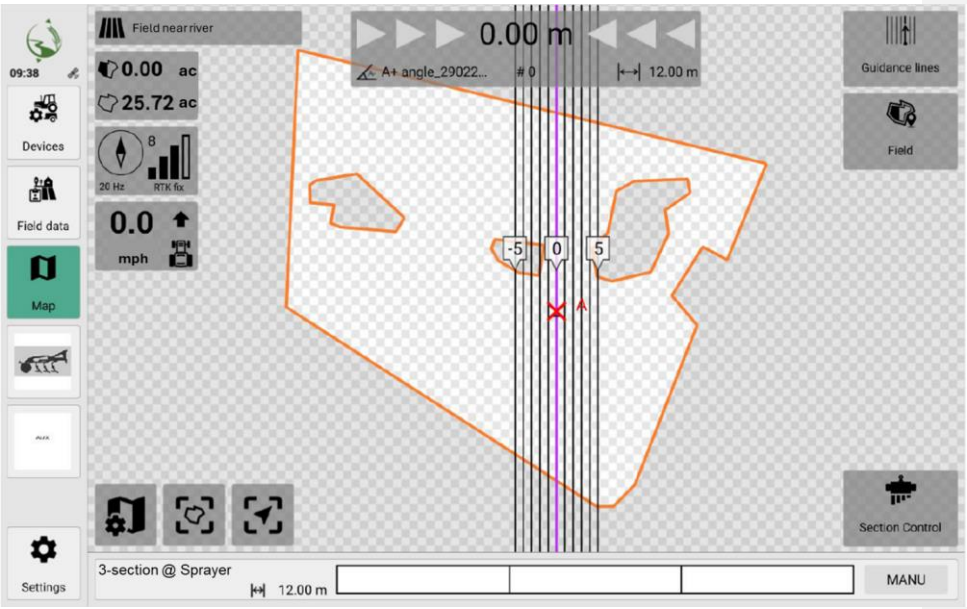
Guidance lines can be created in different shapes and directions, for example:

- as straight lines
- as a circle
- as a curve

The software helps you to optimally create guidance lines.
Field boundaries (inside and outside) and headlands are considered.

The software uses various methods to create and edit guidance lines. With most methods, a base track is created. All other guidance lines are aligned to it with the same offset (parallel, concentric, etc.).

- Create guidance lines automatically. Field boundaries or headlands serve as base tracks.
- Create guidance lines manually:
  - drive off with the tractor or
  - Set a starting point with the tractor and then specify a direction (angle).
- Import guidance lines from another program (e.g. FMIS).
  See Importing guidance lines on page47.



Field with guidance lines

Additional driving aids when driving over the field

The guidance lines are displayed on the map. They help you to drive over the field optimally with the least amount of overlap.

Guidance lines are numbered consecutively - number "0" corresponds to the former base track.
The guidance lines generated depend on the following factors:

- the working width of the implement
- the position of the implement in relation to the tractor (so-called offsets)

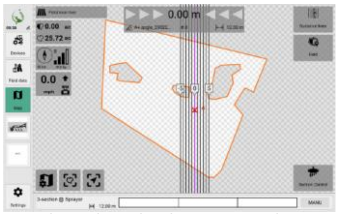
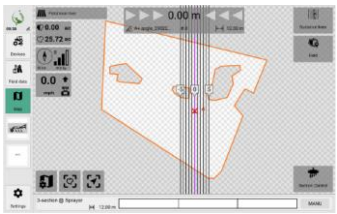
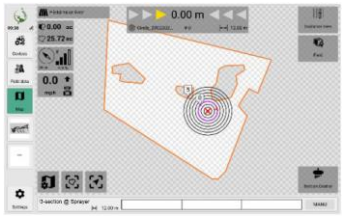
These factors are determined automatically by the software (ISOBUS-capable implement only) or set manually by the operator (non-ISOBUS-capable implement).

When Section Control is switched on (ISOBUS-capable implement only), the section control works fully automatically.

When using a non-ISOBUS-capable implement (virtual implement), the operator must independently switch the implement on or off and control the **coverage recording**
(see Working with driving aids and automatic mode on page90).

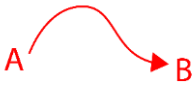
8.5.1 Types of guidance lines

The software supports different types of guidance lines. The type of guidance line used depends on the planned type of application, the nature and the processing method of the field.

Guidance line type	Example
Straight AB Suitable for: ▪ Large fields ▪ Few obstacles (e.g. internal field boundaries) See Creating guidance lines automatically using **field boundaries** on page79 See Creating straight guidance lines **manually** on page82. See Creating straight guidance lines **manually using angles** on page84.	 *Straight guidance line between A and B*  *Straight guidance line with A as the starting point and an angle*
Circle Suitable for: ▪ Complex fields ▪ Circular spreading is more optimal due to the nature or boundary of the field ▪ Avoiding turning processes See Creating circular guidance lines **manually** on page88.	
Curves or Curves and AB (mix guidance lines) Suitable for: ▪ Large fields with obstacles (e.g. internal field boundaries), that you want to avoid	

8.5.2 Basics for creating guidance lines

Guidance lines are always defined using a **base track.** The guidance lines are then aligned parallel to this base track.
A base track always consists of a start point (A), an end point (B) and the path between them. The path between the start and end point also determines the direction, similar to a vector.
When creating manually, all points or paths are recorded by driving the tractor on the field.

Straight AB	Circle	Curve
		

8.5.3 Create guidance lines automatically using field boundaries

NOTE
Recording accuracy and GNSS
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Make sure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible

NOTE
Observe the minimum curve radius of the implements
When using Section Control (automatic part-width section control) and guidance lines, observe the minimum curve radius of the implements.
Areas with radii of curves or circles that are too small are not processed accordingly.
Adjust the settings for non-ISOBUS-capable implements (virtual implements)
(see Manage implements on page55 and Settings for virtual implements on page58).

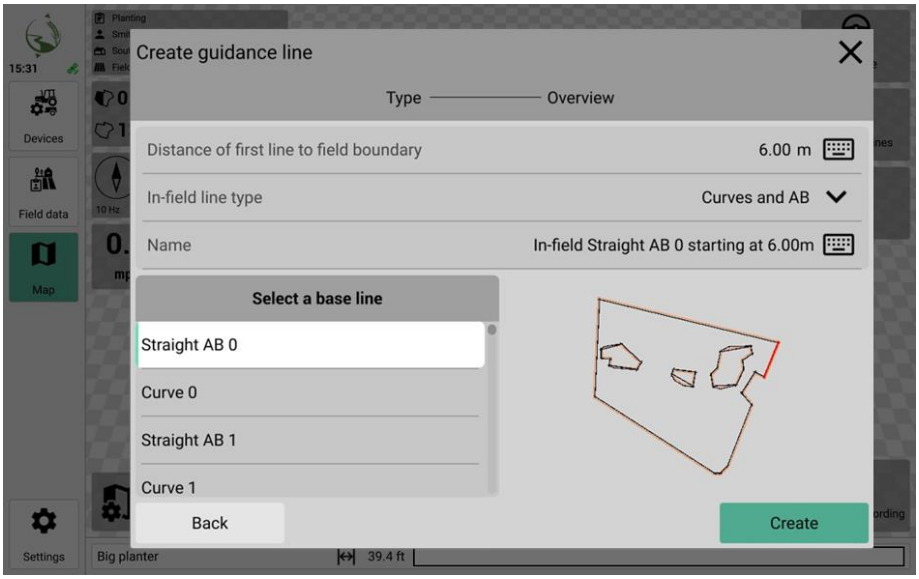
With this action, base tracks are automatically calculated based on the field boundaries and displayed in a list. A suitable base track can then be selected from the list, which in turn generates the final guidance lines.

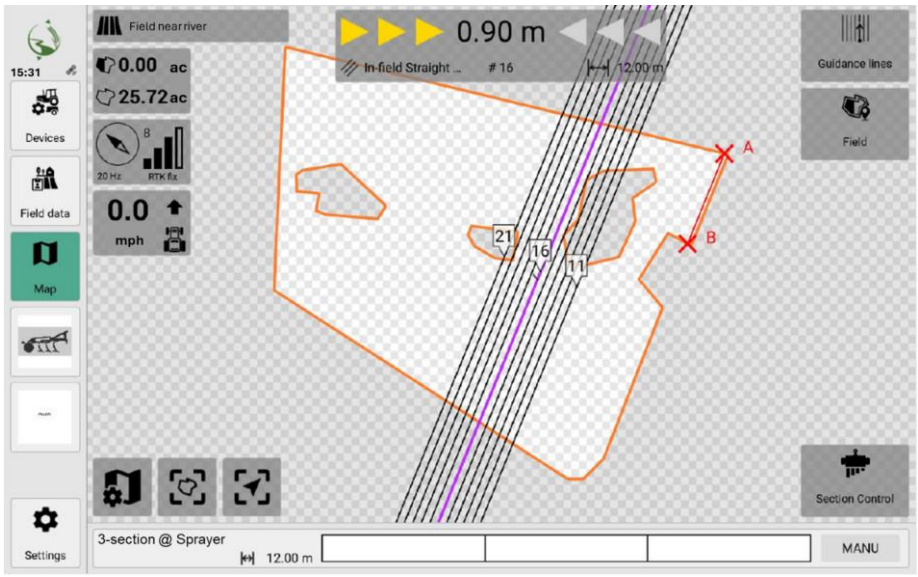
- A field is active with field boundaries.

1. Navigate to **Map** > **Guidance lines**.
2. Press **New** and then **Infield lines from the field boundary**.
   The software automatically calculates possible base tracks at the field boundaries
3. In the list, select the appropriate base track to be used for the guidance lines. You can use the In-field line type option to filter which types are displayed in the list.
   The selected base track is highlighted in color on the right in the preview.
4. Enter the **distance from the first track to the field boundary.**
   This serves as a safety distance between the generated guidance lines and the field boundaries (half the set working width by default).
5. Press **Create**.

In the event of faults during or after installation, messages are displayed in the software.
Follow the instructions.

Formatted: Font: Bold





8.5.4 Automatically create guidance lines for headlands

NOTE

Recording accuracy and GNSS

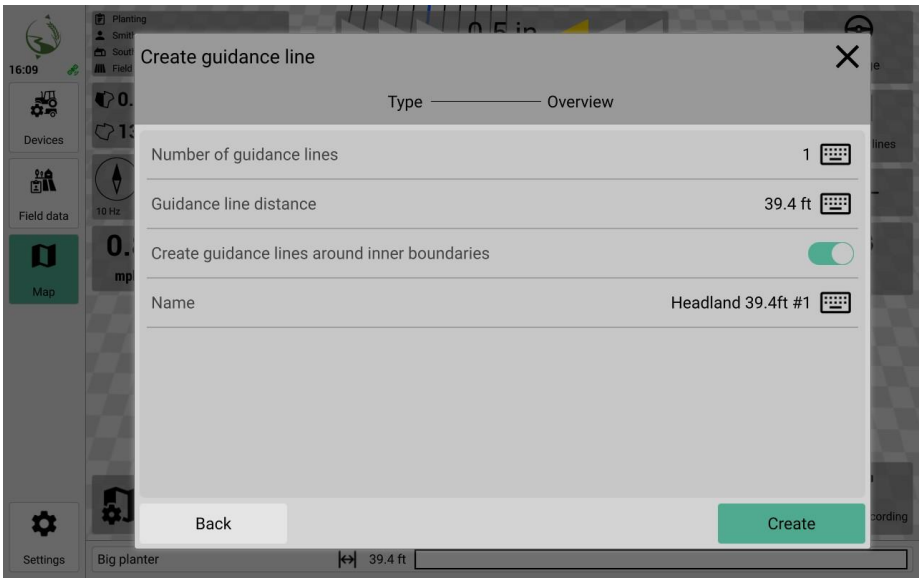
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Ensure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible.

NOTE
Observe the minimum curve radius of the implements
When using Section Control (automatic part-width section control) and guidance lines, observe the minimum curve radius of the implements.
Areas with radii of curves or circles that are too small are not processed accordingly.
Adjust the settings for non-ISOBUS-capable implements (virtual implements)
(see Manage implements on page55 and Settings for virtual implements on page58).

This action automatically calculates guidance lines based on the field boundary and creates them within the field boundaries.

- A field is active with field boundaries.
  1. Navigate to **Map** > Guidance lines.
  2. Press **New** and then **Headland guidance lines**.
  3. You have the following options:
     - Setting the **number of guidance lines**
     - With several guidance lines: Set **guideline spacing**
     - Switch **guidance lines around inner field boundaries** on / off
     - Assign name
  4. Press **Create**.

In the event of faults during or after installation, messages are displayed in the software.
Follow the instructions.



8.5.5 Create straight guidance lines manually

NOTE
Recording accuracy and GNSS
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Ensure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible.

In this action, a starting point is approached with the tractor and then the planned guidance line is driven straight across the field. The software automatically calculates a suitable, straight base track.

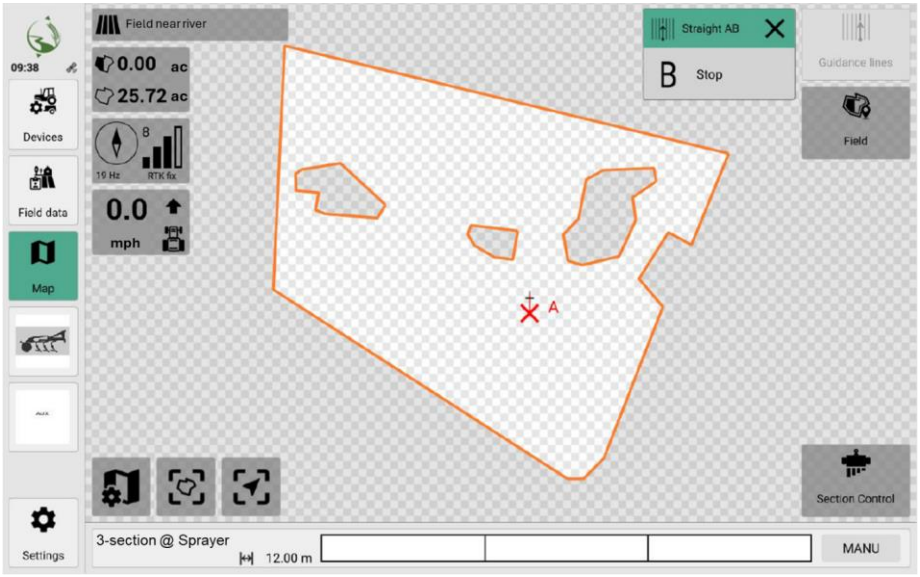
- A field is active.

  Drive the tractor to the point in the field where you want to start recording the guidance line (**starting point A**).

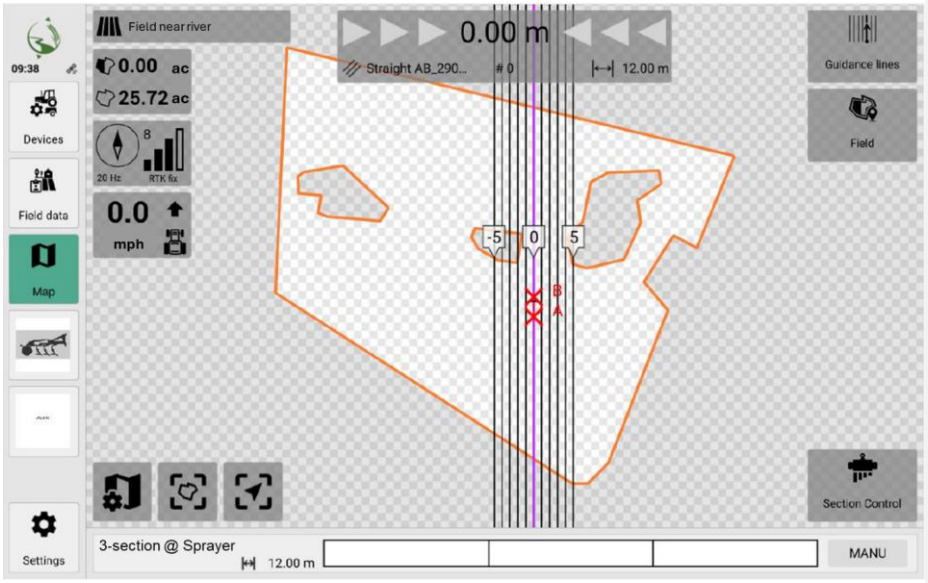
  1. Navigate to **Map** > **Guidance lines**.
  2. Press **New** and then **Straight AB**.
  3. Press **Start**.
     The recording begins.
  4. Drive the tractor in a straight line.
     The planned guidance line is displayed in color on the map.
  5. Regularly check the planned guidance line on the map.
  6. As soon as the planned guidance line is complete, stop the tractor. Press **Stop**.

  The guidance lines are created.

In the event of faults during or after installation, messages are displayed in the software. Follow the instructions.



Formatted: Font: Bold


09:38
Devices
Field data
Map
Settings
Field near river
0.00 ac
25.72 ac
20 Hz
RTK fix
0.0
mph
0.00 m
Straight AB_290...
0
12.00 m
-5
0
5
Guidance lines
Field
Section Control
3-section @ Sprayer
12.00 m
MANU

8.5.6 Create straight guidance lines manually using angles

NOTE
Recording accuracy and GNSS
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Ensure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible.

TIP
Clockwise angle
Angles are indicated in a clockwise direction starting with 0°.
For absolute angles, 0° is the imaginary north axis;
For relative angles, 0° is the direction of travel forwards.
For example, for absolute angles: 0° = north, 90° = east, 180° = south, 270° = west.

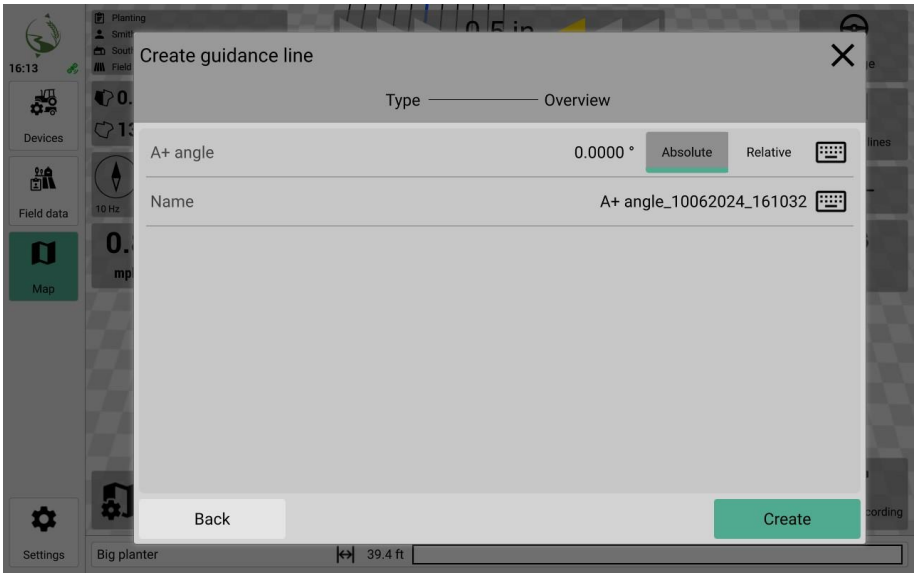
With this action, a starting point is approached with the tractor and then an angle (absolute or relative) is assigned to create a guidance line.

This action creates a straight guidance line.

- A field is active with field boundaries.
  1. Drive the tractor to the point in the field where you want to start recording the guidance line (**starting point A**).
  2. Navigate to **Map** > **Guidance lines**.
  3. Press **New** and then **A+ Angle**.
  4. Set the **angle.** Note the following options:
     - **Relative**
       Sets the angle of the guidance lines in relation to the current direction of travel of the tractor (front direction of travel = 0°).
     - **Absolute**
       Sets the angle of the guidance lines in relation to global north (0°).
  5. Enter the **name** of the guidance line.
  6. Press **Create**.

In the event of faults during or after installation, messages are displayed in the software. Follow the instructions.

Formatted: Font: Bold



8.5.7 Create circular guidance lines manually

NOTE
Recording accuracy and GNSS
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Ensure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible.

NOTE
Observe the minimum curve radius of the implements
When using Section Control (automatic part-width section control) and guidance lines, observe the minimum curve radius of the implements.
Areas with radiuses of curves or circles that are too small are not processed accordingly.
Adjust the settings for non-ISOBUS-capable implements (virtual implements)
(see Manage implements on page55 and Settings for virtual implements on page58).

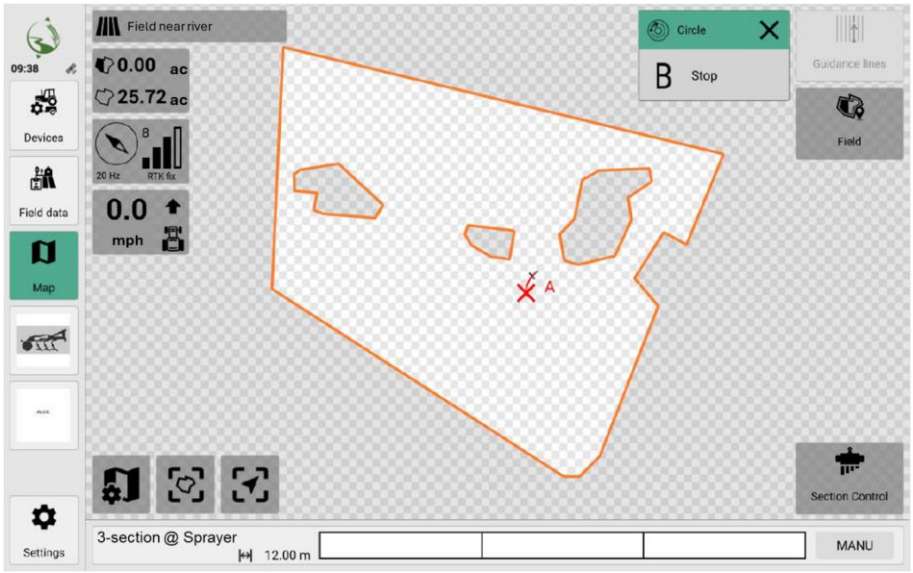
In this action, a starting point is approached with the tractor and then the planned guidance line is driven in a circle on the field. The software automatically calculates the center point. The guidance lines are then generated based on the set working widths.

Guidance lines can be moved after they have been created (see Moving guidance lines on page89).

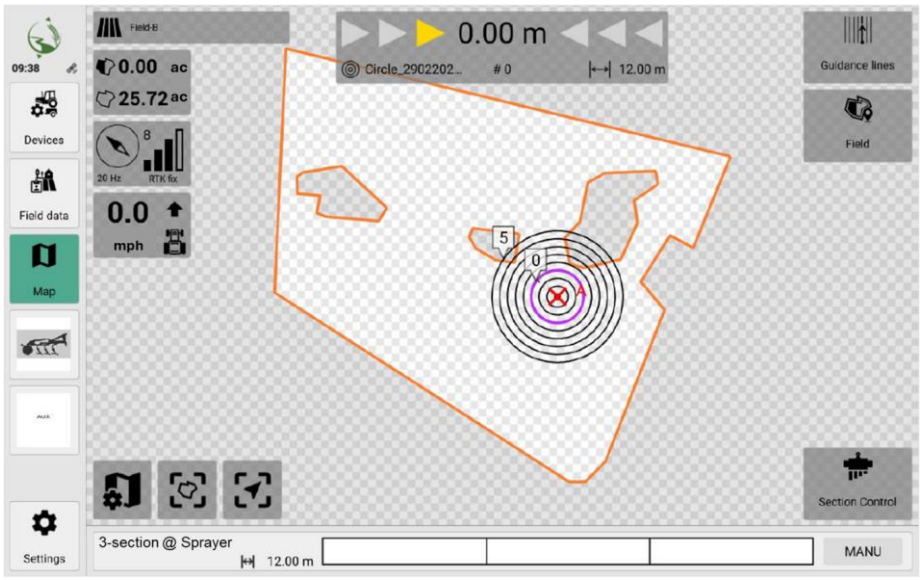
- A field is active.

1. Drive the tractor to the point in the field where you want to start recording the guidance line (**starting point A**).
2. Navigate to **Map** > **Guidance lines**.
3. Press **New** and then **Circle**.
4. Press **Start**.
   The recording begins.
5. Drive a circular route with the tractor.
   The planned guidance line is displayed in color on the map.
6. Regularly check the planned guidance line on the map.
7. As soon as the planned guidance line is complete, stop the tractor.
   Press **Stop**.

The guidance lines are created.
In the event of faults during or after installation, messages are displayed in the software. Follow the instructions.



Formatted: Font: Bold



8.5.8 Create curved guidance lines manually

NOTE
Recording accuracy and GNSS
This action uses coordinates from the GNSS source to transfer data to the software.
Make sure that the GNSS source is working properly.
Ensure that the correct direction of travel is set.
Drive or stop at the desired positions as precisely as possible.

NOTE
Observe the minimum curve radius of the implements
When using Section Control (automatic part-width section control) and guidance lines, observe the minimum curve radius of the implements.

Areas with radii of curves or circles that are too small are not processed accordingly.
Adjust the settings for non-ISOBUS-capable implements (virtual implements)
(see Manage implements on page55 and Settings for virtual implements on page58).

In this action, a starting point is approached with the tractor and then the planned guidance line is driven along the field in a curve. The software automatically calculates a suitable, curved base track. The curve is automatically extended at the ends with straight base tracks.

- A field is active.

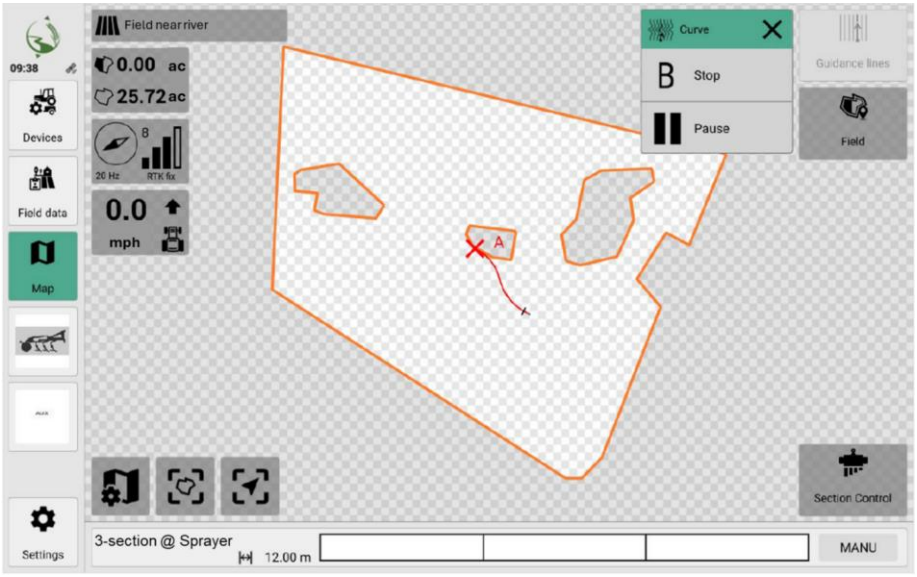
1. Drive the tractor to the point in the field where you want to start recording the guidance line
   (**starting point A**).
2. Navigate to **Map** > **Guidance lines**.
3. Press **New** and then **Contour**.
4. Press **Start**.
   The recording begins

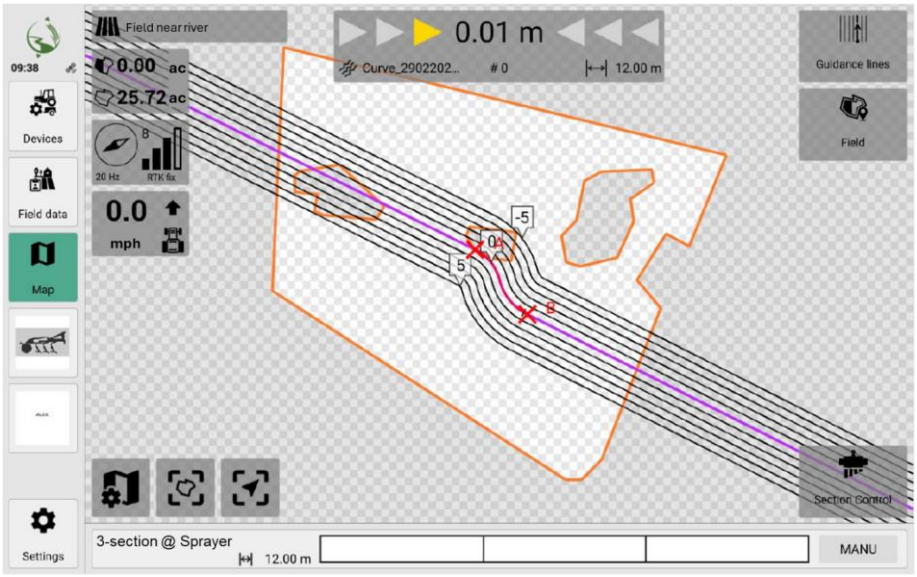
Formatted: Font: Bold

5. Drive the tractor along a winding route.
   The planned guidance line is displayed in color on the map.
6. Regularly check the planned guidance line on the map.
7. As soon as the planned guidance line is complete, stop the tractor. Press **Stop**.

The guidance lines are created.

In the event of faults during or after creation, messages are displayed in the software. Follow the instructions.





8.5.9 Switching guidance lines on/off

- A field is active with guidance lines.
  1. Navigate to **Map** > **Guidance lines**.
  2. Perform one of the following actions:
     - Select a guidance line that you would like to use.
     - Select **None** to not use guidance lines.

8.5.10 Rename guidance lines

- A field is active.

  1. Navigate to **Map** > **Guidance lines**.
  2. Click on **Edit**.
  3. Select the guidance line that you want to rename.
  4. Click on **Edit**.
  5. Rename the guidance line and confirm the entry.

8.5.11 Move guidance lines

- A field is active with guidance lines.
  1. Navigate to **Map** > **Guidance lines**.
  2. Select the guidance line you want to move from the list.
  3. Press **Move**.
  4. Edit the lateral offset of the guidance line and confirm the entry.
  5. Optionally, you can save the settings you have made as a new guidance line.
     - Activate the option **Save as new guidance line.**
     - Give the new guidance line a suitable name.
  6. Click on **Apply**.

The new guidance line is activated automatically.

8.5.12 Delete guidance lines

NOTE
Data loss
This process cannot be reversed.

- A field is active with guidance lines.
  1. Navigate to **Map** > **Field** > **Guidance lines**.
  2. Click on **Edit**.
  3. Select one or more guidance lines that you want to delete.
  4. Press **Delete**.
  5. Confirm the security prompt.

8.6 Working with driving aids and automatic mode

8.6.1 Overlays during work

During operation, overlays or warning symbols draw attention to any faults or provide additional information.

Formatted: Font: Bold
Formatted: Font: Bold
Formatted: Font: Bold
Formatted: Font: Bold
Formatted: Font: Bold
Formatted: Font: Bold
Formatted: Font: Bold

Icon	Function
	▪ Vehicle approaches the field boundaries. ▪ Vehicle is outside the field boundaries.
	▪ Vehicle approaches marking point

8.6.2 Use automatic mode during work

Carry out work with an ISOBUS-compatible implement

If an active field is being driven on with an ISOBUS-compatible implement, you can switch the Section Control function on or off in the **map.**
This **automatically switches** all affected functions and sections of the implement **on or off** (e.g. nozzles on/off). In addition, the processed area is automatically recorded depending on the degree of processing and stored in the system.

Icon	Function
	Switches the Section Control automatic mode on/off.

Performing work with a non-ISOBUS-capable implement (virtual implement)

If an active field is driven on with a non-ISOBUS-capable implement, you must **automatically switch** the **coverage recording** function and the affected functions and sections of the implement (e.g. nozzles on/off) on **or off** in the **map.**

Icon	Function
	Starts/stops the coverage recording for virtual implements.

8.6.3 Using driving aids at work

The following driving aids can be used during day-to-day work:

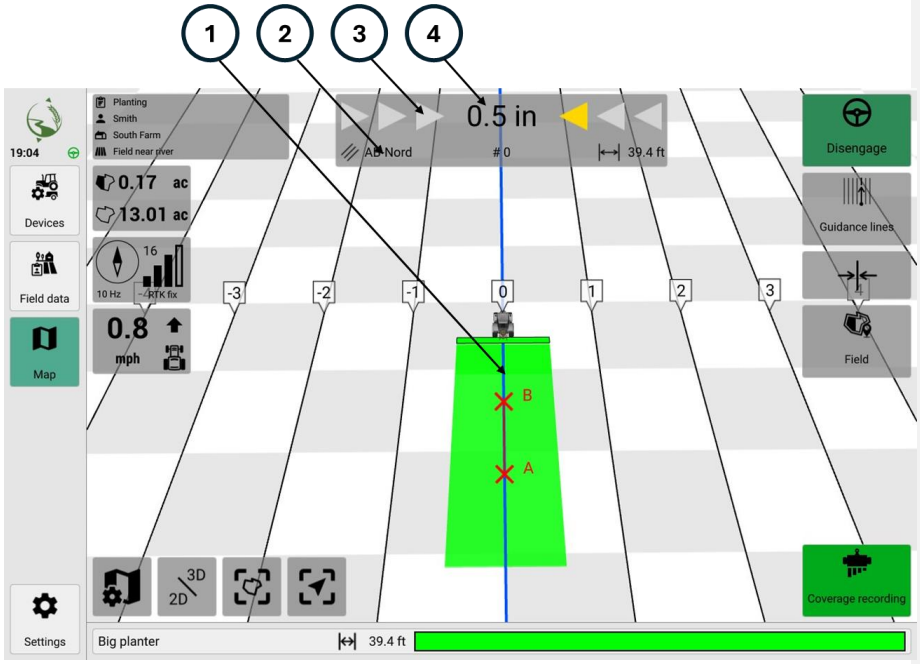
- Guidance lines
  Show the lanes to be driven on the map.
- Light bar
  Indicates on the map when you deviate from the guidance line.
- Guidance indicator
  Shows the direction of travel of the tractor on the map.

The light bar offers you support in precisely following the specified guidance lines during your journey. Its main function is to give you feedback in real time and inform you if you unintentionally leave the specified lane. It also shows you how to return safely to the correct guidance lines.

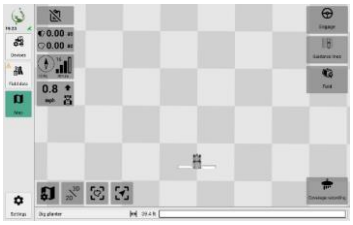
Display settings for driving aids can be made in the map settings (see Map settings on page108).

Guidance lines must be active to be able to use driving aids (see Using guidance lines on page76).

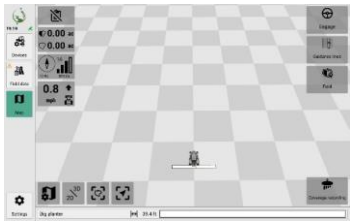
WARNING
Safety instructions
The software cannot independently detect obstacles or incorrect driving or suggest appropriate measures.
The driver is responsible for safe driving.



1 guidance line
2 Name of active guidance line
3 Direction indicator
4 Deviation from the guidance line



Detailed view of guidance indicator in 2D map view



Detailed view of guide indicator in 3D map view

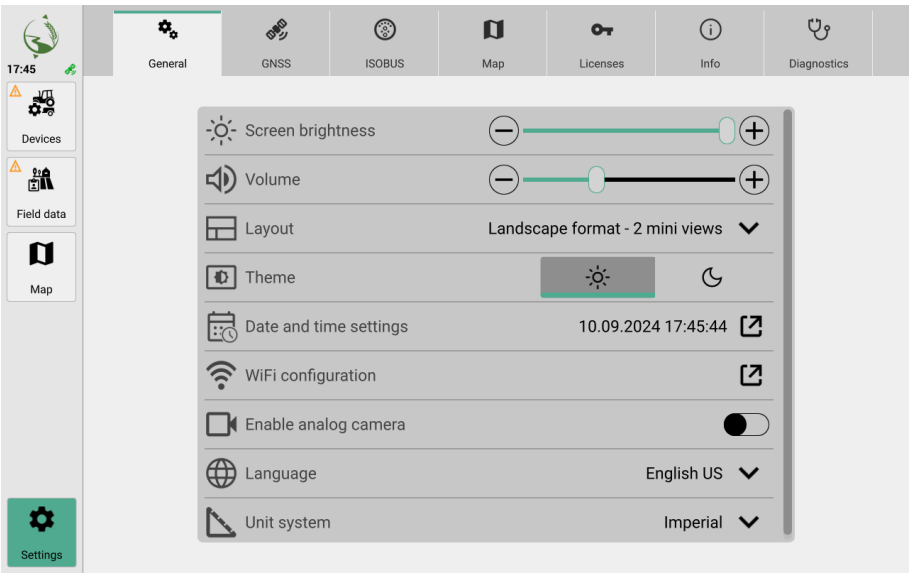
9 System settings

The following chapter explains the basic system settings that can be used to set up the application.

TIP
If no confirmation is required, the settings made are transmitted to the system/control unit in real time and applied immediately.

9.1 General system settings

In the **General** tab, you can make basic settings for the screen, layout and system.



9.1.1 Setting the screen brightness

You can adjust the screen brightness.

1. Navigate to **Settings** > **General** > **Screen brightness**.
2. You have the following options:

Icon	Function
+	brighter
−	darker

9.1.2 Setting the volume

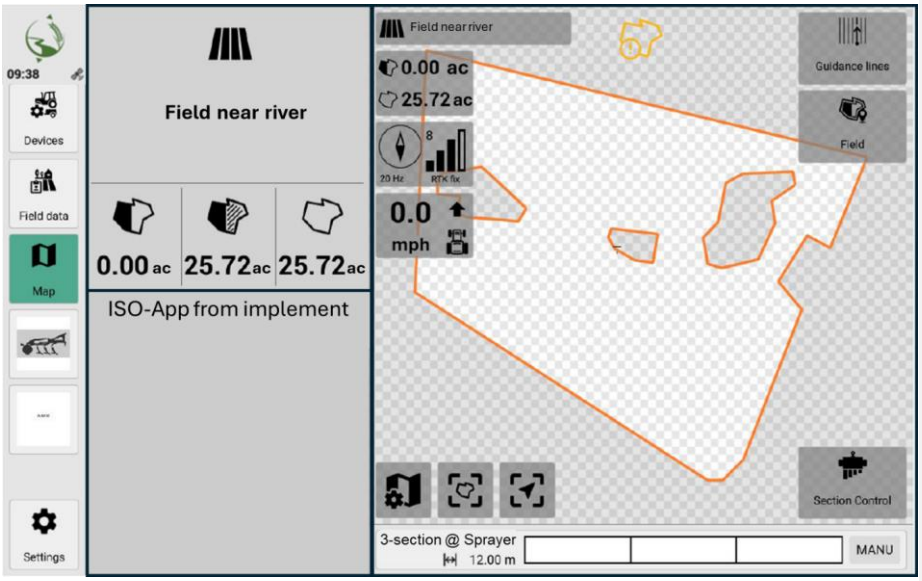
CAUTION
Hearing damage
The volume of the software can be set to a level that can lead to permanent hearing damage over a longer period of time.
To avoid hearing damage, set a medium volume.

1. Navigate to **Settings** > **General** > **Volume**.
2. You have the following options:

Icon	Function
+	louder
—	quieter

9.1.3 Customize layout

You can customize the layout of the map view, e.g. set the display in portrait or landscape format or how many view windows are displayed.



Map view in landscape format and 2 miniviews (left)

NOTE
Restarting the software
The software is restarted when switching between landscape and portrait format. This leads to a loss of connection to the implement. It is no longer possible to operate machine functions via the Universal Terminal.

The software is restarted when switching between landscape and portrait format. This leads to a loss of connection to the implement. It is no longer possible to operate machine functions via the Universal Terminal. Software functions are not available during the restart, e.g. navigation or driving aids.
To ensure trouble-free operation, stop all ongoing work in the software.

1. To customize the layout, navigate to **Settings** > **General** > **Layout**.
   - To set a landscape format with three small view windows, select **Landscape - 3 ~~miniviews~~Mini views**.
   - To set a landscape format with two small view windows, select **Landscape - 2 ~~miniviews~~Mini views**.
   - To set a portrait format with machine operation at the top, select **Portrait format – Machine operation at the top**.
   - To set a portrait format with machine operation at the bottom, select **Portrait format – Machine operation at the bottom**.

NOTE
When selecting a landscape layout, you can quickly switch between full screen mode and mini view and full screen mode by pressing the map view or one of the ISOBUS UT buttons in the left-hand menu bar again.

NOTE
If the portrait format layout is selected, ISOBUS-UT masks are always displayed exclusively in the lower screen area, while all other screen masks are displayed exclusively in the upper area.

9.1.4 Select display theme

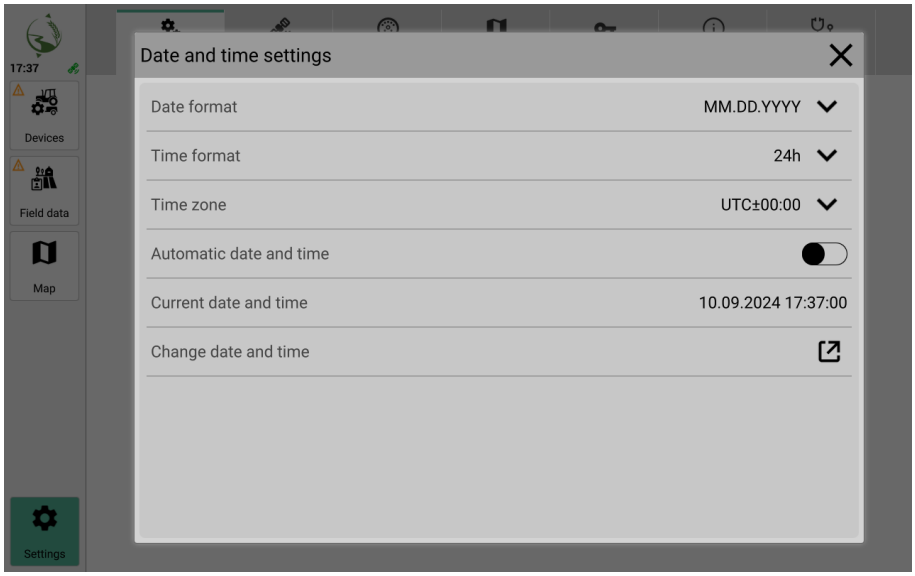
You can display the software interface in a dark and a light version.

1. Navigate to **Settings** > **General** > **Theme**.
2. You have the following options:

Icon	Function
	Bright display theme
	Dark display theme

9.1.5 Date and time settings

You can subsequently change the date and time settings made when the software was first started.



Set date format

1. Navigate to **Settings** > **General** > **Date and time settings**.
2. Click on edit.
3. Under **Date format**, select a date format from the drop-down menu.

Set time format

1. Navigate to **Settings** > **General** > **Date and time settings**.
2. Click on edit.
3. Under **Time format**, select a time format from the drop-down menu.

Set time zone

The time zone is set using UTC (Universal Time Coordinated). UTC is the coordinated universal time and serves as a global reference time standard. All time zones are defined in relation to UTC. The reference point for UTC 0 is the prime meridian. For Germany, UTC+1 applies during wintertime and UTC+2 during summertime.
Use official and recognized sources for the correct setting of your UTC and time zone.

NOTE
Data loss / corrupted data
The internal clock (UTC format) uses summertime or wintertime to determine the time zone.

An incorrectly set time zone can lead to falsified data recordings.
Check regularly whether summer/wintertime has changed in your region.
Make sure that the correct time zone is set in the software.

1. Navigate to **Settings** > **General** > **Date and time settings**.
2. Click on edit.
3. Under **Time zone**, select a time zone from the drop-down menu.

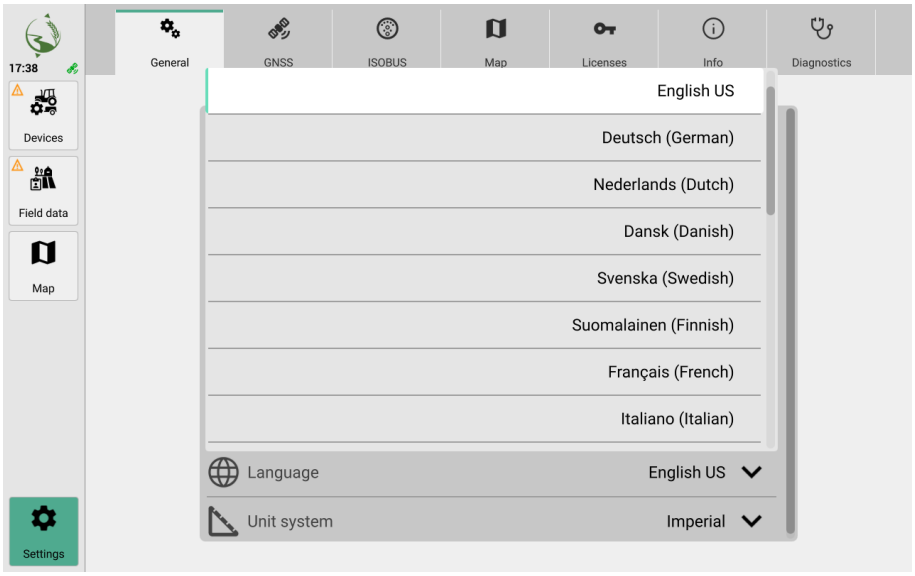
Set date and time automatically

1. Navigate to **Settings** > **General** > **Date and time settings**.
2. Click on edit.
3. To set the date and time automatically, move the slider under **Automatic date and time** to the right. This setting causes the system time to be synchronized with the time signal from the GNSS receiver.
4. To prevent the date and time from being set automatically, move the slider under **Automatic date and time** to the left.

Manually change date and time

1. Navigate to **Settings** > **General** > **Date and time settings**.
2. Click on edit.
3. Press the arrow under **Date and time**.
4. Enter the data manually.
5. Confirm with **OK**.

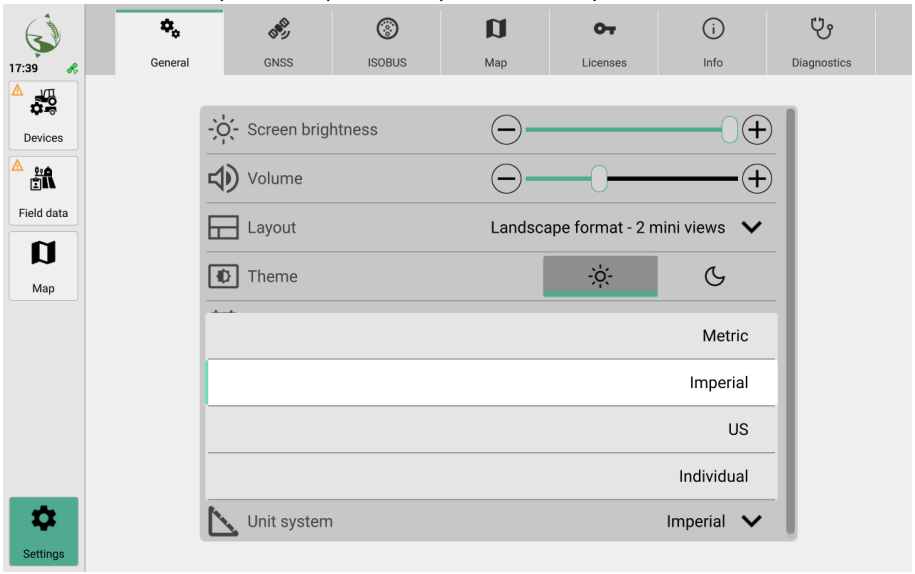
9.1.6 Setting the system language



1. Navigate to **Settings** > **General** > **Language**.
2. Select a language from the drop-down menu.

9.1.7 Setting the system of units

You can select the unit system from predefined systems or create your own.



Set fixed system of units

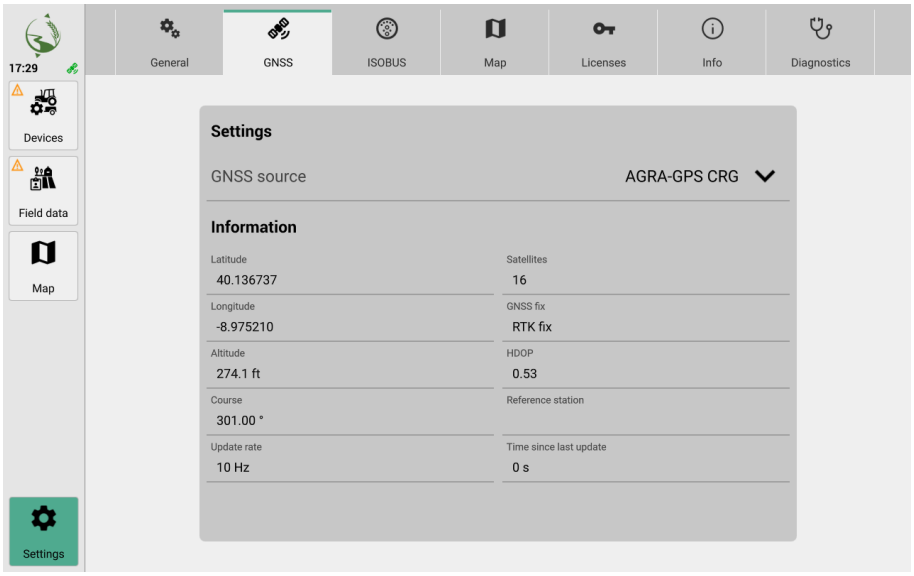
1. Navigate to **Settings** > **General** > **System of units**.
   - To use the metric system, select **Metric**.
   - To use the imperial system, select **Imperial**.
     This system is used in Great Britain, for example.
   - To use the US system, select **US**.

Set individual unit system

1. Navigate to **Settings** > **General** > **System of units**.
2. Select **Individual units**.
   - For each subcategory, select whether it is to be displayed according to the metric, imperial or US system of units.
3. Apply the settings.

9.2 GNSS settings

The interface for the GNSS connection can be edited in the **GNSS** tab.



9.2.1 Set up GNSS source

GNSS is a global navigation satellite system used to determine locations, navigation and time references.

For using the CRG Vision10 Display together with CRG antenna for Autosteering select:

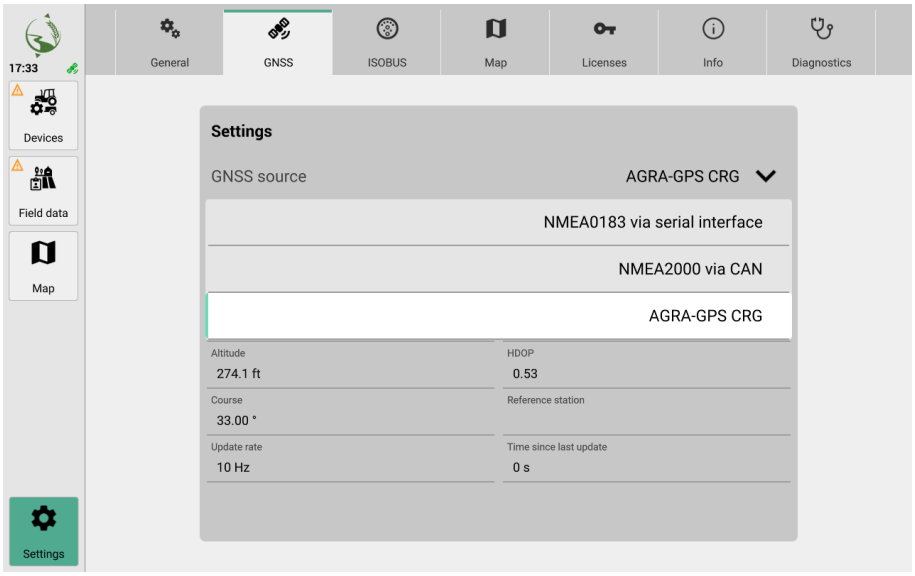
- **AGRA-GPS CRG**

else for other purposes select:

- **NMEA0183**

or

- **NMEA2000**



1. Navigate to **Settings** > **GNSS** > **GNSS source**.
2. Use the drop-down menu to select a GNSS source.
   You have the following options:
   - **AGRA-GPS CRG**
   - **NMEA0183** via serial interface
   - **NMEA2000** via CAN

The status of the GNSS connection is shown as follows in the status display.

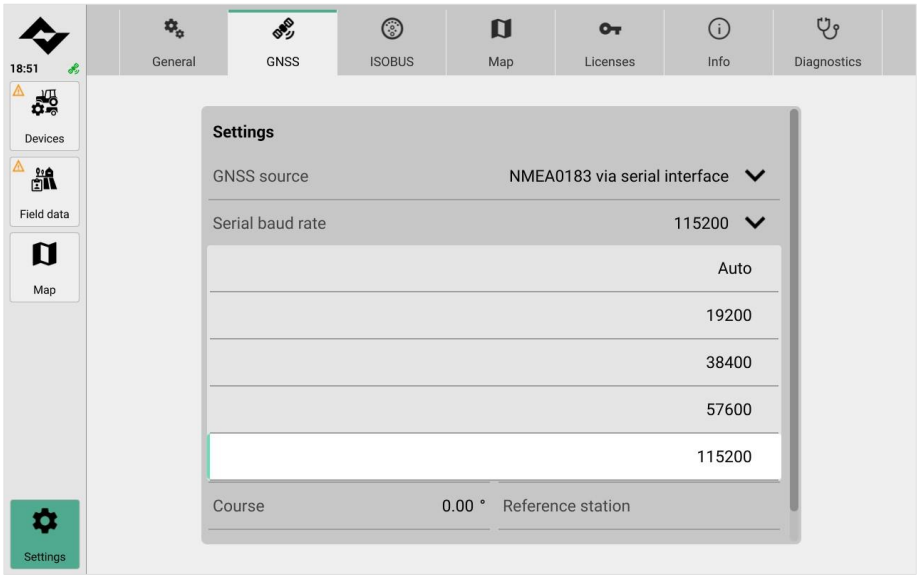
Status / Symbol	Description
	GNSS active and connected (green icon)

9.2.2 Setting the serial baud rate for NMEA0183 via serial interface

The baud rate indicates how quickly data is transferred between the transmitter and receiver.
The higher the baud rate, the faster the data is transmitted.

NOTE
The set baud rate must correspond to the baud rate of the GNSS receiver, otherwise no data exchange is possible.

The **automatic** (Auto) setting should preferably be used.
The baud rate can also be found in the GNSS receiver manual or can be obtained from the GNSS device manufacturer.



1. Navigate to **Settings** > **GNSS** > **Serial baud rate**.
2. Select a suitable baud rate from the drop-down menu.

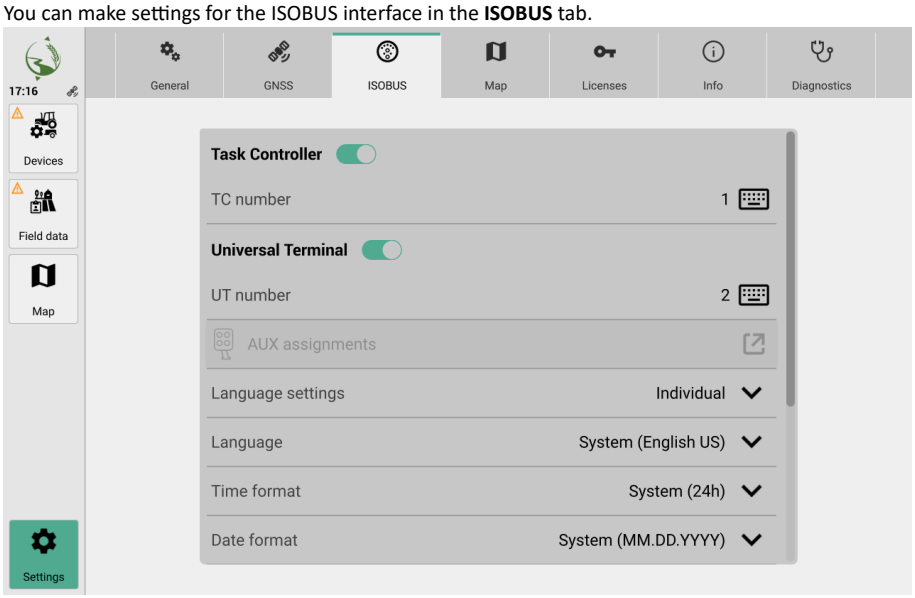
9.2.3 Display GNSS information

You can display information under **Settings** > **GNSS source**, e.g.:

- Latitude
- Longitude
- Height
- Course
- Update rate
- Satellites
- GNSS-Fix
- HDOP (Horizontal Dilution of Precision)
- Reference station

9.3 ISOBUS settings

You can make settings for the ISOBUS interface in the **ISOBUS** tab.



9.3.1 Switch off the task controller

The Task Controller (TC) enables data recording and data exchange. The TC is a prerequisite for the documentation of task data with ISOBUS implements and for the Section Control, Variable Rate Control and other functions. It is switched on as standard.

NOTE
Restarting the software
This action restarts the software. This leads to a loss of connection to the implement. It is no longer possible to operate machine functions via the Universal Terminal.

Software functions are not available during the restart, e.g. navigation or driving aids.
To ensure trouble-free operation, stop all ongoing work in the software.

6. Navigate to **Settings** > **ISOBUS** > **Task Controller**.
   - To switch off the task controller, move the slider to the left.
   - To switch on the task controller, slide the control to the right.
7. Confirm the security prompt for the restart.

9.3.2 Change TC number

The TC number is the number of the task controller.

NOTE
Restarting the software
This action restarts the software. This leads to a loss of connection to the implement.
It is no longer possible to operate machine functions via the Universal Terminal.

Software functions are not available during the restart, e.g. navigation or driving aids.
To ensure trouble-free operation, stop all ongoing work in the software.

1. Navigate to **Settings** > **ISOBUS** > **TC number**.
2. Open the keyboard.
3. Enter a number and confirm the entry.
4. Confirm the security prompt for the restart

9.3.3 Switch off Universal Terminal

The Universal Terminal is the interface between man and machine. It is a display or operating device that provides access to data. It is switched on as standard.

NOTE
Data loss
This action leads to loss of connection to the implement.
It is no longer possible to operate machine functions via the Universal Terminal.

To ensure trouble-free operation, stop all ongoing work in the software.

1. Navigate to **Settings** > **ISOBUS** > **Universal Terminal**.
   - To switch off the Universal Terminal, slide the control to the left.
   - To switch on the Universal Terminal, slide the control to the right.

9.3.4 Change UT number

The UT number is the number of the Universal Terminal. If several ISOBUS terminals with UT function are used, each of the terminals must have a unique UT number. Implements prefer to connect to the terminal with the lowest UT number. If several terminals have the same UT number, there will be a conflict and safe use of the UT functionality cannot be guaranteed.

NOTE
Data loss
This action leads to loss of connection to the implement. It is no longer possible to operate machine functions via the Universal Terminal.

To ensure trouble-free operation, stop all ongoing work in the software.

1. Navigate to **Settings** > **ISOBUS** > **UT number**.
2. Open the keyboard.
3. Enter a number and confirm the entry.

9.3.5 Assign an external input device (e.g. joystick)

While driving, it is difficult to enter commands via the touchscreen.

For better handling, various input devices can be connected via **Settings** > **ISOBUS** > **AUX assignment, such as** a joystick or switch boxes.

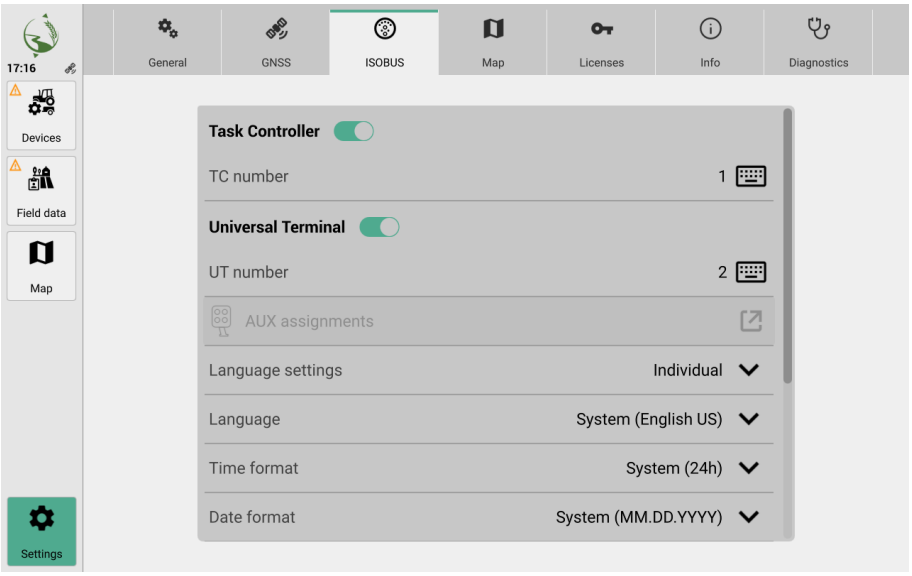
Assign input device

1. Under **Settings** > **ISOBUS** > **UT number**, check whether the Universal Terminal is set up as the primary terminal with the UT number 1.
   => You can carry out the Aux assignment in this screen.
2. Press under Edit **AUX assignment.**
3. Switch on the editing mode.
4. Select the external input device (e.g. joystick).
5. Press a button on the external input device.
   Then assign one of the displayed functions to the button.
6. Confirm the assignment with **Apply**.

9.3.6 Setting the ISOBUS UT system language

Setting the system language for ISOBUS UT

During this process, the language of the Universal Terminal (UT) is set to the current language (see Setting the system language on page97).
Control elements and information in the UT are then displayed or formatted in this language.



1. Navigate to **Settings** > **ISOBUS** > **Language settings**.
2. Under **Language**, select **System** from the drop-down menu.

Set individual language for ISOBUS UT

During this process, the language and localizable content (e.g. time format) of the Universal Terminal (UT) are set individually. Control elements and information in the UT are then displayed or formatted with these settings.

1. Navigate to **Settings** > **ISOBUS** > **Language settings**.
2. Under **Language**, select **Custom** from the drop-down menu.
3. Select a language.
4. Select a time format.
5. Select a date format.
6. Select a display for decimal characters.
7. Select a unit system.

9.3.7 Delete ISOBUS UT cache (delete temporary memory)

A pool contains the "cached" data of the UT operating screens of the connected devices (e.g. implements, AUX input devices). By deleting the pools, you force UT data to be uploaded again.
This helps, for example, if a change to the configuration of an implement or a software update did not result in the correspondingly changed operating screens becoming visible.

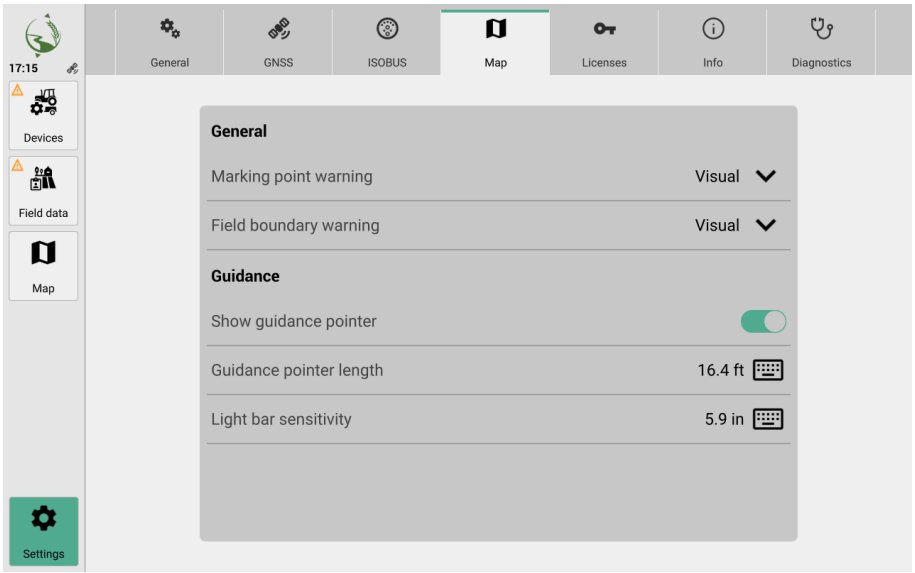
1. Navigate to **Settings** > **ISOBUS** > **Delete pools**.
2. Select a pool to delete.
3. Press **Delete**.

9.3.8 Show connected ISOBUS clients

1. Navigate to **Settings** > **ISOBUS** > **Show connected** clients.

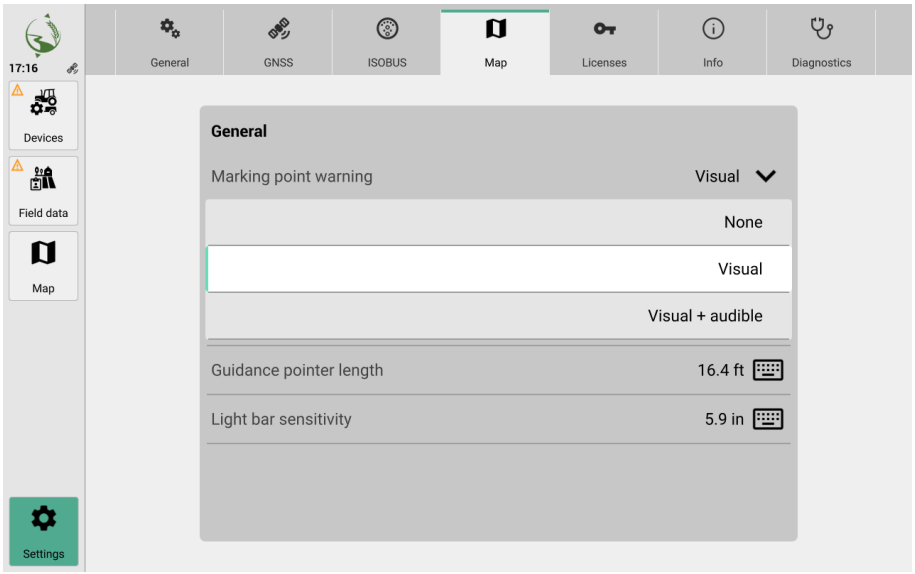
9.4 Map settings

You can customize the map display in the **Map** tab.



9.4.1 Customize warnings and alarm messages

It is possible to have the system issue warnings if you reach a field boundary, for example.



1. Navigate to **Settings** > **Map** > **General**.
2. To adjust the warnings for the marking point, open the drop-down menu under Marking point warning.
3. To adjust the warnings for the field boundaries, open the drop-down menu under Field boundary warning.
4. You have the following options:
   - **Visual:**
     A visual warning is displayed in the map view.
   - **Audible + Visual:**
     A visual warning is displayed in the map view. A warning signal sounds at the same time.
   - **None:**
     No warning is issued.

9.4.2 Show or hide 3D models

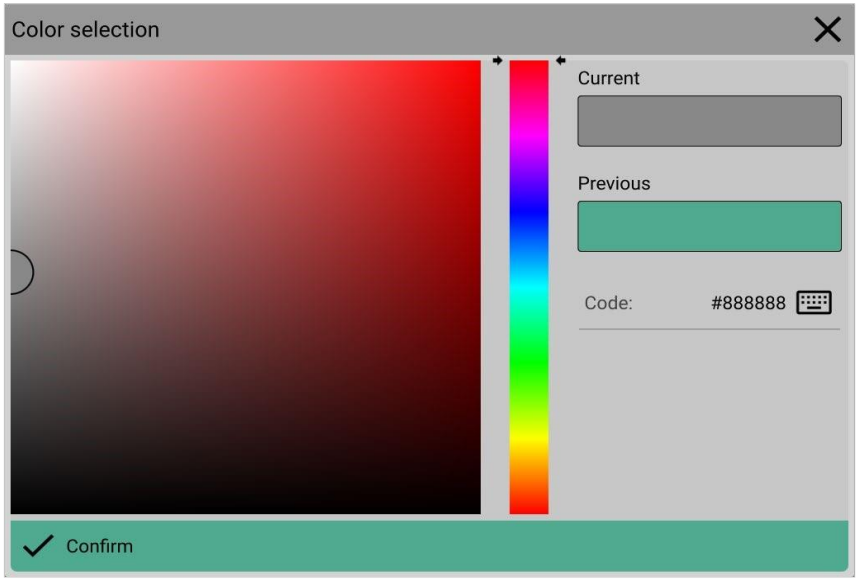
You can show or hide the 3D model of the tractor in the map view.

1. Navigate to **Settings** > **Map** > **General** > **Show 3D models**.
   - To hide the 3D model, move the slider to the left.
   - To show the 3D model, move the slider to the right.

9.4.3 Customize the representation of the tractor in the 3D model

1. Navigate to **Settings** > **Map** > **General**.
2. You can set the following:
   - Chassis color of the tractor
   - Rim color of the tractor
3. Select a color:

- *You can individually select a color in the left selection area. Use the slider in the middle to specify the displayed color space.*
- *You* can enter a color code by opening the keypad.



4. In both cases, the change must be confirmed.

9.4.4 Show or hide guidance pointer

The guidance pointer is a visual aid when working with guidance lines. It helps with aiming and tracking on a guidance line.

1. Navigate to **Settings** > **Map** > **Guidance** > **Show guidance pointer**.
   - To hide the guidance pointer, move the slider to the left.
   - To show the guidance pointer, move the slider to the right.

9.4.5 Setting the length of the guidance pointer

- The guidance pointer is displayed (see Showing or hiding the guidance pointer on page110).

1. Navigate to **Settings** > **Map** > **Guidance** > **Length of guidance pointer**.
2. Open the keyboard.
3. Enter a value and confirm the entry.

9.4.6 Setting the sensitivity of the light bar

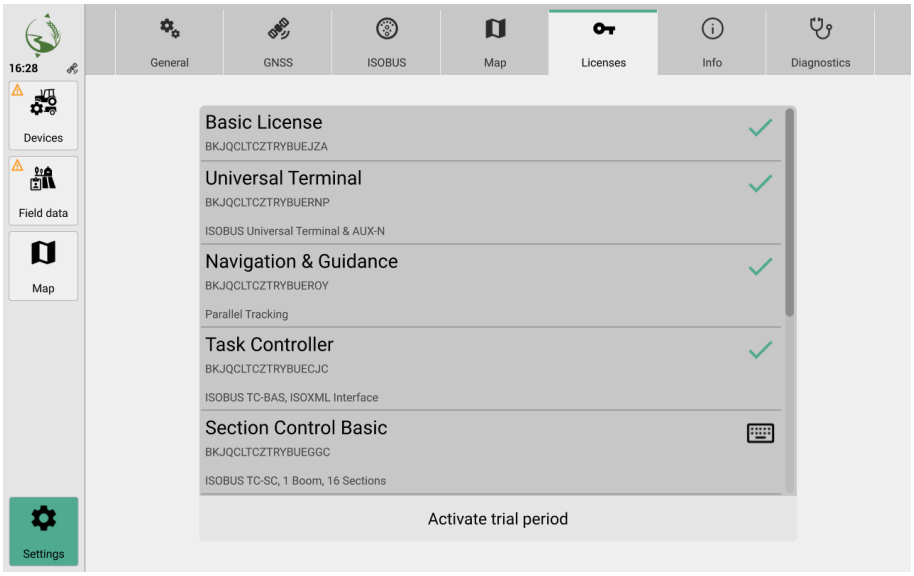
The light bar is displayed at the top of the map when working with guidance lines.
The current deviation from the active guidance line is always displayed there, as well as the required steering direction.

The sensitivity specifies the deviation from the guidance line / ideal line at which the light bar should suggest active changes.

1. Navigate to **Settings** > **Map** > **Guidance** > **Sensitivity of the light bar**.
2. Open the keyboard.
3. Enter a value.
4. Confirm the entry.

9.5 License overview

You can manage the licenses in the **Licenses** tab.



License overview

License	Prerequisite	Range of functions / features
Basic license	-	▪ Basic operation ▪ 3D map ▪ GPS /GNSS ▪ Manage virtual devices (non-ISOBUS capable devices) ▪ Manual coverage recording ▪ Create field boundary, headland, markings ▪ Import / export backups ▪ Import field boundaries ▪ PDF Reports Remark: ▪ No connection to ISOBUS
Universal Terminal	Basic license	▪ Use Universal Terminal ▪ Diagnosis/display of network subscribers ▪ Display basic values from the tractor job computer (TECU) ▪ Basic communication with ISOBUS capable devices ▪ Support for external input devices (e.g. joystick)
Navigation&Guidance	Basic license	▪ Functions for parallel driving ▪ Guidance lines
Task Controller	Basic license	▪ ISOXML import / export ▪ Support for all ISOBUS functions
Section Control Basic	Basic license, Task Controller	▪ Section Control automatic mode ▪ Supports single boom and 16 sections
Section Control Medium	Basic license, Task Controller	▪ Section Control automatic mode ▪ Supports single boom and 120 sections
Section Control Advanced	Basic license, Task Controller	▪ Section Control automatic mode ▪ Supports Multi Boom and 255 Sections
Variable Rate Control	Basic license, Task Controller	▪ Full support for ISOXML and shapefiles ▪ Support for prescription maps (actual value maps for output quantities) ▪ Support for the use of multi-boom and multi-product (use of several booms with prescription maps, e.g. output of different products)

TIPS
Some licenses require the activation of one or more other licenses. Please note the requirements of the respective license. Contact the dealer.

9.5.1 Activate license

To activate a license, you need an **activation code** from the dealer.

NOTE
Data loss / loss of personal data
Keep system information (e.g. activation codes) in a safe place. Only share product codes or numbers with the dealer.

- **Product part number**
  (see Viewing the product part number and product serial number on page114)
- **Product serial number**

1. Contact the manufacturer (e.g. telephone, e-mail).
   - The dealer requires additional information for activation.
     Have the **product part number** and the **product serial number** ready.
   - The dealer will send you the activation code.
2. Navigate to **Settings** > **Licenses**.
3. Select the license to be activated and click on **Edit**.
4. Enter the **activation code** sent to you and confirm your entry.

The license and its features are activated.

9.5.2 Test CRG Vision10 with test license

All functions and features of CRG Vision10 can be tested with the *one-time and time-limited* test license.

Activate test license

1. To activate the trial license, navigate to **Settings** > **Licenses**.
2. Click on **Activate test license**.

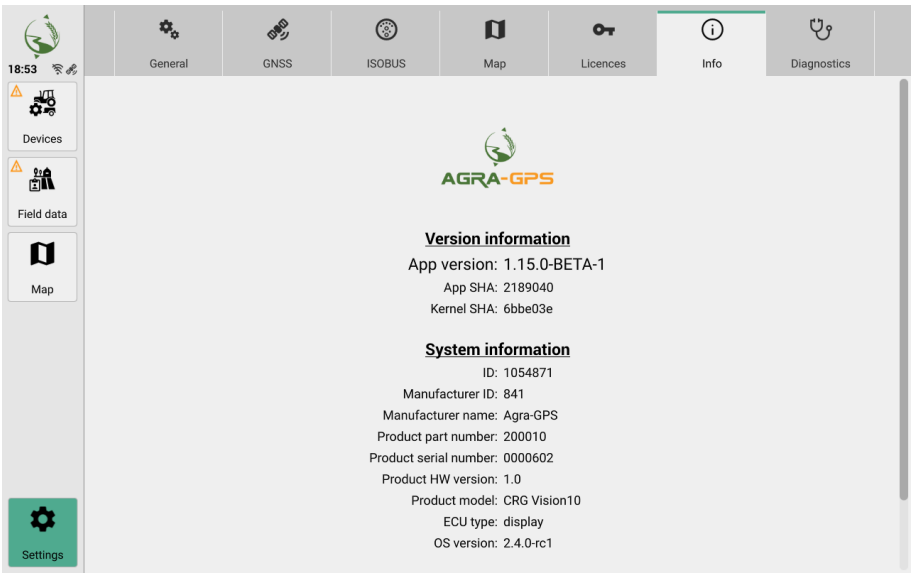
The test license is activated. The available period is displayed on the individual licenses.
The trial license period expires while the software is in use.

NOTE
Data loss
The test license and its activated functions and features are limited in time.
Ongoing work, recordings and device connections will be interrupted after the trial license expires.

Regularly check the remaining period of the test license in the license overview
=> (**Settings** > **Licenses**).
End ongoing work, recordings and device connections before the test license expires.

9.6 System information

In the **Info** tab, you will find information about the version used and the system. You can also display third-party licenses.



9.6.1 View product part number and product serial number

The **product part number** and the **product serial number** are required to activate licenses.

NOTE

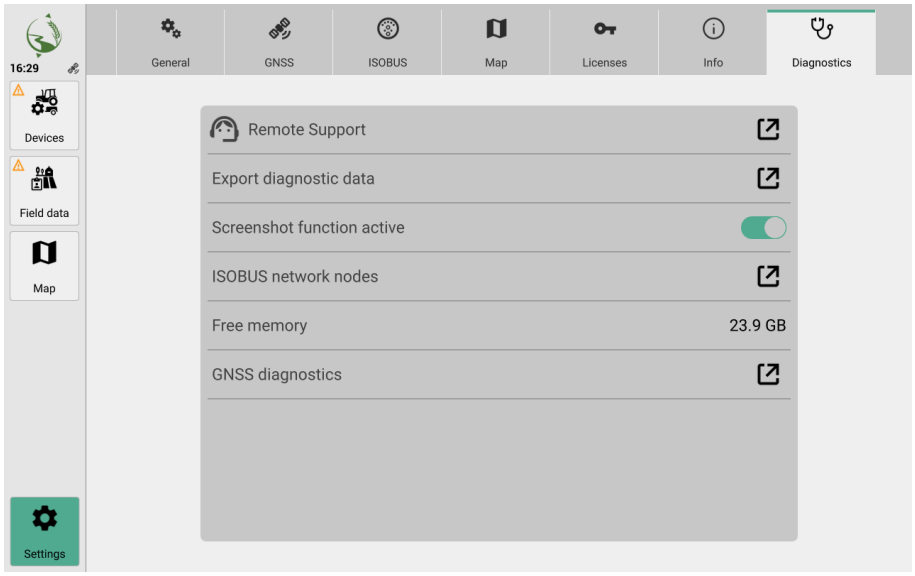
Data loss / loss of personal data

Keep system information (e.g. activation codes) in a safe place. Only share product codes or numbers with the manufacturer.

1. Navigate to **Settings** > **Info**.
2. Make a note of the **product part number** and the **product serial number**.

9.7 Diagnostics options

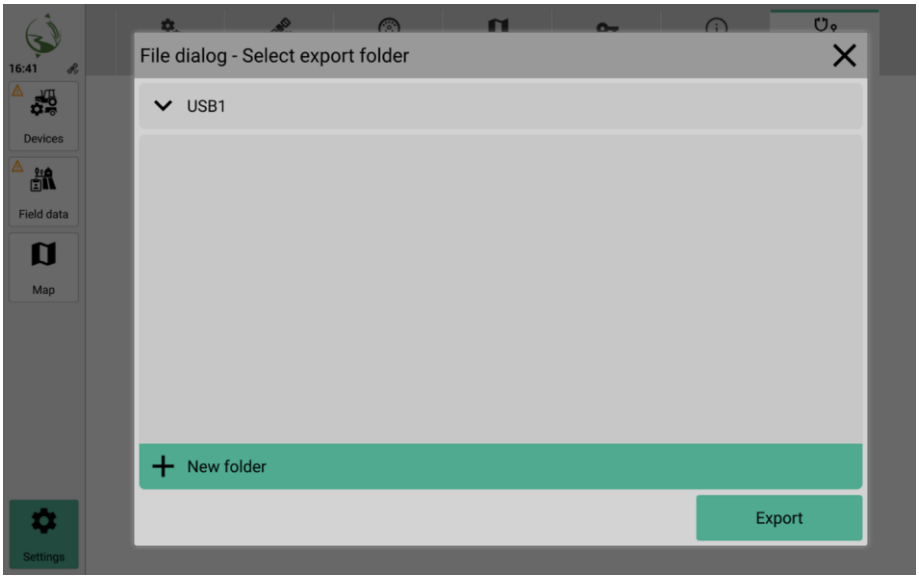
In the **Diagnostics** tab, you can display and export diagnostics data and activate the screenshot function.



9.7.1 Export diagnostics data

If you have problems with the software, it may be useful to export diagnostics data so that support can help you.

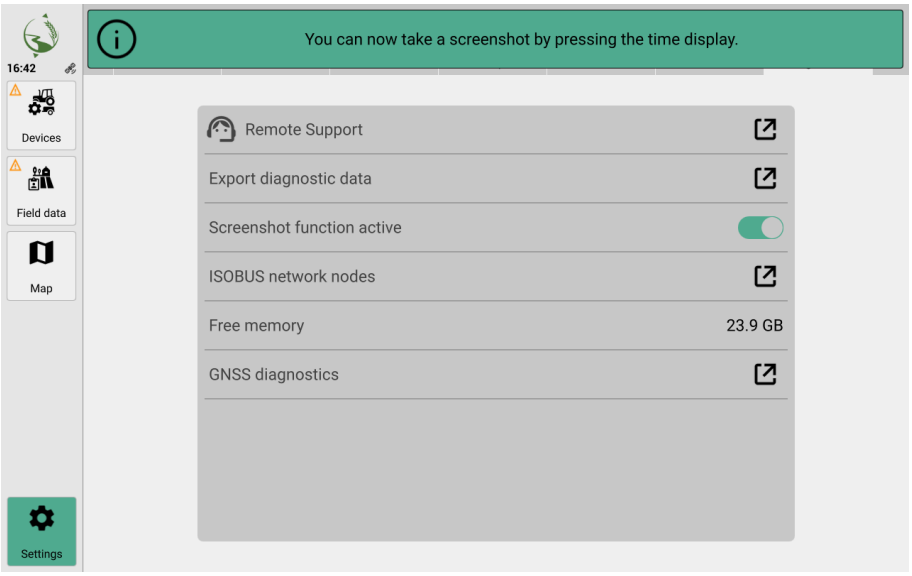
TIP
Only export the diagnostics data on the recommendation of the service technician.



1. Navigate to **Settings** > **Diagnostics** > **Export diagnostic data**.
2. Select a storage location.
3. Export the data.

9.7.2 Activate screenshot function

A screenshot can help the support team to better identify problems with the software.



1. Navigate to **Settings** > **Diagnostics** > **Screenshot function active**.
   - To activate the screenshot function, move the slider to the right.
   - To deactivate the screenshot function, move the slider to the left.
2. You can trigger the screenshot via the time display in the top left-hand corner of the application.

An acoustic signal sounds.
*The screenshot is saved in the **Screenshots** folder on a connected USB stick.*

9.7.3 Display ISOBUS network participants

In the overview of the ISOBUS network participants, you will find information on the manufacturer, function type and version information on the connected ISOBUS devices.

1. Navigate to **Settings** > **Diagnostics** > **ISOBUS network participants**.

9.7.4 View free storage space

Under **Settings** > **Diagnostics** > **Free storage space** you can see the currently available storage space.

9.8 Update system

The system must be updated at regular intervals. You will be informed of updates by the dealer.

- Follow the instructions.
- Follow the instructions for system updates to the hardware (e.g. operating instructions).

The dealer provides the corresponding **update files**.
Observe the corresponding instructions for handling the update file and follow the instructions.
Additional information may be required for a successful system update:

- **Product hardware version** (see Type plate on page17)
- **Software version** and other relevant system identifiers
  (see Viewing the product part number and product serial number on page114)

NOTE
Restarting the software
This action restarts the system. This leads to a loss of connection to the implement.
It is no longer possible to operate machine functions via the Universal Terminal.

Software functions are not available during the restart, e.g. navigation or driving aids.
To ensure trouble-free operation, stop all ongoing work in the software.

NOTE
Data loss
The product must be restarted during system updates.

Do not switch off the product or disconnect it from the power supply during system updates.
Do not remove the USB stick during the system update.

TIP
The operating language in the **service app** is English. If you need help, please contact the dealer.

Formatted the USB stick (FAT32):

1. Create an update-folder with the name **updates** on the USB stick.
   Attention: Case sensitive folder name.
2. Copy the **update file** into this folder named **updates**.
3. Switch off the product.
4. Connect the USB stick.
5. Switch on the product.
   *After starting, the **service app is** displayed, follow the instructions on the screen.*
6. Select the specified **update file** from the list and confirm with **Start Update**.
   The system update may take a few minutes.
7. If the update is successful, the product restarts automatically.
   *After the restart, the **service app is** displayed.*
8. To exit the **service app**, click on the **exit symbol in the** top left-hand corner.
9. Remove the USB stick.

A system update has been carried out. The product can be operated.

10 Troubleshooting

In this section you will find solutions for faults that occur.
Faults can be caused by the software or the connected hardware.
Always start with solution #1. If one solution does not eliminate the fault, continue with the next solution.

10.1 Possible Problems

10.1.1 The product does not work

- The touchscreen can no longer be operated or generates unwanted inputs.
- The product switches on, but the display remains black or white.
- The acoustic signaling device no longer works.

Contact the service or dealer in the event of faults.

10.1.2 System was not updated / update aborts with error

In the event of faults, a log is automatically created on the USB stick.
Do not delete the log. The dealer needs it for troubleshooting.

- System update aborts with error message
  "The update failed. An error log file was saved on your update medium. Do you want to list the log messages?".

1. The fault reports confirm this.
2. To exit the **service app**, click on the **exit symbol in the** top left-hand corner.
3. Remove the USB stick.
4. Contact the manufacturer / dealer.

No system update has been performed. The product can be operated.

10.1.3 Direction of travel is displayed incorrectly

1. Ensure that the GNSS device is working correctly. Contact the GNSS device manufacturer in the event of faults.

10.1.4 Incorrect or unusual times are displayed

The internal clock (UTC format) uses summertime or wintertime to determine the time zone.

1. Check regularly whether summer/wintertime has changed in your region. Make sure that the correct time zone is set in the software. See Date and time settings on page95.
2. Use official and recognized sources for the correct setting of your UTC and time zone

10.1.5 Incorrect position in the map view

1. Under **Settings** > **GNSS** > **GNSS source**, check whether the appropriate GNSS device has been selected and set up (GNSS source). See Setting up the GNSS source on page99.
2. Ensure that the GNSS device is working correctly. Contact the GNSS device manufacturer in the event of faults.

10.1.6 Connectors are not displayed

1. Check under **Devices** > **Tractors** > **Tractor properties** > **Connectors** whether connectors have been created.

10.1.7 Fields / Farms are not displayed

1. Check under Field data > Fields / Customers / Farms whether these have been created accordingly.
2. Check under Field data > Master data whether a data record has been activated.
3. Check whether a filter has been set. Delete it.

10.1.8 The USB stick is not recognized/error when saving data to the USB stick

1. Make sure that there is sufficient storage space on the USB flash drive.
2. Make sure that write protection is activated on the USB flash drive.
3. Make sure that the file system format is FAT-based.

10.1.9 Position of the implement is displayed incorrectly

1. Check whether:
   - the distances of the implement are correct.
   - the distances between the GNSS receiver and the tractor rear axle are correct.
   - the distances between the connector and the tractor rear axle are correct.
   - the correct connector is selected

10.1.10 Section control switches too early / too late / incorrectly

1. Check whether:
   - the distances between the connector and the tractor rear axle are correct.
     See Managing implements on page53.
   - the correct connector is selected.
   - the settings of the implement are correct.
     See Managing implements on page55.
   - the GNSS receiver is configured correctly.
     See GNSS settings on page98.
   - the distances between the GNSS receiver and the rear axle are correct.
   - whether the settings for overlap and switch-on/switch-off delay are correct.
     Use the relevant wizard to set the delays correctly.
     See Section Control for implements on page59.

10.1.11 Incorrect application rate / prescription map is not displayed / taken into account

1. Check whether the setpoint assignment has been made correctly under **Field data** > **Fields** > **Application maps** > **Assignments.** See Managing fields on page44.
2. Under **Field data** > **Fields** > **Application maps** > **Maps**, check whether a suitable prescription map has been imported for the implement.

10.1.12 Field data from the shapefile cannot be imported

1. Check whether the shapefile (SHP) is available in the WGS84 coordinate system.
2. Check whether the shapefile is complete. It must contain at least the following files:
   - .shp
   - .shx
   - .dbf

10.1.13 Not enough storage space

1. Create backup copies of the master data records using exports
   (see Exporting master data on page40).
2. Delete complete master data records or only individual fields and tasks in the same view.

10.1.14 Warning symbols are displayed

1. Check under **Map** > **Field** whether all parameters for the start of the work assignment are fulfilled.
2. Check whether a field has been started.

11 Care/maintenance and repair

11.1 Care

The product must be maintained regularly, e.g. when dirty.

Carry out maintenance

CAUTION
Risk of burns
The heat sink and parts of the rear panel (incl. contact protection) can reach temperatures of >65 °C during operation. There is a risk of burns. Allow the heat sinks to cool down before working on the product.

NOTE
Avoid the use of abrasive, highly alkaline or corrosive cleaning agents and glass cleaners.

Follow the care and cleaning instructions.

When cleaning connections, interfaces and media, observe the relevant product information (e.g. operating instructions).

- For complete cleaning (incl. rear with heat sink), the product must be dismantled (see Disassembly on page125).

  1. Switch off the product.
  2. Disconnect the product from the power supply.
  3. Clean the touchscreen and the housing.
  4. Check the heat sink and the contact protection on the back for dirt and clean them.
  5. Check connections, interfaces and media for soiling and clean them.
  6. Only switch the product on again when it is completely dry.

Care and cleaning instructions

- Dust and light soiling in hard-to-reach areas (e.g. heat sinks) may be cleaned using a commercially available compressed air spray (55 psi / 380 kPa MAX).
- Clean or dry the product with a dry, clean and oil-free cloth.
- It is recommended to use only lint-free and non-abrasive microfiber cloth (alternatively cotton cloth).
- It is recommended that you only use care products that are specially designed for cleaning optical lenses.
- For stubborn dirt, clean with a damp, clean and oil-free cloth. Then dry.

11.2 Maintenance Repair

The product must be serviced at regular intervals. You will be informed about maintenance work by the dealer.

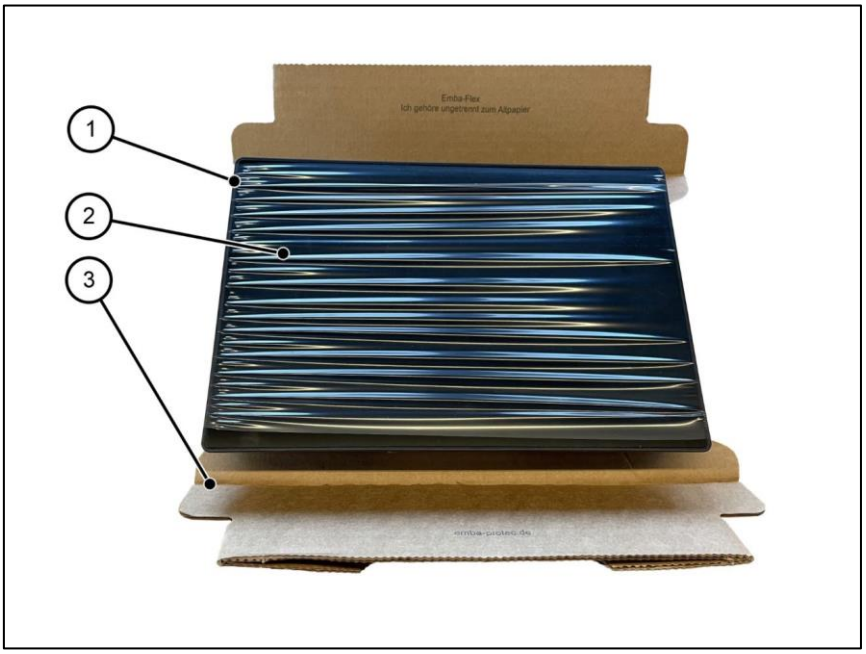
NOTE
Intended use
The product may only be serviced or repaired by the manufacturer or by specialist companies authorized by the manufacturer.
For maintenance or repair, send the product and its accessories in the original packaging to the dealer (see Transportation on page126).

12 Disassembly / transportation / storage / disposal

12.1 Dismantling and Packing

NOTE
If the original packaging is damaged or lost, contact the dealer.

1. Dismantle the product (see Dismantling on page125).
2. Carefully insert the product into the **packaging film** and place it in the **packaging insert.**



1 Product
2 Packing film
3 Packing insert

Carefully wrap the product with foil and inlay in the outer packaging

ⓘ If necessary, use additional inserts and insulating packaging material. The product must lie firmly and securely in the outer packaging.

ⓘ Observe the transport and packaging instructions.

1 Secured product 2 Outer packing

12.2 Storage

NOTE
Intended use
Only store the product in its original packaging (see Packaging on page125). Only store the product under the specified ambient conditions (see Product data on page15).

12.3 Transportation

NOTE
Intended use
Only transport the product in its original packaging (see Packaging on page125).

12.4 Waste disposal

NOTE
Intended use
Only dispose of the product in its original packaging (see Packaging on page125). Observe the instructions for transportation.

The product and its accessories (e.g. connection cable) must not be disposed of with household waste at the end of their service life.

To prevent damage to the environment or human health from uncontrolled waste disposal and to promote the sustainable reuse of material resources, separate these items from other types of waste and recycle them responsibly.

Proper disposal

- Before planning to dispose of the product, check options for avoiding waste (e.g. sale of functional products or repair).
- Before disposal, delete all personal or other "sensitive" data from the product (e.g. stored login data, usernames, passwords or files).
- Observe the applicable national regulations / laws for disposal.
- The product may only be disposed of by the manufacturer or dealer.
- To dispose of the product as intended, contact the dealer and send it in its original packaging.