Operating Instructions

ISOBUS-Terminal CCI 100/200

ISOBUS implement control

CCI.Cam

Visual implement monitoring

CCI.Control

Documentation and task management

CCI.Tecu

Traktordata

CCI.Command

GPS track guiding and section control

CCI.GPS

GPS settings and tractor geometry

CCISOBUS

ISOBUS-Terminal CCI 100/200

ISOBUS implement control

Operating Instructions

Reference: Menu v4

UT

CCISOBUS

1 Introduction

These operating instructions are intended as an introduction to the operation and configuration of the ISOBUS CCI 100/200 Terminal. It is only with knowledge of these operating instructions that accidental misuse of the terminal can be avoided and fault-free operation ensured.

These operating instructions must be read and understood prior to assembly and commissioning to prevent problems during operation. The company <company name> accepts no liability for damage resulting from the failure to observe these operating instructions.

1.1 About the ISOBUS Terminal CCI 100/200

CCI 100/200 is a universal terminal and makes possible an ISOBUS implement control.

The following CCI.Apps can be used directly with the CCI 100/200:

CCI.Cam	Visual implement monitoring
CCI.Tecu	Tractor data

The following CCI.Apps can be used with the CCI 100/200 after they are enabled:

CCI.Command	GPS track guiding and section control
Modules:	
Parallel Tracking	Parallel tracking
Section Control	Automatic section control
CCI.Control	Documentation and task management
FieldNav	Agrarian navigation
farmpilot	Planning and fleet management
CCI.Courier	Wireless data interchange
DiGIS	Planning and fleet management
Weather	Latest weather forecast

2 Conformity

The ISOBUS conformity of the CCI terminals is DLG-certified:

3 Safety

These operating instructions contain basic indications which must be observed during configuration, operation and repair procedures. As such, it is absolutely essential to read these instructions prior to configuration and operation.

Not only do the general safety indications listed in this "Safety" chapter have to be observed but also the special safety instructions appearing in other chapters as well.

3.1 Identification of indications in the operating instructions

The safety indications in these operating instructions are specially identified:

Warning - General Hazards!

This occupational safety symbol identifies general safety indications the non-observance of which poses a danger for life and limb. Carefully observe the indications regarding occupational safety and exert particular caution in these cases.

Attention!

This attention symbol identifies all safety indications which refer to regulations, directives or working procedures which it is essential to observe. Non-observance can entail damage to, or the destruction of, the terminal as well as malfunctions.

Note

The note symbol highlights operation tips and other particularly useful information.

3.2 Intended use

The terminal is exclusively intended for use with approved ISOBUS-compatible implements and devices in agriculture. Any other installation or use of the terminal is not included within the manufacturer's area of responsibility.

The manufacturer accepts no liability for any resulting personal injury or material damage. Any risks for unintended use are borne solely by the user.

Observance of the operation and maintenance conditions stipulated by the manufacturer also form part of intended use.

The accident prevention regulations in force, as well as other generally recognised safety, industrial, medical and traffic laws must be observed. Unauthorised modifications to the device exclude the manufacturer's liability.

3.3 Safety indications for the operator / user

- Do not remove any safety mechanisms or signs.
- Disconnect the power supply to the terminal during maintenance work or when using a charging device on the battery of the towed/production implement.
- Never perform maintenance work or repairs when the device is switched on.
- Disconnect the power supply to the terminal beforehand when welding on the tractor or on an attached implement.
- Only use a soft cloth moistened with clean water or a small amount of glass cleaning agent to clean the terminal.
- Use your fingertip to operate the keys. Avoid using your finger nails.
- If, after having read these operating instructions, there are sections which you do not understand contact your dealer for clarification before using the terminal.
- Carefully read and observe all safety instructions in the manual and the safety labels on the device. Safety labels must always be in a proper legible condition. Replace missing or damaged labels. Ensure that new device parts are provided with the current safety labels. Spare labels can be obtained from your authorised dealer.
- Learn how to use the terminal in accordance with regulations.
- Keep the terminal and accessories in good condition.

3.4 Safety indications for the installation of electrical devices

Modern farming implements use electronic components and parts the operation of which can be compromised by electro-magnetic interference from other devices. Such effects can endanger people if the following safety indications are not observed.

In the event of retrofitting electric and electronic devices, and/or components, in an implement with connection to the on-board network, the user must independently verify whether the installation interferes with the vehicle electronics or other components. This is, in particular, applicable to the electronic interference of:

- Electronic hoisting gear control
- Front hoisting gear
- Power take off
- Engine and gears

It must be ensured in particular that the retrofitted electric and electronic components comply with the EMC Directive 89/336/EC in its respectively valid version and that they bear the CE marking.

In order to retrofit mobile communication systems (e.g. radio, telephone), it is important to meet the following requirements:

- Only devices may be installed which are approved in accordance with valid farming regulations (e.g. BZT (Federal Office for Approval in Telecommunications) approval in Germany).
- The device must be properly installed.
- The operation of portable or mobile devices inside the vehicle is only permitted using a connection to a properly installed external aerial.
- The transmitting part must be installed physically and separately from the vehicle electronics.
- When fitting the aerial it must be ensured that the installation is correctly executed with a good earth connection between the aerial and vehicle earth.

The implement manufacturer's installation instructions must also be used for the wiring and installation as well as for the maximum permitted power consumption.

3.5 Safety indications for the stop-button

A safe condition for the connected implement can be established by pressing the stop-button. In order to do so, the implement must support the stop function.

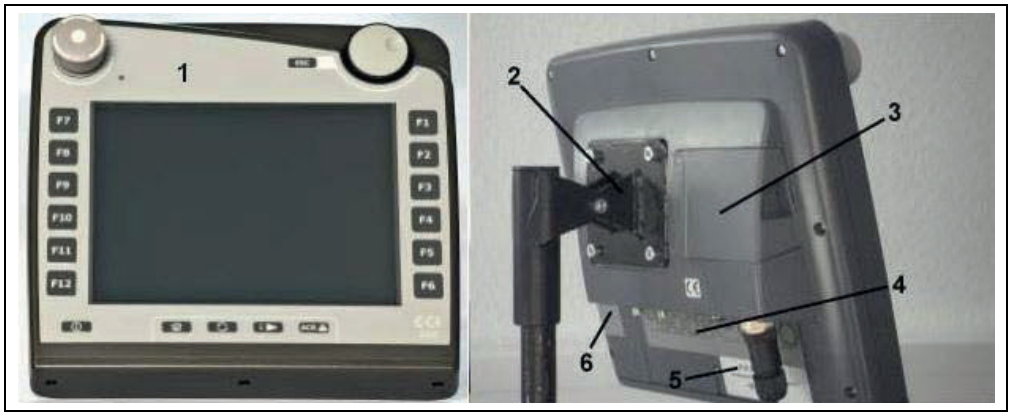
Note

Under no circumstances does the stop-button intervene in tractor functions, i.e. neither power take off nor hydraulic functions are compromised.

Further information on this point can be obtained from the implement operating instructions.

4 Structure and function

4.1 Overview



1 Front view with operating elements
2 Support
3 USB connection (under the flap)
4 Interface strip
5 Nameplate
6 Softkey swap

4.2 Nameplate

The nameplate features all important terminal information.

<Nameplate>

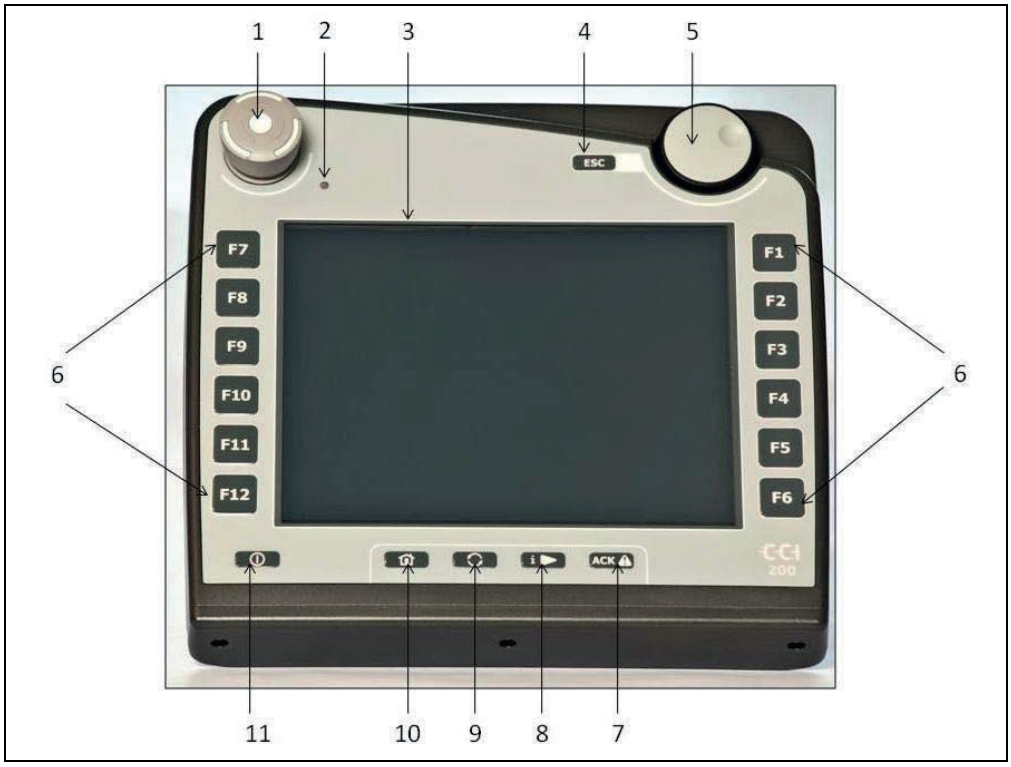
1 Serial number
2 Manufacturer item number or material number
3 Terminal type (CCI 100 or 200)
4 Manufacturer information
5 Production date (week and year)
6 Hardware version of the terminal

Note

The nameplates vary from manufacturer to manufacturer. As such, not all information is featured on all nameplates.

4.3 Operating elements

The following operating elements are available on the terminal:



1 "Stop" switch
2 Daylight sensor
3 Touchscreen
4 ESC key
5 Scroll wheel
6 Function keys
7 Acknowledgement key
8 I button
9 Toggle button
10 Home button
11 ON/OFF

4.3.1 Stop-button

When pressing the Stop-button (designed as an emergency button on the terminal), a stop command (ISO stop) is sent to the ISOBUS. This command can be assessed by a connected ISOBUS implement in order to adopt the necessary automatic measures in a dangerous situation.

Warning – Danger of injury by the implement whilst in operation!

Not all ISOBUS implements support the stop function. As a result, an implement may continue to operate after the stop-button has been pressed. This can lead to injuries.

Please refer to the operating instructions of the implement to verify whether the function is supported or not.

4.3.2 ESC button

The ESC button is pressed to abort inputs and functions. The modifications made are not accepted and the previous valid value is maintained.

Note

The ESC button can only be used if, on the display on the operating screen, there is an ESC button operable via the touchscreen. The function of button and push button is identical.

4.3.3 Scroll wheel

The scroll wheel is used for the direct, quick input of target values, as well as for browsing through the elements in the lists:

Turn the scroll wheel to the right	• In an input dialogue for numerical values increases the value. • In a list changes to the next element.
Turn the scroll wheel to the left	• In an input dialogue for numerical values decreases the value. • In a list changes to the previous element.
Pressing the scroll wheel	• The changed value in an input dialogue is adopted. • A highlighted list element is selected.

4.3.4 Function buttons

Six function buttons (F1-F12) are arranged to the right and left of the display. By actuating a function button the function displayed next to the function button is performed.

4.3.5 Softkey swap

The softkey swap is a button on the rear. The positions of both softkey bars on the left- and right-hand screen edge are swapped over by pressing the softkey swap. This enables operating the device using one hand.

Note

Swapping of the softkey bar positions is only available in the area of the implement operation.

4.3.6 Acknowledgement button

The acknowledgement button (ACK) is used to confirm error messages.

4.3.7 i-button

The i-button is a softkey. It makes possible direct access to an app or device operation that has been selected in the user settings under "Free key assignment" (see chapter 6.4.4).

4.3.8 Toggle button

Repeated quick pressing of the swap button makes possible sequential toggling between device operations and the individual apps that have been selected in the user settings under "Application toggling" (see chapter 6.4.3), for example from device operation to CCI.Tecu.

Note

With some implements, when changing from an active implement function operations being performed will automatically switch off. For further information on this point consult the implement operating instructions.

4.3.9 Home button

By pressing the home button you change directly to the main menu. The apps which are active at the time of changing remain active in the background.

Note

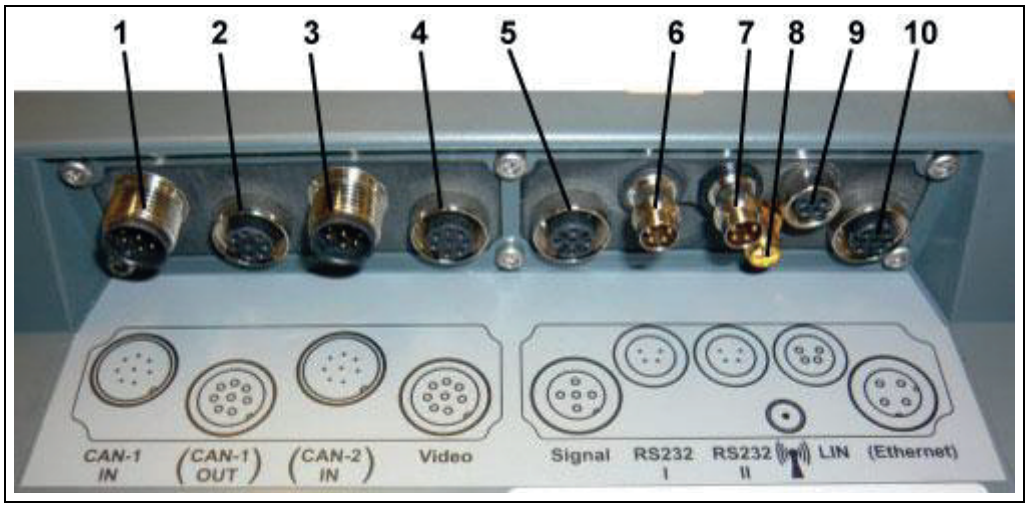
With some implements, when changing from an active implement function operations being performed will automatically switch off. For further information on this point consult the implement operating instructions.

4.3.10 Touchscreen

The terminal is equipped with a top-quality touchscreen for menu navigation and the easy input of values and texts. By touching the screen functions can be requested directly and values changed.

4.4 Interfaces

The interface bar is on the rear of the terminal. The rear is also the location for the terminal USB connection under a flap. A detailed description of the USB connection can be seen under "Creating screenshots".



1 CAN1-IN
2 CAN1-OUT
3 CAN2-IN (only CCI 200)
4 Video-IN
5 Signal (ISO 11786)
6 RS232-1
7 RS232-2
8 WLAN (only CCI 200)
9 LIN
10 ETHERNET (only CCI 200)

5 Commissioning

5.1 Mounting the terminal

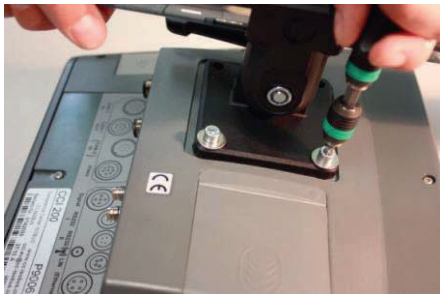
The device support for fixing the terminal to the tractor cab is included in the scope of delivery.

Proceed as follows to mount the terminal in the cab:

1. 

2. 

3. 

4. 

5. 

6. 

a. Assemble the device support (Figures 1 and 2).
b. Mount the device support to the frame and to the terminal (Figures 3 and 4).
c. Select a suitable position in the tractor cab (within the driver's field of vision) for fitting the terminal (Figures 5 and 6).
d. Secure the terminal with the device support in the tractor cab.

Note

Ensure that the screws are tightened firmly.
Secure the terminal so that it can be read and operated easily and so that it does not hinder access to the operating elements of the tractor or block the view outside.

5.2 Connecting the Terminal

5.2.1 Connecting to ISOBUS/power supply

For the connection to ISOBUS and power supply, a type A cable is necessary, which can be ordered using article number <ArtNummer InC>.

Cable type A

Proceed as follows to connect the terminal to the ISOBUS and the power supply:

1. Connect the "CAN1-IN" and "CAN1OUT" on the terminal using the type A cable to the In-cab socket of the tractor.

6 Operation

6.1 Switching on the terminal

Note

Before switching on the terminal for the first time, check that the connections on the device are properly and correctly positioned.

Switch on the terminal using the "ON/OFF" button on the casing at the bottom left.
Press the button for approx. 2 seconds.

6.2 Entering values

Values must be entered, changed or selected for the configuration and use of both the terminal and the connected ISOBUS implements.

The values are modified by using the so-called input dialogues. These dialogues are shown above the current active operating screen. After modification the input dialogue is closed and the user returns to the operating screen.

6.2.1 Buttons in Input Dialogues

By using the "OK" button, the newly set target value is accepted in all input dialogues. The previous value is overwritten.

Alternatively, the scroll wheel can be pressed to accept the new value.

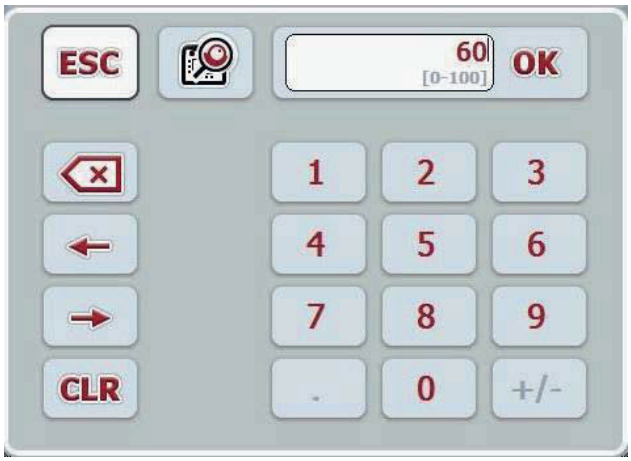
By using the "ESC" button, the input is aborted in all input dialogues. The previous value is maintained.

Alternatively, the "ESC" button can be pressed on the scroll wheel to abort the action.

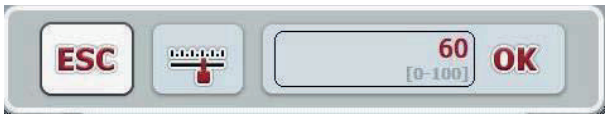
6.2.2 Entering numerical values

If a parameter is selected from an operating screen which has a numerical value, the input dialogue for numerical values appears. There are three different dialogue formats:

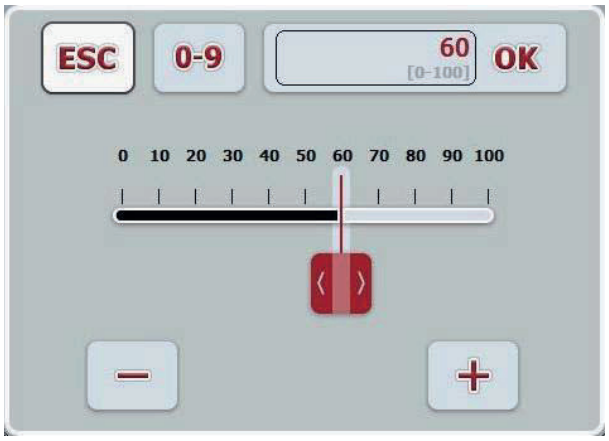
- Number block



- Scroll wheel

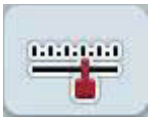


- Slider



The following buttons can be used to change between the various formats of the input dialogue for numerical values:

Change to scroll wheel format.



Change to slider format.

Change to number block format.

Proceed as follows to enter a numerical value:

1. From the operating mask select the parameter whose value has to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" button.

   The input dialogue is opened.

2. Enter the new value. The input method depends on the format of the input dialogue:

Number Block	Enter the value using the buttons in the input dialogue or by turning the scroll wheel.
Scroll wheel	Enter the value by turning the scroll wheel.
Slider	Drag the slider or press the + and - buttons until the desired value is set. Alternatively, you can enter the value by turning the scroll wheel.

3. Confirm your input with "OK" or by pressing the scroll wheel.

Note

The terminal takes note of the last format to be selected. The next time the input dialog for numerical values is requested this format is immediately selected.

Note

The input field is highlighted in red if a value is entered outside the valid value range. In this case enter another value.

6.2.3 Entering Boolean Values

A Boolean value is a value whereby it is only possible to choose between true/false, on/off, yes/no etc. If a parameter is selected in an operating screen which has a Boolean value, the corresponding input dialogue appears.

Display for false, off, no:

Display for true, on, yes:

Proceed as follows to enter a Boolean value:

1. From the operating mask select the parameter whose value has to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

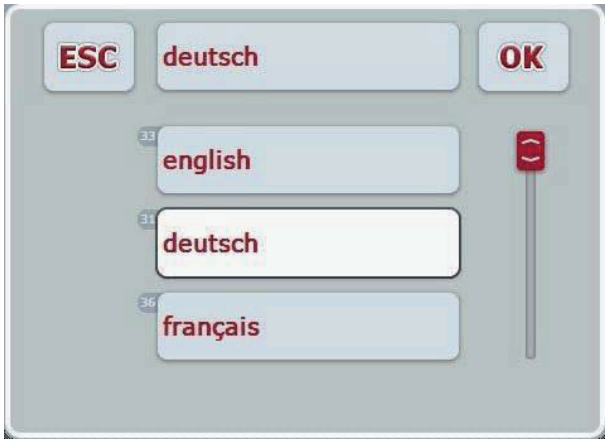
   Once the parameter is highlighted you can, alternatively, also press the "OK" button.

   The input dialogue is opened.
2. Enter the new value. Press the square with the black border in the input field.

   Alternatively you can enter the value by turning the scroll wheel.
3. Confirm your input with "OK" or by pressing the scroll wheel.

6.2.4 Selecting values from a list

For specific parameters there are lists of default values, e.g. the language setting. If such a parameter is selected from an operating screen the input dialogue for the list selection appears.



Note

You can minimise the lists displayed by pressing the input field (between**ESC** and **OK**). The input dialogue for the list selection is then shown with a minimised list.

Proceed as follows to enter a value from a list:

1. From the operating mask select the parameter whose value has to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" button.

   The list selection input dialogue is opened.
2. Select the new value. Drag the scroll bar or turn the scroll wheel until the desired value appears.

   Proceed to press on the list value field on the touchscreen or the scroll wheel to select the value.
3. Confirm your entry with "OK" or by pressing the scroll wheel.

6.3 Setting up the terminal

6.3.1 Main menu

Open the main menu:

From the **Main Menu** there is direct access to five submenus:

- **Start menu**
- **User settings**
- **Country settings**
- **System settings**
- **Info and Diagnose**

From each submenu (and their menu items) you can return to the **Main Menu** directly by pressing this button, which is located on the top screen edge.

In the following sections the submenus are described in detail. A graphic depiction of the complete menu structure can be referred to in the chapter 9.

6.3.2 Start menu

All available apps are shown in the **Start menu**. These are the apps that are enabled on the terminal, e.g. CCI.Tecu and CCI.Cam and the operating images of the connected devices.

- To call up an application, press on the operating image of the device or the app on the touchscreen.

Note

A detailed description of the settings of a connected ISOBUS implement can be referred to in the operating instructions of the relevant implement.

6.4 User settings

In the **User Settings** menu it is possible to adjust the terminal to match your personal requirements.

From each menu item you can return directly to the menu **User Settings** by pressing the button.

6.4.1 Day/Night display

Adjust the following settings in the **Display Lighting** menu item:

Brightness Day	Set the desired display brightness in the day mode. The value is given as a percentage and can be adjusted in steps of 10%. The modifications become effective after confirming and exiting the input dialogue.
Brightness Night	Set the desired display brightness in the night mode. The value is given as a percentage and can be adjusted in steps of 10%. The modifications become effective after confirming and exiting the input dialogue.
Brightness mode	Select the desired brightness mode. The settings "Day", "Night" and "Auto" are available. The changes become effective after confirming and exiting the selection list.
Lighting Threshold	Set the ON/OFF activation point for the brightness of display. The value provided by the daylight sensor is the reference variable. The illumination is activated when exceeding the ON activation point and deactivated when undershooting the OFF activation point. The values are given as a percentage and can be adjusted in steps of 10%. The modifications become effective after confirming and exiting the input dialogue.

6.4.2 Sound

In the menu item **Sound** adjust the following settings:

Beeper active	Switch the beeper ON or OFF. If the beeper is active, then you receive an acoustic acknowledgement upon touching a button in the touchscreen or one of the function keys.
Volume	Set the volume of the beeper. The value is given as a percentage and can be adjusted within the range 25% to 100%. The modifications become effective after confirming and exiting the input dialogue.

6.4.3 Application toggling

In the menu item **Application toggling** adjust the following settings:

App	Switch each of your enabled apps on or off for the toggle button. It is now possible to switch directly between the switched on apps using the toggle button.

6.4.4 Free key assignment

The selection list is accessed directly by pressing button "Free key assignment":

Assigning a free key	Select the app that you would like to access directly via the i-button.

6.4.5 Button selection by scroll wheel

You are taken directly to an input dialogue via the button "Button selection by scroll wheel":

Activating/deactivating button selection by scroll wheel	Switch button selection by scroll wheel on or off.

6.5 Country settings

All country and language-specific settings of the terminal can be made in the menu **Country settings**.

Language	All installed languages are shown on the selection list. Select the desired language.
Units	The terminal supports the following system of units: • Metric • Imperial • US

Note

When DHCP is activated all other values are set automatically.
When DHCP is deactivated you must adjust the values. Consult your network administrator in this regard.

Decimal symbol	Select the desired decimal point format.

6.6 System settings

In the menu **System Settings** it is possible to adjust the terminal to your personal requirements.

From each menu item you can return directly to the menu **System Settings** by pressing the button.

6.6.1 Date and Time

In the menu item **Date and Time** adjust the following settings:

Day	Set the current day.
Month	Set the current month.
Year	Set the current year with four digits, e.g. "2010".
Hour	Set the current hour. The time is displayed in 24h format.
Minutes	Set the current minute.
Date Format	Set the desired date format: • mmddyyyy • ddmmyyyy • yyyymmdd
Time Format	Set whether the time is to be managed and displayed in 12h or 24h format.

6.6.2 Touch Calibration

You are taken directly to the calibration view via the "Touch Calibration" button:

Touch Calibration	In order to calibrate the touchscreen, five crosses are displayed on the screen one after the other. Press as near to the centre as possible on these crosses. To finalise the calibration, and to accept the values calculated, touch any part of the screen. If you do not touch the screen within 30 seconds the calibration is aborted and the previous values will be maintained.

6.6.3 Service

Attention!
Settings in the service menu can only be adjusted by the manufacturer or their sales and services partners.
Access to the service menu is therefore password protected.

6.6.4 Interface settings

Not available in this version.

6.6.5 CAN settings

Adjust the following settings in the **CAN settings** menu item:

Primary Terminal	Activate or deactivate the primary terminal.

Note
The settings for "Primary Terminal" only have an effect when operating two or more universal terminals in a bus system. The object pool of an implement is displayed on the primary terminal by default.

Note
Always only one primary terminal may be located on the bus. If an additional primary terminal on the bus is detected by the CCI 100/200, you will receive an error message.

Location of the terminal	For the location of the terminal select either "In Cabin" or "Out of Cabin".
CAN 1 Termination	Not available in this version.

6.7 Info and diagnosis

In the menu **Info and Diagnosis** the function and status of the software and hardware components of the terminal can be checked. You receive the version information for installed apps. Basic information on the implements connected to the ISOBUS can be called up.

6.7.1 Terminal info

You can find the following information in the menu item **Terminal info**:

Software info

- Package
- Kernel
- Bootloader
- Anedo Base System
- Version number MENU
- Version number ISOVT
- Version number of the individual apps

Hardware info

- Terminal type
- Hardware version of the terminal
- Serial number
- Manufacturer ID
- Implementation level

6.7.2 Network member

You can find the following information in the menu item **Network member**:

All network members

By pressing the button of one of the network members, a view is output in which information about this member is listed:

- Manufacturer
- Device Class
- Function
- Function Instance
- Source Address

6.7.3 Storage info

You can find the following information in the menu item **Storage info**:

Flash status

Shows the capacity of the internal memory and how much of this memory is used.

USB-stick status

Shows the capacity of the plugged in USB Stick and how much of this storage is used.

6.8 Creating screenshots

The terminal offers the possibility of creating a screenshot of the currently visible operating screen. This function can be used to clarify a specific behaviour of the app that is otherwise difficult to describe in words to a service employee.

Note

Screenshots can only be created with a USB stick inserted.

To take a screenshot, proceed as follows:

1. Open the flap. To do this press on the grooved area and pull the notch at the same time.
2. Insert a USB Stick.
3. Press on the softkey until an acoustic signal sounds.
   → The screenshot is automatically saved on the USB stick.

7 Troubleshooting

7.1 Terminal errors

The following overview shows possible terminal errors and how to solve them:

Error	Possible cause	Rectification
The terminal does not switch on	• Terminal is not correctly connected	• Check ISOBUS connection
	• Ignition is not switched on.	• Start tractor.
Connected implement software is not displayed	• Bus terminator missing	• Check resistance
	• Software is loaded, however is not displayed	• Check whether the software can be manually started from the terminal start menu
	• Connection error when uploading the software	• Check physical connection • Contact the implement manufacturer's customer service

7.2 Diagnostics

7.2.1 Diagnostics functions

Not available in this version.

7.3 Error messages

The following overview shows error messages in the terminal, their possible cause and how to rectify them:

Error	Possible cause	Rectification
Tool cannot find a suitable updater file.	• USB Stick is not inserted • Update file is not available on the USB Stick	• Insert USB stick • Copy update file to the USB Stick
Process interrupted by fault.		Call service technician
Screenshot could not be created.	USB Stick is not inserted.	Insert USB stick.
Implement Objects has been rejected.	Error in the device object pool	Contact the device manufacturer
Connection to a WorkingSet was interrupted.		Call service technician.
Another VT #0 has been identified in the network. The VT cannot log on to the network.	The terminal is set as the primary terminal.	The terminal must be logged on as a secondary terminal. Under CAN settings, remove the hook next to "Primary Terminal" (see chapter 6.6.5).
Tool cannot find a suitable updater file	• USB Stick is not inserted • Update file is not available on the USB Stick	• Insert USB stick • Copy update file to the USB Stick
To activate the new settings, restart the terminal.	The terminal settings have been changed.	Switch off the terminal and then switch on again.

Note

Other error messages may be displayed on the terminal that are dependent on the implement.

A detailed description of these possible error messages and troubleshooting can be found to in the implement operating instructions.

Note

If the implement cannot be operated, check whether the stop-button is pressed. The implement cannot be operated until the switch has been released.

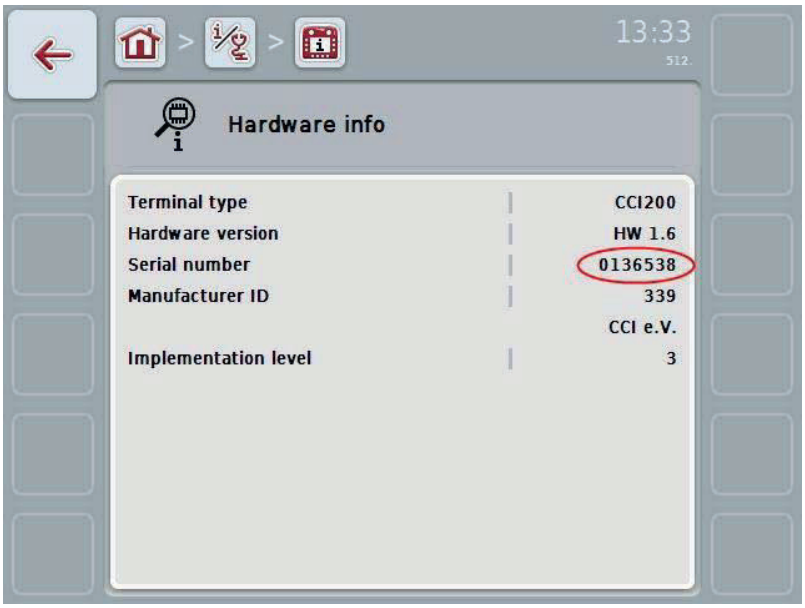
7.4 Service

Note

If ordering spare parts or contacting customer service with a query you must specify the serial number of the terminal.

To display the serial number, proceed as follows:

1. In the menu **Info and Diagnose** press the button "Terminal Info“**.**
2. Press the "Hardware info" button on the touchscreen.
   → The following information field opens:



8 Technical Information

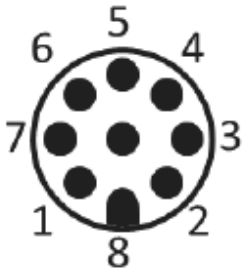
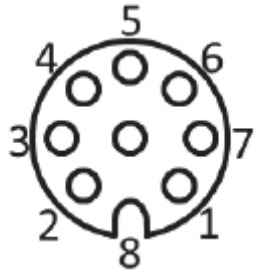
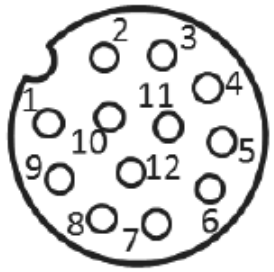
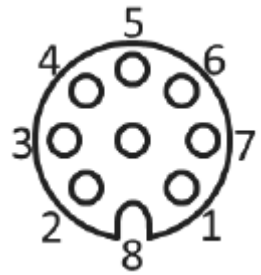
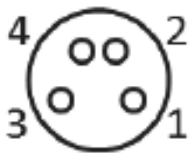
8.1 Mechanical Values

Dimensions (WxHxD) [mm]	250 x 240 x 75
Casing Type	PC-ABS multi-shell plastic casing
Fastening	80mm x 80mm flange plate with 4 x M5-threaded bush
Operating Temperature [°C]	-20 to +70
Humidity Resistance [%]	95, (+25°C...50°C)

8.2 Electronics

Rated Voltage [V] **Permitted Range [V]**	12 and 24 9...30
Electricity Consumption (at 13.5 V)	1.1 A – 1.5 A
Polarity Protection	Present
Display	8.4'' TFT
Display Resolution [px]	640 x 480

8.3 CCI 100 Interfaces

CAN1-IN	CAN 2.0B, ISO 11898-1 M12x1; 8-pin connector		1. $+U_B$ 2. EM_OFF_B 3. $+U_{ON}$ 4. EM_OFF_V 5. CAN0L 6. GND: 7. CAN0H: 8. Shielding:
CAN1-OUT	CAN 2.0B, ISO 11898-1 M12x1; 8-pin connector		1. $+U_B$: 2. EM_OFF_A 3. $+U_{ON}$ 4. EM_OFF_V 5. CAN0L 6. GND 7. CAN0H 8. Shielding
2x RS232 and signal	Async. max.115 Kbps/ Signal connector ISO 11786 M12x1, 12pol.-socket		1. $+U_{B\ SW}$ 2. GND 3. SMFQ_IN 2 4. SAN INO 5. SMFQ_IN 3 6. SMFQ_IN 4 7. SMFQ_IN 1 8. COMO_RxD_IN 9. COMO_TxD_OUT 10. IGN 11. COM1_RxD_IN 12. COM1_TxD_OUT
Video	NTSC, SECAM, Signal 1Vpp/50 M12x1; 8 pol. socket		1. VIDEO_IN 2. RS485_B 3. RS485_A 4. $+U_{B\ SW}$ 5. RS485_A 6. $+U_{B\ SW}$ 7. VGND 8. Shielding
LIN	LIN-BUS Master M8x1; 4-pin socket		1. +12V / +24V 2. TxD 3. GND 4. RxD
			1.

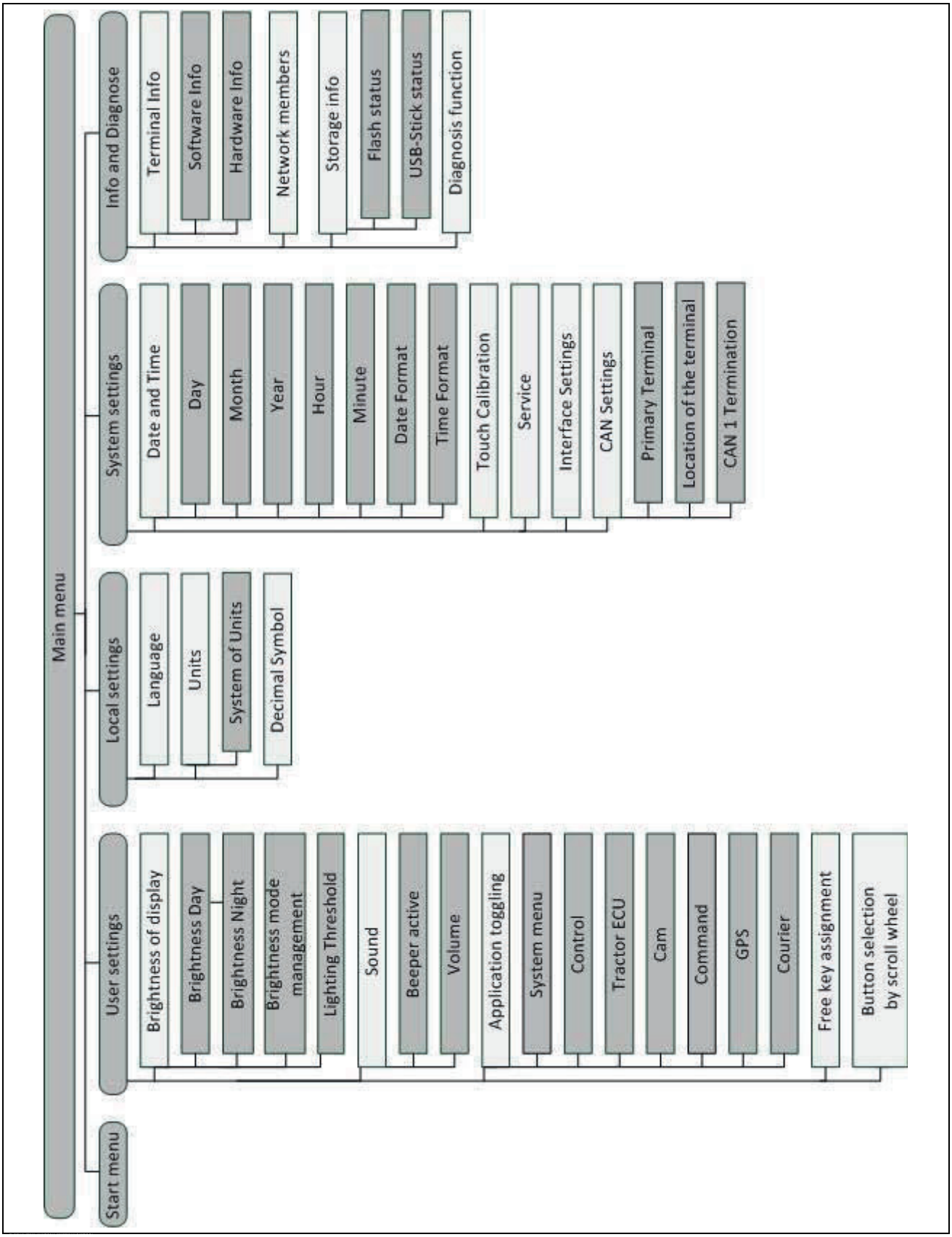
USB	USB Host 2.0		2. TX+ 3. RX+ 4. TX- 5. RX-

8.4 CCI 200 Interfaces

The CCI 200 terminal, in addition to the interfaces of the CCI 100, also has the following interfaces:

Ethernet	10/100 Base-T, IEC 61076-2-101
CAN2-IN	CAN 2.0B, ISO 11898-1 M12x1; 8-pin connector
Bluetooth	Bluetooth Spec. V2.0 + DER Compliant Class 2 Output Power, internal antenna
WLAN	54 Mbps, 2.4 GHz, IEEE 802.11b and 802.11g, WPA, WPA2, 802.1x and 802.11i, function only at 0°C – 65°C

9 Menu structure



10 Warranty and guarantee

<Company name> devices are manufactured with the utmost care and using modern production methods and are subject to numerous checks. As such <company name> provides a 12-month warranty provided the following conditions are satisfied:

The warranty begins on the data of purchase.

The warranty covers material or manufacturing defects. For external products (hydraulics, electronics) we only accept liability within the framework of the respective manufacturer's warranty. During the warranty period, manufacturing and material defects will be resolved free of charge by replacing or improving the affected parts. Other, further rights, such as claims for the conversion, reduction or replacement of damage which have not occurred to the contract item, are expressly excluded. The warranty reimbursement is performed by authorised workshops by <company name> factory representation or the factory.

- Exclusions from the warranty agreement are the consequences of natural wear, dirt, corrosion and any defects which have arisen due to improper use as well as external effects. The warranty remains void in the event of undertaking unauthorised repairs or modifications to the original condition. The claim for replacement is made void if no <company name> original spare parts were used. Please refer to the operating instructions for information. In the event of any queries contact our factory representative or the factory directly. To be valid warranty claims must be submitted to the factory at the latest 30 days after the damage has been detected. When doing so, please provide the purchase date and the implement number. Repairs to be performed as part of the warranty may only be carried out by the authorised workshop after consultation with <company name> or their official representative. The warranty period is not extended by warranty work. Transport defects are not factory defects and are not, therefore, included as part of the manufacturer's warranty conditions.
- A claim for the repair of damage which has not arisen on <company name> devices themselves is excluded. Within this context, liability for consequential damage as the result of random imperfections is also excluded. Unauthorised modifications to <company name> devices can lead to consequential damage and the supplier accepts no liability for such damage. In the event of intent or gross negligence by the owner or an executive employee, and in cases in which in accordance with product liability legislation there is liability for personal injury or material damage for privately used objects in the case of defects in the contract item, the supplier's liability exclusion is not applicable. This liability exclusion shall not apply either in cases where properties, which were explicitly warranted, are lacking, especially when this commitment was made in order to protect the customer against damage which did not occur on the subject of the delivery itself.

11 Contact Addresses

Amazonen-Werke H. Dreyer GmbH & Co. KG
Am Amazonenwerk 9-13
D-49205 Hasbergen
Tel: + 49 (0)5405 501 0
www.amazone.de

Maschinenfabrik Bernard KRONE GmbH
Heinrich-Krone-Straße 10
D-48480 Spelle
Tel: +49 (0)5977 935 0
www.krone.de/de/ldm/

Grimme Landmaschinenfabrikg GmbH & Co. KG
Hunteburger Str. 32
D-49401 Damme
Tel: +49 (0)5491 666 0
www.grimme.de

RAUCH Landmaschinenfabrik GmbH
Landstraße 14
D-76547 Sinzheim
Tel: +49 (0)7221 985 200
www.rauch.de

KUHN S.A.
BP 50060
F-67706 Saverne CEDEX
Tel: +33 (0)3 88 01 81 01
www.kuhn.com

Alois Pöttinger Maschinenfabrik Ges.m.b.H
Industriegelände 1
A-4710 Grieskirchen
+43 (0)7248 6 00 0
www.poettinger.at

LEMKEN GmbH & Co. KG
Weseler Straße 5
D-46519 Alpen
Tel: +49 (0)2801 81 0
www.lemken.com

Ludwig Bergmann GmbH
Hauptstraße 64-66
D-49424 Goldenstedt
+49 (0)4444 2008 0
www.bergmann-goldenstedt.de

12 Glossary

ACK	Acknowledge
Operating mask	The operating mask is comprised of the values and operating elements shown on the screen. The touchscreen can be used to directly select the elements shown.
Boolean value	A Boolean value is a value whereby it is only possible to choose between true/false, on/off, yes/no etc.
Bus system	Electronic system for communication between control devices.
CAN	**C**ontroller **A**rea **N**etwork
CCI	**C**ompetence **C**enter **I**SOBUS e.V.
DHCP	**D**ynamic **H**ost **C**onfiguration **P**rotocol: This enables assigning the network configuration to Clients using a server.
ESC	Escape = exit, here: cancel/interrupt a function
Failed	Failed
In-cab	From the standard ISO 11783. Describes the nine-pole ISOBUS plug in the cab.
ISO 11783	International standard Specifies interfaces and data formats for tractors and implements.
ISOBUS	ISO11783 International standard for data transfer between farming implements and devices.
Cable (type A)	Connects the "CAN1-IN" and "CAN1-OUT" on the terminal to the In-cab socket of the tractor.
LAN	**L**ocal **A**rea **N**etwork, local network
Network member	A device that is connected to the bus and communicates via this system.
Object pool	Data record that is transferred from the ISOBUS implement to the terminal and contains the individual operating masks.
Interface	Part of the terminal which is used to communicate with other devices.
Signal connector	7-pin outlet based on the ISO 11786 standard, at which signals for speed, PTO speed and 3-point position can be read.
Succeeded	Successfully completed
Terminal	CCI 100 or CCI 200 ISOBUS Terminal
Touchscreen	Touch-sensitive screen which is used to operate the terminal.
Tractor ECU	Also TECU. On an ISOBUS tractor, the TECU establishes the connection between the tractor bus system and the ISOBUS and thus provides the implement with the tractor information such as the driving speed or the PTO speed.
USB	**U**niversal **S**erial **B**us: Serial bus system to connect the terminal to a storage medium.

13 Index

CCI.Cam

Visual implement monitoring

Operating Instructions

Reference: CCI.Cam v3

CCISOBUS

1 Introduction

1.1 About these operating instructions

These operating instructions are intended as an introduction to the operation and configuration of the CCI.Cam app. This app is preinstalled on your ISOBUS terminal CCI 100/200 and can only be run from there. It is only with knowledge of these operating instructions that accidental misuse can be avoided and fault-free operation ensured.

These operating instructions must be read and understood to prevent problems during operation.

1.2 Reference

These operating instructions describe the CCI.Cam Version CCI.Cam v3.

To query the version number of the CCI.Cam installed on your terminal proceed as follows:

1. Press the home key to enter the main menu.
2. Press the "Info Diagnose" button in the main menu.
3. In the menu **Info and Diagnose** press the button "Terminal Info".
4. Press the "Software info" button on the touchscreen.
   → The version of the terminal software component is indicated In the information field that is now displayed.

1.3 About CCI.Cam

CCI.Cam is used for visual implement monitoring by video camera. The app allows the worker to keep an overview of his implement with up to 8 cameras and supports the worker during complex working procedures.

Enhanced functions such as cyclical camera switching and flexible configuration of the camera connections facilitates day-to-day working. The snapshot function allows photos to be taken and stored on a USB stick.

2 Safety

2.1 Identification of indications in the operating instructions

The safety indications in these operating instructions are specially identified:

Caution - General Hazards!

This occupational safety symbol identifies general safety indications the non-observance of which poses a danger for life and limb. Carefully observe the indications regarding occupational safety and exert particular caution in these cases.

Attention!

This attention symbol identifies all safety indications which refer to regulations, directives or working procedures which it is essential to observe. Non-observance can entail damage to, or the destruction of, the terminal as well as malfunctions.

Note

The note symbol highlights operation tips and other particularly useful information.

3 Commissioning

3.1 Mounting the terminal

For information about installing the terminal, please refer to the chapter **4.1 Mounting the terminal** in the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2 Connecting the Terminal

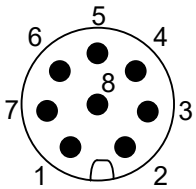
3.2.1 Connecting to ISOBUS/power supply

Please refer to the information in the chapter **5.2.1 Connecting to ISOBUS/power supply** of the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.3 Connecting to a camera

A camera can be directly connected to the terminal via the "Video" interface.

Camera connection



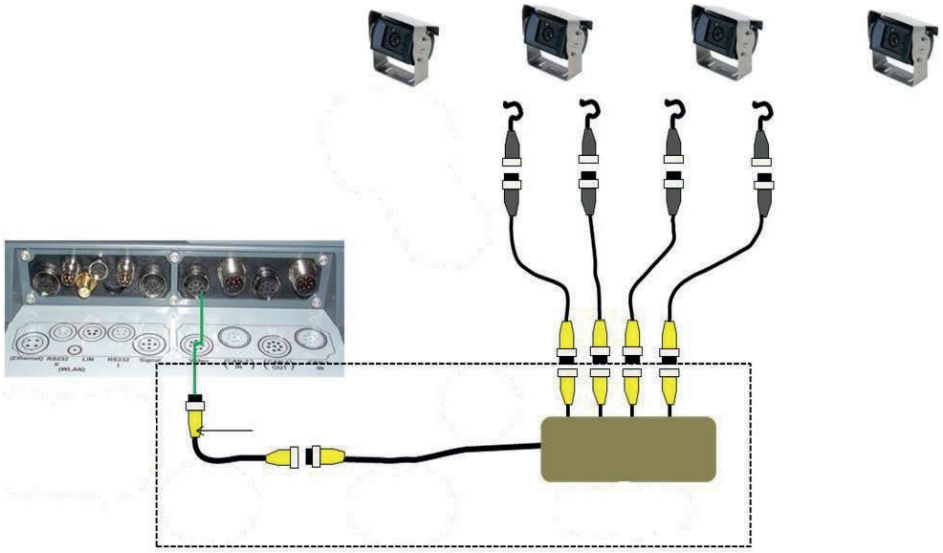
The connection of the camera to the terminal occurs via the "Video" interface.

Refer to the following set-up for the pin layout:

1. Video signal
2. RS485B
3. RS485A
4. +12V / +24 V
5. Mini Out
6. +12V / +24 V
7. GND
8. Shield

3.4 Connecting to multiple cameras

Multiple cameras can be connected to the terminal using the multiplexer <Art Nr. Multiplexer>. If more than three cameras are connected to the terminal via the multiplexer, the multiplexer requires an external voltage supply.



Multiplexer connection

The multiplexer is connected to the terminal analogously to a camera connection via the "Video" interface (compare chapter 3.3).

3.5 Installing the software

CCI.Cam is included in the scope of delivery of the CCI ISOBUS terminal, i.e. installation is neither possible nor required.

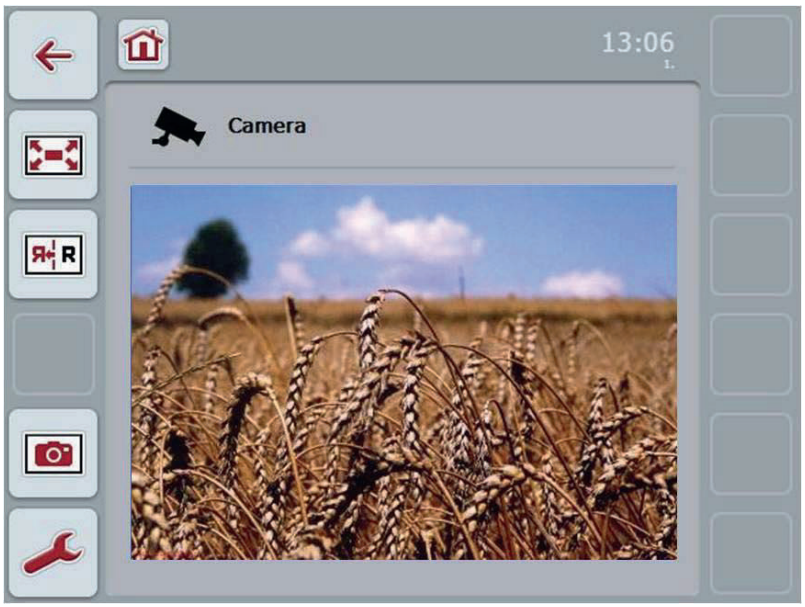
4 Operation

4.1 Program start

CCI.Cam is activated automatically by switching on the terminal.

In order to change the main view of the CCI.Cam, proceed as follows:

1. Open the start menu in the main menu of the terminal and press on the button with the CCI.Cam-Symbol.



CCI.Cam is divided into four areas:

4.1.1 Main view (one camera)

Shows the camera image of the only connected camera.

4.1.2 Main view (multiple cameras)

Shows the camera image of one of the connected cameras.

Facilitates switching between the images from different cameras.

4.1.3 Settings

Switch to assignment.

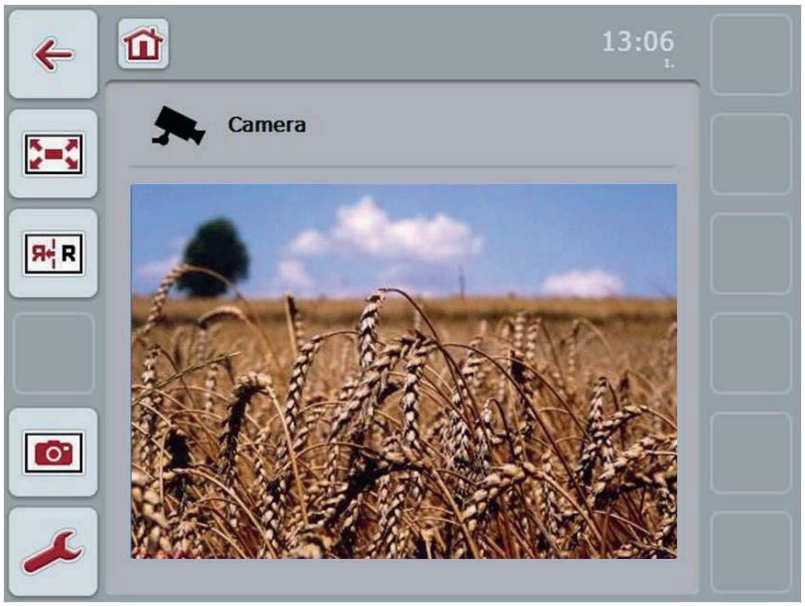
Setting the time interval.

4.1.4 Assignment

Assignment of cameras and quick-select buttons.

4.2 Main view (one camera)

This is the main view if only one camera is connected to the terminal. The image from this camera is displayed in the main view.



You have the following operating options:


Select full-screen mode


Mirror image


Take a snapshot


Switch to the settings:
Press the "Settings" button (F12) on the touchscreen.

Note

The operating options in the **Settings** menu item have no effect when only one camera is connected.

4.2.1 Select full-screen mode

To select the full-screen mode, proceed as follows:

1. In the touch screen, press the "Full-screen mode" button (F8), on press the scroll wheel or in the touchscreen touch directly on the display of the camera images.
   → The view changes immediately to full-screen mode, the camera image takes up the entire monitor area.

Note

In full-screen mode, the "Mirror image" (F9) and "Snapshot" (F11) functions are only available via the corresponding function buttons.

Note

To exit the full-screen mode, touch any area in the touchscreen or press the F8 function key or the scroll wheel.

4.2.2 Mirror image

To mirror the image along the vertical axis, proceed as follows:

1. Press the "Mirror image" button (F9) on the touchscreen.

4.2.3 Take a snapshot

To take a snapshot, proceed as follows:

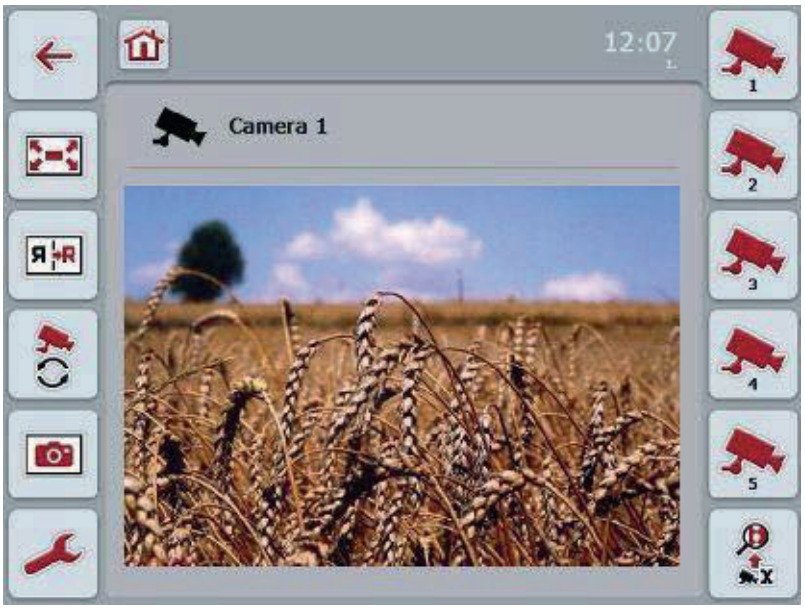
1. Connect a USB stick to the terminal.
2. Press the "Take a Snapshot" button (F11) on the touchscreen.

Note

The snapshot will be automatically saved to the USB stick in the "CAMCAP" folder. The filenames follow the convention <img>_<JJJJ_MM_TT>_<consecutive number>JPEG.

4.3 Main view (multiple cameras)

This is the main view when multiple cameras are connected to the terminal. The images from the selected cameras are displayed in the main view.



You have the following operating options:


Select full-screen mode (see chapter 4.2.1)


Mirror image (see chapter 4.2.2)


Create a snapshot (see chapter 4.2.3)


Switch to the settings (see chapter 4.4)


Switch automatic camera switching on or off


Display camera image


Display additional cameras

4.3.1 Switch automatic camera switching on or off

If you do not want to change the display of the camera images manually, you can switch on automatic camera switching. The display will then automatically switch to the different camera images at regular intervals.

To switch the automatic camera switching on or off, proceed as follows:

1. Press the "Switch on automatic camera switching" button (F10) on the touchscreen or "Switch off automatic camera switching" (F10) if this is already switched on.

Note

You can change or set the interval for the camera images (see chapter 4.4.1).

4.3.2 Display camera image

To display the image from a specific camera, proceed

as follows:

1. Press the button with the desired camera on the touchscreen.
   → The display switches to the image from this camera.

4.3.3 Display additional cameras

Note

The button with this function only appears if there are more than five cameras connected.

To display additional cameras, proceed as follows:

1. Press the "Display Additional Cameras" button (F6) on the touchscreen.
   → The additional cameras are displayed on the buttons (F3 – F5).

Note

The "Camera 1" (F1) and "Camera 2" (F2) buttons are always displayed. These buttons are the quick-select buttons for the images of the two most important cameras.

4.4 Settings

Use the "Settings" (F12) button in the main view to get to the **Settings** submenu.

You have the following operating options:

Switch to Camera Assignment:
Press the "Camera Assignment" button on the touch screen.
You can find more detailed information about the camera assignment in chapter 4.5.

Enter time interval

Reset settings

4.4.1 Enter time interval

To enter the time interval for the automatic camera switching, proceed as follows:

1. Press the "Time interval" button on the touch screen or turn the scroll wheel or press the "Up" (F4) and "Down" (F5) buttons until the name is highlighted in white and then press the scroll wheel or "OK" (F6) on the touchscreen.
2. Enter the new value for the time interval on the touchscreen using the digit field or the slider.
3. Confirm your input with "OK".

Note

Values between 1 and 10 seconds are valid for the time interval value range.

4.4.2 Reset settings

To reset the settings for the time interval, proceed as follows:

1. Press the "Reset" button (F1) on the touchscreen.
   → The time interval is immediately reset to factory settings, there is no warning message.

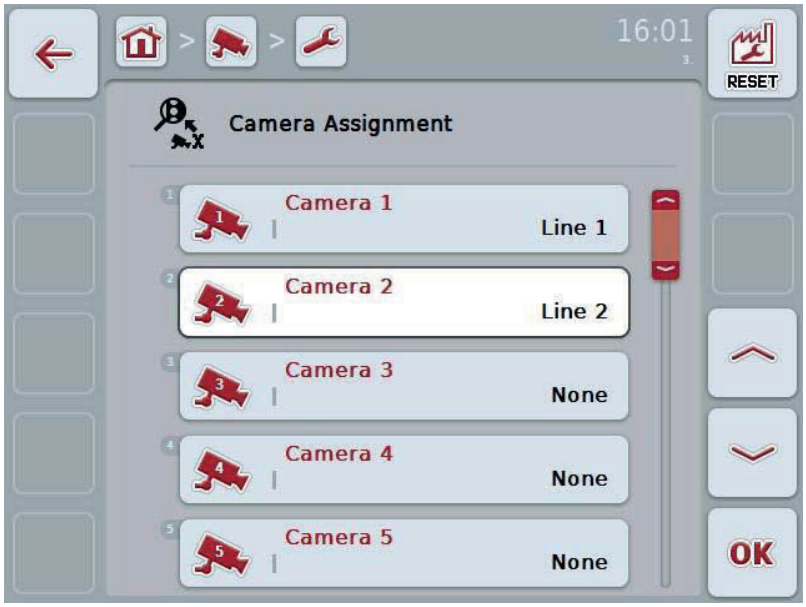
Note

The factory setting for the time interval is 2 seconds.

4.5 Camera assignment

You can access the **Camera Assignment** menu item via the "Assignment" button in the **Settings** submenu. Here a list of 8 quick-select buttons "Camera 1-8" and the "Connection 1-8" cameras assigned via the multiplexer connection are displayed.

This submenu facilitates the flexible assignment of cameras to the quick-select buttons independently of the connection assignment on the multiplexer. This makes it possible to set the two most important cameras to the quick-select buttons "Camera 1" and "Camera 2" which are always displayed without having to modify the connection on the multiplexer. In addition, the automatic camera switching of the camera sequence set here follows automatically.



You have the following operating options:

Assign camera

Reset assignment

4.5.1.1 Assign camera

To assign a quick-select button to a multiplexer connection, proceed as follows:

1. Press on one of the "Camera 1-8" buttons on the touchscreen or turn the scroll wheel until the desired button is highlighted in white and then press on the scroll wheel.

   Once the button is highlighted you can, alternatively, also press the "OK" (F6) button.

   → A list of the available connections is opened.
2. Select a connection from the list. Press the button with the number of the connection.
3. Confirm your selection with "OK" or press on the button with the connection number again.

4.5.1.2 Reset assignment

To reset the assignment of the cameras, proceed as follows:

1. Press the "Reset" button (F1) on the touchscreen.

   → The assignments are reset immediately, there is no warning message.

Note

The assignment of the camera whose image is currently being displayed cannot be reset.

5 Troubleshooting

5.1 Terminal errors

The following overview shows possible terminal errors and how to solve them:

Error	Possible cause	Rectification
The terminal does not switch on	• Terminal is not correctly connected	• Check ISOBUS connection
	• Ignition is not switched on.	• Start tractor.
The software of the connected implement is not displayed	• Bus terminator missing	• Check resistance
	• Software is loaded, however is not displayed	• Check whether the software can be manually started from the terminal start menu
	• Connection error when uploading the software	• Check physical connection • Contact the implement manufacturer's customer service

5.2 Error messages

The following overview shows error messages in CCI.Cam, their possible cause and how to rectify them:

Error	Possible cause	Rectification
Video Multiplexer could not be initialized.	Error at the cable connection	Check cable connection, Restart terminal.
The required video source could not be opened. (202)	Connection to the camera lost/broken.	Check cable connection, Restart terminal.
The required camera could not be mirrored.	Mirroring is not supported by the camera (only occurs when using the multiplexer).	Use a camera whose hardware supports mirroring.
Error when creating the screenshot. Please check whether a USB stick has been plugged in.	No USB stick plugged in.	Plug in USB stick.

Note

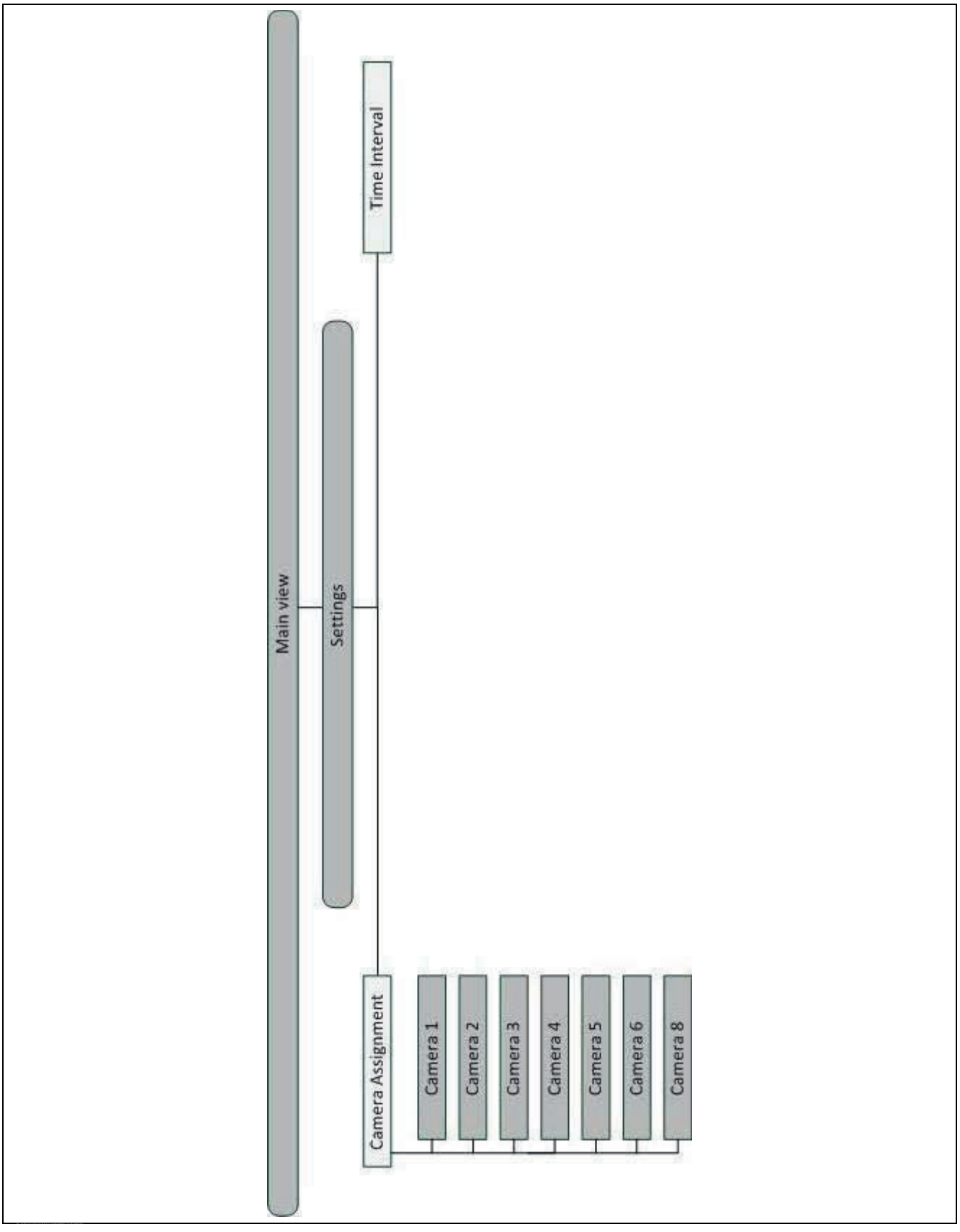
Other error messages may be displayed on the terminal that are dependent on the implement.

A detailed description of these possible error messages and troubleshooting can be found in the implement operating instructions.

Note

If the implement cannot be operated, check whether the "stop switch" is pressed in. The implement cannot be operated until the switch has been released.

6 Menu structure



7 Glossary

Operating mask	The operating mask is comprised of the values and operating elements shown on the screen. The touchscreen can be used to directly select the elements shown.
CCI	**C**ompetence **C**enter **I**SOBUS e.V.
CCI.Cam	Visual implement monitoring
ISOBUS	Data bus for a regional or municipal technical application which is in compliance with the standard ISO 11783.
Multiplexer	Device for switching between video signals which facilitates operating multiple cameras over one video input.
Snapshot	Records the currently displayed image
Terminal	CCI 100 or CCI 200 ISOBUS Terminal
Touchscreen	Touch-sensitive screen which is used to operate the terminal.
Full-screen mode	The camera image fills the entire screen.
Cyclical camera switching	Automatic switching from one camera to the next.

8 Buttons and icons


CCI.Cam


Snapshot


Automatic camera switching


Display camera image


Time interval

Reset


Full-screen mode


Mirror image


Settings


Display additional cameras


Camera assignment


Select from a list

9 Index

CCI.Control

Documentation and task management

Operating Instructions

Reference: CCI.Control v3.0

TC-GEO

CCISOBUS

1 Introduction

1.1 About these operating instructions

These operating instructions are intended as an introduction to the operation and configuration of the CCI.Control app. This app is preinstalled on your ISOBUS terminal CCI 100/200 and can only be run from there. It is only with knowledge of these operating instructions that accidental misuse can be avoided and fault-free operation ensured.

These operating instructions must be read and understood particularly prior to processing of tasks using the software, to prevent problems during operation.

1.2 Reference

These operating instructions describe the CCI.Control Version CCI.Control v3.0.

In order to query the version number of the CCI.Control installed on your CCI ISOBUS terminal, proceed as follows:

1. Press the home key to enter the main menu.
2. Press the "Info Diagnose" button in the main menu.
3. In the menu **Info and Diagnose** press the button "Terminal Info".
4. Press the "Software info" button on the touchscreen.
   → The version of the terminal software component is indicated In the information field that is now displayed.

1.3 About CCI.Control

1.3.1 Components

CCI.Control is used for documentation and task management:

Data interface	The XML format used for data exchange is ISOBUS compatible. Data are transferred using a USB stick or online via the GSM interface.
Implement interface	Process data capture and implement control take place via the ISOBUS. The job computer for the implement must therefore be equipped with Task Controller software.

1.3.2 Section-specific processing

If a GPS receiver is connected section-specific processing can be automated. Tasks planned on the PC using application maps can be processed in this way and documented with position information.

1.3.3 Standalone mode

In the most simple case, CCI.Control can be operated without task data and without the ISOBUS implement.

Master data (worker, farm etc.) and task are added directly to the terminal and the CCI.Control is only used for task data capture. The time and duration of the measure, the master data allocated to the task and, if a GPS antenna is available, the lane are captured.

1.3.4 Operation with implement

1.3.4.1 ISOBUS enabled

Most modern ISOBUS implements are able to provide the CCI.Control with a series of process data.

Process data refers to the following:

a) Implement-specific information

b) Measure-specific information (application data + yield data)

When operating using an ISOBUS implement the master data (worker, farm etc.) and task are added directly to the terminal and the CCI.Control is only used for task and process data capture.

When operating without an FMIS, only the counters of the connected ISOBUS implements are read and written in the task. This occurs when pausing and finishing a task. The process data made available in the counters depends on the implement and is stipulated by the implement manufacturer.

1.3.4.2 Not ISOBUS enabled

When operating using an attachable implement, which is not ISOBUS enabled, add the master data (worker, farm etc.) and task directly to the terminal and use the CCI.Control for task data capture.

1.3.5 Operation with an FMIS

This is the recommended operating mode.

CCI.Control takes over the exchange of task and process data between farm PC, terminal and implement. The XML format used for data exchange is ISOBUS compatible. It can be provided or processed by the relevant farming software companies.

You create a task data file on the PC in XML format which contains both master and task data. The data is read in using the import function from CCI.Control.

All task-specific information is summarised under task data:

- Who?
- Where?
- What?
- When?
- How?

When planning a task on the PC it is possible to stipulate which implement process data are to be recorded. It is, however, also possible to process a standard set of process data specified by the manufacturer. In general, any value available on the implement can be requested and written with time and position information.

In addition, ISOBUS implements can react to instructions from CCI.Control. The ISOBUS implement sends a device description (DDD) to CCI.Control. CCI.Control uses this information to identify the functionality of the ISOBUS implement. Based on the application maps created on the PC, CCI.Control is thus able to control the ISOBUS implement according to position.

CCI.Control facilitates the input of new tasks or customers during the work in the field. The new master data are automatically imported and supplemented in the farming software.

After a task has been finished it can be exported to a USB stick and transferred to the PC or transferred via the GSM interface. The task data now include the counter readings of the connected implements, as well as the process data requested during the planning of the task. On the basis of the data gained subsequent tasks can be planned with greater precision. Moreover, the data make it easier to document and invoice the work performed.

1.3.6 Examples

Example 1:

During the harvest a yield mapping was created. Based on this, a fertilisation plan is drawn up on the PC. The FMIS creates a task from recommended fertiliser and position data taking into consideration the functions of the implement. This is filed on a storage medium and transferred to the worker who then displays the data on the CCI.Control. The worker now only has to drive over the field. The CCI.Control uses the task and the current position information to control the artificial fertiliser spreading via the ISOBUS. The section-specific fertiliser volumes are automatically set using the application map created on the PC.

Example 2:

An easier case would be if the CCI.Control were to document, for example, the bale number for a press. This information, as well as the recorded position information, can be given to the customer in an invoice.

	FMIS not available		**FMIS available**	
	Implement not ISOBUS enabled	**Implement ISOBUS enabled**	**Implement not ISOBUS enabled**	**Implement ISOBUS enabled**
Logging of times	●	●	●	●
Logging of positions	●*	●*	●*	●*
Logging of counters	-	●	-	●
Logging of process data	-	-	-	●
Automatic control of the implement	-	-	-	●*

* with connected GPS receiver ● Function available - Function not available

2 Safety

2.1 Identification of indications in the operating instructions

The safety indications in these operating instructions are specially identified:

Warning - General Hazards!

This occupational safety symbol identifies general safety indications the non-observance of which poses a danger for life and limb. Carefully observe the indications regarding occupational safety and exert particular caution in these cases.

Attention!

This attention symbol identifies all safety indications which refer to regulations, directives or working procedures which it is essential to observe. Non-observance can entail damage to, or the destruction of, the terminal as well as malfunctions.

Note

The note symbol highlights operation tips and other particularly useful information.

3 Commissioning

3.1 Mounting the terminal

For information, please refer to the chapter **5.1 Mounting the terminal** in the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2 Connecting the Terminal

3.2.1 Connecting to ISOBUS/power supply

Please refer to the information in the chapter **5.2.1 Connecting to ISOBUS/power supply** of the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2.2 Connecting to a GPS receiver

The use of a GPS receiver is required in order to process a section-specific task.

For information, please refer to chapter **3.2.2 Connecting to a GPS receiver** in the **CCI.GPS** operating instructions.

3.2.3 Connecting to a GSM modem

As an alternative to importing and exporting task data using a USB stick, the CCI.Control offers the option of using a mobile communications interface for online data transfer.

A GSM modem is required for this and can be ordered using the article number <ArtNummer GSM>.

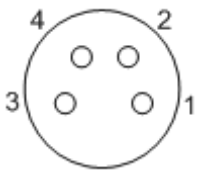
Proceed as follows to connect the GSM modem with the terminal:

1. Connect the GSM modem to the "RS232-2" serial interface.

Note

The setting of the "RS232-2" serial interface of the terminal is factory set as follows: 115200 Baud, 8N1.

GSM modem connection



Connection of the GSM modem to the terminal occurs via the R232-1 serial interface.

Refer to the following set-up for the pin layout:

1. +12V / +24V
2. TxD
3. GND
4. RxD

3.3 Installing the software

CCI.Control is included in the scope of delivery of the CCI ISOBUS terminal, i.e. installation is neither possible nor required.

In order to be able to operate the software installed ex works a licence must be acquired:

As an option when purchasing the terminal	The software is enabled ex works and can be used immediately.
Upgrade	In the event of licensing at a later date the software is activated by our service partners.

Note

If you own a licensed version of the CCI.Control the CCI.Control icon is visible in the start menu of your terminal.

3.4 Operating modes

3.4.1 Standalone mode:

To place CCI.Control into operation, proceed as follows:

1. Switch on the terminal.
2. Start CCI.Control.
3. Add a new task (see chapter 4.3.2.1).
4. Start the task (see chapter 4.3.3.1).
5. Exit the task after completion (see chapter 4.3.3.1).
6. Print out the task report if required.

3.4.2 Recommended operating mode with GPS receiver, ISOBUS implement and FMIS

To place CCI.Control into operation, proceed as follows:

1. Plan your tasks using an FMIS.
2. Export the task data as ISO-XML on a USB stick.
3. Connect an ISOBUS implement to the tractor.
4. Connect the GPS receiver to the tractor.
5. Switch on the terminal.
6. Connect the USB stick to the terminal.
7. Start CCI.Control (see chapter 4.2).
8. Import the task data (see chapter 4.4).
9. Select the desired task (see chapter 4.3.2.2).
10. Start the task (see chapter 4.3.3.1).
11. Exit the task after completion (see chapter 4.3.3.1).
12. Print out the task report if required.
13. Export the task data to the USB stick (see chapter 4.5).
14. Import the compiled data to the FMIS and analyse it.

4 Operation

4.1 General instructions

4.1.1 Input fields

The length of the input fields for text is limited to 32 characters.

Only the e-mail address can have 64 characters.

Numerical input fields are limited to 10 (e.g. the postal code) or 20 characters (e.g. phone number).

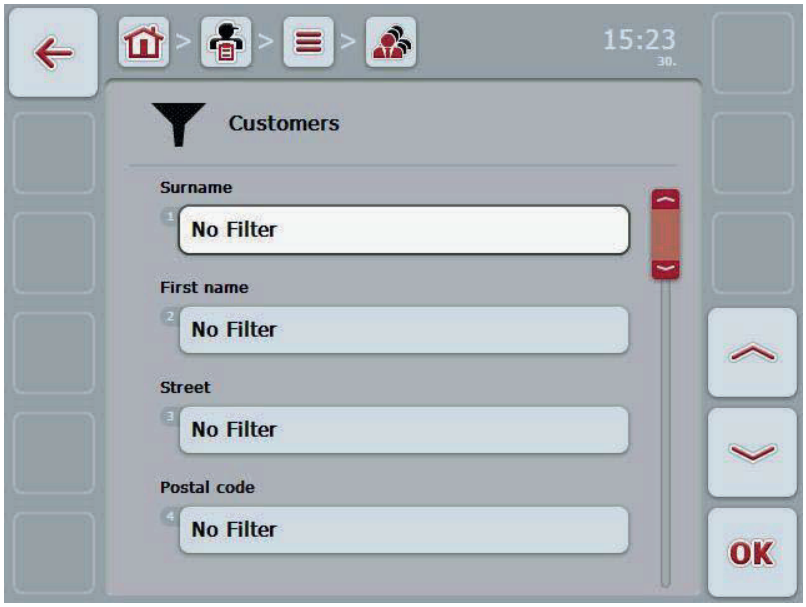
Note

If the permitted length is exceeded the input dialogue changes colour and further keystrokes are ignored.
Delete the surplus characters and repeat the input.

4.1.2 Filter

To filter a list of stored entries, proceed as follows:

1. Press the "Filter" button (F2) on the touchscreen.
   → The following operating mask opens:



2. Select the list filter criteria. To do so, on the touchscreen press on the button with the specification or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → The following selection list opens

3. Select the desired specification from the list. To do so, on the touchscreen press on the button with this specification or turn the scroll wheel until the button is highlighted in white.
   → The selection appears in the selection window.
4. Confirm the selection with "OK" or press the scroll wheel or press the button again with the desired specification.
   → This will take you to the operating mask again. To filter the list according to additional criteria, proceed again as described above.

Note

Once you have selected a criterion, a list will appear with further filter criteria which you can select.

4.1.3 Reset filter

To reset the filter setting, proceed as follows:

1. Press the "Reset" button (F3) on the touchscreen.

Note

The filter will be reset immediately without additional query.

4.1.4 Sort

To sort a saved list from A-Z or from Z-A, proceed as follows:

1. Press the "A-Z" or "Z-A" (F1) button on the touchscreen.

Note

The direction of sorting that will be used when the button is pressed is displayed on the button.

4.2 Program start

CCI.Control is started automatically by switching on the terminal. There is direct access to all functions via the start screen.

To switch to the CCI.Control start screen, proceed as follows:

1. Open the start menu in the main menu of the terminal and press on the touchscreen button with the CCI.Control-Symbol.

CCI.Control is subdivided into 5 areas:

4.2.1 Tasks

Task processing (Chapter 4.3).

4.2.2 Database

Input or modification of master data. If you plan and control your tasks using an FMIS file the master data are imported along with the task data. In general, the master data do not, therefore, have to be entered manually. You can, however, change or supplement these data in the CCI.Control and then by exporting return the task data to the FMIS.

4.2.3 Import task data

Change to the operating mask for data import. The imported data usually contain master and task data. The import is either executed from the USB stick or the internal memory or via one of the supported cell mobile radio interfaces.

Attention!
When importing, all task and master data are deleted.

4.2.4 Export task data

The export is either executed from a connected USB stick or the internal memory or via one of the supported cell mobile radio interfaces. In doing so, the master and task data as well as the accepted process and implement data are exported.

4.2.5 Settings

Switching Auto-Logging on or off.

4.2.6 Database

The master data are requested via the **Database** menu item.
All data and information in relation to the task is summarised in the database:

- Customers
- Farms
- Fields
- Workers
- Implements
- Products
- Measures
- Crop types
- Crop varieties

4.2.7 Customer

Under the menu item **Customer** is a list of the stored customers.

Note

A customer is usually the owner or tenant of the farm on which the task is executed.
A customer can be referred to from a task, a farm and a field.

Customer data include

- **Surname**,
- First name,
- Address,
- Postal code,
- Town,
- Phone number,
- Mobile phone number.

Note

Information in bold print is for **compulsory fields**, the others are optional.

You have the following operating options:


Add customers


Edit/Show customers


Copy customers


Delete customers

4.2.7.1 Add new customers

To add a new customer proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:

2. In the operating mask, select all parameters one after the other. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the new value on the touchscreen using the keypad.
4. Confirm your entry with "OK".

4.2.7.2 Edit/Show customers

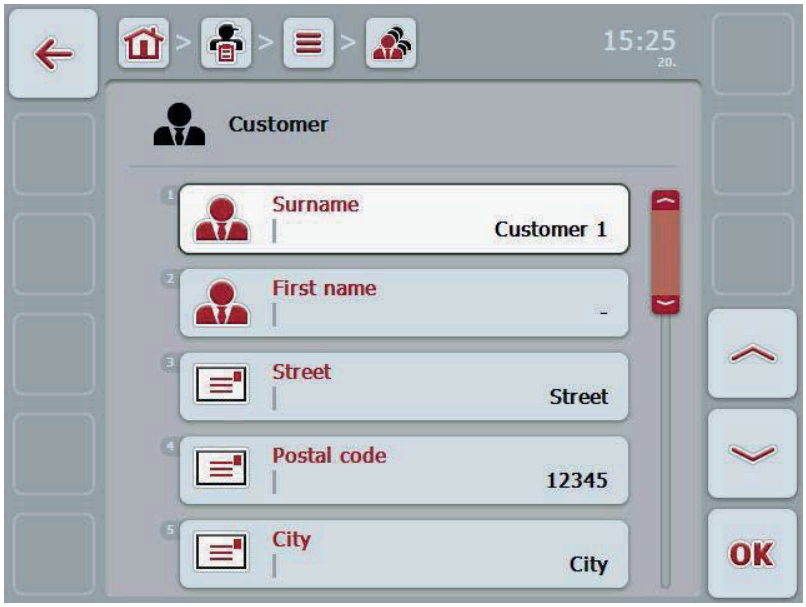
In order to edit/show a stored customer, proceed as follows:

1. In the customer list select the customer whose information is to be changed/displayed. To do so, on the touchscreen press on the button with the customer designator or turn the scroll wheel until the customer is highlighted in white and then press on the scroll wheel.

   Once the customer is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:



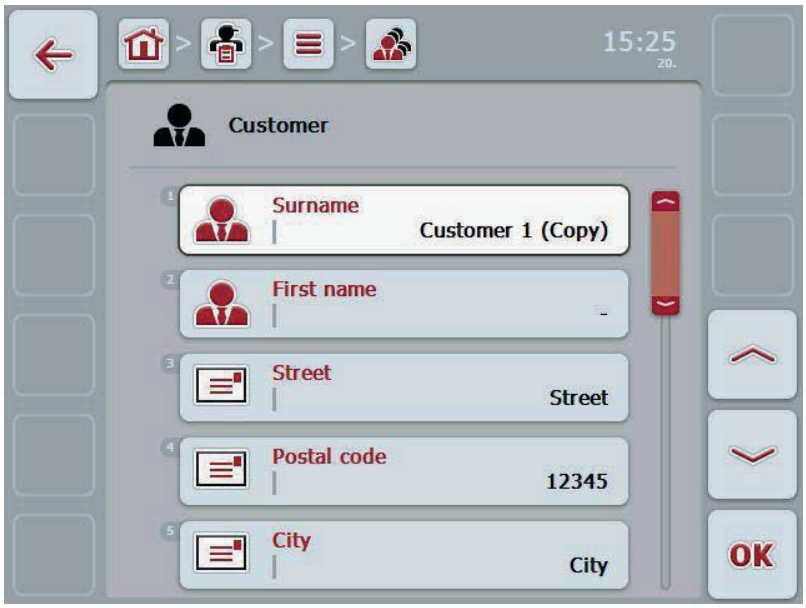
3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.7.3 Copy customers

Proceed as follows to copy a customer:

1. In the customer list select the customer to be copied. To do so, on the touchscreen press on the button of the customer or turn the scroll wheel until the customer is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → The following operating mask opens:



Note

The copy is identified by "(Copy)" after the name of the customer.

4.2.7.4 Delete customers

To delete a customer proceed as follows:

1. In the customer list, select the customer to be deleted. To do so, on the touchscreen press on the button of the customer or turn the scroll wheel until the customer is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

Note

A customer can only be deleted if not being used in a task, farm or field.

4.2.8 Farms

There is a list of the stored farms under the menu item **Farms**.

Note

The farm refers to a customer's property. All the fields owned by the customer comprise the farm. A customer can have several farms.
A farm can be referred to from a task and a field.

The farm data are comprised of

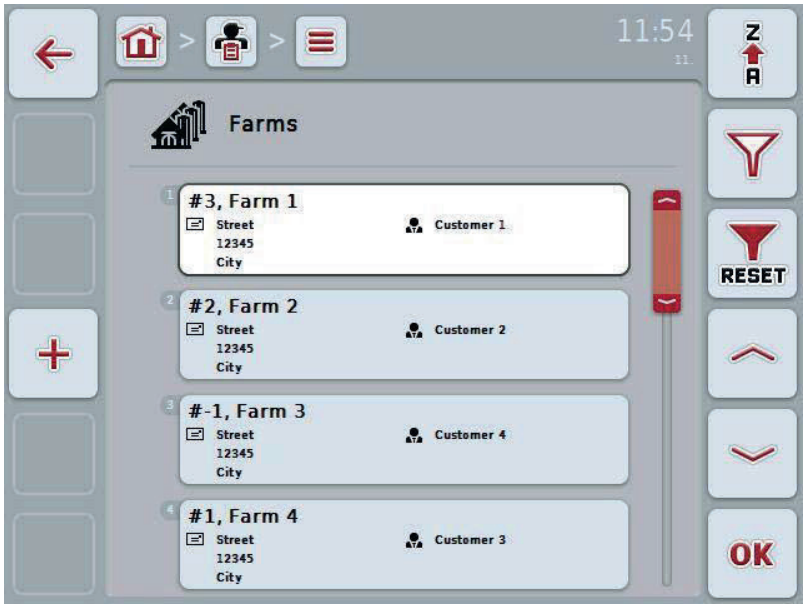
- **Farm designator**,
- Address,
- Postal code,
- Town,
- Customer.

Note

Information in bold print is for **compulsory fields**, the others are optional.

Note

The allocation between the farm and the customer is carried out via the customer field. The customer is usually also the farm owner.



You have the following operating options:


Add farm


Edit/Show farm


Copy farm

Delete farm

4.2.8.1 Add new farm

To add a new farm proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:

2. In the operating mask, select all parameters one after the other. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the new value on the touchscreen using the keypad.
4. Confirm your entry with "OK".

4.2.8.2 Edit/Show farm

To edit/show a stored farm, proceed as follows:

1. In the farm list, select the farm whose information is to be changed/displayed. To do so, press on the button with the farm name on the touchscreen or turn the scroll wheel until the farm is highlighted in white and then press on the scroll wheel.

   Once the farm is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:

3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.8.3 Copy farm

To copy a farm proceed as follows:

1. In the customer list of farms, select the farm to be copied. To do so, on the touchscreen press on the button of the farm or turn the scroll wheel until the farm is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → The following operating mask opens:

Note

The copy is identified by "(Copy)" after the name of the farm.

4.2.8.4 Delete farm

To delete a farm proceed as follows:

1. Select the farm to be deleted from the list of farms. To do so, on the touchscreen press on the button of the farm or turn the scroll wheel until the farm is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

Note

A farm can only be deleted if not being used in a task or field.

4.2.9 Fields

Under the menu item **Fields** is a list of the stored fields.

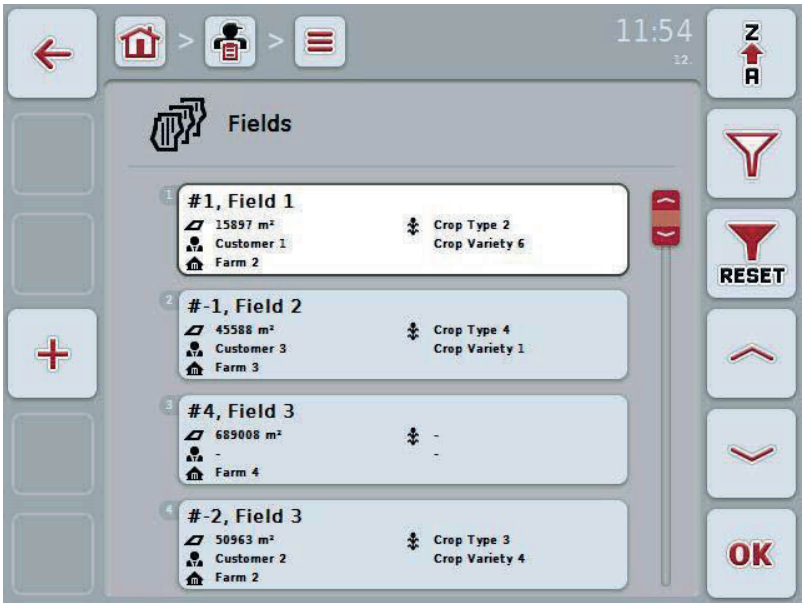
Note
A field is the area to which a task can be allocated.

The field data are comprised of

- **Field designator**,
- **Area**,
- Customer,
- Farm,
- Crop type,
- Crop variety.

Note
Information in bold print is for **compulsory fields**, the others are optional.

Note
The allocation between the field and the customer for the activity to be performed is carried out via the customer. The customer is usually also the field owner.
The farm also enables allocating the area to a property.
Moreover, a crop type and crop variety can be allocated to the field.



You have the following operating options:

 Add field

 Edit/Show field

 Copy field

 Delete field

 Call up Map View preview

4.2.9.1 Add new field

To add a new field proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:

2. In the operating mask, select all parameters one after the other. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the new value on the touchscreen using the keypad.
4. Confirm your entry with "OK".

4.2.9.2 Edit/Show field

To edit/show a stored field proceed as follows:

1. In the field list, select the field whose information is to be changed/displayed. To do so, press on the button with the field name on the touchscreen or turn the scroll wheel until the field is highlighted in white and then press on the scroll wheel.

   Once the field is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:

3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.9.3 Copy field

To copy a field proceed as follows:

1. Select the field to be copied from the list of fields. To do so, press on the button with the field name on the touchscreen or turn the scroll wheel until the field is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → The following operating mask opens:

Note

The copy is identified by "(Copy)" after the name of the field.

4.2.9.4 Delete field

To delete a field proceed as follows:

1. Select the field to be deleted from the list of fields. To do so, press on the button with the field name on the touchscreen or turn the scroll wheel until the field is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. On the touchscreen, press on the "Delete" button or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

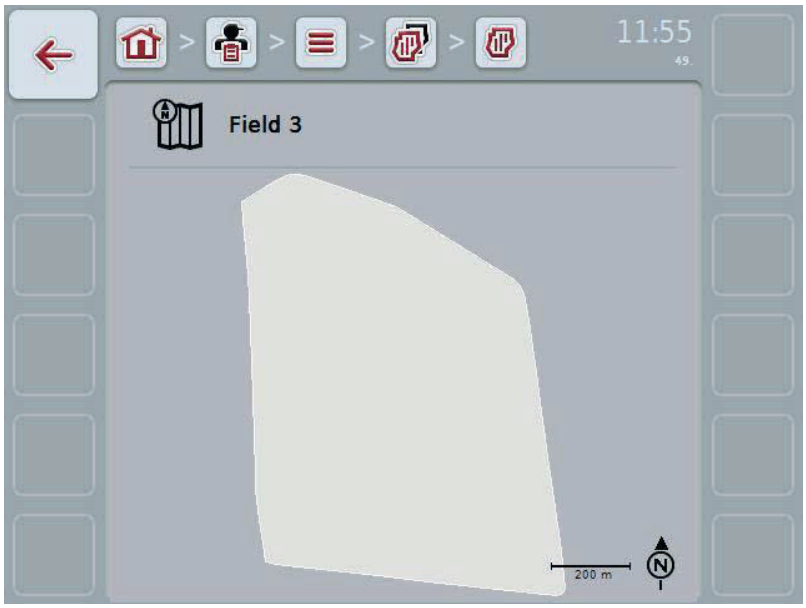
Note

A field can only be deleted if not being used in a task.

4.2.9.5 Call up Map View preview

To call up the Map View preview, proceed as follows:

1. Go to the operating mask of the field (compare 4.2.9.2).
2. Press the "Map View" button (F3) on the touchscreen.
   → The Map View preview opens:



4.2.10 Workers

Under the menu item **Workers** is a list of the stored workers.

Note
A worker executes the planned task and operates the implement.

The worker data are comprised of
- **Surname**,
- First name,
- Address,
- Postal code,
- Town,
- Phone number,
- Mobile phone number.

Note
Information in bold print is for **compulsory fields**, the others are optional.

You have the following operating options:

 Add worker

 Edit/Show worker

 Copy worker

 Delete worker

4.2.10.1 Add new worker

To add a new worker proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:

2. In the operating mask, select all parameters one after the other. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the new value on the touchscreen using the keypad.
4. Confirm your entry with "OK".

4.2.10.2 Edit/Show worker

To edit/show a stored worker, proceed as follows:

1. Select the worker whose information is to be modified from the worker list. To do so, press on the button with the worker name on the touchscreen or turn the scroll wheel until the worker is highlighted in white and then press on the scroll wheel.

   Alternatively, once the worker is highlighted you can also press the "OK" (F6) button.

   → The context menu opens

2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:

3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.

4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.10.3 Copy worker

Proceed as follows to copy a worker:

1. In the worker list, select the worker to be copied. To do so, on the touchscreen press on the button of the worker or turn the scroll wheel until the worker is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → The following operating mask opens:

Note

The copy is identified by "(Copy)" after the name of the worker.

4.2.10.4 Delete worker

To delete a worker proceed as follows:

1. Select the worker to be deleted from the worker list. To do so, on the touchscreen press on the button of the worker or turn the scroll wheel until the worker is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

Note

A worker can only be deleted if not being used in a task.

4.2.11 Implement

Under the menu item **implements** is a list of the stored implements. The list contains implements which have been transferred from the FMIS in the transfer file, as well as the ISOBUS implements which have been connected to the terminal since the last import.

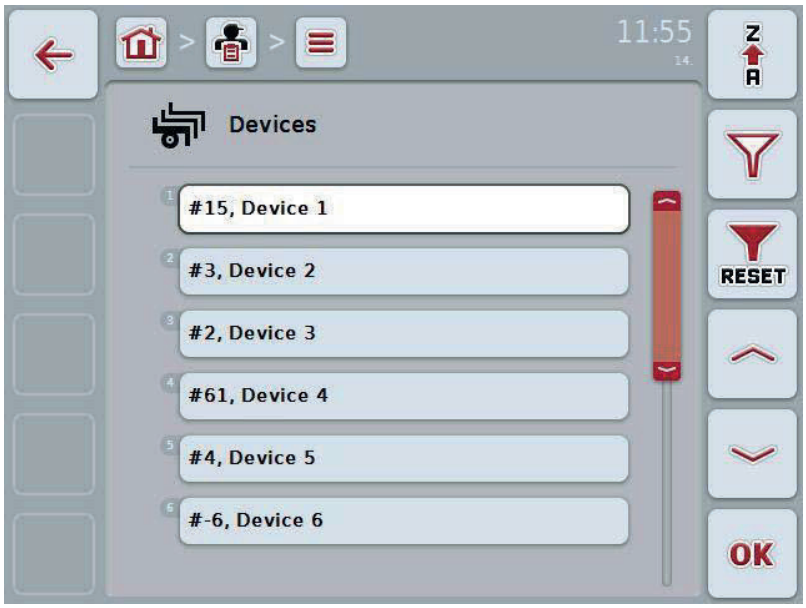
A task can be executed with an implement. An implement can be allocated to the task during the planning of a task using an FMIS. If no implement is allocated to a task, an allocation is carried out based on the task description and the implement characteristics. If several implements are related to a task, a selection list appears from which the desired implement has to be selected.

The implement data consists of

- Implement name,
- WSM code,

Note

Only the implement designator can be edited.
The remaining data are used for information and are automatically read from the implement in the event that it makes them available.



You have the following operating options:

Edit/Show implement

Delete implement

4.2.11.1 Edit/Show implement

To edit/show a stored implement, proceed as follows:

1. Select the implement whose information is to be modified from the implement list. To do so, press on the button with the implement name on the touchscreen or turn the scroll wheel until the implement is highlighted in white and then press on the scroll wheel.

   Alternatively, once the implement is highlighted you can also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:

3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.11.2 Delete implement

To delete an implement, proceed as follows:

1. In the implement list, select the implement to be deleted. To do so, on the touchscreen press on the button of the implement or turn the scroll wheel until the implement is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

Note

An implement can only be deleted if it is not being used in a task.

4.2.12 Products

Under the menu item **Products** is a list of the stored products.

Note

A product is a medium which is used on the field in order to execute a measure, e.g. fertiliser or spraying agents.

The only information on a product is the

- **Product designator**.

Note

Information in bold print is for **compulsory fields**, the others are optional.

You have the following operating options:


Add product


Edit/Show product

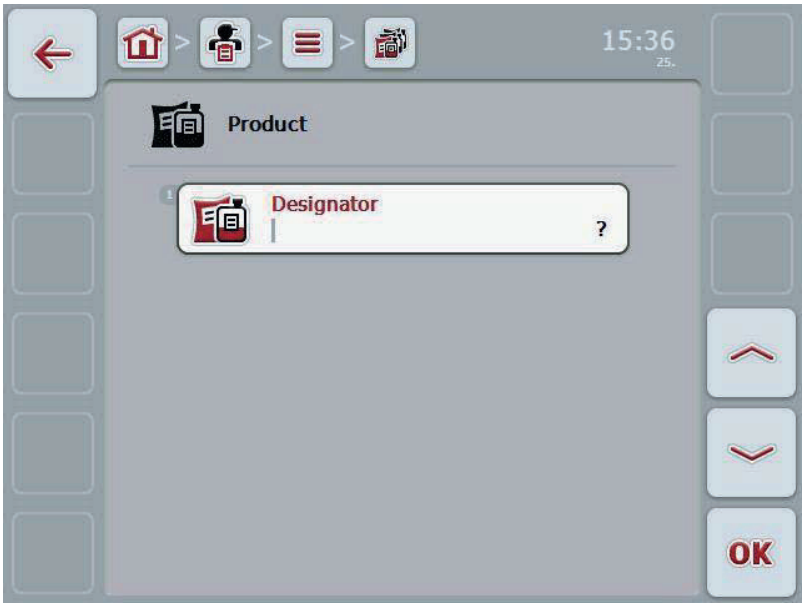

Copy product


Delete product

4.2.12.1 Add new product

To add a new product proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:



2. In the operating mask, select all parameters one after the other. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the new value on the touchscreen using the keypad.
4. Confirm your entry with "OK".

4.2.12.2 Edit/Show product

To Edit/Show a stored product proceed as follows:

1. In the product list, select the product whose information is to be modified. To do so, press on the button with the product name on the touchscreen or turn the scroll wheel until the product is highlighted in white and then press on the scroll wheel.

   Once the product is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:

3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.12.3 Copy product

To copy a product, proceed as follows:

1. In the list of products, select the product to be copied. To do so, press on the product button on the touchscreen or turn the scroll wheel until the product is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → The following operating mask opens:

Note

The copy is identified by "(Copy)" after the name of the product.

4.2.12.4 Delete product

To delete a product proceed as follows:

1. In the list of products, select the product to be deleted. To do so, press on the product button on the touchscreen or turn the scroll wheel until the product is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

Note

A product can only be deleted if not being used in a task.

4.2.13 Measures

Under the menu item **Measures** is a list of the stored measures.

A measure can be allocated to a task during the planning of a task using an FMIS. An operation technique belongs to a measure e.g. fertilising: Liquid fertilisation / organic fertilisation / etc.

Note

The term measures refers to the activities performed on the field such as fertilising or sowing.

The only information on a measure is the

- **Name**.

You have the following operating options:

	Add measure
	Edit/Show measure
	Copy measure
	Delete measure

4.2.13.1 Add new measure

To add a new measure proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:

2. In the operating mask, select all parameters one after the other. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the new value on the touchscreen using the keypad.
4. Confirm your entry with "OK".

4.2.13.2 Edit/Show measure

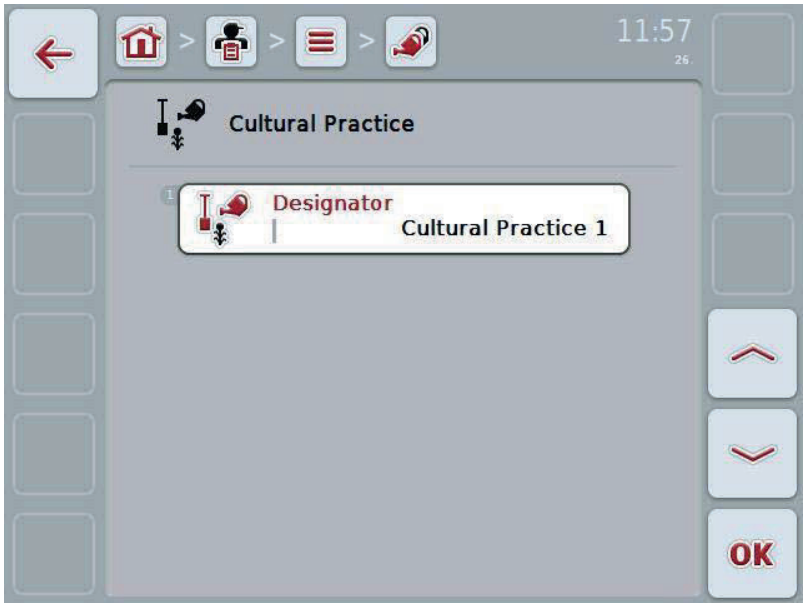
To edit/show a stored measure, proceed as follows:

1. In the list of measures, select the measure whose information is to be modified. To do so, press on the button with the name of the measure on the touchscreen or turn the scroll wheel until the measure is highlighted in white and then press on the scroll wheel.

   Once the measure is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:



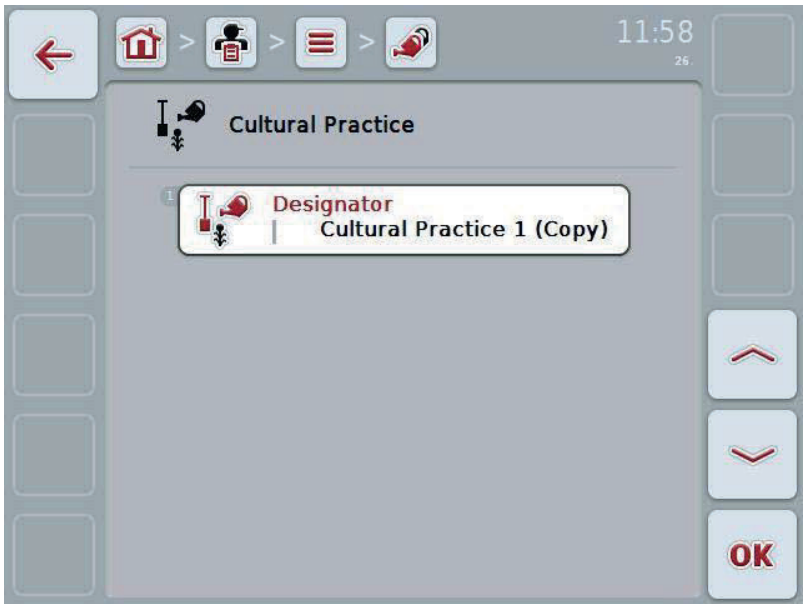
3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.13.3 Copy measure

To copy a measure, proceed as follows:

1. In the list of measures, select the measure to be copied. To do so, on the touchscreen press on the button of the measure or turn the scroll wheel until the measure is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → The following operating mask opens:



Note

The copy is identified by "(Copy)" after the name of the measure.

4.2.13.4 Delete measure

To delete a measure proceed as follows:

1. In the list of measures, select the measure to be deleted. To do so, on the touchscreen press on the button of the measure or turn the scroll wheel until the measure is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

Note

A measure can only be deleted if not being used in a task.

4.2.14 Crop types

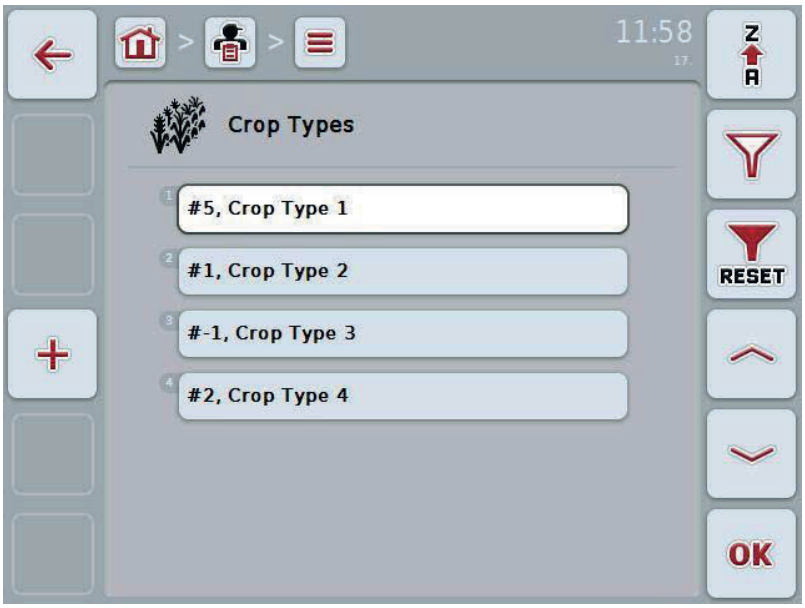
Under the menu item **Crop types** is a list of the stored crop types.

Note
Crop type refers to the type or species of crop such as corn or barley.

The only information on a crop type is the

- **Name**.

Note
Information in bold print is for **compulsory fields**, the others are optional.



You have the following operating options:


Add crop type


Edit/Show crop type


Copy crop type


Delete crop type

4.2.14.1 Add new crop type

To add a new crop type proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:

2. In the operating mask, select all parameters one after the other. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the new value on the touchscreen using the keypad.
4. Confirm your entry with "OK".

4.2.14.2 Edit/Show crop type

To edit/show a stored crop type, proceed as follows:

1. In the list of crop types, select the crop type whose information is to be modified. To do so, press on the button with the name of the crop type on the touchscreen or turn the scroll wheel until the crop type is highlighted in white and then press on the scroll wheel.

   Once the crop type is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit/Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The following operating mask opens:

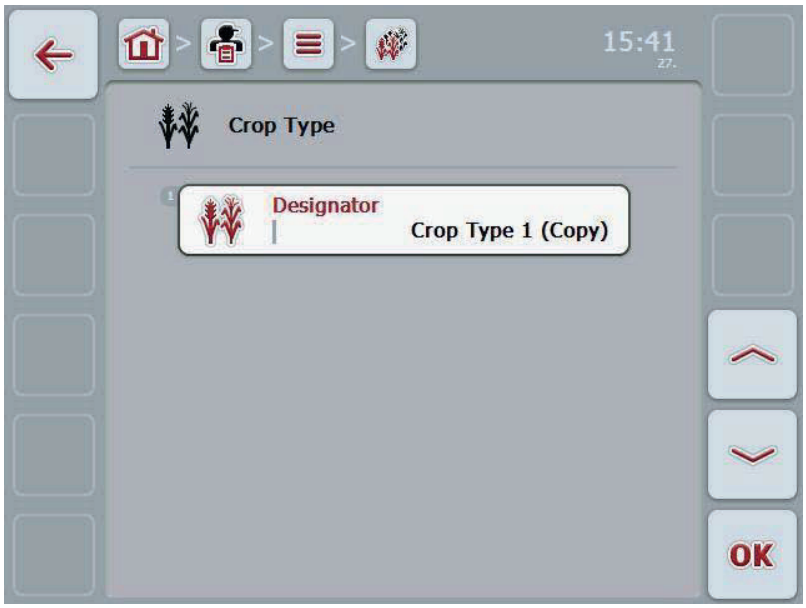
3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.2.14.3 Copy crop type

To copy a crop type proceed as follows:

1. In the list of crop types, select the crop type to be copied. To do so, on the touchscreen press on the button of the crop type or turn the scroll wheel until the crop type is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → The following operating mask opens:



Note

The copy is identified by "(Copy)" after the name of the crop type.

4.2.14.4 Delete crop type

To delete a crop type proceed as follows:

1. In the list of crop types, select the crop type to be deleted. To do so, on the touchscreen press on the button of the crop type or turn the scroll wheel until the crop type is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

Note

A crop type can only be deleted if not being used in a field.

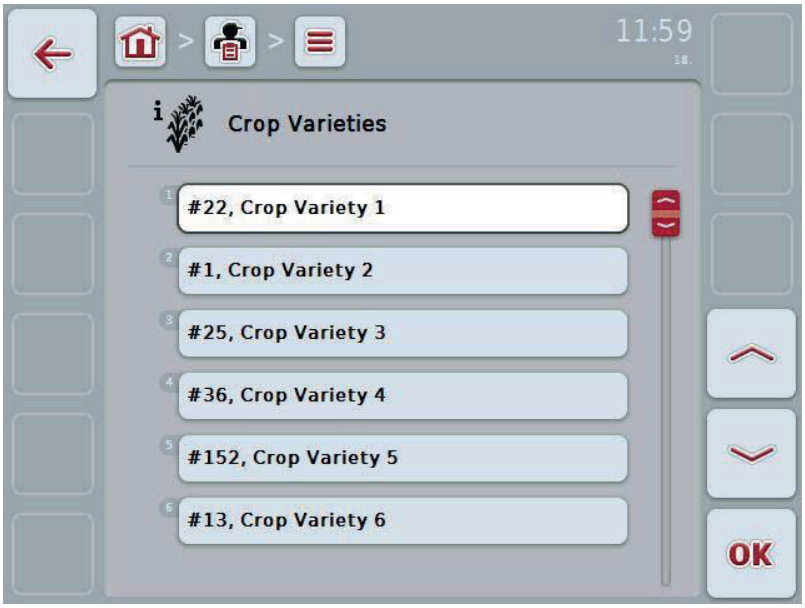
4.2.14.5 Crop varieties

Under the menu item **Crop varieties** is a list of the stored crop varieties.

Note
The term crop variety refers to a special type or breed of a crop type.

The only information on a crop variety is the

- **Name**.



Note
You cannot make any settings under this menu item. The information about the crop varieties can only be imported.

4.3 Task data

The task data comprise all data and information in relation to the task:

- Name of Task,
- Customer,
- Town,
- Farm,
- Field,
- Worker,
- Measure,
- Operation technique and
- Task status.

Note

Measure refers to measures related to crop cultivation such as harvesting and fertilising.

Note

Operation technique refers to special measures such as liquid fertilisation or organic fertilisation.

4.3.1 Task status

A task goes through different statuses:

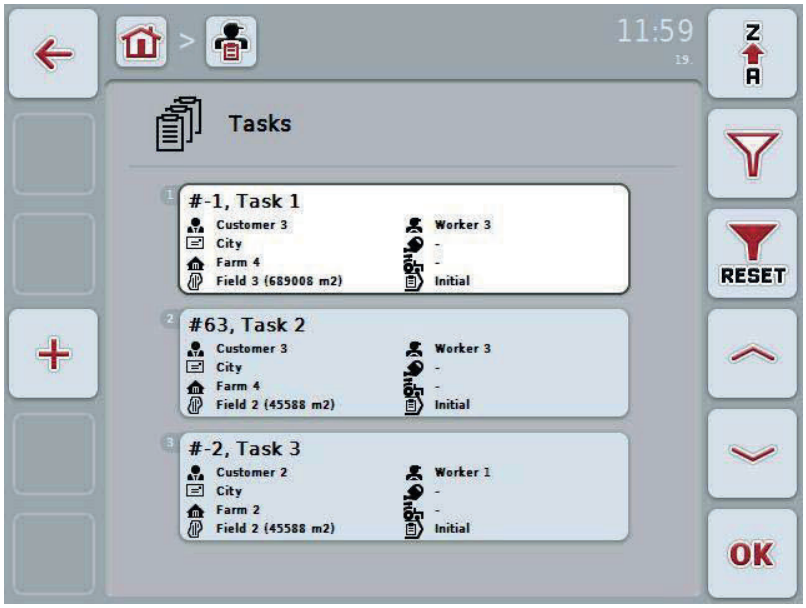
Initial:	A new task which has not yet been processed.
Current:	The currently active task. Only one task can ever be active. To start another task the current task must be suspended or completed.
Suspended:	A task which has been interrupted. It can be resumed at any time.
Finished:	A completed task. It cannot be resumed, nevertheless it remains in the list of saved tasks.

Note

As many tasks as desired can be left in ***Suspended*** status.

4.3.2 Tasks

The task list is requested via the menu item **Tasks**.



You have the following operating options:

 Add task

 Show task

 Edit task

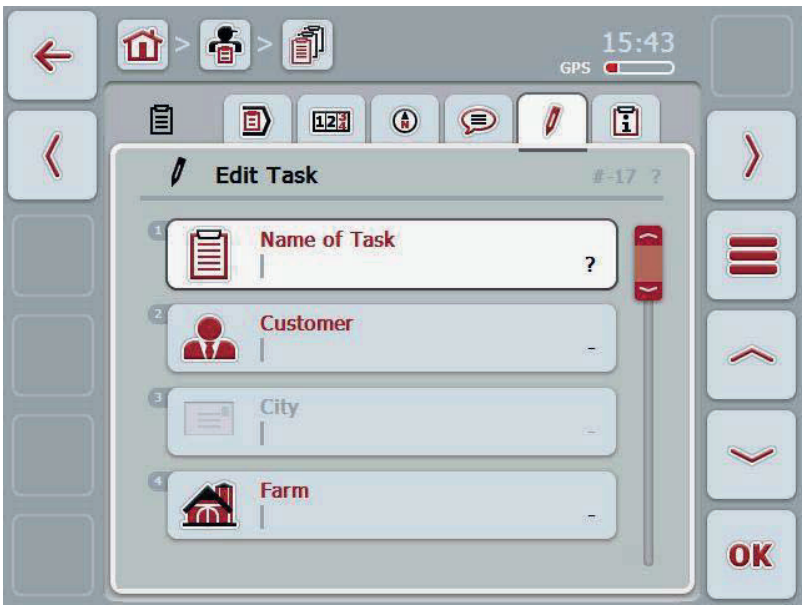
 Copy task

 Delete task

4.3.2.1 Add new task

To add a new task proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
   → The following operating mask opens:



2. In the operating mask, select all parameters one after the other.
   Press on the respective parameter on the touchscreen or
   or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the task name on the touchscreen using the keypad
   and select the remaining information from the respective lists.
4. Confirm your entry with "OK".

Note

The town always corresponds to the customer's town and cannot be selected or entered at random.

4.3.2.2 Show task

To show a task proceed as follows:

1. To do so, press on the button with the task on the touchscreen or turn the scroll wheel until the task is highlighted in white and then press on the scroll wheel.

   Once the task is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Show" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → A detailed view of the task opens (see chapter 4.3.3).

4.3.2.3 Edit task

To edit a task proceed as follows:

1. To do so, press on the button with the task on the touchscreen or turn the scroll wheel until the task is highlighted in white and then press on the scroll wheel.

   Once the task is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Edit" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → The tab "Edit Task" opens (see chapter 4.3.3.5)
3. From the operating mask, select the parameter whose value is to be changed. Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.

   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
4. Enter the new value on the touchscreen using the keypad.
5. Confirm your entry with "OK".

4.3.2.4 Copy task

To copy a stored task proceed as follows:

1. Select the task to be copied from the list of tasks. To do so, on the touchscreen press on the button of the task or turn the scroll wheel until the task is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

Note
You immediately access the detailed view of the copy.

→ The following operating mask opens:

Note
The copy is identified by "(Copy)" after the task.

Note
All static task data are copied, not however process data which occur during processing (counter, duration, etc.). Tasks can be copied regardless of their status. The task copy is, in any case, given the ***Unprocessed*** status.

4.3.2.5 Delete task

To delete a task proceed as follows:

1. In the list of tasks, select the task to be deleted. To do so, on the touchscreen press on the button of the task or turn the scroll wheel until the task is highlighted in white and then press on the scroll wheel.
   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

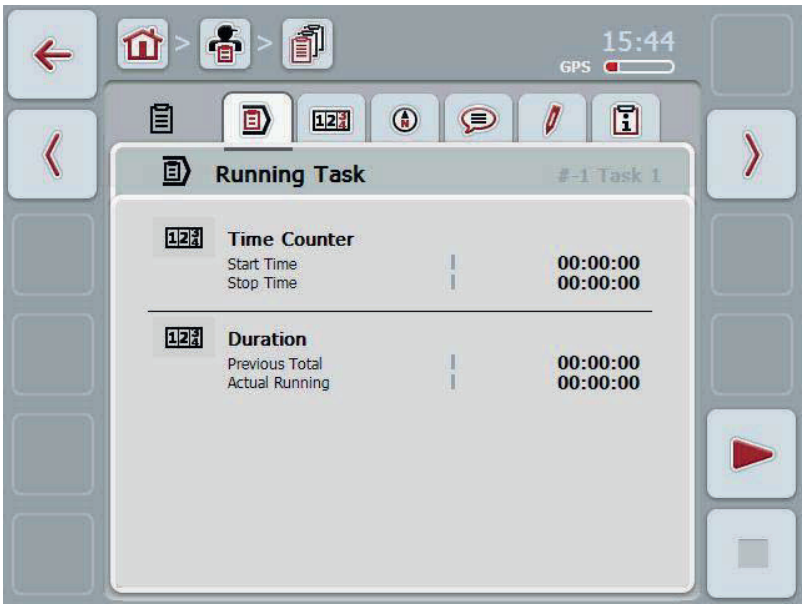
Note

Tasks can only be deleted provided they are in the ***Unprocessed*** status.

4.3.3 Detailed view

In the task list press on the task. Press the "Edit/Show" button in the context menu. You immediately access the detailed view of the task.

The detailed view of a task is divided into 6 tabs:



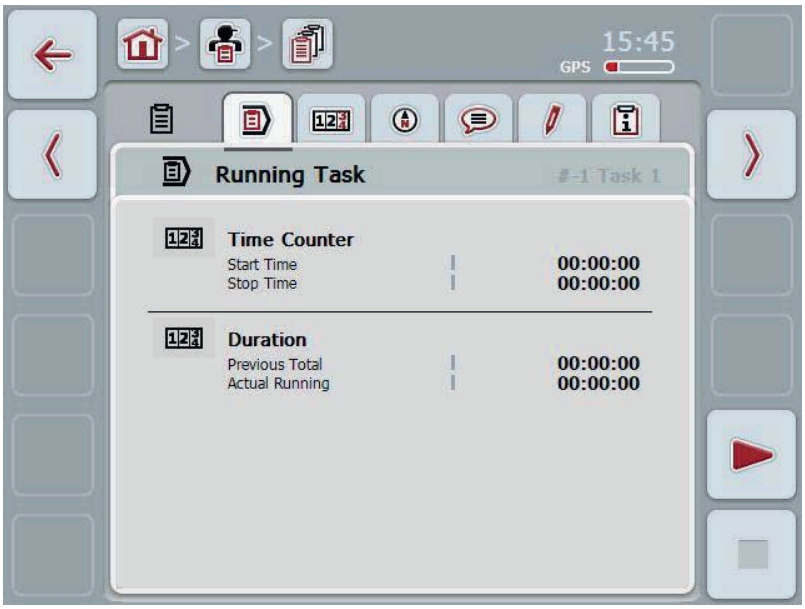
They feature the following information:

Running task:	This shows the start and stop time, as well as the duration to date and the current duration.
Counter:	Shows the total running time and the counter readings transferred from the implement.
Map:	Shows the map of the field assigned to the task as well as associated application maps.
Comments:	This shows a list of the comments with the date and time.
Edit task:	This shows the stored task data.
Report:	Shows a summary of the task data.

4.3.3.1 Running task

This tab shows the task times.

Time counter:	This shows the time at which the task was started, stopped or suspended.
Duration:	This shows the previous total duration and the current duration of the task.



You have the following operating options:

Start task:

Press the "Start" button (F5) on the touchscreen.
Task processing is started

The display shows the current duration.

Interrupt running task:

Press the "Pause" button (F5) on the touchscreen.

Select the reason for the pause from the selection list.

The current duration is added to the duration to date.

Resume task:

Press the "Resume" button (F5) on the touchscreen.
Task processing is started

The display shows the duration to date and the current duration.

Finish task:

Press the "Stop" button (F6) on the touchscreen.

Note

A finished task can no longer be resumed.
A finished task remains in the list of stored tasks and cannot be deleted.

Note

If the tractor is switched off without pausing or stopping the running task, then upon the next start-up of the terminal, a pop-up displaying the information that the task was interrupted appears on the terminal.
Press the "OK" button (F6) on the touchscreen to resume the task.
Press the "ESC" button (F6) on the touchscreen to pause the task.

Note

Only one task can be processed at a time. If one task is already running no other can be started. If a task is in ***Interrupted*** status, another task can be processed.

The detailed view can be exited whilst the task is running, however another task cannot be started at the same time.

4.3.3.2 Counter

This tab shows the total running time and the counter readings transferred from the implement.

You have the following operating options:

Switch to the counter readings of a different implement

Press the "Switch Counter Readings" button (F12) on the touchscreen.

→ The counter readings of the other connected implement are displayed

Note

This function is only available if more than one ISOBUS implement is connected.

4.3.3.3 Map

A map of the field assigned to the task is displayed in this tab.

You have the following operating options:

Magnifying the map view
Press the "Zoom in" button (F4) on the touchscreen.

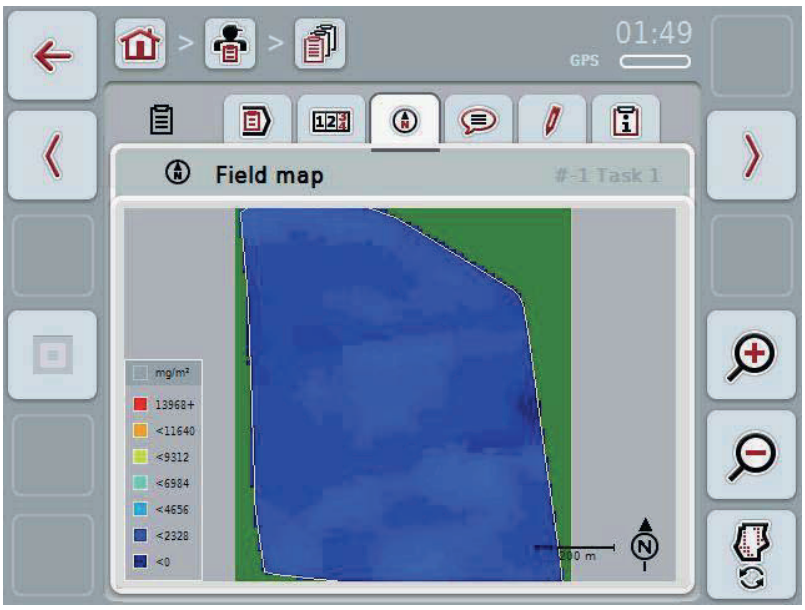
Shrinking the map view
Press the "Zoom out" button (F5) on the touchscreen.

Show application maps

4.3.3.3.1 Show application maps

To display the application maps, proceed as follows:

1. Press the "Show Application Maps" button (F6) on the touchscreen.
   → The application maps are displayed in the map view:



4.3.3.4 Comments

In this tab there is a list of your stored comments:

To add a new comment proceed as follows:

1. Press the "Create new" button (**F10**) on the touchscreen.
2. Enter the new comment on the touchscreen using the keypad.
3. Confirm your entry with "OK".

Note

Stored comments cannot be deleted.

4.3.3.5 Edit task

In this tab you find the following operating mask:

You have the following operating options:

Edit task

To see which operating options you have, please refer to chapter 4.3.2.3.

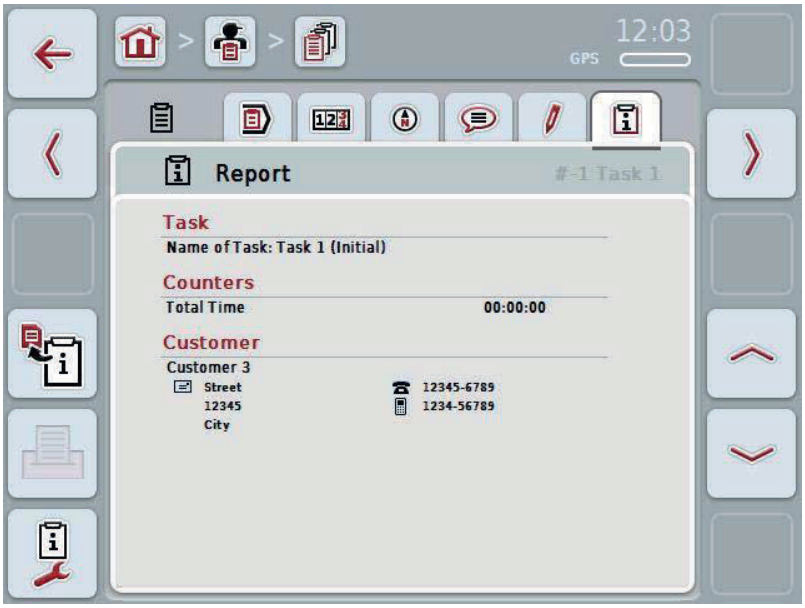
Call up database

Press on the "Database" button (F3).

To see which operating options you have in the database, please refer to chapter 4.2.6.

4.3.3.6 Report

This tab contains a summary of the task data.



You have the following operating options:

Generate report:
Press the "Generate Report" button (F10) on the touchscreen.
→ The report is exported as PDF with the task.

Configure report

4.3.3.6.1 Configure report

To configure a task report, proceed as follows:

1. Press the "Configure Report" (F12) button on the touchscreen
   .
   → The following operating mask opens:

2. Select the parameters which are to be displayed in the TaskData report
   . Press on the parameter on the touchscreen or turn the scroll wheel until the parameter is highlighted in white and then press on the scroll wheel.
   Once the parameter is highlighted you can, alternatively, also press the "OK" (F6) button.
3. Enter the Boolean value.
4. Confirm your entry with "OK".

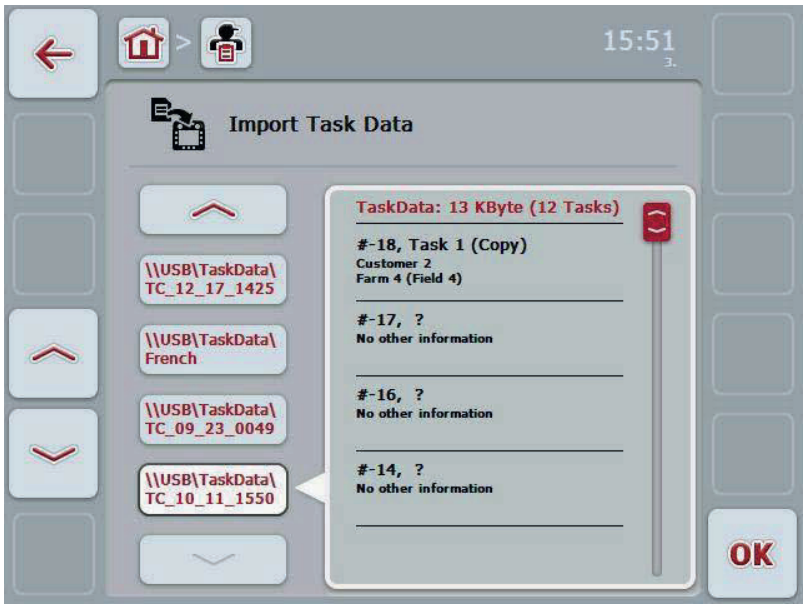
4.4 Import task data

To import task data proceed as follows:

1. Export the desired task data to the FMIS in ISO-XML format on a USB stick in the folder \Taskdata. If several task data are on the USB stick these can be organised through subfolders.
2. Connect the USB stick to the terminal.
3. Press on the "Import Task Data" button on the touchscreen or turn the scroll wheel until the button "Import task data" is highlighted in white and then press on the scroll wheel.

   Once the button is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The following operating mask opens:



4. Select the task data to be imported. To do so, on the touchscreen press on the button with the task data or change using the buttons "Up" (F10) and "Down" (F11) between the task data or turn the scroll wheel until the task data is highlighted in white and press on the "OK" button (F6).

Attention!

When importing, all task and master data are deleted.

Note

The process can take a few minutes. CCI.Control will restart after the data has been imported.

4.5 Export task data

There are two ways to export the task data:

On a USB stick:	requires a USB stick plugged into the terminal.
Online transfer:	Requires an enabled app that makes possible transfer of the task data online.

To export task data proceed as follows:

1. Press on the "Export Task Data" button on the touchscreen or turn the scroll wheel until the button "Export Task Data" is highlighted in white and then press on the scroll wheel.

   Once the button is highlighted you can, alternatively, also press the "OK" (F6) button.

Note

If no app is enabled at this point that makes possible transfer of the task data online, then the task data are transferred directly to the USB stick.

→ The following operating mask opens:

2. Select between "USB stick" and "Online transfer". To do so, press on the button on the touchscreen with the desired transfer path or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   Once the button is highlighted you can, alternatively, also press the "OK" (F6) button.

3. Confirm the selection with "OK".

   → The task data are exported.

Note

The task data are saved on the USB stick in the folder \TaskData\TC_xx_xx_xxxx\. The folder name contains the date and time of the export procedure. This means that several export processes can be performed on a USB stick without overwriting data.

4.6 Settings

You can activate and deactivate Auto-Logging in the settings.

Auto-Logging is used to automatically permanently document task data. This guarantees documentation even if the worker has not created and started any task himself.

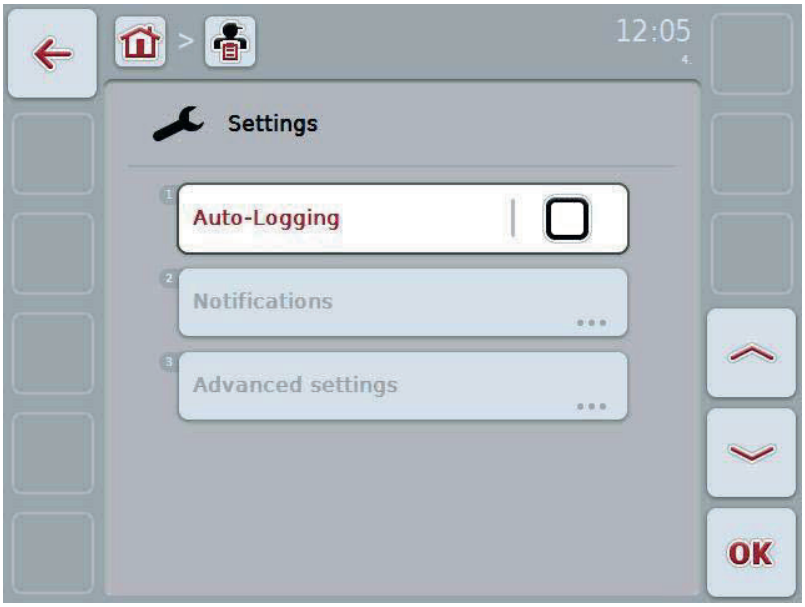
Auto-Logging documents all the work carried out in one day in a task. These task data can be computed and evaluated on the PC.

Note

If a task is started while Auto-Logging is activated, then automatic documenting is paused. If this task is stopped, automatic documenting is started again.

Note

The task data documented by Auto-Logging must be exported (see chapter 4.5). Tasks, that are older than 7 days, are deleted.



4.6.1 Activating/deactivating Auto-Logging

To activate/deactivate Auto-Logging, proceed as follows:

1. Press on the "Auto-Logging" button on the touchscreen or turn the scroll wheel until the button "Delete" is highlighted in white and then press on the scroll wheel.

   Once the button is highlighted you can, alternatively, also press the "OK" (F6) button.
2. Enter the Boolean value.
3. Confirm your entry with "OK".

5 Troubleshooting

5.1 Terminal errors

The following overview shows possible terminal errors and how to solve them:

Error	Possible cause	Rectification
The terminal does not switch on	• Terminal is not correctly connected	• Check ISOBUS connection
	• Ignition is not switched on.	• Start tractor.
Connected implement software is not displayed	• Bus terminator missing	• Check resistance
	• Software is loaded, however is not displayed	• Check whether the software can be manually started from the terminal start menu
	• Connection error when uploading the software	• Check physical connection • Contact the implement manufacturer's customer service

5.2 Error messages

The following overview shows error messages in CCI.Control, their possible cause and how to rectify them:

Error	Possible cause	Rectification
Export was interrupted because no USB stick was found.	No USB stick plugged in.	Plug in USB stick.
File cannot be processed.	ISO-XML file corrupted or too large to create a preview.	-
Import was interrupted because no USB stick was found.	No USB stick plugged in.	Plug in USB stick.
No active implement.	No implement with task controller functionality is connected.	Connect a task controller-enabled implement.
Field map is being used by another task.	A task is already running with an application map.	Finish the task that is running and call up map view again.
No Map information.	No application map was allocated to the current task.	Create an application map using an FMIS and allocate it to the task.
TaskData report could not be generated.	Documentation or master data is corrupted.	-
Not deletable.	The element to be deleted cannot be deleted.	
The entry cannot be deleted because it is not user-defined.	Data records imported from an FIMS cannot be deleted at a terminal.	
The entry cannot be deleted because database references exist.	The data record is being used by another data record.	Allocate another entry in the referencing data record.
Control cannot find any counters. A few control functions cannot be used. Do you want to start the service anyway?	The connected implement does not support all the required counters.	Connect an implement with complete function scope.
GPS Signal is lost.	Poor reception.	Drive to a clear surface and wait until the GPS receiver has reception again.

TaskController has not received any valid GPS Signal.	Incorrect GPS receiver configuration.	Check GPS receiver configuration.
Control cannot detect any active devices. Would you anyway like to start the service? (#84)	No active device connected.	Activate device or connect.
TaskData report could not be generated! (#105)	Error during exporting.	-
A finished task cannot be resumed (#88)	If documentation has been finished, a task cannot be resumed.	Pause task.

Note

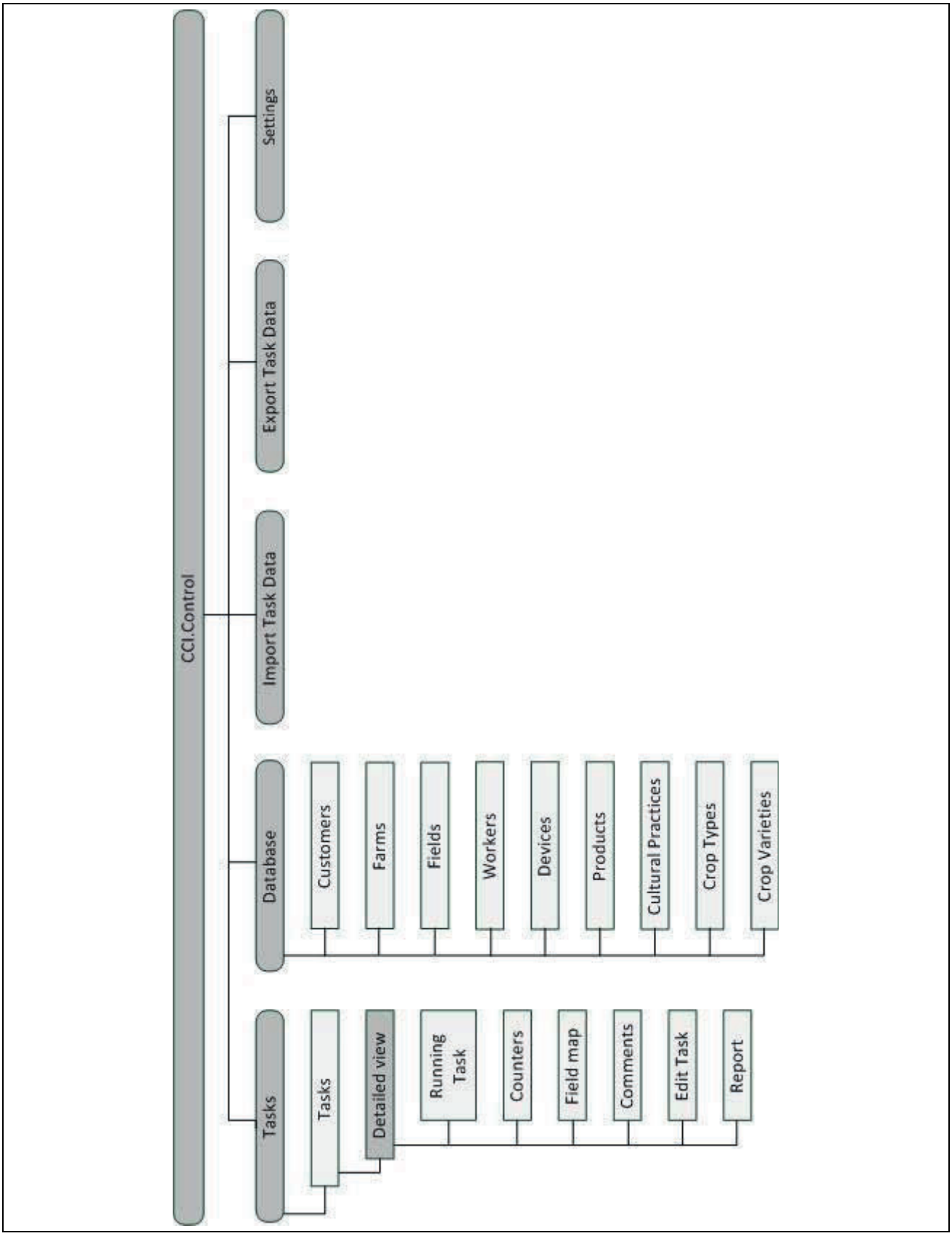
Other error messages may be displayed on the terminal that are dependent on the implement.

A detailed description of these possible error messages and troubleshooting can be found to in the implement operating instructions.

Note

If the implement cannot be operated, check whether the "Function-Stop-Button" is pressed. The implement cannot be operated until the button has been released.

6 Menu structure



7 Glossary

Operation technique	Special measures, such as liquid fertilisation or organic fertilisation.
Application map	Section-specific set value or application map on which the extent of a specific measure is established for each section in a field e.g. in the case of fertilising. It is transferred as a file to the on-board computer which processes it according to position on the land during work. Usually during the planning of application maps, in addition to the yield maps, lots of other information is entered such as weather information, results of the variety tests as well as the results of the location analysis such as soil tests, soil maps or aerial views.
Task data file	A file in ISO-XML format which contains the master data and the task data. It can also contain application maps. The task data file is created in the FMIS, imported to the CCI.Control and exported for evaluation of the *process data* after task processing.
Operating mask	The operating mask is comprised of the values and operating elements shown on the screen. The touchscreen can be used to directly select the elements shown.
Farm	Also known as a holding. All fields which are in possession of the customer belong to a farm. A customer can have multiple farms.
CCI	**C**ompetence **C**enter **I**SOBUS e.V.
CCI.Control	ISOBUS task processing
Data bus	Communication channel between implement and tractor.
Data interface	Describes the type and the path of the data exchange (e.g. by a USB stick).
DDD	**D**evice **D**escription **D**ata Electronic data sheet of the device.
Yield mapping	Yield maps show how much has been harvested at what point of the field. Such information forms the basis for specific cause research in low-yield areas and offers a decisive basis for future management measures. If, during the evaluation of the yield maps, a farmer ascertains that the yields within a field vary considerably on a regular basis section-specific management could be recommendable. A system for yield mapping is comprised of • Yield capture and • Yield data processing.
Workers	A worker executes the planned task and operates the implement.
Field	A field is the area to which a task can be allocated.
FMIS	Field mapping system, software for yield data processing and the creation of application maps. (Farm Management Information System)
GPS	**G**lobal **P**ositioning **S**ystem. GPS is a system for satellite-supported position determination.

GSM	**G**lobal **S**ystem for **M**obile Communication Standard for full-digital mobile radio networks, which is primarily used for telephony and short messages such as SMS.
ISO-XML	ISOBUS-specific format for task data files based on XML.
ISOBUS	ISO11783 International standard for data transfer between farming implements and devices.
Customer	The owner or tenant of the operation on which the task is executed.
Duration	The time in which a task is executed.
Measure	Crop-cultivation measure. Refers to the activities performed on the field such as fertilising or sowing.
Implement	Towed or attached accessory or equipment. An implement with which a task can be executed.
Implement interface	Communication channel from the terminal to the implement.
NMEA 0183	Serial protocol for the GPS receiver
NMEA 2000	CAN BUS protocol for the GPS receiver
PDF	**P**ortable **D**ocument **F**ormat File format for documents
Crop type	Types or species of a crop such as corn or barley.
Crop variety	Special sort or breed of a crop type.
Product	A product is a medium which is used on the field in order to execute a measure, e.g. fertiliser or spraying agents
Process data	Parameters which an implement can make available to the CCI.Control during the work (working state, consumption, etc.). These are then adopted in the task data file for later evaluation.
Interface	Part of the terminal which is used to communicate with other devices
Serial interface	The terminal has two serial interfaces, RS232-1 and RS232-2. Via these interfaces, external expansion devices such as GPS receivers, modems or printers can be connected.
Master data	Master data are fixed data records that do not change during the work (e.g. *worker*, *farm*, etc.).
Standalone mode	Operation of CCI.Control without task data file.
Section	With yield maps and other methods of location analysis such as soil or relief maps, aerial views or multi-spectral records, it is possible, as the result of personal experience, to define zones within the field if they vary considerably over the period of four to five years. If these areas have an adequate size and, for example, in the case of winter wheat have a difference in yield potential of approx. 1.5 t/ha, it is recommendable to adapt crop cultivation measures in these area to the yield potential. Such areas are then designated as sections.

Section-specific processing	Satellite-supported use of an application map.
Terminal	CCI 100 or CCI 200 ISOBUS Terminal
Touchscreen	Touch-sensitive screen which is used to operate the terminal.
WLAN	**W**ireless **L**ocal **A**rea **N**etwork Wireless local network.
XML	E**x**tended **M**arkup **L**anguage Logical markup language and both successor and enhancement of HTML. XML permits the specification of its own language elements so that other markup languages such as HTML or WML can be defined by using XML.

8 Buttons and icons


CCI.Control


Customer list


Farm list


Field list


Worker list


List of implements


Product list


List of measures


List of crop types


List of tasks


Counter


Edit task


Start or resume task processing


Finish task processing


Switch counter readings


Configure


Import task data


USB stick


Database


Customer


Farm


Field


Workers


Implement


Product


Measure


Crop type


Running task


Comment


Map


Report


Suspend task processing


Show application maps


Call up database


Export task data


NAND Flash


Map view preview


Generate report


Zoom in


Zoom out


Delete


Edit/Show


Add


Copy


Change to the right


Change to the left


Change up


Change down

Confirm selection or entry


Address


Phone number


Mobile phone number


Filter

Reset filter

Sort from A - Z

Sort from Z - A

9 Index

CCI.Tecu

Traktordata

Operating Instructions

Reference: CCI.Tecu v5

1 Introduction

1.1 About these operating instructions

These operating instructions are intended as an introduction to the operation and configuration of the CCI.Tecu app. This app is preinstalled on your ISOBUS terminal CCI 100/200 and can only be run from there. It is only with knowledge of these operating instructions that accidental misuse can be avoided and fault-free operation ensured.

These operating instructions must be read and understood to prevent problems during operation.

1.2 Reference

These operating instructions describe the CCI.Tecu version CCI.Tecu v5.

In order to query the version number of the CCI.Tecu installed on your CCI ISOBUS terminal, proceed as follows:

1. Press the home key to enter the main menu.
2. Press the "Info Diagnose" button in the main menu.
3. In the menu **Info and Diagnose** press the button "Terminal Info".
4. Press the "Software info" button on the touchscreen.
   → The version of the terminal software component is indicated In the information field that is now displayed.

1.3 About CCI.Tecu

A vast range of electronic components are used in modern tractors. In addition to sensors for the capture of operating data these are, above all, comprised of electronic control units (ECUs) for the control of various tractor functions. The electronic components are, as a rule, interconnected via a so-called bus system and use this to exchange tractor information such as driving speed or PTO speed.

The tractor ECU (TECU) is required so that information such as driving speed, PTO speed or the current position of the 3-point linkage can also be made available to an ISOBUS implement.

On an ISOBUS tractor, the TECU establishes the connection between the tractor bus system and the ISOBUS and thus provides the implement with the aforementioned information.

New tractors are often already ISOBUS-compatible ex works and fitted with a TECU. Such TECUs are hereinafter identified as primary TECUs.

The vast majority of tractors in use are, however, not ISOBUS-compatible but can be retrofitted using an upgrade cable set. However these cable sets do not usually include a TECU, i.e. the connection from ISOBUS implements is possible but access to tractor information is not.

The CCI.Tecu described in these operating instructions closes this loophole. The app concerned is an upgrade solution.

Using CCI.Tecu, tractor information is read out via the signal connector and transferred to the ISOBUS implement.

1.4 Active/passive mode

If only CCI.Tecu is available on the tractor, it works automatically in active mode. In active mode

1. CCI.Tecu reads out the signal connector signals,
2, CCI.Tecu calculates values for speed, PTO speed and 3-point position and
3. CCI.Tecu sends the calculated values for speed, PTO speed and 3-point position to all ISOBUS implements.

If the tractor has a Primary TECU which provides the tractor information via the ISOBUS, CCI.Tecu automatically changes to passive mode.

In passive mode information which is available via the ISOBUS is shown, a connection to the signal connector is only necessary if not all tractor information is provided via the ISOBUS (see chapter 4.4)

1.5 Hectare counter

CCI.Tecu offers a hectare counter as an additional function.

The hectare counter is used to record ground coverage, working time and the track. Recording of ground coverage is performed by measuring the working route and multiplying the adjustable working width.

2 Safety

2.1 Identification of indications in the operating instructions

The safety indications in these operating instructions are specially identified:

Warning - General Hazards!

This occupational safety symbol identifies general safety indications the non-observance of which poses a danger for life and limb. Carefully observe the indications regarding occupational safety and exert particular caution in these cases.

Attention!

This attention symbol identifies all safety indications which refer to regulations, directives or working procedures which it is essential to observe. Non-observance can entail damage to, or the destruction of, the terminal as well as malfunctions.

Note

The note symbol highlights operation tips and other particularly useful information.

3 Commissioning

3.1 Mounting the terminal

For information, please refer to the chapter **5.1 Mounting the terminal** in the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2 Connecting the Terminal

3.2.1 Connecting to ISOBUS/power supply

Please refer to the information in the chapter **5.2.1 Connecting to ISOBUS/power supply** of the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2.2 Connecting to the signal connector

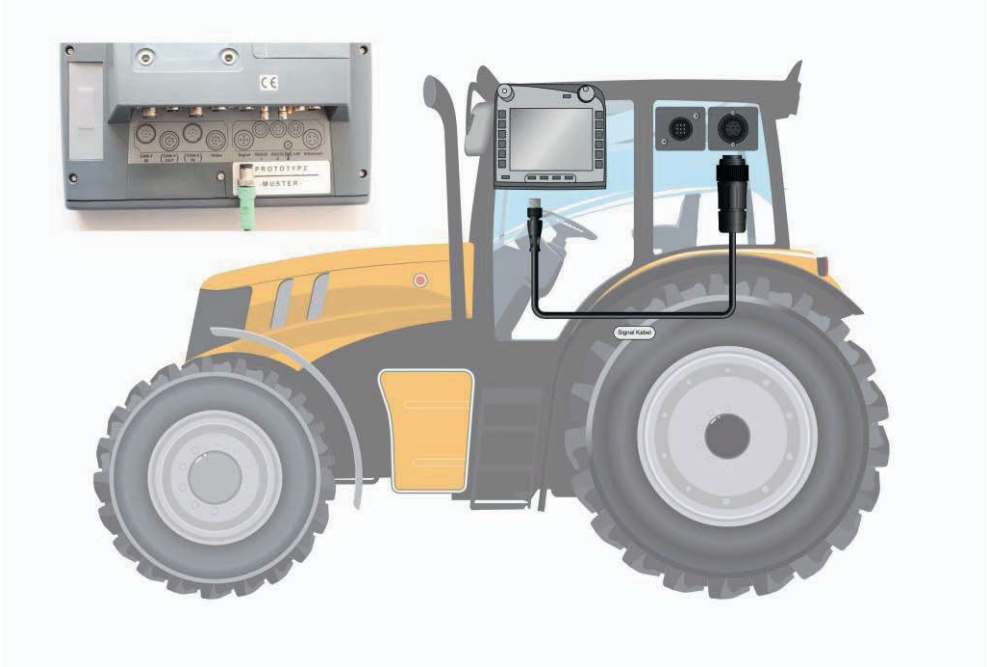
CCI.Tecu evaluates the existing tractor information on the signal connector of the tractor (speed, PTO speed, etc.) and transmits this information to all ISOBUS implements.

A signal cable is required for connecting the terminal to the signal connector and can be ordered using article number <ArtNummer Sig>.

Signal cable

To connect the terminal to the signal connector of the tractor, proceed as follows:

1. Connect the "Signal" interface on the terminal to the signal connector using the signal cable.



The signal connector according to ISO 11786 has the following sensor data allocated:

Wheel based speed:	It emits a specific number of electrical signals in proportion to the wheel rotation. As such, the theoretical speed of the tractor can be calculated.
Ground based speed:	It emits a specific number of electrical impulses in proportion to the distance already covered. As such, the real speed can be calculated.
Power take off:	It emits a specific number of electrical impulses in proportion to the PTO speed. As such, the PTO speed can be calculated.
Linkage sensor:	It provides an output voltage which is proportional to the current position of the linkage.

Note

In the version being described, the CCI.Tecu can only evaluate the signals from one of the two speed sensors (compare chapter 4.3.3.3).

3.3 Installing the software

CCI.Tecu is included in the scope of delivery of the CCI ISOBUS terminal, i.e. installation is neither possible nor required.

4 Operation

4.1 Program start

CCI.Tecu is activated automatically by switching on the terminal. There is direct access to all functions via the main view.

In order to change the main view of CCI.Tecu, proceed as follows:

1. Open the start menu in the main menu of the terminal and press on the touchscreen button with the CCI.Tecu-Symbol.

CCI.Tecu is subdivided into 3 areas:

4.1.1 Main view

The main view is used to show the speed, PTO speed and linkage and enables direct access to all TECU functions.

4.1.2 Tractor data

Input or modification of tractor data.

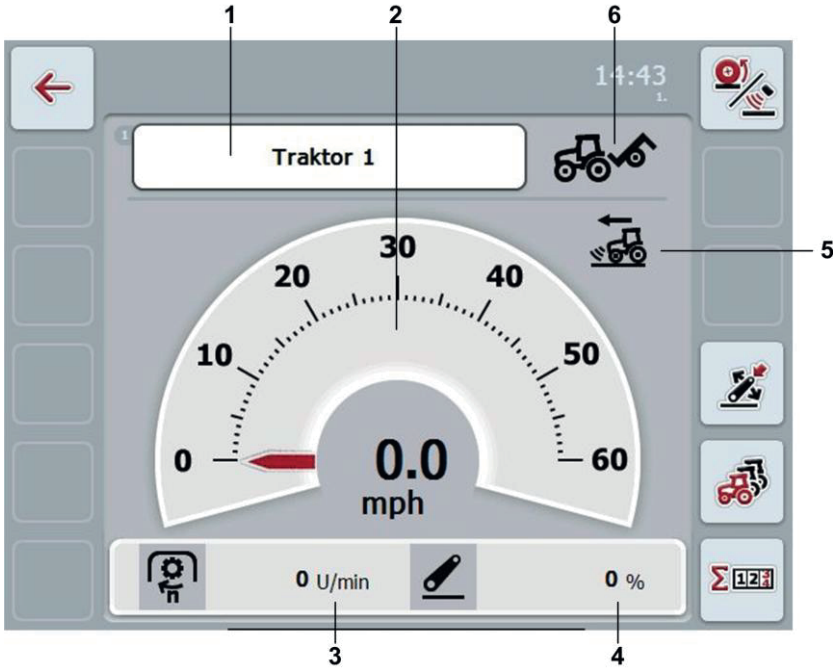
4.1.3 Hectare counter

The hectare counter shows the time since the terminal was started, the distance covered thus far and the area of ground covered. Given that you yourself can reset the counter at any time the hectare counter allows you to measure the actual working time, distance covered and the area of ground processed.

4.2 Main view

The following information is provided in the CCI.Tecu main view:

1. Name of the current tractor,
2. Speed display,
3. PTO speed display,
4. Linkage position display,
5. Display for the selected speed sensor and
6. Working or transport position display.



Note

The speed display of CCI.Tecu does not replace the tachometer of the tractor. This speed control may not be used when driving where road traffic regulations apply.

You have the following operating options:

Change to the tractor data:

Press the "Tractor Data" button (F5) on the touchscreen.

More detailed information on the tractor data can be consulted in chapter 4.3.

Change to the hectare counter:

Press the "Hectare Counter" button (F6) on the touchscreen.

More detailed information on the hectare counter can be consulted in chapter 4.4.

Select tractor

Select the speed sensor

Set working position

4.2.1 Select tractor

To select a tractor proceed as follows:

1. On the touchscreen press the button with the name of the current tractor. If the button with the tractor name is highlighted in white you can press on the scroll wheel instead.
   → A list of the stored tractors is opened.
2. Select a tractor from the list. Press the button with the name of the tractor.
3. Confirm your selection with "OK" or press on the button with the tractor name again.

4.2.2 Select the speed sensor

The speed display only evaluates one of either possible sensors. You can select between the following sensors:

- Wheel based speed
- Ground based speed

To select the speed sensor, proceed as follows:

1. Press the "Select Speed Sensor" button (F1) on the touchscreen.
   → The icon on the right above the speed display shows which sensor is selected:

Ground based speed is selected

Wheel based speed is selected

2. Select the desired setting.

Note

Adapt the selection to the signal cable used.

4.2.3 Set working position

In order to establish the current position of the linkage as the working position proceed as follows:

1. Position the linkage in the desired working position.
2. Press the "Set Working Position" button (F4) on the touchscreen.
   → The new value for the working position is accepted without acknowledgement.
   → The main view displays whether the implement is in the working or transport position.

Implement in working position.

Implement in transport position.

Note

For example, when replacing an electronic hoisting gear control, the display of the linkage between working and transport position may fluctuate. To prevent this from happening, we recommend already pressing the "Set working position" button (F4) several centimetres before the linkage in the working position.

Note

The working position must be set at the start of the activity to ensure the correct function of the hectare counter.

4.3 Tractor list

You will find a list of the stored tractors under the **List of Tractors** menu item.
The tractor data consists of

- the tractor name,
- a comment and
- the tractor settings.

You have the following operating options:


Add tractor


Edit tractor


Copy tractor


Delete tractor

4.3.1 Add tractor

To add a tractor proceed as follows:

1. Press the "Add Tractor" button (F10) on the touchscreen.
   → A detailed view of a new tractor is opened.
2. In the detailed view, select the desired tab. To do so, press on the tab icon on the touchscreen or change using the buttons "To the left" (F8) and "To the right" (F2) between the tabs.
3. Enter the new values and execute the new settings.
   The operating options for the individual tabs can be consulted in chapter 4.3.3.

Note

Upon delivery there is already an unnamed tractor in the list with some default settings. Please modify the settings (see chapter 4.3.3.)

4.3.2 Edit tractor

To edit a stored tractor proceed as follows:

1. In the tractor list select the tractor whose information is to be changed. To do so, on the touchscreen press on the button with the tractor name or turn the scroll wheel until the tractor is highlighted in white and then press on the scroll wheel.
   Once the tractor is highlighted you can, alternatively, also press the "OK" (F6) button.
   → The context menu opens
2. Press on the "Edit" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.
   → A detailed view of the tractor is opened.
3. Select all tabs to be modified in the detailed view. To do so, press on the tab icon on the touchscreen or change using the buttons "To the left" (F8) and "To the right" (F2) between the tabs.
4. Enter the new value and execute the new setting.
   The processing options for the individual tabs can be consulted in chapter 4.3.3.

4.3.2.1 Copy tractor

To copy a tractor proceed as follows:

1. In the tractor list select the tractor whose information is to be copied. To do so, press on the button with the tractor name on the touchscreen or turn the scroll wheel until the tractor is highlighted in white and then press on the scroll wheel.

   Once the tractor is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Copy" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → A detailed view of the copied tractor is opened.

Note

The copy is identified by "-Copy" after the tractor name.

4.3.2.2 Delete tractor

To delete a tractor proceed as follows:

1. In the tractor list select the tractor whose information is to be deleted. To do so, press on the button with the tractor name on the touchscreen or turn the scroll wheel until the tractor is highlighted in white and then press on the scroll wheel.

   Once the tractor is highlighted you can, alternatively, also press the "OK" (F6) button.

   → The context menu opens
2. Press on the "Delete" button on the touchscreen or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel.

   → A warning window opens.
3. Press the "OK" button on the touchscreen.

Note

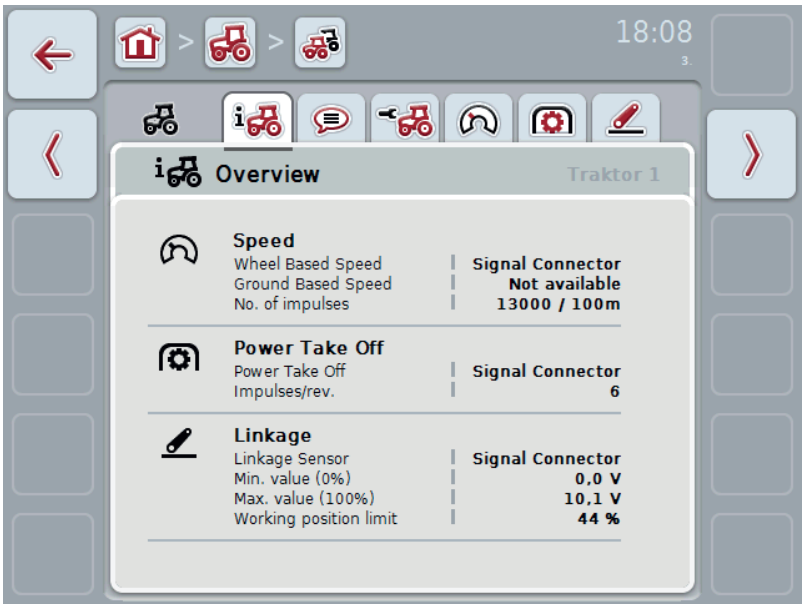
The currently selected tractor (see chapter 4.2.1) cannot be deleted.

4.3.3 Detailed view

The detailed view of a tractor is divided into 6 tabs: Overview, Comment, Tractor Settings, Speed, PTO and Linkage.

The tabs speed, power take off and linkage are not always available:

- The speed tab is only available if, in the tractor settings, the signal connector has been selected as the signal source for the wheel or ground based speed.
- The PTO tab is only available if the signal connector has been selected as the signal source for the PTO speed in the tractor settings.
- The linkage tab is only available if, in the tractor settings, the signal connector has been selected as the signal source for the linkage.

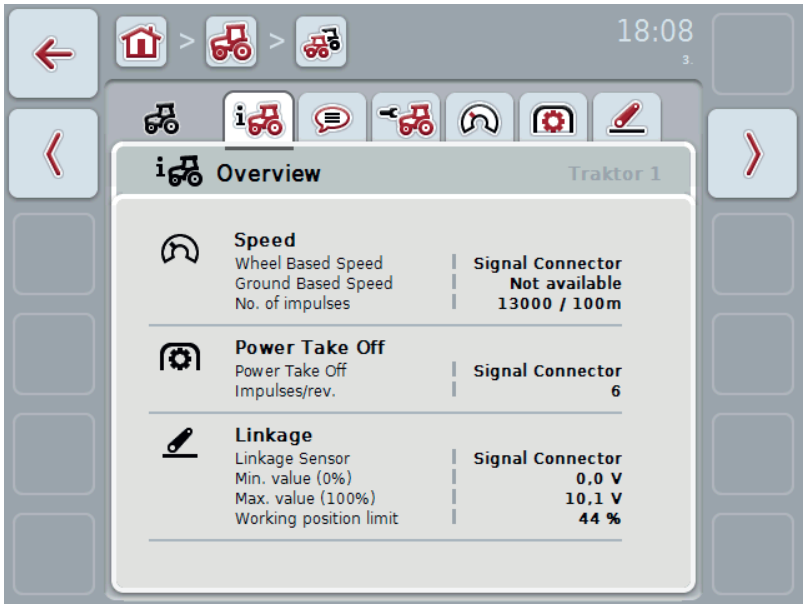


The following information is featured in the tabs:

Overview:	This shows the settings for the speed, the PTO setting and the linkage.
Comment:	This shows a comment with a maximum of 160 characters.
Tractor settings:	This shows the tractor name and the settings for wheel-based speed, ground-based speed, power take off and linkage sensor.
Speed:	Shows how many impulses per 100 metres are output by the sensor.
Power take-off:	This shows how many impulses are emitted by the sensor per PTO revolution.
Linkage:	This shows the voltage values for the maximum and minimum position.

4.3.3.1 Overview

This tab shows the settings for speed, the PTO and the linkage.



4.3.3.2 Comment

This tab shows a comment field in which notes or explanations can be inserted regarding the tractor.

Note

A comment is comprised of a maximum of 160 characters. If you exceed the text field limit the text field turns red and the input cannot be saved.

You have the following operating options:

Add comment
Edit comment

Delete comment

4.3.3.2.1 Add comment

To add a comment proceed as follows:

1. Press on the empty button on the touchscreen or on the scroll wheel or on the "OK" button (F6).
2. Enter the comment on the touchscreen using the keypad.
3. Confirm your entry with "OK".

4.3.3.2.2 Edit comment

To edit a comment proceed as follows:

1. Press on the button on the touchscreen with the comment or on the scroll wheel or on the "OK" button (F6).
2. Modify the comment on the touchscreen using the keypad.
3. Confirm your entry with "OK".

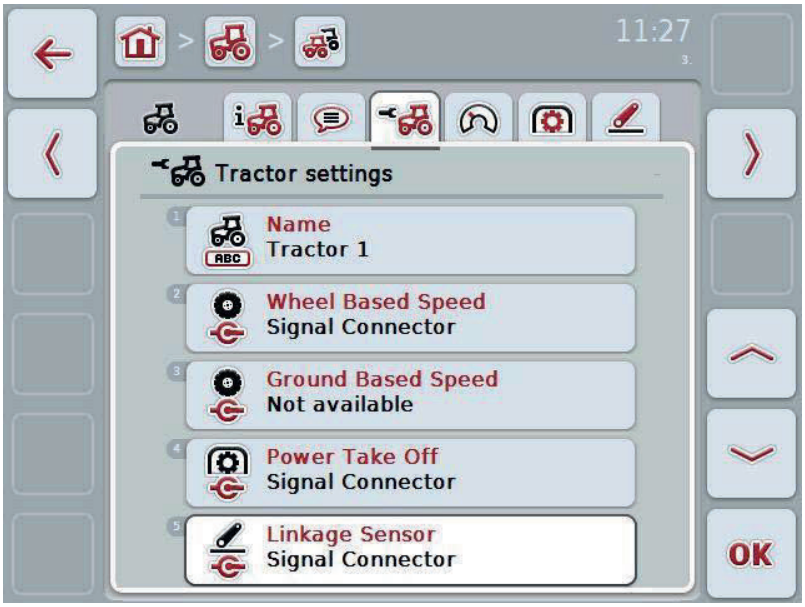
4.3.3.2.3 Delete comment

To delete a comment proceed as follows:

1. Press the "Delete" button (F12) on the touchscreen.
   → The comment is immediately deleted, there is no warning message.

4.3.3.3 Tractor settings

This tab shows the tractor name and the settings for wheel-based speed, ground-based speed, power take off and linkage sensor.



You have the following operating options:

Edit name

Select signal source

Select between:

- Not available
- Signal connector (ISO 11786)
- CAN 1 and
- GPS (only for the ground based speed).

Note

You can either select wheel based speed or ground based speed as the signal source. The other sensor is automatically shown as ***Not available***. The selection is mutually exclusive.

4.3.3.3.1 Edit name

In order to edit the tractor name proceed as follows:

1. Select the tractor name. To do so on the touchscreen press on the button with the tractor name or turn the scroll wheel or press the buttons "Up" (F4) and "Down" (F5) until the name is highlighted in white.

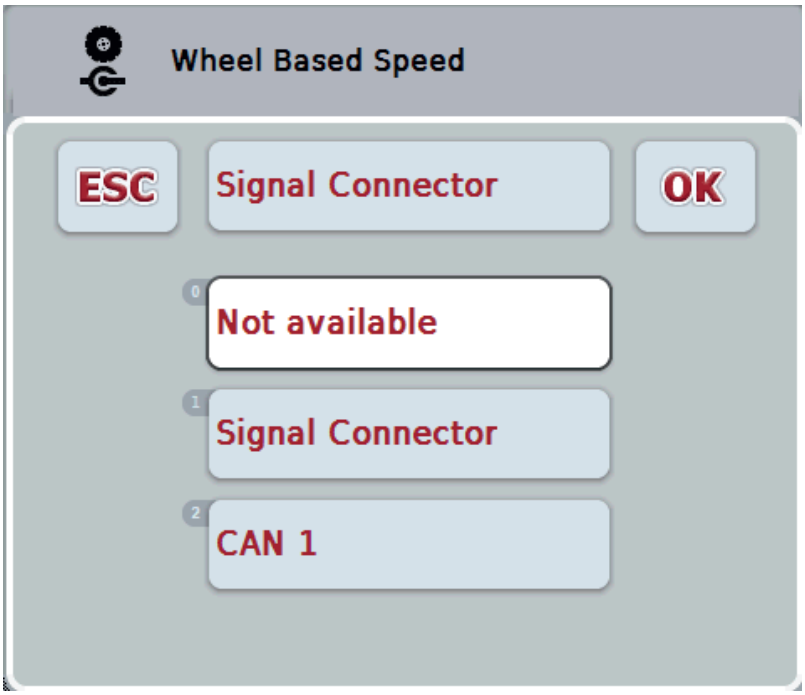
   If the name is highlighted press on the scroll wheel or on the touchscreen on the "OK" button (F6).
2. Enter the new name on the touchscreen using the keypad.
3. Confirm your entry with "OK".

4.3.3.3.2 Select signal source

To select the signal source for wheel-based speed, ground-based speed, power take off and linkage sensor, proceed as follows:

1. Select the sensor the signal source of which is to be set. To do so on the touchscreen press on the button with the sensor or turn the scroll wheel or press the buttons "Up" (F4) and "Down" (F5) until the sensor is highlighted in white. If the sensor is highlighted press on the scroll wheel or on the touchscreen on the "OK" button (F6).

   → The following selection list opens:



2. Select the desired signal source in the selection list. To do so, on the touchscreen press on the button with the signal source or turn the scroll wheel until the signal source is highlighted in white. The signal source then appears in the selection window.
3. Confirm your selection with "OK" or press once again on the signal source highlighted in white.

Note

If you select the signal connector (ISO 11786) as the signal source for the wheel based speed or the ground based speed you must calibrate the speed or manually enter the no. of impulses per 100 metres yourself.

More detailed information on speed calibration can be consulted in chapter 4.3.3.4.

Note

If you select the signal connector (ISO 11786) as the signal source for the linkage sensor you must calibrate the linkage.

More detailed information on the linkage calibration can be consulted in chapter 4.3.3.6.

Note

If you select the signal connector (ISO 11786) as the signal source for the power take off you must enter the number of impulses per revolution.

4.3.3.4 Speed

This tab shows the number of impulses emitted from the speed sensor over 100 metres.

The default setting for the new addition of a tractor shows a value of 200.

If the value for the number of impulses per 100 metres is known (e.g. from the sensor data sheet), this can be entered directly.

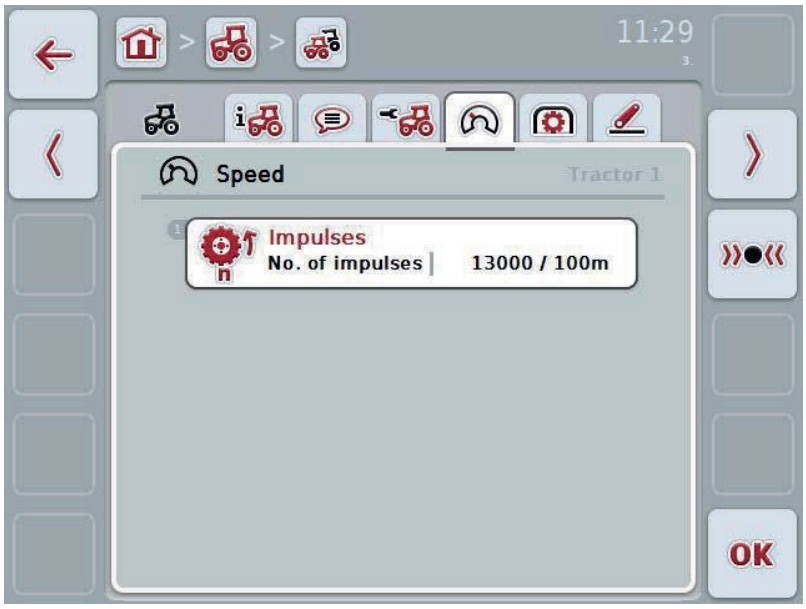
In order to obtain information which is as accurate as possible, the value should actually be obtained using a calibration.

Note

The more accurate the value is, the more precise the speed indication.

Note

The valid value range for the number of impulses lies between 200 (Min.) and 30000 (Max.).



You have the following operating options:

Enter value

Calibrate

4.3.3.4.1 Enter value

Proceed as follows to enter the value for the impulses per 100 metres:

1. Press on the "Impulses" button on the touchscreen or press on the scroll wheel or on the "OK" button (F6).
2. Enter the new value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

4.3.3.4.2 Calibrate

Note

Where possible the speed calibration should not be carried out on smooth surfaces (e.g. asphalt), rather directly on the field.

In order to calibrate the speed proceed as follows:

1. Set out a distance of 100 metres.
2. Press the "Calibrate" button (F3) on the touchscreen.
   → The calibration menu opens.
3. Go to the starting point and press the "Start Flag" button (F3) on the touchscreen.
4. Drive 100 metres and then press the "Target Flag" button (F9) on the touchscreen.
5. Confirm the values with "OK".

4.3.3.5 Power take-off

This tab shows the number of impulses emitted by the sensor per PTO revolution.

Note

Refer to your tractor's technical information to consult the value to be entered.

Note

The valid value range for the number of impulses lies between 1 (Min.) and 40 (Max.).

A frequent value in practice is 6 impulses / revolution.

You have the following operating options:

Enter value

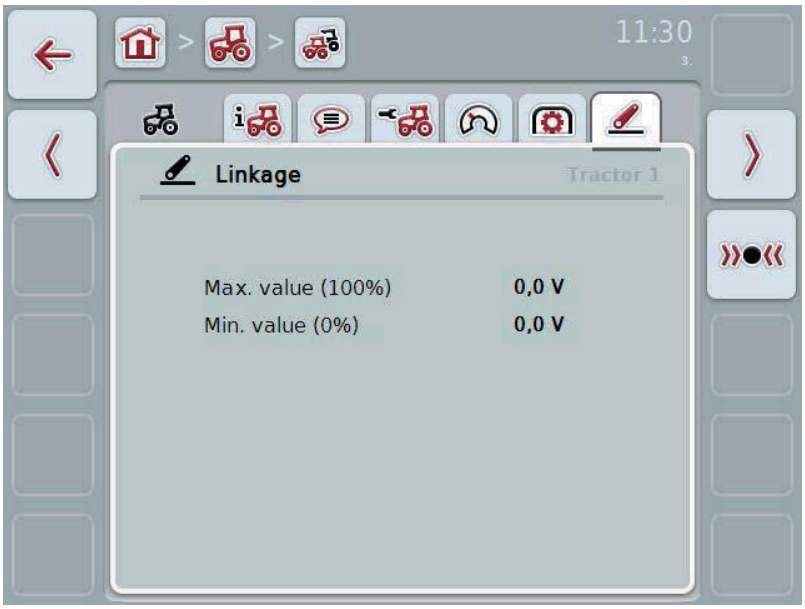
4.3.3.5.1 Enter value

Proceed as follows to enter the value for the PTO setting:

1. Press on the "PTO Setting" button on the touchscreen or press on the scroll wheel or on the "OK" button (F6).
2. Enter the new value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

4.3.3.6 Linkage

This tab shows the voltage values for the maximum and minimum linkage position.



You have the following operating options:

	Calibrate

4.3.3.6.1 Calibrate

Proceed as follows to calibrate the voltage values for the linkage:

1. Press the "Calibrate" button (F3) on the touchscreen.
   → The calibration menu opens.
2. Lift the linkage to the maximum position and then press on the "MAX" (F3) button on the touchscreen.
3. Lower the linkage to the minimum position and then press on the "MIN" (F4) button on the touchscreen.
4. Confirm the values with "OK"

Note

A plausibility check is performed. An error message is given if, for example, the minimum value exceeds the maximum value.

4.4 Passive mode

If there is a Primary TECU in the tractor the terminal TECU changes to the passive mode automatically. The passive mode is identified by a blue frame in the main view:

If all signals are read and made available via the ISOBUS, a connection with the signal connector is not necessary.

If not all signals are transmitted, then missing information can be made available via CCI.TECU. In this case a connection with the signal connector and, as necessary, a calibration (see chapter 4.3.3.4.2, 4.3.3.5.1 and 4.3.3.6.1) are necessary.

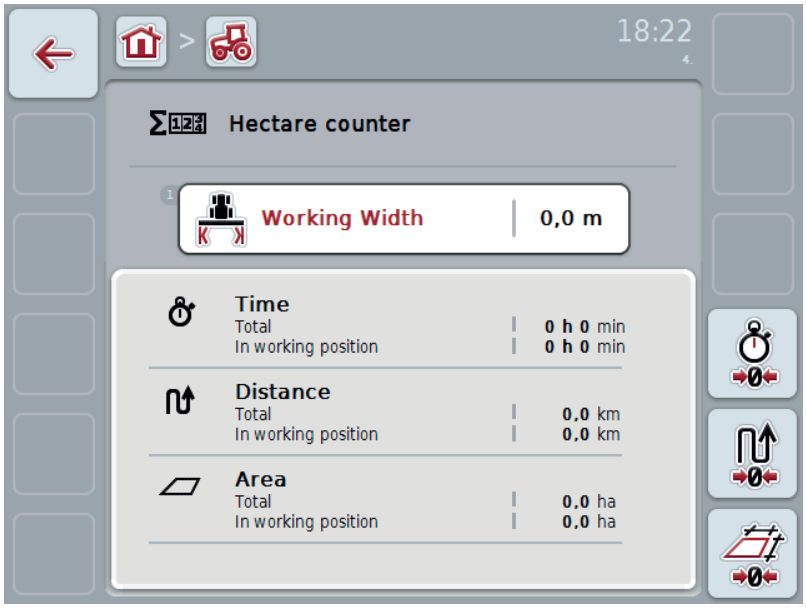
4.5 Hectare counter

Under the menu item **Hectare Counter** there is information on

- Working width of the active implement,
- Working time,
- Distance covered and
- Processed area.

A total value and a value in the working position are given for the time, distance and area respectively.

Total:	This shows the time, the distance covered and the area processed since the last reset of the individual counters.
In the working position:	This shows the time, the distance covered and the area processed in working position since the last reset of the individual counters.



You have the following operating options:

Reset time:
Press the "Reset Time" button (F4) on the touchscreen.

Reset distance:
Press the "Reset Distance" button (F5) on the touchscreen.

Reset area:
Press the "Reset Area" button (F6) on the touchscreen:

Enter working width

4.5.1 Enter working width

Proceed as follows to enter the working width of the active implement:

1. Press on the button "Working Width" on the touchscreen or press on the scroll wheel.
2. Enter the new value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note

The valid value range for the working width lies between 0.0 metres (Min.) and 20.0 metres (Max.).

Note

The value entered for the working width must be as accurate as possible to enable an exact calculation of the area processed.

5 Troubleshooting

5.1 Terminal errors

The following overview shows possible terminal errors and how to solve them:

Error	Possible cause	Rectification
The terminal does not switch on	• Terminal is not correctly connected • Ignition is not switched on.	• Check ISOBUS connection • Start tractor.
Connected implement software is not displayed	• Bus terminator missing • Software is loaded, however is not displayed • Connection error when uploading the software	• Check resistance • Check whether the software can be manually started from the terminal start menu • Check physical connection • Contact the implement manufacturer's customer service

5.2 Error messages

The following overview shows error messages in CCI.Tecu, their possible cause and how to rectify them:

Error	Possible cause	Rectification
Cannot delete tractor! There is only one tractor or you are trying to delete the active tractor.	• There is only one tractor in the list of tractors • The selected tractor is currently active in the TECU main view.	• If you want to delete the last tractor in the list, it is not possible. • Activate another tractor in the TECU main view.
Invalid value! Measured position exceeds max. value.	The maximum position was not measured during the three-point calibration.	Carry out the three-point calibration again.
Invalid value! Measured position below min. value.	The minimum position was not measured during the three-point calibration.	Carry out the three-point calibration again.

Invalid value! PTO speed exceeds 3000 rpm.	• Number of impulses per rotation incorrect • Power take off sensor defective	• Set the number of impulses in the **Power Take Off** tab • Replace power take off sensor
Invalid value! Speed (ground-based) exceeds 37 mph (60km/h).	• Number of impulses per 100 m incorrect • Ground based speed sensor defective	• Set the number of impulses in the setting menu • Replace ground based speed sensor
Invalid value! Speed (wheel-speed) exceeds 37 mph (60 km/h).	• Number of impulses per 100 m incorrect • Wheel based speed sensor defective	• Set the number of impulses in the setting menu • Replace wheel based speed sensor
Calibration error Invalid min. value! New min. position is higher that the saved max. position. Ensure that the min. position is reached and the saved max. position is valid.	Calibration sequence was not observed.	Ensure that you have carried out the calibration in the correct sequence. If the problem occurs again, please contact your specialist dealer.
The TECU is in passive mode because another TECA was identified.	Another TECU is connected to the BUS. It is present in another terminal or in your tractor.	If the other TECU makes the necessary information available, then it is correct that the CCI-TECU changes into passive mode. If you want to make the information available with CCI.Tecu, then you must deactivate the other TECU. You can find more information about this in the relevant instruction manual.

Note

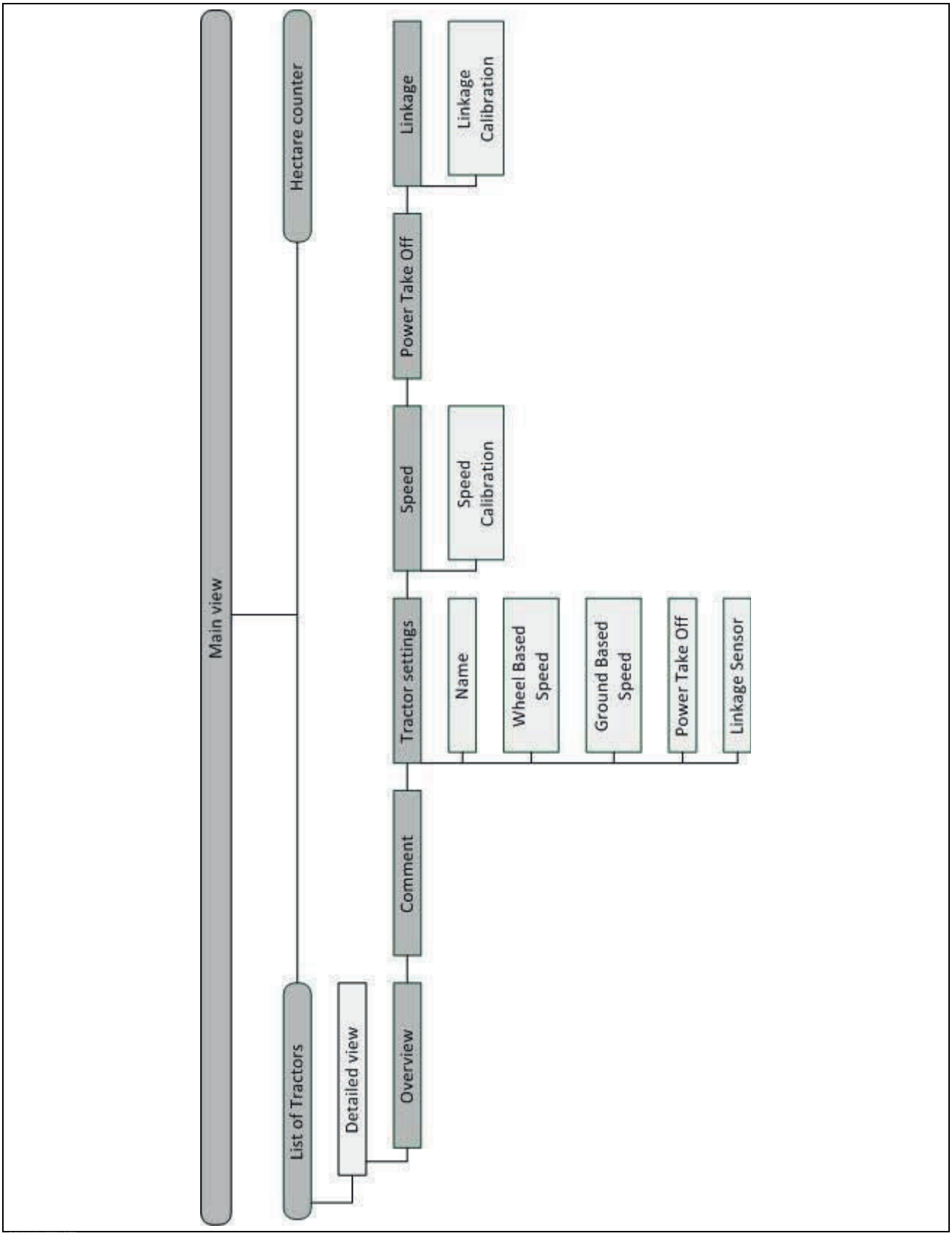
Other error messages may be displayed on the terminal that are dependent on the implement.

A detailed description of the possible error messages and troubleshooting can be referred to in the implement operating instructions.

Note

If the implement cannot be operated, check whether the "stop switch" is pressed in. The implement cannot be operated until the switch has been released.

6 Menu structure



7 Glossary

Linkage	Linkage, rear hoisting gear
Linkage sensor	Used for detecting the current position of the *Linkage*. It provides an output voltage to the *Signal connector* which is proportional to the current position of the linkage.
Operating mask	The operating mask is comprised of the values and operating elements shown on the screen. The touchscreen can be used to directly select the elements shown.
Bus system	Electronic system for the communication between control units.
CCI	**C**ompetence **C**enter **I**SOBUS e.V.
ECU	**E**lectronic **C**ontrol **U**nit Control unit, job computer
Electronic hoisting gear control	**E**lectronic **H**oisting Gea**r** Control
Speed sensor	(wheel- or ground-based) sensor for detecting the tractor speed.
GPS	**G**lobal **P**ositioning **S**ystem. GPS is a system for satellite-supported position determination.
ISOBUS	ISO11783 International standard for data transfer between farming implements and devices.
Context menu	Graphical user interface Facilitates editing, copying, deleting or adding of data.
Implement	Towed or attached accessory or equipment. An implement with which a task can be executed.
Passive mode	If there is a Primary TECU in the tractor the terminal TECU changes to the passive mode automatically.
Primary TECU	TECUs are already installed in tractors at the factory
Ground based speed	It emits a specific number of electrical impulses in proportion to the distance already covered. As such, the real speed can be calculated. Note that under certain circumstances, ground based speed (radar) sensors may supply inaccurate speed values dependent on the background, e.g. due to high grass or puddles.
Wheel based speed	It emits a specific number of electrical signals in proportion to the wheel rotation. As such, the theoretical speed of the tractor can be calculated. Wheel based speed sensors may supply inaccurate speed values when slip occurs.
Secondary TECU	In the case of the Secondary TECU, tractor information is read out via the signal connector and transferred to the ISOBUS implement.
Signal cable	Cable for connecting the CCI 100/200 terminal to the signal connector in the tractor.
Signal source	Source of the sensor values such as the speed read from the terminal.
Signal connector	Sensor connection in the tractor according to ISO 11786

TECU	**Tr**actor **ECU** On an ISOBUS tractor, the TECU establishes the connection between the tractor bus system and the ISOBUS and thus provides the implement with the tractor information such as the driving speed or the PTO speed.
Terminal	CCI 100 or CCI 200 ISOBUS Terminal
Touchscreen	Touch-sensitive screen which is used to operate the terminal.
Power take off	Serves for detecting the speed of the PTO. It emits a specific number of electrical impulses in proportion to the PTO speed.

8 Buttons and icons

TECU


Hectare counter


Change between wheel based speed and ground based speed


Linkage position


Implement in transport position


Wheel based speed is selected.


Comment


Speed


Linkage


Power take off


Impulses (speed)


Start flag


Calibrate

Establish minimum linkage position


Distance


Working width


Reset distance


Edit


Delete


Change to the right


Tractor list


Set working position


PTO speed


Ground based speed is selected


Implement in working position


Overview


Tractor settings


Power take-off


Wheel based speed
Ground based speed


Linkage sensor


PTO setting


Target flag

Establish maximum linkage position


Time


Area


Reset time


Reset area


Copy


Add


Change to the left

Change up

Change down

Confirm selection or entry

Select from a list

9 Index

CCI.Command

GPS track guiding and section control

Operating Instructions

Reference: CCI.Command v1.41

TC-SC

CC ISOBUS

1 Introduction

1.1 About these operating instructions

These Operating Instructions are intended as an introduction to the operation and configuration of CCI.Command. This app is preinstalled on your ISOBUS terminal CCI 100/200 and can only be run from there. It is only with knowledge of these operating instructions that accidental misuse can be avoided and fault-free operation ensured.

These operating instructions must be read and understood to prevent problems during operation. They must always be stored so that any employee may access them

1.2 Reference

These operating instructions describe the app in its version CCI.Command v1.41 with the modules CCI.Command/Parallel Tracking and CCI.Command/Section Control.

In order to query the version number of the CCI.Command installed on your CCI ISOBUS terminal, proceed as follows:

1. Press the home key to enter the main menu.
2. Press the "Info Diagnose" button in the main menu.
3. In the menu **Info and Diagnose** press the button "Terminal Info".
4. Press the "Software info" button on the touchscreen.
   → The version of the terminal software component is indicated In the information field that is now displayed.

1.3 About CCI.Command

CCI.Command comprises two modules, that can be acquired and used independently of each other:

CCI.Command/Parallel Tracking

CCI.Command/Section Control

1.3.1 CCI.Command/Parallel Tracking

This module improves, for example, orientation during plant protection agent and fertilizer application on fields without any machine tracks. More accurate linking driving helps to avoid *overlaps* and *missed areas*.

The module relates to a parallel guidance aid, which under consideration of the actual working width indicates the position of parallel tracks and using a lightbar suggests the necessary steering corrections. The tracks can be recorded as straight A-B lines or as curves.

1.3.2 CCI.Command/Section Control

Using GPS, the module automatically switches off the *sections* of a plant protection spray / a fertilizer upon passing over field boundaries and already treated areas and switches them back on upon leaving them. Possible *overlaps* (double treatments) are thus reduced to a minimum and the worker's work load reduced. Additionally it is possible to plot obstacles. Before an obstacle is reached, a warning message is displayed.

The safe operation of the automatic Section Control is only possible using a Section Control-enabled ISOBUS implement.

The operating mode Section Control is only available in map view once all implement data has been transferred.

For safety reasons, when using a fertilizer, automatic Section Control is only possible after a field boundary has been logged. With field sprayers, it is possible to work without field boundaries. For safety reasons it is always recommended that a field boundary is recorded

1.3.3 Operation with an implement

1.3.3.1 Not ISOBUS enabled

When operating with a non-ISOBUS enabled implement, the following functions are available to you:

- Parallel Tracking after manual entry of the working width
- Manual labelling of the worked area

1.3.3.2 ISOBUS enabled and task controller enabled

When operating with an ISOBUS and task controller enabled implement, the following functions are available to you:

- Parallel Tracking (working width is automatically transferred)
- Automatic identification of the worked area (working state of the implement is transferred if an active task exists).

An ISOBUS and task controller enabled implement corresponds to the AEF functionalities TC-BAS and TC-GEO (see chapter 8).

1.3.3.3 ISOBUS enabled and Section Control enabled

When operating with an ISOBUS and Section Control enabled implement, the following functions are available to you:

- Parallel Tracking (working width is automatically transferred)
- Automatic identification of the worked area (working state of the implement is transferred if an active task exists).
- Automatic Section Control (geometry is transferred from the implement).

An ISOBUS and Section Control enabled implement corresponds to the AEF functionality TC-SC (see chapter 8).

2 Safety

2.1 Identification of indications in the operating instructions

The safety indications in these operating instructions are specially identified:

Warning - General Hazards!

This occupational safety symbol identifies general safety indications the non-observance of which poses a danger for life and limb. Carefully observe the indications regarding occupational safety and exert particular caution in these cases.

Attention!

This attention symbol identifies all safety indications which refer to regulations, directives or working procedures which it is essential to observe. Non-observance can entail damage to, or the destruction of, the terminal as well as malfunctions.

Note

The note symbol highlights operation tips and other particularly useful information.

Information

The information symbol highlights background information and practical tips.

3 Commissioning

3.1 Mounting the terminal

For information, please refer to the chapter **4.1 Mounting the terminal** in the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2 Connecting the Terminal

3.2.1 Connecting to ISOBUS/power supply

Please refer to the information in the chapter **4.2.1 Connecting to ISOBUS/power supply** of the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2.2 Connecting to a GPS receiver

Use of a GPS receiver is required for correct operation of the CCI.Command.

For information, please refer to chapter **3.2.2 Connecting with a GPS receiver** in the **CCI.GPS** operating instructions.

3.2.2.1 GPS data requirements

The following framework conditions must be adhered to for operation with Command:

Baud	19200
GGA + RMC + VTG	5 Hz
GSA	1 Hz
GSV (optional)	1 Hz

3.2.3 Connecting with the external lightbar CCI L10

CCI.Command provides the option of using the external lightbar CCI L10.

Proceed as follows to connect the external lightbar:

1. Connect the external lightbar CCI L10 to the terminal's LIN *interface*.

3.3 Installing the software

CCI.Command is included in the scope of delivery of the CCI ISOBUS terminal, i.e. installation is neither possible nor required.

In order to be able to operate the software installed ex works a licence must be acquired:

As an option when purchasing the terminal	The software is enabled ex works and can be used immediately.
Upgrade	In the event of licensing at a later date the software is activated by our service partners.

Note

If you own a licensed version of CCI.Command the CCI.Command icon is visible in the start menu of your terminal.

3.4 Operating modes

3.4.1 Section Control

To place CCI.Command into operation, proceed as follows:

1. Switch on the terminal.
2. Start CCI.Command (see chapter 4.2).
3. Make the geometry settings (see Chapter 4.3.3).
4. Make the settings for Parallel Tracking (see chapter 4.3.4).
5. Make the settings for Section Control (see chapter 4.3.5).
6. Activate Section Control operating mode and change to map view (see chapter 4.1).
7. Mark out the field boundary (see chapter 4.4.1).
8. Mark out a *reference track* (see chapter 4.4.4).
9. Process the field in operating modes Parallel Tracking and Section Control.

3.4.2 Parallel Tracking

To place CCI.Command into operation, proceed as follows:

1. Switch on the terminal.
2. Start CCI.Command (see chapter 4.2).
3. Make the settings for Parallel Tracking (see chapter 4.3.4).
4. Change to map view (see chapter 4.1).
5. Mark out a reference track (see chapter 4.4.4).
6. Process the field in the operating mode Parallel Tracking.

4 Operation

4.1 General instructions

CCI.Command is subdivided into 2 areas: the field map view and the settings. When changing between the two areas, note the following:

If all implement data have been transferred, then upon calling up the field map, operating mode Section Control is automatically activated. If your return to the settings, Section Control is automatically paused:

Call up the field map
Activate operating mode Section Control

Switch to Settings
Pause operating mode Section Control

If no implement data was transferred, the upper area of the button is greyed out. Section Control is not available, the field map can however be called up:

Call up the field map

Switch to Settings

4.2 Program start

CCI.Command is activated automatically by switching on the terminal. There is direct access to all functions via the start screen.

To switch to the start screen from CCI.Command, proceed as follows:

1. Open the start menu in the main menu of the terminal and press on the button with the CCI.Command icon or press the WorkingSet button on the terminal again.

CCI.Command is subdivided into 2 areas:

4.2.1 Settings

Selection of the *field*, entry of the settings for geometry, Parallel Tracking and Section Control.

4.2.2 Field map view

Parallel Tracking, Section Control, Obstacles and GPS Correction

4.3 Settings

Five tabs are shown in **Settings**:

They feature the following information:

Overview:	Gives an overview of the settings for *field*, geometry, Parallel Tracking and Section Control.
***Fields*:**	Displays the *field* and the worked area and allows management of *fields*.
Geometry	Shows the geometry of the implement and enables geometry settings.
Parallel Tracking:	Shows the settings for Parallel Tracking and allows settings to be made for Parallel Tracking.
Section Control:	Shows the settings for Section Control and allows settings to be made for Section Control.

4.3.1 Overview

This tab shows a summary of the most important information for the *field*, geometry, Parallel Tracking and Section Control.

4.3.2 *Fields*

This tab displays the name of the field, the field boundaries, the worked area and the obstacles.

You have the following operating options:

Select *Field*

Save *Field*

Delete the currently selected *Field*

Edit name

Delete worked area

4.3.2.1 Select *Field*

If you want to process/work an already saved field again, proceed as follows:

1. Press the "Field" button on the touchscreen. If the button with the field name is highlighted in white you can press on the scroll wheel instead.
   → A list of the stored *fields* opens.
2. Select a *field* from the list. Accordingly, press the button with the name of the field in the touchscreen.
3. Confirm your selection by pressing "OK" or pressing the button with the field name again.

Note

After starting CCI.Command, you can immediately start work. The selection of a saved *Field* is not necessary.

4.3.2.2 Save *Field*

If the latest worked field is to be available for subsequent working, it must be saved. Proceed as follows to do this:

1. Press the "Save in database" button (F9) on the touchscreen.
2. Enter the field name on the touchscreen using the keypad.
3. Confirm your entry with "OK".

.

4.3.2.3 Delete *Field*

To delete the selected field, proceed as follows:

1. Press the "Delete" button (F12) on the touchscreen.
2. Confirm with "OK".

4.3.2.4 Edit name

To edit the name of a saved *field* proceed as follows:

1. Press the "Edit" button (F3) on the touchscreen.
2. Change the field name on the touchscreen using the keypad.
3. Confirm your entry with "OK".

4.3.2.5 Delete worked area

If you want to re-work an already worked field, this function makes it possible to delete the blue highlighted worked area of the field.

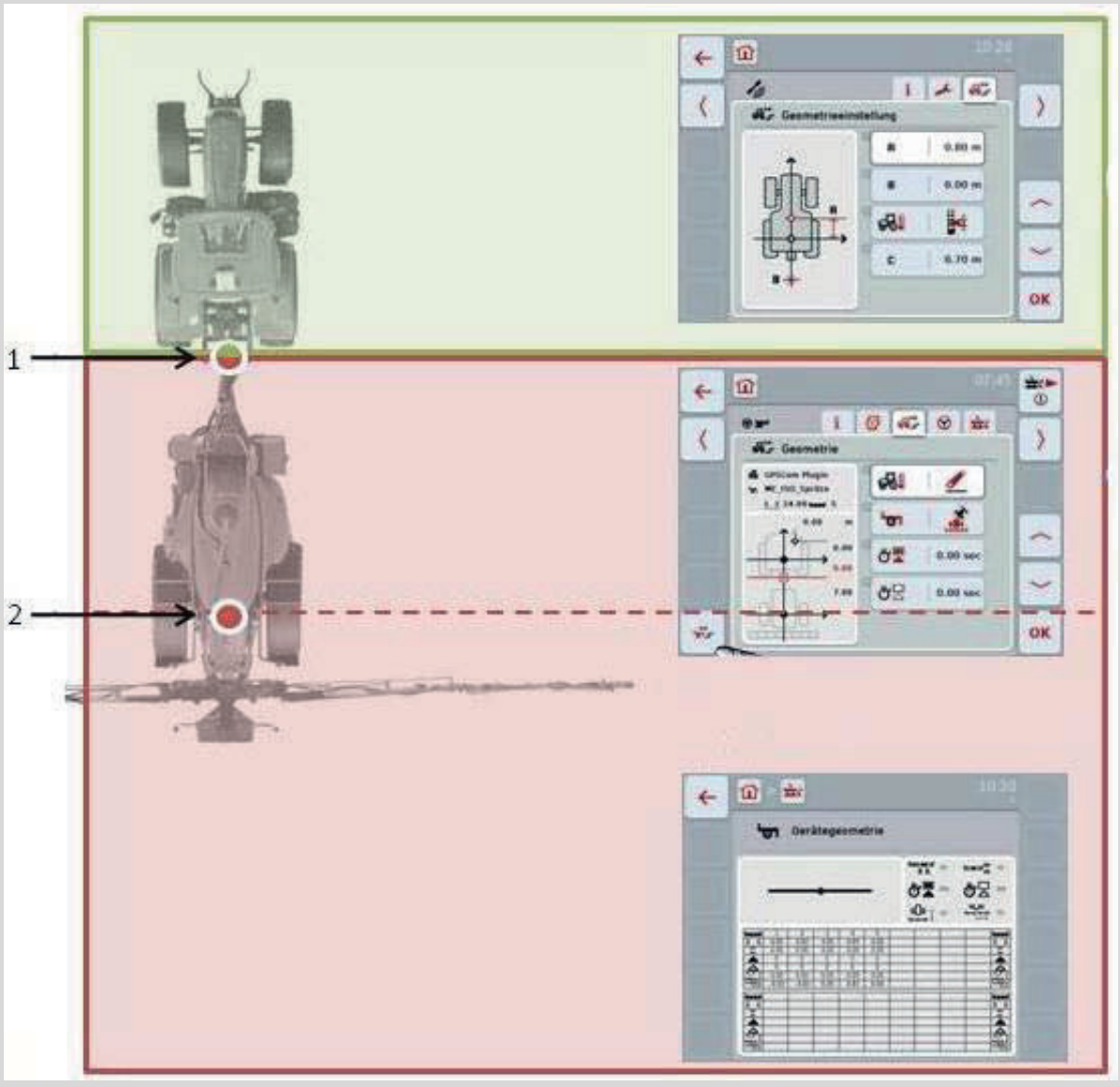
To delete the worked area of the selected field, proceed as follows:

1. Press the "Delete worked area" button (F4) on the touchscreen.
2. Confirm the prompt for confirmation with "OK".
   → The blue highlighted area is removed.

Geometry settings

An exact geometry setting is the basic prerequisite for exact functioning of the automatic Section Control. CCI.Command uses the geometry data, that has been transferred from the implement via ISOBUS. A configuration of this data is not possible in CCI.Command.

The tractor geometry data (position of the GPS aerial) must be initially entered (one-off entry) in the CCI.GPS app. To do this take the information from chapter **4.4 Geometry settings** of the **CCI.GPS** operating instructions.



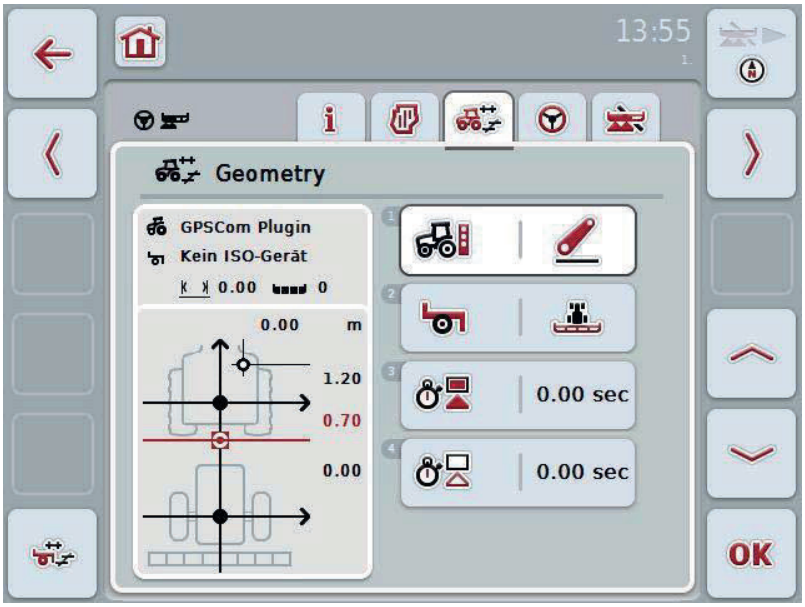
1. Connection point
2. Implement reference point

The red area identifies the geometric data of the implement from the connection point (1).

The tractor geometry data is shown in the green area.

4.3.3 Geometry

In this tab, the position of the GPS aerial, the implement design, the distance between the navigation point and *connection point*, the *delay times* and the number of *sections* are shown in the left display area.



You have the following operating options:

Display Section Geometry

Select *connection point*

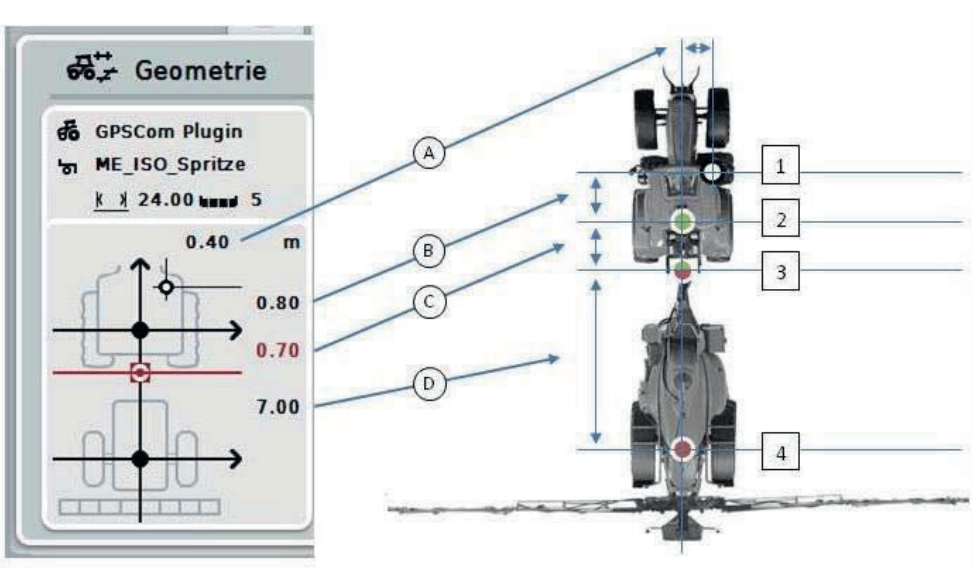
Selecting the implement type

Enter *delay times*

Note

The geometry settings for the tractor must be made in the CCI.GPS app. You can find more information in the **CCI.GPS** operating instructions.

You are provided with the following geometry information in the display area:



Distances

A: Distance between the tractor reference point and the GPS aerial perpendicular to the direction of travel.

B: Distance between the tractor reference point and the GPS aerial in the direction of travel.

C: Distance between the tractor reference point and the *Connection point* in the direction of travel.

D: Distance between the *connection point* and the implement reference point in the direction of travel.

Points

1: GPS aerial

2: Tractor reference point

3: *Connection point*

4: Implement reference point

Note

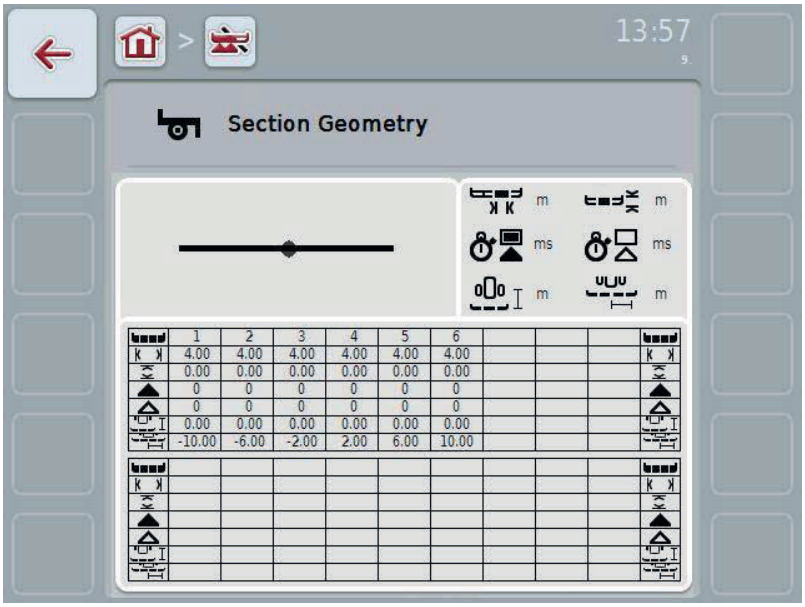
The implement reference point is at the mid-point of the first axle. If the implement does not have an axle, then the reference point is defined by the manufacturer. Take the position of the reference point from the implement manufacturer's operating instructions.

4.3.3.1 Display Section Geometry

In Section Geometry only those values are displayed that are transferred from the implement.

To display the Section Geometry, proceed as follows:

1. Press the "Display Section Geometry" button (F12) on the touchscreen.
   → The view for the Section Geometry opens:



The position of the *Sections* relative to the implement reference point is shown schematically in the top left box. In this way it is possible to see at a glance, whether the *Sections* all lie on a line, or whether different distances have been set in the direction of travel.

The units currently being used are shown in the top right box.

The values for the following details of the Section Geometry are shown in the bottom box:

Note

The symbols that are used in the bottom box, are simplified representations of the symbols in the top right box. Therefore the appropriate units for the value that is displayed in the bottom box are shown in the top right box.

Symbol: top right box	Symbol: bottom box	Meaning
		Number of *Section* (in direction of travel counted from the left)
		Working width of the *section*
		Working depth of the *section*
		*Switch-on delay*
		*Switch-off delay*
		Distance between the implement reference point and the *Section* in the direction of travel
		Distance between the implement reference point and the *Section* perpendicular to the direction of travel

Implement mountings

There are various implement mountings, these each have their own the connection point offset.

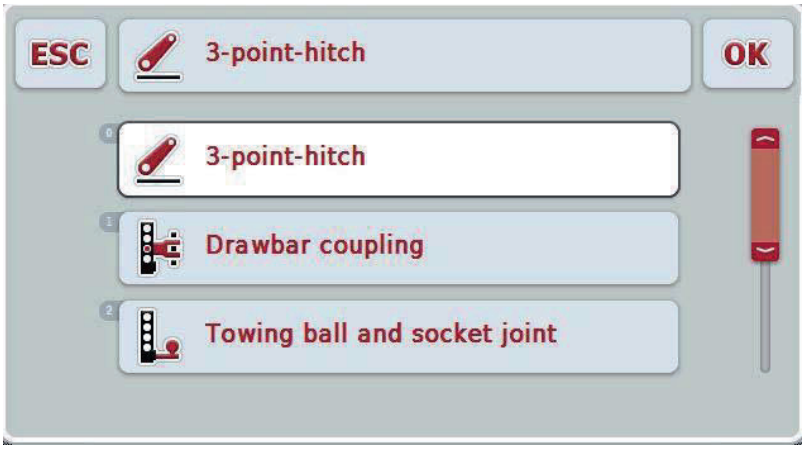
In CCI.GPS the correct offset from the tractor reference point can be input for each implement mounting. The information is contained in chapter **4.4 Geometry settings** of the **CCI.GPS** operating instructions.

Once these settings have been made, it is sufficient to select the currently to be used connection point in CCI.Command. Repeated remeasuring is not necessary.

4.3.3.2 Select *connection point*

To select the currently used implement mounting, proceed as follows:

1. On the touchscreen press on the "Implement mounting" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → The following selection list opens:



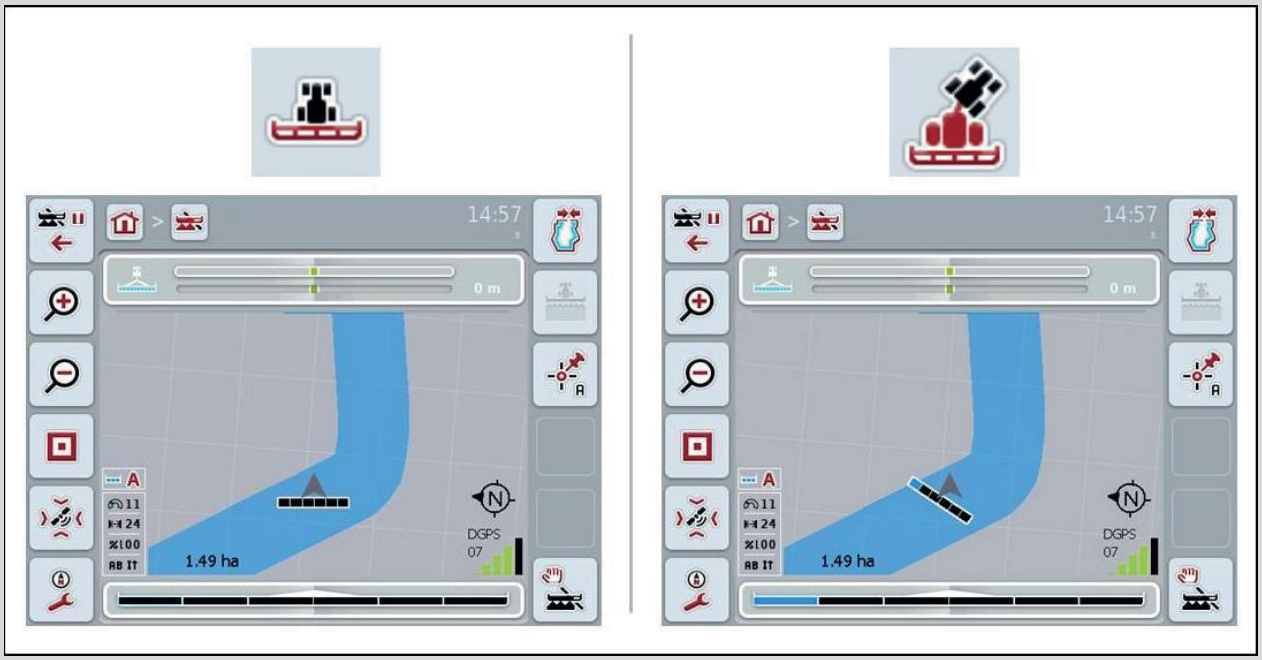
2. In the selection list, select the current implement mounting. To do so, on the touchscreen press on the button with the *connection point* or turn the scroll wheel until the button is highlighted in white. The *connection point* then appears in the selection window.
3. Confirm your selection with "OK" or press once again on the *connection point* highlighted in white.

Note

In the geometry overview, the saved value for the currently selected implement mounting is displayed (red number).

Implement types

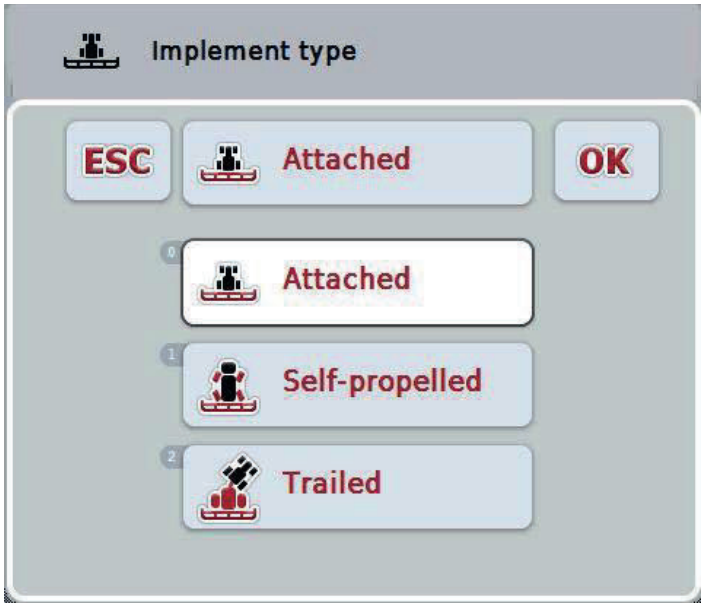
If trailed implements are being used, the position of the sections changes for curved tracks. When using the setting "Trailed" and "Self-propelled", the position of the sections, is calculated for curved tracks (right image). With attached implements, it remains fixed (left image).



4.3.3.3 Selecting the implement type

To select the implement type proceed as follows:

1. On the touchscreen press on the "Implement type" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → The following selection list opens:



2. Select the desired implement type in the selection list. To do so, on the touchscreen press on the button with the implement type or turn the scroll wheel until the button is highlighted in white. The implement type then appears in the selection window.
3. Confirm your selection with "OK" or press once again on the implement type highlighted in white.

Delay times

The *delay times* describe the time delay between the command and the actual activation of a section (e.g. during spraying, the time from the command: "Switch on section", until when the agent is actually applied). There is a *switch-on* and a *switch-off delay*.

4.3.3.4 Enter *delay times*

Note

If *delay times* are transferred from the implement, the buttons are greyed out. It is displayed in the Section Geometry (see chapter 4.3.3.1). To change the *delay times*, the implement operation must be called up. You can find more information in the operating instructions for your implement.

To enter the *delay times*, proceed as follows:

1. In the touchscreen press on the buttons "*Switch-on delay*" (button 3) and "*Switch-off delay*" (button 4) and enter the times that must be adhered to before individual selections are switched on or off.
2. Confirm your entry with "OK".

Note

Values between 0.00 and 9.00 seconds are valid for the *Delay times*.

4.3.4 Parallel Tracking

The necessary settings for Parallel Tracking are made in this tab.

You have the following operating options:

 **Enter working width**

 **Enter the *Overlapping* value**

 **Select Guidance Mode**

 **Enter the Beds value**

 **Lightbar settings**

4.3.4.1 Enter working width

To enter the working width, proceed as follows:

1. On the touchscreen press on the "Working width" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note

The value entered for the working width must be as accurate as possible to enable an exact calculation of the area processed.

The valid range for the working width lies between 0.0 metres and 99.0 metres.

Note

If the implement transfers a working width, then the button is greyed out. The working width is transferred from the implement and can only be changed in the implement mask. See the manufacturer's operating instructions for the procedure.

Overlapping

The *Overlapping* setting is used to compensate for steering faults and GPS inaccuracies. During operation there are 2 possible cases:

1. *Missed areas* must be avoided.
   In this case a positive value must be entered. This results in the distance between the guidance tracks being reduced by the entered value. This reduces the effective working width, *missed areas* are avoided and *overlapping* can occur.

2. *Overlapping* must be avoided.
   In this case a negative value must be entered. This results in the distance between the guidance tracks being increased by the entered value. In this way *overlapping* is avoided and *missed areas* can occur.

4.3.4.2 Enter the *Overlapping* value

Proceed as follows to enter the *Overlapping* value:

1. On the touchscreen press on the "Overlapping" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

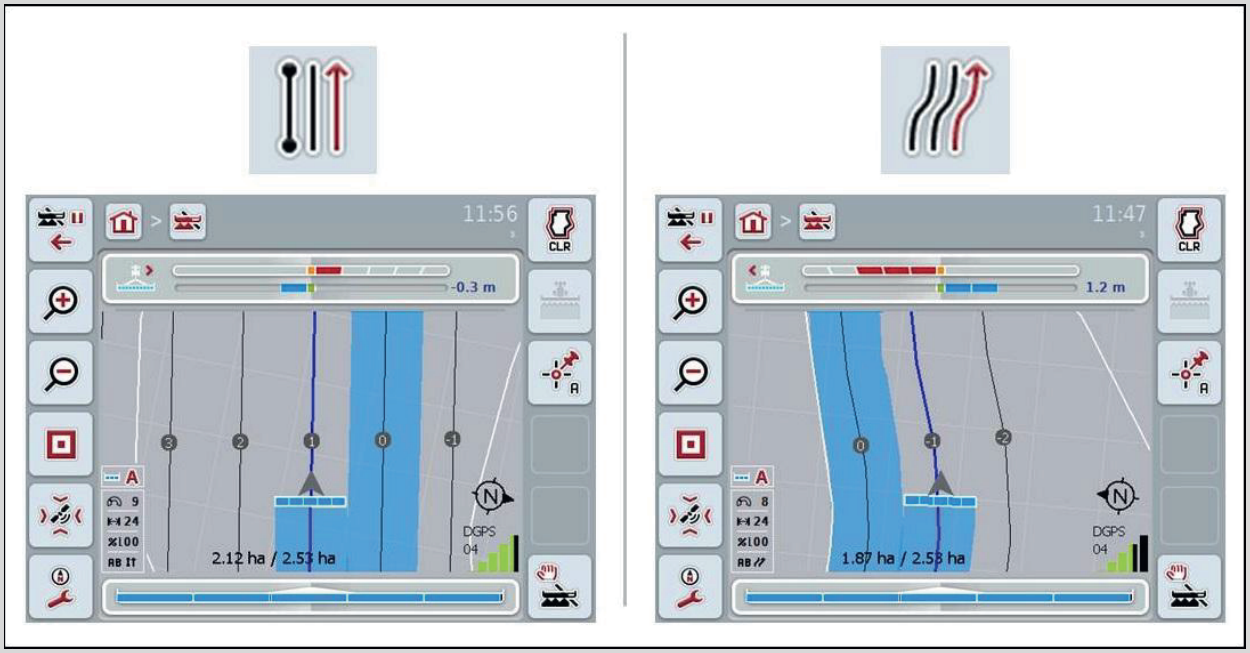
Note

Values between -100 and +100 cm are valid for the *Overlapping*.

Guidance modes

There are 2 different guidance modes:

A-B mode ***Curve mode***



A-B mode: The worker sets an A-point, drives further and sets a B-point. The system automatically draws a line between these two points and in addition creates parallel guidance tracks at a distance equal to the working width.

Curve mode: The worker sets an A-point, drives a desired distance that may also contain curves and sets a B-point. The system records the driven distance and in addition creates parallel tracks corresponding to the working width distance.

At the end of the recorded track, the line is extended with a straight line. This makes possible the reliable driving into the tracks in the headland area.

4.3.4.3 Select Guidance Mode

To select the guidance mode, proceed as follows:

1. On the touchscreen press on the "Guidance Mode" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).

   → A selection list opens.

2. Choose between "*A-B mode*" and "*Curve mode*". To do so, on the touchscreen press on the button with the desired mode or turn the scroll wheel until the mode is highlighted in white. The mode then appears in the selection window.
3. Confirm your selection with "OK" or press once again on the mode highlighted in white.

Beds mode

Beds mode offers the possibility of missing out tracks. For example this enables turning in a train with small working widths.
Setting "1" means that every *guidance track* is used. Setting "2" means that every second *guidance track* is highlighted in the portrayal (see screenshot), the remaining ones are greyed out. The lightbar display then relates to the highlighted *guidance tracks*.

4.3.4.4 Enter the Beds value

Proceed as follows to enter the value for the beds:

1. On the touchscreen press on the "Beds" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note

Values between 1 and 5 are valid for the Beds.

4.3.4.5 Lightbar settings

In order to change to the lightbar settings proceed as follows:

1. On the touchscreen press on the "Lightbar" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → The following mask opens:

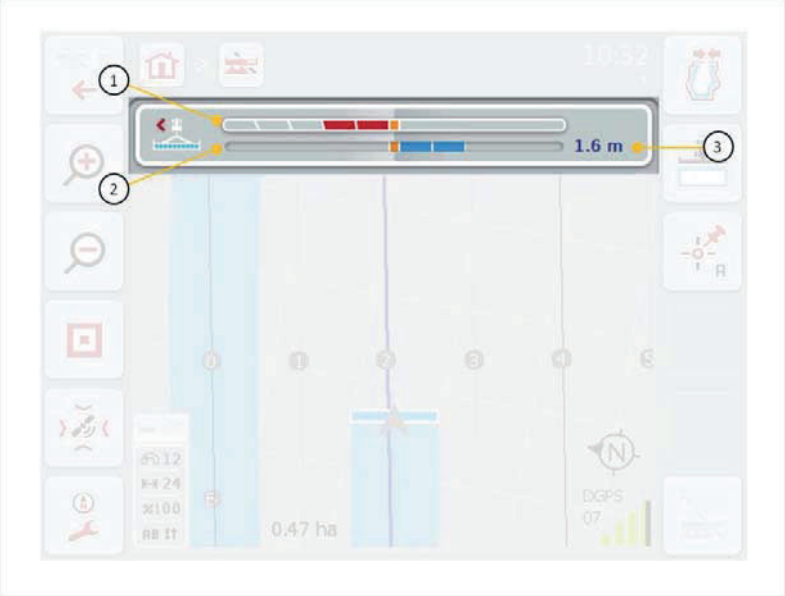
You have the following operating options:

Enter the *Look Ahead* time

Enter the *LED Distance* value

Lightbar

The top segments of the lightbar (1) show the worker the steering suggestion, that is required to correct the current deviation from the guidance track that is shown by the bottom segments (2). The current deviation from the track is also shown as a number (3).



4.3.4.5.1 *Enter the Look Ahead time*

The *look ahead* time specifies the time interval for calculation of the steering suggestions. Proceed as follows to enter the *Look ahead* time:

1. On the touchscreen press on the "*Look ahead"* button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note

Values between 1 and 10 are valid for the *Look ahead* time.

4.3.4.5.2 Enter the *LED Distance* value

The *LED Distance* can be used to specify how many centimetres deviation a segment of the lightbar corresponds to.

To enter the value for the *LED Distance*, proceed as follows:

1. On the touchscreen press on the "*LED Distance"* button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the desired value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note

Values between 10 and 100 cm are valid for the *LED Distance*.

4.3.5 Section Control

The Section Control settings are displayed in this tab.

You have the following operating options:

 **Select the degree of overlap**

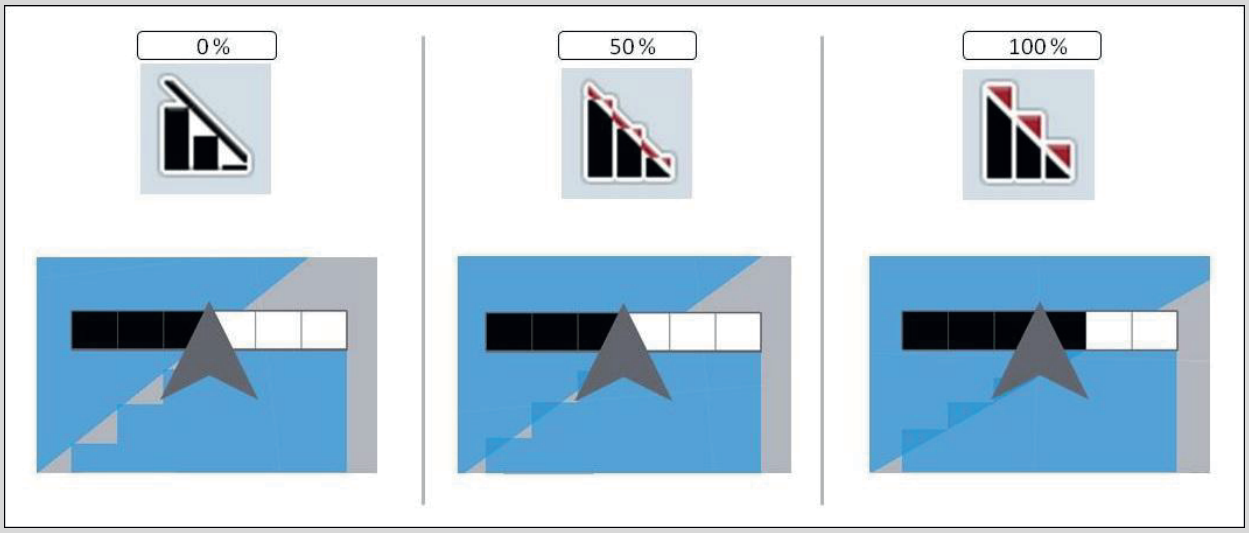
 **Enter the overlap tolerance**

 **Enter the overlap tolerance at field border**

 **Enter the headland distance**

Degree of overlap

The degree of overlap specifies for what covering individual sections are to be switched off when they impact on an already worked area. This setting depends on whether a complete working or an avoidance of double of double treatments is desired.



0 %: The section is switched off before overlapping occurs. When working in this mode, no missed areas result (left graphic).

50 %: The section is switched off, if half of this section is located in the region of an already worked area (middle graphic).

100 %: The section is only switched off, if it is completely located in the region of an already worked area (right graphic).

4.3.5.1 Select the degree of overlap

To select the degree of overlap, proceed as follows:

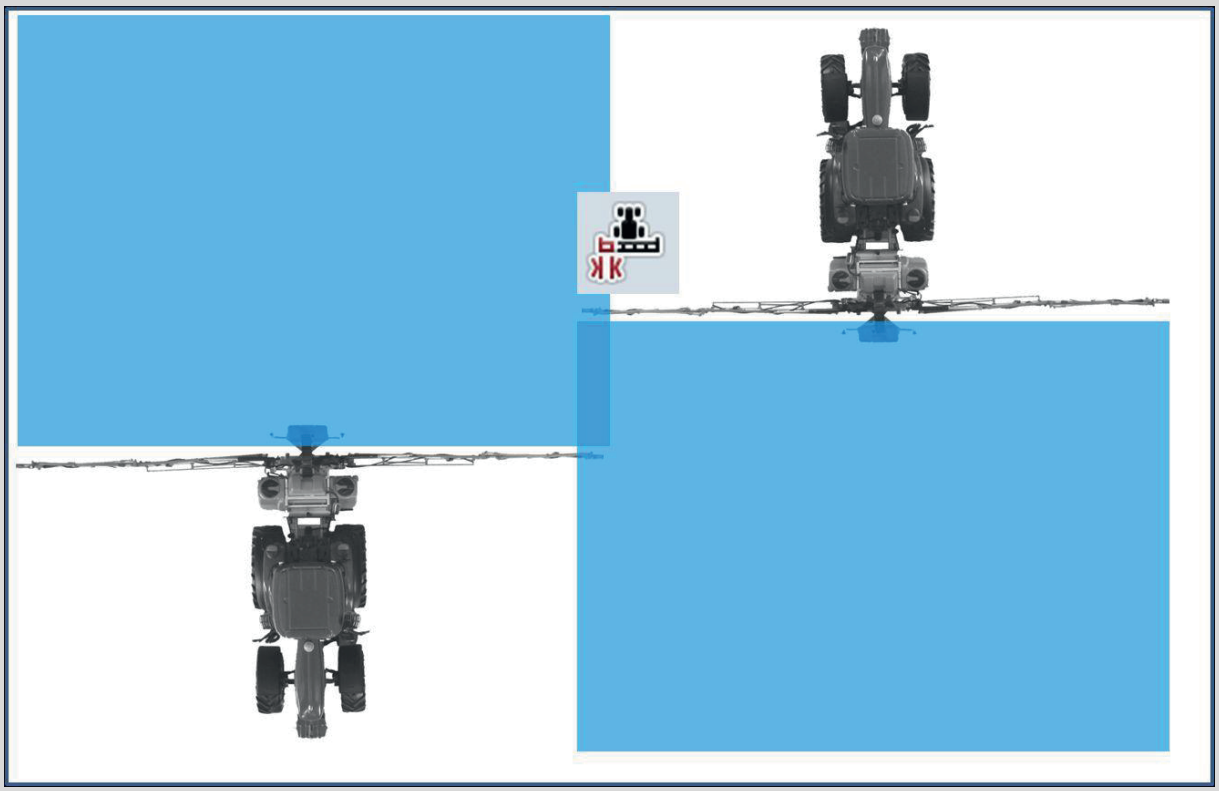
1. On the touchscreen press on the "Degree of overlap" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → A selection list opens.
2. Select the desired setting from the list. To do this, press the button with the degree of overlap.
3. Confirm your selection by pressing "OK" or pressing the button with the degree of overlap again or by pressing the scroll wheel.

Note

At field boundaries, 0 % degree of overlap applies as a matter of course.

Overlap tolerance

The overlap tolerance specifies with what tolerance the two outer sections (right and left) react to overlaps.
In the case of parallel tracks in the field (e.g. where there are machine tracks), it may occur that, due to *GPS drift*, the outer section according to the display lies briefly over an already worked area, although actually no double treatment is occurring (see the information box about *GPS drift*, page 53). For a degree of overlap of 0%, the outer section is switched off in this case. A "fluttering" (continuous switching on and off) can occur.
This fluttering can be prevented by setting the overlap tolerance.



4.3.5.2 Enter the overlap tolerance value

Proceed as follows to enter the Overlap tolerance value:

1. On the touchscreen press on the "Overlap tolerance" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note

Values between 0 cm and half of the outer *Section* are valid for the Overlap tolerance.

Degree of overlap and overlap tolerance at field boundaries

For safety reasons, a 0% degree of overlap always applies at the field boundary. The overlap tolerance for the field boundary can be set separately at your own responsibility.

GPS drift can cause switching on and off of the outer section at the field boundaries (see also the infobox about overlap tolerance on page 40). The user can, under their own responsibility, minimise this switching on and off by entering an overlap tolerance at the field boundaries. A setting greater than 0 cm can result in working beyond the field boundary. Before making the setting it must be checked whether this can be tolerated.

The recommended setting is 0 cm.

4.3.5.3 Enter the overlap tolerance at field border

Attention!

Careful checking of whether treatment beyond the field boundary can be tolerated is absolutely essential.
Once the work is carried out, the setting must be set back to 0 cm.

Proceed as follows to enter the overlap tolerance for the field boundaries:

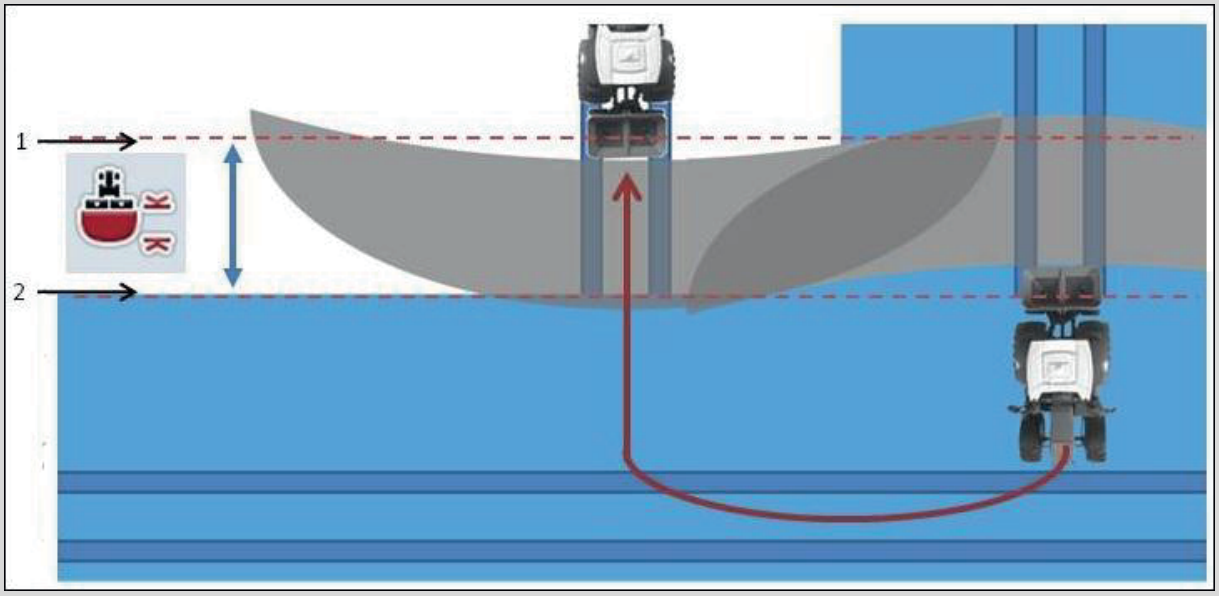
1. On the touchscreen press on the "Overlap tolerance at field border" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note

Values between 0 cm and half of the outer *Section* are valid for the Overlap tolerance.

Headland distance

The headland distance is used to define the switching on point after leaving an already treated area. Consequently the fertilizer is switched on and off at different points. The correct dimension for the headland distance is influenced by the implement's working width and the spreading properties of the fertilizer.



1: Switch-on point
2: Switch-off point

4.3.5.4 Enter the headland distance value

Note
This setting is only possible for a class 5 implement (fertilizer).

Note
If the ISOBUS implement transfers a value for the working depths of the *sections*, this button is greyed out. Entry is not necessary, because the switch-on and switch-off points are defined automatically by the implement.

To enter the value for the headland distance, proceed as follows:

1. On the touchscreen press on the "Headland distance" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

Note
The valid range for the headland distance lies between 0 metres and 50 metres.

Exiting the field map view

There are various ways of exiting the field map view, that either lead to pausing of automatic Section Control or that have no effect on it:

If field map view is exited using the F7 function key to change to implement operation, automatic Section Control is paused.

If field map view is exited using the Home or toggle button to change to another application, automatic Section Control is not suspended.

4.4 Field map view

Pressing the button "Field map" (F1) takes you out of the Settings tab back to the **field map view**.

The **field map view** is the CCI.Command working area. Automatic Section Control is activated here.

Note

Dependent on the implement used, different buttons are available.

You have the following operating options:

Switch to settings

Press the "Switch to Settings" button (F7) on the touchscreen.

Map section zoom out

Press the "Map section zoom out" button (F8) on the touchscreen.

Map section zoom in

Press the "Map section zoom in" button (F9) on the touchscreen.

Call up Obstacles Settings

Press the "Obstacles" button (F10) on the touchscreen.

The view for the **Obstacles Settings** opens.

More detailed information on Obstacles can be consulted in chapter 4.4.6.

Call up GPS Correction

Press the "GPS Correction" button (F11) on the touchscreen.

The field map view opens for GPS Correction.

You can find more detailed information about GPS Correction in chapter 4.4.7.

Call up Map Settings:

Press the "Map Settings" button (F12) on the touchscreen.
The **Map Settings** view opens.

More detailed information on the Map Settings can be consulted in chapter 4.4.8.

Create Field boundary

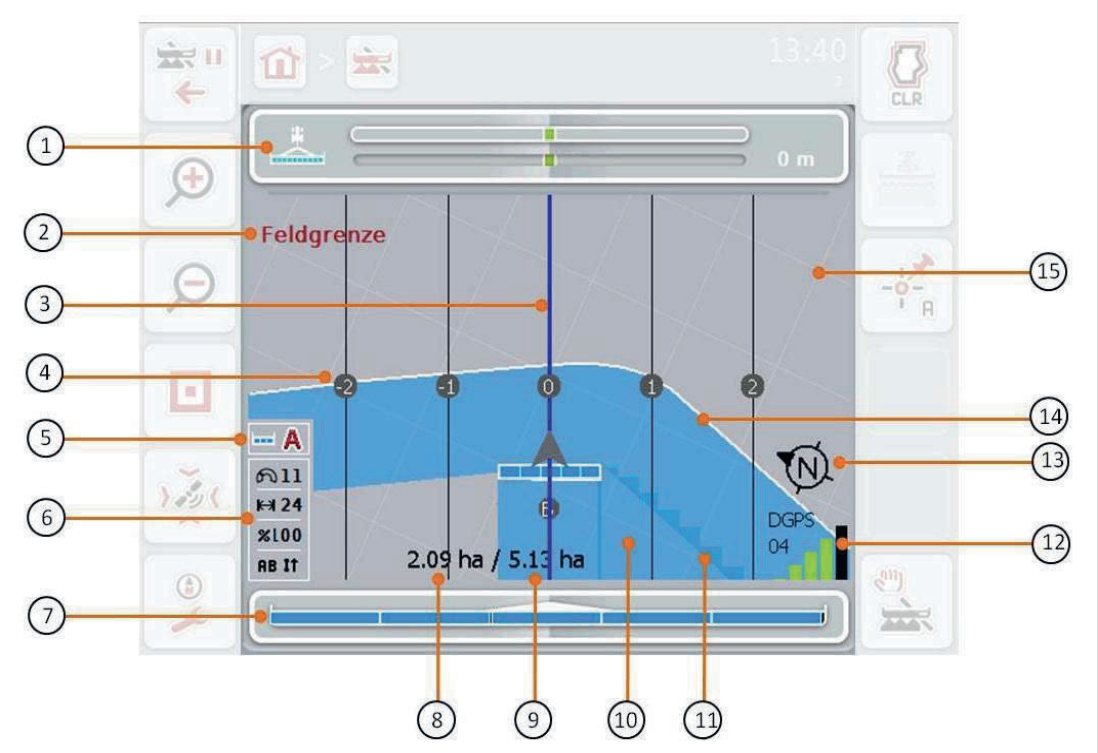
Delete Field boundary

Switch on/off manual highlighting of the area travelled over.

Set A point / record reference track

Switch between manual and auto mode for Section Control

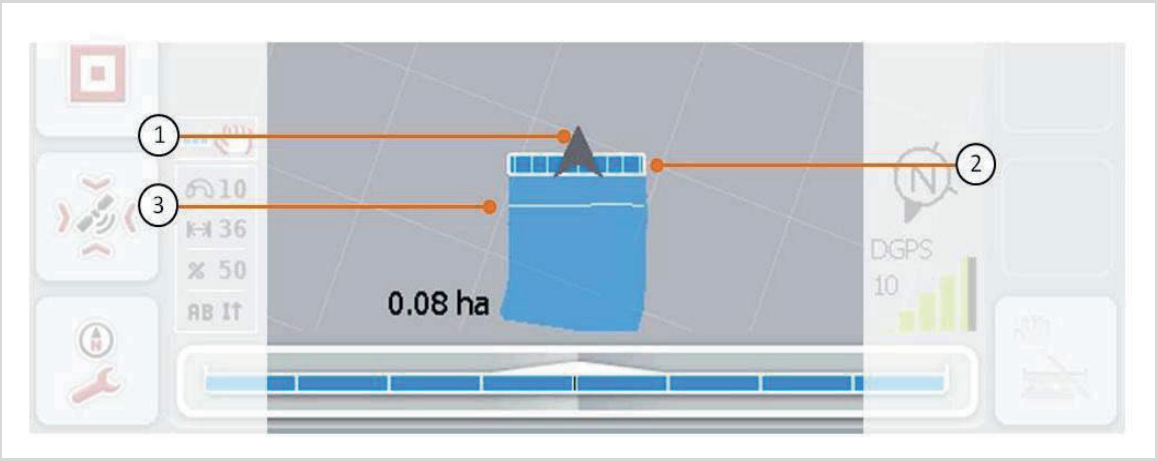
Map view elements



1. Lightbar
2. Message upon reaching the field boundary or an obstacle
3. Guidance tracks (active guidance track)
4. Guidance track numbering
5. Display: Section Control Mode
6. Infobox (speed, working width, degree of overlap, guidance mode)
7. Section status display
8. Remaining area (not yet worked)
9. Field size (if no field boundary exists, the already worked area is indicated)
10. Worked area
11. Repeated worked area
12. GPS-Info (signal strength, number of satellites used, signal type)
13. North arrow
14. Field boundary
15. Grid (size = working width, alignment = North)

Implement depiction

The implement depiction is fixed in the bottom third of the field map. The field map rotates about the implement.



The arrow (1) indicates the position of the tractor reference point (mid-point of the rear axle). According to the set geometries, the sections (2) are positioned behind it. The white line (3) appears if the working depth is set for the sections. This is, for example, supported by a number of fertilizers.

4.4.1 Create Field boundary

To create a field boundary, proceed as follows:

1. Drive around the field while dealing with headland management. The worked area is highlighted in blue; with field sprays, at this point in time, the Section Control auto-mode can straightaway be activated.

Attention!

Sections are only automatically switched on, if an already treated area is reached. Switching off at the field edge to protect the adjoining areas is the responsibility of the user.

Note

For safety reasons, when operating with fertilizers the *sections* must be manually switched during the first circumferential run around the field without a field boundary.

2. Press the "Create field boundary" button (F1) on the touchscreen.
   → The field boundary is created and saved on the outside edge of the already worked area. Gaps are closed by a matched line. Nevertheless, it is worthwhile travelling around the full periphery of the field, as the calculations don not necessarily correspond to the actual course of the field boundary.
   → The button "Create field boundary" (F1) changes automatically to "Delete field boundary" (F1). This is indicated by another symbol

4.4.2 Delete Field boundary

To delete a saved field boundary, proceed as follows:

1. Press the "Delete field boundary" button (F1) on the touchscreen.
2. Confirm the prompt for confirmation with "OK".
   → The button "Delete field boundary" (F1) changes automatically to "Save field boundary" (F1). This is indicated by another symbol.

4.4.3 Switch on/off manual highlighting of the area travelled over.

If no ISOBUS implement is connected, then no information about the already worked area is available. The worked area can be highlighted manually.

To switch the manual marking of the travelled over area on or off, proceed as follows:

1. Press the "Marking on/marking off" button (F2) on the touchscreen.
   → The travelled over area is highlighted / no longer highlighted in blue on the field map.
   → The button F2 changes from "Selection on" to "Selection off" and vice-versa, dependent on which function has just been chosen.

Note

This function is only available if no implement data is transferred or Section Control has not been activated. It is necessary to enter the working width (see chapter 29).

Note

It is necessary that the working width is already entered for a correct display of the worked area, (see chapter 29).

4.4.4 Set A point / record reference track

To record a *reference track* for Parallel Tracking, proceed as follows:

1. in the touchscreen press on the button "Set start point" (F3) to specify the start point for the *reference track*.
   → The button "Set start point" (F3) changes to "Set end point" (F3). This is indicated by another symbol.
2. Travel over the distance, that is to serve as the *reference track*.
3. In the touchscreen press on the button "Set end point" (F3) to specify the end point for the *reference track*.
   → Parallel tracking is automatically started.

Note

Only one track is saved per field, if an A-point is set again, the existing track is overwritten. Confirmation of the prompt for confirmation is necessary to do this.

Section Control: manual mode and auto mode

If the field map view is called up, Section Control is in manual mode. In this mode, the sections must be switched on or off in the implement operation or manually using the joystick. The worked area is recorded.

After activation of auto mode, CCI.Command transfers commands for switching sections on and off to the implement.
For some implements, the Section Control functionality must also first still be started in implement operation. See the manufacturer's operating instructions for the procedure.
With the fertilizer, auto mode is only available once a field boundary has been created.

4.4.5 Switch between manual and auto mode for Section Control

The change into manual mode and auto mode takes place via the same button (F4). The system changes according to which mode is currently selected:

Switch Section Control into auto mode

Switch Section Control into manual mode

To change between manual mode and Section Control auto mode, proceed as follows:

1. Press the "Auto mode" or "Manual mode" button (F4) on the touchscreen.
   → The mode changes and the symbol on the F4 button changes.

Note

This function is only available if implement data is transferred.

4.4.6 Obstacles Settings

New functions (placing, positioning and deleting of obstacles) are assigned via the "Obstacles" (F10) button in the field map view.

You have the following operating options:

Set and

position obstacle

Delete all obstacles

4.4.6.1 Set and position obstacle

To set a new obstacle, proceed as follows:

1. Press the "Set obstacle" button (F10) on the touchscreen.
2. In the touchscreen enter the name of the obstacle via the keyboard.
3. Confirm your entry with "OK".
   → The obstacle if first placed in the current position of the tractor and imaged in the field map view by a flashing red spot.
4. In the touchscreen press on the buttons "Left" (F3), "Right" (F4), "Up" (F5) and "Down" (F6) to position the obstacle.

Note

Pressing the buttons causes the obstacle to be shifted 1 metre in the respective direction.

5. To save the obstacle in the current position, leave the view "Obstacles" and return to the normal field map view.

4.4.6.2 Delete all obstacles

To delete the obstacles, proceed as follows:

1. Press the "Delete" button (F12) on the touchscreen.
2. Confirm with "OK".

Note

All obstacles of the currently used field are deleted. A selection is not possible.

GPS-drift

When using GPS signals without correction, the recorded data (e.g. field boundary, worked area) may remain set for some time after the recording at another position. Due to the Earth's rotation and the changing position of the satellites in the sky, the calculated position of a point moves. This is referred to as drift. The GPS Correction makes it possible to compensate for this drift.

4.4.7 GPS Correction

You can use the button "GPS Correction" (F11) in the field map view to carry out the GPS correction, the button are assigned new functions (move *reference track*, set and calibrate reference point).

You have the following operating options:

Move *reference track*

Set reference point

Calibrate reference point

4.4.7.1 Move *reference track*

To move the *Reference track* to the current position of the tractor, proceed as follows:

1. In the field drive to the desired track and press on the button "Move *reference track*" (F9) on the touchscreen.
   → The *reference track* is moved to its current position.

Note

This function is only available if a *reference track* has been recorded. Only the *reference track* is moved. If the entire field is to be corrected, a reference point must be set (see chapter 4.4.7.2).

4.4.7.2 Set/calibrate reference point

In the first working, the reference point should be set close to a field. For setting, a fixed point must be selected, which can subsequently be used for calibration by approaching it from exactly the same direction and which is in exactly the same position. It is recommended that a prominent point, e.g. a gulley lid or a permanent marking in the entry to the field be selected.

The recorded data can no longer be used if you can no longer find the position of the recorded reference point.

Set reference point

To set a new reference point at the current position, proceed as follows:

1. Press the "Set reference point" button (F11) on the touchscreen.
   → The reference point is set and is shown in the field map.

Note

The reference point is valid for the tractor combination with which it was set.

Calibrate reference point

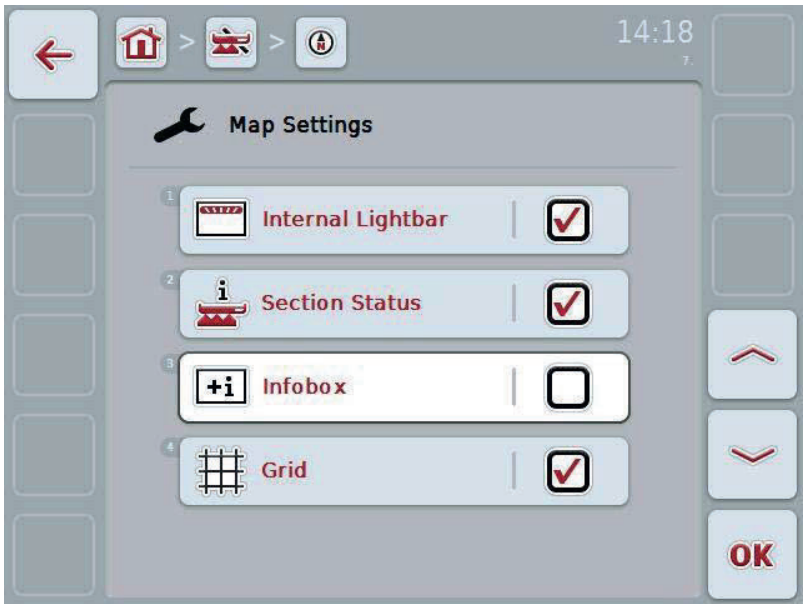
If for example you have detected a drift after an interruption in working (e.g. filling of the spray), drive back precisely to the already set reference point. If the positions have shifted, the reference point will now no longer lie in the field map view under the arrow.

To calibrate the reference point, proceed as follows:

1. Press the "Calibrate reference point" button (F12) on the touchscreen.
   → The reference point is moved to its current position.

4.4.8 Map Settings

Use the "Map Settings" (F12) button in the main view to get to map settings. These can be used to switch individual elements of the field map view on or off. The elements are displayed in the field map, if the check mark is set.



You have the following operating options:

Switch the Internal Lightbar on or off

Switch the Section Status on or off

Switch the infobox on or off

Switch the grid on or off

4.4.8.1 Switch the display on/off

To switch the display of the Internal Lightbar, the Section Status, the infobox or the grid on or off, proceed as follows:

1. On the touchscreen press on the button with the desired display or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. In the input dialogue select the desired setting.
3. Confirm your setting with "OK" or by pressing the scroll wheel.

5 Troubleshooting

5.1 Terminal errors

The following overview shows possible terminal errors and how to solve them:

Error	Possible cause	Rectification
The terminal does not switch on	Terminal is not correctly connected	Check ISOBUS connection
Software of the connected implement is not displayed	• Bus terminator missing • Software is loaded, however is not displayed • Connection error when uploading the software	• Check resistance • Check whether the software can be manually started from the terminal start menu • Check physical connection • Contact the implement manufacturer's customer service

5.2 Errors during operation

The following overview shows you possible errors when operating with CCI.Command, their possible cause and how to rectify them:

Error	Possible cause	Rectification/approach
Calculation of the field boundary takes a long time	Large distance between the blue highlighted areas, because: • the implement was switched on briefly before the passage to the field • Data from a second, not yet removed field has not yet been stored or deleted.	Go to Settings, select the ***Fields*** tab, delete the field data (see 4.3.2.3) and re-process the *field*.
Depiction of the *field* in the ***Fields*** tab is very small and not centralised.	Alongside the working of the field, the implement was briefly switched on at another point.	Delete field data (see 4.3.2.3) and re-work the *field*.
The current guidance track is not highlighted blue.	No sections are currently switched on for the implement.	If no sections are switched on, the track that was last used for working is highlighted in blue. This is to aid better re-finding of this track, e.g. after filling of the implement.
Reference tracks, field boundaries, and worked area are displaced.	*GPS-drift*	Calibrate reference point and/or *reference track* (see chapters 4.4.7.1 and 4.4.7.2)
No GPS signal	• Not receiving • Not all necessary message signals are received.	• Check power supply • Check whether the receiver is connected to the RS233-1 *interface* and this is selected • Check whether the baud rate set at the receiver and the terminal agree. • Change the receiver settings, consult the receiver operating instructions for this purpose.

In spite of calibration, the position of the field boundary is not correct.	• Reference point is not correctly approached. • Position of the GPS aerial on the tractor is changed after setting. • Poor GPS signal quality.	• Check the position of the tractor, approach the reference point again. • Check the position of the GPS aerial and, if necessary, enter again (see chapter 4.4 of operating instructions CCI.GPS). • (see next point)
The implement switches on and off too early/late.	• Poor GPS signal quality • Incorrect geometry settings • Incorrect setting of the position of the connection point/aerial • Incorrect *delay times*	• Check the signal quality, drive out of any shadow region (if necessary recalibrate any reference point). • Refer to the implement operating instructions to see how these can be changed. • Re-measure and check the settings in CCI.GPS. • Check the selection of the connection point in CCI.Command. • If these are transferred from the implement, consult the implement operating instructions • If these were set by you, verify the *delay times*. To do this work a strip and mark the outer worked edge e.g. with barrier tape. Drive over this strip at a 90° angle and measure how many cm the implement was switched off too early/too late. Divide this value (cm) by the average speed in the headland area (cm/ms) (e.g. 8 km/h corresponds to 0.22 cm/ms). This correction value must be added to the set value if switching off is too late and subtracted from it if switching off is too early.

5.3 Buttons are greyed out

Button	Possible cause	Rectification
Several buttons in the field map view (obstacles, set field boundary, manual marking, set A-point, auto mode)	Software was not activated	Check whether the licence key has been entered.
Tabs: Parallel Tracking Settings (all buttons)	Software was not activated	Check whether the licence key has been entered.
Tabs: Section Control Settings (all buttons)	Software was not activated	Check whether the licence key has been entered.
Enter delay times	Delay times are defined by the ISOBUS implement and are displayed automatically.	For a few implements, the delay times can be set in the menu. Refer to the operating instructions of your implement to find them.
Enter working width	Working width is transferred by the ISOBUS implement and automatically displayed.	see above
Enter value for headland distance (dashes appear in the field)	The connected implement does not correspond to class 5 (fertilizer)	The headland distance only fulfils its purpose with fertilizers. According to the ISO standard, fertilizers conform to class 5. If the implement transfers another class, then the headland distance is not available.
Enter value for headland distance ("ISO" appears in the field)	The connected implement transfers a value for the working depth of the individual *sections*.	The headland distance is not required. The implement determines via the working depth at which points the *sections* can be switched on and off.
Start Section Control	The connected implement is not ISOBUS and Section Control enabled.	

Switch the marking of the worked area on or off	The connected implement is ISOBUS and Section Control enabled.	Manual marking is not necessary, because the implement signals its working state and this is automatically recorded.
Switch into auto mode	The connected implement is not ISOBUS and Section Control enabled or still no field boundary has been created (when using a fertilizer).	

5.4 Error messages

Note

The error messages shown on the terminal depend on the connected implement.

A detailed description of the possible error messages and troubleshooting can be referred to in the implement operating instructions.

Note

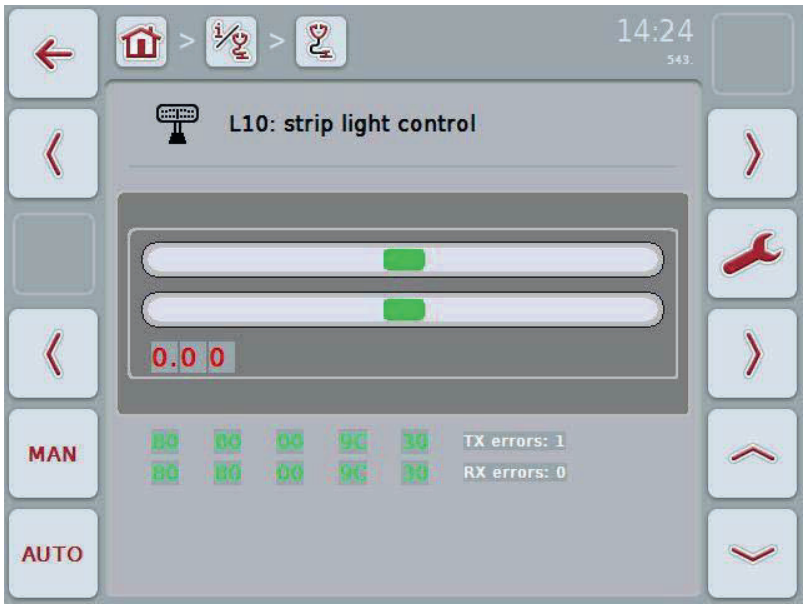
If the implement cannot be operated, check whether the "Function Stop-Button" is pressed. The implement cannot be operated until the button has been released.

5.5 Diagnosis

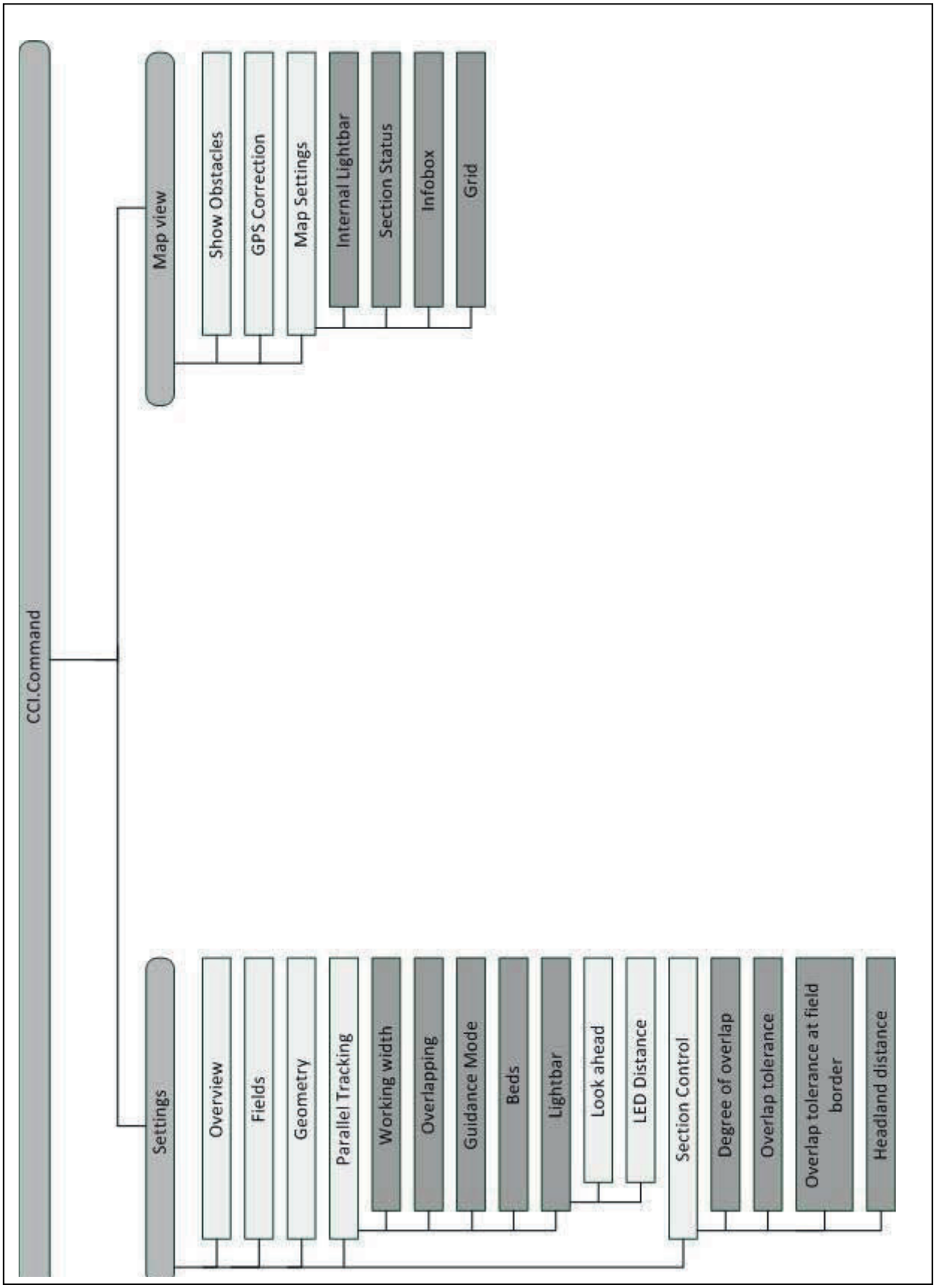
5.5.1 Check external lightbar

To check the external lightbar, proceed as follows:

1. Press the home key to enter the main menu.
2. Press the "Info Diagnose" button in the main menu.
3. In the menu **Info and Diagnose** press the button "Diagnose Functions".
4. Press the "L10: Lightbar-control" button on the touchscreen.
   → The view for the lightbar-control opens:



6 Menu structure



7 Glossary

A-B mode	A guidance mode in which the worker sets an A and a B-point, the system automatically draws a straight line between these two points and additionally creates parallel tracks at the distance of the working width.
Switch-off delay	The delay times describe the time delay between the command and the actual activation of a section (e.g. during spraying, the time from the command: "Switch on section", until when the agent is actually applied).
CCI	**C**ompetence **C**enter **I**SOBUS e.V.
CCI.Command	GPS controlled section switching
CCI.GPS	App with tractor geometry settings.
Data bus	Communication channel between implement and tractor.
Data interface	Describes the type and the path of the data exchange (e.g. by a USB stick).
Switch-on delay	The delay times describe the time delay between the command and the actual activation of a section (e.g. during spraying, the time from the command: "Switch on section", until when the agent is actually applied).
Missed areas	Missed areas are the result of omissions.
Field	A field can contain the following elements: the field boundary, the reference point, the reference track, the obstacles and the worked area.
GPS	**G**lobal **P**ositioning **S**ystem. GPS is a system for satellite-supported position determination.
GPS-drift	Due to the Earth's rotation and the changing position of the satellites in the sky, the calculated position of a point moves. This is referred to as GPS-drift.
GSM	**G**lobal **S**ystem for **M**obile Communication Standard for full-digital mobile radio networks, which is primarily used for telephony and short messages such as SMS.
ISOBUS	ISO11783 International standard for data transfer between farming implements and devices.
Connection point	The point on the implement to which the tractor is coupled
Curve mode	A guidance mode in which the worker sets an A-point, drives a distance that can also contain curves and sets a B-point. The system records the distance and in addition creates parallel tracks corresponding to the working width distance.
LED Distance	The LED Distance can be used to specify how many cms of deviation an LED represents.
Guidance track	Track created in parallel to the reference track, which is used as an orientation aid for correct linking driving
NMEA 0183	Serial protocol for the GPS receiver
NMEA 2000	CAN BUS protocol for the GPS receiver
Parallel Tracking	Parallel guidance aid
Reference track	Track recorded by the worker, that is used for the calculation of other guidance tracks created in parallel for track guidance
Interface	Part of the terminal which is used to communicate with other devices
Section Control	Automatic Section Control

Serial interface	The terminal has two serial interfaces, RS232-1 and RS232-2. Via these interfaces, external expansion devices such as GPS receivers, modems or printers can be connected.
Section	
Terminal	CCI 100 or CCI 200 ISOBUS Terminal
Touchscreen	Touch-sensitive screen which is used to operate the terminal.
Overlapping	Double treatment
Delay times	The delay times describe the time delay between the command and the actual activation of a section (e.g. during spraying, the time from the command: "Switch on section", until when the agent is actually applied).
Look ahead	The look ahead time specifies the time interval for calculation of the steering suggestion. For example, a greater time for the look ahead time gives the worker more time to react to the steering suggestion.

8 ISOBUS in functionalities

Task-Controller basic (totals)

Takes over the documentation of cumulative values that are worthwhile when looking at the work carried out. In this respect, the device makes the values available. Here the data exchange between the FMIS file and the task controller takes place in ISO-XML data format. Hence tasks can be conveniently imported into the task controller and / or the finished documentation can then be exported again.

Task controller geo-based (variables)

Additionally offers the possibility of also collecting position-related data or the planning of position-related tasks, for example using application maps.

Task-Controller Section Control

Deals with the automatic switching of sections, as with plant protection spraying, dependent on the GPS positions and desired degree of overlap.

9 Buttons and icons


CCI.Command


Call up the field map
Activate Section Control


Switch to Settings
Pause Section Control


Call up the field map


Switch to Settings


Overview


Fields


Geometry


Parallel Tracking


Section Control


Enter licence and call up Service menu


Select from a list


Delete


Edit

Confirm entry or selection


Save field

Delete worked area


Section Geometry


Connection point


Implement type


Switch-on delay


Switch-off delay


Working width


Omission/Overlapping


Guidance Mode


A-B mode


Curve mode


Beds


Lightbar settings


Look Ahead time


LED Distance Settings


Degree of overlap


Overlap tolerance


Overlap tolerance at field border


Headland distance


Map section zoom out


Map section zoom in


Obstacles


Set obstacle


Position obstacle
Move left


Position obstacle
Move right


Position obstacle
Move forwards


Position obstacle
Move rearwards


GPS Correction


Map Settings


Create Field boundary

Delete Field boundary


Switch on manual highlighting of the area travelled over


Switch off manual highlighting of the area travelled over

Switch Section Control into auto mode


Switch Section Control into manual mode

Set A point / record reference track

Move reference track

Set reference point

Calibrate reference point


Change to the right


Change to the left


Change up


Change down

10 Index

CCI.GPS

GPS settings and tractor geometry

Operating Instructions

Reference: CCI.GPS v1.0

CCISOBUS

1 Introduction

1.1 About these operating instructions

These operating instructions are intended as an introduction to the operation and configuration of the CCI.GPS app. This app is preinstalled on your ISOBUS terminal CCI 100/200 and can only be run from there. It is only with knowledge of these operating instructions that accidental misuse can be avoided and fault-free operation ensured.

1.2 Reference

These operating instructions describe the CCI.GPS Version CCI.GPS v1.0 .

In order to query the version number of the CCI.GPS installed on your CCI ISOBUS terminal, proceed as follows:

1. Press the home key to enter the main menu.
2. Press the "Info Diagnose" button in the main menu.
3. In the menu **Info and Diagnose** press the button "Terminal Info".
4. Press the "Software info" button on the touchscreen.
   → The version of the terminal software component is indicated In the information field that is now displayed.

1.3 About CCI.GPS

CCI.GPS is an app, that displays GPS information as well as tractor geometry, GPS source and baud rate settings.

Through entry of the position of the GPS receiver on the tractor, it is made possible for the CCI.GPS to transfer position data, referenced to the mid-point of the tractor's rear axle, to other apps, so that these settings need only be made once.

2 Safety

.

2.1 Identification of indications in the operating instructions

The safety indications in these operating instructions are specially identified:

Warning - General Hazards!

This occupational safety symbol identifies general safety indications the non-observance of which poses a danger for life and limb. Carefully observe the indications regarding occupational safety and exert particular caution in these cases.

Attention!

This attention symbol identifies all safety indications which refer to regulations, directives or working procedures which it is essential to observe. Non-observance can entail damage to, or the destruction of, the terminal as well as malfunctions.

Note

The note symbol highlights operation tips and other particularly useful information.

Information

The information symbol highlights background information and practical tips.

3 Commissioning

3.1 Mounting the terminal

For information, please refer to the chapter **5.1 Mounting the terminal** in the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2 Connecting the Terminal

3.2.1 Connecting to ISOBUS/power supply

Please refer to the information in the chapter **5.2.1 Connecting to ISOBUS/power supply** of the **ISOBUS Terminal CCI 100/200** Operating Instructions.

3.2.2 Connecting to a GPS receiver

Depending on the model a GPS receiver is connected to the terminal RS232-1 serial interface or to the *ISOBUS*.

The correct transfer of GPS messages to terminal has been tested with the following GPS receivers:

Manufacturer	Model
Cabtronix	SmartGPS5
geo-konzept	Geo-kombi 10 GSM
Hemisphere	A100
John Deere	StarFire 300
Novatel	Smart MR10
Trimble	AgGPS 162
Trimble	AgGPS 262

Note

You can find detailed and current information about GPS receivers and settings at http://www.cc-isobus.net/produkte/gps.

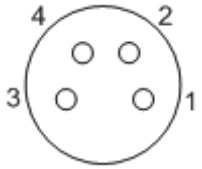
Note

The CCI.Apps place different demands on the quality and accuracy of the GPS messages. For navigation (FieldNav) and documentation (CCI.Control) simple data records are sufficient, as provided by inexpensive receivers. For track guidance and section control (CCI.Command), receivers with Egnos correction and accuracies of 20 to 30 cm are required. From this, different minimum requirements result for the NMEA data records from the receiver. Determine the precise requirement from the respective apps operating instructions.

3.2.2.1 NMEA 0183 (serial)

The terminal's "RS232-1" serial interface is factory set as follows: 4800 Baud, 8N1.

GPS receiver connection



The GPS receiver connection to the terminal is made via the serial interface,

RS232-1.

Refer to the following set-up for the pin layout:

1. +12V / +24V
2. TxD
3. GND
4. RxD

3.2.2.2 NMEA 2000 (*ISOBUS*)

The GPS receiver is connected to the CAN-Bus, no configuration is necessary.

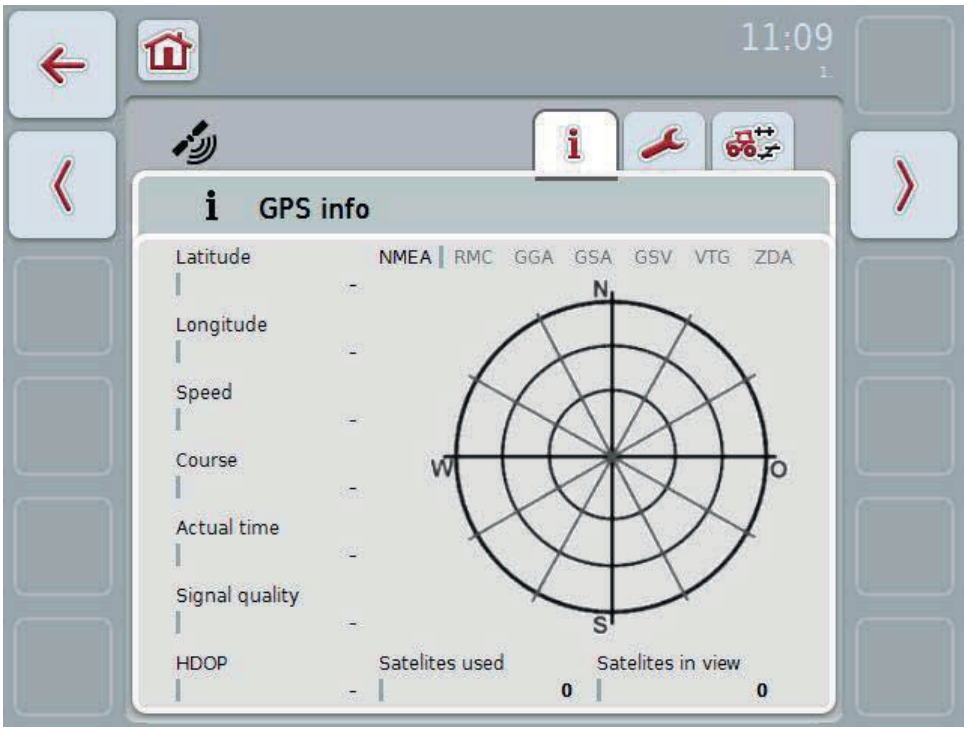
4 Operation

4.1 Program start

CCI.GPS is activated automatically by switching on the terminal.

To switch to the CCI.GPS start screen, proceed as follows:

1. Open the start menu in the main menu of the terminal and press on the button with the CCI.GPS symbol.

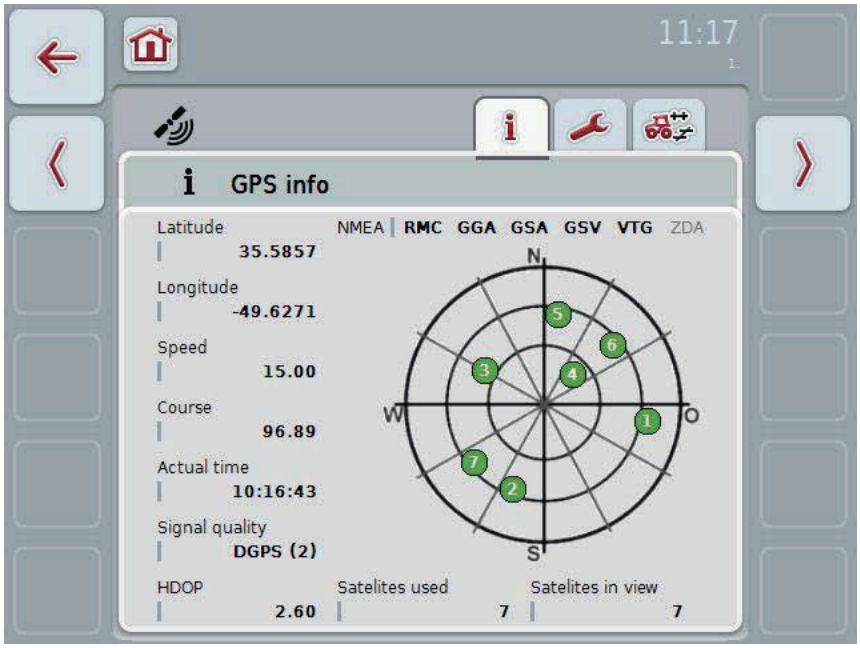


Three tabs are displayed in CCI.GPS. The following information and setting options are organised in these:

GPS info:	Gives an overview of the currently received GPS data.
GPS settings:	Indicates the set GPS source and baud rate.
Geometry settings:	Used to set the tractor geometry.

4.2 GPS info

The currently received GPS data are displayed in this tab.



The data are displayed if a GPS receiver is connected, the GPS source and baud rate are correctly selected and the receiver is receiving GPS signals.

The current position with latitude and longitude is indicated in the left half. Below this values for speed, course, time, signal quality and *HDOP* are given. *HDOP* is a quality value for the current GPS signal. A smaller *HDOP* means better GPS quality.

At the top right there is an indication of which message packages the GPS receiver sends (black = sent / grey = not sent).

Note

If the GSV signal is not sent, then no satellites can be displayed on the graticule. This has no effect on functionality. The GSV signal is only used to display satellite positions. With many GPS receivers, the GSV signal is deactivated in the as-supplied state.

4.3 GPS settings

This tab displays the GPS source and the baud rate.

You have the following operating options:

	Select GPS source
RS 232	**Enter baud rate**

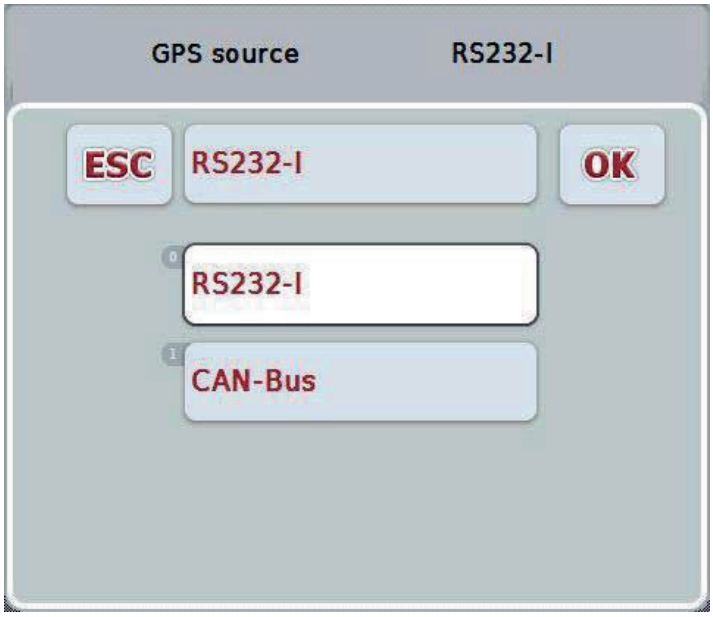
Connection of a GPS receiver

There are two options for connection of a GPS receiver. If the receiver has a serial output, then this is connected to the RS232-I input of the terminal and this input is selected as the source. If the receiver has a CAN-Bus line connection option, then this is connected to the ISOBUS and in the CCI.GPS, CAN-Bus must be selected as the source.

4.3.1 Select GPS source

To select the GPS source, proceed as follows:

1. On the touchscreen press on the "GPS source" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → The following selection list opens:

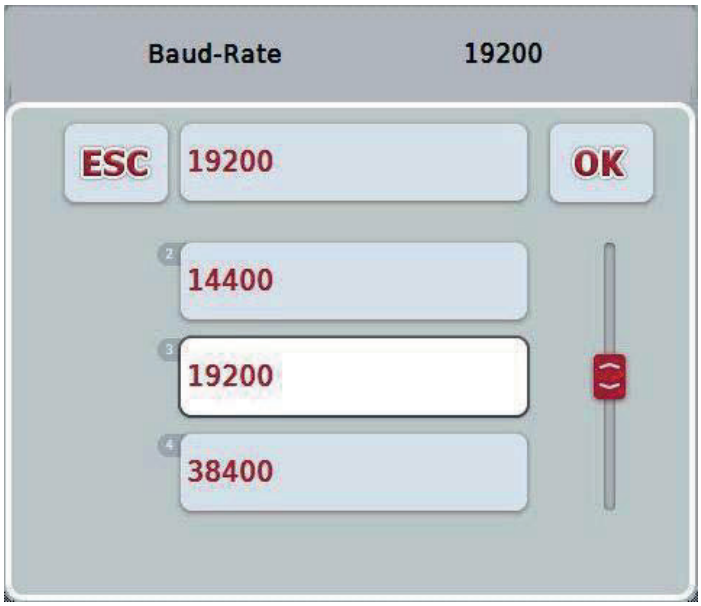


2. Select the desired GPS source in the selection list. To do so, on the touchscreen press on the button with the GPS source or turn the scroll wheel until the button is highlighted in white. The device type then appears in the selection window.
3. Confirm your selection with "OK" or press once again on the GPS source highlighted in white.

4.3.2 Select baud rate

To select the baud rate, proceed as follows:

1. On the touchscreen press on the "Baud-Rate" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → The following selection list opens:



2. Select the desired baud rate in the selection list. To do so, on the touchscreen press on the button with the baud rate or turn the scroll wheel until the button is highlighted in white. The baud rate then appears in the selection window.
3. Confirm your selection with "OK" or press once again on the baud rate highlighted in white.

Note

If CAN-Bus is selected as the GPS source, the baud rate is automatically selected, it cannot be set manually.

Note

The baud rate of the terminal and the GPS receiver must match, otherwise no GPS data can be received.

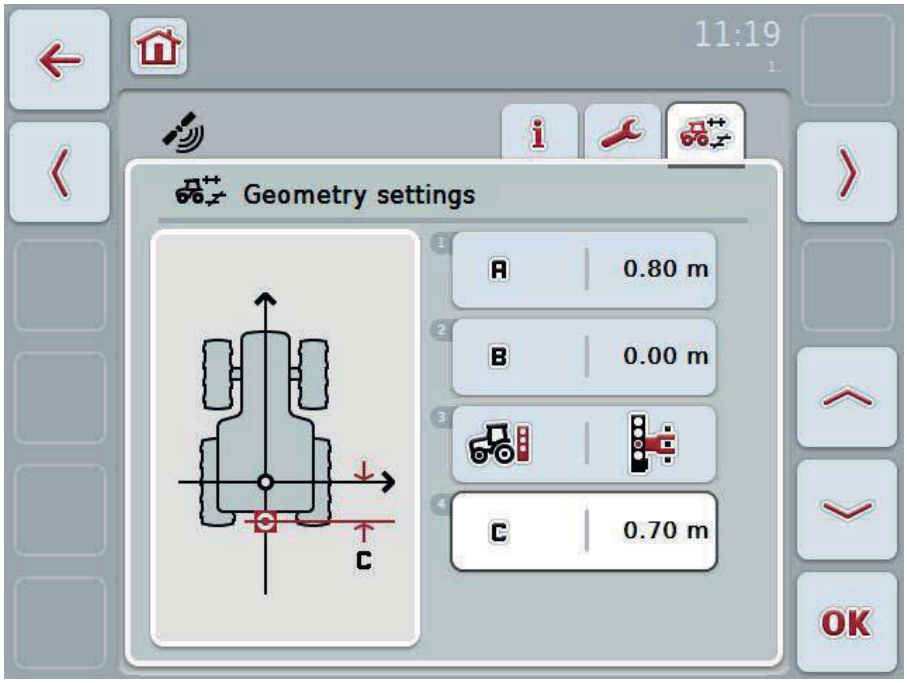
Geometry settings

Through entry of the correct position of the GPS receiver on the tractor, CCI.GPS is then able to transfer GPS position data, referenced to the tractor's reference point (mid-point of the rear axle) to other applications. Consequently the geometries must solely be entered in CCI.GPS.

Most tractors have several mounting options at the rear. In CCI.GPS, the distance from the mid-point of the rear axle to the coupling point is entered separately for four different mountings. So that, for example, the correct distance is used in CCI.Command, after coupling up of an implement, the currently used mounting must be selected here. Re-measuring is no longer necessary, if the settings have been carefully made in CCI.GPS. (See also chapter **4.3.3 Geometry** from the **CCI.Command** Operating Instructions).

4.4 Geometry settings

In this tab the position of the GPS aerial on the tractor
and the distance to the mounting are displayed and their setting is also possible.

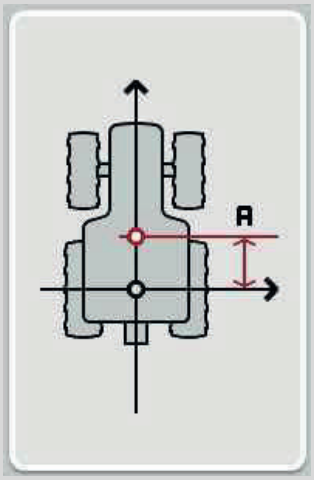


You have the following operating options:

A	**Enter distance A**
B	**Enter distance B**
	Select mounting
C	**Enter distance C**

Distance A

Distance A gives the distance between the tractor reference point and the GPS aerial in the direction of travel:



For measuring, marking of the mid-point of the rear axle and the position of the receiver on the ground using chalk alongside the tractor and then measurement of this distance is recommended.

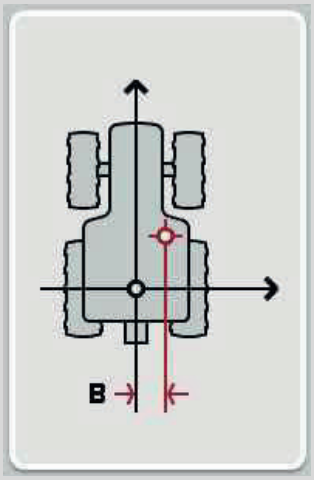
4.4.1 Enter distance A

Proceed as follows to enter distance A:

1. On the touchscreen press on the "A" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

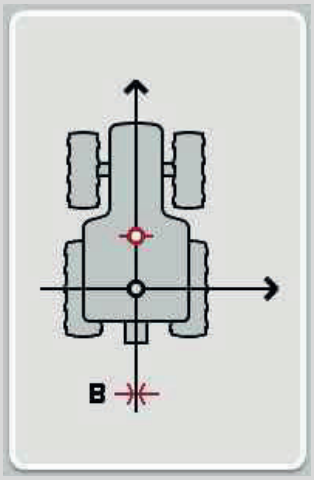
Distance B

Distance B gives the distance between the tractor reference point and the GPS aerial perpendicular to the direction of travel:



For measuring, marking of the mid-point of the rear axle and the position of the receiver on the ground using chalk to the rear of the tractor and then measurement of this distance is recommended.

Where possible, central mounting of the receiver is recommended:



In this case, distance B can be set equal to 0.00m.

4.4.2 Enter distance B

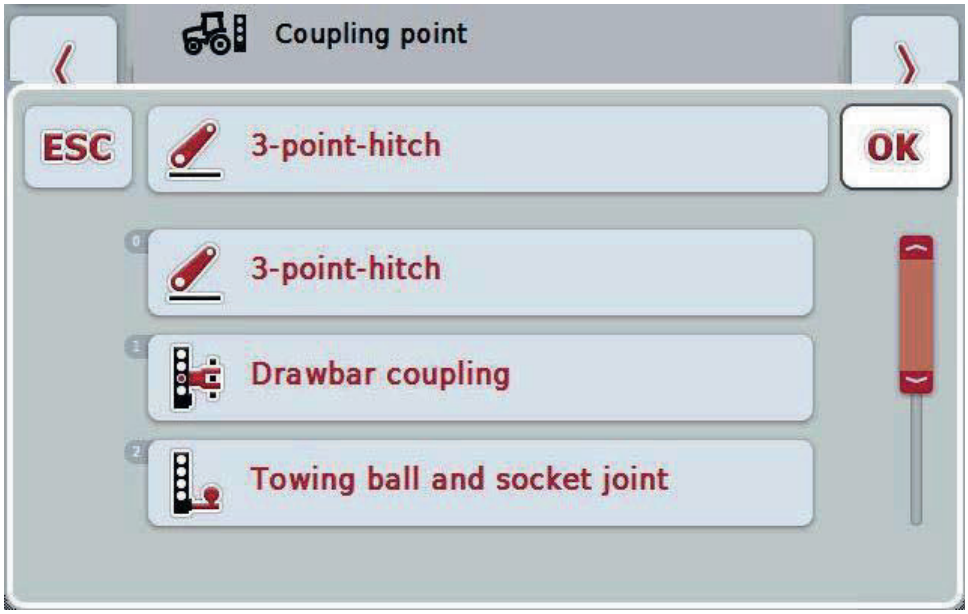
Proceed as follows to enter distance B:

1. On the touchscreen press on the "B" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

4.4.3 Select mounting

To select the mounting, proceed as follows:

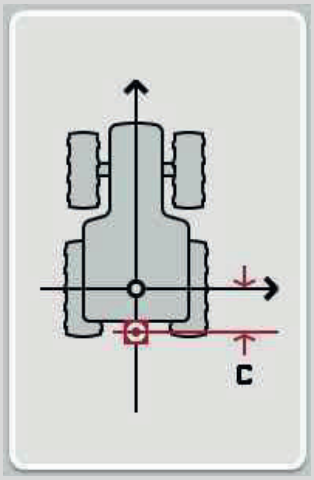
1. On the touchscreen press on the "Mounting" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
   → The following selection list opens:



2. Select the desired mounting in the selection list. To do so, on the touchscreen press on the button with the mounting or turn the scroll wheel until the button is highlighted in white. The mounting then appears in the selection window.
3. Confirm your selection with "OK" or press once again on the device mounting highlighted in white.

Distance C

Distance C gives the distance between the tractor reference point and the coupling point of the respective mounting in the direction of travel:



For measuring, marking of the mid-point of the rear axle and the position of the coupling point on the ground using chalk alongside the tractor and then measurement of this distance is recommended.

4.4.4 Enter distance C

Proceed as follows to enter distance C:

1. On the touchscreen press on the "C" button or turn the scroll wheel until the button is highlighted in white and then press on the scroll wheel or on the "OK" button (F6).
2. Enter the value on the touchscreen using the digit field or the slider.
3. Confirm your entry with "OK".

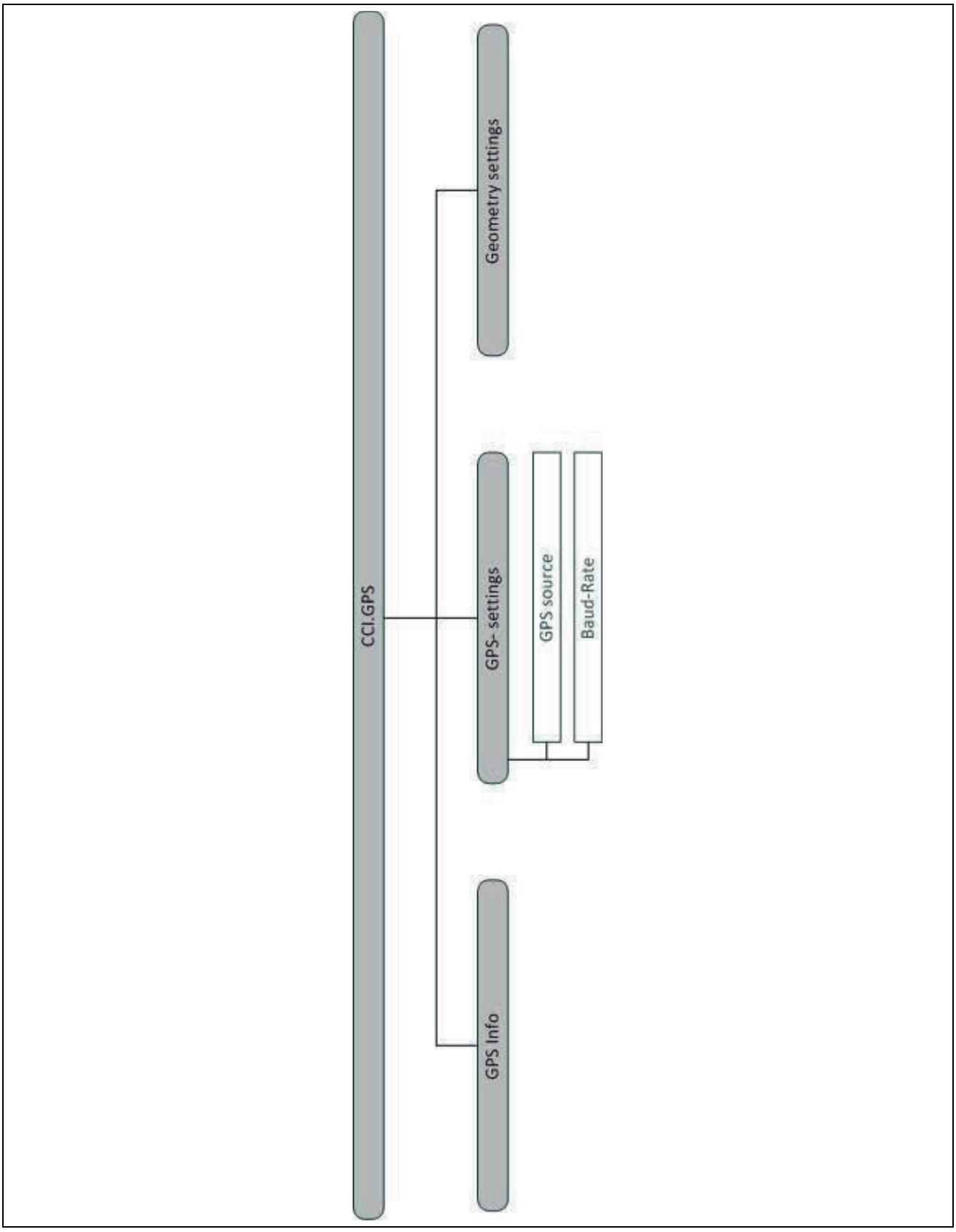
5 Troubleshooting

5.1 Errors during operation

The following overview shows you possible errors when operating with CCI.GPS, their possible cause and how to rectify them:

Error	Possible cause	Rectification/approach
No GPS data are displayed in GPS info.	• No power supply at the GPS receiver	• Check the power supply to the GPS receiver
	• GPS receiver not connected to the terminal	• Check the connection of the GPS receiver to the terminal. If serial data are to be used, the RS232-I interface must be used. If CAN data are to be used, the receiver must be connected to the CAN-Bus .
	• Incorrect GPS source selected	• Under GPS settings (see chapter 4.3) check whether the GPS source is selected that is currently being used.
	• Incorrect baud rate set	• When using serial data under GPS settings (see chapter 4.3), set the same baud rate with which your receiver is configured.
	• Incorrect configuration of the receiver	• Check which configuration is necessary for your application (see for example **Chapter 3.2.2.1** of the **CCI.Command** Operating Instructions) and compare this with the current configuration of your receiver. To see how the receiver is calibrated, refer to the operating instructions of your GPS receiver.
	• Incorrect assignment of the cable wiring	• Check that the wiring assignments of your cable match the assignments given in these instructions (see chapter 3.2.2.1).

6 Menu structure



7 Glossary

CCI	**C**ompetence **C**enter **I**SOBUS e.V.
CCI.Command	GPS track guiding and section control
CCI.GPS	GPS settings and tractor geometry
GPS	**G**lobal **P**ositioning **S**ystem. GPS is a system for satellite-supported position determination.
HDOP	Quality value for GPS signals
ISOBUS	ISO11783 International standard for data transfer between farming implements and devices.
Terminal	CCI 100 or CCI 200 ISOBUS Terminal
Touchscreen	Touch-sensitive screen which is used to operate the terminal.

8 Buttons and icons


CCI.GPS


Select GPS source

Enter baud rate


Select mounting

Confirm selection or entry

Enter distance A

Enter distance B

Enter distance C


GPS info


GPS settings


Geometry settings


Swinging drawbar


Towing ball and socket joint


Drawbar coupling


3-point-hitch


Change to the right


Change to the left


Change up


Change down

9 Index

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