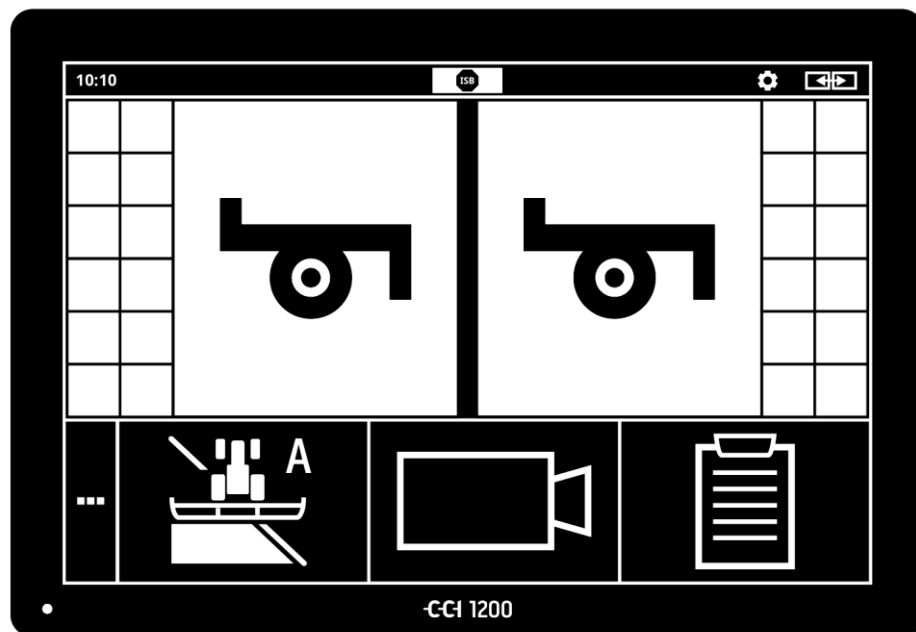


ISOBUS Terminal

CCI 1200

Operating instructions



Contents

About these operating instructions	i
About the CCI 1200	iii
CCI.Apps	iv
Structure	v
1 Safety	1
1.1 Identification of notes in the operating instructions	1
1.2 Intended use	2
1.3 Safety instructions	3
1.4 Installation of electrical devices	4
2 Setting up for operation	5
2.1 Check the scope of delivery	5
2.2 Install the terminal	6
2.3 Connect the terminal	7
2.4 Switch on the terminal	7
2.5 Change layout	8
2.6 Select language	8
2.7 Select time zone	9
2.8 Enter terminal licence	10
2.9 Activate apps	13
2.10 Setting up the user interface	14
3 Graphical user interface	15
3.1 Help	15
3.2 Touch gestures	16
3.3 Layout	17
4 Settings	27
4.1 User settings	29
4.2 App settings	31
4.3 System settings	40
5 Display of camera images	55
5.1 Setting up for operation	55
5.2 Operation	59
6 Implement settings	65
6.1 Setting up for operation	66
6.2 Tractor	67
6.3 Implement	78
6.4 GPS	89
6.5 CCI.Convert	94
6.6 Tacho	97

7	ISOBUS	101
7.1	ISOBUS implement	101
7.2	ISOBUS auxiliary control	101
8	Data management	109
8.1	Setting up for operation	109
8.2	Application maps	111
9	Map view	115
10	Troubleshooting	124
10.1	Problems during operation	126
10.2	Diagnostics	127
10.3	Messages	128
11	Glossary	135
12	Disposal	141
13	Index	142
A.	Technical Information	144
B.	Interfaces	145
C.	Cable	150
D.	Application maps	154
E.	Time zones	155

About these operating instructions

These operating instructions are intended for persons that are entrusted with the use and maintenance of the terminal. They include all necessary information for safe handling of the terminal.

Target group

All information provided in the operating instructions relates to the following device configuration:

Identifier	CCI 1200
Software version	CCI.OS 1.1
Hardware version	0.5, 1.0 and higher

These operating instructions guide you chronologically through operation:

- About the CCI 1200
- Safety
- Setting up for operation
- Settings
- User interface
- Apps
- Troubleshooting

To ensure fault-free operation of your CCI 1200, please read through the operating instructions carefully. Keep the operating instructions for future reference.

Liability disclaimer

These operating instructions must be read and understood prior to assembly and commissioning of the terminal to prevent problems during operation. No liability is accepted for damage resulting from failure to observe these operating instructions!

If you need further information or if problems occur that are not covered in enough detail in these operating instructions, then please contact your dealer or contact us directly to obtain the required information.

If problems arise

Pictograms

Each function is explained with step-by-step instructions. On the left next to the operation instruction you can see the button to be pressed or one of the following pictograms:



Enter a value via the keyboard

- Enter the value via the terminal's screen keyboard.



Select a value from a selection list

1. Swipe through the selection list until you reach the desired value.
2. Select the value by ticking the checkbox on the right edge.



Change value

- Change an existing value.



Confirm action

- Confirm the action carried out previously.



Select list entry

- Tick the checkbox to select an element in a selection list.



Switch off

- Set the switch to "off".
→ You deactivate a function or setting.



Switch on

- Set the switch to "on".
→ You activate a function or setting.

About the CCI 1200

We commend you on your purchase of this CCI 1200. The CCI 1200 is a manufacturer-independent operating terminal for controlling ISOBUS implements.



The touchscreen of the CCI 1200

- Is 12.1" in size and has a resolution of 1280x800 pixels,
- Is highly luminous and suitable for day and night operation and
- has an anti-glare coating, which prevents reflections even in direct sunlight.

The user interface

- Offers flexible layouts and displays up to 6 apps simultaneously,
- Through use of a user interface developed from practical experience, enables an intuitive approach even with complex functions.



- The plastic casing reinforced with glass beads is highly resistant.
- The ON/OFF key as well as two USB 2.0 ports are integrated in the outer surround to enable quick access.



The interfaces of the CCI 1200

- Video, GPS, LH5000, WLAN (WiFi), ISOBUS, signal connector, USB: the numerous interfaces ensure maximum connectivity.
- The loud buzzer signals alarm states and provides audible feedback.
- All connectors on the back of the terminal are protected against moisture and dust by rubber caps.

CCI.Apps

The following CCI.Apps are installed on the CCI 1200:



CCI.UT

ISOBUS implement operation



CCI.Cam

Display of up to 8 cameras



CCI.Config

Implement settings



CCI.Command

Map view



CCI.Control

Data management



CCI.Help

Help system

The following functions must be purchased separately and can only be used once enabled:



Parallel Tracking

Creation of tracks



Section Control

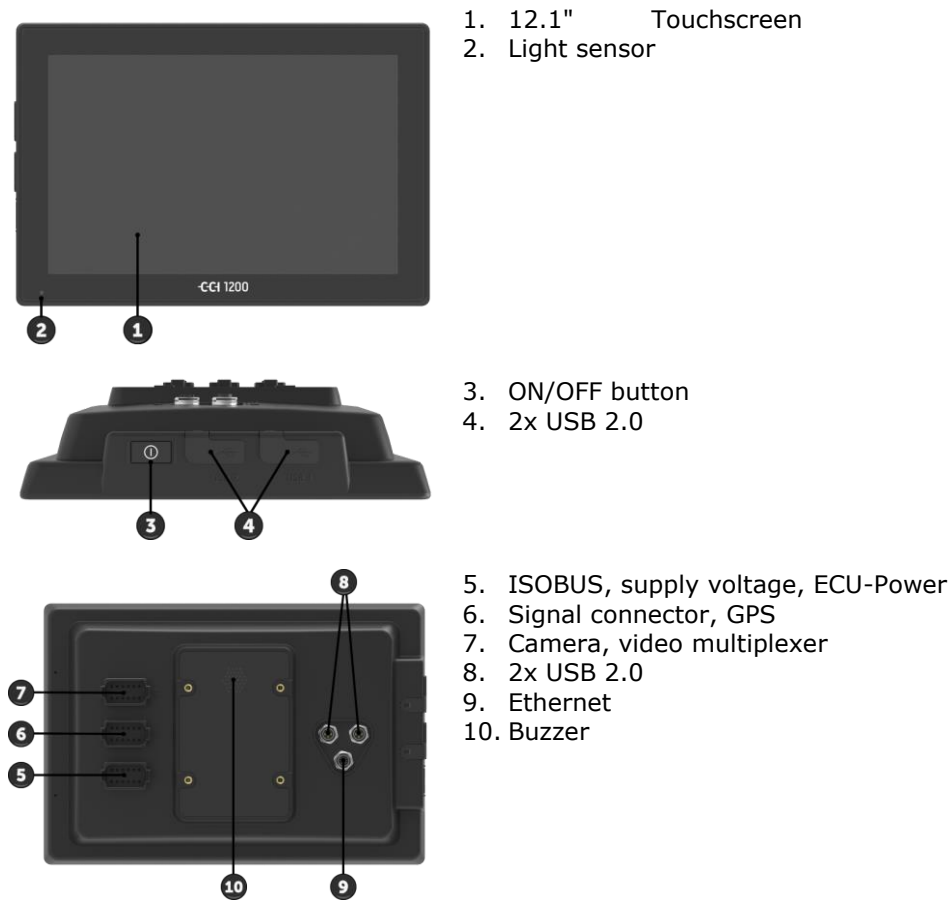
Automatic switching of sections



Task Control

Import and export of data

Structure



The terminal is operated via the touchscreen. Common touch gestures are supported.

Touchscreen

The light sensor measures the ambient light and matches the screen brightness to the ambient light.

Light sensor

ON/OFF

Switch the terminal on or off using the ON/OFF button.

- Press the ON/OFF button for 1 second to switch it on or off.

On some tractors and self-propelled implements, you can also switch the terminal on or off with the ignition key.

The terminal switches off automatically,

- if you pull out the ignition key or
- turn the ignition key to the OFF position.

The terminal switches back on, when the ignition is turned on again.



Note

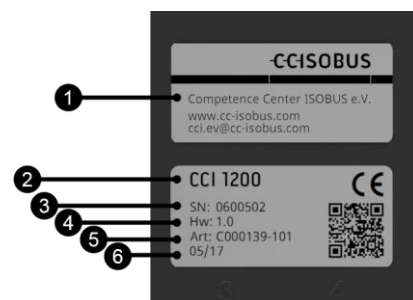
The terminal can only be switched on via the ignition if it has previously been switched off via the ignition.

The LED integrated in the ON/OFF button displays the current status information. The LED is off during normal terminal operation to prevent any disturbance to the driver.

The status displays are described in the chapter *Troubleshooting*.

Nameplate

Identify your device based on the information on the nameplate. The nameplate is attached on the back of the terminal.



1. Manufacturer
2. Terminal type
3. Serial number
4. Hardware version
5. Manufacturer's article number
6. Production date (week/year)



Note

The nameplate is attached by the manufacturer.
→ Layout and content may differ from the figure.

Both USB interfaces on the left casing side are of type A. Standard flash drives can be connected.

USB

The USB interfaces on the rear side are type M12. These interfaces protect the terminal against the penetration of dust and water, even when there is a connected USB device.

The buzzer is sized so that even if there is a very loud background, terminal and implement audio warnings can be clearly heard.

Buzzer

At connector A, you connect the terminal

Connector

- to the ISOBUS and
- to the power supply.

At connector B, you connect the terminal to

- the signal connector,
- an NMEA 0183 GPS receiver,
- the serial GPS output
 - of the tractor,
 - the self-propelled implement or
 - the automatic steering system,
- the serial interface of an N-sensor.

At connector C, you connect the terminal to

- a camera or a camera multiplexer,
- an NMEA 0183 GPS receiver,
- the serial GPS output
 - of the tractor,
 - the self-propelled implement or
 - the automatic steering system,
- the serial interface of an N-sensor.

1 Safety

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

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

1.1 Identification of notes in the operating instructions

The warning notes in these operating instructions are specially identified:



Warning - General Hazards!

This warning symbol identifies general warning notes the non-observance of which poses a danger for life and limb. Strictly observe the warning notes and take particular care in these cases.



Caution!

This caution symbol identifies all warning notes referring to regulations, directives or working procedures which must be observed. Non-observance can result in damage to or destruction of the terminal as well as malfunctions.

You can find tips for use in the "Notes":



Note

The note symbol highlights important and useful information.

Further information provides background knowledge:



The Info symbol highlights practical tips and further information.

Info-blocks

- make complex technical connections easier to understand,
- provide background knowledge and
- give practical tips.

1.2 Intended use

The terminal is intended exclusively for use with approved ISOBUS 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.

1.3 Safety instructions



Warning - General Hazards!

Please take special care to ensure the following safety instructions are complied with. Non-compliance could result in malfunctions and consequently danger for any bystanders:

- Switch the terminal off, if
 - the touch-screen does not react,
 - the display is locked or
 - the user interface is not properly displayed.
 - Ensure that the touchscreen is dry before working with the terminal.
 - Do not operate the terminal whilst wearing gloves.
 - Ensure the terminal does not exhibit any external damage.
-



Caution!

Please observe the following safety instructions to prevent damage to the terminal.

- Do not remove any safety mechanisms or safety signs.
 - Do not open the terminal casing. Opening the casing can result in reduced terminal service life and malfunctions. If the terminal casing is opened, the warranty will become void.
 - Disconnect the power supply to the terminal,
 - during welding work on the tractor and self-propelled implement or on a towed implement,
 - during maintenance on the tractor and self-propelled implement or on a towed implement,
 - when a charger is connected to the battery of the tractor and self-propelled implement.
 - Carefully read and observe all safety information in the operating instructions and the safety labels on the terminal. Safety labels must always be in a proper legible condition. Replace missing or damaged labels. Ensure that new terminal 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.
 - Only use a soft cloth moistened with clean water or a small amount of glass cleaning agent to clean the terminal.
 - Do not operate the touchscreen with a sharp-edged or rough object because otherwise the anti-glare coating will be damaged.
 - Do not exceed the temperature range of the terminal.
 - Keep the light sensor clean.
 - If the terminal is not fitted in the cab, it should be stored in a dry and clean location. Do not exceed the storage temperature range.
-

1.4 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 vehicle electronics or other components. This is, in particular, applicable to the electronic interference of:

- EHR
- Front hoisting gear
- Power take offs
- 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.

2 Setting up for operation

Setting the terminal up for operation is a quick and uncomplicated process based on the following step-by-step guide.

2.1 Check the scope of delivery

Check the scope of delivery of your terminal before you start setting up for operation:



1. Terminal
2. Device holder
3. Cable A



Note

The scope of delivery is defined by the manufacturer.
→ The number and type of the accessories may differ from the illustration.

2.2 Install the terminal

The device holder is supplied with the terminal and is fitted on the terminal in the factory. Attach the terminal with the device holder to a 20mm diameter tube.

Fit the terminal in landscape or portrait format.



Note

Mount the terminal so that it

- Is easy to read and operate,
- Does not impede access to the tractor or self-propelled implement controls and
- Does not impede the view to the outside.

Alternatively another device holder can be used, e.g.

- the VESA 75 adapter which is available in the tractor or the self-propelled implement
- the VESA 75 adapter 2461U from RAM.



Caution!

Do not overtighten the screws on the device holder and do not use screws that are too long.

Both will lead to damage of the terminal housing and malfunctioning of the terminal.

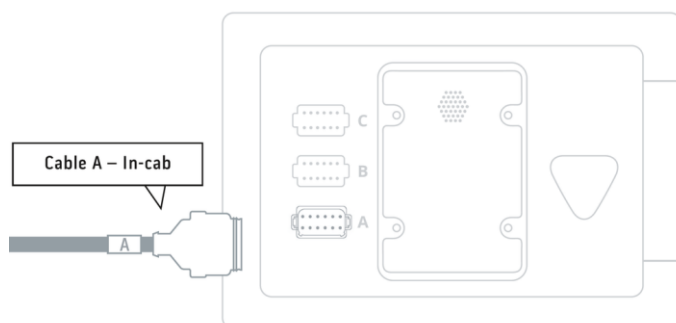
Note without fail:

- Use four M5 x 0.8 hex socket cap screws.
- The maximum tightening torque for the screws is 1.5 to 2.0 Nm.
- The length of the internal thread in the terminal housing is 8mm. Use screws with a corresponding thread length.
- Secure the screws with circlip, groove washer or wave washer to prevent undoing.

2.3 Connect the terminal

Connect the terminal to the ISOBUS and supply it with power via connector A:

- Connect cable A to connector A on the terminal and then to the in-cab panel connector of the tractor or the self-propelled implement.



2.4 Switch on the terminal



1. Press the ON/OFF button for 1 second.
→ The safety instructions are displayed.
2. Drag the "Enter" button in the indicated direction.
→ The arrow changes its shape to a check mark.
→ The start screen is displayed.



Setting up for operation

2.5 Change layout

As supplied all operating screens are output in landscape format. If you have installed the device in portrait, then first change the layout:



1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



2. Press the "Layout" button.
→ The "Layout" operating screen is displayed.



3. In the "Orientation" line, select the "Portrait" checkbox.
→ The layout is changed.



4. End the Process with "Back".

2.6 Select language

As supplied, the terminal displays all texts in English. To change the language setting:



1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



2. Press the "User" button.
→ The "User" operating screen is displayed.



3. Press the "Language" button.
→ The "Language" selection list is displayed.



4. Select your language.
→ The checkbox at the right edge of the button is selected.
→ The language setting is changed.



5. End the Process with "Back".

2.7 Select time zone

The time zone forms the basis for the time displayed by the terminal. Switching between summer and winter time takes place automatically and cannot be disabled.

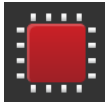


Note

Select the time zone with the correct time difference and the appropriate region.



1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



2. Press the "System" button.
→ The "System" operating screen is displayed.



3. Press the "Date and time" button.
→ The "Date and time" operating screen is displayed.



4. Press the button "Time zone".
→ The "Time zone" selection list is displayed.
5. Select the Time zone.
→ The checkbox at the right edge of the button is selected.
→ The time zone is changed.

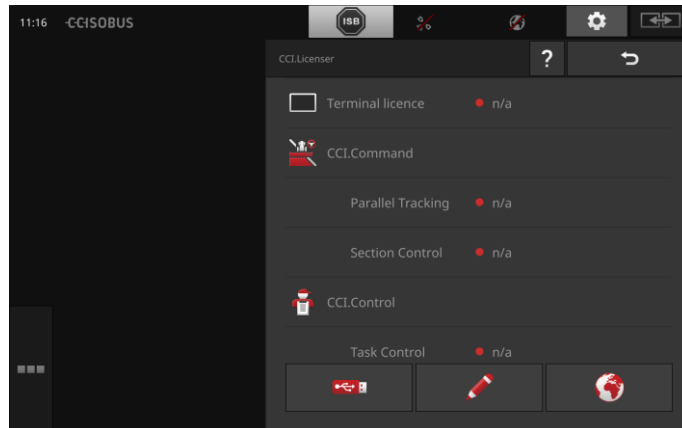


6. End the Process with "Back".

Setting up for operation

2.8 Enter terminal licence

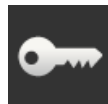
To be able to use all functions, you must enter the terminal licence for the terminal. The terminal licence can be downloaded from the web page <https://sdnord.net/PA>.



1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



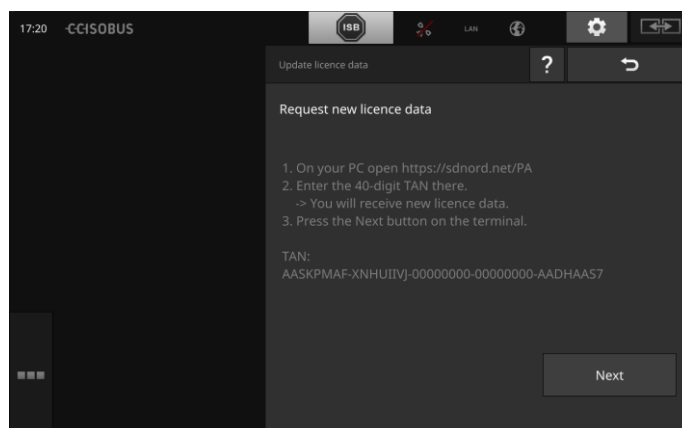
2. Press the "System" button.
→ The "System" operating screen is displayed.



3. Press the "Licence data" button.
→ The "Licence data" operating screen is displayed.



4. Press the "Manual entry" button.
→ The "Request new licence data" operating screen is displayed:



5. Change to the PC. In the browser open the web address <https://sdnord.net/PA>.
6. Answer the security question.

Setting up for operation



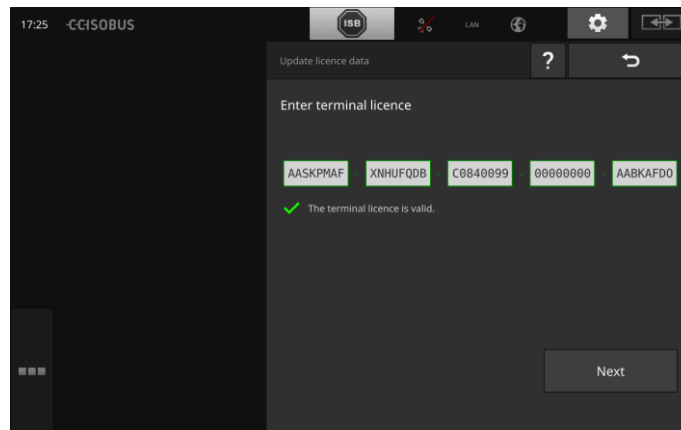
7. Enter the TAN of the terminal and press the button "Start activation...".

→ The terminal licence is displayed:



8. On the terminal, press the "Next" button.

→ The "Enter terminal licence" operating screen is displayed:



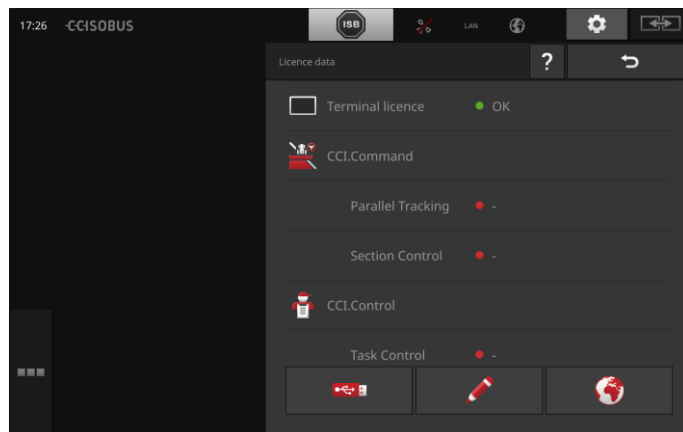
9. Enter the Terminal licence.

10. End the process with "Next".

→ The updating of the licence data is ended.

→ The "Licence data" operating screen is displayed.

Setting up for operation

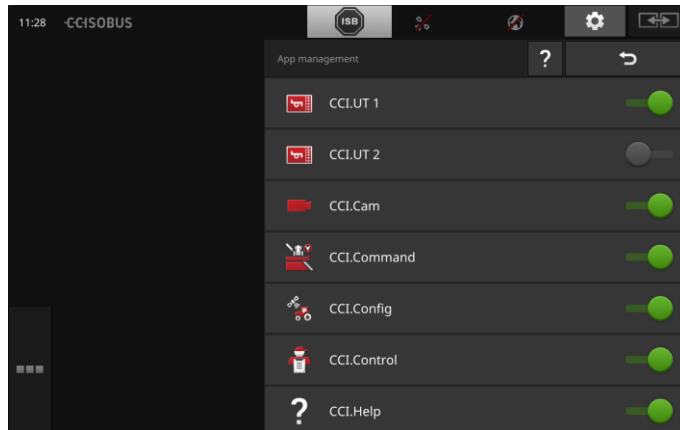


2.9 Activate apps

As supplied from the factory all apps, with the exception of CCI.UT2, are activated and ready for use.

Activate CCI.UT2, if you

- want to simultaneously display and operate two ISOBUS implements in the Standard View.



1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed.



3. Press the button "App management".
→ The "App management" operating screen is displayed.



4. Switch CCI.UT2 "on".
→ CCI.UT2 is activated.



Note

We recommend leaving all apps activated.

Leave unused apps in the app menu. If necessary, you can then quickly activate these apps.

Apps in the app menu use scarcely any CPU power or RAM.

Setting up for operation

2.10 Setting up the user interface

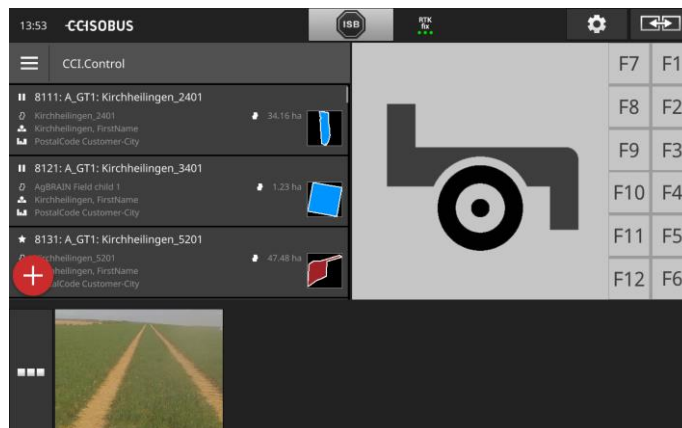
When the terminal is first started, CCI.Help and CCI.UT are displayed in the Standard View

You want to operate an ISOBUS implement with CCI.UT and record the implement data using CCI.Control.

You have connected a camera to the terminal and want to keep the camera image visible during working:



1. Press the button "App Menu".
→ The app menu opens.
2. Press the "CCI.Control" button in the app menu.
→ CCI.Control is displayed in Mini View.
3. In Mini View, press on "CCI.Control".
→ CCI.Control is displayed in the left half of the Standard View.
4. Repeat steps one and two for CCI.Cam.
→ CCI.Cam is displayed in mini view.



3 Graphical user interface

Familiarise yourself with the essential components and the layout of the screen content.

3.1 Help

CCI.Help supports you in your daily work with the terminal.

CCI.Help

- Answers questions about operation based on experience,
- Gives useful application notes,
- Is available at the touch of a button and
- Is very concise.

Simply pressing the question mark opens the help page relevant for the current working step:

- Help in the Burger Menu provides information about the basic functions of the apps,
- Help in Settings supports you during configuration.



1. Press the "Help" button.
→ The help subject is displayed.



2. Scroll the help text for other help subjects.

3.2 Touch gestures

The terminal is operated using the touchscreen alone. The terminal supports the following common touch gestures:



Press

- Press briefly at the indicated point on the touchscreen. You select an item in a selection list or trigger a function.
-



Long press

- Press for 2 seconds at the indicated point on the touchscreen.
-



Swipe

- Navigate quickly through a selection list.
-



Drag and drop

- Pick up an app and move it to another position on the touchscreen.
-



Spread

- Zoom in within a map view.
-



Pinch

- Zoom out in a map view.

3.3 Layout

During daily work with the terminal, you must be able to see all relevant information and operate several apps simultaneously.

The terminal helps you to do so courtesy of its large size touchscreen and the flexible design of the user interface.

Select a layout to match the terminal installation:



Landscape Standard

- The layout most frequently used in practice.
- The terminal is installed in landscape alignment.
- You work with two apps.
- The apps are arranged alongside each other.
- The softkeys for ISOBUS implement operation are located at the right and left display edge.



Landscape Maxi

- The terminal is installed in landscape alignment.
- You are working with one app.
- The app is displayed magnified.



Portrait

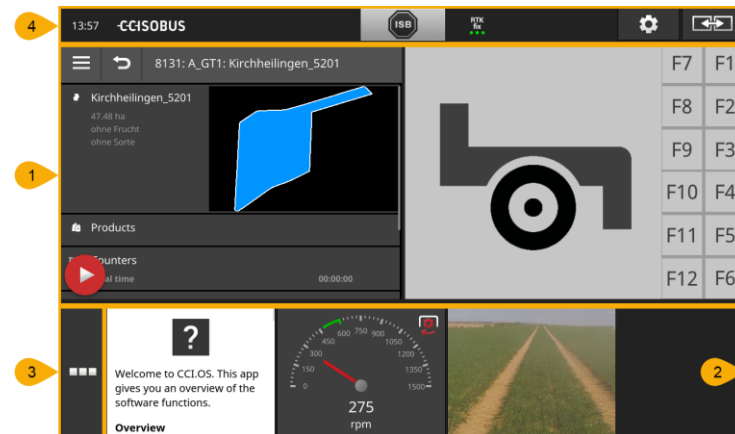
- The terminal is installed in portrait alignment.
- The apps are arranged one below the other.
- The softkeys for ISOBUS implement operation are located at the right-hand edge.

Graphical user interface

Landscape Standard is described below. The descriptions can be applied to the other layouts.

Display division

The display is divided into four areas:



1 Standard View
Up to 2 apps are displayed in the Standard View.

2 Mini View
All active apps are displayed in the Mini View with the exception of the apps in the Standard View.

3 App menu
In the app menu can see all apps that are activated in app management.

4 Status bar
The pictograms in the status bar give an overview of the connection status and connection quality of the following interfaces:

- GPS and
- WiFi.

Standard View

Apps can only be operated if they are included in the Standard View.

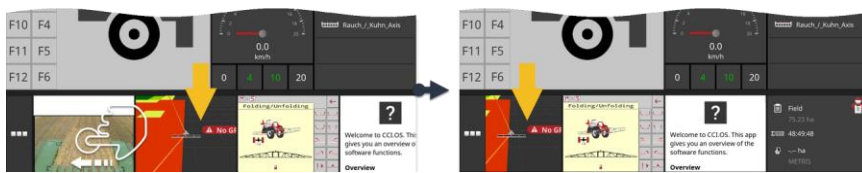
Mini View

Apps in Mini View

- Cannot be operated,
- Only display the essential information,
- Continue running executing functions.

From the fourth activated app, the Mini View extends to the right beyond the visible area:

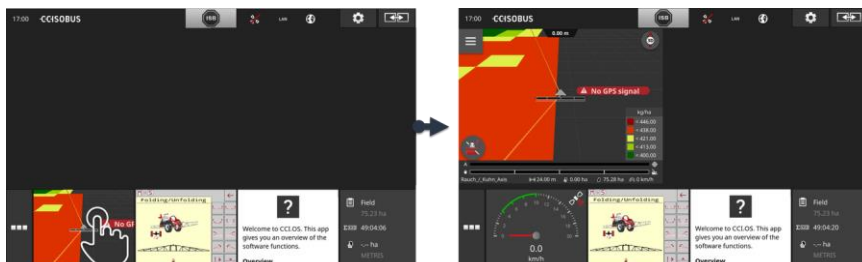
Scroll



- Swipe the Mini View to the left.
→ Apps are moved from the non-visible to the visible area.

To operate an app, move it from the Mini View to the Standard View:

Move



- Press the app in the Mini View.
→ The app swaps position with the app in the left half of the Standard View.



Note

When moved apps continue working without interruption and without a status change.

Graphical user interface

Rearrange

The arrangement of apps in Mini View can be changed:



1. Press and hold the app.
→ The app visibly detaches from the Mini View.



2. Drag the app to the new position.

App menu

The app menu is in collapsed state.

All apps that you have activated in App management are displayed in the app menu:

Active apps

- Are displayed in Standard View, Mini View and in the app menu,
- Have a light grey frame in the app menu.

Idle apps

- Are only displayed in the app menu,
- Have a dark grey frame and
- Do not use any CPU power or RAM.

Move apps that your are not using into the app menu:



1. Press the button "App Menu".
→ The app menu opens.



2. Select an app.
→ The app is removed from the Mini View or Standard View.

For example you only use CCI.Cam during fertilizer spreading. However, you will not be using this agricultural practice again for several months.

- Move CCI.Cam into the app menu.

Example

Graphical user interface

Status bar

The symbols in the information area of the status bar give an overview of the connection status and connection quality.

Information
area



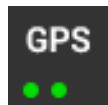
No signal

No GPS receiver is connected.



Invalid signal

A GPS receiver is connected. However, the received position data are invalid.

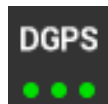


GPS

A GPS receiver is connected. The received position data correspond to the GPS standard.

→ The documenting of tasks is possible.

→ GPS is not sufficiently accurate for Section Control.



DGPS, RTK fix, RTK float

A GPS receiver is connected. The receiving quality corresponds, depending on the display, to the requirements of DGPS, RTK fix or RTK float.

→ The documenting of tasks and Section Control are possible.



No WiFi

No WiFi network found.



Connected to WiFi

The terminal is connected to a WiFi network.



No Internet

The terminal is not connected to the Internet.



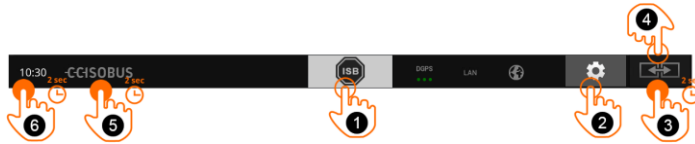
Connected to the Internet

The terminal is connected to the Internet.

LAN

LAN

The terminal is connected via the "Eth" interface to a LAN.



You have the following operating options:

- 1**

ISB

Use the ISB,

 - If implement operation is not in the foreground,
 - If you want to trigger several implement functions simultaneously.

Send an ISB command to all network members:

 - Press the "ISB" button.
 - The terminal sends the ISB command over the ISOBUS.

- 2**

Settings

Make the basic settings before working with the terminal:

 - Press the "Settings" button.
 - The "Settings" operating screen is opened.

- 3**

Standard/Maxi

In landscape switch between the two layouts Standard and Maxi:

 - Press and hold the "Layout" button for 2 seconds.
 - The new layout is displayed.

- 4**

App position

Change the position of apps in Standard View.

 - Press the "Layout" button.
 - The apps in Standard View change position.

- 5**

Display terminal information

You receive detailed information about the installed software version.

 - Press and hold the company logo for 2 seconds.
 - The version information is displayed.

- 6**

Create screenshot

If you are having problems operating the terminal or ISOBUS implement, you can capture a screenshot and send it to your contact:

 1. Connect a flash drive to the terminal.
 2. Press on the clock until a message is displayed in the status bar.

→ The screenshot is saved on the flash drive in the main directory.

Graphical user interface



Caution!

Not all ISOBUS implements support the ISB function.

Consult the implement operating instructions to see which implement functions of an implement are triggered by the ISB.

In the event of a fault or if an operating error exists, a dialogue window is displayed with an error message. Before you can continue working, you must rectify the problem and acknowledge the message.

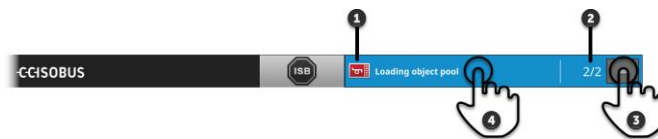
→ The workflow is interrupted.

After successful action, you receive feedback through messages in the status bar. The messages

→ are displayed on a blue background in the information area of the status bar,

→ need not be acknowledged and

→ do not interrupt the workflow.



Sender

1 The pictogram alongside the message indicates the message sender:

- Terminal or
- ISOBUS implement

Count

2 The number of unread messages is indicated.

Hide messages

3 Press the "Hide" button.
→ The message window is closed.
→ All message are deleted.
→ The information area is displayed.

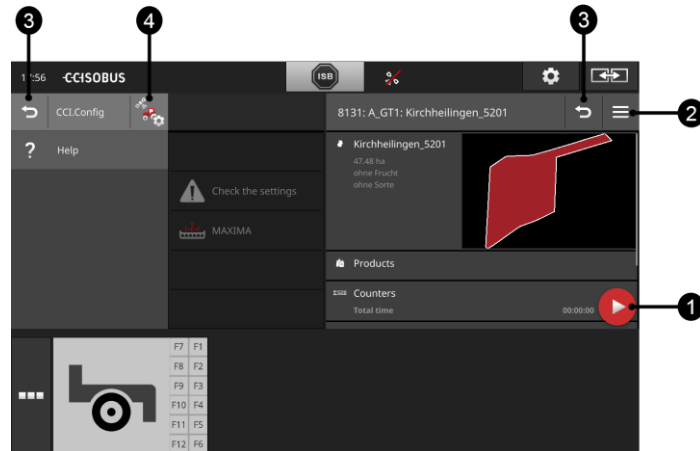
Mark a message as read

4 Press on the message.
→ The next message is displayed and the number of unread messages is decreased by one.
→ After the last message, the message window is closed.

Graphical user interface

Special buttons

For efficient operation of the apps, the terminal provides special buttons.



Action Button

- 1 The Action Button provides direct access to the functions that are currently most important.

Burger Button

- 2 Open the Burger Menu using the Burger Button. The Burger Menu offers access to the settings, functions and help system of an app:
 - Press the "Burger Button".
 - The Burger Menu opens.

Back/Close

Close the Burger Menu using the "Close" button:

- Press the "Close" button in the Burger Menu.
 - The Burger Menu is closed and the app operating screen is displayed.

- 3 Go back to the previous operating screen by pressing the "Back" button:

- Press the "Back" button.
 - The active operating screen is closed.
 - The previous operating screen is displayed.

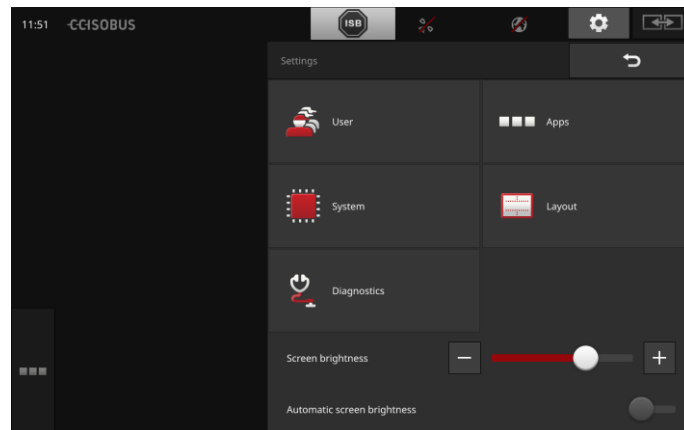
App settings

- 4 The general settings are described in the Settings chapter. Moreover you can also match your special requirements to each app:
 - Press the button "App Settings".
 - The "Settings" operating screen of the app is displayed.

4 Settings



- Press the "Settings" button.
→ The "Settings" operating screen is displayed:



Change the following settings directly in the "Settings" operating screen:

Change screen brightness

- Push the control to the left to reduce the display brightness.
- Push the control to the right to increase the display brightness.

Automatic screen brightness

The light sensor measures the ambient light and matches the screen brightness to the ambient light.

1. Switch "Automatic screen brightness" on.
→ In high ambient light, e.g. direct sunlight, the display brightness is increased.
→ In dim ambient light, e.g. during night-time operation, the display brightness is reduced.
2. Regulate the behaviour of the light sensor using the slide control.
→ Push the control to the right to reach maximum display brightness.
→ Push the control to the left to reach minimum display brightness.



Settings

The settings are subdivided amongst the areas "User", "Layout", "System", "Apps" and "Diagnostics".



User

Adjust the operating behaviour of the terminal:

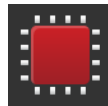
- Sound and touch sound,
 - Language and units and
 - user administration.
-



Apps

Activate and configure apps:

- Change app settings,
 - Activate apps and
 - Activate ISOBUS functions.
-



System

General options and functions are available in the "System" area:

- Call software and hardware information,
 - Set date and time,
 - Reset factory settings,
 - Install an update,
 - Create a backup,
 - Update licence data and
 - Set up an Internet connection and remote maintenance.
-



Layout

Select the display orientation. In landscape it is possible to choose between Standard and Maxi display layouts:

1. Press the "Layout" button.
→ The "Layout" operating screen is displayed.
 2. In the "Alignment" line, press the checkbox below the desired orientation.
→ The orientation is changed.
 3. In the "Layout" line press the checkbox under Standard or Maxi.
→ The layout is changed.
 4. End the Process with "Back".
-

Diagnostics

The terminal records a log. The log is only saved on the terminal and is not transmitted.

If you are having problems operating the terminal or ISOBUS implement, you can send the log to your contact:



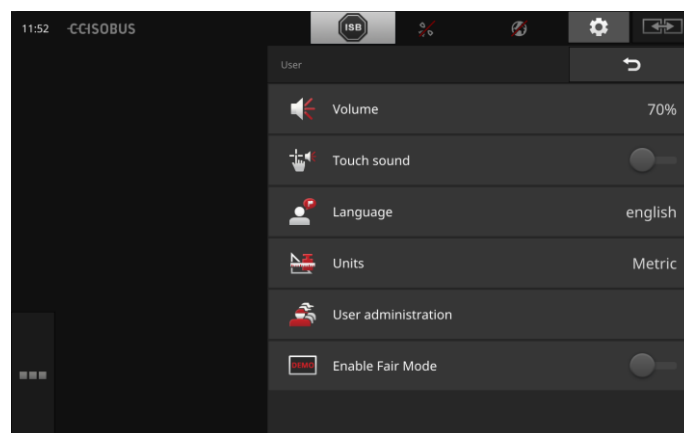
1. Connect a flash drive to the terminal.
2. Press the "Diagnostics" button.
→ The "Diagnostics" operating screen is displayed.
3. Press the "Log" button.
→ The "Log" operating screen is displayed.
4. Press on the button "Save log on flash drive".
→ The log is saved on the flash drive.
5. End the Process with "Back".

4.1 User settings

The operating characteristics of the terminal are set under User settings.



- Press the "User" button in the "Settings" operating screen.
→ The "User" operating screen is displayed:



You have the following setting options:

Volume

The terminal and many ISOBUS implements issue audio warnings. The volume of the audio warnings can be adjusted:



1. Press the "Volume" button.
→ The "Volume" operating screen is displayed.
2. Press the button with the percentage.
→ The screen keyboard is displayed.
3. Enter the volume in %.
4. Confirm your entry.
5. End the Process with "Back".

Activate touch sound



- Set the switch to "on".
→ Upon pressing a button, you receive audible feedback.

Select language

Select the language in which the text is to be output to the display:



1. Press the "Language" button.
→ The "Language" selection list is displayed.
2. Select a language.
→ The text on the display is shown in the new language.
3. End the Process with "Back".

Units

Change the system of units used by the terminal:



1. Press the "Units" button.
→ The "Units" selection list is displayed.
2. Select a system of units.
→ The terminal applies the system of units to all values.
3. End the Process with "Back".

User administration

The terminal identifies the following user groups:



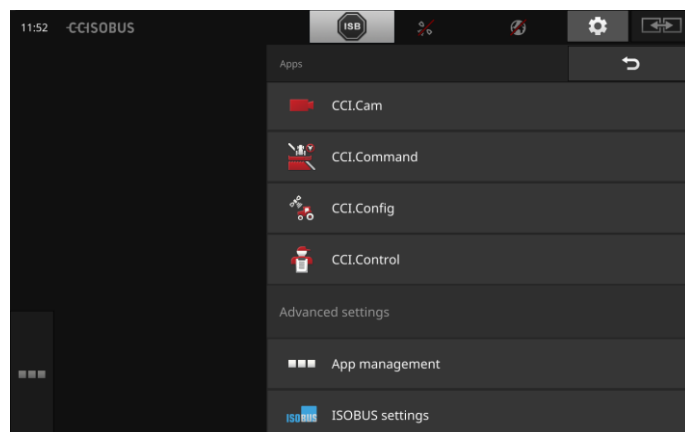
- User
- Service
- Developer.

The "User" group is preset. Do not change this setting.

4.2 App settings



- Press the "Apps" button in the "Settings" operating screen.
→ The "Apps" operating screen is displayed:



You have the following operating options:

App settings

Set up the apps.

App management

Activate and deactivate apps.

See section **App management**

ISOBUS settings

Adjust the behaviour of the terminal on the ISOBUS.

See section **ISOBUS settings**

Settings

App management

Non-required apps can be permanently switched off. This has no effect on the available CPU power or the available RAM.



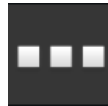
Note

It may occur that an action cannot be performed because an app is switched off.

Therefore we recommend that,

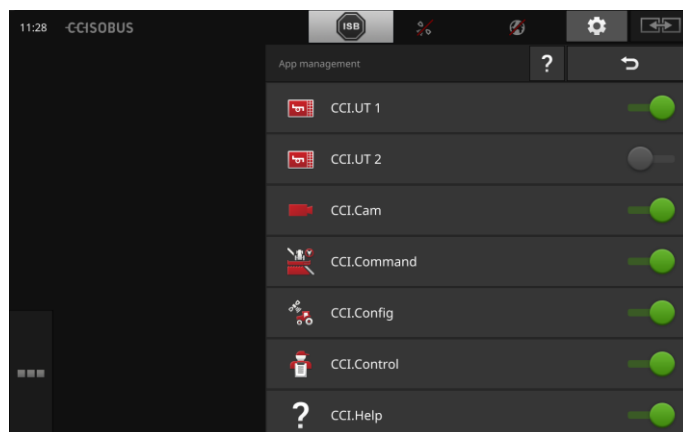
- CCI.UT2 is switched on if you want to operate two ISOBUS implements,
- All other Apps are always switched on.

Switch an app off as follows:



1. Press the "App management" button in the "Apps" operating screen.

→ The "App management" operating screen is displayed:



2. Switch the app "off".
→ A message window is displayed.



3. Confirm your entry.
→ The app is ended.
→ The app is no longer displayed in the app menu.

To switch an app on proceed as described above. Set the switch next to the app name to "on".

ISOBUS settings

The terminal makes the following functions available on the ISOBUS:

- Universal terminal,
- AUX-N,
- Task Controller,
- TECU,
- File server.

All ISOBUS functions are activated ex works.



Note

We recommend leaving all ISOBUS functions activated.

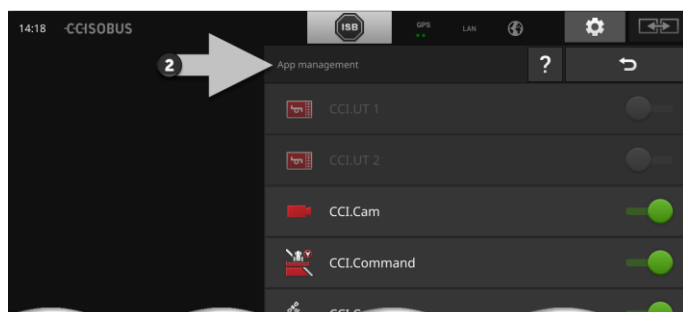
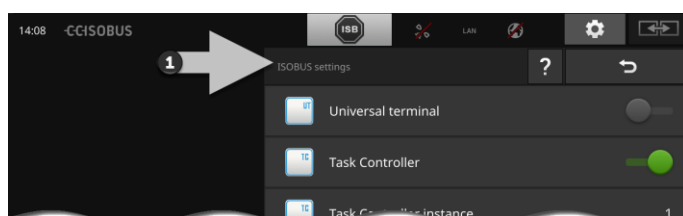
Only then can you take full advantage of the wide range of terminal functions:

- ISOBUS implement operation
- Recording of task data
- Section Control and Rate Control.

If you operate the CCI 1200 and a second ISOBUS terminal simultaneously, you can distribute the functions over both terminals:

Example

- You operate the ISOBUS implements via the fixed ISOBUS terminal integrated in the tractor and
 - You use CCI.Command on the CCI 1200 for Section Control.
1. In the ISOBUS settings on the CCI 1200, with the "Universal Terminal" off and the "Task-Controller" on.
 2. In App management on the CCI 1200, switch CCI.UT1 off and CCI.Command on.

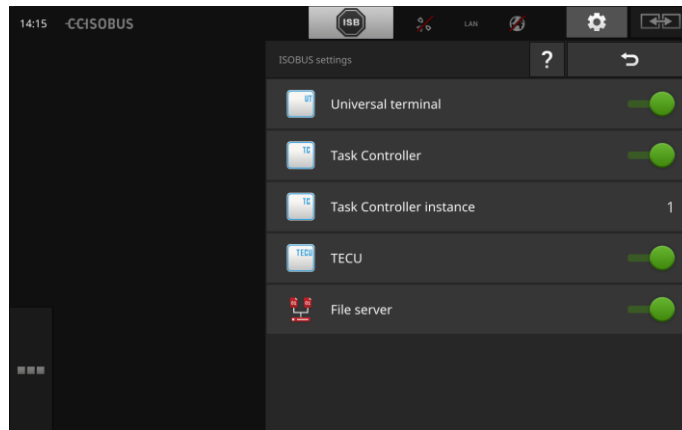


Settings

Adjust the behaviour of the terminal on the ISOBUS as follows:



- Press the "ISOBUS Settings" button in the "Apps" operating screen.
→ The "ISOBUS settings" operating screen is displayed:



If the ISOBUS function "Universal terminal" is activated, up to

- 5 implements each can be connected with CCI.UT1 and CCI.UT2
- one ISOBUS implement can be operated with each of CCI.UT1 and CCI.UT2.

This is also possible, if you simultaneously use a second ISOBUS terminal.



- The ISOBUS function "Universal terminal" is activated ex works.
→ The terminal registers on the ISOBUS as a "Universal Terminal".



1. Change to the operating screen "App settings".



2. Press the button "App management".
→ The "App management" operating screen is displayed.



3. Switch CCI.UT1 "on".
→ CCI.UT1 is displayed in the Standard View.

You do not want to operate any ISOBUS implement with the terminal.

→ Switch "Universal Terminal" and the apps CCI.UT1 and CCI.UT2 off:



1. In the "ISOBUS settings" operating screen switch the "Universal Terminal" "off".

→ A message window is displayed.



2. Confirm your entry.

→ The "Universal Terminal" switch is "off".

→ The terminal no longer registers on the ISOBUS as a "Universal Terminal".



3. Change to the operating screen "App settings".



4. Press the button "App management".

→ The "App management" operating screen is displayed.



5. Switch CCI.UT1 and CCI.UT2 "off".

→ CCI.UT1 and CCI.UT2 are no longer displayed in the app menu.



Note

When you switch the ISOBUS function "Universal Terminal" off, you can no longer use the terminal for operation of an ISOBUS implement, even if the apps CCI.UT1 or CCI.UT2 are switched on.

Task Controller

Section Control, Rate Control and the recording of task data require the ISOBUS function "Task Controller".



The ISOBUS function "Task Controller" is activated ex works.
→ The terminal registers on the ISOBUS as a "Task Controller".



1. Change to the operating screen "App settings".



2. Press the button "App management".
→ The "App management" operating screen is displayed.



3. Switch CCI.Control "on".
→ CCI.Control is displayed in the app menu.



4. Switch CCI.Command "on".
→ CCI.Command is displayed in the app menu.

You are using the Task Controller of the CCI 1200 **and** the Task Controller of another ISOBUS terminal.

Each of the two Task Controllers must have a unique number, as otherwise address conflicts on the ISOBUS may occur.

One ISOBUS implement can only connect to one Task Controller. The implement selects the task controller based on the task controller number.

The implement automatically selects

- the lowest Task Controller instance or
 - the Task Controller instance set in the implement.
- The number cannot be set in all ISOBUS implements.

1. Press the button "Task Controller instance".
→ The input dialogue is displayed.



2. Press the button with the number.
→ The screen keyboard is displayed.



3. Enter the Task Controller instance (number).



4. Confirm your entry.



5. End the Process with "Back".
→ A message window is displayed.



6. Confirm your entry.



Note

If you change the Task Controller instance (number) of the terminal, you must also adjust this setting in the ISOBUS implement.

Otherwise the implement does not connect to the Task Controller:

- CCI.Config, CCI.Control and CCI.Command will no longer receive any information from the ISOBUS implement,
- Section Control, Parallel Tracking and Rate Control can no longer be performed.

Settings

You are using the task controller of another ISOBUS terminal.

→ Switch "Task Controller" off:



1. Switch "Task Controller" "off".
→ A message window is displayed.



2. Confirm your entry.
→ The "Task Control" switch is "off".
→ The terminal no longer registers on the ISOBUS as a "Task Controller".



3. Change to the operating screen "App settings".



4. Press the button "App management".
→ The "App management" operating screen is displayed.



5. Switch CCI.Control "off".
→ CCI.Control is no longer displayed in the app menu.



6. Switch CCI.Command "off".
→ CCI.Command is displayed in the app menu.



Note

If you switch the ISOBUS function "Task Controller" off,

- CCI.Config, CCI.Control and CCI.Command will no longer receive any information from the ISOBUS implement,
- Section Control and Rate Control can no longer be carried out,
- No further task data are displayed.

The "TECU" ISOBUS function sends the speed, the PTO speed, the position of the 3-point-hitch and the geolocation to the ISOBUS implement.

TECU



The "TECU" ISOBUS function is activated ex works.
→ The terminal registers on the ISOBUS as "TECU".

Switch the TECU of the CCI 1200 off, if the TECU of the tractor displays an error message.



1. Switch the "TECU" "off".
→ A message window is displayed.
2. Confirm your entry.
→ The "TECU" switch is "off".
→ The terminal no longer registers on the ISOBUS as "TECU".



The file server makes storage available to all network members. So for example an ISOBUS implement can save and read out configuration data on the terminal.

File server



The "File server" ISOBUS function is activated ex works.
→ The terminal registers on the ISOBUS as "File server".

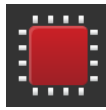
Only switch the file server off when you are sure that no ISOBUS implement is using this function.



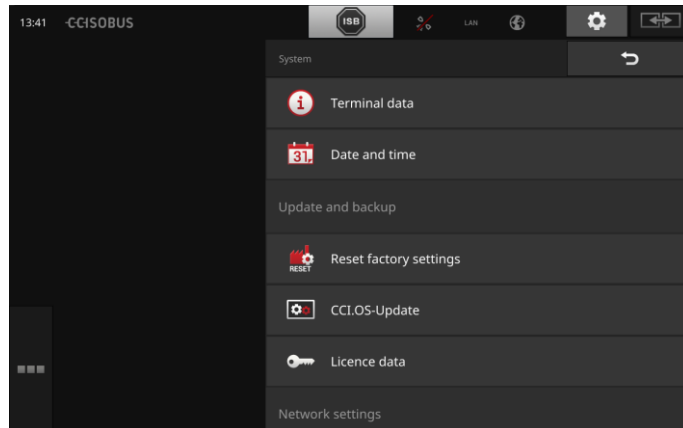
1. Switch the "File server" "off".
→ A message window is displayed.
2. Confirm your entry.
→ The "File server" switch is "off".
→ The terminal no longer registers on the ISOBUS as a "File server".



4.3 System settings



- Press the "System" button in the "Settings" operating screen.
→ The "System" operating screen is displayed:



You have the following operating options:

Terminal data



In terminal data, the version of the installed software and the serial number of the terminal are displayed together with other data. The terminal data are required for servicing:

1. Press the "Terminal data" button.
→ The terminal data is displayed.
2. End the Process with "Back".



Date and time

See section **Date and time**



Reset factory settings

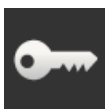
This function deletes all the settings you have made. Tasks are not deleted.

1. Press the "Reset factory settings" button.
→ A message window is displayed.
2. Confirm your entry.
→ The factory settings are restored.



CCI.OS-Update

See section **CCI.OS-Update**



Licence data

See section **Licence data**



Internet

See section **Internet**



agrirouter

See section **agrirouter**



Remote maintenance

You cannot use remote maintenance; it is only available in test mode.

- Do not press the button.

Settings

Date and time



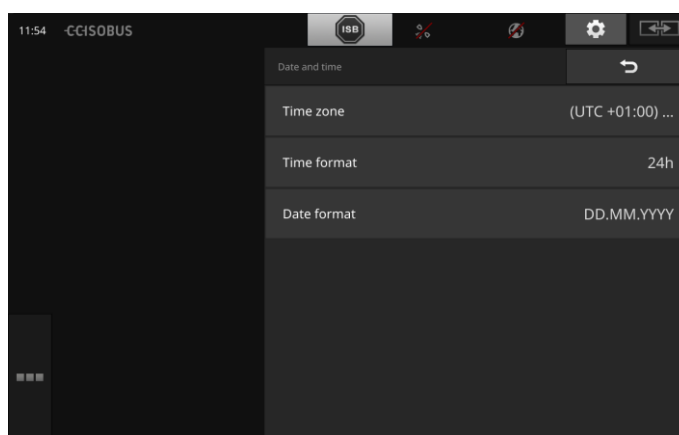
Note

The terminal clock is very accurate and is set in the factory. You cannot and must not manually change the time.

With an active Internet connection, the terminal adjusts the time based on a time server.



- Press the "Date and time" button.
→ The "Date and time" operating screen is displayed:



**Note**

The time and date are displayed in the selected format

- on the terminal and
- incorporated in the time stamp that the terminal sends over the ISOBUS.

We recommend adherence to the factory settings.

You have the following setting options:

Select time zone

Select the time zone with the correct time difference and the appropriate region:

1. Press the button "Time zone".
 - The "Time zone" selection list is displayed.
 2. Select the Time zone.
 - The checkbox at the right edge of the button is selected.
 - The time zone is changed.
-

Select time format

1. Press the "Time format" button.
 - The "Time format" selection list is displayed.
 2. Select the format.
 - The checkbox at the right edge of the button is selected.
 - The time format is changed.
-

Select date format

The date is displayed in the selected format

- on the terminal and
- incorporated in the time stamp that the terminal sends over the ISOBUS.

1. Press the "Date format" button.
 - The "Date format" selection list is displayed.
2. Select the format.
 - The checkbox at the right edge of the button is selected.
 - The date format is changed.

Settings

CCI.OS-Update

The terminal software CCI.OS is constantly subject to further development and new functions are continuously being added. Your service partner will make new updates available to you as CCI.OS updates.



Caution!

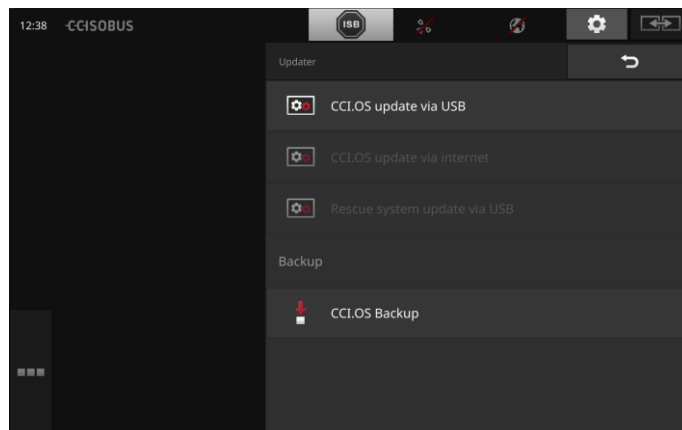
During the update process, the terminal interrupts the connection to the ISO-BUS.

The implements connected to the ISOBUS can no longer be operated.

- Before updating the terminal software CCI.OS, disconnect all connected implements from the ISOBUS.



- Press the "CCI.OS-Update" button.
→ The "Updater" operating screen is displayed:



Update vs. Rollback



In an update, a terminal software CCI.OS versions is installed that is newer than the version installed on the terminal.

In a rollback the terminal software CCI.OS is rolled back to a previous version.

- The "Updater" operating screen can only be used to install updates.
- Rollbacks are carried out in the rescue system. A previously created backup is restored.

**Note**

Occasionally the update of CCI.OS may fail. Then the terminal can only be started in the rescue system.

→ Create a backup, before you update CCI.OS.

You have the following operating options:

**Update CCI.OS from the flash drive**

See section **Update from the flash drive**

**Update CCI.OS via the Internet**

Updating of CCI.OS via the Internet is only available in test mode and is unavailable until further notice.

**Rescue system**

Updating of the rescue system can only be performed by the manufacturer or its sales and service partners.

Create a backup

1. Connect a flash drive with at least 1 GB free space to the terminal.
2. Press the "Create backup" button.
→ A warning message is displayed.
3. Start the backup with "OK".
→ The backup is saved on the flash drive.
4. Press the button "Restart terminal".
→ A warning message is displayed.
5. Confirm the warning message with "OK".
→ The process is completed.
→ The terminal is restarted.



You restore the old version from a backup in the rescue system:

→ The terminal has the software version that was backed up.

Update from the flash drive



Note

Use a flash drive with free space of at least 200MB.

→ The installation program saves data on the flash drive for the duration of the update.



Note

The flash drive must remain connected to the terminal throughout the update!

1. Press the button "CCI.OS-Update via flash drive".
→ The selection list with the available Updates is displayed.



2. Select an update.

3. Press the "CCI.OS-Update" button.
→ A message window is displayed.



4. Start the update.
→ The new terminal software is installed.
→ Once the installation is complete, you are requested to restart the terminal.

5. Press the button "Restart terminal".
→ A warning message is displayed.

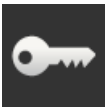


6. Confirm the warning message.
→ The update is complete.
→ The terminal is restarted.

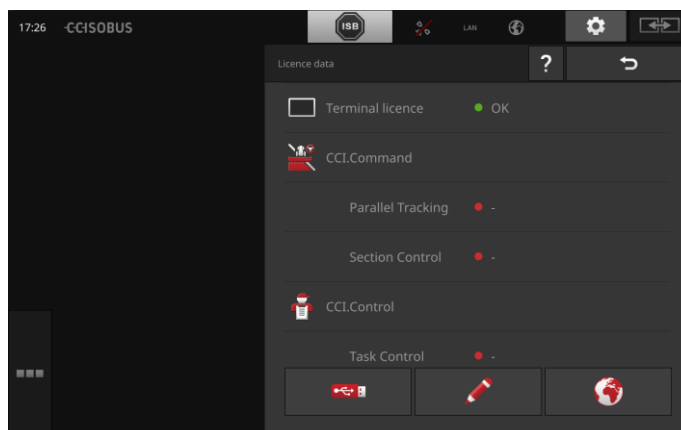
Licence data

The terminal licence data must be updated under the following circumstances:

- Following a CCI.OS update,
- After acquisition of the licence for a paid-for function (e.g. Section Control or Parallel Tracking).



- Press the "Licence data" button.
→ The "Licence data" operating screen is displayed:



You have the following operating options:

Update the licence data via the Internet



This is the fastest and easiest update method. Use this function, if the terminal is connected to the Internet:

1. Press the "Internet" button.
 - The licence data are updated.
 - The "Licence data" operating screen is displayed.
-

Update the licence data via a flash drive

A quick and reliable update method. Use this function if you have access to a PC with an Internet connection:



1. Connect a flash drive to the terminal.
 2. Press the button "USB".
 - The "Save TAN" operating screen is displayed.
 3. Press the "Next" button.
 - The file <Seriennummer>.UT.liz is saved to the flash drive.
 - The "Request new licence data" operating screen is displayed.
 4. Connect the flash drive to your PC.
 5. On the PC open the web page <https://sdnord.net/PA> and follow the instructions.
 - The new licence data is saved on the flash drive.
 6. Connect the flash drive to the terminal.
 - The licence data are updated.
 - The "Licence data" operating screen is displayed.
-

Enter licence data manually



1. Press the "Manual entry" button.
 - The TAN is displayed.
2. On the PC open the web page <https://sdnord.net/PA>.
3. Enter the TAN and press the button "Start activation...".
 - The new licence data are displayed.
4. On the terminal, press the "Next" button.
5. Enter the Terminal licence.
6. Press the "Next" button.
7. If available, enter the Parallel Tracking licence.
8. Press the "Next" button.
9. If available, enter the Section Control licence.
10. End the process with "Next".
 - The "Licence data" operating screen is displayed.

Internet

The updating of the licence data can be performed quickly and easily via the Internet.

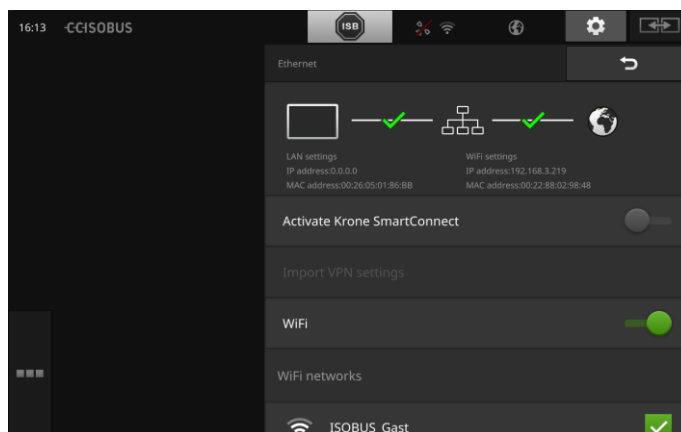
You must have an active Internet connection for the agrirouter.

You have the following options for connecting the terminal to the Internet:

1. The W10 WiFi adapter is available for the terminal. The connection with the Internet is made via WiFi. For example the WiFi connection is created via the hotspot function of your smartphone.
2. The SmartConnect unit is installed in the cab of the tractor or self-propelled implement and creates an Internet connection via the mobile phone network. You connect SmartConnect unit to the terminal via the "Eth" cable.



- Press the "Internet" button.
→ The "Internet" operating screen is displayed:



You have the following operating options:

Activate SmartConnect

The SmartConnect is a multi-functional external add-on to the Terminal and provides, the Internet connection amongst other things:

- Connect the SmartConnect to the terminal.
 - The terminal connects automatically to the SmartConnect.
 - The Internet connection is established.
 - The symbols in the status bar provide information about the status and quality of the connection.

Connect via WiFi

Use the W10 WiFi adapter to connect the terminal to the Internet:

1. Connect the W10 WiFi adapter to connector 3 or 4.
2. Press the "WiFi" button.
 - The "WiFi networks" selection list is displayed.
3. Select a WiFi network.
 - The window for password entry is displayed.
4. Enter the WiFi password and confirm your entry.
 - The terminal connects using WiFi.
 - The symbols in the status bar provide information about the status and quality of the connection.

WiFi password

Correct an incorrectly entered WiFi password as follows:



1. Press the button with the name of the WiFi network "WiFi networks" in the selection list for two seconds.
 - A context menu is displayed.



2. Select "Edit".
 - The window for password entry is displayed.



3. Correct the password.



4. Confirm your entry.

agrirouter

Connect the terminal to agrirouter, to be able to receive or send tasks via the data exchange platform.

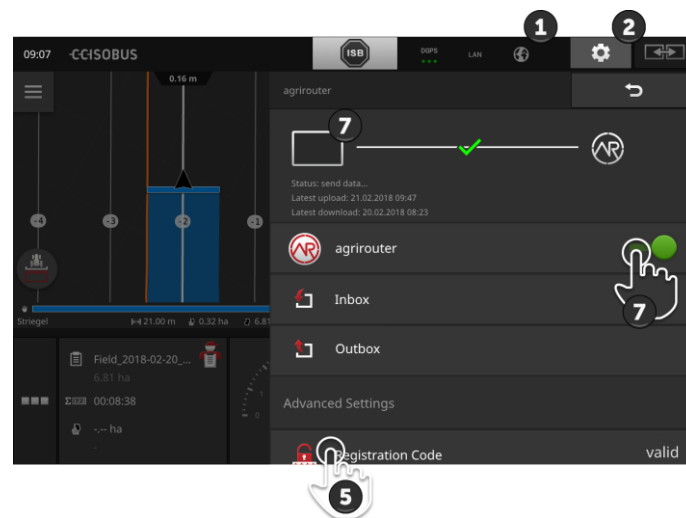
**Note**

You require an active Internet connection, so that agrirouter can receive and send tasks.

It only takes a few steps to connect the terminal to agrirouter:

- You have obtained an agrirouter user account.
- You know the registration code for the terminal.
- The terminal is connected to the Internet.

Prior preparation



1. Ensure that the Internet symbol is displayed in the status bar.
→ You required an active Internet connection to connect to agrirouter.



2. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



3. Press the "System" button.
→ The "System" operating screen is displayed.



4. Press the "agrirouter" button.
→ The "agrirouter" operating screen is displayed.

5. Press the "Registration Code" button.
→ An input dialogue is displayed.



6. Enter the registration code. The code is case-sensitive. Confirm your entry with "Next".
→ The "agrirouter" button can be pressed now.



7. Switch the "agrirouter" "on".
→ An active connection is displayed in the information area.
→ agrirouter set-up is completed.



Note

The registration code need only be entered once.

In the "agrirouter" operating screen you have the following operating options:



agrirouter on/off

Switch the connection to the agrirouter on or off.

- Press the "agrirouter" button.
→ The switch changes its position.

Inbox

The inbox contains all files downloaded from the agrirouter. You can delete a file from the inbox.



1. Press the "Input" button.
→ The "Inbox" selection list is displayed.
2. Press the button with the file names and keep the button pressed.
→ A context menu is displayed.
3. Select "Delete".
→ The file is deleted.
→ The "Inbox" operating screen is displayed.

Outbox

The outbox contains all files which could not yet be sent to agri-router.

Delete a file from the outbox as follows:

1. Press the "Outbox" button.
→ The "Outbox" operating screen is displayed.
2. Press the button with the file names and keep the button pressed.
→ A context menu is displayed.
3. Select "Delete".
→ The file is deleted.
→ The "Outbox" operating screen is displayed.



Upload a file to the server:

1. Press the "Outbox" button.
→ The "Outbox" operating screen is displayed.
2. Press the button with the file names and keep the button pressed.
→ A context menu is displayed.
3. Select "Upload".
→ The file is sent.
→ The "Outbox" operating screen is displayed.

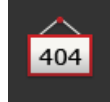
Registration code

You have already entered the registration code during set-up. The registration code need only be entered once.

Change the registration code as follows:

1. Press the "Registration Code" button.
→ An input dialogue is displayed.
2. Enter the registration code and confirm your entry.
→ The "agrirouter" operating screen is displayed.
→ You can see in the information area whether the terminal was able to register with the server.





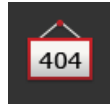
Address registration service

The Internet address of the registration service. You have received the registration code of the terminal from this registration service.

Ex works, the registration service address is as follows <https://cd-dke-data-hub-registration-service-hubqa.cfapps.eu10.hana.ondemand.com/api/v1.0/registration/onboard/>.

Only change the entry if you are requested to do so by agrirouter:

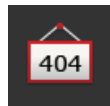
1. Press the "Registration service address" button.
→ An input dialogue is displayed.
2. Enter the Internet address of the registration service and confirm your entry.
→ The "agrirouter" operating screen is displayed.



Application ID

Only change the Application ID if you are requested to do so by agrirouter:

1. Press the "Application ID" button.
→ An input dialogue is displayed.
2. Enter the ID and confirm your entry.
→ The "agrirouter" operating screen is displayed.



Certification version ID

Only change the Certification version ID if you are requested to do so by agrirouter:

1. Press the "Certification version" button.
→ An input dialogue is displayed.
2. Enter the ID and confirm your entry.
→ The "agrirouter" operating screen is displayed.

5 Display of camera images

CCI.Cam is used to display camera images.

Maintain an overview of your implement and complex work processes with up to eight cameras. Cyclical camera changing makes manual switching between camera screens unnecessary.

Open CCI.Cam in Standard View or Mini View. In this way you can see the camera image at all times:

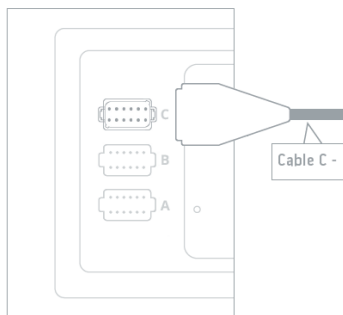


5.1 Setting up for operation

Connect a camera

You can connect one camera directly to the terminal. You require the C cable:

1. Switch the terminal off.
2. Connect cable C to connector C of the terminal.
3. Connect the camera to the cable C.
4. Switch on the terminal.



Note

Cable C is available in variants C1 and C2.

- Use cable C1 for a camera with AEF video coupling.
- Use cable C2 for a camera with an M12 plug.

Display of camera images

Connect two cameras

To connect two cameras to the terminal, you require a video miniplexer. The video miniplexer is supplied with power from the terminal.



- The cameras are connected to the video miniplexer.
- Cable C2 connects connector C on the terminal with the video miniplexer.



1. Press the "Settings" button.
→ The "Settings" operating screen is displayed:



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed:



3. Press the "CCI.Cam" button.
→ The operating screen with the CCI.Cam settings is displayed:



4. Switch the "video miniplexer" "on".
→ The video miniplexer is activated.

5. Open CCI.Cam in Standard View.
→ The camera image of camera 1 is displayed.

Connect eight cameras

You can connect up to eight cameras to the terminal using the video multiplexer.



Caution!

The video can only supply limited power to the video multiplexer. Overloading the power output will result in damage to the terminal.

→ If you connect 3 or more cameras to the video multiplexer, the video multiplexer requires an external power supply.



- The cameras are connected to the video multiplexer.
- Cable C2 connects connector C on the terminal with the video multiplexer.

Prior preparation

1. Open CCI.Cam in Standard View.
→ The camera image of camera 1 is displayed.

Display of camera images



Note

Unassigned multiplexer connections output a black camera image.

5.2 Operation

Show camera image

The camera image is displayed, if you open CCI.Cam in Standard View, Maxi View or Mini View.

As with all apps, CCI.Cam can only be operated in Standard View or Maxi View.

Mirror camera image

The camera image is mirrored along the vertical axis.

Mirroring of the camera image is, for example, useful for reversing cameras:



1. Press centrally on the camera screen.
→ The Burger Button is displayed.



2. Press the Burger Button.
→ The "Burger menu" is displayed.



3. Switch "Mirroring" "On".
→ The camera image is mirrored.

Switch "Mirror" off so that the camera image is again displayed in normal view.



Note

The "Mirror" switch only affects the currently visible camera image.



Note

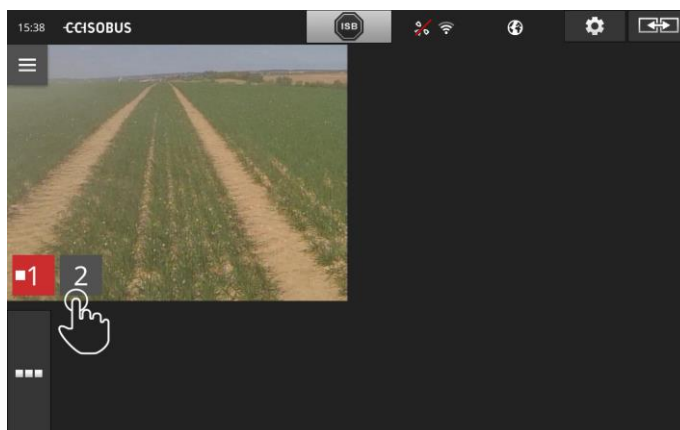
If the terminal is restarted, the position of the "Mirror" switch is retained.

Display of camera images

The functions described below must only be used if you have connected multiple cameras to the terminal.

Show camera image continuously

You want the image of a particular camera to be displayed. The camera image is to be displayed until you make another selection:



1. Press centrally on the camera screen.
→ The buttons for camera selection are displayed.



2. Press the grey button with the camera number.
→ The camera image is displayed.

Set automatic camera switching

You want

- To switch automatically between some or all camera images and
- Specify the duration of display for each camera image.

Change to editing mode:



1. Press centrally on the camera screen.
→ The operating buttons are displayed.



2. Press the Burger Button.
→ The Burger menu is displayed.



3. Switch "Editing mode" "on".
→ The buttons for camera selection are displayed.

Now define,

- how long each camera image is displayed and
- in which sequence the camera images change:



4. Press the button of the camera which is to be displayed first.
Press the button for as long as the camera image is to be displayed.
5. Repeat the process for the other cameras.

End editing mode:



6. Press centrally on the camera screen.
→ The operating buttons are displayed.



7. Press the Burger Button.
→ The Burger menu is displayed.



8. Switch "Editing mode" "off".

Display of camera images

Start automatic camera switching:



9. Press centrally on the camera screen.
→ The buttons for camera selection are displayed.



10. Press the red camera number with the "Stop" symbol.
→ Automatic camera switching starts.
→ The red button displays the "Play" symbol.



Note

If a camera image is not used for automatic camera switching, leave the camera off when selecting the sequence and display duration.



Note

The settings for the sequence and the display duration of the camera images are retained until you change the settings.

After terminal restart you only need to start automatic camera switching.



Implement controls camera image

Some implements specify which camera image is displayed. This makes sense if attention must be drawn to a particular event or the implement.

These implements

- control the video multiplexer via a separate cable or
- take control via the video miniplexer without separate cabling.

In both cases, you cannot influence the selection of the camera image and the display duration via CCI.Cam.

→ Refer to the operating instruction of your implement to see whether this function is available.

End automatic camera switching

Automatic camera switching is turned on.

You want to end automatic camera switching:



1. Press centrally on the camera screen.
→ The buttons for camera selection are displayed.



2. Press the red camera number with the "Play" symbol.
→ Automatic camera switching is turned off.
→ The red button displays the "Stop" symbol.

You want to start automatic camera switching:

- Press the red camera number with the "Stop" symbol.

6 Implement settings

You want to use Section Control and Rate Control. Both functions are location-dependent and require accurate information about the tractor combination:

- the type and source of the speed information,
- the position of the GPS aerial and
- the implement mounting type.

You make this information available with CCI.Config.

You have the following setting options:



Tractor

Specify a tractor name and set the distances and speed source amongst other things.

See chapter 6.2, **Tractor**.

.



Implement

Specify an implement name and set the implement type, working width and the mounting type.

Select the implement.

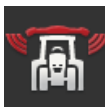
See chapter 6.3, **Implement**.



GPS

Set the position of the GPS aerial and the interface.

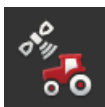
See chapter 6.4, **GPS**.



CCI.Convert

CCI.Convert receives sensor data via the serial interface in the format LH5000, ASD or TUVR and forwards it on to the implement over ISOBUS.

See chapter 6.5, **CCI.Convert**.



Tacho

In Tacho

- you can see the applied speed,
- you can see if you are in the optimum working area and,
- you have direct access to the tractor and implement settings.

See chapter 6.6, **Tacho**.

Implement settings

6.1 Setting up for operation

Tractor data

An ISOBUS tractor makes the following tractor data available via the ISOBUS to all network members:

- ground and wheel speed,
- PTO speed,
- direction of travel and
- position of the rear 3-point hitch.

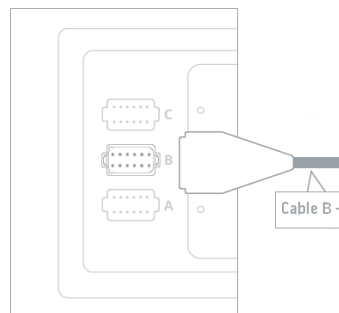
Signal connector

When the tractor is not connected to the ISOBUS, the terminal reads the tractor data via the signal connector in the tractor.

You require

- cable B and
- cable type H.

1. Switch the terminal off.
2. Connect cable B to connector B of the terminal.
3. Insert the 12-pole plug on the type H cable in the signal coupling on cable B.
4. Insert the signal plug on cable H in the signal connector socket.
5. Switch on the terminal.



6.2 Tractor



Note

With a terminal fitted permanently on a tractor, only set up this tractor and then select it.

If the terminal is used on various tractors, set up all tractors. Then if you change to another tractor, you need only select the correct tractor from the list.

→ If no tractor or the incorrect tractor is selected, Section Control and Rate Control work with incorrect settings.

Add a tractor:



1. Press the "Settings" button.
→ The "Settings" operating screen is displayed:



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed.



3. Press the "CCI.Config" button.
→ The "CCI.Config" operating screen is displayed.



4. Press the "Tractor" button.
→ The "Tractor" operating screen is displayed.

5. Press the "+" button.



6. Enter the tractor name.



7. Confirm your entry.
→ The list of tractors is displayed. The new tractor is selected.



8. Return to the "CCI.Config" operating screen.
→ The new tractor is provided with a warning symbol.

9. Adjust the tractor.
→ The tractor symbol is displayed instead of the warning symbol. The tractor can now be used.

New tractor

Implement settings

Set up tractor

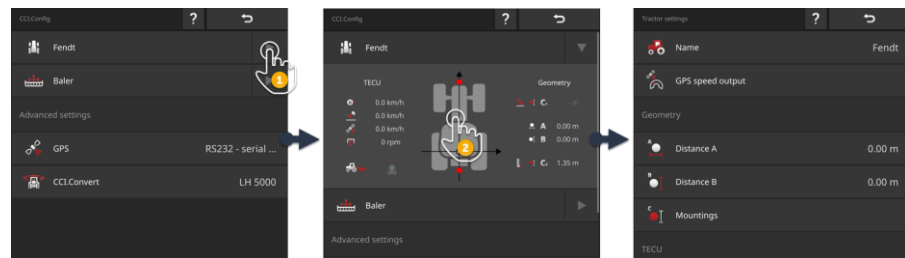


Note

If the distance C is not set, a warning symbol is displayed on the button next to the tractor name. Due to missing geometry data, Section Control cannot calculate the correct position.

- Set the distance C for all mounting types present on the tractor.
→ The tractor symbol is displayed instead of the warning symbol.

Adjust the tractor:



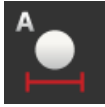
1. Press on the arrow on the right side of the "Tractor" button.
→ The "Tractor" information area pops up.
2. Press on the Information area "Tractor".
→ The tractor settings are displayed.
3. Set the GPS speed output, the distances, the mounting types and the connector as described below.

GPS speed output

A GPS receiver is connected to the terminal via the serial interface. The terminal can send the GPS speed over the ISOBUS making it available to all network members.



1. Press the button "GPS speed output".
→ The "GPS speed output" selection list is displayed.
2. Select the ISOBUS message with which the GPS speed is sent to the implement. You can select one or more options.
3. In the implement settings, select the same ISOBUS message.



Distance A

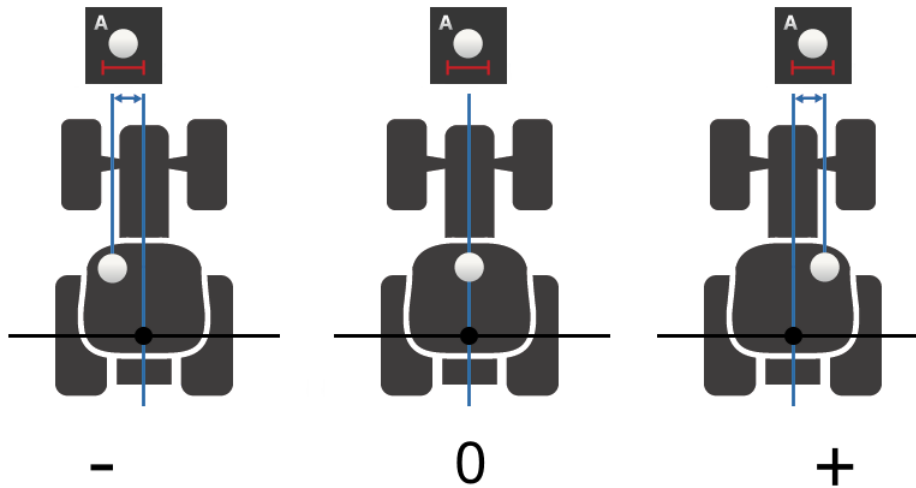
1. Fit the GPS aerial centrally on the tractor. This is the recommended procedure.
2. Press the button "Distance A".
→ An input dialogue is displayed.
3. Set the distance A to 0.
4. End the Process with "Back".



Distance A

The distance between the GPS aerial and the tractor reference point:

- The tractor reference point is the midpoint of the rear axis.
- The distance is measured perpendicular to the direction of travel.



The GPS aerial is to the left of the reference point in the direction of travel:

→ Enter distance A as a negative value.

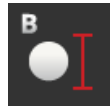
The GPS aerial is to the right of the reference point in the direction of travel:

→ Enter Distance A as a positive value.

The GPS aerial is central on tractor in the direction of travel:

→ Set the distance A to 0.

Distance B



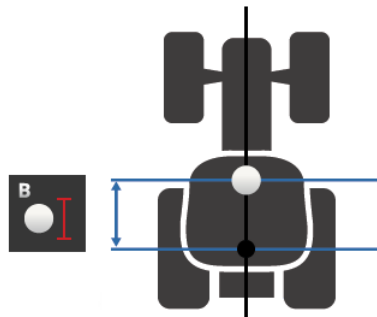
1. Mark the mid-point of the rear axle and the position of the GPS aerial on the ground using chalk next to the tractor.
2. Measure the distance.
3. Press the button "Distance B".
→ An input dialogue is displayed.
4. Enter the measured value.
5. End the Process with "Back".



Distance B

The distance between the GPS aerial and the tractor reference point:

- The tractor reference point is the midpoint of the rear axis.
- The distance is measured in the direction of travel.



The GPS aerial is to the rear of the reference point in the direction of travel:

→ Enter distance B as a negative value.

The GPS aerial is in front of the reference point in the direction of travel:

→ Enter Distance B as a positive value.

The GPS aerial is located on the reference point in the direction of travel:

→ Set the distance B to 0.



Mounting type and distance C

1. Check which mounting type the tractor has.
2. Measure distance C for each mounting type.
3. Press the button "Mounting type and distance C".
→ A selection list is displayed.
4. Sequentially press the buttons of the mounting types and enter the measured distance C for this mounting type.
5. Press "Back" to end the process after entry of all values.



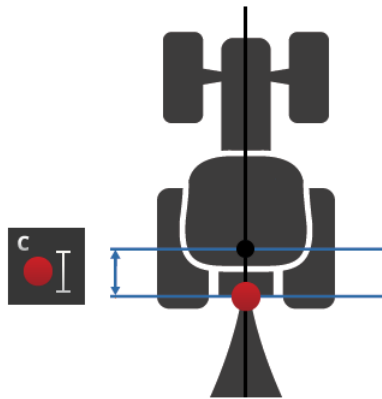
Mounting type

Normally a tractor has several mountings on the rear.

Distances C

The distance from the tractor reference point to the coupling point is different for each mounting type:

- The distance is measured in the direction of travel.
- The tractor reference point is the midpoint of the rear axis.



In CCI.Config, enter the distance C for each mounting type.

It is best to take the trouble to do this immediately during set-up and in this way avoid renewed measurement when coupling up the implement.

After coupling up an implement, all that is still necessary is to select the mounting type:

→ Then Section Control automatically uses the correct distances.

Signal connector

Signal connector

You do not require the signal connector if speed, PTO speed and position of the 3-point-hitch are available on the ISOBUS from the tractor TECU.

→ Switch the signal connector "off".



To read out the tractor data at the signal connector, proceed as follows:

1. Connect the terminal to the signal connector as described in the section **Set-up**.
 2. Switch the signal connector "on".
 - The buttons for setting up the signal connector are activated.
 3. Configure the signal connector.
-

You have the following setting options:



Wheel speed

Calibrate the wheel speed display.



Ground speed

Calibrate the ground speed display.



Power take off speed

You can find the number of pulses per power take off rotation from the tractor operating instructions.

Enter the indicated value for the PTO speed:

1. Press the "PTO sensor" button.
→ The "PTO sensor" operating screen is displayed.
 2. Press the input field.
→ An input dialogue is displayed.
 3. Enter the number of pulses per PTO rotation and confirm your entry.
→ The "PTO sensor" operating screen is displayed.
 4. End the Process with "Back".
-



3-point-hitch

Calibrate the display for the position of the 3-point-hitch.



X-Sensor on/off

Switch the X-Sensor on or off.

- Press the "X-Sensor" button.
→ The switch changes its position.



Note

Only switch the X-Sensor on, if

- the tractor has an X-Sensor and
 - the sensor output is output to the signal connector.
-

Implement settings



Power management on/off

Switch power management on or off.

- Press the "Power Management" button.
→ The switch changes its position.



Note

Only switch Power Management on if an ISOBUS upgrade cable is fitted in the tractor, which provides this function.

The list in the "Tractor" operating screen contains the tractor you have created.

Select tractor

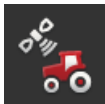
Select the tractor on which the terminal is to be used:



1. Press the "Settings" button.
→ The "Settings" operating screen is displayed:



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed:



3. Press the "CCI.Config" button.
→ The "CCI.Config" operating screen is displayed.



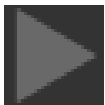
4. Press the "Tractor" button.
→ The list of tractors is displayed.



5. Select the Tractor.



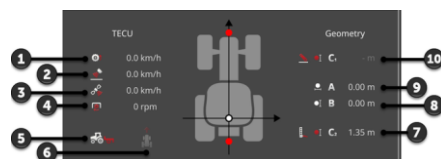
6. Press "Back" to return to the "CCI.Config" operating screen.



7. In the "Tractor" button, press the arrow.
→ The information area pops up.

Implement settings

The "Tractor" information area shows all the settings made:



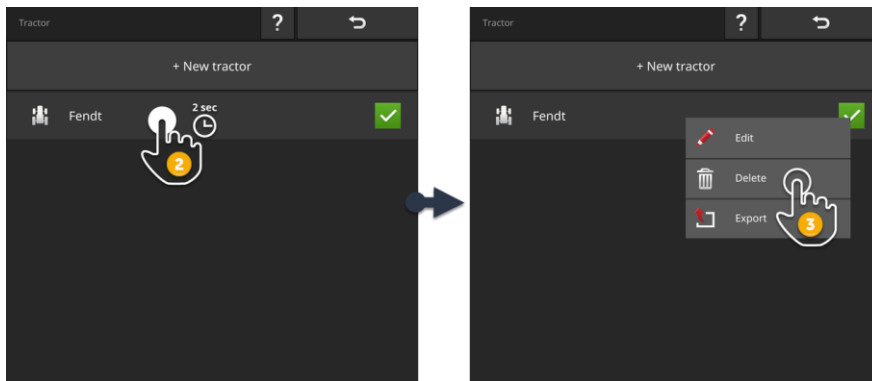
1. Wheel speed
2. Ground speed
3. GPS speed
4. Power take off speed
5. Work position
6. Direction of travel
7. Mounting type and distance C2, reference point tractor - rear coupling point
8. Distance B, reference point tractor - GPS aerial
9. Distance A, reference point tractor - GPS aerial
10. Mounting type and distance C1, reference point tractor - front coupling point



8. Press the "Settings" button.
→ The "Settings" operating screen is closed.

Delete a tractor as follows:

Delete tractor



1. Press the "Tractor" button in the "CCI.Config" operating screen.
→ The list of tractors is displayed.



2. Press and hold the button with the tractor that you would like to delete.
→ A context menu is displayed



3. Select "Delete".
→ A message window is displayed.



4. Confirm the message.
→ The tractor is deleted.
→ The "Tractor" operating screen is displayed.

Implement settings

6.3 Implement

New implement

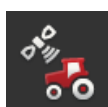
Add an implement:



1. Press the "Settings" button.
→ The "Settings" operating screen is displayed:



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed:

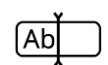


3. Press the "CCI.Config" button.
→ The "CCI.Config" operating screen is displayed:



4. Press the "Implement" button.
→ The "Rear implement" operating screen is displayed.

5. Press the "+" button.



6. Enter the implement name.



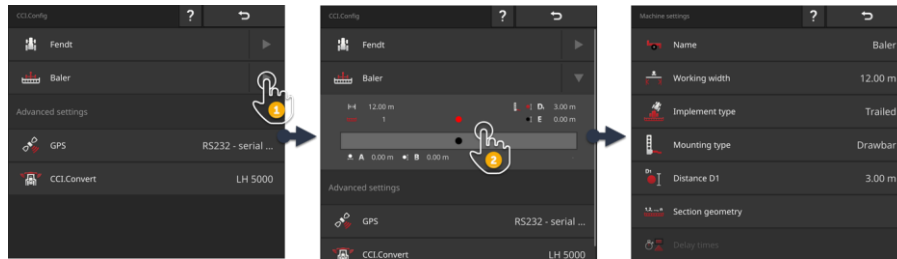
7. Confirm your entry.
→ The list of implements is displayed. The new implement is selected.



8. Return to the "CCI.Config" operating screen.

Configure the implement:

Set up implement



1. Press on the arrow on the right side of the "Implement" button.
→ The "Implement" information area pops up.
2. Press on the information area "Implement".
→ The implement settings are displayed.
3. Set the working width, the implement type, the mounting type, distance D1, the section geometry and the delay times as described below.



Working width

1. Press the "Working width" button
→ An input dialogue is displayed.
2. Enter the working width in metres.
3. End the Process with "Back".



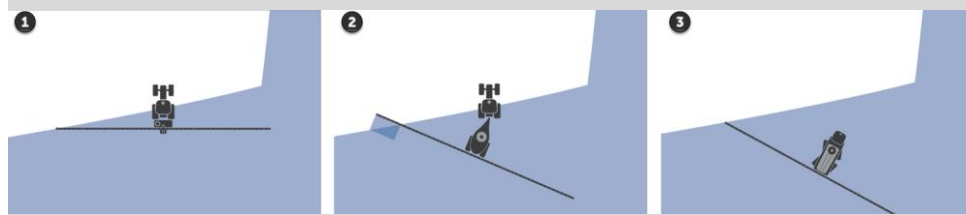
Implement type

1. Press the "Implement type" button
→ The "Implement type" selection list is displayed.
2. Select the implement type.
3. End the Process with "Back".



Implement type

- With trailed implements (2) and self-propelled implements (3), the position of the sections for curved tracks is calculated.
- With attached implements (1), the position of the sections is fixed.





Mounting type

1. Press the "Mounting type" button
→ The "Mounting type" selection list is displayed.
2. Select the mounting type.
3. End the Process with "Back".



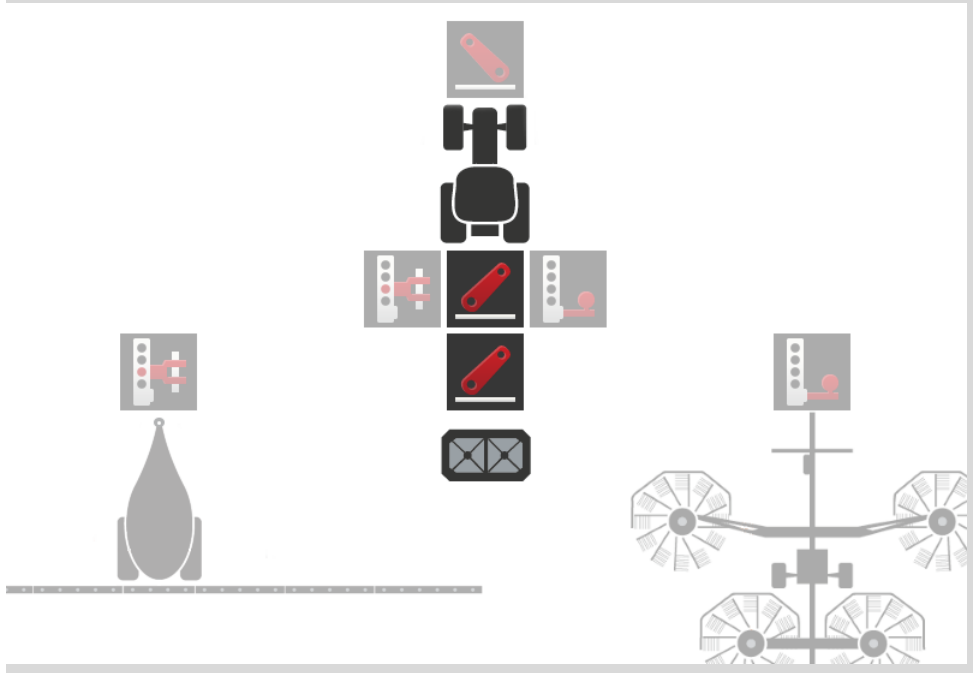
Mounting type

In the tractor settings you have entered a distance C for each possible tractor mounting type. Simply select the implement mounting type in the implement settings.

→ Repeat entry of distance C is not necessary.

Many ISOBUS implements automatically send their mounting type to the terminal.

→ You do not need to set the mounting type.



Distance D1



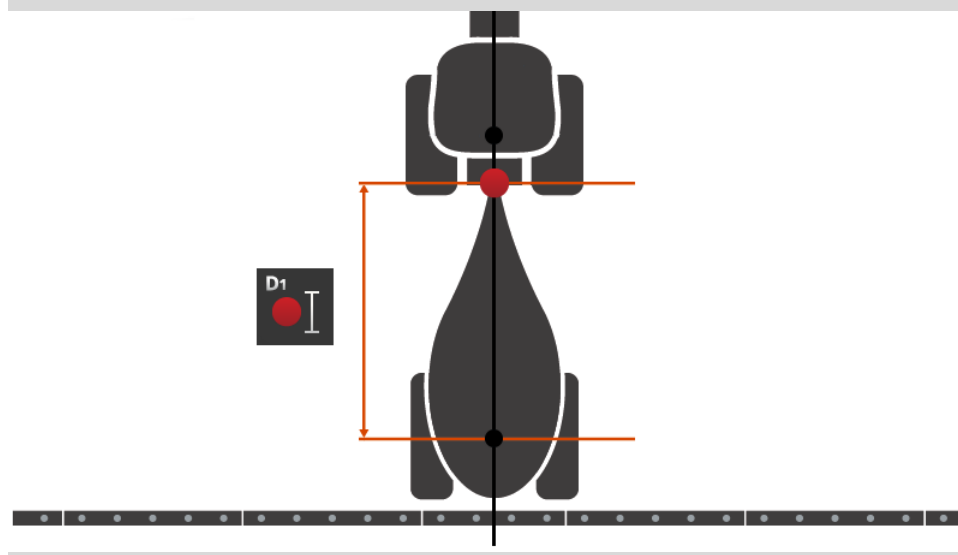
1. Press the button "Distance D1"
→ An input dialogue is displayed.
2. Enter the Distance D1 in metres.
3. End the Process with "Back".



Distance D1

The distance between the coupling point and the implement reference point:

- With trailed implements, the reference point is on the midpoint of the first axle.
- With attached implements, the implement manufacturer specifies the position of the reference point.
- For manually created implements (e.g. tillage equipment), measure distance D1 between the coupling point and the last component (e.g. the roller).





Section geometry

The following are displayed in the "Section geometry" operating screen:

- The values transferred from the implement and
- The delay times corrected on the terminal.



Section geometry

1	total	1
2	<	5.80
3	>	0.00
4	<	0
5	>	0
6	<	0
7	>	0
8	<	0.00
9	>	0.00

1. Number of sections
→ The numbering goes from left to right in the direction of travel.
2. Working width of the section
3. Working depth of the section
4. Turn on delay
5. Corrected turn on delay
6. Turn off delay
7. Corrected turn off delay
8. Distance E
→ The distance between the implement reference point and the midpoint of the section.
→ The distance is measured in the direction of travel.
9. Distance F
→ The distance between the implement reference point and the midpoint of the section.
→ The distance is measured perpendicular to the direction of travel.

You have entered the corrected delay times in the terminal. All other values are displayed as received from the implement.



Note

If you have corrected the turn on delay time or the turn off delay time, Section Control only considers the corrected delay time.

→ This delay time is saved in the terminal and not in the implement.

Implement settings



Delay times

Set the turn on delay and the turn off delay.

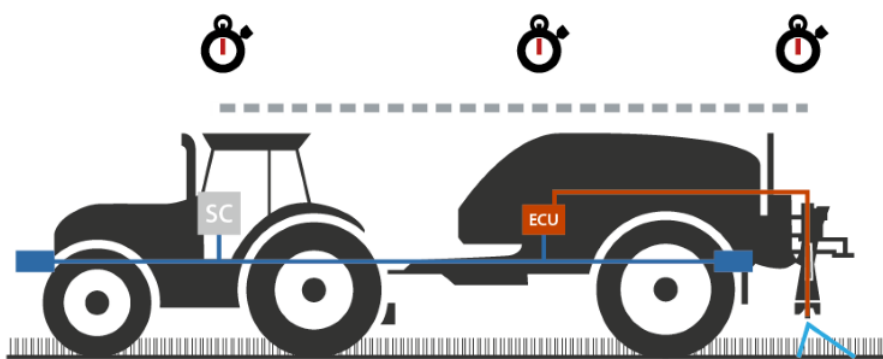


Delay times

The turn on delay time describes the time delay between the command and the application. During spraying, it is the time from the command "Turn on section" until the agent is applied.

Where necessary, you can find the turn on delay time in the implement technical data. In all other cases, you determine the value from your own measurements.

The turn off delay time describes the time delay between the command and the actual switching off of a section.



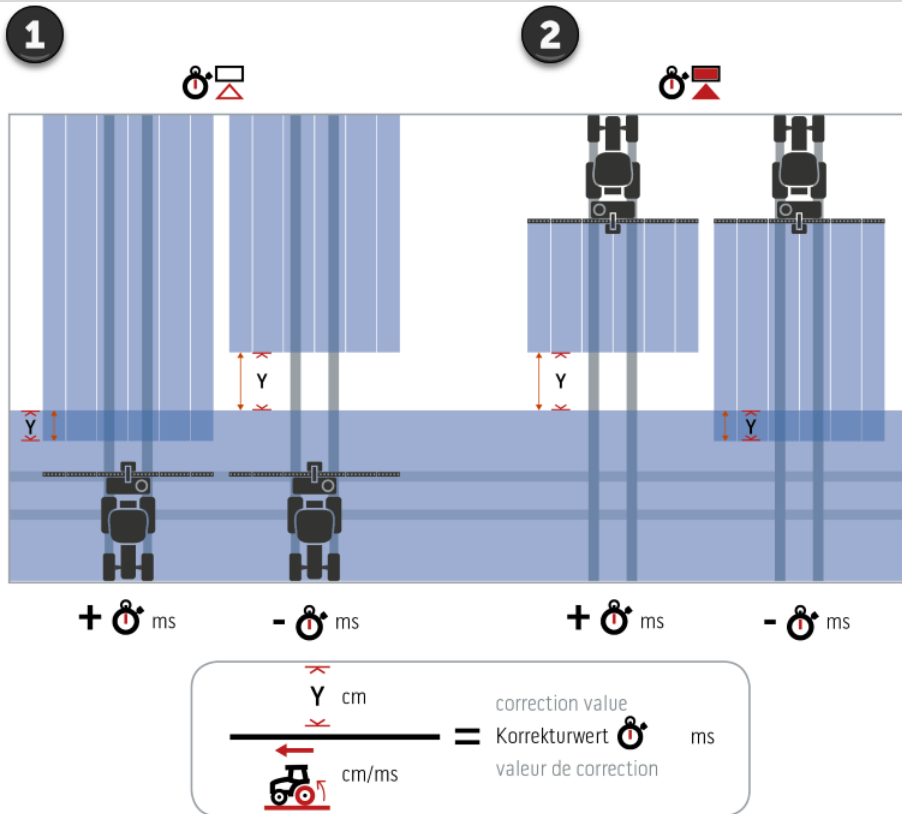


Set or correct delay times

Some ISOBUS implements do not provide any delay times. This can be identified in the "Section geometry" operating screen from the value "0" for the delay times. Set the delay times for such implements in the terminal.

For other ISOBUS implements, the pre-set delay times are not applicable. Correct the delay times in the terminal. Select the switch-on or switch-off delay time, dependent on whether you want to improve switching on or switching off. The value that you have entered in the terminal is added to or subtracted from the values pre-set in the implement.

An overview is provided in the "Section geometry" operating screen.



1. Turn off.
2. Turn on.

Implement settings

Select implement

The list in the "Implement" operating screen contains the

- implements created by you and
- all ISOBUS implements with TC client that have already been connected to the terminal at least once.

Select the implement, that is to be used for Section Control or Rate Control:



Note

Carry out this procedure each time, if you want to attach or suspend a new implement on the tractor.

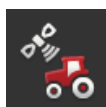
→ If no implement or an incorrect implement is selected, Section Control and Rate Control do not work.



1. Press the "Settings" button.
→ The "Settings" operating screen is displayed:



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed:



3. Press the "CCI.Config" button.
→ The "CCI.Config" operating screen is displayed:



4. Press the "Implement" button.
→ The list of implements is displayed.



5. Select the implement.



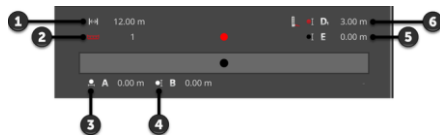
6. Press "Back" to return to the "CCI.Config" operating screen.



7. In the "Implement" button, press the arrow.
→ The information area pops up.

Implement settings

The "Implement" information area displays the following settings:



1. Working width
2. Number of sections
3. Distance A
4. Distance B
5. Distance E,
implement reference point - midpoint
of the sections
6. Distance D1,
coupling point - implement reference
point

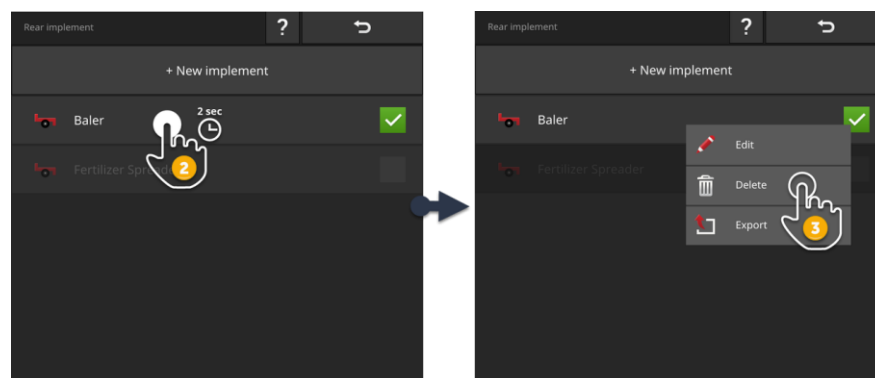


8. Press the "Settings" button.
→ The "Settings" operating screen is closed.

Implement settings

Delete implement

Delete an implement as follows:



1. Press the "Implement" button in the "CCI.Config" operating screen.
→ The "Implement" operating screen is displayed.



2. Press and hold the button with the implement that you would like to delete.
→ A context menu is displayed



3. Select "Delete".
→ A message window is displayed.



4. Confirm the message.
→ The implement is deleted.
→ The "Implement" operating screen is displayed.



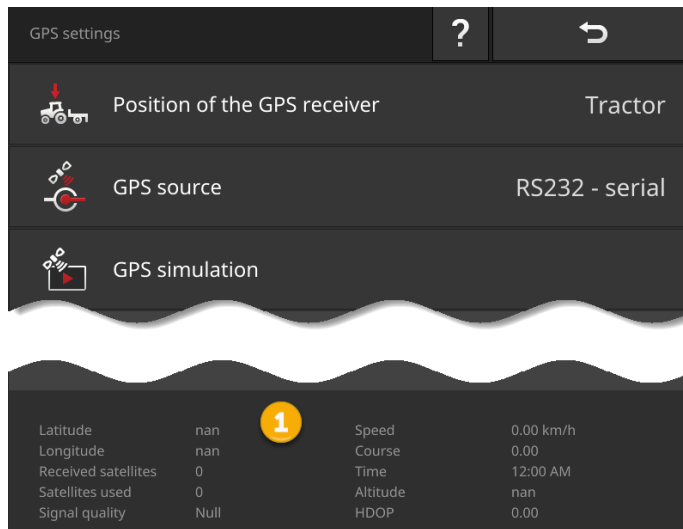
Note




You can only delete implements that you have created as described in the New Implement section.

ISOBUS implements are also displayed in the "Implement" operating screen but can only be deleted in CCI.UT.

6.4 GPS

Set the position and interface of the GPS receiver.



GPS settings			
	Position of the GPS receiver		Tractor
	GPS source		RS232 - serial
	GPS simulation		

Latitude	nan	Speed	0.00 km/h
Longitude	nan	Course	0.00
Received satellites	0	Time	12:00 AM
Satellites used	0	Altitude	nan
Signal quality	Null	HDOP	0.00

The data in the information area (1) is displayed, if

- a GPS receiver is connected and sending data and
- GPS source, interface and baud rate have been correctly selected.



Note

CCI.Command and CCI.Control have different requirements in respect of the accuracy of the position data of the GPS receiver.

For documentation with CCI.Control, simple data records are sufficient, as are also provided by inexpensive receivers.

For lane guidance and section control with CCI.Command, receivers with accuracies of 20 cm or better are required.

Implement settings

You have the following setting options:

GPS settings

Position of the GPS aerial

You specify whether the GPS aerial is attached on the tractor or the implement.



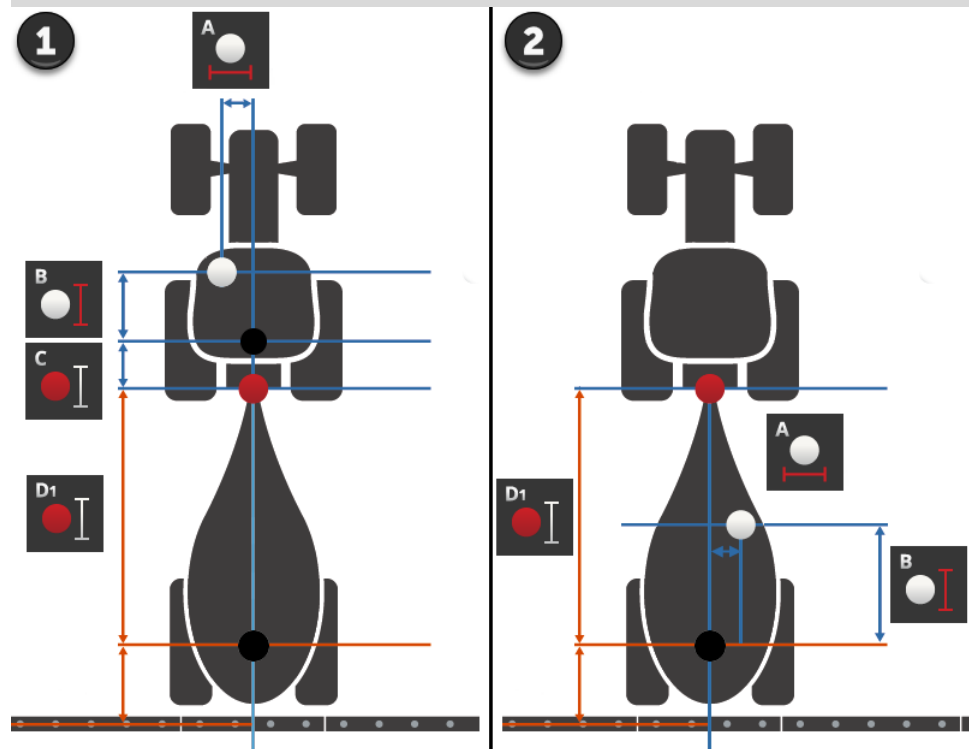
1. Press the button "Position of the GPS receiver".
→ The "Position of the GPS aerial" selection list is displayed.
2. Select the position of the GPS aerial.
3. End the Process with "Back".
→ The "GPS settings" operating screen is displayed.



Position of the GPS aerial

There are two options for attachment of a GPS aerial:

1. On the tractor.
→ Enter the distances A and B in the tractor settings.
2. On the implement.
→ Select "Front implement", "Rear implement" or "Last implement".
→ Only attach the GPS aerial to the implement if the implement sends distances A and B to the terminal.



We recommend attaching the GPS receiver on the tractor.

GPS source



1. Press the button "GPS source".
→ The "GPS source" selection list is displayed.
2. Select the GPS source.
3. If you have selected "RS232 - serial", then define the serial interface and baud rate now.
4. End the Process with "Back".
→ The "GPS settings" operating screen is displayed.



GPS source

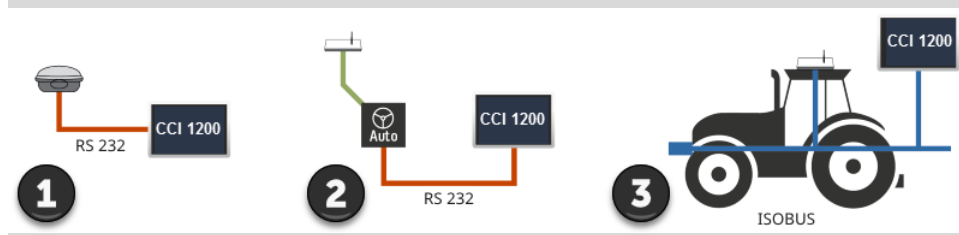
Dependent on the model, a GPS receiver sends position data

- in the NMEA 0183 protocol via the serial interface or
- in the NMEA 2000 protocol via the CAN-Bus.

The terminal supports both protocols.

Connect GPS receiver and terminal as follows:

1. The GPS receiver has a serial interface.
→ Connect the GPS receiver to connector B or C of the terminal.
→ Select "RS232 - serial" as the GPS source.
→ Select the connector as the serial interface to which the GPS receiver is connected.
2. The automatic steering system has a serial interface for the GPS signal.
→ Connect the serial interface of the steering system to connector B or C of the terminal.
→ Select "RS232 - serial" as the GPS source.
→ Select the connector to which the steering system is connected, as the serial interface.
3. The GPS receiver has a CAN-Bus interface.
→ Connect the GPS receiver to the ISOBUS.
→ Select "ISOBUS" as the GPS source.



GPS simulation



This function is password-protected and provided solely for test and demonstration purposes.

Using the terminal, you can

- record and export a GPS track or
- import and play back a GPS track.

Implement settings

If you have selected "RS232 - serial" as the GPS source, you must configure the serial interface:

Serial interface

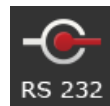
Configure the connector to which you have connected the GPS receiver or the serial output of the steering system.



1. Press the button "Serial interface".
→ The "Serial interface" selection list is displayed.
2. Select the connector.
3. End the Process with "Back".
→ The "GPS source" operating screen is displayed.

Baud rate

The baud rate of the terminal and the GPS receiver must match.



1. Press the "Baud rate" button.
→ The "Baud rate" selection list is displayed.
2. Select the baud rate.
3. End the Process with "Back".
→ The "GPS source" operating screen is displayed.



Note

The baud rate of the terminal and the GPS receiver must match, as otherwise the terminal cannot evaluate the position data of the terminal and the GPS receiver.

If you do not know the baud rate of the GPS receiver, select the "Auto" setting.

→ The terminal automatically determines the baud rate of the GPS.

→ This may take a while.

Adjust GPS receiver

Optimally configure the GPS receiver with a single click.

This function is only available for the GPS receivers Hemisphere A100/101 and Novatel AgStar with serial interfaces.



1. Press the button "Adjust GPS receiver".
→ The "Adjust GPS receiver" operating screen is displayed.
2. Press the button "GPS receiver".
→ The "GPS receiver" selection list is displayed.
3. Select the GPS receiver.
4. Press "Back" to return to the "Adjust GPS receiver" operating screen.
5. Press the button "Recommended settings".
→ The GPS receiver settings are changed according to our recommendations.
6. End the Process with "Back".
→ The "GPS source" operating screen is displayed.



Note

You can configure other details of the GPS receiver in the "Adjust GPS receiver" operating screen. Read the GPS receiver manual carefully.

→ If the configuration is made incorrectly, GPS receiving is interrupted or suspended.

Implement settings

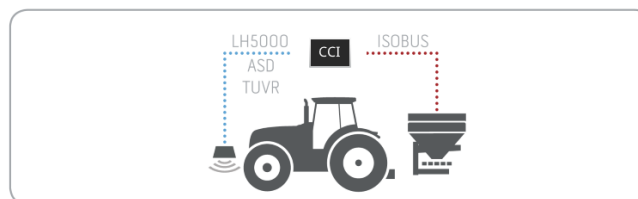
6.5 CCI.Convert

When working with an N-sensor and an ISOBUS fertilizer, the application quantity should be automatically matched to the circumstances on the field. To do so, the sensor signal must be "translated" so that it is "understood" by the fertilizer as a setpoint.

CCI.Convert is this translator and converts the manufacturer-specific signals from N-sensors to implement-readable ISOBUS messages.

The following formats are supported:

- LH5000,
- ASD and
- TUVR.



- You know which protocol the sensor uses for data transmission.
- You have connected the sensor to the terminal.
- In the ISOBUS settings
 - the ISOBUS Task Controller function is "on" and
 - a Task Controller Number is set.
- The implement is connected to the ISOBUS.
- The implement has a TC client and this is connected to the terminal.

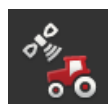
Setting up for operation



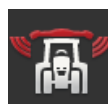
1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed.



3. Press the "CCI.Config" button.
→ The "CCI.Config" operating screen is displayed.



4. Press the "CCI.Convert" button.
→ The "CCI.Convert" operating screen is displayed.



5. Switch CCI.Convert "on".



6. Press the "Protocol" button.
→ The "Protocol" selection list is displayed.



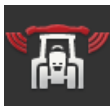
7. Select the sensor protocol.



8. Press the "Settings" button on the start screen.
→ Setting up is ended.
→ The "Settings" operating screen is closed.

The settings can be changed at any time. You have the following setting options:

**Adjust
CCI.Convert**



CCI.Convert on/off

Switch CCI.Convert on or off.

- Press the "CCI.Convert" button.
→ The switch changes its position.



Serial interface

The terminal has one serial interface at each of the connectors B and C. CCI.Convert specifies the connector to which the sensor must be connected. Changing is not possible.

- The connector is indicated.
- Connect the sensor to this connector. Use cable B for connector B or cable C1 or C2 for connector C.



Select protocol

Select the protocol to which the sensor sends a value.

1. Press the "Protocol" button.
→ The "Protocol" selection list is displayed.
2. Select the protocol.
3. End the Process with "Back".
→ The "CCI.Convert" operating screen is displayed.
→ The selected protocol is indicated on the "Protocol" button.

Implement settings

Select implement

Select the implement to which the sensor setpoints are to be sent.

1. Press the "Implement" button.
→ The list of implements is displayed.
2. Select an implement or the option "Automatically select the implement".
3. End the Process with "Back".
→ The "CCI.Convert" operating screen is displayed.
→ The selected protocol is indicated on the "Implement" button.



Note

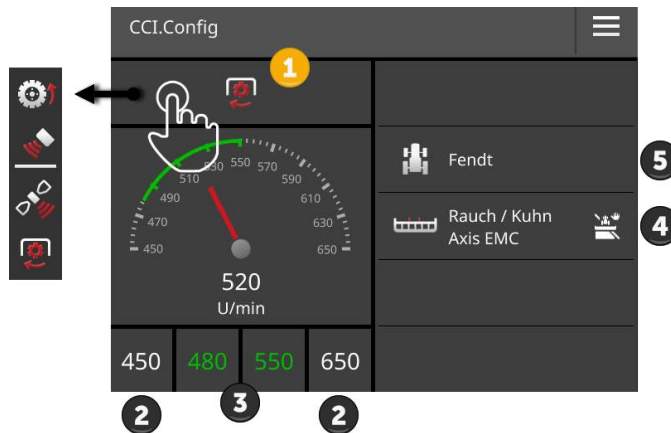
When selecting the implement we recommend the setting "Automatically select the implement". This is the default setting.

→ CCI.Convert automatically searches for the implement to which the sensor setpoints are to be sent.

Correct the setting, if automatic mode selects the incorrect implement.

6.6 Tacho

Set up a tacho in CCI.Config:



Displayed to the right alongside the tacho display

- is the tractor you have selected,
- the implement you have selected and
- the CCI.Convert settings



Note

Check whether the tractor and implement are correctly selected.

→ If incorrectly selected, the tractor and implement settings will not match your tractor combination.

The following can be displayed in the speedometer:

- the wheel speed,
- the ground speed,
- the GPS Speed or
- the PTO shaft speed.

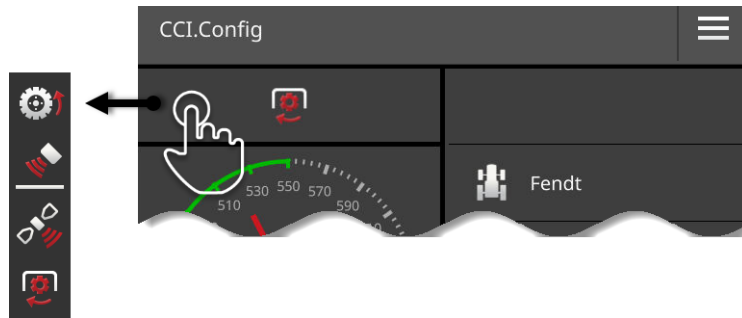
Select the indicated value (1) and set the display range (2) and the optimum working range (3).

In tacho, you have direct access to

- the implement settings (4),
- the tractor settings (5) and
- CCI.Convert.

Implement settings

You have the following operating options:



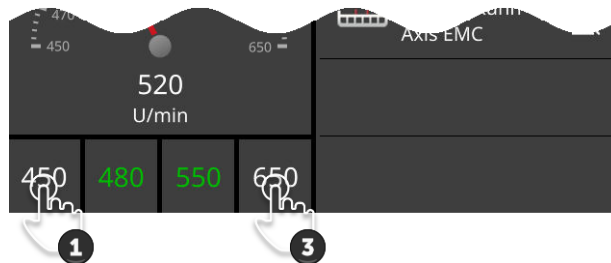
Select displayed value

You select which value is to be displayed in the tachometer:

- the wheel speed,
- the ground speed,
- the GPS Speed or
- the PTO shaft speed.



1. Press the button above the tachometer.
→ A selection list is displayed.
2. Select the value.
→ The selected value is displayed on the tachometer.
3. Set the display range and the optimum working range for the selected value.

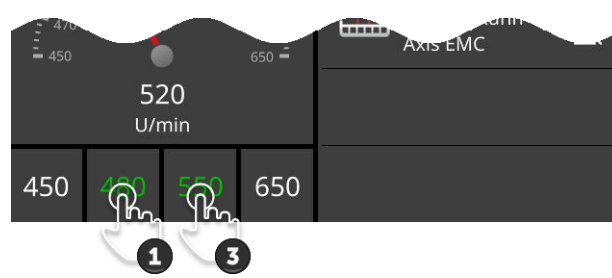


Set the display range

Set the tachometer minimum and maximum.

1. Four values are displayed below the tachometer. Press the left outer button.
→ An input dialogue is displayed.
2. Enter the smallest value, that is still to be displayed and confirm your entry.
3. Press the right outer button.
→ An input dialogue is displayed.
4. Enter the largest value, that is still to be displayed and confirm your entry.
→ The tachometer display range is set.





Set the optimum working range

The optimum working range is displayed on the tachometer in green. You can see at a glance whether a speed correction or PTO rpm correction is necessary.

1. Four values are displayed below the tachometer. Press the second button from the left.
→ An input dialogue is displayed.
2. Enter the start of the optimum working range and confirm your entry.
3. Press the second button from the right.
→ An input dialogue is displayed.
4. Enter the end of the optimum working range and confirm your entry.
→ The optimum working range is displayed on the tachometer in green.



Tractor, implement and CCI.Convert settings

- Press in the area to the right of the tachometer.
→ The "CCI.Config" operating screen is displayed.

7 ISOBUS

7.1 ISOBUS implement

You operate your ISOBUS implements with the terminal. Use the apps CCI.UT1 and CCI.UT2. Up to 5 ISOBUS implements can register on each of these universal terminals. However it is only ever possible to operate one of them. This is located in the Standard View. The other implements can be seen in the Mini View.

7.2 ISOBUS auxiliary control

Functions of complex ISOBUS Implements can be better controlled using a joystick, a toggle switch strip or some other ISOBUS auxiliary control (AUX).



Note

The ISOBUS auxiliary control only connects to the terminal if this has registered on the ISOBUS using the UT number 1.

→ In CCI.UT1 or CCI.UT2 set the UT number to 1.

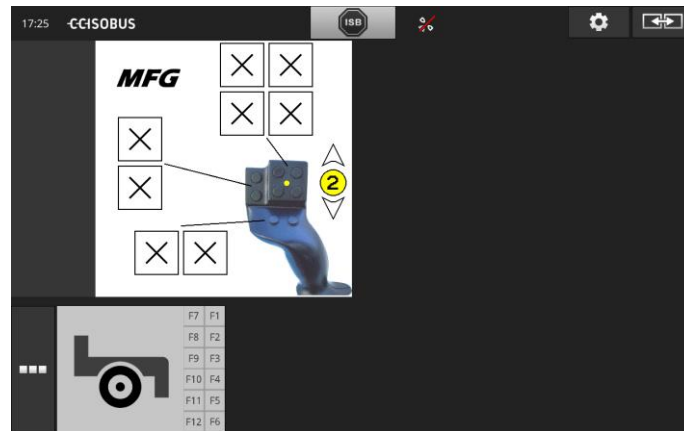
Setting up for operation

You require cables A and Y to connect the terminal and the ISOBUS auxiliary control with the ISOBUS:

1. Connect cable A ("A") to connector A on the terminal.
 2. Connect cable Y ("UT") to cable A ("InCab").
 3. Connect cable Y ("AUX") with the in-cab coupling of the ISOBUS auxiliary control.
 4. Connect cable Y ("InCab") to the in-cab panel connector of the tractor or the self-propelled implement.
- CCI.UT1 (or CCI.UT2) is switched on in app management.
 - You have set the UT number to 1 in CCI.UT1 (or CCI.UT2).
 - The ISOBUS auxiliary control is connected to the ISOBUS.

Prior preparation

The operating screen of the ISOBUS auxiliary control is loaded and visible. Implement functions are not yet assigned to the operating elements of the ISOBUS auxiliary control:



Assign operating element

Each operating element of the ISOBUS auxiliary control can be assigned any implement function. This assignment takes place on the terminal in the settings of the app CCI.UT1 or CCI.UT2.

- The operating screen of the ISOBUS auxiliary control is displayed in the Standard View.
- An ISOBUS implement is connected to the terminal.



1. Press the "Settings" button.
→ The "Settings" operating screen is displayed:



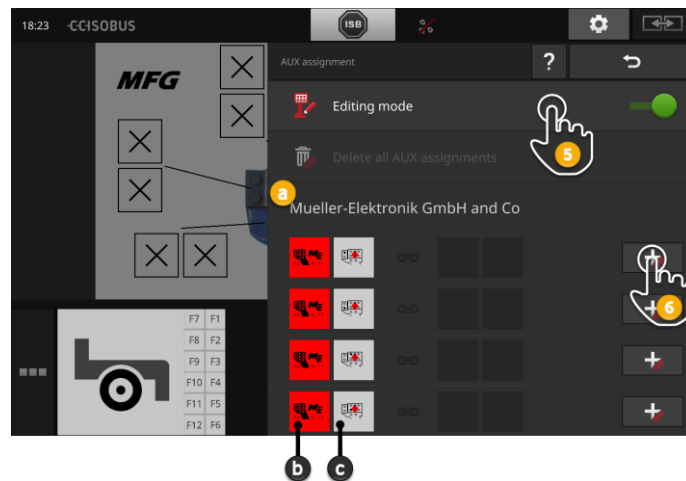
2. Press the "Apps" button.
→ The "Apps" operating screen is displayed.



3. Press the "CCI.UT1" button.
→ The "CCI.UT1" operating screen is displayed.



4. Press the button "AUX assignments".
→ The "AUX assignments" operating screen is displayed.



- a Manufacturer of the ISOBUS auxiliary control
- b ISOBUS auxiliary control
- c List of operating elements

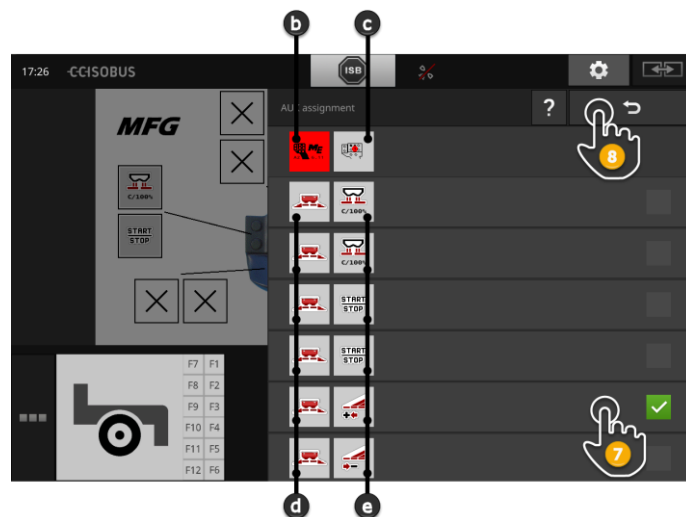


- 5. Switch "Editing mode" "on".



All operating elements of the ISOBUS auxiliary control are displayed in the selection list. Select an operating element.

- 6. Press the "+" in the operating element button.
→ The selection list of the implement functions is displayed.



- d ISOBUS implement
- e List of implement functions



- 7. Select the implement function.

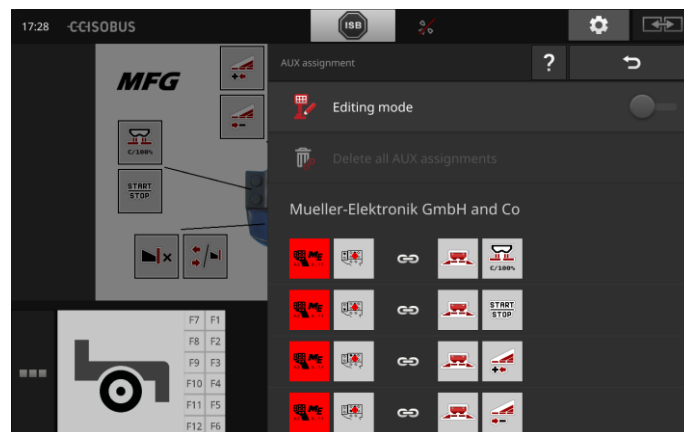


8. Press "Back" to return to the operating element selection list.
 → The implement function is assigned to the operating element.
 → The button displays the operating element and the implement function.

9. To assign functions to other operating elements, repeat steps 2 to 4.



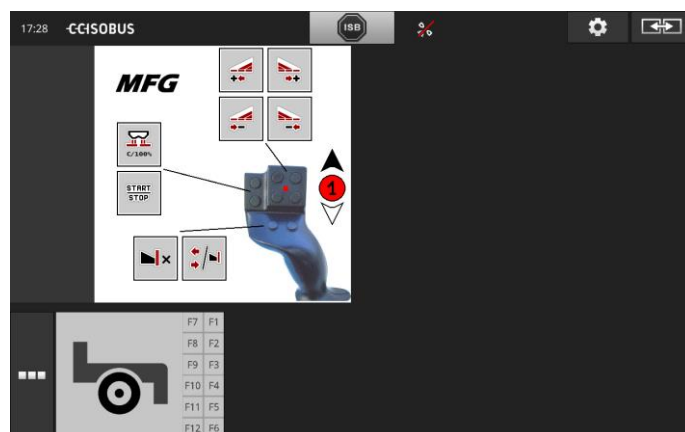
10. Switch Editing mode off.
 → The implement functions can be executed with the ISOBUS auxiliary control.



Check the assignments of the ISOBUS auxiliary control as follows:

Checks

1. Open the operating screen of the ISOBUS auxiliary control in Standard View:



2. Change to the ISOBUS auxiliary control in all operating levels and check the assignment on the terminal.



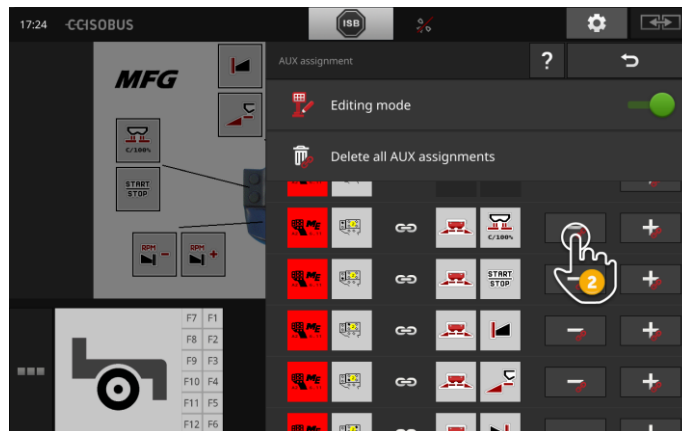
Note

No changes to the AUX assignments can be made in the operating screen of the ISOBUS auxiliary control.

→ To make changes to the assignments, switch to the "AUX assignments" operating screen and switch editing mode "on".

Delete assignment

To delete the assignment of an individual operating element, proceed as follows:



1. Switch "Editing mode" "on".



All operating elements of the ISOBUS auxiliary control are displayed in the selection list.

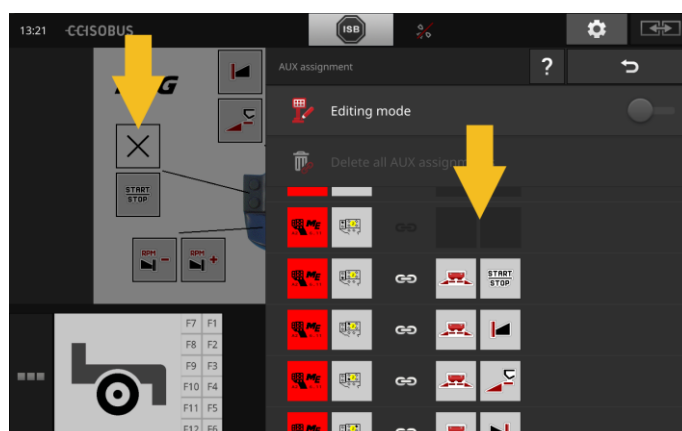
2. Press the "-" in the operating element button.
→ A message window is displayed.



3. Confirm your entry.
→ The assignment is deleted.
→ No implement function is now displayed in the button of the operating element.



4. Switch "Editing mode" "off".



Delete all assignments

To delete the assignment of all operating elements, proceed as follows:



1. Switch "Editing mode" "on".



2. Press the button "Delete all AUX assignments".
→ A message window is displayed.



3. Confirm your entry.
→ The assignments of all operating elements are deleted.
→ No implement functions are now displayed in the selection list of the operating elements.



4. Switch "Editing mode" "off".

8 Data management

Data management with CCI.Control is subdivided into application areas

Introduction

- Task management and documentation,
- Application maps.

8.1 Setting up for operation

- CCI.Control is "on" in app management.
- In the ISOBUS settings
 - the ISOBUS Task Controller function is "on" and
 - a Task Controller Number is set.

Prior preparation



1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed.



3. Press the "CCI.Control" button.
→ The "CCI.Control" operating screen is displayed.



4. Switch "Automatic export" "on".



1. Press the "Settings" button on the start screen.
→ Setting up is ended.
→ The "Settings" operating screen is closed.

Adjust CCI.Control

The settings can be changed at any time. You have the following setting options:

Automatic export

Automatic export protects against inadvertent deleting of task data.



You have imported a task from the flash drive into the terminal and partially or completely processed it. If you inadvertently repeat importing of the same task, all already documented data are overwritten.

The automatic export

- first saves the processed task on the flash drive and
- then overwrites the processed task with the new task.

To switch "Automatic export" on or off:

- Press the "Automatic export" button.
→ The switch changes its position.
-

8.2 Application maps

Shape import

With CCI.Control you can import a shape application map and create a new task with it.



Note

A shape application map always comprises a number of files:

- .dbf,
- .shp,
- .shx and optional
- .prj.

If all the files of the shape application map are not on the flash drive, CCI.Control cannot perform the import.

→ Copy all files of the shape application map onto the flash drive.



Note

A shape application map must comply with certain requirements to be used by CCI.Control.

→ See the appendix **Application maps**.



Note

Save the shape application map on the USB stick in the \SHAPE directory or a direct subdirectory of \SHAPE.



Setpoint table

The setpoint table of a shape application map contains

- one or more columns and
- the rows with the setpoints.

When creating the shape application map, give the columns meaningful names. We recommend the use of product and unit, e.g. "Compost (t)".

Unit selection when importing

It is **not** apparent from a shape application map which units are to be used, i.e. whether the product application quantity should be measured in l/ha or kg/m².

The units are specified in two steps when importing the shape application map. First make a pre-selection and then select the units to be used:

- Volume/area
 - l/ha
 - mm³/m²
- Mass/area
 - kg/ha
 - t/ha
 - g/m²
 - mg/m²
- Number/area
 - 1/m²
 - 1/ha
- Distance
 - mm
 - cm
 - dm
 - m
- Percent
 - %
 - ‰
 - ppm

Therefore if you want to apply the product in t/ha, select

- in step 9 the following direction mass/area and
- then in step 11 t/ha.

- The flash drive with the shape application map is connected to the terminal.
- CCI.Control is displayed in the Standard View.



1. Press the Burger Button.
→ The "Burger menu" is displayed.



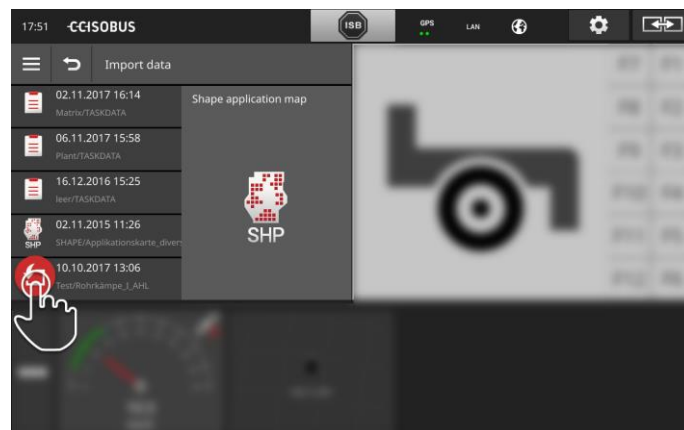
2. Switch "Field mode" "off".



3. Press the "Import" button.
→ A selection list with shape application maps and ISO-XML task files is displayed.



4. Select the shape application map.
→ The symbol SHP is displayed on the right next to the selection list.



5. Press the Action button.
→ A selection list is displayed.



6. Select "Application map".
→ The selection list with the columns of the setpoint table is displayed.

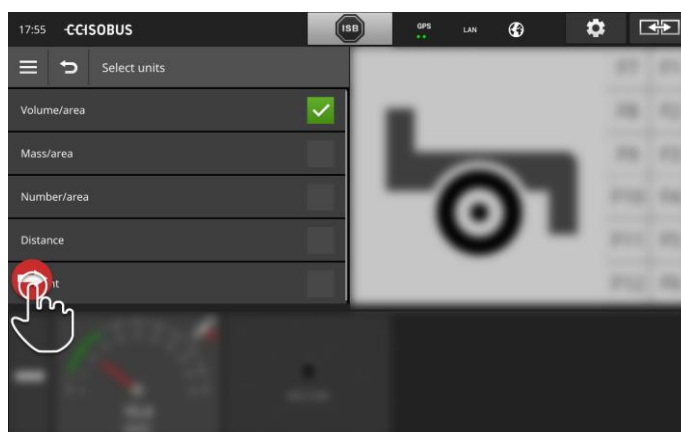


7. Select a column.



8. Press the Action button.
→ The list for preselection of the units is displayed.

Data management



9. Make a preselection.



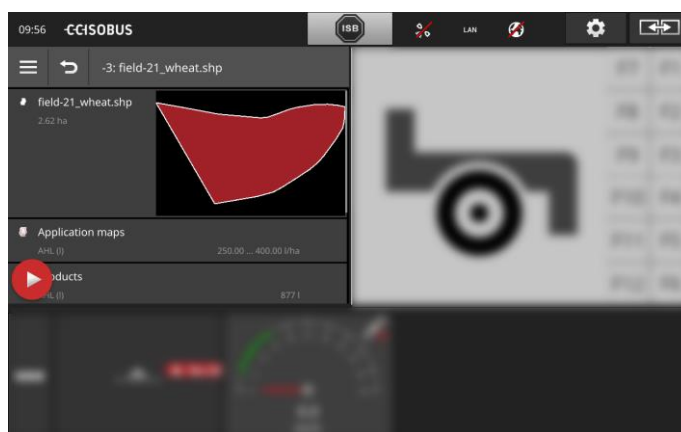
10. Press the Action button.
→ The selection list with the units is displayed.



11. Select the units.



12. Press the Action button.
→ The shape application map is imported.
→ The task is created and displayed.



9 Map view

CCI.Command is the detailed map view for use with Section Control and Rate Control.

Introduction

Using GPS, Section Control automatically switches off the sections of an ISOBUS implement 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 driver's work load reduced.

Section Control can be used with all ISOBUS implements provided they fulfil the requirements for ISOBUS section control.

Setting up for operation

- You have a licence for Section Control and/or Parallel Tracking.
- The licence is entered in the terminal, as described in chapter 4.3, section **Licence data**.
- CCI.Command is "on" in app management.
- In the ISOBUS settings
 - the ISOBUS Task Controller function is "on" and
 - a Task Controller Number is set.

Prior preparation



1. Press the "Settings" button on the start screen.
→ The "Settings" operating screen is displayed.



2. Press the "Apps" button.
→ The "Apps" operating screen is displayed.



3. Press the "CCI.Command" button.
→ The "CCI.Command" operating screen is displayed.

4. Adjust CCI.Command as described in the following section.



5. Press the "Settings" button on the start screen.
→ Setting up is ended.
→ The "Settings" operating screen is closed.

Parallel Tracking

You have the following setting options:



Overlapping

1. Press the "Overlapping" button
→ An input dialogue is displayed.
2. Enter the overlap as a positive or negative value in centimetres.
3. End the Process with "Back".



Overlapping

The overlap compensates for steering errors and position data inaccuracies.

There are two possible applications:

1. Missed areas must be avoided.
 - Enter a positive overlap.
 - The distance between the PT lanes reduces by the entered value.
 - The effective working width is reduced.
 - Incorrect positions are prevented.
 - Overlapping can occur.
2. Overlapping must be avoided.
 - Enter a negative overlap.
 - The distance between the PT lanes increases by the entered value.
 - Overlapping is avoided.
 - Missed areas can occur.

Beds

In bed mode, you can jump lanes and thus, for example, turn in a train even with smaller working widths.



- Setting "1" means that every PT lane is used.
- Setting 2/3/4/5 means that every second/third/fourth/fifth PT lane is highlighted in the portrayal. The remaining ones are greyed out.

1. Press the "Beds" button
→ An input dialogue is displayed.
2. Enter a value between 1 and 5.
3. End the Process with "Back".

Lightbar

The white segments of the lightbar indicate the deviation from the PT lane.



Specify what deviation a segment of the lightbar represents.

1. Press the "Lightbar" button.
→ An input dialogue is displayed.
2. Enter a value between 10 and 100 cm.
3. End the Process with "Back".

You have the following setting options:

Section Control

Overlap in driving direction

Values between -2000 cm and +2000 cm are valid for the overlap in the driving direction.



1. Press the "Overlap in driving direction" button.
→ An input dialogue is displayed.
2. Enter the overlap.
3. End the Process with "Back".

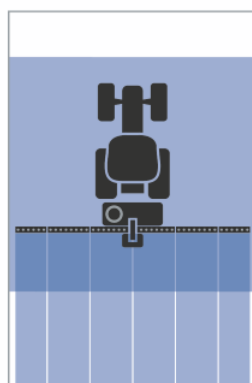


Overlap in driving direction

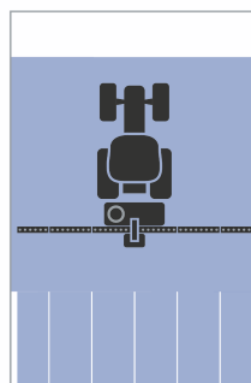
Do you also want to avoid the smallest possible processing gaps on the headland, e.g. during sowing or crop protection?

→ Use "Overlap in driving direction".

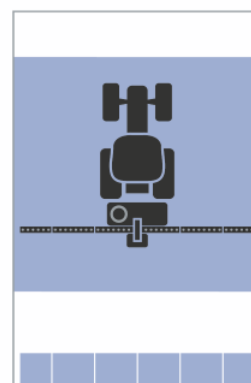
Set an additional overlap for the mentioned applications.



200 cm



0 cm



-200 cm

Degree of overlap



Valid values for the degree of overlap are 0, 50 or 100%.

1. Press the "Degree of overlap" button.
→ An input dialogue is displayed.
2. Enter the degree of overlap.
3. End the Process with "Back".



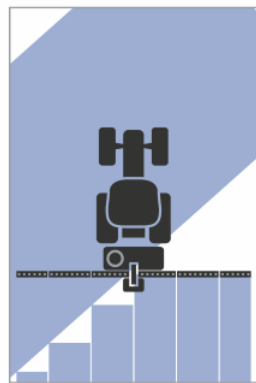
Degree of overlap

Specify with what covering a section is to be switched off if it overlaps an already worked area.

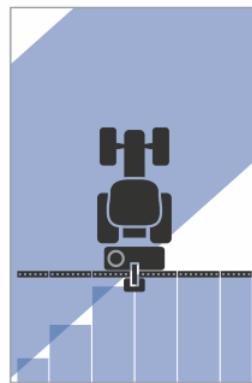
Here you can set the priority to

- complete working or
- the avoidance of double treatments

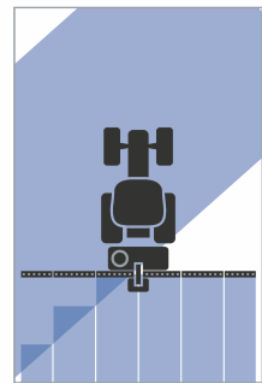
.



0%



50%



100%

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).

Overlap tolerance

Values between 0 cm and half of the outer section are valid for the overlap tolerance.



1. Press the "Overlap tolerance" button.
→ An input dialogue is displayed.
2. Enter the overlap tolerance.
3. End the Process with "Back".

**Overlap tolerance**

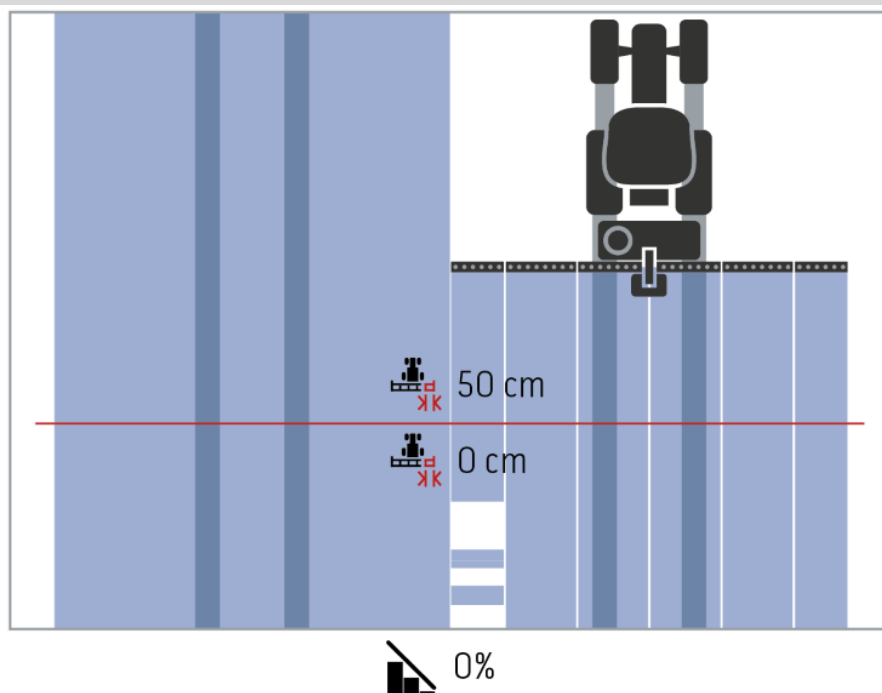
You work with a degree of overlap of 0%.

With parallel tracks in the field (e.g. with tramlines) it can occur, that the outer left and right sections are sometimes temporarily displayed over an already worked area, although actually no double treatment is occurring.

→ In general the cause is GPS drift.

For a set degree of overlap of 0%, the outer section is switched off in this case. A "fluttering" (continuous switching on and off) can occur.

→ Thus fluttering is prevented by setting the overlap tolerance.





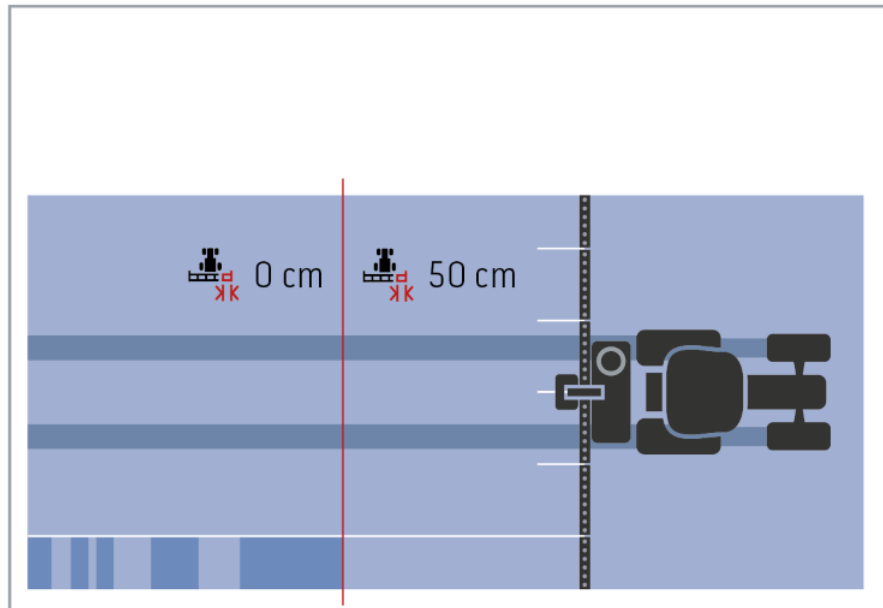
Overlap tolerance in already worked areas

You work with a degree of overlap of 100%.

In runs over already worked areas (e.g. the headland) the outer sections may sometimes switch on in an undesired way.

→ Causes for this are GPS drift or a track that has not been precisely followed.

The overlap tolerance can prevent the unwanted switching on of the sections.



 100%

Overlap tolerance at field boundary

Values between 0 cm and half of the outer section are valid for the overlap tolerance.



1. Press the "Field boundary overlap tolerance" button.
→ An input dialogue is displayed.
 2. Enter the overlap tolerance.
 3. End the Process with "Back".
-



Warning - General Hazards!

For safety reasons, you should always set a 0% degree of overlap and an overlap tolerance of 0 cm at the field boundary.

GPS drift can cause switching on and off of the outer section at the field boundaries. With an overlap tolerance at field border of > 0 cm

- you minimise this switching on and off but
- may also possibly be working beyond the field boundary.

We recommend the 0 cm setting.

If you set another value, you must check whether working beyond the field boundary is acceptable.



Section Control only on/off in the headland

- Press the button "Section control only in the headland".
→ The switch changes the position.



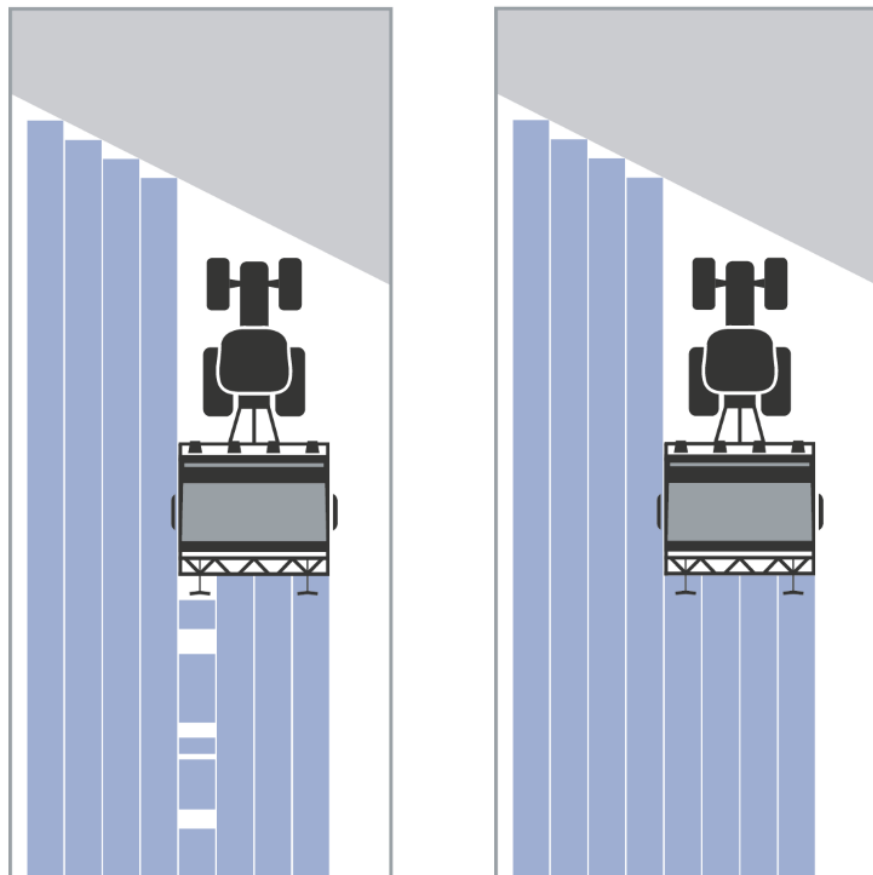
Section control only in the headland

When using seed drills and planters with very small sections (e.g. less than a meter) then with parallel tracks the result may be undesired switching off of the outer sections.

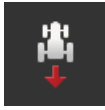
→ In general the cause is GPS drift.

The undesired switching off can also not always be avoided by adapting the overlap tolerance. In this case the option "Section control only in the headland" helps to avoid sowing windows.

→ The automatic switching on and off of the sections only takes place in the marked headland (grey) and not on the worked area (blue).



Reverse gear detection



1. Press the "Reverse gear detection" button.
→ The "Reverse gear detection" selection list is displayed.
 2. Select the method for detecting reverse gear.
 3. End the Process with "Back".
-



Reverse gear detection

The terminal detects the change in driving direction

- via the direction of travel signal of your ISOBUS tractor or
- via the position data calculation of the GPS receiver.

The navigation arrow in the map view changes its direction upon reverse gear detection.

If the indicated driving direction does not correspond to the actual driving direction, proceed as follows:

- Press on the arrow.
→ The arrow changes the direction.



Note

Not all ISOBUS tractors provide a direction of travel signal. If you have selected tractor and the direction of travel is not detected, switch over to GPS calculation.



Overwrite Device class

Only switch on this option, if the terminal is being operated on the Big-M.

- Press the "Overwrite DeviceClass" button.
→ The switch setting changes to "On".
-

10 Troubleshooting



Warning - behaviour in the event of technical failures

Continuation of working after technical failures can result in damage to the terminal or the implement!

1. Stop working.
 2. Look for a solution in this chapter of the operating instructions.
 3. Contact your dealer if the problem persists.
-

Forced shut-down

In the event of a fault, the terminal may no longer respond to user inputs.

1. Press the ON/OFF button for 8 seconds.
→ The terminal switches off.
2. Press the ON/OFF button for 1 second.
→ The terminal restarts.



Caution!

Perform a forced shut-down only if it is absolutely unavoidable. During shut-down all internal supply voltages are switched off. Unsaved data are lost. The terminal and its software are not damaged by the switch-off.

If a hardware problem exists, the terminal switches off automatically. The LED of the ON/OFF button transmits a series of blue flashes.

Blue flashing signals of the ON/OFF button



The LED flashes once per second and, dependent on the error, 1 to 27 times in succession. There is a two second pause at the end of the sequence. The sequence then starts again from the beginning. This makes counting easier for you.

Restart the terminal. If the terminal switches off again, and the LED of the ON/OFF button flashes blue again, the problem still exists.

You can rectify the problems listed in the following table locally.

Flashes	Cause/remedy
7	The temperature measured in the terminal exceeds 95°C. Possibly the temperature sensor is defective. / Allow the terminal to cool before restarting. If the error reoccurs, the terminal must be sent in.
25	The internal 12V power supply is unstable. / There may be a problem with the applied voltage at the terminal. Check the power supply.
26	The internal 5V power supply is unstable. / There may be a problem with the applied voltage at the terminal. Check the power supply.
27	The internal 3.3V power supply is unstable. / There may be a problem with the applied voltage at the terminal. Check the power supply.

For all other hardware problems, the terminal must be sent in. Tell the service partner how many flashes there are.

10.1 Problems during operation

This chapter lists problems that may occur during use of the terminal.

A suggestion is made for rectification for each problem. If you cannot rectify the problem based on the suggestion, contact your dealer.

Problem	Cause/remedy
The terminal does not switch off, if you switch off the tractor ignition.	The tractor does not switch off the supply to the in-cab connector. <ul style="list-style-type: none">• Switch the terminal off using the ON/OFF button or• disconnect cable A.
The terminal does not switch on.	Terminal not connected to the ISOBUS. <ul style="list-style-type: none">• The setting up chapter describes how you can connect the terminal to the ISOBUS. Ignition is not switched on. <ul style="list-style-type: none">• Start the tractor.
The connected implement is not displayed on the terminal.	Implement is not connected or is incorrectly connected. <ul style="list-style-type: none">• Ensure that the implement's ISOBUS cable is correctly connected at the tractor. Bus terminator missing. <ul style="list-style-type: none">• Check whether a bus terminator must be attached to the implement. Incorrect configuration of the UT. <ul style="list-style-type: none">• Configure the UT of the terminal according to this manual.

10.2 Diagnostics

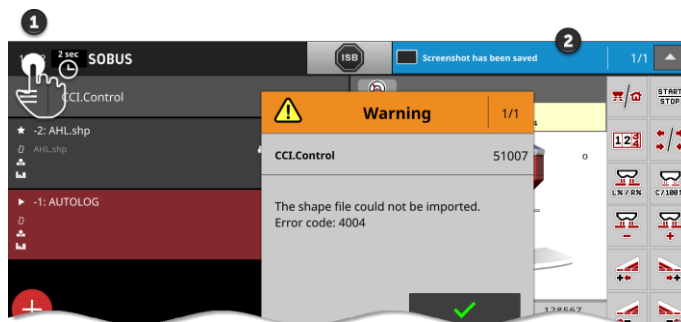
Screenshot

A picture says more than a thousand words.

If you are having problems operating the terminal or ISOBUS implement, you can capture a screenshot and send it to your contact:

- A flash drive is connected to the terminal.

Prior preparation



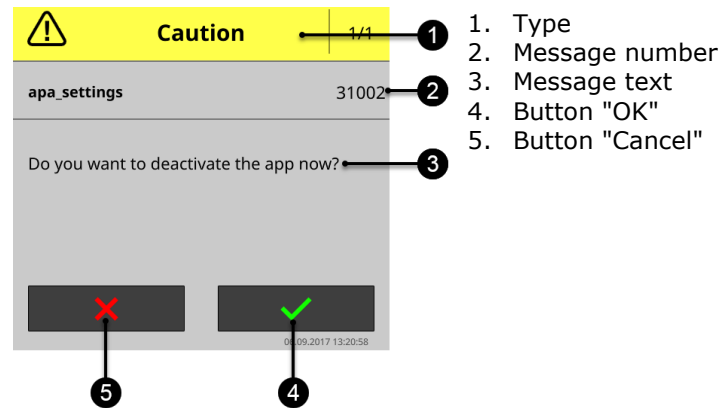
- Press on the left clock in the status bar (1) until a message is displayed in the status bar (2).
→ The screenshot is saved on the flash drive in the main directory.

10.3 Messages

Messages

- indicate incorrect operation or an error state or
- allow you to interrupt the execution of a command.

Messages are dialogue windows, interrupt the program flow and must be acknowledged. Each message is identified by a unique error number.



"Caution" type messages can be acknowledged in 2 ways

- Cancel:
 - the started action is interrupted, you return to the previous state
- OK:
 - Message is understood, I want to continue

"Warning" type messages have no "Cancel" button. They can only be confirmed with "OK".

Error number	Type/Message text/Remedy
7035	<p>Alert</p> <p>/</p> <p>No flash drive connected.</p> <p>/</p> <p>You want to export the event log. Saving of data on the flash drive has failed.</p> <p>Ensure that,</p> <ul style="list-style-type: none"> • the flash drive is connected to the terminal, • the flash drive is functioning, • the write-protection switch of the flash drive is in the "off" position and • that the flash drive has at least 10MB of free storage. <p>Is the flash drive or the USB interface of the terminal defective?</p> <ul style="list-style-type: none"> • Use a different flash drive or a different USB port on the terminal. <p>Repeat the process.</p>
31001	<p>Caution</p> <p>/</p> <p>Disconnect all implements from the terminal before restoring the factory settings. Check all settings once the process is completed. Continue?</p> <p>/</p> <p>Not an error rather a safety note. Follow the instruction.</p>

Troubleshooting

21	<p>Alert</p> <p>/</p> <p>Exporting of the licence data has failed. 1. Ensure that a flash drive is connected. 2. Repeat the export.</p> <p>/</p> <p>You want to update the licence data via flash drive. Saving of the TAN on the flash drive has failed.</p> <p>Ensure that,</p> <ul style="list-style-type: none"> • the flash drive is connected to the terminal, • the flash drive is functioning, • the write-protection switch of the flash drive is in the "off" position and • that the flash drive has at least 100KB of free storage. <p>Is the flash drive or the USB interface of the terminal defective?</p> <ul style="list-style-type: none"> • Use a different flash drive or a different USB port on the terminal. <p>Repeat the process.</p>
34003	<p>Alert</p> <p>/</p> <p>The backup has failed.</p> <p>/</p> <p>You want to create a backup, e.g. to carry out a CCI.OS update. The backup cannot be created or cannot be saved on the flash drive.</p> <p>Ensure that,</p> <ul style="list-style-type: none"> • the flash drive is connected to the terminal, • the flash drive is functioning, • the write-protection switch of the flash drive is in the "off" position and • that the flash drive has at least 1GB of free storage. <p>Is the flash drive or the USB interface of the terminal defective?</p> <ul style="list-style-type: none"> • Use a different flash drive or a different USB port on the terminal. <p>Repeat the process.</p> <p>The flash drive must remain connected to the terminal until the process has completed.</p>
34010	<p>Alert</p> <p>/</p> <p>The rescue system update has failed.</p> <p>/</p> <p>Repeat the process.</p>

37004	<p>Info</p> <p>/</p> <p>Incorrect network password</p> <p>/</p> <p>You have entered an incorrect WiFi password.</p> <ol style="list-style-type: none"> 1. Press the button with the name of the WiFi network "WiFi networks" in the selection list for two seconds. → A context menu is displayed. 2. Select "Edit". → The window for password entry is displayed. 3. Correct the password and confirm your entry.
50000	<p>Caution</p> <p>/</p> <p>Implement could not be loaded.</p> <p>/</p> <p>The object pool of the implement cannot be displayed clearly by the terminal. Operation of the implement is thus not possible.</p> <ol style="list-style-type: none"> 1. Disconnect the implement from the ISOBUS and wait 5 seconds. 2. Reconnect the implement to the ISOBUS.
50001	<p>Caution</p> <p>/</p> <p>The connection to the implement is lost.</p> <p>/</p> <p>The terminal no longer has a connection to the implement.</p> <ul style="list-style-type: none"> • You have disconnected the implement from the ISOBUS or • there a connection problem has occurred on the ISOBUS. <ol style="list-style-type: none"> 1. Check the connection of the implement to the ISOBUS.
50010	<p>Alert</p> <p>/</p> <p>The selected UT number is already being used. Please select another UT number and restart the terminal.</p> <p>/</p> <p>The UT is the ISOBUS function for operating ISOBUS implements. Generally each ISOBUS terminal has a UT. Each UT on the ISOBUS must receive a unique UT number. Therefore if you operate multiple ISOBUS terminals and thus UTs on the ISOBUS, then you must assign each UT a unique number.</p> <p>Note: The CCI 1200 has two UTs.</p> <p>Note: The UT with which you want to operate the AUX control, must receive the UT number 1.</p> <p>The error message appears if two UTs have the same UT number. Change the UT number of the UT on the CCI 1200 or on the other ISOBUS terminal.</p>

Troubleshooting

51003	<p>Alert</p> <p>/</p> <p>The task data could not be imported.</p> <p>/</p> <p>Did you remove the flash drive before the action was completed?</p> <ul style="list-style-type: none"> • Repeat the process and leave the flash drive plugged in until the process has completed.
51005	<p>Alert</p> <p>/</p> <p>The task data could not be exported.</p> <p>/</p> <p>You want to Export Task Data. The task data cannot be saved on the flash drive.</p> <p>Ensure that,</p> <ul style="list-style-type: none"> • the flash drive is connected to the terminal, • the flash drive is functioning, • the write-protection switch of the flash drive is in the "off" position and • that the flash drive has at least 20MB of free storage. <p>Is the flash drive or the USB interface of the terminal defective?</p> <ul style="list-style-type: none"> • Use a different flash drive or a different USB port on the terminal. <p>Repeat the process.</p> <p>The flash drive must remain connected to the terminal until the process has completed.</p>
51007	<p>Alert</p> <p>/</p> <p>The shape file could not be imported.</p> <p>/</p> <p>Did you remove the flash drive before the action was completed?</p> <ul style="list-style-type: none"> • Repeat the process and leave the flash drive plugged in until the process has completed.
51009	<p>Alert</p> <p>/</p> <p>The shape file could not be exported.</p> <p>/</p> <p>Did you remove the flash drive before the action was completed?</p> <ul style="list-style-type: none"> • Repeat the process and leave the flash drive plugged in until the process has completed.

51011	<p>Alert</p> <p>/</p> <p>The report could not be exported.</p> <p>/</p> <p>Did you remove the flash drive before the action was completed?</p> <ul style="list-style-type: none"> Repeat the process and leave the flash drive plugged in until the process has completed.
51013	<p>Alert</p> <p>/</p> <p>The task data could not be exported.</p> <p>/</p> <p>Did you remove the flash drive before the action was completed?</p> <ul style="list-style-type: none"> Repeat the process and leave the flash drive plugged in until the process has completed.
52010	<p>Alert</p> <p>Section Control: Automatic mode has been deactivated. GPS signal quality is too poor.</p> <p>/</p> <p>Section Control requires a GPS signal of accuracy class DGPS or better if it is to perform location-dependent section switching.</p> <p>Atmospheric interference and shadowing can result in failures of the DGPS. Wait until the signal is available with the required accuracy.</p> <p>Check the symbol in the status bar. Three green dots must be displayed for Section Control. With EGNOS or WAAS correction DGPS is also present, with RTK correction RTK fix or RTK float are available.</p> <p>Switch automatic mode back on if the GPS signal level is adequate.</p>
52011	<p>Alert</p> <p>/</p> <p>Automatic mode Section Control could not be activated. GPS signal quality is too poor.</p> <p>/</p> <p>See above. 52010</p> <ol style="list-style-type: none"> Wait until the GPS signal is available with the required accuracy. Repeat the process.
52012	<p>Alert</p> <p>/</p> <p>Stop the vehicle, to change the calibration or the reference point.</p> <p>/</p> <p>The reference point can only be set if the vehicle is at a complete standstill.</p>

Troubleshooting

54012	<p>Alert</p> <p>/</p> <p>There is no flash drive connected.</p> <p>/</p> <p>If you have not connected a flash drive to the terminal:</p> <ul style="list-style-type: none">• Connect a flash drive. <p>If you have already connected a flash drive to the terminal:</p> <ul style="list-style-type: none">• Use a different flash drive or a different USB port on the terminal.
56000	<p>Caution</p> <p>/</p> <p>The terminal is not connected with the ISOBUS. The camera cannot be used by the ISOBUS-implement.</p> <p>/</p> <p>Some ISOBUS implements can use/control the camera connected at the terminal. Both terminal and implement must be connected with the ISOBUS.</p> <ol style="list-style-type: none">1. Restart the terminal.2. Disconnect the implement from the ISOBUS and wait 5 seconds.3. Reconnect the implement to the ISOBUS.

11 Glossary

agrirouter	A data exchange platform for farmers and contractors, with which implements and agricultural software can be connected independent of the software developer. agrirouter transports data but does not store it.
Application map	<p>Section-specific setpoint map on which the quantity of product to be applied for each section in a field is specified, e.g. in the case of fertilising.</p> <p>The terminal processes it according to the position on the field during work.</p> <p>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.</p>
Operating screen	The operating screen is comprised of the values and operating elements shown on the display. The touchscreen can be used to directly select the elements shown.
Baud rate	Unit with which the speed of data transfer over the serial interface is measured.
Boolean value	A Boolean value is a value where it is only possible to choose between true/false, on/off, yes/no etc.
Socket	Female connector permanently integrated in a device casing.
Burger Menu	<p>Navigation element of the graphical user interface.</p> <p>You can access all functions and settings not directly available on the screen via the Burger Menu.</p>
CAN	C ontroller A rea N etwork
CCI	C ompetence C enter I SOBUS e.V.
ECU	E lectronic C ontrol U nit Control unit, job computer
EHR	E lectronic H oisting force R egulation

Glossary

Panel connector	Male connector permanently integrated in a device casing.
Input dialogue	Element of the graphical user interface. Enables the input or selection of values.
FMIS	Farm Management Information System Also: FMIS Software for yield data processing and the creation of application maps.
GPS	Global Positioning System. Satellite-based system for 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.
3-point-hitch	Hydraulic device on tractors for coupling up and raising attachable devices (working devices).
In-cab	From the standard ISO 11783. Describes the nine-pole ISOBUS panel connector in the tractor cab.
ISB	ISOBUS Shortcut Button The ISB makes it possible to deactivate implement functions that have been activated via an ISOBUS terminal. This is necessary if implement operation on the terminal is not currently in Standard View. Which precise functions an ISB is able to deactivate on an implement, differs widely. You can find this information in the operating instructions for your implement.
ISO-XML	ISOBUS-specific format for task data files based on XML.
ISOBUS	ISO 11783 International standard for data transfer between farming implements and devices.
Customer	The owner or tenant of the operation on which the task is executed.
Coupling	Female connector on the end of a cable.
PT lanes/grid	Track created in parallel to the reference track, which is used as an orientation aid for correct linking driving

Implement	Towed or attached implement. An implement with which a task can be executed.
Agricultural practice	Crop cultivation measure The action performed on a field such as tillage or fertilising.
Miniplexer	Device for switching between video signals which facilitates operating of two cameras via one video input (similar to a multiplexer, but with limited functions).
Multiplexer	Device for switching between video signals which facilitates operating multiple cameras over one video input.
Network members	A device that is connected to the ISOBUS and communicates via this system.
Object pool	Data record that is transferred from the ISOBUS implement to the terminal and contains the individual operating screens.
Location-dependent data	Implement data and yield data. E.g. hoisting gear version, bale length, section width or application rate per hectare.
Parallel Tracking	Parallel guidance aid
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 applied to or removed from a field as part of an agricultural practice, e.g. fertiliser, pesticide or harvested product.
Ground speed sensor	It emits a specific number of electrical pulses in proportion to the distance already covered. As such, the real, slip-free speed, the ground speed, can be calculated. Note that under certain circumstances, ground speed sensors may supply inaccurate speed values depending on the surface, for example, high grass or puddles.

Glossary

Wheel speed sensor	<p>It emits a specific number of electrical signals in proportion to the wheel rotation. As such, the theoretical slip-including speed of the tractor, the wheel speed, can be calculated.</p> <p>Wheel based speed sensors may supply inaccurate speed values when slip occurs.</p>
Reference track	<p>Track recorded by the driver, that is used for the calculation of other lead tracks created in parallel for track guidance.</p>
Button	<p>Operating element in the operating screen that is activated by pressing the touchscreen.</p>
Screenshot	<p>Capture and saving of the display content in a file.</p>
Interface	<p>Part of the terminal which is used to communicate with other devices.</p>
Section Control	<p>Automatic section control</p>
Signal connector	<p>Seven pole socket based on the ISO 11786 standard, at which signals for speed, PTO speed and position of the rear 3-point hitch can be read.</p>
Master data	<p>Customer or field data managed in the terminal or FMIS that can be assigned to a task.</p>
Plug	<p>Male connector on the end of a cable.</p>
TAN	<p>Transaction number: A single-use password that you need to obtain new licence data.</p>
Task Controller	<p>An ISOBUS function.</p> <p>The Task Controller undertakes the documenting of cumulative values and location-dependent data, which are made available by the implement.</p>

Section	<p>Using yield maps and other methods of location analysis such as ground or contour maps, aerial photographs or multi-spectral images, it is possible, based on individual experience, to define zones within the field, if these significantly differ over periods of four to five years.</p> <p>If these zones have a sufficient size and, for example with winter wheat a difference in yield potential of approximately 1.5 t/ha, it makes sense to , match the cultivation and agricultural practices in these zones to the yield potential.</p> <p>Such areas are then designated as sections.</p>
Section-specific working	Satellite support use of an application map.
Terminal	The CCI 1200 terminal
Touchscreen	Touch-sensitive display for operation of the terminal.
URL	<p>Uniform Resource Locator</p> <p>A standard used for website addressing in the World Wide Web; the Internet address.</p>
USB	<p>Universal Serial Bus:</p> <p>Serial bus system to connect the terminal to a storage medium.</p>
UT	<p>The Universal Terminal is the human machine interface (HMI) of the ISOBUS. This is the display and operating device.</p> <p>Each implement connected to the ISOBUS is registered with the UT and uploads its object pool. You operate the implement via the operating screens of the object pool.</p>
Delay time	The delay time describes 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).
WLAN (WiFi)	<p>Wireless Local Area Network</p> <p>Wireless or WiFi network</p>

Glossary

PTO sensor

Measures the speed of the power take off.
It emits a specific number of electrical pulses in proportion to the power take off speed.

XML

Extended Markup Language
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.

Auxiliary control

Also: AUX-Control.
Typical ISOBUS auxiliary controls are joysticks or toggle switch strips.
An auxiliary control enables the comfortable and efficient operation of frequently used implement functions.

12 Disposal

Dispose of a defective or no longer used terminal with due care for the environment:

- Dispose of the device parts in an environmentally friendly manner.
- Observe the local regulations.

Dispose of plastics with normal domestic waste or according to the local regulations.

Plastics

Enter metal into a metal recycling chain.

Metal

Deliver the terminal PCBs to a specialist recycling company.

PCBs

13 Index

A

- Action Button 26
- Apps
 - switching on and off 32

B

- Burger Button 26
- Buttons
 - in the status bar 23
 - special 26

C

- Camera
 - connecting, one 55
 - connecting, two 56
 - connecting, up to eight 57
- Camera image
 - change automatically 61
 - mirror 59
 - show continuously 60
- CCI 1200
 - About iii
- CCI.OS
 - updates 44
- Connector
 - A, B and C vii

D

- Device holder 6
- Display division 18

F

- File Server
 - ISOBUS function 39

H

- Help 15

I

- Ignition key vi
- Internet 49
- ISOBUS
 - functions 33

L

- Language
 - setting 8
- Layout
 - Maxi 17
 - Standard 17
- Licences

- Terminal licence 10
- update 48
- Light sensor v

M

- Messages
 - blue 25

N

- Nameplate vi
- Notes
 - note types 1

O

- ON/OFF button
 - LED vi
 - LED, flashes 125

R

- Remote maintenance 41

S

- Safety instructions 3
- Scope of delivery 5
- Screen brightness
 - change 27
- Screenshot
 - creation 127
- Software version
 - display 40

T

- Task Controller
 - ISOBUS function 36
 - number 37
- TECU
 - ISOBUS function 39
- Terminal
 - Display serial number 40
 - Mounting 6
 - switch on/off vi
- Time zone
 - overview 155
 - select 9
- Touch gestures
 - supported 16

U

- User interface
 - App menu 21
 - Mini View 19
 - Standard View 19

Status bar22

A. Technical Information

Dimensions (B x H x D) [mm]	312 x 213 x 66
Casing Type	Glass fibre reinforced polyamide
Fastening	VESA75
Operating Temperature [°C]	-15 - +70
Supply voltage [V]	12 VDC or 24VDC
Permitted Range [V]	7.5 VDC - 32VDC
Power consumption (at 12V) [W]	17, typical 143, maximum
Display [inch]	12.1 TFT
Display resolution [px]	WXGA, 1280 x 800
Colour depth	24 bit
Buzzer	85 dBA
Storage temperature [°C]	-30 - +80
Weight [gr]	2000
Protection class	IP65
EMC	ISO 14982
ESD protection	ISO 10605:2008

B. Interfaces



Caution!

Connection or disconnection of a cable during live operation can cause damage to the terminal or peripheral.

- Switch the terminal off before connecting or disconnecting connector A, B or C.



Caution!

All terminal connectors are mechanically protected to prevent incorrect connection or interchanging.

- Ensure that plugs and sockets have the same coding.
- Do not apply excessive force when connecting plug and socket.



Caution!

If a pin becomes bent, the interface may no longer function correctly. Renewed connection of the cable bends the pin even further.

- Submit the device for repair.



Note

Seal off unused connectors with blanking caps to prevent dust or moisture getting into the terminal.

A ISOBUS



B SIGNAL



+ RS232



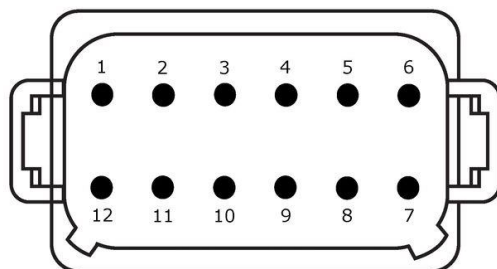
C VIDEO



+ RS232



Connector A



Connector type

Panel connector German DT, 12 pole, A-coded

Function

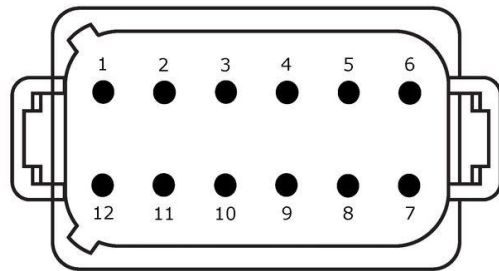
- CAN1
- CAN2
- ECU power
- Power supply

Use

ISOBUS, switched ECU supply

Pin	Signal	Comment
1	V+ in	Supply voltage, 12VDC or 24VDC
2	ECU Power enable	Switched ECU supply voltage
3	Power enable	Switched supply voltage
4	CAN_H	CAN1 High
5	CAN_L	CAN1 Low
6	CAN_GND	CAN 1 earth
7	CAN_H	CAN2 High
8	CAN_L	CAN2 Low
9	CAN_GND	CAN2 earth
10	Key Switch State	Ignition signal
11	Shield	Shielding
12	GND	Earth

Connector B



Connector type

Panel connector German DT, 12 pole, B-coded

Function

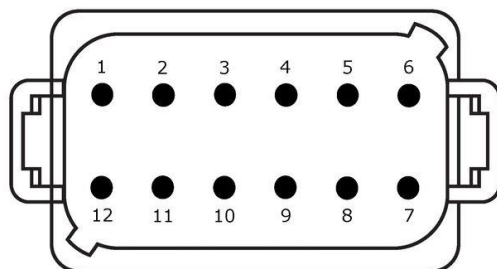
- RS232
- ISO 11786

Use

Signal connector, GPS/LH5000/ADS/TUVR

Pin	Signal	Comment
1	V+ out	12VDC or 24VDC
2	ISO 11786, Ground based speed	Ground speed sensor
3	ISO 11786, Wheel based speed	Wheel speed sensor
4	ISO 11786, PTO speed	Power take off speed
5	ISO 11786, In/out of work	Work position
6	ISO 11786, Linkage position	Hoisting gear position
7	Key Switch State	Ignition signal
8	GND	Earth
9	ISO 11786, Direction signal	Direction of travel
10	RS232 TxD	RS232-1
11	RS232 RxD	RS232-1
12	GND	Earth

Connector C



Connector type

Panel connector German DT, 12 pole, C-coded

Function

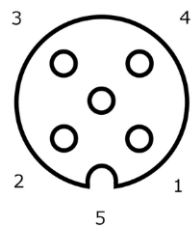
- RS232
- RS485
- Video

Use

Camera, video miniplexer, video multiplexer, GPS/LH5000/ADS/TUVR

Pin	Signal	Comment
1	V+ out	Camera power supply
2	Video IN	
3	Video GND	Earth
4	RS485B	
5	RS485A	
6	V+ out	Supply voltage Video miniplexer or video multiplexer
7	NC	Not connected
8	NC	Not connected
9	RS232, V+ out	Supply voltage RS232
10	RS232, TxD	RS232-2
11	RS232, RxD	RS232-2
12	RS232, GND	Earth

Connector 3 and 4



Connector type

Socket M12, 5-pole, A-coded

Function

- USB 2.0

Use

Flash drive, W10 WiFi adapter

Pin	Signal	Comment
1	V+	Supply voltage
2	D-	Data -
3	D+	Data +
4	GND	Earth
5	GND	Earth

Connector Eth



Connector type

Socket M12, 8-pole, X-coded

Function

- Ethernet

Use

LAN

Pin	Signal	Comment
1	TR0+	
2	TR0-	
3	TR1+	
4	TR1-	
5	TR3+	
6	TR3-	
7	TR2+	
8	TR2-	

C. Cable



Note

Where possible only use and OEM cable to connect the terminal.
You can order this from the manufacturer or its approved dealers.

Identifier:

Cable A

Length:

150 cm

"InCab":

Coupling, 9-pole

- In-cab panel connector in the tractor

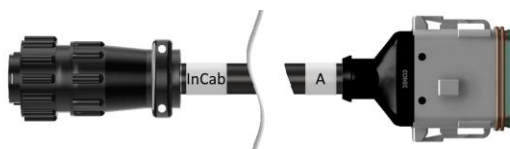
"A":

Coupling, 12-pole

- Connector A on the terminal

Use:

Connect terminal to the power supply and
ISOBUS



Identifier:

Cable B

Length:

30 cm

"Signal":

Coupling M12, 12-pole

- Cable H "Signal"

"B":

Coupling, 12-pole

- Connector B on the terminal

"RS232":

Coupling M8, 4-pole

- Peripheral

Use:

Connect terminal to signal connector and peripheral using the serial interface

**Identifier:**

Cable C1

Length:

35 cm

"AEF Video":

Plug, 7-pole

- Camera

"C":

Coupling, 12-pole

- Connector C on the terminal
-

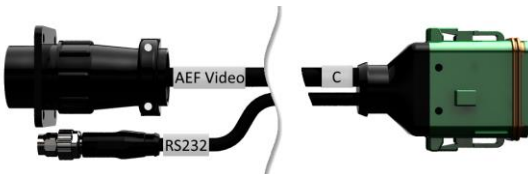
"RS232":

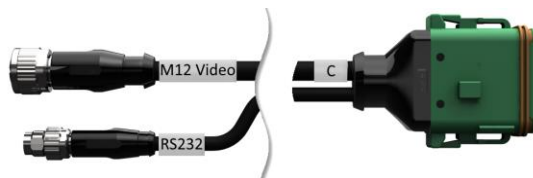
Plug M8, 4-pole

- Peripheral

Use:

Connect terminal to camera and peripheral using the serial interface





Identifier:

Cable C2

Length:

30 cm

"Video":

Coupling M12, 8-pole

- Camera

"C":

Coupling, 12-pole

- Connector C on the terminal
-

"RS232":

Plug M8, 4-pole

- Peripheral

Use:

Connect terminal to camera, video miniplexer or video multiplexer and peripheral using serial interface



Identifier:

Cable type H

Length:

200 cm

"":

Plug M12, 12-pole

- Signal connector in the tractor

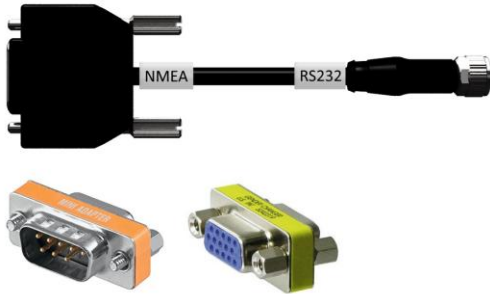
"Signal":

Plug, 7-pole

- Coupling "Signal" on cable B

Use:

Connect terminal to signal connector



Identifier:

Cable type N

Length:

200 cm

"NMEA":

Plug, 9-pole

- GPS receiver

"RS232":

Coupling M8, 4-pole

- Plug "RS232" to cable B or C

Use:

Connecting the terminal to the GPS receiver

Identifier:

Cable Y

Length:

15 cm

"InCab":

Coupling, 9-pole

In-cab panel connector in the tractor

"UT":

Plug, 9-pole

- Coupling "InCab" on cable A

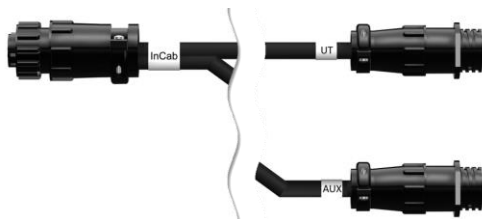
"AUX":

Plug, 9-pole

- ISOBUS auxiliary control

Use:

Connect terminal and ISOBUS auxiliary control to the ISOBUS



D. Application maps

ISO-XML

An application map in ISO-XML format may contain any approved DDI in the *Data Dictionary*.

Percentage values can be processed.

Zones

- Grid type 1: max. 255
- Grid type 2: no limit
- Polygon: max. 255

Colours

Up to 12 colours can be displayed in the legend

Shape

Permitted formats

WGS84 Projection or
PolygonZ

Zones

Max. 255

Points

Max. 10000

E. Time zones

- (UTC -09:00) Alaska
- (UTC -08:00) Tijuana, Baja California (Mexico)
- (UTC -08:00) Los Angeles, Vancouver
- (UTC -07:00) Chihuahua, Mazatlan
- (UTC -07:00) Denver, Salt Lake City, Calgary
- (UTC -07:00) Dawson Creek, Hermosillo, Phoenix
- (UTC -06:00) Costa Rica, Guatemala, Managua
- (UTC -06:00) Chicago, Winnipeg
- (UTC -06:00) Cancun, Mexico City, Monterrey
- (UTC -05:00) Havana
- (UTC -05:00) Detroit, New York, Toronto
- (UTC -05:00) Bogota, Lima, Panama
- (UTC -04:00) Caracas
- (UTC -04:00) Bermuda, Halifax
- (UTC -04:00) Campo Grande, Cuiaba
- (UTC -04:00) Asuncion
- (UTC -04:00) Santiago
- (UTC -03:00) Montevideo
- (UTC -03:00) Sao Paulo
- (UTC -03:00) Buenos Aires, Cordoba
- (UTC -03:00) Mendoza, Recife, San Luis
- (UTC +00:00) Casablanca, Reykjavik
- (UTC +00:00) Dublin, Lisbon, London
- (UTC +01:00) Windhoek
- (UTC +01:00) Algiers, Porto Novo
- (UTC +01:00) Berlin, Oslo, Paris, Rome, Stockholm
- (UTC +01:00) Tunis
- (UTC +02:00) Cairo
- (UTC +02:00) Jerusalem, Tel Aviv
- (UTC +02:00) Kaliningrad, Minsk
- (UTC +02:00) Athens, Helsinki, Istanbul, Riga
- (UTC +02:00) Johannesburg, Tripoli
- (UTC +03:00) Moscow, Volgograd
- (UTC +04:00) Yerevan, Samara
- (UTC +05:00) Yekaterinburg
- (UTC +05:30) Calcutta, Colombo
- (UTC +05:45) Kathmandu
- (UTC +06:00) Novosibirsk, Omsk
- (UTC +07:00) Krasnoyarsk
- (UTC +08:00) Hong Kong, Perth, Singapore
- (UTC +08:00) Irkutsk
- (UTC +08:45) Eucla
- (UTC +09:00) Seoul, Tokyo
- (UTC +09:00) Yakutsk
- (UTC +09:30) Darwin
- (UTC +09:30) Adelaide
- (UTC +10:00) Vladivostok
- (UTC +10:00) Canberra, Melbourne, Sydney
- (UTC +11:00) Magadan
- (UTC +12:00) Kamchatka
- (UTC +12:00) Auckland

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