Operating instructions

Control terminal

CCI-ISOBUS

- EN -

Art. no.175_4729
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LEMKEN GmbH & Co. KG

Weseler Strasse 5, D-46519 Alpen / P.O. Box 11 60, D-46515, Germany Alpen
Phone +49 (0) 28 02 81-0, Fax +49 (0) 28 02 81-220
Email: lemken@lemken.com, Internet: http://www.lemken.com

Dear Customer,

Thank you for the trust you have placed in us by purchasing this device. The device can only be used to its full advantage when operated and used properly. When the device was delivered, you will already have been instructed in its operation, adjustment and maintenance by your dealer. However, this brief instruction is not a substitute for thorough study of the operating instructions.

These operating instructions will help to familiarise you with the LEMKEN GmbH & Co. KG device and the options available for using it.

The operating instructions contain important information about how to operate the device safely, properly and efficiently. Following the instructions will help to prevent hazards, faults and down times and will increase reliability and service life. Read the operating instructions carefully and attentively before commissioning.

Make sure that the operating instructions are always available at the location where the device is used.

The operating instructions must be read and followed by anyone who is involved in carrying out the following work:

- Coupling and uncoupling
- Adjustments
- Operation
- Maintenance and repairs
- Troubleshooting, and
- final shut-down and disposal.

Spare parts ordering

This device is supplied with a specification listing all assemblies that are relevant for the product. The spare parts list valid for your device includes both those assemblies relevant to you and those that are not intended for your device. Make sure that you only order spare parts that belong to the assemblies that can be found on your specification or the enclosed print out. When ordering spare parts, state the type designation and serial number of the device. This information can be found on the rating plate. Enter this data in the fields below so that it is always within easy reach.

Type designation:

Serial number:

Remember that you should only use genuine LEMKEN spare parts. Reproduction parts have a negative influence on the function of the device, have a shorter service life and present risks and hazards that cannot be estimated by LEMKEN GmbH & Co. KG. They also increase the maintenance costs.

Service and spare parts

Information on service and spare parts is available from your local dealer or our website at www.lemken.com.

CONTENTS

1 OPERATOR INSTRUCTIONS

1.1 Notes on these operating instructions

These operating instructions are intended as an introduction to how to operate and configure the ISOBUS terminal CCI 100 or CCI 200. They have to be read before commissioning of the terminal to ensure problems do not arise in operating it.

Despite the best efforts to present the relationships as comprehensively as possible, it is still possible that a query may not have fully answered.

1.2 Notes on display

1.2.1 Instructions and directions

The steps to be performed by the operator are shown as a numbered list.

1. Instruction for step 1
2. Instruction for step 2

Instructions that contain only one single step are not numbered. The same applies to instructional steps in which the sequence in which they are to be performed is not specified.

One point has been placed ahead of these instructions:

- Instruction

1.2.2 Meaning of warning signs

CAUTION

Type of danger

This information warns of a situation that may be hazardous to a person's health or cause material and environmental damage.
Disregarding this warning sign can result in damage to the product and the health of the person involved.

- Always observe the measures specified to avoid this hazard.

INFORMATION

General information contains application tips and particularly useful information, but no warnings of any hazards.

1.2.3 Glossary

A short explanation of terms printed in italics (e.g. ***terminal***) is available in the glossary.

2 SAFETY INFORMATION

CAUTION

It's your safety

- Please read these operating instructions before starting up the CCI terminal for the first time.

2.1 Exclusion clauses

The ***terminal*** is solely intended for use in agriculture. The manufacturer shall not be held liable for any installation or use of the system over and above its intended use.

The manufacturer shall not be held liable for any resulting damage to persons or material. The user shall bear all risks associated with improper usage.

Use in accordance with designated purpose also includes adherence to the manufacturer's specified operating and repair conditions!

The pertinent accident-prevention regulations as well as any generally approved safety-related, industrial, medical and road-traffic related regulations must be adhered to! The manufacturer shall not be held liable for any arbitrary modifications to the device.

2.2 Safety precautions

- Do not remove any safety mechanisms or signs.
- Read through and understand these instructions before using the ***terminal***. This applies equally to all other operators, who also use the device.
- During maintenance or when using a battery charger on the battery for the tractor/machine, disconnect the power supply to the ***terminal***.
- Never perform any maintenance work or repairs when the device is switched on.
- When welding on the tractor or on an attached machine the power supply to the ***terminal*** must be disconnected first.
- Clean the***terminal*** using clear water or water with some glass cleanser and a damp cloth only.
- Press the keys with the tip of your finger. Avoid using your fingernails.
- If, after reading these instructions, some parts should still be unclear to you, please contact your local dealer to arrange for further clarification before using the CCI terminal.
- Carefully read and observe all safety instructions in the manual and the safety labels attached to the device. Safety labels must always be in a clearly legible condition. Replace any missing or damaged labels. Make sure that the device parts have the latest safety labels affixed to them. Replacement labels are available from your local authorised dealer.
- Familiarise yourself with the ***terminal*** to enable you to operate it properly.
- Ensure that the ***terminal*** and add-on parts are kept in good condition.

2.3 Safety information for retrofitted installation of electrical and electronic devices and/or components

Contemporary agricultural machines are fitted with electronic components and parts whose function may be impaired by electromagnetic emissions from other devices. Such influential emissions can endanger people if the following safety instructions are not fully observed.

In the event of any retrofitted installation of electrical and electronic devices and/or components in a machine connected to the vehicle electric system, the user must then check whether the installation causes malfunctions in the vehicle electronics or in other components. This applies in particular to the electronic controls.

- EHR
- Front lifting gear
- Front loader
- Power take-offs
- Engine and gearbox

Care should be taken, in particular, to ensure that retrofitted electrical and electronic component installations correspond with the EMC Directive 89/336/EWG in applicable version and that they bear the CE identification.

For the retrofitted installation of mobile communication systems (e.g. radio, telephone) the following requirements must also be fulfilled:

- Only devices that comply with the valid national regulations (e.g. registration with German Federal Agency for Telecommunication Registrations (BZT)) may be installed.
- The device must be permanently installed.
- The operation of portable or mobile devices within the vehicle is only permissible if there is a permanently installed outer aerial.
- The transmitting part is to be installed separate to the vehicle electronics.
- The aerial must be installed properly with a good ground connection made between the aerial and the vehicle ground.

The machine manufacturer's installation instructions must also be observed for all wiring and installation work as well as with regard to the maximum permissible power take-off.

2.4 Safety instruction for "Function Stop" switch

Pressing the "Function Stop" switch causes the connected machine to be set to a safe state; to this end the machine must support the "Function Stop" function.

CAUTION

The "Function Stop" switch **never** intervenes in any tractor functions, i.e. neither the cardan shafts nor the hydraulic function are impaired!

More information on this is available in your machine's operating instructions.

Figure 1: Function Stop

CAUTION

Check support for Function Stop

At this moment in time, not all ISOBUS machines support this function.

- Please consult the operating instructions for the trailer device (see Chapter 2.4)

3 COMMISSIONING

3.1 Installation in the cab

The device holder for fastening the ***terminal*** in the tractor cab is part of the device's package contents.

3.2 Connector in agricultural tractor

3.2.1 ISOBUS connector

The connection to the ISOBUS is made using a 9-pin connector (ISO 11783). The power supply to the terminals is also connected through this connector.

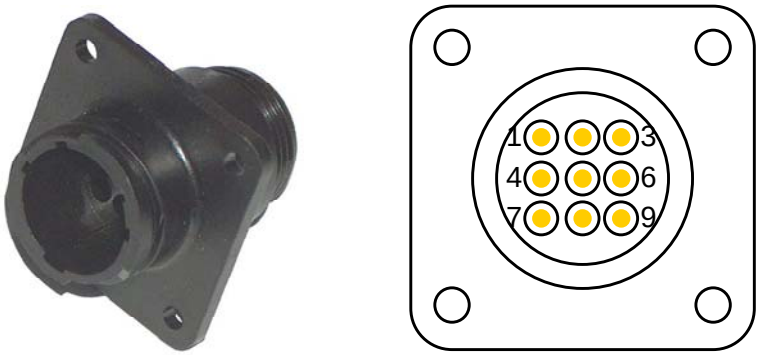


Figure 2: View and pin assignment for ISOBUS connector

3.2.2 Signal socket

The pulses for the current speed are sent over the 7-pin connector (DIN 9684-1/ISO 11786) to the terminal. These are required if the TECU software (tractor ECU), which is part of the terminal delivery package, is to be used. To to do, the connector is fitted to the cable bearing the LEMKEN art. no. F42 0170.

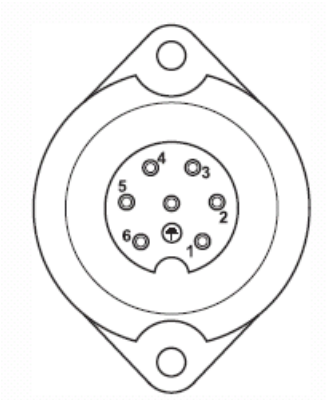


Figure 3: Pin assignment for signal socket

3.3 Terminal connector

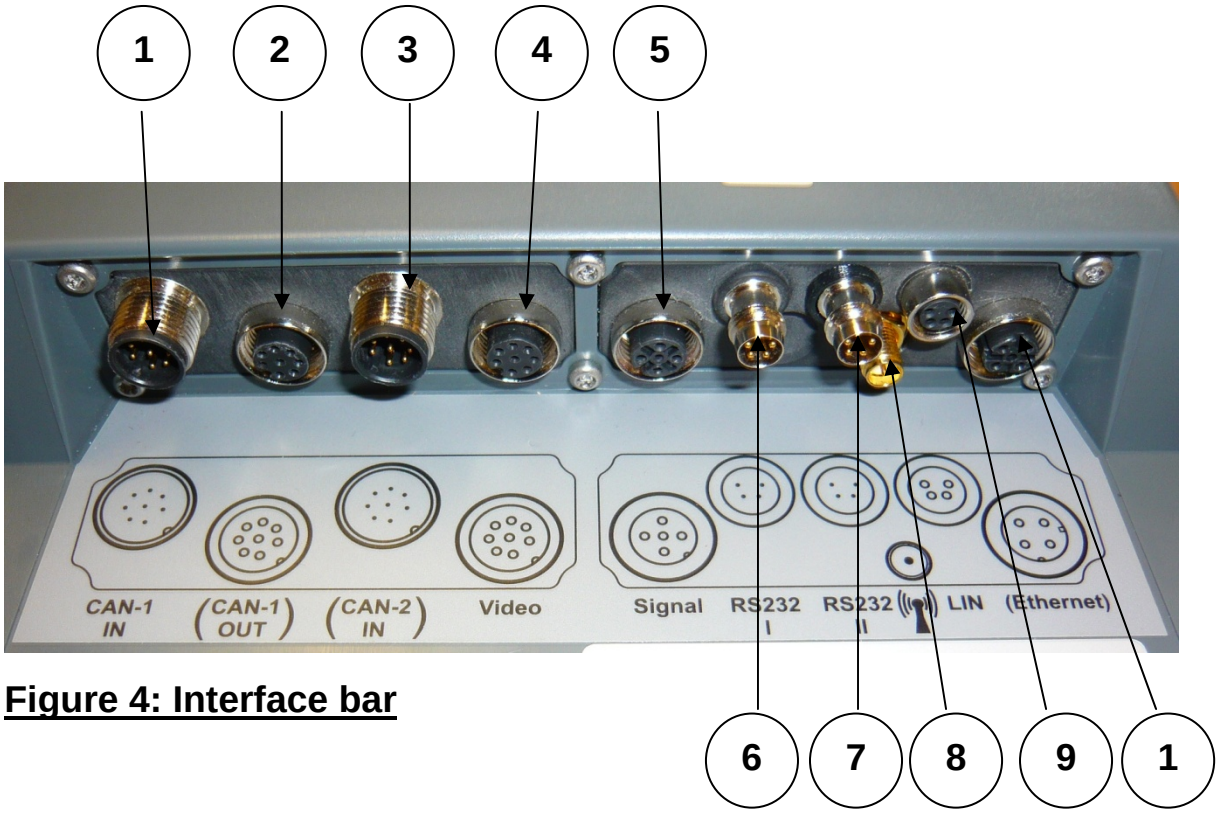
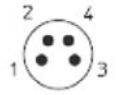
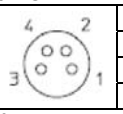
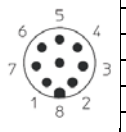
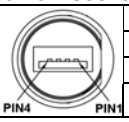
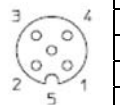
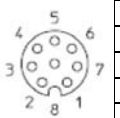
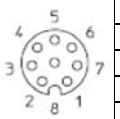


Figure 4: Interface bar

The interface bar is located on the rear of the ***terminal***. In addition to the displayed interfaces you will find the USB connection behind a flap on the rear of terminal.

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

3.4 Pin assignment

Pos. #	Symbol	PIN	Signal	(lead colour)	Function
RS232-1 & RS232-2 / M8x1 – 4-pin plug					
6+7		1	+12V / +24V	Brown	Supply (+UB switched)
		2	TxD	White	Signal TxD (out)
		3	GND	Blue	Supply ground
		4	RxD	Black	Signal RxD (in)
LIN-OUT / M8					
9		1	+12V / +24V	Brown	Supply (+UB switched)
		2	NC	White	Not connected
		3	GND	Blue	Supply ground
		4	LIN	Black	LIN bus
CAN1-IN / M12 x1 – 8-pin plug / ISOBUS (similar to CAN2-IN)					
1		1	+12V / +24V	White	Supply (+UB)
		2	Emergency Stop A	Brown	Hardware Emergency Stop input
		3	Cut-in signal	Green	Cut-in signal for control units (+UB switched)
		4	Emergency Stop supply	Yellow	Hardware Emergency Stop supply
		5	CAN1-L	Grey	CAN bus Low
		6	GND	Pink	Supply ground
		7	CAN1-H	Blue	CAN bus High
		8	Screen	Red	Screen capacitively decoupled
USB Host 2.0 – socket					
11		1	+5V	Red	Supply
		2	D -	White	Data -
		3	D +	Green	Data +
		4	GND	Black	Supply ground
SIGNAL / M12x1 – 5-pin socket					
5		1	Cut-in signal	Brown	Supply (+UB switched)
		2	FQ2	White	ISO11786 "Rear PTO rotational speed"
		3	GND	Blue	Supply ground
		4	FQ1	Black	ISO11786 "True ground speed"
		5	Analogue input	Green/yellow	ISO11786 "Linkage position"
CAN1-OUT / M12 x1 – 8-pin socket / ISOBUS					
2		1	+12V / +24V	White	Supply (+UB)
		2	Emergency Stop B	Brown	Hardware Emergency Stop output
		3	Cut-in signal	Green	Cut-in signal for control units (+UB switched)
		4	Emergency Stop supply	Yellow	Hardware Emergency Stop supply
		5	CAN1-L	Grey	CAN bus Low
		6	GND	Pink	Supply ground
		7	CAN1-H	Blue	CAN bus High
		8	Screen	Red	Screen capacitively decoupled
ETHERNET / M12x1 – 4-pin socket – D-coded (IEC 61076-2-101)					
10		1	TX+	Yellow	
		2	RX+	White	
		3	TX-	Orange	
		4	RX-	Blue	
Video-IN / M12 x1 – 8-pin socket					
4		1	+12V / +24V	White	Video
		2	RS485B	Brown	EIA RS-485 B
		3	RS485A	Green	EIA RS-485 A
		4	Cut-in signal	Yellow	Supply (+UB switched)
		5	RS485A	Grey	Jumped to pin 3
		6	Cut-in signal	Pink	Supply (+UB switched)
		7	GND	Blue	Supply ground
		8	Screen	Red	Screen capacitively decoupled

Pos. #	Symbol	PIN	Signal	(lead co-lour)	Function
CAN2-IN / M12 x1 – 8-pin plug					
3		1	+12V / +24V	White	Supply (+UB)
		2	Emergency Stop	Brown	Hardware Emergency Stop, jumped to PIN 4
		3	Cut-in signal	Green	Cut-in signal for control units (+UB switched)
		4	Emergency Stop	Yellow	Hardware Emergency Stop, jumped to PIN 2
		5	CAN2-L	Grey	CAN bus Low
		6	GND	Pink	Supply ground
		7	CAN2-H	Blue	CAN bus High
		8	Screen	Red	Screen capacitively decoupled
8	**WLAN aerial – SMA socket**				

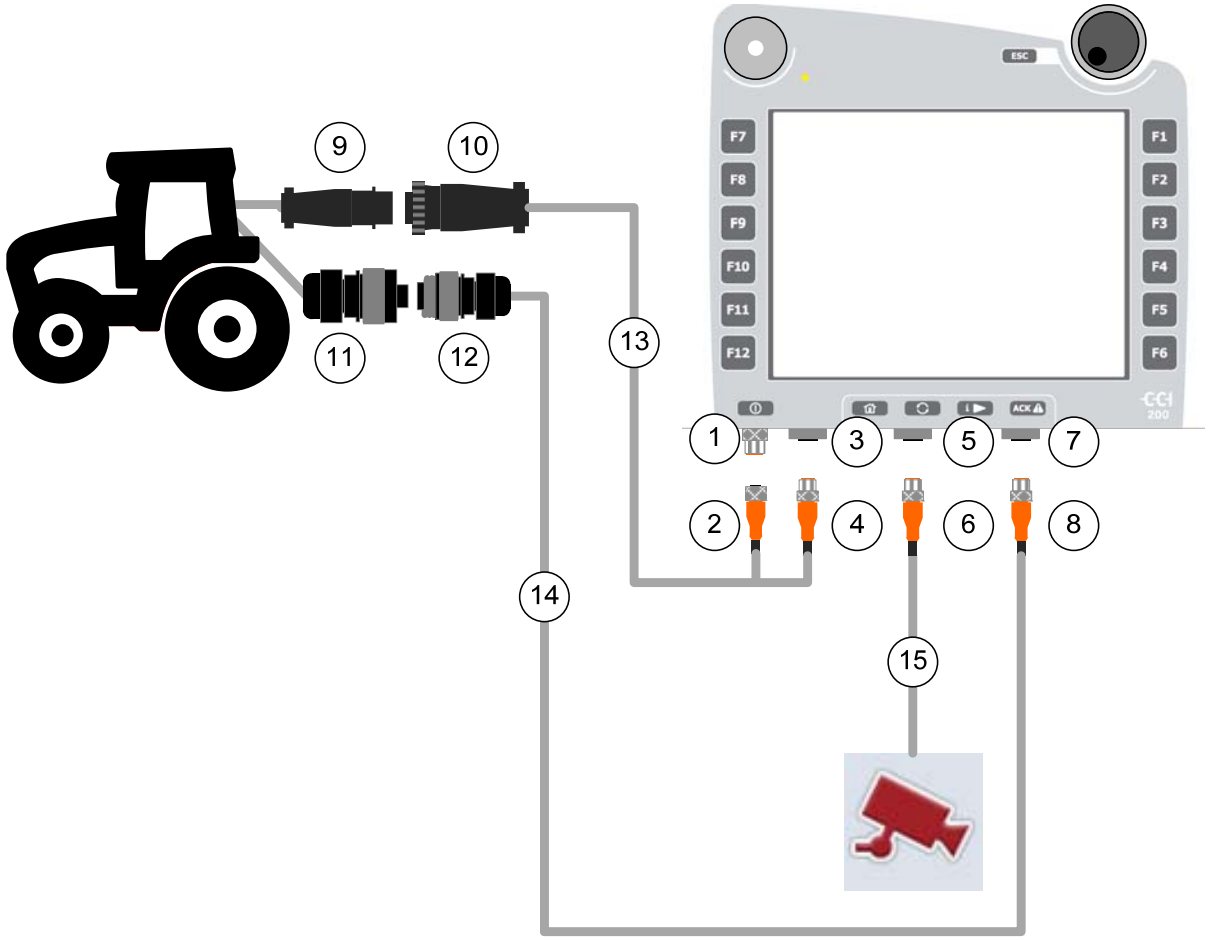
( ) – only available for connectors with strands

3.5 Connecting the terminal

For connection to the ISOBUS a special cable set is required, which can be ordered by quoting the LEMKEN article number 573 6204.

Perform the steps in the following sequence.

- Choose a suitable position in the tractor cab (in driver's field of vision) where you wish to mount the terminal.
- Mount the terminal using the device holder into the tractor cab.
- Connect the terminal to the 9-pin ISOBUS socket.
- Connect the terminal to the 7-pin signal socket.



1. CAN1-IN Terminal
2. CAN1-IN M12 von ISOBUS-Kabel (13)
3. CAN1-OUT Terminal
4. CAN1-OUT M12 von ISOBUS-Kabel (13)
5. Video-IN Terminal
6. Video-IN M12 Kamerakabel (15)
7. Signal(ISO11786) Terminal
8. Signal (ISO11786) M12 Signalkabel (14)
9. ISOBUS Traktoranschluss in der Kabine (Incab CPC)
10. ISOBUS Traktoranschluss am ISOBUS-Kabel (13)
11. ISO11786 Signalsteckdose im Traktor
12. ISO11786 Stecker für Signalsteckdose am Signalkabel (14)
13. ISOBUS-Kabel
14. Signalkabel
15. Kamerakabel

Figure 5: Schematic connection overview

3.6 Switching on the terminal

Before switching on the ***terminal*** for the first time, check the connections are correctly and securely fitted to the device.

The ***terminal*** is switched on using the ON/OFF key at the bottom left of the housing (see Figure 6). Please press and hold the key for roughly 2 seconds.

4 KEYPAD AND SCREEN

4.1 Controls, keys

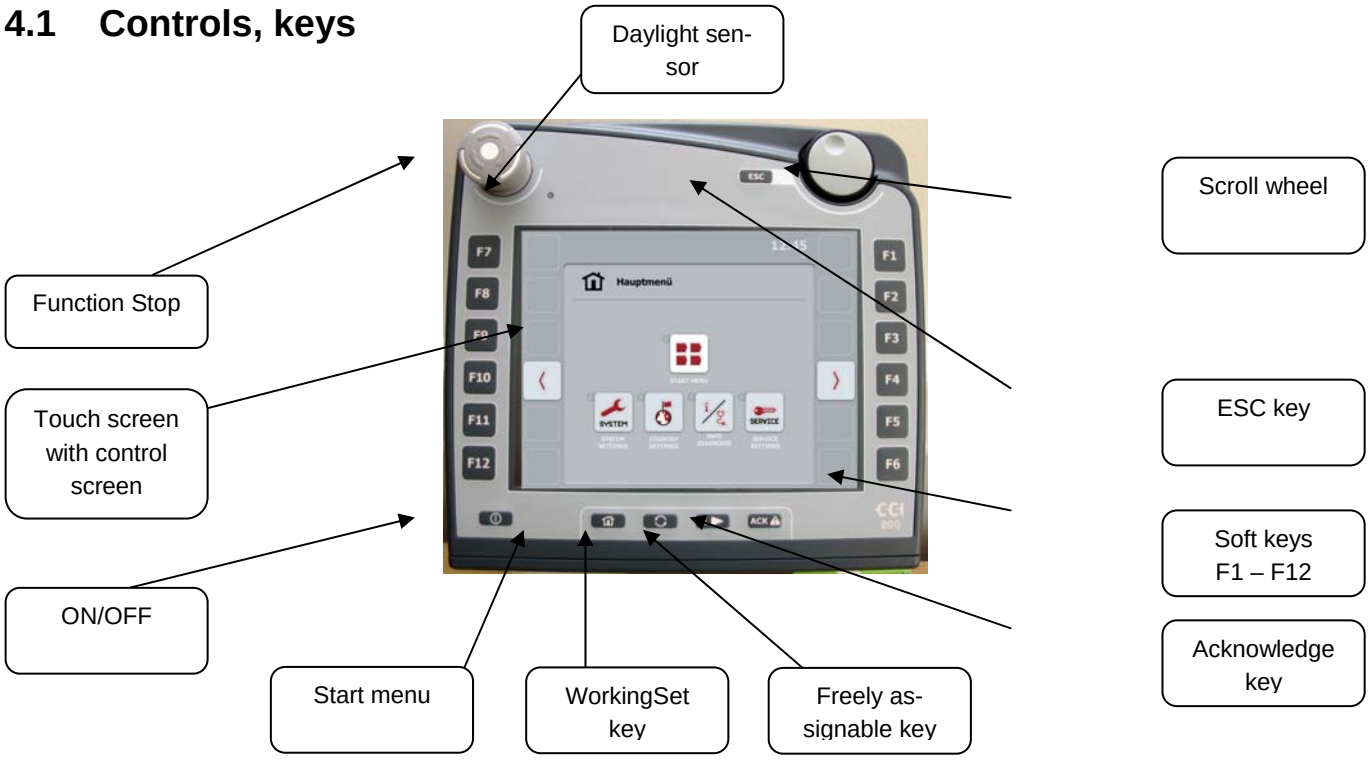


Figure 6: Keypad and screen

4.1.1 Menu

Pressing the Menu key will take you straight back into the Main menu. Active applications are not closed by this change, i.e. they remain active although they are not visible.

INFORMATION

When changing from an active machine function, functions that are running may be automatically shut-down on some machines. Please consult the operating instructions for the trailer device.

4.1.2 WorkingSet key

Repeatedly pressing this key enables a sequential change to be made between currently active applications (e.g. from machine operation to the TECU etc.) .

INFORMATION

When changing from an active machine function, functions that are running may be automatically shut-down on some machines. Please consult the operating instructions for the trailer device.

4.1.3 Acknowledge key

The ***ACK*** key can be used to confirm error messages.

4.1.4 Function Stop switch

If the "Function Stop" pushbutton on the ***terminal*** is pressed a Stop command is sent to the ISOBUS. This command can be evaluated by a connected ISOBUS machine, to enable automatic measures to be initiated in a hazardous situation if required.

CAUTION

Check if Function Stop is supported

At this moment in time, not all ISOBUS machines support this function.

- Please consult the operating instructions for the trailer device (see Chapter 2.4)

4.1.5 Touch screen

For menu navigation and comfortable entry of values and text the operating unit has been equipped with a premium-quality touch screen, which enables functions to be called up or values entered straight away on the screen.

4.1.6 Scroll wheel

The scroll wheel is used for immediate, fast entry of specified values as well as for navigation through list elements.

Turning the scroll wheel to the right

- increases the value in an input dialog box for numerical values,
- changes to the next element in a list.

Turning the scroll wheel to the left

- reduces the value in an input dialog box for numerical values,
- changes to the preceding element in a list.

Pressing the scroll wheel

- accepts the altered value into an input dialog box,
- selects a marked list element.

4.1.7 ESC key

Pressing the ***ESC*** key enables entries or functions to be cancelled. If entries are cancelled, the changes that had been made are not accepted, i.e. the previously valid value is retained.

INFORMATION

The ESC key can always be used when the control panel in the display has an active ESC button that can be operated on the touch screen. The function of the key and the button is identical here.

4.1.8 Soft keys

Located at the right and left next to the display are six soft keys (F1-F12).
Pressing a soft key executes the function immediately next to the key in the display.

A key mounted on the rear enables the assignment of the soft keys to be changed from the left to the rear side or from the right to the left side.
This, in turn means that the device can be operated with one handt.

4.1.9 Creating a screen shot

A picture (often) says more than a thousand words. To assist our Service staff you can make a screen shot of the operating interface visible on the display when a USB stick is inserted by using the key combination "Freely assignable key" + "WorkingSet key".

The image is then automatically saved as a Bitmap file on the USB stick.

5 ENTERING VALUES

For both the configuration and use of the terminal as well as the connected ISO-BUS machines require values to be entered, edited or selected.

Any value change/selection is made though so-called input dialog boxes. These dialog boxes are shown through currently active ***control screen***. Once the changes have been made the input dialog box is closed and you will return to the ***control screen***.

INFORMATION	
	The OK button is used to accept the newly set specified value in the input dialog boxes, i.e. the previous value is overwritten. Alternatively, the new value can also be accepted by pressing the scroll wheel.

INFORMATION	
	The ESC button can also be used to cancel any actions in all the input dialog boxes, i.e. the previous value is then retained. Alternatively, the action can also be cancelled using the ESC key on the keypad.

5.1 Input dialog box for numerical values

If a numerical value is selected in a ***control screen***, then this input dialog box appears.

There are 3 display forms for the input dialog box for numerical values, which by pressing the button enables a change to be made between the OK and ESC buttons.

Proceed as follows to change a numerical value:

1. Choose the value to be changed in the control screen.
   To do so, simply press the value in the touch screen
   - or -
   turn the scroll wheel until the value turns white and then push the scroll wheel.
2. The input dialog box is opened.
3. Enter the new specified value .
   The entry method depends on the display form.
4. You can exit the input dialog box by pressing either OK or ESC.

5.1.1 Numeric keypad

Figure 7: Entering numerical values using the numerical keypad

Enter the new value directly using the keypad

- or -

change the value by turning the scroll wheel.

5.1.2 Scroll wheel

Figure 8: Entering numerical values using the scroll wheel

Change the value by turning the scroll wheel.

5.1.3 Making entries with the slide control

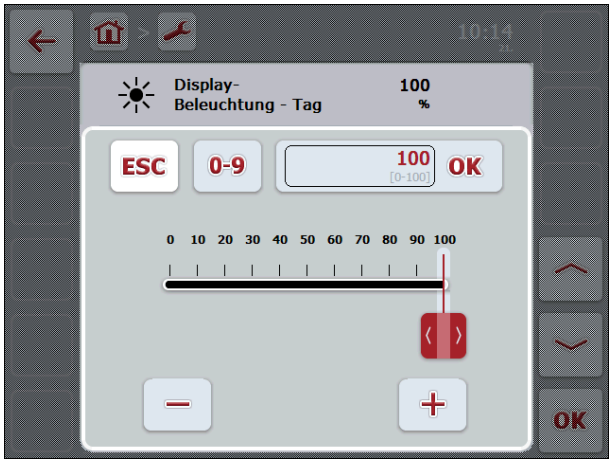


Figure 9: Entering numerical values using the slide control

Pull the slide control until the desired value is set - or change the value by repeatedly pressing the [+] or [-] buttons or change the value by turning the scroll wheel.

INFORMATION

The terminal remembers the last display form used. The next time the input dialog box is called up for numerical values this is then immediately chosen as the display form.

INFORMATION

If a value is entered that is outside the valid value range, then the input field is highlighted in red. Please change the value accordingly.

5.2 Input dialog box for boolean values

If a value is selected in the ***control screen***, which can only accept a true/false, on/off, yes/no, etc. value then this input dialog box appears.

Proceed as follows to change a boolean value:

1. Choose the value to be changed in the control screen.
   To do so, simply press the value in the touch screen
   - or -
   turn the scroll wheel until the value turns white and then push the scroll wheel.
2. The input dialog box is opened.
3. Change the value by pressing
   - or -
   you can change the value by pressing the scroll wheel.
4. You can exit the input dialog box by pressing either OK or ESC.

Figure 10: Input dialog box for boolean values

5.3 Input dialog box for list selection

If a value is selected in the ***control screen***, which can only accept a series of specified values then this list selection input dialog box appears.

Proceed as follows to select a specified value from a list:

1. Choose the value to be changed in the control screen.
   To do so, simply press the value in the touch screen
   - or -
   turn the scroll wheel until the value turns white and then push the scroll wheel.
2. The list selection input dialog box is opened.
3. Select the new value from the list by turning the scroll wheel
   - or -
   Pull the scroll bar on the right side of the list up or down until the required list value is reached.
   Select the desired entry by pressing on the touch screen.
4. You can exit the input dialog box by pressing either OK or ESC.

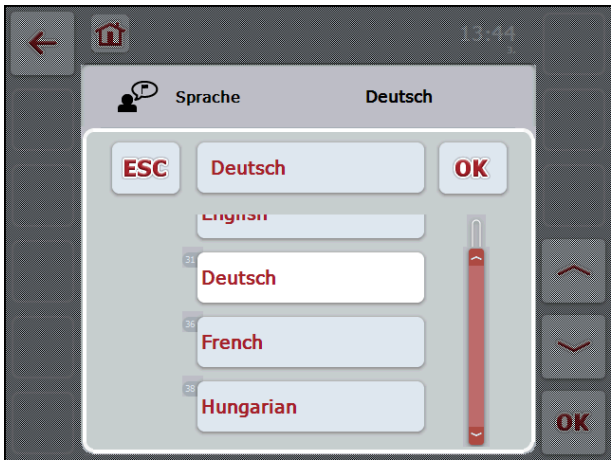


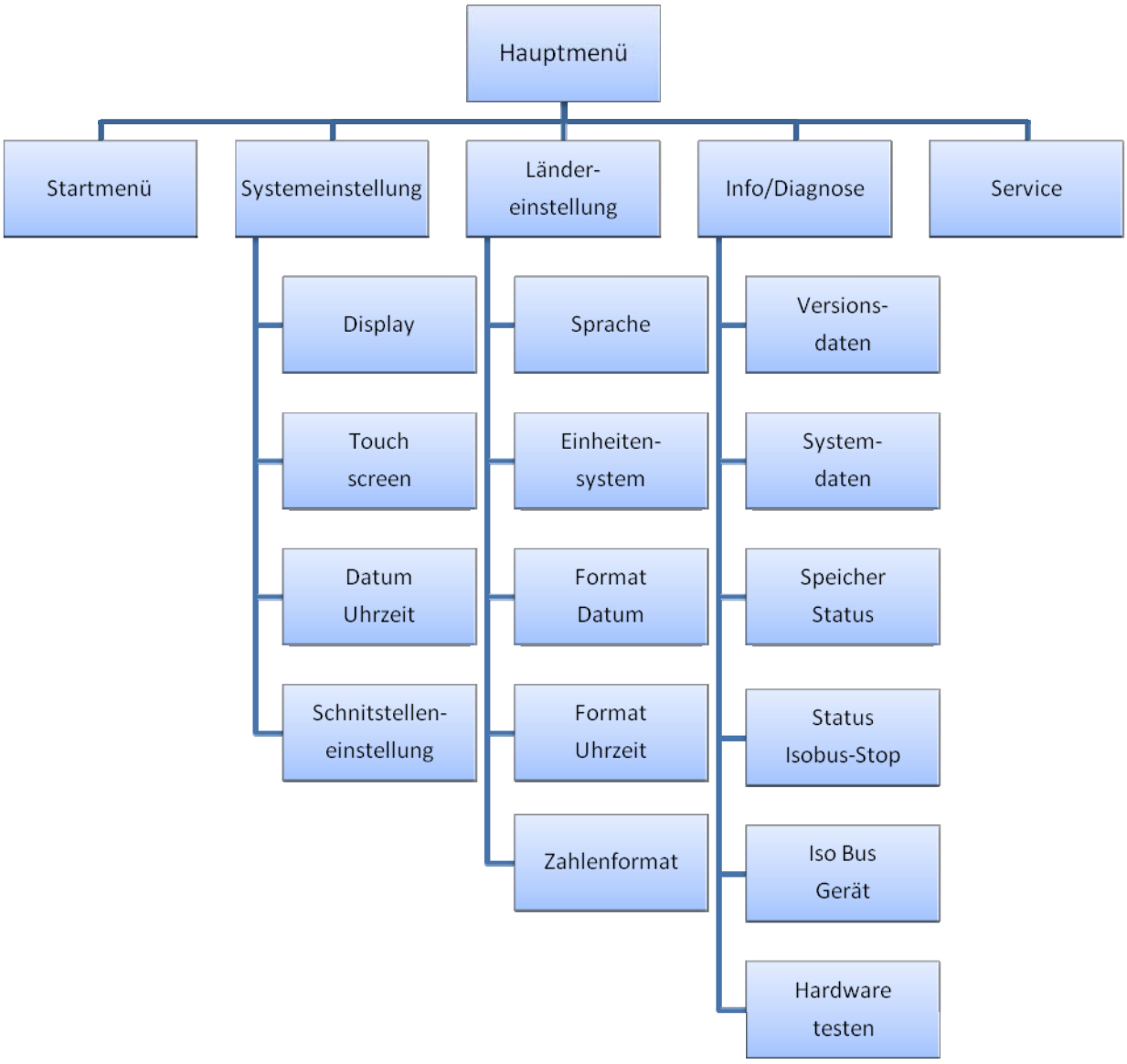
Figure 11: Input dialog box for list selection

6 MENU STRUCTURE

The basic device settings are made in the menu tree which can be accessed through the main menu. For a better overview the available menu items are shows as follows in a tree form.

The various settings are looked at in more detail in the following chapters.

6.1 Graphical overview



6.2 Main menu

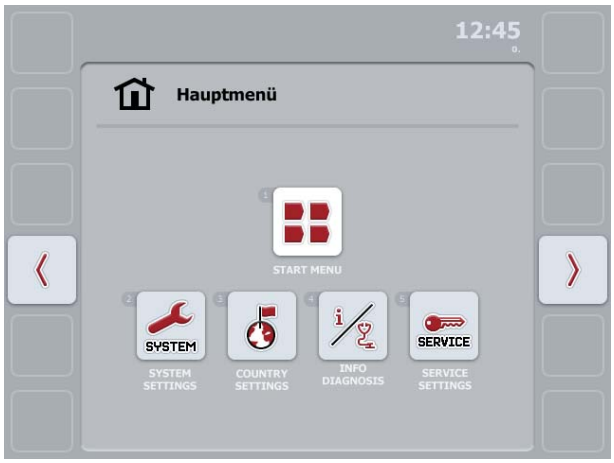


Figure 12: Main menu

In the **Main menu** you have direct access to the five submenus

- Start
- System settings
- Country settings
- Information/Diagnosis
- Service settings.

6.2.1 Start menu

All the active applications can be accessed from the **Start menu**. This includes the applications installed on the application (e.g. tractor ECU) and the operating images for the connected ISOBUS machines.
After selecting the required application it is then activated, i.e. shown on the screen.

6.2.2 System settings

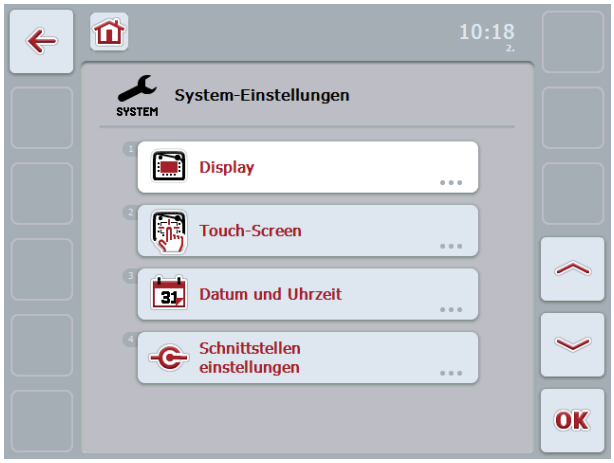


Figure 13: System settings

The **System settings** menu can be used to adapt the terminal to suit your individual requirements.

6.2.2.1Display

The **Display** menu item opens a submenu with the following entries:

6.2.2.1.1 Display lighting/Day

Set the display brightness level for working through the day. The value can be adjusted in a range from 0% … 100% with an increment of 10%. Changes take effect after exiting the input dialog box.

6.2.2.1.2 Display lighting/Night

Set the display brightness level for working through the night. The value can be adjusted in a range from 0% … 100% with an increment of 10%. Changes take effect after exiting the input dialog box.

6.2.2.1.3 Keyboard lighting

Set the on/off switching point for the touch-sensitive keyboard. The reference size is the value provided by the daylight sensor.
The lighting is activated when the selected value is exceeded or deactivated when the selected value is dropped below. The value can be adjusted in a range from 0% … 100% with an increment of 10%.

6.2.2.2Touch screen

The **Touch screen** menu item opens a submenu with the following entries:

6.2.2.2.1 Signal generator

Switch the signal generator on or off.
When the signal generator is off the acoustic feedback is suppressed when a key is pressed on the keypad or a button on the control screen.

6.2.2.2.2 Volume

Set the required volume for the signal generator.
The value can be adjusted in a range from 30% … 100%.

6.2.2.2.3 Touch screen calibration

Calibrate the touch screen by selecting the five crosses shown on the screen in succession as close to the centre as possible. To complete the calibration process and to accept the determined values touch a point of your own choosing on the screen.

INFORMATION

Normally the calibration is not required and it should only be performed if there are problems with touch screen operation.

6.2.2.3Date/Time

The **Date/Time** menu item can be used to set the date and the time. A submenu opens with the following entries:

6.2.2.3.1 Year

Set the current year.

In each case enter 4 digits, in other words, e.g. "2010", not "10".

6.2.2.3.2 Month

Set the current month. Enter a number between 1 and 12.

6.2.2.3.3 Day

Set the current day. Enter a number between 1 and 31.

6.2.2.3.4 Hour

Set the current hour. Enter the time irrespective of the set format (12h or 24h format) always in 24h format.

6.2.2.3.5 Minutes

Set the minutes. Enter a number between 0 and 59.

6.2.2.4Interface settings

The **Interface settings** menu item can be used to configure the physical interfaces. At the time of printing this document only the Ethernet interface can be configured.

6.2.2.4.1 LAN

INFORMATION

The settings described below are only of any interest when the terminal is operated in a network, and therefore they normally do not need to be made.
Consult your network administrator to make the settings.

Enter the correct network parameters as provided by your administrator:

- DHCP
- IP address
- Subnet mask
- Gateway
- DNS server
- WINS server

6.2.3 Country settings

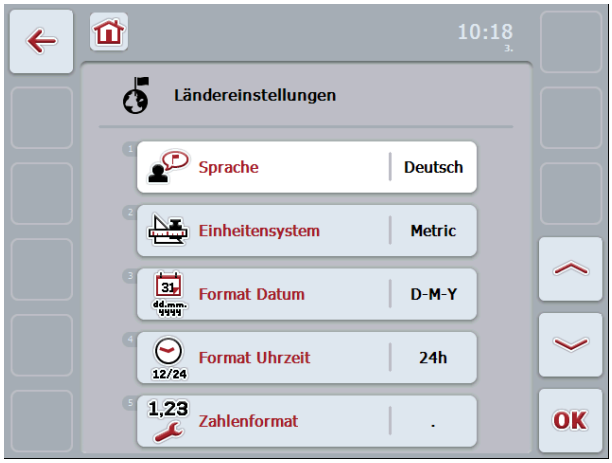


Figure 14: Country settings

The **Country settings** menu item can be used to make all country and language-specific settings for the terminal.

6.2.3.1Language

The ***terminal*** for this printed version currently supports the following languages:

– German,

- English,
- French,
- Hungarian.

Software updates enable this selection to be extended, if required. In cases of doubt, you can open the selection list by pressing the Language button; all installed languages are then displayed. Now you can choose the required language.

6.2.3.2Unit system

The ***terminal*** supports the following unit systems:

- Metric,
- Imperial,
- US.

6.2.3.3Date format

Set the required date format.

- mmddyyyy,
- ddmmyyyy,
- yyyymmdd.

INFORMATION

This setting only affects the date information transferred from the terminal to the ISOBUS.

6.2.3.4Time format

Set whether the time is to be managed and displayed in 24h format, in other words from 0-23 hours, or in 12h format, i.e. 1-12 a.m./p.m.

- **12h,**
- **24h.**

INFORMATION

This setting only affects the time information transferred from the terminal to the ISOBUS.

6.2.3.5Number format

Select the required method of displaying the decimal point

- . or
- ,

6.2.4 Information/Diagnosis

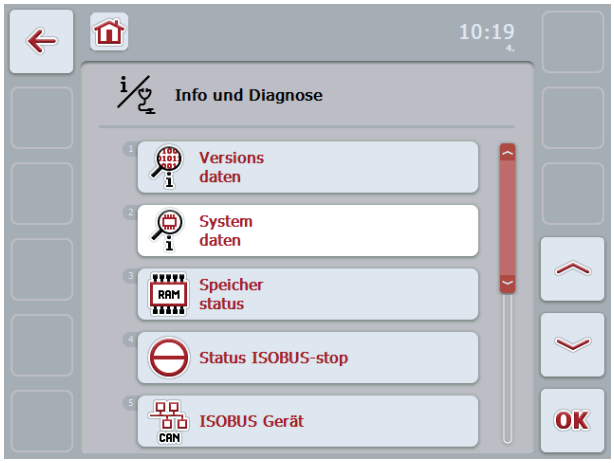


Figure 15: Information and diagnosis

In the **Information and diagnosis** menu you can check the function and status of some of the ***terminal***'s hardware and software components. You can also call up basic information on the devices connected to the ISOBUS.

INFORMATION

This menu is used for information on both the test and the hardware.

6.2.4.1Version data

Change from the **Information and diagnosis** menu into the submenu called **Version data**.

The following information is then shown in the display:

- Terminal firmware version (ANEDO System)
- Operating system
- Version of all software plug-ins

Acknowledge the message with OK and return to the menu.

6.2.4.2System data

Change from the **Information and diagnosis** menu into the submenu called **System data**.

The following information is then shown in the display

- Device type (CCI 100 or CCI 200),
- Serial number,
- Terminal date of manufacture,
- General information on hardware.

Acknowledge the message with OK and return to the menu.

6.2.4.3Memory status

Change from the **Information and diagnosis** menu into the submenu called **Memory status**.

The following information is then shown in the display for the main memory (RAM) and the memory (Flash):

- Total available memory capacity,
- used memory capacity and
- free memory space.

Acknowledge the message with OK and return to the menu.

6.2.4.4Function Stop status

Change from the **Information and diagnosis** menu into the submenu called **Function Stop status**.

The correct function of the Function Stop switch can be checked here:

1. Press the switch until it locks.
   "On" is shown in the display.
2. Release the switch.
   "Off" is shown in the display.

6.2.4.5ISOBUS device

Change from the **Information and diagnosis** menu into the submenu called **ISOBUS device**.

The display shows all the machines connected to the ***terminal*** as well as all other active bus users.

You can acknowledge the message with OK and return to the menu.

6.2.4.6Test hardware

The **Test hardware** menu enables you to check the functionality of the display and the controls. A submenu opens with the following entries:

6.2.4.6.1 Test keys

You can check the correct functionality of the following keys on the control panel:

- F1-F12
- ESC
- Scroll wheel
- ACK
- Backspace key

6.2.4.6.2 Display test

A coloured circle is shown. Use the arrow key (F7) to return to the menu.

6.2.4.6.3 Touch test

Five empty check boxes are shown on the display. A tick should be set in each individual button.

Return to the menu using the arrow key (F7).

6.2.4.6.4 Light sensor test

Cover up the daylight sensor. The value shown on the display changes in a range from 0…100%.

Use the arrow key (F7) to return to the menu after the test.

6.2.4.6.5 Audio test

Press the "Test" button (F12). A signal generator test runs automatically; it runs through the frequency spectrum for 3 seconds.

6.2.5 Service

The **Service** menu item is protected by a password known to the manufacturer or the sales and service partner only. Access to this menu and its submenus is restricted to Service staff only.

7 TECHNICAL DATA

7.1 Mechanical values

Dimensions (WxHxD) [mm]	250 x 240 x 75
Type of housing	Multiple-shell PC-ABS plastic housing
Fastening	80mm x 80mm flange plate with 4 x M5 threaded bushing at hole spacing of 60 mm x 60 mm
Operating temperature [°C]	-20 to +70
Moisture resistance [%]	95, (+25 °C…50 °C)

7.2 Electronics

Rated voltage [V] ***permissible range [V]***	12 and 24 *9…30*
Power consumption (with 13.5V)	1.1A-1.5A
Reverse-polarity protection	available
Display	8.4" TFT
Display resolution [px]	640 x 480

7.3 CCI 100 interfaces

CAN1–IN	CAN 2.0B, ISO 11898-1 M 12x1; 8-pin plug
CAN1–OUT	CAN 2.0B, ISO 11898-1 M 12x1; 8-pin socket
LIN–OUT	LIN-BUS Master M 8x1; 4-pin socket
RS232-1	Asynchronous to 115 Kbps M 8x1; 4-pin plug
RS232-2	Asynchronous to 115 Kbps M 8x1; 4-pin plug
Signal	Signal socket ISO 11786 M 12x1; 5-pin socket
Video	NTSC, SECAM, signal 1 Vpp / 50
USB	USB Host 2.0

CCI 200 interfaces

As for CCI 100 plus:

Ethernet	10/100 Base-T, IEC 61076-2-101
CAN1–IN	CAN 2.0B, ISO 11898-1 M 12x1; 8-pin plug
Bluetooth	Bluetooth Spec. v2.0 + EDR Compliant Class 2 Output Power, internal aerial
WLAN	54 Mbps, 2.4 GHz, IEEE 802.11b and 802.11g, WPA, WPA2, 802.1x and 802.11i, function at 0 °C-65 °C only

8 GLOSSARY

ACK	Acknowledge
Control screen	The values and controls shown on the monitor make up the total control screen. The touch screen can be used to directly select the displayed elements.
CCI	Competence Centre ISOBUS e.V.
Implement	Add-on or trailer machine
Incremental sensor	Scroll wheel
TC	Task Controller
Terminal	CCI 100 or CCI 200 ISOBUS terminal *or* existing terminal

9 LIST OF FIGURES