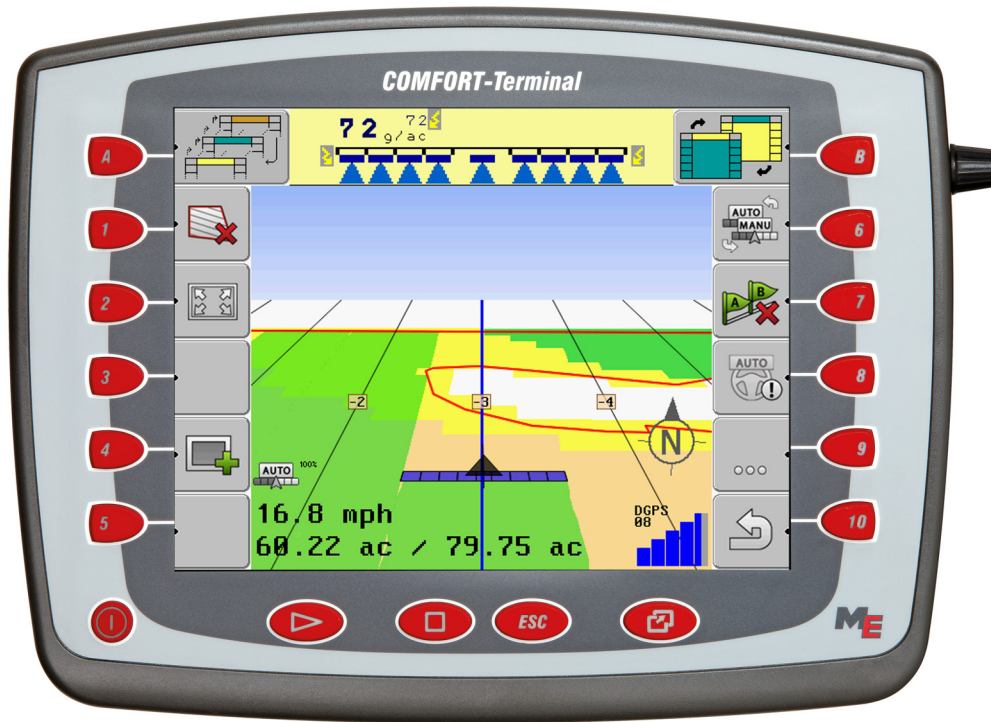# Installation and operating instructions

COMFORT-Terminal

Read and follow these operating instructions.

Keep these operating instructions in a safe place for later reference.

Imprint

Contents

1 For your safety

1.1 Basic safety instructions

Please read the following safety instructions carefully before operating the product for the first time.

- Before maintenance or repair to the tractor, always disconnect the connection between the tractor and the terminal.
- Before charging the tractor battery, always disconnect the connection between the tractor and the terminal.
- Before welding to the tractor or an attached device, always disconnect the power supply to the terminal.
- Do not make any unauthorized modifications to the product. Unauthorized modifications or use may impair safety and reduce the service life or operability of the unit. Modifications are considered unauthorized if they are not described in the product documentation.
- Follow all recognised safety, industrial and medical rules as well as all road traffic laws.

1.2 Layout and meaning of warnings

All safety instructions found in these Operating Instructions are composed in accordance with the following pattern:

⚠	⚠ **WARNING**
	This signal word identifies medium-risk hazards, which could potentially cause death or serious bodily injury, if not avoided.

⚠	⚠ **CAUTION**
	This signal word identifies low-risk hazards, which could potentially cause minor or moderate bodily injury or damage to property, if not avoided.

NOTICE
This signal word identifies actions which could lead to operational malfunctions if performed incorrectly. These actions require that you operate in a precise and cautious manner in order to produce optimum work results.

There are some actions that need to be performed in several steps. If there is a risk involved in carrying out any of these steps, a safety warning will appear in the instructions themselves.

Safety instructions always directly precede the step involving risk and can be identified by their bold font type and a signal word.

Example

1. **NOTICE! This is a notice. It warns that there is a risk involved in the next step.**
2. Step involving risk.

1.3 User requirements

- Learn how to operate the terminal correctly. The terminal must not be operated by anyone who has not read the Operating Instructions.
- Please read and carefully observe all safety instructions and warnings contained in these Operating Instructions and in the manuals of any connected machines and farm equipment.

1.4 Intended use

The terminal is intended exclusively for use in agriculture as well as in wine-growing, fruit-cultivating, and hop-growing operations. The manufacturer cannot be held responsible for any installation or use of the terminal that deviates from or exceeds the scope of intended use.

The manufacturer cannot be held liable for any personal injury or property damage resulting from such improper use. All risks involved in engaging in improper usage, lie solely with the user.

Intended use also includes the adherence to the conditions for operation and repairs prescribed by the manufacturer.

The manufacturer cannot be held liable for any personal injury or property damage resulting from such non-observance. All risk involved during improper use lies with the user.

All applicable accident prevention regulations and all other generally recognized safety, industrial, and medical rules as well as all road traffic laws must be observed. Any unauthorized modifications made to the unit will void the manufacturer's warranty.

1.5 EC declaration of conformity

This product has been manufactured in conformity with the following national and harmonised standards as specified in the current EMC Directive 2004/108/EC:

- EN ISO 14982

2 About these Operating Instructions

2.1 Applicability

These Operating Instructions apply to the following terminals:

- Terminals from hardware version 3.0.0
- Software from version 3.90 of the "Service" application

2.2 Target group of these Operating Instructions

These Operating Instructions are intended for personnel entrusted with installing and operating the terminal.

2.3 Layout of operating instructions

The operating instructions explain step by step how you can perform certain operations with the product.

We use the following symbols throughout these Operating Instructions to identify different operating instructions:

Type of depiction	Meaning
1. **2.**	Actions that must be performed in succession.
⇨	Result of the action. This will happen when you perform an action.
⇨	Result of an operating instruction. This will happen when you have completed all steps.
☑	Requirements. In the event that any requirements have been specified, these must be met before an action can be performed.

2.4 Layout of references

If any references are given in these Operating Instructions, they will appear thus:

Example of a reference: [➜ 9]

References can be identified by their square brackets and an arrow. The number following the arrow shows you on what page the chapter starts where you can find further information.

3 Product description

3.1 Performance description

Hardware
The terminal is available in two hardware versions:

- With GSM modem and with camera connections

  – Complete functionality:

  – It is the prerequisite for work with the FarmPilot portal;

  – On the rear side you can find two camera connections and one connection for the GSM antenna.

- Without GSM modem and without camera connections

You can find out the terminal version you have on the connections on the terminal rear side. [➜ 14]

Software
All applications of Müller-Elektronik available are installed on the terminal. But first you must activate some of them.

See also: Activating licenses for full versions of the software [➜ 34]

The following applications are activated:
- SERVICE – this application configures the terminal.
- TaskManager – this is the certified ISOBUS Taskcontroller from Müller-Elektronik. In this application you can use the terminal for processing all tasks previously planned on the PC.
- ISO11783 VT – Interface for controlling the ISOBUS job computers. The terminal is compliant with ISOBUS standard ISO 11783. This terminal can be used as the control unit independently of the manufacturer as an independent terminal on all machines that meet the requirements of this ISOBUS standard.

You can test the following application for 50 hours free of charge:
- TRACK-Leader – a modern system enabling the driver of an agricultural vehicle keep exact parallel lanes on the field.
- SECTION-Control – automatic boom section switching. Additional module for TRACK-Leader.
- HEADLAND-Control – with this application you can also drive in parallel around the field in headland. Additional module for TRACK-Leader.
- VARIABLE RATE-Cont. – with this application you can work with prescription maps saved as shp files. Additional module for TRACK-Leader.
- TRACK-Leader TOP – automatic steering. Additional module for TRACK-Leader.
- FIELD-Nav – this is the first navigation software that contains all navigable paths, takes movement restrictions into account and leads directly to the field or other agricultural destination.

3.2 Scope of delivery

The following items are included in delivery:
- Terminal
- Installation and Operating Instructions
- Bracket for mounting the terminal
- USB flash drive

3.3 System requirements

The following requirements must be met for the tractor to be used in conjunction with the terminal:
- The tractor must be ISOBUS-capable.

If your tractor is not ISOBUS-capable, you can upgrade it. Our staff will be glad to advise you on selecting compatible components.

Requirements for the Farm Management Information System:

In order to use the data from the "TaskManager" application with the Farm Management Information System:
- The Farm Management Information System must be ISO XML-capable.

System requirements for using the FarmPilot portal:

To use the FarmPilot portal, you will require a terminal with a built-in GSM modem.

The following terminals are currently equipped with a modem:
- BASIC-Terminal GSM item no.: 30322512
- BASIC-Terminal TOP GSM item no.: 30322522
- COMFORT-Terminal GSM item no.: 30322527

If you bought a terminal without a GSM modem, you can retrofit it with a GSM modem later. Please call our Customer Services department.

3.4 Correctly interpreting information on the nameplate

On the reverse of the terminal you will find a nameplate sticker. On this sticker you can find all the information you need to definitively identify the product.

Have these details ready when you contact Customer Services.

Nameplate on the reverse of the terminal

①	**Customer number** If the product was manufactured for an agricultural machinery manufacturer, the agricultural machinery manufacturer's item number will be shown here.	④	**Operating voltage** The product may only be connected to voltages within this range.
②	**Hardware version**	⑤	**Software version** If you update the software, this version will no longer be up-to-date.
③	**Müller-Elektronik item number**	⑥	**Serial number**

4 Mounting and installation

Mount the terminal and all additional components in the following order:

1. Mount the terminal in the tractor cab.

2. Connect the terminal to the basic equipment.

3. Connect the terminal to other components.

Refer to the following chapters to learn how to perform these steps.

4.1 Instructions on retrofitting

Instructions on how to retrofit electrical and electronic farm equipment and/or components

Agricultural equipment used today features electronic components and parts whose function can be affected by other farm equipment which emits electromagnetic waves. Such effects could lead to personnel being put in danger, if the following safety instructions are not adhered to.

Selecting components

When selecting components, make sure first of all, that the retrofitted electrical and electronic components comply with the current version of the EMC Directive 2004/108/EC and carry the CE marking.

User responsibility

When retrofitting a machine with electrical and electronic farm equipment and/or components connected to the vehicle's electrical system, it is your own responsibility to check whether the installation causes interference with the vehicle's electronic system or other components. This applies, in particular, to the electronic control of:

- EHR,
- front linkage,
- take-off shafts,
- engine,
- gear.

Additional requirements

The following requirements must be met in order to retrofit mobile communication systems (e.g. radio, phone):

- All farm equipment must be approved and installed in accordance with the regulations applicable in the respective country (e.g. in Germany, the Federal Approvals Office for Telecommunications (BZT)).
- The equipment must be installed as a fixed installation.
- The operation of portable or mobile farm equipment in the interior of the vehicle is only permitted via a connection to a permanently installed exterior antenna.
- The transmitting part must be spatially separated from the vehicle's electronic system.
- When attaching the antenna, pay attention to proper installation, including a sound ground connection between the antenna and the vehicle's ground wire.

For information on wiring and installation as well as the maximum allowable current consumption, please also refer to the installation guide provided by the machine manufacturer.

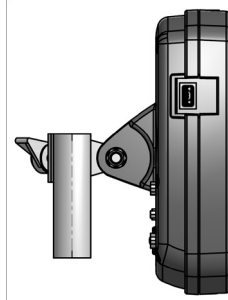## 4.2   Mounting the terminal in the tractor cab

NOTICE
Electromagnetic interference The operation of the terminal may be impaired by electromagnetic waves emitted by other farm equipment. ◦   Mount the terminal at least 1 m away from the radio antenna or from a radio device.

Procedure   1. Screw the bracket to the terminal.

2. Mount the terminal with the bracket installed inside the tractor cab.
    For instance, you can use the ME base console for this purpose.
    The base console is not included in the terminal delivery. It belongs to the delivery scope of ISOBUS basic equipment.
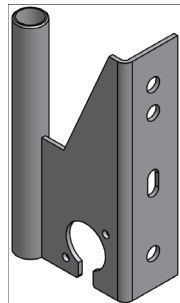
Base console

4.2.1   Screwing on the GSM antenna

The GSM antenna transmits information to the FarmPilot portal via a mobile phone network.

Procedure   1. **NOTICE! There is a very sensitive contact pin in the center of the GSM antenna. Make sure not to damage the contact pin when screwing on the GSM antenna.**

2. Screw the GSM antenna on the rear side of the terminal.

4.2.2 Terminal ports

Rear of the terminal. Version with a GSM modem and camera connections

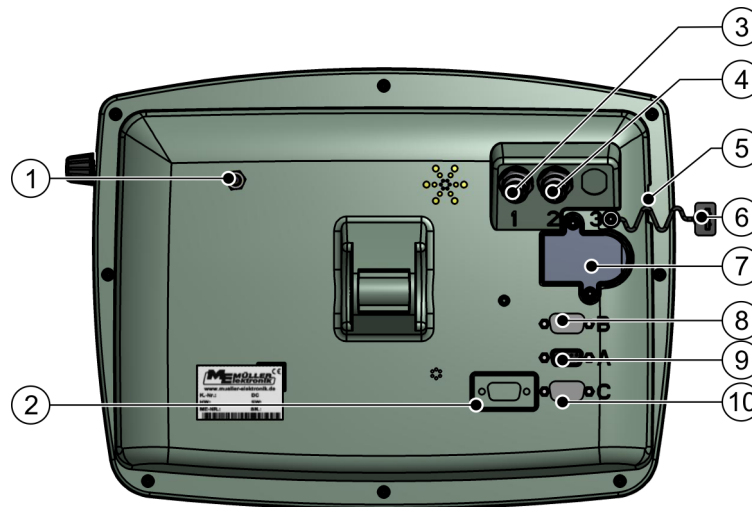|			
①	**GSM antenna port** Only for terminals with a GSM modem installed.	⑥	**Covering cap for USB port** Prevents dust from entering the USB socket.
②	Not currently in use	⑦	**SIM card slot**
③	**Port for analog camera** Only for terminals with a GSM modem installed. Item no. 30322527	⑧	**Port B** CAN bus port For connection of a working position sensor for TRACK-Leader II.
④	**Port for analog camera** Only for terminals with a GSM modem installed.	⑨	**Port A** CAN bus port To connect the ISOBUS basic equipment.
⑤	**USB port** USB 1.1	⑩	**Port C** Serial port RS232

4.3 SIM card

The terminal must be equipped with a SIM card so that you can use the FarmPilot portal. If you do not intend to use the FarmPilot portal, you will not need any SIM card.

Which SIM card?
You must purchase the SIM card from your mobile phone provider.

Select a mobile phone provider that can guarantee good mobile phone reception on your fields. A good connection is required in order for your work with the FarmPilot portal to run smoothly.

The SIM card must meet the following requirements:
- It must be GPRS-capable.
- It must be PIN-free. Inform your mobile phone provider about this requirement before purchasing the SIM card.
- The contract must enable data transfer.

4.3.1   Inserting the SIM card

Required tool
- Torx TX10 screwdriver

Procedure
1. Switch off the terminal and disconnect all cable connections to other equipment.

2. Unscrew the SIM card cover on the reverse of the terminal. Use a Torx TX10 screwdriver.

3. Press latch release with finger nail.
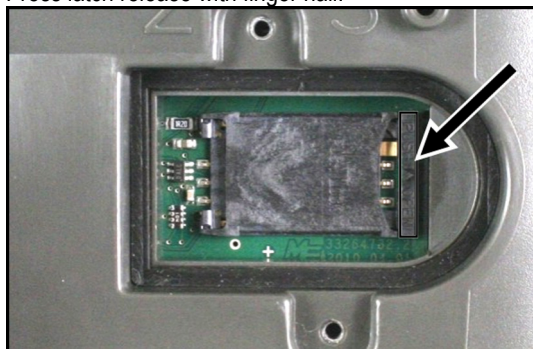
⇨ Card holder will be unlatched:

4. Raise the card holder. The card holder can be raised on the right hand side where the casing is rounded. The card holder is held in place by hinges on the other side.

5. Slide the SIM card into the card holder. Following installation, the chip on the card must be in contact with the circuit board. The card must be positioned as shown in the picture.
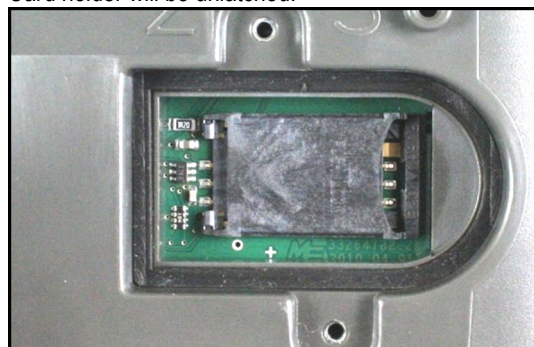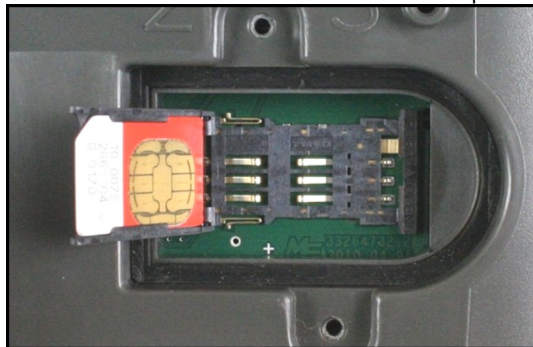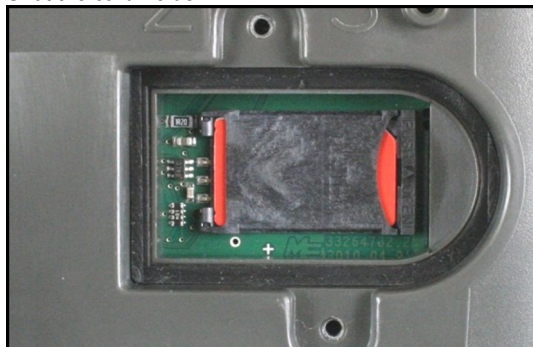

6. Shut the card holder.

7. Press the card holder lightly onto the circuit board, until it clicks into place on the right hand side.

8. **CAUTION! Tighten the screws, but not too tight, otherwise the cover might be damaged.**

9. Screw the cover back on. Make sure that the rubber seal is positioned between the cover and the casing.

4.4 GPS Receiver

The GPS Receiver gathers and transmits information about the position of the machine to the connected terminal.

Technical requirements for using the DGPS Receiver

Operating voltage:	Supply voltage of the terminal – 1.5 V
Current consumption	Maximum of 200 mA (at 70 °C) without any additional load from other appliances (the current consumption of the multifunctional grip and LightBar have already been taken into account in this specification.)
GPS standard	NMEA 0183
Refresh rates and signals	5 Hz (GPGGA, GPVTG)
	1 Hz (GPGSA, GPZDA)
Transmission rate	19200 baud

Data bits	8
Parity	no
Stop bits	1
Flow control	none

4.4.1 Connecting the GPS Receiver to the terminal

> ⚠ **CAUTION**
>
> **Damage to the equipment caused by short circuit**
> Pin 4 of port C is live. The voltage depends on the operating voltage of the terminal and is used to supply the DGPS Receiver A100 from Müller Elektronik.
> Other GPS Receivers may suffer damage if connected to this port.
> Before connecting a different GPS Receiver:
>
> ◦ Check what voltage the terminal is connected to (12 V or 24 V).
>
> ◦ Check the pin assignment of the GPS Receiver.
>
> ◦ Check the allowable voltage for the GPS Receiver.
>
> ◦ Compare the terminal voltage to the allowable voltage for the GPS Receiver.
>
> ◦ Compare the pin assignment.
>
> ◦ Only connect the GPS Receiver to the terminal, if the voltage range and pin assignment of both devices don't differ from each other.

The DGPS Receiver A100 has a status LED, which shows the quality of the connection:
- red: The DGPS Receiver is connected to the terminal, but has no GPS reception
- orange: GPS reception is working
- green: DGPS reception is working

During initial start-up it can take approx. 30 minutes until the GPS Receiver has reception. At subsequent start-ups it will only take approx. 1-2 minutes.

Procedure

☑ The GPS Receiver is mounted on the roof of the tractor.

1. ⏻ - Switch off the terminal.

2. Guide the connection cable from the GPS Receiver into the cab.

3. **CAUTION! Ensure that the cable is not laid across sharp edges or at risk of becoming bent. Lay the cable in a place where nobody can trip over it.**

4. Connect the connecting cable of the GPS Receiver to port C on the terminal.

4.4.2 Entering the position of the GPS Receiver

When you have mounted and connected the GPS Receiver, you must enter its exact position.

The position of the GPS Receiver is also referred to as the "GPS Receiver offset".

In order to enter an accurate position for the GPS Receiver, you must measure the distances of the GPS Receiver from the longitudinal axis and from the so-called attachment point [➜ 19].

When entering distances, please note that it is essential to specify whether the GPS Receiver is to the left or right of the tractor's longitudinal axis and whether it is positioned before or after the attachment point.

What is the position of the GPS Receiver?	The distance should be entered as follows
to the right of the longitudinal axis	y
to the left of the longitudinal axis	- y
before the attachment point	x
after the attachment point	- x

Procedure

1. Switch to the "Settings" screen:
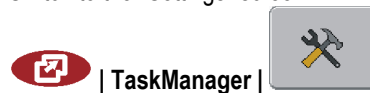
 | **TaskManager** |
   ⇨ The following screen will appear:

2. Measuring the position of the GPS Receiver. You will find out how to do this in the following subchapters.

3. Enter the distances measured in the fields "Offset X" and "Offset Y".

For machines fitted with an ISO jobcomputer

On the following illustration distances are marked, which must be measured for each different machine.
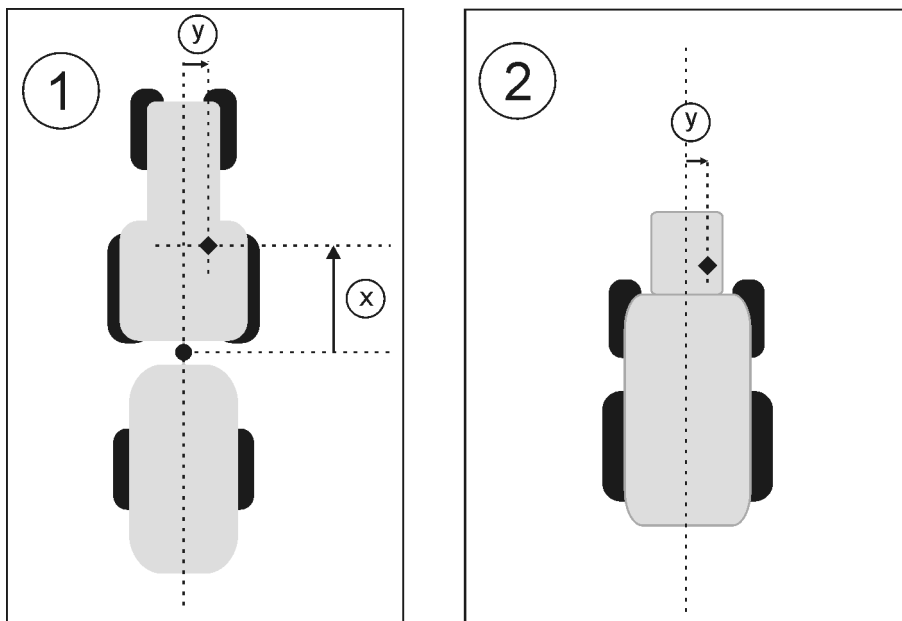
GPS Receiver offset with ISOBUS machines

●	Attachment point for attached and trailer equipment	◆	GPS Receiver
①	Attached and trailer equipment	②	Self-propelled machines
y	Distance between the longitudinal axis and the GPS Receiver for Offset Y	x	Distance for Offset X

Procedure

Thus you can calculate the distances for machines with attached and trailer equipment with an ISOBUS jobcomputer:

☑ The jobcomputer of the farm equipment in use is connected to the terminal

☑ In the jobcomputer the geometry of the farm equipment is configured.

1. Measure the distance between the attachment point of the attached and trailer equipment and the GPS Receiver.

2. Enter the distance measured as parameter "Offset X".

3. Measure the distance between the longitudinal axis of the machine and the GPS Receiver.

4. Enter the distance measured as parameter "Offset Y".

Procedure

Thus you can calculate the distances for self-propelled machines with an ISOBUS jobcomputer:

☑ The jobcomputer of the farm equipment in use is connected to the terminal

☑ In the jobcomputer the geometry of the farm equipment is configured.

1. Enter 0 cm as parameter "Offset X".

2. Measure the distance between the longitudinal axis of the machine and the GPS Receiver.

3. Enter the distance measured as parameter "Offset Y".

For machines not fitted with a jobcomputer

When you connect an agricultural device without an ISOBUS job computer to the tractor, you need to enter the position of the GPS receiver in the TRACK-Leader application. To do so, you have to create a machine profile.

You can read how to do this in the operating instructions to TRACK-Leader.

All data on the "GPS Receiver offset" screen will be ignored.

5 Basic control principles

5.1 Getting to grips with the controls

Terminal controls

①	**Rotary knob**	③	**Keys**
②	**Function keys**		

Controls

Rotary knob

The rotary knob is located in the top right hand corner of the terminal.

Control with the rotary knob may vary slightly between the different applications.

You can use the rotary knob to perform the following actions:

 Turning the rotary knob:
- Move the cursor up and down.
- Change a parameter value.

 Pressing the rotary knob:
- Click on the selected line.
- Activate parameter.
- Confirm input.

Function keys

Operating the function keys is the same across all applications.

 Performing the functions depicted on the display

Keys

 Switch the terminal on and off

 Has no function

	Has no function
ESC	Exit screen
	Cancel input
	Hide warning messages and alerts
	Open the "Selection menu" application
	Exit the "Selection menu" application

5.2 Initial start-up

Procedure

This is how you start the terminal for the first time:

☑ You have mounted and connected the terminal.

1. ① - Switch on the terminal.

2. Wait for approx. 15 seconds until all applications have been loaded.

3. ⊡ - Open the "Selection menu" application.
   ⇨ The following screen will appear:

   ⇨ You are now in the selection menu.
   ⇨ When the terminal is connected to an ISOBUS job computer, they will be now loaded. The progress of this process is indicated by the progress bar next to the job computer icon. The time taken to complete this process depends on the number of connected job computers.

4. Wait until all job computers have been loaded.

⇨ The following screen will appear:

The job computers are loaded when no more progress bars are displayed.

5. In the selection menu you can select which application you wish to display next.

6. - Select the "Service" line. The "Service" line must be framed by a black square:

7. - Click on the "Service" line.

⇨ The following screen will appear:
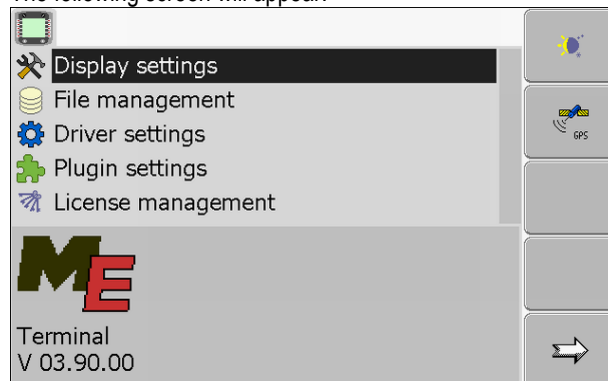
⇨ You have opened the "Service" application.

8. Configuring the terminal in the Service application [➜ 29]

5.3 Using the function keys

Whenever you use the function keys, you will activate the function depicted on the adjacent function icon.

|	⚠ **CAUTION**
⚠	**Danger of pressing the function keys without care** When pressing function keys, components of the connected machine can be moved or activated. As a result, people can be injured and property damaged. Before pressing a function key: ◦ Make sure you know what will happen when you press the function key. ◦ Consult the Operating Instructions of the connected machine or of the agricultural equipment to establish what dangers could arise from pressing that key. ◦ Fulfill all the measures described in the machine's Operating Instructions in order to avoid danger. ◦ Only press the function key when you are sure that no danger is posed to people or property.

When you press a function key, the function / operation depicted on the function icon will be performed.
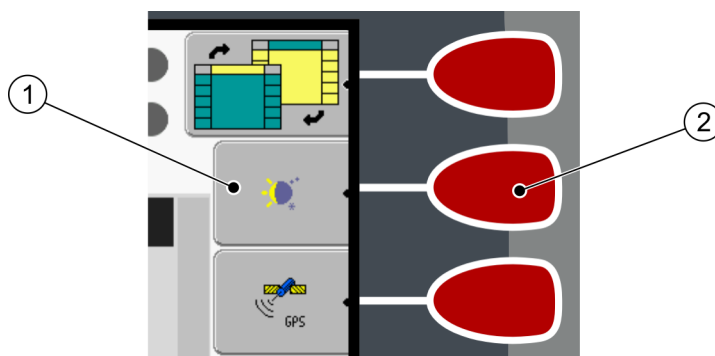
Using the function keys

①	**Function icon** Depiction of an available function.	②	**Function key** Performs the function depicted on the function icon.

Example

When you press the function key ②, the function depicted on the function icon ① will be activated.

If not function icon appears next to a function key, this means that this function key has no function at present.

5.4 Restarting the terminal

When restarting the terminal, you must give the connected jobcomputers enough time to restart as well. For this reason, always wait approx. 30 seconds after switching off the terminal before switching the terminal back on.

Procedure

1. ⊙ - Switch off the terminal.

2. Wait 30 seconds until the jobcomputers have also been switched off.

3. ⊙ - Switch on the terminal.
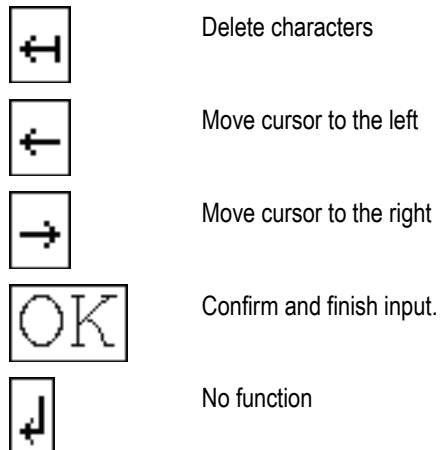
5.5 Inputting data

All data must be entered on the data input screen.


Data input screen

Controls

Below the characters, you will find 5 icons which will assist you when entering the data.

← (Delete icon)	Delete characters
←	Move cursor to the left
→	Move cursor to the right
OK	Confirm and finish input.
↵	No function

Procedure

This is how you enter the data:

☑ The data input screen has been opened:

1. - Select the desired character.

2. - Click on the selected character.

3. When all characters have been entered, select the "OK" symbol with the rotary button and click.

⇨ The input will be applied.

6 Opening applications in the selection menu

In the selection menu you can choose which application you wish to view on the display.

You can open the selection menu at any time. This will not close the application currently running.
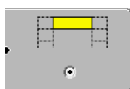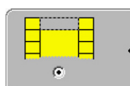
Controls

|	
	Open the selection menu
	Press again – open the most recently activated application
	Display the application in the header of the split display.
	Display the application in the main section of the display.

6.1 Display layout in the selection menu

The display is split into the following sections:
- Function icons – left and right
- Applications section – in the middle, between the function icons.
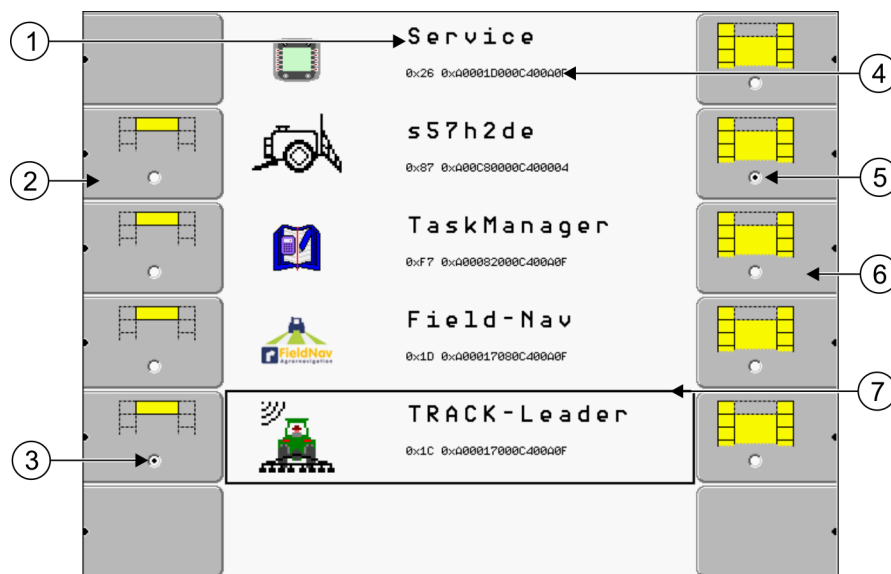
Sections in the selection menu

1	**Name of an application**	4	**ISO ID of the application** ISO name of the application
2	**Function icons on the left** Select an application which will later be displayed in the header.	5	**Selection** The selected application is displayed on the main display.
3	**Selection** The selected application is displayed in the header	6	**Function icons on the right** Open an application on the main display.
		7	**Cursor** Open the selected application using the rotary knob.

6.2 Opening applications

You can perform the following actions in the selection menu:

- Open an application.
- Display an application in the header of the split display.

Procedure

1. - Set which application is to be displayed in the header of the split display.

⇨ The function icon of the selected application is marked with a dot on the left hand side:

2. Start the application for the main display. There are several ways to do so:
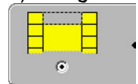
a) With the rotary knob:

- Select the desired application

- Open the selected application

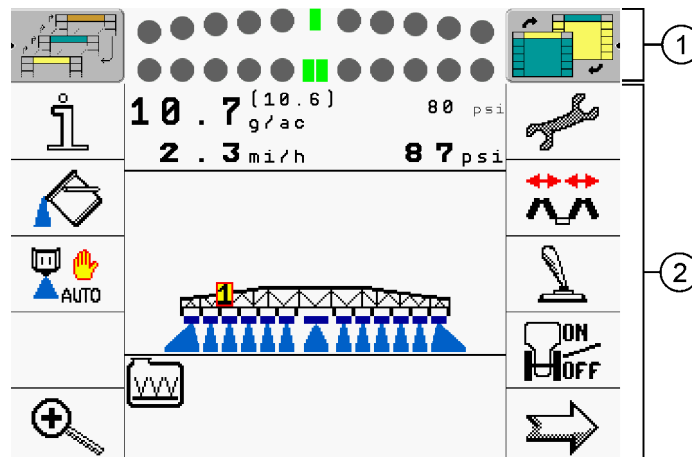b) Using the function keys on the right hand side:

- Display the application shown next to the function icon.

⇨ Both applications will appear on the display.

6.3 Segmentation of the display

The display of the terminal is split into two sections.

A different application is displayed in each section. This allows you, for example, to control the tractor on the field and monitor the field sprayer at the same time. This means that you will not need an additional terminal.
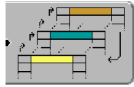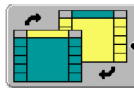
Segmentation of the display

①	**Header** – informative section. The header allows you to display information from an application.	②	**Main screen** – section used for control. The main display shows the application currently running, function icons and the information you need to control the application that is currently running.

In the selection menu you can see which applications can be run with the split display.

Controls

Function icon	Function
	Switch applications in the header section.
	Swap applications between the header section and the main section of the display.

7 Configuring the terminal in the Service application

In the "Service" application you can configure the terminal and activate the connected farm equipment.

Once you have launched the "Service" application, you will be shown the following screen:
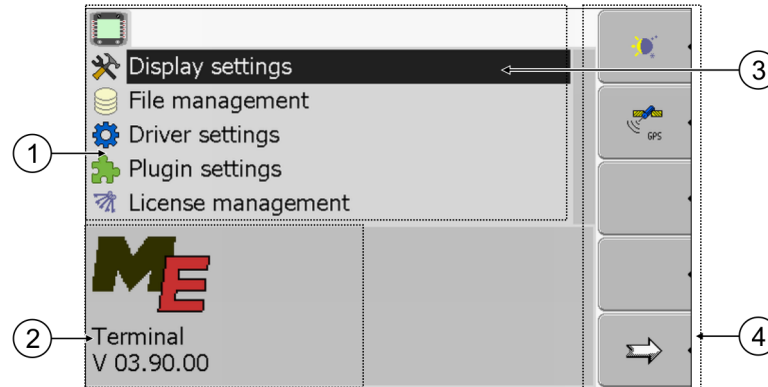
Start screen of the "Service" application

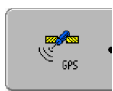| 1 | **Main section** Screen contents | 3 | **Cursor** Selects a line that can be clicked on with the rotary knob. |
| 2 | **Version number** Name of the terminal and version of the installed software | 4 | **Function icons section** Icons that can be pressed on this screen. |
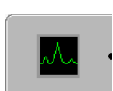
7.1 Controls in the Service application

The "Service" application is controlled using the rotary knob and the function keys.

Controls

Some of the function icons explained here will only appear if a specific function is activated. This limits the information shown on the display to just the information that you need for your work.

Function icon	Meaning	Appears only if...
	Scroll	There is one more page with function icons.
	Back	
	Activate day mode	
	Activate night mode	
	File cannot be deleted (grey)	Selected object cannot be deleted

Function icon	Meaning	Appears only if...
	Delete file (red)	Selected object can be deleted
	Configure GPS Receiver	GPS Receiver is activated
	Configure FarmPilot	FarmPilot portal is activated
	Open the Diagnostics screen	Diagnostics is activated
	Retrieve default values.	
	Display DGPS connection status	

7.2 Icons in the Service application

You will find the following icons in the Service application.

Icons

Function is activated

Function is deactivated

7.3 Changing the language

When you switch on the terminal for the first time, the text may appear in a foreign language (in German).

In this chapter you will learn how to change the language of the terminal.

Procedure

1. ⓞ - Switch on the terminal.

2. 🔳 - Press.

⇨ The following screen will appear:

3. ⬛ - Click on "Service".

⇨ The following screen will appear:
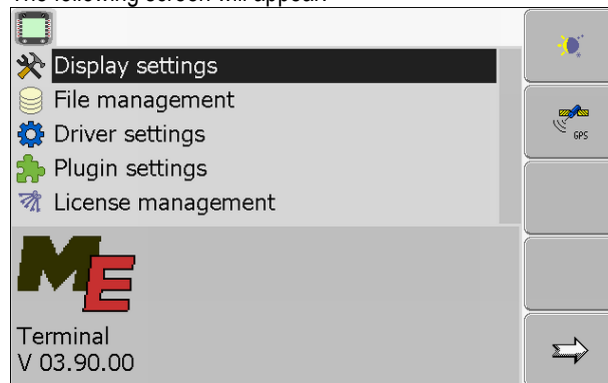
The texts on this screen may appear in a foreign language.

4. ⬛ - Click on "Terminal Einstellungen" ("Display settings").

5. ⬛ - Click on "Sprache" ("Language").

6. ⬛ - Select the abbreviation of your language.

7. ⬛ - Press.

⇨ The following message will appear: "Changes will be adopted after restart!"

8. ⬛ - Press.

⇨ The language in the "Service" application will be changed. Language will be changed in other application only after a terminal restart.

9. ⬛ - Restart terminal.

⇨ The language in other applications will be changed.

7.4 Adjusting the brightness for day or night mode

In this chapter you will learn how to adjust the brightness of the display for day or night mode.

Procedure

1. Open the "Service" application:

⬛ | **Service**

⇨ The following screen will appear:
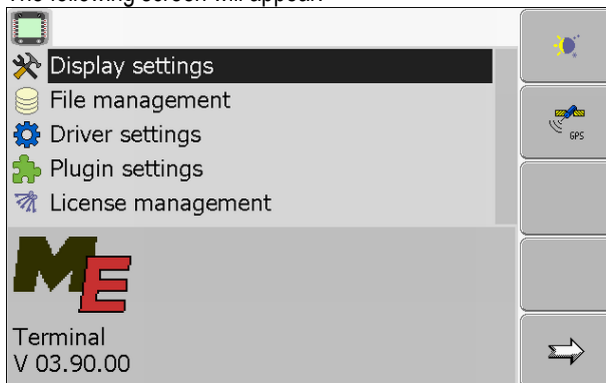
2. Change the operating mode.
Depending on which operating mode is currently active, you can use one of the function icons:

 – Activate day mode.

 – Activate night mode.

⇨ The brightness of the display will be adjusted immediately.

7.5 Configuring the basic display settings

The basic display settings can be adjusted on the "Display settings" screen.

Procedure
1. Switch to the "Display settings" screen:

 | **Service** | **Display settings**

⇨ The following screen will appear:
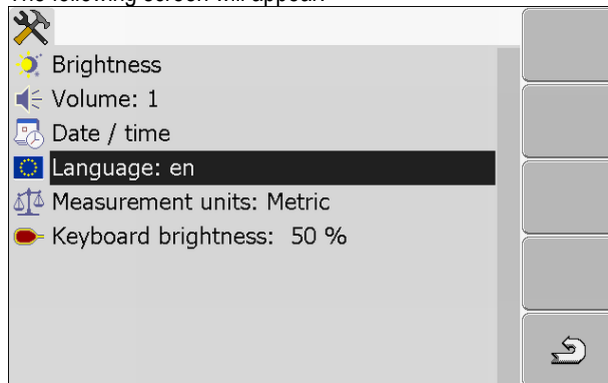
2. - Change the desired parameter.

List of parameters

Parameter	Sub-parameter	Meaning
Brightness	Day	Adjusting brightness for day mode
	Night	Adjusting brightness for night mode
	Night mode	Switching night mode on and off 0 = day mode is activated

Parameter	Sub-parameter	Meaning
		1 = night mode is activated
Volume		Adjust volume
Date / time	Date	Setting current date
	Time	Setting current time
	Time zone	0 = Time zone: Greenwich Mean Time (GMT) 1 = GMT +1 hour (Germany) -1 = GMT -1 hour
Language		Selecting language
Measurement units	Metric	Displays all units in metrical system
	Imperial	Displays all units in imperial system
	US	Displays all units in US system
Keyboard brightness		Setting the level of keyboard brightness in percent

7.6   Activating and deactivating applications

In the "Service" application you can activate and deactivate other applications that are installed on the terminal.

The applications are installed in packages, in so-called plugins. A plugin can contain several applications.

You can for example deactivate a plugin if you do not want to use it. Then the plugin will not be displayed in the selection menu.

Name of the plugin	Includes the following applications
TaskManager	TaskManager
TRACK-Leader	TRACK-Leader II SECTION-Control TRACK-Leader TOP HEADLAND-Control VARIABLE RATE-Control
FIELD-Nav	FIELD-Nav

Procedure

This is how you activate and deactivate plugins:

1. Switch to the "Plugin settings" screen:

    | Service | Plugin settings
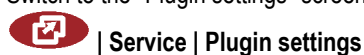
⇨ The following screen will appear:

2. [knob icon] - Click on the desired plugin.

⇨ The icon preceding the name of the plugin indicates whether the plugin is activated or deactivated.

3. [back button icon] - Exit screen.

⇨ The following notification will appear:

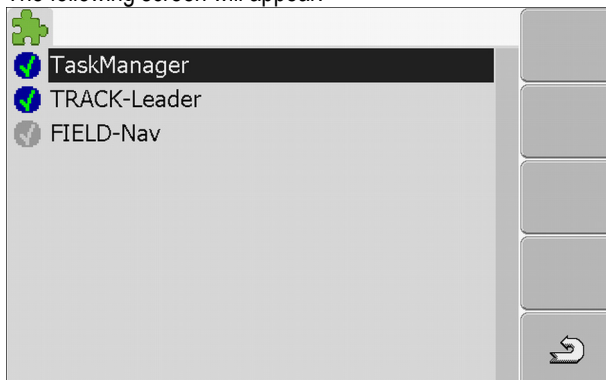"Changes will be adopted after restart!"

4. [knob icon] - Confirm.

5. [power icon] - Restart terminal.

⇨ All activated plugins will appear in the selection menu.

7.7 Activating licenses for full versions of the software

Several applications are pre-installed on the terminal, which you can use for trial purposes for up to 50 hours. [➜ 10] After this time has elapsed, they will be automatically deactivated. The amount of free usage time remaining is shown in brackets next to the name of the application.

To activate a license you will require an activation number, which you will receive on purchasing an application from Müller-Elektronik. If you request the activation number by phone or by email, you will be required to give our staff the following information:

- Code – Found under the name of the application on the "License management" screen.
- Serial number of the terminal – Found on the nameplate on the reverse of the terminal.
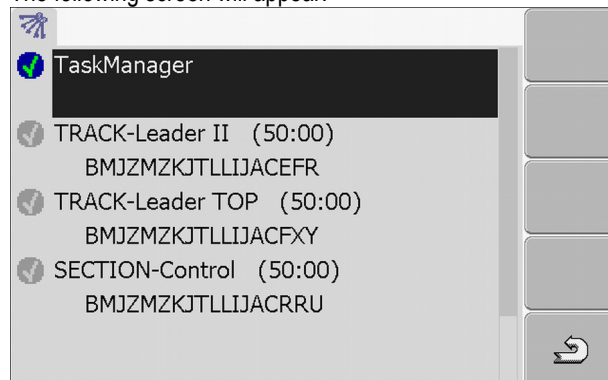- Item number of the terminal – Found on the nameplate on the reverse of the terminal.

Procedure   The activation number is entered as follows:
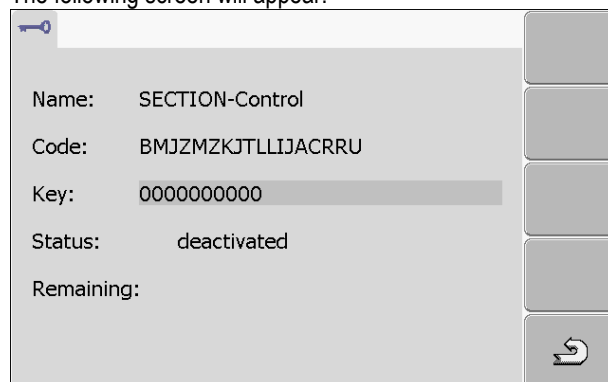
1. Switch to the "License management" screen:

[icon] | **Service** | **License management**

⇨ The following screen will appear:

2. Click on the desired application.

⇨ The following screen will appear:

3. Enter the activation number in the "Key" field. You will receive the activation number on purchasing a software licence.

4. Confirm

⇨ The following icon will appear next to the application on the "License management" screen:

⇨ The application is activated. You can use the application without any restrictions.

7.8 Deleting files from the USB flash drive

NOTICE
Potential loss of data!
Deleted files cannot be retrieved!
◦ Think very carefully about which file you wish to delete.

On the "File management" screen you can delete files from the USB flash drive.

The "File management" screen only displays files that are stored in either of the following two folders on the USB flash drive:

- Screencopy – contains all screenshots you have created
- Taskdata – contains all task data for the "TaskManager" application

Procedure

1. Switch to the "File management" screen:

   | **Service** | **File management**

⇨ The following screen will appear:

2. Click on "USB".
   ⇨ The "Screencopy" and "Taskdata" folders will appear.
   ⇨ If these folders fail to appear, it is because you did not create them on the USB flash drive.

3. Click on the desired folder.
   ⇨ The contents of the folder will be displayed.
     A folder may either contain files or further folders.
     If nothing is displayed, the folder is empty.

4. Select the files to be deleted.

5. – Delete file (red)

⇨ Deleting file.

7.9 Deleting pools

You can delete the pools to speed up the terminal's operation.

Pools are the intermediate storage for the terminal. Pools are used to temporarily store graphics or text. Over time, the pools will become too large and slow down the operation of the terminal.
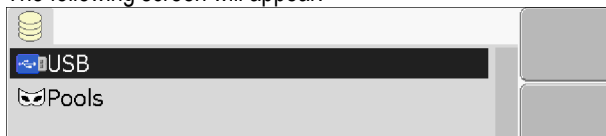
When to delete?
- After updating the software of a connected jobcomputer.
- If the terminal operates more slowly than usual.
- When asked to do so by Customer Services.

Procedure
1. Switch to the "File management" screen:

    | **Service | File management**
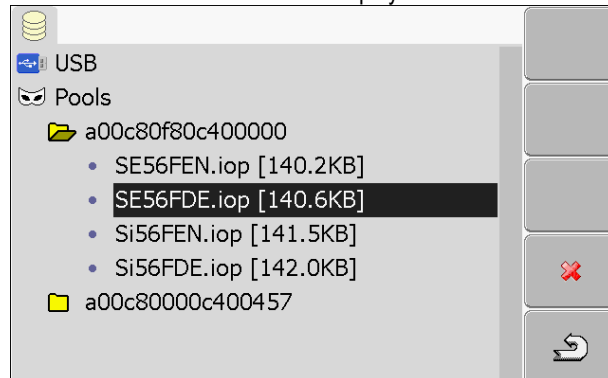   ⇨ The following screen will appear:

2. Click on "Pools".
   ⇨ The names of several folders will appear.
   ⇨ If the pool is empty, nothing will appear.

3. Click on the desired folder.

⇨ The contents of the folder will be displayed.

The names of the folders are the ISO IDs of the applications whose temporary data they store.

4. Select the desired file.

5. [icon] - Delete file.

⇨ Deleting file.

6. [icon] - Restart terminal.

7.10 GPS Receiver

When you connect a GPS Receiver to the terminal, you must activate and configure it.

7.10.1 Activating the GPS Receiver

In order to activate the GPS Receiver, you must first activate its driver.
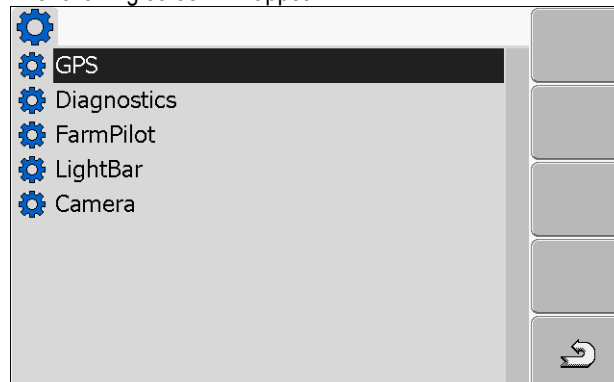
A driver is a small program that controls connected farm equipment. The drivers for the farm equipment supplied by Müller-Elektronik are pre-installed on the terminal.
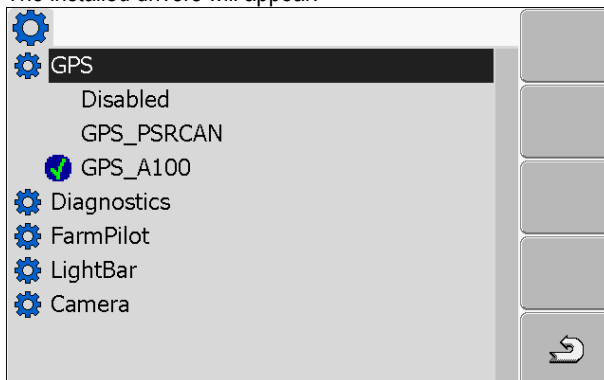
Procedure

1. Switch to the "Driver settings" screen:

   [icon] | **Service | Driver settings**

   ⇨ The following screen will appear:

2. Select "GPS".

3. Click on "GPS".

⇨ The installed drivers will appear.

⇨ Next to the active driver the icon [icon] will appear.

⇨ The driver "GPS_A100" for the DGPS Receiver A100 from Müller-Elektronik comes activated as standard.

4. Select the line containing the correct antenna driver:

GPS_A100 – if the DGPS Receiver was connected directly to the terminal (port C)

GPS_PSRCAN – if the GPS Receiver was connected via the CAN-interface, i.e. to a jobcomputer.

5. Click on the selected line.

⇨ Next to the driver the icon [icon] will appear.

6. [icon] - Restart terminal.

⇨ GPS Receiver is activated.

⇨ The following function icon will be displayed on the start screen of the "Service" application:

⇨ You have activated the GPS Receiver.

7.10.2   Configuring the DGPS Receiver A100

The DGPS Receiver A100 is delivered ready-configured. However you can change the configuration. In this chapter you will learn how to do this.

Parameters

You can configure the following parameters in the process:

Baud rate

Setting for the speed at which the terminal sends data to the DGPS Receiver. The parameter sets the baud rate for the terminal.

The default baud rate is 19200.

This baud rate is suitable for the DGPS Receiver A100.

Satellite 1 and Satellite 2

Only required with the correction signal "WAAS/EGNOS".

Satellite 1 – primary DGPS satellite. The DGPS Receiver will connect to this satellite in the first instance.

Satellite 2 – secondary DGPS satellite. The DGPS Receiver will only connect to this satellite in the event that the primary satellite fails.

Your satellite selection will depend on which satellite currently has the best availability in your region.

Potential values:

- "Auto"
  The software automatically selects the current best satellite. This setting is not recommended, as it slows down start-up of the DGPS Receiver.
- Name of the satellite

Steering

This parameter activates the "Automatic steering" assistance function in the GPS Receiver.

Potential values:

- "On"
  Activates automatic steering assistance.
- "Off"
  Deactivates automatic steering assistance.

Correction signal

Type of correction signal for the DGPS Receiver.
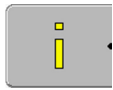
Potential values:

- "WAAS/EGNOS"
  Correction signal in Europe and in North America.
- "E-DIF"
  Internal calculation of correction data.
  This setting is required outside of the EU and the USA.
  To use e-Dif, you will require a special version of the DGPS Receiver A100. You can order this this DGPS Receiver from Müller Elektronik with the item number 30302464.

Terrain compensation

Under this parameter the terrain compensation GPS TILT-Module is configured.

You can order the terraín compensation from Müller Elektronik with the following item number: 30302495.

Controls

| Function icon	Function
	Reset the configuration of the DGPS Receiver to default values
	Display DGPS connection status

Procedure

You can configure the parameter as follows:

- ☑ The DGPS Receiver A100 from Müller Elektronik is connected and activated.
- ☑ The driver of the external LightBar "LightBar_ME" is deactivated. Otherwise the DGPS Receiver cannot be configured.
- ☑ The external LightBar is not connected.

1. Switch to the "GPS" screen:

    | **Service** |
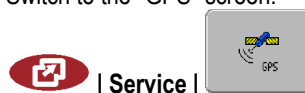
⇨ The following screen will appear:
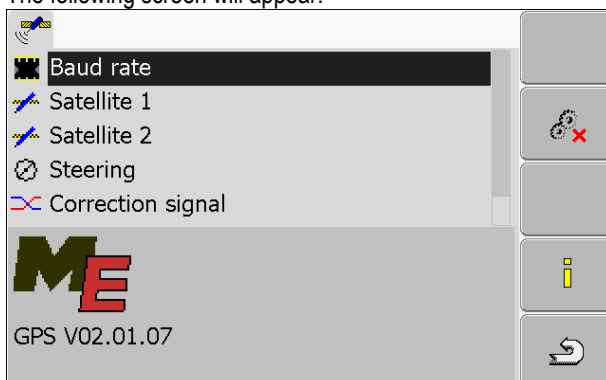
2. - Click on the desired parameter.

⇨ A selection list will appear.

3. - Click on the desired value.

⇨ Next to the value the icon will appear.

4. - Back.

⇨ For some parameters is it necessary to restart the terminal. In these cases the following notification will appear:
"Settings will be adopted after restart."

⇨ You have configured the DGPS Receiver.

7.11 Configuring the "GPS TILT-Module" terrain compensation

Procedure

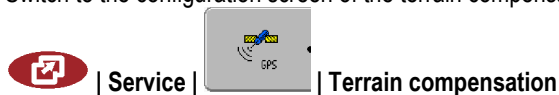☑ The "GPS TILT-Module" terrain compensation is connected.

☑ The driver of the external LightBar is deactivated.

☑ The external LightBar is not connected.

1. Measure the distance between the GPS Receiver and the ground surface.

2. Switch on the terminal.

3. Switch to the configuration screen of the terrain compensation:

| **Service** | | **Terrain compensation**

⇨ The following screen will appear:

4. Enter the distance between the GPS Receiver and the ground surface in the line "GPS Receiver height".

5. Position the tractor on a ground surface that is known to be level.

6. Click on the line "Null point calibration".
   ⇨ The position of the terrain compensation on an even surface is being calibrated.

⇨ After calibration the angle 0 will appear in the line 'angle'. The angle displayed changes every time the tractor tilts.

7.12 Screenshots

A screenshot is a photo of the display.

If an error occurs when you are using the terminal, Customer Services may ask you to capture a screenshot.
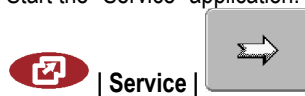
A screenshot can be:
- emailed to Customer Services. Email address: service@mueller-elektronik.de
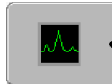- sent to the FarmPilot portal (provided you have activated the FarmPilot portal)

7.12.1 Configuring the screenshots function

Procedure

☑ You have activated the "Diagnostics" function. [➜ 42]

1. Start the "Service" application:

    | **Service** |

2. – Open the "Diagnostics" screen.

3. Click on "Screenshot settings".

4. Click on "Activate screenshots".
   ⇨ The status of the function is displayed on the icon:

    - Function activated

    - Function deactivated

5. Click on "Storage location".
   ⇨ The line will be highlighted with a frame.

6. Select "USB" to save screenshots on the USB flash drive.

7. Select "Portal" to send screenshots to the FarmPilot portal.

7.12.2 Creating screenshots

Procedure

☑ You have configured the "Screenshots" function.

☑ If you want to save the screenshots to the USB flash drive, you will already have inserted the USB flash drive into the terminal.

1. Open any screen.

2. Press the following buttons in the order displayed and keep them pressed for a short while:

(on older terminals you need to press the buttons in reversed order)

⇨ While the screenshot is being captured, the icon of a photo camera will be displayed in the centre of the display:

⇨ When the camera icon disappears, the screenshot has been created.

⇨ You will find the screenshot you captured in the location you specified as the "Storage location". The USB flash drive saves the screenshots in the folder "ScreenCopy".

7.13 Activating the "Diagnostics" function

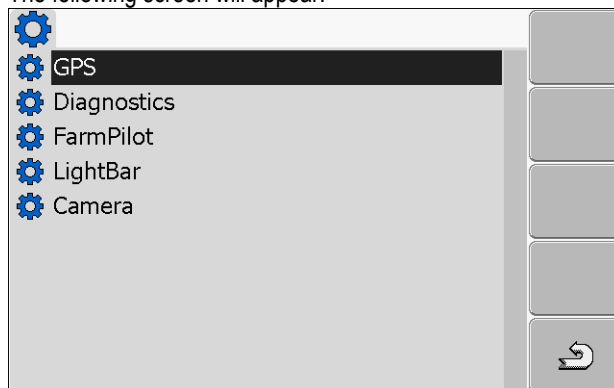To activate the "Diagnostics" function, you must first activate its driver.

Procedure
1. Switch to the "Driver settings" screen:

| Service | Driver settings
⇨ The following screen will appear:

GPS
Diagnostics
FarmPilot
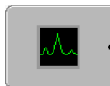LightBar
Camera

2. Click on "Diagnostics".

3. Click on the "DiagnosticsServices" driver.

⇨ Next to the driver the icon will appear.

4. - Restart terminal.

⇨ The following function icon will appear on the start screen of the "Service" application:

⇨ You have activated the "Diagnostics" function.

7.13.1 Jobcomputer diagnostics

The screen "Jobcomputer diagnosis" contains a variety of information that is primarily important to Customer Services. Customer Services can use this screen to determine which versions of the hardware and software are installed on your terminal. This will speed up the diagnostic process if errors arise.
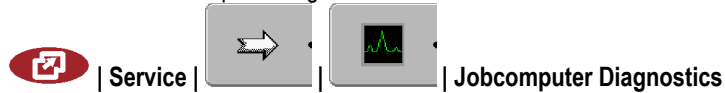
Sending diagnostic data to the portal

Customer Services may ask you to send diagnostic data to the portal. This allows Customer Services to gather detailed information about your terminal and therefore examine it more thoroughly.

Procedure

☑ You have activated the "Diagnostics" function.

☑ You have activated the FarmPilot portal.

1. Switch to the "Jobcomputer diagnosis" screen:

    | **Service** | | | **Jobcomputer Diagnostics**

2. - Send diagnostic data.
   ⇨ The following notification will appear:
   "DeviceidentData transfer"
   ⇨ The data are being uploaded to the portal.

3. Wait until the "Sending DeviceIdentData" notification disappears.
   ⇨ The data have been uploaded to the portal.

4. If the process is taking too long, you can cancel the data transfer.

5. - Cancel data transfer.

7.13.2 CAN-Trace settings

CAN-Trace is a function that logs the data exchange between the terminal and the connected jobcomputers. Customer Services can use the logged data for diagnostic purposes should any errors arise in the system.

If an error occurs when using the terminal, Customer Services may ask you to activate the CAN-Trace function.

Only activate this function if prompted to do so by Customer Services.

Procedure

1. Switch to the "CAN-Trace settings" screen:

    | **Service** | | | **CAN-Trace settings**

1. Click on "Duration (min.)".

2. Set the duration. Specify for how long communication should be logged after the terminal has been restarted. Communication can be logged for a duration of one to five minutes.

3. Click on "Storage location".

4. Select the storage location.

5. Select "USB" to save data on the USB flash drive. The USB flash drive must be inserted in the terminal.

6. Select "Portal" to send data to the FarmPilot portal. FarmPilot must be activated before data can be transferred.

7. Click on "Activate CAN-Trace".
   ⇨ The status of the function is displayed on the icon.

⇨ The icon must appear next to "Activate CAN-Trace".

8. - Restart terminal.

⇨ After restarting the terminal, CAN-Trace will log the communication between the terminal and the jobcomputer.

9. Leave the terminal switched on until the set CAN-Trace duration has elapsed.

⇨ The CAN-Trace function will be deactivated automatically.

10. If you specified USB as the storage location, verify that the file "StartupTrace.txt" exists on the USB flash drive:
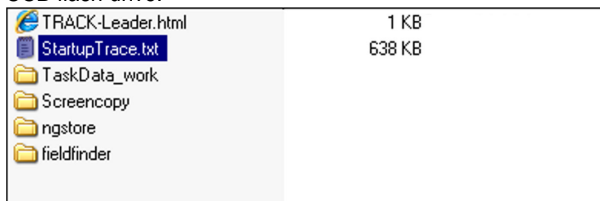
11. If this file is missing, you must run the CAN-Trace function again.

12. Email the "StartupTrace.txt" file to Customer Services. If you chose "Portal" as the storage location, this file will have been sent automatically.

7.14 Activating an external LightBar

If you connected an external LightBar to the terminal, you must activate it.

To activate the external LightBar, you must first activate its driver.

You can order the external LightBar from Müller Elektronik with the following item number: 30302490.

Procedure

1. Switch to screen "Driver settings":

 | Service | Driver settings

⇨ The following screen will appear:

2. Click on "LightBar".

⇨ The installed drivers will appear.

3. Click on the "LightBar_ME" driver.

⇨ Next to the driver the icon will appear.

4. - Restart terminal.

⇨ You have activated the external LightBar.

7.15 Camera

7.15.1 Activating a camera

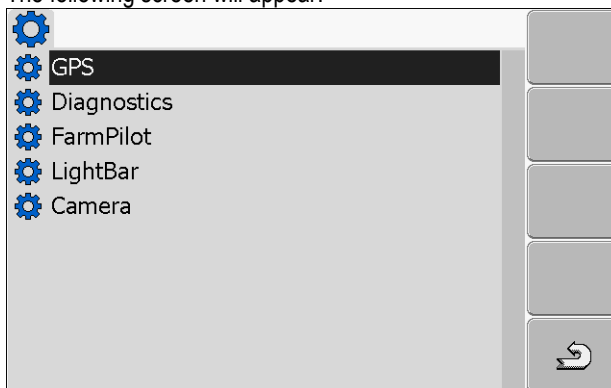If you have connected a camera or camera system to the terminal, you must activate it.

To activate a camera or a camera system, you must first activate its driver.

Procedure

1. Switch to the "Driver settings" screen:

   | **Service | Driver settings**

2. The following screen will appear:

   - GPS
   - Diagnostics
   - FarmPilot
   - LightBar
   - Camera
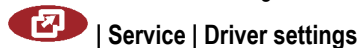
3. Click on "Camera".

4. Click on the "Camera_ME" driver.

   ⇨ Next to the driver the icon will appear.

5. - Restart terminal.
   ⇨ The following function icon will appear on the start screen of the "Service" application:
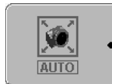
6. You have activated the camera driver.

7.15.2 Operating the camera

Controls

Function icon	Meaning
	Switching between several cameras.
	Rotating image.
	Zooming in for camera images.

Function icon	Meaning
	Zooming out for camera images.
	Activating automatic camera mode. In automatic mode the camera images will be automatically displayed if a sensor sends a signal to do so. This only works if the vehicle is equipped with a suitable sensor.
	Saving camera settings.
	Exiting camera.

You can press the function keys even if the camera is set to full screen mode.

Procedure

☑ You have connected and activated the camera.

1. Switch to the "Camera" screen:

 | **Service** | |
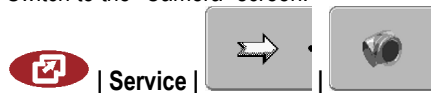
⇨ The following screen will appear

2. Use the function keys to control the camera.

7.16 Configuring FarmPilot

FarmPilot is an internet portal which allows software on a farm computer to exchange data with machines via a mobile phone network. Operating data are stored in a central location on the portal and are presented clearly to the user.

Before you can use FarmPilot in conjunction with your terminal, you must complete the following steps:

- Purchase a SIM card and have it activated.
- Activate FarmPilot
- Enter your FarmPilot access data

Refer to the following chapters to learn how to perform these steps.

7.16.1 Activating FarmPilot

To activate FarmPilot on your terminal, you must first activate its driver.

NOTICE
High costs from prolonged data transfer If you do not have a flatrate in your mobile phone contract, continuous use of FarmPilot can lead to high costs. If your flatrate has a data volume limit, continuous use of FarmPilot can quickly use up your data volume limit. ◦ Deactivate the FarmPilot driver, when you are not using the portal.

Procedure

1. Switch to the "Driver settings" screen:

   | **Service** | **Driver settings**

   ⇨ The following screen will appear:
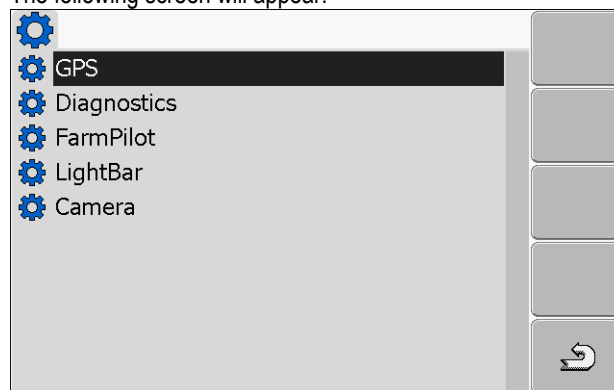
2. Click on "FarmPilot".

3. Click on the "TPD" driver.

   ⇨ Next to the driver the icon will appear.

4. - Restart terminal.

   ⇨ The following function icon will appear on the start screen of the "Service" application:

⇨ You have activated the FarmPilot portal.

You must now enter the access data for the FarmPilot portal.

7.16.2 Configuring the connection with FarmPilot

Before you can connect the terminal to FarmPilot, you must configure the connection.

You will receive this data when purchasing the FarmPilot access data.

Parameters

You will require the following parameters for the configuration:

Username

Username for FarmPilot.

Password

Password for FarmPilot.

Provider

Opens a screen where the GPRS connection can be configured.

With most mobile phone providers, this configuration occurs automatically.

If the access data for the GPRS connection differ with your provider, you can configure the connection manually.

You can find precise instructions in the chapter:

Configuring the GPRS connection manually [→ 48]

Server

Server address

The server address cannot be altered.

Log

Switches logging on and off.

Switch on logging only when prompted to do so by Customer Services.

Procedure

1. Open the "Service" application:

   🔳 | **Service**

2. 🔲 - Open the access data screen for FarmPilot.
   ⇨ The following screen will appear:

3. Click on the line with the desired parameter.

4. Configure parameter.

7.16.3 Configuring the GPRS connection manually

In this chapter you will learn how to configure the GPRS connection manually.

With most SIM cards, the GPRS connection will be configured automatically.

The GPRS connection must be manually configured in the following instances:
- You have bought a new SIM card. The terminal does not recognise your mobile phone provider.
- Your mobile phone provider has altered the access data for the GPRS connection.

Parameters	The values you must enter for the parameters, depend on your mobile phone provider. You can find out these data from your mobile phone provider.
	You will require the following parameters for the configuration:

Country

Country for which the SIM card is configured. Cannot be altered.

Provider

Name of the mobile phone provider. Appears automatically.

With unrecognised cards, you can enter the name of the mobile phone provider yourself.

APN

Abbreviation of "Acces Point Name".

Address of the GPRS access point.

DNS 1 and DNS 2

Abbreviation of "Domain Name System".

IP addresses of the first and second DNS servers

Number

Dialling code for the modem. Cannot be altered.

Username

Username for the GPRS connection.

Password

Password for the GPRS connection.

Controls

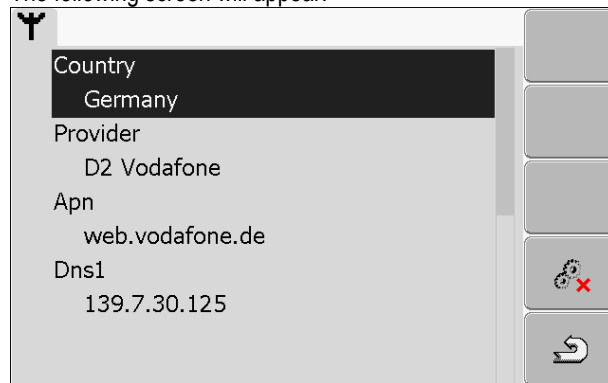| Function icon	Function
	Retrieve default values.

Procedure

You can configure the mobile connection as follows:

☑ You have inserted the SIM card.

☑ You have activated the FarmPilot portal.

1. Switch to the configuration screen for the GPRS connection:

 | | **Provider**

⇨ The following screen will appear:

2. Set GPRS connection parameters.

8 TaskManager application

8.1 Basics

8.1.1 About TaskManager

„TaskManager" is an application from Müller-Elektronik working as the interface between an agricultural device and Farm Management Information System on the terminals.

With TaskManager you can open all orders, previously planned in the Farm Management Information System, on the terminal.

All information contained in the order will be transferred by TaskManager to specialized applications of the terminal. This means that each application is doing exactly what it can do best:

- The position of the field is transferred to FIELD-Nav. It can therefore navigate the terminal directly to the field.
- The prescription map, field border and other information about any work important for sub-areas stored in the order are transferred to TRACK-Leader. The field can be therefore processed.
- TaskManager documents work duration, attending persons, machines and operating means.
- After work completion TaskManager saves all work results on the USB flash drive, so that you can open them again in your Farm Management Information System.

The version described here supports the following functions:

- Creating tasks on the terminal.
- Viewing and processing tasks that have been planned using the Farm Management Information System.
- Transferring prescription maps from an order to TRACK-Leader.
- Delivering required values to ISOBUS job computers.
- Documenting how the work has been done. The type of documented data depends on the type of the ISOBUS job computer.
- Saving work results for further evaluation in PC software.
- Recording complete task data.
- Exchanging task data between the FarmPilot portal and the TaskManager.

8.1.2 USB flash drive

The USB flash drive has two jobs:

- It is used to move data between the Farm Management Information System and the terminal.
- It is the external storage during work.

The USB flash drive must always be connected during work.

See also:

8.1.3 Starting the TaskManager application

Procedure

1. Insert an empty USB flash drive into the terminal.
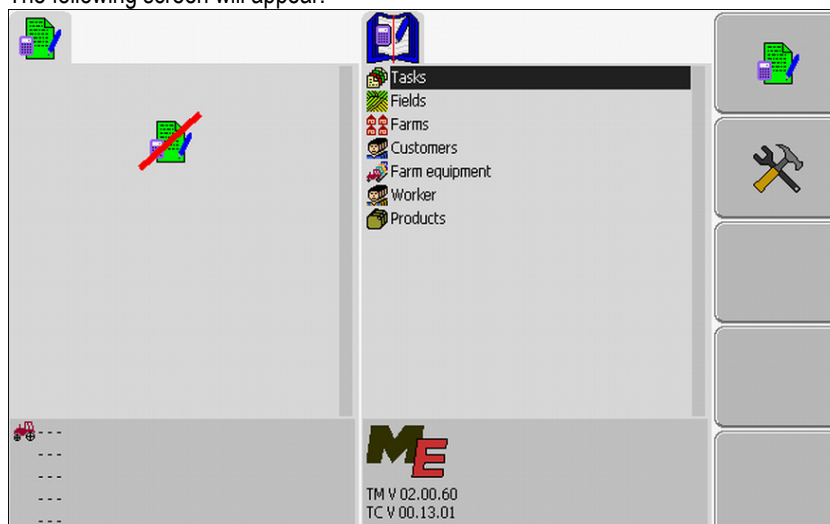
2. Open the "Selection menu" application:

⇨ The following screen will appear:

3. Click on the "TaskManager" line.

⇨ The following screen will appear:

⇨ The "TaskManager" application has been started.
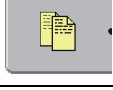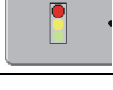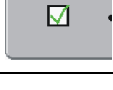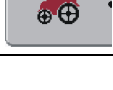
8.1.4 Controls in the TaskManager application
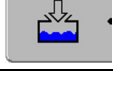
The "TaskManager" application is controlled using the rotary knob and the function keys.

In this chapter you will find an overview of all function icons that you may come across in the "TaskManager" application.

Controls

Function icon	Meaning
	Switch to the "Task data" screen – if a task has been started.
	Switch to the "Task list" screen – if no task has been started.
	Back

Function icon	Meaning
	Switch to the "GPS Receiver offset" screen.
	Configure the position of the GPS Receiver.
	Remove the USB flash drive.
	Will only appear if the folder "Task data" exists on the USB flash drive.
	Prepare an empty USB flash drive for use with the "TaskManager" application without FarmPilot.
	The "Task data" folder will be created on the USB flash drive.
	Download a set of tasks from the FarmPilot portal
	Will only appear if you are connected to the FarmPilot portal
	Upload set of tasks to the FarmPilot portal
	Will only appear if you are connected to the FarmPilot portal
	Display the field in FIELD-Nav
	The function icon is grey when the function has been deactivated.
	Create a new task
	Copy existing task
	Split stopped task
	Start task
	Stop task
	Confirm
	Save task data
	Select worker
	Deactivate worker
	Select machine

Function icon	Meaning
	Deactivate machine
	Start navigation to field
	The function icon is grey when the function has been deactivated.
	Start navigation to unloading location Only appears if your terminal has the "Slave" status within a group of vehicles. The function icon is grey when the function has been deactivated.
	Enter filled capacity
	Enter emptied capacity

8.1.5 Setting up the operation mode for the TaskManager application

The "TaskManager" application can be run in two different modes:

- ISO mode
- SC mode

In ISO mode, the TaskManager will have full functionality.

However, the TaskManager's functionality is limited in SC mode.

Use this mode when you are not using the TaskManager.

Features of SC mode:

- The parameters of the machine will be reloaded every time the terminal is restarted.
- When you open the TaskManager in SC mode, only the name of the connected machine will be shown on the display.

Procedure   You can change the mode of the "TaskManager" application as follows:

1. Switch to the "Settings" screen:

    | **TaskManager** |
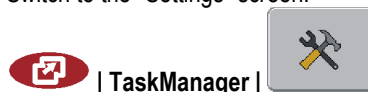
⇨ The following screen will appear:
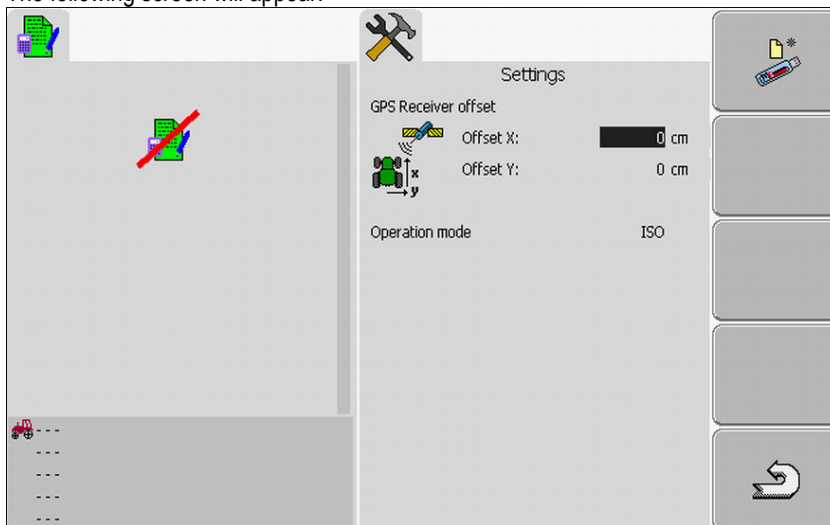
2. ![knob icon] - Select and click on the "Operation mode" line.

   ⇨ The mode will change with each click.

3. Set the desired mode.

4. ![power icon] - Restart terminal.

⇨ The set mode will be activated after restart.

8.1.6 Display layout in the TaskManager application

The display of the COMFORT-Terminal will always show two screens at the same time:

- The "Task data" screen on the left
- All other screens on the right.

The following picture shows these two areas as well as additional information that can be found on the display.
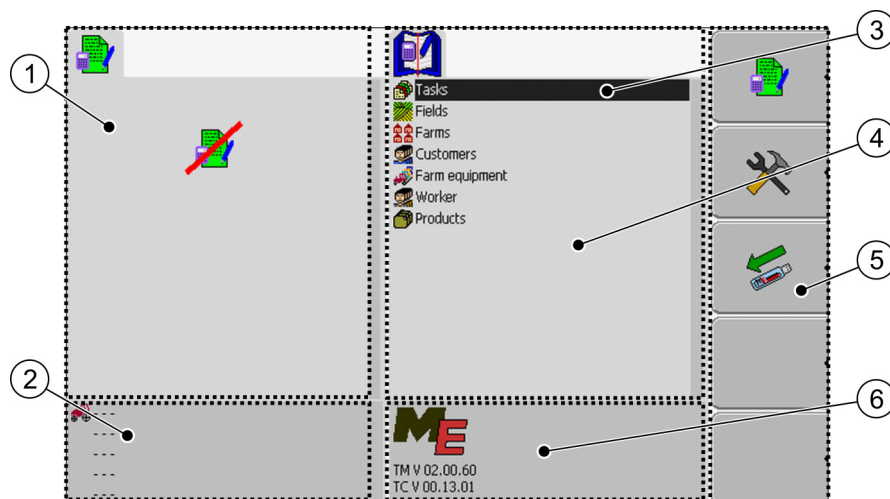
Display layout in the TaskManager application

①	**Task data screen** Permanent section	④	**Section with interchanging screens**
②	**Counter section**	⑤	**Function icons section** You will always be shown the function icons that are associated with the currently active screen.
③	**Cursor** Determines which screen is currently active. Selects a line that can be clicked on with the rotary knob.	⑥	**Information about the application version**

Switching between screens

On the display of the COMFORT-Terminal, the screens are arranged side by side. However, only one screen is active at any one time. The active screen is always the one in which the cursor has been placed.

To switch to a different screen, you must first activate it.

The following options are available to you:

- Switch to the "Task data" screen from the right hand section.
- Switch to the right hand section from the "Task data" screen.

Controls

Switch to the "Task data" screen – if a task has been started.

Switch to the "Task list" screen – if no task has been started.

Back

Master data screen

The "Master data" screen is the start screen for the "TaskManager" application. From this screen you can access all other screens.

You can identify the "Master data" screen by this icon.

You will find the icon in the upper section of the screen.
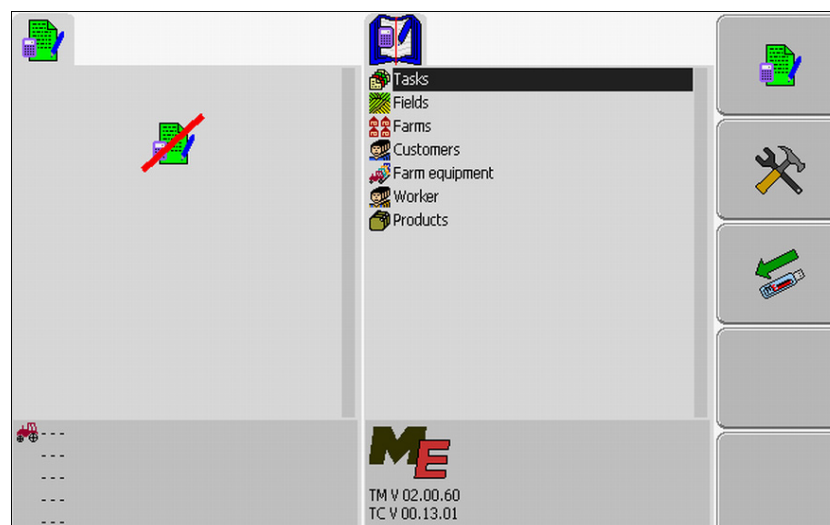
Master data screen

In the main section of this screen, you will see folders which contain the data stored in the Farm Management Information System.

If you move the cursor right down to the bottom using the rotary knob, you will be able to see additional folders containing master data.

Task list screen

The "Task list" screen contains the names of all tasks stored on the USB flash drive.

You can identify the "Task list" screen by this icon.

You will find the icon in the upper section of the screen.
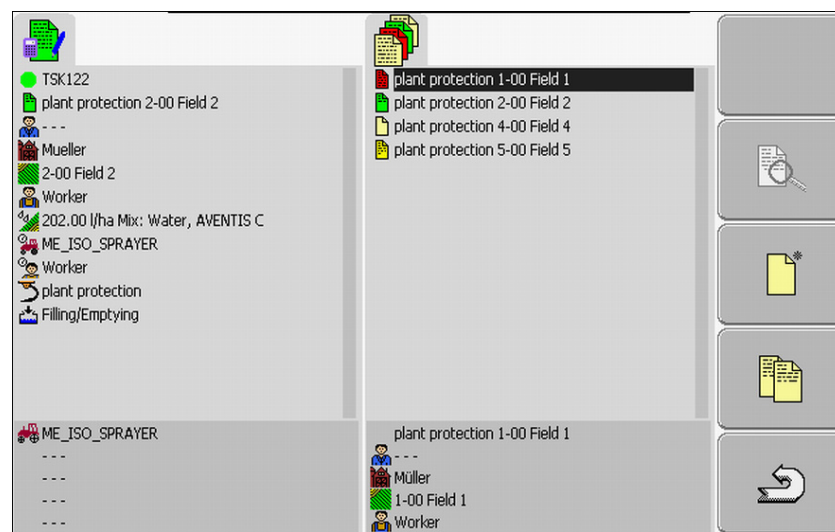
Task list screen

Beneath the task list you will find the background information about the respective task you selected.

You can identify the status of the task by the colour of the icon preceding the name of the task.

Tasks whose names are preceded by an asterisk are copies of other tasks.

The following table contains an overview of all icons used to mark the different types of tasks.

Icons

Icon	Icon colour	Meaning
	light yellow	Tasks that have not been started yet
	dark yellow	Paused tasks
	green	Started tasks
	red	Stopped tasks
		Tasks processed by the "Master"

Tasks that have not been started yet

Tasks that have not been started yet and are tasks which are stored on the USB flash drive, but have not yet been started.

These tasks may include:
- Newly created tasks
- Copies of existing tasks – if the name of the task is preceded by an asterisk
- Tasks imported via the FarmPilot portal or the Farm Management Information System which have not yet been started.

Paused tasks

Paused tasks are tasks which have been interrupted and not fully completed. A task will be paused automatically if another task is started while the first task is still in progress.

Paused tasks are displayed in the FarmPilot portal as not yet completed.

Started tasks

Started tasks are tasks that have been started and are currently being processed.

Stopped tasks

Stopped tasks are tasks that have been stopped. As a rule, these are tasks which have been completed. However, the program is not capable of verifying whether the tasks have been fully completed.

Therefore, only stop a task if you have completed it. Stopped tasks are displayed as completed tasks in the FarmPilot portal.

Tasks processed by the Master

Appears only in cooperation with the FarmPilot portal.

All tasks processed by the fleet leader (Master) will be labeled as such.

Every time the Master starts to process a new task, you will be notified by a pop-up window.

Task data screen

On the "Task data" screen you can find all the information about the selected task.

The "Task data" screen will be displayed when you select or create a task on the "Task list" screen.

You can identify the "Task data" screen by this icon.

You will find the icon in the upper section of the screen.

The colour of the icon will vary depending on whether the task has been started or newly created.

Green – the task displayed has been started.

Yellow – the task displayed has not been started.
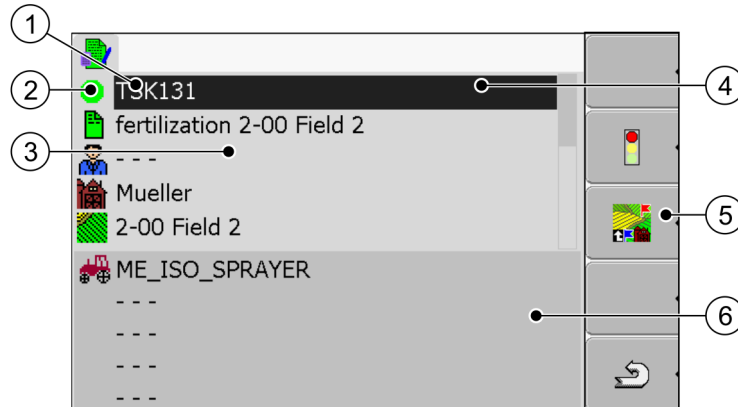
Task data screen

①	**Name and number of the task** Serial task number. TSK means TASK .	④	**Cursor** Selects a line that you can click on using the rotary knob.
②	**Task processing stage** Indicates what stage of completion the task is at [➜ 81].	⑤	**Function icons section** Icons that can be pressed on this screen.
③	**Task data section** Contains detailed information about the selected task	⑥	**Counter section** Only appears when you start the task.

The task data section may also contain the following icon:

This means that the task data also contain an application map. The icon is used for information purposes only.

8.1.7 Exporting machine settings for the Farm Management Information System

Before preparing an order in the Farm Management Information System for the TaskManager application, the Farm Management Information System must know the unique number of the job computer mounted on the agricultural machine.

To deliver this number to the Farm Management Information System, you need to create a blank order on the terminal. Then you have to open this order in the Farm Management Information System.

When to perform?

You must perform this step in the following instances:
- Before the first start-up.
- When connecting the terminal to a new machine.

- When changing the machine parameters in the jobcomputer.

Mode of operation

In this step, all parameters stored in the job computer of the agricultural machine are saved in an XML file. These data are provided with a unique ID number.

The unique ID number is also the serial number of the connected jobcomputer. You can find it in the "Selection menu" application.

You have to repeat this step once more for each ISOBUS-capable agricultural machine.

Procedure

☑ You have connected the terminal to the jobcomputer of the machine that you wish to add to the master data.

☑ You have configured the machine.

1. Insert an empty USB flash drive into the terminal.

2. Create a "Task data" folder on the USB flash drive [➜ 62]

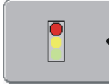3. Create a new task [➜ 63]. You do not need to enter any task data for this task.

4. Start task [➜ 75].
   ⇨ The following screen will appear:

5. Wait several minutes, until the counters appear.
   ⇨ The following screen will appear:

6. - Stop task.

7. - Switch to the "Master data" screen.

8. - Save the data on the USB flash drive.

⇨ The machine data are saved to the "Taskdata.xml" file located in the "Task data" folder on the USB flash drive.

9. Wait until the data have been written and read.

⇨ The function icon will be hidden.

10. Remove the USB flash drive from the terminal.

⇨ You have transferred the machine parameters to the USB flash drive.

According to whether you wish to export machine data to create a new machine in the Farm Management Information System or update the parameters of an existing machine, a different procedure applies in the Farm Management Information System.

Follow the manual for your Farm Management Information System.

NOTICE
If you create more than one entry for a machine in the Farm Management Information System, this can later lead to errors in the TaskManager.
◦ Only create one entry per machine in the Farm Management Information System.

8.2 Step 1: Transferring data from the Farm Management Information System to the terminal

You can transfer the data from the Farm Management Information System to the terminal in the following ways:

- using a USB flash drive
- via the FarmPilot portal

8.2.1 Transferring data using a USB flash drive

Procedure

☑ You have created the "Task data" folder on the USB flash drive.

☑ The "Task data" folder contains the file "Taskdata.xml".

1. Start the "TaskManager" application.

 | TaskManager

2. Insert the USB flash drive into the terminal.

⇨ The following notification will appear:

"Copying task data!"

⇨ The task processed most recently will be started automatically.

Creating a "Task data" folder on the USB flash drive

You must create a "Task data" folder in the following instances:
- If you use the "TaskManager" without the FarmPilot portal.
- If you wish to export the machine settings to the Farm Management Information System.
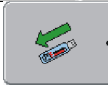
Procedure

1. Insert an empty USB flash drive into the terminal.

2. Open the "TaskManager" application:

    | **TaskManager**

   ⇨ The following screen will appear:
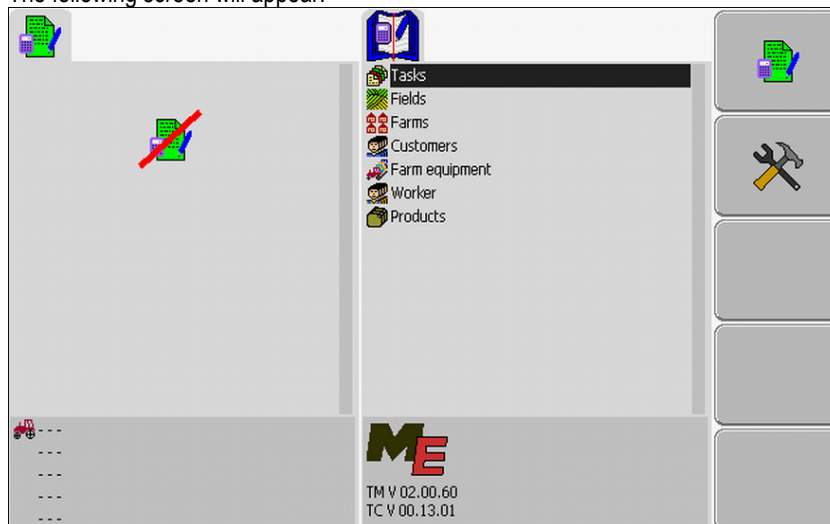
   ⇨ If the following function icon appears on this screen, the folder has already been created.

3. – Press.

4. – Press.

   ⇨ The "Task data" folder is being created on the USB flash drive.

   ⇨ A function icon will appear on the "Master data" screen:
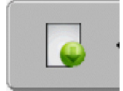
8.2.2 Transferring data via the FarmPilot portal

You will receive data from the portal if they are sent by a dispatcher. The dispatcher will always send the data as sets of tasks that consist of one or more tasks.

Procedure

You will receive the set of tasks from the dispatcher as follows:

☑ You have opened the "TaskManager" application.

☑ You have inserted a USB flash drive into the terminal.

☑ **NOTE!:** The USB flash drive must not contain a folder named "TASK DATA". However, if the folder does exist, you must save [➜ 87] the existing data on the USB flash drive.

1. The dispatcher will send you the task data.
   ⇨ The following notification will appear:
   "New task data available!"

2. ⬛ - Confirm.
   ⇨ The data are not on the terminal yet, but are ready to be downloaded.

3. ⬛ - Load the data from the portal. (the arrow on the icon must point downwards)

   ⇨ The following notification will appear:
   "Start downloading task data?"

4. ⬛ - Confirm.
   ⇨ The data are being loaded.

5. Open the "Task list" screen.

⇨ All tasks from the set of tasks will appear on the "Task list" screen.

⇨ You have received a set of tasks from the dispatcher.

You can process the tasks from the set of tasks.

8.3 Step 2: Selecting a task to process

Before you start working, you must first select the task you wish to process.

The following options are available to you:
- Create a new task on the terminal
- Resume an existing task

8.3.1 Creating a new task on the terminal

You can create a new task directly on the terminal.

When creating a task directly on the terminal, you will not need to fill it with task data right away. You can process a task and then enter into the Farm Management Information System what you have done and on which field.

The following options are available to you:
- Create a new task on the terminal
- Copy an existing task and save the copy as a new task

Creating a new task

Procedure
1. Switch to the "Master data" screen.

⇨ The following screen will appear:
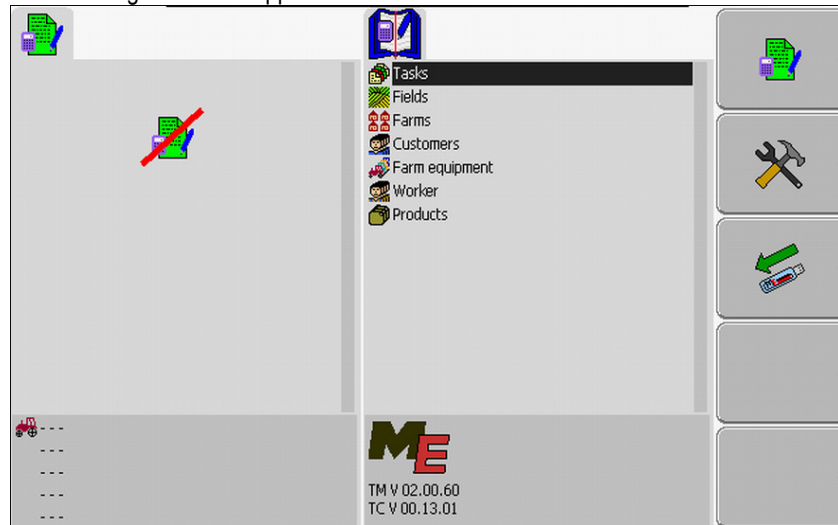
2. Click on the "Tasks" line.

⇨ The following screen will appear:
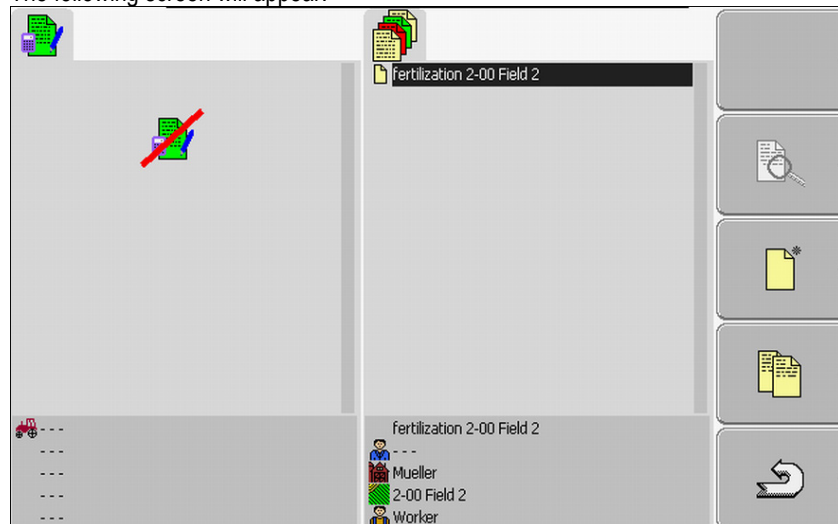
The "Task list" screen may show tasks that have already been created, as shown in the picture.

3. - Create a new task.

⇨ The following screen will appear:
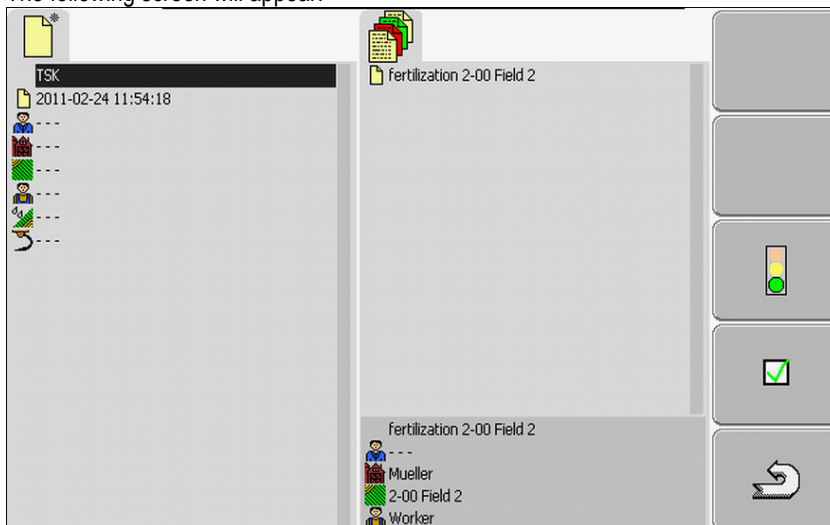
⇨ The new task was named by the terminal with the current date and time. The task has not been saved yet.

⇨ You have created a new task.

You now have the following options:

- You can fill the task with task data. [➜ 71]

- You can start the task. [➜ 75]

- You can save the task. [➜ 74]

Copying a task

You will not always have to create a new task. In most cases, it is advisable to copy an existing task and save the copy as a new task.

The copy of the task contains all the field boundaries and application cards of the original task, but can be processed like a new task.

Procedure

1. Switch to the "Master data" screen.
   ⇨ The following screen will appear:
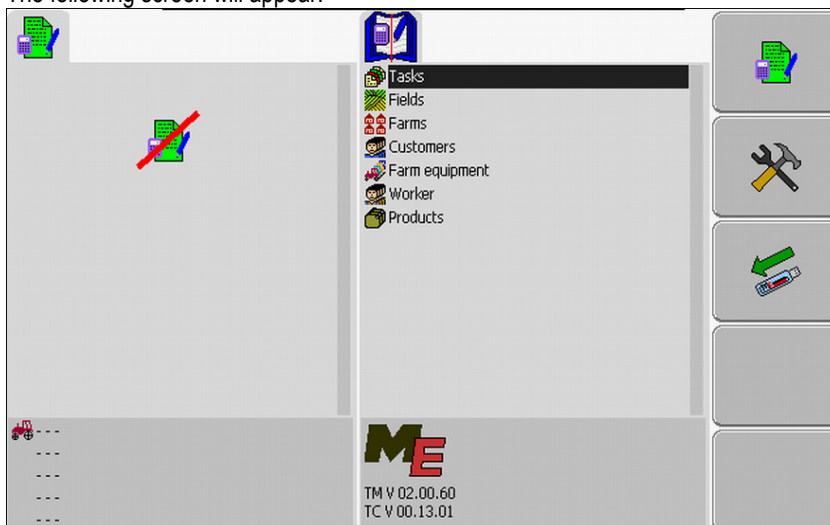
2. Click on the "Tasks" line.

⇨ The following screen will appear:
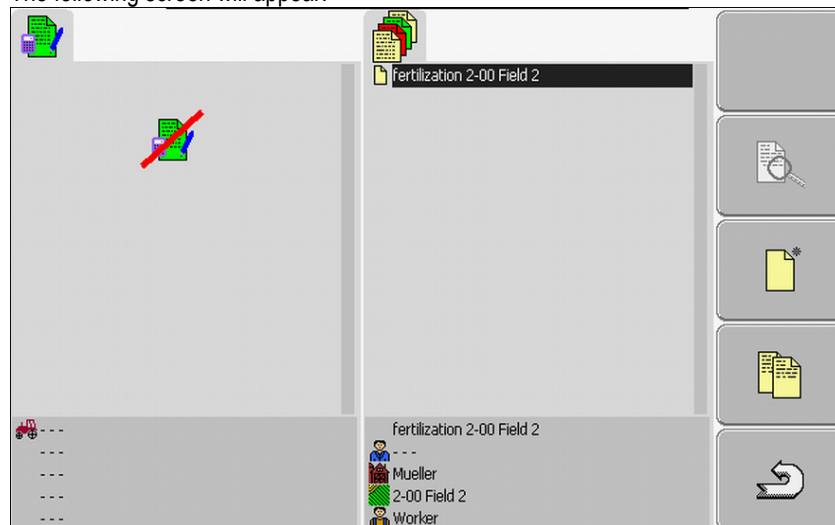
3. Select a task that has the most similarities to the task you wish to create. The task must not be started.
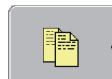
4. - Create a copy of an existing task.

⇨ The following notification will appear:

"Copy task?"

5. - Confirm.

⇨ The following screen will appear:
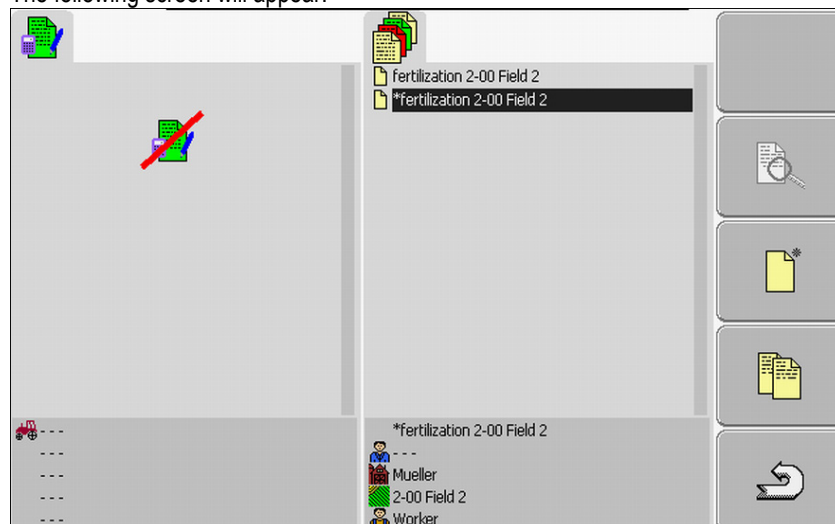
⇨ The new task will be added to the list and marked as a copy with an asterisk.

⇨ You have created a new task.

You now have the following options:

▪ You can start the task you copied. [➜ 75]

8.3.2   Adopting an existing task

You can process one of the tasks that appears on the "Task list" screen.

The tasks may originate directly from the Farm Management Information System, from the FarmPilot portal or from the USB flash drive.

The following options are available to you:
- Resume an existing task
- Splitting a task that has already been started

Resuming a task

Procedure

☑ You have copied the data from the Farm Management Information System to the USB flash drive.

☑ You have inserted the USB flash drive into the terminal.

1. Switch to the "Master data" screen.
   ⇨ The following screen will appear:

2. Click on the "Tasks" line.
   ⇨ The following screen will appear:


   ⇨ The list contains an overview of the tasks stored on the USB flash drive.

3. Click on the desired task.
   It does not matter what icon is used to mark the task. You can resume any tasks.

⇨ The following screen will appear:
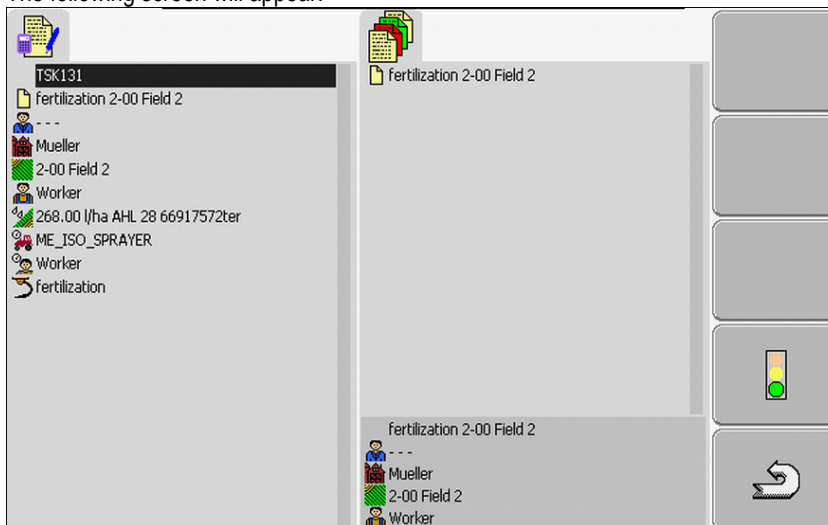
⇨ The task data have already been filled in for this task. You will no longer be able to alter the data.

You can now read the following chapter:

▪ Start task [➜ 75]

Splitting an order that has already been started

Use this function in the following instance:

You have already processed a task and traveled over a portion of the field. However, you have realized that you wish to process the remainder of the field using a different product or alter the concentration.

You will not be able to alter the products for a task that you have already started. Therefore, you will have to split the task.

Splitting will turn the original task into two tasks:
▪ Processed portion of the order – keeps the name of the original order. It contains all information created during the completion of this portion.
▪ Uncompleted portion of the task – will be displayed on the list as a new task. You can continue processing this task. The task contains all the field boundaries and field data from the original task.

Procedure   1. Switch to the "Master data" screen.
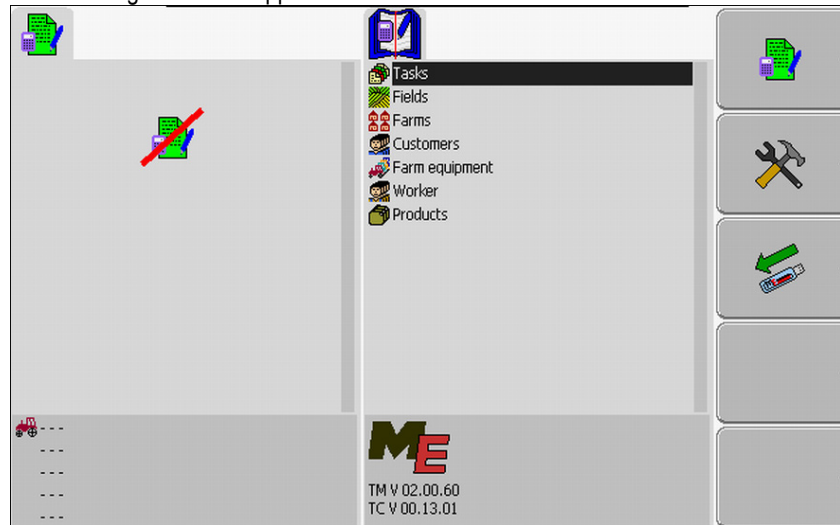
⇨ The following screen will appear:

2. Click on the "Tasks" line.
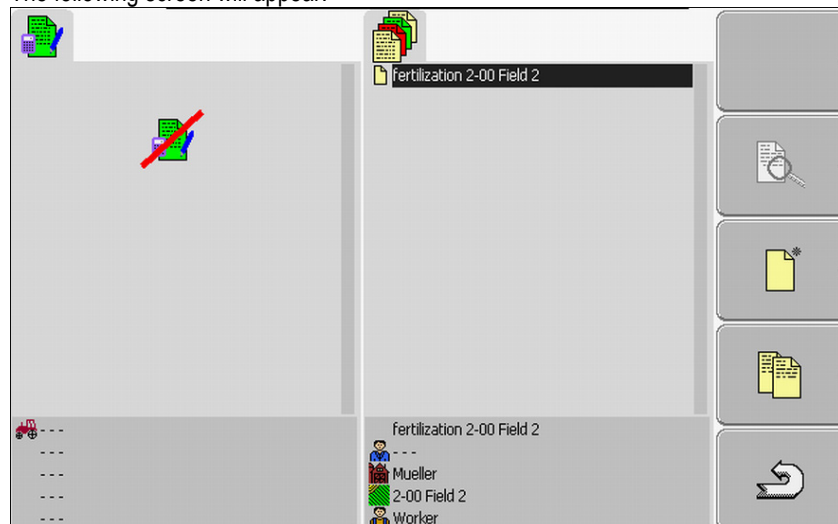
⇨ The following screen will appear:
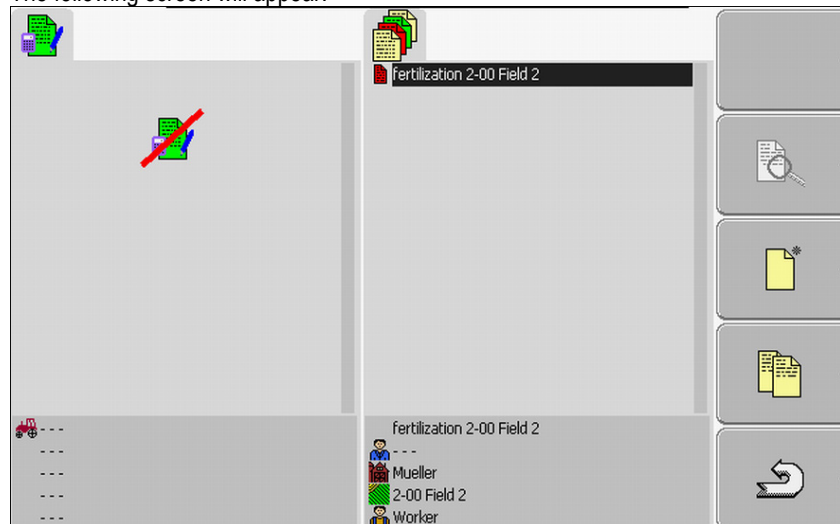

⇨ The list contains an overview of the tasks stored on the USB flash drive.

3. Start the desired task. You can only copy tasks that have already been started.

4. - Return to the "Task list" screen.

⇨ The following screen will appear:
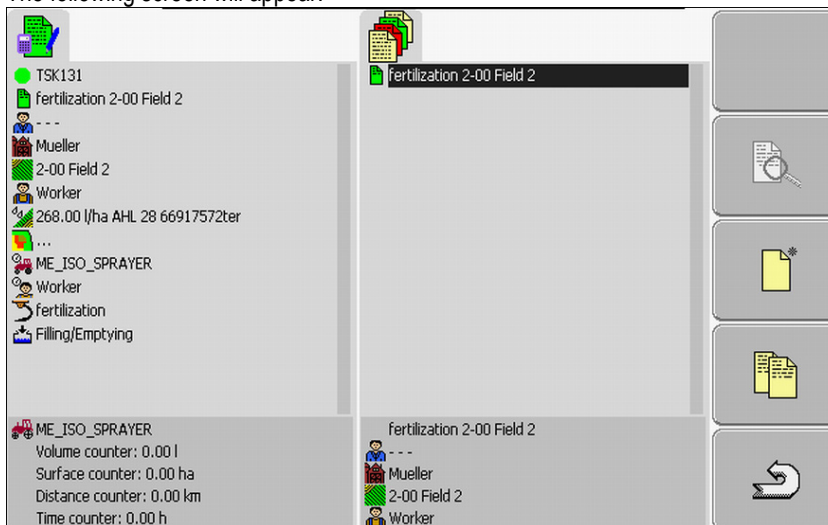
The task must be marked with the following icon:

- Task started

5. - Split task.

⇨ The following notification will appear:

"Split task?"

6. - Confirm.

⇨ The following screen will appear:
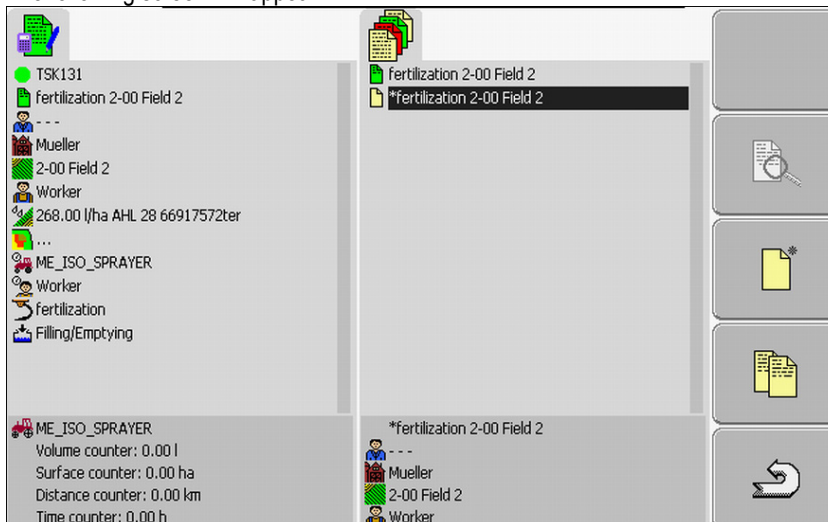
A new task will appear on the Task list screen. The task is marked with an asterisk. This task is the unprocessed portion of the original task. It contains all the data from the original task. In particular, the field boundaries and obstacles from SECTION-Control.

⇨ You have split the task and created a copy.

You now have the following options:

▪ You can alter the rates and products for this task. [➜ 72]

8.4 Step 3: Entering and saving task data

Task data are entered in two different locations:
- In the Farm Management Information System
- In the "TaskManager" application

In the "TaskManager" application you can only select data which you have previously created in the Farm Management Information System. You can assign these data to the individual tasks.

You can only alter the task data of a task if you have created a new task and have not saved it yet.

8.4.1 Entering task data

You can only enter the task data that you have created in the Farm Management Information System and saved on your USB flash drive.

The task data created in the Farm Management Information System will be saved in the following categories:

Icon	Name of the category	Comment
	Customer	
	Farm / business	
	Field	
	Person in charge	
	Worker	Cannot be selected until the task has been started
	Machine	Cannot be selected until the task has been started
	Product and rate	
	Measure	

The names used here may not always correspond to the category names used in the Farm Management Information System. This is due to the fact that the names vary with each specific Farm Management Information System used.

For instance, if you did not create any data in a particular category, the following screen will appear:

Depending on the category, a different, struck-through icon may appear.

Selecting a customer

Procedure

1. Click on the following line and hold for two seconds:

⇨ A list of available customers will appear.

2. Select customers from the list.
   ⇨ The name of the selected customer will appear on the "Task data" screen.

⇨ You have assigned the task to a customer.

Selecting a farm (business)

Procedure

1. Click on the following line and hold for two seconds:

⇨ A list of available farms will appear.
⇨ The list only contain farms that belong to the selected customer.

2. Click on the desired farm.
   ⇨ The selected farm will appear on the "Task Data" screen.

⇨ You have assigned the task to a farm.

Selecting a field

Procedure

1. Click on the following line and hold for two seconds:

⇨ A list of available fields will appear.
⇨ The list only contains fields that belong to the selected farm.

2. Select the desired field.
   ⇨ The selected field will appear on the "Task data" screen.

⇨ You have assigned the task to a field.

Selecting a person in charge

Procedure

1. Click on the following line and hold for two seconds:

⇨ A list of available people will appear.

2. Select the desired person.
   ⇨ The name of the person will appear on the "Task data" screen.

⇨ You have assigned the task to a person.

Selecting rate and mix

Icons

You will see two icons on the screen:

Mix

Name of the mix to be spread

Product

If the mix is composed of several products, you can specify the individual products here.

To the right of each icon there are three input fields, each of which you can select and click on with the cursor.

You can use the input fields to specify which mix you wish to spread, in what quantity and composed of what products.

The application will not check whether the quantities of the individual products total the rate of the mix.

The following picture shows an overview of the input fields.
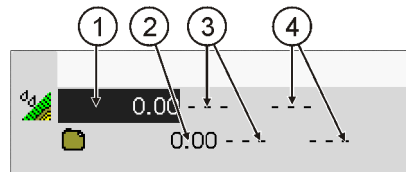
Overview of the input fields

1	Rate	3	Unit of measurement
2	Product quantity	4	Product type

Procedure

1. Click on the following line:

2. Click on the first field next to the icon [icon].

3. Enter the desired rate.

4. Click on the middle field next to the icon [icon].

5. Select the unit of measurement.

6. Click on the right hand field next to the icon [icon].

7. Select the product type.

8. Enter the product quantity and the unit of measurement next to the icon [icon].

   ⇨ A new line containing the icon [icon] will appear.

9. You can enter additional products next to the icon [icon].

10. [icon] - Confirm entries.

    ⇨ The data you entered will be saved.

⇨ The rate will appear on the "Task data" screen.

Measure

Procedure

1. Click on the following line and hold for two seconds:

   ⇨ A list of available measures will appear.

2. Select a measure.

⇨ The selected action will appear on the "Task Data" screen.

8.4.2 Saving task data

You can only save the task if the function icon ☑ appears on the "Task data" screen.

Once saved, the task data can no longer be altered.

Procedure

☑ You have created a new task and entered the task data.

☑ You are on the following screen:
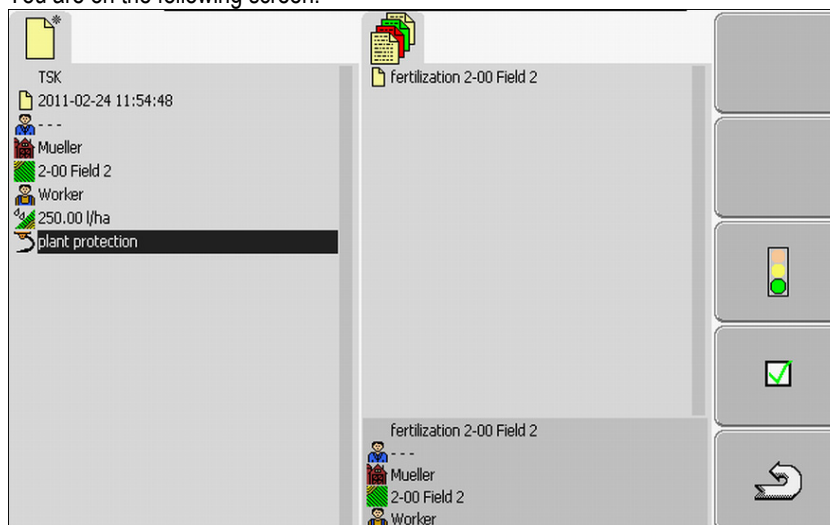
1. ☑ – Save task data. This function icon will only appear if saving the task data is possible.

⇨ The following screen will appear:
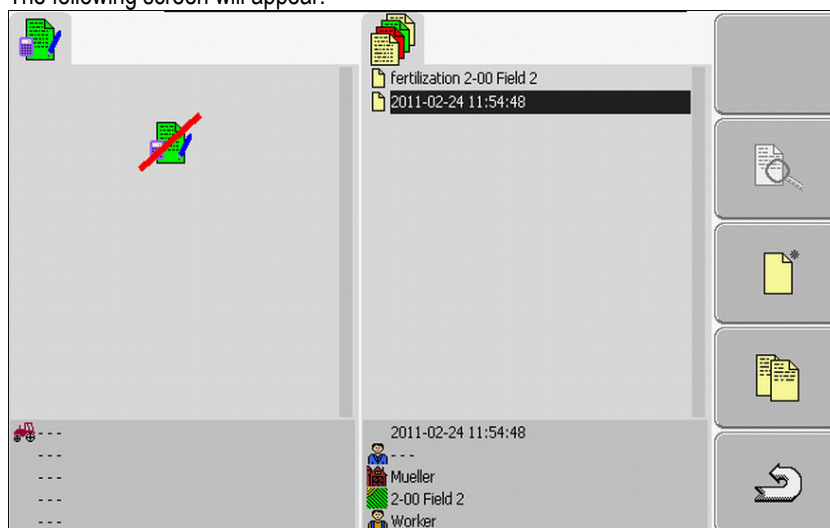
The saved task will appear on the "Task list" screen. The name comprises the date and time the task was created.

⇨ You have saved the task.

New parameters will appear on the "Task data" screen:

- Machine
- Worker

You will only be able to alter these parameters once you start the task.

8.5 Step 4: Starting a task

You can start every task irrespective of its status.

Procedure

1. Switch to the "Task list" screen.
   ⇨ The following screen will appear:
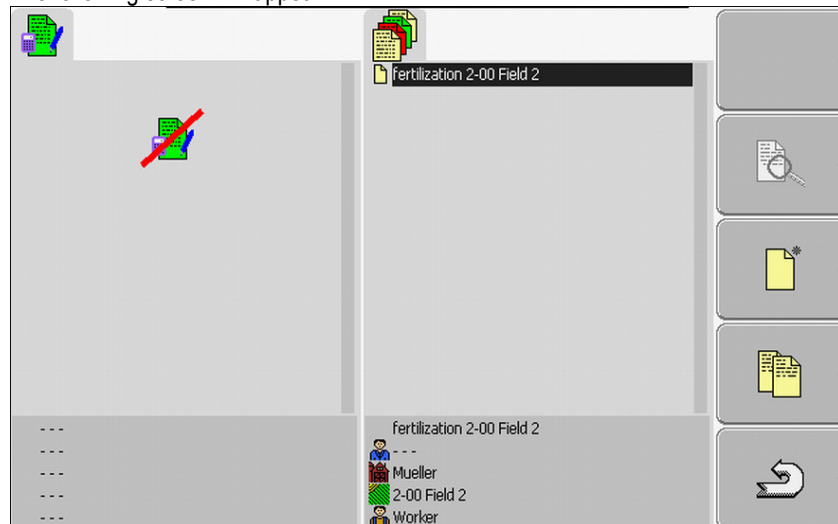
2. Click on the desired task.
   ⇨ The following screen will appear:
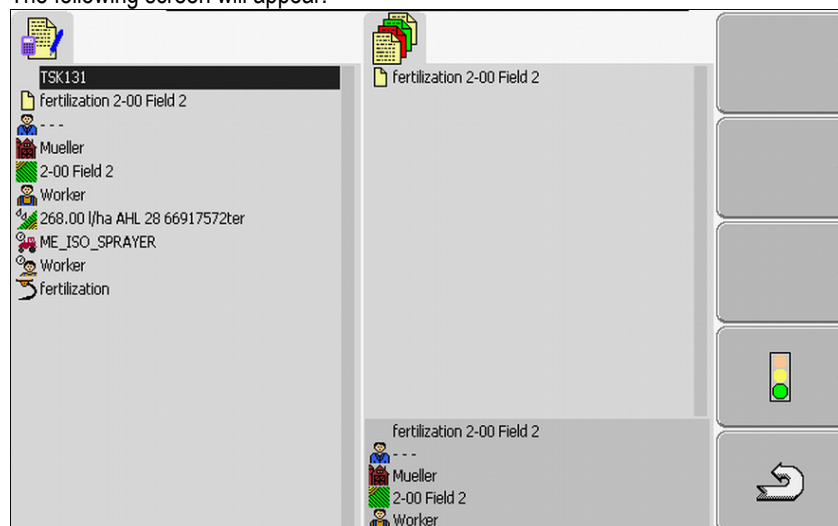
3. - Start the task.

⇨ The following screen will appear:

⇨ The task has a new status: Green – task started.

⇨ The following function icons will appear:

 - Stop task.

 - Navigate to field.

⇨ You have started the task.

You now have the following options:

- You can select machines. [→ 76]

- You can select workers. [→ 79]

- You can let the application navigate you to the field. (Only if FIELD-Nav has been activated.) To learn how to do so, read the FIELD-Nav operating instructions.

- You can stop the task. [→ 85]

8.5.1 Selecting the machine

This step requires that you select the machines and farm equipment which will be used to process the task.

You can add any number of machines and farm equipment.

The terminal records the length of time worked by the machines you added.

Controls

 Add machine

Reactivate deactivated machine (press and hold)

 Deactivate machine

Icons

Machines can be activated or deactivated. For each machine, the terminal calculates the length of time for which it was activated.

The icon preceding the name of the machine indicates whether the machine is activated or deactivated.

Machine is deactivated

(red background)

Machine is activated

(green background)

no icon   If you are processing the task using a machine not intended for this purpose, no icon will appear before the machine's name.

Procedure 1   You can select a machine from a list as follows

☑ You have started a task.

1. Click on the following line on the "Task data" screen:

   ⇨ The following screen will appear:
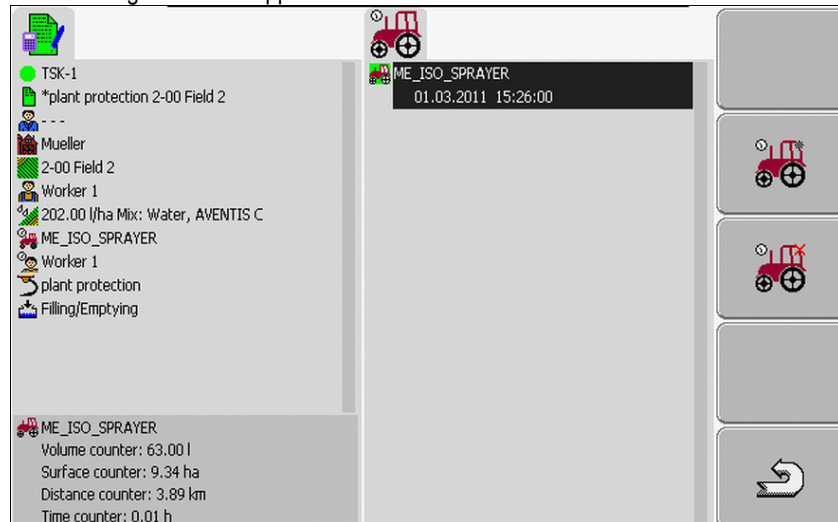
   ⇨ The screen contains a list of all machines which you have assigned to this task. If you process the task using the assigned machine, the machine displayed will be activated immediately. If you are processing the task using a machine not assigned to this task, no icon will appear before the machine's name.

   ⇨ If the machine "ME_ISO_Spritze" appears at this point, you have not created an ISO machine in your Farm Management Information System.

2. [icon] - Add machines.

⇨ A list of machines and farm equipment will appear:
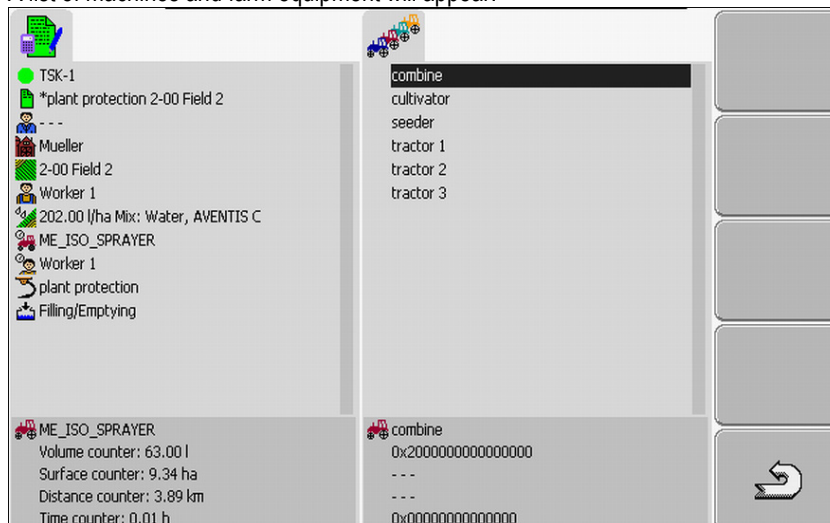
3. Click on the desired machine or equipment on the list.

For instance, a tractor with which you wish to pull a sprayer.

⇨ The following screen will appear:
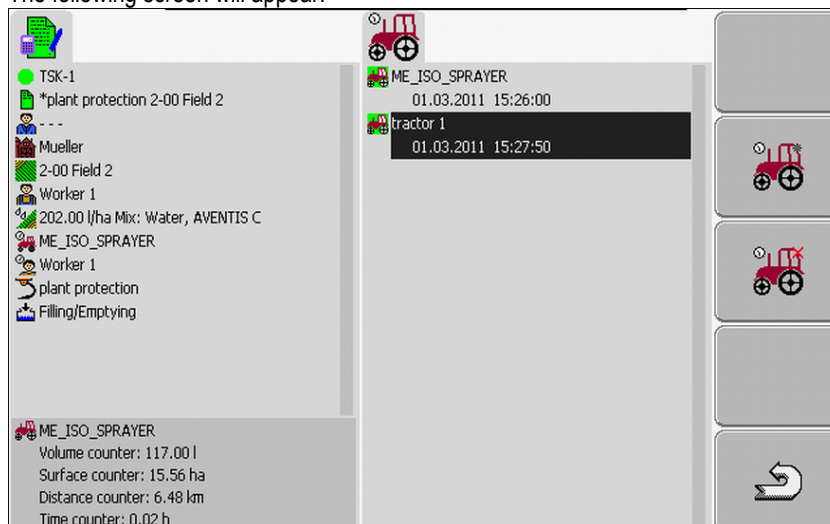
⇨ You will find the following information below the name of the machine:
- For activated machines: Date and time of activation
- For deactivated machines: Date and time of deactivation

4. Add additional machines or farm equipment.

⇨ You have selected a machine.

Procedure 2 You can reactivate a deactivated machine as follows:

1. Click on the following line on the "Task data" screen:

2. Select a deactivated machine from the list.

3. - Press and hold for 3 seconds.

⇨ Machine will be activated.

8.5.2 Selecting a worker

This step requires that you select the workers who will process the task.

You can add any number of workers.

The terminal records the length of time worked by the workers you added.

Controls

Add worker

(grey asterisk next to the image of the worker)

End worker's shift

(red x next to the image of the worker)

Icons

Workers can be activated or deactivated. The terminal will calculate the amount of time worked by the workers you activated.

The icon preceding the name of the worker indicates whether the worker is activated or deactivated.

Worker is deactivated

(red background)

Worker is activated

(green background)

no icon   No icon will precede the name of the worker assigned to the task.

Procedure 1

You can activate a worker as follows:

1. Click on the following line on the "Task data" screen:

   ⇨ The following screen will appear:
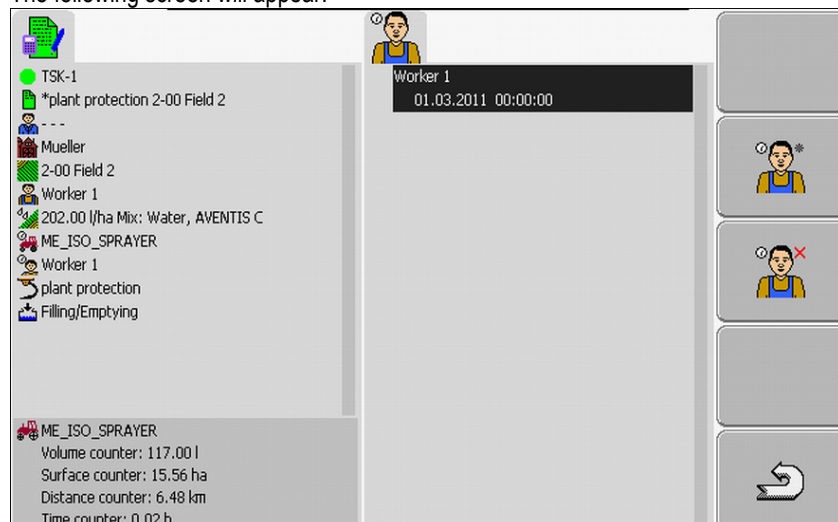
2. Select the name of an assigned or deactivated worker on the list.

3. - Press and hold for 3 seconds.
   ⇨ Worker will be activated.

Procedure 2

You can activate a worker, who was not previously assigned to the task, as follows:

1. Click on the following line on the "Task data" screen:

⇨ The following screen will appear:
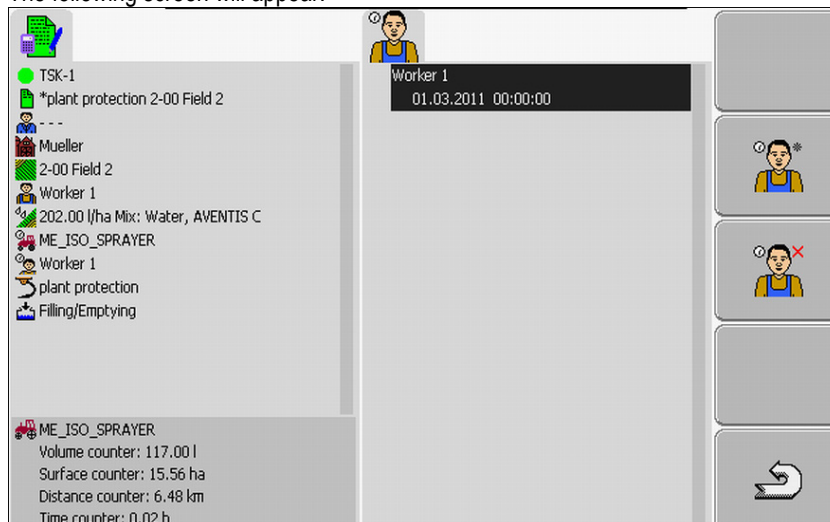
The name of the assigned worker will appear on the screen. However, this worker has not yet been activated.

2. – Add worker.

⇨ A list of names of available workers will appear.

3. Click on the desired worker on the list.

⇨ The following screen will appear:
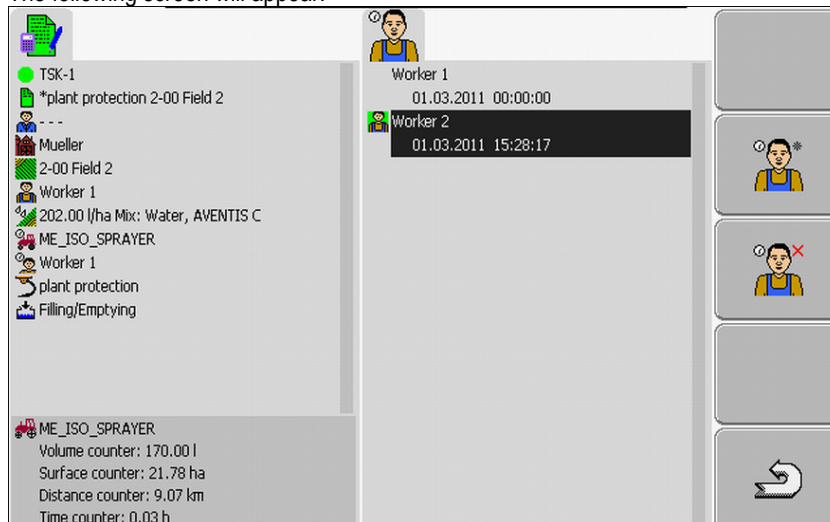
The selected worker has been added and activated.

⇨ You will find the following information below the name of the worker:

    - For activated workers: Date and time of activation

    - For deactivated workers: Date and time of deactivation

⇨ You have selected a worker.
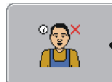
8.6 Step 5: Using the TaskManager application during work

8.6.1 Entering a change of shift

Procedure

1. Click on the following line on the "Task data" screen:

2.   - End the active worker's shift.
   ⇨ The amount of time worked by the worker will no longer be recorded from now on.

3.   – Add worker.
   ⇨ A list of names of available workers will appear.
   If the name of the desired worker does not appear, the worker has not yet been created in the Farm Management Information System.

4. Click on the desired worker on the list.
   ⇨ The worker will be added to the task.
   ⇨ The counters will begin to record the length of time spent working.

⇨ You have selected a worker.

8.6.2 Altering rates

Procedure

1. Click on the following line on the "Task data" screen:

2. Click on the first field next to the icon.

3. Enter the desired rate.

4.   - Confirm and save your entry.

⇨ The machine will adopt the rate.

8.6.3 Selecting the task processing phase

Setting the task processing phase allows you to calculate the tasks more accurately.

The phase of task processing is visible on the "Task data" screen:

The following phases exist:
- Driving time (to field)
- Preparation
- Working time
- Break
- Repair time

Procedure

1. Click on the following line on the "Task data" screen:

   TSK-(serial task number)

⇨ The following screen will appear:

2. Click on the desired phase of task processing.

⇨ The new phase is visible on the "Task data" screen.

8.6.4 Evaluating counters

When you start a task, you can evaluate the counter while you are spreading your mix.

The counter will appear on the "Task data" screen.
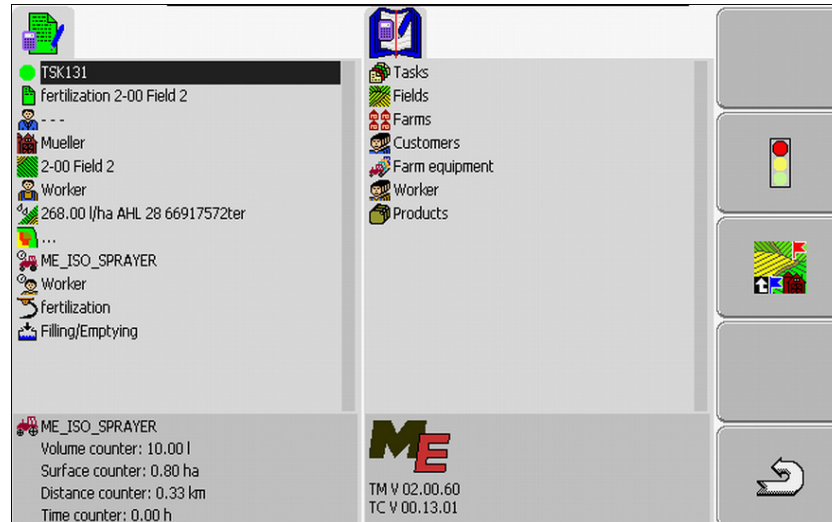
Task data screen with counter

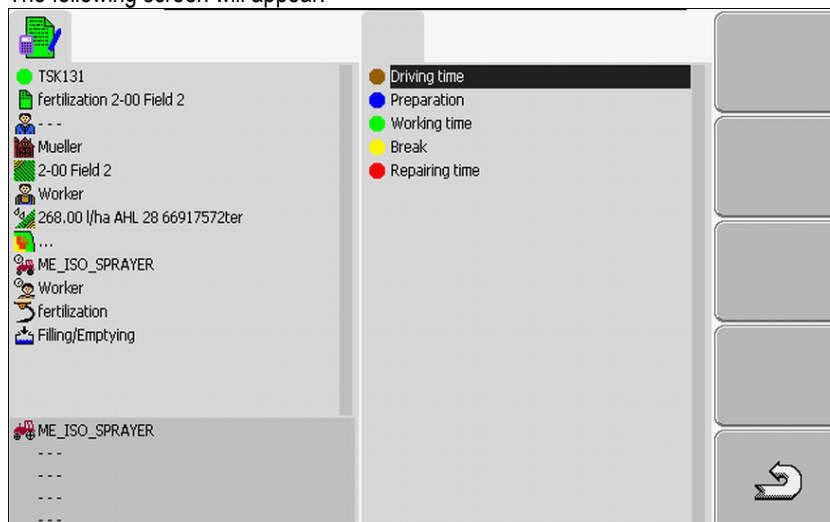The values gathered by the counter are updated two to three times per minute.

The counters displayed depend on which machine is connected.

8.6.5 Displaying the counters of a machine

Procedure

1. Switch to the "Task data" screen.

2. Click on the following line on the "Task data" screen:

   ⇨ A screen will appear with the selected machines.

3. - Click on the desired machine.

⇨ The counters of the machine you clicked on will appear on the "Task data" screen.

8.6.6 Documenting filling and emptying

With ISO machines, filling and emptying are automatically documented.

With non-ISO machines, you can document filling and emptying using the "TaskManager" application.

You can evaluate the documented values in the FarmPilot portal.

Example 1

After weighing a tipper truck, the driver can enter that he has loaded 20 tonnes of maize.

Example 2

After spreading 5000 litres of manure with a non-ISO manure truck, the driver can enter the quantity spread as 'emptying'.

Controls

Function icon	Function
	Enter filled capacity
	Enter emptied capacity

Procedure

Thus you can document the filling or emptying of a container for non-ISO machines.

☑ You have started a task.

1. Open the "Task list" screen.

2. Click on the following line:

Filling/Emptying

⇨ The following screen will appear:
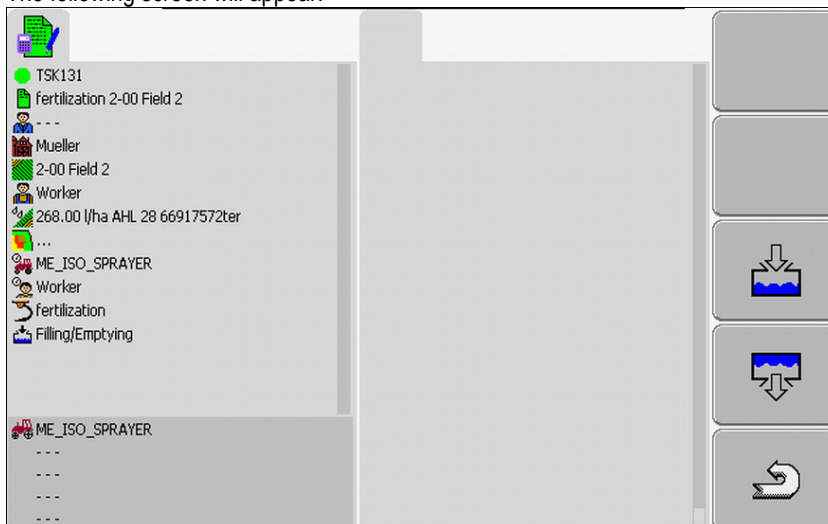
3. Press the desired function key.

- Enter filled capacity

- Enter emptied capacity

⇨ The following screen will appear:
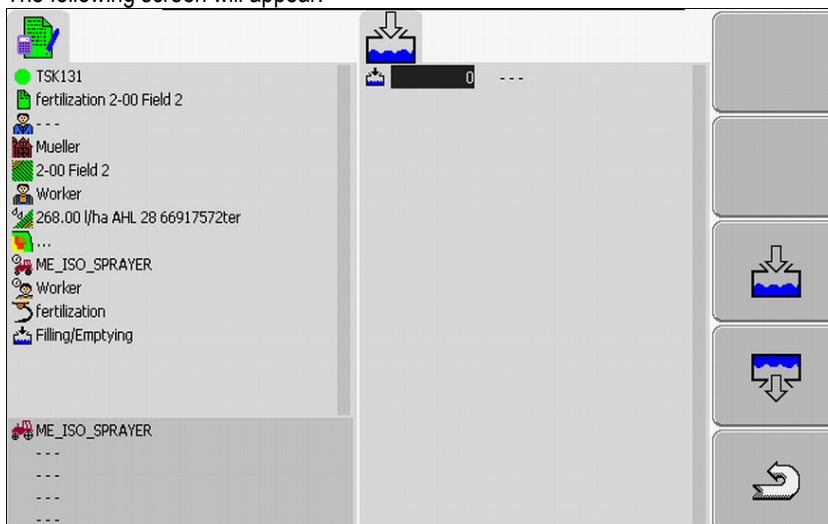
⇨ You can identify whether you are entering the filled capacity or the emptied capacity by the icon in the upper left hand corner.

4. The screen consists of three columns, in which you can enter data:

In the left hand column: Enter capacity.

In the middle column: Enter the unit.

l = litres

t = tonnes

In the right hand column: Select from a list the product to be filled or emptied.

5. - Exit screen.

6. The following notification will appear:
   "Save changes?"

7. Click "Yes" to confirm.

⇨ The "Task data" screen will appear.

8.6.7 Exiting the TaskManager application

You can exit the TaskManager application at any time. This will neither finish nor cancel the tasks.

Procedure

1. - Open the "Selection menu" application.
   ⇨ The selection menu will appear.

2. Start the desired application.

8.7 Step 6: Stopping work

You can stop a task at any time. You must decide yourself whether this task has been fully processed or must be processed further.

If you stop the work, you must decide what should happen to the task. Depending on whether the task was fully processed or must be processed further, you have the following options:
- Stop task
- Pause task

8.7.1 Stopping a task

When you stop a task, FarmPilot will consider this task to be fully completed.

Therefore, you should only stop tasks if they have been completed.

Procedure

1. Switch to the "Task data" screen.

2. - Stop task.
   ⇨ The task will be stopped.

⇨ The task will be marked red on the "Task list" screen.

8.7.2 Pausing a task

You can pause a task if you need to interrupt your work, but have not yet completed the task.

A task will only be paused if you start another task.

Procedure

☑ You have started a task and are on the "Task data" screen:

1. Switch to the "Task list" screen while the task is started.
   ⇨ The following screen will appear:
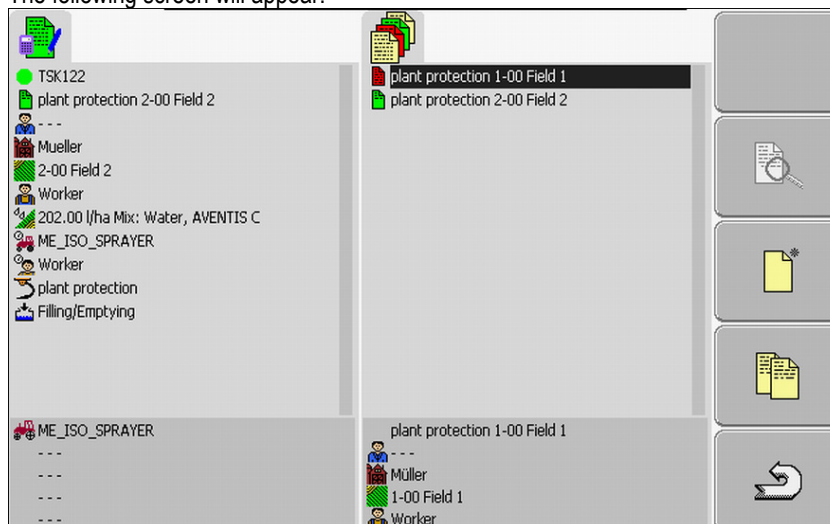
The active task is marked green.

2. Click on any task, preferably one that has been stopped.
   ⇨ The following screen will appear:

3. - Start task

   ⇨ The active task will be paused and the task you have selected will be started.

4. - Stop task.

   ⇨ The task will be stopped.

   ⇨ The original task will be marked yellow on the "Task list" screen.
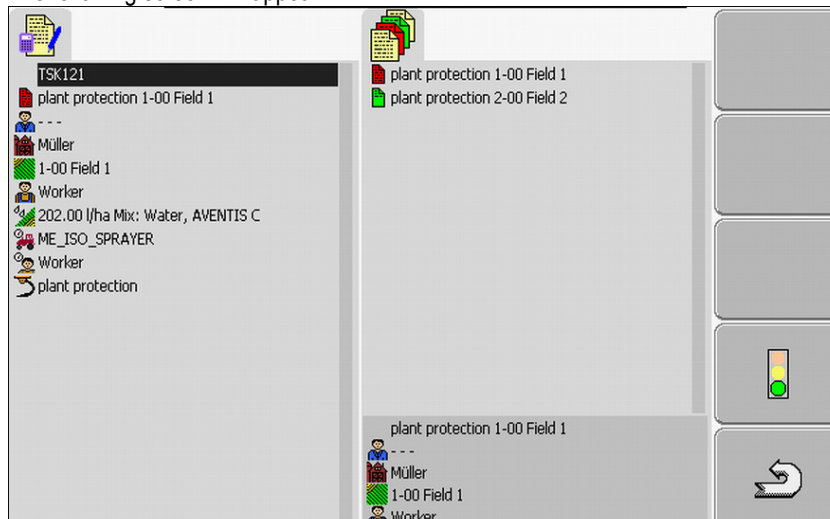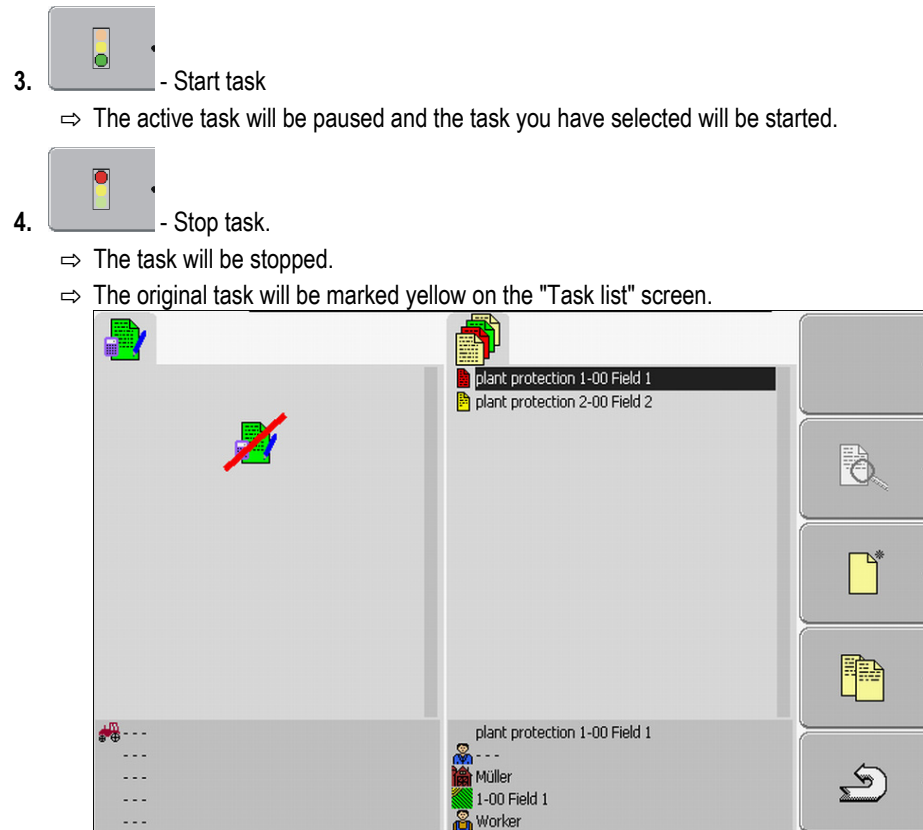
   ⇨ The paused task is now marked yellow.

8.8 Step 7: Transferring completed tasks to the Farm Management Information System

When you have finished processing a task or set of tasks, you can export the completed tasks from the terminal for further processing and evaluation.

The following options are available to you:

- Transfer tasks to the Farm Management Information System using a USB flash drive
- Send a set of tasks to the FarmPilot portal

8.8.1 Transferring tasks using a USB flash drive

Procedure

☑ You have completed all tasks.

☑ All tasks are marked red on the task list.

1. Open the "Master data" screen.

2. - Write task data to the USB flash drive.

   ⇨ Wait until the icon disappears and the LED on the USB flash drive stops flashing.

3. Remove the USB flash drive.

4. Connect the USB flash drive to the farm computer.

    5. Import and process data with the Farm Management Information System.

8.8.2 Uploading a set of tasks to the FarmPilot portal

Procedure   ☑ You have received the processed tasks via FarmPilot.

    ☑ You have completed all tasks. All tasks are marked red on the task list.

    1. Open the "Master data" screen.
      ⇨ The following screen will appear:

    2. - Upload a set of tasks to the FarmPilot portal.
      ⇨ The following notification will appear:
        "Start uploading task data?"

    3. - Confirm.
      ⇨ The data are being loaded.
      ⇨ The transferred task data will no longer be displayed on the terminal.
      ⇨ A new folder is being created on the USB flash drive: "TaskData_work(serial number)".
        Backup copies of the tasks sent to the FarmPilot portal will be created in this folder.

    ⇨ You have uploaded a set of tasks to the portal.

8.9 Important files stored on the USB flash drive

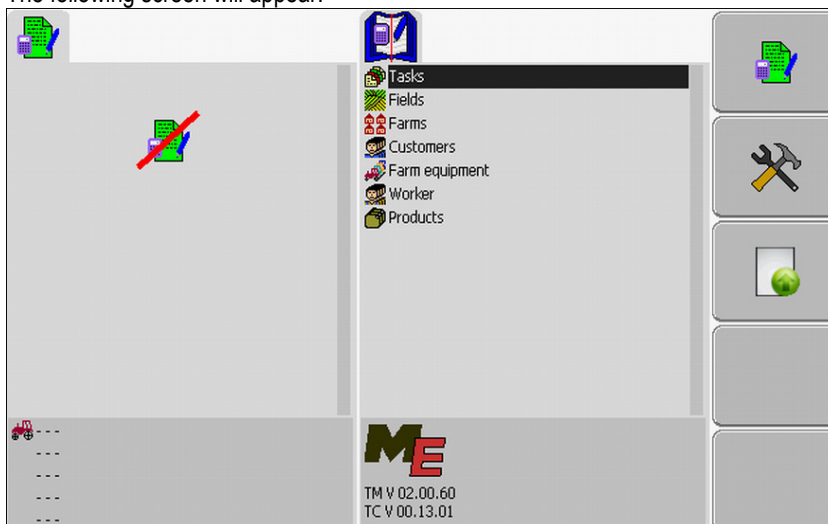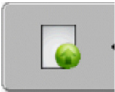All task data, field data and machine data will be saved on the USB flash drive. This makes it possible to transfer these data between the terminal and the Farm Management Information System.

All files have standardised names which may not be altered.

The folders that must be stored on the USB flash drive vary depending on whether you are using the terminal in conjunction with the FarmPilot portal or transfering the data from the Farm Management Information System using a USB flash drive.

Important files: The files specified here may appear in various folders.

    TASKDATA.xml – A file containing all task data stored in the Farm Management Information System. The file will be saved from the Farm Management Information System either onto the hard drive of the farm computer or onto a USB flash drive.

When using the FarmPilot portal, the file will automatically be created in the folder "TaskData_work".

When working without the FarmPilot portal, you must copy the file from the hard drive to the folder "TASK DATA" on the USB flash drive.

The Taskdata.xml file must not be larger than 2 MB. Files that are too large may cause problems during data transfer and slow down the terminal considerably.

GRD{number}.bin – A file containing the application cards for a field. If you wish to use the task manager in combination with application cards, you must transfer this file to the terminal as well.

Important folders:

TaskData – A folder containing all tasks of a set of tasks that are currently being processed.

This folder will only be required if you use the "TaskManager" application without FarmPilot.

Also read the chapter: Creating a "Task data" folder on the USB flash drive [➜ 62]

TaskData_work – A folder containing all tasks of a set of tasks that are currently being processed.

This folder will be created automatically when the USB flash drive is inserted into the terminal. It will then replace the task data folder until the task data are written to the USB flash drive. Thus, until the

function key is pressed.

TaskData(number) – Backup copies of the tasks sent to the FarmPilot portal will be created in this folder.

The folder will automatically be created on the USB flash drive when using the FarmPilot portal. This requires that the USB flash drive be inserted into the terminal.

9 Maintenance and servicing

NOTICE
This product does not contain any components which require maintenance or repair!   Never unscrew the casing!

9.1 Servicing and cleaning the terminal

- Press the keys with your fingertips. Avoid using your finger nails.
- Only clean the product with a soft, damp cloth.
- Only use clear water or glass cleaner.

9.2 Disposing of the unit

When it has reached the end of its service life, please dispose of this product as electronic scrap in accordance with applicable EU legislation.
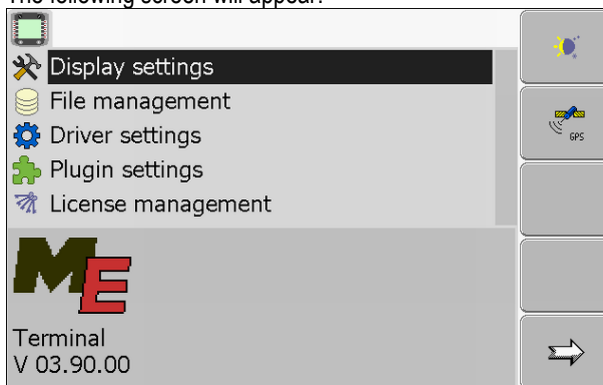
9.3 Checking the software version

Procedure

1. Open the "Service" application:

   | **Service**

2. The following screen will appear:

3. The software version can be found below the ME logo.

9.4 Technical specifications

9.4.1 Technical specifications of the terminal

Parameter	Value
Operating voltage	10 - 30 V
Operating temperature	-20 - +70 °C

Parameter	Value	
Storage temperature	-30 - +80 °C	
Dimensions (W x H x D)	340 x 250 x 100 mm	
Protection class	IP 54 in accordance with DIN 40050/15	
EMC	In accordance with ISO 14982 / PREN 55025	
ESD protection	In accordance with 10605	
Power input	At terminal: 30322527 without external equipment	Typically: 0.9 A at 13.8 V
	At terminal: 30322528 without external equipment	Typically: 0.8 A at 13.8 V
Display	VGA TFT colour display; display size (diagonal): 26 cm ; resolution: 640 x 480 pixels	
Processor	32-bit ARM920T up to 400 MHz	
RAM	64 MB SDRAM	
Boot USB	128 MB	
Keyboard	17 illuminated keys plus rotary knob	
Outputs	2 x CAN 1 x USB 1 x RS232 2 x M12 for two analogue cameras (optional)	

9.4.2 Pin assignment of port A

Port A is a 9-pin D-sub port of the ISO agricultural machinery interface (CAN).

Pin no.:	Signal:	Pin no.:	Signal
1	CAN_L	6	- Vin[1] (GND)
2	CAN_L[1]	7	CAN_H[1]
3	CAN_GND[1]	8	CAN_EN_out[2]
4	CAN_H	9	+ Vin[1]
5	CAN_EN_in		

Legend:

+Vin = voltage supply (+)

–Vin = ground (-)

[1]) - Signals marked with [1] correspond to the CiA assignment (CAN in automation).

Both signals CAN_L and CAN_L[1] and/or CAN_H and CAN_H[1] are linked internally and used to loop the CAN bus through.

Assigning CAN_EN_in to the supply potential (= +Vin) enables the terminal to be switched on.

The signals '-Vin' and 'CAN_GND' are directly linked with both connectors, therefore it is crucial to avoid differences in potential between the pins of these two connectors.

[2]) is compliant with TBC_Pwr in ISO 11783. When the terminal is switched on, this pin is under voltage (supply voltage minus approx. 1.2V).

9.4.3 Pin assignment of port B

Port B is a 9-pin D-Sub port.

The connector can be used for the following purposes depending on its assignment:

Purpose	Pins used
As second CAN interface	7, 9
As second serial interface	2, 3, 4, 5
As signal input for two digital and one analog signal.	1, 5, 6, 8

Pin assignment of port B

Pin no.:	Signal:	Pin no.:	Signal
1	Wheel sensor[1]	6	Joint shaft[2]
2	/RxD	7	CAN_H
3	/TxD	8	Operating position sensor[3]
4	Voltage supply for GPS receiver A100[4]	9	CAN_L
5	GND		

Legend:

[1]) Digital input pursuant to: ISO 11786:1995 chapter 5.2

[2]) Digital input pursuant to: ISO 11786:1995 chapter 5.3

[3]) Analog input pursuant to: ISO 11786:1995 chapter 5.5

[4]) The pin is switched in parallel with pin 4 by port C. Total loading is 600mA.

9.4.4 Pin assignment of port C

Port C is an RS232 interface

⚠ **CAUTION**
Damage to the equipment caused by short circuit Pin 4 of port C is live. The voltage depends on the operating voltage of the terminal and is used to supply the DGPS Receiver A100 from Müller Elektronik. Other GPS Receivers may suffer damage if connected to this port. Before connecting a different GPS Receiver: ◦ Check what voltage the terminal is connected to (12 V or 24 V). ◦ Check the pin assignment of the GPS Receiver. ◦ Check the allowable voltage for the GPS Receiver. ◦ Compare the terminal voltage to the allowable voltage for the GPS Receiver. ◦ Compare the pin assignment. ◦ Only connect the GPS Receiver to the terminal, if the voltage range and pin assignment of both devices don't differ from each other.

Pin assignment of port C

Pin no.:	Signal
1	DCD
2	/RxD
3	/TxD
4	Voltage supply for GPS receiver A100[1]
5	GND
6	DSR
7	RTS
8	CTS
9	RI (+5 V)

Legend:

[1]) The pin is switched in parallel with pin 4 by port B. Total loading is 600mA.

When switched on, the terminal routes current to the farm equipment that is connected via the RS232 connector. The voltage of the RS232 connector is dependent on the operating voltage of the terminal.

When connected to a 12 V battery, the terminal will transfer approx. 11.3 V to the connected equipment.

When connected to a 24 V battery, the terminal will transfer approx. 23.3 V to the connected equipment.

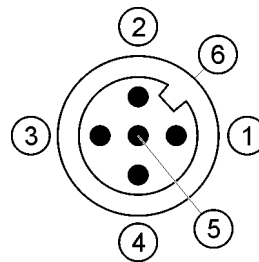The use of a GPS Receiver only requires the signals RxD and TxD as well as GND.

9.4.5 Pin assignment of camera ports 1 and 2

Ports 1 and 2 are used to connect an analogue camera. The pin assignment is identical for both ports.

Ports 1 and 2 are 5-pin, A-encoded M12 sockets. Please refer to the following table for the pin assignment.
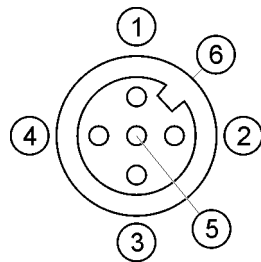
Pin assignment of the socket (in the terminal)   Pin assignment of the connector

Pin	Signal
1	Pin is exclusively intended for use by ME (do not connect anything)
2	GND
3	Pin is exclusively intended for use by ME (do not connect anything)
4	Video signal
5	Video screen
Outer sheathing	Screen

10 Notes